TECHNICAL MANUAL

OPERATION AND MAINTENANCE INSTRUCTIONS WITH PARTS LIST

RADIO TRANSMITTER T-827H/URT 01A228010-01

STEWART-WARNER ELECTRONICS
N00039-79-C-0109

1-6-88

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Note - A few pages were missing from this copy and have been replaced by pages from the preliminary manual dated 14 May 1982

DATE: 31 OCTOBER 1983

LIST OF EFFECTIVE PAGES

Insert latest changed pages; dispose of superseded pages in accordance with applicable regulations.

NOTE: On a changed page, the portion of the text affected by the latest change is indicated by a vertical line, or other change symbol, in the outer margin of the page. Changes to illustrations are indicated by miniature pointing hands. Changes to wiring diagrams are indicated by shaded areas.

Total number of pages in this manual is 752 consisting of the following:

Page No.	# Change No.
Title	0
A	0
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Radio Transmitter T-827H/URT

EE140-KA-OMI-010/E110 T827H

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Stewart-Warner Electronics

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TABLE OF CONTENTS

TABLE OF CONTENTS (CONTINUED)

TABLE OF CONTENTS (CONTINUED)

TABLE OF CONTENTS (CONTINUED)

TABLE OF CONTENTS (CONTINUED)

TABLE OF CONTENTS (CONTINUED)

LIST OF ILLUSTRATIONS

LIST OF ILLUSTRATIONS (CONTINUED)

From Preliminary Manual

LIST OF ILLUSTRATIONS (CONTINUED)

From Preliminary Manual

LIST OF ILLUSTRATIONS (CONTINUED)

From Preliminary Manual

LIST OF ILLUSTRATIONS (CONTINUED)

LIST OF ILLUSTRATIONS (CONTINUED)

LIST OF ILLUSTRATIONS (CONTINUED)

LIST OF TABLES

LIST OF TABLES (CONTINUED)

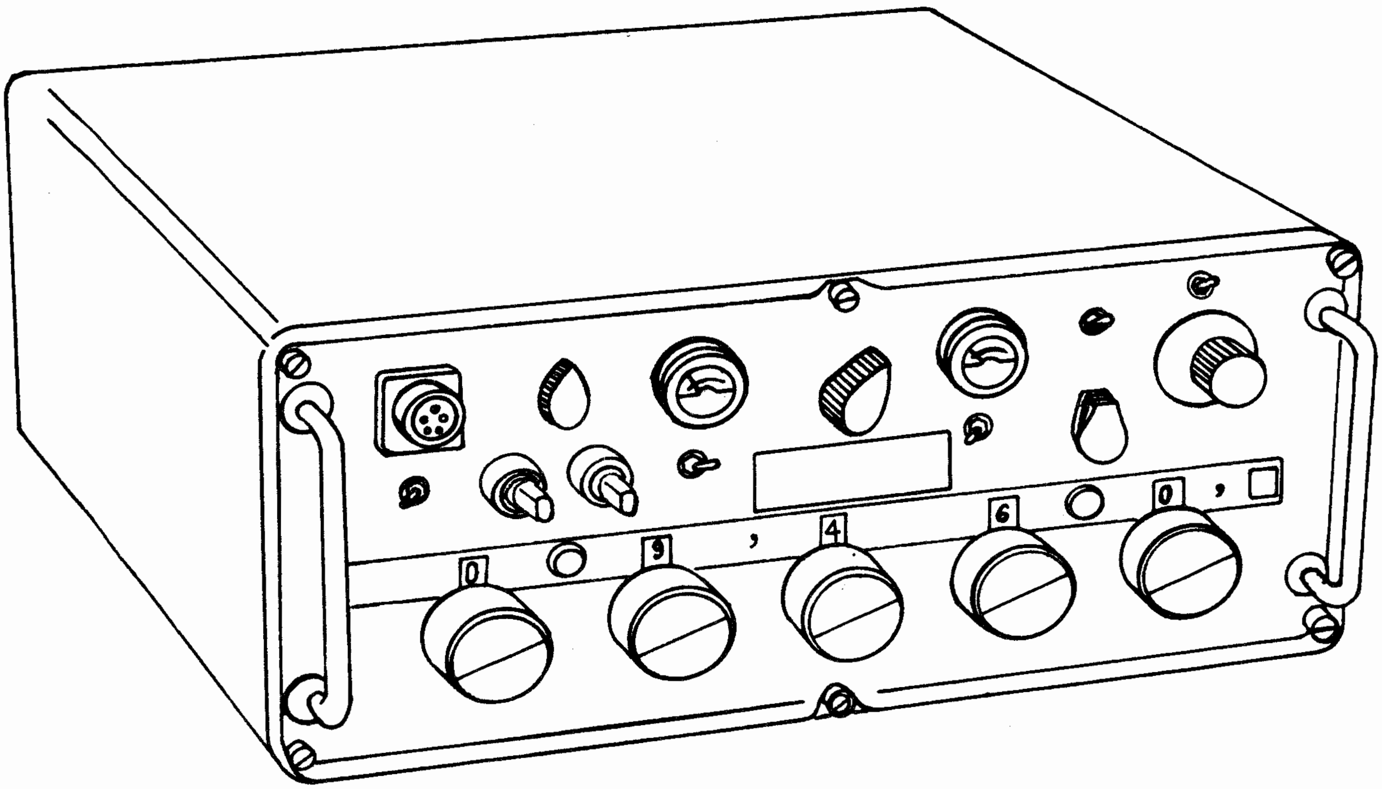


Figure 1-1. Radio Transmitter T-827H/URT

CHAPTER 1

GENERAL INFORMATION AND SAFETY PRECAUTIONS

1-0. SAFETY PRECAUTIONS. The safety precautions listed below must be carefully observed at all times when operating and servicing Radio Transmitter T-827H/URT. These safety precautions are not related to any specific procedures, and therefore do not appear elsewhere in the publication. These are recommended precautions that personnel must understand and apply during many phases of operation and maintenance.

WARNING

Failure to comply with the instructions in the following paragraphs may result in severe injury or death.

1. Make certain you are not inadvertently grounded by hand rails, exposed metal decks, or equipment frames.

2. Ground all test equipment cases, especially before starting measurements where test equipment must be held or adjusted.

3. Do not work inside the equipment with the high voltage supply turned on.

4. Under certain conditions, dangerous potentials may exist with power controls in the off position due to charges retained by capacitors. Always remove power from the equipment and ground a circuit before touching it.

5. Be careful when measuring low voltages since high voltages may be present during abnormal operation.

6. Interlock switches are safety devices for removing hazardous voltages from equipment and should be operated only by maintenance personnel.

7. Never trust a safety interlock to remove power from the equipment; always verify that voltages are not present.

8. Under no circumstances reach into an enclosure except in the presence of someone capable of removing the system power. Personnel working with or near high voltages should be familiar with resuscitation techniques.

1-1. INTRODUCTION.

1-2. This technical manual provides operation, functional description, scheduled maintenance, troubleshooting, corrective maintenance, parts list, and installation instructions for Radio Transmitter T-827H/URT (figure 1-1), and covers both organizational and depot maintenance procedures. Radio Transmitter T-827H/URT (hereafter also referred to as T-827H/URT or transmitter) is intended for use as an exciter for linear rf power amplifier AM-3924C(P)/URT used in Radio Transmitting Set AN/URT-23C(V)1. The T-827H/URT furnishes the low level rf drive for the two stage rf power amplifier circuits of the AM-3924C(P)/URT. Additionally, the T-827H/URT controls the mode of operation and the operating frequency of the AN/URT-23C(V)1. Alternatively, the T-827H/URT accepts control signals from the AM-3924C(P)/URT (APC-average power control, PPC-peak power control, and TGC-transmitter gain control). These signals control the rf power output of the T-827H/URT and ultimately the rf power output of the AN/URT-23C(V)1.

1-3. EQUIPMENT DESCRIPTION.

1-4. GENERAL. The T-827H/URT is a digitally tuned, single sideband, low-level exciter designed for NTDS LINK 11, voice, continuous wave (CW), and radio teletypewriter (RATT) communications. Available transmission modes are compatible amplitude modulation (AM), CW, RATT, upper sideband (USB), lower sideband (LSB), independent sideband (ISB), and ISB/RATT. The T-827H/URT may be operated on any of 280,000 channels spaced in 100 Hz increments in the 2.0 to 30.0 MHz frequency range. The ISB operating mode allows two different types of intelligence to be simultaneously transmitted. Transmission of Link-11 communication is also available. The T-827H/URT is also capable of simultaneous transmission of RATT on USB (using suitable ancillary teletypewriter equipment) and voice on LSB.

1-5. PHYSICAL CHARACTERISTICS. The T-827H/URT (figure 1-1) is housed in a splash-proof aluminum case. All operating controls and indicators are mounted on a front panel (except as noted in Figure 2-1), which is secured to the case by six captive screws. A retractable cable and locking chassis slides permit the chassis to be withdrawn from the case and oriented ±90 degrees from the normal horizontal position to facilitate servicing. Connectors for power and signal input/output connections are mounted on the rear panel of the case. The chassis contains the power supply transformer and reactors, receptacles for insertion of the plug-in electronic assemblies, discrete circuit elements associated with control functions, and the tuning chain-drive mechanism (see figures 1-2 and 1-3). The T-827H/URT is designed to enable mounting in a standard 19-inch rack, or stack mounting with other equipment.

1-6. ELECTRICAL CHARACTERISTICS. The T-827H/URT provides a nominal 250 milliwatt (mW) peak envelope power (PEP) rf output which may be used to drive a linear power amplifier such as AM-3924C(P)/URT. A digital tuning scheme is employed which allows manual selection of any one of 280,000 channels in 100 Hz steps in the 2.0 to 30.0 MHz range. The T-827H/URT contains circuit provisions which allow for remote or local signal input selection and automatic frequency band selection in the AM-3924C(P)/URT. The output of the T-827H/URT remains relatively constant at any frequency in response to the gain control signals from the AM-3924C(P)/URT. This in turn maintains the output of the AM-3924C(P)/URT at a nominal 1000W for all modes except compatible AM. The T-827H/URT also has the capability of handling the NTDS Link-11 signals having TADIL A format. All circuits, except two rf amplifier stages, utilize silicon solid-state devices. The digital frequency synthesis circuitry derives all necessary frequencies from an internal temperature controlled crystal oscillator with a stability better than 1 part in 10^8 per day.

1-7. REFERENCE DESIGNATIONS. The reference designations and functions of the electronic assemblies and subassemblies of the T-827H/URT are listed in Table 1-1.

1-8. <u>REFERENCE DATA.</u>

1-9. Radio Transmitter T-827H/URT manufactured by Stewart-Warner Electronics (Part Number 01A228010-01) under Contract No. N00039-79-C-0109 operates on 115 Vac ±10%, single phase, 48 to 420 Hz. Table 1-2 provides a summary of the functional characteristics including capabilities and limitations of the T-827H/URT. The crystal complement is listed in Table 1-3.

1-10. <u>EQUIPMENT, ACCESSORIES AND DOCUMENTS SUPPLIED.</u>

1-11. The equipment, accessories and documents supplied with the T-827H/URT are listed in Table 1-4.

1-12. <u>EQUIPMENT AND PUBLICATIONS REQUIRED BUT NOT SUPPLIED.</u>

1-13. The equipment and publications required but not supplied with the T-827H/URT are listed in Table 1-5.

1-14. <u>NONSTANDARD ABBREVIATIONS.</u>

1-15. Table 1-6 lists the abbreviations used in this technical manual which are not contained in MIL-STD-12.

1-16. <u>FACTORY AND FIELD CHANGES.</u>

1-17. Factory changes made to the T-827H/URT are listed in Table 1-7. Completed field changes made to the T-827H/URT are to be entered in Table 1-8.

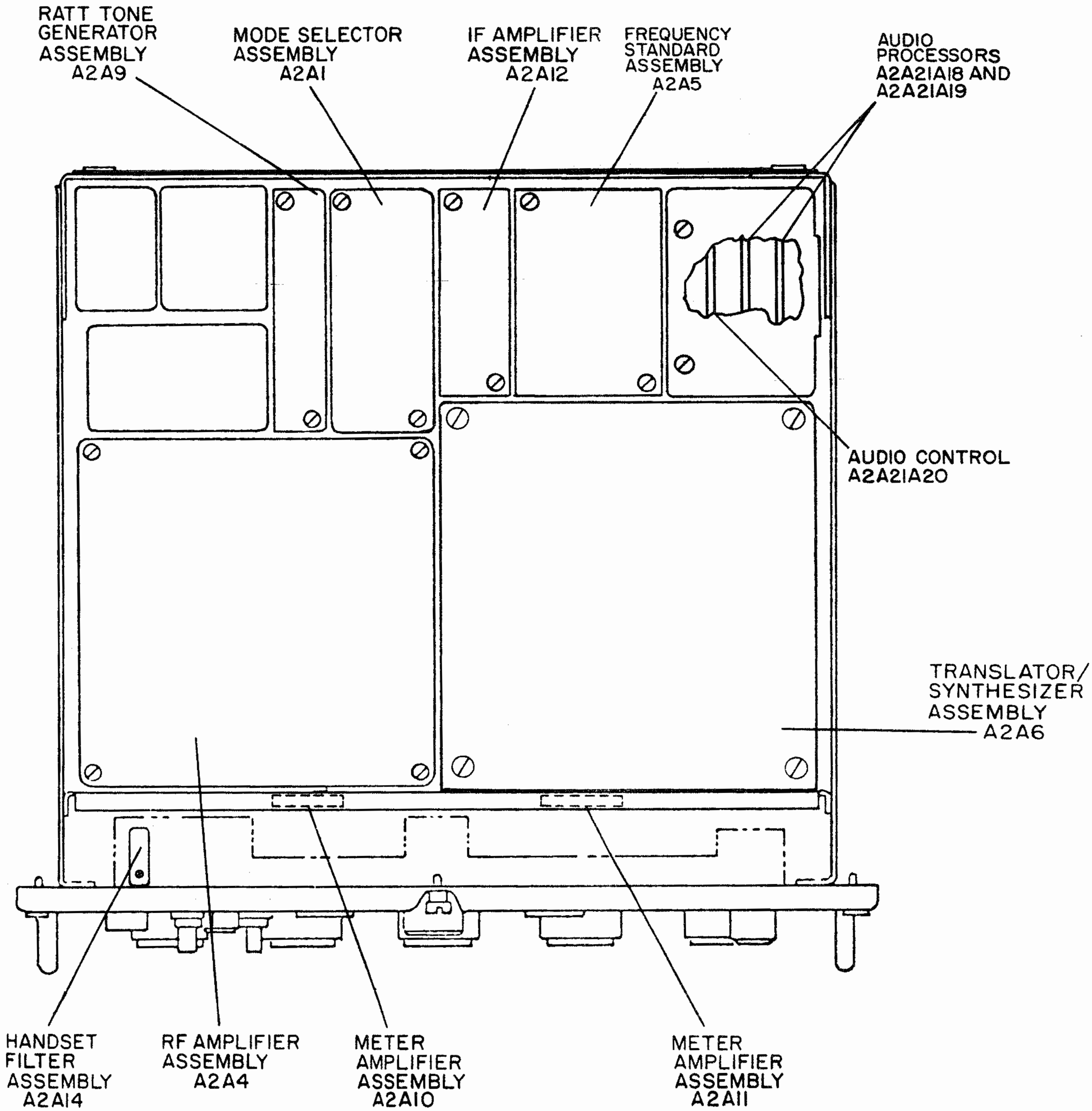


Figure 1-2. Radio Transmitter T-827H/URT, Top View, Case Removed

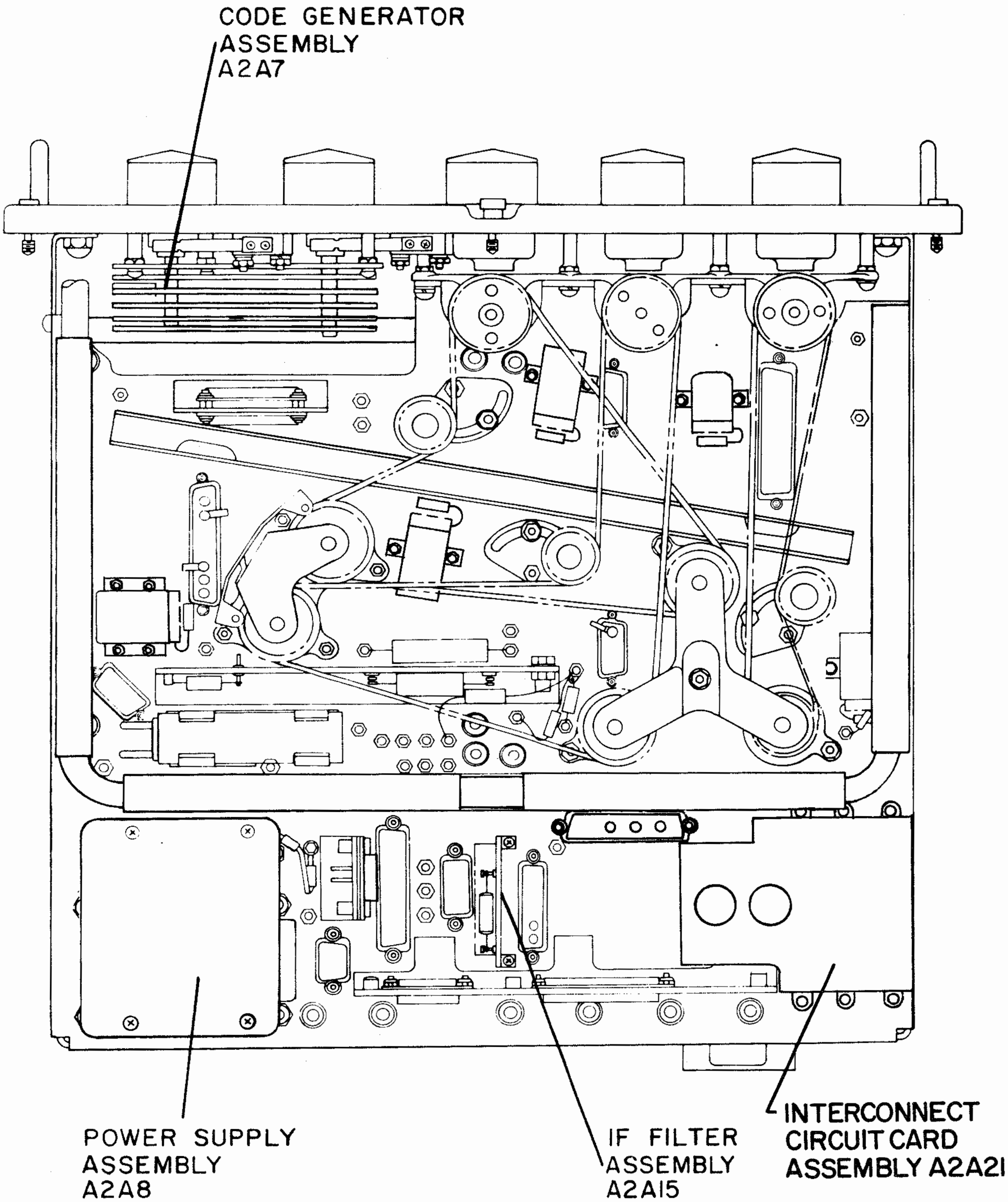


Figure 1-3. Radio Transmitter T-827H/URT, Bottom View, Case Removed

Table 1-1. Radio Transmitter T-827H/URT, Assemblies and Reference Designations

REFERENCE DESIGNATION	ASSEMBLY/ SUBASSEMBLY NAME	FUNCTION
A1	Transmitter Case	Houses Radio Transmitter T-827H/URT.
A1A1	Filter Box Assembly	Filters input and output lines to prevent rf transmission back on these lines.
A2	Transmitter Main Frame	Provides mounting base for components.
A2A1	Mode Selector Assembly	Modulates audio onto 500 kHz carrier, suppresses carrier and undesired sideband, provides carrier reinsertion in AM and SSB pilot carrier modes and controls carrier reinsertion level.
A2A2 and A2A3	Not used	
A2A4	RF Amplifier Assembly	Amplifies low-level output of translator/synthesizer to a level suitable for driving AM-3924C(P)/ URT.
A2A5	Frequency Standard Assembly	Provides accurate standard frequency to which all synthesized frequencies are referenced. Provides accurate 500 kHz to Mode Selector Assembly for reinsertion of 500 kHz IF signal. Provides accurate 1 MHz to which RATT tone frequencies are synthesized. Provides accurate 500 kHz and 1 MHz to Translator/Synthesizer connectors to meet requirements for interchangeability with older Translator/Synthesizers.
A2A6	Translator/ Synthesizer Assembly	Receives basic oscillator frequency from frequency standard, and synthesizes required frequency signals for triple-conversion mixers. The mixers translate the modulated 500 kHz IF amplifier output signal to the final desired rf frequency.

Table 1-1. Radio Transmitter T-827H/URT, Assemblies and Reference Designations (Continued)

REFERENCE DESIGNATION	ASSEMBLY/ SUBASSEMBLY NAME	FUNCTION
A2A7	Code Generator Assembly	Produces control signals for automatic tuning of rf amplifier, 10 MHz/1 MHz synthesizer, and AM-3924C(P)/URT.
A2A8	Power Supply Assembly	Produces required dc operating voltages.
A2A9	RATT Tone Generator Assembly	Converts coded input teletypewriter signal to audio signal varying in tone for space and mark code.
A2A10	Meter Amplifier Assembly	Amplifies a portion of the LSB audio input signal so that it will drive the LSB LINE LEVEL meter.
A2A11	Meter Amplifier Assembly	Amplifies a portion of the USB input signal so that it will drive the USB LINE LEVEL meter.
A2A12	IF Amplifier Assembly	Amplifies mode selector output signal to a level suitable to drive translator. Gain of IF Amplifier is controlled to prevent overdriving the AM-3924C(P)/URT.
A2A13	Not used	
A2A14	Handset Filter Assembly	Filters audio input from handset microphone.
A2A15	IF Filter Assembly	Filters peak power control (PPC), average power control (APC), and +20 volt input lines to the IF amplifier, and isolates external +20 volt AM carrier reinsertion control line from internal control line, except during AM mode of operation.
A2A16 through A2A20	Not used	
A2A21	Interconnect Board Assembly	Interfaces Audio Processor and Audio Control circuit cards with transmitter chassis.

Table 1-1. Radio Transmitter T-827H/URT, Assemblies and Reference Designations (Continued)

REFERENCE DESIGNATION	ASSEMBLY/ SUBASSEMBLY NAME	FUNCTION
A2A21A18	Audio Processor Assembly	Amplifies and compresses USB NORMAL audio input and processes USB DATA input to produce desired level and peak to average ratio.
A2A21A19	Audio Processor Assembly	Amplifies and compresses LSB NORMAL audio input and processes LSB DATA input to produce desired level and peak to average ratio.
A2A21A20	Audio Control Assembly	Enables, inhibits, or resets TGC (transmitter gain control) in response to DATA audio.

Table 1-2. Radio Transmitter T-827H/URT,
Functional Characteristics

FUNCTION	CHARACTERISTIC
Frequency range	2.0 to 30.0 MHz in 100 Hz increments from 20 to 29.9999 MHz.
Modes of operation	USB, LSB, ISB, RATT, ISB/RATT CW and compatible AM.
Keying rates	32 baud in CW mode, 80 baud in RATT mode with ±85 or ±425 Hz frequency shift centered on 2 kHz.
Data rate	2250 bits/second, TADIL A Link 11.
Power output	250 mW PEP for USB, LSB, ISB, and ISB/RATT; 125 mW average for CW and RATT; 62.5 mW average for compatible AM
Output impedance	50 ohms.
Power source	115 Vac ±10%, 48-420 Hz, single phase.
Power consumption	75 watts maximum.
Frequency control	Digital frequency synthesizer referenced to internal standard or external 5 MHz frequency standard.
Frequency stability	1 part in 10^8 per day maximum drift rate.
IM distortion	-35 dB maximum at 250 mW PEP, -40 dB at 100 mW PEP.
Carrier suppression	-50 dB minimum.
Opposite sideband suppression	-60 dB minimum.
Harmonic suppression	-40 dB (second order); -45 dB (all higher orders).
Spurious emissions	-40 dB maximum in-band, -50 dB maximum out-of-band.
Ambient temperature limits	0° to 50°C operating; -62° to +71°C storage.
Humidity range	0 to 95% relative humidity.

Table 1-3. Radio Transmitter T-827H/URT, Crystal Complement

REFERENCE DESIGNATION	TYPE OF CUT	CRYSTAL FREQUENCY (MHz)	OPERATING TEMPERATURE RANGE (DEGREES CELSIUS)	TOLERANCE PERCENT
A2A4A9Y1	AT	21.00000	0 to 80	0.004
A2A4A10Y1	AT	19.00000	0 to 80	0.004
A2A4A19Y1	AT	28.50000	0 to 80	0.004
A2A5A1Y1	AT	5.000000	86 to 91	0.001

Table 1-4. Equipment, Accessories and Documents Supplied

QTY	NAME OR NOMENCLATURE	REF. DESIG/ UNIT NO.	OVERALL DIMENSIONS (H x W x D INCHES)	WEIGHT AND VOLUME
1	Radio Transmitter T-827H/URT		7.1 x 17.4 x 16.9	1.2 cu.ft. 70 lb.
2	Technical Manual EE140-KA-OMI-010/E110 T827H Operation and Maintenance Instructions With Parts List, Radio Transmitter T-827H/URT			

Table 1-5. Equipment and Publications Required but Not Supplied

CATEGORY	RECOMMENDED EQUIPMENT	ALTERNATE	EQUIPMENT TEST PARAMETERS	APPLICATION
Frequency Standard	AN/URQ-10	28480-8640B	Standard Frequency: 100 kHz, 1 MHz, 5 MHz, 1 part in 10^9 stability.	Troubleshooting and scheduled maintenance.
Electronic Counter	AN/USM-207	28480-5245L	Frequency to 30 MHz.	Troubleshooting and scheduled maintenance.
Oscilloscope	AN/USM-281	AN/USM-281E with 30669-1902	Dual trace, dc to 34 MHz bandwidth.	Troubleshooting and scheduled maintenance.
Oscilloscope, Storage	AN/USM-310(V)1		Dual trace, variable persistence storage.	Troubleshooting and maintenance.
Multimeter, AC-DC	AN/USM-311	AN/PSM-4( )	General voltage, current and resistance measurements.	Troubleshooting and maintenance procedures.
Differential Voltmeter	AN/USM-381		Null measurement of dc voltages 0 to 1100 V; dc voltage measurement to 15,000 V.	Troubleshooting and scheduled maintenance.
RF Dummy Load	DA-91A/U		2 to 30 MHz at 50 ohms and 250 mW.	Troubleshooting and scheduled maintenance.
Plug-In Unit Test Set	TS-2135/WRC-1 (MOD)	None	Simulates actual operating conditions.	Depot maintenance of RATT Tone Generator Assembly A2A9.

Table 1-5. Equipment and Publications Required but Not Supplied (Continued)

CATEGORY	RECOMMENDED EQUIPMENT	ALTERNATE	EQUIPMENT TEST PARAMETERS	APPLICATION
Translator/ Synthesizer Test Fixture	TS-3665/WRC-1	None	Simulates actual operating conditions.	Depot maintenance of Translator/Synthesizer Assembly A2A6.
Frequency Standard Test Fixture	TS-3667/WRC-1	None	Simulates actual operating conditions.	Depot maintenance of Frequency Standard Assembly A2A5.
Amplifier/Mode Selector Test Fixture	TS-3670/WRC-1	None	Simulates actual operating conditions.	Depot maintenance of Mode Selector Assembly A2A1.
RF Amplifier Test Fixture	TS-3685/WRC-1	None	Simulates actual operating conditions.	Depot maintenance of RF Amplifier Assembly A2A4.
Test Set, Audio, Radio Transmitter	TS-3962/URT	None	Simulates actual operating conditions.	Troubleshooting and maintenance.
Link 11 Module Test Set	98738-01A228486-01	None	Simulates actual operating conditions.	Troubleshooting and maintenance.
Special Test Circuits	See Figure 4-1, note 7 of Figure 5-1, Figure 6-1	None	Simulates actual operating conditions.	Depot maintenance.

Table 1-5. Equipment and Publications Required but Not Supplied (Continued)

CATEGORY	RECOMMENDED EQUIPMENT	ALTERNATE	EQUIPMENT TEST PARAMETERS	APPLICATION
Two-Tone Audio Signal Generator	09553-TF-2005	SG-376/U	Single and two-tone audio signals of 1000, 1300 and 1600 Hz at 150 mVrms each into 600 ohm load.	Troubleshooting and maintenance.
RF Millivolt-meter with RF Probe tip RF Probe 50 Ohm BNC Adapter	04901-92B-S5 04901-91-12F 04901-91-13B 04901-91-8B	04901-91CA	RF Voltages 30 mV rms to 2.5 Vrms.	Troubleshooting and scheduled maintenance.
Distortion Analyzer	28480-334A	28480-332A	500 kHz fundamental frequency, 1% distortion.	Depot troubleshooting and maintenance.
AC Volt-meter	28480-400E	AN/USM-143	AC Voltage, 500 kHz, 10 mVrms.	Troubleshooting and maintenance.
Multimeter Probe-T-Connector	28480-410C 28480-11042A	28480-410B	RF voltages to 3V rms, 2 to 30 MHz.	Troubleshooting and scheduled maintenance
Function Generator	28480-3300A		Sinusoidal and square wave outputs.	Troubleshooting.
Power Supply	28480-6206B		Supply 50 Vdc at 300 mA dc.	Troubleshooting and maintenance.

Table 1-5. Equipment and Publications Required but Not Supplied (Continued)

CATEGORY	RECOMMENDED EQUIPMENT	ALTERNATE	EQUIPMENT TEST PARAMETERS	APPLICATION
Spectrum Analyzer	28480-8553B-E03	TS-1397/U	Test intermodulation rf products at 2 to 30 MHz with 100 Hz resolution.	Depot Troubleshooting and maintenance.
Spectrum Analyzer AC Probe	28480-8553B-E30 28480-1121A		As above, with addition of tracking generator for vernier tests.	Depot troubleshooting and maintenance.
RF Signal Generator	28480-8640B-001-003	28480-606B	0.5 to 33.929 MHz; 0.01 to 1.2 volts.	Troubleshooting.
True RMS Voltmeter	50423-323-20-MOD40	28480-3400A	100 uV to 300 V 10 Hz to 20 MHz.	Troubleshooting and maintenance.
Digital Multimeter	89536-8800A/AA	AN/USM-381 (dc voltages only)	Dc and ac voltage to 300 V.	Troubleshooting and scheduled maintenance.
Sampler Box B	See Figure 4-1		2 to 30 MHz, 10 Vrms.	Troubleshooting and maintenance.
BNC T-Connector	UG-274A/U		Impedance: 50 ohms.	Troubleshooting and scheduled maintenance.
BNC Angle Adapter	UG-306B/U		Impedance: 50 ohms.	Troubleshooting and scheduled maintenance.
BNC Straight Adapter	UG-491B/U		Impedance: 50 ohms.	Troubleshooting and scheduled maintenance.
Cw Hand Key	NT26026			Troubleshooting and scheduled maintenance.

Table 1-5. Equipment and Publications Required but Not Supplied (Continued)

CATEGORY	RECOMMENDED EQUIPMENT	ALTERNATE	EQUIPMENT TEST PARAMETERS	APPLICATION
Extender Cables A7W1, A7W2	98738-30A226271-21-11, 98738-30A226280-21-11		Mate with Mode Selector Assembly A2A1.	Troubleshooting and maintenance.
Extender Cable A7W4	98738-30A226277-21-11		Mates with IF Amplifier Assembly A2A12.	Troubleshooting and maintenance procedures.
Extender Cable A7W5	98738-30A226276-21-11		Mates with RATT Tone Generator A2A9.	Troubleshooting and maintenance procedures.
Extender Cables A7W11, A7W12	98738-30A226273-21-11, 98738-30A226426-21-11		Mates with RF Amplifier Assembly A2A4.	Troubleshooting and maintenance procedures.
Extender Cable A7W13	98738-30A226274-21-11		Mates with Frequency Standard Assembly A2A5.	Troubleshooting and maintenance procedures.
Extender Cables A7W14, A7W15	98738-30A226275-21-11 (2 required)		Mates with Translator/Synthesizer Assembly A2A6.	Troubleshooting and maintenance procedures.
Extender Card	98738-01A228390-01		Mates with Translator/Synthesizer Card A6A12.	Troubleshooting and maintenance procedures.
Extender Card	98738-01A228392-01		Mates with Translator/Synthesizer Card A6A13.	Troubleshooting and maintenance procedures.

Table 1-5. Equipment and Publications Required but Not Supplied (Continued)

CATEGORY	RECOMMENDED EQUIPMENT	ALTERNATE	EQUIPMENT TEST PARAMETERS	APPLICATION
Extender Card	98738-01A228394-01		Mates with Translator/Synthesizer Card A6A14.	Troubleshooting and maintenance procedures.
Extender Card	98738-01A228396-01		Mates with Translator/Synthesizer card A6A16.	Troubleshooting and maintenance procedures.
Extender Card	98738-01A228398-01		Mates with Translator/Synthesizer Card A6A17.	Troubleshooting and maintenance procedures.
Extender Card	98738-01A228400-01		Mates with Translator/Synthesizer Card A6A18.	Troubleshooting and maintenance procedures.
Extender Cards	98738-01A228467-01		Mates with Audio Processor cards A2A21A18, A2A21A19.	Troubleshooting and maintenance procedures.
Extender Card	98738-01A228467-02		Mates with Audio Control card A2A21A20.	Troubleshooting and maintenance procedures.
RF Insert Extractor Tool	91146-CET-C6B	MS1780		Maintenance.
Detergent, General Purpose	MIL-D-16791			Scheduled maintenance.

Table 1-5. Equipment and Publications Required but Not Supplied (Continued)

CATEGORY	RECOMMENDED EQUIPMENT	ALTERNATE	EQUIPMENT TEST PARAMETERS	APPLICATION
Grease	MIL-G-23827	Standard Oil Co. Instrument Grease. PED-3527	NSN 9150-00-985-7243	Lubricating chain drive mechanism. Chain does not require lubrication.
Trichloroethane	0-T-620		NSN-6210-00-930-6311	Component cleaning.
Vacuum Cleaner, Tank Type				Scheduled maintenance.
Cloth				Scheduled maintenance.
Electronic Installation Maintenance Book	NAVSHIPS 0967-LP-000-0110			Installation procedures.
Electronic Installation Maintenance Book	NAVSHIPS 0967-LP-000-0010			Installation safety precautions.

Table 1-6. Nonstandard Abbreviations

ABBREVIATION	TERM
APC	Average power control
ISB	Independent sideband
PEP	Peak envelope power
PPC	Peak power control
PTT	Push-to-talk
RATT [1]	Radio teletype
FSK [1]	Frequency shift keying
TTY [1]	Teletypewriter
TGC	Transmitter Gain Control
SSB	Single Sideband
NTDS	Naval Tactical Data System
TADIL A	Tactical Digital Information Links A

[1]Used Interchangeably.

Table 1-7. Radio Transmitter T-827H/URT, Factory Changes

CHANGE NUMBER	NOMENCLATURE	DESCRIPTION
Stewart-Warner CA 95096	22 MHz Subassembly A2A4A12, P/N 01A226182-21-11, Rev. C and higher.	A2A4A12C5 changed from 4031977-0713 to 21P228300-13.
Stewart-Warner CA 95096	23 MHz Subassembly A2A4A13, P/N 01A226182-22-11, Rev. C and higher.	A2A4A13C5 changed from 4031977-0707 to 21P228300-07.
Stewart-Warner CA 95096	3 MHz Subassembly A2A4A21, P/N 01A226184-21-11, Rev. C and higher.	A2A4A21C2 changed from 4031979-0702 to 21P228301-01; A2A4A21C3 changed from 4031979-0701 to 21P228301-01.
Stewart-Warner CA 95096 and CA 95260	100 kHz Rotor Subassembly A2A4A30, P/N 01A226155-21-11, Rev. E and higher for electrical parts, Rev. F and higher for A2A4A30MP1.	Changes in electrical and mechanical parts as indicated below:
	FROM	TO
A2A4A30C1	4031977-0755	21P228300-55
C2	-0753	-53
C3	-0747	-47
C4	-0742	-42
C5	-0731	-31
C6	-0716	-16
C10	-0740	-40
C11	-0735	-35
C12	-0729	-29
C13	-0723	-23
C14	-0717	-17
C15	-0709	-09
C16	4031977-0703	21P228300-03
A2A4A30MP1	4030611-0502	01A228403-01
Stewart-Warner CA 95096 and CA 95260	100 kHz Rotor Subassembly A2A4A33, P/N 01A226153-21-11, Rev. E and higher for electrical parts, Rev. F and higher for A2A4A33MP1.	Changes in electrical and mechanical parts as indicated below.

Table 1-7. Radio Transmitter T-827H/URT, Factory Changes (Continued)

CHANGE NUMBER	NOMENCLATURE	FROM	TO	DESCRIPTION
	A2A4A33C1	4031977-0754	21P228300-54	
	C2	-0750	-50	
	C3	-0745	-45	
	C4	-0738	-38	
	C5	-0728	-28	
	C6	-0714	-14	
	C10	-0742	-42	
	C11	-0736	-36	
	C12	-0730	-30	
	C13	-0724	-24	
	C14	-0718	-18	
	C15	-0711	-11	
	C16	4031977-0704	21P228300-04	
	A2A4A33MP1	4030161-0502	01A228403-01	
Stewart-Warner CA 95603	RF Chassis Assembly, P/N 01A226218-21-11, Rev. F and higher.			A2A4MP72 changed from 01A226223-21-11 to either 01A226223-21-11 or 01A226223-22-11 (the two are interchangeable.)
Stewart-Warner CA 95607	Megahertz Subassembly A2A4A2 thru A2A4A29, Rev. D and higher.			E1 on A2A4A2 thru A2A4A29 changed from 4032378-0501 to 4032378-0501 or 39P228459-01 (the two are interchangeable).
Stewart-Warner CA 95725	RF Amplifier Assembly A2A4, P/N 01A226052-21-11, Rev. L and higher.			A2A4MP9 thru A2A4MP12 changed from 4030951-0502 to 47P228368-01.
Stewart-Warner CA 95736	Circuit Card Assembly, 10 MHz/ 1 MHz A2A6A13, P/N 01A226068-21-11, Rev. T and higher.			A2A6A13R32 changed from selectable to RCR05G105JS.
Stewart-Warner CA 95736	Circuit Card Assembly, Frequency Generator A2A6A16, P/N 01A228330-01, Rev. C and higher.			A2A6A16U11 changed from 48P226447-01 to 48P228371-01; A2A6-A16U15, U16 changed from 48P226460-01 to 48P228370-01.

Table 1-7. Radio Transmitter T-827H/URT, Factory Changes (Continued)

CHANGE NUMBER	NOMENCLATURE	DESCRIPTION
Stewart-Warner CA 95797	Circuit Card Assembly, Power Supply A2A6A15, P/N 01A228311-02, Rev. H and higher.	A2A6A15C13 changed from M39014/02-1230 to M39014/02-1234.
Stewart-Warner CA 95919	Circuit Card Assembly, Power Supply A2A6A15, P/N 01A228311-02, Rev. K and lower. See also Stewart-Warner CA 96330.	A2A6A15R14, R16 is RLR07C362GR on A2A6A15 assemblies marked Rev. K or lower. Also, A2A6-A15R15 may have any one of the following values: RLR07C331GR, 391, 471, 561, 681, 821, 102, 122, 152, 182, 301.
Stewart-Warner CA 95920	Front Panel Assembly, P/N 01A226228-22-11, Rev. K and higher.	A2MP33 through A2MP35 changed from 4010034-0001 to 34P228549-01.
Stewart-Warner CA 95997	Oscillator Oven PCB Assembly, A2A5A1, P/N 01A226530-22-11, Rev. P and higher.	A2A5A1R11 relocated.
Stewart-Warner CA 96021	500 kHz Gates Subassembly A2A1A4, P/N 01A228169-01, Rev. C and higher.	A2A1A4E10 deleted.
Stewart-Warner CA 96038	Front Panel Assembly, P/N 01A226228-22-11, Rev. L and higher.	A2F1 and A2F2 changed from F02B250V1-1/2AS to F02B250V1-1/2A.
Stewart-Warner CA 96073	Circuit Card Assembly, 1 kHz/100 Hz No. 2 A2A6A12, P/N 01A226071-21-11, Rev. N and higher.	A2A6A12R16 changed from M39015/3-004XM to RJR24FX101M.
Stewart-Warner CA 96096	100 kHz Circuit Card Assembly A2A6A17, P/N 01A228327-01 and -02, Rev. F and higher.	A2A6A17CR1, A2A6A17E5, A2A6A17E6 added. A2A6A17CR1 is mounted on terminals A2A6A17E5, E6 on A2A6A17 assemblies marked 01A228-327-01. On assemblies marked 01A228327-02, A2A6A17CR1 is mounted in plated-thru holes.

Table 1-7. Radio Transmitter T-827H/URT, Factory Changes (Continued)

CHANGE NUMBER	NOMENCLATURE	DESCRIPTION
Stewart-Warner CA 96096	Translator/Synthesizer Assembly A2A6, P/N 99A228201-01, Rev. D and higher.	A2A6A17 changed from 01A228327-01 to either 01A228327-01 <u>or</u> 01A228327-02 (the two are interchangeable).
Stewart-Warner CA 96119	Power Supply Assembly A2A8, P/N 01A226181-22-11, Rev. L and higher.	A2A8Q1 changed from JAN2N5415 to either JAN2N5415 or JAN2N3634 (the two are interchangeable).
Stewart-Warner CA 96146	RF Translator Assembly A2A6A8, P/N P/N 01A227277-02, Rev. J and higher.	A2A6A8FL1, A2A6A8FL2, A2A6A8FL3 changed as follows:

	FROM	TO
A2A6A8FL1	08P228422-01	08P228422-01 or 4031908-0701
A2A6A8FL2	08P228421-01	08P228421-01 or 4031909-0701
A2A6A8FL3	08P228423-01	08P228423-01 or 4031907-0701

CHANGE NUMBER	NOMENCLATURE	DESCRIPTION
Stewart-Warner CA 96175 & CA 96232	Mode Selector Assembly A2A1, P/N 01A228170-01, Rev. F and higher.	A2A1S1 changed from 4030830-0701 to either 4030830-0701 <u>or</u> 40P228622-01 (the two are interchangeable). A2A1E9 deleted.
Stewart-Warner CA 96208	RF Translator Circuit Card Assembly A2A6A8, P/N 01A227277-02, Rev. L and higher.	A2A6A8T4 thru A2A6A8-T7 changed from 24P226471-01 or 24P228306-01 to 24P226471-01.
Stewart-Warner CA 96226	Audio Control Assembly A2A21A20, P/N 01A228406-01, Rev. F and higher.	A2A21A20CR19 and A2A21A20CR21 changed from JAN1N4148-1 to JAN1N649-1.
Stewart-Warner CA 96226	Audio Processor Assembly A2A21A18, P/N 01A228409-01, Rev. F and higher.	A2A21A18CR2 changed from JAN1N4148-1 to JAN1N649-1.

Table 1-7. Radio Transmitter T-827H/URT, Factory Changes (Continued)

CHANGE NUMBER	NOMENCLATURE	DESCRIPTION
Stewart-Warner CA 96232	Mode Selector Assembly A2A1, P/N 01A228170-01, Rev. G and higher.	A2A1C4 lead moved from A2A1E9 to A2A1E2; A2A1E9 deleted.
Stewart-Warner CA 96254	RF Amplifier Circuit Card Assembly A2A4A38, P/N 01A226162-21-11, Rev. N and higher.	A2A4A38K1 changed from M5757/10-017 to M39016/6-014L.
Stewart-Warner CA 96265	5 MHz Reference Control Subassembly A2A5A4, P/N 01A228551-01, Rev. C and higher.	A2A5A4CR7 changed from JAN1N4120 to JAN1N4476; two nylon flat washers (04S131026-5) added to attaching hardware for A2A5A4Q5.
Stewart-Warner CA 96319	Transmitter Main Frame A2, P/N 01A228011-01, Rev. F and higher.	A2A5 changed from 01A228203-01 to either 01A228203-01 or 01A228490-01 (the two are interchangeable).
Stewart-Warner CA 96330	Circuit Card Assembly, Power Supply A2A6A15, P/N 01A228311-02, Rev. L and higher.	On A2A6A15 assemblies marked Rev. L or higher, A2A6A15R6 changed from RCR07G-273JS to RCR07G473JS; A2A6A15R14 changed from RCR07C3601GR to RLR07C4301GR; A2A6A15R16 changed from RCR07C3601GR to RLR07C3001GR; A2A6A15R15 may have any one of the following values; RLR07C1101GR, 1301, 1501, 1601, 1801, 2001, 2201, 2401; capacitor A2A6A15C7 (M39014/02-1218) is added. On assemblies marked 01A228311-01, A2A6A15R15 may have any one of the following values: RLR07C3000GR, 3300, 3900, 4700, 5600, 6800, 8200, 1001, 1201, 1501, 1801.

Table 1-7. Radio Transmitter T-827H/URT, Factory Changes (Continued)

CHANGE NUMBER	NOMENCLATURE	DESCRIPTION
Stewart-Warner CA 96370	RF Translator Circuit Card Assembly A2A6A8, P/N 01A227277-02, Rev. M and higher.	A2A6A8C59 changed from CMR05F301GPDM to CMR05F271GPDM.
Stewart-Warner CA 96386	Oscillator Oven PCB Assembly A2A5A1, P/N 01A228568-01, Rev. D and higher.	A2A5A1R23 changed from RCR07G824JS to a value selectable from the following: RCR07G125JS, 185, 275, 394, 474, 564, 684, 824.
Stewart-Warner CA 96396	RF Translator Circuit Card Assembly A2A6A8, P/N 01A227277-02, Rev. M and higher.	A2A6A8C44 changed from M39014/02-1219 to either M39014/02-1219 or M39014/01-1207 (the two are interchangeable).
Stewart-Warner CA 96508	Circuit Card Assembly, Power Supply A2A6A15, P/N 01A228311-02, Rev. M and higher.	A2A6A15C2, C4, C6, C7, C13, R9 changed as follows:

	FROM	TO
A2A6A15C2	M39003/01-2313	M39003/01-2312
A2A6A15C4, C7	M39014/02-1218	M39014/02-1298
A2A6A15C6	M39014/02-1222	M39014/02-1302
A2A6A15C13	M39014/02-1234	M39014/02-1314
A2A6 A15R9	RWR80SR150FM	RWR80SR150FR

CHANGE NUMBER	NOMENCLATURE	DESCRIPTION
Stewart-Warner CA 96513	Audio Interconnect Board Assembly A2A21, P/N 01A228136-01, Rev. G and higher.	A2A21K1 and A2A21K2 changed from M39016/9-006L to M39016/9-018L.
	Audio Processor Assembly A2A21A18, P/N 01A228409-01, Rev. G and higher.	A2A21A18K1 changed from M39016/9-006L to M39016/9-018L.
	Audio Control Assembly A2A21A20, P/N 01A228406-01, Rev. G and higher.	A2A21A20K1, K2, K3 changed from M39016/9-006L to M39016/9-018L.

Table 1-8. Radio Transmitter T-827H/URT, Field Changes

CHANGE NUMBER	TYPE	DESCRIPTION	EIB	FIELD CHANGE KIT NSN

CHAPTER 2

OPERATION

2-1. INTRODUCTION.

2-2. Radio Transmitter T-827H/URT provides the excitation signal required by AM-3924C(P)/URT for reliable transmissions in the 2.0 to 30.0 MHz frequency range. The T-827H/URT is operator controlled and capable of CW, compatible AM, USB, LSB, ISB, RATT, and simultaneous ISB/RATT transmissions. The T-827H/URT is also capable of Link 11 data transmissions in the LSB, USB and ISB modes. It is the responsibility of the operator to connect the required modulating equipment to the T-827H/URT inputs, to select the proper operating mode, and to set the frequency of operation. This chapter provides the information required to accomplish these tasks.

2-3. OPERATING CONTROLS AND INDICATORS.

2-4. All controls, indicators, and connectors used to control the operation of the T-827H/URT are illustrated in figure 2-1 and described in table 2-1. All front panel controls and indicators are seen in figure 2-1, sheet 1. The CARRIER REINSERTION switch, the comparator lamp and the 5 MHZ OSC SOURCE switch are located inside the T-827H/URT as seen in figure 2-1, sheet 2.

2-5. OPERATING PROCEDURES.

2-6. Normal operating procedures for each mode of T-827H/URT operation are provided in table 2-2.

2-7. NORMAL AND EMERGENCY SHUTDOWN PROCEDURES.

2-8. Procedures for normal and emergency shutdown are listed in table 2-3. The emergency shutdown procedure should be used whenever further operation would constitute a hazard to personnel and/or the equipment.

2-9. INTERFERENCE AND EMERGENCY OPERATION.

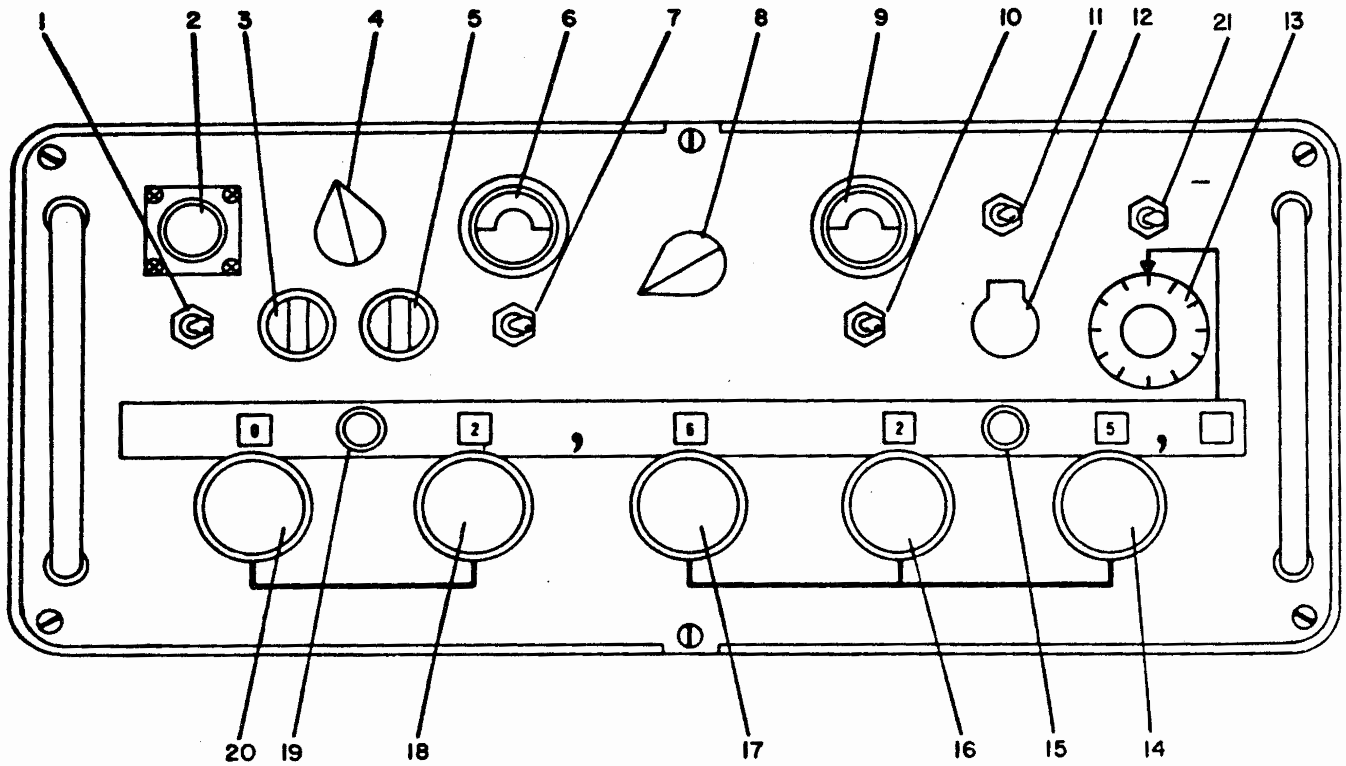
2-10. Operating procedures for interference conditions are provided in table 2-4. There are no emergency operating procedures.

2-11. MAINTENANCE CONTROLS AND CONNECTORS.

2-12. The T-827H/URT controls and connectors used primarily for maintenance of the equipment are described in table 2-5 and illustrated in figures 2-2 and 2-3.

2-13. OPERATOR'S MAINTENANCE PROCEDURE.

2-14. Table 2-6 lists preventive maintenance procedures which should be performed by the T-827H/URT operator.



1. LOCAL ISB HANDSET switch, A2S9
2. HANDSET connector, A2J1
3. A2F1 1-1/2A fuse
4. LOCAL/REMOTE switch, A2S1
5. A2F2 1-1/2A fuse
6. LSB LINE LEVEL meter, A2M1
7. LSB LINE LEVEL meter switch, A2S8
8. Mode selector switch, A2S2
9. USB LINE LEVEL meter, A2M2
10. USB LINE LEVEL meter switch, A2S7
11. RATT SHIFT SELECT switch, A2S10
12. CW KEY jack, A2J2
13. 100 Hz control, A2S6
14. 1 kHz control, A2S3
15. kHz indicator lamp A2DS4
16. 10 kHz control, A2S4
17. 100 kHz control, A2S5
18. 1 MHz control, A2A7S4
19. MHz indicator lamp A2DS3
20. 10 MHz control, A2A7S3
21. DATA/NORMAL switch, A2S11
22. CARRIER REINSERTION switch, A2A1S1 (Sheet 2)
23. Comparator lamp, A2A5A2DS1 (Sheet 2)
24. 5 MHZ OSC SOURCE switch, A2A5A2S1 (Sheet 2)
25. Terminals A2A21E43 through A2A21E50 (Sheet 3)

Figure 2-1. Radio Transmitter T-827H/URT, Operating Controls, Indicators and Connectors (Sheet 1 of 3)

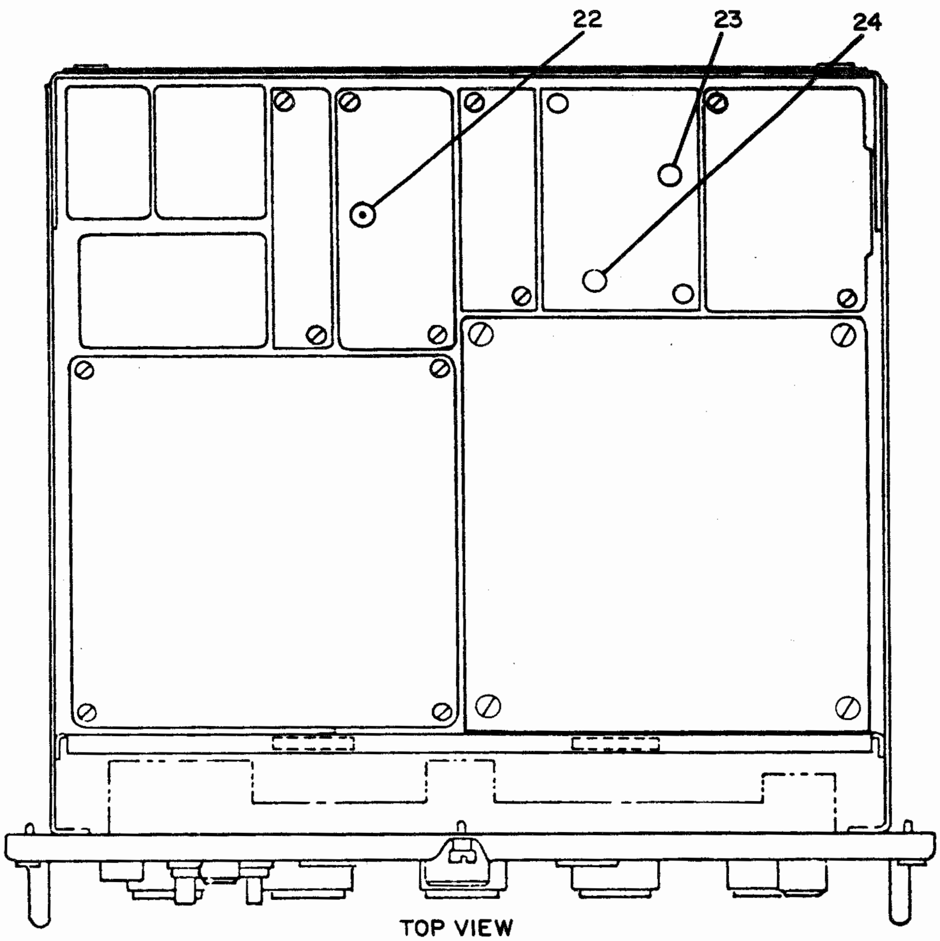
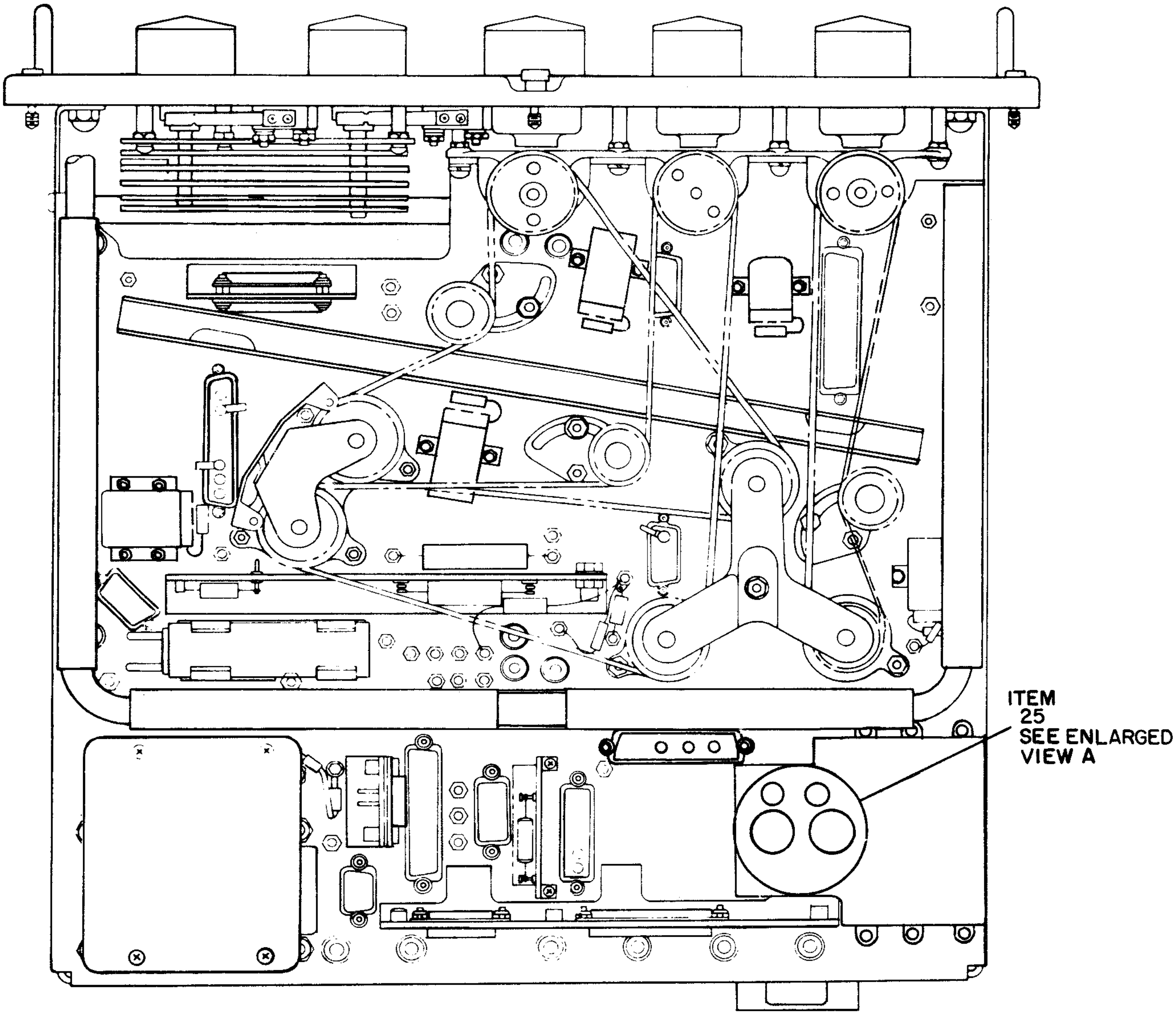


Figure 2-1. Radio Transmitter T-827H/URT, Operating Controls, Indicators and Connectors (Sheet 2 of 3)



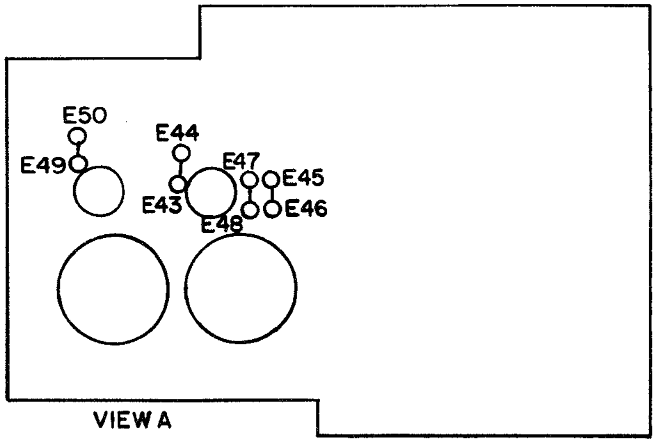


Figure 2-1. Radio Transmitter T-827H/URT, Operating Controls, Indicators and Connectors (Sheet 3 of 3)

Table 2-1. Operating Controls, Indicators, and Connectors

KEY (Figure 2-1)	CONTROL/INDICATOR/ CONNECTOR	FUNCTION
1	LOCAL ISB HANDSET switch, A2S9	Selects channel of handset audio input in ISB mode. LSB - applies handset microphone audio to LSB channel. USB - applies handset microphone audio to USB channel.
2	HANDSET connector, A2J1	Connects handset to T-827H/URT.
3	A2F1 1-1/2A fuse	Protects T-827H/URT against overload; indicator glows when fuse is open.
4	LOCAL/REMOTE switch, A2S1	Selects T-827H/URT local or remote key and audio input: LOCAL - keying and audio input accomplished locally by T-827H/URT operator. REMOTE - keying and audio input accomplished from a remote location.
5	A2F2 1-1/2A fuse	Protects T-827H/URT against overload; indicator glows when fuse is open.
6	LSB LINE LEVEL meter, A2M1	Indicates LSB audio input line level in NORMAL mode; indicates processed level of data audio in DATA mode for LSB and reduced level for ISB.
7	LSB LINE LEVEL meter switch, A2S8	Selects range for LSB LINE LEVEL meter: -10 DB - subtracts 10 dB from meter indication. +10 DB - adds 10 dB to meter indication.
8	Mode selector switch, A2S2	Selects T-827H/URT mode of operation: OFF - no power is applied. STDBY - energizes frequency standard and vacuum tube filaments. LSB - T-827H/URT operates in lower sideband mode.

Table 2-1. Operating Controls, Indicators, and Connectors (Continued)

KEY (Figure 2-1)	CONTROL/INDICATOR/ CONNECTOR	FUNCTION
8 (Cont)		RATT - T-827H/URT operates in radio teletypewriter mode. AM - T-827H/URT operates in compatible AM mode. CW - T-827H/URT operates in continuous wave mode. USB - T-827H/URT operates in upper sideband mode. ISB - T-827H/URT operates in independent sideband mode. ISB/RATT - T-827H/URT transmits RATT on USB and voice on LSB.
9	USB LINE LEVEL meter, A2M2	Indicates USB audio input line level in NORMAL mode; indicates processed level of data audio in DATA mode for USB and reduced level for ISB.
10	USB LINE LEVEL meter switch, A2S7	Selects range for USB LINE LEVEL meter: -10 DB - subtracts 10 dB from meter indication. +10 DB - adds 10 dB to meter indication.
11	RATT SHIFT SELECT switch A2S10	Selects RATT frequency shift of ±85 Hz or ±425 Hz, centered at 2000 Hz. 170 HZ - provides 1915 Hz ±4 Hz mark frequency and 2085 Hz ±4 Hz space frequency. 850 HZ - provides 1575 Hz ±20 Hz mark frequency and 2425 Hz ±20 Hz space frequency.
12	CW KEY jack A2J2	Connects local cw handkey to T-827H/URT.
13	100 Hz control, A2S6	Selects 100 Hz digit of desired operating frequency; digit selected will be displayed on skirt of control.
14	1 kHz control, A2S3	Selects 1 kHz digit of desired operating frequency; digit selected will be displayed in window above control.

Table 2-1. Operating Controls, Indicators and Connectors (Continued)

KEY (Figure 2-1)	CONTROL/INDICATOR/ CONNECTOR	FUNCTION
15	kHz indicator lamp, A2DS4	Lights the three windows above the kHz controls.
16	10 kHz control, A2S4	Selects 10 kHz digit of desired operating frequency; digit selected will be displayed in window above control.
17	100 kHz control, A2S5	Selects 100 kHz digit of desired operating frequency; digit selected will be displayed in window above control.
18	1 MHz control, A2A7S4	Selects 1 MHz digit of desired operating frequency; digit selected will be displayed in window above control.
19	MHz indicator lamp A2DS3	Lights the two windows above the MHz controls.
20	10 MHz control, A2A7S3	Selects 10 MHz digit of desired operating frequency; digit selected will be displayed in window above control.
21	DATA/NORMAL switch, A2S11	Selects DATA mode or NORMAL mode audio, key and power control circuits. DATA audio, key and output power sample signals are switched to DATA mode signal processing circuits. NORMAL audio, key and output power sample signals are switched to NORMAL mode signal processing circuits.
22	CARRIER REINSERTION switch, A2A1S1	Used in single sideband modes to select desired carrier reinsertion level: 0 - maximum carrier output is provided. -10 - carrier output is reduced 10 dB from maximum. -20 - carrier output is reduced 20 dB from maximum. ∞ - carrier output is fully suppressed.

Table 2-1. Operating Controls, Indicators and Connectors (Continued)

KEY (Figure 2-1)	CONTROL/INDICATOR/ CONNECTOR	FUNCTION
23	Comparator lamp, A2A5A2DS1	Dims and brightens at a rate proportional to difference in frequency between internal and external frequency standards.
24	5 MHZ OSC SOURCE switch, A2A5A2S1	Selects mode of operation for Frequency Standard Assembly A2A5: EXT (OVEN STBY) - T-827H/URT frequencies are referenced to external standard connected through A1J25. A2A5 oscillator and oven are energized for immediate availability, and automatically selected if external distribution system fails. EXT NORM - T-827H/URT frequencies are referenced to external standard connected through A1J25. A2A5 oscillator and oven are deenergized. EXT NORM is the preferred operational mode. INT/COMP - T-827H/URT frequencies are referenced to A2A5, and comparison circuitry allows adjustment of A2A5 frequency to external standard frequency. Operating temperature of crystal oven in A2A5 is maintained.
25	Terminals A2A21E43 through A2A21E50.	Jumper wires connecting the terminals shown below permit input of data audio via Remote/Auxiliary connectors A1A1J4, A1A1J5, A1A1J6 or via Data Audio connector A1A1J8. With jumpers removed, data audio can be brought in only at A1A1J8. E43 to E44 } LSB/ISB E45 to E46 E47 to E48 } USB/AM/ISB E49 to E50
Figure 2-2	Interlock switch, A1S2	Disconnects 115 Vac power from the chassis when T-827H/URT is extended from case. Power may be restored by gripping the plunger and pulling outward.

Table 2-1. Operating Controls, Indicators and Connectors (Continued)

KEY (Figure 2-2)	CONTROL/INDICATOR/ CONNECTOR	FUNCTION
2-2 (Cont.)	AUX/NORM switch A1S1	Selects ac power source for T-827H/URT operation by rotation of the interlock plunger. AUX - Selects a local power source through connector A1A1J3. Used to independently power T-827H/URT during maintenance, or when remote power source is switched off for maintenance of associated equipment. NORM - (Detent position.) Selects power from AM-3924C(P)/URT through connector A1A1J4.

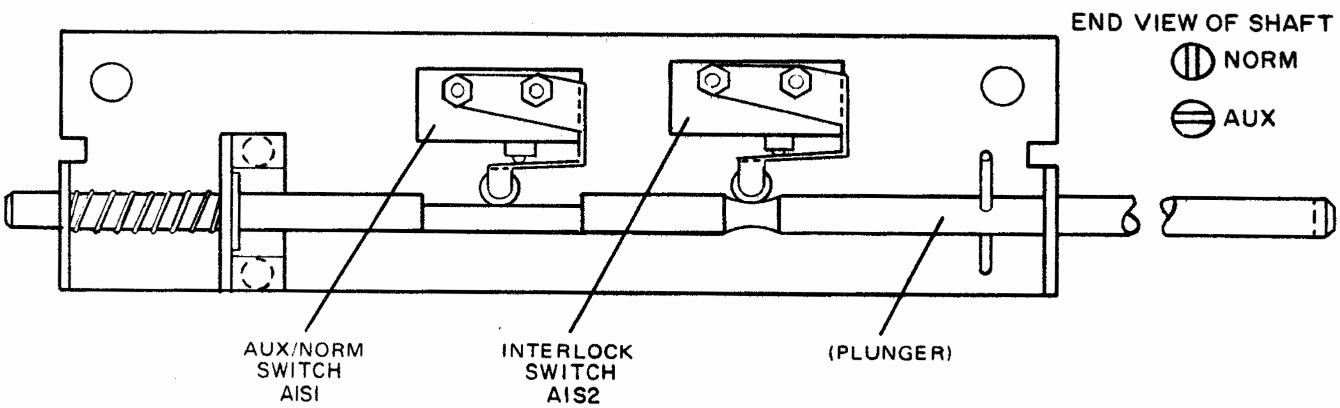


Figure 2-2. Detailed View of AUX/NORM and Interlock Switches

Table 2-2. Operating Procedures

MODE OPERATION	CONTROLS AND SETTING	PROCEDURE	OBSERVATION OR REMARKS
		WARNING Do not tamper with interlock switch A1S2 when chassis is extended from case. NOTE The operating procedures given below require that all system cables be properly connected to the T-827H/URT. In remote operation, RATT, audio, and cw keying signals are supplied from equipment external to the T-827H/URT via these system cables.	
Turn-on	Set mode selector switch to OFF.	Loosen front panel screws and slide chassis out of case. Rotate interlock plunger to set AUX/NORM switch A1S1 to desired position. Set CARRIER REINSERTION switch A2A1S1 and 5 MHz OSC SOURCE switch A2A5A2S1 to desired position. If Link 11 data audio input signals are connected to T-827H/URT DATA AUDIO IN connector (A1A1J8), rotate T-827H/URT front panel upwards to gain access to the bottom of the chassis. Verify jumper wires between terminals E43 to E44, E45 to E46, E47 to E48, and E49 to E50 on printed wiring board A2A21 are removed. Rotate T-827H/URT chassis back to normal position, slide chassis back into case and tighten front panel screws.	See table 2-1 for functions.

Table 2-2. Operating Procedures (Continued)

OPERATION	CONTROLS AND SETTING	PROCEDURE	OBSERVATION OR REMARKS
Turn-on (Cont.)	Set mode selector switch to STDBY.	Allow a 20 minute warmup period before further operation and, if using internal standard, at least a 60 minute warmup for acceptable frequency stability.	kHz and MHz indicator lamps illuminate.
Preliminary Setup		a. Rotate the MHz, kHz, and Hz controls to the desired operating frequency.	Frequency selected is displayed in windows above the MHz and kHz controls and on skirt of Hz control.
		b. Set LOCAL/REMOTE switch to LOCAL. Connect handset to HANDSET connector.	For remote operation set LOCAL/REMOTE switch to REMOTE.
		c. Set DATA/NORMAL switch A2S11 to NORMAL.	
USB or LSB	Set mode selector switch to USB or LSB.	a. Press push-to-talk switch on handset. Speak into microphone.	T-827H/URT transmits in SSB mode.
		b. Monitor USB or LSB LINE LEVEL meter to verify presence of audio signal.	
AM	Set mode selector switch to AM.	a. Press push-to-talk switch on handset. Speak into microphone.	T-827H/URT transmits in AM mode.
		b. Monitor USB LINE LEVEL meter to verify presence of audio signal.	
ISB (LOCAL)	Set mode selector switch to ISB.	a. Set LOCAL ISB HANDSET switch to USB or LSB, depending on channel desired.	T-827H/URT transmits in either LSB or USB mode, depending on position of LOCAL ISB HANDSET switch.
		b. Press push-to-talk switch on handset. Speak into microphone.	
		c. Monitor USB or LSB LINE LEVEL meter to verify presence of audio signal.	

Table 2-2. Operating Procedures (Continued)

OPERATION	CONTROLS AND SETTING	PROCEDURE	OBSERVATION OR REMARKS
CW	Set mode selector switch to CW.	a. Connect cw key to CW KEY jack.	
		b. Operate cw key.	T-827H/URT transmits CW mode rf carrier when cw hand-key is depressed. No monitoring is possible at the front panel in the CW mode.
RATT	Set mode selector switch to RATT, and set RATT SHIFT SELECT switch for desired frequency shift.	a. Connect teletypewriter loop and key lines to LOCAL FSK IN connector A1A1J7 on rear of T-827H/URT case.	See figure 2-3 for location of LOCAL FSK IN connector.
		b. Transmit with local teletypewriter equipment.	T-827H/URT transmits in RATT mode.
		c. Monitor USB LINE LEVEL meter to verify presence of RATT tone.	An off-scale meter reading is acceptable.

NOTE

The 170 Hz (NARROW) and 850 Hz (WIDE) shift modes of the AN/URT-23C(V)1 are centered 2 kHz above the carrier frequency. When the AN/URA-17 Comparator/Converter Group is used at the receiving station, the AN/URT-23C(V)1 output frequency must be lowered 1 kHz in the 170 Hz RATT mode since the AN/URA-17 narrow shift mode employs a filter with 1 kHz center frequency. In the wide shift mode the AN/URA-17 employs a filter with a 2 kHz center frequency which is compatible with the AN/URT-23C(V)1.

OPERATION	CONTROLS AND SETTING	PROCEDURE	OBSERVATION OR REMARKS
ISB/RATT	Set mode selector switch to ISB/RATT, and set RATT SHIFT SELECT switch for desired frequency shift.	a. Press push-to-talk switch on handset and speak into microphone; and transmit with Local Teletypewriter equipment.	T-827H/URT transmits RATT on USB; voice on LSB.
		b. Monitor USB and LSB LINE LEVEL meters to verify presence of voice signal (LSB) and RATT tone (USB).	

Table 2-2. Operating Procedures (Continued)

OPERATION	CONTROLS AND SETTING	PROCEDURE	OBSERVATION OR REMARKS
ISB (REMOTE)	Set mode selector switch to ISB.	a. Set LOCAL/REMOTE switch to REMOTE.	
		b. Press push-to-talk switch on LSB and USB handsets at C-1138/UR Remote Control unit connected to T-827H/URT and speak into microphones.	T-827H/URT transmits in LSB mode.
		c. Monitor USB and LSB LINE LEVEL meters to verify presence of signal.	One audio transmission will be on USB; the other on LSB.
DATA	Set DATA/ NORMAL switch to DATA.	a. Select LSB, USB or ISB.	
		b. Apply audio and associated keying signals from remote NTDS Link 11 source at DATA AUDIO input.	T-827H/URT transmits DATA in LSB or USB, or both USB and LSB.
		c. Monitor USB and LSB LINE LEVEL meters for presence of signals.	Meters indicate output of data audio amplifiers/clipper in LSB and USB modes. Meter outputs decrease 6 dB when ISB is selected.

Table 2-3. Normal and Emergency Shutdown Procedures

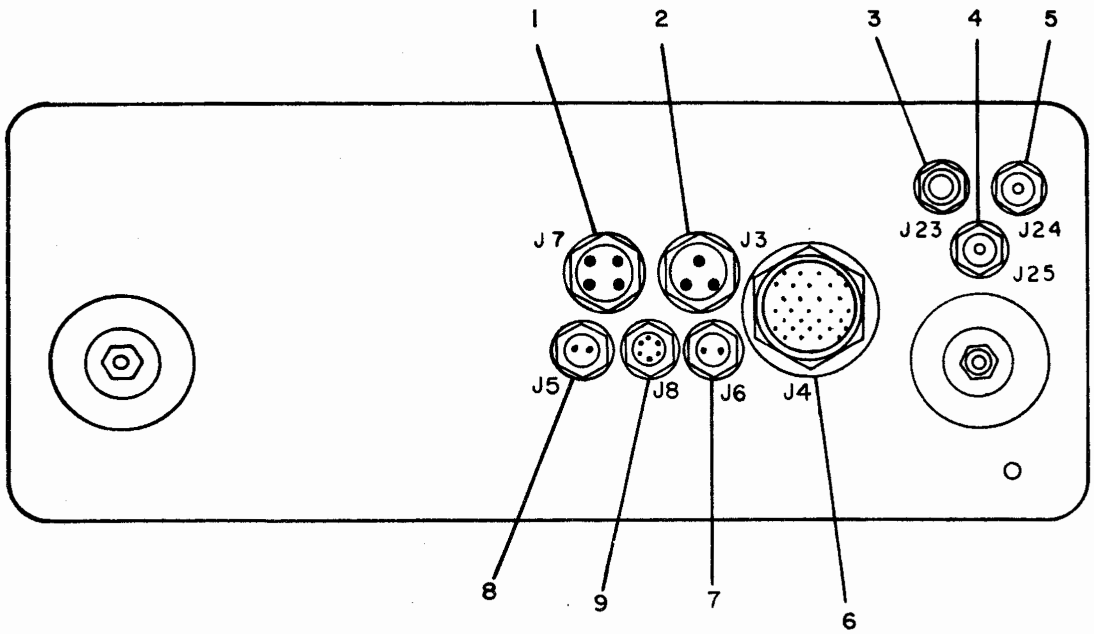
FUNCTION	CONTROL/DEVICE	ACTION
Normal Shutdown	LOCAL/REMOTE switch	Set to LOCAL and ensure that T-827H/URT is not keyed.
	Mode selector switch.	Set to STDBY.
	NOTE If operating from the internal frequency standard, leave the mode selector switch at STDBY so that the oscillator oven remains energized. If the mode selector switch is set to OFF a one hour warmup will be required after restoring power to recover internal frequency standard accuracy.	
	Mode selector switch	Set to OFF if full shutdown is desired.
Emergency Shutdown	Bulkhead Distribution switch or circuit breaker.	Turn to OFF.

Table 2-4. Operating Procedures for Interference Conditions

INTERFERENCE CONDITION MODE	CONTROLS AND SETTINGS	PROCEDURE	REMARKS
All Modes		To counter interference, change the operating mode and/or frequency, where possible.	Refer to table 2-2 for normal operating procedures for all modes.

Table 2-5. Maintenance Controls and Connectors

KEY (Figure 2-3)	CONTROL/ CONNECTOR	FUNCTION
1	LOCAL FSK IN connector A1A1J7	Connects local teletypewriter equipment to the T-827H/URT.
2	AUX AC PWR IN connector A1A1J3	Connects an ac power source for operation of the T-827H/URT.
3	RF OUT 50 OHM connector A1J23	Distributes rf signals to AM-3924C(P)/URT.
4	EXT 5 MHz IN connector A1J25	Connects an external 5 MHz frequency standard to the T-827H/URT.
5	INT 5 MHz OUT connector A1J24	Distributes 5 MHz frequency from Frequency Standard Assembly A2A5 to external equipment.
6	Remote control connector A1A1J4	Connects remote controls and input to AM-3924C(P)/URT.
7	LSB AUDIO IN 600 OHM connector A1A1J6	Connects optional remote audio equipment to LSB channel.
8	USB AUDIO IN 600 OHM connector A1A1J5	Connects optional remote audio equipment to USB channel.
9	DATA audio input connector A1A1J8	Connects MODEM audio and keyline to T-827H/URT for data transmission.



1. LOCAL FSK IN
2. AUX AC PWR IN
3. RF OUT 50 OHMS
4. EXT 5 MHz IN
5. INT 5 MHz OUT
6. Remote control connector (system interconnections)
7. LSB AUDIO IN 600 OHMS
8. USB AUDIO IN 600 OHMS
9. DATA audio input

Figure 2-3. Radio Transmitter T-827H/URT, Rear Panel Connectors

Table 2-6. Operator's Maintenance Procedures

PERIOD	PROCEDURE	REMARKS
Daily	Tighten loose T-827H/URT handles, mounting screws, and other hardware.	
Daily	Inspect for broken, frayed, or damaged cable assemblies.	Refer all faulty conditions to maintenance personnel.
Daily	Check that all connectors are seated and in the right location, and that all switches and controls are properly set.	Operating frequency is indicated in windows above kHz and MHz controls and on skirt of Hz control.
Daily	Set mode selector switch to STDBY and check all fuses; if any are defective, associated indicator lamp will light. Replace defective fuses.	
Daily	Check all modes of operation.	See table 2-2.
Monthly	Clean T-827H/URT exterior.	See table 4-2.
Quarterly	Clean T-827H/URT interior.	See table 4-2.
Semiannually	Inspect, clean and lubricate chain drive mechanism. Plastic/wire chain does not require lubrication.	See table 4-2.

CHAPTER 3

FUNCTIONAL DESCRIPTION

3-1. INTRODUCTION

3-2. This chapter describes the major functions and principles of operation of the T-827H/URT in three levels of detail. The first is an overall description of the transmitter to the level of detail shown on the overall functional block diagram. The second level is a more detailed description of each of the functions, based on signal flow diagrams and concentrating on the functional operation of the principal assemblies and subassemblies involved in each function. Power distribution and control functions are also described with reference to the appropriate power distribution and control diagrams. The third level, based on schematic diagrams, is a description of detailed circuit operation of all electronic circuits which differ substantially from those described in NAVSHIPS 0967-LP-000-0120.

3-3. OVERALL FUNCTIONAL DESCRIPTION.

3-4. GENERAL. Figure 3-1 is an overall functional block diagram of the T-827H/URT. The arrangement of figure 3-1 and the text paragraphs follow the main signal flow through the T-827H/URT, for NORMAL and DATA transmissions. NORMAL refers to those control positions and circuits having to do with the transmission of voice, CW, and RATT. DATA refers to those control positions and circuits involved with Link-11 TADIL A transmission.

3-5. INPUT SIGNAL ROUTING. In the USB, AM, or ISB modes of operation, audio signals from external equipment are fed to Audio Processor A2A21A18 (audio inputs from a local microphone pass through Handset Filter Assembly A2A14). In the LSB or ISB modes, the audio signals are routed to Audio Processor A2A21A19 (again via A2A14 for local audio inputs). The input from teletypewriter equipment during RATT modes is sent to RATT Tone Generator Assembly A2A9, which converts the TTY loop current signals into audio frequencies representing a mark or space. One of two audio frequency pairs is selected by the front panel RATT SHIFT SELECT switch (item 11, figure 2-1). The RATT Tone Generator outputs are supplied to the Audio Processor A2A21A18 (USB channel). The USB and LSB audio processors process the input signals to provide a controlled-amplitude signal to Mode Selector Assembly A2A1. In the data mode the audio processors A2A21A18 and A2A21A19, together with the audio control A2A21A20, change the peak-to-average ratio of the data audio to optimize the transmitted signal at the antenna. After leaving the audio processors, data signals follow the same path as normal signals.

3-6. LINE LEVEL METERS. The input signal for Audio Processor A2A21A18 is also routed to Meter Amplifier Assembly A2A11, which drives the USB LINE LEVEL meter on the T-827H/URT front panel. Similarly, the front panel LSB LINE LEVEL meter is driven by the audio output signal from Meter Amplifier Assembly A2A10 which, in turn, is driven by the input signal for LSB Audio Processor A2A21A19.

3-7. MODE SELECTOR. Both audio input signals to the mode selector modulate a 500 kHz intermediate frequency (IF) carrier, which results in two double-sideband signals (with suppressed carriers). The double-sideband signals are separately filtered to remove the undesired sidebands. Mode gating, to select the USB and/or LSB output from the appropriate filter(s), is controlled by the front panel mode selector switch. During CW mode the local or remote CW key line ground is fed directly to a gated stage in the ode selector assembly A2A1, which passes the keyed 500 kHz to the IF Amplifier A2-A12. Compatible AM signals are generated in the AM mode by gating on a carrier signal which is injected into the IF amplifier A2A12 and added to the upper sideband signal.

3-8. IF AMPLIFIER. The modulated signal from Mode Selector Assembly A2A1 is amplified in IF Amplifier Assembly A2A12. Peak-

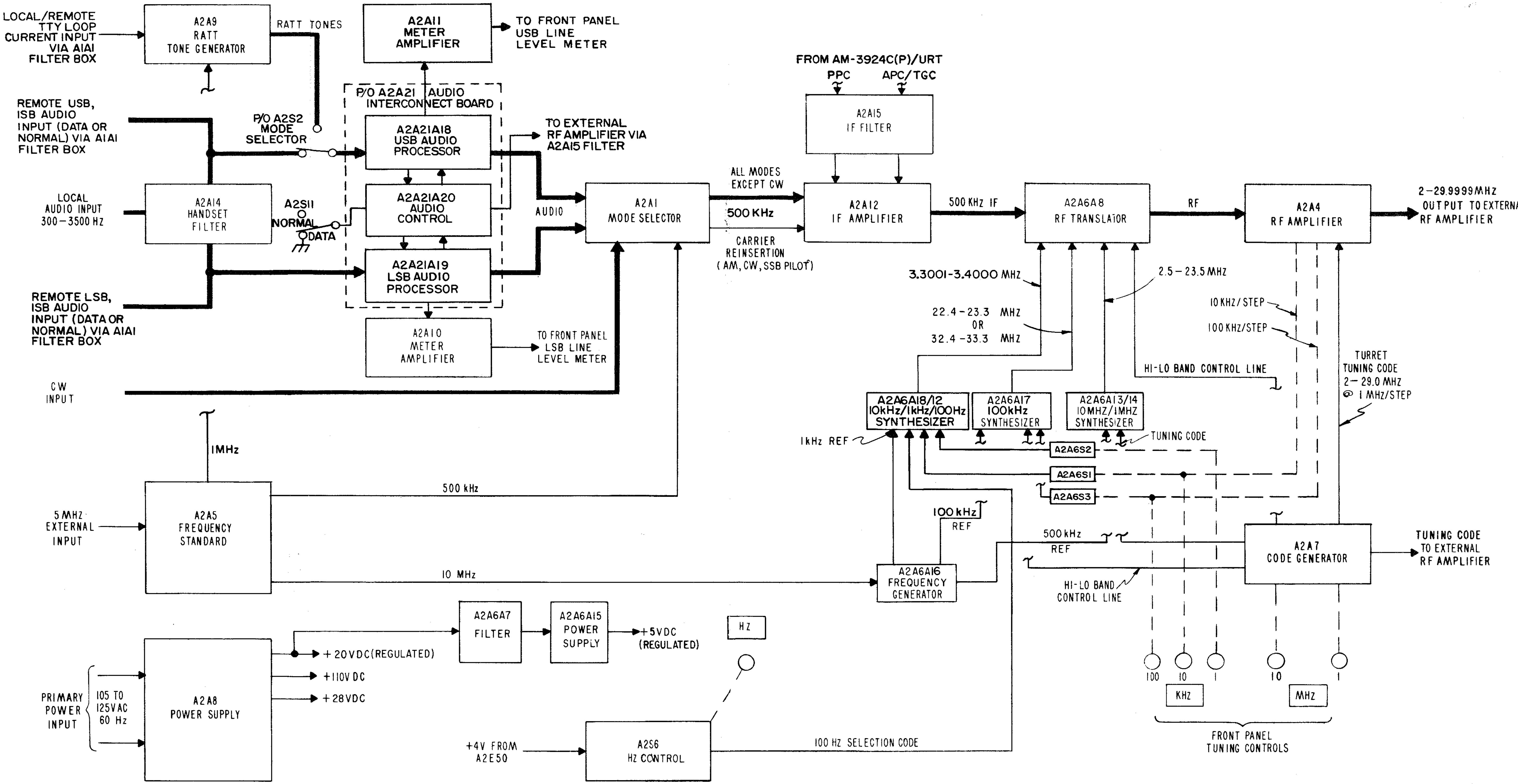


Figure 3-1. Radio Transmitter T-827H/URT, Overall Functional Block Diagram

power-control (PPC) and average-power-control (APC) voltages from the AM-3924C(P)/URT are used to control the stage gain. This prevents the T-827H/URT from overdriving the AM-3924C(P)/URT. The carrier signal for CW or AM modes is injected into the output of the first IF amplifier stage.

3-9. RF TRANSLATOR. Frequency conversion of the 500 kHz IF signal to the final rf output frequency is performed in three mixing operations in RF Translator Subassembly A2A6A8, which is a part of Translator/Synthesizer Assembly A2A6. Selection of the three specific mixing frequencies required for the conversion is accomplished by setting the front panel tuning controls. The injection frequency to the first mixer from 10 kHz/1 kHz/100 Hz synthesizer subassembly A2A6A12 ranges between 3.3001 and 3.4000 MHz. This results in a second IF of 2.8001 to 2.9000 MHz. The second IF is mixed with a 22.4 to 23.3000 MHz (lo-band) or 32.4 to 33.3 MHz (hi-band) injection frequency from the 100 kHz Synthesizer Subassembly A2A6A17. This produces a third IF which will range between 19.5 to 20.4999 MHz (lo-band) and 29.5 to 30.4999 MHz (hi-band). The third mixer receives a 2.5 to 23.5 MHz injection signal from 10 MHz/1 MHz Synthesizer Subassembly A2A6A13 and A2-A6A14. This produces a T-827H/URT rf output frequency in the range of 2.0 to 29.9999 MHz.

3-10. RF AMPLIFIER. The rf output from the third mixer stage is applied to RF Amplifier Assembly A2A4. Here the signal is amplified to produce the rf excitation to the AM-3924C(P)/URT. Selection of circuit components in the rf amplifier stages is accomplished via mechanical inputs from the 10 MHz and 1 MHz front panel controls. These generate a five-wire tuning code consisting of opens and grounds from Code Generator Assembly A2A7 and mechanical inputs from the 100 kHz and 10 kHz front panel controls.

3-11. FREQUENCY STANDARD. An external, stable, 5 MHz signal from the ship's frequency standard distribution system is normally supplied to Frequency Standard Assembly A2A5. This external 5 MHz is used as a reference for generation of the 1 MHz, 10 MHz and 500 kHz outputs. A 5 MHz, oven-mounted, crystal oscillator, within Frequency Standard Assembly A2A5, also provides a frequency standard to which all frequencies used in the T-827H/URT may be referenced. The external or internal 5 MHz frequency is converted to 10 MHz for use by Translator/Synthesizer Assembly A2A6, and to 500 kHz for use as the carrier intermediate frequency in the T-827H/URT. A 1 MHz output to the RATT Tone Generator provides for accurate reduction to audio tones. The 1 MHz output is also applied to the Translator Synthesizer connector to be used as a reference on earlier versions of Translator Synthesizers A2A6. The Frequency Standard may be operated in one of three modes: (1) INT/COMP - internal standard operation; flashing lamp indicates frequency error from external standard signal; (2) EXT NORMAL - operates on external standard with oven and internal oscillator off. The Frequency Standard will automatically switch to internal operation if external standard fails: (3) EXT STBY - operates on external standard with internal oscillator and oven on. The Frequency Standard A2A5 digital circuitry will automatically switch to internal operation if external standard fails.

3-12. FREQUENCY GENERATOR. The stable 10 MHz output from Frequency Standard Assembly A2A5 is applied to Frequency Generator Subassembly A2A6A16. Here, dividers provide the reference frequencies used in the three synthesizer circuits of Translator/Synthesizer Assembly A2A6.

3-13. FREQUENCY SYNTHESIZER. The frequency synthesizers employ phase-locked loops which compare the output frequencies with the reference frequency inputs. This ensures that the injection frequencies from the synthesizer subassemblies are accurate. The injection signals from the synthesizer subassemblies and the intermediate frequency output from IF Amplifier Assembly A2A12 are combined in RF Translator Subassembly A2A6A8. There, three mixing stages provide conversion of the 500 kHz IF signal to the desired rf output frequency. See paragraph 3-81.

3-14. Power Supply. Power Supply Subassembly A2A6A15 converts +20 Vdc from

Power Supply Assembly A2A8 (see pararaph 3-19) to the +5 Vdc used in the subassemblies of Translator/Synthesizer Assembly A2A6.

3-15. First Injection Frequency Generation. The injection frequencies used in the first frequency conversion in the mixer circuits are generated in 10 kHz/1 kHz/100 Hz Synthesizer Subassembly A2A6A12. The injection frequency is produced by a voltage controlled oscillator (VCO) in A2A6A12. The VCO is phase-locked to the 1 kHz reference signal from Frequency Generator A2A6A16. Programmable counters and frequency dividers in the A2A6A18 synthesizer subassembly establish the VCO frequency in response to the settings of the front panel 10 kHz, 1 kHz and 100 Hz controls. Any one of 1000 possible injection frequencies, spaced at 100 Hz intervals between 3.3001 and 3.4000 MHz, is then applied to the first mixer in RF Translator Subassembly A2A6A8.

3-16. Second Injection Frequency Generation. The injection frequencies used in the second frequency conversion are generated in 100 kHz Synthesizer Subassembly A2A6A17. The frequency at the output of A2A6A17 is between 22.4 and 23.3 MHz for lo-band operation, or between 32.4 and 33.3 MHz in hi-band. The front panel 100 kHz control establishes the output frequency of the VCO, which is phase-locked to the 100 kHz reference signal from Frequency Generator A2-A6A16.

3-17. Third Injection Frequency Generation. The 10 MHz/1 MHz Synthesizer Subassembly A2A6A13 generates the injection frequencies used in the third frequency conversion. One of seventeen injection frequencies between 2.5 and 23.5 MHz is produced in response to the setting of the front panel MHz controls. The injection frequency is applied to the third mixer in RF Translator Assembly A2A6A8.

3-18. CODE GENERATOR ASSEMBLY. Code Generator Assembly A2A7 produces three sets of five-wire tuning codes (opens and grounds) as determined by the settings of the front panel MHz controls. Separate tuning codes provide frequency band selection in the motor-driven turrets of the AM-3924C(P)/URT rf power amplifier and RF Amplifier Assembly A2A4. The third tuning code is applied to 10 MHz/1 MHz Synthesizer Subassembly A2A6A13. Here the injection signal required for final frequency conversion is selected by the action of the code in programming the divider network. Code Generator Assembly A2A7 also supplies a hi-lo band control signal to the A2A6A8 and A2-A6A17 subassemblies of Translator/Synthesizer A2A6.

3-19. POWER SUPPLY ASSEMBLY. Power Supply Assembly A2A8 produces three dc outputs. Two are unregulated (28 Vdc and 100 Vdc). The third is a regulated +20 Vdc. The +28 Vdc is applied to the front panel kHz and MHz indicator lamps when the mode selector switch is set to STDBY (or any operating mode). The +28 Vdc is also reduced and regulated to provide the +20 Vdc supply.

3-20. MAJOR FUNCTIONAL DESCRIPTION.

3-21. GENERAL. The T-827H/URT performs the following eleven major functions:

1. Audio amplification and modulation in normal operation (voice modes).
2. Audio amplification and processing in data operation.
3. Tone generation and modulation (RATT modes).
4. Carrier reinsertion (CW, AM and SSB pilot carrier modes).
5. IF amplification and level control.
6. IF-to-rf translation.
7. Rf amplification.
8. Frequency synthesis.
9. Standard frequency generation and distribution.
10. Power distribution.
11. Control.

The first nine of these functions are discussed in functional descriptions of the various assemblies and subassemblies involved in the generation of each function. These descriptions are based on the signal flow diagrams in Chapter 5. As far as practicable, circuits in the main signal-flow path are described first (in signal-flow order). This is followed by descriptions of the assemblies involved with frequency synthesis and standard frequency generation. Power distribution is described with reference to the power distribution diagrams in Chapter 5 for the primary ac power and for the dc voltages in the T-827H/URT. The Control Function is described with reference to the tuning control diagram and some of the schematic diagrams in Chapter 5.

3-22. NORMAL AUDIO PROCESSING - VOICE MODES (Figure 5-1, Sheet 1). In voice modes of operation, audio in the frequency range of 300 to 3500 Hz is applied to the T-827H/URT to modulate a 500 kHz intermediate carrier frequency. The assemblies involved in this portion of the signal flow are: Filter Box Assembly A1A1 for remote audio inputs or Handset Filter Assembly A2A14 for local audio inputs; Audio Interconnect Board A2A21; Audio Processor A2A21A19 for LSB modes or Audio Processor A2A21A18 for USB modes; and Mode Selector Assembly A2A1. The 500 kHz IF output signal from the A2A1 assembly is fed to IF Amplifier Assembly A2A12. The audio signal inputs are monitored by front panel LSB Line Level and USB Line Level meters. These receive the signals from the A2A21A19 and A2A21A18 assemblies via meter Amplifier Assemblies A2A10 and A2A11 respectively.

3-23. The normal audio amplification signal flow path for LSB and USB modes appears in Figure 5-1, Sheet 1. The LSB modes include LSB, the LSB portion of ISB, and the LSB portion of ISB/RATT. The USB modes include USB, the USB portion of ISB/RATT, AM, and RATT.

3-24. NORMAL LSB MODES. When front panel LOCAL/REMOTE switch A2S1 is at REMOTE, the remote or auxiliary 600 ohm voice input signals are applied through capacitors A1A1C8 and A1A1C11, A2S1-A-R contacts 12 to 2, and A2S1-A-F contacts 7 to 9, normally closed contacts of A2A21K1 to LSB input transformer A2A21T1 primary. A2A21T1 couples the input to LSB Audio Processor A2A21A19. If A2S1 is at LOCAL, the microphone audio from front panel HANDSET connector A2J1 is supplied to A2-A21A19 through Handset Filter Box A2A14, A2S1-B-F contacts 1 to 10, Mode Selector Switch A2S2-A-R contacts 8 to 9, and secondary terminal 5 of A2A21T1 when A2S2 is at LSB or ISB/RATT. The path from A2S1-B-F contact 10 to A2A21T1-5 is completed through A2S1-B-R contacts 12 to 9 and LOCAL ISB HANDSET switch A2S9 contacts 5 and 6 when A2S2 is at ISB and A2S9 is at LSB.

3-25. During NORMAL operation relay A2-A21A19K1 is not energized. Therefore, the audio input signals are coupled through A2-A21T1 to A2A21A19U2, where they are amplified. In addition, the A2A21A19 processor circuitry provides for amplitude control so that the maximum audio output level is limited before being sent to the Mode Selector Assembly A2A1 to modulate the 500 kHz IF. If the input signal level exceeds the standard audio reference by more than 20 dB, the A2A21A19 circuitry provides for clipping the excessive peaks. This function is performed by the network comprising DC amplifier A2A21A19Q2, threshold detector A2-A21A19CR1, and compressor A2A21A19Q1. OUTPUT LEVEL potentiometer A2A21A19-R8, THRESHOLD potentiometer A2A21A19-R4, ATTACK time potentiometer A2A21-A19R11, and DECAY time potentiometer A2A21A19R14 form a gain control circuit which acts to limit the peak excursions of the voice wave. Compressor A2A21A19Q1 and A2A21A19R5 form a variable voltage divider to control signal level to constant gain amplifier A2A21A19U2. Also, an output from A2A21A19-S goes to LSB Meter Amplifier Assembly A2A10, which drives the front panel LSB LINE LEVEL meter. The meter switch enables selection of a +10 dB range for suitable scaling.

3-26. NORMAL USB MODES. The audio from the remote or auxiliary 600-ohm input for the USB, AM, or USB portion of the ISB inputs to the T-827H/URT appears at capacitors A1A1C10 and A1A1C34. From here it goes through LOCAL/REMOTE switch A2S1-A-R contacts 8 to 10 and 4 to 6, Mode Selector Switch A2S2-D-F and A2S2-C-R, and the primary of USB input Transformer A2-A21T2, where it is coupled to the USB Audio Processor A2A21A18.

NOTE

Switch connections for the various positions of mode selector switch A2S2 are shown in note H of figure 5-1.

3-27. The local microphone audio output to the USB audio processor is fed to Handset Filter Box A2A14. From there, it goes to LOCAL/REMOTE Switch A2S1-B-F, Mode Selector Switch A2S2-B-R, and LOCAL ISB HANDSET Switch A2S9 (ISB mode only). The remainder of the signal flow for USB-Normal operation parallels that for LSB-Normal operation, previously described. Signal action in the USB Audio Processor A2A21A18, Meter Amplifier Assembly A2A11 and USB LINE LEVEL Meter A2M2 is identical to that of the LSB components on the diagram.

3-28. DATA AUDIO PROCESSING (Figure 5-1, Sheet 2). One major difference between NORMAL and DATA operation is the source of the modulating audio and the type of intelligence carried. In the DATA mode of operation differential phase shifted audio tones from external equipments are applied to the T-827H/URT. After amplification and processing, these tones modulate a 500 kHz intermediate frequency carrier. The data audio tones represent multiplexed digital data from a peripheral computer which stores telemetry inputs. The assemblies involved in the signal flow of the tones are Filter Box Assembly A1A1; Audio Interconnect Board A2A21; Audio Processor A2A21A19 (LSB Modes) or Audio Processor A2A21A18 (USB Modes); and Mode Selector Assembly A2A1. After being received in the Audio Processor Assembly A2A21A19 or A2A21-A18, the data LSB or USB audio signals undergo various processing, including amplification. The processed data audio signals are fed to Mode Selector Assembly A2A1. From this point, the signal flow through the T-827H/URT in DATA is uniform for both DATA and NORMAL operation. The data audio also passes to Meter Amplifier Assembly A2A10 (LSB) or A2A11 (ISB) for monitoring by front panel LSB or USB LINE LEVEL meters A2M1 or A2M2. In data operation, only USB, LSB and ISB settings of mode selector switch A2S2 are valid. Other settings of this switch will cause failure of communications (though the radio equipment will not be damaged through such error).

3-29. DATA TONE INPUTS. Data tone inputs can be accepted via Remote/Auxiliary connectors A1A1J4, A1A1J5, A1A1J6, or via Data Audio connector A1A1J8. The first of these arrangements requires that terminals A2A21E43 through A2A21E50 be jumpered as indicated by the dotted lines connecting these terminals in figure 5-1, sheet 2. The second arrangement requires that these jumpers be removed. LSB data tones are passed to A2A21XA19 pin F/6 and pin H; USB data tones are passed to A2A21XA18 pin F/6 and pin H. Since USB and LSB audio processing are identical, except for reference designations of components involved, only LSB signal flow is described.

3-30. LSB audio processor A2A21A19 amplifies the LSB data audio tones received on pins A2A21XA19-F/6 and A2A21XA19-H in variable gain stage A2A21A19U1B to a standard level for clipping stage A2A21-A19U1A. This clipping stage removes the amplitude peaks of the data audio to maintain proper transmitted peak to average power output. The voltage divider consisting of A2A21A19R29 through A2A21A19R32 is connected to normally open contacts of A2-A21A19K1. In SSB operation, the voltage divider sets the proper level to the input of the common audio amplifier A2A21A19U2 shared by normal audio. In the ISB mode, the voltage divider reduces the audio level an additional amount in order to achieve proper output power levels. In DATA operation, the setting of DATA/NORMAL switch A2S11 to DATA position energizes relay A2A21A19K1, connecting relay terminals A2A21A19K1-2 and 3. The result is that the output of the data audio processor, comprising the audio control amplifier A2A21A19U1B and the amplitude control circuitry of A2A21A19-U1A, A2A21A19Q3, and A2A21A19Q4 and associated components, is fed to the meter circuits and to audio amplifier A2A21A19U2. Amplification and control takes place at A2A21A19U2 as described in paragraph 3-25. USB data tones are processed in exactly the same manner by A2A21-A18.

3-31. AUDIO CONTROL A2A21A20 (Figure 5-1, Sheet 3). The Audio Control Assembly A2A21A20 provides system supply and control functions for data operation. These functions are: (1) keying of the T-827H/URT and AM-3924C(P)/URT; (2) transmitter gain control (TGC) enable, TGC capacitor control, and TGC reset; (3) ISB ground, and (4) +15 Vdc and +5 Vdc supplies.

3-32. Keying. Data keying of the T-827H/URT and AM-3924C(P)/URT is accomplished by application of +6 Vdc to any of diodes A2A21A20CR14, A2A21A20CR15, A2A21A20CR16, and A2A21A20CR20. The resultant logic low at the collector of A2-A21A20Q10 is then applied, via contacts 7 and 8 of energized relay A2A21A20K2, to pin 4 of connector A2A21A20P1 to key the AM-3924C(P)/URT. Relays A2A21A20K1 and A2A21A20K2 are controlled by DATA/NORMAL switch A2S11 on the T-827H/URT front panel. In the NORMAL position of A2S11, A2A21A20K1 and A2A21A20K2 remain unenergized, allowing the CW/RATT keyline to pass through from A2A21A20P1-5 to A2A21-A20P1-E, and the ground keyline to pass through from A2A21A20P1-D to A2A21A20-P1-4. When A2S11 is switched to the DATA position, A2A21A20K2 provides a ground keyline to the AM-3924C(P)/URT, as previously described. A2A21A20K2 also grounds A2A21A20P1-D, which keeps the T-827H/URT keyed constantly. Energized relay A2A21A20K1 allows keying of the system via A2A21A20CR20 by a +6 Vdc data key signal fed through the CW/RATT keyline at the transmitter switchboard connector 1A2A1J2-S of the power amplifier.

3-33. TGC Functions. TGC enable and TGC capacitor control are initiated through output signals on pins L and 17 of A2A21A20P1 when the output of wired "NAND" A2A21-A20U2 is a logic high. This condition occurs when input pins 5, 9, 11, and 13 of A2A21-A20U2 are all logic low. As described earlier, input pin 9 is low as a result of switch A2A21A20Q10. Pins 5 and 13 are low due to a ground from the DATA/NORMAL switch when in the DATA position. Pin 11 is held low by the action of switch A2A21A20Q12 on the +20V input at A2A21A20P1-12 during the antenna coupler tune cycle. Also, during data transmission, the TADIL A audio signal at A2A21A20P1-M is rectified and amplified by A2A21A20U3 and A2A21A20Q11. Its presence keeps retriggerable A2A21A20U6 in the on state, and thus A2A21A20U6 low. When pins 9, 11, and 13 of A2A21A20U2 are all low, the output of A2A21A20U2 goes high for TGC enable (A2A21A20P1-L), and -15 Vdc is applied to A2A21A20P1-17 for TGC capacitor control. The output high of A2-A21A20U2 may be inhibited by an interlock function. If +20 Vdc or +28 Vdc is not present at A2A21A20P1-11 and A2A21A20P1-13, respectively, switch circuit A2A21A20Q9 and A2A21A20Q13 grounds the output of A2A21A20U2, and thereby prevents TGC enabling.

3-34. TGC reset occurs at system turn-on, or when the DATA/NORMAL switch is turned to DATA, or when any frequency control on the T-827H/URT is changed. At system turn-on, the base of A2A21A20Q5 senses the arrival of +5 Vdc and, through A2A21-A20Q6, causes reset of the power control system. When the data mode is selected at DATA/NORMAL switch A2S11, a ground is applied to A2A21A20P1-10, which, in turn, applies a pulse through the inverter of A2-A21A20U2 (pin 5 to pin 6). This logic high is coupled through A2A21A20C6, and inverted by A2A21A20Q6 to appear as a logic low at A2A21A20P1-15. Switching of any frequency control on the T-827H/URT provides a ground pulse at A2A21A20P1-T. This causes switches A2A21A20Q1 and A2A21A20Q2 to generate a power amplifier ground pulse at A2A21A20P1-16 for use by the antenna coupler. Additionally, switch A2A21A20Q6 generates a logic low at A2A21A20P1-15 to cause the power control system to reset itself at the new frequency.

3-35. ISB Ground. Since the average rf power output in ISB operation (USB and LSB both operating) must be reduced from 200 watts to 100 watts to limit rf peak power, the following occurs: Selection of ISB by Mode Selector Switch A2S2 causes a ground to appear at A2A21A20P1-U. Relay A2A21-A20K3 is energized, and transmits ISB grounds to Audio Processor A2A21A20A18 and A2A21A20A19 to reduce the audio drive to the modulators. The ISB ground is applied to voltage dividers R29 through R32 on the A2A21A18 and A2A21A19 boards. The voltage divider on each board forms a 6 dB voltage attenuator.

3-36. Power Supply. Regulated +15 Vdc and +5 Vdc are provided for use on assemblies A2A21A18, A2A21A19, and A2A21A20 by means of the voltage regulator A2A21A20-Q14 - A2A21A20CR23 (for +15 Vdc), and by voltage regulator A2A21A20U7 (for +5 Vdc).

3-37. AUDIO MODE GATING AND MODULATION (Figure 5-1, sheet 1). Due to the symmetrical designs of circuitry immediately succeeding the audio processor assemblies A2A21A19 and A2A21A18, only the LSB flow out of LSB audio processor A2A21A19 will be described. These paragraphs are common to DATA and NORMAL operation.

3-38. The LSB or ISB output audio from Audio Processor A2A21A19 appears at E2 of LSB balanced modulator A2A1A2. The 500 kHz standard frequency is also supplied to balanced modulator A2A1A2 through gated amplifier A2A1A4Q2. Amplifier A2A1A4Q2 is enabled by +20 Vdc during LSB operation. The 500 kHz standard frequency is gated into A2A1A4Q2 by diode A2A1A4CR1. This gating diode is enabled by +20 Vdc from the mode selector switch and the +20 Vdc (during transmit) from the transmit-receive relay A2K3. The enabling voltages are applied to A2A1A4CR1 through individual voltage dividers so that the diode is forward biased during all modes of operation except CW. In the CW mode, A2A1A4CR1 is disabled to prevent the 500 kHz frequency standard input from entering gated amplifier A2A1A4Q2.

3-39. The 500 kHz output from A2A1A4Q2 drives tuned transformer A2A1A4T2. The output of A2A1A4T2 appears at E4 of LSB balanced modulator A2A1A2. A2A1A2 is a conventional, balanced-bridge modulator which modulates the input audio onto the 500 kHz carrier IF signal to produce double sideband modulated signals. The 500 kHz carrier is suppressed by adjustable balance controls in the circuitry. The output from A2A1A2, applied to isolation transformer A2A1T1, consists of the upper and lower sideband signals produced when the 500 kHz carrier mixes with the LSB audio. The 500 kHz carrier and the audio are suppressed in the balanced modulator.

3-40. The output from isolation transformer A2A1T1 is applied to isolation amplifier A2A1A3Q1. A2A1A3Q1 is enabled by +20 Vdc from the mode selector switch in the LSB and ISB modes of operation. Isolation amplifier A2A1A3Q1 drives LSB filter A2A1FL1. The narrow passband of A2A1FL1 removes the undesired upper sideband from the double-sideband output, and further suppresses the 500 kHz carrier. The output of A2A1FL1 is applied to A2A1A5 which buffers the upper and lower sideband filters. The output of A2A1A5 at E6 is the modulated LSB signal which is passed to IF Amplifier Assembly A2A12.

3-41. LSB CARRIER BAL potentiometer A2A1A2R3 and the LSB CARRIER BAL capacitor A2A1A2C4 are used to balance the resistance and reactance in the LSB balanced modulator. The resistive and reactive balance must be proper to maintain a high degree of carrier suppression. Components A2A1A1R3 and A2A1A1C4 accomplish the same adjustment for the USB balanced modulator.

3-42. The 500 kHz carrier from Frequency Standard Assembly A2A5 is gated through A2A1A4CR1, amplifier A2A1A4Q1, transformer A2A1A4T1, and into the USB balanced modulator A2A1A1. Isolation transformer A2A1T2 drives isolation amplifier A2A1A3Q2, which drives the USB filter A2A1FL2. Isolation amplifier A2A1A3Q2 is enabled by +20 Vdc from mode selector switch A2S2 in the USB, AM, ISB, and RATT modes of operation. The narrow passband of A2A1FL2 removes the undesired LSB modulation product, and further suppresses the 500 kHz carrier. The output of A2A1FL2 is applied to A2A1A5, which buffers the upper and lower sideband filters. The output of A2A1A5 at E6 is passed to IF Amplifier Assembly A2A12.

3-43. TONE GENERATION AND MODULATION (RATT MODES). (Figure 5-2). In the RATT and ISB/RATT modes of operation a local or remote teletypewriter loop current input is applied to the T-827H/URT and is converted to an audio tone. Two of four possible audio tones, representing mark and space inputs, are generated in response to the loop current input and the position of the front panel RATT SHIFT SELECT switch. The audio tones are then amplified and processed in the same manner as the voice signals in the USB mode of operation. The assemblies involved in the signal flow for RATT tone generation and modulation are: Filter Box A1A1; RATT Tone Generator A2A9; Audio Processor A2A2A18; and mode Selector A2A1.

3-44. In the RATT mode, the teletypewriter loop current signal is applied through local input capacitors A1A1C48, A1A1C49 or remote input capacitors A1A1C22 and A1A1-C38 to the front section of LOCAL/REMOTE switch A2S1, contacts 1 and 5. Here it is directed to RATT Tone Generator Assembly A2A9 through A2R8. The input signal is then applied through polarity protection diode A2A9A1CR1 and optoelectronic coupler A2-A9A1U1.

3-45. A mark signal input (5 to 75 mA) provides the turn-on bias for optoelectronic coupler A2A9A1U1. A2A9A1U1 provides line isolation between the teletypewriter loop current lines and the tone generation circuits. Zener diode A2A9A1CR3 shunts optoelectronic coupler A2A9A1U1 so as to limit A2A9A1U1 current to 20 mA. A space signal input (no current flow) provides no bias current and therefore A2A9A1U1 stays off. Resistor A2R4, on the T-827H/URT main frame, must be connected in shunt across the teletypewriter input terminals for input loop currents in excess of 75mA in LOCAL operation. This is done by connecting A2E7 to A2E4.

3-46. Optoelectronic coupler A2A9A1U1 biases buffer amplifier A2A9A1U6A on or off in response to the teletypewriter mark and space signal inputs. The output of buffer amplifier A2A9A1U6A is applied to gates A2A9A1U6B, A2A9A1U6D and divider A2-A9A1U2.

3-47. A2A9A1Q1 and A2A9A1Q2 amplify the 1 MHz input from Frequency Standard A2A5 via A2A9P1 pin 7 to proper logic levels for divider A2A9A1U2. Dividers A1A9A1U1-U3 divide the 1 MHz to provide precise output frequencies as a function of mark/space inputs and the SHIFT SELECT switch position.

3-48. When the RATT SHIFT SELECT switch is in the 850 Hz position dividers A2-A9A1U2, -U3, -U4 are set to divide the 1 MHz input by 317 for a mark condition and by 206 for a space condition. The proper preset inputs to the dividers are set by A2-A9A1U6A, A2A9A1U6B, A2A9A1U6D and A2A9A1U5B. When the RATT SHIFT SELECT switch is in the 170 Hz position, the dividers A2A9A1U2, -U3, -U4 are set to divide by 261 for a mark condition and by 240 for a space condition. A2A9A1U5A serves to divide outputs from A2A9A1U2, -U3, -U4 by two and to generate a symmetrical squarewave for amplifiers A2A9A1Q3 and A2A9-A1Q4. Transformer A2A9A1T1 couples the RATT tones to the MODE SELECTOR switch through A2A9P1-2, -8 for distribution to Audio Transformer A2A21T2 and then to USB Audio Procesor A2A21A18.

3-49. In the RATT mode, Audio Processor Assembly A2A21A18 functions in a similar manner to normal USB modes (refer to paragraph 3-26) except that the compressor A2-A21A18Q1 is turned off by the presence of a CW/RATT ground on pin 3 of A2A21A18P1. The controlled amplitude audio output signal from A2A21A18P1-17 is fed to Mode Selector Assembly A2A1, where it is combined with the 500 kHz intermediate frequency carrier and thereafter processed in the same manner as other USB IF signals.

3-50. In the ISB/RATT mode, the audio RATT tone signal is developed as described for the RATT mode. However, the audio tone output from A2A9P1-2, -8 is fed through different contacts of mode selector switch A2S2-D-F and A2S2-C-R, to Audio Amplifier Assembly A2A21A18. As a result, the RATT tone signals modulate the upper sideband output in both the RATT and the ISB/RATT modes.

3-51. CW/AM/SSB CARRIER REINSERTION (Figure 5-3). Carrier reinsertion gating takes place in Mode Selector Assembly A2A1. Carrier reinsertion outputs are fed to IF Amplifier Assembly A2A12.

3-52. The 500 kHz carrier reinsertion signal is present during the CW, AM, and SSB pilot carrier modes of operation. The carrier reinsertion signal gating circuits are controlled by the CW keyline and the mode selector switch circuits. Operation of these circuits is described in the following paragraphs.

3-53. In the CW mode, the 500 kHz carrier reinsertion signal is enabled by the CW handkey. The local CW handkey, inserted at the front panel CW key jack A2J2, grounds terminal A2J2-3 to A2J2-1 when it is depressed. This ground then appears, through LOCAL/REMOTE switch A2S1B-R and mode selector switch A2S2-E-R, at terminal A2-A1A4E11 of the 500 kHz Gates Subassembly A2A1A4, when the LOCAL/REMOTE switch is in the LOCAL position.

3-54. The ground at A2A1A4E11 forward-biases isolation diode A2A1A4CR7. This enables (forward-biases) carrier reinsertion diode A2A1A4CR6 and disables (reverse-biases) carrier shorting diode A2A1A4CR8. Under these conditions, the 500 kHz signal from Frequency Standard A2A5 (received at A2A1P2-A3) is allowed to pass to IF Amplifier A2A12 via diode A2A1A4CR6, transformer A2A1A4T3, and connector A2A1P2-A1. When the CW key is open, diodes A2A1-A4CR6 and A2A1A4CR7 are reverse-biased, and diode A2A1A4CR8 is forward-biased. This action grounds the 500 kHz signal path through capacitor A2A1A4C22; hence, the 500 kHz signal cannot appear at connector A2A1P2-A1. The foregoing biasing actions control the 500 kHz reinsertion signal in response to the opening and closing of the local CW key. This controlled output is fed to IF Amplifier Assembly A2A12. Here the 500 kHz cw signal is amplified prior to frequency conversion to the required output frequency.

3-55. Note that grounding the CW key also provides a ground return for the CW hold relay A2K5. Operation of A2K5 is included as part of the CW, RATT, and PTT keying circuits description contained in paragrph 3-112. A2A1A4E11 is not grounded in any mode except CW. Diodes A2A1A4CR6 and A2A1A4CR8 then block passage of the 500 kHz signal.

3-56. AM Carier Reinsertion. In the AM mode, operating voltage (+20 Vdc) is applied through pin 4 of connector A2A1P2 to the AM carrier reinsertion gate A2A1A4CR9 and A2A1A4CR10. The 500 kHz input signal at A2A1P2-A3 appears at % MOD ADJ potentiometer A2A1A4R39. It then passes through the AM carrier reinsertion gate A2A1A4CR9 and appears at transformer A2A1A4T3. The AM carrier reinsertion gate functions similarly to the CW carrier reinsertion gate. Diode A2A1A4CR11 is a control line isolation diode whose function is similar to that of diode A2A1A4CR7. The level of output signal from A2A1A4T3 during the AM mode may be adjusted by means of A2A1A4R39 to obtain the correct percentage of modulation. The 500 kHz signal is fed from the A2A1A4T3 output, through A2A1P2-A1, to the A2A12 assembly where it is inserted as the IF carrier.

3-57. The T-827H/URT is used with the AM-3924C(P)/URT rf power amplifier and various antenna couplers. An rf signal from T-827H/URT is sometimes required while tuning the associated antenna couplers. This rf signal is supplied whenever the AM-3924C(P)/URT provides a +20 Vdc control input at terminal T of connector A1A1J4. This +20 Vdc input gates on the AM carrier as previously described. A keyline signal is also required from the AM-3924C(P)/URT to cause the T-827H/URT to supply the AM carrier to the external equipment (see paragraph 3-112).

3-58. SSB Carrier Reinsertion. It is sometimes necessary to transmit a pilot carrier signal, along with the sideband signals, to permit receiving equipments to generate a stable carrier signal required for SSB reception. In SSB modes +20 Vdc is applied to reinsertion gate A2A1A4CR12 only when carrier reinsertion switch A2A1S1 is turned to a position other than infinity. This enables A2A1A4CR12, which then passes the 500 kHz signal from % MOD ADJ potentiometer A2-A1A4R39 to the attenuators A2A1A4R58 through A2A1A4R63. CARRIER REINSERTION switch A2A1S1 selects the desired amount of attenuation of the 500 kHz signal, and passes the signal to the primary of A2-A1A4T3. The A2A1A4T3 output is then fed through A2A1P2-A1 to IF Amplifier Assembly A2A12 where it is reinserted as the desired pilot carrier signal.

3-59. IF AMPLIFICATION AND LEVEL CONTROL (Figure 5-4). IF Amplifier Assembly A2A12 receives the 500 kHz IF input signal from Mode Selector Assembly A2A1 at A2A12A1P1A3. The A2A12 assembly amplifies the signal in three stages: A2A12A1Q2, A2A12A1Q4 and A2A12A1Q5. Average power control (APC), peak power control (PPC) and transmitter gain control (TGC) dc inputs from the AM-3924C(P)/URT rf power amplifier control the gain of these stages.

APC applies to NORMAL modes, and TGC applies to DATA modes; PPC functions in either NORMAL or DATA mode. These control voltages are capable of reducing the output of the T-827H/URT to zero from its nominal 250 mW PEP value. The amplified output of the A2A12 assembly is fed to RF Translator Subassembly A2A6A8 (part of Translator/Synthesizer Assembly A2A6). IF Amplifier Assembly A2A12 also receives a 500 kHz carrier reinsertion signal from the mode selector (A2A1). This signal appears in the CW, AM, and SSB pilot carrier modes of operation.

3-60. The audio (or data)-modulated IF input signal from Mode Selector Assembly A2A1 is coupled by A2A12A1C3 to the base of amplifier A2A12A1Q2. The base of A2A12A1Q2 is dc-biased by emitter followers A2A12A1Q1 and A2A12A1Q6. The PPC input from the AM-3924C(P)/URT rf power amplifier appears on the base of A2A12A1Q6.

3-61. The output from A2A12A1Q2 is then combined with the carrier reinsertion signal (if present) from connector A2A12A1P1-A2, and is applied to transformer A2A12A1T1. Transformer A2A12A1T1 drives gate 1 of amplifier A2A12A1Q4. The gain of A2A12-A1Q4 is adjusted by GAIN ADJ potentiometer A2A12A1R27. The output from A2-A12A1Q4 is fed to gate 1 of A2A12A1Q5, which amplifies the signal and then feeds it through transformer A2A12A1T2 to A2A12-A1P1-A1. From A2A12A1P1A1, the output is directed to the RF Translator A2A6A8.

3-62. In the CW and AM modes, and in SSB pilot carrier modes, the 500 kHz carrier signal is fed directly to amplifier A2A12A1Q4 via transformer A2A12A1T1. The signal is amplified in A2A12A1Q4 and A2A12A1Q5 and passed through transformer A2A12A1T2 to connector A2A12P1A1.

3-63. The APC (or TGC) signal from the AM-3924C(P)/URT rf power amplifier is applied through IF Filter Assembly A2A15 to amplifier A2A12A1Q3. The gain of A2A12-A1Q3 is controlled by potentiometer A2A12-A1R39. As the APC or TGC voltage increases, due to an increase of average power at the transmitter output, the amplified output of A2A12A1Q3 appears at gate 2 of amplifier A2A12A1Q5, and is used to linearly decrease gain of A2A12A1Q5 to maintain transmitter average power constant. GAIN ADJ Potentiometer A2A12A1R27 establishes a dc voltage on gate 2 of A2A12A1Q4 which sets the gain of this stage. Slope adjust potentiometer A2A12A1R39 sets the slope of the APC voltage to control the gain of A2-A12A1Q5.

3-64. The PPC signal limits the gain of amplifier A2A12A1Q2 during all modes of operation except CW. The PPC input from the AM-3924C(P)/URT rf power amplifier is applied through IF Filter Assembly A2A15 to emitter followers A2A12A1Q1 and A2A12-A1Q6. The output of A2A12A1Q1 controls the base bias of amplifier FA2A12A1Q2. The output of IF Amplifier Assembly A2A12 is limited when the peak RF amplifier power exceeds a predetermined level. The AM-3924C(P)/URT rf power amplifier is thereby protected against damage due to excessive peak-power outputs.

3-65. IF-TO-RF CONVERSION (Figure 5-5). Conversion of the intermediate frequency to the transmitted radio frequency takes place within RF Translator Subassembly A2-A6A8. This unit is part of Translator/Synthesizer Assembly A2A6. RF Translator Subassembly A2A6A8 receives the 500 kHz IF input from IF Amplifier Assembly A2A12 at A2A6P2-A2. In A2A6A8 it is converted in three mixer stages to the rf signal ranging from 2.0 to 29.9999 MHz. The output of A2-A6A8 is applied to RF Amplifier Assembly A2A4.

3-66. The mixing (injection) frequencies applied to the mixer stages are automatically selected. This is accomplished when the front panel tuning controls are set to the desired output frequency. Generation of the injection frequencies is accomplished by three frequency synthesizers (see paragraph 3-81).

3-67. Low Frequency Mixer. The 500 kHz amplitude controlled IF signal from IF Amplifier Assembly A2A12 is applied through low-pass filter A2A6A8L15 and A2A6A8-C66. It is then coupled by A2A6A8C14 to transmit-receive (TR) gating diode A2A6A8-CR2. Gating diode A2A6A8CR2 is forward biased when grounded by TR relay A2K3. The signal then proceeds through transformer A2A6A8T2 to pins 1 and 10 of low frequency mixer A2A6A8U1. The first mixer injection frequency (3.3001 to 3.4000 MHz) from the output of 10 kHz/1 kHz/100 Hz Synthesizer Subassembly A2A6A12 is applied to pin 2 of low frequency mixer A2A6A8U1. The specific first mixer injection frequency is determined by the setting of the front panel 10 kHz, 1 kHz and 100 Hz controls. (See Table 3-1).

3-68. Low frequency mixer A2A6A8U1 combines the intermediate and injection frequencies by a subtractive mixing operation. This action causes the difference frequency (2.8001 to 2.9000 MHz) to emerge as the strongest in the output of transformer A2-A6A8T3. From A2A6A8T3, the output is coupled to L-C filter 2A6A8FL3 through forward biased TR gating diode A2A6A8CR5 and capacitor A2A6A8C18. A2A6A8FL3 has a bandpass of 2.80 to 2.90 MHz. This narrow bandpass rejects all outputs from the first mixer circuit except the desired difference frequency.

3-69. Mid-Frequency Mixer. The output of bandpass filter A2A6A8FL3 is coupled through capacitor A2A6A8C24, gating diode A2A6A8CR7, and transformer A2A6A8T5 to pins 1 and 10 of mid-frequency mixer A2A6-A8U2. TR gating diode A2A6A8CR7 is forward biased by the application of +20 Vdc from TR relay A2K3. The second input to mid-frequency mixer A2A6A8U2 is the injection signal from 100 kHz Synthesizer Subassembly A2A6A17 appearing at pin 2. The injection frequency subtractively mixes in A2-A6A8U2 with the 2.8001 to 2.9000 MHz signal from the low frequency mixer.

3-70. In lo-band, the 22.4 to 23.3 MHz injection frequency produces a 19.5000 to 20.4999 MHz output of the mid-frequency mixer. (See Table 3-1). This is coupled through transformer A2A6A8T4, gating diode A2A6A8CR8, capacitor A2A6A8C38, gating diode A2A6A8CR10, and capacitor A2A6A8-C41 to the 20 MHz L-C bandpass filter A2-A6A8FL1. Lo-band gating diodes A2A6A8-CR10, A2A6A8CR12 are forward biased by application of +20 Vdc from the hi-lo filter relay A2K2 in the main frame.

3-71. In hi-band the injection frequency from the 100 kHz synthesizers is 32.40 to 33.30 MHz. The hi-band injection frequency is mixed with the 2.8001 to 2.9000 MHz signal from the low frequency mixer to produce a 29.5000 to 30.4999 MHz output. The hi-band signal is coupled through transformer A2A6A8T4, forward biased gating diode A2A6A8CR8, capacitor A2A6A8C38 gating diode A2A6A8CR11, and capacitor A2A6-A8C40, to the 30 MHz L-C bandpass filter A2A6A8FL2. During the hi-band operation, hi-lo filter relay A2K2 applies a ground to gating diodes A2A6A8CR11 through A2A68-CR13. This reverse biases the lo-band gating diodes (A2A6A8CR10, A2A6A8CR12) and forward biases the hi-band gating diodes (A2A6A8CR11, A2A6A8CR13).

3-72. High Frquency Mixer. The signal from lo-band filter A2A6A8FL1 or hi-band filter A2A6A8FL2 is applied to pins 1 and 10 of high frequency mixer A2A6A8U3 through capacitors A2A6A8C48, A2A6A8C51, forward biased TR gating diode A2A6A8CR16, and transformer A2A6A8T7. A 2.5 to 23.5 MHz injection signal (see Table 3-1) from 10 MHz/1 MHz Synthesizeer Subassembly A2-A6A13 (via 10 MHz/1 MHz Filter Subassembly A2A6A14) is applied to A2A6A8U3 pin 2. The output signal, which ranges from 2.0 to 29.9999 MHz, is coupled through transformer A2A6A8T6, gating diode A2A6A8-CR17, and capacitors A2A6A8C56 through A2A6A8C58, A2A6A8CR14, A2A6A8L14, A2A6A8C59 to connector A2A6P3-A2 where it is coupled to RF amplifier A2A4. TR gating diode A2A6A8CR17 is forward biased by application of +20 VDc from the TR relay A2K3.

3-73. Variable Inductor A2A6A8L14 and capacitor A2A6A8C59 form a 19.5 MHz trap. This corresponds to the lo-band intermediate frequency input to the third mixer A2A6A8U3 when the output frequency is approximately 7.1 MHz. The value of A2A6-A8L14 is adjusted for maximum attenuation of the third IF signal in the output at A2A6-A8E12. The IF trap is bypassed in hi-band operation by gating diode A2A6A8CR14. This occurs when A2A6A8CR14 cathode is grounded by hi-lo filter relay A2K2.

3-74. RF AMPLIFICATION (Figure 5-6). The 2.0 to 29.9999 MHz rf signal from Trans-

Table 3-1. Comprehensive Frequency Translation Chart

MHz CONTROL SETTINGS	HIGH FREQUENCY MIXER INJECTION SIGNAL (MHz)		100 KHz CONTROL SETTING	MID-FREQUENCY MIXER INJECTION SIGNAL (MHz) IN 100 kHz STEPS		10 kHz CONTROL SETTING	LOW FREQUENCY MIXER INJECTION SIGNAL (MHz) IN 100 Hz STEPS
	LO-BAND	HI-BAND		LO-BAND	HI-BAND		
2	17.5		0	22.40	32.40	0	3.4000 to 3.3901
3	16.5		1	22.50	32.50	1	3.3900 to 3.3801
4	15.5		2	22.60	32.60	2	3.3800 to 3.3701
5	14.5		3	22.70	32.70	3	3.3700 to 3.3601
6		23.5	4	22.80	32.80	4	3.3600 to 3.3501
7	12.5		5	22.90	32.90	5	3.3500 to 3.3401
8	11.5		6	23.00	33.00	6	3.3400 to 3.3301
9		20.5	7	23.10	33.10	7	3.3300 to 3.3201
10		19.5	8	23.20	33.20	8	3.3200 to 3.3101
11	8.5		9	23.30	33.30	9	3.3100 to 3.3001
12	7.5						
13		16.5					
14	5.5						
15	4.5						
16	3.5						
17		12.5					
18		11.5					
19		10.5					
20		9.5					
21		8.5					
22	2.5						
23	3.5						
24		5.5					
25		4.5					
26		3.5					
27	7.5						
28	8.5						
29	9.5						

lator/Synthesizer A2A6 is received by RF Amplifier Assembly A2A4 at A2A4P2-A5. A2A4 amplifies the rf signal in three transistor stages and two vacuum-tube stages. The resulting rf output level is suitable for driving the Radio Frequency Amplifier AM-3924C(P)/URT. Interstage tuning networks for the frequency in use are selected by setting the front panel frequency controls.

3-75. The rf input from RF Translator Subassembly A2A6A8 is applied from connector A2A4P2-A5 to rf mixer amplifier subassembly A2A4A38. Here it is amplified by common-emitter rf amplifier A2A4A38Q1 through A2A4A38Q3. The overall gain of rf mixer amplifier A2A4A38 is controlled by adjusting the setting of rf gain potentiometer A2A4A38R6.

3-76. The rf signal from rf amplifier A2A4-A38Q3 is applied through contacts A1 and A2 of TR relay A2A4A38K1 to contact E1, located on a fixed stator strip. Here it is applied to one of 28 interstage coupling assemblies, A2A4A2-A29, mounted on a turret. Each interstage coupling assembly is tuned to the center frequency of its 1 MHz bandpass. The 28 assemblies provide coverage of the entire 2.0 to 29.9999 MHz rf frequency range. Capacitors are mounted on a rotor within the turret. These are connected in parallel with transformers in the 1 MHz bandpass coupling assemblies. This allows tuning of the assemblies to specific frequencies within the MHz bandpass.

3-77. Each of subassemblies A2A4A2-A29 has a tansformer T1 and capacitor C2. These are connected in series with capacitors in rotor assemblies A2A4A30 and A2A4A31. This constitutes the first tuned rf circuit. The second tuned circuit consists of transformer T2 and capacitor C3 within subassemblies A2A4A2-A29. These are connected in series with capacitors in rotor assemblies A2A4A32 and A2A4A33. Capacitor A2A4C1 couples the rf signal to the grid of A2A4V1. A tuned circuit in the output of A2A4V1 consists of transformer T3 and capacitor C4 of subassemblies A2A4A2-A29, in series with capacitors in rotor assemblies A2A4A34 and A2A4-A35.

3-78. The amplified rf signal at the output of A2A4V1 is coupled by A2A4C5 to the input of rf amplifier A2A4V2 via A2A4FL2. The tuned output circuit of A2A4V2 consists of transformer T4 and capacitor C5 of subassemblies A2A4A2-A29, in series with capacitors in rotor assemblies A2A4A36 and A2A4-A37. The amplified rf signal at the secondary of T4 appears at output connector A2A4-P2-A1. Here it is connected to the AM-3924C(P)/URT rf power amplifier.

3-79. A shaper pulse from power supply A2-A8 is applied to the grids of rf amplifiers A2-A4V1 and A2A4V2 from A2XA4P2-9 at the instant the T-827H/URT is keyed. This pulse appears as a large negative bias voltage to the grids of A2A4V1 and A2A4V2, momentarily holding the rf output from RF Amplifier Assembly A2A4 at zero. This key-on shaper pulse suppresses large amplitude rf signals in the output at the first instant of signal transmission. This allows the output level control circuits of the AM-3924C(P)/URT rf power amplifier to take control. The grid bias returns to normal at a rate controlled by R-C network located in Power Supply Assembly A2A8, and the T-827H/URT rf output increases to normal as control grid bias falls.

3-80. The turret-tuning assemblies of RF Amplifier Assembly A2A4 are selected in response to tuning-code signals received from Code Generator Assembly A2A7. Setting the front panel 10 MHz and 1 MHz controls to a desired frequency causes Code Generator Assembly A2A7 to provide a specific five-wire tuning code (combination of open and grounded lines) to turret decoder switch A2A4S1. Turret drive relay A2A4K1 then energizes and activates motor A2A4B1. A2A4B1 rotates the turret and decoder switch wafers until the decoder reaches a position where its contacts reflect the complement of the code generator input. When this occurs, A2A4S1 is at a position that interrupts all ground paths to A2-A4K1. Turret drive relay A2A4K1 then deenergizes, stopping motor A2A4B1. The turret is now positioned as required for the selected 10 MHz and 1 MHz control settings. The 100 kHz and 10 kHz rotor assemblies are selected by the 100 kHz and 10 kHz front panel controls through mechanical linkage.

3-81. FREQUENCY SYNTHESIS (Figure 3-2). Injection frequencies for the three frequency mixers of RF Translator Subassembly

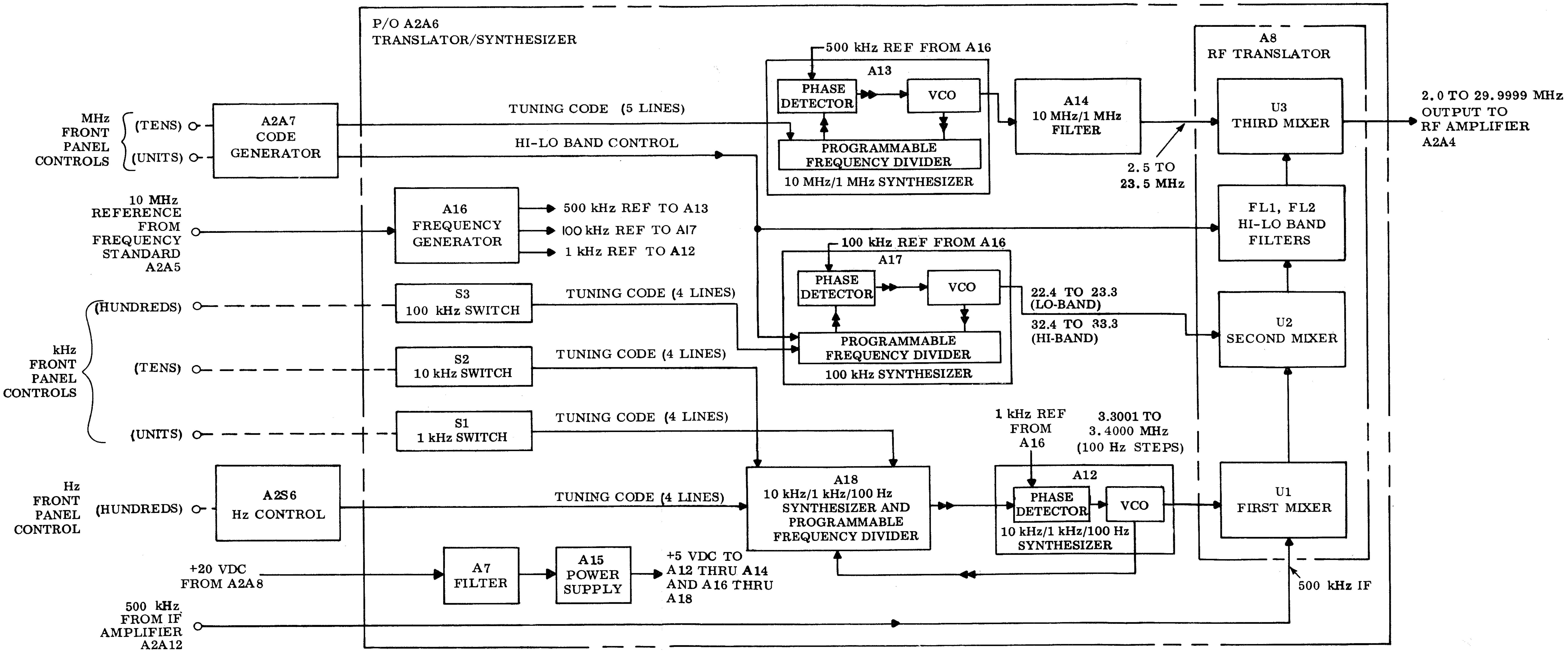


Figure 3-2. Frequency Synthesis and Translation, Functional Block Diagram

A2A6A8 are generated within the following subassemblies of Translator/Synthesizer Assembly A2A6:

1. 100 kHz Synthesizer A2A6A17
2. 10 kHz/1 kHz/100 Hz Synthesizers A2A6A12 and A2A6A18
3. 10 MHz/1 MHz Synthesizers A2A6A13 and A2A6A14

The injection frequencies are developed using reference frequencies from Frequency Generator Subassembly A2A6A16. The reference frequencies are locked to the 10 MHz output of Frequency Standard Assembly A2A5.

3-82. Frequency control is provided for the 10 MHz/1 MHz synthesizer by controls on the front panel which position Code Generator Assembly A2A7. The 100 kHz, 10 kHz and 1 kHz front panel controls use chain-drives to position coding switches A2A6S1 through A2A6S3. The 100 Hz steps are set by front panel Hz switch A2S6.

3-83. Each of the three synthesizers employs a phase-locked loop circuit to ensure that the output injection frequencies are correct. In the case of the 10 kHz/1 kHz/100 Hz unit, the output from the voltage controlled oscillator (VCO) on the A2A6A12 subassembly is applied to a programmable frequency divider. The divider, located on subassembly A2A6A18, provides one input to a phase detector. A second phase detector input, a stable 1 kHz reference, is provided by Frequency Generator A2A6A16. The output frequency of the programmable frequency divider is determined by codes set in Hz switch A2S6, 1 kHz switch A2A6S1 and 10 kHz switch A2A6S2. If the two inputs to the phase detector are not exactly the same frequency, a correction voltage is developed in the phase detector. This correction voltage is applied through a loop filter to the VCO. The VCO output frequency then changes to re-establish a 1 kHz input to the phase detector. The VCO is therefore locked to the 1 kHz standard frequency from A2A6A16. The VCO output frequency of A2A6A12 is divided by ten and applied through a filter network as the injection signal to low frequency mixer A2A6A8U1.

3-84. Synthesizer circuits A2A6A17 and A2A6A13 differ slightly from the preceeding example. All circuitry for the 100 kHz Synthesizer Subassembly A2A6A17 is located on one printed wiring board. The VCO output frequency is not divided prior to use in mid-frequency mixer A2A5A8U2. A hi-lo band control voltage, from Code Generator Assembly A2A7, is applied to the frequency divider in A2A6A17 to determine the output injection signal frequency range.

3-85. The 10 MHz/1 MHz synthesizer circuit A2A6A13 differs only in that the frequency divider is programmed by the five-line code output of Code Generator Assembly A2A7. The VCO output is filtered in the separate subassembly A2A6A14.

3-86. STANDARD FREQUENCY GENERATION AND DISTRIBUTION (Figure 5-7). Frequency Standard Assembly A2A5 provides accurate reference frequencies for use in Radio Transmitter T-827H/URT. The frequencies are produced either from a 5 MHz external input provided by a frequency standard at the installation site, or from an internal oven-controlled 5 MHz oscillator circuit. The internal 5 MHz oscillator circuit is comprised of crystal-controlled oscillator A2A5A1Q1 and associated circuitry. Precise adjustment of the oscillator output frequency is provided by A2A5A1C2 and A2A5A1C3. The 5 MHz reference frequency is divided and multiplied in Divider/Amplifier Subassembly A2A5A2 to produce the highly stable output frequencies referenced in paragraph 3-11.

3-87. Reference Control. The 5 MHz Reference Control Subassembly contains logic circuits which evaluate the incoming external 5 MHz reference signal. If the amplitude is too low, the logic circuits select the internally generated 5 MHz signal. Specifically, when the external reference falls below approximately 0.25 volts, the output from detector A2A5A4CR6 falls low enough to turn off emitter follower A2A5A4Q2. This results in logic lows at A2A5A4U1A-1 and A2A5A4-U1B-6; and logic highs at A2A5A4U1A-3 and A2A5A4U2B-5. A2A5A4U1A-2, A2A5A4-U2B-5, and A2A5A4U2D-13 are wired high in the EXT/NORM and EXT/(OVEN STBY) position of A2A5A2S1. The result is that the internal reference from A2A5A1Q3 is routed, via A2A5A4U2A through A2A5A4U2B and

A2A5A4U2C, to the Divider/Amplifier Assembly A2A5A2 for use in the equipment. The external reference line is blocked at A2A5A4U1C.

3-88. Reference Source Selection. A three position 5 MHz OSC SOURCE switch A2A5-A2S1 is used to select one of two modes of the external 5 MHz source, or the internal 5 MHz source. When the 5 MHz OSC SOURCE switch is in EXT NORM position, the external standard provides the 5 MHz reference signal. At this time the Oven Subassembly A2A5A3 is off. When the 5 MHz OSC SOURCE switch is in EXT (OVEN STBY) position the external source supplies the reference signal, and the oven heater is enabled and maintains a constant temperature. When the 5 MHz OSC SOURCE switch is in INT/COMP position, the oven-stabilized crystal oscillator in A2A5A1 provides the reference signal.

3-89. When the 5 MHz OSC SOURCE switch is in EXT NORM position, pull-up resistor A2A5A4R10 provides a logic high to A2A5-A4U1A-2, and NAND gate A2A5A4U1A outputs the amplified external 5 MHz frequency standard signal at A2A5A4U1A-3 and an inverted version of this signal at A2A5A4U1B-6. Thus, the inverted 5 MHz signal appears simultaneously on both inputs of A2A5A4-U1C. A2A5A4U1C operates as an inverter, and the reinverted 5 MHz signal appears as the amplified 5 MHz standard frequency at A2A5A4U2C-9. Since NAND gate A2A5A4-U2D-13 is at a steady logic high, A2A5A4-U2D inverts the amplified external 5 MHz, which appears at A2A5A4U2B-5. A2A5A4-U2B functions as an inverter; hence, A2A5-A4U2C-10 sees the same signal as A2A5A4-U2C-9. This causes A2A5A4U2C to function as an inverter, and the amplified 5 MHz external frequency standard is fed via A2A5-A4U2C-8 to the divider/amplifier assembly A2A5A2.

3-90. When the 5 MHz OSC SOURCE switch is in EXT (OVEN STBY) position the external source supplies the reference signal with all gate logic the same as for EXT/NORM. The oven heater is enabled and maintains a constant oven temperature. When the 5 MHz OSC SOURCE switch is in INT/COMP position, the crystal oscillator in A2A5A1 provides the reference signal, and the oven maintains its constant temperature. Amplifiers A2A5A1Q1, crystal A2A5A1Y1, and associated components form a modified Pierce oscillator which provides the internal 5 MHz frequency standard. This signal is amplified by A2A5A1Q2, A2A5A1Q3 and coupled to inverter A2A5A4U2A where it is inverted and fed to NAND gate input A2A5A4U2B-4. In position 3 (INT/COMP) of 5 MHZ oscillator source switch A2A5A2S1, NAND gate terminal A2A5A4U2D-13 is held low, as is NAND gate A2A5A4U1A-2. Thus, NAND gate A2-A5A4U1A-3 output stays high, blocking the external 5 MHz reference and causing A2-A5A4U1B-6 and A2A5A4U2D-12 to stay low. Hence, A2A5A4U2D-11 output is high, enabling A2A5A4U2B to pass the inverted, internally generated, 5 MHz reference received from A2A5A4U2A-3. Since now A2-A5A4U1C-9 is steady logic low, A2A5A4-U2C-9 is high and A2A5A4U2C passes the internal 5 MHz frequency standard, again reinverted.

3-91. Oven Temperature Control Sensor. Changes in oven temperature are sensed by A2A5A3R2 and applied as an input to the differential amplifier consisting of A2A5A1Q4 and A2A5A1Q5. When oven temperature tends to increase, the resistance of A2A5-A3R2 also tends to increase changing the balance of sensor bridge A2A5A1R13 through A2A5A1R16 and the corresponding input to the differential amplifier circuit. A2A5A1-Q6 then provides less base current to A2A5-A1Q7, decreasing conduction in A2A5A4Q5 and, the current through the heater A2A5-A3R1, resulting in a tendency to oppose an increase in the crystal oven operating temperature. The reverse effect stabilizes the oven against a tendency to decrease in temperature.

3-92. Frequency Divider. Divider/Amplifier Subassembly A2A5A2 contains divider circuits and multiplier circuits. The 5 MHz input at A2A5A2E9 is amplified by A2A5A2Q1 and A2A5A2Q6. The output from A2A5A2Q1 is coupled to divide-by-five oscillator A2A5-A2Q2, which is tuned to 1 MHz. The A2A5-A2Q2 output is coupled to divide-by-two oscillator A2A5A2Q4 and 1 MHz amplifier A2-A5A2Q3. The 1 MHz output of A2A5A2Q3 is coupled to A2A5P1A3 via the parallel resonant circuit combination of A2A5A2C13 and A2A5A2T1. The output of A2A5A2Q4 is amplified in 500 kHz amplifier A2A5A2Q5. It is coupled to A2A5P1-A1 and A2A5P1-A2 via the parallel resonant circuit formed by A2A5A2C22 and A2A5A2T2.

3-93. Frequency Multiplier. The 5 MHz output of A2A5A2Q6 is coupled to 10 MHz amplifier A2A5A2Q7. A2A5A2Q7 is tuned to the second harmonic of the input 5 MHz by capacitor A2A5A2C31. The 10 MHz input to amplifier A2A5A2Q8 is further amplified and appears at the primary of transformer A2-A5A2T3, which is part of a parallel resonant circuit tuned by trimmer A2A5A2C33. The 10 MHz output from A2A5A2T3 appears at A2A5P1-A5. The output from A2A5A2Q6 is also applied to 5 MHz amplifier A2A5A2Q9. Capacitor A2A5A2C38 is adjusted to provide the proper 5 MHz output at A2A5P1-A6.

3-94. Comparator Circuit. Setting oscillator source switch A2A5A2S1 in the INT/COMP position grounds one input to each of NAND gates A2A5A4U1A and A2-A5A4U2D. This action results in a visual comparison of the internally generated 5 MHz reference and the external 5 MHz input. NAND gates A2A5A4U1A and A2A5-A4U2D cause the internal 5 MHz to be present at NOR gate A2A5A4U2C and the external input to be blocked. Both the internal and external signals are present at the input of phase detector A2A5A4U1D. The output of A2A5A4U1D is a series of pulses with a repetition rate equal to the frequency difference between reference oscillators. Amplifier A2A5A2Q10 and lamp driver A2A5A2-Q11 raise the power level of the pulses to drive the lamp. (In some units, Amplifier A2A5A2Q10 and Lamp Driver A2A5A2Q11, with associated components, are replaced by a simplified LED circuit performing the same function.) The flash rate of the lamp equals the difference in frequency between the internal and external reference oscillators and permits an accurate adjustment of the internal oscillator A2A5A1Q1 with tuning capacitors A2A5A1C2 and A2A5A1C3.

3-95. FREQUENCY GENERATOR (Figure 5-8). The 10 MHz output from Frequency Standard Assembly A2A5 appears at connector A2A6A16P1A1. It is applied to a two-stage amplifier consisting of A2A6A16Q1, A2A6A16Q2 and associated components. The amplified 10 MHz signal is shifted to the proper logic level by level shifter A2A6A16-U1A. Buffer stages A2A6A16U1B and A2-A6A16U1C isolate the output of A2A6A16-U1A from the succeeding divider circuit. The 10 MHz logic level signal then appears at the input of decade divider A2A6A16U2. Divider A2A6A16U2 applies a 1 MHz signal output to binary/decade divider A2A6A16U3. The binary division output from pin 12 of A2A6A16U3 is used as the 500 kHz reference signal in 10 MHz/1 MHz Synthesizer Subassembly A2A6A13. The decade division output from pin 11 of A2A6A16U3 is used as the 100 kHz reference signal by the 100 kHz Synthesizer Subassembly A2A6A17. It is also applied to decade dividers A2A6-A16U4 and A2A6A16U5. The 1 kHz output of A2A6A16U5 appears at connector A2A6-A16P1A3 for use in 10 kHz/1 kHz/100 Hz Synthesizer Subassembly A2A6A12 when +4.3 Vdc is present at input connector A2A6A16-P1-9. This +4.3 Vdc causes transistor switch A2A6A16Q3 to conduct and A2A6A16Q4 to cut off. The resulting positive voltage at the collector of A2A6A16Q4 is applied to NAND gate A2A6A16U6B. This opens the gate and passes the 1 kHz reference signal through NOR gate A2A6A16U6D to connector A2A6-A16P1-A3. The positive collector voltage from A2A6A16Q4 is also applied to inverter A2A6A15U6A, which causes NAND gate A2-A6A16U6C to close and isolate the vernier 1 kHz reference from NOR gate A2A6A16U6D.

3-96. 10 kHz/1 kHz/100 Hz Synthesizer (Figure 5-9). The 10 kHz/1 kHz/100 Hz Synthesizer Subassemblies A2A6A18 and A2A6-A12 produce the 3.3001 to 3.4000 MHz injection signals used in the low-frequency mixing circuits of RF Translator Subassembly A2-A6A8. An electronic, closed loop servo system compares the output signal with a 1 kHz input reference signal from Frequency Generator Subassembly A2A6A16. Any error detected is converted into a dc control voltage which corrects the output frequency. When the phase difference between the output signal and the reference signal is constant, the loop is locked.

3-97. The injection signal is generated by a voltage controlled oscillator (VCO) assembly

A2A6A12A1. The VCO is comprised of LC oscillator A2A6A12A1U1 and its associated components. A2A6A12A1L1, A2A6A12A1C2 through A2A6A12A1C3, and the varactor diode A2A6A12A1CR1 form the tank circuit which determines the oscillator output frequency. A2A6A12A1CR1 presents capacitance in the tank, whose value is determined by the amount of applied voltage. The VCO output frequency ranges from 33.001 to 34.000 MHz. The output of the VCO is applied to emitter follower A2A6A12A1Q1, which isolates LC oscillator A2A6A12A1U1 from the output circuitry loads. The output is then applied to inverters A2A6A12U2A through A2A6A12U2C, which provide the correct logic level input to pin 8 of decade divider A2A6A12U3. The 3.3001 to 3,4000 MHz output signal from pin 2 of A2A6A12U3 is inverted by A2A6A12U2D and applied to bandpass filter A2A6A12L6-L10 and A2A6-A12C10-C12. The level of injection signal output is adjustable by means of variable resistor A2A6A12R16. The output from LC oscillator A2A6A12A1U1 is also applied to the divider network subassembly A2A6A18.

3-98. The divider network Subassembly A2-A6A18 divides the 34.000 MHz input by the factor necessary to produce a 1 kHz output. Prescaler A2A6A18U1 divides the 33.001 to 34.000 MHz VCO output by 11 when a logic low (0 to +0.4 Vdc) from pin 7 of counter control logic A2A6A18U2 is applied to pins 9 and 10 of A2A6A18U1. Prescaler A2A6A18-U1 continues to divide by eleven until divider A2A6A18U3 has counted down from a preset number to zero. At this time, counter control logic A2A6A18U2 applies a logic high (+2.4 to +5.0 Vdc) to pins 9 and 10 of A2A6-A18U1. Prescaler A2A6A18U1 now divides by a factor of ten until cascade dividers A2-A6A18U4 - A2A6A18U7 reach the all-zero state. The counting cycle is now complete and the dividers are reset in preparation for the next cycle.

3-99. The purpose of cascaded dividers A2-A6A18U4 through A2A6A18U7 is to form the required division to synthesize the indicated mixing frequency from the approximately 3.3989 MHz output of prescaler A2A6A18U1. BCD converters A2A6A18U9 and A2A6A18U10 form the required codes to program dividers A2A6A18U4 through A2-A6A18U7 to correct divisors. These divisors are determined by the settings of coding switches A2A6S1 and A2A6S2 on the chassis of A2A6, as read in on A2A6A18P1-3 through A2A6A18P1-6 and A2A6A18P1-12 through A2A6A18P1-15. The 100 Hz inputs on A2-A6A18P1-8 through A2A6A18P1-11, from 100 Hz switch A2S6, determine the programming of preset divider A2A6A18U3. Resistors A2A6A18R22 - A2A6A18R25 and A2A6A18R18 - A2A6A18R21 are pull-up resistors for integrated circuit inputs A2A6-A18U10-10, 11, 12, 13 and A2A6A18U9-10, 11, 12, 13. Counter control logic A2A6A18-U2 totals the individual counts to dividers A2A6A18U4 through A2A6A18U7, and generates a reset pulse to begin the next count cycle.

3-100. The output of the divider network is applied to pin 3 of phase detector A2A6A12-U1. A2A6A12U1 develops an output in proportion to the magnitude and direction of the phase difference between the divider network output and the 1 kHz reference input from Frequency Generator Subassembly A2-A6A16. The phase detector output enables transistor A2A6A12Q2 of the charge pump circuit through resistor A2A6A12R19, or it enables transistor A2A6A12Q3 through resistor A2A6A12R4. The output of the charge pump is applied to loop filter A2A6A12C2, A2A6A12R7 and A2A6A12R9, which filters the pulses providing the dc control voltage to be applied to the variable capacitance diode A2A6A12A1CR1. The dc control voltage will decrease or increase the bias on A2A6A12-A1CR1, changing the capacitance of A2A6-A12A1CR1, as required, to establish the proper output frequency from the VCO.

3-101. 100 kHz Synthesizer (Figure 5-10). The 100 kHz Synthesizer Subassembly A2A6-A17 produces the injection frequency of 22.40 to 23.30 MHz (lo-band) or 32.40 to 33.30 MHz (hi-band) used in the mid-frequency mixer circuits of RF Translator Subassembly A2A6A8. A comparison of figure 5-10 with figure 5-9 shows that, except for component values, most circuits are identical to the corresponding circuits of the 10 kHz/1 kHz/100 Hz synthesizer.

3-102. The frequency divider network divides the VCO output frequency by a number in the range of 224 to 233 or 324 to 333 as determined by the setting of the 100 kHz coding switch A2A6S3 and the state of the hi-lo band control line at pin 7 of A2A6A17-P1. The divider network output is applied to phase detector A2A6A17U1. The phase detector compares the output signal with the 100 kHz reference signal from Frequency Generator Subassembly A2A6A16. Any error detected causes the VCO frequency to be corrected in the same manner described for the 10 kHz/1 kHz/100 Hz Synthesizer.

3-103. Programmable divider network A2-A6A17U4 through A2A6A17U8 functions similarly to the 10 kHz/1 kHz/100 Hz synthesizer divider network except there are no complement converters, and division control is preset to either 2 or 3 in response to the state of the hi-lo band control input at A2-A6A17P1-7. Transistor A2A6A17Q3 converts the +20 Vdc/ground control input into logic low/logic high levels for application to data pin 5 of A2A6A17U8. Thus, A2A6A17U8 is preset to divide-by-2 for a +20 Vdc control input (lo-band) and to divide-by-3 for a ground control input (hi-band).

3-104. The VCO output is applied to amplifier A2A6A17Q1. The setting of variable resistor A2A6A17R10 establishes the output signal level. The signal is applied from the collector of A2A6A17Q1 to a bandpass filter consisting of A2A6A17L4 - A2A6A17L7, A2-A6A17C15, A2A6A17C17 and A2A6A17C18. Amplifier A2A6A17Q2 provides isolation and a low impedance output to the mid-frequency mixing circuits of RF Translator Assembly A2A6A8.

3-105. 10 MHz/1 MHz Synthesizer (Figure 5-11). The 10 MHz/1 MHz Synthesizer Subassembly A2A6A13 and 10 MHz/1 MHz Filter Subassembly A2A6A14 provide one of 17 injection frequencies, in the range of 2.5 to 23.5 MHz, to the high frequency mixer circuit of RF Translator Subassembly A2A6A8. A 20 to 50 MHz VCO output signal is applied through a programmable frequency divider network to establish one input to phase detector A2A6A13U1. Phase detector A2A6-A13U1 then compares this signal with a 500 kHz reference signal supplied by Frequency Generator Subassembly A2A6A16, and generates a dc correction voltage (via loop filter A2A6A13U2, A2A6A13C3, A2A6A13R8) to lock the VCO frequency.

3-106. The VCO output signal is applied to level shifters A2A6A13U4A and A2A6A13-U4B, which provide logic level conversion to divider A2A6A13U5. A2A6A13U5 provides divisions by 2, 4, or 8, at pins 5 and 6, 9 and 2, respectively.

3-107. The gating circuitry selects the outputs from divider A2A6A13U5 and the appropriate filter in 10 MHz/1 MHz Filter Subassembly A2A6A14. If pins 1 and 2 of A2-A6A13U11 are at logic high and logic low levels, respectively, NAND gates A2A6A13-U4C - A2A6A13U4D will open and pass the divided-by-8 output of A2A6A13U5 to the divider network via NOR gate A2A6A13U7A - A2A6A13U7C and enable 4 MHz filter switch A2A6A14Q1. In a similar manner, NAND gates A2A6A13U6A - A2A6A13U6B enables the divided-by-4 output of A2A6A13U5 when output pin 1 of A2A6A13U11 is at a logic low. NAND gate A2A6A13U6C-U6D selects the divided-by-2 output from A2A6A13U5. Diodes A2A6A13CR5-A2A6A13CR6 monitor the lines from pins 2 and 1 of A2A6A13U11 and cut off A2A6A13Q2 if either is low. This action closes the divide-by-2 gates. When both lines are at logic high A2A6A13Q2 turns on, opening gates A2A6A13U6C-U6D and enabling switch A2A6A14Q7.

3-108. Decade dividers A2A6A13U9 and A2A6A13U10 are preset via the data inputs to pins 2, 11 and 14. A five-wire tuning code consisting of open circuits and grounds from Code Generator Assembly A2A7 is applied through filter assembly A2A6A13A1 to input pins 10 through 14 of A2A6A13U11. The five binary bits from code generator A2A7 represent any of 28 combinations of settings of the front-panel 10 MHz and 1 MHz dials. These input codes are converted to natural BCD format in eight bit-positions at the output of A2A6A13U11. The code is then applied to data pins 5, 11 and 14 of A2A6A13-U10 and pins 2, 11, and 14 of A2A6A13U9.

3-109. Counter Control Logic A2A6A13U8 monitors the count in dividers A2A6A13U9 and A2A6A13U10, accepts the output of NOR gates A2A6A13U7A-A2A6A13U7C at A2A6A13U8-1, and passes the divided 500 kHz output to phase detector input A2A6-

A13U1-3. NOR gates A2A6A13U7A-A2A6-A13U7C will select only one of the divided frequencies from NAND gates A2A6A13U4C-A2A6A13U4D and A2A6A13U6A-A2A6A13-U6D. These NAND gates are enabled, along with MHz Filter Switches A2A6A14Q1, A2-A6A14Q4, and A2A6A14Q7, by the BCD outputs of A2A6A13U11-1 and A2A6A13U11-2 and the outputs of NAND gate A2A6A13Q2. Inductors A2A6A14L6, A2A6A14L12, and A2A6A14L18 function as rf suppressor chokes to the V_{cc} power supply for the filter amplifiers.

3-110. The three filter networks within 10 MHz/1 MHz Filter Subassembly A2A6A14 operate in the same manner. The injection signal is supplied to a conventional, untuned RF amplifier. A variable resistor in the emitter circuit of the RF amplifier adjusts the output level applied to the bandpass filter. This filter rejects all frequencies except the desired injection signal. Buffers A2A6-A14Q3, A2A6A14Q6, and A2A6A14Q7 provide a low impedance injection signal source for RF Translator Subassembly A2A6A8.

3-111. CW, RATT, DATA, and PTT KEYING CONTROL (Figure 5-12). In local CW operation, the cw handkey grounds CW Hold Relay A2K5 to initiate keying of the T-827H/URT. In remote CW/RATT operation, keying is initiated by a ground supplied from the associated CW/RATT equipment at connector A1A1J4-c. In either case, the ground path is directed to A2K5 via switch elements A2S1-B-R and A2S2-E-R. A2K5 is thereby energized, and completes a ground path via A2K5B1 and A2K5B2, switch element A2S2-E-F, contacts A2 and A3 of unenergized PTT Relay A2K4, to pin X2 of T/R Relay A2K3. A2K3 becomes energized, and applies the transmit mode operating voltages to the T-827H/URT circuits. Capacitors A2A8C10 and A2A8C11 discharge through the CW HOLD relay coil, causing A2K5 to remain energized for approximately one second after the cw handkey is released. Thus, the T-827H/URT remains in a ready-to-transmit condition during the intervals between cw code pulses. No relay contacts actually switch at the cw keying rate. Local RATT keying is accomplished via the RATT key input at connector A1A1J7-A. This energizes A2K3 via a ground path through contacts 3 and 5 of switch section A2S1-B-R, contacts 4 and 6 of switch section A2S2-E-F, and contacts A2, A3 of unenergized PTT RELAY A2K4.

3-112. With DATA/NORMAL switch A2S11 set at DATA, relays A2A21A20K1 and A2-A21A20K2 on Audio Control Assembly A2-A21A20 energize and place the T-827H/URT into DATA mode in LSB, USB, or ISB, depending on the setting of the Mode Selector Switch A2S2. The ground to relay A2K3 is held through the contacts of relay A2A21-A20K2. The +6 Vdc applied to DATA Keyline Input A2A1J8-E is connected to A2A21XA20-7 on the Audio Control Assembly, causing A2A21A20Q10 to conduct. This provides a ground keyline connection to A1A1J4-K through contacts of relay A2A21A20K1, and allows various relays in the AM-3924C(P)/URT amplifier to operate.

3-113. The PTT relay A2K4 is energized by +12 Vdc from the local handset (at HANDSET Connector A2J1) during local operation. In remote operation, it is energized by the remote 12 Vdc and return (at rear case connector A1A1J4-K and H). When energized, A2K4 connects a keyline ground through the de-energized tune relay A2K1 to contact X2 of TR relay A2K3. The keyline ground causes A2K3 to energize and apply the transmit operating voltages to the T-827H/URT circuits.

3-114. Tune relay A2K1 energizes during tuning operations. This is accomplished by the ground path provided by Code Generator Assembly A2A7 or by RF Amplifier Assembly A2A4. Contact X2 of A2K1 is grounded whenever turret relay A2A4K1 is energized. The energized tune relay A2K1 removes +28 Vdc from the +20 Vdc regulator A2Q1 to disable transmit voltages during the tuning cycle. Tune relay A2K1 is also energized by a ground path from Code Generator Assembly A2A7 whenever the front panel MHz controls are set to the 00 or 01 position.

3-115. <u>POWER DISTRIBUTION.</u> (Figures 5-13 thru 5-15).

3-116. AC Power Distribution (Figure 5-13). A 105 to 125 Vac, 48 to 420 Hz, single phase, power source is required by transmitter T-827H/URT. It is connected at pins R and S of connector A1A1J4 or pins A and C of connector A1A1J3. The input at A1A1J4 is used when the T-827H/URT is part of Radio Transmitting Set AN/URT-23C(V)1. A1A1J3 is used when the T-827H/URT is operated independently of Radio Transmitting Set AN/URT-23C(V)1. AUX/NORM switch A1S2 (figure 2-2) selects the A1A1J3 or A1-A1J4 input. Power is then routed to interlock switch A1S2. Interlock switch sections A1S2A and A1S2B open both sides of the line when the main frame chassis is extended from the case. Power from A1S2 is connected to mode selector switch sections A2-S2-B-F and A2S2-A-F through case-to-main-frame connectors A1P1 and A2J21. Contact is made between pins 11 and 12 of A2S2-B-F and pins 6 and 7 of A2S2-A-F in all mode selector positions except OFF. Power from A2S2 is connected to pins 1 and 6 of power transformer A2T1 through fuses A2F2 and A2F1. In all mode selector switch A2S2 positions except OFF and STBDY, switching LOCAL/REMOTE switch A2S1 to REMOTE results in power available at A1A1J4-U through A2J21-45. Power at A2T1-1 and 6 energizes a secondary winding that produces 6.3 Vac at pins 13 and 14, 131 Vac at pins 7 and 8, and 35 Vac at pins 9 and 10. The 6.3 Vac at pins 13 and 14 is directed to RF Amplifier A2A4 through connector A2XA4P2 pins 7 and 8. Here it provides filament voltage for A2A4-V1 and A2A4V2. The 131 Vac and 35 Vac are inputs to power supply A2A8. The full wave bridge rectifiers shown in A2A8 are responsible for outputs of 110 Vdc and 28 Vdc.

3-117. +28 Vdc Distribution (Figure 5-14). Bridge rectifier A2A8CR5-A2A8CR8 of Power Supply assembly A2A8 provides an unfiltered dc output to A2A8E6. Inductor A2-L2, located on the main frame, and capacitors A2A8C1 and A2A8C2 filter this output to provide +28 Vdc at A2E22. A2E22 supplies the filtered +28 Vdc to five locations: A2-A8E5, A2E45, A2S2-C-F pins 1, 4, 7, and 9, A2J21-24 and A2K6X1. A2A8E5 supplies +28 Vdc to voltage dropping resistor A2A8R1 in series with dial lamps A2DS3 and A2DS4. The +28 Vdc at A2E45 is connected to A2A5-P1-3 in Frequency Standard A2A5 to supply the crystal oscillator oven heater circuitry. A2S2-C-F supplies +28 Vdc to A2E23 in all voice modes of operation. This switch section also provides the 28 Vdc to A2E20 in all positions except OFF and STDBY. A2R3, connected to A2E23 from A2E11, is part of a voltage regulator. This resistor, in conjunction with regulator diode A2CR8, maintains +12 Vdc to A2J1-D through Handset Filter Box A2A14. The +28 Vdc at A2E20 branches in four directions: to tune relay A2K1, to A2A4 via A2XA4P1-7, to CW Hold Relay A2K5, and to E9 of A2A8. From tune relay A2K1, +28 Vdc is applied to X1 of Hi-Lo Filter Relay A2K2 and the collector of series regulator A2Q1.

3-118. +20 Vdc and +5 Vdc Distribution (Figure 5-15). The +28 Vdc on the collector of A2Q1 is reduced to +20 Vdc and regulated by circuitry contained in power supply A2A8. The +20 Vdc output at A2A8E20 appears at distribution terminals A2E24 and A2E46. From here it is directed to Audio Processors A2A21A18/A2A21A19 and Audio Control A2A21A20 via Interconnect Board Terminals A2A21E16 and A2A21E26, Frequency Standard Assembly A2A5, Translator/Synthesizer Assembly A2A6, Meter Amplifier Assemblies A2A10 and A2A11, Mode Selector Assembly A2A1, IF Amplifier Assembly A2A12 through inductor A2A15L1, and to the AM-3924C(P)/URT power amplifier. When the T-827H/URT is keyed, the +20 Vdc is also switched through TR relay A2K3 to RF Amplifier Assembly A2A4, Translator/Synthesizer Assembly A2A6, Mode Selector Assembly A2A1, hi-lo filter relay A2K2, and the front and rear wafers of mode selector switch A2-S2-A. The mode selector switch distributes the +20 Vdc to RATT Tone Generator Assembly A2A9 and Mode Selector Assembly A2A1. The switched +20 Vdc from TR relay A2K3 enables gating circuits, in RF Translator Subassembly A2A6A8, in the transmit mode. The +20 Vdc, or ground, from contact B2 of hi-lo filter relay A2K2 is applied to the Translator/Synthesizer A2A6 to select the 20 MHz or 30 MHz IF used for final frequency up-conversion. The +20 Vdc for Translator/Synthesizer Assembly A2A6 is applied through Filter Subassembly A2A6A7 to Power Supply Subassembly A2A6A15. Power Supply Subassembly A2A6A15 produces the +5 Vdc required by circuits within the A2A6 subassemblies and zener diode A2CR10 in the T-827H/URT main frame. The +4.3 Vdc resulting from A2CR10 is used in the front panel Hz switch and in control circuitry within Frequency Generator Subassembly A2A6A16.

3-119. +110 Vdc Distribution (Figure 5-15). The +110 Vdc power is rectified in Power Supply Assembly A2A8 and routed through filter inductor A2L1 to terminal A2-E9. A2E9 is connected to contact A2 of TR relay A2K3. When the T-827H/URT is keyed, TR relay A2K3 applies +110 Vdc through contact A1 to RF Amplifier Assembly A2A4. The +110 Vdc is the plate and screen voltage supply for the tubes in RF Amplifier Assembly A2A4.

3-120. TUNING (Figure 3-3). Tuning of the T-827H/URT is accomplished by setting the front panel MHz, kHz, and Hz controls to indicate the desired transmit signal frequency. This frequency is digitally displayed in the windows above the MHz and kHz controls and on the skirt of the Hz Knob. Positioning the front panel frequency controls tunes the T-827H/URT by electrical and mechanical means.

3-121. When the front panel MHz contols are positioned, Code Generator Assembly A2A7 produces a five-line tuning code (combinations of open and grounded lines). These are applied to RF Amplifier Assembly A2A4 and the BCD converter of 10 MHz/1 MHz Synthesizer Subassembly A2A6A13. A motor in RF Amplifier Assembly A2A4 positions a coding ring consisting of A2A4S1-A and A2-A4S1-B. The coding ring contains segments corresponding to the complements (or images) of the five-line tuning code received from Code Generator Assembly A2A7. When the MHz frequency controls are repositioned, the motor will energize through one or more of the five input lines from Code Generator Assembly A2A7 and coding ring A2A4S1. Contact 6 of A2A4S1-A establishes a ground path to X2 of turret drive relay A2A4K1. A2A4K1 energizes and applies +28 Vdc to turret drive motor A2A4B1. The energized motor then rotates the turret and the code ring. This action continues until all five code lines are open-circulated, at which time the ground path to turret drive relay A2A4K1 is broken. The turret is then positioned as required by the front panel MHz control settings. Band pass filters are contained in the motor-driven turret. The proper bandpass filters corresponding to the front panel frequency setting are selected as the turret assembly is mechanically positioned.

3-122. The five-line code applied to A2-A6A13 is converted to a four-line code (binary coded decimal) by BCD converter A2-A6A13U11. This four-line code establishes the injection frequency output from 10 MHz/1 MHz Synthesizer Subassembly A2A6-A13. Table 3-2 lists the five-line tuning code outputs generated by Code Generator Assembly A2A7 for both RF Amplifier Assembly A2A4 and 10 MHz/1 MHz Synthesizer Subassembly A2A6A13. Also listed in table 3-2 are five-line code outputs used for frequency band selection within the AM-3924C(P)/URT rf power amplifier.

3-123. Code Generator Assembly A2A7 also produces a single-line output applied to contact X1 of hi-lo band relay A2K2. The hi-lo band control output is an open or ground as listed in table 3-2. This causes A2K2 to apply +20 Vdc for all low band frequencies or ground for all high band frequencies through contact B2, to the RF Translator A2A6A8 and 100 kHz Synthesizer A2A6A17 subassemblies.

3-124. Mechanical selection of bandpass filter networks within RF Amplifier Assembly A2A4 occurs when the front panel 100 kHz and 10 kHz controls are positioned. Gears and chain drives couple the controls to 100 kHz and 10 kHz rotor assemblies in RF Amplifier Assembly A2A4. Chain-drive mechanisms are also used to couple the front panel 100 kHz, and 1 kHz controls to coding switches in Translator/Synthesizer Assembly A2A6. The coding switches convert the position of the kHz controls to individual four-line tuning codes for use in various subassemblies of Translator/Synthesizer Assembly A2A6.

3-125. The 100 Hz incremental tuning is accomplished by the front panel Hz control. It selects a four-line tuning code, consisting of grounds and +4.3 Vdc lines. These are applied to 1 kHz/10 kHz/100 Hz Synthesizer Subassembly A2A6A18. Tuning of the 1 kHz/10 kHz/100 Hz Synthesizer Subassembly A2A6A18 is described in paragraphs 3-80 and 3-81.

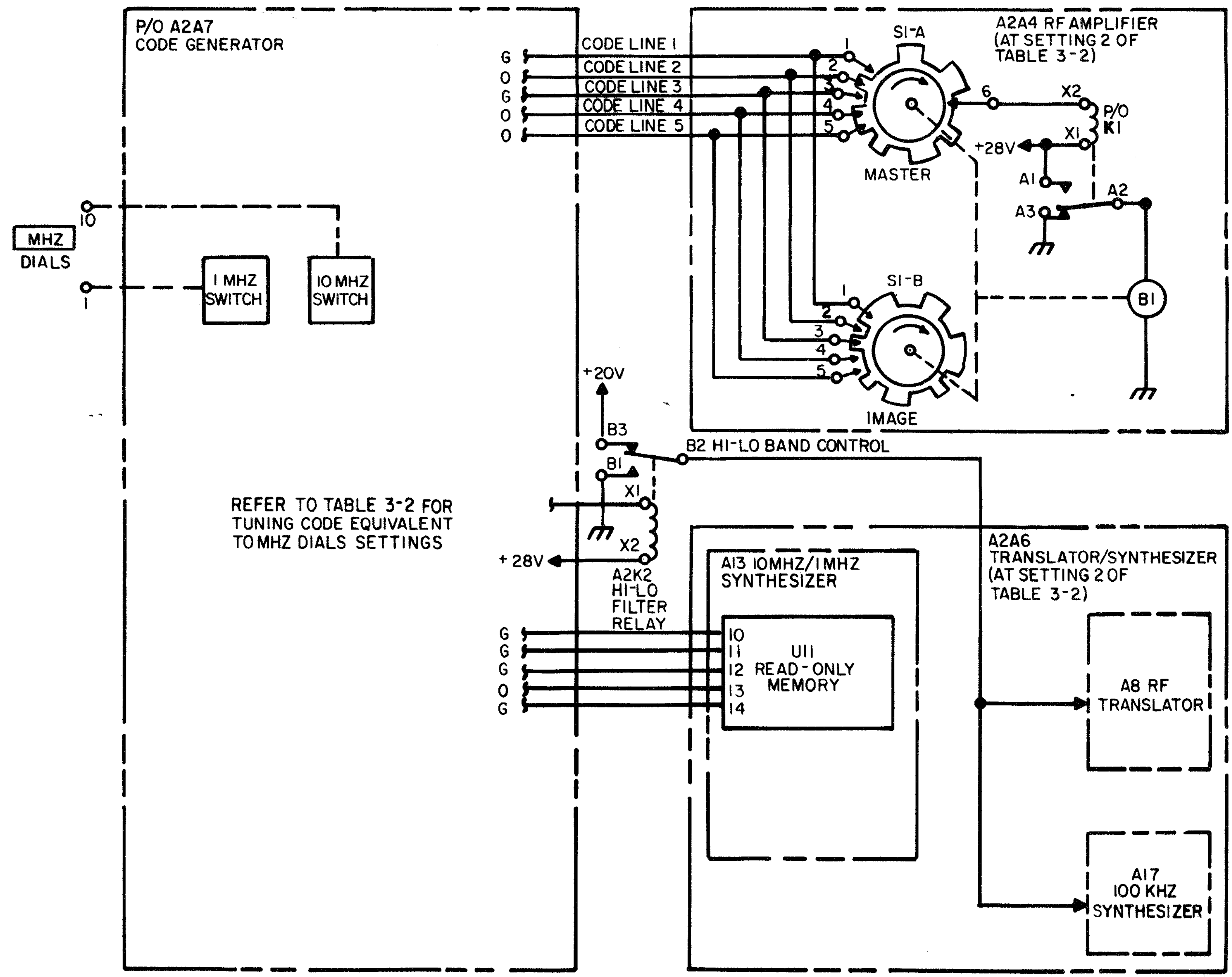


Figure 3-3. Radio Transmitter T-827H/URT, Tuning, Simplified Schematic Diagram

Table 3-2. Tuning Code Chart

MHz and 100 kHz CONTROL SETTING	A2A4 CODE LINES 1	2	3	4	5	A2K2 CONTROL LINE	A2A6A13 CODE LINES 1	2	3	4	5	ASSOCIATED EXTERNAL RF POWER AMPLIFIER (SUCH AS AM-3007B/URT) PASSBAND MHz	CODE LINES 1	2	3	4	5
2	G	O	G	O	O[1]	O	G	G	G	O	G	2.0 - 2.4999	O	O	O	O	G
2.5												2.5 - 2.9999	O	O	O	G	G
3.	O	G	O	O	O	O	G	O	G	G	G	3.0 - 3.4999	O	O	G	G	G
3.5												3.5 - 3.9999	O	G	G	G	G
4	G	O	O	O	G	O	G	G	O	G	G	4.0 - 4.9999	G	G	G	G	O
5	O	O	O	G	G	O	O	G	G	O	G	5.0 - 5.9999	G	G	G	O	G
6	O	O	G	G	O	G	O	G	O	O	O	6.0 - 6.9999	G	G	O	G	G
7	O	G	G	O	G	O	G	O	O	G	G	7.0 - 7.9999	G	O	G	G	G
8	G	G	O	G	G	O	G	G	O	O	G	8.0 - 9.9999	O	G	G	G	O
9	G	O	G	G	O	G	G	O	G	O	O						
10	O	G	G	O	O	G	G	G	O	G	O	10.0 - 11.9999	G	G	G	O	O
11	G	G	O	O	O	O	O	O	G	G	G						
12	G	O	O	O	O	O	O	O	O	G	G	12.0 - 13.9999	G	G	O	O	G
13	O	O	O	O	G	G	G	O	G	G	G						
14	O	O	O	G	O	O	O	G	G	G	O	14.0 - 15.9999	G	O	O	G	O
15	O	O	G	O	G	O	O	O	G	G	O						
16	O	G	O	G	G	O	G	G	G	G	O	16.0 - 17.9999	O	O	G	O	O
17	G	O	G	G	G	G	G	O	O	G	G						
18	O	G	G	G	G	G	G	G	O	O	G	18.0 - 19.9999	O	G	O	O	G
19	G	G	G	G	O	G	G	G	G	O	O						
20	G	G	G	O	O	G	O	G	G	G	G	20.0 - 21.9999	G	O	O	G	G
21	G	G	O	O	G	G	O	O	G	G	G						
22	G	O	O	G	O	O	O	O	O	O	G	22.0 - 23.9999	O	O	G	G	O
23	O	O	G	O	O	O	G	G	G	G	O						
24	O	G	O	O	G	G	O	G	G	G	O	24.0 - 25.9999	O	G	G	O	O
25	G	O	O	G	G	G	O	O	G	G	O						
26	O	O	G	G	G	G	G	G	G	G	O	26.0 - 27.9999	G	G	O	O	O
27	O	G	G	G	O	O	O	O	O	G	G						
28	G	G	G	O	G	O	O	O	G	G	G	28.0 - 29.9999	G	O	O	O	O
29	G	G	O	G	O	O	O	G	G	G	G						

[1] "O" indicates open; "G" indicates ground.

3-126. CIRCUIT LEVEL DESCRIPTIONS.

3-127. GENERAL. The following paragraphs describe the circuits contained in the maintenance schematic diagrams of individual assemblies and subassemblies of the T-827H/URT. The descriptions are in assembly and subassembly alphanumeric order. Descriptions are brief where circuits are conventional and circuit theory is covered in NAVSHIPS 0967-LP-000-0120. Full descriptions are provided for unconventional circuits and peculiar applications of conventional circuits. Figures 3-4 through 3-32 are simplified schematics or functional block diagrams of integrated circuits (ICs) used in the T-827H/URT. In those cases where an IC contains multiple identical circuits, such as M38510/00104 in figure 3-4, the typical circuit will be shown once and a circuit matrix chart will indicate the pertinent pin differences. For example, circuit 1 of figure 3-4 has pins 1 and 2 as inputs A and B, respectively, with pin 3 being output C. For circuit 2, pins 4 and 5 are the inputs, and pin 6 is the output, etc.

3-128. TRANSMITTER CASE A1 (Figure 5-28). The Transmitter Case A1 houses Transmitter Main Frame A2, Filter Box Assembly A1A1, and miscellaneous electronic components.

3-129. FILTER BOX ASSEMBLY A1A1 (Figure 5-28). Filter Box Assembly A1A1 is mounted at the rear of the T-827H/URT Case A1. A1A1 houses feed-through capacitors used to filter incoming and outgoing signals. It also contains six connectors which function as follows:

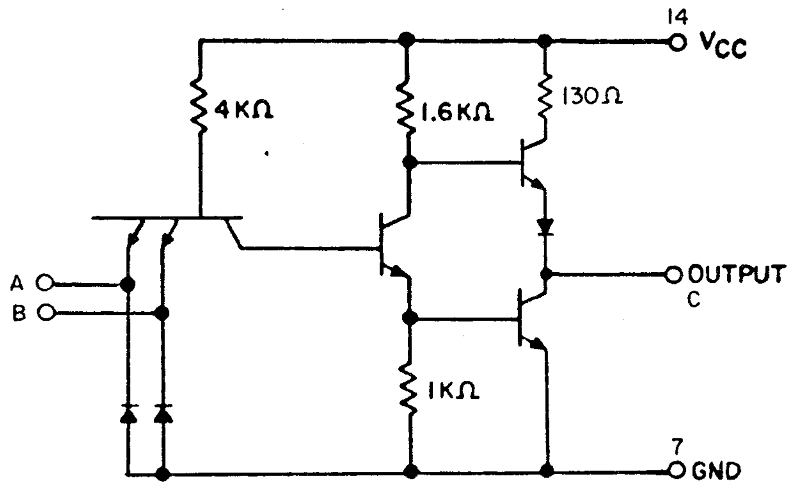
J3	115 Vac Auxiliary Supply Input
J4	APC, TGC, and PPC inputs Carrier +20V input Remote Modulation inputs, (voice modes) Remote TTY inputs Remote +12 Vdc inputs CW/RATT Ground CW/RATT Keyline input
J5	Auxiliary USB/AM/ISB Input
J6	Auxiliary LSB/ISB input
J7	Local TTY inputs (+ and -) Local RATT keyline input
J8	Data Audio input Data Keyline input

3-130. TRANSMITTER MAIN FRAME A2. Main frame A2 includes the front panel, the chassis on which the plug-in assemblies are mounted, and other electronic components. Schematic diagram Figure 5-28 shows the wiring of control and hard-wired assemblies in Main Frame A2 and Case A1. The hard-wired assemblies include Power Supply Assembly A2A8, Meter Amplifier Assemblies A2A10 and A2A11, Handset Filter Assembly A2A14, IF Filter Assembly A2A15, and Audio Interconnect Assembly A2A21. The case and main frame schematic diagram also shows the Filter Box Assembly A1A1, AUX/NORM switch A1S1, interlock switch A1S2, and all jacks and connectors mounted on the rear of Case A1.

3-131. Information on the primary and secondary signal flow between assemblies of the main frame is provided by the T-827H/URT overall functional block diagram (Figure 3-1), the signal flow diagrams (Figures 5-1 through 5-11), and the control and power distribution diagrams (Figures 5-12 through 5-15). Figure 5-18 provides connection and wiring information on the main frame interconnections, and may be used when following a signal path through the T-827H/URT.

3-132. LOCAL/REMOTE switch A2S1 and MODE SELECTOR switch A2S2 sections are shown in the Figure 5-28 schematic diagram at locations near the point where the section is connected. Complete views of A2S1 and A2S2 switch sections are included on sheet 1 of Figure 5-28. Circuits for individual controls and relays on the main frame are described in paragraphs pertaining to the circuits they control. The circuits involving the hard-wired assemblies are described on the following pages.

3-133. Input and Output Filtering. Sheets 1 and 3 of Figure 5-28 show the entry and exit connectors and feed-through capacitors in Filter Box Assembly A1A1. Filtering is applied to signal inputs and outputs to prevent unwanted mixing of radio and



TRUTH TABLE

INPUT		OUTPUT
A	B	C
L	L	H
H	L	H
L	H	H
H	H	L

Positive logic Y = $\overline{AB}$
H = HIGH LEVEL
L = LOW LEVEL

CKT	A	B	C
1	1	2	3
2	4	5	6
3	9	10	8
4	12	13	11

QUAD DEVICE.
ONE CKT SHOWN.
TABLE INDICATES
PIN CONNECTIONS FOR
ALL FOUR CIRCUITS.

Figure 3-4. Integrated Circuit, Quadruple, 2-Input Positive NAND Gate, M38510/00104 (5400), Simplified Schematic Diagram

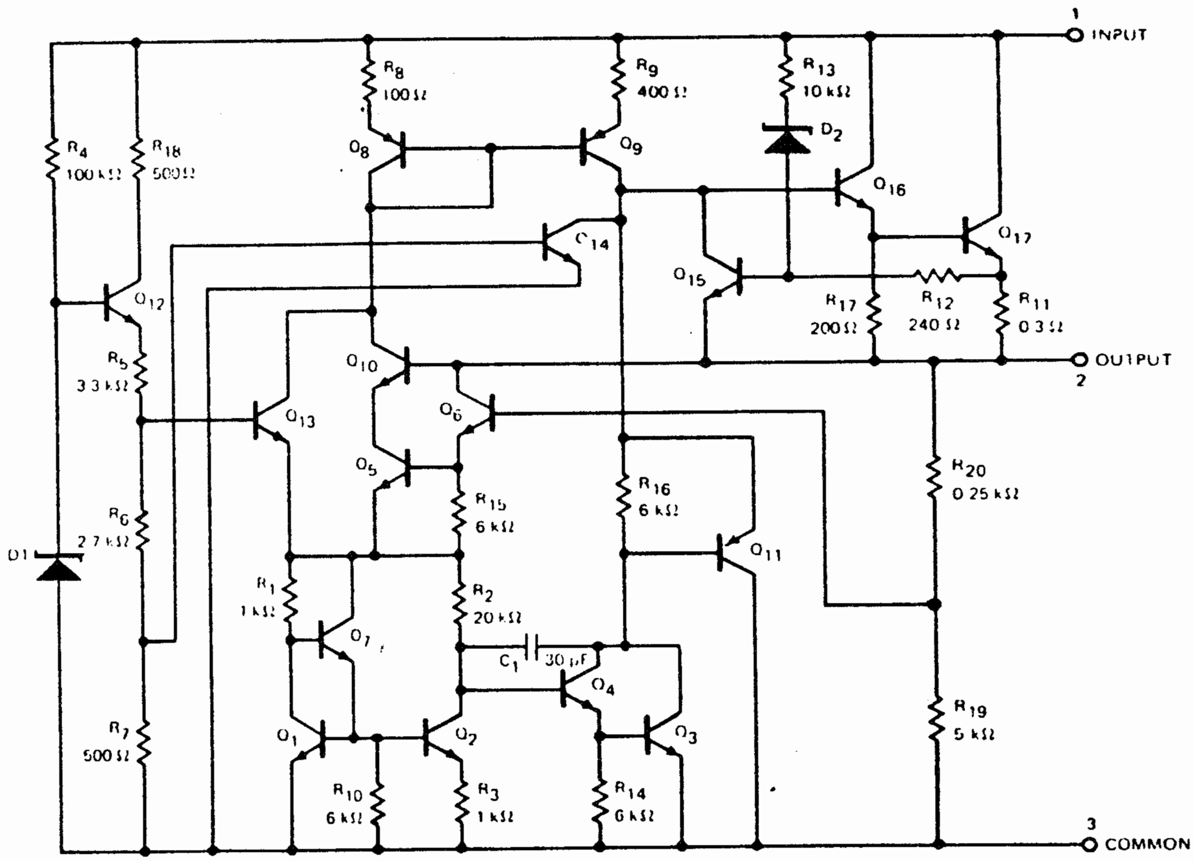
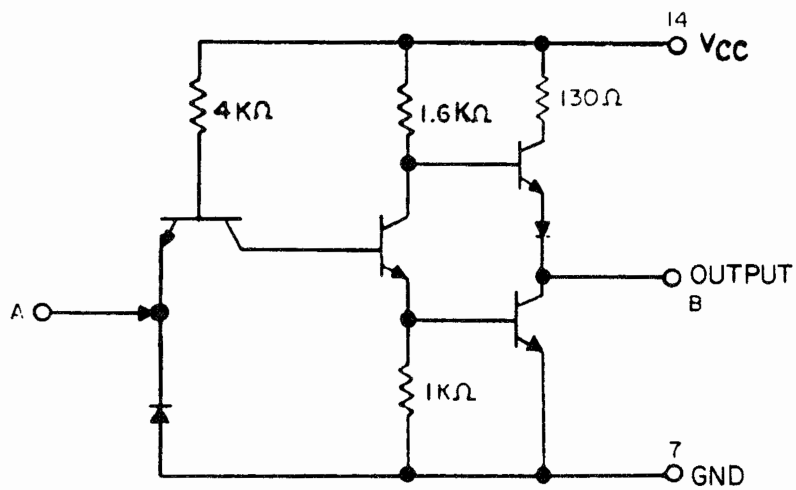


Figure 3-5. Integrated Circuits, Voltage Regulators, 78M05HMQB (48P226600-01), 78M20HMQB (48P226600-02), SG7815T/883B (48P226600-03), Simplified Schematic Diagram



CKT	A	B
1	1	2
2	3	4
3	5	6
4	9	8
5	11	10
6	13	12

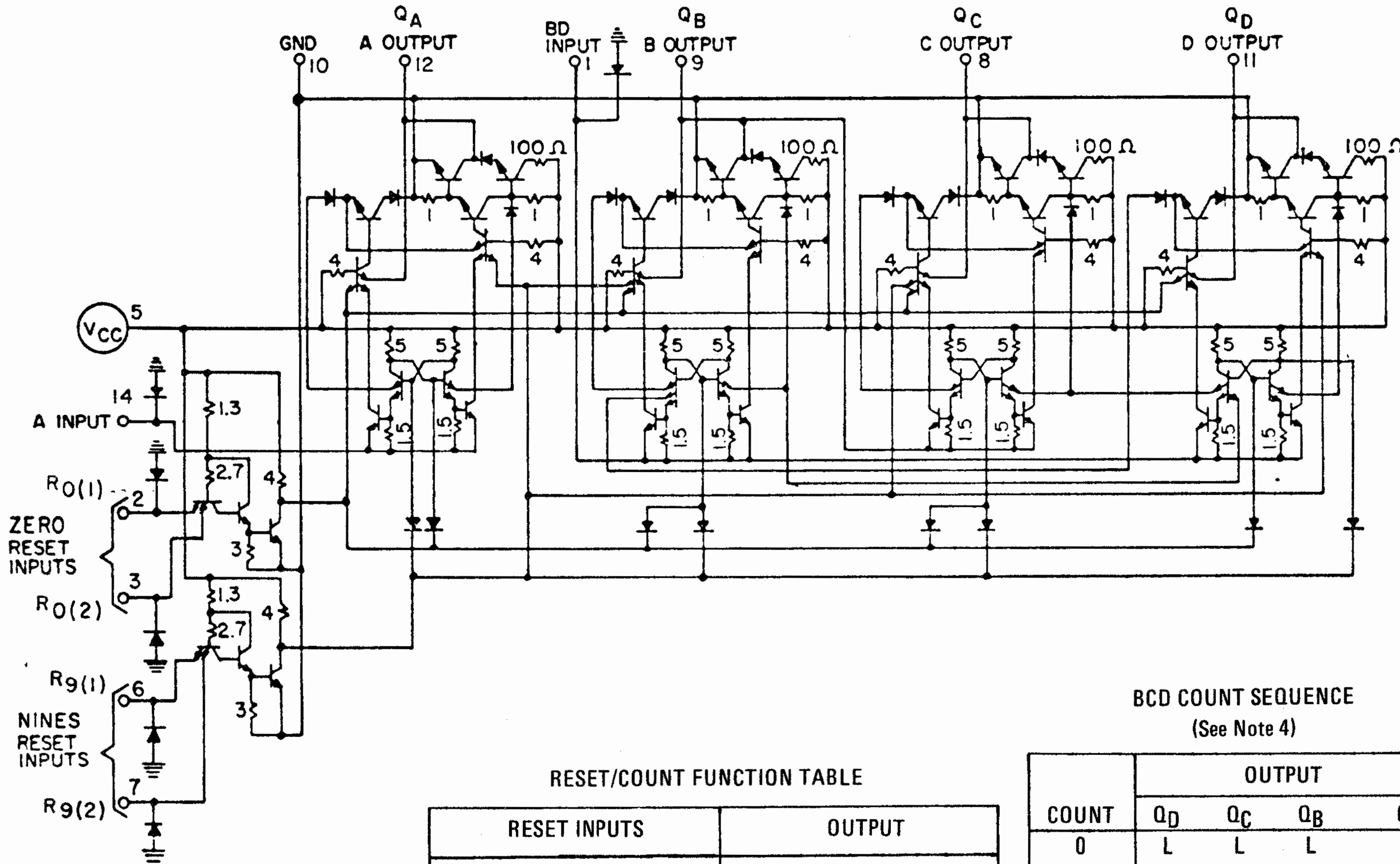
HEX DEVICE.
ONE CIRCUIT SHOWN.
TABLE INDICATES
PIN CONNECTIONS FOR
ALL SIX CIRCUITS.

TRUTH TABLE

INPUT	OUTPUT
A	Y
L	H
H	L

Postive logic $Y = \overline{A}$
H = HIGH LEVEL
L = LOW LEVEL

Figure 3-6. Integrated Circuit, Hex, 1-Input Inverter Gate, M38510/00105 (5404), Simplified Schematic Diagram



NOTES:

1. Unless otherwise specified, resistor values are in kilohms.
2. Component values shown are nominal.
3. Pins 4 and 13 not connected.
4. Output Q_A is connected to input B for BDC count.
5. H = HIGH LEVEL; L = LOW LEVEL.

RESET/COUNT FUNCTION TABLE

RESET INPUTS				OUTPUT			
$R_{0(1)}$	$R_{0(2)}$	$R_{9(1)}$	$R_{9(2)}$	Q_D	Q_C	Q_B	Q_A
H	H	L	X	L	L	L	L
H	H	X	L	L	L	L	L
X	X	H	H	H	L	L	H
X	L	X	L	COUNT			
L	X	L	X	COUNT			
L	X	X	L	COUNT			
X	L	L	X	COUNT			

BCD COUNT SEQUENCE
(See Note 4)

COUNT	OUTPUT			
	Q_D	Q_C	Q_B	Q_A
0	L	L	L	L
1	L	L	L	H
2	L	L	H	L
3	L	L	H	H
4	L	H	L	L
5	L	H	L	H
6	L	H	H	L
7	L	H	H	H
8	H	L	L	L
9	H	L	L	H

Figure 3-7. Integrated Circuit, High Speed Decade Counter, M38510/01307 (5490), Simplified Schematic Diagram

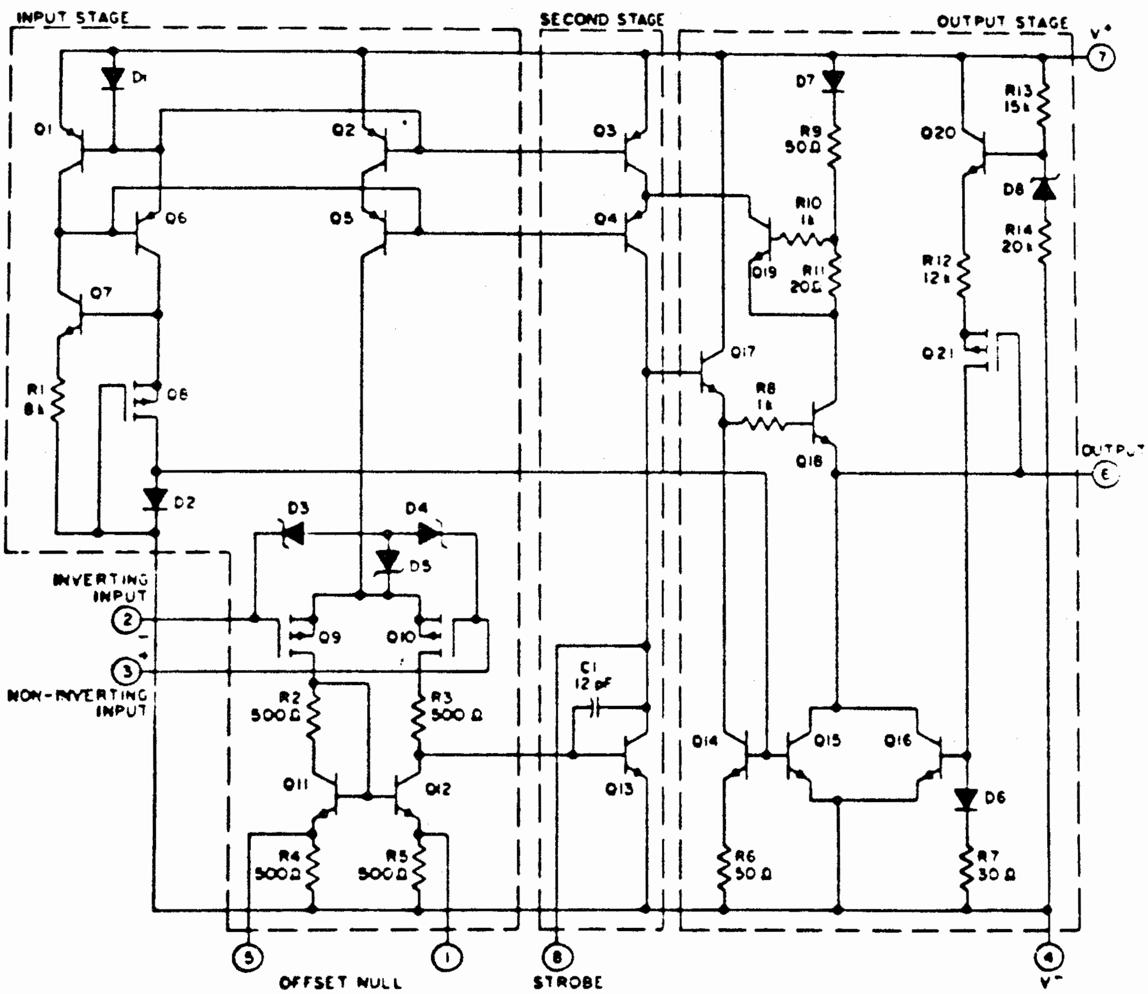
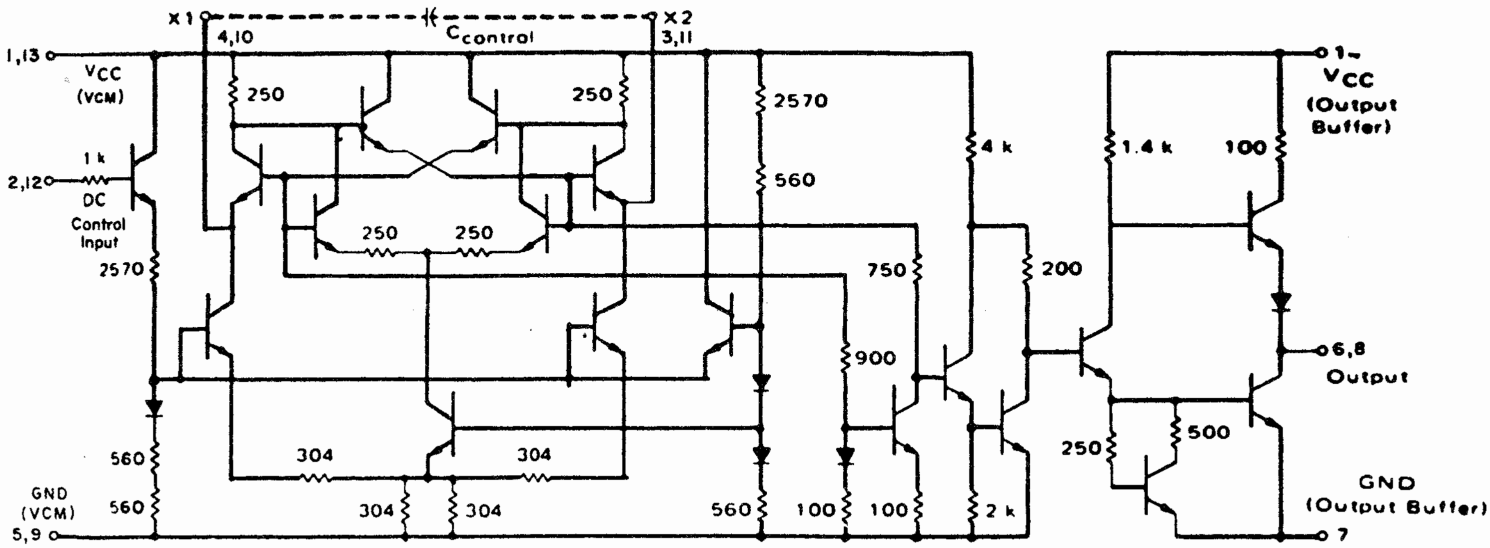
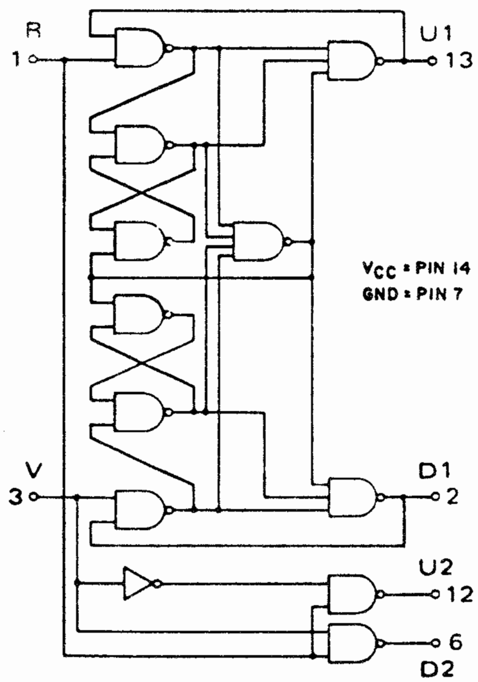


Figure 3-8. Integrated Circuit, Operational Amplifier, CA3140S/3 (48P226682-01), Simplified Schematic Diagram



NOTES: 1. ALL RESISTANCES IN OHMS.
2. 1/2 OF CIRCUIT SHOWN; SECOND PIN NUMBERS ARE FOR OTHER HALF.

Figure 3-9. Integrated Circuit, Dual Voltage-Controlled Multivibrator, MC4324DCBS (48P226457-01), Simplified Schematic Diagram

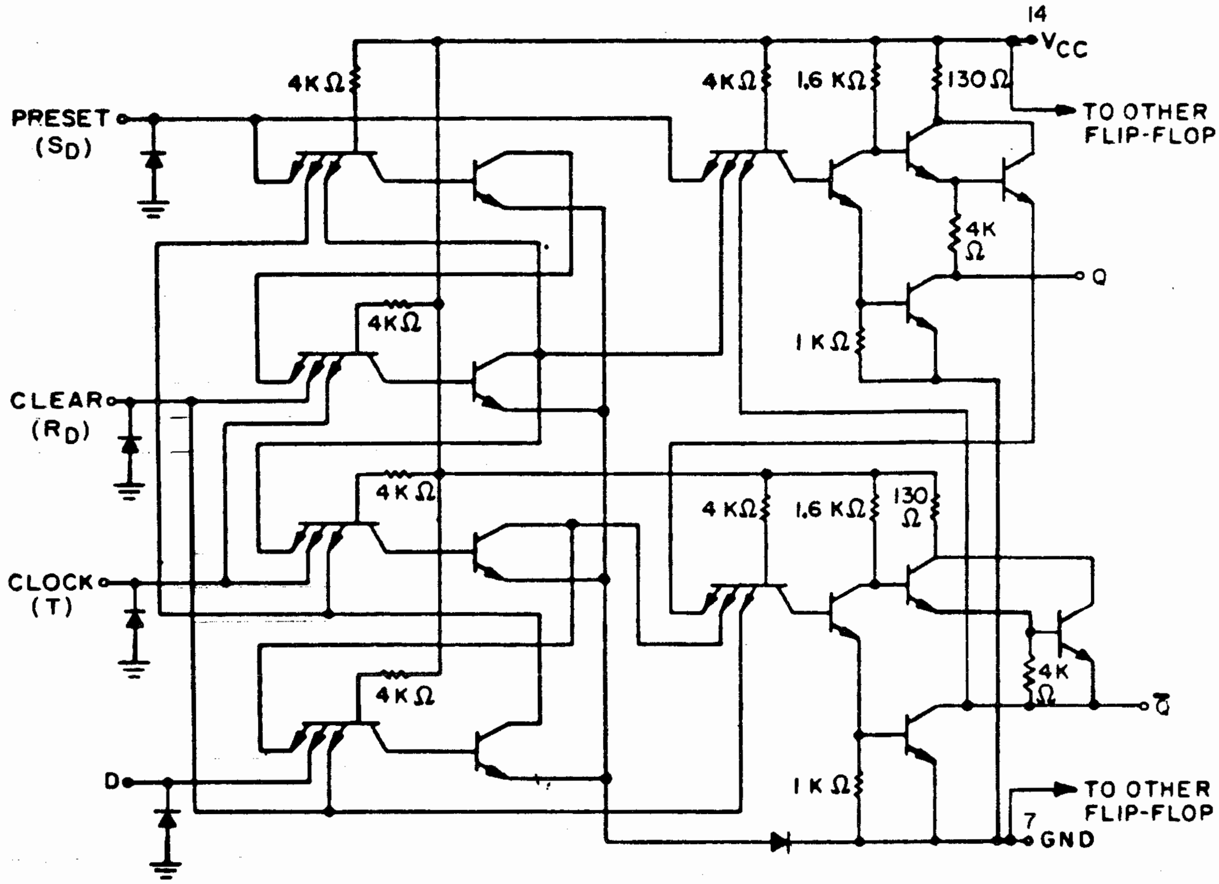


INPUT STATE	INPUT		OUTPUT			
	R	V	U1	D1	U2	D2
1	0	0	X	X	1	1
2	1	0	X	X	0	1
3	1	1	X	X	1	0
4	1	0	X	X	0	1
5	0	0	X	X	1	1
6	1	0	X	X	0	1
7	0	0	X	X	1	1
8	1	0	X	X	0	1
9	0	0	0	1	1	1
10	0	1	0	1	1	1
11	0	0	1	1	1	1
12	0	1	1	1	1	1
13	0	0	1	0	1	1
14	0	1	1	0	1	1
15	0	0	1	0	1	1
16	1	0	1	0	0	1
17	0	0	1	1	1	1

U1 and D1 outputs are sequential; i.e., they must be sequenced in the order shown.

U2 and D2 outputs are combinational; i.e., they need only inputs shown to obtain outputs.
X = Irrelevant

Figure 3-10. Integrated Circuit, Phase Detector, MC4344DCBS (48P226446-01), Logic Diagram



TRUTH TABLE

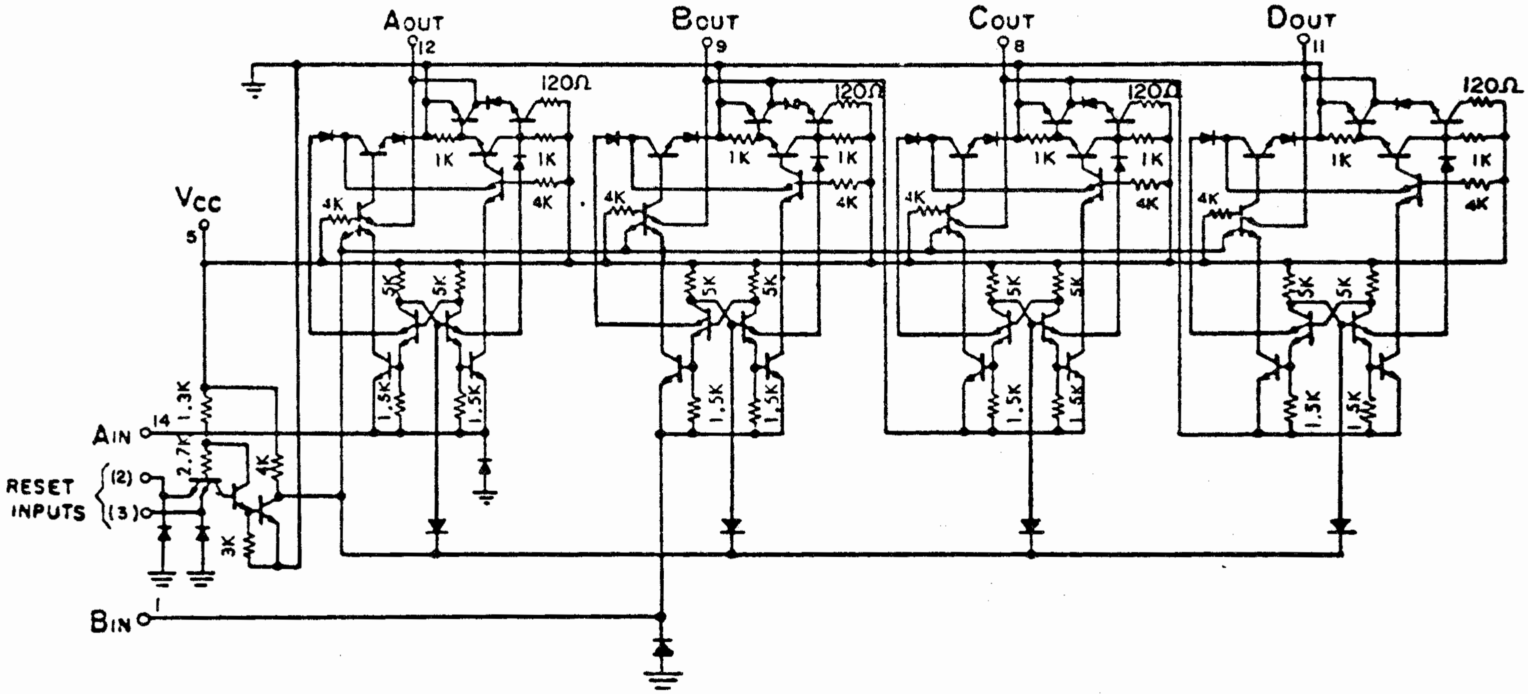
INPUT	OUTPUTS	
D	Q	$\overline{Q}$
L	L	H
H	H	L

H = HIGH LEVEL;
L = LOW LEVEL

CKT	D	T	R_D	S_D	Q	$\overline{Q}$
1	2	3	1	4	5	6
2	12	11	13	10	9	8

DUAL DEVICE.
ONE CIRCUIT SHOWN.
TABLE INDICATES
PIN CONNECTIONS
FOR BOTH CIRCUITS.

Figure 3-11. Integrated Circuit, Dual D-Type Edge-Triggered Flip-Flop, M38510/00205 (5474), Simplified Schematic Diagram



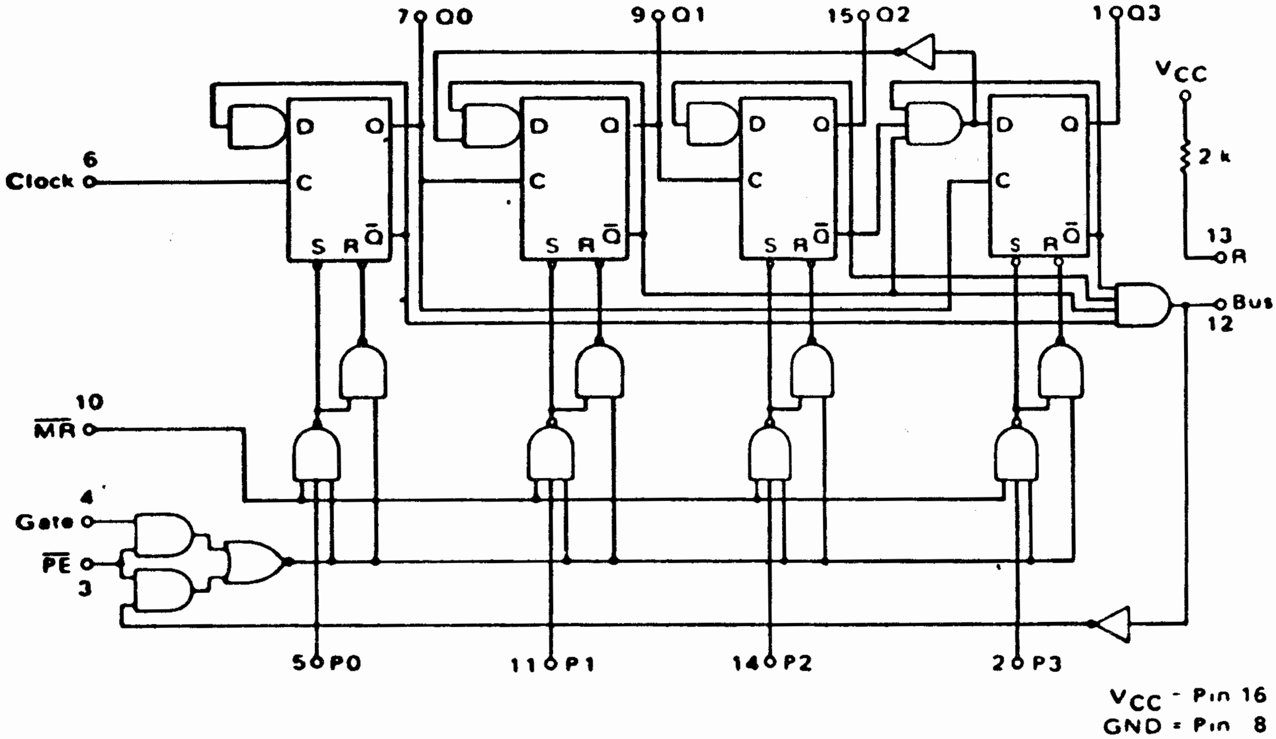
FUNCTION TABLE

COUNT	OUTPUT D	C	B	A
0	L	L	L	L
1	L	L	L	H
2	L	L	H	L
3	L	L	H	H
4	L	H	L	L
5	L	H	L	H
6	L	H	H	L
7	L	H	H	H
8	H	L	L	L
9	H	L	L	H
10	H	L	H	L
11	H	L	H	H
12	H	H	L	L
13	H	H	L	H
14	H	H	H	L
15	H	H	H	H

NOTES:

1. Output A connected to input B.
2. When used as a 4-bit ripple-through counter, output A must be externally connected to input B. The input count pulses are applied to input A. Simultaneous divisions of 2, 4, 8, and 16 are performed at the A, B, C, and D outputs as shown in the truth table above.
3. When used as a 3-bit ripple-through counter, the input count pulses are applied to input B. Simultaneous frequency divisions of 2, 4, and 8 are available at the B, C, and D outputs. Independent use of flip-flop A is available if the reset function coincides with reset of the 3-bit ripple-through counter.
4. H = HIGH LEVEL; L = LOW LEVEL
5. Component values shown are typical.
6. GND = Pin 10

Figure 3-12. Integrated Circuit, 4-Bit Binary Counter, M38510/01302 (5493), Simplified Schematic Diagram

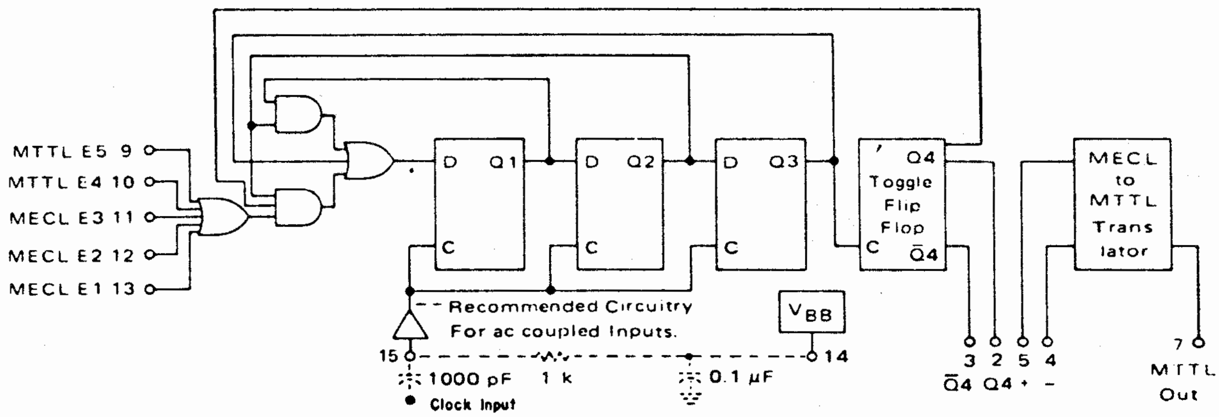


FUNCTION TABLE

COUNT	OUTPUT			
	Q3	Q2	Q1	Q0
9	1	0	0	1
8	1	0	0	0
7	0	1	1	1
6	0	1	1	0
5	0	1	0	1
4	0	1	0	0
3	0	0	1	1
2	0	0	1	0
1	0	0	0	1
0	0	0	0	0

1 = OPEN CIRCUIT; 0 = GROUND
COUNTER PROGRAMMED FOR
÷ 8 OPERATION

Figure 3-13. Integrated Circuit, Programmable Modulus N Decade Counter, MC544416DEBS (48P226460-01) Functional Block Diagram



STATE DIAGRAM

ENABLE = 0

Q1	Q2	Q3	Q4
1	1	1	1
0	1	1	1
0	0	1	1
0	0	0	1
1	0	0	1
1	1	0	1
0	1	1	0
0	0	1	0
0	0	0	0
1	0	0	0
1	1	0	0

ENABLE = 1

NOTES:
– – – Enable = 1.
The State of the Enable is important only for the positive Clock Transition when the counter is in state 1100.

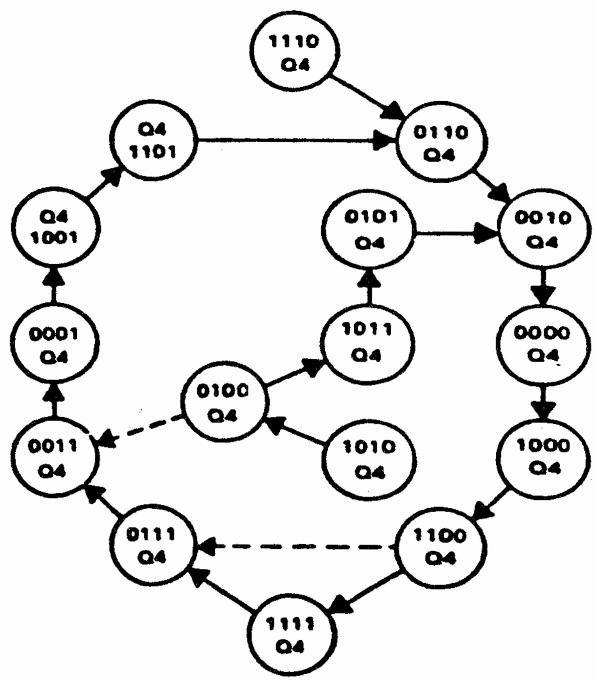


Figure 3-14. Integrated Circuit MC12513DEBS (48P226458-01), Logic Diagram

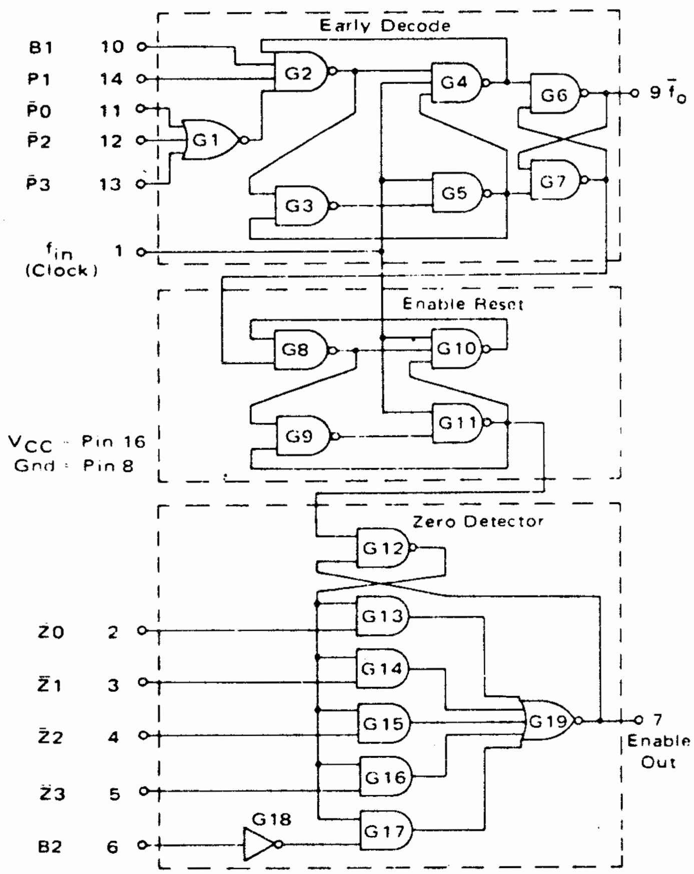
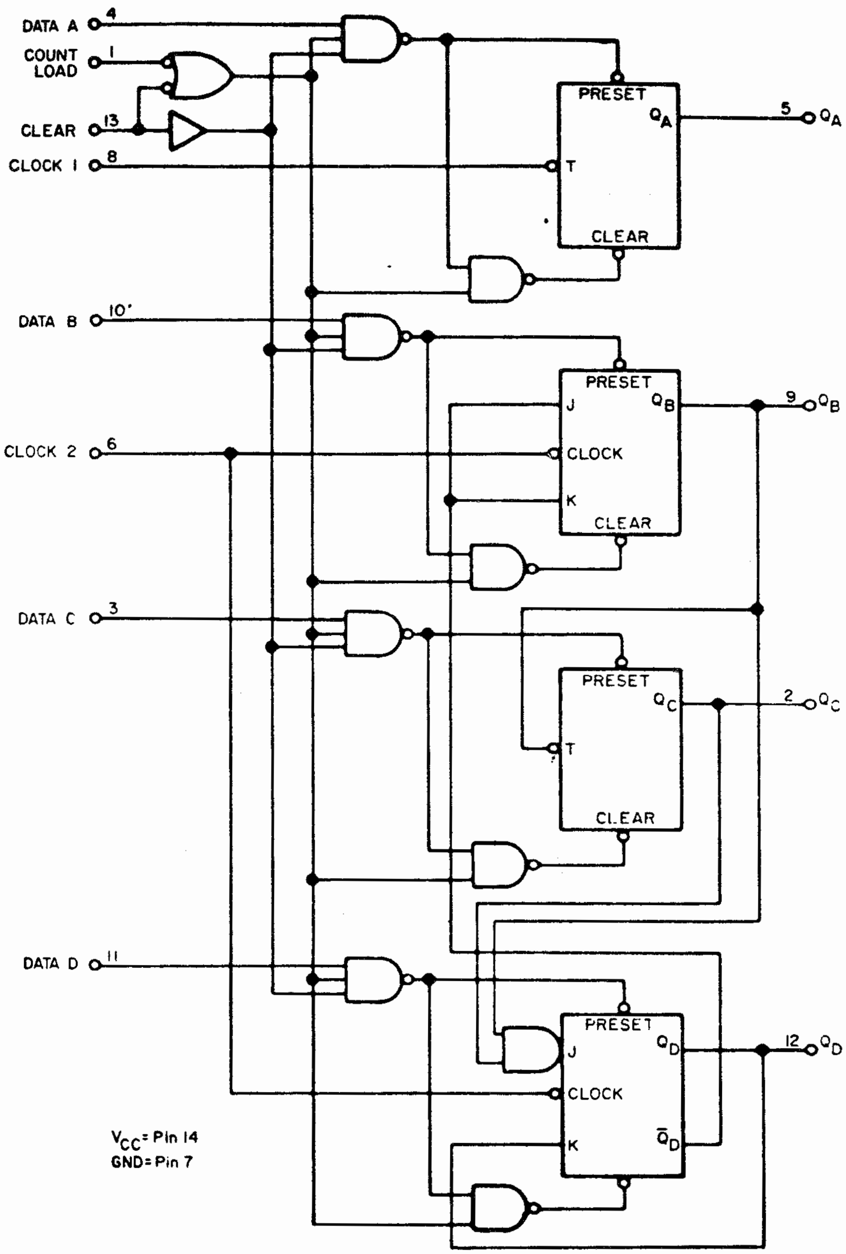


Figure 3-15. Integrated Circuit MC12514DEBS (48P226459-01), Logic Diagram

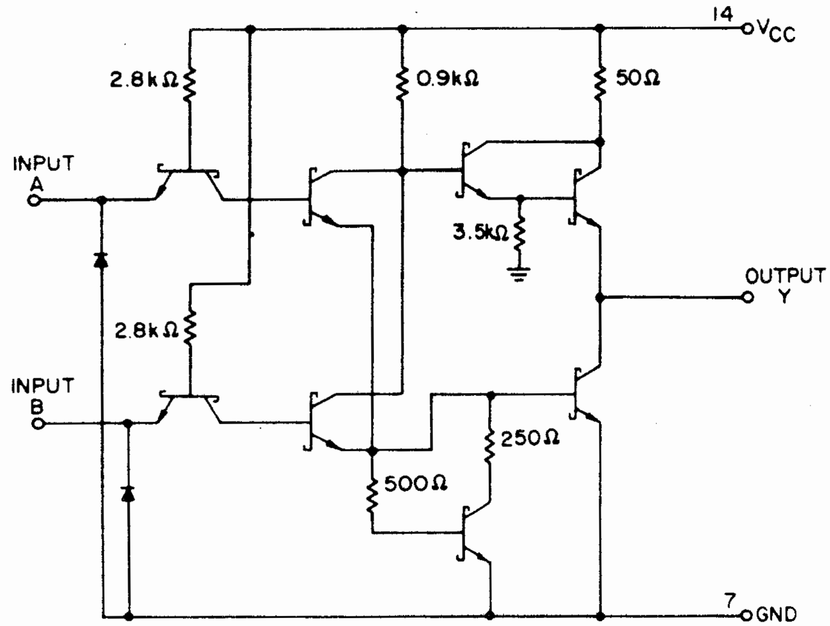


FUNCTION TABLE
DECADE (BCD)

COUNT	OUTPUT			
	Q_D	Q_C	Q_B	Q_A
0	L	L	L	L
1	L	L	L	H
2	L	L	H	L
3	L	L	H	H
4	L	H	L	L
5	L	H	L	H
6	L	H	H	L
7	L	H	H	H
8	H	L	L	L
9	H	L	L	H

H = HIGH LEVEL;
L = LOW LEVEL
Output Q_A connected to clock - 2 input.

Figure 3-16. Integrated Circuit, Programmable Decade (BCD) Counter, SNC54196J (48P226449-01), Functional Block Diagram



CKT	A	B	Y
1	2	3	1
2	5	6	4
3	8	9	10
4	11	12	13

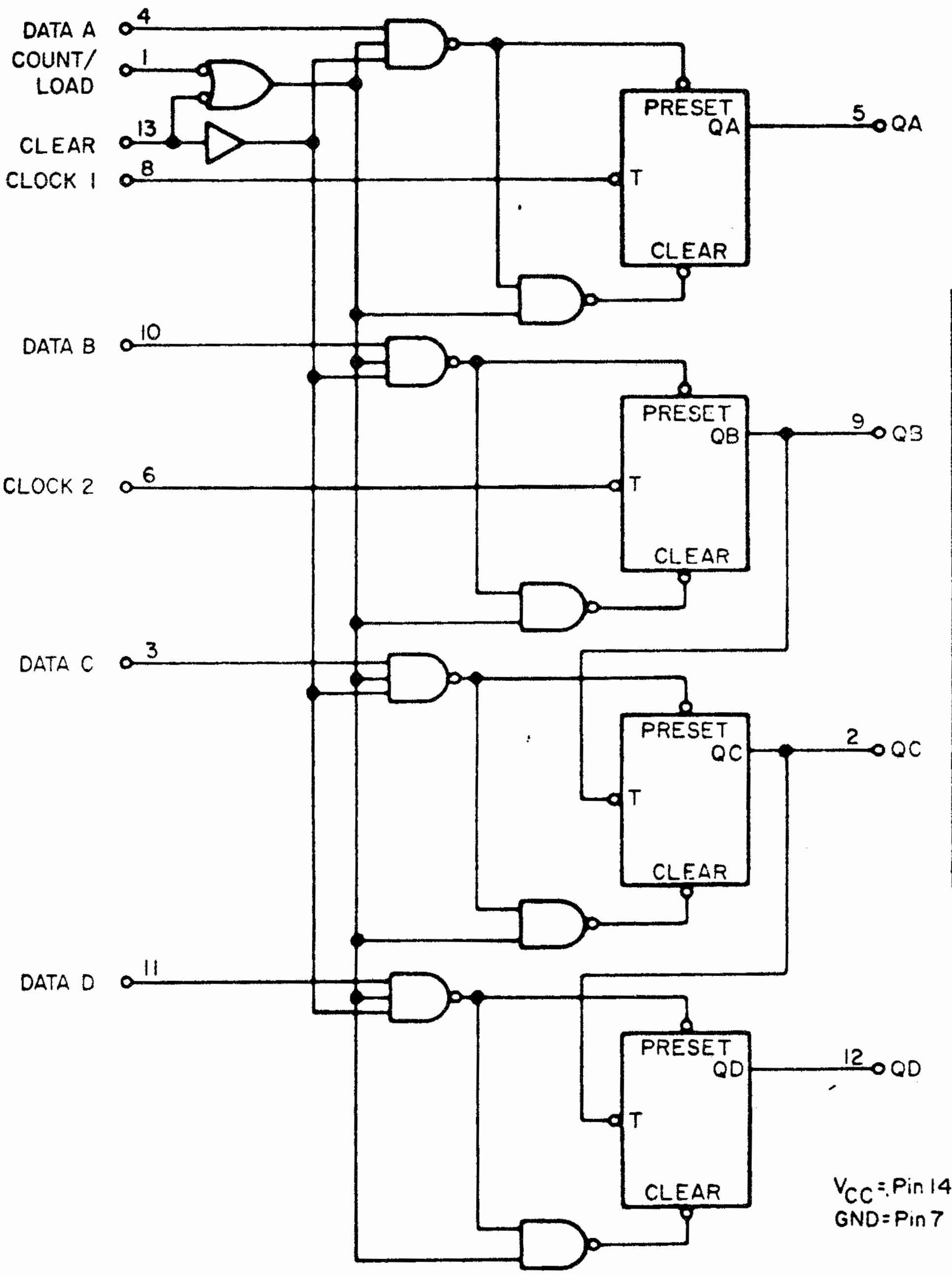
QUAD DEVICE.
ONE CIRCUIT SHOWN.
TABLE INDICATES
PIN CONNECTIONS FOR
ALL FOUR CIRCUITS.

TRUTH TABLE

A	B	Y
H	L	L
L	H	L
H	H	L
L	L	H

H = HIGH LEVEL;
L = LOW LEVEL

Figure 3-17. Integrated Circuit, Quad 2-Input NOR Gate, SNC54S02J (48P226451-01), Simplified Schematic Diagram

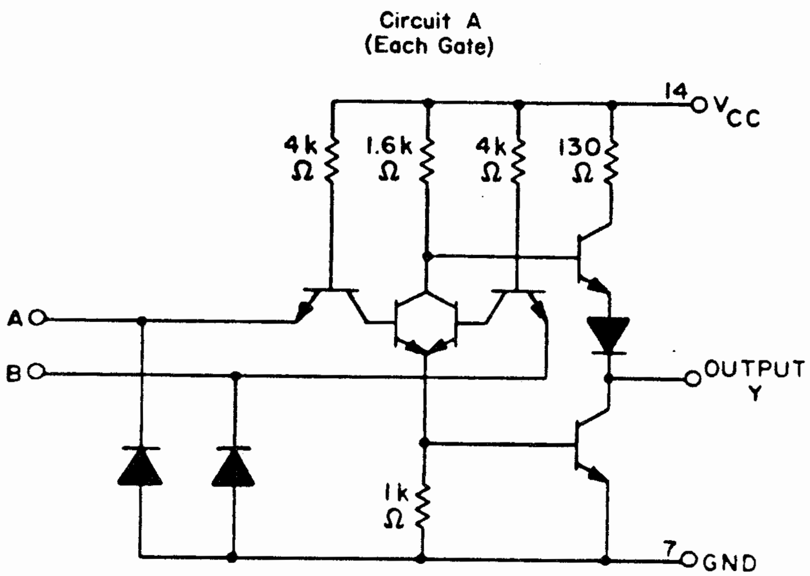


FUNCTION TABLE

COUNT	OUTPUT			
	Q_D	Q_C	Q_B	Q_A
0	L	L	L	L
1	L	L	L	H
2	L	L	H	L
3	L	L	H	H
4	L	H	L	L
5	L	H	L	H
6	L	H	H	L
7	L	H	H	H
8	H	L	L	L
9	H	L	L	H
10	H	L	H	L
11	H	L	H	H
12	H	H	L	L
13	H	H	L	H
14	H	H	H	L
15	H	H	H	H

H = HIGH LEVEL;
L = LOW LEVEL
Output Q_A connected to clock - 2 input.

Figure 3-18. Integrated Circuit, Programmable Binary Counter, SNC54197J (48P226455-01), Functional Block Diagram



TRUTH TABLE

A	B	Y
H	L	L
L	H	L
H	H	L
L	L	H

H = HIGH LEVEL;
L = LOW LEVEL

QUAD DEVICE.
ONE CIRCUIT SHOWN.
TABLE INDICATES PIN CONNECTIONS FOR ALL FOUR CIRCUITS.

CIRCUITS A AND B INDICATE DIFFERENT INTERNAL VALUES FOR DIFFERENT VENDORS.

CKT	A	B	Y
1	2	3	1
2	5	6	4
3	8	9	10
4	11	12	13

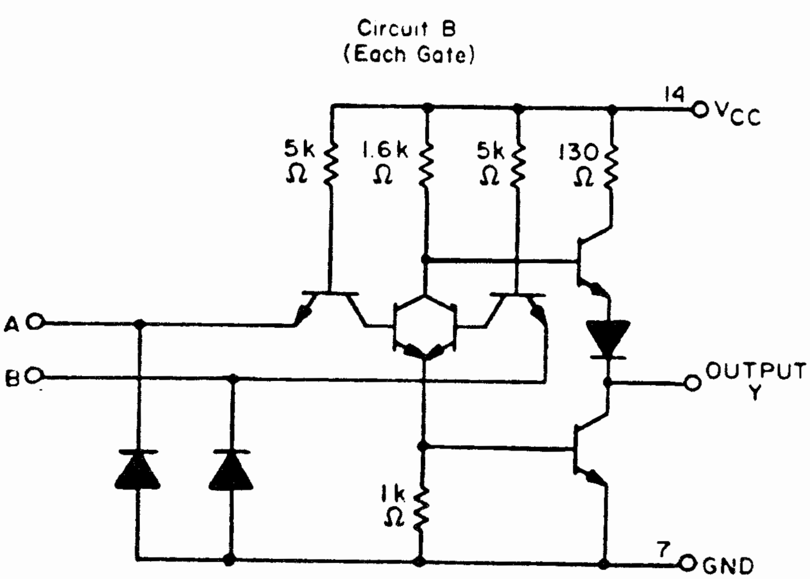


Figure 3-19. Integrated Circuit, Quadruple 2-Input Positive NOR Gate, M38510/00401 (5402), Simplified Schematic Diagram

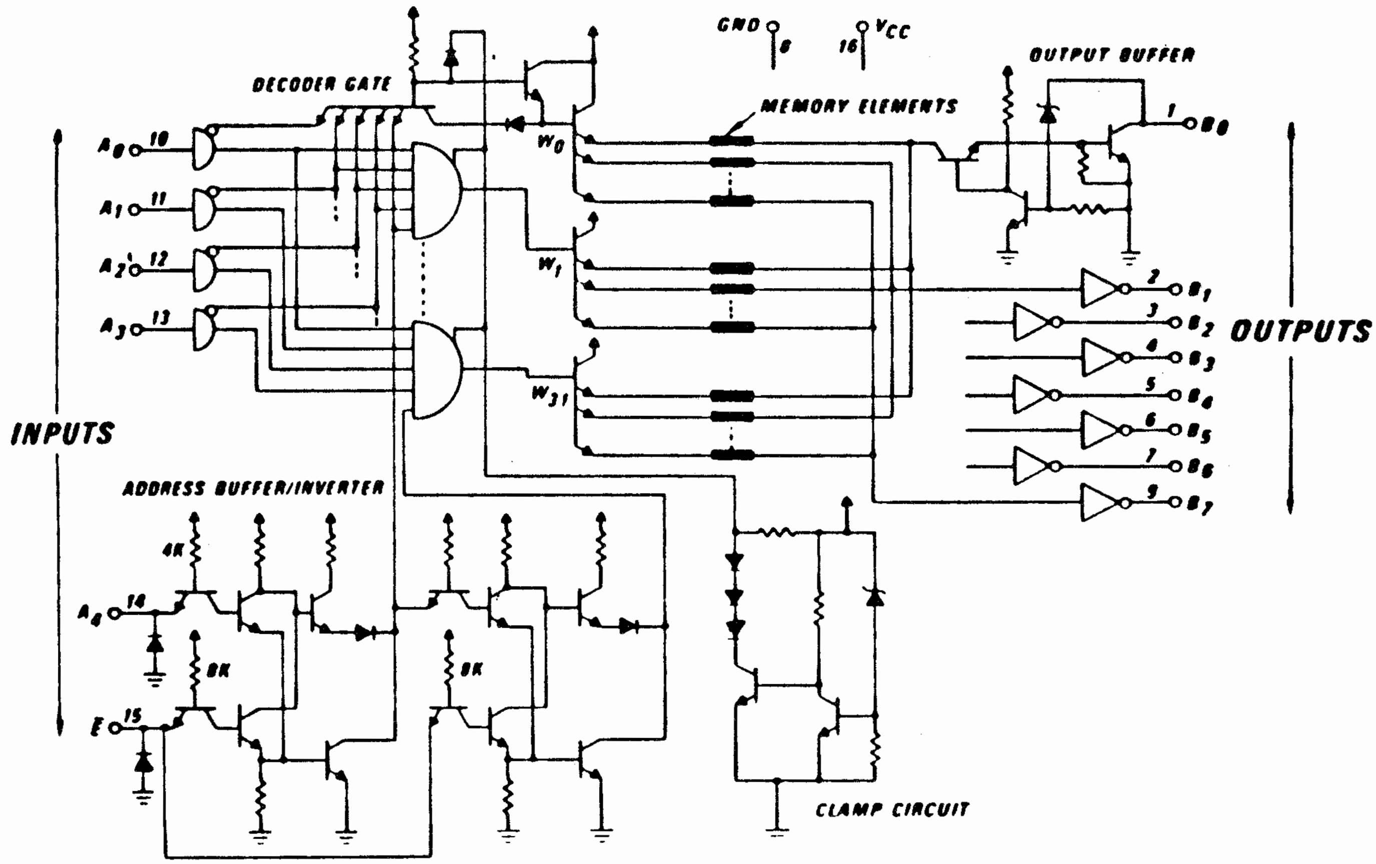


Figure 3-20. Integrated Circuit, Programmed Read-Only Memory, CC4335F (48P226463-01), Simplified Schematic Diagram

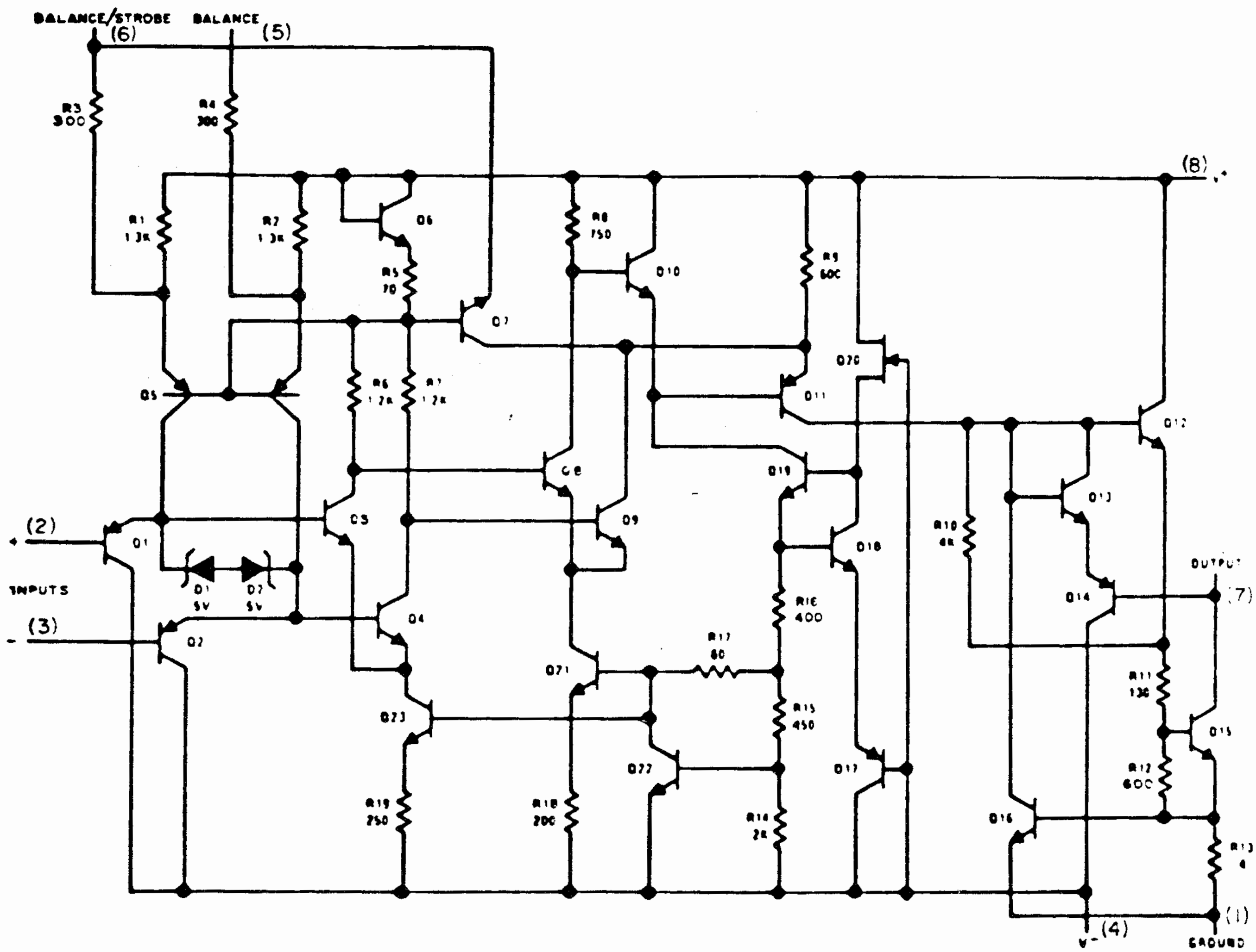


Figure 3-21. Integrated Circuit, Precision Voltage Comparator/Buffer, M38510/10304 (LM111), Simplified Schematic Diagram

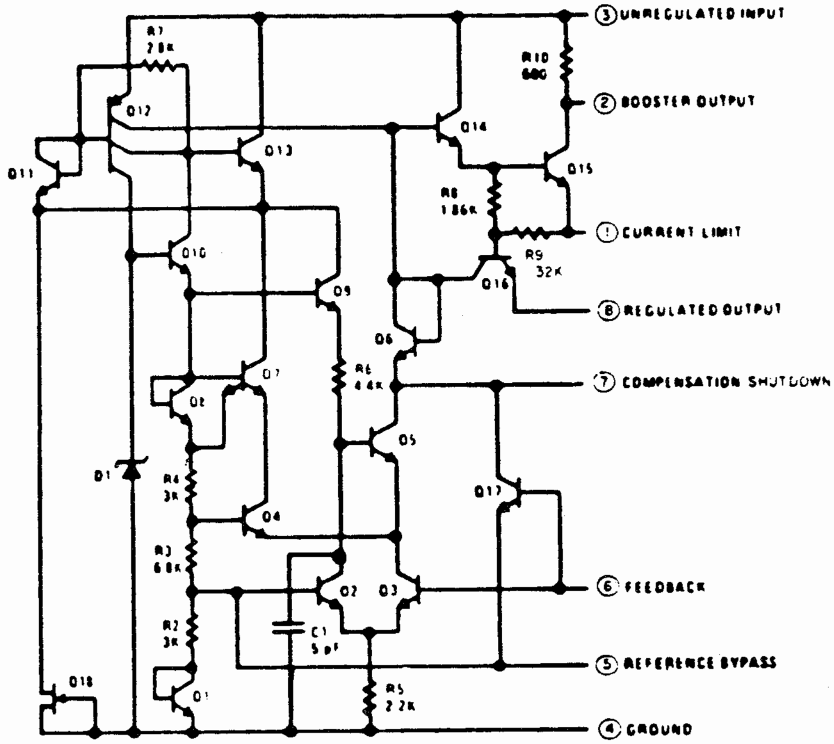
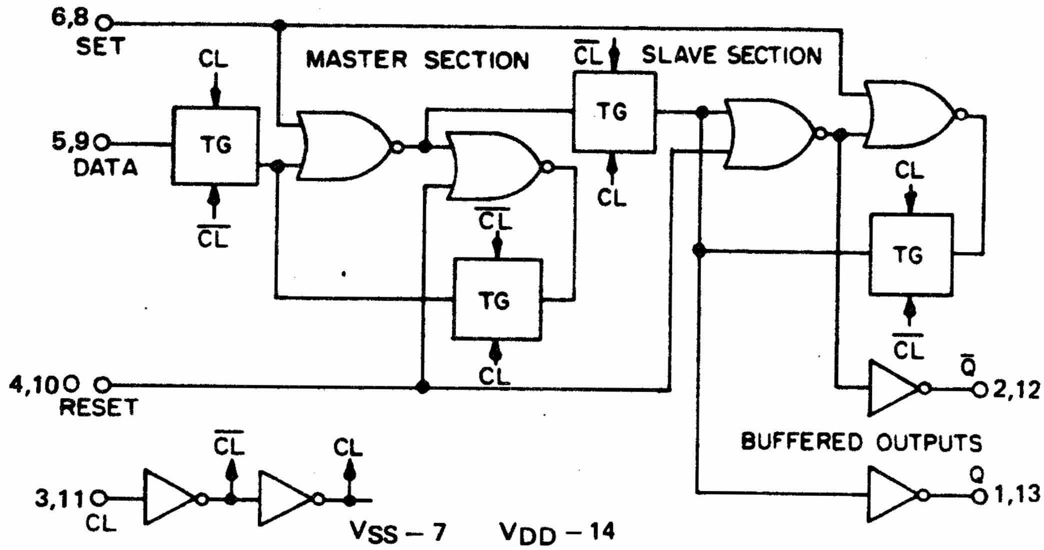


Figure 3-22. Integrated Circuit, Voltage Regulator, LM105H/883 (48P226461-01), Simplified Schematic Diagram

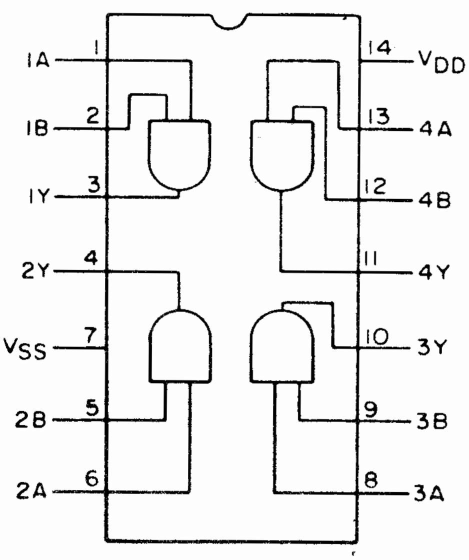


TRUTH TABLE

INPUTS				OUTPUTS		
CL Δ	D	R	S	Q	$\overline{Q}$	
	L	L	L	L	H	
	H	L	L	H	L	
	X	L	L	Q	$\overline{Q}$	NO CHANGE
X	X	H	L	L	H	
X	X	L	H	H	L	
X	X	H	H	*	*	

Positive logic
H = HIGH LEVEL;
L = LOW LEVEL
* = Invalid condition
Δ = Level change
X = Irrelevant

Figure 3-23. Integrated Circuit, Dual D-Type Edge-Triggered Flip-Flop, M38510/05101BCB (4013A), Logic Diagram



TRUTH TABLE

INPUTS		OUTPUT
A	B	Y
L	L	L
H	L	L
L	H	L
H	H	H

POSITIVE LOGIC Y = A · B
H = HIGH LEVEL;
L = LOW LEVEL

Figure 3-24. Integrated Circuit, Quadruple 2-Input AND Gate, M38510/17001BCB (4081B), Logic Diagram

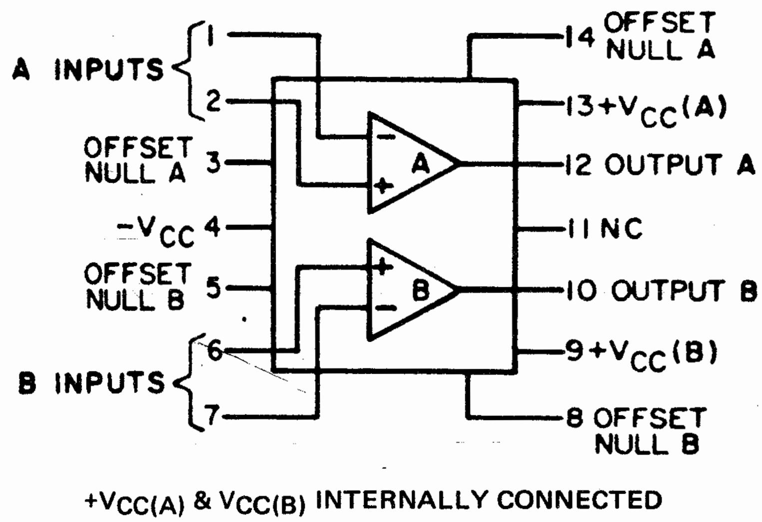


Figure 3-25. Integrated Circuit M38510/10102BCB (747A), Logic Diagram

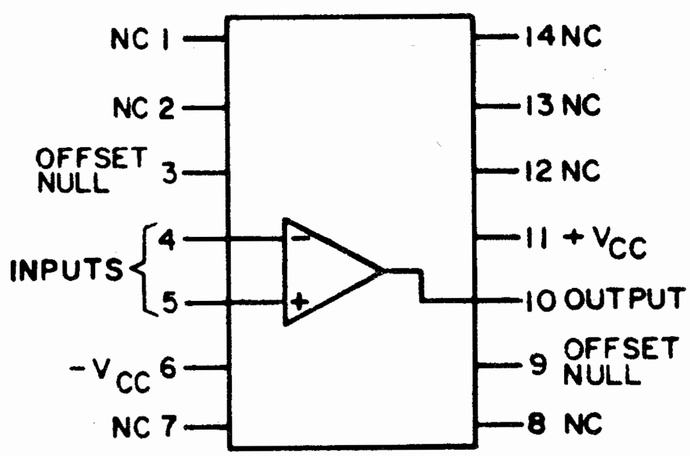
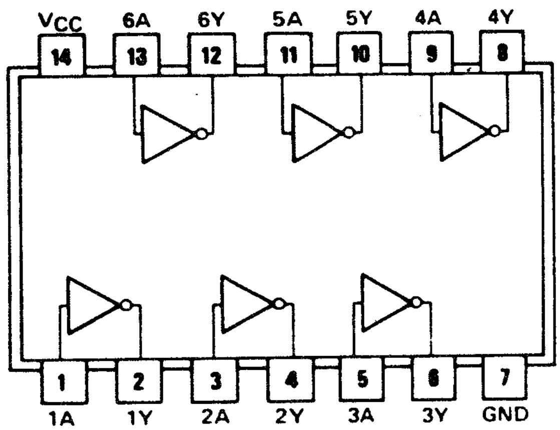


Figure 3-26. Integrated Circuit M38510/10101BCB (741A), Logic Diagram

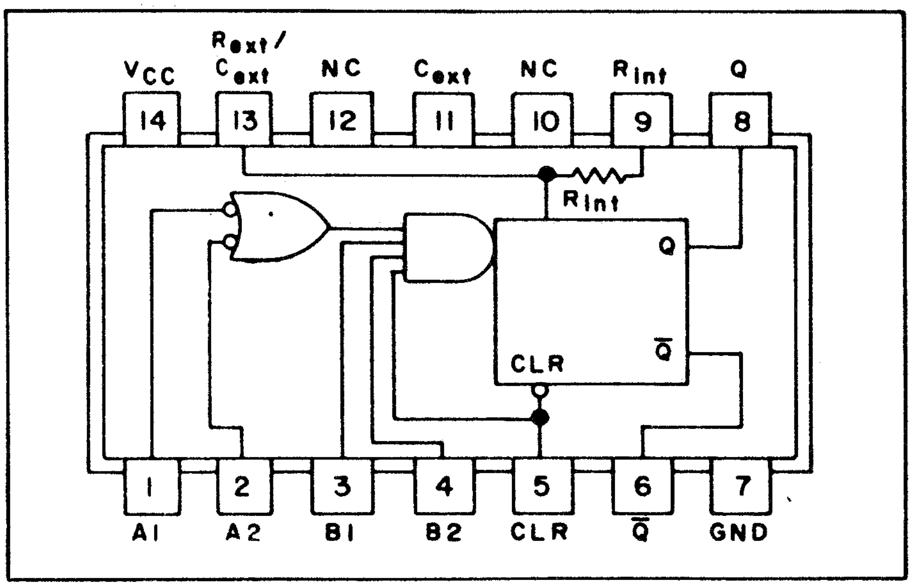


TRUTH TABLE

INPUT	OUTPUT
A	Y
L	H
H	L

POSITIVE LOGIC Y = $\overline{A}$
H = HIGH LEVEL
L = LOW LEVEL

Figure 3-27. Integrated Circuit, Hex 1-Input Inverter Gate, M38510/00108BCB (SNC54S04J), Logic Diagram

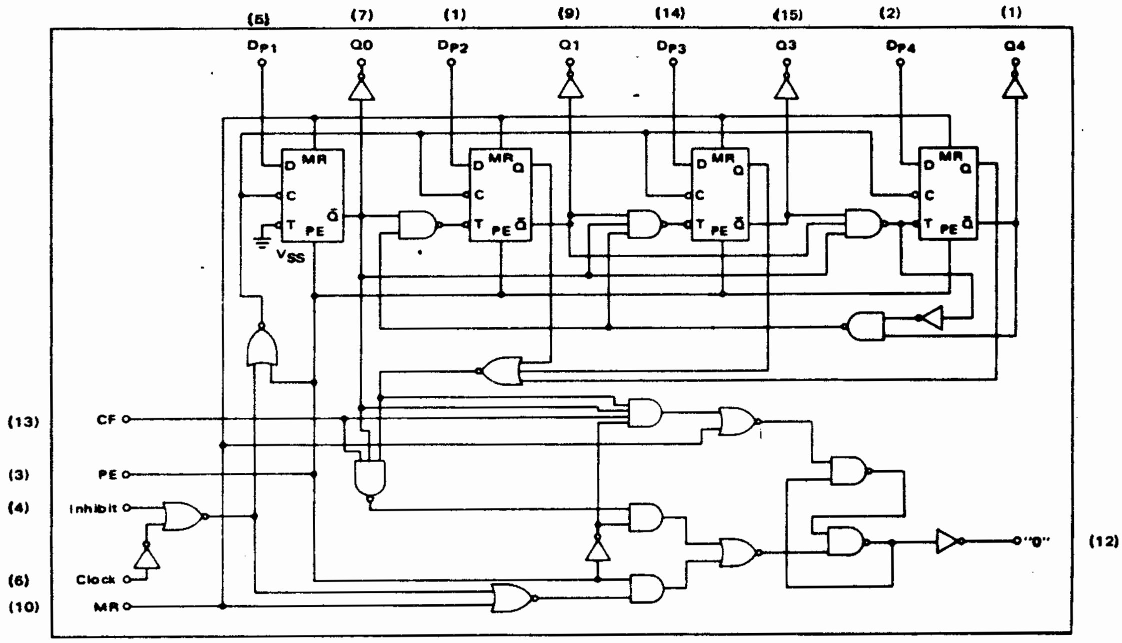


TRUTH TABLE
AND
FUNCTIONAL DESCRIPTION

INPUTS					OUTPUTS	
CLEAR	A1	A2	B1	B2	Q	Q̄
L	X	X	X	X	L	H
X	H	H	X	X	L	H
X	X	X	L	X	L	H
X	X	X	X	L	L	H
H	L	X	↑	H	⎍	⎏
H	L	X	H	↑	⎍	⎏
H	X	L	↑	H	⎍	⎏
H	X	L	H	↑	⎍	⎏
H	H	↓	H	H	⎍	⎏
H	↓	↓	H	H	⎍	⎏
H	↓	H	H	H	⎍	⎏
↑	L	X	H	H	⎍	⎏
↑	X	L	H	H	⎍	⎏

H = HIGH LEVEL (steady state),
L = LOW LEVEL (steady state),
↑= transition from low to high level,
↓= transition from high to low level,
⎍= one high level pulse,
⎏= one low level pulse,
X = irrelevant

Figure 3-28. Integrated Circuit, Single Monostable Multivibrator, M38510/31403BCB (54LS122), Logic Diagram



VDD – PIN (16)
VSS – PIN (8)

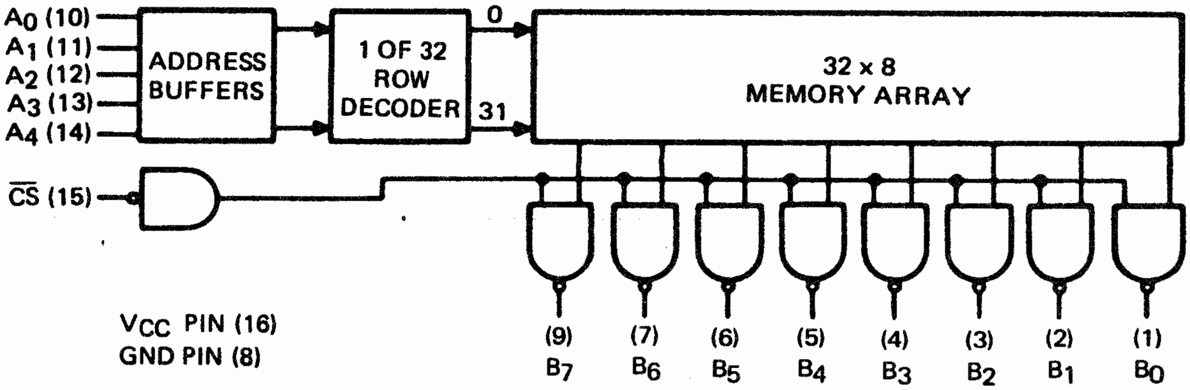
TRUTH TABLES

Clock	Inhibit	Preset Enable	Master Reset	Action
0	0	0	0	No Count
_/‾	0	0	0	Count - 1
X	1	0	0	No Count
1	‾_	0	0	Count - 1
X	X	1	0	Preset
X	X	X	1	Reset

1 = OPEN CIRCUIT;
0 = GROUND;
X = IRRELEVANT

	OUTPUT			
COUNT	Q3	Q2	Q1	Q0
9	1	0	0	1
8	1	0	0	0
7	0	1	1	1
6	0	1	1	0
5	0	1	0	1
4	0	1	0	0
3	0	0	1	1
2	0	0	1	0
1	0	0	0	1
0	0	0	0	0

Figure 3-29. Integrated Circuit, Programmable Divide-by-N 4-Bit Counter, BCL4522 (48P228316-01), Logic Diagram

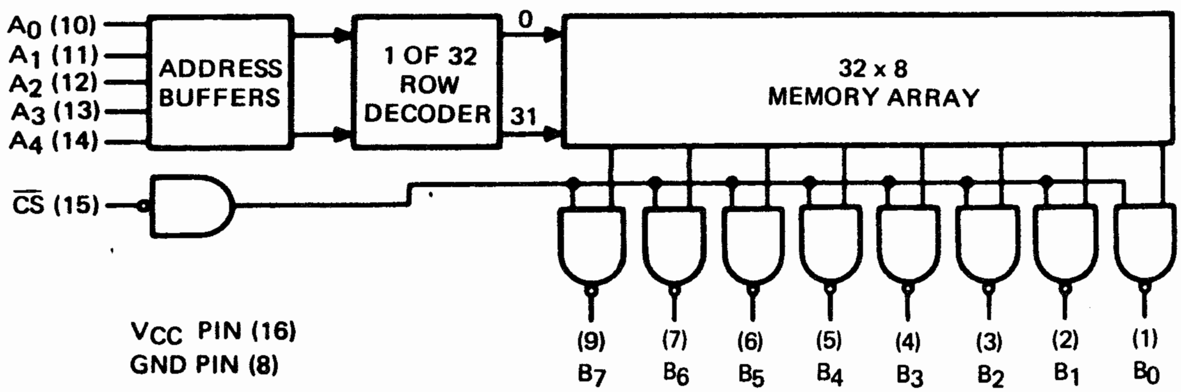


FUNCTION TABLE

INPUTS					OUTPUTS							
A_4	A_3	A_2	A_1	A_0	B_7	B_6	B_5	B_4	B_3	B_2	B_1	B_0
0	0	0	0	0	0	0	1	0	0	0	0	0
0	0	0	0	1	0	0	0	1	1	0	0	1
0	0	0	1	0	0	0	0	1	1	0	0	0
0	0	0	1	1	0	0	0	1	0	1	1	1
0	0	1	0	0	0	0	0	1	0	1	1	0
0	0	1	0	1	0	0	0	1	0	1	0	1
0	0	1	1	0	0	0	0	1	0	1	0	0
0	0	1	1	1	0	0	0	1	0	0	1	1
0	1	0	0	0	0	0	0	1	0	0	1	0
0	1	0	0	1	0	0	0	1	0	0	0	1
1	0	0	0	0	0	0	0	1	1	0	0	1
1	0	0	0	1	0	0	0	1	1	0	0	0
1	0	0	1	0	0	0	0	1	0	1	1	1
1	0	0	1	1	0	0	0	1	0	1	1	0
1	0	1	0	0	0	0	0	1	0	1	0	1
1	0	1	0	1	0	0	0	1	0	1	0	0
1	0	1	1	0	0	0	0	1	0	0	1	1
1	0	1	1	1	0	0	0	1	0	0	1	0
1	1	0	0	0	0	0	0	1	0	0	0	1
1	1	0	0	1	0	0	0	1	0	0	0	0

1 = OPEN CIRCUIT; 0 = GROUND
Addresses not shown are unprogrammed.

Figure 3-30. Integrated Circuit, 32 x 8 Prom, HM1-7603-8 (48P228344-01), Block Diagram



FUNCTION TABLE

INPUTS					OUTPUTS							
A_0	A_1	A_2	A_3	A_4	B_0	B_1	B_2	B_3	B_4	B_5	B_6	B_7
1	1	1	1	0	0	1	0	1	0	0	0	0
0	0	0	0	1	0	1	1	1	0	0	0	0
1	1	0	0	1	0	1	0	0	1	0	0	0
1	0	0	0	1	0	1	0	0	0	1	0	0
1	1	1	0	0	1	0	0	1	0	1	0	0
1	1	0	0	0	1	0	1	1	0	1	0	0
1	0	0	0	0	1	0	0	0	1	1	0	0
0	0	0	1	1	1	0	0	0	0	0	1	0
0	0	1	1	0	1	0	1	0	0	0	1	0
0	1	1	0	0	1	0	0	1	0	0	1	0
1	0	0	1	0	1	1	0	0	1	0	1	0
0	0	1	0	0	1	1	0	0	0	1	1	0
0	1	0	0	0	1	1	1	0	0	1	1	0
0	0	0	1	0	1	1	0	1	0	1	1	0
0	0	1	0	1	1	1	0	0	1	1	1	0
0	1	0	1	1	1	1	0	0	0	0	0	1
1	0	1	1	1	1	1	1	1	0	0	0	1

1 = OPEN CIRCUIT; 0 = GROUND.
Addresses not shown are unprogrammed.

Figure 3-31. Integrated Circuit, 32 x 8 Prom, CC4335F (48P226463-01), Block Diagram

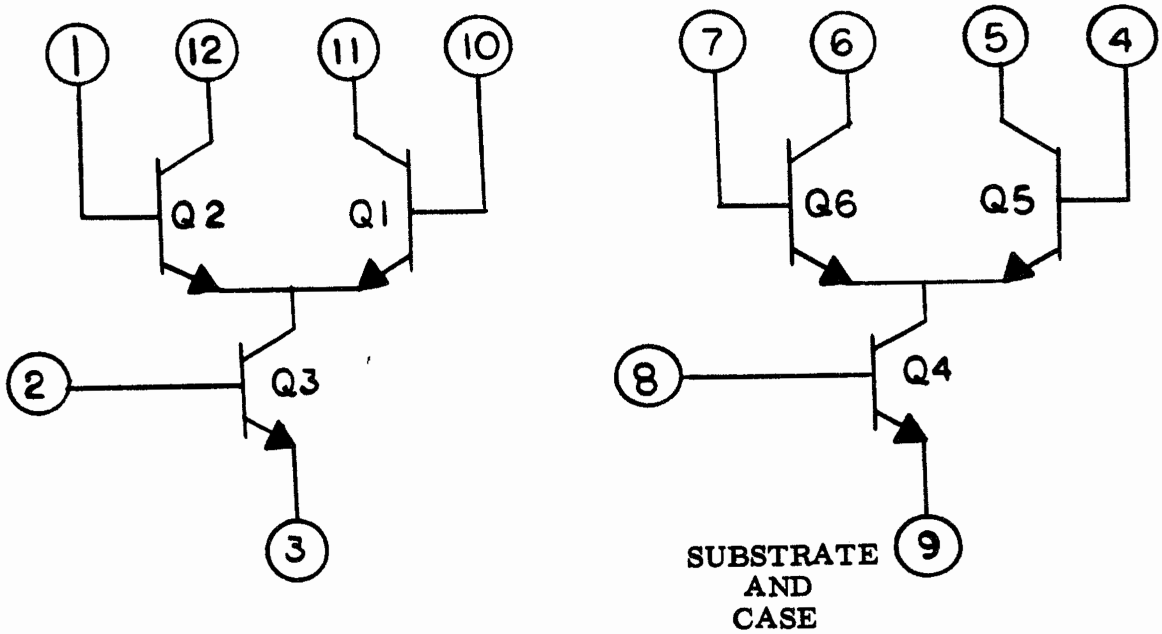


Figure 3-32. Integrated Circuit, Dual High-Frequency Differential Amplifier, CA3049T/3 (48P228318-02), Schematic Diagram

intermediate frequency signals with the T-827H/URT entry and exit signals.

3-134. Power Control and Distribution (Figure 5-28, Sheet 3). Power Supply Assembly A2A8 contains two full-wave bridge rectifier circuits and a +20 Vdc regulator circuit. The rectifier bridge comprised of A2-A8CR1 through A2A8CR4 produces an output which is filtered by inductor A2L1 and capacitor A2C1. This 110 Vdc output is used to power the plate and screen circuits of the vacuum tubes in RF Amplifier Assembly A2-A4. The rectifier bridge comprised of A2-A8CR5 through A2A8CR8 is responsible for the +28 Vdc output which is distributed as described in paragraph 3-117.

3-135. The +28 Vdc is applied to the collector of A2Q1. The output from the emitter of series regulator A2Q1 appears across the voltage divider consisting of A2A8R9, A2-A8R10, and A2A8R11. The wiper arm of variable resistor A2A8R10 provides one input to differential amplifier A2A8U1. The second input to A2A8U1 is a constant +4.7 Vdc supplied by voltage reference diode A2A8-CR13 and the voltage divider consisting of A2A8R4, A2A8R5, A2A8R17. Any change in the emitter voltage of series regulator A2Q1 causes a change at the input of A2A8U1. A change in the voltage output of A2A8U1 is amplified by A2A8Q1, A2A8Q2 and applied as a change in base bias of A2Q1. This changes the conduction of A2Q1, resulting in correction of the +20 Vdc output. The actual value is determined by the setting of potentiometer A2A8R10. In summary, any variation in the +20 Vdc output is detected by A2A8U1. The conduction of A2Q1 is changed to return the output voltage to +20 Vdc. Output filtering of the +20 Vdc is provided by capacitor A2A8C6. Refer to paragraph 3-118 for a description of the +20 Vdc distribution.

3-136. Meter Amplifiers (Figure 5-28, Sheet 1). Meter Amplifier Assemblies A2A10 and A2A11 amplify audio signals to LSB LINE LEVEL meter A2M1 and USB LINE LEVEL meter A2M2. The two meter amplifier assemblies are identical. Each receives an audio signal input from its associated Audio Processor Board assembly A2A21A18 and A2A21A19. The signal is connected through LSB LINE LEVEL meter switch A2S8, to A2-A10 and USB LINE LEVEL meter switch A2-S7, to A2A11. The position of switch A2S8 or A2S7 determines the amplitude of the audio input signal to A2A10 or A2A11.

3-137. When switch A2S8 or A2S7 is set in the -10 dB position, a negative 10 dB must be added to the meter indication on the scale to determine the actual audio line level. When switch A2S8 or A2S7 is set in the +10 dB position, the audio signals are attenuated by resistors A2A10R1-R3 or A2A11R1-R3. Thus, a positive 10 dB must be added to the meter scale to determine the true audio line level.

3-138. Panel Illumination (Figure 5-28, Sheet 3). When the mode selector switch is set to any position other than OFF, lamps A2DS3 and A2DS4 illuminate the numerical readouts associated with the front panel MHz and kHz tuning controls. The +28 Vdc panel lamp voltage is applied through voltage dropping resistor A2A8R1.

3-139. Handset Filtering (Figure 5-28, Sheets 1 and 3). Handset Filter Assembly A2A14 filters intermediate and radio frequency signals from the local handset line. The circuit consisting of A2A14L1, A2A14-C2, and A2A14C4 filters the audio line of HANDSET connector A2J1. The circuit consisting of A2A14C1 and A2A14CX3 filters the +12 Vdc handset PTT line.

3-140. IF Filtering (Figure 5-28, Sheet 1). IF Filter Assembly A2A15 filters the APC and PPC voltage inputs from the rf power amplifier and the +20 Vdc input to IF Amplifier Assembly A2A12. These filters prevent rf signals from appearing on the APC and PPC lines or on the +20 Vdc bus. A2-A15CR1 isolates the T-827H/URT +20 Vdc bus from the AM-3924C/URT tone carrier +20 Vdc.

3-141. AUDIO INTERCONNECT ASSEMBLY A2A21 (Figure 5-28, Sheet 1). The Audio Interconnect Assembly A2A21 contains the normal audio input transformers A2A21-T1 (LSB) and A2A21T2 (USB) and wiring for plug-in socket jacks A2A21XA18, A2A21-XA19, and A2A21XA20. These sockets are permanently mounted on the assembly, and provide receptacles for the following plug-in printed wiring assemblies: LSB Audio processor A2A21A19; USB Audio processor A2-A21A18; and Audio control A2A21A20. The A2A21 assembly is permanently hard-wired to the T-827H/URT chassis. Also mounted on the assembly are relays A2A21K1 and A2A21K2. Terminals A2A21K1-9 and A2-A21K2-9 are connected to A2A21E13, which receives either an open or +27 Vdc from DATA/NORMAL switch A2S11.

3-142. During NORMAL operation, an open is received and relays A2A21K1 and A2A21-K2 are unenergized. In this condition, the LSB/ISB 600 ohm inputs from A2J4-f, g are connected to the primary of A2A21T1 via relay terminals A2A21K1-2, -4 and A2A21K1-6, -8. Also in NORMAL operation, the USB/AM/ISB input lines from A2J4-r, q are connected to the primary of A2A21T2 via relay terminals A2A21K2-2, -4 and A2A21K2-6, -8. Transformer secondary terminals A2-A21T1-4 and A2A21T2-4 are connected to an AC ground via A2A21E41 on the interconnect assembly and A2A8E13 on the low voltage power supply assembly. Audio transformers A2A21T1 and A2A21T2 provide an impedance match to the 600 ohm LSB and USB NORMAL audio input lines, and the proper signal level at terminals A2A21T1-6 and A2A21T2-6 to drive the audio processor assemblies A2A21A18 and A2A21A19. Center tap terminal A2A21T1-5 is connected via A2A21E23 to LOCAL ISB HANDSET switch A2S9-6, and A2A21T2-5 to A2S9-4 via A2A21E24. With voice input via the handset, the LSB or USB audio channel, selected for ISB, is then applied directly to the secondary through A2S9 to the appropriate tap on A2A21T1-5 or A2-A21T2-5. Under these conditions, the direct input, without additional impedance matching provided by the audio transformer, is satisfactory.

3-143. When DATA/NORMAL switch A2-S11 is in the DATA position, +27 Vdc from A2A21E13 to A2A21K1-9 and A2A21K2-9 energizes these relays. Data audio on the LSB/ISB inputs A1A1J4-f, g and A1A1J6-A, B bypasses transformer A2A21T1 via terminal pairs 2, 3 and 7, 8 of energized relay A2A21-K1, and is directed to LSB Audio Processor A2A21A19 via the jumper pairs E43, E44 and E45, E46 on Audio Interconnect Assembly A2A21. Likewise, data audio on the USB/AM/ISB inputs A1A1J4-r, q and A1A1-J5-A, B bypasses transformer A2A21T2 via terminal pairs 2, 3 and 7, 8 of energized relay A2A21K2, and is directed to USB Audio Processor A2A21A18 via the jumper pairs E47, E48 and E49, E50 on Audio Interconnect Assembly A2A21. Data audio on connectors A2J8-A through A2J8-D is channeled to the proper audio processor via terminals E19, E31, E32, and E34 of Audio Interconnect Assembly A2A21.

3-144. AUDIO PROCESSORS A2A21-A18/19 (Figure 5-44). Two Processors, A2-A21A18 and A2A21A19, are incorporated in the T-827H/URT. Audio Processor A2A21-A18 handles USB, AM, and RATT modes of operation; A2A21A19 handles the LSB mode; both processors handle the ISB mode. The audio processors function to provide constant amplitude audio signals as partial input to the modulating circuits. Jumper wires on terminals A2A21E43 through A2A21E50 allow the installing agency the ability to connect data audio to the normal remote USB and LSB audio inputs. With jumpers connected as indicated in Key 25 of Table 2-1, and figure 5-28, sheet 1, data audio can be fed in from either the normal remote and auxiliary USB and LSB inputs or from the Data Audio input connector A1J8. With jumpers removed, data audio can be fed in only from the A1J8 connector. Since the physical design of the two audio processors is identical, only A2A21A18 will be described in the succeeding paragraphs.

3-145. For normal audio operation, relay A2A21A18K1 is unenergized, and the normal audio input at A2A21A18P1-U is directed, via contacts 2, 4 of relay A2A21A18K1, to the audio amplifier consisting of fixed gain amplifier A2A21A18U2 and a speech compression circuit A2A21A18Q1. The incoming normal audio is also fed to Line Level Meter A2M2 via connector A2A21A18P1-S. Prior to entering the amplifier and speech compression circuits, the normal audio is applied to THRESHOLD level control A2A21A18R4. A2A21A18R4 is set to the minimum input signal level which will maintain a constant output signal amplitude. The audio signal is applied across A2A21A18R4 and A2A21A18-Q1, and couples through A2A21A18R6 to pin 4 of A2A21A18U2. Audio amplifier A2A21-

A18U2 provides a fixed voltage gain of approximately 20. A2A21A18C24 and A2A21-A18C3 are decoupling capacitors. The amplified signal is applied to the base of dc amplifier A2A21A18Q2 by way of A2A21A18R9 and A2A21A18C8. Threshold detector A2-A21A18CR1 is forward biased by the positive half cycles of the audio signal. In the negative half cycles, A2A21A18CR1 is reversed biased and A2A21A18Q2 conducts. Capacitor A2A21A18C10 discharges and the voltage is applied to the gate of the compressor A2-A21A18Q1. The gate voltage controls the input signal level at A2A21A18U2-4 and maintains a constant output level at A2A21-A18U2-10. In the RATT mode a ground at P1-3 forward biases Q5 and disables Q1, allowing U2 to provide the full gain of 20. To provide temperature compensation, thermistor A2A21A18RT1 shunts resistor A2A21-A18R7. As temperature increases, the thermistor resistance decreases, permitting a greater percentage of the audio signal to be present at the output A2A21A18P1-17. Resistor A2A21A18R8 is variable for adjustment of the signal level presented to the balanced modulator circuits in the Mode Selector Assembly A2A1.

3-146. For data audio operation, the data audio input at A2A21A18P1-F, 6 and A2A21-A18P1-H is applied at A2A21A18T1 and fed to linear amplifier A2A21A18U1B-1. The gain of A2A21A18U1B is set by potentiometer A2A21A18R33. When the output amplitude of A2A21A18U1A exceeds a preset level, adjusted by clip level potentiometer A2A21A18R26, A2A21A18Q3 or A2A21A18-Q4 reduces the gain of A2A21A18U1A by its feedback through A2A21A18R24. Voltage divider A2A21A18R31-A2A21A18R32 reduces the signal to a level below the transmitter audio automatic control threshold. The processed data audio is directed, via contacts 2, 3 of energized relay A2A21A18K1, to the audio amplifier and speech compression circuits for additional processing identical to that described for normal audio in the preceding paragraph. The data audio at relay terminals A2A21A18K1-2, 3 is also directed to Line Level meter A2M2 via connector A2A21A18P1-S.

3-147. Audio Control A2A21A20 (Figure 5-45). The Audio Control Assembly A2A21A20 performs the following functions associated with data operation: (1) voltage interlocks; (2) T-827H/URT and AM-3924C(P)/URT keying; (3) TGC enable, reset and capacitor control; (4) data ISB grounds; and (5) +15 Vdc and +5 Vdc supplies.

3-148. Voltage Interlocks. The interlock function prevents data operation if +20 Vdc or +24 Vdc are not present at pins 11 and 13, respectively, of connector A2A21A20P1. If both voltages are present, A2A21A20CR8 and A2A21A20CR9 are off and so A2A21-A20Q9 and A2A21A10Q13 are both off. If either voltage is absent, one of the diodes A2A21A20CR8 or A2A21A20CR9 is on through A2A21A20R21 or A2A21A20R22. If A2A21A20Q9 and A2A21A20Q13 are on, the collector of A2A21A20Q13 is at a logic low (0.0 to 0.4 Vdc); hence, TGC enable at A2-A21A20P1-L is at a logic low, TGC action is inhibited, and data operation is effectively prohibited.

3-149. T-827H/URT and AM-3924C(P)/URT Keying. The T-827H/URT is always keyed in the data mode of operation, and the AM-3924C(P)/URT is keyed only when data audio tones are present. This keying is accomplished by energizing relays A2A21A20K1 and A2A21A20K2. In the unenergized condition, relays A2A21A20K1 and A2A21A20K2 allow the CW/RATT keyline and the ground keyline to pass through the audio control assembly without alteration.

3-150. In the normal mode of operation, the ground keyline at A2A21A20P1-D is fed through contacts 2, 4 of unenergized relay A2A21A20K2, and outputted at A2A21A20-P1-4. In the data mode, A2A21A20P1-D is grounded through contacts 2, 3 of energized relay A2A21A20K2, which keeps the T-827H/URT keyed constantly. In the normal mode of operation, the CW/RATT keyline at A2A21A20P1-5 is passed through contacts 2, 4 of unenergized relay A2A21A20K1, and outputted at A2A21A20P1-E. In the data mode, energized relay A2A21A20K1 allows keying of the system through contacts 2, 3 and via A2A21A20CR20 by a +6 Vdc data key signal fed through the CW/RATT keyline at A2A21A20P1-5. Keying of the system in data mode can also be accomplished by a +6 Vdc data key signal on pins H, J, or 7 of A2-

A21A20P1. The data key turns on A2A21-A20Q10 so that the logic low necessary to key RF Amplifier AM-3924C(P)/URT will be present at A2A21A20P1-4 through contacts 7, 8 of energized relay A2A21A20K2.

3-151. TGC Enable and TGC Capacitor Control. The TGC functions of enable and capacitor control are provided as follows. The audio sample for TGC is received at A2-A21A20P1-M. Dual operational amplifier A2A21A20U3, transistor A2A21A20Q11 and one-shot multivibrator A2A21A20U6 form an audio signal detector. A2A21A20U3, A2-A21A20CR11 and A2A21A20CR12 function as a full-wave bridge rectifier with gain for the USB and/or LSB signal input. The resulting signal at the base of A2A21A20Q11 is a series of positive spikes for each audio zero voltage crossing. The resulting negative spikes on the collector of A2A21A20Q11 maintain A2A21A20U6 pin 6 at a low logic state as long as data audio is present. This logic low is sent to pin 11 of wired "AND" A2A21A20U2. A2A21A20U2 pin 13 sees a logic low if the DATA/NORMAL switch is in the DATA position. A2A21A20U2 pin 9 will be a logic low if A2A21A20Q10 is on. A2-A21A20U2 pin 3 is permanently wired to ground (a logic low). Thus, if pins 3, 9, 11 and 13 of A2A21A20U2 are at logic lows, pins 4, 8, 10, and 12 will be at logic highs (+2.4 Vdc to +5.0 Vdc). Additionally, A2-A21A20U2 pin 1 will be at a logic high if +20 Vdc and +28 Vdc are present at pins 11 and 13, respectively, of A2A21A20P1. The "anded" logic highs at the output of A2A21-A20U2 represent the required TGC enable at A2A21A20P1-L for the TGC counter in the AM-3924C(P)/URT.

3-152. A2A21A20Q11 shifts the analog levels from A2A21A20U3 to TTL-compatible levels for multivibrator A2A21A20U6. A2-A21A20Q11 turns on with each half cycle of audio greater than -6 dBm, causing A2A21-A20U6 to be triggered. The output at A2-A21A20U6-6 goes low and remains in that state until approximately 1.5 milliseconds after all audio is removed. This logic low is sent to pin 11 of A2A21A20U2. This same condition is established by the presence of a +20 Vdc carrier insertion signal at A2A21-A20P1-12. This signal turns on A2A21A20-Q12, which grounds the output of A2A21-A20U6-6, and provides a logic low to pin 11 of A2A21A20U2. When the DATA/NORMAL switch is in the DATA position, the resulting ground (logic low) at A2A21A20P1-10 appears on pin 13 of A2A21A20U2. The presence of a data key signal (+6 Vdc) from the audio processors A2A21A18/A2A21A19 or from an external key at pins H, J, or 7 of A2A21A20P1 causes A2A21A20Q10 to turn on and its collector to go low, thereby providing a logic low to pin 9 of A2A21A20U2. The logic lows at pins 3, 9, 11, 13 of A2A21-A20U2 appear as logic highs at pins 4, 8, 10, 12, respectively. These constitute the TGC enable logic high at A2A21A20P1-L, provided that +28 Vdc interlock voltage from the AM-3924C(P)/URT is present at A2A21A20P1-11. These voltages hold A2A21A20Q9 and A2A21A20Q13 off, which results in a logic high at pin 1 of A2A21A20U2. This completes the required "anding" of A2A21A20U2 outputs, and subsequent enabling of the TGC counter via the resultant logic high at A2-A21A20P1-L. The logic high at A2A21A20U2 pin 1 is inverted to a logic low at pin 2. The logic level of A2A21A20U2-2 is level-shifted in A2A21A20Q7-A2A21A20Q8 to provide -15 Vdc to A2A21A20P1-17 for TGC capacitor control to the AM-3924C(P)/URT.

3-153. TGC Reset. Reset functions set the TGC counter to maximum count, i.e. full attenuation at the transmitter. TGC reset is logic low when: (1) the system is turned on; (2) the DATA/NORMAL switch is turned to DATA; or (3) a ground pulse occurs by changing any of the MHz or kHz frequency knobs.

3-154. As the +5 Vdc builds up at system turn-on, A2A21A20Q6 is turned on through A2A21A20R12 and A2A21A20CR5. The resultant logic low at the collector of A2A21-A20Q6 initiates TGC reset at A2A21A20P1-15. When the +5 Vdc supply builds up to greater than +4.2 Vdc (determined by A2-A21A20CR4), A2A21A20CR4 begins to conduct through A2A21A20R13 to turn on A2-A21A20Q5. With A2A21A20Q5 on, the voltage at its collector is too low to maintain A2A21A20Q6 on, and the TGC reset function is effectively completed.

3-155. When the DATA/NORMAL switch A2S11 is changed from NORMAL to DATA, the ground at A2A21A20P1-10 is inverted by

A2A21A20U2, and appears as a logic high at A2A21A20U2-6. This is coupled through A2-A21A20C6 to turn on A2A21A20Q6, thereby providing a logic low at A2A21A20P1-15. The on period is determined by the time constant set by A2A21A20C6 and A2A21A20-R14. A ground pulse (as a result of turning any MHz or kHz tuning control) is present on A2A21A20P1-T. This pulse is inverted by A2A21A20Q1 and sent through A2A21A20-CR3 to turn on A2A21A20Q6. The resulting logic low at the collector of A2A21A20Q6 provides the required TGC reset at A2A21-A20P1-15. A2A21A20Q2 inverts the signal on the collector of A2A21A20Q1 to create the PA ground pulse on A2A21A20P1-16 for use by the AM-3924C(P)/URT.

3-156. Data ISB Grounds. A ground is required for the LSB and USB Audio Processors A2A21A18 and A2A21A19 for ISB data mode operation. In this mode of operation, the audio processors reduce the audio drive to the modulators to limit rf peak power output. When Mode Selector switch A2S2 is placed in the ISB position, a ground appears at A2A21A20P1-U. Relay A2A21A20K3 is energized by the appearance of this ground on A2A21A20K3-9. The required ISB ground for USB and LSB then appears at pins P and 14 of A2A21A20P1 via contact pairs 2, 3 and 6, 7 of relay A2A21A20K3.

3-157. +15 Vdc and +5 Vdc Power Supplies. Audio assemblies A2A21A18, A2-A21A19, and A2A21A20 require +15 Vdc. This voltage is developed by A2A21A20Q14. The +20 Vdc from A2A21A20P1-S is dropped by A2A21A20R41 and applied to +16 Vdc Zener diode A2A21A20CR23. This zener sets the base voltage for emitter follower A2-A21A20Q14. The emitter output provides the required +15 Vdc output. The A2A21A20 assembly requires +5 Vdc which is provided by voltage regulator A2A21A20U7. The input to A2A21A20U7 is the +15 Vdc from the emitter of A2A21A20Q14.

3-158. MODE SELECTOR ASSEMBLY A2-A1 (Figure 5-29). Mode Selector Assembly A2A1 contains the Balanced Modulator Subassemblies A2A1A1 and A2A1A2 employed for USB and LSB modulation; Isolation Amplifier Subassembly A2A1A3; and single-sideband filters A2A1FL1 and A2A1FL2. The Mode Selector also contains 500 kHz Gates Subassembly A2A1A4. A2A1A4 contains gating circuits which control the distribution of the 500 kHz modulator input signal, and the CW and AM carrier reinsertion signals. The mode selector also contains Buffer Amplifier A2A1A5, which buffers the two sideband filters.

3-159. The two balanced modulators (A2-A1A1 and A2A1A2) are identical in circuitry, but receive audio from different sources. Subassembly A2A1A1 receives audio to be transmitted on USB from Audio Processor A2A21A18. Subassembly A2A1A2 receives audio to be transmitted on LSB from Audio Processor A2A21A19. A2A1A1 and A2A1A2 are conventional, balanced-bridge modulators. Here, the input audio signals are mixed with the 500 kHz intermediate frequency carrier signal. The output of the balanced modulator consists of the sum and difference frequencies (upper and lower sidebands). The 500 kHz carrier and audio are suppressed. Carrier suppression is achieved by balancing, using MOD BAL ADJ controls A2A1A1R3, A2A1A1C4, A2A1A2R3, and A2A1A2C4.

3-160. The outputs of the balanced modulators are applied to the isolation amplifiers in subassembly A2A1A3. Isolation amplifiers A2A1A3Q1 and A2A1A3Q2 apply this signal to an associated LSB or USB filter (A2A1FL1 or A2A1FL2). The output from filter A2A1-FL1 is lower sideband only; the output from filter A2A1FL2 is upper sideband only. The filter outputs are connected to amplifiers A2A1A5Q1 and A2A1A5Q2 which buffer the signals and also provide for balancing the outputs by the adjustment of A2A1A5R6. The outputs of the buffer amplifiers are connected to a common output at A2A1A5E4. A2A1P1-A1 connects the sideband signals to IF Amplifier Assembly A2A12. Either of the two balanced modulators may operate singly, or both may operate simultaneously. This depends on the selected mode of operation.

3-161. Gated amplifiers A2A1A4Q1 and A2A1A4Q2 function as switches between the balanced modulators and the 500 kHz input line. Gated amplifiers A2A1A4Q1 and A2-A1A4Q2 receive the 500 kHz signal through gating diode A2A1A4CR1. Diode A2A1A4-CR1 is biased on by application of the +20

Vdc transmit voltages from A2A1P2-7. A2-A1A4Q1 is enabled when +20 Vdc is applied to its emitter from A2A1P2-8. This occurs when the mode selector switch A2S2 is set in any mode except CW. Enabling A2A1A4Q1 gates the input 500 kHz into the primary of A2A1A4T1. The output of A2A1A4T1 is connected by coaxial cable to A2A1A1E4 of USB Balanced Modulator A2A1A1. A2A1A4Q2 functions identically when the mode selector switch is set in modes requiring LSB operation.

3-162. The cw keyline ground input at A2-A1P2-5 causes cw key gate A2A1A4CR7 to conduct. This biases cw carrier reinsertion gate A2A1A4CR6 on and A2A1A4CR8 off. The 500 kHz input at A2A1P2-A3 is then supplied as a carrier reinsertion signal to output transformer A2A1A4T3. A2A1A4CR8 conducts at all times when the cw keyline ground input is not present at A2A1A4CR7. Conduction of A2A1A4CR8 grounds the output of A2A1A4CR6 through A2A1A4C22. This prevents leakage of the 500 kHz signal.

3-163. In SSB modes, +20 Vdc from A2A1-P2-7 is applied to reinsertion gate A2A1A4-CR12 via Carrier Reinsertion switch A2A1-S1. This enables A2A1A4CR12, which then passes the 500 kHz signal from % MOD ADJ potentiometer A2A1A4R39 to Carrier Reinsertion switch A2A1S1. Changing settings of switch A2A1S1 attenuates the 500 kHz signal by a preselected amount from transformer A2A1A4T3. The A2A1A4T3 output is then fed through A2A1P2-A1 to IF Amplifier Assembly A2A12, where it is reinserted as the desired pilot carrier signal.

3-164. When the mode selector switch is set in the AM mode, AM carrier reinsertion gates A2A1A4CR9 and A2A1A4CR11 are biased on by application of +20 Vdc from A2-A1P2-4. Conduction through A2A1A4CR11 reverse biases AM carrier reinsertion gate A2A1A4CR10. This action allows the 500 kHz carrier reinsertion signal to pass through A2A1A4CR9 to output transformer A2A1A4-T3. A2A1A4CR11 is biased off in all other modes, and A2A1A4CR10 conducts. Undesired 500 kHz leakage signal from A2A1A4-CR9 is then grounded by capacitor A2A1A4-C26.

3-165. RF AMPLIFIER ASSEMBLY A2A4 (Figure 5-30). The rf amplifiers A2A4V1 and A2A4V2 of RF Amplifier Assembly A2A4 are conventional tuned circuits, capable of tuning over the range from 2.0 to 29.9999 MHz. The RF Amplifier Assembly tuning turret contains twenty-eight MHz bandpass filter coupling networks (subassemblies A2-A4A2 through A2A4A29 depicted in Figures 7-20 through 7-47). As indicated in notes 3 and 7 of figure 5-30, portions of three of the 28 turret subassemblies are used to tune a 1 MHz band (e.g., for 2-MHz tuning, subassemblies A2A4A20, A2A4A25, and A2A4A2 are involved). Selection of the appropriate portions of each of these turret subassemblies is accomplished by rotation of the MHz controls on the front panel.

3-166. In order to tune to the desired frequency within any 1-MHz band, the 100 kHz and 10 kHz controls are used to mechanically select grid and plate tank-capacitor subassemblies, as shown in notes 1, 2, 5 and 6 of figure 5-30. For example, in tuning to 550 kHz within any MHz band, capacitor C6 and C15 of subassembly A2A4A30, A2A4A33, A2A4A34 and A2A4A37 tune the 100-kHz increment (0.5 MHz), and capacitor C6 of subassemblies A2A4A31, A2A4A32, A2A4A35 and A2A4A36 tunes the 10-kHz increment (0.05 MHz).

3-167. The selection of the desired 1-MHz band is accomplished by rotating the front panel MHz controls to the desired frequency. These controls are not mechanically connected to the turret; instead, the controls rotate switch wipers in Code Generator Assembly A2A7. This results in an output from the code generator of a five-line code consisting of circuit grounds and opens (see table 3-2).

3-168. A five-line combination for each frequency band is applied through contacts 1 through 5 of A2A4P1, and from there to the turret decoder A2A4S1. Wafer A2A4S1A is the decoder, and connects the ground(s) from the code generator to relay A2A4K1, which energizes and applies +28 Vdc to motor A2-A4B1 (via relay contacts A2A4K1-A1 and A2A4K1-2). As the motor drives the turret and the turret decoder, relay A2A4K1 remains energized until decoder A2A4S1A reaches a position where no ground is provided to the motor relay. For instance, if the code generator output is GOOOO where "G" is ground and "O" a circuit open, then decoder A2A4S1A will rotate until its contacts reflect an open-closed-closed-closed-closed configuration on contacts A2A4S1A-1, 2, 3, 4, 5. Since the ground for relay A2A4K1 is supplied by any grounded line from the code generator, the decoder switch A2A4S1A is rotated until its contacts all see open circuits. Wafer A2A4S1B is complementary to A2A4S1A and receives its inputs in parallel with A2A4S1A on code lines 1 through 5 from the Code Generator Assembly A2A7. Thus, when the input code lines are GOOOO, contacts A2A4S1B-1 through A2A4S1B-5 will be open-closed-closed-closed-closed as the complement of the A2A4S1A-1 through A2-A4S1A-5 terminal connections.

3-169. The purpose of switch wafer A2A4-S1B is to provide re-entrant ground paths for A2A4S1A via Code Generator Assembly A2-A7. Code Generator Assembly A2A7 functions in such a way that all of the open-circuit lines present at A2XA4P1-1 through A2XA4P1-5 corresponding to a given setting of the front-panel frequency controls are tied together. For example, if code line 1 assumes a circuit open for a new code — say, OOGOO — then the ground present on A2S1-A-3 will connect to A2S1B-3, to A2S1B-1 to A2S1A-2 (because A2S1A-2 connects through the code generator A2A7 to A2S1A-1, both being open) and since A2S1A-2 is closed contact to ground now, relay A2A4K1 will energize. Once turret rotation ceases, the turret assemblies A2A4A1 through A2A4A29 are positioned as required to connect the tuning elements that will tune the rf amplifier stages to the selected frequency band.

3-170. FREQUENCY STANDARD ASSEMBLY A2A5 (Figure 5-31). Frequency Standard Assembly A2A5 contains four subassemblies: Oscillator and Oven Control A2A5A1, Divider/Amplifier A2A5A2, Oven Body A2-A5A3, and 5 MHz Reference Control A2A5-A4. The A2A5A1 subassembly uses a temperature-controlled crystal oscillator to provide a stable 5 MHz reference frequency. Subassembly A2A5A4 monitors the 5 MHz signal from the A2A5A1 oscillator and the 5 MHz input from an external frequency standard. The A2A5A4 control circuitry automatically switches to the internal 5 MHz source if the external standard signal falls below a minimum level. The 5 MHz source selected by A2A5A4 is applied to Divider/Amplifier Subassembly A2A5A2 which provides the 10 MHz, 5 MHz, 1 MHz and 500 kHz outputs of A2A5. A visual comparator circuit in A2A5-A2 allows comparison of the internal crystal oscillator frequency to the input from an external standard.

3-171. Input Circuit Operation (EXT NORM Mode). The external 5 MHz reference signal is applied to 5 MHz Reference Control Subassembly A2A5A4 via A2A5J3-1, terminated by A2A5A4R1, and coupled through A2A5A4C1 and current limiting resistor A2-A5A4R2 to the base of amplifier A2A5A4Q1. Operating bias for A2A5A4Q1 is established by resistors A2A5A4R3, A2A5-A4R5, A2A5A4R6, and temperature compensation diodes A2A5A4CR1 through A2A5A4-CR4.

3-172. When the external 5 MHz reference signal input at A2A5J3-1 is approximately 400 mVrms or greater, the amplified positive voltage swings developed by A2A5A4Q1 charge capacitor A2A5A4C2 through diode A2A5A4CR6. The time constant of A2A5-A4C2 and A2A5A4Q2 base is such that A2-A5A4C2 retains a positive charge sufficient to turn on A2A5A4Q2, and thus maintains A2A5A4U1A-1 at a logic high. Pull-up resistor A2A5A4R10 also places a logic high at A2A5A4U1A-2. This causes output pin 3 of A2A5A4U1A to be at a logic low, and places A2A5A4U2D-12 at a logic high through the action of inverter A2A5A4U1B. Because it is reverse biased, isolation diode A2A5A4CR5 in the path with A2A5A4R7 prevents sink current to A2A5A4U1A-3. Since A2A5A4-U2D-13 is also high, a logic low appears at A2A5A4U2D-11 and A2A5A4U2B-5. Under this condition, the output of gate A2A5A4-U2B-6 is always high, and therefore gate A2A5A4U2C-10 remains at a logic high. Since A2A5A4U1C-9 is also at a logic high, the output of NAND gate A2A5A4U1C-8 will be an inversion of the amplified 5 MHz standard frequency at A2A5A4Q1 collector. NAND gate A2A5A4U2C-8 under this condition will output the external 5 MHz standard to Divider/Amplifier Subassembly A2A5A2.

3-173. When the external 5 MHz reference signal at A2A5J3-1 drops below approximately 250 mVrms, as determined by the value of A2A5A4R3, the output level at the collector of A2A5AQ1 is no longer sufficient to forward bias detector diode A2A5A4CR6. Capacitor A2A5A4C2 then discharges to ground through emitter follower A2A5A4Q2 until the voltage at the base of A2A5A4Q3 is insufficient for conduction and A2A5A4Q2 is cut off. Input pin 1 of A2A5A4U1A is then at a logic low level through emitter resistor A2A5A4R9. Output A2A5A4U1A-3 is high, A2A5A4U18-6 is low, A2A5A4U2B-5 is high, so that the internal 5 MHz frequency standard from oscillator and oven control subassembly A2A5A1P5 appears at the output of gate A2A5A4U2B-6. Since A2A5A4U1C-9 is now low, A2A5A4U1C-8 output is held high, which allows NAND gate A2A5A4U2C to pass the internal 4 MHz frequency standard inverted through gate A2A5A4U2C-8 and on to Divider/Amplifier Subassembly A2A5A2-E9 via A2A5J3-4.

3-174. The output level of inverter A2A5-A4U1B changes from logic high to logic low when A2A5A4Q2 is cut off, which switches A2A5A4Q4 from saturation to cut-off. The voltage at A2A5A4Q4 collector then forward biases the base of emitter follower A2A5A4-Q3, and +28 Vdc is supplied by A2A5A4Q3 emitter to input pin 1 of +20 Vdc regulator A2A5A4U3. Zener diode A2A5A4CR7 prevents the base-emitter voltage on A2A5A4Q3 from exceeding 30 Vdc during transients. The +15 Vdc output from pin 2 of A2A5A4U3 is routed through A2A5A4E5 and A2A5A3J1-A4 to Oscillator and Oven Control Subassembly A2A5A1, and the internal 5 MHz oscillator and oven control circuits are energized.

3-175. The internal 5 MHz oscillator output is applied through A2A5A3J1-A5, A2A5-A4E1, and inverter A2A5A4U2A to input pin 4 of A2A5A4U2B. Since logic high levels are now applied to A2A5A4U2B-5 and A2A5A4-U2C-9, the internal 5 MHz signal is gated through A2A5A4U2B and A2A5A4U2C to Divider/Amplifier Subassembly A2A5A2.

3-176. A2A5A4U1A-3 is at a logic low when A2A5A4Q2 is cut off by a low external signal level input. This logic high initiates a current flow through A2A5A4R7 and A2A5-A4CR3 through A2A5A4CR5, which raises the bias level of A2A5A4Q1 base. This bias increase produces a hysteresis effect whereby an increase of the external signal level input to 400 mVrms is now required to switch back to external operator as described in paragraph 3-172.

3-177. Input Circuit Operation (EXT OVEN STBY Mode). When 5 MHz OSC SOURCE switch A2A5A2S1 is set to EXT (OVEN STBY), circuit operation is the same as previously described, with the following exceptions. The emitter of A2A5A4Q4 is no longer grounded through contact 2 of A2A5A2S1. A2A5A4Q4 is off, turning A2A5A4Q3 on. Plus 28 Vdc is applied to input pin 1 of +15 Vdc regulator A2A5A4U3. The oscillator and oven control circuits are energized continuously, so the internal 5 MHz reference signal is immediately available if the external 5 MHz frequency standard fails.

3-178. Input Circuit Operation (INT/COMP Mode). Setting switch A2A5A2-S1 in the INT/COMP position applies +28 Vdc power to regulator A2A5A4U3 in the same manner as described for the EXT (OVEN STBY) mode. +20 Vdc power is applied to the comparator circuit through A2A5A2S1-9. A2A5A2S1-3 is grounded by A2A5A2S1-4, which grounds pin 2 of A2A5A4U1A and pin 13 of A2A5A4U2D. This condition sets the outputs of A2A5A4U1A and A2A5A4U2D at logic high. The logic high from A2A5A4U2D-11 is applied to A2A5A4U2B-5. This gates the internal 5 MHz oscillator signal from inverter A2A5A4U2A through A2A5A4U2B. The logic high at A2A5A4U1A-3 is inverted by A2A5A4U1B and applied to A2A5A4U1C-9. This prevents the external 5 MHz signal from reaching NAND gate A2A5A4U2C. The internal 5 MHz signal is gated by A2A5A4-U2B-6 through A2A5A4U2C to the A2A5A2 subassembly. The signal at A2A5A4U2B-6 also appears at phase detector A2A5A4U1D-12 for use in the comparator circuit.

3-179. Oven Control Circuit Operation. The +10 Vdc operating voltage for the oven control and oscillator circuits is derived from the +15 Vdc output of A2A5A4U3 by a voltage regulator comprised of dropping resistor A2A5A1R9, zener diode A2A5A1CR1, and capacitor A2A5A1C7. The +10 Vdc is applied to the resistance bridge consisting of A2A5-A1R13 through A2A5A1R16 and A2A5A3R2. +10 Vdc is also applied to A2-A5A1Q4, A2A5A1Q5 and A2A5A1Q6 through load resistors A2A5A1R17, A2A5A1R18 and A2A5A1R22. Amplifier A2A5A1Q4 is biased by the reference voltage at the junction of A2A5A1R14. A2A5A1R16 and the feedback through A2A5A1R23. A2A5A1Q4, together with emitter follower A2A5A1Q5, form a conventional differential amplifier circuit.

3-180. The base of A2A5A1Q5 is biased by the voltage at the junction of resistor A2A5-A1R13 and sensor A2A5A3R2. This voltage varies as the internal temperature of oven body A2A5A3 changes due to the resistance vs temperature characteristic of A2A5A3R2, which is mounted on the oven surface. When the oven temperature rises, the base voltage of A2A5A1Q5 increases. The increased conduction of A2A5A1Q5 increases the voltage drop across emitter resistor A2A5A1R19. The increase in voltage across A2A5A1R19 results in a decrease of base-emitter bias on A2A5A1Q4. A2A5A1Q4 reduces conduction, thus increasing the voltage at A2A5A1Q4 collector. The increased collector voltage appears at the base of amplifier A2A5A1Q6 as a decrease in bias. This results in reduced conduction of A2A5A1Q6 and the voltage drop across A2A5A1R20 is thus reduced. Bias on emitter follower A2A5A1Q7 is also reduced, and the corresponding decrease in voltage on the emitter of A2A5A1Q7 is seen at the base of power amplifier A2A5A4Q5. A2A5A4Q5 conducts less, which reduces the current flow through oven heater A2A5A3R1. If the temperature of the oven decreases below the value established by the setting of potentiometer A2A5A1R15, the circuit operates to increase the current flow through A2A5A3R1, thereby increasing the oven temperature. The value of feedback resistor A2A5A1R23 is selcted to control the damping coefficient so as to prevent excessive temperature overshoot or excessive response time.

3-181. 5 MHz Osclilator Circuit Operation. The internal 5 MHz oscillator circuit consists of crystal A2A5A1Y1, oscillator A2A5A1Q1, amplifiers A2A5A1Q2 and A2-A5A1Q3, and associated components. It is a conventional, parallel mode, Colpitts oscillator. Oscillations are sustained by the collector to base feedback through A2A5A1Y1. Parallel capacitors A2A5A1C2 and A2A5A1-C3 provide fine and coarse adjustment, respectively, of the oscillator frequency.

3-182. The values of capacitors A2A5A1C8 and A2A5A1C11 are selected to provide the proper range of adjustment for the variable capacitors. Two conventional untuned amplifiers (A2A5A1Q2, A2A5A1Q3) provide amplification of the 5 MHz signals. Load resistor A2A5A1R8 and resistor A2A5A1R12 form a voltage divider to prevent A2A5A1Q3 collector voltage from exceeding +5 Vdc. This avoids damaging inverter A2A5A4U2A. The 5 MHz signal at the base of A2A5A1Q3 is applied to a detector circuit consisting of A2-A5A1CR2, A2A5A1C10 and A2A5A1R11. This circuit provides negative feedback through resistor A2A5A1R10 to the base of oscillator A2A5A1Q1. This feedback acts to maintain a constant output amplitude. The value of feedback resistor A2A5A1R10 determines the output level at the collector of A2A5A1Q3.

3-183. Comparator Circuit Operation. When connected, the external 5 MHz reference appears at the collector of A2A5A4Q1 and pin 13 of phase comparator A2A5A4U1D. When the 5 MHz OSC SOURCE switch A2A5A2S1 is set to the INT/COMP position, the internal 5 MHz oscillator signal is gated to input pin 12 of A2-A5A4U1D. If the two 5 MHz signals to A2-A5A4U1D differ in frequency, positive pulses appear at the output of A2A5A4U1D. These pulses vary in width and rate in proportion to the phase difference between the 5 MHz signals. The output pulses from A2A5A4U1D are coupled through capacitor A2A5A2C41 to the base of Amplifier A2A5A2Q10 and are amplified. When the 5 MHz signals are exactly the same frequency, A2A5A2DS1 may be illuminated or extinguished for extended periods of time. If only one 5 MHz signal is present at the input of A2A5A4U1D, the output will be a constant positive dc voltage. This dc voltage is blocked by A2A5A2C41. A2A5A2Q10 is cut off, and the bias to A2-A5A2Q11 (through A2A5A2R53, A2A5A2R55, and A2A5A2R56) allows A2A5A2DS1 to illuminate at a constant intensity. In some units, Amplifier A2A5A2Q10 and Lamp Driver A2A5A2Q11, with associated components, are replaced by a simplified LED circuit performing the same function.

3-184. Divide-by-five Oscillator Circuit. The 5 MHz signal at A2A5A4U2C-8 is coupled by A2A5A2C1 to amplifier A2A5A2Q1. Resistor A2A5A2R1 and capacitor A2A5A2-C2 act to decrease the rise and fall times of the 5 MHz logic level transitions and thereby decrease the switching time of amplifier A2A5A2Q1. A2A5A2Q1 provides synchronizing signals to 1 MHz Colpitts oscillator A2-A5A2Q2 and associated components. The value of A2A5A2C44 establishes the range of variable capacitor A2A5A2C7. A2A5A2C7 adjust the oscillator to synchronize on the incoming reference signal. The 1 MHz output from the emitter of A2A5A2Q2 is coupled through A2A5A2R10, A2A5A2R13, A2-A5A2C10 to amplifier A2A5A2Q3. A2A5-A2Q3 controls the output of transformer A2A5A2T1. Variable capacitor A2A5A2C13 allows adjustment of the waveshape at A2-A5A2T1 output. Terminal 4 of A2A5A2T1 is directly connected to output connector A2-A5P1-A3. The values of A2A5A2R17 and A2A5A2R28 are selected for the proper 1 MHz output signal amplitude at A2A5P1-A3.

3-185. Divide-by-two Oscillator Circuit. The 1 MHz signal from A2A5A2Q2 emitter is coupled through resistor A2A5A2R19 and capacitor A2A5A2C14 to the input of A2A5-A2Q4. A2A5A2Q4 and associated components comprise a conventional, 500 kHz, Colpitts oscillator. Operation of the 500 kHz oscillator and amplifier A2A5A2Q5 is similar to the 1 MHz oscillator circuit. Variable capacitors A2A5A2C16 and A2A5A2C22 perform the functions corresponding to A2A5-A2C7 and A2A5A2C13, respectively, in the 1 MHz oscillator circuit. Resistors A2A5A2-R30 and A2A5A2R31 perform the functions corresponding to A2A5A2R17 and A2A5A1-R18.

3-186. Multiply-by-two Circuit. The 5 MHz signal from A2A5A4U2C-8 is coupled through capacitor A2A5A2C25 and resistor A2A5A2R32 to the base of 5 MHz amplifier A2A5A2Q6. A2A5A2C23 and A2A5A2R32 act to decrease the rise and fall times of the 5 MHz signal. The output of A2A5A2Q6 is coupled through A2A5A2C27 to amplifier A2A5A2Q7. A2A5A2Q7 and associated circuitry are tuned to 10 MHz by variable capacitor A2A5A2C31 in the collector circuit. The 10 MHz signal is amplified by A2A5A2Q8 and appears in the primary of A2A5A2T3. A2A5A2T3 and associated components function similarly to A2A5A2T1 described above.

3-187. 5 MHz Output Circuit. The 5 MHz output from A2A5A2Q6 is coupled to amplifier A2A5A2Q9, which is tuned to 5 MHz. The output of A2A5A2Q9 is coupled through capacitor A2A5A2C39 to output connector A2A5P1-A6. Variable capacitor A2A5A2C38 is used to adjust the output waveshape. A2-A5A2R49 is selected to establish the output amplitude.

3-188. TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 (Figure 5-32). The translator/synthesizer is comprised of nine major subassemblies listed below.

1. Filter Subassembly A2A6A7, a conventional pi filter which filters the +20 Vdc input to Power Supply Subassembly A2A6-A15.
2. 100 kHz Synthesizer Subassembly A2-A6A17.
3. 10 kHz/1 kHz/100 Hz Synthesizer Subassembly (No. 1) A2A6A18.
4. 10 kHz/1 kHz/100 Hz Synthesizer Subassembly (No. 2) A2A6A12.
5. 10 MHz/1 MHz Synthesizer Subassembly A2A6A13.
6. 10 MHz/1 MHz Filter Subassembly A2A6A14.
7. RF Translator Subassembly A2A6A8.
8. Frequency Generator Subassembly A2A6A16.
9. Power Supply Subassembly A2A6A15.

NOTE

Reference designations A2A6A1 through A2A6A6 and A2A6A9 through A2A6A11 are not used in Radio Transmitter T-827H/URT in order to distinguish the Translator/Synthesizer from earlier models.

3-189. The chassis of the Translator/Synthesizer Assembly A2A6 serves as a base and an interconnection/interface mount for the nine subassemblies which perform the functions of the assembly. When the Translator/Synthesizer chassis is mounted in the main frame, three couplers (A2A6MP8, MP12, MP16, figure 7-63) on the bottom are engaged by mechanically driven couplers on the main frame. Each coupler drives one of the switches A2A6S1 through S3, which provide tuning codes for the kHz synthesizers.

3-190. The front panel 100 kHz, 10 kHz and 1 kHz controls are connected by drive chains to couplers on the equipment main frame. When a front panel control is rotated, its associated chain rotates the coupler, thereby positioning the associated coding switch in Translator/Synthesizer Assembly A2A6. The 100 kHz control positions A2A6S3, the 10 kHz control positions A2A6S2, and the 1 kHz control positions A2A6S1. These switches supply a four-line tuning code consisting of opens (BINARY 1) and grounds (BINARY 0) to the synthesizer circuits. The synthesizers produce the injection frequencies used in RF Translator Subassembly A2A6A8. Refer to Table 3-1. When the front panel 100 kHz control is in zero position, the 100 kHz digit of the injection frequency, in both hi and lo bands, is 4. As shown in Figure 5-32, A2A6S3 deck C is open at this setting (contact 1) and the remaining three decks are grounded. Similarly, if the front panel control is set at 300 kHz, the 100 kHz digit of the injection frequency is 7 in both hi and lo bands. In this position the wipers of all four decks of A2A6S3 will be on contact 8, producing an open circuit for all decks except deck B. The 100 kHz digit of the injection frequency increases progressively from 4 thru 9 to 3 as the 100 kHz control is increased from 0 to 9. Switches A2A6S2 and A2A6S1 operate in a similar manner. The 10 kHz switch A2A6S2 and the 1 kHz switch A2A6S1 are natural binary coded decimal (BCD) switches, converting the decimal dial position to BCD. The injection frequency decreases progressively as either the 10 kHz or 1 kHz control is increased. Table 3-1 indicates the injections for the various control positions.

3-191. RF Translator (Figure 5-33). The RF Translator Subassembly A2A6A8 contains the circuits effecting IF-to-RF conversion. The signal flow direction required for the T-827H/URT application is established by gating diodes within the rf translator. Frequency conversion is accomplished in three mixer stages. These progressively combine the IF with injection signals from the synthesizer subassemblies A2A6A17, A2A6A12 and A2A6A14 of Translator/Synthesizer Assembly A2A6.

3-192. Biasing of the gating diodes, which determine the signal path through the rf translator, is accomplished with the dc voltage and ground present at A2A6A8J5 and A2A6A8J7 respectively. The voltage at A2A6A8J4 determines whether the 20 MHz bandpass filter or the 30 MHz bandpass filter is enabled. The input at A2A6A8J4 may be either +20 Vdc for lo band operation or ground for hi band. This is controlled by the hi-lo filter relay A2K2. When the input is +20 Vdc, diodes A2A6A8CR10 and A2A6A8CR12 are biased into conduction. This serves to direct the rf signal through 20 MHz bandpass filter A2A6A8FL1. When A2A6A8J4 is grounded, diodes A2A6A8CR11 and A2A6A8CR13 conduct, directing the rf signal through 30 MHz bandpass filter A2A6A8FL2.

3-193. A2A6A8J5 and A2A6A8J7 inputs are at ground and +20 Vdc, respectively, until the T-827H/URT is keyed. This condition forward biases diodes A2A6A8CR3, A2A6A8CR6, A2A6A8CR9, A2A6A8CR15 and A2A6A8CR18, resulting in no output supplied to the RF Amplifier Assembly A2A4. When the T-827H/URT is keyed, the A2A6A8J5 and A2A6A8J7 inputs are +20 Vdc and ground respectively. The previously described gating diodes are now reverse-biased and gating diodes A2A6A8CR2, A2A6A8CR5, A2A6A8CR7, A2A6A8CR8, A2A6A8CR16 and A2A6A8CR17 are forward-biased.

3-194. Mixer stages A2A6A8U1 through A2A6A8U3 operate in an almost identical manner. They utilize type CA3049 integrated circuits which provide both mixing and amplification. The first input to low frequency mixer is an injection frequency in the range of 3.3001 to 3.4000 MHz. It is received at A2A6A8E6 from 10 kHz/1 kHz/100 Hz Synthesizer Subassembly A2A6A12, and applied to pin 2 of A2A6A8U1. Resistors A2A6A8R56 and A2A6A8R11 provide the proper impedance termination for the output of A2A6A12 and input of A2A6A8U1. Thermistor A2A6A8RT1 produces an increase in the injection signal input level applied to mixer A2A6A8U1 whenever the operating temperature increases. Resistor A2A6A8R3 controls the effect thermistor A2A6A8RT1 has on the injection signal input level.

3-195. The second input to the mixer is the 500 kHz IF signal. It is received at A2A6A8-E1 from IF Amplifier Assembly A2A12, and applied to low frequency mixer A2A6A8U1 through lowpass filter A2A6A8L15, capacitor A2A6A8C14, forward-biased gating diode A2A6A8CR2 and transformer A2A6A8T2. A2A6A8R14 is a swamping resistor, placed across the primary winding of input transformer A2A6A8T2 to provide the required bandwidth. The signal at the secondary of A2A6A8T2 is applied as the second input to pins 1 and 10 of A2A6A8U1. Resistive divider A2A6A8R59, A2A6A8R60 and A2A6A8R61 applies bias voltage through the split secondary winding of A2A6A8T2 to the internal amplifiers associated with pins 1 and 10. The sum and difference output signals exit from pins 11 and 12 of A2A6A8U1 and are applied to the primary winding of output transformer A2A6A8T3. A2A6A8R4 is a series dropping resistor in the +20 Vdc path to the amplifiers within A2A6A8U1. Capacitors A2A6A8C8, A2A6A8C15, and A2A6A8C17 provide rf bypassing for the internal biasing circuits within mixer A2A6A8U1. The output from A2-A6A8U1 is then directed through A2A6A8-CR5 to bandpass filter A2A6A8FL3. Only the 2.8001 to 2.9000 MHz element (difference frequency) is passed through A2A6A8-CR7 and A2A6A8T5 to the input of mid-frequency mixer A2A6A8U2.

3-196. In mid-frequency mixer A2A6A8U2, the signal from A2A6A8T5 is mixed with the injection signal (22.4 to 23.3 MHz lo-band or 32.4 to 33.3 MHz hi-band) from 100 kHz Synthesizer Subassembly A2A6A17 and filter A2A6FL5 at A2A6A8E8. The 19.5000 to 20.4999 MHz (lo-band) or 29,5000 to 30.4999 MHz (hi-band) output from A2A6A8U2 then passes through gating diode A2A6A8CR8 to bandpass filter A2A6A8FL1 or A2A6A8FL2 as determined by the voltage at A2A6A8J4. The filtered output is applied through A2A6-A8C48, A2A6A8C51, gating diode A2A6A8-CR16, and transformer A2A6A8T7 to the input of mixer A2A6A8U3.

3-197. A2A6A8U3 performs the high frequency conversion by mixing the input at pin 1 with the 2.5 to 23.5 MHz injection at pin 2. The frequencies developed across the secondary of A2A6A8T6 are fed through forward-biased gating diode A2A6A8CR17 and capacitor A2A6A8C58 to A2A6A8CR14, A2-A6A8L14 and A2A6A8C59 in series with A2-A6A8C57. The signal is then coupled to A2-A6A8E12 by A2A6A8C56. In lo-band operation, A2A6A8CR14 is reversed biased so that the signal must flow through A2A6A8L14 and A2A6A8C59 in parallel. A2A6A8L14 and A2A6A8C59 are resonant at 19.6 MHz to remove a spurious signal.

3-198. Frequency Generator (Figure 5-38). Frequency Generator Subassembly A2-A6A16 receives a stable 10 MHz reference from Frequency Standard Assembly A2A5. Using integrated circuit dividers, the frequency generator produces the 500, 100 and 1 kHz reference frequencies used in the frequency synthesizer circuits.

3-199. The stable, 10 MHz reference output from Frequency Standard A2A5 is applied to Frequency Generator Subassembly A2A6-A16 via connector A2A6A16P1-A1. It is terminated by resistor A2A6A16R1, and coupled through A2A6A16C5 to the input of two-stage, common emitter amplifier A2A6-A16Q1, A2A6A16Q2. Resistors A2A6A16R2, A2A6A16R3, A2A6A16R6 and A2A6A16R7 provide base bias for A2A6A16Q1 and A2A6-A16Q2. Shunt peaking inductors A2A6A16-L6, A2A6A16L7 and stray capacitance form high impedance parallel L-C networks to improve high frequency response. The emitters are partially bypassed by capacitors A2A6-A16C7 and A2A6A16C9 to improve stability.

3-200. The amplified 10 MHz signal at the collector of A2A6A16Q1 is capacitively coupled via A2A6A16C8 to the base of A2A6-A16Q2. Amplifier A2A6A16Q2 provides additional amplification and applies the 10 MHz signal through capacitor A2A6A16C10 to a level shifter consisting of inverter A2A6-A16U1A, capacitor A2A6A16C11, and resistors A2A6A16R10, R11. The sinusoidal 10 MHz signal at input 1 of A2A6A16U1A is converted into a square wave output at pin 2, which is then suitable for driving the remaining integrated circuit gates and dividers of subassembly A2A6A16.

3-201. The integrated circuit divider chain A2A6A16U2, A2A6A16U5 is isolated from the level shifter circuit components by a buffer stage consisting of inverters A2A6A16-U1B and A2A6A16U1C. The 10 MHz output signal at pin 12 of inverter A2A6A16U1C is applied to input pin 14 of decade divider A2-A6A16U2, which applies a 1 MHz input signal to pin 14 of binary decade divider A2A6A16-U3. Output pin 12 (binary divider) of A2A6-A16U3 provides a 500 kHz clock pulse to connector A2A6A16P1-A2 for use as the reference frequency input to 10 MHz/1 MHz Synthesizer Subassembly A2A6A13.

3-202. The 500 kHz clock pulse at A2A6-A16U3-12 is also applied to input pin 1 of another divider within A2A6A16U3, which provides a 100 kHz output signal from pin 11. This is distributed to pin 1 of decade divider A2A6A16U4 and to connector A2A6A16P1-A4 for use by 100 kHz synthesizer assembly A2A6A17. Divider A2A6A16U4 then provides a 10 kHz clock pulse output at pin 12 to input pin 1 of decade divider A2A6A16U5. The 1 kHz output from pin 12 of A2A6A16U5 is applied to A2A6A16U6B pin 12 which is part of gating circuit A2A6A16U6A-A2A6-A16U6D. This gating circuit selects either the 1 kHz output of A2A6A16U5 or the variable 1 kHz frequency output of the phase-locked loop circuit (consisting of A2A6A16U9 through A2A6A16U17 and A2A6A16Q5) as the reference frequency for 10 kHz/1 kHz/100 Hz Synthesizer Subassembly A2A6-A12.

3-203. The gating circuit is enabled when level shifter A2A6A16Q3, A2A6A16Q4 responds to the +4.3 Vdc input at connector A2A6A16P1-9. The +4.3 Vdc from zener diode A2CR10, located on the T-827H/URT main frame, is applied to voltage divider A2A6A16R12, A2A6A16R13. Transistor A2-A6A16Q3 is then biased on and A2A6A16Q4 is biased off. This action applies +5 Vdc through load resistor A2A6A16R15 to inverter A2A6A16U6A and NAND gate A2A6A16-U6B. This logic high level input at A2A6-A16U6B-13 allows the 1 kHz pulse at A2A6-A16U6B-12 to appear as a logic low at input pin 1 of NAND gate A2A6A16U6D. Input pin 2 of A2A6A16U6D is maintained at a constant logic high due to the logic low applied through inverter A2A6A16U6A to input pin 4 of NAND gate A2A6A16U6C. Each negative transition of the 1 kHz pulse gates pin 3 of A2A6A16U6D, resulting in a logic high level output. The circuits comprised of A2A6-A16U7 through A2A6A16U17, and associated components, are inactive for T-827H/URT application. Their operation is covered in Technical Manual EE125-AD-OMI-010/E510-R1051G for Radio Receiver R-1051G/URR.

3-204. 10 kHz/1 kHz/100 Hz Synthesizer. The 10 kHz/1 kHz/100 Hz Synthesizer Subassemblies A2A6A18 (Figure 5-40) and A2A6-A12 (Figure 5-34) produce the 3.3001 to 3.4000 MHz injection signal used in the low-frequency mixer of RF Translator Subassembly A2A6A8. A phase-locked loop is used to ensure accuracy of the injection frequency. The phase-locked loop is a servo system in which the output signal is locked to the 1 kHz input reference signal from Frequency Generator Subassembly A2A6A16. The phase of the output signal is compared with the phase of the 1 kHz reference in A2A6A12, and any difference is converted into a dc error correction voltage. This error correction voltage alters the output frequency to maintain a constant phase difference between the output and the 1 kHz reference signal.

3-205. The output signal is generated by the voltage-controlled oscillator (VCO) consisting of variable capacitance diode A2A6-A12A1CR1, LC oscillator A2A6A12A1U1, and associated components. The frequency at A2A6A12A1U1 is 33.001 to 34.000 MHz. This is determined by the reactance of the LC tank circuit comprised of varactor diode A2A6A12A1CR1, capacitors A2A6A12A1C2, A2A6A12A1C3, and inductor A2A6A12-A1L1. A dc control voltage biases A2A6-A12A1CR1 (through resistor A2A6A12A1R1) to establish the correct value of the LC tank circuit reactance, thereby determining the specific output frequency from A2A6A12A1-U1. Capacitors A2A6A12A1C1 and A2A6-A12A1C4 complete the signal path for the 33.001 to 34.000 MHz oscillations in the LC tank circuit.

3-206. The output signal at pin 3 of A2A6-A12A1U1 is applied to a programmable frequency divider network on 10 kHz/1 kHz/100 Hz Synthesizer Subassembly A2A6A18. The programmable frequency divider network selects the injection frequency in response to the positions of the front panel 100 Hz control A2S6, the 1 kHz coding switch A2A6S1, and the 10 kHz coding switch A2A6S2 on the chassis of Translator/Synthesizer A2A6. For example, if the front panel controls are set for a frequency of 1,100 Hz, the divider network will be programmed to divide the VCO output frequency by 33,989. In the phase-locked condition, the VCO output frequency is exactly 33.989 MHz and the divider network output frequency is exactly 1 kHz. If the VCO output is slightly off frequency, the output from the divide-by-33,989 network will no longer be exactly 1 kHz.

3-207. The divider network output is applied to pin 3 of phase detector A2A6A12U1, which develops negative pulsed output in proportion to the magnitude and direction of the phase difference between the divider network output and the 1 kHz reference input from Frequency Generator Subassembly A2A6A16. The negative pulses are applied through resistor A2A6A12R4 and A2A6A12-R19 to the charge pump circuit comprised of transistors A2A6A12Q1 through A2A6A12-Q3. The charge pump amplifies the negative going pulses from A2A6A12R4, or inverts and amplifies the negative going pulses from A2-A6A12R19. The charge pump output (which consists of negative or positive going pulses, respectively) is applied to loop filter A2A6-A12C2, A2A6A12R7, and A2A6A12R9, which converts the output pulses from the charge pump into the dc frequency control voltage required by variable capacitance diode A2-A6A12A1CR1. If the phase difference between the pin 1 and pin 3 inputs to A2A6A12-U1 is not constant, the dc frequency control voltage will decrease or increase the reverse bias across A2A6A12A1CR1, and the capacitance of A2A6A12A1CR1 will change, as required, to establish the proper output frequency from the VCO.

3-208. The output signal at pin 3 of A2A6-A12A1U1 is also applied to emitter follower A2A6A12A1Q1, which isolates LC oscillator A2A6A12A1U1 from the output circuitry of 10 kHz/1 kHz/100 Hz Synthesizer Subassembly A2A6A12. From the emitter of A2-A6A12A1Q1, the VCO output is applied to amplifiers A2A6A12U2A through A2A6A12-U2C, which increase the amplitude of the 33.001 to 34.000 MHz signal and provide the correct logic level input to pin 8 of decade divider A2A6A12U3. The 3.3001 to 3.4000 MHz output signal from pin 2 of A2A6A12U3 is inverted by A2A6A12U2D and applied to the bandpass filter consisting of A2A6A12L6 through A2A6A12L10 and A2A6A12C10 through A2A6A12C12. The narrow pass-band and sharp cutoff characteristics of this filter attenuate frequencies outside the injection signal range to prevent spurious responses. The injection signal amplitude is adjusted by potentiometer A2A6A12R16 to establish the proper injection signal level to the low frequency mixing circuit of RF Translator Subassembly A2A6A8.

3-209. The A2A6A18 assembly (see Figure 5-40) performs the division of the A2A6A12-A1U1 VCO output frequency to provide the 1 kHz frequency for the A2A6A12U1 phase detector. Dual Modulus Prescaler A2A6A18U1 divides inputs on pin 15 by either 10 or 11 depending upon whether pins 9 and 10 are at a logic high or low respectively. This divided frequency output from A2A6A18U1 pin 7 is applied to counters A2A6A18U3 and A2A6-A18U4 and to counter control logic device A2A6A18U2. Once each kilohertz period, the inputs to A2A6A18U2 on pins 10 through 14 achieve the logic states necessary to produce an output at pin 9. This output is the 1 kHz frequency for the phase detector A2A6-A12U1.

3-210. Dual Modulus Prescaler A2A6A18U1 will divide by 11 if the 100 Hz control (A2S6) is in any hundred position other than 000. This division by 11 will continue until outputs from A2A6A18U3 at pins 7, 9, 15 and 1 are all logic lows. These logic lows at A2A6-A18U2 pins 2, 3, 4, and 5 force A2A6A18U2 pin 7 to a logic high for the balance of a counting cycle. This logic high is applied to A2A6A18U1 pins 9 and 10, which makes the dual modulus prescaler divide by 10 for the balance of a counting cycle. A counting cycle begins and ends with each output from A2A6A18U2 pin 9. The number of input pulses to A2A6A18U1 pin 15 will be the count set into A2A6A18U3 through A2A6-A18U7.

3-211. Cascading of dividers A2A6A18U4 through A2A6A18U7 is accomplished by supplying the input to each divider from the pin 1 output of each preceding divider. Thus, the preset count in A2A6A18U7 represents the most significant digit in the programmable divider network. The preset count (pin 12) outputs of dividers A2A6A18U5 through A2-A6A18U7 are connected in parallel so that the data reset pulse is applied to pin 10 of A2A6A18U2 only when A2A6A18U5 through A2A6A18U7 have all counted down from their preset numbers to the zero state. Control logic in A2A6A18U2 also monitors the state of divider A2A6A18U4 to determine the end of the counting cycle.

3-212. Since the divider network output is taken from pin 9 of A2A6A18U2, an output pulse will be present only when A2A6A18U3 and A2A6A18U4 through A2A6A18U7 have counted down from their preset numbers to zero. As an example, assume that the front panel kHz and 100 Hz controls have been set at 2,500 Hz to select a low frequency mixer stage injection frequency of 3.3975 MHz. In this case counts of 5, 7, 9, 3 and 3 are preset in dividers A2A6A18U3 through A2A6A18U7, respectively. With A2A6A18U3 preset to divide-by-5, prescaler A2A6A18U1 divides-by-11 five times. After 55 input pulses to pin 15 of A2A6A18U1, preset divider A2A6A18U3 reaches the all zero state and counter control logic A2A6A18U2 changes the divisor of A2A6A18U1 from 11 to 10. At this time, cascade divider A2A6A18U4 through A2A6-A18U7 has also decreased by five (from the preset divisor of 3.397) and is at the 3.392 count. Since the divisor of A2A6A18U1 is now 10, cascade divider A2A6A18U1 through A2A6A18U7 decreases by one count for every ten input pulses to prescaler A2A6-A18U1, and therefore reaches the all zero state after 33.920 input pulses have been applied to pin 15 of A2A6A18U1. When this occurs, A2A6A18U3 and A2A6A18U4 through A2A6A18U7 are in the all zero state, and one output pulse is applied from pin 9 of counter control logic A2A6A18U2 to input pin 3 of phase detector A2A6A12U1.

3-213. Note that the total number of input pulses required for one output pulse is 33.920 plus 55, or 33,975. Since the phase detector input pulses must occur at a 1 kHz rate in phase-locked condition, the outut frequency of VCO assembly A2A6A12A1 is locked at 1 kHz times 33,975 or 33,975 MHz. The VCO output is then applied through decade divider A2A6A12U3 to provide a 3,3975 MHz injection signal to the low-frequency mixing circuit of RF Translator Subassembly A2A6A8 as previously described.

3-214. Programming of dividers A2A6A18-U3 through A2A6A18U6 is controlled by the setting of the front panel 10 kHz, 1 kHz, and 100 Hz controls. For example: 100 Hz control A2S6 applies one of ten binary coded decimal (BCD) words to input pins 8 through 11 of A2A6A18P1. The BCD words are formed by applying either an open circuit (logic low) or +4.3 Vdc (logic high) to each of the four code lines, with the input at A2A6-A18P1-11 corresponding to the least significant bit of the word. The code from the 100 Hz control undergoes logic level conversion in level shifters A2A6A18Q1 through A2A6-A18Q8, which change the logic low/high levels from the switches to the TTL logic low/high levels which are the required inputs to complement converter A2A6A18U8.

3-215. Each BCD word (see note 1 of Figure 5-9) applied to input pins 10 through 13 of A2A6A18U8 represents a unique setting of the front panel 100 Hz control. The outputs from pins 1 through 4 of A2A6A18U8 are then applied to the data pins of divider A2A6A18U3, with the code from A2A6A18U8 pin 1 representing the least significant bit. For example, when the front panel 100 Hz control is set to 300, the BCD word 3 (0011) is applied to A2A6A18U8, and is converted into 7 (0111) on pins 4, 3, 2, and 1 respectively, for programming of divider A2A6A18U3. (See notes 1 and 2 of figure 5-9.) Divider A2A6A18U3 is then preset to count down from the number 7.

3-216. Programming of divider A2A6A18-U4 differs from the previous paragraphs in that the preset counts depend upon whether the 100 Hz control is in the 000 position or not. (See note 3 of Figure 5-9.) If the 100 Hz control is in the 000 position, A2A6A18U8 pin 5 is at a logic zero. (See note 1 of figure 5-9.) The logic zero is applied to A2A6A18-U9 pin 14. Thus, the output of A2A6A18U9 will be the 10's complement of the input from kHz switch A2A6S1. If, however, the 100 Hz control is in other than the 000 position, pin 5 of A2A6A18U8 will be at a logic high and A2A6A18U9 will perform the 9's complement of any input from the kHz switch. Thus, 7000 on the Hz and kHz dials will be programmed as its 10's complement into A2A6A18U9 i.e., as (0011) on pins 2, 14, 11 and 5 of A2A6A18U4, while 7100 will be programmed at its 9's complement into A2-A6A18U4 as 2 (0010) on pins 2, 14, 11 and 5.

3-217. Programming of A2A6A18U5 is accomplished in a similar manner to A2A6A18-U4. The BCD word from 10 kHz switch A2-A6S2 is applied to converter A2A6A18U10. (See note 3 of Figure 5-9.) If both the Hz and kHz controls are set at 0, A2A6A18U10 will perform the 10's complement of the input BCD word from the 10 kHz control since pin 14 of A2A6A18U10 will be at a logic zero. However, if either the Hz or kHz control is set other than at 0, A2A6A18U10 pin 14 will be set at a logic high and a 9's complement conversion of the input BCD word from the 10 kHz control will be performed by A2A6A18U10. A2A6A18U10 conversion outputs on pins 1 through 4 program A2A6A18U5 on pins 5, 11, 14 and 2. A2A6A18U6 is programmed as a 4 if the Hz, kHz and 10 kHz controls are all at 0. For this condition pin 6 of A2A6A18U10 will be at a logic high. This logic high is applied to A2A6A18U6 and programs it to a 4. If, however, any or all of the Hz, kHz or 10 kHz controls are set at other than 0, A2A6A18U10 pin 5 will be at a logic high. This logic high is applied to pins 5 and 11 of A2A6A18U6, and A2A6A18U6 is programmed as a 3. Three and four are the only programmed states for A2A6A18U6. A2A6-A18U7 is always programmed for three by applying 5 volts through A2A6A18R2 to pins 5 and 11.

3-218. 100 kHz Synthesizer A2A6A17 (Figure 5-39). The 100 kHz Synthesizer Subassembly A2A6A17 produces the injection frequency of 22.4 to 23.3 MHz (lo-band) or 32.4 to 33.3 MHz (hi-band) used in the mid-frequency mixer circuits of RF Translator Subassembly A2A6A8. This synthesizer uses phase-locked loop circuitry similar to that used in 10 kHz/1 kHz/100 Hz Synthesizer Subassembly A2A6A12/A2A6A18. The phase detector (A2A6A17U1), charge pump (A2A6-A17Q6 through A2A6A17Q8), loop filter (A2A6A17C2 - A2A6A17C3, A2A6A17R8, A2A6A17R32 - A2A6A17R33), VCO (A2A6-A17A1CR1, A2A6A17A1L1, A2A6A17A1U1) and variable divisor (A2A6A17U6 through A2A6A17U8) circuits are identical to the corresponding circuits of the 10 kHz/1 kHz/100 Hz synthesizer except for component values.

3-219. The VCO output from pin 3 of LC oscillator A2A6A17A1U1 is applied through emitter follower A2A6A17A1Q1 to a programmable frequency divider network consisting of integrated circuits A2A6A17U4 through A2A6A17U8. This network divides the VCO output frequency by a number in the range of 224 to 233 or 324 to 333 as determined by the setting of the front panel 100 kHz control and the state of the hi-lo band control line at pin 7 of A2A6A17P1. From pin 9 of A2A6A17U5, the divider network output is applied to input pin 3 of phase detector A2A6A17U1. The phase detector produces an error correction output proportional to the phase difference between the divider network output signal and the 100 kHz reference signal from Frequency Generator Subassembly A2A6A16. The VCO output is phase-locked to the 100 kHz reference signal as previously described. Since the phase-locked loop maintains the programmable frequency divider output at exactly 100 kHz, the VCO output is a discrete frequency in the range of 22.4 to 23.3 MHz (lo-band) or 32.4 to 33.3 MHz (hi-band).

3-220. Programmable divider network A2-A6A17U4 through A2A6A17U8 functions in the same manner as the 10 kHz/1 kHz/100 Hz synthesizer divider network. The front panel 100 kHz control is coupled to coding switch A2A6S3 via a mechanical chain-drive mechanism. For each position of the front panel control, the coding swich generates a unique, offset BCD word. This BCD word consists of open circuits and grounds, and is converted to standard BCD format (grounded and +5 Vdc lines) by pull-up resistors. The BCD word is then applied to the data input (pins 2, 14, 11 and 5) of divider A2A6A17U6 to establish the preset counts.

3-221. When the front panel controls are set at 400 kHz, the data input to A2A6A17U6 is a BCD 8 (1000). (See note 1 of figure 5-10.) A Divider A2A6A17U6 is preset to 8.

Divider A2A6A17U7 is preset for 2 for 100 kHz control settings of 0 through 5, and to 3 for 100 kHz settings of 6 through 9. For 100 kHz control settings of 0 through 5 the logic level at either pin 2 or 14 of A2A6A17U6 is a logic high, through pull-up resistor A2A6-A17R24 or A2A6A1R25. These levels are applied to NOR gate A2A6A17Q4 and A2A6-A17Q5. The common collector (NOR gate output) will be a logic low, and A2A6A17U7 will be preset to 2. For 100 kHz settings of 6 through 9 both inputs to the NOR gate will be at a logic low so the NOR gate output will be at a logic high and A2A6A17U7 will be preset to three.

3-222. Divider A2A6A17U8 is preset to either 2 or 3 in response to the state of the hi-lo band control input at A2A6A17P1-7. Transistor A2A6A17Q3 converts the +20 Vdc/-ground control input into logic low/logic high levels for application to data pin 5 of A2A6A17U8. Thus, A2A6A17U8 is preset to 2 for a +20 Vdc control input (lo-band) and to 3 for a ground control input (hi-band).

3-223. The VCO output is also applied to a conventional common-emitter amplifier A2-A6A17Q1, which isolates the VCO from the output stage circuitry. The gain of A2A6-A17Q1 is set by means of potentiometer A2-A6A17R10 to establish the proper output signal level. The signal is applied from the collector of A2A6A17Q1 to bandpass filter A2-A6A17L4 - A2A6A17L7, A2A6A17C15, A2-A6A17C17 and A2A6A17C18. This filter attenuates undesired signals outside the range of 22.4 to 33.3 MHz. Common emitter amplifier A2A6A17Q2 provides a low impedance output for filter assembly A2A6FL5.

3-224. 22.9/32.9 MHz Filter Assembly A2-A6FL5 (Figure 5-32). Filter assembly A2-A6FL5 serves to remove unwanted spurious signals from the output of the 100 kHz A2-A6A17 assembly. When the set is tuned to lo-band, the injection frequency is between 22.4 and 23.3 MHz, while for a high band the frequency is between 32.4 and 33.3 MHz. Filter Assembly A2A6FL5 receives hi/lo band information from A2A6P1-20 to enable the internal hi/lo band filter. Internal steering diodes direct the A2A6A17 output through either the high or low narrow band filters. The A2A6FL5 output is applied as the injection signal for use in the mid-frequency mixing circuits of RF Translator assembly A2-A6A8.

3-225. 10 MHz/1 MHz Synthesizer Subassembly A2A6A13 (Figure 5-35). The 10 MHz/1 MHz Synthesizer Subassembly A2A6-A13 accepts a 500 kHz reference signal from Frequency Generator Subassembly A2A6A16 and a five-line tuning code (consisting of opens and grounds) from Code Generator Assembly A2A7. The A2A6A13 subassembly provides one of 17 injection frequencies in the range of 2.5 to 23.5 MHz to the high frequency mixer circuit of RF Translator Subassembly A2A6A8.

3-226. The phase-locked loop operation is identical to that previously described for the 10 kHz/1 kHz/100 Hz and 100 kHz synthesizers; that is, the 20 to 50 MHz VCO output signal is applied through a programmable frequency divider network to establish one input to phase detector A2A6A13U1. Phase detector A2A6A13U1 then compares the phase of this signal with the phase of a 500 kHz reference signal supplied by Frequency Generator Subassembly A2A6A16, and generates a dc frequency correction voltage (via loop filter A2A6A13U2, A2A6A13C3, A2A6-A13R8) to lock the VCO on frequency.

3-227. Programmable dividers A2A6A13-U9, A2A6A13U10 are preset, via data inputs to pins 2, 14, 11 and 5, in the same manner as the previously described dividers (A2A6A16-U15, A2A6A16U16, A2A6A17U6, A2A6A17-U8, and A2A6A18U3 through A2A6A18U7). A five-wire tuning code (consisting of open circuits and grounds) from Code Generator Assembly A2A7 is applied through filter assembly A2A6A13A1 to input pins 10 through 14 of read-only memory A2A6A13U11. Each tuning code corresponds to a unique setting of the front panel MHz controls, and is converted to BCD format via A2A6A13U11. When the front panel controls are set to 19 MHz, the input to code lines 1 through 5 will be G, G, G, O, O (where "G" represents a ground and "O" represents an open circuit) as shown in table 3-2.

3-228. The grounded and open lines are converted to logic low and logic high levels, respectively, via pull-up resistors and the input code 0, 0, 0, 1, 1 is applied to pins 10 through 14 of A2A6A13U11. Pins 6, 7 and 9 of A2A6A13U11 then apply the code 0, 1, 0 to data pins 5, 11 and 14 of A2A6A13U10, which is thereby preset to 2. In like manner, pins 3, 4, and 5 of A2A6A13U11 preset the count of A2A6A13U9 at one. Since the dividers are in a cascade configuration, the input frequency at pin 6 of A2A6A13U9 is divided by 21 and appears at output pin 9 of counter control logic A2A6A13U8 for application to the phase detector.

3-229. The VCO output signal is applied to programmable dividers A2A6A13U9, A2A6-A13U10 through fixed divider A2A6A13U5. Assuming that the front panel controls are set at 19 MHz and that the VCO is phase-locked to the reference signal at pin 1 of A2A6A13U1, a 42.0 MHz signal from pin 3 of LC oscillator A2A6A13U3 is applied through emitter follower A2A6A13Q1 to pin 6 of A2-A6A13U4. Both A2A6A13U4A and A2A6-A13U4B provide logic level conversion and buffering for reliable operation of divider A2A6A13U5. A2A6A13U5 then provides output signals of 21, 10, 5 and 5.25 MHz at pins 5 and 6, pin 9, and pin 2, respectively. Selection of the 10.5 MHz output from pin 9 of A2A6A13U5 is accomplished by gating circuitry in response to the signals from output pins 1 and 2 of read-only memory A2A6A13-U11. Since, in the example, the programmable divider network is preset to divide-by-21, the 10.5 MHz signal appears as a 500 kHz signal at input pin 3 of phase detector A2-A6A13U1, as required for the phase-locked condition.

3-230. The gating circuitry selects the proper output from divider A2A6A13U5 and also selects the appropriate filter network within 10 MHz/1 MHz Filter Subassembly A2A6A14. If pins 1 and 2 of A2A6A13U11 are at logic low and logic high levels, respectively, NOR gates A2A6A13U4C and A2A6-A13U4D will open and pass the 5.25 MHz output of A2A6A13U5 to the programmable frequency divider network via NOR gate A2-A6A13U7A through A2A6A13U7C, and to output connector A2A6A13A1P1-A2. The logic low level at pins 9 and 12 of A2A6A13-U4 is also applied to transistor switch A2A6-A14Q1, which then applies operating voltage to the 2.5 to 5.5 MHz filter network. In a similar manner, NAND gates A2A6A13U6A and A2A6A13U6B select the 10.5 MHz output of A2A6A13U5 whenever output pin 2 of A2-A6A13U11 is at a logic low level.

3-231. Selection of the 21 MHz output from A2A6A13U5 is accomplished by a NAND gate comprised of A2A6A13CR5, A2-A6A13CR6, and A2A6A13Q2. Diodes A2A6-A13CR5, A2A6A13CR6 monitor the control lines from pins 1 and 2 of A2A6A13U11 and, if either line is at a logic low level (i.e., either the 2.5 to 5.5 MHz or 7.5 to 12.5 MHz gates are open), transistor A2A6A13Q2 is cut off. In this condition, the collector of A2-A6A13Q2 is at a logic high level and the 14.5 to 23.5 MHz gates are closed. When both control lines are at a logic high level, diodes A2A6A13CR5, A2A6A13CR6 cause transistor A2A6A13Q2 to turn-on, and the logic low at the collector of A2A6A13Q2 opens gates A2A6A13U6C, A2A6A13U6D. This condition applies operating voltage, via transistor switch A2A6A14Q7, to the 14.5 to 23.5 MHz filter network in 10 MHz/1 MHz Filter Subassembly A2A6A14.

3-232. 10 MHz/1 MHz Filter Subassembly A2A6A14 (Figure 5-36). The 10 MHz/1 MHz Filter Subassembly filters the outputs of 10 MHz/1 MHz Synthesizer Subassembly A2A6-A13. A2A6A14 contains three separate circuits: A 4 MHz bandpass filter, a 10 MHz bandpass filter, and a 19 MHz bandpass filter. These circuits perform identically, and differ only in the electrical values of their component parts. Each circuit filters a specific portion of the 10 MHz/1 MHz Synthesizer output band. Only one circuit at a time is active, as selected by the outputs of read-only memory A2A6A13U11. Since circuit performance is identical for all three circuits, only the 4 MHz circuit will be described.

3-233. The 2.5 to 5.5 MHz injection signal from A2A6A13 at A2A6A14P1-A1 is coupled through A2A6A14C1 to the base of amplifier A2A6A14Q2. At the same time a control signal (ground) applied at A2A6A14P1-1 turns on transistor switch A2A6A14Q1, which applies operating voltage to amplifier A2A6-A14Q2 and to buffer A2A6A14Q3. The conventional, untuned amplifier A2A6A14Q2 utilizes shunt peaking inductor A2A6A14L1 and a partially bypassed emitter resistance (provided by capacitor A2A6A14C4) to establish uniform gain over the 2.5 to 5.5 MHz frequency range. The voltage gain of A2A6-A14Q2 is adjusted by means of potentiometer A2A6A14R7. From the collector of A2A6-A14Q2, the amplified 2.5, 3.5, 4.5, or 5.5 MHz signal is coupled through A2A6A14C2 to a bandpass filter consisting of A2A6A14L2 through A2A6A14L5, A2A6A14C3, and A2-A6A14C5, A2A6A14C6. The bandpass filter attenuates signals outside the 2.5 to 5.5 MHz frequency range, and applies the desired signal through A2A6A14C7 to the base of emitter follower A2A6A14Q3. The emitter of A2A6A14Q3 provides a low impedance injection signal source through capacitor A2A6-A14C29, for the subassembly output at A2-A6A14P1-A4. Resistors A2A6A14R9, A2A6-A14R10 provide operating bias for A2A6-A14Q3; A2A6A14C8 and A2A6A14L6 provide power supply decoupling. Buffers of all circuits (A2A6A14Q3, A2A6A14Q6, and A2A6-A14Q9) utilize A2A6A14R31 as the same emitter resistor.

3-234. Power Supply Subassembly A2A6-A15 (Figure 5-37). The power supply subassembly receives +20 Vdc from Filter Subassembly A2A6A7. Power Supply A2A6A15 generates the +5 Vdc required to operate the translator/synthesizer subassemblies. A solid state switching regulator design is used which provides high efficiency and minimizes dissipation in the regulating elements. It employs two separate current-limiting stages to protect the supply.

3-235. The +20 Vdc input is filtered by capacitors A2A6A15C2, A2A6A15C3, A2A6-A15C16, and applied to oscillator A2A6A15-U1. A2A6A15U1 is a free-running 30 to 35 kHz oscillator with regenerative feed-back through resistor A2A6A15R2 and capacitor A2A6A15C1. Dropping resistors A2A6A15-R1, A2A6A15R3 and feedback resistor A2-A6A15R4 provide a voltage reference at input pin 2 of A2A6A15U1 to maintain a constant amplitude square wave output at A2-A6A15U1-7. This output is applied through low-pass filter A2A6A15R6 and A2A6A15C4 to the reference input of voltage regulator A2A6A15U2-5. A2A6A15U2 applies a regulated 5 volt square-wave from output pin 2 to switch driver A2A6A15Q1. This square-wave drives A2A6A15Q1 into conduction. The output of A2A6A15Q1 provides base bias for switch A2A6A15Q3. Switch A2A6A15Q3 is overdriven to provide fast turn-on time. When A2A6A15Q1 and A2A6A15Q3 are conducting, energy is stored in inductor A2A6-A15L1 and capacitors A2A6A15C9, A2A6-A15C10, and supplied to the load. When A2-A6A15Q1 and A2A6A15Q3 are off, the energy stored in A2A6A15L1 and A2A6A15C9, A2A6A15C10 powers the load. Diode A2A6-A15CR2 provides the return path for the current.

3-236. Regulation of the filtered +5 Vdc at A2A6A15E4 is provided by feedback voltage dividers A2A6A15R14 through A2A6A15-R16. This network applies feedback to pin 6 of A2A6A15U2. The switching duty-cycle is controlled by this feedback voltage, so that if the output voltage increases, the feedback voltage to A2A6A15U2-6 also increases, causing the duty-cycle to decrease and thereby the output voltage to decrease to the required value. Resistor A2A6A15R15 is selected to provide a +5.1 to +5.2 Vdc output voltage for a 2 ampere output current level. The current through switch A2A6A15Q3 flows through series resistor A2A6A15R9. This provides bias on current limiter A2A6-A15Q2. When the voltage drop across A2-A6A15R9 becomes large enough to forward bias A2A6A15Q2, the current limiter transistor functions as the control element. A2A6-A15Q2 applies feedback through resistor A2-A6A15R13 to input pin 6 of A2A6A15U2, thus reducing the output voltage of the circuit. Resistor A2A6A15R11 limits the base current of A2A6A15Q2. Capacitor A2A6-A15C5 ensures that A2A6A15Q2 does not turn on from current spikes through A2A6-A15Q3, caused by recovering the stored energy through power diode A2A6A15CR2. Current limiting is provided for the booster output A2A6A15U2-2 by connecting the regulated output from A2A6A15U2-8 through resistor A2A6A15R8 to the current limiting input A2A6A15U2-1. These current limiting circuits protect the power supply against damage due to a short circuited output. The current limiters also keep the regulator operation in the switching mode to prevent excessive dissipation in switch A2A6A15Q3.

3-237. Code Generator Assembly A2A7 (Figure 5-41). The schematic diagram for

Code Generator Assembly A2A7 shows the printed wiring boards and the shorting bar switch segments of the assembly. The shorting-bar switch segments are mechanically positioned by the front panel 1 MHz and 10 MHz controls. Figure 5-41 can be used to make a graph of the switch segments in the positions corresponding to the setting of the front panel MHz controls. The ground-connecting paths can then be traced through the assembly.

3-238. POWER SUPPLY ASSEMBLY A2-A8 (Figure 5-28, Sheet 3). The circuits of Power Supply Assembly A2A8 are shown in detail in sheet 3 of Figure 5-28 as part of the Transmitter Main Frame A2. These circuits are described in paragraphs 3-134 and 3-135.

3-239. RATT TONE GENERATOR ASSEMBLY A2A9 (Figure 5-42). The RATT Tone Generator Assembly A2A9 receives teletypewriter loop current inputs and generates audio tone outputs to represent the teletypewriter mark and space signals. The audio tones are displaced by ±425 or ±85 Hz from a 2000 Hz reference. Displacement is determined by the setting of the front panel RATT SHIFT SELECT switch.

3-240. The RATT tone generator consists of four parts. These are: Optoelectronic coupler A2A9A1U1 and its associated components; 1 MHz level shifter A2A9A1Q1 and A2A9A1Q2; programmable frequency dividers A2A9A1U2 through A2A9A1U4; and output divider and driver A2A9A1U5A, A2A9-A1Q3, A2A9A1Q4 and A2A9A1T1. The optoelectronic coupler A2A9A1U1 and associated circuitry isolates the teletypewriter current from the T-827H/URT circuitry. The 1 MHz level shifting circuitry consisting of A2A9-A1Q1 and A2A9A1Q2 receives the low level 1 MHz signal from the frequency standard and amplifies it to a level suitable for the programmable divider. Programmable divider A2A9A1U2 - A2A9A1U4 divides the 1 MHz signal in response to the mark/space input and the RATT SHIFT SELECT switch A2-S10. The output divider circuitry divides the programmable divider output by two and makes a symmetrical square-wave; A2A9A1-Q3 and A2A9A1Q4 standardize the square-wave amplitude; and A2A9A1T1 provides a balanced output for Audio Processor A2A21-A18.

3-241. Optoelectronic coupler A2A9A1U1 consists of a light emitting diode (LED) and a photo sensitive transistor. A mark signal input (5 to 75 mA at A2A9A1P1 pin 4) passes through polarity protection diode A2A9A1-CR1 to the LED in A2A9A1U1, and then through A2A9A1R6 to A2A9A1P1 pin 3. A2-A9A1CR3 shunts any current in excess of 20 mA to protect the LED. When the LED is turned on by the mark current, the associated transistor A2A9A1U1 also turns on. The transistor current raises the voltage across A2A9A1R13 which creates a logic high at the output of AND gate A2A9A1U6A-3. Thus, A2A9A1U6-3 will be a logic high for a mark input and a logic low, signified by no input current, for a space condition.

3-242. 1 MHz from Frequency Standard A2A5 is applied to the RATT Tone Assembly through A2A9A1P1-7. Common emitter transistor A2A9A1Q1 amplifies the low level input. A2A9A1R7 and A2A9A1R8 provide bias voltage, while A2A9A1R9, A2A9A1R11 and A2A9A1C3 provide gain stabilization and emitter by-passing. The output at the collector of A2A9A1Q1 is applied to common emitter amplifier A2A9A1Q2 through coupling network A2A9A1C4 and A2A9A1R16. The collector signal at A2A9A1Q2 approximates a 1 MHz squarewave for programmable divider A2A9A1U2.

3-243. Programmable dividers A2A9A1U2 through A2A9A1U4 are decade down counters which are preset each time all three arrive at the zero count state. Pins 5, 11, 14 and 2 of A2A9A1U2 through A2A9A1U4 are the programming pins, and are set by AND gates A2A9A1U6A, A2A9A1U6D and flip-flop A2A9A1U5B connected as an inverter. When the RATT SHIFT SELECT switch A2-S10 is in the 850 position, and for a mark input, the programming inputs to A2A9A1U2 are logic highs at pins 5, 11 and 14, and a permanent logic low is at pin 2. Therefore, A2A9A1U2 is preset to 7. In a similar manner A2A9A1U3 and A2A9A1U4 are preset to 1 and 3 respectively. This condition divides the input 1 MHz by 317 or approximately 3155 Hz. This output will be further divided by two in A2A9A1U5A for the required mark frequency. For a space condition A2A9A1U2 through A2A9A1U4 are preset to six, zero and two so as to divide the 1 MHz by 206 for an output of approximately 4854 Hz. When the RATT SHIFT SELECT switch is in the 170 Hz position, the counters are set to divide by 261 for a mark condition and by 240 for a space condition. These divisions yield approximately 3831 and 4166 respectively.

3-244. A2A9A1U5A divides the unsymmetrical output from programmable dividers A2A9A1U2 through A2A9A1U4 by two, and provides a symmetrical squarewave for push-pull amplifier A2A9A1Q3 and A2A9A1Q4. A2A9A1Q3 and A2A9A1Q4 standardize the squarewave amplitude. An attenuator, consisting of resistors A2A9A1R21 through A2-A9A1R24, reduces the amplitude to a level which will give the required 0.8 volts p-p balanced output at A2A9A1T1 pins 4 and 7. This balanced output is sent to A2A9A1P1 pins 2 and 8. The balanced output prevents shorting of the RATT assembly output when the center tap of A2A21T2 is grounded.

3-245. METER AMPLIFIER ASSEMBLIES A2A10 and A2A11 (Figure 5-28, Sheet 1). Meter Amplifier Assemblies A2A10 and A2-A11 are mounted on the T-827H/URT front panel and described together with the Transmitter Main Frame A2. (Refer to paragraph 3-136.)

3-246. IF AMPLIFIER ASSEMBLY A2A12 (Figure 5-43). IF Amplifier Assembly A2A12 provides three gain-controlled stages for DATA, SSB, RATT and AM modes of operation, and two gain-controlled stages for CW operation. Gain is controlled by the average power control (APC or TGC) input at A2-A12P1-6 and the peak power control (PPC) input at A2A12P1-7. The APC (or TGC) and PPC inputs are dc voltages applied by the AM-3924C(P)/URT. APC applies to NORMAL operation and TGC applies to DATA operation. Both power-control feedback signals are supplied over the same line, but originate from different circuits in the AM-3924C(P)/URT. PPC will function in either DATA or NORMAL operation. The APC and PPC inputs control the gain of amplifiers A2A12A1Q2 and A2A12A1Q5. This is accomplished by varying bias in response to the output of A2A12A1Q1 and A2A12A1Q3. The PPC input exerts control via amplifier A2-A12A1Q2, at a point prior to carrier reinsertion. Thus, the PPC input gain control voltage only affects the sideband levels. PPC voltage does not change the amplitude of the carrier reinsertion signal used during AM and SSB pilot carrier modes from A2A12P1-A2. The APC input exerts control over both the carrier and sideband signals at amplifier A2-A12A1Q5. The time constant of the APC circuitry within the external associated rf power amplifier AM-3924C(P)/URT prevents the APC level from varying with modulation peaks. The gain of the IF is set by A2A12-A1R27 and the slope of gain reduction with APC is set by A2A12A1R39. A2A12A1RT1 temperature compensates the IF.

3-247. During the USB and LSB modes, the 500 kHz signal from A2A12P1-A3 is applied to amplifier A2A12A1Q4 after amplification by A2A12A1Q2. During the CW, AM and SSB pilot carrier modes, the 500 kHz signal from A2A12P1-A2 is applied directly to amplifier A2A12A1Q4. The signal is amplified in A2-A12A1Q4 and A2A12A1Q5 and passed through transformer A2A12A1T2 to connector A2A12P1-A1.

3-248. HANDSET FILTER ASSEMBLY A2-A14 (Figure 5-28, Sheets 1 and 3). Handset Filter Assembly A2A14 consists of conventional L-C and capacitive filtering circuits which are part of the Transmitter Main Frame A2. The description of its circuits is included with that of the main frame (refer to paragraph 3-139).

3-249. IF FILTER ASSEMBLY A2A15 (Figure 5-28, Sheet 1). IF Filter Assembly A2A15 consists of filter circuits which are mounted on the main frame. The circuit description is included with the main frame (refer to paragraph 3-140).

CHAPTER 4

SCHEDULED MAINTENANCE

4-1. INTRODUCTION.

4-2. This chapter contains preventive maintenance procedures and performance test instructions for Radio Transmitter T-827H/URT to be accomplished on a scheduled basis. Included are a scheduled maintenance action index, procedures required to inspect, clean, and lubricate the equipment, and step-by-step procedures necessary to verify that the equipment is operating satisfactorily within standards in all modes of operation. The scheduled maintenance instructions in this manual are cancelled when the Planned Maintenance System (PMS) is implemented for this equipment aboard your ship or station.

NOTE

The T-827H/URT is a unit of Radio Transmitting Set AN/URT-23C(V)1 and, when configured as such, Chapter 4 of the separate technical manual NAVELEX 0967-LP-000-0000 is to be used for scheduled maintenance. If the T-827H/URT is used as a separate exciter/transmitter, then all scheduled maintenance tables of this manual are applicable.

4-3. SCHEDULED MAINTENANCE ACTION INDEX.

4-4. Table 4-1 includes all scheduled preventive maintenance procedures and performance tests. The periodicity column gives the scheduled interval between performance of these procedures. The periodicity symbols are as follows-

Interval	Symbols
Weekly	W
Monthly	M
Quarterly	Q
Semiannually	S
Annually	A
Unscheduled	U

Performance tests identified by periodicity symbol U are unscheduled and are to be performed only at the time of installation or overhaul, or when the result from a related scheduled procedure indicates trouble. The maintenance action column lists the maintenance action which corresponds to the periodicity symbol in column 1, and the reference column states the number of the table that contains the procedure listed in column 2.

4-5. PREVENTIVE MAINTENANCE PROCEDURES.

4-6. Table 4-2 gives all procedures required to inspect, clean, and lubricate the T-827H/URT.

4-7. SCHEDULED PERFORMANCE TESTS.

4-8. SAFETY PRECAUTIONS. The attention of officers and operating personnel is directed to NAVSHIPS 0967-LP-000-0100, Electronic Installation Maintenance Book - General, or superseding instructions, on the subject of electrical safety precautions to be observed. NAVSHIPS 0900-LP-007-9010, Electric Shock - Its Causes and Its Prevention, contains a discussion of the fundamental principles of electrical safety and shall be made available to all personnel engaged in this work. Failure to comply with these safety principles, the general safety precautions preceding paragraph 1-1, or the specific warnings which precede individual steps may result in severe injury or death. All personnel must therefore employ proper safety work practices and observe all safety regulations at all times.

4-9. PROCEDURES. Table 4-3 contains preliminary procedures which must be accomplished prior to conducting the performance tests listed in tables 4-4 through 4-16. Tables 4-4 through 4-16 contain detailed procedures for accomplishing the performance tests, and include the minimum technical rating required, preliminary procedures, and reference to corrective action to be taken if a test result is not within tolerance. It is recommended that each test procedure be read through to its completion before the test is begun. The test setup for the T-827H/URT performance tests is illustrated in figure 4-1.

Table 4-1. Scheduled Maintenance Action Index

PERIODICITY	MAINTENANCE ACTION	REFERENCE CHAPTER 4
W	1. Check T-827H/URT overall operation	Table 4-4
M	1. Clean front panel	Table 4-2
	2. Check performance of Power Supply Assembly A2A8	Table 4-5
	3. Check oscillator output and automatic switching action of Frequency Standard Assembly A2A5	Table 4-6
Q	1. Clean T-827H/URT interior	Table 4-2
S	1. Inspect, clean, and lubricate chain drive mechanism	Table 4-2
	2. Check interlock switch operation	Table 4-2
A	1. Check mechanical synchronization of chassis	Table 4-2
U	1. Check performance of Audio Processor Assembly A2A21A18 (USB)	Table 4-7
	2. Check performance of Audio Processor Assembly A2A21A19 (LSB)	Table 4-8
	3. Check performance of RATT Tone Generator Assembly A2A9	Table 4-9
	4. Check performance of IF Amplifier Assembly A2A12	Table 4-10
	5. Check output frequency of Translator Synthesizer Assembly A2A6	Table 4-11
	6. Check output of RF Amplifier Assembly A2A4	Table 4-12
	7. Check hum modulation level	Table 4-13
	8. Check spurious output levels	Talbe 4-14
	9. Check intermodulation product levels, normal mode	Table 4-15
	10. Check carrier and opposite sideband suppression, Mode Selector Assembly A2A1	Table 4-16
	11. Check performance of Audio Control Assembly A2A21A20	None
	12. Check intermodulation product levels, data mode	None

Table 4-2. Preventive Maintenance Procedures

TYPE OF MAINTENANCE	TOOLS/MATERIAL REQUIRED	PERSONNEL LEVEL	PROCEDURE
Exterior cleaning (M1)	Clean cloth General purpose detergent, specification MIL-D-16791	RMSN	Dampen cloth with fresh water/detergent solution and wipe front panel.
WARNING Do not tamper with interlock switch when T-827H/URT chassis is extended from case for cleaning or inspection.			
Interior cleaning (Q1)	Tank-type vacuum cleaner with brush attachment.	ET3	Set mode selector switch to OFF, and secure power at bulkhead distribution point. Loosen front panel screws and slide chassis out of case. Clean interior with vacuum cleaner with brush attachment. Slide chassis back into case and tighten front panel screws. When finished, restore power at bulkhead distribution point.
CAUTION Hand guide main frame cable at rear of chassis over edge of case when rotating main frame to vertical position.			
Chain drive inspection and cleaning. (S1)	Clean cloth	ET3	Set mode selector switch to OFF. Loosen front panel screws, slide chassis out of case, and tilt 90 degrees to expose bottom. Rotate each kHz control on front panel through all positions. Check drive chains for excessive slack resulting in excessive play in control. Check that gears rotate evenly, without slipping, from one position to

Table 4-2. Preventive Maintenance Procedures (Continued)

TYPE OF MAINTENANCE	TOOLS/MATERIAL REQUIRED	PERSONNEL LEVEL	PROCEDURE
Chain drive inspection and cleaning. (S1) (Cont.)			another. Check that all screws and hardware on gear assembly are securely tightened. Inspect gears and drive chains for corrosion, damage, or noticeable wear. Wipe dust from all parts with clean cloth. Return chassis to horizontal, slide back into case, and tighten front panel screws.
Check operation of interlock switch (S2)	None	ET3	Set mode selector switch to STDBY and loosen front panel screws. Extend chassis from case and observe that MHz and kHz indicator lamps extinguish. After satisfactory completion of check slide chassis into case, secure with front panel screws, and return to normal operating conditions.
Inspecting mechanical synchronization of chassis (A1)	None	ET3	Set mode selector switch to OFF, loosen front panel screws, and extend chassis from case. Examine drive chains and sprockets for corrosion, damage, or excessive wear. Set frequency controls to 11.111 MHz and remove RF Amplifier A2A4 and Translator/Synthesizer A2A6 assemblies from the main frame. Observe that the coupling disks on the bottom of these assemblies are all set to 1. Set frequency controls for 00.000 MHz, and observe that the three mechanical coupler keyways for the A2A6 assembly are perpendicular to the rear edge

Table 4-2. Preventive Maintenance Procedures (Continued)

TYPE OF MAINTENANCE	TOOLS/MATERIAL REQUIRED	PERSONNEL LEVEL	PROCEDURE
Inspecting mechanical synchronization of chassis (A1) (Cont.)			of the main frame. Set frequency controls for 00.660 MHz, and observe that the two mechanical keyways for the A2A4 assembly are perpendicular to the rear edge of the main frame. Set MHz controls to 00 and then to 29, and observe that the dial numbers appear centered in the dial windows above the MHz controls at both positions. Observe that the spring washer under each coupling disk on the main frame has not been flattened enough to prevent engagement of the coupler when the A2A4 and A2A6 assemblies are installed. Set frequency controls to 11.111 MHz and reinstall the A2A4 and A2A6 assemblies in the chassis. To ensure engagement of mechanical couplers, rotate each of the three kHz controls through all settings (0 through 9). Slide chassis into case, tighten front panel screws, and return equipment to normal operating condition at completion of checks.

Table 4-3. Radio Transmitter T-827H/URT Performance Test Preliminary Procedures

STEP	ACTION	PROCEDURE
1	Initial Control Settings	a. Set power breaker (external) to OFF. b. Set mode selector switch to OFF. c. Set Hz control to 000.
2	Equipment Interconnections	Connect RF OUT 50 OHM jack A1J23 to RF Dummy Load DA-91A/U. Connect test circuit shown in figure 4-1 to T-827H/URT connector A1A1J4. Set test circuit APC ADJUST control for 3.86 Vdc measured at test circuit APC test point with digital multimeter 89536-8800A/AA. Set test circuit PPC ADJUST control fully cw. The rf output of the T-827H/URT is reduced by increasing the APC voltage level. Set primary power circuit breaker on. Connect a cw key to CW KEY jack and Handset H-342/U to HANDSET jack.
3	Turn-on Procedure	Loosen front panel screws, slide main frame from case, and defeat chassis interlock. Proceed as follows: a. Set AUX/NORM switch A1S1 to AUX. b. Set mode selector switch to STDBY. c. Check that filaments of the two tubes in RF Amplifier Assembly A2A4 are illuminated, and allow the unit to warm-up for minimum 5 minutes. d. Set CARRIER REINSERTION switch A2A1S1 to ∞.

NOTES FOR FIGURE 4-1

GENERAL NOTES

A. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION, PREFIX PARTIAL REFERENCE DESIGNATORS WITH APPLICABLE UNIT, ASSEMBLY AND/OR SUBASSEMBLY DESIGNATORS.

B. UNLESS OTHERWISE SPECIFIED:
ALL RESISTORS ARE IN OHMS, ±5%, 1/4 WATT.
ALL CAPACITORS ARE IN MICROFARADS.

SPECIFIC NOTES

1. CONNECT BNC T DIRECTLY TO OSCILLOSCOPE AND SAMPLER BOX.
2. MULTIPLE USAGE: CONNECTION INSTRUCTIONS APPEAR IN TABLES.
3. MAKE FROM TWO RC42GF222J RESISTORS AND HOUSING 80009-011-0081-00.

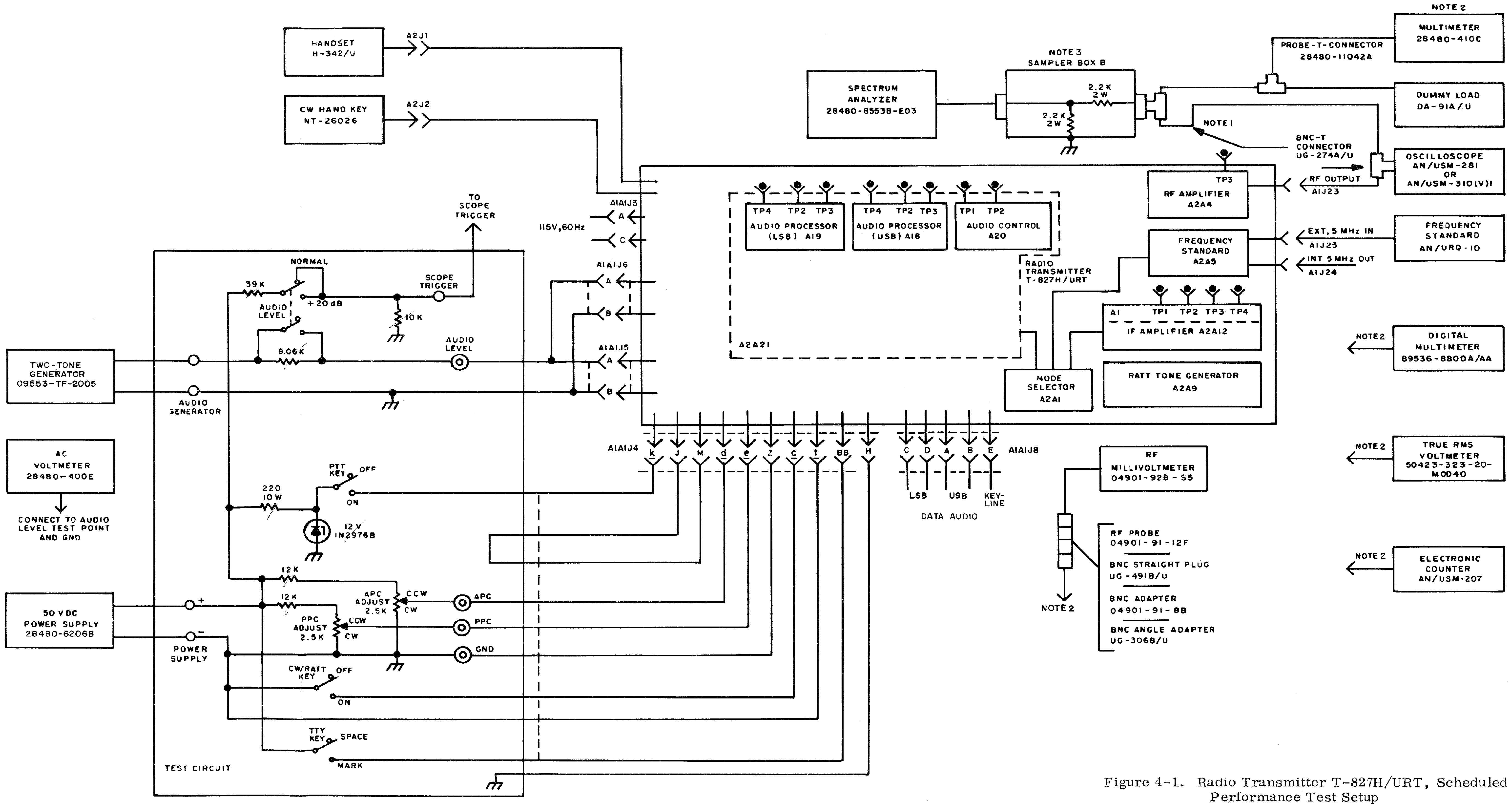


Figure 4-1. Radio Transmitter T-827H/URT, Scheduled Performance Test Setup

Table 4-4. Overall Radio Transmitter Operation Check

MINIMUM TECHNICIAN RATING: ET3

OPERATING CONDITIONS AND CONTROL SETTINGS:

Perform special steps in Table 4-3.
DATA/NORMAL switch: NORMAL
Mode selector switch: STDBY
USB LINE LEVEL meter switch: -10 DB
LSB LINE LEVEL meter switch: -10 DB
Frequency controls: 2.010 MHz
LOCAL/REMOTE switch: LOCAL

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
W1	Check transmitter operation.	Multimeter 28480-410C USB LINE LEVEL meter LSB LINE LEVEL meter	(a)________Vrms (1.77 min) (b)________Vrms (2.5 min) (c)________Vrms (2.5 min)

PROCEDURE: Refer to figure 4-1. Connect multimeter to probe-T-connector in line to dummy load. Set mode selector switch to CW, momentarily close cw handkey, and note a constant deflection on the multimeter.

Set mode selector switch to AM. Operate the push-to-talk (PTT) switch on the handset and record the constant multimeter indication at (a). Press the PTT switch while speaking normally into the handset, and observe a deflection of the USB LINE LEVEL meter.

Set mode selector switch to USB. Operate the handset PTT switch, and speak into the handset. Observe that the USB LINE LEVEL meter deflects, and the multimeter needle swings upscale while speaking normally into the handset for several seconds.

Set LOCAL/REMOTE switch to REMOTE.

Set the mode selector switch to RATT. Set test circuit CW/RATT KEY to ON and observe that the USB LINE LEVEL meter indicates +2 dB minimum. (An off-scale reading is acceptable.) Observe also that the multimeter shows a constant deflection. Record multimeter indication at (b).

Table 4-4. Overall Radio Transmitter Operation Check (Continued)

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
W1 (Cont.)	Set mode selector switch to ISB/RATT and observe that the USB LINE LEVEL meter indicates the same +2 dB minimum as in the preceding step.		
	Set CW/RATT KEY to "OFF".		
	SET LOCAL/REMOTE switch to LOCAL.		
	Set mode selector switch to LSB, operate handset PTT switch, and speak into the handset. Observe that the LSB LINE LEVEL meter deflects and that the multimeter indicator swings upscale.		
	Set mode selector switch to ISB and LOCAL ISB HANDSET switch to LSB. Operate handset PTT switch and observe that the LSB LINE LEVEL meter deflects, and that the multimeter indicator swings upscale while speaking normally into the handset.		
	Set LOCAL ISB HANDSET switch to USB, operate the handset PTT switch, and speak into the handset. Observe that the USB LINE LEVEL meter deflects and that the multimeter swings upscale.		
	Set mode selector switch to CW. Close cw handkey and record multimeter indication at (c).		
	Set mode selector switch to ISB/RATT. Press the handset PTT switch. Wait about five seconds. Adjust the APC level control on the test fixture to reduce the RF output read on the multimeter by 1 volt RMS from the level recorded at (b). Speak loudly or whistle into the handset and observe that the LSB LINE LEVEL meter deflects. Also observe that the multimeter needle swings upscale to approximately the level recorded at (b).		
	Set mode selector switch to STDBY and disconnect test equipment. If all tests are satisfactory, return equipment to normal operating conditions.		
	TROUBLESHOOTING: Figures 3-1, 5-28.		
	CORRECTIVE ACTION: Table 6-1.		

Table 4-5. Power Supply Assembly A2A8 Check

MINIMUM TECHNICIAN RATING: ET3

OPERATING CONDITIONS AND CONTROL SETTINGS:

Perform special steps in Table 4-3.
DATA/NORMAL switch: NORMAL
LOCAL/REMOTE switch: REMOTE
Mode selector switch: STDBY
Frequency controls: 2.010 MHz

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
M2	Check voltages of Power Supply Assembly A2A8 and A2CR8. PROCEDURE: Connect multimeter between tie point A2E24 (located at chassis bottom) and ground. CAUTION When T-827H/URT mode selector switch is set to LSB in the following step, the multimeter must indicate between +15 Vdc and +25 Vdc before keying. If it does not, immediately set T-827H/URT mode selector switch to OFF and correct the faulty condition before proceeding. Set mode selector switch to LSB (digital multimeter indicates +15 to +25 Vdc). Set test circuit PTT KEY to ON and record digital multimeter indication at (a). Set PTT KEY to OFF. WARNING High voltages are present which can cause injury or death. Exercise caution when making measurements. Set mode selector switch to CW, set test circuit CW KEY to ON, and measure voltages (using multimeter) and ripple (using oscilloscope) between the following tie points and ground. Record the readings as indicated.	Digital Multimeter 89536-8800A/AA Oscilloscope AN/USM-281	(a)________Vdc (19.5 to 20.5) (b)________Vdc (+23 to +31) (c)________Vdc (+103 to +117) (d)________mVP-P (2.12 max) (e)________mVP-P (255 max) (f)________mVP-P (17 max) (g)________Vdc (+11 to +13)

Table 4-5. Power Supply Assembly A2A8 Check (Continued)

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
M2 (Cont.)	TIE POINT — VOLTAGE A2E22 (bottom of chassis) — (b) (multimeter) A2E9 (bottom of chassis) — (c) (multimeter) A2E22 — (d) (oscilloscope) A2E9 — (e) (oscilloscope) A2E24 — (f) (oscilloscope) Set CW Key to OFF. Connect multimeter between A2E16 and ground. Set mode selector switch to LSB and record the multimeter indication at (g). Set mode selector switch to STDBY and disconnect test equipment. Tilt main frame back to horizontal, slide chassis into case, and secure with front panel screws. TROUBLESHOOTING: Figure 5-28, Sheet 3. CORRECTIVE ACTION: Paragraph 6-100.		

Table 4-6. Frequency Standard Assembly A2A5, Oscillator, Output and Automatic Switching Check

MINIMUM TECHNICIAN RATING: ET3

OPERATING CONDITIONS AND CONTROL SETTINGS:

Perform special steps in Table 4-3.
DATA/NORMAL switch: NORMAL
Mode selector switch: CW
Frequency controls: 2.010 MHz
LOCAL/REMOTE switch: REMOTE

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
M3	Check automatic switching action and oscillator output of Frequency Standard Assembly A2A5. PROCEDURE: Connect oscilloscope and 5 MHz output of Frequency Standard AN/URQ-10 as shown in figure 4-1. Set frequency standard 5 MHz OSC SOURCE switch A2A5A2S1 to EXT NORMAL. While observing the oscilloscope, remove external frequency standard connection from EXT 5 MHz IN connector A1J25. The waveform on the oscilloscope should blink as connection is being removed indicating switching action. Reconnect external frequency standard to EXT 5 MHz IN connector A1J25. Set switch A2A5A2S1 to EXT (OVEN STBY) position. While observing the oscilloscope, remove external frequency standard connection from A1J25. Again observe waveform for evidence of switching as connection is being removed. Check at (a) if switching occurs for both positions of A2A5A2S1. Connect rf millivoltmeter to INT 5 MHz OUT connector A1J24 using adapters shown in figure 4-1. Record indication on rf millivoltmeter at (b).	Frequency Standard comparison lamp 3A2A5A2DS1. Oscilloscope AN/USM-281 RF Millivoltmeter 04901-92B-S5	(a)________ (Check) (b)________mVrms (480 to 720) (c)________sec (20 min)

Table 4-6. Frequency Standard Assembly A2A5, Oscillator, Output and Automatic Switching Check (Continued)

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
M3 (Cont.)	NOTE Prior to the following tests, the frequency standard A2A5 must be temperature stabilized by having been operated for at least 96 hours with the 5 MHz OSC SOURCE switch A2A5A2S1 in the EXT (OVEN STBY) position. The mode selector switch must have been in a position other than OFF during this period. With the 5 MHz output of Frequency Standard AN/URQ-10 connected to EXT 5 MHz IN connector A1J25, set 5 MHz OSC SOURCE switch A2A5A2S1 to INT/COMP and observe that comparator lamp A2A5A2DS1 cycles once in not less than 20 seconds (dim through bright to dim or bright through dim to bright). Record actual time period of comparator lamp cycle at (c). Set mode selector switch to OFF and disconnect test equipment. Set 5 MHz OSC SOURCE switch A1A5A2S1 to EXT NORMAL, slide chassis into case and secure with front panel screws. Return equipment to normal operating condition. TROUBLESHOOTING: Figures 5-7, 5-22, 5-31. CORRECTIVE ACTION: Paragraph 6-67.		

Table 4-7. Audio Processor A2A21A18 Check

MINIMUM TECHNICIAN RATING: ET3

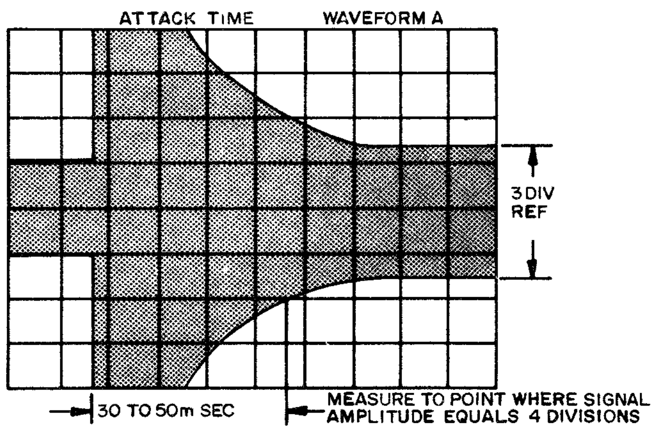
OPERATING CONDITIONS AND CONTROL SETTINGS:

Perform special steps in Table 4-3.
LOCAL/REMOTE switch: REMOTE
DATA/NORMAL switch: NORMAL
Mode selector switch: USB
Frequency controls: 2.000 MHz

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
U1	Check audio output and audio compression, and agc attack and decay times on Audio Processor A2A21A18. PROCEDURE: Refer to figure 4-1. Connect test circuit to A1A1J4 and A1A1J5. Set test circuit AUDIO LEVEL switch to NORMAL and PTT KEY to ON. Adjust two-tone generator for 1000 Hz at 150 mVrms as measured at AUDIO LEVEL test points with AC Voltmeter. Connect the true rms voltmeter to A2A21A18TP4 on audio processor and record voltmeter indication at (a). Connect oscilloscope vertical input and dummy load to A1A1J23 rf output. (Reference figure 4-1). Adjust stability and trigger controls of oscilloscope for free-running display. Set horizontal and vertical scales of oscilloscope to 10 ms/division and 1 V/division respectively. Adjust test circuit APC control for 3 V P-P rf amplitude on the oscilloscope. Set scope gain controls for 3 divisions peak-to-peak output signal with test circuit AUDIO LEVEL switch set at +20 DB. Set scope trigger level in a manner such that T-827H/URT output signal is seen each time the test circuit AUDIO LEVEL switch is actuated; set switch to NORMAL. Erase scope display and wait at least five (5) seconds. Set test circuit AUDIO LEVEL switch to +20 DB and record the attack time of output waveform displayed on oscilloscope at (b). See Waveform A). Set horizontal scale of oscilloscope to 0.5 second/division. Set stability and trigger controls of oscilloscope for free running display. Set test circuit AUDIO LEVEL switch to NORMAL and set scope gain controls for 6.4 divisions peak-to-peak output signal. Set scope trigger level in a manner such that the output signal is seen each time the test circuit AUDIO LEVEL switch is actuated; set switch at +20 DB. Erase scope display and	True RMS Voltmeter 50423-323-20-MOD 40 Oscilloscope, Storage AN/USM-310(V)1	(a)________mVrms (90 to 110) (b)________ms (30 to 50) (c)________sec (1.5 to 2.0)

Table 4-7. Audio Processor A2A21A18 Check (Continued)

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
U1 (Cont.)	wait at least 5 seconds. Set test circuit AUDIO LEVEL switch to NORMAL and record the decay time of output waveform displayed on oscilloscope at (c). (See Waveform B.) Set test circuit PTT KEY OFF.		
	Set mode selector switch to STDBY, disconnect test equipment, slide chassis into case, and secure with front panel screws.		
	TROUBLESHOOTING: Figures 5-1, 5-16, 5-44.		
	CORRECTIVE ACTION: Paragraph 6-127.		



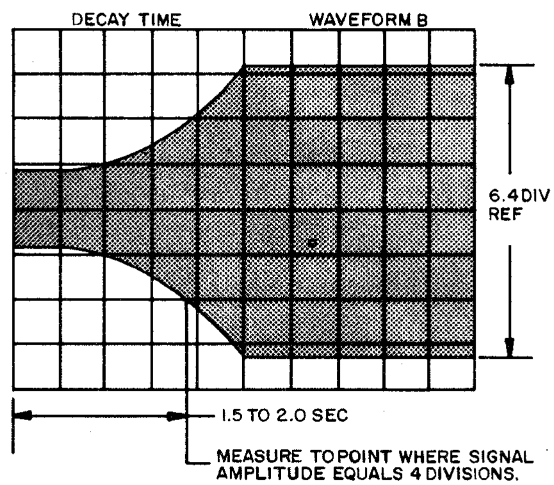


Table 4-8. Audio Processor A2A21A19 Check

MINIMUM TECHNICIAN RATING: ET3

OPERATING CONDITIONS AND CONTROL SETTINGS:

Perform special steps in Table 4-3.
LOCAL/REMOTE switch: REMOTE
DATA/NORMAL switch: NORMAL
Mode selector switch: LSB
Frequency controls: 2.000 MHz

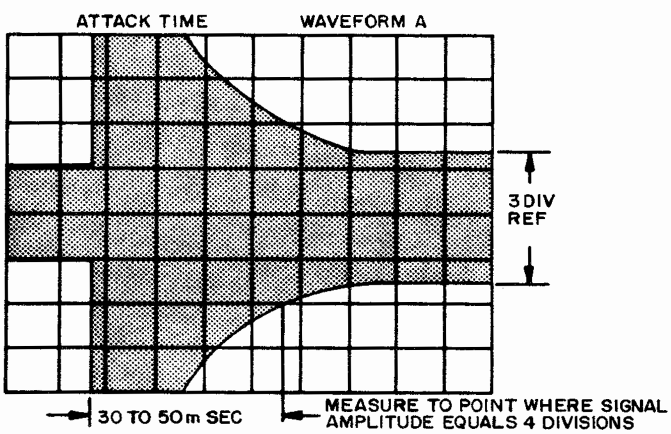
STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
U2	Check audio output and audio compression, and agc attack and decay times on Audio Processor A2A21A19.	True RMS Voltmeter 50423-323-20-MOD 40 Oscilloscope, Storage AN/USM-310(V)1	(a)________mVrms (90 to 110) (b)________ms (30 to 50) (c)________sec (1.5 to 2.0)

PROCEDURE: Refer to figure 4-1. Connect test circuit to A1A1J4 and A1A1J6. Set test circuit AUDIO LEVEL switch to NORMAL and PTT KEY to ON. Adjust two-tone generator for 1000 Hz at 150 mVrms as measured at AUDIO LEVEL test points with AC Voltmeter.

Connect the true rms voltmeter to A2A21A19TP4 on audio processor and record voltmeter indication at (a). Connect oscilloscope vertical input and dummy load to A1A1J23 rf output. (Reference figure 4-1). Adjust stability and trigger controls of oscilloscope for free-running display. Set horizontal and vertical scales of oscilloscope to 10 ms/division and 1 V/division respectively. Adjust test circuit APC control for 3 V P-P rf amplitude on the oscilloscope. Set scope gain controls for 3 divisions peak-to-peak output signal with test circuit AUDIO LEVEL switch set at +20 DB. Set scope trigger level in a manner such that T-827H/URT output signal is seen each time the test circuit AUDIO LEVEL switch is actuated. Set switch to NORMAL. Erase scope display and wait at least five (5) seconds. Set test circuit AUDIO LEVEL switch to +20 DB and record the attack time of output waveform displayed on oscilloscope at (b). (See Waveform A). Set horizontal scale of oscilloscope to 0.5 second/division. Set stability and trigger controls of oscilloscope for free running display. Set test circuit AUDIO LEVEL switch to NORMAL and set scope gain controls for 6.4 divisions peak-to-peak output signal. Set scope trigger level in a manner such that the output signal is seen

Table 4-8. Audio Processor A2A21A19 Check (Continued)

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
U2 (Cont.)	each time the test circuit AUDIO LEVEL switch is actuated, set switch at +20 dB. Erase scope display and wait at least 5 seconds. Set test circuit AUDIO LEVEL switch to NORMAL and record the decay time of output waveform displayed on oscilloscope at (c). (See Waveform B.) Set test circuit PTT KEY OFF. Set mode selector switch to STDBY, disconnect test equipment, slide chassis into case, and secure with front panel screws. TROUBLESHOOTING: Figures 5-1, 5-16, 5-44. CORRECTIVE ACTION: Paragraph 6-127.		



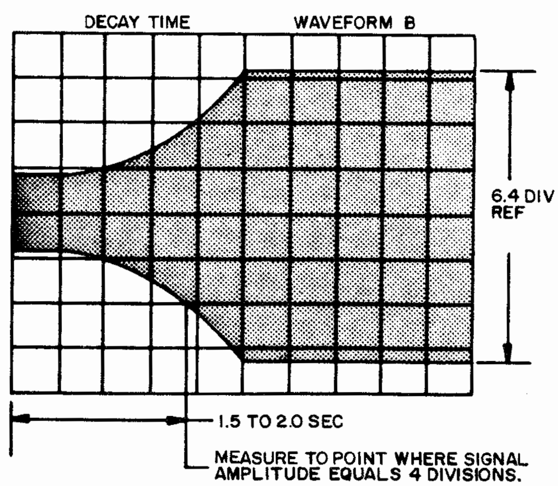


Table 4-9. RATT Tone Generator Assembly A2A9
Output Frequencies and Level Check

MINIMUM TECHNICIAN RATING: ET3

OPERATING CONDITIONS AND CONTROL SETTINGS:

Perform special steps in Table 4-3.
DATA/NORMAL switch: NORMAL
LOCAL/REMOTE switch: REMOTE
Mode selector switch: RATT
RATT SHIFT SELECT switch: 170 HZ
Frequency controls: 2.100 MHz

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
U3	Check output frequencies and level from RATT Tone Generator Assembly A2A9. PROCEDURE: Refer to figure 4-1. Connect electronic counter to A2A21-A18TP4. Set test circuit CW/RATT KEY ON. Set test circuit TTY KEY to SPACE. Measure space tone frequency, and record at (a). Set test circuit TTY KEY to MARK. Measure mark tone frequency, and record at (b). Set RATT SHIFT SELECT switch to 850 HZ. With test circuit TTY KEY in MARK position, measure mark tone frequency, and record at (c). Set test circuit TTY KEY to SPACE. Measure space tone frequency, and record at (d). Set test circuit CW/RATT KEY OFF. Disconnect Electronic Counter AN/USM-207. Connect True RMS Voltmeter 50423-323-20-MOD 40 to A2A21A18TP4. Set test circuit CW/RATT KEY ON. Measure audio tone level, and record at (e). Set mode selector switch to STDBY, disconnect test equipment, slide chassis into case, and secure with front panel screws.	Electronic Counter AN/USM-207 True RMS Voltmeter 50423-323-20-MOD 40	(a)________Hz (2081 to 2089) (b)________Hz (1911 to 1919) (c)________Hz (1555 to 1595) (d)________Hz (2405 to 2445) (e)________mV (200 to 400)

TROUBLESHOOTING: Figures 5-2, 5-17, 5-42.

CORRECTIVE ACTION: Paragraph 6-102.

Table 4-10. IF Amplifier Assembly A2A12, IF Output APC, and PPC Check

MINIMUM TECHNICIAN RATING: ET3

OPERATING CONDITIONS AND CONTROL SETTINGS:

Perform special steps in Table 4-3
DATA/NORMAL switch: NORMAL
LOCAL/REMOTE switch: REMOTE
Mode selector switch: USB
Frequency controls: 2.000 MHz

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
U4	Check output level and gain control of IF Amplifier Assembly A2A12.	Digital Multimeter 89536-8800A/AA AC Voltmeter 28480-400E	(a)________mVrms (4.5 to 5.5) (b)________ (Check) (c)________ (Check)

PROCEDURE: Refer to figure 4-1. Set test circuit PTT KEY ON. Adjust two-tone generator 1000 Hz output at 150 mVrms as read on ac voltmeter.

Connect ac voltmeter using shielded cable with shield ground no longer than one inch to A2A12A1TP2. Measure output signal level, and record indication at (a).

Connect digital multimeter to A2A12A1TP4. Slowly turn the test circuit APC control counterclockwise while monitoring the APC level at A2A12A1TP4 and the output signal at A2A12A1TP2. Observe that the output level approaches zero as the APC voltage is increased beyond +6 Vdc. Check at (b). Return the APC control to 3.86 Vdc.

Connect digital multimeter to A2A12A1TP3. Slowly turn the test circuit PPC control counterclockwise while monitoring the PPC level at A2A12A1TP3 and the output signal at A2A12A1TP2. Observe that the output level approaches zero as the PPC voltage is increased to +5 Vdc. Check at (c). Reset PPC control fully clockwise.

Set mode selector switch to STDBY, disconnect test equipment, slide chassis into case, and secure with front panel screws.

TROUBLESHOOTING: Figures 5-4, 5-19, 5-43.

CORRECTIVE ACTION: Paragraph 6-113.

Table 4-11. Translator/Synthesizer Assembly A2A6 Frequency Check

MINIMUM TECHNICIAN RATING: ET3

OPERATING CONDITIONS AND CONTROL SETTINGS:

Perform special steps in Table 4-3.
DATA/NORMAL switch: NORMAL
LOCAL/REMOTE switch: LOCAL
Mode selector switch: CW

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
U5	Check output frequency of Translator/ Synthesizer Assembly A2A6.	Electronic Counter AN/USM-207	(a)________MHz (±2.0 Hz) (b)________MHz (±2.0 Hz) (c)________MHz (±2.0 Hz) (d)________MHz (±2.0 Hz) (e)________MHz (±2.0 Hz) (f)________MHz (±2.0 Hz) (g)________MHz (±2.0 Hz) (h)________MHz (±2.0 Hz) (i)________MHz (±2.0 Hz) (j)________MHz (±2.0 Hz) (k)________MHz (±2.0 Hz) (l)________MHz (±2.0 Hz) (m)________MHz (±2.0 Hz) (n)________MHz (±2.0 Hz) (o)________MHz (±2.0 Hz) (p)________MHz (±2.0 Hz (q)________MHz (±2.0 Hz)

PROCEDURE: Refer to figure 4-1.
Connect the 5 MHz output of Frequency standard AN/URQ-10 (or ship's distribution system) to EXT 5 MHz IN jack A1J25 on rear of T-827H/URT, and connect the 1 MHz output of the frequency standard to electronic counter rear panel INPUT connector (with 5 MHZ OSC SOURCE switch A2A5A2S1 of Frequency Standard Assembly A2A5 set to EXT NORM). Connect electronic counter to A2A4TP3 on RF Amplifier Assembly, and connect a cw handkey to CW KEY jack. For each of the following frequencies set the front panel frequency controls to the listed frequency, momentarily depress the cw handkey, and record the rf output frequency.

02.0000 MHz (a)	12.8888 MHz (i)
03.1111 MHz (b)	14.9999 MHz (j)
04.2222 MHz (c)	15.0000 MHz (k)
05.3333 MHz (d)	17.0000 MHz (l)
06.4444 MHz (e)	19.0000 MHz (m)
08.5555 MHz (f)	20.0000 MHz (n)
09.6666 MHz (g)	22.0000 MHz (o)
10.7777 MHz (h)	23.0000 MHz (p)
	28.0000 MHz (q)

Set mode selector switch to STDBY, disconnect test equipment, slide chassis into case and secure with front panel screws.

TROUBLESHOOTING: Figures 5-8 thru 5-11, 5-20, 5-23 thru 5-26.

CORRECTIVE ACTION: Paragraph 6-77.

Table 4-12. RF Amplifier Assembly A2A4 Output Check

MINIMUM TECHNICIAN RATING: ET3

OPERATING CONDITIONS AND CONTROL SETTINGS:

Perform special steps in Table 4-3.
DATA/NORMAL switch: NORMAL
Mode selector switch: CW
LOCAL/REMOTE switch: LOCAL
Frequency controls: 2.0000 MHz

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
U6	Check output from RF Amplifier Assembly A2A4.	Multimeter 28480-410C	(a)________Vrms (2.5 min) (b)________MHz (c)________Vrms (2.5 min) (d)________MHz

PROCEDURE: Refer to figure 4-1.
Using probe-T-connector 28480-11042A, connect multimeter between rf dummy load and RF OUT 50 OHM jack A1J23. Set MHz controls to each position (2 through 29), and, for each position, depress cw key and measure rf output. Record the highest output level at (a) and the corresponding frequency setting at (b). Record the lowest output level at (c) and the corresponding frequency setting at (d).

Set mode selector switch to STDBY and disconnect test equipment.

TROUBLESHOOTING: Figures 5-6, 5-21, 5-30.

CORRECTIVE ACTION: Paragraph 6-55.

Table 4-13. Hum Modulation Level Check

MINIMUM TECHNICIAN RATING: ET3

OPERATING CONDITIONS AND CONTROL SETTINGS:

Perform special steps in Table 4-3.
DATA/NORMAL switch: NORMAL
Mode selector switch: USB
LOCAL/REMOTE switch: REMOTE
Frequency controls: 2.100 MHz

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
U7	Check hum modulation level. PROCEDURE: Refer to figure 4-1. Connect the 2.2K isolation resistor in Sampler Box B, spectrum analyzer and multimeter as shown. Set test circuit PTT KEY ON, and adjust the two-tone generator for 1000 Hz at 150 mVrms. Adjust test circuit APC ADJUST control for 1.77 Vrms rf amplitude on multimeter prior to each of the following checks: Locate USB signal at center of spectrum analyzer display. Set the spectrum analyzer bandwidth to 0.01 kHz, scan time to 1.0 sec.div., scan width to .05 kHz/div, and display to 10 dB/div-log. Measure levels of hum modulation (60 and 120 Hz) with reference to USB signal level, and record the highest level at (a). Set frequency controls to 17.100 MHz, repeat hum modulation level measurement, and record level at (b). Set frequency controls to 29.900 MHz, repeat hum modulation level measurement, and record level at (c). Set mode selector switch to LSB. Set test circuit PTT KEY ON, and adjust the two-tone generator for 1000 Hz at 150 mVrms. Repeat hum modulation measurement at that frequency which gave the highest hum level recorded at (a) through (c). Record level at (d).	Multimeter 28480-410C Spectrum Analyzer 28480-8553B-E03	(a)________dB (-39 min) (b)________dB (-39 min) (c)________dB (-39 min) (d)________dB (-39 min)

Table 4-13. Hum Modulation Level Check (Continued)

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
U7 (Cont.)	Set mode selector switch to STDBY and disconnect test equipment.		

TROUBLESHOOTING: Figures 5-6, 5-13, 5-14, and 5-15.

CORRECTIVE ACTION: Paragraphs 6-65, 6-100.

Table 4-14. Spurious Output Levels Check

MINIMUM TECHNICIAN RATING: ET3

OPERATING CONDITIONS AND CONTROL SETTINGS:

Perform special steps in Table 4-3.
DATA/NORMAL switch: NORMAL
Mode selector switch: USB
Set LOCAL/REMOTE switch to REMOTE
Frequency controls: 2.5000 MHz

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
U8	Check spurious output levels.	Multiplier 28480-410C Spectrum Analyzer 28480-8553B-E03	(a)________ (Check) (b)________ (Check)

PROCEDURE: Refer to figure 4-1. Connect the 2.2K isolation Resistor in Sampler Box B, spectrum analyzer and multimeter as shown. Set test circuit PTT KEY ON, and adjust the two-tone generator for 1000 Hz at 150 mVrms.

Adjust APC ADJUST control for 1.0 Vrms rf amplitude on multimeter.

a. Check spurious out-of-band signals *,

Locate the USB signal at center of spectrum analyzer display. Set the spectrum analyzer log linear mode for 10 dB log, and scan time per division for 1.0 ms. See table for scan width and bandwidth settings.

Freq MHz	Scan Width	Band Width
2 - 4.9	0.2 MHz/Div	30 KHz
5 - 9.9	0.5 MHz/Div	30 KHz
10 - 19.9	1.0 MHz/Div	300 KHz
20 - 29.9	2.0 MHz/Div	300 KHz

Measure spurious signal levels with reference to USB level while increasing the MHz and kHz control settings in 1 MHz increments from 2.5 to 29.5 MHz. Adjust APC as necessary to maintain 1.0 Vrms of rf amplitude on multimeter. Also adjust log reference level on spectrum analyzer to maintain a 0 dB reference.

* Out-of-band spurious signal is defined as any signal other than that desired, not including harmonics, outside the ±3.5 kHz baseband.

Table 4-14. Spurious Output Levels Check (Continued)

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
U8 (Cont.)	If all spurious signal levels are at least 55 dB below the USB signal level, check at (a). If not, note frequencies that have spurious signals less than 55 dB below the USB signal level. For each frequency in (a) at which all spurious signal levels are not at least 55 dB down, change the 10 kHz and 1 kHz control settings to find the greatest amplitude of spurious signal. If all spurious responses are at least -50 dB with reference to the USB signal level check at (a). b. Check spurious in-band signals. * Locate the USB signal at the center of spectrum analyzer display. Set the spectrum analyzer scan width per division at 0.5 kHz, scan time per division for 1.0 second, and bandwidth for 0.03 kHz. Measure the spurious signal levels with reference to USB level at the center of each MHz band. If all spurious signal levels within 1.4 divisions to the left and 5 divisions to the right of the USB signal at the center of the display are at least 45 dB below the USB signal level, (excluding the hum measured in table A-14) check at (b). If not, note frequencies that have spurious signals less than 40 dB below the USB signal level. For each frequency in (b) at which all spurious signal levels are not at least 45 dB down, change the 10 kHz and 1 kHz control settings to find the greatest amplitude of spurious signal. If all spurious responses are at least 40 dB with reference to the USB signal level, check at (b). Set mode selector switch to STDBY and disconnect test equipment. * In-band spurious signal is defined as any signal other than that desired, not including harmonics of the audio, or hum (60 Hz, 120 Hz, etc.) within 300 to 3500 Hz above the carrier frequency for USB. TROUBLESHOOTING: Figures 5-21, 5-23 through 5-26. CORRECTIVE ACTION: Paragraphs 6-65, 6-89.		

Table 4-15. Intermodulation Product Levels Check, Normal Mode

MINIMUM TECHNICIAN RATING: ET3

OPERATING CONDITIONS AND CONTROL SETTINGS:

Perform special steps in Table 4-3.
Mode Selector switch: USB
LOCAL/REMOTE switch: REMOTE
DATA/NORMAL switch: NORMAL
Frequency controls: 2.250 MHz

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
U9	Check normal mode intermodulation product levels. PROCEDURE: Refer to figure 4-1. Connect the 2.2K isolation resistor in Sampler Box B, spectrum analyzer and multimeter as shown. Set test circuit PTT KEY ON. Adjust the two-tone generator for 1000 Hz and 1625 Hz at 150 mVrms each tone. Adjust test circuit APC ADJUST for 3.54 Vrms rf amplitude on multimeter prior to each of the following checks. Locate two-tone signal at center of spectrum analyzer display. Set the spectrum analyzer bandwidth to 0.03 kHz, scan time to 1 sec/div, scan width to 0.5 kHz/div, and log reference level to two tone peaks for 0 dB reference. Measure levels of third order intermodulation products (375 and 2250 Hz) with reference to 1000 and 1625 Hz levels, and record the level of the one of the two products which is the lesser dB down from the reference at (a). Measure and record third order product levels for each of the following frequencies:	Multimeter 28480-410C Spectrum Analyzer 28480-8553B-E03	(a)________dB (-35 min) (b)________dB (-35 min) (c)________dB (-35 min) (d)________dB (-35 min) (e)________dB (-35 min) (f)________dB (-35 min) (g)________dB (-35 min) (h)________dB (-35 min) (i)________dB (-35 min) (j)________dB (-35 min) (k)________dB (-35 min) (l)________dB (-35 min) (m)________dB (-35 min) (n)________dB (-35 min) (o)________dB (-35 min) (p)________dB (-35 min) (q)________dB (-35 min) (r)________dB (-35 min)

Table 4-15. Intermodulation Product Levels Check, Normal Mode (Continued)

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
U9 (Cont.)	2.750 MHz (b) 13.000 MHz (k) 3.250 MHz (c) 15.000 MHz (l) 3.750 MHz (d) 17.000 MHz (m) 4.500 MHz (e) 19.000 MHz (n) 5.500 MHz (f) 21.000 MHz (l) 6.500 MHz (g) 23.000 MHz (p) 7.500 MHz (h) 25.000 MHz (q) 9.000 MHz (k) 27.000 MHz (r) 11.000 MHz (j) 29.000 MHz (s) Set mode selector switch to LSB. Set test circuit PTT KEY ON, and adjust the two-tone generator for 1000 Hz and 1625 Hz at 150 mVrms each tone. Repeat third order product measurement at that frequency which gave the highest intermodulation products recorded at (a) through (s). Record LSB intermodulation product level at (t). Set mode selector switch to STDBY and disconnect test equipment.		(s)________dB (-35 min) (t)________dB (-35 min)

TROUBLESHOOTING: Figures 5-16, 5-19 through 5-21.

CORRECTIVE ACTION: Paragraphs 6-53, 6-65, 6-89, 6-121, 6-133.

Table 4-16. Mode Selector Assembly A2A1 Carrier and Opposite Sideband Levels Check

MINIMUM TECHNICIAN RATING: ET3

OPERATING CONDITIONS AND CONTROL SETTINGS:

Perform special steps in Table 4-3.
Mode Selector switch: USB
DATA/NORMAL switch: NORMAL
LOCAL/REMOTE switch: REMOTE
Frequency controls: 2.100 MHz

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
U10	Check carrier and opposite side-band levels of Mode Selector Assembly A2A1.	Multimeter 28480-410C Spectrum Analyzer 28480-8553B-E03	(a)________dB (-50 min) (b)________dB (-60 min) (c)________dB (-50 min) (d)________dB (-60 min)

PROCEDURE: Refer to Figure 4-1. Connect the 2.2K isolation resistor in Sampler Box B, spectrum analyzer and multimeter as shown. Set test circuit PTT KEY ON, and adjust the two-tone generator for 1300 Hz at 150 mVrms.

Adjust test circuit APC ADJUST control for 1.77 Vrms rf amplitude on multimeter prior to each of the following checks.

Locate the USB signal at right of spectrum analyzer display. Set spectrum analyzer input attenuation on 0 dB, log reference level at -10 dB, log linear mode for 10 dB log, scan width per division at 0.5 kHz, scan time per division for 1 sec. and bandwidth for 0.03 kHz.

Measure carrier level with reference to USB signal level and record at (a).

Measure LSB level with reference to USB signal level and record at (b).

Set mode selector switch to LSB. With the test circuit PTT KEY ON, adjust the two-tone generator for 1300 Hz at 150 mVrms. Measure carrier level with reference to LSB signal level. Record at (c).

Table 4-16. Mode Selector Assembly A2A1 Carrier and Opposite Sideband Levels Check (Continued)

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
U10 (Cont.)	Measure USB level with reference to LSB signal level, and record at (d). Set mode selector switch to STDBY, disconnect test equipment, slide chassis into case, and secure with front panel screws. TROUBLESHOOTING: Figures 5-1, 5-16, 5-18. CORRECTIVE ACTION: Paragraph 6-53.		

CHAPTER 5

TROUBLESHOOTING

5-1. INTRODUCTION.

5-2. GENERAL. This chapter contains data, procedures and diagrams which aid in determining the presence of malfunctions, localizing malfunctions to an assembly or subassembly, and isolating faults to a circuit or component within that assembly. A maintenance turn-on procedure is included which contains instructions for T-827H/URT turn-on, initial checks, control settings, and test setups. From this procedure, overall equipment performance can be determined and inoperative functions identified. Signal flow diagrams provided for each equipment function, together with an overall troubleshooting index, serve to localize trouble to the malfunctioning assembly or subassembly. Fault logic diagrams help to identify faulty circuits. Schematic diagrams are included which provide more specific detail when troubleshooting the suspect assemblies, subassemblies, and circuits.

5-3. TROUBLESHOOTING DATA. Troubleshooting data included in this chapter consists of signal flow diagrams, fault logic diagrams, control diagrams, and maintenance schematic diagrams. The technician can determine which major function or supporting function is malfunctioning by comparing the results obtained during the maintenance turn-on procedure, table 5-5, with performance data in the OBSERVE column. Table 5-5 also references the applicable diagrams for analysis and correction of malfunctions. Fault logic diagrams, used in conjunction with signal flow diagrams, help identify the defective part within an assembly.

5-4. REPAIR FUNCTIONS. Troubleshooting and repairing of the T-827H/URT Case A1, Main Frame A2 and all assemblies attached thereto (A2A9. A2A10, A2A11, A2A14, A2A15, A2A21 and Code Generator A2A7) are designated Organizational functions. Troubleshooting, repairing and aligning plug-in assemblies A2A1, A2A4 through A2A6, A2A9, A2A12, A2A21A18, A2A21A19 and A2A21A20 are designated depot level functions.

5-5. ALIGNMENT AND CHECKOUT. When organizational repairs are made, an overall T-827H/URT alignment (table 6-1) and the performance tests in Chapter 4 must follow. Repairs to plug-in assemblies at depot level shall be followed by the alignment listed in the applicable table in Chapter 6.

5-6. TROUBLESHOOTING INDEX.

5-7. Table 5-1 lists the major and secondary T-827H/URT functions and shows the appropriate paragraphs and illustrations used in trouble analysis.

5-8. RELAY AND INDICATOR LAMP INDICES.

5-9. Table 5-2 shows the reference designation, functional name, energizing voltage, and troubleshooting diagram for all relays in the T-827H/URT. Table 5-3 provides similar information for T-827H/URT indicator lamps.

5-10. PROTECTIVE DEVICES INDEX.

5-11. Fuses and interlock switches of T-827H/URT are listed in table 5-4. The electrical rating, circuit protected, and troubleshooting diagram references are provided for each device.

5-12. MAINTENANCE TURN-ON PROCEDURE.

5-13. The maintenance turn-on procedure given in table 5-5 must be performed in the sequence shown. The T-827H/URT is taken through all steps from fully deenergized to fully operational. Observations required in each step are described and information relating to troubleshooting faults is referenced. Apply primary power to the test equipment listed below, and allow a 30-minute warm-up period before starting the procedure in table 5-5.

NOTE

When Radio Transmitter T-827H/URT is installed in Radio Transmitting Set AN/URT-23C(V)1, the turn-on procedure for the AN/URT-23C(V)1 should be used in lieu of the T-827H/URT turn-on procedure of this manual.

5-14. TROUBLESHOOTING PROCEDURES.

5-15. Careful observations made during the maintenance turn-on procedure allow troubles in major or secondary functions to be traced. The diagrams referenced in table 5-5 are used to localize the fault to a circuit or component part.

5-16. TROUBLESHOOTING DIAGRAMS.

5-17. GENERAL. The diagrams used for troubleshooting included in this chapter consist of signal flow diagrams, power distribution diagrams, a control diagram, fault logic diagrams, and maintenance schematic diagrams. These diagrams aid in troubleshooting by helping to isolate a fault to a specific component.

5-18. SIGNAL FLOW DIAGRAMS. Signal flow diagrams, figures 5-1 through 5-11, are provided for each major equipment function. These diagrams are the main troubleshooting tool. Signal flow diagrams show signal paths, connectors, test points, terminals, adjustments, indicators, and circuit stages. This information helps to isolate malfunctioning circuits or components quickly. Each signal flow diagram includes test data and setups required to obtain the measurements made at various points in the equipment. Data and setups include test equipment required, references to other areas of the manual for additional information, preliminary setup instructions, and step-by-step measurement procedures. These procedures are used to obtain the indications shown at specified test points on the signal flow diagram. Observe the following general rules when performing tests outlined on signal flow diagrams:

1. Signal levels and frequencies measured when an assembly is connected to an extender cable may differ from the measurements made when the module is plugged directly into the main frame.

2. To ensure accuracy of frequency measurements, compare rf signal generators and electronic counters to Frequency Standard AN/URQ-10 frequently.

5-19. CONTROL DIAGRAM. Keying control diagram (figure 5-12) shows control circuits involved in local and remote keying of the T-827H/URT. Signal flow is shown from the front panel (CW KEY and HANDSET connectors) and remote equipment to the keyline relays.

5-20. POWER DISTRIBUTION DIAGRAMS. Power distribution diagrams (figures 5-13 through 5-15) show the circuits involved in the +28 Vdc, +20 Vdc, +5 Vdc, and +110 Vdc distribution in the T-827H/URT. Each diagram illustrates the distribution of one (or more) voltage(s) from its source through controls and connectors to the assemblies or subassemblies where it is used.

5-21. FAULT LOGIC DIAGRAMS. A fault logic diagram (figures 5-16 through 5-27) supplements each signal flow diagram. Fault logic diagrams deal with fault indications observed during troubleshooting. They consist of a series of questions pertaining to measurements obtained at points designated on signal flow diagrams. The fault indication appears as an input at the left side of the diagram. Single-line blocks contain the questions requiring resolution. The questions are referenced to the signal flow diagrams by test step (TS) numbers. Questions resulting in a "yes" or "no" answer (represented by solid or broken connecting lines, respectively) lead to further questions. Thus the fault is progressively narrowed to the malfunctioning component or subassembly. The final question/answer leads to a double-line conclusion block which contains the identity of a malfunctioning part or a reference to a diagram used when further isolation is necessary.

5-22. MAINTENANCE SCHEMATIC DIAGRAMS. Maintenance schematic diagrams (figures 5-28 through 5-45) include the T-827H/URT case and main frame and the major assemblies and subassemblies within the T-827H/URT. These, along with the power distribution diagrams, provide complete schematic coverage of the equipment. The diagrams are drawn so that signals can be traced from assembly to assembly. Major signal paths are indicated by heavier lines. These schematic diagrams help in isolating a fault to the defective component part.

Table 5-1. Troubleshooting Index

FUNCTIONAL AREA	TROUBLE-SHOOTING DIAGRAM	FUNCTIONAL DESCRIPTION PARAGRAPH	ADJUSTMENT/ ALIGNMENT TABLE
Ac Power Distribution	5-13, 5-28	3-116	6-1(2)
Audio Amplification and Modulation, Normal Modes	5-1 (sheet 1) 5-16 (sheet 1), 5-29	3-22 thru 3-27, 3-158	6-1(5), 6-1(7), 6-3
Audio Amplification and Modulation, Data Modes	5-1 (sheet 2), 5-16 (sheet 2), 5-29	3-28 thru 3-31, 3-158	
Audio Processing and Control, Normal Modes	5-1 (sheet 1), 5-16 (sheet 1), 5-44, 5-45	3-22 thru 3-27, 3-32 thru 3-37, 3-142 thru 3-145	6-1(7), 6-4
Audio Processing and Control, Data Modes	5-1 (sheet 2), 5-16 (sheet 2), 5-44, 5-45	3-28 thru 3-31, 3-143 thru 3-147	6-4(5)
Carrier Maximization and Suppression	5-3, 5-18	3-39 thru 3-42, 3-158	6-1(7), 6-3(1) thru 6-3(7)
Carrier Reinsertion	5-3, 5-18	3-51 thru 3-58, 3-162 thru 3-164	6-3(4)
Case, Main Frame, and Front Panel	5-28	3-128 thru 3-140	6-2
Dc Voltage Generation and Distribution	5-14, 5-15, 5-28 (sheet 3), 5-37	3-14, 3-19, 3-117 thru 3-119, 3-134, 3-135	6-1(3), 6-7(1)
Filtering (Input-Output, Handset, IF)	5-28	3-129, 3-139, 3-140	6-1, 6-8
Frequency Synthesis and Translation	3-2, 5-5, 5-8 thru 5-11, 5-32 thru 5-37, 5-39, 5-40	3-9, 3-13 thru 3-17, 3-65 thru 3-73, 3-188 thru 3-233	6-7(2), 6-7(6), 6-7(7)

Table 5-1. Troubleshooting Index (Continued)

FUNCTIONAL AREA	TROUBLE-SHOOTING DIAGRAM	FUNCTIONAL DESCRIPTION PARAGRAPH	ADJUSTMENT/ ALIGNMENT TABLE
Fusing	5-28	-	5-4, 5-5(1), 5-5(2)
Gating and Mode Selection	5-1, 5-16, 5-29	3-7, 3-37 thru 3-42, 3-132, 3-158 thru 3-164	6-1(7), 6-3
IF Amplification and Level Control	5-4, 5-19 5-43	3-8, 3-59 thru 3-64, 3-246, 3-247	6-1(5), 6-8(1) 6-8(5)
IF-to-RF Conversion	5-5, 5-20	3-9, 3-65 thru 3-73	6-7(7)
Keying Control (CW, RATT, DATA and PTT)	5-12, 5-27	3-32, 3-111 thru 3-114	6-1
Metering	5-28 (Sheet 1)	3-6, 3-136, 3-137	
Modulation, Amplification, Gating, and Mode Selection	5-1, 5-16, 5-29	3-22 thru 3-31, 3-158	6-1(5), 6-1(7), 6-3(1), 6-3(5), 6-3(8)
Operating Controls, Indicators, and Connectors	5-28	3-129, 3-132	
RATT Tone Generation	5-2, 5-17, 5-42	3-5, 3-43 thru 3-49, 3-239 thru 3-244	
RF Amplification and Level Control	5-6, 5-21 5-30	3-10, 3-74 thru 3-80, 3-165 thru 3-169	6-1(6), 6-5(1) thru 6-5(8)
Reference Frequency Generation and Distribution	5-8, 5-23, 5-38	3-12, 3-95, 3-198 thru 3-203	6-7(1)
Standard Frequency Generation and Distribution	5-7, 5-22 5-31	3-11, 3-86 thru 3-94, 3-170 thru 3-187	5-5(3), 6-1(4), 6-6(1) thru 6-6(10)
Tuning Control	5-41	3-18, 3-80, 3-82, 3-120 thru 3-125, 3-237	5-5(2), 5-5(5), 6-1(1), 6-1(6), 6-5(6), 6-7(7)

Table 5-1. Troubleshooting Index (Continued)

FUNCTIONAL AREA	TROUBLE-SHOOTING DIAGRAM	FUNCTIONAL DESCRIPTION PARAGRAPH	ADJUSTMENT/ ALIGNMENT TABLE
Wiring and Cabling	5-28	-	6-2
10 kHz/1 kHz/100 Hz Synthesis	5-9, 5-24	3-15, 3-96 thru 3-100, 3-204 thru 3-217	6-7(3)
100 kHz Synthesis	5-10, 5-25	3-16, 3-101 thru 3-104, 3-218 thru 3-223	6-7(2)
10 MHz/1 MHz Synthesis and Filtering	5-11, 5-26, 5-36	3-17, 3-105 thru 3-110, 3-225 thru 3-231	6-7(4), 6-7(5)

Table 5-2. Relay Index

REFERENCE DESIGNATION	FUNCTIONAL NAME	ENERGIZING VOLTAGE	TROUBLESHOOTING DIAGRAM (FIG. NO.)
A2K1	Tune Relay	28 Vdc	5-28
A2K2	Hi-Lo Filter Relay	28 Vdc	5-28
A2K3	Transmit-Receive Relay	28 Vdc	5-28
A2K4	Push-to-Talk Relay	12 Vdc	5-28
A2K5	CW Hold Relay	28 Vdc	5-28
A2K6	Ground Pulse Relay	28 Vdc	5-28
A2A4K1	Turret Tuning Relay	28 Vdc	5-30
A2A4A38K1	Transmit-Receive Relay	28 Vdc	5-30
A2A21K1	Audio Routing Relay	27 Vdc	5-28
A2A21K2	Audio Routing Relay	27 Vdc	5-28
A2A21A18K1	Data/Normal Relay	28 Vdc	5-44
A2A21A19K1	Data/Normal Relay	28 Vdc	5-44
A2A21A20K1	Data/Normal Relay #1	27 Vdc	5-45
A2A21A20K2	Data/Normal Relay #2	27 Vdc	5-45
A2A21A20K3	SSB/ISB Relay	20 Vdc	5-45

Table 5-3. Indicator Lamp Index

REFERENCE DESIGNATION	FUNCTIONAL NAME	ENERGIZING VOLTAGE	TROUBLESHOOTING DIAGRAM (FIG. NO.)
A2DS3	Dial Lamp for MHz Indicators	28 Vdc [1]	5-28
A2DS4	Dial Lamp for kHz Indicators	28 Vdc [1]	5-28
A2A5A2DS1	Frequency Standard Visual Comparator Lamp	20 Vdc	5-31

[1] With 180 ohms series resistance.

Table 5-4. Protective Devices Index

REFERENCE DESIGNATION	FRONT-PANEL MARKING	RATING		CIRCUIT PROTECTED	TROUBLE-SHOOTING DIAGRAM (FIG. NO.)
		VOLTS	AMPERES		
A1S2	(Interlock)	125	15.0	Primary Power	5-28
A2F1	F1 1-1/2A	250	1.5A	115 Vac Primary Power	5-28
A2F2	F2 1-1/2A	250	1.5A	115 Vac Primary Power	5-28

Table 5-5. Maintenance Turn-On Procedure

STEP	OBSERVE	REFERENCE
1. Preliminary Procedure		Figures 2-1, 2-2 and 2-3
NOTE Perform the preliminary procedure before applying power to the T-827H/URT.		
a. Remove power from transmitter at bulkhead supply. Pull out mode selector switch A2S2 and set to OFF.		
b. Remove fuse A2F1 and A2F2 and check for proper value. Reinsert fuses.	A2F1 and A2F2 are 1-1/2 ampere slo-blo fuses.	Figure 2-1
c. Loosen front panel screws and slide chassis out.		
d. Check all areas visually within case and main frame for indication of electrical or mechanical failures. Ensure that assemblies are properly mated to the main frame chassis.	No visual indication of electrical or mechanical failure, and assemblies are properly mated to the main frame chassis.	Table 6-2
e. Defeat chassis interlock by pulling plunger of interlock switch A1S2 outward.	Plunger extends forward of case. Operation of the interlock switch is noted by roller positioning on high part of plunger shaft.	Figure 2-2
f. Set AUX/NORM switch A1S1 to AUX position by rotating plunger clockwise to bring slot to horizontal position.		Figure 2-2
g. Set DATA/NORMAL switch to NORMAL.		

Table 5-5. Maintenance Turn-On Procedure (Continued)

STEP	OBSERVE	REFERENCE
1. Preliminary Procedure (Cont.)		
h. On assembly A2A21 verify that jumpers between the four terminal pairs (eight terminals designated A2-A21E43 through A2A21E50) are connected in accordance with operational requirements:		Table 2-1 (Key 25) Figure 2-1 (Sheet 3)
i. Disconnect cables from jacks A1A1J3, A1A1J4, and A1A1J23.		Figure 2-3
2. Voltage Application		
a. Connect test circuit shown in note 7 of Figure 5-1 to A1A1J4. Apply 115 Vac at pins A and C of AUX AC PWR IN jack A1A1J3 at rear of case.		Figure 2-3
b. On front panel, remove fuses A2F1 and A2F2 and replace the fuse caps.		Figure 2-1
c. Set mode selector switch A2S2 to STDBY.	A2F1 and A2F2 fuse indicators illuminate.	Figure 2-1
d. Pull mode selector switch A2S2 out, and set to OFF. Reinstall fuses A2F1 and A2F2.		Figure 2-1
e. Set mode selector switch A2S2 to STDBY.	A2F1 and A2F2 fuse indicators do not illuminate. MHz and kHz dial lamps A2DS3 and A2DS4 light, indicating that 115 Vac is now applied to Power Supply Assembly A2A8 via power transformer A2T1, and +28 Vdc is available at the output of the power supply. A2A4V1 and A2A4V2 in RF Amplifier filaments are lit.	Figures 2-1, 5-13, 5-28

Table 5-5. Maintenance Turn-On Procedure (Continued)

STEP	OBSERVE	REFERENCE
2. Voltage Application (Cont.)	WARNING Lethal voltages are now present in transmitter case and main frame. Take great care to avoid contact.	
f. Check operation of the AUX/NORM switch A1S1 by momentarily rotating plunger 90 degrees counterclockwise. Return to the AUX position.	MHz and kHz dial lights and tube filaments extinguish when plunger is rotated 90 degrees CCW, and relight when plunger is returned to AUX position.	Figure 2-2
	CAUTION Hand guide main frame cable at rear of chassis over edge of case when rotating main frame to vertical position.	
g. Ensure chassis is fully extended; then tilt chassis 90 degrees to expose bottom.		
h. Set Digital Multimeter 89536-8800A/AA to appropriate scale. Check voltages at the following tie points on underside of main frame:		Figure 5-14, 5-15, 5-28 (Sheet 2), 7-4
Tie Point		
A2E22	+23 to +31 Vdc	
A2E9	+103 to +117 Vdc	
i. Use True RMS Voltmeter 50423-323-20-MOD 40 to check ripple at the following tie points:		
Tie Point		
A2E22	750 mVrms maximum	
A2E9	90 mVrms maximum	

Table 5-5. Maintenance Turn-On Procedure (Continued)

STEP	OBSERVE	REFERENCE
2. Voltage Application (Cont.)		
CAUTION If the observed meter indication in the following step approaches +28 Vdc or is very low, immediately set mode selector switch A2S2 to OFF and troubleshoot Power Supply Assembly A2A8. Also look for cable, connector, switch and assembly short circuits.		
j. Ensure that frequency controls are set to 2.000 MHz. Connect Digital Multimeter 89536-8800A/AA to tie point A2E24. Set mode selector switch A2S2 to LSB and observe multimeter indication.	+19.5 to +20.5 Vdc	Figures 2-1, 5-15, 5-28 (Sheet 3), 7-4
k. Set mode selector switch A2S2 to LSB. Use True RMS Voltmeter 50423-323-20-MOD 40 to measure ripple at A2E24.	6 mVrms maximum	
l. Rotate chassis to horizontal position. Check operation of RF Amplifier Assembly A2A4, by rotating MHz controls on front panel.	RF Amplifier tuning motor drives as MHz controls are rotated.	Figures 2-1, 5-6, 5-28 (Sheet 2), 5-41. Table 3-2
m. Rotate the front panel MHz controls from 02 through 29. Compare the digits viewed through the digit window on top of RF Amplifier Assembly A2A4 with those viewed at front panel MHz windows.	Digits viewed in rf amplifier window should be centered and agree with the digits viewed on the front panel.	Figures 2-1, 5-6, 5-28 (Sheet 2), 5-41. Table 3-2

Table 5-5. Maintenance Turn-On Procedure (Continued)

STEP	OBSERVE	REFERENCE
3. Frequency Standard Check		

NOTE

Power must be applied to Frequency Standard Assembly A2A5 for at least 24 hours with switches set as follows before check is accomplished.

1. Mode selector switch A2S2 in a position other than OFF.

2. 5 MHz OSC SOURCE switch A2A5A2S1 in a position other than EXT NORM.

Most drift will occur during the first 60 minutes of warmup; thereafter the error should be less than ±1 part per 10^7 (±0.5 Hz at 5 MHz).

STEP	OBSERVE	REFERENCE
a. Disconnect external 5 MHz input from EXT 5 MHZ IN connector A1J25. Set 5 MHz OSC SOURCE switch A2A5A2S1 to INT/COMP. Connect 50 ohm load through BNC T-connector across INT 5 MHz OUT jack A1J24 at rear of case.		Figures 2-3, 6-1, 7-60

Table 5-5. Maintenance Turn-On Procedure (Continued)

STEP	OBSERVE	REFERENCE
3. Frequency Standard Check (Cont.)		
b. Connect Electronic Counter AN/USM-207 across 50 ohm load at T-connector and measure frequency.	5 MHz ±0.5 Hz	Figures 2-2, 6-1
c. Remove Mode Selector Assembly A2A1 from chassis. Connect Electronic Counter AN/USM-207 to center conductor of connector A2XA1P2-A3. Measure frequency. Disconnect electronic counter, and reinstall A2A1 in main frame.	500 kHz +0.1 Hz.	Figures 5-1, 5-29, 7-12
d. Connect RF Millivoltmeter 04901-92B-S5 across 50 ohm load at T-connector on A1J24 and measure voltage.	480 to 720 mVrms.	Figures 2-3, 6-1
4. Operability Checks		
a. Set LOCAL/REMOTE switch A2S1 to REMOTE, mode selector switch A2S2 to USB, and DATA/NORMAL switch A2S11 to NORMAL.		Figure 2-1
b. Connect test circuit shown in note 7 of figure 5-1 to A1A1J4, A1A1J5 and A1A1J6. Adjust test circuit APC control for 3.86 Vdc and PPC control fully clockwise. Measure APC voltage at test circuit APC test point with Digital Multimeter 89536-8800A/AA.		

Table 5-5. Maintenance Turn-On Procedure (Continued)

STEP	OBSERVE	REFERENCE
4. Operability Checks (Cont.)		
Set test circuit AUDIO LEVEL switch to NORMAL and PTT KEY to ON. Adjust two-tone generator for 1000 Hz at 150 mVrms as measured at AUDIO LEVEL test point with AC Voltmeter 28480-400E.		
c. Connect True RMS Voltmeter 50423-323-20-MOD 40 to A2A21A18TP4 on audio processor and note voltage reading.	90 to 110 mVrms	Figures 5-1, 5-44, 7-83
d. Repeat steps (a) through (c) for LSB Audio Processor A2A21A19. Make certain that mode selector switch A2S2 is set to LSB.		Figure 2-1
e. Set LOCAL/REMOTE switch A2S1 to REMOTE, mode selector switch A2S2 to USB, and DATA/NORMAL switch A2S11 to NORMAL.		Figure 2-1
f. Set test circuit PTT KEY ON. Adjust two-tone generator for 1000 Hz output at 150 mVrms as read on AC Voltmeter 28480-400E.		
g. Connect AC Voltmeter 28480-400E to A2A12A1TP2, and measure IF output signal level.	4.5 to 5.5 mVrms	Figures 5-4, 5-43, 7-79
h. Set mode selector switch A2S2 to RATT, and RATT SHIFT SELECT switch A2S10 to 170 Hz. Connect Electronic Counter AN/USM-207 to A2A21A18TP4. Set test circuit CW/RATT KEY ON.		Figures 2-1, 5-1, 5-44, 7-83

Table 5-5. Maintenance Turn-On Procedure (Continued)

STEP	OBSERVE	REFERENCE
4. Operability Checks (Cont.)		
i. Set test circuit TTY KEY to SPACE and measure space tone frequency.	2081 to 2089 Hz	
j. Set test circuit TTY KEY to MARK, and measure mark tone frequency.	1911 to 1919 Hz	
k. Set RATT SHIFT SELECT switch to 850 HZ. With test circuit TTY KEY in MARK position, measure mark tone frequency.	1555 to 1595 Hz	
l. Set test circuit TTY KEY to SPACE, and measure space tone frequency.	2405 to 2445 Hz	
m. Set USB LINE LEVEL meter switch on front panel of T-827H/URT to -10 dB. Observe constant level on USB LINE LEVEL meter.	+2 dB min. Off-scale meter reading is acceptable.	Figure 2-1
5. RF Checks		
a. Set mode selector switch A2S2 to CW and LOCAL/REMOTE switch A2S1 to LOCAL.		Figure 2-1
b. Connect cw hand key NT-26026 to connector A2J2.		Figures 2-3, 6-1
c. Connect sampler box B, probe-T-connector 28480-11042A and dummy load DA-91A/U as shown in figure 6-1.		Figure 6-1
d. Connect multimeter 28480-410C to probe-T-connector.		Figure 6-1

Table 5-5. Maintenance Turn-On Procedure (Continued)

STEP	OBSERVE	REFERENCE
5. RF Checks (Cont.)		
e. Connect Electronic Counter AN/USM-207 to output of sampler box B.		Figure 6-1
f. Set the front panel frequency controls for 2,000 MHz.		
g. Depress cw key and measure rf output.	2.5 Vrms minimum	Figures 2-1, 5-30, 5-32
h. Adjust test circuit APC control for 8.0 Vdc at test point measured with digital multimeter 89536-8800A/AA. Depress cw hand key and measure rf output on multimeter 28480-410C.	50 mVrms maximum.	Figures 5-30, 5-32
i. Adjust test circuit APC control back to 3.86 Vdc measured at APC test point.		
j. Set the front panel MHz, kHz, and Hz controls for the following frequencies, and check output frequency and amplitude on electronic counter and rf multimeter. Key transmitter with cw hand key. Selected Frequency (MHz) / Tolerance (Hz) 02.0000 ±2.0 03.1111 ±2.0 04.2222 ±2.0 05.3333 ±2.0 06.4444 ±2.0 08.5555 ±2.0 09.6666 ±2.0 10.7777 ±2.0 12.8888 ±2.0	Frequency accuracy at each frequency selected. 2.5 V rms minimum at each frequency selected.	Figures 2-1, 5-30, 5-32

Table 5-5. Maintenance Turn-On Procedure (Continued)

STEP	OBSERVE	REFERENCE
5. RF Checks (Cont.) Selected Frequency (MHz) / Tolerance (Hz) 14.9999 ±2.0 15.0000 ±2.0 17.0000 ±2.0 19.0000 ±2.0 20.0000 ±2.0 22.0000 ±2.0 23.0000 ±2.0 28.0000 ±2.0		

NOTE

If the amplitude is less than 2.5 Vrms, connect rf millivoltmeter 04901-92B-S5 to test point A2A4A38TP1 on RF Amplifier Assembly A2A4. If the rf level of this test point is greater than 2 mVrms, troubleshoot RF Amplifier Assembly A2A4 (Figures 5-6, 5-30). If the rf level is less than 1 mVrms, troubleshoot Translator/Synthesizer Assembly A2A6 (Figures 5-5, 5-32).

STEP	OBSERVE	REFERENCE
6. DATA Mode Checks		
a. Set LOCAL/REMOTE switch A2S1 to REMOTE, mode selector switch A2S2 to USB, and DATA/NORMAL switch A2S11 to DATA.		Figure 2-1
b. Disconnect test circuit and connect Two Tone Audio Signal Generator 09553-TF-2005 and AC Voltmeter 28480-400E to DATA Audio Input jack A1A1J8 pins A and B. Adjust the two tone generator for 1300 Hz at 1.05 Vrms (+2.6 dBm) as measured on the ac voltmeter. Connect the ac voltmeter to test point A2A21A18TP2 and note the voltmeter reading.	1.0 to 1.20 Vrms	Figure 5-44

Table 5-5. Maintenance Turn-On Procedure (Continued)

STEP	OBSERVE	REFERENCE
6. DATA Mode Checks (Cont.)		
c. Adjust the two tone generator for TONE A 1300 Hz and TONE B 1600 Hz. Connect the ac voltmeter to the two tone generator. The amplitude level of each tone should be adjusted for 1.05 Vrms (+2.6 dBm). Connect Oscilloscope AN/USM-281 to test point A2A21A18TP3, and measure the peak to peak (PP) level displayed on the oscilloscope. Disconnect test equipment from assembly test points.	8.4 to 9.4 VPP	Figure 5-44
d. Connect the two tone generator and ac voltmeter to DATA Audio Input jack A1A1J8 pins C and D. Repeat the remainder of steps (b) and (c) for LSB audio processor A2A21A19. Make certain that mode selector switch A2S2 is set to LSB.		
e. Set mode selector switch A2S2 to OFF, turn off primary power at bulkhead supply, disconnect power connection from A1A1J3 and disconnect all test equipment.		

TEST DATA FOR FIGURE 5-1

GENERAL NOTES

A. TEST EQUIPMENT REQUIRED:
RF DUMMY LOAD DA-91A/U
TRUE RMS VOLTMETER 50423-323-20-MOD 40 OR EQUIVALENT
DIGITAL MULTIMETER 89536-8800A/AA
EXTENDER CABLES 98738-30A226271-21-11 AND 98738-30A226280-21-11 FOR A2A1 ASSEMBLY. EXTENDER CARDS 98738-01A226467-01 FOR A2A21A18 AND A2A21A19 ASSEMBLIES.
AMPLIFIER/MODE SELECTOR TEST FIXTURE TS-3670/WRC-1 (DEPOT ONLY)
AC VOLTMETER 28480-400E
TWO-TONE GENERATOR 09553-TF-2005
TEST CIRCUIT ILLUSTRATED IN NOTE 7.

B. THE SPECIFIC NOTES THAT FOLLOW DETAIL DEPOT PROCEDURES FOR TESTING THE T-827H/URT IN A FREE STANDING CONFIGURATION. THE TEST CIRCUIT SHOWN IN SPECIFIC NOTE 7 PROVIDES SWITCHING AND CONTROLS TO SIMULATE THE SHIPBOARD COMMUNICATION SYSTEM. FOR DEPOT MAINTENANCE, THE MODULE UNDER TEST MAY ALSO BE OPERATED IN AMPLIFIER/MODE SELECTOR TEST FIXTURE TS-3670/WRC-1. THE SIGNAL LEVELS INDICATED ON THE SIGNAL FLOW DIAGRAMS SHALL BE USED TO GUIDE THE SETTINGS OF THE ASSOCIATED TEST GENERATORS. TS-3670/WRC-1 CONTROL SETTINGS SHALL CORRESPOND TO THE SETTINGS OF THE COUNTERPART CONTROLS OF THE T-827H/URT.

C. FOR SHIPBOARD MAINTENANCE, THE T-827H/URT MAY BE OPERATED AS PART OF THE AN/URT-23C (V)1. THE AM-3924C(P)/URT PORTION OF THE AN/URT-23C(V)1 MUST BE DISABLED BY REMOVAL OF THE 500 V FUSE (2A1F2A) FROM ITS HOLDER ON THE FRONT PANEL OF POWER SUPPLY PP-3916C/UR. (RECONNECT THE FUSE HOLDER AFTER REMOVING THE 500 V FUSE CARTRIDGE.) THE POWER-ON SWITCH OF THE AN/URT-23C(V)1 MAY NOW BE CLOSED TO APPLY OPERATING VOLTAGES TO THE T-827H/URT TRANSMITTER. THE APC AND PPC VOLTAGES SUPPLIED TO THE T-827H/URT WILL BE 3.84 VDC AND 0 VDC, RESPECTIVELY, WHICH WILL DRIVE THE T-827H/URT TO ITS FULL RF OUTPUT. ADDITIONALLY, THE NORMAL COMMUNICATION SYSTEM ACTIONS MUST BE TAKEN TO PROVIDE THE DISCRETE CONDITIONS REQUIRED BY THE TEST STEPS IN SPECIFIC NOTES 3 THROUGH 6.

D. REFERENCES. IF NECESSARY, MAKE THE FOLLOWING REFERENCES:
FUNCTIONAL DESCRIPTION, PARAGRAPHS 3-22, 3-26, 3-28, 3-31.
TROUBLESHOOTING SEQUENCE, FIGURE 5-16.
CORRECTIVE MAINTENANCE, PARAGRAPHS 6-45, 6-127
MAINTENANCE SCHEMATICS, FIGURES 5-28, 5-29, 5-44, 5-45.
PHYSICAL LOCATION OF TEST POINTS, FIGURES 7-8 THRU 7-12, 7-77, 7-82 thru 7-84.

E. [ ] INDICATES EQUIPMENT FRONT PANEL MARKING OR TEST STEP.

F. —∫∫— INDICATES BREAK POINTS USED TO REDUCE DIAGRAM CLUTTER. TO FIND MATING END OF BROKEN LINE PROCEED FROM BREAK POINT IN PARALLEL WITH DIAGRAM BORDER.

G. MODE SELECTOR SWITCH A2 S2 CONTACT CONNECTIONS FOR VARIOUS MODELS AS FOLLOWS:

NOTES FOR FIGURE 5-1 (CONTINUED)

MODE	A2S2-A-R	A2S2-B-R	A2S2-C-R	A2S2-D-F
LSB	(2,3,4) and (8,9)	-	-	-
RATT	3, 4, 5	-	5, 12	2, 4
AM	3, 4, 5	6, 12	6, 12	3, 5
CW	-	-	-	4, 6
USB	3, 4	8, 12	8, 12	5, 7
ISB	2, 3, 4, 5,	9, 12	9, 12	6, 8
ISB/RATT	(2,3,4,5) and (8,9)	-	10, 12	7, 9

SPECIFIC NOTES

1. PRELIMINARY SETUP, FIGURE 5-1, SHEET 1. DISCONNECT JACKS A1A1J4 THROUGH A1A1J8 AT REAR OF T-827H/URT CASE. EXTEND MAIN FRAME CHASSIS FROM CASE AND DEFEAT INTERLOCK. CONNECT DUMMY LOAD TO RF OUT JACK A1J23. SET T-827H/URT CONTROLS AS FOLLOWS:

CONTROL	POSITION
MODE SELECTOR SWITCH A2S2	STDBY
LOCAL/REMOTE SWITCH A2S1	REMOTE
AUX/NORM SWITCH A1S1	AUX
FREQUENCY CONTROLS	2,000 MHZ
HZ SWITCH A2S6	000
DATA/NORMAL SWITCH A2S11	NORMAL

2. TEST SETUP.

a. REMOVE MODE SELECTOR ASSEMBLY A2A1 AND AUDIO PROCESSOR ASSEMBLIES A2A21A18 AND A2A21A19 FROM MAIN FRAME AND RECONNECT USING EXTENDER CABLES AND CARDS. REMOVE THE DUST COVER FROM MODE SELECTOR ASSEMBLY.

b. SET MODE SELECTOR SWITCH A2S2 TO LSB. CONNECT TEST CIRCUIT SHOWN IN NOTE 7 TO A1A1J3, A1A1J4, A1A1J5 AND A1A1J6. SET TEST CIRCUIT AUDIO LEVEL SWITCH TO NORMAL, AND PTT KEY ON.

c. ADJUST TWO-TONE GENERATOR FOR 1000 AND 1625 HZ AT 150 mVRMS OUTPUT FOR EACH TONE AS MEASURED AT AUDIO LEVEL TEST POINTS WITH AC VOLTMETER 28430-400E. THIS SIGNAL LEVEL MUST BE MAINTAINED FOR EACH OF THE FOLLOWING TESTS.

3. TEST STEPS: (REFER TO NOTES 1 AND 2 BEFORE PERFORMING TEST).

[TS-1] CONNECT THE AC VOLTMETER TO TERMINAL A2A1E6. METER SHOULD INDICATE 0.5 mVRMS NOMINAL. TEST PROBE MUST BE SHIELDED WITH SHORT GROUND CONNECTION AT PROBE END.

[TS-2] USE THE AC VOLTMETER TO MEASURE THE 500 kHz SIGNAL LEVEL AT A2A1A3TP2. METER SHOULD INDICATE 6 mVRMS NOMINAL. LSB LINE LEVEL METER A2M1 SHOULD INDICATE -4 dB NOMINAL WITH LSB LINE LEVEL SWITCH A2S8 AT -10 dB.

SET MODE SELECTOR SWITCH A2S2 TO ISB, AND MEASURE 500 kHz SIGNAL LEVEL AT A2A1A3TP2. METER SHOULD INDICATE 6 mVRMS NOMINAL. LSB LINE LEVEL METER A2M1 SHOULD INDICATE -4 dB NOMINAL WITH LSB LINE LEVEL SWITFH A2S8 AT -10 dB.

NOTES FOR FIGURE 5-1 (CONTINUED)

SPECIFIC NOTES

SET MODE SELECTOR SWITCH A2S2 TO ISB RATT, AND MEASURE 500 kHz SIGNAL LEVEL AT A2A1A3TP2. METER SHOULD INDICATE 6 mVRMS NOMINAL. LSB LINE LEVEL METER A2M1 SHOULD INDICATE -4 dB NOMINAL WITH THE LSB LINE LEVEL SWITCH A2A8 IN THE -10 dB POSITION.

TS-3 SET MODE SELECTOR SWITCH A2S2 TO LSB. USE THE AC VOLTMETER TO MEASURE THE 500 kHz SIGNAL LEVEL AT A2A1A3E6. METER SHOULD INDICATE 10 mVRMS NOMINAL.

TS-4 USE THE AC VOLTMETER TO MEASURE THE 500 kHz SIGNAL LEVEL AT A2A1A2E4. METER SHOULD INDICATE 1.1 VRMS NOMINAL.

TS-5 USE AC VOLTMETER TO MEASURE THE 500 kHz SIGNAL LEVEL FROM FREQUENCY STANDARD ASSEMBLY A2A5 AT A2A1A4E33. METER SHOULD INDICATE 175 mVRMS NOMINAL.

TS-6 USE THE AC VOLTMETER TO MEASURE THE SIGNAL LEVEL AT A2A21A19TP4. METER SHOULD INDICATE 100 mVRMS NOMINAL.

TS-7 USE THE AC VOLTMETER TO MEASURE THE SIGNAL LEVEL AT CENTER ARM OF A2A21A19R4. METER SHOULD INDICATE 90 mVRMS NOMINAL.

TS-8 USE AC VOLTMETER TO MEASURE THE SIGNAL LEVEL AT PIN 6 OF A2A21T1 SECONDARY. METER SHOULD INDICATE 140 mVRMS NOMINAL. LSB LINE LEVEL METER A2M1 SHOULD INDICATE -4 dB NOMINAL WITH LSB LINE LEVEL SWITCH A2S8 IN -10 dB POSITIONS.

TS-9 SET MODE SELECTOR SWITCH TO USB. CHECK THAT TEST CIRCUIT AUDIO LEVEL SWITCH IS SET TO NORMAL, AND PTT KEY IS ON. ADJUST TWO-TONE GENERATOR FOR 1000 HZ AND 1625 HZ AT 150 mVRMS FOR EACH TONE. CONNECT THE AC VOLTMETER TO TERMINAL A2A1E6. METER SHOULD INDICATE 0.5 mVRMS NOMINAL. TEST PROBE MUST BE SHIELDED WITH SHORT GROUND CONNECTION AT PROBE END.

TS-10 USE THE AC VOLTMETER TO MEASURE THE 500 kHz SIGNAL LEVEL AT A2A1A3TP1. METER SHOULD INDICATE 6 mVRMS NOMINAL. USB LINE LEVEL METER A2M2 SHOULD INDICATE -4 dB NOMINAL WITH USB LINE LEVEL SWITCH A2S7 AT -10 dB.

SET THE MODE SELECTOR SWITCH A2S2 TO ISB RATT, AND MEASURE 500 kHz SIGNAL LEVEL AT A2A1A3TP1. METER SHOULD INDICATE 6 mVRMS NOMINAL. USB LINE LEVEL METER A2M2 SHOULD INDICATE +2 dB WITH USB LINE LEVEL SWITCH A2S7AT-10 dB; AN OFF-SCALE READING IS ACCEPTABLE.

SET MODE SELECTOR SWITCH A2S2 TO ISB, AND OBSERVE AC VOLT-METER CONNECTED AT A2A1A3TP1. METER SHOULD INDICATE 6 mVRMS NOMINAL. USB LINE LEVEL METER A2M2 SHOULD INDICATE -4 dB NOMINAL WITH USB LINE LEVEL SWITCH A2S2 AT -10 dB.

NOTES FOR FIGURE 5-1 (CONTINUED)

TS-11 SET MODE SELECTOR SWITCH A2S2 TO USB. USE THE AC VOLTMETER TO MEASURE THE SIGNAL LEVEL AT TERMINAL A2A1A3E1. METER SHOULD INDICATE 10 mVRMS NOMINAL.

TS-12 USE THE AC VOLTMETER TO MEASURE THE SIGNAL LEVEL AT A2A1A1E4. METER SHOULD INDICATE 1.1 VRMS NOMINAL.

TS-13 USE THE AC VOLTMETER TO MEASURE THE SIGNAL LEVEL AT A2A21A18TP4. METER SHOULD INDICATE 100 mVRMS NOMINAL.

TS-14 USE THE AC VOLTMETER TO MEASURE THE SIGNAL LEVEL AT CENTER ARM OF AUDIO AMPLIFIER A2A21A18R4. METER SHOULD INDICATE 90 mVRMS NOMINAL.

TS-15 USE THE AC VOLTMETER TO MEASURE THE SIGNAL LEVEL AT PIN 6 OF A2A21T2 SECONDARY. METER SHOULD INDICATE 140 mVRMS NOMINAL. USB LINE LEVEL METER A2M2 SHOULD INDICATE -4 dB NOMINAL WITH USB LINE LEVEL SWITCH A2S7 IN -10 dB POSITION.

4. PRELIMINARY SETUP, FIGURE 5-1, SHEET 2.
DISCONNECT JACKS A1A1J4 THROUGH A1A1J8 AT REAR OF T-827H/URT CASE. EXTEND MAIN-FRAME CHASSIS FROM CASE AND DEFEAT INTER-LOCK. CONNECT DUMMY LOAD TO RF OUT JACK A1J23. SET T-827H/URT CONTROLS AS FOLLOWS:

CONTROL	POSITION
MODE SELECTOR SWITCH A2S2	STDBY
LOCAL/REMOTE SWITCH A2S1	REMOTE
AUX/NORM SWITCH A1S1	AUX
FREQUENCY CONTROLS	2.000 MHZ
HZ SWITCH A2S6	000
DATA/NORMAL SWITCH A2S11	DATA

5. TEST SETUP.

   a. REMOVE MODE SELECTOR ASSEMBLY A2A1 AND AUDIO PROCESSOR ASSEMBLIES A2A21A18 AND A2A21A19 FROM MAIN FRAME AND RECONNECT USING EXTENDER CABLES AND CARDS. REMOVE THE DUST COVER FROM MODE SELECTOR ASSEMBLY.

   b. SET MODE SELECTOR SWITCH A2S2 TO LSB. PROVIDE THE STANDARD LINK 11 NET TEST SIGNAL AND KEY TO CONNECTOR 1A1J8.

   c. DETERMINE THAT THE NET TEST SIGNAL INPUT IS SET FOR 0 dBm (.774 V) TRUE RMS.

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NOTES FOR FIGURE 5-1 (CONTINUED)

6. TEST STEPS: (REFER TO NOTES 4 AND 5 BEFORE PERFORMING TEST.)

TS-16 CONNECT THE AC VOLTMETER TO TERMINAL A2A1E6. METER SHOULD INDICATE 0.5 mVRMS NOMINAL. TEST PROBE MUST BE SHIELDED WITH SHORT GROUND CONNECTION AT PROBE END.

TS-17 USE THE AC VOLTMETER TO MEASURE THE 500 kHz SIGNAL LEVEL AT A2A1A3TP2. METER SHOULD INDICATE 4 mVRMS NOMINAL.

SET MODE SELECTOR SWITCH A2S2 TO ISB, AND MEASURE 500 kHz SIGNAL LEVEL AT A2A1A3TP2. METER SHOULD INDICATE 2.5 mVRMS NOMINAL.

SET MODE SELECTOR SWITCH A2S2 TO LSB, AND OBSERVE AC VOLTMETER CONNECTED AT A2A1A3TP2. METER SHOULD INDICATE 4 mVRMS NOMINAL. LSB LINE LEVEL METER A2M1 SHOULD INDICATE -7 dB NOMINAL WITH LSB LINE LEVEL SWITCH A2S8 AT -10 dB.

TS-18 USE THE AC VOLTMETER TO MEASURE THE 500 kHz SIGNAL LEVEL AT A2A1A3E6. METER SHOULD INDICATE 6.5 mVRMS NOMINAL.

TS-19 USE THE AC VOLTMETER TO MEASURE THE 500 kHz SIGNAL LEVEL AT A2A1A2E4. METER SHOULD INDICATE 1.1 VRMS NOMINAL.

TS-20 USE AC VOLTMETER TO MEASURE THE 500 kHz SIGNAL LEVEL FROM FREQUENCY STANDARD ASSEMBLY A2A5 AT A2A1A4E33. METER SHOULD INDICATE 175 mVRMS NOMINAL.

TS-21 USE THE TRUE RMS VOLTMETER TO MEASURE THE SIGNAL LEVEL OF THE AUDIO AMPLIFIER OUTPUT AT A2A21A19TP4. METER SHOULD INDICATE 73 mVRMS NOMINAL.

TS-22 USE THE TRUE RMS VOLTMETER TO MEASURE THE SIGNAL LEVEL AT CENTER ARM OF A2A21A19R4. METER SHOULD INDICATE 90 mVRMS NOMINAL.

TS-23 USE THE TRUE RMS VOLTMETER TO MEASURE THE SIGNAL LEVEL AT CLIPPER OUTPUT A2A21A19TP3. METER SHOULD INDICATE 1.4 VRMS NOMINAL.

TS-24 USE THE TRUE RMS VOLTMETER TO MEASURE THE SIGNAL LEVEL AT A2A21A19TP1. METER SHOULD INDICATE 0.63 VRMS NOMINAL.

TS-25 USE THE TRUE RMS VOLTMETER TO MEASURE THE TGC AUDIO SAMPLE LEVEL AT A2A21A19TP2. METER SHOULD INDICATE 0.774 VRMS NOMINAL.

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NOTES FOR FIGURE 5-1 (CONTINUED)

TS-26 SET MODE SELECTOR SWITCH A2S2 TO USB. CHECK THAT DATA KEY ON AUDIO TEST SET IS DEPRESSED, AND THAT AMPLITUDE OF 15 TONE OUTPUTS IS 774 mVRMS AS SEEN ON TRUE RMS VOLTMETER. USE AC VOLTMETER TO MEASURE THE 500 kHz SIGNAL LEVEL AT A2A1E6. METER SHOULD INDICATE 0.5 mVRMS NOMINAL. TEST PROBE MUST BE SHIELDED WITH SHORT GROUND CONNECTION AT PROBE END.

TS-27 USE THE AC VOLTMETER TO MEASURE THE 500 kHz SIGNAL LEVEL AT A2A1A3TP1. METER SHOULD INDICATE 4 mVRMS NOMINAL. USB LINE LEVEL METER A2M2 SHOULD INDICATE -7 dB NOMINAL WITH THE USB LINE LEVEL SWITCH A2S7 IN -10 dB POSITION.

SET MODE SELECTOR SWITCH A2S2 TO ISB. RECHECK AUDIO TEST SET FOR 774 mVRMS AND OBSERVE VOLTMETER CONNECTED AT A2A1A3TP1. METER SHOULD INDICATE 2.5 mVRMS NOMINAL. USB LINE LEVEL METER A2M2 SHOULD INDICATE 10 dB NOMINAL WITH USB LINE LEVEL SWITCH A2S7 AT -10 dB.

TS-28 USE THE AC VOLTMETER TO MEASURE THE SIGNAL LEVEL AT TERMINAL A2A1A3E1. METER SHOULD INDICATE 6.5 mVRMS NOMINAL.

TS-29 USE THE AC VOLTMETER TO MEASURE THE SIGNAL LEVEL AT A2A1A1E4. METER SHOULD INDICATE 1.1 VRMS NOMINAL.

TS-30 USE THE TRUE RMS VOLTMETER TO MEASURE THE SIGNAL LEVEL AT A2A21A18TP4. METER SHOULD INDICATE 73 mVRMS NOMINAL.

TS-31 USE THE TRUE RMS VOLTMETER TO MEASURE THE SIGNAL LEVEL AT CENTER ARM OF A2A21A18R4. METER SHOULD INDICATE 90 mVRMS NOMINAL.

TS-32 USE THE TRUE RMS VOLTMETER TO MEASURE THE SIGNAL LEVEL AT CLIPPER OUTPUT A2A21A18TP3. METER SHOULD INDICATE 1.40 VRMS NOMINAL.

TS-33 USE THE TRUE RMS VOLTMETER TO MEASURE THE SIGNAL LEVEL AT A2A21A18TP1. METER SHOULD INDICATE 630 mVRMS NOMINAL.

TS-34 USE THE TRUE RMS VOLTMETER TO MEASURE THE TGC AUDIO SAMPLE LEVEL AT A2A21A18TP2. METER SHOULD INDICATE 0.774 VRMS NOMINAL.

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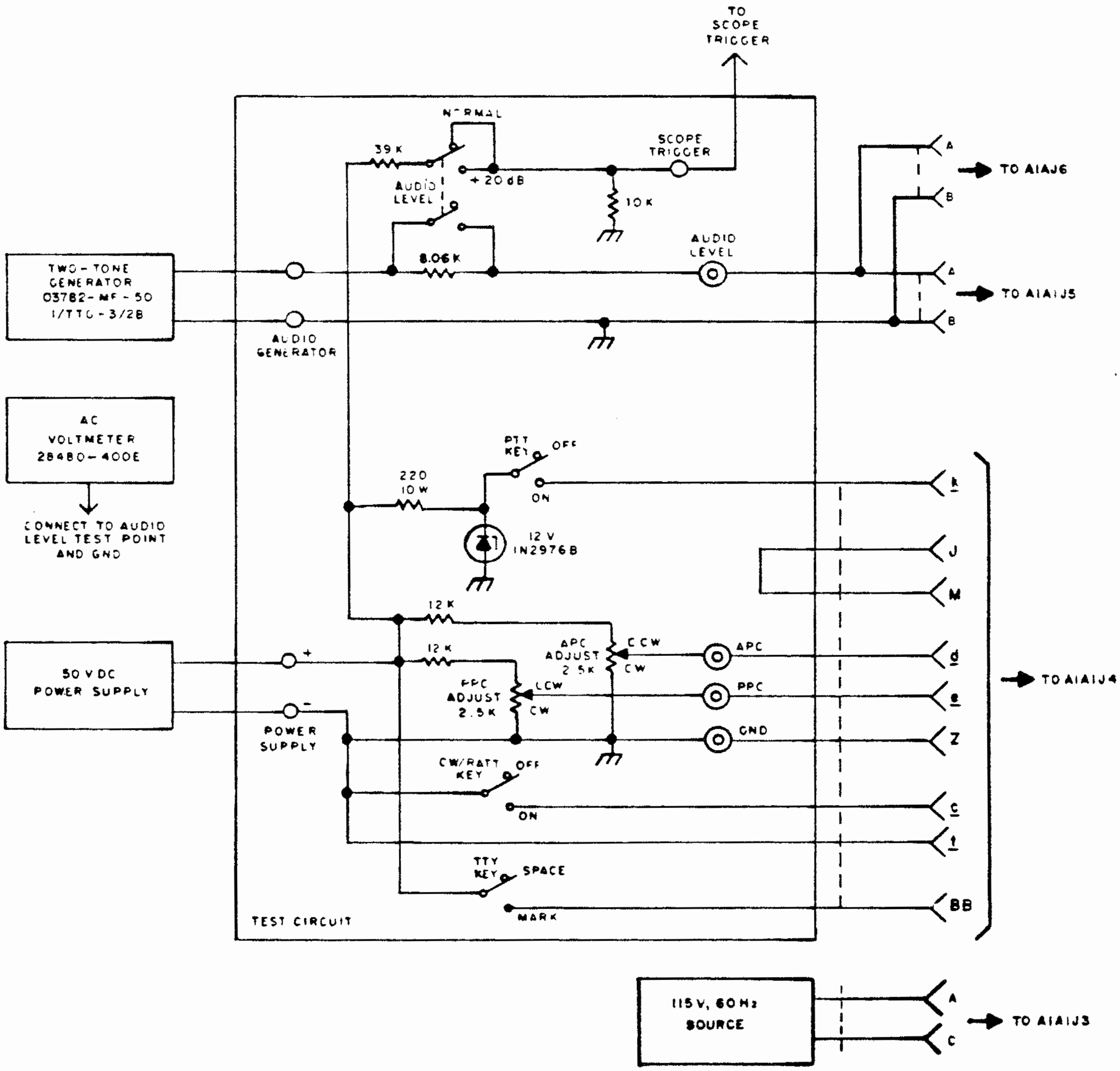
NOTES FOR FIGURE 5-1 (CONTINUED)

7. TEST CIRCUIT



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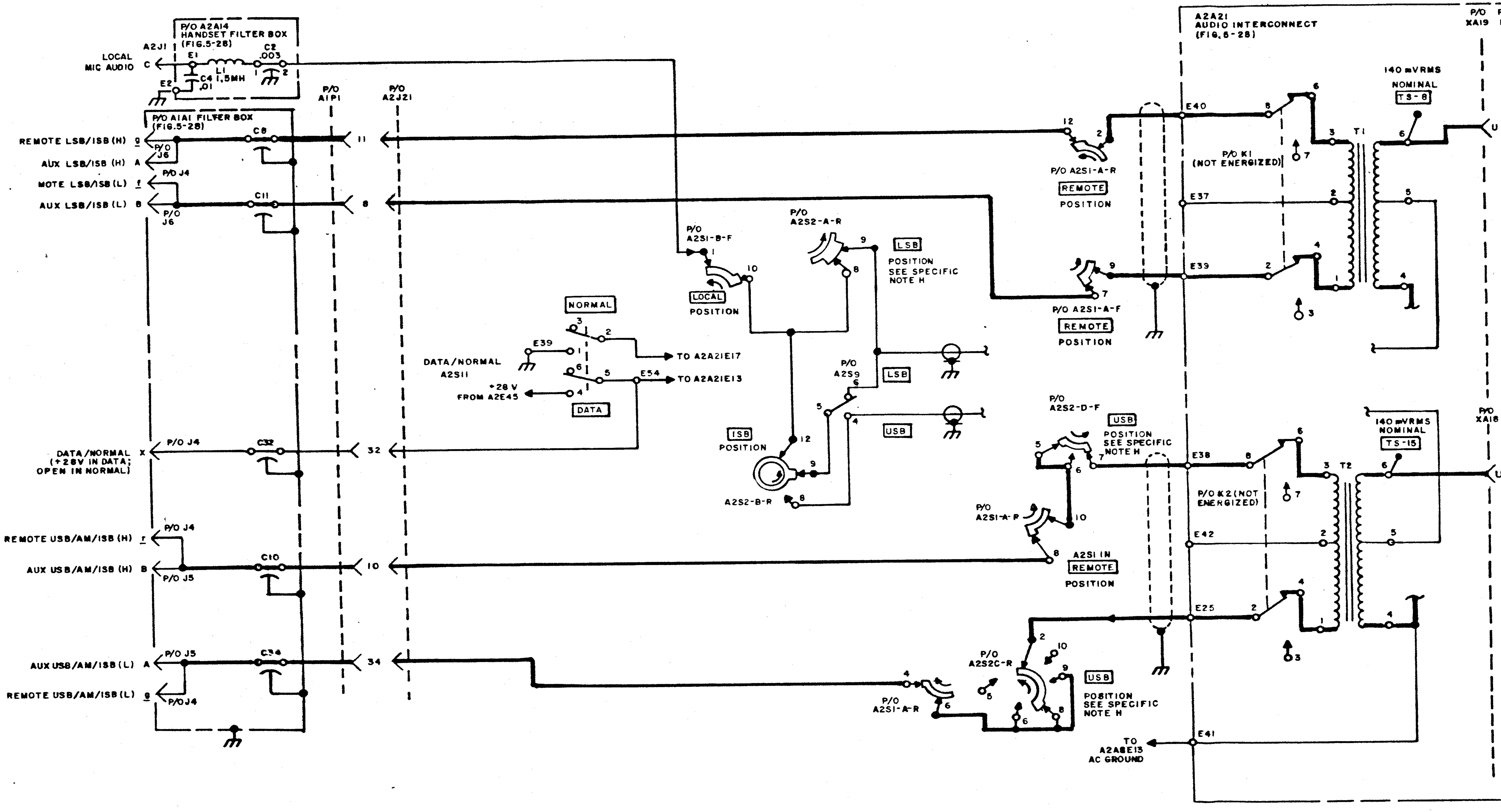

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Figure 5-1. Audio Amplification and Modulation, Normal LSB/USB, Signal Flow Diagram (Sheet 1 of 3)

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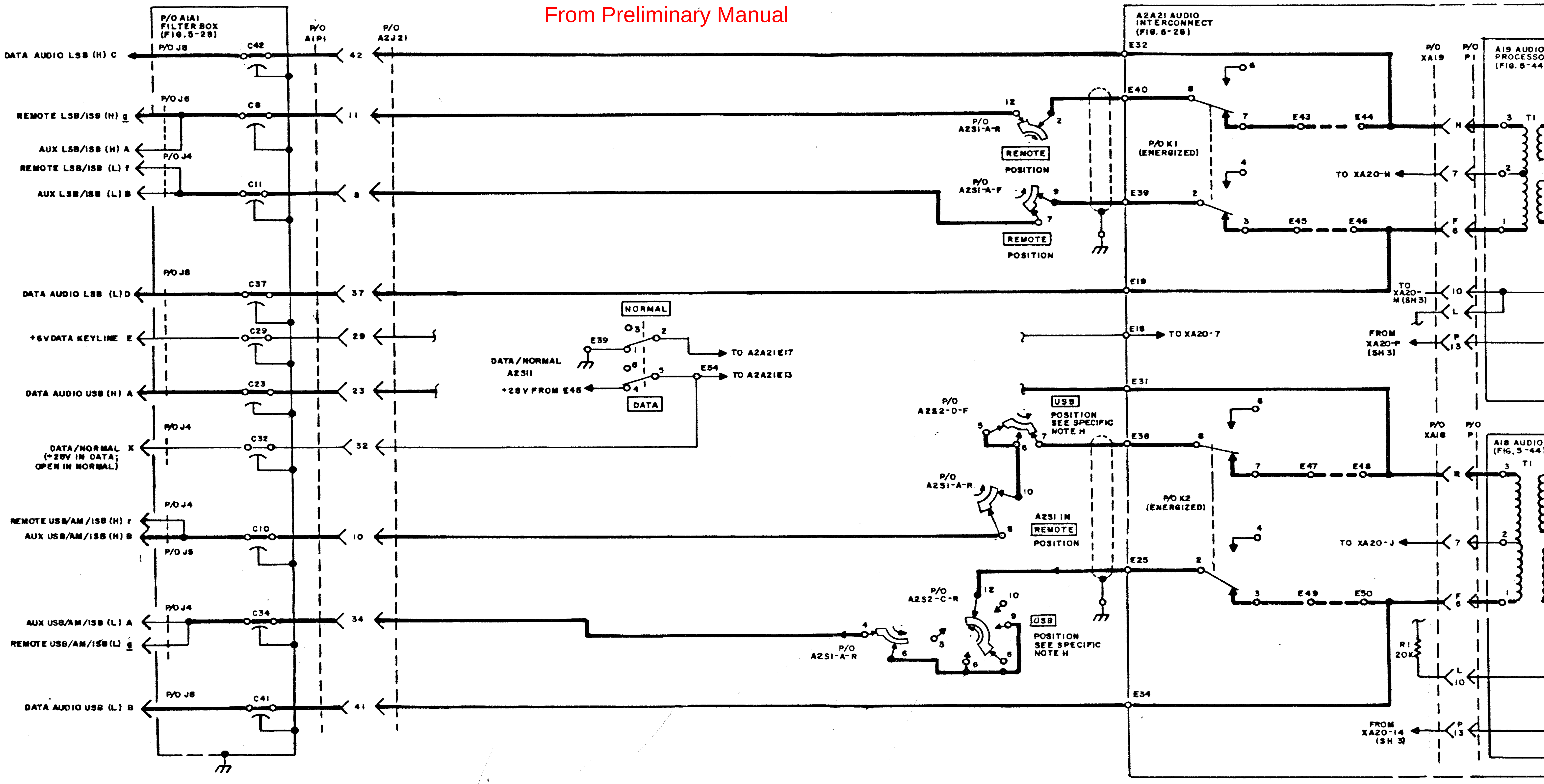

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Figure 5-1. Audio Amplification and Modulation, Data LSB/USB, Signal Flow Diagram (Sheet 2 of 3)

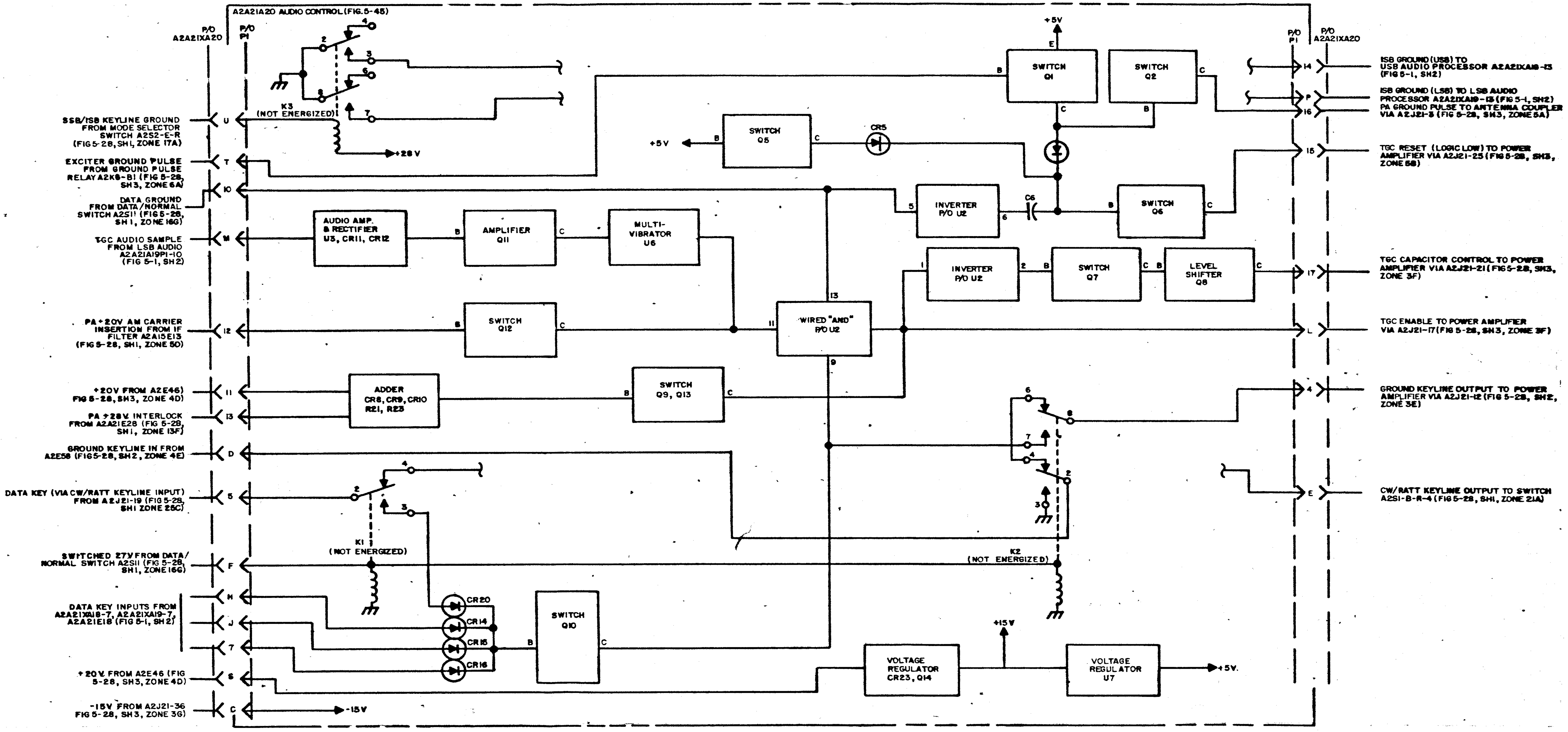


Figure 5-1. Audio Control Functions
(Sheet 3 of 3)

From Preliminary Manual

TEST DATA FOR FIGURE 5-2

GENERAL NOTES

A. TEST EQUIPMENT REQUIRED:
PLUG-IN UNIT TEST SET TS-2135/WRC-1 (MODIFIED)
MULTIMETER 28480-410C OR EQUIVALENT
ELECTRONIC COUNTER AN/USM-207 OR EQUIVALENT
OSCILLOSCOPE AN/USM-281 OR EQUIVALENT
TEST CIRCUIT ILLUSTRATED IN FIGURE 5-1, NOTE 7.
DUMMY LOAD DA-91A/U

B. THE INFORMATION CONTAINED IN THE FOLLOWING NOTES AND ON THE SIGNAL FLOW DIAGRAM IS ORGANIZED TO ALLOW TROUBLESHOOTING OF THE VARIOUS TRANSMITTER FUNCTIONS IN AN OPERATING T-827H/URT TRANSMITTER. FOR DEPOT MAINTENANCE THE MODULE UNDER TEST WILL BE OPERATED IN PLUG-IN UNIT TEST SET TS-2135/WRC-1 (MODIFIED). THE SIGNAL LEVELS INDICATED ON THE SIGNAL FLOW DIAGRAMS SHALL BE USED TO GUIDE THE SETTING OF THE ASSOCIATED TEST GENERATORS. TEST FIXTURE CONTROL SETTINGS SHALL CORRESPOND TO THE SETTINGS OF THEIR COUNTERPART CONTROLS OF THE T-827H/URT.

C. REFERENCES: IF NECESSARY MAKE THE FOLLOWING REFERENCES:
FUNCTIONAL DESCRIPTION, PARAGRAPH 3-38
TROUBLESHOOTING SEQUENCE, FIGURE 5-17
CORRECTIVE MAINTENANCE, PARAGRAPH 6-110
MAINTENANCE SCHEMATIC, FIGURE 5-42
PHYSICAL LOCATION OF TEST POINTS, FIGURE 7-76

SPECIFIC NOTES

1. PRELIMINARY SETUP. DISCONNECT JACKS A1A1J4 THROUGH A1A1J8 AT REAR OF T-827H/URT. CONNECT TEST CIRCUIT SHOWN IN NOTE 7 OF FIGURE 5-1 TO A1A1J3 AND A1A1J4, AND SET TEST CIRCUIT CW/RATT KEY ON. EXTEND MAIN FRAME CHASSIS, DEFEAT INTERLOCK, AND CONNECT DUMMY LOAD DA-91A/U TO A1A1J23.

CONTROL	POSITION
MODE SELECTOR SWITCH A2S2	RATT
LOCAL/REMOTE SWITCH A2S1	REMOTE
AUX/NORM SWITCH A1S1	AUX
FREQUENCY CONTROLS	2.000 MHz
Hz SWITCH A2S6	000
DATA/NORMAL SWITCH A2S11	NORMAL

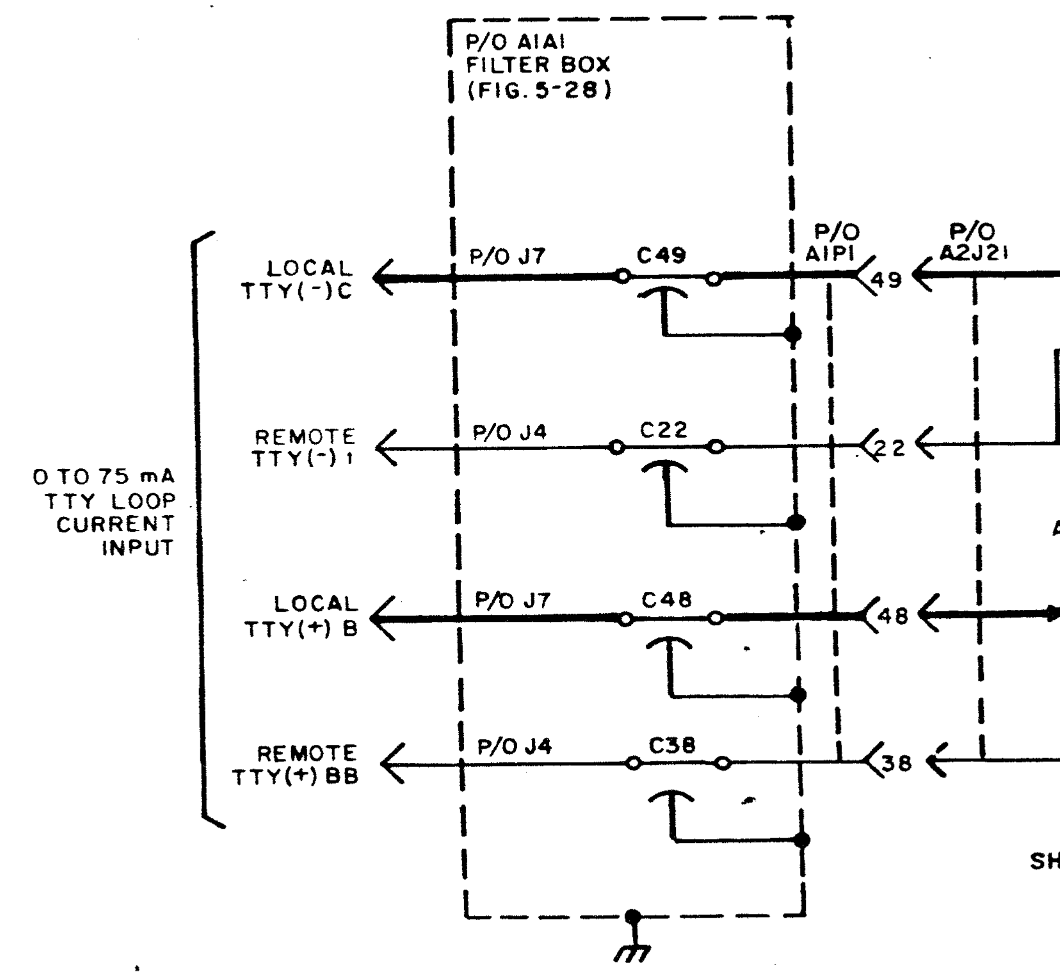
2. TEST STEPS:

TS-1 WITH RATT SHIFT SELECT SWITCH A2S10 IN 850 Hz POSITION, SET TEST CIRCUIT TTY KEY TO MARK, AND MEASURE THE FREQUENCY AT A2A9A1-TP5 WITH ELECTRONIC COUNTER. IT SHOULD READ 3155 ±20 Hz. SET TEST CIRCUIT TTY KEY TO SPACE. FREQUENCY SHOULD BE 4855 ±20 Hz. SET RATT SHIFT SELECT A2S10 TO 170 Hz AND TEST CIRCUIT TTY KEY TO MARK. FREQUENCY SHOULD BE 3831 Hz ±4 Hz. SET TEST CIRCUIT TTY KEY TO SPACE. FREQUENCY SHOULD READ 4166 ±4 Hz.

TEST DATA FOR FIGURE 5-2 (CONTINUED)

SPECIFIC NOTES (CONTINUED)

TS-2 SET TEST CIRCUIT TTY KEY TO MARK, AND MEASURE THE VOLTAGE BETWEEN A2A9A1TP1 AND A2A9A1TP2. IT SHOULD READ BETWEEN 2.0 AND 6.8 VOLTS.



From Preliminary Manual

Figure 5-2. RATT Tone Generator, Signal Flow Diagram

TEST DATA FOR FIGURE 5-3

GENERAL NOTES

A. TEST EQUIPMENT
DUMMY LOAD DA-91A/U
MULTIMETER AC-DC AN/USM-311
AC VOLTMETER 28480-400E
TEST CIRCUIT ILLUSTRATED IN FIGURE 5-1, NOTE 7
EXTENDER CABLES 30A226271-21-11 AND 30A226280-21-11.
AMPLIFIER/MODE SELECTOR TEST FIXTURE TS-3670/WRC-1
SPECTRUM ANALYZER 28480-8553B-E03
SAMPLER BOX B (FIGURE 6-1)

B. THE SPECIFIC NOTES THAT FOLLOW DETAIL DEPOT PROCEDURES FOR TESTING THE T-827H/URT IN A FREE STANDING CONFIGURATION. THE TEST CIRCUIT SHOWN IN SPECIFIC NOTE 7 OF FIGURE 5-1 PROVIDES SWITCHING AND CONTROLS TO SIMULATE THE SHIPBOARD COMMUNICATION SYSTEM. FOR DEPOT MAINTENANCE, THE MODULE UNDER TEST MAY ALSO BE OPERATED IN AMPLIFIER/MODE SELECTOR TEST FIXTURE TS-3670/WRC-1. THE SIGNAL LEVELS INDICATED ON THE SIGNAL FLOW DIAGRAM SHALL BE USED TO GUIDE THE SETTINGS OF THE ASSOCIATED TEST GENERATORS. TS-3670/WRC-1 CONTROL SETTINGS SHALL CORRESPOND TO THE SETTINGS OF THE COUNTERPART CONTROLS OF THE T-827H/URT.

C. FOR SHIPBOARD MAINTENANCE, THE T-827H/URT MAY BE OPERATED AS PART OF THE AN/URT-23C(V)1. THE AM-3924C(P)/URT PORTION OF THE AN/URT-23C(V)1 MUST BE DISABLED BY REMOVAL OF THE 500 V FUSE (2A1F2A) FROM ITS HOLDER ON THE FRONT PANEL OF POWER SUPPLY PP-3916/UR. (RECONNECT THE FUSE HOLDER AFTER REMOVING THE 500 V FUSE CARTRIDGE.) THE POWER-ON SWITCH OF THE AN/URT-23C(V)1 MAY NOW BE CLOSED TO APPLY OPERATING VOLTAGES TO THE T-827H/URT TRANSMITTER. THE APC AND PPC VOLTAGES SUPPLIED TO THE T-827H/URT WILL BE 3.84 VDC AND 0 VDC, RESPECTIVELY, WHICH WILL DRIVE THE T-827H/URT TO ITS FULL RF OUTPUT. ADDITIONALLY, THE NORMAL COMMUNICATION SYSTEM ACTIONS MUST BE TAKEN TO PROVIDE THE DISCRETE CONDITIONS REQUIRED BY THE TEST STEPS IN SPECIFIC NOTE 2.

D. REFERENCES: IF NECESSARY, MAKE THE FOLLOWING REFERENCES:
FUNCTIONAL DESCRIPTION, PARAGRAPH 3-51
TROUBLESHOOTING SEQUENCE, FIGURE 5-18
CORRECTIVE MAINTENANCE, PARAGRAPH 6-45
MAINTENANCE SCHEMATIC, FIGURE 5-29
PHYSICAL LOCATION OF TEST POINTS, FIGURE 7-12

E. MODE SELECTOR SWITCH A2S2 CONTACT CONNECTIONS FOR VARIOUS MODES AS FOLLOWS:

MODE	A2S2-A-F	A2S2-E-R
LSB	NONE	NONE
RATT	10-12	NONE
AM	1-11	NONE
CW	2-12	3-4
USB	1-3	NONE
ISB	NONE	5-6
ISB/RATT	3-5	NONE

GENERAL NOTES (CONTINUED)

F. ALTERNATE CARRIER REINSERTION SWITCH A2A1S1 CONNECTIONS ARE SHOWN IN LOWER LEFT CORNER OF SIGNAL FLOW DIAGRAM.

SPECIFIC NOTES

1. PRELIMINARY SETUP. DISCONNECT CABLES FROM JACKS A1A1J4 THROUGH A1A1J8 AT REAR OF T-827H/URT CASE. EXTEND MAIN FRAME CHASSIS FROM CASE AND DEFEAT INTERLOCK. CONNECT DUMMY LOAD TO RF OUTPUT JACK A1J23.

CONTROL	POSITION
MODE SELECTOR SWITCH A2S2	STDBY
LOCAL/REMOTE SWITCH A2S1	REMOTE
AUX/NORM SWITCH A1S1	AUX
FREQUENCY CONTROLS	2.000 MHz
Hz SWITCH A2S6	000
DATA/NORMAL SWITCH A2S11	NORMAL

2. TEST SETUP.

a. REMOVE MODE SELECTOR ASSEMBLY A2A1 FROM MAIN FRAME AND CONNECT EXTENDER CABLES. REMOVE MODE SELECTOR COVER.

b. CONNECT TEST CIRCUIT SHOWN IN NOTE 7 OF FIGURE 5-1 TO A1A1J3 AND A1A1J4.

c. ENSURE THAT NO AUDIO INPUTS ARE BEING APPLIED TO THE TRANSMITTER.

TS-1 SET A2S2 IN CW POSITION. WITH AC VOLTMETER MEASURE THE VOLTAGE AT A2A1A1E14, 32, 33. VOLTAGE SHOULD BE AS INDICATED.

TS-2 SET A2S2 IN AM POSITION. WITH MULTIMETER MEASURE THE VOLTAGE AT A2A1A4E17. VOLTAGE SHOULD BE AS INDICATED.

TS-3 SET A2S2 IN CW POSITION. WITH AC VOLTMETER MEASURE THE VOLTAGE AT A2A1A4E2. VOLTAGE SHOULD BE AS INDICATED.

TS-4 SET MODE SELECTOR SWITCH A2S2 TO STDBY. REPLACE MODE SELECTOR COVER AND PLUG INTO CHASSIS. CONNECT SPECTRUM ANALYZER 28480-8553B-E03 TO A1J23 THROUGH SAMPLER BOX B AS SHOWN IN FIGURE 6-1. SET THE CARRIER REINSERTION SWITCH TO 0 AND THE MODE SELECTOR SWITCH TO USB. SET TEST CIRCUIT PTT KEY ON, AND NOTE THE 500 kHz REINSERTION AMPLITUDE LEVEL ON THE SPECTRUM ANALYZER. ADJUST APC CONTROL ON TEST CIRCUIT FOR 5 VDC AS READ ON MULTIMETER AN/USM-311 CONNECTED TO APC MONITOR JACK. THIS LEVEL IS TO BE USED AS A ZERO REFERENCE READING. SET THE CARRIER REINSERTION SWITCH TO -10; THE AMPLITUDE LEVEL ON THE SPECTRUM ANALYZER SHOULD BE REDUCED 10 dB (±1 dB). SET THE CARRIER REINSERTION SWITCH TO -20; THE AMPLITUDE LEVEL ON THE SPECTRUM ANALYZER SHOULD BE REDUCED 20 dB (±1 dB). SET THE CARRIER REINSERTION SWITCH TO ∞; THE AMPLITUDE LEVEL ON THE SPECTRUM ANALYZER SHOULD BE REDUCED AT LEAST 40 dB.

Figure 5-3. Carrier Reinsertion, Signal Flow Diagram

TEST DATA FOR FIGURE 5-4

GENERAL NOTES

A. TEST EQUIPMENT REQUIRED:
PLUG-IN UNIT TEST SET TS-2135/WRC-1
MULTIMETER 28480-410C OR EQUIVALENT
AC VOLTMETER 28480-400E
RF SIGNAL GENERATOR 28480-8640B-001-003 OR EQUIVALENT (2 REQUIRED)
OSCILLOSCOPE AN/USM-281 OR EQUIVALENT
FREQUENCY STANDARD AN/URQ-10 OR 28480-8640B-001-003.

B. TESTS TO BE PERFORMED IN DEPOT ONLY.

C. REFERENCES. IF NECESSARY, MAKE THE FOLLOWING REFERENCES:
FUNCTIONAL DESCRIPTION, PARAGRAPH 3-59
TROUBLESHOOTING SEQUENCE FIGURE 5-19
CORRECTIVE MAINTENANCE PARAGRAPH 6-113
MAINTENANCE SCHEMATIC, FIGURE 5-43
PHYSICAL LOCATION OF TEST POINTS, FIGURE 7-79

SPECIFIC NOTES

1. PRELIMINARY SETUP. REMOVE IF AMPLIFIER A2A12A1 FROM T-827H/URT. REMOVE DUST COVER FROM A2A12A1 AND PLACE IN PLUG-IN UNIT TEST SET. CONNECT RF SIGNAL GENERATOR TO 500 kHz IF INPUT JACK ON TEST SET. SET RF SIGNAL GENERATOR OUTPUT FOR 500 kHz. APPLY POWER TO TEST SET.

2. TEST SETUP.

   a. WITH AC VOLTMETER MEASURE THE VOLTAGE AT A2A12A1TP1. ADJUST OUTPUT OF RF SIGNAL GENERATOR UNTIL THE VOLTAGE MEASURED AT A2A12A1TP1 IS 1.1 mVRMS.

   b. WITH DIGITAL MULTIMETER MEASURE THE VOLTAGE AT A2A12A1TP3 AND ADJUST TEST SET PPC CONTROL FOR READING OF 0 VDC ON DIGITAL MULTIMETER.

   c. WITH DIGITAL MULTIMETER MEASURE THE VOLTAGE AT A2A12A1TP4 AND ADJUST TEST SET APC CONTROL FOR READING OF 3.86 VDC ON DIGITAL MULTIMETER.

   d. CONNECT AC VOLTMETER TO 500 kHz IF OUTPUT JACK OF TEST SET.

3. TEST STEPS.

TS-1 OBSERVE SIGNAL OUTPUT AT A2A12A1TP2 ON AC VOLTMETER. SIGNAL SHOULD MEASURE 5 ±0.5 mVRMS. (ADJUST A2A12A1R27 TO MEET REQUIREMENT).

TEST DATA FOR FIGURE 5-4 (CONTINUED)

SPECIFIC NOTES (CONTINUED)

TS-2 INCREASE APC VOLTAGE TO ITS MAXIMUM VALUE (8.0 VDC) USING THE TEST SET APC CONTROL. OBSERVE SIGNAL OUTPUT AT A2A12-A1TP2 ON AC VOLTMETER. SIGNAL SHOULD MEASURE APPROXIMATELY ZERO. RETURN APC VOLTAGE TO 3.86 VDC MEASURED AT A2A12A1TP4.

TS-3 INCREASE PPC VOLTAGE TO ITS MAXIMUM VALUE (5.0 VDC) USING THE TEST SET PPC CONTROL. OBSERVE SIGNAL OUTPUT AT A2A12A1TP2 ON AC VOLTMETER. SIGNAL SHOULD MEASURE APPROXIMATELY ZERO.

TS-4 SET APC TO 3.86 VOLTS. CONNECT 500 kHz INPUT FROM SIGNAL GENERATOR TO A2A12P1-A2 (500 kHz CARRIER REINSERTION) AT A LEVEL OF 2.5 mVRMS. OBSERVE SIGNAL OUTPUT AT A2A12A1TP2 ON AC VOLTMETER. SIGNAL SHOULD MEASURE APPROXIMATELY 5 mVRMS.

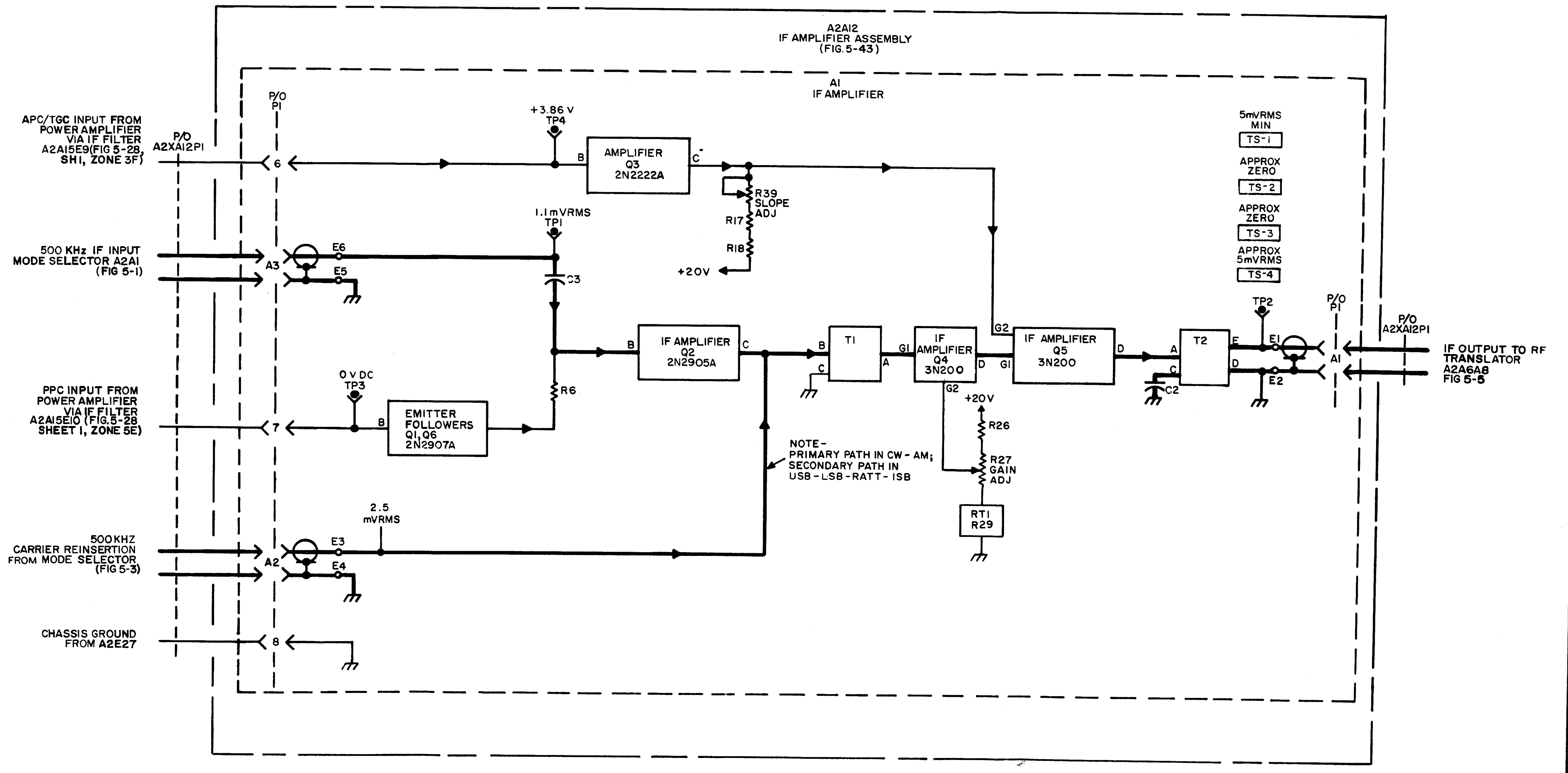


Figure 5-4. IF Amplification and Level Control, Signal Flow Diagram

TEST DATA FOR FIGURE 5-5

GENERAL NOTES

A. THE TESTS DESCRIBED IN THE FOLLOWING TEST DATA ARE TO BE PERFORMED AT DEPOT ONLY.

B. TEST EQUIPMENT REQUIRED:
TRANSLATOR/SYNTHESIZER TEST FIXTURE TS-3665/WRC-1
OSCILLOSCOPE AN/USM-281 OR EQUIVALENT
SPECTRUM ANALYZER 28480-8553B-E03 WITH AC PROBE 28480-1121A
FREQUENCY STANDARD AN/URQ-10 OR EQUIVALENT
ELECTRONIC COUNTER AN/USM-207 OR EQUIVALENT

C. REFERENCES. IF NECESSARY MAKE THE FOLLOWING REFERENCES:
FUNCTIONAL DESCRIPTION, PARAGRAPH 3-65
TROUBLESHOOTING SEQUENCE, FIGURE 5-20
CORRECTIVE MAINTENANCE, PARAGRAPH 6-77
MAINTENANCE SCHEMATIC, FIGURE 5-33
PHYSICAL LOCATION OF TEST POINTS, FIGURE 7-65

D. ——▶—— INDICATES SIGNAL FLOW.

E. ——⟩ ⟨—— INDICATES BREAK POINTS USED TO REDUCE DIAGRAM CLUTTER. TO FIND MATING END OF BROKEN LINE, PROCEED IN PARALLEL WITH DIAGRAM BORDER.

SPECIFIC NOTES

1. PRELIMINARY SETUP: PLACE TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 ON DEPOT TEST FIXTURE. BE SURE CONNECTORS AND COUPLERS ARE PROPERLY MATED. REMOVE LEFT SIDE COVER OF A2A6. SET CONTROLS ON TEST FIXTURE TO TEST A WRC-1 100 Hz INCREMENT TRANSLATOR/SYNTHESIZER ASSEMBLY IN TRANSMIT MODE. MAINTAIN A NORMAL +20 VDC SUPPLY LEVEL.

2. TEST SETUP:

   a. CONNECT FREQUENCY STANDARD 5 MHz OUTPUT TO EXTERNAL 5 MHz INPUT JACK ON REAR OF TEST FIXTURE.

   b. CONNECT RF MILLIVOLTMETER TO 10 MHz REFERENCE JACK ON REAR OF TEST FIXTURE. ADJUST 10 MHz LEVEL FOR A METER INDICATION OF 30 ±10 mVRMS.

   c. SET TEST FIXTURE CONTROLS TO 21.505 MHz.

   d. SET 500 kHz INPUT LEVEL AT A2A6A8TP7 FOR -37 dBm (3 mVRMS).

   e. CONNECT SPECTRUM ANALYZER AND AC PROBE TO A2A6A8TP6.

$\boxed{\text{TS-1}}$ WITH SPECTRUM ANALYZER AND AC PROBE MEASURE THE OUTPUT AT A2A6A8TP6. FREQUENCY AND AMPLITUDE SHOULD BE AS INDICATED. REPEAT AT 22.505 MHz. TS2 - TS6 ARE SHOWN FOR TROUBLE SHOOTING IN THE EVENT THAT TS-1 MEASUREMENT IS UNSUCCESSFUL.

SPECIFIC NOTES FOR FIGURE 5-5 (CONTINUED)

TS-2 WITH OSCILLOSCOPE AND ELECTRONIC COUNTER MEASURE THE FREQUENCY AND PEAK-TO-PEAK VOLTAGE AT A2A6A8E9. WAVEFORM SHOULD BE A SINEWAVE WITH FREQUENCY AND AMPLITUDE AS INDICATED.

TS-3 WITH OSCILLOSCOPE AND ELECTRONIC COUNTER MEASURE THE FREQUENCY AND PEAK-TO-PEAK VOLTAGE AT A2A6A8E8. WAVEFORM SHOULD BE A SINEWAVE WITH FREQUENCY AND AMPLITUDE AS INDICATED.

TS-4 WITH OSCILLOSCOPE AND ELECTRONIC COUNTER MEASURE THE FREQUENCY AND PEAK-TO-PEAK VOLTAGE AT A2A6A8E6. WAVEFORM SHOULD BE A SINEWAVE WITH FREQUENCY AND AMPLITUDE AS INDICATED.

TS-5 WITH SPECTRUM ANALYZER AND FET PROBE MEASURE THE OUTPUT AT PIN 4 OF A2A6A8FL1. FREQUENCY AND MINIMUM AMPLITUDE SHOULD BE AS INDICATED.

TS-6 WITH SPECTRUM ANALYZER AND FET PROBE MEASURE THE OUTPUT AT PIN 3 OF A2A6A8FL3. FREQUENCY AND MINIMUM AMPLITUDE SHOULD BE AS INDICATED.

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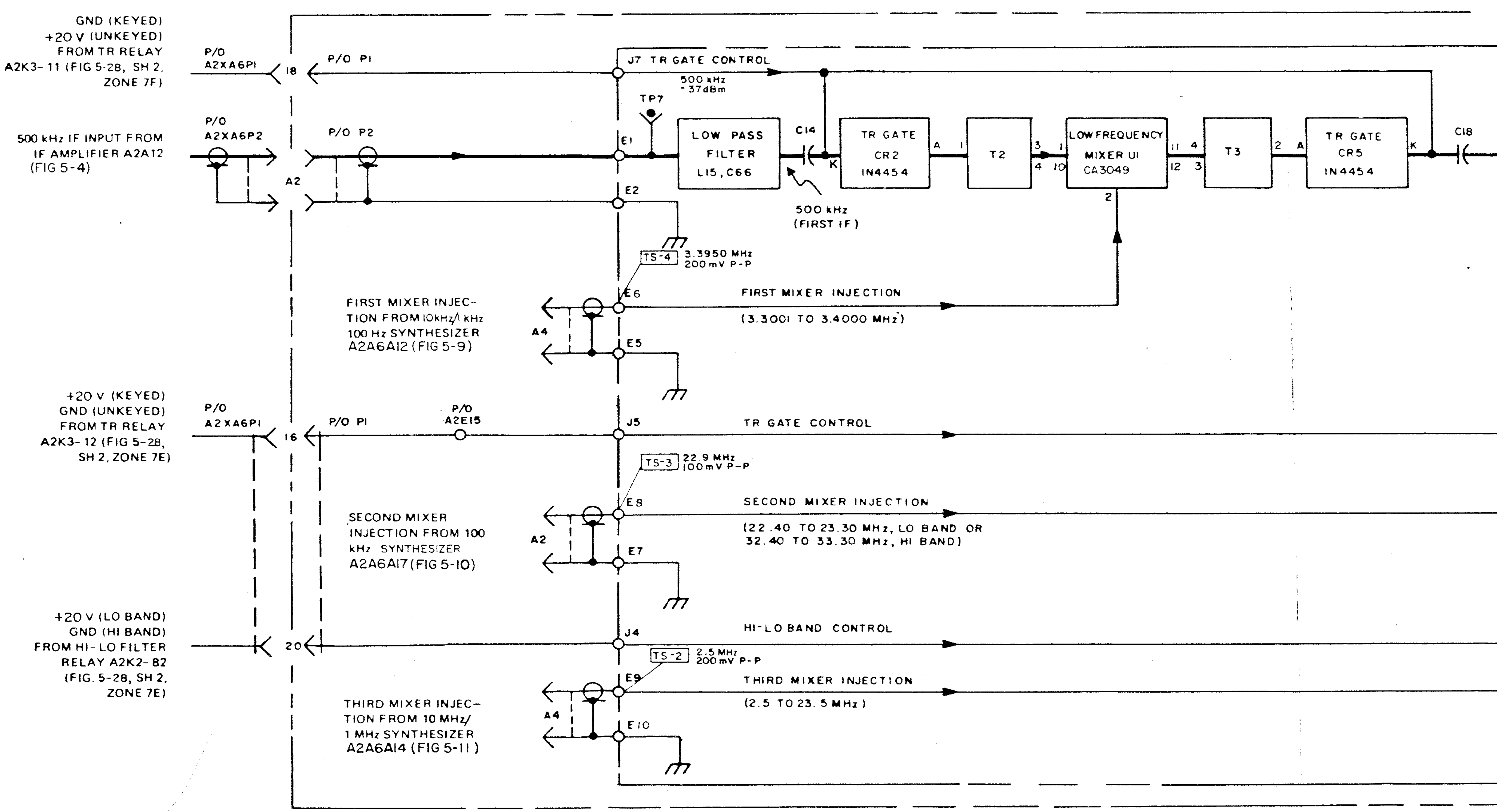


From Preliminary Manual

Figure 5-5. IF-TO-RF Conversion, Signal Flow Diagram

TEST DATA FOR FIGURE 5-6

GENERAL NOTES

A. TEST EQUIPMENT REQUIRED:
RF DUMMY LOAD DA-91A/U
MULTIMETER 28480-410C
RF SIGNAL GENERATOR 28480-8640B-001-003 OR EQUIVALENT
RF AMPLIFIER TEST FIXTURE TS-3685/WRC-1
TEST CIRCUIT ILLUSTRATED IN FIGURE 5-1, NOTE 7

B. THE SPECIFIC NOTES THAT FOLLOW DETAIL DEPOT PROCEDURES FOR TESTING THE T-827H/URT IN A FREE STANDING CONFIGURATION. THE TEST CIRCUIT SHOWN IN SPECIFIC NOTE 7 OF FIGURE 5-1 PROVIDES SWITCHING AND CONTROLS TO SIMULATE THE SHIPBOARD COMMUNICATION SYSTEM. FOR DEPOT MAINTENANCE, THE MODULE UNDER TEST MAY ALSO BE OPERATED IN RF AMPLIFIER TEST FIXTURE TS-3685/WRC-1. THE SIGNAL LEVELS INDICATED ON THE FLOW DIAGRAM SHALL BE USED TO GUIDE THE SETTINGS OF THE ASSOCIATED TEST GENERATORS. TS-3685/WRC-1 CONTROL SETTINGS SHALL CORRESPOND TO THE SETTINGS OF THE COUNTERPART CONTROLS OF THE T-827H/URT.

C. FOR SHIPBOARD MAINTENANCE, THE T-827H/URT MAY BE OPERATED AS PART OF THE AN/URT-23C(V)1. THE AM-3924C(P)/URT PORTION OF THE AN/URT-23C(V)1 MUST BE DISABLED BY REMOVAL OF THE 500 V FUSE (2A1F2A) FROM ITS HOLDER ON THE FRONT PANEL OF POWER SUPPLY PP-3916C/UR. (RECONNECT THE FUSE HOLDER AFTER REMOVING THE 500 V FUSE CARTRIDGE.) THE POWER-ON SWITCH OF THE AN/URT-23C(V)1 MAY NOW BE CLOSED TO APPLY OPERATING VOLTAGES TO THE T-827H/URT TRANSMITTER. THE APC AND PPC VOLTAGES SUPPLIED TO THE T-827H/URT WILL BE 3.84 VDC AND 0 VDC, RESPECTIVELY, WHICH WILL DRIVE THE T-827H/URT TO ITS FULL RF OUTPUT. ADDITIONALLY, THE NORMAL COMMUNICATION SYSTEM ACTIONS MUST BE TAKEN TO PROVIDE THE DISCRETE CONDITIONS REQUIRED BY THE TEST STEPS IN SPECIFIC NOTE 3.

D. $\boxed{}$ INDICATES EQUIPMENT FRONT PANEL MARKING OR TEST STEP.

E. REFERENCES. IF NECESSARY, MAKE THE FOLLOWING REFERENCES:
FUNCTIONAL DESCRIPTION, PARAGRAPH 3-74
TROUBLESHOOTING SEQUENCE, FIGURE 5-21
CORRECTIVE MAINTENANCE, PARAGRAPH 6-55
MAINTENANCE SCHEMATIC, FIGURE 5-30
PHYSICAL LOCATION OF TEST POINTS, FIGURES 7-13, 7-16, 7-20 THROUGH 7-47

F. ——▶—— INDICATES SIGNAL FLOW.

G. ——ʃ ʃ—— INDICATES BREAK POINTS USED TO REDUCE DIAGRAM CLUTTER. TO FIND MATING END OF BROKEN LINE, PROCEED IN PARALLEL WITH DIAGRAM BORDER.

SPECIFIC NOTES

1. PRELIMINARY SETUP. DISCONNECT JACKS A1A1J4 THROUGH J8 AT REAR OF T-827H/URT CASE. EXTEND MAIN FRAME CHASSIS FROM CASE AND DEFEAT INTERLOCK. CONNECT DUMMY LOAD DA-91A/U TO RF OUT JACK A1J23. CONNECT TEST CIRCUIT SHOWN IN NOTE 7 OF FIGURE 5-1 TO A1A1J3 AND A1A1J4 AND SET T-827H/URT CONTROLS AS FOLLOWS:

SPECIFIC NOTES (CONTINUED)

CONTROL	POSITION
MODE SELECTOR SWITCH A2S2	CW
LOCAL/REMOTE SWITCH A2S1	REMOTE
AUX/NORM SWITCH A1S1	AUX
FREQUENCY CONTROLS	2.000 MHZ
HZ SWITCH A2S6	000

2. TEST SETUP.

   a. REMOVE TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 FROM MAIN FRAME AND CONNECT THE OUTPUT OF THE RF SIGNAL GENERATOR TO A2A4A38TP1 AND A2A4A38TP2 (GROUND)

   b. SET THE RF SIGNAL GENERATOR OUTPUT FOR A CW FREQUENCY OF 2.000 MHZ AT 3.5 mVRMS.

   c. SET TEST CIRCUIT CW/RATT KEY ON.

3. TEST STEPS:

$\boxed{\text{TS-1}}$ REFER TO NOTES 1 AND 2 BEFORE PERFORMING TEST. MEASURE THE RF OUTPUT VOLTAGE FROM A2A4TP3 TO A2A4TP4 (GROUND) WITH ELECTRONIC MULTIMETER. MULTIMETER SHOULD READ 2.5 VRMS MINIMUM. (RF GAIN A2A4A38R6 SET TO MEET THIS REQUIREMENT).

$\boxed{\text{TS-2}}$ MEASURE THE VOLTAGE FROM A2A4TP2 TO A2A4TP1 (GROUND) WITH ELECTRONIC MULTIMETER. VOLTAGE SHOULD BE AS INDICATED.

*$\boxed{\text{TS-3}}$ MEASURE THE VOLTAGE FROM JUNCTION OF A2A4A20C1, A2A4A20T1 AND RF AMPLIFIER BASEPLATE (GROUND) WITH ELECTRONIC MULTIMETER. VOLTAGE SHOULD BE AS INDICATED.

* MEASUREMENT MADE AT DEPOT ONLY.

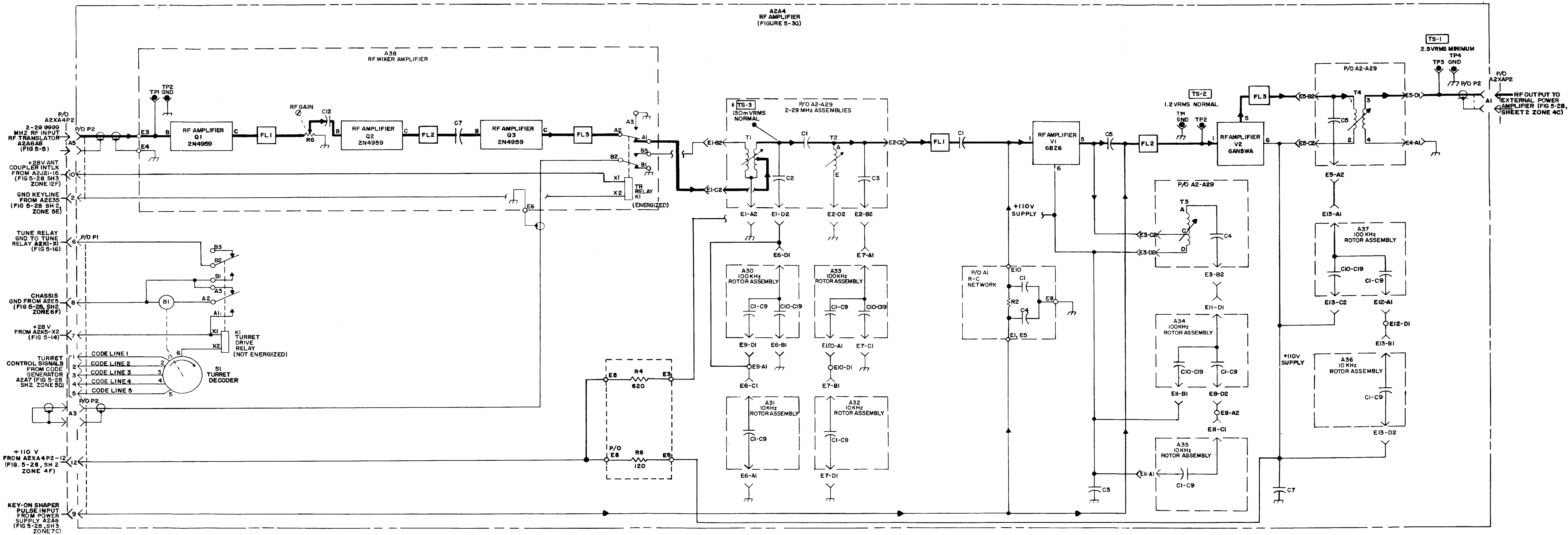


Figure 5-6. RF Amplification and Level Control, Signal Flow Diagram

TEST DATA FOR FIGURE 5-7

GENERAL NOTES

A. TEST EQUIPMENT REQUIRED:
FREQUENCY STANDARD TEST FIXTURE TS-3667/WRC-1.
OSCILLOSCOPE AN/USM-281 OR EQUIVALENT
MULTIMETER, AC-DC, AN/USM-311 OR EQUIVALENT
FREQUENCY STANDARD AN/URQ-10
DIGITAL MULTIMETER 89536-8800A/AA, OR EQUIVALENT
RF MILLIVOLTMETER 04901-92B-S5 OR EQUIVALENT
ELECTRONIC COUNTER AN/USM-207 OR EQUIVALENT

B. TESTS TO BE PERFORMED IN DEPOT ONLY.

C. REFERENCES:
FUNCTIONAL DESCRIPTION, PARAGRAPH 3-86
TROUBLESHOOTING SEQUENCE FIGURE 5-22
CORRECTIVE MAINTENANCE, PARAGRAPH 6-67
MAINTENANCE SCHEMATIC, FIGURE 5-31
PHYSICAL LOCATION OF TEST POINTS, FIGURE 7-60

D. INDICATES FRONT PANEL MARKING OR TEST STEP.

E. INDICATES SIGNAL FLOW.

F. INDICATES FEEDBACK.

G. INDICATES BREAK POINTS USED TO REDUCE DIAGRAM CLUTTER. TO FIND MATING END OF BROKEN LINE PROCEED FROM BREAK POINT IN PARALLEL WITH DIAGRAM BORDER.

H. WHEN USING THE OSCILLOSCOPE TO MEASURE THE FREQUENCY, SET THE TIME/DIV TO 2 uSEC TO VIEW 500 kHz, 0.1 uSEC TO VIEW 10 MHz, 1 uSEC TO VIEW 1 MHz, 0.2 uSEC TO VIEW 5 MHz.

SPECIFIC NOTES

1. PRELIMINARY SETUP. SET A2A5A2S1 TO INT/COMP POSITION. PLACE FREQUENCY STANDARD ASSEMBLY A2A5 ON TEST FIXTURE. APPLY POWER, SET POWER SWITCH TO "OVEN" POSITION, SET RF LOAD SELECT SWITCH TO "LOAD" POSITION. ALLOW 1 HOUR MINIMUM TIME FOR STANDARD FREQUENCY OSCILLATOR TEMPERATURE TO STABILIZE. SET POWER SWITCH TO "OPERATE" POSITION.

2. TEST SETUP.

   a. CONNECT OSCILLOSCOPE TO SCOPE CONNECTOR ON REAR PANEL OF TEST FIXTURE.

   b. CONNECT RF MILLIVOLTMETER TO RFVTVM CONNECTOR ON REAR PANEL OF TEST FIXTURE.

   c. CONNECT ELECTRONIC COUNTER TO COUNTER CONNECTOR ON REAR PANEL OF TEST FIXTURE.

TEST DATA FOR FIGURE 5-7 (CONTINUED)

SPECIFIC NOTES (CONTINUED)

d. SET SERVICE PROBE SELECT SWITCH TO OFF POSITION.

3. TEST STEPS:

TS-1 SET FREQUENCY OUTPUT SELECT SWITCH TO INT 5 MHz POSITION. OBSERVE SINEWAVE. COUNTER READING AND RF MILLIVOLTMETER READING SHOULD BE AS INDICATED.

TS-2 SET FREQUENCY OUTPUT SELECT SWITCH TO 1 MHz POSITION. OBSERVE SINEWAVE. COUNTER READING AND RF MILLIVOLTMETER READING SHOULD BE AS INDICATED.

TS-3 SET FREQUENCY OUTPUT SELECT SWITCH TO 500 kHz A1 POSITION. OBSERVE SINEWAVE. COUNTER READING AND RF MILLIVOLTMETER READING SHOULD BE AS INDICATED.

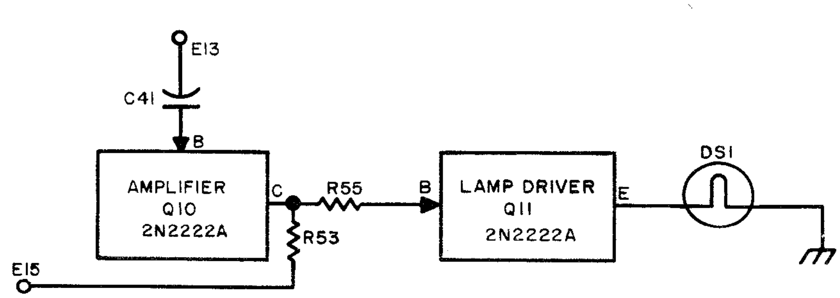
TS-4 SET FREQUENCY OUTPUT SELECT SWITCH TO 500 kHz A2 POSITION. OBSERVE SINEWAVE. COUNTER READING AND RF MILLIVOLTMETER READING SHOULD BE AS INDICATED.

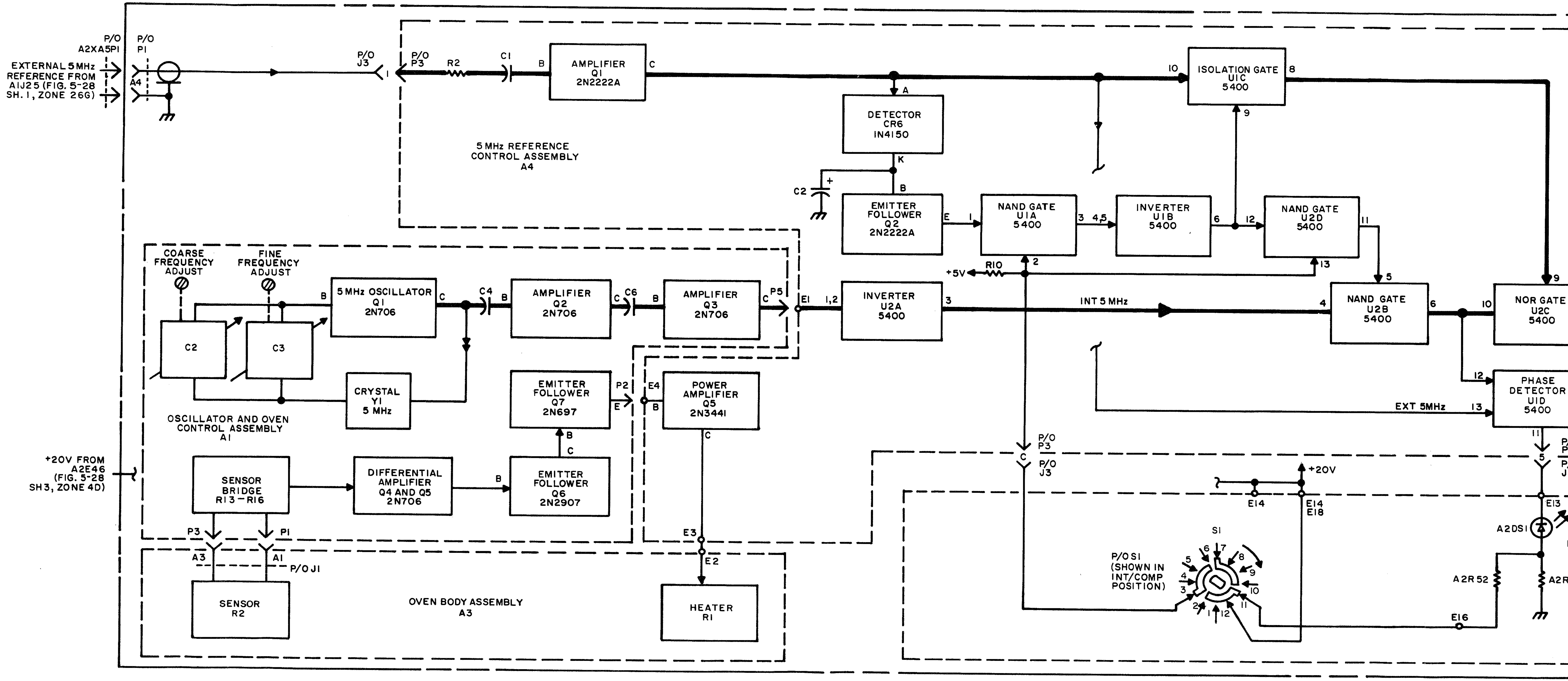
TS-5 SET SELECTOR SWITCH TO 10 MHz POSITION. OBSERVE SINEWAVE. COUNTER READING AND RF MILLIVOLTMETER READING SHOULD BE AS INDICATED.

TS-6 CONNECT RF SIGNAL GENERATOR TO EXTERNAL 5 MHZ INPUT CONNECTOR ON TEST FIXTURE. SET FREQUENCY OF RF SIGNAL GENERATOR TO APPROXIMATELY 5.0001 MHz AT A MINIMUM OUTPUT LEVEL OF 1 VOLT.

SET A2A5A2S1 TO EXT NORMAL. SET FREQUENCY OUTPUT SELECT SWITCH TO INT 5 MHZ POSITION. COUNTER WILL INDICATE THE SIGNAL GENERATOR FREQUENCY. WHILE OBSERVING COUNTER, TURN EXT 5 MHz LEVEL ADJUST CONTROL ON TEST FIXTURE DOWN AS FAR AS IT WILL GO. COUNTER WILL INDICATE A FREQUENCY SHIFT, CONFIRMING THAT INTERNAL OSCILLATOR HAS BEEN SELECTED.

4. ALTERNATE COMPARATOR LAMP CIRCUIT.





P/O A2XA5P1
P/O P1
EXTERNAL 5MHz REFERENCE FROM A1J25 (FIG. 5-28 SH. 1, ZONE 26G)
A4
P/O J3
P/O P3
R2
C1
AMPLIFIER Q1 2N2222A
ISOLATION GATE U1C 5400
DETECTOR CR6 1N4150
5 MHz REFERENCE CONTROL ASSEMBLY A4
C2
EMITTER FOLLOWER Q2 2N2222A
NAND GATE U1A 5400
INVERTER U1B 5400
NAND GATE U2D 5400
+5V
R10
COARSE FREQUENCY ADJUST
FINE FREQUENCY ADJUST
5 MHz OSCILLATOR Q1 2N706
C4
AMPLIFIER Q2 2N706
C6
AMPLIFIER Q3 2N706
P5
E1
INVERTER U2A 5400
INT 5 MHz
NAND GATE U2B 5400
NOR GATE U2C 5400
C2
C3
CRYSTAL Y1 5 MHz
EMITTER FOLLOWER Q7 2N697
P2
E4
POWER AMPLIFIER Q5 2N3441
PHASE DETECTOR U1D 5400
EXT 5MHz
OSCILLATOR AND OVEN CONTROL ASSEMBLY A1
+20V FROM A2E46 (FIG. 5-28 SH3, ZONE 4D)
SENSOR BRIDGE R13 – R16
DIFFERENTIAL AMPLIFIER Q4 AND Q5 2N706
EMITTER FOLLOWER Q6 2N2907
P/O P3
P/O J3
+20V
E14
E14 E18
E13
A2DS1
S1
P/O S1 (SHOWN IN INT/COMP POSITION)
A2R52
E16
P3
P1
A3
A1
P/O J1
E3
E2
SENSOR R2
OVEN BODY ASSEMBLY A3
HEATER R1

Figure 5-7. Standard Frequency Production and Distribution, Signal Flow Diagram

TEST DATA FOR FIGURE 5-8

GENERAL NOTES

A. TEST EQUIPMENT REQUIRED:
TRANSLATOR/SYNTHESIZER TEST FIXTURE TS-3665/WRC-1
EXTENDER CARD 98738-01A228396-01 FOR FREQUENCY GENERATOR A2A6A16
OSCILLOSCOPE AN/USM-281 OR EQUIVALENT
MULTIMETER, AC-DC, AN/USM-311 OR EQUIVALENT
FREQUENCY STANDARD AN/URQ-10
DIFFERENTIAL VOLTMETER AN/USM-381 OR EQUIVALENT
SPECTRUM ANALYZER 28480-8553B-E30
AC PROBE 28480-1121A
ELECTRONIC COUNTER AN/USM-207 OR EQUIVALENT

B. TESTS TO BE PERFORMED IN DEPOT ONLY.

C. REFERENCES. IF NECESSARY, MAKE THE FOLLOWING REFERENCES:
FUNCTIONAL DESCRIPTION, PARAGRAPH 3-95
TROUBLESHOOTING SEQUENCE, FIGURE 5-23
CORRECTIVE MAINTENANCE, PARAGRAPH 6-77
MAINTENANCE SCHEMATIC, FIGURE 5-38
PHYSICAL LOCATION OF TEST POINTS, FIGURE 7-70

D. WAVEFORMS, TABLE 6-7.

E. LOGIC HIGH STATE AND LOGIC LOW STATE VOLTAGES ARE DEFINED AS:
HIGH: 2.4 TO 5.0 VDC
LOW: 0.0 TO 0.4 VDC

F. INDICATES FRONT PANEL MARKING OR TEST STEP.

G. INDICATES SIGNAL FLOW.

H. INDICATES FEEDBACK.

SPECIFIC NOTES

1. PRELIMINARY SETUP. PLACE TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 ON TEST FIXTURE. REMOVE COVER FROM ASSEMBLY. RELEASE LATCHES AND REMOVE FREQUENCY GENERATOR SUBASSEMBLY A2A6A16. PLACE EXTENDER BOARD IN A2A6A16 LOCATION AND MATE CONNECTOR A2A6A16P1 WITH CONNECTOR ON EXTENDER BOARD. PREPARE THE TEST FIXTURE BY SETTING ITS CONTROLS TO TEST A WRC-1 100 HZ TYPE MODULE IN THE TRANSMIT MODE. DO NOT APPLY POWER TO TEST FIXTURE.

2. TEST SETUP.

   a. CONNECT DIFFERENTIAL VOLTMETER TO APPROPRIATE CONNECTOR ON TEST FIXTURE FRONT PANEL.

   b. CONNECT FREQUENCY STANDARD AN/URQ-10 5 MHZ OUTPUT TO EXT 5 MHZ INPUT CONNECTOR ON REAR OF TEST FIXTURE.

TEST DATA FOR FIGURE 5-8 (CONTINUED)

SPECIFIC NOTES (CONTINUED)

3. PRELIMINARY CHECK.

   a. SET METER OUTPUT SELECTOR TO +20 VDC. APPLY POWER. METER SHOULD INDICATE +19.9 TO +20.1 VDC.

   b. SET METER OUTPUT SELECTOR TO +4 VDC. METER SHOULD INDICATE +4.0 TO +4.4 VDC.

   c. DISCONNECT DIFFERENTIAL VOLTMETER.

4. TEST STEPS:

TS-1 REFER TO NOTES 1, 2, AND 3 BEFORE PERFORMING TEST. CONNECT SPECTRUM ANALYZER WITH AC PROBE TO A2A6A16E1 AND BY MEANS OF 10 MHz LEVEL CONTROL ON TEST FIXTURE ADJUST FOR AN INPUT LEVEL OF 30 mVRMS.

NOTE

THE FOLLOWING TEST STEPS ARE PERFORMED WITH OSCILLOSCOPE AN/USM-281 OR EQUIVALENT, EXCEPT FOR TEST STEP 8 WHICH REQUIRES USE OF DIFFERENTIAL VOLTMETER AN/USM-381 OR EQUIVALENT.

TS-2 OBSERVE WAVEFORM C AT A2A6A16TP4. FREQUENCY AND AMPLITUDE TO BE AS INDICATED.

TS-3 OBSERVE WAVEFORM B AT A2A6A16TP3. FREQUENCY AND AMPLITUDE TO BE AS INDICATED.

TS-4 WITH VERNIER DISABLED, OBSERVE WAVEFORM A AT A2A6A16TP2. FREQUENCY AND AMPLITUDE TO BE AS INDICATED.

TS-5 OBSERVE SQUARE WAVE AT A2A6A16Q2 COLLECTOR. FREQUENCY AND AMPLITUDE TO BE AS INDICATED.

TS-6 OBSERVE SQUAREWAVE AT A2A6A16U1C-12. FREQUENCY AND AMPLITUDE TO BE AS INDICATED.

TS-7 OBSERVE WAVEFORM A AT A2A6A16U6B-12. FREQUENCY AND AMPLITUDE TO BE AS INDICATED.

TS-8 MEASURE THE VOLTAGE AT A2A6A16R12 TO BE AS INDICATED.

TS-9 MEASURE THE VOLTAGE AT A2A6A16U6B-12 TO BE AS INDICATED.

TS-10 MEASURE THE VOLTAGE AT A2A6A16U6A-8 TO BE AS INDICATED.

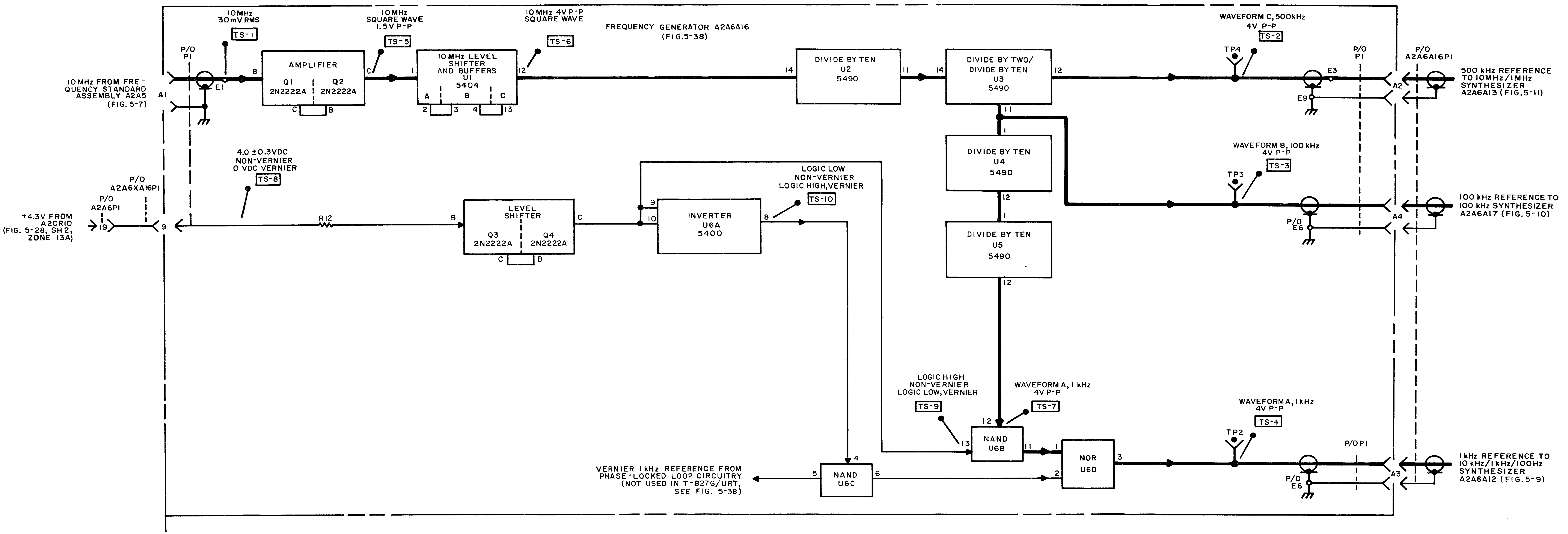


Figure 5-8. Frequency Generator A2A6A16, Signal Flow Diagram

TEST DATA FOR FIGURE 5-9

GENERAL NOTES

A. TEST EQUIPMENT REQUIRED:
TRANSLATOR/SYNTHESIZER TEST FIXTURE TS-3665/WRC-1
OSCILLOSCOPE AN/USM-281 OR EQUIVALENT
MULTIMETER, AC-DC, AN/USM-311 OR EQUIVALENT
FREQUENCY STANDARD AN/URQ-10
HIGH IMPEDANCE (FET) PROBE 28480-1121A
DIFFERENTIAL VOLTMETER AN/USM-381 OR EQUIVALENT
ELECTRONIC COUNTER AN/USM-207 OR EQUIVALENT
SPECTRUM ANALYZER 28480-8553B-E30

B. REFERENCES. IF NECESSARY, MAKE THE FOLLOWING REFERENCES:
FUNCTIONAL DESCRIPTION, PARAGRAPH 3-96
TROUBLESHOOTING SEQUENCE, FIGURE 5-24
CORRECTIVE MAINTENANCE, PARAGRAPH 6-77
MAINTENANCE SCHEMATICS, FIGURES 5-34, 5-40
PHYSICAL LOCATION OF TEST POINTS, FIGURES 7-66 AND 7-72

C. WAVEFORMS, TABLE 6-7.

D. TESTS TO BE PERFORMED IN DEPOT ONLY.

E. $\boxed{\quad\quad}$ INDICATES FRONT PANEL MARKING OR TEST STEP.

F. ——▶—— INDICATES SIGNAL FLOW.

G. ——◀◀—— INDICATES FEEDBACK.

H. ——⟩ ⟨—— INDICATES BREAK POINTS USED TO REDUCE DIAGRAM CLUTTER. TO FIND MATING END OF BROKEN LINE PROCEED FROM BREAK POINT IN PARALLEL WITH DIAGRAM BORDER.

I. PROM = PROGRAMMABLE READ ONLY MEMORY.

SPECIFIC NOTES

1. THE FOLLOWING FUNCTION TABLES FOR THE A2A6A18U8-U10 PROGRAMMABLE DIVIDERS SHOW THE VARIOUS INPUT AND OUTPUT COMBINATIONS REALIZED FOR POSSIBLE SETTINGS OF CODING SWITCHES A2A1S1, A2A6S1 AND A2A6S2. THE 0 STATE IS A LOGIC LOW (Ø) (0.0 TO 0.4 VDC); THE 1 STATE IS A LOGIC HIGH (2.4 TO 5.0 VDC).

TEST DATA FOR FIGURE 5-9 (CONTINUED)

A2A6A18U8, U9 AND U10 PROGRAM

10'S COMPLEMENT CONVERSION (PIN 14 = 0)

DIAL A2S6 A2A6S1 OR A2A6S2	INPUT PIN				OUTPUT PIN					
	13	12	11	10	6	5	4	3	2	1
0	0	0	0	0	1	0	0	0	0	0
1	0	0	0	1	0	1	1	0	0	1
2	0	0	1	0	0	1	1	0	0	0
3	0	0	1	1	0	1	0	1	1	1
4	0	1	0	0	0	1	0	1	1	0
5	0	1	0	1	0	1	0	1	0	1
6	0	1	1	0	0	1	0	1	0	0
7	0	1	1	1	0	1	0	0	1	1
8	1	0	0	0	0	1	0	0	1	0
9	1	0	0	1	0	1	0	0	0	1

9'S COMPLEMENT CONVERSION (PIN 14 = 1)

A2A1S1 A2A6S1 OR A2A6S2 DIAL	PIN				OUTPUT PIN					
	13	12	11	10	6	5	4	3	2	1
0	0	0	0	0	0	0	1	0	0	1
1	0	0	0	1	0	0	1	0	0	0
2	0	0	1	0	0	0	0	1	1	1
3	0	0	1	1	0	0	0	1	1	0
4	0	1	0	0	0	0	0	1	0	1
5	0	1	0	1	0	0	0	1	0	0
6	0	1	1	0	0	0	0	0	1	1
7	0	1	1	1	0	0	0	0	1	0
8	1	0	0	0	0	0	0	0	0	1
9	1	0	0	1	0	0	0	0	0	0

2. TABLE OF NUMBER OF DIVISIONS BY 11 OF A2A6A18U1 FOR HZ SETTINGS

A2S6 POSITION	A2A6A18U4 INPUT COUNTS
000	0
100	9
200	8
300	7
400	6
500	5
600	4
700	3
800	2
900	1

TEST DATA FOR FIGURE 5-9 (CONTINUED)

3. TABLE OF A2A6A18U4 AND U5 PRESET COUNTS FOR HZ, 1 KHZ AND 10 KHZ SWITCH POSITIONS.

KHZ SWITCH SETTING A2A6S1	A2A6A18U4 PRESET COUNTS	
	Hz = 000	HZ OTHER THAN 000
0	0	9
1	9	8
2	8	7
3	7	6
4	6	5
5	5	4
6	4	3
7	3	2
8	2	1
9	1	0
10 KHz SWITCH SETTING A2A6S2	**A2A6A8U5 PRESET COUNTS**	
	KHz AND Hz = 0	**KHz OR Hz OTHER THAN 0**
0	0	9
1	9	8
2	8	7
3	7	6
4	6	5
5	5	4
6	4	3
7	3	2
8	2	1
9	1	0

4. PRELIMINARY SETUP. PLACE TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 ON TEST FIXTURE, AND REMOVE COVER FROM ASSEMBLY. PREPARE THE TEST FIXTURE BY SETTING ITS CONTROLS TO TEST A WRC-1 100 Hz TYPE MODULE IN THE TRANSMIT MODE. SET TEST FIXTURE FREQUENCY CONTROLS FOR 2.0011 MHz OPERATION BUT DO NOT APPLY POWER TO TEST FIXTURE.

5. TEST SETUP.

   a. CONNECT DIFFERENTIAL VOLTMETER TO APPROPRIATE CONNECTOR ON TEST FIXTURE FRONT PANEL.

   b. CONNECT FREQUENCY STANDARD AN/URQ-10 5 MHz OUTPUT TO EXT 5 MHz INPUT CONNECTOR ON REAR OF TEST FIXTURE.

   c. CONNECT ELECTRONIC COUNTER AN/USM-207 TO MEASURE FREQUENCY AS DIRECTED.

TEST DATA FOR FIGURE 5-9 (CONTINUED)

6. PRELIMINARY CHECK.

   a. SET METER OUTPUT SELECTOR TO +20 VDC. APPLY POWER. METER SHOULD INDICATE +19.9 TO +20.1 VDC.

   b. DISCONNECT DIFFERENTIAL VOLTMETER.

7. TEST STEPS:

TS-1 REFER TO NOTES 4, 5, AND 6 BEFORE PERFORMING TESTS. MEASURE THE FREQUENCY AND OBSERVE WAVEFORM AT A2A6A12TP3. FREQUENCY AND AMPLITUDE SHOULD BE AS INDICATED.

TS-2 MEASURE THE FREQUENCY AND OBSERVE WAVEFORM AT A2A6A12TP1. FREQUENCY AND AMPLITUDE SHOULD BE AS INDICATED.

TS-3 OBSERVE WAVEFORM SIMILAR TO D AT A2A6A18TP2 AND A2A6A12TP2. FREQUENCY AND AMPLITUDE SHOULD BE AS INDICATED.

TS-4 MEASURE THE FREQUENCY AND OBSERVE WAVEFORM E AT A2A6A18TP1. FREQUENCY AND AMPLITUDE SHOULD BE AS INDICATED.

Figure 5-9. 10 kHz/1 kHz/100 Hz Synthesizer A2A6A12 and A2A6A18, Signal Flow Diagram

TEST DATA FOR FIGURE 5-10

GENERAL NOTES

A. TEST EQUIPMENT REQUIRED:
TRANSLATOR/SYNTHESIZER TEST FIXTURE TS-3665/WRC-1
OSCILLOSCOPE AN/USM-281 OR EQUIVALENT
MULTIMETER, AC-DC, AN/USM-311 OR EQUIVALENT
FREQUENCY STANDARD AN/URQ-10
DIFFERENTIAL VOLTMETER AN/USM-381 OR EQUIVALENT
ELECTRONIC COUNTER AN/USM-207 OR EQUIVALENT

B. TESTS TO BE PERFORMED IN DEPOT ONLY.

C. REFERENCES. IF NECESSARY, MAKE THE FOLLOWING REFERENCES:
FUNCTIONAL DESCRIPTION, PARAGRAPH 3-101
TROUBLESHOOTING SEQUENCE, FIGURE 5-25
CORRECTIVE MAINTENANCE, PARAGRAPH 6-77
MAINTENANCE SCHEMATIC, FIGURE 5-39
PHYSICAL LOCATION OF TEST POINTS, FIGURE 7-71

D. WAVEFORMS, TABLE 6-7.

E. INDICATES FRONT PANEL MARKING OR TEST STEP.

F. INDICATES SIGNAL FLOW.

G. INDICATES FEEDBACK.

H. INDICATES BREAK POINTS USED TO REDUCE DIAGRAM CLUTTER. TO FIND MATING END OF BROKEN LINE PROCEED FROM BREAK POINT IN PARALLEL WITH DIAGRAM BORDER.

SPECIFIC NOTES

1. FUNCTION TABLE FOR A2A6A17U6. THE 0 STATE IS A LOGIC LOW (0.0 TO 0.4 VDC); THE 1 STATE IS A LOGIC HIGH (2.4 TO 5.0 VDC).

CONTROL SETTING		BIT	2^3	2^2	2^1	2^0
		DATA PIN	2	14	11	5
100 kHz	COUNT	OUTPUT PIN	1	15	9	7
5	9		1	0	0	1
4	8		1	0	0	0
3	7		0	1	1	1
2	6		0	1	1	0
1	5		0	1	0	1
0	4		0	1	0	0
9	3		0	0	1	1
8	2		0	0	1	0
7	1		0	0	0	1
6	0		0	0	0	0

TEST DATA FOR FIGURE 5-10 (CONTINUED)

SPECIFIC NOTES (CONTINEED)

2. PRELIMINARY SETUP. PLACE TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 ON TEST FIXTURE, AND REMOVE COVER FROM ASSEMBLY. PREPARE THE TEST FIXTURE BY SETTING ITS CONTROLS TO TEST A WRC-1 100 Hz TYPE MODULE IN THE TRANSMIT MODE. SET TEST FIXTURE FREQUENCY CONTROLS FOR 2.0011 MHz OPERATION, BUT DO NOT APPLY POWER TO TEST FIXTURE.

3. TEST SETUP.

   a. CONNECT DIFFERENTIAL VOLTMETER TO APPROPRIATE CONNECTOR ON TEST FIXTURE FRONT PANEL.

   b. CONNECT FREQUENCY STANDARD AN/URQ-10 5 MHz OUTPUT TO EXT 5 MHz INPUT ON CONNECTOR ON REAR OF TEST FIXTURE.

4. PRELIMINARY CHECK.

   a. SET METER OUTPUT SELECTOR TO +20 VDC. APPLY POWER. METER SHOULD INDICATE +19.9 TO +20.1 VDC.

   b. DISCONNECT DIFFERENTIAL VOLTMETER.

5. TEST STEPS:

[TS-1] OBSERVE WAVEFORM E AT A2A6A17TP3. FREQUENCY AND AMPLITUDE SHOULD BE AS INDICATED.

[TS-2] OBSERVE WAVEFORM B AT A2A6A17TP1. FREQUENCY AND AMPLITUDE SHOULD BE AS INDICATED.

[TS-3] OBSERVE WAVEFORM D AT A2A6A17TP2. FREQUENCY AND AMPLITUDE SHOULD BE AS INDICATED.

[TS-4] SET TEST FIXTURE FREQUENCY CONTROLS FOR 6.0011 MHz OPERATION. OBSERVE WAVEFORM E AT A2A6A17TP3. FREQUENCY AND AMPLITUDE TO BE AS INDICATED.

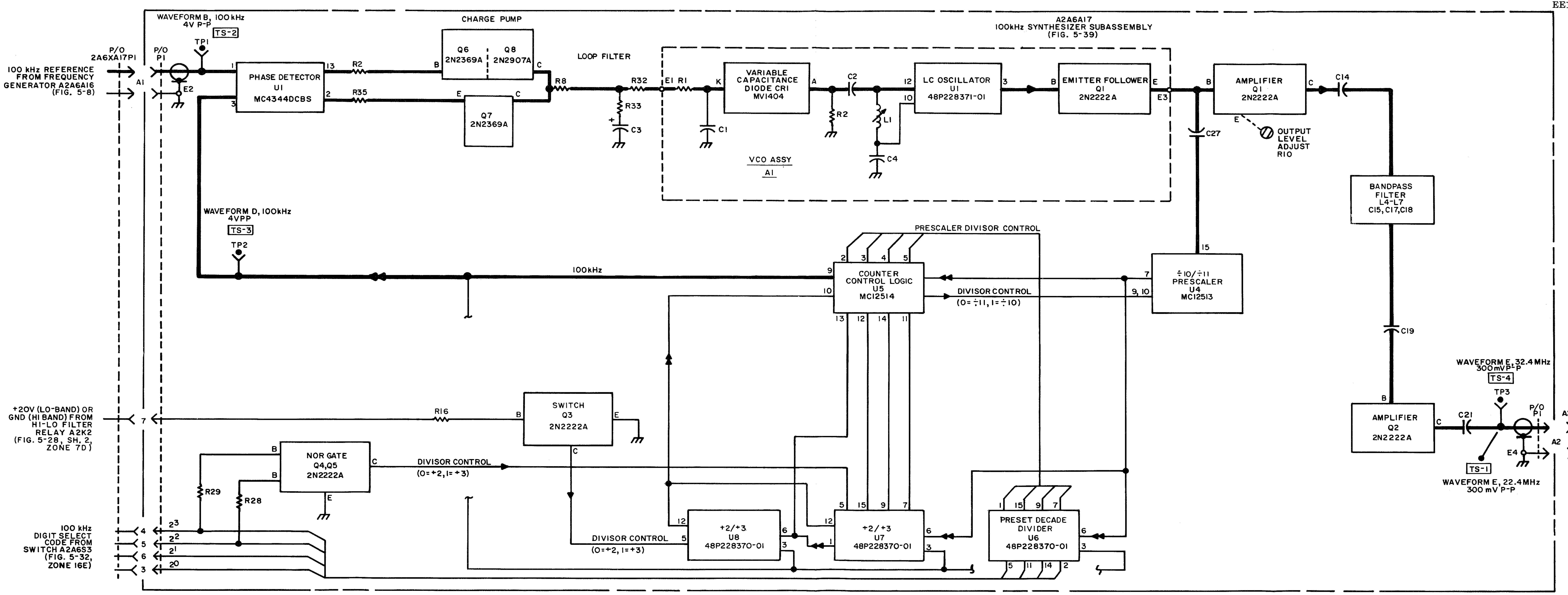


Figure 5-10. 100 kHz Synthesizer A2A6A17, Signal Flow Diagram

TEST DATA FOR FIGURE 5-11

GENERAL NOTES

A. TEST EQUIPMENT REQUIRED:
TRANSLATOR/SYNTHESIZER TEST FIXTURE TS-3665/WRC-1
OSCILLOSCOPE AN/USM-281 OR EQUIVALENT
MULTIMETER, AC-DC, AN/USM-311 OR EQUIVALENT
DIFFERENTIAL VOLTMETER AN/USM-381 OR EQUIVALENT
FREQUENCY STANDARD AN/URQ-10
ELECTRONIC COUNTER AN/USM-207 OR EQUIVALENT
SPECTRUM ANALYZER 28480-8553B-E30
AC PROBE 28480-1121A

B. REFERENCES. IF NECESSARY, MAKE THE FOLLOWING REFERENCES:
FUNCTIONAL DESCRIPTION, PARAGRAPH 3-105
TROUBLESHOOTING SEQUENCE, FIGURE 5-26
CORRECTIVE MAINTENANCE, PARAGRAPH 6-77
MAINTENANCE SCHEMATICS, FIGURES 5-35 AND 5-36
PHYSICAL LOCATION OF TEST POINTS, FIGURES 7-67 AND 7-68

C. WAVEFORMS TABLE 6-7.

D. TESTS TO BE PERFORMED IN DEPOT ONLY.

E. INDICATES FRONT PANEL MARKING OR TEST STEP.

F. INDICATES SIGNAL FLOW.

G. INDICATES FEEDBACK.

H. INDICATES BREAK POINTS USED TO REDUCE DIAGRAM CLUTTER. TO FIND MATING END OF BROKEN LINE PROCEED FROM BREAK POINT IN PARALLEL WITH DIAGRAM BORDER.

SPECIFIC NOTES

1. FUNCTION TABLE FOR A2A6A13U9, U10 FOLLOWS. FOR A2A6A13U9, DATA PIN 5 IS ALWAYS AT LOGIC HIGH LEVEL TO ALLOW PRESET COUNTS OF 9, 7, 5, 3, AND 1. FOR A2A6A13U10, DATA PIN 2 IS ALWAYS AT LOGIC LOW LEVEL TO ALLOW PRE-SET COUNTS OF 7 THRU 0. THE 0 STATE IS A LOGIC LOW (0.0 TO 0.4 VDC); THE 1 STATE IS A LOGIC HIGH (2.4 TO 5.0 VDC).

COUNT	BIT	2^3	2^2	2^1	2^0
	DATA PIN	2	14	11	5
	OUTPUT PIN	1	15	9	7
9		1	0	0	1
8		1	0	0	0
7		0	1	1	1
6		0	1	1	0
5		0	1	0	1
4		0	1	0	0
3		0	0	1	1
2		0	0	1	0
1		0	0	0	1
0		0	0	0	0

TEST DATA FOR FIGURE 5-11 (CONTINUED)

SPECIFIC NOTES (CONTINUED)

2. FUNCTION TABLE FOR A2A6A13U11 FOLLOWS. A2A6A13U11 IS PROGRAMMED ONLY FOR THE LISTED INPUT CODES. THE 0 STATE IS A LOGIC LOW (0.0 TO 0.4 VDC); THE 1 STATE IS A LOGIC HIGH (2.4 TO 5.0 VDC.)

INJECTION FREQUENCY (MHz)	MHz CONTROL SETTINGS	INPUT PIN					OUTPUT PIN							
		10	11	12	13	14	1	2	3	4	5	6	7	9
2.5	22	1	1	1	1	0	0	1	0	1	0	0	0	0
3.5	16,23,26	0	0	0	0	1	0	1	1	1	0	0	0	0
4.5	15,25	1	1	0	0	1	0	1	0	0	1	0	0	0
5.5	14,24	1	0	0	0	1	0	1	0	0	0	1	0	0
7.5	12,27	1	1	1	0	0	1	0	0	1	0	1	0	0
8.5	11,21,28	1	1	0	0	0	1	0	1	1	0	1	0	0
9.5	20,29	1	0	0	0	0	1	0	0	0	1	1	0	0
10.5	19	0	0	0	1	1	1	0	0	0	0	0	1	0
11.5	08,18	0	0	1	1	0	1	0	1	0	0	0	1	0
12.5	07,17	0	1	1	0	0	1	0	0	1	0	0	1	0
14.5	05	1	0	0	1	0	1	1	0	0	1	0	1	0
15.5	04	0	0	1	0	0	1	1	0	0	0	1	1	0
16.5	03,13	0	1	0	0	0	1	1	1	0	0	1	1	0
17.5	02	0	0	0	1	0	1	1	0	1	0	1	1	0
19.5	10	0	0	1	0	1	1	1	0	0	1	1	1	0
20.5	09	0	1	0	1	1	1	1	0	0	0	0	0	1
23.5	06	1	0	1	1	1	1	1	1	1	0	0	0	1

3. PRELIMINARY SETUP. PLACE TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 ON TEST FIXTURE, AND REMOVE COVER FROM ASSEMBLY. PREPARE THE TEST FIXTURE BY SETTING ITS CONTROLS TO TEST A WRC-1 100 Hz TYPE MODULE IN THE TRANSMIT MODE, AND A NORMAL 20 VDC LEVEL. SET TEST FIXTURE FREQUENCY CONTROLS FOR 8.0000 MHz OPERATION, BUT DO NOT APPLY POWER TO TEST FIXTURE.

4. TEST SETUP.
   a. CONNECT DIFFERENTIAL VOLTMETER TO APPROPRIATE CONNECTOR ON TEST FIXTURE FRONT PANEL.

   b. CONNECT FREQUENCY STANDARD AN/URQ-10 5 MHz OUTPUT TO EXT 5 MHz INPUT CONNECTOR ON REAR OF TEST FIXTURE.

5. PRELIMINARY CHECKS.
   a. SET METER OUTPUT SELECTOR TO +20 VDC. APPLY POWER. METER SHOULD INDICATE +19.9 TO +20.1 VDC.

   b. DISCONNECT DIFFERENTIAL VOLTMETER.

TEST DATA FOR FIGURE 5-11 (CONTINUED)

SPECIFIC NOTES (CONTINUED)

6. THIS TEST PROCEDURE CONSISTS OF SETTING THE TEST FIXTURE FREQUENCY CONTROLS CONSECUTIVELY TO (A) 8 MHz, (B) 16 MHz AND (C) 9 MHz AND AT EACH FREQUENCY SETTING PERFORMING TESTS TS-1 THROUGH TS-8. TWO ADDITIONAL TESTS, TS-9 AND TS-10, ARE PERFORMED AT 8 MHz ONLY (A TOTAL OF 26 MEASUREMENTS). FOR CLARITY THE ENTIRE TEST IS SUMMARIZED IN THE SYNTHESIZER MEASUREMENT SUMMARY CHART WHICH FOLLOWS THE TEST STEPS. MEASURE ALL FREQUENCIES WITH SPECTRUM ANALYZER FITTED WITH AC PROBE WITH 10:1 DIVIDER TIP.

7. TEST STEPS:

TS-1 REFER TO NOTES 3, 4, 5 AND 6 BEFORE PERFORMING TEST. SET TEST FIXTURE FREQUENCY CONTROLS TO 8.0000 MHz AND OBSERVE WAVEFORM J AT A2A6A14TP5. FREQUENCY AND AMPLITUDE SHOULD BE AS INDICATED (A).

TS-2 MEASURE THE VOLTAGE AT A2A6A14TP3. VOLTAGE SHOULD BE AS INDICATED (A).

TS-3 MEASURE THE VOLTAGE AT A2A6A14TP6. VOLTAGE SHOULD BE AS INDICATED (A).

TS-4 MEASURE THE VOLTAGE AT A2A6A14TP1. VOLTAGE SHOULD BE AS INDICATED (A).

TS-5 OBSERVE SIGNAL AT A2A6A14TP4. FREQUENCY AND AMPLITUDE SHOULD BE AS INDICATED (A).

TS-6 OBSERVE SIGNAL AT A2A6A14TP2. FREQUENCY AND AMPLITUDE SHOULD BE AS INDICATED (A).

TS-7 OBSERVE SIGNAL AT A2A6A14TP7. FREQUENCY AND AMPLITUDE SHOULD BE AS INDICATED (A).

TS-8 OBSERVE WAVEFORM I AT A2A6A13TP3. FREQUENCY AND AMPLITUDE SHOULD BE AS INDICATED (A). (WAVESHAPE VARIES WITH FREQUENCY).

TS-9 OBSERVE WAVEFORM G AT A2A6A13TP1. FREQUENCY AND AMPLITUDE SHOULD BE AS INDICATED.

TS-10 OBSERVE WAVEFORM H AT A2A6A13TP2. FREQUENCY AND AMPLITUDE SHOULD BE AS INDICATED.

SET TEST FIXTURE FREQUENCY CONTROLS TO 16.0000 MHz AND REPEAT TESTS TS-1 THROUGH TS-8. MEASUREMENT RESULTS SHOULD BE AS INDICATED (B).

SET TEST FIXTURE FREQUENCY CONTROLS TO 9.0000 MHz AND REPEAT TESTS TS-1 THROUGH TS-8. MEASUREMENT RESULTS SHOULD BE AS INDICATED (C).

TEST DATA FOR FIGURE 5-11 (CONTINUED)

10 MHz/1 MHz SYNTHESIZER MEASUREMENT SUMMARY CHART

TEST STEP	TEST POINT A2A6	TEST SET FREQUENCY SUMMARY CHART		
		(A) 8.0000 MHz	(B) 16.0000 MHz	(C) 9.0000 MHz
TS-1	A14TP5	WAVEFORM J 11.5 MHz 200 mV P-P	WAVEFORM J 3.5 MHz 200 mV P-P	WAVEFORM J 20.5 MHz 200 mV P-P
TS-2	A14TP3	0.4 VDC	5 VDC	5 VDC
TS-3	A14TP6	5 VDC	5 VDC	0.4 VDC
TS-4	A14TP1	5 VDC	0.4 VDC	5 VDC
TS-5	A14TP4	SQUARE WAVE 11.5 MHz 800 mV P-P	NO SIGNAL	NO SIGNAL
TS-6	A14TP2	NO SIGNAL	SQUARE WAVE 3.5 MHz 800 mV P-P	NO SIGNAL
TS-7	A14TP7	NO SIGNAL	NO SIGNAL	SQUARE WAVE 20.5 MHz 800 mV P-P
TS-8	A13TP3	WAVEFORM I 11.5 MHz 4 V P-P	WAVEFORM I 3.5 MHz 4 V P-P	WAVEFORM I 20.5 MHz 4 V P-P
TS-9	A13TP1	WAVEFORM G 500 kHz 4 V P-P		
TS-10	A13TP2	WAVEFORM H 500 kHz 4 V P-P		

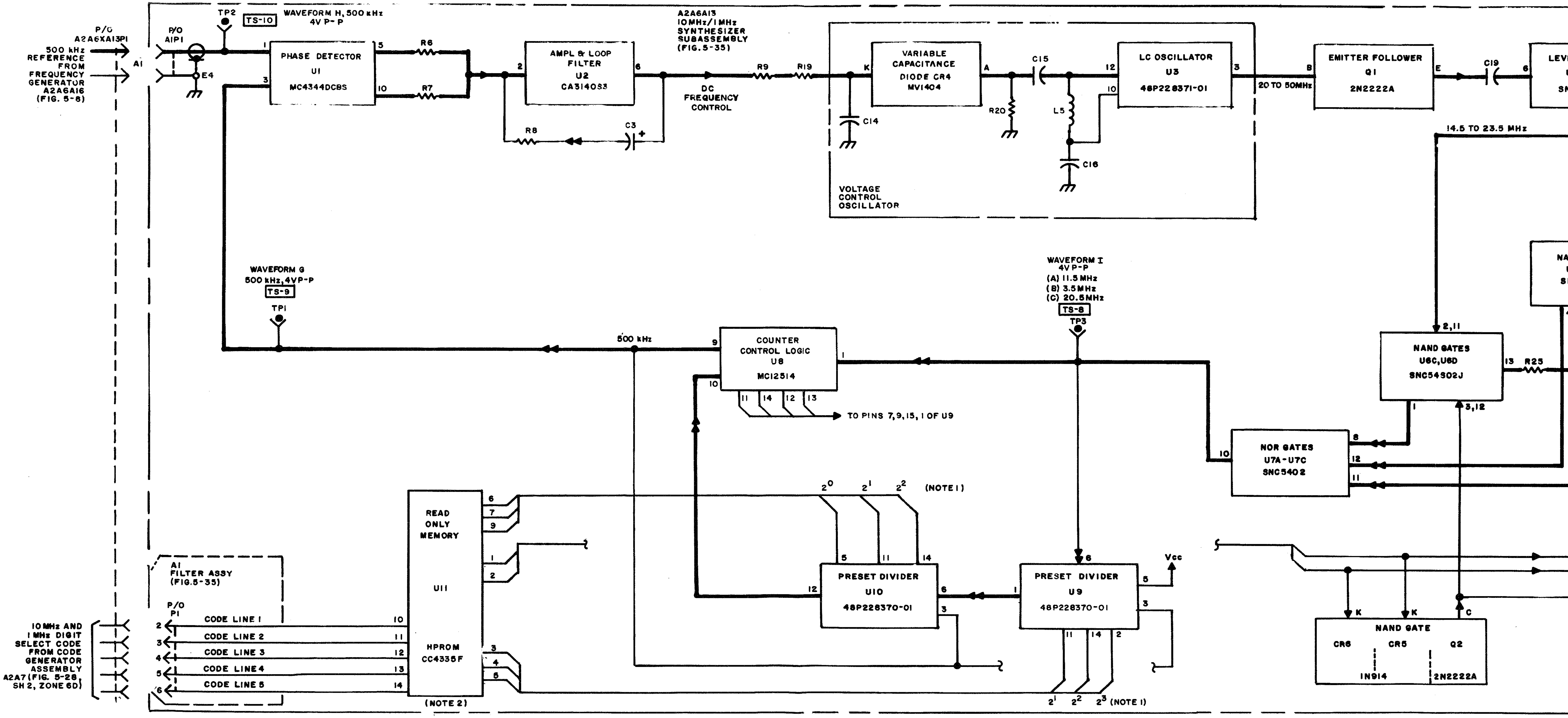

P/O A2A6XA13P1
500 kHz REFERENCE FROM FREQUENCY GENERATOR A2A6A16 (FIG. 5-8)
A1
P/O A1P1
TP2
TS-10
WAVEFORM H, 500 kHz 4V P-P
E4
PHASE DETECTOR U1 MC4344DCBS
R6
R7
AMPL & LOOP FILTER U2 CA3140S3
R8
C3
A2A6A13 10MHz/1MHz SYNTHESIZER SUBASSEMBLY (FIG. 5-35)
DC FREQUENCY CONTROL
R9
R19
VARIABLE CAPACITANCE DIODE CR4 MV1404
C14
R20
C15
L5
C16
LC OSCILLATOR U3 48P228371-01
VOLTAGE CONTROL OSCILLATOR
20 TO 50MHz
EMITTER FOLLOWER Q1 2N2222A
C19
14.5 TO 23.5 MHz
WAVEFORM G 500 kHz, 4VP-P
TS-9
TP1
500 kHz
COUNTER CONTROL LOGIC U8 MC12514
TO PINS 7,9,15,1 OF U9
WAVEFORM I 4V P-P (A) 11.5 MHz (B) 3.5 MHz (C) 20.5 MHz
TS-8
TP3
NAND GATES U6C,U6D SNC54S02J
R25
NOR GATES U7A-U7C SNC5402
READ ONLY MEMORY U11 HPROM CC4335F
(NOTE 2)
(NOTE 1)
PRESET DIVIDER U10 48P228370-01
PRESET DIVIDER U9 48P228370-01
Vcc
NAND GATE CR6 CR5 Q2 1N914 2N2222A
A1 FILTER ASSY (FIG. 5-35)
P/O P1
CODE LINE 1
CODE LINE 2
CODE LINE 3
CODE LINE 4
CODE LINE 5
10 MHz AND 1 MHz DIGIT SELECT CODE FROM CODE GENERATOR ASSEMBLY A2A7 (FIG. 5-28, SH 2, ZONE 6D)

Figure 5-11. 10 MHz/1 MHz Synthesizer A2A6A13, and Filter Subassembly A2A6A14, Signal Flow Diagram

NOTES FOR FIGURE 5-12

GENERAL NOTES

A. SWITCH CONTACT CONNECTS FOR VARIOUS MODES AS LISTED IN CHART 1.

B. —ʃ ʃ— INDICATES BREAK POINTS USED TO REDUCE DIAGRAM CLUTTER. TO FIND MATING END OF BROKEN LINE, PROCEED FROM BREAK POINT IN PARALLEL WITH DIAGRAM BORDER.

CHART 1

MODE SELECTOR SWITCH A2S2

FUNCTION	SECTION D-R TERMINALS	SECTION C-R TERMINALS	SECTION E-R TERMINALS	SECTION E-F TERMINALS
LSB	3-12	—	—	—
RATT	—	5-12	1-2	1-2, 4-6
AM	5-12	6-12	—	—
CW	—	—	3-4	6-8
USB	9-12	8-12	—	—
ISB	10-12	9-12	5-6	—
ISB/RATT	11-12	10-12	—	9-11

SPECIFIC NOTES

1. RESISTOR A2R6 IS 1 MEGOHM; THE CW HOLD TIME IS INCREASED BY DECREASING THE VALUE OF A2R6.

2. ALL RELAYS SHOWN IN DEENERGIZED POSITION.

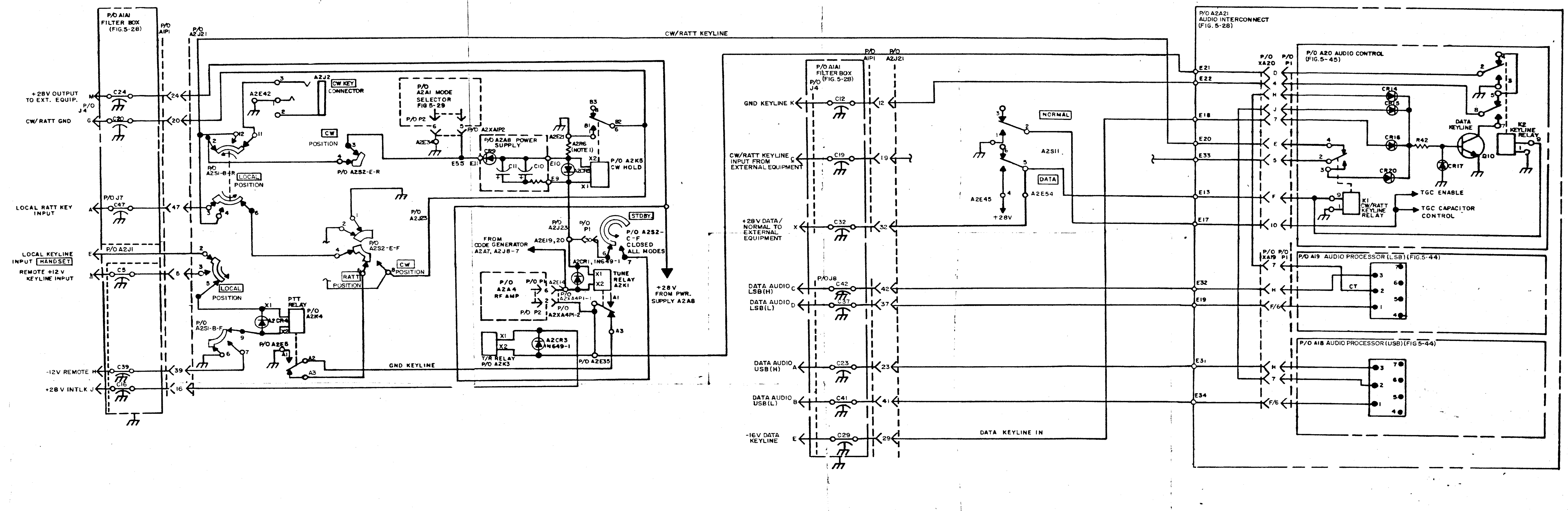


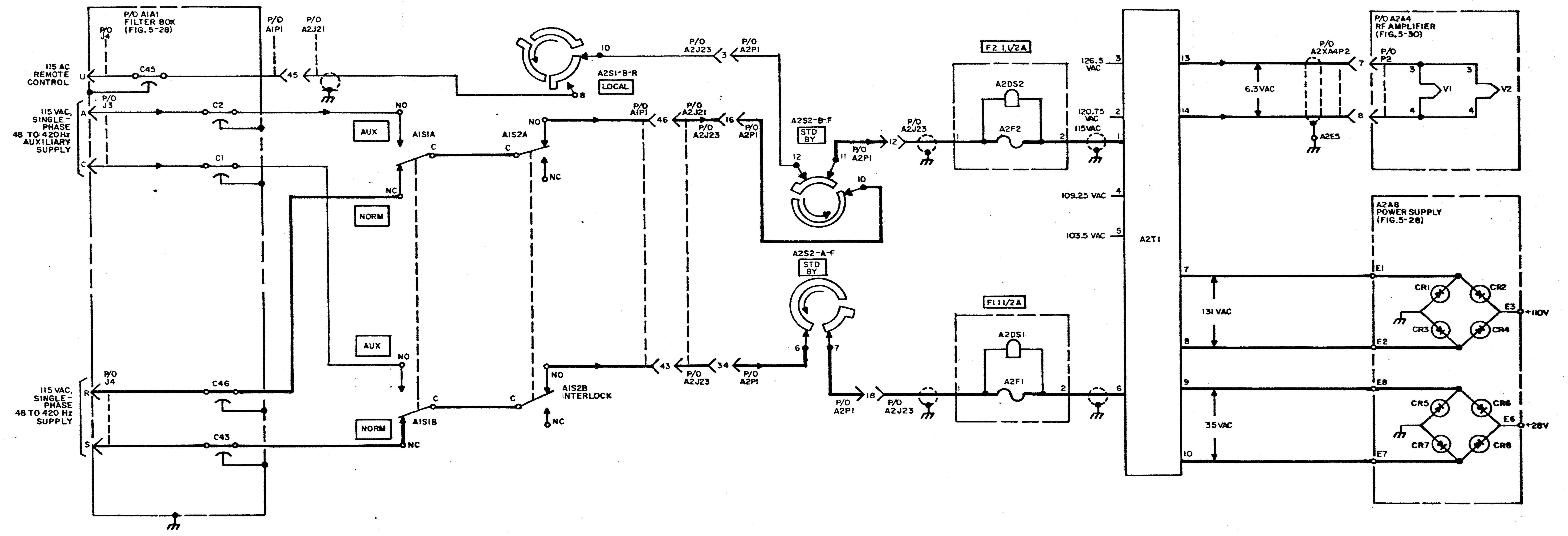
Figure 5-12. CW, RATT, DATA and PTT Keying, Control Diagram

GENERAL NOTES:

A. ▭ INDICATES EQUIPMENT MARKING.

B. MODE SELECTOR SWITCH A2S2 CONTACT CONNECTIONS FOR ALL MODES EXCEPT OFF ARE AS FOLLOWS:

SECTION	CONTACTS CONNECTED
B-F	11-10
A-F	6-7



From Preliminary Manual

Figure 5-13. Primary Ac Power Distribution Diagram

GENERAL NOTES

A. UNLESS OTHERWISE SPECIFIED:
ALL RESISTANCE IS IN OHMS.
ALL CAPACITANCE IS IN MICROFARADS.
ALL RELAYS SHOWN IN DEENERGIZED POSITION.

B. ACTIVE SWITCH CONTACT CLOSURES FOR MODES FOLLOW:

MODE SELECTOR SWITCH A2S2-C-F	
FUNCTION	TERMINALS
LSB	9-11, 6-7
RATT	6-7
AM	9-11, 6-7
CW	6-7
USB	6-7, 10-12
ISB	3-4, 6-7
ISB/RATT	5-3, 6-7

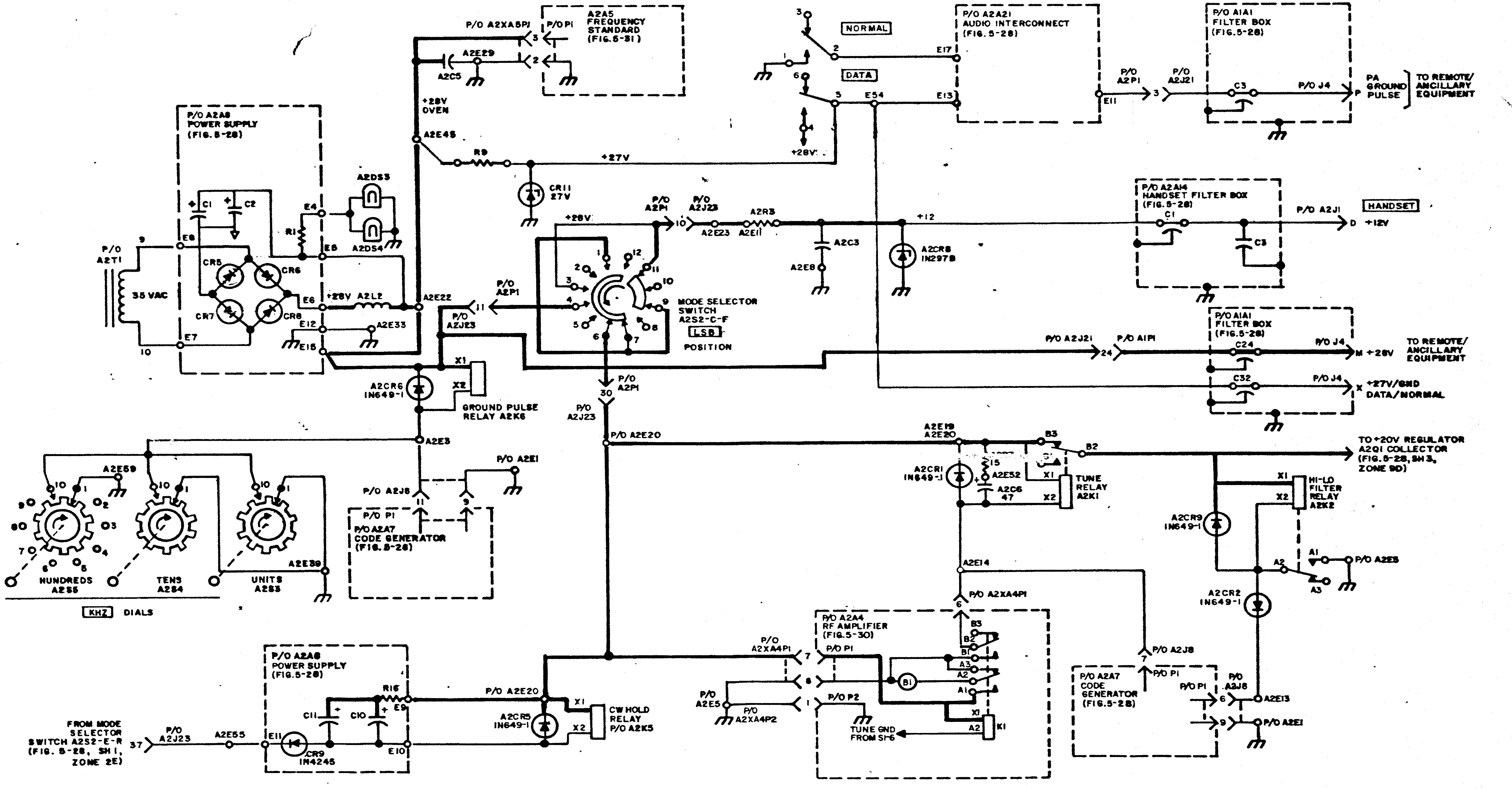


Figure 5-14. +28 V Power Distribution Diagram

NOTES FOR FIGURE 5-15

GENERAL NOTES

A. ——} {—— INDICATES BREAK POINTS USED TO REDUCE DIAGRAM CLUTTER. TO FIND MATING END OF BROKEN LINE, PROCEED FROM BREAK POINT IN PARALLEL WITH DIAGRAM BORDER.

B. SWITCH CONTACT CONNECTIONS FOR VARIOUS MODES, AS LISTED BELOW:

MODE SELECTOR SWITCH A2S2		
FUNCTION	SECTION A-F TERMINALS	SECTION A-R TERMINALS
LSB		2-3-4
RATT	12-10	3-4-5
AM	1-11	3-4-5
CW	12-2	4-5
USB		5-6, 3-4
ISB		2-3-4-5
ISB/RATT	3-5	2-3-4-5

C. LEGEND FOLLOWS:
+110 VDC ——— - - ———
+20 VDC —————————
+5 VDC - - - - - - - - - -

D. PLUG CONNECTIONS SHOWN FOR MODE SELECTOR SWITCH A2S2 ARE FOR PLUG A2P1 AND SOCKET A2J23, PER THE FOLLOWING TERMINAL CHART.

MODE SELECTOR SWITCH POWER CONNECTIONS			
+20 VDC BUS DESCRIPTION	PIN NO.	A2J23	A2P1
AM CARRIER	19	A2A15E11	A2S2-A-F-11
EXCEPT CW	29	A2SA1P2-7	A2S2-A-R-4
AM/USB/ISB	31	A2SA1P1-5 A2XA1P2-8	A2S2-A-R-5
TRANSMIT	32	A2E15	A2S2-A-R-6 A2S2-A-R-3 A2S2-A-F-3
RATT	33	A2XA9P1-5	A2S2-A-F-10 A2S2-A-F-5
CW	35	A2XA1P2-10	A2S2-A-F-2
LSB/ISB	36	A2XA1P1-2 A2XA1P2-2	A2S2-A-R-2

Figure 5-15. +110 Vdc, +20 Vdc, and +5 Vdc Power Distribution Diagram

GENERAL NOTES

A. TEST SETUP:
REFER TO SIGNAL FLOW DIAGRAM, FIGURE 5-1, SHEET 1.
SET DATA/NORMAL SWITCH TO NORMAL FOR SHEET 1.
SET DATA/NORMAL SWITCH TO DATA FOR SHEET 2.

B. REFER TO MAINTENANCE SCHEMATIC DIAGRAMS, FIGURES 5-29, 5-44, AND TO SIGNAL FLOW DIAGRAM, FIGURE 5-1, FOR TEST STEPS.

C. LEGEND:
YES ————
NO - - - - - - - -

Figure 5-16. Normal Operation - Audio Amplification and Modulation, Voice Modes, Fault Logic Diagram, (Sheet 1 of 2)

Figure 5-16. Data Operation - Audio Amplification and Modulation, Voice Modes, Fault Logic Diagram (Sheet 2 of 2)

NOTES FOR FIGURE 5-17.

GENERAL NOTES

A. ENSURE THAT PROPER POWER SUPPLY AND GATING VOLTAGES ARE APPLIED.

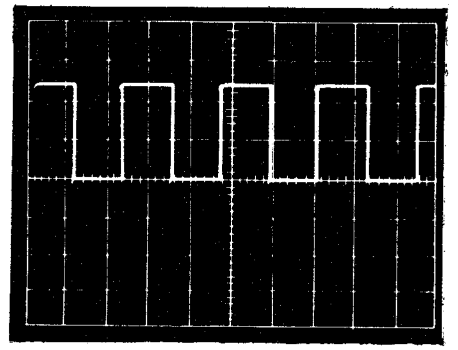
B. TEST SETUP:
REFER TO SIGNAL FLOW DIAGRAM 5-2.

C. REFER TO MAINTENANCE SCHEMATIC DIAGRAMS, FIGURES 5-28, 5-42, AND TO SIGNAL FLOW DIAGRAM FIGURE 5-2 FOR TEST STEPS.

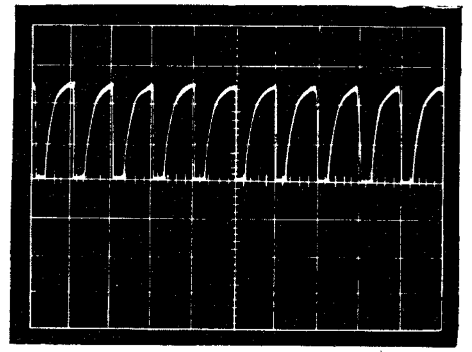
D. LEGEND
YES ————
NO - - - - -

SPECIFIC NOTES

WAVEFORMS



Waveform A



Waveform B

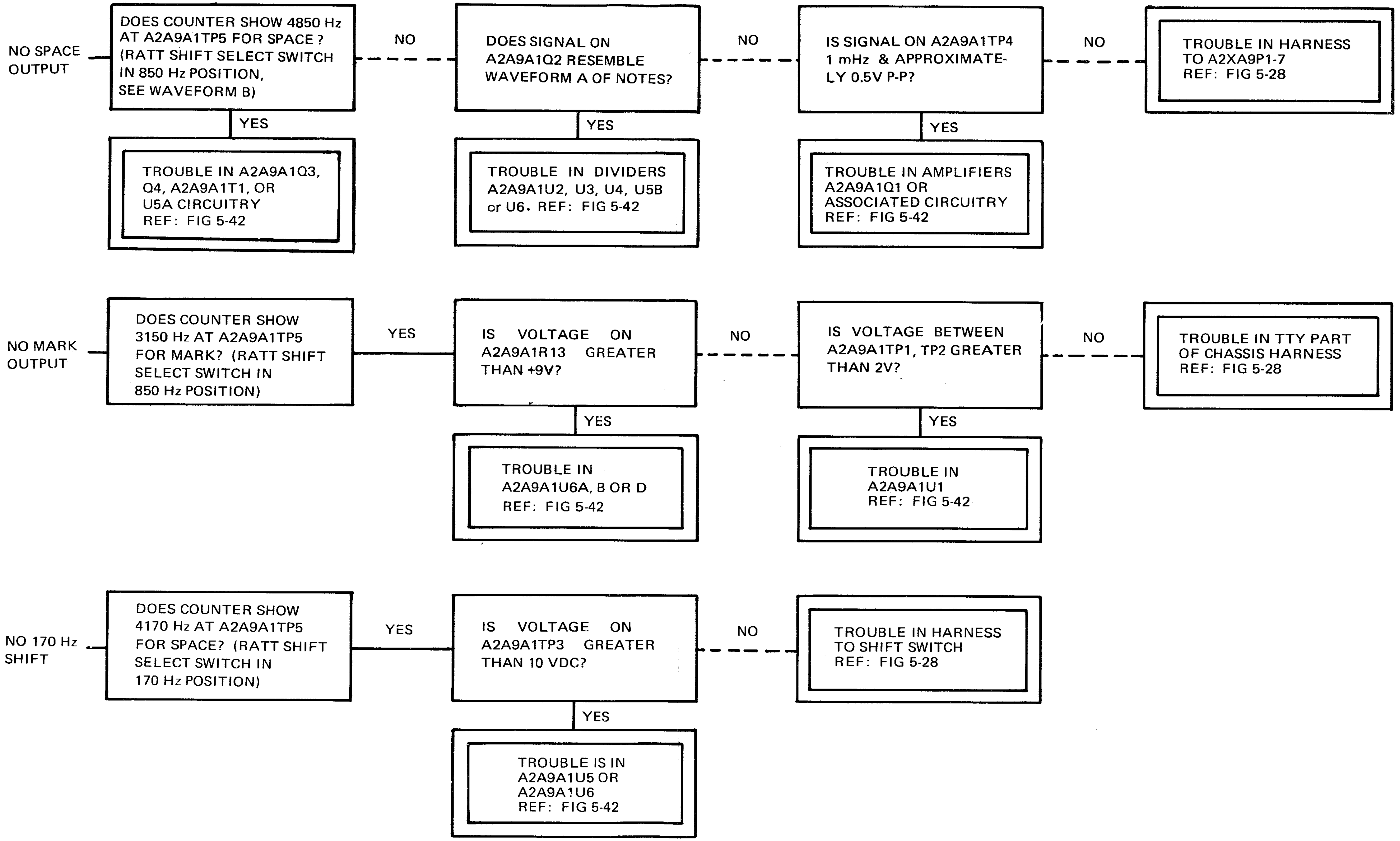


Figure 5-17. RATT Tone Generation, Fault Logic Diagram

GENERAL NOTES

A. ENSURE THAT PROPER POWER SUPPLY AND GATING VOLTAGES ARE APPLIED.

B. TEST SETUP:
REFER TO SIGNAL FLOW DIAGRAM, FIGURE 5-3.
MAKE OSCILLOSCOPE OBSERVATIONS WITH TIME BASE SET FOR 500 kHz (2 uSEC/CM).

C. REFER TO MAINTENANCE SCHEMATIC DIAGRAMS, FIGURES 5-28, 5-29.

D. LEGEND:
YES ————
NO – – – – –

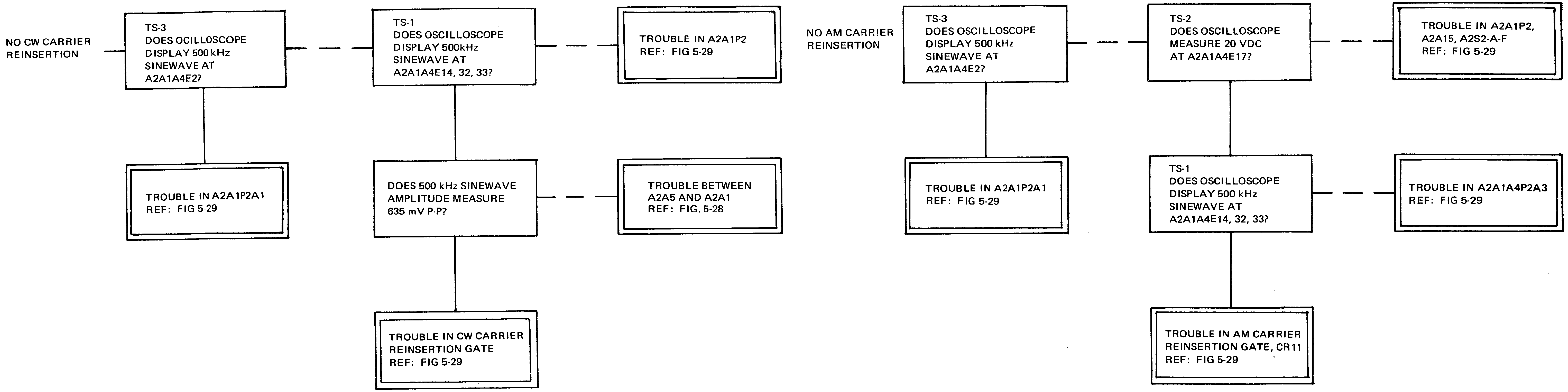


Figure 5-18. Carrier Reinsertion, Fault Logic Diagram

GENERAL NOTES

A. TEST SETUP:
REFER TO SIGNAL FLOW DIAGRAM 5-4.

B. REFER TO:
MAINTENANCE SCHEMATIC DIAGRAMS, FIGURES 5-28, 5-43.

C. LEGEND:
YES ———
NO - - - - -

SPECIFIC NOTES

1. REMOVE IF AMPLIFIER A2A12 FROM CHASSIS AND REINSTALL ON EXTENDER CABLE.
2. USE OSCILLOSCOPE AN/USM-281 WITH AC PROBE 28480-1121A FOR TESTS.
3. OBSERVE THE OSCILLOSCOPE WITH TIME BASE SET FOR 500 KHZ (2 uSEC/CM).
4. DISCONNECT FREQUENCY STANDARD AN/URQ-10 INPUT AT A2A12P1-A2.

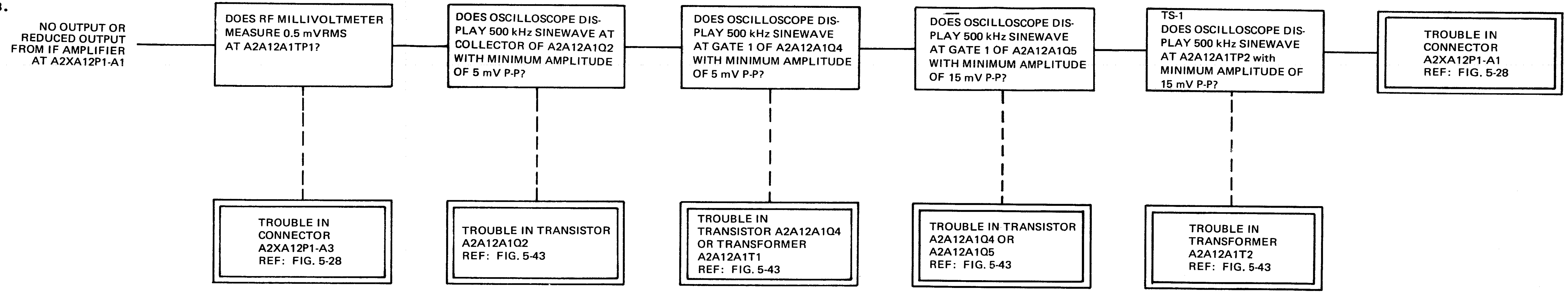


Figure 5-19. IF Amplification and Level Control Fault Logic Diagram

GENERAL NOTES

A. ENSURE THAT PROPER POWER SUPPLY AND GATING VOLTAGES ARE APPLIED.

B. TEST SETUP:
REFER TO SIGNAL FLOW DIAGRAM, FIGURE 5-5.

C. REFER TO MAINTENANCE SCHEMATIC DIAGRAMS, FIGURES 5-28, 5-32, 5-33.

D. LEGEND:
YES ———
NO - - - - -

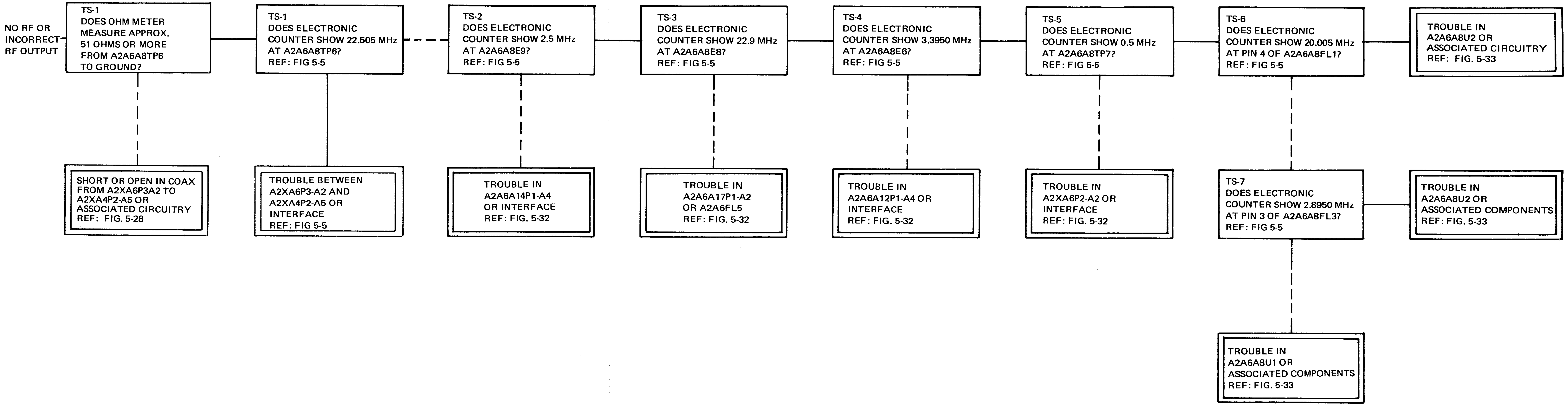


Figure 5-20. IF-to-RF Conversion, Fault Logic Diagram

GENERAL NOTES

A. TEST SETUP:
REFER TO SIGNAL FLOW DIAGRAM, FIGURE 5-6.

B. REFER TO SCHEMATIC DIAGRAM, FIGURE 5-30.

C. LEGEND:
YES ———
NO - - - - -

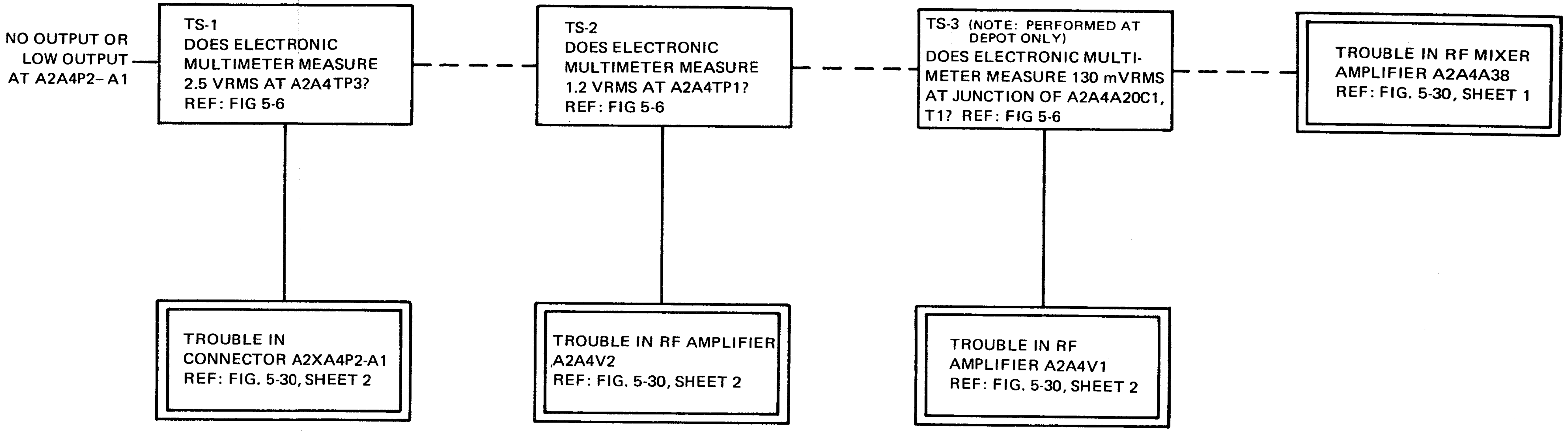


Figure 5-21. RF Amplification and Level Control, Fault Logic Diagram

A. TEST SETUP:
REFER TO SIGNAL FLOW DIAGRAM,
FIGURE 5-7.

B. REFER TO SCHEMATIC DIAGRAM,
FIGURE 5-31

C. LEGEND:
YES ———————
NO - - - - - -

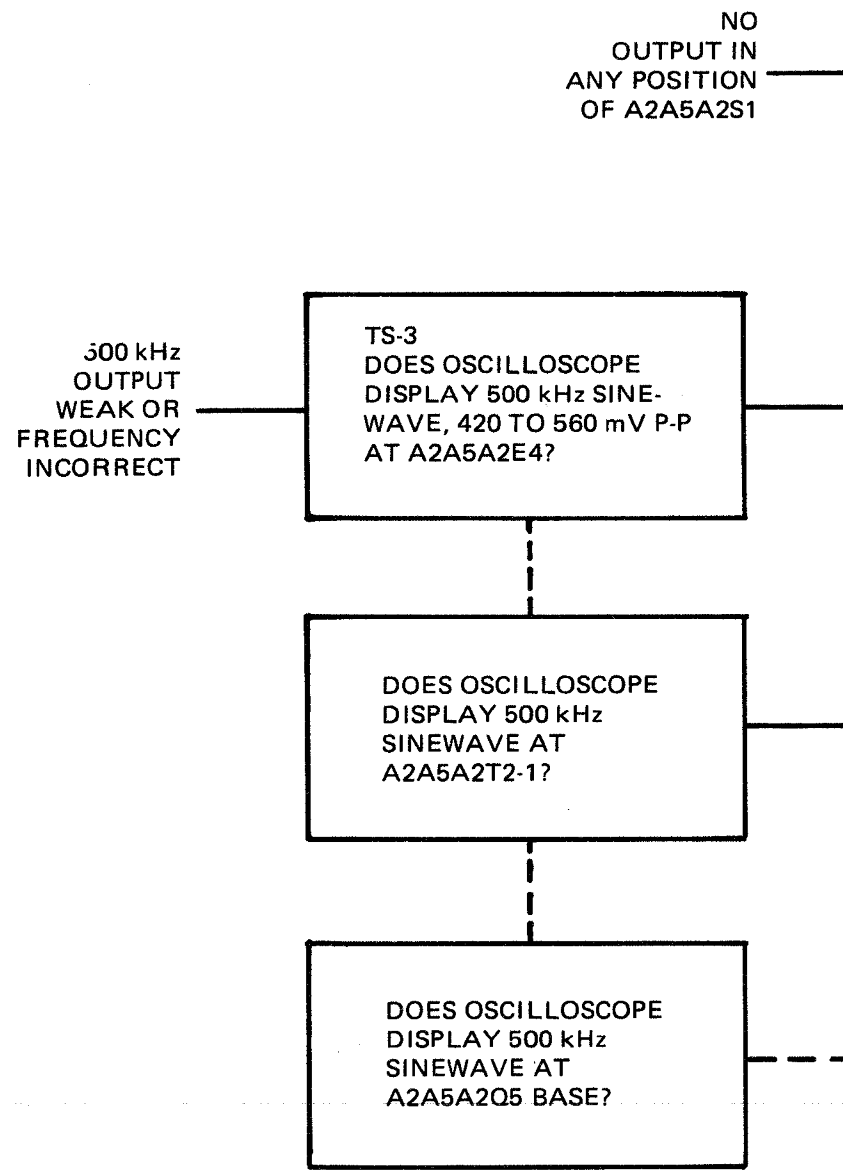


Figure 5-22. Frequency Standard A2A5, Fault Logic Diagram

GENERAL NOTES

A. REFER TO SIGNAL FLOW DIAGRAM, FIGURE 5-8 FOR TEST SETUP, AND TABLE 6-5 FOR WAVEFORMS.

B. REFER TO MAINTENANCE SCHEMATIC DIAGRAMS, FIGURES 5-32, 5-38.

C. LEGEND:

YES ————

NO - - - - - -

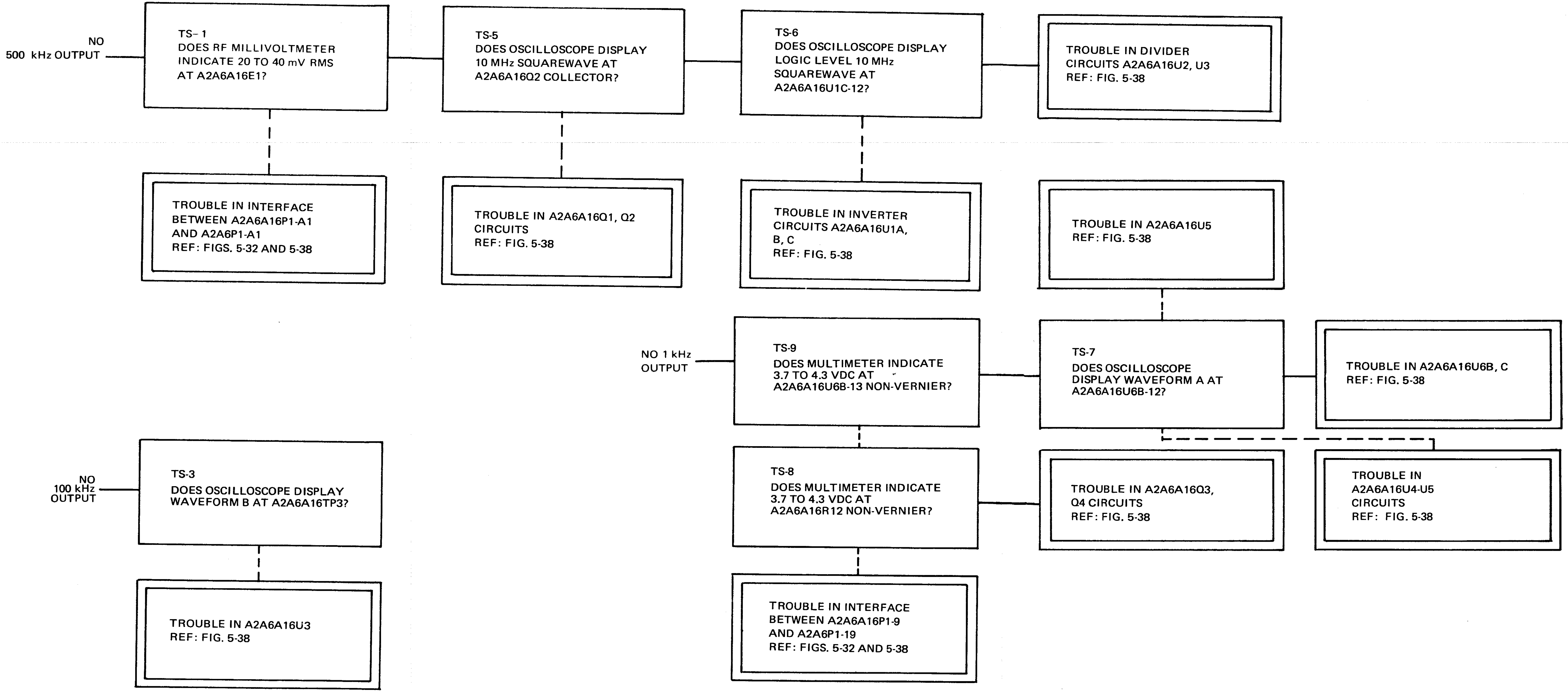


Figure 5-23. Frequency Generator A2A6A16, Fault Logic Diagram

NOTES FOR FIGURE 5-24

GENERAL NOTES

A. REFER TO SIGNAL FLOW DIAGRAM, FIGURE 5-9, FOR TS-2 AND TS-4 TEST STEPS, AND TABLE 6-7 FOR WAVEFORMS.

B. REFER TO MAINTENANCE SCHEMATIC DIAGRAMS, FIGURES 5-34, 5-38, 5-40.

C. LEGEND:
YES ———
NO - - - - - -

SPECIFIC NOTES

1. REMOVE POWER FROM TEST FIXTURE. RELEASE LATCHES AND REMOVE 10 kHz/1 kHz/100 Hz SYNTHESIZER SUBASSEMBLIES A2A6A18 AND A2A6A12. PLACE EXTENDER CARD 01A228400-01 IN A2A6A18 LOCATION AND MATE CONNECTOR A2A6A18P1 WITH CONNECTOR ON EXTENDER CARD. DO NOT REINSTALL THE A2A6A12 SUBASSEMBLY. SET THE TEST FIXTURE CONTROLS TO TEST A WRC-1 100 Hz TYPE MODULE IN THE TRANSMIT MODE AT 2.0011 MHz. SET RF SIGNAL GENERATOR 28480-8640B-001-003 FOR A 300 mVRMS OUTPUT AT 33.989 MHz AND CONNECT OUTPUT TO TEST POINT A2A6A18TP1. PERFORM ADDITIONAL TEST SETUP AND PRELIMINARY CHECK AS DESCRIBED IN NOTES 5 AND 6 OF FIGURE 5-9. AT THE COMPLETION OF CHECKS RESTORE A2A6 ASSEMBLY TO NORMAL OPERATING CONDITION.

2. REMOVE POWER FROM TEST FIXTURE. RELEASE LATCHES AND REMOVE 10 kHz/1 kHz/100 Hz SYNTHESIZER SUBASSEMBLIES A2A6A18 AND A2A6A12. PLACE EXTENDER CARD 01A228390-01 IN A2A6A12 LOCATION AND MATE CONNECTOR A2A6A12P1 WITH CONNECTOR ON EXTENDER CARD. DO NOT REINSTALL THE A2A6A18 SUBASSEMBLY. SET THE TEST FIXTURE CONTROLS TO TEST A WRC-1 100 Hz TYPE MODULE IN THE TRANSMIT MODE AT 2.0011 MHz. SET FUNCTION GENERATOR 28480-3300A FOR A 4 V PEAK OUTPUT AT 950 Hz AND CONNECT OUTPUT TO TEST POINT A2A6A12TP2. PERFORM ADDITIONAL TEST SETUP AND PRELIMINARY CHECK AS DESCRIBED IN NOTES 5 AND 6 OF FIGURE 5-9.

3. PERFORM TEST SETUP AS DESCRIBED IN NOTE 2 EXCEPT THAT SIGNAL GENERATOR IS SET FOR 1,050 Hz OUTPUT. AT THE COMPLETION OF CHECKS RESTORE A2A6 ASSEMBLY TO NORMAL OPERATING CONDITION.

Figure 5-24. 10 kHz/1 kHz/100 Hz Synthesizer A2A6A18 and A2A6A12, Fault Logic Diagram

NOTES FOR FIGURE 5-25

GENERAL NOTES

A. REFER TO SIGNAL FLOW DIAGRAM, FIGURE 5-10, FOR TEST STEPS, AND TABLE 6-5 FOR WAVEFORMS.

B. REFER TO MAINTENANCE SCHEMATIC DIAGRAMS, FIGURES 5-32, 5-39.

C. LEGEND:
YES ____________
NO - - - - - - - - -

D. SET UP INITIAL TESTS BY INFORMATION GIVEN IN NOTES ON FIGURE 5-12.

SPECIFIC NOTES

1. WAVEFORM FREQUENCY MUST BE 100 kHz AS MEASURED ON ELECTRONIC COUNTER AN/USM-207. AMPLITUDE SHOULD BE 4 V PEAK. AN INCORRECT WAVESHAPE, WAVE FREQUENCY OR PULSE AMPLITUDE INDICATES A FAULT AND SHOULD BE INTERPRETED AS "NO".

2. SIGNAL FREQUENCY SHOULD BE 22.4 MHz. WAVESHAPE SHOULD APPROXIMATE WAVEFORM J.

3. REMOVE POWER FROM TEST FIXTURE. REMOVE 100 kHz SYNTHESIZER SUBASSEMBLY A2A6A17 AND REINSTALL ON EXTENDER CARD 01A228398-01. REMOVE FREQUENCY GENERATOR SUBASSEMBLY A2A6A16. SET FUNCTION GENERATOR 28480-3300A FOR A 4 V P-P SQUARE WAVE OUTPUT AT 90 kHz AND CONNECT TO A2A6A17TP1. RESTORE POWER TO TEST FIXTURE. MEASURE DC VOLTAGE AT A2A6A17A1E1. CHANGE FUNCTION GENERATOR FREQUENCY TO 110 kHz AND MEASURE DC VOLTAGE AT A2A6A17A1E1.

4. REMOVE POWER FROM TEST FIXTURE. REMOVE 100 kHz SYNTHESIZER SUBASSEMBLY A2A6A17 AND REINSTALL ON EXTENDER BOARD. SIGNAL AT PIN 1 OF A2A6A17U5 SHOULD APPROXIMATE WAVEFORM H IN SHAPE AND AMPLITUDE AND BE AT A FREQUENCY OF 2.24 MHz.

5. SIGNAL AT PIN 10 OF A2A6A17U5 SHOULD APPROXIMATE WAVEFORM G INVERTED IN SHAPE AND AMPLITUDE AND BE AT A FREQUENCY OF 100 kHz.

Figure 5-25. 100 kHz Synthesizer A2A6A17, Fault Logic Diagram

GENERAL NOTES

A. REFER TO SIGNAL FLOW DIAGRAM, FIGURE 5-11 FOR TEST STEPS, AND TABLE 6-5 FOR WAVEFORMS.

B. REFER TO MAINTENANCE SCHEMATIC DIAGRAMS, FIGURES 5-35, 5-36.

C. LEGEND:
YES ————————
NO - - - - - - -

D. REFER TO FREQUENCY TRANSLATION CHART, TABLE 3-1.

SPECIFIC NOTES

1. TESTS OUTLINED IN THE NOTES ON SIGNAL FLOW DIAGRAM, FIGURE 5-11 MUST BE PERFORMED IN THEIR ENTIRETY TO DETERMINE WHICH FREQUENCY RANGES ARE MALFUNCTIONING BEFORE FAULT LOGIC DIAGRAM 5-26 IS USED.

2. SIGNAL SHOULD BE PRESENT AT TEST POINTS INDICATED FOR THE RANGE SELECTED ONLY.
   EXAMPLE: NO OUTPUT AT A2A6A14TP5 WHEN FREQUENCY CONTROLS ARE SET AT 8.0000 MHz. FREQUENCY TRANSLATION CHART, TABLE 3-1, SHOWS THE HIGH FREQUENCY MIXER INJECTION SIGNAL SHOULD BE 11.5 MHz. THUS ONLY A2A6A14TP4 SHOULD HAVE A SIGNAL PRESENT. SIMILARLY, ONLY A2A6A14TP3 SHOULD BE AT 0 - 0.4 VDC.

3. REMOVE POWER FROM TEST FIXTURE. REMOVE A2A6A13 AND A2A6A14 SUBASSEMBLIES AND REINSTALL ON EXTENDER CARDS 01A228392-01 AND 01A228394-01 RESPECTIVELY.

4. REFER TO FREQUENCY TRANSLATION CHART, TABLE 3-1, FOR CORRECT FREQUENCY FOR INDICATED CONTROL SETTINGS.

5. SIGNAL SHOULD HAVE AN AMPLITUDE OF 4 V P-P. FREQUENCY WILL VARY BUT SHOULD BE IN CORRECT RANGE.

6. COMPARE SIGNALS WITH FREQUENCY COUNTER.

7. REMOVE POWER FROM TEST FIXTURE. REMOVE FREQUENCY GENERATOR SUBASSEMBLY A2A6A16. CONNECT FUNCTION GENERATOR 28480-3300A TO A2A6A13TP2. SET CONTROLS OF FUNCTION GENERATOR FOR A 300 kHz SQUARE WAVE WITH A 4 V P-P AMPLITUDE. RE-POWER TEST FIXTURE. MEASURE VOLTAGE AT THE JUNCTION OF A2A6A13R19 AND C14. CHANGE FUNCTION GENERATOR FREQUENCY TO 1 MHz. MEASURE VOLTAGE AT JUNCTION OF A2A6A13R19 AND C14. VOLTAGE SHOULD RANGE FROM 1 VDC AT 300 kHz TO 9.5 VDC AT 1 MHz.

Figure 5-26. 10 MHz/1 MHz Synthesizer A2A6A13, Fault Logic Diagram

GENERAL NOTES

A. TEST SETUP: REFER TO SCHEDULED PERFORMANCE TEST SETUP, FIGURE 4-1 AND TABLE 4-3.

B. REFER TO CW, RATT, DATA AND PTT KEYING CONTROL DIAGRAM, FIGURE 5-12, MAINTENANCE SCHEMATIC DIAGRAM, FIGURE 5-28.

C. LEGEND:
YES ————
NO - - - - - - -

SPECIFIC NOTES

1. INSTALL CW KEY IN LOCAL JACK.

2. CHECK FOR GROUND BY CONNECTING MULTIMETER 28480-410C, SET TO MEASURE OHMS, BETWEEN SPECIFIED POINT AND CHASSIS GROUND.

3. MEASURE DC VOLTAGES BY CONNECTING ELECTRONIC MULTIMETER AN/USM-311, SET IN PROPER DC VOLTAGE RANGE, BETWEEN SPECIFIED POINT AND CHASSIS GROUND.

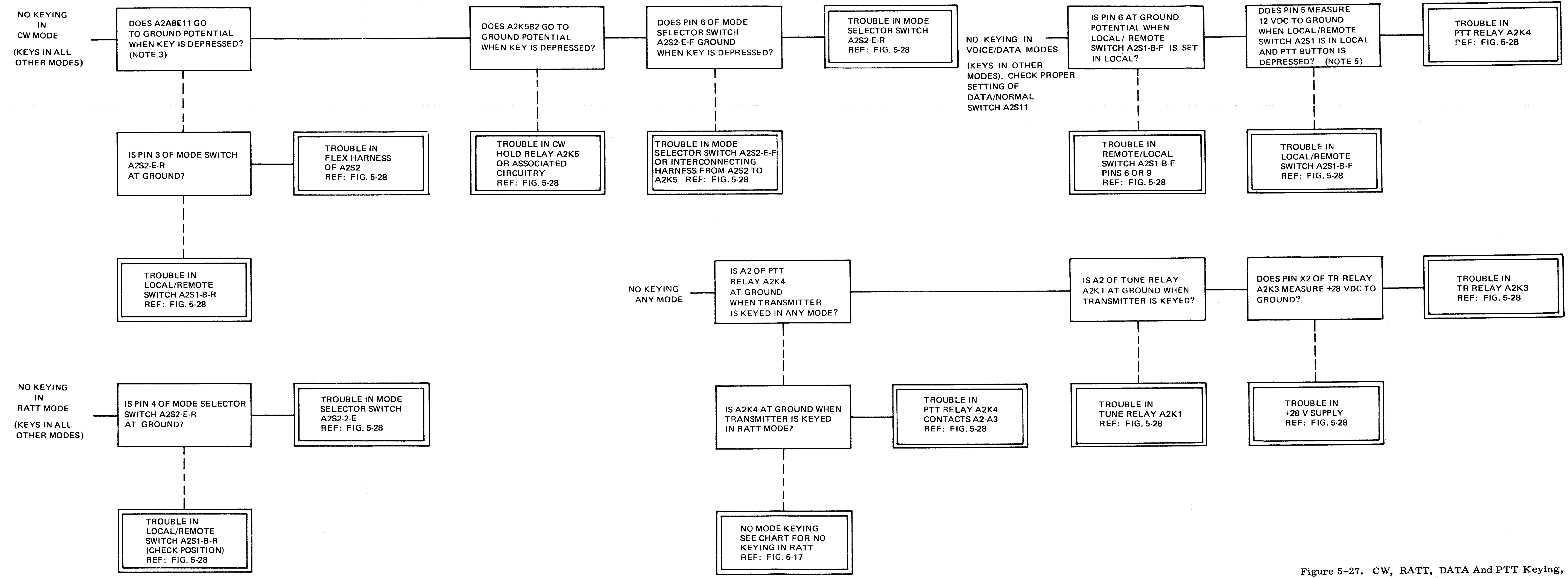


Figure 5-27. CW, RATT, DATA And PTT Keying, Fault Logic Diagram

NOTES FOR FIGURE 5-28

GENERAL NOTES

A. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATIONS PREFIX WITH NUMBERS OF HIGHER ASSEMBLIES.

B. ALL RESISTANCE VALUES IN OHMS ±5%, ALL RESISTORS 1/4 WATT, UNLESS OTHERWISE NOTED.

C. ALL CAPACITANCE VALUES IN MICROFARADS, UNLESS OTHERWISE NOTED.

D. SWITCHES A2S1 AND A2S2 ARE SHOWN AS VIEWED FROM REAR OF FRONT PANEL. A BLACK SWITCH TERMINAL INDICATES A LONG CONTACT CLIP AT THAT POINT.

E. INDICATES BREAK POINTS USED TO REDUCE DIAGRAM CLUTTER. TO FIND MATING END OF BROKEN LINE, PROCEED FROM BREAK POINT IN PARALLEL WITH DIAGRAM BORDER.

F. INDICATES FRONT PANEL MARKING.

SPECIFIC NOTES

1. THE VALUE OF A2R6 (SHEET 1, ZONE 4D) IS SELECTED FROM 18K TO 220K OR 1 MEGOHM TO GIVE A CW HOLD TIME OF 1 TO 1.7 SECONDS. THE CW HOLD TIME IS INCREASED BY LOWERING THE VALUE OF A2R6.

2. FOR BALANCED 600 OHM LINE OPERATION, GROUND A2E59 (SHEET 1, ZONE 16B) AND A2E60 (SHEET 1, ZONE 16A) TO A2E61 AND A2E62, RESPECTIVELY.

3. CAPACITORS A1C1 THRU C50 ARE ALL 1000 pF.

4. WHEN NTDS DATA AUDIO IS APPLIED THRU A1J8, THE JUMPER WIRES ACROSS E43 - E44, E45 - E46 (SHEET 1, ZONE 12B), E47 - E48 (SHEET 1, ZONE 9B) AND E49 - E50 (SHEET 1, ZONE 14A) SHOULD BE REMOVED.

5. TERMINAL LAYOUTS FOR SELECTED RELAYS, COILS, CONNECTORS, SWITCHES, AND TRANSISTORS APPEAR ON THE APRONS OF SHEETS 1, 2, AND 3.

6. TRANSISTOR AND INTEGRATED CIRCUIT VOLTAGE VALUES ARE TABULATED ON SHEET 1.

NOTES FOR FIGURE 5-28 (CONTINUED)

PART LOCATION INDEX

REF DES	SHEET	ZONE	REF DES	SHEET	ZONE
A1J1 thru A1J22		*	A1P1-38 thru P1-40		*
J23	2	2G	P1-41	1	25B
J24	3	2C	P1-42	1	25B
J25	1	26G	P1-43	3	11E
P1-1		*	P1-44	3	12F
P1-2		*	P1-45	3	12E
P1-3	3	5B	P1-46	3	11E
P1-4	3	3D	P1-47 thru P1-49		*
P1-5		*			
P1-6	3	12B			
P1-7	3	3F	P1-50	3	12B
P1-8		*	P2A1	1	25G
P1-9	3	12G	P2A2	1	20G
P1-10		*	P2A3	2	3G
P1-11		*	S1	3	12D
P1-12	2	3E	S2	3	11D
P1-13	3	12C	A1A1C1	3	13E
P1-14		*	C2	3	13E
P1-15		*	C3	3	2B
P1-16	3	12F	C4	3	2D
P1-17	3	3F	C5	1	25E
P1-18 thru P1-20		*	C6	3	13B
			C7	3	2F
			C8	1	25F
P1-21	3	3F	C9	3	13G
P1-22		*	C10	1	25C
P1-23	1	25B	C11	1	25F
P1-24	3	5B	C12	2	3E
P1-25	3	5B	C13	3	13C
P1-26	2	3C	C14	1	25G
P1-27	3	12B	C15	1	25G
P1-28	2	3C	C16	3	13F
P1-29	1	25A	C17	3	2 F
P1-30		*	C18		*
P1-31	2	3C	C19	1	25C
P1-32	3	3F	C20	1	25B
P1-33	2	3D	C21	3	2F
P1-34		*	C22	1	25D
P1-35	2	3D	C23	1	25B
P1-36	3	3G	C24	3	2B
P1-37	1	25A	C25	3	2B

* NOT USED

NOTES FOR FIGURE 5-28 (CONTINUED)

PART LOCATION INDEX (CONTINUED)

REF DES	SHEET	ZONE	REF DES	SHEET	ZONE
A1A1C26	2	3C	A1A1J4-l		*
C27	3	13B	J4-m	3	2C
C28	2	3C	J4-n	3	2D
C29	1	25A	J4-o		*
C30		*	J4-p	3	2F
C31	2	3C	J4-q	1	26C
C32	3	2F	J4-r	1	26C
C33	2	3D	J4-s	3	13G
C34	1	25C	J4-t	1	26D
C35	2	3D	J4-u		*
C36	3	2G	J4-v	3	2C
C37	1	25A	J4-w	3	2F
C38	1	25D	J4-x	3	2F
C39	1	25D	J4-y	3	2E
C40	1	25F	J4-z	3	2E
C41	1	25B	J4-A	2	2D
C42	1	25B		1	26F
C43	3	13D	J4-B	2	2D
C44	3	13F		1	26F
C45	3	13E	J4-C	2	2C
C46	3	13E	J4-D	2	2C
C47	1	25C	J4-E	2	2C
C48	1	25D	J4-F	3	2D
C49	1	25D	J4-G	1	26B
C50	3	13B	J4-H	1	26D
E1	3	13B	J4-I		*
	1	26A	J4-J	3	13F
J1		*	J4-K	2	2E
J2		*	J4-L	3	2B
J3-A	3	13E	J4-M	3	2B
J3-B	3	13B	J4-N	3	2D
J3-C	3	13E	J4-O		*
J4-a	3	2G	J4-P	3	2B
J4-b	3	2F	J4-Q		*
J4-c	1	26C	J4-R	3	13E
J4-d	1	26G	J4-S	3	13D
J4-e	1	26G	J4-T	1	26F
J4-f	1	26F	J4-U	3	13E
J4-g		*	J4-V	3	2G
J4-h	3	13C	J4-W	3	2D
J4-i	3	13E	J4-X	3	2F
J4-j		*	J4-Y	3	2F
J4-k	1	26E	J4-Z	3	13B

* NOT USED

NOTES FOR FIGURE 5-28 (CONTINUED)

PART LOCATION INDEX (CONTINUED)

REF DES	SHEET	ZONE	REF DES	SHEET	ZONE
A1A1J4-AA	3	2E	A2CR10	2	13A
J4-BB	1	26D	CR11	1	2D
J4-CC	3	2E	DS1		*
J4-DD	3	2E	DS2		*
J4-EE	3	2E	DS3	3	3E
J4-FF	3	2E	DS4	3	3E
J4-GG	3	2D	E1	2	6C
J4-HH	3	2D	E2	2	8E
J5-A	1	26C	E3	2	6B
J5-B	1	26C	E4	1	21C
J6-a		*	E5	1	20C
thru		*		3	6F
J6-f				2	7D
J6-g	1	26F		2	6F
J7-A	1	26C		2	4G
J7-B	1	26D	E6	1	21B
J7-C	1	26D	E7	1	21C
J7-D	3	13B	E8	3	11B
J8-A	1	26B		3	11A
J8-B	1	26B	E9	3	6F
J8-C	1	26B	E10	3	6F
J8-D	1	26A	E11	3	11B
J8-E	1	26A	E12	3	11B
J8-F	1	26A	E13	2	7E
J9			E14	2	6D
thru		*	E15	2	7E
J24			E16	3	11B
J25	1	26G	E17	1	6F
A2C1	3	6F	E18	1	6F
C2	3	9D	E19	3	10C
C3	3	11A	E20	3	10C
C4	1	23F	E21	1	4C
C5	1	22F		1	18B
C6	3	11D	E22	3	4E
CR1	3	10D	E23	3	11B
CR2	2	8E	E24	3	4D
CR3	3	11F	E25		*
CR4	1	20D	E26	3	4E
CR5	1	4D	E27	1	2F
CR6	3	8B		3	12C
CR7	2	4E		1	2C
CR8	3	11A		1	3D
CR9	2	8D		1	23F
				1	3E
				1	16A

* NOT USED

NOTES FOR FIGURE 5-28 (CONTINUED)

PART LOCATION INDEX (CONTINUED)

REF DES	SHEET	ZONE	REF DES	SHEET	ZONE
A2E28	1	8F	A2E49	1	18B
	3	12B	E50	2	12B
E29	2	7F	E51	1	21E
	3	10C		1	18F
	3	10F		2	13A
E30	1	7F	E52	3	11C
	1	15G	E53	3	11F
E31		*	E54	1	16G
E32	3	3E	E55	1	6D
E33	3	4F	E56	1	3C
	1	19B		3	4G
	1	19C	E57	2	4E
E34	1	8C	E58	2	4E
	1	5F	E59	1	16B
	1	8F	E60	1	16A
E35	2	5E	E61	1	16B
E36		*	E62	1	16A
E37	3	12B		1	23F
	1	9G	F1	3	9E
	1	8B	F2	3	9F
	1	22F	J1-A	3	2G
	3	12F	J1-B	3	2G
E38	3	9D	J1-C	1	27E
	3	5G	J1-D	3	2A
E39	1	3B	J1-E	1	27E
	2	4A	J2	1	22B
	1	17G	J3 thru J7		*
E40	1	3C			
	1	22C			
	1	1E	J8-1F	2	5D
	1	22D	J8-2G	2	5D
E41		*	J8-3H	2	5D
E42	2	13A	J8-4J	2	5D
	2	11B	J8-5K	2	5D
	1	21A	J8-6	2	6E
E43		*	J8-7	2	6D
E44		*	J8-8	2	6E
E45	3	3E	J8-9	2	6C
	1	17G	J8-10	2	6C
E46	3	4D	J8-11	2	6C
E47		*	J8-12	2	6C
E48		*	J8-13	2	5D

* NOT USED

NOTES FOR FIGURE 5-28 (CONTINUED)

PART LOCATION INDEX (CONTINUED)

REF DES	SHEET	ZONE	REF DES	SHEET	ZONE
A2J8-14	2	5D	A2J21-29	1	25A
J8-15	2	5C	J21-30		*
J8-16	2	5C	J21-31	2	3C
J8-17	2	5C	J21-32	3	3F
J8-18	2	5C	J21-33	2	3D
J8-19	2	5E	J21-34	1	25C
J8-20	2	5E	J21-35	2	3D
J8-21A	2	6C	J21-36	3	3G
J8-22B	2	6C	J21-37	1	25A
J8-23C	2	6C	J21-38	1	25D
J8-24D	2	6C	J21-39	1	25D
J8-25E	2	6D	J21-40	1	25F
J9 thru J20		*	J21-41	1	25B
			J21-42	1	25B
			J21-43		*
J21-1		*	J21-44	3	12F
J21-2		*	J21-45	3	12E
J21-3	3	5A	J21-46		*
J21-4		*	J21-47	1	25C
J21-5	1	25E	J21-48	1	25D
J21-6	3	12B	J21-49	1	25D
J21-7	3	3F	J21-50	3	12B
J21-8	1	25F	J22-A1	1	25G
J21-9	3	12G	J22-A2	1	19G
J21-10	1	25C	J22-A3	2	3G
J21-11	1	25F	J23-1		*
J21-12	2	3E	J23-2		*
J21-13	3	12C	J23-3	3	11F
J21-14	1	25G	J23-4	2	4E
J21-15	1	25G	J23-5	1	19A
J21-16	3	12F	J23-6	1	18B
J21-17	3	3F	J23-7	1	19D
J21-18		*	J23-8	1	20D
J21-19	1	25C	J23-9	1	16A
J21-20	1	25B	J23-10	3	10B
J21-21	3	3F	J23-11	3	8B
J21-22	1	25D	J23-12	3	9F
J21-23	1	25B	J23-13	1	16E
J21-24	3	5B	J23-14	1	17E
J21-25	3	5B	J23-15	1	19E
J21-26	2	3C	J23-16	3	10E
J21-27	3	12B	J23-17	1	21E
J21-28	2	3C	J23-18	3	10E

* NOT USED

NOTES FOR FIGURE 5-28 (CONTINUED)

PART LOCATION INDEX (CONTINUED)

REF DES	SHEET	ZONE	REF DES	SHEET	ZONE
A2J23-19	1	6E	A2K3-C3	2	7F
J23-20		*	K3-D1	2	7E
J23-21	1	2D	K3-D2	2	8F
J23-22	1	3C	K3-D3	2	7E
J23-23	1	2E	K3-X1	3	10F
J23-24	2	5E	K3-X2	3	10F
J23-25		*	K4-A1	1	21C
J23-26	1	18C	K4-A2	1	21C
J23-27	1	22D	K4-A3	1	21C
J23-28	1	18D	K4-X1	1	21C
J23-29		*	K4-X2	1	21C
J23-30	3	9A	K5-A1		
J23-31	1	6D	thru		*
J23-32	1	6F	K5-A3		
J23-33	1	7D	K5-B1	1	18B
J23-34	3	10E	K5-B2	1	18B
J23-35		*	K5-B3	1	18B
J23-36	1	7E	K5-X1	1	4D
J23-37	1	3E	K5-X2	1	4D
K1-A1	1	19A	K6-A1		
K1-A2	1	19A	thru		*
K1-A3	1	19B	K6-A3		
K1-B1	3	10D	K6-B1	3	9C
K1-B2	3	10D	K6-B2	3	9C
K1-B3	3	10C	K6-B3	3	9C
K1-X1	3	10D	K6-X1	3	9B
K1-X2	3	10D	K6-X2	3	9C
K2-A1	2	7D	L1	3	6F
K2-A2	2	8D	L2	3	4E
K2-A3	2	7D	M1	1	3C
K2-B1	2	7E	M2	1	3A
K2-B2	2	8E	P1-1		*
K2-B3	2	7E	P1-2		*
K2-X1	2	8D	P1-3	3	11F
K2-X2	2	8D	P1-4	2	4E
K3-A1	3	6G	P1-5	1	19A
K3-A2	3	6F	P1-6	1	18B
K3-A3	3	6G	P1-7	1	19D
K3-B1	3	10F	P1-8	1	20D
K3-B2	3	10G	P1-9	1	16A
K3-B3	3	10G	P1-10	3	10B
K3-C1	2	7F	P1-11	3	8B
K3-C2	2	8F	P1-12	3	9F

* NOT USED

NOTES FOR FIGURE 5-28 (CONTINUED)

PART LOCATION INDEX (CONTINUED)

REF DES	SHEET	ZONE	REF DES	SHEET	ZONE
A2P1-13	1	16E	A2S2-A-F	1	6E
P1-14	1	17F		3	10E
P1-15	1	19E	S2-A-R	1	6D
P1-16	3	10E		1	20E
P1-17	1	21E	S2-B-F	3	10F
P1-18	3	10E	S2-B-R	1	17E
P1-19	1	5E	S2-C-F	3	9B
P1-20		*	S2-C-R	1	17C
P1-21	1	2D	S2-D-F	1	21D
P1-22	1	3C	S2-D-R	2	4E
P1-23	1	2E	S2-E-F	1	17A
P1-24	2	5E	S2-E-R	1	2E
P1-25		*	S3-F	2	4A, 4B
P1-26	1	18C	S4-F	2	5A, 5B
P1-27	1	22D	S5-F	2	6A, 6B
P1-28	1	18D	S5-R	2	7B
P1-29		*	S6	2	10A, 10B
P1-30	3	9A	S6-F	2	11B
P1-31	1	6D	S6-R	2	11A
P1-32	1	6F	S7	1	6B
P1-33	1	7D	S8	1	6C
P1-34	3	10E	S9	1	18F
P1-35		*	S10	1	20B
P1-36	1	7E	S11	1	17G
P1-37	1	3E	T1	3	8E, 8F
Q1	3	9D	XA1P1A1	1	4G
R1	3	6F	P1-1	1	8G
R2	3	4E	P1-2	1	7G
R3	3	11B	P1-3		*
R4	1	21B	P1-4		*
R5	2	12B	P1-5	1	7G
R6	1	4D	P1-6	1	8G
R7	3	11C	P1-7	1	7G
R8	1	20B	P2A1	1	4G
R9	1	3C	P2A2		*
S1-A-F	1	21B	P2A3	1	8G
	1	21E	P2-1	1	6G
S1-A-R	1	22E	P2-2	1	6G
	1	22C	P2-3		*
S1-B-F	1	22C	P2-4	1	5G
	1	22D	P2-5	1	5G
S1-B-R	1	21A	P2-6	1	5G
	3	11F	P2-7	1	6G
			P2-8	1	6G

* NOT USED

NOTES FOR FIGURE 5-28 (CONTINUED)

PART LOCATION INDEX (CONTINUED)

REF DES	SHEET	ZONE
A2XA1P2-9	1	5G
P2-10	1	6G
P2-11	1	6G
P2-12		*
P2-13		*
P2-14	1	5G
P2-15 thru P2-19		*
P2-20	1	6G
P2-21	1	*
P2-22	1	5G
A2XA2		*
A2XA3		*
A2XA4P1-1F	2	6F
P1-2G	2	6F
P1-3H	2	6F
P1-4J	2	6F
P1-5K	2	6F
P1-6	2	6F
P1-7	2	6F
P1-8	2	6F
P2A1	2	4G
P2A2	2	5F
P2A3	2	4G
P2A4	2	7G
P2A5	2	7G
P2-1	2	5G
P2-2	2	5G
P2-3 thru P2-6		*
P2-7	2	5G
P2-8	2	5G
P2-9	2	5G
P2-10	2	5G
P2-11	2	7G
P2-12	2	4G
A2XA5P1A1	1	21G
P1A2	1	20G
P1A3	1	22G
P1A4	1	24G
P1A5	1	21G
P1A6	1	20G

REF DES	SHEET	ZONE
A2XA5P1-1	1	23G
P1-2	1	23G
P1-3	1	22G
A2XA6P1A1	2	15F
P1A2	2	15E
P1A3	2	15D
P1-1A	2	8C
P1-2B	2	8C
P1-3C	2	8C
P1-4D	2	8C
P1-5E	2	8D
P1-6	2	8D
P1-7	2	8D
P1-8	2	8E
P1-9		*
P1-10	2	8F
P1-11	2	12B
P1-12	2	12B
P1-13	2	11B
P1-14	2	11B
P1-15	2	11B
P1-16	2	8F
P1-17	2	12B
P1-18	2	8F
P1-19	2	11B
P1-20	2	8E
P1-21	2	12B
P2A1		*
P2A2	2	15G
P2A3	2	10B
P3A1		*
P3A2	2	8G
A2XA7		*
A2XA8		*
A2XA9P1-1	1	19B
P1-2	1	19C
P1-3	1	19C
P1-4	1	19B
P1-5	1	19B
P1-6		*
P1-7	1	19B
P1-8	1	19C
P1-9	1	19B
A2XA10		*
A2XA11		*

* NOT USED

NOTES FOR FIGURE 5-28 (CONTINUED)

PART LOCATION INDEX (CONTINUED)

REF DES	SHEET	ZONE
A2XA12P1A1	1	1G
P1A2	1	3G
P1A3	1	3G
P1-1 thru P1-5		*
P1-6	1	2G
P1-7	1	2G
P1-8	1	2G
P1-9		*
P1-10	1	2G
A2A1P1A1	1	4G
P1-1	1	8G
P1-2	1	7G
P1-3		*
P1-4		*
P1-5	1	7G
P1-6	1	8G
P1-7	1	7G
P1-8		*
P1-9		*
P1-10	1	7G
P2A1	1	4G
P2A2		*
P2A3	1	8G
P2-1	1	6G
P2-2	1	6G
P2-3		*
P2-4	1	5G
P2-5	1	5G
P2-6	1	5G
P2-7	1	6G
P2-8	1	6G
P2-9	1	5G
P2-10	1	6G
P2-11	1	6G
P2-12		*
P2-13		*
P2-14	1	5G
P2-15 thru P2-19		*
P2-20	1	6G
P2-21		*
P2-22	1	5G
A2A2		*
A2A3		*
A2A4P1-1F	2	6F
P1-2G	2	6F
P1-3H	2	6F
P1-4J	2	6F
P1-5K	2	6F
P1-6	2	6F
P1-7	2	6F
P1-8	2	6F
P2A1	2	4G
P2A2	2	5F
P2A3	2	4G
P2A4	2	7G
P2A5	2	7G
P2-1	2	5G
P2-2	2	5G
P2-3 thru P2-6		*
P2-7	2	5G
P2-8	2	5G
P2-9	2	5G
P2-10	2	5G
P2-11	2	7G
P2-12	2	4G
A2A5P1A1	1	21G
P1A2	1	20G
P1A3	1	22G
P1A4	1	24G
P1A5	1	21G
P1A6	1	20G
P1-1	1	23G
P1-2	1	23G
P1-3	1	22G
A2A6AT1P1	2	14E
AT2P1	2	14D
P1A1	2	15F
P1-1A	2	8C
P1-2B	2	8C
P1-3C	2	8C
P1-4D	2	8C
P1-5E	2	8D

* NOT USED

NOTES FOR FIGURE 5-28 (CONTINUED)

PART LOCATION INDEX (CONTINUED)

REF DES	SHEET	ZONE	REF DES	SHEET	ZONE
A2A6P1-6	2	8D	A2A7P1-23C	2	6C
P1-7	2	8D	P1-24D	2	6C
P1-8	2	8E	P1-25E	2	6D
P1-9		*	A2A8C1	3	7E
P1-10	2	8F	C2	3	6E
P1-11	2	12B	C3	3	7D
P1-12	2	12B	C4	3	6D
P1-13	2	11B	C5	3	5D
P1-14	2	11B	C6	3	4D
P1-15	2	11B	C7	3	7C
P1-16	2	8F	C8	3	7B
P1-17	2	12B	C9	3	5F
P1-18	2	8F	C10	1	5D
P1-19	2	11B	C11	1	5D
P1-20	2	8E	CR1	3	7F
P1-21	2	12B	CR2	3	7F
P2A1		*	CR3	3	7F
P2A2	2	15G	CR4	3	7F
P2A3	2	10B	CR5	3	7E
P3A1		*	CR6	3	7E
P3A2	2	8G	CR7	3	7E
A2A7P1-1F	2	5D	CR8	3	7E
P1-2G	2	5D	CR9	1	5D
P1-3H	2	5D	CR10	3	7C
P1-4J	2	5D	CR11	3	6D
P1-5K	2	5D	CR12	3	6C
P1-6	2	6E	CR13	3	6C
P1-7	2	6D	E1	3	7F
P1-8	2	6E	E2	3	7E
P1-9	2	6C	E3	3	6F
P1-10	2	6C	E4	3	4D
P1-11	2	6C	E5	3	4E
P1-12	2	6C	E6	3	4E
P1-13	2	5D	E7	3	7E
P1-14	2	5D	E8	3	7E
P1-15	2	5C	E9	1	5C
P1-16	2	5C	E10	1	5D
P1-17P1-17	2	5C	E11	1	5D
P1-18	2	5C	E12	3	4F
P1-19	2	5E	E13	1	5D
P1-20	2	5E		3	4F
P1-21A	2	6C	E14	3	7C
P1-22B	2	6C	E15	3	7B

* NOT USED

NOTES FOR FIGURE 5-28 (CONTINUED)

PART LOCATION INDEX (CONTINUED)

REF DES	SHEET	ZONE	REF DES	SHEET	ZONE
A2A8E16	3	7C	A2A10E6	1	5B
E17	3	7C	Q1	1	4B
E18	3	7D	R1	1	5C
E19	3	7D	R2	1	5C
E20	3	7D, 4D	R3	1	5C
Q1	3	7D	R4	1	4C
Q2	3	6D	R5	1	5C
R1	3	5E	R6	1	4C
R2	3	7D	R7	1	5B
R3	3	6D	R8	1	5B
R4	3	6D	R9	1	4B
R5	3	6D	A2A11C1	1	5A
R6	3	5D	C2	1	4A
R7	3	5D	C3	1	4B
R8	3	5C	E1	1	5B
R9	3	5D	E2	1	5B
R10	3	5D	E3	1	4A
R11	3	5C	E4	1	4B
R12	3	7C	E5	1	5A
R13	3	7C	E6	1	5A
R14	3	7B	Q1	1	4A
R15	3	5F	R1	1	5B
R16	1	5C	R2	1	5A
R17	3	5C	R3	1	5B
R18	3	6D	R4	1	4B
U1	3	5D	R5	1	5A
A2A9A1P1-1	1	19B	R6	1	4B
P1-2	1	19C	R7	1	5A
P1-3	1	19C	R8	1	5A
P1-4	1	19B	R9	1	4A
P1-5	1	19B	A2A12A1P1A1	1	1G
P1-6		*	P1A2	1	3G
P1-7	1	19B	P1A3	1	3G
P1-8	1	19C	P1-1 thru P1-5		*
P1-9	1	19B			
A2A10C1	1	5B			
C2	1	4B	P1-6	1	2G
C3	1	4C	P1-7	1	2G
E1	1	5C	P1-8	1	2G
E2	1	5C	P1-9		*
E3	1	4B	P1-10	1	2G
E4	1	4C	A2A13		*
E5	1	5C	A2A14C1	3	10B
			C2	1	23E

* NOT USED

NOTES FOR FIGURE 5-28 (CONTINUED)

PART LOCATION INDEX (CONTINUED)

REF DES	SHEET	ZONE	REF DES	SHEET	ZONE
A2A14C3	3	10A	A2A21K2-2	1	15A
C4	1	23D	K2-3	1	15A
E1	1	23E	K2-4	1	15A
E2	1	23D	K2-5		*
	3	10A	K2-6	1	15A
L1	1	23E	K2-7	1	15A
A2A15C1	1	4E	K2-8	1	15A
C2	1	4D	K2-X1	1	11B
C3	1	5D	K2-X2	1	11B
CR1	1	5E	R1	1	12D
CR2	1	5D	T1-1	1	15B
E1	1	4D	T1-2	1	15B
E2	1	5E	T1-3	1	15B
E3	1	4E	T1-4	1	14B
E4	1	4E	T1-5	1	14B
E5	1	5E	T1-6	1	14B
E6		*	T2-1	1	15B
E7	1	4D	T2-2	1	15B
E8	1	4E	T2-3	1	15B
E9	1	4E	T2-4	1	14B
E10	1	4D	T2-5	1	14B
E11	1	5E	T2-6	1	14B
E12	1	5E	XA1 thru XA17		*
E13	1	5D			
E14	1	5D			
L1	1	4E	XA18-A	1	8C
R1	1	4E	XA18-B	1	9C
R2	1	5E	XA18-C	1	9C
A2A16 thru A2A20		*	XA18-D	1	9C
			XA18-E	1	10C
			XA18-F	1	10C
A2A21CR1	1	11B	XA18-G		*
K1-1		*	XA18-H	1	11C
K1-2	1	15B	XA18-I		*
K1-3	1	15B	XA18-J	1	11C
K1-4	1	15B	XA18-K	1	12C
K1-5		*	XA18-L	1	12C
K1-6	1	15B	XA18-M	1	13C
K1-7	1	15B	XA18-N	1	13C
K1-8	1	15B	XA18-O		*
K1-X1	1	12B	XA18-P	1	13C
K1-X2	1	12B	XA18-Q		*
K2-1		*	XA18-R	1	14C

* NOT USED

NOTES FOR FIGURE 5-28 (CONTINUED)

PART LOCATION INDEX (CONTINUED)

REF DES	SHEET	ZONE	REF DES	SHEET	ZONE
A2A21XA18-S	1	14C	A2A21XA19-V	1	15D
XA18-T	1	14C	-1	1	8E
XA18-U	1	15C	-2	1	9E
XA18-V	1	15C	-3	1	9E
-1	1	8C	-4	1	9E
-2	1	9C	-5	1	10E
-3	1	9C	-6	1	11E
-4	1	9C	-7	1	11E
-5	1	10C	-8	1	11E
-6	1	10C	-9	1	12E
-7	1	11C	-10	1	12E
-8	1	11C	-11	1	13E
-9	1	12C	-12	1	13E
-10	1	12C	-13	1	13E
-11	1	13C	-14	1	14E
-12	1	13C	-15	1	14E
-13	1	13C	-16	1	14E
-14	1	14C	-17	1	15E
-15	1	14C	-18	1	15E
-16	1	14C	A2A21XA20-A	1	8E
-17	1	15C	-B	1	9E
-18	1	15C	-C	1	9E
A2A21XA19-A	1	8D	-D	1	10E
-B	1	9D	-E	1	10E
-C	1	9D	-F	1	10E
-D	1	9D	-G		*
-E	1	10D	-H	1	11E
-F	1	11D	-I		*
-G		*	-J	1	11E
-H	1	11D	-K	1	11E
-I		*	-L	1	12E
-J	1	11D	-M	1	12E
-K	1	12D	-N	1	13E
-L	1	12D	-O		*
-M	1	13D	-P	1	13E
-N	1	13D	-Q		*
-O		*	-R	1	14E
-P	1	13D	-S	1	14E
-Q		*	-T	1	14E
-R	1	14D	-U	1	15E
-S	1	14D	-V	1	15E
-T	1	14D	A2A21XA20-1	1	8F
-U	1	15D	-2	1	9F

* NOT USED

NOTES FOR FIGURE 5-28 (CONTINUED)

PART LOCATION INDEX (CONTINUED)

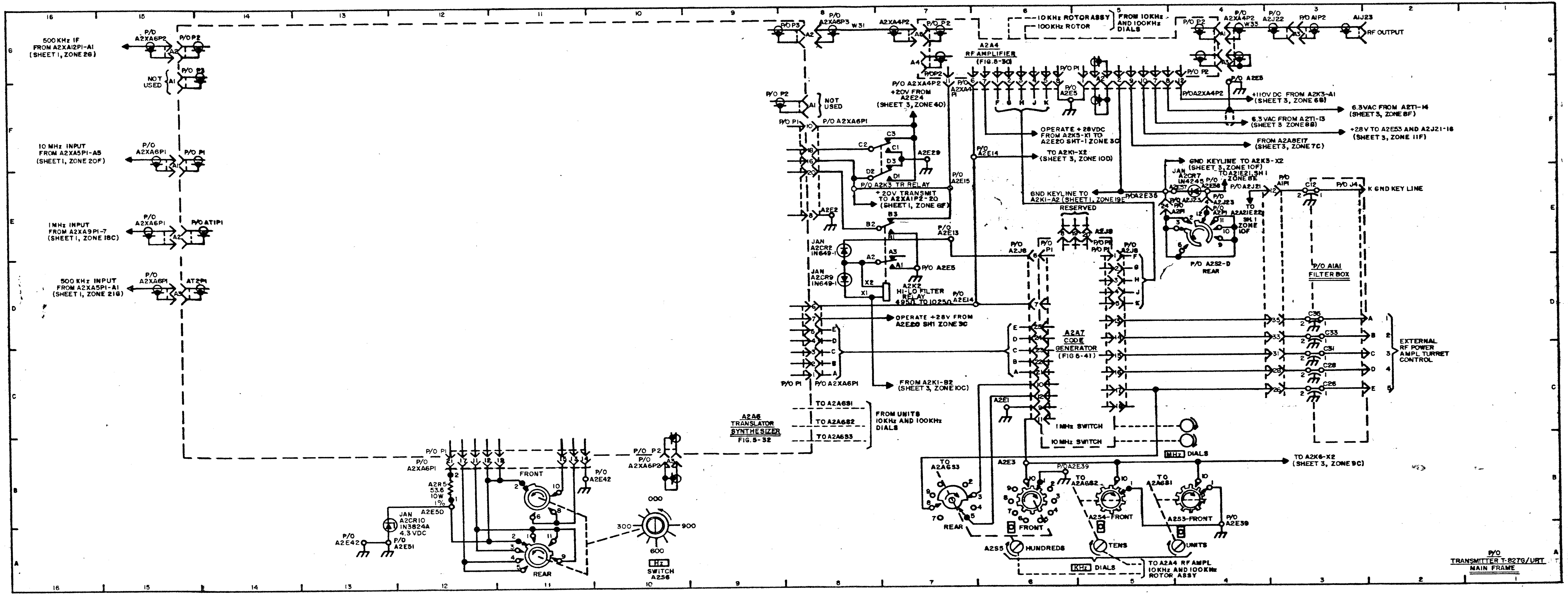
REF DES	SHEET	ZONE
A2A21XA20-3	1	9F
-4	1	10F
-5	1	10F
-6	1	10F
-7	1	11F
-8	1	11F
-9	1	12F
-10	1	12F
-11	1	12F
-12	1	13F
-13	1	13F
-14	1	14F
-15	1	14F
-16	1	14F
-17	1	15F
-18	1	15F

Figure 5-28. Transmitter Case A1 and Main Frame A2, Maintenance Schematic Diagram (Sheet 1 of 3)

From Preliminary Manual

From Preliminary Manual

From Preliminary Manual



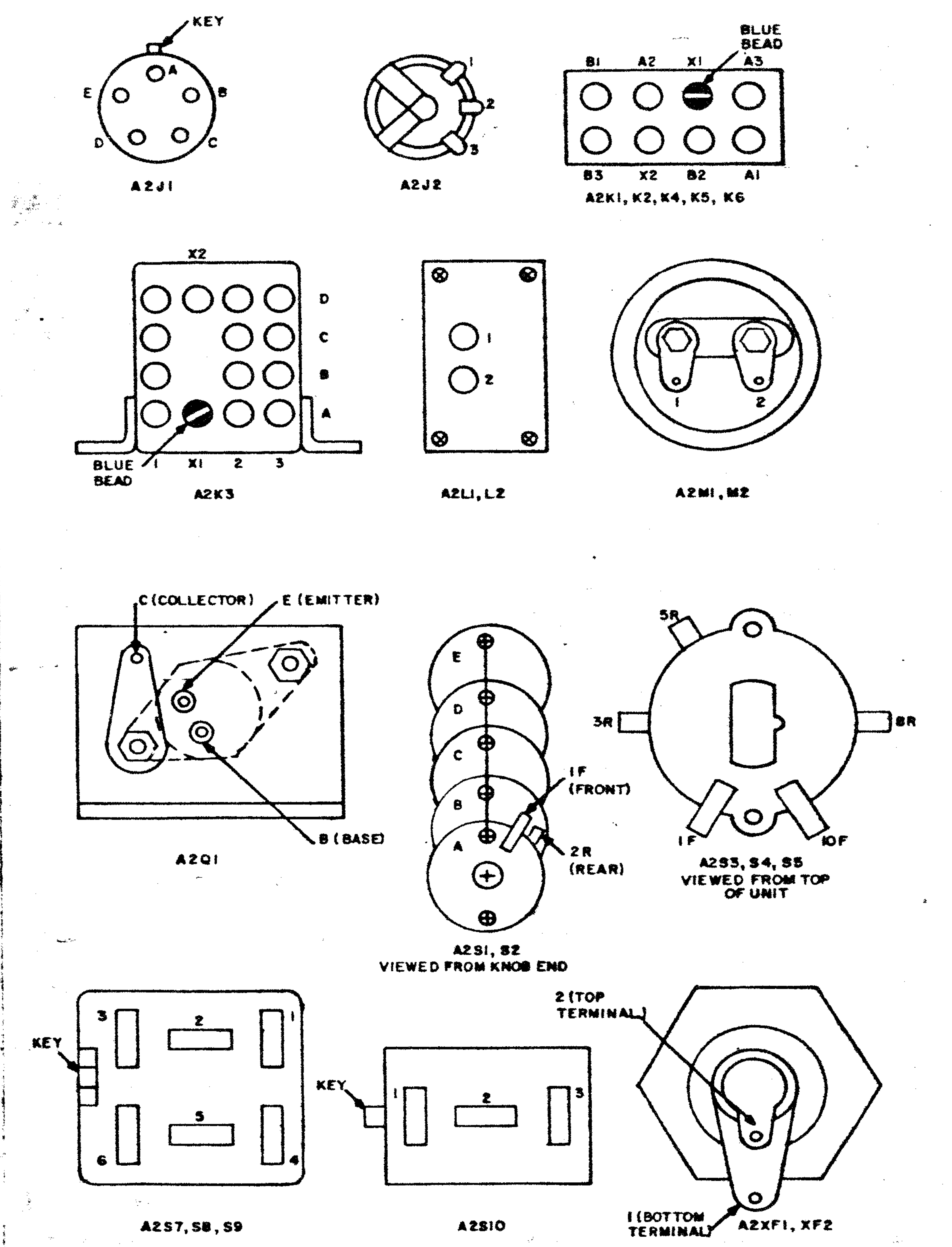
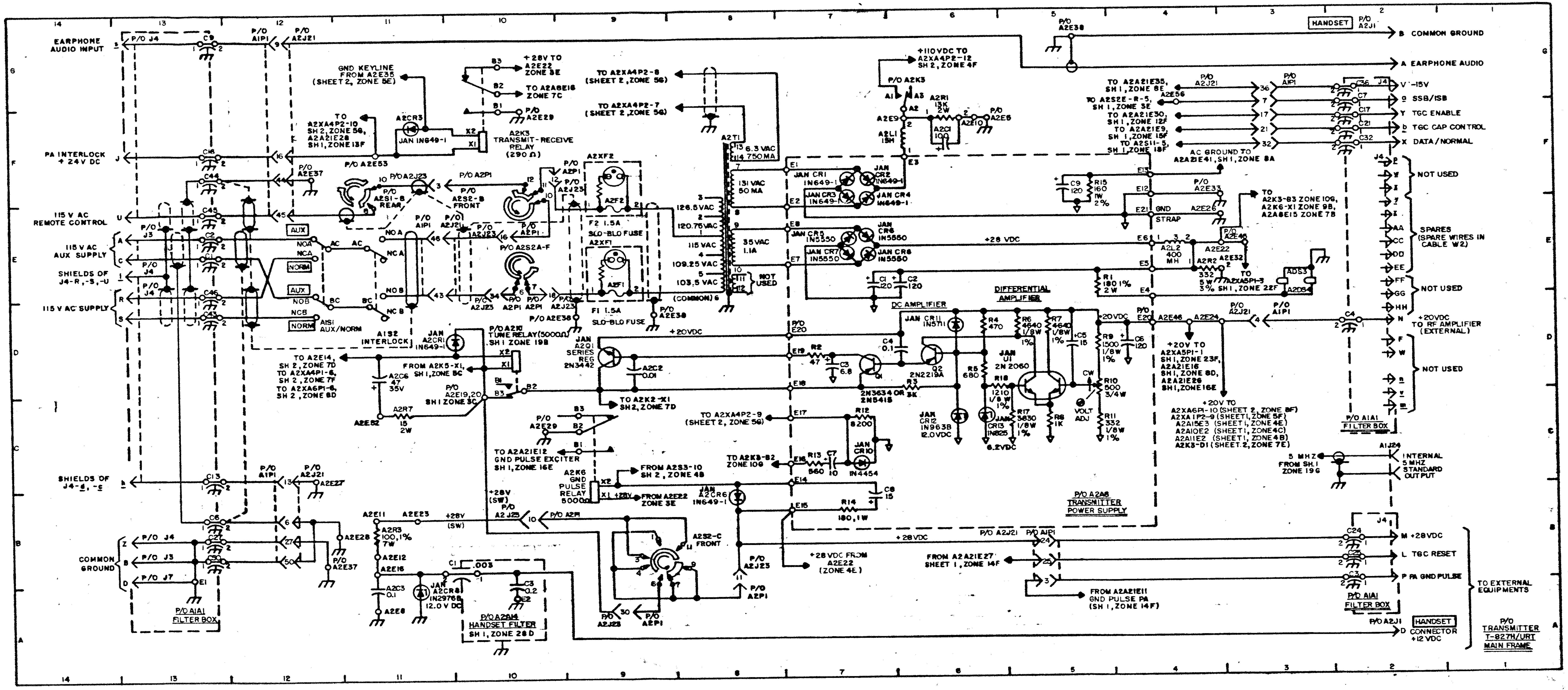
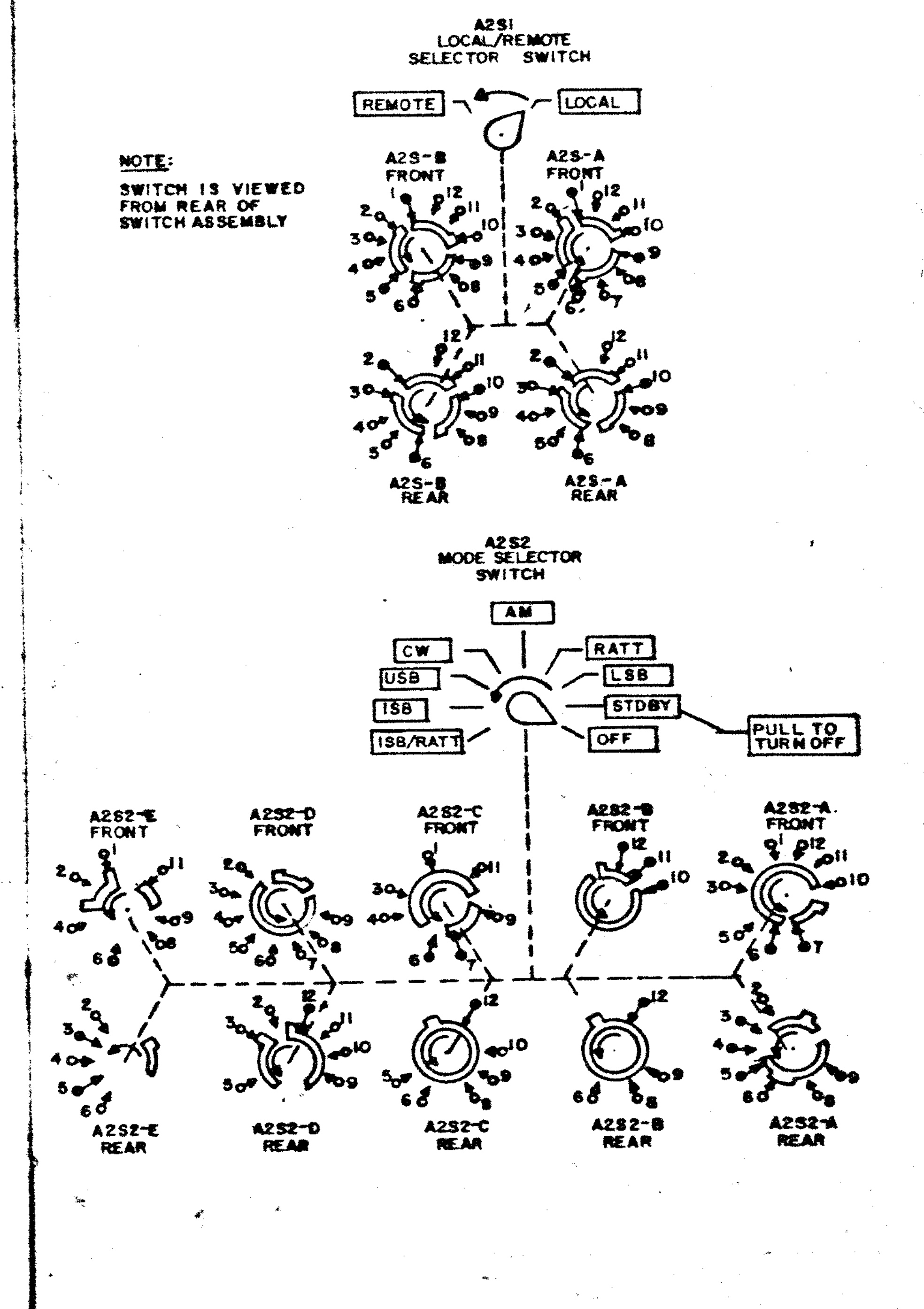


Figure 5-28. Transmitter Case A1 and Main Frame A2, Maintenance Schematic Diagram (Sheet 2 of 3)

From Preliminary Manual

From Preliminary Manual





From Preliminary Manual

Figure 5-28. Transmitter Case A1 and Main Frame A2, Maintenance Schematic Diagram (Sheet 3 of 3)

NOTES FOR FIGURE 5-29

GENERAL NOTES

A. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION PREFIX WITH A2A1 AND NUMBER OF THE PARTICULAR SUBASSEMBLY.

B. UNLESS OTHERWISE SPECIFIED:
ALL RESISTORS ARE IN OHMS, ±5%, 1/4 WATT.
ALL CAPACITORS ARE IN PICOFARADS.
ALL DIODES ARE 1N4454.

C. CW ON POTENTIOMETERS INDICATES DIRECTION OF ROTATION WHEN VIEWED FROM SHAFT END.

D. WHEN MAKING RESISTANCE MEASUREMENTS AT TRANSISTOR POINTS USE HIGHEST POSSIBLE OHMMETER RANGE TO PREVENT DAMAGE TO TRANSISTORS.

E. ——▶—— INDICATES SIGNAL FLOW.

F. ——≶ ≶—— INDICATES BREAK POINTS USED TO REDUCE DIAGRAM CLUTTER. TO FIND MATING END OF BROKEN LINE PROCEED IN PARALLEL WITH DIAGRAM BORDER.

G. VOLTAGE MEASUREMENTS TAKEN WITH DIGITAL MULTIMETER 89536-8800A/AA.

H. READINGS LISTED IN TABLE ARE ACCURATE TO WITHIN ±10%.

PART LOCATION INDEX

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A1C1	9G	A2A1FL1	8G	A2A1S1-9	5E
C2	9E	FL2	8E	S1-10	5E
C3	7G	P1	17H, 2G	S1-11	5F
C4	7F	P1A1	2G	S1-12	5F
C5	14C	P2	17D, 2A	T1	12G
C6	16C	P2A1	2A	T2	12E
C7	9G	P2A2	*	W1	4G
C8	8G	P2A3	17B	W2	2A
C9	9E	S1	5F	W3	16B
C10	7E	S1-1	5F	A2A1A1C1	15E
E1	9E	S1-2	4F	C2	13E
E2	9G	S1-3	4F	C3	13F
E3	16E	S1-4	4E	C4	13E
E4	7E	S1-5	4E	C5	13F
E5	16G	S1-6	4E	C6	12E
E6	5G	S1-7	5E	E1	16E
E7	14D	S1-8	5E	E2	15D
E8	15D			E3	16E

* NOT USED.

NOTES FOR FIGURE 5-29 (CONTINUED)

PART LOCATION INDEX (CONTINUED)

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A1A1E4	16E	A2A1A3C2	10H	A2A1A4C17	7A
E5	12F	C3	**	C18	7B
E6	12E	C4	10E	C19	6B
R1	16F	C5	10F	C20	6A
R2	15F	E1	11E	C21	6B
R3	15E	E2	11E	C22	5B
R4	16E	E3	9E	C23	5A
R5	15E	E4	11G	C24	4A
R6	15E	E5	9G	C25	3B
R7	14F	E6	11H	C26	3A
R8	14E	E7	11F	C27	5D
R9	14E	E8	11H	C28	5E
R10	14E	E9	9E	CR1	16B
R11	13F	E10	9G	CR2	**
R12	12G	Q1	10G	CR3	**
R13	13E	Q2	10E	CR4	**
R14	12E	R1	10G	CR5	**
U1	14E	R2	10G	CR6	7B
A2A1A2C1	15G	R3	10H	CR7	6B
C2	13G	R4	10H	CR8	5B
C3	13H	R5	10H	CR9	4B
C4	13G	R6	10G	CR10	4B
C5	13H	R7	10E	CR11	3B
C6	12G	R8	10E	CR12	6D
E1	16G	R9	10F	E1	16A
E2	14G	R10	10F	E2	2A
E3	16G	R11	10F	E3	2A
E4	16G	R12	10E	E4	**
E5	12H	TP1	9E	E5	**
E6	12G	TP2	9H	E6	12C
R1	16H	A2A1A4C1	16B	E7	12C
R2	15H	C2	16B	E8	16A
R3	15G	C3	15B	E9	13C
R4	16G	C4	15C	E10	**
R5	15G	C5	15A	E11	6C
R6	15G	C6	14B	E12	15C
R7	14H	C7	13C	E13	16C
R8	14G	C8	13B	E14	16B
R9	14G	C9	**	E15	16B
R10	14G	C10	**	E16	16A
R11	13H	C11	**	E17	6D
R12	12H	C12	**	E18	**
R13	13G	C13	**	E19	15C
R14	12G	C14	**	E20	7C
U1	14G	C15	**	E21	14C
A2A1A3C1	10H	C16	**	E22	14C

** NOT USED

NOTES FOR FIGURE 5-29 (CONTINUED)

PART LOCATION INDEX (CONTINUED)

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A1A4E23	**	A2A1A4R14	**	A2A1A4R42	5B
E24	**	R15	**	R43	5A
E25	4E	R16	**	R44	5B
E26	3E	R17	**	R45	5B
E27	3E	R18	**	R46	4B
E28	5E	R19	**	R47	4B
E29	5E	R20	**	R48	4A
E30	3E	R21	**	R49	3A
E31	2E	R22	**	R50	3B
E32	16B	R23	**	R51	3A
E33	16B	R24	**	R52	3B
E34	15C	R25	**	R53	6D
Q1	15B	R26	**	R54	6D
Q2	13B	R27	**	R55	6E
R1	16B	R28	**	R56	5E
R2	16B	R29	**	R57	5D
R3	15C	R30	**	R58	4D
R4	15B	R31	**	R59	4E
R5	15C	R32	**	R60	4D
R6	15B	R33	7B	R61	3E
R7	14B	R34	7B	R62	3D
R8	13B	R35	7B	R63	3D
R9	13B	R36	6C	T1	14B
R10	13B	R37	6B	T2	12B
R11	**	R38	6B	T3	3A
R12	**	R39	7A	A2A1A5	7G
R13	**	R40	6B		7F
		R41	6A		6G, 6F

** NOT USED.

TRANSISTOR VOLTAGE MEASUREMENTS

TEST POINT	VOLTAGE	MODE
A2A1A3Q1-E	+10.9V	LSB KEYED
A3Q1-B	+10.2V	LSB KEYED
A3Q1-C	+ 5.1V	LSB KEYED
A3Q2-E	+10.9V	USB KEYED
A3Q2-B	+10.2V	USB KEYED
A3Q2-C	+ 5.1V	USB KEYED
A4Q1-E	+19.4V	USB KEYED
A4Q1-B	+18.9V	USB KEYED
A4Q1-C	0V	USB KEYED

NOTES FOR FIGURE 5-29 (CONTINUED)

TRANSISTOR VOLTAGE MEASUREMENTS (CONTINUED)

TEST POINT	VOLTAGE	MODE
A2A1A4Q2-E	+19.4V	LSB KEYED
A4Q2-B	+18.9V	LSB KEYED
A4Q2-C	0V	LSB KEYED
A2A1A5Q1-E	+ 1.8V	ALL MODES
A5Q1-B	+ 2.4V	ALL MODES
A5Q1-C	+18.5V	ALL MODES
A2A1A5Q2-E	+ 1.8V	ALL MODES
A5Q2-B	+ 2.4V	ALL MODES
A5Q2-C	+18.5V	ALL MODES

SPECIFIC NOTES

1. MODE SELECTOR SWITCH A2S2 AS SHOWN ABOVE.

2. VOLTAGE MEASUREMENTS TAKEN TO GROUND WITH A2A1A5R6 ALIGNED FOR NORMAL OPERATION.

3. T-827H/URT KEYED.

4. THE INFORMATION CONTAINED IN THESE NOTES IS ORGANIZED TO ALLOW TROUBLESHOOTING OF THE VARIOUS TRANSMITTER FUNCTIONS IN AN OPERATING T-827H/URT TRANSMITTER. FOR DEPOT MAINTENANCE THE MODULE UNDER TEST WILL BE OPERATED IN AMPLIFIER/MODE SELECTOR TEST FIXTURE TS-3670/WRC-1. TEST FIXTURE CONTROL SETTINGS SHALL CORRESPOND TO THE SETTING OF THE COUNTERPART CONTROLS OF THE T-827H/URT.

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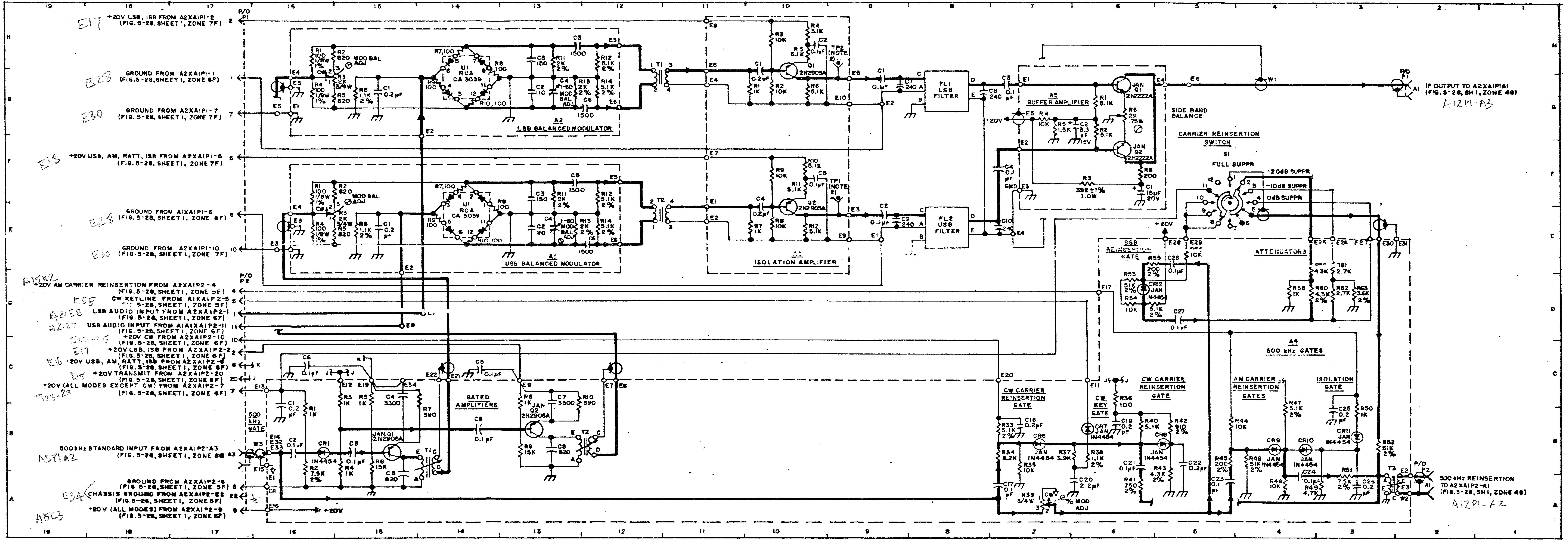


Figure 5-29. Mode Selector Assembly A2A1, Maintenance Schematic Diagram

From Preliminary Manual

NOTES FOR FIGURE 5-30

GENERAL NOTES

A. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION PREFIX WITH NUMBERS OF NEXT HIGHER ASSEMBLIES.

B. UNLESS OTHERWISE SPECIFIED:
   ALL RESISTORS ARE IN OHMS, ±5%, 1/4 WATT, K = 1000
   ALL CAPACITORS ARE IN PICOFARADS. UF = MICROFARADS. FOR OTHER VALUES SEE TABLE 7-2.
   RESISTANCE OF ALL COIL WINDINGS LESS THAN ONE OHM

C. WHEN MAKING RESISTANCE MEASUREMENTS AT TRANSISTOR POINTS, USE HIGHEST POSSIBLE OHMMETER RANGE TO PREVENT DAMAGE TO TRANSISTORS.

D. ——▶—— INDICATES SIGNAL FLOW.

E. INDICATES BREAK POINTS USED TO REDUCE DIAGRAM CLUTTER. TO FIND MATING END OF BROKEN LINE PROCEED IN PARALLEL WITH DIAGRAM BORDER.

F. VOLTAGE MEASUREMENTS TAKEN WITH DIGITAL MULTIMETER 89536-8800A/AA.

G. TRANSISTOR AND VACUUM TUBE CIRCUIT VOLTAGE MEASUREMENTS TAKEN TO GROUND (UNLESS OTHERWISE INDICATED) WITH EQUIPMENT KEYED IN ANY OPERATING MODE.

H. READINGS LISTED IN TABLES ARE ACCURATE TO WITHIN ±10%.

TRANSISTOR DC VOLTAGE CHART

	E	B	C
Q1	+6.5	+5.8	+2.4V
Q2	+12.5	+11.8	+7.4V
Q3	+16.4	+15.7	0

VACUUM TUBE VOLTAGE CHART (VDC, EXCEPT AS NOTED)

	PINS					
	1	2	BETWEEN PINS 3 AND 4	5	6	7
V1	0	2.2	6.3 VAC	110	110	0
V2	0	5.4	6.3 VAC	110	110	5.4

NOTES FOR FIGURE 5-30 (CONTINUED)

PART LOCATION INDEX

REF DES	SHEET	ZONE	REF DES	SHEET	ZONE
A2A4B1	1	9D	A2A4E7-A	1	5B
C1	2	9F	E7-B	1	6B
C2	2	9F	E7-C	1	5A
C3	2	7F	E7-D	1	7A
C4	2	7E	E8-A	2	5D
C5	2	6G	E8-B		*
C6	2	5F	E8-C		*
C7	2	5F	E8-D	2	4D
C8	1	6B	E9-A	1	6D
C9	1	6B	E9-B		*
C10	2	7E	E9-C		*
C11	2	5D	E9-D	1	6D
C12	2	5C	E10-A	1	6B
C13	2	5B	E10-B		*
C14	2	5B	E10-C		*
C15	1	10B	E10-D	1	6B
C16	1	10B	E11-A	2	6C
C17	1	9B	E11-B	2	4C
C18	1	9B	E11-C	2	5D
C19	1	6D	E11-D	2	3D
C20	1	6C	E12-A	2	4B
C21	1	8C	E12-B		*
C22	1	8D	E12-C		*
CR1	1	8C	E12-D	2	5B
E1-A	1	4E	E13-A	2	3B
E1-B	1	4E	E13-B	2	5B
E1-C	1	4F	E13-C	2	4A
E1-D	1	3E	E13-D	2	6A
E2-A		*	FL1	2	9F
E2-B	1	2E	FL2	2	6G
E2-C	1	2F	FL3	2	5G
E2-D	1	3E	K1	1	8D
E3-A	2	4E	K1-A1	1	8D
E3-B	2	3E	K1-A2	1	8D
E3-C	2	4E	K1-A3	1	9D
E3-D	2	4E	K1-B1	1	9D
E4-A	2	3E	K1-B2	1	8D
E5-A	2	3G	K1-B3	1	8D
E5-B	2	4G	K1-X1	1	8D
E5-C	2	4E	K1-X2	1	8D
E5-D	2	3G	P1-1	1	10D
E6-A	1	7C	P1-2	1	10D
E6-B	1	5C	P1-3	1	10D
E6-C	1	6D	P1-4	1	10D
E6-D	1	5D	P1-5	1	10D
			P1-6	1	9D

* NOT USED

NOTES FOR FIGURE 5-30 (CONTINUED)

PART LOCATION INDEX (CONTINUED)

REF DES	SHEET	ZONE
A2A4P1-7	1	10D
P1-8	1	10D
P2-1	1	10B
P2-2	1	10E
P2-3 thru P2-6		*
P2-7	1	10B
P2-8	1	10B
P2-9	1	10A
P2-10	1	10E
P2-11	1	10E
P2-12	1	10A
P2-A1	2	2G
P2-A2	1	10A
P2-A3	1	10F
P2-A4		*
P2-A5	1	10F
R1	2	8F
R2	2	8F
R3	2	6F
S1	1	9C
TP1	2	6G
TP2	2	6G
TP3	2	3G
TP4	2	2G
V1	2	8F
V2	2	5G
A2A4A1C1	2	8E
C2	2	8E
C3	2	5F
C4	2	9E
E1**	2	9E
E2**	2	8F
E3**	2	7C
E4**	2	5F
E5**	2	9E
E6**	2	7A
E7**	2	5E
E8**	2	7A, 7C
E9	2	8E
E10	2	8F
R1	2	8E
R2	2	9E
R3	2	8E
R4	2	7C
R5	2	5F

REF DES	SHEET	ZONE
A2A4A1R6	2	7A
A2A4A2C1 thru A11C1	1	3F
A2A4A12C1	1	3D
A2A4A13C1	1	3D
A2A4A14C1 thru A2A4A19C1	1	3F
A2A4A20C1	1	3G
A2A4A21C1	1	3G
A2A4A22C1 thru A2A4A29C1	1	3F
A2A4A2C2 thru A2A4A11C2	1	3E
A2A4A12C2	1	3D
A2A4A13C2	1	3D
A2A4A14C2 thru A2A4A19C2	1	3E
A2A4A20C2	1	3G
A2A4A21C2	1	3G
A2A4A22C2 thru A2A4A29C2	1	3E
A2A4A2C3 thru A2A4A11C3	1	2E
A2A4A12C3	1	2D
A2A4A13C3	1	2D
A2A4A14C3 thru A2A4A19C3	1	2E
A2A4A20C3	1	2G
A2A4A21C3	1	2G
A2A4A22C3 thru A2A4A29C3	1	2E
A2A4A2C4 thru A2A4A29C4	2	3E
A2A4A2C5 thru A2A4A29C5	2	3G

* NOT USED

** WIRING TERMINATION - FOR REFERENCE ONLY

NOTES FOR FIGURE 5-30 (CONTINUED)

PART LOCATION INDEX (CONTINUED)

REF DES	SHEET	ZONE
A2A4A20C6	1	3G
A2A4A21C6	1	3G
A2A4A2T1 thru A2A4A11T1	1	3E
A2A4A12T1	1	3D
A2A4A13T1	1	3D
A2A4A14T1 thru A2A4A19T1	1	3E
A2A4A20T1	1	3G
A2A4A21T1	1	3G
A2A4A22T1 thru A2A4A29T1	1	3E
A2A4A2T2 thru A2A4A11T2	1	3E
A2A4A12T2	1	3D
A2A4A13T2	1	3D
A2A4A14T2 thru A2A4A19T2	1	3E
A2A4A20T2	1	3G
A2A4A21T2	1	3G
A2A4A22T2 thru A2A4A29T2	1	3E
A2A4A2T3 thru A2A4A29T3	2	3E
A2A4A2T4 thru	2	3F
A2A4A9Y1	1	2E
A2A4A10Y1	1	2E
A2A4A12L1	1	3D
A2A4A13L1	1	3D
A2A4A19Y1	1	2E
A2A4A30C1 thru A2A4A30C9	1	5D
A2A4A30C10 thru A2A4A30C19	1	5C
A2A4A31C1 thru A2A4A31C9	1	7D
A2A4A32C1 thru A2A4A32C9	1	7B
A2A4A33C1 thru A2A4A33C19	1	5B
A2A4A34C1 thru A2A4A34C19	2	4C, 4D
A2A4A35C1 thru A2A4A35C9	2	5D
A2A4A36C1 thru A2A4A36C9	2	5B
A2A4A37C1 thru A2A4A37C19	2	4B
A2A4A38C1	1	9F
C2	1	9G
C3	1	9G
C4	1	8F
C5	1	8G
C6	1	7G
C7	1	6F
C8	1	7G
C9	1	6G
C10	1	5G
C11	1	8G
C12	1	7F
C13	1	5G
E1		***
E2		*
** E3	1	10F
** E4	1	10F
** E5	1	10E
** E6	1	10F
FL1	1	9F
FL2	1	7F
FL3	1	5F
K1	1	5E
K1A1	1	5F
K1A2	1	5F
K1A3	1	5F
K1B1	1	5E
K1B2	1	5E
K1B3	1	5E

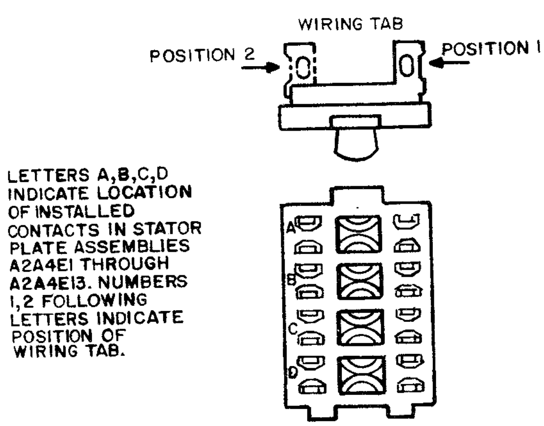
* NOT USED ** WIRING TERMINATION - FOR REFERENCE ONLY *** NOT SHOWN

NOTES FOR FIGURE 5-30 (CONTINUED)

PARTS LOCATION INDEX (CONTINUED)

REF DES	SHEET	ZONE	REF DES	SHEET	ZONE
A2A4A38K1X1	1	5E	A2A4A38R10	1	7F
K1X2	1	5E	R11	1	7G
L1	1	10E	R12	1	7G
Q1	1	9F	R13	1	7F
Q2	1	7G	R14	1	7G
Q3	1	5G	R15	1	7G
R1	1	9F	R16	1	6G
R2	1	9G	R17	1	6F
R3	1	9F	R18	1	5G
R4	1	9G	R19	1	5G
R5	1	9G	R20	1	5F
R6	1	9F	R21	1	8F
R7	1	8G	TP1	1	9G
R8		*	TP2	1	10G
R9	1	7G	W1	1	8F
			W2	1	10F

* NOT USED



SPECIFIC NOTES FOR FIGURE 5-30

1. CAPACITOR VALUES FOR A2A4A31C1-C9 AND A2A4A32C1-C9 (pF)

FREQ IN MHz	CAPACITOR REF DESIG	A31	A32
.00	C1	250	260
.01	C2	215	224
.02	C3	183	190
.03	C4	153	158
.04	C5	124	128
.05	C6	96	99
.06	C7	70	72
.07	C8	45	47
.08	C9	22	23
.09	NONE	OPEN	OPEN

2. CAPACITOR VALUES FOR A2A4A30C1-C19 AND A2A4A33C1-C19 (pF)

FREQ IN MHz	CAPACITOR REF DESIG	A30	A33
.00	C1 C10	545 253	517 257
.10	C2 C11	426 219	405 222
.20	C3 C12	332 190	316 193
.30	C4 C13	257 165	245 167
.40	C5 C14	195 144	186 146
.50	C6 C15	143 125	137 127
.60	C7 C16	99 109	95 110
.70	C8 C17	61 95	59 96
.80	C9 C18	29 83	28 83
.90	NONE C19	OPEN 74	OPEN 74

SPECIFIC NOTES FOR FIGURE 5-30 (CONTINUED)

3. COMPONENT VALUES FOR A2A4A2 THROUGH A2A4A29

FREQ IN MHZ	ON ASSY	C1 (pF)	C2 (pF)	C3 (pF)	C6 (uF)	L1 (mH)	Y1 (MHz)
2	A20	2.0	SHORT	SHORT	.068	-	-
3	A21	2.0	1247	1253	.047	-	-
4	A22	4.7	623	629	-	-	-
5	A23	3.9	416	422	-	-	-
6	A24	3.3	312	318	-	-	-
7	A25	3.0	250	256	-	-	-
8	A26	3.0	208	214	-	-	-
9	A27	2.7	179	185	-	-	-
10	A28	2.4	157	163	-	-	-
11	A29	2.0	140	146	-	-	-
12	A2	2.0	126	132	-	-	-
13	A3	2.0	115	120	-	-	-
14	A4	2.0	105	111	-	-	-
15	A5	1.5	97	103	-	-	-
16	A6	1.5	91	96	-	-	-
17	A7	1.5	85	90	-	-	-
18	A8	1.5	80	85	-	-	-
19	A9	1.5	75	80	-	-	21.00000
20	A10	1.5	71	76	-	-	19.00000
21	A11	1.5	67	73	-	-	-
22	A12	7.0	64	68	-	8.2	-
23	A13	3.9	61	66	-	8.2	-
24	A14	2.0	58	63	-	-	-
25	A15	2.2	56	61	-	-	-
26	A16	2.2	54	52	-	-	-
27	A17	2.4	52	57	-	-	-
28	A18	2.4	50	55	-	-	-
29	A19	2.4	48	53	-	-	-

4. A2A4FL1, FL2, FL3 AND A2A4A38FL1, FL2, FL3 ARE FERRITE BEADS.

SPECIFIC NOTES (CONTINUED)

5. CAPACITOR VALUES FOR A2A4A35C1-C9 AND A2A4A36C1-C9

FREQ IN MHz	CAPACITOR REF DESIG	VALUE (pF)
.00	C1	260
.01	C2	224
.02	C3	190
.03	C4	158
.04	C5	128
.05	C6	99
.06	C7	72
.07	C8	47
.08	C9	23
.09	NONE	OPEN

6. CAPACITOR VALUES FOR A2A4A34C1-C19 AND A2A4A37C1-C19

FREQ IN MHz	CAPACITOR REF DESIG	VALUE (pF)
.00	C1 C10	517 257
.10	C2 C11	405 222
.20	C3 C12	316 193
.30	C4 C13	245 167
.40	C5 C14	186 146
.50	C6 C15	137 127
.60	C7 C16	95 110
.70	C8 C17	59 96
.80	C9 C18	28 83
.90	NONE C19	OPEN 74

7. CAPACITOR VALUES FOR A2A4A2C4, C5 THROUGH A2A4A29C4, C5

FREQ IN MHz	ASSY	C4 (pF)	ASSY	C5 (pF)
2	A25	SHORT	A2	SHORT
3	A26	1250	A3	1259
4	A27	623	A4	629
5	A28	416	A5	422
6	A29	312	A6	318
7	A2	250	A7	256
8	A3	208	A8	214
9	A4	179	A9	185
10	A5	157	A10	163
11	A6	140	A11	146
12	A7	126	A12	132
13	A8	115	A13	120
14	A9	105	A14	111
15	A10	97	A15	103
16	A11	91	A16	96
17	A12	85	A17	90
18	A13	80	A18	85
19	A14	75	A19	80
20	A15	71	A20	76
21	A16	67	A21	73
22	A17	64	A22	68
23	A18	61	A23	66
24	A19	58	A24	63
25	A20	56	A25	61
26	A21	54	A26	59
27	A22	52	A27	57
28	A23	50	A28	55
29	A24	48	A29	53

8. THE INFORMATION CONTAINED IN THESE NOTES IS ORGANIZED TO ALLOW TROUBLESHOOTING OF THE VARIOUS TRANSMITTER FUNCTIONS IN AN OPERATING T-827H/URT TRANSMITTER. FOR DEPOT MAINTENANCE THE MODULE UNDER TEST WILL BE OPERATED IN RF AMPLIFIER TEST FIXTURE TS-3685/WRC-1. TEST FIXTURE CONTROL SETTINGS SHALL CORRESPOND TO THE SETTINGS OF THE COUNTERPART CONTROLS OF THE T-827H/URT.

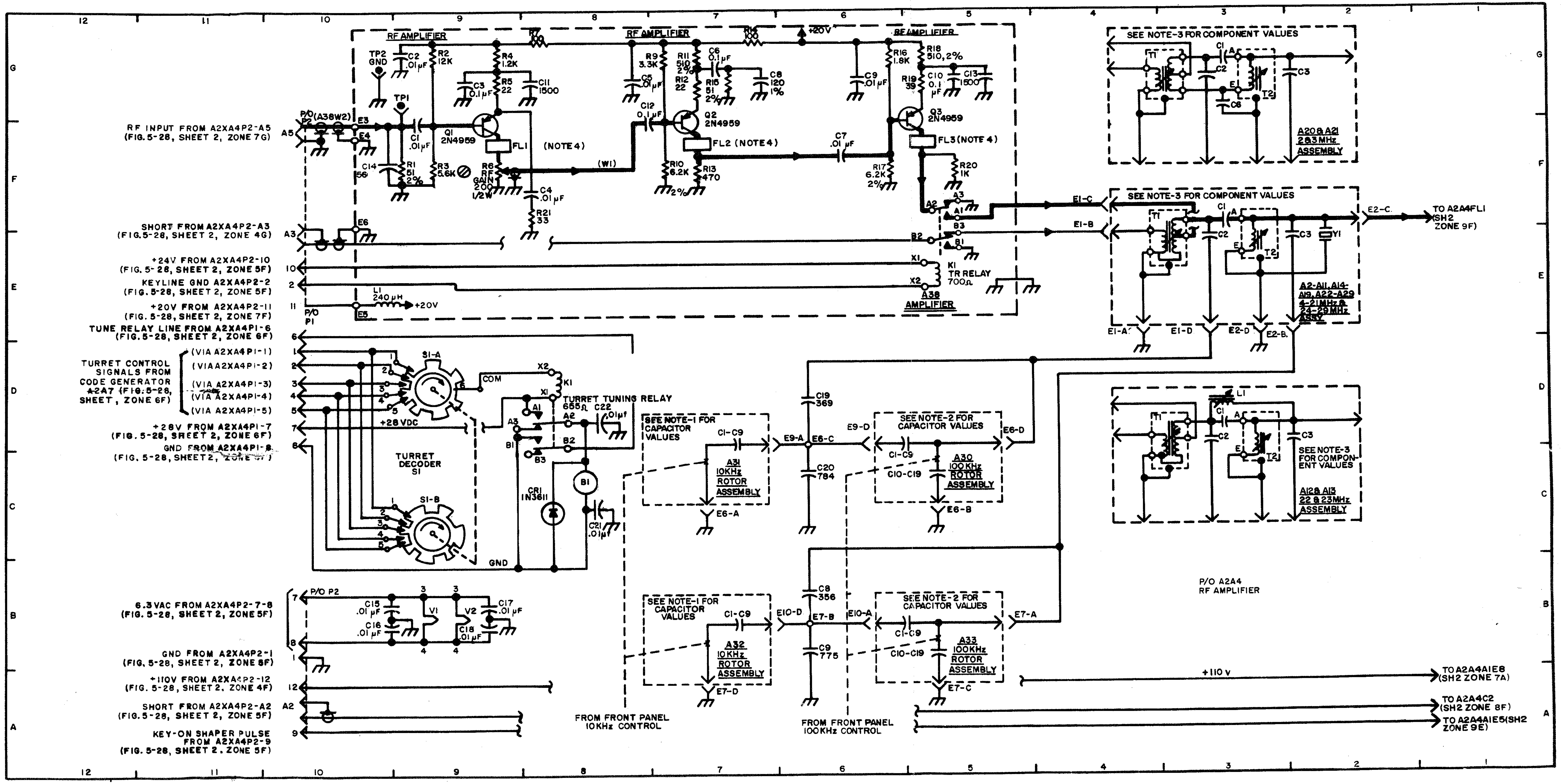


Figure 5-30. RF Amplifier Assembly A2A4, Maintenance Schematic Diagram (Sheet 1 of 2)

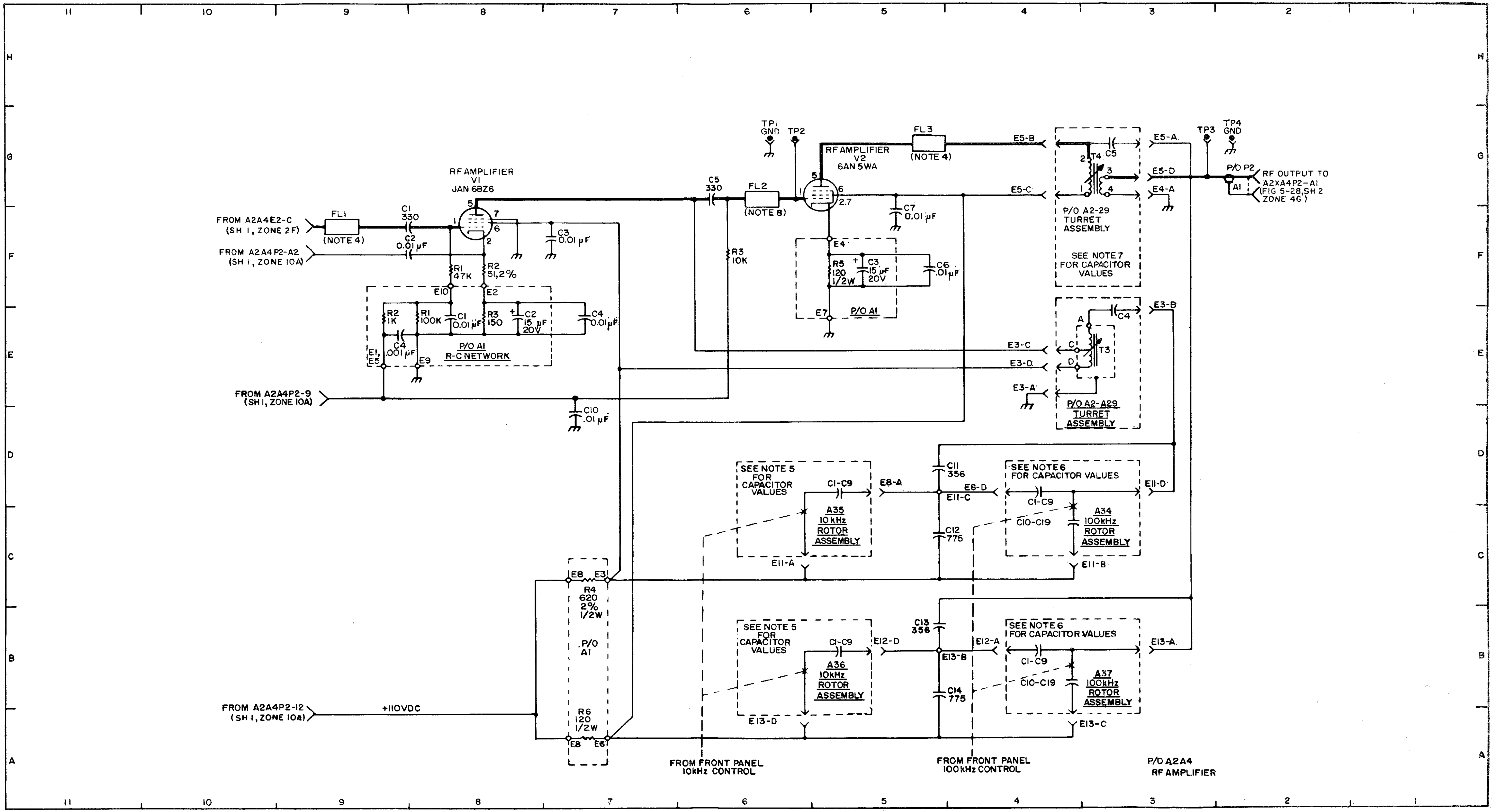


Figure 5-30. RF Amplifier Assembly A2A4, Maintenance Schematic Diagram (Sheet 2 of 2)

NOTES FOR FIGURE 5-31

GENERAL NOTES

A. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATIONS PREFIX WITH NUMBERS OF NEXT HIGHER ASSEMBLIES.

B. UNLESS OTHERWISE SPECIFIED:
ALL RESISTORS ARE IN OHMS, ±5%, 1/4 WATT: K = 1000.
ALL CAPACITORS ARE IN PICOFARADS ±5%, 500 VDCW; UF = MICROFARADS.
ALL INDUCTORS ARE IN MICROHENRIES, ±10%.
RESISTANCE OF INDUCTORS AND TRANSFORMER WINDINGS IS LESS THAN ONE OHM.

C. WHEN MAKING RESISTANCE MEASUREMENTS AT TRANSISTOR POINTS, USE HIGHEST POSSIBLE OHMMETER RANGE TO PREVENT DAMAGE TO TRANSISTORS.

D. * IN MAINTENANCE SCHEMATIC INDICATES A COMPONENT OF SELECTED VALUE (NOMINAL VALUE SHOWN). REFER TO CHAPTER 7 PARTS LIST FOR PART NUMBERS AND RANGE OF VALUES.

E. A2A5A4P3 TERMINAL IDENTIFICATION:

COMPONENT SIDE	1	2	3	4	5	6
FOIL SIDE	A	B	C	D	E	F

F. INDICATES BREAK POINTS USED TO REDUCE DIAGRAM CLUTTER. TO FIND MATING END OF BROKEN LINE PROCEED FROM BREAK POINT IN PARALLEL WITH DIAGRAM BORDER.

G. INDICATES SIGNAL FLOW.

H. INDICATES FEEDBACK.

I. VOLTAGE MEASUREMENTS TAKEN WITH DIGITAL MULTIMETER 89536-8800A/AA.

J. READINGS LISTED IN TABLES ARE ACCURATE TO WITHIN ±10%.

PART LOCATION INDEX

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A5C1	16F	A2A5J3-1	15E	A2A5A1C1	14B
C2	16C	J3-2	15C	C2	14B
E1		J3-3	15E	C3	14B
thru	*	J3-4	12D	C4	13B
E6		J3-5	12D	C5	13B
E7	15D, 16E	J3-6	12D	C6	12B
	10E	P1	3F, 16F	C7	12B
J1	*	P1-A1	3F	C8	14B
J2	*	P1-A2	3E	C9	*
J3	11E, 15E	P1-A3	3D	C10	14A
J3-A	15D	P1-A4	16E	C11	14B
J3-B	*	P1-A5	3D	CR1	11B
J3-C	12E	P1-A6	3D	CR2	13A
J3-D	15D	P1-1	16F	E1	13B
J3-E	*	P1-2	16D	E2	13B
J3-F	*	P1-3	16C	P1	11C

* NOT USED OR NOT SHOWN

NOTES FOR FIGURE 5-31 (CONTINUED)

PART LOCATION INDEX (CONTINUED)

REF DES	ZONE
A2A5A1P2	10C
P3	11C
P4	10C
A2A5A1P5	12B
Q1	13B
Q2	13B
Q3	12B
Q4	10B
Q5	10B
Q6	10B
Q7	9B
R1	14B
R2	13B
R3	13B
R4	13B
R5	13B
R6	13B
R7	13B
R8	12B
R9	11B
R10	14A
R11	13A
R12	12B
R13	11B
R14	11B
R15	11A
R16	11B
R17	10B
R18	10B
R19	10A
R20	9A
R21	9A
R22	10B
R23	10B
R24	9B
Y1	14B
A2A5A2C1	8E
C2	8E
C3	8E
C4	7E
C5	7E
C6	7F
C7	6F
C8	6F
C9	6E

REF DES	ZONE
A2A5A2C10	6E
C11	6F
A2A5A2C12	6E
C13	6F
C14	5E
C15	5F
C16	4E
C17	4E
C18	4F
C19	4E
C20	4F
C21	4F
C22	4E
C23	8D
C24	7D
C25	7C
C26	7C
C27	7D
C28	7C
C29	6D
C30	6C
C31	6D
C32	6C
C33	5D
C34	6D
C35	5C
C36	4D
C37	5C
C38	4D
C39	4D
C40	3C
† C41	7B
† C42	7B
C43	*
C44	6F
DS1	6B
E1	3D
E2	3F
E3	*
E4	3E
E5	*
E6	3D
E7	*
E8	3D
E9	9D

REF DES	ZONE
A2A5A2E10	*
E11	*
E12	3D
E13	9D
E14	9F
E15	8E
E16	*
E17	*
E18	9E
L1	7E
L2	4E
L3	6D
L4	4D
Q1	7E
Q2	7E
Q3	6E
Q4	5E
Q5	4E
Q6	7C
Q7	6C
Q8	5C
Q9	4C
† Q10	7B
† Q11	6B
R1	8E
R2	7E
R3	7F
R4	7E
R5	7E
R6	7E
R7	7F
R8	7F
R9	7E
R10	7E
R11	7E
R12	7F
R13	6E
R14	6E
R15	6E
R16	6F
R17	6E
R18	5F
R19	5E
R20	5E
R21	5E

* NOT USED.
† USED ONLY ON ALTERNATE ASSEMBLY (SEE SHEET 2)

NOTES FOR FIGURE 5-31 (CONTINUED)

PART LOCATION INDEX (CONTINUED)

REF DES	ZONE
A2A5A2R22	5F
R23	5E
R24	4E
R25	5E
R26	4F
R27	4E
R28	4E
R29	3F
R30	4E
R31	3F
R32	7C
R33	7D
R34	7D
R35	*
R36	7D
R37	7C
R38	6C
R39	6D
R40	5D
R41	5C
R42	5D
R43	5C
R44	5D
R45	5C
R46	4C
R47	4D
R48	4D
R49	4C
R50	*
R51	*
R52	7B
† R53	7B
† R54	7B
† R55	7B
R56	8D
† R57	6B
† R58	6B
R59	*
R60	6D
R61	5D

REF DES	ZONE
A2A5A2R62	7C
S1	8E, 9E, 9F
S1-1	9E
S1-2	9E
S1-3	9E
S1-4	9E
S1-5	9E
S1-6	9F
S1-7	9F
S1-8	9F
S1-9	8E
S1-10	8E
S1-11	8E
S1-12	9E
T1	5F
T2	3F
T3	5D
A2A5A3J1A1	11C
J1A2	10C
J1A3	11C
J1A4	10C
J1A5	12B
R1	11C
R2	11C
A2A5A4C1	14E
C2	13E
C3	12D
C4	14C
C5	14C
C6	14C
C7	14C
C8	13D
CR1	15F
CR2	14F
CR3	15E
CR4	14E
CR5	14E
CR6	13F
CR7	14D
CR8	14C

REF DES	ZONE
A2A5A4P1	*
P2	*
P3	15C, 15E 12D, 12E
P3-A	15D
P3-B	*
P3-C	12E
P3-D	15D
P3-E	*
P3-F	15D
P3-1	15E
P3-2	15C
P3-3	15E
P3-4	12D
P3-5	12D
P3-6	12D
Q1	14E
Q2	13F
Q3	14D
Q4	14D
Q5	12C
R1	15E
R2	15E
R3	14E
R4	14F
R5	14E
R6	14F
R7	14E
R8	13F
R9	13E
R10	12D
R11	15C
R12	14D
R13	14D
U1	12D, 12E, 13E (4 PLACES)
U2	12D, 13D (2 PLACES)
U3	14C
U4	14C

* NOT USED.

† USED ONLY ON ALTERNATE ASSEMBLY (SEE SHEET 2)

TRANSISTOR DC VOLTAGE CHART
(ALL VALUES IN VOLTS)

	E	B	C
A2A5A1Q1	+0.03	±0.65	+8.9
Q2	+0.24	∓0.95	+2.4
Q3	0	-0.35	+2.0
Q4	+4.5	+5.0	+9.6
Q5	+5.1	+4.5	+5.5
Q6	+10.1	+9.6	+1.3
Q7	+0.67	+1.3	+15.4
A2A5A2Q1	+4.0	+4.1	+6.6
Q2	+8.9	+4.4	18.0
Q3	+0.63	+1.2	+16.2
Q4	+5.7	+4/1	+17.8
Q5	+1.4	+2.1	+10.1
Q6	+5.8	+6.2	+7.8
Q7	0	+0.12	+3.8
Q8	+0.7	+1.4	+10.0
Q9	+0.38	+0.90	+10.8
†Q10	+0.23	0	+0.91
†Q11	+0.70	+0.82	+19.9
A2A5A4Q1	0	+0.63	+3.20
Q2	+2.32	+2.91	+5.0
Q3	+24.7	+25.4	+25.9
Q4	0	+0.06	+25.4
Q5	0	+0.60	+6.5

COLLECTOR VOLTAGES VARY WITH ADJUSTMENT OF A2A5A1R15.

† USED ONLY ON ALTERNATE ASSEMBLY (SEE SHEET 2). DISCONNECT EXTERNAL FREQUENCY STANDARD FROM A1J25 WHEN MAKING MEASUREMENTS ON A2A5A2Q10 AND A2A5A2Q11.

INTEGRATED CIRCUIT DC VOLTAGE CHART
(ALL VALUES IN POSITIVE VOLTS

PINS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
A2A5A4U1	2.32	0	3.5	3.5	3.5	0.08	0	3.9	0.08	3.20	1.0	2.4	3.20	5.0
U2	2.0	2.0	1.1	1.1	3.8	2.4	0	0.8	3.8	2.4	3.8	0.08	0	5.0
U3	24.7	15.0	0											
U4	6.5	5.0	0											

SEE SPECIFIC NOTES ON SHEET 2

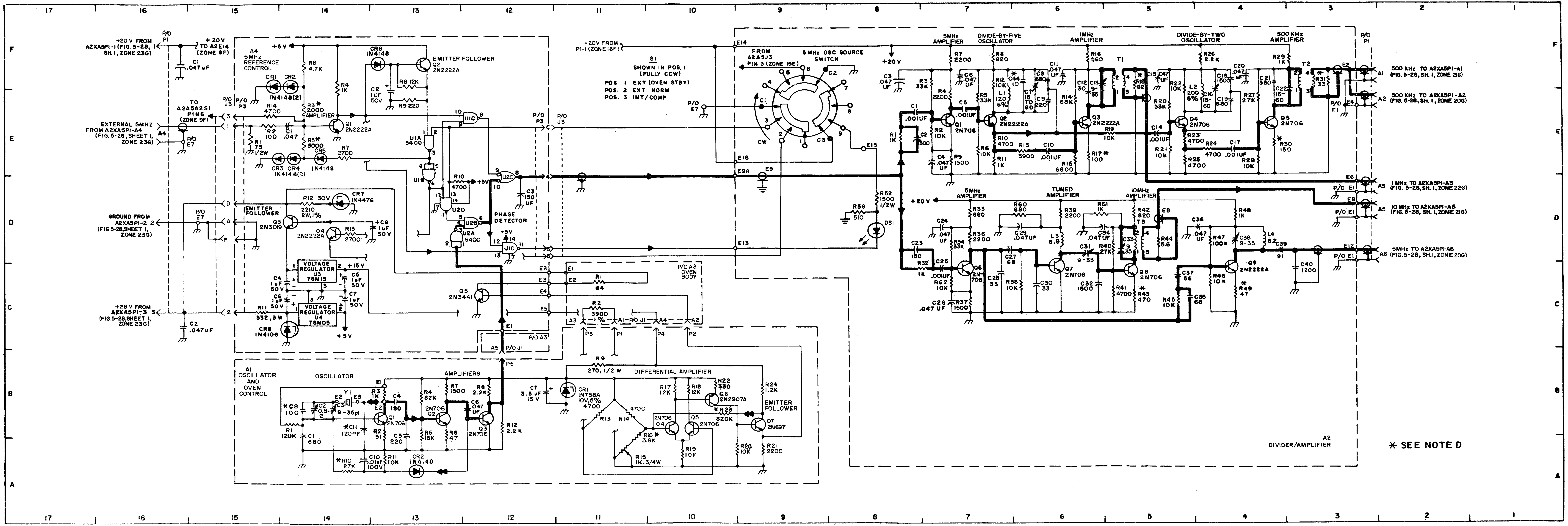


Figure 5-31. Frequency Standard Assembly A2A5, Maintenance Schematic Diagram (Sheet 1 of 2)

SPECIFIC NOTES

1. TRANSISTOR AND INTEGRATED CIRCUIT VOLTAGE MEASUREMENTS TAKEN TO GROUND AFTER ONE HOUR WARMUP WITH SWITCH A2A5A2S1 SET AT INT/COMP.

2. MAXIMUM RESISTANCE OF INDUCTOR AND TRANSFORMER WINDINGS FOLLOWS:

A2L1	5.2 OHMS
A2L2	7.1 OHMS
A2T1	7.8 OHMS (PRIMARY)
A2T2	7.8 OHMS (PRIMARY)

3. S1-1 = EXT (OVEN STBY)
   S1-2 = EXT NORM
   S1-3 = INT/COMP
   (SWITCH SHOWN IN POSITION 1)

4. THE INFORMATION CONTAINED IN THESE NOTES IS ORGANIZED TO ALLOW TROUBLESHOOTING OF THE VARIOUS TRANSMITTER FUNCTIONS IN AN OPERATING T-827H/URT TRANSMITTER. FOR DEPOT MAINTENANCE THE MODULE UNDER TEST WILL BE OPERATED IN FREQUENCY STANDARD TEST FIXTURE TS-3667/WRC-1. TEST FIXTURE CONTROL SETTINGS SHALL CORRESPOND TO THE SETTINGS OF THE COUNTERPART CONTROLS OF THE T-827H/URT.

Figure 5-31. Alternate Frequency Standard Assembly A2A5, Maintenance Schematic Diagram (Sheet 2 of 2)

NOTES FOR FIGURE 5-32

GENERAL NOTES

A. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION PREFIX WITH NUMBERS OF NEXT HIGHER ASSEMBLY.

B. UNLESS OTHERWISE SPECIFIED:
ALL RESISTORS ARE IN OHMS, ±5%, ONE WATT.
ALL CAPACITORS ARE IN MICROFARADS.

C. CCW ON SWITCH WIPERS INDICATES DIRECTION OF ROTATION WHEN VIEWED FROM SHAFT END, AND CORRESPONDS TO CLOCKWISE ROTATION OF FRONT PANEL CONTROLS.

D. SWITCHES S1 THROUGH S3 SHOWN IN 000 kHz POSITION.

E. INDICATES FEEDBACK.

F. INDICATES FRONT PANEL MARKING.

PART LOCATION INDEX

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A6E1	11D, 14A,	A2A6FL5	4B	A2A6P1-19	18B
	8A, 7D,	J1	4B	P1-20	18C
	4B, 2C	P1A1	18B	P1-21	1C
E2	2C	P1A2	18C	P2A1	1F
E3	4C	P1A3	18C	P2A2	18F
E4	17A	P1-1	18E	P3A1	18F
E5	2B	P1-2	18E	P3A2	1F
E6	16A	P1-3	18D	P4	3D
E7		P1-4	18D	P5	2C
thru	*	P1-5	18D	P6	3D
E9		P1-6	1E	P7	2C
E10	1B	P1-7	1D	P8	15A
E11		P1-8	1B	P9	15A
thru	*	P1-9	1D	P10	15A
E15		P1-10	18A	P11	15A
E16	14A, 16A	P1-11	18D	P12	4C
E17	14A	P1-12	1D	P13	4C
E18	**	P1-13	18D	R1	17C
E19	**	P1-14	18B	R2	17C
FL1	16A	P1-15	18D	S1E1	12E
FL2	*	P1-16	1C	S1E2	12D
FL3	*	P1-17	18D	S1E3	13D
FL4	14A	P1-18	1C	S1E4	13D

* NOT USED
** NOT SHOWN

NOTES FOR FIGURE 5-32 (CONTINUED)

PART LOCATION INDEX (CONTINUED)

REF DES	ZONE
A2A6S1E5	12D
S2E1	13E
S2E2	13D
S2E3	14C
S2E4	13D
S2E5	13D
S3E1	15E
S3E2	15D
S3E3	16C
S3E4	15D
S3E5	15D
XA12P1A1	8D
P1A2	8E
P1A3	8E
P1A4	6E
P1-1	*
P1-2	7D
P1-3	7D
P1-4	7D
P1-5	7D
XA13P1A1	11B
P1A2	9B
P1A3	9B
P1A4	9B
P1-1	*
P1-2	11B
P1-3	11B
P1-4	11B
P1-5	11B
P1-6	11A
P1-7	9A
P1-8	9A
P1-9	9A
P1-10	10A
P1-11	10A
P1-12 thru P1-14	*
P1-15	10A
P1-16	10A
P1-17	10A
XA14P1A1	9B
P1A2	9B
P1A3	9B

REF DES	ZONE
A2A6XA14P1A4	7B
P1-1	9A
P1-2	9A
P1-3	9A
P1-4	8A
P1-5	8A
XA15	*
XA16P1A1	14B
P1A2	12B
P1A3	12B
P1A4	12C
P1-1	*
P1-2	*
P1-3	14B
P1-4 thru P1-8	*
P1-9	14B
P1-10	14A
P1-11	14A
P1-12 thru P1-14	*
P1-15	14A
P1-16	14A
P1-17	14A
XA17P1A1	5B
P1A2	4B
P1-1	5B
P1-2	*
P1-3	5C
P1-4	5C
P1-5	5C
P1-6	5C
P1-7	5B
P1-8	5B
P1-9 thru P1-12	*
P1-13	4B
P1-14	4B
P1-15	4B
XA18P1A1	9E
P1A2	9E

REF DES	ZONE
A2A6XA18P1-1	10D
P1-2	10D
P1-3	10E
P1-4	10E
P1-5	10E
P1-6	10E
P1-7	10D
P1-8	10E
P1-9	10E
P1-10	10E
P1-11	10E
P1-12	9D
P1-13	9D
P1-14	9D
P1-15	9D
A2A6A1 thru A2A6A6	*
A2A6A7C1	16A
C2	16A
E1 thru E11	*
E12	16A
E13	15A
E14	16A
E15	16A
R1	*
R2	*
R3	16A
R4	16A
A2A6A8E1	3F
E2	3E
E3	2F
E4	2F
E5	3E
E6	3E
E7	3B
E8	3B
E9	3A
E10	3A
E11	3F
E12	2F
E13	3F

* NOT USED

NOTES FOR FIGURE 5-32 (CONTINUED)

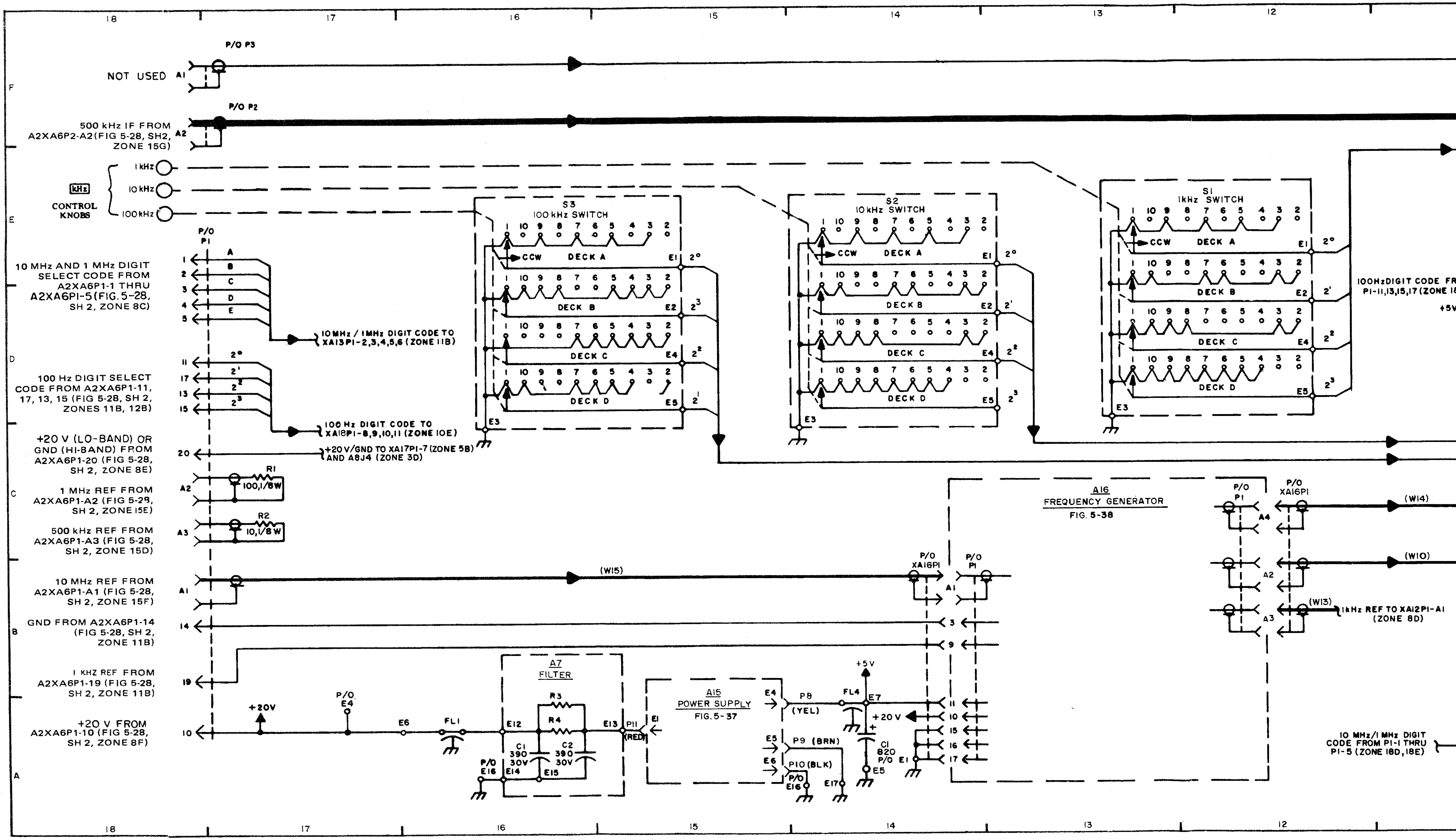
PART LOCATION INDEX (CONTINUED)

REF DES	ZONE
A2A6A8E14	2F
E15	3C
J1	
thru	*
J3	
J4	3D
J5	2C
J6	3D
J7	2C
A2A6A9	
thru	*
A2A6A11	
A2A6A12P1A1	8D
P1A2	8E
P1A3	8E
P1A4	6E
P1-1	*
P1-2	7D
P1-3	7D
P1-4	7D
P1-5	7D
A2A6A13P1A1	11B
P1A2	9B
P1A3	9B
P1A4	9B
P1-1	*
P1-2	11B
P1-3	11B
P1-4	11B
P1-5	11B
P1-6	11A
P1-7	9A
P1-8	9A
P1-9	9A
P1-10	10A
P1-11	10A

REF DES	ZONE
A2A6A13P1-12	
thru	*
P1-14	
P1-15	10A
P1-16	10A
P1-17	10A
A2A6A14P1A1	9B
P1A2	9B
P1A3	9B
P1A4	7B
P1-1	9A
P1-2	9A
P1-3	8A
P1-4	8A
P1-5	9A
A2A6A15E1	15A
E2	*
E3	*
E4	15A
E5	15A
E6	15A
A2A6A16P1A1	14B
P1A2	12B
P1A3	12B
P1A4	12C
P1-1	*
P1-2	*
P1-3	14B
P1-4	
thru	*
P1-8	
P1-9	14B
P1-10	14A
P1-11	14A
P1-12	
thru	*
P1-14	

REF DES	ZONE
A2A6A16P1-15	14A
P1-16	14A
P1-17	14A
A2A6A17P1A1	5B
P1A2	4B
P1-1	5B
P1-2	*
P1-3	5C
P1-4	5C
P1-5	5C
P1-6	5C
P1-7	5B
P1-8	5B
P1-9	
thru	*
P1-12	
P1-13	4B
P1-14	4B
P1-15	4B
A2A6A18P1A1	9E
P1A2	9E
P1-1	10D
P1-2	10D
P1-3	10E
P1-4	10E
P1-5	10E
P1-6	10E
P1-7	10D
P1-8	10E
P1-9	10E
P1-10	10E
P1-11	10E
P1-12	9D
P1-13	9D
P1-14	9D
P1-15	9D

* NOT USED



NOT USED
P/O P3
P/O P2
500 kHz IF FROM A2XA6P2-A2 (FIG 5-28, SH2, ZONE 15G)
CONTROL KNOBS
1 kHz
10 kHz
100 kHz
S3 100 kHz SWITCH
S2 10 kHz SWITCH
S1 1kHz SWITCH
DECK A
DECK B
DECK C
DECK D
CCW
10 MHz AND 1 MHz DIGIT SELECT CODE FROM A2XA6P1-1 THRU A2XA6P1-5 (FIG. 5-28, SH 2, ZONE 8C)
10 MHz / 1 MHz DIGIT CODE TO XA13P1-2,3,4,5,6 (ZONE 11B)
100 Hz DIGIT SELECT CODE FROM A2XA6P1-11, 17, 13, 15 (FIG 5-28, SH 2, ZONES 11B, 12B)
100 Hz DIGIT CODE TO XA18P1-8,9,10,11 (ZONE 10E)
100HzDIGIT CODE FR P1-11,13,15,17 (ZONE 1
+20 V (LO-BAND) OR GND (HI-BAND) FROM A2XA6P1-20 (FIG 5-28, SH 2, ZONE 8E)
+20 V/GND TO XA17P1-7 (ZONE 5B) AND A8J4 (ZONE 3D)
1 MHz REF FROM A2XA6P1-A2 (FIG 5-28, SH 2, ZONE 15E)
R1 100,1/8W
500 kHz REF FROM A2XA6P1-A3 (FIG 5-28, SH 2, ZONE 15D)
R2 10,1/8W
10 MHz REF FROM A2XA6P1-A1 (FIG 5-28, SH 2, ZONE 15F)
(W15)
GND FROM A2XA6P1-14 (FIG 5-28, SH 2, ZONE 11B)
1 KHZ REF FROM A2XA6P1-19 (FIG 5-28, SH 2, ZONE 11B)
+20 V FROM A2XA6P1-10 (FIG 5-28, SH 2, ZONE 8F)
A7 FILTER
C1 390 30V
C2 390 30V
A15 POWER SUPPLY FIG. 5-37
P8 (YEL)
P9 (BRN)
P10 (BLK)
FL1
FL4
C1 820
A16 FREQUENCY GENERATOR FIG. 5-38
P/O XA16P1
P/O P1
(W14)
(W10)
(W13)
1kHz REF TO XA12P1-A1 (ZONE 8D)
10 MHz/1 MHz DIGIT CODE FROM P1-1 THRU P1-5 (ZONE 18D, 18E)

Figure 5-32. Translator/Synthesizer Assembly A2A6, Maintenance Schematic Diagram

NOTES FOR FIGURE 5-33

GENERAL NOTES

A. THE RF TRANSLATOR IS COMMON TO BOTH T-827H/URT AND R-1051G/URR. THE SIGNAL PATH AND FIGURE REFERENCES APPLY TO T-827H/URT ONLY.

B. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION PREFIX WITH A2A6A8.

C. UNLESS OTHERWISE SPECIFIED:
ALL RESISTORS ARE IN OHMS, ±5%, 1/4 WATT.
ALL CAPACITORS ARE IN MICROFARADS.
ALL INDUCTORS ARE IN MICROHENRIES.
RESISTANCE OF INDUCTORS AND TRANSFORMER WINDINGS IS LESS THAN ONE OHM.

D. CW ON POTENTIOMETER INDICATES DIRECTION OF ROTATION WHEN VIEWED FROM SHAFT END.

E. WHEN MAKING RESISTANCE MEASUREMENTS AT TRANSMITTER POINTS USE HIGHEST POSSIBLE OHMMETER RANGE TO PREVENT DAMAGE TO TRANSISTORS.

F. CHASSIS GROUND IS ACCOMPLISHED VIA MOUNTING SCREWS AND CABLE SHIELDS.

G. —⟩ ⟨— INDICATES BREAK POINTS USED TO REDUCE DIAGRAM CLUTTER. TO FIND MATING END OF BROKEN LINE PROCEED IN PARALLEL WITH DIAGRAM BORDER.

H. ——▶—— INDICATES SIGNAL FLOW.

I. VOLTAGE MEASUREMENTS ARE TAKEN WITH DIGITAL MULTIMETER 89536-8800A/AA.

J. READINGS LISTED IN TABLES ARE ACCURATE TO WITHIN ±10%.

K. * IN MAINTENANCE SCHEMATIC INDICATES A COMPONENT OF SELECTED VALUE (PREFERRED VALUE SHOWN). REFER TO CHAPTER 7 PARTS LIST FOR PART NUMBERS AND RANGE OF VALUES.

PART LOCATION INDEX

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A6A8C1	19A	A2A6A8C16	21C	A2A6A8C31	14C
C2	17D	C17	20C	C32	14C
C3	17C	C18	19D	C33	12C
C4	23E	C19	22D	C34	14C
C5	21A	C20	20D	C35	15C
C6	20C	C21	20E	C36	15A
C7	22C	C22	13E	C37	15B
C8	21C	C23	23A	C38	12D
C9	18D	C24	18D	C39	10C
C10	18D	C25	15D	C40	10C
C11	19C	C26	16C	C41	10D
C12	18D	C27	12D	C42	11E
C13	19D	C28	23A	C43	11E
C14	23D	C29	13C	C44	9C
C15	21C	C30	14C	C45	9D

* NOT USED

NOTES FOR FIGURE 5-33 (CONTINUED)

PART LOCATION INDEX (CONTINUED)

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A6A8C46	8D	**A2A6A8E4	2F	A2A6A8R9	17D
C47	9A	**E5	24F	R10	21C
C48	8D	**E6	24F	R11	20C
C49	7B	**E7	24C	R12	19C
C50	4D	**E8	24C	R13	18D
C51	7C	**E9	24B	R14	22D
C52	7B	**E10	24B	R15	23D
C53	4B	**E11	24B	R16	19E
C54	5B	**E12	2C	R17	22D
C55	5B	**E13	24B	R18	23E
C56	2C	**E14	2C	R19	19E
C57	3C	**E15	19A, 2E	R20	20E
C58	3C	FL1	10D	R21	12E
C59	3C	FL2	10C	R22	16D
C60	5B	FL3	18D	R23	12D
C61	4B	J1	*	R24	15D
C62	5B	J2	*	R25	12D
C63	22B	J3	*	R26	15B
C64	6B	J4	24F	R27	13C
C65	9A	J5, J7	24E	R28	13D
C66	23D	J6	24A	R29	15D
CR1	20A	L1	23E	R30	13C
CR2	22D	L2	18D	R31	13B
CR3	19D	L3	18A	R32	15C
CR4	22D	L4	23A	R33	14A
CR5	19D	L5	23E	R34	11E
CR6	13D	L6	11D	R35	11E
CR7	15D	L7	12E	R36	9D
CR8	12D	L8	11D	R37	8D
CR9	15C	L9	11C	R38	8D
CR10	11D	L10	10D	R39	7D
CR11	11C	L11	9C	R40	4B
CR12	9D	L12	23F	R41	7C
CR13	9C	L13	9D	R42	7D
CR14	3D	L14	3C	R43	7C
CR15	4C	L15	23D	R44	2D
CR16	6C	Q1	17D	R45	3D
CR17	4C	R1	16D	R46	6C
CR18	6C	R2	22A	R47	4C
CR19	23B	R3	20B	R48	6C
CR20	22B	R4	20C	R49	3B
**E1	24D	R5	17C	R50	4A
**E2	24D	R6	17E	R51	23B
**E3	2F	R7	17C	R52	22B
		R8	17D		

* NOT USED ** WIRING TERMINATION - FOR REFERENCE ONLY.

NOTES FOR FIGURE 5-33.(CONTINUED)

PART LOCATION INDEX (CONTINUED)

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A6A8R53	4B	A2A6A8R66	14C	A2A6A8T6	4C
R54	5B	R67	5C	T7	5C
R55	5A	R68	5B	TP1	
R56	20B	R69	5B	thru	*
R57	13A	R70	5B	TP4	
R58	4A	RT1	21B	TP5	23B
R59	21D	RT2	14A	TP6	2C
R60	21C	RT3	5A	TP7	24D
R61	21C	T1	16D	TP8	3F
R62	21C	T2	21D	U1	21D
R63	14D	T3	20D	U2	14D
R64	14D	T4	13D	U3	5C
R65	14C	T5	14D		

* NOT USED

TRANSISTOR DC VOLTAGE CHART

	E	B	C
Q1	8.10 V	8.73 V	17.96

INTEGRATED CIRCUIT DC VOLTAGE CHART

PINS	1	2	3	4	5	6	7	8	9	10	11	12
U1	10.0	6.0	5.32	0	0	0	0	0	0	10.0	14.1	14.1
U2	10.0	6.0	5.32	0	0	0	0	0	0	10.0	14.1	14.1
U3	10.0	6.0	5.32	0	0	0	0	0	0	10.0	14.1	14.1

SPECIFIC NOTES

1. RESISTANCE OF THERMISTORS RT1 THRU RT3 IS 180 TO 220 OHMS AT REFERENCE TEMPERATURE OF 25 DEGREES C.
2. MAXIMUM RESISTANCE OF INDUCTORS FOLLOWS: L1, L4, L5, L12 = 1.75 OHMS; L3, L6, L7, L10 = 2.1 OHMS; L9, L11 = 1.1 OHMS; L15 = 3.3 OHMS.
3. MAXIMUM RESISTANCE OF TRANSFORMER WINDINGS FOLLOWS: T1 = 3.2 OHMS (PRIMARY) AND 1.4 OHMS (SECONDARY); T2, T3 = 1.3 OHMS (SECONDARY).
4. TRANSISTOR AND INTEGRATED CIRCUIT VOLTAGE MEASUREMENTS TAKEN TO GROUND WITH EQUIPMENT CONTROLS SET FOR 2.5 MHz IN LSB MODE, UNKEYED.
5. THE INFORMATION CONTAINED IN THESE NOTES IS ORGANIZED TO ALLOW TROUBLESHOOTING OF THE VARIOUS TRANSMITTER FUNCTIONS IN AN OPERATING T-827H/URT TRANSMITTER. FOR DEPOT MAINTENANCE THE MODULE UNDER TEST WILL BE OPERATED IN TRANSLATOR/SYNTHESIZER TEST FIXTURE TS-3665/WRC-1. TEST FIXTURE CONTROL SETTINGS SHALL CORRESPOND TO THE SETTING OF THE COUNTERPART CONTROLS OF THE T-827H/URT.

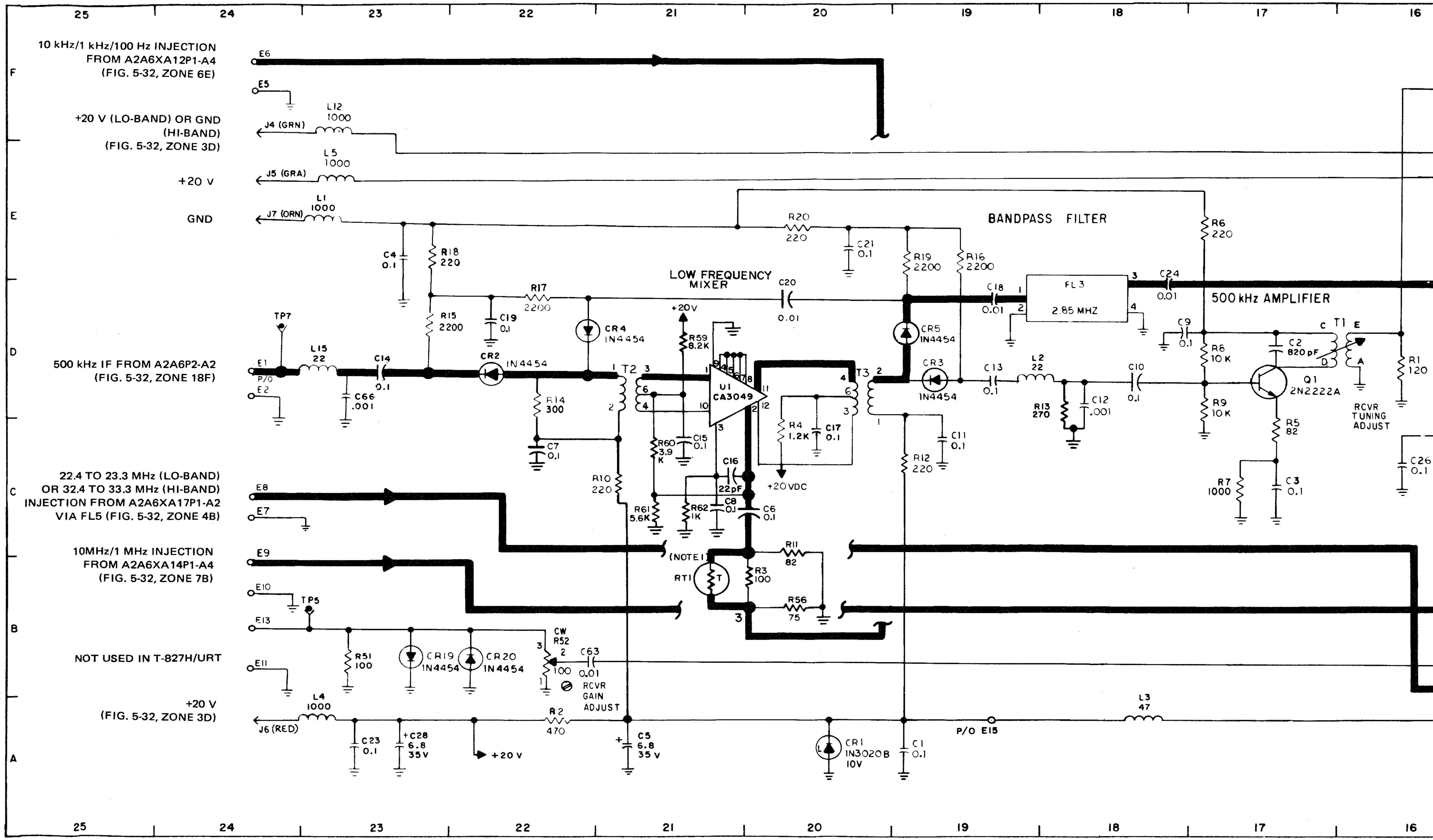


Figure 5-33. RF Translator Subassembly A2A6A8, Maintenance Schematic Diagram

GENERAL NOTES

A. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION PREFIX WITH NUMBERS OF NEXT HIGHER ASSEMBLY.

B. UNLESS OTHERWISE SPECIFIED:
ALL RESISTORS ARE IN OHMS, ±5%, 1/4 WATT.
ALL CAPACITORS ARE IN MICROFARADS, pF = PICOFARADS.
RESISTANCE OF INDUCTORS IS LESS THAN ONE OHM.
ALL INDUCTANCE IS IN MICROHENRIES.

C. WHEN MAKING RESISTANCE MEASUREMENTS AT TRANSISTOR POINTS, USE HIGHEST POSSIBLE OHMMETER RANGE TO PREVENT DAMAGE TO TRANSISTORS.

D. ——▶—— INDICATES SIGNAL FLOW.

E. ——◀◀—— INDICATES FEEDBACK.

F. VOLTAGE MEASUREMENTS TAKEN WITH DIGITAL MULTIMETER 89536-8800A/AA.

G. UNLESS OTHERWISE SPECIFIED, READINGS LISTED IN TABLES ARE ACCURATE TO WITHIN ±10%.

TRANSISTOR DC VOLTAGE CHART

	E	B	C
Q1	0	.83	.16
Q2	8.2	8.4	4.50 ±2.50
Q3	3.8	1.6	4.50 ±2.50

INTEGRATED CIRCUIT DC VOLTAGE CHART

PINS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
U1	2.02	3.87	3.71	NC	NC	NC	0	NC	NC	NC	NC	NC	3.53	5.00	NC	NC
U2	1.47	1.33	1.33	1.90	1.90	1.56	0	NC	NC	NC	NC	2.31	1.44	5.00	NC	NC
U3	NC	1.44	NC	NC	1.80	1.80	0	1.56	NC	NC	NC	NC	NC	5.00	NC	NC

SPECIFIC NOTES

1. TRANSISTOR AND INTEGRATED CIRCUIT VOLTAGE MEASUREMENTS TAKEN TO GROUND WITH EQUIPMENT CONTROLS SET FOR 2.0011 MHz IN LSB MODE, UNKEYED.

2. UNDERLINED VOLTAGE VALUES MAY FLUCTUATE WHILE READING DUE TO SIGNAL PRESENT.

3. NC IN VOLTAGE CHART DENOTES PIN NOT CONNECTED.

SPECIFIC NOTES (CONTINUED)

4. MAXIMUM RESISTANCE OF INDUCTORS FOLLOWS:

L7	1.0 OHM
L9	1.0 OHM

5. THE INFORMATION CONTAINED IN THESE NOTES IS ORGANIZED TO ALLOW TROUBLESHOOTING OF THE VARIOUS TRANSMITTER FUNCTIONS IN AN OPERATING T-827H/URT TRANSMITTER. FOR DEPOT MAINTENANCE THE MODULE UNDER TEST WILL BE OPERATED IN TRANSLATOR/SYNTHESIZER TEST FIXTURE TS-3665/WRC-1. TEST FIXTURE CONTROL SETTINGS SHALL CORRESPOND TO THE SETTINGS OF THE COUNTERPART CONTROLS OF THE T-827H/URT.

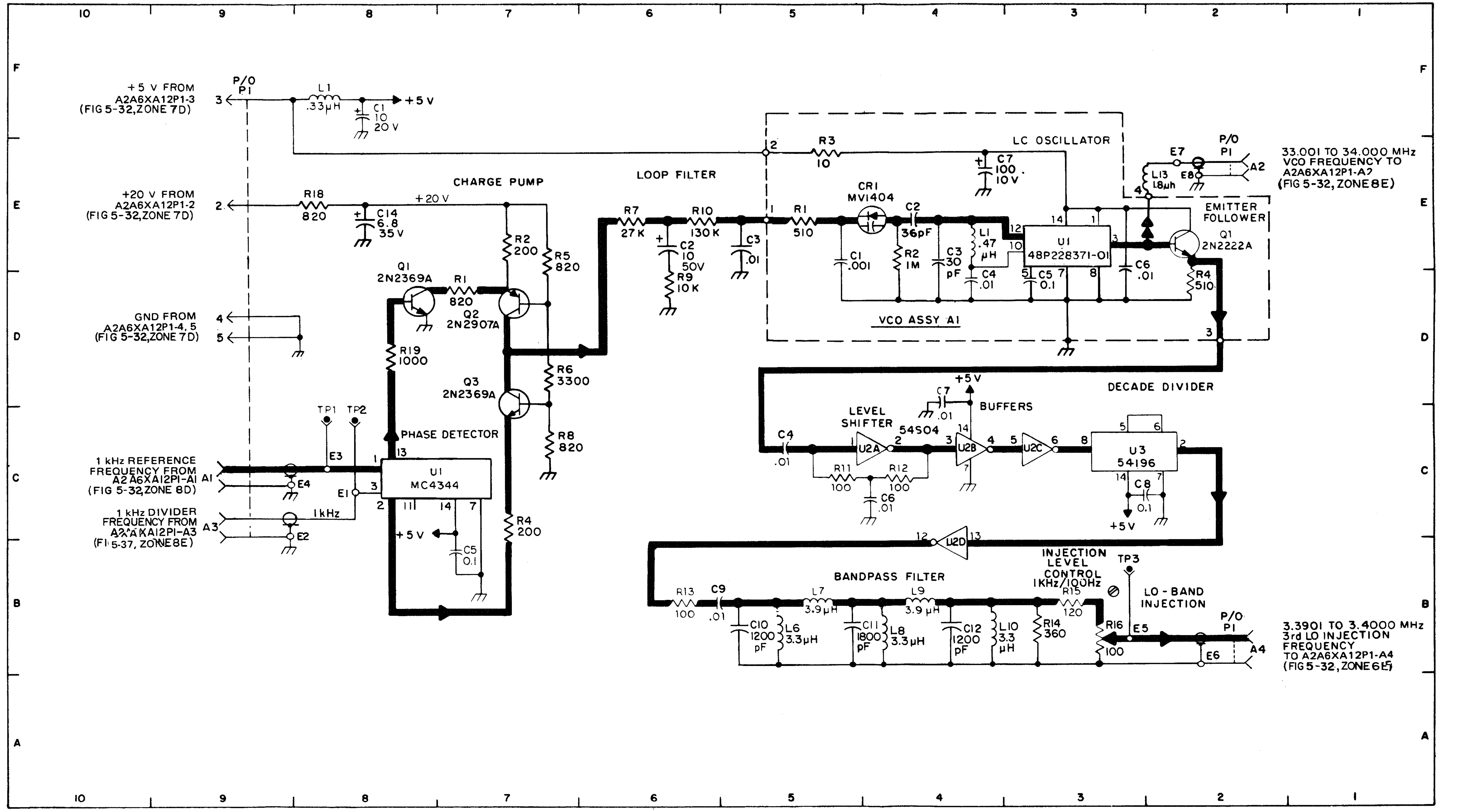


Figure 5-34. 10 kHz/1 kHz/100 Hz Synthesizer Subassembly (No. 2) A2A6A12, Maintenance Schematic Diagram

NOTES FOR FIGURE 5-35

GENERAL NOTES

A. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION PREFIX WITH A2A6A13.

B. UNLESS OTHERWISE SPECIFIED:
ALL RESISTORS ARE IN OHMS, ±5%, 1/8 WATT.
ALL CAPACITORS ARE IN MICROFARADS.
RESISTANCE OF INDUCTORS IS LESS THAN ONE OHM.
ALL INDUCTORS ARE IN MICROHENRIES.

C. WHEN MAKING RESISTANCE MEASUREMENTS AT TRANSISTOR POINTS, USE HIGHEST POSSIBLE OHMMETER RANGE TO PREVENT DAMAGE TO TRANSISTORS.

D. ——▶—— INDICATES SIGNAL FLOW.

E. ——◀◀—— INDICATES FEEDBACK.

F. ——⟆ ⟅—— INDICATES BREAK POINTS USED TO REDUCE DIAGRAM CLUTTER. TO FIND MATING END OF BROKEN LINE PROCEED IN PARALLEL WITH DIAGRAM BORDER.

G. VOLTAGE MEASUREMENTS ARE TAKEN WITH DIGITAL MULTIMETER 89536-8800A/AA.

H. UNLESS OTHERWISE SPECIFIED, READINGS LISTED IN TABLES ARE ACCURATE TO WITHIN ±10%.

PART LOCATION INDEX

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A6A13C1	11E	A2A6A13C19	5E	** A2A6A13E6	10E
C2	9E	C20	5D	** E7	3B
C3	9E	C21	4D	** E8	3B
C4	9E	C22	3D	** E9	3B
C5	*	C23	6C	** E10	3A
C6	9D	C24	5B	** E11	10F
C7	12C	CR1	10D	** E12	10E
C8	11D	CR2	9D	L1	*
C9	10D	CR3	13D	L2	13D
C10	*	CR4	7E	L3	*
C11	13D	CR5	10B	L4	*
C12	*	CR6	10B	L5	7E
C13	6F	CR7	9B	L6	13C
C14	7D	** E1	3C	L7	13B
C15	7E	** E2	3C	L8	13B
C16	7D	** E3	11F	L9	13B
C17	6D	** E4	13F	L10	13B
C18	6E	** E5	11F	Q1	6E

* NOT USED.
** WIRING TERMINATION - FOR REFERENCE ONLY.

NOTES FOR FIGURE 5-35 (CONTINUED)

PART LOCATION INDEX (CONTINUED)

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A6A13Q2	9B	A2A6A13R27	10B	A2A6A13A1CR5	14B
R1	13C	R28	9B	FL1	14C
R2	13B	R29	9C	FL2	14B
R3	13B	R30	9B	FL3	14B
R4	13B	R31	5E	FL4	14B
R5	13B	R32	9E	FL5	14B
R6	9E	R33	6F	P1-A1	14F
R7	9E	R34	13E	P1-A2	2C
R8	9E	TP1	11E	P1-A3	2B
R9	8E	TP2	10F	P1-A4	2B
R10	9D	TP3	12E	P1-1	*
R11	9D	U1	10E	P1-2	14C
R12	11C	U2	9E	P1-3	14B
R13	11C	U3	6E	P1-4	14B
R14	11C	U4	3C, 4D,	P1-5	14B
R15	11B		5C, 5D	P1-6	14B
R16	11C	U5	4D	P1-7	2A
R17	11C	U6	3B, 5B	P1-8	2A
R18	11C	U7	6C, 7B	P1-9	2A
R19	8E	U8	12E	P1-10	14E
R20	7D	U9	12C	P1-11	14D
R21	5D	U10	11C	P1-12	*
R22	5D	U11	12B	P1-13	*
R23	3C	A2A6A13A1CR1	14C	P1-14	*
R24	3B	CR2	14B	P1-15	14E
R25	3B	CR3	14B	P1-16	14E
R26	10B	CR4	14B	P1-17	14E

* NOT USED.

TRANSISTOR DC VOLTAGE CHART

	E	B	C
Q1	3.00	3.61	4.80
Q2	0	0.74	0.03

INTEGRATED CIRCUIT DC VOLTAGE CHART

PINS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
U1	1.88	3.74	3.54	3.76	1.31	NC	0	NC	NC	1.31	3.73	NC	3.76	5.00	-	-
U2	NC	1.31	1.32	0	NC	5.00*	13.0	NC	-	-	-	-	-	-	-	-
U3	4.80	NC	3.62	NC	1.43	NC	0	0	NC	1.64	NC	1.63	NC	4.8	-	-
U4	2.52	1.51	0	1.51	0	1.47	0	1.69	5.00	0.13	1.69	5.00	0.18	5.00	-	-
U5	NC	1.73	NC	NC	1.51	1.51	0	2.52	1.56	NC	NC	NC	NC	5.00	-	-
U6	2.04	1.51	0.003	0.15	1.56	5.00	0	1.56	5.00	0.13	1.51	0.003	1.56	5.00	-	-
U7	NC	NC	NC	0.098	4.0	4.0	0	2.04	0.098	1.28	0.18	0.15	4.0	5.00	-	-
U8	1.28	NC	NC	NC	NC	NC	NC	0	3.54	1.46	1.78	1.63	0.70	1.48	NC	5.00
U9	0.70	0.22	3.54	NC	5.00	1.28	1.78	0	1.48	NC	0.22	0	NC	5.00	1.63	5.00
U10	NC	0	3.54	NC	5.00	0.70	NC	0	NC	NC	5.01	1.46	1.46	0.19	NC	5.00
U11	5.00	5.00	0.22	5.00	0.22	5.00	5.00	0	0.19	0.54	0.54	0.54	5.0	0.54	0	5.00

* TOLERANCE ±2.5 VDC.

SPECIFIC NOTES

1. TRANSISTOR AND INTEGRATED CIRCUIT VOLTAGE MEASUREMENTS TAKEN TO GROUND WITH EQUIPMENT CONTROLS SET FOR 2.5 MHz IN LSB MODE, T-827H/URT UNKEYED.

2. DIODES A1CR1 THROUGH A1CR5 ARE TYPE 1N3611. THE VALUE OF FILTERS A1FL1 THROUGH A1FL5 IS ONE MICROFARAD ±20%.

3. THE INFORMATION CONTAINED IN THESE NOTES IS ORGANIZED TO ALLOW TROUBLESHOOTING OF THE VARIOUS TRANSMITTER FUNCTIONS IN AN OPERATING T-827H/URT TRANSMITTER. FOR DEPOT MAINTENANCE THE MODULE UNDER TEST WILL BE OPERATED IN TRANSLATOR/SYNTHESIZER TEST FIXTURE TS-3665/WRC-1. TEST FIXTURE CONTROL SETTINGS SHALL CORRESPOND TO THE SETTINGS OF THE COUNTERPART CONTROLS OF THE T-827H/URT.

4. NC IN VOLTAGE CHART DENOTES PIN NOT CONNECTED.

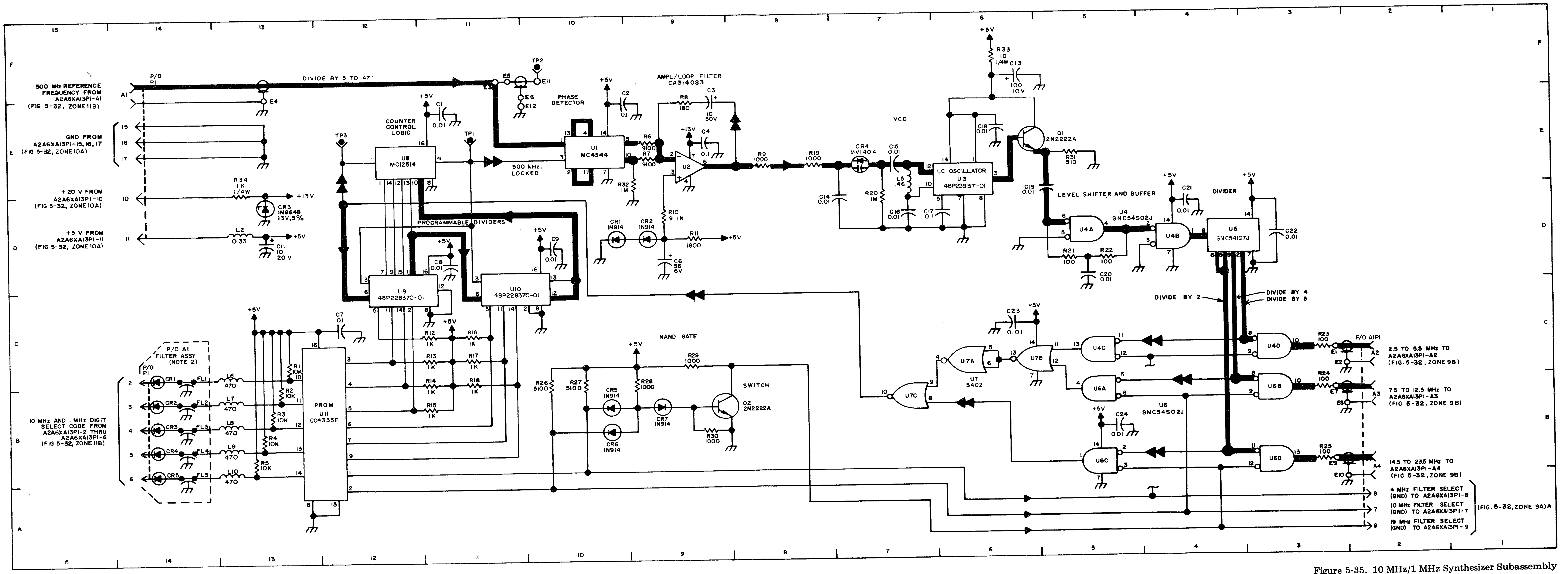


Figure 5-35. 10 MHz/1 MHz Synthesizer Subassembly A2A6A13, Maintenance Schematic Diagram

GENERAL NOTES

A. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION PREFIX WITH A2A6A14.

B. UNLESS OTHERWISE SPECIFIED:
ALL RESISTORS ARE IN OHMS, ±5%, 1/8 WATT.
ALL CAPACITORS ARE IN MICROFARADS.
ALL INDUCTORS ARE IN MICROHENRIES.
RESISTANCE OF INDUCTORS LESS THAN ONE OHM.

C. WHEN MAKING RESISTANCE MEASUREMENTS AT TRANSISTOR POINTS, USE HIGHEST POSSIBLE OHMMETER RANGE TO PREVENT DAMAGE TO TRANSISTORS.

D. ——▶—— INDICATES SIGNAL FLOW.

E. VOLTAGE MEASUREMENTS ARE TAKEN WITH DIGITAL MULTIMETER 89536-8800A/AA.

F. READINGS LISTED IN TABLE ARE ACCURATE TO WITHIN ±10%.

PART LOCATION INDEX

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A6A14C1	7E	A2A6A14E1	9E	A2A6A14L14	5B
C2	6E	E2	9C	L15	5B
C3	5E	E3	2C	L16	4B
C4	6D	E4	8B	L17	4B
C5	5E	E5	8E	L18	4B
C6	4E	E6	8F	L19	8E
C7	4E	E7	8B	P1A1	9E
C8	3F	E8	8B	P1A2	9C
C9	5F	E9	9C	P1A3	9B
C10	7C	E10	2C	P1A4	2C
C11	6D	E11	8F	P1-1	9E
C12	5C	E12	9B	P1-2	9D
C13	6C	E13	8E	P1-3	9E
C14	5C	E14	8B	P1-4	9D
C15	4C	E15	9E	P1-5	9B
C16	4D	E16	8B	Q1	7F
C17	3D	L1	6E	Q2	6E
C18	5D	L2	5E	Q3	3E
C19	7B	L3	5E	Q4	7D
C20	6B	L4	4E	Q5	6C
C21	5B	L5	4E	Q6	3D
C22	6A	L6	4F	Q7	7B
C23	5B	L7	6D	Q8	6B
C24	4B	L8	5D	Q9	3B
C25	4B	L9	5C	R1	8E
C26	3B	L10	4D	R2	8F
C27	5B	L11	4C	R3	7E
C28	8D	L12	4D	R4	6E
C29	2C	L13	6B	R5	7E

PART LOCATION INDEX (CONTINUED)

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A6A14R6	7E	A2A6A14R17	6C	A2A6A14R28	6A
R7	6E	R18	6C	R29	3B
R8	6E	R19	3D	R30	3B
R9	3E	R20	3C	R31	3C
R10	3E	R21	8B	TP1	9F
R11	8D	R22	8B	TP2	8F
R12	8D	R23	7B	TP3	9D
R13	7D	R24	6B	TP4	8D
R14	6D	R25	7A	TP5	2D
R15	7C	R26	7A	TP6	9C
R16	7C	R27	6A	TP7	8C

TRANSISTOR VOLTAGE CHART

NOTE 3	NOTE 4	NOTE 5	E	B	C
Q4	Q7	Q1	+5.0V	+5.0V	0V
Q5	Q8	Q2	0V	0V	0V
Q6	Q9	Q3	1.8V	0V	0V
Q7	Q1	Q4	+5.0V	+5.0V	0V
Q8	Q2	Q5	0V	0V	0V
Q9	Q3	Q6	1.8V	0V	0V
Q1	Q4	Q7	+5.0V	+4.3V	+5.0V
Q2	Q5	Q8	+1.8V	+2.5V	+5.0V
Q3	Q6	Q9	+1.8V	+2.5V	+5.0V

SPECIFIC NOTES

1. TRANSISTOR VOLTAGE MEASUREMENTS TAKEN TO GROUND WITH EQUIPMENT CONTROLS SET IN LSB MODE.

2. MAXIMUM RESISTANCE OF INDUCTORS FOLLOWS:
L1, L3, L5 — 3.3 OHMS
L2, L4, L6, L12, L18 — 2.7 OHMS
L19 — 1.2 OHMS

3. FOR T-827H/URT MHZ FREQUENCY CONTROL SETTINGS OF 14, 15, 16, 22, 23, 24, 25 AND 26 MHZ USE TRANSISTOR REFERENCE DESIGNATIONS LISTED IN COLUMN HEADED "NOTE 3" TO DETERMINE PROPER VOLTAGE READINGS.

4. FOR T-827H/URT MHZ FREQUENCY CONTROL SETTINGS OF 07, 08, 11, 12, 17, 18, 19, 20, 21, 27, 28 AND 29 USE TRANSISTOR REFERENCE DESIGNATIONS LISTED IN COLUMN HEADED "NOTE 4" TO DETERMINE PROPER VOLTAGE READINGS.

5. FOR T-827H/URT MHZ FREQUENCY CONTROL SETTING OF 02, 03, 04, 05, 06, 09, 10 AND 13 USE TRANSISTOR REFERENCE DESIGNATIONS LISTED IN COLUMN HEADED "NOTE 5" TO DETERMINE PROPER VOLTAGE READINGS.

6. THE INFORMATION CONTAINED IN THESE NOTES IS ORGANIZED TO ALLOW TROUBLESHOOTING OF THE VARIOUS TRANSMITTER FUNCTIONS IN AN OPERATING T-827H/URT TRANSMITTER. FOR DEPOT MAINTENANCE THE MODULE UNDER TEST WILL BE OPERATED IN TRANSLATOR/SYNTHESIZER TEST FIXTURE TS-3665/WRC-1. TEST FIXTURE CONTROL SETTINGS SHALL CORRESPOND TO THE SETTINGS OF THEIR COUNTERPART CONTROLS OF THE T-827H/URT.

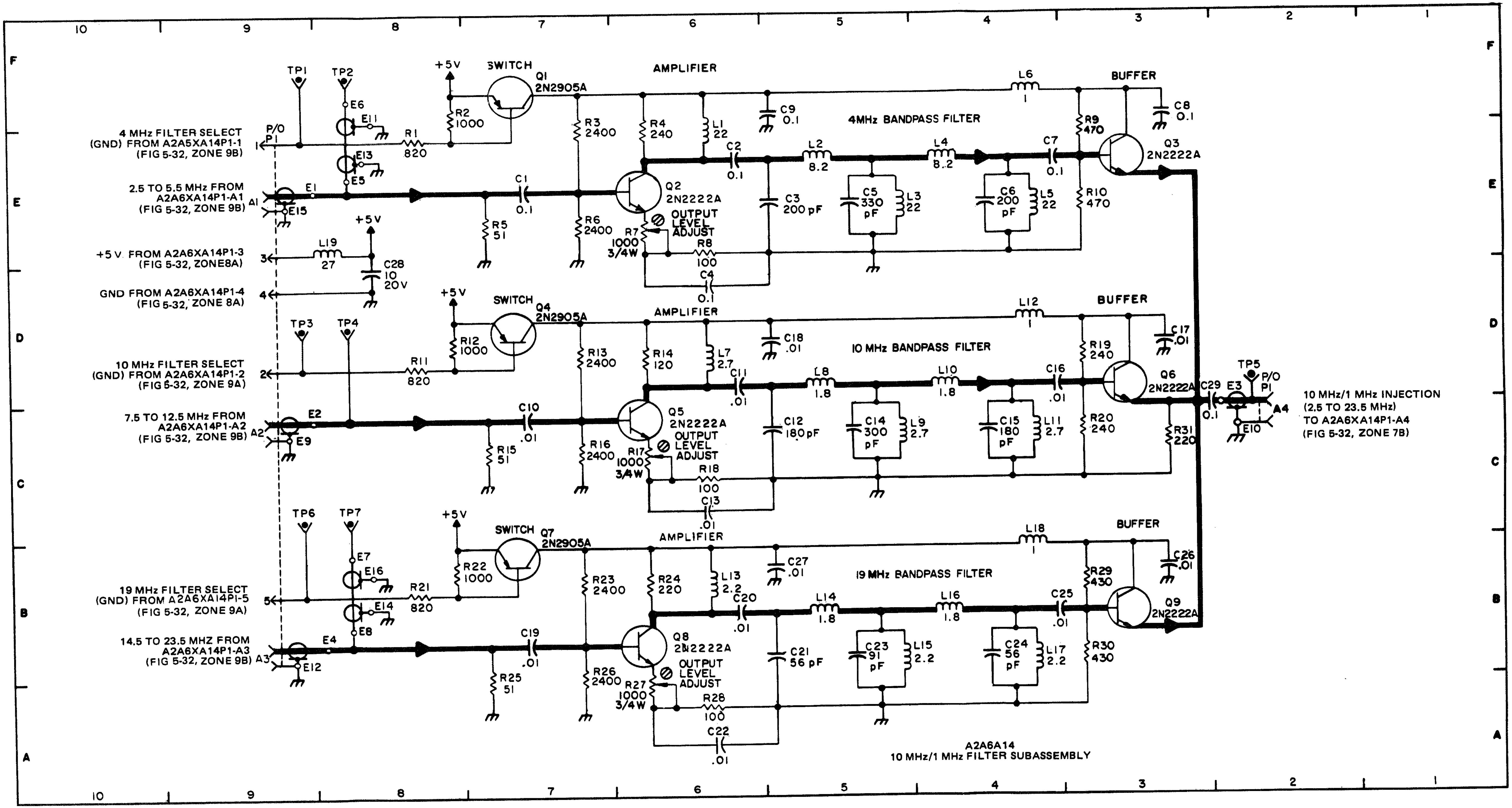


Figure 5-36. 10 MHz/1 MHz Filter Subassembly A2A6A14, Maintenance Schematic Diagram

GENERAL NOTES

A. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION PREFIX WITH A2A6A15.

B. UNLESS OTHERWISE SPECIFIED:
ALL RESISTORS ARE IN OHMS, ±5%, 1/4 WATT.
ALL CAPACITORS ARE IN MICROFARADS.
ALL REFERENCE DIODE VOLTAGES ARE ±5%.
RESISTANCE OF INDUCTORS IS LESS THAN ONE OHM.

C. WHEN MAKING RESISTANCE MEASUREMENTS AT TRANSISTOR POINTS, USE HIGHEST POSSIBLE OHMMETER RANGE TO PREVENT DAMAGE TO TRANSISTORS.

D. ——▶—— INDICATES SIGNAL FLOW.

E. ——◀◀—— INDICATES FEEDBACK.

F. VOLTAGE MEASUREMENTS ARE TAKEN WITH DIGITAL MULTIMETER 89536-8800A/AA.

G. READINGS LISTED IN TABLES ARE ACCURATE TO WITHIN ±10%.

TRANSISTOR DC VOLTAGE CHART

	E	B	C
Q1	19.1	18.8	5.65
Q2	19.1	19.0	2.34
Q3	5.39	5.65	19.0

INTEGRATED CIRCUIT DC VOLTAGE CHART

PINS

	1	2	3	4	5	6	7	8
U1	0	9.7	9.42	0	NC	NC	9.38	19.1
U2	5.03	18.8	19.1	0	2.19	2.33	NC	5.10

SPECIFIC NOTES

1. ON ASSEMBLIES MARKED 01A228311-01, THE VALUE OF A2A6A15R15 IS SELECTED FROM 300 TO 1800 OHMS FOR A +5.1 TO +5.2 VDC INDICATION AT A2A6A15E4 WITH A 2 AMPERE LOAD. ON ASSEMBLIES MARKED 01A228311-02, THE VALUE OF A2A6A15R15 IS SELECTED FROM 1100 TO 2400 OHMS FOR A +5.1 TO +5.3 VDC INDICATION AT A2A6A15E4 WITH A 2 AMPERE LOAD. REFER TO TABLE 7-2 FOR PART NUMBERS.

2. TRANSISTOR AND INTEGRATED CIRCUIT VOLTAGE MEASUREMENTS TAKEN TO GROUND WITH EQUIPMENT MODE SELECTOR SWITCH SET AT LSB POSITION.

SPECIFIC NOTES (CONTINUED)

3. THE INFORMATION CONTAINED IN THESE NOTES IS ORGANIZED TO ALLOW TROUBLESHOOTING OF THE VARIOUS TRANSMITTER VUNCTIONS IN AN OPERATING T-827H/URT TRANSMITTER. FOR DEPOT MAINTENANCE THE MODULE UNDER TEST WILL BE OPERATED IN TRANSLATOR/SYNTHESIZER TEST FIXTURE TS-3665/WRC-1. TEST FIXTURE CONTROL SETTINGS SHALL CORRESPOND TO THE SETTINGS OF THE COUNTERPART CONTROLS OF THE T-827H/URT.

4. NC IN VOLTAGE CHART DENOTES PIN NOT CONNECTED.

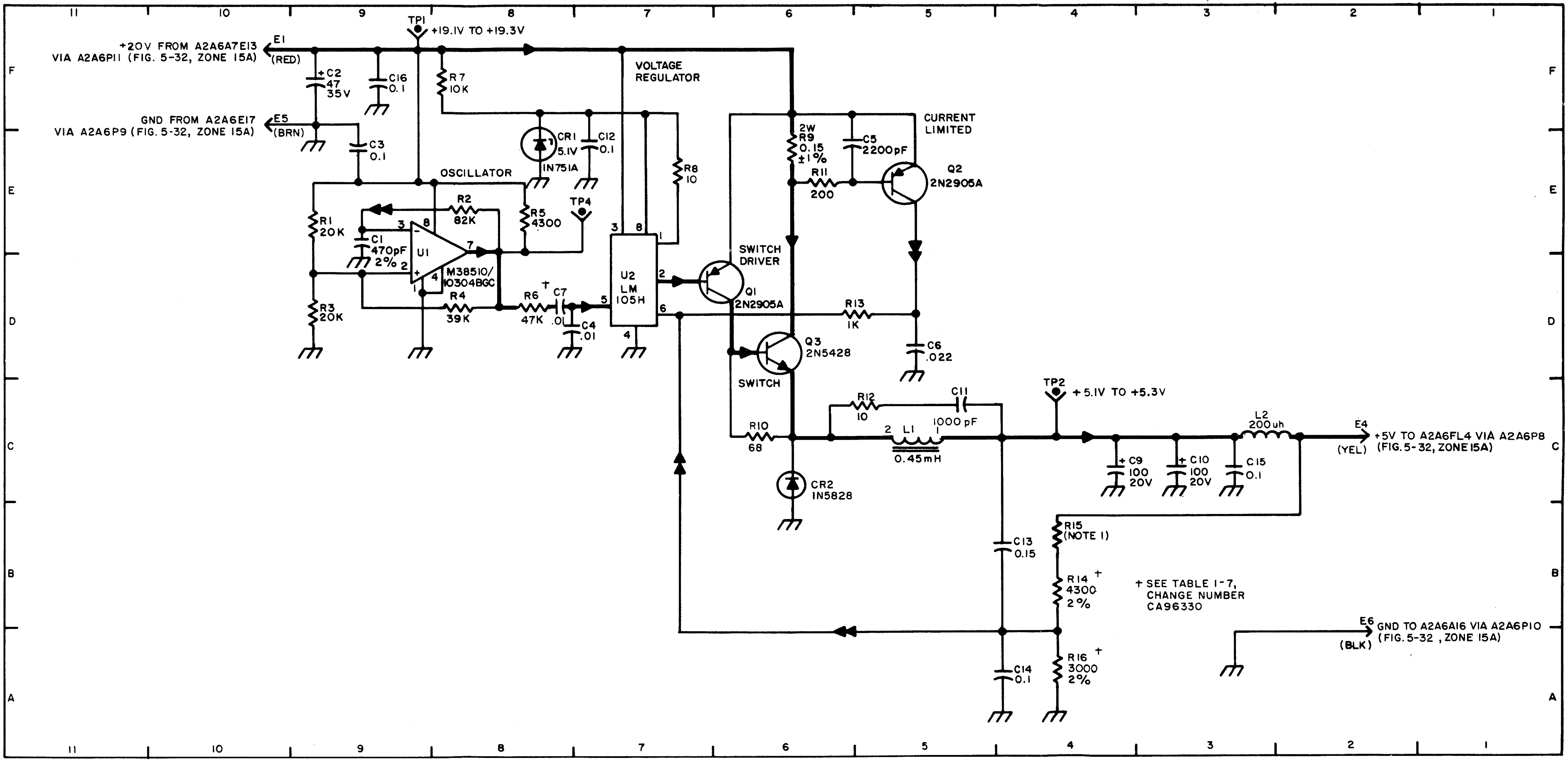


Figure 5-37. Power Supply Subassembly A2A6A15, Maintenance Schematic Diagram

NOTES FOR FIGURE 5-38

GENERAL NOTES

A. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION PREFIX WITH A2A6A16.

B. UNLESS OTHERWISE SPECIFIED:
ALL RESISTORS ARE IN OHMS, ±5%, 1/8 WATT.
ALL CAPACITORS ARE IN MICROFARADS: pF = PICOFARADS
ALL INDUCTORS ARE IN MICROHENRIES.
ALL REFERENCE DIODE VOLTAGES ARE ±5%.
RESISTANCE OF INDUCTORS IS LESS THAN ONE OHM.

C. WHEN MAKING RESISTANCE MEASUREMENTS AT TRANSISTOR POINTS, USE HIGHEST POSSIBLE OHMMETER RANGE TO PREVENT DAMAGE TO TRANSISTORS.

D. ——►—— INDICATES SIGNAL FLOW.

E. ——◄◄—— INDICATES FEEDBACK.

F. VOLTAGE MEASUREMENTS ARE TAKEN WITH DIGITAL MULTIMETER 89536-8800A/AA.

G. READINGS LISTED IN TABLES ARE ACCURATE TO WITHIN ±10%.

PART LOCATION INDEX

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A6A16C1	*	A2A6A16C22	9B	A2A6A16E1	11E
C2	*	C23	9B	E2	11E
C3	9C	C24	8B	E3	2F
C4	3B	C25	7B	E4	*
C5	10E	C26	7A	E5	2E
C6	10F	C27	*	E6	2D, 2F
C7	10E	C28	5B	E7	2F
C8	10E	C29	5B	E8	7E
C9	9E	C30	4B	E9	7D
C10	9E	C31	4A	E10	7D
C11	9E	C32	4A	E11	7E
C12	5F	C33	3A	L1	*
C13	5F	C34	3A	L2	*
C14	3F	C35	2A	L3	9C
C15	2C	C36	2B	L4	*
C16	3C	C37	6D	L5	4B
C17	5C	CR1	10A	L6	10F
C18	10B	CR2	8A	L7	9F
C19	*	CR3	7A	P1-A1	11E
C20	11B	CR4	9D	P1-A2	2F
C21	10A	CR5	5B	P1-A3	2E

* NOT USED

PART LOCATION INDEX (CONTINUED)

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A6A16P1-A4	2F	A2A6A16R17	11B	A2A6A16TP1	11B
Q1	10E	R18	10B	TP2	2E
Q2	9E	R19	10B	TP3	2F
Q3	5D	R20	10B	TP4	3F
Q4	5D	R21	11A	U1	8E, 9E
Q5	3B	R22	10A	U2	6E
Q6	6C	R23	10A	U3	5E
R1	11E	R24	10B	U4	4E
R2	10F	R25	7B	U5	3E
R3	10E	R26	7B	U6	3E, 4E, 3D
R4	10E	R27	7B	U7	10B
R5	10E	R28	7B	U8	9B
R6	10F	R29	7B	U9	8B
R7	10E	R30	7A	U10	7B
R8	9E	R31	6B	U11	3B
R9	9E	R32	5B	U12	1A, 2A
R10	9E	R33	5B	U13	6D
R11	8E	R34	3A	U14	2C
R12	5D	R35	3A	U15	3C
R13	5D	R36	2A	U16	4C
R14	5E	R37	3B	U17	5C
R15	5E	R38	9D		
R16	3C				

TRANSISTOR VOLTAGE CHART

	E	B	C
Q1	0.82	1.45	5.00
Q2	2.01	2.45	5.00
Q3	0	0.63	0.03
Q4	0	0.03	5.00
Q5	0	0	0
Q6	5.00	5.00	0.01

INTEGRATED CIRCUIT VOLTAGE CHART
(ALL VALUES + VDC)

PINS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
U1	1.35	1.14	1.14	1.96	NC	0.05	0	NC	NC	1.05	1.96	1.06	1.96	5.00	-	-
U2	1.77	0	0	NC	5.00	0	0	NC	NC	0	0.78	1.77	NC	1.06	-	-
U3	1.88	0	0	NC	5.00	0	0	NC	NC	0	0.84	1.88	NC	0.78	-	-
U4	0.84	0	0	NC	5.00	0	0	NC	NC	0	0.85	1.93	NC	0.85	-	-
U5	1.93	0	0	NC	5.00	0	0	NC	NC	0	0.86	2.00	NC	0.86	-	-
U6	2.10	4.09	2.01	0.10	2.03	4.09	0	0.10	5.00	5.00	2.10	2.00	5.00	5.00	-	-
U7	NC	3.90	3.90	0	NC	4.90	10.0	NC	-	-	-	-	-	-	-	-
U8	5.00	4.90	3.46	3.47	0	1.94	0	NC	0	NC	NC	NC	NC	5.00	-	-
U9	1.80	3.85	1.94	3.06	1.17	NC	0	NC	NC	1.29	3.85	NC	3.06	5.00	-	-
U10	NC	1.29	1.30	0	NC	5.00*	10.0	NC	-	-	-	-	-	-	-	-
U11	0	NC	0	NC	0	NC	0	0	NC	0	NC	0	NC	0	-	-
U12	1.27	1.16	NC	NC	NC	NC	0	1.60	1.16	1.40	1.60	1.40	1.60	5.00	-	-
U13	NC	1.40	1.05	NC	1.80	NC	0	NC	NC	NC	NC	NC	NC	5.00	-	-
U14	1.67	0	0	NC	5.00	NC	NC	NC	NC	0	1.89	1.67	NC	1.40	-	-
U15	0.80	5.00	NC	1.89	5.00	1.89	NC	0	NC	NC	0	0.15	0.15	0	NC	5.00
U16	NC	0	NC	1.89	5.00	0.80	NC	0	NC	NC	5.00	0.15	0.15	0	NC	5.00
U17	1.92	0	0	NC	5.00	NC	NC	NC	NC	0	2.03	1.92	NC	0.15	-	-

* TOLERANCE ±2.5 VDC.

SPECIFIC NOTES

1. TRANSISTOR AND INTEGRATED CIRCUIT VOLTAGE MEASUREMENTS TAKEN TO GROUND WITH EQUIPMENT CONTROLS SET FOR LSB OPERATION IN NON-VERNIER MODE.
2. * MAXIMUM DC RESISTANCE OF INDUCTORS FOLLOWS:
   L6 1.0 OHM
   L7 8.0 OHMS
3. THE INFORMATION CONTAINED IN THESE NOTES IS ORGANIZED TO ALLOW TROUBLESHOOTING OF THE VARIOUS RECEIVER FUNCTIONS IN AN OPERATING R-1051G/URR RECEIVER. FOR DEPOT MAINTENANCE THE MODULE UNDER TEST WILL BE OPERATED IN TRANSLATOR/ SYNTHESIZER TEST FIXTURE TS-3665/WRC-1. TEST FIXTURE CONTROL SETTINGS SHALL CORRESPOND TO THE SETTINGS OF THE COUNTERPART CONTROLS OF THE R-1051G/URR.
4. NC IN VOLTAGE CHART DENOTES PIN NOT CONNECTED.

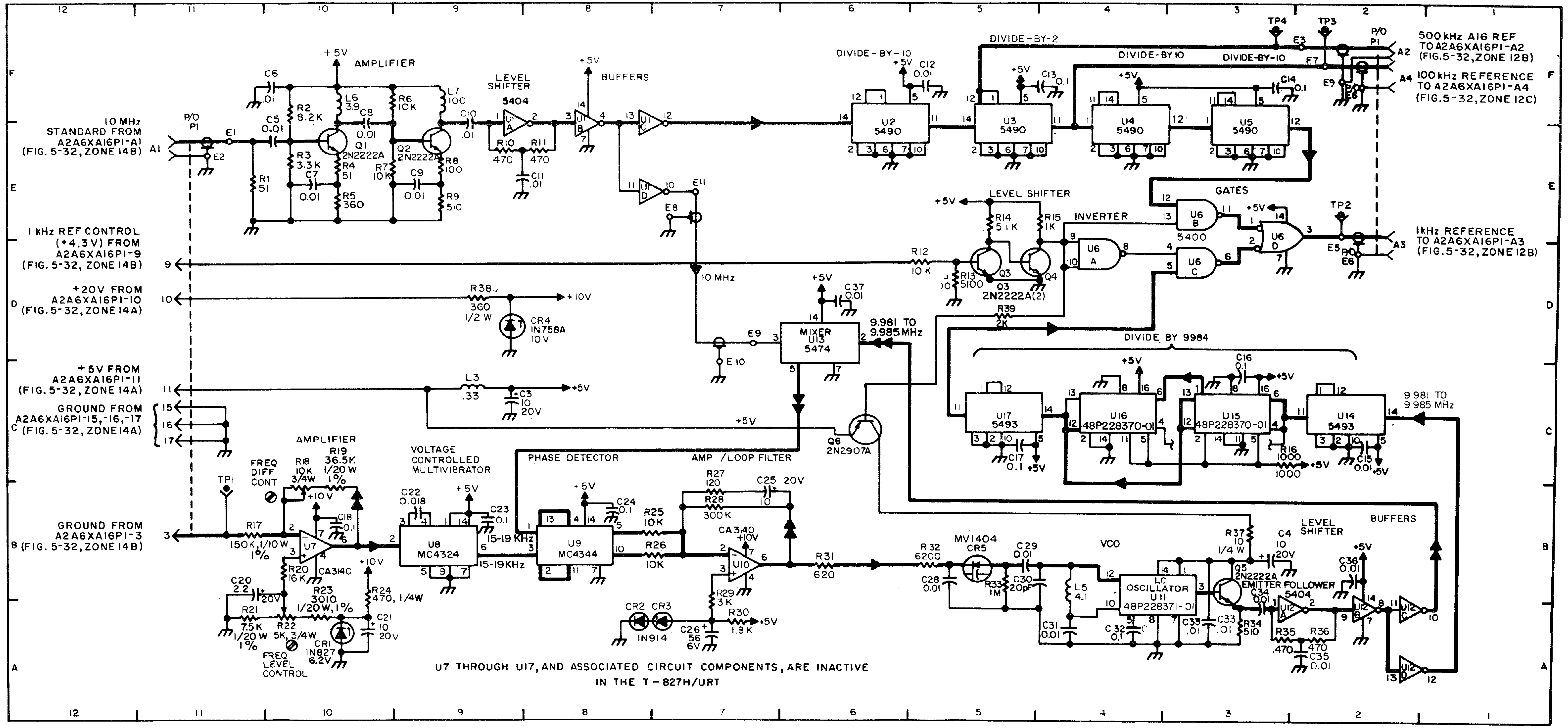


Figure 5-38. Frequency Generator Subassembly A2A6A16, Maintenance Schematic Diagram

NOTES FOR FIGURE 5-39

GENERAL NOTES

A. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATIONS PREFIX WITH NUMBERS OF NEXT HIGHER ASSEMBLY.

B. UNLESS OTHERWISE SPECIFIED:
ALL RESISTANCE IS IN OHMS, K = 1000
ALL RESISTORS ARE 1/4 WATT, ±5%
ALL CAPACITANCE IS IN MICROFARADS. pF = PICOFARADS
ALL COIL RESISTANCES ARE LESS THAN 1 OHM
ALL INDUCTANCE IS IN MICROHENRIES

C. WHEN MAKING RESISTANCE MEASUREMENTS AT TRANSISTOR POINTS, USE HIGHEST POSSIBLE OHMMETER RANGE TO PREVENT DAMAGE TO TRANSISTORS.

D. INDICATES SIGNAL FLOW.

E. INDICATES FEEDBACK.

F. INDICATES BREAK POINTS USED TO REDUCE DIAGRAM CLUTTER. TO FIND MATING END OF BROKEN LINE PROCEED FROM BREAK POINT IN PARALLEL WITH DIAGRAM BORDER.

G. VOLTAGE MEASUREMENTS TAKEN WITH DIGITAL MULTIMETER 89536-8800A/AA

H. READINGS LISTED IN TABLES ARE ACCURATE TO WITHIN ±10%.

SPECIFIC NOTES

1. THE DIVISION RATIOS FOR THE PROGRAMMABLE DIVIDERS ARE AS FOLLOWS:
LOW BAND 224 - 233
HIGH BAND 324 - 333

2. TRANSISTOR AND INTEGRATED CIRCUIT VOLTAGE MEASUREMENTS TAKEN TO GROUND WITH EQUIPMENT CONTROLS SET FOR 2.11 MHz OPERATION IN LSB MODE.

3. MAXIMUM RESISTANCE OF INDUCTORS FOLLOWS:
L8 - 1.0 OHM

4. VALUES FOR INDUCTOR A2A6A17A1L1 ARE SELECTED ACCORDING TO THE SPECIFICATIONS FOR VARACTOR DIODE A2A6A17A1CR1 AND CORRESPOND AS FOLLOWS:

VARACTOR DIODE, COLOR CODE	INDUCTANCE, uH
RED	0.82
BROWN	0.68
BLACK	0.56

PART LOCATION INDEX

REF DES	ZONE
A2A6A17C1	9E
C2	7E
C3	7D
C4	*
C5	9C
C6	3G
C7 thru C12	*
C13	3F
C14	3F
C15	3F
C16	3E
C17	3F
C18	3F
C19	2F
C20	2F
C21	2F
C22	*
C23	10B
C24	*
C25	3D
C26	2D
C27	1D
C28	2C
C29	5C
C30	2E
C31	4C
C32	3B
C33	10C
C34	9B
C35	9F
C36	8D
†CR1	7E
**E1	10E
**E2	10D
**E3	2F
**E4	1F
***E5	7E
***E6	8D
L1	*
L2	*
L3	3F
L4	3F
L5	3F
L6	3F
L7	3F

REF DES	ZONE
A2A6A17L8	3F
L9	*
L10	10B
P1A1	11E
P1A2	1F
P1-1	11C
P1-2	*
P1-3	11A
P1-4	11A
P1-5	11A
P1-6	11A
P1-7	11B
P1-8	11B
P1-9 thru P1-12	*
P1-13	11B
P1-14	11B
P1-15	11A
Q1	4F
Q2	2F
Q3	6B
Q4	5B
Q5	4B
Q6	9F
Q7	8D
Q8	8E
R1	10C
R2	9F
R3	8F
R4	8G
R5	8F
R6	8D
R7	8D
R8	8E
R9	4F
R10	4E
R11	3E
R12	2F
R13	2E
R14	2E
R15	2C
R16	6B
R17	4B

REF DES	ZONE
A2A6A17R18 thru R21	*
R22	2B
R23	2B
R24	2A
R25	2A
R26	6A
R27	6B
R28	4A
R29	4B
R30	5B
R31	2F
R32	7E
R33	7E
R34	4G
R35	9D
R36	2F
TP1	10E
TP2	10E
TP3	2G
U1	9E
U2	*
U3	*
U4	2D
U5	3D
U6	3B
U7	4C
U8	5C
A2A6A17A1C1	6F
C2	6F
C3	*
C4	6E
C5	5E
C6	5F
C7	6F
CR1	6F
L1	6F
R1	7F
R2	6F
R3	7G
R4	4F
U1	5F

* NOT USED.
** WIRING TERMINATION - FOR REFERENCE ONLY.
*** WIRING TERMINATION - FOR REFERENCE ONLY - 01 VERSION ONLY.
† REVISION F AND LATER VERSIONS ONLY.

NOTES FOR FIGURE 5-39 (CONTINUED)

TRANSISTOR DC VOLTAGE CHART

	E	B	C
Q1	2.41	3.06	4.87
Q2	1.15	1.82	2.39
Q3	0	0.68	0.03
Q4	0	0.68	0.04
Q5	0	0	0.04
Q6	0	0.82	0.18
Q7	3.88	3.25	3.98
Q8	13.90	16.10	3.98

INTEGRATED CIRCUIT VOLTAGE CHART

PINS

	1	2	3	4	5	6	7	8
U1	0.85	3.87	3.56	NC	NC	NC	0	NC
U4	5.00	3.6	3.83	3.83	3.86	5.00	2.15	0
U5	2.15	2.15	1.53	1.80	0.85	NC	3.00	0
U6	0.85	0	3.56	NC	5.00	2.15	2.15	0
U7	0.81	0	3.56	NC	0.04	2.15	1.85	0
U8	NC	0	3.56	NC	0.03	0.81	NC	0

	9	10	11	12	13	14	15	16
U1	NC	NC	NC	NC	3.56	5.00	-	-
U4	3.00	3.00	NC	NC	3.86	3.87	3.82	5.00
U5	3.56	1.80	1.85	1.46	0.81	1.80	NC	5.00
U6	1.53	NC	0	0.30	0.30	4.00	1.80	5.00
U7	1.80	NC	5.00	0	NC	0	1.46	5.00
U8	NC	NC	5.00	1.80	1.80	0	NC	5.00

SPECIFIC NOTES (CONTINUED)

5. THE INFORMATION CONTAINED IN THESE NOTES IS ORGANIZED TO ALLOW TROUBLESHOOTING OF THE VARIOUS TRANSMITTER FUNCTIONS IN AN OPERATING T-827H/URT TRANSMITTER. FOR DEPOT MAINTENANCE THE MODULE UNDER TEST WILL BE OPERATED IN TRANSLATOR/SYNTHESIZER TEST FIXTURE TS-3665/WRC-1. TEST FIXTURE CONTROL SETTINGS SHALL CORRESPOND TO THE SETTINGS OF THE COUNTERPART CONTROLS OF THE T-827H/URT.

6. NC IN VOLTAGE TABLES DENOTES PIN NOT CONNECTED.

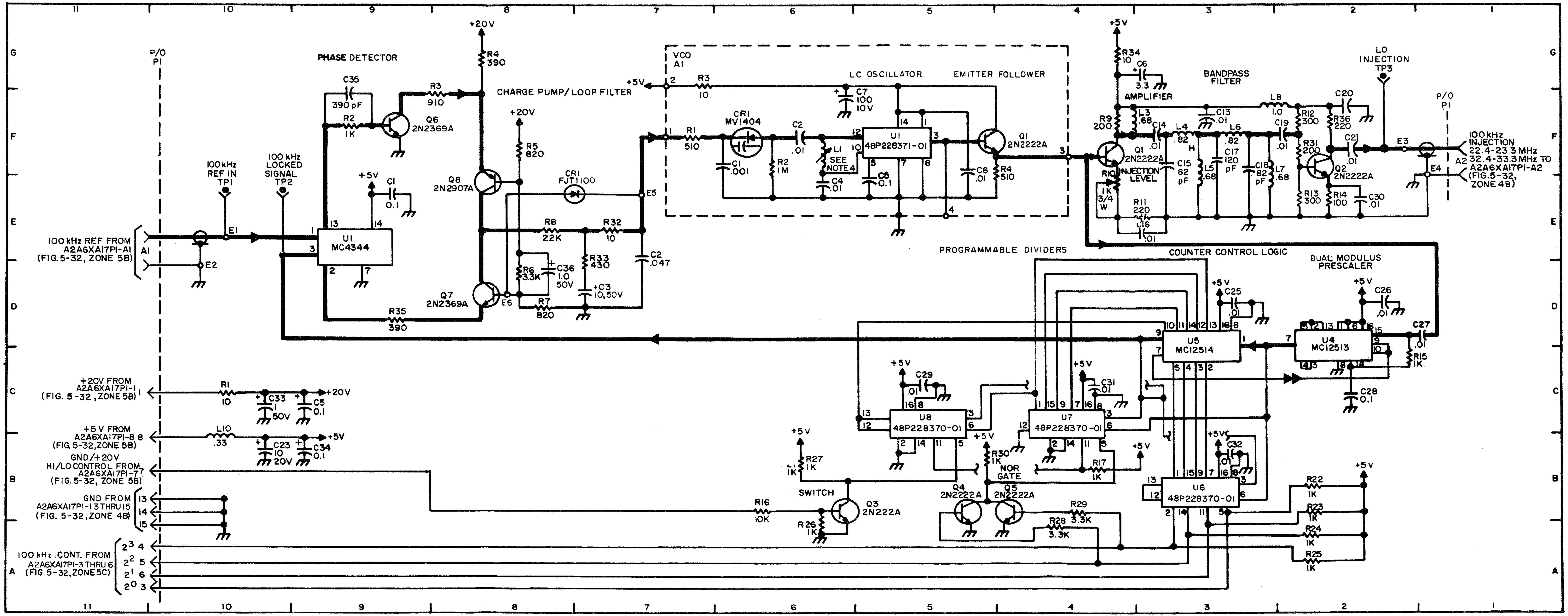


Figure 5-39. 100 kHz Synthesizer Subassembly A2A6A17, Maintenance Schematic Diagram

NOTES FOR FIGURE 5-40

GENERAL NOTES

A. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION PREFIX WITH A2A6A18.

B. UNLESS OTHERWISE SPECIFIED:
ALL RESISTORS ARE IN OHMS, ±5%, 1/4 WATT
ALL CAPACITORS ARE IN MICROFARADS.
RESISTANCE OF INDUCTORS IS LESS THAN ONE OHM.
ALL INDUCTANCE IS IN MICROHENRIES.

C. WHEN MAKING RESISTANCE MEASUREMENTS AT RESISTOR POINTS. USE HIGHEST POSSIBLE OHMMETER RANGE TO PREVENT DAMAGE TO TRANSISTORS.

D. ——◀◀—— INDICATES FEEDBACK.

E. —⌒ ⌒— INDICATES BREAK POINTS USED TO REDUCE DIAGRAM CLUTTER. TO FIND MATING END OF BROKEN LINE PROCEED IN PARALLEL WITH DIAGRAM BORDER.

PART LOCATION INDEX

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A6A18C1	15H	A2A6A18P1-4	17B	A2A6A18R4	17E
C2	14H	P1-5	17B	R5	16E
C3	12H	P1-6	17B	R6	16F
C4	13E	P1-7	17A	R7	17D
C5	11E	P1-8	17C	R8	16D
C6	7F	P1-9	17C	R9	16D
C7	5F	P1-10	17C	R10	17C
C8	2F	P1-11	17C	R11	16B
C9	12E	P1-12	17A	R12	16C
C10	10E	P1-13	17A	R13	14G
C11	8E	P1-14	17A	R14	14D
C12	15H	P1-15	17B	R15	14D
C13	14F	Q1	16G	R16	14D
E1	16H	Q2	15G	R17	13D
E2	17G	Q3	16E	R18	14B
E3	8H	Q4	15F	R19	14B
E4	2G	Q5	16D	R20	14B
L1	16H	Q6	15D	R21	13B
P1-A1	18G	Q7	16C	R22	8B
P1-A2	2H	Q8	15C	R23	8B
P1-1	18H	R1	17G	R24	8B
P1-2	17A	R2	16F	R25	7B
P1-3	17B	R3	16G	R26	3E

PART LOCATION INDEX (CONTINUED)

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A6A18TP1	16H	A2A6A18U3	12F	A2A6A18U7	2F
TP2	9H	U4	9F	U8	12D
U1	13H	U5	7F	U9	9D
U2	12H	U6	5F	U10	7D

TRANSISTOR VOLTAGE CHART

	E	B	C
Q1	0V	0	0.67
Q2	0V	0.67	0.02
Q3	0V	0	0.67
Q4	0V	0.67	0.02
Q5	0V	0	0.67
Q6	0V	0.67	0.02
Q7	0V	0.67	0.02
Q8	0V	0.02	5.00

SPECIFIC NOTES

1. VOLTAGE MEASUREMENTS TAKEN WITH DIGITAL MULTIMETER 89536-8800A/AA.

2. READINGS LISTED IN TABLES ARE ACCURATE TO WITHIN ±10%.

3. TRANSISTOR AND INTEGRATED CIRCUIT VOLTAGE MEASUREMENTS TAKEN TO GROUND (A2A6A18E4) WITH EQUIPMENT CONTROLS SET FOR 2.0011 MHz OPERATION IN LSB MODE.

4. THE INFORMATION CONTAINED IN THESE NOTES IS ORGANIZED TO ALLOW TROUBLESHOOTING OF THE VARIOUS TRANSMITTER FUNCTIONS IN AN OPERATING T-827H/URT TRANSMITTER. FOR DEPOT MAINTENANCE THE MODULE UNDER TEST WILL BE OPERATED IN TRANSLATOR/SYNTHESIZER TEST FIXTURE TS-3665/WRC-1. TEST FIXTURE CONTROL SETTINGS SHALL CORRESPOND TO THE SETTINGS OF THE COUNTERPART CONTROLS OF THE T-827H/URT.

5. NC IN VOLTAGE TABLES DENOTES PIN NOT CONNECTED.

INTEGRATED CIRCUIT VOLTAGE CHART

PINS

	1	2	3	4	5	6	7	8
U1	5.00	3.83	3.81	3.81	3.83	5.00	1.95	0V
U2	1.95	1.84	1.52	1.54	0.81	NC	3.82	0V
U3	0.81	4.25	3.67	NC	4.20	1.95	1.84	0V
U4	0.82	4.30	3.67	NC	0.12	1.95	1.85	0V
U5	0.83	4.17	3.67	NC	4.17	0.82	NC	0V
U6	0.76	0V	3.67	NC	4.96	0.83	NC	0V
U7	NC	0V	3.67	NC	4.98	0.76	NC	0V
U8	4.20	0.12	0.12	4.25	4.31	NC	NC	0V
U9	0.12	0.12	0.12	4.30	4.31	NC	NC	0V
U10	4.17	0.12	0.12	4.17	4.96	0.12	NC	0V

	9	10	11	12	13	14	15	16
U1	3.82	3.82	NC	NC	3.83	3.77	3.78	5.00
U2	3.67	0.12	1.85	1.55	0.82	1.53	NC	5.00
U3	1.52	NC	0.12	0.22	0.22	0.12	1.54	5.00
U4	1.53	NC	0.12	0	0.12	0.12	1.55	5.00
U5	NC	NC	0.12	0.12	0.12	0.12	NC	5.00
U6	NC	NC	4.96	0.12	0.12	0.12	NC	5.00
U7	NC	NC	4.98	0.12	0.12	0V	NC	5.00
U8	NC	5.00	0	0	0	0V	0V	5.00
U9	NC	5.00	0	0	0	4.31	0V	5.00
U10	NC	0	0	0	0	4.31	0V	5.00

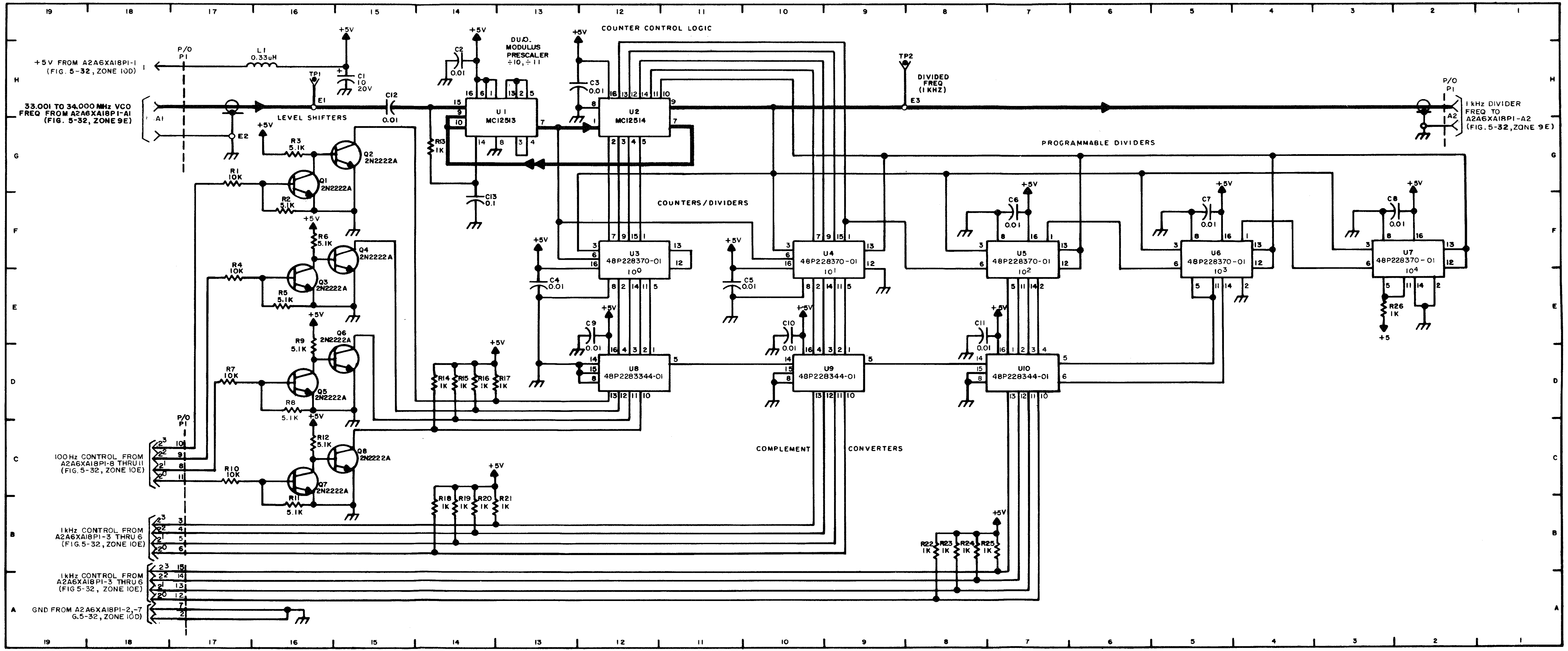


Figure 5-40. 10 kHz/1 kHz/100 Hz Synthesizer Subassembly (No. 1) A2A6A18, Maintenance Schematic Diagram

GENERAL NOTES

A. SOLID CIRCLES INDICATE THAT FRONT AND REAR OF PRINTED WIRING BOARD ARE CONNECTED TOGETHER AT THAT POINT.

B. SWITCH WIPERS SHOWN IN 00 MHz POSITION.

C. SWITCH ASSEMBLY A2A7A1 IS LOCATED CLOSEST TO FRONT PANEL.

D. MHz TUNING SHAFTS THROUGH LEFT AND RIGHT HAND SWITCH ROTORS MOVE ALL 10 MHz OR 1 MHz WIPERS IN UNISON.

E. REFER TO TABLE 3-2 FOR CODE OUTPUTS CORRESPONDING TO POSITIONS OF 10 MHz AND 1 MHz SWITCH WIPERS.

F. A2A7P1 CONNECTS TO A2J8. SEE FIGURE 5-28, SHEET 2, ZONES 5C/5D/5E AND 6C/6D/6E.

G. PLUG A2A7P1 WIRING DATA:

FROM	TO	FUNCTION
A1E21 A1E22 A1E19 A1E20 A2E27	P1-1 P1-2 P1-3 P1-4 P1-5	BANDSWITCH CODE FOR RF AMPLIFIER ASSEMBLY A2A4.
A2E25 A4E36 A4E35 A4E38 A4E37	P1-21 P1-22 P1-23 P1-24 P1-25	10 MHz AND 1 MHz DIGIT SELECT CODE FOR SYNTHESIZER SUBASSEMBLY A2A6A13.
A3E32 A3E31 A3E34 A3E33 A2E26	P1-13 P1-14 P1-15 P1-16 P1-17	BANDSWITCH CODE FOR EXTERNAL RF POWER AMPLIFIER.
A2E24	P1-6	HI-LO BAND CONTROL TO RELAY A2K2.
A5E39	P1-7	TUNE RELAY GND TO A2K1-X1.
A3E29 A3E30	P1-10 P1-12	100 kHz IMAGE CONTROL FROM A2S5-R.
A5E42	P1-11	GND PULSE TO A2K6-X1.
A5E41	P1-9	GROUND INPUT FROM A2E1.
A3E28	P1-18	RF POWER AMPL RANGE.
A5E40 A1E18 A3E23	P1-8 P1-19 P1-20	RESERVED.

H. FOLLOWING TERMINALS OF SWITCH ASSEMBLIES ARE CONNECTED TOGETHER:

E1 OF A1 THRU A5.
E2 OF A1 AND A2.
E3 OF A1 AND A2.
E4 OF A1 AND A2.
E5 OF A1 AND A2.
E6 OF A1 AND A2.
E7 OF A2 AND A3.
E8 OF A2 THRU A4.
E9 OF A2 THRU A4.
E10 OF A2 THRU A4.
E11 OF A2 THRU A4.
E12 OF A2 THRU A4.
E13 OF A2 THRU A4.
E14 OF A2 AND A3.
E15 OF A2 AND A3.
E16 OF A2 AND A3.
E17 OF A2 AND A3.

REAR
BOARD

Figure 5-41. Code Generator Assembly A2A7, Maintenance Schematic Diagram

NOTES FOR FIGURE 5-42

GENERAL NOTES

A. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION, PREFIX PARTIAL REFERENCE DESIGNATOR WITH APPLICABLE UNIT, ASSEMBLY AND/OR SUBASSEMBLY DESIGNATOR.

B. UNLESS OTHERWISE SPECIFIED:
   ALL RESISTORS ARE IN OHMS, ±5%, 1/4 WATT.
   ALL CAPACITORS ARE IN MICROFARADS.

C. VOLTAGE MEASUREMENTS TAKEN WITH DIGITAL MULTIMETER 89536-8800A/AA.

D. READINGS LISTED IN TABLES ARE ACCURATE TO WITHIN ±10%.

PART LOCATION INDEX

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A9A1C1	7A	A2A9A1Q2	5A	A2A9A1R19	3C
C2	7B	Q3	3C	R20	3C
C3	6A	Q4	3C	R21	2C
C4	6A	R1	7D	R22	2C
C5	5D	R2	7C	R23	2C
C6	4D	R3	7B	R24	2C
CR1	7C	R4	7B	R25	6B
CR2	6B	R5	7A	T1	2C
CR3	7C	R6	7C	TP1	7D
CR4	6D	R7	6B	TP2	7C
P1-1	8B	R8	6A	TP3	7B
P1-2	1C	R9	6A	TP4	7B
P1-3	8C	R10	6B	TP5	3C
P1-4	8C	R11	6A	U1	6C
P1-5	8D	R12	6A	U2	5C
P1-6	*	R13	6B	U3	4C
P1-7	8A	R14	6B	U4	4C
P1-8	1C	R15	6D	U5	3C,5B
P1-9	8B	R16	6A	U6	5B,5C
P1-10	*	R17	5C		6B
Q1	6A	R18	3C		

* NOT USED.

TRANSISTOR DC VOLTAGE CHART

	E	B	C
Q1	0	1.15	2.91
Q2	0	-0.89	5.97
Q3	12.3	11.9	6.0
Q4	12.3	11.9	6.0

INTEGRATED CIRCUIT DC VOLTAGE CHART

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
U1	0	NC	12.3	-	0	-	0	-	-	-	-	-	-	-	-	-
U2	2.35	0	0.04	0	0	5.97	NC	0	NC	0	12.3	0.4	0.5	12.3	NC	12.3
U3	2.35	0	0.04	0	0	2.35	NC	0	NC	0	0	0.5	5.8	0	NC	12.3
U4	NC	0	0.04	0	0	2.35	NC	0	NC	0	12.3	5.8	12.3	0	NC	12.3
U5	6.0	6.1	0.04	0	6.1	0	0	0	12.3	0	0.04	0	NC	12.3		
U6	0	0	0	0	12.3	0	0	0	0	NC	0	0	0	12.3		

SPECIFIC NOTES

1. TRANSISTOR AND INTEGRATED CIRCUIT VOLTAGE MEASUREMENTS ARE TAKEN TO GROUND WITH EQUIPMENT KEYED IN RATT MODE AND RATT SHIFT SELECTOR SET AT 850 HZ. TTY INPUT ZERO MILLIAMPERES (SPACE).

2. NC IN VOLTAGE TABLES DENOTES PIN NOT CONNECTED.

3. THE INFORMATION CONTAINED IN THESE NOTES IS ORGANIZED TO ALLOW TROUBLESHOOTING OF THE VARIOUS TRANSMITTER FUNCTIONS IN AN OPERATING T-827H/URT TRANSMITTER. FOR DEPOT MAINTENANCE THE MODULE UNDER TEST WILL BE OPERATED IN PLUG-IN UNIT TEST SET TS-2135/WRC-1. TEST FIXTURE CONTROL SETTINGS SHALL CORRESPOND TO THE SETTINGS OF THE COUNTERPART CONTROLS OF THE T-827H/URT.

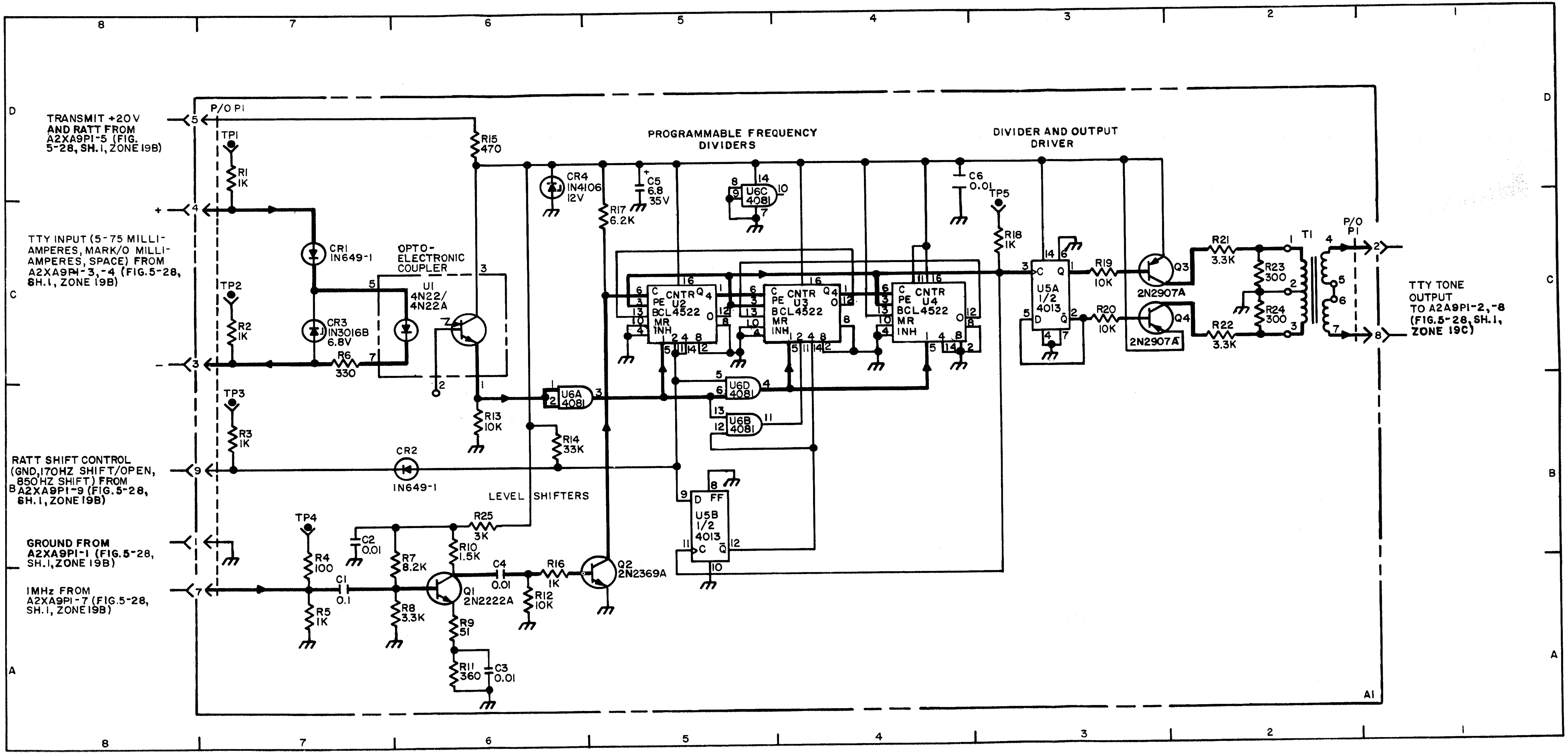


Figure 5-42. RATT Tone Generator Assembly A2A9, Maintenance Schematic Diagram

NOTES FOR FIGURE 5-43

GENERAL NOTES

A. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION, PREFIX PARTIAL REFERENCE DESIGNATORS WITH APPLICABLE UNIT, ASSEMBLY AND/OR SUBASSEMBLY DESIGNATORS.

B. UNLESS OTHERWISE SPECIFIED:
ALL RESISTORS ARE IN OHMS, ±5%, 1/4 WATT
ALL CAPACITORS ARE IN MICROFARADS.

C. —↯— INDICATES BREAK POINTS USED TO REDUCE DIAGRAM CLUTTER. TO FIND MATING END OF BROKEN LINE PROCEED IN PARALLEL WITH DIAGRAM BORDER.

D. VOLTAGE MEASUREMENTS ARE TAKEN WITH DIGITAL MULTIMETER 89536-8800A/AA.

E. READING LISTED IN TABLES ARE ACCURATE TO WITHIN ±10%.

PART LOCATION INDEX

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A12A1C1	3D	A2A12A1P1-6	8B	A2A12A1R12	7B
C2	3D	P1-7	8D	R13	7B
C3	7F	P1-8	8C	R14	7B
C4	6E	P1-9	*	R15	8B
C5	6E	P1-10	8B	R16	7B
C6	6D	P1-A1	2E	R17	7C
C7	7B	P1-A2	8C	R18	7C
C8	6B	P1-A3	8E	R19	6B
C9	6B	Q1	7D	R20	6C
C10	6B	Q2	7E	R21	6D
C11	6C	Q3	7B	R22	5D
C12	6C	Q4	5D	R23	5C
C13	5D	Q5	3E	R24	5D
C14	4D	Q6	7D	R25	5C
C15	4C	R1	8D	R26	5C
C16	4D	R2	8D	R27	5B
C17	4C	R3	7E	R28	5B
C18	3C	R4	7F	R29	5B
C19	3D	R5	7F	R30	3D
C20	3D	R6	7E	R31	4D
CR1	6C	R7	3D	R32	4D
CR2	5C	R8	6F	R33	4D
P1-1 thru P1-5	*	R9	6E	R34	4D
		R10	6E	R35	4C
		R11	6E	R36	3C

* NOT USED

NOTES FOR FIGURE 5-43 (CONTINUED)

PART LOCATION INDEX (CONTINUED)

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A12A1R37	4C	A2A12A1T1	5E	A2A12A1TP2	2E
R38	3D	T2	2D	TP3	8E
RT1	5B	TP1	7F	TP4	7C

TRANSISTOR DC VOLTAGE CHART

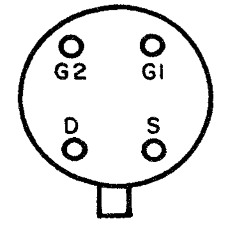
	E	B	C
Q1	+1.2	+0.6	0
Q2	+7.7	+7.1	0
Q3	+0.75	+1.30	+10
Q6	+0.6	0	0

	G		D	S
	G1	G2		
Q4	+7.5	+7.5	+16.0	+7.8
Q5	+7.5	+10.0	+18.2	+7.8

SPECIFIC NOTES

1. TRANSISTOR VOLTAGE MEASUREMENTS TAKEN TO GROUND WITH R27 AND R39 SET FOR PROPER OPERATION AND WITH EQUIPMENT CONTROLS SET FOR OPERATION IN NORMAL LSB MODE, UNKEYED.

2. THE INFORMATION CONTAINED IN THESE NOTES IS ORGANIZED TO ALLOW TROUBLESHOOTING OF THE VARIOUS TRANSMITTER FUNCTIONS IN AN OPERATING T-827H/URT TRANSMITTER. FOR DEPOT MAINTENANCE THE MODULE UNDER TEST WILL BE OPERATED IN PLUG-IN UNIT TEST SET TS-2135/WRC-1. TEST FIXTURE CONTROL SETTINGS SHALL CORRESPOND TO THE SETTINGS OF THE COUNTERPART CONTROLS OF THE T-827H/URT.



BASE CONFIGURATION FOR 3N200
(BOTTOM VIEW)

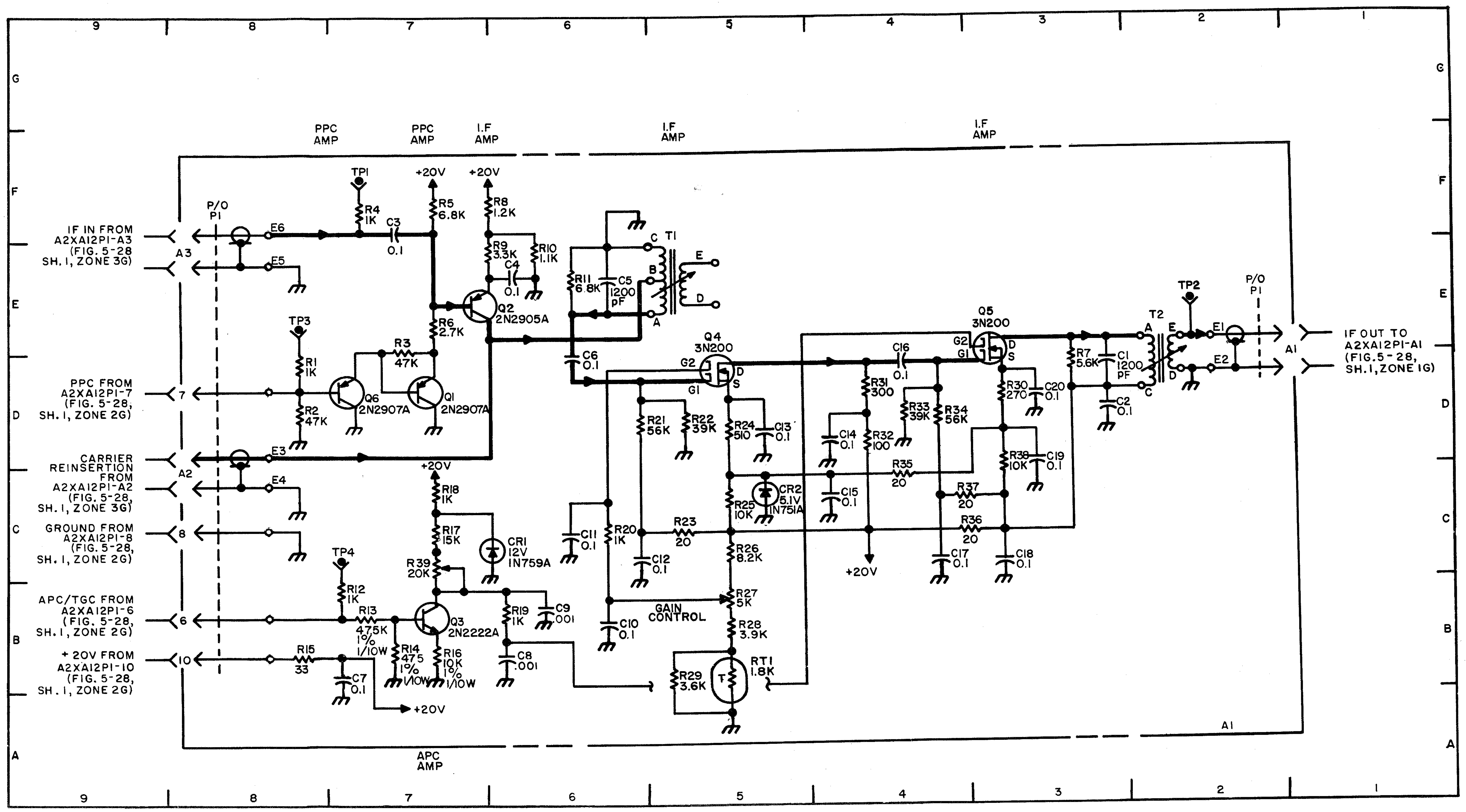


Figure 5-43. IF Amplifier Assembly A2A12, Maintenance Schematic Diagram

NOTES FOR FIGURE 5-44

GENERAL NOTES

A. PARTIAL REFERENCE DESIGNATORS ARE SHOWN. FOR COMPLETE DESIGNATION, PREFIX PARTIAL REFERENCE DESIGNATORS WITH APPLICABLE UNIT, ASSEMBLY AND/OR SUBASSEMBLY DESIGNATORS.

B. UNLESS OTHERWISE SPECIFIED:
ALL RESISTORS ARE IN OHMS, ±5%, 1/4 WATT.
ALL CAPACITORS ARE IN MICROFARADS.

C. —⟆ ⟅— INDICATES BREAK POINTS USED TO REDUCE DIAGRAM CLUTTER. TO FIND MATING END OF BROKEN LINE PROCEED IN PARALLEL WITH DIAGRAM BORDER.

SPECIFIC NOTES

1. LSB AND USB AUDIO PROCESSOR PCB SUBASSEMBLIES A2A21A18 AND A2A21A19 ARE IDENTICAL IN THEIR CONSTRUCTION, AND DIFFER ONLY IN THE TYPE OF SIGNAL PROCESSED. THE FOLLOWING PARTS LOCATION INDEX DESCRIBES ONLY THE LSB AUDIO PROCESSOR, A2A21A19.

PART LOCATION INDEX

REF DES	ZONE
A2A21A19C1	6F
C2	5F
C3	5E
C4	*
C5	*
C6	*
C7	4E
C8	3E
C9	2D
C10	3E
C11	6C
C12	5B
C13	4C
C14	*
C15	*
C16	6D
C17	7D
C18 thru C22	*
C23	9D
C24	6E

REF DES	ZONE
A2A21A19CR1	2E
CR2	9D
CR3	8E
E1 thru E8	**
K1	8D
P1-1	9A
P1-2	9B
P1-3	9E
P1-4	9B
P1-5	**
P1-6	9C
P1-7	9C
P1-8	**
P1-9	*
P1-10	9A
P1-11	9B
P1-12	**
P1-13	9C
P1-14	**
P1-15	**
P1-16	9D

REF DES	ZONE
A2A21A19P1-17	1D
P1-18	9A
P1-A	9A
P1-B	9B
P1-C	**
P1-D	9B
P1-E	**
P1-F	9C
P1-G	**
P1-H	9B
P1-I	*
P1-J	**
P1-K	**
P1-L	9A
P1-M	9B
P1-N	**
P1-O	*
P1-P	9C
P1-Q	**
P1-R	**
P1-S	9E
P1-T	9B
P1-U	9D
P1-V	9A

* NOT USED. ** NOT SHOWN.

NOTES FOR FIGURE 5-44 (CONTINUED)

PART LOCATION INDEX (CONTINUED)

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A21A19Q1	6F	A2A21A19R14	1E	A2A21A19R32	8D
Q2	2E	R15	7E	R33	4C
Q3	7D	R16	3C	R34	3B
Q4	6D	R17	4C	R35	5F
Q5	7F	R18	5C	R36	7E
R1	6F	R19	5C	R37	8E
R2	6F	R20	5C	R38 thru R55	*
R3	5F	R21	5C		
R4	7E	R22	5C		
R5	7E	R23	6C	R56	6E
R6	6E	R24	6D	RT1	5E
R7	5E	R25	7D	T1	9C
R8	4E	R26	7D	TP1	7B
R9	3E	R27	7C	TP2	5C
R10	3E	R28	8C	TP3	8C
R11	3E	R29	8C	TP4	4E
R12	4C,5C	R30	9C	U1	4C,5C
R13	5E	R31	8D	U2	5E

* NOT USED.
** NOT SHOWN

TRANSISTOR DC VOLTAGE CHART *

	E	B	C
Q1	0	+0.5V	0
Q2	+0.5V	+0.1V	0
Q3	0	-2.3V	0
Q4	0	+4.3V	0
Q5	+20V	+19.4V	+1.0V

INTEGRATED CIRCUIT DC VOLTAGE CHART *

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U1	0	0.0	-15	-15.0	-15	0	0	-15	+15.0	0	0	0	15	-15
U2	0	0	-15	0	0.0	-15	0	0	-15.0	0	+15.0	0	0	0

* ALL VOLTAGES MEASURED TO GROUND WITH AN/USM-111 OR EQUIVALENT IN SIDEBAND MODE.

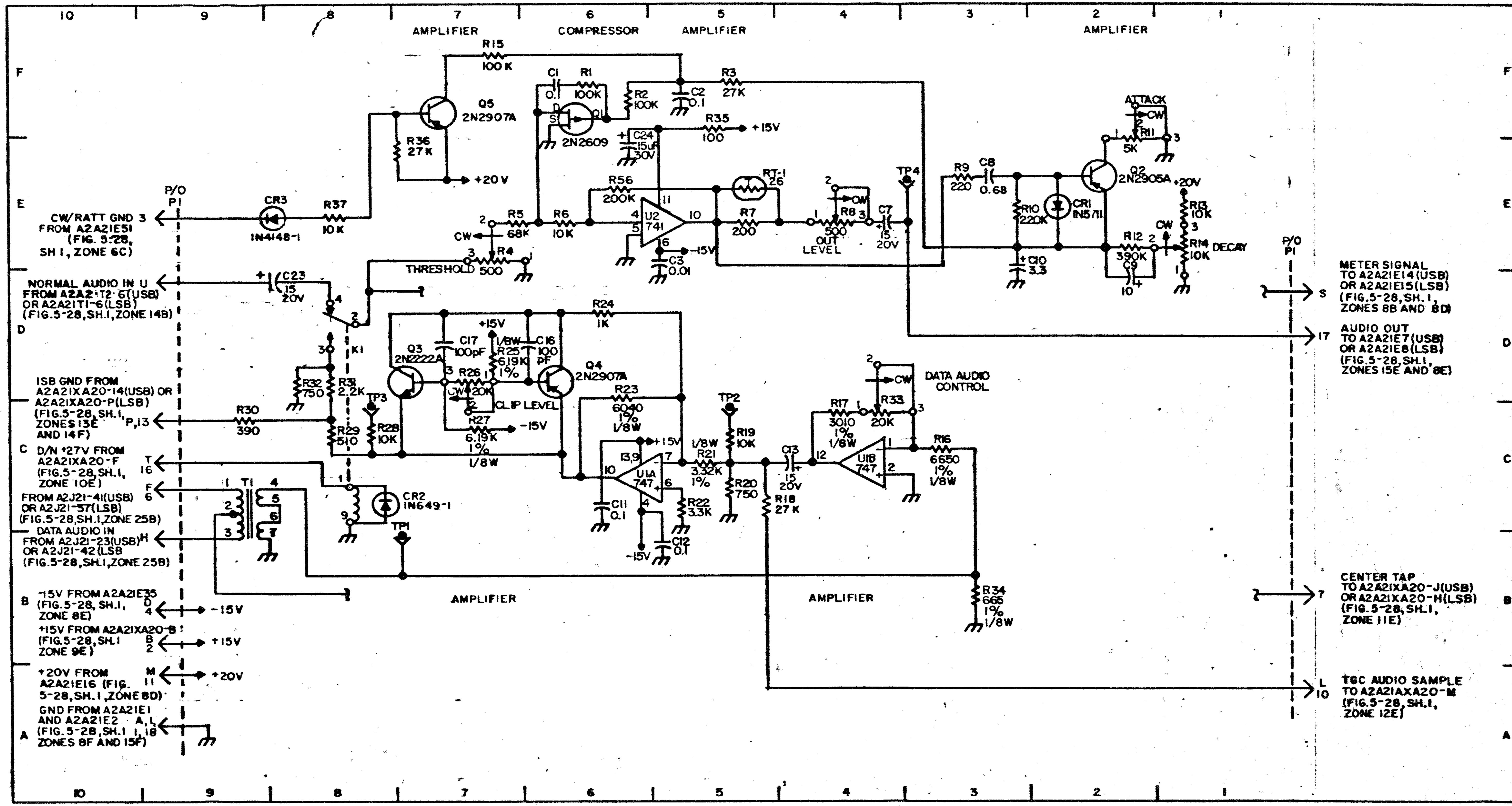


Figure 5-44. Audio Processor Assemblies A2A21A18 and A2A21A19, Maintenance Schematic Diagram

From Preliminary Manual

NOTES FOR FIGURE 5-45

GENERAL NOTES

A. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION, PREFIX PARTIAL REFERENCE DESIGNATORS WITH APPLICABLE UNIT, ASSEMBLY AND/OR SUBASSEMBLY DESIGNATORS.

B. UNLESS OTHERWISE SPECIFIED:
ALL RESISTORS ARE IN OHMS, ±5%, 1/4 WATT.
ALL CAPACITORS ARE IN MICROFARADS.

C. INDICATES BREAK POINTS USED TO REDUCE DIAGRAM CLUTTER. TO FIND MATING END OF BROKEN LINE PROCEED IN PARALLEL WITH DIAGRAM BORDER.

PART LOCATION INDEX

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A21A20C1	*	A2A21A20CR13	*	A2A21A20P1-12	26B
C2	*	CR14	24B	P1-13	26F
C3	*	CR15	25B	P1-14	26H
C4	*	CR16	24B	P1-15	2G
C5	14H	CR17	22B	P1-16	2H
C6	12G	CR18	14C	P1-17	2F
C7	21E	CR19	16G	P1-18 thru P1-21	*
C8	9D	CR20	21A	P1-A	26A
C9	4E	CR21	11D	P1-B	26G
C10	*	CR22	*	P1-C	26E
C11	*	CR23	24G	P1-D	26D
C12	22G	K1	20A	P1-E	2B
C13	9D	K2	12D	P1-F	26D
CR1	*	K3	16G	P1-G	*
CR2	12H	P1-1	26A	P1-H	26B
CR3	11H	P1-2	26F	P1-J	26B
CR4	8G	P1-3	*	P1-K	*
CR5	10G	P1-4	2E	P1-L	2F
CR6	15H	P1-5	26A	P1-M	26D
CR7	21F	P1-6	*	P1-N	*
CR8	22F	P1-7	26B	P1-O	*
CR9	22E	P1-8	*	P1-P	26G
CR10	23F	P1-9	*	P1-Q	*
CR11	7E	P1-10	26F		
CR12	7D	P1-11	26F		

* NOT USED

From Preliminary Manual

NOTES FOR FIGURE 5-45 (CONTINUED)

PART LOCATION INDEX (CONTINUED)

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A21A20P1-R	*	A2A21A20R7 thru R10	*	A2A21A20R31	3E
P1-S	26G			R32	*
P1-T	26J			R33	*
Q1	11H	R11	8F	R34	*
Q2	9H	R12	10F	R35	*
Q3	*	R13	8F	R36	*
Q4	*	R14	11F	R37	13D
Q5	9G	R15	18F	R38	*
Q6	11G	R16	19F	R39	*
Q7	19E	R17	19F	R40	14B
Q8	19E	R18	19E	R41	23G
Q9	20F	R19	19E	R42	24B
Q10	21B	R20	20E	R43	13H
Q11	5D	R21	22F	R44	13H
Q12	14E	R22	22E	R45	15H
Q13	20F	R23	22F	R46	21G
Q14	23G	R24	10D	R47	7D
R1	*	R25	9C	U1	*
R2	*	R26	8D	U2	14G
R3	11J	R27	8C	U3	8D, 10D
R4	11H	R28	6D	U4	*
R5	10H	R29	5D	U5	*
R6	10G	R30	5D	U6	4D
				U7	21G

* NOT USED

TRANSISTOR DC VOLTAGE CHART

DATA/NORMAL SWITCH IN DATA POSITION.
DATA KEY AND AUDIO DATA PRESENT

	E	D	C
Q1	5.0	4.7	0
Q2	0	0	24
Q5	0	0.7	0
Q6	0	0	5.0
Q7	0.7	0.07	0.65
Q8	-15	-14.4	-14.9
Q9	4.8	4.2	0
Q10	0	0.7	0.15
Q11	0	0.6	0.85
Q12	0	0	0.2
Q13	0	0	4.05
Q14	16.3	16.9	20.0

INTEGRATED CIRCUIT DC VOLTAGE CHART

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U2	4.05	0.07	0.	4.05	0	4.8	0	4.05	0.5	4.05	0.20	4.05	0	5.00
U3	-	16.3	0.02	0	-15	0	0	16.3	-	NC	-	-	-	-
U6	0.85	5.00	5.00	5.00	5.00	0.2	0	NC	NC	NC	0	NC	0.9	5.00
U7	16.3	5.00	0	-	-	-	-	-	-	-	-	-	-	-

SPECIFIC NOTES

1. TRANSISTOR AND INTEGRATED CIRCUIT VOLTAGE MEASUREMENTS TAKEN TO GROUND WITH EQUIPMENT CONTROLS SET FOR OPERATION IN DATA LSB MODE, KEYED. DATA AUDIO SIGNAL (OR 1 kHz TONE) AT A LEVEL OF 0 dBm IS ALSO REQUIRED.

2. NC IN VOLTAGE TABLES DENOTES PIN NOT CONNECTED.

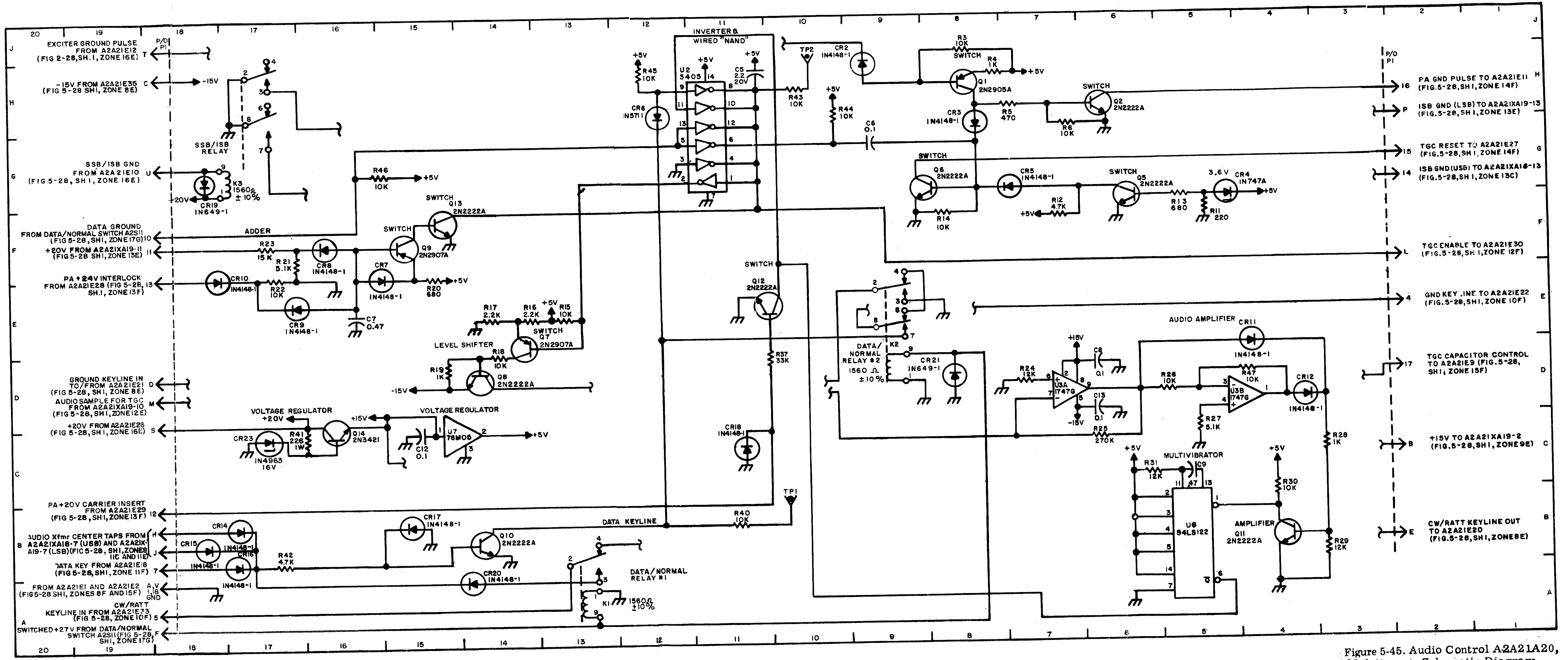


Figure 5-45. Audio Control A2A21A20, Maintenance Schematic Diagram

CHAPTER 6

CORRECTIVE MAINTENANCE

6-1. INTRODUCTION.

6-2. This chapter contains all instructions required to adjust and align the T-827H/URT and its major assemblies and subassemblies, and to remove, repair, and test repairable assemblies and subassemblies. This chapter is divided into two sections. Section I contains the adjustments and alignments associated with the installation and/or removal of assemblies. Section II contains information and procedures for adjustment and alignment of electronic circuits and mechanical assemblies; it also contains repair instructions which cover disassembly, means of access, parts removal, and complex repair actions.

6-3. Many of the procedures in this chapter can be accomplished at organizational level. However, the following assemblies are designated as depot repairable only: Mode Selector A2A1, RF Amplifier A2A4, Frequency Standard A2A5, Translator/Synthesizer A2A6, Code Generator A2A7, RATT Tone Generator A2A9, IF Amplifier A2A12, Audio Processor A2A21A18 and A2A21A19, and Audio Control A2A21A20. Therefore no corrective maintenance should be performed on these assemblies at organizational level except for the adjustments listed in table 6-1.

SECTION I

ADJUSTMENTS AND ALIGNMENTS

6-4. GENERAL.

6-5. This section contains information and procedures required to perform adjustments and/or alignments of the T-827H/URT at organizational and depot level. Test equipment setup illustrations are provided where necessary to support the procedures.

6-6. ELECTRONIC ADJUSTMENTS AND ALIGNMENTS.

6-7. PROCEDURES. Overall adjustment and alignment procedures for the T-827H/URT are given in table 6-1; procedures for the individual assemblies and subassemblies within the transmitter are given in tables 6-2 through 6-7. Each adjustment and alignment table gives the test equipment requirements, step-by-step procedures, adjustment values, and references to supporting illustrations showing the necessary test setups.

NOTE

Tables 6-2 through 6-6 are for depot use only,

6-8. TEST EQUIPMENT REQUIRED. All adjustment and alignment procedures in this chapter use the approved test equipments and circuits listed in table 1-5. All equipments are organizational types with the exception of the special depot test sets and circuits required for the assemblies designated depot repairable.

6-9. MECHANICAL ADJUSTMENTS.

6-10. DRIVE CHAIN ADJUSTMENT. To obtain proper positioning of front panel kHz controls with respect to seated position of the detent springs, proceed as follows:

1. Set mode selector switch A2S2 to OFF.
2. Loosen front panel screws and slide main frame out of case. Ensure that the following conditions are met:
   a. RF Amplifier Assembly A2A4 is correctly installed.
   b. Translator/Synthesizer Assembly A2A6 is correctly installed.
   c. All couplers are properly engaged.

d. All kHz dials are in 0 position.

3. Tilt main frame 90 degrees to expose bottom.

4. See figure 7-4. On each of the kHz controls take up any existing slack in the associated drive chain by holding the associated idler block (A2MP10, MP11, or MP12 of figure 7-4B) tightly against the drive chain while observing the associated dial digit. Fasten the idler block in the position which allows no slack. If any dial digit has moved away from the center of its window while performing this step, proceed to step 5; otherwise proceed to coupler adjustment (paragraph 6-11).

5. Rotate each of the kHz controls until the setscrews in the digital indicating dial are accessible. This will be at position 4 of the dial.

6. Loosen the two setscrews and rotate the dial to center the digit 4.

7. Apply sealing compound, Grade E per MIL-S-22473 to threads of setscrews, and fasten setscrews.

8. Check mechanical action of the 100 kHz and 10 kHz controls. The controls should rotate smoothly, with full detent or seating action of the detent rollers in the dual sprocket assembly (MP9, figure 7-4B) when a digit is centered in its window. If adjustment is required, proceed to steps 9 and/-or 10, as applicable.

9. Increase or decrease detent spring tension as required. To increase tension, remove the spacer from under the end of the detent spring. To reduce tension, add another spacer under the end of the spring.

10. If it is necessary to correct the detent action, proceed as follows:

a. Loosen the two hex-head screws on the wheel index (MP9Z, MP9AA of figure 7-6).

NOTE

The screws of the 10 kHz wheel index are accessible by means of a suitable open-end wrench inserted behind the index.

b. Press firmly on the detent spring above the roller while holding the kHz control to prevent rotation. The wheel index should move sufficiently to permit full detent action without disturbing dial digit centering. Tighten the two hex-head screws.

c. If dial digit centering is incorrect, repeat steps 5 through 7 above.

6-11. COUPLER ADJUSTMENT. After the drive chains have been adjusted to provide optimum detent positioning, the sprocket assembly couplers (MP9M, MP9N of figure 7-6 and MP8K, MP8L, MP8M of figure 7-5) must be adjusted for proper mechanical alignment between electronic assemblies and chain drive mechanism. Proceed as follows:

1. Remove RF Amplifier Assembly A2A4 and Translator/Synthesizer Assembly A2A6 from main frame.

2. Set 100 kHz and 10 kHz controls to 1.

3. On the dual sprocket assembly (MP9, figure 7-6) loosen the screws in the hub clamps (MP9Z, MP9Z1, MP9Z2, MP9AA, figure 7-6).

4. With the aid of a screwdriver inserted into the coupler adjustment slot (MP9B, MP9C, figure 7-6), adjust both couplers so that the slot in each points toward, and is perpendicular to, the front panel. Tighten hub clamp screws.

5. Set all three kHz controls to 0.

6. On the triple sprocket assembly (MP8, figure 7-5) loosen the screws in the hub clamps (MP8AC, MP8AC1, MP8AD, MP8AD1, MP8AE, MP8AE1, figure 7-5).

7. With the aid of a screwdriver inserted into the coupler adjustment slot, adjust all three couplers so that each points toward, and is perpendicular to, the rear edge of the main frame. Tighten the three hub clamp screws.

8. Check tuning couplers on RF Amplifier Assembly A2A4 and Translator/Synthesizer Assembly A2A6 to be sure they will engage the main frame couplers when inserted.

9. Reinstall RF Amplifier Assembly A2A4 and Translator/Synthesizer Assembly A2A6 in main frame and fasten into place.

10. Slide main frame into case and secure by tightening front panel screws.

11. Set mode selector switch A2S2 to desired operating mode.

Table 6-1. Radio Transmitter T-827H/URT, Overall Adjustment and Alignment Procedures

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
1. Mechanical Check		Operate front panel frequency controls and check that digits center in windows; if they do not, adjust and align the drive-chain coupler mechanisms (paragraph 6-9).	
NOTE Refer to Figure 6-1 for test equipment connections.			
2. Preliminary Procedure	Dummy Load DA-91A/U Spectrum Analyzer 28480-8553B-E03 Probe-T-Connector 28480-11042A. Oscilloscope AN/USM-281 Multimeter 28480-410C Two-Tone Generator 09553-TF-2005 Sampler Box B (See figure 6-1) AC Voltmeter 28480-400E	a. Set mode selector switch A2S2 to OFF, and set frequency controls to 2,000,000 Hz. b. Loosen front-panel screws and slide chassis from case. c. Defeat interlock switch A1S2 by gripping plunger and pulling forward. d. Prepare test circuit of figure 6-1. e. At the rear of the T-827H/URT case, connect the test circuit to connectors A1A1J4, A1A1J5 and A1A1J6. f. Connect the dummy load to RF OUT jack A1J23 via probe-T-connector and two BNC-T-connectors. g. Set AUX/NORM switch A1S1 to AUX, DATA/NORMAL switch A2S11 to NORMAL and LOCAL/REMOTE switch A2S1 to REMOTE.	

NOTES FOR FIGURE 6-1

GENERAL NOTES

A. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION, PREFIX PARTIAL REFERENCE DESIGNATORS WITH APPLICABLE UNIT, ASSEMBLY AND/OR SUBASSEMBLY DESIGNATORS.

B. THE TEST STEPS OF TABLE 6-1 DETAIL DEPOT PROCEDURES FOR TESTING THE T-827H/URT IN A FREE STANDING CONFIGURATION. THE TEST CIRCUIT OF FIGURE 6-1 PROVIDES SWITCHING AND CONTROLS TO SIMULATE THE SHIPBOARD COMMUNICATION SYSTEM.

C. FOR SHIPBOARD MAINTENANCE, THE T-827H/URT MAY BE OPERATED AS PART OF THE AN/URT-23C(V)1. THE AM-3924C(P)/URT PORTION OF THE AN/URT-23C(V)1 MUST BE DISABLED BY REMOVAL OF THE 500 V FUSE (2A1F2A) FROM ITS HOLDER ON THE FRONT PANEL OF POWER SUPPLY PP-3916C/UR. (RECONNECT THE FUSE HOLDER AFTER REMOVING THE 500 V FUSE CARTRIDGE.) THE POWER-ON SWITCH OF THE AN/URT-23C(V)1 MAY NOW BE CLOSED TO APPLY OPERATING VOLTAGES TO THE T-827H/URT TRANSMITTER. THE APC AND PPC VOLTAGES SUPPLIED TO THE T-827H/URT IS 3.84 VDC AND 0 VDC, RESPECTIVELY, WHICH WILL DRIVE THE T-827H/URT TO ITS FULL RF OUTPUT.

SPECIFIC NOTES

1. CONNECT BNC T DIRECTLY TO OSCILLOSCOPE AND SAMPLER BOX.
2. MULTIPLE USAGE: CONNECTION INSTRUCTIONS APPEAR IN TABLES.
3. MAKE FROM TWO RC42GF222J RESISTORS AND HOUSING 80009-011-0081-00.

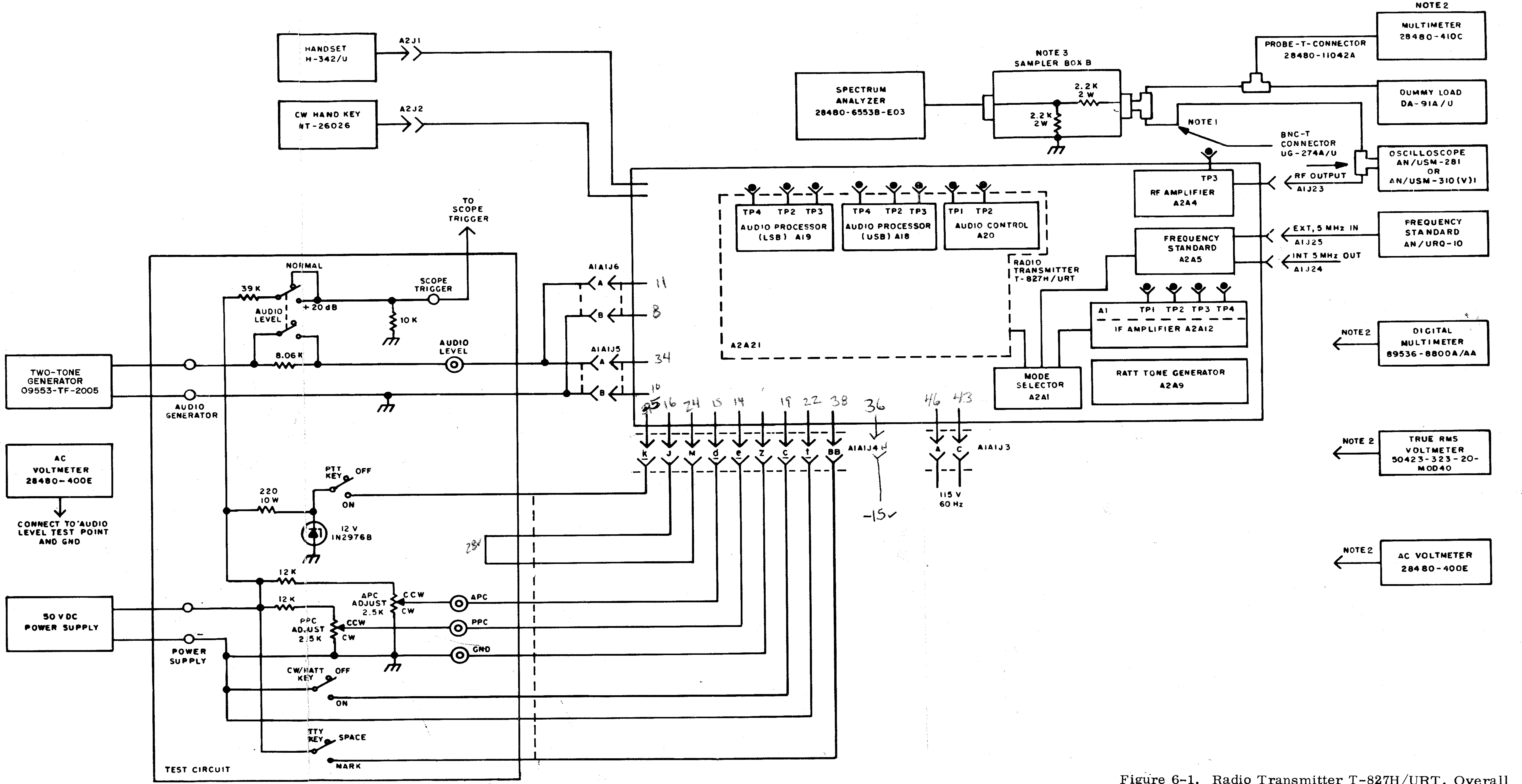


Figure 6-1. Radio Transmitter T-827H/URT, Overall Adjustment and Alignment Bench Test Setup

Table 6-1. Radio Transmitter T-827H/URT, Overall Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
2. Preliminary Procedure (Cont.)		**WARNING** Dangerous voltages are present in underside of chassis when interlock is defeated. Exercise all necessary precautions to avoid electrical shock.	
		h. Apply power to T-827H/URT, set mode selector switch to STDBY, and allow a minimum of 5 minutes warm-up time before proceeding.	
		i. Set test circuit PPC ADJUST control fully clockwise.	
		j. Set CARRIER RE-INSERTION switch A2A1S1 to ∞.	
		CAUTION Hand-guide main frame cable at rear of chassis over edge of case when rotating main frame to vertical position.	
3. Power Supply Adjustment	Digital Multimeter 89536-8800A/AA	a. Tilt the T-827H/URT chassis vertically to expose the underside.	
		b. Set mode selector switch A2S2 to LSB.	
		c. Connect digital multimeter between terminal A2E24 (+) and chassis (-).	
		CAUTION If digital multimeter does not indicate +15 to +25 Vdc before keying, return mode selector switch to OFF, and troubleshoot the Power Supply Assembly A2A8 and Main Frame A2 before proceeding.	

Table 6-1. Radio Transmitter T-827H/URT, Overall Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
3. Power Supply Adjustment (Cont.)		d. Set test circuit PTT KEY to ON and adjust A2A8R10 for 20.0 Vdc indication on digital multimeter.	20.0 ±0.1 Vdc
		e. Disconnect digital multimeter and tilt chassis back to horizontal position.	

CAUTION

The 5 MHz oscillator circuit of Frequency Standard Assembly A2A5 must not be adjusted until it has been determined that the 5 MHz output frequency is in error. Unnecessary adjustment will cause poor equipment operation that is not only difficult to correct, but which requires lengthy maintenance time.

4. Frequency Standard Adjustment	Frequency Standard AN/URQ-10	a. Set mode selector switch A2S2 to STDBY, and 5 MHz OSC SOURCE switch A2A5-A2S1 to EXT (OVEN STBY). Allow at least a 3-day warmup period before proceeding with the final adjustment. If immediate adjustment is necessary, allow at least a 60-minute warmup period.	
		b. If not normally used, connect 5 MHz output of external frequency standard AN/URQ-10 to EXT 5 MHz IN jack A1J25 on rear of T-827H/URT.	
		c. Set 5 MHz OSC SOURCE switch A2A5A2S1 on top of Frequency Standard Assembly A2A5 to INT/COMP.	

Table 6-1. Radio Transmitter T-827H/URT, Overall Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
4. Frequency Standard Adjustment (Cont.)		d. Set mode selector switch A2S2 to AM. e. Observe comparator lamp A2A5A2DS1 on top of Frequency Standard Assembly A2A5. Lamp will flicker at a rate equal to error frequency. Measure from time lamp is just visibly increasing in brilliance, until again just visibly increasing in brilliance. Continue with the following steps only if time measured is less than 20 seconds.	
	NOTE A steady, dim, lamp indication may result for large error frequencies. If this is the case, proceed to step g.		
		f. Rotate FINE FREQUENCY ADJUST control A2A5A1C2 on top of Frequency Standard Assembly A2A5 one rotation at a time until comparator lamp changes brilliance as slowly as possible.	Lamp flickers slower than one cycle in 20 seconds.
		g. If lamp flickers more than once in 20 seconds, return FINE FREQUENCY ADJUST control to mid-range (15). Then rotate COARSE FREQUENCY ADJUST A2A5A1C3 a small amount and repeat step f. h. Repeat steps f. and g. until time measured is in excess of 20 seconds over a 5 minute observation period.	

Table 6-1. Radio Transmitter T-827H/URT, Overall Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
4. Frequency Standard Adjustment (Cont.)		i. Set 5 MHZ OSC SOURCE switch A2A5-A2S1 to EXT NORM.	
		j. Disconnect external frequency standard from jack A1J25, if not normally used.	
5. Audio and IF Amplifier Output Level Adjustment	True RMS Voltmeter 50423-323-20-MOD 40	a. Set mode selector switch A2S2 to LSB.	
		b. Set LOCAL/REMOTE switch A2S1 to REMOTE.	
	Two-Tone Generator 09553-TF-2005	c. Set DATA/NORMAL switch to NORMAL.	
	Multimeter 28480-410C	d. Turn PTT Key ON.	
	Oscilloscope AN/USM-281	e. Set two-tone generator for 1000 Hz at 0.15 Vrms.	
	AC Voltmeter 28480-400E	f. Measure audio amplifier output amplitude at A2-A21A19TP4 using rms voltmeter. Adjust A2A21A19R8 for 100 mVrms audio output as indicated on rms voltmeter.	100 mVrms
		g. Set mode selector switch A2S2 to USB.	
		h. Readjust two-tone generator for 1000 Hz at 0.15 Vrms.	
		i. Measure audio amplifier output amplitude at A2A21-A18TP4 using rms voltmeter. Adjust A2A21A18R8 for 100 mVrms audio output as indicated on rms voltmeter.	100 mVrms

Table 6-1. Radio Transmitter T-827H/URT, Overall Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
5. Audio and IF Amplifier Output Level Adjustment (Cont.)		j. Set mode selector switch A2S2 to ISB.	
		k. Adjust A2A1A5R6 for best null in two-tone pattern displayed on oscilloscope.	Best null
		l. Set mode selector switch A2S2 to USB.	
		m. Readjust two-tone generator for 1000 Hz at 0.15 Vrms.	
		n. Connect Digital Multimeter 89536-8800A/AA TO A2A12-A1TP4, and connect ac voltmeter using shielded cable with shield ground no longer than one inch to A2A12A1-TP2. Set test circuit APC ADJUST for a multimeter reading of 3.86 Vdc. Adjust A2A12A1R27 for an ac voltmeter reading of 5 mVrms.	5 mVrms
		o. Turn PTT Key OFF.	
6. RF Amplifier Gain Adjustment	Multimeter 28480-410C	a. Set LOCAL/REMOTE switch A2S1 to REMOTE.	
		b. Set mode selector switch A2S2 to CW and the frequency controls to 2,000,000 Hz.	
		c. Set test circuit CW/RATT KEY to ON.	
		d. Adjust test circuit APC ADJUST for 1.0 mVrms rf output indication on multimeter at A1J23.	1.0 Vrms

Table 6-1. Radio Transmitter T-827H/URT, Overall Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
6. RF Amplifier Gain Adjustment (Cont.)		e. Set frequency controls to each of the following frequencies and record the rf output amplitude for each: 3,000,000 17,000,000 4,000,000 18,000,000 5,000,000 19,000.000 6,000,000 20,000,000 7,000,000 21,000,000 8,000,000 22,000,000 9,000,000 23,000,000 10,000,000 24,000,000 11,000,000 25,000,000 12,000,000 26,000,000 13,000,000 27,000,000 14,000,000 28,000,000 15,000,000 29,000,000 16,000,000	
		f. Set frequency controls to that frequency which gave the lowest output.	
		g. Adjust test circuit APC ADJUST for 3.86 Vdc measured at A2A12A1TP4 with Digital Multimeter 89536-8800A/AA.	
		h. Adjust rf amplifier RF GAIN potentiometer A2-A4A38R6 for 3.54 Vrms rf output at A1J23.	3.54 Vrms
7. Mode Selector AM Carrier Amplitude and LSB/USB Carrier Suppression Adjustment	Two-Tone Generator 09553-TF-2205 Spectrum Analyzer 28480-8553B-E03	a. Set mode selector switch A2S2 to AM and frequency controls to 2,500,000 Hz. Turn PTT Key OFF.	
		b. Set two-tone generator for 1000 Hz at 0.15 Vrms.	

Table 6-1. Radio Transmitter T-827H/URT, Overall Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
7. Mode Selector AM Carrier Amplitude and LSB/ USB Carrier Suppression Adjustment (Cont.)	Multimeter 28480-410C Oscilloscope AN/USM-281 Sample Box B (See figure 6-1) AC Voltmeter 28480-400E	c. Adjust test ciruit APC ADJUST for 3.54 Vrms rf output indication on multimeter at A1J23.	3.54 Vrms
		d. Adjust A2A1A4R39 (labeled % MOD) for best null in two-tone pattern displayed on oscilloscope.	Best null
		e. Connect spectrum analyzer via sampler box as shown in figure 6-1.	
		f. Set mode selector switch A2S2 to USB.	
		g. Set two-tone generator for 1300 Hz at 0.15 Vrms.	
		h. Adjust test circuit APC ADJUST for 3.54 Vrms rf output indication on multimeter at A1J23.	3.54 Vrms
		i. Alternately adjust A2A1-A1C4 and A2A1A1R3 for minimum carrier amplitude as displayed on spectrum analyzer.	Carrier level at least 50 dB below sideband amplitude.
		j. Set mode selector switch A2S2 to LSB.	
		k. Readjust test circuit APC ADJUST for 3.54 Vrms rf output indication on multimeter at A1J23.	

Table 6-1. Radio Transmitter T-827H/URT, Overall Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
7. Mode Selector AM Carrier Amplitude and LSB/ USB Carrier Suppression Adjustment (Cont.)		l. Alternately adjust A2-A1A2C4 and A2A1A2R3 for minimum carrier amplitude as displayed on spectrum analyzer. m. Set mode selector switch to STDBY and disconnect all test equipment. Slide chassis into case and secure front panel screws.	Carrier level at least 50 dB below sideband amplitude.

Table 6-2. Mode Selector Assembly A2A1, Adjustment and Alignment Procedures

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
1. Preliminary Procedure	Amplifier/Mode Selector Test Fixture TS-3670/WRC-1 Oscilloscope AN/USM-281 Spectrum Analyzer 28480-8553B-E03 Digital Multimeter 89536-8800A/AA RF Signal Generator 28480-8640B-001-003	a. Remove cover from Mode Selector Assembly A2A1, and connect test equipment as shown in Figure 6-2.	
		b. Adjust test fixture for 20 Vdc indication on digital multimeter, and set test fixture controls to test T-827H/URT Mode Selector Assembly in USB transmitting mode (no modulation).	20 ±0.1 Vdc
		c. Set rf signal generator for 500 kHz at an output level of 175 mVrms.	175 ±5 mVrms
		d. Set CARRIER REINSERTION switch on Mode Selector Assembly to ∞.	
2. Carrier Maximization for USB Operation	RF Signal Generator 28480-8640B-001-003 Oscilloscope AN/USM-281 Amplifier/Mode Selector Test Fixture TS-3670/WRC-1	a. Connect oscilloscope to A2A1A4E21.	
		b. Adjust A2A1A4T1 for maximum 500 kHz amplitude indication on oscilloscope.	2.5 V P-P

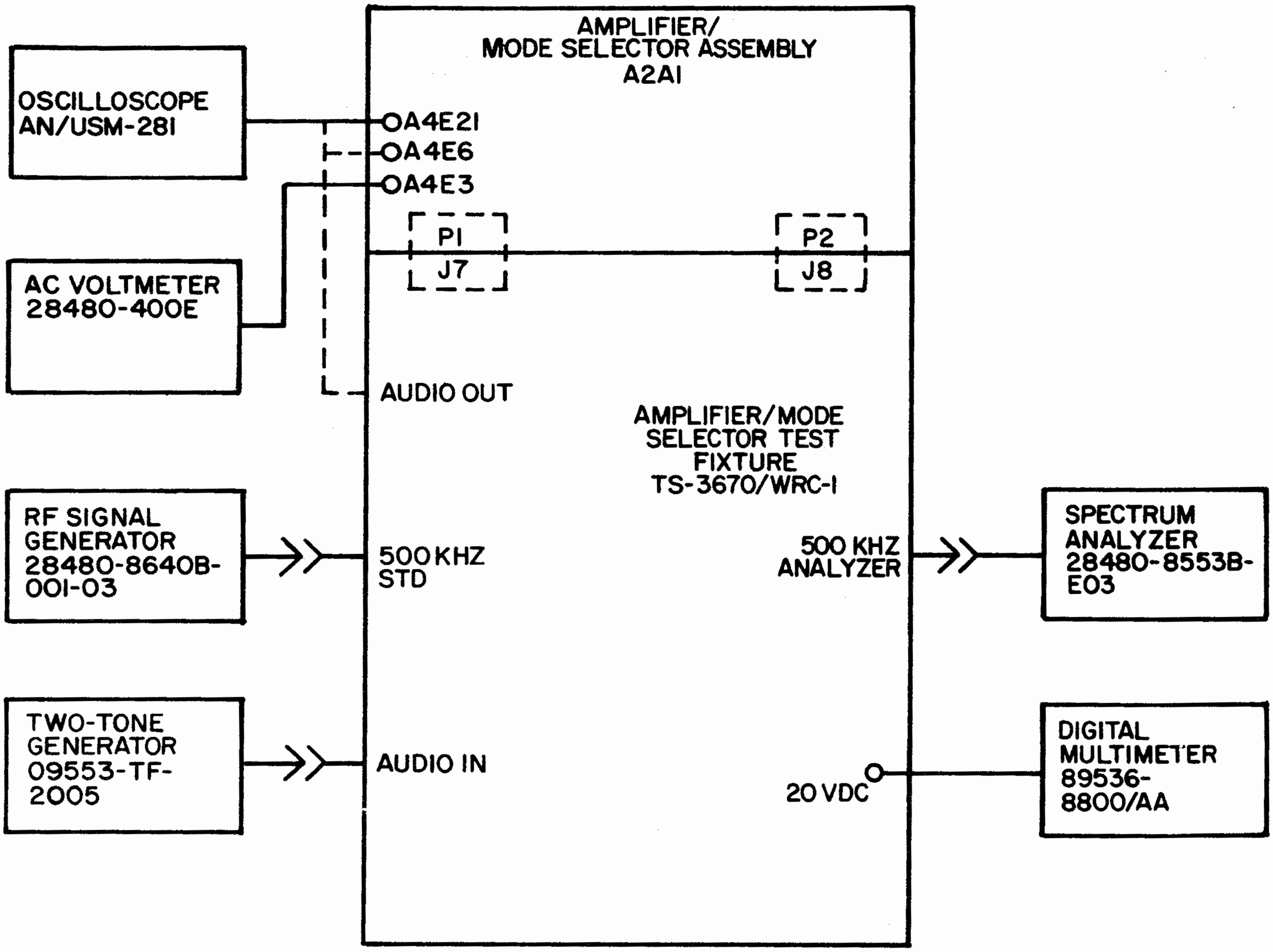


Figure 6-2. Mode Selector Assembly A2A1, Adjustment and Alignment Bench Test Setup

Table 6-2. Mode Selector Assembly A2A1, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
3. Carrier Maximization for ISB Operation	Same as step 2.	a. Reset test fixture control to test LSB transmitting mode (no modulation).	
		b. Connect oscilloscope to A2A1-A4E6.	
		c. Adjust A2A1A4T2 for maximum 500 kHz amplitude indication on oscilloscope.	2.5 V P-P
4. Maximization of Carrier Reinsertion	Same as step 2.	a. Connect oscilloscope to A2A1A4E3.	
		b. Set test fixture controls for CW transmitting mode.	
		c. Adjust A2A1A4T3 for maximum 500 kHz amplitude indication on oscilloscope.	
5. Sideband Balance	Same as step 2 plus Two-Tone Generator 09553-TF-2005 AC Voltmeter 28480-400E	a. Set test fixture controls for ISB transmitting mode, and to monitor the 500 kHz IF output of assembly on spectrum analyzer.	
		b. Adjust two-tone generator for 1000 Hz at 150 mVrms input into test fixture.	
		c. Set spectrum analyzer vertical display to 2 dB per division.	

Table 6-2. Mode Selector Assembly A2A1, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
5. Sideband Balance (Cont.)		d. Alternately set mode selector switch on test fixture between USB and LSB while observing the levels of each sideband output on the spectrum analyzer. If the USB and LSB levels are not within 1 dB of each other, adjust A2A1-A5R6 until they are.	0 ±1 dB
6. LSB Carrier Suppression Adjustment	Amplifier/Mode Selector Test Fixture TS-3670/WRC-1	a. Adjust two-tone generator for 1300 Hz at 150 mVrms input into test fixture.	
	Two-Tone Generator 09553-TF-2005	b. Set test fixture controls to generate lower sideband signals, and to monitor 500 kHz IF output of assembly on spectrum analyzer.	
	Spectrum Analyzer 28480-8553B-E03		
	AC Voltmeter 28480-400E	c. Set spectrum analyzer INPUT GAIN control for 0 dB reference at the top of the LSB single tone output display.	
		d. Measure the amplitude of the carrier located 1 kHz above the LSB single tone output. If the carrier suppression level is not at least 50 dB below the 0 dB	Carrier amplitude at least 50 dB less than LSB peak amplitude.

Table 6-2. Mode selector Assembly A2A1, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
6. LSB Carrier Suppression Adjustment (Cont.)		reference level, adjust A2A1A2C4 and A2A1A2R3 for minimum carrier amplitude.	
7. USB Carrier Suppression Adjustment	Same as step 6.	a. Adjust two-tone generator for 1300 Hz at 150 mVrms input into test fixture.	
		b. Set test fixture controls to generate upper sideband signal, and to monitor 500 kHz IF output of assembly on spectrum analyzer.	
		c. Set spectrum analyzer INPUT GAIN control for 0 dB reference at the top of the USB single tone output display.	
		d. Measure the amplitude of the carrier located 1 kHz below the USB single tone output. If the carrier suppression level is not at least 50 dB below the 0 dB reference level, adjust A2A1A1C4 and A2A1-A1R3 for minumum carrier amplitude.	Carrier amplitude at least 50 dB less than USB peak amplitude.

Table 6-2. Mode Selector Assembly A2A1, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
8. Percent Modulation Check	Two-Tone Generator 09953-TF-2005 AC Voltmeter 28480-400E	a. Set test fixture controls for AM transmitting mode. Adjust two-tone generator for 1000 Hz at 150 mVrms input to test fixture.	
		b. Connect ac voltmeter to A2A1A4E3.	
		c. Vary the setting of % MOD control A2A1-A4R39 while observing ac voltmeter. The range of adjustment should cover at least 1 mV to 2 mV rms.	1 mV to 2 mVrms
		d. Set A2A1A4R39 to produce a 500 kHz amplitude level of 2 mV rms.	2 mV rms.
		e. Remove Mode Selector Assembly A2A1 from test fixture, and reinstall cover on assembly.	

Table 6-3. RF Amplifier Assembly A2A4, Adjustment and Alignment Procedures [1]

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
1. A2A4A2T4 Adjustment	RF Amplifier Test Fixture TS-3685/ WRC-1 RF Signal Generator 28480-8640B-001-003 RF Millivolt-meter 04901-92B-S5 Probe 04901-91-12F	a. Remove cover from RF Amplifier Assembly A2A4. b. Rotate 100 kHz and 10 kHz couplers on RF Amplifier Assembly so that they will mate with couplers on RF Amplifier Test Fixture. c. Mount RF Amplifier Assembly A2A4 on RF Amplifier Test Fixture, making certain that connectors and couplers mate correctly. d. Connect test equipment as shown in Figure 6-3. e. Apply operating power to test fixture. f. Set test fixture controls to test in receiving mode and AGC for maximum output. g. Set rf signal generator for 2.0050 MHz, and adjust output level to approximately 10 mVrms. h. Set test fixture frequency control to 2.000 MHz.	 10 mVrms

[1] Since these are depot adjustment/alignment procedures, both receiver and transmitter applications are addressed in this table.

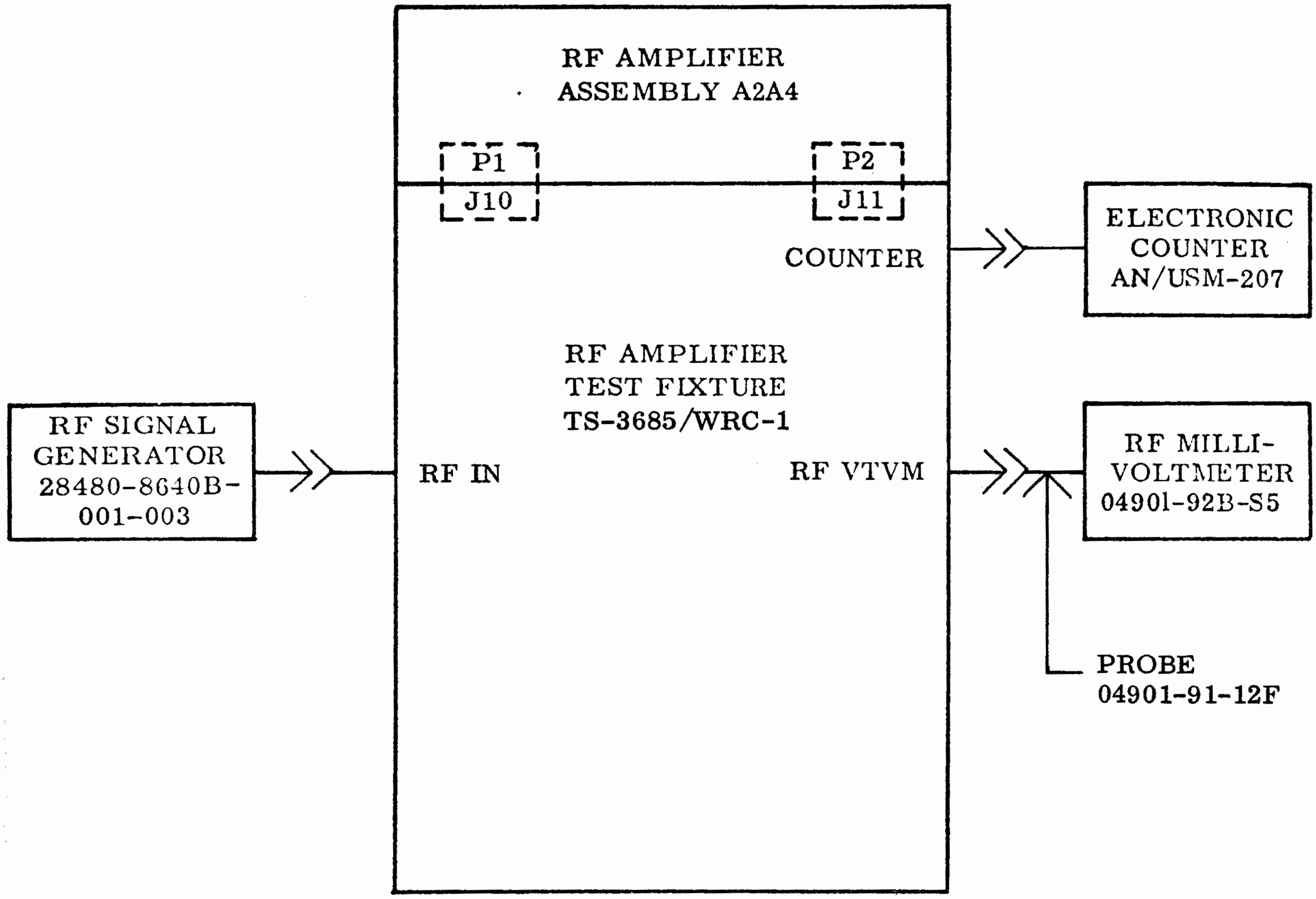


Figure 6-3. RF Amplifier Assembly A2A4, Adjustment and Alignment Bench Test Setup

Table 6-3. RF Amplifier Assembly A2A4, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
1. A2A4A2T4 Adjustment (Cont.)		NOTE In the following procedures, reduce rf signal generator output as required to keep rf millivoltmeter indication on scale.	
		i. Adjust A2A4A2T4 (top coil on strip A2) for maximum indication on rf millivoltmeter.	Maximum output
2. A2A4A25T3 Adjustment	Same as step 1.	Adjust A2A4A25T3 (2nd coil from top) for maximum indication on rf millivoltmeter.	Maximum output
3. A2A4A20T2 and A2A4A20T1 Adjustment	Same as step 1.	a. Adjust A2A4A20T2 (2nd coil from bottom) for maximum indication on rf millivoltmeter.	Maximum output
		b. Adjust A2A4A20T1 (bottom coil) for maximum indication on rf millivoltmeter.	Maximum output
4. Gain Check and Adjustment	Same as step 1.	a. Set rf signal generator output level to 1 mV.	
		b. Output signal level indication on rf millivoltmeter should be between 40 and 250 mV; if not, retune A2A4A2T4, A2A4-A25T3, A2A4A20T2, and A2A4A20T1.	40 to 250 mV
		NOTE Excessive repeated tuning for a peak output may cause regeneration.	

Table 6-3. RF Amplifier Assembly A2A4, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
5. Gain Variation Check and Adjustment	Same as step 1.	a. Set signal generator output and test fixture controls for 2.000 MHz. Note dBm indication on rf millivoltmeter. Increase signal generator and test fixture frequency controls in 100 kHz steps to 2.90 MHz. Note dBm indication on rf multivoltmeter at each step.	
		b. If the gain variation between the highest and lowest indications obtained in step a. is greater than 6 dB, touch up the adjustments of the transformers adjusted in steps 1 through 4, above, to reduce the gain variation to less than 6 dB.	Less than 6 dB gain variation over the band.
6. A2A4A3 through A2A4A29 Adjustment	Same as step 1.	Set rf signal generator for approximately 10 mV output at each of the frequencies listed below, and set test fixture frequency control to 5 kHz less. Set control on test fixture to monitor rf input frequency. At each test frequency adjust the coils in the indicated sequence to obtain output signal level of 40 to 250 mV. At each test frequency perform the gain and gain variation check and adjustment procedures of steps 4 and 5.	

Table 6-3. RF Amplifier Assembly A2A4, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES		ADJUSTMENT VALUE
6. A2A4A3 through A2A4A29 Adjustment (Cont.)		3.005 MHz	A2A4A3T4 (top coil) A2A4A26T3 (2nd coil from top) A2A4A21T2 (3rd coil from top) A2A4A21T1 (bottom coil)	Maximum output at 3.005 MHz 40 to 250 mV
		4.005 MHz	A2A4A4T4 A2A4A27T3 A2A4A22T2 A2A4A22T1	Output at 4.005 MHz 40 to 250 mV
		5.005 MHz	A2A4A5T4 A2A4A28T3 A2A4A23T2 A2A4A23T1	Output at 5.005 MHz 40 to 250 mV
		6.005 MHz	A2A4A6T4 A2A4A29T3 A2A4A24T2 A2A4A24T1	Output at 6.005 MHz 40 to 250 mV
		7.005 MHz	A2A4A7T4 A2A4A2T3 A2A4A25T2 A2A4A25T1	Output at 7.005 MHz 40 to 250 mV
		8.005 MHz	A2A4A8T4 A2A4A3T3 A2A4A26T2 A2A4A26T1	Output at 8.005 MHz 40 to 250 mV
		9.005 MHz	A2A4A9T4 A2A4A4T3 A2A4A27T2 A2A4A27T1	Output at 9.005 MHz 40 to 250 mV

Table 6-3. RF Amplifier Assembly A2A4, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES		ADJUSTMENT VALUE
6. A2A4A3 through A2A4A29 Adjustment (Cont.)		10.005 MHz	A2A4A10T4 A2A4A5T3 A2A4A28T2 A2A4A28T1	Output at 10.005 MHz 40 to 250 mV
		11.005 MHz	A2A4A11T4 A2A4A6T3 A2A4A29T2 A2A4A29T1	Output at 11.005 MHz 40 to 250 mV
		12.005 MHz	A2A4A12T4 A2A4A7T3 A2A4A2T2 A2A4A2T1	Output at 12.005 MHz 40 to 250 mV
		13.005 MHz	A2A4A13T4 A2A4A8T3 A2A4A3T2 A2A4A3T1	Output at 13.005 MHz 40 to 250 mV
		14.005 MHz	A2A4A14T4 A2A4A9T3 A2A4A4T2 A2A4A4T1	Output at 14.005 MHz 40 to 250 mV
		15.005 MHz	A2A4A15T4 A2A4A10T3 A2A4A5T2 A2A4A5T1	Output at 15.005 MHz 40 to 250 mV
		16.005 MHz	A2A4A16T4 A2A4A11T3 A2A4A6T2 A2A4A6T1	Output at 16.005 MHz 40 to 250 mV
		17.005 MHz	A2A4A17T4 A2A4A12T3 A2A4A7T2 A2A4A7T1	Output at 17.005 MHz 40 to 250 mV
		18.005 MHz	A2A4A18T4 A2A4A13T3 A2A4A8T2 A2A4A8T1	Output at 18.005 MHz 40 to 250 mV

Table 6-3. RF Amplifier Assembly A2A4, Adjustment and Alignment Prcedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES		ADJUSTMENT VALUE
6. A2A4A3 through A2A4A29 Adjustment (Cont.)		19.005 MHz	A2A4A19T4 A2A4A14T3 A2A4A9T2 A2A4A9T1	Output at 19.005 MHz 40 to 250 mV
		20.005 MHz	A2A4A20T4 A2A4A15T3 A2A4A10T2 A2A4A10T1	Output at 20.005 MHz 40 to 250 mV
		21.005 MHz	A2A4A21T4 A2A4A16T3 A2A4A11T2 A2A4A11T1	Output at 21.005 MHz 40 to 250 mV

NOTE

Before tuning the 22 MHz band, adjust the cores of associated transformers fully clockwise. Set the test fixture rf controls to 22.0 MHz and the rf signal generator to 20.000 MHz. Locate A2A4A12T5 (between A2A4A12T1 and A2A4A12T2) and adjust trap for minimum output. It may be necessary to increase the rf signal generator output during this adjustment. After adjusting A2A4A12T5, set the rf signal generator to 22.005 MHz and proceed with normal tuning of transformers.

		22.005 MHz	A2A4A22T4 A2A4A17T3 A2A4A12T2 A2A4A12T1	Output at 22.005 MHz 40 to 250 mV

NOTE

Before tuning the 23 MHz band, adjust the cores of associated transformers fully clockwise. Set the test fixture rf controls to 23.00 MHz and the rf signal generator to 19.205MHz. Locate A2A4A13T5 (between A2A4A13T1 and A2A4A13T2) and adjust trap for minimum output. It may be necessary to increase the rf signal generator output during this adjustment. After reading A2A4A13T5, set the rf signal generator to 23.005 MHz and proceed with

Table 6-3. RF Amplifier Assembly A2A4, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES		ADJUSTMENT VALUE
6. A2A4A3 through A2A4A29 Adjustment (Cont.)		23.005 MHz	A2A4A23T4 A2A4A18T3 A2A4A13T2 A2A4A13T1	Output at 23.005 MHz 40 to 250 mV
		24.005 MHz	A2A4A24T4 A2A4A19T3 A2A4A14T1 A2A4A14T1	Output at 24.005 MHz 40 to 250 mV
		25.005 MHz	A2A4A25T4 A2A4A20T3 A2A4A15T2 A2A4A15T1	Output at 25.005 MH 40 to 250 mV
		26.005 MHz	A2A4A26T4 A2A4A21T3 A2A4A16T2 A2A4A16T1	Output at 26.005 MHz 40 to 250 mV
		27.005 MHz	A2A4A27T4 A2A4A22T3 A2A4A17T2 A2A1A17T1	Output at 27.005 MHz 40 to 250 mV
		28.005 MHz	A2A4A28T4 A2A4A23T3 A2A4A18T2 A2A4A18T1	Output at 28.005 MHz 40 to 250 mV
		29.005 MHz	A2A4A29T4 A2A4A24T3 A2A4A19T2 A2A4A19T1	Output at 29.005 MHz 40 to 250 mV
7. Band-to-Band Gain Variation	Same as step 1.	a. Set signal generator output and test frequency to 2.55 MHz. Record dBM indicaton. Repeat at 3.55 MHz, 4.55 MHz, 5.55 MHz, etc., to 29.55 MHz.		

Table 6-3. RF Amplifier Assembly A2A4, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
7. Band-to-Band Gain Variation (Cont.)		b. If the gain variation between the highest and lowest readings obtained in step a. exceeds 15 dB, readjust the high gain band by turning T4 to reduce the band-to-band variation to less than 15 dB.	Less than 15 dB variation
8. Overall Gain Adjustment	Same as step 1.	a. Set test fixture controls for transmit mode.	
		b. Set rf amplifier test fixture rf frequency controls for 22.000 MHz.	
		c. Set signal generator for 22.005 MHz and adjust output level to obtain 3.5 mVrms at A2A4A38-TP1 using the rf millivoltmeter to measure the level.	
		d. Connect rf millivoltmeter to A2A4TP3. (Ground meter probe at A2A4TP4.)	
		e. Adjust A2A4A38R6.	2.5 Vrms
		f. Disconnect test equipment.	

Table 6-4. Frequency Standard A2A5, Adjustment and Alignment Procedures

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
1. Initial Test Setup	Frequency Standard Test Fixture TS-3667/WRC-1	a. Connect Frequency Standard and test equipment as shown in Figure 6-4. b. Set 5 MHz OSC SOURCE switch A2A5A2S1 to INT/COMP position. c. Apply power to test fixture and allow a 96-hour (minimum) warmup.	
2. Frequency Check	Frequency Standard Test Fixture TS-3667/WRC-1 Electronic Counter AN/USM-207	Set time base on counter for a 10-second gate. On test fixture set output controls to LOAD and INT 5 MHz. Counter shall indicate 4,999,999.8 Hz to 5,000,000.2 Hz. If indication is within limits, proceed to step 5, otherwise proceed to step 3.	
3. Fine Frequency Adjustment	Same as step 2.	a. Adjust FINE FREQUENCY ADJUST control A2A5A1C2 with a screwdriver until an indication of 5,000,000.0 Hz is observed on electronic counter. Do not adjust A2A5A1C2 beyond end calibration marks on INDEX (1 or 30). b. If within limits, log the INDEX reading on the logging chart on the cover of the Frequency Standard Assembly, and proceed to step 5. Otherwise proceed to step 4.	5,000,000.0 Hz

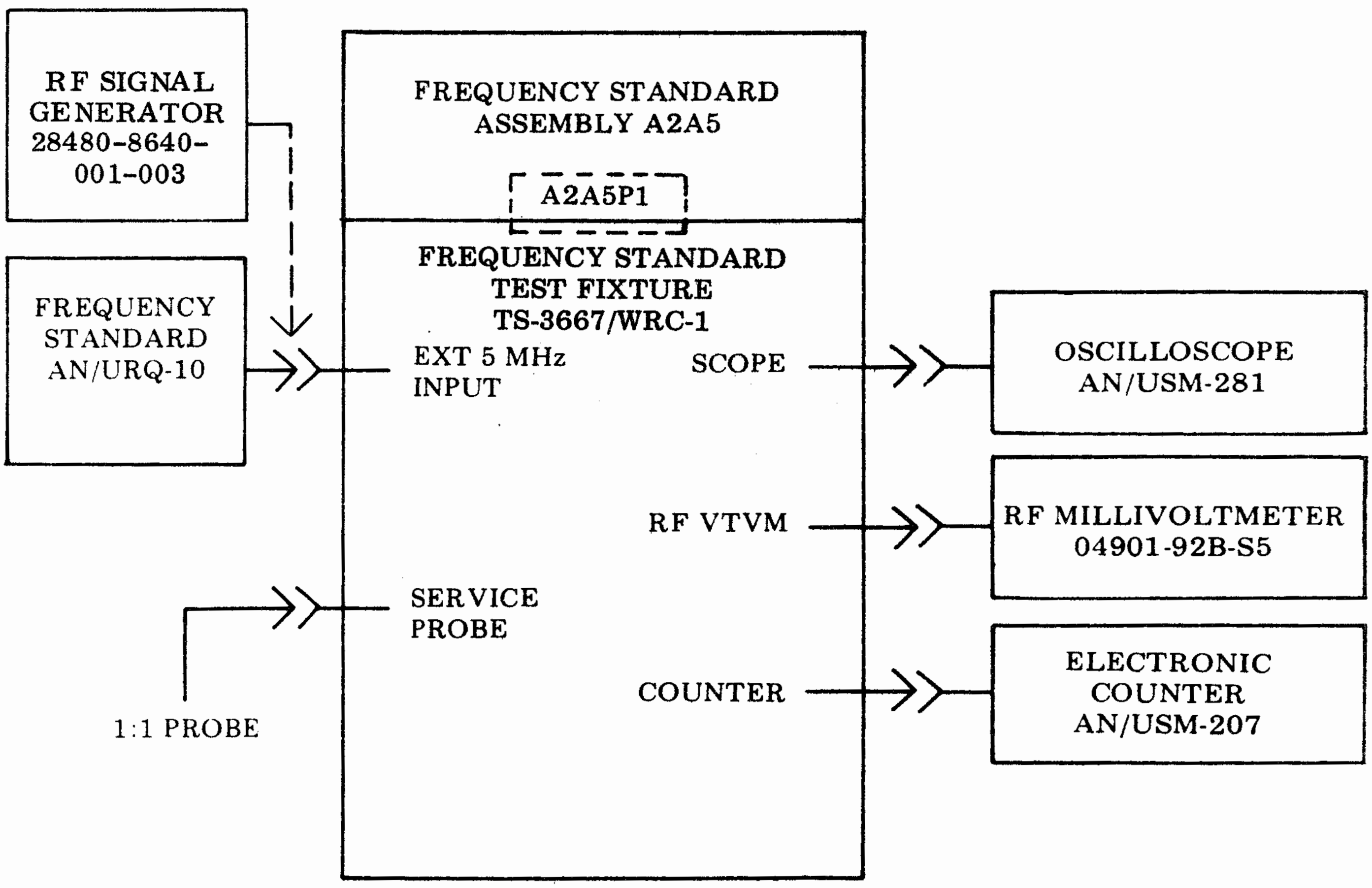


Figure 6-4. Frequency Standard Assembly A2A5, Adjustment and Alignment Bench Test Setup

Table 6-4. Frequency Standard A2A5, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
4. Coarse Frequency Adjustment	Same as step 2.	a. If the fine frequency adjustment does not bring the 5 MHz output of the Frequency Standard Assembly into range, the INDEX will read 1 or 30. If this occurs, readjust the FINE FREQUENCY ADJUST control A2A5A1C2 to an INDEX reading of 17. Then remove the plug which covers the COARSE FREQUENCY ADJUST and adjust the COARSE FREQUENCY ADJUST control A2A5A1C3 with the aid of a nonmetallic or insulated shaft screwdriver until the electronic counter indicates 5,000,000.0 Hz ±0.2Hz.	5,000,000.0 Hz
		b. Reattach plug over COARSE FREQUENCY ADJUST control and repeat step 3.	
5. 5 MHz Amplifier Alignment	Frequency Standard Test Fixture TS-3667/ WRC-1	a. Remove cover from A2A5. On test fixture set output controls to LOAD and INT 5 MHz. Leave A2A5A2S1 as in step 2.	
	RF Millivoltmeter 04901-92B-S5 RF Probe 04901-91-12F	b. Observe the rf millivoltmeter. If voltage outside of specified range is indicated, select value of A2A5A2R49 to obtain required result. See table 7-2 for selectable values.	400 mVrms to 1200 mVrms
	Oscilloscope AN/USM-281	c. Adjust A2A5A2C38 to obtain a maximum amplitude sine wave as displayed on the oscilloscope.	

Table 6-4. Frequency Standard A2A5, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
6. 1 MHz Divider Alignment	Frequency Standard Fixture TS-3667/ WRC-1	a. On test fixture set controls to read 1 MHz output and load output. Leave A2A5A2S1 as in step 2.	
	Electronic Counter AN/USM-207	b. Adjust A2A5A2C7 to obtain an indication of 1,000,000.0 Hz on electronic counter.	1,000,000.0 Hz
	RF Millivoltmeter 04901-92B-S5 RF Probe 04901-91-12F Oscilloscope AN/USM-281	c. Observe rf millivoltmeter. 1 MHz output should be as specified. If output outside specified range is indicated, select values of A2A5A2R17 and A2A5A2-R18 to bring voltage to bring voltage into range. See table 7-2 for selectable values.	300 mVrms to 600 mVrms
		d. Adjust A2A5A2C13 to obtain a maximum amplitude sine wave as displayed on the oscilloscope.	
7. 500 kHz Divider Alignment	Same as step 6.	a. On test fixture set output controls to LOAD and 500 kHz (A1). Leave A2A5A2-S1 as in step 2.	
		b. Adjust A2A5A2C16 to obtain an indication of 500,000.0 Hz on electronic counter.	500,000.0 Hz

Table 6-4. Frequency Standard A2A5, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
7. 500 kHz Divider Alignment (Cont.)		c. Observe rf millivoltmeter. 500,000.0 Hz output should be as specified. If output is outside specified range, select values of A2A5A2-R30 and A2A5A2R31 to bring voltage into range. See table 7-2 for selectable values.	140 mVrms to 210 mVrms
		d. Adjust A2A5A2C22 to obtain a maximum amplitude sine wave as displayed on the oscilloscope.	
8. 10 MHz Multiplier Alignment	Same as step 6.	a. On test fixture, set output controls to LOAD and 10 MHz. Leave A2A5A2S1 as in step 2.	
		b. Adjust A2A5A2C31 to obtain an electronic counter indication of 10,000,000 Hz.	10,000,000 Hz
		c. Observe rf millivoltmeter. Output should be as specified. If output is outside specified range, select values for A2A5A2R43 and A2A5A2R44 to bring voltage into range. See table 7-2 for selectable values.	18 mVrms to 45 mVrms
		d. Adjust A2A5A2C33 to obtain a maximum amplitude sine wave as observed on the oscilloscope.	

Table 6-4. Frequency Standard A2A5, Adjustment and Alignment Procedure (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
9. Automatic 5 MHz Source Switching Check and Adjustment	Frequency Standard Test Fixture TS-3667/ WRC-1 Electronic Counter AN/USM-207 RF Signal Generator 28480-8640B-001-003 RF Millivolt-meter 04901-92B-S5 RF Probe 04901-91-12F	a. Set 5 MHz OSC SOURCE switch A2A5A2S1 to EXT NORM position.	
		b. On test fixture, set output controls to LOAD and INT 5 MHz; set external 5 MHz control for minimum output.	
		c. Connect output of RF Signal Generator to 5 MHz input connector on test fixture.	
		d. Adjust RF Signal Generator for 1 Vrms output at 5.001 MHz.	
		e. Note frequency reading on Electronic Counter.	
		f. While observing Electronic Counter, SLOWLY increase 5 MHz control on test fixture until counter frequency jumps to 5.001 MHz.	
		g. Read the level on the RF Millivoltmeter.	300 to 500 mVrms
		h. While observing Electronic Counter, SLOWLY decrease 5 MHz control on test fixture until counter frequency jumps back to frequency noted in step e.	

Table 6-4. Frequency Standard A2A5, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
9. Automatic 5 MHz Source Switching Check and Adjustment (Cont.)		i. Read the level on the RF Millivoltmeter.	175 to 325 mVrms
		j. If indication in g. above is not within limits, select a value for A2A5-A4R5 to bring indication within limits. See table 7-2 for selectable values. Increase A2A5A4R5 to increase sensitivity.	
		k. If indication in i. is not within limits, select a value for A2A5A4R3 to bring indication within limits. See table 7-2 for selectable values. Increase R3 to increase sensitivity.	

NOTE

There is interaction between A2A5A4R3 and A2A5-A4R5. When selecting values for these transistors, select a value for A2A5A4R3 first.

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
10. Final Check		a. Reattach cover to Frequency Standard Assembly A2A5.	
		b. Repeat step 2. above.	
		c. Remove Frequency Standard Assembly A2A5 from test fixture.	

Table 6-5. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Procedures [1]

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
1. Frequency Generator Subassembly A2A6-A16 Adjustment	Translator/Synthesizer Test Fixture TS-3665/WRC-1 Electronic Counter AN/USM-207 Digital Multimeter 89536-8800A/AA RF Signal Generator 28480-8640B-001-003 Frequency Standard AN/URQ-10 Oscilloscope AN/USM-281 A2A6A16 Extender Card 98738-01A228396-01 Spectrum Analyzer 28480-8553B-E30 AC Probe 28480-1121A	a. Remove top cover from Translator/Synthesizer Assembly A2A6, and connect test equipment as shown in figure 6-5. b. Apply power to test fixture and set controls to test 100 Hz Translator/Synthesizer in receive mode, with no vernier action. c. Connect digital multimeter to A2A6A15TP2 and observe indication of 5.1 to 5.3 Vdc. If not within this range, select value of A2A6A15R15 in accordance with Specific Note 1 of figure 5-37. d. Connect digital multimeter to A2A6A16TP1 and observe indication. It should be 0 Vdc. e. Activate vernier and observe digital multimeter indication. It should vary between 2.5 and 3.7 Vdc as the vernier is operated from limit to limit.	 5.1 to 5.3 Vdc. 0 Vdc. Varying voltages between 2.5 and 3.7 Vdc.

1 Since these are depot adjustment/alignment procedures, both receiver and transmitter applications are addressed in this table.

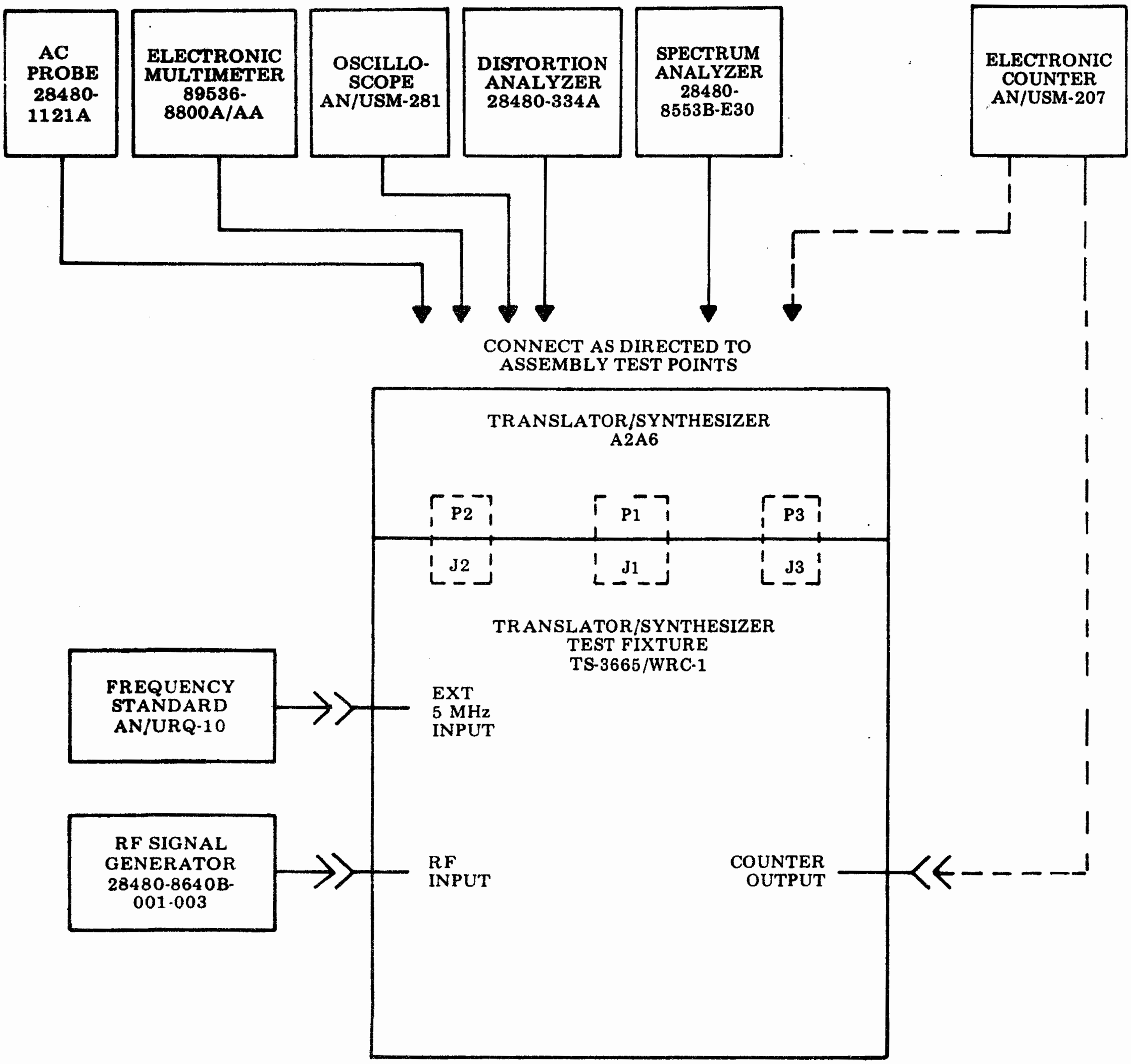


Figure 6-5. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Bench Test Setup

Table 6-5. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
1. Frequency Generator Subassembly A2A6-A16 Adjustment (Cont.)		f. Connect the rf signal generator to the RF input connector on the test fixture. Set output of the rf signal generator to 5.000 MHz at a level of 5 mVrms.	
		g. Tune the Translator/Synthesizer to 5.001 MHz by means of test fixture controls.	
		h. Connect ac probe and spectrum analyzer with tracking generator in RESTORE SIGNAL mode to A2A6A8TP8. With the vernier control fully counterclockwise, observe an indication of 499.2 to 499.4 kHz. If necessary, adjust A2A6A16-R22 to obtain the correct indication.	499.2 to 499.4 kHz.
		i. With the equipment connected as in Step h, and with the vernier control fully clockwise, observe an indication of 497.6 to 497.8 kHz on the counter. If necessary, adjust A2A6A16R18 to obtain the correct indication.	497.6 to 497.8 kHz.

Table 6-5. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Procedures (Continued)

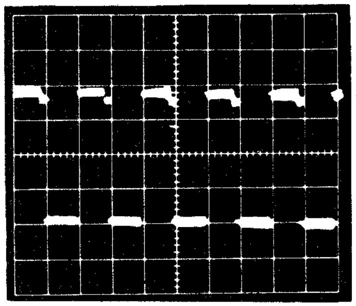
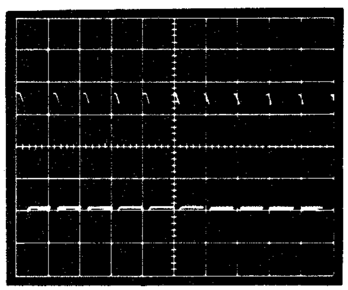
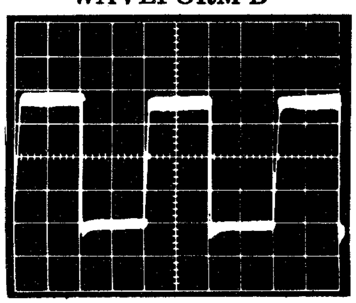
STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
1. Frequency Generator Subassembly A2A6-A16 Adjustment (Cont.)  WAVEFORM A  WAVEFORM B  WAVEFORM C		j. Repeat steps h. and i. Adjust if necessary to obtain the required indications. k. Connect the oscilloscope to A2A6A16TP2. Disable vernier. Observe Waveform A. (Rectangular pulses at an amplitude of 4 V P-P and period of 1000 ± 4 usec.) l. Enable vernier. Observe waveform similar to Waveform A. Connect counter to A2A6A16TP2 and observe counter variation between 1000.1 Hz and 999.7 Hz as the vernier is operated. Disable vernier. m. Connect oscilloscope and counter to A2A6A16TP3. Observe Waveform B. (Pulses at an amplitude of 4 V P-P and a frequency of 100 kHz.) n. Connect oscilloscope to A2A6A16TP4. Observe Waveform C. (Rectangular pulses at an amplitude of 4 V P-P and a frequency of 500 kHz.)	

Table 6-5. Translator/Synthesizer Assembly A2A6 Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
2. Synthesizer A2A6-A17 Adjustment	Translator/Synthesizer Test Fixture TS-3665/WRC-1 Oscilloscope AN/USM-281 with Test Probe (10:1 attenuation) Distortion Analyzer 28480-334A Frequency Standard AN/URQ-10 RF Signal Generator 28480-8640B-001-003 A2A6A17 Extender Card 98738-01A228398-01 Spectrum Analyzer 28480-8553B-E30 AC Probe 28480-1121A Digital Multimeter 89536-8800A/AA	a. Remove Synthesizer Subassembly A2A6A17 from Translator/Synthesizer. Insert extender into A2A6A17 slot, and mate A2A6A17 subassembly with extender. b. Tune Translator/Synthesizer to 7.000 MHz by means of test fixture controls. c. Use digital multimeter to measure voltage at pin 1 of A2A6A17A1 VCO subassembly. d. Adjust A2A6A17A1L1 (through hole provided in VCO cover) until meter reads 4 $\pm$0.1 Vdc. e. Remove synthesizer subassembly A2A6A17 from extender. Remove extender from slot, and reinstall A2A6A17 in its normal position. f. Tune Translator/Synthesizer to 5.000 MHz by means of test fixture controls.	 (d.) 4 $\pm$0.1 Vdc

Table 6-5. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
2. Synthesizer A2A6-A17 Adjustment (Cont.)		g. Remove side panel from Translator/Synthesizer assembly for access to translator subassembly A2A6A8, and connect well grounded 10:1 probe on oscilloscope to A2A6A8E8. Adjust A2A6A17R10 to obtain a sine wave at an amplitude of 100 mV P-P. Connect ac probe and spectrum analyzer with tracking generator in RESTORE SIGNAL mode to A2A6A17TP3 and measure frequency of 22.4 MHz ±100 Hz. h. Tune Translator/Synthesizer to 6.000 MHz by means of test fixture controls. The frequency as read on the tracking generator at A2A6A17TP3 shall be 32.4 MHz ±100 Hz. The amplitude of the sine wave at A2A6A8E8 shall be 100 ±15 mV P-P. i. Connect distortion analyzer to A2A6P2A1 (IF OUT) or A2A6A8-TP8. Set output of rf signal generator connected to rf input of test fixture to 6.000 MHz at a level of 5 mV rms.	100 mV P-P

Table 6-5. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
2. Synthesizer A2A6-A17 Adjustment (Cont.)	NOTE If it is not possible to set level on distortion analyzer with sensitivity and vernier at max. then increase output of rf signal generator slightly as necessary.		
		j. Measure the distortion.	1.5% or less distortion
		k. Change the signal generator and test fixture frequencies to 7.000 MHz, and measure distortion.	1.5% or less distortion.
		l. If distortion in steps j. or k.is greater than 1.5%, replace A2A6A17A1 VCO sub-assembly and repeat steps a. through k.	1.5% or less distortion.
		m. Disconnect external test equipment.	
		n. Connect oscilloscope to A2A6A17TP1. Observe Waveform B. (Pulses at an amplitude of 4 V p-p and a frequency of 100 kHz.)	

Table 6-5. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Procedures (Continued)

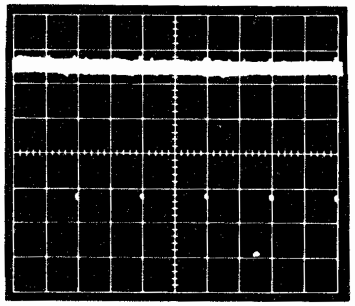
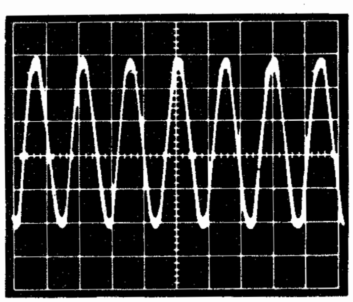
STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
2. Synthesizer A2A6-A17 Adjustment (Cont.)  WAVEFORM D		o. Connect oscilloscope to A2A6-A17TP2. Observe Waveform D (negative-going pulses 300-500 n sec wide at a period of 10 usec and peak amplitude of 4 volts). This waveform shall be locked to the A2A6A17TP1 waveform B. Check this by displaying both waveforms on alternate sweeps of the scope. Trigger scope from TP1. p. Repeat step o. for each position of the 100 kHz control of the test fixture.	
3. Synthesizer Circit A2A6A18 and A2A6-A12 Adjustment  WAVEFORM E	Translator/Synthesizer Test Fixture TS-3665/WRC-1 Oscilloscope AN/USM-281 RF Signal Generator 28480-8640B-001-003 Electronic Counter AN/USM-207 A2A6A18 Extender Card 98738-01A228400-01	a. Connect ac probe and spectrum analyzer with tracking generator in RESTORE SIGNAL mode to A2A6A18TP1. With test fixture frequency set to 6.000000 MHz measure frequency of signal at A2A6A18TP1 to be 34 MHz ±100 Hz. Then connect oscilloscope to A2A6A18TP1 and observe Waveform E (period of approximately 30 nsec and amplitude of from 0.3 to 1.5 V P-P).	

Table 6-5. Translator/Synthesizer Assembly A2A6,
Adjustment and Alignment Procedures (Continued)

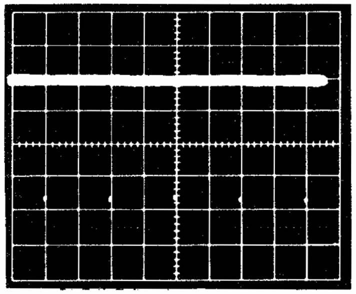
STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
3. Synthesizer Circuit A2A6A18 and A2A6-A12 Adjustment (Cont.)  WAVEFORM F	A2A6A12 Extender Card 98738-01A228390-01 Spectrum Analyzer 28480-8552B-E30 AC Probe 28480-1121A Frequency Standard AN/URQ-10	b. Connect oscilloscope to A2A6A18TP2. Observe Waveform F (200-400 nsec negative-going pulses with a period of 1000 usec and an amplitude of 4 volts P-P.) c. Connect oscilloscope to A2-A6A12TP3. Adjust A2A6A12R16 for sinewave amplitude of 200 ±10 mV P-P. Connect ac probe and spectrum analyzer with tracking generator in RESTORE SIGNAL mode to A2A6A12TP3. With test fixture frequency set to 6.000000 MHz, frequency of signal at TP3 shall read 3.4 MHz ±30 Hz. d. Connect oscilloscope to A2A6-A12TP1. Observe Waveform B (rectangular pulses at an amplitude of 4 volts P-P). Connect counter to A2A6A12-TP1. Frequency shall be 1 kHz ±0.1 Hz. e. With counter in A2A6A12TP1, activate vernier. Observe that the frequency is between 1 kHz and 999.7 Hz. Deactivate vernier.	 200 ±10 mV P-P

Table 6-5. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Procedures (Continued)

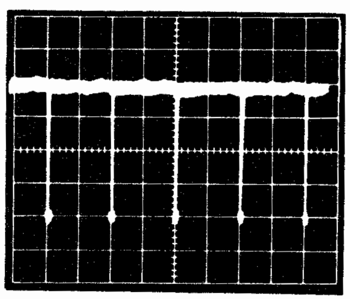
STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
3. Synthesizer Circuit A2A6A18 and A2A6A12 Adjustment (Cont.)		f. Connect oscilloscope to A2A6A12TP2. Observe Waveform F (200-400 nsec negative-going pulses with a period of 1000 usec and an amplitude of 4 volts P-P). This waveform shall be locked to the A2A6A12TP1 Waveform B. Check this by displaying both waveforms on alternate sweeps of the oscilloscope. g. Repeat step f. for each position of the 100 Hz, 1 kHz and 10 kHz frequency controls of the test fixture.	
4. Synthesizer Subassembly A2A6A13  WAVEFORM G	Translator/Synthesizer Test Fixture TS-3665/WRC-1 Oscilloscope AN/USM-281 Frequency Standard AN/URQ-10 A2A6A13 Extender Card 98738-01A228392-01	a. Connect oscilloscope to A2A6A13TP1. Observe Waveform G (negative-going pulses 40 to 400 nsec wide at a period of 2 usec and a peak amplitude of 4 volts P-P). The width depends upon MHz setting.	

Table 6-5. Translator/Synthesizer Assembly A2A6,
Adjustment and Alignment Procedures (Continued)

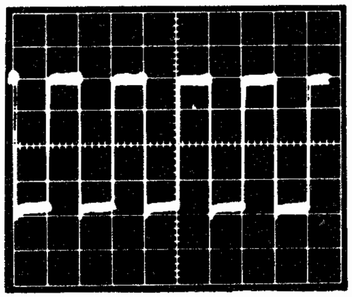
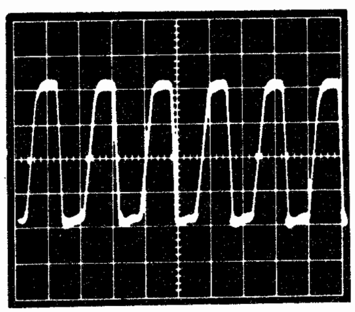
STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
4. Synthesizer Subassembly A2A6A13 (Cont.)  WAVEFORM H  WAVEFORM I		b. Connect oscilloscope to A2A6A13TP2. Observe Waveform H (rectangular pulses at a period of 2 usec and an amplitude of 4 volts P-P). This waveform shall be locked to the A2A6A13TP1 Waveform G. Check this by displaying both waveforms on alternate sweeps of the oscilloscope. c. Repeat Step b. for each position of the 1 MHz and 10 MHz controls of the test fixture. d. Connect oscilloscope to A2A6A13TP3. Observe Waveform I (rectangular pulses at an amplitude of 4 volts P-P and a period of approximately 40 to 500 nsec depending upon the test fixture 1 MHz and 10 MHz controls, i.e., 400 nsec at 22 MHz dial setting and 42 nsec at 6 MHz dial setting).	

Table 6-5. Translator/Synthesizer Assembly A2A6,
Adjustment and Alignment Procedures (Continued)

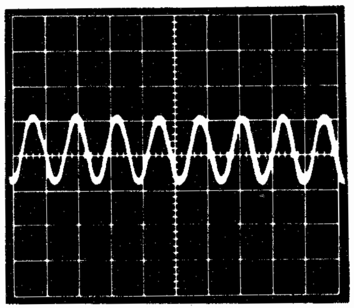
STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
5. 10 MHz/1 MHz Filter Subassembly A2A6A14 Adjustment  WAVEFORM J	Translator/Synthesizer Test Fixture TS-3665/WRC-1 Multimeter AN/USM-311 Oscilloscope AN/USM-281 Frequency Standard AN/URQ-10 A2A6A14 Extender Card 98738-01A228394-01	a. Tune Translator/Synthesizer to 16.000 MHz by means of test fixture controls. b. Measure voltage at A2A6A14TP1. It should be 0 to 0.4 Vdc. c Measure voltage at A2A6A14TP3 and A2A6A14TP6. These will both be +5 Vdc nominal. d. Connect oscilloscope to A2A6A14TP5. Observe Waveform J. Adjust A2A6-A14R7 for sinewave amplitude of 200 ±10 mV P-P and a period of approximately 280 nsec. e. Tune Translator/Synthesizer to 21.000 MHz by means of test fixture controls. f. Measure voltage at A2A6A14TP3. It should be 0 to 0.4 Vdc. g. Measure the voltage at A2A6A14TP1 and TP6. These will both be +5 Vdc nominal.	200 ±10 mV P-P

Table 6-5. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
5. 10 MHz/1 MHz Filter Subassembly A2A6A14 Adjustment (Cont.)		h. Connect oscilloscope to A2A6A14TP5. Observe Waveform J. Adjust A2A6A14R17 for waveform amplitude of 200 ±10 mV P-P and a period of approximately 105 nsec.	200 ±10 mV P-P
		i. Tune Translator/Synthesizer to 10.000 MHz by means of test fixture controls.	
		j. Measure voltage at A2A6A14TP6. It should be 0 to 0.4 Vdc.	
		k. Measure the voltage at A2A6A14TP1 and TP3. These will both be +5 Vdc nominal.	
		l. Connect oscilloscope to A2A6A14TP5. Observe Waveform J. Adjust A2A6A14R27 for displayed amplitude of 200 mV ±10 mV P-P and a period of approximately 50 nsec.	200 ±10 mV P-P

Table 6-5. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
6. Translator Subassembly A2A6A8 Adjustment	Translator/Synthesizer Test Fixture TS-3665/WRC-1 RF Signal Generator 28480-8640B-001-003 Spectrum Analyzer 28480-8553B-E30 AC Probe 28480-1121A Frequency Standard AN/URQ-10	a. Remove side cover from Translator/Synthesizer Assembly for access to Translator Subassembly A2A6A8. b. Connect spectrum analyzer with ac probe to A2A6A8TP5, and connect oscilloscope to A2A6A8TP8. c. Set output frequency of signal generator to 21.000 MHz, and tune Translator/Synthesizer to 21.000 MHz by means of test fixture controls. d. Adjust output amplitude of rf signal generator to obtain an indication of 5 mVrms. e. Adjust A2A6A8T1 to obtain maximum output indication on oscilloscope. f. Vary the 100 kHz selector on the test fixture and on the signal generator simultaneously and synchronously through their complete ranges. Note the frequency of highest output and the frequency of lowest output.	 Maximum output.

Table 6-5. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
6. Translator Subassembly A2A6A8 Adjustment (Cont.)		g. At the frequency of highest output, adjust A2A6A8R52 for 250 ±20 mV P-P on the oscilloscope. The output at the frequency of lowest output level must be greater than 175 mV P-P.	250 ±20 mV P-P
		h. Change the test fixture frequency to 22.000 MHz. Change the signal generator frequency to 22.000 MHz at an output level of 5 mV rms.	
		i. Vary the 100 kHz selector on the test fixture and on the signal generator simultaneously and synchronously through their complete ranges. Note the frequency of highest output and the frequency of lowest output. The output must be between 200 mV and 300 mV P-P at the frequency of highest output.	
		j. If the highest output does not fall between 200 mV P-P and 300 mV P-P, adjust A2A6A8R36 so that the output falls within this range. The output at the frequency of lowest output level must be greater than 140 mV P-P.	200 - 300 mV P-P

Table 6-5. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
6. Translator Subassembly A2A6A8 Adjustment (Cont.)		If it is not possible to obtain 200 - 300 mV output range, change A2A6-A8C44 from 0.01 uF to 22 pF, and repeat steps 6.c. through 6.i.	
		k. Set controls on test fixture to test Translator/Synthesizer in transmit mode with transmit IF switch at 10 mV.	
		l. Connect spectrum analyzer to A2A6A8TP6 using ac probe.	
		m. Tune Translator/Synthesizer to 7.100 MHz by means of test fixture controls. Adjust signal generator for an output of 3 mV at a frequency of 500 kHz.	
		n. Adjust A2A6A8L14 for minimum output of the 19.5 MHz signal as observed on the spectrum analyzer.	Minimum output

Table 6-5. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
6 Translator Subassembly A2A6A8 Adjustment (Cont.)		o. Disconnect test equipment and reattach top and side covers of Translator/ Synthesizer Assembly A2A6.	
7. Final Check	Translator/Synthesizer Test Fixture TS-3665/WRC-1 RF Signal Generator 28480-8640B-001-003 Spectrum Analyzer 28480-8553B-E30	a. Connect signal generator to test fixture RF IN jack (A2A6P3A1) at frequency of 6.000 MHz and 5 mV rms amplitude. Connect oscilloscope to IF OUT jack (A2A6P2A1). Set test fixture for receive and frequency for 6.000 MHz.	
	Oscilloscope AN/USM-281	b. Observe that output level is between 140 mV and 300 mV P-P.	140 to 300 mV P-P
	AC Probe 28480-1121A Frequency Standard AN/URQ-10	c. Vary the 100 kHz selector on the test fixture and on the signal generator simultaneously and synchronously through their complete range. Observe that the output is between 140 and 300 mV P-P.	140 to 300 mV P-P
		d. Repeat steps a. and b. for a test fixture and signal generator setting of 7.000 MHz.	

Table 6-5. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
7. Final Check (Cont.)		e. Repeat step c. and observe that the output level is between 140 and 300 mV P-P.	140 to 300 mV P-P
		f. Connect signal generator to test fixture RF IN jack (A2A6P3A1) at frequency of 6.000 MHz and 5 mV rms amplitude. Connect ac probe and spectrum analyzer with tracking generator in RESTORE SIGNAL mode to A2A6A8TP8. Activate vernier on test fixture. With vernier control fully counterclockwise observe an indication of 499.3 kHz ±200 Hz.	499.3 kHz ±200 Hz
		g. Set vernier control fully clockwise and observe an indication of 497.7 kHz ±200 Hz.	497.7 kHz ±200 Hz.

Table 6-5. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
7. Final Check (Cont.)		h. Connect signal generator to IF IN jack (A2A6P2A2) at frequency of 500 kHz and level of 3 mV rms. Set test fixture for EXCITE and frequency for 2.222200 MHz. Connect spectrum analyzer to RF OUT jack (A2A6-P3A2) and tracking generator in RESTORE SIGNAL mode.	
		i. Observe that the output level is greater than 1.5 mV rms and that the frequency is the same as the dial ±30 Hz.	Greater than 1.5 mV rms.
		j. Repeat steps h. and i. for the following test fixture frequency settings. 3.333300 MHz 4.444400 MHz 5.555500 MHz 6.666600 MHz 7.777700 MHz 8.888800 MHz 9.999900 MHz 10.000000 MHz 11.111100 MHz 12.000000 MHz 14.000000 MHz	Greater than 1.5 mV rms.

Table 6-5. Translator/Synthesizer Assembly A2A6,
Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
7. Final Check (Cont.)		15.000000 MHz 16.000000 MHz 19.000000 MHz 20.000000 MHZ 22.000000 MHZ	
		k. Connect signal generator to IF IN jack (A2A6P2A2) at frequency of 500 kHz and a level of 3 mV rms. Set test fixture for EXCITE and frequency for 7.100 MHz. Connect spectrum analyzer to RF OUT jack (A2A6P3A2) and record output level at 7.100 MHz.	
		l. Adjust spectrum analyzer only for 19.5 MHz and observe output. It shall be at least 15 dB below value measured in step k.	15 dB below value measured in step k.

Table 6-6. IF Amplifier Assembly A2A12, Adjustment and Alignment Procedures

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
1. Preliminary	Link 11 Module Test Set 98738-01A228486-01	a. Connect test equipment as shown in figure 6-6, and remove covers from IF Amplifier Assembly A2A12.	
	RF Signal Generator 28480-8640B-001-003	b. Set rf signal generator frequency to 500 kHz.	
		c. Adjust output level of rf generator for -46 dBm.	20 ±0.2 Vdc.
	Electronic Counter AN/USM-207	d. Set A2A12A1R27 and A2A12A1R39 fully CW.	
	Spectrum Analyzer 28480-8553B-E30	e. Adjust module test set controls for APC of 3.86 V and PPC of 0 Vdc as read on test set meter.	
2. A2A12A1T1, T2 Alignment	Same as step 1.	a. Alternately adjust A2A12-A1T1, T2 for maximum output as indicated on ac voltmeter.	
NOTE If no indication is present on ac voltmeter, increase rf signal generator to obtain reading on ac voltmeter.			
3. A2A12A1R27 and A2A12-A1R39 Adjustment	Same as step 1.	a. Adjust A2A12A1R27 to indicate -32 dBm on spectrum analyzer.	-32 dBm
		b. Set APC control for 7 Vdc and adjust A2A12-A1R39 to indicate -69 dBm ±1 dB on spectrum analyzer.	-69 dBm ±1 dB
		c. Adjust APC voltage to 3.86 Vdc.	

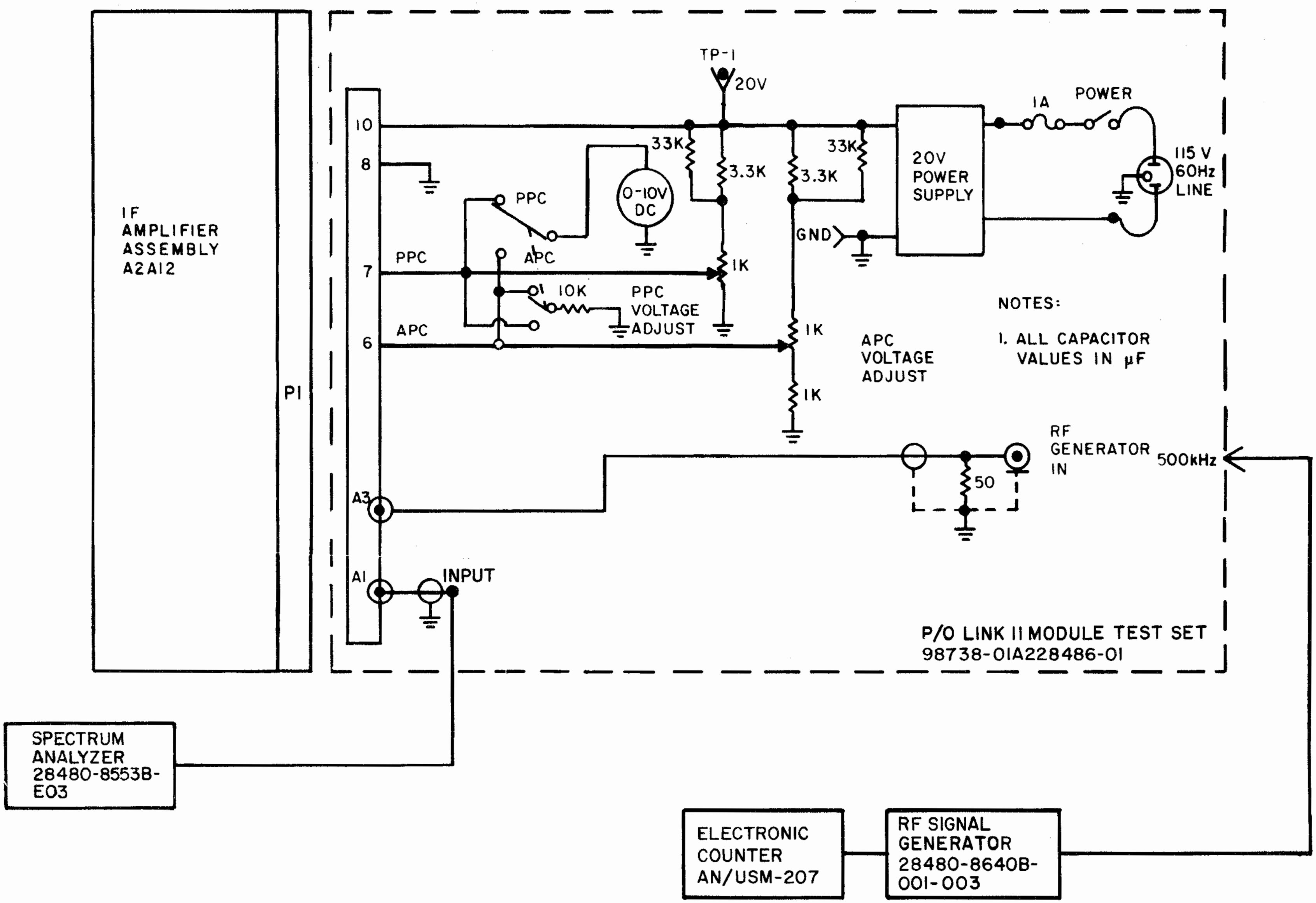


Figure 6-6. IF Amplifier Assembly A2A12, Adjustment and Alignment Bench Test Setup

Table 6-6. IF Amplifier Assembly A2A12, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
4. APC/TGC Control	Same as step 1.	a. Slowly increase APC voltage. Monitor IF output signal with spectrum analyzer. Observe that output level approaches a minimum reading on spectrum analyzer as the APC voltage is increased beyond 6 Vdc. Return voltage control to 3.86 Vdc.	
5. PPC Control	Same as step 1.	a. Slowly increase PPC voltage. Monitor IF output signal with spectrum analyzer. Observe that output level approaches a minimum reading as the PPC voltage is increased to +5 Vdc. Return PPC voltage control to 0 Vdc. b. Reinstall covers on IF Amplifier Assembly A2A12 and remove assembly from test fixture.	

Table 6-7. Audio Processors A2A21A18 and A2A21A19, Adjustment and Alignment Procedures

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
NOTE Reference to components and test points on the Audio Processor assemblies are prefixed in steps 2 through 4 of this table with the reference designation A2A21A18. The reader should understand that when testing an A2A21A19 Audio Processor assembly, all the reference designation prefixes of this table should be read as A2A21A19.			
1. Preliminary Procedure for Normal Mode Adjustment and Alignment	Link 11 Module Test Set 98738-01A228486-01 Two-Tone Generator 09553-TF-2005 Oscilloscope AN/USM-310(V)1 AC Voltmeter 28480-400E	a. Connect test equipment as shown in Figure 6-7. Mount Audio Processor Assembly A2A21A18 (or A2A21-A19) on Link 11 module test set. Set test circuit AUDIO LEVEL switch to NORMAL	
		b. Set Audio Processor controls as follows: THRESHOLD (A2A21A18-R4) fully CW; OUTPUT LEVEL (A2A21A18R8) fully CW; DECAY (A2A21A18R14) fully CW; ATTACK (A2A21-A18R11) fuly CW.	
		c. Set two-tone generator for 1000 Hz at 150 mVrms as measured with ac voltmeter at AUDIO test point on module test set.	150 ±1 mVrms
2. Threshold Voltage Alignment	AC Voltmeter 28480-400E	a. Connect ac voltmeter to test point A2A21-A18TP4.	

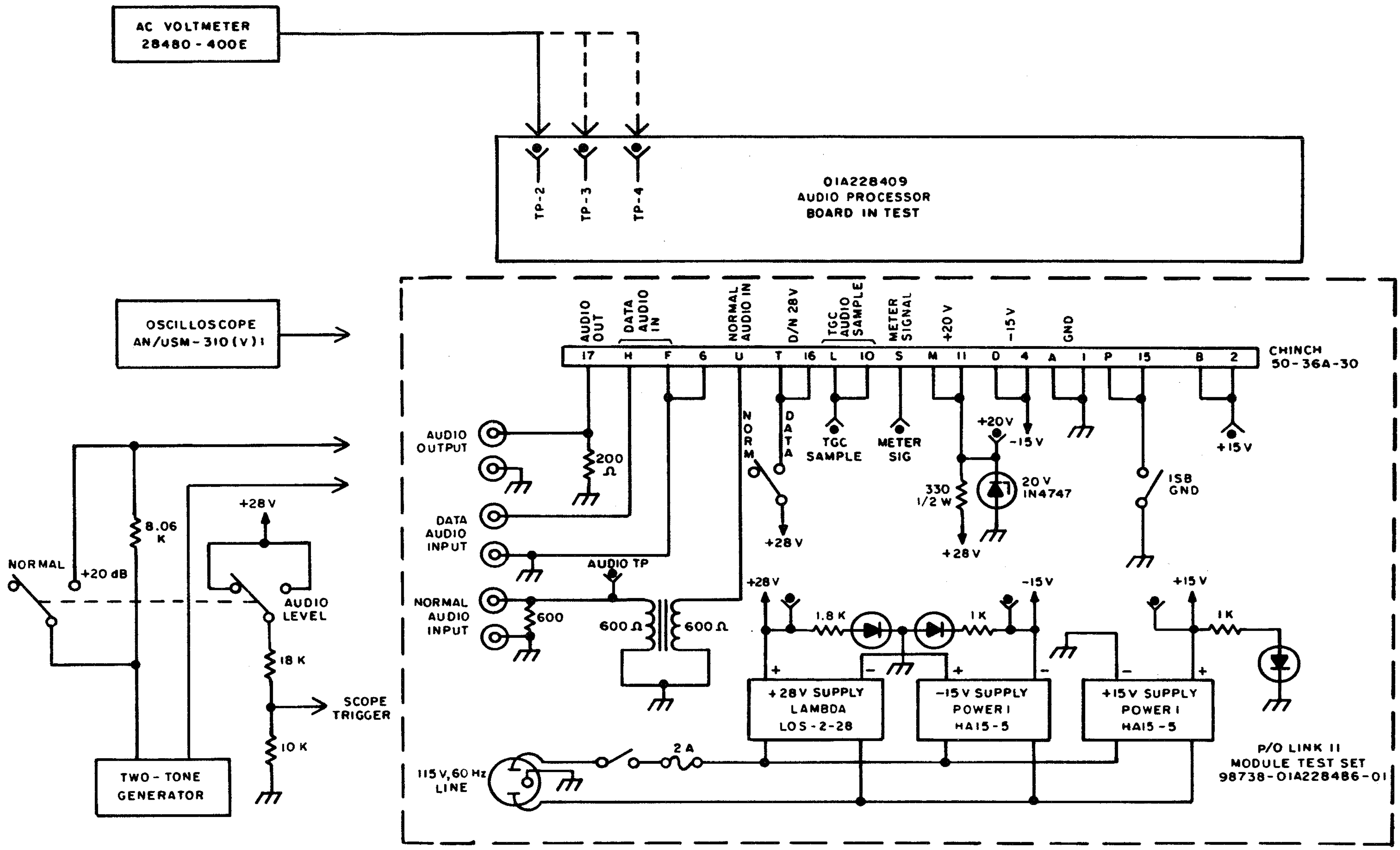
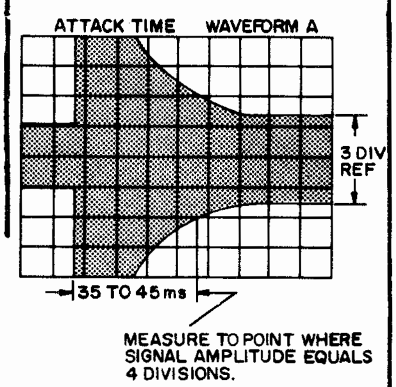


Figure 6-7. Audio Processor Assemblies A2A21A18 and A2A21A19, Adjustment and Alignment Bench Test Setup

Table 6-7. Audio Processors A2A21A18 and A2A21A19, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
2. Threshold Voltage Alignment (Cont.)	Two-Tone Generator 09553-TF-2005	b. Adjust OUTPUT LEVEL control A2A21A18R8 CCW until ac voltmeter indicates 100 mVrms.	100 mVrms
		c. Adjust THRESHOLD LEVEL control A2A21-A18R4 CCW until ac voltmeter indicates 80 mVrms, then adjust clockwise slowly for 100 ±2 mVrms indication.	100 mVrms
		d. Set test circuit AUDIO LEVEL switch to +20 dB. Adjust OUTPUT LEVEL control A2A21A18R8 CCW for 134 ±2 mV rms indication on true rms voltmeter.	134 ±2 mVrms
	NOTE Repeat steps c. and d., trimming the adjustment of A2A21A18R4 and A2A21A18R8 as necessary to obtain correct output for both positions of the AUDIO LEVEL switch.		
3. Attack Time Adjustment	Oscilloscope, Storage AN/USM-310(V)1 Two-Tone Generator 09533-TF-2005 AC Voltmeter 28480-400E	a. Set ATTACK control A2A21A18R11 approximately five (5) turns CCW, set test circuit AUDIO LEVEL switch at NORMAL, and set two-tone generator for 1000 Hz at 150 mV rms.	150 mV rms

Table 6-7. Audio Processors A2A21A18 and A2A21A19, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
3. Attack Time Adjustment (Cont.)		b. Set test circuit AUDIO LEVEL switch to +20 dB. Set oscilloscope controls for - dc trigger, 10 ms/cm sweep, and 3 cm p-p vertical deflection with recurrent sweep.	
		c. Set test circuit AUDIO LEVEL switch to NORMAL. Set oscilloscope for Single Sweep, External Trigger and storage mode.	
		d. Wait at least 10 seconds and set test circuit AUDIO LEVEL switch to +20 dB. Attack time as illustrated in Waveform A shall be 35 to 45 ms.	

NOTE

To measure attack time, set test circuit AUDIO LEVEL switch to NORMAL and allow at least 10 seconds before setting it to +20 dB.

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
		e. If the attack time measured in step d. is not 35 to 45 ms, adjust ATTACK control A2A21A18R11 slightly CCW to decrease (or CW to increase) attack time.	

Table 6-7. Audio Processors A2A21A18 and A2A21A19, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
3. Attack Time Adjustment (Cont.)		f. Repeat steps c., d. and e. until attack time is 35 to 45 ms.	35 to 45 ms.
		g. Set test circuit AUDIO LEVEL switch to +20 dB and adjust OUTPUT LEVEL control A2A21A18R8 as necessary to obtain 134 ±2 mVrms indication at A2A21-A18TP4.	134 ±2 mVrms.
4. Decay Time Adjustment	Same as Step 3.	a. Set test circuit AUDIO LEVEL switch to NORMAL. Set oscilloscope controls for -dc trigger, 9.5 sec/cm sweep, and 6.4 cm p-p vertical deflection with recurrent sweep.	
		b. Set DECAY control A2A21A18R14 approximately 5 turns CW.	
		c. Set test circuit AUDIO LEVEL switch to +20 dB. Set oscilloscope for single sweep, External Trigger and storage mode.	

Table 6-7. Audio Processors A2A21A18 and A2A21A19, Adjustment and Alignment Procedures (Continued)

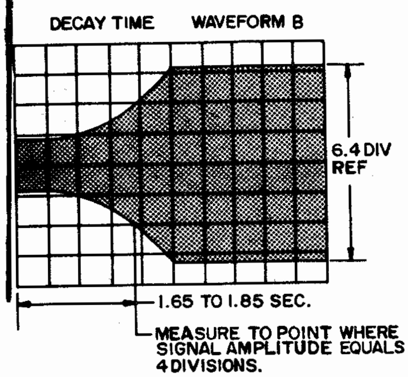
STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
4. Decay Time Adjustment (Cont).		d. Wait at least 10 seconds and set test circuit AUDIO LEVEL switch to NORMAL. Decay time as illustrated in Waveform B shall be 1.65 to 1.85 sec.	
		NOTE To measure decay time, set test circuit AUDIO LEVEL switch to +20 dB and allow at least 10 seconds before setting it to NORMAL.	
		e. If the decay time measured in step d. is not 1.65 to 1.85 seconds, adjust DECAY control A2-A21A18R14 slightly CW to increase (or CCW to decrease) decay time.	
		f. Repeat steps c., d. and e., until decay time is 1.65 to 1.85 seconds.	1.65 to 1.85 sec.
		g. Set test circuit AUDIO LEVEL switch to +20 dB and adjust OUTPUT LEVEL control A2A21A18R8 as necessary to obtain 134 ±2 mVrms indication at A2A21A18-TP4.	134 ±2 mVrms.
		h. Recheck Step 2.	

Table 6-7. Audio Processors A2A21A18 and A2A21A19, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
		NOTE All actions performed at T-827H/URT unless otherwise noted.	
5. Preliminary Procedure for Data Mode Adjustment and Alignment		a. Disconnect cable W5, if used, from connector 1A2A1J6 on rear of AM-3924C(P)/URT to prevent coupler control from requesting tune power. If the AN/URA-38( ) is used and cable W5 cannot be disconnected from connector 1A2A1J6, set the C-3698( )/URA-38 mode selector switch to MANUAL and ensure that the variable tuning elements are set away from the home and far end stop positions. b. Set T-827H/URT controls as follows: mode selector switch: OFF LOCAL/REMOTE switch: REMOTE LSB and USB line level switches: -10 DB DATA/NORMAL switch: NORMAL Frequency controls: 4.5550 MHz	

Table 6-7. Audio Processors A2A21A18 and A2A21A19, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
5. Preliminary Setup Procedures for Data Mode Adjustment and Alignment (Cont.)		c. Set AM-3924C(P)/URT controls as follows: PRIMARY POWER switch: OFF FREQUENCY MHz switch: AUTOMATIC LOCAL/TUNE KEY switch: NORMAL PWR control: Fully CCW Multipurpose meter function switch: PA PLATE	
6. USB AF Amplifier Gain Adjustment - Data Mode	Two-Tone Generator 09553-TF-2005 AC Voltmeter 28480-400E Oscilloscope AN/USM-281	a. Connect two-tone generator to the T-827H/URT DATA AUDIO IN connector 3A1A1J8, pins A and B. Set the T-827H/URT mode selector switch to USB. Adjust the two-tone generator output for 1300 Hz at 1.05 Vrms (+2.6 dBm). b. Connect the ac voltmeter to A2A21A18TP2. Adjust DATA AUDIO Control A2A21A18R33 for 1.05 Vrms. c. Adjust the two-tone generator for two tones: Tone A for 1300 Hz and Tone B for 1600 Hz. Each tone amplitude is adjusted for 1.05 Vrms (+2.6 dBm).	

Table 6-7. Audio Processors A2A21A18 and A2A21A19, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
6. USB AF Amplifier Gain Adjustment - Data Mode (Cont.)		d. Connect the oscilloscope to USB Audio Amplifier test point A2A21A18-TP3. Adjust the oscilloscope controls to measure a 9V peak to peak (P-P) two-tone waveform.	
		e. Adjust the CLIP LEVEL control A2A21A18R26 for a 9 V P-P two-tone audio waveform. The maximum peaks of the two-tone waveform may appear slightly flat indicating clipping action.	
		f. Connect the ac voltmeter to USB Audio Amplifier test point 3A2A21A18TP4. The voltage should measure 50 to 100 mVrms.	
		g. Disconnect the ac voltmeter and the oscilloscope from the USB Audio Amplifier test points.	
LSB AF Amplifier Gain Adjustment - Data Mode		h. Connect two-tone generator to the T-827H/URT DATA AUDIO IN connector 3A1A1J8, pins C and D. Set the T-827H/URT mode selector switch A2S2 to LSB. Adjust the two-tone generator output for 1300 Hz at 1.05 Vrms (+2.6 dBm).	

Table 6-7. Audio Processors A2A21A18 and A2A21A19, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
LSB AF Amplifier Gain Adjustment - Data Mode (Cont.)		i. Connect the ac voltmeter to A2A21A19TP2. Adjust DATA AUDIO control A2A21A19R33 for 1.05 Vrms. j. Adjust the two-tone generator for two-tones; Tone A for 1300 Hz and Tone B for 1600 Hz. Each tone amplitude is adjusted for 1.05 Vrms (+2.6 dBm). k. Connect the oscilloscope to LSB Audio Amplifier test point A2A21A19TP3. Adjust the oscilloscope control to measure a 9V peak to peak (P-P) two-tone waveform. l. Adjust the CLIP LEVEL control A2A21A19R26 for a 9 V P-P two-tone audio waveform. The maximum peaks of the two-tone waveform may appear slightly flat, indicating clipping action. m. Connect the ac voltmeter to USB Audio Amplifier test point 3A2A21A19-TP4. The voltage should measure 50 to 100 mVrms.	

Table 6-7. Audio Processors A2A21A18 and A2A21A19, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
LSB AF Amplifier Gain Adjustment - Data Mode (Cont.)		n. Disconnect the ac voltmeter and the oscilloscope from the LSB Audio Amplifier test points. Disconnect the two-tone generator from connector 3A1A1J8. Reconnect cable W5, if used, to AM-3924C/URT rear case connector 1A2A1J6.	

SECTION II

REPAIR

WARNING

Lethal voltages are present within the T-827H/URT chassis. Determine that equipment is fully deenergized, and that primary power is secured at the bulkhead distribution point. Refer to NAVSHIPS 0967-LP-000-0100, Section III, Electronic Installation Maintenance Book - General, before continuing.

6-12. GENERAL.

6-13. This section contains instructions for the repair of assemblies and subassemblies of Radio Transmitter T-827H/URT. Instructions include removel, disassembly, inspection, replacement of parts, cleaning, reinstallation, adjustment, and checkout. Where applicable, illustrations in Chapter 7 are referenced for parts locations.

NOTE

The following assemblies are to be repaired at depot only: Mode Selector A2A1, RF Amplifier A2A4, Frequency Standard A2A5, Translator/Synthesizer A2A6, RATT Tone Generator A2A9, IF Amplifier A2A12, Audio Processors A2A21A18 and A2A21A19, and Audio Control A2A21A20.

6-14. INSPECTION. Inspect removed assemblies, subassemblies and parts in accordance with the criteria listed in table 6-8.

6-15. REPAIR METHODS. After a malfunction has been traced to a specific assembly or subassembly, repair can, in most instances, be effected by replacement of the defective component part. Disassembly shall be only to the extent required for access to the part to be replaced.

6-16. WIRE, CABLE, AND CONNECTORS. RF Connectors on assemblies A2A1, A2A4, A2A5, A2A6 and A2A12, associated mating connectors on the main frame, and main frame connectors A1P2 and A2J22 are repairable. Repair of these connectors consists of removal and replacement of the rf inserts. Connectors within the Translator/Synthesizer are repairable only to the extent that rf inserts are replaceable. To repair a connector, proceed as follows:

1. To replace a connector rf insert (crimp type) on flexible coax:
   a. Using extractor tool 91146-CET-C6B, remove rf insert from the connector.
   b. Cut coaxial cable as close as possible to shell of rf insert; it may be necessary to cut through cable marker.
   c. Prepare the cable for insertion into a new rf insert by removing 7/16 inch of the outer jacket, cutting the shields 1/4 inch from the center conductor, and tinning the center conductor.
   d. Slip the metal sleeve (part of the rf insert) over the cable.
   e. Insert the center conductor into the tube of the rf insert until the stripped portion rests in the channel at the center of the insert. Solder center conductor into place using SN60WRMAP solder.

NOTE

It may be necessary to flare the ends of the shields to permit them to slide over the outside of the tube.

   f. Solder the metal cap (part of the rf insert) into place.
   g. Slide the metal sleeve toward the body of the rf insert as far as possible. The braided shields will then be held in place around the tube by the sleeve.
   h. Crimp the sleeve using M22910/7-1 tool with 80920-612971 die.
2. To replace a connector rf insert (solder type) on flexible cable:

Table 6-8. Inspection Requirements for Radio Transmitter T-827H/URT

ITEM	CHECK FOR	CORRECTIVE ACTION
	Case A1	
Case	Cracks	Replace case.
	Dents	Replace case if dents are large. Small dents can be hammered out after removing chassis.
	Chipped paint, interior and exterior	Touch up interior with lusterless enamel, color black No. 37038 of FED-STD-595. Allow 8 hours drying time. Touch up exterior with gray semi-gloss enamel per MIL-E-15090, Class 2, Type III.
External connectors	Cracks; bent or missing pins	Replace cracked connector. Straighten bent pins.
Internal cabling and wiring	Broken conductors; scraped insulation	Replace defective cables.
Drawer slides	Bends; loose or missing hardware	Replace bent slide. Tighten loose hardware. Replace missing hardware.
	Main Frame A2	
Front panel	Cracked or loose control knobs	Replace cracked knobs. Tighten loose knobs.
	Jack cover springs	Replace jack cover assembly if spring broken.
Main frame, top	Cracked plug-in connectors	Replace.
	Broken or loose tuning couplers	Replace if damaged. Tighten if loose.
Main frame, bottom	Broken wires	Replace.
	Loose tuning drive chains	Tighten per paragraph 6-10.
	Worn tuning drive chains	Replace.
	Worn gears; gears with broken or bent teeth	Replace.

Table 6-8. Inspection Requirements for Radio Transmitter T-827H/URT (Continued)

ITEM	CHECK FOR	CORRECTIVE ACTION
	Main Frame A2 (Cont.)	
Main Frame, bottom (Cont.)	Loose screws and hardware on gear assemblies	Tighten.
	Loose screws and hardware on plug-in connectors	Tighten.
	Bent or broken detent springs on dual and triple sprocket assemblies	Replace.
	Leaking electrolytic capacitors	Replace.
	Burned components	Determine cause, correct fault, and replace.
	NOTE All T-827H/URT plug-in assemblies are designated as depot repairable. Organizational level corrective action is limited to replacement of the defective plug-in assembly.	
Assemblies	Damaged connectors	Straighten pins. Replace if necessary.
	Dented dust covers	Straighten if possible, otherwise replace.
	Burned components	Determine cause, correct fault, and replace.
	Leaking electrolytic capacitors	Replace.
	Damaged printed wiring boards	Replace printed wiring board assembly.
	Damaged printed conductors	Repair per paragraph 6-17.
	Broken or loose internal wiring	Replace or repair as required.

Table 6-8. Inspection Requirements for Radio Transmitter T-827H/URT (Continued)

ITEM	CHECK FOR	CORRECTIVE ACTION
	Main Frame A2 (Cont.)	
Assemblies	Loose or missing hardware	Tighten or replace, as required.
	Broken or loose tuning couplers (A2A4 and A2A6 only)	Replace if damaged. Tighten if loose.

a. Perform steps 1a. through 1g. above.

b. Solder the sleeve to the body of the insert, using SN60WRMAP solder and a 42 watt iron. Be sure that solder enters the hole in the sleeve to achieve a solder joint between the sleeve and the cable shield.

3. To replace a connector RF insert on semi-rigid coax:

a. Using extractor tool 91146-CET-C6B, remove the RF inserts from connectors at both ends of the cable.

b. With a sharp knife cut off the heat shrink marker from the end of the coax undergoing repair.

c. Remove the end cover from the connector by melting the solder, wicking or sucking the solder out and lifting the edge of the cover with the point of sharp knife.

d. Remove the solder from the connection of the coax center wire to the connector center pin.

e. Heat the connection between the coax shield and the connector and withdraw the coax.

f. Slip a new piece of heat shrink tubing over the end of the coax and push the coax into the new connector insert.

g. Rotate the insert to the proper orientation and solder the center wire, the coax shield, and the end cover, respectively, to the insert.

h. Slide the new tubing into position and shrink in place.

6-17. PRINTED WIRING CONDUCTORS. Cracked or broken conductors on printed wiring boards are repairable. To repair, proceed as follows:

1. Remove the coating (if present) from conductor a distance of about 1/4 inch either side of the break, using a 42-watt chisel tip soldering iron. The heat of the soldering iron will soften the coating to facilitate removal.
2. When coating has been removed, clean the conductor by scraping with a sharp blade.
3. Tin the cleaned section using SN60WRMAP solder.
4. Lay a piece of bare solid copper wire AWG 20 (smaller, if necessary) about 1/2 inch long on the tinned conductor, and solder into place with SN60WRMAP solder.
5. Coat the repaired section with protective coating type ER per MIL-I-46048 if repairing a coated board.

6-18. COMPONENT REPLACEMENT. To remove and replace a component on a printed circuit board, proceed as follows:

1. Cut component leads close to printed circuit board.
2. Remove component; do not force component from printed circuit board. If necessary, use a 42 watt (maximum) soldering iron to soften coating around component sufficiently to enable removal of component.
3. Unsolder cut leads from printed circuit board using a solder wick or a solder sucker.
4. Install new component on printed circuit board and solder in place with SN60WRMAP solder using heat sinks on component leads.
5. Coat Component and immediate area around component with protective coating type ER per MIL-I-46058 if repairing a coated board.

6-19. CLEANING. After removing covers from assemblies, clean the interiors with a stream of dry air not exceeding 15 psig. The main frame and hard wired assemblies attached thereto may be cleaned in the same manner. Contact pins on connectors and vacuum tubes may be cleaned with trichloroethane per Federal Specification 0-T-620. Apply with a soft brush or lint-free cloth. Allow cleaned parts to dry in a dust free location.

6-20. <u>TRANSMITTER CASE A1.</u>

6-21. GENERAL. Repair of Transmitter Case A1 is accomplished at organizational level.

6-22. REMOVAL. Main Frame A2 must be removed from the case for access to the interior of the case. To remove the main frame from the case, proceed as follows:

1. Set mode selector switch A2S2 to OFF, and disable primary power at bulkhead distribution point.

CAUTION

Hand guide cable at rear of main frame over front edge of case when tilting chassis to vertical position.

2. Loosen front panel screws and pull main frame forward. Release latches and tilt main frame upward to expose bottom.

3. Remove attaching hardware (including cable harness clamp A2MP84, figure 7-4B) and disconnect A1P1/A1P2 from A2J21/A2J22.

4. Return main frame to horizontal position.

5. Release right and left forward limiters on drawer slides and pull main frame forward about one inch.

CAUTION

Main frame weighs approximately 70 pounds. Be prepared to handle this weight before pulling main frame free of case.

6. Pull main frame forward until clear of case and drawer slides and place on bench.

6-23. DISASSEMBLY. After the main frame has been removed, further disassembly of the case is not required since all parts are accessible for replacement. If the Filter Box Assembly A1A1 requires removal for replacement of a capacitor, remove external cables and disconnect external hardware which fastens connectors A1A1J3, A1A1J4, A1A1J5, A1A1J6, A1A1J7, A1A1J8, A1A1J23, A1A1J24 and A1A1J25 to the case. Remove hardware securing three cable clamps to the rear of the case and the two rearmost cable clamps on the side of the case. Remove hardware securing one cable clamp to the top of the case. Remove eight nuts, lockwashers and flat washers securing the metal cable guide to the top of the case and remove the cable guide. Pull the filter box forward as necessary for accessability. Remove fourteen flathead screws securing cover to the filter box and lift away cover.

6-24. INSPECTION. In addition to the inspection criteria listed in table 6-8, inspect the case for dents and check drawer slides for smooth operation.

6-25. REPAIR. Repair is accomplished by replacement of defective parts. After replacing interlock switch A1S2, connect an ohmmeter to the switch terminals and observe the ohmmeter for indication of proper opening and closing while operating the interlock plunger. Adjust the switch position if necessary.

6-26. CLEANING. Clean the interior of the case by the applicable methods of paragraph 6-19.

6-27. REASSEMBLY AND INSTALLATION. Reassembly of the filter box and cable/connector hardware is accomplished by following the procedures of paragraph 6-23 in reverse order. To install Main Frame A2 in the case, proceed as follows:

1. Mate the chassis sections of the drawer slides with the cabinet sections, and push main frame toward the case until limiters engage.

2. Release latches and tilt Main Frame A2 90 degrees to expose bottom.

3. Connect A1P1/A1P2 to A2J21/A2J22. Fasten connectors with hardware removed at disassembly.

4. Return main frame to horizontal position and slide into case. Fasten with front panel screws.

6-28. ADJUSTMENT. No adjustment is required other than proper positioning of interlock switch A2S2 (paragraph 6-25).

6-29. CHECKOUT. Reconnect any external cabling disconnected during disassembly and perform the maintenance turn-on procedures of table 5-5.

6-30. TRANSMITTER MAIN FRAME A2 AND HARD WIRED ASSEMBLIES.

6-31. GENERAL. The Main Frame A2 and its hard wired assemblies are repairable at organizational level. If necessary to remove a plug-in assembly for access to a connector or mechanical part, such as tuning couplers, refer to the paragraph(s) describing removal of the specific assembly(ies).

6-32. REMOVAL. Generally, repairs to the Main Frame A2 can be made by withdrawing A2 from the Case A1 on the drawer slides and tilting A2 90 degrees upward to expose the bottom or downward to expose the top, as required. However, if necessary to remove A2 from A1, perform removal procedures given in paragraph 6-22.

6-33. DISASSEMBLY. Disassembly of the Main Frame A2 consists of removal of plug-in assemblies, removal of hard wired assemblies for replacement or repair, removal of the chain drive and sprocket assemblies for replacement or repair, and removal of plug-in connectors for replacement. Do not disassemble Main Frame A2 beyond the requirement of the specific repair task to be performed.

6-34. HARD WIRED ASSEMBLIES. The following hard wired assemblies are removable: Power Supply A2A8, Meter Amplifiers A2A10 and A2A11, Handset Filter A2A14, IF Filter A2A15, and Interconnect Circuit Card Assembly A2A21.

1. To remove Power Supply Assembly A2A8 (figure 1-3):

a. Set mode selector switch A2S2 to OFF, and disconnect primary power at bulkhead distribution point.

b. Loosen six captive screws on front panel and slide main frame out from case until slides lock.

CAUTION

Hand guide cable at rear of main frame over the front edge of case when tilting chassis to vertical position.

c. Release latches and tilt chassis up to expose bottom. Be sure latches engage at 90 degree position.

d. Remove four flat-head machine screws which fasten protective plate (A2MP-80, figure 7-4A) covering Power Supply Assembly A2A8, and lift protective plate from chassis.

e. Unscrew four hexagon spacers (A2MP76 through A2MP79, figure 7-4A) which hold A2A8.

f. Remove one nut which fastens ground strap lug to main frame.

g. Swing assembly aside to expose soldered leads.

h. Unsolder and tag leads for identification.

i. Remove assembly from main frame.

2. To remove Meter Amplifier Assembly A2A10 or A2A11 (Figure 1-2):

a. Perform steps 1.a and 1.b, above.

b. Remove bracket MP83 to expose A10/A11.

c. Remove two machine screws which hold the assembly.

d. Perform steps 1.g through 1.i above.

3. To remove Handset Filter Assembly A2A14 (figure 1-2):

a. Perform steps 1.a and 1.b above.

b. Remove two machine screws from right hand side of front panel HANDSET jack.

c. Perform steps 1.h and 1.i, above.

4. To remove IF Filter Assembly A2A15 (figure 1-3):

a. Perform steps 1.a through 1.c, above.

b. Remove two machine screws which fasten printed wiring board to mounting posts (A2A15-MP1, MP2, figure 7-81).

c. Perform steps 1.h and 1.i, above.

5. To remove interconnect Circuit Card Assembly A2A21 (figure 1-3):

a. Perform steps 1.a and 1.b above.

b. Remove cover of A2A21 assembly.

c. Remove circuit cards A2A21A18, A2A21A19, and A2A21A20.

d. Remove the six screws holding connectors A2A21XA18, A2A21XA19, and A2A21XA20 to the chassis.

CAUTION

Hand guide cable at rear of main frame over the front edge of case when tilting chassis to vertical position.

e. Release latches on chassis slides, and tilt chassis up to expose bottom. Be sure latches engage at 90 degree position.

f. Unsolder and tag all leads connected to the A2A21 assembly.

g. Remove two screws holding the A2A21 assembly to the chassis.

h. Remove assembly from chassis.

6-35. TUNING CHAIN-DRIVE MECHANISM. To remove drive chains and sprocket assemblies, proceed as follows:

1. Set mode selector switch A2S2 to OFF, and disable primary power at bulkhead distribution point.
2. Loosen six captive screws on front panel and slide main frame from case until slides lock.
3. Remove RF Amplifier Assembly A2A4 (paragraph 6-58) and Translator/Synthesizer Assembly A2A6 (paragraph 6-79) from main frame.

CAUTION

Hand guide cable at rear of main frame over front edge of case when tilting main frame to vertical position.

4. Release latches and tilt main frame up to expose bottom. Be sure latches engage at 90 degree position.
5. Loosen idler block (A2MP10, A2MP11, A2MP12 of figure 7-4B) associated with the chain to be removed.
6. If the chain is metal, locate keeper clip on chain and remove clip. If chain is plastic/wire, cut through it with wire cutters.
7. Carefully remove chain from sprockets. Proceed with the following step if replacement chain will be plastic/wire. Replacement with metal chain does not require performance of step 8.
8. Remove four nuts which fasten the associated sprocket assembly (A2MP9 and/or A2MP8 of figure 7-4B) to main frame. Lift out sprocket assembly. To disassemble a sprocket assembly (figures 7-5, 7-6):
   a. Remove two retaining rings located inside assembly housing and secured around shaft.
   b. Loosen the coupler hub-clamp setscrew and punch out the shaft from end opposite coupler.
   c. Separate parts of assembly as parts clear the shaft.

NOTE

Always note the position of all shims adjacent to the retaining rings; shims must be reinserted in the same position at reassembly.

6-36. INSPECTION. Inspect Main Frame A2 and any removed hard wired assembly in accordance with the applicable portion of table 6-8.

6-37. REPAIR. Except for sprocket assemblies, repair is accomplished by replacement of defective parts, all of which are accessible. To repair sprocket assemblies, proceed as follows:

1. Wipe all disassembled parts with a dry, lint-free cloth.
2. Inspect all parts for damage and replace as required.
3. Replace metal springs which provide tension between associated parts.
4. If shaft is scored, replace both coupler and shaft.
5. Replace detent springs if bent.
6. Replace hub clamp if it was evident during equipment operation that proper clamping action was not being maintained.

6-38. CLEANING. Refer to paragraph 6-19 for cleaning methods and materials. Clean removed parts and main frame before reassembly.

6-39. REASSEMBLY. Reassembly consists of installation of hard wired assemblies, sprocket assemblies, and drive chains.

6-40. HARD WIRED ASSEMBLIES. Whenever hard wired assemblies are being installed, the primary power shall be disabled at the bulkhead distribution point. For steps 1 and 4 below, it is necessary to tilt the main frame 90 degrees to expose bottom. The main frame need not be tilted for steps 2 and 3.

1. To install Power Supply Assembly A2A8 (figure 1-3):
   a. Solder leads to assembly as tagged when removed.
   b. Swing assembly into place and fasten with four hexagon spacers (A2MP76 through A2MP79, figure 7-4A), and secure ground strap to main frame with nut originally removed.

c. Hold protective plate (A2MP80) in place and fasten into place with four flathead machine screws originally removed.

2. To install Meter Amplifier Assembly A2A10 or A2A11 (figure 1-2):

a. Solder leads to assembly.

b. Swing assembly into place and fasten with two machine screws originally removed.

c. Reinstall bracket MP83.

3. To install Handset Filter Assembly A2A14 (figure 1-2):

a. Solder leads to assembly.

b. Swing assembly into place and fasten with two machine screws originally removed.

4. To install IF Filter Assembly A2A15 (figure 1-3):

a. Solder leads to assembly.

b. Fasten assembly into place with hardware originally removed.

6-41. TUNING CHAIN-DRIVE MECHANISM. Proceed with the following four steps if reassembly of tuning chain-drive mechanism involves plastic/wire chain. Otherwise go to step 5.

1. When reassembling sprocket assemblies (figures 7-5, 7-6) use new retaining rings in place of those which were removed. Reinsert shims in the same positions from which removed. Install plastic-wire chain over sprockets before assembling sprocket and shaft casting.

NOTE

End play in the shafts shall be less than 0.025 inch. Add or remove shims as required.

2. Secure each sprocket assembly into position with four nuts.

3. Pass drive chain(s) over appropriate open drive sprocket (A2MP8 and/or A2MP9) and idler sprocket (A2MP10A, A2MP11A, or A2MP12A). Refer to figure 7-4B and table 7-2 to determine which chain is appropriate for each application.

4. Adjust in accordance with paragraph 6-43. Proceed with the following steps if reassembly of tuning chain-drive mechanism involves metal chain.

5. Thread drive chain(s) onto gears.

6. Fasten ends of each chain together using keeper clip.

7. Tighten idler block loosened in step 6-35(5).

6-42. INSTALLATION. If Main Frame A2 was removed from Case A1 for repair purposes, perform paragraph 6-27 to install A2.

6-43. ADJUSTMENTS. After repairs on chain drive tuning mechanism, perform drive chain and coupler adjustments of paragraph 6-10 and 6-11. After repairs on Power Supply A2A8, perform adjustment of table 6-1, step 3. Adjustment or alignment is not required after repair and installation of the following subassemblies: Meter Amplifiers A2A10 and A2A11, Handset Filter A2A14, and IF Filter A2A15.

6-44. CHECKOUT. Perform the maintenance turn-on procedures of table 5-5 to check out Radio Transmitter T827H/URT.

6-45. MODE SELECTOR ASSEMBLY A2A1.

6-46. GENERAL. Mode Selector Assembly A2A1 is repairable at depot only; organizational level repair is limited to removal and replacement of A2A1.

6-47. REMOVAL. The location of the Mode Selector Assembly A2A1 is shown in figure 1-2. To remove the assembly:

1. Set mode selector switch A2S2 to OFF position.

2. Loosen six front panel screws and pull Main Frame A2 from Case A1 until slides lock.

3. Loosen two captive screws securing A2A1 to the main frame.

4. Gently pull Mode Selector Assembly A2A1 upward using captive screws as handles.

6-48. DISASSEMBLY. Disassemble Mode Selector Assembly A2A1 only to the extent necessary to gain access to a defective component requiring replacement. To disassemble A2A1 proceed as follows:

1. To remove cover (A2A1MP1, figure 7-8):

a. Remove two screws, at top of assembly, securing cover.

b. Lift cover off assembly.

2. To remove Balanced Modulator Subassemblies A2A1A1 and A2A1A2, Isolation Amplifier Subassembly A2A1A3, 500 kHz Gates Subassembly A2A1A4, or Buffer Assembly A2A1A5:

a. Remove screws and associated washers securing subassembly.

b. Swing subassembly aside and note placement of all leads for reassembly. Unsolder and tag wires for identification at reassembly.

c. Lift out subassembly.

3. Removal of other parts is obvious by visual inspection.

6-49. INSPECTION. Inspect Mode Selector Assembly A2A1 and subassemblies in accordance with the applicable portions of table 6-8.

6-50. REPAIR. Make necessary repairs in accordance with inspections given in paragraphs 6-15 through 6-18.

6-51. CLEANING. Clean parts and subassemblies of Mode Selector Assembly A2A1 in accordance with the applicable portions of paragraph 6-19.

6-52. REASSEMBLY. To reassemble Mode Selector Assembly A2A1, reverse the disassembly procedure. Be sure to dress subassembly leads in the same positions as they were before removal of the subassembly, and do not install cover until the procedures described in paragraph 6-53 have been performed.

6-53. ADJUSTMENT. Perform the adjustment and alignment procedures of table 6-2; completion of the procedures in table 6-2 satisfies the requirement for checkout.

6-54. INSTALLATION. To install Mode Selector Assembly A2A1 in Main Frame A2:

1. Turn captive screws counterclockwise until held by Mode Selector Assembly A2A1 chassis.

2. Install Mode Selector Assembly A2A1 in the main frame in the position shown in figure 1-2.

3. Press down gently on Mode Selector Assembly A2A1 to mate connectors on assembly with connectors on main frame.

4. Secure Mode Selector Assembly A2A1 in place with captive screws.

NOTE

After installation, adjust AM carrier amplitude and USB and LSB carrier suppression as instructed in table 6-1, step 7, and check overall performance of Radio Transmitter T-827H/URT in accordance with table 5-5.

6-55. RF AMPLIFIER ASSEMBLY A2A4.

6-56. GENERAL. Organizational repair of RF Amplifier Assembly A2A4 is limited to replacement of vacuum tubes A2A4V1 and A2A4V2, or replacement of A2A4 as a unit. Further repair and adjustment is made only at depot.

6-57. VACUUM TUBE REMOVAL AND REPLACEMENT. To remove and replace either of vacuum tubes A2A4V1 or A2A4V2 proceed as follows:

1. Set mode selector switch to OFF, loosen front panel captive screws, and extend chassis from case.

2. Reach through the slot in the RF Amplifier Assembly cover and pull the tube shield upward from the tube to be replaced.

3. Using tube puller, reach through the slot and remove the tube from its socket.

4. Hold replacement tube with pins oriented to mate with socket.

5. Insert tube through slot and push downward to seat tube properly.

6. Reinstall tube shield, slide chassis into case, and secure using front panel screws.

6-58. REMOVAL. To remove the RF Amplifier Assembly A2A4:

1. Set mode selector switch A2S2 to OFF position.

2. Loosen six front panel screws and pull Main Frame A2 from Case A1 until slides lock.

3. Loosen four captive screws, one at each corner of the assembly.

4. Lift assembly gently from the main frame using captive screws as handles.

6-59. DISASSEMBLY. Do not disassemble RF Amplifier Assembly A2A4 further than required for access to parts to be repaired or replaced. The major parts to be disassembled are illustrated in figures 6-8, 6-9, and 6-10. For further detailed information see figures 7-13 through 7-56 and the parts list, table 7-2. To disassemble the RF Amplifier Assembly:

1. With the assembly placed on a work bench, remove the six dust-cover screws and lift off cover (A2A4MP5, figure 7-13). Lift the white teflon ring from the slot between the top plate and top turret ring assemblies.
2. Remove the four captive screws which secure the assembly to the main frame.
3. Loosen the three screws securing the turret assembly drive motor A2A4B1 to the base. Slide motor to one side to disengage motor gear assembly from the turret drive gear. Secure motor in this position.
4. Rotate the complete turret assembly until the contacts of adjacent megahertz subassemblies are located at either side of the contacts of the outer stator contact strips attached to the rf section. One set of the three outer contact strips (identified by a small green rectangle) is located on the right of test point A2A4TP4 near the outer edge of the top plate as depicted in Figure 7-13. The actual contacts are visible under the green rectangle (as viewed obliquely through the slot from which the teflon ring was removed). Hold the turret assembly in this position and remove the four screws securing top turret ring. Carefully lift off ring and remove all megahertz subassemblies. It may be necessary to rotate the turret slightly when removing the megahertz subassemblies near or in contact with the outer stator contacts.
5. Remove the two screws securing connector A2A4P2 to base.
6. Loosen setscrews on each of the couplers MP62 and MP63 (on bottom of base). Heat couples with heavy soldering iron to break loctite seal. Use long nose pliers at coupler hub to slide each coupler from rotor shaft.
7. Carefully remove the locating pin from each shaft. Grip with pliers. Turn and pull gently until clear.
8. Remove the three screws and washers securing the rf chassis to the base (refer to figure 6-9).
9. Remove the screw and washer securing support post to base.
10. Remove nut and washer securing ground strap for A2A4P2A5. This is located opposite motor relay.

6-60. To remove 100/10 kHz turret assembly, rf chassis, and top plate:

CAUTION

Hold the 100/10 kHz turret assembly and rf chassis together with rubber bands to avoid damaging contacts and wafers. Do not move or separate sections until the combined sections have been placed on a workbench.

NOTE

Do not remove the turret gear assembly from the base except specifically for replacing assembly or block brushes. Each time the gear assembly is removed, the brushes are exposed to dirt as well as possible damage.

1. While holding the base, begin lifting the top plate. When the two sections have cleared the base, lift them with both hands and place them on the bench. Note washers at shaft holes.
2. Remove the screw securing the support post to top plate and remove post.
3. Unsolder wires connecting A2A4TP3 and A2A4TP4 (ground test point). Remove the three screws securing rf chassis to top plate, and carefully separate the top plate from the rf chassis 100/10 kHz turret assembly and turret drive gear assembly. Now separate the turret drive gear assembly from the 100/10 kHz turret assembly. Carefully separate the 100/10 kHz turret assembly from inside stator strips on rf chassis.
4. To disassemble rf chassis (see figure 6-10):
   a. Remove the top tube shields and tubes A2A4V1 and A2A4V2.
   b. Remove three screws and washers securing RF Mixer Amplifier Subassembly A2A4A38 to rf chassis and pull A2A4A38

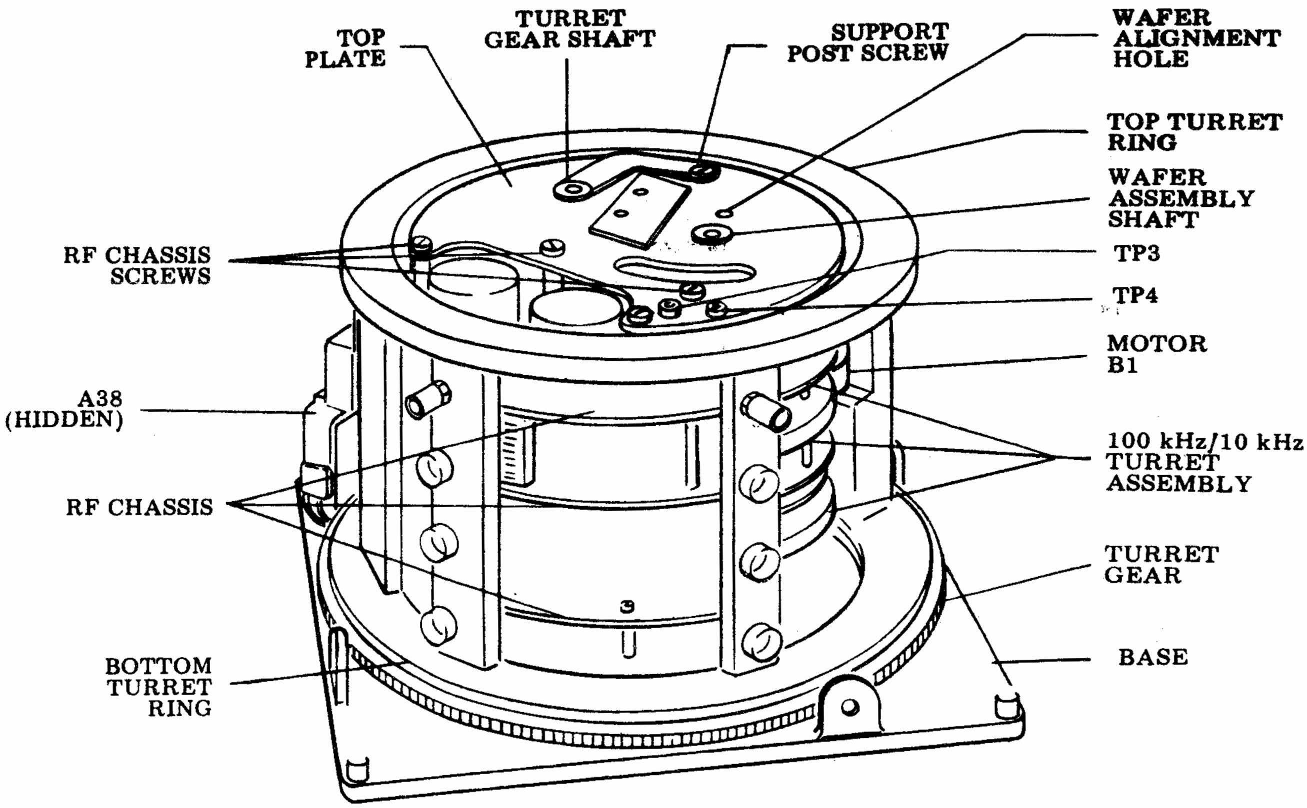


Figure 6-8. RF Amplifier Assembly A2A4, Disassembly Parts Identification

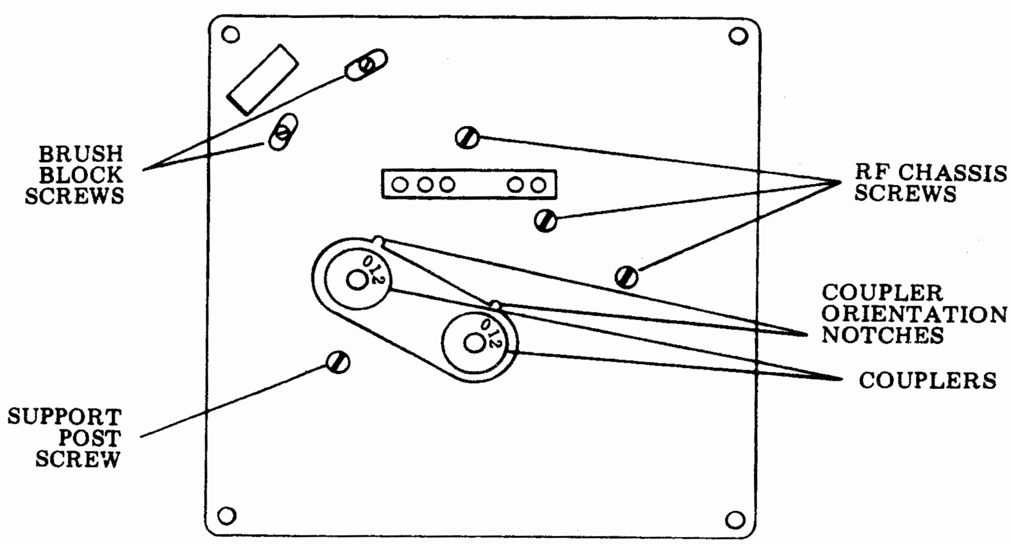


Figure 6-9. RF Amplifier Assembly A2A4, Bottom View, Disassembly Screw Locations

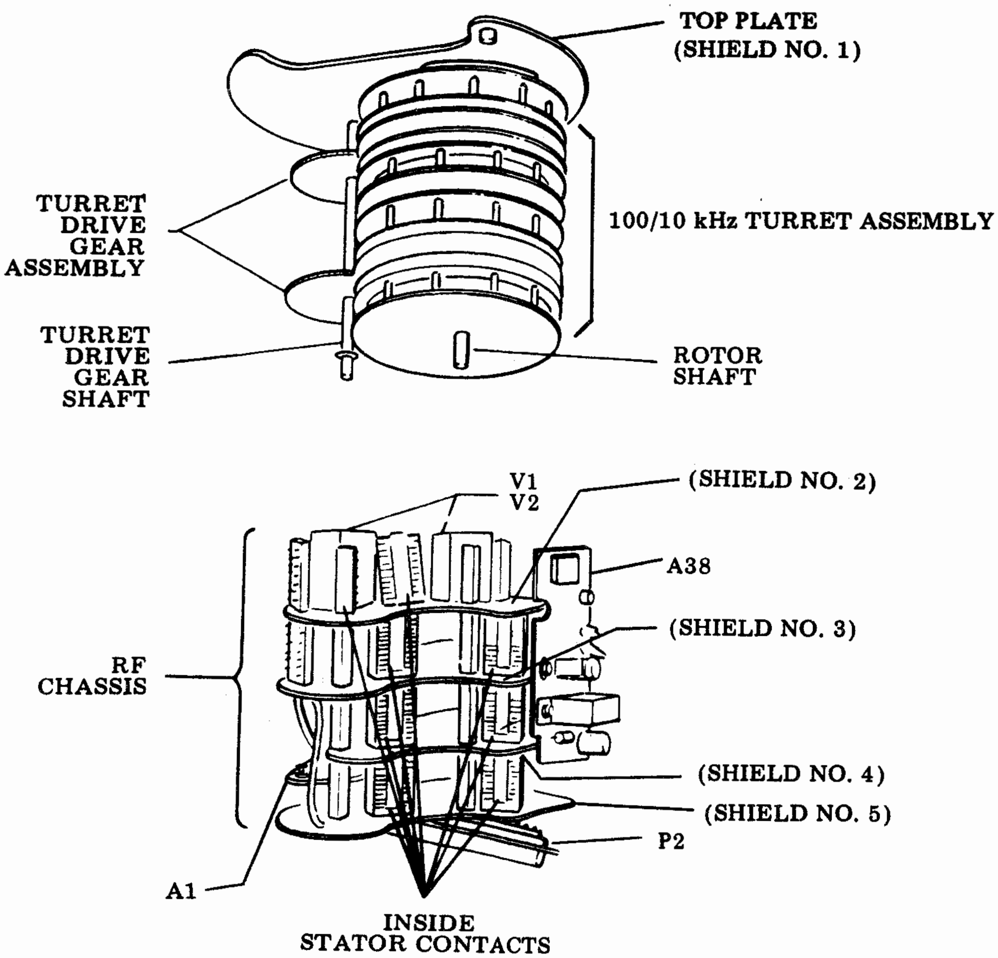


Figure 6-10. RF Amplifier Assembly A2A4, RF Chassis and Turret Assembly, Disassembly Parts Location

with rear shield slightly away from mounting brackets.

c. Tag and unsolder wires to free A2A4A38 for complete removal. Separate shield from A2A4A38, taking care not to break the wire passing through shield.

d. Remove two screws and washers which fasten A2A4A1 in place, unsolder and tag leads, and remove A2A4A1. Individual components on A2A4A1 are accessible for replacement without removing A2A4A1. Unsolder and replace as necessary.

e. Starting from top, separate shields of rf chassis by unscrewing spacers between shields 2, 3, and 5, and unsoldering interconnecting wires. Do not disassemble unless the component to be replaced is not accessible without disassembly. If bottom shield is to be removed or replaced, remove two screws securing RF Amplifier Subassembly A2A4A1, and unsolder and tag wires as necessary to free the board.

5. To disassemble the 100/10 kHz turret assembly:

NOTE

Do not disassemble 100/10 kHz turret assembly unless a component on the assembly is to be replaced. Remove only those parts necessary to replace the component.

a. Remove the E-ring from the bottom of the shaft.

b. Remove the top and bottom rotor assemblies by driving out the roll pin from each assembly.

CAUTION

Special care must be taken not to bend shaft when removing roll pins. Brace shaft at points where pins are to be removed.

c. Remove the next upper and lower gear rotor assemblies by removing the E-ring located on either side of each assembly on the turret shaft (there are six rings).

d. Remove the center rotor assembly by driving out the roll pin (located in the hub).

6. To remove gears from the turret drive gear assembly (figure 6-10):

a. Drive out the roll pin from each gear.

b. Slide gears from shaft. The bottom gear can be removed easily by removing the E-ring, and sliding from bottom of shaft.

NOTE

Removal of gears from shaft is not necessary if gears are intact and not in need of replacement. However, the E-ring at base of shaft must be removed to facilitate later reassembly procedures. See paragraph 6-64, step 12.

7. To remove turret gear from base:

a. Remove six screws and washers securing bearing retainers to base.

NOTE

Screw next to motor relay is longer than the other five.

b. Remove six bearing retainers.

CAUTION

When handling turret gear assembly be extremely careful not to scratch or otherwise damage the surface of the code ring. Always place the gear on bench with the code ring facing upward.

c. Carefully lift the turret gear assembly with bottom turret ring from base.

d. Remove the four nuts securing bottom ring to turret gear assembly and lift off turret ring. Note the locating pin between A24 and A25 positions on the ring. Separate ring bearing from gear.

e. Remove the four turret posts only if necessary. To remove, unscrew each post.

NOTE

Do not remove brush block assembly (A2A4MP31, figure 7-14) from base unless the brushes are to be replaced.

8. To remove brush block:

a. Remove two screws securing

brush block assembly to base.

b. Unsolder the six code leads (five at P1 and one at the motor relay).

6-61. INSPECTION. Inspect all disassembled parts of the RF Amplifier Assembly A2A4 in accordance with the applicable portions of table 6-8 and the following:

1. Inspect stator contact strips. Replace if badly bent and cannot be straightened to accept tabs properly.

NOTE

All contacts should close with sufficient tension to ensure proper electrical contact.

2. Inspect code ring on underside of gear assembly. Replace gear if code ring is broken or scratched to the extent that continuity is broken. To inspect code ring, rotate gear assembly while observing through brush block openings. It is not necessary to remove gear assembly from base for inspection.

3. Inspect brush blocks. Replace if contacts are badly bent or if visibly worn or chipped.

4. Inspect tube sockets. Replace damaged sockets.

6-62. REPAIR. Make necessary repairs in accordance with instructions given in paragraphs 6-15 through 6-18. Do not repair turret motor, motor relay, or tube socket assemblies if known to be defective. Replace as complete units.

6-63. CLEANING. Clean in accordance with applicable portions of paragraph 6-19. Clean all mechanical parts with a dry lint-free cloth.

6-64. REASSEMBLY. Basically, reassembly of the rf amplifier is the reverse of disassembly. See figures 6-8, 6-9, and 6-10 during reassembly. However, there are many precautions and slight variations to be observed in the reassembly process, as follows:

1. Reassemble all mechanical and electrical components of rf section except top plate; do not remount RF Mixer Amplifier Subassembly A2A4A38 at this time. Resolder all wire connections except wires going to test points A2A4TP3 and A2A4TP4. Reinstall tubes and tube shields.

2. Reassemble 100/10 kHz turret assembly, using new E-rings where applicable. Special care must be taken not to bend the shaft when replacing the roll pin in the hub of each rotor assembly. Brace shaft near points where pins are to be reinserted. Use guide rod to align roll pin holes prior to reinserting pins. Ensure that alignment holes thru wafers and top shield are aligned on the right side of the flat on shaft when viewed from coupler end of shaft with the flat facing down.

3. Reassemble turret drive gear assembly. Do not install E-ring on shaft at this time.

4. Press ring bearing into code ring and gear assembly. Install the four turret posts. Position bottom turret ring onto gear assembly by mating roll pin on gear assembly with hole in the bottom turret ring (hole is between megahertz assembly positions A2A4A24 and A2A4A25). Secure bottom turret ring to gear assembly. Reassemble gear assembly onto the base using the six bearing retainers.

5. Mesh 100/10 kHz turret assembly wafers with inside stator contact strips of rf chassis as follows:

CAUTION

In following steps do not spread contacts more than required to slide wire through.

a. Thread one 5 inch length of AWG 16, single-strand, insulated wire through each row of horizontal contacts on the inner stator contact strips to force contacts open slightly (in order to engage 100/10 kHz turret assembly wafers).

b. Carefully mesh wafers of the 100/10 kHz turret assembly with all contacts. The two inner stator contact strips on the upper rf chassis are not secured until the top plate is secured. These contact strips should be positioned in a vertical plane, and then meshed with the wafers. Ensure that the shields of the rf chassis extend over the wafers, and that the grounding springs attached to shields 2, 3, and 4 are positioned on the top side of the 100/10 kHz turret assembly.

c. Slide the AWG-16 wires out of the contacts. Visually check that all contacts of stator contact blocks close sufficiently on wafers. Note that not all contacts are used.

6. Mesh turret drive gear assembly with gears on 100/10 kHz turret assembly. Hold the three assemblies (turret drive gear assembly, 100/10 kHz turret assembly, and rf chassis assembly) intact, and attach the top plate to the proper ends of the three assemblies. Ensure that the tabs of the upper inner stator contact strips and the outer stator contact strips are positioned within the rectangular holes in the top plate. Secure the top plate with the three original screws to the rf chassis.

7. Resolder the two wires to A2A4TP3 and A2A4TP4 (ground test point) under the top shield.

8. Align the two flat washers with the two bearings in the base. Carefully lift the assemblies and place in position on base. Set support post in position between top shield and base. Secure support post to top shield. Secure rf chassis and support post to base.

9. Reinstall locating pins into shafts of 100/10 kHz turret assembly and turret drive gear assembly.

10. Slide coupler onto 100/10 kHz turret assembly shaft. Ensure that the hub of the coupler is not beyond the bottom surface of the base. Apply loctite sealant, Grade E, per MIL-S-22473 to coupler setscrew; tighten setscrew against flat of the 100/10 kHz rotor shaft.

11. Rotate the coupler so that 0 on coupler is adjacent to, and aligned with, notch in base. Insert 4 inch, 0.125 inch diameter rod in top alignment hole on top shield. Rod should then pass through all wafers to base. If the upper or lower rotor assembly has been rotated from the position established in step 2, reposition either or both assemblies to allow the rod to pass through freely.

12. Slide coupler onto turret drive gear assembly shaft. Rotate coupler without engaging gears on 100/10 kHz turret assembly, so that 0 is adjacent to and aligned with notch in base. Push shaft up so that gears engage, and place new E-ring onto turret drive gear assembly shaft. Remove the rod. Remount RF Amplifier Assembly A2A4A38.

13. Push connector A2A4P2 through slot in base and secure to base with two screws.

14. Reattach ground strap for A2A4P2A5 on screw opposite motor relay using nut and lock washer.

15. Insert any of the 28 megahertz strips into the bottom turret ring; select a location that is not near any outer stator strip contacts. Position the top turret ring over the megahertz subassembly. Ensure that the A designation on the top turret ring corresponds to the A designation on the bottom turret ring. Secure the top turret ring using the four screws. Carefully rotate the turret assembly so that the megahertz subassembly contacts pass through the three sets of outer stator strip contacts. Ensure that there is an equal distance between each set of outer stator strips and the megahertz subassembly. If the dimensions are not equal, or should any interference exist between any one of the outer stator strips and the megahertz subassembly, loosen the three rf chassis screws and the support post screw. Adjust the rf chassis until the spacing is equal or the interference is eliminated. Tighten the four screws to secure the rf chassis and support post. Rotate turret assembly to break the connection between outer stator strip contacts and megahertz subassembly contacts. Remove the four screws securing the top turret ring and remove the ring. Remove the megahertz subassembly.

16. Rotate turret gear assembly until any two adjacent rectangular slots in the bottom turret ring are located at either side of the contacts on the bottom set of outer stator strips. Hold the gear assembly in this position and insert all megahertz subassemblies. (Prior to inserting the megahertz subassemblies in their respective rectangular slots, inspect all contacts to ensure that they are not bent or misaligned). Also ensure that each megahertz subassembly is in its correct location, and that it is positioned "right side up" — i.e., with transformer T4 (as shown in figures 7-20 through 7-47) adjacent to the top turret ring.

17. Position the top turret ring over the megahertz subassemblies. Ensure that the A designations on the top turret ring correspond to the A designations on the megahertz subassemblies and the A designations on the bottom turret ring. Ensure that all megahertz subassemblies are properly mated into

the rectangular slots in both the top and bottom turret rings. Secure using the four original screws.

18. Engage gear of turret assembly drive motor with turret drive gear. Loosen screws securing turret assembly drive motor and engage the motor gear with the gear assembly. Tighten screws.

19. Place white teflon ring in slot between top plate and top turret assemblies.

20. Reattach dust cover unless adjustments are to be made.

6-65. ADJUSTMENT. Perform the adjustment and alignment procedures of table 6-3. Completion of the procedures in table 6-3 satisfies the requirement for checkout.

6-66. INSTALLATION. To install the RF Amplifier Assembly A2A4 in Main Frame A2:

1. Set mode selector switch A2S2 to OFF, and kHz controls to 000.

2. Place RF Amplifier Assembly A2A4 in position on the main frame, and press gently into place to mate connectors and couplers.

3. Secure assembly into place with four captive screws, one at each corner.

NOTE

After installation is complete, perform step 6 of table 6-1 and check performance of Radio Transmitter T-827H/URT in accordance with table 5-5.

6-67. <u>FREQUENCY STANDARD ASSEMBLY A2A5.</u>

6-68. GENERAL. Frequency Standard Assembly A2A5 is repairable at depot only. Organizational level repair is limited to removal and replacement of the assembly.

6-69. REMOVAL. The location of Frequency Standard Assembly A2A5 is shown in figure 1-2. To remove the assembly:

1. Set mode selector switch A2S2 to OFF position.

2. Loosen six screws on front panel and pull Main Frame A2 from Case A1 until slides lock.

3. Loosen two captive screws (A2A5MP15 and A2A5MP16, figure 7-57) securing Frequency Standard Assembly to main frame.

4. Gently pull Frequency Standard Assembly upward, using captive screws as handles.

6-70. DISASSEMBLY. Disasemble the Frequency Standard Assembly only to the extent necessary to gain access to a defective component requiring replacement. To disassemble the Frequency Standard Assembly proceed as follows:

1. To remove cover (A2A5MP13, figure 7-57):

a. Remove five screws, lock washers, and flat washers which attach cover to base plate (A2A5MP1, figure 7-58) and switch bracket. Two screws are located at each side; one at the top.

b. Record position of indicator dial (A2A5MP6, figure 7-58) as seen through INDEX window.

c. Lift cover from assembly.

2. To remove Divider/Amplifier Subassembly A2A5A2 (figure 7-60):

a. Remove the two nylon screws which fasten the subassembly to the Oven Body Subassembly A2A5A3 (figure 7-61), and two screws, lock washers, and flat washers which fasten the subassembly at the bottom.

b. Unsolder and tag leads and lift out subassembly. Take care not to lose spacers (A2A5MP3, MP4, figure 7-58).

3. To remove Oven Body Subassembly A2A5A3 (figure 7-61):

a. Perform part a. of step 2 above.

b. Remove two screws which fasten subassembly from underside of base plate.

c. Lift off subassembly with 5 MHz Reference Control Subassembly A2A5A4 (figure 7-62) attached.

4. To remove 5 MHz Reference Control Subassembly A2A5A4 (figure 7-62):

a. Perform step 3, above.

b. Remove screw, nylon washer, and lock washer which attach subassembly A2A5A4 to Oven Body Subassembly A2A5A3.

c. Swing aside subassembly A2A5A4. Unsolder and tag leads. Lift off subassembly A2A5A4.

5. To remove Oven Body Assembly A2A5A3 from sleeve assembly A2A5MP2 (figure 7-58):

a. Perform step 3, above.

b. Remove two screws, flat washers, and lock washers which attach oven cover assembly (A2A5MP5, figure 7-58) to sleeve.

c. Pull fine adjust knob (A2A5MP12, figure 7-57) from its shaft.

d. Lift out oven cover assembly with indicator dial (A2A5MP6, figure 7-58) attached.

e. Cut lacing cord from cable (A2-A5W7, figure 7-60). Push cable into sleeve while pulling oven wiring assembly upward.

NOTE

It is not necessary to remove Oscillator and Oven Control Subassembly A2A5A1 (figure 7-59) from Oven Body Subassembly A2A5A3 for this step.

6. To remove Oscillator and Oven Control Subassembly A2A5A1 (figure 7-59):

a. Perform parts b. through d. of step 5, above.

b. Pull Oscillator and Oven Control Subassembly out of Oven Body Subassembly.

7. To remove switch A2A5A2S1 (figure 7-60):

a. Remove nut which attaches switch to bracket.

b. Unsolder and tag switch leads. Push switch downward and out.

6-71. INSPECTION. Inspect Frequency Standard Assembly A2A5 in accordance with the applicable portions of table 6-8.

6-72. REPAIR. Make necessary repairs in accordance with instructions given in paragraphs 6-15 through 6-18.

6-73. CLEANING. Clean parts and subassemblies of Frequency Standard Assembly A2A5 in accordance with applicable portions of paragraph 6-19.

6-74. REASSEMBLY. To reassemble Frequency Standard Assembly A2A5 reverse the disassembly procedure. Observe the following:

1. When inserting Oscillator and Oven Control Subassembly A2A5A1 into Oven Body Assembly A2A5A3, be sure that subassembly A2A5A1 is held in place by the nylon guides in A2A5A3, and that the contact pins on subassembly A2A5A1 mate with the contacts of A2A5A3J1 at the bottom of the Oven Body Assembly.

2. Before reattaching the fine adjust knob to its shaft, set indicator dial to the position noted in step 1.b. of paragraph 6-70.

3. Be sure to use nylon flat washer when attaching 5 MHz Reference Control Subassembly A2A5A4 to sleeve assembly A2A5MP2.

4. When attaching Oven Body Subassembly A2A5A3 with 5 MHz Reference Control Subassembly A2A5A4 to base plate, be sure contacts of A2A5A4 are properly mated with connector A2A5J3.

5. If lacing cord was removed from cable A2A5W7, replace with new lacing. Do not install cover until paragraph 6-75 has been performed.

6-75. ADJUSTMENT. Perform the adjustment and alignment procedures of table 6-4. Performance of the procedures of table 6-4 satisfies the requirements for checkout.

6-76. INSTALLATION. To install Frequency Standard Assembly A2A5 into main frame A2:

1. Turn captive screws counterclockwise until held by base plate (A2A5MP1, figure 7-58).

2. Install Frequency Standard Assembly A2A5 in the main frame in the position shown in figure 1-2.

3. Press down gently on Frequency Standard Assembly A2A5 to mate connector on assembly with connector on main frame.

4. Secure Frequency Standard Assembly A2A5 in place with captive screws.

NOTE

After installation adjust output frequency as instructed in table 6-1, step 4, and check performance of Radio Transmitter T-827H/URT in accordance with table 5-5.

6-77. TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6.

6-78. GENERAL. Translator/Synthesizer Assembly A2A6 (figure 1-2) is repairable at depot only. Organizational repair is limited to removal and replacement of the assembly.

6-79. REMOVAL. To remove Translator/Synthesizer Assembly A2A6:

1. Loosen four captive screws, one at each corner of the assembly.
2. Lift assembly gently from main frame, using two of the captive screws as handles.

6-80. DISASSEMBLY. Complete disassembly involves the removal of three covers. Do not disassemble beyond what is required for access to the part to be repaired or replaced. To remove the top cover (A2A6-MP3, figure 7-63), remove thirteen screws and lift cover off. Removal of the top cover provides access to seven printed circuit subassemblies, A2A6A12 through A2A6A18. The plug-in subassemblies A2A6A12, A13, A14, A16, A17, A18 may be removed by releasing their latches and pulling upward. The Power Supply Subassembly A2A6A15 can be removed by sliding it upward in its tracks and disconnecting wires at A2A6A15E1 and A2-A6A15E4-E6 (figure 7-69). Filter Subassembly A2A6A7 (figure 7-64) is hard wired to the A2A6 chassis. To remove the Filter subassembly, first remove the Power Supply subassembly, then remove the two machine screws which fasten the Filter subassembly from the outside at the upper rear of the A2A6 housing. Lift out the Filter subassembly as far as its leads will permit. Unsolder and tag leads for identification.

6-81. TRANSLATOR SUBASSEMBLY A2-A6A8 (figure 7-65). To remove the RF Translator subassembly:

1. Remove six machine screws which attach the bottom cover (A2A6MP1, figure 7-65) and remove cover.
2. Remove six machine screws which attach the side cover and remove cover.
3. Remove thirteen screws which attach the top cover (A2A6MP3, figure 7-63) and remove cover.
4. Remove the A2A6A12 and A2A6A14 plug-in printed circuit subassemblies.
5. With the aid of rf insert extractor tool 91146-CET-C6B extract the following rf inserts which terminate the rf leads from the RF Translator subassembly:
   a. A2A6A12P1A4
   b. A2A6P2A1
   c. A2A6P2A2
   d. A2A6P3A2
   e. A2A6P3A1
   f. A2A6XA14P1A4
6. Disconnect leads at A2A6A8J4, J5, J6, J7, and also FL5-1 and FL5-J1.
7. Remove six machine screws and washers which fasten RF Translator subassembly to chassis. Carefully lift out subassembly while guiding coaxial leads through slots in chassis.

6-82. ROTARY SWITCHES. To remove any of the rotary switches A2A6S1, S2, or S3 (see figure 7-63):

1. Remove thirteen screws which attach the top cover (A2A6MP3, figure 7-63) and remove cover.
2. Remove six screws which attach bottom cover to A2A6 and lift cover off.
3. Unsolder leads of flexible connector harness assembly from switch terminals.
4. Remove coupling assembly (A2A6MP8, MP12 and MP16, figure 7-63) from bottom of switch shaft.
5. Remove anti-turn washer, nut and lock washer from switch and remove switch.

6-83. MAIN CONNECTORS. To remove connectors A2A6P1 through A2A6P3, proceed as follows:

1. To remove A2A6P2 or A2A6P3 (see figure 7-63):
   a. Remove coaxial inserts from connector.
   b. Remove attaching hardware from connector and lift out. Take care not to damage ground wire soldered to flexible connector harness.
2. To remove A2A6P1 (see figure 7-63):
   a. Remove A1 coaxial insert from connector.
   b. Remove attaching hardware from connector.
   c. Lift connector with flexible connector harness attached, and unsolder leads of harness.

6-84. PRINTED CIRCUIT BOARD CONNECTORS. To remove any printed circuit board connector, proceed as follows:

1. Remove coaxial inserts A2A6P1A1, A2A6XA14P1A4 and A2A6XA12P1A4.
2. Remove attaching hardware from all connectors except A2A6P3.
3. Remove coaxial insert from A2A6X-A17P1A2.
4. Disconnect two power leads and one coaxial lead from FL5-1, FL5-2, and FL5-J1 respectively.
5. Remove two screws, lock washers, and flat washers securing FL5 to chassis and lift out FL5.
6. Unsolder A2A6C1 from the flex harness and lift it from its clip.
7. Unsolder flex harness from A2A6S3 (figure 7-63).
8. Eject coaxial inserts from connector to be removed. It may be necessary to eject the insert on the opposite end of the semi-rigid coaxial cable. Unsolder A2A6C2 and A2A6C3 from A2A6XA13P1A1 and A2A6X-A13P1A2 if necessary.
9. Peel back flexible connector harness with connectors attached.
10. Unsolder connector to be replaced.

6-85. INSPECTION. Inspect Translator/Synthesizer Assembly A2A6 and its subassemblies in accordance with the applicable portions of table 6-8. Inspect the flexible connector harness for broken conductors and loose solder connections.

6-86. REPAIR. Make necessary repairs in accordance with instructions given in paragraphs 6-15 through 6-18.

6-87. CLEANING. Clean parts and subassemblies of A2A6 in accordance with the applicable portions of paragraph 6-19.

6-88. REASSEMBLY. Except for the reattachment of rotary switch couplers, reassembly is the reverse of disassembly. To attach couplers to rotary switches, align each coupler individually exactly as shown in figure 6-11.

6-89. ADJUSTMENT. Align and adjust Translator/Synthesizer Assembly in accordance with Table 6-5. Completion of procedures in table 6-5 satisfies the requirements for checkout.

6-90. INSTALLATION. To install Translator/Synthesizer Assembly A2A6 into the main frame:

1. Set frequency controls for 00.000 MHz.
2. Position couplers on rotary switches so that pins on all three are toward the rear of Translator/Synthesizer.
3. Set Translator/Synthesizer Assembly gently into place, and fasten with four corner captive screws.
4. Rotate kHz controls from 000 through 999 to check proper mating of couplers.

NOTE

After installation, slide main frame into case and fasten with front panel screws. Check performance of Radio Transmitter T-827H/URT in accordance with table 5-5.

6-91. CODE GENERATOR ASSEMBLY A2-A7.

6-92. GENERAL. Code Generator Assembly A2A7 (figure 7-73) is repairable at depot only; organizational level repair is limited to removal and replacement of A2A7.

6-93. REMOVAL. The location of the Code Generator Assembly is shown in figure 1-3. To remove Code Generator Assembly A2A7 from Main Frame A2, proceed in accordance with the following:

1. Set mode selector switch A2S2 to OFF, and disable primary power at bulkhead distribution point.
2. Loosen six captive screws on front panel and slide main frame from case until slides lock.
3. Remove RF Amplifier Assembly A2A4 from main frame.
4. Looser. captive screw (A2A7MP10, figure 7-73) at rear of Code Generator Assembly.

CAUTION

Hand guide cable at rear of main frame over front edge of case when tilting main frame to vertical position.

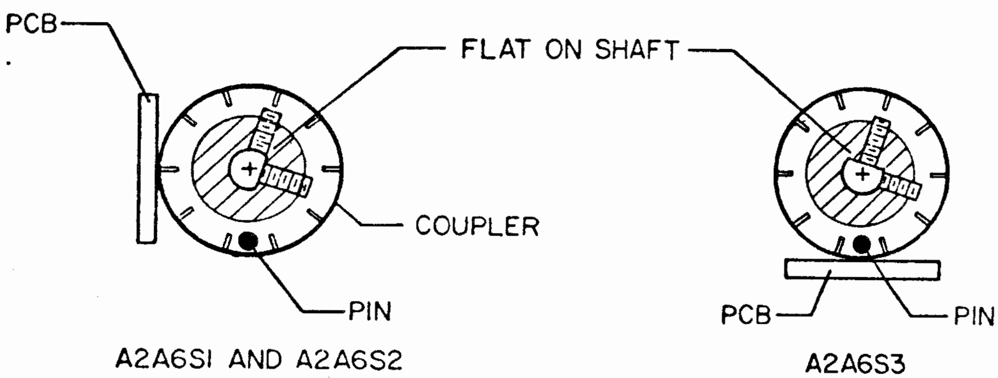


Figure 6-11. Switch and Coupling Orientation

5. Release tilt latches and tilt main frame up to expose bottom. Be sure tilt latches engage at 90-degree position.

6. Disconnect A2A7P1 from A2J8.

7. Remove the remaining two screws which fasten the Code Generator Assembly to the front panel mounting spacers.

8. Gently and carefully push the Code Generator Assembly toward rear of main frame to disengage its couplers from the MHz frequency controls on the front panel.

9. Carefully work the assembly out of the main frame.

6-94. DISASSEMBLY. Disassembly is accomplished by removing the screws which hold the sections of the assembly (switches A2A7A1 through A2A7A5, figure 7-73) together, and unsoldering interconnections as required for access to the faulty section.

6-95. INSPECTION. Inspect the Code Generator Assembly in accordance with the applicable portions of table 6-8.

6-96. REPAIR. Repair consists of replacing printed circuit switch sections determined to be faulty by ohmmeter measurements between pins of A2A7P1 and the individual switch sections, and between sections and points on sections (see figure 5-41).

6-97. CLEANING. Refer to paragraph 6-19 for cleaning methods and materials. Clean removed parts and replacement parts before reassembly.

6-98. REASSEMBLY. Reassembly is the reverse of disassembly. Be sure to reassemble switches in correct sequence.

6-99. INSTALLATION AND ALIGNMENT. To install and align Code Generator Assembly A2A7, proceed in accordance with the following:

1. Position the MHz control knobs and the couplers on the code generator so that the pins on the knob couplers will engage the slots on the switch couplers when the code generator is installed.

2. Carefully work the Code Generator Assembly into position to engage couplers.

3. Attach code generator and spacers to main frame with mounting hardware originally removed or loosened.

4. Connect plug A2A7P1 to A2J8 on main frame.

5. Set MHz controls on front panel to 07 MHz.

6. On rear of Code Generator Assembly A2A7, note the position of the rotor contacts with respect to the gold pad contacts on the units MHz switch. Note the position of the rotor contact, relative to the gold pad contact for the 10 MHz switch, by observing the rear side edge of the center printed circuit board (below MP42 on figure 7-73). If the units MHz switch rotor contact or the 10 MHz switch rotor contact is not centered on the gold pad contact, realign using the following procedure:

a. Loosen the two flat-head cross recessed screws on detent spring A2MP16 or A2MP17 as appropriate (see figure 7-7).

b. While depressing the roller end of the spring with one finger (to keep it at the bottom of the detent wheel) rotate the frequency control knobs until the rotor contact is centered on the gold pad contact.

c. While continuing the finger pressure on the roller end of the spring, tighten the two flat-head cross recessed screws.

6-100. POWER SUPPLY ASSEMBLY A2A8.

6-101. GENERAL. Power Supply Assembly A2A8 is repairable at organizational level. Repair instructions for this hard wired assembly are supplied in paragraphs 6-15 through 6-18 and 6-34(1).

6-102. RATT TONE GENERATOR ASSEMBLY A2A9.

6-103. GENERAL. RATT Tone Generator Assembly A2A9 is repairable at depot only. Organizational level repair is limited to removal and replacement of the assembly.

6-104. REMOVAL. The location of RATT Tone Generator Assembly A2A9 is shown in figure 1-2. To remove the assembly:

1. Set mode selector switch A2S2 to OFF position.

2. Loosen six screws on front panel and pull Main Frame A2 from Case A1 until slides lock.

3. Loosen two captive screws securing RATT Tone Generator Assembly to main frame.

4. Gently pull RATT Tone Generator Assembly upward, using captive screws as handles.

6-105. DISASSEMBLY. Disassemble the RATT Tone Generator Assembly only to the extent necessary to gain access to a defective component requiring replacement. To disassemble the RATT Tone Generator Assembly proceed as follows:

1. To remove cover (A2A9MP1, figure 7-75):

a. Loosen quarter-turn screw securing cover to base.

b. Lift cover from base.

2. To remove Tone Generator Board A2-A9A1 (figure 7-76):

a. Remove five screws, lock washers, and flat washers which attach board to chassis base.

b. Lift out board.

6-106. INSPECTION. Inspect RATT Tone Genertor Assembly A2A9 in accordance with the applicable portions of table 6-8.

6-107. REPAIR. Make necessary repairs in accordance with instructions given in paragraphs 6-15 through 6-18.

6-108. CLEANING. Clean parts and subassembly of RATT Tone Generator Assembly A2A9 in accordance with applicable portions of paragraph 6-19.

6-109. REASSEMBLY. To reassemble RATT Tone Genertor Assembly A2A9 proceed as follows:

1. Drop board A2A9A1 into chassis base, and align mounting holes with inserts.

2. Secure board A2A9A1 to chassis base using hardware removed in paragraph 6-105, step 2.a.

3. Replace cover by engaging the tabs into the slots in the base and securing the cover with the quarter-turn screw.

6-110. INSTALLATION. To install RATT Tone Generator Assembly A2A9 into main frame A2:

1. Turn captive screws counterclockwise until held by chassis base.

2. Install RATT Tone Generator Assembly A2A9 in the main frame in the position shown in figure 1-2.

3. Press down gently on RATT Tone Generator Assembly A2A9 to mate connector on assembly with connector on main frame.

4. Secure RATT Tone Generator Assembly A2A9 in place with captive screws.

NOTE

After installation check performance of Radio Transmitter T-827H/URT in accordance with table 5-5.

6-111. <u>METER AMPLIFIER ASSEMBLIES A2A10 AND A2A11.</u>

6-112. GENERAL. The Meter Amplifier Assemblies A2A10 and A2A11 are repairable at organizational level. Repair instructions for these hard wired assemblies are supplied in paragraphs 6-15 through 6-18 and 6-34(2).

6-113. <u>IF AMPLIFIER ASSEMBLY A2A12.</u>

6-114. GENERAL. IF Amplifier Assembly A2A12 is repairable at depot only. Organizational level repair is limited to removal and replacement of the assembly.

6-115. REMOVAL. The location of IF Amplifier Assembly A2A12 is shown in figure 1-2. To remove the assembly:

1. Set mode selector switch A2S2 to OFF position.

2. Loosen six screws on front panel and pull Main Frame A2 from Case A1 until slides lock.

3. Loosen two captive screws securing IF Amplifier Assembly to main frame.

4. Gently pull IF Amplifier Assembly upward, using captive screws as handles.

6-116. DISASSEMBLY. Disassemble the IF Amplifier Assembly only to the extent necessary to gain access to a defective component requiring replacement. To disassemble the IF Amplifier Assembly proceed as follows:

1. To remove cover (A2A12MP1, figure 7-78):

a. Loosen turnlock fastener on cover securing cover to assembly chassis.

b. Swing top of cover approximately 1/4 inch from assembly (to allow turnlock fastener to clear assembly) and lift off.

2. If it is necessary to replace IF Amplifier Board A2A12A1 (figure 7-78) removal procedures are as follows:

a. Remove four screws and flat washers which secure board A2A12A1 to assembly chassis.

b. Lift board from assembly chassis.

6-117. INSPECTION. Inspect IF Amplifier Assembly A2A12 in accordance with the applicable portions of table 6-8.

6-118. REPAIR. Make necessary repairs in accordance with instructions given in paragraphs 6-15 through 6-18.

6-119. CLEANING. Clean parts and subassemblies of IF Amplifier Assembly A2A12 in accordance with applicable portions of paragraph 6-19.

6-120. REASSEMBLY. To reassemble IF Amplifier Assembly A2A12 reverse the disassembly procedure. Do not install cover until paragraph 6-121 has been performed.

6-121. ADJUSTMENT. Perform the adjustment and alignment procedures of table 6-6. Performance of the procedures of table 6-6 satisfies the requirements for checkout.

6-122. INSTALLATION. To install IF Amplifier Assembly A2A12 into main frame A2:

1. Turn captive screws counterclockwise until held by assembly base.

2. Install IF Amplifier Assembly A2A12 in the main frame in the position shown in figure 1-2.

3. Press down gently on IF Amplifier Assembly A2A12 to mate connector on assembly with connector on main frame.

4. Secure IF Amplifier Assembly A2A12 in place with captive screws.

NOTE

After installation check performance of Radio Transmitter T-827H/URT in accordance with table 5-5.

6-123. HANDSET AND IF FILTER ASSEMBLIES A2A14 AND A2A15.

6-124. GENERAL. Handset Filter Assembly A2A14 and IF Filter Assembly A2A15 are repairable at the organizational level. Repair instructions for these hard wired assemblies are supplied in paragraphs 6-15 through 6-18, 6-34(3), and 6-34(4).

6-125. INTERCONNECT CIRCUIT CARD ASSEMBLY A2A21.

6-126. GENERAL. Interconnect Circuit Card Assembly A2A21 is repairable at the organizational level. Repair instructions for this hard wired assembly are supplied in paragraphs 6-15 through 6-18, and 6-34(5).

6-127. AUDIO PROCESSOR ASSEMBLIES A2A21A18 AND A2A21A19 AND AUDIO CONTROL ASSEMBLY A2A21A20.

6-128. GENERAL. Audio Control Assembly A2A21A20 and Audio Processor Assemblies A2A21A18 and A2A21A19 are repairable at depot only. Organizational level repair is limited to removal and replacement of the assemblies.

6-129. REMOVAL. The locations of Audio assemblies A2A21A18, A2A21A19, and A2-A21A20 are shown in figure 1-2. To remove these assemblies:

1. Set mode selector switch A2S2 to OFF position.

2. Loosen six screws on front panel and pull Main Frame A2 from Case A1 until slides lock.

3. Loosen two quarter-turn screws securing cover on card cage (A2MP132, figure 7-4) and remove cover.

NOTE

Mark the locations of A2A21A18 and A2A21A19 prior to removal so that each assembly can later be replaced in its original location. This action will preclude unnecessary readjustment of controls when transmitter operation is resumed.

4. Lift ejectors on assembly to be removed, and unplug assembly.

6-130. INSPECTION. Inspect Audio assemblies A2A21A18, A2A21A19, and A2A21-A20 in accordance with the applicable portions of table 6-8.

6-131. REPAIR. Make necessary repairs in accordance with instructions given in paragraphs 6-15 through 6-18.

6-132. CLEANING. Clean Audio assemblies A2A21A18, A2A21A19, and A2A21A20 in accordance with the applicable portions of paragraph 6-19.

6-133. ADJUSTMENT. Perform the adjustment and alignment procedures of table 6-7; completion of the procedures in table 6-7 satisfies the requirement for checkout.

6-134. INSTALLATION. To install Audio assemblies A2A21A18, A2A21A19, and A2-A21A20 in Main Frame A2:

1. Insert assembly into appropriate guides and press firmly on ejector handles until board is fully engaged in socket.
2. Replace cover on card cage by engaging the tab into the slot. Secure the cover with the two quarter-turn screws.

NOTE

After installation, perform step 5 of table 6-1 as applicable to the Audio assemblies A2A21A18, A2A21A19, and A2A21A20, and check performance of Radio Transmitter T-827H/URT in accordance with table 5-5.

CHAPTER 7

PARTS LIST

7-1. INTRODUCTION.

7-2. LIST OF ASSEMBLIES. Table 7-1 is a listing of the assemblies included in Radio Transmitter T-827H/URT. These are listed by reference designations in numerical order. Thus, when the complete reference designation of a part is known, this table will furnish the identification of the assembly in which the part is located, since the first number of a complete reference designation identifies the unit. Table 7-1 also provides the following information for each assembly listed: (1) official name, (2) designation, and (3) location of the first page of its parts listing in table 7-2.

7-3. REFERENCE DESIGNATIONS. The numbering method of assigning reference designations has been used to identify assemblies, subassemblies, and parts. This method has been expanded as necessary to cover adequately the various degrees of subdivision of the equipment. Examples of this numbering method and typical expansions of the same are illustrated by the following:

1. Example 1:

A1	R1
Assembly Designation	Class and No. of item

Read as: First (1) resistor (R) of first (1) assembly (A).

2. Example 2:

A1	A2	R1
Assembly designation	Subassembly designation	Class and No. of item

Read as: First (1) resistor (R) of second (2) subassembly (A) of first (1) assembly (A). The T-827H/URT is comprised of only one unit; all assemblies are part of Unit 1.

7-4. Partial reference designations are used on the equipment and illustrations. The partial reference designations consist of the class letter(s) and the identifying item number. The complete reference designations may be obtained by placing the proper prefix before the partial reference designations. Prefixes are provided on illustrations following the notation "REF DESIG PREFIX".

7-5. MAINTENANCE PARTS LISTING.

7-6. PARTS LIST. Table 7-2 lists all assemblies and their maintenance parts, in numerical sequence by reference designation. Maintenance parts for each assembly are listed alphanumerically by class of part following the assembly designation. Thus, the parts for each assembly are grouped together. Table 7-2 provides the following information: (1) complete reference designation for each assembly, subassembly, and part, (2) reference to explanatory notes, (3) noun name and brief description, and (4) identification of the parts location illustration which pictorially locates the part.

7-7. Column 1, Reference Designation. The parts list is divided and arranged by major assemblies in numerical sequence (e.g., assembly A1 with its subassemblies, parts, etc., precedes assembly A2 with its parts). All parts attached to the assembly are listed first in alphanumerical order, followed by subassemblies with parts, also listed in alphanumerical order, as follows:

Assembly	A1
(Assembly parts)	A1AT1
	A1B1
	A1C1
	A1CR1
	A1R1
	etc.
Subassembly	A1A1
(Subassembly parts)	A1A1AT1
	A1A1B1
	A1A1C1
	A1A1CR1
	A1A1R1

Table 7-1. Radio Transmitter T-827H/URT, List of Major Assemblies

REFERENCE DESIGNATION	NAME OF ASSEMBLY	PAGE NO.
A1	Transmitter Case	7-4
A1A1	Filter Box Assembly	7-6
A2	Transmitter Main Frame	7-8
A2A1	Transmitter Mode Selector Assembly	7-22
A2A2	Not used	
A2A3	Not used	
A2A4	RF Amplifier Assembly	7-31
A2A5	Frequency Standard Assembly	7-74
A2A6	Translator/Synthesizer Assembly	7-105
A2A7	Code Generator Assembly	7-139
A2A8	Power Supply, Transmitter Circuit Card Assembly	7-143
A2A9	RATT Tone Generator Assembly	7-145
A2A10	Meter Amplifier Assembly	7-147
A2A11	Meter Amplifier Assembly	7-147
A2A12	Transmitter IF Amplifier Assembly	7-148
A2A13	Not used	
A2A14	Filter Box, Handset	7-151
A2A15	IF Filter Circuit Card Assembly	7-152
A2A16 thru A2A20	Not used	
A2A21	Audio Interconnect Board Assembly	7-153
A2A21A1 thru A2A21A17	Not used	
A2A21A18	Audio Processor Assembly	7-153
A2A21A19	Audio Processor Assembly	7-156
A2A21A20	Audio Control Assembly	7-156

7-8. Column 2, Notes. Parts variations within each article are identified by a number symbol in the Notes column of table 7-2. The absence of a number symbol in the Notes column indicates that the part is used on all articles covered by this technical manual. Note 1 is defined as a selected value at assembly. Note 2 indicates a part (such as a cable) which is not called out in the parts location diagram.

7-9. Column 3, Name and Description. This column contains the name, including descriptive data and military type number of the item. Those parts not having a military type number include physical characteristics. Identical parts that are used more than five times are referenced to the List of Common Item Descriptions (table 7-3). Following the description are the manufacturer's part number and the contractor's part number. Attaching hardware, with quantity, is identified by the assigned letter code; e.g., C(4) would be the third listed piece of attaching hardware in which four pieces are used.

7-10. Column 4, Figure Reference Number. This column lists the figure number of the parts location illustration (located at end of the chapter) which shows the physical location of the part.

7-11. LIST OF COMMON ITEM DESCRIPTIONS. Table 7-3 contains the description of all multiple used parts (over five applications). The description contains the same information as column 3 of table 7-2.

7-12. LIST OF ATTACHING HARDWARE. Table 7-4 contains a list of parts called out as attaching hardware in column 3 of table 7-2 (see paragraph 7-9).

7-13. LIST OF MANUFACTURERS. Table 7-5 contains the name, address, and code number of all manufacturers supplying items for equipment as referenced in the parts list. This list is in numerical sequence by code number. Code numbers are in accordance with MIL Handbook H4-1 and H4-2.

7-14. PARTS LOCATION ILLUSTRATIONS.

7-15. Parts location illustrations (figures 7-1 through 7-85) are located at the end of this chapter. Their purpose is to provide positive and rapid location of parts. Column 4 of tabe 7-2 references the appropriate illustration which pictorially locates the part in the equipment.

Table 7-2. Radio Transmitter T-827H/URT, Parts List

TRANSMITTER T-827H/URT

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
1		TRANSMITTER, RADIO, T-827H/URT: Mfr 98738, part no. 01A228010-01.	1-1
TRANSMITTER CASE A1			
A1		TRANSMITTER CASE: Mfr 98738, part no. 01A226077-22-11. (Attaching Parts) FP(2) FQ(2)	7-1
A1J1 thru A1J22		Not used.	
A1J23 and A1J24		CONNECTOR, RECEPTACLE, ELECTRICAL: 1 contact, coaxial, 0.687 in. long, 0.687 in. w, 1.250 in. thk; mfr 91737, part no. 15808, 06845, dwg 4030754-0703. (Attaching Parts) FT(2)	7-1
A1J25		CONNECTOR, RECEPTACLE, ELECTRICAL: 1 contact, coaxial, 0.812 in. dia, 1.625 in. thk; mfr 95712, part no. 33417, 06845, dwg 4030755-0701. (Attaching Parts) AX(1)	7-1
A1MP1		CAP, CONNECTOR: For J24; MIL type M39012/25-0006. (Attaching Parts) DY(1) M(1)	7-1
A2MP2		CAP, CONNECTOR: For J25; MIL type M39012/25-0012. (Attaching Parts) DY(1) M(1)	7-1
A1MP3 thru A1MP6		BRACKET, SLIDE: 5.26 in. long, 3.00 in. w; mfr 06845, part no. 4032497-0501. (Attaching Parts) B(8) C(8) D(8)	7-1
A1MP7		INTERLOCK SWITCH ASSEMBLY: Mfr 98738, part no. 01A227253-11.	7-1/7-2
A1MP8		SLIDE, LEFT HAND: Mfr 05236, part no. 120966L, 06845, dwg 4032393-0701. (Attaching Parts) B(4) C(4)	7-1
A1MP9		SLIDE, RIGHT HAND: Mfr 05236, part no. 120966R, 06845, dwg 4032393-0702. (Attaching Parts) B(4) C(4)	7-1
A1MP10		SHAFT, INTERLOCK: 7.59 in. long, 0.187 in. dia, mfr 06845, part no. 4031910-0001. (Attaching Parts) A(2) H(2) B(2)	7-2
A1MP11		SPRING, COMPRESSION: 0.268 in. OD, 0.218 in. ID, 1.25 in. long; mfr 06845, part no. 4031911-0001.	7-2
A1MP12 and A1MP13		ADAPTER, SWITCH, ACTUATOR: Mfr 91929, part no. JS31, 06845, dwg 4031919-0701.	7-2

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSMITTER CASE A1

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A1MP14		PIN, SPRING: MIL type MS171439.	7-2
A1MP15		BRACKET, INTERLOCK: 4.62 in. long, 1.27 in. w; mfr 06845, part no. 4031913-0501.	7-2
A1MP16		PLATE, RETAINER: 0.76 in. long, 0.50 in. w; mfr 06845, part no. 4031912-0001. (Attaching Parts) J(2)	7-2
A1MP17		BLOCK, STOP: 0.600 in. long, 0.53 in. w; mfr 06845, part no. 4010049-0001.	7-2
A1MP18		RING, RETAINING: MIL type MS16633-4018.	7-2
A1MP19		GASKET, FILTER BOX: Woven aluminum, 6.22 in. long, 4.02 in. w, 0.004 in. thk; mfr 98738, part no. 32P228248-01.	7-1
A1MP20		CLAMP, LOOP: Stainless steel; 1.676 in. long, 0.500 n. w, 0.040 in. thk; mfr 98738, part no. 42P226701-21-11. (Attaching Parts) M(2) L(2) K(2)	7-1
A1MP21		CHANNEL, CABLE: Aluminum alloy; 11.0 in. long, 1.280 in. w; mfr 06845, part no. 4030911-0001. (Attaching Parts) M(8) L(8) K(8)	7-1
A1MP22 and A1MP23		PIN: 1.20 in. long, 1.00 in. dia; mfr 98738, part no. 22P226777-22-11. (Attaching Parts) P(2) Q(2) N(2)	7-1
A1MP24 thru A2MP30		CLAMP, LOOP: 0.939 in. long, 0.375 in. w, 0.440 in. dia; mfr 09922, part no. HP7N, 06845, dwg 4032230-0706. (Attaching Parts) A(7) H(7) B(7)	7-1
A1MP31 and A1MP32		Not used.	
A1MP33		BRACKET, CONNECTOR: Aluminum alloy; 7.76 in. long, 0.88 in. w, 0.125 in. thk; mfr 06845, part no. 4032499-0501. (Attaching Parts) H(1) B(1) J(1) R(1) AJ(1)	7-1
A1MP34 thru A1MP36		CLAMP, LOOP: 0.99 in. long, 0.375 in. w, 0.480 in. dia; mfr 98738, part no 42P226700-21-11. (Attaching Parts) M(3) L(3) K(3)	7-1
A1MP37 and A1MP38		GASKET: 0.32 in. ID, 1.00 in. OD; mfr 98738, part no. 32P226780-21-11.	7-1
A1MP39		CLAMP, LOOP: 0.99 in. long, 0.375 in. w, 0.48 in. dia; mfr 09922, part no. HP8N, 06845, dwg 4032230-0707. (Attaching Parts) A(1) H(1) B(1)	7-1

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSMITTER CASE A1

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A1P1		CONNECTOR, RECEPTACLE, ELECTRICAL: MIL type M24308/1-16.	7-1
A1P2		CONNECTOR, RECEPTACLE, ELECTRICAL: 3 coaxial contacts, pin insert; 1.213 in. long, 0.494 in. w, 0.641 in. thk; mfr 71785, part no. DAMMF3W3S, 06845, dwg 4032484-0704.	7-1
A1P2A1 thru A1P2A3		CONNECTOR: Item 21.	7-1
A1S1A and A1S1B		SWITCH: MIL type MS24085-2.	7-2
A1S2A and A1S2B		SWITCH: MIL type MS25085-2.	7-2
A1W1	2	CABLE ASSEMBLY, RF: 52.25 in. long; mfr 98738, part no. 30A226483-24-11. (Includes connectors J23 and A1P2A3)	7-1
A1W2	2	CABLE ASSEMBLY, RF: 52.25 in. long; mfr 98738, part no. 30A226483-25-11. (Includes connectors J24 and A1P2A2)	7-1
A1W3	2	CABLE ASSEMBLY, RF: 53.25 in. long; mfr 98738, part no. 30A226483-26-11. (Includes connectors J25 and A1P2A1)	7-1
A1A1		FILTER BOX ASSEMBLY: 4.30 in. long, 6.06 in. w, 0.82 in. thk; mfr 98738, part no. 01A228250-01.	7-3
A1A1C1 thru A1A1C50		CAPACITOR, FIXED, CERAMIC: 1000 pF ±20%, 500 Vdc working; MIL type CK70AW102M. (Attaching Parts) EQ(50)	7-3
A1A1E1		TERMINAL, STUD: MIL type SE12XC07.	7-3
A1A1J1 and A1A1J2		Not used.	
A1A1J3		CONNECTOR, RECEPTACLE, ELECTRICAL: 3 contacts, pin insert; 1.375 in. long, 1.375 in. w, 0.968 in. thk; mfr 77820, part no. 71-74716-5P, 98738, dwg 09P228579-03. (Attaching Parts) AL(1) AQ(1) AU(1) AZ(1)	7-1/7-3
A1A1J4		CONNECTOR, RECEPTACLE, ELECTRICAL: MIL type MS3114E22-55PW. (Attaching Parts) FS(1) FV(1)	7-1/7-3

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSMITTER CASE A1

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A1A1J5 and A1A1J6		CONNECTOR, RECEPTACLE, ELECTRICAL: 2 contacts; pin insert; 1.000 in. long, 1,000 in. w, 0.968 in. thk; mfr 77820, part no. 71-74711-4P, 98738, dwg 09P228579-01. (Attaching Parts) AL(2) AU(2) AQ(2) AZ(2)	7-1/7-3
A1A1J7		CONNECTOR, RECEPTACLE, ELECTRICAL: 4 contacts, pin insert; 1.250 in. long, 1.250 in. w, 0.968 in. thk; mfr 77820, part no. 71-74714-2P, 98738, dwg 09P228579-02. (Attaching Parts) AL(1) AU(1) AQ(1) AZ(1)	7-1/7-3
A1A1J8		CONNECTOR, RECEPTACLE, ELECTRICAL: MIL type MS3114E10-6P. (Attaching Parts) FW(1) FX(1)	7-1/7-3
A1A1MP1		COVER: Half hard brass; 6.42 in. long, 4.22 in. w, 0.063 in. thk; mfr 98738, part no. 15P228249-01. (Attaching Parts) V(14)	7-3

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSMITTER MAIN FRAME A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2		TRANSMITTER MAIN FRAME: Mfr 98738, part no. 01A228011-01.	7-4
A2C1		CAPACITOR, FIXED, ELECTROLYTIC: 100 uF -10%, +75%, 150 Vdc working, MIL type CE31C101J.	7-4B
A2C2		CAPACITOR, FIXED, MYLAR DIELECTRIC: 0.01 uF ±20%, 100 Vdc working; 0.42 in. long, 0.29 in. w, 0.17 in. thk; mfr 99515; part no. EP36D1, 06845, dwg 4032429-0701.	7-4C
A2C3 thru A2C5		CAPACITOR: Item 14.	7-4B, 7-4C
A2C6		CAPACITOR, FIXED, ELECTROLYTIC: 47 uF, ±20%, 35 Vdc working; MIL type M39003-01-2313.	7-4B
A2CR1 thru A2CR6		SEMICONDUCTOR DEVICE, DIODE: Item 50.	7-4B, 7-4C, 7-4B-B
A2CR7		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N4245.	7-4A-A
A2CR8		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N2976B.	7-4B
		(Attaching Parts) AM(1) GK(1)	
A2CR9		SEMICONDUCTOR DEVICE, DIODE: Item 50.	7-4C
A2CR10		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N3824A.	7-4A-A
A2CR11		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N2988B.	7-4C
		(Attaching Parts) AM(1) GK(1)	
A2DS1 and A2DS2		Not used.	
A2DS3 and A2DS4		LAMP, INCANDESCENT: MIL type MS25237-387.	7-7
A2E1 and A2E2		TERMINAL, STUD: Item 53.	7-4C
A2E3 and A2E4		TERMINAL, STUD: Item 51.	7-4C
A2E5		TERMINAL, STUD: 0.25 in. hex base, 0.72 in. long; 06845, dwg 4032159-0702.	7-4C
A2E6 and A2E7		TERMINAL, STUD: Item 51.	7-4C
A2E8		TERMINAL, LUG: MIL type MS77068-1.	7-4C
A2E9		TERMINAL, STUD: Item 52.	7-4C
A2E10		TERMINAL, STUD: MIL type FT039B01.	7-4C
A2E11 and A2E12		TERMINAL, STUD: Item 52.	7-4C

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSMITTER MAIN FRAME A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2E13 thru A2E20		TERMINAL, STUD: Item 51	7-4C
A2E21		TERMINAL, STUD: Item 53.	7-4C
A2E22 thru A2E24		TERMINAL, STUD: Item 51.	7-4C
A2E25		Not used.	
A2E26		TERMINAL, LUG: MIL type MS35431-4.	7-4C
A2E27		TERMINAL, STUD: 0.25 in. hex base, 0.72 in. long; 06845, dwg 4032159-0702.	7-4C
A2E28		TERMINAL, STUD: Item 53.	7-4C
A2E29		TERMINAL, STUD: 0.25 in. hex base, 0.72 in long, 06845, dwg 4032159-0702.	7-4B
A2E30		TERMINAL, STUD: Item 53.	7-4C
A2E31		Not used.	
A2E32		TERMINAL, LUG: MIL type MS77068-2.	7-4C
A2E33 and A2E34		TERMINAL, STUD: Item 53.	7-4C
A2E35		TERMINAL, STUD: Item 51.	7-4C
A2E36		Not used.	
A2E37		TERMINAL, STUD: 0.25 in. hex base, 0.72 in. long; 06845, dwg 4032159-0702.	7-4C
A2E38		TERMINAL, LUG: MIL type MS77068-1.	7-7
A2E39 and A2E40		TERMINAL, STUD: Item 53.	7-7
A2E41		Not used.	
A2E42		TERMINAL, STUD: Item 53.	7-7
A2E43 and A2E44		Not used.	
A2E45 and A2E46		TERMINAL, STUD: Item 51.	7-4C
A2E47 and A2R48		Not used.	
A2E49 and A2E50		TERMINAL, STUD: Item 51.	7-4C, 7-4A-A
A2E51		TERMINAL, STUD: Item 53.	7-4A-A
A2E52 thru A2E58		TERMINAL, STUD: Item 51.	7-4C, 7-4A-A
A2E59 and A2E60		TERMINAL, INSULATED, STANDOFF: 0.42 in. long, 0.188 in. w; mfr 15849, part no. 1481A, 98738, dwg 29P228382-01. (Attaching Parts) DD(2)	7-4C
A2E61 and A2E62		TERMINAL, LUG: MIL type MS77068-1.	7-4C
A2F1 and A2F2		FUSE, ELECTRICAL: 1.5 amp; MIL type F02B250V1-1/2A.	7-7

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSMITTER MAIN FRAME A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2J1		CONNECTOR, RECEPTACLE, ELECTRICAL: MIL type MS3102R14S-5S. (Attaching Parts) AG(2) AJ(2) AU(2) GC(1) GA(3) AL(1)	7-7
A2J2		JACK, TELEPHONE: MIL type M641/5-1.	7-7
A2J3 thru A2J7		Not used.	
A2J8		CONNECTOR, PLUG, ELECTRICAL: MIL type M24308/1-3. (Attaching Parts) AF(2) AJ(4) AL(2) AQ(2) AU(4)	7-4C
A2J9 thru A2J20		Not used.	
A2J21		CONNECTOR, PLUG, ELECTRICAL: MIL type M24308/3-5. (Attaching Parts) AJ(2) AK(2)	7-4C
A2J22		CONNECTOR, RECEPTACLE, ELECTRICAL: 1.541 in. long, 0.494 in. w, 0.422 in. h; mfr 71785, part no. DAMM3W3P, 06845, dwg 4032484-0701. (Attaching Parts) AK(2) AJ(2)	7-4B
A2J23		CONNECTOR, PLUG, ELECTRICAL: MIL type M24308/1-4.	7-4A-A
A2K1		RELAY, ELECTRICAL, DPDT: MIL type M5757/13-079. (Attaching Parts) AG(2) AL(2)	7-4C
A2K2		RELAY, ELECTRICAL, DPDT: 2 amp; MIL type M5757/10-035. (Attaching Parts) AD(2) AL(2)	7-4C
A2K3		RELAY, ARMATURE: 4PDT; 1.375 in. long, 0.968 in. w, 1.625 in. h; mfr 99699, part no. E410-1390, 98738, dwg 80P228117-01. (Attaching Parts) M(4) AC(4)	7-4C
A2K4		RELAY, ELECTRICAL: DPDT, 2 amp; 0.875 in. long, 0.800 in. w, 0.400 in. h; mfr 02289, part no. 2BA-1B112; dwg 80P228228-01. (Attaching Parts) AD(2) AL(2)	7-4C
A2K5 and A2K6		RELAY, ELECTRICAL, DPDT: MIL type M5757/13-079. (Attaching Parts) AG(4) AL(4)	7-4C
A2L1		REACTOR: 15 H, 175 V, 2.625 in. long, 1.688 in. w, 4.500 in. h; mfr 96256, part no. T57279, 06845, dwg 4032364-0701. (Attaching Parts) AM(4) AN(4)	7-4C, 7-4A

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSMITTER MAIN FRAME A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2L2		REACTOR: 400 mH, 140 V, 4.125 in. long, 2.500 in. w, 4.375 in. h; mfr 93928, part no. 16300-1, 06845, dwg 4030645-0701. (Attaching Parts) AM(4) AN(4)	7-4C, 7-4A
A2M1 and A2M2		METER, AUDIO LEVEL: 1.250 in. dia, 1.251 in. thk; mfr 81030, part no. 9-0100-090, 06845, dwg 4032166-0701.	7-7
A2MP1 and A2MP2		KNOB ASSEMBLY: Plastic, 1.500 in. dia, 1.090 in. thk; mfr 06845, part no. 2058802-0501. (Attaching Parts) DM(2) GF(2) BC(2)	7-7
A2MP3 thru A2MP5		KNOB, ASSEMBLY: Plastic, 1.500 in. dia, 1.090 in. thk; mfr 06845, part no. 2058802-0502. (Attaching Parts) DW(3) DM(3) BC(3)	7-7
A2MP6		Not used.	
A2MP7		INSULATOR PLATE: 1.65 in. long, 1.06 in. w; mfr 08289, part no. DM103, 06845, dwg4032435-0701.	7-4B
A2MP8		SPROCKET ASSEMBLY, TRIPLE: Mfr 98738, part no. 01A228308-01. (Attaching Parts) A(4) B(4)	7-4B, 7-5
A2MP8A thru A2MP8F		BEARING, SLEEVE: 0.460 in. dia, 0.140 in. thk; mfr 06845, part no. 2031154-0002.	7-5
A2MP8G thru A2MP8J		SPROCKET, WHEEL: 30 teeth, 1.463 in. dia, 0.094 in. thk; mfr 06845, part no. 4030801-0701.	7-5
A2MP8K thru A2MP8M		DISK, COUPLING: 0.875 in. dia, 0.390 in. thk; mfr 06845, part no. 4030895-0001.	7-5
A2MP8N thru A2MP8Q		WASHER, SPRING, TENSION: 0.568 in. dia, 0.200 in. hole dia; mfr 78189, part no. 3502-10-53-0544B, 06845, dwg 4032104-0703.	7-5
A2MP8R thru A2MP8W		RING, RETAINING: MIL type MS16633-4018.	7-5
A2MP8X and A2MP8Y		SHAFT, COUPLING: 1.115 in. long, 0.1874 in. dia, mfr 06845, part no. 4032196-0501. (Attaching Parts) FC(4)	7-5
A2MP8Z thru A2MP8AB		RING, RETAINING: MIL type MS16624-1039.	7-5
A2MP8AC, A2MP8AC1, A2MP8AD, A2MP8AD1, A2MP8AE, A2MP8AE1		CLAMP, SPROCKET: 0.436 in. long, 0.234 in. w, 0.59 in. h; mfr 98738, part no. 42P228365-01.	7-5
A2MP8AF		BRACKET, SPROCKET: Mfr 06845, part no. 4032198-0001.	7-5

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSMITTER MAIN FRAME A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2MP8AG		SHAFT, COUPLING: 0.187 in. dia, 1.38 in. long; mfr 06845, part no. 4032197-0501. (Attaching Parts) FC(2)	7-5
A2MP9		DUAL SPROCKET ASSEMBLY: Mfr 98738, part no. 01A228273-01. (Attaching Parts) B(4) C(4)	7-4B, 7-6
A2MP9A		BRACKET, SPROCKET: Mfr 06845, part no. 4030872-0501.	7-6
A2MP9B and A2MP9C		SHAFT, COUPLING: 1.38 in. long, 0.1874 in. dia; mfr 06845, part no. 4032197-0501. (Attaching Parts) FC(4)	7-6
A2MP9D and A2MP9E		SPROCKET, WHEEL: 30 teeth, 1.463 in. dia, 0.281 in. thk; mfr 06845, part no. 4030777-0701. (Attaching Parts) AU(4) AL(4) AT(4)	7-6
A2MP9F and A2MP9G		WASHER, SPRING, TENSION: 0.568 in. dia, 0.200 in. hole dia; mfr 78189, part no. 3502-10-53-0544B, 06845, dwg 4032104-0703.	7-6
A2MP9H thru A2MP9L		BEARING, SLEEVE: 0.460 in. dia, 0.140 in. thk; mfr 06845, part no. 2031154-0002.	7-6
A2MP9M and A2MP9N		DISK, COUPLING: 0.875 in. dia, 0.390 in. thk; mfr 06845, part no. 4030895-0001.	7-6
A2MP9P thru A2MP9S		SPACER: 0.188 in. OD, 0.120 in. ID, 0.250 in. long; mfr 06845, part no. 4030905-0001.	7-6
A2MP9T and A2MP9U		BEARING, ROLLER, NEEDLE: 0.34 in. OD, 0.19 in. ID, 0.25 in. thk; mfr 60380, part no. B34, 06845, dwg 4032157-0701.	7-6
A2MP9V and A2MP9W		PIN, ROLLER: 0.1875 in. dia, 0.400 in. long; mfr 06845, part no. 4032132-0002.	7-6
A2MP9X and A2MP9Y		ARM: Copper, nickel plated; 2.14 in. long, 0.300 in. w, 0.500 in. thk; mfr 06845, part no. 4030879-0001. (Attaching Parts) FZ(2) AS(2)	7-6
A2MP9Z, A2MP9Z1, A2MP9Z2 and A2MP9AA		CLAMP, SPROCKET: 0.44 in. long, 0.23 in. w, mfr 98738, part no. 42P228365-01. (Attaching Parts) FY(2)	7-6
A2MP9AB and A2MP9AC		WHEEL, INDEX: 1.500 in. dia, 0.062 in. thk; mfr 06845, part no. 4032201-0001.	7-6
A2MP9AD and A2MP9AE		RING, RETAINING: MIL type MS16624-1039.	7-6
A2MP9AF and A2MP9AG		SHIM, STEEL: 0.38 in. dia, 0.20 in. ID; mfr 06845, part no. 207403-3404.	7-6

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Contined)

TRANSMITTER MAIN FRAME A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2MP9AH, A2MP9AH1, A2MP9AH2, and A2MP9AJ		WASHER, FLAT: 0.193 in. dia, 0.010 in. thk; mfr 06845, part no. 4032136-0001.	7-6
A2MP9AK thru A2MP9AN		RING, RETAINING: MIL type MS16633-4018.	7-6
A2MP9AP thru A2MP9AS		SPACER: 0.48 in. long, 0.301 i. w, 0.062 in. thk; half-hard brass, nickel plate; mfr 06845, part no. 4032143-0001.	7-6
A2MP9AT and A2MP9AU		SPACER: 0.48 in. long, 0.30 in. w, 0.016 in. thk; half-hard brass, nickel plate; mfr 06845, part no. 4032143-0002.	7-6
A2MP9AV and A2MP9AW		Not used.	
A2MP9AX and A2MP9AY		PLATE: 1.68 in. long, 0.25 in. w; mfr 06845, part no. 4032110-0001. (Attaching Parts) AQ(2)	7-6
A2MP10		BLOCK, ADJUSTABLE, IDLER: Mfr 06845, part no. 4032373-0501. (Attaching Parts) A(2) H(1) B(2)	7-4B
A2MP10A		SHAFT, SPROCKET IDLER: 0.500 in. dia, 0.1875 in. dia; 0.1268 in. dia, 0.64 in. long; mfr 06845, part no. 4030871-0001.	7-4B
A2MP10B		SPROCKET, WHEEL: 1.182 in. dia, 0.268 in. thk; mfr 06845, part no. 4030779-0701.	7-4B
A2MP10C		BEARING, ROLLER, NEEDLE: 0.34 in. OD, 0.19 in. ID, 0.25 in. thk; mfr 60380, part no. B34, 06845, dwg 4032157-0701.	7-4B
A2MP11		BLOCK, ADJUSTABLE, IDLER: 0.64 in. long; mfr 06845, part no. 4032373-0501. (Attaching Parts) A(2) H(1) B(2)	7-4B
A2MP11A		SHAFT, SPROCKET, IDLER: 0.500 in. dia, 0.1875 in. dia, 0.1268 in. dia, 0.64 in. long; mfr 06845, part no. 4030871-0001.	7-4B
A2MP11B		SPROCKET, WHEEL: 1.182 in. dia, 0.268 in. thk; mfr 06845, part no. 4030779-0701.	7-4B
A2MP11C		BEARING, ROLLER, NEEDLE: 0.34 in. OD, 0.19 in. ID, 0.25 in. thk; mfr 60380, part no. B34, 06845, dwg 4032157-0701.	7-4B
A2MP12		BLOCK, ADJUSTABLE, IDLER: Mfr 06845, part no. 4032373-0502. (Attaching Parts(A(2) H(1) B(2)	7-4B

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSMITTER MAIN FRAME A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2MP12A		SHAFT, SPROCKET, IDLER: 0.64 in. long; mfr 06845, part no. 4030871-0001.	7-4B
A2MP12B		SPROCKET, WHEEL: 1.182 in. dia, 0.268 in. thk, mfr 06845, part no. 4030779-0001.	7-4B
A2MP12C		BEARING, ROLLER, NEEDLE: 0.34 in. OD, 0.19 in. ID, 0.25 in. thk; mfr 60380, part no. B34, 06845, dwg 4032157-0701.	7-4B
A2MP13		CHAIN, ROLLER: 20.35 in. long; mfr 72625, part no. XAU-1147-D47SS-138P, 98738, dwg 45P226357-01 is preferred due to ease of installation; 45P228227-01 is alternate.	7-4C
A2MP14		CHAIN, ROLLER: 23.60 in. long; mfr 72625, part no. XAU-1147-D47SS-160P, 98738, dwg 45P226357-02 is preferred due to ease of installation; 45P228227-02 is alternate.	7-4C
A2MP15		CHAIN, ROLLER: 30.38 in. long; mfr 72625, part no. XAU-1147-D47SS-206P, 98738, dwg 45P226357-02 is preferred due to ease of installation; 45P228227-03 is alternate.	7-4C
A2MP16 and A2MP17		SPRING, DETENT: Mfr 06845, part no. 4032225-0501. (Attaching Parts) M(4) L(2) K(4)	7-7
A2MP18 and A2MP19		PIN, ROLLER: 0.1562 in. dia, 0.40 in. long; mfr 06845, part no. 4032132-0001.	7-7
A2MP20 thru A2MP22		GEAR SET: Bevel matched, 32 teeth; mfr 00141, part no. 0090-1, 06845, dwg 4030781-0701. (Attaching Parts) GG(3) BE(3)	7-7
A2MP23 thru A2MP25		SPROCKET WHEEL: 1.463 in. dia, 0.269 in. thk; mfr 06845, part no. 4030778-0702. (Attaching Parts) BE(3) GG(3)	7-7
A2MP26 thru A2MP28		SHAFT, SWITCH: 0.187 in. dia, 2.62 in. long; mfr 06845, part no. 4032384-0001. (Attaching Parts) BZ(6) DQ(6)	7-7
A2MP29	2	LINK, CONNECTING: Mfr 72625, part no. XAU-1147-D47SS-CL, 98738, 45P226357-04, used on preferred A2MP13, A2MP14 and A2MP15.	
A2MP30 thru A2MP32		Not used.	
A2MP33 thru A2MP35		DIAL, kHz: Cellulose acetate butyrate, 2.55 in. dia, 0.804 in. thk; mfr 06845, part no. 4010034-0001. (Attaching Parts) BD(6)	7-7
A2MP36		PLATE: 0.912 in. long, 0.624 in. w, 0.094 in. thk; mfr 06845, part no. 4013364-0001.	7-7

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSMITTER MAIN FRAME A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2MP37		PANEL, LIGHT: 12.44 in. long, 0.860 in. w, 0.150 in. thk; mfr 06845, part no. 4010004-0001. (Attaching Parts) M(2) K(2) EA(2)	7-7
A2MP38		SPACER, SPROCKET: 0.50 in. dia, 0.144 in. w; mfr 06845, part no. 4030866-0002.	7-7
A2MP39		PLATE: 0.96 in. long, 0.531 in. w, 0.094 in. thk; mfr 06845, part no. 4013365-0001.	7-7
A2MP40		KNOB, CONTROL: MIL type MS91528-1K2B. (Attaching Parts) EB(1) BG(2)	7-7
A2MP41		KNOB ASSEMBLY: Mfr 06845, part no. 4032100-0501. (Attaching Parts) EB(1) EC(1) BC(2) EE(1)	7-7
A2MP42 and A2MP43		BEARING, NEEDLE: 0.28 in. OD, 0.16 in. ID, mfr 60380, part no. B21-24, 06845, dwg 4032157-0702.	7-7
A2MP44		COVER, ELECTRICAL, CONNECTOR: 1.125 in. long, 0.880 in. w, 0.440 in. thk; mfr 82389, part no. 520, 06845, dwg 4031933-0701. (Attaching Parts) EG(1) AH(1)	7-7
A2MP45		KNOB, CONTROL: Mfr 06845, part no. 4013369-0001. (Attaching Parts) EG(1)	7-7
A2MP46		Not used.	
A2MP47 thru A2MP50		SPACER: 0.312 in. hex, 0.714 in. long; mfr 98738, part no. 43P228463-02. (Attaching Parts) GD(3) GE(4)	7-7
A2MP51 thru A2MP60		Not used.	
A2MP61 and A2MP62		BUSHING, 1 KHZ DETENT: Bronze cadmium, 0.688 in. OD, 0.2502 in. ID, 2.500 in. long; mfr 06845, part no. 2058974-0001.	7-7
A2MP63		BUSHING, 10 KHZ - 100 KHZ DETENT: 1.25 in. dia, 0.318 in. thk; shaft 1.554 in. long; mfr 76854, part no. Type H Base Frame, 06845, dwg 4032354-0701.	7-7
A2MP64 and A2MP65		SPACER, SPROCKET: 0.50 in. dia, 0.08 in. wide; mfr 06845, part no. 4030866-0001. (Attaching Parts) GG(2) BE(2)	7-7
A2MP66 thru A2MP68		BOOT, SEAL: MIL type M5423/09-02.	7-7
A2MP69		BRACKET, RECTIFIER: 1.80 in. long, 1.19 in. wide; mfr 98738, dwg 07A228350-01. (Attaching Parts) AJ(2)	7-4C, 7-7
A2MP70 and A2MP71		DIAL, ASSEMBLY: 2.55 in. dia, 0.22 in. thk; mfr 98738, part no. 34A226785-21-11.	7-7

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSMITTER MAIN FRAME A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2MP72 thru A2MP75		STUD, EXTENSION: 0.250 in. hex, 0.84 in. long, mfr 06845, part no. 4032189-0003.	7-4A
A2MP76 thru A2MP79		SPACER: 0.250 in. hex, 0.500 in. long; mfr 06845, part no. 4032128-0004.	7-4A
A2MP80	*	SHIELD, COMPONENT; Plastic, 4.00 in. long, 3.68 in. w, 0.062 in. thk; mfr 98738, part no. 15P226348-23-11.	7-4A, 7-7
A2MP80		SHIELD, COMPONENT: Plastic; 4.00 in. long, 3.68 in. w, 0.062 in. thk; mfr 98738, part no. 15P226348-22-11.	7-4A, 7-7
A2MP81 and A2MP82		BUSHING: Nylon; 0.375 in. dia, 0.094 in. thk; mfr 06845, part no. 4032106-0002.	7-4C
A2MP83		SHIELD, COMPONENT: Aluminum alloy; 15.54 in. long, 2.40 in. w, 0.063 in. thk; mfr 98738, part no. 26A228293-01. (Attaching Parts) BM(2) BU(2)	7-4A-A
A2MP84		CLAMP, CABLE: 2.08 in. long, 0.50 in. w, 0.38 in. h; mfr 98738, part no. 42P228430-01. (Attaching Parts) M(2) L(2) EZ(2)	7-4B
A2MP85 and A2MP86		Not used.	
A2MP87		CLAMP, LOOP: 0.623 in. long, 0.50 in. w, 0.526 in. dia; mfr 98738, part no. 42S130737-20. (Attaching Parts) M(1) L(1) K(1)	7-4A-A
A2MP88		FRONT PANEL: 17.25 in. long, 6.90 in. w, mfr 98738, part no. 64A228073-01. (Attaching Parts) Y(5) Z(1)	7-7
A2MP89 and A2MP90		SPACER: 0.188 in. hex, 0.78 in. long; mfr 06845, part no. 4032112-0001. (Attaching Parts) ER(2)	7-4B
A2MP91 and A2MP92		BUSHING, SHAFT: 0.63 in. hex, 2.29 in.long; mfr 76854, part no. 4-8145-633, 98738, dwg 43P227255-21-12. (Attaching Parts) BB(1) BC(1)	7-7
A2MP93		CLAMP, LOOP: 0.623 in. long, 0.50 in. w, 0.562 in. dia; mfr 98738, part no. 42S130737-20. (Attaching Parts) M(1) L(1) K(1)	7-4A-A
A2MP94		CLAMP, LOOP: 0.752 in. long, 0.50 in. w, 0.687 in. dia; mfr 98738, part no. 42S130737-27. (Attaching Parts) M(1) L(1) K(1)	7-4A-A
A2MP95 thru A2MP103		Not used.	

* Preferred Part.

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSMITTER MAIN FRAME A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2MP104 thru A2MP106		SPACER: 0.250 in. hex, 0.544 in. long; mfr 98738, part no. 43P228463-01.	7-7
A2MP107		GASKET, FORMED: Synthetic rubber, 13.75 in. dia, 0.140 in. thk; mfr 06845, part no. 4032199-0001.	7-7
A2MP108 thru A2MP112		WINDOW, DIAL: Acrylic plastic sheet, 0.030 in. thk; 0.740 in. dia; mfr 06845, part no. 4030630-0001.	7-7
A2MP113 thru A2MP117		CLIP, WINDOW: 0.75 in. long, 0.72 in. w; mfr 06845, part no. 4032105-0001. (Attaching Parts) AL(10) AG(10)	7-7
A2MP118		BRACKET, SUPPORT: 8.640 in. long, 1.580 in. w, 1.175 in. thk; mfr 06845, part no. 4032360-0501. (Attaching Parts) B(6) BM(3) BN(3) H(1)	7-7
A2MP119 and A2MP120		HANDLE: Aluminum alloy, 0.31 in. dia, 4.87 in. long; mfr 00328, part no. S041-19, 06845, dwg 4032156-0701. (Attaching Parts) EH(4)	7-7
A2MP121 thru A2MP124		FERRULE: Aluminum alloy, 0.312 in. thk; 0.750 in. dia; mfr 00328, part no. S044-3, 06845, dwg 4032156-0702.	7-7
A2MP125		GASKET, SHIELD: Aluminum alloy wire cloth, 1.19 in. long, 1.19 in. w, 0.02 in. thk; mfr 12881, part no. 40-014, 06845, dwg 4032176-0701.	7-7
A2MP126 and A2MP127		SPACER: 0.25 in. dia, 0.19 in. long; mfr 06845, part no. 4010020-0001. (Attaching Parts) M(2) K(2)	7-7
A2MP128 and A2MP129		CLAMP: 1.28 in. long, 0.88 in. w, 0.19 in. dia; mfr 06845, part no. 4010007-0001.	7-7
A2MP130		LEAD, ELECTRICAL: 2.50 in. long; mfr 06845, part no. 4032453-0501. (Attaching Parts) AA(2) AD(1) AB(1) AC(1) AE(2)	7-4C
A2MP131		BRACKET CONNECTOR: 3.50 in. long, 0.38 in. w, mfr 98738, dwg 07P228294-01. (Attaching Parts) EX(2)	7-4A-A
A2MP132		COVER, AUDIO PROCESSOR: Aluminum alloy; 4.43 in. long, 3.06 in. w, 0.0508 in. thk; mfr 98738, part no. 15P228089-04.	7-4B
A2MP133		CHANNEL, RUBBER: 1 in. long, 0.22 in. w, 0.32 in. h; mfr 20544, part no. 541, 14304, dwg Z23-0003-000.	7-4C

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSMITTER MAIN FRAME A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2MP134		HOUSING, AUDIO PROCESSOR, 4.43 in. long, 4.31 in. w, 3.5 in. h; mfr 98738, part no. 15P228088-01.	7-4B
A2P1		CONNECTOR, RECEPTACLE, ELECTRICAL: P/o A2S2.	7-4A-A
A2Q1		TRANSISTOR: MIL type JAN2N3442. (Attaching Parts) M(2) L(1) EJ(2) K(2)	7-4B
A2R1		RESISTOR, FIXED, COMPOSITION: 13K ohms ±5%, 2 W; MIL type RCR42G133JS.	7-4B
A2R2		RESISTOR, FIXED, WIRE-WOUND: 332 ohms ±1%, 5 w; MIL type RER60F3320M. (Attaching Parts) J(2) T(2)	7-4B
A2R3		RESISTOR, FIXED, WIRE-WOUND: 100 ohms ±1%, 7 w; MIL type RWR84S1000FM.	7-4B
A2R4		RESISTOR, FIXED, WIRE-WOUND: 820 ohms ±5%, 14 w; MIL type RW56V821.	7-4B
A2R5		RESISTOR, FIXED, WIRE-WOUND: 53.6 ohms ±1%, 10 w; MIL type RER65F53R6M. (Attaching Parts) J(2) T(2)	7-4A-A
A2R6A	1	RESISTOR: Item 33.	7-4B
A2R6B	1	RESISTOR, FIXED, COMPOSITION: 1 megohm ±5%, 1/4 w; MIL type RCR07G105JS.	7-4B
A2R6C	1	RESISTOR, FIXED, COMPOSITION: 120K ohms ±5%, 1/4 w; MIL type RCR07G124JS.	7-4B
A2R6D	1	RESISTOR, FIXED, COMPOSITION: 150K ohms ±5%, 1/4 w; MIL type RCR07G154JS.	7-4B
A2R6E	1	RESISTOR, FIXED, COMPOSITION: 180K ohms ±5%, 1/4 w; MIL type RCR07G184JS.	7-4B
A2R6F	1	RESISTOR, FIXED, COMPOSITION: 220K ohms ±5%, 1/4 W; MIL type RCR07G224JS.	7-4B
A2R6G	1	RESISTOR, FIXED, COMPOSITION; 47K ohms ±5%, 1/4 w; MIL type RCR07G473JS.	7-4B
A2R6H	1	RESISTOR, FIXED, COMPOSITION: 56K ohms ±5%, 1/4 w; MIL type RCR07G563JS.	7-4B
A2R6J	1	RESISTOR, FIXED, COMPOSITION: 69K ohms ±5%, 1/4 w; MIL type RCR07G683JS.	7-4B
A2R6K	1	RESISTOR, FIXED, COMPOSITION: 82K ohms ±5%, 1/4 w; MIL type RCR07G823JS.	7-4B
A2R6L	1	RESISTOR, FIXED, COMPOSITION: 39K ohms ±5%, 1/4 w; MIL type RCR07G393JS.	7-4B
A2R6M	1	RESISTOR: Item 40.	7-4B
A2R6N	1	RESISTOR: Item 37.	7-4B
A2R6P	1	RESISTOR, FIXED, COMPOSITION: 22K ohms ±5%, 1/4 w; MIL type RCR07G223JS.	7-4B
A2R6Q	1	RESISTOR, FIXED, COMPOSITION: 18K ohms ±5%, 1/4 w; MIL type RCR07G183JS.	7-4B

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSMITTER MAIN FRAME A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2R7		RESISTOR, FIXED, COMPOSITION: 100 ohms ±5%, 1 w; MIL type RCR32G101JS.	7-4B
A2R8		RESISTOR, FIXED, WIRE-WOUND: 2,670 ohms ±1%, 10 w; MIL type RER65F2671M. (Attaching Parts) J(2) T(2)	7-4A-A
A2R9		RESISTOR, FIXED, WIRE-WOUND: 22.6 ohms ±1%, 10 w; MIL type RER65F22R6M. (Attaching Parts) J(2) T(2)	7-4C
A2S1		SWITCH, ROTARY: 1.500 in. dia, 1.250 in. thk; 2 secton, 2 position, 2 amp; mfr 76854, part no. 5-42513-210,06845, dwg 4030833-0701.	7-7
A2S2		SWITCH ASSEMBLY: Mfr 98738, part no. 01A228282-01.	7-7
A2S3 and A2S4		SWITCH SUBASSEMBLY: Mfr 06845, part no. 4032375-0502. (Attaching Parts) BZ(4) DQ(4)	7-7
A2S5		SWITCH, SUBASSEMBLY: Mfr 06845, part no. 4032375-0501. (Attaching Parts) BZ(2) DQ(2)	7-7
A2S6		SWITCH, ROTARY: 1.02 in. dia, 1.39 in. thk; 1 section, 10 position, 2 amp; mfr 76854, part no. 5-12331-420, 06845, dwg 4032428-0701.	7-7
A2S7 thru A2S9		SWITCH, TOGGLE: MIL type MS24656-231.	7-7
A2S10		SWITCH, TOGGLE, SPST: MIL type MS24655-221.	7-7
A2S11		SWITCH, TOGGLE: MIL type MS24656-231.	7-7
A2T1		TRANSFORMER, POWER, STEP DOWN AND STEP UP: 2.69 in. long, 2.25 in.w, 4.50 in. h; 48 to 450 Hz; mfr 89870, part no. BTC-11968, 98738, dwg 25P228411-01. (Attaching Parts) AN(4) AM(4)	7-4C
A2W1 thru A2W30		Not used.	
A2W31		CABLE ASSEMBLY, RF: 14.20 in. long; mfr 98738, part no. 30A226495-31-11.	7-4D
A2W31P1 and A2W31P2	2	CONNECTOR: Item 21.	
A2W32		Not used.	
A2W33		CABLE ASSEMBLY, RF: 18.00 in. long; mfr 98738, part no. 30A226495-39-11.	7-4D
A2W33P1	2	CONNECTOR: Item 21.	
A2W33P2	2	CONNECTOR, PLUG, ELECTRICAL: 0.929 in. long, 0.046 in. dia; mfr 71785, part no. 318-11-99-285, 06845, dwg 4032484-0731.	
A2W34		CABLE ASSEMBLY, RF: 13.5 in. long; mfr 98738, part no. 30A226495-43-11.	7-4D

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSMITTER MAIN FRAME A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2W34P1 and A2W34P2	2	CONNECTOR: Item 21.	
A2W35		Not used.	
A2W36		CABLE ASSEMBLY, RF: 12.00 in. long; mfr 98738, part no. 30A226495-44-11.	7-4D
A2W36P1 and A2W36P2	2	CONNECTOR: Item 21.	
A2W37		CABLE ASSEMBLY, RF: 6.00 in. long; mfr 98738, part no. 30A226495-33-11.	7-4D
A2W37P1 and A2W37P2	2	CONNECTOR: Item 21.	
A2W38		CABLE ASSEMBLY, RF: 10.00 in. long; mfr 98738, part no. 30A226495-45-11.	7-4D
A2W38P1	2	CONNECTOR: Item 21.	
A2W38P2	2	CONNECTOR, PLUG, ELECTRICAL: 0.929 in. long, 0.046 in. dia; mfr 71785, part no. 318-11-99-285, 06845, dwg 4032484-0731.	
A2W39		CABLE ASSEMBLY, RF: 10.00 in. long; mfr 98738, part no. 30A226495-46-11.	7-4D
A2W39P1	2	CONNECTOR: Item 21.	
A2W39P2	2	CONNECTOR, PLUG, ELECTRICAL: 0.929 in. long, 0.046 in. dia; mfr 71785, part no. 318-11-99-285, 06845, dwg 4032484-0731.	
A2W40		CABLE ASSEMBLY, RF: 12.00 in. long; mfr 98738, part no. 30A226495-47-11.	7-4D
A2W40P1 and A2W40P2	2	CONNECTOR: ITEM 21.	
A2W41		CABLE ASSEMBLY, RF: 6.00 in. long; mfr 98738, part no. 30A226495-37-11.	7-4D
A2W41P1 and A2W41P2	2	CONNECTOR: Item 21.	
A2W42		CABLE ASSEMBLY, RF: 6.00 in. long; mfr 98738, part no. 30A226495-38-11.	7-4D
A2W42P1 and A2W42P2	2	CONNECTOR: Item 21.	
A2W43		CABLE ASSEMBLY, RF: Mfr 98738, part no. 30A228416-01 (A2W43A, 13 in. long; W43B, 23.5 in. long).	7-4D
A2XA1P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 11 contacts, incl. 1 coax, 1.541 in. long, 0.494 in. w, 0.663 in. thk; mfr 71785, part no. DAMMR11W1S, 06845, dwg 4032484-0706. (Attaching Parts) BZ(2) T(2) CA(2)	7-4B

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSMITTER MAIN FRAME A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2XA1P2		CONNECTOR, PLUG, ELECTRICAL: 25 contacts including 3 coaxial; 2.729 in. long, 0.663 in. w; 0.429 in. thk; mfr 71785, part no. DCMMR25W3S, 06845, dwg 4032484-0720. (Attaching Parts) BZ(2) T(2) CA(2)	7-4B
A2XA2P1 and A2XA3P1		Not used.	
A2XA4P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 15 contacts, 1.541 in. long, 0.494 in. w, 0.648 in. thk; mfr 71785, part no. DAMAMR15S, 98738, dwg 09P226565-23. (Attaching Parts) BZ(2) T(2) CA(2)	7-4B
A2XA4P2		CONNECTOR, RECEPTACLE, ELECTRICAL: 17 contacts including 5 coaxial; 2.729 in. long, 0.494 in. w, 0.429 in. thk; mfr 71785, part no. DCMMR17W5S, 06845, dwg 4032484-0721. (Attaching Parts) BZ(2) T(2) CA(2)	7-4B
A2XA4P2A1		Refer to cable assembly A2W33P1.	7-4D
A2XA4P2A2 and A2XA4P2A3		CONNECTOR, ELECTRICAL: Dummy; 0.734 in. long, 0.530 in. w, 0.045 in. thk; mfr 06845, part no. 4032270-0501.	7-4B
A2XA5P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 2.729 in. long, 0.494 in. w, 0.429 in. h; mfr 71785, part no. DCMMR13W6S, 06845, dwg 4032484-0719. (Attaching Parts) BZ(2) T(2) CA(2)	7-4B
A2XA6P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 25 contacts including 3 coaxial; 2.729 in. long, 0.663 in. w, 0.429 in. thk; mfr 71785, part no. DCMMR25W3S, 06845, dwg 4032484-0720. (Attaching Parts) BZ(2) T(2) CA(2)	7-4B
A2XA6P2		CONNECTOR, RECEPTACLE, ELECTRICAL: 1.541 in. long, 0.494 in. w, 0.429 in. h; mfr 71785, part no. DAMMR3W3S, 06845, dwg 4032484-0705. (Attaching Parts) BZ(2) T(2) CA(2)	7-4B
A2XA6P2A1		Not used.	
A2XA6P2A2		Refer to A2W37.	7-4D
A2XA6P2A3		CONNECTOR, ELECTRICAL: Dummy, 0.73 in. long, 0.53 in. w, 0.045 in. thk; mfr 06845, part no. 4032270-0501.	7-4C
A2XA6P3		CONNECTOR, RECEPTACLE, ELECTRICAL: 1.54 in. long, 0.49 in. w, .43 in. h; mfr 71785, part no. DAMMR3W3S, 06845, dwg 4032484-0705. (Attaching Parts) CA(2) BZ(2) T(2)	7-4B

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSMITTER MAIN FRAME A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2XA7 and A2XA8		Not used.	
A2XA9P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 9 contacts, 1.21 in. long, 0.49 in. w, 0.648 in. thk; mfr 71785, part no. DEMAMR9S, 98738, dwg 09P226565-22. (Attaching Parts) BZ(2) T(2) CA(2)	7-4B
A2XA10 and A2XA11		Not used.	
A2XA12P1		CONNECTOR, PLUG, ELECTRICAL: 13 contacts including 3 coaxial, 2.088 in. long, 0.49 in. w, 0.43 in. thk; mfr 71785, part no. DBMMR13W3S, 06845, dwg 4032484-0713. (Attaching Parts) BZ(2) T(2) CA(2)	7-4B
A2XDS1 and A2XDS2		Not used.	
A2XDS3 and A2XDS4		LIGHT, PANEL: 25 Vdc, 1.125 in. long, 0.64 in. dia; mfr 72914, part no. A4921-4, 06845, dwg 4032385-0701. (Includes light bulb holder).	7-7
A2XF1 and A2XF2		FUSEHOLDER: MIL type FHL17G1.	7-7
A2A1		TRANSMITTER MODE SELECTOR ASSEMBLY: 2.17 in. h, 5.16 in. w, 4.40 in. long; mfr 98738, part no. 01A228170-01. (Attaching Parts) CE(2)	7-8
A2A1C1 thru A2A1C6		CAPACITOR: Item 9.	7-8
A2A1C7 thru A2A1C10		CAPACITOR, FIXED, MICA: 240 pF ±1%, 500 Vdc working; MIL type CMR04F241FPDM.	7-8
A2A1E1 thru A2A1E3		TERMINAL: Item 66.	7-8
A2A1E4		TERMINAL, STUD: Item 52.	7-8
A2A1E5		TERMINAL: Item 66.	7-8
A2A1E6		TERMINAL, STUD: Item 52.	7-8
A2A1E7 and A2A1E8		TERMINAL: Item 66.	7-8
A2A1FL1		FILTER, BANDPASS: 0.437 in. dia, 2.50 in. long, 500 kHz; mfr 95105, part no. 526-9419-010, 98738, dwg 08P228093-01. (Attaching Parts) AF(2) AL(2) AQ(1) AA(2) CG(2)	7-8

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSMITTER MODE SELECTOR ASSEMBLY A2A1

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A1FL2		FILTER, BANDPASS: 0.437 in. dia, 2.50 in. long, 500 kHz, mfr 95105, part no. 526-9420-010, 98738, dwg 08P228093-02. (Attaching Parts) AF(2) AA(2) AQ(2) AL(2)	7-8
A2A1MP1		COVER, MODE SELECTOR: Aluminum alloy; 5.148 in. long, 2.148 in. w, 4.370 in. h; mfr 98738, part no. 15A226309-21-11. (Attaching Parts) AL(2) CG(2) CQ(2)	7-8
A2A1MP2 and A2A1MP3		INSULATOR, TRANSFORMER: Plastic, 0.88 in. long, 0.88 in. w, 0.031 in. thk; mfr 06845, part no. 4032135-0001.	7-8
A2A1MP4 thru A2A1MP6		GROMMET: Rubber, MIL type MS35489-1.	7-8
A2A1P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 1.541 in. long, 0.494 in. w, 0.422 in. thk; mfr 71785, part no. DAMME11W1P, 06845, dwg 4032484-0702. (Attaching Parts(CF(2)	7-8
A2A1P1A1		PLUG, CONNECTOR: Right angle coaxial, 0.734 in. long; mfr 71785, part no. 318-11-99-284, 06845, dwg 4032484-0730.	7-8
A2A1P2		CONNECTOR, RECEPTACLE, ELECTRICAL: 2.729 in. long, 0.494 in. w, 0.426 in. thk; mfr 71785, part no. DCMME25W3P, 06845, dwg 4032484-0717. (Attaching Parts) CF(2)	7-8
A2A1P2A1		PLUG, CONNECTOR: Right angle coaxial, 0.734 in. long; mfr 71785, part no. 318-11-99-284, 06845, dwg 4032484-0730.	7-8
A2A1P2A2		Not used.	
A2A1P2A3		PLUG, CONNECTOR: Right angle coaxial, 0.734 in. long; mfr 71785, part no. 318-11-99-284, 06845, dwg 4032484-0730.	7-8
A2A1S1		SWITCH, ROTARY: 1.09 in. long, 0.50 in. dia; 1 section on 2 poles per section, 4 position, non-shorting; mfr 81073, part no. 51CY23417, 98738, dwg 40P228622-01; alternate; mfr 96854, part no. 276781-511, 06845, dwg 4030830-0701. (Attaching Parts) FL(1) FM(1)	7-8
A2A1T1 and A2A1T2		TRANSFORMER, RF: 0.75 in. long, 0.75 in. w, 0.25 in. h, tuning capacitor 750 pF ±10% at 500 kHz; mfr 93928, part no. 11210, 98738, dwg 24P227267-01. (Attaching Parts) AL(4) AD(4)	7-8

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSMITTER MODE SELECTOR ASSEMBLY A2A1

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A1W1		CABLE ASSEMBLY, RF: 3.75 in. long; mfr 98738, part no. 30A226482-36-11.	7-8
A2A1W2		CABLE ASSEMBLY, RF: 5.75 in. long; mfr 98738, part no. 30A226482-38-11.	7-8
A2A1W3		CABLE ASSEMBLY, RF: 4.25 in. long; mfr 98738, part no. 30A226482-37-11.	7-8
A2A1A1		USB BALANCED MODULATOR SUBASSEMBLY: Mfr 98738, part no. 01A226177-21-11. (Attaching Parts) AF(3) AL(3) CG(3)	7-8, 7-9
A2A1A1C1		CAPACITOR: Item 15.	7-9
A2A1A1C2		CAPACITOR, FIXED, MICA: 110 pF ±5%, 500 Vdc working; MIL type CMR05F111JPDM.	7-9
A2A1A1C3		CAPACITOR: Item 13.	7-9
A2A1A1C4		CAPACITOR, VARIABLE, GLASS: 1.0 - 60.0 pF, 1000 Vdc working; mfr 73899, part no. VCJ1079, 06845, dwg 4031983-0701.	7-9
A2A1A1C5 and A2A1A1C6		CAPACITOR, FIXED, MICA: 1500 pF ±1%, 500 Vdc working; MIL type CMR06F152FPDM.	7-9
A2A1A1R1		RESISTOR, FIXED, FILM: 100 ohms ±1%, 1/8 w; MIL type RNC55K1000FM.	7-9
A2A1A1R2		RESISTOR: Item 45.	7-9
A2A1A1R3		RESISTOR, VARIABLE, WIRE-WOUND: 2K ohms ±5%, 3/4 w; MIL type M39015/1-005YM.	7-9
A2A1A1R4		RESISTOR, FIXED, FILM: 100 ohms ±1%, 1/8 w; MIL type RNC55K1000FM.	7-9
A2A1A1R5		RESISTOR: Item 45.	7-9
A2A1A1R6		RESISTOR, FIXED, FILM: 1100 ohms ±2%, 1/4 w; MIL type RLR07C1101GR.	7-9
A2A1A1R7 thru A2A1A1R10		RESISTOR: Item 30.	7-9
A2A1A1R11		RESISTOR, FIXED, FILM: 2K ohms ±2%, 1/4 w; MIL type RLR07C2001GR.	7-9
A2A1A1R12		RESISTOR, FIXED, FILM: 5100 ohms ±2%, 1/4 w; MIL type RLR07C5101GR.	7-9
A2A1A1R13		RESISTOR, FIXED, FILM: 2K ohms ±2%, 1/4 w; MIL type RLR07C2001GR.	7-9
A2A1A1R14		RESISTOR, FIXED, FILM: 5100 ohms ±2%, 1/4 w; MIL type RLR07C5101GR.	7-9

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSMITTER MODE SELECTOR ASSEMBLY A2A1

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A1A1U1		SEMICONDUCTOR DEVICE, DIODE: 600 mW, temp. range -55 to +125 degrees C; 0.335 in. dia. 0.180 in. h; mfr 86684, part no. CA3029, 06845, dwg 4031990-0701.	7-9
A2A1A2		LSB BALANCED MODULATOR SUBASSEMBLY: 1.35 in. long, 3.50 in. w, mfr 98738, part no. 01A226176-21-11. (Attaching Parts) AF(3) AL(3) CG(3)	7-10
A2A1A2C1		CAPACITOR: Item 15.	7-10
A2A1A2C2		CAPACITOR, FIXED, MICA: 110 pF ±5%, 500 Vdc working; MIL type CMR05F111JPDM.	7-10
A2A1A2C3		CAPACITOR: Item 13.	7-10
A2A1A2C4		CAPACITOR, VARIABLE, GLASS: 1.0 - 60.0 pF, 1000 Vdc working; mfr 73899, part no. VCJ1079, 06845, dwg 4031983-0701.	7-10
A2A1A2C5 and A2A1A2C6		CAPACITOR, FIXED, MICA: 1500 pF ±1%, 5 Vdc, working; MIL type CMR06F152FPDM.	7-10
A2A1A2R1		RESISTOR, FIXED, FILM: 100 ohms ±1%, 1/8 w; MIL type RNC55K1000FM.	7-10
A2A1A2R2		RESISTOR: Item 45.	7-10
A2A1A2R3		RESISTOR, VARIABLE, WIRE-WOUND: 2K ohms ±5%, 3/4 w; MIL type M39015/1-005YM.	7-10
A2A1A2R4		RESISTOR, FIXED, FILM: 100 ohms ±1%, 1/8 w; MIL type RNC55K1000FM.	7-10
A2A1A2R5		RESISTOR: Item 45.	7-10
A2A1A2R6		RESISTOR, FIXED, FILM: 1100 ohms ±2%, 1/4 w; MIL type RLR07C1101GR.	7-10
A2A1A2R7 thru A2A1A2R10		RESISTOR: Item 30.	7-10
A2A1A2R11		RESISTOR, FIXED, FILM: 2K ohms ±2%, 1/4 w; MIL type RLR07C2001GR.	7-10
A2A1A2R12		RESISTOR: Item 48.	7-10
A2A1A2R13		RESISTOR, FIXED, FILM: 2K ohms ±2%, 1/4 w; MIL type RLR07C2001GR.	7-10
A2A1A2R14		RESISTOR: Item 48.	7-10
A2A1A2U1		SEMICONDUCTOR DEVICE, DIODE: 600 milliwatt, temp. range -55 to +125 degrees C; 0.335 in. dia, 0.180 in. h; mfr 86684, part no. CA3039, 06845, dwg 4031990-0701.	7-10

Table 7-2. Rado Transmitter T-827H/URT, Parts List (Continued)

TRANSMITTER MODE SELECTOR ASSEMBLY A2A1

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A1A3		ISOLATION AMPLIFIER ASSEMBLY: Mfr 98738, part no. 01A226179-22-11. (Attaching Parts) AF(3) AL(3) CG(3)	7-8, 7-11
A2A1A3C1		CAPACITOR: Item 15.	7-11
A2A1A3C2		CAPACITOR: Item 14.	7-11
A2A1A3C3		Not used.	
A2A1A3C4		CAPACITOR: Item 15.	7-11
A2A1A3C5		CAPACITOR: Item 14.	7-11
A2A1A3E1 thru A2A1A3E10		Solder Joint only.	7-11
A2A1A3Q1 and A2A1A3Q2		TRANSISTOR: MIL type JAN2N2905A.	7-11
A2A1A3R1		RESISTOR: Item 31.	7-11
A2A1A3R2 and A2A1A3R3		RESISTOR: Item 32.	7-11
A2A1A3R4 thru A2A1A3R6		RESISTOR, FIXED, COMPOSITION: 5100 ohms ±5%, 1/4 w; MIL type RCR07G512JS.	7-11
A2A1A3R7		RESISTOR: Item 31.	7-11
A2A1A3R8 and A2A1A3R9		RESISTOR: Item 32.	7-11
A2A1A3R10 thru A2A1A3R12		RESISTOR, FIXED, COMPOSITON: 5100 ohms ±5%, 1/4 w; MIL type RCR07G512JS.	7-11
A2A1A3TP1 and A2A1A3TP2		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 16.	7-11
A2A1A4		500 KHZ GATES SUBASSEMBLY: 3.660 in. long, 3.500 in. w, mfr 98738, part no. 01A228169-01. (Attaching Parts) AF(2) AL(2) CG(2)	7-8, 7-12
A2A1A4C1		CAPACITOR: Item 15.	7-12
A2A1A4C2 and A2A1A4C3		CAPACITOR: Item 14.	7-12
A2A1A4C4		CAPACITOR, FIXED: 3.300 pF, ±1%, 500 Vdc working; MIL type CMR06F332FPDM.	7-12

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSMITTER MODE SELECTOR ASSEMBLY A2A1

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A1A4C5		CAPACITOR, FIXED, MICA: 820 pF, ±5%, 300 Vdc working; mfr 72136, part no. DM15E821J0300WV, 06845, dwg 4030802-0730.	7-12
A2A1A4C6		CAPACITOR: Item 14.	7-12
A2A1A4C7		CAPACITOR, FIXED, MICA: 3,300 pF, ±1%, 500 Vdc working; MIL type CMR06F332FPDM.	7-12
A2A1A4C8		CAPACITOR, FIXED, MICA: 820 pF, ±5%, 300 Vdc working; mfr 72136, part no. DM15E821J0300WV, 06845, dwg 4030802-0730.	7-12
A2A1A4C9 thru A2A1A4C16		Not used.	
A2A1A4C17		CAPACITOR: Item 14.	7-12
A2A1A4C18 and A2A1A4C19		CAPACITOR: Item 15.	7-12
A2A1A4C20		CAPACITOR, FIXED, ELECTROLYTIC: 2.2 uF, ±20%, 20 Vdc working; MIL type M39003/01-2284.	7-12
A2A1A4C21		CAPACITOR: Item 14.	7-12
A2A1A4C22		CAPACITOR: Item 15.	7-12
A2A1A4C23 and A2A1A4C24		CAPACITOR: Item 14.	7-12
A2A1A4C25 and A2A1A4C26		CAPACITOR: Item 15.	7-12
A2A1A4C27 and A2A1A4C28		CAPACITOR: Item 14.	7-12
A2A1A4CR1		SEMICONDUCTOR DEVICE, DIODE: Item 49.	7-12
A2A1A4CR2 thru A2A1A4CR5		Not used.	
A2A1A4CR6 thru A2A1A4CR12		SEMICONDUCTOR DEVICE, DIODE: Item 49.	7-12
A2A1A4E1 thru A2A1A4E3		Solder Joint ony.	7-12
A2A1A4E4 and A2A1A4E5		Not used.	
A2A1A4E6 thru A2A1A4E9		Solder Joint only.	7-12

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSMITTER MODE SELECTOR ASSEMBLY A2A1

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A1A4E10		Not used.	
A2A1A4E11 thru A2A1A4E15		Solder Joint only.	7-12
A2A1A4E16		TERMINAL, STUD: 0.24 in. long, 0.06 in. dia; mfr 88245, part no. 2031B1, 98738, dwg 29P239053-21-11.	7-12
A2A1A4E17		Solder Joint only.	7-12
A2A1A4E18		Not used.	
A2A1A4E19 thru A2A1A4E22		Solder Joint only.	7-12
A2A1A4E23 and A2A1A4E24		Not used.	
A2A1A4E25 thru A2A1A4E34		Solder Joint only.	7-12
A2A1A4Q1 and A2A1A4Q2		TRANSISTOR: Item 55.	7-12
A2A1A4R1		RESISTOR: Item 31.	7-12
A2A1A4R2		RESISTOR, FIXED, FILM: 7,500 ohms, ±2%, 1/4 w; MIL type RLR07C7501GR.	7-12
A2A1A4R3 thru A2A1A4R5		RESISTOR: Item 31.	7-12
A2A1A4R6		RESISTOR, FIXED, COMPOSITION: 15K ohms ±5%, 1/4 w; MIL type RCR07G153JS.	7-12
A2A1A4R7		RESISTOR, FIXED, COMPOSITION: 390 ohms ±5%, 1/4 w; MIL type RCR07G391JS.	7-12
A2A1A4R8		RESISTOR: Item 31.	7-12
A2A1A4R9		RESISTOR, FIXED, COMPOSITION: 15K ohms ±5%, 1/4 w; MIL type RCR07G153JS.	7-12
A2A1A4R10		RESISTOR, FIXED, COMPOSITION: 390 ohms ±5%, 1/4 w; MIL type RCR07G391JS.	7-12
A2A1A4R11 thru A2A1A4R32		Not used.	
A2A1A4R33		RESISTOR: Item 48.	7-12
A2A1A4R34		RESISTOR: Item 46.	7-12
A2A1A4R35		RESISTOR: Item 32.	7-12
A2A1A4R36		RESISTOR: Item 30.	7-12
A2A1A4R37		RESISTOR: Item 41.	7-12

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSMITTER MODE SELECTOR ASSEMBLY A2A1

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A1A4R38		RESISTOR, FIXED, FILM: 1,100 ohms, ±2%, 1/4 w; MIL type RLR07C1101GR.	7-12
A2A1A4R39		RESISTOR, VARIABLE, WIRE-WOUND: 10K ohms, 3/4 w; MIL type M39015-1-007YM.	7-12
A2A1A4R40		RESISTOR: Item 48.	7-12
A2A1A4R41		RESISTOR, FIXED, FILM: 750 ohms, ±2%, 1/4 w; MIL type RLR07C7500GR.	7-12
A2A1A4R42		RESISTOR, FIXED, FILM: 910 ohms, ±2%, 1/4 w; MIL type RLR07C9100GR.	7-12
A2A1A4R43		RESISTOR, FIXED, FILM: 4,300 ohms, ±2%, 1/4 w; MIL type RLR07C4301GR.	7-12
A2A1A4R44		RESISTOR: Item 32.	7-12
A2A1A4R45		RESISTOR, FIXED, FILM: 200 ohms, ±2%, 1/4 w; MIL type RLR07C2000GR.	7-12
A2A1A4R46		RESISTOR, FIXED, FILM: 51K ohms, ±2%, 1/4 w; MIL type RLR07C5102GR.	7-12
A2A1A4R47		RESISTOR: Item 48.	7-12
A2A1A4R48		RESISTOR: Item 32.	7-12
A2A1A4R49		RESISTOR: Item 43.	7-12
A2A1A4R50		RESISTOR: Item 31.	7-12
A2A1A4R51		RESISTOR, FIXED, FILM: 7,500 ohms, ±2%, 1/4 w; MIL type RLR07C7501GR.	7-12
A2A1A4R52		RESISTOR: Item 48.	7-12
A2A1A4R53		RESISTOR, FIXED, FILM: 51K ohms, ±2%, 1/4 w; MIL type RLR07C5102GR.	7-12
A2A1A4R54		RESISTOR: Item 32.	7-12
A2A1A4R55		RESISTOR, FIXED, FILM: 200 ohms, ±2%, 1/4 w; MIL type RLR07C2000GR.	7-12
A2A1A4R56		RESISTOR: Item 32.	7-12
A2A1A4R57		RESISTOR: Item 48.	7-12
A2A1A4R58		RESISTOR: Item 31.	7-12
A2A1A4R59 and A2A1A4R60		RESISTOR, FIXED, FILM: 4,300 ohms, ±2%, 1/4 w; MIL type RLR07C4301GR.	7-12
A2A1A4R61 and A2A1A4R62		RESISTOR: Item 36.	7-12
A2A1A4R63		RESISTOR, FIXED, FILM: 3,600 ohms, ±2%, 1/4 w; MIL type RLR07C3601GR.	7-12
A2A1A4T1 and A2A1A4T2		TRANSFORMER, RF, VARIABLE: 0.500 kHz, capacitor 851 pF, ±5%, mfr 93292, part no. 500-2357, 06845, dwg 4032538-0701.	7-12

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSMITTER MODE SELECTOR ASSEMBLY A2A1

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A1A4T3		TRANSFORMER, RF, VARIABLE: 0.500 kHz, capacitor 695 pF, ±5%, mfr 93292, part no. 500-2358, 06845, dwg 4032538-0702.	7-12
A2A1A5		BUFFER AMPLIFIER ASSEMBLY: Brass, hot tin finish; 1.547 in. long, 0.500 in. w, 1.000 in. h; mfr 98738, part no. 01A227179-22-11. (Attaching Parts) AF(2) AL(2) CG(2)	7-8
A2A2 and A2A3		Not used.	

Table 7-2 Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4		RF AMPLIFIER ASSEMBLY: 7.332 in. long, 7.432 in. w, 4.930 in. h; mfr. 98738, part no. 01A226052-21-11. (Attaching Parts) CE (4)	7-13
A2A4B1		MOTOR ASSEMBLY: Mfr 06845, part no. 4032216-0501. (Attaching Parts) AU(2), AF(3).	7-14
A2A4B1A		MOTOR: 26 Vdc ±0.5 Vdc. 240 milliamps, 3.242 in. long, 0.875 in. dia; mfr 25140, part no. 43A1470, 06845, dwg 4030785-0701.	7-14
A2A4C1		CAPACITOR, FIXED, MICA: 330 pF ±5%, 500 Vdc working; MIL type CMR05F331JPDM.	7-16H
A2A4C2		CAPACITOR: Item 6.	7-16B
A2A4C3		CAPACITOR, FIXED, CERAMIC: 0.01 uF ±20%, 500 Vdc working; MIL type CK63AW103M.	7-16G
A2A4C4		CAPACITOR: Item 6.	7-16B
A2A4C5		CAPACITOR, FIXED, MICA: 330 pF ±5%, 500 Vdc working; MIL type CMR05F331JPDM.	7-16H
A2A4C6		CAPACITOR: Item 6.	7-16B
A2A4C7		CAPACITOR, FIXED, CERAMIC: 0.01 uF ±20%, 500 Vdc working; MIL type CK63AW103M.	7-16D
A2A4C8		CAPACITOR, FIXED, MICA: 356 pF ±1%, 500 Vdc working; 0.470 in. long, 0.400 in. w, 0.220 in. thk; mfr 98738, dwg 21P228300-48.	7-16E
A2A4C9		CAPACITOR, FIXED, MICA: 775 pF ±1%, 300 Vdc working; 0.470 in. long, 0.400 in. w, 0.230 in. thk; mfr 98738, dwg 21P228300-58.	7-16E
A2A4C10		CAPACITOR: Item 6.	7-16B
A2A4C11		CAPACITOR, FIXED, MICA: 356 pF ±1%, 500 Vdc working; 0.470 in. long, 0.400 in. w, 0.220 in. thk; mfr 98738, dwg 21P228300-48.	7-16G
A2A4C12		CAPACITOR, FIXED, MICA: 775 pF ±1%, 300 Vdc working; 0.470 in. long, 0.400 in. w, 0.230 in. thk; mfr 98738, dwg 21P228300-58.	7-16G
A2A4C13		CAPACITOR, FIXED, MICA: 356 pF ±1%, 500 Vdc working; 0.470 in. long, 0.400 in. w, 0.220 in. thk; mfr 98738, dwg 21P228300-48.	7-16C
A2A4C14		CAPACITOR, FIXED, MICA: 775 pF ±1%, 300 Vdc working; 0.470 in. long, 0.400 in. w, 0.230 in. thk; mfr 98738, dwg 21P228300-58.	7-16C
A2A4C15 thru A2A4C18		CAPACITOR: ITEM 6.	7-16B

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4C19		CAPACITOR, FIXED, MICA: 369 pF ±1%, 500 Vdc working; 0.470 in. long, 0.400 in. w, 0.220 in. thk; mfr 98738, dwg 21P228300-49.	7-16F
A2A4C20		CAPACITOR, FIXED, MICA: 784 pF ±1%, 300 Vdc working; 0.470 in. long, 0.400 in. w, 0.230 in. thk; mfr 98738, dwg 21P228300-59.	7-16F
A2A4C21		CAPACITOR: Item 7.	7-14
A2A4CR1		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N3611.	7-14
A2A4E1		STATOR PLATE ASSEMBLY: Four contacts; 0.980 in. long, 0.60 in. w, 0.126 in. thk; mfr 98738, part no. 01A227173-24-11.	7-16J
A2A4E2		STATOR PLATE ASSEMBLY: Three contacts; mfr 98738, part no. 01A227173-37-11.	7-16E
A2A4E3		STATOR PLATE ASSEMBLY: Four contacts; 0.980 in. long, 0.60 in. w, 0.126 in. thk; mfr 98738, part no. 01A227173-24-11.	7-16G
A2A4E4		STATOR PLATE ASSEMBLY: One contact; mfr 98738, part no. 01A227173-38-11.	7-16G
A2A4E5		STATOR PLATE ASSEMBLY: Four contacts; mfr 98738, part no. 01A227173-23-11.	7-16C
A2A4E6 and A2A4E7		STATOR PLATE ASSEMBLY: Four contacts; mfr 98738, part no. 01A227173-35-11.	7-16J 7-16E
A2A4E8		STATOR PLATE ASSEMBLY: Two contacts; mfr 98738, part no. 091A227173-31-11.	7-16G
A2A4E9 and A2A4E10		STATOR PLATE ASSEMBLY: Two contacts; mfr 98738, part no. 01A227173-36-11.	7-16J 7-16E
A2A4E11		STATOR PLATE ASSEMBLY: Four contacts; mfr 98738, part no. 01A227173-35-11.	7-16G
A2A4E12		STATOR PLATE ASSEMBLY: Two contacts; mfr 98738, part no. 01A227173-36-11.	7-16C
A2A4E13		STAOR PLATE ASSEMBLY: Four contacts; mfr 98738, part no. 01A227173-22-11.	7-16C
A2A4E14		TERMINAL, FEED-THRU: MIL type SE14XC04.	7-16E
A2A4E15 thru A2A4E18		TERMINAL, FEED-THRU: MIL type FT049B01.	7-16G
A2A4E19		TERMINAL, STUD: MIL type SE079B01.	7-16H
A2A4E20 and A2A4E21		TERMINAL, STUD: MIL type SE12XC07.	7-16G
A2A4E22		TERMINAL, STUD: MIL type SE15XC04.	7-16C
A2A4E23		TERMINAL, STUD: MIL TYPE SE12XC07.	7-16D
A2A4E24 thru A2A4E27		TERMINAL, FEED-THRU: MIL type FT049B01.	7-16B, 7-16C

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4E28		TERMINAL, STUD: MIL type MS17156-1.	7-16B
A2A4E29		TERMINAL, FEED-THRU: MIL type FT049B01.	7-16B
A2A4E30		TERMINAL, STUD: MIL type MS17156-1.	7-16B
A2A4E31		TERMINAL, LUG: 0.50 in. long; mfr 79963, part no. 75, 98738, dwg 29S111221-31.	7-14
A2A4E32 and A2A4E33		TERMINAL LUG; MIL type MS35431-4. (Attaching Parts) AD(2)	7-16H
A2A4FL1 thru A2A4FL3		SUPPRESSOR, PARASITIC: 0.200 in. OD, 0.100 in. ID, 0.250 in. long; mfr 08832, part no. F754, 06845, dwg 4032581-0701.	7-16H, 7-16C
A2A4K1		RELAY, ELECTRICAL: DPDT, 2 AMP, MIL type M5757-10-039. (Attaching Parts) AG(2), AA(2), AQ(2)	7-14
A2A4MP1		ROTOR DRIVE; Mfr 06845, part no. 4032239-0501, consists of A2A4MP2, A2A4MP3 and A2A4MP4. (Attaching Parts) CM(1)	7-13
A2A4MP2 and A2A4MP3		GEAR, SPUR: 170 teeth, 1.792 in. dia, 0.281 in. thk, mfr 06845, part no. 4030615-0701. (Attaching Parts) CL(2)	7-13,
A2A4MP4		SHAFT, ROTOR; 0.1874 in. dia, 4.22 in. long, mfr 06845, part no. 4030639-0001.	7-13
A2A4MP5		COVER: 7.432 in. long, 7.332 in. w, 4.430 in. h; mfr 98738, part no. 15P226217-21-11. (Attaching Parts) AL(4), AF(4), AB(2), CG(4), L(2), M(2)	7-13
A2A4MP6		POST: 3.783 in. long, 0.312 in. dia; mfr. 06845, part no. 4032437-0501. (Attaching Parts) GN(1), GA(1)	7-13
A2A4MP7		SHIELD, NO. 1: 5.030 in. dia, 0.090 in. thk; 98738, part no. 01A226698-21-11. (Attaching Parts) GN(3)	7-13
A2A4MP8		SPACER, COVER; 1.98 in. long, 0.62 in. w, 0.120 in. thk; mfr 06845, part no. 4032448-0001.	7-13
A2A4MP9 thru A2A4MP12		POST: 3.78 in. long, 0.188 in. hex; mfr 98738, part no. 47P228368-01.	7-13
A2A4MP13 thru A2A4MP18		CLAMP, RETAINER; 0.24 in. long, 0.28 in. w, 0.20 in. h; mfr 06845, part no. 4032108-0001. (Attaching Parts) CQ(5), AL(6), DA(1)	7-13
A2A4MP19		BEARING, BALL, ANNULAR: Steel with bronze separator; mfr 32828, part no. 6905-1, 06845, dwg 4030764-0701.	7-13
A2A4MP20 and A2A4MP21		Not used.	

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4MP22		RING, TURRET, TOP: Aluminum alloy; 6.80 in. OD, 5.28 in. ID; 0.125 in. thk; mfr 06845, part no. 4032294-0001. (Attaching Parts) AF(4)	7-13
A2A4MP23		RING, TURRET, BOTTOM: 6.80 in. OD, 5.28 in. ID, 0.125 in. thk; mfr 06845, part no. 4030947-0001.	7-13
A2A4MP24		RING, SPACER; Nylon; 5.544 in. dia, 0.231 in. thk; mfr 98738, part no. 42P226779-21-11.	7-13
A2A4MP25		Not used.	
A2A4MP26 thru A2A4MP29		BEARING, SLEEVE: Sintered metal, oil impregnated; 0.422 in. OD, 0.187 in. ID, 0.109 in. thk; mfr 12639, part no. 127-100, 06845, dwg 4030759-0701.	7-13, 7-14
A2A4MP30		BRACKET, RELAY: 1.12 in. long, 1.74 in. w, 0.62 in. thk; mfr 06845, part no. 4032226-0001. (Attaching Parts) AK(2), AJ(1)	7-14
A2A4MP31		BRUSH SET, ELECTRICAL CONTACT: Molded epoxy, stainless steel; 3.58 in. long; mfr 43710, part no. 1433, 06845, dwg 4032432-0701. (Attaching Parts) CN(2)	7-14
A2A4MP32 thru A2A4MP39		Not used.	
A2A4MP40		MOUNTING BASE, ELECTRICAL: Aluminum alloy, 7.322 in. long, 7.322 in. w; mfr 98738, part no. 01A226431-21-11. (Attaching Parts) L(3), AB(3)	7-14
A2A4MP41 and A2A4MP42		CLAMP: 0.25 in. long, 0.178 in. w; mfr 06845, part no. 4032184-0001. (Attaching Parts) See A2A4S1.	7-14
A2A4MP43		GEAR, SPUR: 50 teeth, 1.083 in. dia, 0.343 in. long; mfr 57523, part no. E21-50, 06845, dwg 4032171-0701.	7-14
A2A4MP44 and A2A4MP45		GROMMET: MIL type MS35489-1.	7-14
A2A4MP46		Not used.	
A2A4MP47		TUNING ROTOR: 3.0 in. dia. 4.22 in. long; mfr 98738, part no. 01A226092-21-11. Consists of A2A4MP48 thru A2A4MP58.	7-13
A2A4MP48		TOP ROTOR: Mfr 98738, part no. 01A226352-21-11. Consists of A2A4MP49,A2A4A37. (Attaching Parts) CP(1)	7-18

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4MP49		HUB, TOP ROTOR: 1.00 in. OD, 0.40 in. long, 0.38 in. ID, mfr 98738, part no. 43P227263-21-11.	7-18
A2A4MP50		UPPER GEAR ROTOR: Mfr 98738, part no. 01A226349-21-11. Consists of A2A4MP51, A2A4A35 and A2A4A36. (Attaching Parts) CM(2)	
A2A4MP51		GEAR ASSEMBLY: Mfr 98738, part no. 44P227260-22-11. Consists of A2A4MP51A and A2A4MP51B.	7-18
A2A4MP51A		GEAR, SPUR: 170 teeth, 1.792 in. dia, 0.38 in. thk; mfr 98738, part no. 44P227260-23-11.	7-18
A2A4MP51B		BEARING, SLEEVE: MIL type MS17795-13	7-18
A2A4MP52		CENTER ROTOR: Mfr 98738, part no. 01A226350-21-11. Consists of A2A4MP53, A2A4A33 and A2A4A34. (Attaching Parts) CP(1)	7-18
A2A4MP53		HUB, CENTER ROTOR: 1.79 in. dia, 0.74 in. thk, mfr 98738, part no. 43P227262-21-11.	7-18
A2A4MP54		LOWER GEAR ROTOR: Mfr 98738, part no. 01A226351-21-11. Consists of A2A4MP55, A2A4A31 and A2A4A32. (Attaching Parts) CM(2)	7-18
A2A4MP55		GEAR, SPUR: Mfr 98738, part no. 44P227260-22-11. Consists of A2A4MP55A and A2A4MP55B.	7-18
A2A4MP55A		GEAR: 170 teeth, 1.792 in. dia, 0.88 in. thk; mfr 98738, part no. 44P227260-23-11.	7-18
A2A4MP55B		GEARING, SLEEVE: MIL type MS17795-13.	7-18
A2A4MP56		BOTTOM ROTOR: Mfr 98738, part no. 01A226353-21-11. Consists of A2A4MP57 and A2A4A30. (Attaching Parts) CP(1)	7-18
A2A4MP57		HUB, BOTTOM ROTOR: 1.00 in. OD, 0.38 in. ID, 0.40 in. long; mfr 98738, part no. 43P227261-21-11.	7-18
A2A4MP58		SHAFT, ROTOR: 4.22 in. long, 0.1874 in. dia; mfr 98738, part no. 47P227268-01. (Attaching Parts) CM(1), CQ(1)	7-18
A2A4MP59		TURRET DRIVE GEAR ASSEMBLY: Mfr 06845, part no. 4032438-0501. Consists of A2A4MP60 and A2A4MP61. (Attaching Parts) AD(4), AL(4), CG(4)	7-13, 7-17
A2A4MP60		GEAR, SPUR: Aluminum alloy, 7.208 in. dia, 0.265 in. thk; mfr 06845, part no. 4030614-0502.	7-17
A2A4MP61		CODING RING: Laminated epoxy, copper foil, one side, plated with rhodium; 7.06 in. dia, 0.062 in. thk; mfr 06845, part no. 4032447-0001.	7-17

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4MP62 and A2A4MP63		COUPLING ASSEMBLY: Mfr 98738, part no. 58A227169-21-11. Consists of A2A4MP64 thru A2A4MP66. (Attaching Parts) BD(2), CP(2)	7-15
A2A4MP64		COUPLING, TOP: Cres, 0.875 in. dia, 0.382 in. thk; mfr 98738, part no. 58A227167-21-11.	7-15
A2A4MP65		DRIVE PIN: Cres, 0.0936 in. dia, 0.225 in. long, mfr 06845, part no. 4032181-0001.	7-15
A2A4MP66		HOLD DOWN SPRING: Half hard copper, 0.80 in. long, 0.015 in. thk; mfr 06845, part no. 4032183-0001. (Attaching Parts) G(4), CR(4)	7-15
A2A4MP67		SHIELD ASSEMBLY, NO. 2: Mfr 98738, part no. 01A226220-21-11. Consists of A2A4MP68 thru A2A4MP71.	7-16D
A2A4MP68		SHIELD, NO. 2: Aluminum alloy, approx. 5.0 in. long, 2.80 in. w, 0.063 in. thk; mfr 98738, part no. 64P226356-21-11.	7-16D
A2A4MP69		FASTENER: Cres, 0.187 in. sq, 0.360 in. long, mfr 06845, part no. 4032145-0001. (Attaching Parts) CT(1)	7-16C
A2A4MP70 and A2A4MP71		SPRING, GROUNDING: Copper, silver plated; approx. 1.60 in. long, 0.725 in. w, 0.005 in. thk; mfr 98738, part no. 41P226219-21-11. (Attaching Parts) DX(3)	7-16C
A2A4MP72		SHIELD ASSEMBLY, NO. 3: Mfr 98738, part no. 01A226223-22-11. Consists of A2A4MP73 thru A2A4MP77.	7-16G
A2A4MP73		SHIELD SUBASSEMBLY, NO. 3: Mfr 98738, part no. 01A226222-22-11. Consists of A2A4MP78 thru A2A4MP80.	7-16H
A2A4MP74		SHIELD, TUBE SOCKET: Brass, silver plated; 1.24 in. long, 1.10 in. w, 0.020 in. thk; includes terminals; mfr 06845, part no. 4032213-0501.	7-16B
A2A4MP75		SHIELD, TUBE SOCKET: Brass, silver plated; 1.24 in. long, 1.10 in. w, 0.020 in. thk; includes terminals; mfr 06845, part no. 4032213-0502.	7-16B
A2A4MP76 and A2A4MP77		Not used.	
A2A4MP78		SHIELD, NO. 3: Aluminum alloy; approx. 5.0 in. long, 2.80 in. w, 0.063 in. thk; mfr 06845, part no. 4032525-0001.	7-16H

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4MP79		FASTENER: Cres, 0.187 in. sq, 0.360 in. long, mfr 06845, part no. 4032145-0001. (Attaching Parts) CT(1)	7-16G
A2A4MP80		SPRING, GROUNDING: Copper, silver plated; approx. 1.60 in. long, 0.725 in. w, 0.005 in. thk; mfr 98738, part no. 41P226219-21-11. (Attaching Parts) DX(3)	7-16G
A2A4MP81		SHIELD ASSEMBLY NO. 4: Mfr 98738, part no. 01A226221-21-11. Consists of A2A4MP82 thru A2A4MP85.	7-16F
A2A4MP82		SHIELD, NO. 4: Aluminum alloy; silver plated, approx. 4.0 in. long, 1.75 in. w, 0.063 in. thk; mfr 06845, part no. 4032229-0001.	7-16E
A2A4MP83		FASTENER: Cres, 0.187 in. sq, 0.360 in. long, mfr 06845, part no. 4032145-0001. (Attaching Parts) CT(1)	7-16E
A2A4MP84 and A2A4MP85		SPRING, GROUNDING: Copper, silver plated; approx. 1.60 in. long, 0.725 in. w, 0.005 in. thk; mfr 98738, part no. 41P226219-21-11.	7-16E
A2A4MP86		SHIELD, NO. 5: Aluminum alloy, approx. 5.0 in. long, 2.75 in. w, 0.063 in. thk; mfr 06845, part no. 4032231-0501. (Attaching Parts) M(3), GN(3)	7-16J
A2A4MP87		SHIELD, INSULATED: Brass base with nylon insulator; 2.70 in. long, 1.54 in. w, 0.070 in. thk; mfr 06845, part no. 4016866-0501. (Attaching Parts) See A2A4A1	7-16C
A2A4MP88		CLAMP, LOOP: Nylon; 0.480 in. long, 0.230 in. w; mfr 95987, part no. 1-16-2NA, 06845, dwg 4032230-0701. (Attaching Parts) CJ(1)	7-16J
A2A4MP89 and A2A4MP90		SHIELD, ELECTRON TUBE: Aluminum with cadmium plated copper liner; 0.875 in. dia, 1.875 in. long; mfr 98978, part no. TR5-5020-21B, 06845, dwg 4032212-0701.	7-16C
A2A4MP91 thru A2A4MP96		SPACER: Aluminum alloy; hexagonal, 0.250 in. across flats, 0.883 in. long, 0.159 in. ID; mfr 06845, part no. 4032191-0001.	7-16A
A2A4MP97 thru A2A4MP103		SPACER, THREADED: Hexagonal, 0.25 in. across flats, 0.88 in. long, 6-32 threads; mfr 06845, part no. 4032113-0001. (Attaching Parts) M(1), GN(1)	7-16A
A2A4MP104 thru A2A4MP106		ROD, THREADED: Cres; 2.82 in. long, 6-32 UNC-2A threads; mfr 06845, part no. 4032449-0001.	7-16A

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4MP107 thru A2A4MP119		Not used.	
A2A4MP120		RETAINER: 1.38 in. long, 1.00 in. w, 0.050 in. thk; Beryllium copper material; mfr 98738, part no. 42P227163-21-11. (Attaching Parts) GN(1)	7-13
A2A4P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 15 pin contacts, 1.541 in. long, 0.494 in. w, 0.422 in. d; mfr 71785, part no. DAMM15P, 06845, dwg 4032484-0703. (Attaching Parts) AK(2), AJ(2)	7-14
A2A4P2		CONNECTOR, RECEPTACLE, ELECTRICAL: 17 contacts including 5 coaxial; 2.729 in. long, 0.494 in. w, 0.429 in. thk; mfr 71785, part no. DCMME17W5P, 06845, dwg 4032484-0721. (Attaching Parts) CF(2)	7-14
A2A4P2A1 thru A2A4P2A3		CONNECTOR, PLUG, ELECTRICAL: 0.734 in. long, 0.530 in. w, 0.045 in. dia; mfr 71785, part no. 318-11-99-284, 06845, dwg 4032484-0730.	7-14
A2A4P2A4		Not used.	
A2A4P2A5		CONNECTOR, PLUG, ELECTRICAL: 0.734 in. long, 0.530 in. w, 0.045 in. dia; mfr 71785, part no. 318-11-99-284, 06845, dwg 4032484-0730.	7-14
A2A4R1		RESISTOR, FIXED, COMPOSITION: 47K ohms ±5%, 1/4 w; MIL type RCR07G473JS.	7-16B
A2A4R2		RESISTOR, FIXED, FILM: 51 ohms, ±2%, 1/4 w; MIL type RLR07C510GR.	7-16B
A2A4R3		RESISTOR: Item 32.	7-16B
A2A4S1		SWITCH: Consists of MP31, MP41 and MP42.	7-14
A2A4TP1		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: MIL type M39024/12-03.	7-16C
A2A4TP2 and A2A4TP3		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: MIL type M39024/12-01.	7-16C, 7-13
A2A4TP4		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: MIL type M39024/12-03.	7-13
A2A4V1		ELECTRON TUBE: MIL type JAN6BZ6.	7-16C
A2A4V2		ELECTRON TUBE: MIL type JAN6AN5WA.	7-16C
A2A4W1		CABLE ASSEMBLY, RF: 5.75 in. long, mfr 98738, part no. 30A226790-26-11. Connects to A2A4P2.	7-14
A2A4W2		CABLE ASSEMBLY, RF: 7.50 in. long; mfr 98738, part no. 30A226482-45-11. Connects to A2A4P2.	7-14

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4W3 and A2A4W4		CABLE ASSEMBLY, RF: 4.00 in. long; mfr 98738, part no. 30A226482-33-11. Connects to A2A4P2.	7-14
A2A4XV1 and A2A4XV2		SOCKET, ELECTRON TUBE: 1.19 in. long, 0.625 in. dia; mfr 91662, part no. 05-0715-03, 06845, dwg 4032578-0701. (Attaching Parts) AL(4), AQ(4), AD(4)	7-16B, 7-16G
A2A4A1		RF AMPLIFIER SUBASSEMBLY: 1.90 in. long, 2.38 in. w; mfr 98738, part no. 01A226169-21-11. (Attaching Parts) AL(2), CW(2), AU(2)	7-15, 7-19
A2A4A1C1		CAPACITOR: Item 6.	7-19
A2A4A1C2 and A2A4A1C3		CAPACITOR, FIXED, ELECTROLYTIC: Item 11.	7-19
A2A4A1C4		CAPACITOR, FIXED, CERAMIC: 1000 pF ±10%, 200 Vdc working; MIL type M39014/01-1237.	7-19
A2A4A1E1 thru A2A4A1E8		Not used.	
A2A4A1E9		TERMINAL, STUD: 0.240 in. long, 0.062 in. dia; mfr 88245, part no. 2031B1, 98738, dwg 29P239053-21-11.	7-19
A2A4A1R1		RESISTOR: Item 33.	7-19
A2A4A1R2		RESISTOR: Item 31.	7-19
A2A4A1R3		RESISTOR, FIXED, COMPOSITION: 150 ohms ±5%, 1/4 w; MIL type RCR07G151JS.	7-19
A2A4A1R4		RESISTOR, FIXED, FILM: 620 ohms ±2%, 1/2 w; MIL type RLR20C6200GR.	7-19
A2A4A1R5 and A2A4A1R6		RESISTOR, FIXED, COMPOSITION: 120 ohms ±2%, 1/2 w; MIL type RCR20G121JS.	7-19
A2A4A2		12 MHz SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226316-21-11.	7-20
A2A4A2C1		CAPACITOR: Item 3.	7-20
A2A4A2C2		CAPACITOR, FIXED, MICA: 126 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-10.	7-20
A2A4A2C3		CAPACITOR, FIXED, MICA: 132 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-13.	7-20

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A2C4		CAPACITOR, FIXED, MICA: 250 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-39.	7-20
A2A4A2E1		BLOCK, CONTACT: Item 1.	7-20
A2A4A2T1		TRANSFORMER, RF, VARIABLE: 12 MHz, capacitance 118 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2411, 06845, dwg 4032167-0711.	7-20
A2A4A2T2		COIL, RF, VARIABLE: 12 MHz, capacitance 135 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2511, 06845, dwg 4032521-0711.	7-20
A2A4A2T3		TRANSFORMER, RF, VARIABLE: 7 MHz; capacitance 196.0 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2606, 06845, dwg 4032522-0706.	7-20
A2A4A2T4		TRANSFORMER, RF, VARIABLE: 2 MHz, capacitance 754 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2701, 06845, dwg 4032523-0701.	7-20
A2A4A3		13 MHz SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226327-21-11.	7-21
A2A4A3C1		CAPACITOR: Item 3.	7-21
A2A4A3C2		CAPACITOR, FIXED, MICA: 115 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-06.	7-21
A2A4A3C3		CAPACITOR, FIXED, MICA: 120 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-07.	7-21
A2A4A3C4		CAPACITOR, FIXED, MICA: 208 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-32.	7-21
A2A4A3C5		CAPACITOR, FIXED, MICA: 1250 pF ±1%, 300 Vdc working; 0.750 in. long, 0.510 in. w, 0.200 in. thk; mfr 98738, dwg 24P228301-01.	7-21
A2A4A3E1		BLOCK, CONTACT: Item 1.	7-21
A2A4A3T1		TRANSFORMER, RF, VARIABLE: 13 MHz, capacitance 109 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2412, 06845, dwg 4032167-0712.	7-21

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A3T2		COIL, RF, VARIABLE: 13 MHz, capacitance 126.7 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2512, 06845, dwg 4032521-0712.	7-21
A2A4A3T3		TRANSFORMER, RF, VARIABLE: 8 MHz, capacitance 170.0 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2627, 06845, dwg 4032522-0727.	7-21
A2A4A3T4		TRANSFORMER, RF, VARIABLE: 3 MHz, capacitance 482 pF; 0.390 in. da, 0.531 in. long; mfr 93292, part no. 500-2702, 06845, dwg 4032523-0702.	7-21
A2A4A4		14 MHz SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, dwg 01A226328-21-11.	7-22
A2A4A4C1		CAPACITOR: Item 3.	7-22
A2A4A4C2		CAPACITOR, FIXED, MICA: 105 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-02.	7-22
A2A4A4C3		CAPACITOR, FIXED, MICA: 111 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-05.	7-22
A2A4A4C4		CAPACITOR, FIXED, MICA: 179 pF ±1%, 500 Vdc working; 0.400 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-25.	7-22
A2A4A4C5		CAPACITOR, FIXED, MICA: 629 pF ±1%, 300 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-57.	7-22
A2A4A4E1		BLOCK, CONTACT: Item 1.	7-22
A2A4A4T1		TRANSFORMER, RF, VARIABLE: 14 MHz capacitance, 101 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 50-2413, 06845, dwg 4032167-0713.	7-22
A2A4A4T2		COIL, RF, VARIABLE: 14 MHZ, capacitance 119.5 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2513, 06845, dwg 4032521-0713.	7-22
A2A4A4T3		TRANSFORMER, RF, VARIABLE: 9 MHz, capacitance 152.0 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2607, 06845, dwg 4032522-0707.	7-22

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A4T4		TRANSFORMER, RF, VARIABLE: 4 MHz, capacitance 358 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2703, 06845, dwg 4032523-0703.	7-22
A2A4A5		15 MHz SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, dwg 01A226317-21-11.	7-23
A2A4A5C1		CAPACITOR: Item 2.	7-23
A2A4A5C2		CAPACITOR, FIXED, MICA: 97 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0738.	7-23
A2A4A5C3		CAPACITOR, FIXED, MICA: 103 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-01.	7-23
A2A4A5C4		CAPACITOR, FIXED, MICA: 157 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-20.	7-23
A2A4A5C5		CAPACITOR, FIXED, MICA: 422 pF ±1%, 300 Vdc working; 0.460 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-52.	7-23
A2A4A5E1		BLOCK, CONTACT: Item 1.	7-23
A2A4A5T1		TRANSFORMER, RF, VARIABLE: 15 MHz, capacitance 94.5 pF ±5%, 0.422 in. dia, 0.490 in long; mfr 93292, part no. 500-2414, 06845, dwg 4032167-0714.	7-23
A2A4A5T2		COIL, RF, VARIABLE; 15 MHz, capacitance 113 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2514, 06845, dwg 4032521-0714.	7-23
A2A4A5T3		TRANSFORMER, RF, VARIABLE: 10 MHz, capacitance 137.0 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2608, 06845, dwg 4032522-0708.	7-23
A2A4A5T4		TRANSFORMER, RF, VARIABLE: 5 MHz, capacitance 286 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2704, 06845, dwg 4032523-0704.	7-23

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A6		16 MHz SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226329-21-11.	7-24
A2A4A6C1		CAPACITOR: Item 2.	7-24
A2A4A6C2		CAPACITOR, FIXED, MICA: 91 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0735.	7-24
A2A4A6C3		CAPACITOR, FIXED, MICA: 96 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0737.	7-24
A2A4A6C4		CAPACITOR, FIXED, MICA: 140 pF ±1%, 500 Vdc working, 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-15.	7-24
A2A4A6C5		CAPACITOR, FIXED, MICA: 318 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-46.	7-24
A2A4A6E1		BLOCK, CONTACT; Item 1.	7-24
A2A4A6T1		TRANSFORMER, RF, VARIABLE: 16 MHz, capacitance 89 pF ±5%; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2415, 06845, dwg 4032167-0715.	7-24
A2A4A6T2		COIL, RF, VARIABLE: 16 MHz, capacitance 107.5 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2515, 06845, dwg 4032521-0715.	7-24
A2A4A6T3		TRANSFORMER, RF, VARIABLE: 11 MHz, capacitance 125.0 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2609, 06845, dwg 4032522-0709.	7-24
A2A4A6T4		TRANSFORMER, RF, VARIABLE; 6 MHz, capacitance 240 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2705, 06845, dwg 4032523-0705.	7-24
A2A4A7		17 MHz SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226318-21-11.	7-25
A2A4A7C1		CAPACITOR: Item 2.	7-25
A2A4A7C2		CAPACITOR, FIXED, MICA: 85 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0733.	7-25
A2A4A7C3		CAPACITOR, FIXED, MICA: 90 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0734.	7-25
A2A4A7C4		CAPACITOR, FIXED, MICA: 126 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-10.	7-25

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A7C5		CAPACITOR, FIXED, MICA: 256 pF ±1%, 500 Vdc working, 0.470 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-41.	7-25
A2A4A7E1		BLOCK, CONTACT: Item 1.	7-25
A2A4A7T1		TRANSFORMER, RF, VARIABLE: 17 MHz, capacitance 83.8 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2416, 06845, dwg 4032167-0716.	7-25
A2A4A7T2		COIL, RF, VARIABLE: 17 MHz, capacitance 102.5 pF, ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2516, 06845, dwg 4032521-0716.	7-25
A2A4A7T3		TRANSFORMER, RF, VARIABLE: 12 MHz, capacitance 115.0 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2610, 06845, dwg 4032522-0710.	7-25
A2A4A7T4		TRANSFORMER, RF, VARIABLE: 7MHz, capacitance 208 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2706, 06845, dwg 4032523-0706.	7-25
A2A4A8		18 MHz SUBASSEMBLY: 390 in. long, 0.625 in. w, 1.12 in. thk; mfr. 98738, part no. 01A226319-21-11.	7-26
A2A4A8C1		CAPACITOR: Item 2.	7-26
A2A4A8C2		CAPACITOR, FIXED, MICA: 80 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0731.	7-26
A2A4A8C3		CAPACITOR, FIXED, MICA: 85 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845. dwg 4031978-0733.	7-26
A2A4A8C4		CAPACITOR, FIXED, MICA: 115 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-06.	7-26
A2A4A8C5		CAPACITOR, FIXED, MICA: 214 pF ±1%, 500 Vdc working; 0.460 in. long, 0.30 in. w, 0.200 in thk; mfr 98738, dwg 21P228300-33.	7-26
A2A4A8E1		BLOCK, CONTACT: Item 1.	7-26
A2A4A8T1		TRANSFORMER, RF, VARIABLE: 18 MHz, capacitance 79.5 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2417, 06845, dwg 4032167-0717.	7-26
A2A4A8T2		COIL, RF, VARIABLE: 18 MHz, capacitance 98.5 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2517, 06845, dwg 4032521-0717.	7-26

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A8T3		TRANSFORMER, RF, VARIABLE: 13 MHz, capacitance 107.0 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2611, 06845, dwg 4032522-0711.	7-26
A2A4A8T4		TRANSFORMER, RF, VARIABLE: 8 MHz, capacitance 185 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2707, 06845, dwg 4032523-0707.	7-26
A2A4A9		19 MHz SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226320-21-11.	7-27
A2A4A9C1		CAPACITOR: Item 2.	7-27
A2A4A9C2		CAPACITOR, FIXED, MICA: 75 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0729.	7-27
A2A4A9C3		CAPACITOR, FIXED, MICA: 80 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0731.	7-27
A2A4A9C4		CAPACITOR, FIXED, MICA: 105 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-02.	7-27
A2A4A9C5		CAPACITOR, FIXED, MICA: 185 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-27.	7-27
A2A4A9E1		BLOCK, CONTACT: Item 1.	7-27
A2A4A9T1		TRANSFORMER, RF, VARIABLE: 19 MHz, capacitance 75.0 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2418, 06845, dwg 4032167-0718.	7-27
A2A4A9T2		COIL, RF, VARIABLE: 19 MHz, capacitance 96.5 pF ±5%, 0.422 in. dia, 0.490 in. long, mfr 93292, part no. 500-2518, 06845, dwg 4032521-0718.	7-27
A2A4A9T3		TRANSFORMER, RF, VARIABLE: 14 MHz, capacitance 101.0 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2612, 06845, dwg 4032522-0712.	7-27
A2A4A9T4		TRANSFORMER, RF, VARIABLE: 9 MHz, capacitance 166 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2708, 06845, dwg 4032523-0708.	7-27
A2A4A9Y1		CRYSTAL UNIT, QUARTZ: Frequency 21.000 MHz; 0.515 in. long, 0.418 in. w, 0.166 in. thk; mfr 00136, part no. M20-21-000MHZ, 06845, dwg 4032119-0702.	7-27

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A10		20 MHz SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226321-21-11.	7-28
A2A4A10C1		CAPACITOR: Item 2.	7-28
A2A4A10C2		CAPACITOR, FIXED, MICA: 71 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0725.	7-28
A2A4A10C3		CAPACITOR, FIXED, MICA: 76 pF ±1%, 500 Vdc working; 4.50 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0730.	7-28
A2A4A10C4		CAPACITOR, FIXED, MICA: 97 pF ±1%. 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0738.	7-28
A2A4A10C5		CAPACITOR, FIXED, MICA: 163 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-22.	7-28
A2A4A10E1		BLOCK, CONTACT: Item 1.	7-28
A2A4A10T1		TRANSFORMER, RF, VARIABLE: 20 MHz, capacitance 73.3 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2419, 06845, dwg 4032167-0719.	7-28
A2A4A10T2		COIL, RF, VARIABLE: 20 MHz, capaitance 90.3 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2519, 06845, dwg 4032521-0719.	7-28
A2A4A10T3		TRANSFORMER, RF, VARIABLE: 15 MHz, capacitance 95.0 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2613, 06845, dwg 4032522-0713.	7-28
A2A4A10T4		TRANSFORMER, RF, VARIABLE: 10 MHz, capacitance 152 pF; 0.390 in. dia, 0.390 in. long; mfr 93292, part no. 500-2709, 06845, dwg 4032523-0709.	7-28
A2A4A10Y1		CRYSTAL UNIT, QUARTZ: Frequency 19.00 MHz; 0.515 in. long, 0.418 in. w, 0.166 in. thk; mfr 00136, part no. M20-19-000MHz, 06845, dwg 4032119-0701.	7-28
A2A4A11		21 MHz SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226322-21-11.	7-29
A2A4A11C1		CAPACITOR: Item 2.	7-29
A2A4A11C2		CAPACITOR, FIXED, MICA: 67 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. dia, 0.180 in. thk; mfr 06845, dwg 4031978-0722.	7-29

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A11C3		CAPACITOR, FIXED, MICA: 73 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. dia, 0.180 in. thk; mfr 06845, dwg 4031978-0727.	7-29
A2A4A11C4		CAPACITOR, FIXED, MICA: 91 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0735.	7-29
A2A4A11C5		CAPACITOR, FIXED, MICA: 146 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-18.	7-29
A2A4A11E1		BLOCK, CONTACT: Item 1.	7-29
A2A4A11T1		TRANSFORMER, RF, VARIABLE: 21 MHz; capacitance 70.2 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 50-2420, 06845, dwg 4032167-0720.	7-29
A2A4A11T2		COIL, RF, VARIABLE: 21 MHz, capacitance 88 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2520, 06845, dwg 4032521-0720.	7-29
A2A4A11T3		TRANSFORMER, RF, VARIABLE: 16 MHz, capacitance 90.0 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2614, 06845, dwg 4032522-0714.	7-29
A2A4A11T4		TRANSFORMER, RF, VARIABLE: 11 MHz; capacitance 140 pF; 0.390 in. dia, 0.490 in. long; mfr 93292, part no. 500-2710, 06845, dwg 4032523-0710.	7-29
A2A4A12		22 MHz SUBASSEMBLY: 3.90 in. long, 0.625 in. w; 1.12 in. h; mfr 98738, part no. 01A226182-21-11.	7-30
A2A4A12C1		CAPACITOR, FIXED, MICA: 7 pF ±0.5 pF; 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0742.	
A2A4A12C2		CAPACITOR, FIXED, MICA; 64 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0720.	7-30
A2A4A12C3		CAPACITOR, FIXED, MICA: 68 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0723.	7-30
A2A4A12C4		CAPACITOR, FIXED, MICA: 85 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0733.	7-30

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A12C5		CAPACITOR, FIXED, MICA: 132 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-13.	7-30
A2A4A12E1		BLOCK, CONTACT: Item 1.	7-30
A2A4A12L1		COIL, RF, VARIABLE: 20.0 MHz, capacitance 7.0 pF; 0.435 in. dia, 0.40 in. long; mfr 93292, part no. 500-2349, 06845, dwg 4032547-0701.	7-30
A2A4A12T1		TRANSFORMER, RF, VARIABLE: 22 MHz, capacitance 67.5 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2421, 06845, dwg 4032167-0721.	7-30
A2A4A12T2		COIL, RF, VARIABLE: 22 MHz, capacitance 86.0 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2521, 06845, dwg 4032521-0721.	7-30
A2A4A12T3		TRANSFORMER, RF, VARIABLE: 17 MHz, capacitance 85.2 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2615, 06845, dwg 4032522-0715.	7-30
A2A4A12T4		TRANSFORMER, RF, VARIABLE: 12 MHz, capacitance 130 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2711, 06845, dwg 4032523-0711.	7-30
A2A4A13		23 MHz SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226182-22-11.	7-31
A2A4A13C1		CAPACITOR, FIXED, CERAMIC: 3.9 pF ±5%, 500 Vdc working; 0.260 in. long, 0.160 in. dia; mfr 78488, part no. GA3-9PFPORM5PCT, 06845, dwg 4031973-0732.	
A2A4A13C2		CAPACITOR, FIXED, MICA: 64 pF ±1%, 500 Vdc working; 0.450 in. long, 0 360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0718.	7-31
A2A4A13C3		CAPACITOR, FIXED, MICA: 66 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0721.	7-31
A2A4A13C4		CAPACITOR, FIXED, MICA: 80 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0731.	7-31
A2A4A13C5		CAPACITOR, FIXED, MICA: 120 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.80 in. thk; mfr 98738, dwg 21P228300-07.	7-31
A2A4A13E1		BLOCK, CONTACT: Item 1.	7-31

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A13L1		COIL, RF, VARIABLE: 20.0 MHz, capacitance 3.9 pF; 0.435 in. dia, 0.400 in. long; mfr 93292, part no. 500-2350, 06845, dwg 4032547-0702.	7-31
A2A4A13T1		TRANSFORMER, RF, VARIABLE: 23 MHz, capacitance 65.0 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2422, 06845, dwg 4032167-0722.	7-31
A2A4A13T2		COIL, RF, VARIABLE: 23 MHz, capacitance 83.5 pF ±5%; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2522, 06845, dwg 4032521-0722.	7-31
A2A4A13T3		TRANSFORMER, RF, VARIABLE: 18 MHz, capacitance 81.0 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2616, 06845, dwg 4032522-0716.	7-31
A2A4A13T4		TRANSFORMER, RF, VARIABLE: 13 MHz, capacitance 122 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2712, 06845, dwg 4032523-0712.	7-31
A2A4A14		24 MHz SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226323-21-11.	7-32
A2A4A14C1		CAPACITOR: Item 3.	7-32
A2A4A14C2		CAPACITOR, FIXED, MICA: 58 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0716.	7-32
A2A4A14C3		CAPACITOR, FIXED, MICA: 63 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0719.	7-32
A2A4A14C4		CAPACITOR, FIXED, MICA: 75 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0729.	7-32
A2A4A14C5		CAPACITOR, FIXED, MICA: 111 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-05.	7-32
A2A4A14E1		BLOCK, CONTACT: Item 1.	7-32
A2A4A14T1		TRANSFORMER, RF, VARIABLE: 24 MHz, capacitance 62.5 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2423, 06845, dwg 4032167-0723.	7-32

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A14T2		COIL, RF, VARIABLE: 24 MHz, capacitance, 82.0 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2523, 06845, dwg 4032521-0723.	7-32
A2A4A14T3		TRANSFORMER, RF, VARIABLE: 19 MHz, capacitance 77.4 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 50-2617, 06845, dwg 4032522-0717.	7-32
A2A4A14T4		TRANSFORMER, RF, VARIABLE: 14 MHz, capacitance 115 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2713, 06845, dwg 4032523-0713.	7-32
A2A4A15		25 MHz SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.21 in. h; mfr 98738, part no. 01A226330-21-11.	7-33
A2A4A15C1		CAPACITOR, FIXED, CERAMIC: 2.2 pF ±5%, 500 Vdc working; 0.240 in. long, 0.160 in. dia; mfr 78488, part no. GA2-2PFPORM5PCT, 06845, dwg 4031973-0726.	7-33
A2A4A15C2		CAPACITOR, FIXED, MICA: 56 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0714.	7-33
A2A4A15C3		CAPACITOR, FIXED, MICA: 61 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0718.	7-33
A2A4A15C4		CAPACITOR, FIXED, MICA: 71 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, .180 in. thk; mfr 06845, dwg 4031978-0725.	7-33
A2A4A15C5		CAPACITOR, FIXED, MICA: 103 pF ±1%, 500 Vdc working; 0.450 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-01.	7-33
A2A4A15E1		BLOCK, CONTACT: Item 1.	7-33
A2A4A15T1		TRANSFORMER, RF, VARIABLE: 25 MHz, capacitance, 60.5 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2424, 06845, dwg 4032167-0724.	7-33
A2A4A15T2		COIL, RF, VARIABLE: 25 MHz, capacitance 80.0 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2524, 06845, dwg 4032521-0724.	7-33
A2A4A15T3		TRANSFORMER, RF, VARIABLE: 20 MHz, capacitance 74.3 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2618, 06845, dwg 4032522-0718.	7-33

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A15T4		TRANSFORMER, RF, VARIABLE: 15 MHz, capacitance 109 pF 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2714, 06845, dwg 4032523-0714.	7-33
A2A4A16		26 MHz SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; 98738, part no. 01A226331-21-11.	7-34
A2A4A16C1		CAPACITOR, FIXED, CERAMIC: 2.2 pF ±5%, 500 Vdc working; 0.240 in. long, 0.160 in. dia; mfr 78488, part no. GA2-2PFPORM5PCT, 06845, dwg 4031973-0726.	7-34
A2A4A16C2		CAPACITOR, FIXED, MICA: 54 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0712.	7-34
A2A4A16C3		CAPACITR, FIXED, MICA: 52 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0710.	7-34
A2A4A16C4		CAPACITOR, FIXED, MICA: 67 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0722.	7-34
A2A4A16C5		CAPACITOR, FIXED, MICA: 96 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 72136, part no. DM15F960FO500WV, 06845, dwg 4031978-0737.	7-34
A2A4A16E1		BLOCK, CONTACT: Item 1.	7-34
A2A4A16T1		TRANSFORMER, RF, VARIABLE: 26 MHz, capacitance 58.8 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2425, 06845, dwg 4032167-0725.	7-34
A2A4A16T2		COIL, RF, VARIABLE: 26 MHz, capacitance 80.0 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2524, 06845, dwg 4032521-0724.	7-34
A2A4A16T3		TRANSFORMER, RF, VARIABLE: 21 MHz, capacitance 71.7 pF; 0.422 in. dia, 0.490 in. long, mfr 93292, part no. 500-2619, 06845, dwg 4032522-0719.	7-34
A2A4A16T4		TRANSFORMER, RF, VARIABLE: 16 MHz, capacitance 103 pF; 0.390 in. dia, 0.490 in. long; mfr 93292, part no. 500-2715, 06845, dwg 4032523-0715.	7-34

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A17		27 MHz SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226332-21-11.	7-35
A2A4A17C1		CAPACITOR, FIXED, CERAMIC: 2.4 pF ±5%. 500 Vdc working; 0.240 in. long, 0.160 in. dia; mfr 78488, part no. GA2-4PFPORM5PCT, 06845, dwg 4031973-0727.	7-35
A2A4A17C2		CAPACITOR, FIXED, MICA: 52 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0710.	7-35
A2A4A17C3		CAPACITOR, FIXED, MICA: 57 pF ±1%, 500 Vdc working; 0.450 in. long, .360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0715.	7-35
A2A4A17C4		CAPACITOR, FIXED, MICA: 64 pF ±1%, 500 Vdc working; 0.450 n. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0720.	7-35
A2A4A17C5		CAPACITOR, FIXED, MICA: 90 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0734.	7-35
A2A4A17E1		BLOCK, CONTACT: Item 1.	7-35
A2A4A17T1		TRANSFORMER, RF, VARIABLE: 27 MHz, capacitance 57.5 pF ±5%; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2426, 06845, dwg 4032167-0726.	7-35
A2A4A17T2		COIL, RF, VARIABLE: 27 MHz, capacitance 77.5 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2526, 06845, dwg 4032521-0726.	7-35
A2A4A17T3		TRANSFORMER, RF, VARIABLE: 22 MHz, capacitance 69.4 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2620, 06845, dwg 4032522-0720.	7-35
A2A4A17T4		TRANSFORMER, RF, VARIABLE: 17 MHz, capacitance 98.8 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2716, 06845, dwg 4032523-0716.	7-35
A2A4A18		28 MHz SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226333-21-11.	7-36
A2A4A18C1		CAPACITOR, FIXED, CERAMIC: 2.4 pF ±5%, 500 Vdc working; 0.240 in. long, 0.160 in. dia; mfr 78488, part no. GA2-4PFPORM5PCT, 06845, dwg 4031973-0727.	7-36

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A18C2		CAPACITOR, FIXED, MICA: 50 pF ±0.5 pF, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0709.	7-36
A2A4A18C3		CAPACITOR, FIXED, MICA: 55 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0713.	7-36
A2A4A18C4		CAPACITOR, FIXED, MICA: 61 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0718.	7-36
A2A4A18C5		CAPACITOR, FIXED, MICA: 85 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0733.	7-36
A2A4A18E1		BLOCK, CONTACT: Item 1.	7-36
A2A4A18T1		TRANSFORMER, RF, VARIABLE: 28 MHz, capacitance 56.6 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2427, 06845, dwg 4032167-0727.	7-36
A2A4A18T2		COIL, RF, VARIABLE: 28 MHz, capacitance 76.5 pF ±5%; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2527, 06845, dwg 4032521-0727.	7-36
A2A4A18T3		TRANSFORMER, RF, VARIABLE: 23 MHz, capacitance 67.2 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2621, 06845, dwg 4032522-0721.	7-36
A2A4A18T4		TRANSFORMER, RF, VARIABLE: 18 MHz, capacitance 94.6 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2717, 06845, dwg 4032523-0717.	7-36
A2A4A19		29 MHz SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. thk; mfr 98738, part no. 01A226334-21-11.	7-37
A2A4A19C1		CAPACITOR, FIXED, CERAMIC: 2.4 pF ±5%, 500 Vdc working; 0.240 in. long, 0.160 in. dia; mfr 78488, part no. GA2-4PFPORM5PCT, 06845, dwg 4031973-0727.	7-37
A2A4A19C2		CAPACITOR, FIXED, MICA: 48 pF ±0.5 pF, 500 Vdc working; 0.450 in. long, 0.360 n. w, 0.170 in. thk; mfr 06845, dwg 4031978-0708.	7-37
A2A4A19C3		CAPACITOR, FIXED, MICA: 53 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0711.	7-37

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A19C4		CAPACITOR, FIXED, MICA: 58 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0716.	7-37
A2A4A19C5		CAPACITOR, FIXED, MICA: 80 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0731.	7-37
A2A4A19E1		BLOCK, CONTACT: Item 1.	7-37
A2A4A19T1		TRANSFORMER, RF, VARIABLE: 29 MHz, capacitance 55.1 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2428, 06845, dwg 4032167-0728.	7-37
A2A4A19T2		COIL, RF, VARIABLE: 29 MHz, capacitance 78.5 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2528, 06845, dwg 4032521-0728.	7-37
A2A4A19T3		TRANSFORMER, RF, VARIABLE: 24 MHz, capacitance 65.9 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2628, 06845, dwg 4032522-0728.	7-37
A2A4A19T4		TRANSFORMER, RF, VARIABLE: 19 MHz, capacitance 90.0 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2718, 06845, dwg 4032523-0718.	7-37
A2A4A19Y1		CRYSTAL UNIT, QUARTZ: Frequency 28.500 MHz; 0.515 in. long, 0.418 in. w, 0.166 in. thk; mfr 00136, part no. M20-28-500MHZ, 06845, dwg 4032119-0703.	7-37
A2A4A20		2 MHz SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226183-21-11.	7-38
A2A4A20C1		CAPACITOR: Item 3.	7-38
A2A4A20C2 and A2A4A20C3		Not used.	
A2A4A20C4		CAPACITOR, FIXED, MICA: 56 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0714.	7-38
A2A4A20C5		CAPACITOR, FIXED, MICA: 76 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0730.	7-38

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A20C6		CAPACITOR, FIXED, PLASTIC: 0.068 mF ±5%, 50 Vdc working; 0.531 in. long, 0.500 in. w, 0.218 in. thk; mfr 84411, part no. 601PE683-50W, 06845, dwg 2027530-0704.	7-38
A2A4A20E1		BLOCK, CONTACT: Item 1.	7-38
A2A4A20T1		TRANSFORMER, RF, VARIABLE: 2 MHz, capacitance 767 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2401, 06845, dwg 4032167-0701.	7-38
A2A4A20T2		COIL, RF, VARIABLE: 2 MHz, capacitance 772 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2501, 06845, dwg 4032521-0701.	7-38
A2A4A20T3		TRANSFORMER, RF, VARIABLE: 25 MHz, capacitance 65.0 pF; 0.422 in dia, 0.490 in. long; mfr 93292, part no. 500-2622, 06845, dwg 4032522-0722.	7-38
A2A4A20T4		TRANSFORMER, RF, VARIABLE: 20 MHz, capacitance 87.6 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2719, 06845, dwg 4032523-0719.	7-38
A2A4A21		3 MHz SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226184-21-11.	7-39
A2A4A21C1		CAPACITOR: Item 3.	7-39
A2A4A21C2 and A2A4A21C3		CAPACITOR, FIXED, MICA: 1250 pF ±1%, 500 Vdc working; 1.250 in. long, 0.660 in. w, 0.220 in. thk; mfr 98738, dwg 21P228301-01.	7-39
A2A4A21C4		CAPACITOR, FIXED, MICA: 54 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0712.	7-39
A2A4A21C5		CAPACITOR, FIXED, MICA: 73 pF ±1% 500 Vdc working; 0.450 in. long, 0.360in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0727.	7-39
A2A4A21C6		CAPACITOR, FIXED, MYLAR DIELECTRIC: 0.047 uF ±5%, 500 Vdc working; 0.531 in. long, 0.453 in. w, 0.203 in. thk; mfr 84411, part no. 601PE473-50W, 06845, DWG 2027530-0703.	7-39
A2A4A21E1		BLOCK, CONTACT: Item 1.	7-39
A2A4A21T1		TRANSFORMER, RF, VARIABLE: 3 MHz, capacitance 485 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2402, 06845, dwg 4032167-0702.	
A2A4A21T2		COIL, RF, VARIABLE: 3 MHz, capacitance 490 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2502, 06845, dwg 4032521-0702.	7-39

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A21T3		TRANSFORMER, RF, VARIABLE: 26 MHz, capacitance 64.4 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2623, 06845, dwg 4032522-0723.	7-39
A2A4A21T4		TRANSFORMER, RF, VARIABLE: 21 MHz, capacitance 84.6 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2720, 06845, dwg 4032523-0720.	7-39
A2A4A22		4 MHz SUBBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. thk; mfr 98738, part no. 01A226315-21-11.	7-40
A2A4A22C1		CAPACITOR, FIXED, CERAMIC: 4.7 pF ±5%, 500 Vdc working; 0.250 in. long, 0.160 in. dia; mfr 78488, part no. GA4-7PFPORM5PCT, 06845, dwg 4031973-0734.	7-40
A2A4A22C2		CAPACITOR, FIXED, MICA: 623 pF ±1%, 300 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-56.	7-40
A2A4A22C3		CAPACITOR, FIXED, MICA: 629 pF ±1%, 300 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-57.	7-40
A2A4A22C4		CAPACITOR, FIXED, MICA: 52 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0710.	7-40
A2A4A22C5		CAPACITOR, FIXED, MICA: 68 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0723.	7-40
A2A4A22E1		BLOCK, CONTACT; Item 1.	7-40
A2A4A22T1		TRANSFORMER, RF, VARIABLE: 4 MHz, capacitance 352.0 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2403, 06845, dwg 4032167-0703.	7-40
A2A4A22T2		COIL, RF, VARIABLE: 4 MHz, cxapacitance 370 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2503, 06845, dwg 4032521-0703.	7-40
A2A4A22T3		TRANSFORMER, RF, VARIABLE; 27 MHz capacitance 67.0 pF; 0.422 in. dia, 0.490in. long; mfr 93292, part no. 500-2624, 06845, dwg 4032522-0724.	7-40
A2A4A22T4		TRANSFORMER, RF, VARIABLE: 22 MHz, capacitance 81.8 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2721, 06845, dwg 4032523-0721.	7-40
A2A4A23		5 MHz SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.21 in. h; mfr 98738, part no. 01A226335-21-11.	7-41

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A23C1		CAPACITOR, FIXED, CERAMIC: 3.9 pF ±5%, 500 Vdc working; 0.260 in. long, 0.160 in. dia; mfr 78488, part no. GA3-9PFPORM5PCT, 06845, dwg 4031973-0732.	7-41
A2A4A23C2		CAPACITOR, FIXED, MICA: 416 pF ±1%, 300 Vdc working; 0.470 in. long, 0.380 in. w, 0.200 in. thk, mfr 98738, dwg 21P228300-51.	7-41
A2A4A23C3		CAPACITOR, FIXED, MICA: 422 pF ±1%, 300 Vdc working; 0.460 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-52	7-41
A2A4A23C4		CAPACITOR, FIXED, MICA: 50 pF ±0.5% pF, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in.thk; mfr 06845, dwg 4031978-0709.	7-41
A2A4A23C5		CAPACITOR, FIXED, MICA: 66 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0721.	7-41
A2A4A23E1		BLOCK, CONTACT: Item 1.	7-41
A2A4A23T1		TRANSFORMER, RF, VARIABLE: 5 MHz, capacitance 284 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2404, 06845, dwg 4032167-0704.	7-41
A2A4A23T2		COIL, RF, VARIABLE: 5 MHz, capacitance 298 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2504, 06845, dwg 4032521-0704.	7-41
A2A4A23T3		TRANSFORMER, RF, VARIABLE: 28 MHz, capacitance 66.8 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2625, 06845, dwg 4032522-0725.	7-41
A2A4A23T4		TRANSFORMER, RF, VARIABLE; 23 MHz, capacitance 79.3 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2722, 06845, dwg 4032523-0722.	7-41
A2A4A24		6 MHz SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226324-21-11.	7-42
A2A4A24C1		CAPACITOR, FIXED, CERAMIC: 3.3 pF ±5%, 500 Vdc working; 0.260 in. long, 0.160 in. dia; mfr 78488, part no. GA3-3PFPORM5PCT, 06845, dwg 4031973-0730.	7-42
A2A4A24C2		CAPACITOR, FIXED, MICA: 312 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-44.	7-42
A2A4A24C3		CAPACITOR, FIXED, MICA; 318 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-46.	7-42

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A24C4		CAPACITOR, FIXED, MICA: 48 pF ±0.5 pF, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in.thk; mfr 06845, dwg 4031978-0708.	7-42
A2A4A24C5		CAPACITOR, FIXED, MICA; 63 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.130 in. thk; mfr 06845, dwg 4031978-0719.	7-42
A2A4A24E1		BLOCK, CONTACT: Item 1.	7-42
A2A4A24T1		TRANSFORMER, RF, VARIABLE: 6 MHz, capacitance 230 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2405, 06845, dwg 4032167-0705.	7-42
A2A4A24T2		COIL, RF, VARIABLE; 6 MHz, capacitance 250 pf ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2505, 06845, dwg 4032521-0705.	7-42
A2A4A24T3		TRANSFORMER, RF, VARIABLE: 29 MHz, capacitance 66.6 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2626, 06845, dwg 4032522-0726.	7-42
A2A4A24T4		TRANSFORMER, RF, VARIABLE: 24 MHz, capacitance 77.0 pF; 0.390 in. dia, 0.531 in long; mfr 93292, part no. 500-2723, 06845, dwg 4032523-0723.	7-42
A2A4A25		7 MHz SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226706-21-11.	7-43
A2A4A25C1		CAPACITOR, FIXED, CERAMIC: 3.0 pF ±5%, 500 Vdc working; 0.260 in. long, 0.160 in. dia; mfr 78488, part no. GA3-0PFPORM5PCT, 06845, dwg 4031973-0729.	7-43
A2A4A25C2		CAPACITOR, FIXED, MICA: 250 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-39.	7-43
A2A4A25C3		CAPACITOR, FIXED, MICA: 256 pF ±1%, 500 Vdc working; 0.470 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-41.	7-43
A2A4A25C4		Not used.	
A2A4A25C5		CAPACITOR, FIXED, MICA: 61 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0718.	7-43
A2A4A25E1		BLOCK, CONTACT: Item 1.	7-43

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A25T1		TRANSFORMER, RF, VARIABLE; 7 MHz, capacitance 196 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2406,, 06845, dwg 4032167-0706.	7-43
A2A4A25T2		COIL, RF, VARIABLE; 7 MHz, capacitance 216 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2506, 06845, dwg 4032521-0706.	7-43
A2A4A25T3		TRANSFORMER, RF, VARIABLE: 2 MHz, capacitance 754 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2601, 06845, dwg 4032522-0701.	7-43
A2A4A25T4		TRANSFORMER, RF, VARIABLE; 25 MHz, capacitance 74.9 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2724, 06845, dwg 4032523-0724.	7-43
A2A4A26		8 MHz SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226707-21-11.	7-44
A2A4A26C1		CAPACITOR, FIXED, CERAMIC: 3 pF ±5%, 500 Vdc working; 0.260 in. long, 0.160 in. dia; mfr 78488, part no. GA3-0PFPORM5PCT, 06845, dwg 4031973-0729.	7-44
A2A4A26C2		CAPACITOR, FIXED, MICA: 208 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-32.	7-44
A2A4A26C3		CAPACITOR, FIXED, MICA: 214 pF ±1%, 500 Vdc working, 0.460 in. long, 0.300 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-33.	7-44
A2A4A26C4		CAPACITOR, FIXED, MICA: 1250 pF ±1%, 500 Vdc working; 0.750 in. long, 0.510 in. w, 0.200 in. thk; mfr 98738, dwg 21P228301-01.	7-44
A2A4A26C5		CAPACITOR, FIXED, MICA: 59 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0717.	7-44
A2A4A26E1		BLOCK, CONTACT: Item 1.	7-44
A2A4A26T1		TRANSFORMER, RF, VARIABLE: 8 MHz, capacitance 172 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2407, 06845, dwg 4032167-0707.	7-44

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A26T2		COIL, RF, VARIABLE: 8 MHz, capacitance 191 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2507, 06845, dwg 4032521-0707.	7-44
A2A4A26T3		TRANSFORMER, RF, VARIABLE: 3 MHz, capacitance 474 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2602, 06845, dwg 4032522-0702.	7-44
A2A4A26T4		TRANSFORMER, RF, VARIABLE: 26 MHz, capacitance 72.9 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2725, 06845, dwg 4032523-0725.	7-44
A2A4A27		9 MHz SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226337-21-11.	7-45
A2A4A27C1		CAPACITOR, FIXED, CERAMIC: 2.7 pF ±5%, 500 Vdc working; 0.260 in. long, 0.160 in. dia, mfr 78488, part no. GA2-7PFPORM5PCT, 06845, dwg 4031973-0728.	7-45
A2A4A27C2		CAPACITOR, FIXED, MICA: 179 pF ±1%, 500 Vdc working; 0.460 in. long, 0.390 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-25.	7-45
A2A4A27C3		CAPACITOR, FIXED, MICA: 185 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-27.	7-45
A2A4A27C4		CAPACITOR, FIXED, MICA: 623 pF ±1%, 300 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-56.	7-45
A2A4A27C5		CAPACITOR, FIXED, MICA: 57 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0715.	7-45
A2A4A27E1		BLOCK, CONTACT: Item 1.	7-45
A2A4A27T1		TRANSFORMER, RF, VARIABLE: 9 MHz, capacitance 154 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2408, 06845, dwg 4032167-0708.	7-45
A2A4A27T2		COIL, RF, VARIABLE: 9 MHz, capacitance 173 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2508, 06845, dwg 4032521-0708.	7-45

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A27T3		TRANSFORMER, RF, VARIABLE: 4 MHz, capacitance 350 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2603, 06845, dwg 4032522-0703.	7-45
A2A4A27T4		TRANSFORMER, RF, VARIABLE: 27 MHz, capacitance 71 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2726, 06845, dwg 4032523-0726.	7-45
A2A4A28		10 MHz SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226325-21-11.	7-46
A2A4A28C1		CAPACITOR, FIXED, CERAMIC: 2.4 pF ±5%, 500 Vdc working; 0.240 in. long, 0.160 in. dia; mfr 78488, part no. GA2-4PFPORM5PCT, 06845 dwg 4031973-0727.	7-46
A2A4A28C2		CAPACITOR, FIXED, MICA: 157 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-20.	7-46
A2A4A28C3		CAPACITOR, FIXED, MICA: 163 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190in. thk; mfr 98738, dwg 21P228300-22.	7-46
A2A4A28C4		CAPACITOR, FIXED, MICA: 416 pF ±1%, 300 Vdc working; 0.470 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-51.	7-46
A2A4A28C5		CAPACITOR, FIXED, MICA: 55 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0713.	7-46
A2A4A28E1		BLOCK, CONTACT: Item 1.	7-46
A2A4A28T1		TRANSFORMER, RF, VARIABLE: 10 MHz, capacitance 140 pF ±5%; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2409, 06845, dwg 4032167-0709.	7-46
A2A4A28T2		COIL, RF, VARIABLE: 10 MHz, capacitance 158 pF ±5%; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2509, 06845, dwg 4032521-0709.	7-46
A2A4A28T3		TRANSFORMER, RF, VARIABLE: 5 MHz, capacitance 275 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2604, 06845, dwg 4032522-0704.	7-46

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A28T4		TRANSFORMER, RF, VARIABLE: 28 MHz, capacitance 69.5 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2727, 06845, dwg 4032523-0727.	7-46
A2A4A29		11 MHz SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226326-21-11.	7-47
A2A4A29C1		CAPACITOR: Item 3.	7-47
A2A4A29C2		CAPACITOR, FIXED, MICA: 140 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-15.	7-47
A2A4A29C3		CAPACITOR, FIXED, MICA: 146 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-18.	7-47
A2A4A29C4		CAPACITOR, FIXED, MICA: 312 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-44.	7-47
A2A4A29C5		CAPACITOR, FIXED, MICA: 53 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0711.	7-47
A2A4A29E1		BLOCK, CONTACT: Item 1.	7-47
A2A4A29T1		TRANSFORMER, RF, VARIABLE: 11 MHz, capacitance 128 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 50-2410, 06845, dwg 4032167-0710.	7-47
A2A4A29T2		COIL, RF, VARIABLE: 11 MHz, capacitance 145 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2510, 06845, dwg 4032521-0710.	7-47
A2A4A29T3		TRANSFORMER, RF, VARIABLE: 6 MHz, capacitance 228 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2605, 06845, dwg 4032522-0705.	7-47
A2A4A29T4		TRANSFORMER, RF, VARIABLE: 29 MHz, capacitance 67.8 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 50-2728, 06845, dwg 4032523-0728.	7-47
A2A4A30		100 kHz ROTOR SUBASSEMBLY: 2.98 in. dia, 0.40 in. thk; mfr 98738, part no. 01A226155-21-11. (Attaching Parts) CX(3)	7-48

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A30C1		CAPACITOR, FIXED, MICA: 545 pF ±1%, 300 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-55.	7-48
A2A4A30C2		CAPACITOR, FIXED, MICA: 426 pF ±1%, 300 Vdc working; 0.470 in. long, 0.380 in. w, 0.200 in thk; mfr 98738, dwg 21P228300-53.	7-48
A2A4A30C3		CAPACITOR, FIXED, MICA: 332 pF ±1%, 500 Vdc working; 0.470 in. long, 0.400 in. w, 0.220 in. thk; mfr 98738, dwg 21P228300-47.	7-48
A2A4A30C4		CAPACITOR, FIXED, MICA: 257 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-42.	7-48
A2A4A30C5		CAPACITOR, FIXED, MICA: 195 pF ±1%, 500 Vdc working; 0.460 in. long, 0.390 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-31.	7-48
A2A4A30C6		CAPACITOR, FIXED, MICA: 143 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-16.	7-48
A2A4A30C7		CAPACITOR, FIXED, MICA: 99 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0739.	7-45
A2A4A30C8		CAPACITOR, FIXED, MICA: 61 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0718.	7-48
A2A4A30C9		CAPACITOR, FIXED, MICA: 29 pF ±0.5 pF; 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0705.	7-48
A2A4A30C10		CAPACITOR, FIXED, MICA: 253 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-40.	7-48
A2A4A30C11		CAPACITOR, FIXED, MICA: 219 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-35.	7-48
A2A4A30C12		CAPACITOR, FIXED, MICA: 190 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, .190 in. thk; mfr 98738, dwg 21P228300-29.	7-48
A2A4A30C13		CAPACITOR, FIXED, MICA: 165 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-23.	7-48
A2A4A30C14		CAPACITOR, FIXED, MICA: 144 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-17.	7-48
A2A4A30C15		CAPACITOR, FIXED, MICA: 125 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-09.	7-48

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A30C16		CAPACITOR, FIXED, MICA: 109 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-03.	7-48
A2A4A30C17		CAPACITOR, FIXED, MICA: 95 pF ±1%, 500 Vdc working, 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0736.	7-48
A2A4A30C18		CAPACITOR, FIXED, MICA: 83 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0732.	7-48
A2A4A30C19		CAPACITOR, FIXED, MICA: 74 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0728.	7-48
A2A4A30MP1		ROTOR: 2.98 in. dia, 0.42 in. thk; mfr 98738, part no. 01A228403-01.	7-18, 7-48
A2A4A31		10 kHz ROTOR SUBASSEMBLY: 2.982 in. dia, 0.440 in. thk; mfr 98738, part no. 01A226159-21-11. (Attaching Parts) CY(3)	7-18, 7-49
A2A4A31C1		CAPACITOR, FIXED, MICA: 250 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-39.	7-49
A2A4A31C2		CAPACITOR, FIXED, MICA: 215 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-34.	7-49
A2A4A31C3		CAPACITOR, FIXED, MICA: 183 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-26.	7-49
A2A4A31C4		CAPACITOR, FIXED, MICA: 153 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-19.	7-49
A2A4A31C5		CAPACITOR, FIXED, MICA: 124 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-08.	7-49
A2A4A31C6		CAPACITOR, FIXED, MICA: 96 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0737.	7-49
A2A4A31C7		CAPACITOR, FIXED, MICA: 70 pF ±0.5 pF, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0724.	7-49
A2A4A31C8		CAPACITOR, FIXED, MICA: 45 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0706.	7-49

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A31C9		CAPACITOR, FIXED, MICA: 22 pF ±0.5 pF, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0702.	7-49
A2A4A32		10 kHz ROTOR SUBASSEMBLY: 2.982 in. dia, 0.440 in. thk; mfr 98738, part no. 01A226160-21-11. (Attaching Parts) See A2A4A31	7-18, 7-50
A2A4A32C1		CAPACITOR, FIXED, MICA: 260 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-43.	7-50
A2A4A32C2		CAPACITOR, FIXED, MICA: 224 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-37.	7-50
A2A4A32C3		CAPACITOR, FIXED, MICA: 190 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-29.	7-50
A2A4A32C4		CAPACITOR, FIXED, MICA: 158 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-21.	7-50
A2A4A32C5		CAPACITOR, FIXED, MICA: 128 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-12.	7-50
A2A4A32C6		CAPACITOR, FIXED, MICA: 99 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0739.	7-50
A2A4A32C7		CAPACITOR, FIXED, MICA: 72 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0726.	7-50
A2A4A32C8		CAPACITOR, FIXED, MICA: 47 pF ±0.5%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0707.	7-50
A2A4A32C9		CAPACITOR, FIXED, MICA: 23 pF ±0.5 pF; 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0703.	7-50
A2A4A33		100 kHz ROTOR SUBASSEMBLY: 2.982 in. dia, 0.442 in. thk; mfr 98738, part no. 01A226153-21-11. (Attaching Parts) CY(3)	7-18, 7-51

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A33C1		CAPACITOR, FIXED, MICA: 517 pF ±1%, 300 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-54.	7-51
A2A4A33C2		CAPACITOR, FIXED, MICA: 405 pF ±1%, 300 Vdc working; 0.470 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-50.	7-51
A2A4A33C3		CAPACITOR, FIXED, MICA: 316 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-45.	7-51
A2A4A33C4		CAPACITOR, FIXED, MICA: 245 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-38.	7-51
A2A4A33C5		CAPACITOR, FIXED, MICA: 186 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-28.	7-51
A2A4A33C6		CAPACITOR, FIXED, MICA: 137 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-14.	7-51
A2A4A33C7		CAPACITOR, FIXED, MICA: 95 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0736.	7-51
A2A4A33C8		CAPACITOR, FIXED, MICA: 59 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0717.	7-51
A2A4A33C9		CAPACITOR, FIXED, MICA: 28 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0704.	7-51
A2A4A33C10		CAPACITOR, FIXED, MICA: 257 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-42.	7-51
A2A4A33C11		CAPACITOR, FIXED, MICA: 222 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-36.	7-51
A2A4A33C12		CAPACITOR, FIXED, MICA: 193 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-30.	7-51
A2A4A33C13		CAPACITOR, FIXED, MICA: 167 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-24.	7-51
A2A4A33C14		CAPACITOR, FIXED, MICA: 146 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-18.	7-51
A2A4A33C15		CAPACITOR, FIXED, MICA: 127 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-11.	7-51

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A33C16		CAPACITOR, FIXED, MICA: 110 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-04.	7-51
A2A4A33C17		CAPACITOR, FIXED, MICA: 96 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0737.	7-51
A2A4A33C18		CAPACITOR, FIXED, MICA: 83 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0732.	7-51
A2A4A33C19		CAPACITOR, FIXED, MICA: 74 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0728.	7-51
A2A4A33MP1		ROTOR: 2.98 in. dia, 0.42 in. thk; mfr 98738, part no. 01A228403-01.	7-18, 7-51
A2A4A34		ROTOR, ELECTRIC SWITCH: 100 kHz, 2.982 in. dia, 0.432 in. thk; mfr 98738, part no. 01A226154-21-11. (Attaching Parts) See A2A4A33	7-18, 7-52
A2A4A34C1		CAPACITOR, FIXED, MICA: 517 pF ±1%, 300 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-54.	7-52
A2A4A34C2		CAPACITOR, FIXED, MICA: 405 pF ±1%, 300 Vdc working; 0.470 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-50.	7-52
A2A4A34C3		CAPACITOR, FIXED, MICA: 316 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-45.	7-52
A2A4A34C4		CAPACITOR, FIXED, MICA: 245 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-38.	7-52
A2A4A34C5		CAPACITOR, FIXED, MICA: 186 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-28.	7-52
A2A4A34C6		CAPACITOR, FIXED, MICA: 137 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-14.	7-52
A2A4A34C7		CAPACITOR, FIXED, MICA: 95 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0736.	7-52
A2A4A34C8		CAPACITOR, FIXED, MICA: 59 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0717.	7-52

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A34C9		CAPACITOR, FIXED, MICA: 28 pF ±0.5%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0704.	7-52
A2A4A34C10		CAPACITOR, FIXED, MICA: 257 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-42.	7-52
A2A4A34C11		CAPACITOR, FIXED, MICA: 222 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-36.	7-52
A2A4A34C12		CAPACITOR, FIXED, MICA: 193 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-30.	7-52
A2A4A34C13		CAPACITOR, FIXED, MICA: 167 pF ±1%, 500 Vdc working; 0.400 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-24.	7-52
A2A4A34C14		CAPACITOR, FIXED, MICA: 146 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-18.	7-52
A2A4A34C15		CAPACITOR, FIXED, MICA: 127 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-11.	7-52
A2A4A34C16		CAPACITOR, FIXED, MICA: 110 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-04.	7-52
A2A4A34C17		CAPACITOR, FIXED, MICA: 96 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0737.	7-52
A2A4A34C18		CAPACITOR, FIXED, MICA: 83 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0732.	7-52
A2A4A34C19		CAPACITOR, FIXED, MICA: 74 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0728.	7-52
A2A4A34MP1		ROTOR: 2.98 in. dia, 0.42 in. thk; mfr 98738, part no. 01A228403-01.	7-18, 7-52
A2A4A35		10 kHz ROTOR SUBASSEMBLY: 2.982 in. dia, 0.291 in. thk; mfr 98738, part no. 01A226157-21-11. (Attaching Parts) CY(3)	7-53
A2A4A35C1		CAPACITOR, FIXED, MICA: 260 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-43.	7-53

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A35C2		CAPACITOR, FIXED, MICA: 224 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-37.	7-53
A2A4A35C3		CAPACITOR, FIXED, MICA: 190 pF ±1%, 500 Vdc, working; 0.460 in. long, 0.380 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-29.	7-53
A2A4A35C4		CAPACITOR, FIXED, MICA: 158 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-21.	7-53
A2A4A35C5		CAPACITOR, FIXED, MICA: 128 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-12.	7-53
A2A4A35C6		CAPACITOR, FIXED, MICA: 99 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0739.	7-53
A2A4A35C7		CAPACITOR, FIXED, MICA: 72 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0726.	7-53
A2A4A35C8		CAPACITOR, FIXED, MICA: 47 pF ±0.5 pF, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0707.	7-53
A2A4A35C9		CAPACITOR, FIXED, MICA: 23 pF ±0.5 pF; 500 Vdc working; 0.45 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0703.	7-53
A2A4A36		10 kHz ROTOR SUBASSEMBLY: 2.982 in. dia, 0.291 in. thk; mfr 98738, part no. 01A226158-21-11. (Attaching Parts) See A2A4A35	7-18, 7-54
A2A4A36C1		CAPACITOR, FIXED, MICA: 260 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-43.	7-54
A2A4A36C2		CAPACITOR, FIXED, MICA: 224 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-37.	7-54
A2A4A36C3		CAPACITOR, FIXED, MICA: 190 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-29.	7-54
A2A4A36C4		CAPACITOR, FIXED, MICA: 158 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-21.	7-54
A2A4A36C5		CAPACITOR, FIXED, MICA: 128 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-12.	7-54

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A36C6		CAPACITOR, FIXED, MICA: 99 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0739.	7-54
A2A4A36C7		CAPACITOR, FIXED, MICA: 72 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0726.	7-54
A2A4A36C8		CAPACITOR, FIXED, MICA: 47 pF ±0.5 pF, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0707.	7-54
A2A4A36C9		CAPACITOR, FIXED, MICA: 23 pF ±0.5 pF, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0703.	7-54
A2A4A37		100 kHz ROTOR SUBASSEMBLY: 2.982 in. dia, 0.430 in. thk; mfr 98738, part no. 01A226156-21-11. (Attaching Parts) CZ(3)	7-18, 7-55
A2A4A37C1		CAPACITOR, FIXED, MICA: 517 pF ±1%, 300 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-54.	7-55
A2A4A37C2		CAPACITOR, FIXED, MICA: 405 pF ±1%, 300 Vdc working; 0.470 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-50.	7-55
A2A4A37C3		CAPACITOR, FIXED, MICA: 316 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-45.	7-55
A2A4A37C4		CAPACITOR, FIXED, MICA: 245 F ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-38.	7-55
A2A4A37C5		CAPACITOR, FIXED, MICA: 186 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-28.	7-55
A2A4A37C6		CAPACITOR, FIXED, MICA: 137 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-14.	7-55
A2A4A37C7		CAPACITOR, FIXED, MICA: 95 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0736.	7-55
A2A4A37C8		CAPACITOR, FIXED, MICA: 59 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0717.	7-55
A2A4A37C9		CAPACITOR, FIXED, MICA: 28 pF ±0.5 pF, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0704.	7-55

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A37C10		CAPACITOR, FIXED, MICA; 257 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-42.	7-55
A2A4A37C11		CAPACITOR, FIXED, MICA: 222 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-36.	7-55
A2A4A37C12		CAPACITOR, FIXEWD, MICA: 193 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-30.	7-55
A2A4A37C13		CAPACITOR, FIXED, MICA: 167 PF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-24.	7-55
A2A4A37C14		CAPACITOR, FIXED, MICA: 146 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-18.	7-55
A2A4A37C15		CAPACITOR, FIXED, MICA: 127 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-11.	7-55
A2A4A37C16		CAPACITOR, FIXED, MICA: 110 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk. mfr 98738, dwg 21P228300-04.	7-55
A2A4A37C17		CAPACITOR, FIXED, MICA: 96 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0737.	7-55
A2A4A37C18		CAPACITOR, FIXED, MICA: 83 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0732.	7-55
A2A4A37C19		CAPACITOR, FICED, MICA: 74 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0728.	7-55
A2A4A37MP1		ROTOR; 2.98 in. dia, 0.42 in. thk; mfr. 98738, part no. 01A228403-01.	7-18, 7-55
A2A4A38		RF AMPLIFIER CIRCUIT CARD ASSEMBLY: 3.375 in. long, 1.56 in. w, 1.08 in. thk; mfr 98738, part no. 01A226162-21-11. (Attaching Parts) AQ(3) AL(3) AD(3)	7-56
A2A4A38C1 and A2A4A38C2		CAPACITOR: Item 6.	7-56
A2A4A38C3		CAPACITOR: Item 9.	7-56

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A38C4 and A2A4A38C5		CAPACITOR: Item 6.	7-56
A2A4A38C6		CAPACITOR: Item 9.	7-56
A2A4A38C7		CAPACITOR: Item 6.	7-56
A2A4A38C8		CAPACITOR, FIXED, CERAMIC: 120 pF ±1%, 500 Vdc working; MIL type CMR05F121FPDM.	7-56
A2A4A38C9		CAPACITOR: Item 6.	7-56
A2A4A38C10		CAPACITOR: Item 9.	7-56
A2A4A38C11		CAPACITOR, FIXED, CERAMIC: 1,500 pF ±20%, 100 Vdc working; MIL type M39014/01-1441.	7-56
A2A4A38C12		CAPACITOR: Item 6.	7-56
A2A4A38C13		CAPACITOR, FIXED, CERAMIC: 1,500 pF ±20%, 100 Vdc working; MIL type M39014/01-1441.	7-56
A2A4A38C14		CAPACITOR, FIXED, CERAMIC; 56 pF ±10%. 200 Vdc working; MIL type M39014/01-1215.	7-56
A2A4A38E1		TERMINAL, LUG: 0.446 in. long, 0.182 in. w; mfr 00779, part no. 36467, 98738, dwg 29S132211-6. (Attaching Parts) AD(1) AL(1) DA(1)	7-56
A2A4A38FL1 thru A2A4A38FL3		SHIELDING BEAD, FERRITE: 0.138 in. OD, 0.047 in. ID, 0.118 in. long; mfr 78488, part no. 57-0180, 06845, dwg 2053852-0701.	7-56
A2A4A38K1		RELAY, ARMATURE: 0 TO 0.100 AMP AT 50 mVdc; MIL type M39016/6-104L. (Attaching Parts) AL(2) AQ(2) AD(2)	7-56
A2A4A38L1		COIL, RF: 240 uH ± 5%, dc resistance 7.80 ohms, MIL type MS90538-21.	7-56
A2A4A38Q1 thru A2A4A38Q3		TRANSISTOR: Silicon, PNP; 0.209 in. dia, 0.21 in. thk; mfr 04713, part no. 2N4959, 98738, dwg 48P226657-01.	7-56
A2A4A38R1		RESISTOR, FIXED, FILM: 51 ohms ±2%, 1/4 w; MIL type RLR07C51R0GR.	7-56
A2A4A38R2		RESISTOR, FIXED, COMPOSITION: 12K ohms ±5%, 1/4 w; MIL type RCR07G123JS.	7-56
A2A4A38R3		RESISTOR, FIXED, COMPOSITION: 5600 ohms ±5%, 1/4 w; MIL type RCR07G562JS.	7-56
A2A4A38R4		RESISTOR, FIXED, COMPOSITION: 1,200 ohms ±5%, 1/4 w; MIL type RCR07G122JS.	7-56
A2A4A38R5		RESISTOR, FIXED, COMPOSITION: 22 ohms ±5%, 1/4 w; MIL type RCR07G220JS.	7-56
A2A4A38R6		RESISTOR, VARIABLE, NON-WIRE-WOUND: 200 ohms, 1/2 W; MIL TYPE RJR24CP201M.	7-56
A2A4A38R7		RESISTOR: Item 30.	7-56
A2A4A38R8		Not used.	
A2A4A38R9		RESISTOR: Item 39.	7-56

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A38R10		RESISTOR, FIXED, FILM: 6,200 OHMS ±2%, 1/4 w; MIL type RLR07C6201GR.	7-56
A2A4A38R11		RESISTOR, FIXED, FILM: 510 ohms ±2%, 1/4 w; MIL type RLR07C5100GR.	7-56
A2A4A38R12		RESISTOR, FIXED, COMPOSITION: 22 ohms ±5%, 1/4 w; MIL type RCR07G220JS.	7-56
A2A4A38R13		RESISTOR, FIXED, COMPOSITION: 470 ohms ±5%, 1/4 w; MIL type RCR07G471JS.	7-56
A2A4A38R14		RESISTOR: ITEM 30.	7-56
A2A4A38R15		RESISTOR, FIXED, FILM: 51 ohms ±2%, 1/4 w; MIL type RLR07C51R0GR.	7-56
A2A4A38R16		RESISTOR, FIXED, COMPOSITION: 1800 ohms ±5%, 1/4 w; MIL type RCR07G182JS.	7-56
A2A4A38R17		RESISTOR, FIXED, FILM: 6200 ohms ±2%, 1/4 w; MIL type RLR07C6201GR.	7-56
A2A4A38R18		RESISTOR, FIXED, FILM: 510 ohms ±2%, 1/4 w; MIL type RLR07C5100GR.	7-56
A2A4A38R19		RESISTOR, FIXED, COMPOSITION: 39 ohms ±5%, 1/4 w; MIL type RCR07G390JS.	7-56
A2A4A38R20		RESISTOR: Item 31.	7-56
A2A4A38R21		RESISTOR: Item 38.	7-56
A2A4A38TP1		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: 1500 Vrms, 60 Hz; MIL type M39024/11-01.	7-56
A2A4A38TP2		CONNECTOR, ELECTRICAL, TEST POINT TYPE: 1500 Vrms, 60 Hz; MIL type M39024/11-03.	7-56
A2A4A38W1		CABLE ASSEMBLY, RF: 1.752 in. long; mfr 98738, part no. 30A226790-21-11.	7-56
A2A4A38W2		CABLE ASSEMBLY, RF: 5.75 in. long; mfr 98738, part no. 30A226789-21-11.	7-56
A2A4A38W2P1		Refer to A2A4P2A5, CONNECTOR, PLUG.	

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

FRQUENCY STANDARD ASSEMBLY A2A5

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5		FREQUENCY STANDARD ASSEMBLY: 4.437 in. long, 2.937 in. w, 4.470 in. h; mfr 98738, part no. 01A228490-01. (Attaching Parts) A2A5MP15 and A2A5MP16	7-57, 7-58
A2A5C1 and A2A5C2		CAPACITOR: Item 63.	7-58
A2A5E1 thru A2A5E4		Not used.	
A2A5E5		TERMINAL: Brass; 0.156 in. dia, 0.375 in. long; 98738, dwg 29P230916. (Attaching Parts) AL(1) DA(1)	7-58
A2A5E6		TERMINAL, LUG: 90 degree bend, 0.53 in. long, 0.23 in. dia; mfr 79963, part no. 124, 98738, dwg 29S133084-01. (Attaching Parts) AL(1) AR(1)	7-58
A2A5E7		TERMINAL, LUG: MIL type MS77068-1. (Attaching Parts) AU(1) AR(1)	7-58
A2A5J1 and A2A5J2		Not used.	
A2A5J3		CONNECTOR, ELECTRICAL, PRINTED WIRING BOARD CARD INSERTION: MIL type M21097/1-019. (Attaching Parts) AU(2) AL(1) DA(2) A2A5E7	7-58
A2A5MP1		BASE PLATE: Aluminum alloy; 4.406 in. long, 2.906 in. w, 0.906 in. h; mfr 98738, part no. 01A228494-01. (Attaching Parts) DB(2)	7-58
A2A5MP2		SLEEVE ASSEMBLY: Polyurethane foam, 2.75 in. long, 1.875 in. w, 3.875 in. h; mfr 98738, part no. 01A226525-21-11. (Attaching Parts) DB(2)	7-58
A2A5MP3 and A2A5MP4		SPACER: Lexan; 0.562 in. long, 0.250 in. dia; mfr 98738, part no. 48P228454-01. (Attaching Parts) M(2) AB(2)	7-58
A2A5MP5		OVEN COVER SUBASSEMBLY: Plastic; 2.50 in. long, 1.437 in. w, mfr 98738, part no. 15A228561-01. (Attaching Parts) AL(2) AR(2) AU(2) CV(1)	7-58
A2A5MP6		DIAL, INDICATOR: Nylon; 1.687 in. dia, 0.188 in. thk; mfr 98738, part no. 34P226544-21-11. (Attaching Parts) DC(1) GS(2) A2A5MP7 thru A2A5MP9	7-58
A2A5MP7		SPACER: Teflon; 0.250 in. dia, 0.219 in. long; mfr 98738, part no. 43P226537-22-11.	7-58
A2A5MP8		Not used.	

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5MP9		SPRING, WASHER: Phosphor bronze, cadmium plated, 0.50 in. OD, 0.25 in. ID; mfr 78189, part no. 3702-14-47; 98738, dwg 04P226633-01.	7-58
A2A5MP10		SPRING, COMPRESSION: Cres, 0.250 in. long, 0.088 in. dia; mfr 70472, part no. C0088-012-0250S; 98738, dwg 41P226642-21-11.	7-58
A2A5MP11		Not used.	
A2A5MP12		KNOB, CONTROL: Molded black nylon; 0.50 in. long, 0.355 in. dia; mfr 98738, part no. 36P226546-21-11.	7-57
A2A5MP13		COVER: Aluminum alloy; 4.375 in. long, 2.750 in. w, 3.875 in. h; mfr 98738, part no. 15P228495-01. (Attaching Parts) AL(5) AQ(5)	7-57
A2A5MP14		PLUG, PROTECTIVE: Nylon; 0.344 in. dia, 0.031 in. thk; 0.172 in. long; mfr 78189, part no. 207-120241-05-0103; 98738, dwg 09P226623-01.	7-57
A2A5MP15 and A2A5MP16		SCREW, CAPTIVE: Cres; 4.690 in. long, 0.218 in. dia, 10-32 UNF-2A threads; mfr 98738, part no. 03P226540-21-11.	7-57
A2A5MP17 and A2A5MP18		STRAP, TIEDOWN: MIL type MS3367-4-9.	7-58
A2A5P1		CONNECTOR, ELECTRICAL: 2.729 in. long, 0.494 in. w, 0.426 in. thk; mfr 71468, part no. DCM13W6P-F115; 98738, DWG 09P226606-01. (Attaching Parts) DD(2)	7-58
A2A5P1A1 thru A2A5P1A6		CONNECTOR, INSERT: 0.850 in. long, 0.40 in. dia; mfr 13556, part no. CN0961-P01S1-04, 98738, dwg 09P226604-01.	7-58
A2A5W1 and A2A5W2		CABLE ASSEMBLY, SHIELDED: 4.50 in. long; connector installed one end; mfr 98738, part no. 01A226526-21-11.	7-58
A2A5W3		CABLE ASSEMBLY, SHIELDED: 6.0 in. long; connector installed one end; mfr 98738, part no. 01A226526-22-11.	7-58
A2A5W4		CABLE ASSEMBLY, SHIELDED: 4.50 in. long; connector installed one end; mfr 98738, part no. 30A226512-21-11.	7-58
A2A5W5		CABLE ASSEMBLY, SHIELDED: 3.50 in. long; connector installed one end; mfr 98738, part no. 01A226526-23-11.	7-58
A2A5W6		CABLE ASSEMBLY, SHIELDED: 6.0 in. long; connector installed one end; mfr 98738, part no. 01A226526-24-11.	7-58

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5W7		CABLE ASSEMBLY, SHIELDED: 4.50 in. long; mfr 98738, part no. 30A226513-21-11.	7-60
A2A5A1		OSCILLATOR OVEN PCB ASSEMBLY: 2.968 in. long, 1.781 in. w; mfr 98738, part no. 01A228568-01.	7-59
A2A5A1C1		CAPACITOR, FIXED, MICA: 680 pF ±5%, 500 Vdc working; MIL type CMR06F681JODL.	7-59
A2A5A1C2		CAPACITOR, VARIABLE: 0.8 pF to 12 pF, 1500 Vdc working; mfr 18736, part no. V1502, 98738, dwg 19P226601-01.	7-59
A2A5A1C3		CAPACITOR, VARIABLE, CERAMIC DIELECTRIC: 9pF to 35 pF, 200 Vdc working; MIL type CV32D350.	7-59
A2A5A1C4		CAPACITOR, FIXED, MICA; 180 pF ±5%, 500 Vdc working; MIL type CMR04F181JODL.	7-59
A2A5A1C5		CAPACITOR, FIXED, MICA: 220 pF ±5%, 500 Vdc working; MIL type CMR04F221JODL.	7-59
A2A5A1C6		CAPACITOR: Item 63.	7-59
A2A5A1C7		CAPACITOR, FIXED, ELECTROLYTIC: 3.3 uF ±20%, 15 Vdc working; MIL type M39003/01-2269.	7-59
A2A5A1C8	1	CAPACITOR, FIXED, MICA: Same as A2A5A1C11.	7-59
A2A5A1C9		Not used.	
A2A5A1C10		CAPACITOR, FIXED, CERAMIC: 0.01 uF ±10%. 100 Vdc working; MIL type M390124/01-1535.	7-59
A2A5A1C11A	1	CAPACITOR, FIXED, MICA: 82 pF ±5%, 500 Vdc working; MIL type CMR04E820JODL.	7-59
A2A5A1C11B	1	CAPACITOR, FIXED, MICA: 100 pF ±5%, 500 Vdc working; MIL type CMR04F101JODL.	7-59
A2A5A1C11C	1	CAPACITOR, FIXED, MICA: 120 pF ±5%, 500 Vdc working; MIL type CMR04F121JODL.	7-59
A2A5A1C11D	1	CAPACITOR, FIXED, MICA: 130 pF ±5%, 500 Vdc working; MIL type CMR04F131JODL.	7-59
A2A5A1C11E	1	CAPACITOR, FIXED, MICA: 160pF ±5%, 500 Vdc working; MIL type CMR04F161JODL.	7-59
A2A5A1C11F	1	CAPACITOR, FIXED, MICA: 68pF ±5%, 500 Vdc working; MIL type CMR04E680JODL.	7-59
A2A5A1CR1		SEMICONDUCTOR DEVICE, DIODE: Silicon, voltage regulator; MIL type JAN1N758A.	7-59
A2A5A1CR2		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N4148.	7-59
A2A5A1E1		Not used.	
A2A5A1E2 and A2A5A1E3		CONTACT: Phosphor bronze; 0.600 in. long, 0.101 in. w, mfr 91506, part no. 8004-4P40, 98738, dwg 09P236617-01.	7-59

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A1MP1		BRACKET, CRYSTAL HOLDER: Aluminum alloy; 0.937 in. long, 0.625 in. w, 0.062 in. thk; mfr 98738, part no. 07P226639-21-11.	7-59
A2A5A1MP2		SPACER, CRYSTAL HOLDER: Aluminum alloy; 0.687 in. long, 0.50 in. w, 0.125 in. thk; mfr 98738, part no. 43P226640-21-11.	7-59
A2A5A1MP3		CLIP, CRYSTAL HOLDER: Spring steel; 0.50 in. long, 0.758 in. w, 0.40 in. h; mfr 99378, part no. 100-206-8; 98738, dwg 42P226625-07. (Attaching Parts) DE(2)	7-59
A2A5A1MP4		GROMMET: Neoprene; 0.375 in. long, 0.250 in. dia, 0.375 in. dia. at shoulder; mfr 70485, part no. 962, 98738, dwg 05P226616-01. (Attaching Parts) DE(2)	7-59
A2A5A1MP5		PAD TRANSISTOR MOUNTING: 0.35 in. OD, 0.20 in ID, 0.20 in. thk; mfr 13103, part no. 7717-15, 98738, dwg 14S132171-11A-9.	7-59
A2A5A1P1 thru A2A5A1P5		CONNECTOR, PCB CONTACT: Phosphor bronze, 0.127 in. long; mfr 91662, part no. 02-005-046-5-200-100; 98738, dwg 09P226602-01.	7-59
A2A5A1Q1 thru A2A5A1Q5		TRANSISTOR: MIL type JAN2N706.	7-59
A2A5A1Q6		TRANSISTOR: MIL type JAN2N2907A	7-59
A2A5A1Q7		TRANSISTOR: MIL type JAN2N697.	7-59
A2A5A1R1		RESISTOR, FIXED,COMPOSITION: 120K ohms ±5%, 1/4 w; MIL type RCR07G124JS.	7-59
A2A5A1R2		RESISTOR, FIXED, FILM: 51 ohms ±2%, 1/4 w; MIL type RLR07C51R0GR.	7-59
A2A5A1R3		RESISTOR, FIXED, FILM: 1K ohms ±2%, 1/4 w; MIL type RLR07C1001GR.	7-59
A2A5A1R4		RESISTOR, FIXED, COMPOSITION: 82K ohms ±5%, 1/4 w; MIL type RCR07G823JS.	7-59
A2A5A1R5		RESISTOR, FIXED, COMPOSITION: 15K ohms ±5%, 1/4 w; MIL type RCR07G153JS.	7-59
A2A5A1R6		RESISTOR: Item 42.	7-59
A2A5A1R7		RESISTOR, FIXED, COMPOSITION: 1500 ohms ±5%, 1/4 w; MIL type RCR07G152JS.	7-59
A2A5A1R8		RESISTOR: Item 35.	7-59
A2A5A1R9		RESISTOR, FIXED, WIRE-WOUND: 270 ohms ±5%, 1/2 w; MIL type RCR20G271JS.	7-59
A2A5A1R10A	1	RESISTOR: Item 32.	7-59
A2A5A1R10B	1	RESISTOR, FIXED, COMPOSITION: 18K ohms ±5%, 1/4 w; MIL type RCR07G183JS.	7-59
A2A5A1R10C	1	RESISTOR: Item 37.	7-59

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A1R10D	1	RESISTOR, FIXED, COMPOSITION: 39K OHMS ±5%, 1/4 W; MIL type RCR07G393JS.	7-59
A2A5A1R10E	1	RESISTOR, FIXED, COMPOSITION: 47K ohms ±5%, 1/4 w; MIL type RCR07G473JS.	7-59
A2A5A1R11		RESISTOR: Item 32.	7-59
A2A5A1R12		RESISTOR: Item 35.	7-59
A2A5A1R13 and A2A5A1R14		RESISTOR, FIXED, FILM: 4700 ohms ±2%, 1/4 w; MIL type RLR07C4701GR.	7-59
A2A5A1R15		RESISTOR, VARIABLE, WIRE-WOUND: 1K ohms ±5%, 3/4 w; MIL type M39015/2-004XM.	7-59
A2A5A1R16A	1	RESISTOR, FIXED, FILM: 3300 ohms ±2%, 1/4 w; MIL type RLR07C3301GR.	7-59
A2A5A1R16B	1	RESISTOR, FIXED, FILM: 3900 ohms ±2%, 1/4 w; MIL type RLR07C3901GR.	7-59
A2A5A1R16C	1	RESISTOR, FIXED, FILM: 4300 ohms ±2%, 1/4 w; MIL type RLR07C4301GR.	7-59
A2A5A1R16D	1	RESISTOR, FIXED, FILM: 4700 ohms ±2%, 1/4 w; MIL type RLR07C4701GR.	7-59
A2A5A1R16E	1	RESISTOR, FIXED, FILM: 5600 ohms ±2%, 1/4 w; MIL type RLR07C5601GR.	7-59
A2A5A1R17 and A2A5A1R18		RESISTOR, FIXED, COMPOSITION: 12K ohms ±5%, 1/4w: MIl type RCR07G123JS.	7-59
A2A5A1R19 and A2A5A1R20		RESISTOR: Item 32.	7-59
A2A5A1R21		RESISTOR: ITEM 35.	7-59
A2A5A1R22		RESISTOR, FIXED, COMPOSITION: 330 ohms ±5%, 1/4 w; MIL type RCR07G331JS.	7-59
A2A5A1R23A	1	RESISTOR, FIXED, COMPOSITION: 1.2 megohms ±5%, 1/4 w; MIL type RCR07G125JS.	7-59
A2A5A1R23B	1	RESISTOR, FIXED, COMPOSITION: 1.8 megohms ±5%, 1/4 w; MIL type RCR07G185JS.	7-59
A2A5A1R23C	1	RESISTOR, FIXED, COMPOSITION: 2.7 megohms ±5%, 1/4 w; MIL type RCR07G275JS.	7-59
A2A5A1R23D	1	RESISTOR, FIXED, COMPOSITION: 390K ohms ±5%, 1/4 w; MIL type RCR07G394JS.	7-59
A2A5A1R23E	1	RESISTOR, FIXED, COMPOSITION: 470K ohms ±5%, 1/4 w; MILtypeRCR07G474JS.	7-59
A2A5A1R23F	1	RESISTOR, FIXED, COMPOSITION: 560K ohms ±5%, 1/4 w; MIL type RCR07G564JS.	7-59
A2A5A1R23G	1	RESISTOR, FIXED, COMPOSITION: 680K ohms ±5%, 1/4 w; MIL type RCR07G684JS.	7-59

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A1R23H	1	RESISTOR, FIXED, COMPOSITION: 820K ohms ±5%, 1/4 w; MIL type RCR07G824JS.	7-59
A2A6A1R24		RESISTOR: Item 59.	7-59
A2A5A1Y1		CRYSTAL, QUARTZ, 5 MHZ: In glass holder; 0.795 in. long, 0.757 in. w, 0.352 in. thk; mfr 98738, part no. 48P228436-01.	7-59
A2A5A2		ASSEMBLY, MULTIPLIER/DIVIDER/AMPLIFIER PWB A2: Mfr 98738, part no. 01A228385-01. (Attaching Parts) AF(2), AL(2), AU(2), AB(2), L(2), M(2)	7-60
A2A5A2C1		CAPACITOR: Item 64.	7-60
A2A5A2C2		CAPACITOR, FIXED, MICA: 300 pF ±5%, 500 Vdc working; MIL type CMR04F301JOCL.	7-60
A2A5A2C3 and A2A5A2C4		CAPACITOR: Item 63.	7-60
A2A5A2C5		CAPACITOR: Item 64.	7-60
A2A5A2C6		CAPACITOR: Item 63.	7-60
A2A5A2C7		CAPACITOR, VARIABLE, CERMIC DIELECTIC: 15 pF to 60 pF, 200 Vdc working; MIL type CV31E600.	7-60
A2A5A2C8		CAPACITOR, FIXED, MICA: 680 pF ±5%, 500 Vdc working; MIL type CCR06CG681JM.	7-60
A2A5A2C9		CAPACITOR, FIXED, MICA: 220 pF ±5%, 500 Vdc working; MIL type CMR04F221JODL.	7-60
A2A5A2C10		CAPACITOR: Item 64.	7-60
A2A5A2C11		CAPACITOR: Item 63.	7-60
A2A5A2C12		CAPACITOR, FIXED, MICA: 30 pF ±5%, 500 Vdc working; MIL type CMR04E300JODL.	7-60
A2A5A2C13		CAPACITOR, VARIABLE, CERAMIC DIELECTRIC: 9 pF to 35 pF, 200 Vdc working; MIL type CV31D350.	7-60
A2A5A2C14		CAPACITOR: Item 64.	7-60
A2A5A2C15		CAPACITOR: Item 63.	7-60
A2A5A2C16		CAPACITOR, VARIABLE, CERAMIC DIELECTRIC: 15 pF TO 60 pF, 200 Vdc working; MIL type CV31E600.	7-60
A2A5A2C17		CAPACITOR: Item 64.	7-60
A2A5A2C18		CAPACITOR, FIXED, MICA: 1500 pF ±5%, 500 Vdc working; MIL type CCR06CG152JM.	7-60
A2A5A2C19		CAPACITOR, FIXED, MICA: 680 pF ±5%, 500 Vdc working; MIL type CCR06CG681JM.	7-60
A2A5A2C20		CAPACITOR: Item 63.	7-60

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A2C21		CAPACITOR, FIXED, MICA: 330 pF ±5%, 500 Vdc working; MIL type CMR04F331JOAL.	7-60
A2A5A2C22		CAPACITOR, VARIABLE, CERMIC: 15 pF to 60 pF, 200 Vdc working; MIL type CV31E600.	7-60
A2A5A2C23		CAPACITOR, FIXED, MICA: 150 pF ±5%, 500 Vdc working; MIL type CMR04F151JODL.	7-60
A2A5A2C24		CAPACITOR: Item 63.	7-60
A2A5A2C25		CAPACITOR: Item 64.	7-60
A2A5A2C26		CAPACITOR: Item 63.	7-
A2A5A2C27		CAPACITOR, FIXED, MICA: 68 pF±5%, 500 Vdc working; MIL type CMR04E680JODL.	7-60
A2A5A2C28		CAPACITOR, FIXED, MICA: 33 pF ±5%, 500 Vdc working; MIL type CMR04E330JODL.	7-60
A2A5A2C29		CAPACITOR: Item 63.	7-60
A2A5A2C30		CAPACITOR, FIXED, MICA: 33 pF ±5%, 500 Vdc working; MIL type CMR04E330JODL.	7-60
A2A5A2C31		CAPACITOR, VARIABLE, CERAMIC DIELECTRIC: 9 pF to 35 pF, 200 Vdc working; MIL type CV31D350.	7-60
A2A5A2C32		CAPACITOR, FIXED, MICA: 1500 pF ±5%, 500 Vdc working; MIL type CCR06CG152JM.	7-60
A2A5A2C33		CAPACITOR, VARIABLE, CERAMIC DIELECTRIC: 9 pF to 35 pF, 200 Vdc working; MIL type CV31D350.	7-60
A2A5A2C34		CAPACITOR: Item 63.	7-60
A2A5A2C35		CAPACITOR, FIXED, MICA: 68 pF ±5%, 500 Vdc working; MIL type CMR04E680JODL.	7-60
A2A5A2C36		CAPACITOR: Item 63.	7-60
A2A5A2C37		CAPACITOR, FIXED, MICA: 56 pF ±5%,500 Vdc working; MIL type CMR04E560JODL.	7-60
A2A5A2C38		CAPACITOR, VARIABLE, CERAMIC DIELECTRIC: 10 pF to 40 pF, 200 Vdc working; MIL type CV31D350.	7-60
A2A5A2C39		CAPACITOR, FIXED, MICA: 91 pF ±5%, 500 Vdc working; MIL type CMR04F910JODL.	7-60
A2A5A2C40		CAPACITOR, FIXED, MICA: 1200 pF ±5%, 500 Vdc working; MIL type CCR06CG122JM.	7-60
A2A5A2C41 thru A2A5A2C43		Not used.	
A2A5A2C44A	1	CAPACITOR, FIXED, MICA: 10 pF ±5%, 500 Vdc working; MIL type CMR04C100DODL.	7-60
A2A5A2C44B	1	CAPACITOR, FIXED, MICA: 22 pF ±5%, 500 Vdc working; MIL type CMR04E220JODL.	7-60

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A2C44C	1	CAPACITOR, FIXED, MICA: 27 pF ±5%, 500 Vdc working; MIL type CMR04E270JODL.	7-60
A2A5A2C44D	1	CAPACITOR, FIXED, MICA: 39 pF ±5%, 500 Vdc working; MIL type CMR04E390JODL.	7-60
A2A5A2C44E	1	CAPACITOR, FIXED, MICA: 47 pF ±5%, 500 Vdc working; MIL type CMR04E470JODL.	7-60
A2A5A2C44F	1	CAPACITOR, FIXED, MICA: 82 pF ±5%,500 Vdc working; MIL type CMR04E820JODL.	7-60
A2A5A2C44G	1	CAPACITOR, FIXED, MICA: 100 pF ±5%, 500 Vdc working; MIL type CMR04F101JODL.	7-60
A2A5A2DS1		LAMP, LED; 2.1V, 105 mW;72619, part no. 550-2306; 98738,dwg 65P228558-01.	7-60
A2A5A2L1		CHOKE: 120 uH ±5%, 75 milliamps; MIL type MS90538-14.	7-60
A2A5A2L2		CHOKE: 200 uH ±5%, 150 milliamps; MIL type MS90538-19.	7-60
A2A5A2L3		CHOKE: 6.80 uH ±10%, 395 milliamps; MIL type MS14046-2.	7-60
A2A5A2L4		CHOKE: 10.00 uH ±10%, 290 milliamps; MIL type MS14046-3.	7-60
A2A5A2MP1		BRACKET, ASSEMBLY: Alum. alloy, 0.937 in. long, 0.812 in. w, 1.187 in. h; mfr 98738, part no. 01A226519-21-11. (Attaching Parts) DG(2)	7-58, 7-60
A2A5A2Q1		TRANSISTOR: MIL type JAN2N706.	7-60
A2A5A2Q2 and A2A5A2Q3		TRANSISTOR: Item 54.	7-60
A2A5A2Q4 thru A2A5A2Q8		TRANSISTOR: MIL type JAN2N706.	7-60
A2A5A2Q9		TRANSISTOR: Item 54.	7-60
A2A5A2R1		RESISTOR: Item 31.	7-60
A2A5A2R2		RESISTOR: Item 32.	7-60
A2A5A2R3		RESISTOR: Item 40.	7-60
A2A5A2R4		RESISTOR: Item 35.	7-60
A2A5A2R5		RESISTOR: Item 40.	7-60
A2A5A2R6		RESISTOR: Item 32.	7-60
A2A5A2R7		RESISTOR: Item 35.	7-60
A2A5A2R8		RESISTOR: Item 45.	7-60
A2A5A2R9		RESISTOR, FIXED, COMPOSITION: 1500 ohms ±5%, 1/4 w; MIL type RCR07G152JS.	7-60
A2A5A2R10		RESISTOR: Item 43.	7-60
A2A5A2R11		RESISTOR: Item 31.	7-60
A2A5A2R12		RESISTOR: Item 32.	7-60

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A2R13		RESISTOR, FIXED, COMPOSITION: 3900 ohms ±5%, 1/4 w; MIL type RCR07G392JS.	7-60
A2A5A2R14		RESISTOR, FIXED, COMPOSITION: 68K ohms ±5%, 1/4 w; MIL type RCR07G683JS.	7-60
A2A5A2R15		RESISTOR, FIXED, COMPOSITION: 6800 ohms ±5%, 1/4 w; MIL type RCR07G682JS.	7-60
A2A5A2R16		RESISTOR, FIXED, COMPOSITION: 560 ohms ±5%, 1/4 w; MIL type RCR07G561JS.	7-60
A2A5A2R17A	1	RESISTOR, FIXED, COMPOSITION: 27 ohms ±5%, 1/4 w; MIL type RCR07G270JS.	7-60
A2A5A2R17B	1	RESISTOR: Item 38.	7-60
A2A5A2R17C	1	RESISTOR, FIXED, COMPOSITION: 39 ohms ±5%, 1/4 w; MIL type RCR07G390JS.	7-60
A2A5A2R17D	1	RESISTOR: Item 42.	7-60
A2A5A2R17E	1	RESISTOR, FIXED, COMPOSITION: 56 ohms ±5%, 1/4 w; MIL type RCR07G560JS.	7-60
A2A5A2R17F	1	RESISTOR, FIXED, COMPOSITION: 68 ohms ±5%, 1/4 w; MIL type RCR07G680JS.	7-60
A2A5A2R17G	1	RESISTOR: Item 44.	7-60
A2A5A2R17H	1	RESISTOR: Item 30.	7-60
A2A5A2R17J	1	RESISTOR, FIXED, COMPOSITION: 150 ohms ±5%, 1/4 w; MIL type RCR07G121JS.	7-60
A2A5A2R17K	1	RESISTOR, FIXED, COMPOSITION: 150 ohms ±5%, 1/4 w; MIL type RCR07G151JS.	7-60
A2A5A2R17L	1	RESISTOR, FIXED, COMPOSITION: 180 ohms ±5%, 1/4 w; MIL type RCR07G181JS.	7-60
A2A5A2R17M	1	RESISTOR: Item 34.	7-60
A2A5A2R18A	1	RESISTOR, FIXED, COMPOSITION: 68 ohms ±5%, 1/4 w; MIL type RCR07G680JS.	7-60
A2A5A2R18B	1	RESISTOR: Item 44.	7-60
A2A5A2R18C	1	RESISTOR: Item 30.	7-60
A2A5A2R19		RESISTOR: Item 32.	7-60
A2A5A2R20		RESISTOR: Item 40.	7-60
A2A5A2R21 and A2A5A2R22		RESISTOR: Item 32.	7-60
A2A5A2R23 thru A2A5A2R25		RESISTOR: Item 43.	7-60
A2A5A2R26		RESISTOR: Item 35.	7-60
A2A5A2R27		RESISTOR: Item 37.	7-60
A2A5A2R28		RESISTOR: Item 32.	7-60
A2A5A2R29		RESISTOR: Item 31.	7-60
A2A5A2R30A	1	RESISTOR, FIXED, COMPOSITION: 27 ohms ±5%, 1/4 w; MIL type RCR07G270JS.	7-60

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A2R30B	1	RESISTOR: Item 38.	7-60
A2A5A2R30C	1	RESISTOR, FIXED, COMPOSITION: 39 ohms ±5%, 1/4 w; MIL type RCR07G390JS.	7-60
A2A5A2R30D	1	RESISTOR: Item 42.	7-60
A2A5A2R30E	1	RESISTOR, FIXED, COMPOSITION: 56 ohms ±5%, 1/4 w; MIL type RCR07G560JS.	7-60
A2A5A2R30F	1	RESISTOR, FIXED, COMPOSITION: 68 ohms ±5%, 1/4 w; MIL type RCR07G680JS.	7-60
A2A5A2R30G	1	RESISTOR: Item 44.	7-60
A2A5A2R30H	1	RESISTOR: Item 30.	7-60
A2A5A2R30J	1	RESISTOR, FIXED, COMPOSITION: 120 ohms ±5%, 1/4 w; MIL type RCR07G121JS.	7-60
A2A5A2R30K	1	RESISTOR, FIXED, COMPOSITION: 150 ohms ±5%, 1/4 w; MIL type RCR07G151JS.	7-60
A2A5A2R30L	1	RESISTOR, FIXED, COMPOSITION: 180 ohms ±5%, 1/4 w; MIL type RCR07G181JS.	7-60
A2A5A2R30M	1	RESISTOR: Item 34.	7-60
A2A5A2R31A	1	RESISTOR, FIXED, COMPOSITION: 22 ohms ±5%, 1/4 w; MIL type RCR07G220JS.	7-60
A2A5A2R31B	1	RESISTOR: Item 38.	7-60
A2A5A2R31C	1	RESISTOR: Item 42.	7-60
A2A5A2R32		RESISTOR: Item 31.	7-60
A2A5A2R33		RESISTOR, FIXED, COMPOSITION: 680 ohms ±5%, 1/4 w; MIL type RCR07G681JS.	7-60
A2A5A2R34		RESISTOR: Item 40.	7-60
A2A5A2R35		Not used.	
A2A5A2R36		RESISTOR: Item 35.	7-60
A2A5A2R37		RESISTOR, FIXED, COMPOSITION: 1500 ohms ±5%, 1/4 w; MIL type RCR07G152JS.	7-60
A2A5A2R38		RESISTOR: Item 32.	7-60
A2A5A2R39		RESISTOR: Item 35.	7-60
A2A5A2R40		RESISTOR: Item 37.	7-60
A2A5A2R41		RESISTOR: Item 43.	7-60
A2A5A2R42		RESISTOR: Item 45.	7-60
A2A5A2R43A	1	RESISTOR, FIXED, COMPOSITION: 390 ohms ±5%, 1/4 w; MIL type RCR07G391JS.	7-60
A2A5A2R43B	1	RESISTOR, FIXED, COMPOSITION: 470 ohms ±5%, 1/4 w; MIL type RCR07G471JS.	7-60
A2A5A2R43C	1	RESISTOR, FIXED, COMPOSITION: 560 ohms ±5%, 1/4 w; MIL type RCR07G561JS.	7-60
A2A5A2R44A	1	RESISTOR, FIXED, COMPOSITION: 2.7 ohms ±5%, 1/4 w; MIL type RCR07G2R7JS.	7-60
A2A5A2R44B	1	RESISTOR, FIXED, COMPOSITION: 3.3 ohms ±5%, 1/4 w; MIL type RCR07G3R3JS.	7-60

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A2R44C	1	RESISTOR, FIXED, COMPOSITION: 3.9 ohms ±5%, 1/4 w; MIL type RCR07G3R9JS.	7-60
A2A5A2R44D	1	RESISTOR, FIXED, COMPOSITION: 4.7 ohms ±5%, 1/4 w; MIL type RCR07G4R7JS.	7-60
A2A5A2R44E	1	RESISTOR, FIXED, COMPOSITION: 5.6 ohms ±5%, 1/4 w; MIL type RCR07G5R6JS.	7-60
A2A5A2R44F	1	RESISTOR, FIXED, COMPOSITION: 6.8 ohms ±5%, 1/4 w; MIL type RCR07G6R8JS.	7-60
A2A5A2R44G	1	RESISTOR, FIXED, COMPOSITION: 8.2 ohms ±5%, 1/4 w; MIL type RCR07G8R2JS.	7-60
A2A5A2R44H	1	RESISTOR: Item 29.	7-60
A2A5A2R45 and A2A5A2R46		RESISTOR: Item 32.	7-60
A2A5A2R47		RESISTOR: Item 33.	7-60
A2A5A2R48		RESISTOR: Item 31.	7-60
A2A5A2R49A	1	RESISTOR, FIXED, COMPOSITION: 27 ohms ±5%, 1/4 w; MIL type RCR07G270JS.	7-60
A2A5A2R49B	1	RESISTOR: Item 38.	7-60
A2A5A2R49C	1	RESISTOR, FIXED, COMPOSITION: 39 ohms ±5%, 1/4 w; MIL type RCR07G390JS.	7-60
A2A5A2R49D	1	RESISTOR: Item 42.	7-60
A2A5A2R49E	1	RESISTOR, FIXED, COMPOSITION: 56 ohms ±5%, 1/4 w; MIL type RCR07G560JS.	7-60
A2A5A2R49F	1	RESISTOR, FIXED, COMPOSITION: 68 ohms ±5%, 1/4 w; MIL type RCR07G680JS.	7-60
A2A5A2R49G	1	RESISTOR: Item 44.	7-60
A2A5A2R49H	1	RESISTOR: Item 30.	7-60
A2A5A2R49J	1	RESISTOR, FIXED, COMPOSITION: 120 ohms ±5%, 1/4 w; MIL type RCR07G121JS.	7-60
A2A5A2R49K	1	RESISTOR, FIXED, COMPOSITION: 150 ohms ±5%, 1/4 w; MIL type RCR07G151JS.	7-60
A2A5A2R49L	1	RESISTOR, FIXED, COMPOSITION: 180 ohms ±5%, 1/4 w; MIL type RCR07G181JS.	7-60
A2A5A2R49M	1	RESISTOR: Item 34.	7-60
A2A5A2R50 and A2A5A2R51		Not used.	
A2A5A2R52		RESISTOR, FIXED, COMPOSITION: 1500 ohms ±5%, 1/2 w; MIL type RCR20G152JS.	7-60
A2A5A2R53 thru A2A5A2R55		Not used.	
A2A5A2R56		RESISTOR, FIXED, COMPOSITION: 510 ohms ±5%, 1/4 w; MIL type RCR07G511JS.	7-60

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A2R57 thru A2A5A2R59		Not used.	
A2A5A2R60		RESISTOR, FIXED, COMPOSITION: 680 ohms ±5%, 1/4 w; MIL type RCR07G681JS.	7-60
A2A5A2R61		RESISTOR: Item 31.	7-60
A2A5A2R62		RESISTOR: Item 32.	7-60
A2A5A2S1		SWITCH, ROTARY: Three pole, three position; 0.562 in. body dia, 0.94 in. long; mfr 51073, part no. 51MY23035-3-03N; 98738, dwg 40P228373-01.	7-60
A2A5A2T1		TRANSFORMER, RF: 240 uH primary inductance, 21 turn secondary; 0.375 in. long, 0.155 in. dia; mfr 98738, part no. 24A226607-23-11.	7-60
A2A5A2T2		TRANSFORMER, RF: 240 uH primary inductance, 10 turn secondary; 0.375 in. long, 0.155 in. dia; mfr 98738, part no. 24P226607-22-11.	7-60
A2A5A2T3		TRANSFORMER, RF: 10 uH primary inductance, 3/4 turn secondary; 0.375 in. long, 0.155 in. dia; mfr 98738, part no. 24P226607-21-11.	7-60
A2A5A3		OVEN CAN WIRING ASSEMBLY: Mfr 98738, part no. 01A226523-22-11. (Attaching Parts) DB(2)	7-61
A2A5A3E1		LUG, SOLDER: MIL type MS77068-1. (Attaching Parts) AQ(1), AU(1), FA(1)	7-61
A2A5A3E2 and A2A5A3E3		TERMINAL, TURRET: MIL type SE089B01S.	7-61
A2A5A3J1		CONNECTOR ASSEMBLY: Copper clad plastic, five contacts; 1.39 in. long, 0.25 in. w; mfr 98738, part no. 01A226509-21-11. (Attaching Parts) GU(2)	7-61
A2A5A3J1A1 thru A2A5A3J1A5		CONTACT, P.C. BOARD: Phosphor bronze, nickel plated; 0.70 in. long; mfr 91662, part no. 02-005-120-6200-100; 98738, dwg 09P226643-01.	7-61
A2A5A3MP1		OVEN CAN AND HEATER ASSEMBLY: Aluminum alloy, heater winding epoxy coated, 2.0 in. long, 1.142 in. w; 3.125 in. h; mfr 98738, part no. 01A226518-22-11.	7-61
A2A5A3MP2		PLATE, INSULATOR: Plastic, 0.50 in. sq, 0.62 in. thk; mfr 98738, part no. 64P226533-21-11.	7-61

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A3MP3 and A2A5A3MP4		GROMMET, NYLON: 0.218 in. sq, 0.268 in. long; mfr 02768, part no. 212-110302-00; 98738, dwg 05P226618-21-11.	7-61
A2A5A3MP5		CRYSTAL OVEN CAN: 3.06 in. long, 2.00 in. wide; mfr 98738, part no. 15P226548-22-11.	7-61
A2A5A3MP6		OVEN CAN STAKING ASSEMBLY: 3.375 in. long, 2.00 in. wide; mfr 98738, part no. 01A226517-22-11. (Attaching Parts) FA(1)	7-61
A2A5A3R1		RESISTOR, HEATER WIRE: Nickel chrome "C" #30 AWG; adjusted to 82 ±2 ohms, 6.75 ohms/ft. nom; mfr 98738, dwg 30P226621-21-11.	7-61
A2A5A3R2		RESISTOR, FIXED, WIRE-WOUND: 3900 ohms ±1%, 0.10 watt, 100 V max; mfr 48615, part no. SX094; 98738, dwg 17P226603-01.	7-61
A2A5A4		5 MHz REFERENCE CONTROL SUBASSEMBLY: 3.180 in. long, 2.062 in. w; mfr 98738, part no. 01A228551-01. (Attaching Parts) AF(1), AL(1), AU(1), DH(1)	7-62
A2A5A4C1		CAPACITOR, FIXED, CERAMIC: 0.047 uF ±10%, 100 Vdc working; MIL type M39014-02-1305.	7-62
A2A5A4C2		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 1 uF ±10%, 50 Vdc working; MIL type M39014/02-1407.	7-62
A2A5A4C3		CAPACITOR, FIXED, MICA: 150 pF ±5%, 500 Vdc working; MIL type CMR04F151JODL.	7-62
A2A5A4C4 thru A2A5A4C8		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 1 uF ±10%, 50 Vdc working; MIL type M39014/02-1407.	7-62
A2A5A4CR1 thru A2A5A4CR6		SEMICONDUCTOR DEVICE, SILICON SWITCHING DIODE: MIL type JAN1N4148.	7-62
A2A5A4CR7		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N4476.	7-62
A2A5A4CR8		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN2N4106.	7-62
A2A5A4E1		SOLDER CONNECTION ONLY.	
A2A5A4E2		Not used.	
A2A5A4E3		TERMINAL, LUG: MIL type MS35431-1.	7-62
A2A5A4MP1 thru A2A5A4MP3		PAD, INSULATOR: Nylon, 0.375 in. dia; 0.075 in. thk; mfr 13103, part no. 7717-4, 98738, dwg 14S132171-3B.	7-62

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A4MP4		HEAT SINK: Aluminum alloy, anodized black; 1.297 in. long, 0.73 in. w, 0.969 in. h; mfr 98738, part no. 91P226541-21-11.	7-62
A2A5A4MP5		INSULATOR, MICA: 0.98 in. long, 0.78 in. wide; mfr 02735, part no. 411-010-DF-031, dwg 14P227266-01.	7-62
A2A5A4MP6		SPACER, TRANSISTOR: Nylon; 1.30 in. long, 0.75 in. w; 0.063 in. thk; mfr 98738, part no. 43P226641-21-11.	7-62
A2A5A4Q1		TRANSISTOR: MIL type 2N2222A, 98738, dwg 48P228569-01.	7-62
A2A5A4Q2		TRANSISTOR: Item 54.	7-62
A2A5A4Q3		TRANSISTOR: MIL type JAN2N3019.	7-62
A2A5A4Q4		TRANSISTOR: Item 54.	7-62
A2A5A4Q5		TRANSISTOR: MIL type JAN2N3441. (Attaching Parts) AG(2), AS(1), CQ(2) ,AL(1)	7-62
A2A5A4R1		RESISTOR, FIXED, FILM: 75 ohms ±5%, 1/2 w; MIL type RLR20C75R0JR.	7-62
A2A5A4R2		RESISTOR: Item 30.	7-62
A2A5A4R3A	1	RESISTOR, FIXED, COMPOSITION: 2000 ohms ±5%, 1/4 w; MIL type RCR07G202JS.	7-62
A2A5A4R3B	1	RESISTOR, FIXED, COMPOSITION: 2400 ohms ±5%, 1/4 w; MIL type RCR07G242JS.	7-62
A2A5A4R3C	1	RESISTOR: Item 36.	7-62
A2A5A4R3D	1	RESISTOR, FIXED, COMPOSITION: 3000 ohms ±5%, 1/4 w; MIL type RCR07G302JS.	7-62
A2A5A4R3E	1	RESISTOR: Item 39.	7-62
A2A5A4R3F	1	RESISTOR, FIXED, COMPOSITION: 3600 ohms ±5%, 1/4 w; MIL type RCR07G362JS.	7-62
A2A5A4R3G	1	RESISTOR: Item 41.	7-62
A2A5A4R3H	1	RESISTOR, FIXED, COMPOSITION: 1600 ohms ±5%, 1/4 w; MIL type RCR07G162JS.	7-62
A2A5A4R3J	1	RESISTOR, FIXED, COMPOSITION: 1800 ohms ±5%, 1/4 w; MIL type RCR07G182JS.	7-62
A2A5A4R3K	1	RESISTOR, FIXED, COMPOSITION: 2200 ohms ±5%, 1/4 w; MIL type RCR07G222JS.	7-62
A2A5A4R4		RESISTOR: Item 31.	7-62
A2A5A4R5A	1	RESISTOR: Item 35.	7-62
A2A5A4R5B	1	RESISTOR, FIXED, COMPOSITION: 2400 ohms ±5%, 1/4 w; MIL type RCR07G242JS.	7-62
A2A5A4R5C	1	RESISTOR: Item 36.	7-62
A2A5A4R3D	1	RESISTOR, FIXED, COMPOSITON: 3000 ohms ±5%, 1/4 w; MIL type RCR07G302JS.	7-62
A2A5A4R5E	1	RESISTOR: Item 39.	7-62

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A4R5F	1	RESISTOR, FIXED, COMPOSITION: 3600 ohms ±5%, 1/4 w; MIL type RCR07G362JS.	7-62
A2A5A4R5G	1	RESISTOR: Item 41.	7-62
A2A5A4R5H	1	RESISTOR, FIXED, COMPOSITION: 2000 ohms ±5%, 1/4 w; MIL type RCR07G202JS.	7-62
A2A5A4R5J	1	RESISTOR, FIXED, COMPOSITION: 1800 ohms ±5%, 1/4 w; MIL type RCR07G182JS.	7-62
A2A5A4R5K	1	RESISTOR, FIXED, COMPOSITION: 1600 ohms ±5%, 1/4 w; MIL type RCR07G162JS.	7-62
A2A5A4R6		RESISTOR: Item 43.	7-62
A2A5A4R7		RESISTOR: Item 36.	7-62
A2A5A4R8		RESISTOR, FIXED, COMPOSITION: 12K ohms ±5%, 1/4 w; MIL type RCR07G123JS.	7-62
A2A5A4R9		RESISTOR: Item 34.	7-62
A2A5A4R10		RESISTOR: Item 43.	7-62
A2A5A4R11		RESISTOR, FIXED, WIRE-WOUND: 332 ohms ±1%, 3 w; MIL type RWR89S3320FM.	7-62
A2A5A4R12		RESISTOR, FIXED, WIRE-WOUND: 2210 ohms ±1%, 2 w; MIL type RWR80S2211FR.	7-62
A2A5A4R13		RESISTOR: Item 36.	7-62
A2A5A4R14		RESISTOR: Item 43.	7-62
A2A5A4U1 and A2A5A4U2		INTEGRATED CIRCUIT: MIL type M38510/00104BCB.	7-62
A2A5A4U3		INTEGRATED CIRCUIT: Mfr 18324, part no. SG7815T/883B, 98738, dwg 48P226600-03.	7-62
A2A5A4U4		INTEGRATED CIRCUIT: Mfr 07263, part no. 78M05HMQB, 98738, dwg 48P226600-01.	7-62

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5		FREQUENCY STANDARD ASSEMBLY: 4.437 in. long, 2.937 in. w, 4.470 in. h; mfr 98738, part no. 01A228203-01. (Attaching Parts) A2A5MP15 and A2A5MP16	7-57, 7-58
A2A5C1 and A2A5C2		CAPACITOR: Item 63.	7-58
A2A5E1 thru A2A5E4		Not used.	
A2A5E5		TERMINAL: Brass; 0.187 in. dia, 0.438 in. long; mfr 88245, part no. 1250-B; 98738, dwg 29S111314-2. (Attaching Parts) AL(1) DA(1)	7-58
A2A5E6		TERMINAL, LUG: 90 degrees bend, 0.53 in. long, 0.23 in. dia; mfr 79963, part no. 124, 98738, dwg 29S133084-01. (Attaching Parts) AL(1) DA(1)	7-58
A2A5E7		TERMINAL, LUG: MIL type MS77068-1. (Attaching Parts) AU(1) DA(1)	7-58
A2A5J1 and A2A5J2		Not used.	
A2A5J3		CONNECTOR, ELECTRICAL, PRINTED WIRING BOARD CARD INSERTION: MIL type M21097/1-019. (Attaching Parts) AU(2) AL(1) DA(2) A2A5E7	7-58
A2A5MP1		BASE PLATE: Aluminum alloy; 4.406 in. long, 2.906 in. w, 0.906 in. h; mfr 98738, part no. 01A226516-22-11. (Attaching Parts) DB(2)	7-58
A2A5MP2		SLEEVE ASSEMBLY: Polyurethane foam, 2.75 in. long, 1.875 in. w, 3.875 in. h; mfr 98738, part no. 01A226525-21-11. (Attaching Parts) DB(2)	7-58
A2A5MP3 and A2A5MP4		SPACER: Lexan; 0.562 in. long, 0.250 in. dia; mfr 98738, part no. 48P228454-01. (Attaching Parts) M(2) AB(2)	7-58
A2A5MP5		OVEN COVER SUBASSEMBLY: Plastic; 2.50 in. long, 1.437 in. w, mfr 98738, part no. 15A226634-22-11. (Attaching Parts) AL(2) AR(2) AU(2) CV(1)	7-58
A2A5MP6		DIAL, INDICATOR: Nylon; 1.687 in. dia, 0.188 in. thk; mfr 98738, part no. 34P226544-21-11. (Attaching Parts) DC(1) GS(2) A2A5MP7 thru A2A5MP9	7-58
A2A5MP7		SPACER: Teflon; 0.250 in. dia, 0.219 in. long; mfr 98738, part no. 43P226537-22-11.	7-58
A2A5MP8		Not used.	

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5MP9		SPRING, WASHER: Phosphor bronze, cadmium plated; 0.50 in. OD, 0.25 in. ID; mfr 78189, part no. 3702-14-47; 98738, dwg 04P226633-01.	7-58
A2A5MP10		SPRING, COMPRESSION: Cres, 0.250 in. long, 0.088 in. dia; mfr 70472, part no. C0088-012-0250S; 98738, dwg 41P226642-21-11.	7-58
A2A5MP11		Not used.	
A2A5MP12		KNOB, CONTROL: Molded black nylon; 0.50 in. long, 0.355 in. dia; mfr 98738, part no. 36P226546-21-11.	7-57
A2A5MP13		COVER: Aluminum alloy; 4.375 in. long, 2.750 in. w, 3.875 in. h; mfr 98738, part no. 15P226549-23-11. (Attaching Parts) AL(5) AQ(5)	7-57
A2A5MP14		PLUG, PROTECTIVE: Nylon; 0.344 in. dia, 0.031 in. thk, 0.172 in. long; mfr 78189, part no. 207-120241-05-0103, 98738, dwg 09P226623-01.	7-57
A2A5MP15 and A2A5MP16		SCREW, CAPTIVE: Cres; 4.690 in. long, 0.218 in. dia, 10-32 UNF-2A threads; mfr 98738, part no. 03P226540-21-11.	7-57
A2A5MP17 and A2A5MP18		STRAP, TIEDOWN: MIL type MS3367-4-9.	7-58
A2A5P1		CONNECTOR, ELECTRICAL: 2.729 in. long, 0.494 in. w, 0.426 in. thk; mfr 71468, part no. DCM13 W6P-F115; 98738, dwg 09P226606-01. (Attaching Parts) DD(2)	7-58
A2A5P1A1 thru A2A5P1A6		CONNECTOR, INSERT: 0.850 in. long, 0.040 in. dia; mfr 13556, part no. CN0961-P01S1-04, 98738, dwg 09P226604-01.	7-58
A2A5W1 and A2A5W2		CABLE ASSEMBLY, SHIELDED: 4.50 in. long; connector installed one end; mfr 98738, part no. 01A226526-21-11.	7-58
A2A5W3		CABLE ASSEMBLY, SHIELDED: 6.0 in. long; connector installed one end; mfr 98738, part no. 01A226526-22-11	7-58
A2A5W4		CABLE ASSEMBLY, SHIELDED: 4.50 in. long; connector installed one end; mfr 98738, part no. 30S226512-21-11.	7-58
A2A5W5		CABLE ASSEMBLY, SHIELDED: 3.50 in. long; connector installed one end; mfr 98738, part no. 01A226526-23-11.	7-58
A2A5W6		CABLE ASSEMBLY, SHIELDED: 6.0 in. long; connector installed one end; mfr 98738, part no. 01A226526-24-11.	7-58
A2A5W7		CABLE ASSEMBLY, SHIELDED: 4.50 in. long; mfr 98738, part no. 30A226513-21-11.	7-60

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A1		OSCILLATOR OVEN PCB ASSEMBLY: 2.968 in. long, 1.781 in w; mfr 98738, part no. 01A226530-22-11.	7-59
A2A5A1C1		CAPACITOR, FIXED, MICA: 680 pF ±5%, 500 Vdc working; MIL type CMR06F681JODL.	7-59
A2A5A1C2		CAPACITOR, VARIABLE: 0.8 pF to 12 pF, 1500 Vdc working; mfr 18736, part no. V1502; 98738, dwg 19P226601-01.	7-59
A2A5A1C3		CAPACITOR, VARIABLE, CERAMIC DIELECTRIC: 9 pF to 35 pF, 200 Vdc working; MIL type CV32D350.	7-59
A2A5A1C4		CAPACITOR, FIXED, MICA: 180 pF ±5%, 500 Vdc working; MIL type CMR04F181JODL.	7-59
A2A5A1C5		CAPACITOR, FIXED, MICA: 220 pF ±5%, 500 Vdc working; MIL type CMR04F221JODL.	7-59
A2A5A1C6		CAPACITOR: Item 63.	7-59
A2A5A1C7		CAPACITOR, FIXED, ELECTROLYTIC: 3.3 uF ±20%, 15 Vdc working; MIL type M39003/01-2269.	7-59
A2A5A1C8	1	CAPACITOR, FIXED, MICA: Same as A2A5A1C11.	7-59
A2A5A1C9		Not used.	
A2A5A1C10		CAPACITOR, FIXED, CERAMIC: 0.01 uF ±10%, 100 Vdc working; MIL type M39014/01-1535.	7-59
A2A5A1C11A	1	CAPACITOR, FIXED, MICA: 82 pF ±5%, 500 Vdc working; MIL type CMR04E820JODL.	7-59
A2A5A1C11B	1	CAPACITOR, FIXED, MICA: 100 pF ±5%, 500 Vdc working; MIL type CMR04F101JODL.	7-59
A2A5A1C11C	1	CAPACITOR, FIXED, MICA: 120 pF ±5%, 500 Vdc working; MIL type CMR04F121JODL.	7-59
A2A5A1C11D	1	CAPACITOR, FIXED, MICA: 130 pF ±5%, 500 Vdc working; MIL type CMR04F131JODL.	7-59
A2A5A1C11E	1	CAPACITOR, FIXED, MICA: 160 pF ±5%, 500 Vdc working; MIL type CMR04F161JODL.	7-59
A2A5A1C11F	1	CAPACITOR, FIXED, MICA: 240 pF ±5%, 300 Vdc working; MIL type CMR04F241JODL.	7-59
A2A5A1C11G	1	CAPACITOR, FIXED, MICA: 180 pF ±5%, 300 Vdc working; MIL type CMR04F181JODL.	7-59
A2A5A1C11H	1	CAPACITOR, FIXED, MICA: 200 pF ±5%, 300 Vdc working; MIL type CMR04F201JODL.	7-59
A2A5A1C11J	1	CAPACITOR, FIXED, MICA: 220 pF ±5%, 300 Vdc working; MIL type CMR04F221JODL.	7-59
A2A5A1C11K	1	CAPACITOR, FIXED, MICA: 33 pF ±5%, 500 Vdc working; MIL type CMR04E330JODL.	7-59
A2A5A1C11L	1	CAPACITOR, FIXED, MICA: 47 pF ±5%, 500 Vdc working; MIL type CMR04E470JODL.	7-59
A2A5A1C11M	1	CAPACITOR, FIXED, MICA: 68 pF ±5%, 500 Vdc working; MIL type CMR04E680JODL.	7-59

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A1CR1		SEMICONDUCTOR DEVICE, DIODE: Silicon, voltage regulator; MIL type JAN1N758A.	7-59
A2A5A1CR2		SEMICONDUCTOR DEVICE, DIODE: Mil type JAN1N4150.	7-59
A2A5A1E1 and A2A5A1E2		CONTACT: Phosphor bronze; 0.600 in. long, 0.101 in. w, mfr 91506, part no. 8004-4P40, 98738, dwg 09P226617-01.	7-59
A2A5A1MP1		BRACKET, CRYSTAL HOLDER: Aluminum alloy 0.937 in. long, 0.625 in. w, 0.062 in. thk; mfr 98738, part no. 07P226639-21-11.	7-59
A2A5A1MP2		SPACER, CRYSTAL HOLDER: Aluminum alloy; 0.687 in. long, 0.50 in. w, 0.125 in. thk; mfr 98738, part no. 43P226640-21-11.	7-59
A2A5A1MP3		CLIP, CRYSTAL HOLDER: Spring steel; 0.50 in. long, 0.758 in. w, 0.40 in. h; mfr 99378, part no. 100-206-8; 98738, dwg 42P226625-07. (Attaching Parts) DE(2).	7-59
A2A5A1MP4		GROMMET: Neoprene; 0.375 in. long, 0.250 in. dia, 0.375 in. dia, at shoulder, mfr 70485, part no. 962, 98738, dwg 05P226616-01. (Attaching Parts) DE(2).	7-59
A2A5A1MP5		PAD TRANSISTOR MOUNTING: 0.35 in. OD, 0.20 in. ID, 0.20 in. thk; mfr 13103, part no. 7717-15, 98738, dwg 14S132171-11A-9.	7-59
A2A5A1P1 thru A2A5A1P5		CONNECTOR, PCB CONTACT: Phosphor bronze; 0.127 in. long; mfr 91662, part no.02-005-046-5-200-100; 98738, dwg 09P226602-01.	7-59
A2A5A1Q1 thru A2A5A1Q5		TRANSISTOR: MIL type JAN2N706.	7-59
A2A5A1Q6		TRANSISTOR: MIL type JAN2N2907A.	7-59
A2A5A1Q7		TRANSISTOR: MIL type JAN2N697.	7-59
A2A5A1R1		RESISTOR, FIXED, COMPOSITION: 120K ohms ±5%, 1/4 w; MIL type RCR07G124JS.	7-59
A2A5A1R2		RESISTOR, FIXED, FILM: 51 ohms ±2%, 1/4 w; MIL type RLR07C51R0GR.	7-59
A2A5A1R3		RESISTOR, FIXED, FILM: 1K ohms ±2%, 1/4 w; MIL type RLR07C1001GR.	7-59
A2A5A1R4		RESISTOR, FIXED, COMPOSITION: 82K ohms ±5%, 1/4 w; MIL type RCR07G823JS.	7-59
A2A5A1R5		RESISTOR, FIXED, COMPOSITION: 15K ohms ±5%, 1/4 w; MIL type RCR07G153JS.	7-59
A2A5A1R6		RESISTOR: Item 42.	7-59
A2A5A1R7		RESISTOR, FIXED, COMPOSITION: 1500 ohms ±5%, 1/4 w; MIL type RCR07G152JS.	7-59

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A1R8		RESISTOR: Item 35.	7-59
A2A5A1R9		RESISTOR, FIXED, WIRE-WOUND: 270 ohms ±5%, 1/2 w; MIL type RCR20G271JS.	7-59
A2A5A1R10A	1	RESISTOR: Item 32.	7-59
A2A5A1R10B	1	RESISTOR, FIXED, COMPOSITION: 18K ohms ±5%, 1/4 w; MIL type RCR07G183JS.	7-59
A2A5A1R10C	1	RESISTOR: Item 37.	7-59
A2A5A1R10D	1	RESISTOR, FIXED, COMPOSITION: 39K ohms ±5%, 1/4 w; MIL type RCR07G393JS.	7-59
A2A5A1R10E	1	RESISTOR, FIXED, COMPOSITION: 47K ohms ±5%, 1/4 w; MIL type RCR07G473JS.	7-59
A2A5A1R11		RESISTOR: Item 32.	7-59
A2A5A1R12		RESISTOR: Item 35.	7-59
A2A5A1R13 and A2A5A1R14		RESISTOR, FIXED, FILM: 4700 ohms ±2%, 1/4 w; MIL type RLR07C4701GR.	7-59
A2A5A1R15		RESISTOR, VARIABLE, WIRE-WOUND: 1K ohms ±5%, 3/4 w; MIL type RTR22DX102M.	7-59
A2A5A1R16A	1	RESISTOR, FIXED, FILM: 3300 ohms ±2%, 1/4 w; MIL type RLR07C3301GR.	7-59
A2A5A1R16B	1	RESISTOR, FIXED, FILM: 3900 ohms ±2%, 1/4 w; MIL type RLR07C3901GR.	7-59
A2A5A1R16C	1	RESISTOR, FIXED, FILM: 4300 ohms ±2%, 1/4 w; MIL type RLR07C4301GR.	7-59
A2A5A1R16D	1	RESISTOR, FIXED, FILM: 4700 ohms ±2%, 1/4 w; MIL type RLR07C4701GR.	7-59
A2A5A1R16E	1	RESISTOR, FIXED, FILM: 5600 ohms ±2%, 1/4 w; MIL type RRLR07C5601GR.	7-59
A2A5A1R17 and A2A5A1R18		RESISTOR, FIXED, COMPOSITION: 12K ohms ±5%, 1/4 w; MIL type RCR07G123JS.	7-59
A2A5A1R19 and A2A5A1R20		RESISTOR: Item 32.	7-59
A2A5A1R21		RESISTOR: Item 35.	7-59
A2A5A1R22		RESISTOR, FIXED, COMPOSITION: 330 ohms ±5%, 1/4 w; MIL type RCR07G331JS.	7-59
A2A5A1R23A	1	RESISTOR, FIXED, COMPOSITION: 270K ohms ±5%, 1/4 w; MIL type RCR07G274JS.	7-59
A2A5A1R23B	1	RESISTOR, FIXED, COMPOSITION: 330K ohms ±5%, 1/4 w; MIL type RCR07G334JS.	7-59
A2A5A1R23C	1	RESISTOR, FIXED, COMPOSITION: 390K ohms ±5%, 1/4 w; MIL type RCR07G394JS.	7-59
A2A5A1R23D	1	RESISTOR, FIXED, COMPOSITION: 470K ohms ±5%, 1/4 w; MIL type RCR07G474JS.	7-59

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A1R23E	1	RESISTOR, FIXED, COMPOSITION: 560K ohms ±5%, 1/4 w; MIL type RCR07G564JS.	7-59
A2A5A1R23F	1	RESISTOR, FIXED, COMPOSITION: 680K ohms ±5%, 1/4 w; MIL type RCR07G684JS.	7-59
A2A5A1R23G	1	RESISTOR, FIXED, COMPOSITION: 820K ohms ±5%, 1/4 w; MIL type RCR07G824JS.	7-59
A2A5A1R23H	1	RESISTOR, FIXED, COMPOSITION: 1 megohm ±5%, 1/4 w; MIL type RCR07G105JS.	7-59
A2A5A1R23J	1	RESISTER. FIXED. COMPOSITION: 1.2 megohms ±5%, 1/4 w; MIL type RCR07G125JS.	7-59
A2A5A1R23K	1	RESISTOR, FIXED, COMPOSITION: 1.5 megohms ±5%, 1/4 w; MIL type RCR07G155JS.	7-59
A2A5A1R23L	1	RESISTOR, FIXED, COMPOSITION: 1.8 megohms ±5%, 1/4 w; MIL type RCR07G185JS.	7-59
A2A5A1R23M	1	RESISTOR, FIXED, COMPOSITION: 2.2 megohms ±5%, 1/4 w; MIL type RCR07G225JS.	7-59
A2A5A1R23N	1	RESISTOR, FIXED, COMPOSITION: 2.7 megohms ±5%, 1/4 w; MIL type RCR07G275JS.	7-59
A2A5A1R24		RESISTOR: ITEM 59.	7-59
A2A5A1Y1		CRYSTAL, QUARTZ, 5 MHz: In glass holder; 0.795 in. long, 0.757 in. w, 0.352 in. thk; mfr 98738, part no. 48P228436-01.	7-59
A2A5A2		ASSEMBLY, MULTIPLIER/DIVIDER/AMPLIFIER PWB-A2: Mfr 98738, part no. 01A226529-22-11. (Attaching Parts) AF(2), AL(2), AU(2), AB(2), L(2), M(2).	7-60
A2A5A2C1		CAPACITOR: Item 64.	7-60
A2A5A2C2		CAPACITOR, FIXED, MICA: 300 pF ±5%, 500 Vdc working; MIL type CMR04F301J0CL.	7-60
A2A5A2C3 and A2A5A2C4		CAPACITOR: Item 63.	7-60
A2A5A2C5		CAPACITOR: Item 64.	7-60
A2A5A2C6		CAPACITOR: Item 63.	7-60
A2A5A2C7		CAPACITOR, VARIABLE, CERAMIC DIELECTRIC: 15 pF to 60 pF, 200 Vdc working; MIL type CV31E600.	7-60
A2A5A2C8		CAPACITOR, FIXED, MICA: 680 pF ±5%, 500 Vdc working; MIL type CMR06F681JODL.	7-60
A2A5A2C9		CAPACITOR, FIXED, MICA: 220 pF ±5%, 500 Vdc working; MIL type CMR04F221JODL.	7-60
A2A5A2C10		CAPACITOR: Item 64.	7-60

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A2C11		CAPACITOR: Item 63.	7-60
A2A5A2C12		CAPACITOR, FIXED, MICA: 30 pF ±5%, 500 Vdc working; MIL type CMR04E300JODL.	7-60
A2A5A2C13		CAPACITOR, VARIABLE, CERAMIC DIELECTRIC: 9 pF to 35 pF, 200 Vdc working; MIL type CV31D350.	7-60
A2A5A2C14		CAPACITOR: Item 64.	7-60
A2A5A2C15		CAPACITOR: Item 63.	7-60
A2A5A2C16		CAPACITOR, VARIABLE, CERAMIC DIELECTRIC: 15 pF to 60 pF, 200 Vdc working; MIL type CV31E600.	7-60
A2A5A2C17		CAPACITOR: Item 64.	7-60
A2A5A2C18		CAPACITOR, FIXED, MICA: 1500 pF ±5%, 500 Vdc working; MIL type CMR06F152JODL.	7-60
A2A5A2C19		CAPACITOR, FIXED, MICA: 680 pF ±5%, 500 Vdc working; MIL type CMR06F681JODL.	7-60
A2A5A2C20		CAPACITOR: Item 63.	7-60
A2A5A2C21		CAPACITOR, FIXED, MICA: 330 pF ±5%, 500 Vdc working; MIL type CMR04F331JOAL.	7-60
A2A5A2C22		CAPACITOR, VARIABLE, CERAMIC: 15 pF to 60 pF, 200 Vdc working; MIL type CV31E600.	7-60
A2A5A2C23		CAPACITOR, FIXED, MICA: 150 pF ±5%, 500 Vdc working; MIL type CMR04F151JODL.	7-60
A2A5A2C24		CAPACITOR: Item 63.	7-60
A2A5A2C25		CAPACITOR: Item 64.	7-60
A2A5A2C26		CAPACITOR: Item 63.	7-60
A2A5A2C27		CAPACITOR, FIXED, MICA: 68 pF ±5%, 500 Vdc working; MIL type CMR04E680JODL.	7-60
A2A5A2C28		CAPACITOR, FIXED, MICA: 33 pF ±5%, 500 Vdc working; MIL type CMR04E330JODL.	7-60
A2A5A2C29		CAPACITOR: Item 63.	7-60
A2A5A2C30		CAPACITOR, FIXED, MICA: 33 pF ±5%, 500 Vdc working; MIL type CMR04E330JODL.	7-60
A2A5A2C31		CAPACITOR, VARIABLE, CERAMIC DIELECTRIC: 9 pF to 35 pF, 200 Vdc working; MIL type CV31D350.	7-60
A2A5A2C32		CAPACITOR, FIXED, MICA: 1500 pF ±5%, 500 Vdc working; MIL type CMR06F152JODL.	7-60
A2A5A2C33		CAPACITOR, VARIABLE, CERAMIC DIELECTRIC: 9 pF to 35 pF, 200 Vdc working; MIL type CV31D350.	7-60
A2A5A2C34		CAPACITOR: Item 63.	7-60
A2A5A2C35		CAPACITOR, FIXED, MICA: 68 pF ±5%, 500 Vdc working; MIL type CMR04E680JODL.	7-60
A2A5A2C36		CAPACITOR: Item 63.	7-60

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A2C37		CAPACITOR, FIXED, MICA: 56 pF ±5%, 500 Vdc working; MIL type CMR04E560JODL.	7-60
A2A5A2C38		CAPACITOR, VARIABLE, CERAMIC DIELECTRIC: 9 pF to 35 pF, 200 Vdc working; MIL type CV31D350.	7-60
A2A5A2C39		CAPACITOR, FIXED, MICA: 91 pF ±5%, 500 Vdc working; MIL type CMR04F910JODL.	7-60
A2A5A2C40		CAPACITOR, FIXED, MICA: 1200 pF ±5%, 500 Vdc working; MIL type CMR06F122JODL.	7-60
A2A5A2C41		CAPACITOR: Item 64.	7-60
A2A5A2C42		CAPACITOR: Item 63.	7-60
A2A5A2C43		Not used.	
A2A5A2C44A	1	CAPACITOR, FIXED, MICA: 10 pF ±5%, 500 Vdc working; MIL type CMR04X100JODL.	7-60
A2A5A2C44B	1	CAPACITOR, FIXED, MICA: 22 pF ±5%, 500 Vdc working; MIL type CMR04X220JODL.	7-60
A2A5A2C44C	1	CAPACITOR, FIXED, MICA: 27 pF ±5%, 500 Vdc working; MIL type CMR04X270JODL.	7-60
A2A5A2C44D	1	CAPACITOR, FIXED, MICA: 39 pF ±5%, 500 Vdc working; MIL type CMR04X390JODL.	7-60
A2A5A2C44E	1	CAPACITOR, FIXED, MICA: 47 pF ±5%, 500 Vdc working; MIL type CMR04X470JODL.	7-60
A2A5A2C44F	1	CAPACITOR, FIXED, MICA: 82 pF ±5%, 500 Vdc working; MIL type CMR04X820JODL.	7-60
A2A5A2C44G	1	CAPACITOR, FIXED, MICA: 100 pF ±5%, 500 Vdc working; MIL type CMR04X101JODL.	7-60
A2A5A2DS1		LAMP, INCANDESCENT: 10V, 0.4 W; 82219, part no. 10ES; 98738, dwg 65P226608-01.	7-60
A2A5A2L1		CHOKE: 120 uH ±5%, 75 milliamps; MIL type MS90538-14.	7-60
A2A5A2L2		CHOKE: 200 uH ±5%, 150 milliamps; MIL type MS90538-19.	7-60
A2A5A2L3		CHOKE: 6.80 uH ±10%, 395 milliamps; MIL type MS14046-2.	7-60
A2A5A2L4		CHOKE: 10.00 uH ±10%, 290 milliamps; MIL type MS14046-3.	7-60
A2A5A2MP1		BRACKET, ASSEMBLY: Alum alloy; 0.937 in. long, 0.812 in. w, 1.187 in. h; mfr 98738, part no. 01A226519-21-11. (Attaching Parts) DG(2)	7-58, 7-60
A2A5A2MP2		CLIP, LAMP: MIL type M24066/2-106.	7-60
A2A5A2Q1		TRANSISTOR: MIL type JAN2N706.	7-60
A2A5A2Q2 and A2A5A2Q3		TRANSISTOR: Item 54.	7-60

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A2Q4 thru A2A5A2Q8		TRANSISTOR: MIL type JAN2N706.	7-60
A2A5A2Q9 thru A2A5A2Q11		TRANSISTOR: Item 54.	7-60
A2A5A2R1		RESISTOR: Item 31.	7-60
A2A5A2R2		RESISTOR: Item 32.	7-60
A2A5A2R3		RESISTOR: Item 40.	7-60
A2A5A2R4		RESISTOR: Item 35.	7-60
A2A5A2R5		RESISTOR: Item 40.	7-60
A2A5A2R6		RESISTOR: Item 32.	7-60
A2A5A2R7		RESISTOR: Item 35.	7-60
A2A5A2R8		RESISTOR: Item 45.	7-60
A2A5A2R9		RESISTOR, FIXED, COMPOSITION: 1500 ohms ±5%, 1/4 w; MIL type RCR07G152JS.	7-60
A2A5A2R10		RESISTOR: Item 43.	7-60
A2A5A2R11		RESISTOR: Item 31.	7-60
A2A5A2R12		RESISTOR: Item 32.	7-60
A2A5A2R13		RESISTOR, FIXED, COMPOSITION: 3900 ohms ±5%, 1/4 w; MIL type RCR07G392JS.	7-60
A2A5A2R14		RESISTOR, FIXED, COMPOSITION: 68K ohms ±5%, 1/4 w; MIL type RCR07G683JS.	7-60
A2A5A2R15		RESISTOR, FIXED, COMPOSITION: 6800 ohms ±5%, 1/4 w; MIL type RCR07G682JS.	7-60
A2A5A2R16		RESISTOR, FIXED, COMPOSITION: 560 ohms ±5%, 1/4 w; MIL type RCR07G561JS.	7-60
A2A5A2R17A	1	RESISTOR, FIXED, COMPOSITION: 27 ohms ±5%, 1/4 w; MIL type RCR07G270JS.	7-60
A2A5A2R17B	1	RESISTOR: Item 38.	7-60
A2A5A2R17C	1	RESISTOR, FIXED, COMPOSITION: 39 ohms ±5%, 1/4 w; MIL type RCR07G390JS.	7-60
A2A5A2R17D	1	RESISTOR: Item 42.	7-60
A2A5A2R17E	1	RESISTOR, FIXED, COMPOSITION; 56 ohms ±5%, 1/4 w; MIL type RCR07G560JS.	7-60
A2A5A2R17F	1	RESISTOR, FIXED, COMPOSITION: 68 ohms ±5%, 1/4 w; MIL type RCR07G680JS.	7-60
A2A5A2R17G	1	RESISTOR: Item 44.	7-60
A2A5A2R17H	1	RESISTOR: Item 30.	7-60
A2A5A2R17J	1	RESISTOR, FIXED, COMPOSITION: 120 ohms ±5%, 1/4 w; MIL type RCR07G121JS.	7-60
A2A5A2R17K	1	RESISTOR, FIXED, COMPOSITION: 150 ohms ±5%, 1/4 w; MIL type RCR07G151JS.	7-60
A2A5A2R17L	1	RESISTOR, FIXED, COMPOSITION: 180 ohms ±5%, 1/4 w; MIL type RCR07G181JS.	7-60

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A2R17M	1	RESISTOR: Item 34.	7-60
A2A5A2R18A	1	RESISTOR, FIXED, COMPOSITION: 68 ohms ±5%, 1/4 w; MIL type RCR07G680JS.	7-60
A2A5A2R18B	1	RESISTOR: Item 44.	7-60
A2A5A2R18C	1	RESISTOR: Item 30.	7-60
A2A5A2R19		RESISTOR: Item 32.	7-60
A2A5A2R20		RESISTOR: Item 40.	7-60
A2A5A2R21 and A2A5A2R22		RESISTOR: Item 32.	7-60
A2A5A2R23 thru A2A5A2R25		RESISTOR: Item 43.	7-60
A2A5A2R26		RESISTOR: Item 35.	7-60
A2A5A2R27		RESISTOR: Item 37.	7-60
A2A5A2R28		RESISTOR: Item 32.	7-60
A2A5A2R29		RESISTOR: Item 31.	7-60
A2A5A2R30A	1	RESISTOR, FIXED, COMPOSITION: 27 ohms ±5%, 1/4 w; MIL type RCR07G270JS.	7-60
A2A5A2R30B	1	RESISTOR: Item 38.	7-60
A2A5A2R30C	1	RESISTOR, FIXED, COMPOSITION: 39 ohms ±5%, 1/4 w; MIL type RCR07G390JS.	7-60
A2A5A2R30D	1	RESISTOR: Item 42.	7-60
A2A5A2R30E	1	RESISTOR, FIXED, COMPOSITION: 56 ohms ±5%, 1/4 w; MIL type RCR07G560JS.	7-60
A2A5A2R30F	1	RESISTOR, FIXED, COMPOSITION: 68 ohms ±5%, 1/4 w; MIL type RCR07G680JS.	7-60
A2A5A2R30G	1	RESISTOR: Item 44.	7-60
A2A5A2R30H	1	RESISTOR: Item 30.	7-60
A2A5A2R30J	1	RESISTOR, FIXED, COMPOSITION: 120 ohms ±5%, 1/4 w; MIL type RCR07G121JS.	7-60
A2A5A2R30K	1	RESISTOR, FIXED, COMPOSITION: 150 ohms ±5%, 1/4 w; MIL type RCR07G151JS.	7-60
A2A5A2R30L	1	RESISTOR, FIXED, COMPOSITION: 180 ohms ±5%, 1/4 w; MIL type RCR07G181JS.	7-60
A2A5A2R30M	1	RESISTOR: Item 34.	7-60
A2A5A2R31A	1	RESISTOR, FIXED, COMPOSITION: 22 ohms ±5%, 1/4 w; MIL type RCR07G220JS.	7-60
A2A5A2R31B	1	RESISTOR: Item 38.	7-60
A2A5A2R31C	1	RESISTOR: Item 42.	7-60
A2A5A2R32		RESISTOR: Item 31.	7-60
A2A5A2R33		RESISTOR, FIXED, COMPOSITION: 680 ohms ±5%, 1/4 w; MIL type RCR07G681JS.	7-60
A2A5A2R34		RESISTOR: Item 40.	7-60
A2A5A2R35		Not used.	

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A2R36		RESISTOR: Item 35.	7-60
A2A5A2R37		RESISTOR, FIXED, COMPOSITION: 1500 ohms ±5%, 1/4 w; MIL type RCR07G152JS.	7-60
A2A5A2R38		RESISTOR: Item 32.	7-60
A2A5A2R39		RESISTOR: Item 35.	7-60
A2A5A2R40		RESISTOR: Item 37.	7-60
A2A5A2R41		RESISTOR: Item 43.	7-60
A2A5A2R42		RESISTOR: Item 45.	7-60
A2A5A2R43A	1	RESISTOR, FIXED, COMPOSITION: 390 ohms ±5%, 1/4 w; MIL type RCR07G391JS.	7-60
A2A5A2R43B	1	RESISTOR, FIXED, COMPOSITION: 470 ohms ±5%, 1/4 w; MIL type RCR07G471JS.	7-60
A2A5A2R43C	1	RESISTOR, FIXED, COMPOSITION: 560 ohms ±5%, 1/4 w; MIL type RCR07G561JS.	7-60
A2A5A2R44A	1	RESISTOR, FIXED, COMPOSITION: 2.7 ohms ±5%, 1/4 w; MIL type RCR07G2R7JS.	7-60
A2A5A2R44B	1	RESISTOR, FIXED, COMPOSITION: 3.3 ohms ±5%, 1/4 w; MIL type RCR07G3R3JS.	7-60
A2A5A2R44C	1	RESISTOR, FIXED, COMPOSITION: 3.9 ohms ±5%, 1/4 w; MIL type RCR07G3R9JS.	7-60
A2A5A2R44D	1	RESISTOR, FIXED, COMPOSITION: 4.7 ohms ±5%, 1/4 w; MIL type RCR07G4R7JS.	7-60
A2A5A2R44E	1	RESISTOR, FIXED, COMPOSITION: 5.6 ohms ±5%, 1/4 w; MIL type RCR07G5R6JS.	7-60
A2A5A2R44F	1	RESISTOR, FIXED, COMPOSITION: 6.8 ohms ±5%, 1/4 w; MIL type RCR07G6R8JS.	7-60
A2A5A2R44G	1	RESISTOR, FIXED, COMPOSITION: 8.2 ohms ±5%, 1/4 w; MIL type RCR07G8R2JS.	7-60
A2A5A2R44H	1	RESISTOR: Item 29.	7-60
A2A5A2R45 and A2A5A2R46		RESISTOR: Item 32.	7-60
A2A5A2R47		RESISTOR: Item 33.	7-60
A2A5A2R48		RESISTOR: Item 31.	7-60
A2A5A2R49A	1	RESISTOR, FIXED, COMPOSITION: 27 ohms ±5%, 1/4 w; MIL type RCR07G270JS.	7-60
A2A5A2R49B	1	RESISTOR: Item 38.	7-60
A2A5A2R49C	1	RESISTOR, FIXED, COMPOSITION: 39 ohms ±5%, 1/4 w; MIL type RCR07G390JS.	7-60
A2A5A2R49D	1	RESISTOR: Item 42.	7-60
A2A5A2R49E	1	RESISTOR, FIXED, COMPOSITION: 56 ohms ±5%, 1/4 w; MIL type RCR07G560JS.	7-60
A2A5A2R49F	1	RESISTOR, FIXED, COMPOSITION: 68 ohms ±5%, 1/4 w; MIL type RCR07G680JS.	7-60
A2A5A2R49G	1	RESISTOR: Item 44.	7-60

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A2R49H	1	RESISTOR: Item 30.	7-60
A2A5A2R49J	1	RESISTOR, FIXED, COMPOSITION: 120 ohms ±5%, 1/4 w; MIL type RCR07G121JS.	7-60
A2A5A2R49K	1	RESISTOR, FIXED, COMPOSITION: 150 ohms ±5%, 1/4 w; MIL type RCR07G151JS.	7-60
A2A5A2R49L	1	RESISTOR, FIXED, COMPOSITION: 180 ohms ±5%, 1/4 w; MIL type RCR07G181JS.	7-60
A2A5A2R49M	1	RESISTOR: Item 34.	7-60
A2A5A2R50 and A2A5A2R51		Not used.	
A2A5A2R52		RESISTOR: Item 32.	7-60
A2A5A2R53		RESISTOR, FIXED, COMPOSITION: 8200 ohms ±5%, 1/4 w; MIL type RCR07G822JS.	7-60
A2A5A2R54		RESISTOR: Item 30.	7-60
A2A5A2R55		RESISTOR: Item 31.	7-60
A2A5A2R56		RESISTOR: Item 32.	7-60
A2A5A2R57		RESISTOR, FIXED, FILM: 560 ohms ±5%, 1/2 w; MIL type RLR20C5600JR.	7-60
A2A5A2R58		RESISTOR: Item 35.	7-60
A2A5A2R59		Not used.	
A2A5A2R60		RESISTOR, FIXED, COMPOSITION: 680 ohms ±5%, 1/4 w; MIL type RCR07G681JS.	7-60
A2A5A2R61		RESISTOR: Item 31.	7-60
A2A5A2R62		RESISTOR: Item 32.	7-60
A2A5A2S1		SWITCH, ROTARY: Three pole, three position; 0.50 in. body dia, 0.94 in. long; mfr 76854, part no. 5-21347-431; 98738, dwg 40P226636-01.	7-60
A2A5A2T1		TRANSFORMER, RF: 240 uH primary inductance, 21 turn secondary; 0.375 in. long, 0.155 in. dia; mfr 98738, part no. 24A226607-23-11.	7-60
A2A5A2T2		TRANSFORMER, RF: 240 uH primary inductance, 10 turn secondary; 0.375 in. long, 0.155 in. dia; mfr 98738, part no. 24P226607-22-11.	7-60
A2A5A2T3		TRANSFORMER, RF: 10 uH primary inductance, 3/4 turn secondary; 0.375 in. long, 0.155 in. dia; mfr 98738, part no. 24P226607-21-11.	7-60
A2A5A3		OVEN BODY SUBASSEMBLY: Mfr 98738, part no. 01A226523-22-11. (Attaching Parts) DB(2)	7-61
A2A5A3E1		LUG, SOLDER: MIL type MS77068-1. (Attaching Parts) AQ(1), AU(1), FA(1)	7-61

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A3E2 and A2A5A3E3		TERMINAL, TURRET: MIL type SE089B01S.	7-61
A2A5A3J1		CONNECTOR ASSEMBLY: Copper clad plastic, five contacts; 1.39 in. long, 0.25 in. w; mfr 98738, part no. 01A226509-21-11. (Attaching Parts) GU(2)	7-61
A2A5A3J1A1 thru A2A5A3J1A5		CONTACT, P.C. BOARD: Phosphor bronze, nickel plated; 0.70 in. long; mfr 91662, part no. 02-005-120-6200-100; 98738, dwg 09P226643-01.	7-61
A2A5A3MP1		OVEN CAN AND HEATER ASSEMBLY: Aluminum alloy, heater winding epoxy coated; 2.0 in. long, 1.141 in. w, 3.125 in. h; mfr 98738, part no. 01A226518-22-11.	7-61
A2A5A3MP2		PLATE, INSULATOR: Plastic; 0.50 in. sq, 0.62 in. thk; mfr 98738, part no. 64P226533-21-11.	7-61
A2A5A3MP3 and A2A5A3MP4		GROMMET, NYLON: 0.218 in. sq, 0.268 in. long; mfr 02768, part no. 212-110302-00; 98738, dwg 05P226618-21-11.	7-61
A2A5A3MP5		CRYSTAL OVEN CAN: 3.06 in. long, 2.00 in. wide; mfr 98738, part no. 15P226548-22-11.	7-61
A2A5A3MP6		OVEN CAN STAKING ASSEMBLY: 3.375 in. long, 2.00 in. wide; mfr 98738, part no. 01A226517-22-11. (Attaching Parts) FA(1)	7-61
A2A5A3R1		RESISTOR, HEATER WIRE: Nickel chrome "C" #30 AWG, adjusted to 82 ±2 ohms, 6.75 ohms/ft. nom; mfr 98738, dwg 30P226621-21-11.	7-61
A2A5A3R2		RESISTOR, FIXED, WIRE-WOUND: 3900 ohms ±1%, 0.10 watt, 100 V max; mfr 48615, part no. SX094; 98738, dwg 17P226603-01.	7-61
A2A5A4		5 MHz REFERENCE CONTROL SUBASSEMBLY: 3.180 in. long, 2.062 in. w mfr 98738, part no. 01A226524-22-11. (Attaching Parts) AF(1), AL(1), AU(1), DH(1)	7-62
A2A5A4C1		CAPACITOR, FIXED, CERAMIC: 0.047 uf ±10%, 100 Vdc working; MIL type M39014/02-1305.	7-62
A2A5A4C2		CAPACITOR, FIXED, ELECTROLYTIC: 1 uF ±10%, 50 Vdc working; MIL type M39003/01-2356.	7-62
A2A5A4C3		CAPACITOR, FIXED, MICA: 150 pF ±5%, 500 Vdc working; MIL type CMR04F151JODL.	7-62

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A4C4 thru A2A5A4C8		CAPACITOR, FIXED, ELECTROLYTIC: 1 uF ±10%, 50 Vdc working; MIL type M39003/01-2356.	7-62
A2A5A4CR1 thru A2A5A4CR6		SEMICONDUCTOR DEVICE, SILICON SWITCHING DIODE: MIL type JAN1N4150.	7-62
A2A5A4CR7		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N4120.	7-62
A2A5A4CR8		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N4106.	7-62
A2A5A4E1		EYELET: Solder plated brass; 0.187 in. long, 0.150 in. dia; mfr 57771, part no. A2209/GS3-6; 98738, dwg 05P226624-02.	7-62
A2A5A4E2		Not used.	
A2A5A4E3		TERMINAL, LUG: MIL type MS35431-1.	7-62
A2A5A4MP1 thru A2A5A4MP3		PAD, INSULATOR: Nylon, 0.375 in. dia; 0.075 in. thk; mfr 13103, part no. 7717-4, 98738, dwg 14S132171-3B.	7-62
A2A5A4MP4		HEAT SINK: Aluminum alloy, anodized black; 1.297 in. long, 0.75 in. w, 0.969 in. h; mfr 98738, part no. 91P226541-21-11.	7-62
A2A5A4MP5		INSULATOR, MICA: 0.98 in. long, 0.78 in. wide; mfr 02735, part no. 411-010-DF-031, dwg 14P227266-01.	7-62
A2A5A4MP6		SPACER, TRANSISTOR: Nylon; 1.30 in. long, 0.75 in. w; 0.063 in. thk; mfr 98738, part no. 43P226641-21-11.	7-62
A2A5A4Q1 and A2A5A4Q2		TRANSISTOR: Item 54.	7-62
A2A5A4Q3		TRANSISTOR: MIL type JAN2N3019.	7-62
A2A5A4Q4		TRANSISTOR: ITEM 54.	7-62
A2A5A4Q5		TRANSISTOR: MIL type JAN2N3441. (ATTACHING PARTS) AG(2), AS(1), CW(2), GZ(2)	7-62
A2A5A4R1		RESISTOR, FIXED, FILM: 75 ohms ±5%, 1/2 w; MIL type RLR20C75R0JR.	7-62
A2A5A4R2		RESISTOR: Item 30.	7-62
A2A5A4R3A	1	RESISTOR, FIXED, COMPOSITION: 2000 ohms ±5%, 1/4 w; MIL type RCR07G202JS.	7-62
A2A5A4R3B	1	RESISTOR, FIXED, COMPOSITION: 2400 ohms ±5%, 1/4 w; MIL type RCR07G242JS.	7-62
A2A5A4R3C	1	RESISTOR: Item 36.	7-62
A2A5A4R3D	1	RESISTOR, FIXED, COMPOSITION: 3000 ohms ±5%, 1/4 w; MIL type RCR07G302JS.	7-62
A2A5A4R3E	1	RESISTOR: Item 39.	7-62

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A4R3F	1	RESISTOR, FIXED, COMPOSITON: 3600 ohms ±5%, 1/4 w; MIL type RCR07G362JS.	7-62
A2A5A4R3G	1	RESISTOR: Item 41.	7-62
A2A5A4R3H	1	RESISTOR, FIXED, COMPOSITION: 4300 ohms ±5%, 1/4 w; MIL type RCR07G432JS.	7-62
A2A5A4R3J	1	RESISTOR: Item 43.	7-62
A2A5A4R3K	1	RESISTOR, FIXED, COMPOSITION: 1800 ohms ±5%, 1/4 w; MIL type RCR07G182JS.	7-62
A2A5A4R3L	1	RESISTOR, FIXED, COMPOSITION: 2200 ohms ±5%, 1/4 w; MIL type RCR07G222JS.	7-62
A2A5A4R3M	1	RESISTOR, FIXED, COMPOSITION: 6200 ohms ±5%, 1/4 w; MIL type RCR07G622JS.	7-62
A2A5A4R3N	1	RESISTOR, FIXED, COMPOSITION: 6800 ohms ±5%, 1/4 w; MIL type RCR07G682JS.	7-62
A2A5A4R3P	1	RESISTOR, FIXED, COMPOSITION: 7500 ohms ±5%, 1/4 w; MIL type RCR07G752JS.	7-62
A2A5A4R3Q	1	RESISTOR: Item 46.	7-62
A2A5A4R3R	1	RESISTOR, FIXED, COMPOSITION: 9100 ohms ±5%, 1/4 w; MIL type RCR07G912JS.	7-62
A2A5A4R3S	1	RESISTOR: Item 32.	7-62
A2A5A4R3T	1	RESISTOR, FIXED, COMPOSITION: 5100 ohms ±5%, 1/4 w; MIL type RCR07G512JS.	7-62
A2A5A4R3U	1	RESISTOR, FIXED, COMPOSITION: 5600 ohms ±5%, 1/4 w; MIL type RCR07G562JS.	7-62
A2A5A4R4		RESISTOR: Item 31.	7-62
A2A5A4R5A	1	RESISTOR: Item 35.	7-62
A2A5A4R5B	1	RESISTOR, FIXED, COMPOSITION: 2400 ohms ±5%, 1/4 w; MIL type RCR07G242JS.	7-62
A2A5A4R5C	1	RESISTOR: Item 36.	7-62
A2A5A4R5D	1	RESISTOR, FIXED, COMPOSITION: 3000 ohms ±5%, 1/4 w; MIL type RCR07G302JS.	7-62
A2A5A4R5E	1	RESISTOR: Item 39.	7-62
A2A5A4R5F	1	RESISTOR, FIXED, COMPOSITION: 3600 ohms ±5%, 1/4 w; MIL type RCR07G362JS.	7-62
A2A5A4R5G	1	RESISTOR: Item 41.	7-62
A2A5A4R5H	1	RESISTOR, FIXED, COMPOSITION: 2000 ohms ±5%, 1/4 w; MIL type RCR07G202JS.	7-62
A2A5A4R5J	1	RESISTOR: Item 43.	7-62
A2A5A4R5K	1	RESISTOR, FIXED, COMPOSITION: 1800 ohms ±5%, 1/4 w; MIL type RCR07G182JS.	7-62
A2A5A4R5L	1	RESISTOR, FIXED, COMPOSITION: 5600 ohms ±5%, 1/4 w; MIL type RCR07G562JS.	7-62
A2A5A4R5M	1	RESISTOR, FIXED, COMPOSITION: 6200 ohms ±5%, 1/4 w; MIL type RCR07G622JS.	7-62

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A25 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A4R5N	1	RESISTOR, FIXED, COMPOSITION: 6800 ohms ±5%, 1/4 w; MIL type RCR07G682JS.	7-62
A2A5A4R5P	1	RESISTOR, FIXED, COMPOSITION: 7500 ohms ±5%, 1/4 w; MIL type RCR07G752JS.	7-62
A2A5A4R5Q	1	RESISTOR: Item 46.	7-62
A2A5A4R5R	1	RESISTOR, FIXED, COMPOSITION: 9100 ohms ±5%, 1/4 w; MIL type RCR07G912JS.	7-62
A2A5A4R5S	1	RESISTOR: Item 32.	7-62
A2A5A4R5T	1	RESISTOR, FIXED, COMPOSITION: 4300 ohms ±5%, 1/4 w; MIL type RCR07G432JS.	7-62
A2A5A4R5U	1	RESISTOR, FIXED, COMPOSITION: 5100 ohms ±5%, 1/4 w; MIL type RCR07G512JS.	7-62
A2A5A4R6		RESISTOR: Item 43.	7-62
A2A5A4R7		RESISTOR: Item 36.	7-62
A2A5A4R8		RESISTOR, FIXED, COMPOSITION: 12K ohms ±5%, 1/4 w; MIL type RCR07G123JS.	7-62
A2A5A4R9		RESISTOR: Item 34.	7-62
A2A5A4R10		RESISTOR: Item 43.	7-62
A2A5A4R11		RESISTOR, FIXED, WIRE-WOUND: 332 ohms ±1%, 3 w; MIL type RWR89S3320FM.	7-62
A2A5A4R12		RESISTOR, FIXED, WIRE-WOUND: 2210 ohms ±1%, 2 w; MIL type RWR80S2211FR.	7-62
A2A5A4R13		RESISTOR: Item 36.	7-62
A2A5A4R14		RESISTOR: Item 43.	7-62
A2A5A4U1 and A2A5A4U2		INTEGRATED CIRCUIT: MIL type M38510/00104BCB.	7-62
A2A5A4U3		INTEGRATED CIRCUIT: Mfr 18324, part no. SG7815T/883B, 98738, dwg 48P226600-03.	7-62
A2A5A4U4		INTEGRATED CIRCUIT: Mfr 07263, part no. 78M05HMQB, 98738, dwg 48P226600-01.	7-62

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6		TRANSLATOR/SYNTHESIZER ASSEMBLY: 8.19 in. long, 7.40 in. w, 4.50 in. h; mfr 98738, part no. 99A228201-01. (Attaching Parts) CE(4)	7-63
A2A6C1		CAPACITOR; FIXED, ELECTROLYTIC: 820 uF ±10%, 7 Vdc working; MIL type M39018/01-0705.	7-63
A2A6C2		CAPACITOR, FIXED, CERAMIC: 1,000 pF ±10%, 200 Vdc working; MIL type M39014/01-1237.	7-63
A2A6C3		CAPACITOR, FIXED, CERAMIC: 680 pF ±10%, 200 Vdc working; MIL type M39014/01-1234.	7-63
A2A6E1 thru A2A6E4		TERMINAL: Solder only.	7-63
A2A6E5		TERMINAL, LUG: MIL type MS77068-3.	7-63
A2A6E6 and A2A6E7		TERMINAL: Solder only.	7-63
A2A6E8 and A2A6E9		Not used.	
A2A6E10		TERMINAL: Solder only.	7-63
A2A6E11		TERMINAL, LUG: 1.34 in. long, 0.07 in. wide; mfr. 26344, part no. 20315, 98738, dwg 29P226767-01. (Attaching Parts) F(1) U(1) BZ(1) DQ(1)	7-63
A2A6E12 and A2A6E13		TERMINAL: Solder only.	7-63
A2A6E14 and A2A6E15		Not used.	
A2A6E16 and A2A6E17		TERMINAL, LUG: MIL type MS77068-3.	
A2A6E18 and A2A6E19		TERMINAL, LUG: Tinned copper; 1.34 in. long, 0.07 in. w; mfr 26344, part no. 20315, 98738, dwg 29P226767-01. (Attaching Parts) U(1) F(1) BZ(1) DQ(1)	7-63
A2A6FL1		FILTER, RFI: 1.057 in. long, 0.350 in. dia; MIL type M15733/24-0007.	7-63
A2A6FL2 and A2A6FL3		Not used.	
A2A6FL4		FILTER, RFI: 1.057 in. long, 0.350 in. dia; MIL type M15733/24-0007.	7-63
A2A6FL5		FILTER, RFI: 1.06 in. long, 0.35 in. dia; mfr 98738, part no. 01A228291-02. (Attaching Parts) AL(2) AQ(2) AU(2)	7-63
A2A6MP1	2	COVER, BOTTOM: 8.03 in. long, 6.12 in. w, 0.062 in. thk; aluminum alloy; mfr 98738, part no. 15P226262-21-11. (Attaching Parts) DL(6)	

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6MP2		COVER, SIDE: 8.178 in. long, 4.40 in. w, 0.062 in. thk, aluminum alloy; mfr 98738, part no. 15P228304-23-11 (Attaching Parts) DK(6) CQ(6) AL(6)	7-63
A2A6MP3		COVER, TOP: 8.187 in. long, 7.350 in. w, 0.062 in. thk, aluminum alloy; mfr 98738, part no. 15P226579-21-11. (Attaching Parts) CQ(13)	7-63
A2A6MP4		SPRING, WASHER LOCK: MIL type MS35338-137.	7-63
A2A6MP5 thru A2A6MP7		Not used.	
A2A6MP8		COUPLING ASSY: 0.485 in. long, 0.875 in. dia, mfr 98738, part no. 01A226294-21-11. (Attaching Parts) BBD(2)	7-63
A2A6MP9		COUPLING TOP: 0.485 in. long, 0.875 in. dia, mfr 98738, part no. 58P226263-21-11.	7-63
A2A6MP10		PIN: 0.225 in. long, 0.0936 in. dia, mfr 06845, part no. 4032181-0001.	7-63
A2A6MP11		SPRING, HOLD DOWN: 0.72 in. dia, 0.015 in. thk; mfr 06845, part no. 4032183-0001. (Attaching Parts) CR(2) G(2)	7-63
A2A6MP12		COUPLING ASSY: 0.485 in. long, 0.875 in. dia, mfr 98738, part no. 01A226294-21-11. (Attaching Parts) BD(2)	7-63
A2A6MP13		COUPLING, TOP: 0.485 in. long, 0.875 in. dia, mfr 98738, part no. 58P226263-21-11.	7-63
A2A6MP14		PIN: 0.225 in. long, 0.0936 in. dia, mfr 06845, part no. 4032181-0001.	7-63
A2A6MP15		SPRING, HOLD DOWN: 0.720 in. dia, 0.015 in. thk, mfr 06845, part no. 4032183-0001. (Attaching Parts) CR(2) G(2)	7-63
A2A6MP16		COUPLING ASSY: 0.485 in. long, 0.875 in. dia, mfr 98738, part no. 01A226294-21-11. (Attaching Parts) BD(2)	7-63
A2A6MP17		COUPLING, TOP: 0.485 in. long, 0.874 in. dia, mfr 98738, part no. 58P226263-21-11.	7-63
A2A6MP18		PIN: 0.225 in. long, 0.0936 in. dia, mfr 06845, part no. 4032181-0001.	7-63
A2A6MP19		SPRING, HOLD DOWN: 0.790 in. dia, 0.015 in. thk; mfr 06845 part no. 4032183-0001. (Attaching Parts) CR(2) G(2)	7-63
A2A6MP20		PAD, RUBBER: 3.00 in. long, 0.50 in. w; mfr 98738, part no. 75P226575-22-11.	7-63
A2A6MP21		INSULATOR: L-Shaped, 5.88 in. long, 1.38 in. w; mfr 98738, part no. 14P226586-21-11.	7-63

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6MP22		INSULATOR: 2.50 in. long, 1.75 in. wide; mfr. 98738, part no. 14P226580-22-11.	7-63
A2A6MP23		BRACKET ASSEMBLY, CAPACITOR MOUNTING: 1.25 in. long; attached clip; mfr 98738, part no. 01A228292-01.	7-63
A2A6MP24		HARNESS ASSEMBLY, FLEXIBLE: Consists of A2A6MP25, A2A6P1, and A2A6XA9P1 thru A2A6XA14P1; mfr 98738, part no. 01A228340-01.	7-63
A2A6MP25		PRINTED CIRCUIT, FLEXIBLE: Mfr 98738, part no. 84P228339-01.	7-63
A2A6MP26 thru A2A6MP32		INSULATOR: 6.00 in. long, 3.00 in. wide; mfr 98738, part no. 14P226580-21-11.	7-63
A2A6P1		CONNECTOR, PLUG, ELECTRICAL: 2.182 in. long, 0.329 in. w, 0.494 in. thk; mfr 71785, part no. DCMM25W3PE, 98738, dwg 09P226565-21. (Attaching Parts) AL(2) DJ(2)	7-63
A2A6P1A1 thru A2A6P1A3		CONNECTOR, PLUG, ELECTRICAL: 0.734 in. long, right angle coaxial; mfr 71785, part no. DM53741-5001, 98738, dwg no. 09P226565-19.	7-63
A2A6P2		CONNECTOR, PLUG, ELECTRICAL: 1.541 in. long, 0.494 in. w, 0.422 in. dia; mfr 71785, part no. DAMM3W3P, 06845, dwg 4032484-0701. (Attaching Parts) AL(2) DJ(2)	7-63
A2A6P2A1 and A2A6P2A2		CONNECTOR, PLUG, ELECTRICAL: Right angle, coaxial, 0.734 in. long, male contact; mfr 71785, part no. 318-11-99-285, 06845, dwg 4032484-0731. Refer to A2A6A8W4, A2A6A8W5, respectively.	7-63
A2A6P3		CONNECTOR, PLUG, ELECTRICAL: 1.541 in. long, 0.494 in. w, 0.422 in. dia, mfr 71785, part no. DAMM3W3P, 06845, dwg 4032484-0701. (Attaching Parts) AL(2) DJ(2)	7-63
A2A6P3A1 and A2A6P3A2		CONNECTOR, PLUG, ELECTRICAL: Right angle, coaxial, 0.734 in. long, male contact; mfr 71785, part no. 318-11-99-285, 06845, dwg 4032484-0731.	7-63
A2A6P4		CONNECTOR, TEST-POINT TYPE: MIL type M39024/12-16 (Green).	7-63
A2A6P5		CONNECTOR, TEST-POINT TYPE: MIL type M39024/12-20 (Gray).	7-63
A2A6P6		CONNECTOR, TEST-POINT TYPE: MIL type M39024/12-13 (Red).	7-63
A2A6P7		CONNECTOR, TEST-POINT TYPE: MIL type M39024/12-17 (Orange).	7-63
A2A6P8		CONNECTOR, TEST POINT TYPE: MIL type M39024-12-19 (Yellow).	7-63

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6P9		CONNECTOR, TEST POINT TYPE: MIL type M39024-12-15 (Brown).	7-63
A2A6P10		CONNECTOR, TEST POINT TYPE: MIL type M39024-12-14 (Black).	7-63
A2A6P11		CONNECTOR, TEST POINT TYPE: MIL type M39024-12-13 (Red).	7-63
A2A6P12		CONNECTOR, TEST-POINT TYPE: MIL type M39024/12-15 (Brown).	7-63
A2A6P13		CONNECTOR, TEST POINT TYPE: MIL type M39024-12-13 (Red).	7-63
A2A6R1		RESISTOR: Item 25.	7-63
A2A6R2		RESISTOR, FIXED, COMPOSITION: 10 ohms ±5%, 1/8 w; MIL type RCR05G100JS.	7-63
A2A6S1 and A2A6S2		SWITCH, ROTARY, ASSEMBLY: 2.102 in. long, 0.725 in. w, 0.812 in. dia; mfr 98738, part no. 01A226302-22-11. (Attaching Parts) DM(2) DN(2) DP(2)	7-63
A2A6S3		SWITCH, ROTARY, ASSEMBLY: 2.102 in. long, 0.725 in. w, 0.812 in. dia; mfr 98738, part no. 01A226302-23-11. (Attaching Parts) DM(1) DN(1) DP(1)	7-63
A2A6W1	2	CABLE ASSEMBLY, RF: 1.50 in. long; mfr 98738, part no. 30A226477-21-11.	7-63
A2A6W2	2	CABLE ASSEMBLY, RF: 2.37 in. long, mfr 98738, part no. 30A226477-22-11.	7-63
A2A6W3	2	CABLE ASSEMBLY, RF: 2.40 in. long; mfr 98738, part no. 30A226477-23-11.	7-63
A2A6W4 thru A2A6W9		Not used.	
A2A6W10	2	CABLE ASSEMBLY, RF: 5.75 in. long; mfr 98738, part no. 30A226477-30-11.	7-63
A2A6W11	2	CABLE ASSEMBLY, RF: 1.75 in. long; mfr 98738, part no. 30A226477-31-11.	7-63
A2A6W12	2	CABLE ASSEMBLY, RF: 2.50 in. long; mfr 98738, part no. 30A226477-32-11.	7-63
A2A6W13	2	CABLE ASSEMBLY, RF: 6.22 in. long; mfr 98738, part no. 30A226477-33-11.	7-63
A2A6W14	2	CABLE ASSEMBLY, RF: 1.87 in. long; mfr 98738, part no. 30A226477-34-11.	7-63
A2A6W15	2	CABLE ASSEMBLY, RF: 4.77 in. long; mfr 98738, part no. 30A226477-35-11.	7-63
A2A6XA1P1 thru A2A6XA11P1		Not used.	

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6XA12P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 1.508 in. long, 0.308 in. w, 0.494 in. thk; 71785, part no. DBMF9W4SE-A156, 98738, dwg 09P226565-09. (Attaching Parts) F(2) G(2) BZ(2)	7-63
A2A6XA12-P1A1 thru A2A6XA12-P1A3		CONNECTOR, RECEPTACLE, ELECTRICAL: Item 23. Refer to A2A6W13, A2A6W12, A2A6W11, respectively.	7-63
A2A6XA12-P1A4		CONNECTOR, PLUG, ELECTRICAL: Item 21. Refer to A2A6A8W2.	7-63 7-65
A2A6XA13P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 2.156 in. long, 0.308 in. w, 0.494 in. thk; mfr 71785, part no. DCMMF21WA4SE, 98738, dwg 09P226565-16. (Attaching Parts) F(2) G(2) BZ(2)	7-63
A2A6XA13-P1A1 thru A2A6XA13-P1A4		CONNECTOR, RECEPTACLE, ELECTRICAL: Item 23. Refer to A2A6W10, A2A6W1, A2A6W2, A2A6W3, respectively.	7-63
A2A6XA14P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 1.508 in. long, 0.308 in. w, 0.494 in. thk; 71785, part no. DBMMF9W4SE, 98738, dwg 09P226565-09. (Attaching Parts) F(2) G(2) BZ(2)	7-63
A2A6XA14-P1A1 thru A2A6XA14-P1A3		CONNECTOR, RECEPTACLE, ELECTRICAL: Item 23 Refer to A2A6W1, A2A6W2, A2A6W3, respectively.	7-63
A2A6XA14-P1A4		CONNECTOR, PLUG, ELECTRICAL: Item 21. Refer to A2A6A8W1.	7-63, 7-65
A2A6XA15P1		Not used.	
A2A6XA16P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 2.156 in. long, 0.308 in. w, 0.494 in. thk; mfr 71785, part no. DCMMF21WA4SE, 98738,dwg 09P226565-16. (Attaching Parts) F(2) G(2) BZ(2)	7-63
A2A6XA16-P1A1 thru A2A6XA16-P1A4		CONNECTOR, RECEPTACLE, ELECTRICAL: Item 23. Refer to A2A6W15, A2A6W10, A2A6W13 and A2A6W14, respectively.	7-63
A2A6XA17P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 1.508 in. long, 0.308 in. w, 0.494 in. thk; mfr 71785, part no. DBMMF17W2SE, 98738, dwg 09P226565-08. (Attaching Parts) F(2) G(1) BZ(2)	7-63

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6XA17-P1A1		CONNECTOR, RECEPTACLE, ELECTRICAL: Item 23. Refer to A2A6W14.	7-63
A2A6XA17-P1A2		CONNECTOR, PLUG, ELECTRICAL: Item 21.	7-63
A2A6XA18P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 1.508 in. long, 0.308 in. w, 0.494 in. thk; mfr 71785, part no. DBMMF17W2SE, 98738, dwg 09P226565-08. (Attaching Parts) F(2) G(1) BZ(2)	7-63
A2A6XA18-P1A1 and A2A6XA18-P1A2		CONNECTOR, RECEPTACLE, ELECTRICAL: Item 23. Refer to A2A6W12, A2A6W11, respectively.	7-63
A2A6A1 thru A2A6A6		Not used.	
A2A6A7		FILTER ASSEMBLY: 4.50 in. long, 1.750 in. w, mfr 98738, part no. 01A226681-21-11. (Attaching Parts) DL(2)	7-64
A2A6A7C1 and A2A6A7C2		CAPACITOR, FIXED, ELECTROLYTIC: 390 uF, -10 to +30%, 30 Vdc working; MIL type M39018/01-0630.	7-64
A2A6A7E1 thru A2A6A7E11		Not used.	
A2A6A7E12 and A2A6A7E13		TERMINAL, STUD: Item 51. (Attaching Parts) V(2)	7-64
A2A6A7E14 and A2A6A7E15		TERMINAL, STUD: Item 53. (Attaching Parts) V(2)	7-64
A2A6A7MP1		BRACKET ASSEMBLY, FILTER: 4.50 in. long, 1.812 in. w; mfr 98738, part no. 07A226680-21-11.	7-64
A2A6A7MP2 and A2A6A7MP3		MOUNTING BRACKET: MIL type M24066/2-122.	7-64
A2A6A7R1 and A2A6A7R2		Not used.	
A2A6A7R3 and A2A6A7R4		RESISTOR, FIXED, COMPOSITION: 3 ohms ±5%, 1 w; MIL type RCR32G3ROJS.	7-64

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A8		RF TRANSLATOR CIRCUIT CARD ASSEMBLY: 8.03 in. long, 4.125 in. w, mfr 98738, part no. 01A227277-02. (Attaching Parts) AQ(6) AL(6) DK(6)	7-63, 7-65
A2A6A8C1		CAPACITOR: Item 9.	7-65
A2A6A8C2		CAPACITOR, FIXED, MICA: 820 pF ±2%, 500 Vdc working; MIL type CMR06F821GPDM.	7-65
A2A6A8C3 and A2A6A8C4		CAPACITOR: Item 9.	7-65
A2A6A8C5		CAPACITOR, FIXED, ELECTROLYTIC: 6.8 uF ±20%, 35 Vdc working; MIL type M39003/01-2305.	7-65
A2A6A8C6 thru A2A6A8C11		CAPACITOR: Item 9	7-65
A2A6A8C12		CAPACITOR, FIXED, MICA: 1000 pF ±2%, 500 Vdc working; MIL type CMR06F102GPDM.	7-65
A2A6A8C13 thru A2A6A8C15		CAPACITOR: Item 9.	7-65
A2A6A8C16		CAPACITOR, FIXED, CERAMIC: 22 pF ±10%, 200 Vdc working; MIL type M39014/01-1207.	7-65
A2A6A8C17		CAPACITOR: Item 9.	7-65
A2A6A8C18		CAPACITOR: Item 5.	7-65
A2A6A8C19		CAPACITOR: Item 9.	7-65
A2A6A8C20		CAPACITOR: Item 5.	7-65
A2A6A8C21 thru A2A6A8C23		CAPACITOR: Item 9.	7-65
A2A6A8C24 and A2A6A8C25		CAPACITOR: Item 5.	7-65
A2A6A8C26 and A2A6A8C27		CAPACITOR: Item 9.	7-65
A2A6A8C28		CAPACITOR, FIXED, ELECTROLYTIC: 6.8 uF ±20%, 35 Vdc workin; MIL type M39003/01-2305.	7-65
A2A6A8C29		CAPACITOR: Item 9.	7-65
A2A6A8C30		CAPACITOR, FIXED, CERAMIC: 22 pF ±10%, 200 Vdc working; MIL type M39014/01-1207.	7-65
A2A6A8C31 thru A2A6A8C33		CAPACITOR: Item 9.	7-65
A2A6A8C34		CAPACITOR: Item 5.	7-65

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A8C35 and A2A6A8C36		CAPACITOR: Item 9.	7-65
A2A6A8C37 and A2A6A8C38		CAPACITOR: Item 5.	7-65
A2A6A9C39		CAPACITOR: Item 9.	7-65
A2A6A8C40 and A2A6A8C41		CAPACITOR: Item 5.	7-65
A2A6A8C42 and A2A6A8C43		CAPACITOR: Item 9.	7-65
A2A6A8C44A	1	CAPACITOR: Item 5 (preferred).	7-65
A2A6A8C44B	1	CAPACITOR, FIXED, CERAMIC: 22 pF ±10%, 200 Vdc working; MIL type M39014/01-1207 (alternate)	7-65
A2A6A8C45		CAPACITOR: Item 5.	
A2A6A8C46 and A2A6A8C47		CAPACITOR: Item 9.	7-65
A2A6A8C48		CAPACITOR: Item 5.	7-65
A2A6A8C49 and A2A6A8C50		CAPACITOR: Item 9.	7-65
A2A6A8C51		CAPACITOR: Item 5.	7-65
A2A6A8C52 and A2A6A8C53		CAPACITOR: Item 9.	7-65
A2A6A8C54		CAPACITOR, FIXED, CERAMIC: 22 pF ±10%, 200 Vdc working; MIL type M39014/01-1207.	7-65
A2A6A8C55		CAPACITOR: Item 9.	7-65
A2A6A8C56 thru A2A6A8C58		CAPACITOR: Item 5.	7-65
A2A6A8C59		CAPACITOR, FIXED, CERAMIC: 270 pF ±2%, 500 Vdc working; MIL type CMR05F271GPDM.	7-65
A2A6A8C60 thru A2A6A8C62		CAPACITOR: Item 9.	7-65
A2A6A8C63		CAPACITOR: Item 5.	7-65
A2A6A8C64 and A2A6A8C65		CAPACITOR: Item 9.	7-65
A2A6A8C66		CAPACITOR, FIXED, CERAMIC: 1000 pF ±20%, 200 Vdc working; MIL type M39014/01-1237.	7-65

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A8CR1		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N3020B.	7-65
A2A6A8CR2 thru A2A6A8CR20		SEMICONDUCTOR DEVICE, DIODE: Item 49.	7-65
A2A6A8E1 thru A2A6A8E15		TERMINAL: Solder only.	7-65
A2A6A8FL1		FILTER, BANDPASS, 20 MHz: 2.50 in. long, 1 in. w, mfr 81815, part no. A551, dwg 08P228422-01 is preferred; 4031908-0701 is alternate. (Attaching Parts) AL(2) AG(2)	7-65
A2A6A8FL2		FILTER, BANDPASS, 30 MHz: 2.50 in. long, 1 in. w, mfr 81815, part no. A597, dwg 08P228421-01 is preferred; 4031909-0701 is alternate. (Attaching Parts) AL(2) AG(2)	7-65
A2A6A8FL3		FILTER, BANDPASS, 2.85 MHz: 2.50 in. long, 1 in. w, mfr 81815, part no. A531, dwg 08P228423-01 is preferred; 4031907-0701 is alternate. (Attaching Parts) AL(2) AG(2)	7-65
A2A6A8J1 thru A2A6A8J3		Not used.	
A2A6A8J4 thru A2A6A8J7		CONTACT, ELECTRICAL: Brass, acid-plated; 0.070 in. OD; mfr 71279, part no. 2971-2, 06845, dwg 4031989-0701.	7-65
A2A6A8L1		COIL, RF: 1 mH; MIL type MS75089-23.	7-65
A2A6A8L2		COIL, RF: 22 uH; MIL type MS75089-3.	7-65
A2A6A8L3		COIL, RF: 47 uH; MIL type MS75089-7.	7-65
A2A6A8L4 and A2A6A8L5		COIL, RF: 1 mH; MIL type MS75089-23.	7-65
A2A6A8L6 and A2A6A8L7		COIL, RF: 47 uH; MIL type MS75089-7.	7-65
A2A6A8L8		COIL, RF: 22 uH; MIL type MS75089-3.	7-65
A2A6A8L9		COIL, RF: 12 uH; MIL type MS14046-5.	7-65
A2A6A8L10		COIL, RF: 47 uH; MIL type MS75089-7.	7-65
A2A6A8L11		COIL, RF: 12 uH; MIL type MS14046-5.	7-65
A2A6A8L12		COIL, RF: 1 mH; MIL type MS75089-23.	7-65
A2A6A8L13		COIL, RF: 22 uH; MIL type MS75089-3.	7-65
A2A6A8L14		COIL, RF; VARIABLE: 0.22 uH, ±10%, mfr 09021, part no. VCMR22V, 98738, part no. 24P228449-01.	7-65
A2A6A8L15		COIL, RF: 22 uH; MIL type MS75084-16.	7-65
A2A6A8Q1		TRANSISTOR: Item 54.	7-65

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A8R1		RESISTOR, FIXED, COMPOSITION: 120 ohms ±5%, 1/4 w; MIL type RCR07G121JS.	7-65
A2A6A8R2		RESISTOR, FIXED, COMPOSITION: 470 ohms ±5%, 1/4 w; MIL type RCR07G471JS.	7-65
A2A6A8R3		RESISTOR: Item 30.	7-65
A2A6A8R4		RESISTOR: Item 59.	7-65
A2A6A8R5		RESISTOR, FIXED, COMPOSITION: 82 ohms ±5%, 1/4 w; MIL type RCR07G820JS.	7-65
A2A6A8R6		RESISTOR: Item 34.	7-65
A2A6A8R7		RESISTOR: Item 31.	7-65
A2A6A8R8 and A2A6A8R9		RESISTOR: Item 32.	7-65
A2A6A8R10		RESISTOR: Item 34.	7-65
A2A6A8R11		RESISTOR, FIXED, COMPOSITION: 82 ohms ±5%, 1/4 w; MIL type RCR07G820JS.	7-65
A2A6A8R12		RESISTOR: Item 34.	7-65
A2A6A8R13		RESISTOR, FIXED, COMPOSITION: 270 ohms ±5%, 1/4 w; MIL type RCR07G271JS.	7-65
A2A6A8R14		RESISTOR, FIXED, COMPOSITION: 300 ohms ±5%, 1/4 w; MIL type RCR07G301JS.	7-65
A2A6A8R15 thru A2A6A8R17		RESISTOR: Item 35.	7-65
A2A6A8R18		RESISTOR: Item 34.	7-65
A2A6A8R19		RESISTOR: Item 35.	7-65
A2A6A8R20 thru A2A6A8R22		RESISTOR: Item 34.	7-65
A2A6A8R23 thru A2A6A8R26		RESISTOR: Item 35.	7-65
A2A6A8R27		RESISTOR: Item 59.	7-65
A2A6A8R28 and A2A6A8R29		RESISTOR, FIXED, COMPOSITION: 300 ohms ±5%, 1/4 w; MIL type RCR07G301JS.	7-65
A2A6A8R30		RESISTOR: Item 34.	7-65
A2A6A8R31		RESISTOR, FIXED, COMPOSITION: 82 ohms ±5%, 1/4 w; MIL type RCR07G820JS.	7-65
A2A6A8R32		RESISTOR: Item 34.	7-65
A2A6A8R33		RESISTOR: Item 30.	7-65
A2A6A8R34 and A2A6A8R35		RESISTOR: Item 59.	7-65

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A8R36		RESISTOR, VARIABLE, NON-WIRE WOUND: 1000 ohms ±3%, 1/4 w; MIL type RJR26FW102M.	7-65
A2A6A8R37 and A2A6A8R38		RESISTOR: Item 59.	7-65
A2A6A8R39		RESISTOR: Item 34.	7-65
A2A6A8R40		RESISTOR: Item 59.	7-65
A2A6A8R41		RESISTOR: Item 34.	7-65
A2A6A8R42 and A2A6A8R43		RESISTOR: Item 35.	7-65
A2A6A8R44		RESISTOR: Item 59.	7-65
A2A6A8R45 and A2A6A8R46		RESISTOR: Item 35.	7-65
A2A6A8R47 and A2A6A8R48		RESISTOR, FIXED, COMPOSITION: 300 ohms ±5%, 1/4 w; MIL type RCR07G301JS.	7-65
A2A6A8R49		RESISTOR: Item 59.	7-65
A2A6A8R50		RESISTOR, FIXED, COMPOSITION: 82 ohms ±5%, 1/4 w; MIL type RCR07G820JS.	7-65
A2A6A8R51		RESISTOR: Item 30.	7-65
A2A6A8R52		RESISTOR, VARIABLE: 200 ohms ±3%, 1/4 w; MIL type RJR26FW101M.	7-65
A2A6A8R53 and A2A6A8R54		RESISTOR: Item 34.	7-65
A2A6A8R55		RESISTOR: Item 30.	7-65
A2A6A8R56 thru A2A6A8R58		RESISTOR, FIXED, COMPOSITION: 75 ohms ±5%, 1/4 w; MIL type RCR07G750JS.	7-65
A2A6A8R59		RESISTOR, FIXED, COMPOSITION: 8200 ohms ±5%, 1/4 w; MIL type RCR07G822JS.	7-65
A2A6A8R60		RESISTOR, FIXED, COMPOSITION: 3900 ohms ±5%, 1/4 w; MIL type RCR07G392JS.	7-65
A2A6A8R61		RESISTOR, FIXED, COMPOSITION: 5600 ohms ±5%, 1/4 w; MIL type RCR07G562JS.	7-65
A2A6A8R62		RESISTOR: Item 31.	7-65
A2A6A8R63		RESISTOR, FIXED, COMPOSITION: 8200 ohms ±5%, 1/4 w; MIL type RCR07G822JS.	7-65
A2A6A8R64		RESISTOR, FIXED, COMPOSITION: 3900 ohms ±5%, 1/4 w; MIL type RCR07G392JS.	7-65
A2A6A8R65		RESISTOR, FIXED, COMPOSITION: 5600 ohms ±5%, 1/4 w; MIL type RCR07G562JS.	7-65
A2A6A8R66		RESISTOR: Item 31.	7-65

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A8R67		RESISTOR, FIXED, COMPOSITION: 8200 ohms ±5%, 1/4 w; MIL type RCR07G822JS.	7-65
A2A6A8R68		RESISTOR, FIXED, COMPOSITION: 3900 ohms ±5%, 1/4 w; MIL type RCR07G392JS.	7-65
A2A6A8R69		RESISTOR, FIXED, COMPOSITION: 5600 ohms ±5%, 1/4 w; MIL type RCR07G562JS.	7-65
A2A6A8R70		RESISTOR, FIXED, COMPOSITION: 1500 ohms ±5%, 1/4 w; MIL type RCR07G152JS.	7-65
A2A6A8RT1 thru A2A6A8RT3		THERMISTOR: Negative coefficient, 200 ohms ±10%, at 25 deg. C., 1/2 w; mfr 15801, part no. KB22J1, 98738, dwg 06P226775-01.	7-65
A2A6A8T1		TRANSFORMER, RF: 0.490 in. long, 0.422 in. dia; mfr 03765, part no. AC8345, 98738, dwg 24P226469-01.	7-65
A2A6A8T2 and A2A6A8T3		TRANSFORMER, RF: 0.5 in. long; 0.37 in. w; mfr 06978, part no. 70-122-02, 98738, dwg 24P226473-01 is preferred; 24P228306-01 is alternate.	7-65
A2A6A8T4 thru A2A6A8T7		TRANSFORMER, RF: 0.53 in. long, 0.53 in. w; mfr 14482, part no. BT8, 98738, dwg 24P226471-01.	7-65
A2A6A8TP1 thru A2A6A8TP4		Not used.	
A2A6A8TP5		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: 1500 Vrms, 60 Hz; MIL type M39024/11-05.	7-65
A2A6A8TP6		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: 1500 Vrms, 60 Hz; MIL type M39024/11-07.	7-65
A2A6A8TP7		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: 1500 Vrms, 60 Hz; MIL type M39024/11-10.	7-65
A2A6A8TP8		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: 1500 Vrms, 60 Hz; MIL type M39024/11-09.	7-65
A2A6A8U1 and A2A6A8U2		INTEGRATED CIRCUIT: Mfr 54590, part no. CA3049T/3, 98738, dwg 48P228318-02.	7-65
A2A6A8U3		INTEGRATED CIRCUIT: Mfr 54590, part no. CA3049T/3, 98738, 48P228318-01.	7-65
A2A6A8W1		CABLE ASSEMBLY, RF: 11.25 in. long; mfr 98738, part no. 30A226482-21-11.	7-65
A2A6A8W2		CABLE ASSEMBLY, RF: 7.44 in. long; mfr 98738, part no. 30A226482-22-11.	7-65
A2A6A8W3		CABLE ASSEMBLY, RF: 5.00 in. long; mfr 98738, part no. 30A228007-01.	7-65
A2A6A8W4		CABLE ASSEMBLY, RF: 6.00 in. long; mfr 98738, part no. 30A226482-24-11.	7-65

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A8W5		CABLE ASSEMBLY, RF: 6.00 in. ong; mfr 98738, part no. 30A226482-25-11.	7-65
A2A6A8W6		CABLE ASSEMBLY, RF: 5.75 in. long; mfr 98738, part no. 30A226482-26-11.	7-65
A2A6A8W7		CABLE ASSEMBLY, RF: 5.75 in. long; mfr 98738, part no. 30A226482-27-11.	7-65
A2A6A9 thru A2A6A11		Not used.	
A2A6A12		1 kHz/100 Hz NO. 2 CIRCUIT CARD ASSEMBLY: 5.75 in. long, 3.0 in. w; mfr 98738, part no. 01A226071-21-11.	7-66
A2A6A12C1		CAPACTOR: Item 10.	7-66
A2A6A12C2		CAPACITOR, FIXED, ELECTROLYTIC: 10 uF ±10%, 50 Vdc working; MIL type M39006/09-8318.	7-66
A2A6A12C3 and A2A6A12C4		CAPACITOR: Item 7.	7-66
A2A6A12C5		CAPACITOR: Item 9.	7-66
A2A6A12C6 and A2A6A12C7		CAPACITOR: Item 7.	7-66
A2A6A12C8		CAPACITOR: Item 9.	7-66
A2A6A12C9		CAPACITOR: Item 7.	7-66
A2A6A12C10		CAPACITOR, FIXED, MICA: 1200 pF ±2%, 500 Vdc working; MIL type CMR06F122GPDM.	7-66
A2A6A12C11		CAPACITOR, FIXED, MICA: 1800 pF ±2%, 500 Vdc working; MIL type CMR06F182GPDM.	7-66
A2A6A12C12		CAPACITOR, FIXED, MICA: 1200 pF ±2%, 500 Vdc working; MIL type CMR06F122GPDM.	7-66
A2A6A12C13		Not used.	
A2A6A12C14		CAPACITOR, FIXED, ELECTROLYTIC: 6.8 uF ±10%, 35 Vdc working; MIL type M39003/01-2304.	7-66
A2A6A12L1		COIL, RF: 0.33 uH; MIL type MS75087-7.	7-66
A2A6A12L2 thru A2A6A12L5		Not used.	
A2A6A12L6		COIL, RF: 3.3 uH; MIL type MS75084-6.	7-66
A2A6A12L7		COIL, RF: 3.9 uH; MIL type MS75084-7.	7-66
A2A6A12L8		COIL, RF: 3.3 uH; MIL type MS75084-6.	7-66
A2A6A12L9		COIL, RF: 3.9 uH; MIL type MS75084-7.	7-66
A2A6A12L10		COIL, RF: 3.3 uH; MIL type MS75084-6.	7-66
A2A6A12L11 and A2A6A12L12		Not used.	
A2A6A12L13		COIL, RF: 1.8 uH; MIL type MS75084-3.	7-66

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A12MP1 and A2A6A12MP2		EJECTOR, CIRCUIT CARD: Item 24.	7-66
A2A6A12P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 1.534 in. long, 0.329 in. w, 0.494 in. thk; mfr 25330, part no. GBM53513-1364, 98738, dwg 09P226666-02. (Attaching Parts) AG(2) AL(2) CQ(2) DS(2)	7-66
A2A6A12P1A1 thru A2A6A12P1A4		PLUG, CONNECTOR: 0.929 in. long; mfr 71785, part no. DM53740-5001, 98738, dwg 09P226565-17.	7-66
A2A6A12Q1		TRANSISTOR: MIL type JAN2N2369A.	7-66
A2A6A12Q2		TRANSISTOR: MIL type JAN2N2907A.	7-66
A2A6A12Q3		TRANSISTOR: MIL type JAN2N2369A.	7-66
A2A6A12R1		RESISTOR: Item 45.	7-66
A2A6A12R2		RESISTOR, FIXED, COMPOSITION: 200 ohms ±5%, 1/4 w; MIL type RCR07G201JS.	7-66
A2A6A12R3		Not used.	
A2A6A12R4		RESISTOR, FIXED, COMPOSITION: 200 ohms ±5%, 1/4 w; MIL type RCR07G201JS.	7-66
A2A6A12R5		RESISTOR: Item 45.	7-66
A2A6A12R6		RESISTOR: Item 39.	7-66
A2A6A12R7		RESISTOR: Item 37.	7-66
A2A6A12R8		RESISTOR: Item 45.	7-66
A2A6A12R9		RESISTOR: Item 32.	7-66
A2A6A12R10		RESISTOR, FIXED, COMPOSITION: 130K ohms ±5%, 1/4 w; MIL type RCR07G134JS.	7-66
A2A6A12R11 thru A2A6A12R13		RESISTOR: Item 30.	7-66
A2A6A12R14		RESISTOR, FIXED, COMPOSITION: 360 ohms ±5%, 1/4 w; MIL type RCR07G361JS.	7-66
A2A6A12R15		RESISTOR, FIXED, COMPOSITION: 120 ohms ±5%, 1/4 w; MIL type RCR07G121JS.	7-66
A2A6A12R16		RESISTOR, VARIABLE, NON-WOUND: 100 ohms ±10%, 1/2 w; MIL type RJR24FX101M.	7-66
A2A6A12R17		Not used.	
A2A6A12R18		RESISTOR: Item 45.	7-66
A2A6A12R19		RESISTOR: Item 31.	7-66
A2A6A12TP1		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 17.	7-66
A2A6A12TP2		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 18.	7-66
A2A6A12TP3		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 19.	7-66

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A12U1		INTEGRATED CIRCUIT: Mfr 04713, part no. MC4344DCBS, 98738, dwg 48P226446-01.	7-66
A2A6A12U2		INTEGRATED CIRCUIT: Mfr 01295, part no. SNC54S04J, dwg 48P226448-01.	7-66
A2A6A12U3		INTEGRATED CIRCUIT: Mfr 01295, part no. SNC54195J, dwg 48P226449-01.	7-66
A2A6A12W1		ASSEMBLY, COAXIAL: 5.38 in. long; mfr 98738, dwg 30A228383-21.	7-66
A2A6A12W2		ASSEMBLY, COAXIAL: 3.18 in. long; mfr 98738, dwg 30A228383-22.	7-66
A2A6A12W3		ASSEMBLY, COAXIAL: 5.75 in. long; mfr 98738, dwg 30A228383-23.	7-66
A2A6A12W4		ASSEMBLY, COAXIAL: 5.50 in. long; mfr 98738, dwg 30A228383-20.	7-66
A2A6A12A1		VCO ASSEMBLY: Mfr 98738, part no. 01A226758-22-11.	7-66
A2A6A13		10 MHz/1 MHz CIRCUIT CARD ASSEMBLY: 5.75 in. long, 3.0 in. w, mfr 98738, part no. 01A226068-21-11.	7-67
A2A6A13C1		CAPACITOR: Item 7.	7-67
A2A6A13C2		CAPACITOR: Item 9.	7-67
A2A6A13C3		CAPACITOR, FIXED, ELECTROLYTIC: 10 uF ±10%, 50 Vdc working; MIL type M39006/09-8318.	7-67
A2A6A13C4		CAPACITOR: Item 9.	7-67
A2A6A13C5		Not used.	
A2A6A13C6		CAPACITOR, FIXED, ELECTROLYTIC: 56 uF ±10%, 6 Vdc working; MIL type M39003/01-2246.	7-67
A2A6A13C7		CAPACITOR: Item 9.	7-67
A2A6A13C8 and A2A6A13C9		CAPACITOR: Item 7.	7-67
A2A6A13C10		Not used.	
A2A6A13C11		CAPACITOR: Item 10.	7-67
A2A6A13C12		Not used.	
A2A6A13C13		CAPACITOR, FIXED, ELECTROLYTIC: 100 uF ±10%, 10 Vdc working; MIL type M39003/01-2261.	7-67
A2A6A13C14 thru A2A6A13C16		CAPACITOR: Item 7.	7-67

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A13C17		CAPACITOR: Item 9.	7-67
A2A6A13C18 thru A2A6A13C24		CAPACITOR: Item 7.	7-67
A2A6A13CR1 and A2A6A13CR2		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N914.	7-67
A2A6A13CR3		SEMICONDUCTOR DEVICE, DIODE: Silicon, voltage regulator; MIL type JAN1N964B.	7-67
A2A6A13CR4		SEMICONDUCTOR DEVICE, DIODE: Mfr 26629, part no. H35-4126, 98738, dwg 48P226450-02.	7-67
A2A6A13CR5 thru A2A6A13CR7		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N914.	7-67
A2A6A13L1		Not used.	
A2A6A13L2		COIL, RF: 0.33 uH; MIL type MS75087-7.	7-67
A2A6A13L3 and A2A6A13L4		Not used.	
A2A6A13L5		INDUCTOR ASSY: 0.465 mH; mfr 98738, part no. 24A226360-24-11.	7-67
A2A6A13L6 thru A2A6A13L10		COIL, RF: 470 uH; MIL type MS75085-15.	7-67
A2A6A13MP1 and A2A6A13MP2		EJECTOR, CIRCUIT CARD: Item 24.	7-67
A2A6A13Q1 and A2A6A13Q2		TRANSISTOR: Item 54.	7-67
A2A6A13R1 thru A2A6A13R5		RESISTOR: Item 27.	7-67
A2A6A13R6 and A2A6A13R7		RESISTOR, FIXED, COMPOSITION: 9100 ohms +_5%, 1/8 w; MIL type RCR05G912JS.	7-67
A2A6A13R8		RESISTOR, FIXED, COMPOSITION: 180 ohms ±5%, 1/8 w; MIL type RCR05G181JS.	7-67
A2A6A13R9		RESISTOR: Item 26.	7-67
A2A6A13R10		RESISTOR, FIXED, COMPOSITION: 9100 ohms ±5%, 1/8 w; MIL type RCR05G912JS.	7-67
A2A6A13R11		RESISTOR, FIXED, COMPOSITION: 1800 ohms ±5%, 1/8 w; MIL type RCR05G182JS.	7-67

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A13R12 thru A2A6A13R19		RESISTOR: Item 26.	7-67
A2A6A13R20		RESISTOR, FIXED, COMPOSITON: 1 megohm ±5%, 1/8 w; MIL type RCR05G105JS.	7-67
A2A6A13R21 thru A2A6A13R25		RESISTOR: Item 25.	7-67
A2A6A13R26 and A2A6A13R27		RESISTOR, FIXED, COMPOSITION: 5,100 ohms ±5%, 1/8 w; MIL type RCR05G512JS.	7-67
A2A6A13R28 thru A2A6A13R30		RESISTOR: Item 26.	7-67
A2A6A13R31		RESISTOR, FIXED, COMPOSITION: 510 ohms ±5%, 1/8 w; MIL type RCR05G511JS.	7-67
A2A6A13R32		RESISTOR, FIXED, COMPOSITION: 1 megohm ±5%, 1/8 w; MIL type RCR05G105JS.	7-67
A2A6A13R33		RESISTOR, FIXED, COMPOSITION: Item 29.	7-67
A2A6A13R34		RESISTOR: Item 26.	7-67
A2A6A13TP1		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 17.	7-67
A2A6A13TP2		CONNECTR, ELECTRICAL, TEST-POINT TYPE: Item 18.	7-67
A2A6A13TP3		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 19.	7-67
A2A6A13U1		INTEGRATED CIRCUIT: Mfr 04713, part no. MC4344DCBS, 98738, dwg 48P226446-01.	7-67
A2A6A13U2		INTEGRATED CIRCUIT: Mfr 18723, part no. CA3140S3, 98738, dwg 48P226682-01.	7-67
A2A6A13U3		INTEGRATED CIRCUIT: Mfr 98738, part no. 48P228371-01.	7-67
A2A6A13U4		INTEGRATED CIRCUIT: Mfr 01295, part no. SNC54S02J, 98738, dwg 48P226451-01.	7-67
A2A6A13U5		INTEGRATED CIRCUIT: Mfr 01295, part no. SNC54197J, 98738, dwg 48P226455-01.	7-67
A2A6A13U6		INTEGRATED CIRCUIT: Mfr 01295, part no. SNC54S02J, 98738, dwg 48P226451-01.	7-67
A2A6A13U7		INTEGRATED CIRCUIT: MIL type M38510/00401BCB.	7-67
A2A6A13U8		INTEGRATED CIRCUIT: Mfr 04713, part no. MC12514DEBS, 98738, dwg 48P226459-01.	7-67
A2A6A13U9 and A2A6A13U10		INTEGRATED CIRCUIT: Mfr 98738, dwg 48P228370-01.	7-67

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A13U11		INTEGRATED CIRCUIT: Mfr 18324, part no. CC4335F, 98738, dwg 48P226463-01.	7-67
A2A6A13W1		ASSEMBLY, COAXIAL: 3.12 in. long; mfr 98738, dwg 30A228383-08.	7-67
A2A6A13A1		FILTER ASSEMBLY, TRANSLATOR/SYNTHESIZER: Mfr 98738, part no. 01A226751-21-11. (Attaching Parts) AG(2), AL(2), CQ(2), DS(2)	7-67
A2A6A13A1 CR1 thru A2A6A13A1 CR5		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N3611.	7-67
A2A6A13A1 FL1 thru A2A6A13A1 FL5		FILTER, RFI: 1 uF min. capacitance, 50 Vdc working; 0.858 in. long, 0.203 in. dia; mfr 33095, part no. SC1105M, 98738, dwg 21P226694-01.	7-67
A2A6A13A1 MP1		BRACKET, FILTER, MOUNTING: Brass, 2.63 in. long, 0.81 in. w, 0.43 in. thk; mfr 98738, part no. 07P226691-21-11.	7-67
A2A6A13A1 MP2 and A2A6A13A1 MP3		STRAP, GROUND: Brass, 0.75 in. long, 0.187 in. w; mfr 98738, part no. 07P226695-21-11.	7-67
A2A6A13A1P1		CONNECTOR, PLUG, ELECTRICAL: 2.729 in. long, 0.494 in. w; mfr 25330, part no. GCM53514-1287, 98738, dwg 09P226666-03.	7-67
A2A6A13A1 P1A1 thru A2A6A 13A1P1A4		PLUG, CONNECTOR: 0.929 in. long; mfr 71785, part no. DM53740-5001, 98738, dwg 09P226565-17.	7-67
A2A6A13A1W1		ASSEMBLY, COAXIAL: 2.00 in. long; mfr 98738, dwg 30A228383-09.	7-67
A2A6A13A1W2		ASSEMBLY, COAXIAL: 3.75 in. long; mfr 98738, dwg 30A228383-07.	7-67
A2A6A13A1W3		ASSEMBLY, COAXIAL: 3.25 in. long; mfr 98738, dwg 30A228383-10.	7-67
A2A6A13A1W4		ASSEMBLY, COAXIAL: 2.56 in. long; mfr 98738, dwg 30A228383-11.	7-67
A2A6A14		FILTER CIRCUIT CARD ASSEMBLY: 5.75 in. long, 3.0 in. w; mfr 98738, part no. 01A226073-21-11.	7-68

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A14C1 and A2A6A14C2		CAPACITOR: Item 9.	7-68
A2A6A14C3		CAPACITOR, FIXED, MICA: 200 pF ±2%, 500 Vdc working; MIL type CMR04F201GPDM.	7-68
A2A6A14C4		CAPACITOR: Item 9.	7-68
A2A6A14C5		CAPACITOR, FIXED, MICA: 330 pF ±2%, 100 Vdc working; MIL type CMR04F331GPAM.	7-68
A2A6A14C6		CAPACITOR, FIXED, MICA: 200 pF ±2%, 500 Vdc working; MIL type CMR04F201GPDM.	7-68
A2A6A14C7 thru A2A6A14C9		CAPACITOR: Item 9.	7-68
A2A6A14C10 and A2A6A14C11		CAPACITOR: Item 7.	7-68
A2A6A14C12		CAPACITOR, FIXED, MICA: 180 pF ±2%, 500 Vdc working; MIL type CMR04F181GPDM.	7-68
A2A6A14C13		CAPACITOR: Item 7.	7-68
A2A6A14C14		CAPACITOR, FIXED, MICA: 300 pF ±2%, 300 Vdc working; MIL type CMR04F301GPCM.	7-68
A2A6A14C15		CAPACITOR, FIXED, MICA: 180 pF ±2%, 500 Vdc working; MIL type CMR04F181GPDM.	7-68
A2A6A14C16 thru A2A6A14C20		CAPACITOR: Item 7.	7-68
A2A6A14C21		CAPACITOR, FIXED, MICA: 56 pF ±2%, 500 Vdc working; MIL type CMR04E560GPDM.	7-68
A2A6A14C22		CAPACITOR: Item 7.	7-68
A2A6A14C23		CAPACITOR, FIXED, MICA: 91 pF ±2%, 500 Vdc working; MIL type CMR04F910GPDM.	7-68
A2A6A14C24		CAPACITOR, FIXED, MICA: 26 pF ±2%, 500 Vdc working; MIL type CMR04E560GPDM.	7-68
A2A6A14C25 thru A2A6A14C27		CAPACITOR: Item 7.	7-68
A2A6A14C28		CAPACITOR: Item 10.	7-68
A2A6A14C29		CAPACITOR: Item 9.	7-68
A2A6A14L1		COIL, RF: 22 uH; MIL type MS75084-26.	7-68
A2A6A14L2		COIL, RF: 8.2 uH; MIL type MS75084-11.	7-68
A2A6A14L3		COIL, RF: 22 uH; MIL type MS75084-16.	7-68
A2A6A14L4		COIL, RF: 8.2 uH; MIL type MS75084-11.	7-68
A2A6A14L5		COIL, RF: 22 uH; MIL type MS75084-16.	7-68
A2A6A14L6		COIL, RF: 1 uH; MIL type MS75083-13.	7-68
A2A6A14L7		COIL, RF: 2.7 uH; MIL type MS75084-5.	7-68

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A14L8		COIL, RF: 1.8 uH; MIL type MS75084-3.	7-68
A2A6A14L9		COIL, RF: 2.7 uH; MIL type MS75084-5.	7-68
A2A6A14L10		COIL, RF: 1.8 uH; MIL type MS75084-3.	7-68
A2A6A14L11		COIL, RF: 2.7 uH; MIL type MS75084-5.	7-68
A2A6A14L12		COIL, RF: 1 uH; MIL type MS75083-13.	7-68
A2A6A14L13		COIL, RF: 2.2 uH; MIL type MS75084-4.	7-68
A2A6A14L14		COIL, RF: 1.8 uH; MIL type MS75084-3.	7-68
A2A6A14L15		COIL, RF: 2.2 uH; MIL type MS75084-4.	7-68
A2A6A14L16		COIL, RF: 1.8 uH; MIL type MS75084-3.	7-68
A2A6A14L17		COIL, RF: 2.2 uH; MIL type MS75084-4.	7-68
A2A6A14L18		COIL, RF: 1 uH; MIL type MS75083-13.	7-68
A2A6A14L19		COIL, RF: 27 uH; MIL type MS75089-4.	7-68
A2A6A14MP1 and A2A6A14MP2		EJECTOR, CIRCUIT CARD: Item 24.	7-68
A2A6A14MP3 thru A2A6A14MP5		PAD, TRANSISTOR MOUNTING: Mfr 13103, part no. 7717-114N, 98738, dwg 14S132171-44A-9.	7-68
A2A6A14P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 1.534 in. long, 0.329 in. w, 0.494 in. thk; mfr 25330, part no. GBM53513-1364, 98738, dwg 09P226666-02. (Attaching Parts) CW(2) AG(2) DS(2) AL(2)	7-68
A2A6A14P1A1 thru A2A6A14P1A4		PLUG, CONNECTOR: 0.929 in. long; mfr 71785, part no. DM53740-5001, 98738, dwg 09P226565-17.	7-68
A2A6A14Q1		TRANSISTOR: Item 55.	7-68
A2A6A14Q2 and A2A6A14Q3		TRANSISTOR: Item 54.	7-68
A2A6A14Q4		TRANSISTOR: Item 55.	7-68
A2A6A14Q5 and A2A6A14Q6		TRANSISTOR: Item 54.	7-68
A2A6A14Q7		TRANSISTOR: Item 55.	7-68
A2A6A14Q8 and A2A6A14Q9		TRANSISTOR: Item 54.	7-68
A2A6A14R1		RESISTOR, FIXED, COMPOSITION: 820 ohms ±5%, 1/2 w; MIL type RCR05G821JS.	7-68
A2A6A14R2		RESISTOR: Item 26.	7-68
A2A6A14R3		RESISTOR: Item 28.	7-68
A2A6A14R4		RESISTOR, FIXED, COMPOSITION: 240 ohms ±5%, 1/8 w; MIL type RCR05G241JS.	7-68
A2A6A14R5		RESISTOR, FIXED, COMPOSITION: 51 ohms ±5%, 1/8 w; MIL type RCR05G510JS.	7-68

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A14R6		RESISTOR: Item 28.	7-68
A2A6A14R7		RESISTOR, VARIABLE, WIRE-WOUND: 1K ohms ±5%, 3/4 w; MIL type M39015/3-007XM.	7-68
A2A6A14R8		RESISTOR: Item 25.	7-68
A2A6A14R9 and A2A6A14R10		RESISTOR, FIXED, COMPOSITION: 470 ohms ±5%, 1/8 w; MIL type RCR05G471JS.	7-68
A2A6A14R11		RESISTOR, FIXED, COMPOSITION: 820 ohms ±5%, 1/8 w; MIL type RCR05G821JS.	7-68
A2A6A14R12		RESISTOR: Item 26.	7-68
A2A6A14R13		RESISTOR: Item 28.	7-68
A2A6A14R14		RESISTOR, FIXED, COMPOSITION: 120 ohms ±5%, 1/8 w; MIL type RCR05G121JS.	7-68
A2A6A14R15		RESISTOR, FIXED, COMPOSITION: 51 ohms ±5%, 1/8 w; MIL type RCR05G510JS.	7-68
A2A6A14R16		RESISTOR: ITEM 28.	7-68
A2A6A14R17		RESISTOR, VARIABLE, WIRE-WOUND: 1K ohms ±5%, 3/4 w; MIL type M39015/3-007XM.	7-68
A2A6A14R18		RESISTOR: Item 25.	7-68
A2A6A14R19 and A2A6A14R20		RESISTOR, FIXED, COMPOSITION: 240 ohms ±5%, 1/8 w; MIL type RCR05G241JS.	7-68
A2A6A14R21		RESISTOR, FIXED, COMPOSITION: 820 ohms ±5%, 1/8 w; MIL type RCR05G821JS.	7-68
A2A6A14R22		RESISTOR: Item 26.	7-68
A2A6A14R23		RESISTOR: Item 28.	7-68
A2A6A14R24		RESISTOR, FIXED, COMPOSITION: 220 ohms ±5%, 1/8 w; MIL type RCR05G221JS.	7-68
A2A6A14R25		RESISTOR, FIXED, COMPOSITION: 51 ohms ±5%, 1/8 w; MIL type RCR05G510JS.	7-68
A2A6A14R26		RESISTOR: Item 28.	7-68
A2A6A14R27		RESISTOR, VARIABLE, WIRE-WOUND: 1K ohms ±5%, 3/4 w; MIL type M39015/3-007XM.	7-68
A2A6A14R28		RESISTOR: Item 25.	7-68
A2A6A14R29 and A2A6A14R30		RESISTOR, FIXED, COMPOSITION: 430 ohms ±5%, 1/8 w; MIL type RCR05G431JS.	7-68
A2A6A14R31		RESISTOR, FIXED, COMPOSITION: 220 ohms±5%, 1/8 w; MIL type RCR05G221JS.	7-68
A2A6A14TP1		CONNECTOR, ELECTRICAL, TEST-POINT: Item 17.	7-68
A2A6A14TP2		CONNECTOR, ELECTRICAL, TEST-POINT: Item 18.	7-68
A2A6A14TP3		CONNECTOR, ELECTRICAL, TEST-POINT: Item 19.	7-68
A2A6A14TP4		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: MIL type M39024/18-02.	7-68

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A14TP5		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: MIL type M39024/18-07.	7-68
A2A6A14TP6		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: MIL type M39024/18-07.	7-68
A2A6A14TP7		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: MIL type M39024/18-10.	7-68
A2A6A14W1		ASSEMBLY, COAXIAL: 2.75 in. long; mfr 98738, dwg 30A228383-14.	7-68
A2A6A14W2		ASSEMBLY, COAXIAL: 2.87 in. long; mfr 98738, dwg 30A228383-15.	7-68
A2A6A14W3		ASSEMBLY, COAXIAL: 3.81 in. long; mfr 98738, dwg 30A228383-16.	7-68
A2A6A14W4		ASSEMBLY, COAXIAL: 2.87 in. long; mfr 98738, dwg 30A228383-15.	7-68
A2A6A14W5		ASSEMBLY, COAXIAL: 2.68 in. long; mfr 98738, dwg 30A228383-12.	7-68
A2A6A14W6		ASSEMBLY, COAXIAL: 3.25 in. long; mfr 98738, dwg 30A228383-13.	7-68
A2A6A15		POWER SUPPLY CIRCUIT CARD ASSEMBLY: 5.75 in. long, 3.0 in. w; mfr 98738, dwg 01A228311-02.	7-69
A2A6A15C1		CAPACITOR, FIXED, MICA: 470 pF ±2%, 500 Vdc working; MIL type CMR06F471GPDM.	7-69
A2A6A15C2		CAPACITOR, FIXED, ELECTROLYTIC: 47 uF ±10%, 35 Vdc working; MIL type M39003/01-2312.	7-69
A2A6A15C3		CAPACITOR: Item 9.	7-69
A2A6A15C4		CAPACITOR, FIXED, CERAMIC: 0.01 uF ±10%, 200 Vdc working; MIL type M39014/02-1298.	7-69
A2A6A15C5		CAPACITOR, FIXED, CERAMIC: 2200 pF ±20%, 200 Vdc working; MIL type M39014/02-1207.	7-69
A2A6A15C6		CAPACITOR, FIXED, CERAMIC: 0.022 uF ±10%, 100 Vdc working; MIL type M39014/02-1302.	7-69
A2A6A15C7		CAPACITOR, FIXED, CERAMIC: 0.01 uF ±10%, 200 Vdc working; MIL type M39014/02-1298.	7-69
A2A6A15C8		Not used.	
A2A6A15C9 and A2A6A15C10		CAPACITOR, FIXED, ELECTROLYTIC: 100 uF ±10%, 20 Vdc working; MIL type M39003/01-2302.	7-69
A2A6A15C11		CAPACITOR, FIXED, CERAMIC: 1000 pF ±10%, 200 Vdc working; MIL type M39014/01-1237.	7-69
A2A6A15C12		CAPACITOR: Item 9.	7-69
A2A6A15C13		CAPACITOR, FIXED, CERAMIC: 0.15 uF ±10%, 100 Vdc working; MIL type M39014/02-1314.	7-69
A2A6A15C14 thru A2A6A15C16		CAPACITOR: Item 9.	7-69

Table 7-2. Radio Transmitter T-827 H/URT, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A15CR1		DIODE: MIL type JAN1N751A.	7-69
A2A6A15CR2		SEMICONDUCTOR DEVICE, DIODE: Mfr 85072, part no. IN5828, 98738, dwg 48P228424-01. (Attaching Parts) AM(2) ER(1)	7-69
A2A6A15E1		TERMINAL, STUD: Solder only.	
A2A6A15E2		LUG: 0.80 in. long, 0.38 in. w; mfr 79963, part no. 29-10, 98738, dwg 29S111221-7.	7-69
A2A6A15E3		Not used.	
A2A6A15E4 thru A2A6A15E6		TERMINAL, STUD: Solder only.	7-69
A2A6A15L1		INDUCTOR, POWER: 0.45 mH ±5%, 1.37 in. dia, 2.62 in. long; mfr 81815, part no. A426, 98738, dwg 24A226361-01. (Attaching Parts) AB(1) L(1)	7-69
A2A6A15L2		INDUCTOR, POWER: 200 uH ±20%, 1.0 in. dia, 1.75 in. long; mfr 81815, part no. S017, 98738, dwg 25P228280-01. (Attaching Parts) AB(1) L(1)	7-69
A2A6A15MP1		BRACKET, RIGHT ANGLE: 0.546 in. x 0.560 in., 0.5 in. w, 0.062 in. thk; aluminum alloy; mfr 98738, part no. 07P238806-21-11. (Attaching Parts) FN(2)	7-69
A2A6A15MP2		COVER: 1.56 in. long, 1.36 in. w, mfr 98738, dwg no. 15P226757-24-11.	7-69
A2A6A15MP3 and A2A6A15MP4		PAD, TRANSISTOR MOUNTING: Mfr 13103, part no. 7717-109; 98738, dwg 14S132171-39A-9.	7-69
A2A6A15Q1 and A2A6A15Q2		TRANSISTOR: Item 55.	7-69
A2A6A15Q3		TRANSISTOR: Mfr 04713, part no. 2N5428, 98738, dwg 48P226466-01. (Attaching Parts) K(2) L(2) M(2) DY(2)	7-69
A2A6A15R1		RESISTOR, FIXED, COMPOSITION: 20K ohms ±5%, 1/4 w; MIL type RCR07G203JS.	7-69
A2A6A15R2		RESISTOR, FIXED, COMPOSITION: 82K ohms ±5%, 1/4 w; MIL type RCR07G823JS.	7-69
A2A6A15R3		RESISTOR, FIXED, COMPOSITION: 20K ohms ±5%, 1/4 w; MIL type RCR07G203JS.	7-69
A2A6A15R4		RESISTOR, FIXED, COMPOSITION: 39K ohms ±5%, 1/4 w; MIL type RCR07G393JS.	7-69
A2A6A15R5		RESISTOR, FIXED, COMPOSITION: 4300 ohms ±5%, 1/4 w; MIL type RCR07G432JS.	7-69

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A15R6		RESISTOR, FIXED, COMPOSITION: 47K ohms ±5%, 1/4 w; MIL type RCR07G473JS.	7-69
A2A6A15R7		RESISTOR: Item 32.	7-69
A2A6A15R8		RESISTOR: Item 29.	7-69
A2A6A15R9		RESISTOR, FIXED, WIRE-WOUND: 0.15 ohms ±1%, 2 w; MIL type RWR80SR150FR.	7-69
A2A6A15R10		RESISTOR, FIXED, COMPOSITION: 68 ohms ±5%, 1/4 w; MIL type RCR07G680JS.	7-69
A2A6A15R11		RESISTOR, FIXED, COMPOSITION: 200 ohms ±5%, 1/4 w; MIL type RCR07G201JS.	7-69
A2A6A15R12		RESISTOR: Item 29.	7-69
A2A6A15R13		RESISTOR: Item 31.	7-69
A2A6A15R14		RESISTOR, FIXED, FILM: 4300 ohms ±2%, 1/4 w; MIL type RLR07C4301GR.	7-69
A2A6A15R15A	1	RESISTOR, FIXED, FILM: 1.1K ohms ±2%, 1/4 w; MIL type RLR07C1101GR.	7-69
A2A6A15R15B	1	RESISTOR, FIXED, FILM: 1.3K ohms ±2%, 1/4 w; MIL type RLR07C1301GR.	7-69
A2A6A15R15C	1	RESISTOR, FIXED, FILM: 1.5K ohms ±2%, 1/4 w; MIL type RLR07C1501GR.	7-69
A2A6A15R15D	1	RESISTOR, FIXED, FILM: 1.6K ohms ±2%, 1/4 w; MIL type RLR07C1601GR.	7-69
A2A6A15R15E	1	RESISTOR, FIXED, FILM: 1.8K ohms ±2%, 1/4 w; MIL type RLR07C1801GR.	7-69
A2A6A15R15F	1	RESISTOR, FIXED, FILM: 2K ohms ±2%, 1/4 w; MIL type RLR07C2001GR.	7-69
A2A6A15R15G	1	RESISTOR, FIXED, FILM: 2.2K ohms ±2%, 1/4 w; MIL type RLR07C2201GR.	7-69
A2A6A15R15H	1	RESISTOR, FIXED, FILM: 2.4K ohms ±2%, 1/4 w; MIL type RLR07C2401GR.	7-69
A2A6A15R16		RESISTOR, FIXED, FILM: 3600 ohms ±2%, 1/4 w; MIL type RLR07C3601GR.	7-69
A2A6A15TP1		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 17.	7-69
A2A6A15TP2		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 18.	7-69
A2A6A15TP3		Not used.	
A2A6A15TP4		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: MIL type M39024/18-02.	7-69
A2A6A15U1		INTEGRATED CIRCUIT: MIL type M38510/10304BGC.	7-69
A2A6A15U2		INTEGRATED CIRCUIT: Mfr 27014, part no. LM105H833, 98738, dwg48P226461-01.	7-69
A2A6A16		FREQUENCY GENERATOR CIRCUIT CARD ASSEMBLY: 5.750 in. long, 3.0 in. w; mfr 98738, part no. 01A228330-01.	7-63, 7-70

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A16C1 and A2A6A16C2		Not used.	
A2A6A16C3 and A2A6A16C4		CAPACITOR: Item 10.	7-70
A2A6A16C5 thru A2A6A16C12		CAPACITOR: Item 7.	7-70
A2A6A16C13 and A2A6A16C14		CAPACITOR: Item 9.	7-70
A2A6A16C15		CAPACITOR: Item 7.	7-70
A2A6A16C16 thru A2A6A16C18		CAPACITOR: Item 9.	7-70
A2A6A16C19		Not used.	
A2A6A16C20		CAPACITOR, FIXED, ELECTROLYTIC: 2.2 uF ±10%, 20 Vdc working; MIL type M39003/01-2283.	7-70
A2A6A16C21		CAPACITOR: Item 10.	7-70
A2A6A16C22		CAPACITOR, FIXED, CERAMIC: 0.018 uF ±10%, 50 Vdc working; MIL type M39014/01-1460.	7-70
A2A6A16C23 and A2A6A16C24		CAPACITOR: Item 9.	7-70
A2A6A16C25		CAPACITOR: Item 10.	7-70
A2A6A16C26		CAPACITOR, FIXED, ELECTROLYTIC: 56 uF ±10%, 10 Vdc working; MIL type M39003/01-2246.	7-70
A2A6A16C27		Not used.	
A2A6A16C28 and A2A6A16C29		CAPACITOR: Item 7.	7-70
A2A6A16C30		CAPACITOR, FIXED, MICA: 20 pF ±5%, 500 Vdc working; MIL type CMR04E200JPDM.	7-70
A2A6A16C31		CAPACITOR: Item 7.	7-70
A2A6A16C32		CAPACITOR: Item 9.	7-70
A2A6A16C33 thru A2A6A16C37		CAPACITOR: Item 7.	7-70
A2A6A16CR1		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N827.	7-70
A2A6A16CR2 and A2A6A16CR3		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N914.	7-70

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A16CR4		SEMICONDUCTOR DEVICE, DIODE: Silicon voltage regulator; MIL type JAN1N758A.	7-70
A2A6A16CR5		SEMICONDUCTOR DEVICE, DIODE: Mfr 26629, part no. H35-4126, 98738, dwg 48P226450-02.	7-70
A2A6A16L1 and A2A6A16L2		Not used.	
A2A6A16L3		COIL, RF: 0.33 uH; MIL type MS75087-7	7-70
A2A6A16L4		Not used.	
A2A6A16L5		INDUCTOR ASSEMBLY: 4.1 uH; mfr 98738, part no. 24A226360-22-11.	7-70
A2A6A16L6		COIL, RF: 3.9 uH; MIL type MS75084-7.	7-70
A2A6A16L7		COIL, RF: 100 uH; MIL type MS75085-7.	7-70
A2A6A16MP1 and A2A6A16MP2		EJECTOR, CIRCUIT CARD: Item 24.	7-70
A2A6A16MP3 and A2A6A16MP4		FERRULE, GROUNDING: 0.45 in. long, 0.80 in. dia; mfr 08795, part no. D-144-34, 06845, dwg 4017497-0703.	7-70
A2A6A16P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 2.182 in. long, 0.329 in. w, 0.494 in. thk; mfr 25330, part no. GCM53514-1287, dwg 09P226666-03. (Attaching Parts) CQ(2) AG(2) AL(2) DS(2)	7-70
A2A6A16P1A1 thru A2A6A16P1A4		PLUG, CONNECTOR: 0.929 in. long; mfr 71785, part no. DM53740-5001, 98738, dwg 09P226565-17.	7-70
A2A6A16Q1 thru A2A6A16Q5		TRANSISTOR: Item 54.	7-70
A2A6A16Q6		TRANSISTOR: MIL type JAN2N2907A.	7-70
A2A6A16R1		RESISTOR, FIXED, COMPOSITION: 51 ohms ±5%, 1/8 w; MIL type RCR05G510JS.	7-70
A2A6A16R2		RESISTOR, FIXED, COMPOSITION: 8200 ohms ±5%, 1/8 w; MIL type RCR05G822JS.	7-70
A2A6A16R3		RESISTOR, FIXED, COMPOSITION: 3300 ohms ±5%, 1/8 w; MIL type RCR05G332JS.	7-70
A2A6A16R4		RESISTOR, FIXED, COMPOSITION: 51 ohmns ±5%, 1/8 w; MIL type RCR905G510JS.	7-70
A2A6A16R5		RESISTOR, FIXED, COMPOSITION: 360 ohms ±5%, 1/8 w; MIL type RCR05G361JS.	7-70
A2A6A16R6 and A2A6A16R7		RESISTOR, FIXED, COMPOSITION: 10K ohms ±5%, 1/8 w; MIL type RCR05G103JS.	7-70,
A2A6A16R8		RESISTOR: Item 25.	7-70

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A16R9		RESISTOR, FIXED, COMPOSITION: 510 ohms ±5%, 1/8 w; MIL type RCR05G511JS.	7-70
A2A6A16R10 and A2A6A16R11		RESISTOR, FIXED, COMPOSITION: 470 ohms ±5%, 1/8 w; MIL type RCR05G471JS.	7-70
A2A6A16R12		RESISTOR, FIXED, COMPOSITION: 10K ohms ±5%, 1/8 w; MIL type RCR05G103JS.	7-70
A2A6A16R13 and A2A6A16R14		RESISTOR, FIXED, COMPOSITION: 5,100 ohms ±5%, 1/8 w; MIL type RCR05G512JS.	7-70
A2A6A16R15 and A2A6A16R16		RESISTOR, FIXED, COMPOSITION: 1K ohms ±5%, 1/8 w; MIL type RCR05G102JS.	7-70
A2A6A16R17		RESISTOR, FIXED, FILM: 150K ohms ±1%, 1/10 w; at 125 degrees C; MIL type RNC55H1503FM.	7-70
A2A6A16R18		RESISTOR, VARIABLE, WIRE-WOUND: 10K ohms ±5%, 3/4 w; MIL type M39015/3-010XM.	7-70
A2A6A16R19		RESISTOR, FIXED, FILM: 36,500 ohms ±1%, 1/20 w, at 125 degrees C; MIL type RNC50H3652FM.	7-70
A2A6A16R20		RESISTOR, FIXED, COMPOSITION: 16K ohms ±5%, 1/8 w; MIL type RCR05G163JS.	7-70
A2A6A16R21		RESISTOR, FIXED, FILM: 7500 ohms ±1%, 1/20 w, at 125 degrees C; MIL type RNC50H7501FR.	7-70
A2A6A16R22		RESISTOR, VARIABLE, WIRE-WOUND: 5K ohms ±5%, 3/4 w; MIL type M39015/3-009XM.	7-70
A2A6A16R23		RESISTOR, FIXED, FILM: 3010 ohms ±1%, 1/20 w, at 125 degrees C; MIL type RNC50H3011FS.	7-70
A2A6A16R24		RESISTOR, FIXED, COMPOSITION: 470 ohms ±5%, 1/4 w; MIL type RCR07G471JS.	7-70
A2A6A16R25 and A2A6A16R26		RESISTOR, FIXED, COMPOSITION: 10K ohms ±5%, 1/8 w; MIL type RCR05G103JS.	7-70
A2A6A16R27		RESISTOR, FIXED, COMPOSITION: 120 ohms ±5%, 1/8 w; MIL type RCR05G121JS.	7-70
A2A6A16R28		RESISTOR, FIXED, COMPOSITION: 300K ohms ±5%, 1/8 w; MIL type RCR05G304JS.	7-70
A2A6A16R29		RESISTOR, FIXED, COMPOSITION: 3K ohms ±5%, 1/8 w; MIL type RCR05G302JS.	7-70
A2A6A16R30		RESISTOR, FIXED, COMPOSITION: 1800 ohms ±5%, 1/8 w; MIL type RCR05G182JS.	7-70
A2A6A16R31		RESISTOR, FIXED, COMPOSITION: 620 ohms ±5%, 1/8 w; MIL type RCR05G621JS.	7-70
A2A6A16R32		RESISTOR, FIXED, COMPOSITION: 6200 ohms ±5%, 1/8 w; MIL type RCR05G622JS.	7-70

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A16R33		RESISTOR, FIXED, COMPOSITION: 1 megohm ±5%, 1/8 w; MIL type RCR05G105JS.	7-70
A2A6A16R34		RESISTOR, FIXED, COMPOSITION: 510 ohms ±5%, 1/8 w; MIL type RCR05G511JS.	7-70
A2A6A16R35 and A2A6A16R36		RESISTOR, FIXED, COMPOSITION: 470 ohms ±5%, 1/8 w; MIL type RCR05G471JS.	7-70
A2A6A16R37		RESISTOR: Item 29.	7-70
A2A6A16R38		RESISTOR, FIXED, COMPOSITION: 360 ohms ±5%, 1/2 w; MIL type RCR20G361JS.	7-70
A2A6A16R39		RESISTOR, FIXED, COMPOSITION: 2K ohms ±5%, 1/8 w; MIL type RCR05G202JS.	7-70
A2A6A16TP1		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 17.	7-70
A2A6A16TP2		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 18.	7-70
A2A6A16TP3		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 19.	7-70
A2A6A16TP4		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: 1000 Vrms, 60 Hz; MIL type M39024/18-02.	7-70
A2A6A16U1		INTEGRATED CIRCUIT: MIL type M38510/00105BCB.	
A2A6A16U2 thru A2A6A16U5		INTEGRATED CIRCUIT: MIL type M38510/01307BCB.	
A2A6A16U6		INTEGRATED CIRCUIT: MIL type M38510/00104BCB.	7-70
A2A6A16U7		INTEGRATED CIRCUIT: Mfr 18723, part no. CA3140S3, 98738, dwg 48P226682-01.	7-70
A2A6A16U8		INTEGRATED CIRCUIT: Mfr 04713, part no. MC4324DCBS, 98738, dwg 48P226457-01.	7-70
A2A6A16U9		INTEGRATED CIRCUIT: Mfr 04713, part no. MC4344DCBS, 98738, dwg 48P226446-01.	7-70
A2A6A16U10		INTEGRATED CIRCUIT: Mfr 18723, part no. CA3140S3, 98738, dwg 48P226682-01.	7-70
A2A6A16U11		INTEGRATED CIRCUIT: Mfr 98738, part no. 48P228371-01.	7-70
A2A6A16U12		INTEGRATED CIRCUIT: MIL type MS38510/00105BCB.	7-70
A2A6A16U13		INTEGRATED CIRCUIT: MIL type M38510/00205BCB.	7-70
A2A6A16U14		INTEGRATED CIRCUIT: MIL type M38510/01302BCB.	7-70
A2A6A16U15 and A2A6A16U16		INTEGRATED CIRCUIT: MIL 98738, part no. 48P228370-01.	7-70
A2A6A16U17		INTEGRATED CIRCUIT: MIL type M38510/01302BCB.	7-70
A2A6A16W1		ASSEMBLY, COAXIAL: 3.00 in. long; mfr 98738, part no. 30A228383-01.	7-70

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A16W2		ASSEMBLY, COAXIAL: 3.00 in. long; mfr 98738, part no. 30A228383-02.	7-70
A2A6A16W3		ASSEMBLY, COAXIAL: 4.00 in. long; mfr 98738, part no. 30A228383-03.	7-70
A2A6A16W4		ASSEMBLY, COAXIAL: 1.75 in. long; mfr 98738, part no. 30A228383-04.	7-70
A2A6A16W5		ASSEMBLY, COAXIAL: 1.75 in. long; mfr 98738, part no. 30A228383-05.	7-70
A2A6A17		100 kHz CIRCUIT CARD ASSEMBLY: 5.75 in. long, 3.0 in. w, mfr 98738, part no. 01A228327-01. Alternate part no. 01A228327-02.	7-71
A2A6A17C1		CAPACITOR: Item 9.	7-71
A2A6A17C2		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 0.047 uF ±10%, 100 Vdc working; MIL type M39014/02-1225.	7-71
A2A6A17C3		CAPACITOR, FIXED, ELECTROLYTIC: 10 uF ±10%, 50 Vdc working; MIL type M39006/09-8318.	7-71
A2A6A17C4		Not used.	
A2A6A17C5		CAPACITOR: Item 9.	7-71
A2A6A17C6		CAPACITOR, FIXED, ELECTROLYTIC: 3.3 uF ±20%, 50 Vdc working; MIL type M39003/01-2269.	7-71
A2A6A17C7 thru A2A6A17C12		Not used.	
A2A6A17C13 and A2A6A17C14		CAPACITOR: Item 7.	7-71
A2A6A17C15		CAPACITOR, FIXED, MICA: 82 pF ±2%, 500 Vdc working; MIL type CMR04E820GPDM.	7-71
A2A6A17C16		CAPACITOR: Item 7.	7-71
A2A6A17C17		CAPACITOR, FIXED, CERAMIC: 120 pF ±2%, 500 Vdc working; MIL type CMR04F121GPDM.	7-71
A2A6A17C18		CAPACITOR, FIXED, MICA: 82 pF ±2%, 500 Vdc working; MIL type CMR04E820GPDM.	7-71
A2A6A17C19 thru A2A6A17C21		CAPACITOR: Item 7.	7-71
A2A6A17C22		Not used.	
A2A6A17C23		CAPACITOR: Item 10.	7-71
A2A6A17C24		Not used.	
A2A6A17C25 thru A2A6A17C27		CAPACITOR: Item 7.	7-71
A2A6A17C28		CAPACITOR: Item 9.	7-71

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A17C29 thru A2A6A17C32		CAPACITOR: Item 7.	7-7
A2A6A17C33		CAPACITOR, FIXED, ELECTROLYTIC: 1 uF ±20%, 50 Vdc working; MIL type M39003/01-2357.	7-71
A2A6A17C34		CAPACITOR: Item 9.	7-71
A2A6A17C35		CAPACITOR, FIXED, CERAMIC: 390 pF ±10%, 200 Vdc working; MIL type M39014/01-1230.	7-71
A2A6A17C36		CAPACITOR, FIXED, ELECTROLYTIC: 1 uF ±20%, 50 Vdc working; MIL type M39003/01-2357.	7-71
A2A6A17CR1		SEMICONDUCTOR DEVICE, DIODE: Mfr 98738, dwg 48P228591.	7-71
A2A6AA17E1 thru A2A6A17E4		Not used.	
A2A6A17E5 and A2A6A17E6		TERMINAL, TURRET: Mfr 98738, dwg 29P239053-21-11.	7-71
A2A6A17L1 and A2A6A17L2		Not used.	
A2A6A17L3		COIL, RF: 0.68 uH; MIL type MS75083-11.	7-71
A2A6A17L4		COIL, RF: 0.82 uH; MIL type MS75083-12.	7-71
A2A6A17L5		COIL, RF: 0.68 uH; MIL type MS75083-11.	7-71
A2A6A17L6		COIL, RF: 0.82 uH; MIL type MS75083-12.	7-71
A2A6A17L7		COIL, RF: 0.68 uH; MIL type MS75083-11.	7-71
A2A6A17L8		COIL, RF: 1 uH; MIl type MS75083-13.	7-71
A2A6A17L9		Not used.	
A2A6A27L10		COIL, RF: 0.33 uH; MIL type MS75087-7.	7-71
A2A6A17MP1 and A2A6A17MP2		EJECTOR, CIRCUIT CARD: Item 24.	7-71
A2A6A17P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 1.534 in. long; 0.329 in. w, 0.494 in. thk; mfr 71785, part no. DBM153513-1363, 98738, dwg 09P226666-01. (Attaching Parts) AG(2) AL(2) CQ(2) DS(2)	7-71
A2A6A17P1A1 and A2A6A17P1A2		PLUG, CONNECTOR: 0.929 in. long; mfr 71785, part no. DM53740-5001, 98738, dwg 09P226565-17.	7-71
A2A6A17Q1 thru A2A6A17Q5		TRANSISTOR: Item 54.	7-71

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A17Q6 and A2A6A17Q7		TRANSISTOR: MIL type JAN2N2369A.	7-71
A2A6A17Q8		TRANSISTOR: MIL type JAN2N2907A.	7-71
A2A6A17R1		RESISTOR: Item 29.	7-71
A2A6A17R2		RESISTOR: Item 31.	7-71
A2A6A17R3		RESISTOR, FIXED, COMPOSITION: 910 ohms ±5%, 1/4 w; MIL type RCR07G911JS.	7-71
A2A6A17R4		RESISTOR, FIXED, COMPOSITION: 390 ohms ±5%, 1/4 w; MIL type RCR07G391JS.	7-71
A2A6A17R5		RESISTOR: Item 45.	7-71
A2A6A17R6		RESISTOR: Item 39.	7-71
A2A6A17R7		RESISTOR: Item 45.	7-71
A2A6A17R8		RESISTOR, FIXED, COMPOSITION: 22K ohms ±5%, 1/4 w; MIL type RCR07G223JS.	7-71
A2A6A17R9		RESISTOR, FIXED, COMPOSITION: 200 ohms ±5%, 1/4 w; MIL type RCR07G201JS.	7-71
A2A6A17R10		RESISTOR, VARIABLE, WIRE-WOUND: 1000 ohms ±5%, 3/4 w; 27 Vdc working; MIL type M39015/3-007XM.	7-71
A2A6A17R11		RESISTOR: Item 34.	7-71
A2A6A17R12 and A2A6A17R13		RESISTOR, FIXED, COMPOSITION: 300 ohms ±5%, 1/4 w; MIL type RCR07G301JS.	7-71
A2A6A17R14		RESISTOR: Item 30.	7-71
A2A6A18R15		RESISTOR: Item 31.	7-71
A2A6A17R16		RESISTOR: Item 32.	7-71
A2A6A17R17		RESISTOR: Item 31.	7-71
A2A6A17R18 thru A2A6A17R21		Not used.	
A2A6A17R22 thru A2A6A17R27		RESISTOR: Item 31.	7-71
A2A6A17R28 and A2A6A17R29		RESISTOR: Item 39.	7-71
A2A6A17R30		RESISTOR: Item 31.	7-71
A2A6A17R31		RESISTOR, FIXED, COMPOSITION: 200 ohms ±5%, 1/4 w; MIL type RCR07G201JS.	7-71
A2A6A17R32		RESISTOR: Item 29.	7-71
A2A6A17R33		RESISTOR, FIXED, COMPOSITION: 430 ohms ±5%, 1/4 w; MIL type RCR07G431JS.	7-71
A2A6A17R34		RESISTOR: Item 29.	7-71
A2A6A17R35		RESISTOR, FIXED, COMPOSITION: 390 ohms ±5%, 1/4 w; MIL type RCR07G391JS.	7-71

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A17R36		RESISTOR: Item 34.	7-71
A2A6A17TP1		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 17.	7-71
A2A6A17TP2		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 18.	7-71
A2A6A17TP3		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 19.	7-71
A2A6A17U1		INTEGRATED CIRCUIT: Mfr 04713, part no. MC4344DCBS, 98738, dwg 48P226446-01.	7-71
A2A6A17U2 and A2A6A17U3		Not used.	
A2A6A17U4		INTEGRATED CIRCUIT: Mfr 04713, part no. MC12513DEBS, 98738, dwg 48P226458-01.	7-71
A2A6A17U5		INTEGRATED CIRCUIT: Mfr 04713, part no. MC12514DEBS, 98738, dwg 48P226459-01.	7-71
A2A6A17U6 thru A2A6A17U8		INTEGRATED CIRCUIT: Mfr 98738, part no. 48P228370-01.	7-71
A2A6A17W1		ASSEMBLY, COAXIAL: 4.62 in. long; mfr 98738, part no. 30A228383-17.	7-71
A2A6A17W2		ASSEMBLY, COAXIAL: 3.38 in. long; mfr 98738, part no. 30A228383-18.	7-71
A2A6A17A1		VCO ASSEMBLY: Mfr 98738, part no. 01A226758-21-11.	7-71
A2A6A18		10 kHz/1 kHz/100 Hz NO. 1 CIRCUIT CARD ASSEMBLY: Mfr 98738, part no. 01A228324-01.	7-72
A2A6A18C1		CAPACITOR: Item 10.	7-72
A2A6A18C2 thru A2A6A18C12		CAPACITOR: Item 7.	7-72
A2A6A18C13		CAPACITOR: Item 9.	7-72
A2A6A18L1		COIL, RF: 0.33 uH; MIL type MS75087-7.	7-72
A2A6A18MP1 and A2A6A18MP2		EJECTOR, CIRCUIT CARD: Item 24.	7-72

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A18P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 1.534 in. long, 0.329 in. w, 0.494 in. thk; 25330, part no. GBM53513-1363, mfr 98738, dwg 09P226666-01. (Attaching Parts) CQ(2) AG(2) AF(2) DS(2)	7-72
A2A6A18P1A1 and A2A6A18P1A2		PLUG, CONNECTOR: 0.929 in. long; mfr 71785, part no. DM53740-5001, 98738, dwg 09P226565-17.	7-72
A2A6A18Q1 thru A2A6A18Q8		TRANSISTOR: Item 54.	7-72
A2A6A18R1		RESISTOR: Item 32.	7-72
A2A6A18R2 and A2A6A18R3		RESISTOR, FIXED, COMPOSITION: 5,100 ohms ±5%, 1/4 w; MIL type RCR07G512JS.	7-72
A2A6A18R4		RESISTOR: Item 32.	7-72
A2A6A18R5 and A2A6A18R6		RESISTOR, FIXED, COMPOSITION: 5,100 ohms ±5%, 1/4 w; MIL type RCR07G512JS.	7-72
A2A6A18R7		RESISTOR: Item 32.	7-72
A2A6A18R8 and A2A6A18R9		RESISTOR, FIXED, COMPOSITION: 5,100 ohms ±5%, 1/4 w; MIL type RCR07G512JS.	7-72
A2A6A18R10		RESISTOR: Item 32.	7-72
A2A6A18R11 and A2A6A18R12		RESISTOR, FIXED, COMPOSITION: 5,100 ohms ±5%, 1/4 w; MIL type RCR07G512JS.	7-72
A2A6A18R13 thru A2A6A18R26		RESISTOR: Item 31.	7-72
A2A6A18TP1		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 17.	7-72
A2A6A18TP2		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 18.	7-72
A2A6A18U1		INTEGRATED CIRCUIT: Mfr 04713, part no. MC12513DEBS, 98738, dwg 48P226458-01.	7-72
A2A6A18U2		INTEGRATED CIRCUIT: Mfr 04713, part no. MC12514DEBS, 98738, dwg 48P226459-01.	7-72
A2A6A18U3 thru A2A6A18U7		INTEGRATED CIRCUIT: Mfr 98738, part no. 48P228370-01.	7-72
A2A6A18U8 thru A2A6A18U10		INTEGRATED CIRCUIT: Mfr 34371, part no. HM1-7603-8, 98738, dwg 48P228344-01.	7-72

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A18W1		ASSEMBLY, COAXIAL: 4.00 in. long; mfr 98738, part no. 30A228383-06.	7-72
A2A6A18W2		ASSEMBLY, COAXIAL: 3.75 in. long; mfr 98738, part no. 30A228383-07.	7-72

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

CODE GENERATOR ASSEMBLY A2A7

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A7		CODE GENERATOR ASSEMBLY: 5.14 in. long, 3.4 in. w; 1.864 in. h; mfr 98738, part no. 01A228515-06. (Attaching Parts) AB(2) M(2)	7-73
A2A7MP1 and A2A7MP2		SHAFT, SWITCH: 1.76 in. long, 2.49 in. dia; cres; mfr 58189, part no. 47A228546-01. (Attaching Parts) DU(1) FD(2)	7-73
A2A7MP3 and A2A7MP4		DISK, COUPLING: Cres, 0.750 in. dia, 0.284 in. thk; mfr 58189, part no. 42P228545-01. (Attaching Parts) EV(2)	7-73
A2A7MP5 and A2A7MP6		Not used.	
A2A7MP7 and A2A7MP8		WASHER, SPRING TENSION: 0.495 in. OD, 0.254 in. ID, 0.010 in. thk; spring steel cadmium plated; mfr 58189, part no. 04R133220-03.	7-73
A2A7MP9		PLATE, SWITCH, MOUNTING: 5.14 in. long, 3.40 in. w, 0.090 in. thk; aluminum alloy sheet; mfr 58189, part no. 64A228544-01. (Attaching Parts) M(2) DC(5) K(5)	7-73
A2A7MP10		SCREW, CAPTIVE: 0.375 in. long, 0.094 in. dia; mfr 98738, part no. 03P226506-21-11.	7-73
A2A7MP11		Not used.	
A2A7MP12 and A2A7MP13		SCREW, PAN HEAD: MIL type MS51957-37. (Attaching Parts) K(1) M(1) DC(1)	7-73
A2A7MP14 thru A2A7MP16		SCREW, PAN HEAD: MIL type MS51957-36. (Attaching Parts) K(1) M(1) DC(1)	7-73
A2A7MP17 thru A2A7MP21		SPACER, TUBULAR: Aluminum alloy; 0.165 in. OD, 0.144 in. ID, 0.125 in. long; mfr 98738, part no. 43P226507-23-11.	7-73
A2A7MP22 thru A2A7MP40		SPACER, TUBULAR: Aluminum alloy; 0.250 in. OD, 0.148 in. ID, 0.186 in. long; mfr 98738, part no. 43P226507-21-11.	7-73
A2A7MP41		SPACER, TUBULAR, INSULATED: Nylon; 0.250 in. OD, 0.152 in. ID, 0.186 in. long; mfr 98738, part no. 43P226508-21-11.	7-73
A2A7MP42 thru A2A7MP46		SPACER, INSULATED: Laminated glass cloth; 1.750 in. OD, 0.255 in. ID, 0.031 in. thk; mfr 58189, part no. 43P228543-01.	7-73
A2A7MP47 and A2A7MP48		WASHER, FLAT: Cres; 0.562 in. OD, 0.257 in. ID, 0.012 in. thk; mfr 58189, part no. 04S111215-86.	7-73

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

CODE GENERATOR ASSEMBLY A2A7

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A7MP49		CABLE, FLEX: Mfr 98738, part no. 84P228380-01.	7-73
A2A7MP50		SHIELD, FLEX CABLE: 3.50 in. long, 1.281 in. w, 0.03 in. thk; mfr 98738, part no. 26A228652-01.	7-73
A2A7P1		CONNECTOR, PLUG, ELECTRICAL: MIL type M24308/24-3.	7-73
A2A7S1 and A2A7S2		Not used.	
A2A7S3 and A2A7S4		See switch assemblies A2A7A1 thru A2A7A5.	
A2A7A1	*	SWITCH ASSEMBLY: 5.0 in. long, 2.74 in. w, 0.60 in. thk; mfr 98738, part no. 01A228516-01.	7-73
A2A7A2	*	SWITCH ASSEMBLY: 5.0 in. long, 2.74 in. w, 0.60 in. thk; mfr 98738, part no. 01A228530-01.	7-73
A2A7A3	*	SWITCH ASSEMBLY: 5.0 in. long, 2.74 in. w, 0.60 in. thk; mfr 98738, part no. 01A228533-01.	7-73
A2A7A4	*	SWICH ASSEMBLY: 5.0 in. long, 2.74 in. w, 0.60 in. thk; mfr 98738, part no. 01A228536-01.	7-73
A2A7A5	*	SWITCH ASSEMBLY: 5.0 in. long, 2.74 in. w, 0.60 in. thk; mfr 98738, part no. 01A228539-01.	7-73
		* A2A7S3 and A2A7S4 are identified in Figure 7-73 for reference only.	

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

CODE GENERATOR ASSEMBLY A2A7 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A7		CODE GENERATOR ASSEMBLY: 5.14 in. long, 3.4 in. w; 1.864 in. h; mfr 98738, part no. 01A226054-22-11. (Attaching Parts) AB(2) M(2)	7-73
A2A7MP1 and A2A7MP2		SHAFT, SWITCH: 1.76 in. long, 2.49 in. dia; cres; mfr 58189, part no. 666231-235. (Attaching Parts) DU(1) FD(2)	7-73
A2A7MP3 and A2A7MP4		DISK, COUPLING: Cres, 0.750 in. dia, 0.284 in. thk; mfr 58189, part no. 666231-236. (Attaching Parts) EV(2)	7-73
A2A7MP5 and A2A7MP6		Not used.	
A2A7MP7 and A2A7MP8		WASHER, SPRING TENSION: 0.495 in. OD, 0.254 in. ID, 0.010 in. thk; spring steel cadmium plated; mfr 58189, part no. 688017-026.	7-73
A2A7MP9		PLATE, SWITCH, MOUNTING: 5.14 in. long, 3.40 in. w, 0.090 in. thk; aluminum alloy sheet; mfr 58189, part no. 666273-014. (Attaching Parts) M(2) DC(5) K(5)	7-73
A2A7MP10		SCREW, CAPTIVE: 0.375 in. long, 0.094 in. dia; mfr 98738, part no. 03P226506-21-11.	7-73
A2A7MP11		CLAMP, CABLE: 0.290 in. ID, 0.375 in. w, mfr 09922, part no. HP5N, 58189, dwg 540201-005.	7-73
A2A7MP12		SCREW, PANHEAD: MIL type MS51957-37. (Attaching Parts) D(1) M(1) DC(1)	7-73
A2A7MP13 thru A2A7MP16		SCREW, PANHEAD: MIL type MS51957-36. (Attaching Parts) K(1) DC(1) M(1)	7-73
A2A7MP17 thru A2A7MP21		SPACER, TUBULAR: Aluminum alloy; 0.165 in. OD, 0.144 in. ID, 0.125 in. long; mfr 98738, part no. 43P226507-23-11.	7-73
A2A7MP22 thru A2A7MP40		SPACER, TUBULAR: Aluminum alloy; 0.250 in. OD, 0.148 in. ID, 0.186 in. long; mfr 98738, part no. 43P226507-21-11.	7-73
A2A7MP41		SPACER, TUBULAR, INSULATED: Nylon; 0.250 in. OD, 0.152 in. ID, 0.186 in. long; mfr 98738, part no. 43P226508-21-11.	7-73
A2A7MP42 thru A2A7MP46		SPACER, INSULATED: Laminated glass cloth; 1.750 in. OD, 0.255 in. ID, 0.031 in. thk; mfr 58189, part no. 666273-067.	7-73
A2A7MP47 and A2A7MP48		WASHER, FLAT: Cres; 0.562 in. OD, 0.257 in. ID, 0.012 in. thk; mfr 58189, part no. 688001-028.	7-73
A2A7P1		CONNECTOR, PLUG, ELECTRICAL: MIL type M24308/3-3.	7-73

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

CODE GENERATOR ASSEMBLY A2A7 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A7S1 and A2A7S2		Not used.	
A2A7S3 and A2A7S4		See switch assemblies A2A7A1 thru A2A7A5.	
A2A7A1	*	SWITCH ASSEMBLY: 5.0 in. long, 2.74 in. w, 0.60 in. thk; mfr 98738, part no. 01A226501-21-11.	7-73
A2A7A2	*	SWITCH ASSEMBLY: 5.0 in. long, 2.74 in. w, 0.60 in. thk; mfr 98738, part no. 01A226500-21-11.	7-73
A2A7A3	*	SWITCH ASSEMBLY: 5.0 in. long, 2.74 in. w, 0.60 in. thk; mfr 98738, part no. 01A226502-21-11.	7-73
A2A7A4	*	SWITCH ASSEMBLY: 5.0 in. long, 2.74 in. w, 0.60 in. thk; mfr 98738, part no. 01A226503-21-11.	7-73
A2A7A5	*	SWITCH ASSEMBLY: 5.0 in. long, 2.74 in. w, 0.60 in. thk; mfr 98738, part no. 01A226504-21-11.	7-73
		* A2A7S3 and A2A7S4 are identified in Figure 7-73 for reference only.	

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

POWER SUPPLY, TRANSMITTER A2A8

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A8		POWER SUPPLY, TRANSMITTER CIRCUIT CARD ASSEMBLY: 4.06 in. long, 3.56 in. w, 0.62 in. thk; mfr 98738, part no. 01A226181-22-11. (Attaching Parts) DZ(4)	7-74
A2A8C1 and A2A8C2		CAPACITOR: Item 12.	7-74
A2A8C3		CAPACITOR, FIXED, ELECTROLYTIC: 6.8 uF ±20%, 35 Vdc working; MIL type M39003/01-2305.	7-74
A2A8C4		CAPACITOR, FIXED, CERAMIC: 0.1 uF ±10%, 100 Vdc working; MIL type M39014/02-1310.	7-74
A2A8C5		CAPACITOR, FIXED, ELECTROLYTIC: 15 uF, ±20%, 50 Vdc working; MIL type M39003/1-2378.	7-74
A2A8C6		CAPACITOR: Item 12.	7-74
A2A8C7		CAPACITOR, FIXED, ELECTROLYTIC: 10 uF, ±20%, 75 Vdc working; MIL type M39003/01-2419.	7-74
A2A8C8		CAPACITOR, FIXED, ELECTROLYTIC: 15 uF, ±20%, 50 Vdc working; MIL type M39003/01-2378.	7-74
A2A8C9		CAPACITOR: Item 12.	7-74
A2A8C10 and A2A8C11		CAPACITOR, FIXED, ELECTROLYTIC: 47 uF, ±20%, 35 Vdc working; MIL type M39003/1-2313.	7-74
A2A8CR1 thru A2A8CR4		SEMICONDUCTOR DEVICE, DIODE: Item 50.	7-74
A2A8CR5 thru A2A8CR8		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N5550.	7-74
A2A8CR9		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N4245.	7-74
A2A8CR10		SEMICONDUCTOR DEVICE, DIODE: Item 49.	7-74
A2A8CR11		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N5711.	7-74
A2A8CR12		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N963B.	7-74
A2A8CR13		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N825.	7-74
A2A8MP1		HEAT SINK: Aluminum alloy, anodic coating; 0.500 in. dia, 0.375 in. long; mfr 18915, part no. 3AL697-2R, 06845, dwg 4032573-0701.	7-74
A2A8MP2 thru A2A8MP5		STRAP, TIEDOWN: MS3367-4-9.	7-74
A2A8Q1		TRANSISTOR: MIL type JAN2N5415, or JAN2N3634.	7-74
A2A8Q2		TRANSISTOR: MIL type JAN2N2219A.	
A2A8R1		RESISTOR, FIXED, WIRE-WOUND: 180 ohms, ±1%, 2 w; MIL type RWR80S1800FM.	7-74

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

POWER SUPPLY, TRANSMITTER A2A8

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A8R2		RESISTOR: Item 42.	7-74
A2A8R3		RESISTOR, FIXED, COMPOSTION: 3K ohms, ±5%, 1/4 w; MIL type RCR07G302JS.	7-74
A2A8R4		RESISTOR, FIXED, COMPOSITION: 470 ohms, ±5%. 1/4 w; MIL type RCR07G471JS.	7-74
A2A8R5		RESISTOR, FIXED, COMPOSITION: 680 ohms, ±5%, 1/4 w; MIL type RCR07G681JS.	7-74
A2A8R6 and A2A8R7		RESISTOR, FIXED, FILM: 4640 ohms, ±1%, 1/8 w; MIL type RNC55J4641FM.	7-74
A2A8R8		RESISTOR: Item 31.	7-74
A2A8R9		RESISTOR, FIXED, FILM: 1500 ohms, ±1%, 1/4 w; MIL type RNC65J1501FM.	7-74
A2A8R10		RESISTOR, VARIABLE, WIRE-WOUND: 500 ohms ±5%, 3/4 w; MIL type M39015/1-003PM.	7-74
A2A8R11		RESISTOR, FIXED, FILM: 332 ohms, ±1%, 1/8 w; MIL type RNC55J3320FM.	7-74
A2A8R12		RESISTOR: Item 46.	7-74
A2A8R13		RESISTOR, FIXED, COMPOSITION: 560 ohms, ±5%, 1/4 w; MIL type RCR07G561JS.	7-74
A2A8R14		RESISTOR, FIXED, COMPOSITION: 180 ohms, ±5%, 1 w; MIL type RCR32G181JS.	7-74
A2A8R15		RESISTOR, FIXED, FILM: 160 ohms, ±5%, 1/8 W; MIL type RLR32C1600GM.	7-74
A2A8R16		RESISTOR, FIXED, COMPOSITION: 220 ohms, ±5%, 1 w; MIL type RCR32G221JS.	7-74
A2A8R17		RESISTOR, FIXED, FILM: 3830 ohms ±1%, 1/8 w; MIL type RNC55J3831FM.	7-74
A2A8R18		RESISTOR, FIXED, FILM: 1210 ohms ±1%, 1/8 w; MIL type RNC55J1211FM.	7-74
A2A8U1		INTEGRATED CIRCUIT: MIL type JAN2N2060.	7-74

Table 7-2. Radio Transmitter T-827H/URT Parts List (Continued)

RATT TONE GENERATOR ASSEMBLY A2A9

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A9		RATT TONE GENERATOR ASSEMBLY: 5.25 in. long, 4.50 in. w; mfr 98738, part no. 01A228075-01. (Attaching Parts) CE(2)	7-75
A2A9MP1		COVER: Aluminum alloy; 5.17 in. long, 4.5 in. w; mfr 98738, part no. 15P228095-01.	7-75
A2A9MP2		HOUSING: 5.2 in. long, 4.6 in. w; mfr 98738, part no. 15A228094-01.	7-75
A2A9A1		RATT TONE GENERATOR CIRCUIT CARD ASSEMBLY: 4.60 in. long, 3.92 in. w, 0.60 in. thk; mfr 98738, part no. 01A228079-01. (Attaching Parts) AF(5), AL(5), AS(5)	7-76
A2A9A1C1		CAPACITOR: Item 9.	7-76
A2A9A1C2 thru A2A9A1C4		CAPACITOR: Item 7.	7-76
A2A9A1C5		CAPACITOR, FIXED, ELECTROLYTIC: 6.8 uF ±10%, 35 Vdc working; MIL type M39003/01-2304.	7-76
A2A9A1C6		CAPACITOR: Item 7.	7-76
A2A9A1CR1 and A2A9A1CR2		SEMICONDUCTOR DEVICE, DIODE: Item 50.	7-76
A2A9A1CR3		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N3016B.	7-76
A2A9A1CR4		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N4106.	7-76
A2A9A1P1		CONNECTOR, PLUG, ELECTRICAL: 1.20 in. long, 0.65 in. w; mfr 71785, part no. DEM535-1287; 98738, dwg 09P226666-04.	7-76
A2A9A1Q1		TRANSISTOR: MIL type JAN2N2222A.	7-76
A2A9A1Q2		TRANSISTOR: MIL type JAN2N2369A.	7-76
A2A9A1Q3 and A2A9A1Q4		TRANSISTOR: MIL type JAN2N2907A.	7-76
A2A9A1R1 thru A2A9A1R3		RESISTOR: Item 31.	7-76
A2A9A1R4		RESISTOR: Item 30.	7-76
A2A9A1R5		RESISTOR: Item 31.	7-76
A2A9A1R6		RESISTOR, FIXED, COMPOSITION: 330 ohms ±5%, 1/4 w; MIL type RCR07G331JS.	7-76
A2A9A1R7		RESISTOR, FIXED, COMPOSITION: Item 46.	7-76
A2A9A1R8		RESISTOR: Item 39.	7-76

Table 7-2. Radio Transmitter T-827H/URT Parts List (Continued)

RATT TONE GENERATOR ASSEMBLY A2A9

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A9A1R9		RESISTOR, FIXED, COMPOSITION: 51 ohms ±5%, 1/4 w; MIL type RCR07G510JS.	7-76
A2A9A1R10		RESISTOR, FIXED, COMPOSITION: 1500 ohms ±5%, 1/4 w; MIL type RCR07G152JS.	7-76
A2A9A1R11		RESISTOR, FIXED, COMPOSITION: 360 ohms ±5%, 1/4 w; MIL type RCR07G361JS.	7-76
A2A9A1R12 and A2A9A1R13		RESISTOR: Item 32.	7-76
A2A9A1R14		RESISTOR: ITEM 40.	7-76
A2A9A1R15		RESISTOR, FIXED, COMPOSITION: 470 ohms ±5%, 1/4 w; MIL type RCR07G471JS.	7-76
A2A9A1R16		RESISTOR: Item 31.	7-76
A2A9A1R17		RESISTOR, FIXED, COMPOSITION: 6200 ohms ±5%, 1/4 w; MIL type RCR07G622JS.	7-76
A2A9A1R18		RESISTOR: Item 31.	7-76
A2A9A1R19 and A2A9A1R20		RESISTOR: Item 32.	7-76
A2A9A1R21 and A2A9A1R22		RESISTOR: Item 39.	7-76
A2A9A1R23 and A2A9A1R24		RESISTOR, FIXED, COMPOSITION: 300 ohms ±5%, 1/4 w; MIL type RCR07G301JS.	7-76
A2A9A1R25		RESISTOR, FIXED, COMPOSITION: 3,000 ohms ±5%, 1/4 w; MIL type RCR07G302JS.	7-76
A2A9A1T1		TRANSFORMER, AUDIO: Primary impedance 600 ohms, secondary 300 ohms; mfr 31669, part no. 2735, 98738, dwg 25P228302-01.	7-76
A2A9A1TP1		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 17.	7-76
A2A9A1TP2		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 18.	7-76
A2A9A1TP3		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 19.	7-76
A2A9A1TP4		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: MIL type M39024/18-02.	7-76
A2A9A1TP5		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: MIL type M39024/18-07.	7-76
A2A9A1U1		OPTOELECTRONIC COUPLER: MIL type JAN4N22.	7-76
A2A9A1U2 thru A2A9A1U4		INTEGRATED CIRCUIT: Mfr 34333, part no. BCL4522BD, 98738, dwg 48P228316-01.	7-76
A2A9A1U5		INTEGRATED CIRCUIT: MIL type M38510/05101BCB.	7-76
A2A9A1U6		INTEGRATED CIRCUIT: MIL type M38510/17001BCB.	7-76

Table 7-2. Radio Transmitter T-827H/URT Parts List (Continued)

METER AMPLIFIER ASSEMBLY A2A10

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A10		METER AMPLIFIER ASSEMBLY: 1.50 in. long, 1.50 in. w, 0.41 in. thk; mfr 98738, part no. 01A226180-21-11. (Attaching Parts) AF(2) AU(2) AL(2)	7-77
A2A10C1		CAPACITOR: Item 11.	7-77
A2A10C2		CAPACITOR, FIXED, ELECTROLYTIC: 1.0 uF, ±20%, 50 Vdc working; MIL type M39003/01-2357.	7-77
A2A10C3		CAPACITOR: Item 11.	7-77
A2A10Q1		TRANSISTOR: MIL type JAN2N2905A.	7-77
A2A10R1		RESISTOR: Item 30.	7-77
A2A10R2		RESISTOR, FIXED, FILM: 3600 ohms, ±2%, 1/4 w; MIL type RLR07C3601GR.	7-77
A2A10R3		RESISTOR, FIXED, FILM: 510 ohms, ±2%, 1/4 w; MIL type RLR07C5100GR.	7-77
A2A10R4		RESISTOR: Item 41.	7-77
A2A10R5		RESISTOR: Item 32.	7-77
A2A10R6		RESISTOR, FIXED, COMPOSITION: 560 ohms ±5%, 1/4 w; MIL type RCR07G561JS.	7-77
A2A10R7		RESISTOR, FIXED, COMPOSITION: 27K ohms ±5%, 1/4 w; MIL type RCR07G273JS.	7-77
A2A10R8		RESISTOR: Item 43.	7-77
A2A10R9		RESISTOR, FIXED, FILM: 3600 ohms ±2%, 1/4 w; MIL type RLR07C3601GR.	7-77
A2A11		Same as A2A10.	7-77

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSMITTTER IF AMPLIFIER ASSEMBLY A2A12

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A12		TRANSMITTER IF AMPLIFIER ASSEMBLY: 3.906 in. long, 4.50 in. w, 0.494 in. h; mfr 98738, part no. 01A228012-01. (Attaching Parts) CE(2)	7-78
A2A12MP1		COVER: Aluminum alloy; 4.270 in. long, 4.240 in. w; 0.032 in. thk; mfr 06845, part no. 4032206-0501.	7-78
A2A12MP2		COVER: Aluminum alloy; 4.270 in. long, 4.240 in. w; 0.032 in. thk; mfr 06845, part no. 4032206-0502. (Attaching Parts) AS(2) CW(2)	7-78
A2A12MP3 and A2A12MP4		Not used.	
A2A12MP5 thru A2A12MP9		BUSHING: Nylon; 0.312 in. dia, 0.120 in. long; mfr 06845, part no. 4032106-0001.	7-78
A2A12A1		IF AMPLIFIER ASSEMBLY: 4.10 in. long, 3.46 in. w; 0.060 in. thk; mfr 98738, part no. 01A228013-01. (Attaching Parts) AL(4), AS(4), CW(4)	7-79
A2A12A1C1		CAPACITOR, FIXED, MICA: 1200 pF ±5%, 500 Vdc working; MIL type CMR06F122JPDM.	
A2A12A1C2 thru A2A12A1C4		CAPACITOR: Item 58.	7-79
A2A12A1C5		CAPACITOR, FIXED, MICA: 1200 pF ±5%, 500 Vdc working; MIL type CMR06F122JPDM.	7-79
A2A12A1C6 and A2A12A1C7		CAPACITOR: Item 58.	7-79
A2A12A1C8 and A2A12A1C9		CAPACITOR: Item 4.	7-79
A2A12A1C10 thru A2A12A1C20		CAPACITOR: Item 58.	7-79
A2A12A1CR1		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N759A.	7-79
A2A12A1CR2		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N751A.	7-79
A2A12A1P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 2.088 in. long, 0.494 in. w, 0.426 in. thk; mfr 71785, part no. DBMME13W3P, 06845, dwg 09P226666-05. (Attaching Parts) F(2), AL(2), AS(2), CQ(2)	7-89

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSMITTER IF AMPLIFIER ASSEMBLY A2A12

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A12A1P1 A1 thru A2A12A1P1 A3		CONNECTOR, PLUG, ELECTRICAL: 0.734 in. long, 0.530 in. dia; mfr 71785, part no. 318-11-99-284, 06845, dwg 4032484-0730.	7-79
A2A12A1Q1		TRANSISTOR: MIL type JAN2N2907A.	7-79
A2A12A1Q2		TRANSISTOR: Item 55.	7-79
A2A12A1Q3		TRANSISTOR: Item 54.	7-79
A2A12A1Q4 and A2A12A1Q5		TRANSISTOR, FIELD EFFECT: Mfr 86684, part no. 3N200, 98738, dwg 48P239058-21-11.	7-79
A2A12A1Q6		TRANSISTOR: MIL type JAN2N2907A.	7-79
A2A12A1R1		RESISTOR: Item 31.	7-79
A2A12A1R2 and A2A12A1R3		RESISTOR, FIXED, COMPOSITION: 47K ohms ±5%, 1/4 w; MIL type RCR07G473JS.	7-79
A2A12A1R4		RESISTOR: Item 31.	7-79
A2A12A1R5		RESISTOR, FIXED, COMPOSITION: 6800 ohms ±5%, 1/4 w; MIL type RCR07G682JS.	7-79
A2A12A1R6		RESISTOR: Item 36.	7-79
A2A12A1R7		RESISTOR, FIXED, COMPOSITION: 5600 ohms ±5%, 1/4 w; MIL type RCR07G562JS.	7-79
A2A12A1R8		RESISTOR, FIXED, COMPOSITION: 1200 ohms ±5%, 1/4 w; MIL type RCR07G122JS.	7-79
A2A12A1R9		RESISTOR: Item 39.	7-79
A2A12A1R10		RESISTOR, FIXED, COMPOSITION: 1100 ohms ±5%, 1/4 w; MIL type RCR07G112JS.	7-79
A2A12A1R11		RESISTOR, FIXED, COMPOSITION: 6800 ohms ±5%, 1/4 w; MIL type RCR07G682JS.	7-79
A2A12A1R12		RESISTOR: Item 31.	7-79
A2A12A1R13 and A2A12A1R14		RESISTOR, FIXED, FILM: 47.5K ohms ±1%, 1/8 w; MIL type RNC55H4752FS.	7-79
A2A12A1R15		RESISTOR: Item 38.	7-79
A2A12A1R16		RESISTOR, FIXED, FILM: 10K ohms ±1%, 1/8 w; MIL type RNC55H1002FM.	7-79
A2A12A1R17		RESISTOR, FIXED, FILM: 15K ohms ±1%, 1/8 w; MIL type RNC55H1502FM.	7-79
A2A12A1R18 thru A2A12A1R20		RESISTOR: Item 31.	7-79
A2A12A1R21		RESISTOR, FIXED, COMPOSITION: 56K ohms ±5%, 1/4 w; MIL type RCR07G563JS.	7-79
A2A12A1R22		RESISTOR, FIXED, COMPOSITION: 39K ohms ±5%, 1/4 w; MIL type RCR07G393JS.	7-79
A2A12A1R23		RESISTOR, FIXED, COMPOSITION: 20 ohms ±5%, 1/4 w; MIL type RCR07G200JS.	7-79

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

TRANSMITTTER IF AMPLIFIER ASSEMBLY A2A12

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A12A1R24		RESISTOR, FIXED, COMPOSITION: 510 ohms ±5%, 1/4 w; MIL type RCR07G511JS.	7-79
A2A12A1R25		RESISTOR: Item 32.	7-79
A2A12A1R26		RESISTOR: Item 46.	7-79
A2A12A1R27		RESISTOR, VARIABLE, WIRE-WOUND: 5K ohms ±5%, 3/4 w; MIL type M39015/1-006YM.	7-79
A2A12A1R28		RESISTOR: Item 41.	7-79
A2A12A1R29		RESISTOR, FIXED, COMPOSITION: 3600 ohms ±5%, 1/4 w; MIL type RCR07G362JS.	7-79
A2A12A1R30		RESISTOR, FIXED, COMPOSITION: 270 ohms ±5%, 1/4 w; MIL type RCR07G271JS.	7-79
A2A12A1R31		RESISTOR, FIXED, COMPOSITION: 300 ohms ±5%, 1/4 w; MIL type RCR07G301JS.	7-79
A2A12A1R32		RESISTOR: Item 25.	7-79
A2A12A1R33		RESISTOR, FIXED, COMPOSITION: 39K ohms ±5%, 1/4 w; MIL type RCR07G393JS.	7-79
A2A12A1R34		RESISTOR, FIXED, COMPOSITION: 56K ohms ±5%, 1/4 w; MIL type RCR07G563JS.	7-79
A2A12A1R35 thru A2A12A1R37		RESISTOR, FIXED, COMPOSITION: 20 ohms ±5%, 1/4 w; MIL type RCR07G200JS.	7-79
A2A12A1R38		RESISTOR: Item 32.	7-79
A2A12A1R39		RESISTOR, VARIABLE, WIRE-WOUND: 20,000 ohms, 122 working volts; MIL type RTR22DW203M.	7-79
A2A12A1RT1		THERMISTOR: MIL type RTH42ES182J, 1800 ohms.	7-79
A2A12A1T1		TRANSFORMER, RF, VARIABLE: 500 kHz, capacitance 1200 pF, 0.42 in. dia; 0.61 in. h; mfr 93292, part no. 500-2355, 06845, dwg 4032537-0701.	7-79
A2A12A1T2		TRANSFORMER, RF, VARIABLE: 500 kHz; capacitance 1210 pF, 0.422 in. dia, 0.607 in. h; mfr 93292, part no. 500-2356, 06845, dwg 4032537-0702.	7-79
A2A12A1TP1		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 17.	7-79
A2A12A1TP2		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 18.	7-79
A2A12A1TP3		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 19.	7-79
A2A12A1TP4		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 20.	7-79
A2A12A1W1		CABLE ASSEMBLY, RF: 5.75 in. long; mfr 98738, part no. 30A226482-49-11.	7-79
A2A12A1W2 and A2A12A1W3		CABLE ASSEMBLY, RF: 3.75 in. long; mfr 98738, part no. 30A226482-50-11.	7-79

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

FILTER BOX, HANDSET A2A14

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A13		Not used.	
A2A14		FILTER BOX, HANDSET: 1.50 in. long, 1.32 in. w, 0.50 in. h; mfr 06845, part no. 4032454-0501.	7-80
A2A14C1 and A2A14C2		CAPACITOR, FIXED, CERAMIC: 3000 pF, ±20%, 500 Vdc working; 0.218 in. dia, 0.812 in. long; mfr 72982, part no. 2445-000, 06845, dwg 4031975-0701.	7-80
A2A14C3		CAPACITOR: Item 15.	7-80
A2A14C4		CAPACITOR, FIXED, MYLAR DIELECTRIC: 0.01 uF ±20%, 100 Vdc working; 0.42 in. long, 0.29 in. w, 0.17 in. thk; mfr 99515, part no. EP36D1, 06845, dwg 4032429-0701.	7-80
A2A14E1		TERMINAL, STUD: 0.250 in. dia, 0.610 in. long; mfr 71278, part no. 570-3650-01-01, 06845, dwg 4030495-0701. (Attaching Parts) AL(1), CJ(1)	7-80
A2A14L1		COIL, RF: 1.5 mH; 0.500 in. dia, 0.700 in. long; mfr 93292, part no. 500-2438, 06845, dwg 4032561-0701.	7-80

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

IF FILTER ASSEMBLY A2A15

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A15		IF FILTER CIRCUIT CARD ASSEMBLY: 2.25 in. long, 0.981 in. w, 0.68 in. thk; mfr 98738, part no. 01A228278-01. (Attaching Parts) AF(2) AL(2) AU(2)	7-81
A2A15C1		CAPACITOR: Item 15.	7-81
A2A15C2		CAPACITOR, FIXED, ELECTROLYTIC: MIL type M39003/01-2283; 2.2 uF ±10%, 20 Vdc.	7-81
A2A15C3		CAPACITOR, FIXED, ELECTROLYTIC: 100 uF ±20%, 20 Vdc working; MIL type M39003/01-2302.	7-81
A2A15CR1		SEMICONDUCTOR DEVICE, DIODE: Item 50.	7-81
A2A15CR2		SEMICONDUCTOR DEVICE, DIODE: Silicon; MIL type JAN1N4148-1.	7-81
A2A15E1		TERMINAL, STUD: Item 57.	7-81
A2A15E2 and A2A15E3		TERMINAL, STUD: MIL type SE12XC01.	7-81
A2A15E4 thru A2A15E7		TERMINAL, STUD: Item 57.	7-81
A2A15E8		TERMINAL, STUD: MIL type SE12XC01.	7-81
A2A15E9 and A2A15E10		TERMINAL, STUD: Item 57.	7-81
A2A15E11 thru A2A15E14		TERMINAL, STUD: MIL type SE12XC01.	7-81
A2A15L1		COIL, RF: 1500 uH; Q49 at 250 kHz; MIL type MS75089-25.	7-81
A2A15MP1 and A2A15MP2		POST MOUNTING: 0.250 in. dia, 0.96 in. long; mfr 06845, part no. 4032144-0001. (Attaching Parts) AK(2)	7-81
A2A15R1 and A2A15R2		RESISTOR, FIXED, COMPOSITION: 33 ohms ±5%, 1/2 w; MIL type RCR20G330JM.	7-81
A2A16 thru A2A20		Not used.	

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

AUDIO INTERCONNECT P.C.B. ASSEMBLY A2A21

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A21		AUDIO INTERCONNECT BOARD ASSEMBLY: 4.02 in. long, 2.10 in. w; mfr 98738, part no. 01A228136-01. (Attaching Parts) GY(2) M(2) AB(2) AU(2) AF(2) AL(6)	7-4, 7-82
A2A21CR1		SEMICONDUCTOR DEVICE, DIODE: Item 50.	7-82
A2A21E1 thru A2A21E42		TERMINAL: Solder only.	7-82
A2A21E43 thru A2A21E50		TERMINAL, TURRET: 0.176 in. long, 0.062 in. dia; mfr 88245, part no. 2031B-1, 98738, dwg 29P239053-21-11.	7-82
A2A21K1 and A2A21K2		RELAY, MINIATURE, DPDT: MIL type M39016/9-018L.	7-82
A2A21R1		RESISTOR, FIXED, COMPOSITION: 20K ohms ±5%, 1/4 w; MIL type RCR07G203JS.	7-82
A2A21T1 and A2A21T2		TRANSFORMER: 0.75 in. dia, 0.52 in. high, primary impedance 600 ohms ±10%, secondary impedance 30 ohms ±10%; mfr 31669, part no. 938, 98738, dwg 25P228212-01.	7-82
A2A21XA1 thru A2A21XA17		Not used.	
A2A21XA18 thru A2A21XA20		CONNECTOR, ELECTRICAL: MIL type M21097/21-139.	7-82
A2A21A1 thru A2A21A17		Not used.	
A2A21A18		AUDIO PROCESSOR ASSEMBLY: 4.5 in. long, 4.25 in. w; mfr 98738, part no. 01A228409-01.	7-83
A2A21A18C1 and A2A21A18C2		CAPACITOR: Item 60.	7-83
A2A21A18C3		CAPACITOR: Item 7.	7-83
A2A21A18C4 thru A2A21A18C6		Not used.	
A2A21A18C7		CAPACITOR: Item 11.	7-83
A2A21A18C8		CAPACITOR, FIXED, CERAMIC: 0.68 uF ±10%, 50 Vdc working; MIL type M39014/02-1405.	7-83
A2A21A18C9		CAPACITOR, FIXED, ELECTROLYTIC: 10 uF ±20%, 20 Vdc working; MIL type M39003/01-2287.	7-83
A2A21A18C10		CAPACITOR, FIXED, ELECTROLYTIC: 3.3 uF ±20%, 15 Vdc working; MIL type M39003/01-2269.	7-83

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

AUDIO INTERCONNECT P.C.B. ASSEMBLY A2A21

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A21A18C11 and A2A21A18C12		CAPACITOR: Item 60.	7-83
A2A21A18C13		CAPACITOR: Item 11.	7-83
A2A21A18C14 and A2A21A18C15		Not used.	
A2A21A18C16 and A2A21A18C17		CAPACITOR, FIXED, CERAMIC: 100 pF ±10%, 200 Vdc working; MIL type M39014/01-1219.	7-83
A2A21A18C18 thru A2A21A18C22		Not used.	
A2A21A18C23		CAPACITOR: Item 11.	7-83
A2A21A18C24		CAPACITOR, FIXED, ELECTROLYTIC: 15 uF ±20%, 30 Vdc working; MIL type M39006/09-8297.	7-83
A2A21A18CR1		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N5711.	7-83
A2A21A18CR2		SEMICONDUCTOR DEVICE, DIODE: Item 50.	7-83
A2A21A18CR3		SEMICONDUCTOR DEVICE, DIODE: Item 62.	7-83
A2A21A18E1 thru A2A21A18E8		TERMINAL, TURRET: 0.24 in. long, 0.06 in. dia; mfr 88245, part no. 2031B1, 98738, dwg no. 29P239053-21-11.	7-83
A2A21A18K1		RELAY, MINIATURE, DPDT: MIL type M39016/9-018L.	7-83
A2A21A18MP1 and A2A21A18MP2		EJECTOR: 1.10 in. long, 0.25 in. w; mfr 98738, part no. 07P228347-01.	7-83
A2A21A18MP3		PAD, TRANSISTOR: Nylon, 11/32 in. dia; mfr 13103, part no. 7717-5N, 98738, dwg 14S132171-39A-9.	7-83
A2A21A18Q1		TRANSISTOR: F.E.T. "P" channel; MIL type JAN2N2609.	7-83
A2A21A18Q2		TRANSISTOR: Item 55.	7-83
A2A21A18Q3		TRANSISTOR: Item 54.	7-83
A2A21A18Q4 and A2A21A18Q5		TRANSISTOR: MIL type JAN2N2907A.	7-83
A2A21A18R1 and A2A21A18R2		RESISTOR: Item 33.	7-83
A2A21A18R3		RESISTOR: Item 37.	7-83
A2A21A18R4		RESISTOR, VARIABLE, NON-WIRE WOUND: 500 ohms ±5%, 1/2 w; MIL type RJR24FX501M.	7-83
A2A21A18R5		RESISTOR, FIXED, COMPOSITION: 68K ohms ±5%, 1/4 w; MIL type RCR07G683JS.	7-83
A2A21A18R6		RESISTOR: Item 32.	7-83

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

AUDIO INTERCONNECT P.C.B. ASSEMBLY A2A21

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A21A18R7		RESISTOR: Item 34.	7-83
A2A21A18R8		RESISTOR, VARIABLE, NON-WIRE WOUND: 500 ohms ±5%, 1/2 w; MIL type RJR24FX501M.	7-83
A2A21A18R9		RESISTOR: Item 34.	7-83
A2A21A18R10		RESISTOR, FIXED, COMPOSITION: 220K ohms ±5%, 1/4 w; MIL type RCR07G224JS.	7-83
A2A21A18R11		RESISTOR, VARIABLE, NON-WIRE WOUND: 5000 ohms ±5%, 1/2 w; MIL type RJR24FX502M.	7-83
A2A21A18R12		RESISTOR, FIXED, COMPOSITION: 390K ohms ±5%, 1/4 w; MIL type RCR07G394JS.	7-83
A2A21A18R13		RESISTOR: Item 32.	7-83
A2A21A18R14		RESISTOR, VARIABLE, NON-WIRE WOUND: 10K ohms ±5%, 1/2 w; MIL type RJR24FX103M.	7-83
A2A21A18R15		RESISTOR: Item 33.	7-83
A2A21A18R16		RESISTOR, FIXED, FILM: 6650 ohms ±1%, 1/10 w; MIL type RNC55H6651FS.	7-83
A2A21A18R17		RESISTOR, FIXED, FILM: 3010 ohms ±1%, 1/10 w; MIL type RNC55H3011FS.	7-83
A2A21A18R18		RESISTOR: Item 37.	7-83
A2A21A18R19		RESISTOR: Item 32.	7-83
A2A21A18R20		RESISTOR, FIXED, COMPOSITION: 750 ohms ±5%, 1/4 w; MIL type RCR07G751JS.	7-83
A2A21A18R21		RESISTOR, FIXED, FILM: 3,320 ohms ±1%, 1/10 w; MIL type RNC55H3321FS.	7-83
A2A21A18R22		RESISTOR: Item 39.	7-83
A2A21A18R23		RESISTOR, FIXED, FILM: 6040 ohms ±1%, 1/10 w; MIL type RNC55H6041FS.	7-83
A2A21A18R24		RESISTOR: Item 31.	7-83
A2A21A18R25		RESISTOR, FIXED, FILM: 6.19K ohms ±1%, 1/10 w; MIL type RNC55H6191FS.	7-83
A2A21A18R26		RESISTOR, VARIABLE, NON-WIRE WOUND: 20K ohms ±5%, 1/2 w; MIL type RJR24FX203M.	7-83
A2A21A18R27		RESISTOR, FIXED, FILM: 6.19K ohms ±1%, 1/10 w; MIL type RNC55H6191FS.	7-83
A2A21A18R28		RESISTOR: Item 32.	7-83
A2A21A18R29		RESISTOR, FIXED, COMPOSITION: 510 ohms ±5%, 1/4 w; MIL type RCR07G511JS.	7-83
A2A21A18R30		RESISTOR, FIXED, COMPOSITION: 390 ohms ±5%, 1/4 w; MIL type RCR07G391JS.	7-83
A2A21A18R31		RESISTOR: Item 35.	7-83
A2A21A18R32		RESISTOR, FIXED, COMPOSITION: 750 ohms ±5%, 1/4 w; MIL type RCR07G751JS.	7-83
A2A21A18R33		RESISTOR, VARIABLE, NON-WIRE WOUND: 20K ohms ±5%, 1/2 w; MIL type RJR24FX203M.	7-83
A2A21A18R34		RESISTOR, FIXED, FILM: 665 ohms ±1%, 1/10 w; MIL type RNC55H6650FS.	7-83

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

AUDIO INTERCONNECT P.C.B. ASSEMBLY A2A21

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A21A18R35		RESISTOR: Item 30.	7-83
A2A21A18R36		RESISTOR: Item 37.	7-83
A2A21A18R37		RESISTOR: Item 32.	7-83
A2A21A18R38 thru A2A21A18R55		Not used.	
A2A21A18R56		RESISTOR, FIXED, FILM: 200K ohms ±5%, 1/4 w; MIL type RCR07G204JS.	7-83
A2A21A18RT1		RESISTOR, THERMAL: 26 ohms ±15%, mfr 08802, part no. 20404, 06845, dwg 4032495-0701.	7-83
A2A21A18T1		TRANSFORMER, AUDIO: Primary impedance 600 ohms, secondary 300 ohms; mfr 31669, part no. 2735, 98738, dwg 25P228302-01.	7-83
A2A21A18TP1		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 17.	7-83
A2A21A18TP2		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 18.	7-83
A2A21A18TP3		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 19.	7-83
A2A21A18TP4		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: MIL type M39024/18-02.	7-83
A2A21A18U1		INTEGRATED CIRCUIT: Operational amplifier; MIL type M38510/10102BCB.	7-83
A2A21A18U2		INTEGRATED CIRCUIT: Operational amplifier; MIL type M38510/10101BCB.	7-83
A2A21A19		Same as A2A21A18.	
A2A21A20		AUDIO CONTROL ASSEMBLY: 4.5 in. long, 4.25 in. w; mfr 98738, part no. 01A228406-01.	7-84
A2A21A20C1 thru A2A21A20C4		Not used.	
A2A21A20C5		CAPACITOR, ELECTROLYTIC: 2.2 uF ±10%, 20 Vdc working; MIL type M39003/01-2283.	7-84
A2A21A20C6		CAPACITOR: Item 9.	7-84
A2A21A20C7		CAPACITOR, FIXED, CERAMIC: 0.47 uF ±10%, 50 Vdc working; MIL type M39014/02-1240.	7-84
A2A21A20C8		CAPACITOR: Item 9.	7-84
A2A21A20C9		CAPACITOR, FIXED, CERAMIC: 0.47 uF ±10%, 50 Vdc working; MIL type M39014/02-1240.	7-84

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

AUDIO INTERCONNECT P.C.B. ASSEMBLY A2A21

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A21A20C10 and A2A21A20C11		Not used.	
A2A21A20C12 and A2A21A20C13		CAPACITOR: Item 9.	7-84
A2A21A20CR1		Not used.	
A2A21A20CR2 and A2A21A20CR3		SEMICONDUCTOR DEVICE, DIODE: Item 62.	7-84
A2A21A20CR4		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N747A.	7-84
A2A21A20CR5		SEMICONDUCTOR DEVICE, DIODE: Item 62.	7-84
A2A21A20CR6		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N5711.	7-84
A2A21A20CR7 thru A2A21A20 CR12		SEMICONDUCTOR DEVICE, DIODE: Item 62.	7-84
A2A21A20 CR13		Not used.	
A2A21A20 CR14 thru A2A21A20 CR18		SEMICONDUCTOR DEVICE, DIODE: Item 62.	7-84
A2A21A20 CR19		SEMICONDUCTOR DEVICE, DIODE: Item 50.	7-84
A2A21A20 CR20		SEMICONDUCTOR DEVICE, DIODE: Item 62.	7-84
A2A21A20 CR21		SEMICONDUCTOR DEVICE, DIODE: Item 50.	7-84
A2A21A20 CR22		Not used.	
A2A21A20 CR23		SEMICONDUCTOR DEVICE, DIODE: Zener, MIL type JAN1N4963.	7-84
A2A21A20K1 thru A2A21A20K3		RELAY: MIL type M39016/9-018L.	
A2A21A20MP1 and A2A21A20MP2		EJECTOR: 1.10 in. long, 0.25 in. w; mfr 98738, part no. 55P228347-01.	7-84
A2A21A20MP3 thru A2A21A20MP5		PAD, TRANSISTOR MOUNTING: Mfr 13103, part no. 7717-109DAP; 98738, dwg 14S132171-39A-9.	7-84
A2A21A20MP6 and A2A21A20MP7		HEAT SINK: 0.62 in. dia, 0.72 in. long; mfr 07556, part no. KK300, 98738, dwg 91P228363-01.	7-84

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

AUDIO INTERCONNECT P.C.B. ASSEMBLY A2A21

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A21A20Q1		TRANSISTOR: Item 55.	7-84
A2A21A20Q2		TRANSISTOR: Item 54.	7-84
A2A21A20Q3 and A2A21A20Q4		Not used.	
A2A21A20Q5 and A2A21A20Q6		TRANSISTOR: Item 54.	7-84
A2A21A20Q7		TRANSISTOR: MIL type JAN2N2907A.	7-84
A2A21A20Q8		TRANSISTOR: Item 54.	7-84
A2A21A20Q9		TRANSISTOR: MIL type JAN2N2907A.	7-84
A2A21A20Q10 thru A2A21A20Q13		TRANSISTOR: Item 54.	7-84
A2A21A20Q14		TRANSISTOR: JAN2N3421.	7-84
A2A21A20R1 and A2A21A20R2		Not used.	
A2A21A20R3		RESISTOR: Item 32.	7-84
A2A21A20R4		RESISTOR: Item 31.	7-84
A2A21A20R5		RESISTOR, FIXED, COMPOSITION: 470 ohms ±5%, 1/4 w; MIL type RCR07G471JS.	7-84
A2A21A20R6		RESISTOR: Item 32.	7-84
A2A21A20R7 thru A2A21A20R10		Not used.	
A2A21A20R11		RESISTOR: Item 34.	7-84
A2A21A20R12		RESISTOR: Item 43.	7-84
A2A21A20R13		RESISTOR, FIXED, COMPOSITION: 680 ohms ±5%, 1/4 w; MIL type RCR07G681JS.	7-84
A2A21A20R14 and A2A21A20R15		RESISTOR: Item 32.	7-84
A2A21A20R16 and A2A21A20R17		RESISTOR: Item 35.	7-84
A2A21A20R18		RESISTOR: Item 32.	7-84
A2A21A20R19		RESISTOR: Item 31.	7-84
A2A21A20R20		RESISTOR, FIXED, COMPOSITION: 680 ohms ±5%, 1/4 w; MIL type RCR07G681JS.	7-84
A2A21A20R21		RESISTOR, FIXED, COMPOSITION: 5100 ohms ±5%, 1/4 w; MIL type RCR07G512JS.	7-84
A2A21A20R22		RESISTOR: Item 32.	7-84
A2A21A20R23		RESISTOR, FIXED, COMPOSITION: 15K ohms ±5%, 1/4 w; MIL type RCR07G153JS.	7-84
A2A21A20R24		RESISTOR, FIXED, COMPOSITION: 12K ohms ±5%, 1/4 w; MIL type RCR07G123JS.	7-84

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

AUDIO INTERCONNECT P.C.B. ASSEMBLY A2A21

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A21A20R25		RESISTOR, FIXED, COMPOSITION: 270K ohms ±5%, 1/4 w; MIL type RCR07G274JS.	7-84
A2A21A20R26		RESISTOR: Item 32.	7-84
A2A21A20R27		RESISTOR, FIXED, COMPOSITION: 5100 ohms ±5%, 1/4 w; MIL type RCR07G512JS.	7-84
A2A21A20R28		RESISTOR: Item 31.	7-84
A2A21A20R29		RESISTOR, FIXED, COMPOSITION: 12K ohms ±5%, 1/4 w; MIL type RCR07G123JS.	7-84
A2A21A20R30		RESISTOR: Item 32.	7-84
A2A21A20R31		RESISTOR, FIXED, COMPOSITION: 12K ohms ±5%, 1/4 w; MIL type RCR07G123JS.	7-84
A2A21A20R32 thru A2A21A20R36		Not used.	
A2A21A20R37		RESISTOR: Item 40.	7-84
A2A21A20R38 and A2A21A20R39		Not used.	
A2A21A20R40		RESISTOR: Item 32.	
A2A21A20R41		RESISTOR, FIXED, WIRE-WOUND: 226 ohms ±1%, 1 w; MIL type RWR81S2260FM.	7-84
A2A21A20R42		RESISTOR: Item 43.	7-84
A2A21A20R43 thru A2A21A20R47		RESISTOR: Item 32.	7-84
A2A21A20TP1		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 17.	7-84
A2A21A20TP2		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 18.	7-84
A2A21A20U1		Not used.	
A2A21A20U2		INTEGRATED CIRCUIT: T.T.L., MIL type M38510/00108BCX.	7-84
A2A21A20U3		INTEGRATED CIRCUIT: Linear, MIL type M38510/10102BIX.	7-84
A2A21A20U4 and A2A21A20U5		Not used.	
A2A21A20U6		INTEGRATED CIRCUIT: T.T.L., MIL type M38510/31403BCX.	7-84
A2A21A20U7		INTEGRATED CIRCUIT: Mfr 98738, dwg 48P226600-01.	7-84

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

MATING CONNECTOR KIT A3

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A3		MATING CONNECTOR KIT: Mfr 98738, part no. 78A226037-21-11.	7-85
A3MP1 and A3MP2		BOOT, STRAIN RELIEF, HEAT SHRINKABLE: 2.16 in. long, 1.12 in. dia; mfr 08795, part no. 202A132-03, dwg 4032585-0701.	7-85
A3MP3		CLAMP, CABLE: MIL type MS3057-6A.	7-85
A3MP4		CLAMP, CABLE: MIL type MS3057-8A.	7-85
A3MP5 and A3MP6		CLAMP, CABLE: MIL type MS3057-4A.	7-85
A3P1		Not used.	
A3P2		CONNECTOR, PLUG, ELECTRICAL: MIL type MS3116F10-6S.	7-85
A3P3		CONNECTOR, PLUG, ELECTRICAL: MIL type MS3106A16S-5S.	7-85
A3P4		Not used.	
A3P5 and A3P6		CONNECTOR, PLUG, ELECTRICAL: MIL type MS3106A10SL-4S.	7-85
A3P7		CONNECTOR, PLUG, ELECTRICAL: MIL type MS3106A14S-2S.	7-85
A3P8 thru A3P22		Not used.	
A3P23 and A3P24		CONNECTOR, PLUG, ELECTRICAL: MIL type M39012/16-0101.	7-85
A3P25		CONNECTOR, PLUG, ELECTRICAL: MIL type M39012/01-0005.	7-85
A4		Not used.	
A5		Not used.	
A6		Not used.	

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

EXTENDER CABLE KIT A7

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A7		EXTENDER CABLE KIT; Mfr 98738, part no. 78A226017-22-11.	7-86
A7W1		EXTENDER CABLE, MODE SELECT: 24.0 in. long, mfr 98738, part no. 30A226271-21-11.	7-86
A7W1MP1 and A7W1MP2		SHELL, CONNECTOR: MIL type M24308/20-7.	7-86
A7W1P1		CONNECTOR, PLUG, ELECTRICAL: 1.541 in. long, 0.656 in. w, 0.494 in. h; mfr 71785, part no. DAMM11W1P, 98738, dwg 09P226565-01.	7-86
A7W1P1A1	2	CONNECTOR: Item 20.	
A7W1P2		CONNECTOR, RECEPTACLE, ELECTRICAL: 1.541 in. long, 0.663 in. w, 0.494 in. h; mfr 71785. part no. DAMM11W1S, 98738, dwg 09P226565-03.	7-86
A7W1P2A1	2	CONNECTOR, RECEPTACLE, ELECTRICAL: Item 22.	
A7W2		EXTENDER CABLE, TRANSLATOR/SYNTHESIZER AND TRANSMITTER MODE SELECT: 24.0 in. long; mfr 98738, part no. 30A226280-21-11.	7-86
A7W2MP1 and A7W2MP2		SHELL, CONNECTOR: MIL type M24308/20-9.	7-86
A7W2P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 2.729 in. long, 0.494 in. w, 0.426 in. thk; mfr 71785, part no. DCMM25W3S, 98738, dwg 09P226565-10.	7-86
A7W2P1A1 thru A7W2P1A3	2	CONNECTOR: Item 22.	
A7W2P2		CONNECTOR, PLUG, ELECTRICAL: 2.729 in. long, 0.494 in. w; 0.429 in. thk; mfr 71785, part no. DCMM25W3P, 06845, dwg 4032484-0716.	7-86
A7W2P2A1 thru A7W2P2A3	2	CONNECTOR: Item 20.	
A7W3		EXTENDER CABLE, TRANSMITTER AUDIO: 24.0 in. long; mfr 98738, part no. 30A226272-21-11.	7-86
A7W3MP1 and A7W3MP2		SHELL, CONNECTOR: MIL type M24308/20-8.	7-86
A7W3P1		CONNECTOR, PLUG, ELECTRICAL: MIL type M24308-1-3.	7-86
A7W3P2		CONNECTOR, RECEPTACLE, ELECTRICAL: MIL type M24308-3-3.	7-86

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

EXTENDER CABLE KIT A7

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A7W4		EXTENDER CABLE, TRANSMITTER IF: 24.0 in. long; mfr 98738, part no. 30A226277-21-11.	7-86
A7W4MP1 and A7W4MP2		SHELL, CONNECTOR: MIL type M24308-20-8.	7-86
A7W4P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 2.088 in. long, 0.663 in. w, 0.494 in. h; mfr 71785, part no. DBMM13W3S, 98738, dwg 09P226565-04.	7-86
A7W4P1A1 thru A7W4P1A3	2	CONNECTOR: Item 20.	
A7W4P2		CONNECTOR, PLUG, ELECTRICAL: 2.088 in. long, 0.670 in. w, 0.494 in. h; mfr 71785, part no. DBMM13W3P, 06845, dwg 4032484-0707.	7-86
A7W4P2A1 thru A7W4P2A3	2	CONNECTOR: Item 22.	
A7W5		EXTENDER CABLE, TRANSMITTER RATT: 24.0 in. long, mfr 98738, part no. 30A226276-21-11.	7-86
A7W5MP1 and A7W5MP2		SHELL, CONNECTOR: MIL type M24308-20-6.	7-86
A7W5P1		CONNECTOR, PLUG, ELECTRICAL: MIL type M24308-1-1.	7-86
A7W5P2		CONNECTOR, PLUG, ELECTRICAL: MIL type M24308-3-1.	7-86
A7W6 thru A7W10		Not used.	
A7W11		EXTENDER CABLE, RF AMPLIFIER: 24.0 in. long; mfr 98738, part no. 30A226273-21-11.	7-86
A7W11MP1 and A7W11MP2		SHELL, CONNECTOR: MIL type M24308-20-7.	7-86
A7W11P1		CONNECTOR, PLUG, ELECTRICAL: MIL type M24308-1-2.	7-86
A7W11P2		CONNECTOR, PLUG, ELECTRICAL: MIL type M24308-3-2.	7-86
A7W12		EXTENDER CABLE, AMPLIFIER, DC/DC: 24.0 in. long; mfr 98738, part no. 30A226426-22-11.	7-86
A7W12MP1 and A7W12MP2		SHELL, CONNECTOR: MIL type M24308/20-9.	7-86

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

EXTENDER CABLE KIT A7

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A7W12P1		CONNECTOR, PLUG, ELECTRICAL: 2.729 in. long, 0.660 in. w; 0.494 in. h; mfr 71785, part no. DCMM17W5P, 98738, dwg 09P226565-11.	7-86
A7W12P1A1 thru A7W12P1A5	2	CONNECTOR: Item 20.	
A7W12P2		CONNECTOR, RECEPTACLE, ELECTRICAL: 2.729 in. long, 0.663 in. w, 0.494 in. h; mfr 71785, part no. DCMM17W5S, 98738, dwg 09P226565-13.	7-86
A7W12P2A1 thru A7W12P2A5	2	CONNECTOR: Item 22.	
A7W13		EXTENDER CABLE, FREQUENCY STANDARD: 24.0 in. long; mfr 98738, part no. 30A226274-21-11.	7-86
A7W13MP1 and A7W13MP2		SHELL, CONNECTOR: MIL type M24308/20-9.	7-86
A7W13P1		CONNECTOR, PLUG, ELECTRICAL: 2.729 in. long, 0.670 in. w, 0.494 in. h; mfr 71785, part no. DCMM13W6P, 98738, dwg 09P226565-12.	7-86
A7W13P1A1 thru A7W13P1A6	2	CONNECTOR: Item 20.	
A7W13P2		CONNECTOR, RECEPTACLE, ELECTRICAL: 2.729 in. long, 0.663 in. w, 0.494 in. h; mfr 71785, part no. DCMM13W6S, 98738, dwg 09P226565-14.	7-86
A7W13P2A1 thru A7W13P2A6	2	CONNECTOR, RECEPTACLE, ELECTRICAL: Item 22.	
A7W14		EXTENDER CABLE, TRANSLATOR/SYNTHESIZER: 24.0 in. long, mfr 98738, part no. 30A226275-21-11.	7-86
A7W14MP1 and A7W14MP2		SHELL, CONNECTOR: MIL type M24308/20-7.	7-86
A7W14P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 1.541 in. long, 0.656 in. w, 0.494 in. h; mfr 71785, part no. DAMM3W3S, 98738, dwg 09P226565-02.	7-86
A7W14P1A1 thru A7W14P1A3	2	CONNECTOR: Item 20.	
A7W14P2		CONNECTOR, RECEPTACLE, ELECTRICAL: 1.541 in. long, 0.494 in. w, 0.422 in. h; mfr 71785, part no. DAMM3W3P, 06845, DWG 4032484-0701.	7-86

Table 7-2. Radio Transmitter T-827H/URT, Parts List (Continued)

EXTENDER CABLE KIT A7

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A7W14P2A1 thru A7W14P2A3	2	CONNECTOR: Item 22.	
A7W15		EXTENDER CABLE, TRANSLATOR/SYNTHESIZER: 24.0 in. long; mfr 98738, part no. 30A226275-21-11.	7-50

Table 7-3. List of Common Item Descriptions

ITEM	DESCRIPTION
1	BLOCK, CONTACT: 3.659 in. long, 0.520 in. w, 0.440 in. thk; diallyl phthalate resin, type SGD; mfr 98738, part no. 39P228459-01.
2	CAPACITOR, FIXED, CERAMIC: 1.5 pF ±5%, 500 Vdc working; 0.330 in. long, 0.160 in. dia; mfr 78488, part no. GA1-5PFPORM5PCT, 06845, dwg 4031973-0722.
3	CAPACITOR, FIXED, CERAMIC: 2.0 pF ±5%, 500 Vdc working; 0.290 in. long, 0.160 in. dia; mfr 4031973-0725.
4	CAPACITOR, FIXED, CERAMIC: 1000 pF ±20%, 200 Vdc working; MIL type M39014/01-1238.
5	CAPACITOR, FIXED, CERAMIC: 0.01 uF ±20%, 200 Vdc working; MIL type M39014/02-1219.
6	CAPACITOR, FIXED, CERAMIC: 0.01 uF ±10%, 200 Vdc working; MIL type M39014/02-1218.
7	CAPACITOR, FIXED, CERAMIC: 0.01 uF ±10%, 100 Vdc working; MIL type M39014/01-1455.
8	Not used.
9	CAPACITOR, FIXED, CERAMIC: 0.1 uF ±10%, 100 Vdc working; MIL type M39014/02-1230.
10	CAPACITOR, FIXED, ELECTROLYTIC: 10 uF ±10%, 20 Vdc working; MIL type M39003/01-2286.
11	CAPACITOR, FIXED, ELECTROLYTIC: 15 uF ±20%, 20 Vdc working; MIL type M39003/02-2290.
12	CAPACITOR, FIXED, ELECTROLYTIC: 120 uF +75% -15%, 40 Vdc working; 0.765 in. long, 0.375 in. dia; mfr 26769, part no. T0314-120UF-P75M15PCT40VDCW, 06845, dwg 4031980-0701.
13	CAPACITOR, FIXED, MICA: 150 pF ±1%, 500 Vdc working; MIL type CMR05F151FPDM.
14	CAPACITOR, FIXED, MYLAR DIELECTRIC: 0.1 uF ±20%, 100 Vdc working; dwg 4032429-0703.
15	CAPACITOR, FIXED, MYLAR DIELECTRIC: 0.20 uF ±20%, 100 Vdc working; 0.55 in. long, 0.36 in. w, 0.23 in. thk; mfr 99515, part no. EP36D4, 06845, dwg 4032429-0704.
16	CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Right angle, mfr 98291, part no. SKT103PCWHP34, 06845, dwg 4010014-0701.
17	CONNECTOR, ELECTRICAL, TEST-POINT TYPE: 1000 Vrms maximum; MIL type M39024/18-03.
18	CONNECTOR, ELECTRICAL, TEST-POINT TYPE: 1000 Vrms maximum; MIL type M39024/18-04.
19	CONNECTOR, ELECTRICAL, TEST-POINT TYPE: 1000 Vrms maximum; MIL type M39024/18-05.
20	CONNECTOR, PLUG, ELECTRICAL: Mfr 71785, part no. DM53740-5001, 98738, dwg 09P226565-17.
21	CONNECTOR, PLUG, ELECTRICAL: Right angle coaxial, 0.734 in. long, female contact; mfr 71785, part no. 318-11-99-283, 06845, dwg 4032484-0729.
22	CONNECTOR, RECEPTACLE, ELECTRICAL: Mfr 71785, part no. DM53642-5001, 98738, dwg 09P226565-18.

Table 7-3. List of Common Item Descriptions (Continued)

ITEM	DESCRIPTION
23	CONNECTOR, RECEPTACLE, ELECTRICAL: Right angle coaxial; 0.734 in. long, female contact, mfr 71785, part no. DM53743-5001, 98738, dwg 09P226565-20.
24	EJECTOR, CIRCUIT CARD: 1.25 in. long, 0.28 in. w, 0.56 in. h, nylon, mfr 13103, part no. 5005-08N, 98738, dwg 55P226279-21-11.
25	RESISTOR, FIXED, COMPOSITION: 100 ohms ±5%, 1/8 w; MIL type RCR05G101JS.
26	RESISTOR, FIXED, COMPOSITION: 1000 ohms ±5% 1/8 w; MIL type RCR05G102JS.
27	RESISTOR, FIXED, COMPOSITION: 10K ohms ±5%, 1/8 w; MIL type RCR05G103JS.
28	RESISTOR, FIXED, COMPOSITION: 2400 ohms ±5%, 1/8 w; MIL type RCR05G242JS.
29	RESISTOR, FIXED, COMPOSITION: 10 ohms ±5%, 1/4 w; MIL type RCR07G100JS.
30	RESISTOR, FIXED, COMPOSITION: 100 ohms ±5%, 1/4 w; MIL type RCR07G101JS.
31	RESISTOR, FIXED, COMPOSITION: 1000 ohms ±5%, 1/4 w; MIL type RCR07G102JS.
32	RESISTOR, FIXED, COMPOSITION: 10K ohms ±5%, 1/4 w; MIL type RCR07G103JS.
33	RESISTOR, FIXED, COMPOSITION: 100K ohms ±5%, 1/4 w; MIL type RCR07G104JS.
34	RESISTOR, FIXED, COMPOSITION: 220 ohms ±5%, 1/4 w; MIL type RCR07G221JS.
35	RESISTOR, FIXED, COMPOSITION: 2200 ohms ±5%, 1/4 w; MIL type RCR07G222JS.
36	RESISTOR, FIXED, COMPOSITION: 2700 ohms ±5%, 1/4 w; MIL type RCR07G272JS.
37	RESISTOR, FIXED, COMPOSITION: 27K ohms ±5%, 1/4 w; MIL type RCR07G273JS.
38	RESISTOR, FIXED, COMPOSITION: 33 ohms ±5%, 1/4 w; MIL type RCR07G330JS.
39	RESISTOR, FIXED, COMPOSITION: 3300 ohms ±5%, 1/4 w; MIL type RCR07G332JS.
40	RESISTOR, FIXED, COMPOSITION: 33K ohms ±5%, 1/4 w; MIL type RCR07G333JS.
41	RESISTOR, FIXED, COMPOSITION: 3900 ohms ±5%, 1/4 w; MIL type RCR07G392JS.
42	RESISTOR, FIXED, COMPOSITION: 47 ohms ±5%, 1/4 w; MIL type RCR07G470GJS.
43	RESISTOR, FIXED, COMPOSITION: 4700 ohms ±5%, 1/4 w; MIL type RCR07G472JS.
44	RESISTOR, FIXED, COMPOSITION: 82 ohms ±5%, 1/4 w; MIL type RCR07G820JS.
45	RESISTOR, FIXED, COMPOSITION: 820 ohms ±5%, 1/4 w; MIL type RCR07G821JS.

Table 7-3. List of Common Item Descriptions (Continued)

ITEM	DESCRIPTION
46	RESISTOR, FIXED, COMPOSITION: 8200 ohms ±5%, 1/4 w; MIL type RCR07G822JS.
47	Not used.
48	RESISTOR, FIXED, FILM: 5100 ohms ±2%, 1/4 w; MIL type RLR07C5101GR
49	SEMICONDUCTOR DEVICE, DIODE: Silicon, voltage regulator; MIL type JAN1N4454.
50	SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N649-1.
51	TERMINAL, STUD: MIL type SE206D01.
52	TERMINAL, STUD: MIL type SE079B01.
53	TERMINAL, STUD: 0.593 in. long, 0.050 in. dia, brass; mfr 71279, part no. 2380-1, 06845, dwg 4032159-0701.
54	TRANSISTOR: MIL type JAN2N2222A.
55	TRANSISTOR: MIL type JAN2N2905A.
56	Not used.
57	TERMINAL, STUD: MIL type SE15XC01.
58	CAPACITOR, FIXED, CERAMIC: 0.1 uF ±10%, 100 Vdc working; MIL type M39014/02-1310.
59	RESISTOR, FIXED, COMPOSITION: 1200 ohms ±5%, 1/4 w; MIL type RCR07G122JS.
60	CAPACITOR, FIXED, CERAMIC: 0.1 uF ±20%, 50 Vdc working; MIL type M39014/01-1474.
61	Not used.
62	SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N4148-1.
63	CAPACITOR, FIXED, CERAMIC: 0.047 uF ±10%, 100 Vdc working; MIL type M39014/02-1305.
64	CAPACITOR, FIXED, CERAMIC: 1000 pF ±10%, 200 Vdc working; MIL type M39014/01-1317.
65	Not used.
66	TERMINAL, FEEDTHRU: Insulated, 0.609 in. long, 0.172 in. dia; mfr 98291, part no. FT-SM-025TUR, dwg 4010455-0701.

Table 7-4. List of Attaching Hardware

ITEM LETTER	DESCRIPTION
A	NUT, PLAIN, HEX, MACHINE SCREW: No. 8-32 UNC-2B x 0.344 across flats, 0.130 in. thk; MIL type MS35649-284.
B	WASHER, LOCK-SPRING, HELICAL: No. 8, 0.175 in.ID, 0.293 in. OD, 0.040 in. thk; MIL type MS35338-137.
C	NUT, PLAIN, HEXAGON: No. 8-32 UNC-2B x 0.250 in. across flats, 0.289 in. thk; mfr 06845, part no. 4030942-0703.
D	WASHER, FLAT, SPECIAL: 0.173 in. ID, 0.437 in. OD, 0.036 in. thk; mfr 06845, part no. 4031924-0009.
E	SCREW, MACHINE, FLAT COUNTERSUNK HEAD, 82 DEGREES CROSS-RECESSED, CRES: No. 2-56 UNC-2A x 3/4 in. long; MIL type MS51959-9.
F	NUT, PLAIN, HEX, MACHINE SCREW: No. 2-56 UNC-2B x 0.187 across flats, 0.066 in. thk; MIL type MS35649-224.
G	WASHER, LOCK-SPRING, HELICAL: No. 2, 0.094 in. ID, 0.172 in. OD, 0.020 in. thk; MIL type MS35338-134.
H	WASHER, FLAT - METAL, ROUND: CRES: No. 10, 0.188 in. ID, 0.375 in. OD, 0.049 in. thk; MIL type MS15795-807.
I	Not used.
J	SCREW, MACHINE, FLAT COUNTERSUNK HEAD, 82 DEGREES CROSS-RECESSED, CRES: No. 2-56 UNC-2A x 3/8 in. long; MIL type MS51959-5.
K	NUT, PLAIN, HEX, MACHINE SCREW: No. 6-32 UNC-2B x 0.312 across flats, 0.114 in. thk; MIL type MS35649-264.
L	WASHER, FLAT - METAL, ROUND, CRES: No. 10, 0.156 in. ID, 0.312 in. OD, 0.035 in. thk; MIL type MS15795-805.
M	WASHER, LOCK-SPRING, HELICAL: No. 6, 0.148 in. ID, 0.250 in. OD, 0.031 in. thk; MIL type MS35338-136.
N	SCREW, CAP, HEX HEAD, CRES: UNC-2A, 5/16 x 0.625 in. long, 0.435 in. across flats; MIL type MS35307-331.
O	Not used.
P	WASHER, FLAT - METAL, ROUND, CRES: No. 10, 0.344 in. ID, 0.688 in. OD, 0.065 in. thk; MIL type MS15795-812.
Q	WASHER, LOCK-SPRING, HELICAL: No. 5/16, 0.328 in. ID, 0.586 in. OD, 0.078 in. thk; MIL type MS35338-140.
R	SCREW, EXTERNALLY RELIEVED BODY: 0.391 in. long, 0.121 in. w; mfr 06845, part no. 4031920-0002.
S	SCREW, MACHINE, FLAT COUNTERSUNK HEAD, 82 DEGREES CROSS-RECESSED, CRES: No. 2-56 UNC-2A, 7/16 in. long MIL type MS51959-6.
T	NUT, SELF-LOCKING, HEXAGON: No. 2-56 UNC-3B x 0.158 in. across flats, 0.095 in. thk; mfr 06845, part no. 4031923-0701.
U	WASHER, LOCK, FLAT - INTERNAL TOOTH: No. 2, 0.095 in. ID, 0.200 in. OD, 0.015 in. thk; MIL type MS35333-69.
V	SCREW, MACHINE, FLAT, COUNTERSUNK HEAD, 82 DEGREES CROSS-RECESSED, CRES: No. 10-32 UNF-2A, 1/2 in. long, MIL type MS24693-C1.

Table 7-4. List of Attaching Hardware (Continued)

ITEM LETTER	DESCRIPTION
W	SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, CRES: No. 8-32 UNC-2A, 7/16 in. long; MIL type MS51957-44.
X	STANDOFF, CRES: No. 8-32 UNC-2B x 3.972 in. long, 0.375 in. w, mfr 98738, part no. 43P226764-21-11.
Y	SCREW, CAPTIVE: NO. 10-32 UNC-2A x 0.980 in. long; mfr 06845, part no. 4030574-0001.
Z	SCREW, PANEL: No. 10-32 UNC-2A x 1.07 in. long, with plastic cap; mfr 06845, part no. 4032255-0501.
AA	WASHER, LOCK, EXTERNAL TOOTH: No. 4, 0.115 in. ID, 0.245 in. OD, 0.015 in. thk; MIL type MS35335-57.
AB	SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, CRES: No. 6-32 UNC-2A, 5/16 in. long; MIL type MS51957-27.
AC	NUT, PLAIN, HEXAGON: No. 6-32 UNC-2B x 0.250 in. across flats, 0.095 in. thk; mfr 06845, part no. 4030942-0702.
AD	NUT, PLAIN, HEXAGON: No. 4-40 UNC-2B x 0.187 in. across flats, 0.066 in. thk; mfr 06845, part no. 4030942-0701.
AE	WASHER, LOCK, EXTERNAL TOOTH: No. 6, 0.141 in. ID, 0.305 in. OD, 0.016 in. thk; MIL type MS35335-58.
AF	SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, CRES: No. 4-40 UNC-2A, 5/16 in. long; MIL type MS51957-14.
AG	NUT, PLAIN, HEX, MACHINE SCREW: No. 4-40 UNC-2B x 0.250 across flats, 0.114 in. thk; MIL type MS35649-244.
AH	WASHER, RUBBER: 0.390 in. ID, 0.69 in. OD, 0.32 in. thk; mfr 06845, part no. 2058889-0008.
AI	Not used.
AJ	NUT, SELF-LOCKING, HEXAGON: Mfr 06845, part no. 4031923-0702, 0.190 across flats, 0.110 in. thk.
AK	SCREW, MACHINE, FLAT COUNTERSUNK HEAD, 82 degress CROSS-RECESSED, CRES: No. 4-40 UNC-2A, 3/8 in. long; MIL type MS51959-15.
AL	WASHER, LOCK - SPRING, HELICAL: No. 4, 0.121 in. ID, 0.209 in. OD, 0.025 in. thk; MIL type MS35338-135.
AM	NUT, PLAIN - HEXAGON, MACHINE SCREW: No. 10-32 UNF-2B x 0.375 in. across flats, 0.130 in. thk; MIL type MS35650-304.
AN	WASHER, LOCK - SPRING, HELICAL: No. 10, 0.202 in. ID, 0.334 in. OD, 0.047 in. thk; MIL type MS35338-138.
AO	Not used.
AP	SCREW, CAP, HEX SOCKET HEAD: No. 6-32 UNC-3A, 0.500 in. long, mfr 06845, part no. 4032180-0701.
AQ	SCREW, MACHINE, PAN HEAD, CROSS RECESSED, CRES: No. 4-40 UNC-2A x 1/4 in. long; MIL type MS51957-13.
AR	SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, CRES: No. 4-40 UNC-2A x 1/2 in. long; MIL type MS51957-17.
AS	WASHER, FLAT - METAL, ROUND, CRES: No. 10, 0.125 in. ID, 0.312 in. OD, 0.032 in. thk; MIL type MS15795-804.
AT	SCREW, MACHINE, HEX HEAD: No. 4-40 UNC-2A x 0.50 in. long; 0.187 in. hex; mfr 06845, part no. 4032182-0701.

Table 7-4. List of Attaching Hardware (Continued)

ITEM LETTER	DESCRIPTION
AU	WASHER, FLAT - METAL, ROUND, CRES: No. 10, 0.125 in. ID, 0.250 in. OD, 0.022 in. thk; MIL type MS15795-803.
AV	WASHER, RUBBER: 0.985 in. ID, 1.48 in. OD, 0.032 in. thk; mfr 06845, part no. 2058889-0003.
AW	WASHER, RUBBER: 0.610 in. ID, 1.00 in. OD, 0.032 in. thk; mfr 06845, part no. 2058889-0001.
AX	WASHER, FLAT: 0.640 in. ID, 1.0 in. OD, 0.012 in. thk; mfr 06845, part no. 4032130-0003.
AY	WASHER, FLAT: 1.015 in. ID, 1.48 in. OD, 0.012 in. thk; mfr 06845, part no. 4032130-0004.
AZ	SPACER, MOUNTING: 0.173 in. ID, 0.220 in. OD, 0.160 in. long; mfr 06845, part no. 2058941-0001.
BA	WASHER, RUBBER: 0.32 in. ID, 1.00 in. OD, 0.032 in. thk; mfr 98738, part no. 32P226780-21-11.
BB	NUT, PLAIN, HEX, CRES: 0.564 in. across flats, 3/8-32 UNEF-2B, 0.093 in. thk; MIL type MS25082-20.
BC	WASHER, LOCK, FLAT - INTERNAL TOOTH: No. 3/8, 0.384 in. ID, 0.670 in. OD, 0.032 in. thk; MIL type MS35333-76.
BD	SET SCREW, HEX SOCKET, CUP POINT, ALY. STEEL: No. 4-40 UNC-3A x 0.187 in. long; mfr 06845, part no. 2031167-0702.
BE	PIN, GROOVED: 0.066 in. dia., 0.500 in. long; MIL type MS35675-3.
BF	SET SCREW - HEX SOCKET, CUP POINT, PLAIN, CRES: UNC-3A, 0.500 in. long, 0.250 in. w, across flats; MIL type MS51021-36.
BG	SET SCREW - HEX SOCKET, CUP POINT, PLAIN, CRES: UNC-3A, 0.250 in. long; 0.125 in. across flats; MIL type MS51021-32.
BH	PIN, STRAIGHT, HEADLESS, ALY. STEEL: 0.250 in. long, 0.784 in. OD; MIL type MS16555-9.
BI	Not used.
BJ	PIN, SPRING - TUBULAR, SLOTTED, CRES: 0.188 in. long, 0.199 in. dia, 0.182 chamber dia., MIL type MS16562-189.
BK	SET SCREW, HEX SOCKET, CUP POINT, ALY. STEEL, PLAIN: UNC-3A x 0.250 in. long, 0.125 in. w. across flats; MIL type MS51963-22.
BL	SET SCREW, HEX SOCKET, CUP POINT, ALY. STEEL, PLAIN: UNC-3A x 0.250 in. long, 0.125 in. across flats; MIL type MS51963-11.
BM	SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, CRES: No. 8-32 UNC-2A x 3/8 in. long; MIL type MS51957-43.
BN	SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, CRES: No. 8-32 UNC-2A x 5/8 in. long; MIL type MS51957-46.
BO	Not used.
BP	SHIM, ALUMINUM: 0.312 in. dia, 0.012 in. thk; mfr 06845, part no. 2058976-0001.
BQ	SHIM, ALUMINUM: 0.312 in. dia, 0.020 in. thk; mfr 06845, part no. 2058976-0002.

Table 7-4. List of Attaching Hardware (Continued)

ITEM LETTER	DESCRIPTION
BR	SHIM, ALUMINUM: 0.312 in. dia, 0.032 in. thk; mfr 06845, part no. 2058976-0003.
BS	SCREW, MACHINE, FLAT, COUNTERSUNK HEAD: 82 DEGREES CROSS-RECESSED, CRES: No. 6-32 UNC-2A x 3/16 in. long; MIL type MS51959-25.
BT	Not used.
BU	SCREW, MACHINE, FLAT, COUNTERSUNK HEAD, 82 DEGREES CROSS-RECESSED. CRES: No. 8-32 UNC-2A x 3/8 in. long; MIL type MS51959-43.
BV	SCREW, MACHINE, SELF-SEALING: 0.62 in. long, 10-32 thread; mfr 07631, part no. R1032 x 0.62, 06845, dwg 4032168-0703.
BW	WASHER, FLAT, SPECIAL: 1.0 in. long, 0.380 in. w, 0.156 in. dia, aluminum, dimpled; mfr 06845, part no. 4030896-0001.
BX	SCREW, MACHINE, FLAT, COUNTERSUNK HEAD, 100 DEGREES CROSS-RECESSED, CRES: No. 6-32 UNC-2A x 1/4 in. long; MIL type MS24693-C24.
BY	SPACER, HEX: No. 6-32 UNC-2B internal threads, 0.437 in. long, 0.438 in. hex across flats, 82 degress countersunk x 0.188 in. dia, mfr 06845, part no. 4032128-0006.
BZ	SCREW, MACHINE, FLAT, COUNTERSUNK HEAD, 82 DEGREES CROSS-RECESSED, CRES: No. 2-56 UNC-2A x 3/8 in. long; MIL type MS51957-5.
CA	WASHER, FLAT, SPECIAL, CRES: 0.096 in. ID, 0.187 in. OD, 0.016 in. thk; mfr 06845, part no. 4031924-0003.
CB	SCREW, MACHINE, FLAT COUNTERSUNK HEAD, 82 DEGREES CROSS-RECESSED, CRES: No. 6-32 UNC-2A x 3/4 in. long; MIL type MS51957-32.
CC	NUT, SELF-LOCKING, HEXAGON, CRES: 0.130 - 32 UNJC-3B, 0.313 in. w. across flats, 0.161 in. ID, 0.072 in. thk; MIL type MS21044-C06.
CD	SPACER, TABULAR, CRES: 0.147 in. ID, 0.250 in. OD, 0.346 in. long, mfr 06845, part no. 4030905-0007.
CE	SCREW, CAPTIVE, CRES: 10-32 UNF-2A x 4.84 in. long; mfr 06845, part no. 03P228175-01.
CF	SCREW, MACHINE, FLAT, COUNTERSUNK HEAD, 82 DEGREES CROSS-RECESSED, CRES: No. 4-40 UNC-2A x 5/16 in. long; MIL type MS51959-14.
CG	WASHER, FLAT, SPECIAL: 0.125 in. ID, 0.250 in. OD, 0.032 in. thk; mfr 06845, part no. 4031924-0007.
CH	SPACER, TABULAR: 0.166 in. ID, 0.220 in OD, 0.140 in. long; aluminum; mfr 06845, 4030905-0005.
CI	Not used.
CJ	SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, CRES: No. 4-40 UNC-2A x 3/16 in. long; MIL type MS51957-12.
CK	Not used.
CL	PIN, SPRING, CRES: 0.438 in. long, 0.094 in. dia; MIL type MS171495.

Table 7-4. List of Attaching Hardware (Continued)

ITEM LETTER	DESCRIPTION
CM	RING, RETAINING, EXTERNAL, "E", CRES: 0.0188 in. shaft dia. 0.0145 in. free dia., 0.025 in. thk; MIL type MS16633-4018.
CN	SCREW, TRUSS HEAD: No. 2-56 UNC-2A x 0.187 in. long; mfr 06845, part no. 4032431-0701.
CO	Not used.
CP	PIN, SPRING, CRES: 0.375 in. long, 0.094 in. dia; MIL type MS171494.
CQ	SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, CRES: No. 4-40 UNC-2A x 3/8 in. long; MIL type MS51957-15.
CR	SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, CRES: No. 2-56 UNC-2A x 1/8 in. long; MIL type MS51957-1.
CS	RIVET, SOLID, COUNTERSUNK 100 DEGREES: Aluminum alloy; 9/32 in. long, 3/32 in. dia; MIL type MS20426-AD3-4-5.
CT	RIVET, SOLID, UNIVERSAL HEAD, ALUMINUM ALLOY 2117: 0.375 in. long, 3/34 in. dia; MIL type MS20470AD3-6.
CU	RIVET - TUBULAR, OVAL HEAD - ALUMINUM ALLOY: 0.156 in. long, 0.061 in. body dia, 0.044 in. hole dia, MIL type MS16535-23.
CV	RIVET, TUBULAR, OVAL HEAD, ALUMINUM ALLOY: 0.125 in. long, 0.061 in. body dia, 0.044 in. hole dia, MIL type MS16535-22.
CW	SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, CRES: NO. 4-40 UNC-2A x 7/16 in. long; MIL type MS51957-16.
CX	RIVET, TUBULAR, OVAL HEAD, NICKEL-PLATED BRASS: 0.087 in. dia, 1/8 in. long; mfr 06845, part no. 2074255-2303.
CY	RIVET, TUBULAR, OVAL HEAD, NICKEL-PLATED BRASS: 0.087 in. dia, 27/64 in. long; mfr 06845, part no. 2074266-2322.
CZ	RIVET, TUBULAR, OVAL HEAD, NICKEL-PLATED BRASS: 0.087 in. dia, 9/64 in. long; mfr 06845, part no. 2074266-2304.
DA	SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, CRES: No. 4-40 UNC-2A x 5/8 in. long; MIL type MS51957-18.
DB	SCREW, MACHINE, FLAT HEAD, CROSS-RECESSED, CRES: No. 6-32 UNC-2A x 1/4 in. long; MIL type MS51959-27.
DC	WASHER, FLAT - METAL, ROUND, CRES: No. 10, 0.156 in. ID, 0.375 in. OD, 0.049 in. thk; MIL type MS15795-806.
DD	SCREW, MACHINE, FLAT, COUNTERSUNK HEAD, 82 DEGREES, CROSS-RECESSED, CRES: No. 4-40 UNC-2A x 1/4 in. long; MIL type MS51959-13.
DE	RIVET, SOLID, COUNTERSUNK, 100 DEGREES, COPPER: 3/8 in. long, 0.065 in. dia, MIL type MS20427C2-6.
DF	SCREW, MACHINE, NYLON: No. 6, UNC-2A-32, 1.00 in. long; MIL type MS18212-34.
DG	RIVET, NYLON, OVAL HEAD: 0.12 in. long; MIL type MS20450C8-6.
DH	WASHER, FLAT - PLASTIC (NYLON): No. 4, 0.127 in. ID, 0.297 in. OD, 0.049 in. thk; MIL type MS51859-2.
DI	Not used.

Table 7-4. List of Attaching Hardware (Continued)

ITEM LETTER	DESCRIPTION
DJ	SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, CRES: No. 4-40 UNC-2A x 3/4 in. long; MIL type MS51957-19.
DK	WASHER, FLAT, SPECIAL: 0.120 in. ID, 0.218 in. OD, 0.015 in. thk; mfr 06845, part no. 4031924-0005.
DL	SCREW, MACHINE, FLAT, COUNTERSUNK HEAD, 100 DEGREE CROSS-RECESSED, CRES: No. 4-40, UNC-2A x 3/8 in. long; MIL type MS24693-C4.
DM	NUT, PLAIN, HEX, CRES: No. 3/8-32 UNEF-2B, 0.564 in. across flats, 0.093 in. thk; MIL type MS25082-C20.
DN	WASHER, LOCK-SPRING, HELICAL: No. 8, 0.175 in. ID, 0.05 in. OD, 0.040 in. thk; MIL type MS35338-42.
DO	Not used.
DP	WASHER, ANTI-TURN: Mfr 81073, part no. 44J1111; available with switch rotary; mfr 98738, dwg 40P226296-08.
DQ	WASHER, FLAT - METAL, ROUND, CRES: No. 10, 0.094 in. ID, 0.250 in. OD, 0.20 in. thk; MIL type MS15795-802.
DR	WASHER, FIBERGLASS: 0.250 in. OD, 0.107 in. ID, 0.015 in. thk; mfr 06845, part no. 2074908-3110.
DS	WASHER, MICA: 0.250 in. ID, 0.125 in. OD, 0.005 in. thk; mfr 98738, part no. 04P226362-01.
DT	STUD, EXTENSION, HEX: No. 4-40 UNC-2 threads, 0.93 in. long, 0.187 across flats, cres; mfr 06845, part no. 4032199-0005.
DU	RING, RETAINING, EXTERNAL, "E" CAD. STEEL PLATED: 0.250 in. shaft dia, 0.207 in. free dia, 0.025 in. thk; MIL type MS16633-1025.
DV	RING, RETAINING: 0.472 in. OD, 0.382 in. ID, 0.025 in. thk; mfr 77339, part no. TRC-820.
DW	WASHER, FLAT, SPECIAL: 0.380 in. ID, 0.080 in. OD, mfr 06875, part no. 4031924-0015.
DX	RIVET, TUBULAR: 0.061 in. OD, 0.125 in. length, 0.017 in. thk; mfr 98738, part no. 05S111345-5.
DY	SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, CRES: No. 6-32 UNC-2A x 3/8 in. long; MIL type MS51957-28.
DZ	SCREW, MACHINE, FLAT, COUNTERSUNK HEAD, 100 DEGREES CROSS-RECESSED, CRES: No. 6-32 UNC-2A x 5/16 in. long; MIL type MS24693-C25.
EA	WASHER, RUBBER: 0.50 in. ID, 0.88 in. OD; mfr 06845, part no. 4010006-0001.
EB	WASHER, FLAT, SPECIAL: 0.380 in. ID, 0.680 in. OD, 0.036 in. thk; mfr 06845, part no. 4031924-0017.
EC	WASHER, KEY KNOB: 0.261 in. ID, 0.480 in. OD, 0.325 in. thk; mfr 06845, part no. 4032101-0001.
ED	WASHER, KEY: 0.50 in. ID, 0.74 in. OD, 0.185 in. thk; mfr 06845, part no. 4032102-0001.
EE	RING, RETAINING, INTERNAL, CRES: 0.512 in. ID, 0.560 in. OD, 0.035 in. thk; MIL type MS16625-4051.

Table 7-4. List of Attaching Pardware (Continued)

ITEM LETTER	DESCRIPTION
EF	WASHER, SPRING TENSION: 0.257 in. ID, 0.510 in. OD, 0.010 in. thk; mfr 78189, part no. 3502-14-47-0544B, 06845, dwg 4032104-0701.
EG	WASHER, FLAT, SPECIAL: 0.380 in. ID, 0.680 in. OD, 0.078 in. thk; mfr 06845, part no. 4031924-0016.
EH	SCREW, MACHINE, SELF-SEALING: No. 10-32, 0.753 in. long, 0.403 in. w; mfr 97539; part no. R/1032 x .62, 06845, dwg 4032168-0703.
EI	Not used.
EJ	SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, CRES: No. 6-32 UNC-2A x 1/2 in. long; MIL type MS51957-30.
EK	SCREW, MACHINE, FLAT, COUNTERSUNK HEAD, 82 DEGREES CROSS-RECESSED, CRES: No. 8-32 UNC-2A x 5/8 in. long; MIL type MS51959-46.
EL	STUD, TURNLOCK FASTENER: 3.00 in. long, 0.310 in. dia; mfr 72794, part no. F3-25, 06845, dwg 42P228145-02.
EM	WASHER, FLAT, SPECIAL: 0.173 in. ID, 0.437 in. OD, 0.036 in. thk; mfr 06845, part no. 4031924-0001.
EN	SCREW, MACHINE, FLAT, COUNTERSUNK HEAD, 82 DEGREES CROSS-RECESSED: No. 2-50 UNC-2A x 3 in. long; MIL type MS51959-91.
EO	Not used.
EP	WASHER, LOCK, EXTERNAL TOOTH: 0.267 in. ID, 0.365 in. OD, 0.32 in. thk; mfr 06845, part no. 2074905-2305.
EQ	WASHER, SPECIAL, METALLIC: 0.265 in. ID, 0.375 in. OD, 0.032 in. thk; mfr 06845, part no. 4030904-0002.
ER	SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, CRES: No. 4-40 UNC-2A x 7/16 in. long; MIL type MS51957-16.
ES	PIN, SPRING, CRES: 0.438 in. long; MIL type MS171435.
ET	Not used.
EU	PIN, GROOVED: 0.066 in. dia, 0.375 in. long; MIL type MS35672-7.
EV	RING, RETAINING: 0.382 in. ID, 0.472 in. OD; steel cadmium plate; mfr 77339, part no. TRC-520, 58189, dwg 666231-603.
EW	SCREW, MACHINE, FLAT, COUNTERSUNK HEAD, 100 DEGREES, CROSS-RECESSED: 4-40 UNC-2A, 0.375 in. long; MIL type MS24693-4.
EX	SCREW, MACHINE, FLAT, COUNTERSUNK HEAD, 100 DEGREES CROSS-RECESSED: 4-40 UNC-2A, 0.050 in. long; MIL type MS24693-2.
EY	PIN, SPRING, CRES: 0.188 in. long, 0.62 in. dia; MIL type 171431.
EZ	SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, CRES: No. 6-32 UNC-2A x 5/8 in. long; MIL type MS51957-31.
FA	NUT, PLAIN, CLINCH: 0.112-40 UNC-2B x 0.250 in. OD, 0.092 in. thk; 0.166 in. stem dia; MIL type M45938/1-3C.
FB	RIVET, TUBULAR: 0.22 in. OD, 0.19 in. long; MIL type MS16535-114.
FC	WASHER, FLAT: 0.19 in. dia; mfr 06845, dwg 4032136-0001.
FD	WASHER, FLAT: 0.56 in. OD, 0.25 in. ID; mfr 58189, part no. 688001-028.

Table 7-4. List of Attaching Hardware (Continued)

ITEM LETTER	DESCRIPTION
FE	SCREW, PAN HEAD: No. 6-32 UNC, 1.75 in. long; MIL type MS51957-37.
FF	SCREW, PANHEAD: No. 6-32 UNC, 1.50 in. long; MIL type MS51957-36.
FG	NUT, CLINCH: 0.25 in. long, 0.21 in. dia; mfr 06845, part no. 4032174-0702.
FH	NUT, SELF LOCKING, CLINCH: 0.15 in. long, 0.31 in. dia, mfr 06845, part no. 4032165-0701.
FI	Not used.
FJ	STUD, SELF LOCKING: 0.22 in. OD, 0.50 in. long; mfr 06845, dwg 4032355-0702.
FK	STUD, SELF LOCKING: 0.19 in. OD, 0.25 in. long; mfr 06845, dwg 4032355-0711.
FL	NUT, HEX: 0.35 in. hex, 0.08 in. thk; MIL type MS25082-13.
FM	WASHER, INTERNAL TOOTH: 0.26 in. ID, 0.47 in. OD; MIL type MS35333-74.
FN	RIVET: 0.06 in. OD, 0.17 in. length; mfr 98738, part no. 05S111345-8.
FO	Not used.
FP	SHIM, ALUMINUM: 2.0 in. w, 0.30 in. thk; mfr 14304, part no. 0026-1012-1.
FQ	SHIM, ALUMINUM: 2.0 in. w, 0.16 in. thk; mfr 14304, part no. 0026-1012-2.
FR	WASHER, RUBBER: 1.26 in. OD, 0.86 in. ID; mfr 06845, part no. 2058889-0002.
FS	WASHER, RUBBER: 2.00 in. OD, 1.48 in. ID; mfr 06845, part no. 2058889-0007.
FT	WASHER, FLAT: 0.516 in. ID, 0.80 in. OD, 0.012 in. thk; mfr 06845, part no. 4032130-0002.
FU	WASHER, FLAT: 1.40 in. ID, 1.26 in. OD; mfr 06845, part no. 4032130-0006.
FV	WASHER, FLAT: 1.53 in. ID, 2.00 in. OD; mfr 06845, part no. 4032130-0007.
FW	WASHER, RUBBER: 0.67 in. ID, 1.08 in. OD; mfr 98738, dwg 04P228276.
FX	WASHER, RUBBER: 0.70 in. ID, 1.08 in. OD; mfr 98738, dwg 04P228277.
FY	SCREW, CAP, SOCKET HEAD, SELF-LOCKING, CAD. STEEL ALLOY; No. 6-32 UNC-3A, 0.138 in. long, 0.138 in. body dia; MIL type MS16997-21.
FZ	SCREW, CAP, SOCKET HEAD, SELF-LOCKING, CAD. STEEL ALLOY: No. 4-40 UNC-3A, 0.50 in. long, 0.112 in. body dia, MIL type MS16997-11.
GA	SHIM, CRES: 0.20 in. dia, 0.01 in. thk; mfr 06845, part no. 2074903-3404.
GB	SCREW, SELF-SEALING: 0.24 in. OD, 0.62 in. long; mfr 06845, dwg 4032168-0702.

Table 7-4. List of Attaching Hardware (Continued)

ITEM LETTER	DESCRIPTION
GC	SCREW, SELF-SEALING: 0.24 in. OD, 0.50 in. long; mfr 06845, dwg 4032168-0701.
GD	SHIM, SOLID: 0.16 in. ID, 0.25 in. OD; mfr 06845, part no. 2074903-3405.
GE	SHIM, SOLID: 0.16 in. ID, 0.25 in. OD; mfr 06845, part no. 2074903-3406.
GF	WASHER, DETENT: Teflon; 0.265 in. ID, 0.62 in. OD, 0.10 in. thk; mfr 06845, part no. 4032137-0001.
GG	SETSCREW - HEXAGON SOCKET, CRES: 40 UNC-3A, 0.125 in. long, 0.061 point dia; MIL type MS51021-9.
GH	WASHER, FLAT - METAL, ROUND, CRES: No. 10, 0.219 in. ID, 0.438 in. OD, 0.049 in. thk; MIL type MS15795-808.
GI	Not used.
GJ	SCREW, MACHINE, FLAT, COUNTERSUNK HEAD, 82 DEGREES CROSS-RECESSED, CRES: No. 6-32 UNC-2A x 1/4 in. long; MIL type MS51959-26.
GK	WASHER, LOCK: 0.20 in. ID, 0.40 in. OD; MIL type MS35335-60.
GL	NUT, SELF LOCKING: 0.45 in. OD, 0.37 in. hex; mfr 06845, part no. 4032211.
GM	NUT, SELF LOCKING: 0.38 in. hex, 0.06 in. thk; MIL type MS21083-C08.
GN	SCREW, MACHINE, PAN HEAD: No. 6-32 UNC-2A x 0.43 in. long; MIL type MS51957-29.
GO	Not used.
GP	Not used.
GQ	WASHER, FLAT: 0.19 in. ID, 0.50 in. OD, 0.02 in. thk; 06845, part no. 4032130-0001.
GR	SCREW, CAPTIVE: 4.84 in. long, 0.17 in. dia; mfr 06845, part no. 4030521-0001.
GS	SCREW, MACHINE - PAN HEAD, SLOTTED, TEFLON: No. 6-32 UNC-2A x 0.50 in. long; mfr 98738, part no. 03P228453-30.
GT	Not used.
GU	RIVET, TUBULAR, OVAL HEAD, BRASS: 0.094 in. long, 0.089 in. body dia; MIL type MS16535-53.
GV	Not used.
GW	NUT, PLAIN, SPLINE FASTENER: No. 10-32-2B threads, 0.272 in. ID, 3/8 in. OD, 1/8 in. thk; mfr 46384, part no. KFS2-032, 98738, dwg no. 02S132160-7.
GX	WASHER, MOLDED, PLASTIC: 0.150 in. ID, 5/16 in. OD, 0.025 in. thk; mfr 98738, part no. 04S131026-8.
GY	WASHER, FLAT, REDUCED OD: 0.143 in. ID, 0.267 in. OD, 0.035 in. thk; NAS620C6.
GZ	WASHER, MOLDED, PLASTIC: 0.120 in. ID, 9/32 in. OD, 0.020 in thk; mfr 98738, part no. 04S131026-5.

Table 7-5. List of Manufacturers

CODE NUMBER	MANUFACTURER'S NAME AND ADDRESS	CODE NUMBER	MANUFACTURER'S NAME AND ADDRESS
00136	McCoy Electronics Co. Watts & Chestnut Sts. Mt. Holly Springs, PA	02735	RCA Corporation Solid State Division Route 202 Somerville, N.J. 08876
00141	Benrus Corp., PIC Design Div. P.O. Box 335 Benrus Center Ridgefield, CT 06877	04347	The Hysol Div. of Dexter Corp. 211 Franklin St. Olean, NY 14760
00213	Nytronics Components Group Orange St. Darlington, S.C. 29532	04713	Motorola, Inc. Semiconductor Group P.O. Box 2953 5005 E. McDowell Rd. Phoenix, AZ 85062
00328	Sterling Instruments, Div. of Designatronics, Inc. 55 South Denton Ave. New Hyde Park, N.Y. 11040	04963	Minnesota Mining & Mfg. Co. Adhesives, Coatings and Sealers Div., 3M Center St. Paul, MN 55101
00779	AMP Inc. Eisenhower Blvd. Harrisburg, PA 17105	05236	Jonathan Mfg. Co. 1101 S. Acacia Ave. Fullerton, CA 92631
01121	Allen-Bradley Co. 1201 S. 2nd St. Milwaukee, WI 53204	05972	Loctite Corp. 705 N. Mountain Road Newington, CT 06111
01295	Texas Instruments, Inc. Semiconductor Group P.O. Box 5012 13500 N. Central Expressway Dallas, TX 75222	06090	Raychem Corp. 300 Constitution Dr. Menlo Park, CA 94025
01961	Pulse Engineering, Inc. 7250 Convoy Court San Diego, CA 92111	06845	The Bendix Corp. Communications Division E. Joppa Rd. Baltimore, MD 21204
02289	HI-G Co., Inc. Spring St. and Rt. 75 Windsor Locks, CT 06096	06848	The Bendix Corp., Energy Controls Div. 717 N. Bendix Dr. South Bend, IN 46620
02697	Parker Seal Co., O-Ring Div. of Parker-Hannifin Corp. 2360 Palumbo Dr. Lexington, KY 40509	06978	Aladdin Electronics, Div. of Aladdin Industries, Inc. 701 Murfreesboro Rd. Nashville, TN 37210

Table 7-5. List of Manufacturers

CODE NUMBER	MANUFACTURER'S NAME AND ADDRESS	CODE NUMBER	MANUFACTURER'S NAME AND ADDRESS
07014	Asquith S A Co. Glendale, CA	12436	General Dynamics Corp. Electronics Div. P.O. Box 81127 5011 Kearny Villa Rd. San Diego, CA 92138
07047	The Ross Milton Co. 511 Second St. Pike Southampton, PA 18966	12639	Northfield Precision Instrument Corp. 4400 Austin Blvd. Isand Park, NY 11558
07263	Fairchild Camera and Instrument Corp. Semiconductor Div. 464 Ellis St. Mountain View, CA 94042	13103	Thermalloy Co., Inc. P.O. Box 34829 2021 W. Valley View Lane Dallas, TX 75234
07556	Calabro Plastics Unit Rack Upper Darby, PA	13556	TRW Cinch Connectors 1015 S. Sixth St. Minneapolis, MN 55415
08289	The Blinn Delbert Co., Inc. 1678 E. Mission Blvd. P.O. Box 2007 Pomona, CA 91766	14482	Watkin-Johnson Co. 3333 Hillview Ave. Palo Alto, CA 94304
08800	General Electric Co. Insulating Material Product Sect. One Campbell Rd. Schenectady, NY 12306	15801	Fenwal Electronics, Div. of Kidde Walter & Co., Inc. 63 Fountain St. Framingham, MA 01701
08832	Schroeder Brothers Corp. Box 72 Nichol Ave. McKees Rock, PA 15136	17069	Circuit Structures Lab. 3200 N. San Fernando Blvd. Burbank, CA 91504
09021	Airco Speer Electronics Bradfort, PA 16701	18324	Silicon General Garden Grove, CA
09922	Burndy Corp. Richards Ave. Norwalk, CT 06852	18723	RCA Corp., Solid State Div., Electro-Optics and Devices 415 South 5th St. Harrison, NJ 07029
11534	Duncan Electronics, Inc. 2865 Fairview Rd. Costa Mesa, CA 92626	18736	Voltronics Corp. West St. Hanover, NJ 07936

Table 7-5. List of Manufacturers

CODE NUMBER	MANUFACTURER'S NAME AND ADDRESS	CODE NUMBER	MANUFACTURER'S NAME AND ADDRESS
18915	The Birtcher Corp. Industrial Div. 4371 Valley Blvd. Los Angeles, CA 90032	40920	Miniature Bearing, Div. MPB Corp. Optical Ave. Precision Park Keene, NH 03431
19057	Filtech Corp. 1250 Pratt Arlington Heights, IL 60007	43543	Nytronics, Inc. Transformer Co. Div. 61 Gates Avenue Geneva, NY 14456
25104	TRW/Globe Motors, an Electronic Components Div. of TRW, Inc. 2275 Stanley Ave. Daytona, OH 45404	43710	The J. M. Ney Co. Maplewood Ave. Bloomfield, CT 06002
26769	NCI, Inc. 5900 Australian Ave. West Palm Beach, FL 33407	46384	Penn Engineering & Mfg. Corp. P.O. Box 311 Doylestown, PA 18901
27014	National Semiconductor Corp. 2900 Semiconductor Dr. Santa Clara, CA 95051	48615	Precision Resistor Co., Inc. 113 U.S. Hwy. 22 Hillside, NJ 07205
29238	Oak Industries, Inc. Switch Division Elkhorn, WI	51181	Keytronics, Inc. 707 North St. Endicott, NY 13706
31669	Pico Electronics Mt. Vernon, NY	56289	Sprague Electric Co. North Adams, MA 01247
32559	Bivar, Inc. Santa Ana, CA	57533	Sterling Precision Corp. Comeau Bldg., Suite 900 319 Clematis St. West Palm Beach, FL 33401
32828	Keene Corp. Kaydon Bearing Div. 2860 McCracken St. Muskegon, MI 49443	58189	General Dynamics Corp. 5011 Kearny Villa Rd. San Diego, CA 92138
33417	Union Corp Jones St. Verona, PA 15147	60380	The Torrington Co. Bearings Div. 59 Field St. Torrington, CT 06790
34371	Harris Semiconductor Div. of Harris Corp. P.O. Box 883 Melbourne, FL 32901		

Table 7-5. List of Manufacturers

CODE NUMBER	MANUFACTURER'S NAME AND ADDRESS	CODE NUMBER	MANUFACTURER'S NAME AND ADDRESS
70485	Atlantic India Rubber Works, Inc. 571 W. Polk St. Chicago, IL 60607	73899	JFD Electronics Corp. Pinetree Rd. Oxford, NC 27565
71278	Cambridge Rubber Co. 680 Main Cambridge, MA 02139	75263	Keystone Carbon Co. 1935 State St. St. Marys, PA 15857
71279	Cambridge Thermionic Corp. 445 Concord Ave. Cambridge, MA 02138	76854	Oak Industries Inc. Switch Div. S. Main St. Crystal Lake, IL 60014
71468	ITT Cannon Electric 666 East Dyer Rd. Santa Ana, CA 92702	77339	National Lock Washer Co. P.O. Box 5115 Industrial Parkway North Branch, NJ 08876
71482	C. P. Clare & Co. 3101 Pratt Blvd. Chicago, IL 60645	77820	The Bendix Corp. Electrical Components Div. Sherman Ave. Sidney, NY 13838
71785	TRW Cinch Connectors 1501 Morse Ave. Elk Grove Village, IL 60007	78189	Illinois Tool Works, Inc. Shakeproof Division St. Charles Road Elgin, IL 60120
72136	Electro Motive Corp. P.O. Box 7600 Lauter Ave. Florence, SC 29501	78488	Stackpole Carbon Co. St. Marys, PA 15857
72259	Nytronics, Inc. 105 Madison Ave. New York, NY 10016	79963	Zierick Mfg. Co. Radio Circle Mt. Kisco, NY 10549
72625	Amsted Industries, Inc. Diamond Chain Co. Div. 402 Kentucky Ave. Indianapolis, IN 46225	81030	International Instruments Div. Sigma Instruments Inc. 88 Marsh Hill Rd. Orange, CT 06477
72914	Grimes Mfg. Co. 515 N. Russell Urbana, OH 43078	81815	Communication Coil Co. 2839 N. Narragansett Ave. Chicago, IL 60634
72962	Esna Div. of Amerace Corp. 2330 Vauxhall Road Union, NJ 07083		

Table 7-5. List of Manufacturers

CODE NUMBER	MANUFACTURER'S NAME AND ADDRESS	CODE NUMBER	MANUFACTURER'S NAME AND ADDRESS
82219	GTE Sylvania, Inc. Electronics Component Group Electronic Tube Div. W. Third St. Emporium, PA 15834	91506	Augat Inc. P.O. Box 779 633 Perry Ave. Attleboro, MA 02703
82389	Switchcraft, Inc. 5555 N. Elston Ave. Chicago, IL 60630	91662	Elco Corp. Maryland Rd. and Computer Ave. Willow Grove, PA 19090
84411	TRW Electronic Components TRW Capacitors 112 W. First St. Ogallala, NE 69153	91737	ITT-Cannon/Gremar 922 S. Lyon St. Santa Ana, CA 92705
84971	T A mfg. Corp. A Viking Industries Co. 375 W. Arden Ave. Glendale, CA 91203	93292	Central Coil Co., Inc. Box 348A, RR2 Camby, IN 46113
85072	Diode Transistor Co. Union, New Jersey	93928	Forbes and Wagner Inc. 345 Central Ave. Silver Creek, NY 14136
86577	Precision Metal Products of Malden, Inc. 41 Elm Street Stoneham, MA 02180	94025	Mill Supply Div. of Pelta Brothers, Inc. 3499 Inventors Rd. Norfolk, VA 23502
86684	RCA Corp. Electronic Components Div. 415 South 5th St. Harrison, NJ 07029	95105	Rockwell International Corp. Collins Radio Group 4311 Jamboree Rd. Newport Beach, CA 92663
88001	United States Postal Service Washington, DC 20260	95712	Bendix Corp. Electrical Components Div. Microwave Devices Plant Hurricane Rd. Franklin, IN 46161
88245	Litton Systems, Inc., Unesco Div. 13536 Saticoy St. Van Nuys, CA 91409	95987	Weckessar Co., Inc. 4444 W. Irving Park Rd. Chicago, IL 60641
89870	Berkshire Transformer Co. Kent, CT 06757	96253	Transformer Technicians, Inc. 4447 W. Armitage Ave. Chicago, IL 60639

Table 7-5. List of Manufacturers

CODE NUMBER	MANUFACTURER'S NAME AND ADDRESS	CODE NUMBER	MANUFACTURER'S NAME AND ADDRESS
96256	Thordarson-Maissner Inc., a Subsidiary of Components Corporation of America Electronic Center Mt. Carmel, IL 62863	98738	Stewart-Warner Corp. Electronics Div. 1300 N. Kostner Ave. Chicago, IL 60651
97539	APM-Hexseal Corp. 44 Honock St. Englewood, NJ 07631	98978	International Electronic Research Corp. 135 W. Magnolia Blvd. Burbank, CA 91502
97954	U S Components, Inc. 1320 Zerega Ave. Bronx, NY 10462	99515	ITT Jennings Monrovia Plant Div. 1960 Walker Ave. Monrovia, CA 91016
98291	Sealectro Corp. 225 Hoyt Mamaroneck, NY 10544	99941	X-Acto 48-41 Van Dam St. Long Island City, NY 11101

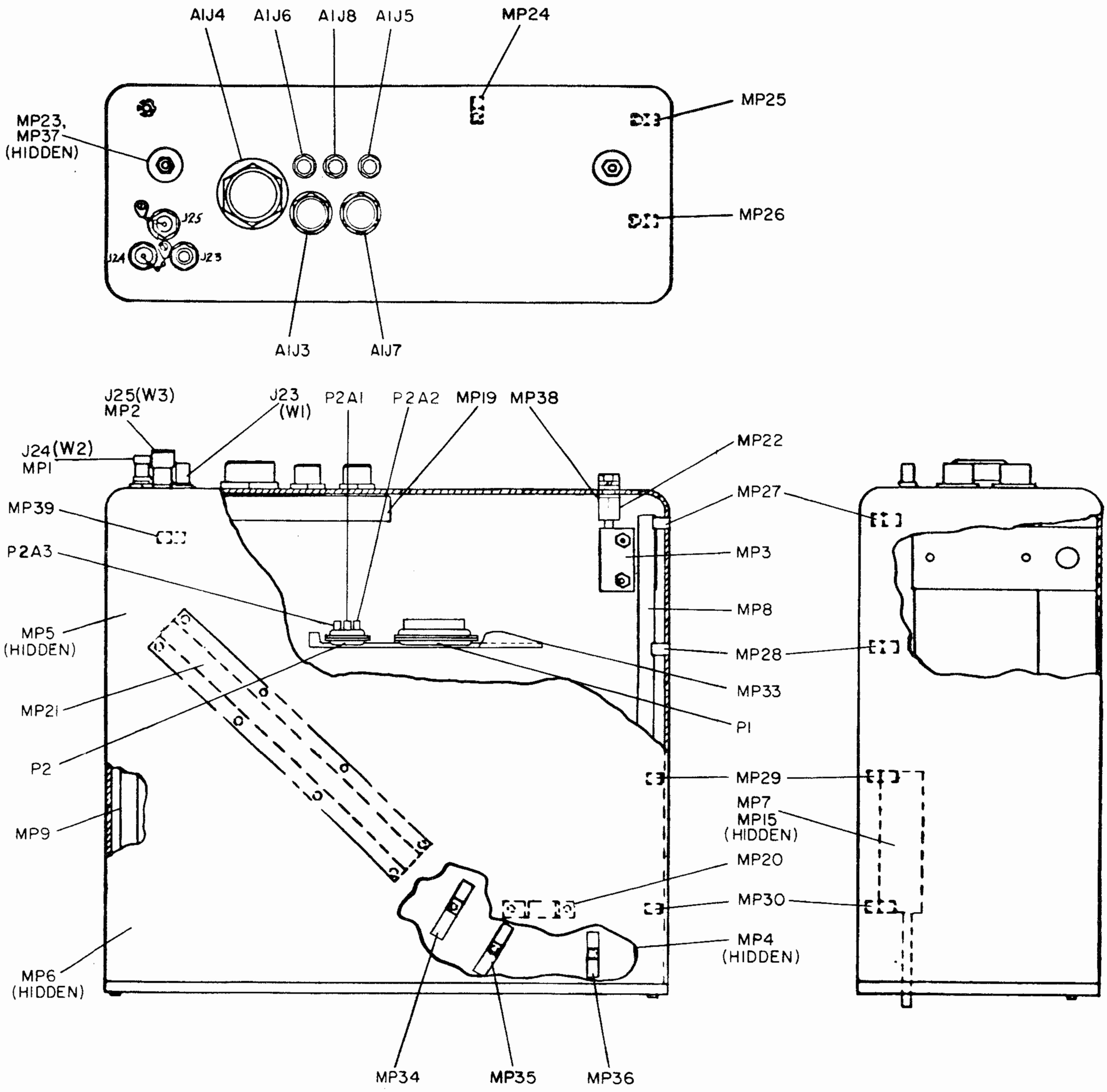


Figure 7-1. Case Assembly A1, Component Locations

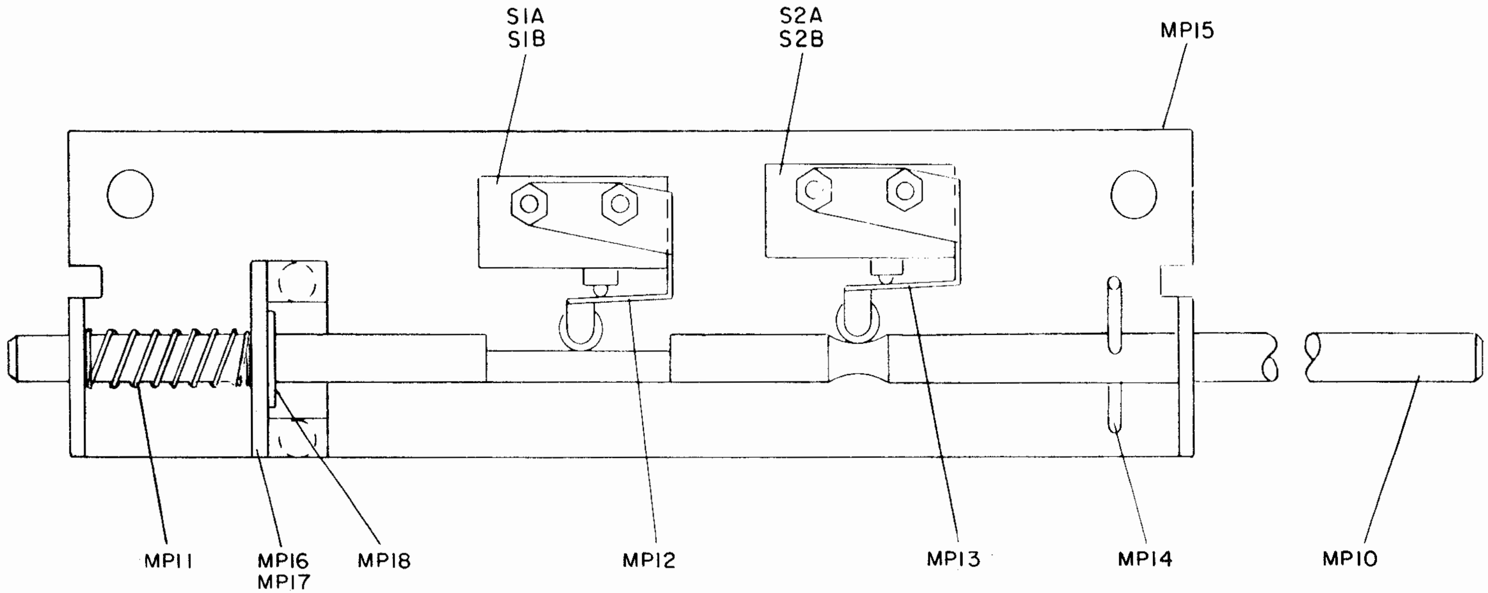


Figure 7-2. Switch Interlock Assembly A1MP7,
Component Locations

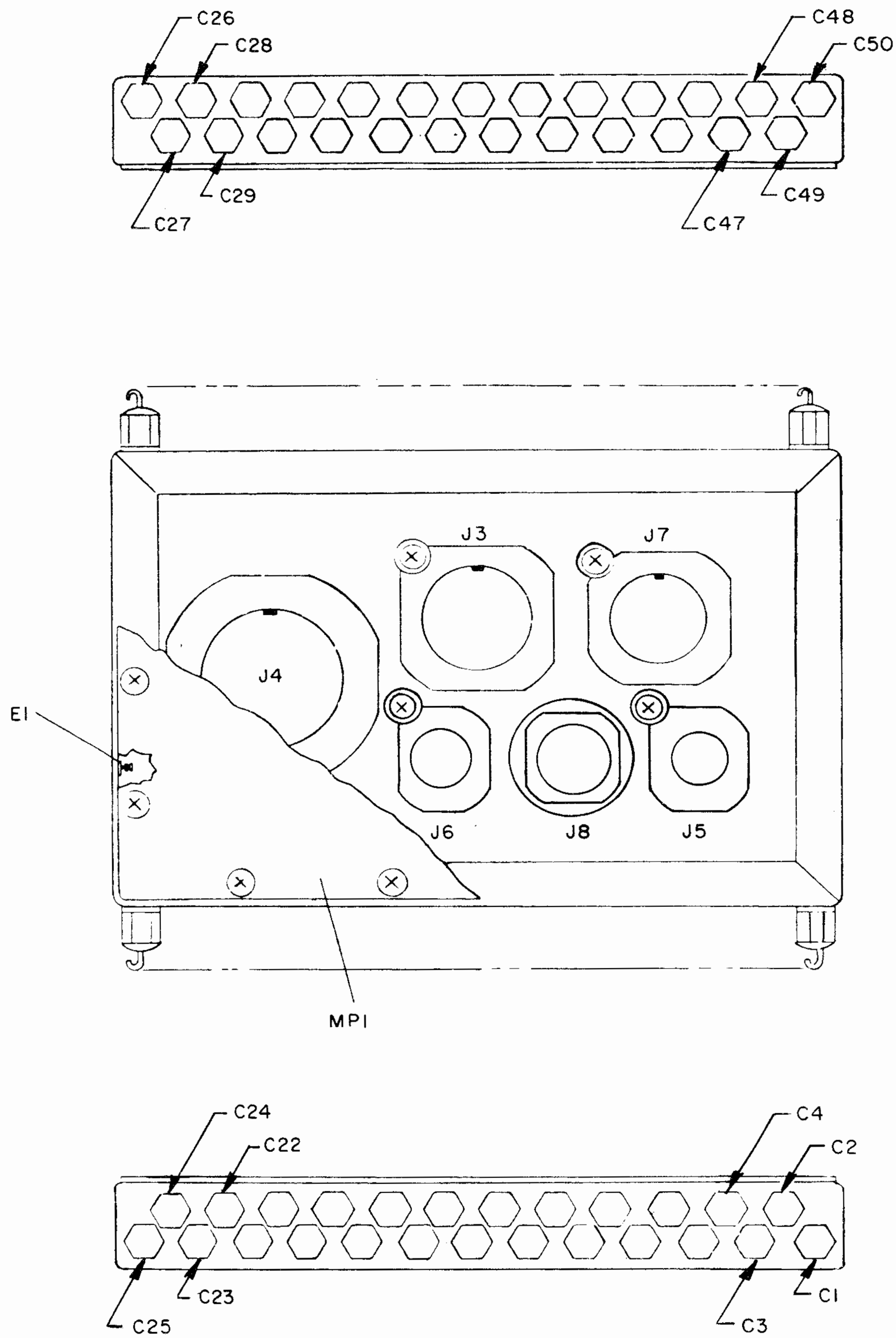
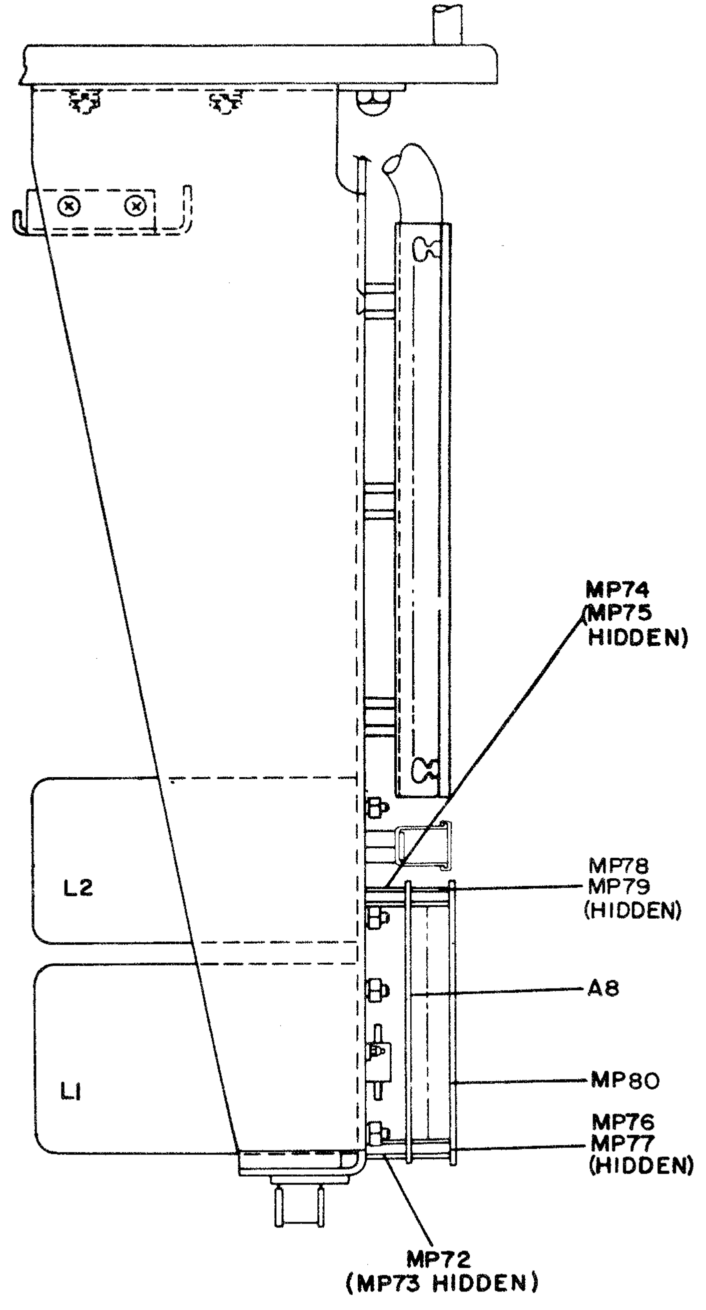
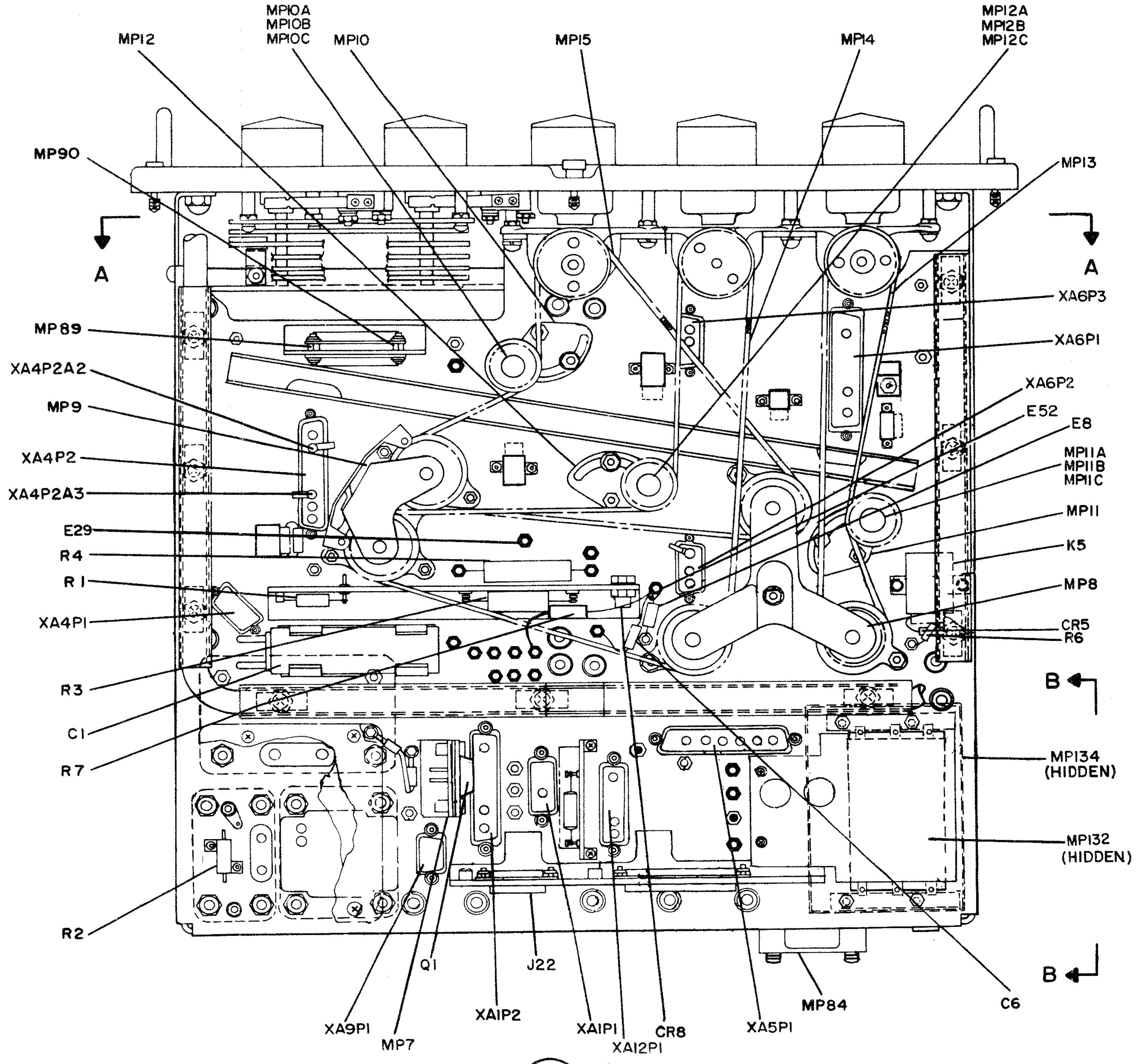


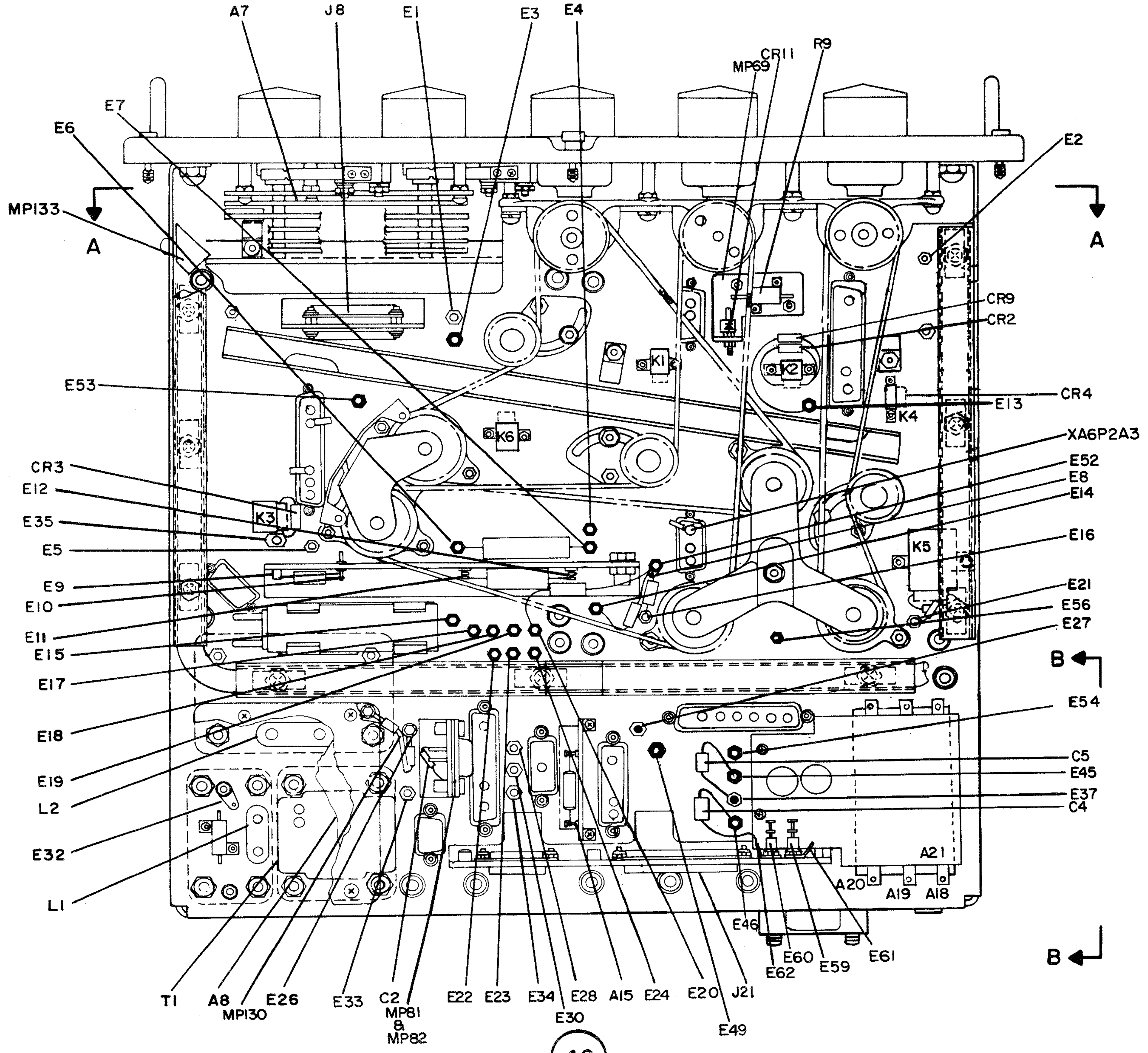
Figure 7-3. Filter Box Assembly A1A1, Component Locations



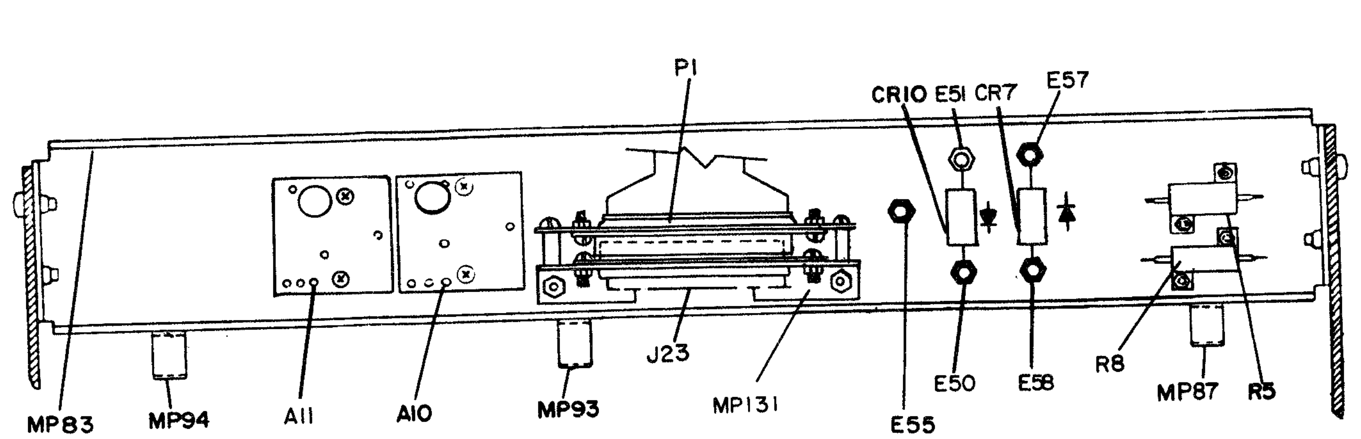
4A



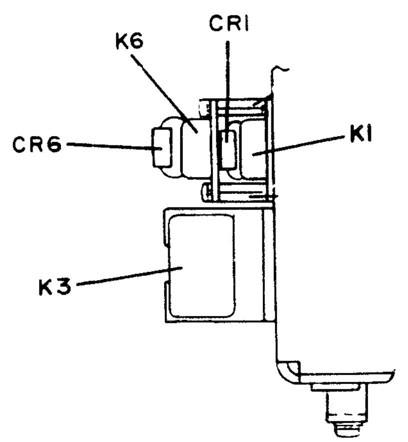
4B



4C



SECTION A-A



SECTION B-B

FROM		TO
XA6P3A2	W31	XA4P2A5
XA4P2A1	W33	J22A3
XA5P1A5	W34	XA6P1A1
XA5P1A1	W36	XA6P1A3
XA6P2A2	W37	XA12P1A1
XA5P1A6	W38	J22A2
XA5P1A4	W39	J22A1
XA1P2A3	W40	XA5P1A2
XA1P1A1	W41	XA12P1A3
XA1P2A1	W42	XA12P1A2
XA9P1-7	W43 W43A	XA5P1A3
	W43B	XA6P1A2

4D

Figure 7-4. Transmitter Main Frame A2, Component Locations

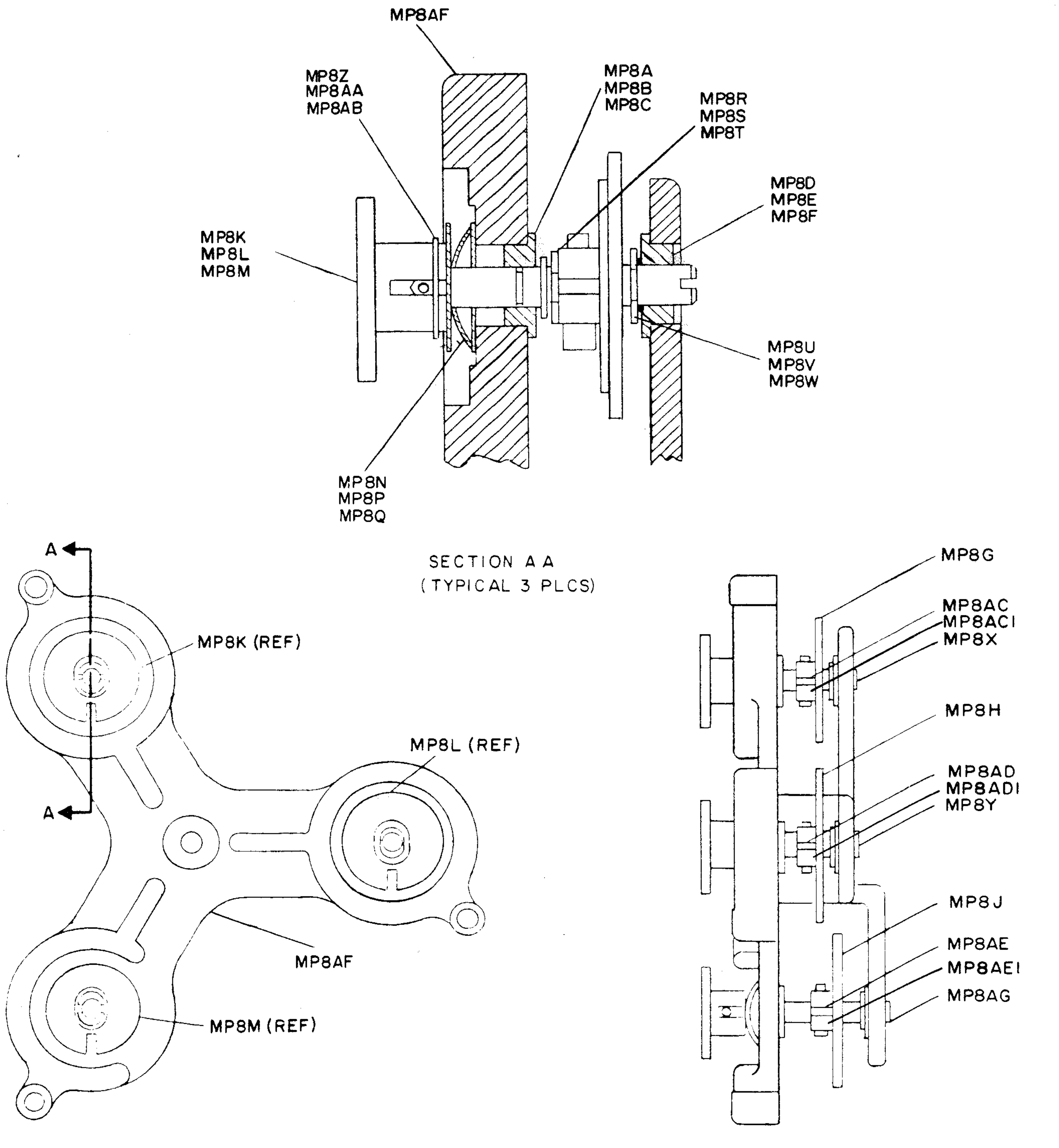


Figure 7-5. Triple-Sprocket Assembly A2MP8, Component Locations

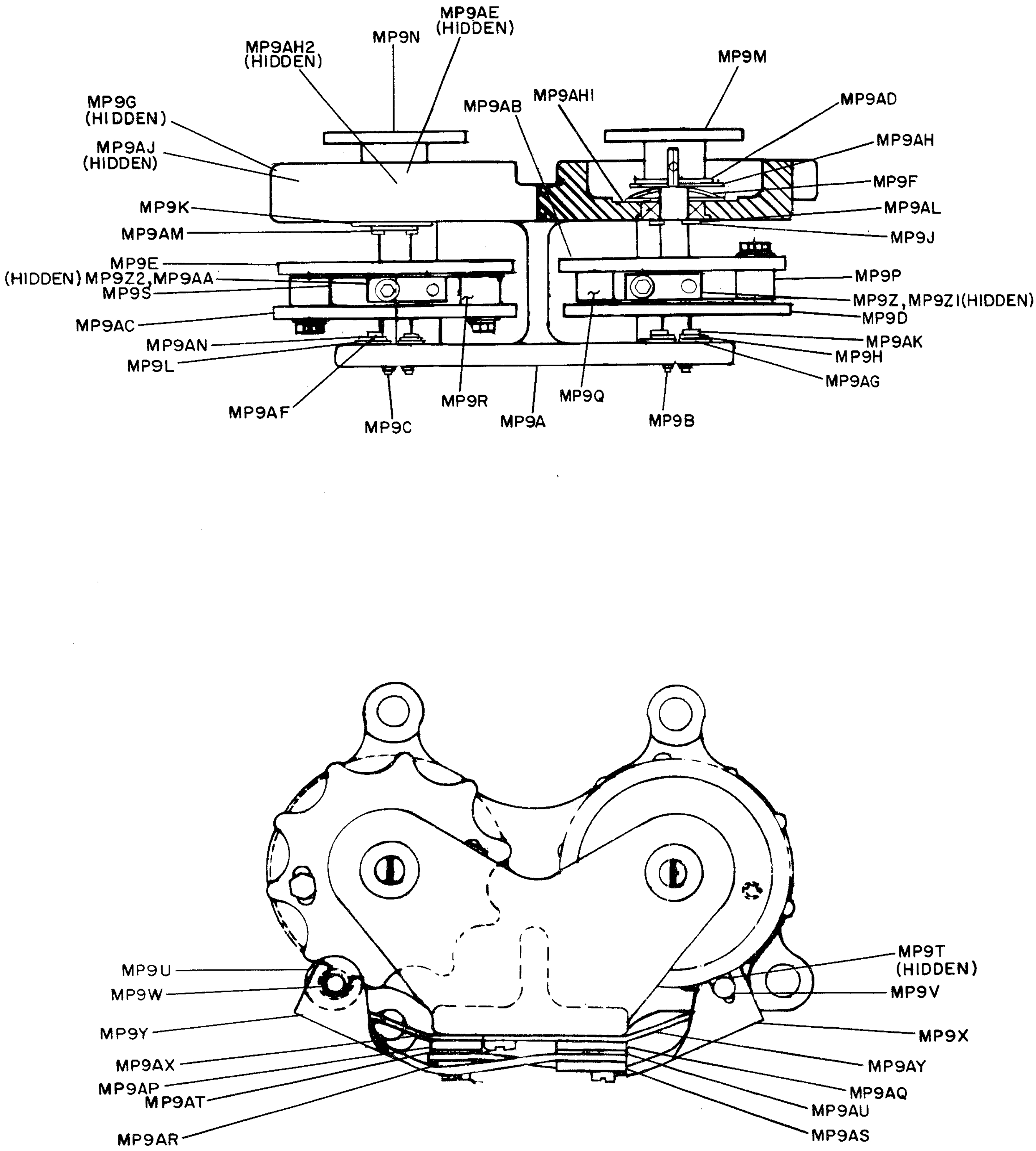


Figure 7-6. Dual-Sprocket Assembly A2MP9, Component Locations

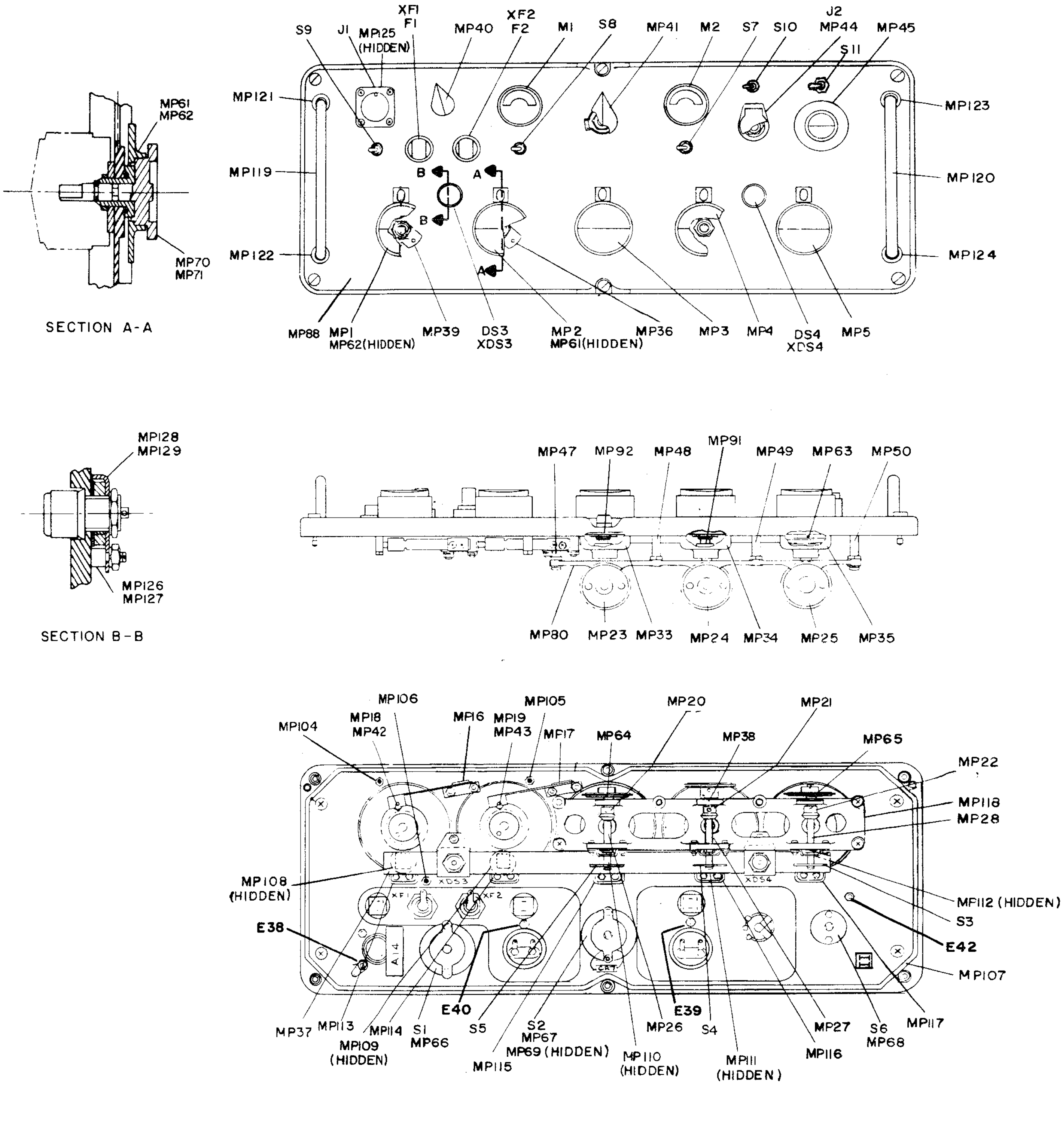


Figure 7-7. Front Panel Assembly (P/O A2), Component Locations

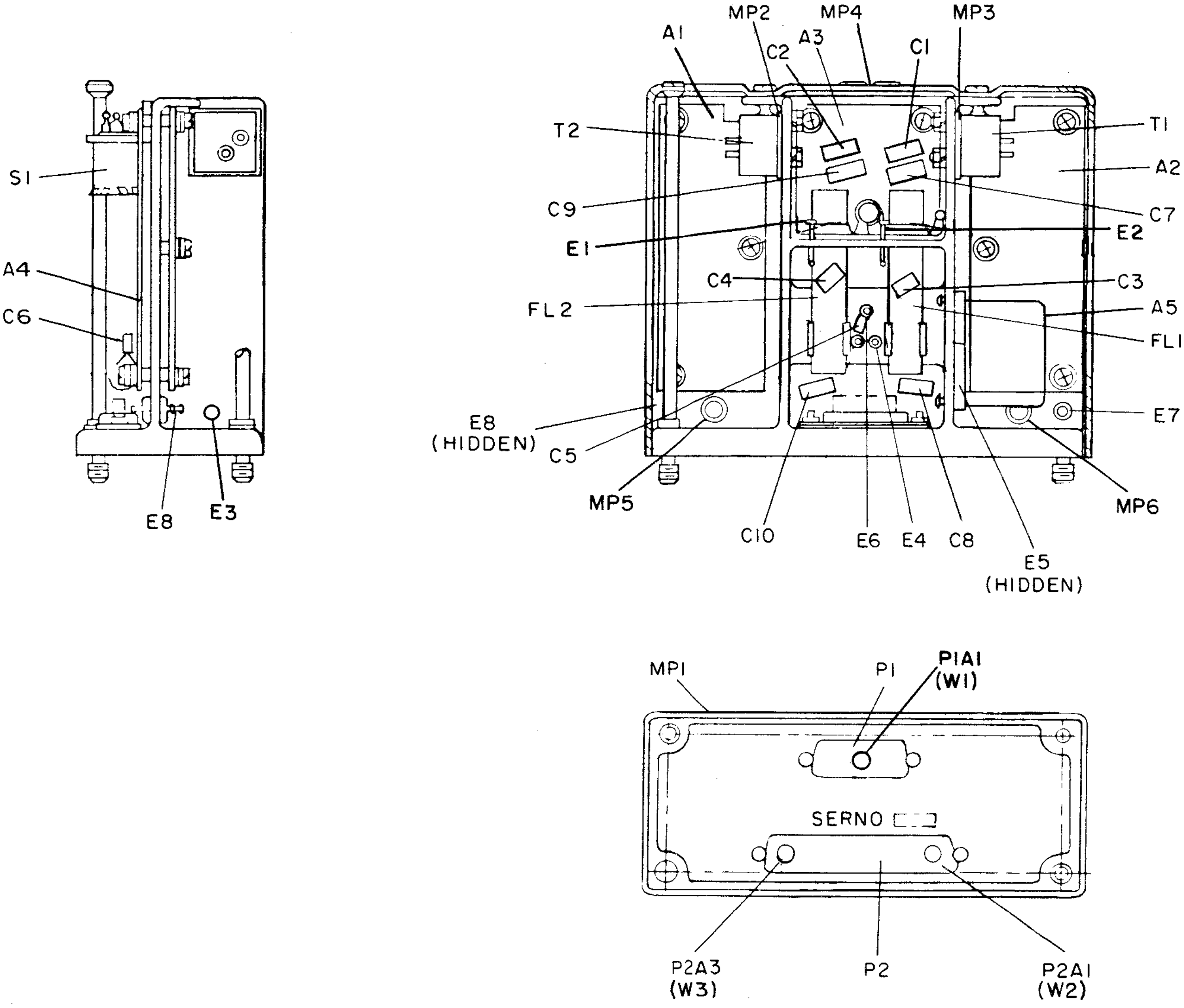
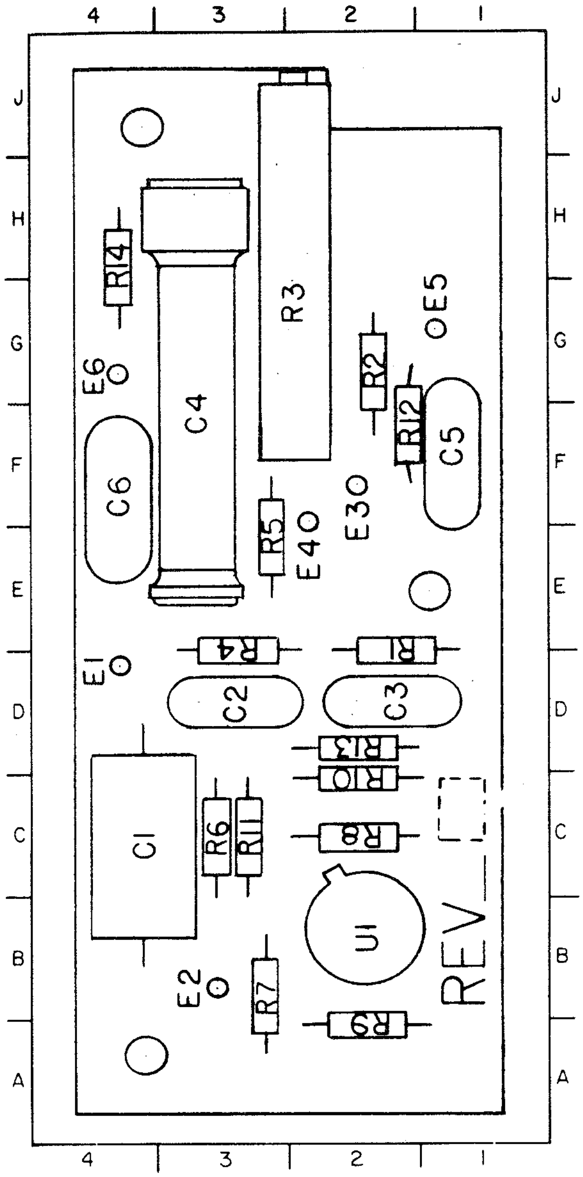


Figure 7-8. Mode Selector Assembly A2A1, Component Locations

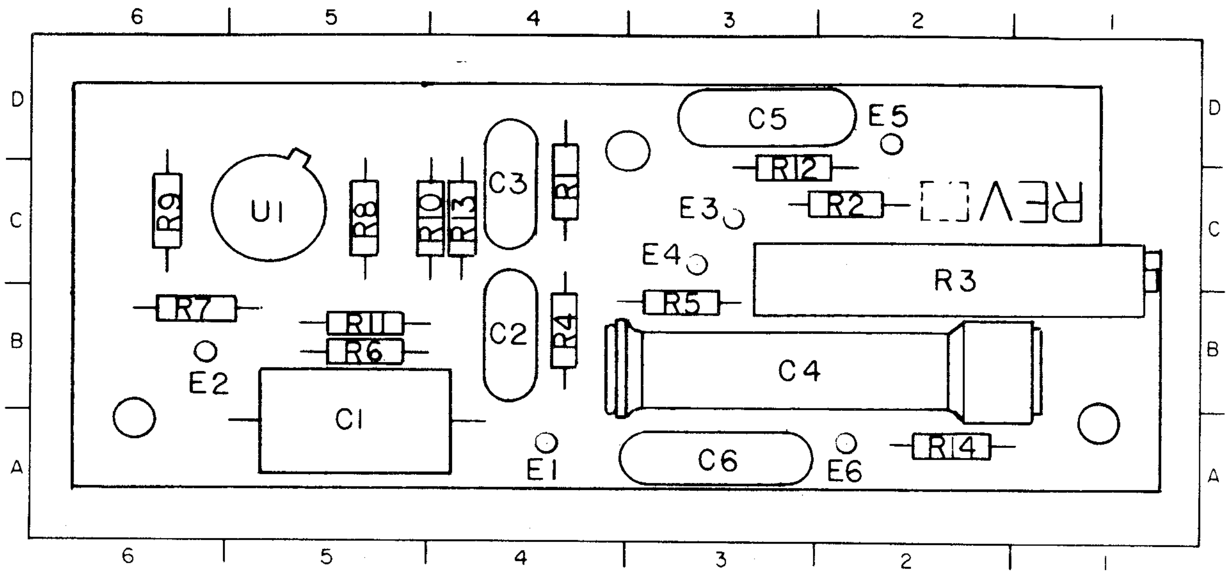


PART LOCATION INDEX

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A1A1C1	4C	** A2A1A1E4	2F	A2A1A1R7	3B
C2	3D	** E5	1G	R8	2C
C3	2D	** E6	4G	R9	2A
C4	3F	R1	2D	R10	2C
C5	1F	R2	2G	R11	3C
C6	4F	R3	2G	R12	2F
** E1	4D	R4	3D	R13	2D
** E2	3B	R5	3E	R14	4H
** E3	2F	R6	3C	U1	2B

** Wiring termination; for reference only.

Figure 7-9. USB Balanced Modulator, Printed Circuit Subassembly A2A1A1, Component Locations

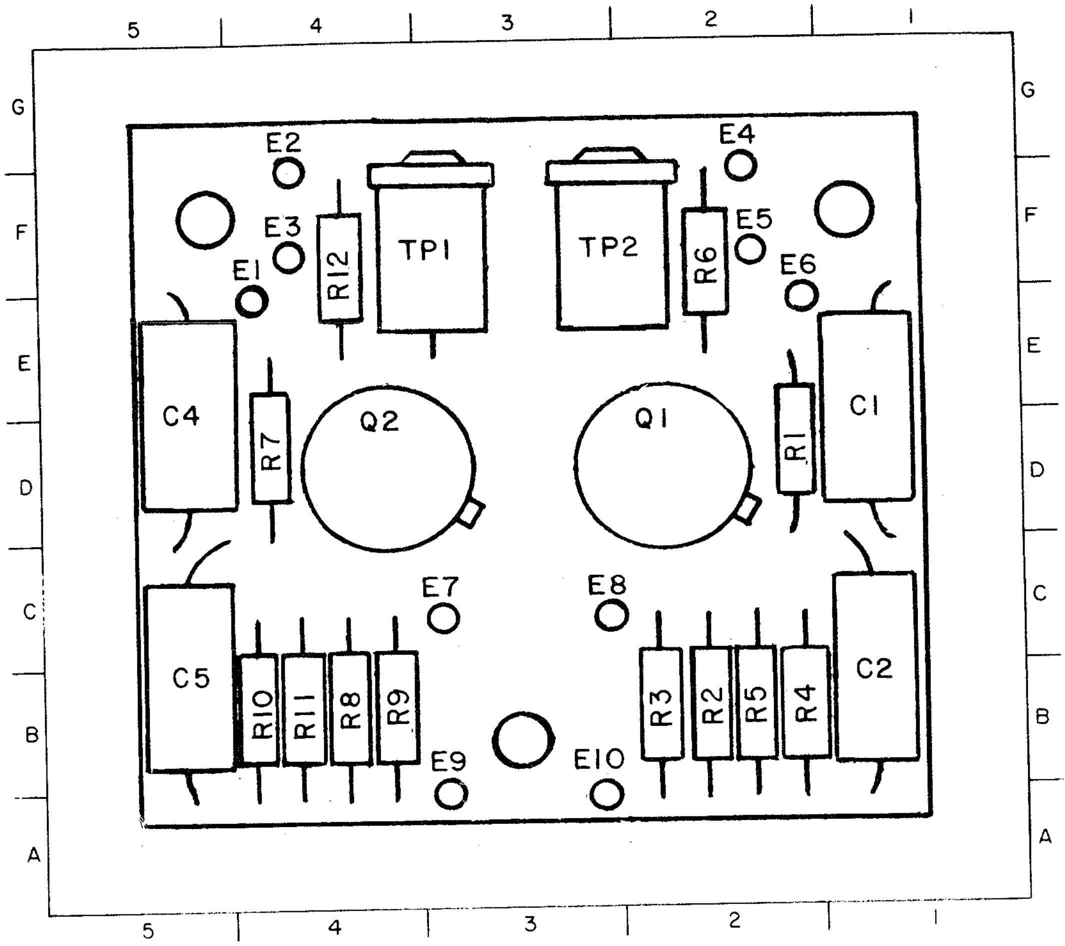


PART LOCATION INDEX

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A1A2C1	5A	** A2A1A2E4	3C	A2A1A2R7	6B
C2	4B	** E5	2D	R8	5C
C3	4C	** E6	2A	R9	6C
C4	3B	R1	4C	R10	4C
C5	3D	R2	2C	R11	5B
C6	3A	R3	2C	R12	3C
** E1	4A	R4	4B	R13	4C
** E2	6B	R5	3B	R14	2A
** E3	3C	R6	5B	U1	5C

** Wiring termination; for reference only.

Figure 7-10. LSB Balanced Modulator, Printed Circuit Subassembly A2A1A2, Component Locations



PART LOCATION INDEX

REF DES	ZONE
A2A1A3C1	1E
C2	1C
C3	*
C4	5E
C5	5C
** E1	4E
** E2	4G
** E3	4F
** E4	2F
** E5	2F
** A2A1A3E6	2E
** E7	3C
** E8	3C
** E9	3B
** E10	3B
Q1	2D
Q2	4D
R1	2D
R2	2B
R3	2B
A2A1A3R4	2B
R5	2B
R6	2F
R7	4D
R8	4C
R9	4B
R10	4B
R11	4B
R12	4F
TP1	3F
TP2	3F

* Not used. ** Solder Joint Only.

Figure 7-11. Isolation Amplifier, Printed Circuit Subassembly A2A1A3, Component Locations

PART OF FIGURE 7-12

PART LOCATION INDEX

REF DES	ZONE
A2A1A4C1	5B
C2	4B
C3	2B
C4	1C
C5	1B
C6	5B
C7	6B
C8	7B
C9 thru C16	*
C17	5B
C18	2C
C19	5C
C20	7D
C21	6D
C22	6D
C23	4C
C24	5C
C25	2B
C26	4B
C27	3D
C28	4D
CR1	4B
CR2 thru CR5	*
CR6	7D
CR7	6C
CR8	6D
CR9	4C
CR10	4C
CR11	3C
CR12	3D
** E1	5E
** E2	7E
** E3	7E
** E4	*
** E5	*

REF DES	ZONE
** A2A1A4E6	7A
** E7	6A
** E8	6A
** E9	5A
** E10	*
** E11	5A
** E12	5A
** E13	4A
** E14	4A
** E15	4A
** E16	3A
** E17	3A
** E18	*
** E19	2A
** E20	2A
** E21	1A
** E22	1A
** E23	*
** E24	*
** E25	3D
** E26	2D
** E27	3E
** E28	3E
** E29	3E
** E30	6E
** E31	6E
** E32	5E
** E33	4B
** E34	1B
Q1	1C
Q2	7C
R1	4B
R2	4B
R3	5B
R4	4B
R5	2C
R6	2B
R7	2C

REF DES	ZONE
A2A1A4R8	6B
R9	7B
R10	6B
R11 thru R32	*
R33	5C
R34	6C
R35	7C
R36	5D
R37	7D
R38	7D
R39	5E
R40	6D
R41	6E
R42	6D
R43	6D
R44	3B
R45	4C
R46	3C
R47	5C
R48	3C
R49	3C
R50	3B
R51	5D
R52	6E
R53	3D
R54	3D
R55	3D
R56	3E
R57	3E
R58	3D
R59	3D
R60	3E
R61	3D
R62	3E
R63	2D
T1	1B
T2	7B
T3	7E

* NOT USED
** WIRING TERMINATION: REFERENCE ONLY.

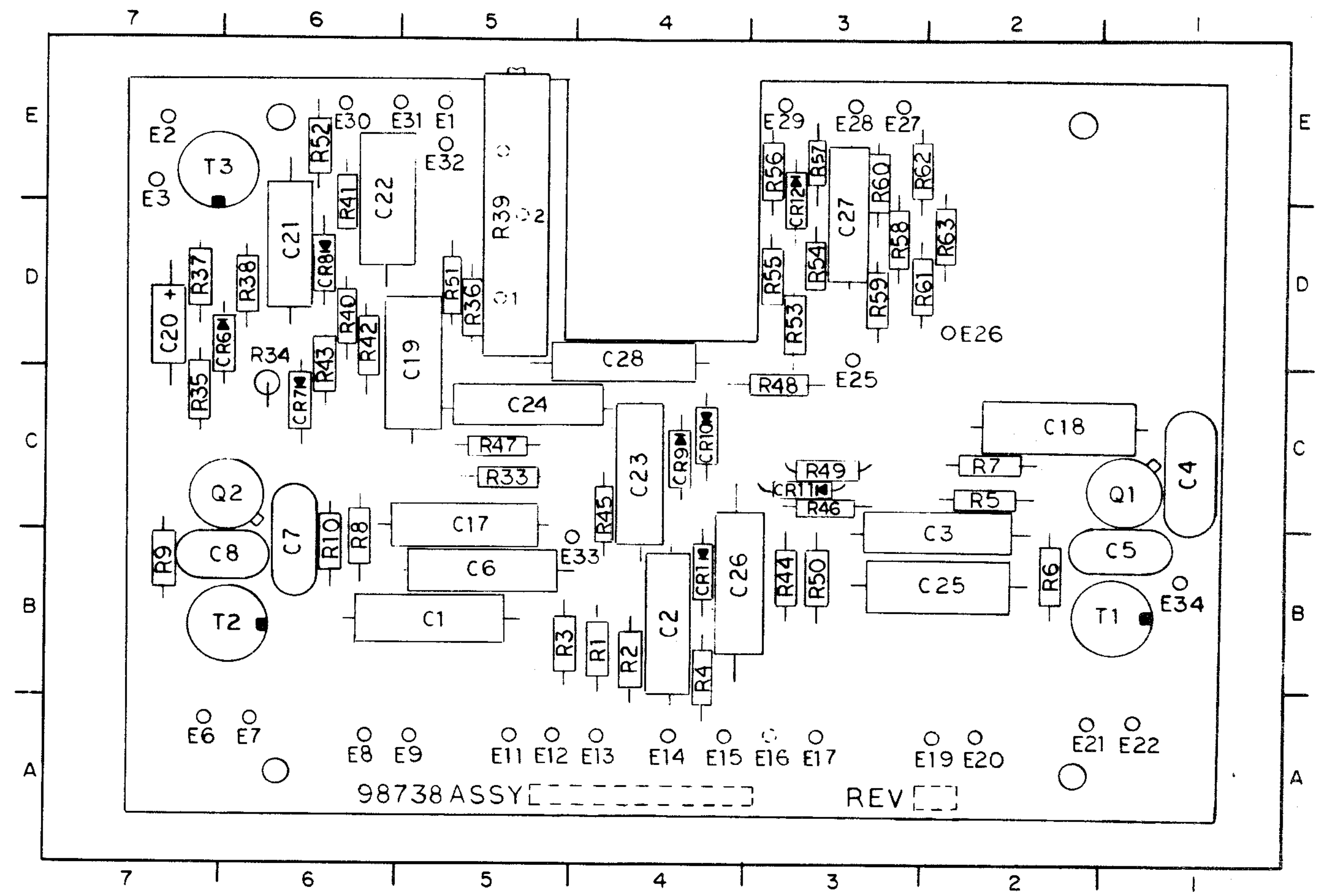


Figure 7-12. 500 kHz Gates, Printed Circuit Subassembly A2A1A4, Component Locations

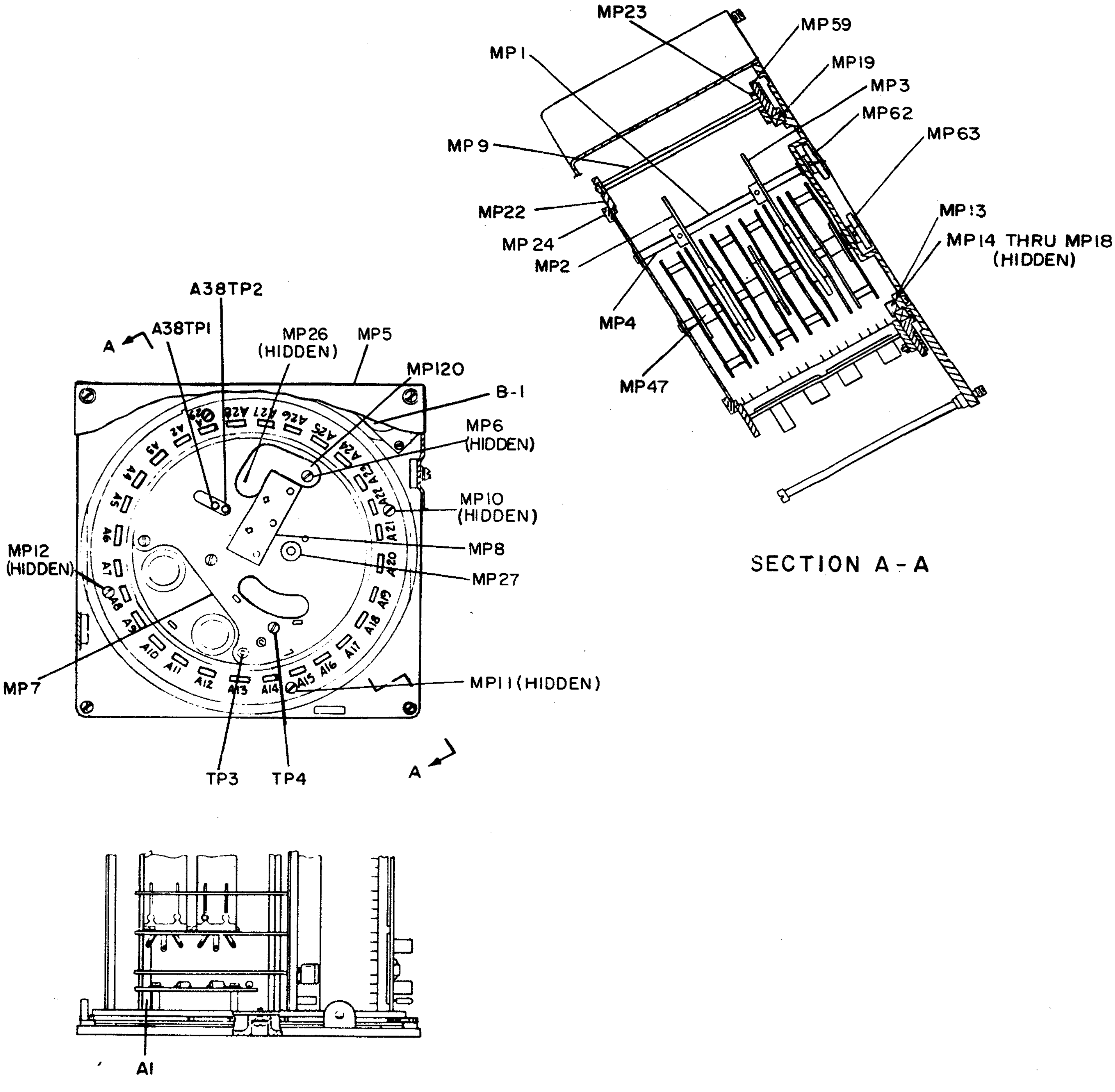


Figure 7-13. RF Amplifier Assembly A2A4, Component Locations

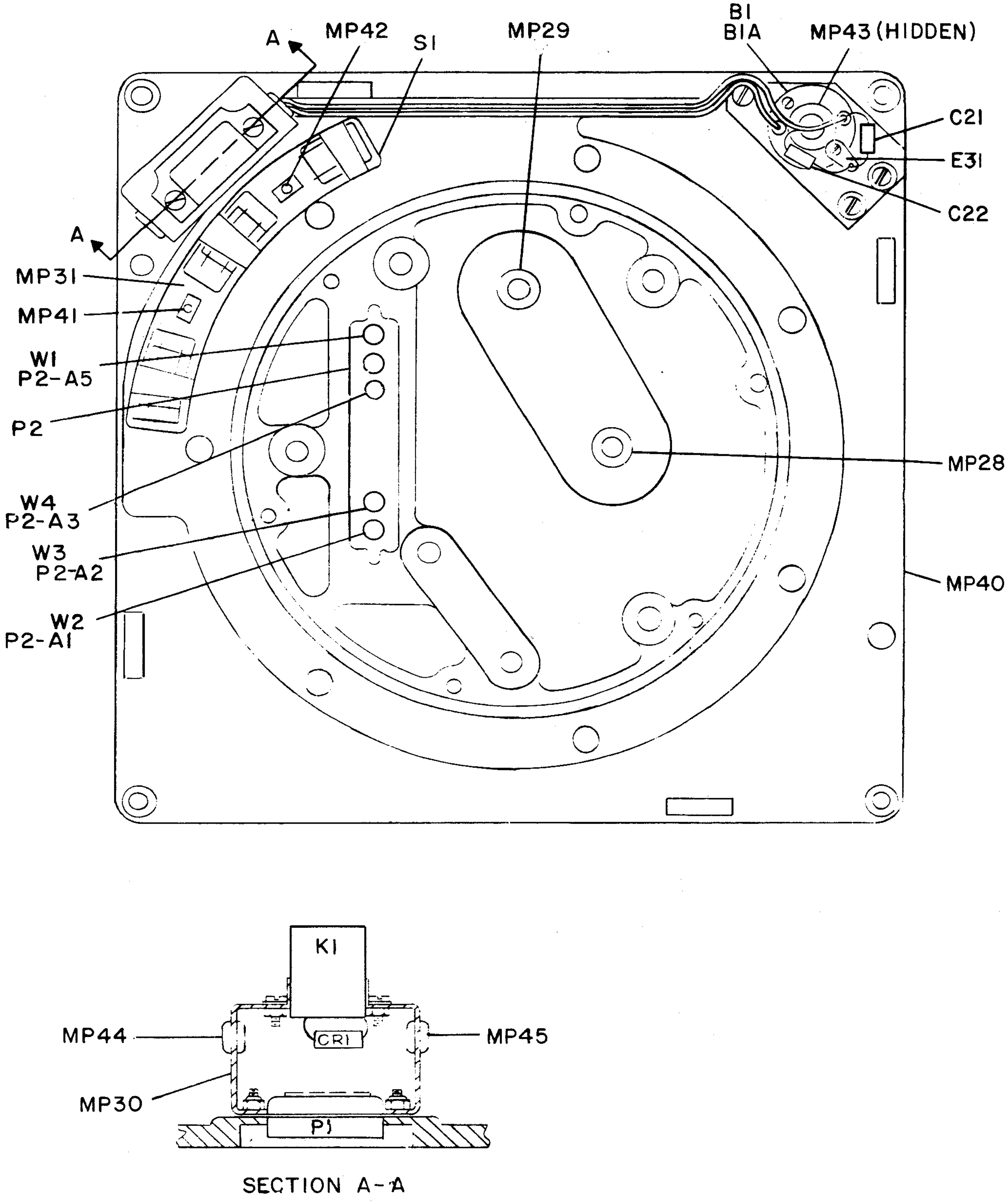


Figure 7-14. Mounting Base Assembly (P/O A2A4), Component Locations

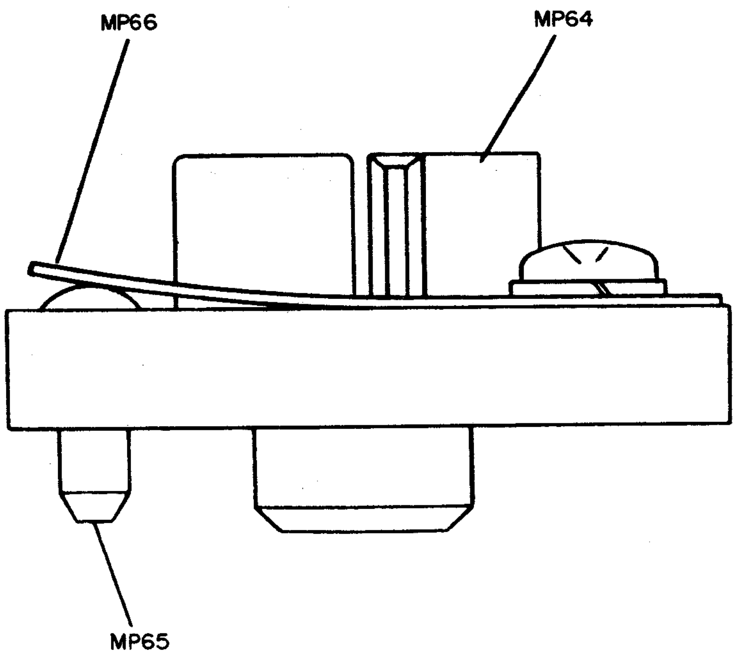


Figure 7-15. Top Coupling Assembly A2A4MP62 and A2A4MP63, Component Locations

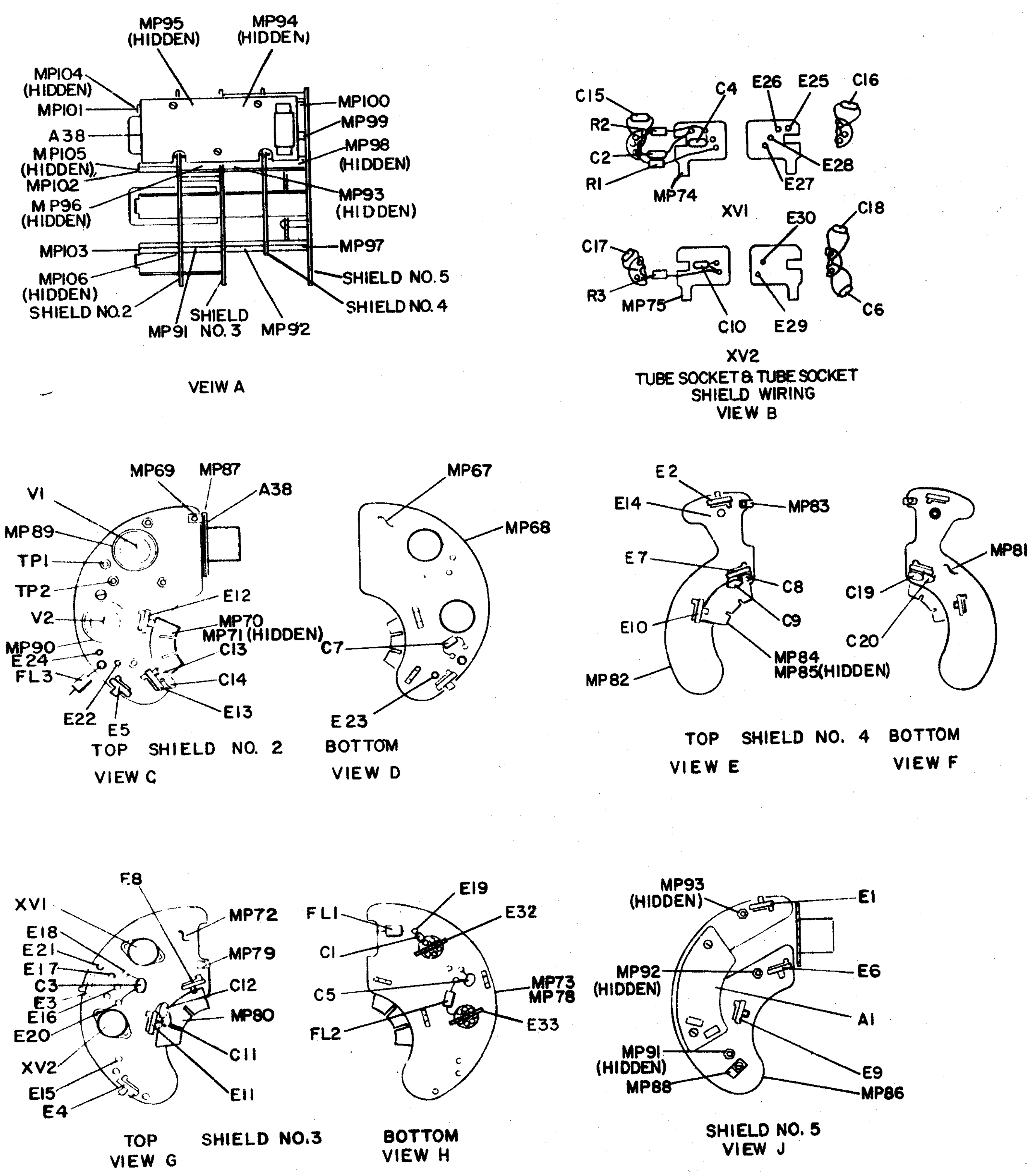


Figure 7-16. RF Chassis Assembly (P/O A2A4), Component Locations

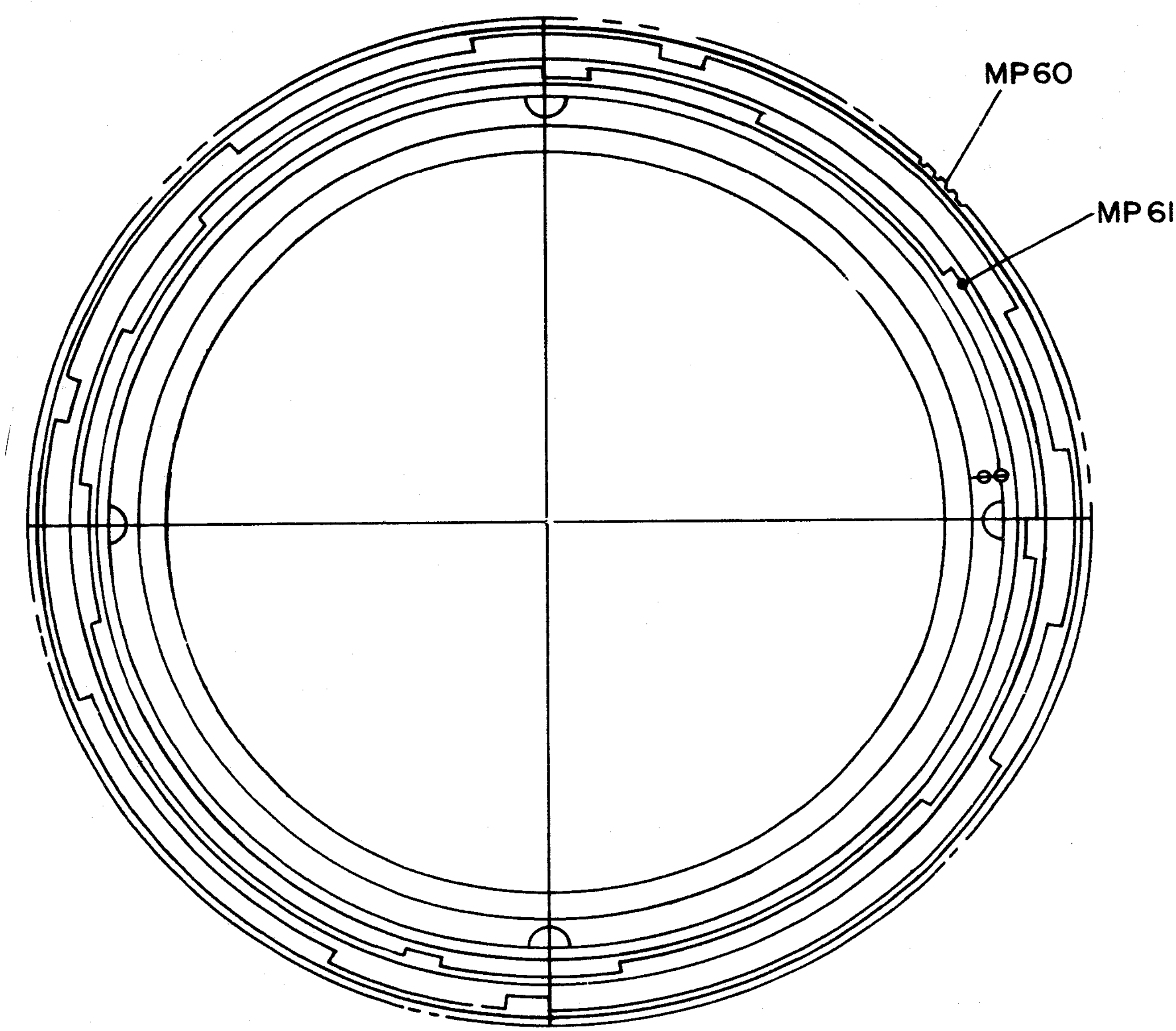


Figure 7-17. Turret Drive Gear Assembly (P/O A2A4), Component Locations

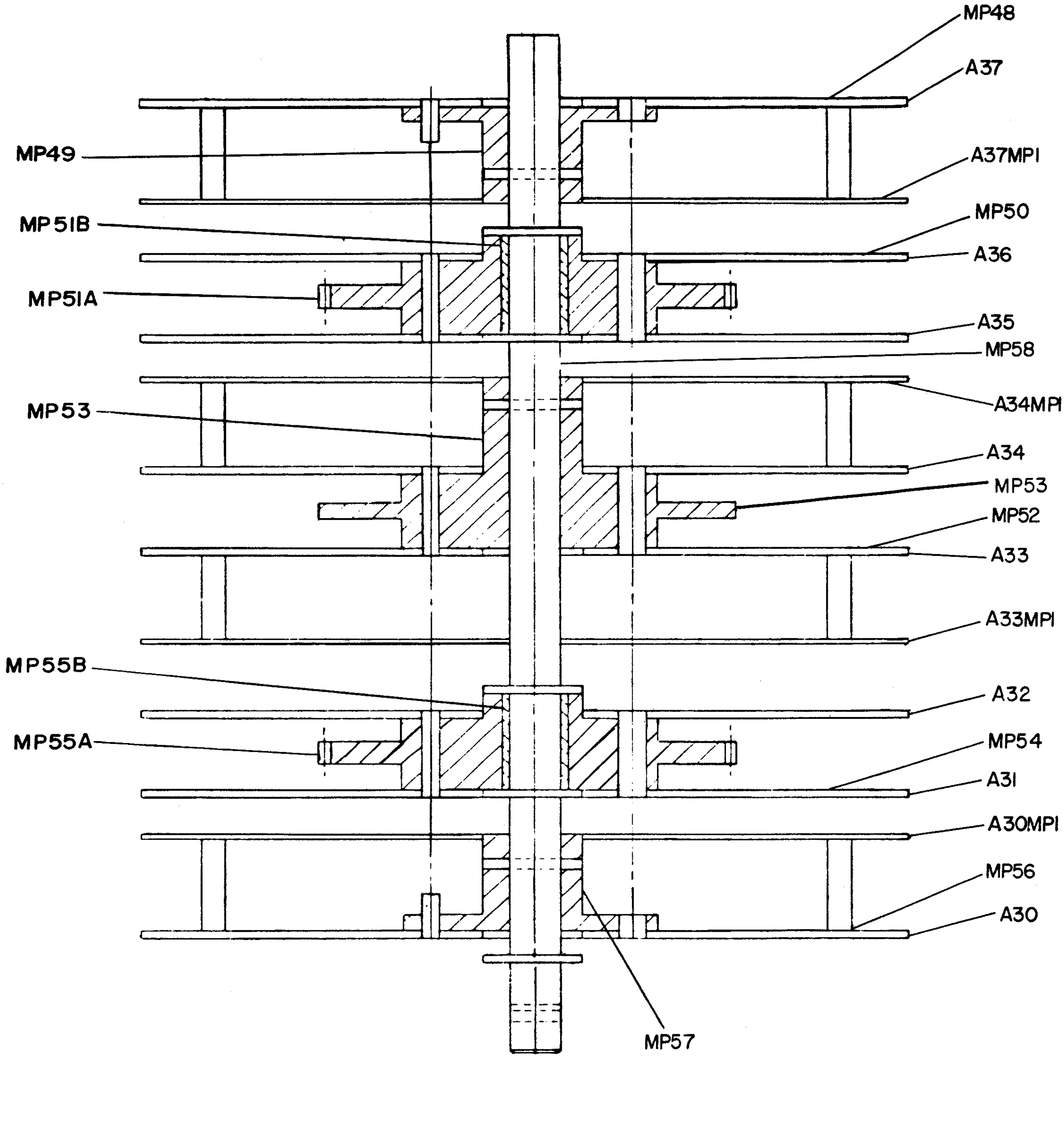
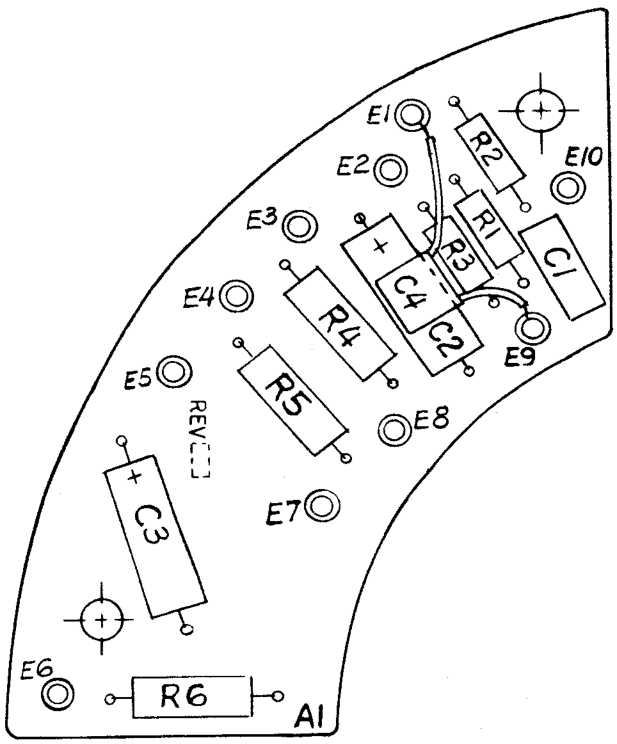


Figure 7-18. Tuning Rotor Assembly A2A4MP47, Component Locations



E1 thru E8 and E10 are wiring terminations
and are shown for reference only.

Figure 7-19. RF Amplifier Subassembly A2A4A1,
Component Locations

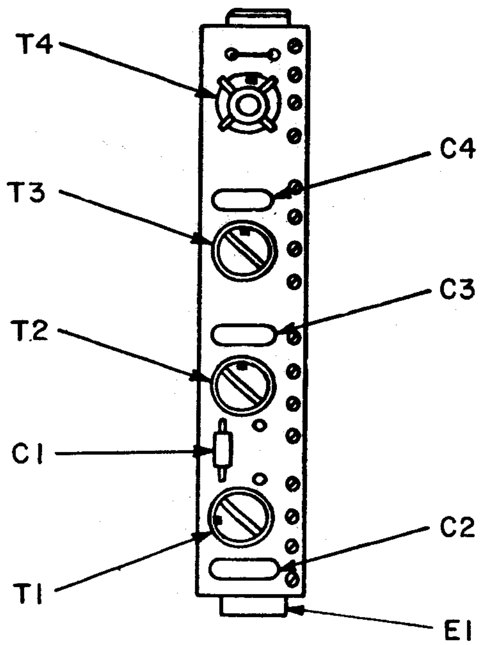


Figure 7-20. 12 MHz Subassembly A2A4A2, Component Locations

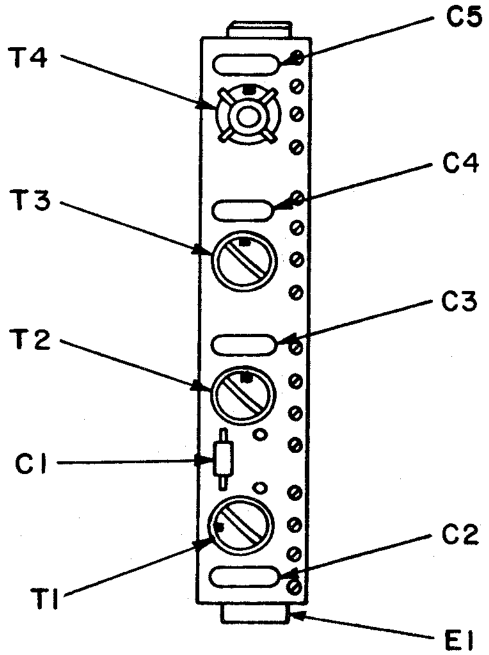


Figure 7-21. 13 MHz Subassembly A2A4A3, Component Locations

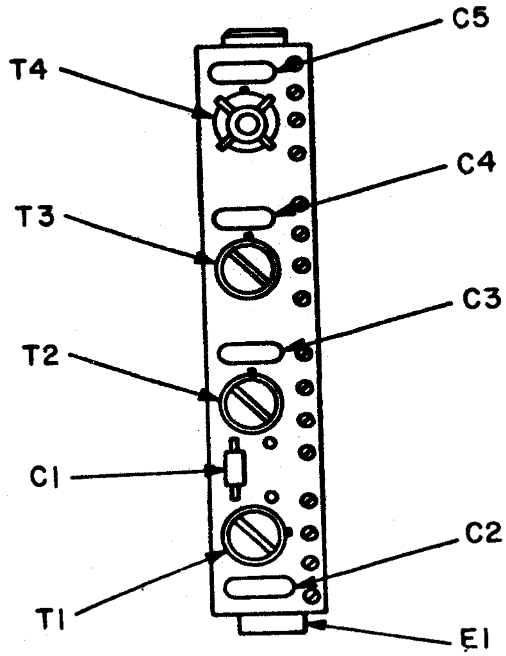


Figure 7-22. 14 MHz Subassembly A2A4A4, Component Locations

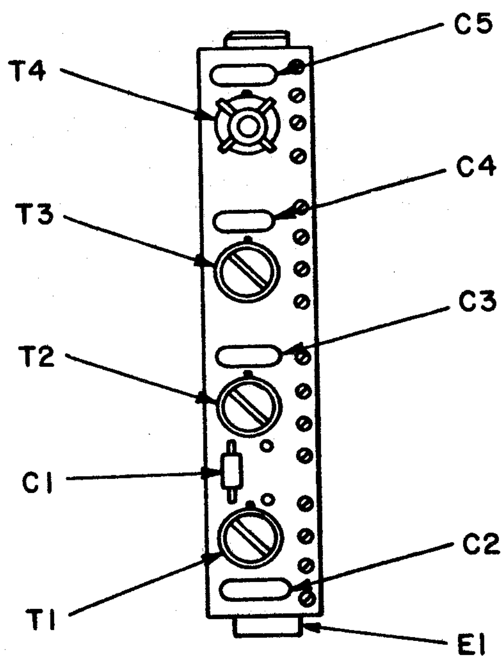


Figure 7-23. 15 MHz Subassembly A2A4A5, Component Locations

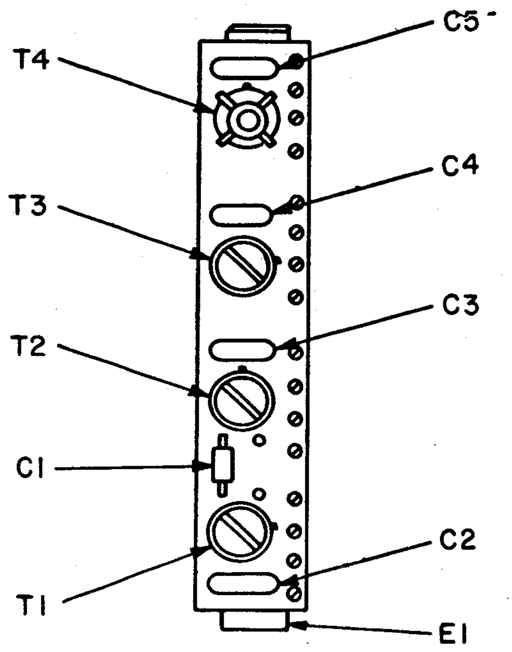


Figure 7-24. 16 MHz Subassembly A2A4A6, Component Locations

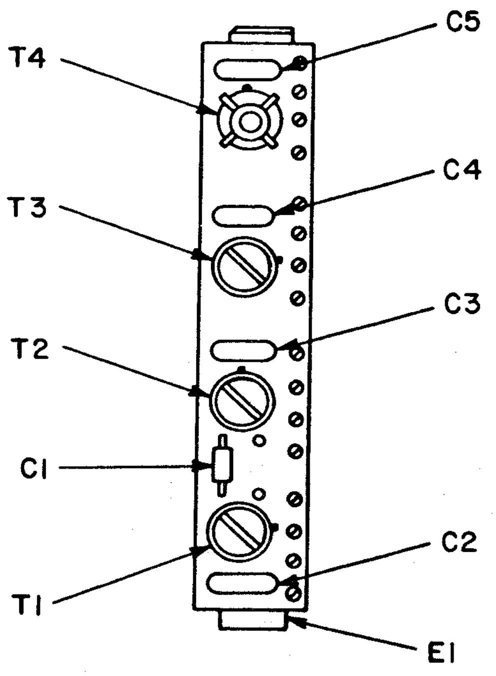


Figure 7-25. 17 MHz Subassembly A2A4A7, Component Locations

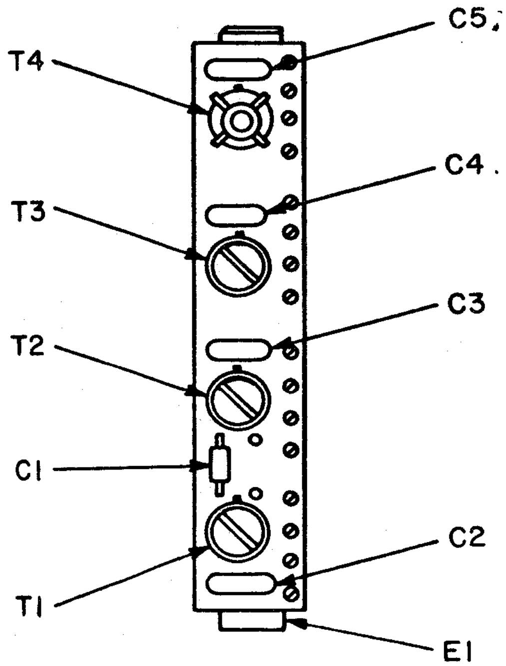


Figure 7-26. 18 MHz Subassembly A2A4A8,
Component Locations

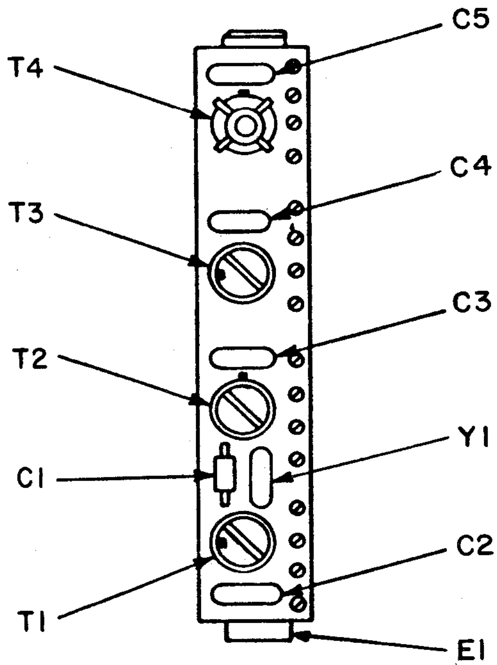


Figure 7-27. 19 MHz Subassembly A2A4A9,
Component Locations

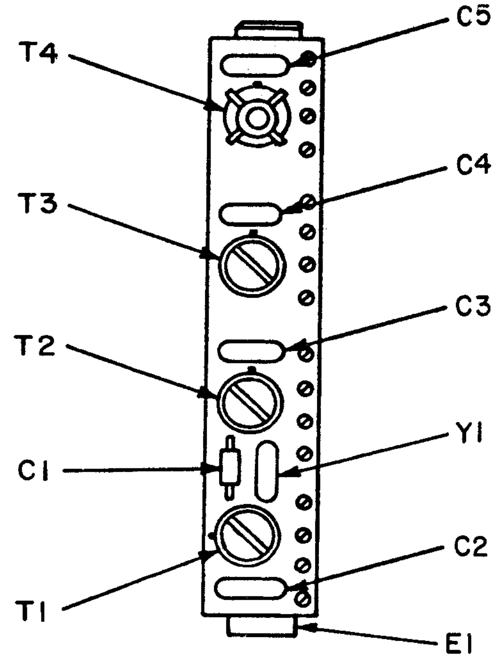


Figure 7-28. 20 MHz Subassembly A2A4A10, Component Locations

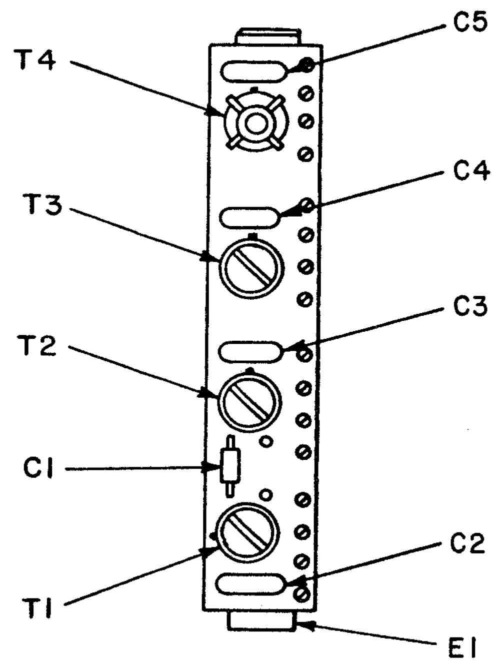


Figure 7-29. 21 MHz Subassembly A2A4A11, Component Locations

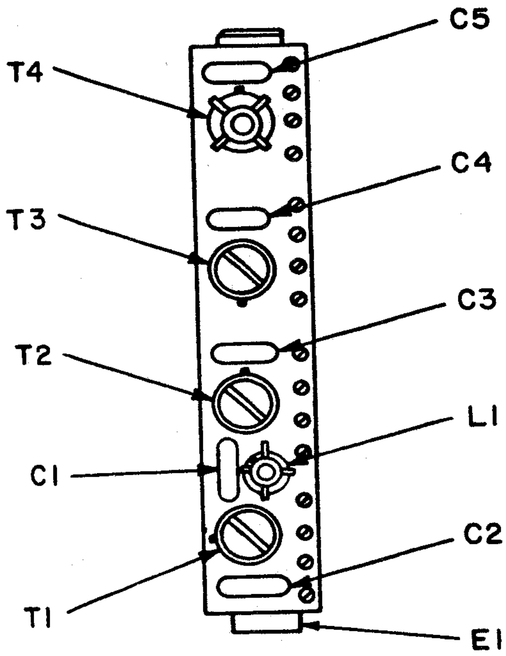


Figure 7-30. 22 MHz Subassembly A2A4A12, Component Locations

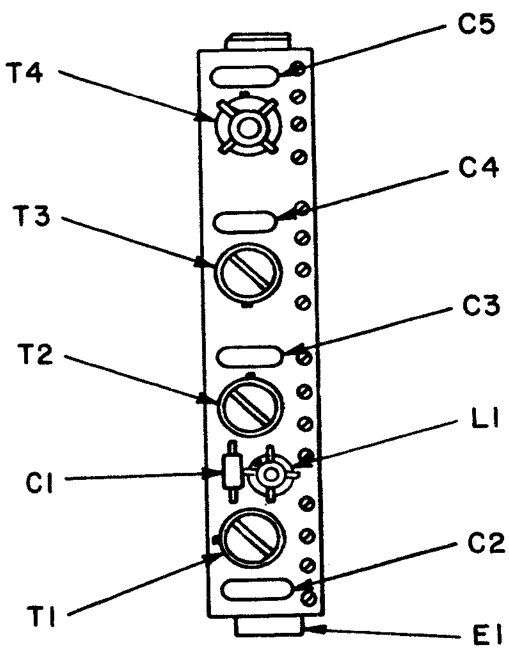


Figure 7-31. 23 MHz Subassembly A2A4A13, Component Locations

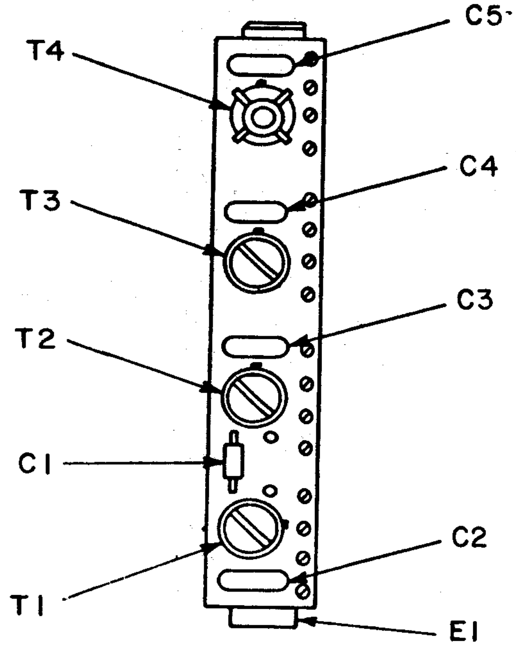


Figure 7-32. 24 MHz Subassembly A2A4A14, Component Locations

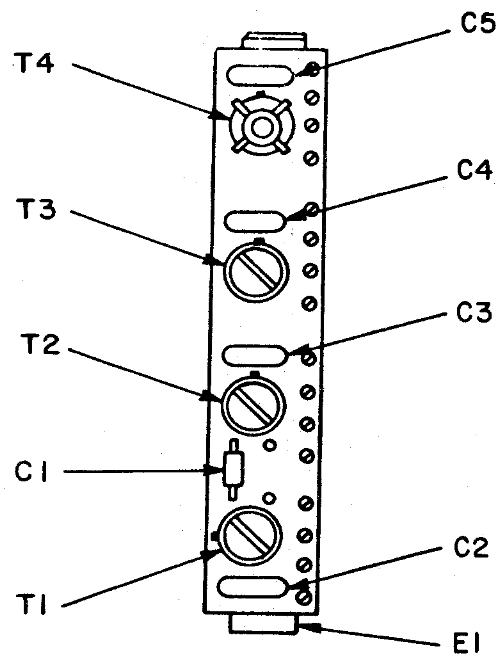


Figure 7-33. 25 MHz Subassembly A2A4A15, Component Locations

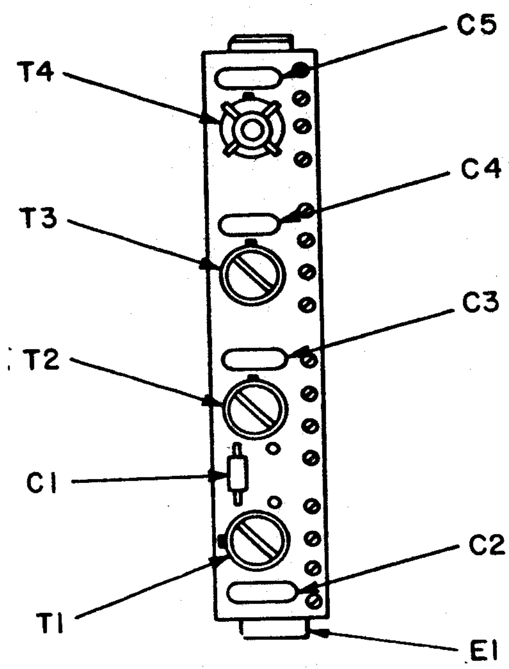


Figure 7-34. 26 MHz Subassembly A2A4A16, Component Locations

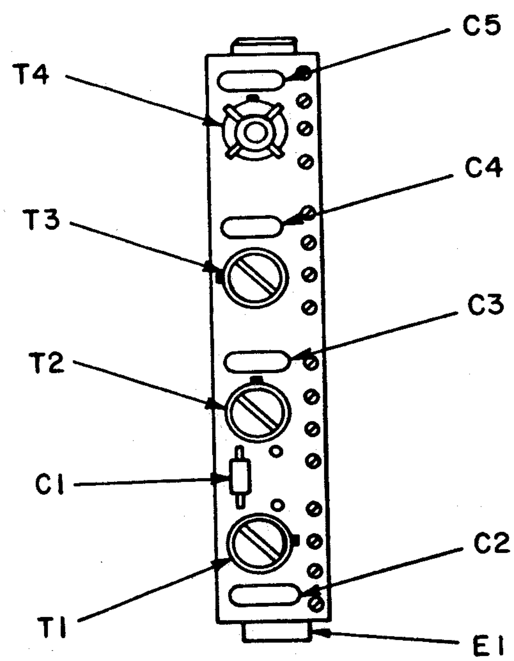


Figure 7-35. 27 MHz Subassembly A2A4A17, Component Locations

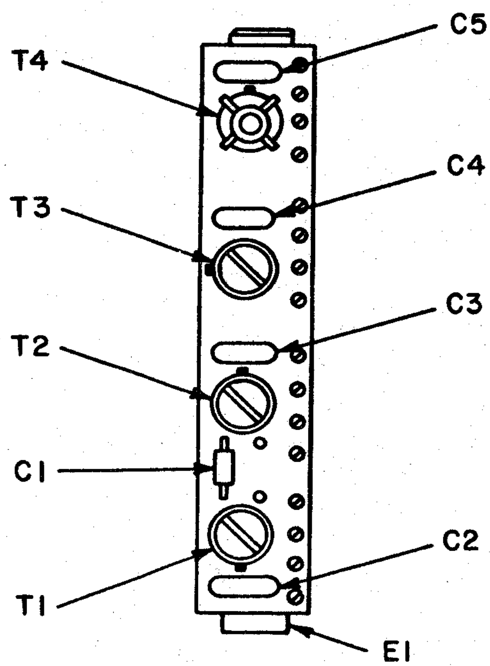


Figure 7-36. 28 MHz Subassembly A2A4A18, Component Locations

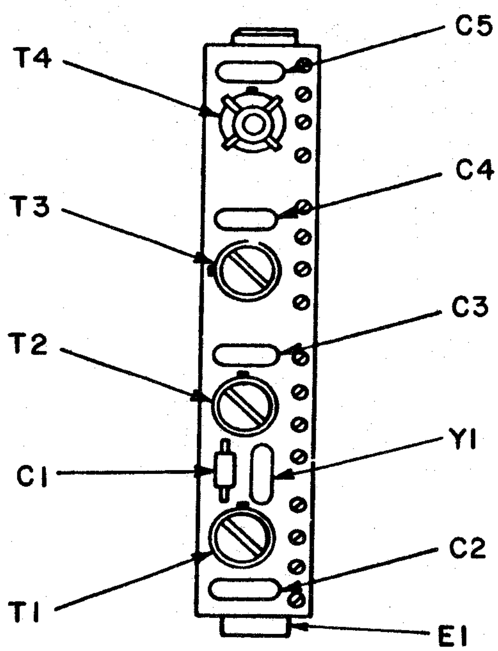


Figure 7-37. 29 MHz Subassembly A2A4A19, Component Locations

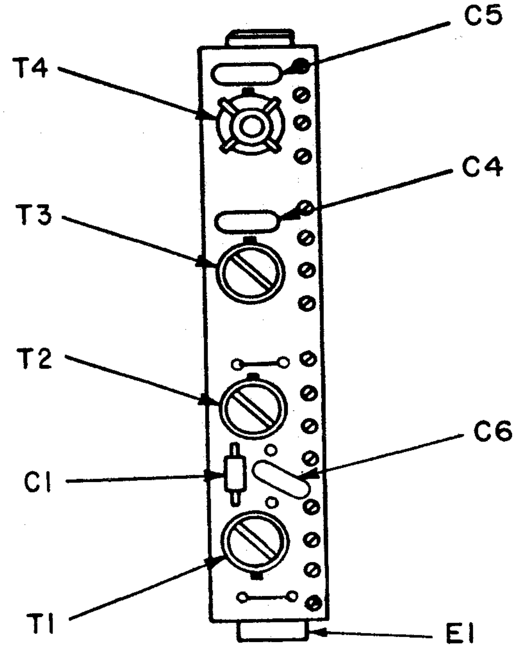


Figure 7-38. 2 MHz Subassembly A2A4A20,
Component Locations

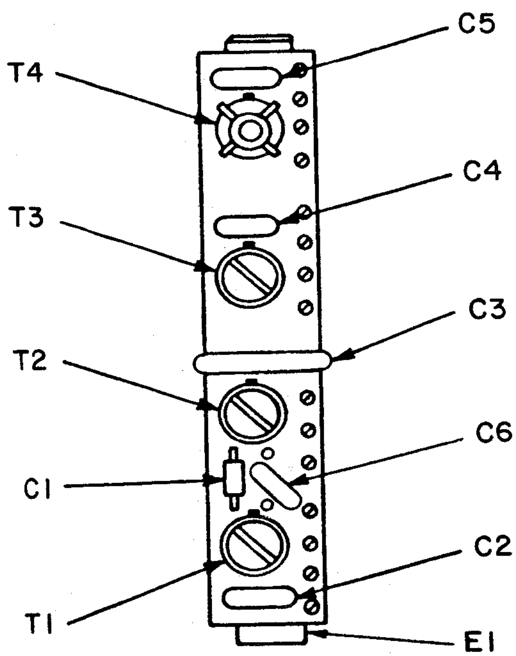


Figure 7-39. 3 MHz Subassembly A2A4A21,
Component Locations

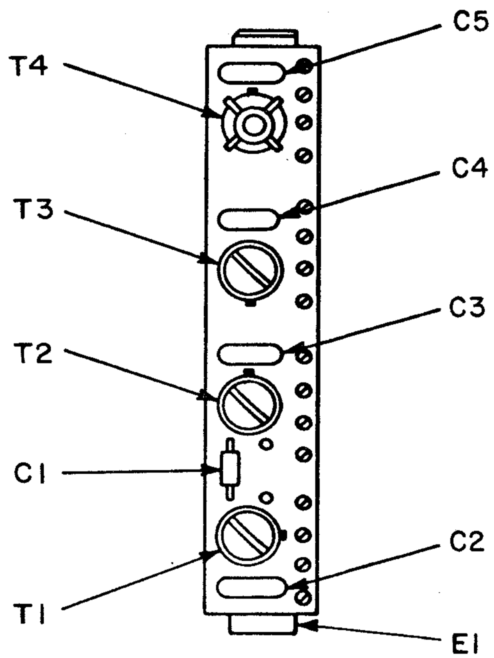


Figure 7-40. 4 MHz Subassembly A2A4A22, Component Locations

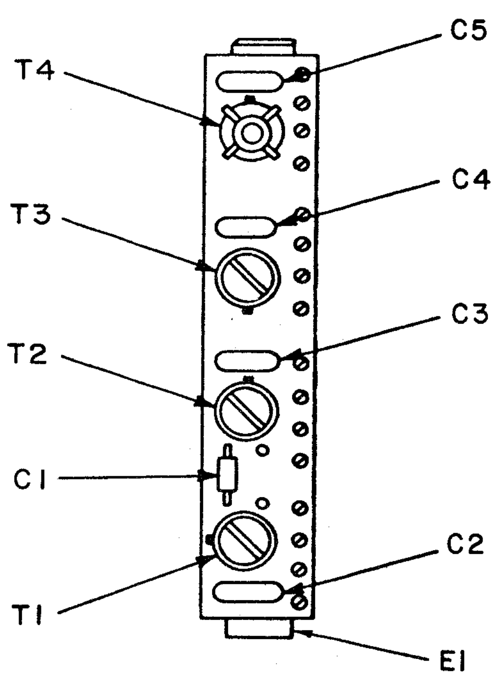


Figure 7-41. 5 MHz Subassembly A2A4A23, Component Locations

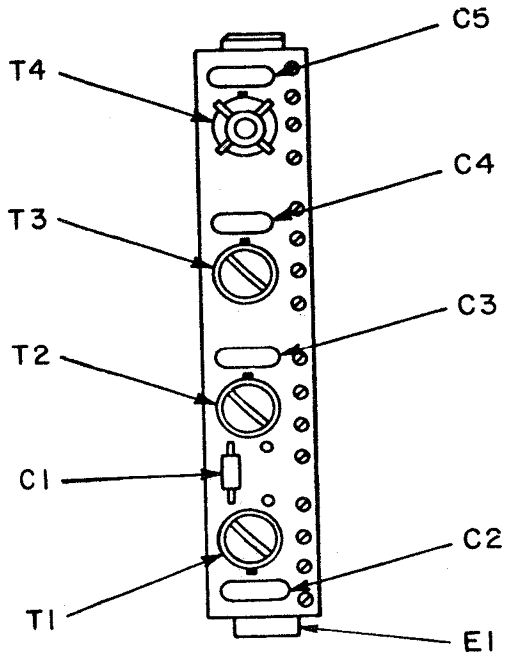


Figure 7-42. 6 MHz Subassembly A2A4A24, Component Locations

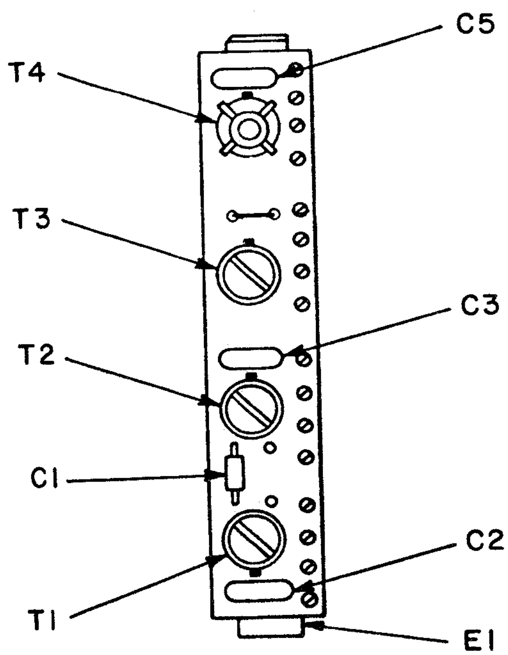


Figure 7-43. 7 MHz Subassembly A2A4A25, Component Locations

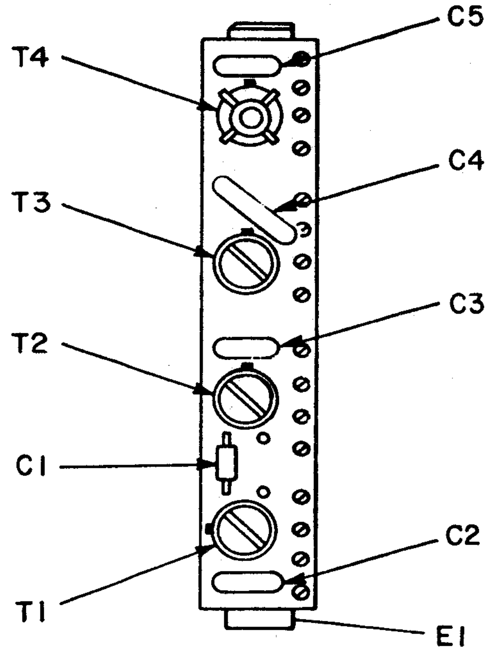


Figure 7-44. 8 MHz Subassembly A2A4A26, Component Locations

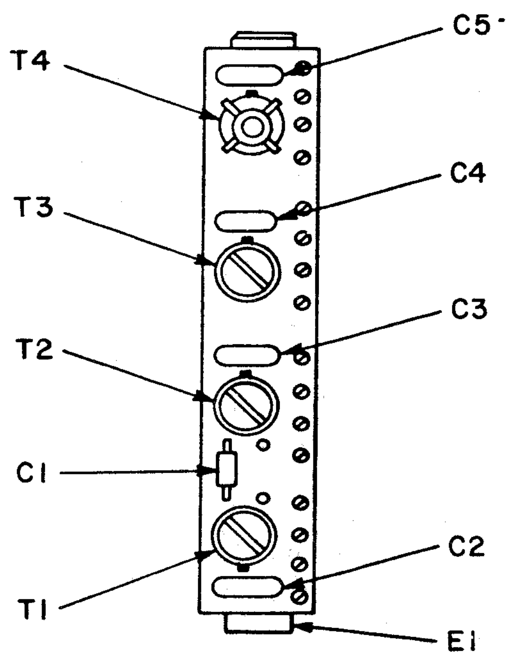


Figure 7-45. 9 MHz Subassembly A2A4A27, Component Locations

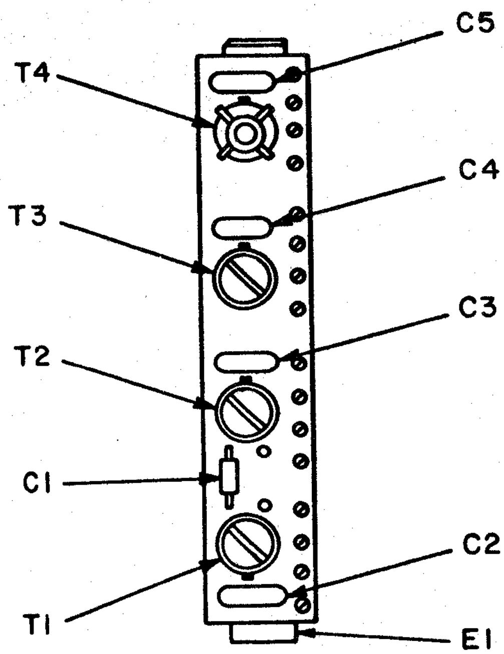


Figure 7-46. 10 MHz Subassembly A2A4A28,
Component Locations

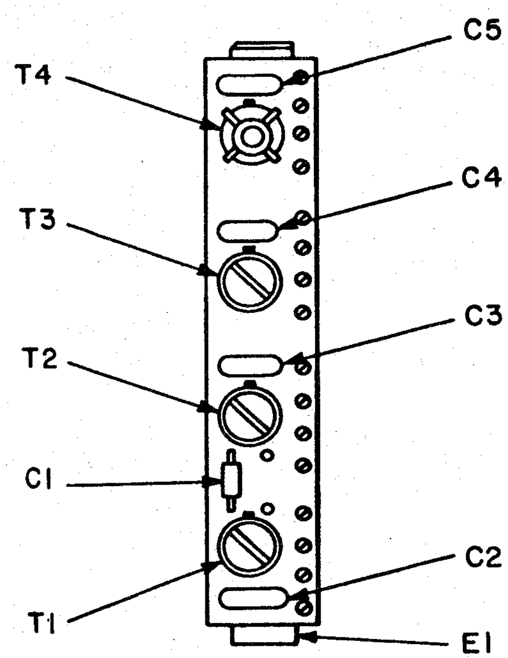


Figure 7-47. 11 MHz Subassembly A2A4A29,
Component Locations

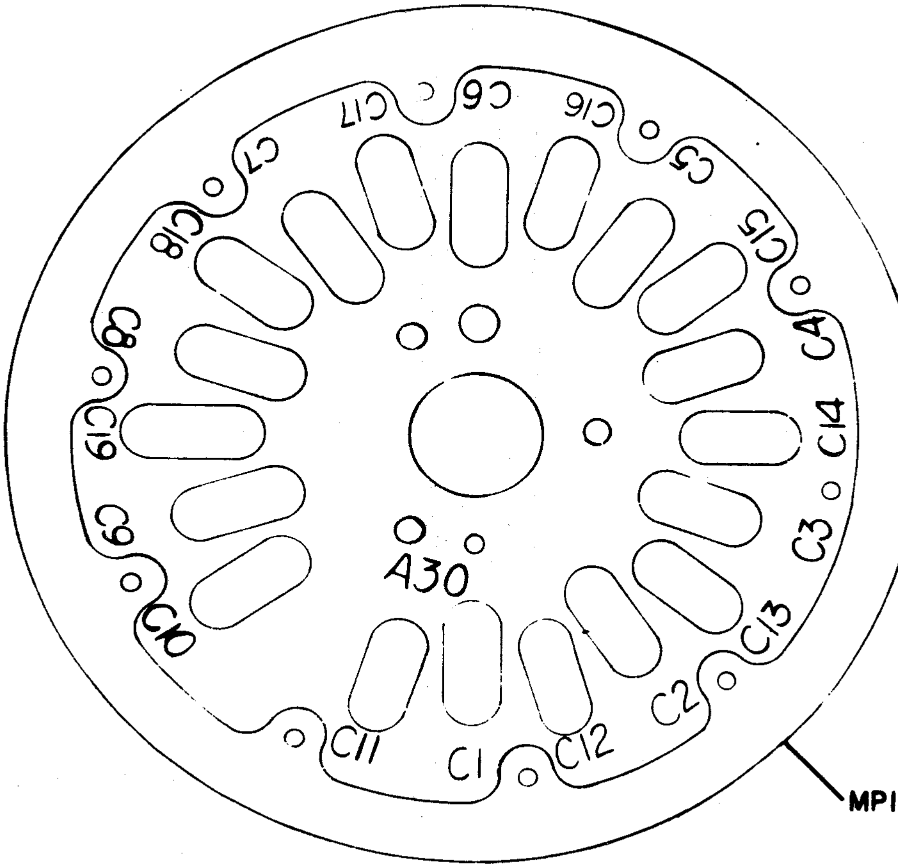


Figure 7-48. 100 kHz Rotor Subassembly A2A4A30, Component Locations

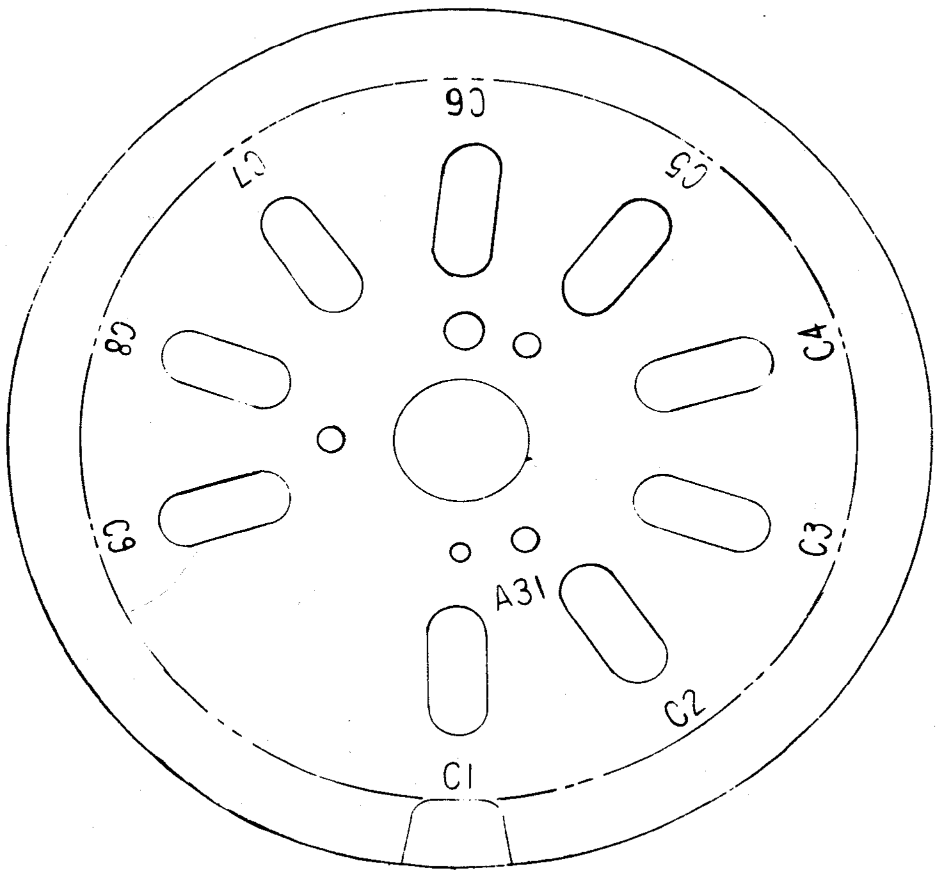


Figure 7-49. 10 kHz Rotor Subassembly A2A4A31, Component Locations

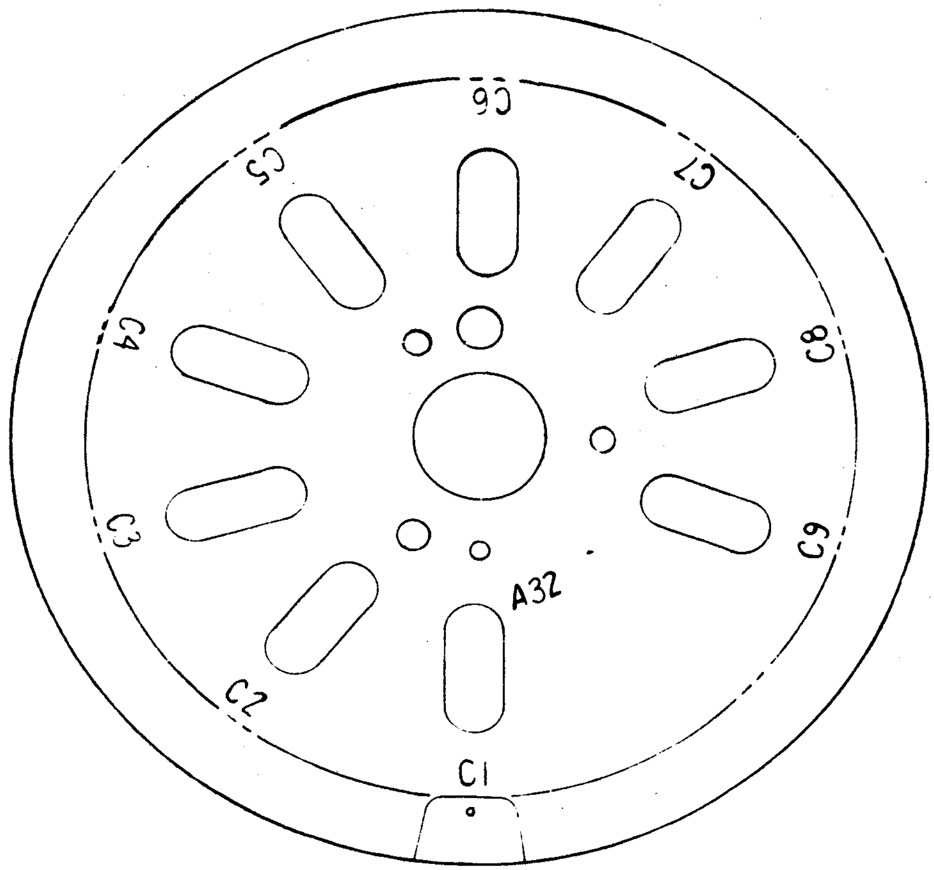


Figure 7-50. 10 kHz Rotor Subassembly A2A4A32, Component Locations

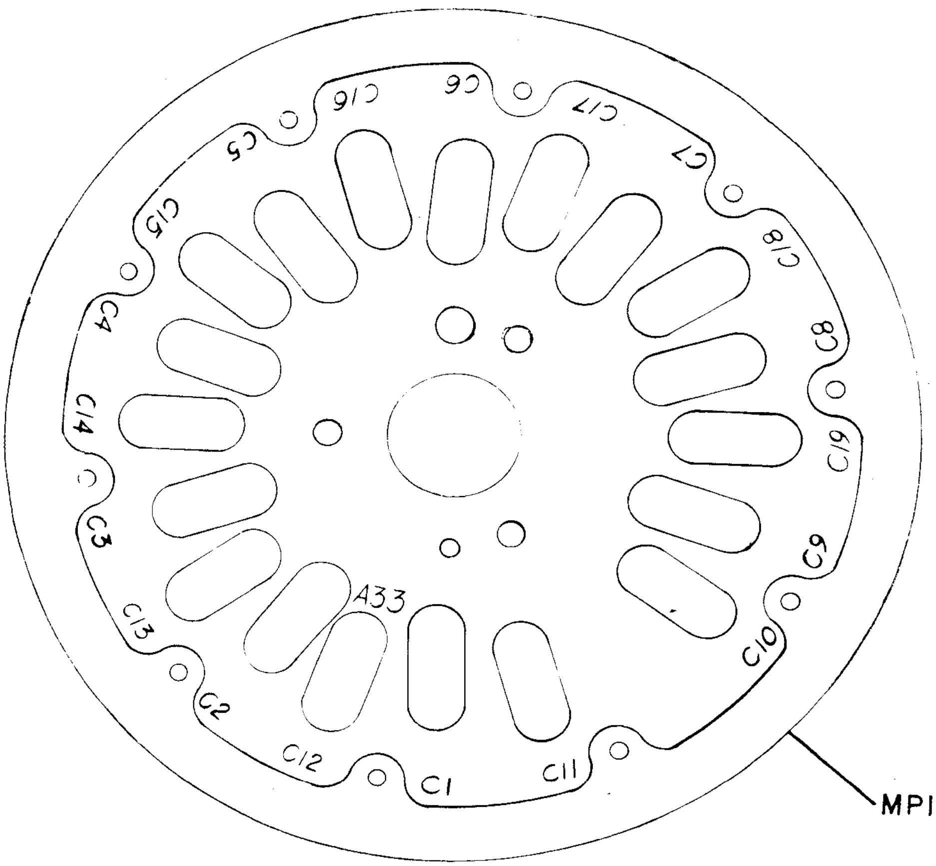


Figure 7-51. 100 kHz Rotor Subassembly A2A4A33, Component Locations

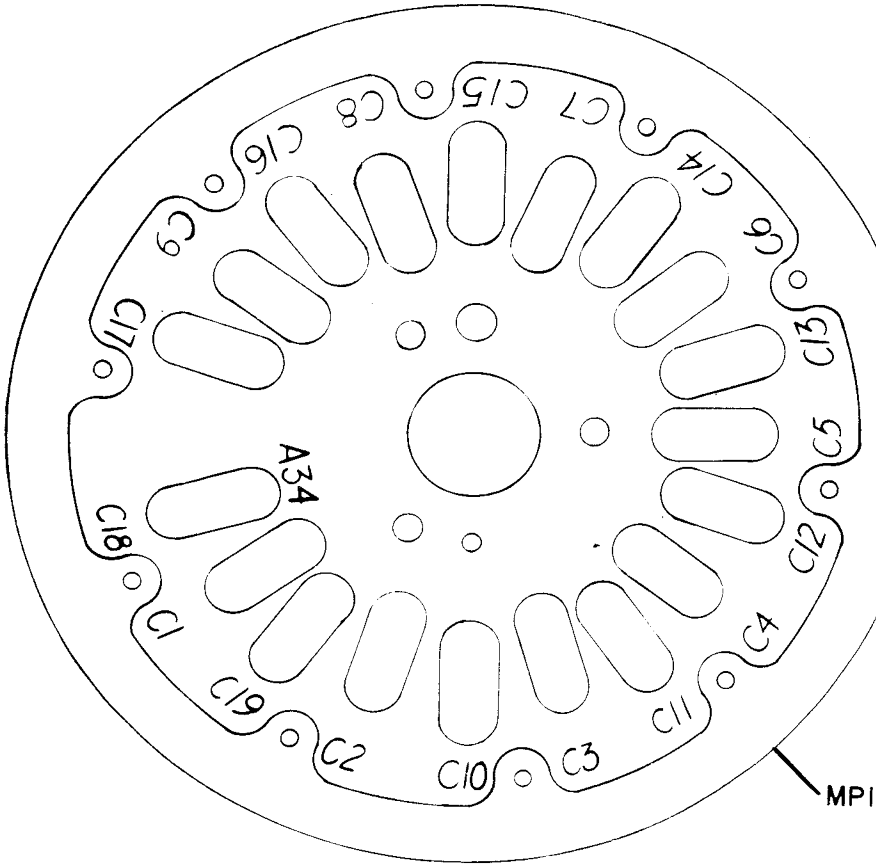


Figure 7-52. 100 kHz Rotor Subassembly A2A4A34, Component Locations

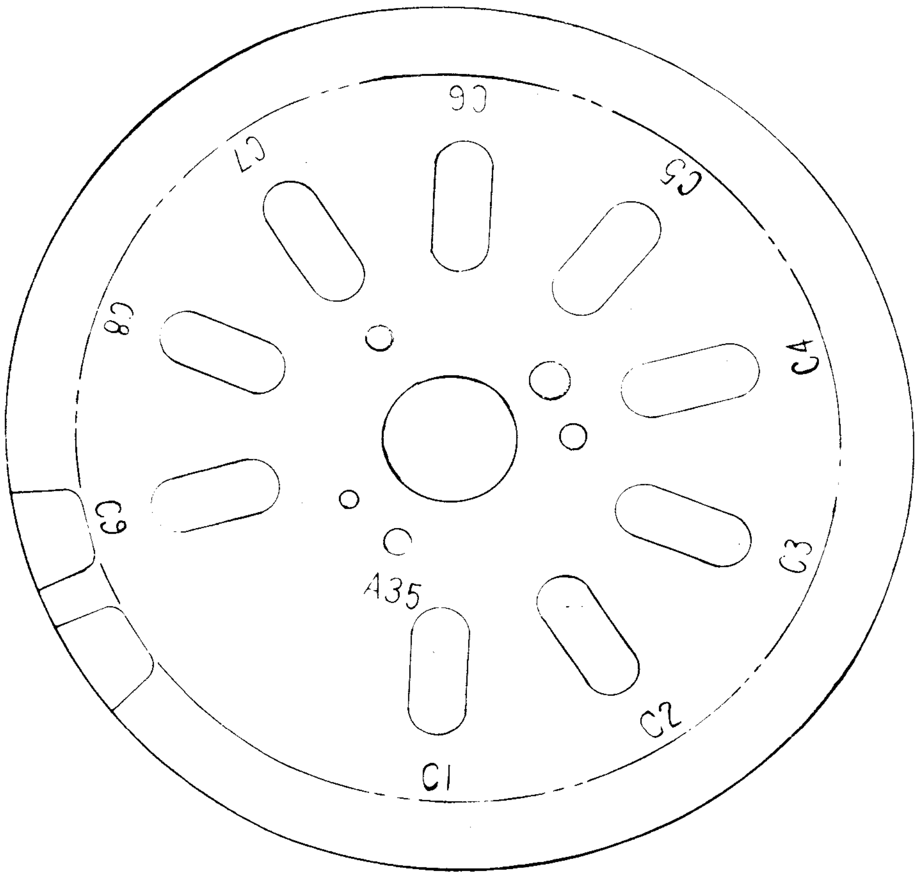


Figure 7-53. 10 kHz Rotor Subassembly A2A4A35, Component Locations

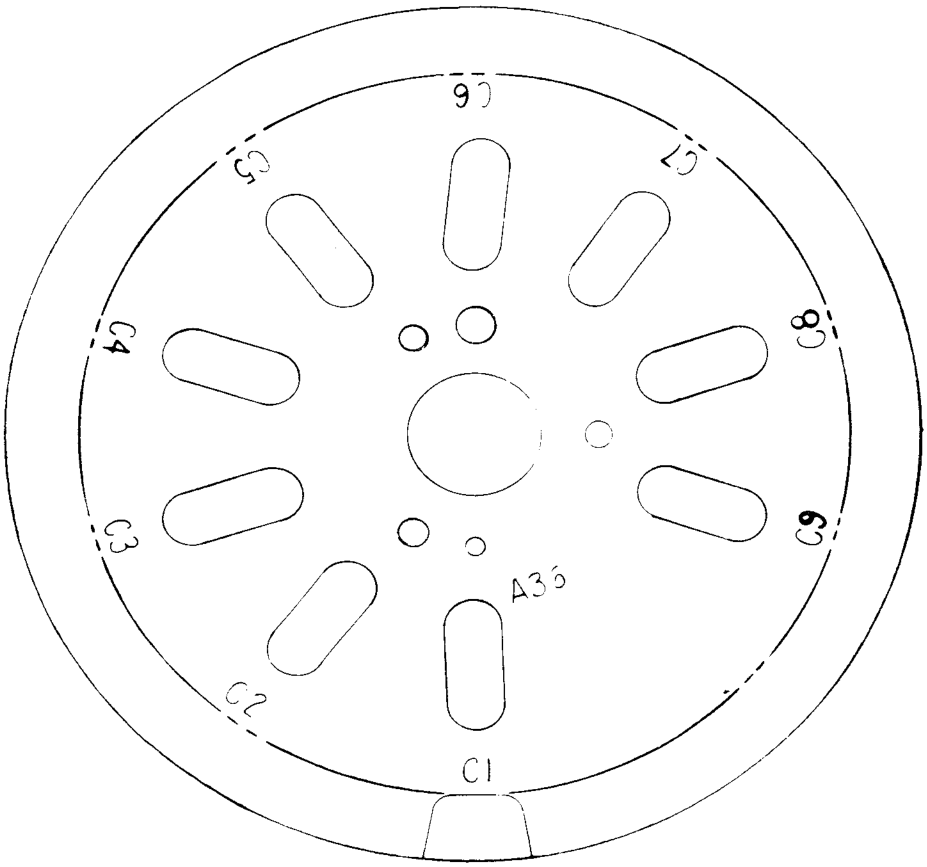


Figure 7-54. 10 kHz Rotor Subassembly A2A4A36, Component Locations

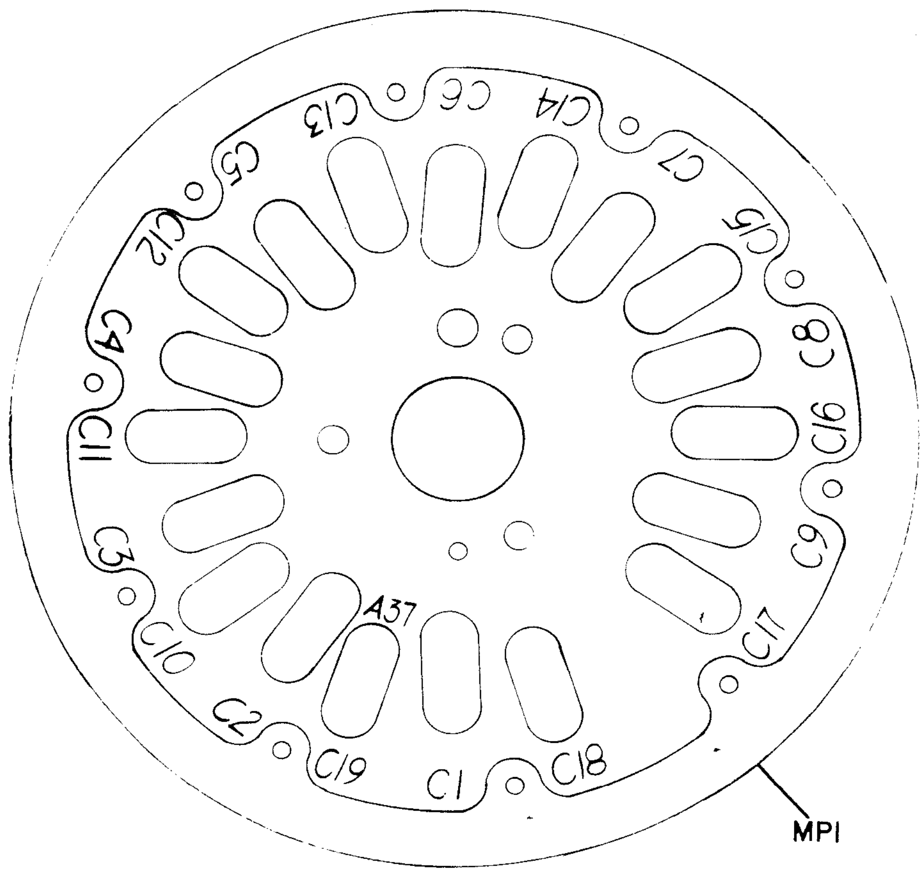


Figure 7-55. 100 kHz Rotor Subassembly A2A4A37, Component Locations

PART LOCATION INDEX

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A4A38C1	3G	** A2A4A38E5	4E	A2A4A38R9	3F
C2	2F	** E6	2C	R10	3F
C3	2H	FL1	2G	R11	3F
C4	2H	FL2	3E	R12	2F
C5	4F	FL3	3D	R13	3F
C6	2E	K1	2C, 3C	R14	3E
C7	3E	L1	3E	R15	1F
C8	2F	Q1	2G	R16	2E
C9	3E	Q2	2F	R17	3D
C10	2E	Q3	2D	R18	2E
C11	1G	R1	3G	R19	2D
C12	3F	R2	2G	R20	3D
C13	2E	R3	2G	R21	1H
C14	3G	R4	2G	TP1	3H
E1	2B	R5	2H	TP2	4H
E2	*	R6	3H	W1	2G
** E3	3G	R7	2F	W2	2B, 2C
** E4	4G	R8	*	W2P1	2A, 3A

* NOT USED
** WIRING TERMINATION - FOR REFERENCE ONLY.

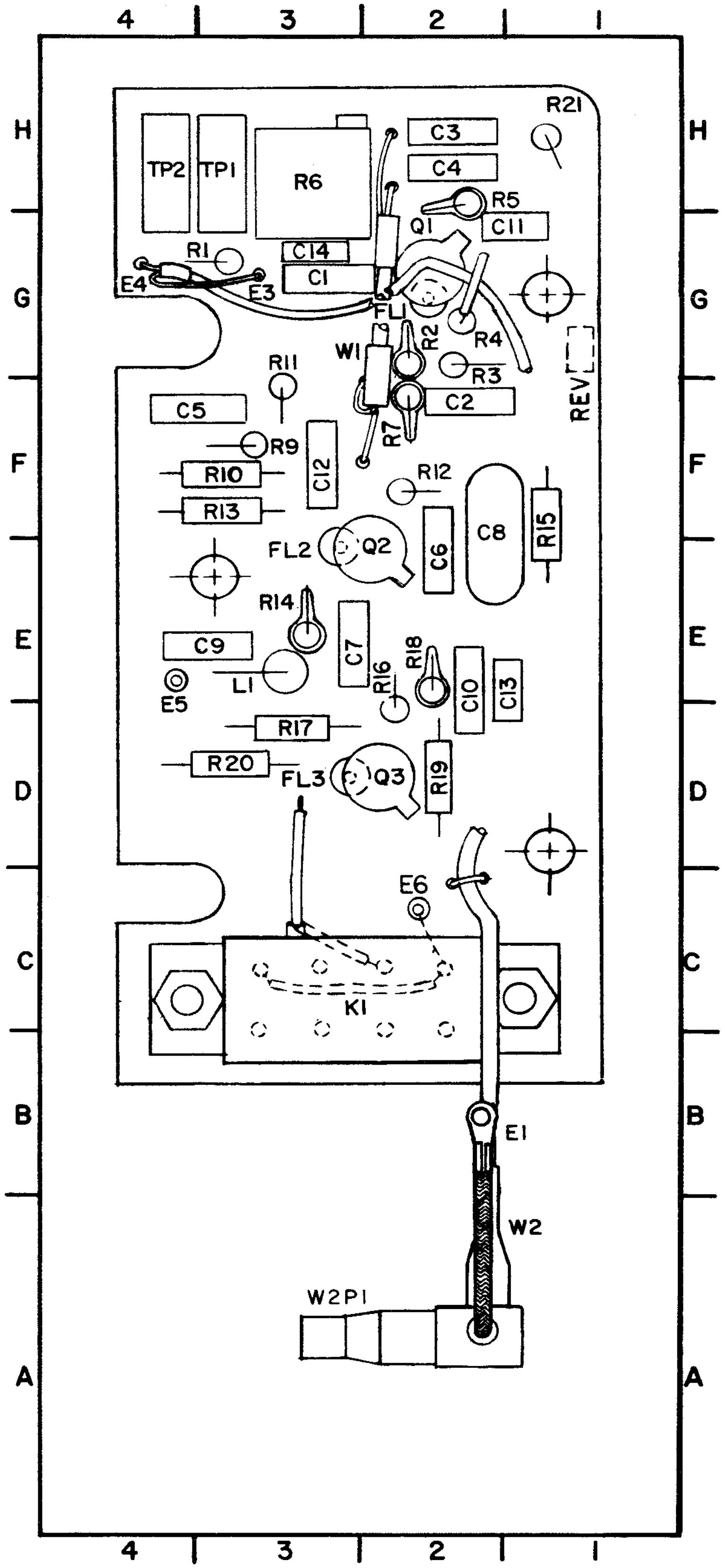


Figure 7-56. RF Mixer Amplifier Subassembly A2A4A38, Component Locations

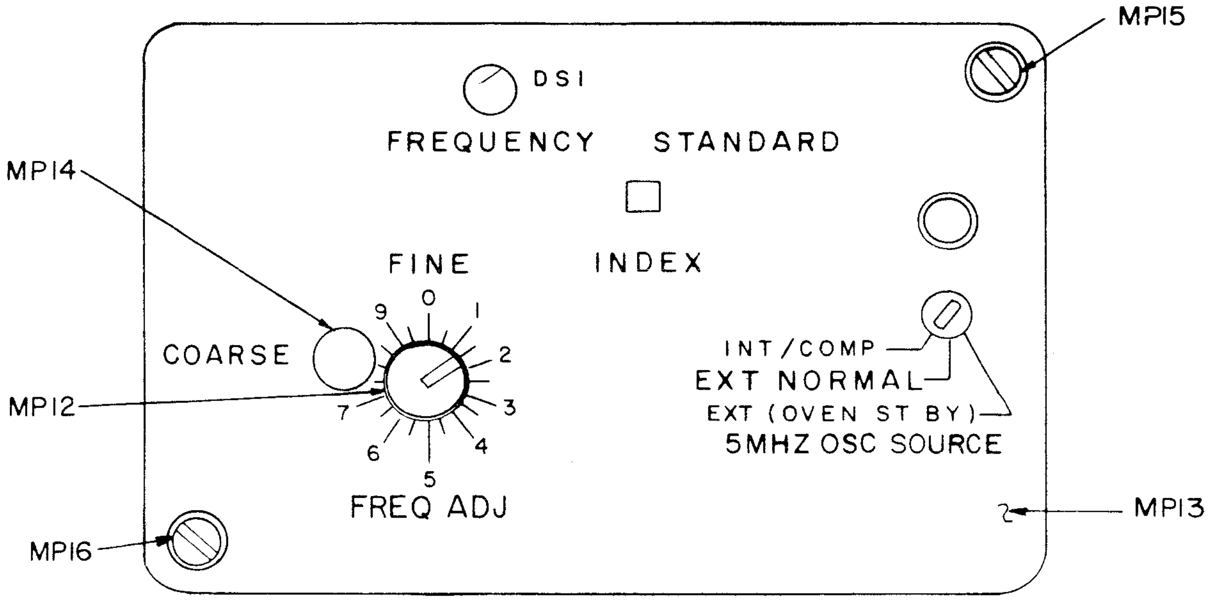


Figure 7-57. Frequency Standard Assembly A2A5, Component Locations

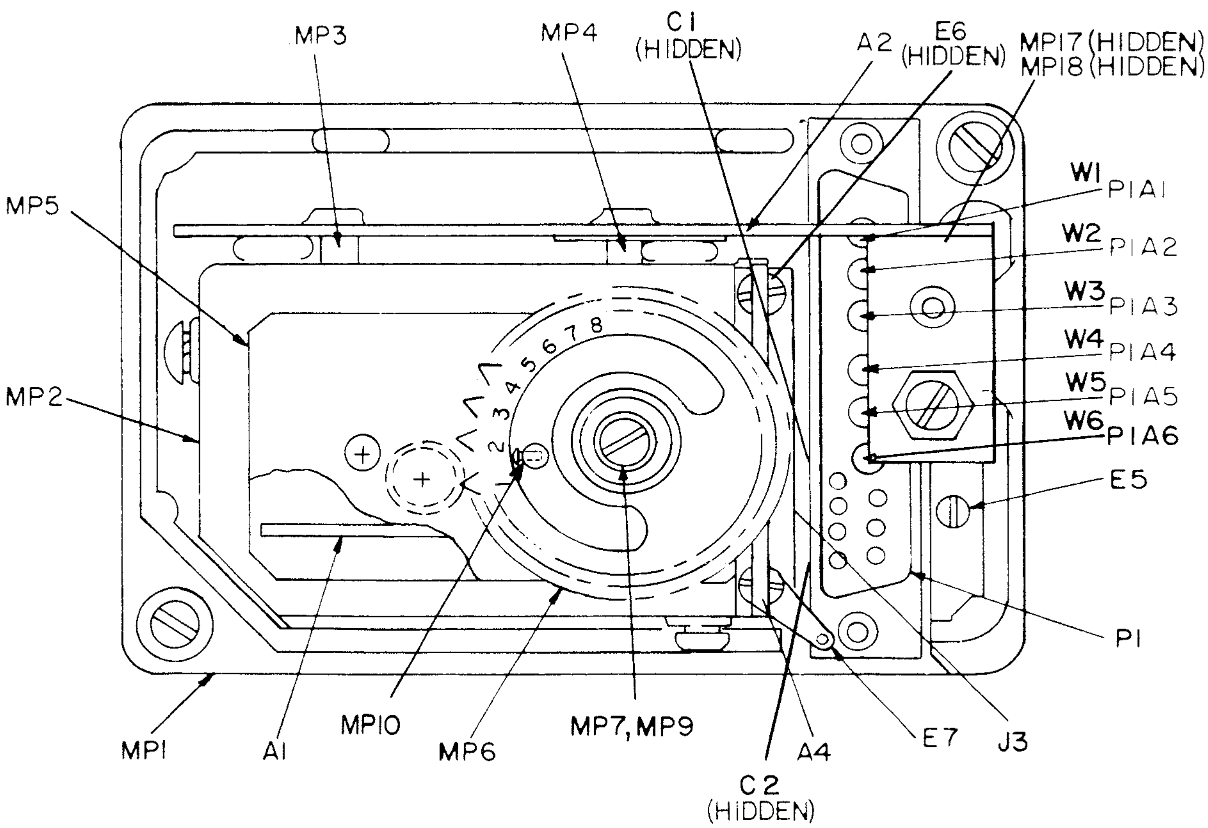
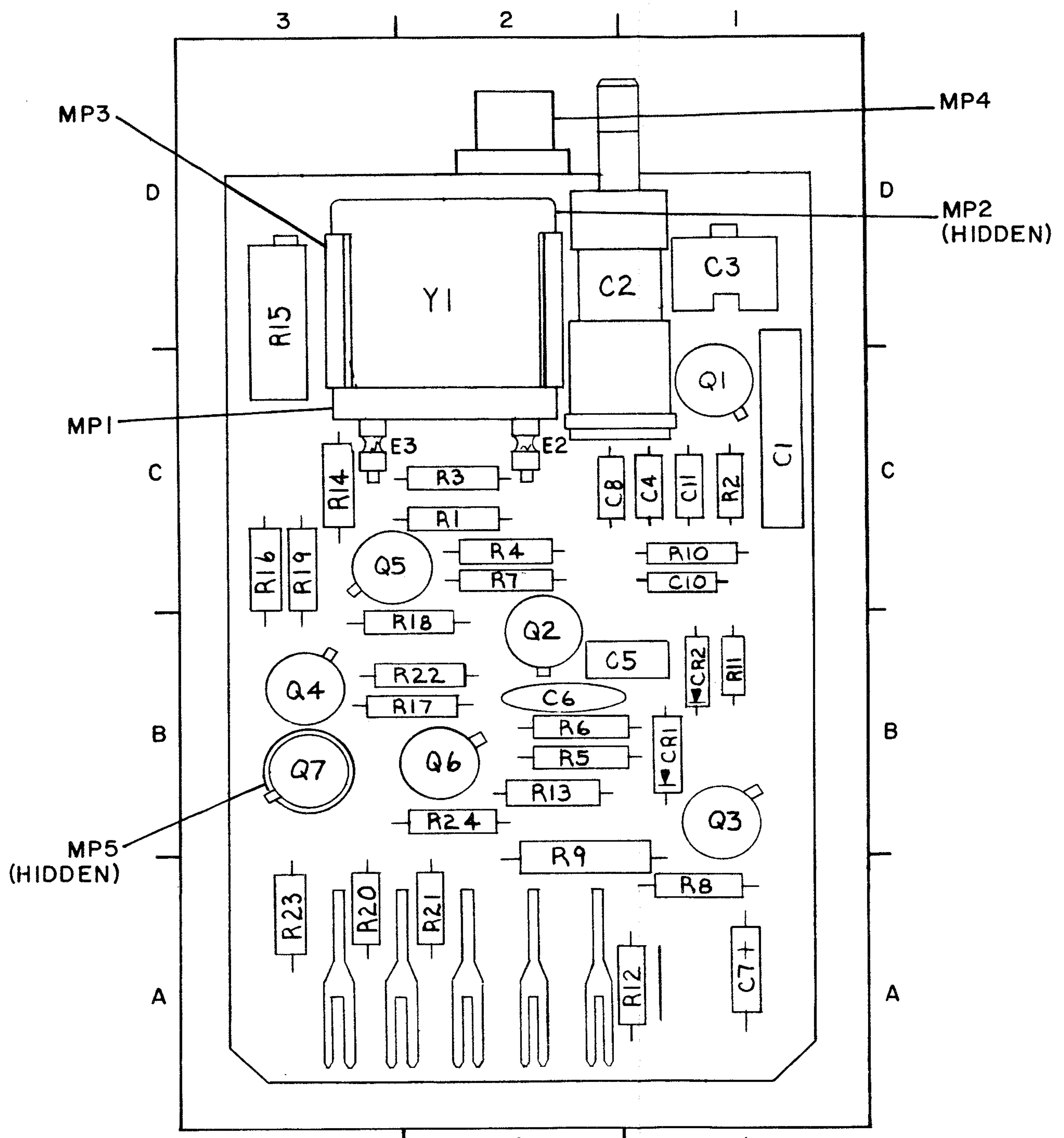


Figure 7-58. Frequency Standard Assembly A2A5, Housing Removed, Top View, Component Locations

PART LOCATION INDEX

REF DES	ZONE	REF DES	ZONE
A2A5A1C1	1C	A2A5A1Q7	3B
C2	1C, 1D	R1	2C
C3	1D	R2	1C
C4	1C	R3	2C
C5	2B	R4	2C
C6	2B	R5	2B
C7	1A	R6	2B
C8	2C	R7	2C
C9	*	R8	1A
C10	1C	R9	2A
C11	1C	R10	1C
CR1	1B	R11	1B
CR2	1B	R12	1A
E1	*	R13	2B
E2	2C	R14	3C
E3	3C	R15	3D
MP1	3C	R16	3C
MP2	2D	R17	3B
MP3	3D	R18	3B
MP4	2D	R19	3C
Q1	1C	R20	3A
Q2	2B	R21	2A
Q3	1B	R22	3B
Q4	3B	R23	3A
Q5	3C	R24	2B
Q6	2B	Y1	2D, 3D

* NOT USED



01A228568-01

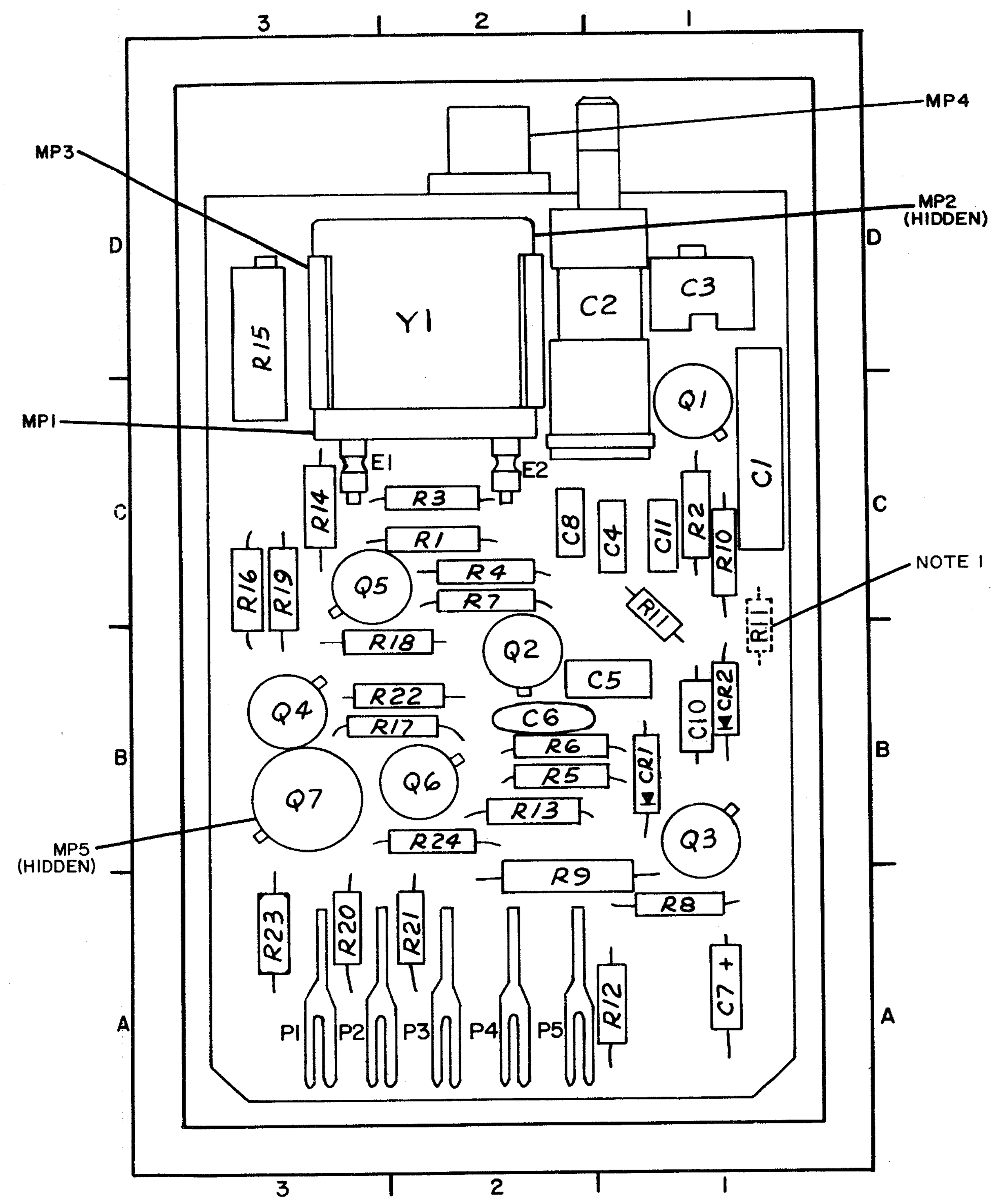
NOTE FOR ALTERNATE A2A5A1 ASSEMBLY

1. ALTERNATE LOCATION OF R11 SHOWN DOTTED.

PART LOCATION INDEX

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A5A1C1	1C	A2A5A1P1	3A	A2A5A1R8	1A
C2	1C, 1D	P2	3A	R9	2A
C3	1D	P3	2A	R10	1C
C4	1C	P4	2A	R11	1B
C5	2B	P5	2A	R12	1A
C6	2B	Q1	1C	R13	2B
C7	1A	Q2	2B	R14	3C
C8	2C	Q3	pB	R15	3D
C9	*	Q4	3B	R16	3C
C10	1B	Q5	3C	R17	3B
C11	1C	Q6	2B	R18	3B
CR1	1B	Q7	3B	R19	3C
CR2	1B	R1	2C	R20	3A
E1	3C	R2	1C	R21	2A
E2	2C	R3	2C	R22	3B
MP1	3C	R4	2C	R33	3A
MP2	2D	R5	2B	R24	2B
MP3	3D	R6	2B	Y1	2D, 3D
MP4	*	R7.	2C		

* NOT USED



ALTERNATE A2A5A1 ASSEMBLY

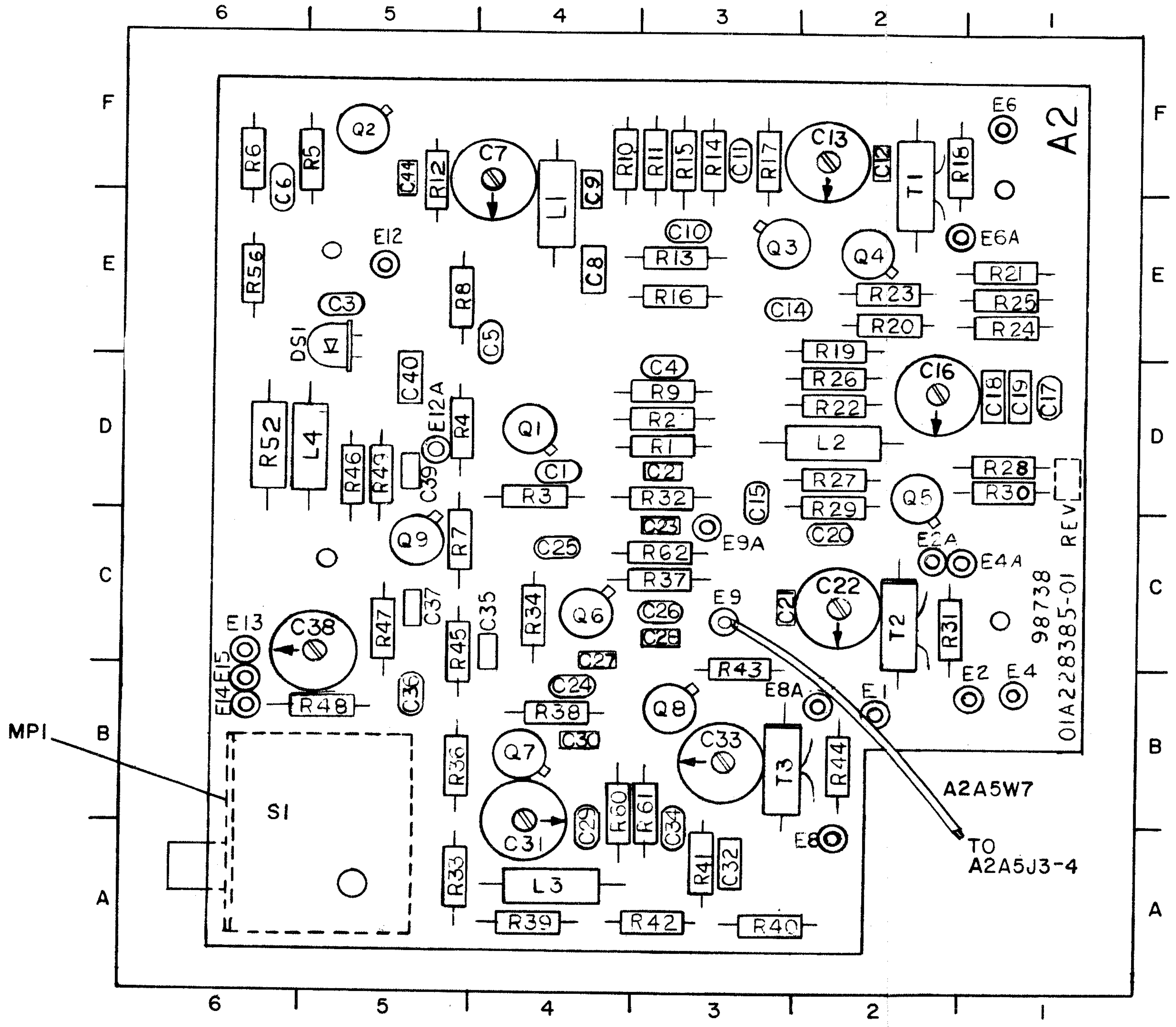
01A226530-22-11

Figure 7-59. Oscillator and Oven Control Subassembly A2A5A1, Component Locations

PART LOCATION INDEX

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A5A2C1	4D	A2A5A2C38	5C	A2A5A2Q4	2E	A2A5A2R30	1D
C 2	3C	C39	5D	Q5	2D	R31	2C
C3	5E	C40	5D	Q6	4C	R32	3D
C4	3D	C41	*	Q7	4B	R33	5A
C5	4E	C42	*	Q8	3B	R34	4C
C6	6F	C43	*	Q9	5C	R35	*
C7	4F	C44	5F	Q10	*	R36	5B
C8	4E	DS1	5E	Q11	*	R37	3C
C9	4E	** E1	2B	R1	3D	R38	4B
C10	3E	** E2	1B	R2	3D	R39	4A
C11	3F	** E2A	2C	R3	4D	R40	3A
C12	2F	E3	*	R4	5D	R41	3A
C13	2F	** E4	1B	R5	5F	R42	3A
C14	3E	** E4A	1C	R6	6F	R43	3B
C15	3D	E5	*	R7	5C	R44	2B
C16	2D	** E6	1F	R8	5E	R45	5C
C17	1D	** E6A	1E	R9	3D	R46	5D
C18	1D	E7	*	R10	4F	R47	5C
C19	1D	** E8	2A	R11	3F	R48	5B
C20	2C	** E8A	2B	R12	5F	R49	5D
C21	3C	** E9	3C	R13	3E	R50	*
C22	2C	** E9A	3C	R14	3F	R51	*
C23	3C	E10	*	R15	3F	R52	6D
C24	4B	E11	*	R16	3E	R53	*
C25	4C	** E12	5E	R17	3F	R54	*
C26	3C	** E12A	5D	R18	2F	R55	*
C27	4C	** E13	6C	R19	2E	R56	6E
C28	3C	** E14	6B	R20	2E	R57	*
C29	4B	** E15	6B	R21	1E	R58	*
C30	4B	L1	4E	R22	2D	R59	*
C31	4A	L2	2D	R23	2E	R60	4B
C32	3A	L3	4A	R24	1E	R61	3B
C33	3B	L4	5D	R25	1E	R62	3C
C34	3A	MP1	6B	R26	2D	S1	5A,5B
C35	4C	Q1	4D	R27	2D	T1	2F
C36	5B	Q2	5F	R28	1D	T2	2C
C37	5C	Q3	3E	R29	2D	T3	3B

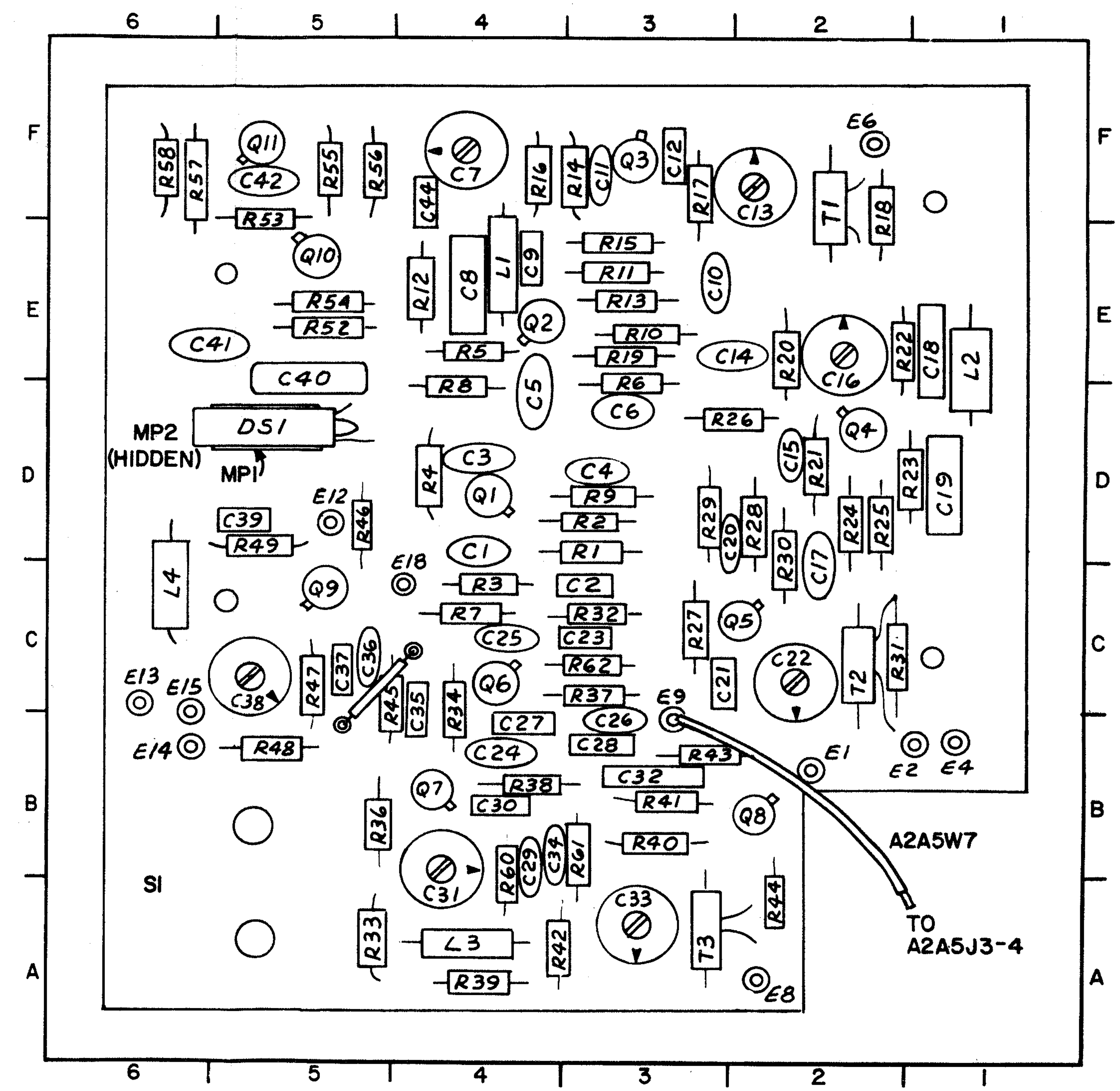
* NOT USED
** WIRING TERMINATION - FOR REFERENCE ONLY.



PART LOCATION INDEX FOR ALTERNATE A2A5A2 ASSEMBLY

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A5A2C1	4D	A2A5A2E3	*	A2A5A2R19	3E
C2	3C	** E4	1B	R20	2E
C3	4D	E5	*	R21	2D
C4	3D	** E6	2F	R22	2E
C5	4D	E7	*	R23	1D
C6	3D	** E8	2A	R24	2D
C7	4F	** E9	3B	R25	2D
C8	4E	E10	*	R26	2D
C9	4E	E11	*	R27	3C
C10	3E	** E12	5D	R28	2D
C11	3F	** E13	6C	R29	3D
C12	3F	** E14	6B	R30	2C
C13	2F	** E15	6C	R31	2C
C14	2E	L1	4E	R32	3C
C15	2D	L2	1E	R33	5A
C16	2E	L3	4A	R34	4B
C17	2C	L4	6C	R35	*
C18	1E	MP1	5D	R36	5B
C19	1D	MP2	5D	R37	3C
C20	2D	Q1	4D	R38	4B
C21	3C	Q2	4E	R39	4A
C22	2C	Q3	3F	R40	3B
C23	3C	Q4	2D	R41	3B
C24	4B	Q5	2C	R42	3A
C25	4C	Q6	4C	R43	3B
C26	3B	Q7	4B	R44	2A
C27	4B	Q8	2B	R45	5C
C28	3B	Q9	5C	R46	5D
C29	4B	Q10	5E	R47	5C
C30	4B	Q11	5F	R48	5B
C31	4B	R1	3D	R49	5D
C32	3B	R2	3D	R50	*
C33	3A	R3	4C	R51	*
C34	4B	R4	4D	R52	5E
C35	4C	R5	4E	R53	5F
C36	5C	R6	3D	R54	5E
C37	5C	R7	4C	R55	5F
C38	5C	R8	4D	R56	5F
C39	5D	R9	3D	R57	6F
C40	5D	R10	3E	R58	6F
C41	5E	R11	3E	R59	*
C42	5F	R12	4E	R60	4B
C43	*	R13	3E	R61	3B
C44	4F	R14	3F	R62	3C
DS1	5D	R15	3E	S1	5A, 5B
** E1	2B	R16	4F	T1	2F
** E2	1B	R17	3F	T2	2C
		R18	2F	T3	3A

* NOT USED
** WIRING TERMINATION - FOR REFERENCE ONLY.



ALTERNATE A2A5A2 ASSEMBLY

01A226529-22-11

Figure 7-60. Divider/Amplifier Subassembly A2A5A2, Component Locations

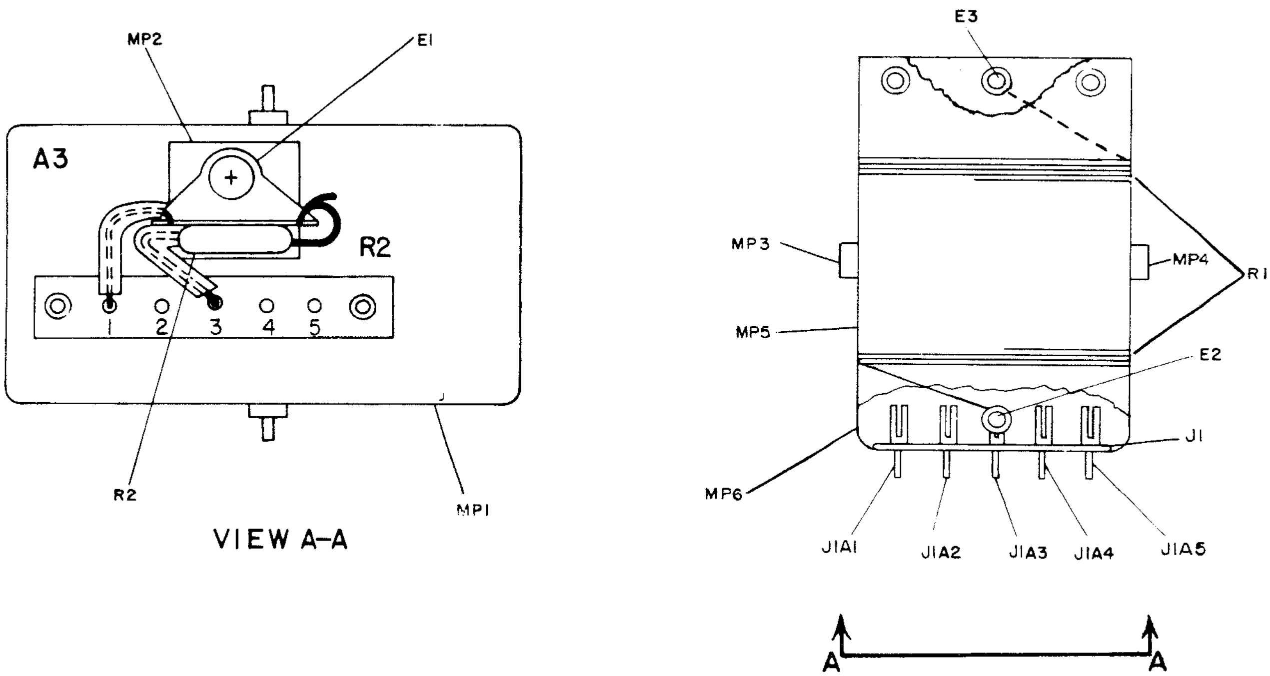
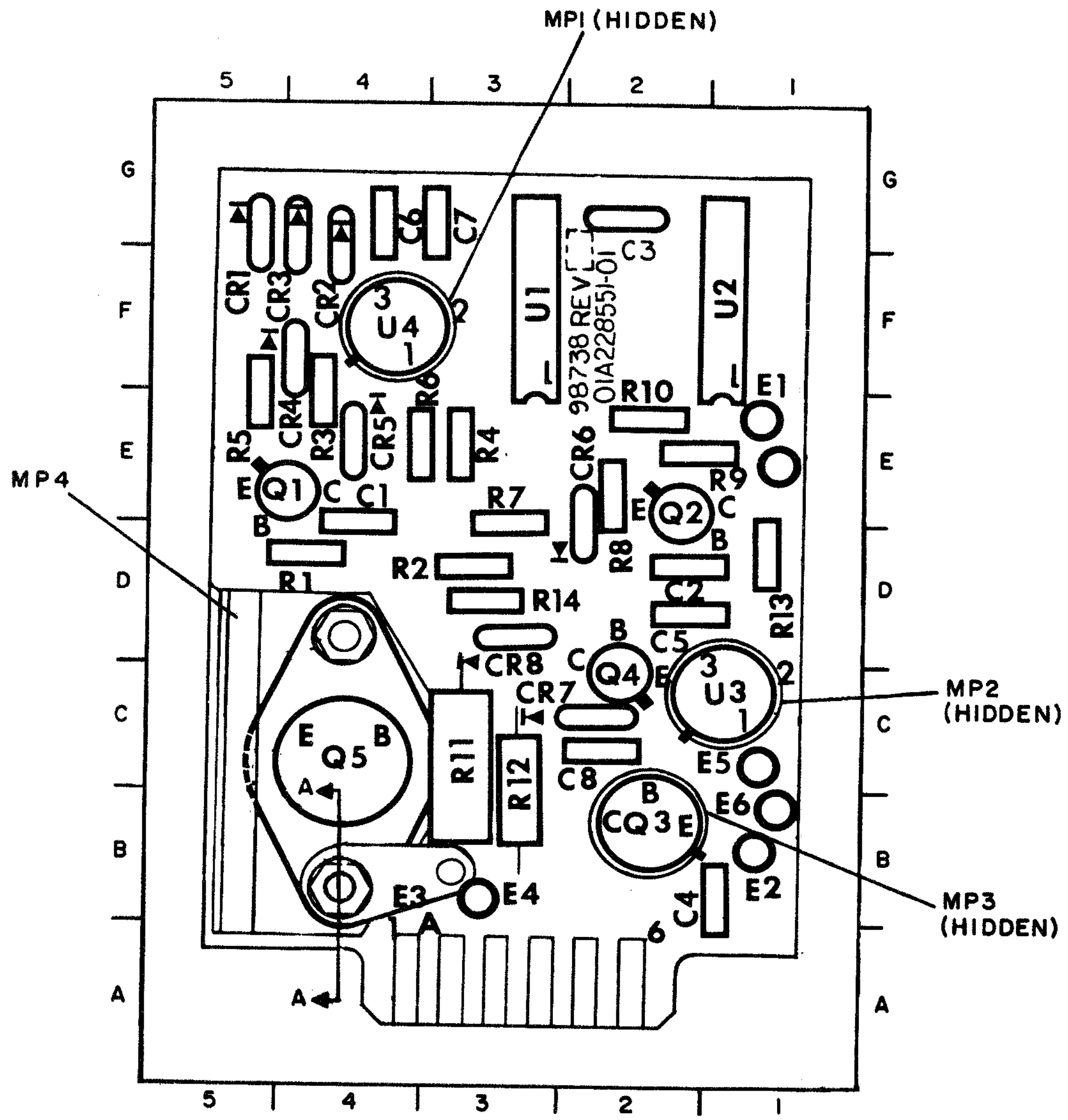


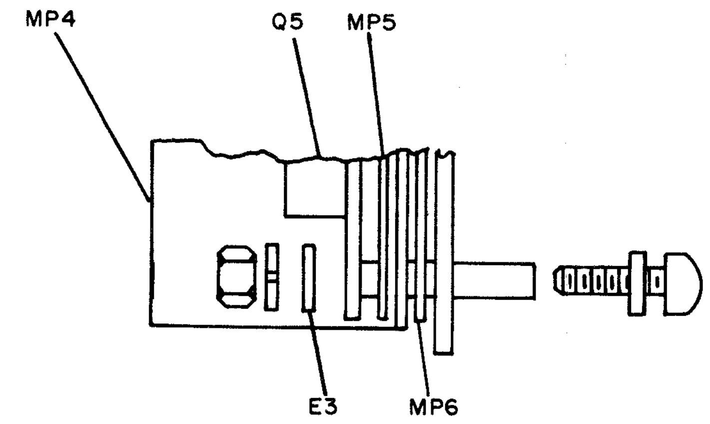
Figure 7-61. Oven Body Subassembly A2A5A3, Component Locations

PART LOCATION INDEX

REF DES	ZONE	REF DES	ZONE
A2A5A4C1	4E, 4D	A2A5A4Q2	2E
C2	2D	Q3	2B
C3	2G	Q4	2C, 2D
C4	1B	Q5	4C
C5	2D	R1	4D
C6	4G	R2	3D
C7	3G	R3	4F, 4E
C8	2C	R4	3E
CR1	5G	R5	5F, 5E
CR2	4G	R6	4E
CR3	4G	R7	3E
CR4	4F	R8	2E
CR5	4E	R9	2E
CR6	2E, 2D	R10	2E
CR7	2C	R11	3C
CR8	3D	R12	3B, 3C
E1	1E	R13	1D
** E2	1B	R14	3D
E3	4B	U1	3F, 3G
** E4	3B	U2	1F, 1G
** E5	1C	U3	1C, 1D
** E6	1B	U4	4F
Q1	5E, 4E		

** WIRING TERMINATION - FOR REFERENCE ONLY.



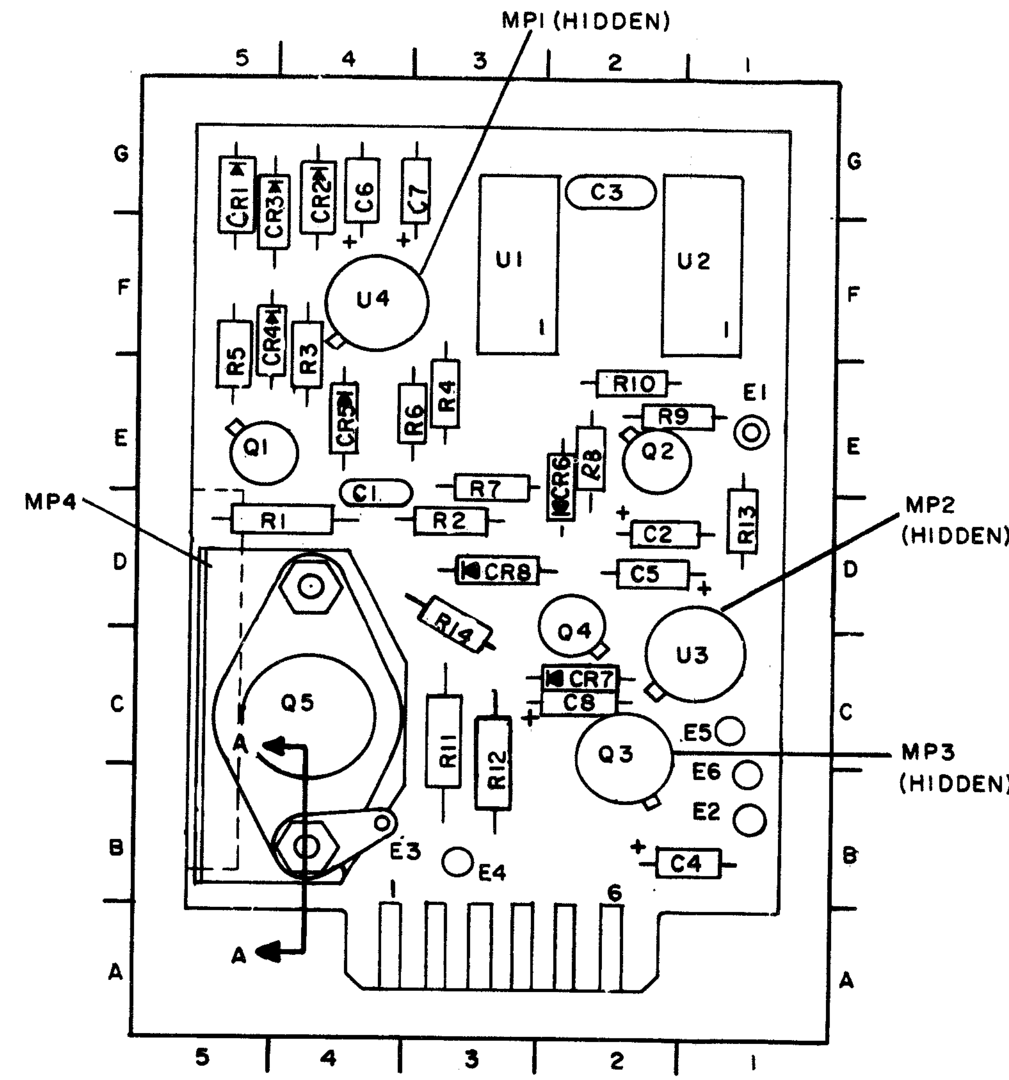


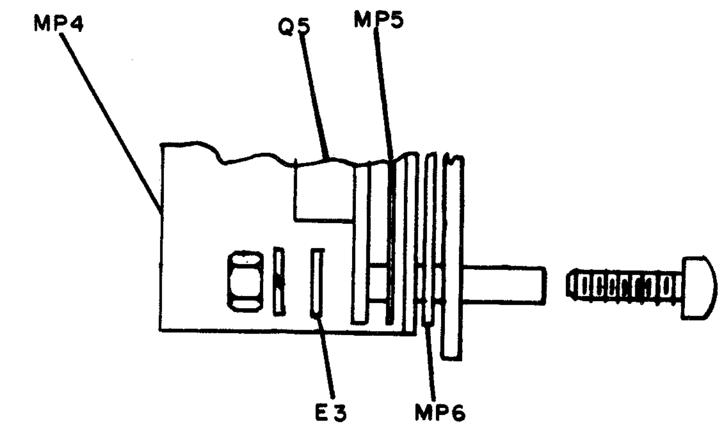
SECTION AA

PART LOCATION INDEX FOR ALTERNATE A2A5A4 ASSEMBLY

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A5A4C1	4E, 4D	A2A5A4CR8	3D	A2A5A4R4	3E
C2	2D	E1	1E	R5	5F, 5E
C3	2G	** E2	1B	R6	4E
C4	1B	E3	4B	R7	3E
C5	2D	** E4	3B	R8	2E
C6	4G	** E5	1C	R9	2E
C7	4G	** E6	1B	R10	2E
C8	2C	Q1	5E	R11	3C
CR1	5G	Q2	2E	R12	3B, 3C
CR2	4G	Q3	2B, 2C	R13	1D
CR3	5G	Q4	2C, 2D	R14	3D
CR4	5F	Q5	4C	U1	3F, 3G
CR5	4E	R1	4D, 5D	U2	1F, 1G
CR6	2E, 2D	R2	3D	U3	1C, 1D
CR7	2C	R3	4F, 4E	U4	4F

** WIRING TERMINATION - FOR REFERENCE ONLY.



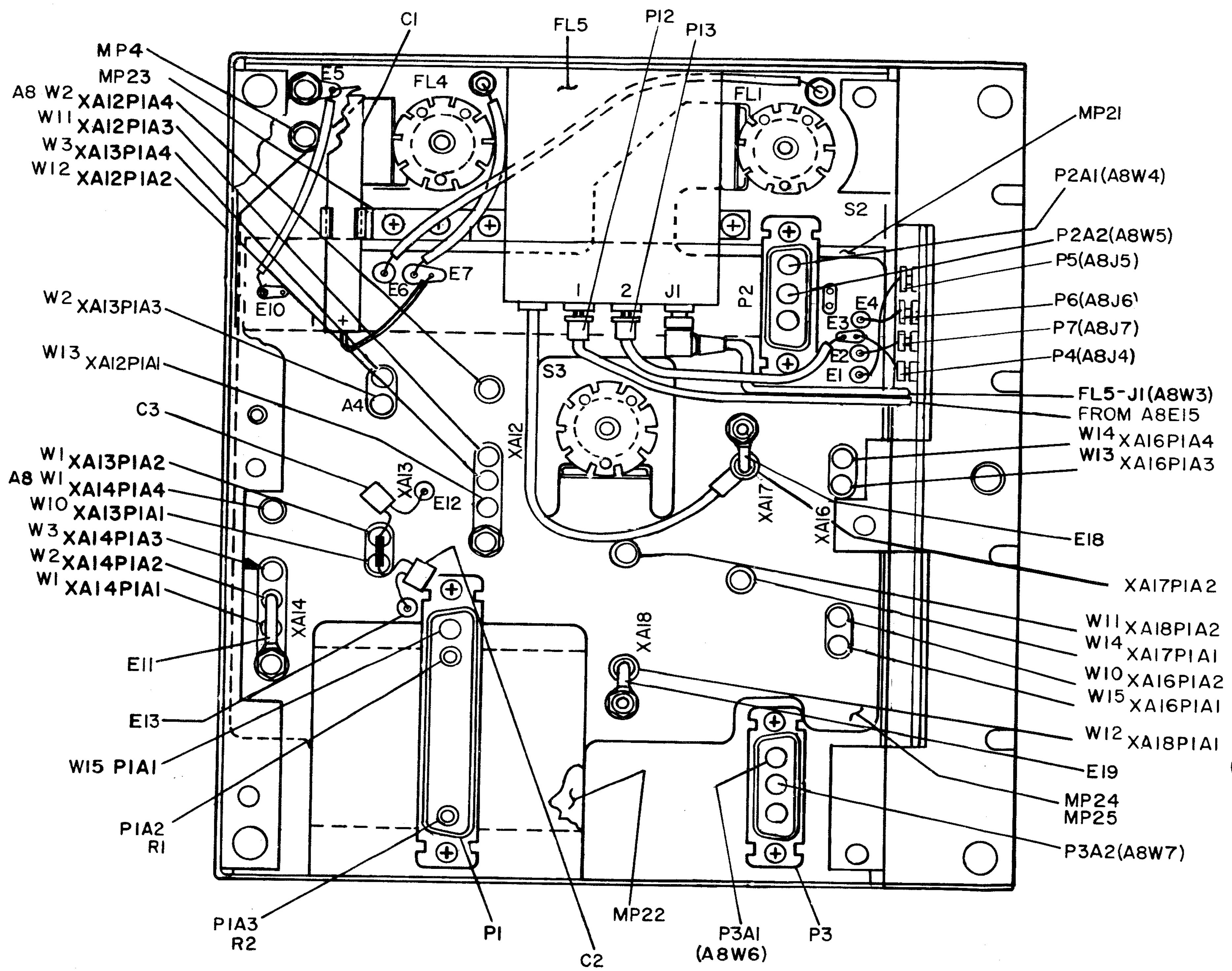


SECTION AA

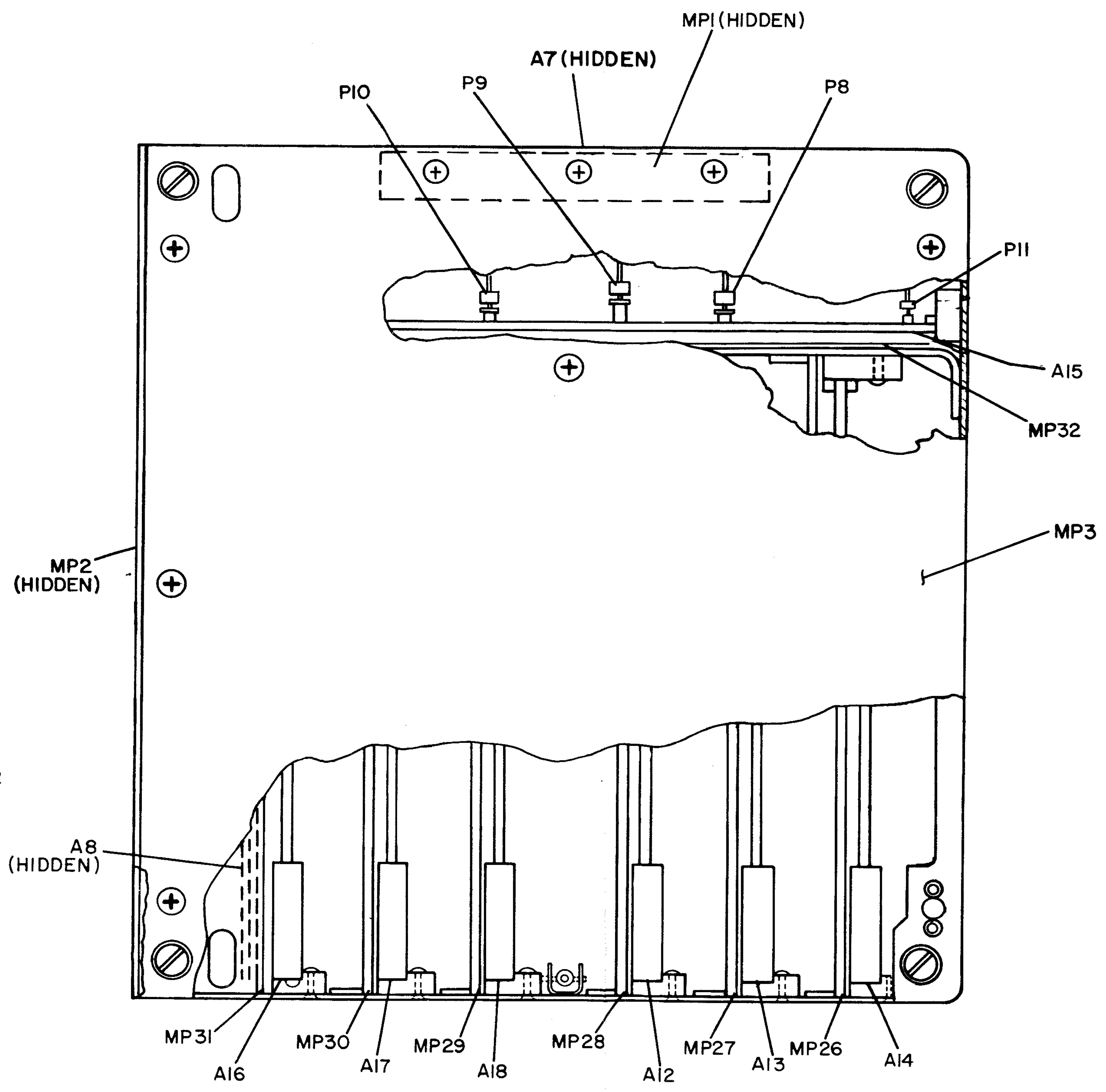
✱ TERMINAL IDENTIFICATION
FOIL SIDE 1,2,3,4,5,6,
OTHER SIDE A,B,C,D,E,F

ALTERNATE A2A5A4
ASSEMBLY

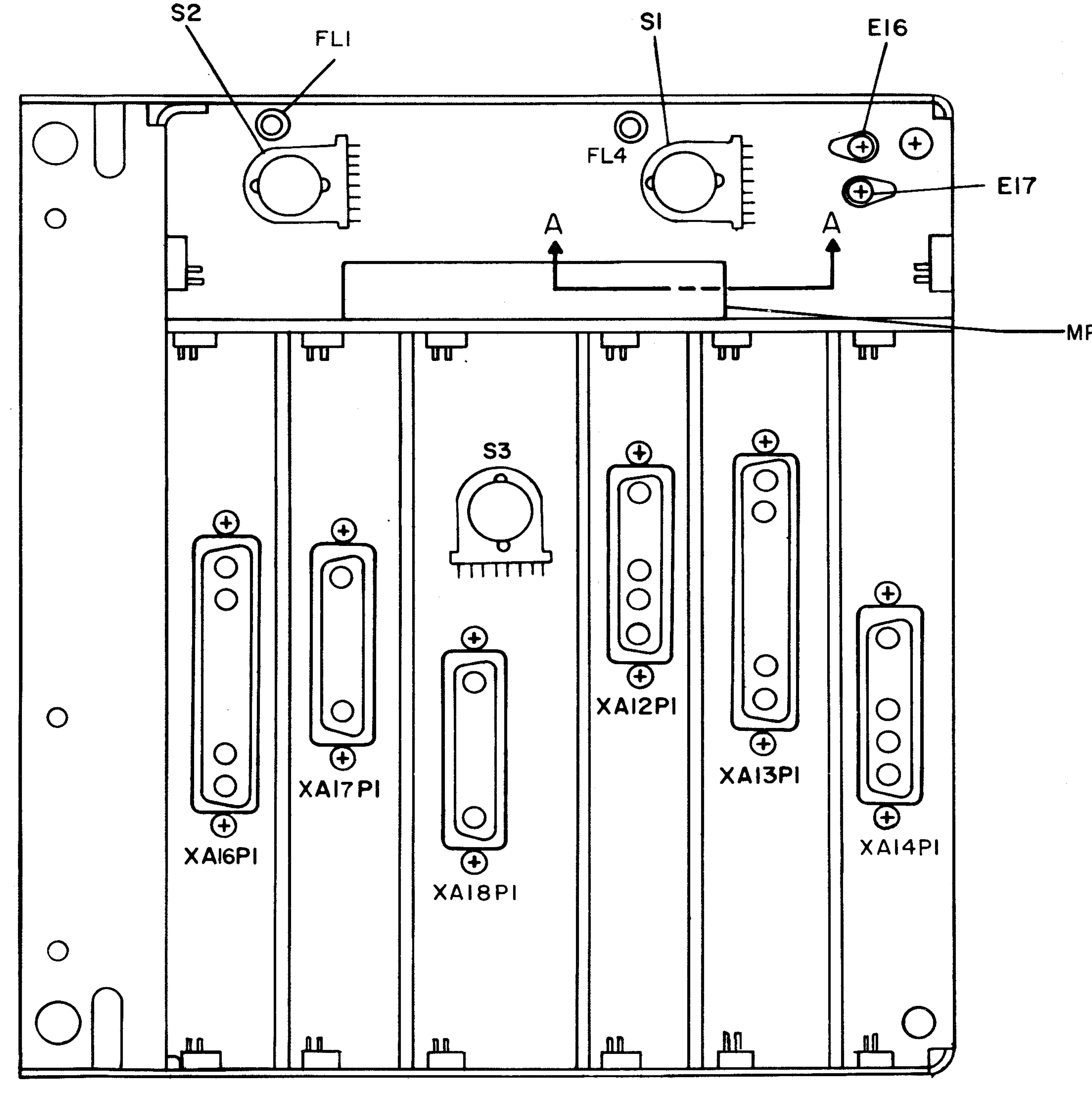
Figure 7-62. 5 MHz Reference Control Subassembly A2A5A4, Component Locations



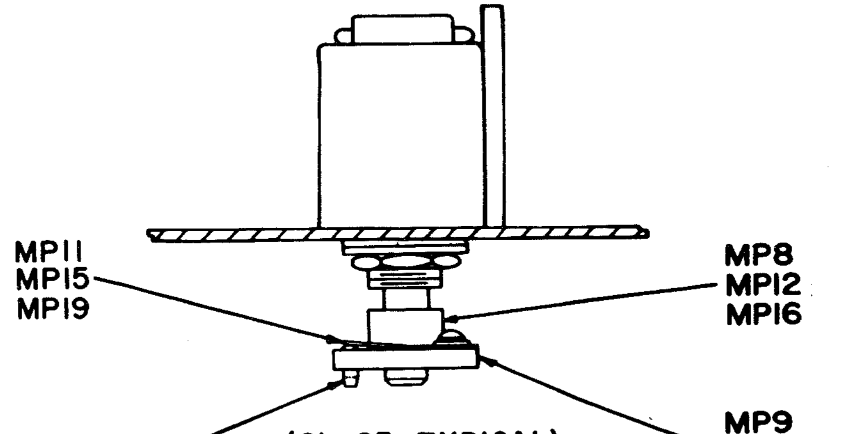
BOTTOM VIEW
(MP1 REMOVED)



TOP VIEW



TOP VIEW, A12 THRU A18 REMOVED



(S1-S3 TYPICAL)
SECTION A-A

MP8-MP11 ARE USED ON S1.
MP12-MP15 ARE USED ON S2.
MP16-MP19 ARE USED ON S3.

Figure 7-63. Translator/Synthesizer Assembly A2A6, Component Locations

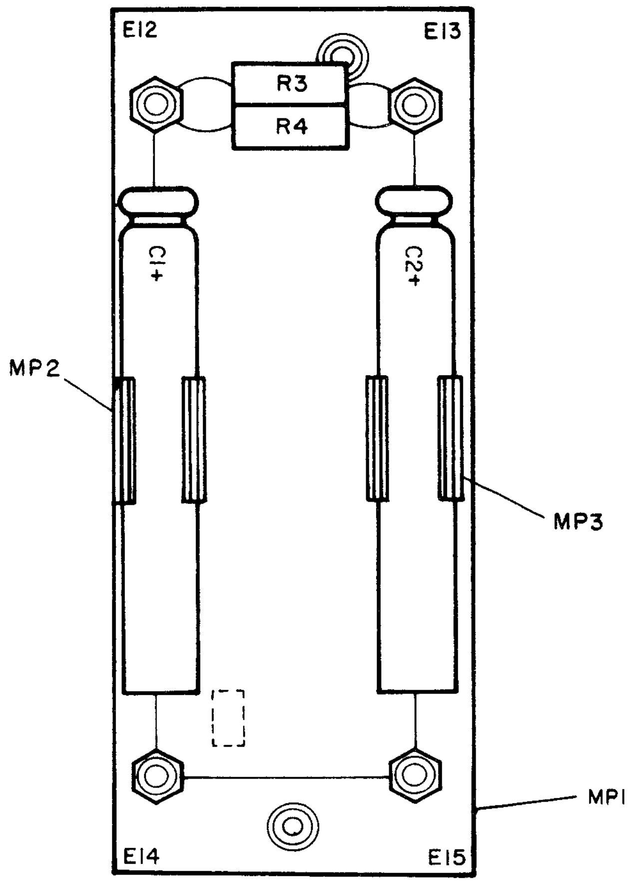


Figure 7-64. Filter Assembly A2A6A7, Component Locations

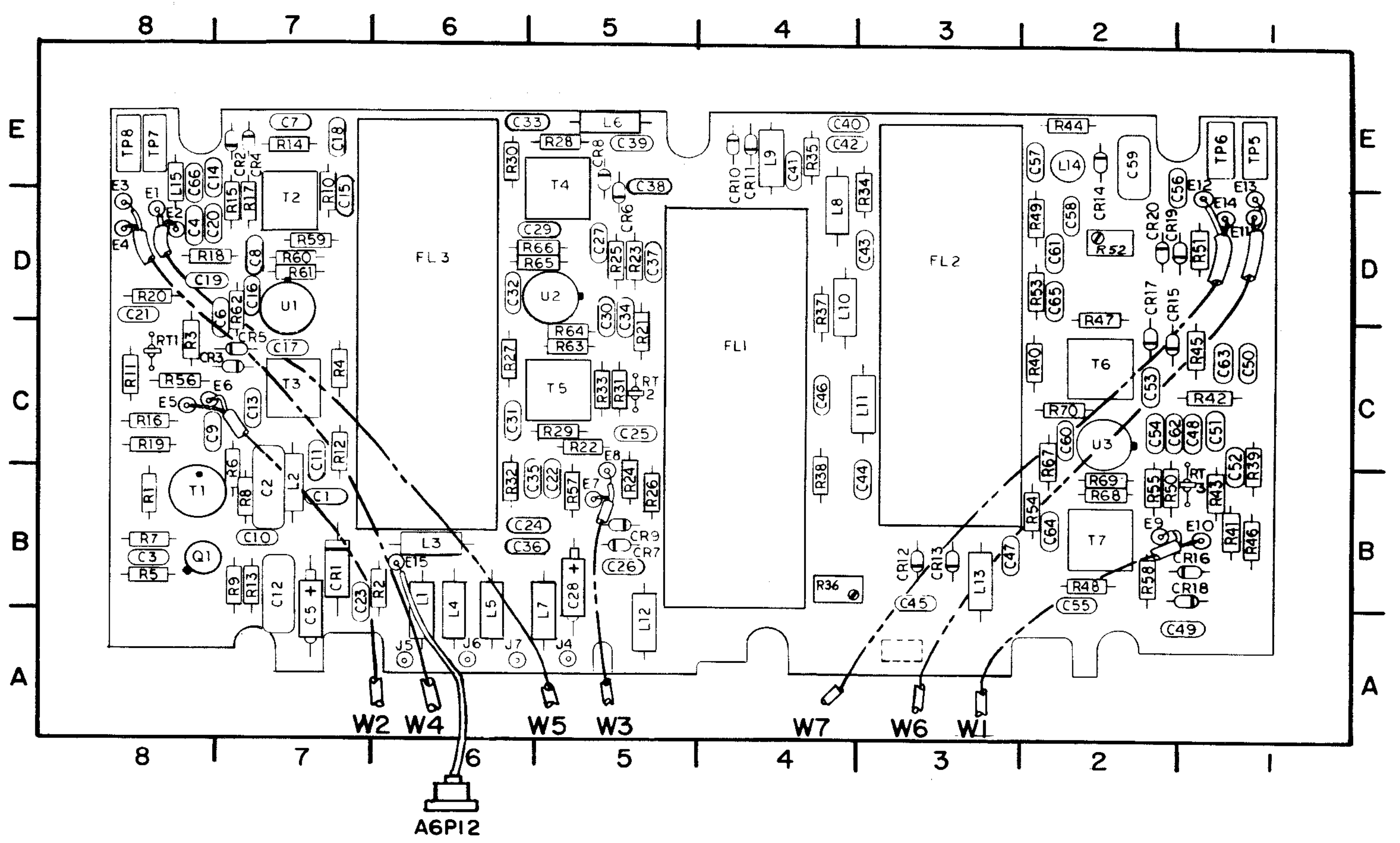
PART LOCATION INDEX

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A6A8C1	7B	A2A6A8C46	4C	**A2A6A8E5	8C
C2	7B	C47	3B	** E6	7C
C3	8B	C48	1C	** E7	5B
C4	8D	C49	1A	** E8	5B
C5	7B	C50	1C	** E9	2B
C6	7D	C51	1C	** E10	1B
C7	7E	C52	1C	** E11	1D
C8	7D	C53	2C	** E12	1D
C9	8C	C54	2C	** E13	1D
C10	7B	C55	2B	** E14	1D
C11	7C	C56	1E	** E15	6B
C12	7B	C57	2E	FL1	4B,4C,4D
C13	7C	C58	2D	FL2	3C,3D,3E
C14	8E	C59	2E	FL3	6C,6D,6E
C15	7D	C60	2C	J1	*
C16	7D	C61	2D	J2	*
C17	7C	C62	2C	J3	*
C18	7E	C63	1C	J4	5A
C19	8D	C64	2B	J5	6A
C20	7D	C65	2D	J6	6A
C21	8D	C66	8E	J7	6A
C22	5B	CR1	7B	L1	6B
C23	7B	CR2	7E	L2	7B
C24	5B	CR3	7C	L3	6B
C25	5C	CR4	7E	L4	6B
C26	5B	CR5	7C	L5	6B
C27	5D	CR6	5E	L6	5E
C28	5B	CR7	5B	L7	5B
C29	5D	CR8	5E	L8	4D
C30	5D	CR9	5B	L9	4E
C31	6C	CR10	4E	L10	4D
C32	6D	CR11	4E	L11	3C
C33	6E	CR12	3B	L12	5A
C34	5D	CR13	3B	L13	3B
C35	5B	CR14	2E	L14	2E
C36	5B	CR15	2C	L15	8E
C37	5D	CR16	1B	Q1	8B
C38	5E	CR17	2C	R1	8B
C39	5E	CR18	1B	R2	6B
C40	4E	CR19	1D	R3	8C
C41	4E	CR20	2D	R4	7C
C42	4E	** E1	8D	R5	8B
C43	3D	** E2	8D	R6	7B
C44	3B	** E3	8D	R7	8B
C45	3B	** E4	8D	R8	7B

* Not Used
** Wiring termination - for reference only.

PART LOCATION INDEX (CONTINUED)

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A6A8R9	7B	A2A6A8R39	1C	A2A6A8R69	2B
R10	7D	R40	2C	R70	2C
R11	8C	R41	1B	RT1	8C
R12	7C	R42	1C	RT2	5C
R13	7B	R43	1B	RT3	1B
R14	7E	R44	2E	T1	8B
R15	7D	R45	1C	T2	7D
R16	8C	R46	1B	T3	7C
R17	7D	R47	2D	T4	5E
R18	8D	R48	2B	T5	5C
R19	8C	R49	2D	T6	2C
R20	8D	R50	2B	T7	2B
R21	5C	R51	1D	TP1 thru TP4	*
R22	5C	R52	2D	TP5	1E
R23	5D	R53	2D	TP6	1E
R24	5B	R54	2B	TP7	8E
R25	5D	R55	2B	TP8	8E
R26	5B	R56	8C	U1	7D
R27	6C	R57	5B	U2	5D
R28	5E	R58	2B.	U3	2C
R29	5C	R59	7D	W1	3A
R30	6E	R60	7D	W2	6A
R31	5C	R61	7D	W3	5A
R32	6B	R62	7D	W4	6A
R33	5C	R63	5C	W5	5A
R34	3D	R64	5C	W6	3A
R35	4E	R65	5D	W7	4A
R36	4B	R66	5D		
R37	4D	R67	2C		
R38	4B	R68	2B		



A2A6A8 CONNECTORS

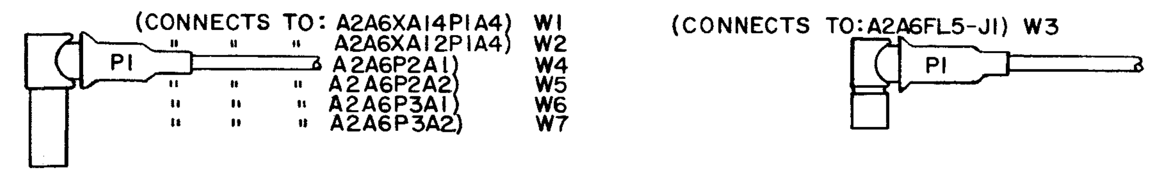


Figure 7-65. RF Translator Subassembly A2A6A8, Component Locations

PART LOCATION INDEX

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A6A12C1	1C	A2A6A12L6	5C	A2A6A12R8	5B
C2	5B	L7	5C	R9	4B
C3	4B	L8	5C	R10	4B
C4	6C	L9	5C	R11	5C
C5	7A	L10	4C	R12	5C
C6	6C	L11	*	R13	6C
C7	6C	L12	*	R14	5C
C8	7C	L13	2C	R15	5C
C9	6C	MP1	6D	R16	5D
C10	6C	MP2	2D	R17	*
C11	5C	P1	2A, 3A	R18	2B
C12	4C	P1A1	3B	R19	6B
C13	*	P1A2	3B	TP1	6D
C14	1B	P1A3	3B	TP2	5C
** E1	6B	P1A4	2B	TP3	5C
** E2	6B	Q1	6B	U1	7B
** E3	6B	Q2	5B	U2	6C
** E4	6B	Q3	6B	U3	7C
** E5	5D	R1	6B	W1	4B, 6B
** E6	5C	R2	5B	W2	3B, 2C
** E7	2C	R3	*	W3	3B, 6B
** E8	2C	R4	6B	W4	2B, 5C
L1	2B	R5	5B	A2A6A12A1 (Potted)	2C, 3C
L2 thru L5	*	R6	5B		
		R7	5B		

* Not Used.
** Wiring termination - for reference only.

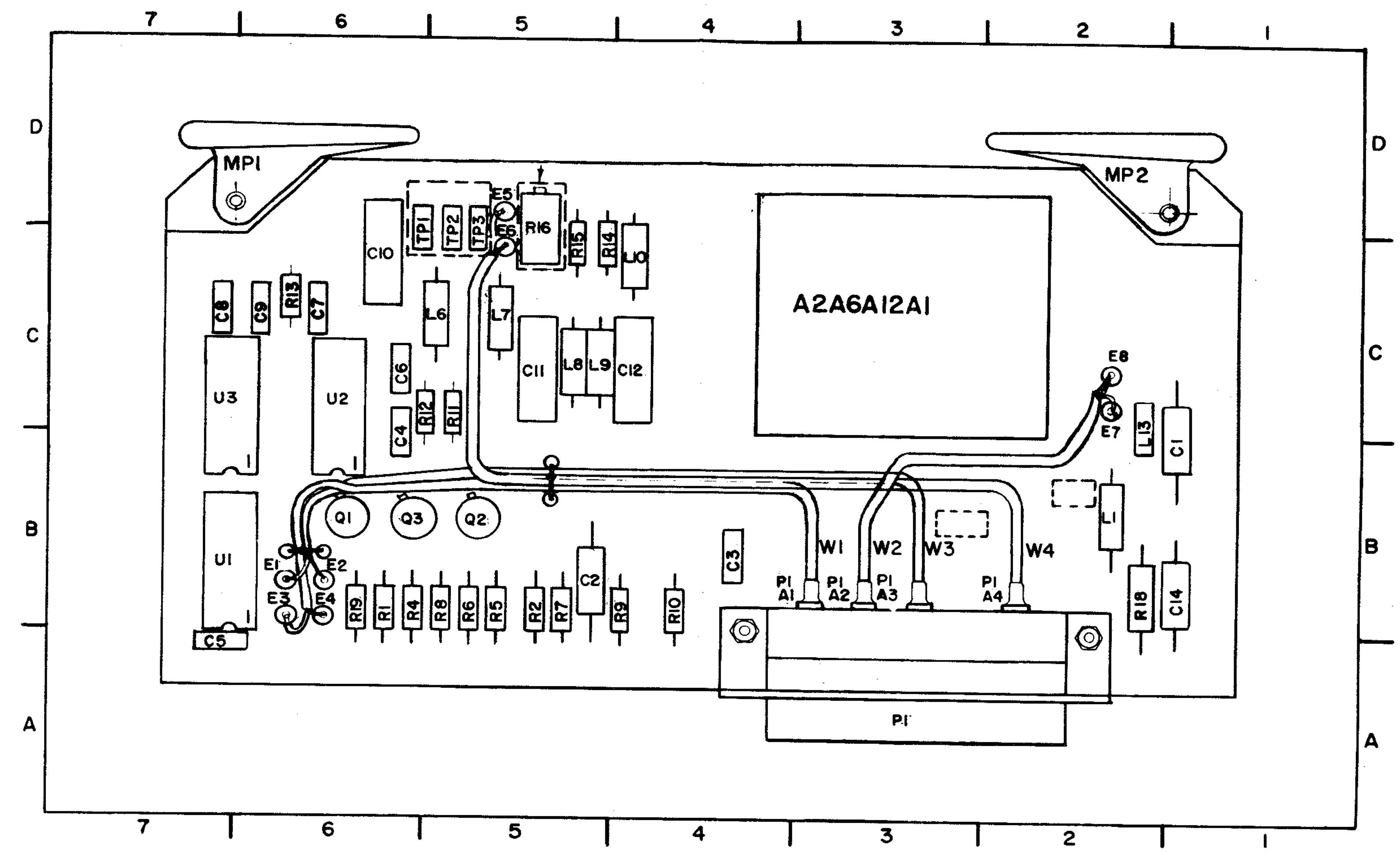
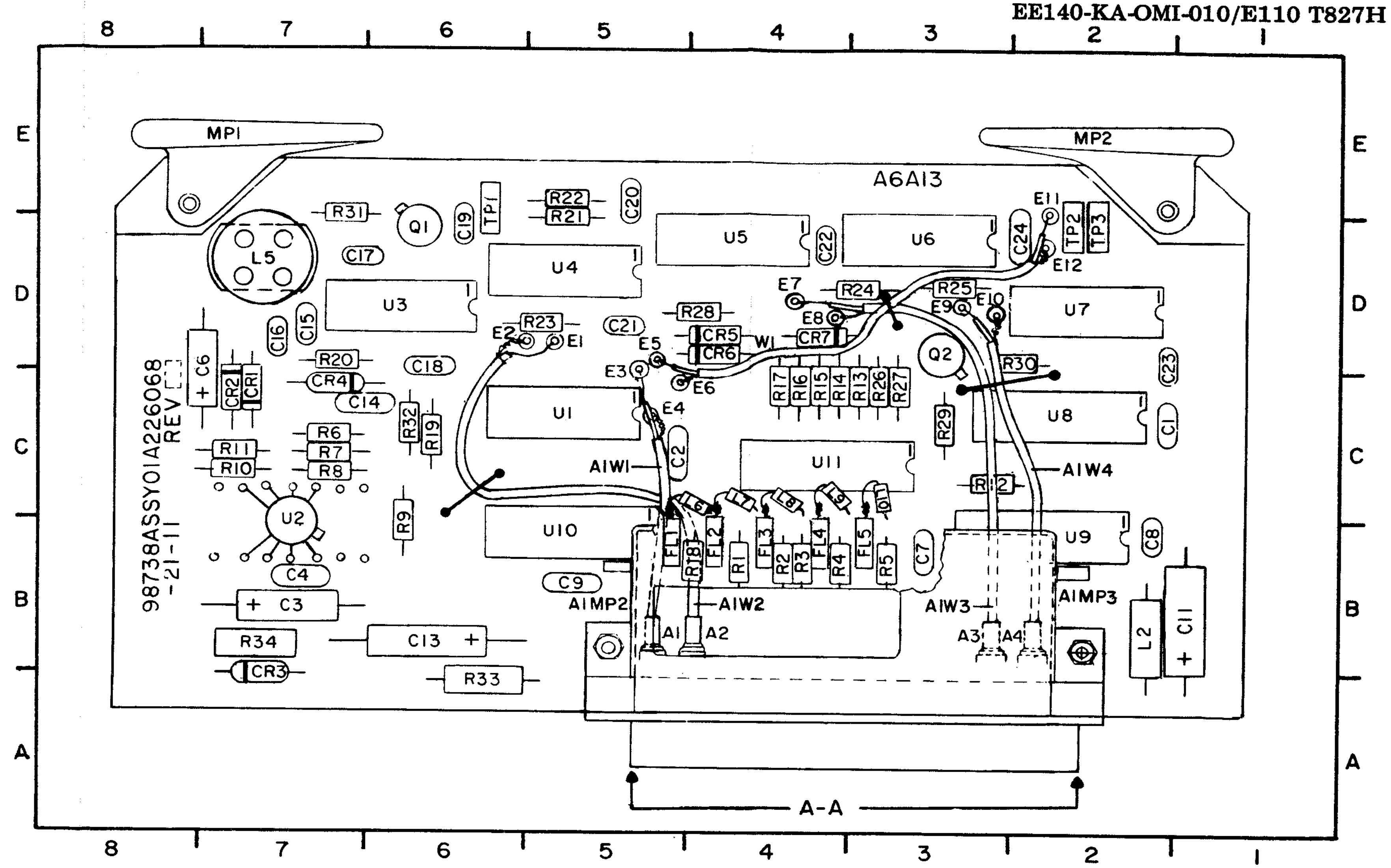


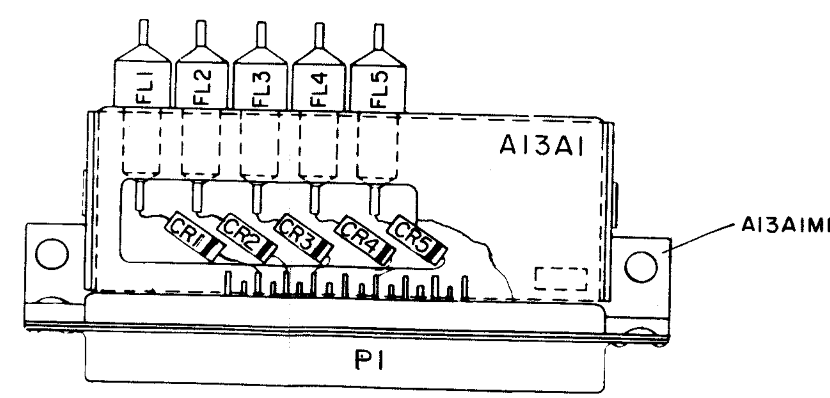
Figure 7-66. 1 kHz/100 Hz Synthesizer Subassembly (No. 2) A2A6A12, Component Locations

PART LOCATION INDEX

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A6A13C1	2C	A2A6A13L1	*	A2A6A13R30	2D
C2	4C	L2	2B	R31	7D
C3	7B	L3	*	R32	6C
C4	7B	L4	*	R33	6A
C5	*	L5	7D	R34	7B
C6	8D	L6	4B	TP1	6D
C7	3B	L7	4B	TP2	2D
C8	2B	L8	4B	TP3	2D
C9	5B	L9	4B	U1	5C
C10	*	L10	3B	U2	7B
C11	1B	MP1	7E	U3	6D
C12	*	MP2	2E	U4	5D
C13	6B	Q1	6D	U5	4D
C14	7C	Q2	3D	U6	3D
C15	7D	R1	4B	U7	2D
C16	7D	R2	4B	U8	2C
C17	7D	R3	4B	U9	2B
C18	6D	R4	4B	U10	5B
C19	6D	R5	3B	U11	4C
C20	5E	R6	7C	W1	3D, 4D
C21	5D	R7	7C	A2A6A13A1CR1	
C22	4D	R8	7C	thru	**
C23	2D	R9	6B	CR5	
C24	2D	R10	7C	FL1	**
CR1	7C	R11	7C	FL2	**
CR2	7C	R12	3C	FL3	**
CR3	7B	R13	3C	FL4	**
CR4	7C	R14	3C	FL5	**
CR5	4D	R15	4C	MP1	**
CR6	4D	R16	4C	MP2	5B
CR7	4D	R17	4C	MP3	2B
*** E1	5D	R18	4B	P1	**
*** E2	5D	R19	6C	P1A1	5B
*** E3	5C	R20	7D	P1A2	4B
*** E4	5C	R21	5D	P1A3	3B
*** E5	5D	R22	5E	P1A4	2B
*** E6	5C	R23	5D	W1	5B, 5C
*** E7	4D	R24	3D	W2	4B, 5C
*** E8	4D	R25	3D	W3	3B, 3C
*** E9	3D	R26	3C	W4	2B, 2C
*** E10	3D	R27	3C		
** E11	2E	R28	4D		
** E12	2D	R29	3C		

* NOT USED.
** SEE VIEW AA.
*** WIRING TERMINATION - FOR REFERENCE ONLY.





VIEW A - A

Figure 7-67. 10 MHz/1 MHz Synthesizer Subassembly A2A6A13, Component Locations

PART LOCATION INDEX

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A6A14C1	5B	* A2A6A14E14	2B	A2A6A14R2	6B
C2	5B	* E15	5B	R3	6B
C3	6C	* E16	2C	R4	6B
C4	5C	L1	6B	R5	5B
C5	6C	L2	6C	R6	5B
C6	5C	L3	6C	R7	5B
C7	5C	L4	6C	R8	5C
C8	5D	L5	5C	R9	6C
C9	6B	L6	6C	R10	5C
C10	4C	L7	4C	R11	4C
C11	4C	L8	3C	R12	4B
C12	4B	L9	3C	R13	4C
C13	3C	L10	3C	R14	4C
C14	3B	L11	3C	R15	4C
C15	3C	L12	3C	R16	4C
C16	3C	L13	1B	R17	4C
C17	3C	L14	1C	R18	4C
C18	4B	L15	1C	R19	3C
C19	2B	L16	1C	R20	3C
C20	1B	L17	2C	R21	2A
C21	1C	L18	1C	R22	2A
C22	2C	L19	4B	R23	1B
C23	1C	MP1	6D	R24	1B
C24	2C	MP2	1D	R25	2B
C25	2C	MP3	5B	R26	2B
C26	1D	MP4	4C	R27	2B
C27	1B	MP5	1B	R28	2C
C28	3B	P1	3A, 4A	R29	1C
C29	3D	P1A1	4B	R30	2C
* E1	5B	P1A2	4B	R31	3D
* E2	4C	P1A3	3B	TP1	5D
* E3	3D	P1A4	3B	TP2	4D
* E4	2B	Q1	5B	TP3	4D
* E5	5B	Q2	5B	TP4	4D
* E6	4D	Q3	5D	TP5	3D
* E7	2C	Q4	4C	TP6	2D
* E8	2B	Q5	4C	TP7	2D
* E9	4C	Q6	2C	W1	4B, 5B
* E10	3D	Q7	1B	W2	4B, 4C
* E11	4D	Q8	2B	W3	2B, 3B
* E12	2B	Q9	2D	W4	3B, 3D
* E13	5B	R1	5B	W5	2B, 2C
				W6	5B, 4D

* WIRING TERMINATION - FOR REFERENCE ONLY.

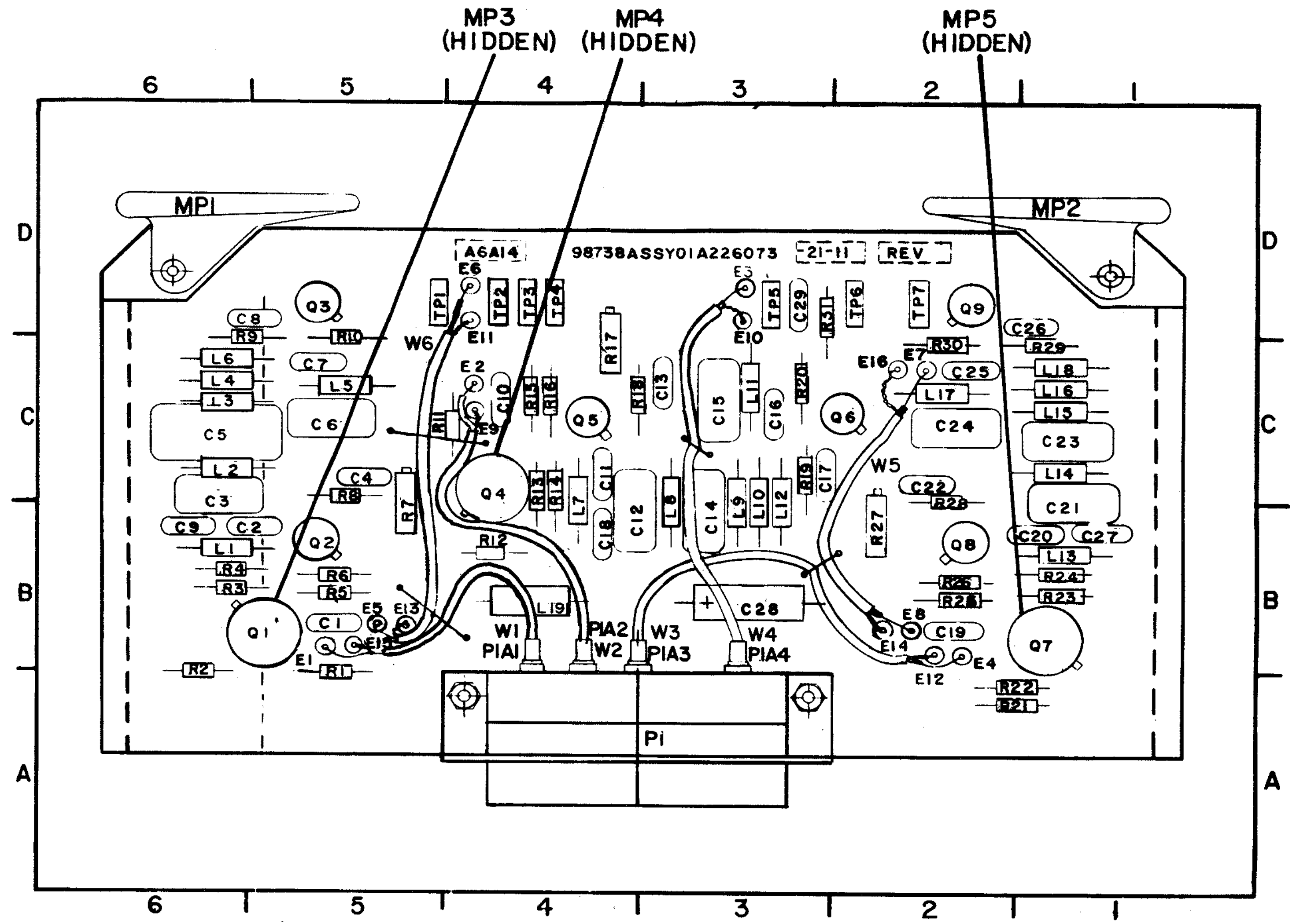


Figure 7-68. 10 MHz/1 MHz Filter Subassembly A2A6A14, Component Locations

PART LOCATION INDEX

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A6A15C1	5A	A2A6A15E1	6D	A2A6A15R5	6B
C2	6C	E2	2C	R6	5A
C3	5B	E3	*	R7	5B
C4	4A	E4	5D	R8	5B
C5	1B	E5	4D	R9	1C
C6	1B	E6	3D	R10	1D
†C7	5A	L1	3A, 3B	R11	1C
C8	*	L2	3C, 4C	R12	2B
C9	5C	MP1	3C, 3D	R13	1B
C10	4C	MP2	2C, 2D	R14	2B
C11	2B	MP3	4B	R15	2D
C12	5B	MP4	1B	R16	2B
C13	4C	Q1	5B	TP1	5D
C14	2B	Q2	1B	TP2	2D
C15	4D	Q3	2C, 2D	TP3	*
C16	6B	R1	6B	TP4	6D
CR1	5B	R2	6A	U1	5A
CR2	3C, 3D	R3	6B	U2	5A
		R4	6A		

* NOT USED
† REVISION L AND LATER VERSIONS ONLY

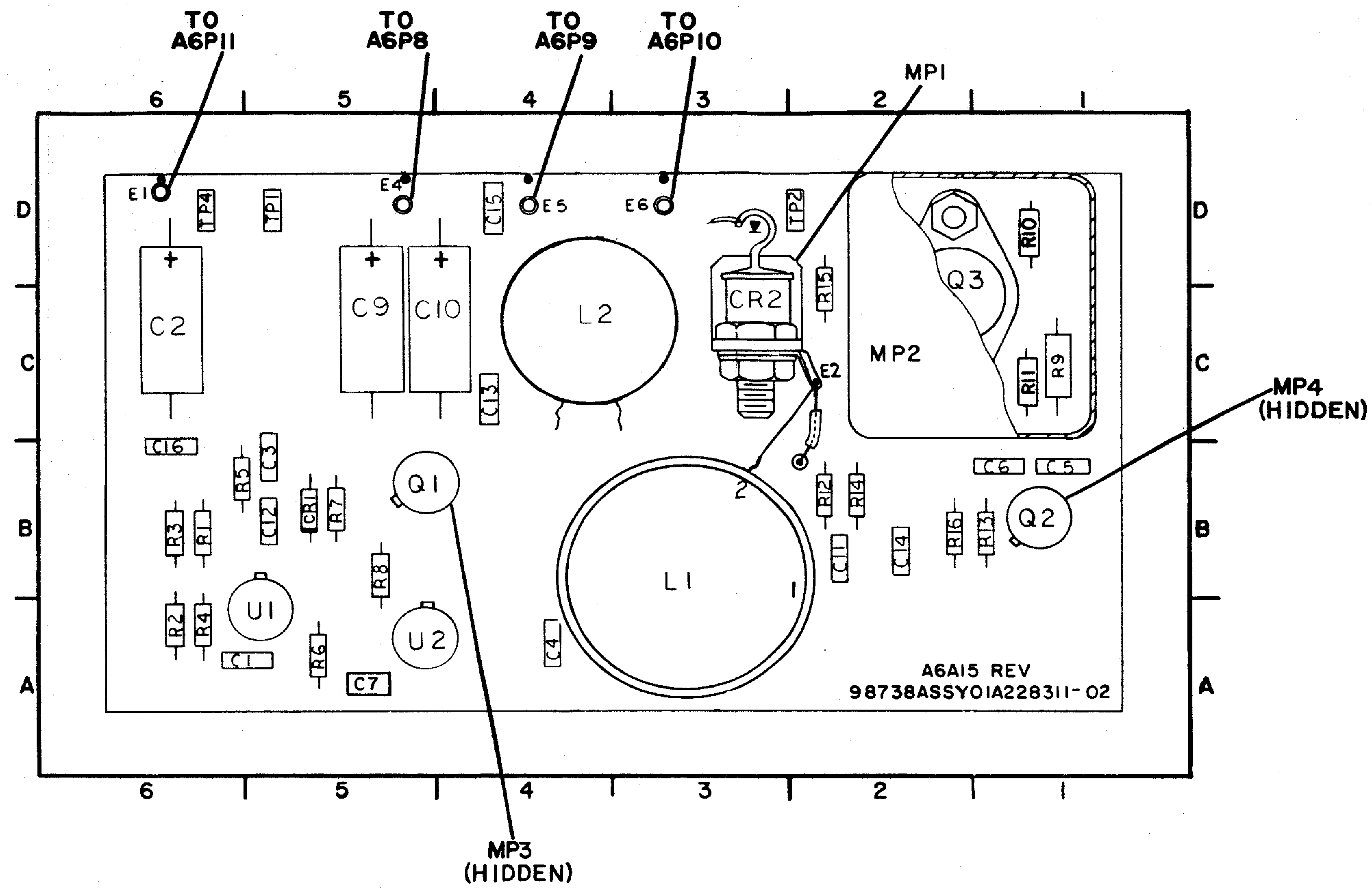


Figure 7-69. Power Supply Subassembly A2A6A15, Component Locations

PART LOCATION INDEX

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A6A16C1	*	** A2A6A16E4	1C	A2A6A16R16	2B
C2	*	** E5	3C	R17	5E
C3	4C	** E6	3C	R18	6E
C4	4C	** E7	3C	R19	6E
C5	4E	** E8	3D	R20	5E
C6	3E	** E9	5C	R21	5E
C7	4D	** E10	5C	R22	4E
C8	3D	** E11	3D	R23	5E
C9	3D	L1	*	R24	4D
C10	2E	L2	*	R25	6C
C11	2E	L3	3B	R26	7C
C12	1E	L4	*	R27	7C
C13	2C	L5	6B	R28	7C
C14	4C	L6	3E	R29	7C
C15	2A	L7	3E	R30	6C
C16	1B	MP1	7E	R31	7B
C17	3B	MP2	1E	R32	7B
C18	5D	MP3	3C	R33	6B
C19	*	MP4	3C	R34	5A
C20	4D	P1	3A, 4A	R35	6A
C21	5D	P1A1	5A	R36	6A
C22	7D	P1A2	4A	R37	4B
C23	6D	P1A3	3A	R38	4C
C24	6D	P1A4	3A	R39	3B
C25	6C	Q1	4E	TP1	6E
C26	6D	Q2	3D	TP2	3E
C27	*	Q3	3B	TP3	3E
C28	6B	Q4	2B	TP4	2E
C29	5B	Q5	5A	U1	2D
C30	5B	Q6	4B	U2	1D
C31	5B	R1	4E	U3	1C
C32	5B	R2	4E	U4	2C
C33	5B	R3	4D	U5	3C
C34	6A	R4	4D	U6	3C
C35	6A	R5	4D	U7	5D
C36	6A	R6	3D	U8	7D
C37	5C	R7	3E	U9	5D
CR1	4D	R8	3D	U10	7C
CR2	6C	R9	3D	U11	5B
CR3	6C	R10	2E	U12	7A
CR4	5C	R11	2D	U13	5C
CR5	6B	R12	3B	U14	1A
** E1	4E	R13	3B	U15	1B
** E2	4D	R14	3B	U16	1C
** E3	1D	R15	2B	U17	2C

* Not used.
** Wiring termination - for reference only.

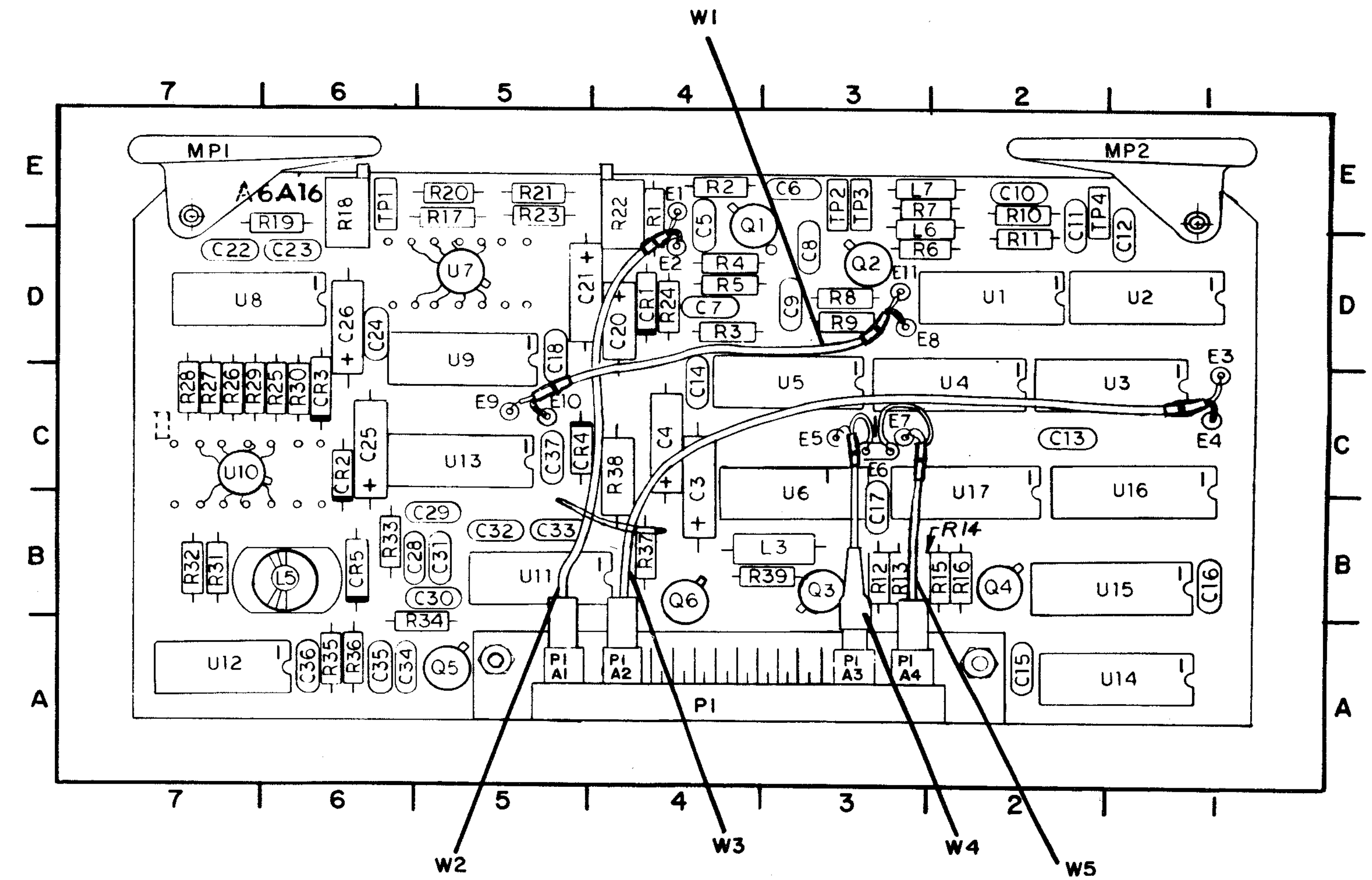


Figure 7-70. Frequency Generator Subassembly A2A6A16, Component Locations

PART LOCATION INDEX

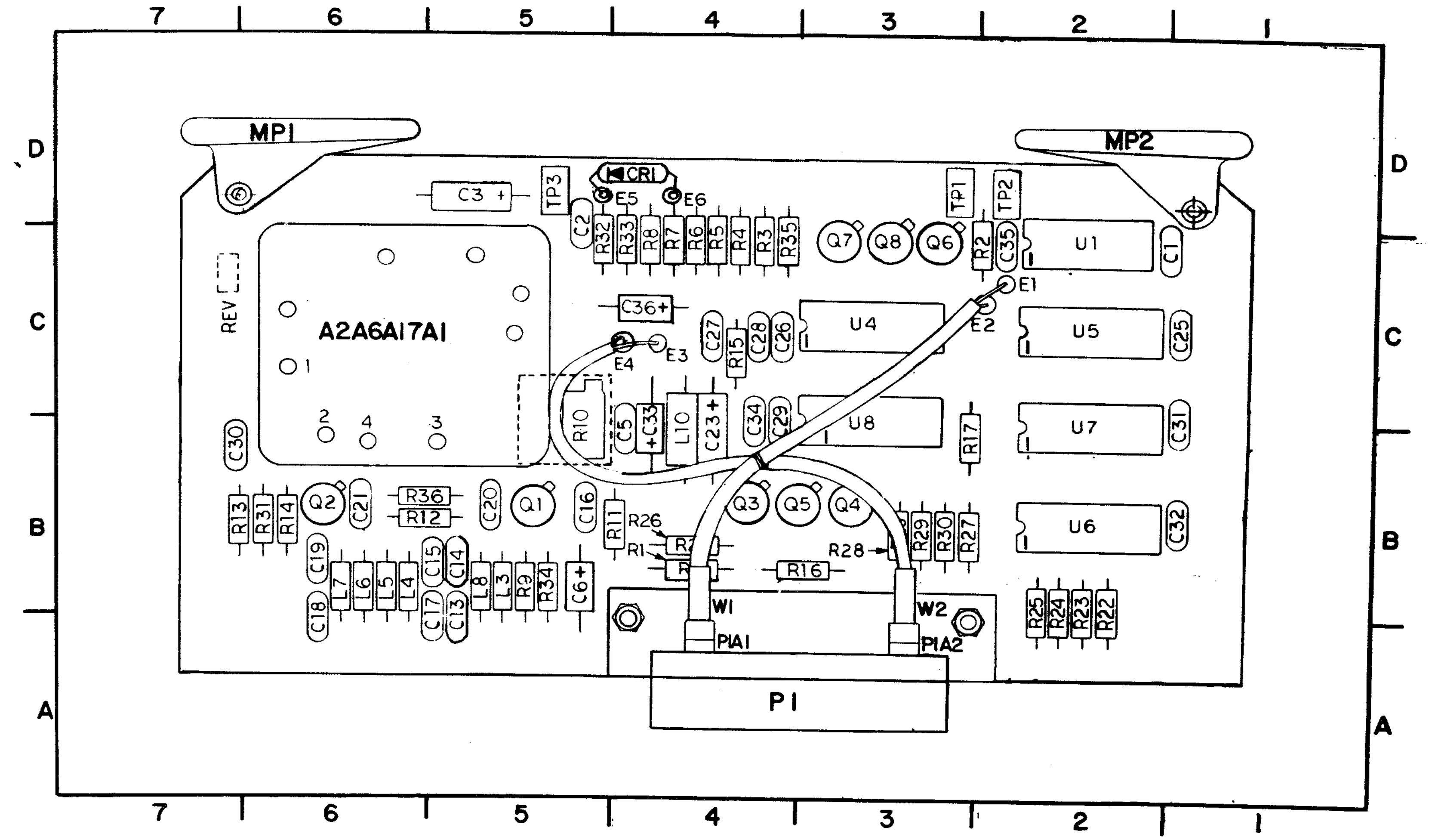
REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A6A17C1	1C	** A2A6A17E4	4C	A2A6A17R12	6B
C2	5D	*** E5	5D	R13	7B
C3	5D	*** E6	4D	R14	6B
C4	*	L1	*	R15	4C
C5	4B	L2	*	R16	3B
C6	5B	L3	5B	R17	3B
C7		L4	6B	R18	*
thru	*	L5	6B	R19	*
C12		L6	6B	R20	*
C13	5B	L7	6B	R21	*
C14	5B	L8	5B	R22	2B
C15	5B	L9	*	R23	2B
C16	5B	L10	4B	R24	2B
C17	6B	MP1	6D, 7D	R25	2B
C18	6A	MP2	1D, 2D	R26	4B
C19	6B	P1	3A, 4A	R27	3B
C20	5B	P1A1	4A	R28	3B
C21	6B	P1A2	3A	R29	3B
C22	*	Q1	5B	R30	3B
C23	4B	Q2	6B	R31	6B
C24	*	Q3	4B	R32	5C
C25	1C	Q4	3B	R33	4C
C26	4C	Q5	4B	R34	5B
C27	4C	Q6	3C	R35	4C
C28	4C	Q7	3C	R36	5B
C29	4C	Q8	3C	TP1	3D
C30	7B	R1	4B	TP2	2D
C31	1C	R2	2C	TP3	5D
C32	1B	R3	4C	U1	2C
C33	4B	R4	4C	U2	*
C34	4C	R5	4C	U3	*
C35	2C	R6	4C	U4	3C
C36	4C	R7	4C	U5	2C
+ CR1	4D	R8	4C	U6	2B
** E1	2C	R9	5B	U7	2C
** E2	2C	R10	5C	U8	3C
** E3	4C	R11	4B	W1	4B, 4C
				W2	3B, 4B
				A2A6A17A1	(Potted)

* NOT USED

** WIRING TERMINATION - FOR REFERENCE ONLY

*** WIRING TERMINATION - FOR REFERENCE ONLY - 01 VERSION ONLY

\+ REVISION F AND LATER VERSIONS ONLY



-01 VERSION -- TERMINALS E5 AND E6 ACCOMMODATE LEADS OF DIODE CR1

-02 VERSION -- PLATED-THROUGH HOLES ACCOMMODATE LEADS OF DIODE CR1

Figure 7-71. 100 kHz/10 kHz Synthesizer Subassembly A2A6A17, Component Locations

PART LOCATION INDEX

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A6A18C1	4B	A2A6A18Q1	5B	A2A6A18R16	5B
C2	4B	Q2	5B	R17	5C
C3	4C	Q3	5B	R18	3B
C4	4D	Q4	5B	R19	3B
C5	4C	Q5	6B	R20	3C
C6	2C	Q6	6B	R21	3C
C7	1C	Q7	6B	R22	2C
C8	1B	Q8	6B	R23	2C
C9	5C	R1	5A	R24	3B
C10	3D	R2	5A	R25	3B
C11	2D	R3	5C	R26	1A
C12	4B	R4	5A	TP1	3D
C13	5B	R5	5A	TP2	4D
** E1	4B	R6	5C	U1	4B
** E2	4B	R7	6A	U2	4C
** E3	4B	R8	6A	U3	5D
** E4	4C	R9	6C	U4	4C
L1	5B	R10	6A	U5	2C
MP1	6D	R11	6A	U6	1C
MP2	1D	R12	6C	U7	1B
P1	3A, 4A, 5A	R13	4B	U8	6C
P1A1	4B	R14	6B	U9	3C
P1A2	3B	R15	6C	U10	2C
				W1	4B, 4C
				W2	3B

** WIRING TERMINATION - FOR REFERENCE ONLY.

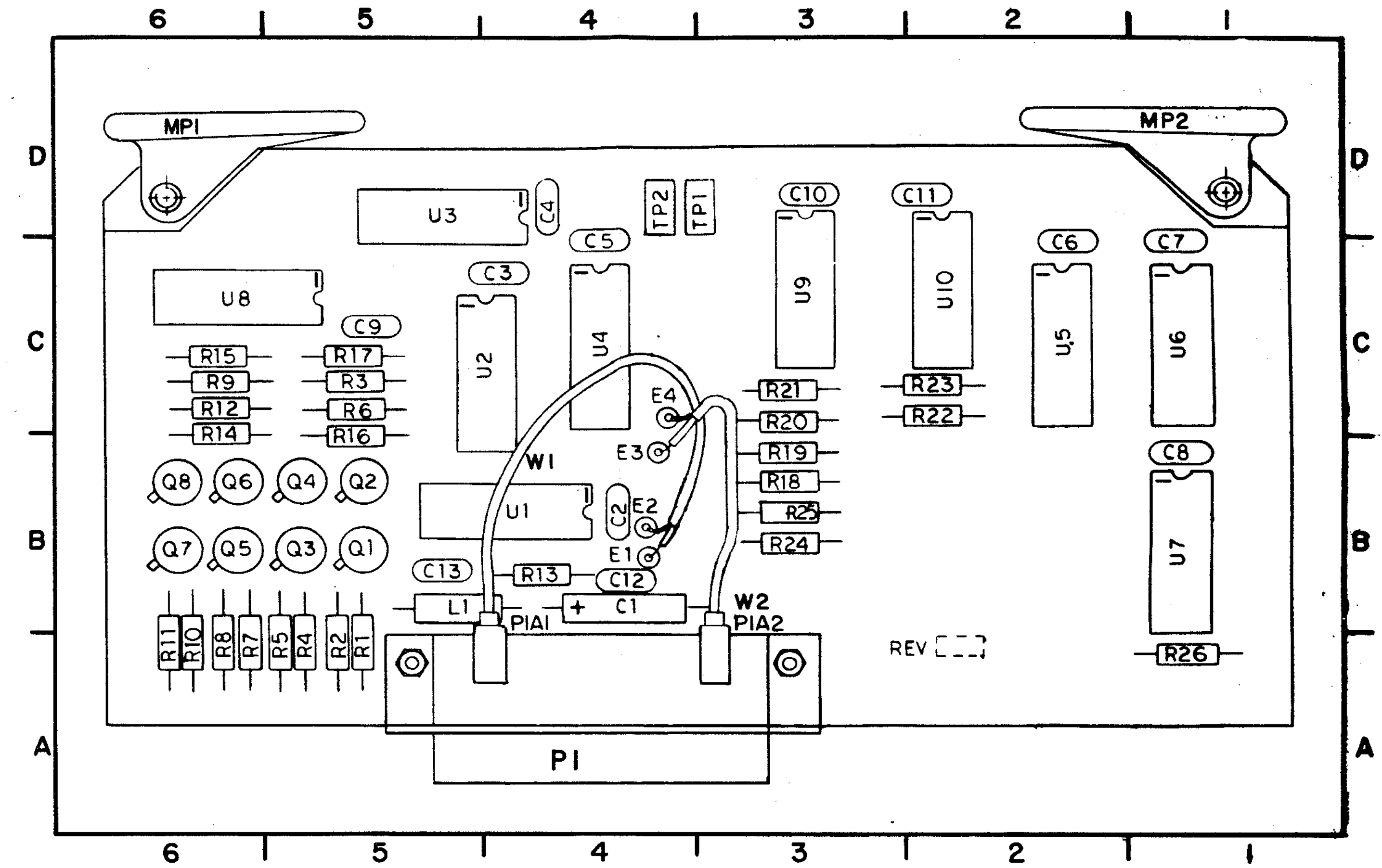
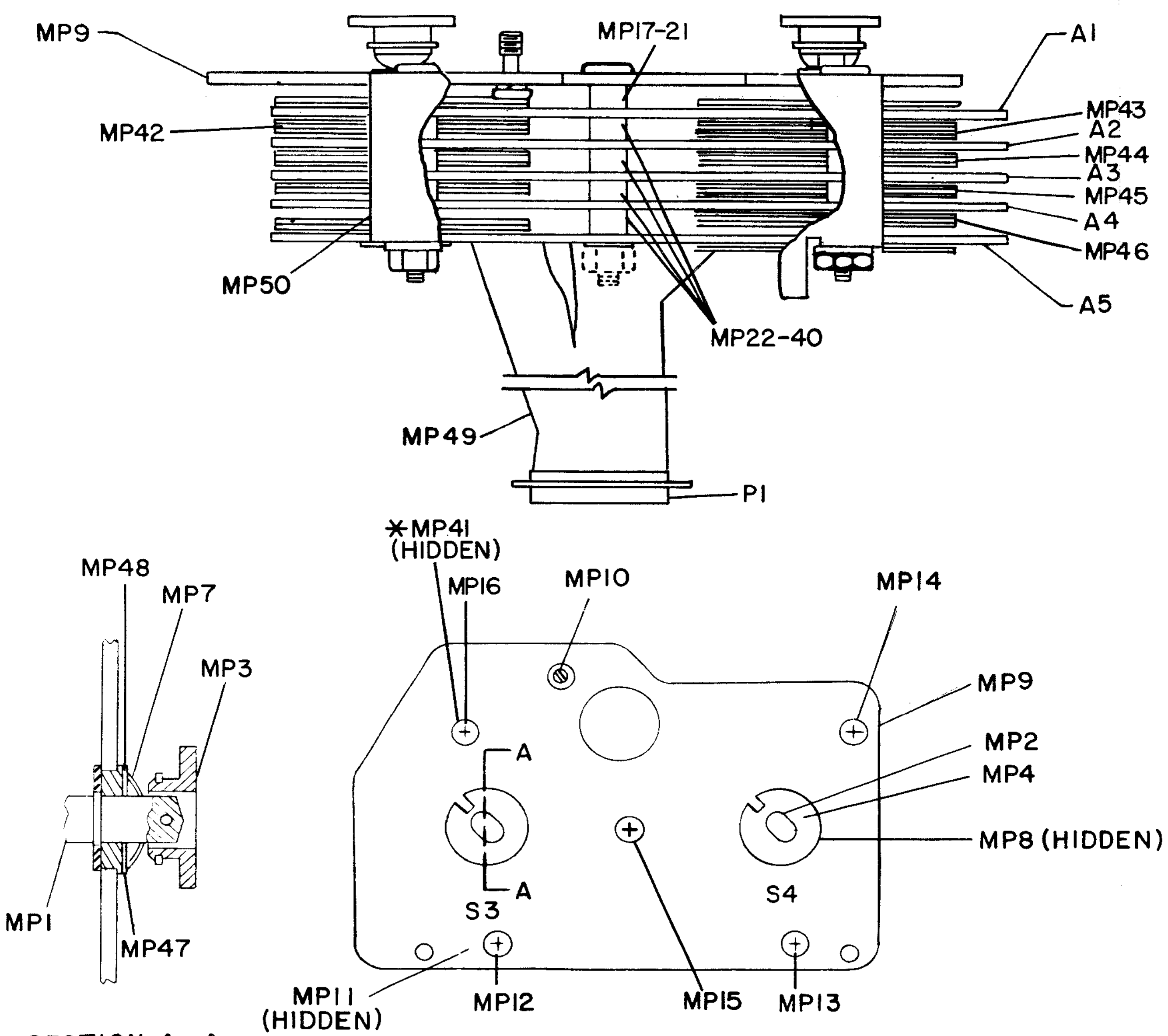
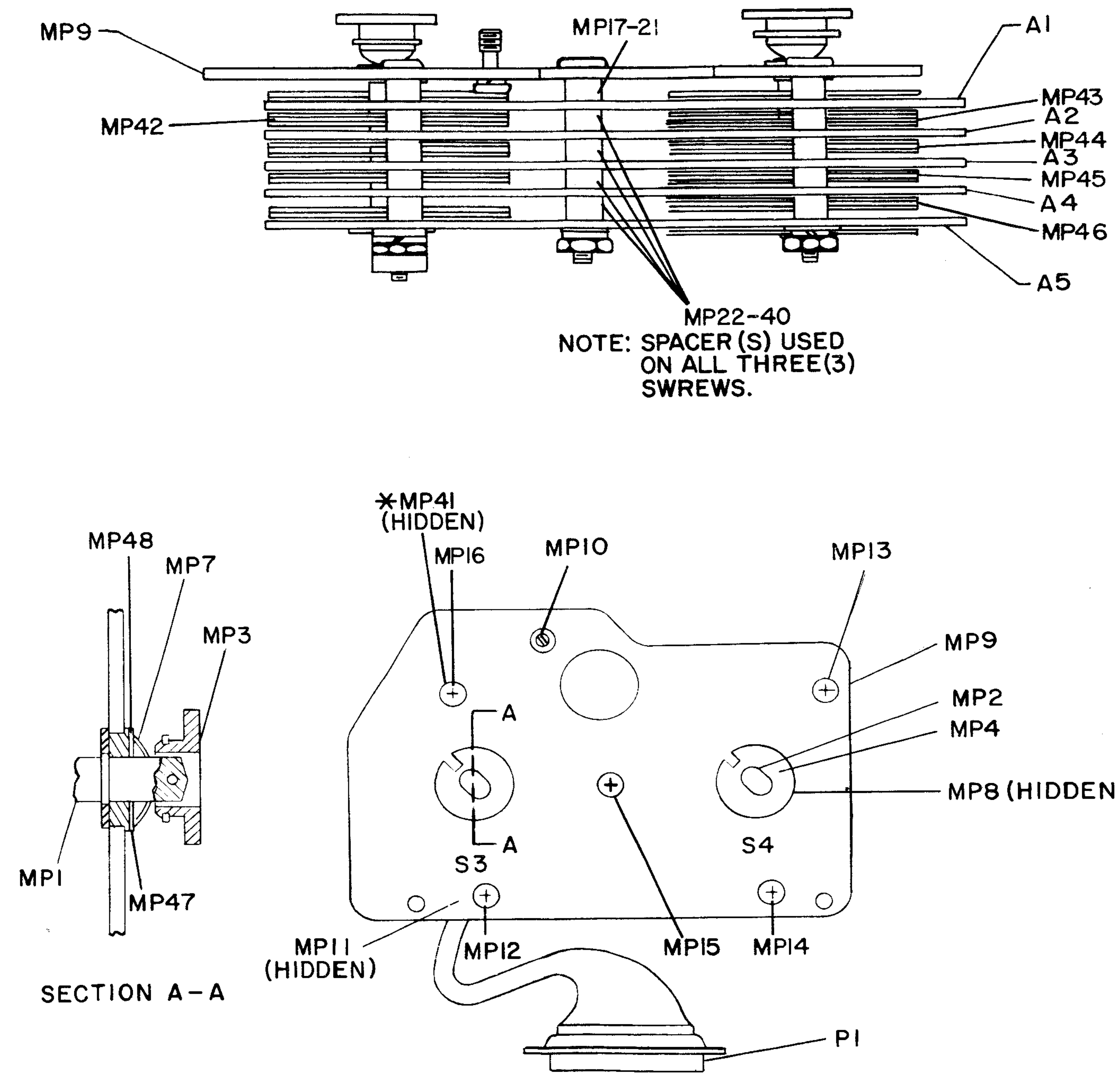


Figure 7-72. 1 kHz/100 Hz Synthesizer Subassembly (No. 1) A2A6A18, Component Locations



* MP41 located between A2A12A1 and A2A12A2 Switch Assemblies.



* MP41 located between A2A12A1 and A2A12A2 Switch Assemblies.

ALTERNATE A2A7 ASSEMBLY

Figure 7-73. Code Generator Assembly A2A7, Component Locations

PART LOCATION INDEX

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A8C1	3F	A2A8CR12	6C	A2A8MP2 thru MP5	2E, 3E, 4C, 5E
C2	2F	CR13	6D	Q1	6B
C3	6B	** E1	1B	Q2	7C
C4	7B	** E2	1C	R1	2F
C5	6F	** E3	1B	R2	6A
C6	5F	** E4	1A	R3	6C
C7	5C	** E5	2A	R4	7C
C8	5D	** E6	2A	R5	6D
C9	4D	** E7	3A	R6	7D
C10	5F	** E8	3A	R7	7E
C11	4F	** E9	3B	R8	6E
CR1	1C	** E10	3A	R9	7E
CR2	2C	** E11	4A	R10	6F
CR3	1C	** E12	3A	R11	5D
CR4	1C	** E13	4A	R12	5D
CR5	3B	** E14	4A	R13	5B
CR6	3C	** E15	5A	R14	5B
CR7	2B	** E16	5A	R15	4B
CR8	2C	** E17	5A	R16	3F
CR9	3C	** E18	6A	R17	7C
CR10	6D	** E19	7A	R18	7D
CR11	7C	** E20	7A	U1	7D
		MP1	7B		

* NOT USED.
** WIRING TERMINATION: FOR REFERENCE ONLY.

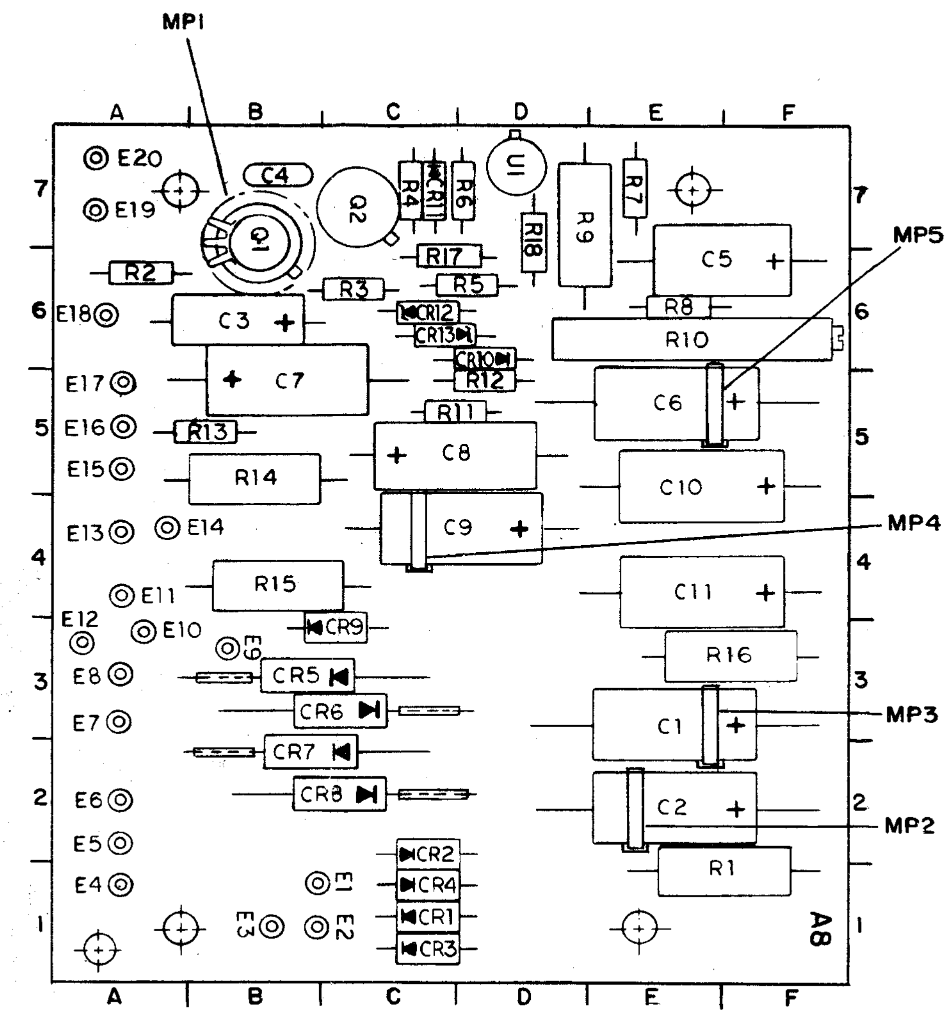


Figure 7-74. Power Supply Assembly A2A8, Component Locations

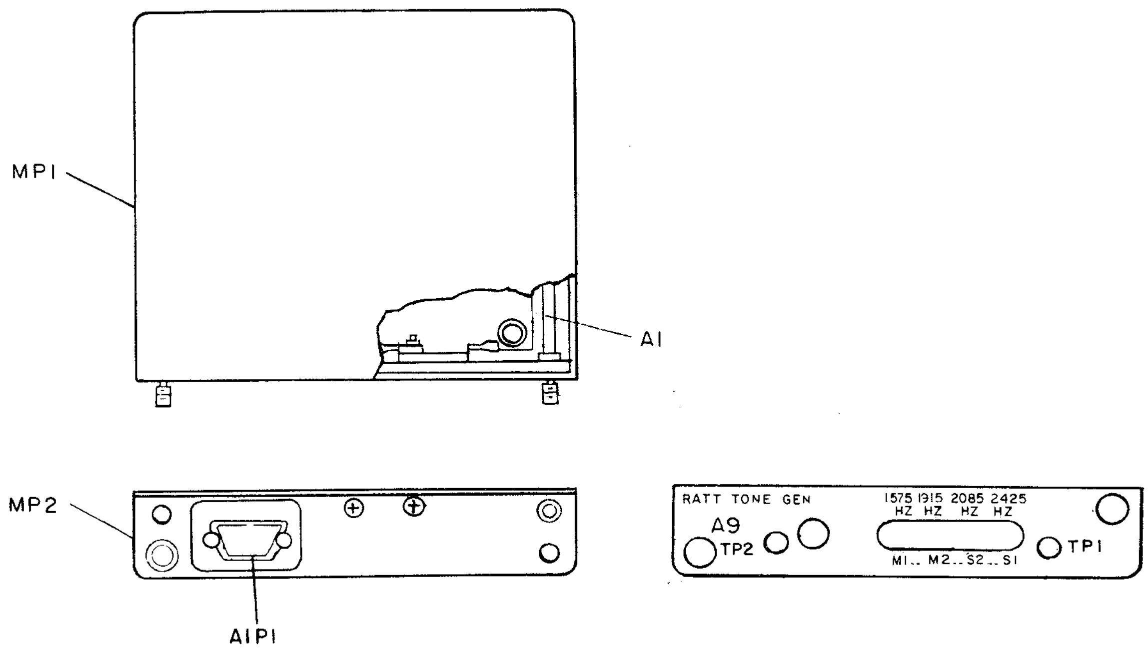


Figure 7-75. RATT Tone Generator Assembly A2A9,
Component Locations

PART LOCATION INDEX

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A9A1C1	5D	A2A9A1R4	6D	A2A9A1R21	2D
C2	5D	R5	6D	R22	2D
C3	4D	R6	4B	R23	3D
C4	4D	R7	5D	R24	3D
C5	5D	R8	5D	R25	5D
C6	6C	R9	4D	T1	1D
CR1	5B	R10	5D	TP1	3A
CR2	2C	R11	4D	TP2	3A
CR3	5B	R12	4D	TP3	2A
CR4	4D	R13	5B	TP4	4A
P1	2F	R14	2C	TP5	2A
Q1	5D	R15	3E	U1	4B
Q2	3D	R16	3D	U2	4C
Q3	2D	R17	4C	U3	4C
Q4	2D	R18	3B	U4	3C
R1	5B	R19	2D	U5	2C
R2	5B	R20	2D	U6	5C
R3	1C				

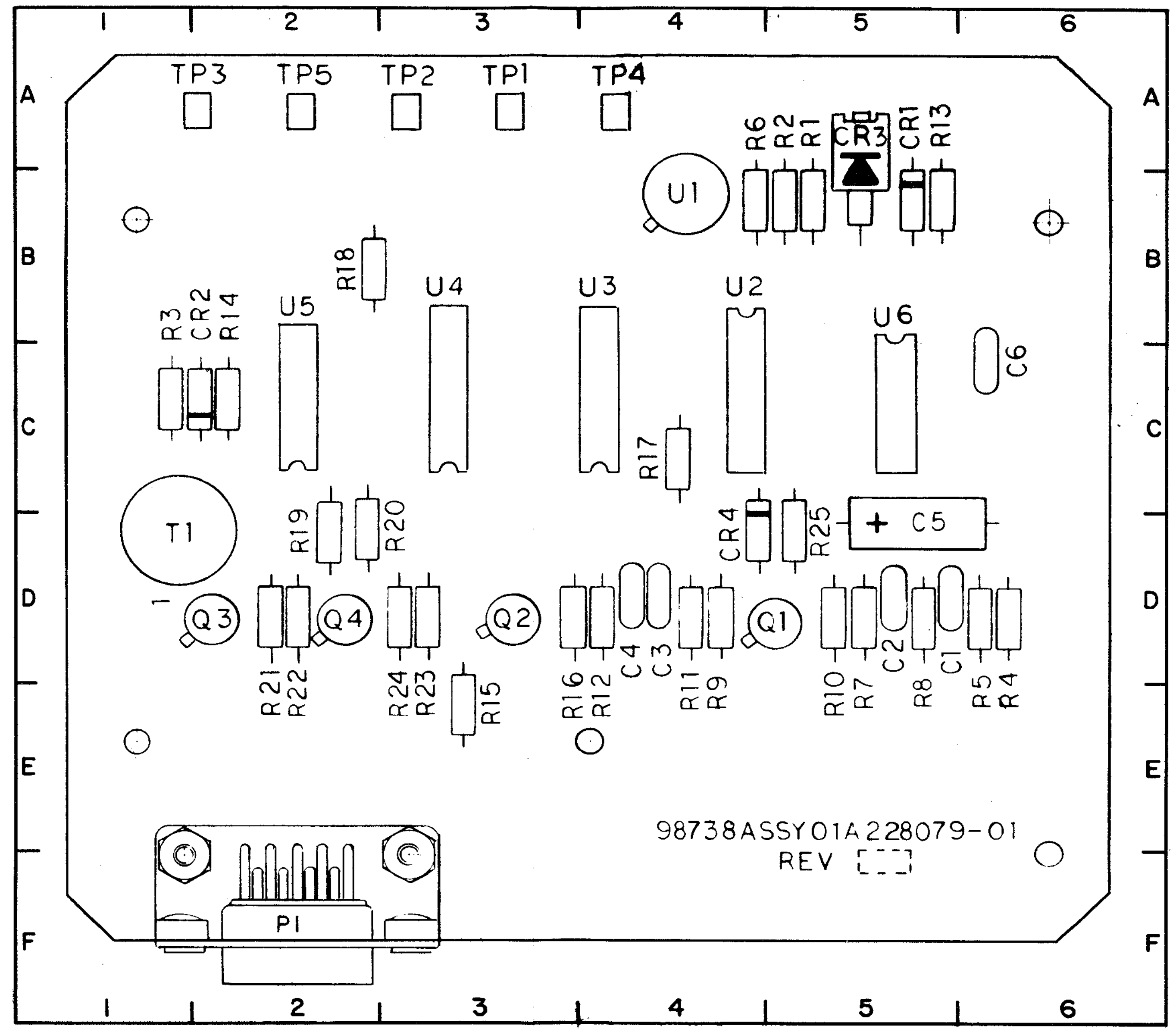
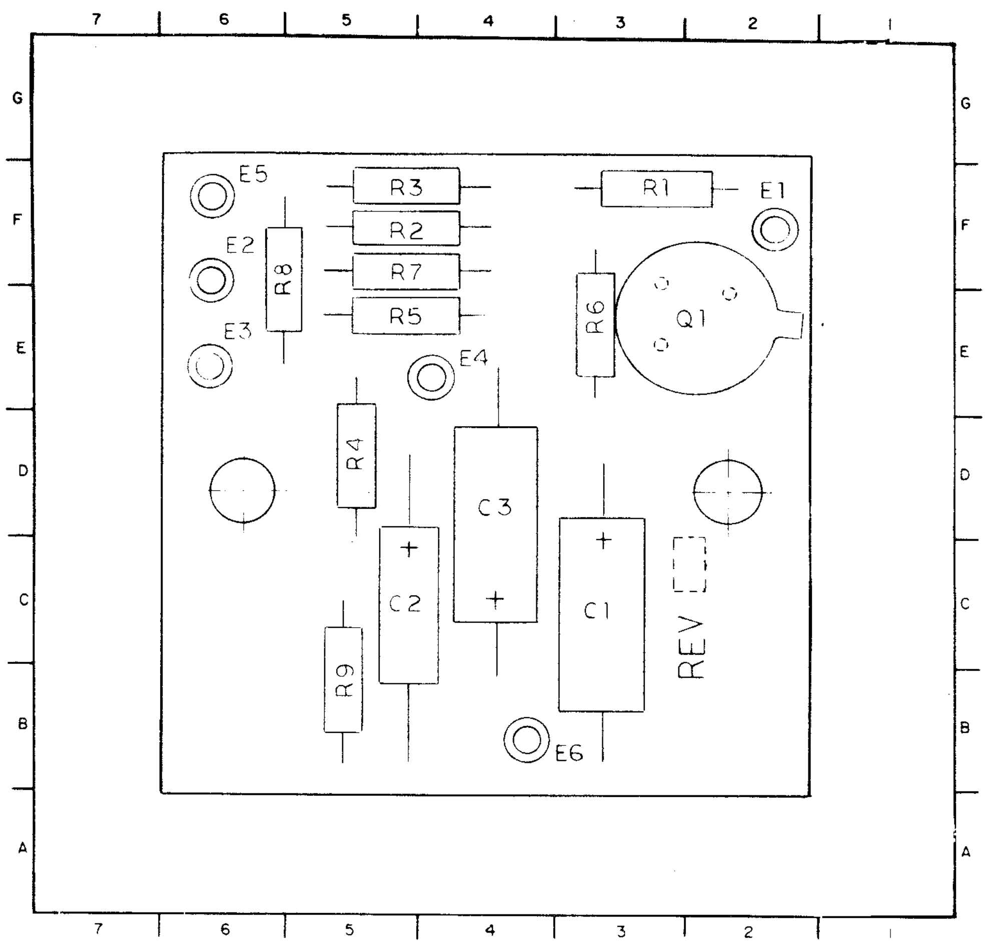


Figure 7-76. RATT Tone Generator Subassembly A2A9A1, Component Locations



PART LOCATION INDEX

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A10C1	3C	** A2A10E5	6F	A2A10R5	5E
C2	5C	** E6	4B	R6	3E
C3	4D	Q1	2E	R7	5F
** E1	2F	R1	3F	R8	6F
** E2	6F	R2	5F	R9	5B
** E3	6E	R3	5F	A2A11 Identi-	
** E4	4E	R4	5D	cal to A2A10	

** Wiring termination; for reference only.

Figure 7-77. Meter Amplifier Assemblies A2A10 and A2A11, Component Locations

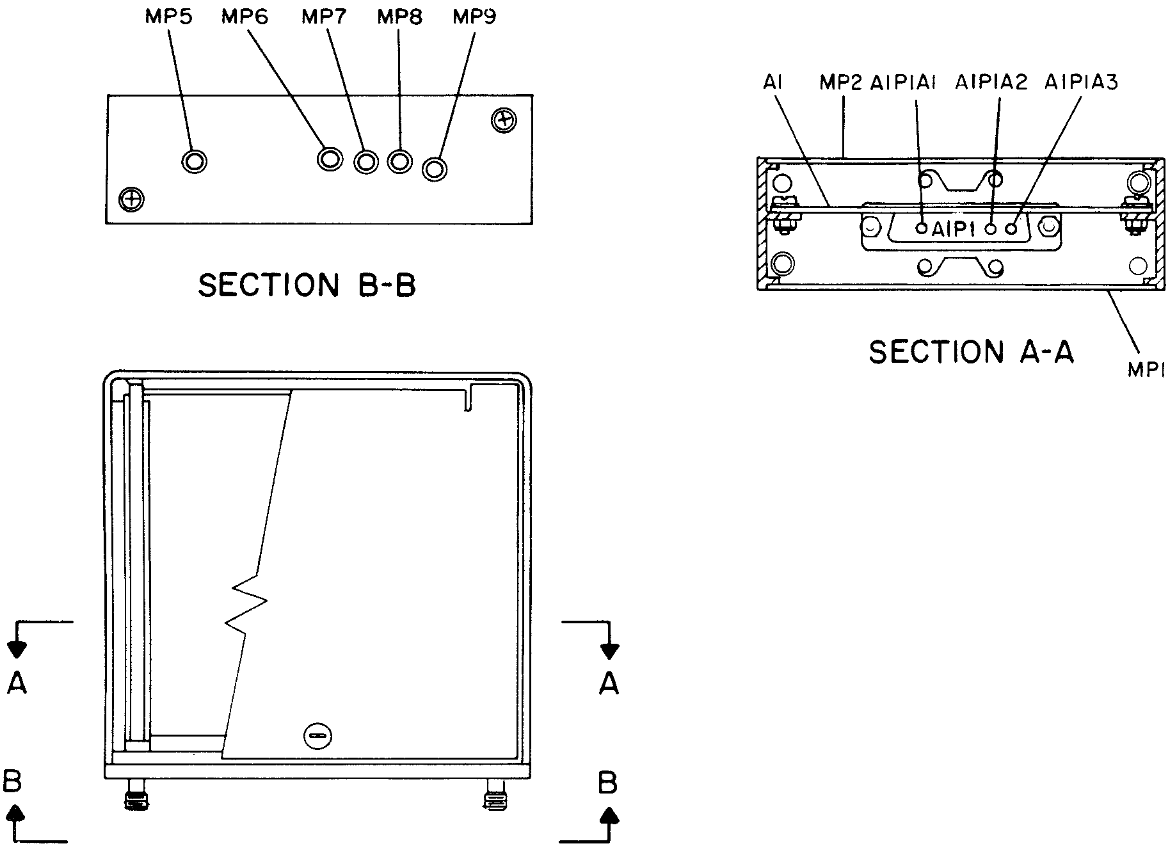


Figure 7-78. IF Amplifier Assembly A2A12,
Component Locations

PARTS LOCATION INDEX

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A12A1C1	3E	*A2A12A1E6	1B	A2A12A1R21	3C
C2	3E	Q1	2B	R22	3C
C3	2B	Q2	2B	R23	2C
C4	2B	Q3	4C	R24	3C
C5	3B	Q4	3C	R25	2D
C6	3C	Q5	4D	R26	1D
C7	4B	Q6	1C	R27	1D,
C8	4D	R1	2D		1E
C9	4D	R2	2D	R28	1C
C10	1D	R3	1B	R29	2C
C11	2D	R4	2D	R30	3D
C12	2C	R5	3B	R31	2C
C13	3C	R6	2B	R32	2C
C14	2C	R7	4E	R33	3D
C15	2D	R8	3B	R34	3D
C16	3D	R9	3B	R35	2D
C17	3D	R10	3B	R36	3D
C18	2D	R11	3B	R37	3D
C19	2D	R12	2E	R38	2D
C20	3D	R13	3D	R39	4C
CR1	4D	R14	4C	RT1	1C
CR2	2D	R15	4B	T1	4B
*E1	4C	R16	4C	T2	4E
*E2	4C	R17	4D	TP1	2E
*E3	2B	R18	3D	TP2	4E
*E4	2B	R19	4D	TP3	2E
*E5	1B	R20	2D	TP4	2E

* WIRING TERMINATION - FOR REFERENCE ONLY.

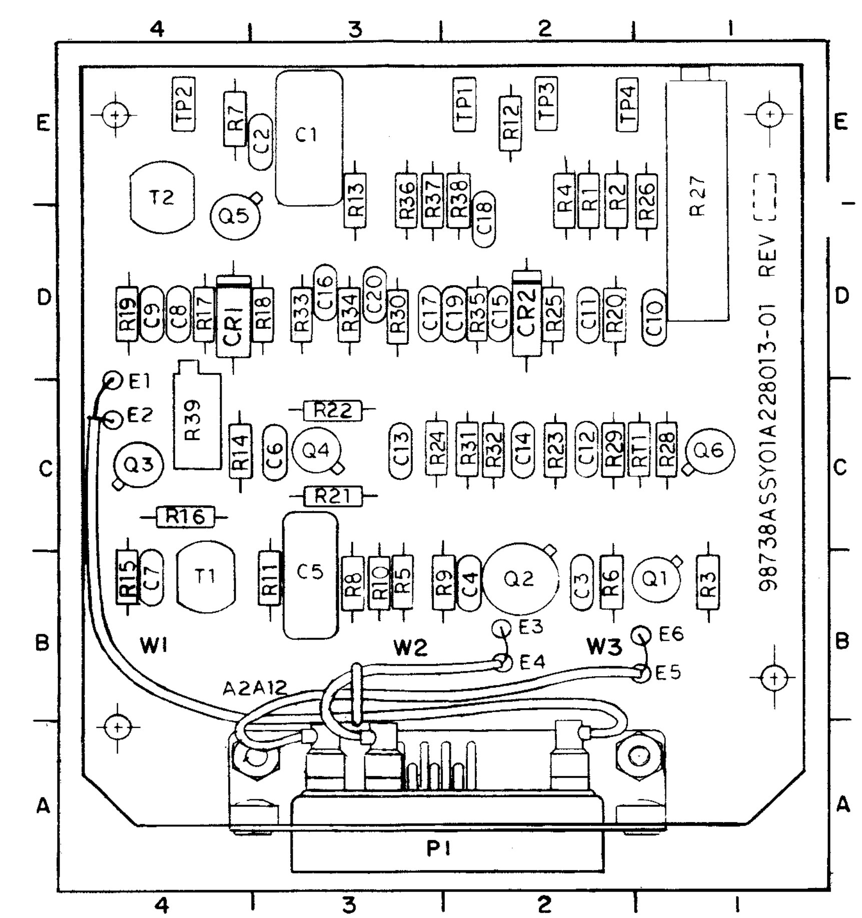


Figure 7-79. IF Amplifier Subassembly A2A12A1
Component Locations

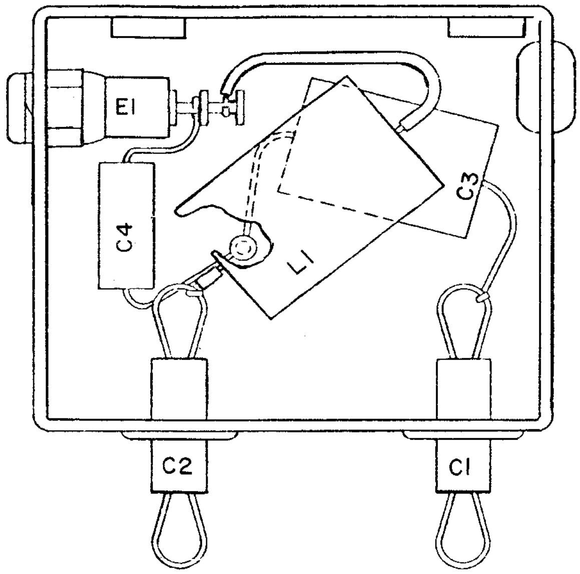


Figure 7-80. Handset Filter Assembly A2A14, Component Locations

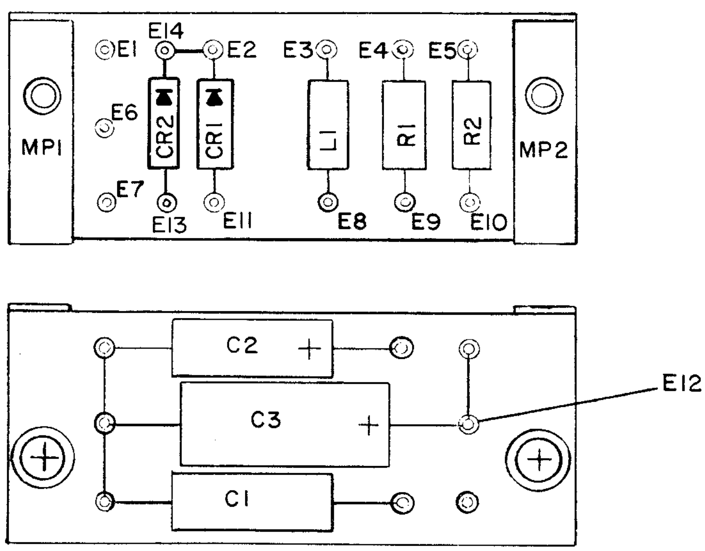


Figure 7-81. IF Filter Assembly A2A15, Component Locations

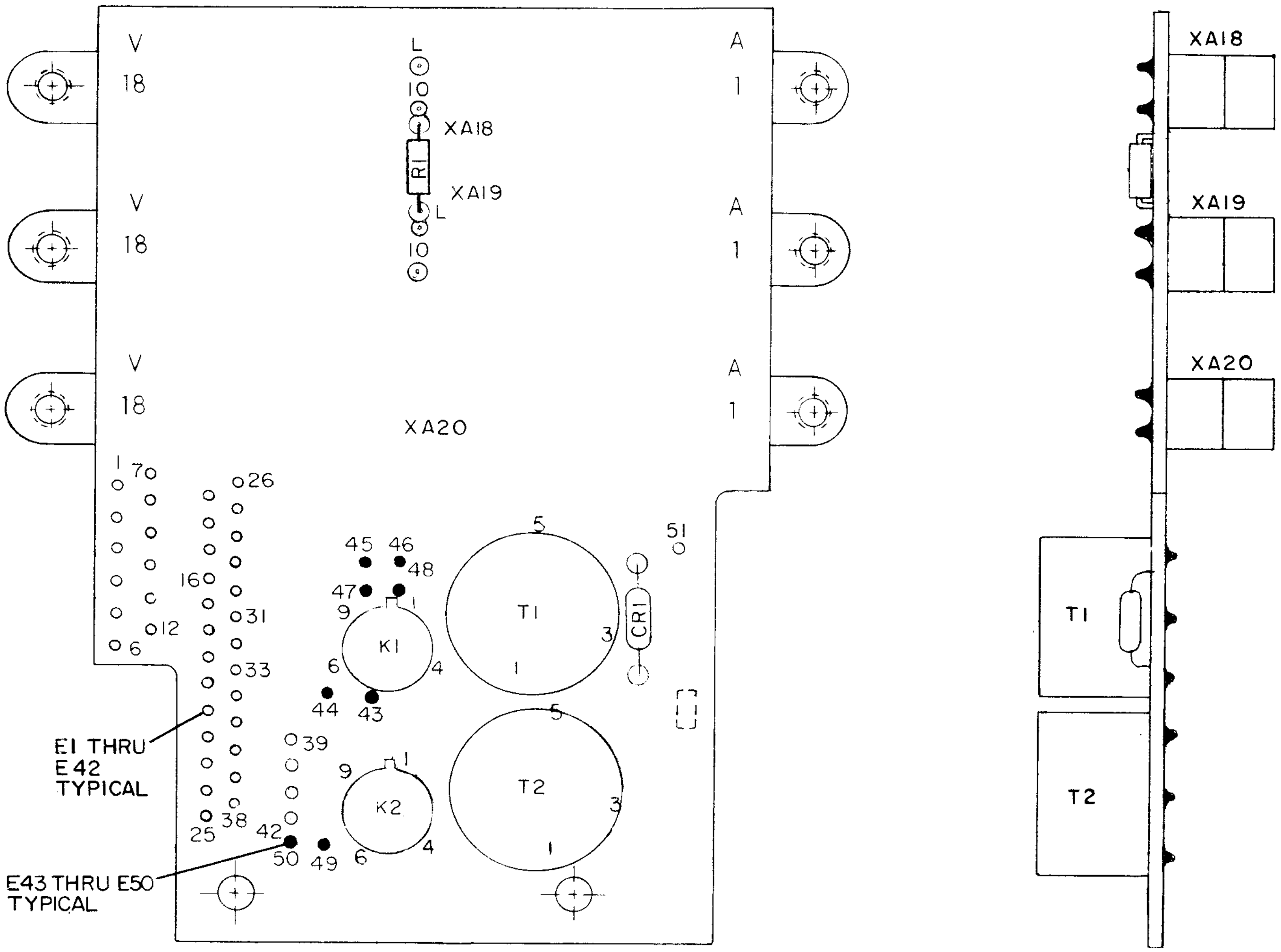


Figure 7-82. Audio Interconnect Board A2A21,
Component Locations

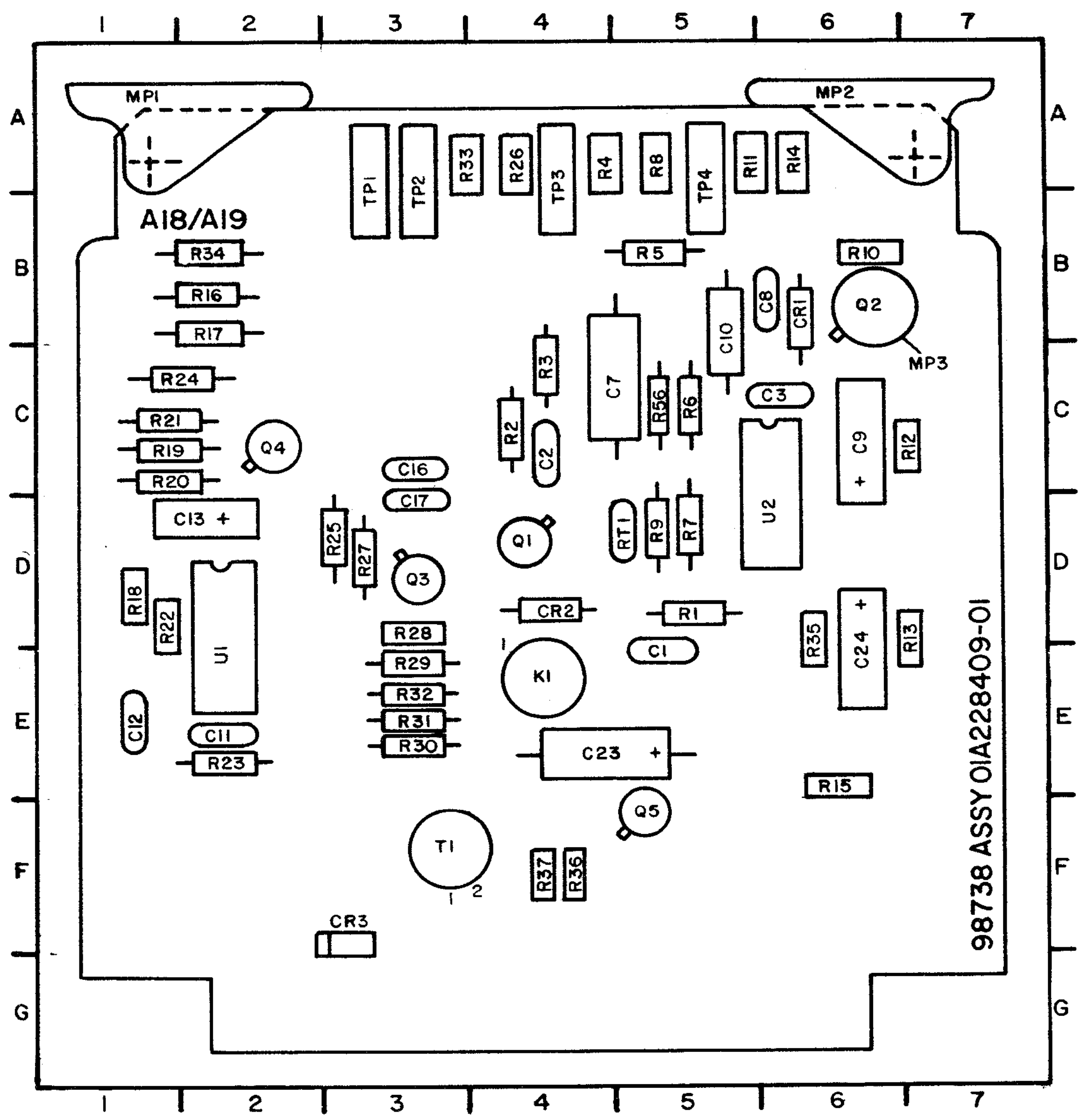
NOTES FOR FIGURE 7-83 (CONTINUED)

PARTS LOCATION INDEX

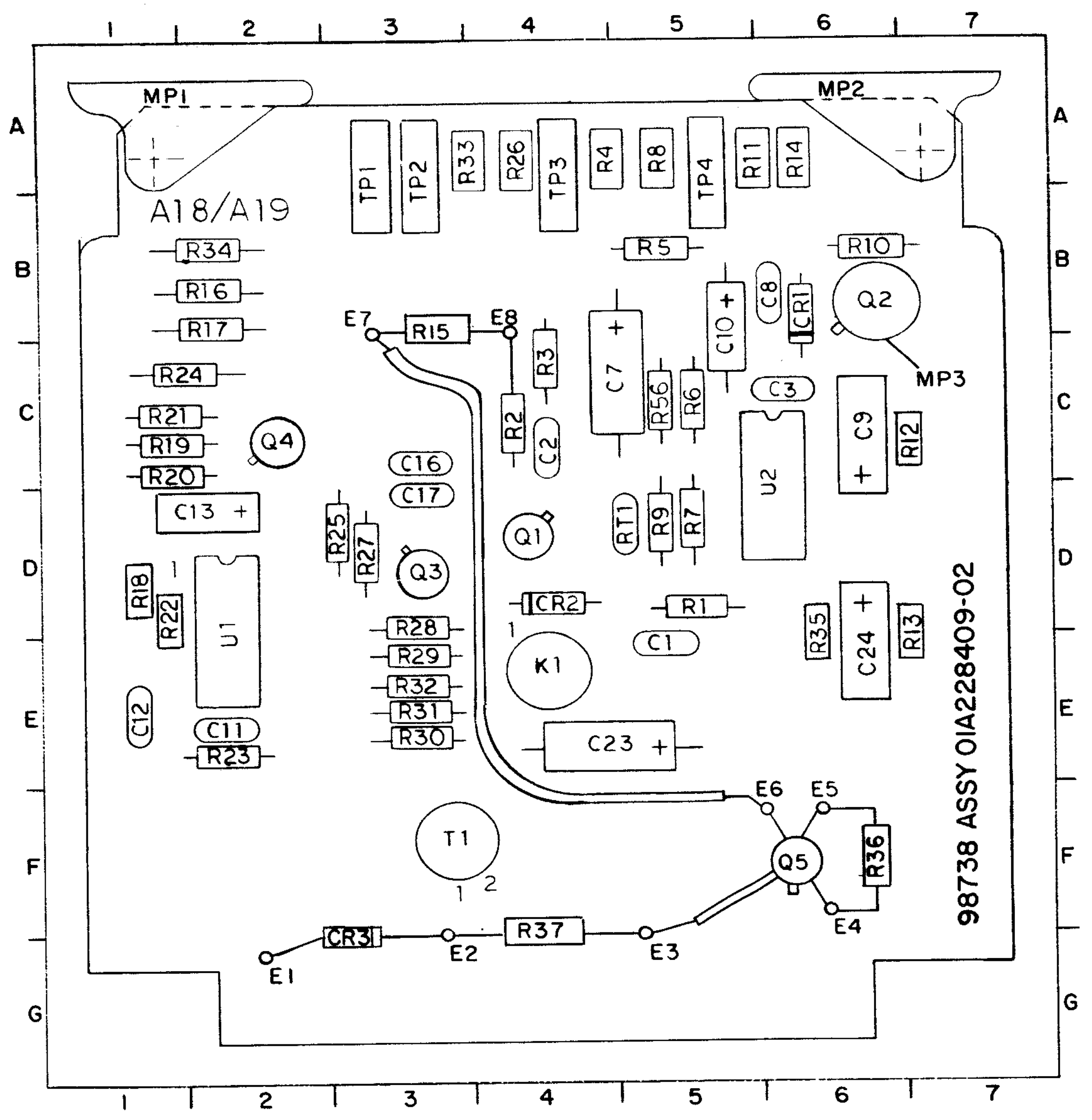
REF DES	ZONE -01	ZONE -02
A2A21A18C1	5E	5E
C2	4C	4C
C3	6C	6C
C4 thru C6	*	*
C7	5C	5C
C8	6B	6B
C9	6C	6C
C10	5B	5B
C11	2E	2E
C12	1E	1E
C13	2D	2D
C14	*	*
C15	*	*
C16	3C	3C
C17	3D	3D
C18 thru C22	*	*
C23	4E	4E
C24	6E	6E
CR1	6B	6B
CR2	4D	4D
CR3	3F	3F
E1	*	2G
E2	*	3G
E3	*	5G
E4	*	6F
E5	*	6F
E6	*	6F
E7	*	3B
E8	*	4B
K1	4E	4E
MP1	1A	1A
MP2	6A	6A
MP3	6B	6B
Q1	4D	4D
Q2	6B	6B
Q3	3D	3D
Q4	2C	2C
Q5	5F	5F
R1	5D	5D
R2	4C	4C
R3	4C	4C
R4	4A	4A

* NOT USED

REF DES	ZONE -01	ZONE -02
A2A21A18R5	5B	5B
R6	5C	5C
R7	5D	5D
R8	5A	5A
R9	5D	5D
R10	6B	6B
R11	5A	5A
R12	7C	7C
R13	7E	7E
R14	6A	6A
R15	6E	3B
R16	2B	2B
R17	2B	2B
R18	1D	1D
R19	1C	1C
R20	1C	1C
R21	1C	1C
R22	1D	1D
R23	2E	2E
R24	2C	2C
R25	3D	3D
R26	4A	4A
R27	3D	3D
R28	3D	3D
R29	3E	3E
R30	3E	3E
R31	3E	3E
R32	3E	3E
R33	4A	4A
R34	2B	2B
R35	6E	6E
R36	4F	6F
R37	4F	4F
R38 thru R55	*	*
R56	5C	5C
RT1	5D	5D
T1	3F	3F
TP1	3A	3A
TP2	3A	3A
TP3	4A	4A
TP4	5A	5A
U1	2E	2E
U2	6D	6D
A2A21A19	IDENTICAL TO A2A21A18	



-01 VERSION



-02 VERSION
(Q5, R15, R36, R37 RELOCATED;
TERMINALS E1 THRU 57 ADDED)

Figure 7-83. Audio Processor Assemblies A2A21A18 and A2A21A19, Component Locations

PART LOCATION INDEX

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A21A20C1		A2A21A20K3	5E	A2A21A20R17	5A
thru	*	MP1	1A, 2A	R18	5A
C4		MP2	5A, 6A	R19	5B
C5	3A	MP3	4E	R20	4A
C6	6B	MP4	3E	R21	4C
C7	5C	MP5	5B	R22	4C
C8	3D	MP6	4E	R23	4C
C9	2A	MP7	3E	R24	1D
C10	*	Q1	5B	R25	3D
C11	*	Q2	5C	R26	2D
C12	4E	Q3	*	R27	1C
C13	1C	Q4	*	R28	3D
CR1	*	Q5	5D	R29	3D
CR2	6B	Q6	5D	R30	2C
CR3	6B	Q7	5A	R31	2A
CR4	6E	Q8	5B	R32	
CR5	6D	Q9	5B	thru	*
CR6	4A	Q10	1D	R36	
CR7	5B	Q11	2C	R37	3C
CR8	5C	Q12	2C	R38	*
CR9	5C	Q13	5B	R39	*
CR10	4C	Q14	4E	R40	1C
CR11	3D	R1	*	R41	4E
CR12	3D	R2	*	R42	2E
CR13	*	R3	6B	R43	4A
CR14	3E	R4	6B	R44	5A
CR15	3E	R5	6C	R45	4A
CR16	3E	R6	6C	R46	4A
CR17	1E	R7		R47	2D
CR18	3C	thru	*	TP1	2A
CR19	5E	R10		TP2	4A
CR20	2E	R11	6E	U1	*
CR21	2E	R12	6D	U2	4B
CR22	*	R13	5E	U3	2D
CR23	4E	R14	6D	U4	*
K1	2E	R15	3A	U5	*
K2	3E	R16	5A	U6	1B
				U7	3E

* NOT USED.

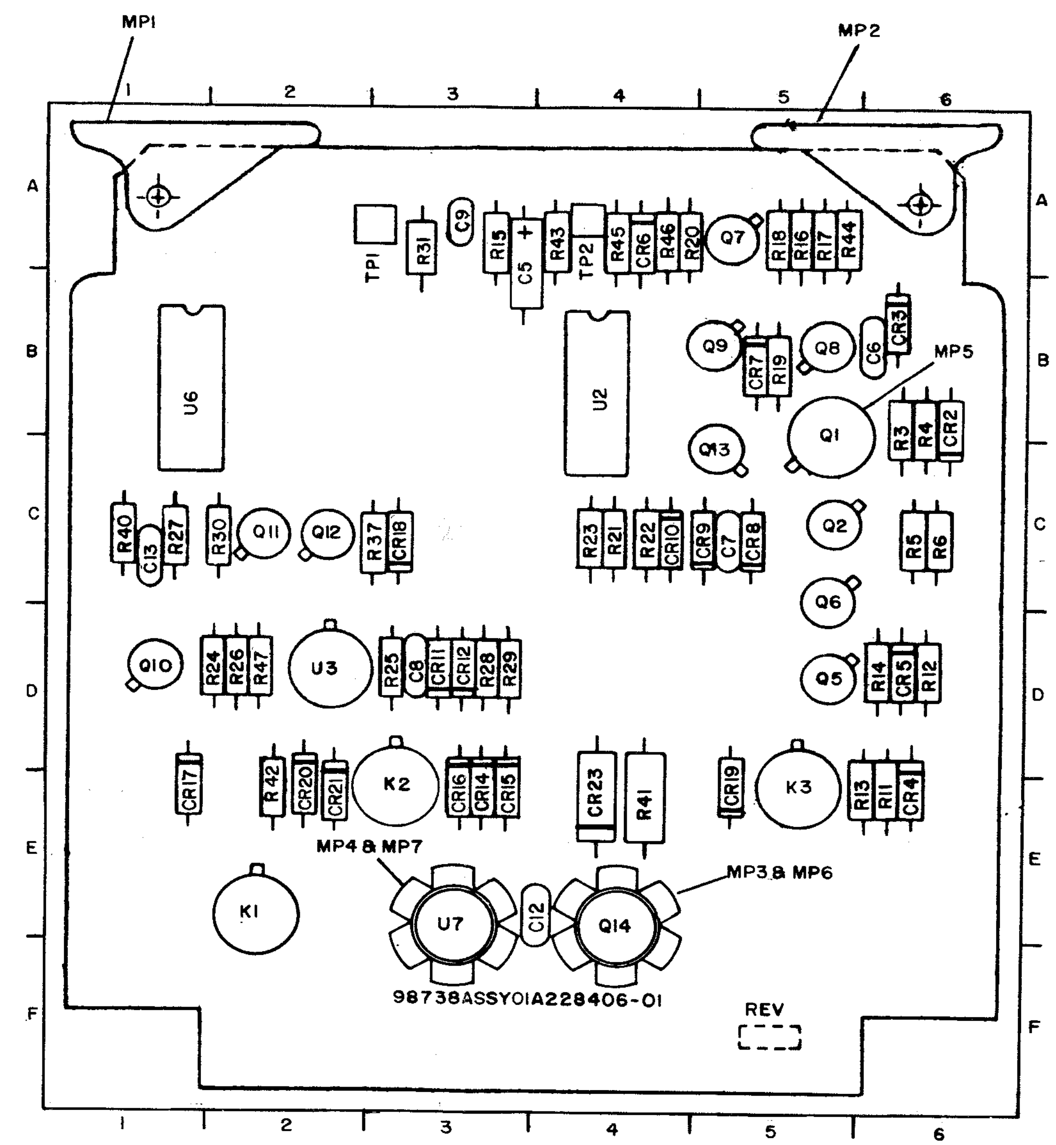
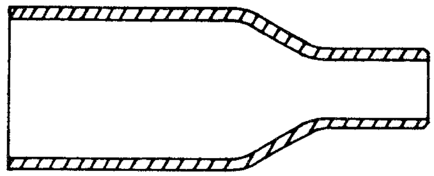
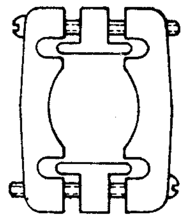


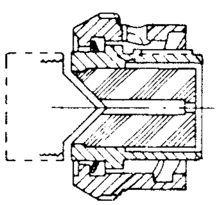
Figure 7-84. Audio Control Assembly A2A21A20, Component Locations.



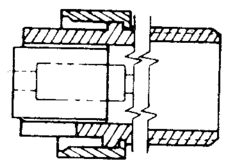
MPI, MP2



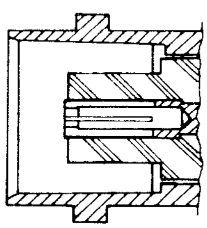
MP3-MP6



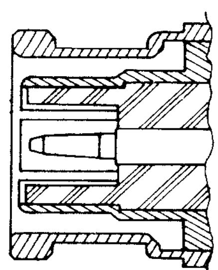
A3P2



A3P3
A3P5
A3P6
A3P7

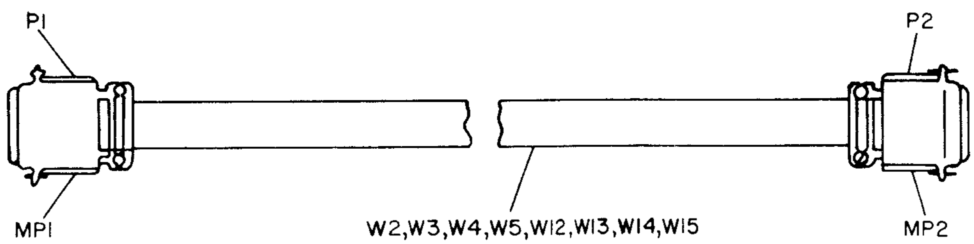


A3P25



A3P23
A3P24

Figure 7-85. Mating Connector Kit A3



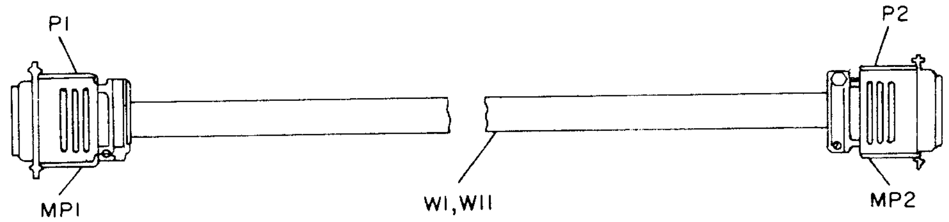


Figure 7-86. Extender Cable Kit A7

CHAPTER 8

INSTALLATION

8-1. GENERAL.

8-2. This chapter provides information necessary for the unpacking, installation, inspection, checkout, initial turn-on, and installation verification of Radio Transmitter T-827H/URT. Connections to peripheral equipment are shown in figure 8-1. If the T-827H/URT transmitter is being installed as a unit of Radio Transmitting Set AN/URT-23C(V)1, do not use the information in this chapter but, refer to NAVELEX 0000-LP-000-0000 for complete installation information.

8-3. SITE SELECTION (See figure 8-2).

8-4. The installation site must allow sufficient space around T-827H/URT to provide for servicing the slide mounted main frame when extended from the case, shock mount deflection (when MT-3114/UR is used), and cable bends. Proximity to associated equipment must also be considered.

8-5. REFERENCE PUBLICATIONS.

8-6. General reference should be made to NAVSHIPS 0967-000-0110, Electronic Installation Maintenance Book - Installation Standards; MIL-STD-1310, Shipboard Bonding, Grounding and Other Techniques for Electromagnetic Compatibility and Safety; and to the separate manuals for the ancillary equipment (such as transmitter switchboard, rf amplifier, antenna system, and teletypewriter terminals being used.

8-7. TOOLS AND MATERIALS REQUIRED FOR INSTALLATION.

8-8. No special tools are required for installation. Materials required are listed in figure 8-3.

8-9. UNPACKING AND REPACKING.

8-10. Unpacking Radio Transmitter T-827H/URT is accomplished by carefully removing it from the shipping container. Be careful not to damage controls and connectors. Repack the T-827H/URT for shipment or storage in accordance with MIL-P-116.

8-11. INSTALLATION PROCEDURES.

8-12. The method of installation to be used is determined by the using activity. Three types of installation are available; independent shock mounting on MT-3114/UR, rack mounting, and cabinet mounting.

8-13. INDEPENDENT SHOCK MOUNTING. Shock mounting T-827H/URT on MT-3114/UR requires the use of Shock and Vibration Mount Assembly 98738 - 01A226007-21-11, which includes brackets and hardware for mounting. To mount Radio Transmitter T-827H/URT, proceed as follows (see figure 8-2).

1. Attach left and right brackets to the transmitter case. To attach a bracket use four each MS51958-63 machine screws, MS15795-808 flat washers, and MS35338-138 lock washers.

WARNING

Do not overstress mounting bolts. Shock may cause bolts to shear.

2. Fasten the brackets to threaded inserts in Shock and Vibration Mount MT-3114/UR, using three each MS35307-332 cap screws, MS15795-812 flat washers, and MS35338-140 lock washers in each bracket.

3. To attach Mounting Base MT-3114/UR to the foundation, refer to figure 8-2.

8-14. RACK OR CABINET MOUNTING. The T-827H/URT may be mounted in a rack conforming to MIL-STD-189. For this purpose brackets will be furnished by the using activity, or if necessary, can be fabricated in accordance with Detail A of figure 8-2. For mounting in a cabinet such as CY-4516( )/S, proceed as follows:

WARNING

Do not overstress mounting bolts. Shock may cause bolts to shear.

1. Attach brackets to the transmitter case using eight MS31960-64 flat head screws.

2. Fasten brackets to rack or cabinet with hardware furnished by the using activity.

8-15. BONDING AND GROUNDING.

8-16. Ground straps, Class C, Type III or IV per MIL-STD-1310 are to be furnished by the installing activity. If necessary, remove paint from the surfaces to which ground straps are to be attached. Attach ground straps as shown in figure 8-2. An alternate ground stud GND is provided at the rear of the case (see figure 8-2).

8-17. PRIMARY POWER REQUIREMENTS.

8-18. The T-827H/URT is designed to operate from a 115 V ±10%, single phase source at 48 to 420 Hz. To connect primary power to the T-827H/URT proceed as follows:

1. Refer to figure 8-4 for description of the power cable and connector.

WARNING

Verify that equipment is properly grounded (paragraph 8-15), and that 115 Vac primary power is disabled at the source, before connecting power cable.

CAUTION

If primary power voltage is not 112 to 118 Vac as measured with Electronic Multimeter AN/USM-811, do not connect T-827H/URT to power source until the tap on power transformer A2T1 has been changed according to paragraph 8-19.

2. Connect 115 Vac power cable to AUX AC PWR IN connector A1A1J3 on rear of T-827H/URT.
3. Verify that mode selector switch is at OFF and connect power cable to the 115 Vac source.
4. Loosen six front panel captive screws and withdraw the T-827H/URT chassis from the case.
5. Set AUX/NORM switch A1S1 to the AUX position. Switch A1S1 is part of the interlock (figure 2-2) and is located directly behind the front panel at upper right corner.
6. Slide T-827H/URT chassis back into case and secure with front panel captive screws. Restore primary power at the source.

8-19. POWER SUPPLY ADAPTATION. The T-827H/URT power input is connected to the 115 Vac tap on the primary side of power transformer A2T1 when shipped. If the supply voltage is not 112 to 118 Vac, the input connection must be changed to the appropriate tap according to figure 5-28, sheet 3 as follows:

1. Verify that mode selector switch is at OFF.

CAUTION

Do not extend chassis from case unless T-827H/URT mechanical installation (paragraph 8-11) is complete.

2. Loosen six front panel captive screws and slide T-827H/URT chassis out from case until slides lock.

CAUTION

Hand guide the main frame cable at chassis rear over the case edge when rotating the main-frame to a vertical position.

3. Tilt chassis up 90 degrees to expose protective plate of power supply component board A2A8A1 in lower left corner of chassis.
4. Remove four screws fastening protective plate. Remove protective plate, unscrew four hex spacers, and swing component board A2A8A1 up to expose bottom of transformer A2T1.
5. Unsolder wire connected to terminal 1 of A2T1 and resolder to appropriate tap listed below. Do not unsolder the common lead connected to terminal 6.

SUPPLY VOLTAGE Vac	CONNECT TO A2T1 TERMINAL
124 to 130	3
118 to 124	2
112 to 118	1
106 to 112	4
100 to 106	5

6. Reinstall component board A2A8A1, threaded hex spacers, protective plate, and screws.
7. Tilt chassis back to horizontal, release slide locks, slide chassis back into case and secure with captive front panel screws.
8. Connect primary power in accordance with paragraph 8-18, steps 2 through 6.

8-20. INTERCONNECTING CABLING.

8-21. Refer to figure 8-4 for information to fabricate interconnecting cables. All connections are made at the rear of the T-827H/URT case with the exception of the local handset and the cw key (if used). The handset is connected to the HANDSET connector and the cw key is connected to the CW KEY jack on the T-827H/URT front panel. Specific interconnections for the T-827H/URT depend upon the type of rf power amplifier and other ancillary equipment to be used. Refer to the appropriate technical manual for interconnecting instructions for the rf power amplifier.

8-22. LOCAL RATT Transmission. If local RATT transmission is required proceed as follows:

1. Refer to figure 8-4 for connector and cable information and connect teletypewriter loop and key lines to LOCAL FSK IN connector A1A1J7 on the T-827H/URT case rear.
2. Set front panel mode selector switch to RATT or ISB/RATT and LOCAL/REMOTE switch to LOCAL.
3. Set Electronic Multimeter AN/USM-311 to the 100 ma dc range and, observing proper polarity, connect in series with one teletypewriter line. Momentarily condition the teletypewriter equipment to provide a mark signal input and measure 5 to 75 ma dc on the multimeter. If the teletypewriter loop current is insufficient proceed as follows:
   a. Set mode selector switch to OFF.
   b. Loosen the six front panel captive screws and slide the T-827H/URT chassis out from the case.
   c. Refer to figure 7-4 and jumper A2E4 to A2E7 to increase the teletypewriter loop current.
   d. Slide the T-827H/URT chassis back into the case and secure with front panel captive screws. Reset the LOCAL/REMOTE and mode selector switches according to step 2.
   e. Momentarily condition the teletypewriter equipment to provide a mark signal input and verify that loop current is now 5 to 75 ma dc as measured with the multimeter.
   f. Disconnect the multimeter and refer to table 2-2 for normal operating procedures.

8-23. REMOTE RATT TRANSMISSION. If remote RATT transmission is desired, refer to figure 8-4 for connector and cable information and connect the equipment to be used with the T-827H/URT to connector A1A1J4. Refer to separate technical manuals for the equipment to be used for detailed interconnection instructions. Perform teletype loop circuit calibration as described in paragraph 8-22, steps 2 and 3. Refer to table 2-2 and the appropriate separate technical manuals for detailed operating procedures.

8-24. DATA TRANSMISSION. If data transmission is required, refer to table 8-1 for connector and cable information and connect the equipment to be used with the T-827H/URT to DATA AUDIO CONNECTOR A1A1J8 on rear of T-827H/URT on rear of T-827H/URT case. Refer to separate technical manuals for the equipment to be used for detailed interconnection instructions. Refer to table 2-2 and the appropriate separate technical manuals for detailed operating procedures.

8-25. OPERATION USING INTERNAL FREQUENCY STANDARD. For operation with the T-827H/URT frequency standard proceed as follows:

1. Set mode selector switch to OFF.
2. Loosen the six captive front panel screws and slide the T-827H/URT chassis out of the case.
3. Check that the 5 MHZ OSC SOURCE switch A2A5A2S1 (item 24, figure 2-1) is set to INT/COMP.
4. Slide the T-827H/URT chassis back into the case and secure with the front panel captive screws.
5. Set mode selector switch to desired operating mode and refer to table 2-2 for normal operating procedures.

8-26. OPERATION USING EXTERNAL FREQUENCY STANDARD. An external frequency standard may be used for operation of the T-827H/URT as follows:

1. Connect external frequency standard output (5 MHz with a level between 0.5 and 5 Vrms) to EXT 5 MHZ IN connector A1J25 on the T-827H/URT case rear.
2. Set mode selector switch to OFF.
3. Loosen front panel captive screws and slide T-827H/URT chassis out of the case.
4. Set 5 MHZ OSC SOURCE switch A2A5-A2S1 to EXT NORM.
5. Slide chassis back into the case and secure with the front panel captive screws.
6. Set mode selector switch to desired operating mode and refer to table 2-2 for normal operating procedures.

8-27. USE OF FREQUENCY STANDARD OUTPUT BY ANOTHER UNIT. The T-827H/URT 5 MHz frequency standard output may be used to operate another unit as follows:

1. Connect RG-223/U coaxial cable (see figure 8-4) between INT 5 MHZ OUT connector A1J24 on the T-827H/URT case rear and the frequency standard input connector of the other equipment.
2. Refer to table 2-2 and set mode selector switch to desired operating mode.

NOTE

The output of the internal frequency standard (at INT 5 MHZ OUT connector A1J24) is disabled when the T-827H/URT is in the STDBY or OFF mode, and is momentarily interrupted when the front panel MHz control setting is changed.

8-28. INSTALLATION CHECKOUT.

8-29. PHASE 1 - INSTALLATION INSPECTION AND PRE-ENERGIZING PROCEDURES. Check each item in the following list by performance or visual inspection to ensure proper installation, adequate servicing access, and that it is safe to energize the T-827H/URT. Refer to figures 8-1 through 8-4 for verification information. If the T-827H/URT is used as a component of Radio Transmitting Set AN/URT-23C(V)1, refer to the separate technical manual NAVELEX 0000-LP-000-0000.

( ) All field changes and mandatory retrofits accomplished.

( ) Allowance Parts List (APL) and spare parts aboard, and the Coordinate Shipboard Allowance List (COSAL) include the T-827H/URT.

( ) Test equipment (see table 1-5) available and calibrated.

( ) H-342/U Handset and cw key aboard with proper plugs to mate with T-827H/URT connectors.

( ) T-827H/URT securely attached to platform or shock mount.

( ) A2A21 jumper wires (see Tables 2-1 and 2-2) in proper location for variation of Data Audio input.

( ) Adequate cable clearance at case rear.

( ) Chassis can be extended from case and tilted 90 degrees up or down.

( ) Sufficient personnel access for servicing.

( ) Grounding straps from T-827H/URT brackets to deck ground securely attached.

( ) Internal visual inspection for loose or damaged parts or modules.

( ) External visual inspection for damaged controls, connectors, and indicators.

( ) Activate all controls (except power switches) to verify free movement.

( ) Cable clamps tight, and cables wired correctly between units/power source (check continuity).

( ) All fuseholders contain a fuse of the proper rating.

( ) Power transformer A2T1 adapted to existing primary input voltage.

8-30. PHASE 2 - INITIAL TURN-ON AND PRELIMINARY TEST. Prior to energizing the T-827H/URT for the first time, check primary power supply voltage with Multimeter AM/USM-311. If voltage is not 112 to 118 Vac, change the tap connection on power transformer A2T1 according to the procedure in paragraph 8-19. Perform the maintenance turn-on procedure in sequence as described in table 5-5 and perform the necessary adjustments. After the maintenance turn-on checks have been completed perform the installation verification test.

8-31. USE OF EXTERNAL FREQUENCY STANDARD FOR CALIBRATION. An external frequency standard may be used for calibration of the T-827H/URT as follows:

NOTE

Do not adjust Frequency Standard Assembly A2A5 unless power has been applied and mode selector switch has been in a position other than OFF for at least 96 hours. Most drift will occur during the first 60 minutes of warmup, after which, the error should be less than ±1 part in 10^7.

1. Connect coaxial cable RG-213/U (see figure 8-4) between external frequency standard output and EXT 5 MHZ IN connector A1J25 on the T-827H/URT case rear.
2. Set mode selector switch to OFF.
3. Loosen front panel captive screws and slide T-827H/URT chassis out of the case.
4. Set 5 MHZ OSC SOURCE switch A2A5-A2S1 to INT/COMP.
5. Calibrate the T-827H/URT frequency standard according to the procedure in table 6-5.
6. After calibration, ensure that cables are reconnected and all switches are positioned as they were initially.
7. Set 5 MHZ OSC SOURCE switch A2A5-A2S1 to desired position, and slide T-827H/URT chassis back into case and secure with the front panel captive screws.

8-32. PHASE 3 - INSTALLATION VERIFICATION TEST.

NOTE

If the T-827H/URT is installed as a unit of Radio Transmitting Set AN/URT-23C(V)1, refer to Chapter 8 of the separate Technical Manual (NAVELEX 0000-LP-000-0000) for all installation verification test procedures.

In order to verify proper T-827H/URT operation conduct the performance tests contained in Chapter 4. Enter the performance test results in table 8-1 to provide a permanent record of the initial performance of the equipment for future reference. Perform tests in the order in which they are listed in table 8-1. Upon successful completion of the installation verification test, the T-827H/URT may be released to operating personnel.

Table 8-1. Radio Transmitter T-827H/URT
Installation Standards Summary Sheet

Input Voltage ________ Vac
Input Frequency ______ Hz
(When performance standards tests are accomplished.)

Date ______________________
Serial No. ______________________
Installed in (Ship or Station) ______________

Record on this summary sheet the test indications which have been obtained during the installation verification test.

Table	Step	Ref. Std.	Table	Step	Ref. Std.
4-4	(a)	_____Vrms	4-11	(a)	_____MHz
	(b)	_____Vrms		(b)	_____MHz
	(c)	_____Vrms		(c)	_____MHz
				(d)	_____MHz
4-5	(a)	_____Vdc		(e)	_____MHz
	(b)	_____Vdc		(f)	_____MHz
	(c)	_____Vdc		(g)	_____MHz
	(d)	_____mVP-P		(h)	_____MHz
	(e)	_____mVP-P		(i)	_____MHz
	(f)	_____mVP-P		(j)	_____MHz
	(g)	_____Vdc		(k)	_____MHz
				(l)	_____MHz
4-6	(a)	_____check		(m)	_____MHz
	(b)	_____mVrms		(n)	_____MHz
	(c)	_____sec		(o)	_____MHz
				(p)	_____MHz
4-7	(a)	_____mVrms		(q)	_____MHz
	(b)	_____ms			
	(c)	_____sec	4-12	(a)	_____Vrms
				(b)	_____MHz
4-8	(a)	_____mVrms		(c)	_____Vrms
	(b)	_____ms		(d)	_____MHz
	(c)	_____sec			
			4-13	(a)	_____dB
4-9	(a)	_____Hz		(b)	_____dB
	(b)	_____Hz		(c)	_____dB
	(c)	_____Hz		(d)	_____dB
	(d)	_____Hz			
	(e)	_____mV	4-14	(a)	_____check
				(b)	_____check
4-10	(a)	_____mVrms			
	(b)	_____check	4-15	(a)	_____dB
	(c)	_____check		(b)	_____dB

Table 8-1. Radio Transmitter T-827H/URT Installation Standard Summary Sheet (Continued)

Table	Step	Ref. Std.	Table	Step	Ref. Std.
4-15	(c)	______dB	4-15	(o)	______dB
(Cont.)	(d)	______dB	(Cont.)	(p)	______dB
	(e)	______dB		(q)	______dB
	(f)	______dB		(r)	______dB
	(g)	______dB		(s)	______dB
	(h)	______dB		(t)	______dB
	(i)	______dB			
	(j)	______dB	4-16	(a)	______dB
	(k)	______dB		(b)	______dB
	(l)	______dB		(c)	______dB
	(m)	______dB		(d)	______dB
	(n)	______dB			

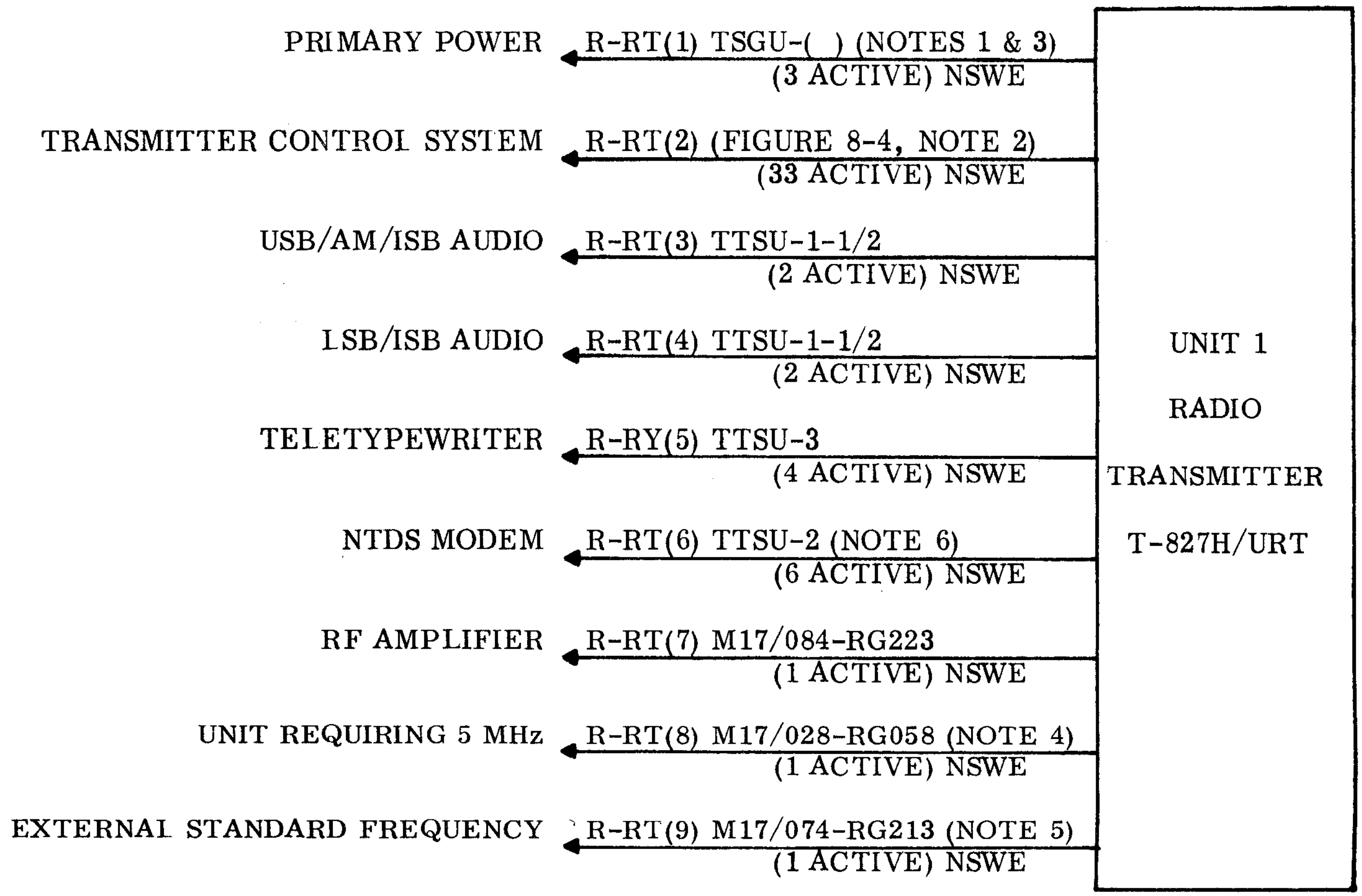


Figure 8-1. Radio Transmitter T-827H/URT, Block Diagram

NOTES:

1. INSTALLING ACTIVITY TO DETERMINE SIZE OF POWER CABLE.
2. NAVY CABLE DESIGNATION NUMBERS IN PARENTHESES ARE FOR REFERENCE ONLY. ACTUAL NUMBERS ARE TO BE ASSIGNED BY THE INSTALLING ACTIVITY.
3. PRIMARY POWER REQUIREMENTS: 115V, 50 TO 400 Hz, SINGLE PHASE TYPE I, .85A 105 WATTS.
4. CABLE R-RT(8) REQUIRED ONLY WHEN EXTERNAL STANDARD FREQUENCY IS USED.
5. CABLE R-RT(9) REQUIRED ONLY IF T-827H/URT INTERNAL STANDARD FREQUENCY IS TO BE USED AS A REFERENCE FREQUENCY BY OTHER EQUIPMENT.
6. WHEN NTDS AUDIO SIGNALS ARE CONNECTED TO T-827H/URT CONNECTOR 1A1A1J8, JUMPER WIRES CONNECTING TERMINALS LISTED BELOW MUST BE REMOVED.

1A2A21E43 TO 1A2A21E44	1A2A21E47 TO 1A2A21E48
1A2A21E45 TO 1A2A21E46	1A2A21E49 TO 1A2A21E50

NOTES:

1. CLEARANCE ON EACH SIDE OF THE EQUIPMENT SHALL BE 6 INCHES. SIDE MOVEMENT DUE TO SHOCK MOUNTING MAY REACH A MAXIMUM OF 2.5 INCHES IN EITHER DIRECTION.

2. PROVIDE A MINIMUM OF 2 INCHES BETWEEN EQUIPMENT, WHEN INSTALLED IN CY-4516, FOR AIR CIRCULATION.

3. MOUNTING BRACKET MANUFACTURING DETAILS:

   A. MATERIAL - .125" THICK ALUMINUM ALLOY SHEET.

   B. FINISH: IRIDITE, PRIME WITH ONE COAT ZINC CHROMATE AND PAINT. MASK AROUND MOUNTING HOLES; MOUNTING BRACKET IS INTENDED TO PROVIDE BONDING AND GROUNDING BETWEEN CABINET AND T-827H/URT.

4. BONDING AND GROUNDING.

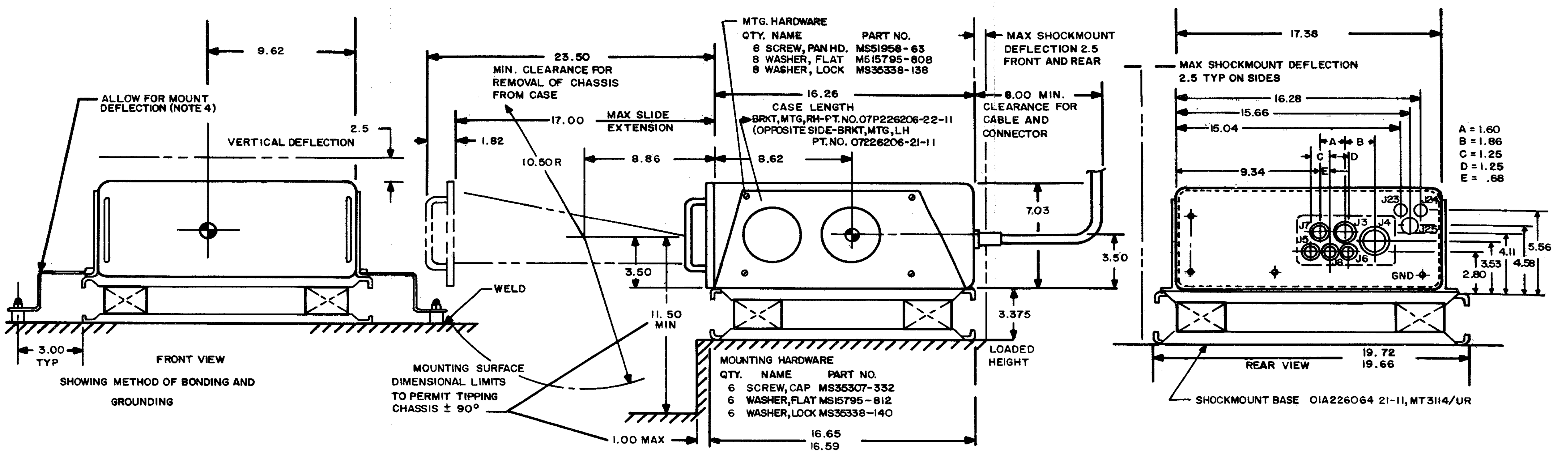
   A. BONDING AND GROUNDING SHALL BE IN ACCORDANCE WITH MIL-STD-1310 EXCEPT THAT GROUND STRAPS SHALL BE INSTALLED AT DIAGONALLY OPPOSITE CORNERS ON THE SIDES OF THE EQUIPMENT. ENSURE THAT GROUNDING SURFACES ARE PREPARED IN ACCORDANCE WITH MIL-STD-1310.

5. ALL DIMENSIONS ARE IN INCHES.

6. THE ENCLOSURE MATERIAL IS ALUMINUM.

7. WHEN T-827H/URT IS INSTALLED IN CY-4516/UR USE INSTALLATION KIT MK-979/URR.

8. LENGTH OF SCREW HEX HD WAS CALCULATED FOR A MOUNTING SURFACE THICKNESS UP TO 0.25 IN. IF THE MOUNT MT-3114/UR 01A226064-21-11 IS TO BE MOUNTED ON SUPPORT MATERIAL GREATER THAN 0.25 IN., THE INSTALLING ACTIVITY MUST INCREASE THE LENGTH OF THIS ITEM.

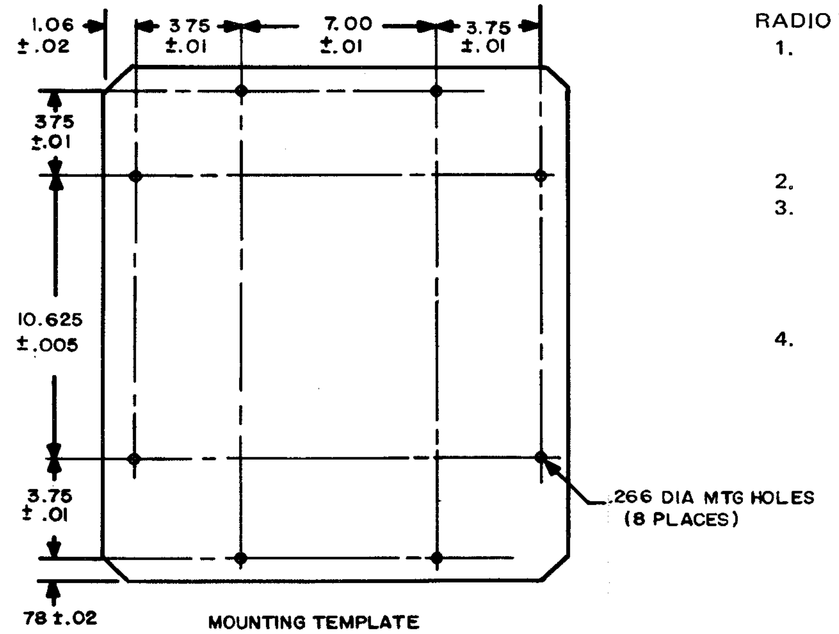


SHOCK MOUNT BASE 01A226064-21-11, MT3114/UR

1. **DIMENSIONS (OVERALL)**
   - a. HEIGHT - 3.62 IN.
   - b. WIDTH - 19.69 IN.
   - c. DEPTH - 16.62 IN.
   - d. VOLUME - 0.81 CU. FT.
2. WEIGHT - 16 LB.
3. DETAIL DATA
   - a. TYPE MOUNTS RESILIENT
   - b. NUMBER OF MOUNTS: 1
   - c. UPPER LOAD RATINGS 75 LBS.
   - d. WT. DISTRIBUTION/MT: 75 LBS.
   - e. MANUFACTURER
     STEWART-WARNER ELECTRONICS
     1300 N. KOSTNER
     CHICAGO, ILL. 60651

CRATED DATA T-827H/URT
1. DIMENSIONS (OVERALL)
   - a. HEIGHT - 13.25 IN.
   - b. WIDTH - 24.00 IN.
   - c. DEPTH - 32.00 IN.
   - d. VOLUME - 5.2 CU. FT.
   - e. WEIGHT - 85 LB.

CRATED DATA MT3114/UR
- a. VOLUME - 1.1 CU. FT.
- b. WEIGHT - 23 LB.



MOUNTING TEMPLATE

MOUNTING HARDWARE (NOTE 8)

QTY	NAME	PART NO.
8	SCREW, HEX HD	MS - 16208-6 (1/4 20 UNC - 2A)
8	WASHER, FLAT	MS - 15795- 810
8	WASHER, LOCK	MS - 35338 - 139
8	NUT	MS - 35649 - 2254

RADIO TRANSMITTER T-827H/URT CHARACTERISTICS

1. DIMENSIONS (OVERALL)
   - a. HEIGHT - 7 IN.
   - b. WIDTH - 17.38 IN.
   - c. DEPTH - 18.9 IN.
   - d. VOLUME - 1.33 CU. FT.
2. WEIGHT - 75 LB. MAX.
3. ELECTRICAL
   - a. PRIMARY POWER 115 VAC +10% 6 AMPS PF 89
     SINGLE PHASE 48 TO 450 HZ TYPE 1 PWR
   - b. POWER CONSUMPTION 70 WATTS
   - c. RF OUTPUT - 250 MILLIWATTS INTO 50 OHMS
4. ENVIRONMENTAL
   - a. TEMPERATURE LIMITS 0°C TO 50°C
     HUMIDITY - 0 TO 95%
     HEAT DISSIPATION - 55 WATTS 171 BTU

Figure 8-2. Radio Transmitter T-827H/URT, Outline and Mounting Dimensions (Sheet 1 of 2)

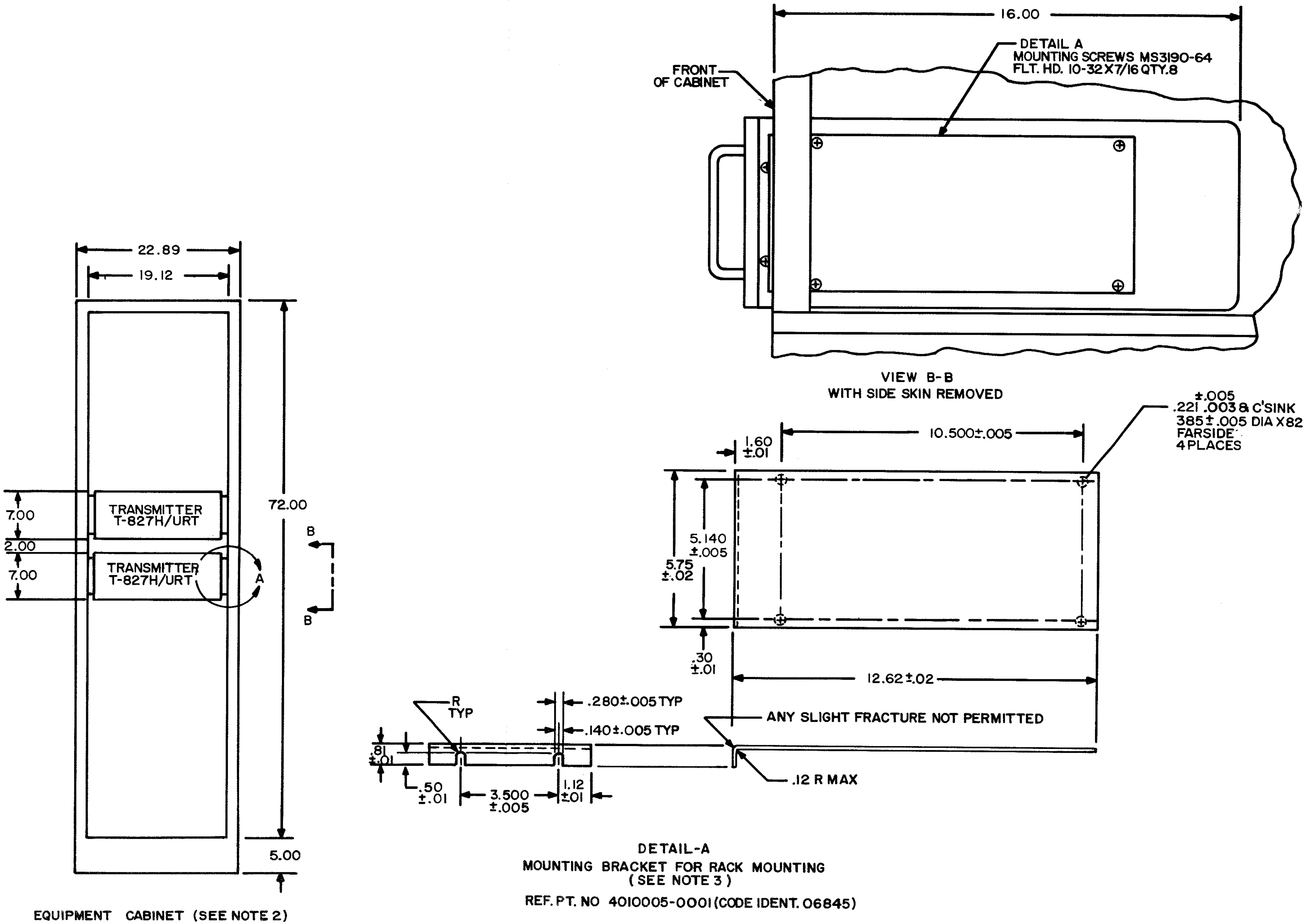


Figure 8-2. Radio Transmitter T-827H/URT, Outline and Mounting Dimensions (Sheet 2 of 2)

NOTES:

1. LENGTH OF ITEM 6; SCREWS HEX. HD., WAS CALCULATED FOR A MOUNTING SURFACE THICKNESS UP TO 0.025 IN. IF THE MOUNTING BASE 01A226064-21-11 IS TO BE MOUNTED ON SUPPORT MATERIAL GREATER THAN 0.25 IN. THE INSTALLING ACTIVITY MUST PROVIDE LONGER SCREWS.

2. POWER CABLE SHALL NOT EXCEED 190 FEET IN LENGTH. INSTALLING ACTIVITY TO DETERMINE SIZE.

ITEM NO.	QUANTITY NSWE	SWE	NOMENCLATURE	PART, TYPE OR MODEL NUMBER	MANUFACTURER'S NAME OR FEDERAL SUPPLY CODE	REMARKS
1		1	RADIO TRANSMITTER	T-827H/URT	98738-01A228010-01	UNIT 1
2		1	KIT, CONNECTOR MATING CONSISTING OF:	78A226037-22-11		1A3
		1	CONNECTOR	M39012/01-0005		MATES WITH 1A1J25
		1	CONNECTOR	M39012/16-0101		MATES WITH 1A1J24
		2	CONNECTOR	MS3106A105L-4S		MATES WITH 1A1A1J5 AND 1A1A1J6
		1	CONNECTOR	MS3106A14S-2S		MATES WITH 1A1A1J7
		1	CONNECTOR	MS3106A16S-5S		MATES WITH 1A1A1J3
		1	CONNECTOR	MS3116F10-6S		MATES WITH 1A1A1J8
		2	SUPPORT CLAMP	MS3057-4A		USE WITH MS3106A105L-4S
		1	SUPPORT CLAMP	MS3057-6A		USE WITH MS3106A14S-2S
		1	SUPPORT CLAMP	MS3057-8A		USE WITH MS3106A16S-5S
		2	CABLE BOOT	4032585-0701	06845	USE WITH MS3106A10SL-4S
		1	INSTRUCTION SHEET	68P226036		USE WITH CABLE BOOT
3	1		CONNECTOR	M39012/16-0101		MATES WITH 1A1J23
4	1		CONNECTOR	MS3116F22-55SW		MATES WITH 1A1A1J4
5	1		KIT, SHOCK MOUNT CONSISTING OF:	01A226007-21-11		USED TO MOUNT T-827H/URT TO 01A226064-21-11, MT3114/UR
	1		BASE, SHOCK MOUNT	MT-3114/UR		
	1		BRACKET, MOUNTING LEFT	07P226206-21-11		
	1		BRACKET, MOUNTING RIGHT	07P226206-22-11		
	8		SCREW, PAN HD.	MS51958-63 (10-32x1/2)		
	8		WASHER, LOCK	MS35338-138 (.190)		
	8		WASHER, FLAT	MS15795-808 (.219)		
	6		SCREW, CAP	MS35307-332 (5/16x3/4)		
	6		WASHER, FLAT	MS51795-812 (.344)		
	6		WASHER, LOCK	MS35338-140 (5/16)		
6	8		SCREW, HEX HEAD	MS16208-6 (1/4-20x7/8)		ITEMS 6 THROUGH 9 USED TO FASTEN SHOCK MOUNT TO DECK. (SEE NOTE 1)
7	8		WASHER, LOCK	MS35338-139 (1/4)		

ITEM NO.	QUANTITY NSWE	SWE	NOMENCLATURE	PART, TYPE OR MODEL NUMBER	MANUFACTURER'S NAME OR FEDERAL SUPPLY CODE	REMARKS
8	8		WASHER, FLAT	MS15795-810 (.280)		
9	8		NUT	MS35649-2254 (1/4-20)		
10	1		MOUNTING KIT	MK-979/U		USED TO INSTALL T-827H/URT IN CY-4516/S CABINET
11	2		BRACKET. SEE FIGURE 8-2, DETAIL A	4010005-0001	06845	ITEMS 11 AND 12 MAY BE USED AS AN ALTERNATE FOR ITEM 10.
12	8		SCREW, FLAT HEAD	MS31960-64 (10-32x7/16)		
13	1		HANDSET	H-342/U	82872	INCLUDES CABLE AND PLUG
14	1		CABLE ASSEMBLY	TGSU-( ) NOTE 2		R-RT(1) MATES WITH 1A1A1J3
15	1		CABLE ASSEMBLY	30A226041-22-11		R-RT(2) 1A1A1J4 to AM-3924C(P)/URT 1A2A1J7
16	1		CABLE ASSEMBLY	TTSU-1-1/2 MIL-C-915/37		R-RT(3) MATES WITH 1A1A1J5
17	1		CABLE ASSEMBLY	TTSU-1-1/2 MIL-C-915/37		R-RT(4) MATES WITH 1A1A1J6
18	1		CABLE ASSEMBLY	TTSU-3 MIL-C-915/37		R-RY(5) MATES WITH 1A1A1J7
19	1		CABLE ASSEMBLY	TTSU-3 MIL-C-915&37		R-RT(6) MATES WITH 1A1A1J8
20	1		CABLE ASSEMBLY	M17/084-RG223		R-RT(7) MATES WITH 1A1J23
21	1		CABLE ASSEMBLY	M17/028-RG058		R-RT(8) MATES WITH 1A1J24
22	1		CABLE ASSEMBLY	M17/074-RG213		R-RT(9) MATES WITH 1A1J25

Figure 8-3. Radio Transmitter T-827H/URT, Summary List of Installation Materials

NOTES:

1. NAVY CABLE DESIGNATION NUMBERS IN PARENTHESES ARE FOR REFERENCE ONLY. ACTUAL NUMBERS ARE TO BE ASSIGNED BY THE INSTALLING ACTIVITY.

2. CABLE R-RT(2) MUST BE MADE UP USING BULK WIRE AS FOLLOWS:

   a. WIRE NUMBERS 13, 14, 16, 22, 23, 24, 25 AND 31 SHALL BE TYPE E-22 PER MIL-W-16878/4 SHIELDED. ALL OTHER WIRES SHALL BE TYPE E-22 PER MIL-W-16878/4 UNSHIELDED.

   b. ENTIRE CABLE SHALL BE COVERED WITH NO. 36 AWG, 25/321D BRAID PER QQ-B-575. BRAID SHALL BE GROUNDED TO THE CONNECTOR AT BOTH ENDS.

   c. BRAID SHALL BE COVERED WITH INSULATION TUBING PER MIL-I-631, TYPE F, FORM U, GRADE c, CLASS I, CATEGORY 1.

   d. GROUND SHIELD TO PIN i.

   e. GROUND SHIELD TO PIN h.

   f. GROUND SHIELD TO PIN Z.

CABLE TYPE AND SIZE	TSGU-( ) INSTALLING ACTIVITY TO DETERMINE SIZE	ACTIVE WIRES 3	CABLE DESIGNATION R-RT(1)
	UNIT A		UNIT B
UNIT NUMBER	1		
UNIT NAME	RADIO TRANSMITTER T-827H/URT		PRIMARY POWER COUPLER: 115 VAC, 60 TO 400 Hz, 1 PHASE
CABLE CONNECTOR	MS3106A16S-5S WITH CLAMP MS3057-8A		DETERMINED BY INSTALLING ACTIVITY

UNIT A TERM. NO.	WIRE NO.	COLOR CODE	UNIT B TERM. NO.	FUNCTION
J3 PIN A	1	BLACK		115 VAC (HOT)
J3 PIN B	2	WHITE		CHASSIS GROUND
J3 PIN C	3	RED		115 VAC (COMMON)

CABLE TYPE AND SIZE	TTSU-1-1/2 PER MIL-C-915/37	ACTIVE WIRES 2	CABLE DESIGNATION R-RT(3)
	UNIT A		UNIT B
UNIT NUMBER	1		
UNIT NAME	RADIO TRANSMITTER T-827H/URT		USB AUDIO SOURCE
CABLE CONNECTOR	MS3106A105L-4S WITH BOOT 4032585-0701 OR CLAMP MS3057-4A		DETERMINED BY INSTALLING ACTIVITY

UNIT A TERM. No.	WIRE NO.	COLOR CODE	UNIT B TERM. NO.	FUNCTION
J5 PIN A	1	BLACK		BALANCED 600 OHM
J5 PIN B	2	WHITE		AUDIO INPUT, USB/AM/ISB
SPARE WIRE	3	RED		NOT CONNECTED

CABLE TYPE AND SIZE	TTSU-1-1/2 PER MIL-C-915/37	ACTIVE WIRES 2	CABLE DESIGNATION R-RT(4)
	UNIT A		UNIT B
UNIT NUMBER	1		
UNIT NAME	RADIO TRANSMITTER T-827H/URT		LSB AUDIO SOURCE
CABLE CONNECTOR	MS3106A105L-4S WITH BOOT 4032585-0701 OR CLAMP MS3057-4A		DETERMINED BY INSTALLING ACTIVITY

UNIT A TERM. NO.	WIRE NO.	COLOR CODE	UNIT B TERM. NO.	FUNCTION
J6 PIN A	1	BLACK		BALANCED 600 OHM
J6 PIN B	2	WHITE		AUDIO INPUT, LSB/ISB
SPARE WIRE	3	RED		NOT CONNECTED

CABLE TYPE AND SIZE	SEE NOTE 2	ACTIVE WIRES 33	CABLE DESIGNATION R-RT(2)
	UNIT A		UNIT B
UNIT NUMBER	1		
UNIT NAME	RADIO TRANSMITTER T-827H/URT		TRANSMITTER CONTROL SYSTEM
CABLE CONNECTOR	MS3116F22-55SW		DETERMINED BY INSTALLING ACTIVITY

UNIT A TERM. NO.	WIRE NO.	COLOR CODE	UNIT B TERM. NO.	FUNCTION	NOTE
J4 PIN A	1	BN		TUNING CODE LINE 1	
B	2	RD		2	
C	3	OG		3	
D	4	YL		4	
E	5	GN		TUNING CODE LINE 5	
G	6	BU		CW/RATT GND	
i	*	BK		CHASSIS GND (* SHLD OF R,S,U)	
J	8	VI		INTERLOCK +24V	
K	9	GA		GND KEYLINE	
M	10	WT		STDBY & OPERATE +28V	
N	11	WT-BN-GA		OPERATE +20V	
P	12	WT-BN-RD		GND PULSE	
R	13	SHLD WT-GN		115 V AC (HOT)	2d
S	14	SHLD WT-BK		115 V AC (COMMON)	2d
T	15	WT-BN-OG		CARRIER INSERT +20V	
U	16	SHLD WT-RD		115 V AC REMOTE	2d
V	17	WT-BN-YL		-15V	
Z	**	BK		CHASSIS GND (** SHLD OF f, g, q, r)	
CC	19	WT-BN-GN		SPARE	
DD	20	WT-BN-BU		SPARE	
J4 PIN c	21	WT-BN-VI		CW/RATT KEY	

CABLE TYPE AND SIZE SEE NOTE 2		ACTIVE WIRES 33	CABLE DESIGNATION R-RT(2) CONTINUED	
	UNIT A		UNIT B	
UNIT NUMBER	1			
UNIT NAME	RADIO TRANSMITTER T-827H/URT		TRANSMITTER CONTROL SYSTEM	
CABLE CONNECTOR	MS3116F22-55SW		DETERMINED BY INSTALLING ACTIVITY	

UNIT A TERM. No.	WIRE NO.	COLOR CODE	UNIT B TERM. NO.	FUNCTION	NOTE
J4 PIN d	22	SHLD WT-BN		APC	2e
e	23	SHLD WT-OG		PPC	2e
f	24	SHLD WT-VI		BALANCED 600 OHM	2f
g	25	SHLD WT-YL		AUDIO INPUT, LSB/ISB	2f
h	***	BLK		CHASSIS GND (*** SHLD OF d, e)	
t	27	WT-BK-BN		TTY(-)	
k	28	WT-BK-RD		PTT KEY +12V	
y	29	WT-BK-OG		SPARE	
q	30	SHLD WT-BU		BALANCED 600 ohm	2f
r	31	SHLD WT-GA		AUDIO INPUT, USB/AM/ISB	2f
BB	32	WT-BK-YL		TTY(+)	
s	33	WT-BK-GN		EARPHONE AUDIO	
H	34	WT-BK-BU		PTT KEY +12V RETURN	
L	35	WT-OG-YL		TGC RESET	
X	36	WT-OG-GN		DATA/NORMAL	
Y	37	WT-OG-BU		TGC ENABLE	
a	38	WT-OG-VI		SSB/ISB	
b	39	WT-OG-GA		TGC CAPACITOR CONTROL	
z	40	WT-YL-GN		SPARE	
AA	41	WT-YL-BU		SPARE	
J4 PIN EE	42	WT-YL-VI		SPARE	

CABLE TYPE AND SIZE TTSU-3 PER MIL-C-915/37		ACTIVE WIRES 4	CABLE DESIGNATION R-RY(5)
	UNIT A		UNIT B
UNIT NUMBER	1		
UNIT NAME	RADIO TRANSMITTER T-827H/URT		TELETYPEWRITER
CABLE CONNECTOR	MS3106A14S-2S WITH CLAMP MS3057-6A		DETERMINED BY INSTALLING ACTIVITY

UNIT A TERM. NO.	WIRE NO.	COLOR CODE	UNIT B TERM. NO.	FUNCTION
J7 PIN A	1	BLACK		CW/RATT KEY
D	2	WHITE		CHASSIS GROUND
B	3	RED		TTY (+)
J7 PIN C	4	GREEN		TTY (-)
SPARE WIRE	5	ORANGE		NOT CONNECTED
SPARE WIRE	6	BLUE		NOT CONNECTED

CABLE TYPE AND SIZE TTSU-3 PER MIL-C-915/37		ACTIVE WIRES 6	CABLE DESIGNATION R-RT(6)
	UNIT A		UNIT B
UNIT NUMBER	1		
UNIT NAME	RADIO TRANSMITTER T-827H/URT		MODEM
CABLE CONNECTOR	MS3116F10-6S		DETERMINED BY INSTALLING ACTIVITY

UNIT A TERM. NO.	WIRE NO.	COLOR CODE	UNIT B ITEM NO.	FUNCTION
J8 PIN A	1	BLACK		H BALANCED 600 OHM
B	2	WHITE		L AUDIO INPUT, DATA USB/ISB
C	3	RED		H BALANCED 600 OHM
D	4	GREEN		L AUDIO INPUT, DATA LSB/ISB
E	5	ORANGE		DATA KEYLINE
J8 PIN F	6	BLU		CHASSIS GROUND

CABLE TYPE AND SIZE M17/084-RG223		ACTIVE WIRES 1	CABLE DESIGNATION R-RT(7)
	UNIT A		UNIT B
UNIT NUMBER	1		
UNIT NAME	RADIO TRANSMITTER T-827H/URT		RF AMPLIFIER
CABLE CONNECTOR	M39012/16-0001		DETERMINED BY INSTALLING ACTIVITY

UNIT A TERM. NO.	WIRE NO.	COLOR CODE	UNIT B TERM. NO.	FUNCTION
J23				RF SIGNAL TO RF AMPLIFIER

CABLE TYPE AND SIZE M17/028-RG058		ACTIVE WIRES 1	CABLE DESIGNATOR R-RT(8)
	UNIT A		UNIT B
UNIT NUMBER	1		
UNIT NAME	RADIO TRANSMITTER T-827H/URT		ANY UNIT WITH 50 OHM INPUT IMPEDANCE REQ. 5 MHz INPUT
CABLE CONNECTOR	M39012/16-0001		DETERMINED BY INSTALLING ACTIVITY

UNIT A TERM. NO.	WIRE NO.	COLOR CODE	UNIT B TERM. NO.	FUNCTION
J24				5 MHz STANDARD FREQUENCY OUTPUT FROM T-827H/URT

CABLE TYPE AND SIZE M17/074-RG213		ACTIVE WIRES 1	CABLE DESIGNATION R-RT(9)
	UNIT A		UNIT B
UNIT NUMBER	1		
UNIT NAME	RADIO TRANSMITTER T-827H/URT		STANDARD FREQUENCY DISTRIBUTION SYSTEM
CABLE CONNECTOR	M39012/01-0005		DETERMINED BY INSTALLING ACTIVITY

UNIT A TERM. NO.	WIRE NO.	COLOR CODE	UNIT B TERM. NO.	FUNCTION
J25				EXTERNAL STANDARD FREQUENCY INPUT TO T-827H/URT

Figure 8-4. Radio Transmitter T-827H/URT, Cable Running Sheets

ALPHABETICAL INDEX

ALPHABETICAL INDEX (Continued)

Subject	Paragraph, Figure, Table Number

C (Cont.)

ALPHABETICAL INDEX (Continued)

Subject — Paragraph, Figure, Table Number

F (Cont.)

H

I

ALPHABETICAL INDEX (Continued)

Subject	Paragraph, Figure, Table Number

I (Cont.)

ALPHABETICAL INDEX (Continued)

ALPHABETICAL INDEX (Continued)

Subject	Paragraph, Figure, Table Number

O (Cont.)

P

ALPHABETICAL INDEX (Continued)

Subject	Paragraph, Figure, Table Number

P (Cont.)

Q

R

ALPHABETICAL INDEX (Continued)

Subject	Paragraph, Figure, Table Number

R (Cont.)

ALPHABETICAL INDEX (Continued)

Subject

T (Cont.)

U

W

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