

ICF-111L



FM-MW-LW PORTABLE RADIO

SPECIFICATIONS

| | | | |
|---|--|---------------------------|--|
| Circuit System: | 10-transistor 1-FET 1-IC 6-diode superheterodyne 1-transistor, 1-diode (SLED) for auxiliary circuit | Power Output | at 10% distortion: 700 mW maximum: 1.1W |
| Frequency Coverage: | FM 87.5~108 MHz (3.42~2.78m) LW 150~400 kHz (2,000~750m) MW 530~1,605 kHz (566~187m) | Current Drain | at zero signal: FM 30 mA, LW/MW 25 mA at 10% distortion: 340 mA |
| Intermediate Frequency: | FM 10.7 MHz LW/MW 455 kHz | Power Requirement: | Three "C" size flashlight batteries 4.5V in total |
| Antenna System: | FM built-in telescopic antenna LW/MW built-in ferrite bar antenna | Speaker: | 9.2 cm (3½") dia. PM dynamic, 8Ω |
| Sensitivity at 50 mW output: | FM 2.2 μV (7 dB) at S/N 30 dB LW 250 μV/m (48 dB/m) MW 80 μV/m (38 dB/m) | Dimensions: | 214 mm(W) x 178 mm(H) x 56 mm(D) (8⅞" x 7" x 2⅜") |
| Selectivity at ±10 kHz off resonance: | 40 dB at 1,400 kHz | Weight: | 1.3 kg (2 lb 14 oz) |

SONY
SERVICE MANUAL

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**SECTION 1
OUTLINE**

1-1. EXTERNAL VIEW

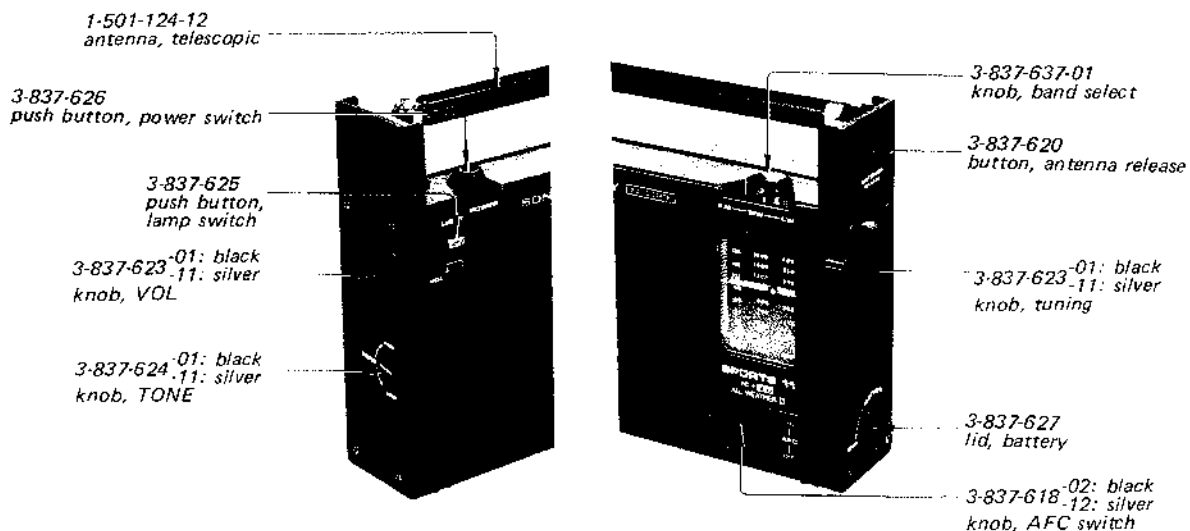


Fig. 1-1.

1-2. INTERNAL VIEW

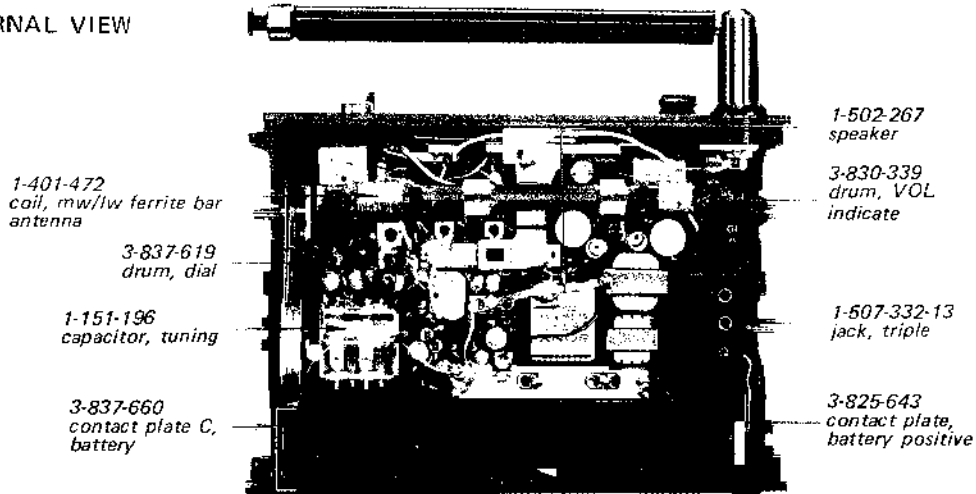


Fig. 1-2.

1-3. BLOCK DIAGRAM

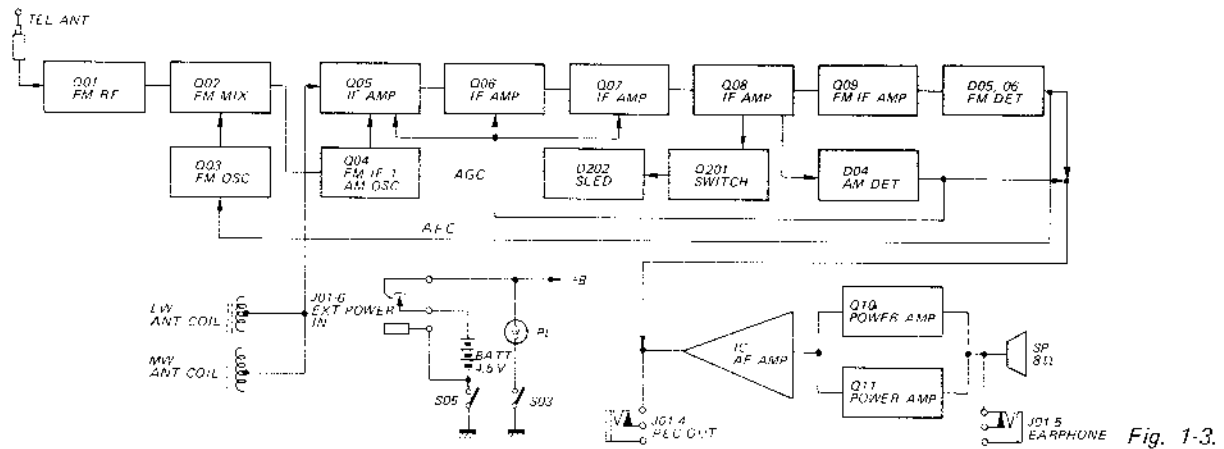


Fig. 1-3.

1-4. RESONANCE INDICATING CIRCUIT

The model ICF-111L resonance indicating circuit uses the SLED (SONY Light Emitting Diode).

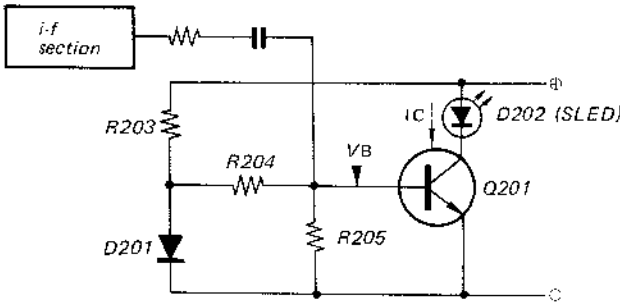


Fig. 1-4.

The circuit is shown in Fig. 1-4. Resistors R203, R204, R205, and diode D201 keep a constant bias voltage (V_B) on the base of Q201. The bias is set at the cut-off point of Q201. Here, D201 stabilizes the bias against a variation in source voltage or temperature.

ZERO collector current flows at no input signal, but the transistor has a high sensitivity to an input signal. When an i-f signal (of 455 kHz or 10.7 MHz) is added to the base, collector current flows in proportion to the signal strength. Thus, the SLED (D202) is illuminated by the collector current.

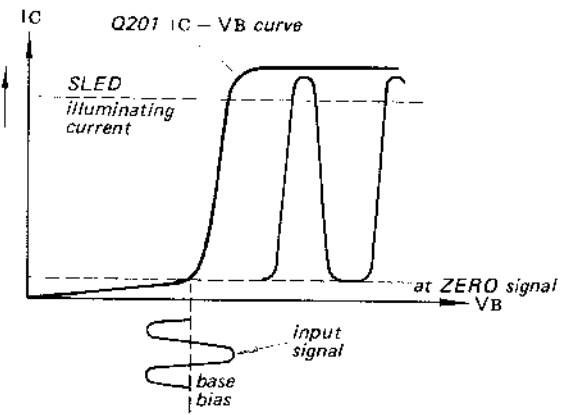


Fig. 1-5.

SECTION 2 DISASSEMBLY

2-1. REAR CABINET REMOVAL

Left Side Cover Removal

1. Remove the four screws labeled (A) in Fig. 2-1.
2. Pull out the left side cover along with the VOL knob and TONE knob as shown in Fig. 2-1.

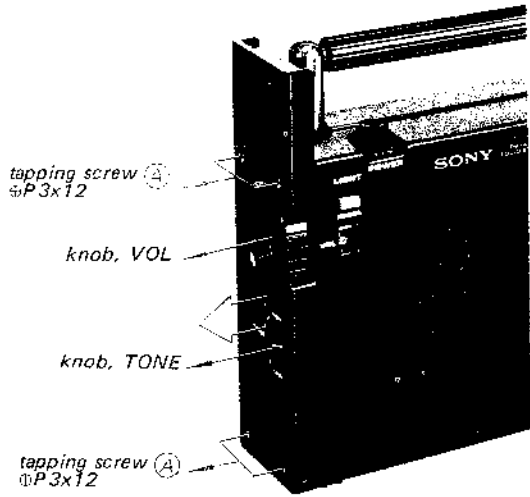


Fig. 2-1.

Right Side Cover Removal

3. Press down the antenna release button shown in Fig. 2-2.
4. Pull out the telescopic antenna.
5. Remove the four screws labeled (A) in Fig. 2-2.
6. Pull out the right side cover with the tuning knob and battery lid as shown in Fig. 2-2.

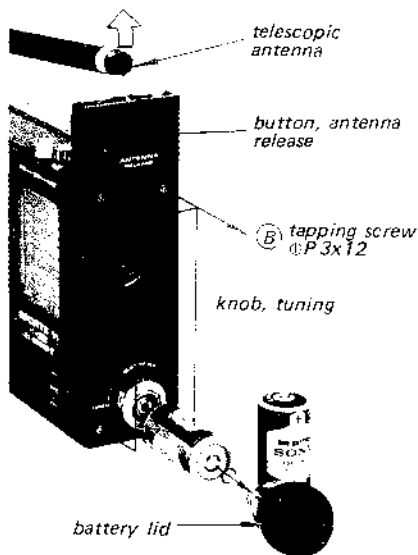


Fig. 2-2.

Rear Cabinet Removal

7. Remove the three screws labeled in Fig. 2-3.
8. Lift up the rear cabinet.

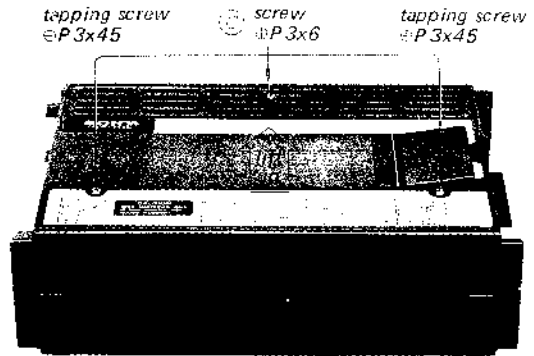


Fig. 2-3.

2-2. CHASSIS REMOVAL

1. Remove the rear cabinet.
2. Push the POWER switch button as shown in Fig. 2-4.
3. Unsolder the pvc wire labeled (E) in Fig. 2-4.
4. Remove the screw labeled (E) in Fig. 2-4.
5. Lift up the chassis.

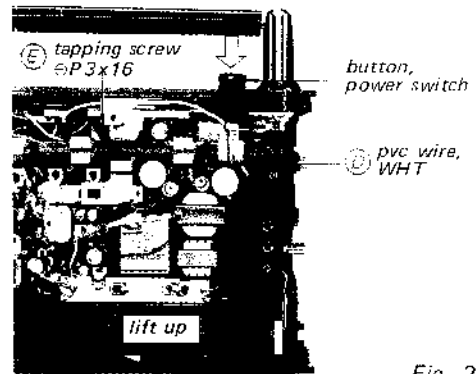
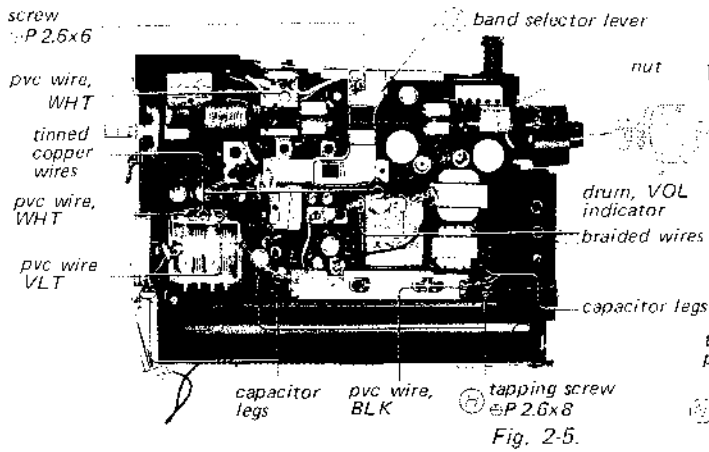


Fig. 2-4.

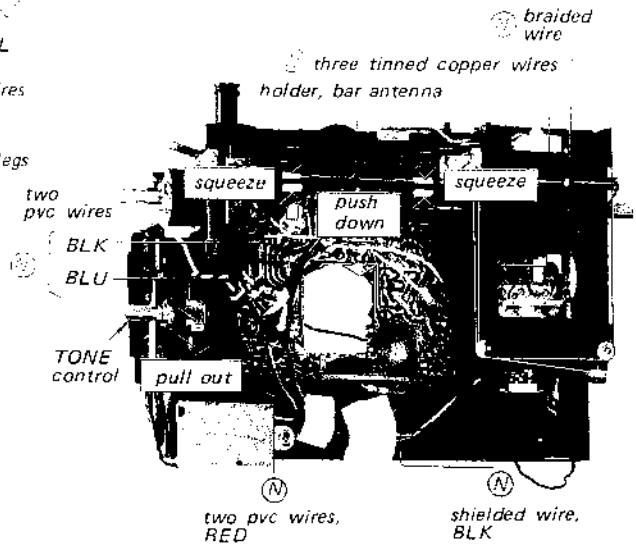
2-3. CIRCUIT BOARD REMOVAL

1. Remove the rear cabinet and the chassis.
2. Unsolder the wires shown in Fig. 2-5.
 - a) four pvc wires (BLK, WHT, VLT and WHT)
 - b) two tinned copper wires
 - c) two braided wires
3. Remove the two screws labeled (H) in Fig. 2-5.
4. Remove the screw labeled (L) and the hand selector lever labeled (J).

- Remove the VOL indicator drum and nut in Fig. 2-5.



- Unsolder the nine wires labeled in Fig. 2-8.
- Pull out the TONE control shown in Fig. 2-8.
- Push down the circuit board squeezing the bar antenna holder.



- Remove the speaker as shown in Fig. 2-6 and unsolder the two speaker leads.

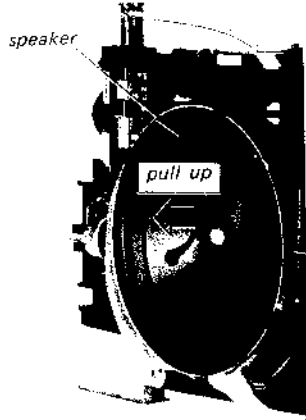


Fig. 2-6.

2-4. RESONANCE INDICATING CIRCUIT BOARD REMOVAL

- Remove the screw labeled in Fig. 2-9.
- Unsolder the three soldered portions labeled on the shield case.

- Push the back plate by a stick as shown in Fig. 2-7 and remove the back plate.

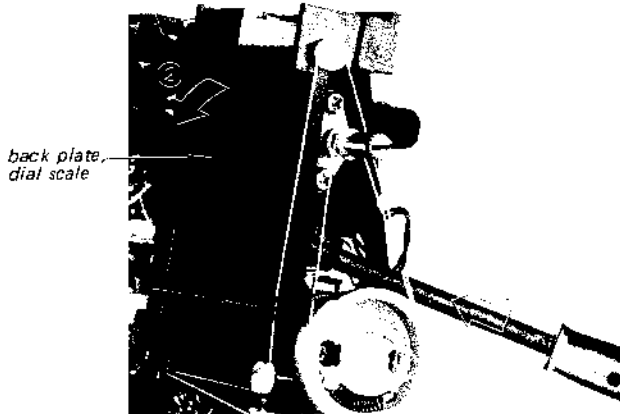


Fig. 2-7.

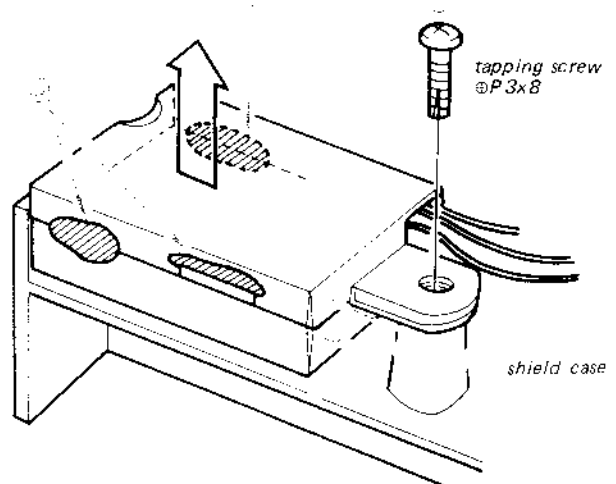


Fig. 2-9.

25. DIAL CORD STRINGING

Preparation

1. Remove the chassis.
2. Cut the dial cord by the specified length as shown in Fig. 2-10.

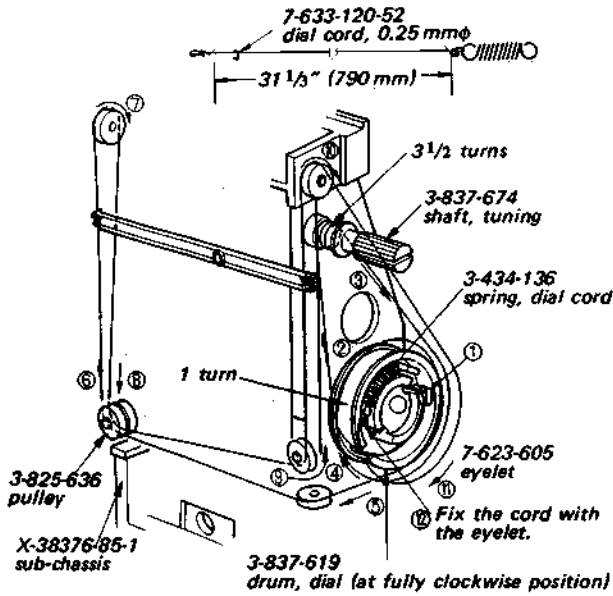


Fig. 2-10.

Stringing

1. Fix the dial cord to the protrusion (step ①) and string the cord in numerical order as shown in Fig. 2-10.

Note: Pass through the dial cord at step ④ between the two cords of steps ② and ③ as shown in Fig. 2-11.

2. Fasten the both knots with a contact cement.

Pointer Setting

1. Rotate the tuning shaft counterclockwise to the full.
2. Set the pointer to the slit as shown in Fig. 2-11.

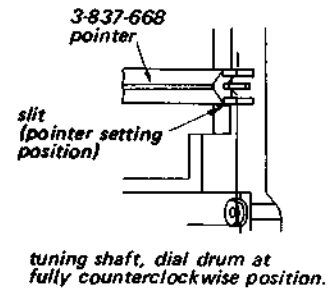
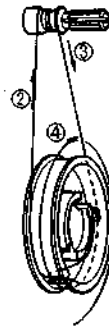


Fig. 2-11.

SECTION 3 CIRCUIT ADJUSTMENTS

3-1. FM IF ALIGNMENT

Test Equipment/Tools Required:

- * 10.7 MHz sweep/marker generator
- * Oscilloscope
- * 0.01 μ F ceramic capacitor
- * Screwdriver for alignment

Preparation:

1. Sweep/marker Generator Connection:
Across the tuning capacitor as shown in Fig. 3-1.
2. Oscilloscope Connection: Record out jack.
3. Sweep Generator Center Frequency: 10.7 MHz
4. Marker Generator Frequency: 10.7 MHz
5. Band Selector: FM
6. VOL Control: Fully clockwise
7. TONE Control: HIGH
8. AFC Switch: OFF

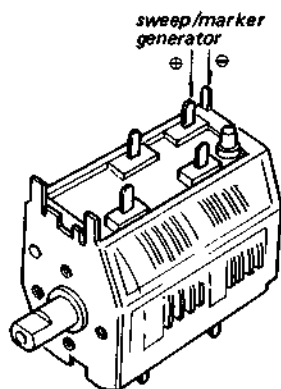


Fig. 3-1. Sweep/marker generator connection

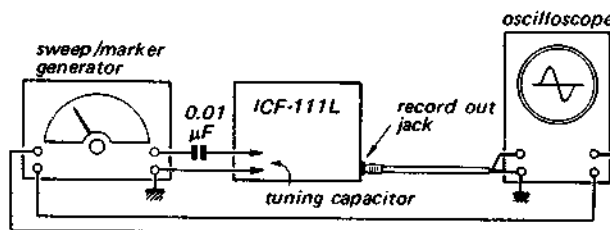


Fig. 3-2. Fm i-f alignment setup

Procedure:

1. Turn the core of discriminator transformer (IFT F5) fully counterclockwise.
2. Turn the core of fm i-f transformer (IFT F1, IFT F2, IFT F3) and discriminator transformer (IFT F4) to obtain the maximum amplitude response curve shown in Fig. 3-3.
3. Turn the core of discriminator transformer (IFT F5) to obtain the S curve response shown in Fig. 3-4.

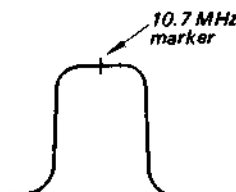


Fig. 3-3. Response curve

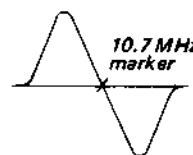


Fig. 3-4. "S" curve

| Sweep/Marker Generator Coupling | Sweep/Marker Generator Frequency | Oscilloscope Connection | Adjust | Remarks |
|---|----------------------------------|-------------------------|--|--|
| Across the tuning capacitor (See Fig. 3-1) | 10.7 MHz | Record out jack | IFT F1 IFT F2 IFT F3 IFT F4 IFT F5 | Band selector: FM AFC switch: OFF Adjust for maximum amplitude and symmetrical S curve on the scope. |

3-2. AM IF ALIGNMENT

Test Equipment/Tools Required:

- * Rf signal generator (for a-m)
- * VTVM
- * Loop antenna
- * 8 Ω resistor
- * Screwdriver for alignment

Preparation:

1. Band Selector: MW
2. TONE Control: HIGH

3. VOL Control: Fully counterclockwise
4. Tuning Knob: Fully clockwise (highest frequency on dial)

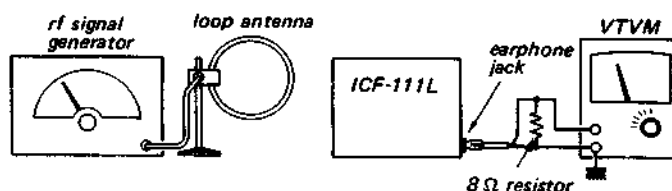


Fig. 3-5. A-m i-f alignment, frequency coverage and tracking adjustment setup

| Rf Signal Generator Coupling | Rf Signal Generator Frequency | VTVM Connection | Adjust | Remarks |
|---------------------------------|-------------------------------|--|------------------|--|
| Loop antenna (See Fig. 3-5.) | 455 kHz 1 kHz 30% a-m) | Earphone jack with 8Ω load resistor in parallel. | IFT A1 CFT A1 | Band selector: MW VOL control: Fully counterclockwise TONE control: HIGH Tuning knob: fully clockwise position Adjust for maximum meter reading. |

3-3. FREQUENCY COVERAGE AND TRACKING ADJUSTMENT

Test Equipment/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 resistor in parallel.

Modulation: FM ... 400-Hz ±22.5-kHz frequency-modulated signal
AM ... 1-kHz 30% amplitude-modulated signal

VOL Control Setting: Fully counterclockwise
TONE Control Setting: HIGH
AFC Switch: OFF

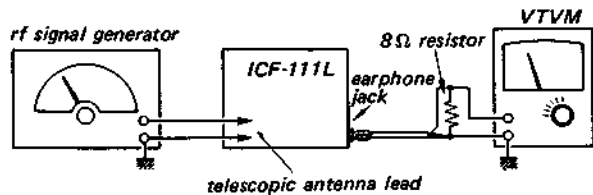


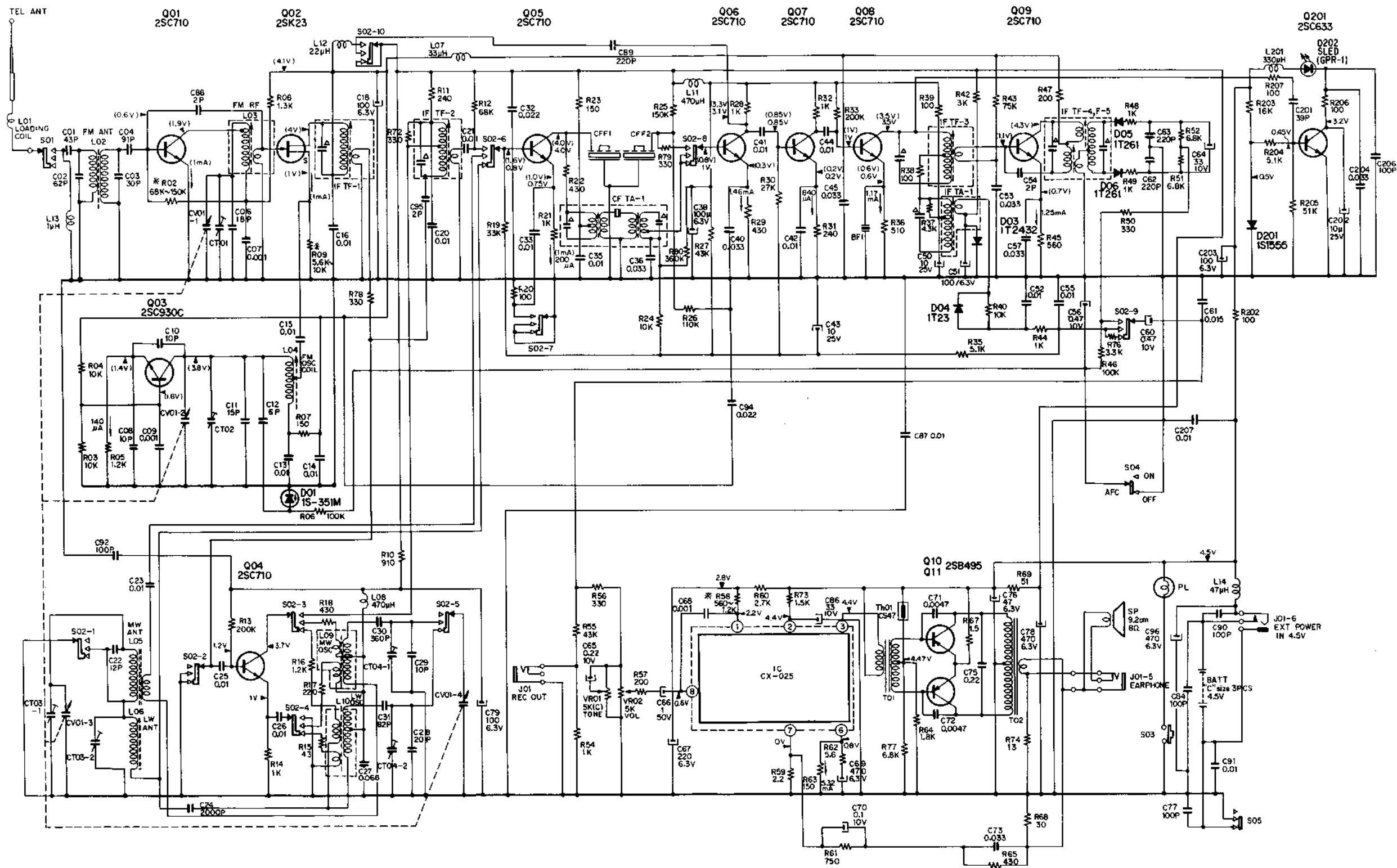
Fig. 3-6. Fm frequency coverage and tracking adjustment setup

Note: In West Germany the frequency coverage is prescribed within the range between 87.5 MHz and 108 MHz. Make the frequency coverage by adjusting osc coil (L04) and osc trimmer (CT02) with the intended frequency signal from the rf signal generator.

| Adjustment | RF Signal Generator Coupling | RF Signal Generator Frequency | Receiver Tuning Knob Setting | Adjust | Remarks |
|------------------------------|---|-------------------------------|------------------------------|-----------------------|--|
| FM Frequency Coverage | Direct connection to telescopic antenna lead. | 86.5 MHz | Fully counterclockwise | FM osc coil L04 | Band Selector: FM Adjust for maximum meter reading. |
| | | 109 MHz | Fully clockwise | FM osc trimmer CT02 | |
| FM Tracking | | 86.5 MHz | Tune to 86.5-MHz signal | FM rf coil L03 | |
| | | 109 MHz | Tune to 109-MHz signal | FM rf trimmer CT01 | |
| MW Frequency Coverage | Loop antenna | 520 kHz | Fully counterclockwise | MW osc coil L09 | Band Selector: MW Adjust for maximum meter reading. |
| | | 1,680 kHz | Fully clockwise | MW osc trimmer CT04-1 | |
| MW Tracking | | 620 kHz | Tune to 620-kHz signal | MW ant coil L05 | |
| | | 1,400 kHz | Tune to 1,400-kHz signal | MW ant trimmer CT03-1 | |

SECTION 4
SCHEMATIC AND MOUNTING DIAGRAMS

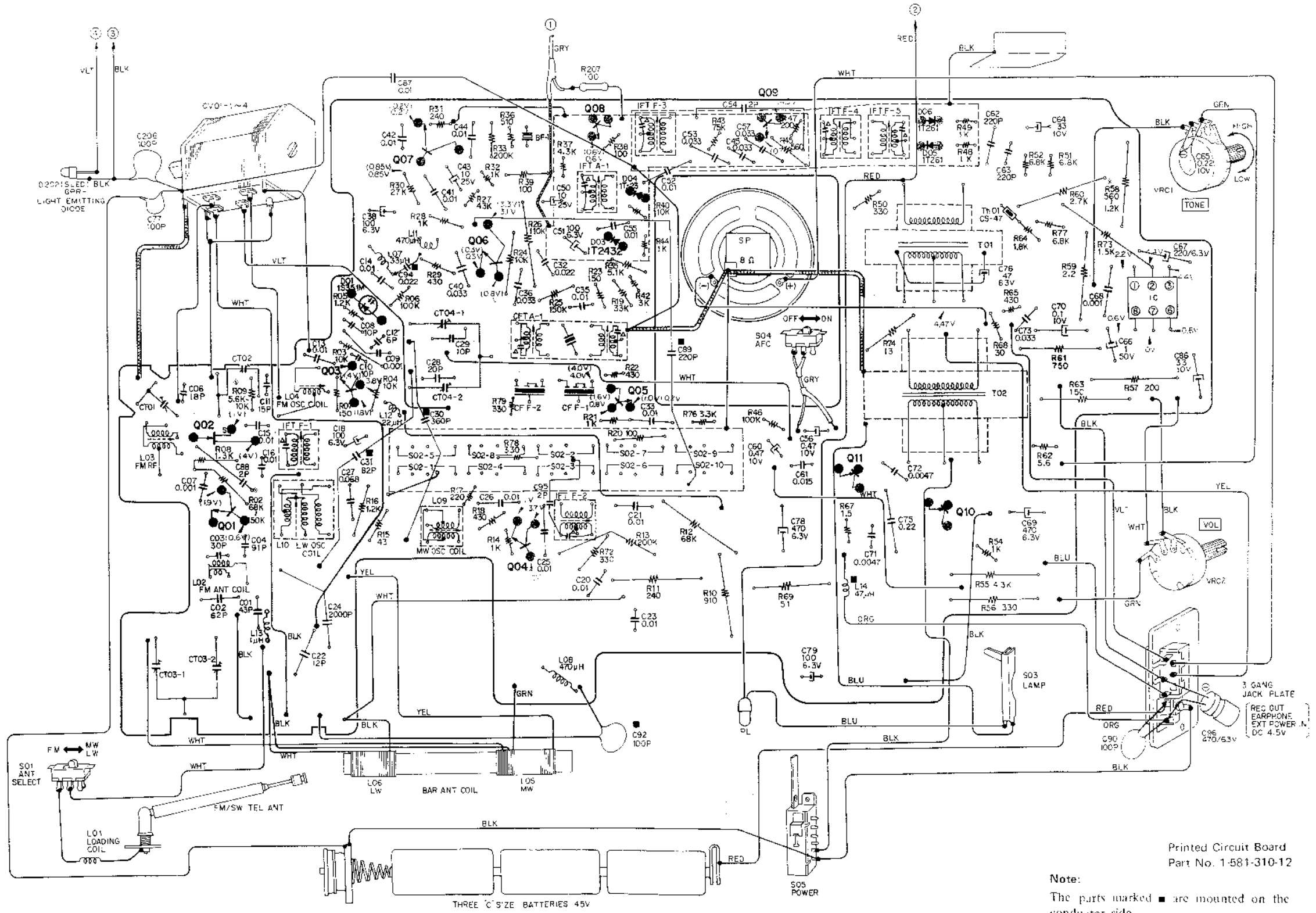
4.1. SCHEMATIC DIAGRAM



Notes:

1. All resistors and capacitors are in Ω and μF unless otherwise specified.
2. Capacitors marked Δ are built in i-f transformers.
3. The symbol \ast indicates a component whose value is selected to yield normal operating condition.
4. Voltage values are measured from point indicated to ground circuit with a dc voltmeter (VTVM) and current values are measured with a dc ammeter. Voltage and current are measured with no radio signal received. Variations may be noted due to normal production tolerances. The values in () are measured with band selector set to FM.

4-2. MOUNTING DIAGRAM – Main Circuit Board –
 – Conductor Side –



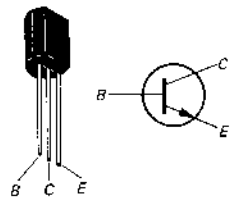
Printed Circuit Board
 Part No. 1-581-310-12

Note:
 The parts marked ■ are mounted on the
 conductor side.

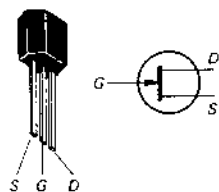
ICF-111L ICF-111L

- Component Side -

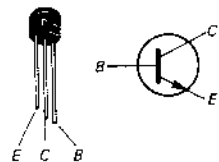
Q01, Q04~Q09: 2SC710



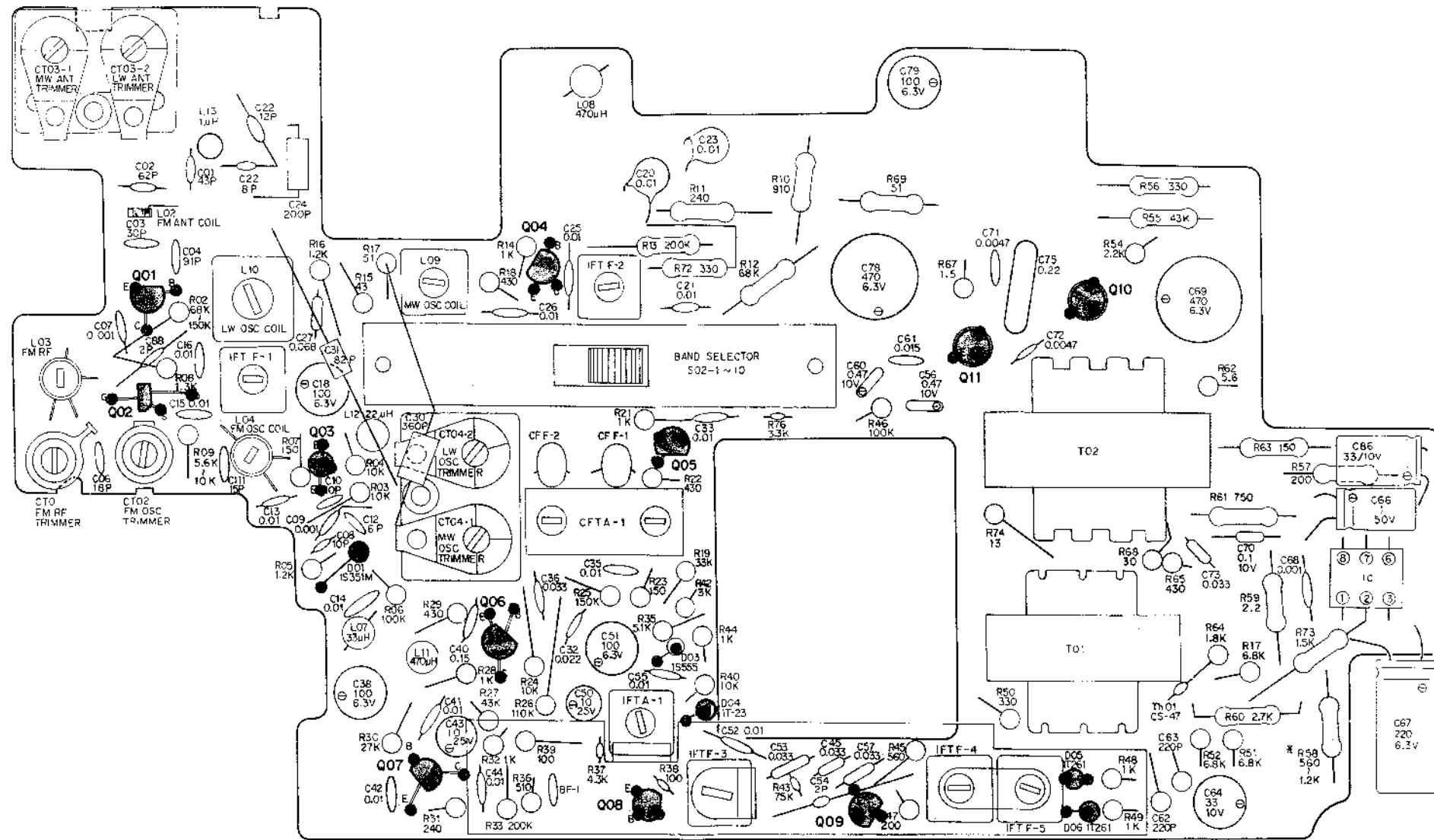
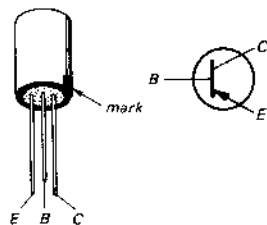
Q02: 2SK23



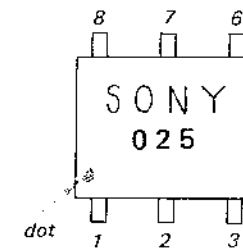
Q03: 2SC930C



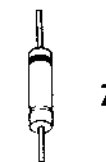
Q10, Q11: 2SB495



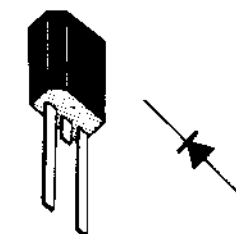
IC: CX-025



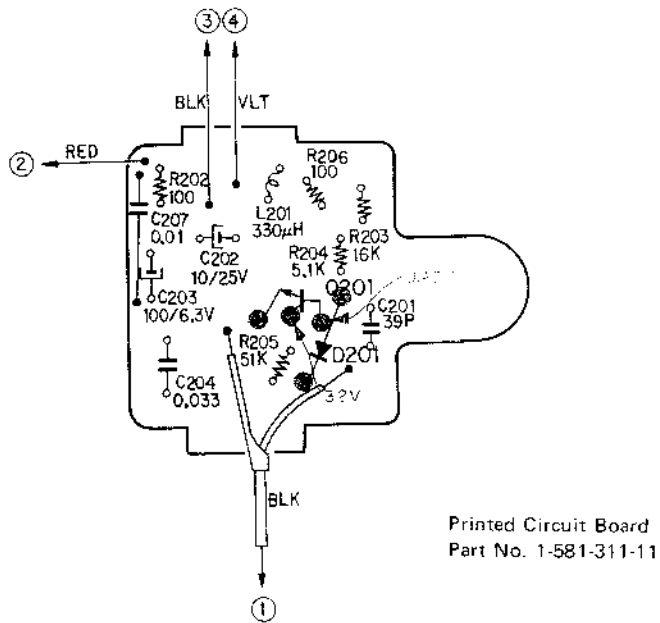
D01: 1S351M
D05, D06: 1T261
D04: 1T23



D03: 1T2432

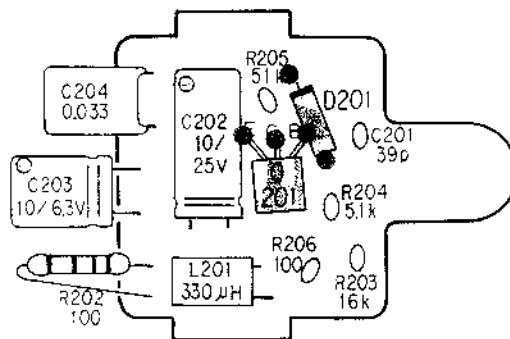


4-3. MOUNTING DIAGRAM — Resonance Indicating Circuit Board —
 — Conductor Side —



Note: C207: mounted on the conductor side.

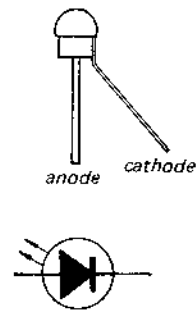
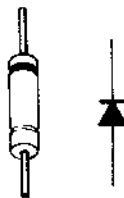
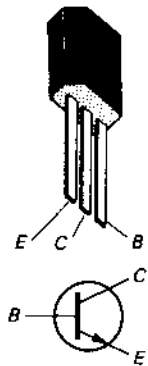
— Component Side —



Q201; 2SC633

D201; 1S1555

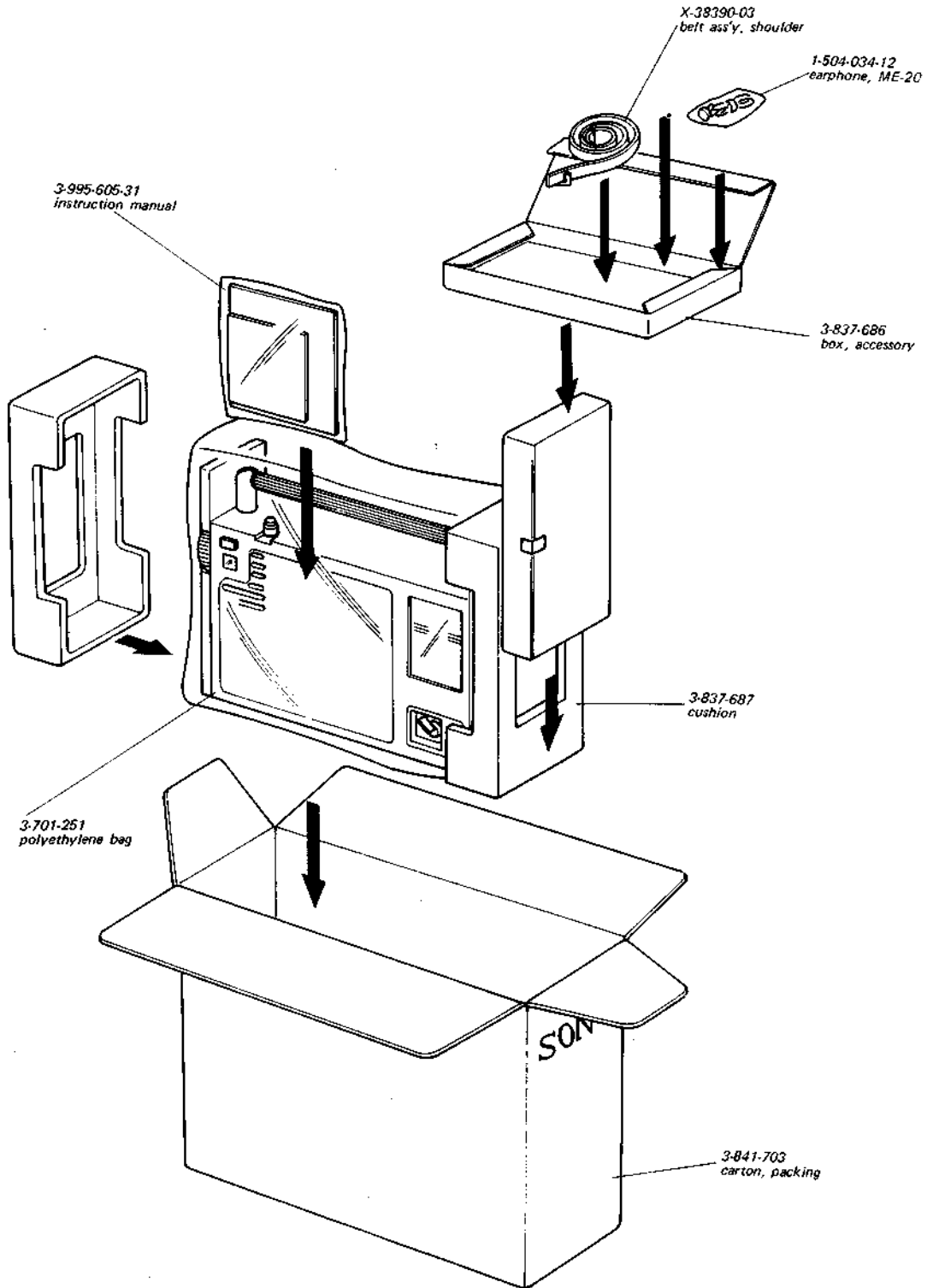
D202; GPR-1 (SLED)



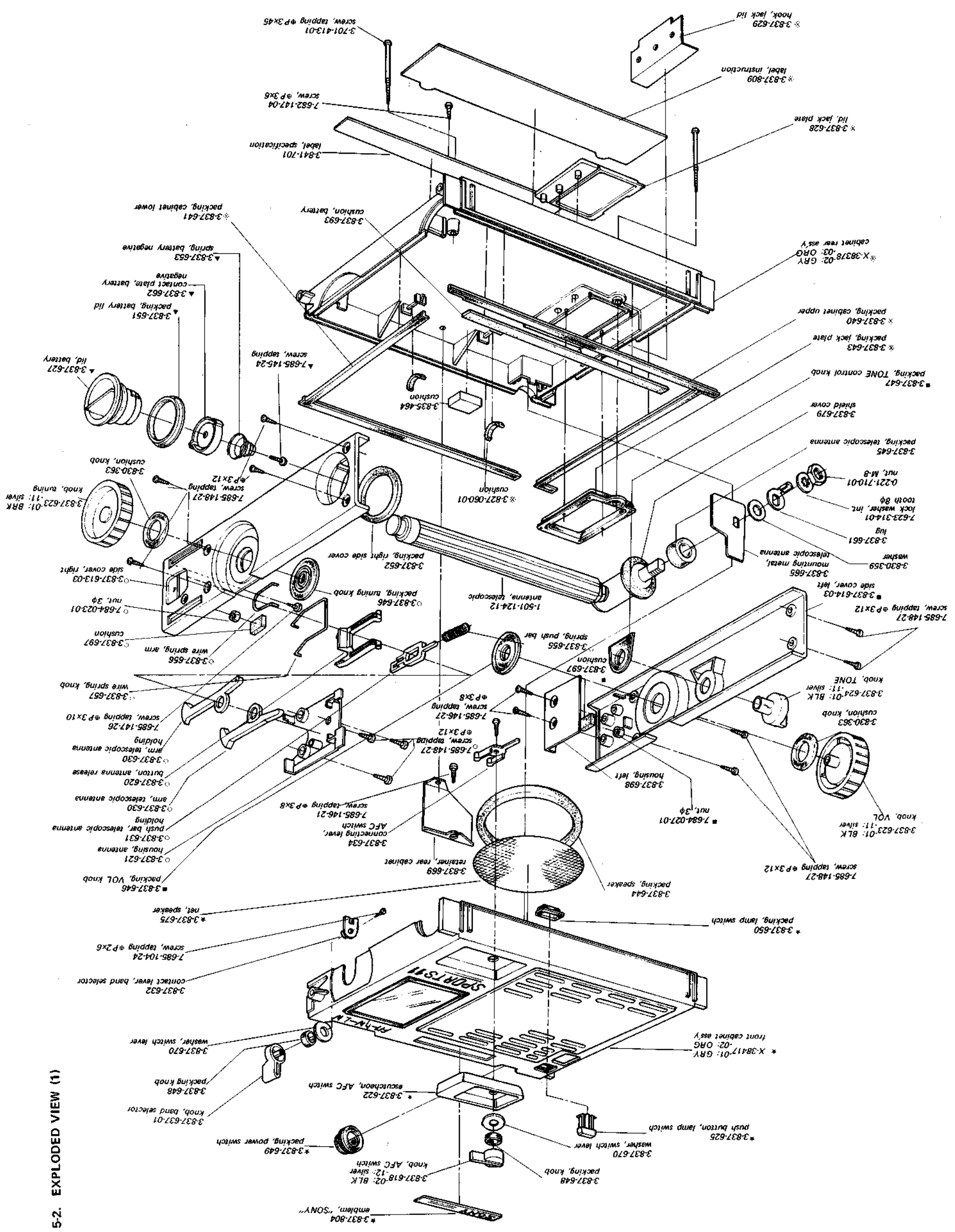
See page 13.

SECTION 5 PACKING AND EXPLODED VIEW

5-1. PACKING



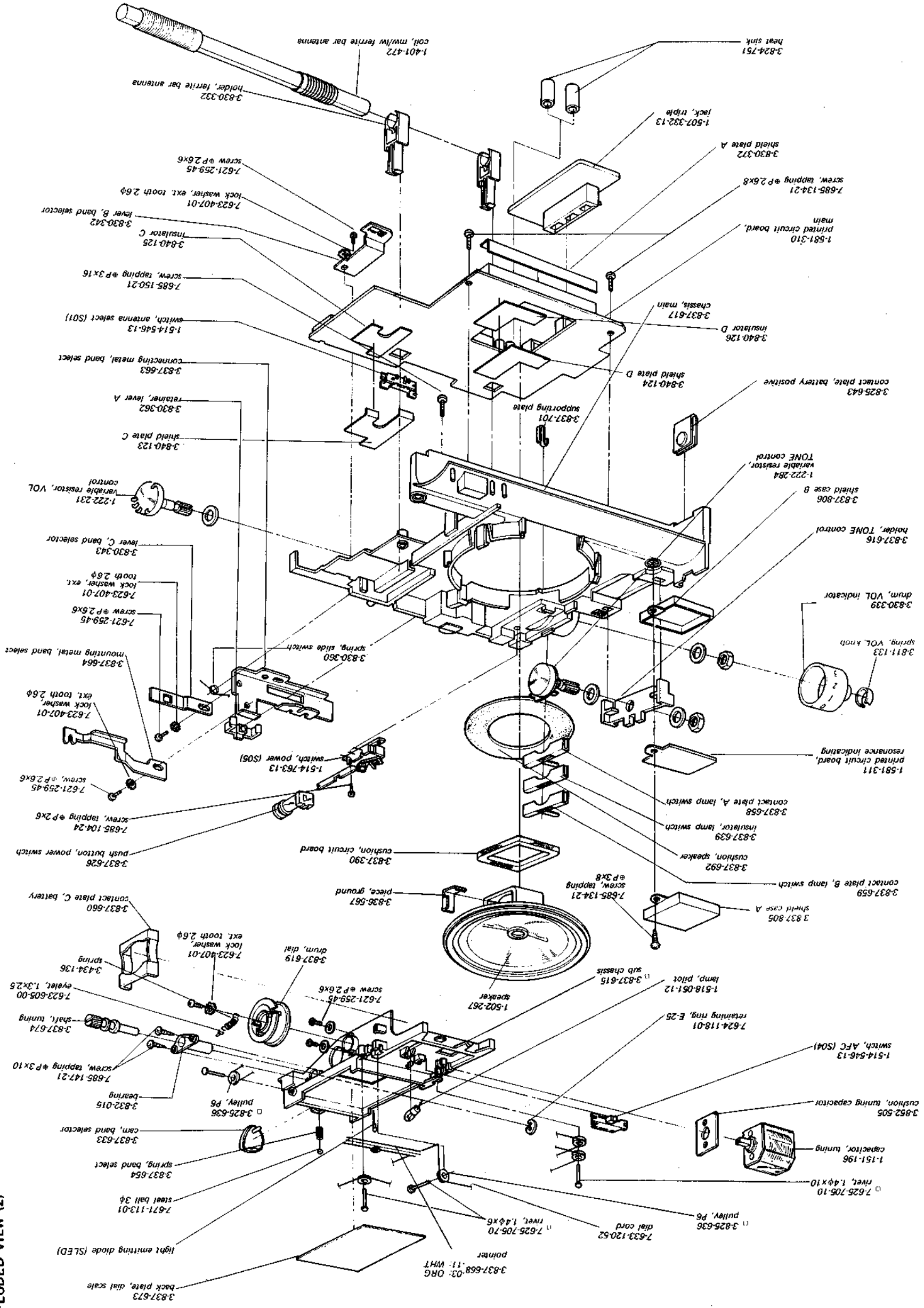
Note: Parts marked * are included in front cabinet ass'y, X-38417-01: GRN
-1: GRN
-2: ORG
-3: GRN
-4: GRN
-5: ORG
-6: GRN
-7: ORG
-8: GRN
Parts marked ○ are included in right side cover ass'y, X-38376-83-1
Parts marked ◼ are included in left side cover ass'y, X-38376-84-1
Parts marked ▲ are included in battery lid ass'y, X-38376-86



5-2. EXPLODED VIEW (1)

ICF-111L ICF-111L

5-3. EXPLODED VIEW (2)



Note: Parts marked □ are included in sub chassis ass'y, X-38376-85

ICF-111L ICF-111L

SECTION 6

ELECTRICAL PARTS LIST

| <u>Ref. No.</u> | <u>Part No.</u> | <u>Description</u> | <u>Ref. No.</u> | <u>Part No.</u> | <u>Description</u> |
|-------------------------------|-----------------|---------------------------------|-------------------|--|--------------------------|
| SEMICONDUCTORS | | | | | |
| Q01 | | transistor 2SC710 | CFT A1 | 1-403-165-15 | ceramic filter, a-m i-f |
| Q02 | | transistor 2SK23 | BF-1 | 1-403-154 | ceramic filter, a-m i-f |
| Q03 | | transistor 2SC930C | CF F1 | 1-527-501- ¹¹ / ₁₅ | ceramic filter, fm i-f |
| Q04 | | transistor 2SC710 | CF F2 | 1-527-501- ¹¹ / ₁₅ | ceramic filter, fm i-f |
| Q05 | | transistor 2SC710 | T01 | 1-423-064-21 | transformer, driver |
| Q06 | | transistor 2SC710 | T02 | 1-427-251-12 | transformer, output |
| Q07 | | transistor 2SC710 | CAPACITORS | | |
| Q08 | | transistor 2SC710 | C01 | 1-102-966 | 43 pF ceramic |
| Q09 | | transistor 2SC710 | C02 | 1-101-886 | 62 pF ceramic |
| Q10 | | transistor 2SB495 | C03 | 1-102-962 | 30 pF ceramic |
| Q11 | | transistor 2SB495 | C04 | 1-102-972 | 91 pF ceramic |
| Q201 | | transistor 2SC633 | C05 | | - discarded - |
| D01 | | diode 1S351M | C06 | 1-102-953 | 18 pF ceramic |
| D02 | | - discarded - | C07 | 1-101-918 | 0.001 μF ceramic |
| D03 | | diode 1T2432 | C08 | 1-102-947 | 10 pF ceramic |
| D04 | | diode 1T23 | C09 | 1-105-821-12 | 0.001 μF mylar |
| D05 | | diode 1T261 | C10 | 1-102-947 | 10 pF ceramic |
| D06 | | diode 1T261 | C11 | 1-102-951 | 15 pF ceramic |
| D201 | | diode 1S1555 | C12 | 1-102-943 | 6 pF ceramic |
| D202 | | diode (SLED) GPR-1 | C13 | 1-105-833-12 | 0.01 μF mylar |
| Th01 | 8-691-002-11 | thermistor CS-47 | C14 | 1-101-923 | 0.01 μF ceramic |
| IC | 8-750-253 | integrated circuit CX-025 | C15 | 1-101-923 | 0.01 μF ceramic |
| COILS AND TRANSFORMERS | | | | | |
| L01 | 1-401-219 | coil, antenna loading | C16 | 1-105-833-12 | 0.01 μF mylar |
| L02 | 1-425-449 | coil, fm ant | C17 | | - discarded - |
| L03 | 1-425-667 | coil, fm rf | C18 | 1-121-491 | 100 μF 6.3V electrolytic |
| L04 | 1-405-491 | coil, fm osc | C19 | | - discarded - |
| L05, L06 | 1-401-472 | coil, mw/lw ferrite bar antenna | C20 | 1-101-923 | 0.01 μF ceramic |
| L07 | 1-407-163 | 33 μH, micro inductor | C21 | 1-101-923 | 0.01 μF ceramic |
| L08 | 1-407-177 | 470 μH, micro inductor | C22 | 1-102-949 | 12 pF ceramic |
| L09 | 1-405-489 | coil, mw osc | C23 | 1-101-923 | 0.01 μF ceramic |
| L10 | 1-405-490 | coil, lw osc | C24 | 1-103-732 | 2,000 pF styrol |
| L11 | 1-407-177 | 470 μH, micro inductor | C25 | 1-101-923 | 0.01 μF ceramic |
| L12 | 1-407-161 | 22 μH, micro inductor | C26 | 1-101-923 | 0.01 μF ceramic |
| L13 | 1-407-178 | 1 μH, micro inductor | C27 | 1-105-843-12 | 0.068 μF mylar |
| L14 | 1-407-407 | 47 μH, micro inductor | C28 | 1-102-958 | 20 pF ceramic |
| L201 | 1-407-175 | 330 μH, micro inductor | C29 | 1-102-947 | 10 pF ceramic |
| IFT A1 | 1-403-126 | transformer, a-m i-f | C30 | 1-103-614 | 360 pF styrol |
| IFT F1 | 1-403-243-31 | transformer, fm i-f | C31 | 1-107-083 | 82 pF mica |
| IFT F2 | 1-403-231-31 | transformer, fm i-f | C32 | 1-105-837-12 | 0.022 μF mylar |
| IFT F3 | 1-403-243-31 | transformer, fm i-f | C33 | 1-101-923 | 0.01 μF ceramic |
| IFT F4 | 1-403-272-31 | transformer, fm discriminator | C34 | | - discarded - |
| IFT F5 | 1-403-273-31 | transformer, fm discriminator | C35 | 1-105-833-12 | 0.01 μF mylar |
| | | | C36 | 1-105-839-12 | 0.033 μF mylar |
| | | | C37 | | - discarded - |
| | | | C38 | 1-121-491 | 100 μF 6.3V electrolytic |
| | | | C39 | | - discarded - |
| | | | C40 | 1-105-839-12 | 0.033 μF mylar |
| | | | C41 | 1-101-923 | 0.01 μF ceramic |
| | | | C42 | 1-105-833-12 | 0.01 μF mylar |
| | | | C43 | 1-121-398 | 10 μF 25V electrolytic |

| <u>Ref. No.</u> | <u>Part No.</u> | <u>Description</u> | | <u>Ref. No.</u> | <u>Part No.</u> | <u>Description</u> | |
|-----------------|-----------------|--------------------|-------------------------|-----------------|-----------------|---------------------------|-------------------|
| C44 | 1-101-923 | 0.01 μ F | ceramic | C203 | 1-121-413 | 100 μ F | 6.3V electrolytic |
| C45 | 1-105-839-12 | 0.033 μ F | mylar | C204 | 1-105-414-12 | 0.033 μ F | mylar |
| C46 | | - discarded - | | C205 | | - discarded - | |
| C47 | | - discarded - | | C206 | 1-102-973 | 100pF | ceramic |
| C48 | | - discarded - | | C207 | 1-105-833-12 | 0.01 μ F | mylar |
| C49 | | - discarded - | | CV01 | 1-151-196-12 | capacitor, tuning | |
| C50 | 1-121-398 | 10 μ F | 25V electrolytic | CT01 | 1-141-022 | capacitor, trimmer | |
| C51 | 1-121-491 | 100 μ F | 6.3V electrolytic | CT02 | 1-141-022 | capacitor, trimmer | |
| C52 | 1-105-833-12 | 0.01 μ F | mylar | CT03 | 1-141-011 | capacitor, 2-gang trimmer | |
| C53 | 1-105-839-12 | 0.033 μ F | mylar | CT04 | 1-141-127 | capacitor, 2-gang trimmer | |
| C54 | 1-102-939 | 2pF | ceramic | | | | |
| C55 | 1-105-833-12 | 0.01 μ F | mylar | | | | |
| C56 | 1-127-022 | 0.47 μ F | 10V electrolytic (alox) | | | | |
| C57 | 1-105-839-12 | 0.033 μ F | mylar | | | | |
| C58 | | - discarded - | | | | | |
| C59 | | - discarded - | | | | | |
| C60 | 1-127-022 | 0.47 μ F | 10V electrolytic (alox) | R01 | | - discarded - | |
| C61 | 1-105-675-12 | 0.015 μ F | mylar | *R02 | { | 1-240-517 | 68 k Ω |
| C62 | 1-103-759 | 220pF | styrol | | | 1-240-522 | 110 k Ω |
| C63 | 1-103-759 | 220pF | styrol | | | 1-240-525 | 150 k Ω |
| C64 | 1-121-483 | 33 μ F | 10V electrolytic | R03 | 1-240-497 | 10 k Ω | |
| C65 | 1-127-020 | 0.22 μ F | 10V electrolytic (alox) | R04 | 1-240-497 | 10 k Ω | |
| C66 | 1-121-391 | 1 μ F | 50V electrolytic | R05 | 1-240-475 | 1.2 k Ω | |
| C67 | 1-121-420 | 220 μ F | 6.3V electrolytic | R06 | 1-240-521 | 100 k Ω | |
| C68 | 1-105-821-12 | 0.001 μ F | mylar | R07 | 1-240-453 | 150 Ω | |
| C69 | 1-121-342 | 470 μ F | 6.3V electrolytic | R08 | 1-240-476 | 1.3 k Ω | |
| C70 | 1-127-019 | 0.1 μ F | 10V electrolytic (alox) | *R09 | { | 1-240-491 | 5.6 k Ω |
| C71 | 1-105-829-12 | 0.0047 μ F | mylar | | | 1-240-497 | 10 k Ω |
| C72 | 1-105-829-12 | 0.0047 μ F | mylar | R10 | 1-244-672 | 910 Ω | |
| C73 | 1-105-839-12 | 0.033 μ F | mylar | R11 | 1-244-658 | 240 Ω | |
| C74 | | - discarded - | | R12 | 1-244-717 | 68 k Ω | |
| C75 | 1-105-849-12 | 0.22 μ F | mylar | R13 | 1-244-728 | 200 k Ω | |
| C76 | 1-121-322 | 47 μ F | 6.3V electrolytic | R14 | 1-240-473 | 1 k Ω | |
| C77 | 1-102-973 | 100pF | ceramic | R15 | 1-240-440 | 43 Ω | |
| C78 | 1-121-342 | 470 μ F | 6.3V electrolytic | R16 | 1-240-475 | 1.2 k Ω | |
| C79 | 1-121-491 | 100 μ F | 6.3V electrolytic | R17 | 1-210-362 | 220 Ω | |
| C80 | | - discarded - | | R18 | 1-240-464 | 430 Ω | |
| C81 | | - discarded - | | R19 | 1-240-509 | 33 k Ω | |
| C82 | | - discarded - | | R20 | 1-244-649 | 100 Ω | |
| C83 | | - discarded - | | R21 | 1-240-473 | 1 k Ω | |
| C84 | 1-102-973 | 100pF | ceramic | R22 | 1-240-464 | 430 Ω | |
| C85 | | - discarded - | | R23 | 1-240-453 | 150 Ω | |
| C86 | 1-121-483 | 33 μ F | 10V electrolytic | R24 | 1-240-497 | 10 k Ω | |
| C87 | 1-101-923 | 0.01 μ F | ceramic | R25 | 1-240-525 | 150 k Ω | |
| C88 | 1-102-939 | 2pF | ceramic | R26 | 1-240-522 | 110 k Ω | |
| C89 | 1-103-759 | 220pF | styrol | R27 | 1-240-512 | 43 k Ω | |
| C90 | 1-102-973 | 100pF | ceramic | R28 | 1-240-473 | 1 k Ω | |
| C91 | 1-101-923 | 0.01 μ F | ceramic | R29 | 1-240-464 | 430 Ω | |
| C92 | 1-102-973 | 100pF | ceramic | R30 | 1-240-507 | 27 k Ω | |
| C94 | 1-105-849-12 | 0.022 μ F | mylar | R31 | 1-240-458 | 240 Ω | |
| C95 | 1-102-939 | 2pF | ceramic | R32 | 1-240-473 | 1 k Ω | |
| C96 | 1-121-342 | 470 μ F | 6.3V electrolytic | R33 | 1-240-528 | 200 k Ω | |
| C201 | 1-101-876 | 39pF | ceramic | R34 | | - discarded - | |
| C202 | 1-121-398 | 10 μ F | 25V electrolytic | R35 | 1-240-490 | 5.1 k Ω | |

RESISTORS

All resistors are $\frac{1}{4}$ W $\pm 5\%$ carbon type resistors unless otherwise noted.

| <u>Ref. No.</u> | <u>Part No.</u> | <u>Description</u> |
|-----------------|-----------------|----------------------|
| R36 | 1-240-466 | 510Ω |
| R37 | 1-240-488 | 4.3 kΩ |
| R38 | 1-240-449 | 100Ω |
| R39 | 1-240-449 | 100Ω |
| R40 | 1-240-497 | 10 kΩ |
| R41 | | - discarded - |
| R42 | 1-240-484 | 3 kΩ |
| R43 | 1-240-518 | 75 kΩ |
| R44 | 1-240-473 | 1 kΩ |
| R45 | 1-240-467 | 560Ω |
| R46 | 1-210-115 | 100 kΩ 1/16 W carbon |
| R47 | 1-240-456 | 200Ω |
| R48 | 1-240-473 | 1 kΩ |
| R49 | 1-240-473 | 1 kΩ |
| R50 | 1-240-461 | 330Ω |
| R51 | 1-240-493 | 6.8 kΩ |
| R52 | 1-240-493 | 6.8 kΩ |
| R53 | | - discarded - |
| R54 | 1-240-473 | 1 kΩ |
| R55 | 1-244-712 | 43 kΩ |
| R56 | 1-244-661 | 330Ω |
| R57 | 1-244-656 | 200Ω |
| * R58 | 1-244-667 | 560Ω |
| | 1-244-672 | 910Ω |
| | 1-244-675 | 1.2 kΩ |
| R59 | 1-244-609 | 2.2Ω |
| R60 | 1-244-683 | 2.7 kΩ |
| R61 | 1-244-670 | 750Ω |
| R62 | 1-240-419 | 5.6Ω |
| R63 | 1-244-653 | 150Ω |
| R64 | 1-240-479 | 1.8 kΩ |
| R65 | 1-240-464 | 430Ω |
| R66 | | - discarded - |
| R67 | 1-244-605 | 1.5Ω |
| R68 | 1-240-436 | 30Ω |

| <u>Ref. No.</u> | <u>Part No.</u> | <u>Description</u> |
|-----------------|-----------------|-------------------------------|
| R69 | 1-244-642 | 51Ω |
| R70 | | - discarded - |
| R71 | | - discarded - |
| R72 | 1-240-461 | 330Ω |
| R73 | 1-244-677 | 1.5 kΩ |
| R74 | 1-244-628 | 13Ω |
| R75 | | - discarded - |
| R76 | 1-204-123 | 3.3 kΩ |
| R77 | | 6.8 kΩ |
| R78 | 1-201-870 | 330Ω 1/8 W composition |
| R79 | 1-240-461 | 330Ω |
| R80 | 1-244-734 | 360 kΩ |
| R201 | | - discarded - |
| R202 | 1-240-449 | 100Ω |
| R203 | 1-210-376 | 16 kΩ |
| R204 | 1-209-774 | 5.1 kΩ |
| R205 | 1-210-385 | 51 kΩ |
| R206 | 1-210-355 | 100Ω |
| VR01 | 1-222-284 | variable resistor, TONE; 5 kΩ |
| VR02 | 1-222-231 | variable resistor, VOL; 5 kΩ |

MISCELLANEOUS

| | | |
|---------|--------------|---|
| TEL ANT | 1-501-124-12 | antenna, telescopic |
| SP | 1-502-267 | speaker |
| S01 | 1-514-546-13 | switch, antenna select |
| S02 | 1-513-279 | switch, band select |
| S03 | | switch, lamp |
| S04 | 1-514-546-13 | switch, AFC |
| S05 | 1-514-763-12 | switch, power |
| PL | 1-518-051-12 | lamp |
| J | 1-507-332 | jack, triple |
| | 1-581-310-12 | printed circuit board, main |
| | 1-581-311-11 | printed circuit board, resonance indicating |

- Hardware Nomenclature -

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

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.