

FT-212RH

TECHNICAL SUPPLEMENT

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This manual is intended to serve as a supplement to the FT-212RH Operating Manual. Detailed information regarding functions, specifications, options and operation has been provided in the Operating Manual, and is not reprinted herein. Therefore, this supplement is not intended to serve as an independent reference, but to be used in conjunction with the information provided in the Operating Manual.

Because of the compactness and complexity of the double-sided glass-epoxy circuit boards used in the FT-212RH, four layout diagrams are provided for each board. Each side of the board is identified by the type of the majority of components installed on that side. In most cases one side has only chip components, and the other has either a mixture of both chip and lead components (trimmers, coils, electrolytic capacitors, packaged ICs, etc.), or lead components only. The two "obverse" views depict the board as it is seen when viewed directly with the eye, while the two "reverse" views depict the unseen side of the board as it would appear if one were to peer through the board from the other side without seeing the components and tracks on the near side.

While we believe the technical information in this manual is correct, Yaesu assumes no liability for damage that may occur as a result of typographical or other errors that may be present. Your cooperation in pointing out any inconsistencies in the technical information would be appreciated.

Yaesu Musen reserves the right to make changes in the circuitry of this transceiver, in the interest of technological improvement, without notification of the owners.

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CIRCUIT BOARD ACCESS

BOTTOM COVER REMOVAL

The following circuit boards are accessed by removing the bottom cover:

Main Unit* (component side)
IF Unit*
Mic Unit*
APC Unit
VCO Unit
PA Unit (lower edge only)

To remove the bottom cover, remove the four screws marked "★" in Figure 1, plus the four marked "※" if the top cover has not already been removed. Then lift the cover away.

* To access these boards it may be necessary to remove the loudspeaker and holder:

- (1) Referring to Figure 2, unplug the speaker wire connector from J1005 on the Main Unit, and lift the loudspeaker out of its bracket.
- (2) Remove the three screws in the arms of the speaker bracket and remove the bracket.

TOP COVER REMOVAL

Removing the top cover exposes the Solder Side of the Main Unit circuit board and the top edge of the PA Unit board.

To remove the top cover, remove the four screws marked "○" in Figure 1, plus the four marked "※" if the bottom cover has not already been removed. Then lift the cover away.

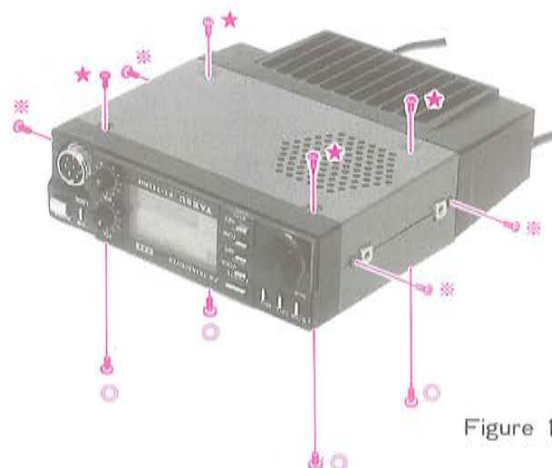


Figure 1

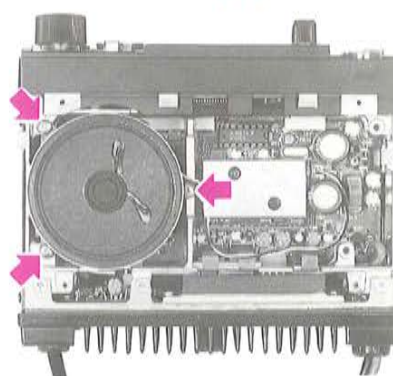


Figure 2

FRONT PANEL REMOVAL

Removing the front panel allows access to the Control Unit and LCD Unit circuit boards.

- (1) After the top and bottom covers have been removed, pull off the Selector, VOL and SQL knobs.
- (2) Remove the nut from the microphone jack using a slotted ring wrench as shown in Figure 3.

The front panel can now be slid forward.

CIRCUIT BOARD ACCESS

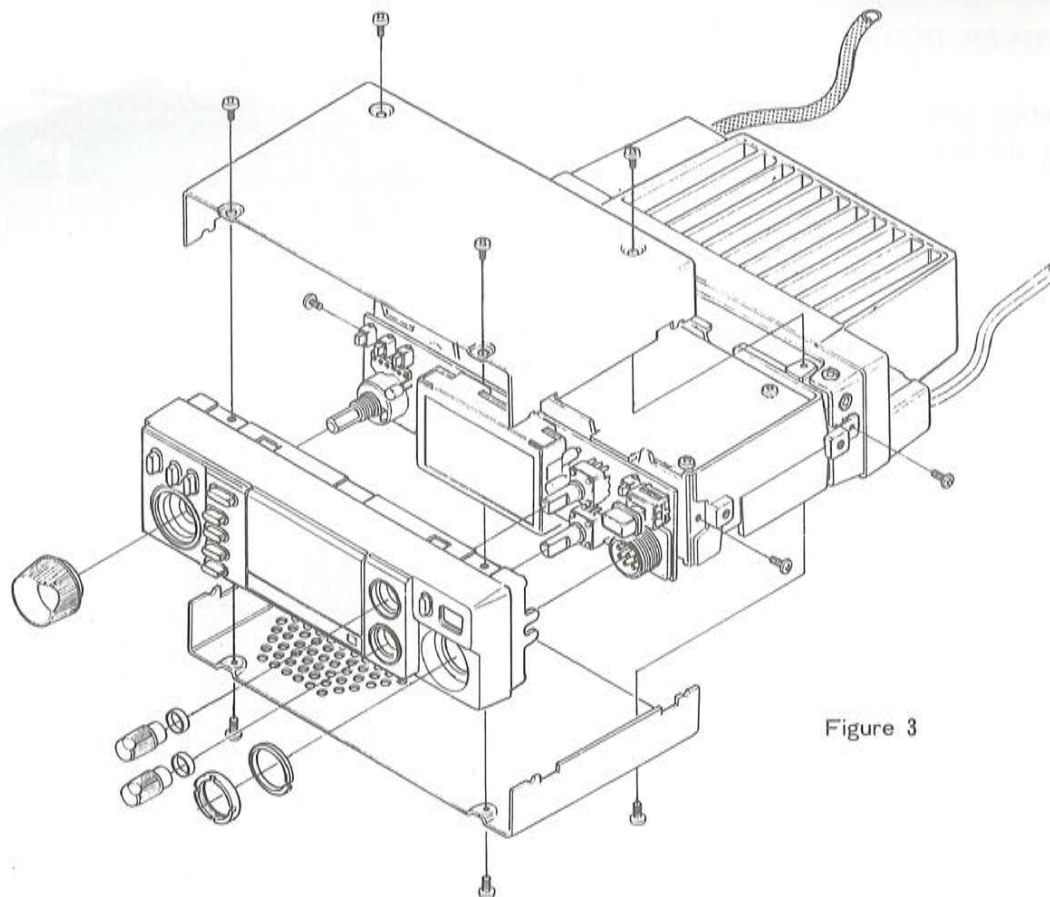
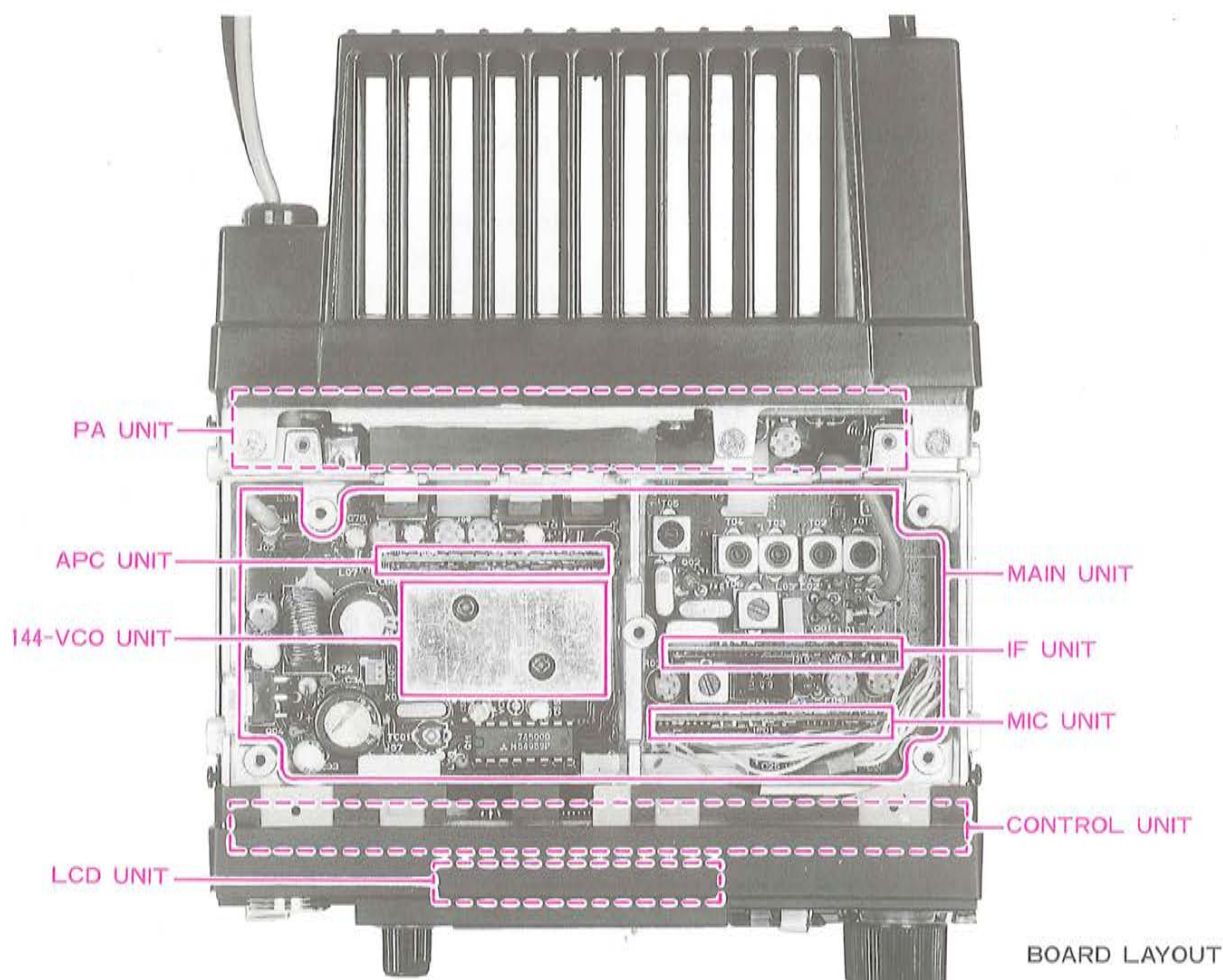


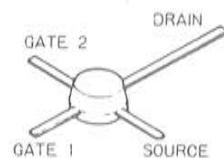
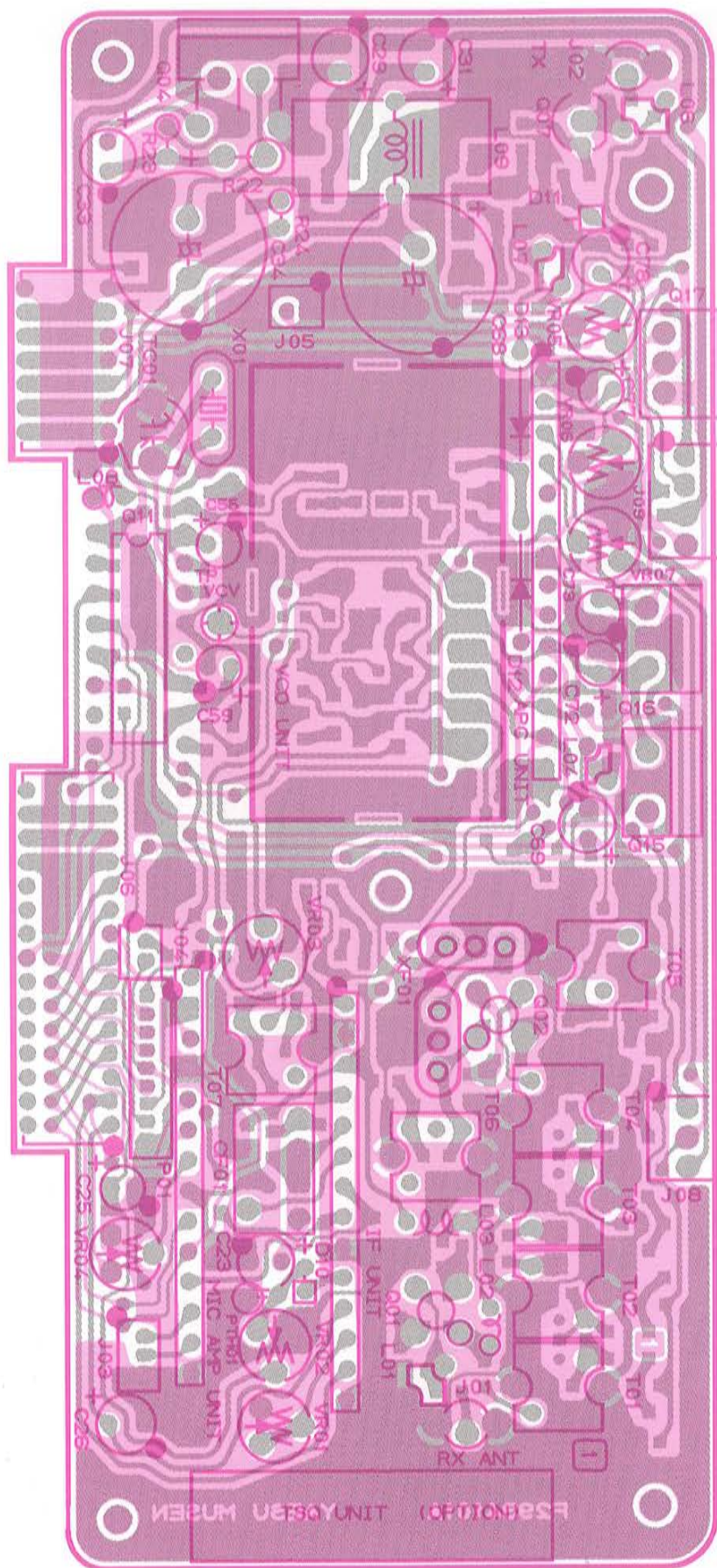
Figure 3



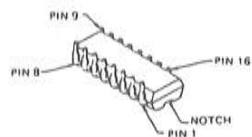
BOARD LAYOUT

MAIN UNIT PARTS LAYOUT

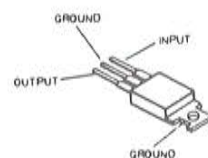
MAIN UNIT (No. 1 XXX)



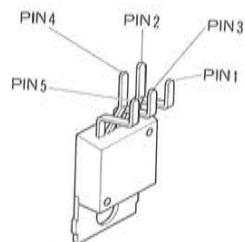
3SK81 (Q1002)
3SK122L (Q1001)



M54959P(Q1011)



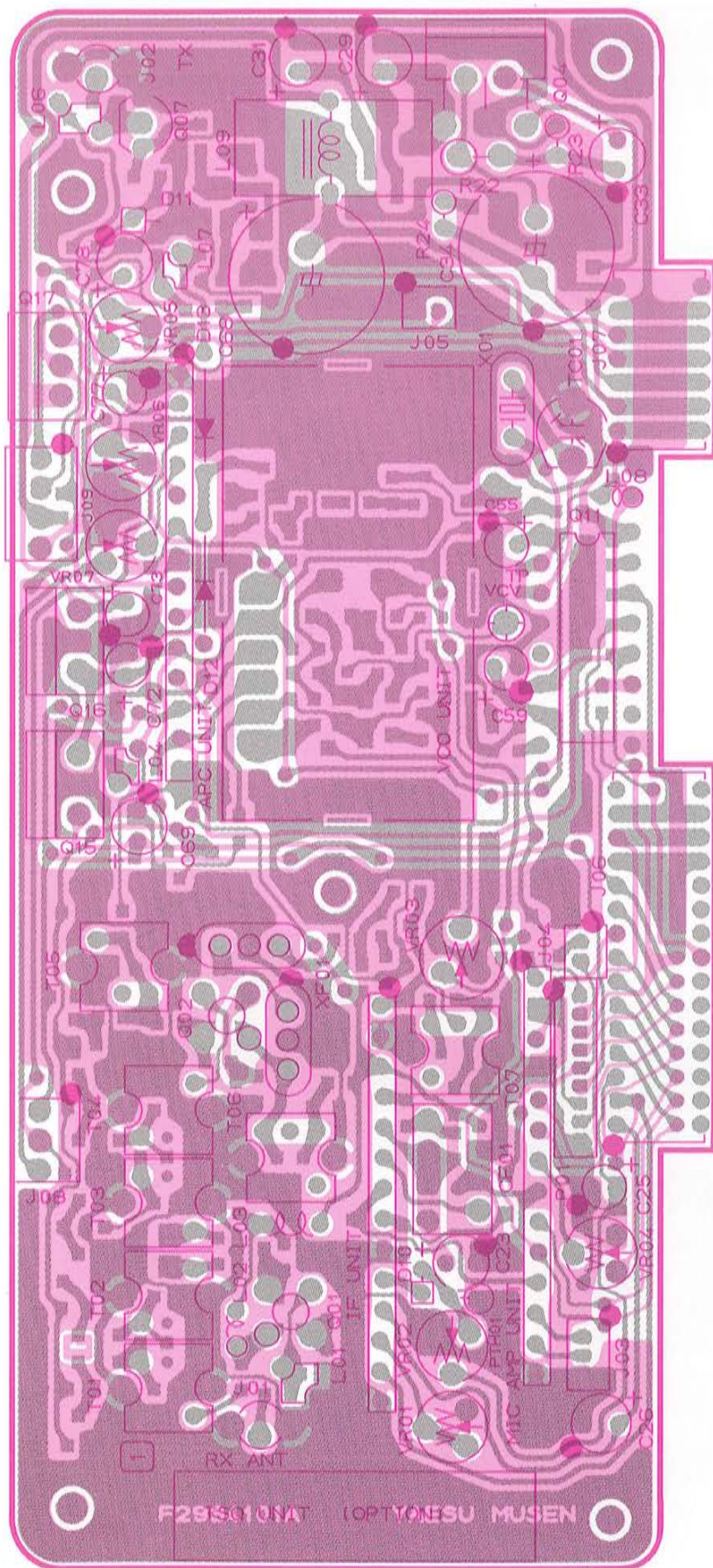
μPC7805H (Q1015)
L7809 (Q1016)



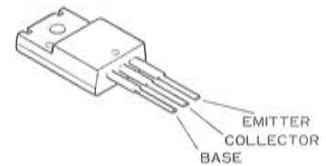
TDA2003 (Q1004)

obverse view of "component" side

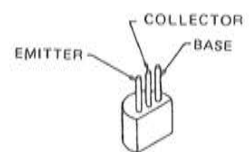
MAIN UNIT PARTS LAYOUT



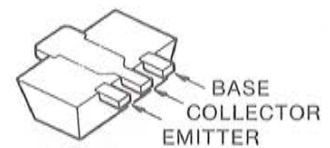
reverse view of "component" side



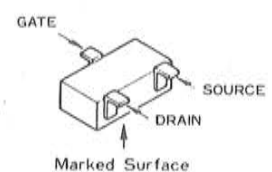
2SB1134R (Q1017)



2SC2538 (Q1007)

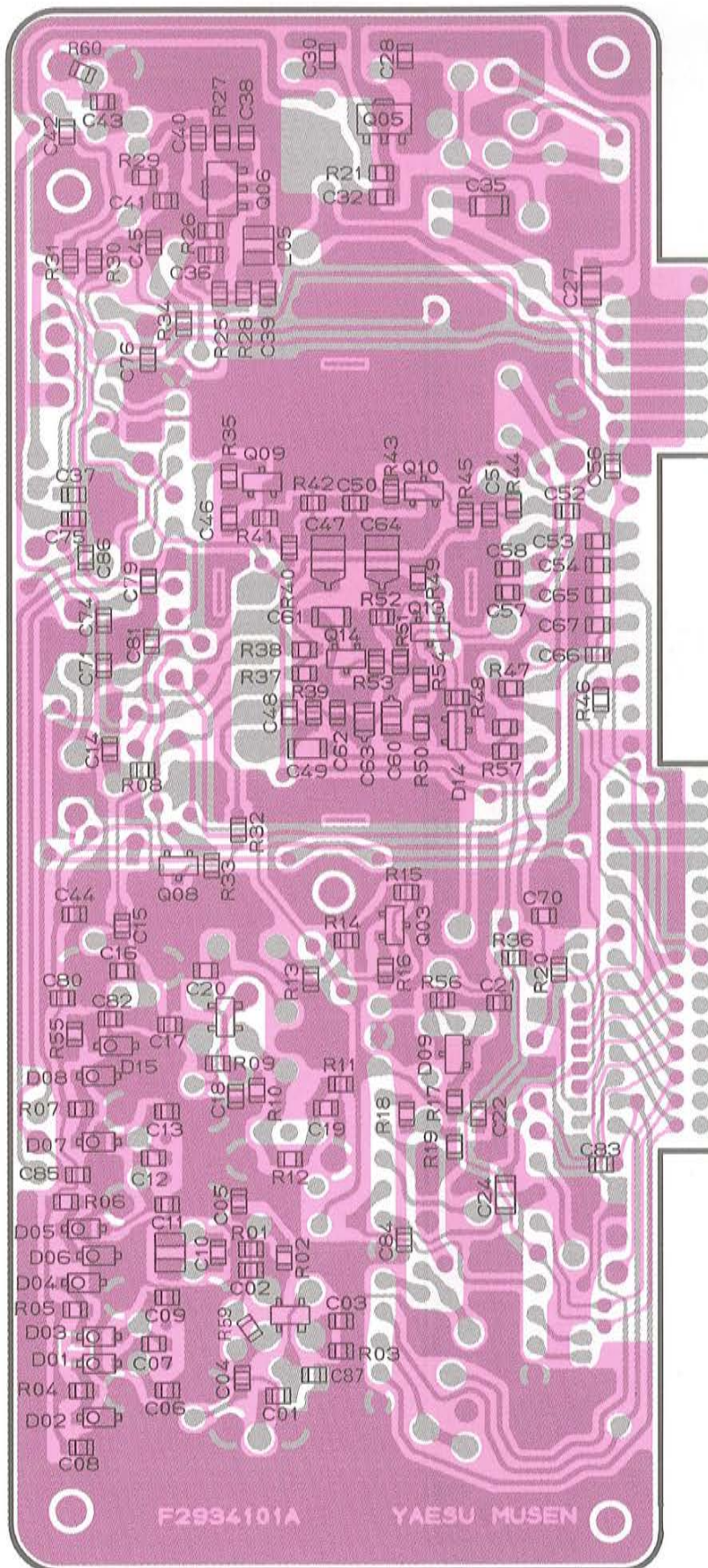


2SD1000(LL) (Q1005)
2SC3357(RK) (Q1006)

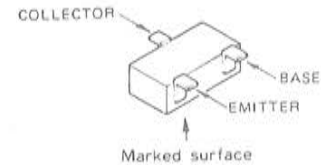


2SK209GR(XG) (Q1008)
2SK208Y (JY) (Q1013)

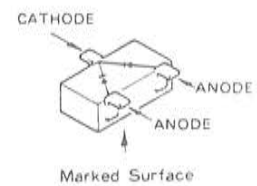
MAIN UNIT PARTS LAYOUT



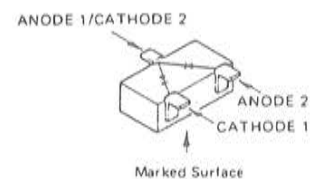
obverse view of "chip-only" side



2SC2620(QB)
(Q1003,1009,1010)
2SC1623(L7) (Q1014)

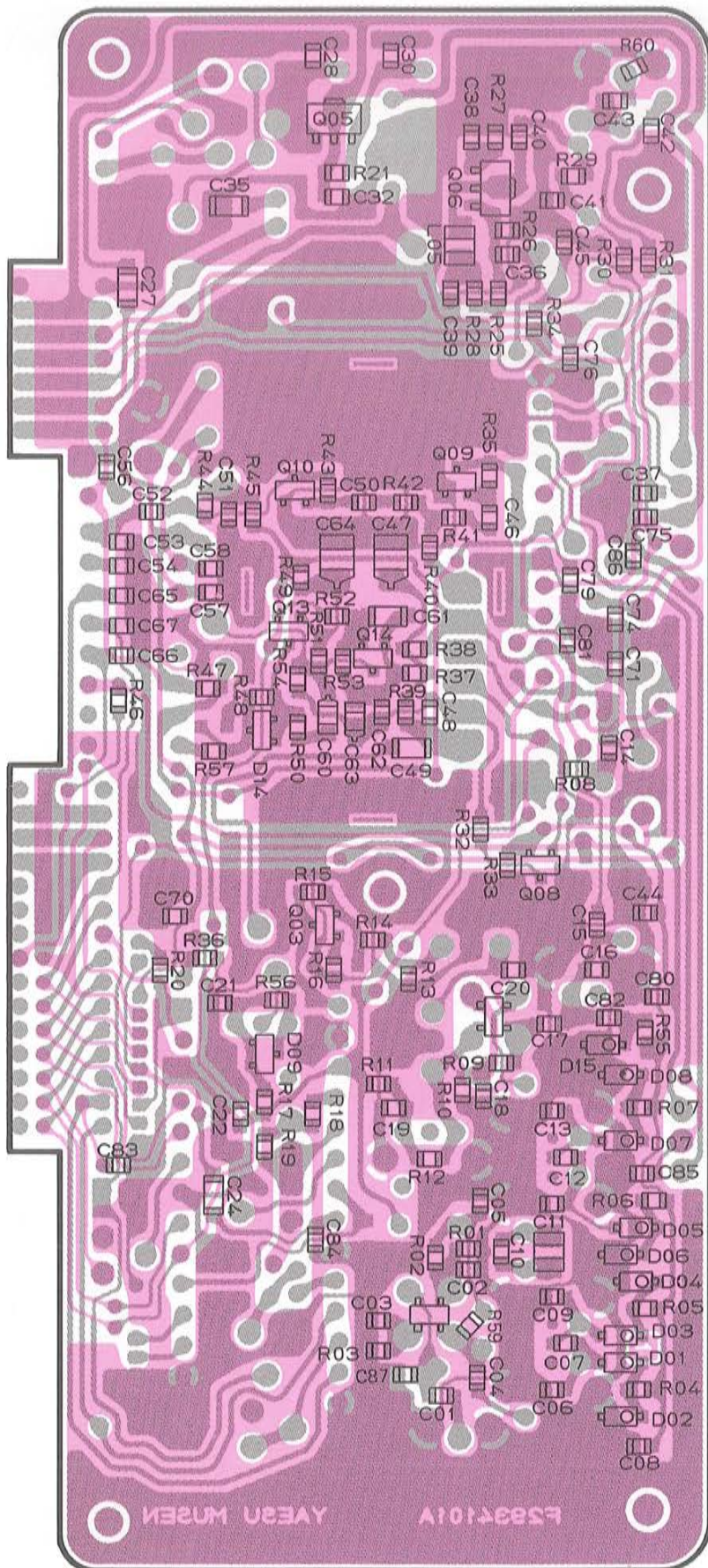


1SS184(B3) (D1014)



1SS226(03) (D1009)

MAIN UNIT PARTS LAYOUT



reverse view of “chip-only” side

MAIN UNIT PARTS LAYOUT

MAIN UNIT VOLTAGE CHART

(DC VOLTS)

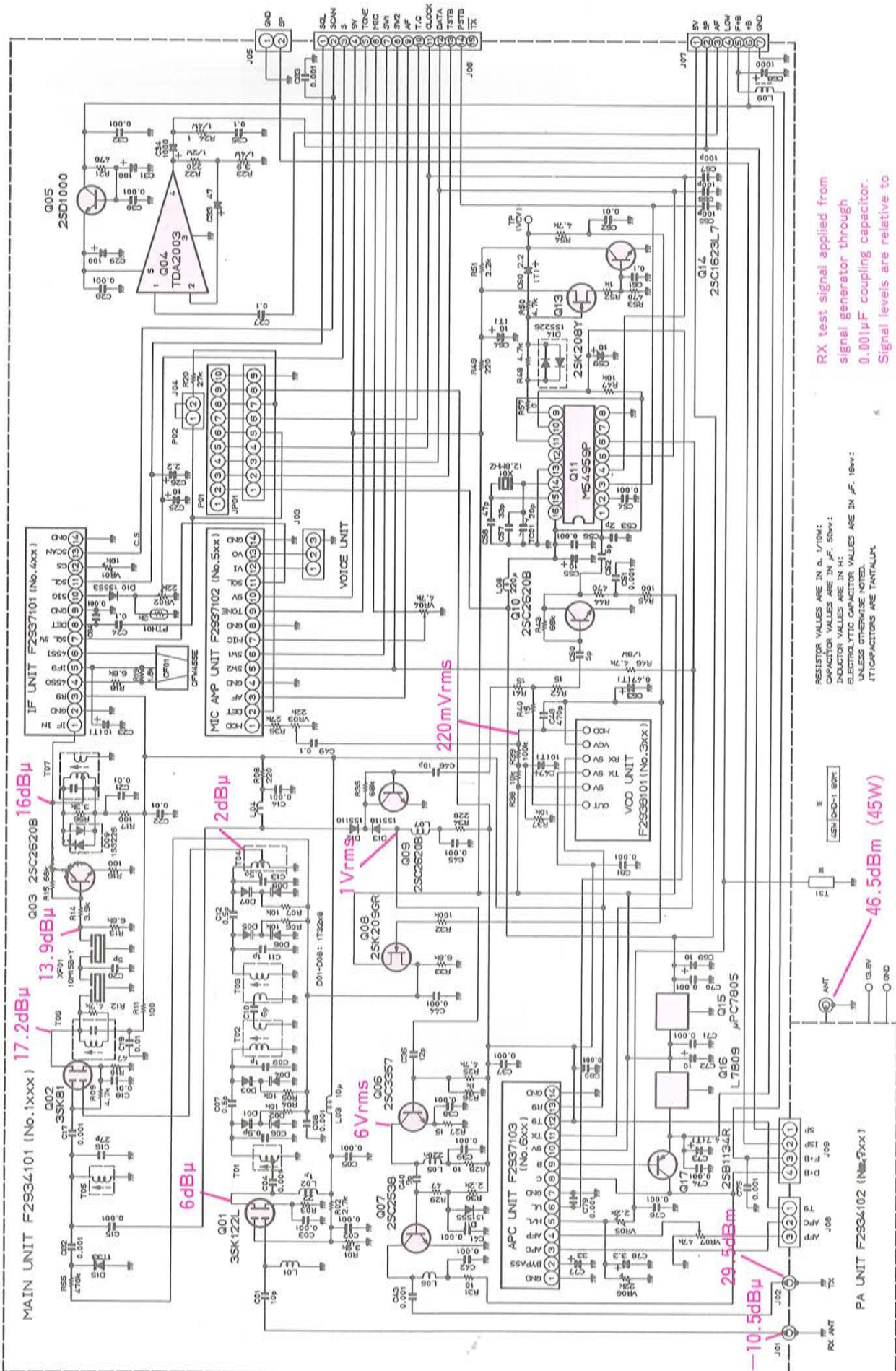
Symbol No.	E(S)	C(D)	B(G1)	G2	REMARKS
Q1001	0.2	9.0	0	5.2	
Q1002	0.18	8.60	0	0.15	
Q1003	0.2	8.8	0.8		
Q1005	12.8	13.6	13.6		
Q1006	0.6	8.5	1.0		
Q1007	0	11.80/350	0.55/0.55		RF POWER HIGH/LOW
Q1008	13.8	9.0	13.8		
Q1009	0	6.5	0.7		
Q1010	0	5.4	0.7		
Q1013	13.8	8.0	13.8		
Q1014	0	13.8	0.6		
Q1017	12.4/13.6	12.4/0	11.2/13.2		RX/TX

MAIN UNIT IC VOLTAGE CHART

(DC VOLTS)

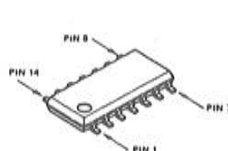
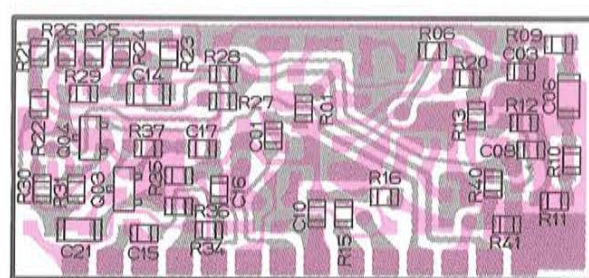
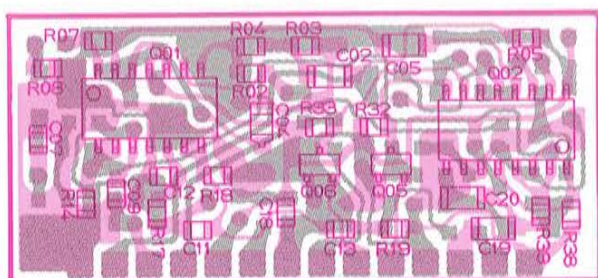
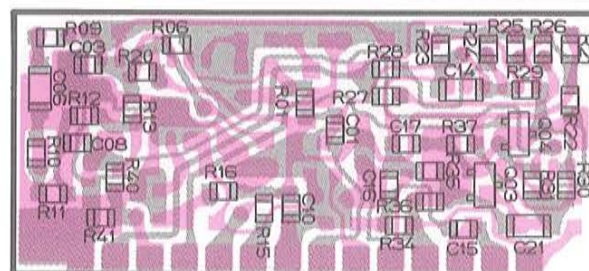
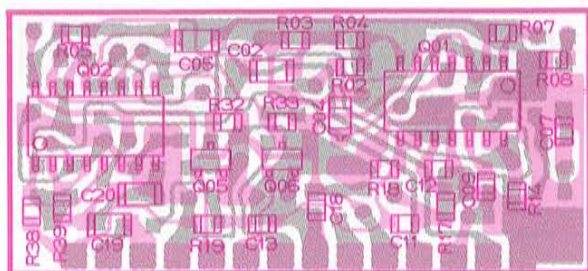
PIN No. Symbol No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	REMARKS
Q1004	0.7	0.7	0	6.4	13.6												
Q1011	2.3	2.6	4.4	0	0	0/3.6	0	0	1.5	0	4.6	0	0	2.0	2.0	4.6	RX/TX
Q1015	13.6	0	9.0														
Q1016	9.0	0	5.0														

MAIN UNIT CIRCUIT DIAGRAM

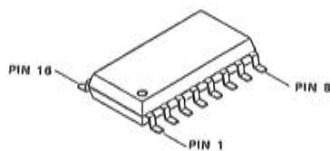


MIC UNIT PARTS LAYOUT/CIRCUIT DIAGRAM

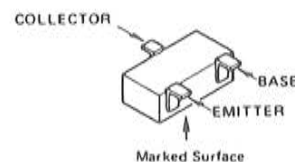
MIC UNIT (No. 5xx)



LA6324M (Q501)



μPD4052BG (Q502)

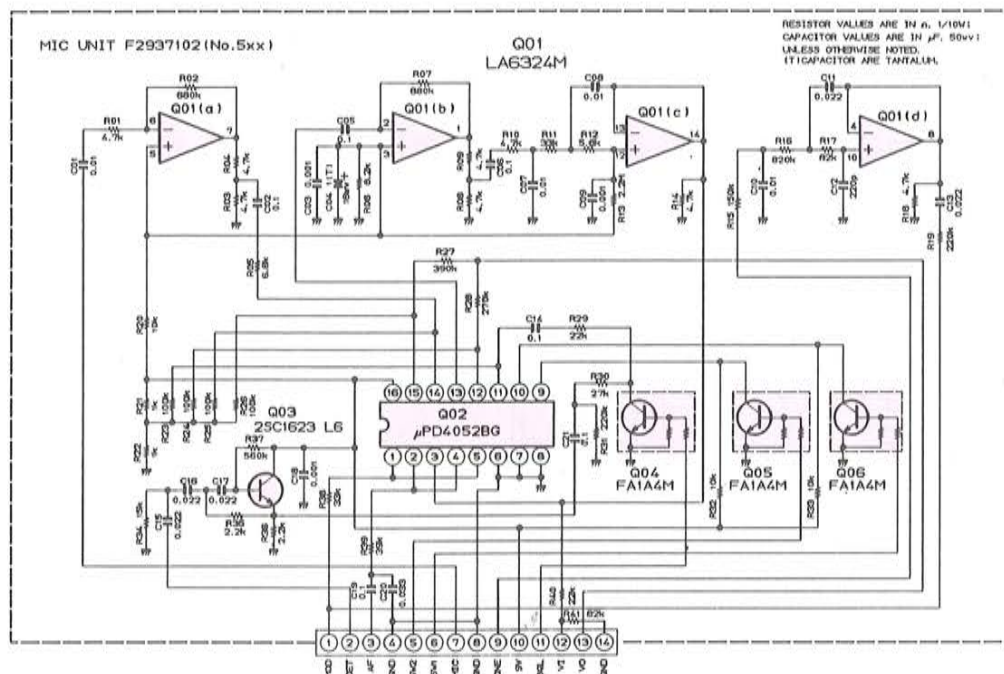


2SC1623(L6) (Q503)
FA1A4M-T2B (L33)
(Q504-506)

MIC UNIT VOLTAGE CHART

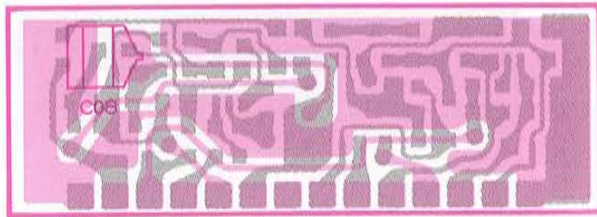
(DC VOLTS)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	REMARKS
MOD	DET	AF	GND	SW2	SW1	MIC	GND	TONE	9V	SQL	VI	VO	GND	
0/2.1			0	0/4.3	0	0	0	1.6/1.6	9.0/9.0	0	3.0/3.0	3.0/9.0	0	RX/TX

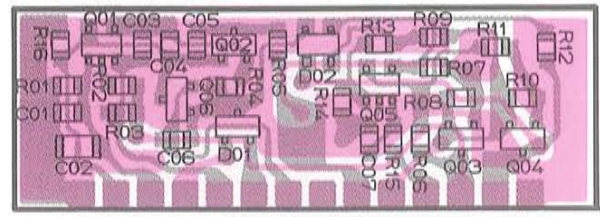


APC UNIT PARTS LAYOUT/CIRCUIT DIAGRAM

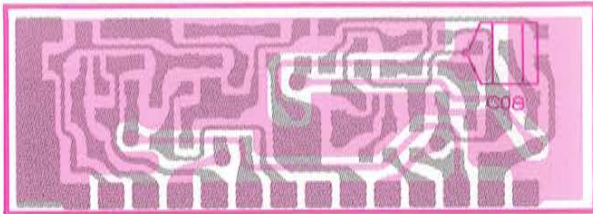
APC UNIT (No. 6 × ×)



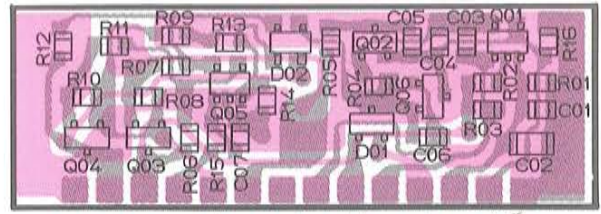
obverse view of "Tantalum CAP" side



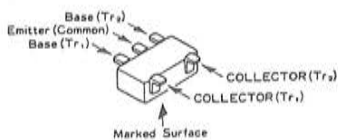
obverse view of "chip-only" side



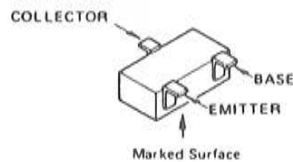
reverse view of "Tantalum CAP" side



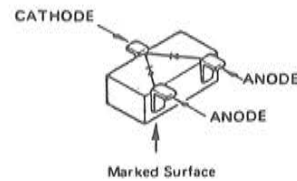
reverse view of "chip-only" side



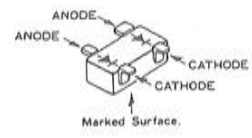
FMS1(S1) (Q601)
FMW1(W1) (Q605)



2SB624(BV4) (Q603,604)
2SC1623(L6) (Q602)
FA1A4M-T2B(L33) (Q606)



1SS184(B3) (D601)

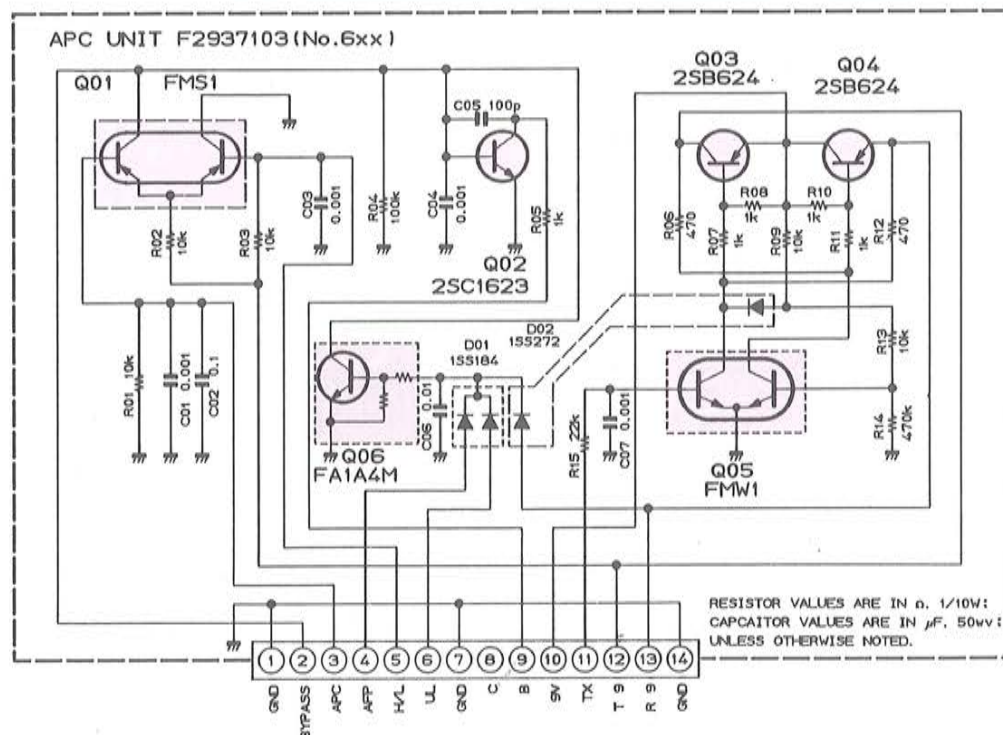


1SS272(A1) (D602)

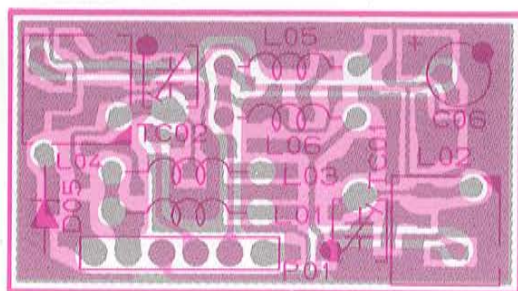
APC UNIT VOLTAGE CHART

(DC VOLTS)

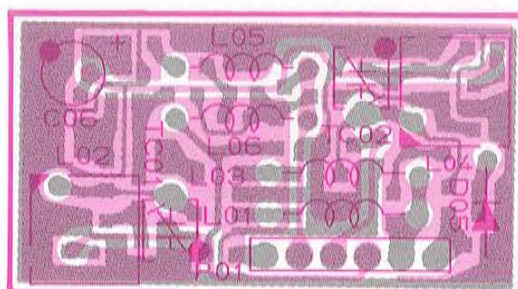
1	2	3	4	5	6	7	8	9	10	11	12	13	14	REMARKS
GND	BYPASS	APC	AFP	H/L	UL	GND	C	B	9V	TX	T9	R9	GND	RX/TX
0	0/0.6	0/5.7	0	RF HIGH RF LOW 0/5.1 0/1.2	0.1/0.1	0	0/3.7	13.6/13.2	9.0/9.0	0/3.6	0/9.0	9.0/0	0	



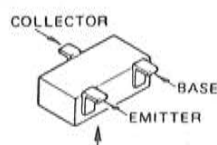
144-VCO UNIT (No. 3 XX)



obverse view of "component" side



reverse view of "component" side



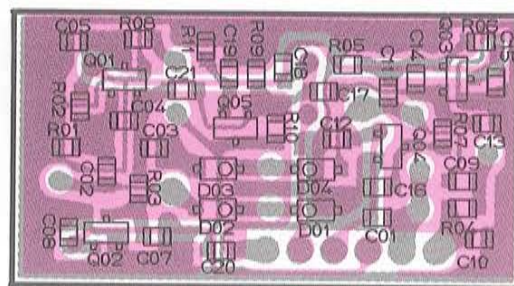
Marked Surface

2SC3356(R24)

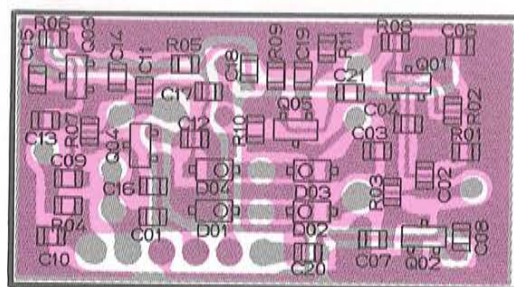
(Q301,303,305)

FA1F4N-T2B(R24)

(Q302,304)



obverse view of "chip-only" side

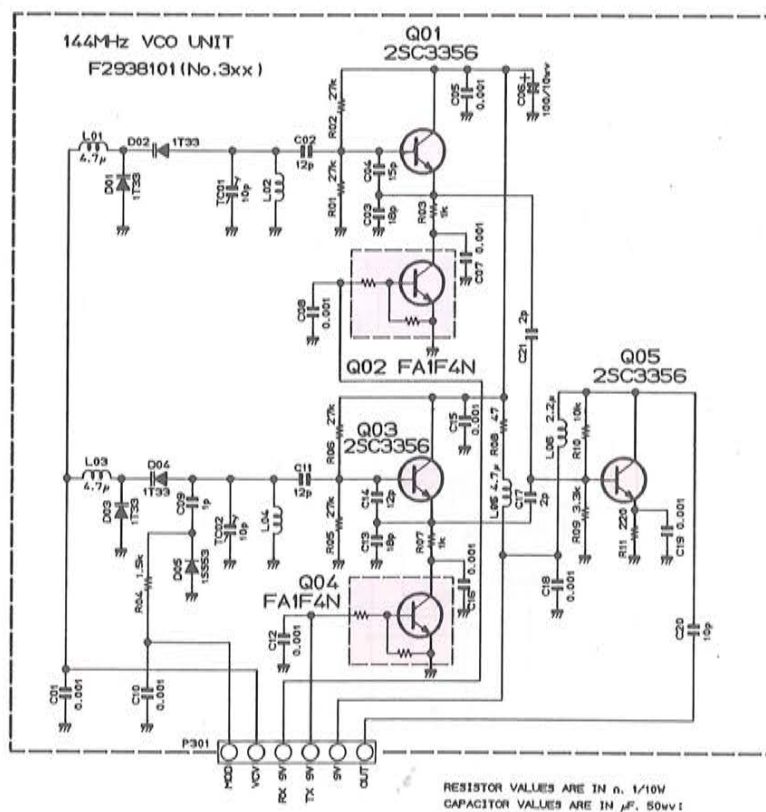


reverse view of "chip-only" side

VCO UNIT VOLTAGE CHART

(DC VOLTS)

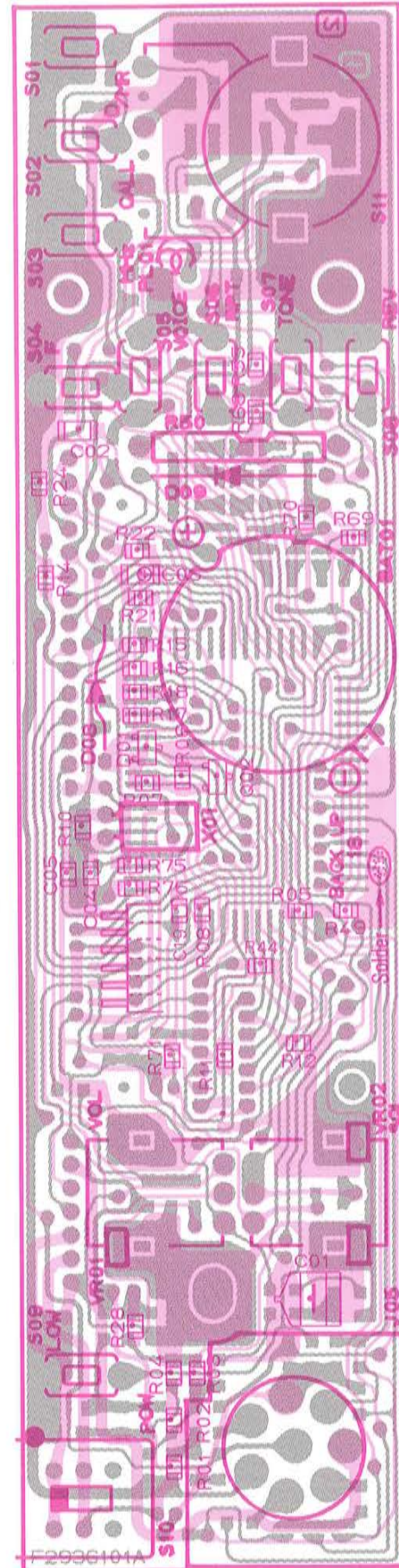
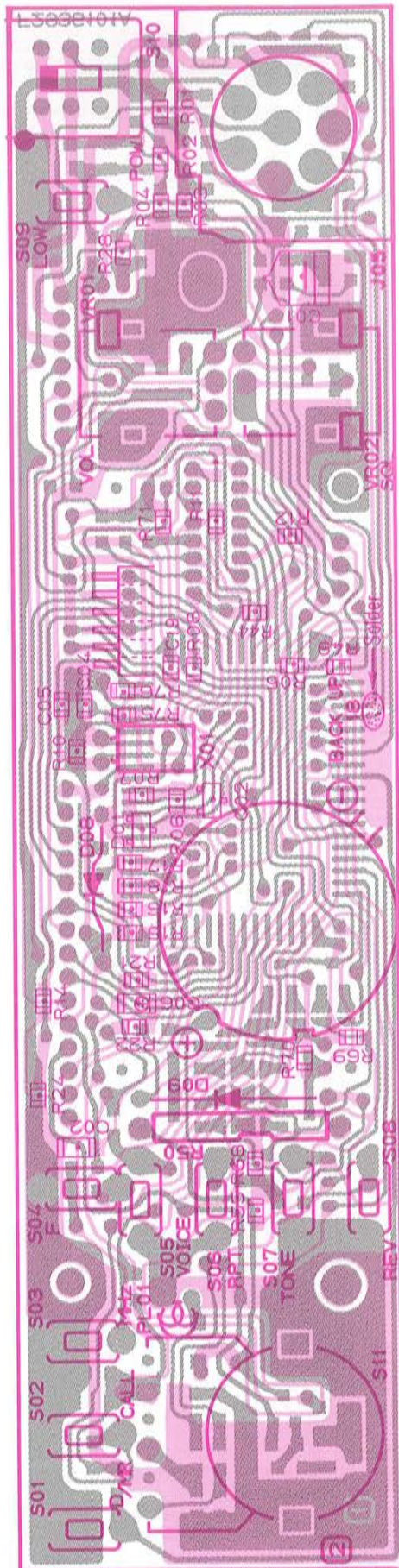
MOD	VCV	R9	T9	9	OUT	REMARK
3.6		9.0/0	0/9.0	9.0	0	RX/TX



RESISTOR VALUES ARE IN Ω , 1/10W
CAPACITOR VALUES ARE IN μ F, 50VDC
INDUCTOR VALUES ARE IN H; UNLESS OTHERWISE NOTED.

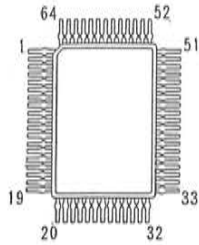
CONTROL UNIT PARTS LAYOUT

CONTROL UNIT (No. 2 XXX)

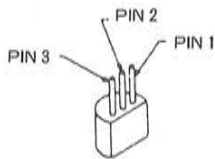
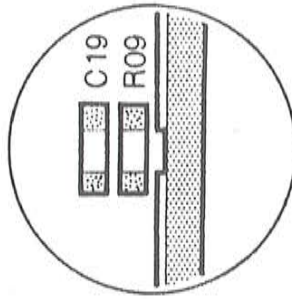


obverse view of "mixed-component" side reverse view of "mixed-component" side

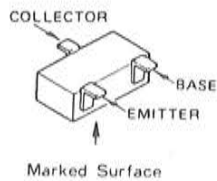
CONTROL UNIT PARTS LAYOUT



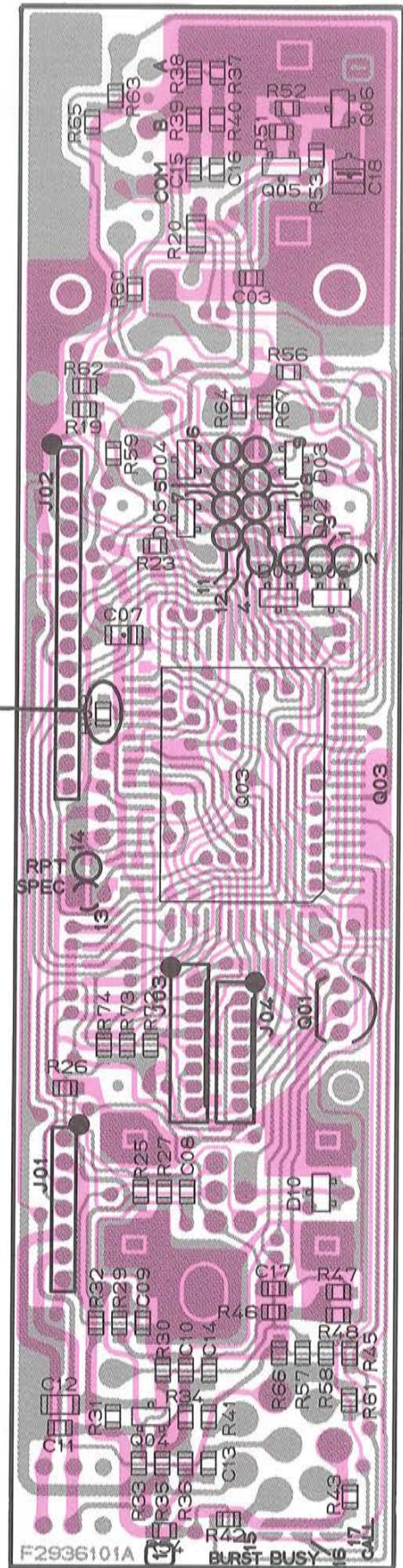
HD404418A01F (Q2003)



PST523C-2 (Q2001)

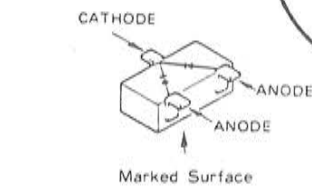


- 2SA812(M6) (Q2002)
- 2SB624(BV4) (Q2005)
- 2SC1623(L6) (Q2004,2006)

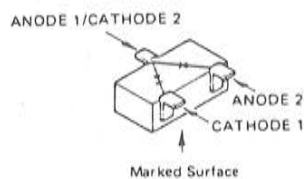


obverse view of "IC" side

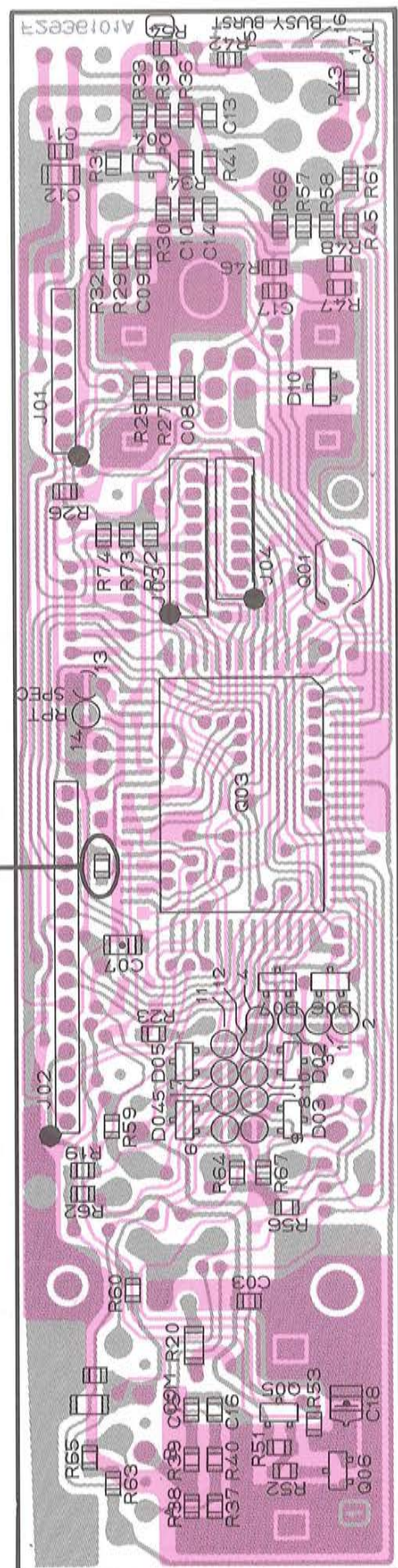
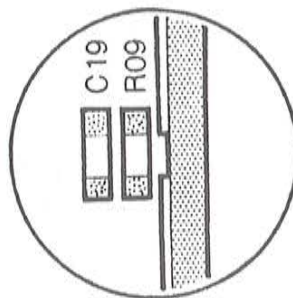
CONTROL UNIT PARTS LAYOUT



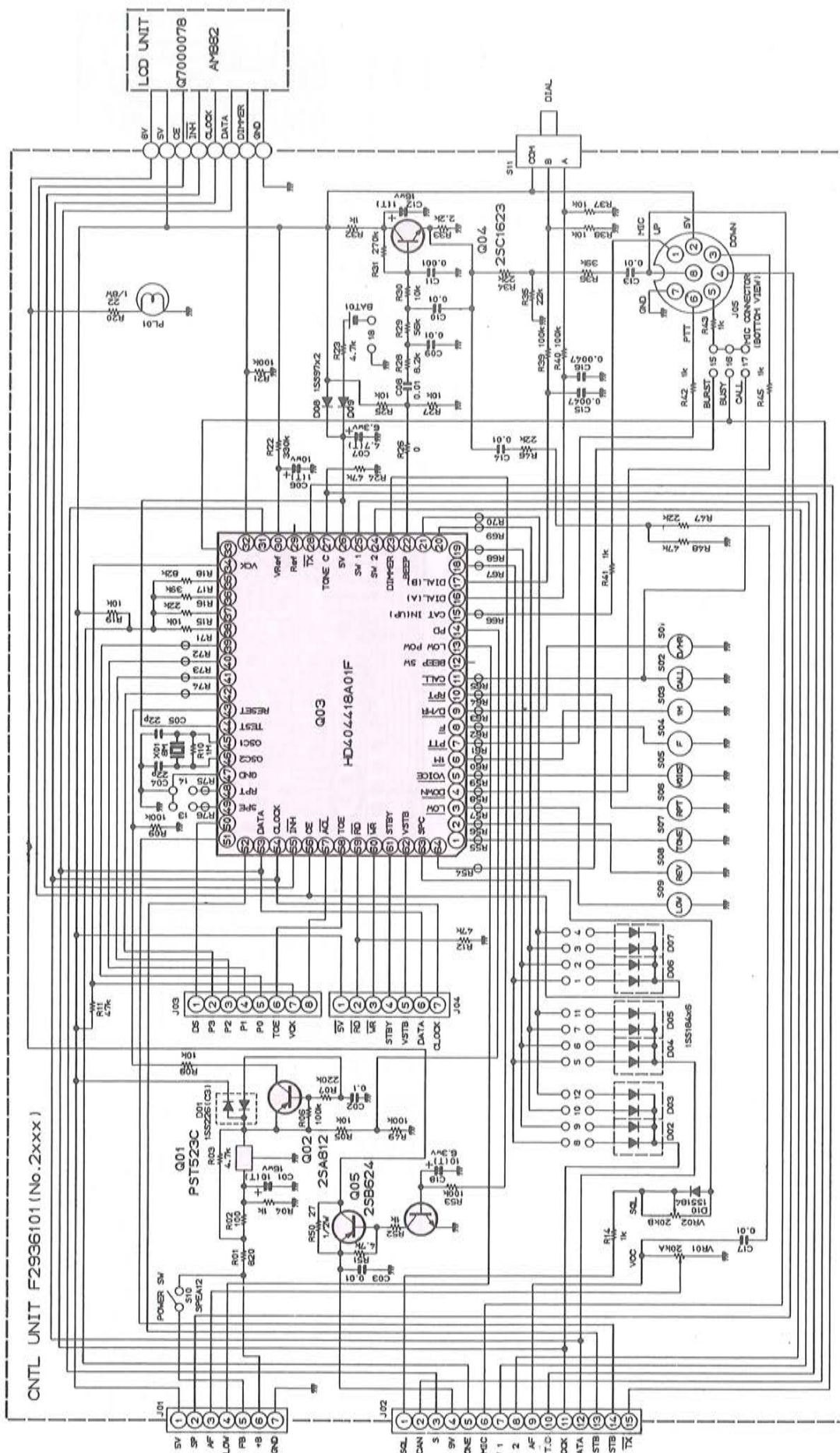
1SS184(B3)
(D2002,2003,2004)
(2005,2006,2007)
2010



1SS226(C3) (D2001)



CONTROL UNIT CIRCUIT DIAGRAM



R54, R59, R61, R65, R66: 22kg

PL55-PL57
PL59, PL60

RAM: OUT OF USE

RESISTOR VALUES ARE IN Ω . 1/K Ω :
CAPACITOR VALUES ARE IN μ F. 500N:

UNLESS OTHERWISE NOTED,
CAPACITORS ARE TANTALUM

1 850 9

1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10

10	3 351
11	3 352

21	623	7
12	623	7

5 150 13

75 6 131 9

5 9
24 8
7 6

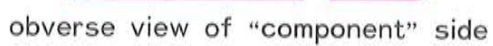
3 5290
3 5290
3 5290

$$\mathbf{F} = \frac{\mathbf{G}}{r^2}$$

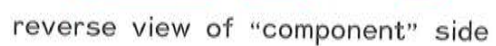
D

9

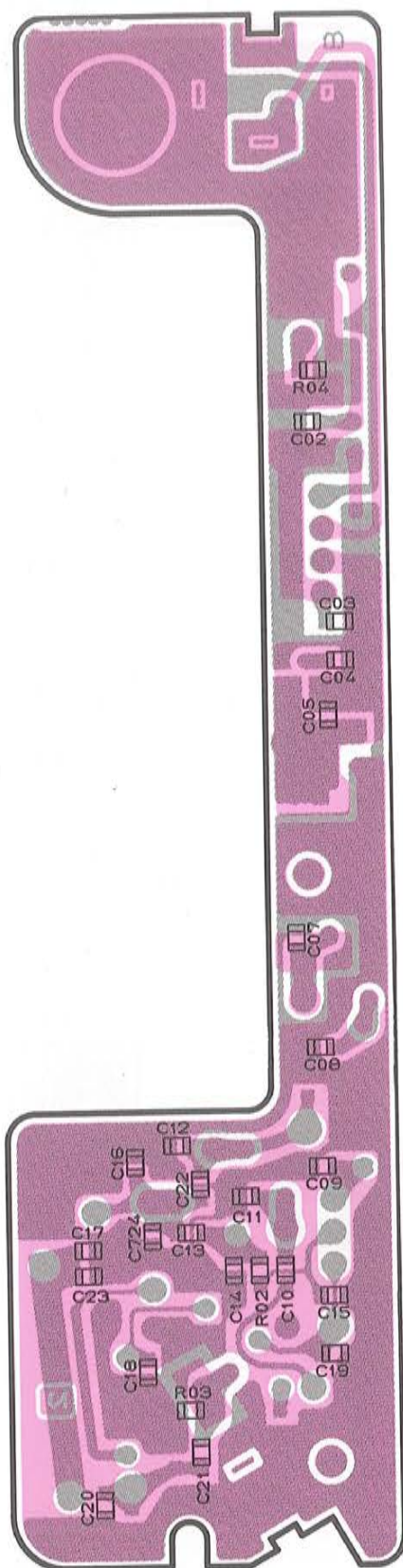
PA UNIT (No. 7 X X)



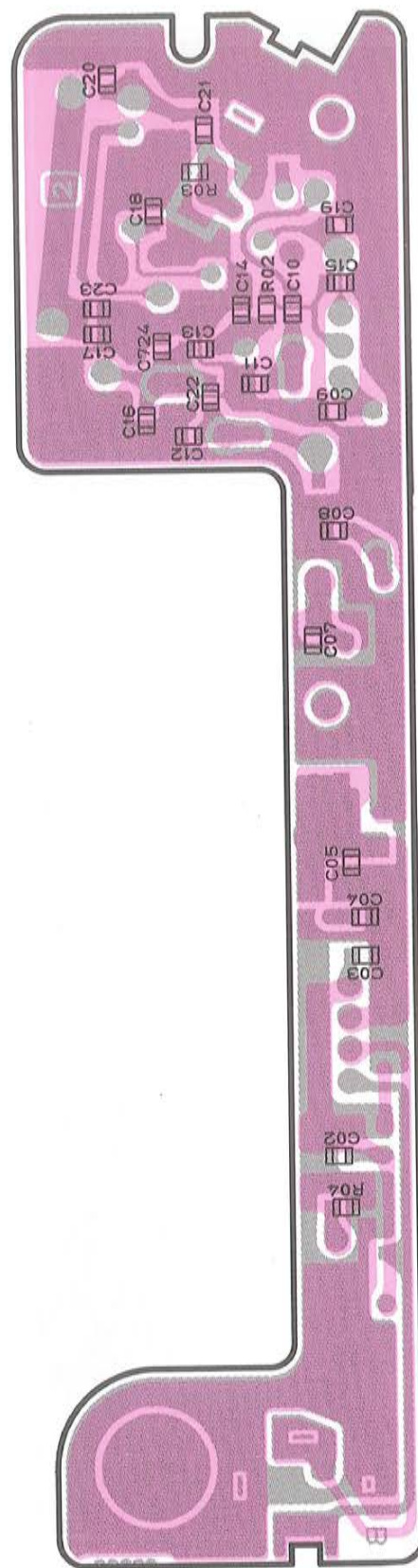
1. INPUT
2. V_{CC1}
3. V_{CC2}
4. V_{CC3}
5. OUTPUT
6. FLA



PA UNIT PARTS LAYOUT

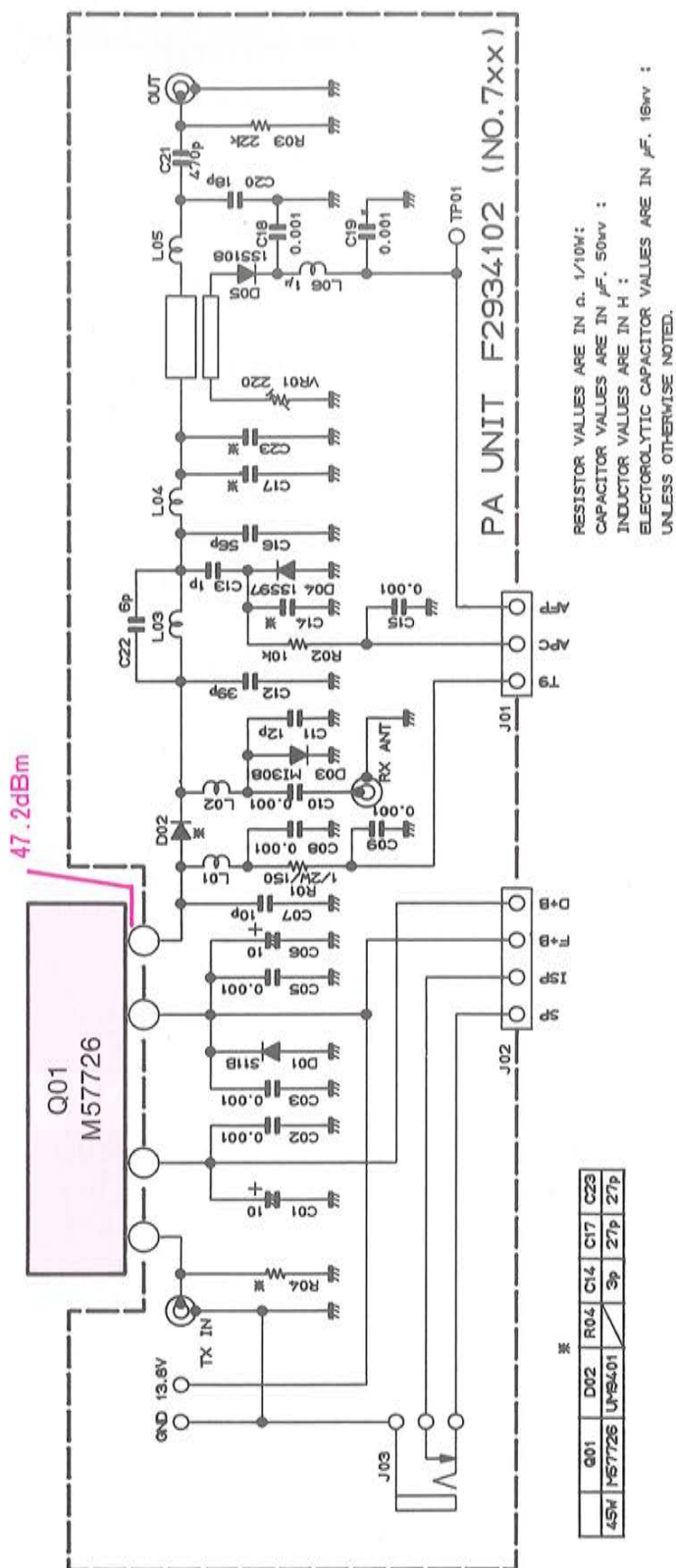


obverse view of "chip-only" side



reverse view of "chip-only" side

PA UNIT CIRCUIT DIAGRAM



SEMICONDUCTOR CROSS-REFERENCE

◎ MAIN UNIT

Symbol No.	ORIGINAL	REPLACEMENT	REPLACEMENT	REPLACEMENT
	Part No.	Part No.	Part No.	Part No.
Q1004	TDA2003	μPC2002V		
	G1090769	G1090284		
Q1014	2SC1623-T2BL7	2SC2712BL TE85R	2SC2462 LDTR	2SC2812 L7TR
	G3316237G	G3327127B	G3324627D	G3328127G
Q1015	μPC7805H	L7805		
	G1090299	G1090776		
D1009	1SS226 TE85R	1SS123-T2B		
	G2070003	G2070020		
D1014	1SS184 TE85R	MC2838-T14-2	DCB015-TA	
	G2070009	G2070018	G2070012	

◎ IF UNIT

Symbol No.	ORIGINAL	REPLACEMENT	REPLACEMENT	REPLACEMENT
	Part No.	Part No.	Part No.	Part No.
Q402	2SC1623-T2BL6	2SC2712GR TE85R	2SC2462 LCTR	2SC2812 L6TR
	G3316237F	G3327127G	G334627C	G3328127F
Q401	1SS226 TE85R	1SS123-T2B		
	G2070003	G2070020		
D402	1SS181 TE85R	MC2836-T14-2	DCA015-TA	
	G2070001	G2070024	G2070014	

◎ MIC UNIT

Symbol No.	ORIGINAL	REPLACEMENT	REPLACEMENT	REPLACEMENT
	Part No.	Part No.	Part No.	Part No.
Q501	LA6324M	μPC324G		
	G1090559	G1090603		
Q503	2SC1623-T2BL6	2SC2712GR TE85R	2SC2462 LCTR	2SC2812 L6TR
	G3316237F	G3327127G	G3324627C	G3328127F

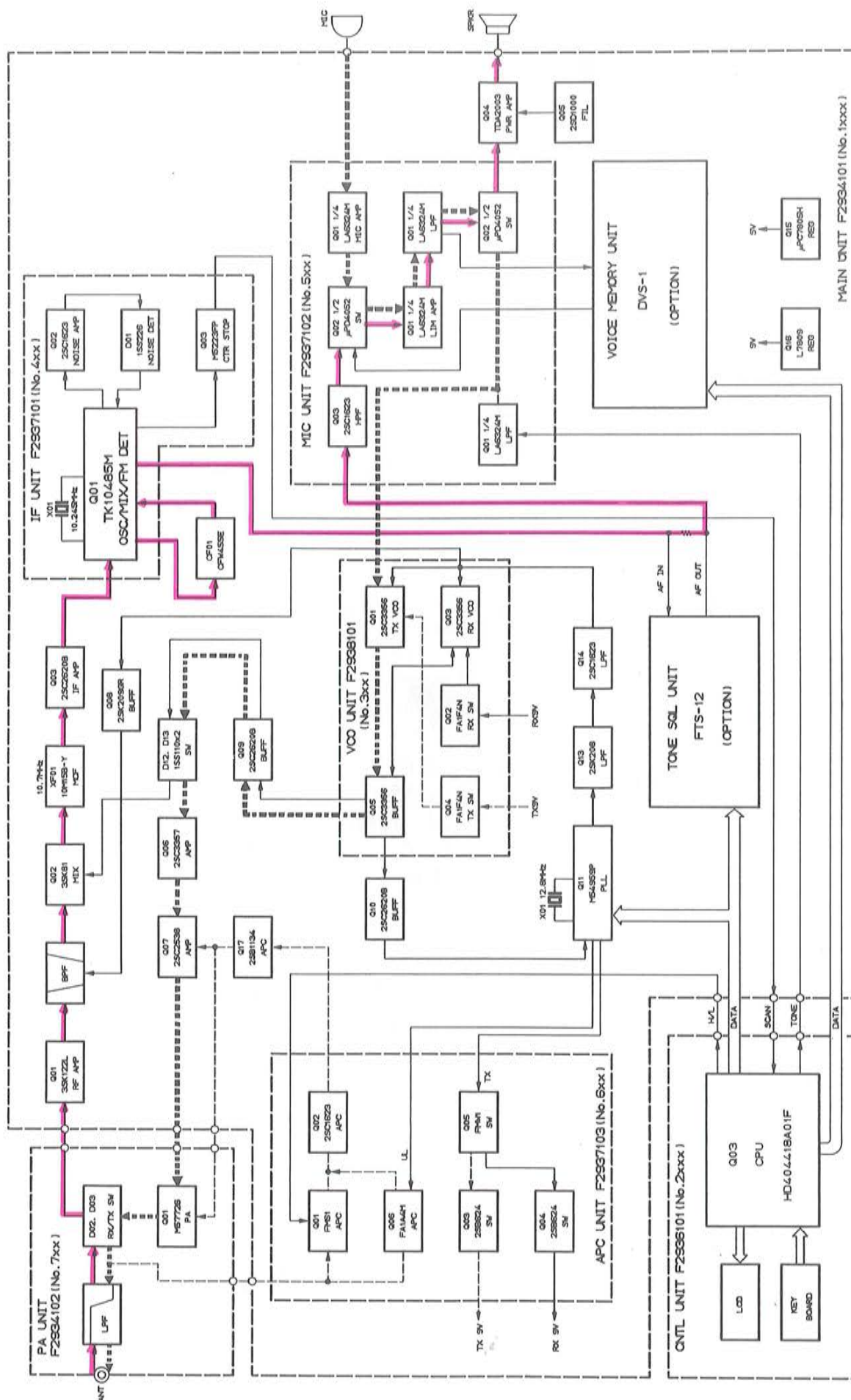
◎ APC UNIT

Symbol No.	ORIGINAL	REPLACEMENT	REPLACEMENT	REPLACEMENT
	Part No.	Part No.	Part No.	Part No.
Q602	2SC1623-T2BL6	2SC2712GR TE85R	2SC2462 LCTR	2SC2812 L6TR
	G3316237F	G3327127G	G3324627C	G3328127F
D601	1SS184 TE85R	MC2838-T14-2	DCB015-TA	
	G2070009	G2070018	G2070012	

◎ CONTROL UNIT

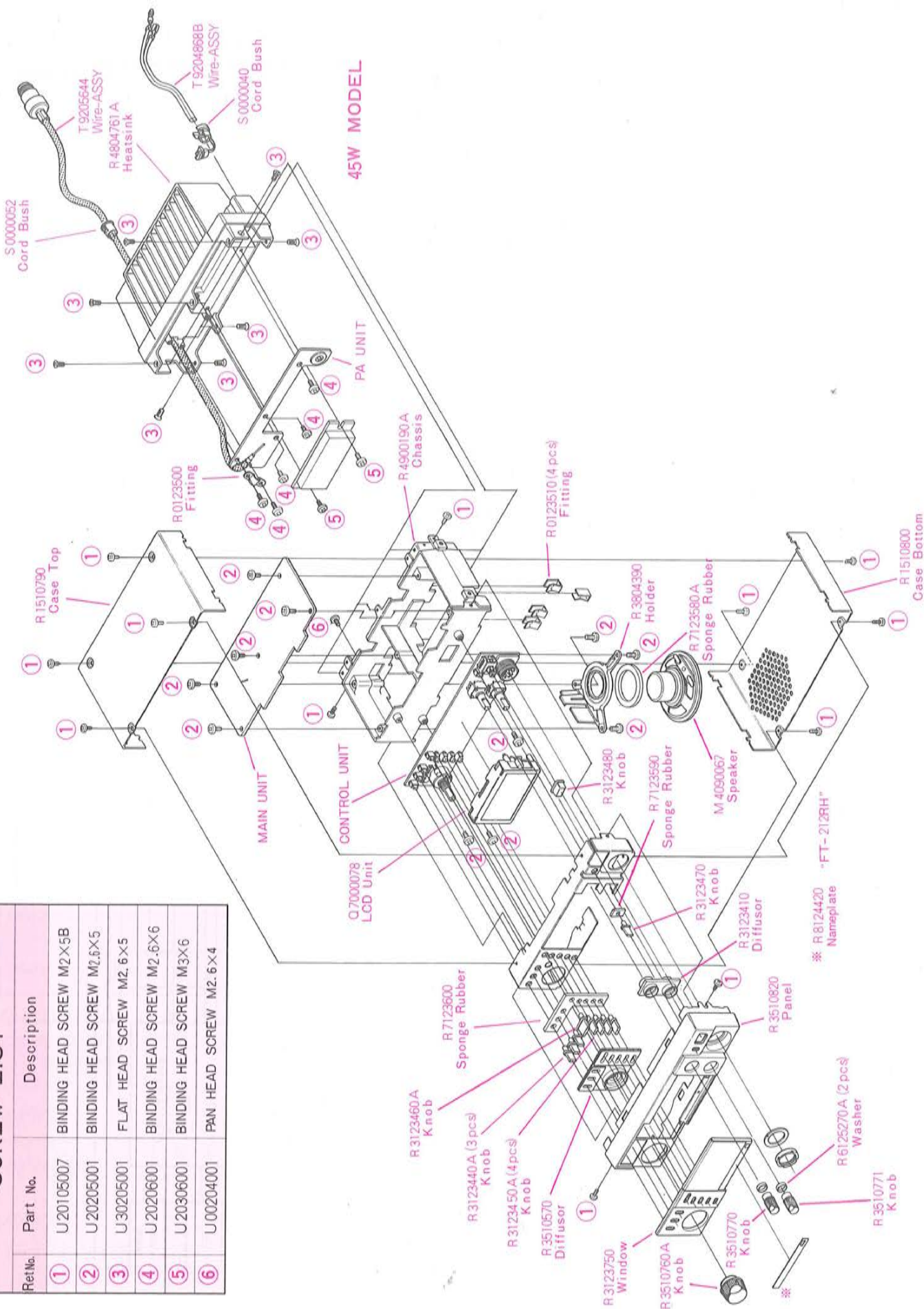
Symbol No.	ORIGINAL	REPLACEMENT	REPLACEMENT	REPLACEMENT
	Part No.	Part No.	Part No.	Part No.
Q2002	2SA812-T2BM6B	2SA1162GR TE85R	2SA1052 MCTR	2SA1179 M6TR
	G3108127F	G3111627G	G3110527C	G3111797E
Q2004,2006	2SC1623-T2BL6	2SC2712GR TE85R	2SC2462 LCTR	2SC2812 L6TR
	G3316237F	G3327127G	G3324627C	G3328127F
D2001	1SS226 TE85R	1SS123-T2B		
	G2070003	G2070020		
D2002,2003,2004 2005,2006,2007 2010	1SS184 TE85R	MC2838-T14-2	DCB015-TA	
	G2070009	G2070018	G2070012	

BLOCK DIAGRAM



EXPLODED VIEW

SCREW LIST		
RefNo.	Part No.	Description
①	U 20105007	BINDING HEAD SCREW M2×5B
②	U 20205001	BINDING HEAD SCREW M2.6×5
③	U 30205001	FLAT HEAD SCREW M2.6×5
④	U 20206001	BINDING HEAD SCREW M2.6×6
⑤	U 20306001	BINDING HEAD SCREW M3×6
⑥	U 00204001	PAN HEAD SCREW M2.6×4



ALIGNMENT

The high reliability of the chip components in the FT-212RH minimize the possibility that repair or realignment should be needed after leaving the factory. However, if damage occurs and some parts subsequently be replaced, realignment may be required. If a sudden problem occurs during normal operation, it is likely due to component failure; realignment should not be done until after the faulty component has been replaced.

Because of the compact circuitry of this transceiver, we recommend that servicing be performed only by authorized Yaesu service technicians who are experienced with the circuitry and fully equipped for repair and alignment. Therefore, if a fault is suspected, contact the dealer from whom the transceiver was purchased for instructions regarding repair. Authorized Yaesu service technicians realign all circuits and make complete performance checks to ensure compliance with factory specifications after replacing any faulty components.

Those who do undertake any of the following alignments are cautioned to proceed at their own risk. Yaesu must reserve the right to change circuits and alignment procedures in the interest of improved performance, without notifying owners.

No alignment should be attempted unless the normal function and operation of the transceiver are clearly understood, the cause of the malfunction has been clearly pinpointed and any faulty components replaced, and the need for realignment determined to be absolutely necessary.

The following test equipment (and thorough familiarity with its correct use) is necessary for complete realignment. Correction of problems caused by misalignment resulting from use of improper test equipment is not covered under the warranty policy.

A 50-ohm dummy load that is non-reactive up to 150 MHz is required. Correct alignment is not possible with an antenna.

Alignment Equipment

DC voltmeter (at least 20-kilohms/volt)
150 MHz standard signal generator (SSG) with calibrated level and modulation (see note below)
AF signal generator
SINAD meter (SINADDER)
FM linear detector (deviation meter)
CM coupler (directional coupler)
RF wattmeter (50W, $\pm 5\%$ @ 150MHz)
50-ohm non-reactive (@150 MHz) dummy load
Frequency counter (100Hz resolution at 150MHz)
Oscilloscope (recommended, not required)

Note: SSG levels referred to in the alignment procedure are based on $0\text{dBu}=0.5\text{uV}$.

Alignment Precautions

Correct alignment requires that the ambient temperature be the same as that of the transceiver and test equipment, and that this temperature be held constant between 20 and 30 °C (68 to 86 °F). When the transceiver is brought into the shop it should be allowed at least 2 hours for thermal equalization before alignment.

Alignments must not be made unless the oscillator shields and circuit boards are firmly affixed in place. Also, the frequency counter must be thoroughly warmed up before beginning.

Supply voltage during alignment must be held constant at 13.8V DC. Use a well regulated, adjustable power supply capable of at least 10A continuous load.

ALIGNMENT (PLL)

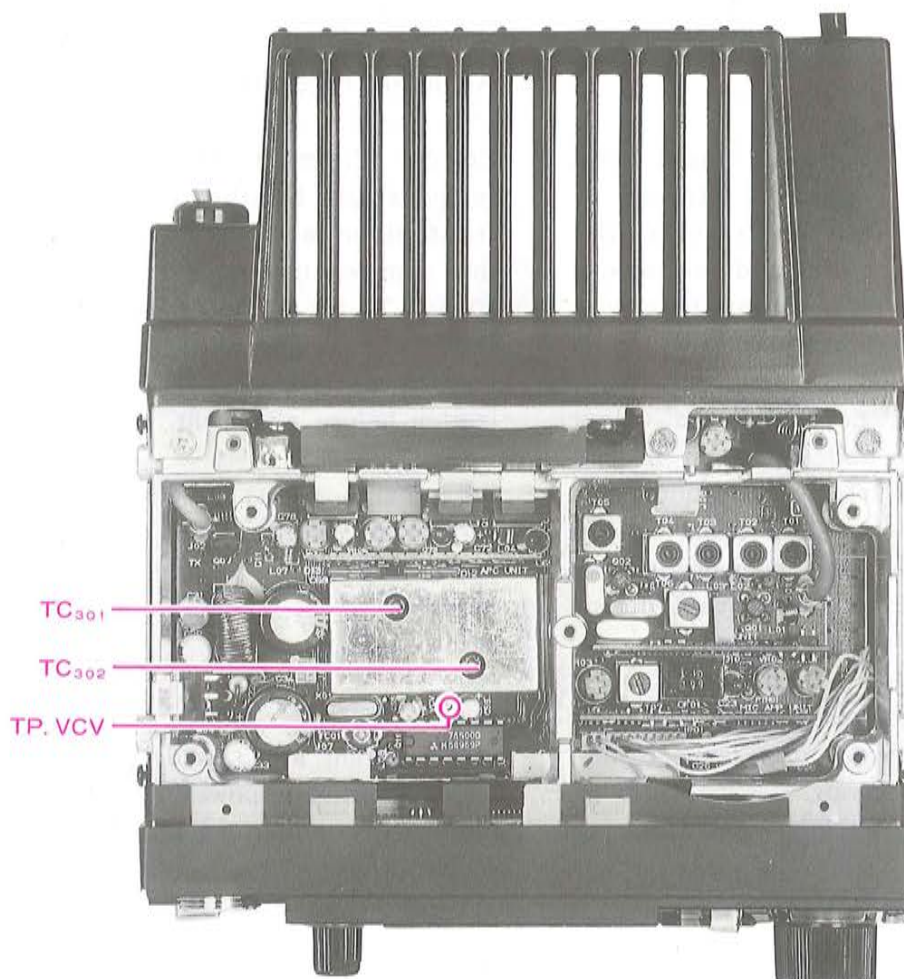
A. PLL Unit

1) VCV (Varactor Control Voltage)

- a) With the dummy load connected to the ANT jack, connect the DC voltmeter (3V scale) to the VCV terminal on the VCO Unit.
- b) Tune the transceiver to the top edge of the band for the model being aligned, and while receiving, adjust TC301 on the VCO Unit for the voltage indicated below ($\pm 0.1V$) for Receive at that frequency:

	Receive	Transmit
146 MHz	1.5V	1.4V
148 MHz	1.7V	1.6V

- c) Retune the transceiver to 144 MHz and confirm at least 1.3V.
- d) Retune to the top edge of the band, close the PTT line, and adjust TC302 for the voltage indicated above for Transmit.
- e) Again retune to 144 MHz and confirm at least 1.2V on the meter while transmitting.
- f) Repeat steps b - e several times, and then remove the voltmeter.



PLL ALIGNMENT POINTS

(Transmitter) ALIGNMENT

B. Transmitter

Set up the test equipment as shown in Figure 1. Close the PTT line when making adjustments. All adjustment points are on the Main Unit.

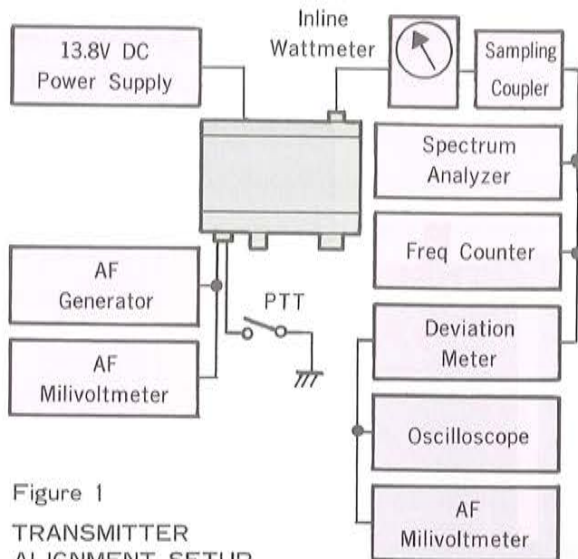


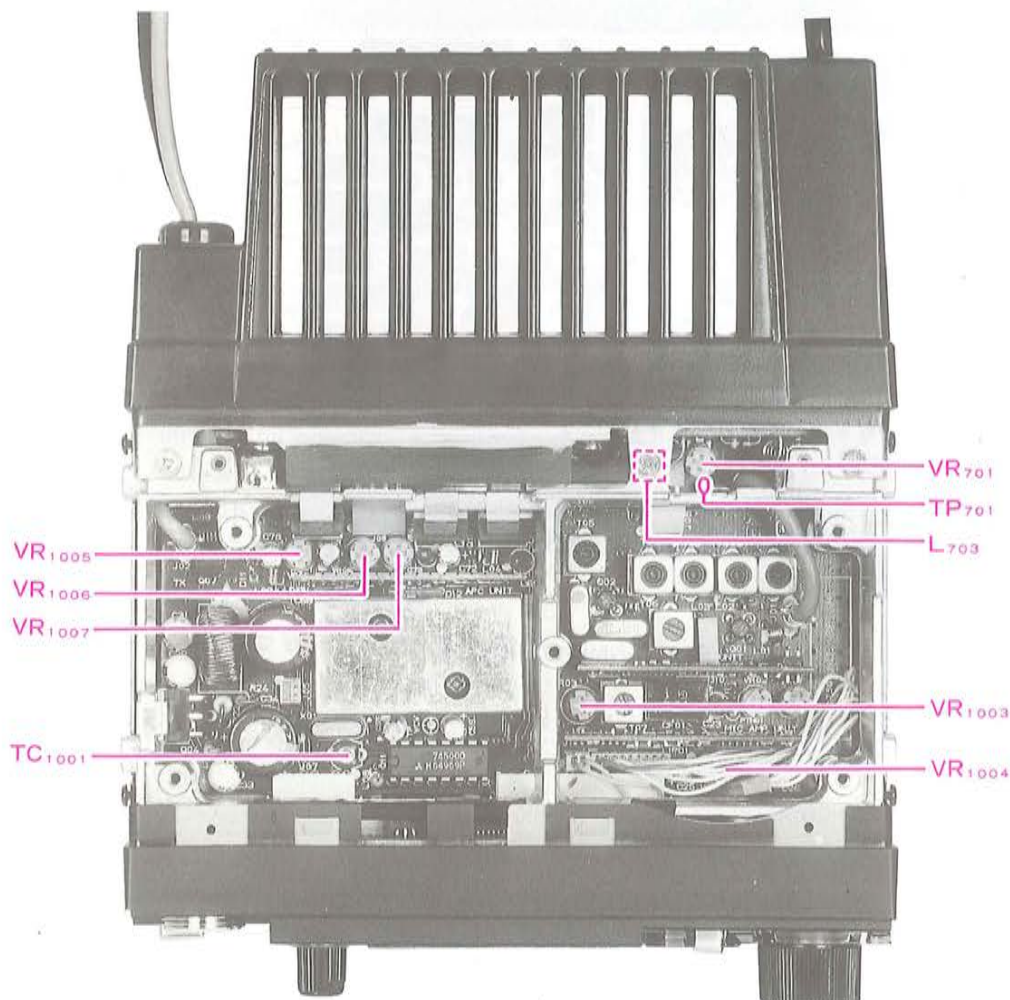
Figure 1
TRANSMITTER
ALIGNMENT SETUP

1) Early Stage Coupling

- a) Tune the transceiver to the center of the band, and set the LOW button to the high power position.
- b) Adjust L703 for maximum power output (at least 46 watts).

2) Power Output

- a) With the transceiver tuned to the center of the band, set the LOW button to the high power position.
- b) Connect the DC voltmeter to TP701 on the PA Unit.
- c) Press the PTT switch and adjust VR701 for minimum on the voltmeter.



TRANSMITTER ALIGNMENT POINTS

ALIGNMENT (Transmitter)

d) Adjust VR1006 for 46 watts output.

e) Press the LOW switch and adjust VR1005 for 5W output.

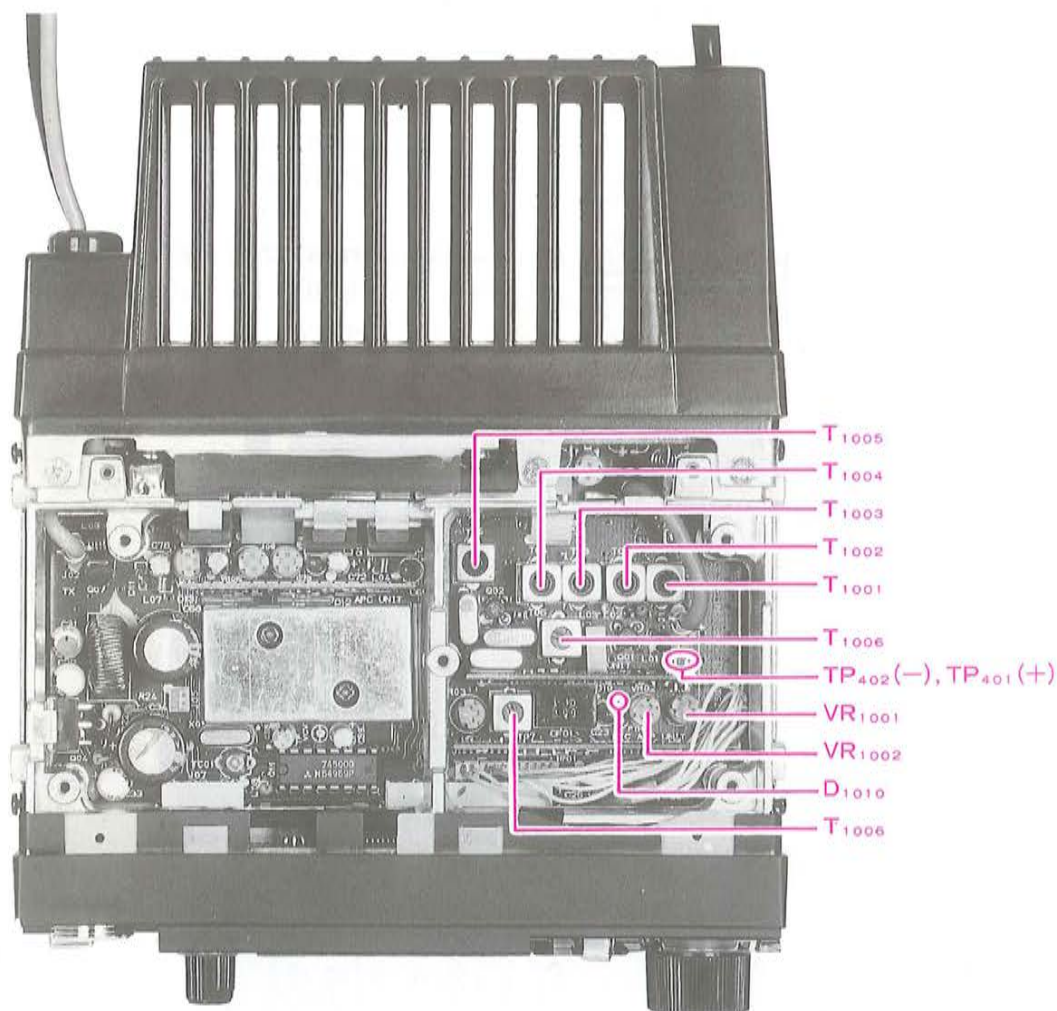
3) Frequency Calibration

a) Adjust TC1001 to match the counter indication with the transceiver frequency.

4) Deviation

a) Set the AF generator for 25mV output at 1 kHz. Adjust VR1003 for ± 4.5 kHz deviation on the Deviation Meter.

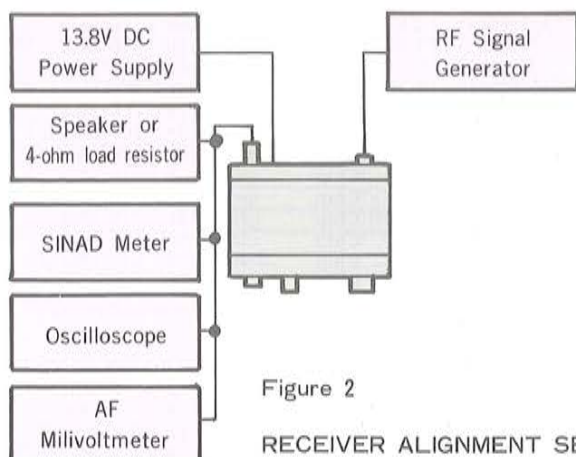
b) Reduce the AF generator level to 5mV and adjust VR1004 for ± 3.5 kHz deviation.



RECEIVER ALIGNMENT POINTS

C. Receiver

Set up the test equipment as shown in Figure 2. All adjustment points are on the Main Unit.



1) Interstage Transformers

- Connect the DC voltmeter between the cathode of D1010 and chassis ground.
- Modulate the RF signal generator for ± 3.5 kHz deviation of a 1 kHz tone.
- Tune the transceiver and signal generator to the same frequency at the center of the band, and set the injection level to produce midrange S-meter indication.
- Adjust T1001 through T1007 for maximum S-meter indication. Reduce the injection level, if

necessary, to keep the S-meter near midrange.

- Confirm 12dB SINAD sensitivity of -7.5dBu (0.21uV) or better on the SINADDER.

2) S-Meter Calibration

- At the center of the band, set the signal generator for 30dBu (50uV) injection with ± 3.5 kHz deviation of a 1 kHz tone.
- Adjust VR1002 so that all S-meter segments are just on.

3) Scanner Center-Stop

- Connect the DC voltmeter (3V range) between TP401 (+) and TP402 (-) on the IF Unit.
- Tune the transceiver to 146.000 MHz, and set the SQL fully counterclockwise (the BUSY lamp should be lit).
- Tune the signal generator also to 146.000 MHz, and inject 20dBu (5uV) with ± 3.5 kHz deviation of a 1 kHz tone.
- Adjust VR1001 for 0V on the voltmeter.

MAIN UNIT				R1024	J02245010	Carbon Film RES.	1/4W	1 ohm	SJ
Symbol No.	Part No.	Description	Device	R1025	J24205472	RES. Chip	1/10W	4.7k ohm	
	F2934101A	Printed Circuit Board		R1026	J24205102	RES. Chip	1/10W	1k ohm	
	C029341AA	without IF, MIC, APC, 144-VCO UNIT		R1027	J24205150	RES. Chip	1/10W	15 ohm	
	C029341AB	with IF, MIC, APC, 144-VCO UNIT		R1028	J24205100	RES. Chip	1/10W	10 ohm	
	C029341AC	without IF, MIC, APC, 144-VCO UNIT		R1029	J24205470	RES. Chip	1/10W	47 ohm	
	C029341AD	with IF, MIC, APC, 144-VCO UNIT		R1030	J24205472	RES. Chip	1/10W	4.7k ohm	
	C029341AG	without IF, MIC, APC, 144-VCO UNIT		R1030	J24205222	RES. Chip	1/10W	2.2k ohm	
	C029341AH	with IF, MIC, APC, 144-VCO UNIT		R1031	J24205100	RES. Chip	1/10W	10 ohm	
				R1032	J24205104	RES. Chip	1/10W	100k ohm	
				R1033	J24205682	RES. Chip	1/10W	6.8k ohm	
				R1034	J24205221	RES. Chip	1/10W	220 ohm	
				R1035	J24205683	RES. Chip	1/10W	68k ohm	
				R1036	J24205273	RES. Chip	1/10W	27k ohm	
				R1037	J24205103	RES. Chip	1/10W	10k ohm	
				R1038	J24205103	RES. Chip	1/10W	10k ohm	
				R1039	J24205104	RES. Chip	1/10W	100k ohm	
				R1040	J24205150	RES. Chip	1/10W	15 ohm	
				R1041	J24205150	RES. Chip	1/10W	15 ohm	
				R1042	J24205150	RES. Chip	1/10W	15 ohm	
				R1043	J24205683	RES. Chip	1/10W	68k ohm	
				R1044	J24205471	RES. Chip	1/10W	470 ohm	
				R1045	J24205101	RES. Chip	1/10W	100 ohm	
				R1046	J24205472	RES. Chip	1/10W	4.7k ohm	
Q1001	G4801220L	FET	3SK122L	R1047	J24205103	RES. Chip	1/10W	10k ohm	
Q1002	G4800810	FET	3SK81	R1048	J24205472	RES. Chip	1/10W	4.7k ohm	
Q1003	G3326207B	Transistor	2SC2620QBTR	R1049	J24205221	RES. Chip	1/10W	220 ohm	
Q1004	G1090769	IC	TDA2003	R1050	J24205472	RES. Chip	1/10W	4.7k ohm	
Q1005	G3410007L	Transistor	2SD1000-T2LL	R1051	J24205222	RES. Chip	1/10W	2.2k ohm	
Q1006	G3333577	Transistor	2SC3357-T2	R1052	J24205821	RES. Chip	1/10W	820 ohm	
Q1007	G3325380	Transistor	2SC2538	R1053	J24205471	RES. Chip	1/10W	470 ohm	
Q1008	G3802097G	FET	2SK209GRTE85R	R1054	J24205472	RES. Chip	1/10W	4.7k ohm	
Q1009	G3326207B	Transistor	2SC2620QBTR	R1055	J24205474	RES. Chip	1/10W	470k ohm	
Q1010	G3326207B	Transistor	2SC2620QBTR	R1056	J24205332	RES. Chip	1/10W	3.3k ohm	
Q1011	G1090845	IC	M54959P	R1057	J24205000	RES. Chip	1/10W	0 ohm	
Q1013	G3802087G	FET	2SK208YTE85R	R1059	J24205331	RES. Chip	1/10W	330 ohm	
Q1014	G3316237G	Transistor	2SC1623-T2BL7	R1060	J24205101	RES. Chip	1/10W	100 ohm	
Q1015	G1090299	IC	uPC7805H						
Q1016	G1090778	IC	L7809	PTH1001	G9090036	Posistor		3k ohm	
Q1017	G3211340R	Transistor	2SB1134R						
D1001	G2070035	Diode	1T32-T8	VR1001	J51745103	POT.	B	10k ohm	
D1002	G2070035	Diode	1T32-T8	VR1002	J51745223	POT.	B	22k ohm	
D1003	G2070035	Diode	1T32-T8	VR1003	J51745223	POT.	B	22k ohm	
D1004	G2070035	Diode	1T32-T8	VR1004	J51745472	POT.	B	4.7k ohm	
D1005	G2070035	Diode	1T32-T8	VR1005	J51745222	POT.	B	2.2k ohm	
D1006	G2070035	Diode	1T32-T8	VR1006	J51745223	POT.	B	22k ohm	
D1007	G2070035	Diode	1T32-T8	VR1007	J51745473	POT.	B	47k ohm	
D1008	G2070035	Diode	1T32-T8						
D1009	G2070003	Diode	1SS226TE85R	C1001	K22170211	CAP. Chip	CH	50V 10pF	
D1010	G2090027	Diode	1SS53	C1001	K22170204	CAP. Chip	CH	50V 3pF	
D1011	G2015550	Diode	1SS1555	C1002	K22170805	CAP. Chip	B	50V 0.001uF	
D1012	G2090297	Diode	1SS110	C1003	K22170805	CAP. Chip	B	50V 0.001uF	
D1013	G2090297	Diode	1SS110	C1004	K22170805	CAP. Chip	B	50V 0.001uF	
D1014	G2070009	Diode	1SS184TE85R	C1005	K22170805	CAP. Chip	B	50V 0.001uF	
D1015	G2070040	Diode	1T33-T7	C1006	K22170201	CAP. Chip	CH	50V 0.5pF	
				C1007	K22170201	CAP. Chip	CH	50V 0.5pF	
				C1008	K22170805	CAP. Chip	B	50V 0.001uF	
X1001	H0102857	XTAL	HC-43/U 12.8MHz	C1009	K22170202	CAP. Chip	CH	50V 1pF	
XF1001	H1102096	XTAL Filter	10M15B-Y	C1010	K22170207	CAP. Chip	CH	50V 6pF	
				C1011	K22170202	CAP. Chip	CH	50V 1pF	
CF1001	H3900200	Ceramic Filter	CFW455E	C1012	K22170201	CAP. Chip	CH	50V 0.5pF	
				C1013	K22170201	CAP. Chip	CH	50V 0.5pF	
R1001	J24205392	RES. Chip	1/10W 3.9k ohm	C1014	K22170805	CAP. Chip	B	50V 0.001uF	
R1002	J24205272	RES. Chip	1/10W 2.7k ohm	C1015	K22170805	CAP. Chip	B	50V 0.001uF	
R1003	J24205220	RES. Chip	1/10W 22 ohm	C1016	K22170221	CAP. Chip	CH	50V 27pF	
R1004	J24205103	RES. Chip	1/10W 10k ohm	C1017	K22170805	CAP. Chip	B	50V 0.001uF	
R1005	J24205103	RES. Chip	1/10W 10k ohm	C1018	K22170817	CAP. Chip	B	50V 0.01uF	
R1006	J24205103	RES. Chip	1/10W 10k ohm	C1019	K22170817	CAP. Chip	B	50V 0.01uF	
R1007	J24205103	RES. Chip	1/10W 10k ohm	C1020	K22170206	CAP. Chip	CH	50V 5pF	
R1008	J24205221	RES. Chip	1/10W 220 ohm	C1021	K22170817	CAP. Chip	B	50V 0.01uF	
R1009	J24205472	RES. Chip	1/10W 4.7k ohm	C1022	K22170817	CAP. Chip	B	50V 0.01uF	
R1010	J24205470	RES. Chip	1/10W 47 ohm	C1023	K70127106	Tantalum CAP.		50V 10uF	
R1010	J24205000	RES. Chip	1/10W 0 ohm	C1024	K22141809	CAP. Chip	B	25V 0.1uF	
R1011	J24205101	RES. Chip	1/10W 100 ohm	C1025	K40129012	AL. Electro. CAP.		16V 10uF	
R1012	J24205472	RES. Chip	1/10W 4.7k ohm						
R1013	J24205682	RES. Chip	1/10W 6.8k ohm	C1026	K70137225	Tantalum CAP.		20V 2.2uF	
R1014	J24205392	RES. Chip	1/10W 3.9k ohm	C1027	K22141809	CAP. Chip	B	25V 0.1uF	
R1015	J24205683	RES. Chip	1/10W 68k ohm	C1028	K22170805	CAP. Chip	B	50V 0.001uF	
R1016	J24205101	RES. Chip	1/10W 100 ohm	C1029	K40129038	AL. Electro. CAP.		16V 100uF	
R1017	J24205101	RES. Chip	1/10W 100 ohm						
R1018	J24205332	RES. Chip	1/10W 3.3k ohm	C1030	K22170805	CAP. Chip	B	50V 0.001uF	
R1019	J24205222	RES. Chip	1/10W 2.2k ohm	C1031	K40129038	AL. Electro. CAP.		16V 100uF	
R1020	J24205273	RES. Chip	1/10W 27k ohm						
R1021	J24205471	RES. Chip	1/10W 470 ohm	C1032	K22170805	CAP. Chip	B	50V 0.001uF	
R1022	J02275221	Carbon Film RES.	1/2W 220 ohm	C1033	K40129028	AL. Electro. CAP.		16V 47uF	
R1023	J02245399	Carbon Film RES.	1/4W 3.9 ohm	C1034	K40129021	AL. Electro. CAP.		16V 1000uF	

● : Version F ⊗ : 10W Model
▲ : Version A1, A2, A3, A4, B △ : 45W Model

PARTS LIST

C1035	K22141809	CAP. Chip	B	25V	0.1uF	J1007	P1090601	Connector	
C1036	K22170213	CAP. Chip	CH	50V	12pF	J1008	P0090640	Connector	
C1037	K22170805	CAP. Chip	B	50V	0.001uF	J1009	P0090641	Connector	
C1038	K22170805	CAP. Chip	B	50V	0.001uF				
C1039	K22170805	CAP. Chip	B	50V	0.001uF	P1002	T9205638A	Wire-ASSY	
C1040	K22170210	CAP. Chip	CH	50V	9pF				
C1041	K22170805	CAP. Chip	B	50V	0.001uF	JP1001	T9205642A	Wire-ASSY	P1001
C1042	K22170805	CAP. Chip	B	50V	0.001uF				
C1043	K22170209	CAP. Chip	CH	50V	8pF				
C1043	K22170805	CAP. Chip	B	50V	0.001uF				
C1044	K22170805	CAP. Chip	B	50V	0.001uF				
C1045	K22170805	CAP. Chip	B	50V	0.001uF				
C1046	K22170211	CAP. Chip	CH	50V	10pF				
C1047	K78100004	Tantalum Chip		10V	10uF				
C1048	K22170801	CAP. Chip	B	50V	470pF				
C1049	K22141809	CAP. Chip	B	25V	0.1uF				
C1050	K22170206	CAP. Chip	CH	50V	5pF				
C1051	K22170805	CAP. Chip	B	50V	0.001uF				
C1052	K22170206	CAP. Chip	CH	50V	5pF	Q401	G1090859	IC	TK10487M
C1053	K22170203	CAP. Chip	CH	50V	2pF	Q402	G3316237F	Transistor	2SC1623-T2BL6
C1054	K22170805	CAP. Chip	B	50V	0.001uF	Q403	G1090846	IC	M5223FP
C1055	K40129012	AL. Electro. CAP.		16V	10uF				
C1056	K22170805	CAP. Chip	B	50V	0.001uF	D401	G2070003	Diode	1SS226TE85R
C1057	K22170223	CAP. Chip	CH	50V	33pF	D402	G2070001	Diode	1SS181TE85R
C1058	K22170227	CAP. Chip	CH	50V	47pF	X401	H0100720A	XTAL	HC-18/U 10.245MHz
C1059	K40129012	AL. Electro. CAP.		16V	10uF				
C1060	K78100002	Tantalum Chip		16V	2.2uF	CD401	H7900180	Ceramic DISC	CDB455C7
C1061	K22141809	CAP. Chip	B	25V	0.1uF				
C1062	K22170817	CAP. Chip	B	50V	0.01uF	R401	J24205101	RES. Chip	1/10W 100 ohm
C1063	K78160005	Tantalum Chip		35V	0.47uF	R402	J24205101	RES. Chip	1/10W 100 ohm
C1064	K78100004	Tantalum Chip		10V	10uF	R403	J24205473	RES. Chip	1/10W 47k ohm
C1065	K22170235	CAP. Chip	CH	50V	100pF	R404	J24205561	RES. Chip	1/10W 560 ohm
C1066	K22170235	CAP. Chip	CH	50V	100pF	R405	J24205222	RES. Chip	1/10W 22k ohm
C1067	K22170235	CAP. Chip	CH	50V	100pF	R406	J24205102	RES. Chip	1/10W 1k ohm
C1068	K40129021	AL. Electro. CAP.		16V	1000uF	R407	J24205182	RES. Chip	1/10W 1.8k ohm
C1069	K70127106	Tantalum CAP.		16V	10uF	R408	J24205332	RES. Chip	1/10W 3.3k ohm
C1070	K22170805	CAP. Chip	B	50V	0.001uF	R409	J24205473	RES. Chip	1/10W 47k ohm
C1071	K22170805	CAP. Chip	B	50V	0.001uF	R410	J24205223	RES. Chip	1/10W 22k ohm
C1072	K40129012	AL. Electro. CAP.		16V	10uF	R411	J24205122	RES. Chip	1/10W 1.2k ohm
C1073	K70147475	Tantalum CAP.		25V	4.7uF	R412	J24205474	RES. Chip	1/10W 470k ohm
C1074	K22170805	CAP. Chip	B	50V	0.001uF	R413	J24205474	RES. Chip	1/10W 470k ohm
C1075	K22170805	CAP. Chip	B	50V	0.001uF	R414	J24205222	RES. Chip	1/10W 2.2k ohm
C1076	K22170805	CAP. Chip	B	50V	0.001uF	R415	J24205223	RES. Chip	1/10W 22k ohm
C1077	K40129008	AL. Electro. CAP.		16V	33uF	R416	J24205683	RES. Chip	1/10W 68k ohm
C1078	K40179007	AL. Electro. CAP.		50V	3.3uF	R417	J24205103	RES. Chip	1/10W 10k ohm
C1079	K22170805	CAP. Chip	B	50V	0.001uF	R418	J24205122	RES. Chip	1/10W 1.2k ohm
C1080	K22170805	CAP. Chip	B	50V	0.001uF	R419	J24205122	RES. Chip	1/10W 1.2k ohm
C1081	K22170805	CAP. Chip	B	50V	0.001uF	R420	J24205103	RES. Chip	1/10W 10k ohm
C1082	K22170805	CAP. Chip	B	50V	0.001uF	R421	J24205471	RES. Chip	1/10W 470 ohm
C1083	K22170805	CAP. Chip	B	50V	0.001uF	R422	J24205223	RES. Chip	1/10W 22k ohm
C1084	K22170805	CAP. Chip	B	50V	0.001uF	R423	J24205000	RES. Chip	1/10W 0 ohm
C1085	K22170805	CAP. Chip	B	50V	0.001uF				
C1086	K22170805	CAP. Chip	B	50V	0.001uF	C401	K22170817	CAP. Chip	B 50V 0.01uF
C1087	K22170211	CAP. Chip	B	50V	0.001uF	C402	K22170805	CAP. Chip	B 50V 0.001uF
						C403	K22170817	CAP. Chip	B 50V 0.01uF
						C404	K22170237	CAP. Chip	CH 50V 120pF
						C405	K22170817	CAP. Chip	B 50V 0.01uF
						C406	K22170229	CAP. Chip	CH 50V 56pF
						C407	K22141809	CAP. Chip	B 25V 0.1uF
						C408	K22141809	CAP. Chip	B 25V 0.1uF
						C409	K22170233	CAP. Chip	CH 50V 82pF
						C410	K22170817	CAP. Chip	B 50V 0.01uF
						C411	K22141003	CAP. Chip	F 25V 0.047uF
						C412	K22170801	CAP. Chip	B 50V 470pF
						C413	K22170801	CAP. Chip	B 50V 470pF
						C414	K22170801	CAP. Chip	B 50V 470pF
						C415	K22170817	CAP. Chip	B 50V 0.01uF
						C416	K22141809	CAP. Chip	B 25V 0.1uF
						C417	K22170817	CAP. Chip	B 50V 0.01uF
TC1001	K91000168	Trimmer CAP.			20pF	TP401	Q5000096	Terminal	
L1001	L0020744	Coil							
L1002	L1190149	M. RFC			1uH				
L1003	L1190295	M. RFC			10uH				
L1004	L0020743	Coil							
L1005	L1690003	Coil. Chip			220nH				
L1006	L0020879	Coil							
L1007	L0020743	Coil							
L1008	L1190222	M. RFC			220uH				
L1009	L2190001	AFC.			72uH				
T1001	L0021702	Coil							
T1002	L0021703	Coil							
T1003	L0021703	Coil							
T1004	L0021704	Coil							
T1005	L0021738	Coil			140MHz				
T1006	L0021162	Coil			10.7MHz				
T1007	L0021162	Coil			10.7MHz				
J1001	P1090210	Connector							
J1002	P1090210	Connector							
J1003	P0090648	Connector							
J1004	P0090647	Connector							
J1005	P0090647	Connector							
J1006	P1090602	Connector							

PARTS LIST			
R501	J24205472	RES. Chip	1/10W 4.7k ohm
R502	J24205684	RES. Chip	1/10W 680k ohm
R503	J24205472	RES. Chip	1/10W 4.7k ohm
R504	J24205472	RES. Chip	1/10W 4.7k ohm
R505	J24205682	RES. Chip	1/10W 6.8k ohm
R506	J24205822	RES. Chip	1/10W 8.2k ohm
R507	J24205684	RES. Chip	1/10W 680k ohm
R508	J24205472	RES. Chip	1/10W 4.7k ohm
R509	J24205472	RES. Chip	1/10W 4.7k ohm
R510	J24205472	RES. Chip	1/10W 4.7k ohm
R511	J24205333	RES. Chip	1/10W 33k ohm
R512	J24205562	RES. Chip	1/10W 5.6k ohm
R513	J24205225	RES. Chip	1/10W 2.2M ohm
R514	J24205472	RES. Chip	1/10W 4.7k ohm
R515	J24205154	RES. Chip	1/10W 150k ohm
R516	J24205824	RES. Chip	1/10W 820k ohm
R517	J24205823	RES. Chip	1/10W 82k ohm
R518	J24205472	RES. Chip	1/10W 4.7k ohm
R519	J24205224	RES. Chip	1/10W 220k ohm
R520	J24205103	RES. Chip	1/10W 10k ohm
R521	J24205102	RES. Chip	1/10W 1k ohm
R522	J24205102	RES. Chip	1/10W 1k ohm
R523	J24205104	RES. Chip	1/10W 100k ohm
R524	J24205104	RES. Chip	1/10W 100k ohm
R525	J24205104	RES. Chip	1/10W 100k ohm
R526	J24205104	RES. Chip	1/10W 100k ohm
R527	J24205394	RES. Chip	1/10W 390k ohm
R528	J24205274	RES. Chip	1/10W 270k ohm
R529	J24205223	RES. Chip	1/10W 22k ohm
R530	J24205273	RES. Chip	1/10W 27k ohm
R531	J24205224	RES. Chip	1/10W 220k ohm
R532	J24205103	RES. Chip	1/10W 10k ohm
R533	J24205103	RES. Chip	1/10W 10k ohm
R534	J24205153	RES. Chip	1/10W 15k ohm
R535	J24205222	RES. Chip	1/10W 2.2k ohm
R536	J24205222	RES. Chip	1/10W 2.2k ohm
R537	J24205564	RES. Chip	1/10W 560k ohm
R538	J24205333	RES. Chip	1/10W 33k ohm
R539	J24205393	RES. Chip	1/10W 39k ohm
R540	J24205223	RES. Chip	1/10W 22k ohm
R541	J24205823	RES. Chip	1/10W 82k ohm
C501	K22170817	CAP. Chip	B 50V 0.01uF
C502	K22141809	CAP. Chip	B 25V 0.1uF
C503	K22170805	CAP. Chip	B 50V 0.001uF
C504	K78120009	Tantalum Chip	16V 1uF
C505	K22141809	CAP. Chip	B 25V 0.1uF
C506	K22141809	CAP. Chip	B 25V 0.1uF
C507	K22170817	CAP. Chip	B 50V 0.01uF
C508	K22170817	CAP. Chip	B 50V 0.01uF
C509	K22170805	CAP. Chip	B 50V 0.001uF
C510	K22170817	CAP. Chip	B 50V 0.01uF
C511	K22140807	CAP. Chip	B 25V 0.022uF
C512	K22170243	CAP. Chip	CH 50V 220pF
C513	K22140807	CAP. Chip	B 25V 0.022uF
C514	K22141809	CAP. Chip	B 25V 0.1uF
C515	K22140807	CAP. Chip	B 25V 0.022uF
C516	K22140807	CAP. Chip	B 25V 0.022uF
C517	K22140807	CAP. Chip	B 25V 0.022uF
C518	K22170805	CAP. Chip	B 50V 0.001uF
C519	K22141809	CAP. Chip	B 25V 0.1uF
C520	K22141806	CAP. Chip	B 25V 0.033uF
C521	K22141809	CAP. Chip	B 25V 0.1uF
APC UNIT			
Symbol No.	Part No.	Description	Device
	F2937103A	Printed Circuit Board	
	C029373AA	PCB with Component	
Q601	G3070008	Transistor	FMS1 T98
Q602	G3316237F	Transistor	2SC1623-T2B L6
Q603	G3206247D	Transistor	2SB624-T2B BV4
Q604	G3206247D	Transistor	2SB624-T2B BV4
Q605	G3070009	Transistor	FMW1T98
Q606	G3070001	Transistor	FA1A4M-T2B
D601	G2070009	Diode	ISS184TE85R
D602	G2070048	Diode	ISS272TE85R
R601	J24205103	RES. Chip	1/10W 10k ohm
R602	J24205103	RES. Chip	1/10W 10k ohm
R603	J24205103	RES. Chip	1/10W 10k ohm
R604	J24205104	RES. Chip	1/10W 100k ohm
R605	J24205102	RES. Chip	1/10W 1k ohm
R606	J24205471	RES. Chip	1/10W 470 ohm

PARTS LIST

P301	P0090473	Connector		R2041	J24205102	RES. Chip	1/10W	1k ohm
				R2042	J24205102	RES. Chip	1/10W	1k ohm
				R2043	J24205102	RES. Chip	1/10W	1k ohm
	R0123490	Shield Case		R2044	J24205473	RES. Chip	1/10W	47k ohm
	R0113730	Sprint Board		R2045	J24205102	RES. Chip	1/10W	1k ohm
				R2046	J24205223	RES. Chip	1/10W	22k ohm
				R2047	J24205223	RES. Chip	1/10W	22k ohm
				R2048	J24205473	RES. Chip	1/10W	47k ohm
CONTROL UNIT				R2049	J24205104	RES. Chip	1/10W	100k ohm
Symbol No.	Part No.	Description	Device	R2050	J01275270	Carbon Film RES.	1/2W	27 ohm
	F2936101A	Printed Circuit Board		R2051	J24205472	RES. Chip	1/10W	4.7k ohm
	C029361AA	PCB with Component (Version A2)		R2052	J24205102	RES. Chip	1/10W	1k ohm
	C029361AB	PCB with Component (Version A1)		R2053	J24205104	RES. Chip	1/10W	100k ohm
	C029361AC	PCB with Component (Version A3,A4)		R2054	J24205223	RES. Chip	1/10W	22k ohm
	C029361AD	PCB with Component (Version B)		R2055	J24205154	RES. Chip	1/10W	150k ohm
	C029361AE	PCB with Component (Version F)		R2056	J24205154	RES. Chip	1/10W	150k ohm
				R2057	J24205154	RES. Chip	1/10W	150k ohm
Q2001	G1090812	IC	PST523C-2	R2058	J24205223	RES. Chip	1/10W	22k ohm
Q2002	G3108127F	Transistor	2SA812-T2BM6B	R2059	J24205154	RES. Chip	1/10W	150k ohm
Q2003	G1090847	IC	HD404418A01F	R2060	J24205154	RES. Chip	1/10W	150k ohm
Q2004	G3316237F	Transistor	2SC1623-T2B L6	R2061	J24205223	RES. Chip	1/10W	22k ohm
Q2005	G3206247D	Transistor	2SB624-T2B BV4	R2062	J24205154	RES. Chip	1/10W	150k ohm
Q2006	G3316237F	Transistor	2SC1623-T2B L6	R2063	J24205154	RES. Chip	1/10W	150k ohm
				R2064	J24205154	RES. Chip	1/10W	150k ohm
D2001	G2070003	Diode	1SS226 TE85R	R2065	J24205223	RES. Chip	1/10W	22k ohm
D2002	G2070009	Diode	1SS184 TE85R	R2066	J24205223	RES. Chip	1/10W	22k ohm
D2003	G2070009	Diode	1SS184 TE85R	R2067	J24205154	RES. Chip	1/10W	150k ohm
D2004	G2070009	Diode	1SS184 TE85R	R2068	J24205154	RES. Chip	1/10W	150k ohm
D2005	G2070009	Diode	1SS184 TE85R	R2069	J24205154	RES. Chip	1/10W	150k ohm
D2006	G2070009	Diode	1SS184 TE85R	R2070	J24205154	RES. Chip	1/10W	150k ohm
D2007	G2070009	Diode	1SS184 TE85R	R2071	J24205154	RES. Chip	1/10W	150k ohm
D2008	G2090118	Diode	1SS97	R2072	J24205154	RES. Chip	1/10W	150k ohm
D2009	G2090118	Diode	1SS97	R2073	J24205154	RES. Chip	1/10W	150k ohm
D2010	G2070009	Diode	1SS184 TE85R	R2074	J24205154	RES. Chip	1/10W	150k ohm
				R2075	J01215154	Carbon Film RES.	1/8W	150k ohm
				R2076	J24205154	RES. Chip	1/10W	150k ohm
H2001	H0102859	XTAL	HT38	VR2001	J60800142	POT.	A	20k ohm
			8.0MHz	VR2002	J60800143	POT.	B	20k ohm
R2001	J24205821	RES. Chip	1/10W 820 ohm					
R2002	J24205101	RES. Chip	1/10W 100 ohm	C2001	K78130010	Tantalum. Chip		20V 2.2uF
R2003	J24205472	RES. Chip	1/10W 4.7k ohm	C2002	K22141809	CAP. Chip	B	25V 0.1uF
R2004	J24205102	RES. Chip	1/10W 1k ohm	C2003	K22170817	CAP. Chip	B	50V 0.01uF
R2005	J24205103	RES. Chip	1/10W 10k ohm	C2004	K22170219	CAP. Chip	CH	50V 22pF
R2006	J24205104	RES. Chip	1/10W 100k ohm	C2005	K22170219	CAP. Chip	CH	50V 22pF
R2007	J24205224	RES. Chip	1/10W 220k ohm	C2006	K78120009	Tantalum. Chip		10V 1uF
R2008	J24205103	RES. Chip	1/10W 10k ohm	C2007	K78080002	Tantalum. Chip		6.3V 4.7uF
R2009	J24205104	RES. Chip	1/10W 100k ohm	C2008	K22170817	CAP. Chip	B	50V 0.01uF
R2010	J24205105	RES. Chip	1/10W 1M ohm	C2009	K22170817	CAP. Chip	B	50V 0.01uF
R2011	J24205473	RES. Chip	1/10W 47k ohm	C2010	K22170817	CAP. Chip	B	50V 0.01uF
R2012	J24205473	RES. Chip	1/10W 47k ohm	C2011	K22170805	CAP. Chip	B	50V 0.01uF
R2014	J24205102	RES. Chip	1/10W 1k ohm	C2012	K78120013	Tantalum. Chip		16V 1uF
R2015	J24205103	RES. Chip	1/10W 10k ohm	C2013	K22170817	CAP. Chip	B	50V 0.01uF
R2016	J24205223	RES. Chip	1/10W 22k ohm	C2014	K22170817	CAP. Chip	B	50V 0.01uF
R2017	J24205393	RES. Chip	1/10W 39k ohm	C2015	K22170813	CAP. Chip	B	50V 0.047uF
R2018	J24205823	RES. Chip	1/10W 82k ohm	C2016	K22170813	CAP. Chip	B	50V 0.047uF
R2019	J24205103	RES. Chip	1/10W 10k ohm	C2017	K22170817	CAP. Chip	B	50V 0.01uF
R2020	J24215220	RES. Chip	1/8W 22 ohm	C2018	K78080003	Tantalum. Chip		6.3V 10uF
R2021	J24205683	RES. Chip	1/10W 68k ohm	C2019	K22170817	CAP. Chip	B	50V 0.01uF
R2022	J24205474	RES. Chip	1/10W 470k ohm					
R2023	J24205472	RES. Chip	1/10W 4.7k ohm	S2001	N5090027	Tact Switch		SKHLAB
R2024	J24205473	RES. Chip	1/10W 47k ohm	S2002	N5090027	Tact Switch		SKHLAB
R2025	J24205103	RES. Chip	1/10W 10k ohm	S2003	N5090027	Tact Switch		SKHLAB
R2026	J24205000	RES. Chip	1/10W 0 ohm	S2004	N5090027	Tact Switch		SKHLAB
R2027	J24205103	RES. Chip	1/10W 10k ohm	S2005	N5090027	Tact Switch		SKHLAB
R2028	J24205822	RES. Chip	1/10W 8.2k ohm	S2006	N5090027	Tact Switch		SKHLAB
R2029	J24205563	RES. Chip	1/10W 56k ohm	S2007	N5090027	Tact Switch		SKHLAB
R2030	J24205103	RES. Chip	1/10W 10k ohm	S2008	N5090027	Tact Switch		SKHLAB
R2031	J24205274	RES. Chip	1/10W 270k ohm	S2009	N5090027	Tact Switch		SKHLAB
R2032	J24205102	RES. Chip	1/10W 1k ohm	S2010	N4090111	Push Switch		SPEAIZ
R2033	J24205222	RES. Chip	1/10W 2.2k ohm	S2011	Q9000395	Rotary Encoder		EVQ-WWNF1524B
R2034	J24205223	RES. Chip	1/10W 22k ohm					
R2035	J24205223	RES. Chip	1/10W 22k ohm	J2001	P0090642	Connector		
R2036	J24205393	RES. Chip	1/10W 39k ohm	J2002	P0090643	Connector		
R2037	J24205103	RES. Chip	1/10W 10k ohm	J2003	P0090650	Connector		
R2038	J24205103	RES. Chip	1/10W 10k ohm	J2004	P0090649	Connector		(MIC)
R2039	J24205104	RES. Chip	1/10W 100k ohm	J2005	P0090158	Connector		
R2040	J24205104	RES. Chip	1/10W 100k ohm					
					Q7000078	LCD UNIT		AM882
				BAT2001		Q9000366		Lithium Battery
					R7124300	Press Board		
					R8118690	Seal		
					T9205637	Wire-ASSY		

	Q1000065	Lamp	9V	60mA	C709	K22170805	CAP. Chip	B	50V	0.001uF
					C710	K22170805	CAP. Chip	B	50V	0.001uF
					C711	K22170213	CAP. Chip	CH	50V	12pF
					C712	K22170225	CAP. Chip	CH	50V	39pF
					C713	K22170202	CAP. Chip	CH	50V	1pF
					C714	K22170204	CAP. Chip	CH	50V	3pF
					C715	K22170805	CAP. Chip	B	50V	0.001uF
					C716	K22170221	CAP. Chip	CH	50V	27pF
					C717	K22170229	CAP. Chip Ⓢ	CH	50V	56pF
						K22170221	CAP. Chip Δ	CH	50V	27pF
					C718	K22170805	CAP. Chip	B	50V	0.001uF
					C719	K22170805	CAP. Chip	B	50V	0.001uF
					C720	K22170217	CAP. Chip	CH	50V	18pF
					C721	K22170801	CAP. Chip	B	50V	470pF
					C722	K22170207	CAP. Chip	CH	50V	6pF
					C723	K22170221	CAP. Chip	CH	50V	27pF
					C724	K22170221	CAP. Chip	CH	50V	27pF
					J701	P1090599	Connector			
					J702	P1090600	Connector			
					J703	P1090603	Connector			
R701	J01275151	CAP. Chip	1/10W	150 ohm	Symbo No.	Part No.	Description	Device		
R702	J24205103	CAP. Chip	1/10W	10k ohm		T9015605	DC Cord Ⓢ			
R703	J24205223	CAP. Chip	1/10W	22k ohm		T9015615	DC Cord Δ			
R704	J24205101	CAP. Chip	1/10W	100 ohm						
						Q0000005	Fuse Ⓢ	5A	2 pcs	
VR701	J50770221	POT.		220 ohm		Q0000008	Fuse Δ	15A	2 pcs	
C701	K40129012	AL. Electro. CAP.		16V 10uF		D1000067	MIC ●	MH-14D8		
						D1000051	MIC ▲	MH-14A8		
C702	K22170805	CAP. Chip	B	50V 0.001uF		D1000052	MIC ▲	MH-14B8		
C703	K22170805	CAP. Chip	B	50V 0.001uF		D1000067	MIC ▲	MH-14D8		
C705	K22170805	CAP. Chip	B	50V 0.001uF		D1000060	MIC ▲	MH-15C8		
C706	K40129012	AL. Electro. CAP.		16V 10uF		D1000061	MIC ▲	MH-15D8		
C707	K22170211	CAP. Chip	CH	50V 10pF		D6000055	Mobile Bracket	MMB-36		
C708	K22170805	CAP. Chip	B	50V 0.001uF		D6000056	Mobile Bracket ▲	MMB-37		

Δ : 45W Model

● : Version F

▲ : Version A

TABLE 1. VISION 111, 112, 113, 114, 201. ONE OF THESE INTERFERES WITH THE OTHERS