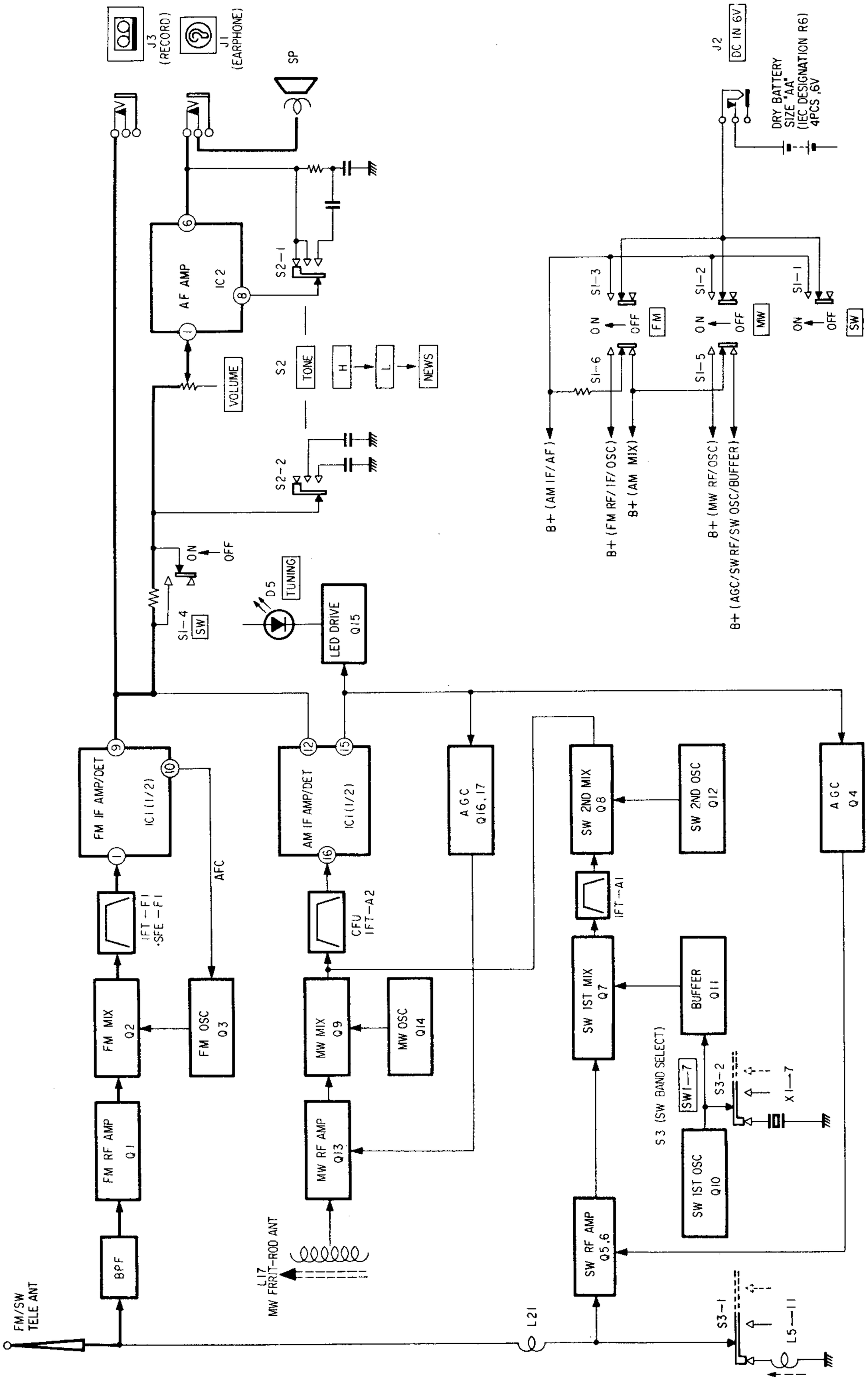
SECTION 1
BLOCK DIAGRAM

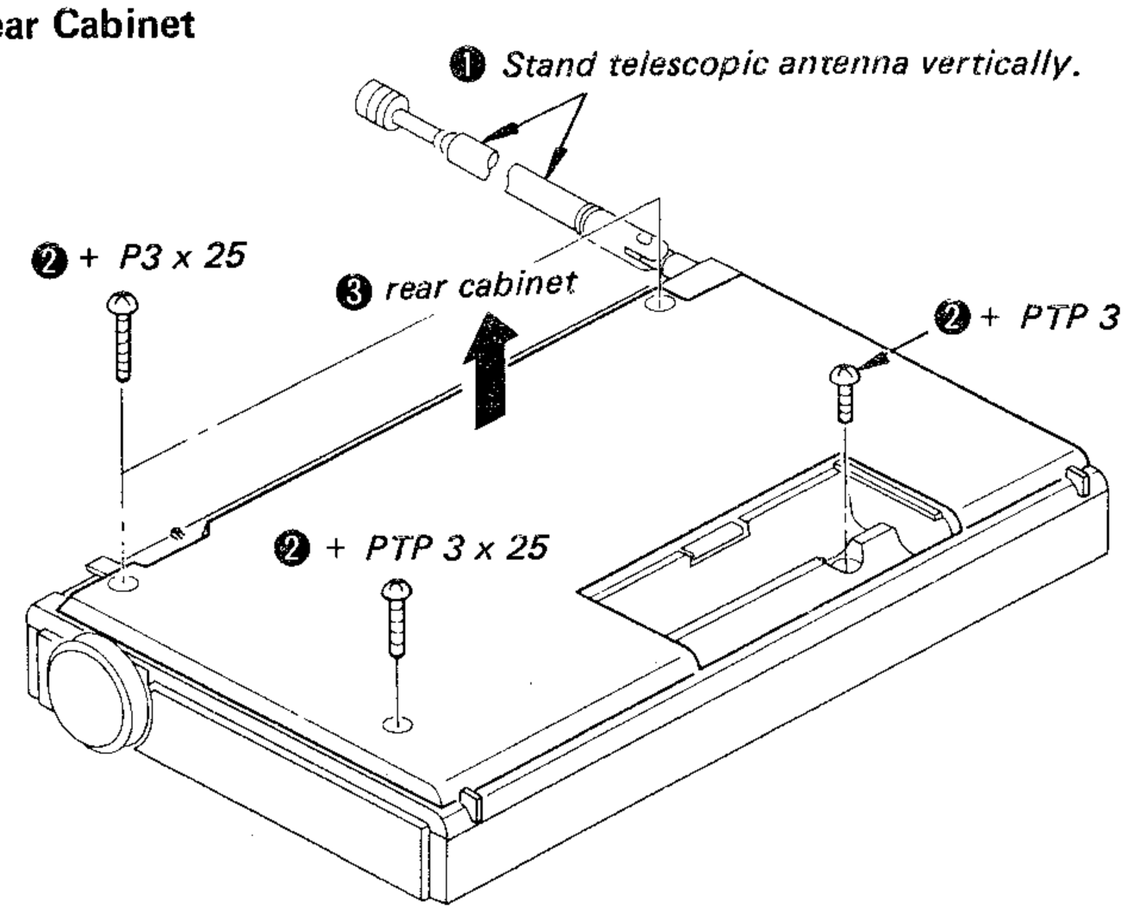


SECTION 2
DISASSEMBLY

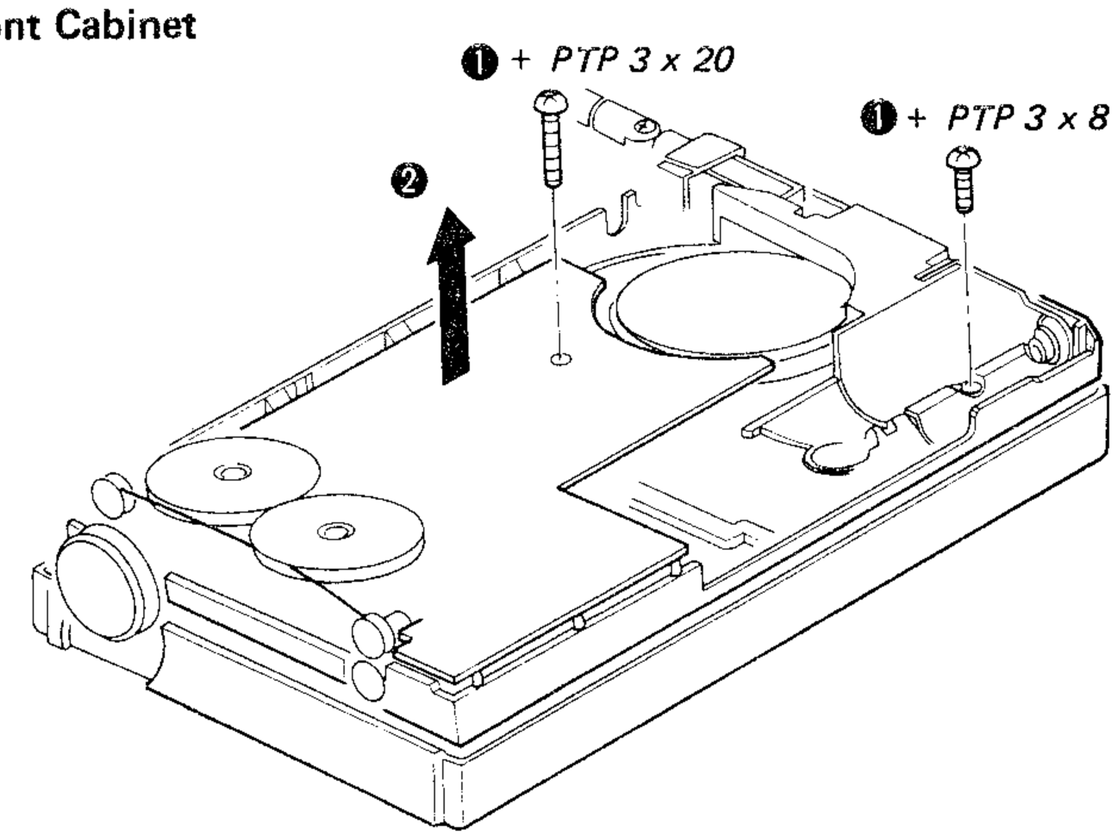
2-1. REMOVAL

- Follow the disassembly procedure in the numerical order given.

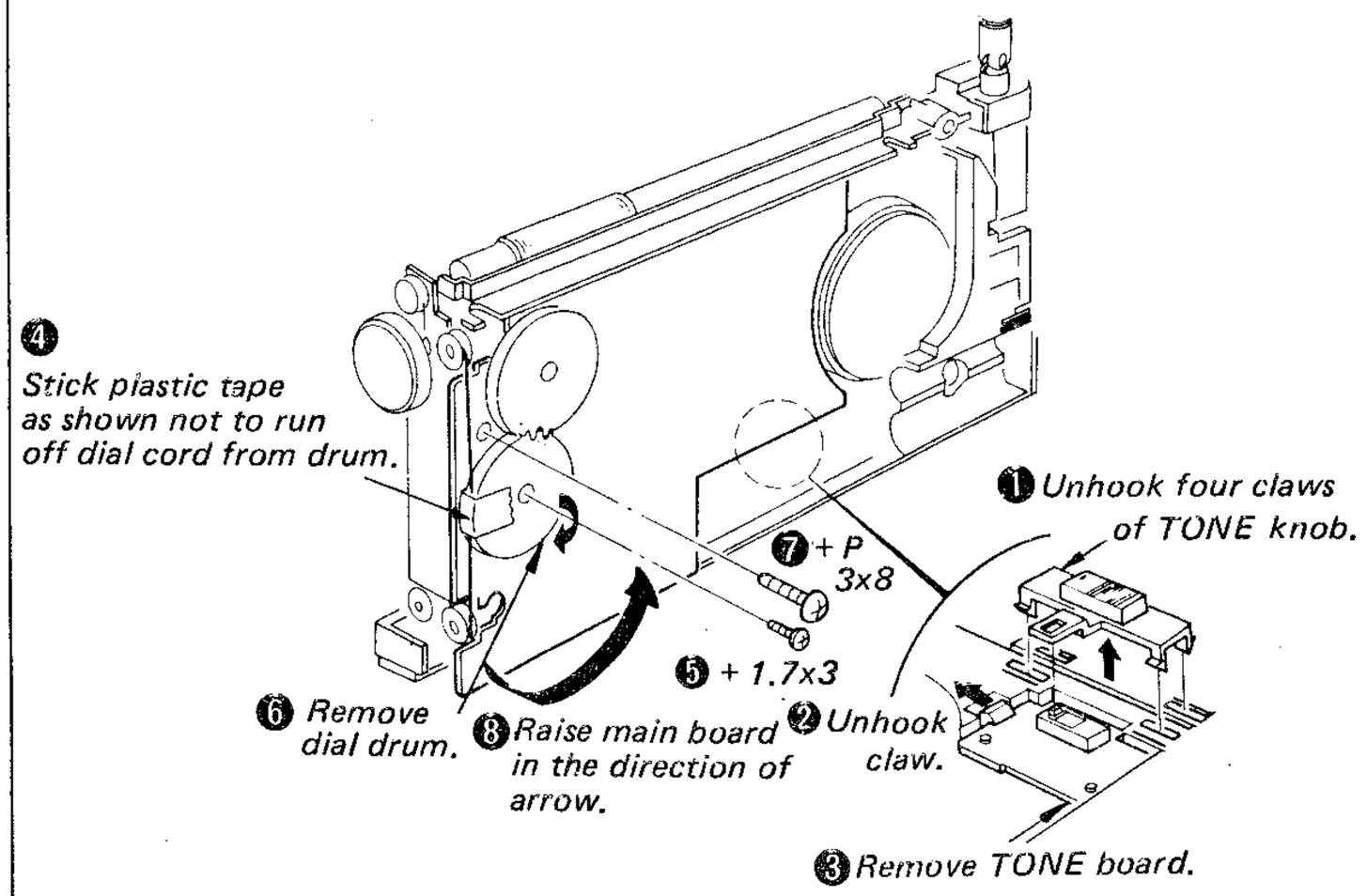
Rear Cabinet



Front Cabinet



Main Board

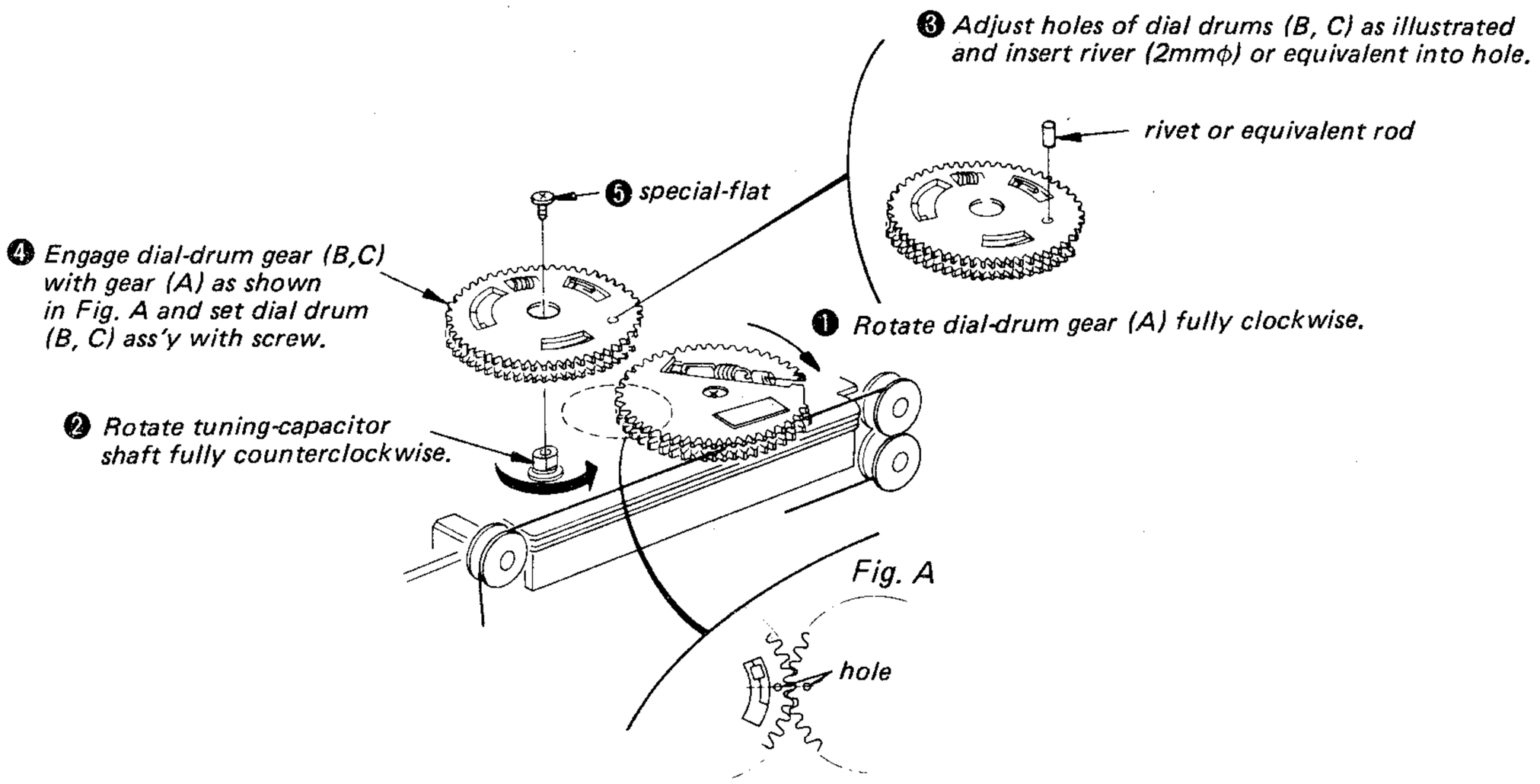


Dial-drum Gear (B, C) Ass'y Installation
See page 5.

Dial cord Stringing
See page 6.

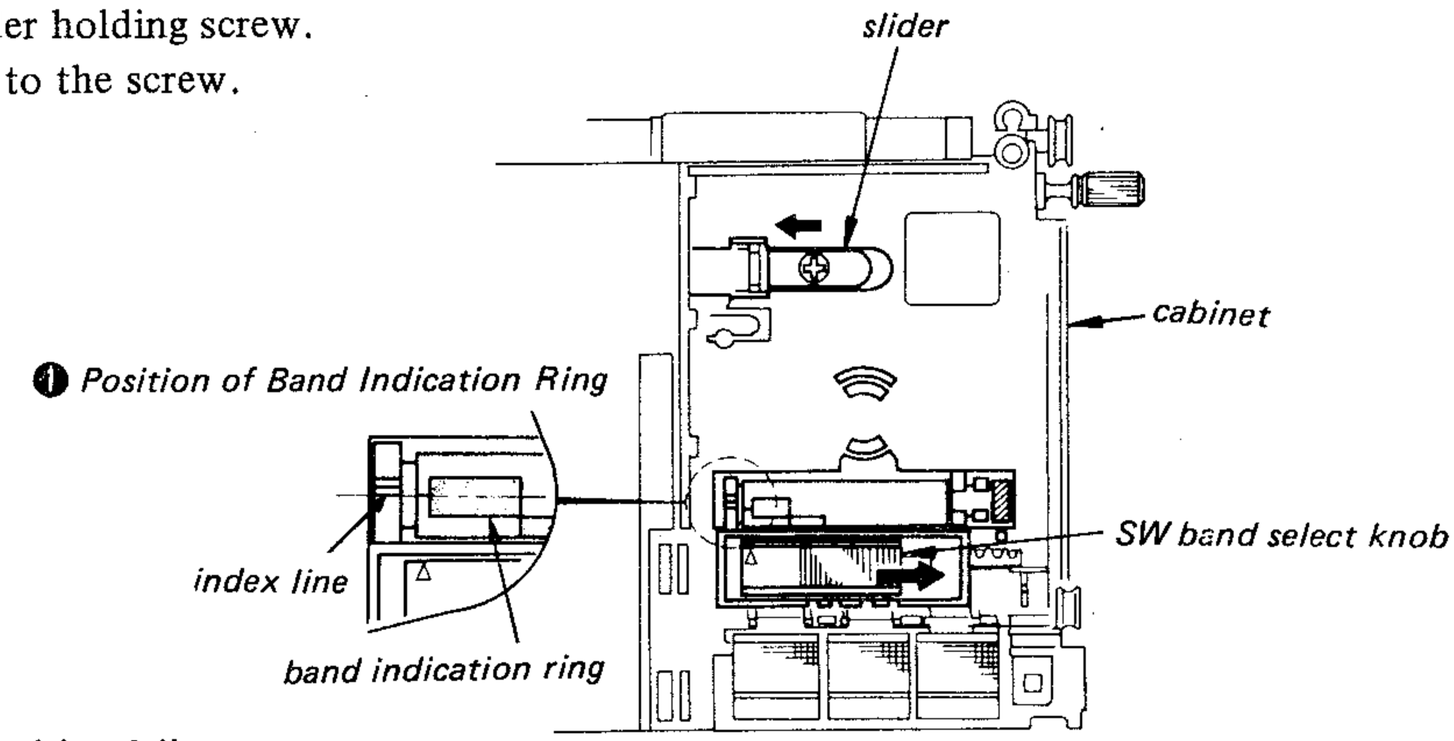
Slider Adjustment
See page 5.

2-2. Dial-drum Gear (B, C) Ass'y Installation



2-3. Slider Adjustment

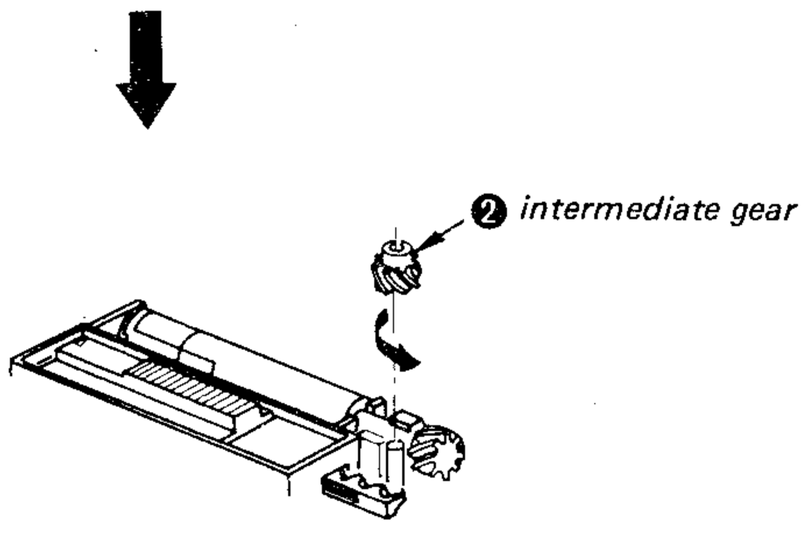
Push SW band select knob and slider fully in the direction of arrow and fix slider holding screw.
Apply lock paint to the screw.



Band Indication Ring Position Adjustment

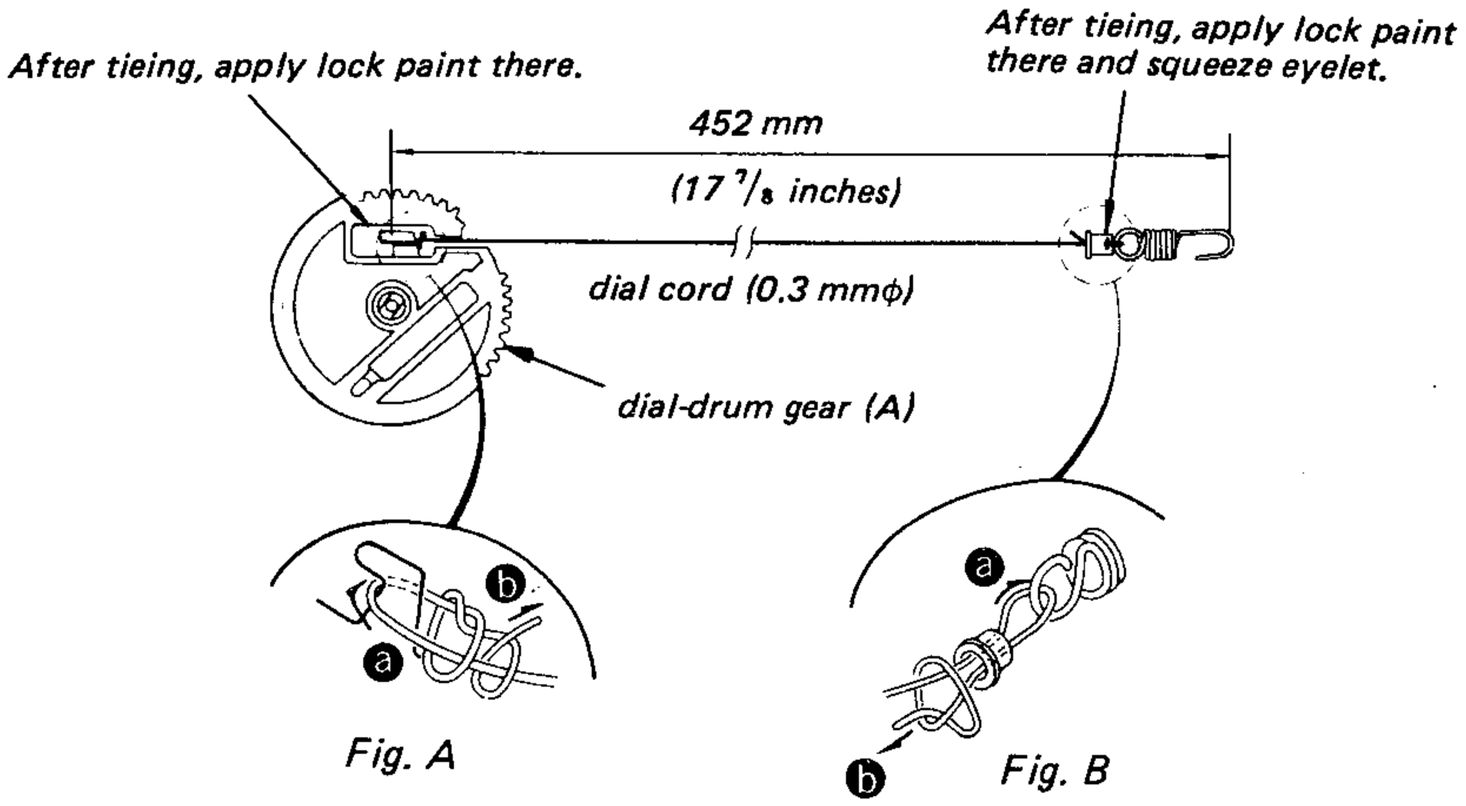
1 *Push SW band select knob fully in the opposite direction as in the above procedure 1. Adjust position of band in dication ring.*

2 *Set intermediate gear while rotating it in the direction of arrow.*



2-4. DIAL CORD STRINGING

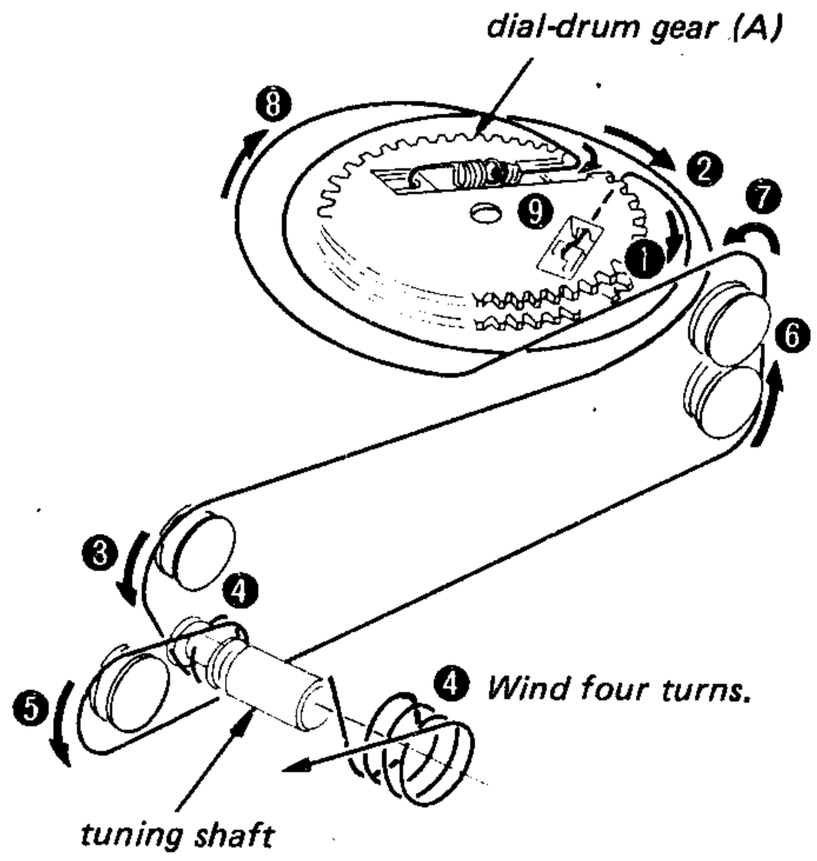
1. Preparation



Tie cord in the orders a, b as shown in Fig. A and B

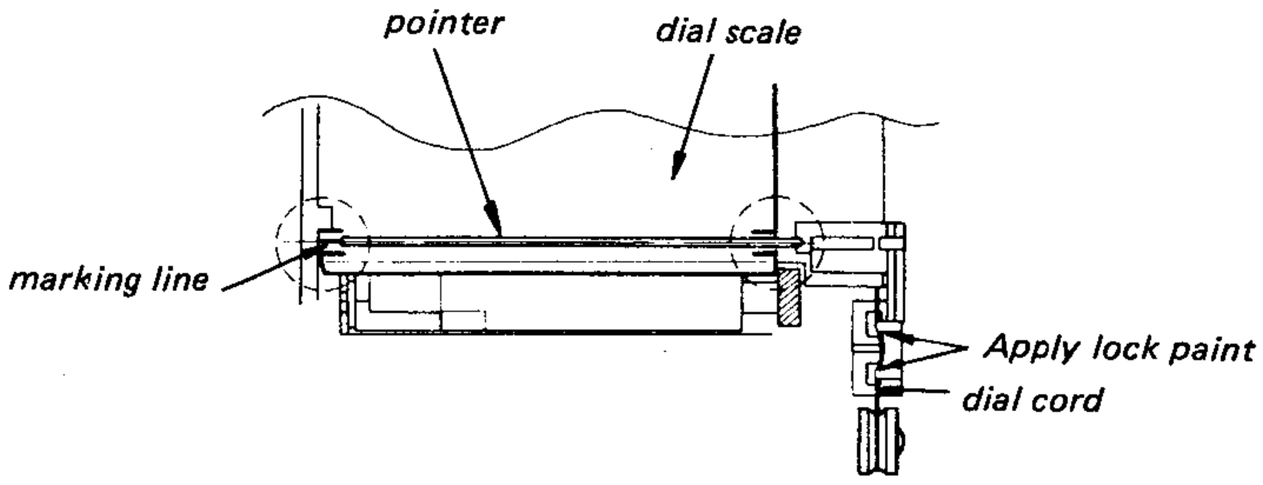
2. Stringing

Turn dial-drum gear (A) fully clockwise and string dial cord in the numerical order given (❶ – ❾)



3. Pointer Setting

Slide pointer to lowest position of dial scale and aline pointer with marking line.



SECTION 3
ADJUSTMENTS

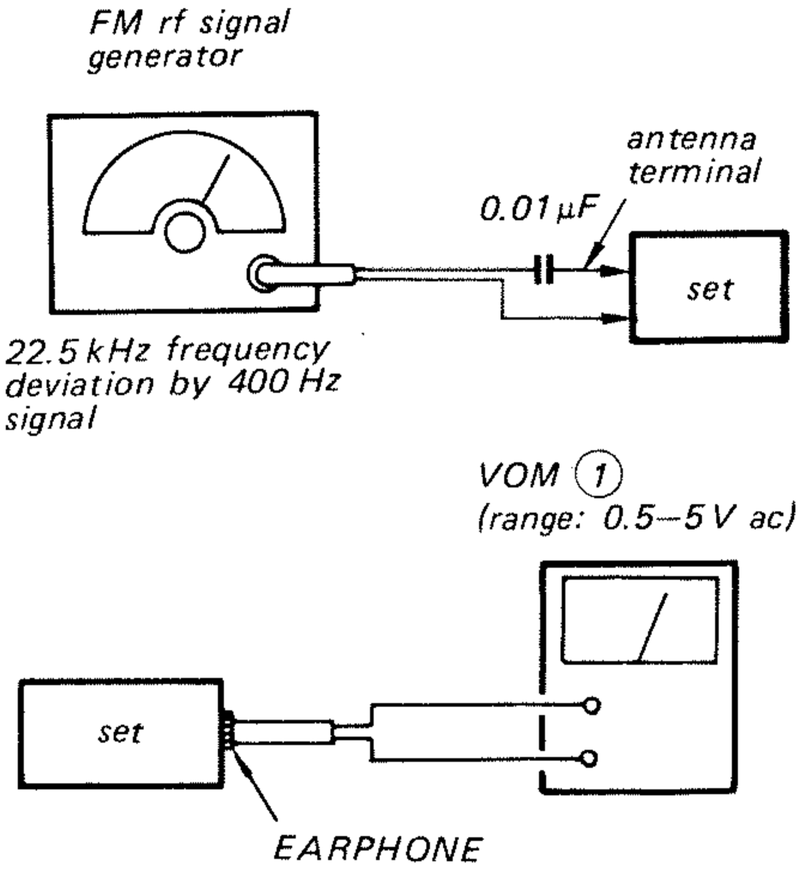
Note: FM and MW IF alignments should be made by removing main board.

FM, MW IF ALIGNMENT

Setting:

VOLUME . . . . MAX

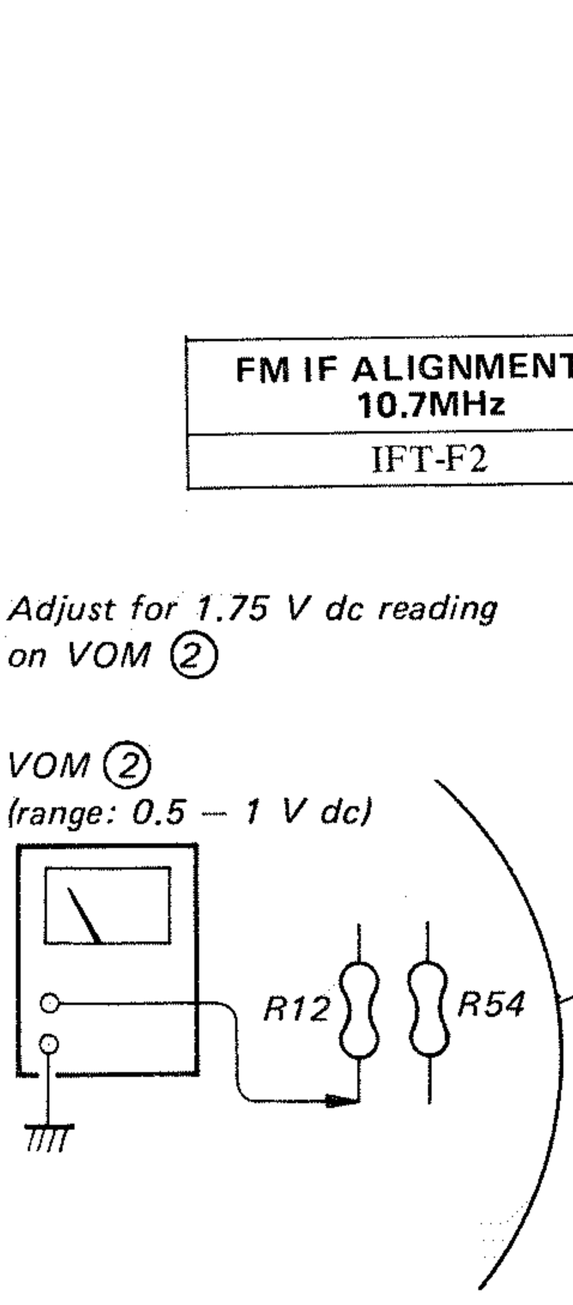
- Adjust for a maximum reading on VOM ①.
- Repeat the procedures in each adjustment several times,

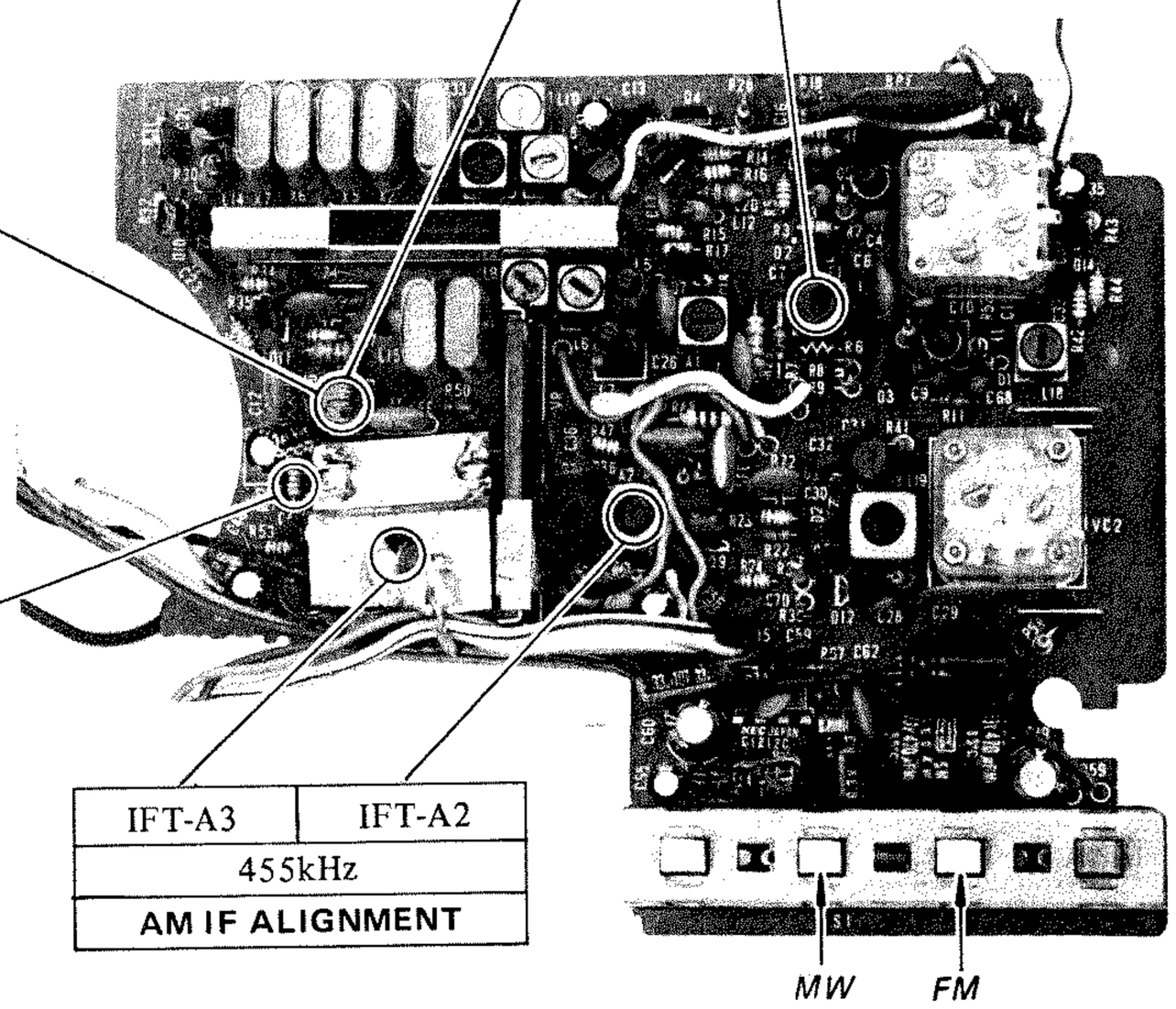


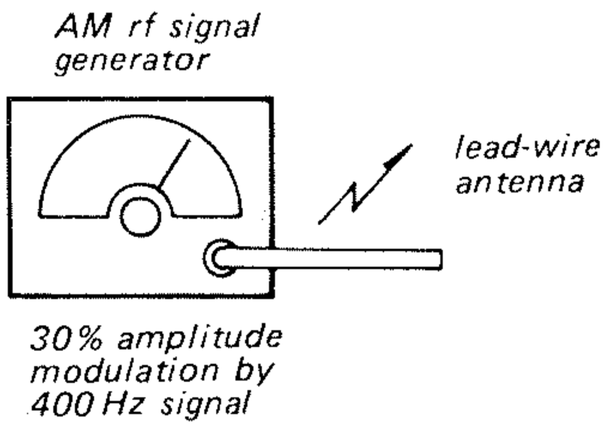
FM IF ALIGNMENT ①	
10.7MHz	
IFT-F2	IFT-F1

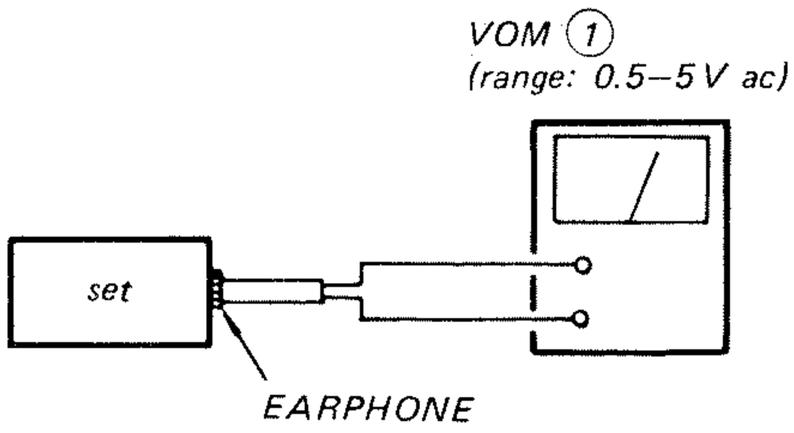
FM IF ALIGNMENT ②
10.7MHz
IFT-F2

Adjust for 1.75 V dc reading on VOM ②





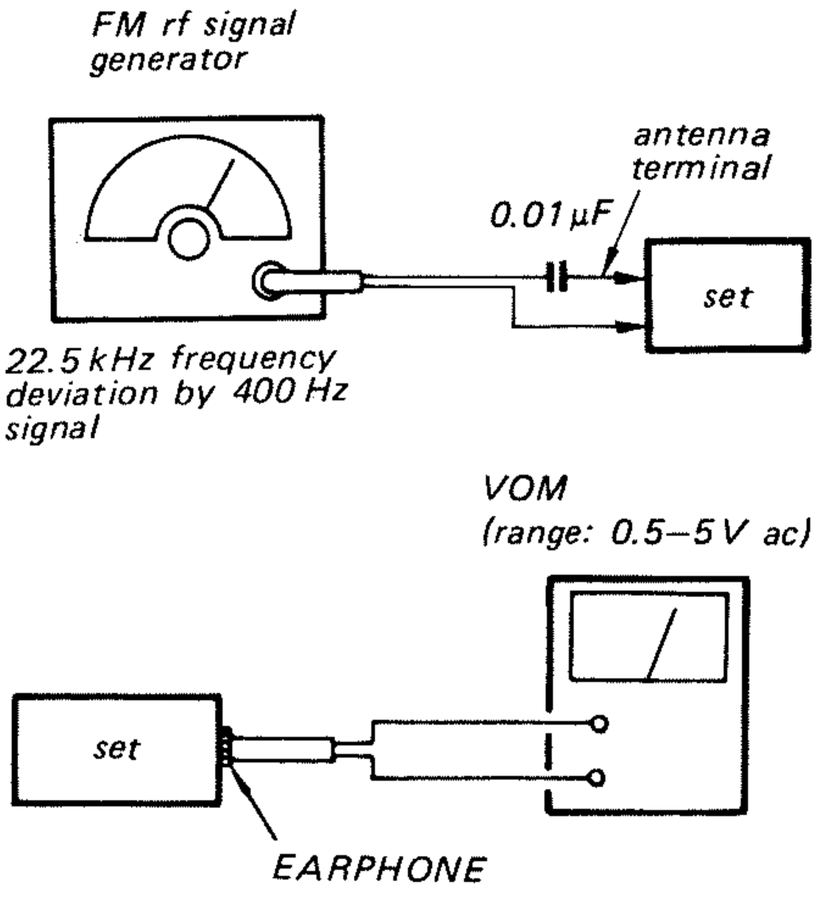


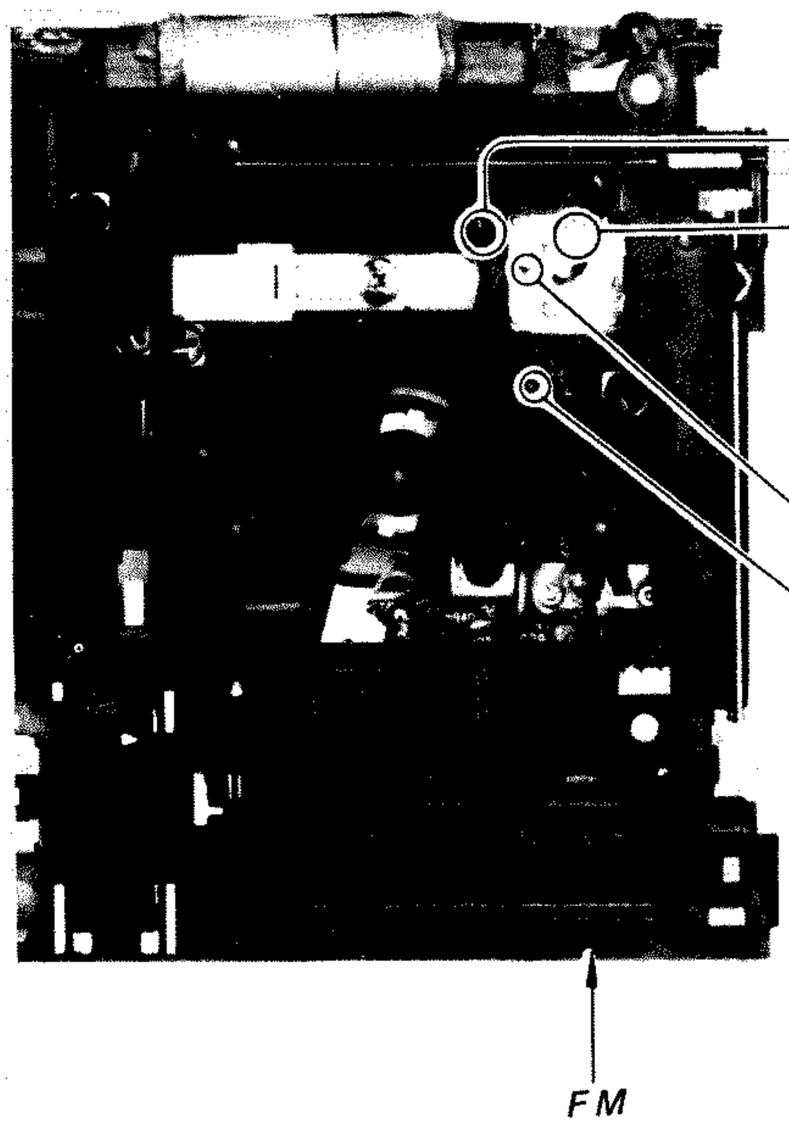


FM SECTION

- **Setting**
  BAND . . . . . FM
  VOLUME . . . . MAX

- Adjust for a maximum reading on VOM.
- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.





FM TRACKING ADJUSTMENT		
	E model	AEP model
L1	87.1 MHz	87.35 MHz
CT1–2	108.5 MHz	107.8 MHz

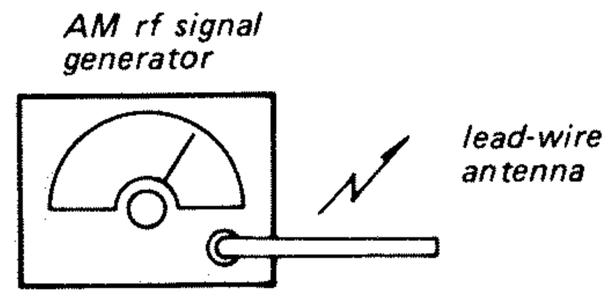
FM FREQUENCY COVERAGE ADJUSTMENT		
	E model	AEP model
CT1–1	108.5 MHz	107.8 MHz
L4	87.1 MHz	87.35 MHz

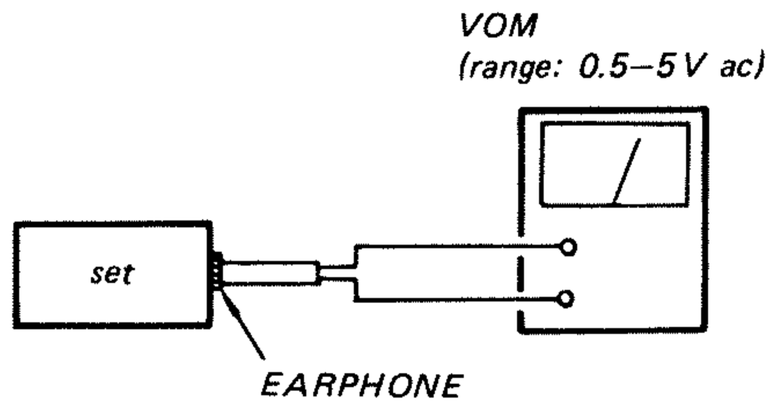
MW SECTION

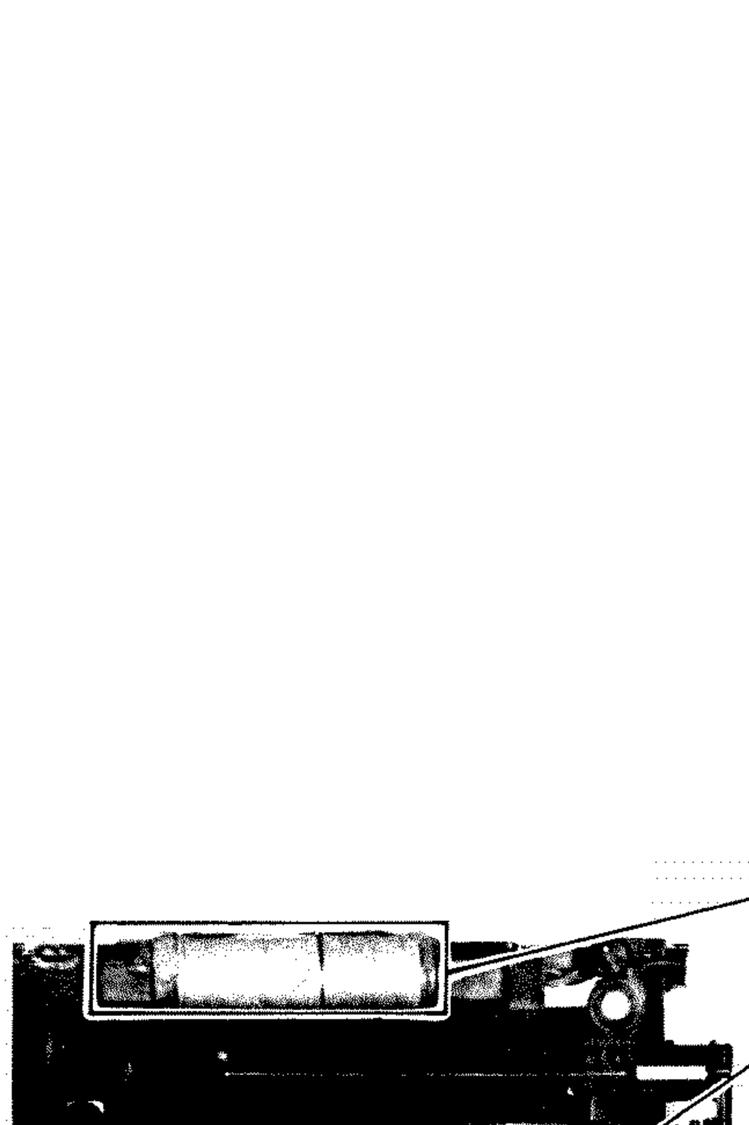
Setting

BAND . . . . . MW
VOLUME . . . MAX

- Adjust for a maximum reading on VOM.
- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.







MW TRACKING ADJUSTMENT	
L17	620kHz
CT1–3	1,400kHz

CT1–4	1,650kHz
L18	520kHz
MW FREQUENCY COVERAGE ADJUSTMENT	

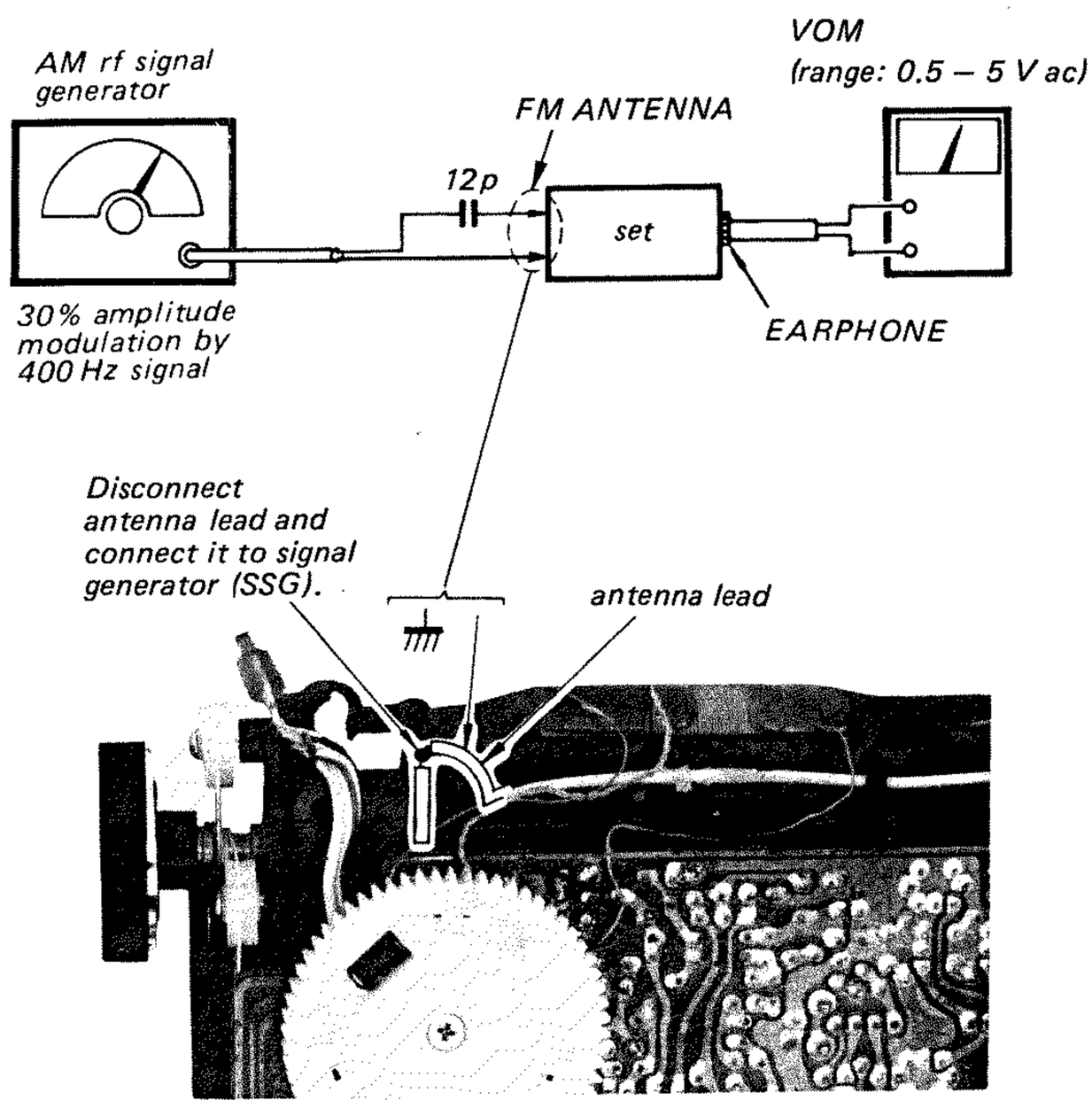
SW SECTION

Setting

BAND . . . . . SW
VOLUME . . . MAX

Note: Before making SW2–SW7 tracking adjustments set dial pointer to 6.075 MHz (SW1) on dial scale and change band select switch to SW2–SW7.

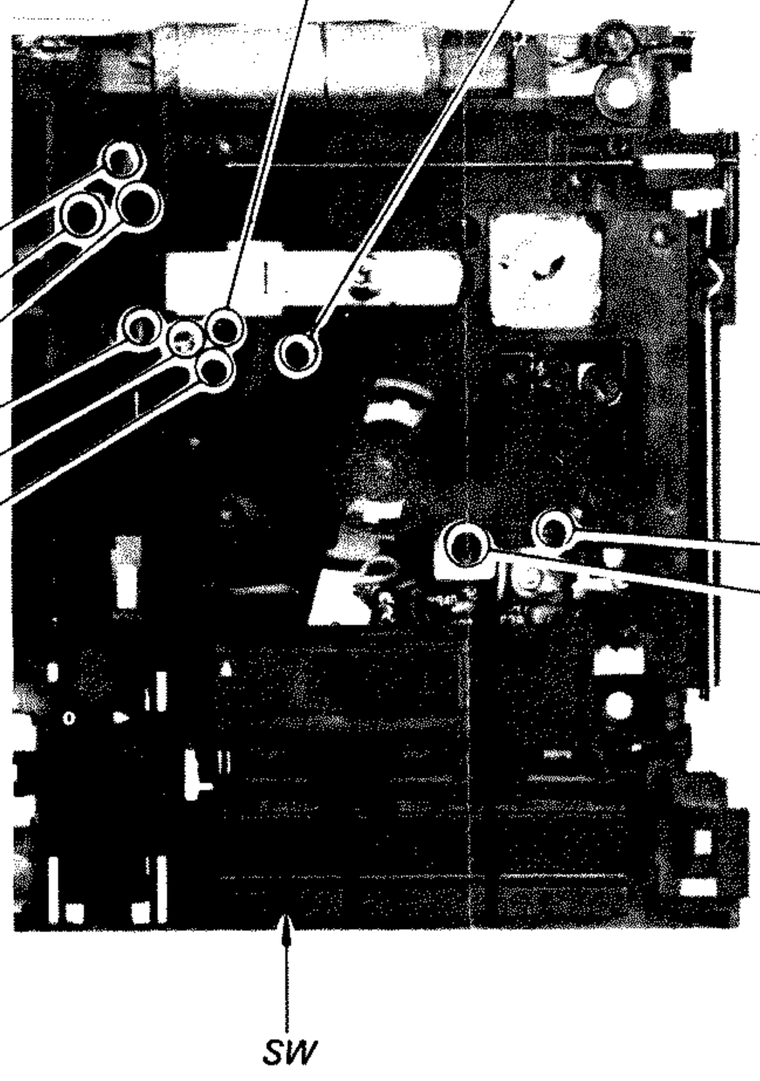
- Adjust for a maximum reading on VOM.
- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.



SW1 TRACKING ADJUSTMENT, IF ALIGNMENT	
6.075MHz	
L5	IFT-A1

SW2–7 TRACKING ADJUSTMENT		
SW6	17.8MHz	L10
SW7	21.6MHz	L11
SW4	11.8375MHz	L8
SW5	15.275MHz	L9
SW2	7.2MHz	L6
SW3	9.655MHz	L7

FREQUENCY COVERAGE ADJUSTMENT	
CT-2	10.47MHz
L19	10.02MHz

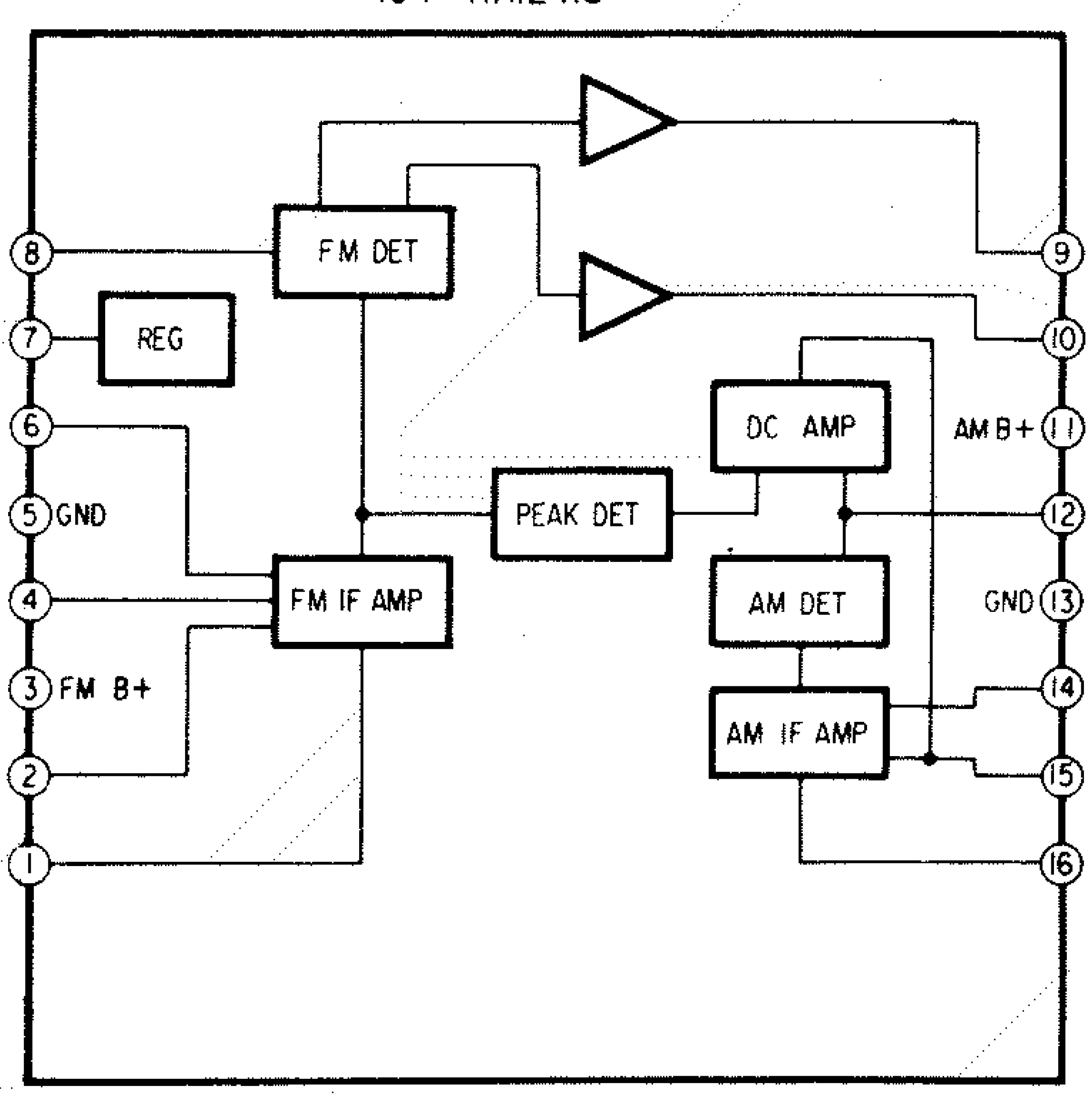


SECTION 4
DIAGRAMS

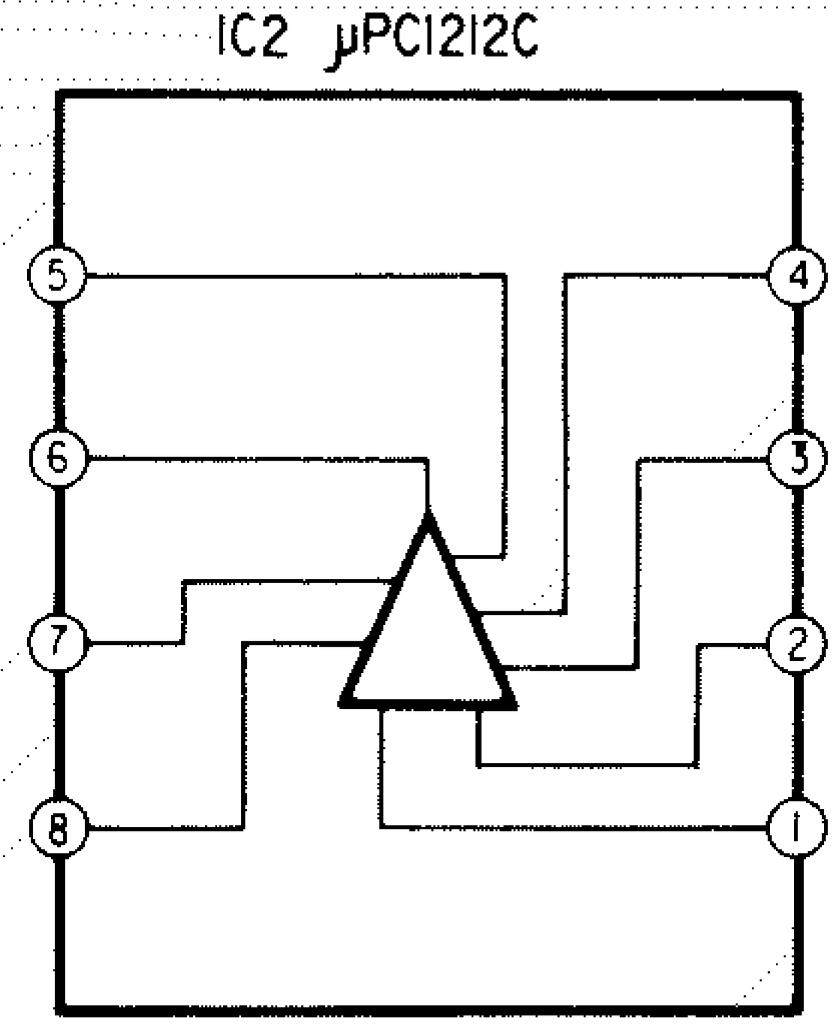
A	B	C	D

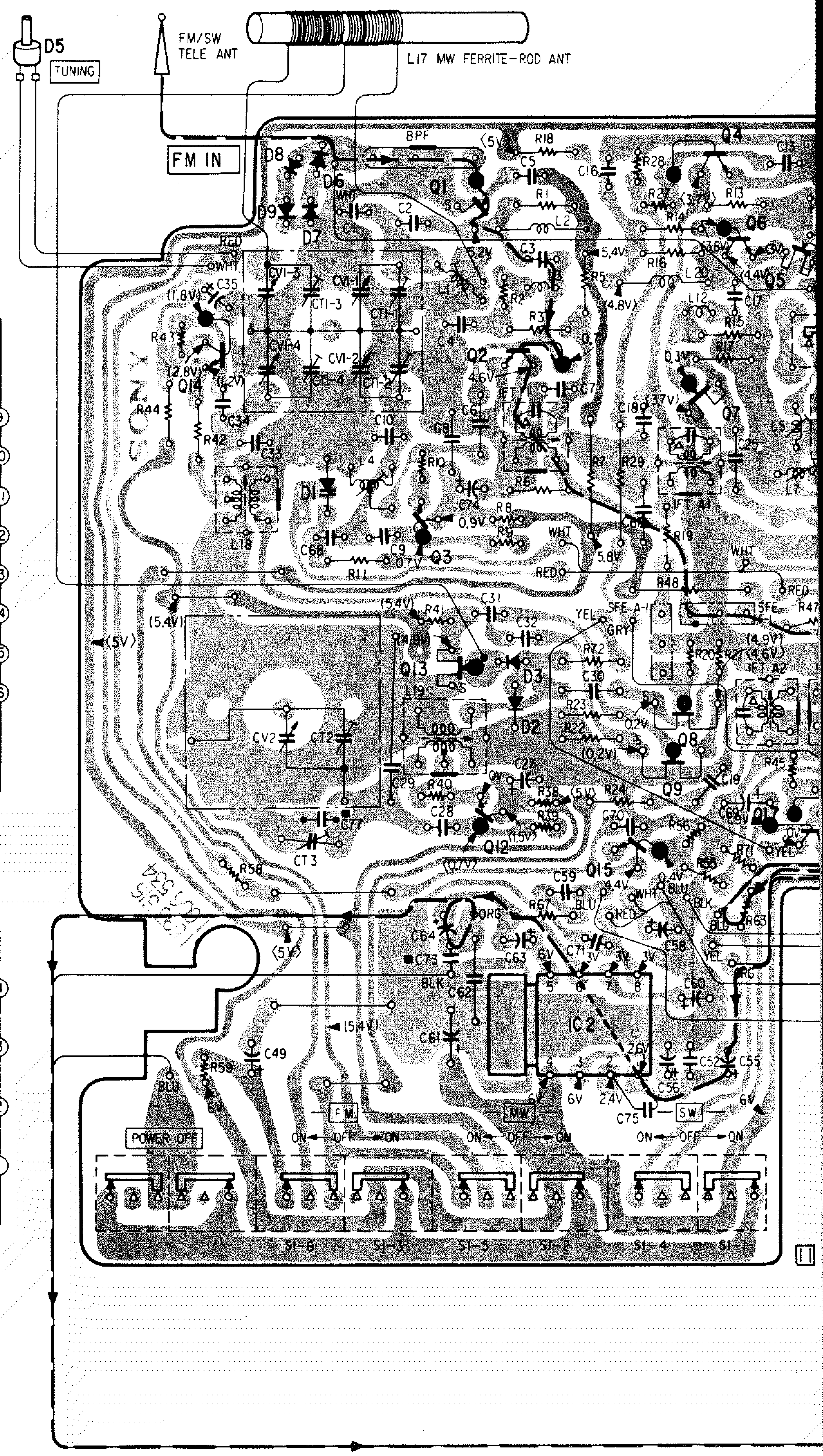
4-1. MOUNTING DIAGRAM
– Conductor Side –

IC1 HA12413



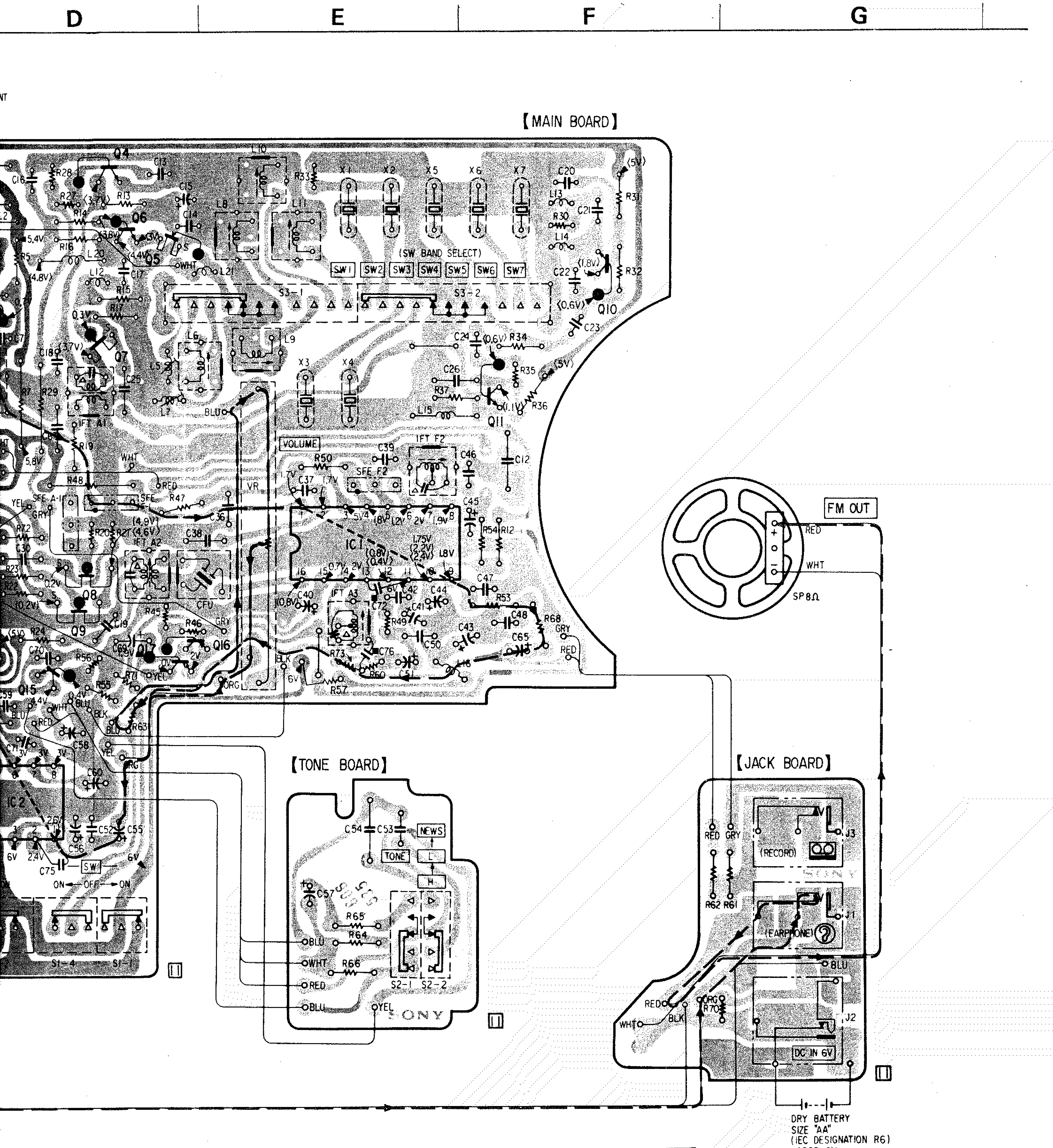
IC2 μPC1212C





- ○— : parts extracted from the component side.
- ●— : parts extracted from the conductor side.
- ■ : part mounted on the conductor side.
- [ ]← : indicates side identified with part number.
- ░ : B + pattern
- ▬▶▬ : signal path

IC·Q		14				3	13	1 12	2	IC2	15	8 9	4 7	6	5
D	5		8 9	6 7	1				3 2						



IC2	15	8 9	4 7	6	5	16 17	IC1	11	10	IC · Q
										D

4-2. SCHEMATIC DIAGRAM

E F G H

HAI2413-03
F AMP / DET

IC2 μPC1212C
POWER AMP

【JACK BOARD(1/2)】

【TONE BOARD】

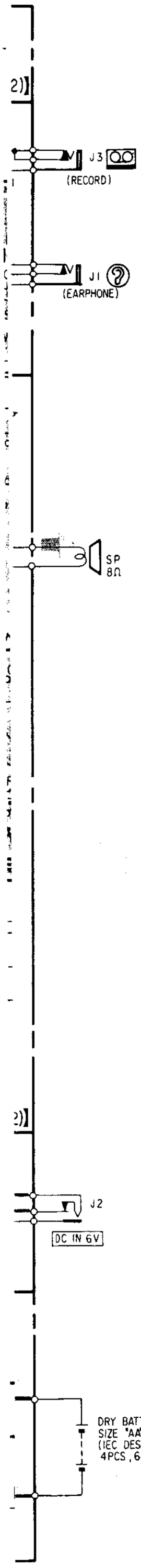
Q15 2SC2785
LED DRIVE

Q9 2SK184
MW MIX

D2,3 1S1555 Q13 2SK107-2
MW RF AMP

Q14 2SC2839
MW OSC

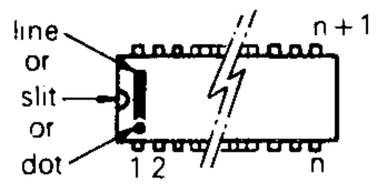
	E model	AEP model
C57	10μF/16V	4.7μF/10V
R65	39Ω	56Ω
R66	82Ω	120Ω



Replacement Semiconductors

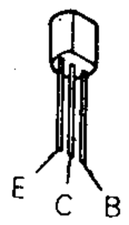
For replacement, use semiconductors except in ( ).

HA12413-03

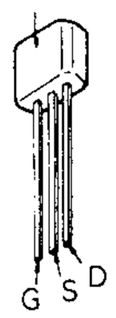


(Top view)

2SC1674
(2SC2786-L)



2SK193
letter side

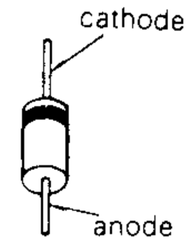


μPC1212C

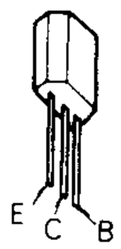
(Top view)

2SC2785

1S1555
1S2139C
(SD115)

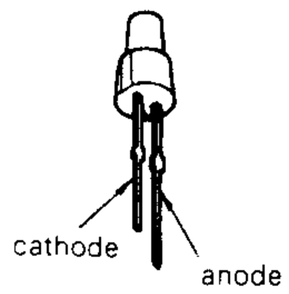


2SA1027R

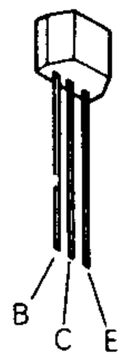


2SK107-2

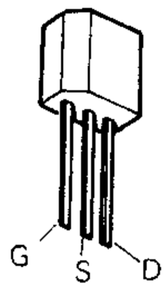
SLP144B



2SC668-SP
(2SC2840-E)
2SC2839



2SK184
2SK192



Note: Voltage are measured with a VOM (50kΩ/V)

- 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, 1/8 W unless othersise noted. kΩ : 1000Ω, MΩ : 1000 kΩ
- ▭ : panel designation.
- ——— : **B+ bus.**
- **Readings are taken under no-signal conditions.**

  ( ) : MW
  < > : SW
  no mark : FM

- Switch

Ref. No.	Switch	Position
S1	POWER (BAND)	OFF
S2	TONE	H
S3	SW BAND SELECT	SW1

- ▒▒ : signal path

SECTION 5
EXPLODED VIEW AND PARTS LIST

5-1.

5-2.

505
506
37
8
3
36
58
8
47
60
34
43
35
54
40
8
12
52
1
24
504
25
62
48
44
4
26
32
38
14
17
32
29
23
51
32
33
3
27
14
503
18
32
19
22
28
39
16
41
15
20

GENERAL SECTION

No.	Part No.	Description
1	3-140-063-00	SPRING, COMPRESSION
2	♦;3-423-147-00	SPACER (DIA.6)
3	3-837-654-00	SPRING, COMPRESSION
4	3-701-438-00	WASHER
5	3-880-917-00	STOPPER
6	.....	
7	.....	
8	3-880-990-00	SCREW (1.7X3), FLAT, (+) SPECIAL
9	3-881-931-00	CUSHION, SPEAKER
10	3-881-938-00	STRAP, HAND
11	3-883-404-00	LID, BATTERY CASE
12	3-883-411-00	SLIDER (ROD ANTENNA)
13	3-883-423-00	SPRING
14	3-883-489-00	RIVET, SMALL ROUND
15	3-883-493-00	BUTTON, PIANO KEY
16	3-883-494-00	KBON, BAND SELECTION, SWITCH
17	3-883-495-00	KNOB, CONTROL
18	3-883-496-00	KNOB, TONE
19	3-883-497-00	DRUM, INDICATE
20	3-883-498-00	BUTTON, OFF
21	3-883-499-00	SCALE, DIAL
22	3-890-103-00	GEAR, MIDWAY
23	3-890-104-00	RACK, HELICAL
24	3-890-105-00	LEVER, BAND SELECTION
25	3-890-106-00	SLIDER, BAND SELECTION
26	3-890-107-00	PLATE, ADJUSTMENT
27	♦;3-890-108-00	PLATE, CLICK
28	3-890-109-00	SPRING
29	3-890-110-00	SHAFT, TUNING
30	3-890-112-00	WIRE, TERMINAL, PLUS
31	3-890-113-00	WIRE, TERMINAL, MINUS
32	3-890-114-00	PULLEY
33	3-890-116-00	RING, INDICATOR
34	3-890-119-00	SPRING
35	3-890-121-00	GEAR (A), DIAL DRUM
36	3-890-122-00	GEAR (B), DIAL DRUM
37	3-890-123-00	GEAR (C), DIAL DRUM
38	3-890-128-00	COVER, ADJUSTMENT HOLE
39	3-890-129-00	RETAINER, KNOB
40	♦;3-890-132-00	PLATE (B), SHIELD
41	3-890-148-00	WASHER
42	.....	
43	♦;3-890-144-00	PLATE (D), SHIELD
44	7-621-775-15	SCREW +B 2.6X4
45	7-623-308-07	LW 3, TYPE (A)

GENERAL SECTION

No.	Part No.	Description
46	7-685-151-11	SCREW +P 3X20 TYPE 2
47	7-623-605-00	EYELET, 1.3X2.5
48	7-624-104-04	STOP RING 2.0, TYPE -E
49	7-685-152-19	SCREW +P 3X25 TYPE 2
50	7-627-551-28	SCREW, PRECISION +P 1.4X2.5
51	7-671-113-01	STEAL, BALL 3
52	7-671-115-01	BALL, STEEL
53	7-682-548-09	SCREW +B 3X8
54	7-685-146-11	SCREW +P 3X8 TYPE2 NON-SLIT
55	7-685-147-19	SCREW +P 3X10 TYPE2 NON-SLIT
56	9-911-815-01	CUSHION
57	9-911-816-01	CLOTH, BATTERY DRAWING
58	9-911-825-52	STRING, DIAL
59	X-3883-416-0	POINTER ASSY
60	♦;X-3883-421-0	PLATE (C) ASSY, SHIELD
61	X-3883-406-1	KNOB ASSY, TUNING
62	X-3883-417-1	SHASSIS ASSY
63	X-3883-427-1	(E).....CABINET ASSY, MAIN
64	X-3883-426-1	(E).....CABINET ASSY, REAR
65	X-3883-430-1	(AEP)...CABINET ASSY, MAIN
66	X-3883-429-1	(AEP)...CABINET ASSY, REAR
67	9-911-853-XX	CUSHION

ACCESSORY & PACKING MATERIAL

No.	Part No.	Description
81	1-504-059-11	MAGNETIC EARPHONE (ME-20H)
82	3-701-363-00	LABEL, TACK
83	3-703-264-11	(E)....LABEL (B), SERIAL NUMBER
84	3-883-469-00	BAG, PROTECTION
85	3-890-124-00	BAG, CARRYING
86	3-701-622-00	BAG, POLYETHYLENE
87	3-890-137-00	CUSHION, SPACER
88	.....	
89	X-3883-423-1	CARTON ASSY
90	3-890-140-00	CUSHION
91	3-995-915-01	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

COILS

- MMH : mH, UH : μH

SEMICONDUCTORS

In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC, UPD···: μPD···

ELECTRICAL PARTS

Ref.No.	Part No.	Description
501	1-501-255-00	ANTENNA, TELESCOPIC
502	.....	
503 ♦	1-606-535-00	PC BOARD, TONE
504 ♦	1-606-536-00	PC BOARD, JACK
505 ♦	A-3660-360-A	(E).....MOUNTED PCB, MAIN
506 ♦	A-3660-369-A	(AEP)...MOUNTED PCB, MAIN
BPF	1-235-053-00	FILTER, BANDPASS
CFU	1-527-290-00	FILTER, CERAMIC
CT1-4	1-151-400-00	CAP, TUNING, POLYETHYLENE
CT2	1-151-399-00	CAP, TUNING, POLYETHYLENE
CT3	1-141-204-00	CAP, TRIMMER 6-20PF
D1	8-719-713-93	DIODE 1S2139C
D2	8-719-815-55	DIODE 1S1555
D3	8-719-815-55	DIODE 1S1555
D5	8-719-901-44	DIODE SLP144B
D6	8-719-815-55	DIODE 1S1555
D7	8-719-815-55	DIODE 1S1555
D8	8-719-815-55	DIODE 1S1555
D9	8-719-815-55	DIODE 1S1555
IC1	8-759-324-13	IC HA12413-03
IC2	8-759-100-17	IC UPC1212C
IFT-A1	1-404-126-00	IFT (SMALL TYPE)
IFT-A2	1-404-337-00	TRANSFORMER, IF
IFT-A3	1-404-365-00	TRASNFORMER, IF
IFT-F1	1-404-126-00	IFT (SMALL TYPE)
IFT-F2	1-404-366-00	TRANSFORMER, IF
J1	1-507-578-00	JACK
J2	1-507-459-00	JACK
J3	1-507-578-00	JACK
L1	1-459-386-00	COIL (WITH CORE)
L2	1-408-552-00	MICRO INDUCTOR 1.2UH
L3	1-408-554-00	MICRO INDUCTOR 1.8UH
L4	1-459-393-00	COIL (WITH CORE)
L5	1-459-383-00	COIL (WITH CORE)
L6	1-401-951-00	COIL (ANT)
L7	1-459-384-00	COIL (WITH CORE)
L8	1-401-952-00	COIL (ANT)
L9	1-401-953-00	COIL (ANT)
L10	1-401-954-00	COIL (ANT)
L11	1-401-955-00	COIL (ANT)
L12	1-408-557-00	MICRO INDUCTOR 3.3UH

ELECTRICAL PARTS

Ref.No.	Part No.	Description
L13	1-408-551-00	MICRO INDUCTOR 1UH
L14	1-408-554-00	MICRO INDUCTOR 1.8UH
L15	1-408-555-00	MICRO INDUCTOR 2.2UH
L16	1-408-555-00	MICRO INDUCTOR 2.2UH
L17	1-401-700-21	ANTENNA, FERRITE-ROD (MW)
L18	1-405-987-00	COIL, OSC (MW)
L19	1-405-992-00	COIL, OSC
L20	1-408-571-00	MICRO INDUCTOR 47UH
L21	1-408-551-00	MICRO INDUCTOR 1UH
Q1	8-729-119-32	TRANSISTOR 2SK193
Q2	8-729-167-42	TRANSISTOR 2SC1674
Q3	8-729-883-92	TRANSISTOR 2SC2839
Q4	8-729-178-54	TRANSISTOR 2SC2785
Q5	8-729-219-21	TRANSISTOR 2SK192
Q6	8-729-883-92	TRANSISTOR 2SC2839
Q7	8-769-132-00	TRANSISTOR 2SK121-2
Q8	8-729-218-42	TRANSISTOR 2SK184
Q9	8-729-218-42	TRANSISTOR 2SK184
Q10	8-729-806-84	TRANSISTOR 2SC668-SP
Q11	8-729-883-92	TRANSISTOR 2SC2839
Q12	8-729-883-92	TRANSISTOR 2SC2839
Q13	8-769-200-20	TRANSISTOR 2SK107-2
Q14	8-729-883-92	TRANSISTOR 2SC2839
Q15	8-729-178-54	TRANSISTOR 2SC2785
Q16	8-729-612-77	TRANSISTOR 2SA1027R
Q17	8-729-612-77	TRANSISTOR 2SA1027R
R55	1-210-382-00	CARBON 39K 5% 1/16W
R60	1-204-122-00	CARBON 1K 5% 1/16W
R63	1-209-775-00	CARBON 5.6K 5% 1/16W
R73	1-209-878-00	CARBON 1.8K 5% 1/16W
S1	1-553-990-00	SWITCH, PUSH (4 KEY)
S2	1-553-989-00	SWITCH, SLIDE
S3	1-553-991-00	SWITCH, SLIDE
SFE-A1	1-527-886-00	FILTER, CERAMIC
SFE-F1	1-527-795-71	FILTER, CERAMIC
SFE-F2	1-527-795-71	FILTER, CERAMIC
SP	1-502-631-00	SPEAKER
X1	1-527-887-21	OSCILLATOR, CRYSTAL
X2	1-527-889-21	OSCILLATOR, CRYSTAL
X3	1-527-888-21	OSCILLATRO, CRYSTAL
X4	1-527-890-21	OSCILLATOR, CRYSTAL
X5	1-527-891-21	OSCILLATOR, CRYSTAL
X6	1-527-892-21	OSCILLATOR, CRYSTAL
X7	1-527-893-21	OSCILLATOR, CRYSTAL
VR	1-228-529-00	RES, VAR, SLIDE 10K

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 thev 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

COILS
- MMH : mH, UH : μH

SEMICONDUCTORS
In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC, UPD···: μPD···