ICF-C12L

UK Model
AEP Model

Photo: AEP model (Silver Type)

SPECIFICATIONS

Frequency range: AEP Model:
FM 87.5 – 108 MHz
LW 150 – 255 kHz (2000 – 1176 m)
UK Model:
FM 87.5 – 108 MHz
MW 530 – 1605 kHz (566 – 187 m)
LW 150 – 255 kHz (2000 – 1176 m)

Antennas: FM: Wire antenna
MW and LW: Built-in ferrite bar antenna

Speaker: Approx. 6.6 cm (2½ inches) dia.

Power output: 200 mW (at 10% harmonic distortion)

Power requirements: AEP Model: 220 V ac, 50 Hz
UK Model: 240 V ac, 50 Hz

Power consumption: 5 W ac (2.5 W ac when only the clock is in operation)

Dimensions: Approx. 126 x 126 x 126 mm (w/h/d)
(5 x 5 x 5 inches)
incl. projecting parts and controls.

Weight: AEP Model: Approx. 850 g (1 lb 14 oz)
UK Model: Approx. 910 g (2 lb)

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

MICROFILM

SONY®
SERVICE MANUAL

Handling Precautions for MOS ICs

Generally, the insulation resistance of the oxide layer in MOS IC structures is very high, and the oxide layer is very thin. Because of this, it is possible that the static voltages usually present on clothes and the human body will be enough to generate a potential difference across the insulator, high enough to cause a breakdown of the insulating layer.

The following precautions should be taken while handling these ICs.

(Particular care should be taken under conditions of low humidity.)

Precautions in Replacing MOS ICs

1. Store new ICs by inserting them into a urethane-polyester cushion (which is somewhat conductive), or wrapping it in aluminum foil, so that all the pins are at the same potential.
   (The ICs should be stored in that manner until mounted on the circuit board.)

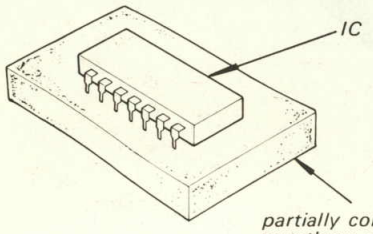


Fig. A

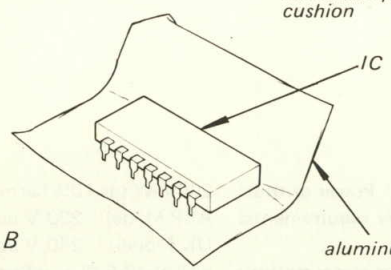


Fig. B

2. Check the soldering iron for possible power-line leakage current. Make sure that there is no leakage path by connecting an ohmmeter to the tip of the soldering iron and the plug as shown in Fig. C. If there is a leakage path, use some other soldering iron.

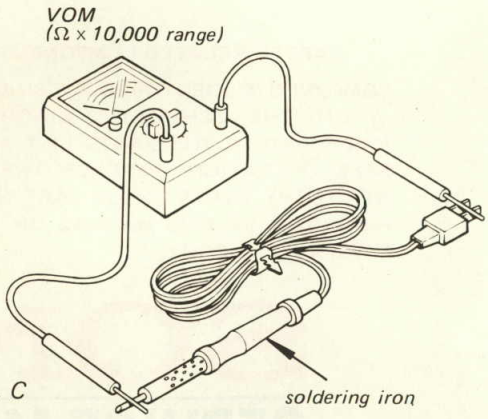


Fig. C

3. Equalize any potential difference between the clothes, the tools in use, the work bench, the set being worked on, and the packaged IC by touching them all in succession with the hands or a conductive wire or tool.

4. The following are effective methods for handling ICs that remove the potential difference across the oxide layer.
   - Use a paper clip modified by soldering in a wire braid insert.

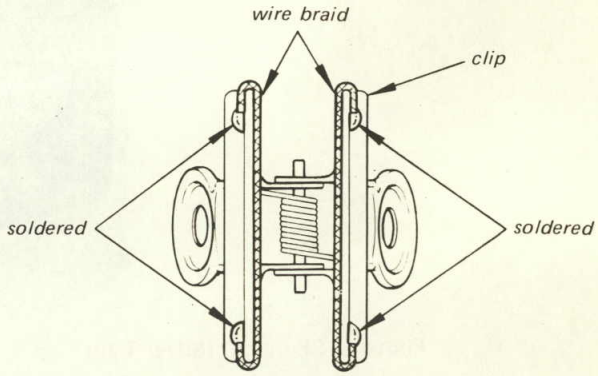


Fig. D

Make sure that there is no solder on the inside.

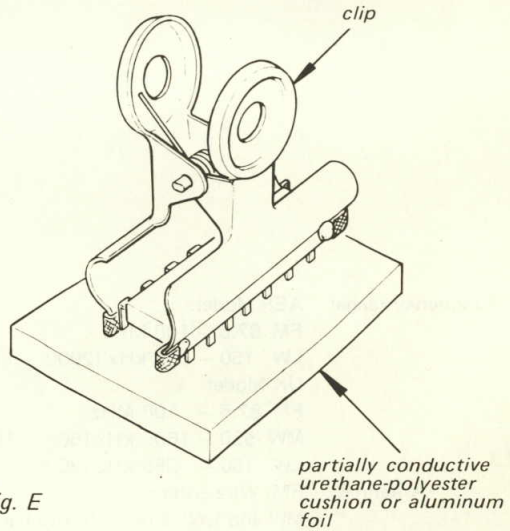


Fig. E

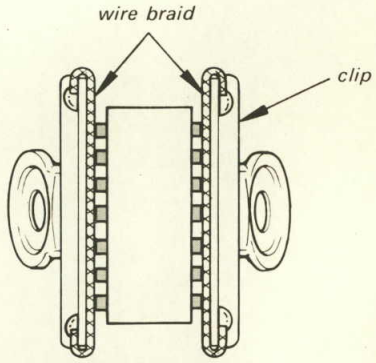


Fig. F

Make sure that all the pins are in contact with the wire braid (all the pins will then be at the same potential.).

- Take a short length of fine bare wire and wind it around the IC so that it shorts all the pins of the IC, while it is still in the urethane-polyester cushion or aluminum foil. This ensures that all the pins are at the same potential.

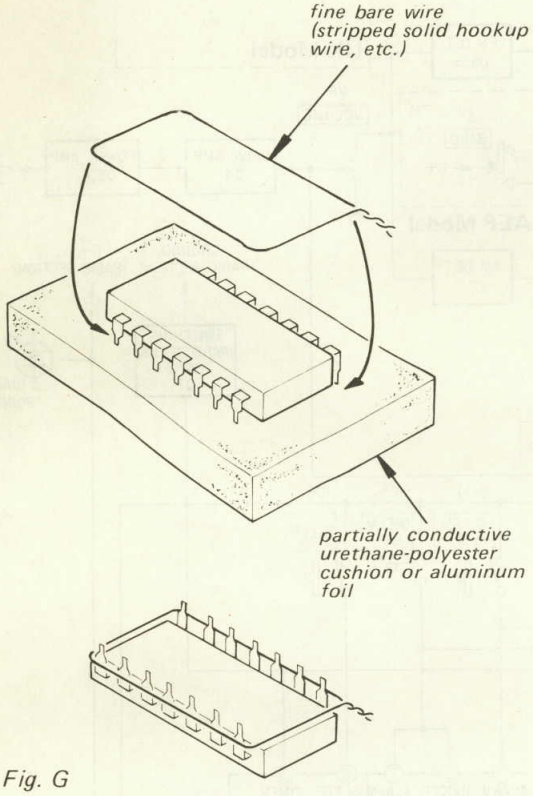


Fig. G

- When it is necessary to handle the IC with the fingers, do not touch any pin, and hold the IC at the ends of its plastic-package case as shown in Fig. H.

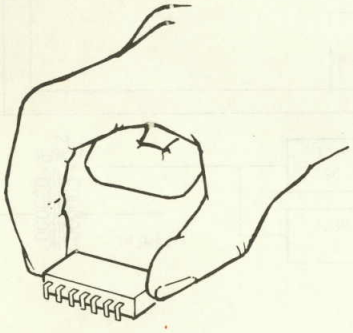


Fig. H

5. Method of Mounting

Insert the IC while holding it with the modified clip, and solder all the pins with the clip still shorting the pins. (Similarly, solder all the pins while the bare shorting wire is still wound around them.). Remove the clip or the bare shorting wire only after all the pins have been soldered.

Precaution while Checking C-MOS ICs

The C-MOS ICs (Complementary MOS) are MOS ICs that have their output sections made up of N-channel and P-channel push-pull stages to increase their speed of operation. If the output terminal of these ICs comes into contact with B+ or B– voltage, then the FET which is ON at that time will either become shorted or open.

This is valid for all the output sections that are connected together by the interconnections. Even the circuits that are physically separated (and not on the same board) can be destroyed simultaneously.

Example:

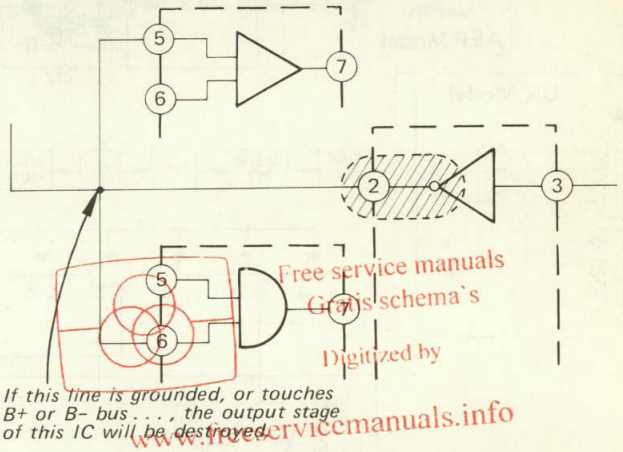
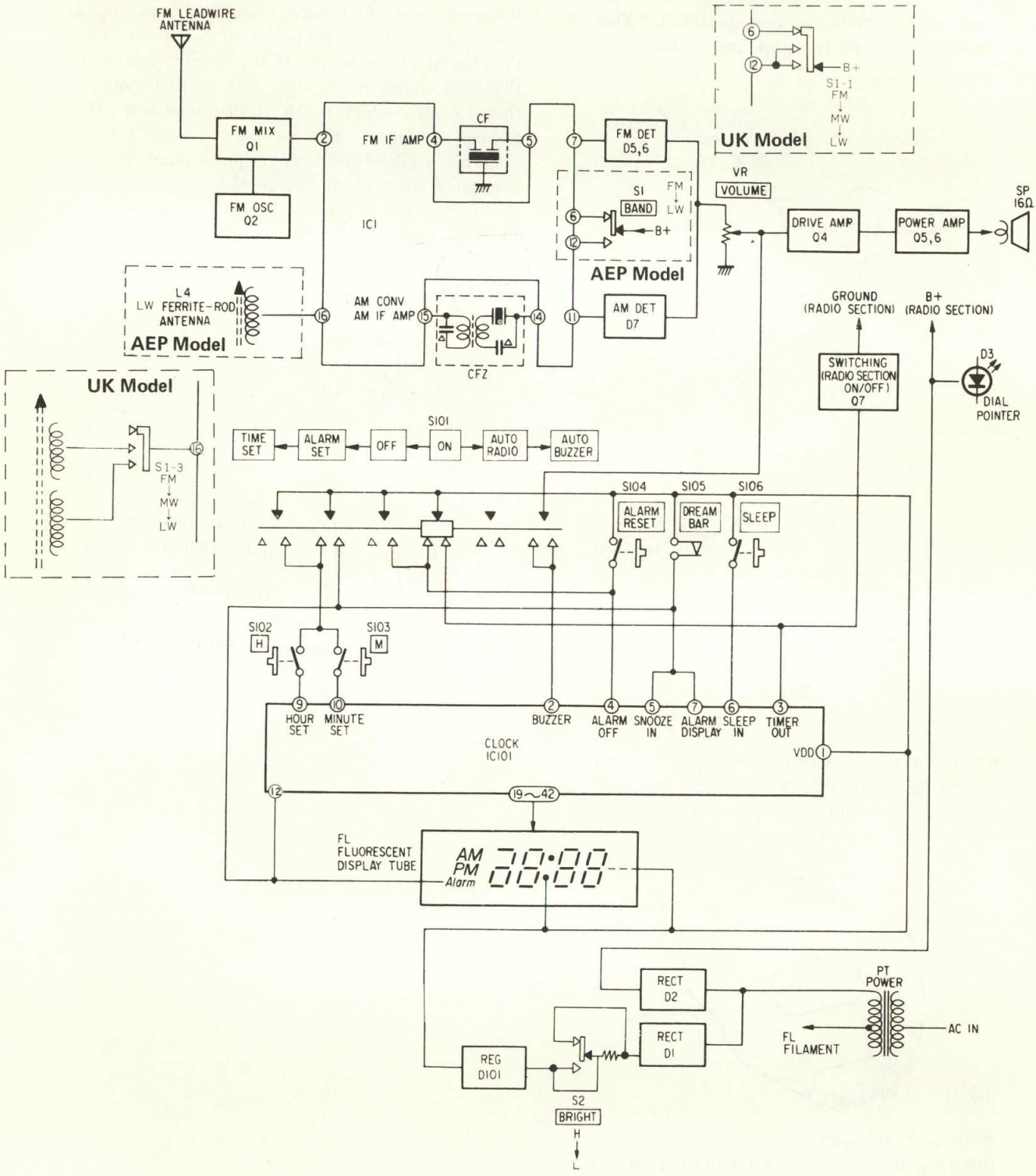


Fig. I

SECTION 1
OUTLINE

1-1. BLOCK DIAGRAM



ICF-C12L AEP MODEL

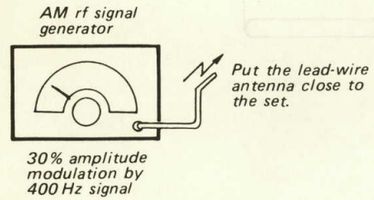
SECTION 3
ELECTRICAL ADJUSTMENTS

3-1. AEP MODEL

LW

Setting:

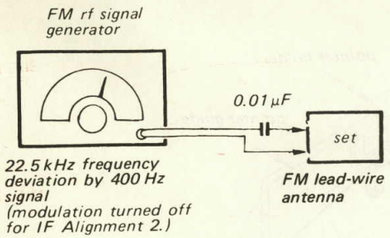
BAND switch: LW

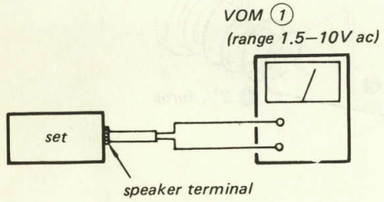


FM

Setting:

BAND switch: FM





- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

LW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VOM ①.	
250 kHz	160 kHz
CT-1	L4

LW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VOM ①.	
265 kHz	145 kHz
CT-2	T2

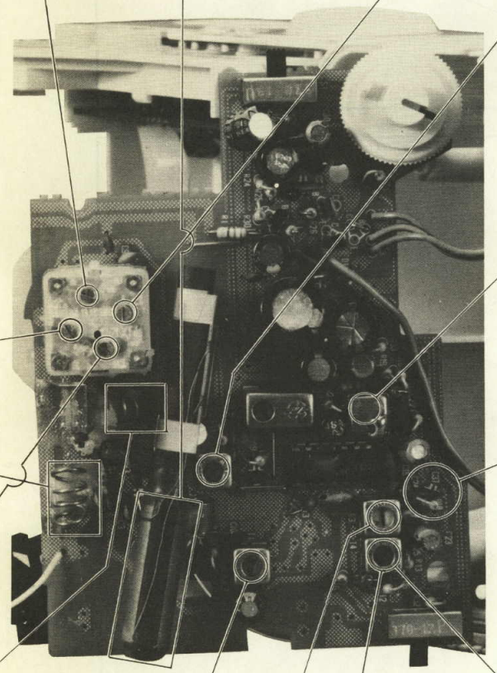
LW IF ALIGNMENT	
Adjust for a maximum reading on VOM ①.	
T5	455 kHz

FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VOM ①.	
108.5 MHz (108 MHz)	CT-3
87.1 MHz (87.5 MHz)	L1

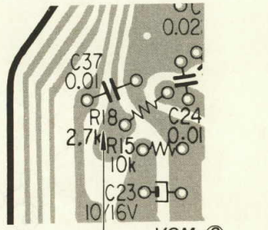
( ): in West Germany

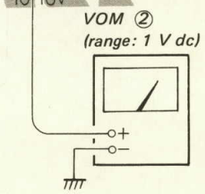
FM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VOM ①.	
108.5 MHz (108 MHz)	CT-4
87.1 MHz (87.5 MHz)	L3

( ): in West Germany



T1	T3	T4
Adjust for a maximum reading on VOM ①.		
FM IF ALIGNMENT 1 (10.7 MHz with modulation)		





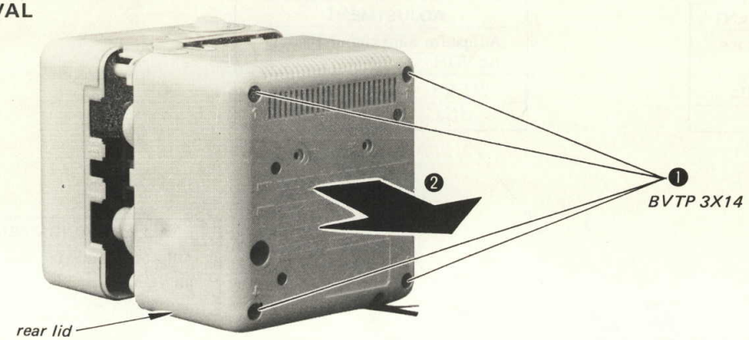
T4
Adjust for 0V reading on VOM ②.
FM IF ALIGNMENT 2 (10.7 MHz with no modulation)

SECTION 2
DISASSEMBLY

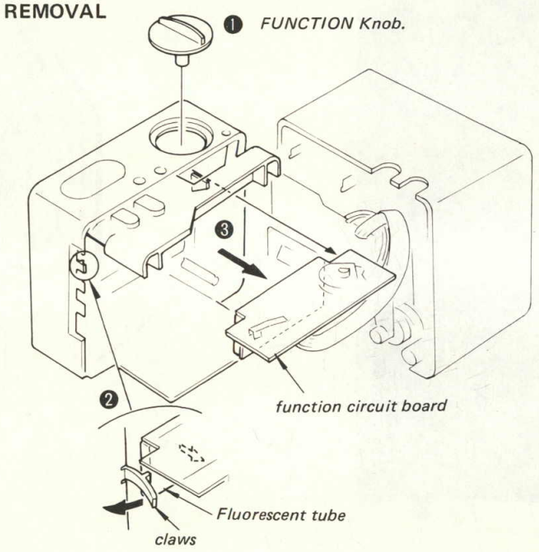
2-1. REMOVAL

- Follow the disassembly procedure in the numerical order given.

REAR LID REMOVAL



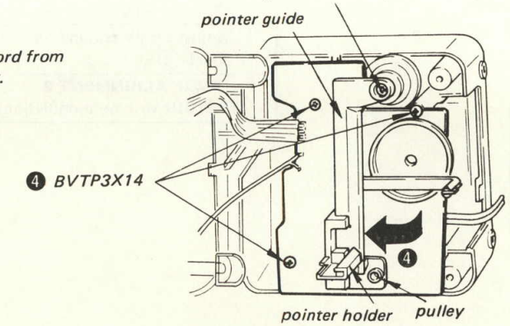
FUNCTION CIRCUIT BOARD REMOVAL



MAIN CIRCUIT BOARD REMOVAL

❶ Remove the dial cord from the pointer holder.

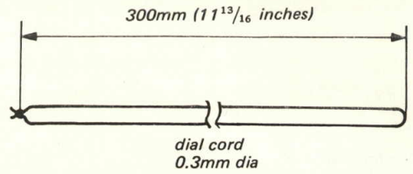
❷ Remove the pointer guide and the pointer holder by taking off the screw (BVTP3x14).



❸ Remove the dial cord and pulley.

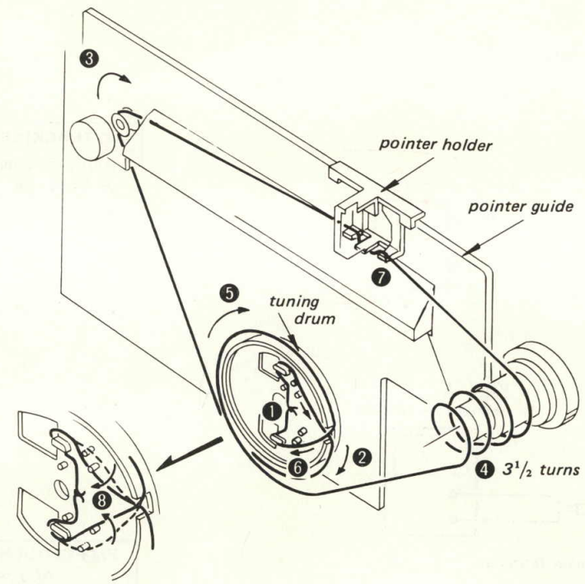
2-2. DIAL CORD STRINGING

1) Dial Cord Preparation

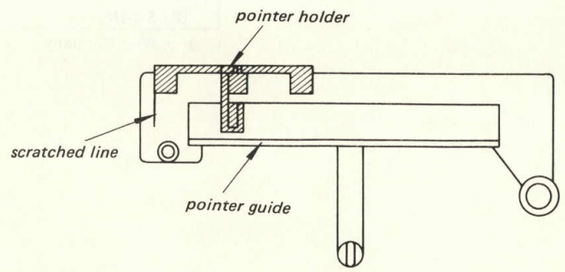


2) Dial Cord Stringing

Turn the tuning drum fully clockwise.
String the dial cord in the numerical order given. (❶ – ❻)
Then, install the pointer guide with pointer holder. (❼ , ❽)



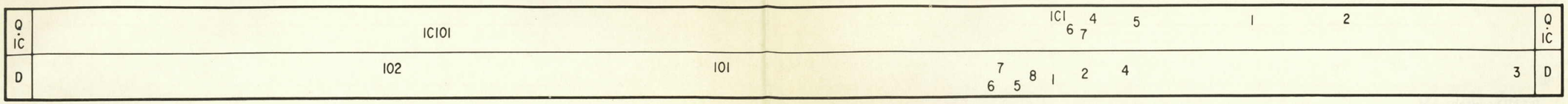
3) Dial Pointer Setting



Turn the tuning knob fully counter clockwise. Set the pointer holder to the scratched line on the pointer guide as shown on the left.

ICF-C12L AEP MODEL

4-1. MOUNTING DIAGRAM



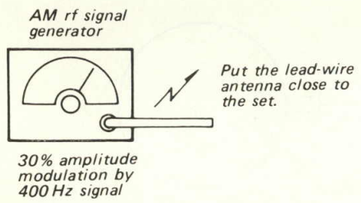
ICF-C12L UK MODEL

3-2. UK model

AM

Setting:

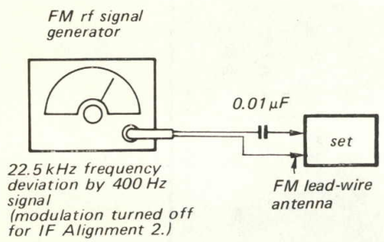
BAND switch: AM

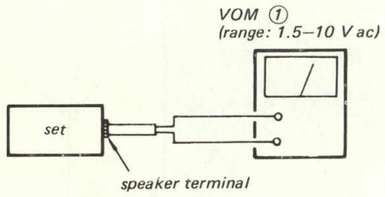


FM

Setting:

BAND switch: FM





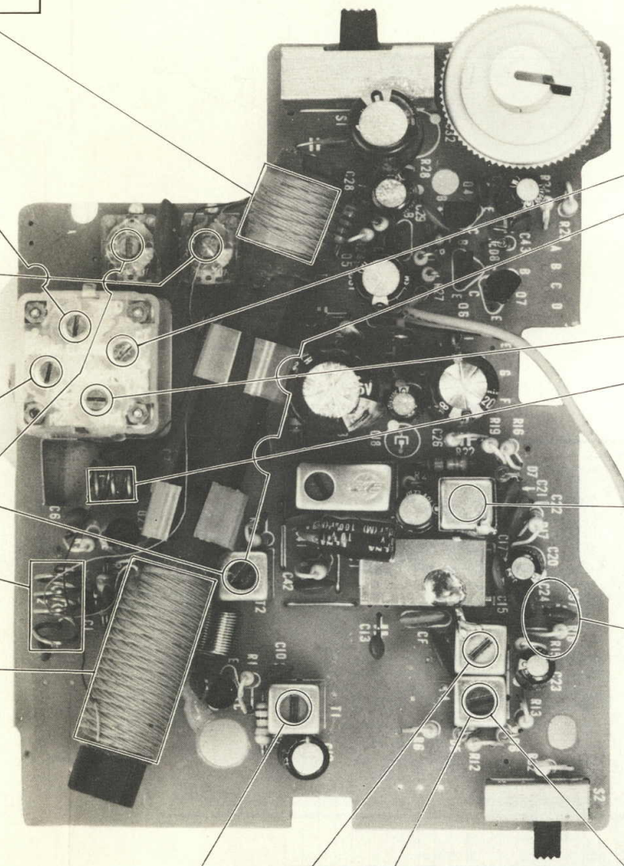
- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.
- Perform the LW and the MW Tracking Adjustments repeatedly several times.

MW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VOM ① .	
1400 kHz	620 kHz
CT-1	L4

LW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VOM ① .	
265 kHz	CT-6
145 kHz	T2

FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VOM ① .	
108.5 MHz	CT-3
87.1 MHz	L1

250 kHz	CT-5
160 kHz	L4
Adjust for a maximum reading on VOM ① .	
LW TRACKING ADJUSTMENT	

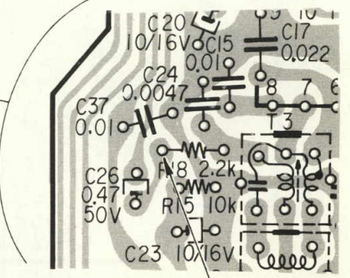


MW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VOM ① .	
CT-2	1680 kHz
T2	520 kHz

FM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VOM ①	
CT-4	108.5 MHz
L3	87.1 MHz

AM IF ALIGNMENT	
Adjust for a maximum reading on VOM ① .	
T5	455 (468) kHz

( ): UK Model

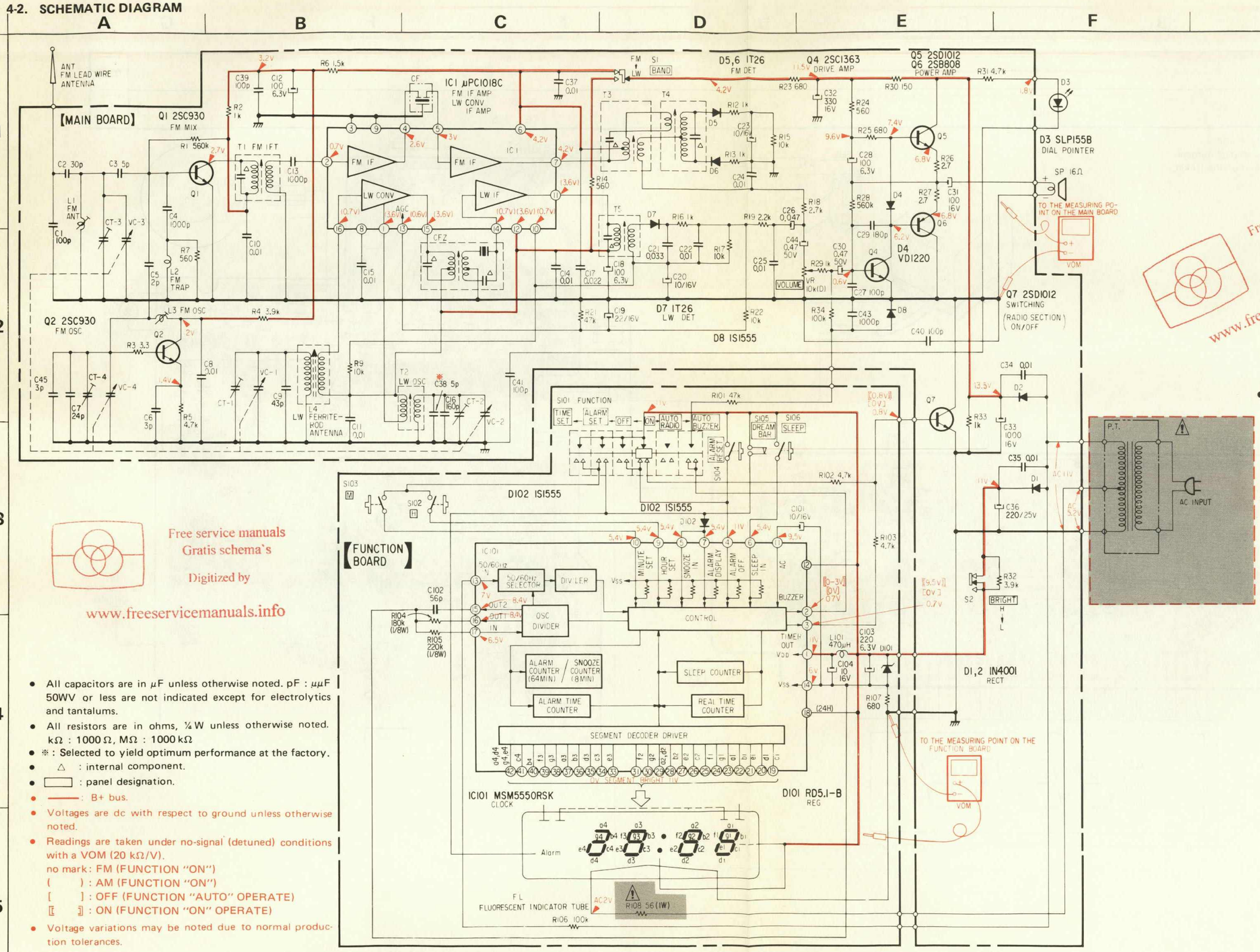


VOM ②
(range: 1 V dc)

T1	T3	T4
Adjust for a maximum reading on VOM ① .		
FM IF ALIGNMENT 1 (10.7 MHz with modulation)		

T4
Adjust for 0V reading on VOM ② .
FM IF ALIGNMENT 2 (10.7 MHz with no modulation)

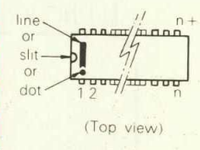
4-2. SCHEMATIC DIAGRAM



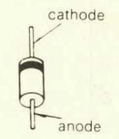
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, ¼W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ
- ※ : Selected to yield optimum performance at the factory.
- △ : internal component.
- ▭ : panel designation.
- ——— : B+ bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal (detuned) conditions with a VOM (20 kΩ/V).
  no mark: FM (FUNCTION "ON")
  ( ) : AM (FUNCTION "ON")
  [ ] : OFF (FUNCTION "AUTO" OPERATE)
  ⟦ ⟧ : ON (FUNCTION "ON" OPERATE)
- Voltage variations may be noted due to normal production tolerances.

• SEMICONDUCTOR LEAD LAYOUTS

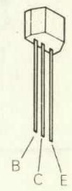
μPC1018C
MSM5550RSK



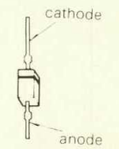
1N4001
10E2
1S1555
RD5.1E-B



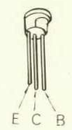
2SB808
2SD1012



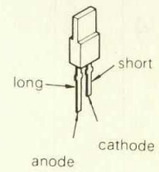
IT26



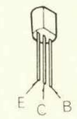
2SC930



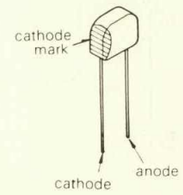
SLP155B



2SC930-NP
2SC1363
2SC1364



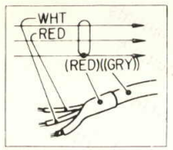
VD1220



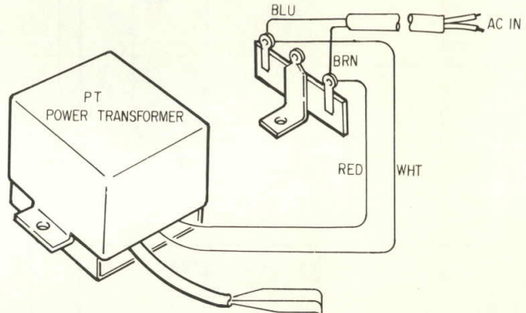
4-3. MOUNTING DIAGRAM

Q · IC	IC101	Q · IC
D	I02 I01	D

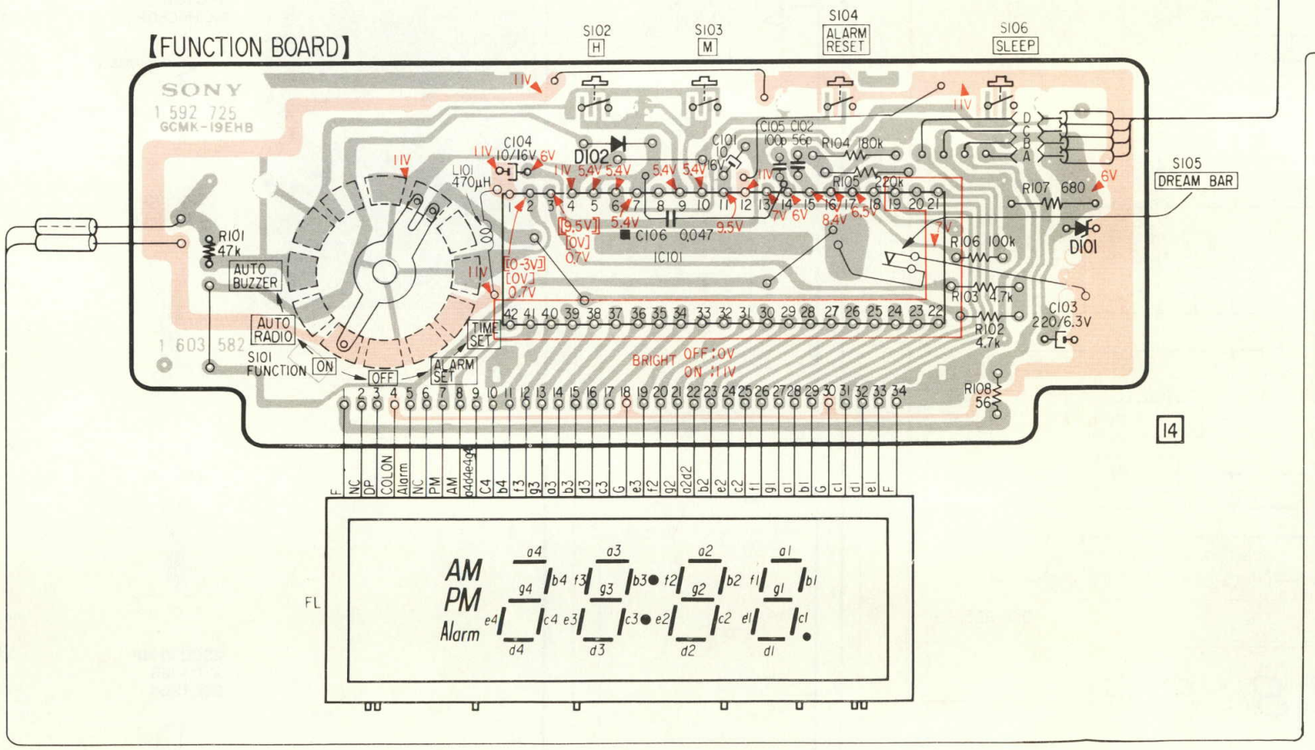
- ■ : part mounted on the conductor side.
- ⊢ : indicates side identified with part number.
- Color code of sleeving over the end of the jacket.



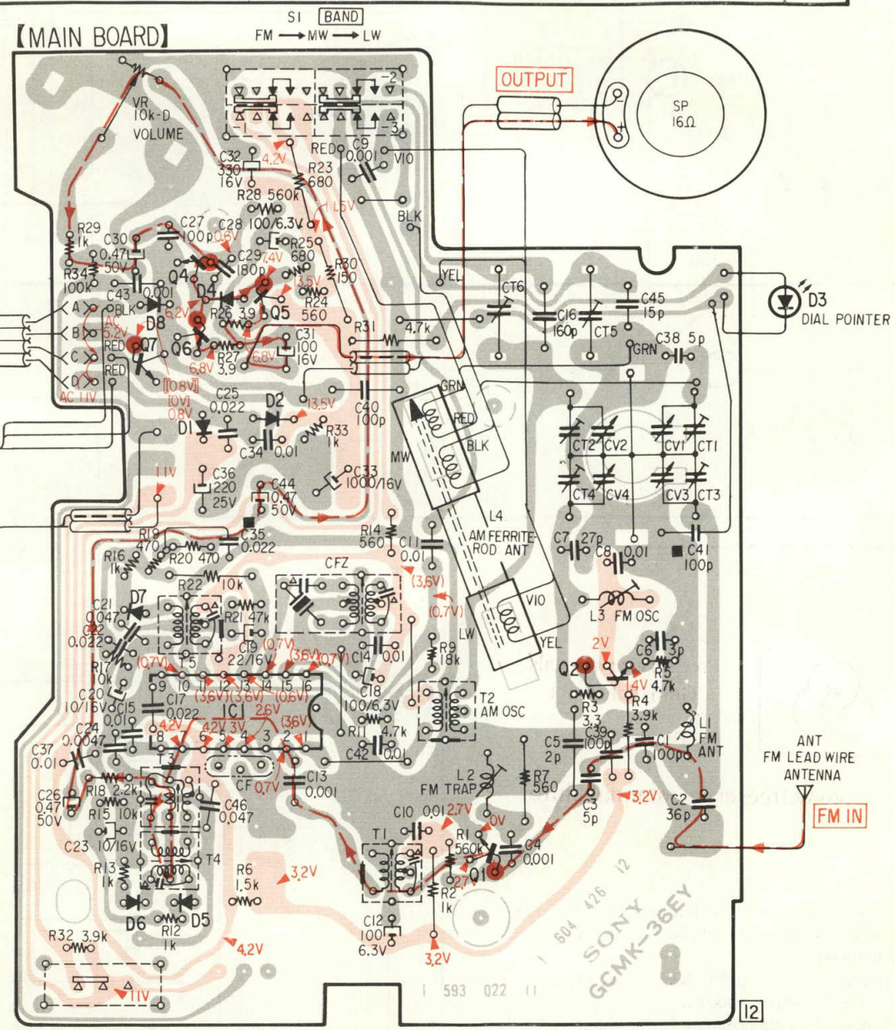
- ▒ : B+ pattern
- ▬▶▬ : signal path



【FUNCTION BOARD】



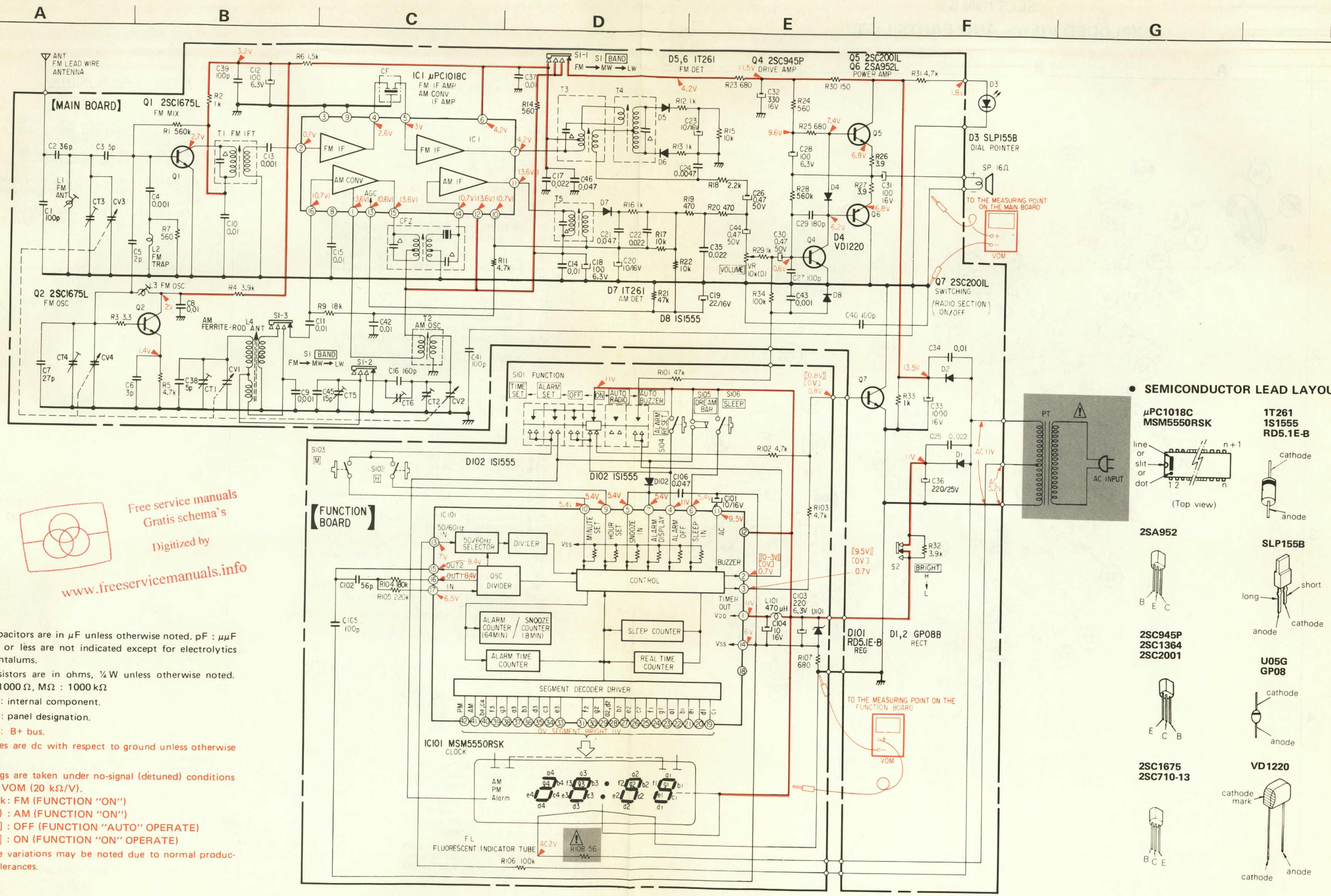
【MAIN BOARD】



S2 BRIGHT H → L

CF

4-4. SCHEMATIC DIAGRAM



- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, ¼W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ
- △ : internal component.
- ▭ : panel designation.
- ——— : B+ bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal (detuned) conditions with a VOM (20 kΩ/V).
  no mark : FM (FUNCTION "ON")
  ( ) : AM (FUNCTION "ON")
  [ ] : OFF (FUNCTION "AUTO" OPERATE)
  ⟦ ⟧ : ON (FUNCTION "ON" OPERATE)
- Voltage variations may be noted due to normal production tolerances.

• SEMICONDUCTOR LEAD LAYOUTS

μPC1018C
MSM5550RSK

1T261
1S1555
RD5.1E-B

2SA952

SLP155B

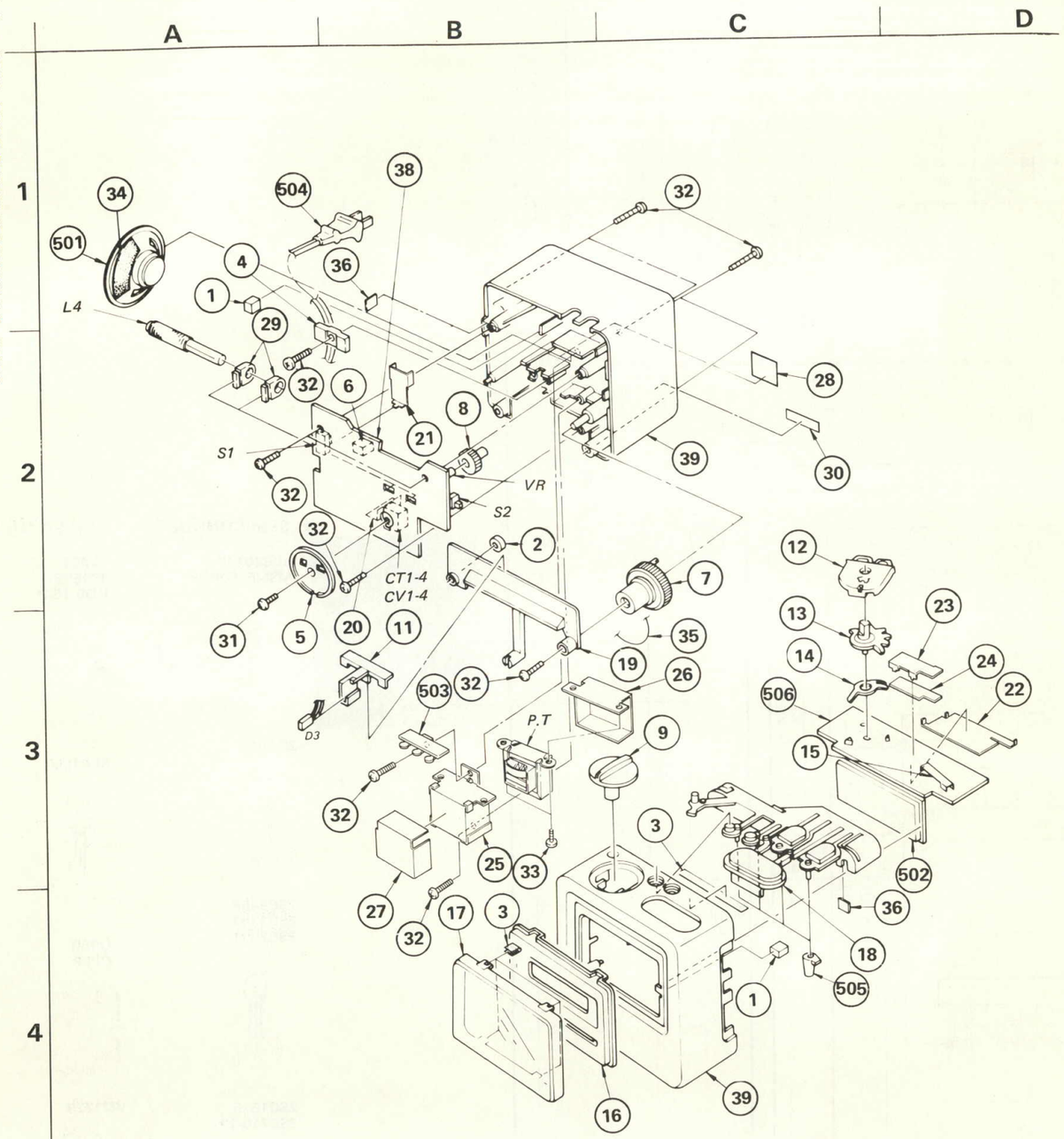
2SC945P
2SC1364
2SC2001

U05G
GP08

2SC1675
2SC710-13

VD1220

SECTION 5
EXPLODED VIEWS AND PARTS LIST



GENERAL SECTION

No.	Part No.	Description
1 ♦	3-434-219-00	CUSHION (B)
2	3-801-216-XX	PULLEY
3	3-831-441-XX	CUSHION
4	3-884-408-00	STOPPER, CORD
5	3-887-128-00	DRUM, TUNING
6 ♦	3-887-524-00	PLATE, SHIELD
7	3-888-201-01	(WHITE)....KNOB, TUNING
7	3-888-201-11	(SILVER)...KNOB, TUNING
8	3-888-202-01	(WHITE)....KNOB, CONTROL
8	3-888-202-11	(SILVER)...KNOB, CONTROL
9	3-888-203-01	(WHITE)....KNOB, FUNCTION
9	3-888-203-11	(SILVER)...KNOB, FUNCTION
10	.....	
11	3-888-204-00	HOLDER, POINTER
12	3-888-205-00	HOLDER, FUNCTION
13	3-888-206-00	SHAFT, CLICK
14	3-888-207-00	PLATE, CONTACT
15 ♦	3-888-208-00	PLATE, CONTACT, SNOOZE
16	3-888-211-41	(AEP)...PLATE, BACK
16	3-888-211-51	(UK)....PLATE, BACK
17	3-888-212-00	PLATE, TRANSPARENT
18	3-888-213-01	(WHITE)....BUTTON, PUSH
18	3-888-213-11	(SILVER)...BUTTON, PUSH
19	3-888-214-00	GUIDE, POINTER
20 ♦	3-888-218-00	PLATE (B), SHIELD
21 ♦	3-888-235-00	PLATE, SHIELD
22 ♦	3-888-251-00	PLATE (C), SHIELD
23 ♦	3-888-252-00	PLATE (D), SHIELD
24 ♦	3-888-253-00	INSULATOR (D)
25 ♦	3-888-254-00	BRACKET (A), TRANSFORMER
26 ♦	3-888-255-00	BRACKET (B), TRANSFORMER
27 ♦	3-888-256-00	PLATE (E), SHIELD
28	3-888-258-11	LABEL, MODEL NUMBER (UK)
29	3-982-416-00	HOLDER, ANTENNA
30	3-998-901-00	LABEL (A,B), SERIAL NUMBER
31	7-621-259-35	SCREW +P 2.6X5
32	7-685-649-11	SCREW +BVTP 3X14 TYPE2 N-S
33	7-685-545-19	SCREW +BTP 3X6 (S)
34	9-911-815-01	CUSHION
35	9-911-825-32	STRING, DIAL
36	9-911-840-XX	CUSHION, CASSETTE LID
37	.....	
38 ♦	A-3692-025-A	(UK).....PC BOARD ASSY, MAIN
38 ♦	A-3692-012-A	(AEP)....PC BOARD ASSY, MAIN
39	X-3888-211-2	(AEP,SILVER)...CABINET
39	X-3888-212-2	(AEP,WHITE)....CABINET
39	X-3888-214-1	(UK,SILVER)....CABINET
39	X-3888-215-1	(UK,WHITE).....CABINET

ACCESSORY & PACKING MATERIAL

No.	Part No.	Description
51	3-701-309-00	(SILVER)...LABEL, PRODUCT COLOR
51	3-701-310-00	(WHITE)....LABEL, PRODUCT COLOR
52	3-701-631-00	BAG, POLYETHYLENE
53	3-701-940-01	(UK).....LABEL, BEAB
54 ♦	3-888-224-00	SHEET, PROTECTION
55	3-888-247-00	(UK).....INDIVIDUAL CARTON
55	3-888-250-00	(AEP).....INDIVIDUAL CARTON
56	3-984-580-00	CUSHION
57	3-995-891-11	(AEP).....MANUAL, INSTRUCTION
57	3-995-891-41	(UK).....MANUAL, INSTRUCTION

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ♦ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:
- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

COILS
- MMH : mH, UH : μH

ELECTRICAL PARTS

Ref.No.	Part No.	Description
501	1-502-821-00	SPEAKER (6.6CM)
502	1-519-215-00	INDICATOR TUBE, FLUORESCENT
503	1-536-392-XX	L-TYPE TERMINAL STRIP
504	1-551-958-00	(AEP,BLACK)....CORD, POWER
504	1-551-958-21	(AEP,SILVER)...CORD, POWER
504	1-555-003-00	(UK).....CORD, POWER
505	1-552-900-00	CONTACT, RUBBER
506 ♦	1-603-582-00	(UK)...PC BOARD, FUNCTION
506 ♦	1-603-582-31	(AEP)..PC BOARD, FUNCTION
C7	1-102-643-00	CERAMIC 27PF 5% 50V
CF	1-527-795-71	FILTER, CERAMIC
CFZ	1-403-163-21	CERAMIC FILTER
CT5	1-141-171-00	(UK)...CAP,TRIMMER
CT6	1-141-171-00	(UK)...CAP,TRIMMER
CT1-4 CV1-4	1-151-372-00	CAP, TUNING, POLYETHYLENE
D1	8-719-200-02	(AEP)....DIODE 10E2
D1	8-719-911-55	(UK).....DIODE U05G
D2	8-719-200-02	(AEP)....DIODE 10E2
D2	8-719-911-55	(UK).....DIODE U05G
D3	8-719-921-55	DIODE SLP155B
D4	8-719-122-00	DIODE VD1220
D5	8-712-600-00	(AEP)....DIODE 1T26
D5	8-719-026-11	(UK).....DIODE 1T261
D6	8-712-600-00	(AEP)....DIODE 1T26
D6	8-719-026-11	(UK).....DIODE 1T261
D7	8-712-600-00	(AEP)....DIODE 1T26
D7	8-719-026-11	(UK).....DIODE 1T261
D8	8-719-815-55	DIODE 1S1555
D101	8-719-151-07	DIODE RD5.1E-B
D102	8-719-815-55	DIODE 1S1555
IC1	8-759-110-15	IC μPC1018C
IC101	8-759-955-52	IC MSM5550RSK
L1 ♦	1-420-856-00	COIL, FM RF
L2 ♦	1-401-454-00	ANTENNA COIL
L3 ♦	1-425-795-00	COIL,HIGH FREQ TRANSFORMER(FM)
L4	1-401-829-00	(UK)ANTENNA, FERRITE-ROD (MW/LW)
L4	1-401-909-00	(AEP)ANTENNA, FERRITE-ROD (LW)
L101	1-408-096-00	MICRO INDUCTOR 470UH
P.T ⚠	1-446-486-22	(AEP)...TRANSFORMER, POWER
P.T ⚠	1-446-511-00	(UK)....TRANSFORMER, POWER

ELECTRICAL PARTS

Ref.No.	Part No.	Description
Q1	8-729-803-04	(AEP)...TRANSISTOR 2SC930-NP
Q1	8-729-671-13	(UK)....TRANSISTOR 2SC710-13
Q2	8-729-803-04	(AEP)...TRANSISTOR 2SC930-NP
Q2	8-729-671-13	(UK)....TRANSISTOR 2SC710-13
Q4	8-729-663-47	TRANSISTOR 2SC1364
Q5	8-729-801-22	(AEP)...TRANSISTOR 2SD1012
Q5	8-729-100-13	(UK)....TRANSISTOR 2SC2001
Q6	8-729-880-82	(AEP)...TRANSISTOR 2SB808
Q6	8-729-195-23	(UK)....TRANSISTOR 2SA952
Q7	8-729-801-22	(AEP)...TRANSISTOR 2SD1012
Q7	8-729-100-13	(UK)....TRANSISTOR 2SC2001
R108 ⚠	1-213-128-00	METAL 56 5% 1W
S1	1-553-174-00	(UK)....SWITCH, SLIDE
S1	1-552-370-00	(AEP)...SWITCH, SLIDE
S2	1-552-370-00	SWITCH, SLIDE
T1	1-403-872-00	I.F.T
T2	1-405-685-00	COIL,MW OSC
T3	1-404-144-00	TRANSFORMER, DISCRI (FM)
T4	1-403-953-00	TRANSFORMER, DISCRI (FM)
T5	1-403-960-00	I.F.T DETECTION
VR	1-226-180-00	RES, VAR 10K

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- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

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- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

COILS
- MMH : mH, UH : μH

ELECTROLYTIC CAPACITORS

CAP. (μF)	RATING → : Use the high voltage rated one.					
	6.3 VOLT.	10 VOLT.	16 VOLT.	25 VOLT.	35 VOLT.	50 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.47					→	1-121-726-00
1.0					→	1-121-391-00
2.2					→	1-121-450-00
3.3	→	→	→	1-121-392-00	→	1-121-393-00
4.7	→	→	→	1-121-395-00	→	1-121-396-00
10	→	→	1-121-651-00	1-121-398-00	→	1-121-738-00
22	→	→	1-121-479-00	1-121-480-00	1-121-662-00	1-121-152-00
33	→	→	1-121-403-00	1-121-404-00	1-121-652-00	1-121-405-00
47	→	1-121-352-00	1-121-409-00	1-121-410-00	1-121-653-00	1-121-411-00
100	→	1-121-414-00	1-121-415-00	1-121-416-00	1-121-357-00	1-121-417-00
220	1-121-419-00	1-121-420-00	1-121-421-00	1-121-422-00	1-121-261-00	1-121-423-00
330	1-121-751-00	1-121-805-00	1-121-521-00	1-121-654-00	1-121-655-00	1-121-656-00
470	1-121-424-00	1-121-425-00	1-121-426-00	1-121-733-00	1-121-361-00	1-121-810-00
1000	–	1-121-736-00	1-121-245-00	1-121-657-00	1-121-388-00	1-123-061-00
2200	1-121-658-00	1-121-659-00	1-121-660-00	1-123-067-00	1-121-984-00	–
3300	1-121-661-00	1-123-075-00	1-123-071-00	–	–	–

CAP. (μF)	100 VOLT.	160 VOLT.	250 VOLT.	350 VOLT.
	PART No.	PART No.	PART No.	PART No.
0.47	–	–	–	–
1.0	1-123-249-00	1-123-252-00	1-123-003-00	1-121-168-00
2.2	1-123-250-00	1-123-026-00	–	1-123-028-00
3.3	1-121-995-00	–	1-123-004-00	1-123-006-00
4.7	1-123-255-00	1-121-246-00	1-121-759-00	1-123-007-00
10	1-121-126-00	1-121-999-00	1-123-254-00	1-123-008-00
22	1-121-996-00	1-123-253-00	1-123-005-00	1-123-022-00
33	1-121-997-00	1-121-757-00	–	–
47	1-123-251-00	1-121-919-00	–	–
100	1-123-084-00	–	–	–

CERAMIC CAPACITORS

CAP. (pF)	RATING 50 VOLT. PART No.	CAP. (pF)	50 VOLT. PART No.	CAP. (pF)	50 VOLT. PART No.	CAP. (μF)	50 VOLT. PART No.
0.5	1-101-837-00	22	1-102-959-00	150	1-101-361-00	0.001	1-102-074-00
0.75	1-101-586-00	24	1-102-960-00	160	1-101-367-00	0.0012	1-102-118-00
1.0	1-102-934-00	27	1-102-961-00	180	1-102-976-00	0.0015	1-102-119-00
1.5	1-101-576-00	30	1-102-962-00	200	1-102-977-00	0.0018	1-102-120-00
2.0	1-102-935-00	33	1-102-963-00	220	1-102-978-00	0.0022	1-102-121-00
3	1-102-936-00	36	1-102-964-00	240	1-102-979-00	0.0027	1-102-122-00
4	1-102-937-00	39	1-102-965-00	270	1-102-980-00	0.0033	1-102-123-00
5	1-102-942-00	43	1-102-966-00	300	1-102-981-00	0.0039	1-102-124-00
6	1-102-943-00	47	1-101-880-00	330	1-102-820-00	0.0047	1-102-125-00
7	1-102-944-00	51	1-101-882-00	360	1-102-821-00	0.0056	1-102-126-00
8	1-102-945-00	56	1-101-884-00	390	1-102-822-00	0.0068	1-102-127-00
9	1-102-946-00	62	1-101-886-00	430	1-102-823-00	0.0082	1-102-128-00
10	1-102-947-00	68	1-101-888-00	470	1-102-824-00	0.01	1-102-129-00
11	1-102-948-00	75	1-101-890-00	510	1-101-059-00	0.022	1-101-005-00
12	1-102-949-00	82	1-102-971-00	560	1-102-115-00	0.047	1-101-006-00
13	1-102-950-00	91	1-102-972-00	680	1-102-116-00		
15	1-102-951-00	100	1-102-973-00	820	1-102-117-00		
16	1-102-952-00	110	1-102-815-00				
18	1-102-953-00	120	1-102-816-00				
20	1-102-958-00	130	1-101-081-00				

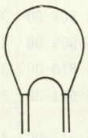
0.001μF = 1,000pF

CERAMIC (SEMICONDUCTOR) CAPACITORS

CAP. (μF)	RATING → : Use the high voltage rated one. 25 VOLT. PART No.	50 VOLT. PART No.	CAP. (μF)	25 VOLT. PART No.	50 VOLT. PART No.
0.001	→	1-161-039-00	0.018	1-161-016-00	1-161-054-00
0.0012	→	1-161-040-00	0.022	1-161-017-00	1-161-055-00
0.0015		1-161-041-00	0.027	1-161-018-00	1-161-056-00
0.0018		1-161-042-00	0.033	1-161-019-00	1-161-057-00
0.0022		1-161-043-00	0.039	1-161-010-00	1-161-058-00
0.0027	→	1-161-044-00	0.047	1-161-021-00	1-161-059-00
0.0033	→	1-161-045-00	0.056	→	1-161-060-00
0.0039	→	1-161-046-00	0.068	→	1-161-061-00
0.0047	→	1-161-047-00	0.082	1-161-024-00	1-161-062-00
0.0056	→	1-161-048-00	0.1	1-161-025-00	1-161-063-00
0.0068	→	1-161-049-00			
0.0082	1-161-012-00	1-161-050-00			
0.01	1-161-013-00	1-161-051-00			
0.012	→	1-161-052-00			
0.015	1-161-015-00	1-161-053-00			

MYLAR CAPACITORS

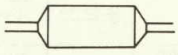
CAP. (μF)	RATING 50 VOLT. PART No.	100 VOLT. PART No.	200 VOLT. PART No.	CAP. (μF)	50 VOLT. PART No.	100 VOLT. PART No.	200 VOLT. PART No.	CAP. (μF)	50 VOLT. PART No.	100 VOLT. PART No.	200 VOLT. PART No.
0.001	1-108-227-00	1-108-365-00	1-108-409-00	0.01	1-108-239-00	1-108-377-00	1-108-421-00	0.1	1-108-251-00	1-108-389-00	1-108-433-00
0.0012	1-108-351-00	1-108-366-00	1-108-410-00	0.012	1-108-357-00	1-108-378-00	1-108-422-00	0.12	1-108-363-00	1-108-390-00	1-108-434-00
0.0015	1-108-228-00	1-108-367-00	1-108-411-00	0.015	1-108-240-00	1-108-379-00	1-108-423-00	0.15	1-108-252-00	1-108-391-00	1-108-435-00
0.0018	1-108-352-00	1-108-368-00	1-108-412-00	0.018	1-108-358-00	1-108-380-00	1-108-424-00	0.18	1-108-364-00	1-108-392-00	1-108-436-00
0.0022	1-108-220-00	1-108-369-00	1-108-413-00	0.022	1-108-242-00	1-108-381-00	1-108-425-00	0.22	1-108-254-00	1-108-393-00	1-108-437-00
0.0027	1-108-353-00	1-108-370-00	1-108-414-00	0.027	1-108-359-00	1-108-382-00	1-108-426-00	0.27	1-108-854-00	–	–
0.0033	1-108-232-00	1-108-371-00	1-108-415-00	0.033	1-108-244-00	1-108-383-00	1-108-427-00	0.33	1-108-855-00	–	–
0.0039	1-108-354-00	1-108-372-00	1-108-416-00	0.039	1-108-360-00	1-108-384-00	1-108-428-00	0.39	1-108-856-00	–	–
0.0047	1-108-234-00	1-108-373-00	1-108-417-00	0.047	1-108-246-00	1-108-385-00	1-108-429-00	0.47	1-108-857-00	–	–
0.0056	1-108-355-00	1-108-374-00	1-108-418-00	0.056	1-108-361-00	1-108-386-00	1-108-430-00				
0.0068	1-108-237-00	1-108-375-00	1-108-419-00	0.068	1-108-249-00	1-108-387-00	1-108-431-00				
0.0082	1-108-356-00	1-108-376-00	1-108-420-00	0.082	1-108-362-00	1-108-388-00	1-108-432-00				



TANTALUM CAPACITORS

CAP. (μF)	RATING → : Use the high voltage rated one. 3.15 VOLT. PART No.	6.3 VOLT. PART No.	10 VOLT. PART No.	16 VOLT. PART No.	20 VOLT. PART No.	25 VOLT. PART No.	35 VOLT. PART No.
0.01					→	→	1-131-396-00
0.015						→	1-131-397-00
0.022						→	1-131-398-00
0.033						→	1-131-399-00
0.047						→	1-131-400-00
0.068					→	→	1-131-401-00
0.1					→	→	1-131-402-00
0.15					→	→	1-131-403-00
0.22					→	→	1-131-404-00
0.33					→	1-131-409-00	1-131-405-00
0.47	–	–	–	–	1-131-412-00	→	1-131-406-00
0.68	–	–	–	1-131-415-00	→	1-131-410-00	1-131-407-00
1.0	–	–	1-131-418-00	–	1-131-413-00	→	1-131-408-00
1.5	–	1-131-421-00	–	1-131-416-00	→	1-131-411-00	1-131-348-00
2.2	1-131-424-00	–	1-131-419-00	–	1-131-414-00	1-131-355-00	1-131-349-00
3.3	–	1-131-422-00	–	1-131-417-00	1-131-362-00	1-131-356-00	1-131-350-00
4.7	1-131-425-00	–	1-131-420-00	1-131-369-00	1-131-363-00	1-131-357-00	1-131-351-00
6.8	–	1-131-423-00	1-131-376-00	1-131-370-00	1-131-364-00	1-131-358-00	1-131-352-00
10	1-131-426-00	1-131-383-00	1-131-377-00	1-131-371-00	1-131-365-00	1-131-359-00	1-131-353-00
15	1-131-390-00	1-131-384-00	1-131-378-00	1-131-372-00	1-131-366-00	1-131-360-00	–
22	1-131-391-00	1-131-385-00	1-131-379-00	1-131-373-00	1-131-367-00		
33	1-131-392-00	1-131-386-00	1-131-380-00	1-131-374-00			
47	1-131-393-00	1-131-387-00	1-131-381-00	–			
68	1-131-394-00	1-131-388-00	–	–			
100	1-131-395-00	–	–	–			

TANTALUM CAPACITORS



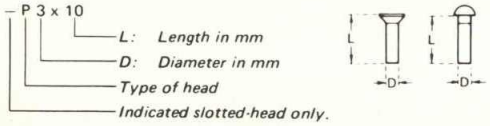
CAP. (μF)	RATING 3 VOLT. PART No.	6.3 VOLT. PART No.	10 VOLT. PART No.	16 VOLT. PART No.	20 VOLT. PART No.	35 VOLT. PART No.
0.033						1-131-273-00
0.047						1-131-274-00
0.068						1-131-275-00
0.1						1-131-276-00
0.15						1-131-277-00
0.22			–	–	1-131-262-00	1-131-278-00
0.33			–	–	1-131-263-00	1-131-279-00
0.47			1-131-169-00	–	1-131-264-00	1-131-280-00
0.68			–	1-131-258-00	1-131-265-00	1-131-281-00
1.0			1-131-254-00	–	1-131-266-00	1-131-282-00
1.5		1-131-250-00	–	–	1-131-267-00	1-131-283-00
2.2		–	–	1-131-259-00	1-131-268-00	1-131-284-00
3.3		–	1-131-255-00	–	1-131-269-00	–
4.7		1-131-251-00	1-131-171-00	–	1-131-270-00	–
6.8		–	–	1-131-260-00	1-131-271-00	–
10	–	–	1-131-256-00	–	1-131-272-00	–
15	–	1-131-252-00	–	1-131-261-00		
22	–	–	1-131-257-00	–		
33	1-131-176-00	1-131-253-00	1-131-173-00	–		
47	1-131-288-00	1-131-174-00	–	–		
100	1-131-177-00					

1/4 WATT CARBON RESISTORS

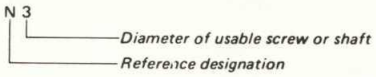
Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.
1.0	1-246-401-00	10	1-246-425-00	100	1-246-449-00	1.0k	1-246-473-00	10k	1-246-497-00	100k	1-246-521-00	1.0M	1-246-545-00
1.1	1-246-402-00	11	1-246-426-00	110	1-246-450-00	1.1k	1-246-474-00	11k	1-246-498-00	110k	1-246-522-00	1.1M	1-210-814-00
1.2	1-246-403-00	12	1-246-427-00	120	1-246-451-00	1.2k	1-246-475-00	12k	1-246-499-00	120k	1-246-523-00	1.2M	1-210-815-00
1.3	1-246-404-00	13	1-246-428-00	130	1-246-452-00	1.3k	1-246-476-00	13k	1-246-500-00	130k	1-246-524-00	1.3M	1-210-816-00
1.5	1-246-405-00	15	1-246-429-00	150	1-246-453-00	1.5k	1-246-477-00	15k	1-246-501-00	150k	1-246-525-00	1.5M	1-210-817-00
1.6	1-246-406-00	16	1-246-430-00	160	1-246-454-00	1.6k	1-246-478-00	16k	1-246-502-00	160k	1-246-526-00	1.6M	1-210-818-00
1.8	1-246-407-00	18	1-246-431-00	180	1-246-455-00	1.8k	1-246-479-00	18k	1-246-503-00	180k	1-246-527-00	1.8M	1-210-819-00
2.0	1-246-408-00	20	1-246-432-00	200	1-246-456-00	2.0k	1-246-480-00	20k	1-246-504-00	200k	1-246-528-00	2.0M	1-210-820-00
2.2	1-246-409-00	22	1-246-433-00	220	1-246-457-00	2.2k	1-246-481-00	22k	1-246-505-00	220k	1-246-529-00	2.2M	1-210-821-00
2.4	1-246-410-00	24	1-246-434-00	240	1-246-458-00	2.4k	1-246-482-00	24k	1-246-506-00	240k	1-246-530-00	2.4M	1-244-754-00
2.7	1-246-411-00	27	1-246-435-00	270	1-246-459-00	2.7k	1-246-483-00	27k	1-246-507-00	270k	1-246-531-00	2.7M	1-244-755-00
3.0	1-246-412-00	30	1-246-436-00	300	1-246-460-00	3.0k	1-246-484-00	30k	1-246-508-00	300k	1-246-532-00	3.0M	1-244-756-00
3.3	1-246-413-00	33	1-246-437-00	330	1-246-461-00	3.3k	1-246-485-00	33k	1-246-509-00	330k	1-246-533-00	3.3M	1-244-757-00
3.6	1-246-414-00	36	1-246-438-00	360	1-246-462-00	3.6k	1-246-486-00	36k	1-246-510-00	360k	1-246-534-00	3.6M	1-244-758-00
3.9	1-246-415-00	39	1-246-439-00	390	1-246-463-00	3.9k	1-246-487-00	39k	1-246-511-00	390k	1-246-535-00	3.9M	1-244-759-00
4.3	1-246-416-00	43	1-246-440-00	430	1-246-464-00	4.3k	1-246-488-00	43k	1-246-512-00	430k	1-246-536-00	4.3M	1-244-760-00
4.7	1-246-417-00	47	1-246-441-00	470	1-246-465-00	4.7k	1-246-489-00	47k	1-246-513-00	470k	1-246-537-00	4.7M	1-244-761-00
5.1	1-246-418-00	51	1-246-442-00	510	1-246-466-00	5.1k	1-246-490-00	51k	1-246-514-00	510k	1-246-538-00	5.1M	1-244-762-00
5.6	1-246-419-00	56	1-246-443-00	560	1-246-467-00	5.6k	1-246-491-00	56k	1-246-515-00	560k	1-246-539-00		
6.2	1-246-420-00	62	1-246-444-00	620	1-246-468-00	6.2k	1-246-492-00	62k	1-246-516-00	620k	1-246-540-00		
6.8	1-246-421-00	68	1-246-445-00	680	1-246-469-00	6.8k	1-246-493-00	68k	1-246-517-00	680k	1-246-541-00		
7.5	1-246-422-00	75	1-246-446-00	750	1-246-470-00	7.5k	1-246-494-00	75k	1-246-518-00	750k	1-246-542-00		
8.2	1-246-423-00	82	1-246-447-00	820	1-246-471-00	8.2k	1-246-495-00	82k	1-246-519-00	820k	1-246-543-00		
9.1	1-246-424-00	91	1-246-448-00	910	1-246-472-00	9.1k	1-246-496-00	91k	1-246-520-00	910k	1-246-544-00		

HARDWARE NOMENCLATURE

Screw:



Nut, Washer, Retaining ring:



Reference Designation	Shape	Description	Remarks
SCREWS			
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		braizer-head screw	

Reference Designation	Shape	Description	Remarks
SELF-TAPPING SCREWS			
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
SET SCREWS			
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
NUT			
N		nut	
WASHERS			
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
RETAINING RINGS			
E		retaining ring	
G		grip-type retaining ring	

Sony Corporation