



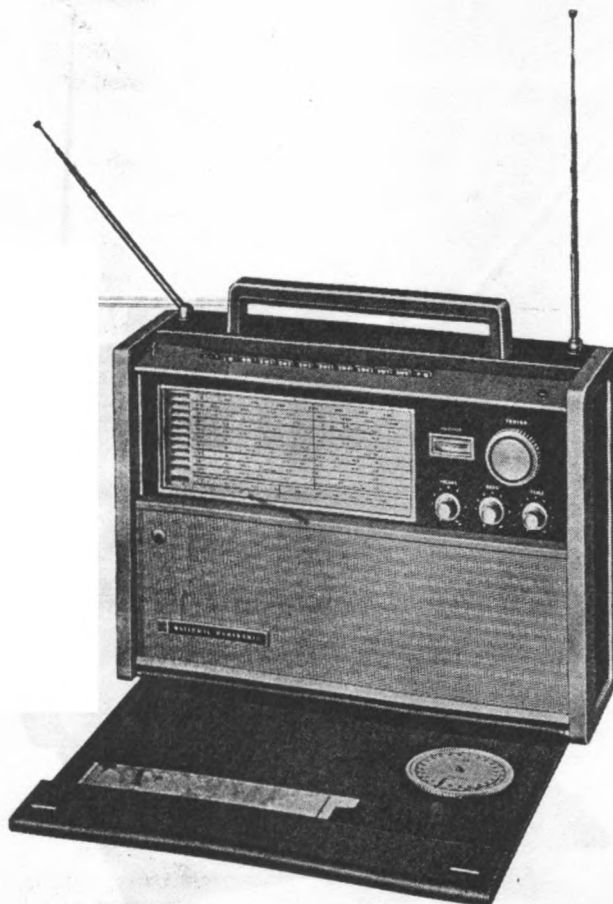
PANASONIC

SERVICE MANUAL

MODEL RF-5000A

THE WORLD'S MOST LUXURIOUS PORTABLE RADIO

WITH 11 BANDS AND 30 SOLID STATE DEVICES



MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.

Kadoma, Osaka, Japan

MATSUSHITA ELECTRIC CORPORATION OF AMERICA

Pan American Bldg., 200 Park Ave., New York, New York 10017

SPECIFICATIONS

Frequency Range :	FM 76 ~ 108 Mc/s LW 150 ~ 400 kc/s MW 525~1605kc/s SW ₁ 1.6 ~ 4.5 Mc/s SW ₂ 4.5 ~ 6.5 Mc/s SW ₃ 6.5 ~ 9.0 Mc/s SW ₄ 9.0 ~ 12 Mc/s SW ₅ 12 ~ 16 Mc/s SW ₆ 16 ~ 20 Mc/s SW ₇ 20 ~ 25 Mc/s SW ₈ 25 ~ 30 Mc/s
Intermediate Frequency :	FM 10.7Mc/s AM 455kc/s
Transistors :	2SC429 FM RF Amplifier 2SC469 FM Oscillator 2SC185 FM Mixer 2SC469 FM 1st IF Amplifier 2SC469 FM 2nd IF Amplifier 2SC469 FM 3rd IF Amplifier 2SC469 FM 4th IF Amplifier 2SC185 AM RF Amplifier 2SC185 AM Oscillator 2SC184 AM Mixer 2SC183 AM 1st IF Amplifier 2SC183 AM 2nd IF Amplifier 2SB173 AF Pre-Amplifier 2SB345 1st AF Amplifier 2SB345 2nd AF Amplifier 2SB345 3rd AF Amplifier 2SB324 } 2SB324 } Output (push-pull)
Diodes :	SC-15 FM AFC OA79 } OA79 } FM Ratio Detector OA90 FM D.AGC OA90 AM Detector & AGC 1S1211 } 1S1211 } AM D.AGC 1S1211 } 1S1211 } FM Operation Compensator 1S1211 } 1S1211 } AM Operation Compensator OA90 Detector for Tuning Indicator (FM)
Sensitivity :	FM 0.5 μ V for 50mW Output LW 70 μ V/m for 50mW Output MW 50 μ V/m for 50mW Output SW ₁ 20 μ V/m for 50mW Output SW ₂ 10 μ V for 50mW Output SW ₃ 10 μ V for 50mW Output SW ₄ 10 μ V for 50mW Output SW ₅ 10 μ V for 50mW Output SW ₆ 10 μ V for 50mW Output SW ₇ 10 μ V for 50mW Output SW ₈ 10 μ V for 50mW Output
Power Output :	1.2W Undistorted 2 W Maximum
Batteries :	9V (six "D" size flashlight batteries).....Radio 1.5V (One "D" size flashlight batteries).....Dial Light
Speakers :	7" x 5" Oval PM Dynamic Speaker & 5" PM Dynamic Speaker
Cabinet Dimensions :	16 $\frac{1}{8}$ " (Wide) x 11 $\frac{1}{2}$ " (High) x 5 $\frac{1}{4}$ " (Deep) mm
Weight :	22 lb. 14 oz. with batteries & AC Adaptor

DISASSEMBLY INSTRUCTIONS

To Remove Chassis

1. Remove cabinet front cover.
2. Remove four (4) control knobs from cabinet.
3. Raise the frame antenna upwards.
4. Set cabinet back cover mounting screw to "OPEN", and open the battery compartment cover.
5. Remove two (2) red cabinet back cover mounting screws (Nos. 1~2) in Fig. 1.
6. Remove two (2) red adaptor mounting screws (Nos. 5 & 11) in Fig. 2.
7. Pull out plugs.
8. Remove seven (7) red chassis mounting screws (Nos. 1~4, & 6~8) in Fig. 2.
9. Remove two (2) red battery case mounting screws (Nos. 9~10) in Fig. 2.
10. Remove chassis cover from cabinet.
11. Pull out the telescoping whip antenna upwards.
12. Remove chassis from cabinet.
13. To reassemble, reverse the above procedure.

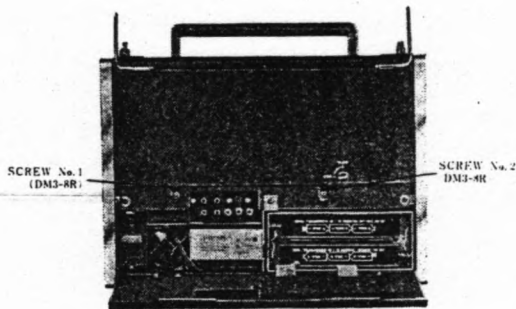


Fig. 1

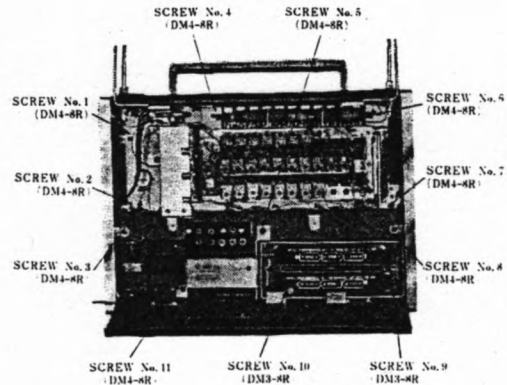


Fig. 2

To Remove Band Selector Switch

1. Remove screw ① (Fig. 3).
2. Remove stopper bracket ② (Fig. 3).
3. Pull buttons in the direction of arrow mark ③ (Fig. 3).
4. Remove the moving piece ④ (Fig. 4).
5. To reassemble, set moving contacts (shown in black) to upper terminal with pincette as illustrated in Fig. 5, and reverse the above procedure.

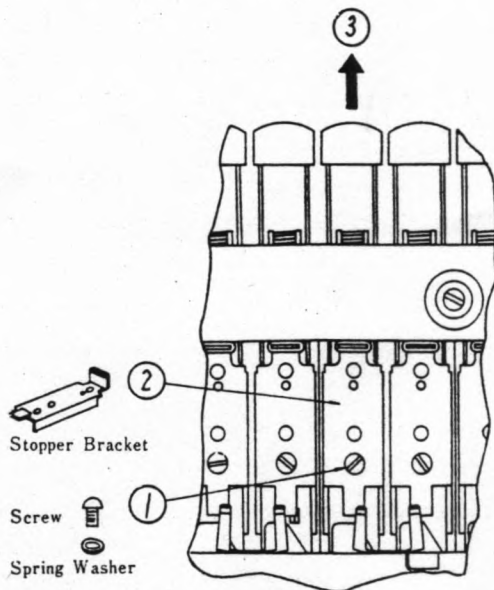


Fig. 3

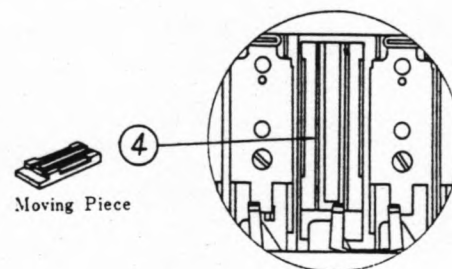


Fig. 4

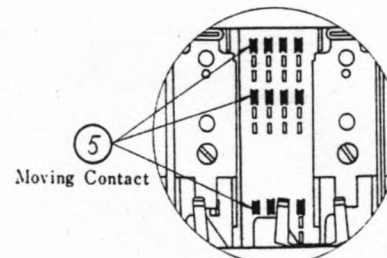
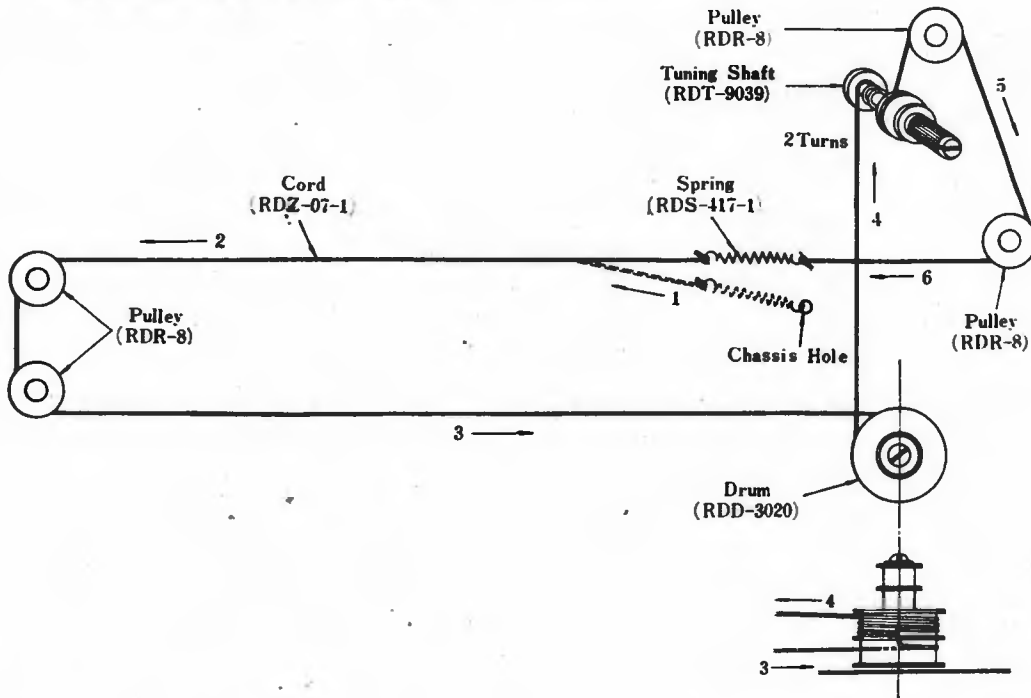


Fig. 5

Notes:

1. Dial cord length is $51\frac{3}{8}$ ".
2. Tuning gang is positioned at maximum capacity.
3. Fasten dial cord to one end of the tension spring and attach the other end of tension spring to the chassis hole. Start stringing in accordance with the numerical order (1~6) and fasten the dial cord end to the tension spring after removing the tension spring from the chassis hole.
4. Extend the tension spring to the length of approximately 1".
5. Cement dial cord ends with lacquer.



Notes:

1. Dial cord length is $27\frac{3}{8}$ ".
2. Tuning gang is positioned at maximum capacity.
3. Fasten cord to one end of tension spring ① and attach the other end of tension spring to hole ① of the drum. Start stringing in accordance with the numerical order (1~5) and fasten the end of cord to tension spring ②. Attach the other end of tension spring ② to hole ③ of the drum and replace tension spring ① from hole ① to ② of the drum.
4. Extend the tension spring to the length of approximately $\frac{1}{8}$ ".
5. Cement dial cord ends with lacquer.

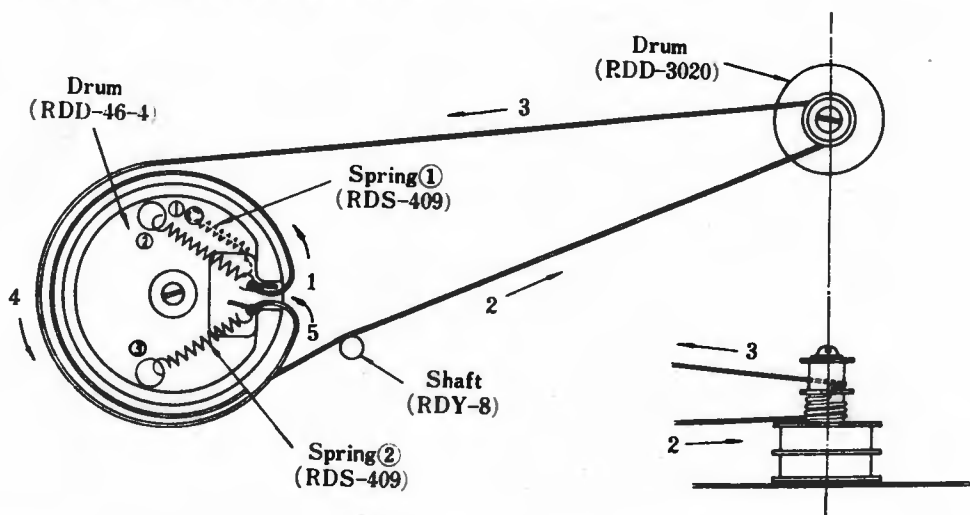


Fig. 6 Dial Cord Stringing Guide - FM Section.

ALIGNMENT INSTRUCTIONS

AM IF ALIGNMENT

Output of signal generator should be no higher than necessary to obtain an output reading.
 Set Volume control to maximum.
 Set bass control to center.
 Set treble control to center.
 Set band selector to MW.
 Set power source voltage to 9 volt DC.

SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
1 Fashion loop of several turns of wire and radiate signal into loop of receiver.	455kc/s (400~ Mod.)	Point of non-interference. (on/about 600kc/s)	Output meter across voice coil.	T ₈ (3rd IFT) T ₇ (2nd IFT) T ₁₀ (1st IFT)	Adjust for maximum output.

FM IF & DETECTOR ALIGNMENT WITH OSCILLOSCOPE

OSCILLOSCOPE

Set sweep selector of oscilloscope to "External Sweep". Apply 60~ sweep signal from sweep generator to horizontal input terminals of oscilloscope.

EQUIPMENT REQUIRED

Signal generator that provides 10.7Mc/s marker.
 Sweep generator that provides 10.7Mc/s center frequency and 400kc/s sweep width.
 Set band selector switch to "FM".
 Set volume control to minimum.
 Set bass control to center.
 Set treble control to center.
 Set AFC switch to OFF.
 Set power source voltage to 9 volt DC.

Note: Unsolder lead between test point TP₂ and Point A before alignment and resolder after alignment.

SWEEP GENERATOR COUPLING	SIGNAL GENERATOR COUPLING	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
1 High side thru. .001mfd to point TP ₁ . Common to chassis.	High side thru. .001mfd to point TP ₁ . Common to chassis.	Point of non-interference (on/about 100Mc/s).	Connect vert. Amp. of scope to point TP ₂ . Common to chassis.	T ₁ (1st IFT) T ₂ (2nd IFT) T ₃ (3rd IFT) T ₄ (4th IFT)	Adjust for maximum amplitude and symmetrical curve. (Refer to Fig. 7)
2 "	"	"	Connect vert. amp. of scope to point TP ₃ . Common to chassis.	T ₅ (5th IFT) (Primary) T ₆ (5th IFT) (Secondary)	Adjust T ₅ for maximum amplitude & proper linearity between ±100kc/s markers. Adjust T ₆ so that 10.7Mc/s marker appears at the center. (Refer to Fig. 8)

Note: When aligning the Ratio Detector circuit, the wave form may appear as in Fig. 7 & 8 or upside-down.

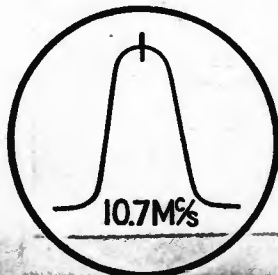


Fig. 7

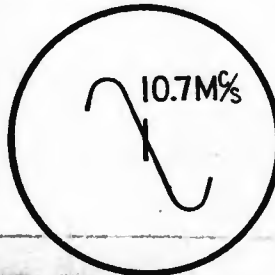
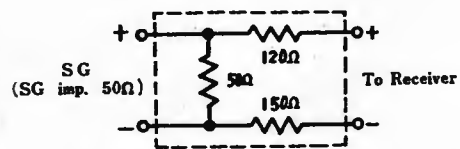


Fig. 8



FM Dummy Antenna

Fig. 9

FM RF ALIGNMENT

Output of signal generator should be no higher than necessary to obtain an output reading.
 Set volume control to maximum.
 Set band selector switch to FM.
 Set bass control to Center.
 Set treble control to Center.
 Set AFC switch to OFF.
 Set power source voltage to 9 volt DC.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
3	Connect to twin lead wire through FM Dummy antenna. (Refer to Fig. 9)	76Mc/s (400~ Mod.)	76Mc/s	Output meter across voice coll.	L ₃ (FM OSC Coll) L ₂ (FM ANT Coll)	Adjust for maximum output.
4	"	106Mc/s (400~ Mod.)	106Mc/s	"	C ₁₃ (FM OSC Trimmer) C ₁₁ (FM ANT Trimmer)	Adjust for maximum output. Repeat steps (3) and (4).

Note: As three output responses will be present, proper tuning is the center frequency.

AM RF ALIGNMENT

Output of signal generator should be no higher than necessary to obtain an output reading.
 Set volume control to maximum.
 Set bass control to center.
 Set treble control to center.
 Set power source voltage to 9 volt DC.

Band Switch Position	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
1 LW	Fashion loop of several turns of wire and radiate signal into loop of receiver.	150kc/s (400~ Mod.)	150kc/s	Output meter across voice coll.	L ₃₁ (OSC Coll) L ₁₃ (ANT Coll)	Adjust for maximum output by sliding coll (L ₁₃) along ferrite core.
		400kc/s (400~ Mod.)	400kc/s	"	C ₁₇₄ (OSC Trimmer) C ₁₁₄ (ANT Trimmer)	Adjust for maximum output. Repeat steps (1) and (2).
3 MW	"	550kc/s (400~ Mod.)	550kc/s	"	L ₃₂ (OSC Coll) L ₁₄ (ANT Coll)	Adjust for maximum output by sliding coll (L ₁₄) along ferrite core.
		1500kc/s (400~ Mod.)	1500kc/s	"	C ₁₇₅ (OSC Trimmer) C ₁₁₅ (ANT Trimmer)	Adjust for maximum output. Repeat steps (3) and (4).
5 SW ₁	"	1.6Mc/s (400~ Mod.)	1.6Mc/s	"	L ₃₃ (OSC Coll) L ₁₅ (ANT Coll) L ₂₃ (DET Coll)	Adjust for maximum output by sliding coll (L ₁₅) along ferrite core.
		4.5Mc/s (400~ Mod.)	4.5Mc/s	"	C ₁₇₆ (OSC Trimmer) C ₁₁₆ (ANT Trimmer) C ₁₃₇ (DET Trimmer)	Adjust for maximum output. Repeat steps (5) and (6).
7 SW ₂	Connect to AM EXT Antenna & Ground terminals thru. SW dummy antenna.	4.5Mc/s (400~ Mod.)	4.5Mc/s	"	L ₃₄ (OSC Coll) L ₁₆ (ANT Coll) L ₂₄ (DET Coll)	Adjust for maximum output.
		6.5Mc/s (400~ Mod.)	6.5Mc/s	"	C ₁₇₇ (OSC Trimmer) C ₁₁₇ (ANT Trimmer) C ₁₃₈ (DET Trimmer)	Adjust for maximum output. Repeat steps (7) and (8).

Band Switch Position	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS	
9	SW ₃	Connect to AM EXT Antenna & Ground terminals thru. SW dummy antenna.	6.5Mc/s (400~ Mod.)	6.5Mc/s	Output meter across voice coil.	L ₃₅ (OSC Coil) L ₁₇ (ANT Coil) L ₂₅ (DET Coil)	Adjust for maximum output.
10		"	9Mc/s (400~ Mod.)	9Mc/s	"	C ₁₇₈ (OSC Trimmer) C ₁₁₈ (ANT Trimmer) C ₁₃₉ (DET Trimmer)	Adjust for maximum output. Repeat steps (9) and (10).
11	SW ₄	"	9Mc/s (400~ Mod.)	9Mc/s	"	L ₃₆ (OSC Coil) L ₁₈ (ANT Coil) L ₂₆ (DET Coil)	Adjust for maximum output.
12		"	12Mc/s (400~ Mod.)	12Mc/s	"	C ₁₇₉ (OSC Trimmer) C ₁₁₉ (ANT Trimmer) C ₁₄₀ (DET Trimmer)	Adjust for maximum output. Repeat steps (11) and (12).
13	SW ₅	"	12Mc/s (400~ Mod.)	12Mc/s	"	L ₃₇ (OSC Coil) L ₁₉ (ANT Coil) L ₂₇ (DET Coil)	Adjust for maximum output.
14		"	16Mc/s (400~ Mod.)	16Mc/s	"	C ₁₈₀ (OSC Trimmer) C ₁₂₀ (ANT Trimmer) C ₁₄₁ (DET Trimmer)	Adjust for maximum output. Repeat steps (13) and (14).
15	SW ₆	"	16Mc/s (400~ Mod.)	16Mc/s	"	L ₃₈ (OSC Coil) L ₂₀ (ANT Coil) L ₂₈ (DET Coil)	Adjust for maximum output.
16		"	20Mc/s (400~ Mod.)	20Mc/s	"	C ₁₈₁ (OSC Trimmer) C ₁₂₁ (ANT Trimmer) C ₁₄₂ (DET Trimmer)	Adjust for maximum output. Repeat steps (15) and (16).
17	SW ₇	"	20Mc/s (400~ Mod.)	20Mc/s	"	L ₃₉ (OSC Coil) L ₂₁ (ANT Coil) L ₂₉ (DET Coil)	Adjust for maximum output.
18		"	25Mc/s (400~ Mod.)	25Mc/s	"	C ₁₈₂ (OSC Trimmer) C ₁₂₂ (ANT Trimmer) C ₁₄₃ (DET Trimmer)	Adjust for maximum output. Repeat steps (17) and (18).
19	SW ₈	"	25Mc/s (400~ Mod.)	25Mc/s	"	L ₄₀ (OSC Coil) L ₂₂ (ANT Coil) L ₃₀ (DET Coil)	Adjust for maximum output.
20		"	30Mc/s (400~ Mod.)	30Mc/s	"	C ₁₈₃ (OSC Trimmer) C ₁₂₃ (ANT Trimmer) C ₁₄₄ (DET Trimmer)	Adjust for maximum output. Repeat steps (19) and (20).

- Notes: 1. Cement antenna bobbin with wax after completing alignment.
2. Two signals may be received while adjusting oscillator coils. To adjust oscillator coil to the correct signal, set the core by turning downwards for SW₁~SW₄. Conversely, set the core by turning upwards for SW₅~SW₈.

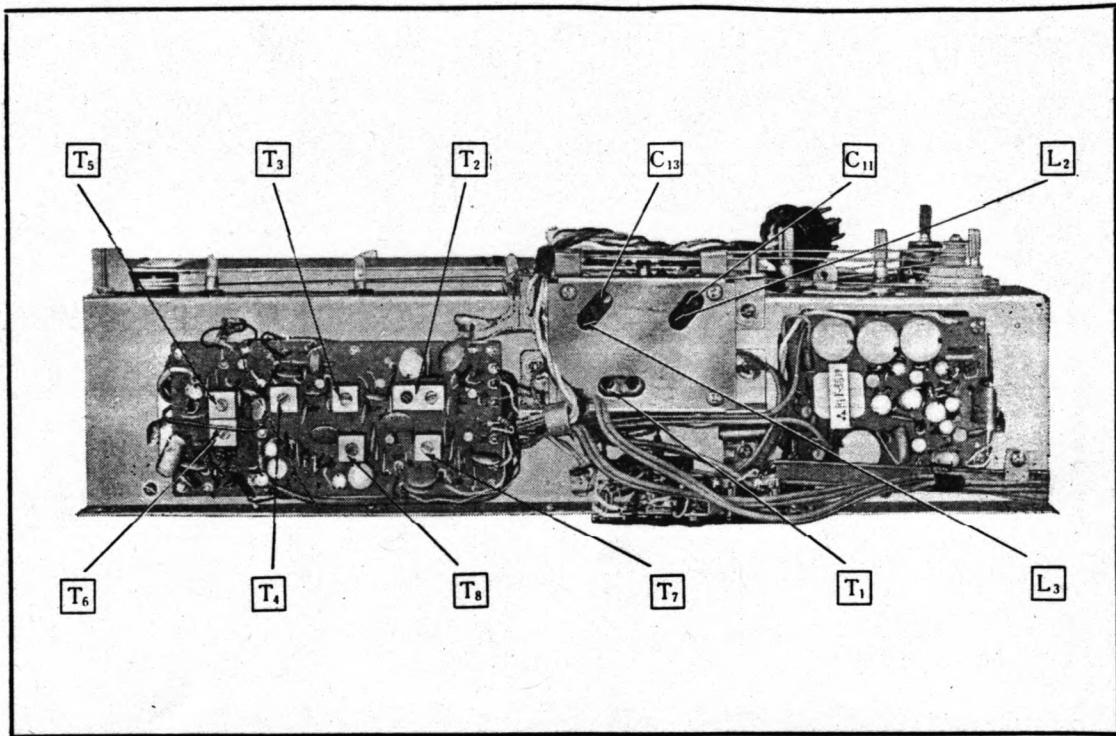


Fig. 11 Bottom View - Alignment Points, IF & FM RF Section.

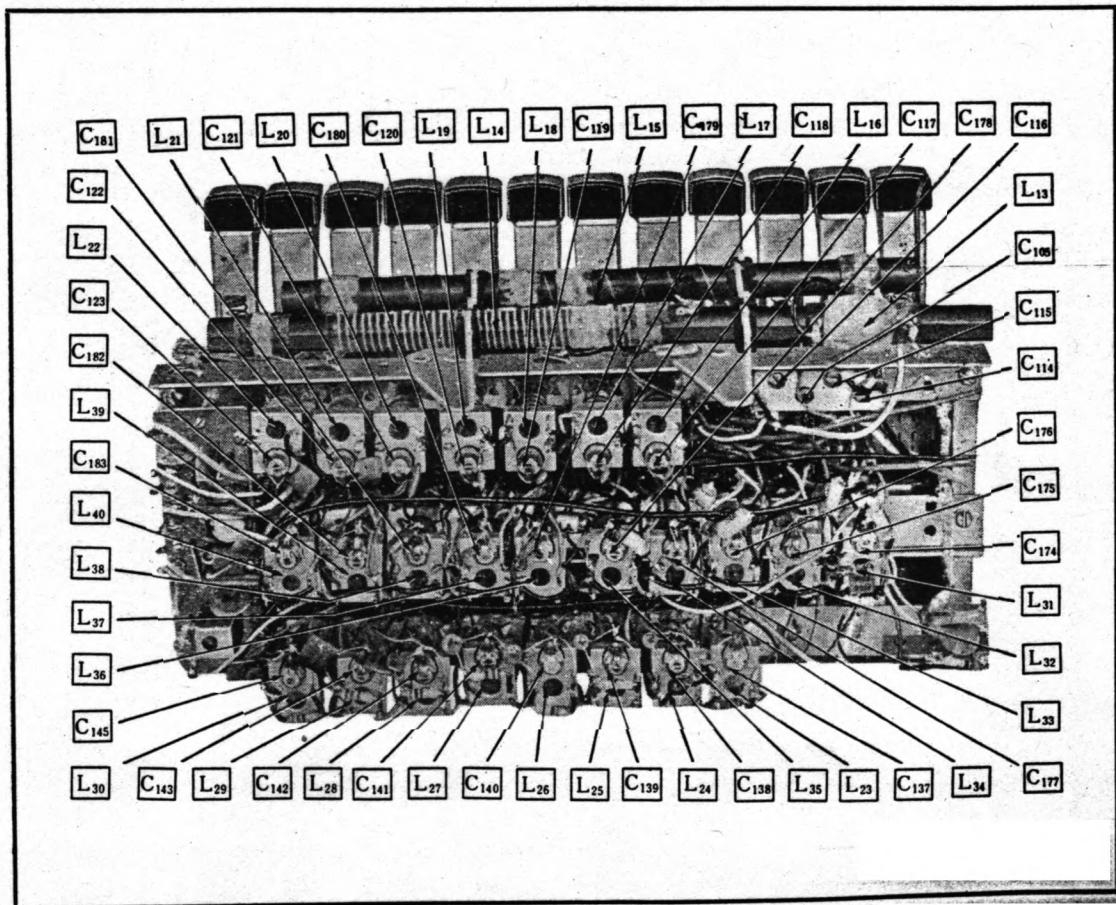
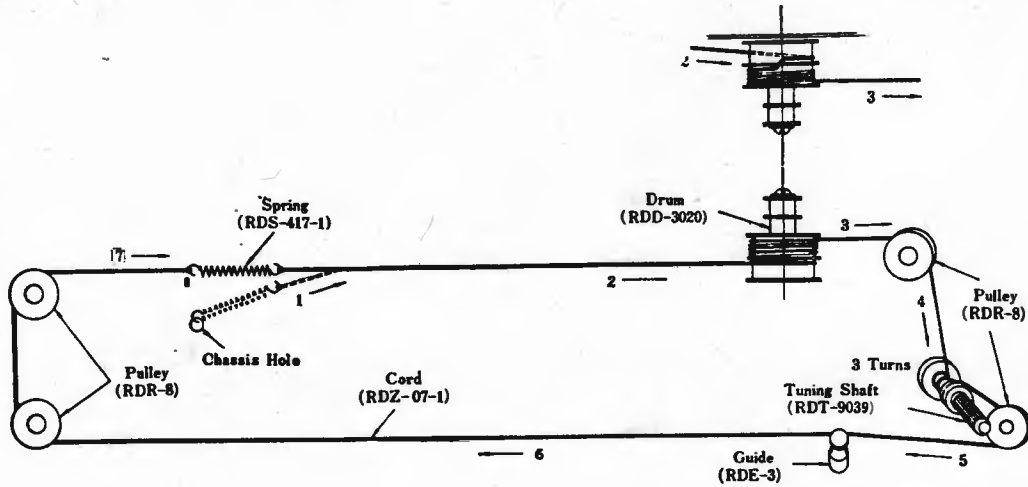


Fig. 12 Top View - Alignment Points, AM RF Section.

Notes:

1. Dial cord length is $51\frac{3}{8}$ ".
2. Tuning gang is positioned at maximum capacity.
3. Fasten dial cord to one end of the tension spring and attach the other end of tension spring to the chassis hole. Start stringing in accordance with the numerical order (1~7) and fasten the dial cord end to the tension spring after removing the tension spring from the chassis hole.
4. Extend the tension spring to the length of approximately 1".
5. Cement dial cord ends with lacquer.



Notes:

1. Dial cord length is 20".
2. Tuning gang is positioned at maximum capacity.
3. Fasten cord to one end of tension spring ① and attach the other end of tension spring to hole ① of the drum. Start stringing in accordance with the numerical order (1~6) and fasten the end of cord to tension spring ③. Attach the other end of tension spring ② to hole ③ of the drum and replace tension spring ① from hole ① to ② of the drum.
4. Extend the tension spring to the length of approximately $\frac{1}{8}$ ".
5. Cement dial cord ends with lacquer.

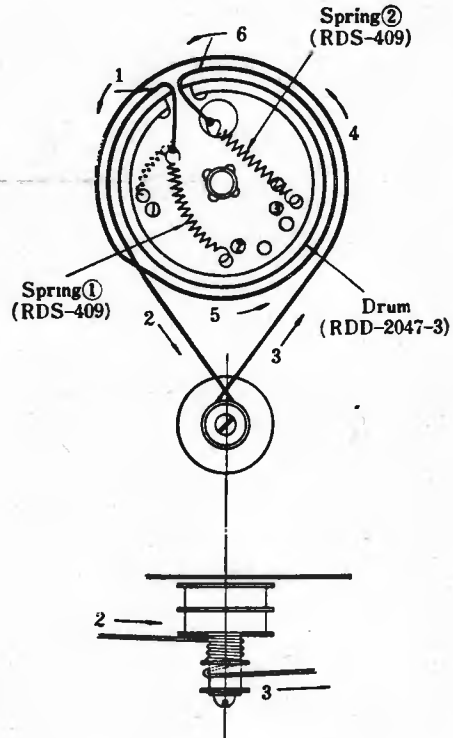


Fig. 14 Dial Cord Stringing Guide - AM Section.

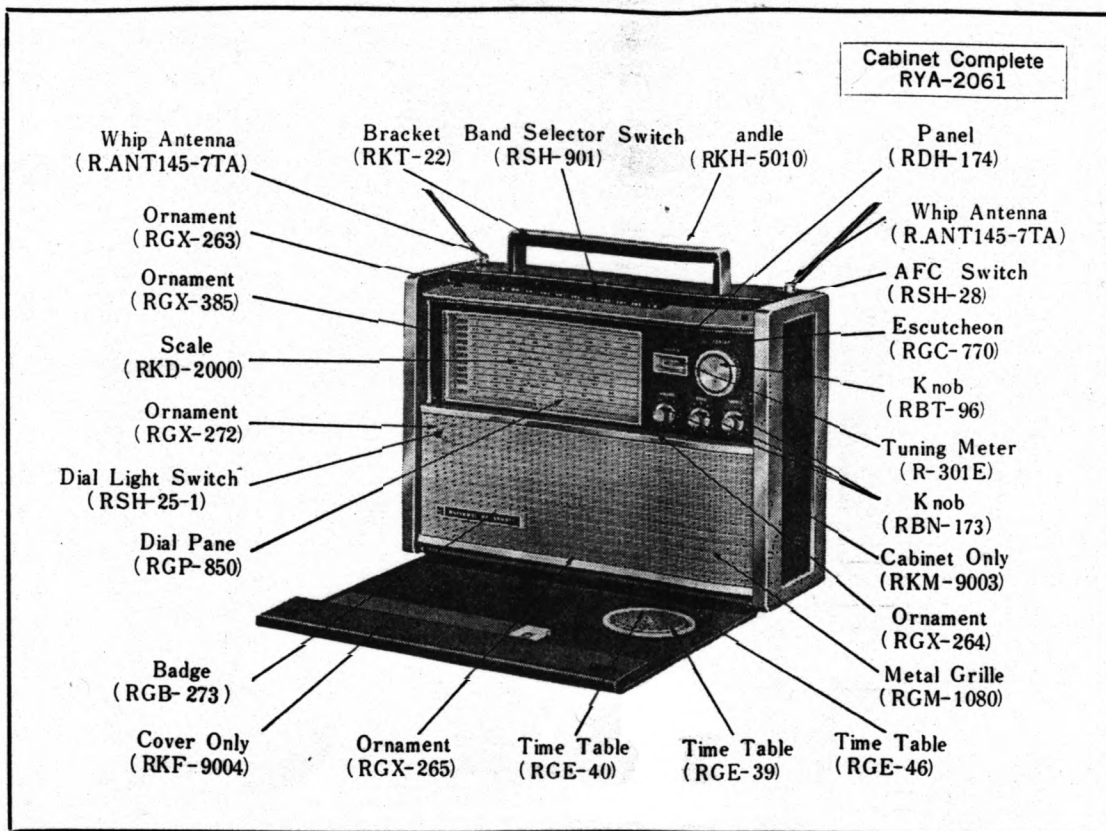


Fig. 15 Cabinet & Appearance - Parts Identification.

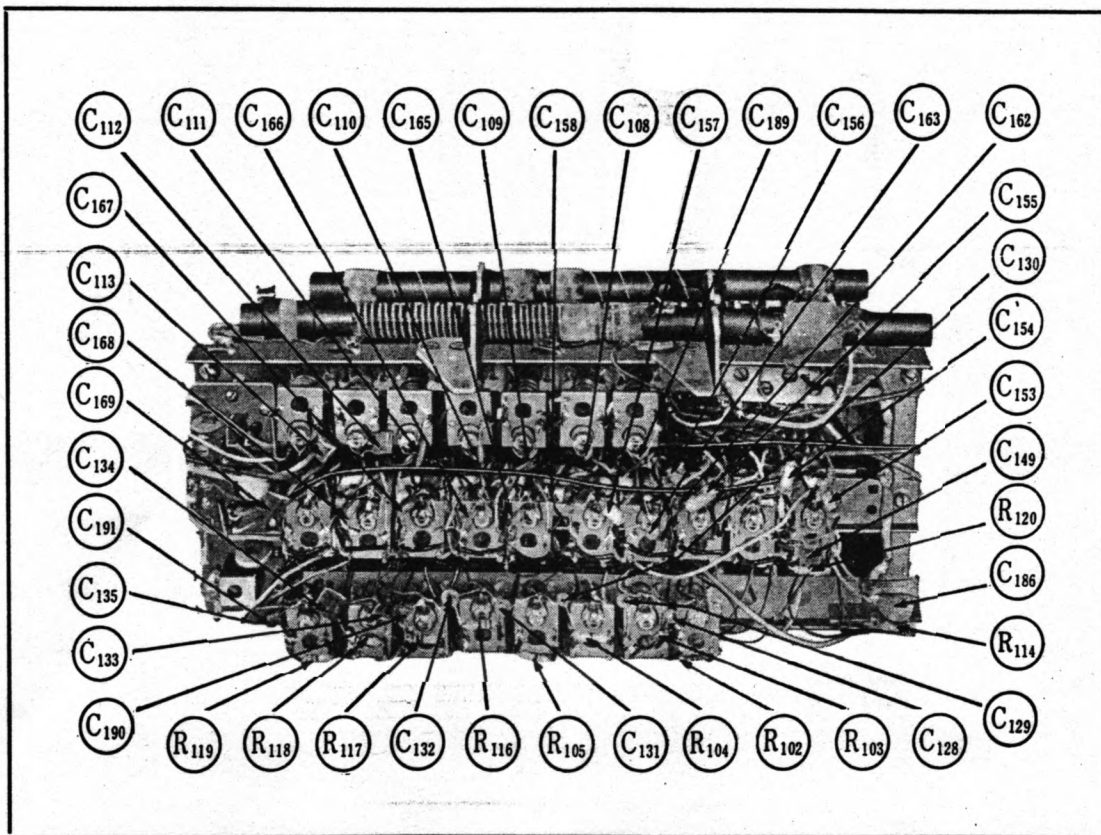


Fig. 16 Top View - Chassis Parts Identification.

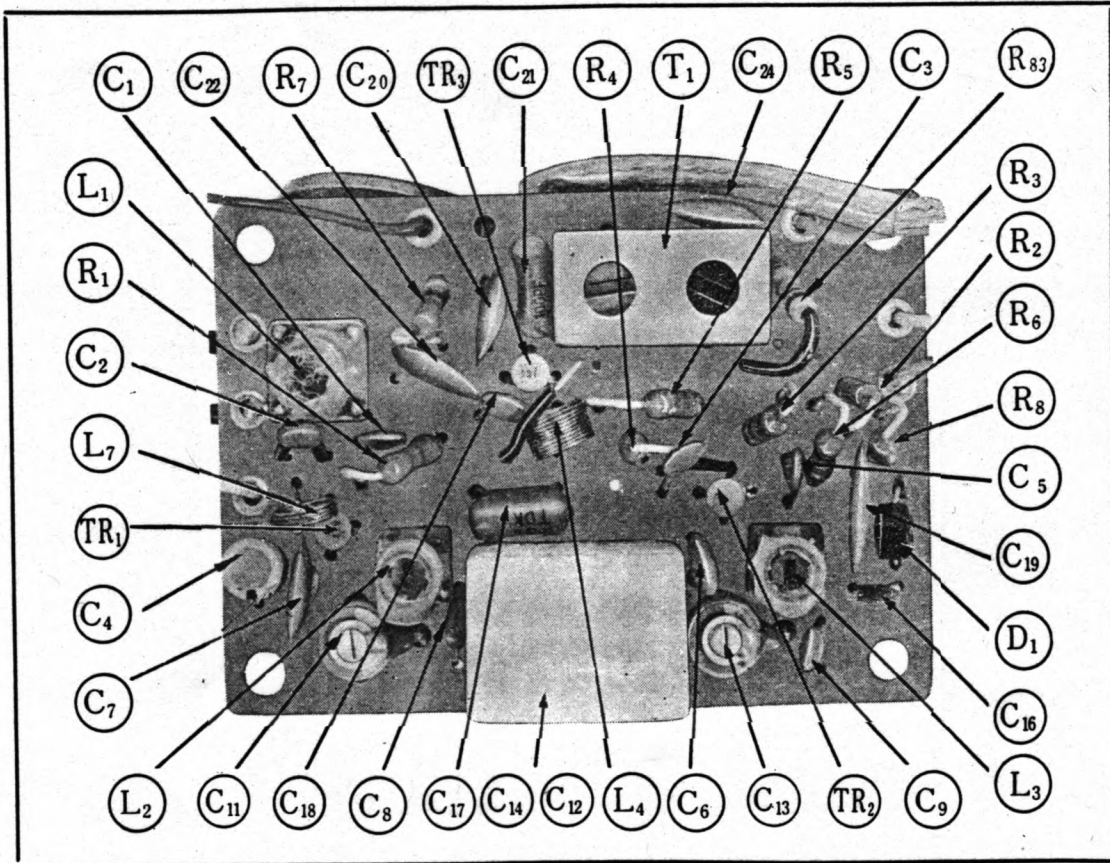


Fig. 17 Component View - Parts Identification, FM RF Section.

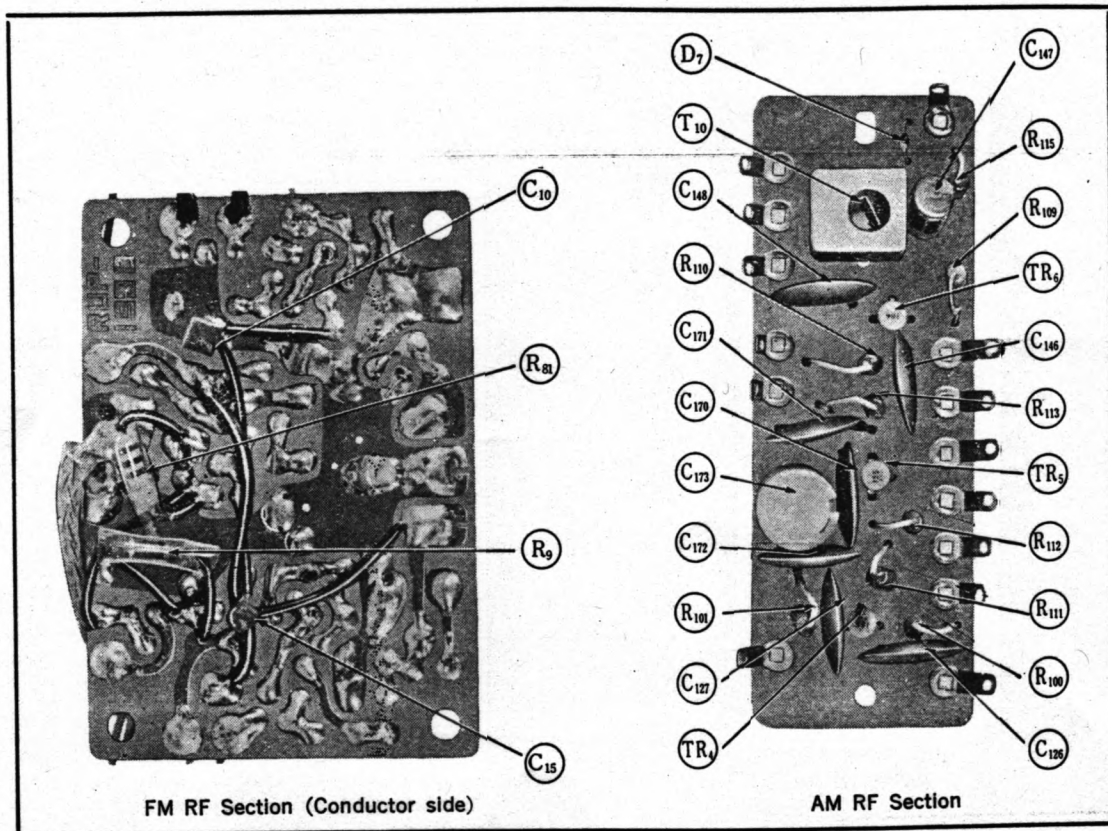


Fig. 18 Component View - Parts Identification, FM & AM RF Section.

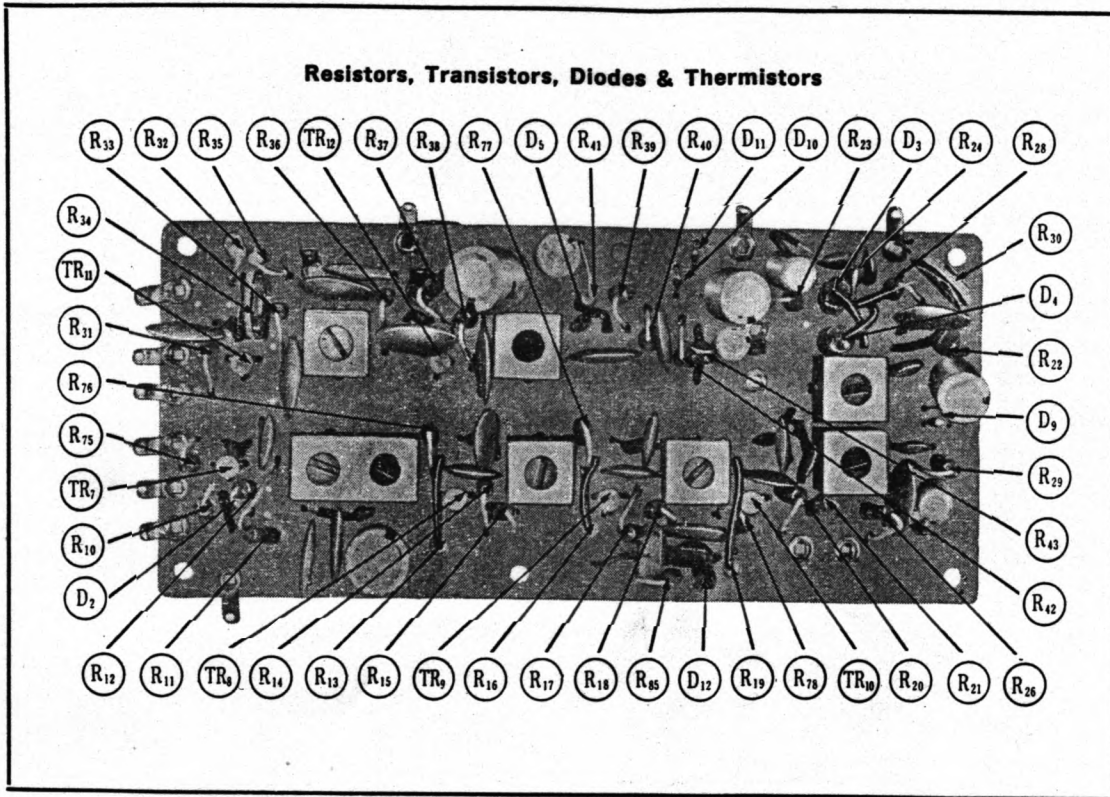


Fig. 19 Component View - Parts Identification, IF Section.

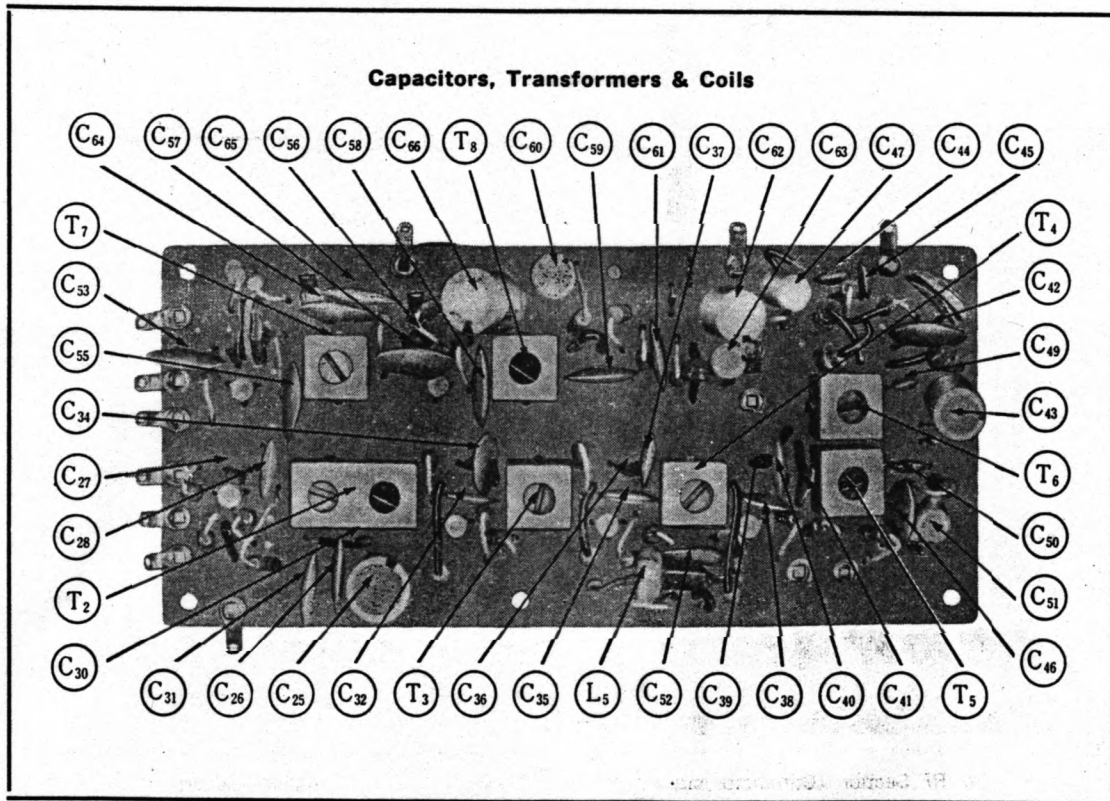


Fig. 20 Component View - Parts Identification, IF Section.

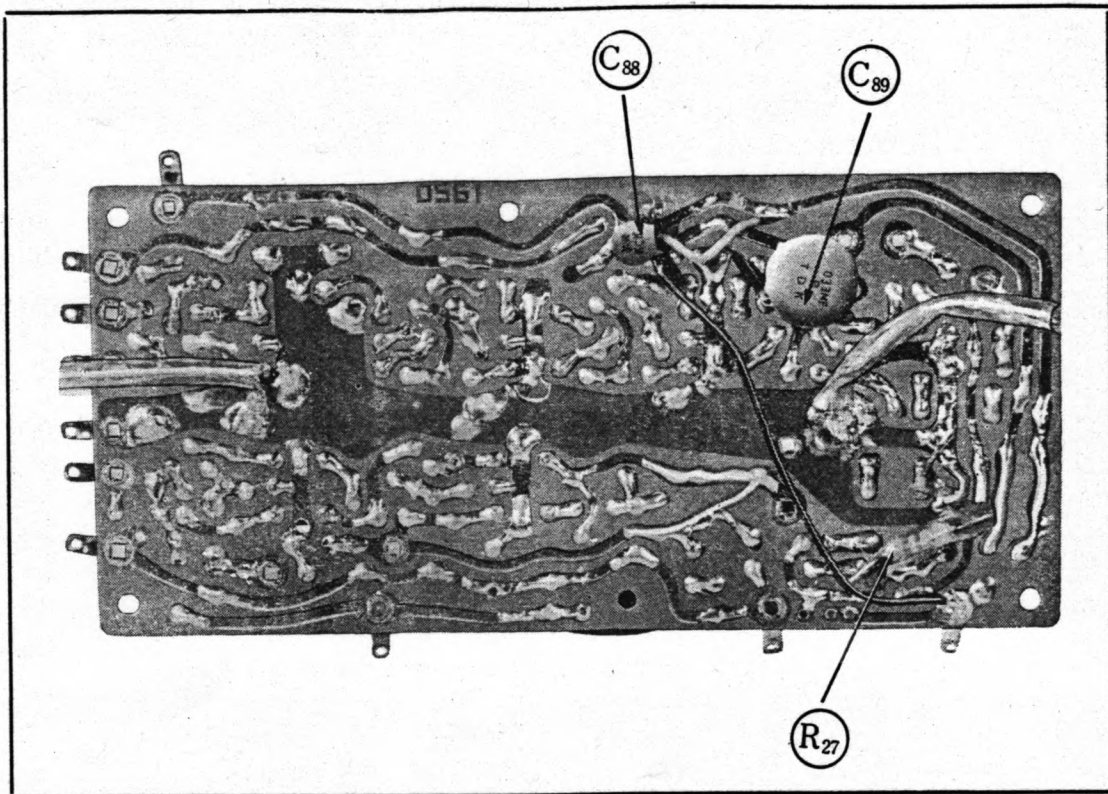


Fig. 21 Conductor View - Parts Identification, IF Section.

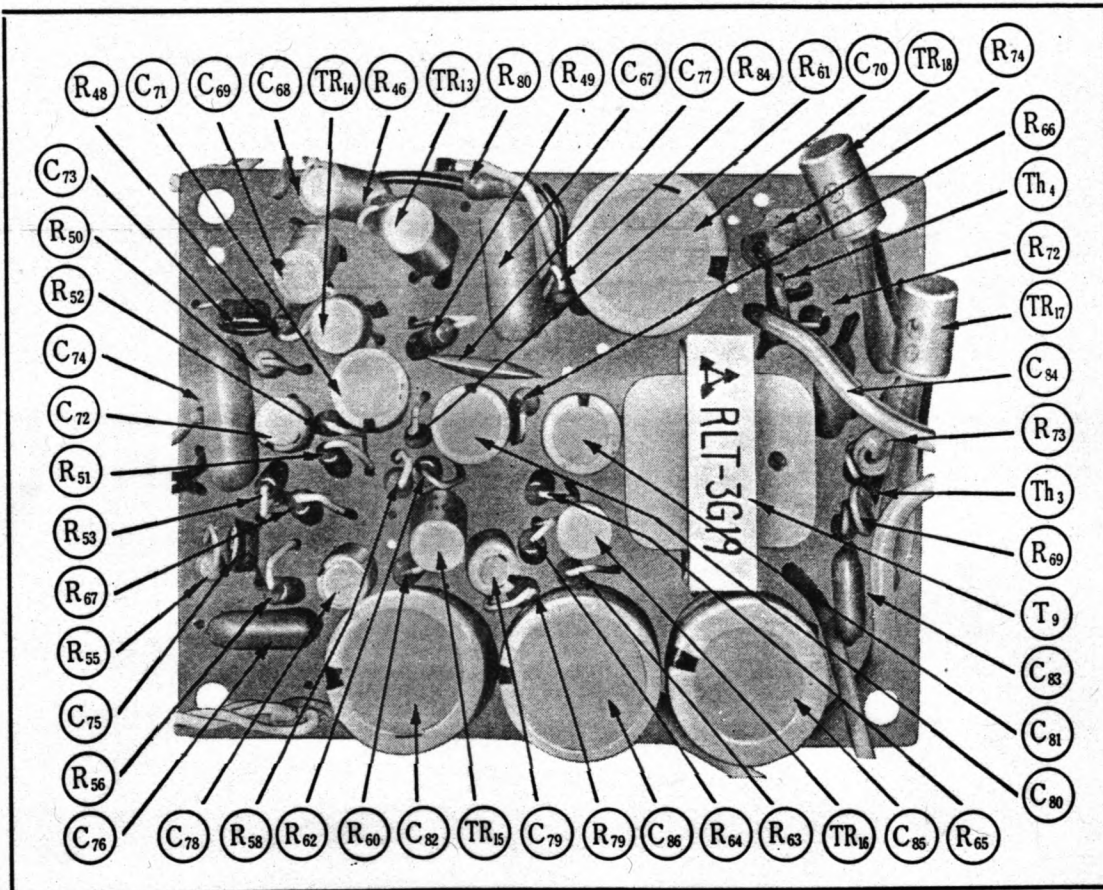


Fig. 22 Component View - Parts Identification, Audio Section.

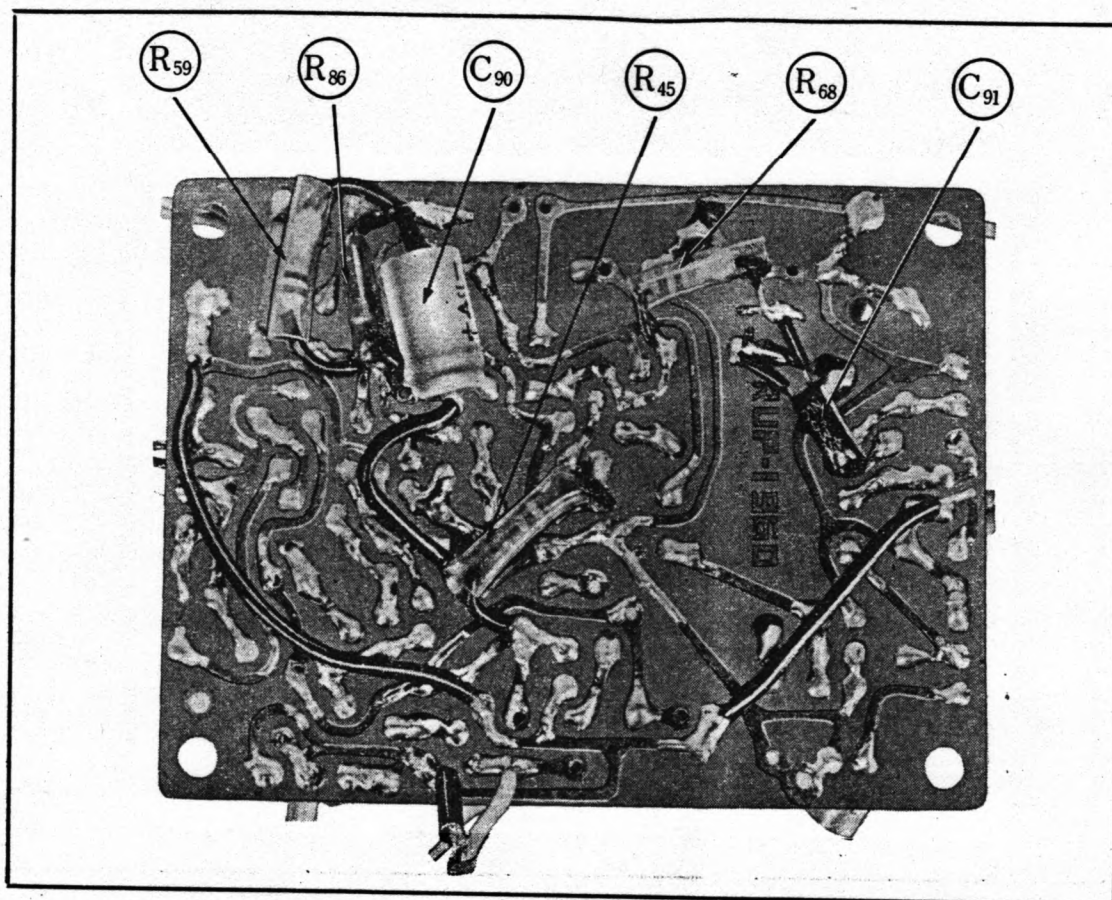


Fig. 23 Conductor View-Parts Identification, Audio Section.

REPLACEMENT PARTS LIST

Ref. No.	Stock No.	Description
TRANSISTORS AND DIODES		
TR1	2SC429	FM RF Amplifier
TR2	2SC469	FM Oscillator
TR3	2SC185	FM Mixer
TR4	2SC185	AM RF Amplifier
TR5	2SC185	AM Oscillator
TR6	2SC184	AM Mixer
TR7	2SC469	FM 1st IF Amplifier
TR8	2SC469	FM 2nd IF Amplifier
TR9	2SC469	FM 3rd IF Amplifier
TR10	2SC469	FM 4th IF Amplifier
TR11	2SC183	AM 1st IF Amplifier
TR12	2SC183	FM 2nd IF Amplifier
TR13	2SB173	AF Pre Amplifier
TR14	2SB345	1st AF Amplifier
TR15	2SB345	2nd AF Amplifier
TR16	2SB345	3rd AF Amplifier
TR17, TR18	2SB324	Output (push-pull)
D1	SC-15	FM AFC
D2	OA90	FM D.AGC
D3, D4	OA79	FM Ratio Detector
D5	OA90	AM Detector & AGC
D6, D7	1S1211	AM D.AGC
D8, D9	1S1211	FM Operation Compensator
D10, D11	1S1211	AM Operation Compensator
D12	OA90	Indicator Detector

Ref. No.	Stock No.	Description
THRMISTORS		
Th1, Th2 Th3, Th4	MT-10K MT-080	Temperature Compensator, FM Temperature Compensator, AM
CAPACITORS		
C33 C9, C10, C16 C8, C194, C195 } C197, C198, C199 } C190, C191, C196, C200 C112, C149, C167, C168 C113, C133 C134, C169 C135 C27, C36, C54, C56 C18, C23 C30, C39 C102, C103 C129 C101 C18, C161, C163, } C189, C193 } C5, C104 C108 C109, C128, C130 } C162, C164 } C1, C3, C106, C166 C2 C131, C110, C165 C111, C132 C41 C21 C17 C44, C45, C49, C50 C6, C88 C151 C59, C61, C150, C17 C7, C20, C22, C24, C28, C32, C34, C35, } C37, C38, C40 } C19, C26, C31, C42, C46, C52, C53, C55, C57, C58, C64, C68, C77, C89, C126, C127, C146, C148 C170, C172, C186, C192, } C75 C73 C83, C84 C76 C91 C67, C74 C153 C154 C156 C147, C155 C157 C158 C159 C152 C60 C4, C51, C63, C68, } C69, C72, C78 } C47 C43, C62, C71, C80, C81, C25, C66, C173 C85, C86 C70, C82 C90 C79 C12, C14 C124, C125, C136 } C144, C184, C185 } C114, C115, C116 C11, C13 C87	ECC-U05181K ECM-S5050C-H ECM-S5070D-H ECM-S5100K-H ECM-S5150K-H ECM-S5470K-H ECM-S5560K-H ECM-S5680K-H ECM-S5820K-H ECC-D05010C ECC-D051R5C ECC-D05020C ECC-D05030C ECC-D05050C ECC-D05070D ECC-D05100K ECC-D05120K ECC-D05150K ECC-D05180K ECC-D05220K ECC-D05270K ECC-D05330K ECC-D05390K ECC-D05470K ECC-U05101K ECC-U05331K ECK-D05102MY ECK-D05102P ECK-D05472MY ECK-D05103MY ECK-D05103P ECK-D05333P ECQ-M05332MZ ECQ-M05103MZ ECQ-M05153MZ ECQ-M05333MZ ECQ-M05472MZ ECQ-M05104MZ ECQ-S1181JZ ECQ-S1471JZ ECQ-S02102KZ ECQ-S02152KZ ECQ-S02172KZ ECQ-S02272KZ ECQ-S02332KZ ECQ-S02152K ECE-A15V10 ECE-A25V1 ECE-A15V5 ECE-A6V100 ECE-A10V100 ECE-A6V500 ECE-A10V500 ECE-B10V30 ECE-A6V10 PVC-2W20-2 ECV-6FD43A26 ECV-4RW12W11 ECV-1ZW10P12 ECE-B6V500	180mmf, ±10%, Styrol 5mmf, ±0.25mmf, Mlca 7mmf, ±0.5mmf, Mica 10mmf, ±10%, Mica 15mmf, ±10%, Mica 47mmf, ±10%, Mica 56mmf, ±10%, Mica 68mmf, ±10%, Mica 82mmf, ±10%, Mica 1mmf, ±0.25mmf, Ceramic 1.5mmf, ±0.25mmf, Ceramic 2mmf, ±0.25mmf, Ceramic 3mmf, ±0.25mmf, Ceramic 5mmf, ±0.25mmf, Ceramic 7mmf, ±0.5mmf, Ceramic 10mmf, ±10%, Ceramic 12mmf, ±10%, Ceramic 15mmf, ±10%, Ceramic 18mmf, ±10%, Ceramic 22mmf, ±10%, Ceramic 27mmf, ±10%, Ceramic 33mmf, ±10%, Ceramic 39mmf, ±10%, Ceramic 47mmf, ±10%, Ceramic 100mmf, ±10%, Ceramic 330mmf, ±10%, Ceramic 0.001mfd, 50WV, ±20%, Ceramic Disc 0.001mfd, 50WV, +100%, Ceramic - 0%, Disc 0.0047mfd, 50WV, ±20%, Ceramic Disc 0.01mfd, 50WV, ±20%, Ceramic Disc 0.01mfd, 50WV, +100%, Ceramic - 0%, Disc 0.033mfd, 50WV, +100%, Ceramic - 0%, Disc 0.0033mfd, 50WV, ±20%, Polyester 0.01mfd, 50WV, ±20%, Polyester 0.015mfd, 50WV, ±20%, Polyester 0.033mfd, 50WV, ±20%, Polyester 0.0047mfd, 50WV, ±20%, Polyester 0.1mfd, 50WV, ±20%, Polyester 180mmf, ± 5%, Styrol 470mmf, ± 5%, Styrol 1000mmf, ±10%, Styrol 1500mmf, ±10%, Styrol 1700mmf, ±10%, Styrol 2700mmf, ±10%, Styrol 3300mmf, ±10%, Styrol 1500mmf, ±10%, Styrol 10mfd, 15WV, Electrolytic 1mmf, 25WV, Electrolytic 5mfd, 15WV, Electrolytic 100mfd, 6WV, Electrolytic 100mfd, 10WV, Electrolytic 500mfd, 6WV, Electrolytic 500mfd, 10WV, Electrolytic 30mfd, 10WV, Electrolytic 10mfd, 6WV, Electrolytic Tuning Gang, FM Tuning Gang, AM Trimmer, LW, MW & SW Antenna Trimmer, FM 500mfd, 6WV, Electrolytic

Ref. No.	Stock No.	Description
RESISTORS		
R73, R74	ERW-12RR47	0.47 Ω , $\frac{1}{2}$ Watt, $\pm 10\%$, Carbon
R65	ERD-14VK220	22 Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R61, R79	ERD-14VK470	47 Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R51, R67, R75, R76, R77, R78	ERD-14VK101	100 Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R71, R72	ERD-14VK121	120 Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R12, R15, R18, R21	ERD-14VK331	330 Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R20, R37, R40	ERD-14VK471	470 Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R7, R11, R17, R35, R36	ERD-14VK561	560 Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R14	ERD-14VK681	680 Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R10, R23, R24, R29, R36, R110, R112	ERD-14VK102	1K Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R101, R113	ERD-14VK122	1.2K Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R32, R52, R69, R70	ERD-14VK152	1.5K Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R52, R62	ERD-14VK182	1.8K Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R2	ERD-14VK222	2.2K Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R115	ERD-14VK272	2.7K Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R39, R56, R64, R100, R49, R58	ERD-14VK332	3.3K Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R41, R60	ERD-14VK392	3.9K Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R5, R28	ERD-14VK472	4.7K Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R50	ERD-14VK562	5.6K Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R109	ERD-14VK682	6.8K Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R1, R4, R46, R85	ERD-14VK822	8.2K Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R3, R42, R63	ERD-14VK103	10K Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R53, R111	ERD-14VK153	15K Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R48	ERD-14VK183	18K Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R38	ERD-14VK563	56K Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R6, R8, R26	ERD-14VK104	100K Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R33	ERD-14VK154	150K Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R31, R84	ERD-14VK334	330K Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R81, R117, R122	ERD-14TK101	100 Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R9, R102, R120	ERD-14TK102	1K Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R13, R19, R103, R16	ERD-14TK122	1.2K Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R59, R83, R114	ERD-14TK103	10K Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R22	ERD-14TK272	2.7K Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R44	ERD-14TK824	820K Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R86	ERD-14TK222	2.2K Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R54, R57	EVC-BOAL26A54	50K Ω A, Bass & Treble Control
R47	EVC-BOAL26D53	5K Ω D, Volume Control
R30	EVL-TOAA00B53	5K Ω B, FM Tuning Meter
R34	EVL-TOAA00B13	1K Ω B, AM Tuning Meter
R121	ERD-14TK271	270 Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R116, R118,	ERD-14TK151	150 Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R119	ERD-14TK221	220 Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R104	ERD-14TK331	330 Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R123	ERD-14TK561	560 Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R80	ERD-14TK333	33K Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R27	ERD-14TK472	4.7K Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R45	ERD-14TK184	180K Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R43	ERD-14TK562	5.6K Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R105	ERD-14TK471	470 Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
R68	ERD-14TK273	27K Ω , $\frac{1}{4}$ Watt, $\pm 10\%$, Carbon
COILS AND TRANSFORMERS		
L13, L14	RLF-6H1	LW MW Antenna Coil
L15	RLF-3G2	SW1 Antenna Coil
L16	RLA-3Q46	SW2 Antenna Coil
L17	RLA-3Q47	SW3 Antenna Coil
L18	RLA-3Q48	SW4 Antenna Coil
L19	RLA-3Q49	SW5 Antenna Coil
L20	RLA-3Q50	SW6 Antenna Coil
L21	RLA-3Q51	SW7 Antenna Coil
L22	RLA-3Q52	SW8 Antenna Coil
L1	RLA-4P2	FM Antenna Coil
L31	RLO-1Q6	LW Oscillator Coil
L32	RLO-2Q37	MW Oscillator Coil
L33	RLO-3Q84	SW1 Oscillator Coil
L34, L36	RLO-3Q85	SW2, SW4 Oscillator Coil
L35	RLO-3Q86	SW3 Oscillator Coil
L37	RLO-3Q88	SW5 Oscillator Coil
L38	RLO-3Q89	SW6 Oscillator Coil
L39	RLO-3Q90	SW7 Oscillator Coil
L40	RLO-3Q91	SW8 Oscillator Coil
L3	RLO-4N9	FM Oscillator Coil
L23	RLD-3Q3	SW1 Detector Coil
L24	RLD-3Q4	SW2 Detector Coil

Ref. No.	Stock No.	Description
COILS AND TRANSFORMERS		
L25	RLD-3Q5	SW ₃ Detector Coil
L26	RLD-3Q6	SW ₄ Detector Coil
L27	RLD-3Q7	SW ₅ Detector Coil
L28	RLD-3Q8	SW ₆ Detector Coil
L29	RLD-3Q9	SW ₇ Detector Coil
L30	RLD-3Q10	SW ₈ Detector Coil
L2	RLD-4N6	FM Detector Coil
L5	RLQ-X121-1	Choke Coil
L7	RLQ-Y16S-1	FM Choke Coil
L4	RLQ-Y72S-1	FM Coupling Choke Coil
L11	RLQ-Q14G-1	SW ₃ Antenna Shunt Coil
L10	RLQ-Q46S-1	SW ₈ Antenna Shunt Coil
T ₁	RLI-4D101	FM 1st IF Transformer
T ₂	RLI-4D201	FM 2nd IF Transformer
T ₃ , T ₄	RLI-4C204	FM 3rd, 4th IF Transformer
T ₅	RLI-4C504	FM 5th IF Transformer (Primary)
T ₆	RLI-4C505	FM 5th IF Transformer (Secondary)
T ₁₀	RLI-7C3-T	AM 1st IF Transformer
T ₇	RLI-2C211-1	AM 2nd IF Transformer
T ₈	RLI-2C450-T	AM 3rd IF Transformer
T ₉	RLT-3G19	input Transformer, 3K Ω : 400 Ω
SPEAKERS AND EARPHONE		
SP ₁	EAS-18D28S	7" x 5" Oval PM Dynamic Speaker, 16 Ω
SP ₂	EAS-12P16SC	5" PM Dynamic Speaker, 16 Ω
EP	EAE-1MB	Magnetic Earphone, 8 Ω
SWITCHSES		
S ₁ ~S ₄ } S ₅ , S ₆ } S ₇ S ₈	RSH-901 RSH-28 RSH-25-1	Band Selector Switch Power Source Switch AFC Switch Dial Light Switch
MISCELLANEOUS		
	RVL-206	Dial Light, 1.5V 0.10A (15 Req'd)
	RVL-407	Neon Lamp
	RJP-3-1	Plug, PU, Recorder & EXT Speaker
	RJP-6	Plug, EXT FM Antenna
	RJP-6-2	Plug, EXT FM Ground
	RJP-11	Plug, EXT AM Antenna
	RJP-11-2	Plug, EXT AM Ground
	RJP-18	Plug, Connector
	RJP-67	Plug, Battery
	RJJ-13-1	Jack, PU
	RJJ-25	Jack, Earphone & Recorder
	RJS-25-1	Socket, Battery
	RJV-4801	Socket, Connector
	RJF-3104	Jack, EXT FM Antenna
	RJF-3406	Jack, EXT AM Antenna
	RJK-1102-1	Case, Battery, Dial Light
	RJK-5304	Tube, Battery (2 Req'd)
	RJC-102	Terminal, Battery, \oplus Side (2 Req'd)
	RJC-601	Spring, Battery, \ominus Side (2 Req'd)
	RJB-1003-3	Case, Battery
	RUV-233	Cover, Chassis
	RUS-60	Spring, Cabinet Front Cover M'tg. Bracket (2 Req'd)
	RUS-71	Spring, Time Table
	RMA-190	Bracket, Core Antenna (2 Req'd)
	RMA-194	Bracket, Frame Antenna, Small (2 Req'd)
	RMA-195	Bracket, Frame Antenna, Large (2 Req'd)
	RMP-79	Rubber Cushion, Dial Light M'tg.
	RMC-57	Shield Cover, Printed Circuit Board (FM RF Section)
	RMX-96-1	Cover, Trimmer
	RMY-22	Heat Sink Transistor
	RMZ-30	Cover, Panel Light (RGL-36) (6 Req'd)
	RMZ-35	Cover, Panel Light
	RMZ-36	Cover, Dial Light (11 Req'd)
	RDY-9039	Shaft, Tuning
	RDX-41	Shaft, Drum (2 Req'd)
	RDD-3020	Drum, Dial, Small (2 Req'd)
	RDD-46-4	Drum, Dial, Plastic
	RDD-2047-3	Drum, Dial, Metal

Ref. No.	Stock No.	Description
MISCELLANEOUS		
	RDR-8 RDY-2 RDY-8 RDY-2-1 RDS-409 RDS-417-1 RDZ-07-1 RDE-3-1 RDE-3 RDE-23 RDE-24 RDE-25 RBH-4001 RGE-39 RGE-40 RGE-46 RGL-42 RNE-913 RGZ-23 RHG-107-1 RHG-202 RHG-5-1 RNE-418 ⊕B3-8V DM4-8R DM3-8R L3-5.5	Pulley, Dial Cord (8 Req'd) Shaft, Pulley, Short (8 Req'd) Shaft, Pulley, Long (2 Req'd) Shaft, Dial Scale Spring, Dial, Short (4 Req'd) Spring, Dial, Long (2 Req'd) Cord, Dial, 150" Shaft, Dial Scale Guide, Dial Cord Clutch, Dial Drive Mechanism Pin, Dial Drive Mechanism Shaft, Dial Drive Mechanism Hing, Battery Compartment Cover (2 Req'd) Time Table, Outside Time Table, Inside Time Table, Center Panel Light, Battery Compartment Cover Lock Washer, Battery Compartment Cover Escutcheon, Badge (RGB-228) Rubber Cushion, Core Antenna (4 Req'd) Rubber Cushion, Dial Light (4 Req'd) Rubber Cushion, Tuning Gang M'tg. (5 Req'd) Red Nut, Dial Light Switch M'tg. Screw, Handle M'tg. (2 Req'd) Red Screw, Chassis M'tg. (6 Req'd) Red Screw, Cabinet Back Cover & Battery Case M'tg. (4 Req'd) Screw, Dial Drum (RDD-2047-3) M'tg. (2 Req'd)
APPEARANCE		
	RYA-2061 RKM-9003 RYF-270 RKF-9004 RYU-120 RKU-9013 RKF-1480 RDH-174 RDP-152 RGP-850 RGM-1080 RGB-273 RGT-965 RGB-274 RGL-36 RGL-37 RKH-5010 RKT-22 RKD-2000 RGX-272 RGX-263 RGX-264 RGX-265 RBN-173 RBT-96 RGC-770 RGX-385 RANT145-7TA RSA-22 R-301E RDP-153	Cabinet Complete Cabinet Only Cover Complete, Cabinet Front Cover Only, Cabinet Front Cover Complete, Cabinet Back Cover Only, Cabinet Back Cover Only, Battery Compartment Panel Pointer, Dial, FM Panel, Dial Metal Grille Badge, PANASONIC Mark Name Plate, Battery Cover Badge, PANASONIC Mark Panel Light (6 Req'd) Panel Light (5 Req'd) Handle, Cabinet Bracket, Handle Scale, Dial Ornament, Dial Light Switch Ornament, Upper Side of Cabinet Ornament, Upper Side of Metal Grille Ornament, Lower Side of Metal Grille Knob, Volume, Bass & Treble Knob, Tuning Escutcheon, Tuning Meter Ornament, Dial Panel (2 Req'd) Whip Antenna (2 Req'd) Frame Antenna Tuning Meter Pointer, Dial, AM

MODEL RD-9451

AC ADAPTOR FOR RADIO MODEL RF-5000A

SPECIFICATIONS

Input Voltage :	AC 117V 50 or 60c/s
Output Voltage :	DC 9V
Maximum Current :	400mA
Power Consumption :	12VA
Dimension :	4 $\frac{1}{8}$ " (Wide) × 2 $\frac{1}{2}$ " (High) × 3 $\frac{3}{8}$ " (Deep)
Weight :	1 lb. 12 $\frac{1}{2}$ oz.

Operation of AC Adaptor

(Refer to Figs. 10 & 24)

- ① When the radio is connected to the AC adaptor, terminals ① & ② is connected.
- ② Then, the voltage is applied across the field coil of the relay (S₁) and causes the relay contact to close its terminals ④ and ⑤.
- ③ Thus, the DC voltage is obtained across terminals ④ and ⑤ of the battery socket.
- ④ When AC power is off or the plug is not inserted in the AC outlet, the relay contact closes terminals ③ and ④, and the radio is automatically operated by the built-in battery.

VOLTAGE ADJUSTMENT

PROCEDURE (Refer to Fig. 24)

Apply the AC voltage to the adaptor.

INDICATOR

Connect ⊕ side of DC voltmeter to terminal No. 5 of battery socket, and ⊖ side of DC voltmeter to terminal No. 4 of battery socket.

Note: Short terminal ① & ② of battery socket.

ADJUSTMENT

Adjust R₂ for 9V DC voltmeter reading.

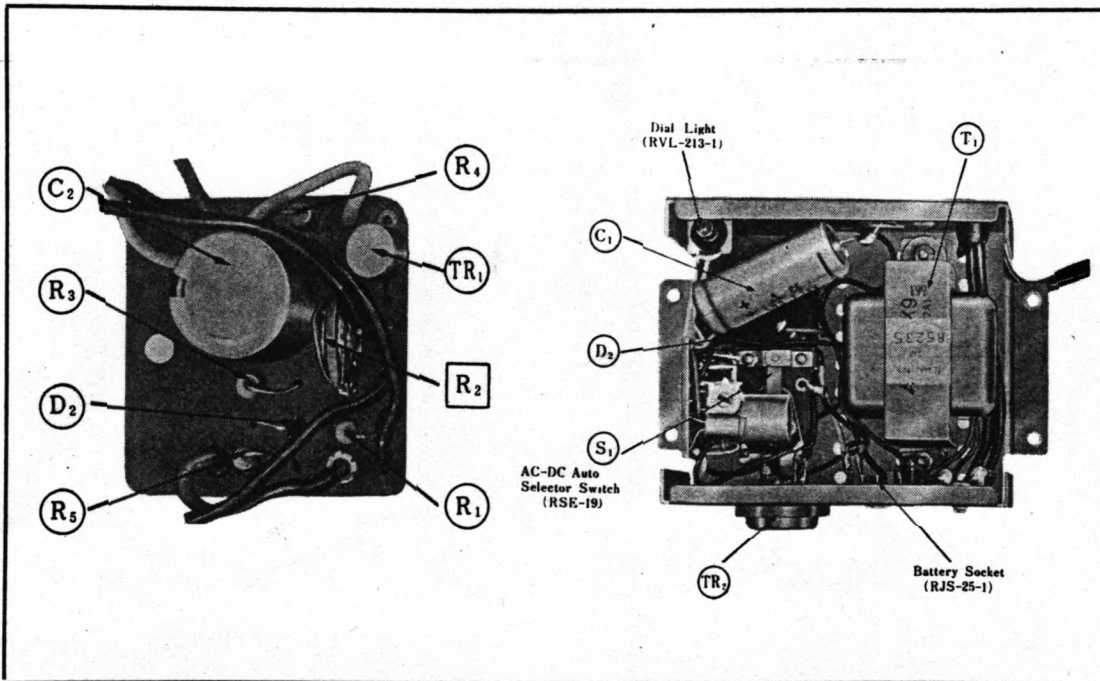


Fig. 26 Component View-Parts Identification.

Fig. 27 Component View-Parts Identification.

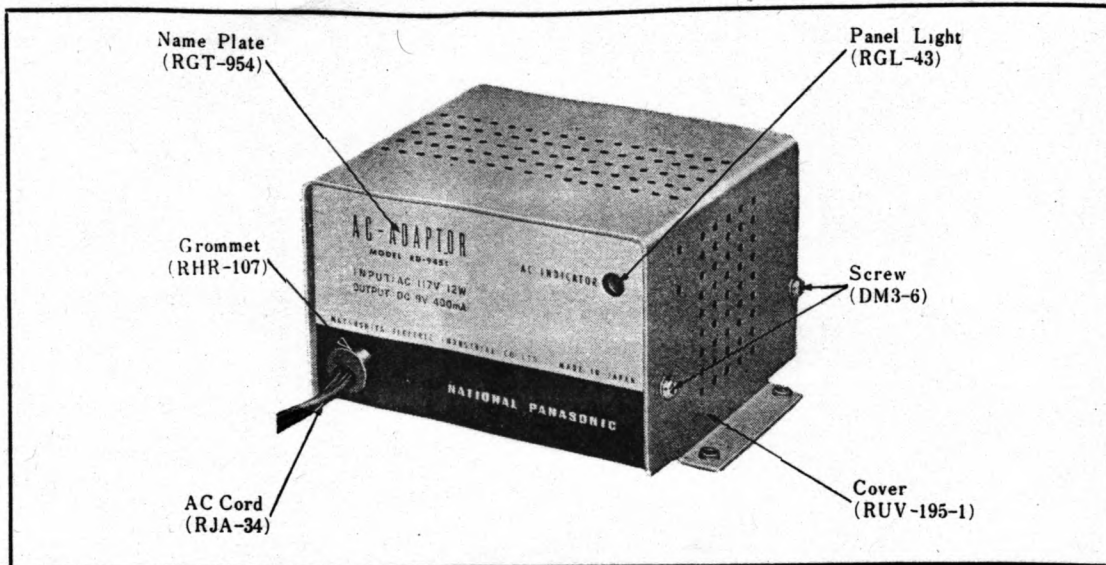
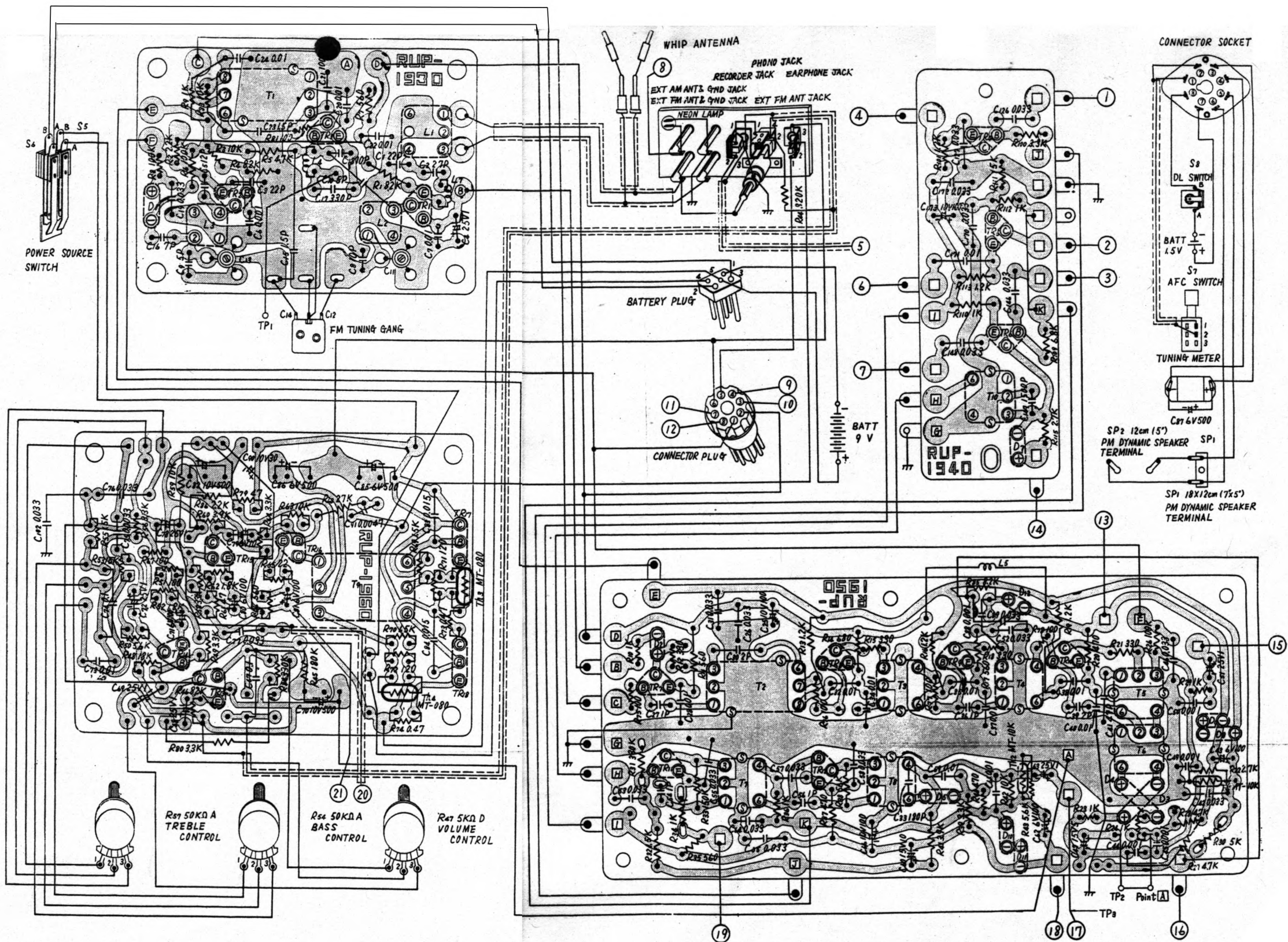


Fig. 28 Appearance - Parts Identification.

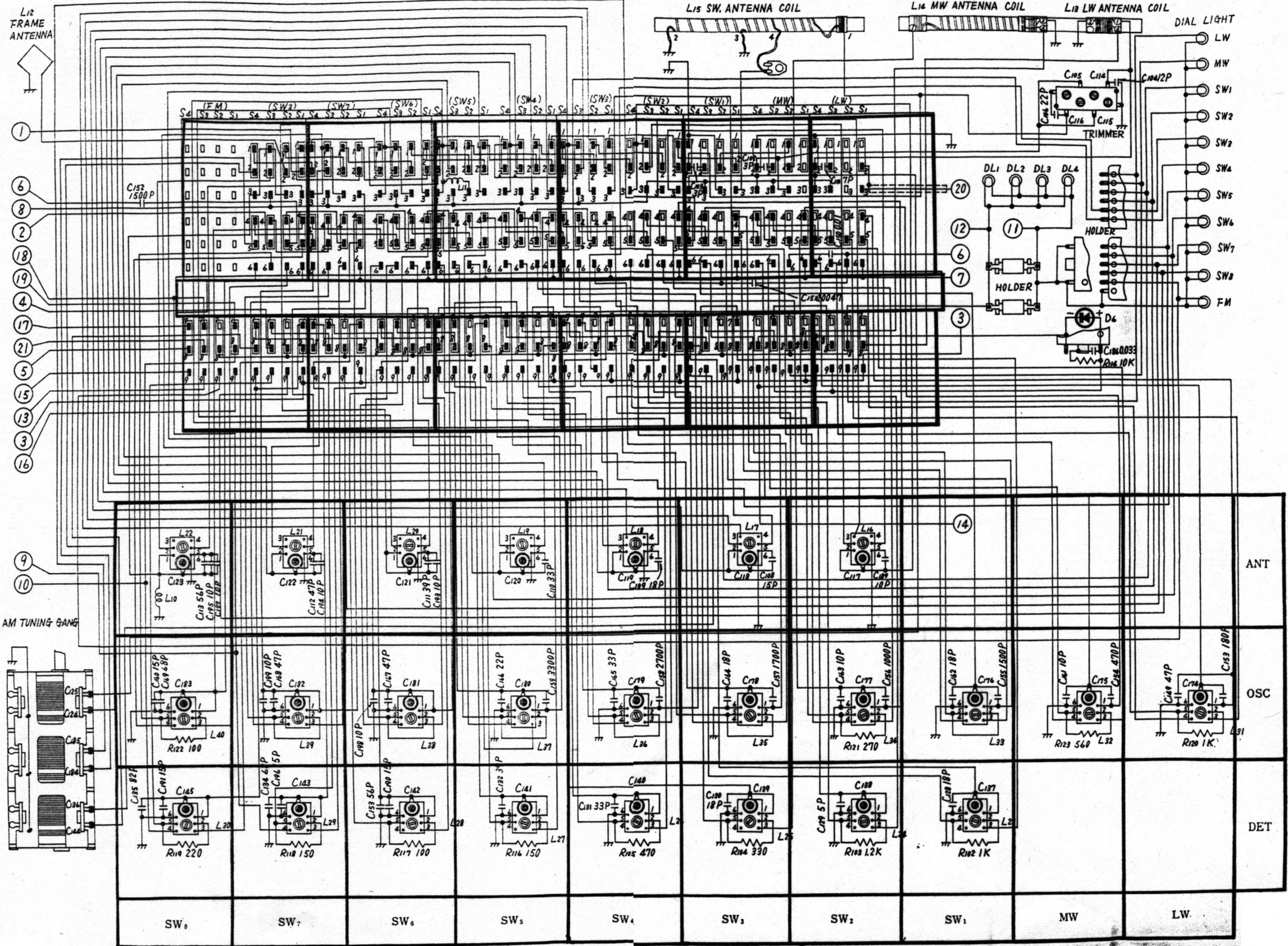
REPLACEMENT PARTS LIST

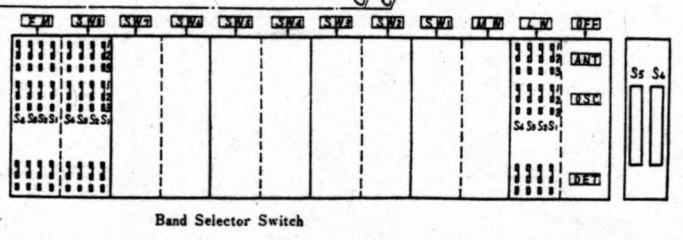
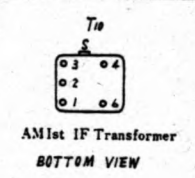
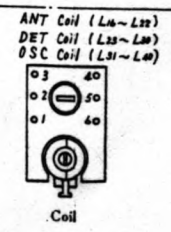
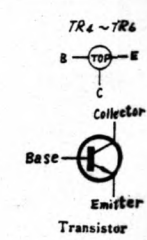
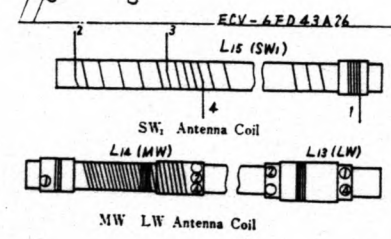
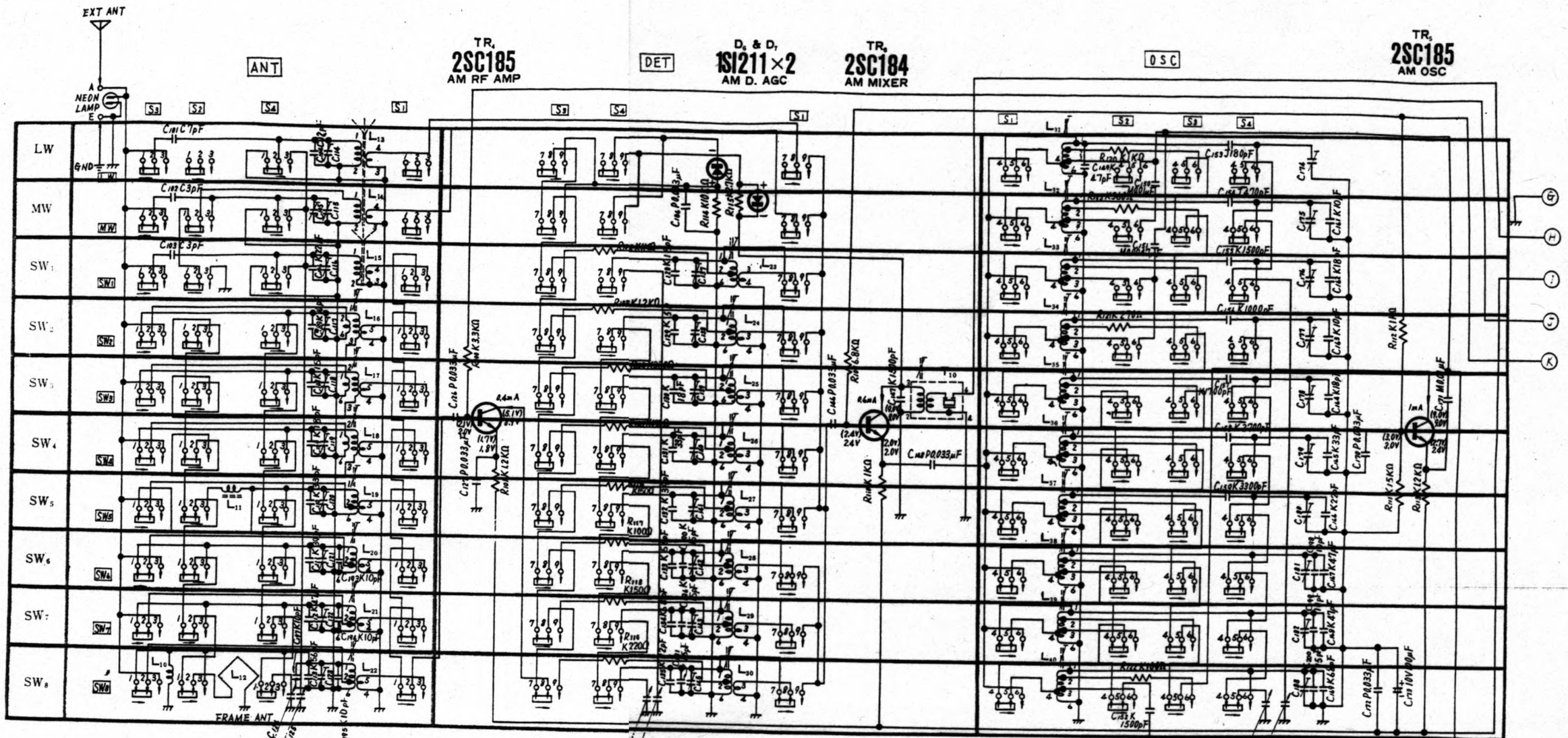
Ref. No.	Stock No.	Description
TRANSISTORS AND DIODES		
TR ₁	2SB324	Regulating Amplifier
TR ₂	2SB126	Regulating Amplifier
D ₁	SPN-01	Rectifier
D ₂	RD-11A	Temperature Compensator
CAPACITORS		
C ₁	ECE-B25V500H	500mfd, 25WV, Electrolytic
C ₂	ECE-A15V200H	200mfd, 15WV, Electrolytic
RESISTORS		
R ₁	ERD-14VK 821	820Ω, 1/4Watt, ±10%, Carbon
R ₅	ERD-14VK 182	1.8KΩ, 1/4Watt, ±10%, Carbon
R ₄	ERD-14VK 472	4.7KΩ, 1/4Watt, ±10%, Carbon
R ₃	ERD-14VK 822	8.2KΩ, 1/4Watt, ±10%, Carbon
R ₂	EVL-TOA00B53	5KΩ B, voltage Adjustment
TRANSFORMER		
T ₁	RLT-5K9	Power Transformer
SWITCH		
S ₁	RSE-19	AC-Battery Auto Selector Switch
MISCELLANEOUS		
	RJS-25-1	Socket, Battery
	RJA-34	AC Cord
	RUP-2321	Printed Circuit Board
	RGT-954	Name Plate, Specification Mark
	RUV-195-1	Cover, Chassis
	RHR-107	Grommet, AC Cord
	DM3-6	Screw, Chassis Cover M'tg. (4 Req'd)
	RUL-122	Bracket, AC Adaptor, Small
	RUL-123	Bracket, AC Adaptor, Big
	DM4-BR	Red Screw, Adaptor M'tg. (2 Req'd)
	RGL-43	Panel Light
	RVL-213-1	Dial Light

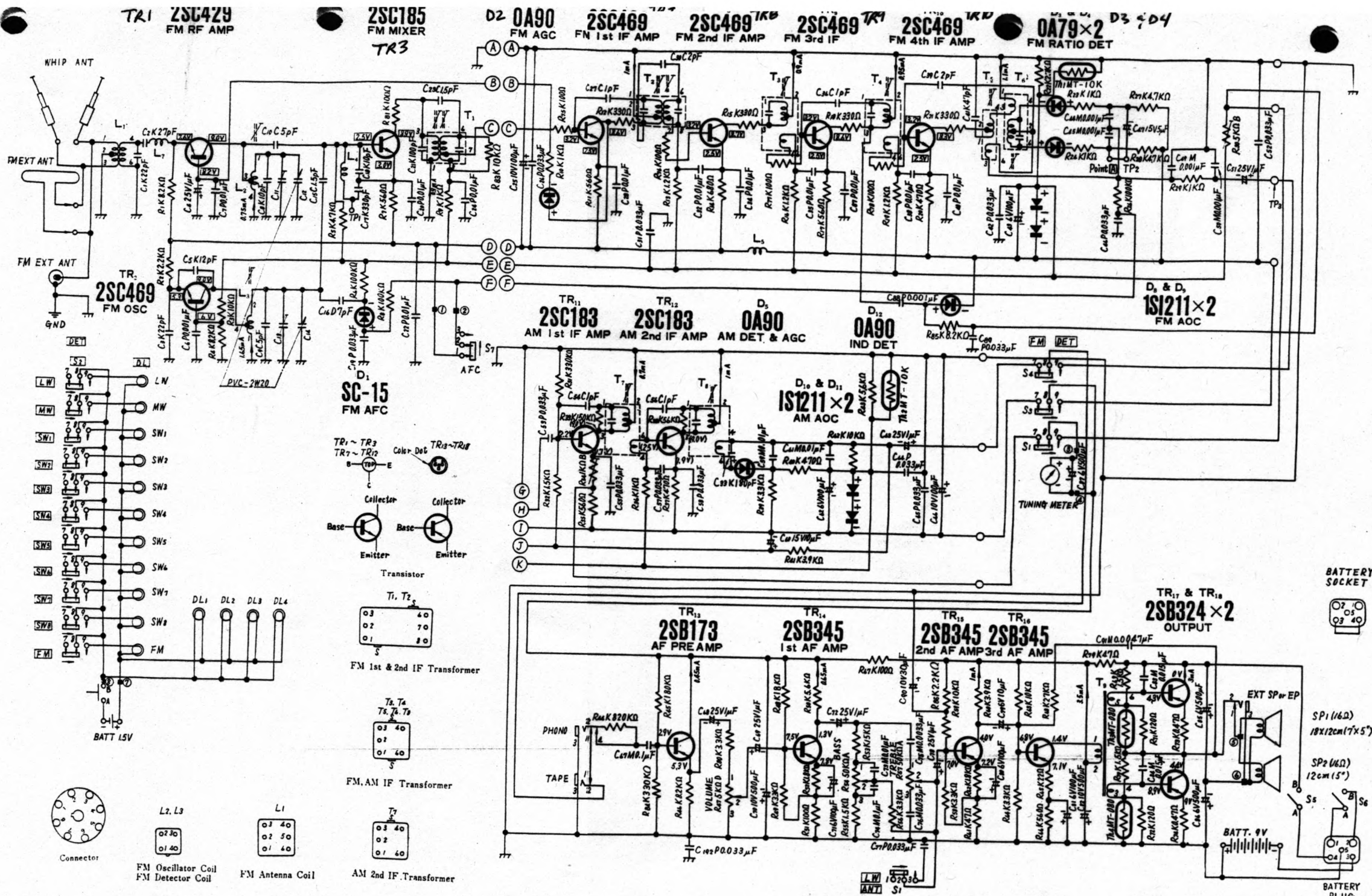


Notes:

1. All resistor values in ohms (K=1000 Ω).
2. All capacitor values in micro farads (P= μ F).
3. S1 ~ S4: Band selector switch in "OFF" position.
4. S5, S6: Power source switch in "OFF" position.
5. S7: AFC switch in "ON" position.
6. S8: Dial light switch in "OFF" position.







Notes:

1. S1~S4: Band selector switch in "OFF" position.
2. S5, S6: Power source switch in "OFF" position.
3. S7: AFC switch in "ON" position.
4. S8: Dial light switch in "OFF" position.
5. DC Voltage measurements are taken with circuit tester 10K Ω /Volt from negative terminal of battery.
FM position. ()AM position.
6. Capital letters (C, D, J, K, M, P) in the circuit diagram

show allowable tolerance of resistors and capacitors as follows:

- C = ± 0.25 PF D = ± 0.5 PF J = $\pm 5\%$ K = $\pm 10\%$
M = $\pm 20\%$ P = $\pm 100\%$
- 0%
7. Battery current: No signal FM, AM..... 20mA
Maximum output FM, AM.....250mA
 8. PF=pico farad=mmf
 μ F=micro farad=MF