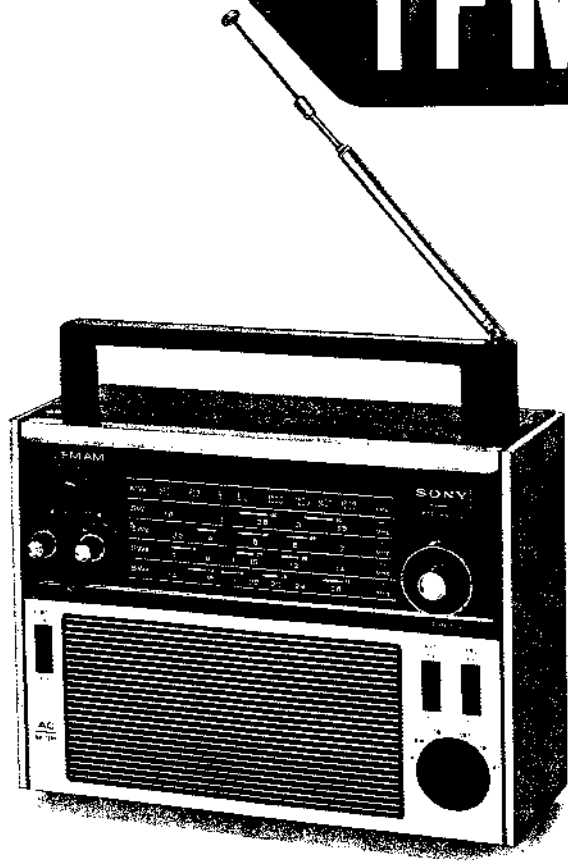
TFM-1600B



ISO

Set using ISO screws

SPECIFICATIONS

Circuit System:	FM/AM 13-transistor, 9-diode superheterodyne, 3-transistors for [illegible]
Frequency Coverage:	FM 87.5~108 MHz (3.42~2.78 m) MW 530~1 605 kHz (566~187 m) SW1 1.6~3.5 MHz (187.5~86 m) SW2 3.5~7 MHz (86~43 m) SW3 7~14 MHz (43~21 m) SW4 14~29.1 MHz (21~11 m)
Intermediate Frequency:	FM 10.7 MHz AM 455 kHz
Antenna System:	FM built-in telescopic antenna MW built-in ferrite bar antenna or external antenna SW built-in telescopic antenna or external antenna
Sensitivity at 50 mW output:	FM 0.9 μV (1 dB) at S/N 5 dB MW 16 μV/m (24 dB/m) SW 1.5 μV (3.5 dB)
Selectivity at ±10 kHz off-resonance:	45 dB at 1 400 kHz
Power Output at 10% distortion: maximum:	1.2 W 1.5 W
Current Drain at zero signal: at 10% distortion:	5 V 30 mA (1 V/SW 25 mA) 500 mA
Power Requirement:	Four "D" size flashlight batteries 6 V or optional ac 120 V 50/60 Hz
Speaker:	10 cm × 16 cm (4" × 6"), 8 Ω
Dimensions:	290 mm(W) × 222 mm(H) × 100 mm(D) (11⅜" × 8¾" × 3 15/16")
Weight:	3.85 kg (8 lb ½ oz)

SONY

SERVICE MANUAL

TABLE OF CONTENTS

SECTION 1
OUTLINE

1-1. BLOCK DIAGRAM

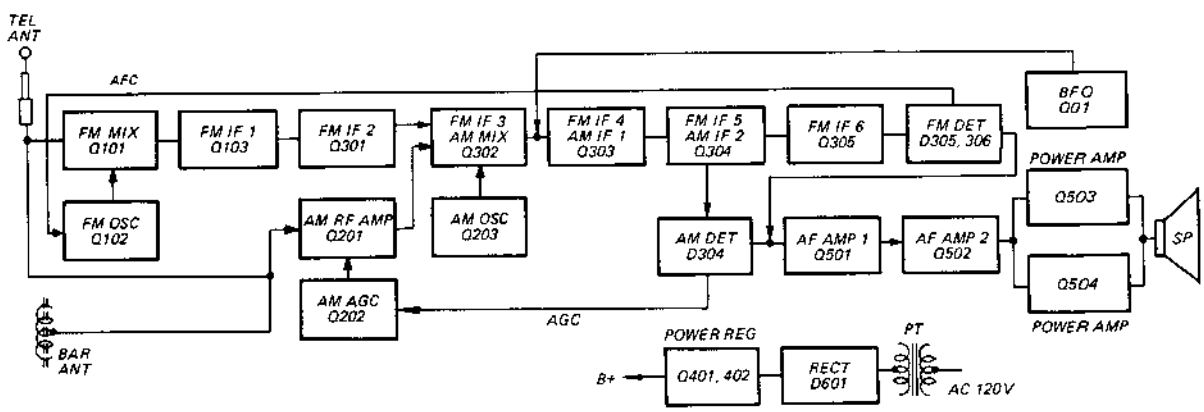


Fig. 1-1.

1-2. EXTERNAL VIEW

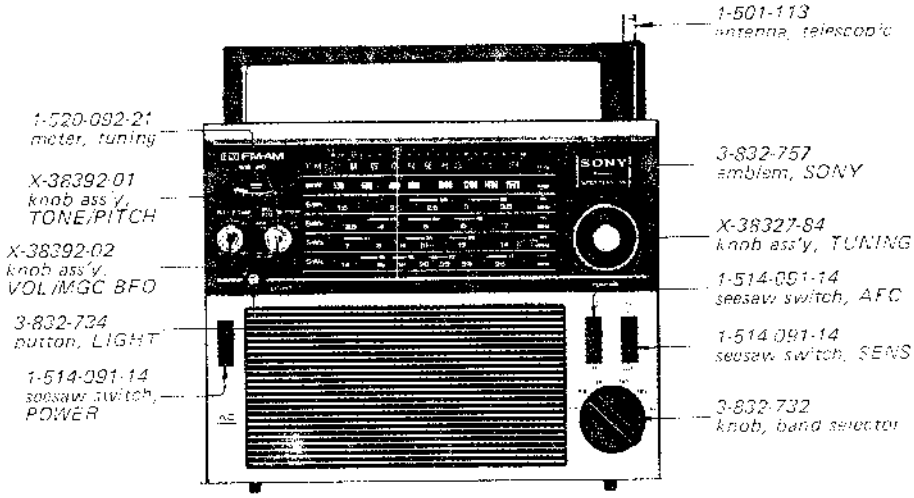


Fig. 1-2.

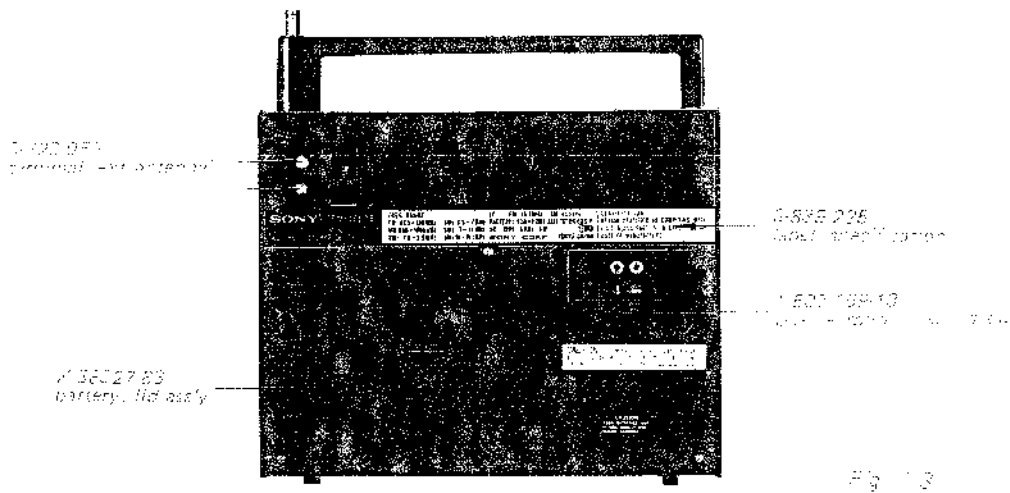


Fig. 1-3

1-3. INTERNAL VIEW

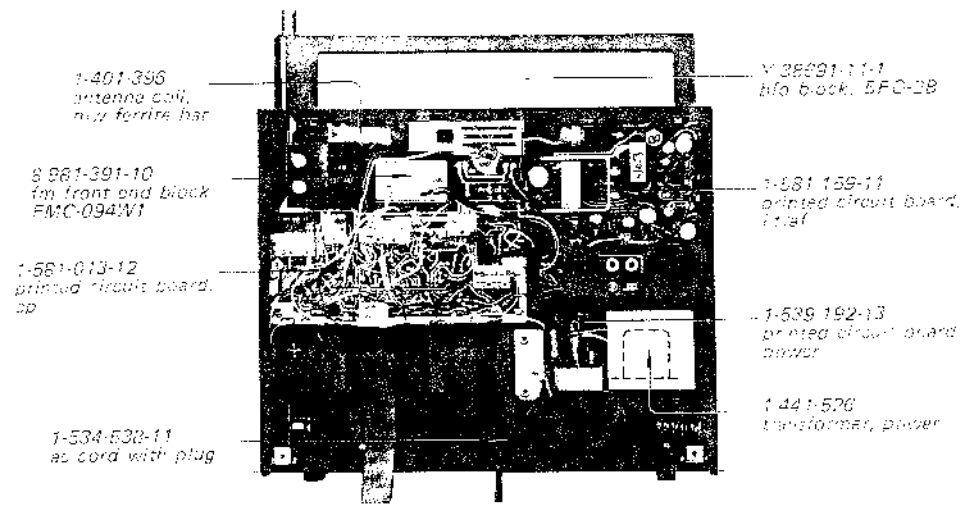


Fig. 1-4.

SECTION 2
DISASSEMBLY AND REPLACEMENT

2-1. REAR CABINET REMOVAL

1. Place the set rear-side-up on a padded work surface.
2. Remove the three screws marked Ⓐ in Fig. 2-1.
3. Lift up the bottom side of the rear cabinet.

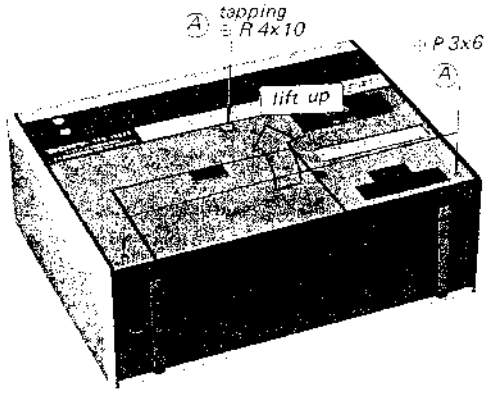


Fig. 2-1. Rear cabinet removal

2-2. CHASSIS REMOVAL

1. Pull out the six knobs, VOLUME, TONE, MGC BFO, PITCH, TUNING and Band Selector. (See Fig. 2-2.)
2. Loosen the screw marked Ⓑ in Fig. 2-2.
3. Pull out the telescopic antenna.
4. Remove the rear cabinet.

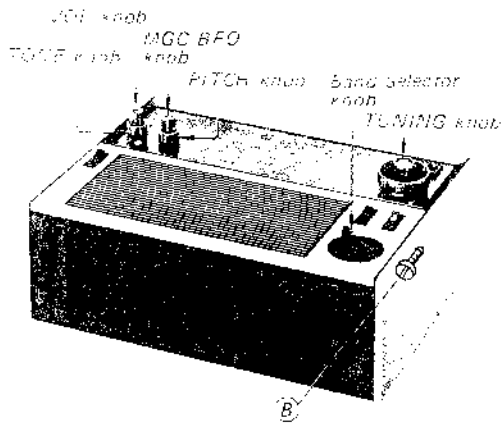


Fig. 2-2. Chassis removal

5. Unsolder the four lamp leads, GRY and RED, shown in Fig. 2-3.
6. Remove the two screws marked Ⓒ in Fig. 2-3.
7. Lift up the chassis as shown in Fig. 2-4.
8. Unsolder the two leads at speaker terminal.

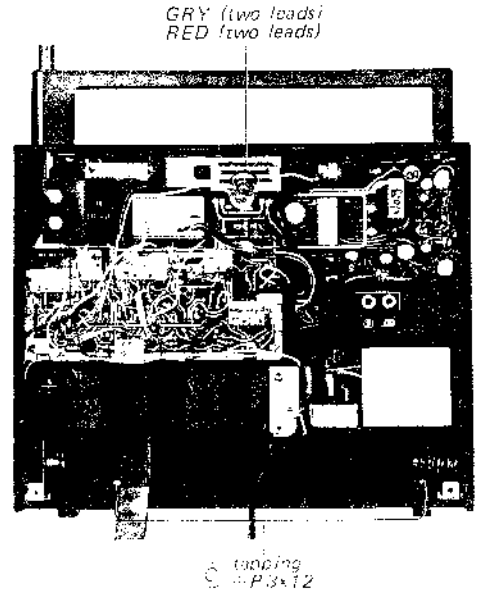


Fig. 2-3. Chassis removal

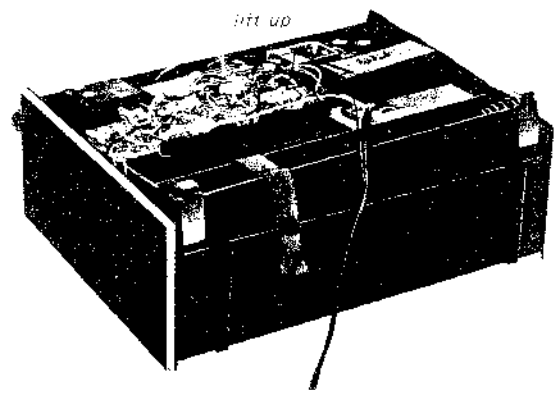


Fig. 2-4. Chassis removal

2-3. CP CIRCUIT BOARD REMOVAL

1. Remove the rear cabinet.
2. Remove the chassis.
3. Remove the three screws marked Ⓓ in Fig. 2-5.
4. Unsolder the seven leads and the three braided wires in Fig. 2-6.
5. Lift up the cp circuit board in the direction shown by the arrow in Fig. 2-5.

   Note: The switch shaft on the circuit board can be removed from the sprocket by lifting up the circuit board.

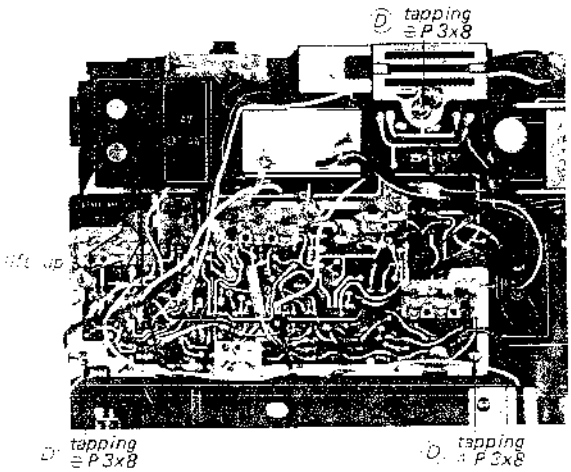


Fig. 2-5. Cp circuit board removal

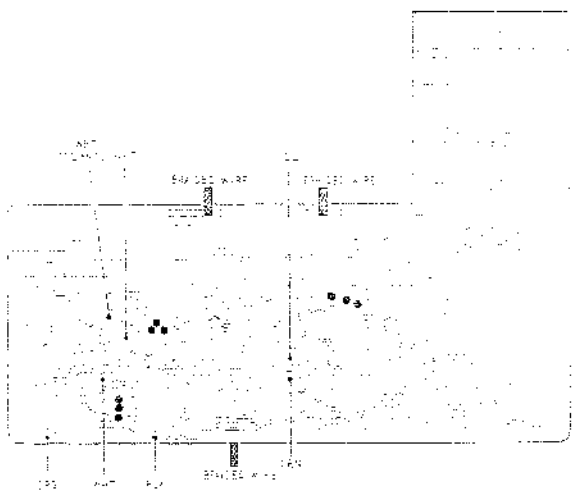


Fig. 2-6. Cp circuit board removal

2-4. IF/AF CIRCUIT BOARD REMOVAL

1. Remove the rear cabinet and the chassis.
2. Pull off the jack holder shown in Fig. 2-7.
3. Remove the three screws marked Ⓔ in Fig. 2-7.
4. Pull out the i-f/af circuit board carefully in the direction shown by the arrow in Fig. 2-7.

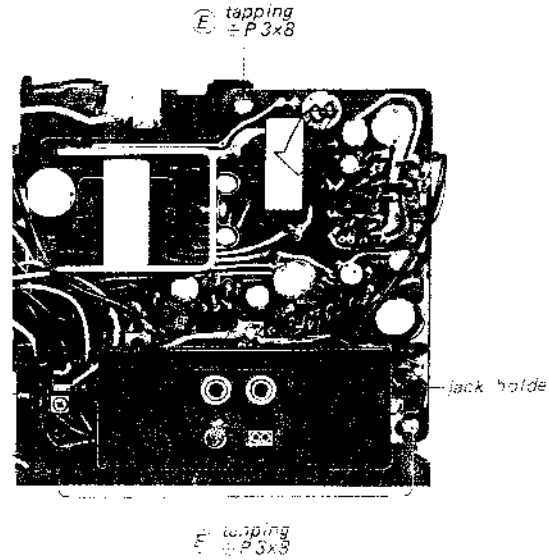


Fig. 2-7. I-f/af circuit board removal

2-5. POWER SUPPLY CIRCUIT BOARD REMOVAL

1. Remove the rear cabinet and the chassis.
2. Remove the two screws marked Ⓖ in Fig. 2-8.
3. Place the set rear-side-up on a padded work surface.
4. Remove the two screws marked Ⓗ in Fig. 2-9.
5. Pull off the transformer-chassis as shown in Fig. 2-10.
6. Straighten the bent portion of two tabs with pliers shown in Fig. 2-10.
7. Pull off the power supply circuit board.

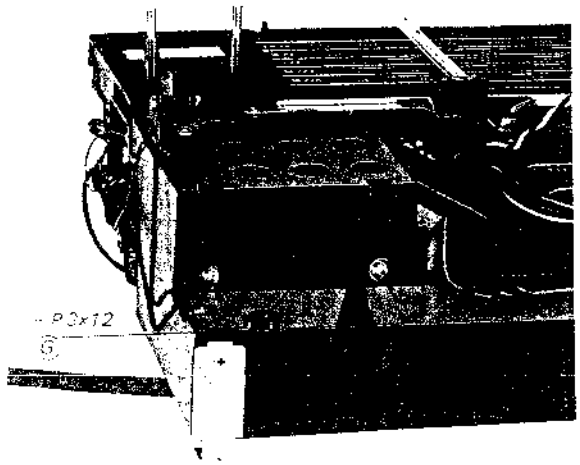


Fig. 2-8. Power supply circuit board removal

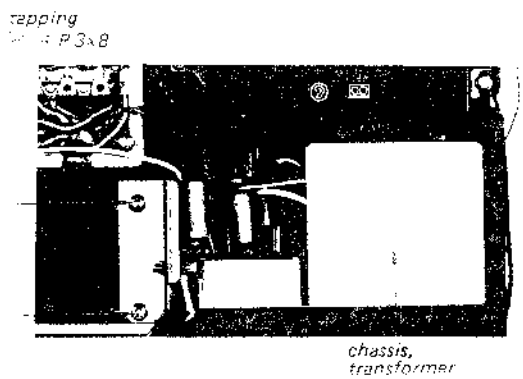


Fig. 2-9. Power supply circuit board removal

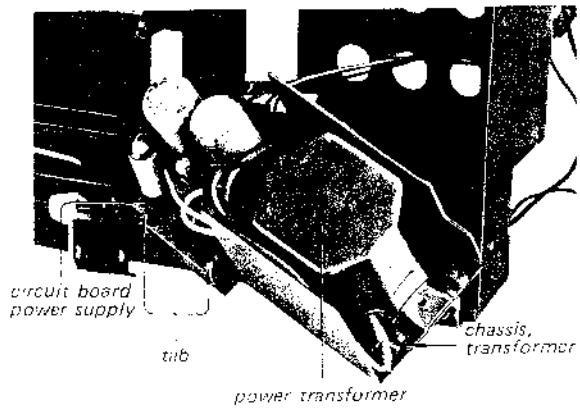


Fig. 2-10. Power supply circuit board removal

2-6. FM FRONT END BLOCK REMOVAL

1. Remove the chassis.
2. Unsolder the three braided wires and the three leads (WHT, YEL, GRN) in Fig. 2-11.
3. Unsolder the three leads and a coaxial cable on the i-f/af circuit board coming from the fm front end block in Fig. 2-12. (Refer to I-F/Af Circuit Board Removal on Page 5.)

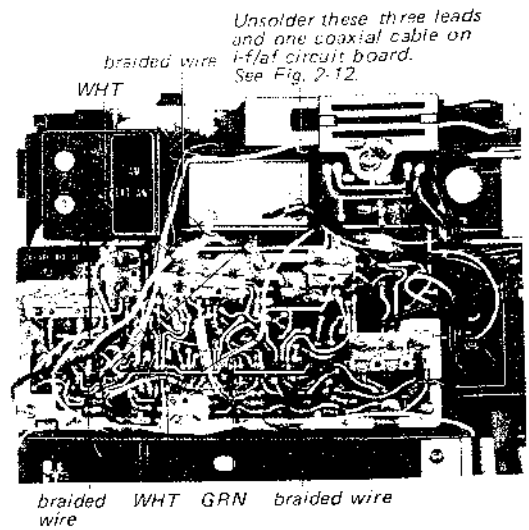


Fig. 2-11. Fm front end block removal

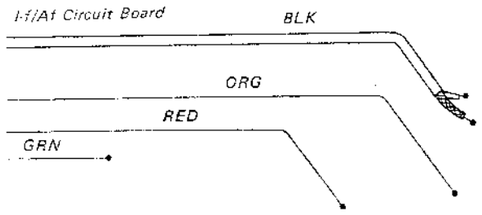


Fig. 2-12. Fm front end block removal

4. Remove the pointer form the sliding cord.
5. Remove the two screws marked Ⓘ in Fig. 2-13 and remove the dial scale in the direction shown by the arrow.
6. Remove the three screws marked Ⓗ in Fig. 2-14.
7. Take off the pointer driving cord from the two pulleys.

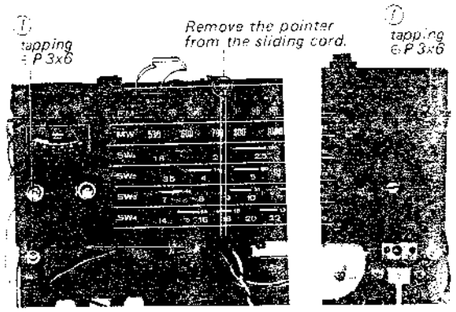


Fig. 2-13. Fm front end block removal

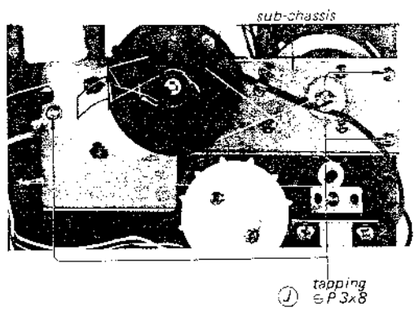


Fig. 2-14. Fm front end block removal

8. Lift up the sub-chassis ass'y as shown in Fig. 2-15.
9. Remove the four screws marked Ⓚ in Fig. 2-15 and Ⓛ in Fig. 2-16.
10. Take out the fm front end block from the sub-chassis.

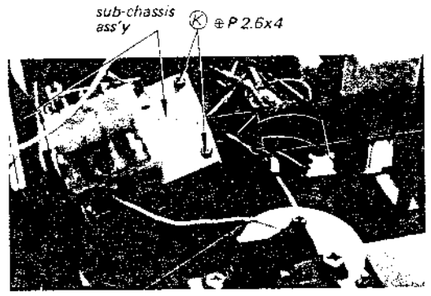


Fig. 2-15. Fm front end block removal

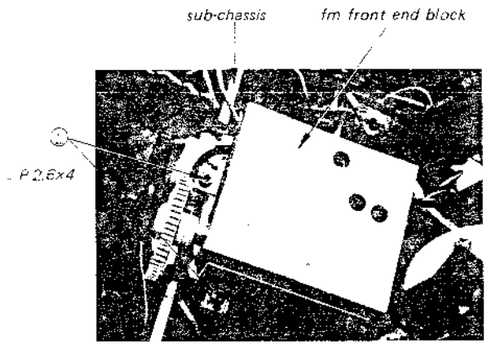


Fig. 2-16. Fm front end block removal

Fm Front End Block Reassembly

1. When reassembling fm front end block, turn the tuning drum fully clockwise and the double-gear of fm front end fully counterclockwise to its maximum capacitance position.
2. Engage the double gear to the tuning drum-gear.
3. Set the front end block to the sub-chassis as shown in Fig. 2-16 and fix it with the four screws.

2-7. AM TUNING CAPACITOR REMOVAL

1. Take out the sub-chassis as described in procedure 2-6. (See Fig. 2-15.)
2. Take off the tuning-capacitor-driving cord.
3. Remove the retaining-ring-E shown in Fig. 2-17 and take off the tuning drum.
4. Remove the screw marked Ⓜ in Fig. 2-18 and take off the double-gear.
5. Remove the three screws marked Ⓝ in Fig. 2-19 and pull off the a-m tuning capacitor in the direction shown by the arrow.

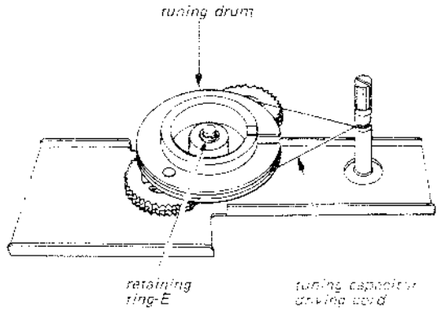


Fig. 2-17.

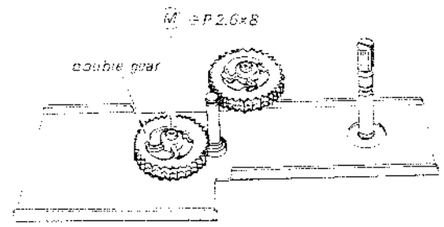


Fig. 2-18.

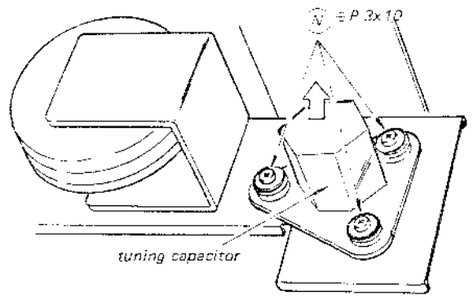


Fig. 2-19.

A-m Tuning Capacitor Reassembly

1. Set the tuning capacitor to the sub-chassis by attaching three screws.
2. Put the double-gear on the shaft of the tuning capacitor and attach it with the screw.
3. Turn the double-gear fully counterclockwise to its maximum capacitance position.
4. Set the tuning drum as shown in Fig. 2-17, slot to the right.
5. Set the tuning-capacitor-driving cord.

2-8. BAND SELECTOR DRIVE SPROCKET REMOVAL

1. Remove the two screws marked Ⓟ in Fig. 2-20 and remove the drive sprocket.
2. Remove the three screws marked Ⓠ and take off the slide switch bracket.
3. Now, the belt is removable.

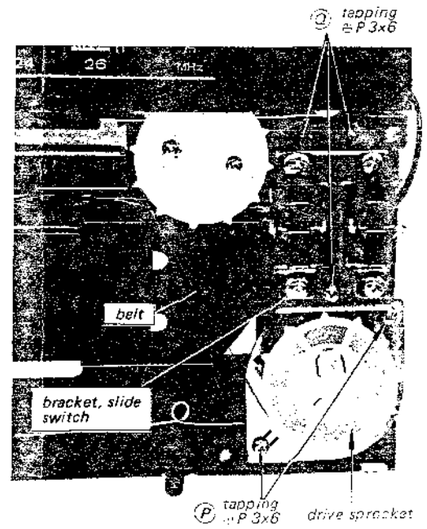


Fig. 2-20.

2-9. BFO BLOCK REMOVAL

1. Remove the i-f/af circuit board. (See Page 5.)
2. Remove the screw shown in Fig. 2-21.

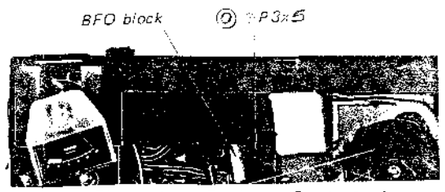


Fig. 2-21. BFO block removal

2-10. DIAL CORD RESTRINGING

Preparation

1. Remove the chassis as described in procedure 2-2 and place the chassis dial-scale-side-up.
2. Take off the dial scale. (Refer to Step 5 of 2-6 Fm Front End Block Removal on Page 7.)
3. Rotate the dial-tuning-drum fully clockwise to its maximum capacitance position.

1. Tuning Capacitor Driving Cord

1. Cut a dial cord and make a loop as shown in Fig. 2-22 using a spring and an eyelet.
2. String the tuning capacitor driving cord in numerical order as shown in Fig. 2-22.

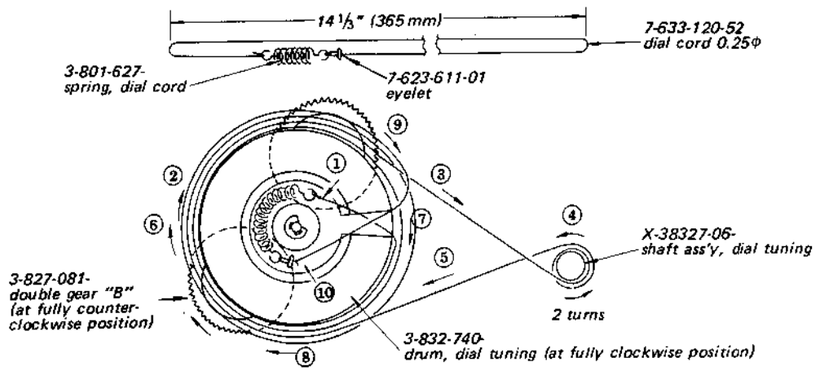


Fig. 2-22. Tuning capacitor driving cord stringing

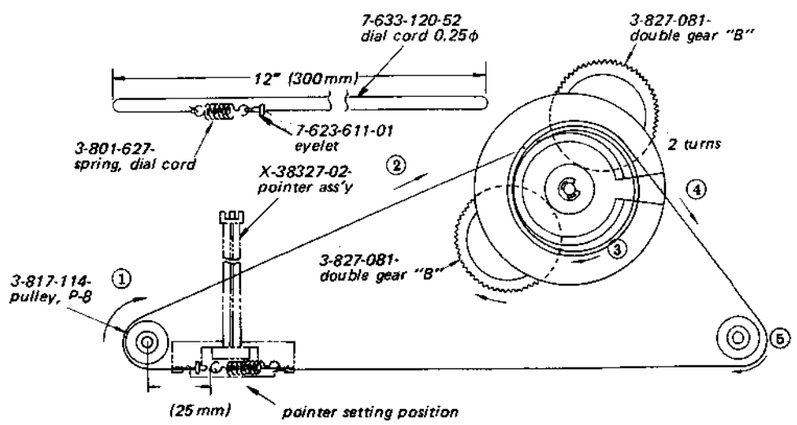


Fig. 2-23. Pointer driving cord stringing

2. Pointer Driving Cord

1. Cut a dial cord as shown in Fig. 2-23.
2. Keep the tuning shaft at fully counterclockwise position.
3. String the pointer driving cord in numerical order, setting the spring to the position shown in Fig. 2-23.

3. Pointer Sliding Cord

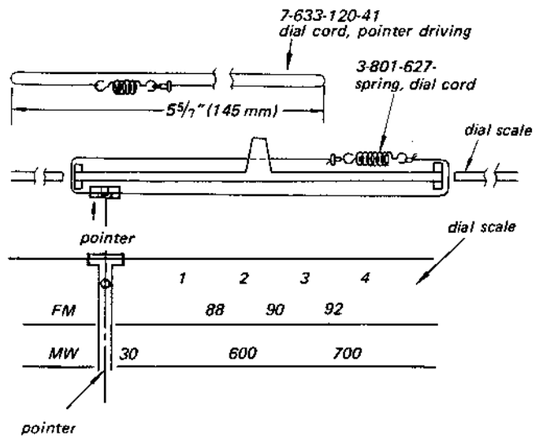


Fig. 2-24. Pointer sliding cord stringing

4. Pointer Setting

1. After stringing the pointer sliding cord, attach the dial scale.
2. Turn the tuning shaft fully counterclockwise.
3. Attach the pointer at 0 on the scale as shown in Fig. 2-24.

– Hardware Nomenclature –

P – Pan Head Screw	**SC** – Set Screw
PS – Pan Head Screw with Spring Washer	**E** – Retaining Ring (E Washer)
K – Flat Countersunk Head Screw	**W** – Washer
B – Binding Head Screw	**SW** – Spring Washer
RK – Oval Countersunk Head Screw	**LW** – Lock Washer
T – Truss Head Screw	**N** – Nut
R – Round Head Screw	
F – Flat Fillister Head Screw	

– Example –

⊕ P 3×10
- Type of Slot
- Length in mm (L)
- Diameter in mm (D)
- Type of Head

SECTION 3
CIRCUIT ADJUSTMENTS

3-1. FM IF ALIGNMENT

Test Equipments/Tools Required: 10.7 MHz sweep/marker generator
Oscilloscope
Screwdriver for alignment
0.01 μF ceramic capacitor

Sweep Generator Coupling	Sweep Generator Frequency	Oscilloscope Connection	Adjust	Remarks
Across CF F301 through a capacitor 0.01 μF (See Fig. 3-1 and 3-3a)	10.7 MHz	Across VOL control (See Fig. 3-3b)	IFT F303 F304 (See Fig. 3-3a)	Band Selector: FM AFC Switch: OFF Adjust for maximum amplitude and symmetrical "S" curve on the scope. (See Fig. 3-2)

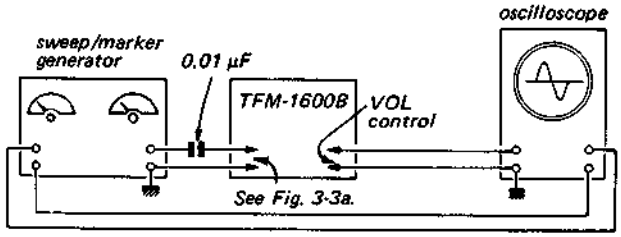


Fig. 3-1. Fm i-f alignment setup

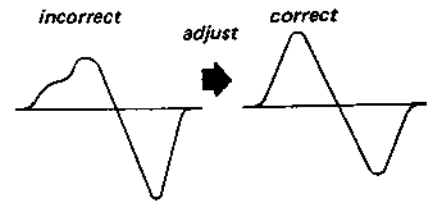


Fig. 3-2. Symmetrical "S" curve

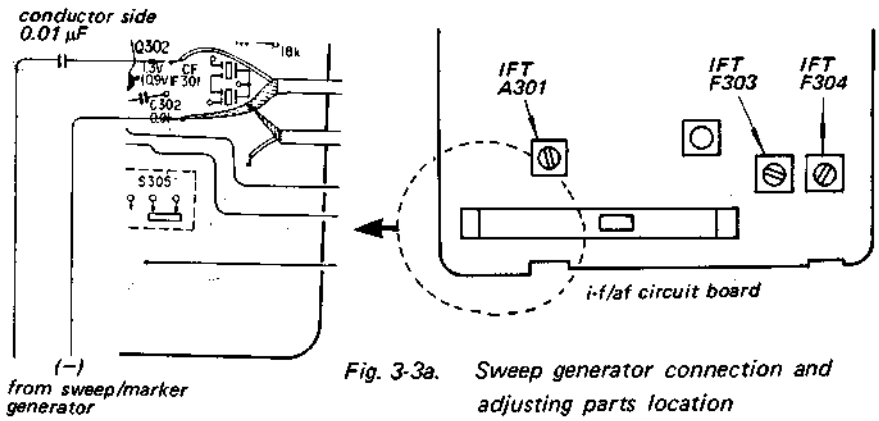


Fig. 3-3a. Sweep generator connection and adjusting parts location

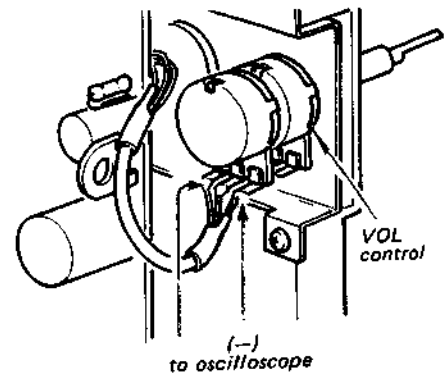


Fig. 3-3b. Oscilloscope connection

3-2. AM IF ALIGNMENT

Test Equipments/Tools Required: Rf signal generator (for a-m)
VTVM
8Ω resistor
Screwdriver for alignment

Rf Signal Generator Coupling	Rf Signal Generator Frequency	VTVM Connection	Adjust	Remarks
Loop antenna (See Fig. 3-4)	455 kHz (1 kHz 30% a-m)	Earphone jack with 8Ω load resistor in parallel	IFT A301 (See Fig. 3-3a)	Band Selector: MW VOL Control: MAX TONE Control: HIGH TUNING Knob: fully clockwise position Adjust for maximum meter reading.

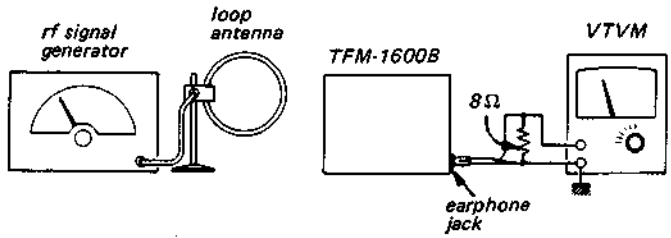


Fig. 3-4. Am i-f alignment, MW frequency coverage and tracking adjustment setup

3-3. FREQUENCY COVERAGE AND TRACKING ADJUSTMENT

Test Equipments/
Tools Required: Rf signal generator (for fm and a-m)
Loop antenna
VTVM
8Ω resistor
Screwdriver for alignment

Preparation:
VTVM Connection : To earphone jack with 8Ω load resistor in parallel.
Modulation : FM ... 400 Hz ±22.5 kHz frequency-modulated signal
AM ... 1 kHz 30% amplitude-modulated signal
VOL Control Setting : MAX
TONE Control Setting : HIGH
AFC Switch : OFF
SENS Switch : DX
MGC BFO Control Setting : OFF

Adjustment	Rf Signal Generator Coupling	Rf Signal Generator Frequency	Receiver Dial Setting	Adjust	Remarks
FM Frequency Coverage	Direct connection to the EXT. ANT terminals (See Fig. 3-5)	86.0 MHz	Fully left	FM osc coil L104	Band Selector: FM Adjust for maximum meter reading.
		109.5 MHz	Fully right	FM osc trimmer CT104	
FM Tracking	The special test equipment required for this adjustment makes this strictly a factory adjustment.				
MW Frequency Coverage	Loop antenna (See Fig. 3-4)	520 kHz	Fully left	MW osc coil L211	Band Selector: MW Adjust for maximum meter reading.
		1,680 kHz	Fully right	MW osc trimmer CT211	
MW Tracking		620 kHz	Tune to 620 kHz signal	MW ant coil L201 MW rf coil L206	
		1,400 kHz	Tune to 1,400 kHz signal	MW ant trimmer CT201 MW rf trimmer CT206	

Adjustment	Rf Signal Generator Coupling	Rf Signal Generator Frequency	Receiver Dial Setting	Adjust	Remarks
SW-1 Frequency Coverage	Direct connection to the EXT. ANT terminals	1.55 MHz	Fully left	SW-1 osc coil L212	Band Selector: SW-1 Adjust for maximum meter reading.
		3.7 MHz	Fully right	SW-1 osc trimmer CT212	
SW-1 Tracking		1.55 MHz	Tune to 1.55 MHz signal	SW-1 ant coil L202 SW-1 rf coil L207	
		3.7 MHz	Tune to 3.7 MHz signal	SW-1 ant trimmer CT202 SW-1 rf trimmer CT207	
SW-2 Frequency Coverage	Direct connection to the EXT. ANT terminals	3.3 MHz	Fully left	SW-2 osc coil L213	Band Selector: SW-2 Adjust for maximum meter reading.
		7.3 MHz	Fully right	SW-2 osc trimmer CT213	
SW-2 Tracking		3.3 MHz	Tune to 3.3 MHz signal	SW-2 ant coil L203 SW-2 rf coil L208	
		7.3 MHz	Tune to 7.3 MHz signal	SW-2 ant trimmer CT203 SW-2 rf trimmer CT208	
SW-3 Frequency Coverage	Direct connection to the EXT. ANT terminals	6.7 MHz	Fully left	SW-3 osc coil L214	Band Selector: SW-3 Adjust for maximum meter reading.
		14.5 MHz	Fully right	SW-3 osc trimmer CT214	
SW-3 Tracking		6.7 MHz	Tune to 6.7 MHz signal	SW-3 ant coil L204 SW-3 rf coil L209	
		14.5 MHz	Tune to 14.5 MHz signal	SW-3 ant trimmer CT204 SW-3 rf trimmer CT209	
SW-4 Frequency Coverage	Direct connection to the EXT. ANT terminals	13.5 MHz	Fully left	SW-4 osc coil L215	Band Selector: SW-4 Adjust for maximum meter reading.
		27.0 MHz	Fully right	SW-4 osc trimmer CT215	
SW-4 Tracking		13.5 MHz	Tune to 13.5 MHz signal	SW-4 ant coil L205 SW-4 rf coil L210	
		27.0 MHz	Tune to 27.0 MHz signal	SW-4 ant trimmer CT205 SW-4 trimmer CT210	

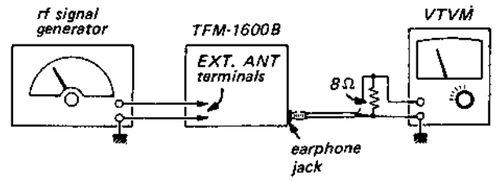


Fig. 3-5. FM, SW frequency coverage and tracking adjustment setup

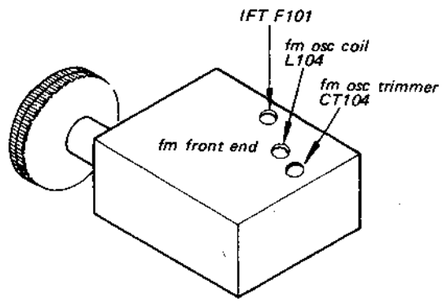


Fig. 3-6. Adjusting parts location, fm front end

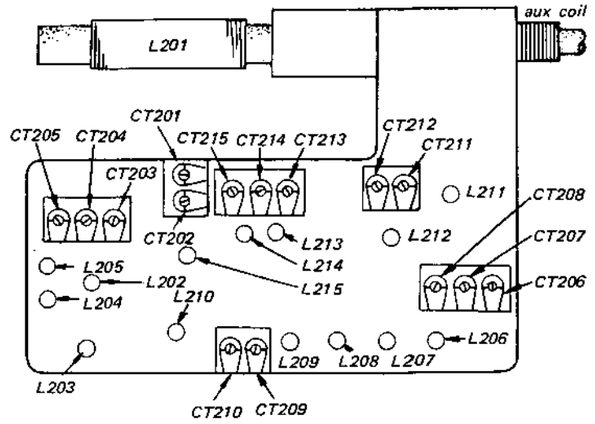


Fig. 3-7. Adjusting parts location, cp circuit board — conductor side view —

3-4. TUNING METER CALIBRATION

1. Set the band selector to FM with no radio signal received.
2. Make sure that the base voltage of Q303 is 0.8 volts with a VOM (20 kΩ/V).
   If not, change R314 so as to obtain the value specified above.

R314	Part No.	Description
	1-242-706	24 kΩ ¼W
	1-242-707	27 kΩ ¼W
	1-242-708	30 kΩ ¼W
	1-242-709	33 kΩ ¼W
	1-242-710	36 kΩ ¼W
	1-242-711	39 kΩ ¼W

3. Select the value of R320 so that the tuning meter indicates as shown in Fig. 3-8.

R320	Part No.	Description
	1-244-658	240 Ω ¼W
	1-244-659	270 Ω ¼W
	1-244-660	300 Ω ¼W
	1-244-661	330 Ω ¼W
	1-244-662	360 Ω ¼W
	1-244-663	390 Ω ¼W

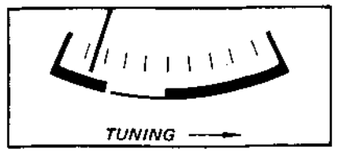
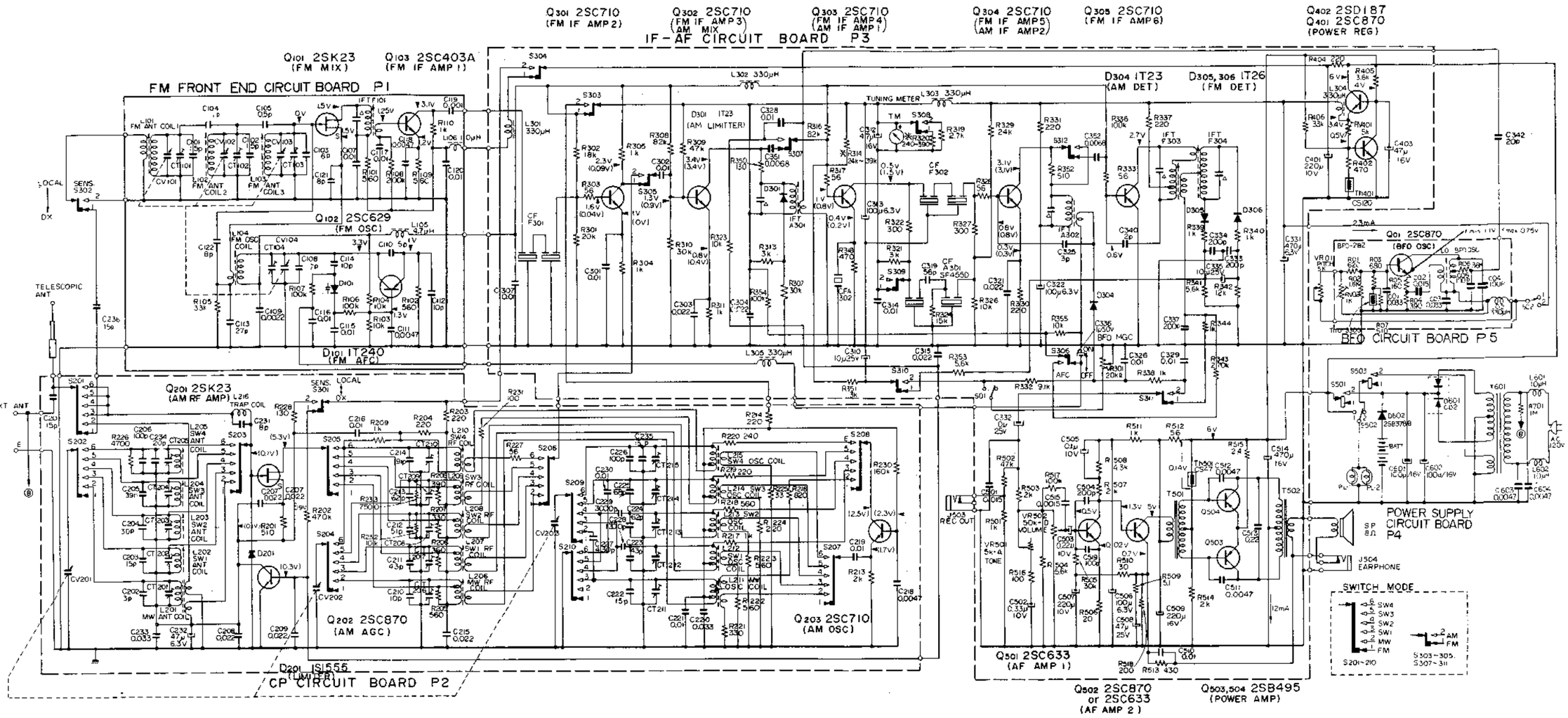


Fig. 3-8. Tuning meter indication with no signal

SECTION 4
SCHEMATIC DIAGRAM AND MOUNTING DIAGRAMS

4-1. SCHEMATIC DIAGRAM



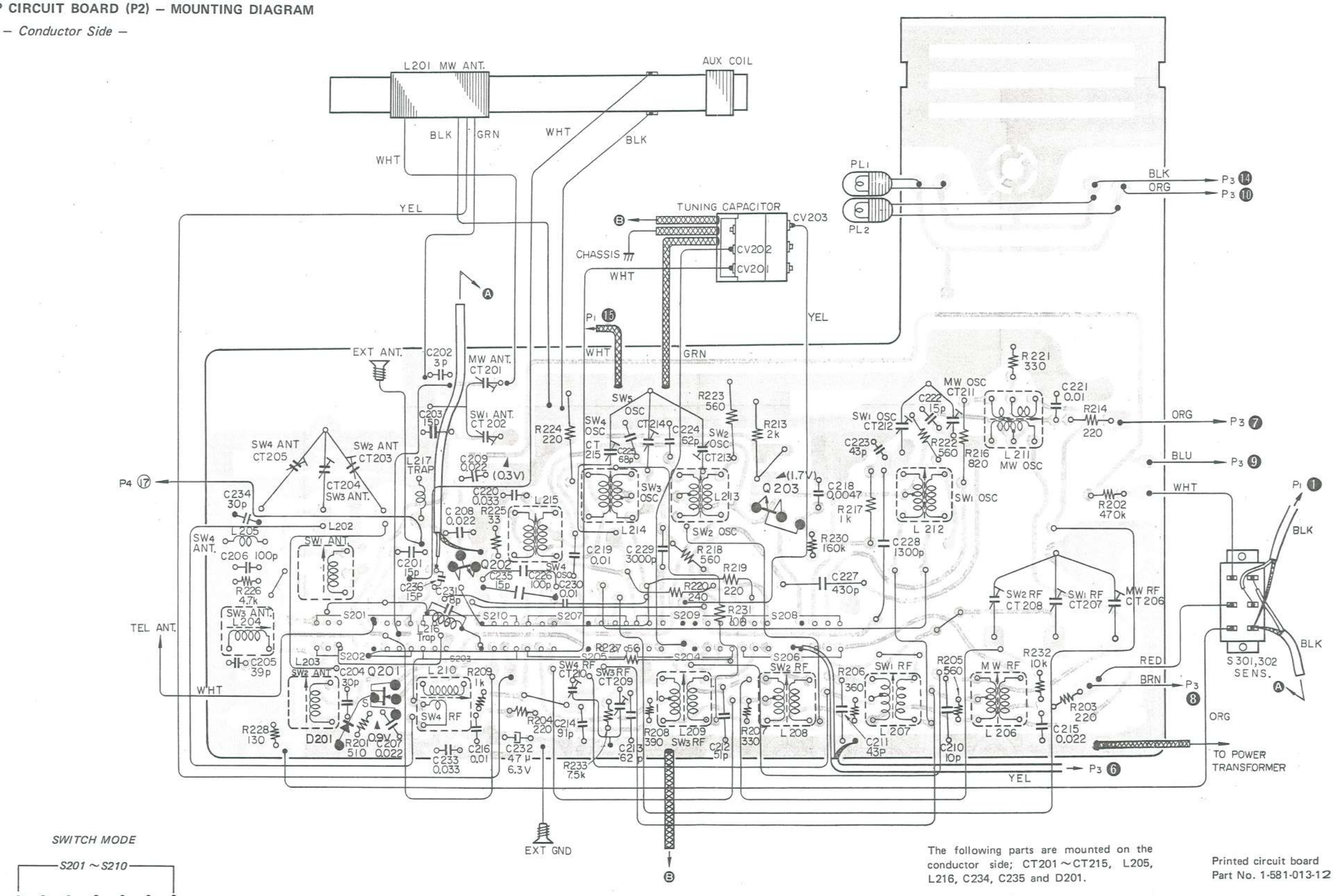
Note:

1. ⏚ shows grounding to chassis.
2. All resistors and capacitors are in Ω and μF, unless otherwise indicated.
3. Capacitor marked Δ is built in i-f transformer.
4. The symbol ※ indicates a component whose value is selected to yield specified operating condition.
5. Voltage value is measured to ground circuit with a dc voltmeter (20 kΩ/V) and current value is measured with a dc ammeter. Voltage and current are taken with no radio signal received and the values shown in ( ) with band selector set to MW. Variations may be noted due to normal production tolerances.
6. Switch Mode

Ref. No.	Function	Position
S201 ~ S210	Band Selector	FM
S301, S302	SENS switch	DX
S303 ~ S305 S307 ~ S312	FM/AM select	FM
S306	AFC switch	OFF
S501, S503	POWER switch	OFF
S502	LIGHT switch	OFF
S01, S02	BFO MGC switch	OFF

4-2. CP CIRCUIT BOARD (P2) – MOUNTING DIAGRAM

– Conductor Side –



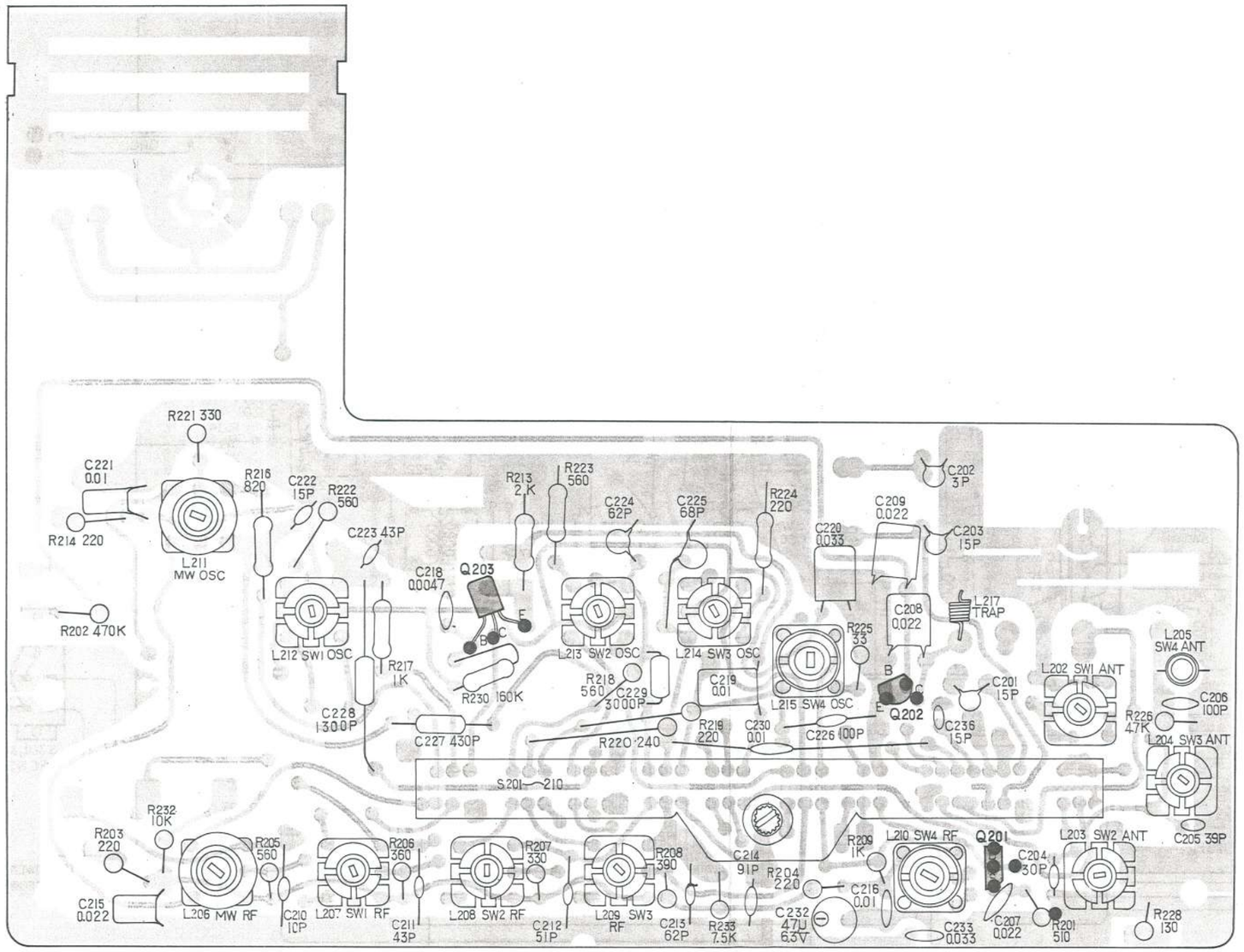
SWITCH MODE

The following parts are mounted on the conductor side; CT201 ~ CT215, L205, L216, C234, C235 and D201.

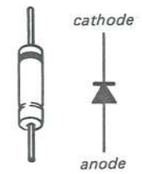
Printed circuit board
Part No. 1-581-013-12

CP CIRCUIT BOARD (P2) — MOUNTING DIAGRAM

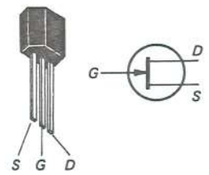
— Component Side —



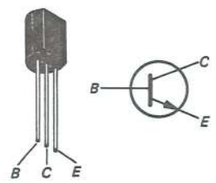
D201 1S1555



Q201 2SK23

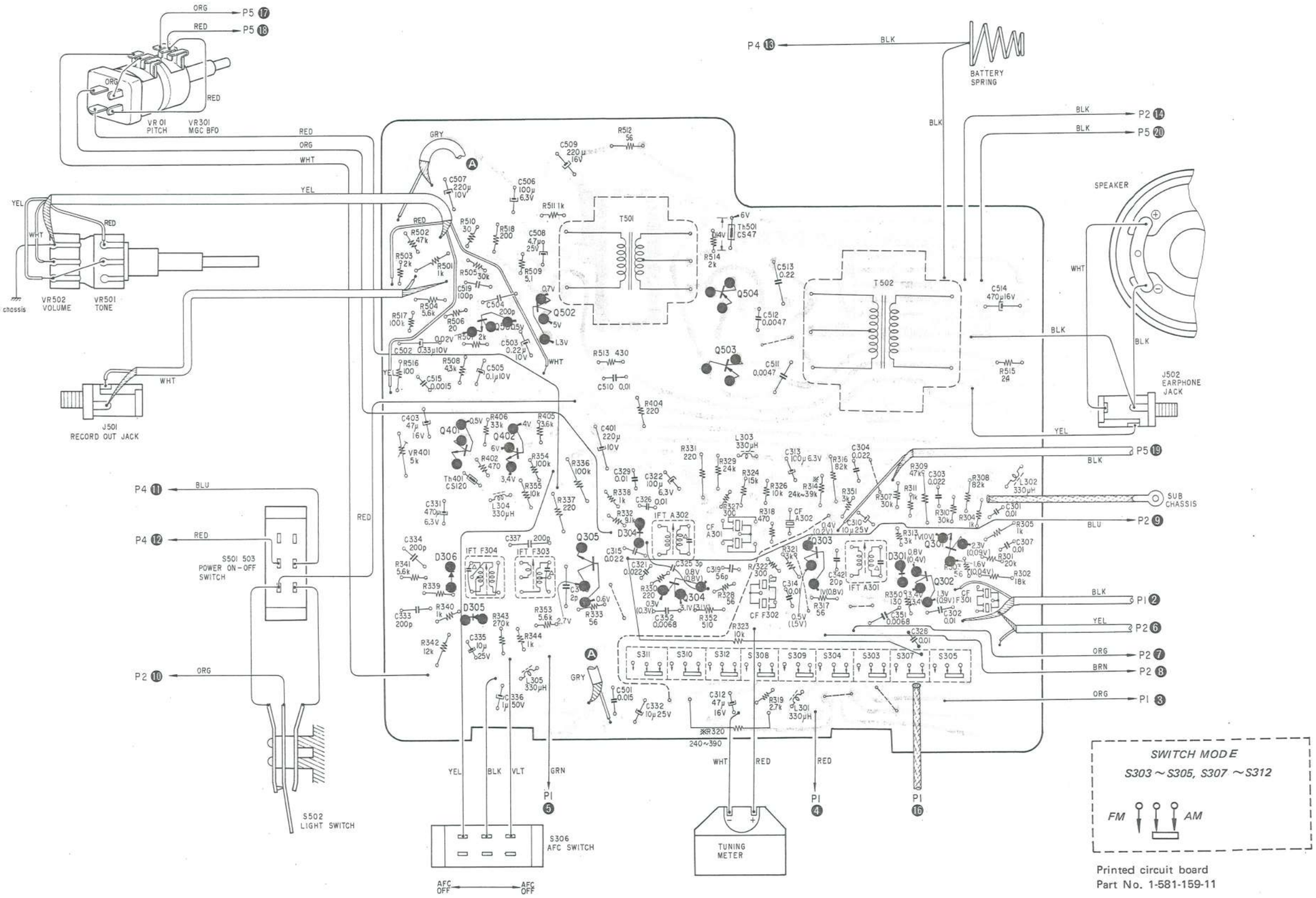


Q202 2SC870
Q203 2SC710



4-3. IF/AF CIRCUIT BOARD (P3) – MOUNTING DIAGRAM

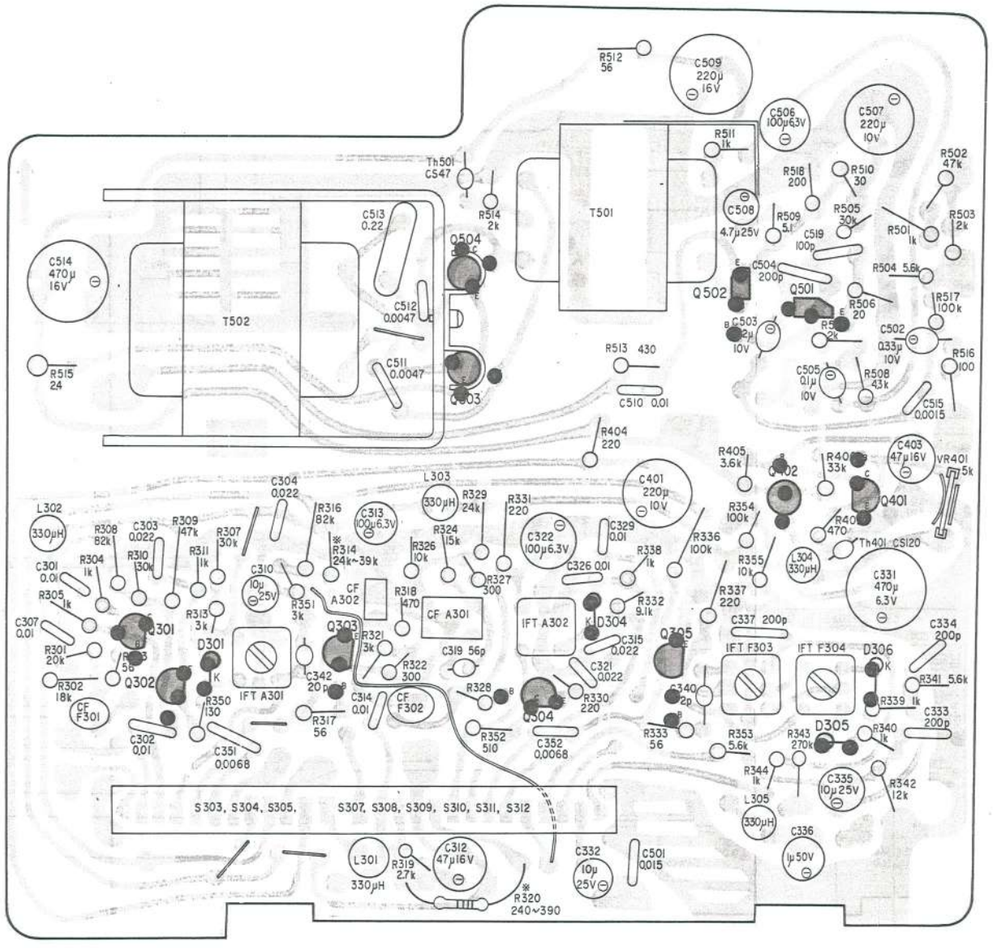
– Conductor Side –



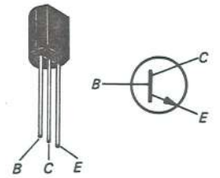
Printed circuit board
Part No. 1-581-159-11

IF/AF CIRCUIT BOARD (P3) – MOUNTING DIAGRAM

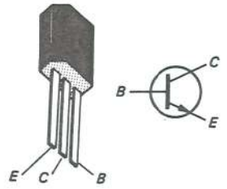
– Component Side –



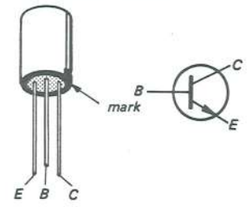
Q301 ~ Q305: 2SC710
Q401, Q502: 2SC870



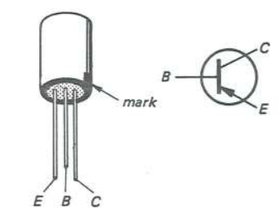
Q501: 2SC633



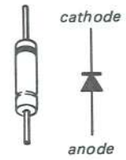
Q402: 2SD187



Q503, Q504: 2SB495

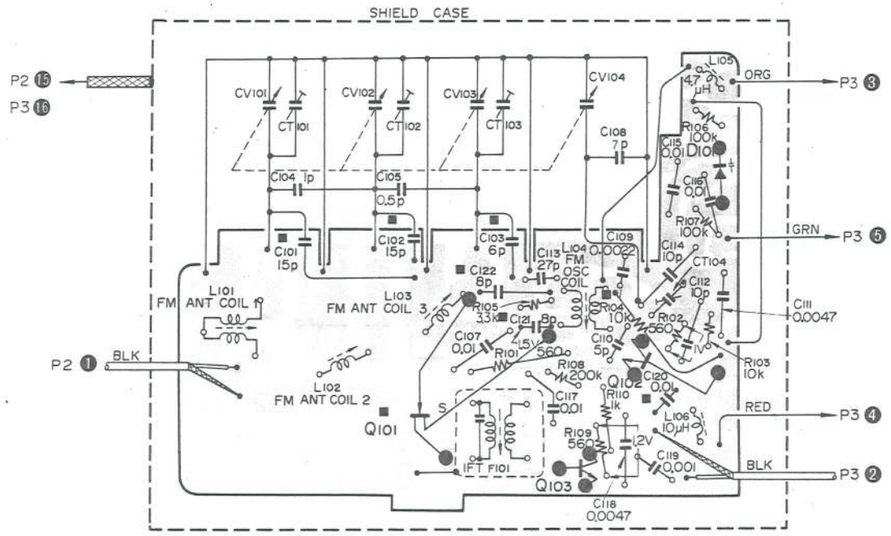


D301, D304: 1T23
D305, D306: 1T26

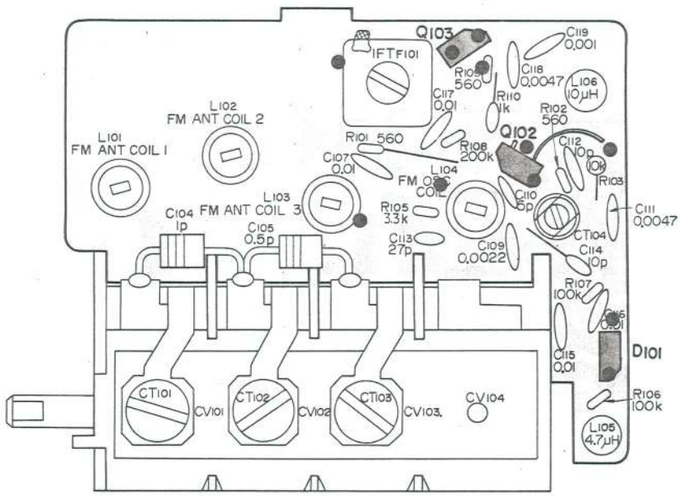


4-4. FM FRONT END CIRCUIT BOARD (P1) – MOUNTING DIAGRAM

– Conductor Side –

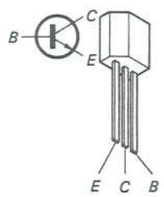


– Component Side –

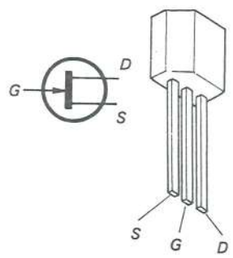


Note: 1. Printed circuit board, Part No. 1-538-793-12.
2. The following parts are mounted on the conductor side; C101, C102, C103, C120, C121, C122, R104 and Q101. (Marked ■ on the conductor side)

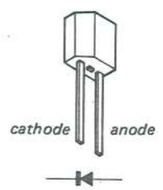
Q102 2SC629
Q103 2SC403A



Q101 2SK23



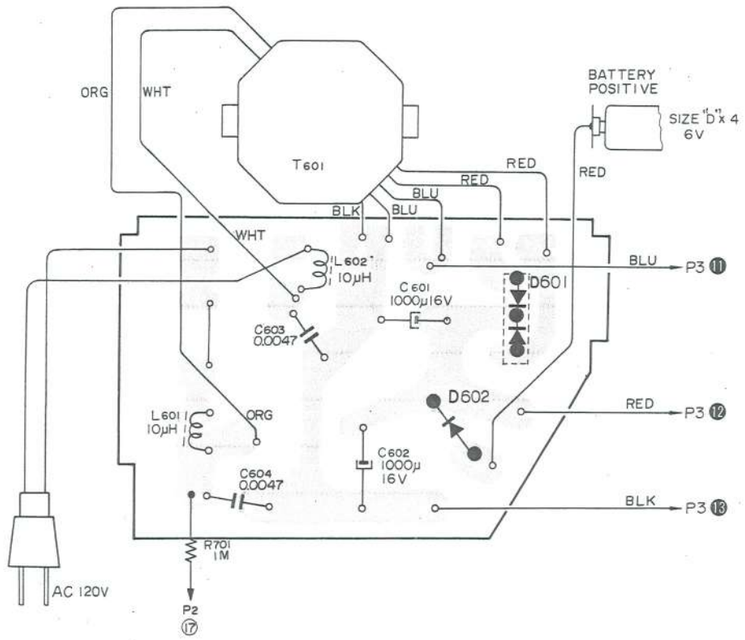
D101 1T240



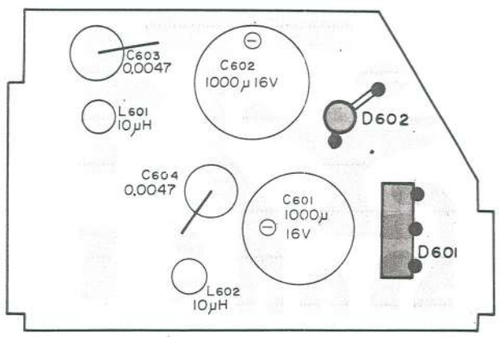
MEMO

4-5. POWER SUPPLY CIRCUIT BOARD (P4) — MOUNTING DIAGRAM

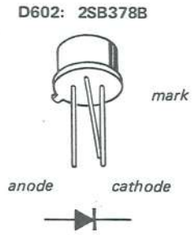
— Conductor Side —



— Component Side —



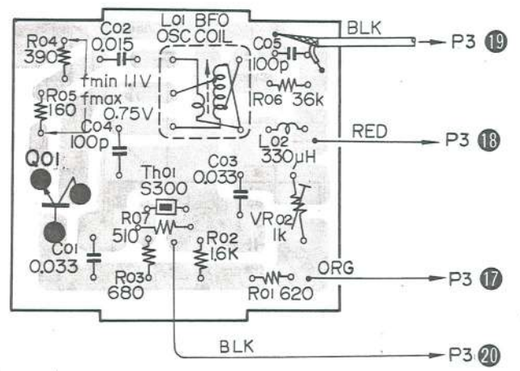
D602: 2SB378B



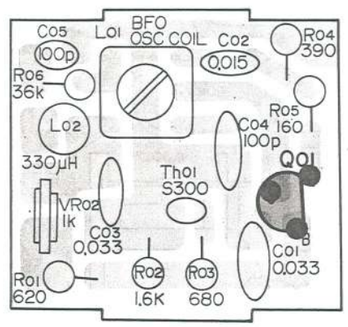
Printed circuit board
Part No. 1-539-192-13

4-6. BFO CIRCUIT BOARD (P5) — MOUNTING DIAGRAM

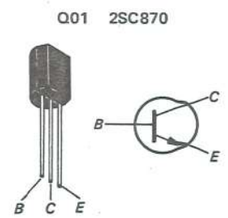
— Conductor Side —



— Component Side —



Q01 2SC870

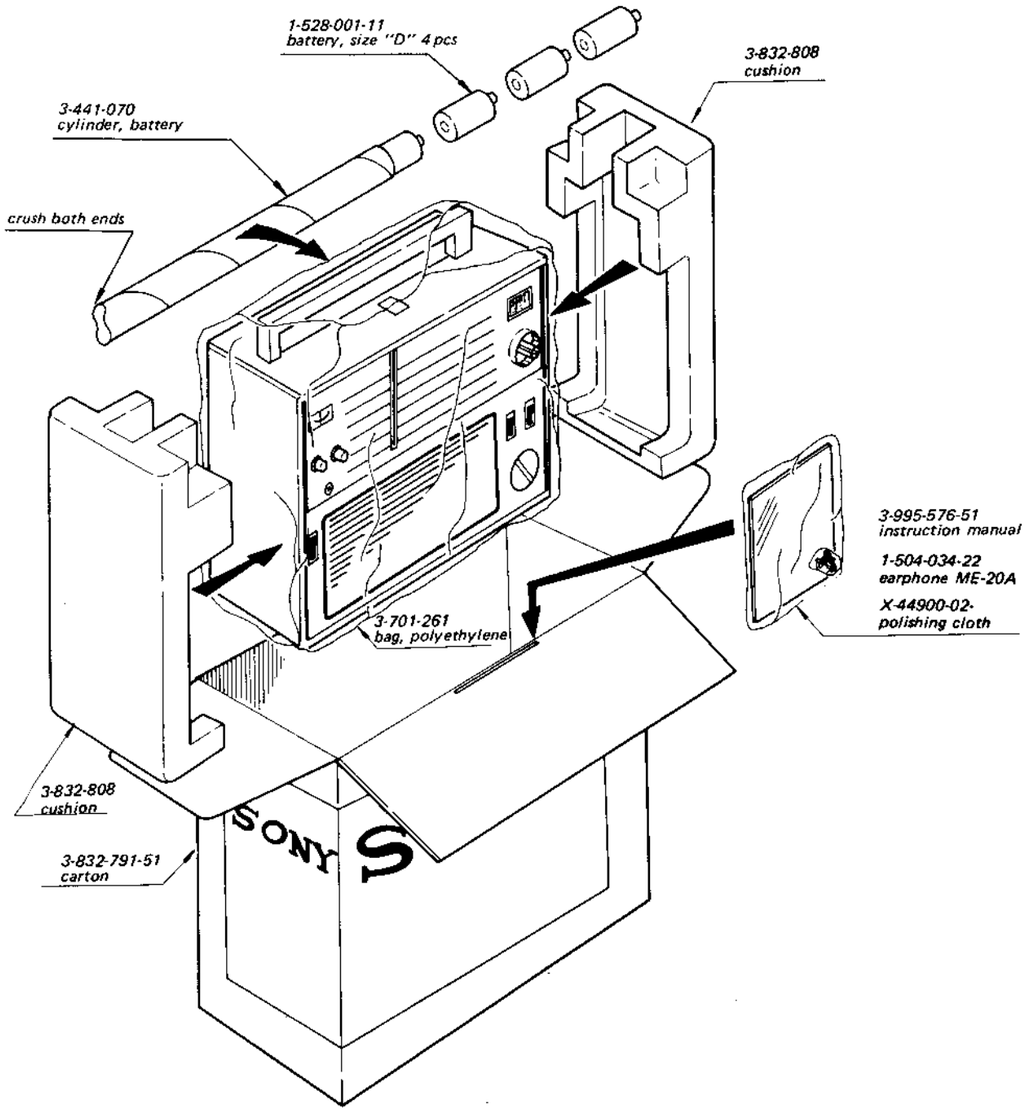


Printed circuit board
Part No. 1-539-629-12

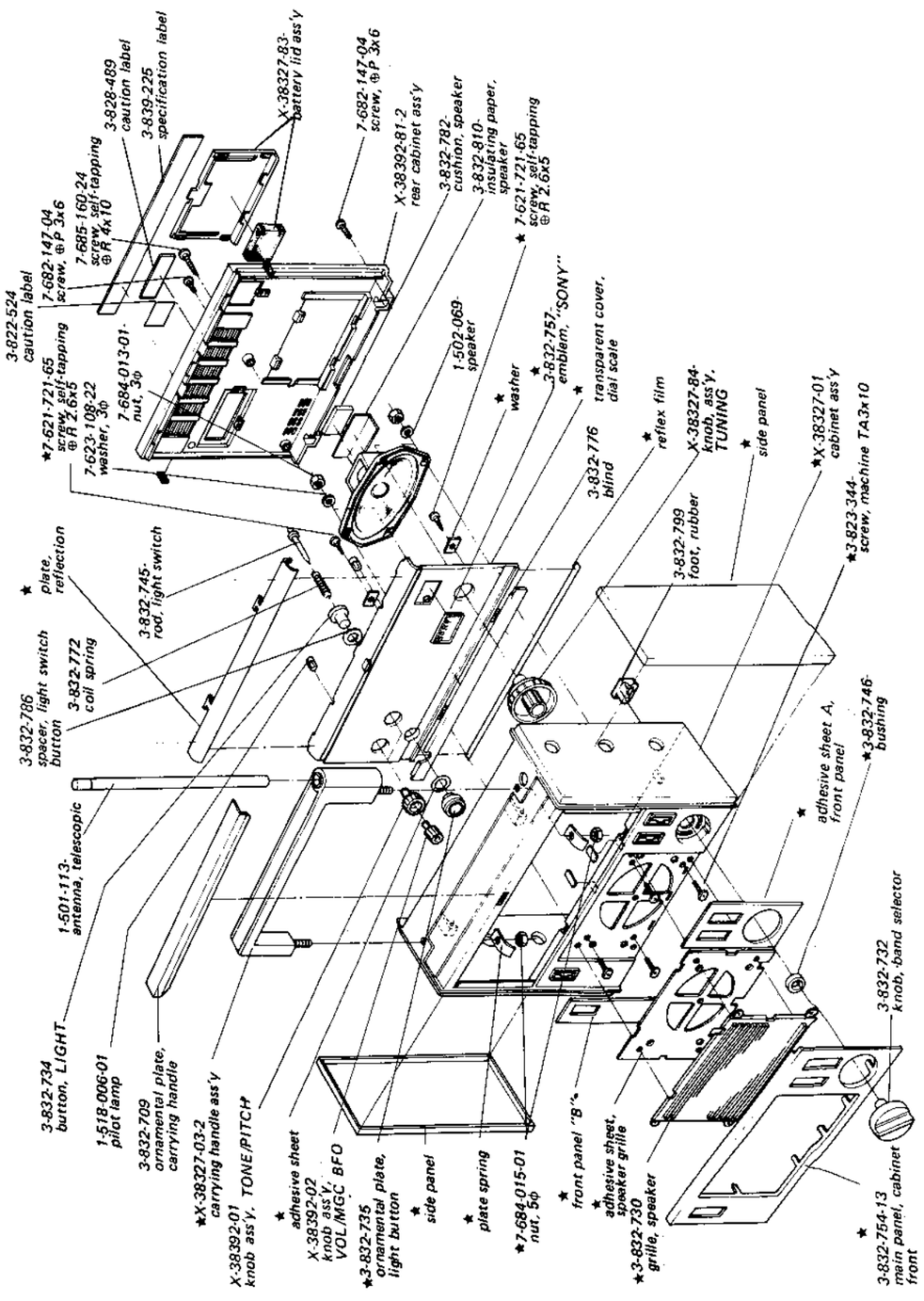
R07: mounted on the conductor side.

SECTION 5
EXPLODED VIEWS

5-1. PACKING

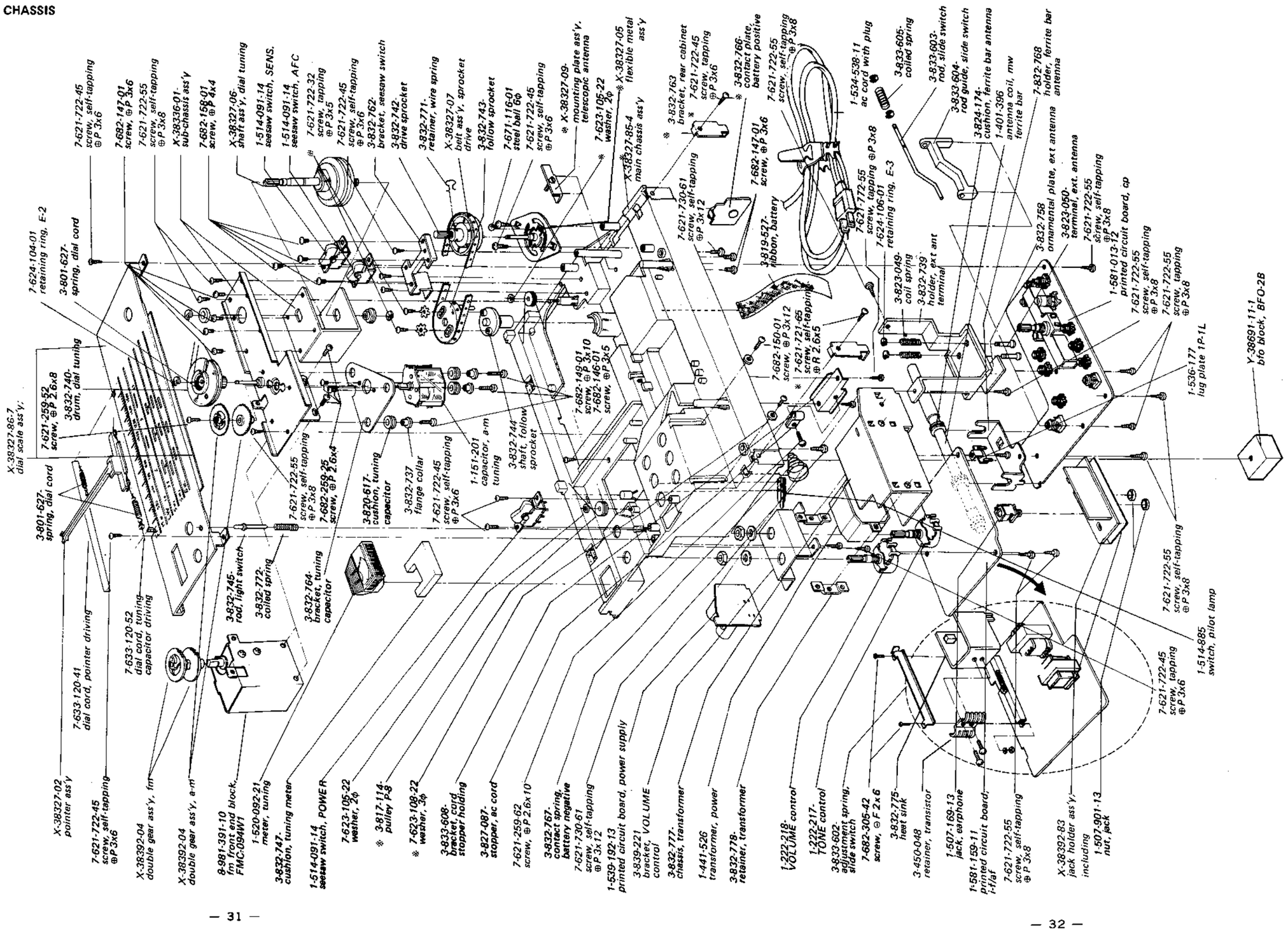


5-2. CABINET



Parts marked ★ are included in main cabinet ass'y, X-38392-82-1.

5-3. CHASSIS



Parts marked * are included in main chassis ass'y, Part No. X-38327-85-4.

SECTION 6
ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description
	SEMICONDUCTORS	
Q101		transistor 2SK23
Q102		transistor 2SC629
Q103		transistor 2SC403A
Q201		transistor 2SK23
Q202		transistor 2SC870
Q203		transistor 2SC710
Q301		transistor 2SC710
Q302		transistor 2SC710
Q303		transistor 2SC710
Q304		transistor 2SC710
Q305		transistor 2SC710
Q401		transistor 2SC870
Q402		transistor 2SD187
Q501		transistor 2SC633
Q502		transistor 2SC870
Q503		transistor 2SB495
Q504		transistor 2SB495
Q01		transistor 2SC870
D101		diode 1T240
D301		diode 1T23
D302		– discarded –
D303		– discarded –
D304		diode 1T23
D305		diode 1T26
D306		diode 1T26
D601		diode CD-2
D602		diode 2SB378B
Th401		thermistor CS-120
Th501		thermistor CS-47
Th01		thermistor S-300
	COILS AND TRANSFORMERS	
L101	1-425-526	antenna coil 1, fm
L102	1-425-525	antenna coil 2, fm
L103	1-425-525	antenna coil 3, fm
L104	1-405-386	osc coil, fm
L105	1-407-186	micro inductor, 4.7μH
L106	1-407-190	micro inductor, 10μH
L201	1-401-396	antenna coil, mw ferrite bar
L202	1-401-397	ant coil, SW1
L203	1-401-398	ant coil, SW2
L204	1-401-399	ant coil, SW3
L205	1-401-400	ant coil, SW4
L206	1-425-552	rf coil, mw
L207	1-425-553	rf coil, sw1
L208	1-425-554	rf coil, sw2
L209	1-425-555	rf coil, sw3
L210	1-425-556	rf coil, sw4
L211	1-405-399	osc coil, mw
L212	1-405-400	osc coil, sw1
L213	1-405-401	osc coil, sw2
L214	1-405-402	osc coil, sw3
L215	1-405-403	osc coil, sw4
L216	1-401-201	trap coil
L217	1-401-201	trap coil
L301	1-407-175	330μH, micro inductor
L302	1-407-175	330μH, micro inductor
L303	1-407-175	330μH, micro inductor
L304	1-407-175	330μH, micro inductor
L305	1-407-175	330μH, micro inductor
L01	1-405-450	osc coil, bfo
L02	1-407-175	330μH, micro inductor
IFT F101	1-403-294	transformer, fm i-f
IFT F301		– discarded –
IFT F302		– discarded –
IFT F303	1-403-272-31	transformer, fm discriminator
IFT F304	1-403-273-31	transformer, fm discriminator
IFT A301	1-403-145-12	transformer, a-m i-f
IFT A302	1-403-137-11	transformer, a-m i-f
CF F301	1-527-501-13	ceramic filter, fm i-f
CF F302	1-527-501-13	ceramic filter, fm i-f
CF A301	1-403-161-13	ceramic filter, a-m i-f
CF A302	1-403-154-11	ceramic filter, a-m i-f
T501	1-423-100	transformer, driver
T502	1-427-259	transformer, output
T601	1-441-526	transformer, power
L601	1-407-157	10μH, micro inductor
L602	1-407-157	10μH, micro inductor
	CAPACITORS	
C101	1-101-861	15pF ceramic
C102	1-101-861	15pF ceramic
C103	1-101-956	6pF ceramic
C104	1-101-937	1pF ceramic
C105	1-101-936	0.5pF ceramic
C106		– discarded –
C107	1-101-072	0.01μF ceramic
C108	1-101-662	7pF ceramic
C109	1-102-121	0.0022μF ceramic
C110	1-102-864	5pF ceramic
C111	1-102-090	0.0047μF ceramic
C112	1-102-508	10pF ceramic
C113	1-101-869	27pF ceramic
C114	1-101-976	10pF ceramic
C115	1-101-072	0.01μF ceramic
C116	1-101-072	0.01μF ceramic
C117	1-101-072	0.01μF ceramic
C118	1-105-829-12	0.0047μF mylar
C119	1-101-918	0.001μF ceramic
C120	1-101-072	0.01μF ceramic
C121	1-101-958	8pF ceramic
C122	1-101-958	8pF ceramic

Ref. No.	Part No.	Description		
C201	1-101-899	15pF		ceramic
C202	1-101-953	3pF		ceramic
C203	1-101-861	15pF		ceramic
C204	1-101-900	30pF		ceramic
C205	1-101-877	39pF		ceramic
C206	1-101-963	100pF		ceramic
C207	1-105-837-12	0.022μF		mylar
C208	1-105-837-12	0.022μF		mylar
C209	1-105-837-12	0.022μF		mylar
C210	1-101-960	10pF		ceramic
C211	1-101-879	43pF		ceramic
C212	1-101-883	51pF		ceramic
C213	1-101-887	62pF		ceramic
C214	1-101-895	91pF		ceramic
C215	1-105-837-12	0.022μF		mylar
C216	1-105-833-12	0.01μF		mylar
C217		– discarded –		
C218	1-105-829-12	0.0047μF		mylar
C219	1-105-833-12	0.01μF		mylar
C220	1-105-839-12	0.033μF		mylar
C221	1-105-833-12	0.01μF		mylar
C222	1-101-899	15pF		ceramic
C223	1-102-966	43pF		ceramic
C224	1-101-887	62pF		ceramic
C225	1-109-889	68pF		ceramic
C226	1-101-963	100pF		ceramic
C227	1-103-716	430pF		styrol
C228	1-103-728	1,300pF		styrol
C229	1-103-736	3,000pF		styrol
C230	1-105-833-12	0.01μF		mylar
C231	1-101-958	8pF		ceramic
C232	1-121-409	47μF	16V	electrolytic
C233	1-105-839-12	0.033μF		mylar
C234	1-101-973	20pF		ceramic
C235	1-101-899	15pF		ceramic
C236	1-101-899	15pF		ceramic
C301	1-105-411-12	0.01μF		mylar
C302	1-105-411-12	0.01μF		mylar
C303	1-105-413-12	0.022μF		mylar
C304	1-105-413-12	0.022μF		mylar
C305		– discarded –		
C306		– discarded –		
C307	1-105-411-12	0.01μF		mylar
C308		– discarded –		
C309		– discarded –		
C310	1-121-398	10μF	25V	electrolytic
C311		– discarded –		
C312	1-121-409	47μF	16V	electrolytic
C313	1-121-413	100μF	6.3V	electrolytic
C314	1-105-411-12	0.01μF		mylar
C315	1-105-413-12	0.022μF		mylar
C316		– discarded –		
C317		– discarded –		
C318		– discarded –		
C319	1-101-885	56pF		ceramic
C320		– discarded –		
C321	1-105-413-12	0.022μF		mylar
C322	1-121-413	100μF	6.3V	electrolytic
C323		– discarded –		
C324		– discarded –		
C325	1-101-953	3pF		ceramic
C326	1-105-411-12	0.01μF		mylar
C327		– discarded –		
C328	1-105-411-12	0.01μF		mylar
C329	1-105-411-12	0.01μF		mylar
C330		– discarded –		
C331	1-121-425	470μF	6.3V	electrolytic
C332	1-121-398	10μF	25V	electrolytic
C333	1-107-138	200pF		silvered mica
C334	1-107-138	200pF		silvered mica
C335	1-121-398	10μF	25V	electrolytic
C336	1-121-391	1μF	50V	electrolytic
C337	1-107-138	200pF		silvered mica
C338		– discarded –		
C339		– discarded –		
C340	1-101-952	2pF		ceramic
C341		– discarded –		
C342	1-102-958	20pF		ceramic
C351	1-105-831-12	0.0068μF		mylar
C352	1-105-831-12	0.0068μF		mylar
C401	1-121-420	220μF	10V	electrolytic
C402		– discarded –		
C403	1-121-409	47μF	16V	electrolytic
C501	1-105-412-12	0.015μF		mylar
C502	1-127-021	0.33μF	10V	electrolytic (alox)
C503	1-127-020	0.22μF	10V	electrolytic (alox)
C504	1-107-138	200pF		silvered mica
C505	1-127-019	0.1μF	10V	electrolytic (alox)
C506	1-121-413	100μF	6.3V	electrolytic
C507	1-121-420	220μF	10V	electrolytic
C508	1-121 395	4.7μF	25V	electrolytic
C509	1-121-358	220μF	16V	electrolytic
C510	1-105-411-12	0.01μF		mylar
C511	1-105-829-12	0.0047μF		mylar
C512	1-105-829-12	0.0047μF		mylar
C513	1-105-419-12	0.22μF		mylar
C514	1-121-426	470μF	16V	electrolytic
C515	1-105-503-12	0.0015μF		mylar
C516		– discarded –		
C517		– discarded –		
C518		– discarded –		
C519	1-101-963	100pF		ceramic

Ref. No.	Part No.	Description
C601	1-121-186	1,000μF 16V electrolytic
C602	1-121-186	1,000μF 16V electrolytic
C603	1-115-110	0.0047μF paper
C604	1-115-110	0.0047μF paper
C01	1-105-839-12	0.033μF mylar
C02	1-105-675-12	0.015μF mylar
C03	1-105-839-12	0.033μF mylar
C04	1-102-764	100pF ceramic
C05	1-103-751	100pF styrol

RESISTORS

All resistors are ¼W ±5% carbon type resistors unless otherwise noted.

R101	1-208-027	560Ω	1/10W	ceramic
R102	1-208-027	560Ω	1/10W	ceramic
R103	1-244-697	10kΩ		
R104	1-244-697	10kΩ		
R105	1-208-045	3.3kΩ	1/10W	ceramic
R106	1-208-145	100kΩ	1/10W	ceramic
R107	1-208-145	100kΩ	1/10W	ceramic
R108	1-208-088	200kΩ	1/10W	ceramic
R109	1-208-027	560Ω	1/10W	ceramic
R110	1-208-033	1kΩ	1/10W	ceramic
R201	1-242-666	510Ω		
R202	1-242-737	470kΩ		
R203	1-242-657	220Ω		
R204	1-242-657	220Ω		
R205	1-242-667	560Ω		
R206	1-242-662	360Ω		
R207	1-244-661	330Ω		
R208	1-242-663	390Ω		
R209	1-242-673	1kΩ		
R210		– discarded –		
R211		– discarded –		
R212		– discarded –		
R213	1-242-680	2kΩ		
R214	1-242-657	220Ω		
R215		– discarded –		
R216	1-242-672	820Ω		
R217	1-244-673	1kΩ		
R218	1-242-667	560Ω		
R219	1-242-657	220Ω		
R220	1-242-658	240Ω		
R221	1-242-661	330Ω		
R222	1-244-667	560Ω		
R223	1-244-667	560Ω		
R224	1-244-657	220Ω		
R225	1-244-637	33Ω		
R226	1-242-689	4.7kΩ		
R227	1-244-643	56Ω		

Ref. No.	Part No.	Description
R228	1-242-652	130Ω
R229		– discarded –
R230	1-244-726	160kΩ
R231	1-244-649	100Ω
R232	1-242-697	10kΩ
R233	1-244-694	7.5kΩ
R301	1-242-704	20kΩ
R302	1-242-703	18kΩ
R303	1-242-643	56Ω
R304	1-242-673	1kΩ
R305	1-242-673	1kΩ
R306		– discarded –
R307	1-242-708	30kΩ
R308	1-242-719	82kΩ
R309	1-242-713	47kΩ
R310	1-242-708	30kΩ
R311	1-242-673	1kΩ
R312		– discarded –
R313	1-242-684	3kΩ
※R314	1-242-706	24kΩ
	1-242-707	27kΩ
	1-242-708	30kΩ
	1-242-709	33kΩ
	1-242-710	36kΩ
	1-242-711	39kΩ
R315		– discarded –
R316	1-242-719	82kΩ
R317	1-242-643	56Ω
R318	1-242-665	470Ω
R319	1-242-683	2.7kΩ
※R320	1-244-658	240Ω
	1-244-659	270Ω
	1-244-660	300Ω
	1-244-661	330Ω
	1-244-662	360Ω
	1-244-663	390Ω
R321	1-242-684	3kΩ
R322	1-242-660	300Ω
R323	1-242-697	10kΩ
R324	1-242-701	15kΩ
R325		– discarded –
R326	1-242-697	10kΩ
R327	1-242-660	300Ω
R328	1-242-643	56Ω
R329	1-242-706	24kΩ
R330	1-242-657	220Ω
R331	1-242-657	220Ω
R332	1-242-696	9.1kΩ
R333	1-242-643	56Ω
R334		– discarded –
R335		– discarded –
R336	1-242-721	100kΩ

※ : to be selected (See page 14)

Ref. No.	Part No.	Description
R337	1-242-657	220Ω
R338	1-242-673	1kΩ
R339	1-242-673	1kΩ
R340	1-242-673	1kΩ
R341	1-242-691	5.6kΩ
R342	1-242-699	12kΩ
R343	1-242-731	270kΩ
R344	1-242-673	1kΩ
R350	1-242-652	130Ω
R351	1-242-684	3kΩ
R352	1-242-666	510Ω
R353	1-242-691	5.6kΩ
R354	1-242-721	100kΩ
R355	1-242-697	10kΩ
R401		– discarded –
R402	1-242-665	470Ω
R403		– discarded –
R404	1-242-657	220Ω
R405	1-242-686	3.6kΩ
R406	1-244-709	33kΩ
R501	1-242-673	1kΩ
R502	1-242-713	47kΩ
R503	1-242-680	2kΩ
R504	1-242-691	5.6kΩ
R505	1-242-708	30kΩ
R506	1-242-632	20Ω
R507	1-242-680	2kΩ
R508	1-242-688	4.3kΩ
R509	1-242-618	5.1Ω
R510	1-242-636	30Ω
R511	1-242-673	1kΩ
R512	1-242-643	56Ω
R513	1-242-664	430Ω
R514	1-242-680	2kΩ
R515	1-242-810	2.4Ω
R516	1-242-449	100Ω
R517	1-242-721	100kΩ
R518	1-242-656	200Ω
R701	1-202-645	1MΩ ½W carbon

Ref. No.	Part No.	Description
R01	1-244-668	620Ω
R02	1-244-678	1.6kΩ
R03	1-244-669	680Ω
R04	1-244-663	390Ω
R05	1-244-654	160Ω
R06	1-244-710	36kΩ

MISCELLANEOUS

TEL ANT	1-501-113	antenna, telescopic
SP	1-502-069	speaker, 8Ω
CV101~104, CT101~103	1-151-158	capacitor, fm tuning
CV201~203	1-151-201	capacitor, a-m tuning
CT104	1-141-086	capacitor, fm osc trimmer
CT201, 202	1-141-011	capacitor, trimmer, 2 gang
CT203~205	1-141-015	capacitor, trimmer, 3 gang
CT206~208	1-141-015	capacitor, trimmer, 3 gang
CT209, 210	1-141-011	capacitor, trimmer, 2 gang
CT211, 212	1-141-011	capacitor, trimmer 2 gang
CT213~215	1-141-015	capacitor, trimmer 3 gang
VR01, 301	1-222-519	BFO PITCH, MGC control
VR401	1-221-635	variable resistor, regulator adjust
VR501, 502	1-222-503	VOL and TONE control
J503	1-507-169-13	jack, record out
J504	1-507-169-13	jack, earphone
	1-507-901-12	nut, jack
S301, 302	1-514-091-14	switch, SENS (LOCAL/DX)
S303~305, S307~312	1-514-454-12	switch, fm/a-m selector
S306	1-514-091-14	switch, AFC
S201~210	1-514-577	switch, band select
TM	1-520-092-22	meter, tuning
PL1	1-518-006-01	lamp, LIGHT
PL2	1-518-006-01	lamp, LIGHT
	1-534-538-11	ac cord with plug
	8-981-391-10	fm front end block, FMC-094W1
	Y-38691-11-1	bfo block, BFO-2B
	1-538-793-12	printed circuit board, fm front end
	1-539-629-12	printed circuit board, bfo
	1-581-013-12	printed circuit board, cp
	1-581-159-11	printed circuit board, i-f/af
	1-539-192-13	printed circuit board, power

When ordering replacement parts you should use PART NUMBER listed on the Parts List or shown in the Exploded View. The reference number should not be used for ordering purposes.

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