

8FC-59W

1790

USA Model

Eingegangen

23. FEB. 1971

ETW



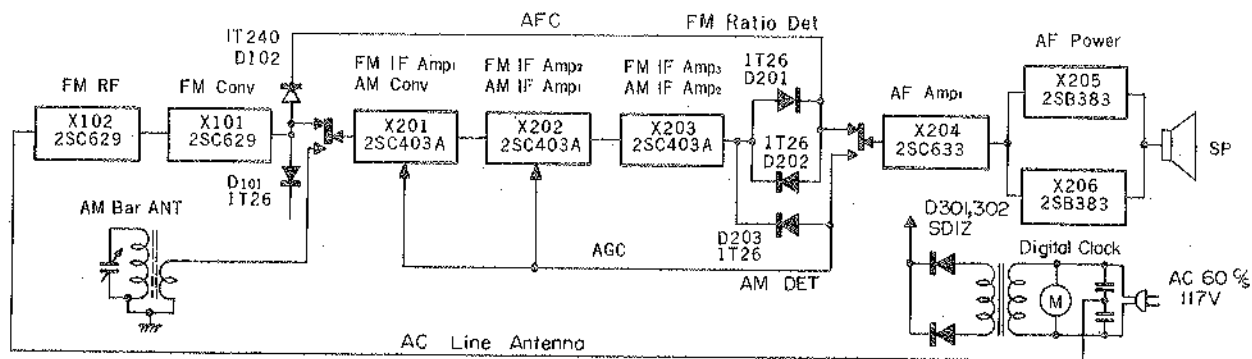
Specifications

| | |
|--------------------------------|---|
| Circuit: | 8 Transistor Superheterodyne |
| Frequency Coverage: | FM 87~108 Mc (3.44~2.87 m) AM 530~1,605 Kc (566~187 m) |
| Intermediate Frequency: | FM 10.7 Mc AM 455 Kc |
| Antenna System: | FM Built-in AC Line Antenna AM Built-in Ferrite Bar Antenna |
| Maximum Sensitivity: | FM 5.6 μ V (at 50 mW output) AM 100 μ V/m |
| Selectivity: | 25 dB at 10 Kc off resonance, at 1,400 Kc |
| Power Output: | 500 mW (undistorted) 850 mW (maximum) |
| Speaker: | 3 $\frac{1}{2}$ " (9.2 cm), PM Dynamic, 8 Ω |
| Power Requirements: | AC 117 V, 60 c/s |
| Power Consumption: | AC 5W |
| Dimensions: | 15 $\frac{1}{8}$ " (W) \times 3 $\frac{7}{8}$ " (H) \times 5 $\frac{1}{8}$ " (D)" (294 \times 101 \times 131 mm) |
| Weight: | 3 lbs. 4 oz. (1.45 Kgs) |

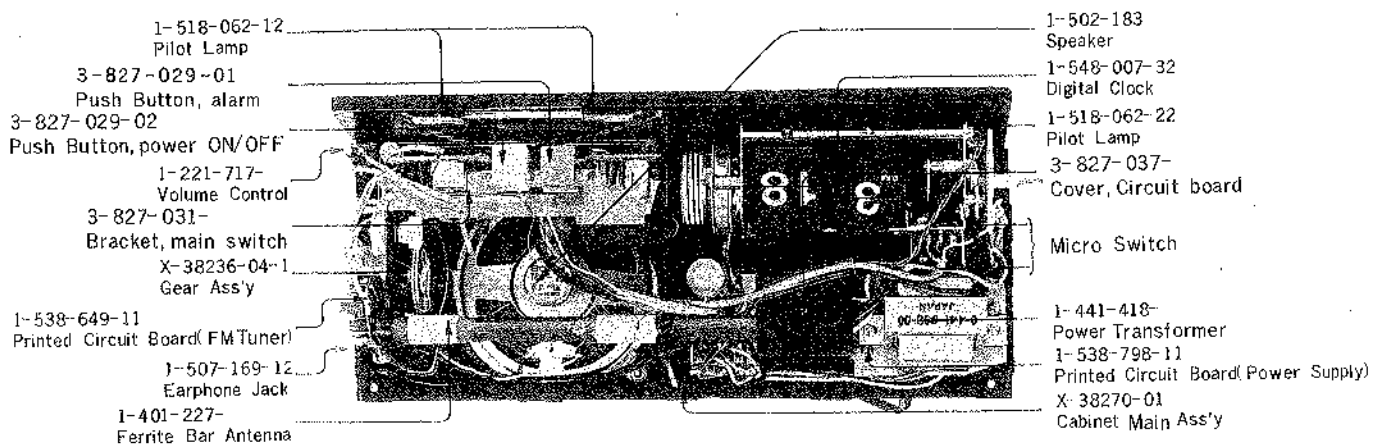
SONY[®]
SERVICE MANUAL

1790

Block Diagram

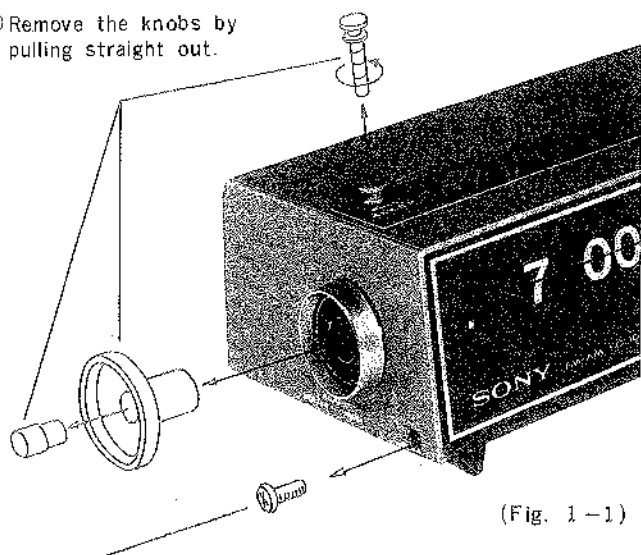


Interior View



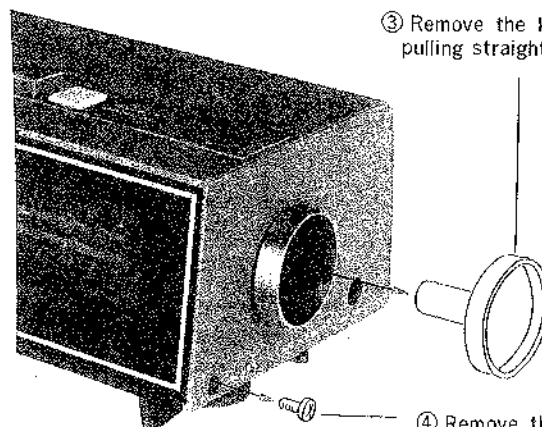
Removal of Top Cover

① Remove the knobs by pulling straight out.



(Fig. 1-1)

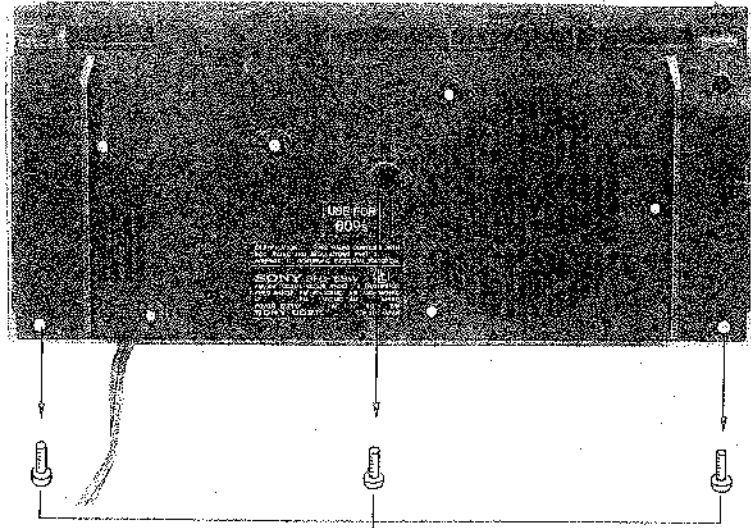
③ Remove the knob by pulling straight out.



(Fig. 1-2)

② Remove the Screw.

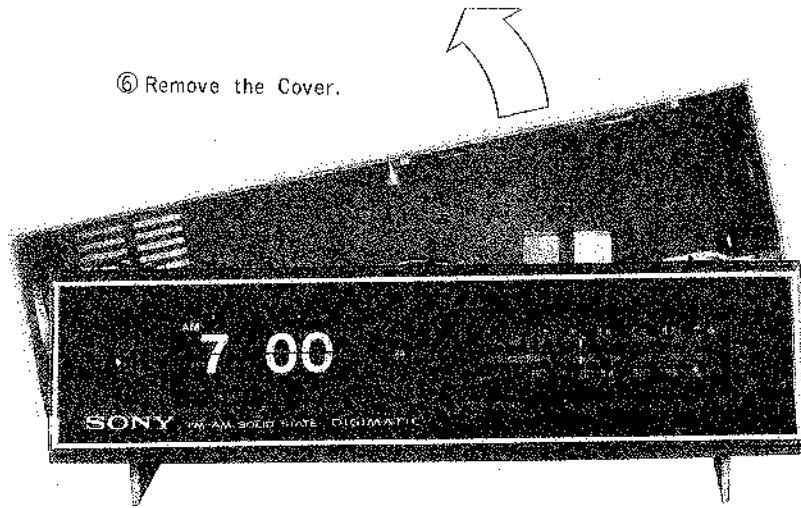
④ Remove the Screw.



⑤ Remove the three Screws.

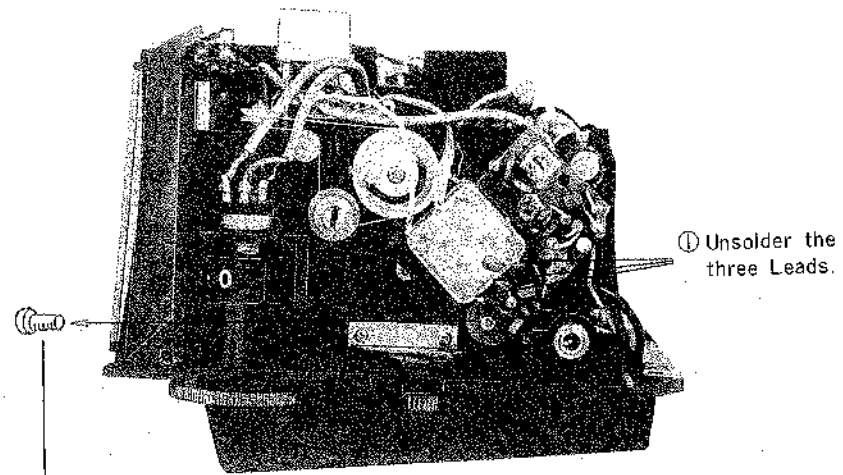
(Fig. 1-3)

⑥ Remove the Cover.



(Fig. 1-4)

Removal of FM Tuner Circuit Board



① Unsolder the three Leads.

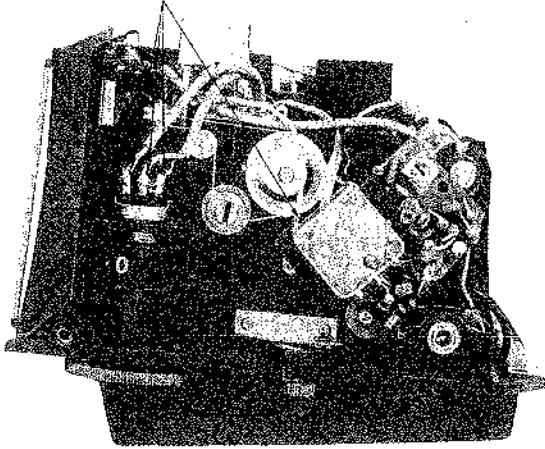
② Remove the Screw.

(Fig. 1-5)

C-59W

Removal of AM/Off/A/ Circuit Board

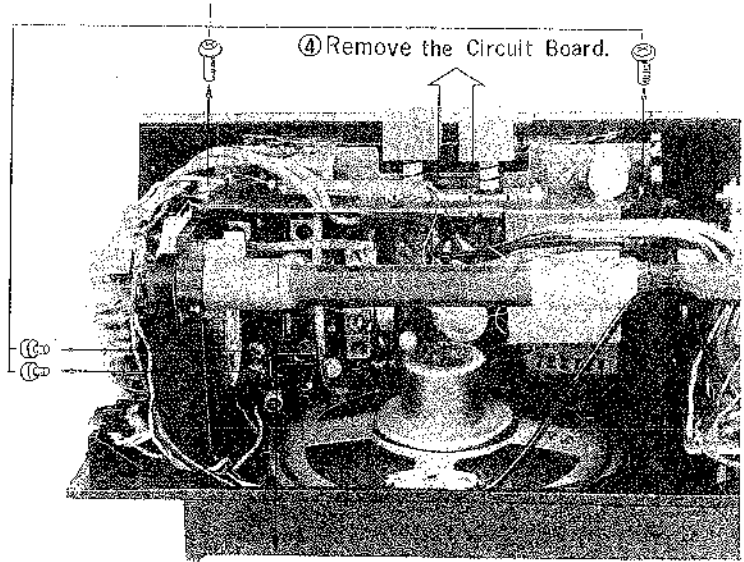
① Unsolder the four leads.



(Fig. 1-6)

② Remove the four screws.

④ Remove the Circuit Board.

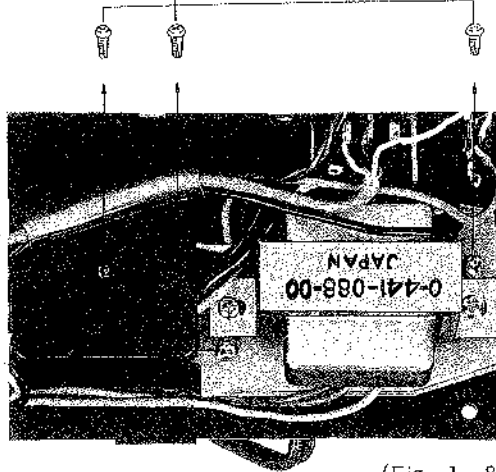


③ Remove the Selector Lever.

(Fig. 1-7)

Removal of Power Supply Circuit Board

Remove the three screws.

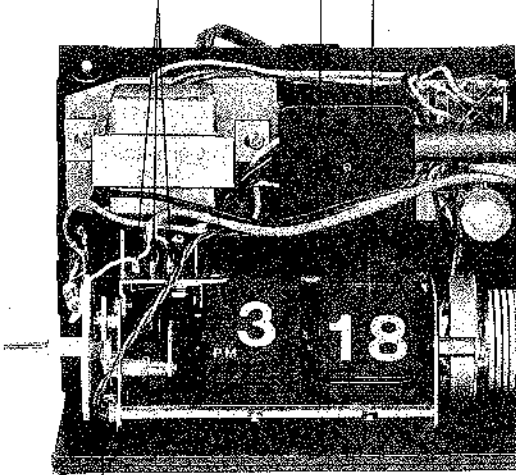


(Fig. 1-8)

Removal of Digital Clock

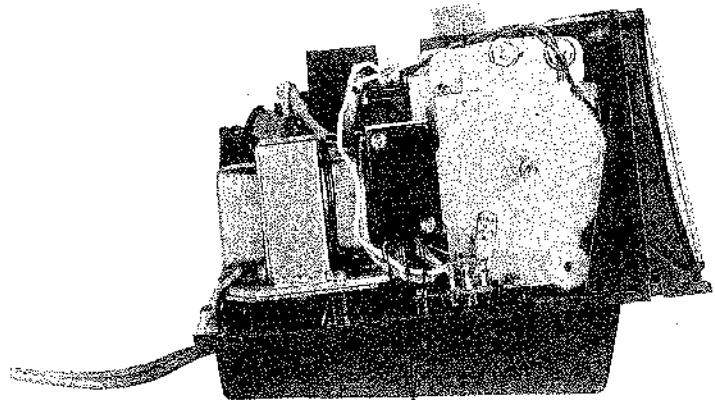
② Remove the Circuit Board Cover.

① Unsolder the three leads.



(Fig. 1-9)

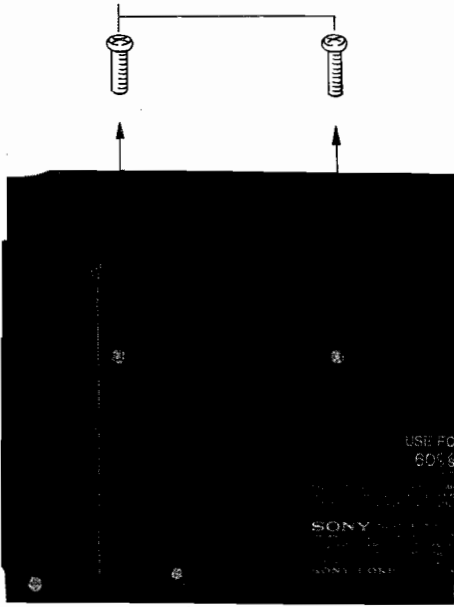
③ Remove the Lamp.



④ Unsolder the three leads.

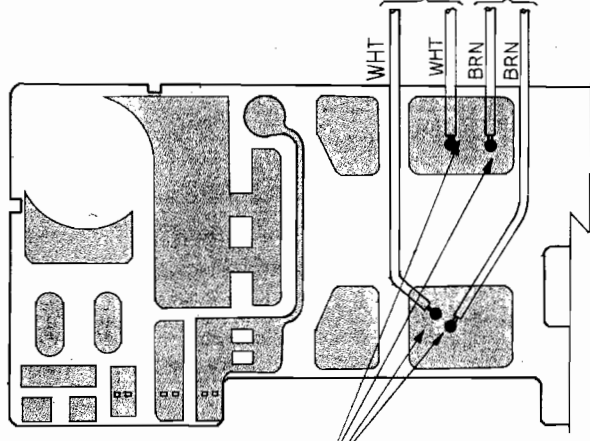
(Fig. 1-10)

⑤ Remove the two Screws.



(Fig. 1-11)

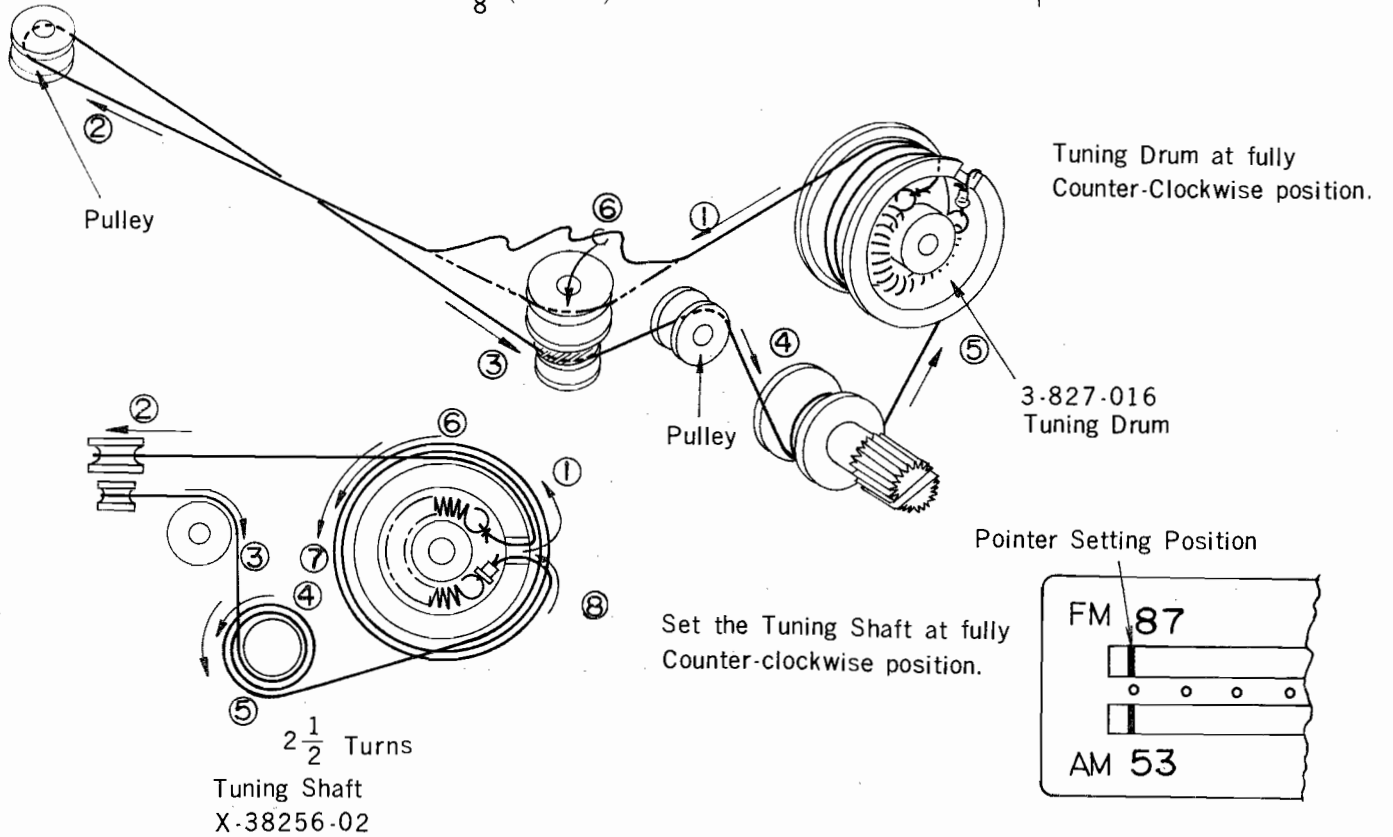
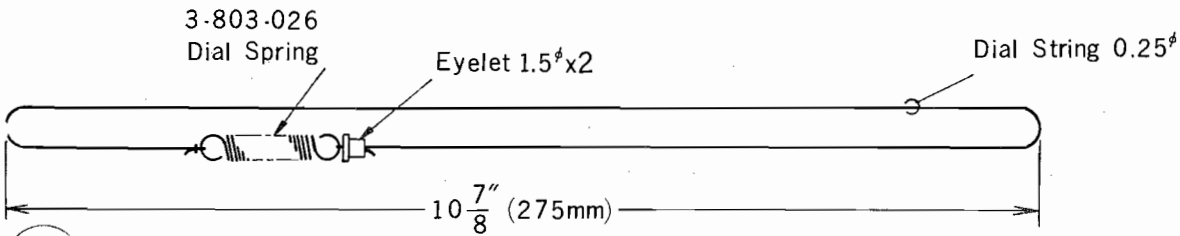
To Clock Motor. To Neon Lamp.



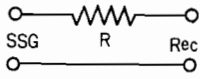
⑥ Unsolder the four Leads.

(Fig. 1-12)

Dial Cord Stringing



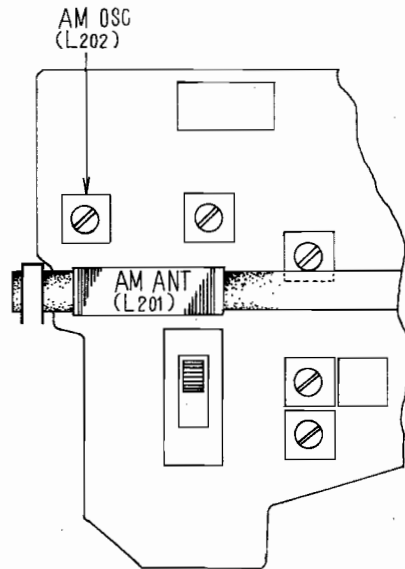
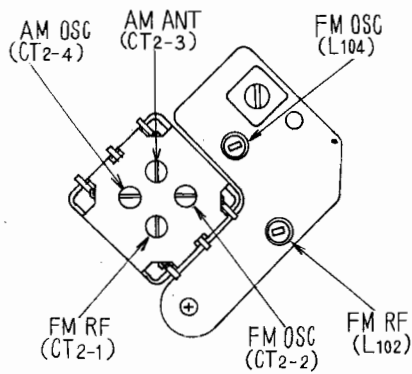
Frequency Coverage and Tracking Adjustment

| Adj. Item | S.S.G. (Standard Signal Generator) Coupling | S.S.G. Freq. | Receiver Dial Setting | Connect V.T.V.M. | Adjust | Remarks |
|-----------------------|--|--------------------------------|-------------------------|--|-------------------------------------|---|
| FM Frequency Coverage |  SSG R Rec ※R=100-RS where Rs: Output impedance of SSG | 85.5Mc (400c/s ±22.5 Kc FM) | Fully Left | To Earphone Jack with 8Ω load Resistor in parallel | FM OSC Coil (L ₁₀₄) | Adjust for maximum Meter reading |
| | | 109.5 Mc (") | Fully Right | | FM OSC Trimmer (C _{T2-2}) | Volume Control: MAX. Power Supply: AC 117V 60 c/s |
| FM Tracking | —ditto— | 85.5Mc (") | Tune to 85.5Mc Signal | —ditto— | FM RF Coil (L ₁₀₂) | —ditto— |
| | | 109.5Mc (") | Tune to 109.5 Mc Signal | | FM RF Trimmer (C _{T2-1}) | |
| AM Frequency Coverage | Loop Antenna | 520 Kc (1,000 c/s 30% AM) | Fully Left | —ditto— | AM OSC Coil (L ₂₀₂) | —ditto— |
| | | 1,680 Kc (") | Fully Right | | AM OSC Trimmer (C _{T2-4}) | |
| MW Tracking | —ditto— | 620 Kc (") | Tune to 620 Kc Signal | —ditto— | AM ANT Coil (L ₂₀₁) | —ditto— |
| | | 1,400 Kc (") | Tune to 1,400Kc Signal | | AM ANT Trimmer (C _{T2-3}) | |

※ Dummy Antenna

Unsolder the Coaxial Cable at the Power Supply Circuit Board.

Connect the SSG to the Coaxial Cable and ground of the receiver through the Dummy Antenna.



Schematic Diagram

X101 2SC629

X102 2SC629

X201 2SC403A

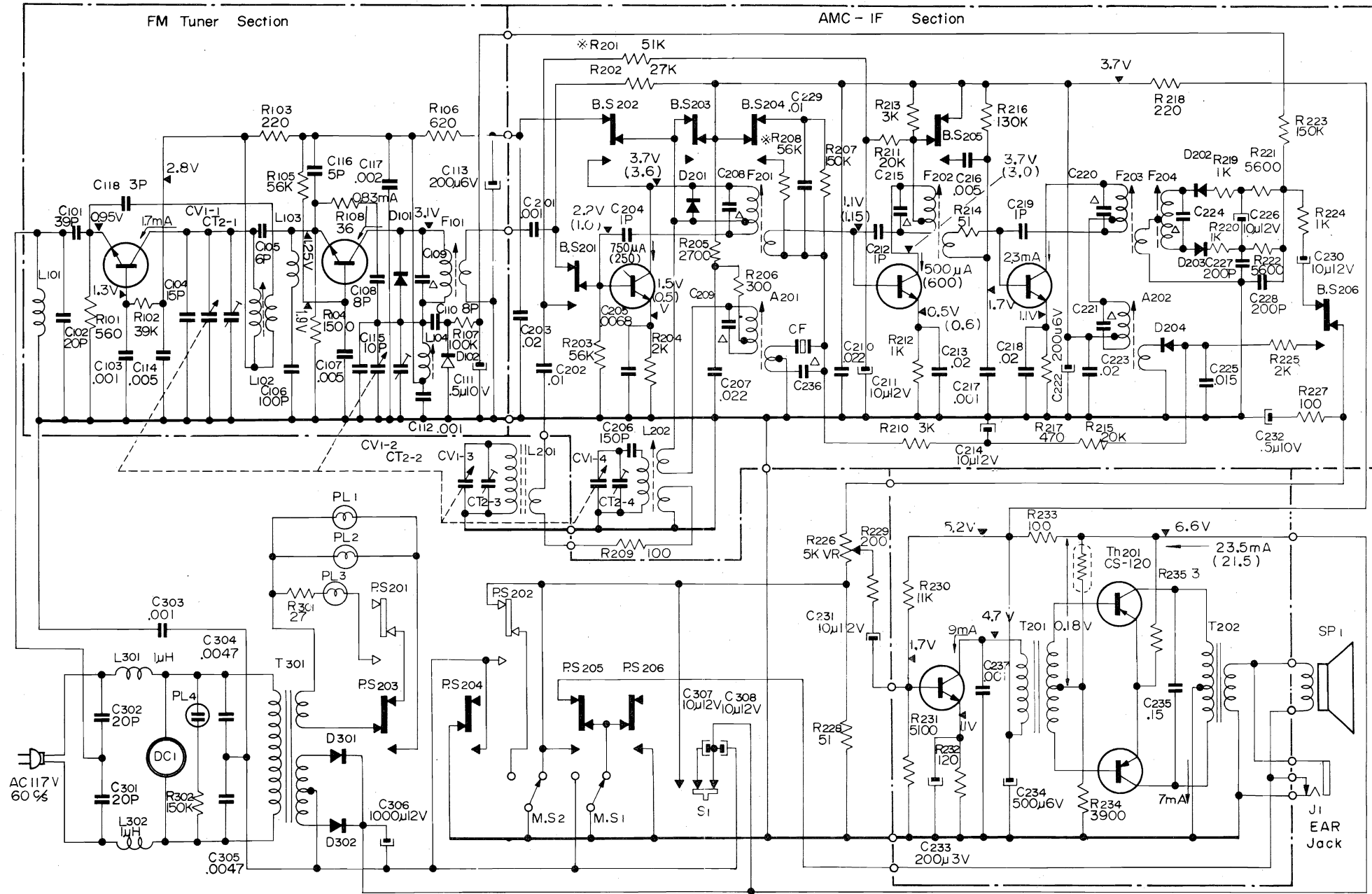
X202 2SC403A

X203 2SC403A

D101 IT26 D102 IT240

D201 IT26

D204 IT23 D202,203 IT26



D301 SDIZ

D302 SDIZ

X204 2SC633

X205, 206 2SB383

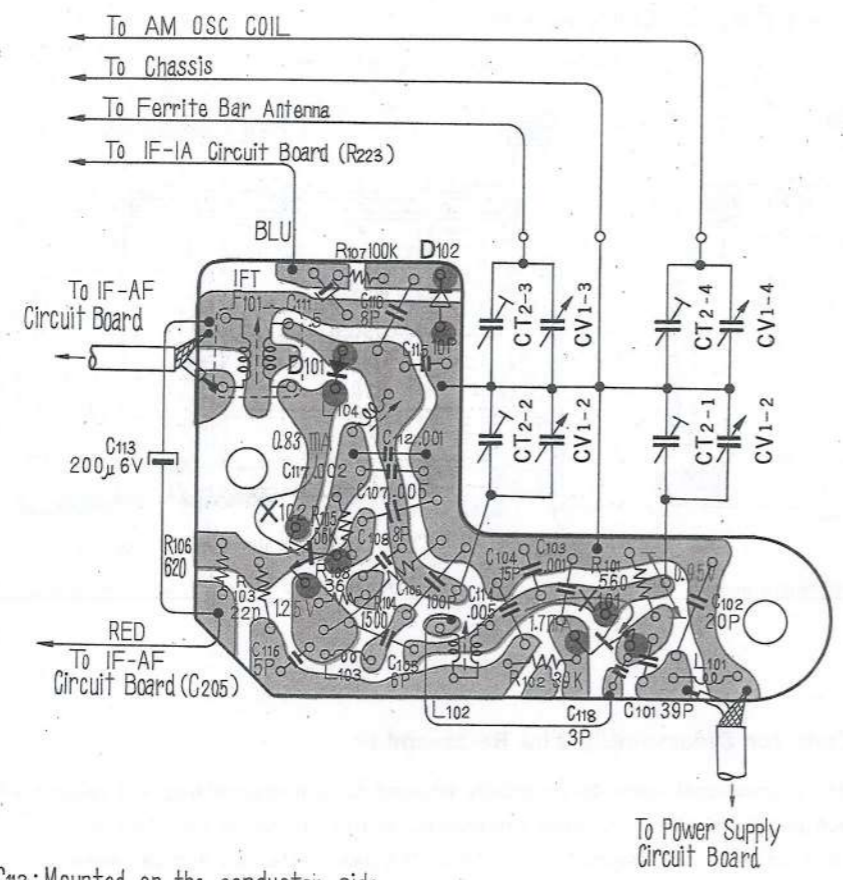
NOTE

1. Δ Built in IFT.
2. Values in the Parentheses are for AM.
3. *: Resistance Value to be selected.
4. B.S201-206: Band Setting Switch.
5. FM \blacktriangleright Band Setting Switch shown is set to FM position.
6. AM \blacktriangleright
6. P.S201-202: Automatic Switch.
7. P.S203-206: Manual Switch.
8. DC1: Digital Clock.
9. PL1,2,3: Pilot Lamp.
10. PL4: Neon Lamp.
11. S1: Buzzer/Radio Switch.
12. M.S1: Micro Switch (ALARM)
13. M.S2: Micro Switch (BUZZER)

Mounting Diagram

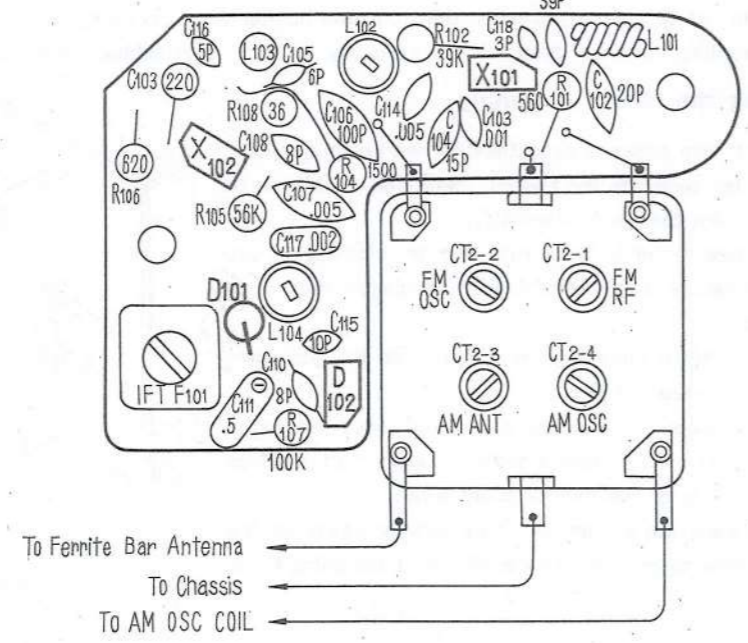
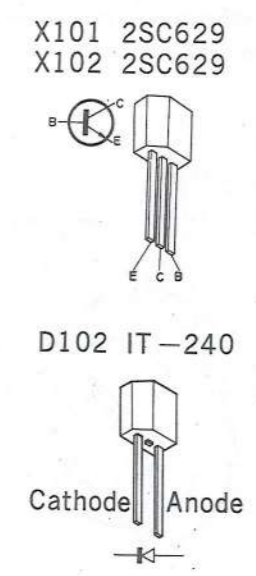
FM Tuner Section (FMC)

— Conductor Side —



C112: Mounted on the conductor side.

— Component Side —

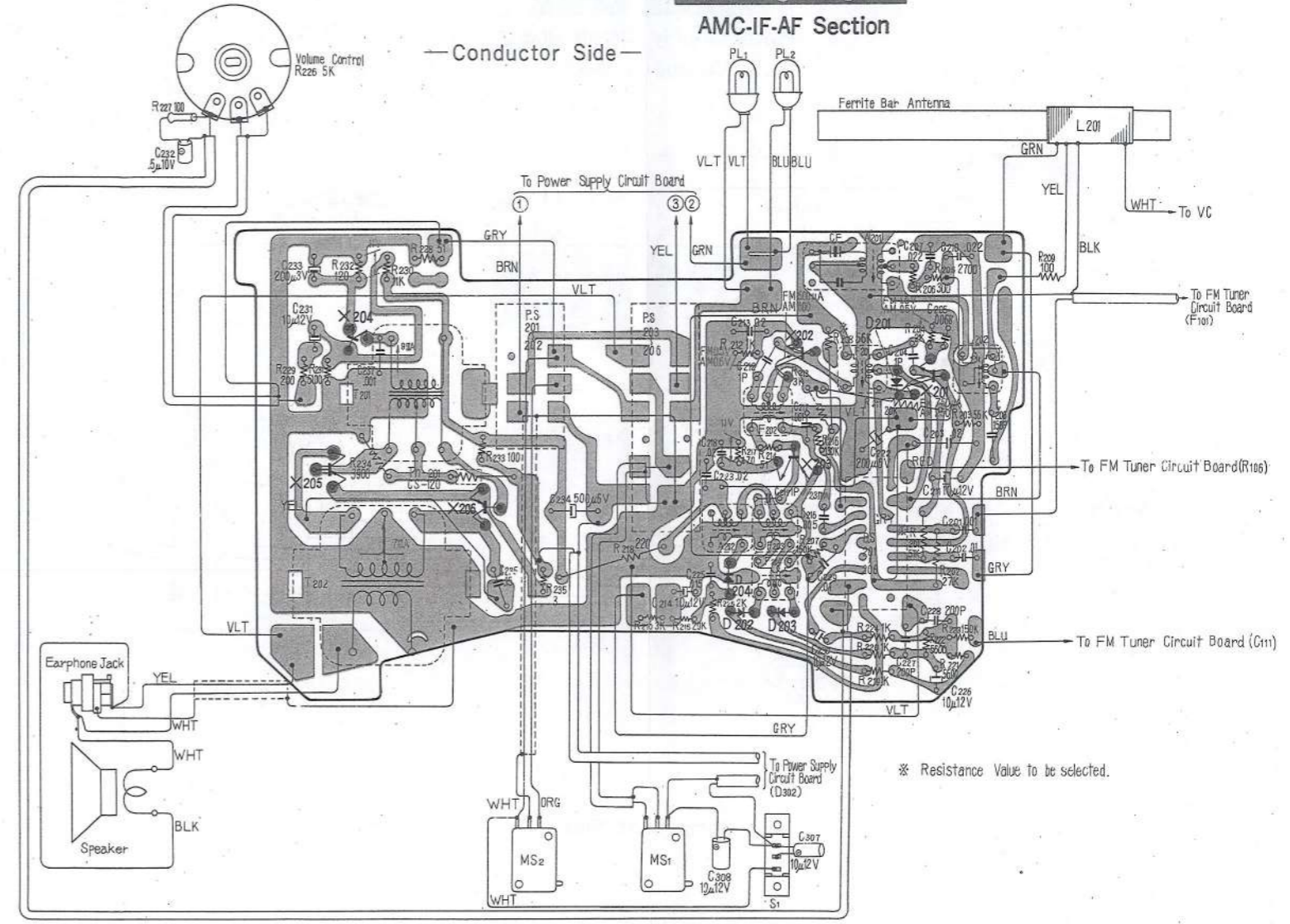


C112: Mounted on the conductor side.

Mounting Diagram

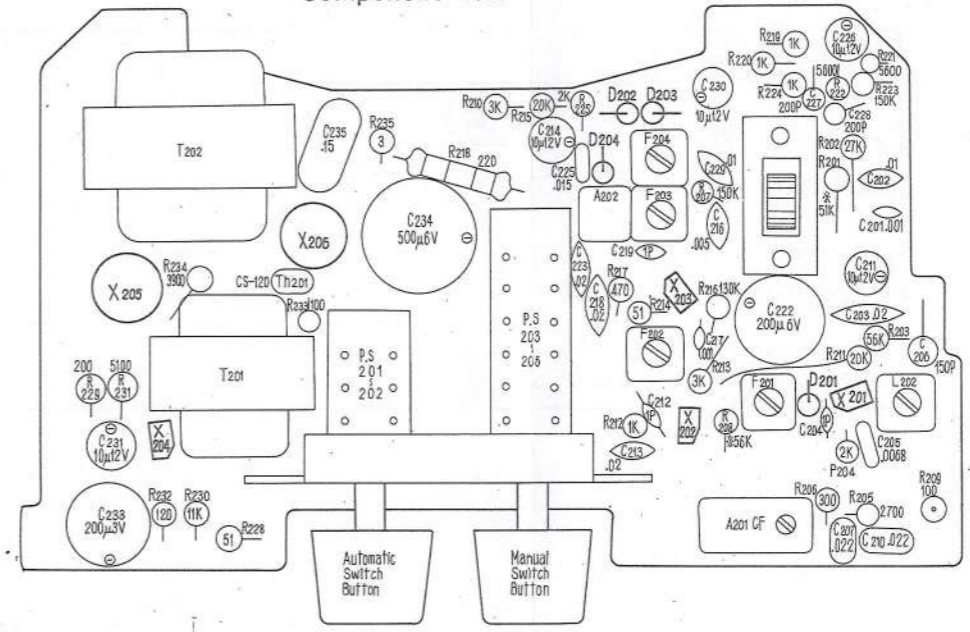
AMC-IF-AF Section

— Conductor Side —

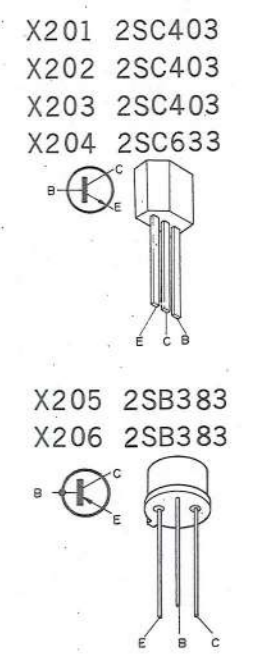


* Resistance Value to be selected.

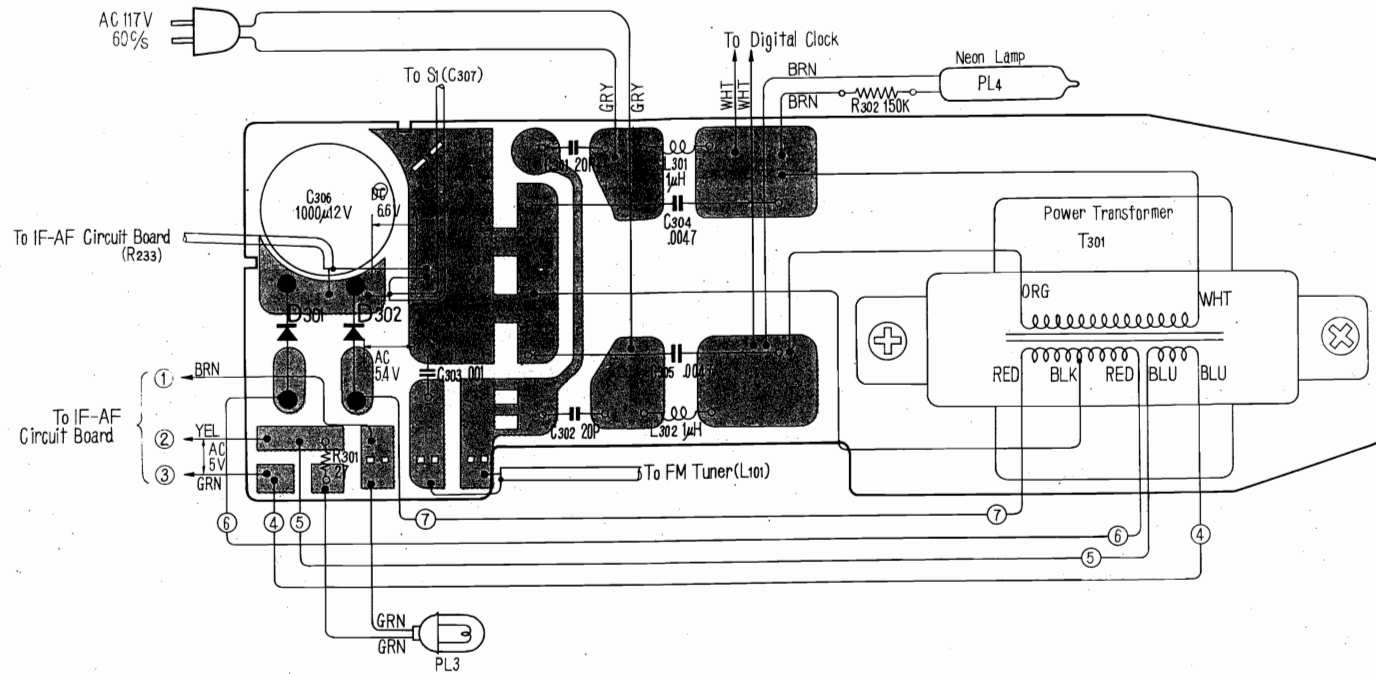
— Component Side —



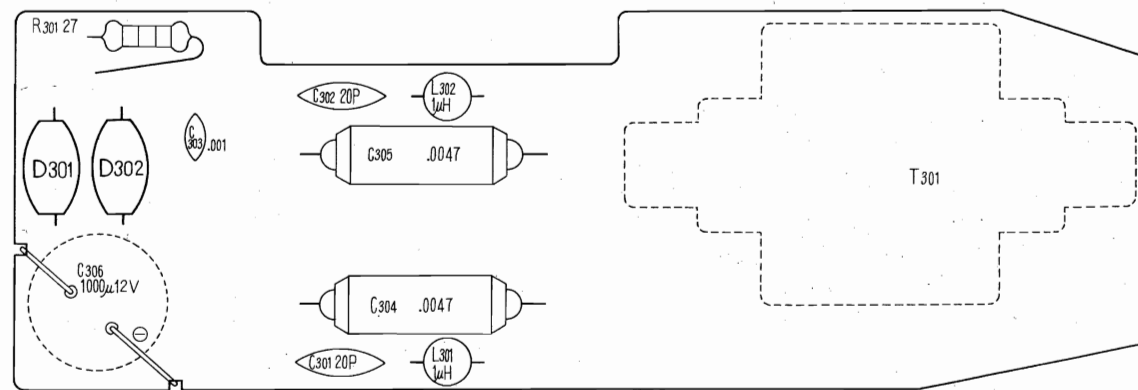
* Resistance Value to be selected



Mounting Diagram
Power Supply Circuit Board
 — Conductor Side —

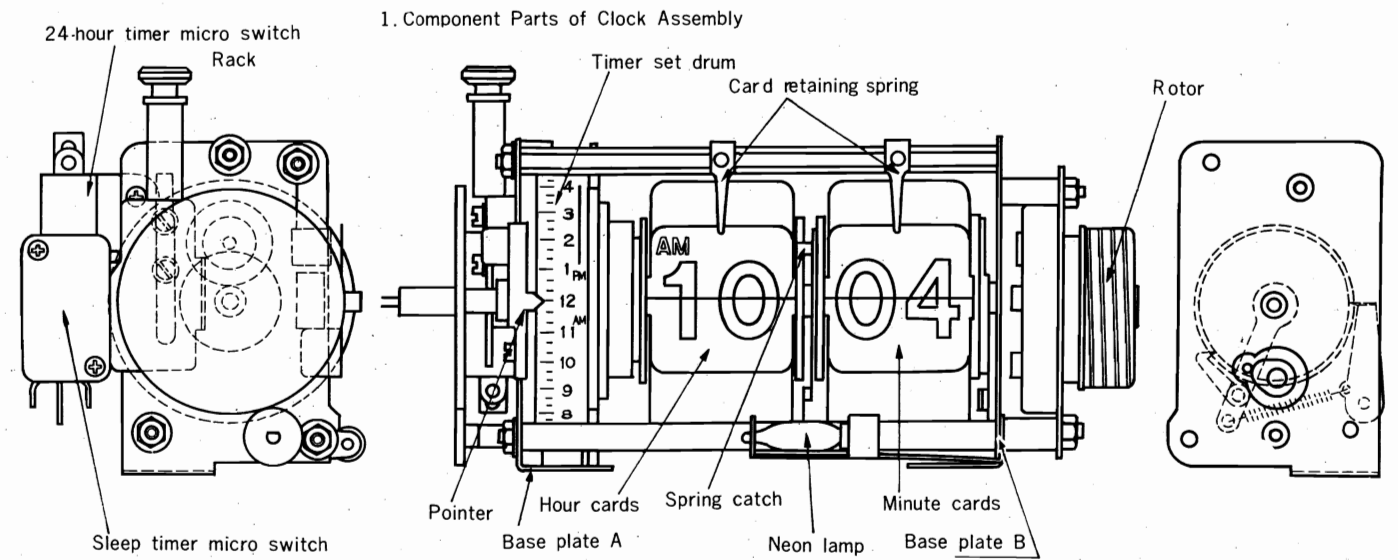


— Component Side —



Maintenance of Digital Clock

1. Component Parts of Clock Assembly



(Fig. 2-1)

2. Precautions for Disassembly and Re-assembly

Following are the precautional items to be closely adhered to in disassembling and re-assembling the clock:

- (1) Wear clean gloves so as not to leave fingerprints and/or grease on the clock parts.
- (2) Be sure to hold the clock assembly by gripping the base plates (A) and (B) when removing or re-installing the clock assembly.
- (3) Do not touch the rotor of the motor when handling the clock assembly.
- (4) Do not touch the hour and minute cards, spring catch, card retaining springs and pointer.
- (5) Be careful not to give any blow to the rotor and pointer when removing or re-installing the clock assembly.
- (6) When installing the clock assembly to the cabby, tighten its attaching screws uniformly.

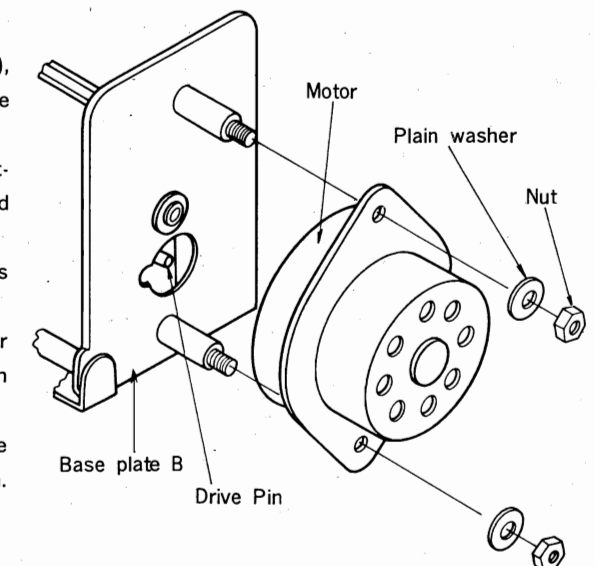
3. Replacing the Motor Assembly

- (1) Loosen off two hexagon nuts (together with plain washers), securing the motor to the bosses. Now, the motor can be removed from the clock assembly.
- (2) Install a new motor in place with its rotor side facing outside, and secure it by tightening the hexagon nuts good and hard.

Notes: 1) When installing the motor, keep its lead wires lifted upward.

2) Check to make sure that the cam of the motor is properly positioned with respect to the driven pin of the minute count lever.

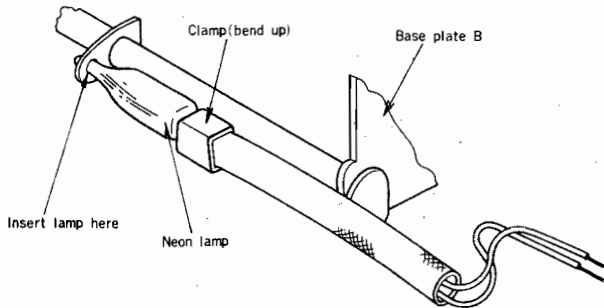
- (3) Apply an adequate amount of screw locking agent to the hexagon nuts to prevent the possibility of loosening them.



(Fig. 2-2)

4. Replacing the Neon Lamp

- (1) The lamp can be removed from the clock assembly by straightening its clamp.
- (2) Install a new neon lamp in place by inserting its tip into the hole provided in the support plate. Then, bend up the clamp against the lamp for securing.



(Fig. 2-3)

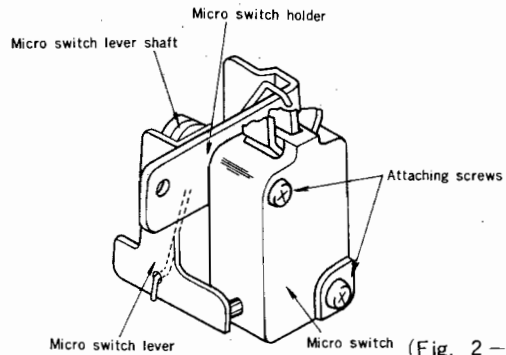
5. Replacing the Micro Switches

(1) 24-hour timer micro switch

This micro switch can be removed for replacement by loosening off two attaching screws, upper and lower, as shown in the accompanying figure. The upper attaching screw is used to secure the micro switch lever shaft also. It is, therefore, necessary to see, upon installing a new switch, if the micro switch lever is properly installed in place.

Check the micro switch operation in the following manner:

- a) Finger-rotate the timer set drum in CCW direction (as viewed from the knob gear side of the clock), making sure that the switch button (red) is depressed by the spring-loaded micro switch lever when the clutch cam is engaged (moved toward the drum).
- b) With the clutch cam kept in engaged position, finger-lift the micro switch lever and release it to see if the lever is spring-returned to depress the switch button properly.
- c) Make sure that the micro switch is turned off when the clutch cam is disengaged (moved away from the drum). Repeat the operation as in Steps a) through c) above at four equal intervals of time setting to make sure that the switch properly operated.

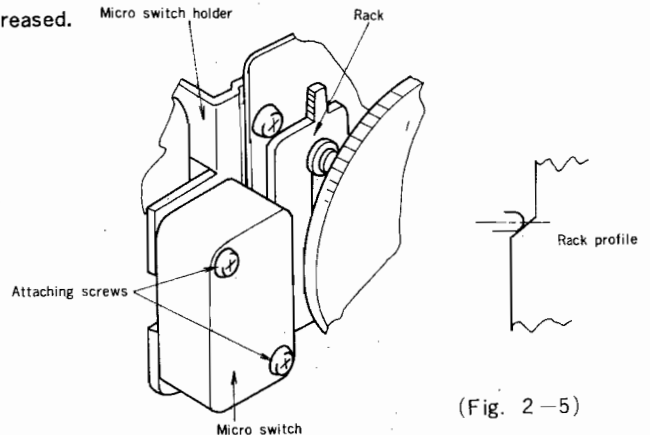


(Fig. 2-4)

(2) Sleep timer micro switch

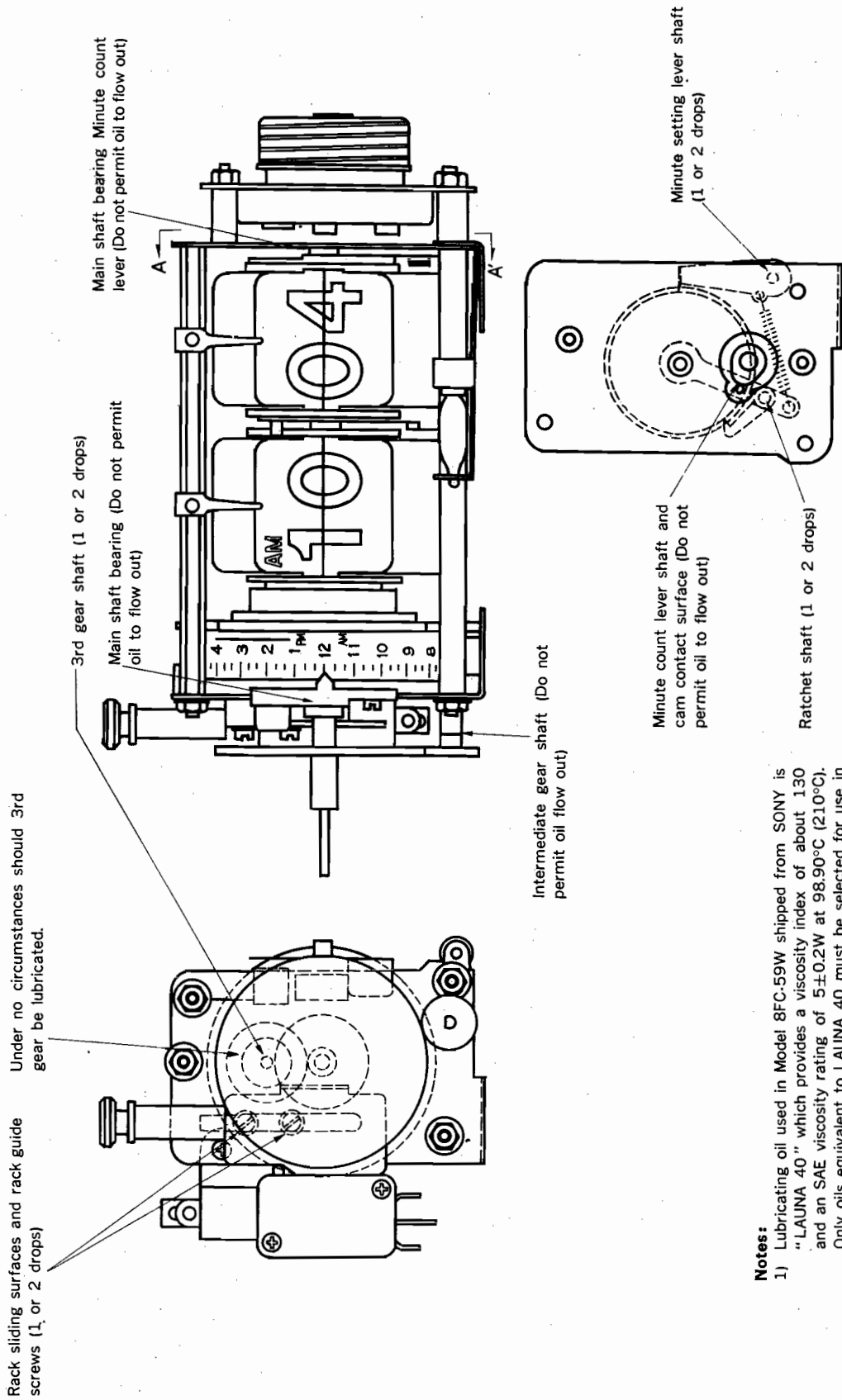
This micro switch, like the 24-hour timer switch, can easily be removed by loosening off two attaching screws when it has to be replaced.

Upon installing, check the switch for proper operation. The switch must be turned on when the rack is pulled upward, and vice versa. The left-hand edge of the rack is profiled to control the switch button. The rack disengages from the 3rd gear to drop by itself, releasing the switch button (red) when the button is on the half-way of the beveled edge of the rack on its downward stroke. Remember that if the switch is positioned too close to the rack when installed, the force for pulling up the rack will be increased.



(Fig. 2-5)

6. Lubrication Guide for Clock Assembly

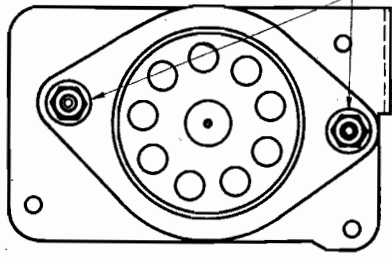


Section A-A'

- Notes:**
- 1) Lubricating oil used in Model 8FC-59W shipped from SONY is "LAUNA 40" which provides a viscosity index of about 130 and an SAE viscosity rating of 5±0.2W at 98.90°C (210°C). Only oils equivalent to LAUNA 40 must be selected for use in lubricating Model 8FC-59W.
 - 2) Lubricating points must be serviced more than once a year from the standpoint of safety rule.

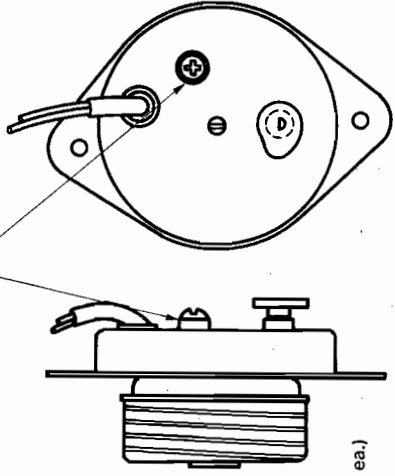
7. Lubrication Guide for Motor Assembly

(1) Remove motor by loosening off two nuts.

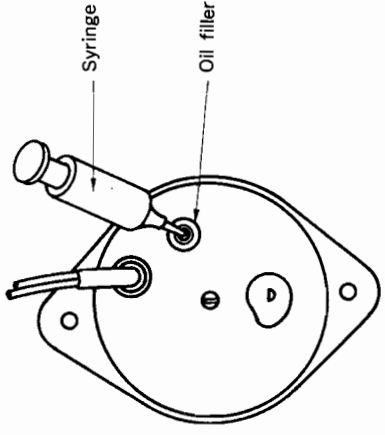


Nuts and Washers (2 ea.)

(2) Loosen off Phillips screw at oil filler as shown.



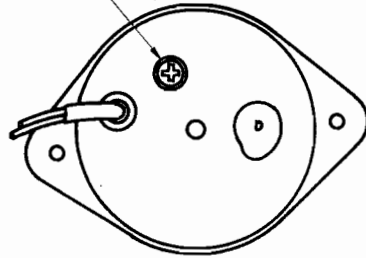
(3) Fill motor with 0.1 or 0.15 cc oil through oil filler by using a brush or syringe.



Syringe

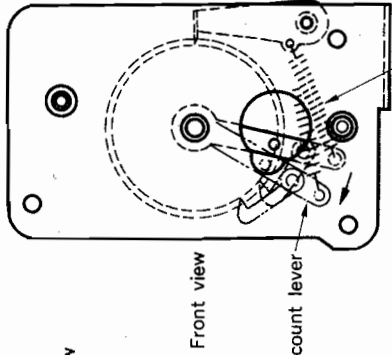
Oil filler

(4) Upon filling oil, re-install Phillips screw, torquing it securely. (Apply sealing agent to screw head to prevent oil from evaporating, if possible).



Phillips screw

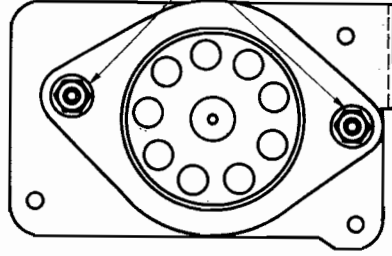
(5) When installing motor to base plate, it is necessary to keep minute count lever pushed toward front side of clock. After installing motor in place, make sure that the lever is properly installed, and tighten nuts good and hard.



Front view

Minute count lever

Ratchet spring

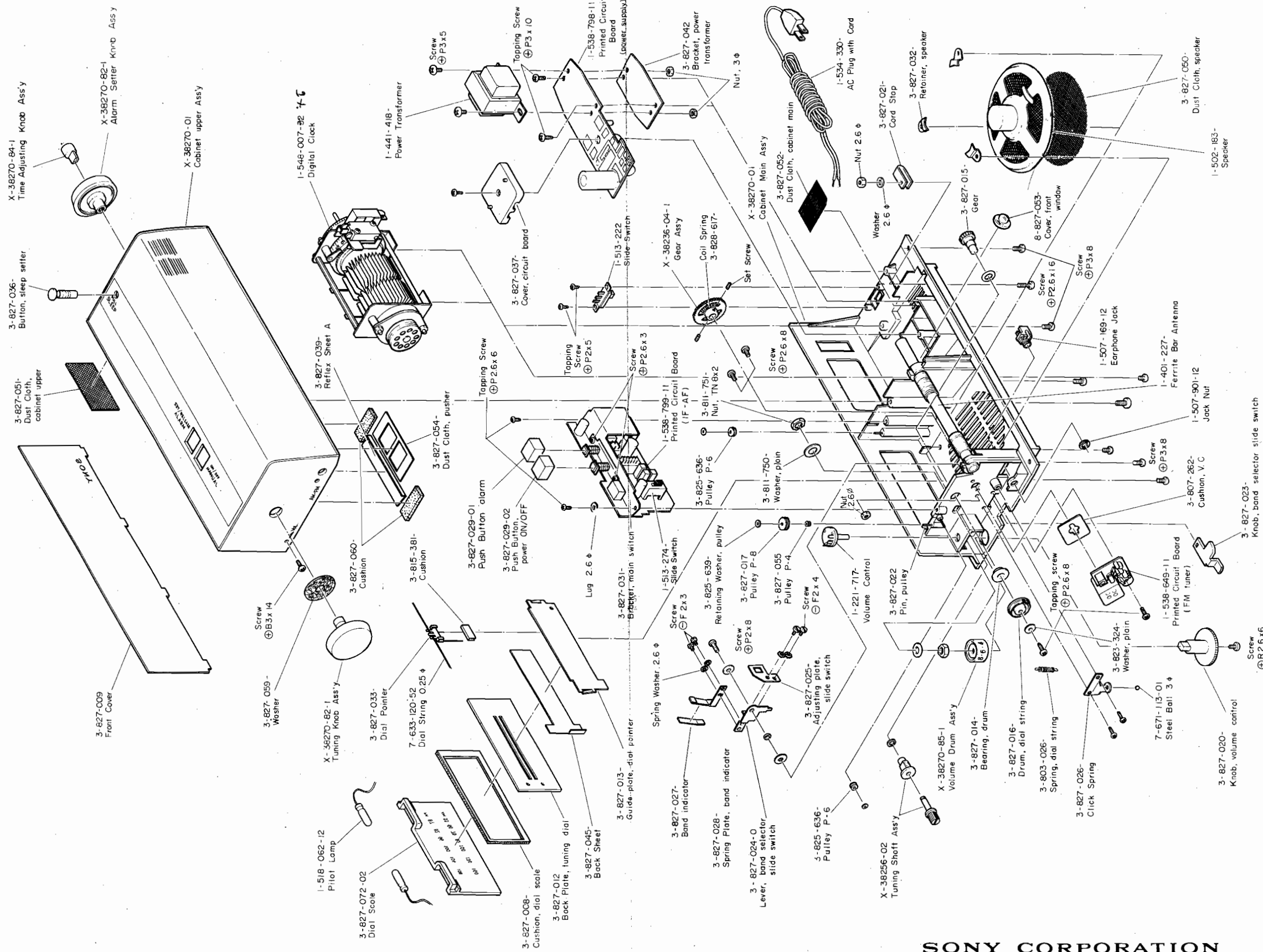


Nuts and Washers (2 ea.)

MEMO

Lined area for taking notes or a memo.

Exploded Diagram



SONY CORPORATION

Complete Spare Parts List for 8FC-59W

May, 1968

| <u>Part No.</u> | <u>Description</u> |
|--|---|
| <u>A. Cabinet and Appearance Items</u> | |
| Y-38270-82-1 | Completed Cabinet, including ----- |
| X-38270-01 | Cabinet Main Ass'y ----- |
| -11-3 | Cabinet Upper Ass'y (Charcoal Gray) ----- |
| -4 | " " " (White) ----- |
| 3-827-009-03 | Front Cover ----- |
| -044 | Cover Button ----- |
| -053 | Cover, front window ----- |
| -073 | Plate (UL) ----- |
| -079 | Label, specification ----- |
| | * * * * * |
| X-38270-82-1 | Tuning Knob Ass'y ----- |
| -83-1 | Alarm Setter Knob Ass'y ----- |
| -84-1 | Time Adjust Knob Ass'y ----- |
| -85-1 | Volume Drum Ass'y ----- |
| 3-827-020 | Knob, volume control ----- |
| -023 | Knob, band selector slide switch ----- |
| -029-01 | Push Button, alarm (Gray) ----- |
| -02 | " " , power ON/OFF (Light Gray) ----- |
| -033 | Dial Pointer ----- |
| -036 | Button, sleep setter ----- |
| -045 | Back Sheet ----- |
| -046 | Collar ----- |
| -050 | Dust Cloth, speaker ----- |
| -054 | " " , pusher ----- |
| -072 | Dial Scale ----- |
| -075 | Plate for USE ----- |
| <u>B. Mechanical Parts</u> | |
| X-38256-02 | Tuning Shaft Assembly ----- |
| 3-827-008 | Cushion, dial scale ----- |
| -010 | Washer ----- |
| -012 | Back Plate, tuning dial ----- |

| <u>Part No.</u> | <u>Description</u> |
|-----------------|---|
| 3-827-013 | Guide Plate, dial pointer ----- |
| -014 | Bearing, drum ----- |
| -015 | Gear ----- |
| -016 | Drum, dial string ----- |
| -017 | Pulley P-8 ----- |
| -021 | Cord Stop ----- |
| -022 | Pin, pulley ----- |
| -024 | Lever, band selector slide switch ----- |
| -025 | Adjusting Plate, slide switch ----- |
| -026 | Click Spring ----- |
| -027 | Band Indicator ----- |
| -028 | Spring Plate, band indicator ----- |
| -031 | Bracket, main switch ----- |
| -032 | Retainer, speaker ----- |
| -037 | Cover, circuit board ----- |
| -039 | Reflex Sheet A ----- |
| -042 | Bracket, power transformer ----- |
| -043 | Reflex Sheet B ----- |
| -051 | Dust Cloth, cabinet upper ----- |
| -052 | " " , cabinet main ----- |
| -055 | Pulley P-4 ----- |
| -058 | Reflex Sheet C ----- |
| -059 | Washer ----- |
| -060 | Cushion ----- |
| -067 | Cushion ----- |
| -068 | Terminal Strips, lug ----- |
| 0-039-825 | Washer Plain ----- |
| 3-803-026 | Spring, dial string ----- |
| 3-811-750 | Washer Plain (for Tuning Shaft) ----- |
| -751 | Nut, TN 8 x 2 (P=0.5) ----- |
| 3-815-380 | Stopper, volume knob ----- |
| -381 | Cushion (felt) ----- |
| 3-822-634 | Heat Sink ----- |
| 3-807-262 | Cushion, tuning capacitor ----- |
| 3-823-324 | Washer, plain (for Drum, Dial String) ----- |
| -617 | Coil Spring (for Double Gear) ----- |
| 3-825-620 | Pin, pulley ----- |
| -636 | Pulley P-6 ----- |
| -639 | Retaining Washer, pulley ----- |
| -392 | Cushion ----- |
| 3-827-080 | Double Gear A ----- |
| -081 | " " B ----- |

Part No. Description

C. Electrical Parts

| | |
|--------------|---|
| 1-401-227 | Bar Antenna (L201) ----- |
| 1-502-183 | Speaker (SP) ----- |
| 1-507-169-12 | Earphone Jack (J2) ----- |
| -901-12 | Jack Nut (J1) ----- |
| 1-513-222 | Slide Switch ----- |
| 1-518-062-12 | Pilot Lamp (PL1,2) ----- |
| -22 | " " (PL3) ----- |
| 1-548-007-32 | Digital Clock (DC1) ----- |
| 1-513-274 | Slide Switch ----- |
| 1-514-424 | Push Switch (2 Key) (PS201 - 206) ----- |
| 1-534-330 | AC Plug with Cord ----- |
| 98-1343-10 | Completed Tuner (FMC-072W1) ----- |
| 1-538-799-11 | Printed Circuit Board, AF IF ----- |
| -798-11 | " " " , AC ----- |
| -649-11 | " " " , FM tuner ----- |

Coil and Transformer

| | |
|-----------|---|
| 1-401-228 | Coil, FM ANTENNA (L101) ----- |
| 1-425-373 | " , FM RF (L102) ----- |
| 1-407-101 | Coil, FM Trap (L103,105) ----- |
| 1-405-315 | " , FM OSC. (L04) ----- |
| -306 | " , MW OSC. (L202) ----- |
| 1-403-128 | Transformer, AM IF (Single Tuned) (IFTA202) ----- |
| -243 | " , FM IF (") (IFTF201) ----- |
| -244 | " , FM IF (") (IFTF202) ----- |
| -242 | " , FM IF (") (IFTF101) ----- |
| -272 | FM Discriminator (Primary) (F203) ----- |
| -273 | " " (Secondary) (F204) ----- |
| 1-423-064 | Transformer, driver (T201) ----- |
| 1-427-227 | " , output (T202) ----- |
| 1-441-418 | " , power (T301) ----- |
| 1-403-162 | Ceramic Filter (A201) ----- |
| 1-407-343 | Micro Inductor 1uH (L301,302) ----- |

Potentiometer

| | |
|-----------|----------------------|
| 1-221-717 | Volume Control ----- |
|-----------|----------------------|

Part No.

Description

Variable Capacitor

| | |
|-----------|---|
| 1-151-149 | FM AM Tuning Capacitor, 4 units (VC1-1 - 1-4, CT1-1 - 1-4) ----- |
|-----------|---|

Semiconductor

| | |
|-----------|---|
| 8-691-001 | Transistor 2SC-629 X101,102 ----- " 2SC-403 X201,202,203 ----- " 2SC-6337 X204 ----- " 2SB-383 X205,206 ----- Diode 1T-26 D101,201,202,203 ----- " 1T-240-3 D102 ----- " 1T-23 D204 ----- " SD-1Z D301,302 ----- Thermistor CS-120 Th201 ----- |
|-----------|---|

Carbon Resistor (RD $\frac{1}{2}$ SR, \pm 10%)

| | | | |
|-----------|----------------------|-----------|-------|
| 1-244-612 | R235 | 3 ohms | ----- |
| -635 | R301 | 27 " | ----- |
| -642 | R214,228 | 51 " | ----- |
| -649 | R209,227,233, 237 | 100 " | ----- |
| -651 | R232 | 120 " | ----- |
| -656 | R229 | 200 " | ----- |
| -657 | R218 | 220 " | ----- |
| -660 | R206 | 300 " | ----- |
| -665 | R217 | 470 " | ----- |
| -673 | R212,219,220, 224 | 1K ohm | ----- |
| -675 | R236 | 1.2K ohms | ----- |
| -680 | R204,225 | 2K " | ----- |
| -683 | R205 | 2.7K " | ----- |
| -684 | R213,210 | 3K " | ----- |
| -687 | R234 | 3.9K " | ----- |
| -690 | R231 | 5.1K " | ----- |
| -691 | R221,222 | 5.6K " | ----- |
| -698 | R280 | 11K " | ----- |
| -704 | R211,215 | 20K " | ----- |
| -707 | R202 | 27K " | ----- |
| -715 | R203 | 56K " | ----- |

| <u>Part No.</u> | <u>Description</u> | | | | |
|-----------------|--------------------|------|------|-----------------------|--|
| 1-244-724 | R216 | 130K | ohms | ----- | |
| -725 | R207,223 | 150K | " | ----- | |
| -712) | | 43K | " | ----- | |
| -713) | | 47K | " | ----- | |
| -714) | R201 (Adjust) | 51K | " | (+5%) ----- | |
| -715) | | 56K | " | ----- | |
| -716) | | 62K | " | ----- | |
| -713) | | 47K | " | ----- | |
| -714) | | 51K | " | ----- | |
| -715) | R208 (Adjust) | 56K | " | (+5%) ----- | |
| -716) | | 62K | " | ----- | |
| -717) | | 68K | " | ----- | |
| -438 | R108 | 36 | " | (RD1/8SR, +10%) ----- | |
| -457 | R103 | 220 | " | (" , ") ----- | |
| -467 | R101 | 560 | " | (" , +5%) ----- | |
| -477 | R104 | 1.5K | " | (" , ") ----- | |
| -511 | R102 | 39K | " | (" , ") ----- | |
| -515 | R105 | 56K | " | (" , ") ----- | |
| -521 | R107 | 100K | " | (" , +10%) ----- | |

Ceramic Capacitor

| | | | | | |
|-----------|--------------------------|---------|----------------|-------|-------|
| 1-101-918 | C103,201,217,237, 303 | 0.001uF | (+80% -20%) | 25WV | ----- |
| -919 | C117 | 0.002uF | " | " | ----- |
| -140 | C107,114,216 | 0.005uF | " | " | ----- |
| -141 | C202,229 | 0.01uF | " | " | ----- |
| -142 | C203,218,213, 223 | 0.02uF | " | " | ----- |
| -951 | C204,212,219 | 1PF | +0.5PF | 50WV | ----- |
| -953 | C118 | 3PF | " | " | ----- |
| -955 | C116 | 5PF | " | " | ----- |
| -956 | C105 | 6PF | " | " | ----- |
| -958 | C108,110 | 8PF | " | " | ----- |
| -959 | C115 | 10PF | +5% | " | ----- |
| -861 | C104 | 15PF | " | " | ----- |
| -864 | C102 | 20PF | " | " | ----- |
| -876 | C101 | 39PF | " | " | ----- |
| -896 | C106 | 100PF | " | " | ----- |
| 1-102-067 | C301,302 | 20PF | +20% | 150WV | ----- |

5/8 (8FC-59W)

(R8-54)

| <u>Part No.</u> | <u>Description</u> | | | |
|-----------------|--------------------------------------|----------|---------------|-------------|
| | <u>Styrol Capacitor</u> | | | |
| 1-103-605 | C206 | 150PF | +5% | 50WV ----- |
| -658 | C227,228 | 200PF | +10% | " ----- |
| | <u>Mylar Capacitor</u> | | | |
| 1-105-821-12 | C112 | 0.001uF | +20% | 50WV ----- |
| -671-12 | C205 | 0.0068uF | +10% | " ----- |
| -835-12 | C225 | 0.015uF | +20% | " ----- |
| -837-12 | C207,210 | 0.022uF | " | " ----- |
| -687-12 | C235 | 0.15uF | +10% | " ----- |
| | <u>Electrolytic Capacitor</u> | | | |
| 1-121-282 | C211,214,226, 230,231,307, 308 | 10uF | +150% -10% | 12WV ----- |
| -294 | C233 | 200uF | | 3WV ----- |
| -295 | C222 | 200uF | | 6WV ----- |
| -359 | C234 | 500uF | +150% -10% | 6WV ----- |
| -186 | C306 | 1000uF | +200% -10% | 12WV ----- |
| | <u>Solid Electrolytic Capacitor</u> | | | |
| 1-127-022 | C232 | 0.5uF | +20% | 10WV ----- |
| | <u>Paper Capacitor</u> | | | |
| 1-115-071 | C304,305 | 0.0047uF | +20% | 600WV ----- |
| | <u>Alox Capacitor</u> | | | |
| 1-127-022-11 | C111 | 0.5uF | +20% | 10WV ----- |

| <u>Part No.</u> | <u>Description</u> |
|-----------------|-------------------------|
| | <u>Steel Ball</u> |
| 7-671-113-01 | 3 ϕ ----- |
| | <u>Dial String</u> |
| 7-633-120-52 | 0.25 ϕ 650mm ----- |

E. Attached Items

| | |
|--------------|----------------------------|
| 3-995-446-11 | Instruction Manual ----- |
| | Serial No. Label ----- |
| X-44900-02- | Polishing Cloth ----- |
| 3-827-065 | Cushion Left ----- |
| -066 | Polyethylene Bag ----- |
| -076-02 | Packing Carton ----- |
| -077-02 | Master Carton 6 sets ----- |
| -078 | Cushion Right ----- |
| 3-993-005 | FM Antenna Tag ----- |