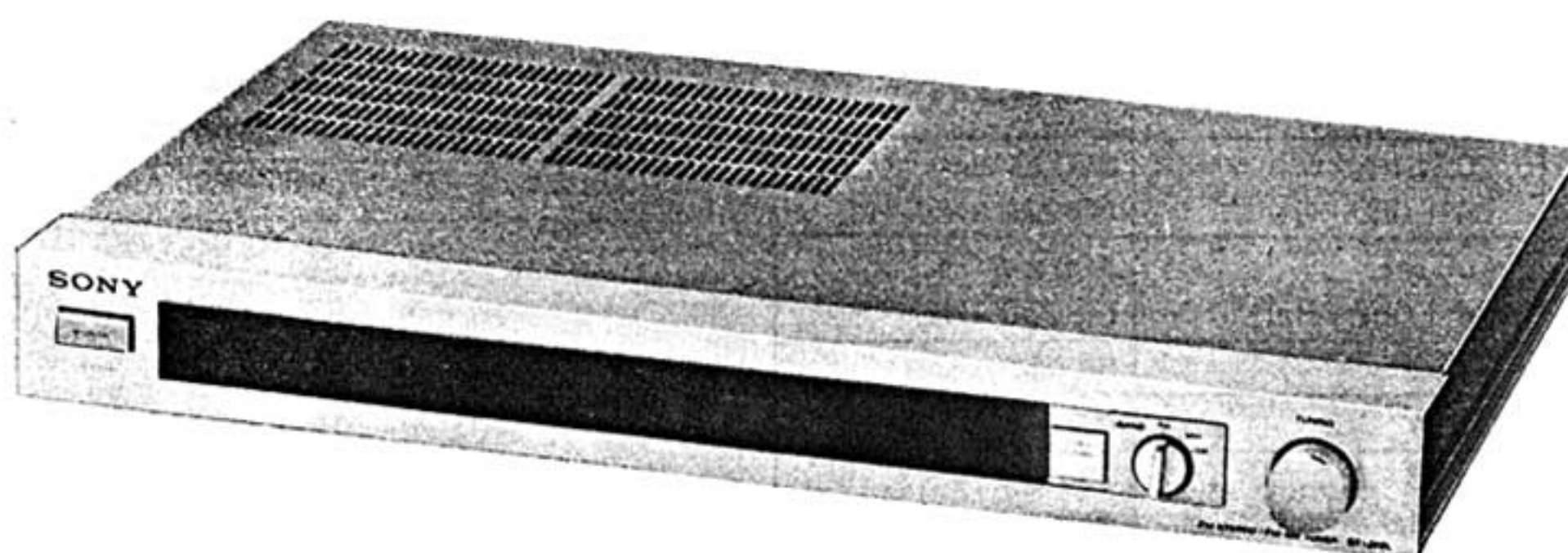


ST-JX2L

AEP Model
UK Model



FM STEREO/FM-AM TUNER

SPECIFICATIONS


FM TUNER SECTION

Tuning Range:	87.5 MHz – 108 MHz
Antenna Terminals:	300 Ω balanced 75 Ω unbalanced
Intermediate Frequency:	10.7 MHz
Sensitivity:	at 46 dB quieting (at 40 kHz deviation) 17.3 dBf, 4 μ V (mono) 38.3 dBf, 45 μ V (stereo)
Usable Sensitivity:	10.3 dBf, 1.8 μ V (IHF) 1.7 μ V (S/N 26 dB, 40 kHz deviation)
Signal-to-noise Ratio:	78 dB (mono), 72 dB (stereo)
Harmonic Distortion: (40kHz deviation)	0.15 % (mono), 0.25 % (stereo) at 1 kHz

IM Distortion (40kHz deviation):	0.15 % (mono), 0.25 % (stereo)
Separation: (at 1 kHz)	45 dB
Frequency Response:	40 Hz – 12.5 kHz \pm 0.5 dB 30 Hz – 15 kHz $^{+0.5}_{-2}$ dB
Selectivity:	at 300 kHz 55 dB
Capture Ratio:	1.0 dB
AM Suppression Ratio:	54 dB
Image Response Ratio:	50 dB
IF Response Ratio:	90 dB
Spurious Response Ratio:	70 dB
RF Intermodulation:	60 dB (IHF)
Muting Threshold:	approx. 25.2 dBf, 10 μ V
Output Level/Impedance:	at 75 kHz deviation 750 mV/1 k Ω

— Continued on next page —

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.



SONY®

SERVICE MANUAL

MW/LW TUNER SECTION

		MW	LW
Tuning Range		522 kHz – 1,602 kHz	150 kHz – 350 kHz
Antenna	built-in antenna	provided	provided
	external antenna terminal	provided	provided
Intermediate Frequency		450 kHz	450 kHz
Usable Sensitivity	built-in antenna	200 μ V/m (at 1,000 kHz)	300 μ V/m (at 230 kHz)
	external antenna	100 μ V (at 1,000 kHz)	100 μ V (at 230 kHz)
Signal-to-noise Ratio		54 dB	54 dB
Harmonic Distortion		0.3 %	0.3 %
Selectivity		35 dB (9 kHz)	35 dB (9 kHz)

GENERAL

System: FM stereo, FM/AM superheterodyne tuner

Power Requirements: AEP model: 220 V ac
UK model: 240 V ac
50/60 Hz

Power Consumption: 12 W

Dimensions: Approx. 430 (w) x 55 (h) x 310 (d) mm
(17 (w) x 2¼ (h) x 12¼ (d) inches)
including projecting parts and controls

Weight: Approx. 3.1 kg (6 lb 14 oz), net
Approx. 3.7 kg (8 lb 3 oz), in shipping carton

MODEL IDENTIFICATION

MODEL NO. ST-JX2L	
FM STEREO/FM-AM TUNER	
FREQUENCY RANGE FM87.5-108MHz	
MW522-1602kHz LW150-350kHz	
IF FM10.7MHz AM450kHz	
<div></div>	
<div></div>	
SERIAL NO.	
ETZ-PRÜFNUMMER U185	
MADE IN JAPAN	

AEP model: AC 220V ~ 50/60Hz 12W
UK model: AC 240V ~ 50/60Hz 12W

MELF (Metal Electrodes Face-Bonding) Components

Warning

If MELF components are forcibly removed from the printed circuit board with pincers or pliers, the circuit board pattern is likely to peel away. Always remove MELF components according to the procedure described on the next page. Replace MELF components with the lead type components.

MELF components are soldered directly to the surface of the printed circuit board.

MELF resistors and capacitors have the same dimensions and are distinguished by their background colors: light brown for resistors, and pink or light green for capacitors.

The MELF resistor color coding is the same as for conventional resistors, and MELF capacitor color coding is the same as for tube-type ceramic capacitors. Note, however, that all MELF resistors are rated at 1/4W and ±5%.

Components larger than resistors and without a color code are cross conductors, which are used instead of jumper wires.

1. Structure

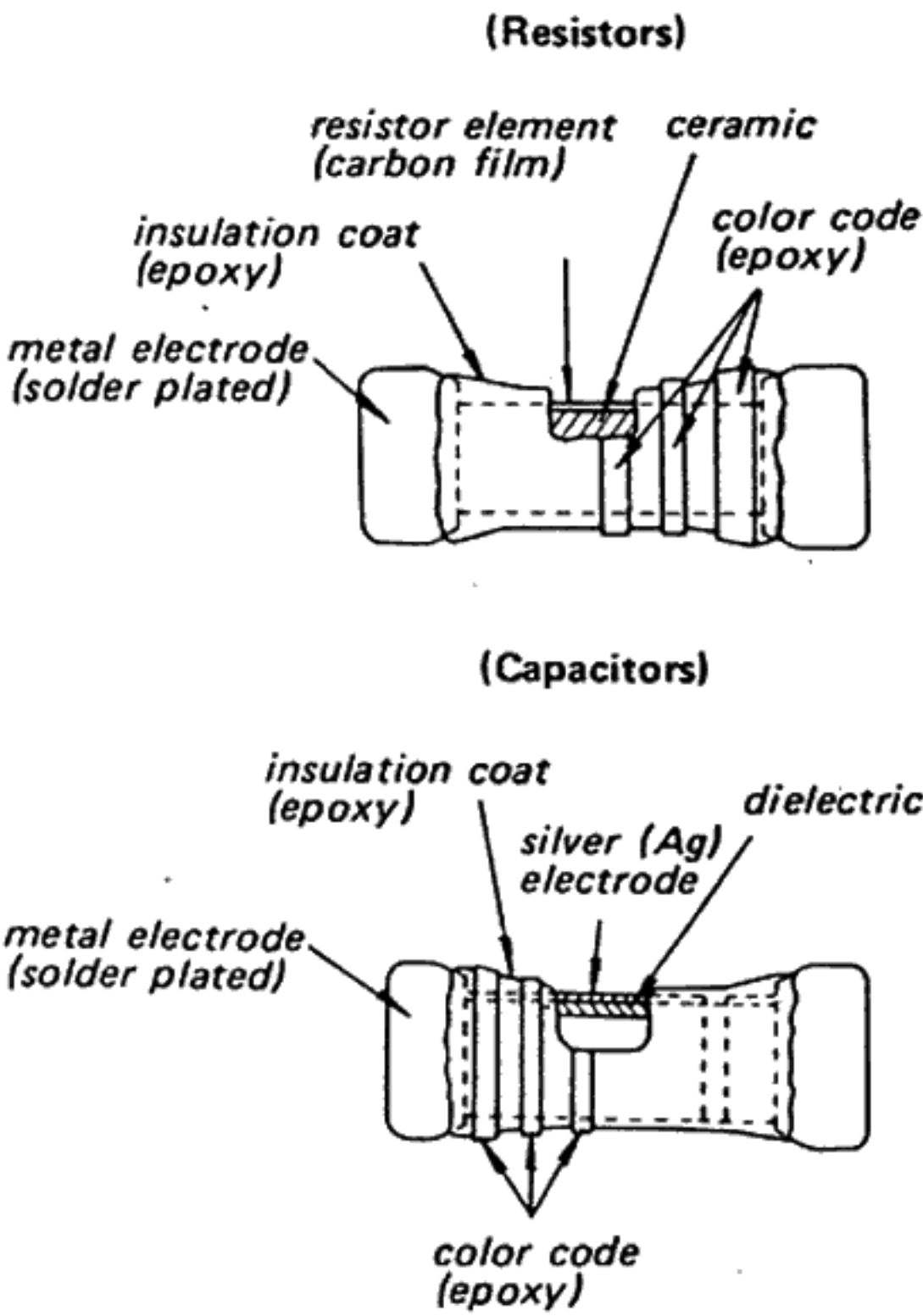
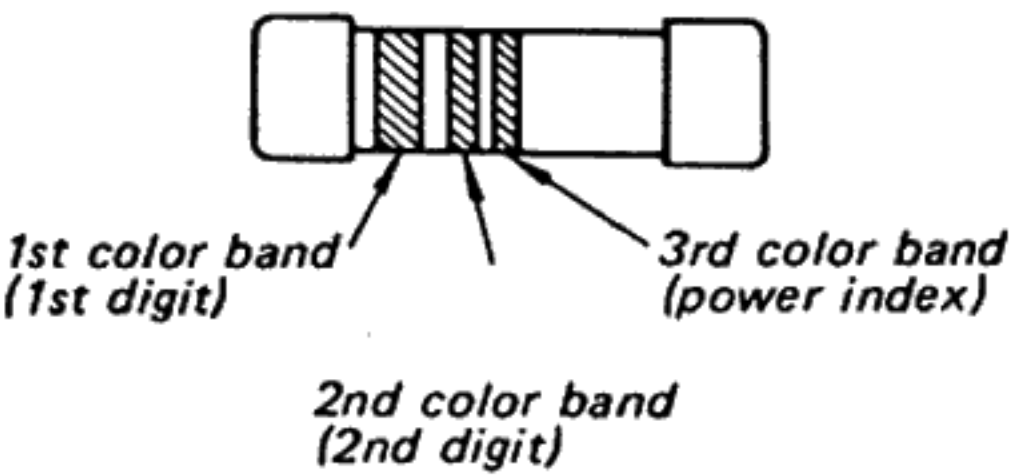
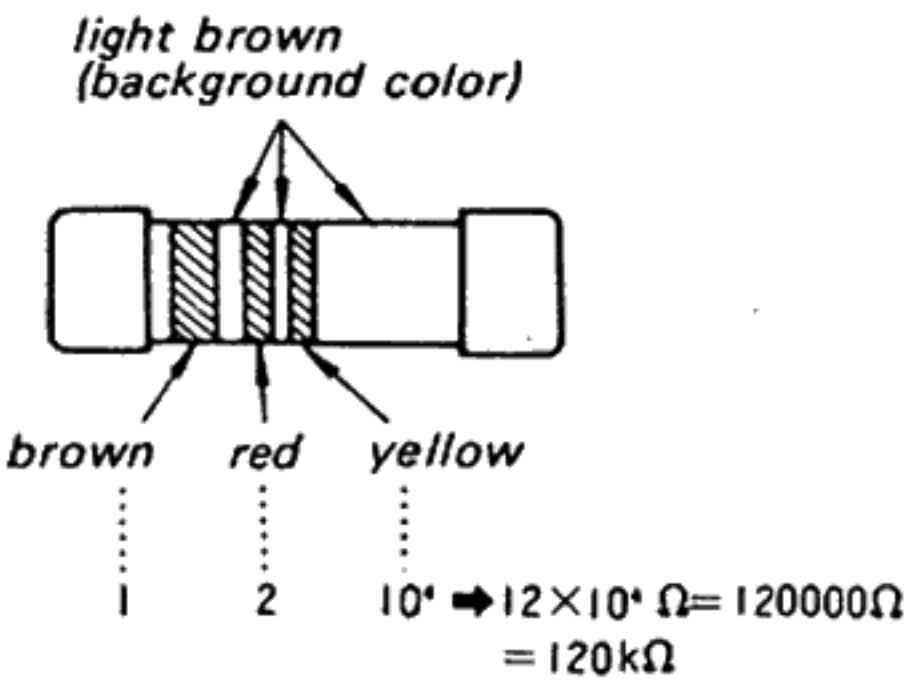


Fig. 1

2. Color Code Reading



(Example of Resistor)



(Example of Capacitor)

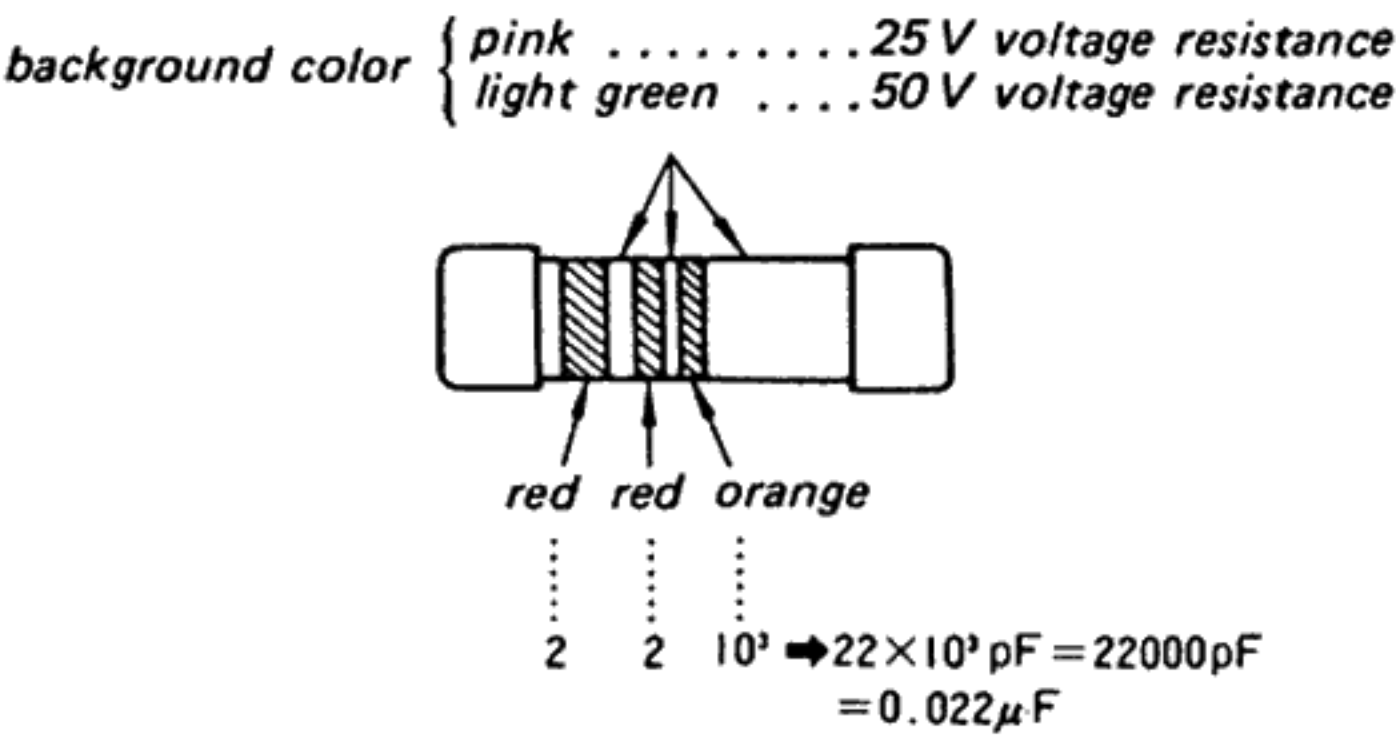


Fig. 2

3. How to Remove MELF Components and Mount Replacements

Use a soldering iron of at least 40W with an iron tip 4 mm in diameter and file the tip down to the angle shown in the diagram.

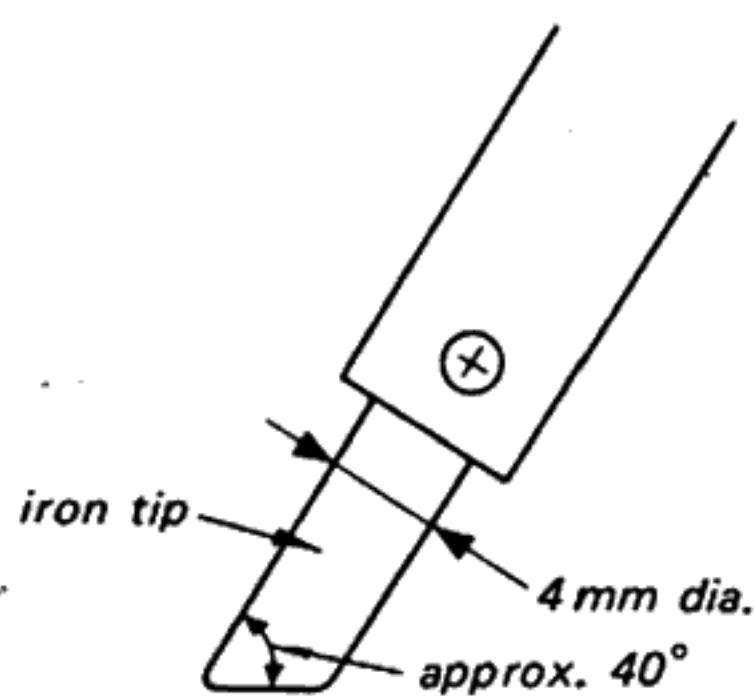


Fig. 3

1. Bring the flat surface of the soldering iron in equal contact with both soldered ends of the component.
2. The solder should melt in about 4 seconds. (The solder will melt more readily if a small amount of solder is attached to the iron tip and the iron tip is placed against the component.)
3. Once the solder has melted, tap the component aside with the tip of the soldering iron, and remove it from the board.

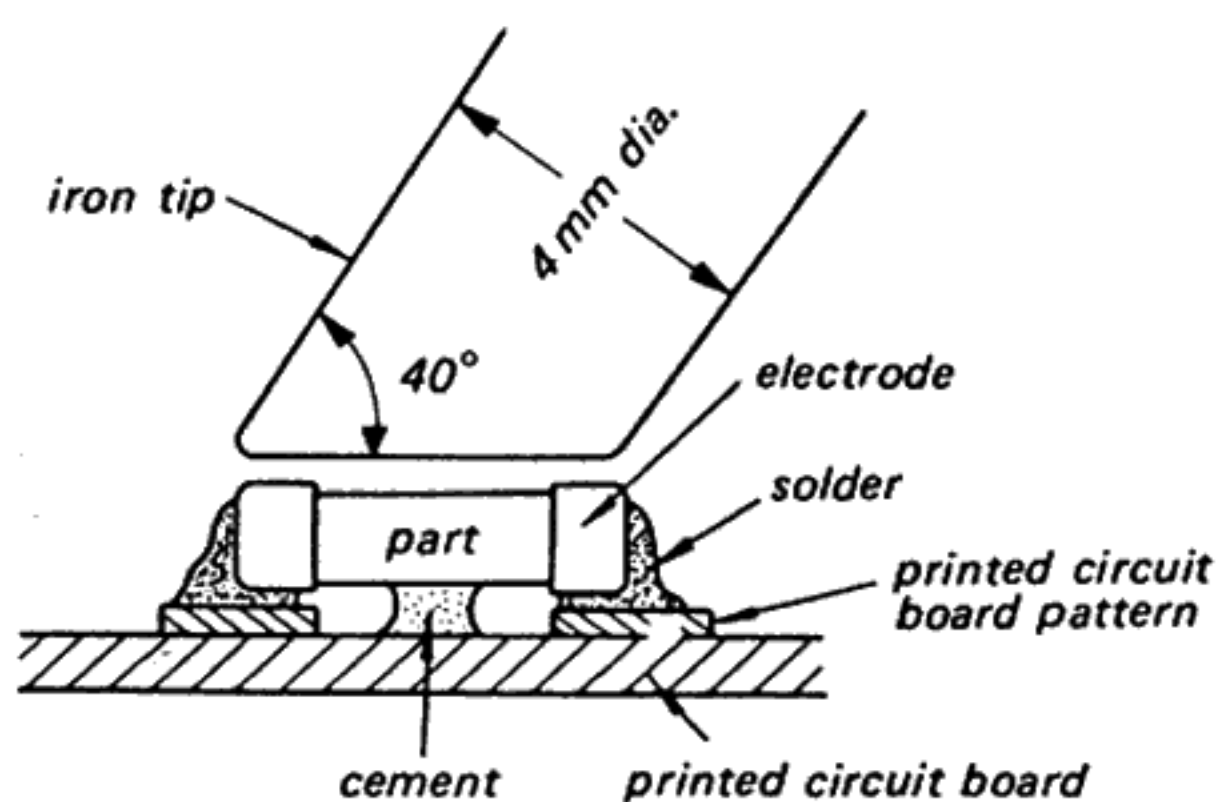


Fig. 4

4. Use lead type resistors or capacitors to replace the MELF components.

These replacements may be mounted either with short leads (see Fig. 5), or by covering a lead with tubing (see Fig. 6).

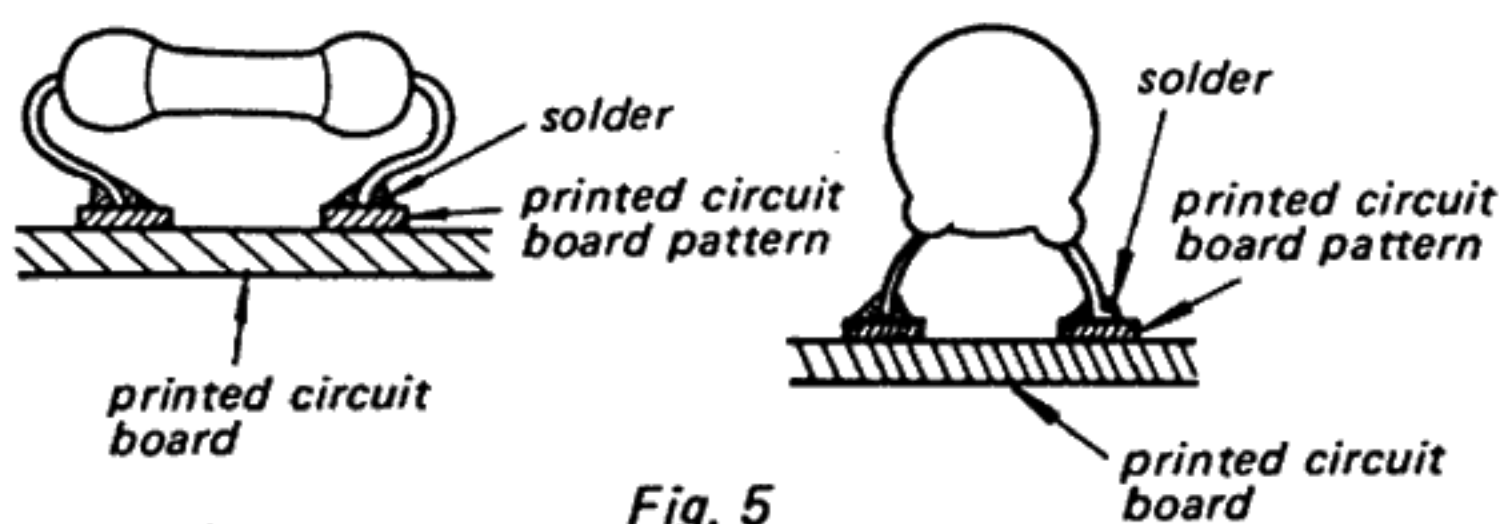


Fig. 5

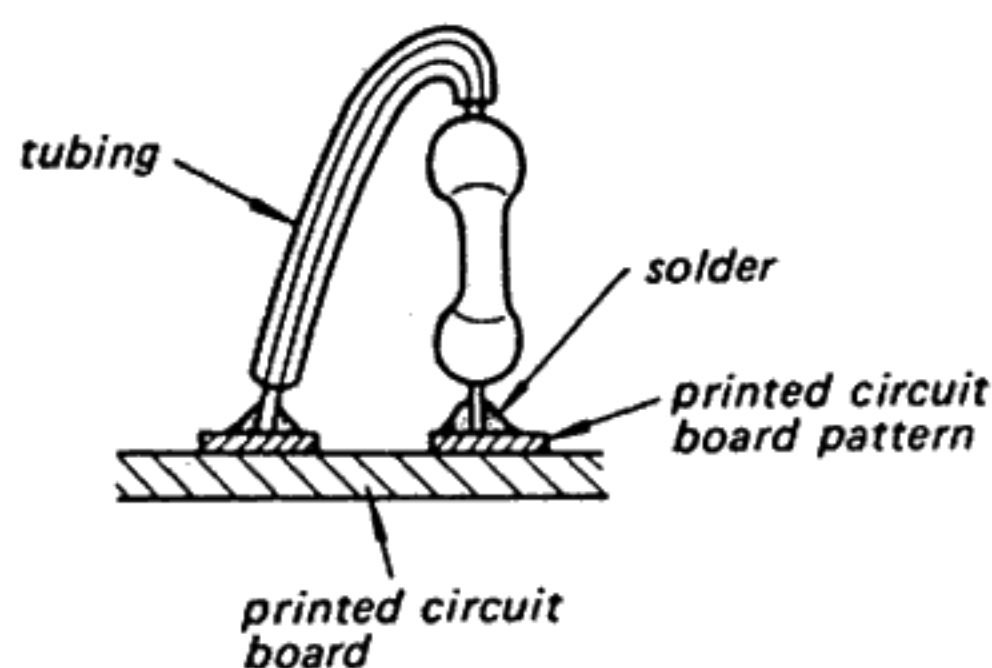
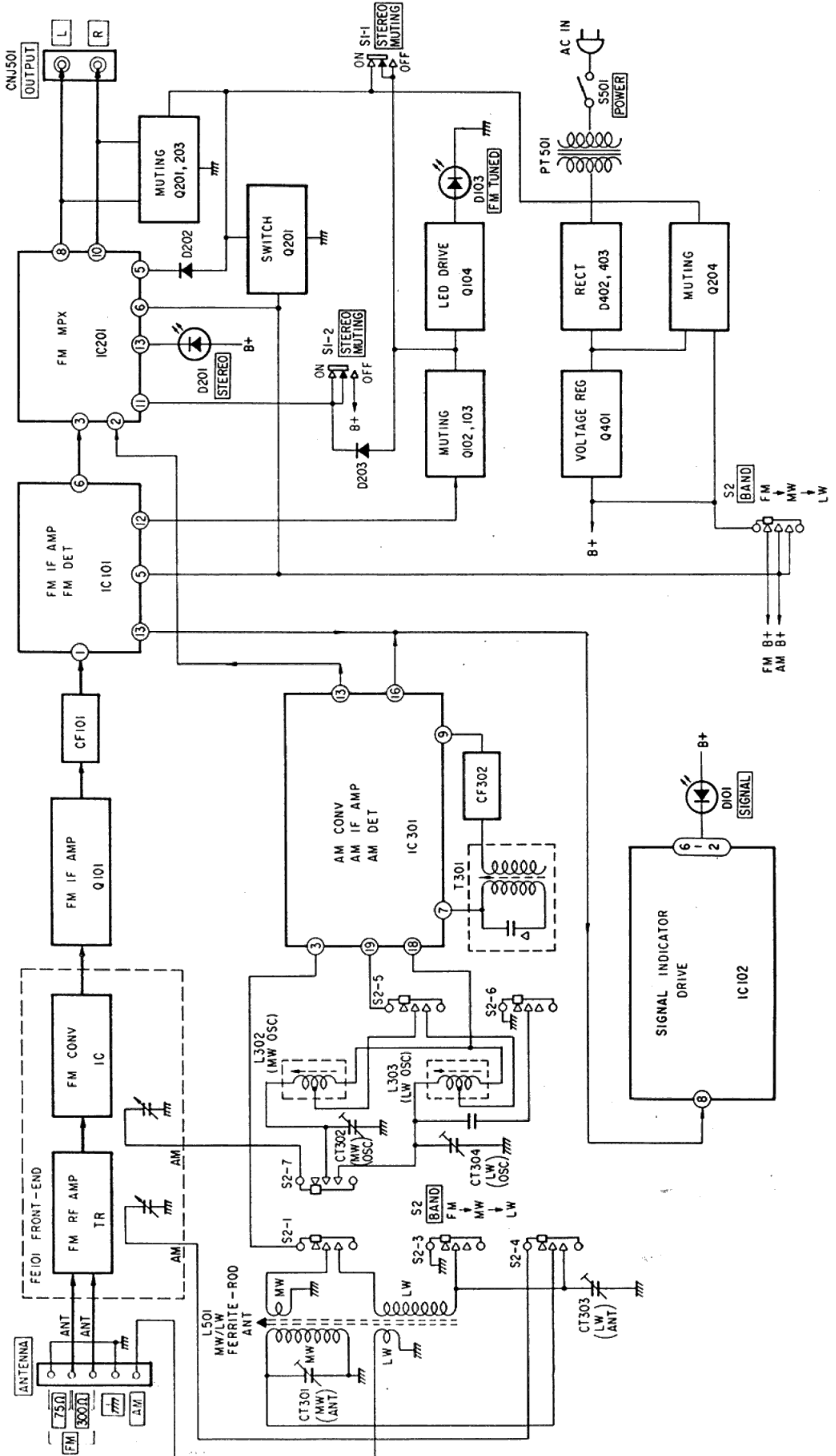


Fig. 6

SECTION 1 OUTLINE

BLOCK DIAGRAM

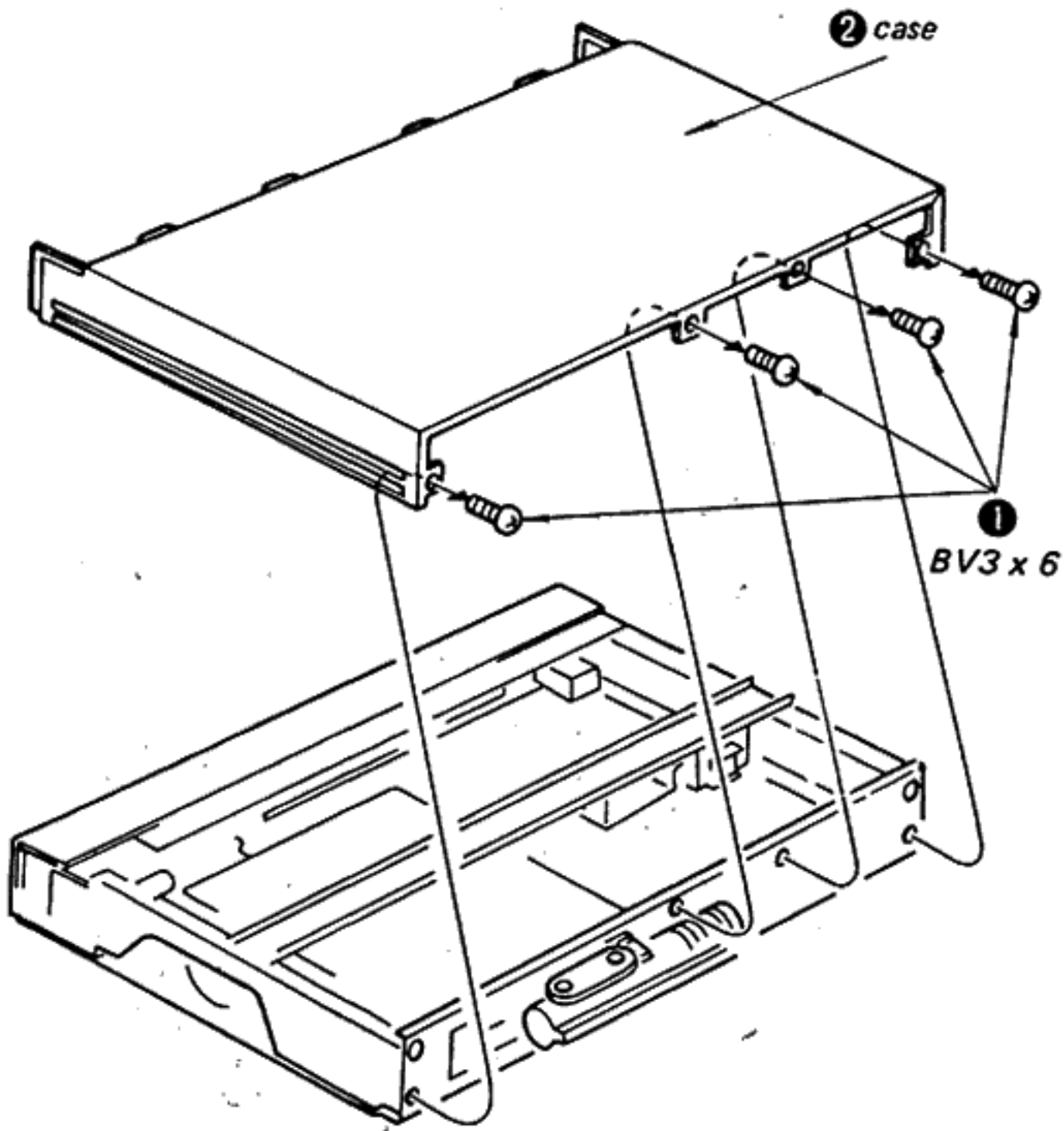


SECTION 2 DISASSEMBLY

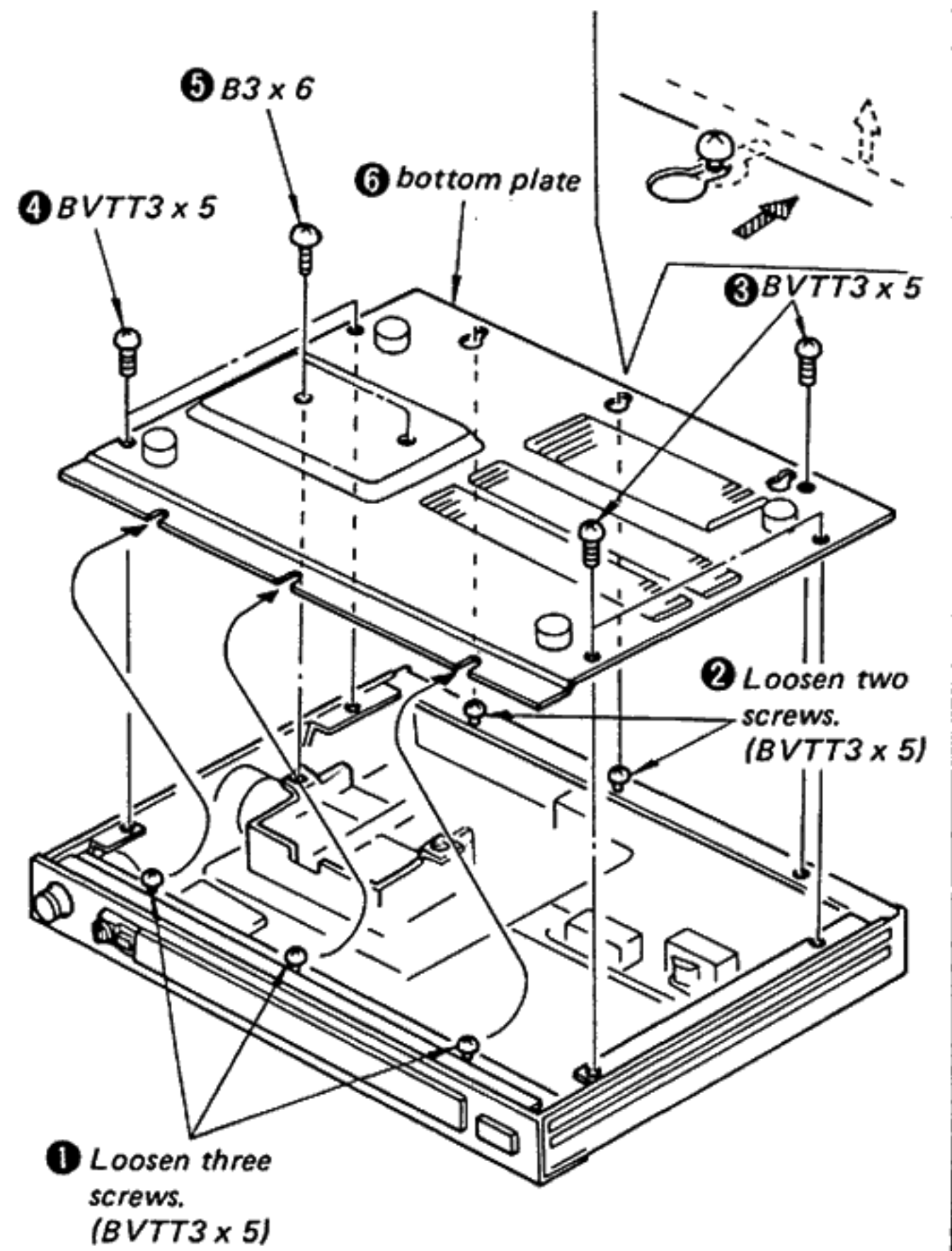
Note: Follow the disassembly procedure in the numerical order given.

CASE

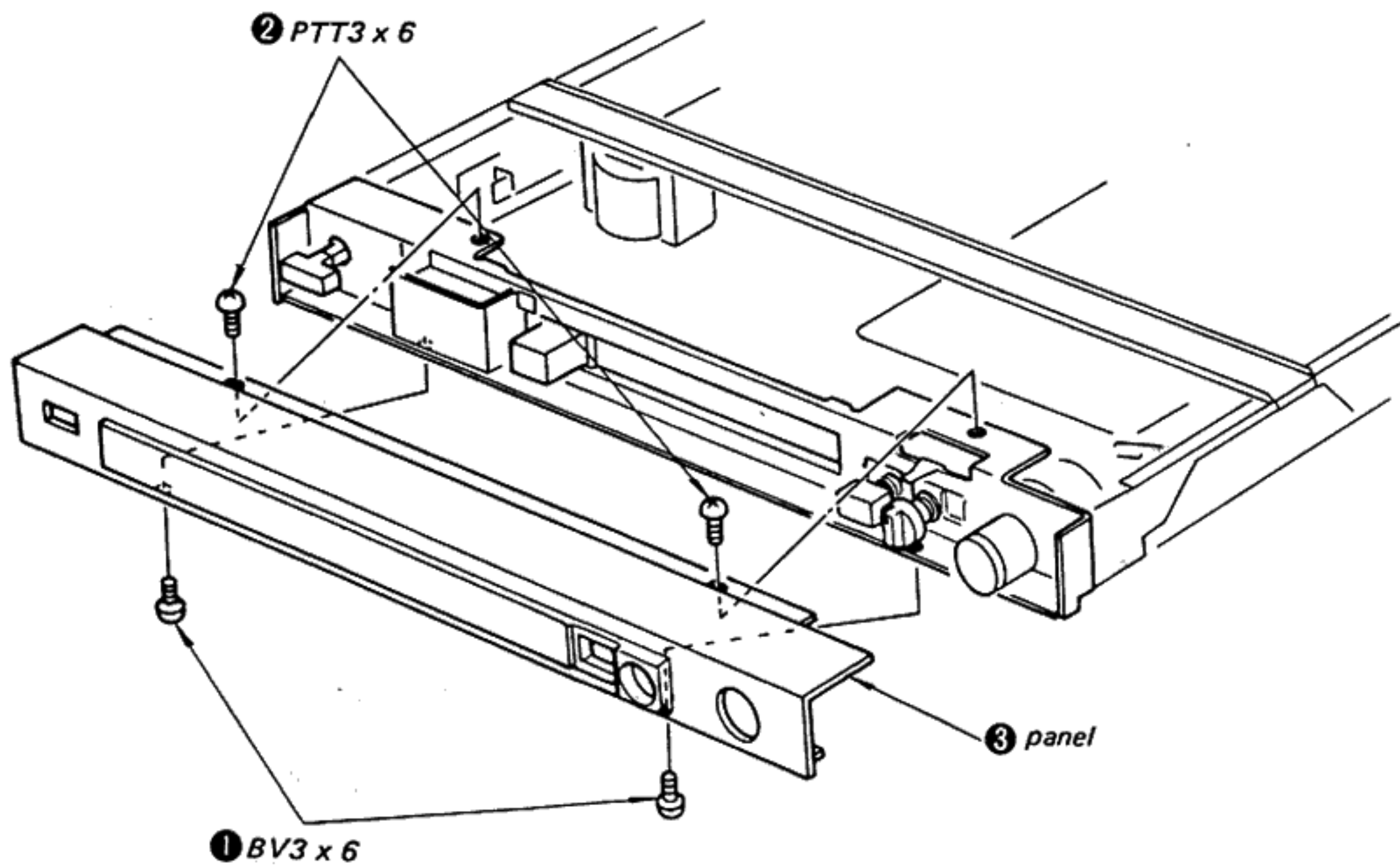
Tuner board can be checked in this condition.



BOTTOM PLATE

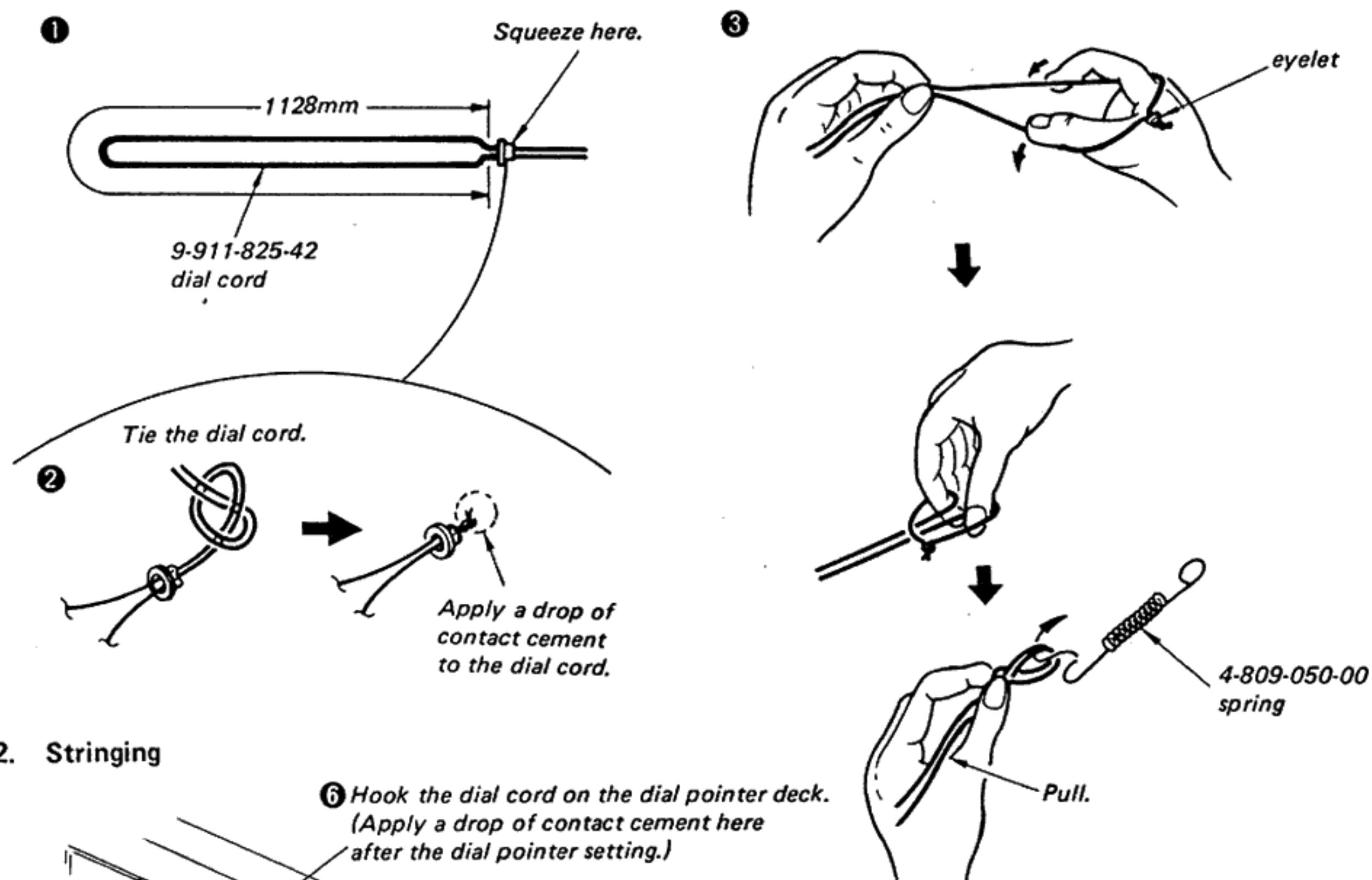


PANEL

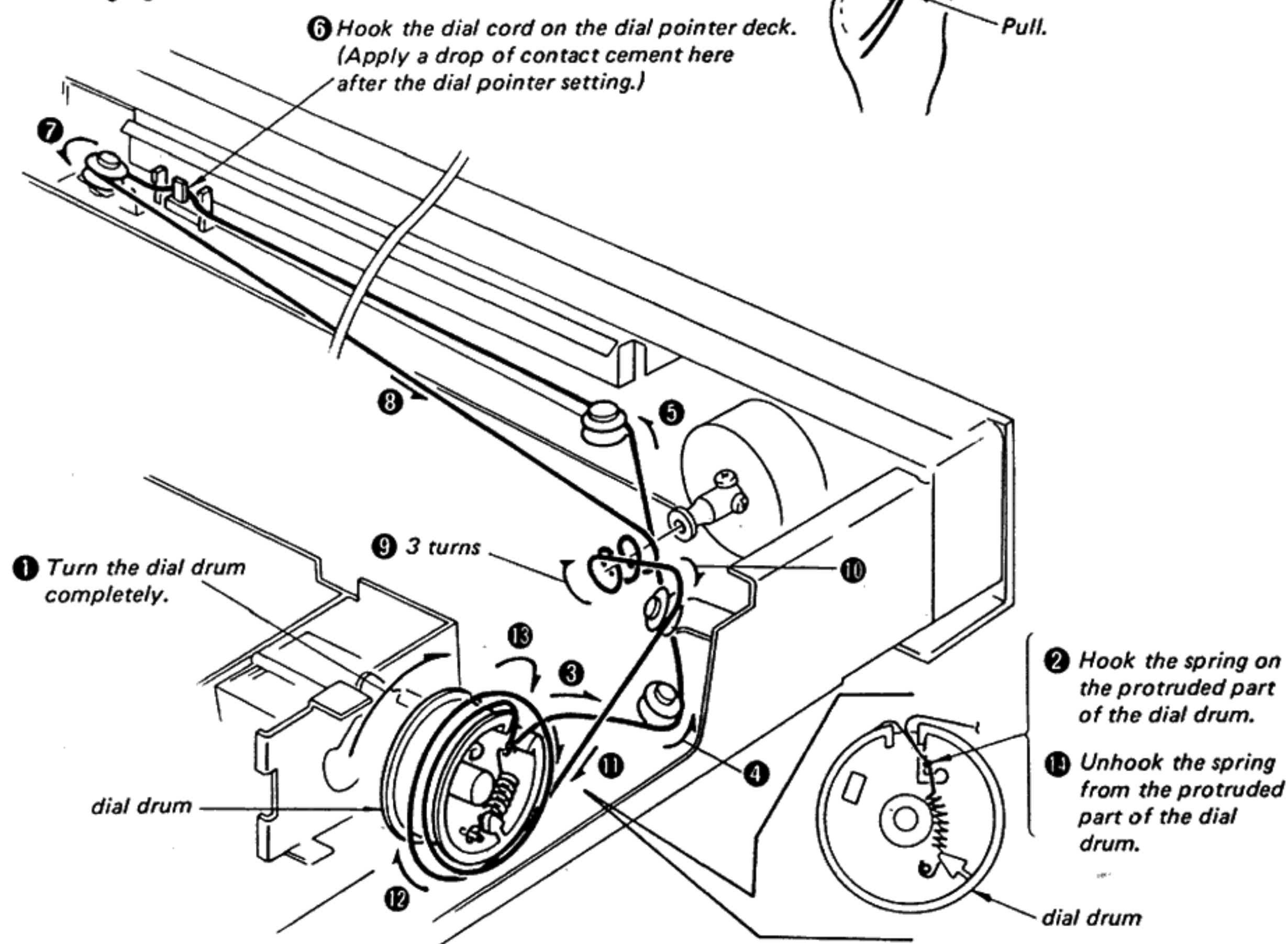


DIAL CORD STRINGING

1. Preparation

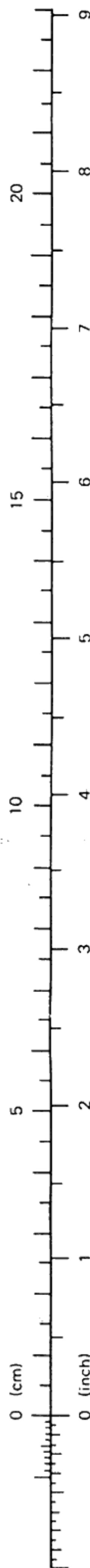


2. Stringing



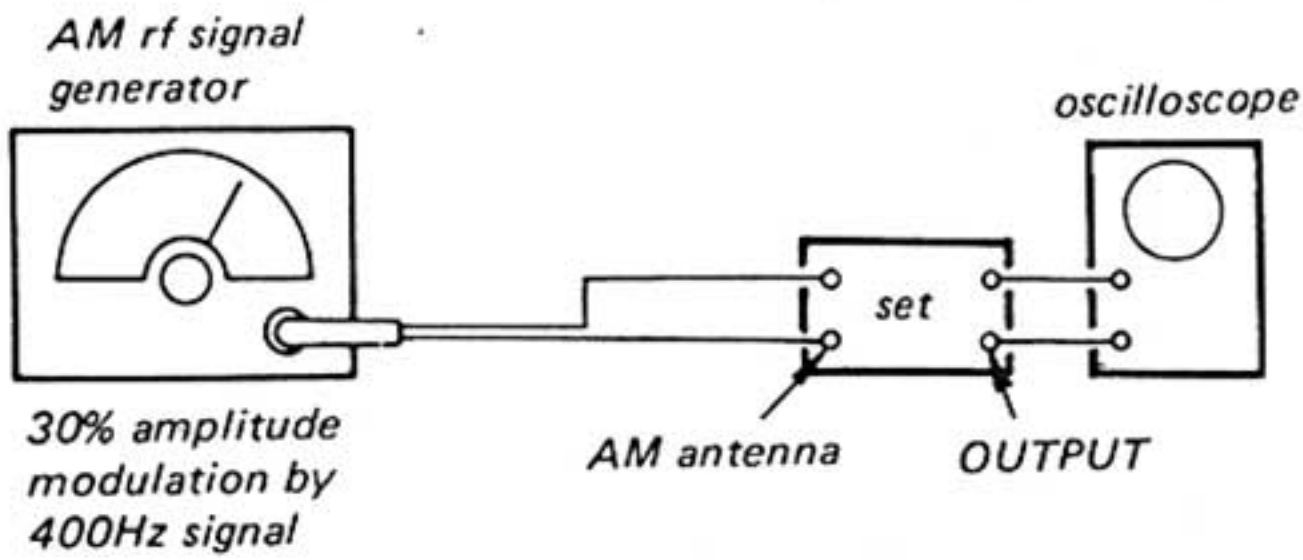
3. Dial Pointer Setting

- Receive the signal (98MHz) from the FM RF SSG and set the dial pointer to 98MHz on the dial scale.
- Apply a drop of contact cement to the dial pointer.



SECTION 3 ADJUSTMENTS

AM SECTION



Output level: as low as possible

- Repeat each adjustment several times for maximum reading on oscilloscope.
- The MW/LW tuning adjustments and the tracking adjustments should be finally done by the trimmer capacitor.

MW TUNING ADJUSTMENT

Make sure of the dial pointer setting before this adjustment. (Refer to the dial pointer setting page 7.)

adjustment parts	dial pointer indication	frequency of the signal generator
L302	600kHz	600kHz
CT302	1,400kHz	1,400kHz

LW TUNING ADJUSTMENT

Make sure of the dial pointer setting before this adjustment. (Refer to the dial pointer setting page 7.)

adjustment parts	dial pointer indication	frequency of the signal generator
L303	170kHz	170kHz
CT304	310kHz	310kHz

LW TRACKING ADJUSTMENT

adjustment parts	frequency of the signal generator
L501	170kHz
CT303	310kHz

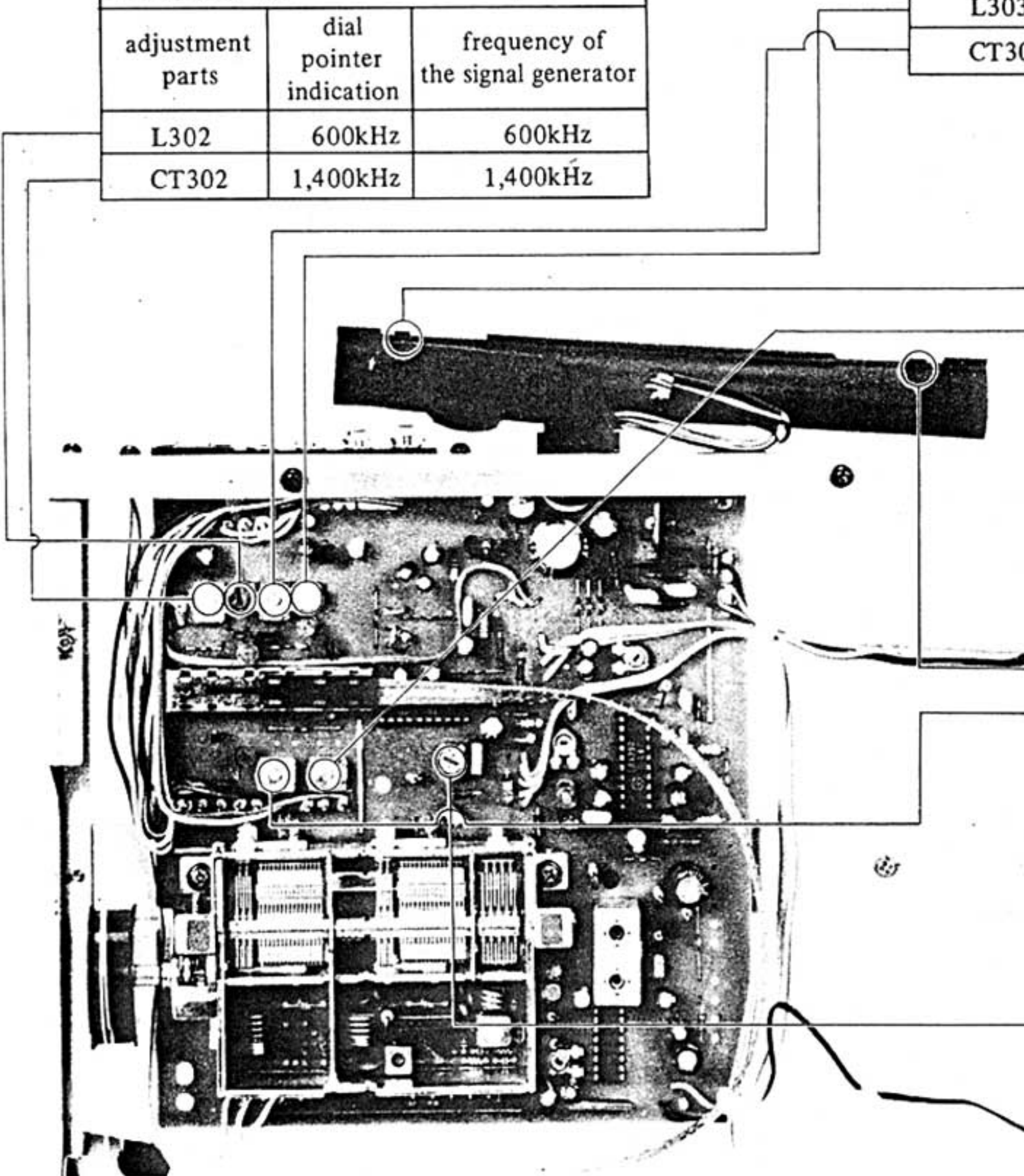
MW TRACKING ADJUSTMENT

Perform this adjustment after the LW tracking adjustment.

adjustment parts	frequency of the signal generator
L501	600kHz
CT301	1,400kHz

IF ALIGNMENT

adjustment part	frequency of the signal generator
T301	1,000kHz



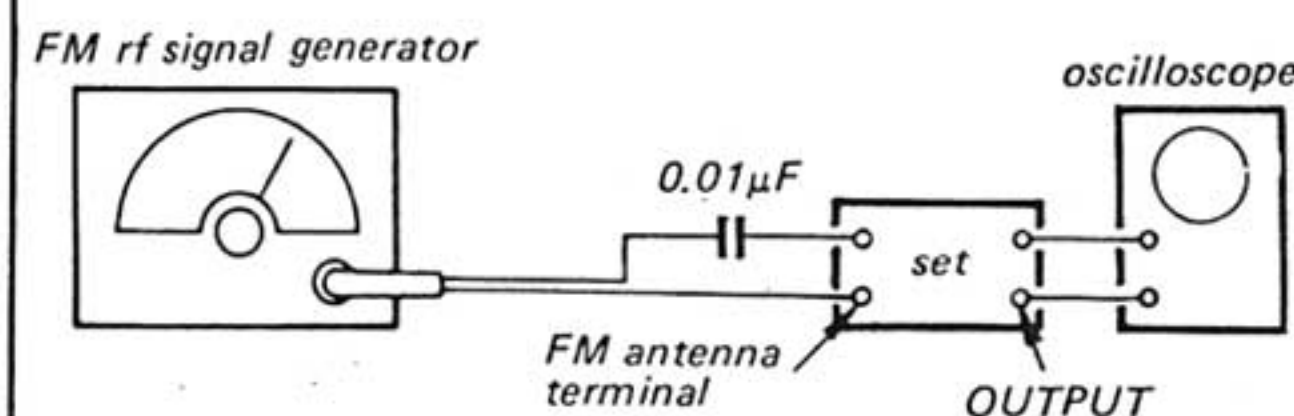
The FM front-end is carefully adjusted at the factory and is supplied as one whole block for replacement. In case of replacement, perform the following adjustments.

1. Front-End IFT Adjustment.

Setting:

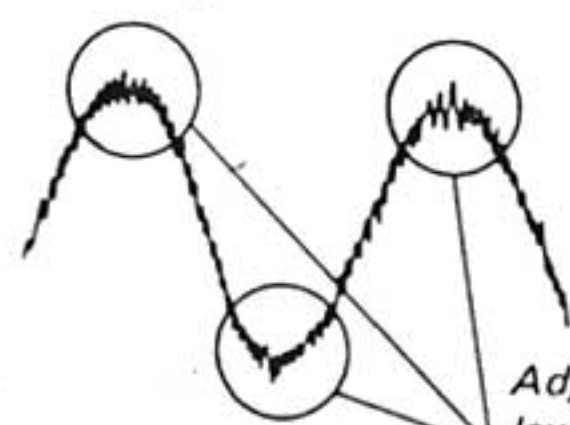
STEREO MUTING switch (S1-1): OFF

Procedure:



Carrier frequency: 98MHz
Modulation: 1kHz, 40kHz deviation (100%)
Output level: 2µV (6dB)

Adjust T so that the noise levels at the peak of the waveforms on the oscilloscope are symmetrical and the output level is maximum.



Adjust T so that the noise levels at these points are symmetrical.

2. Dial Pointer Setting

(Refer to Dial Pointer Setting page 7.)

3. MW/LW Tuning Adjustments

(Refer to MW/LW Tuning Adjustments page 8)

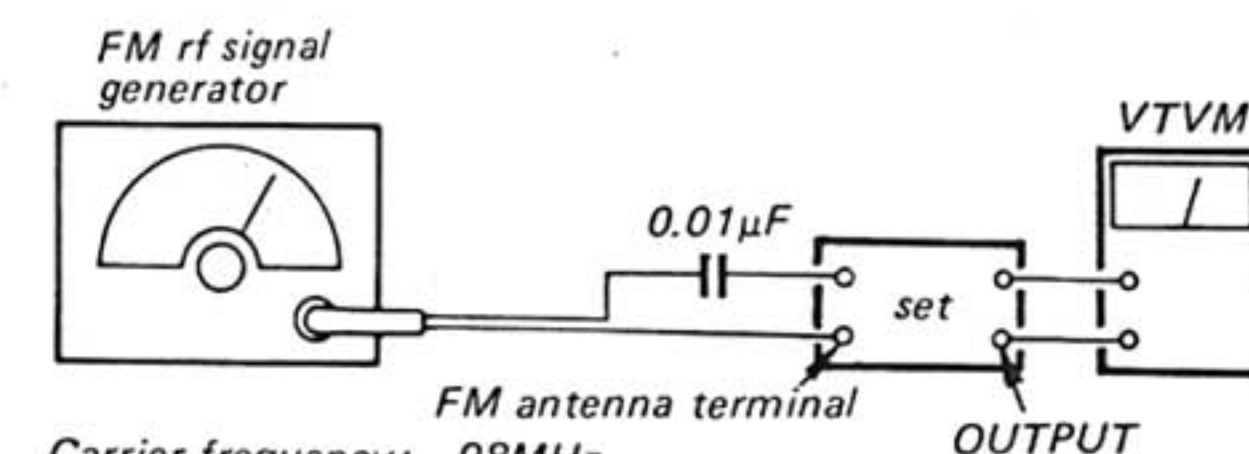
RT101

FM Muting Level Adjustment

Setting:

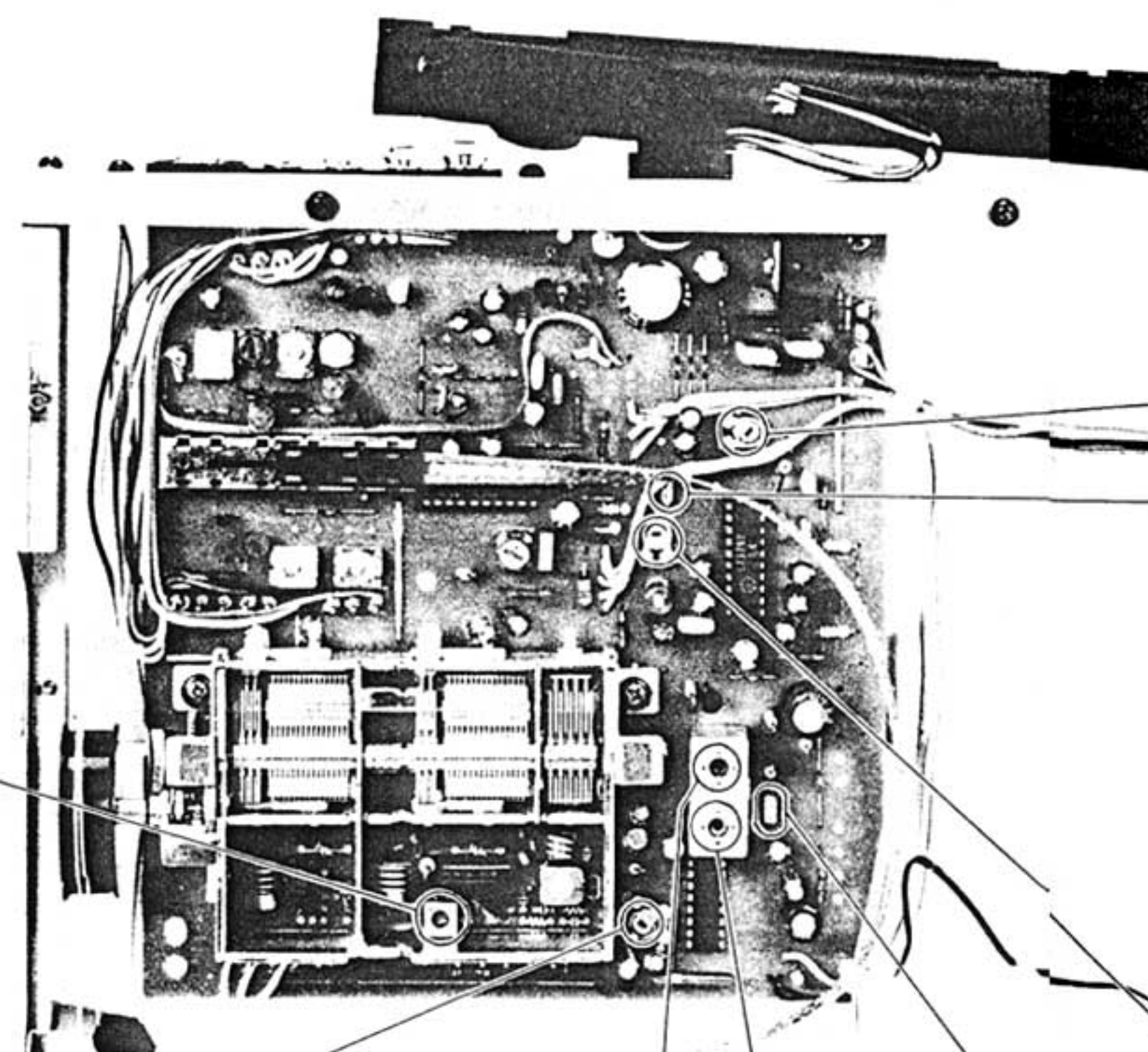
STEREO MUTING switch (S1-1): ON

Procedure:



Carrier frequency: 98MHz
Modulation: 1kHz, 40kHz deviation (100%)
Output level: 10µV (20dB)

1. Turn the set to 98MHz.
2. Set the output level of the FM rf signal generator to 20dB (10µV).
3. Turn RT101 and stop it just when the VTVM indication suddenly decreases.



RT201

T101
secondary side
(black)

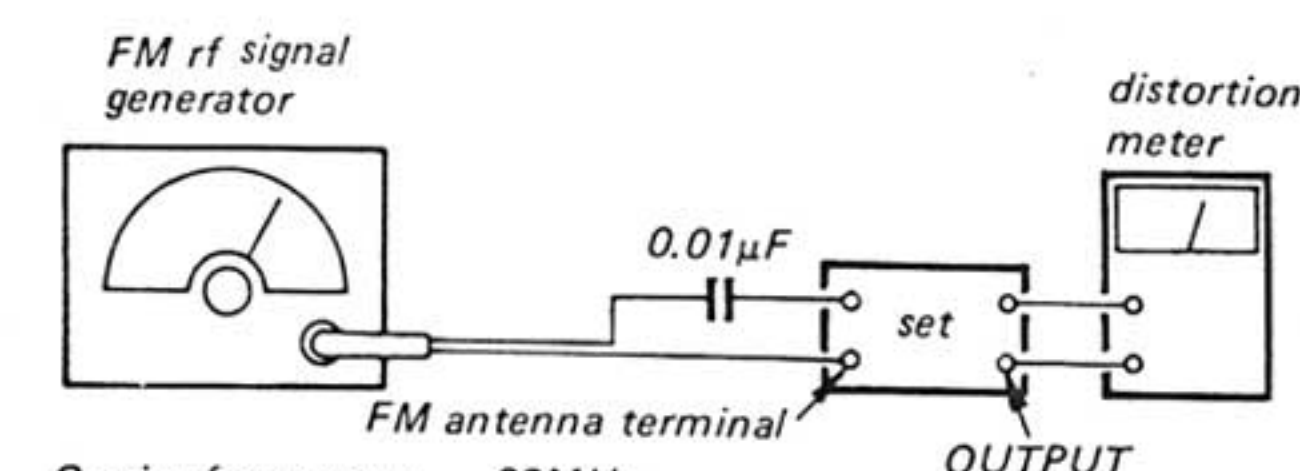
T101
primary side
(red)

NULL
check

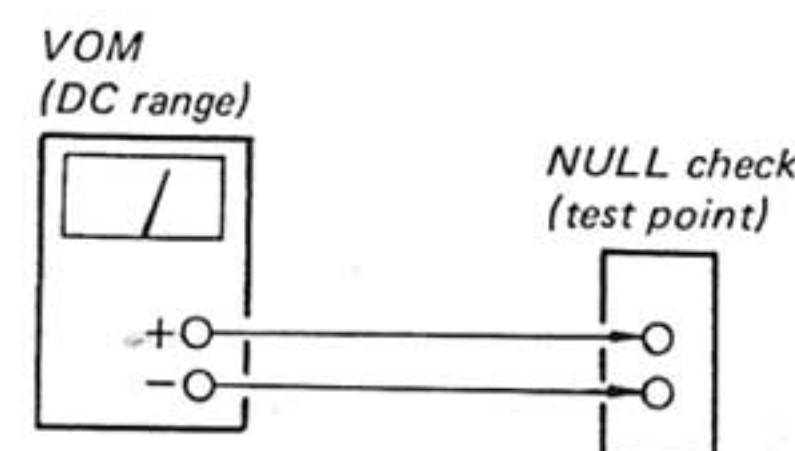
RT202

FM Discriminator Alignment

Procedure:



Carrier frequency: 98MHz
Output level: 1mV (60dB)
Modulation: 1kHz, 40kHz deviation (100%)
Mode: mono



1. Tune the set to 98MHz.
2. Connect a VOM to NULL CHECK (test point) and adjust the primary-side core (red) of T101 for 0V DC reading on the VOM.
3. Adjust the secondary-side core (black) of T101 for a minimum reading on the distortion meter.

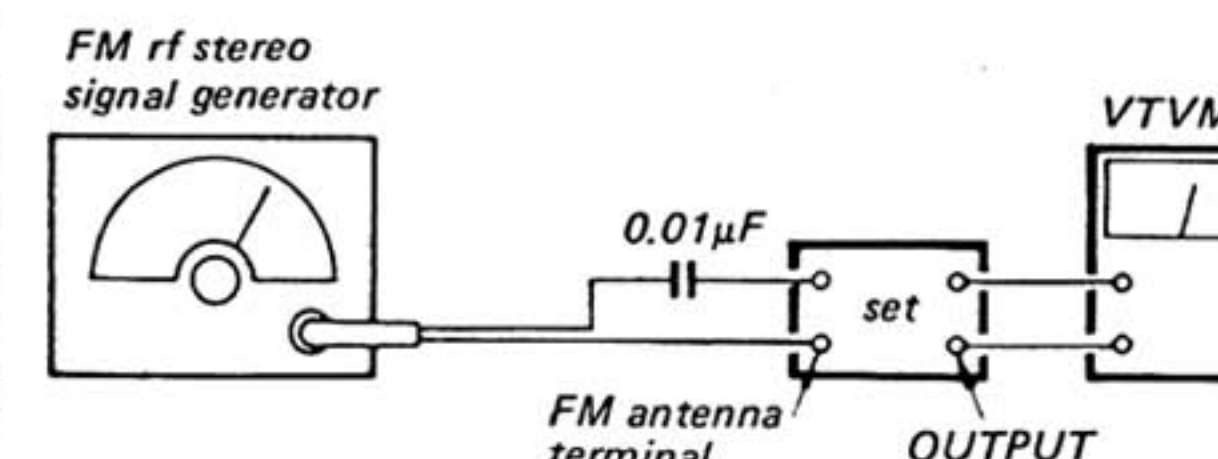
Note: Repeat the secondary-side and primary-side adjustments several times.

FM Stereo Separation Adjustment

Setting:

STEREO MUTING switch (S1-1): ON

Procedure:



Carrier frequency: 98MHz
Output level: 1mV (60dB)
Mode: stereo
Modulation:
Audio (1kHz): 16.25kHz deviation (45%)
Pilot (19kHz): 7.5kHz deviation (10%)
Sub-channel (38kHz): 16.25kHz deviation (45%)

FM stereo signal generator output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	(A)
R-CH	L-CH	(B) Adjust RT201 for minimum reading.
R-CH	R-CH	(C)
L-CH	R-CH	(D) Adjust RT201 for minimum reading.

L-CH Stereo Separation: (A) - (B)

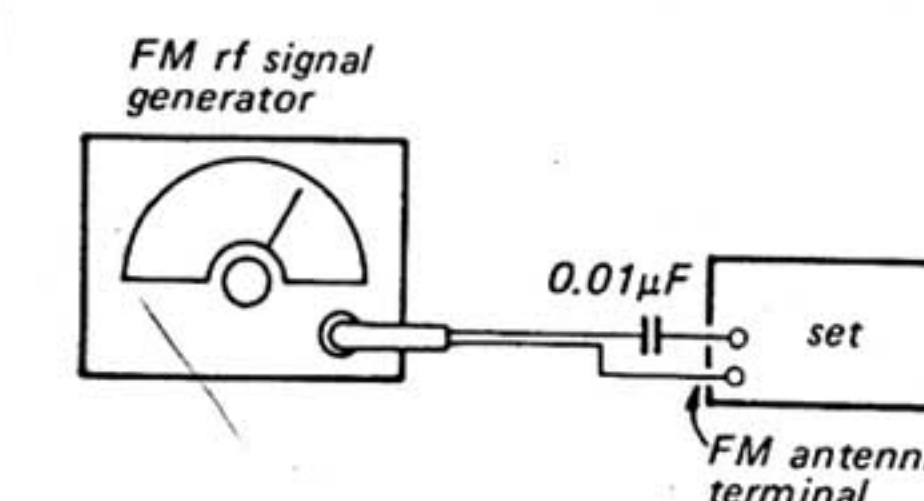
R-CH Stereo Separation: (C) - (D)

The separations of both channels should be equal.

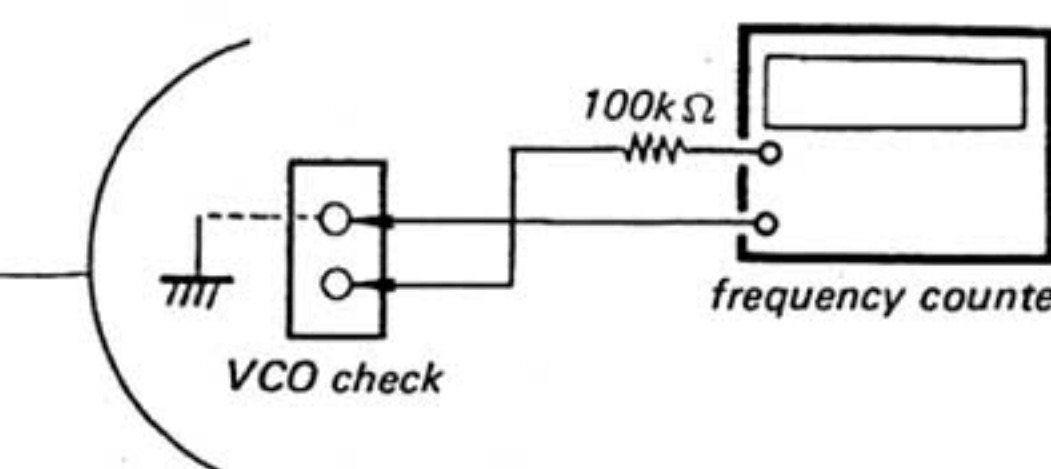
VCO Adjustment

A) Regular Method

Procedure:



Carrier frequency: 98MHz
Modulation: no modulation
Output level: 1mV (60dB)

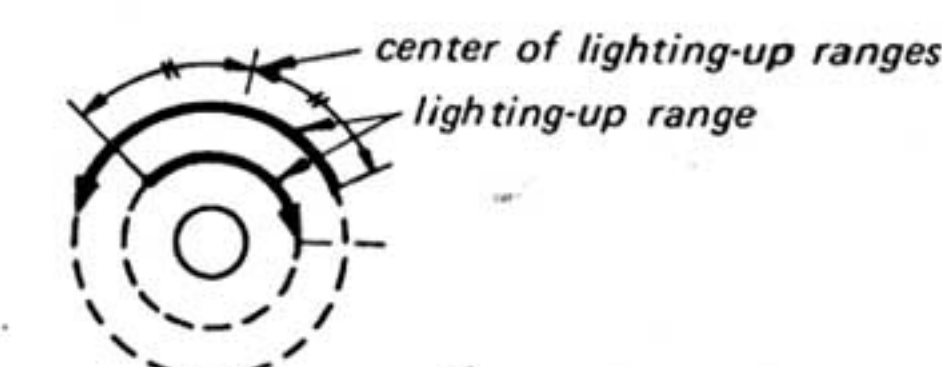


1. Tune the set to 98MHz.
2. Adjust RT202 for 19kHz ± 50Hz on the counter.

B) Simple Method

Procedure:

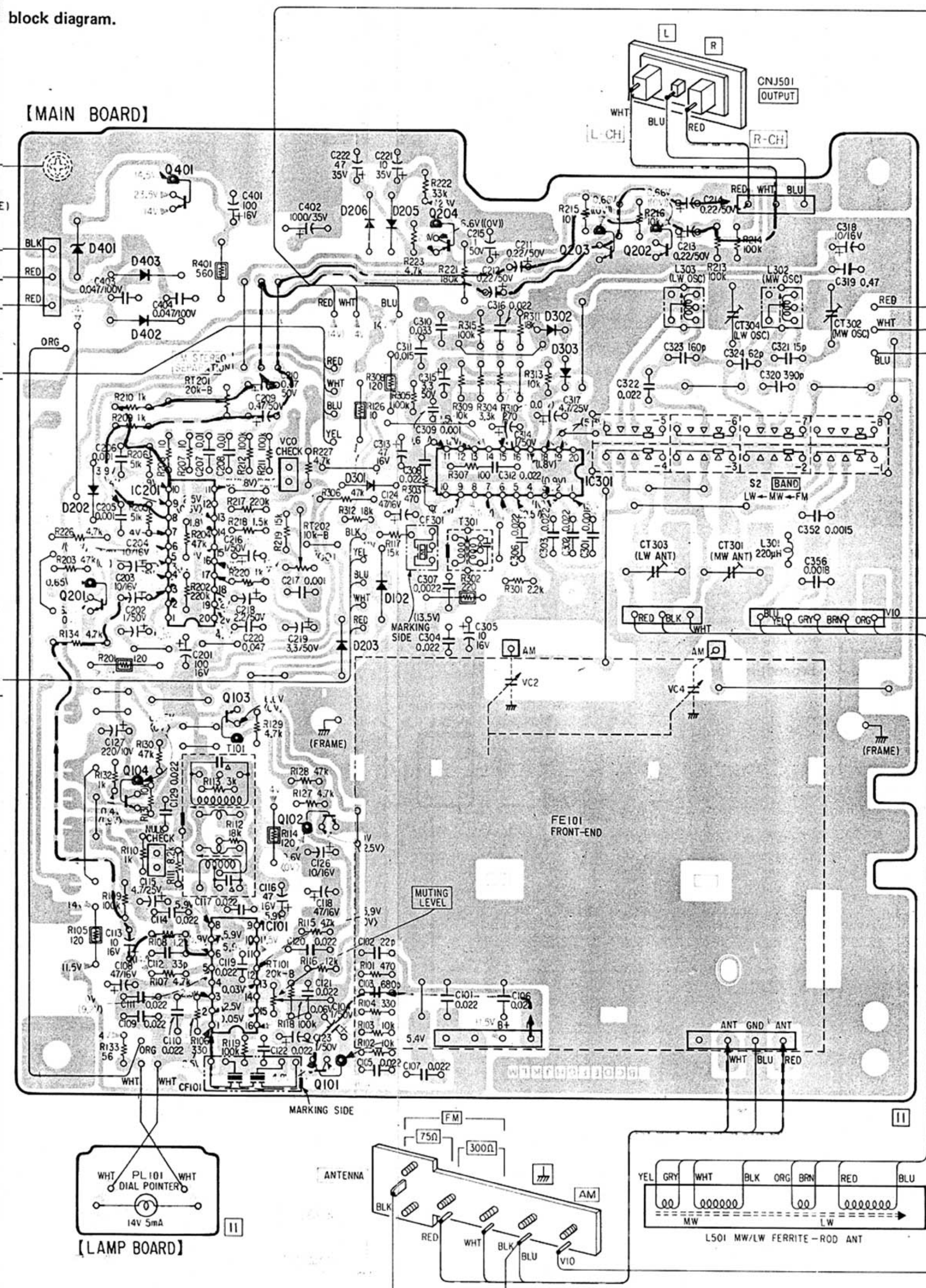
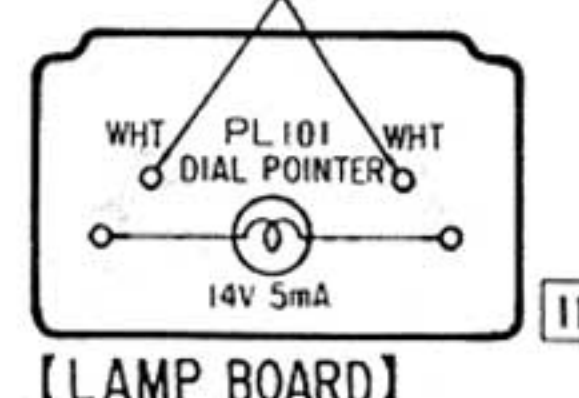
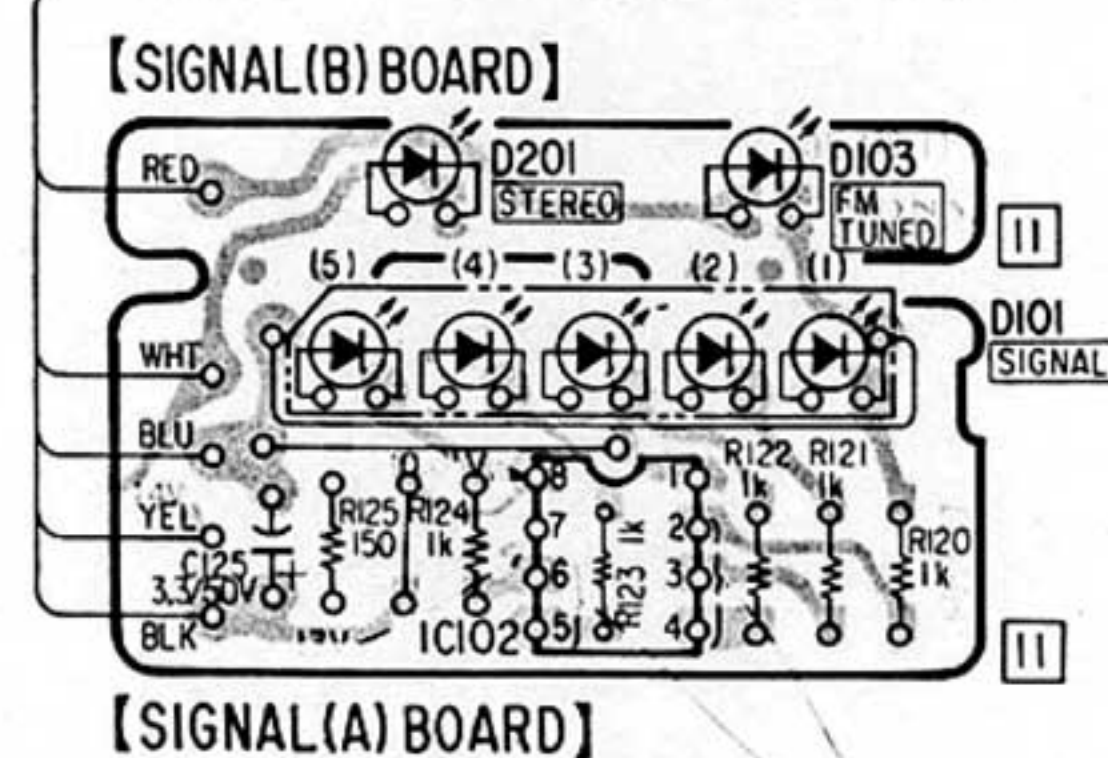
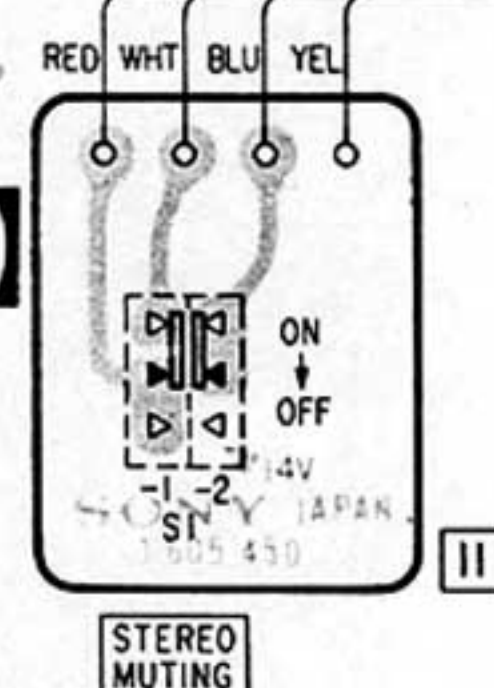
1. Tune the set to the FM stereo broadcasting signal.
2. Turn RT202 clockwise or counterclockwise and memorize the lighting-up range of the stereo lamp.
3. Secure RT202 at the center of the lighting-up range of both turns as shown below.



G

— Conductor Side —

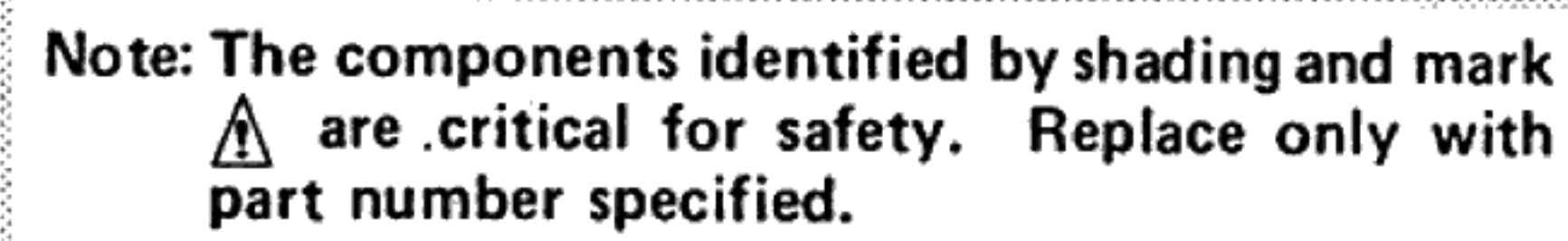
- block diagram.**



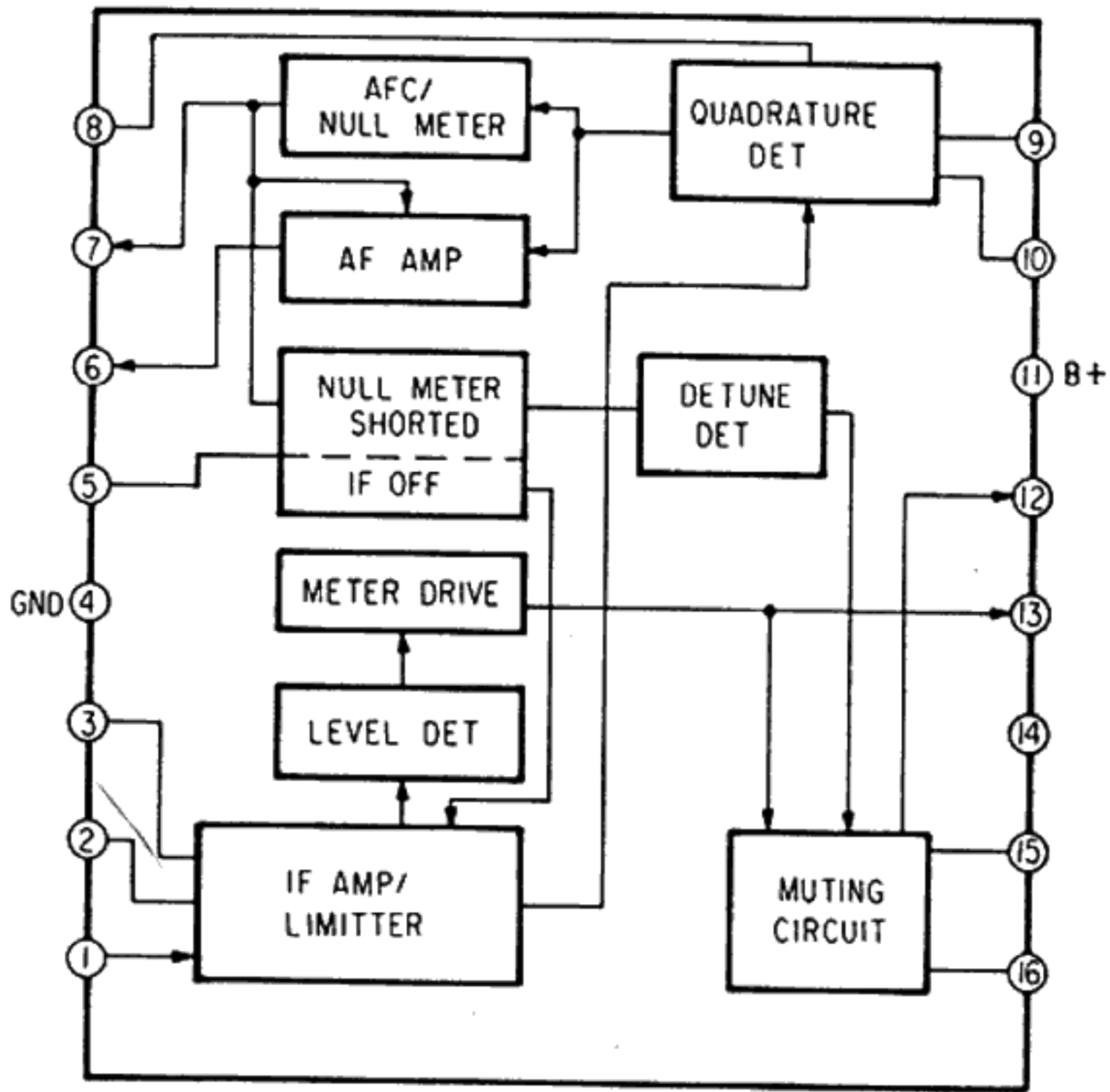
Q, IC	D
401	
204	205 206
202 203	401 403
	302 402 303
IC301 IC201	301 202
201	102 203
103	
104	
102	
IC101	
101	
Q, IC	D

● **RECEIVER SIGNAL PATH** : R-CH signal path

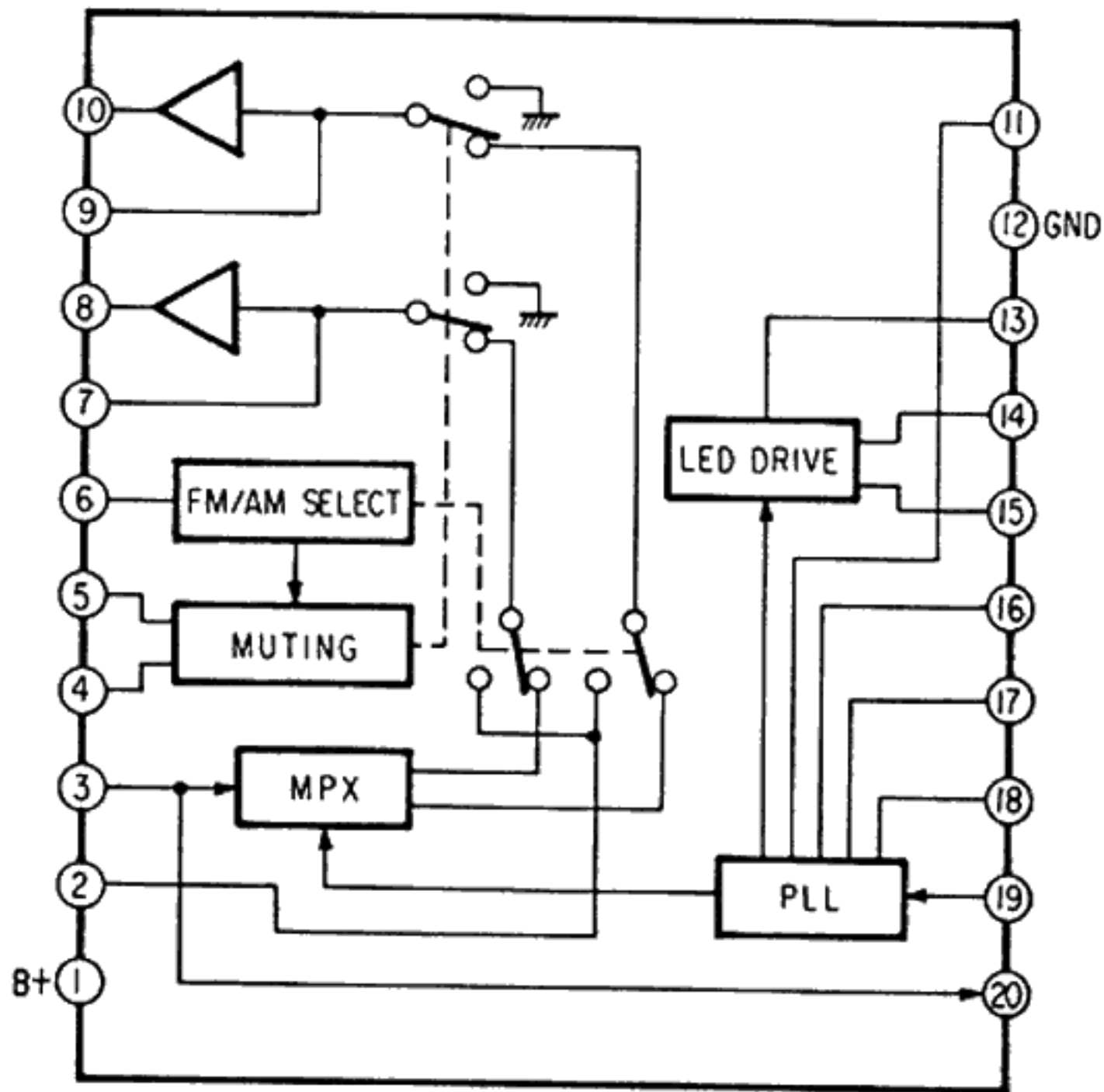
-15-



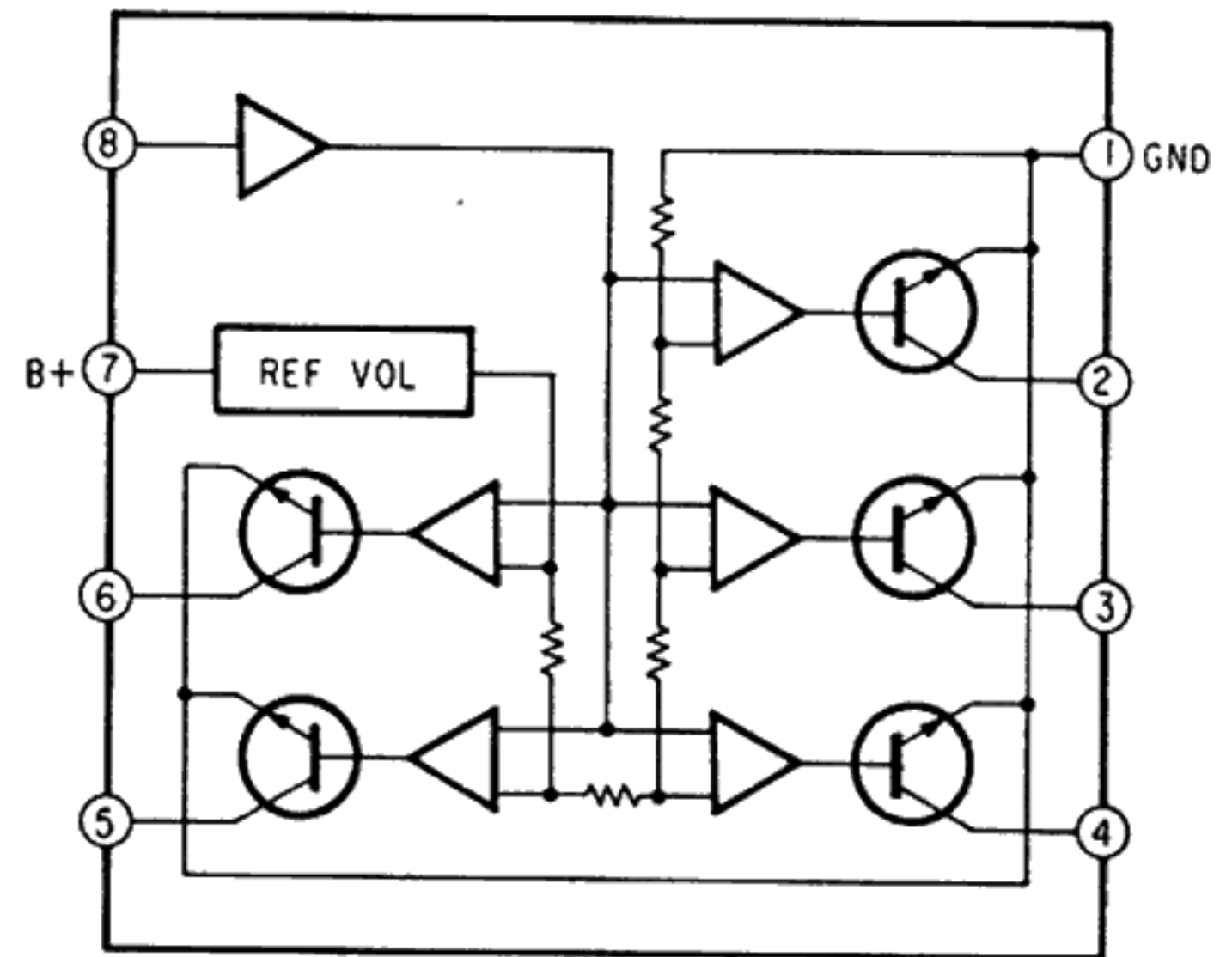
IC101



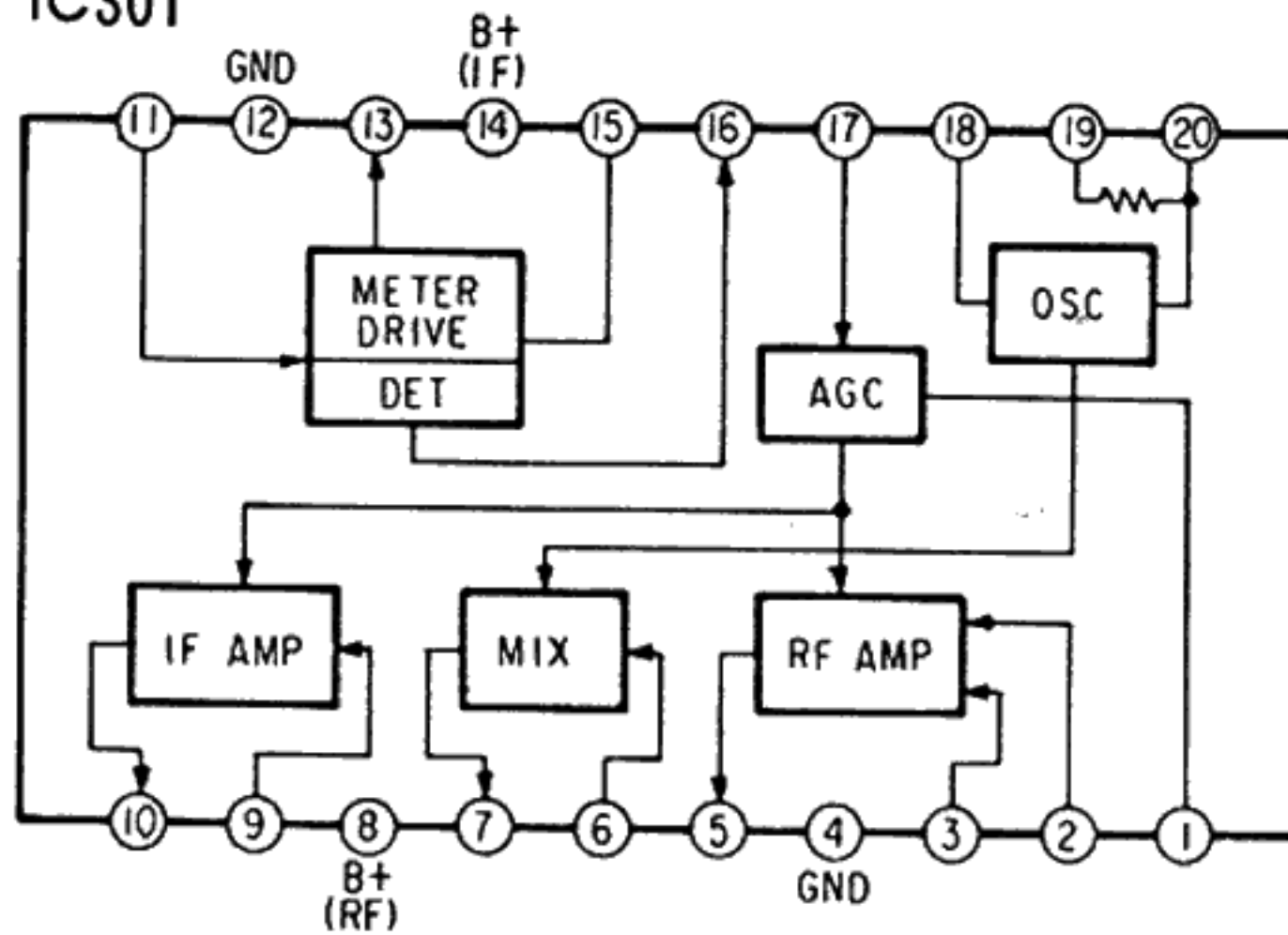
IC201



IC102



IC301

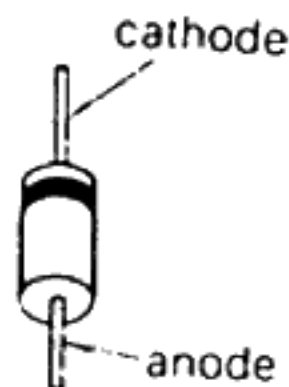


Semiconductor Lead Layout

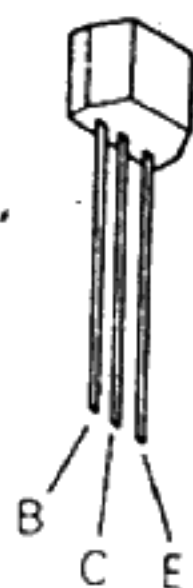
2SA1015
2SC1364
2SC1815



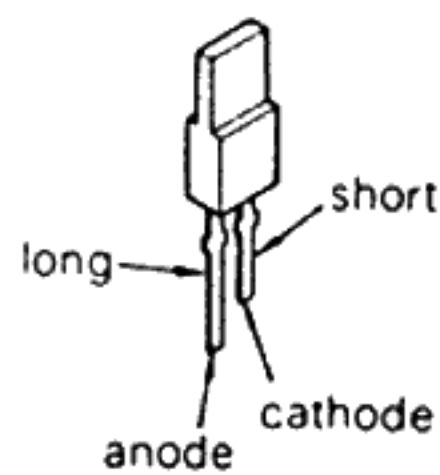
10E2
1S1555
1T22
1T22AM
EQA01-15R
EQB01-15



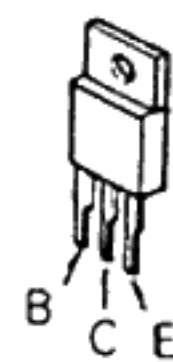
2SC2839



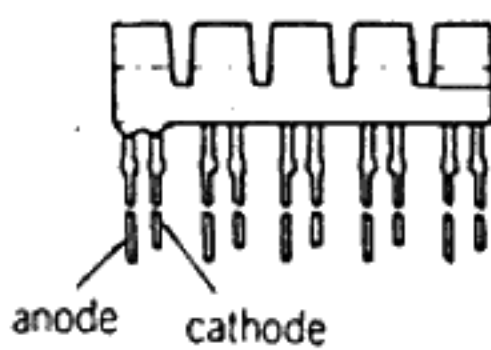
SLP141B
SLP241B



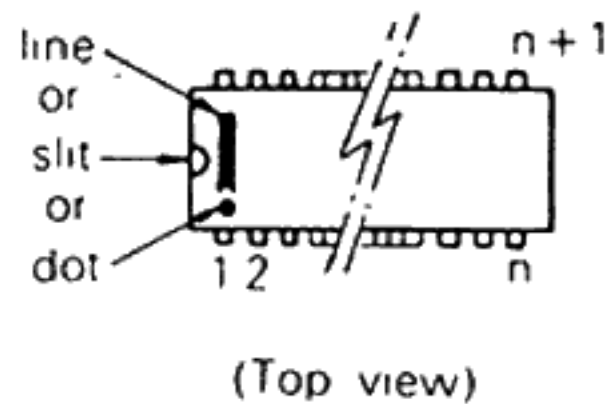
2SD880



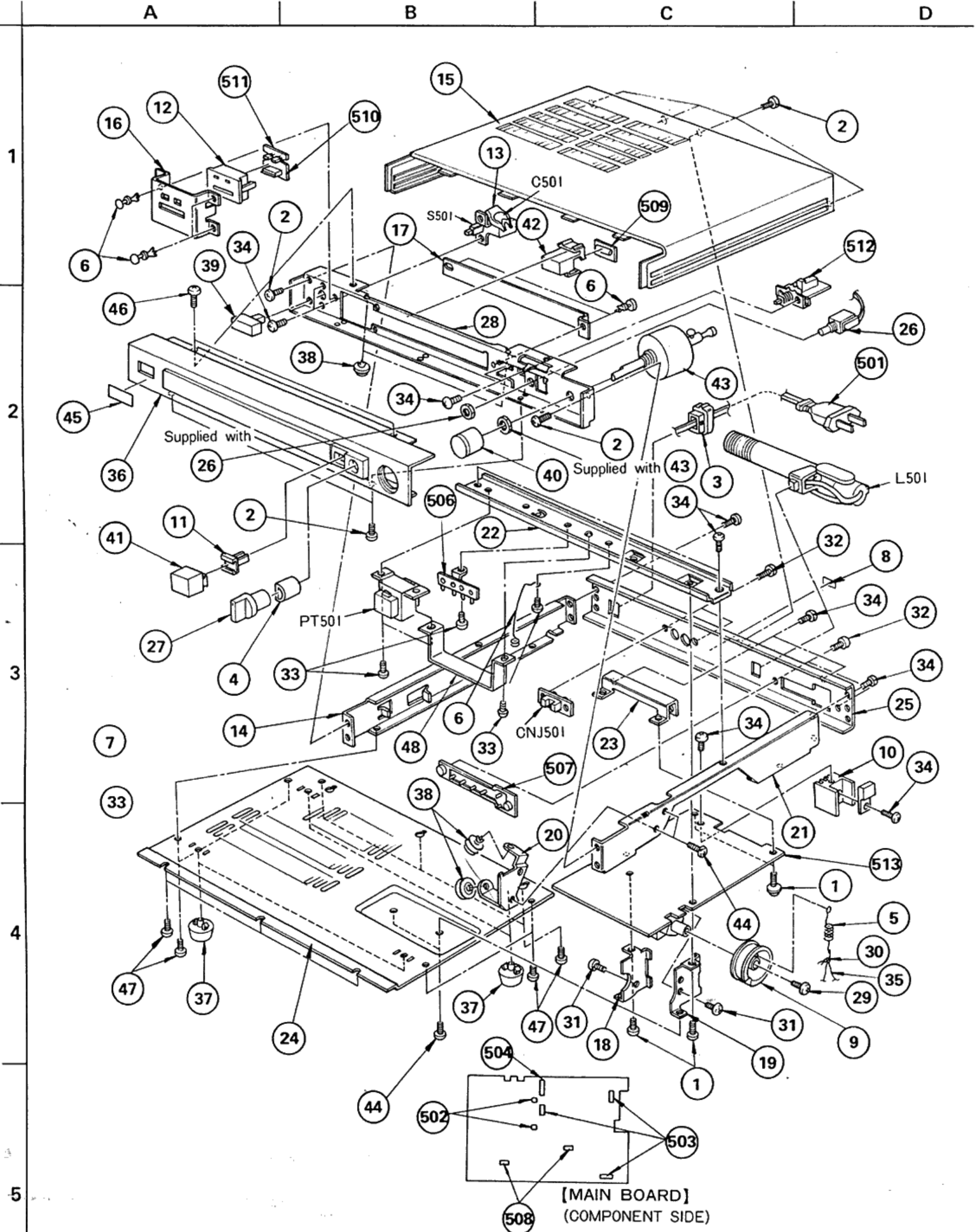
SLP252B



LA1235
LA1245
LA3390
TL489CP



SECTION 5 EXPLODED VIEW



SECTION 6

ELECTRICAL PARTS LIST

GENERAL SECTION

No.	Part No.	Description
1	3-701-589-00	SCREW, SELF-TAPPING
2	3-703-108-01	SCREW +BV 3X6, S TIGHT
3	3-703-244-00	BUSHING, CORD
4	3-703-466-00	SPRING (6600)
5	4-809-050-00	SPRING, TENSION
6	4-812-134-11	RIVET NYLON, 3.5
7	▲;4-838-818-00	LEAD, CLAMP INDICATOR
8	▲;4-844-449-00	LABEL
9	4-859-586-01	DRUM (165), DIAL
10	▲;4-863-132-00	HEAT SINK (SMALL)
11	4-866-342-00	JOINT (B), KNOB
12	4-869-113-11	HOLDER, LED
13	4-869-127-00	COVER, CAPACITOR
14	▲;4-875-423-00	PLATE, SIDE
15	4-875-434-11	CASE
16	▲;4-875-805-00	HOLDER, LED
17	▲;4-875-806-00	PLATE, ORNAMENTAL
18	▲;4-875-807-00	HOLDER (L), FRONT END
19	▲;4-875-808-00	HOLDER (R), FRONT END
20	▲;4-875-809-00	BRACKET (A), PULLEY
21	▲;4-875-811-00	PLATE (R), SIDE, CHASSIS
22	▲;4-875-812-00	BRACKET, TRANSFORMER
23	▲;4-875-813-00	HOLDER, CHASSIS
24	▲;4-875-814-00	PLATE, BOTTOM
25	▲;4-875-815-21	(AEP)...PLATE, JACK
25	▲;4-875-815-31	(UK)...PLATE, JACK
26	4-875-818-00	SWITCH, BAND SELECTION
27	4-875-827-11	KNOB, BAND SELECTOR
28	▲;4-875-828-11	PANEL, SUB
29	7-621-775-10	SCREW +B 2.6X4
30	7-623-616-01	EYELET, 2X3
31	7-682-545-09	SCREW +B 3X4
32	7-685-646-11	SCREW +BVTP 3X8 TYPE2 N-S
33	7-685-870-01	SCREW +BVTT 3X5 (S)
34	7-685-871-01	SCREW +BVTT 3X6 (S)
35	9-911-825-42	STRING, 0.5MM WHITE
36	A-4322-335-A	PANEL ASSY
37	X-3701-069-0	FOOT ASSY, M.F
38	X-4864-705-0	PULLEY ASSY
39	X-4875-108-0	KNOB ASSY, POWER
40	X-4875-113-2	KNOB (DIA. 24) (A) ASSY, R
41	X-4875-803-0	KNOB (MUTING) ASSY, P
42	X-4875-804-0	POINTER ASSY
43	▲;X-4875-805-0	WHEEL ASSY, TUNING
44	7-682-547-04	SCREW +B 3X6
45	3-701-690-00	(UK)...LABEL (MADE IN JAPAN)

GENERAL SECTION

No.	Part No.	Description
46	7-685-751-00	SCREW +PTT 3X6 (S)
47	7-685-870-09	SCREW +BVTT 3X5
48	4-875-837-00	PROTECTOR, LUG TERMINAL

ACCESSORY & PACKING MATERIAL

No.	Part No.	Description
101	1-501-184-00	ANTENNA, FEADER
102	1-551-734-11	CORD, CONNECTION (RK- 74A)
103	▲;1-551-967-00	(UK)...CORD, POWER
104	3-701-630-00	BAG, POLYETHYLENE
105	3-783-623-11	MANUAL, INSTRUCTION
106	3-795-195-11	(AEP)...INSTRUCTION, DUTCH/SWEDISH
107	4-875-040-00	SHEET, PROTECTION
108	4-875-452-00	CUSHION, TOP
109	4-875-453-00	CUSHION (LEFT), LOWER
110	4-875-454-00	CUSHION (RIGHT), LOWER
111	4-875-832-00	INDIVIDUAL CARTON

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	▲1-534-817-XX	(AEP)...CORD, POWER, EULO PLUG
501	▲1-551-963-00	(UK)...CORD, POWER
502	▲1-535-114-00	TERMINAL
503	▲1-535-116-00	TERMINAL
504	▲1-535-118-00	TERMINAL
505	▲1-535-149-11	WIRE (30.0MM)
506	1-536-392-XX	L-TYPE TERMINAL STRIP
507	1-536-663-00	TERMINAL BOARD (ANTENNA)
508	▲1-560-060-00	PIN, CONNECTOR 2P
509	▲1-605-176-00	PC BOARD, LAMP
510	▲1-605-177-00	PC BOARD, SIGNAL (A)
511	▲1-605-178-00	PC BOARD, SIGNAL (B)
512	▲1-605-450-00	PC BOARD, FUNCTION (A)
513	▲A-4351-246-A	MOUNTED PCB, MAIN
C321	1-102-880-00	CERAMIC 15PF 5% 50V
C324	1-102-731-00	CERAMIC 62PF 5% 50V
C402	▲1-123-508-00	ELECT 1000MF 20% 35V
C403	▲1-106-212-00	MYLAR 0.047MF 5% 100V
C404	▲1-106-212-00	MYLAR 0.047MF 5% 100V
C501	▲1-161-744-00	CERAMIC 10000PF 400V
CF101	1-527-534-XX	FILTER, SOLID STATE
CF301	1-527-599-00	FILTER, MECHANICAL
CNJ501	1-507-699-00	JACK, PIN 2P
CT301	1-141-179-12	CAP, TRIMMER
CT302	1-141-179-12	CAP, TRIMMER
CT303	1-141-171-00	CAP, TRIMMER
CT304	1-141-171-00	CAP, TRIMMER
D101	8-719-925-26	DIODE (LED BLOCK) SLP-252B
D102	8-719-422-21	DIODE 1T22AM
D103	8-719-922-41	DIODE SLP241B
D201	8-719-900-41	DIODE SLP141B
D202	8-719-815-55	DIODE 1S1555
D205	8-719-815-55	DIODE 1S1555
D206	8-719-815-55	DIODE 1S1555
D207	8-719-815-55	DIODE 1S1555
D208	8-719-815-55	DIODE 1S1555
D301	8-719-815-55	DIODE 1S1555
D302	8-719-815-55	DIODE 1S1555
D303	8-719-815-55	DIODE 1S1555
D401	8-719-931-15	DIODE EQR01-15
D402	▲8-719-200-02	DIODE 10E2
D403	▲8-719-200-02	DIODE 10E2
FE101	1-463-361-00	FRONT END
IC101	8-759-812-35	IC LA1235
IC102	8-759-904-89	IC TL489CP
IC201	8-759-833-90	IC LA3390
IC301	8-759-812-45	IC LA1245

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 (▲-▲▲▲-▲▲-XX or ▲-▲▲▲-▲▲-X) may be different from those used in the set.

CAPACITORS:

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

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

ELECTRICAL PARTS

Ref.No.	Part No.	Description
L301	1-407-173-XX	MICRO INDUCTOR 220UH
L302	1-405-953-00	COIL (OSC)
L303	1-405-954-00	COIL (OSC)
L501	1-401-913-00	ANTENNA, FERRITE-ROD (LW/MW)
PL101	1-518-466-00	LAMP, PILOT
PT501	▲1-447-006-00	TRANSFORMER, POWER
Q101	8-729-883-92	TRANSISTOR 2SC2839
Q102	8-729-663-47	TRANSISTOR 2SC1364
Q103	8-729-663-47	TRANSISTOR 2SC1364
Q104	8-729-663-47	TRANSISTOR 2SC1364
Q201	8-729-663-47	TRANSISTOR 2SC1364
Q202	8-729-663-47	TRANSISTOR 2SC1364
Q203	8-729-663-47	TRANSISTOR 2SC1364
Q204	8-729-201-52	TRANSISTOR 2SA1015
Q401	8-729-288-02	TRANSISTOR 2SD880
R105	▲1-247-109-00	CARBON 120 5% 1/4W F
R114	▲1-247-109-00	CARBON 120 5% 1/4W F
R126	▲1-247-083-00	CARBON 10 5% 1/4W F
R201	▲1-247-109-00	CARBON 120 5% 1/4W F
R302	▲1-247-115-00	CARBON 220 5% 1/4W F
R308	▲1-247-109-00	CARBON 120 5% 1/4W F
R401	▲1-247-125-00	CARBON 560 5% 1/4W F
RT101	1-226-237-00	RES, ADJ, CARBON 20K
RT201	1-226-237-00	RES, ADJ, CARBON 20K
RT202	1-226-236-00	RES, ADJ, CARBON 10K
S1	1-553-764-00	SWITCH, SLIDE (1 KEY)
S2	1-553-763-00	SWITCH, SLIDE (REMOTE TYPE)
S501	▲1-553-447-00	SWITCH, PUSH (AC POWER)
T101	1-404-170-00	TRANSFORMER, IFT
T301	1-409-348-00	COIL, MECHANICAL FILTER

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

COILS

- MMH : mH, UH : μ H

ELECTROLYTIC CAPACITORS

RATING → : Use the high voltage rated one.						
CAP. (μF)	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

RATING							
CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (μF)	50 VOLT.
	PART No.		PART No.		PART No.		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

RATING → : Use the high voltage rated one.					
CAP. (μF)	25 VOLT.	50 VOLT.	CAP. (μF)	25 VOLT.	50 VOLT.
	PART No.	PART No.		PART No.	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			

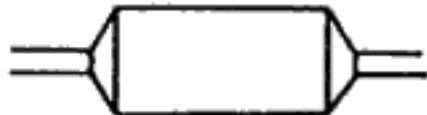
MYLAR CAPACITORS

RATING											
CAP. (μF)	50 VOLT.	100 VOLT.	200 VOLT.	CAP. (μF)	50 VOLT.	100 VOLT.	200 VOLT.	CAP. (μF)	50 VOLT.	100 VOLT.	200 VOLT.
	PART No.	PART No.	PART No.		PART No.	PART No.	PART No.		PART No.	PART No.	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	1-108-230-00	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

RATING → : Use the high voltage rated one.							
CAP. (μF)	3.15 VOLT.	6.3 VOLT.	10 VOLT.	16 VOLT.	20 VOLT.	25 VOLT.	35 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.	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

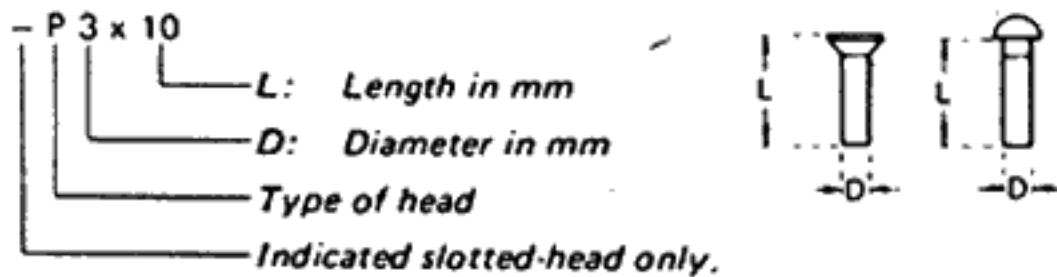
RATING						
CAP. (μF)	3 VOLT.	6.3 VOLT.	10 VOLT.	16 VOLT.	20 VOLT.	35 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.033						1-131-273-00
0.047						1-131-274-00
0.068						1-131-275-00
0.1						1-131-276-00
0.15						1-131-277-00
0.22			—	—	1-131-262-00	1-131-278-00
0.33			—	—	1-131-263-00	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		

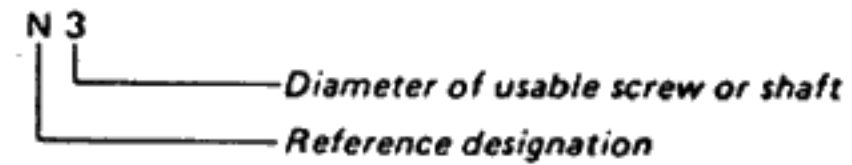
HARDWARE NOMENCLATURE

Screw:



Unless otherwise indicated, it means cross-recessed head (Phillips type).

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		brazer-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	