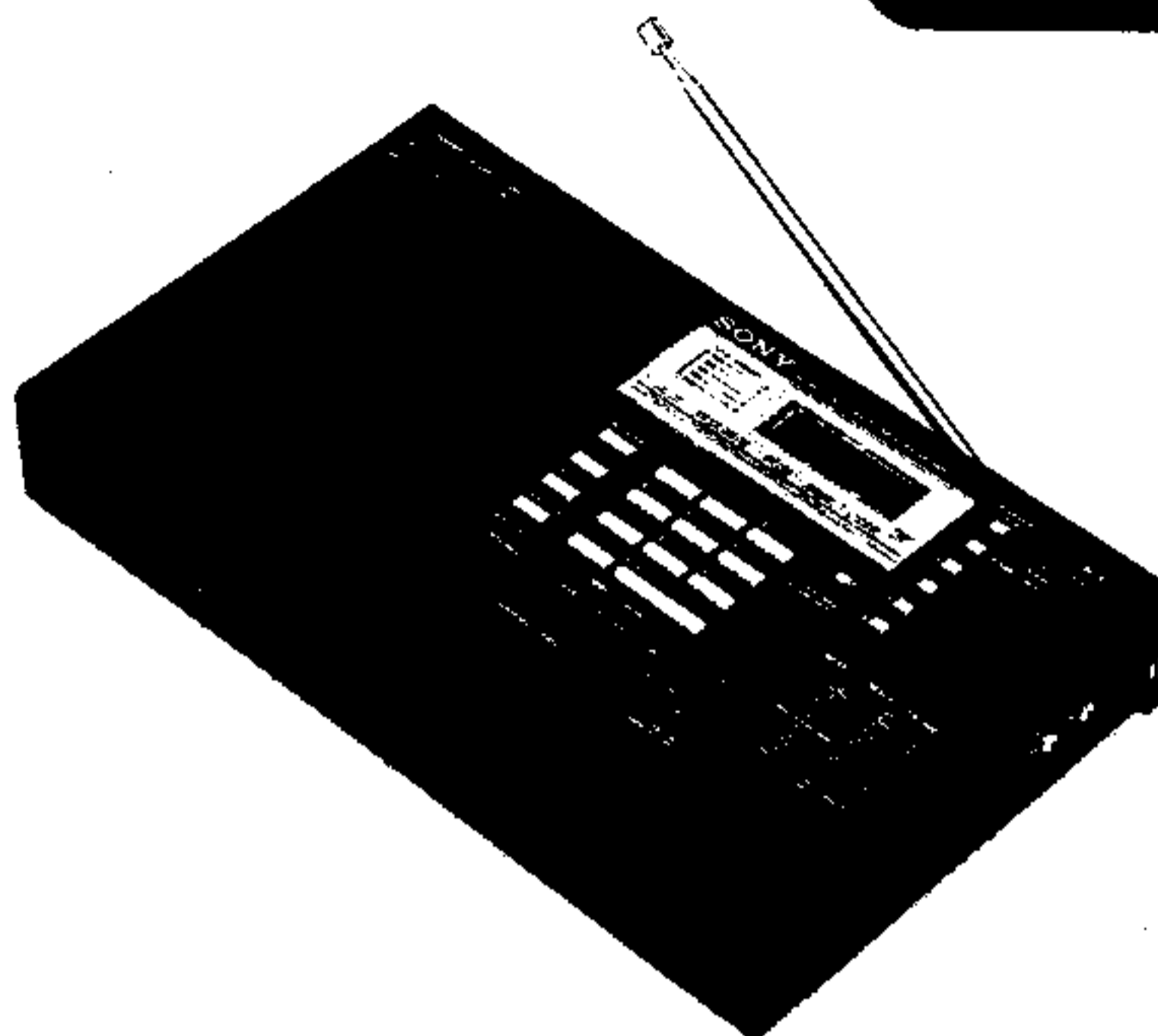


ICF-2001



*US Model
Canadian Model
AEP Model
UK Model
E Model*

FM/AM PLL SYNTHESIZED RECEIVER

SPECIFICATIONS

| | | |
|----------------------------|---|--|
| Circuit System: | FM: Superheterodyne AM: Dual conversion superheterodyne | AEP, UK, E model: Radio: 4.5 V dc, three IEC designation R20 batteries (D size) 110, 127, 220 or 240 V ac 50 Hz (AEP model) 50/60 Hz (UK, E model) with optional Sony AC-122 AC Power Adaptor 12 V car battery with optional Sony DCC-127A Car Battery Cord Computer: 3V dc, two IEC designation R6 batteries (AA size) |
| Frequency Range: | US, Canadian, UK, E model: FM 76 to 108 MHz AM 150 to 29,999 kHz (2,000 to 10 m) AEP model: FM 87.5 to 108 MHz AM 150 to 26,100 kHz (2,000 to 11 m) | Power Consumption: US, Canadian model: 7 W ac with Sony AC-120 W AC Power Adaptor AEP model: 16 W ac at 50 Hz with Sony AC-122 AC Power Adaptor UK model: 9.5 W ac at 50 Hz with Sony AC-122 AC Power Adaptor E model: 16 W ac at 50 Hz, 15 W ac at 60 Hz with Sony AC-122 AC Power Adaptor |
| Antennas: | Telescopic antenna (AM/FM) Built-in ferrite bar antenna (AM 360 to 2,143 kHz) External antenna terminals (AM/FM) | |
| Speaker: | Approx. 10 cm (4 inches) diameter | |
| Power Output: | 1,200 mW (at 10 % harmonic distortion), 1,600 mW (max.) | |
| Input: | Timer input jack (minijack) | |
| Outputs: | Recording output jack (minijack) output level 0.8 mV (-60 dB) output impedance 1 k Ω Earphone jack (minijack) for 8 Ω earphone | |
| Power Requirements: | US, Canadian model: Radio: 4.5 V dc, three D size batteries (IEC designation R20) 120 V ac, 60 Hz with supplied Sony AC-120 W AC Power Adaptor 12 V car battery with optional Sony DCC-127A Car Battery Cord Computer: 3 V dc, two AA size batteries (IEC designation R6) | |

— Continued on page 2 —

SONY®

SERVICE MANUAL

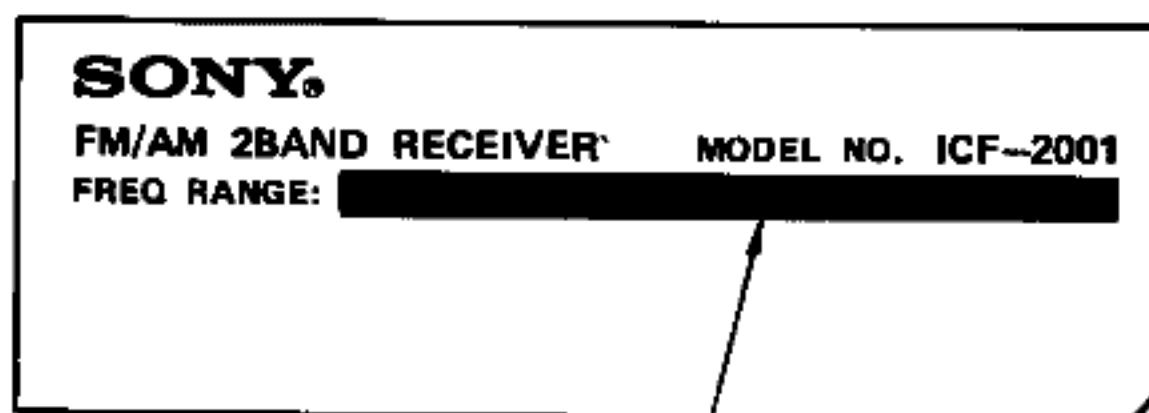
Battery Life: US, Canadian model:
Radio: with Eveready Batteries No. 1050:
Approx. 9 hours, if tuned to AM
Approx. 10 hours, if tuned to FM
Computer: with Eveready Batteries
No. 1015, approx. 1 year of continuous
operation
AEP, UK, E model:
Radio: with Sony SUM-1S Super Batteries:
Approx. 9 hours, if tuned to AM
Approx. 10 hours, if tuned to FM
Computer: with Sony SUM-3S Super Batteries,
approx. 1 year of continuous operation

Dimensions: Approx. 310(w) x 171(h) x 56(d) mm
12½(w) x 6¾(h) x 2¼(d) inches
including projecting parts and controls

Weight: Approx. 1,800 g, 4 lb
including batteries

MODEL IDENTIFICATION

— Specification Label —

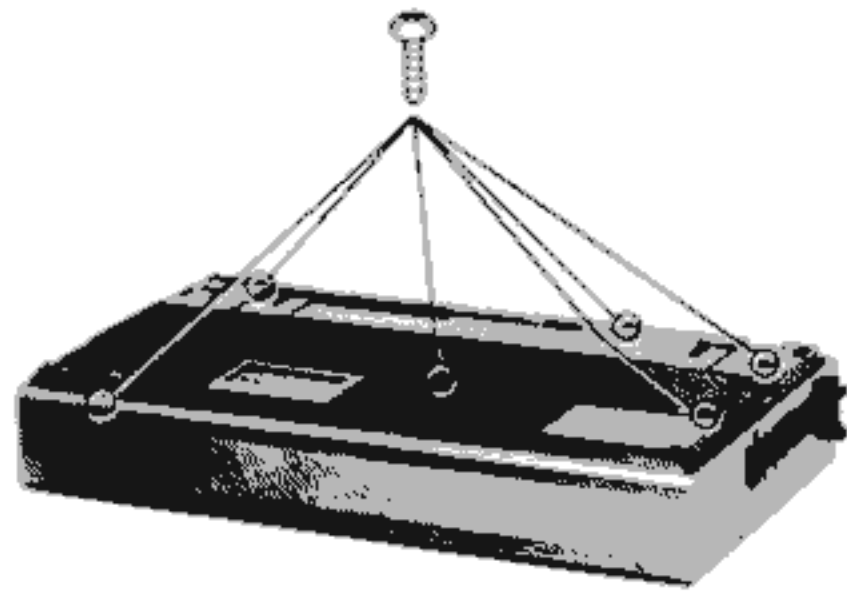


US, Canadian, UK, E model: FM 76 – 108 MHz AM 150 – 29999 kHz
AEP model: FM 87.5 – 108 MHz AM 150 – 26100 kHz
(UK, E model: marked on the stand)

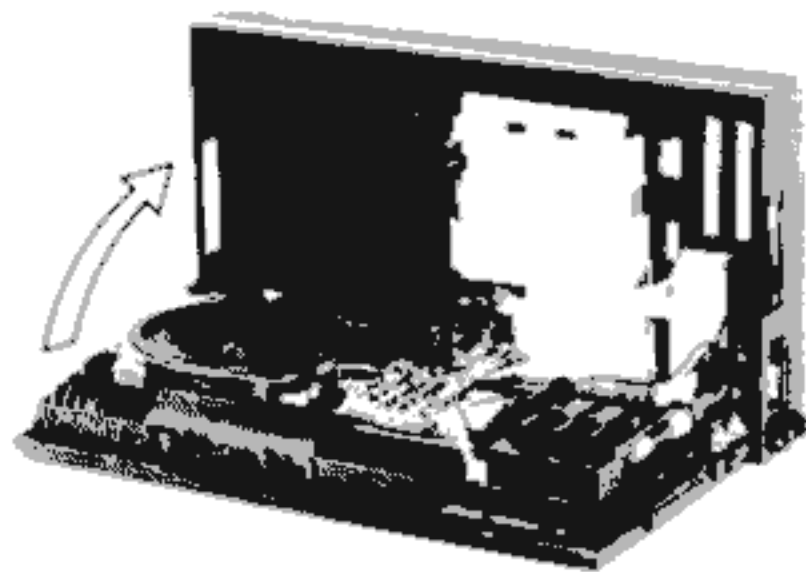
SECTION 2
DISASSEMBLY

FRONT PANEL

PTP3 x 20 (6 pieces)



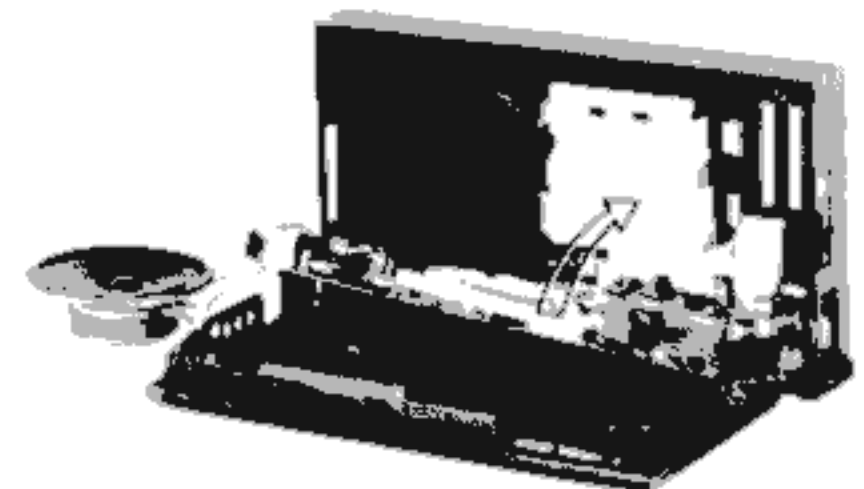
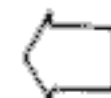
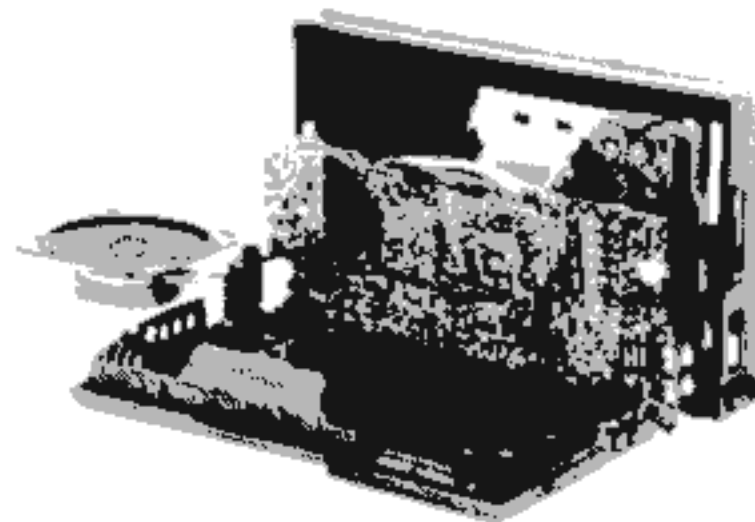
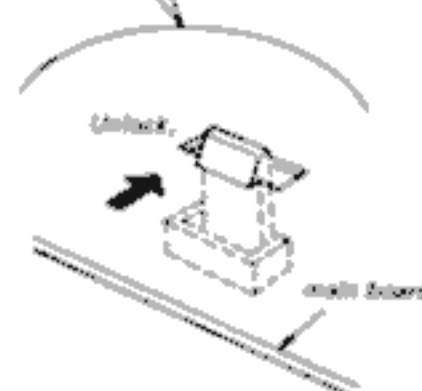
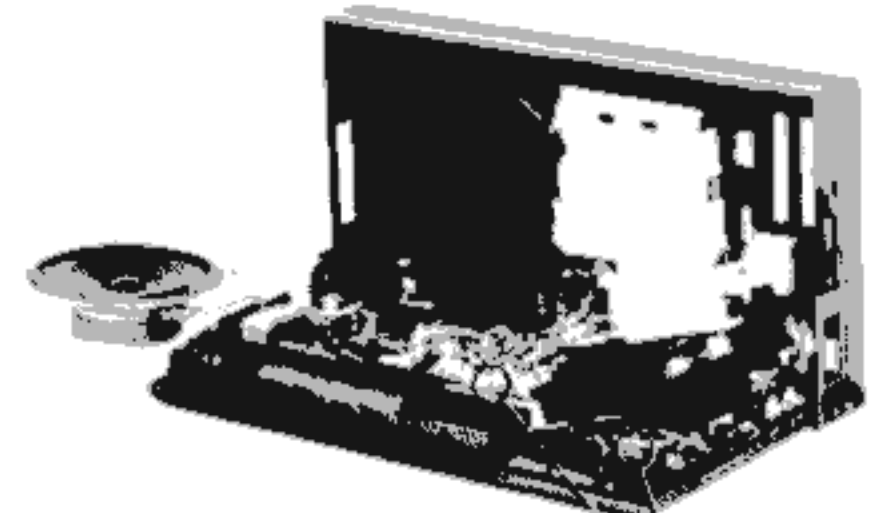
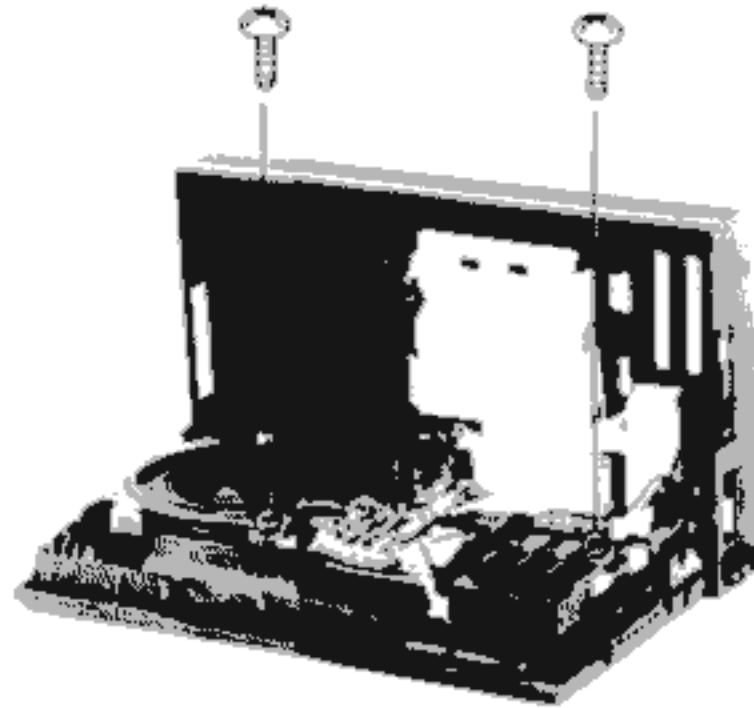
Turn the set
upside down.



MAIN BOARD

STP3 x 10

STP3 x 10



SECTION 3 ADJUSTMENTS

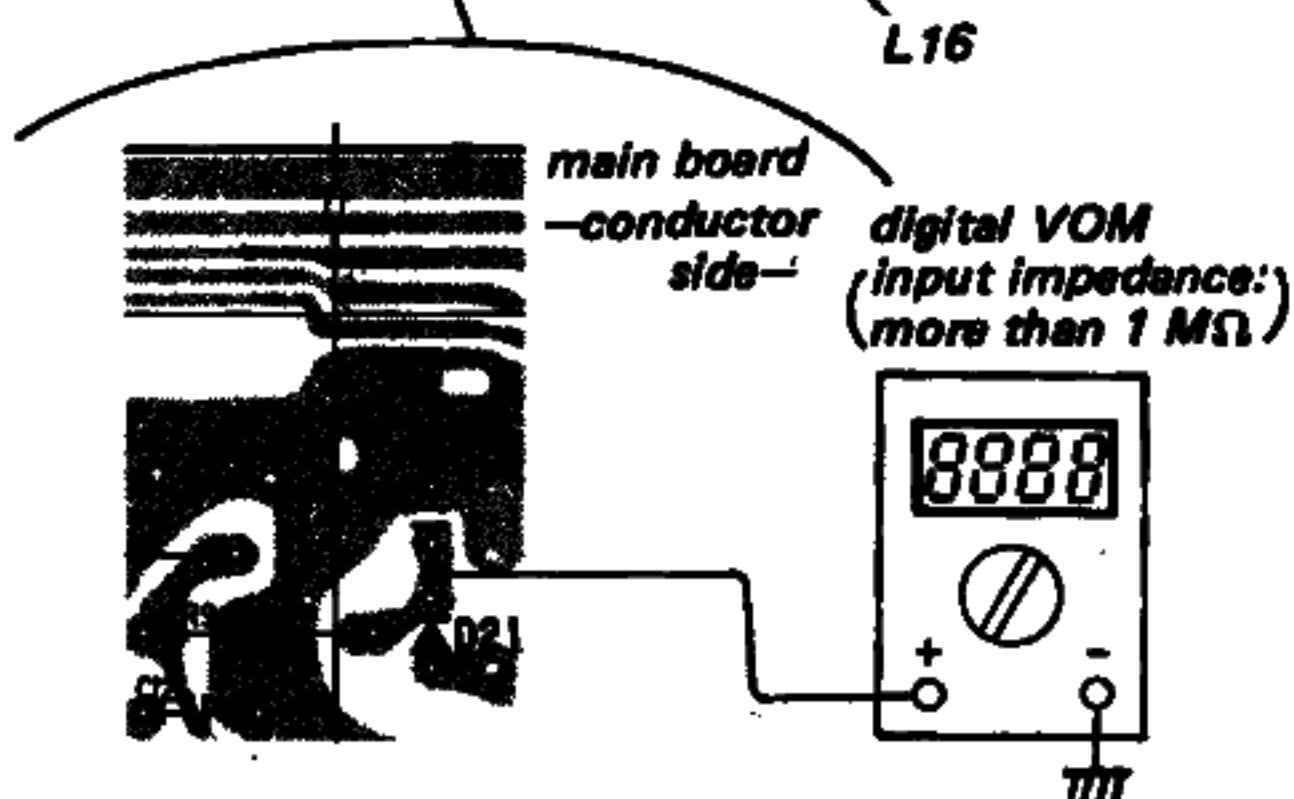
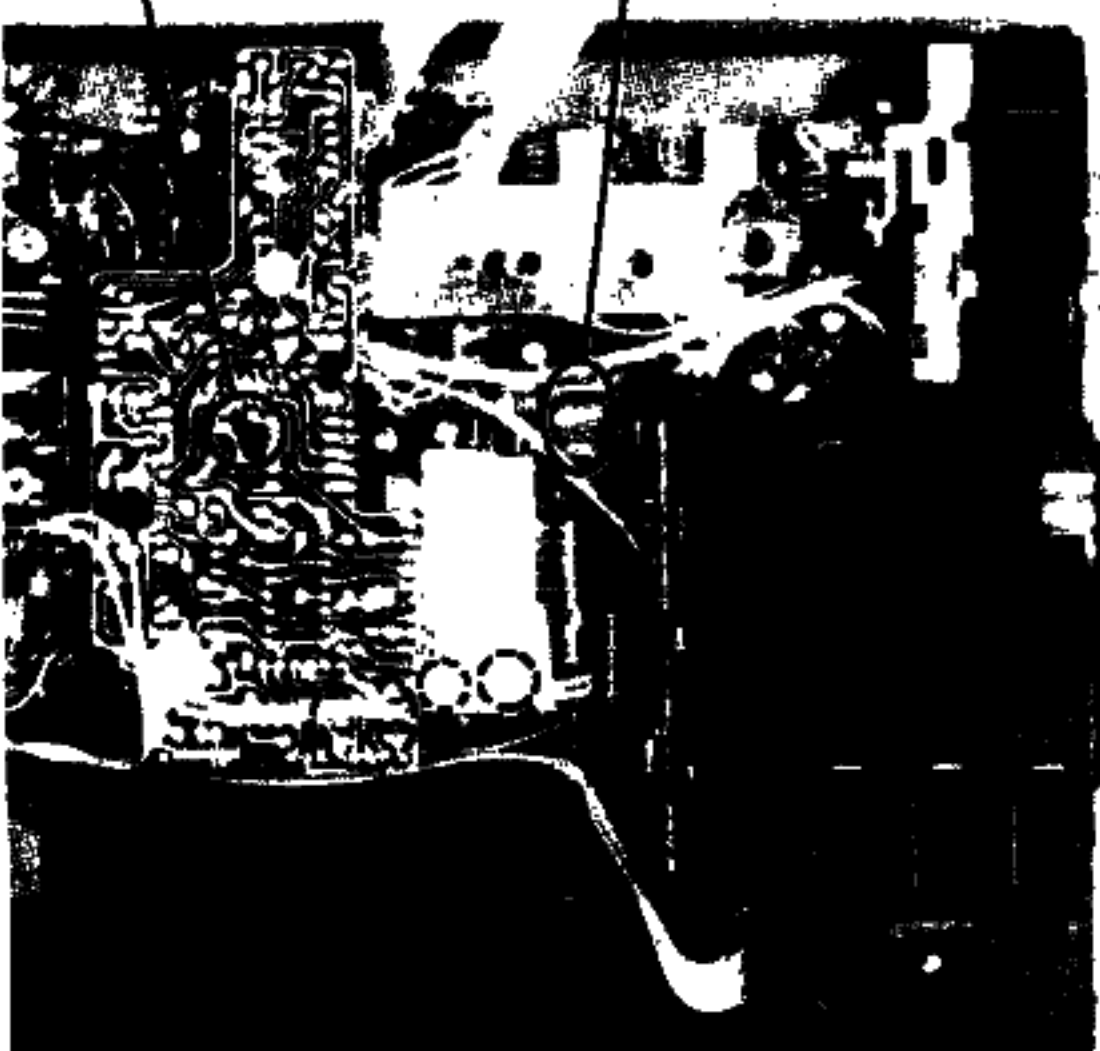
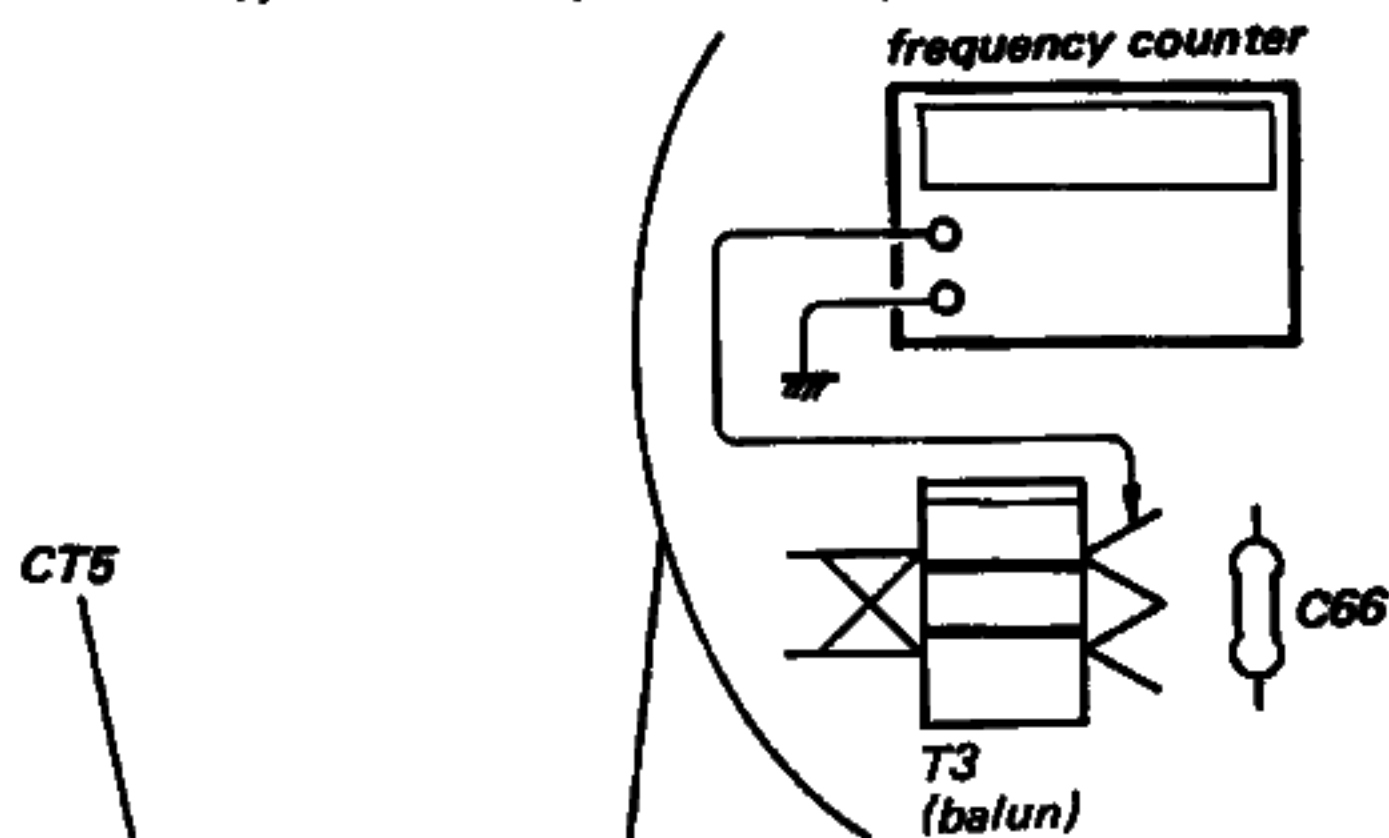
PLL1 Adjustment

Setting:

BAND Switch: FM

Procedure:

1. Press the Counter Keys for 108 MHz reading on the Frequency Display.
2. Adjust L16 for 8.5 ± 0.05 V dc (US, Canadian, UK, E model), 7.5 ± 0.05 V dc (AEP model) reading on the digital VOM.
3. Adjust CT5 for 97,300 MHz (118.70 MHz: AEP model) reading on the frequency counter.
4. Obtain 76 MHz (US, Canadian, UK, E model), 87.5 MHz (AEP model) reading on the Frequency Display again and confirm that the frequency counter reading is 65.3 MHz (US, Canadian, UK, E model), 98.2 MHz (AEP model).



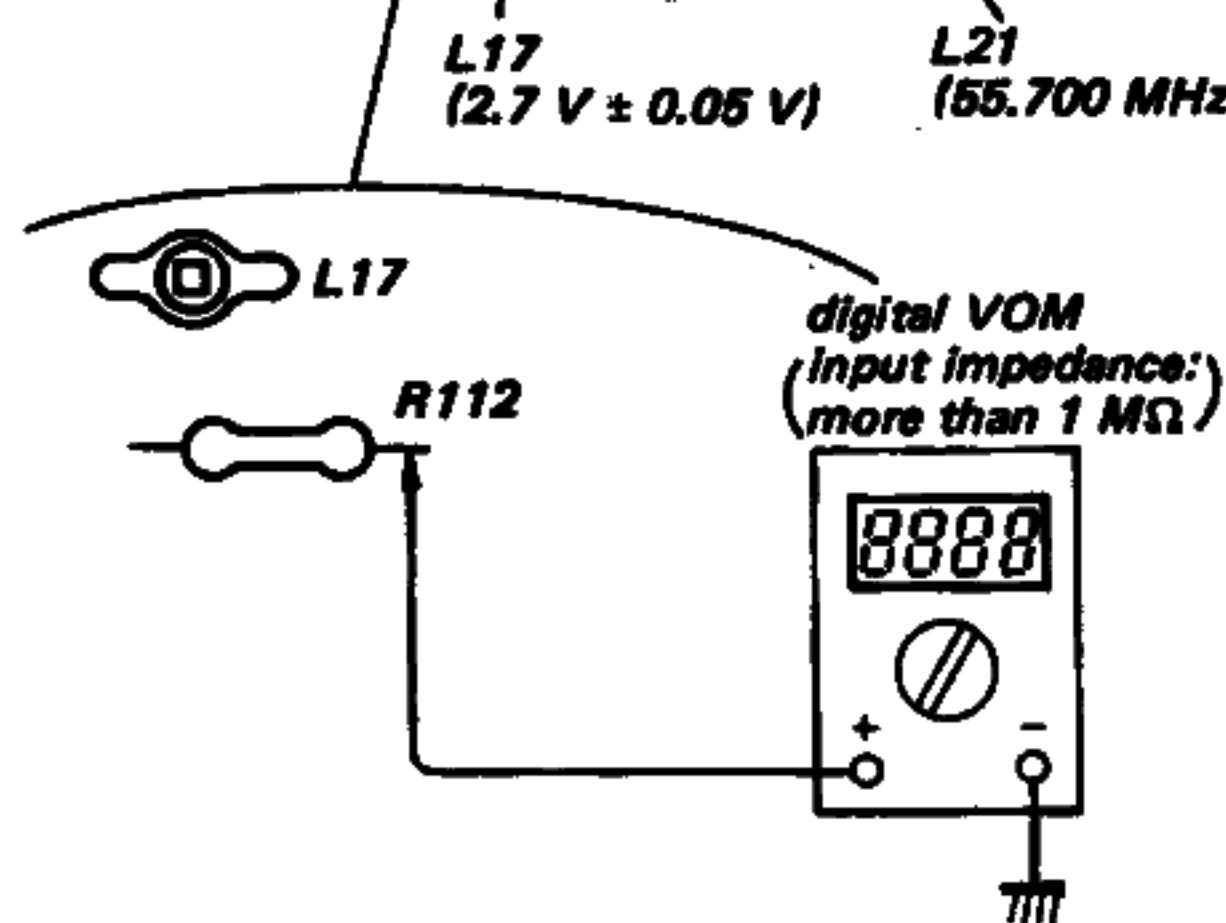
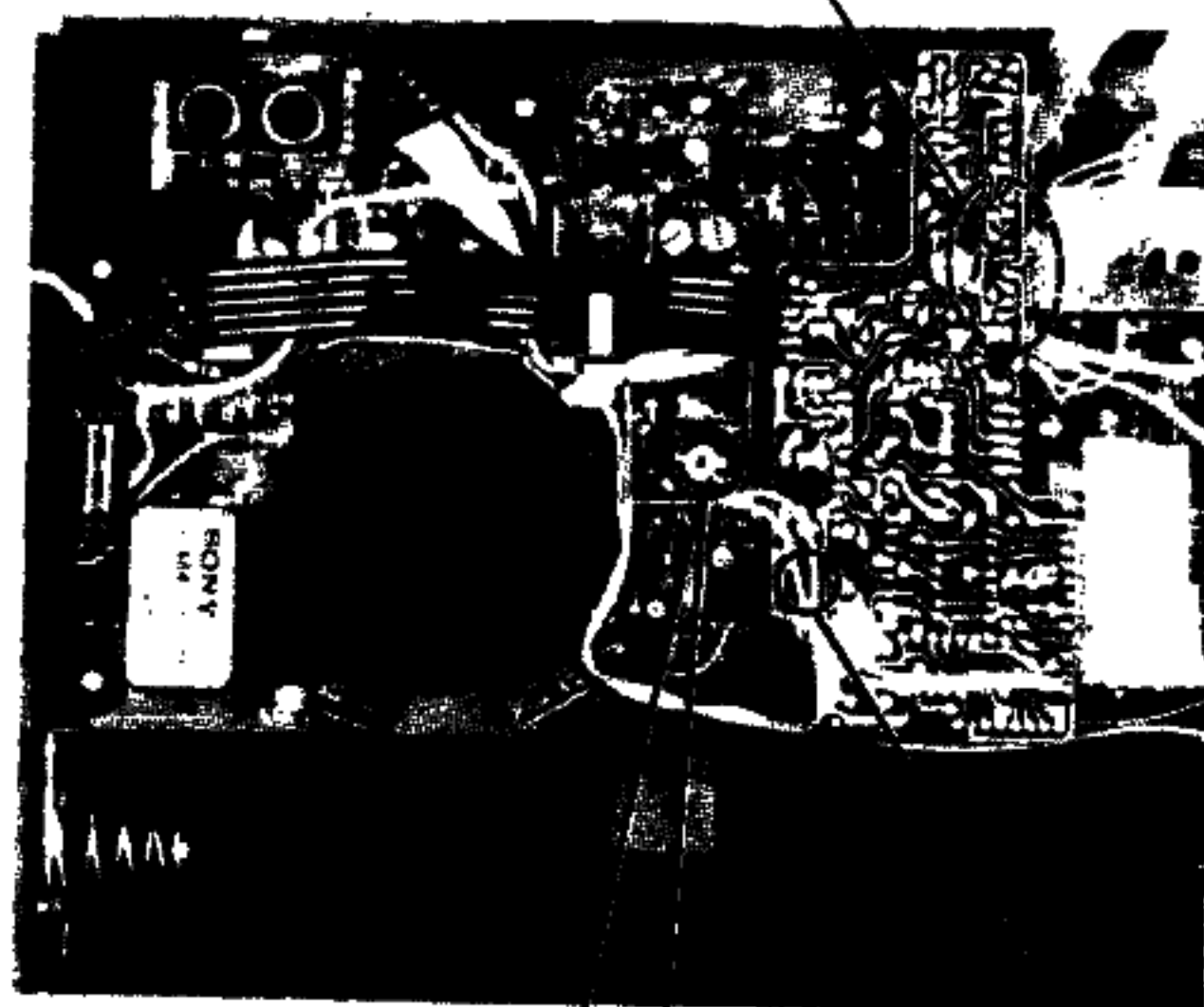
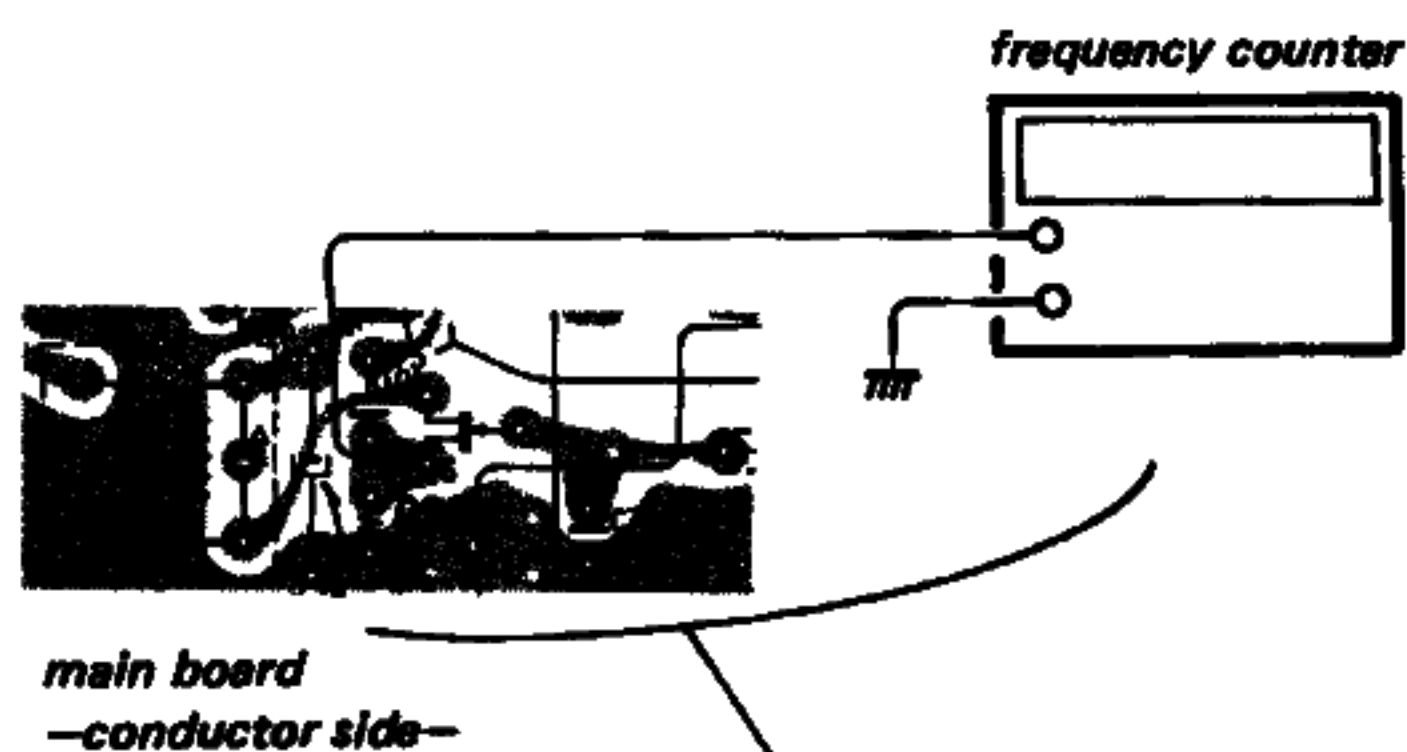
PLL2 Adjustment

Setting:

BAND Switch: AM

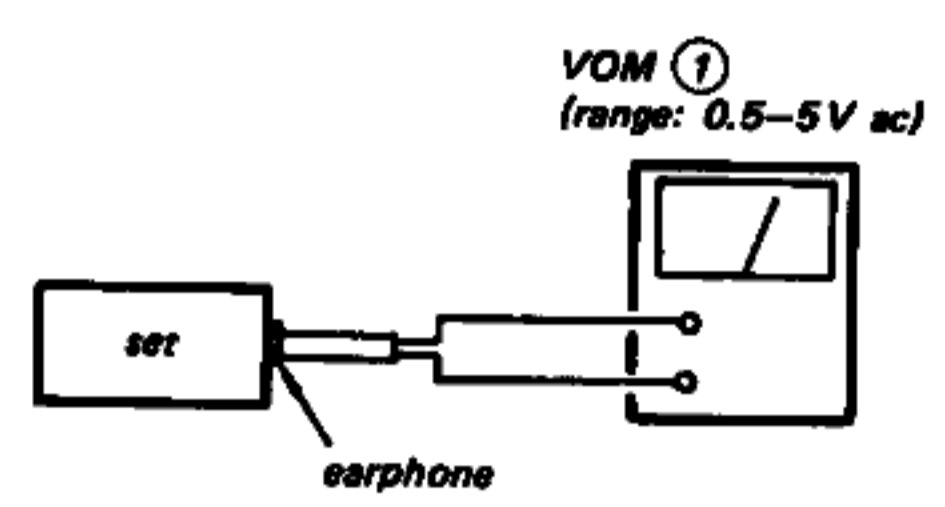
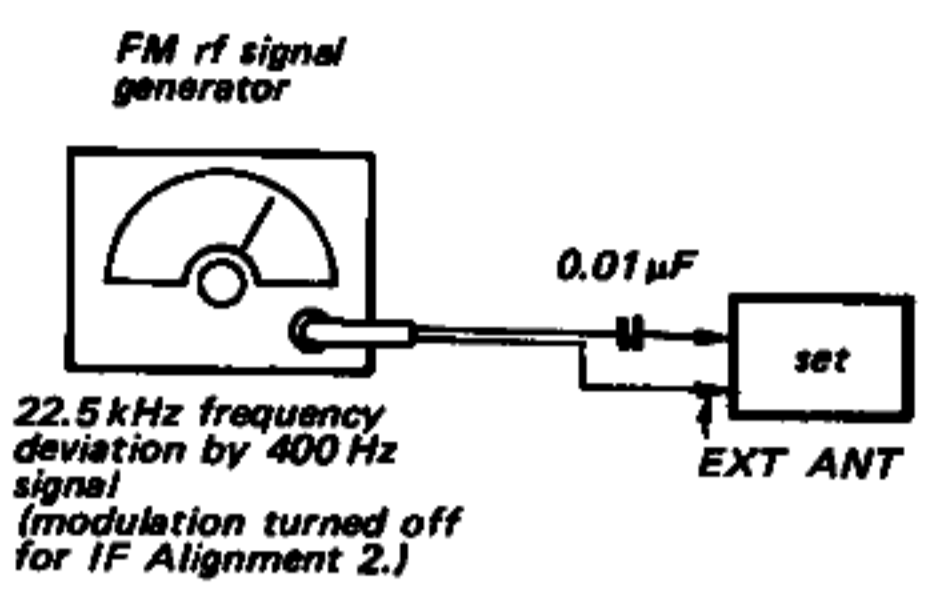
Procedure:

1. Press the Counter Keys for 1000 kHz reading on the Frequency Display.
2. Adjust L17 for 2.7 ± 0.05 V dc reading on the digital VOM and adjust L21 for 55.700 MHz reading on the frequency counter.
3. Press the Counter Keys for 999 kHz on the Frequency Display and confirm that the frequency counter reading is 55.601 MHz.



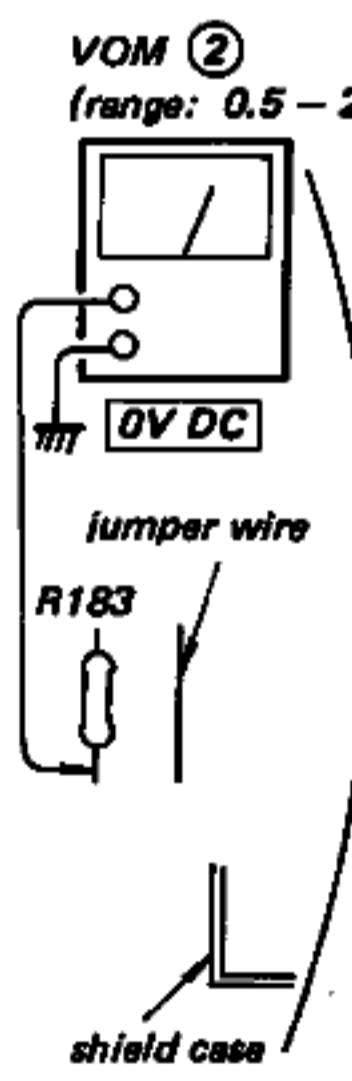
FM IF Alignment/FM Tracking Adjustment

Setting:
BAND Switch: FM



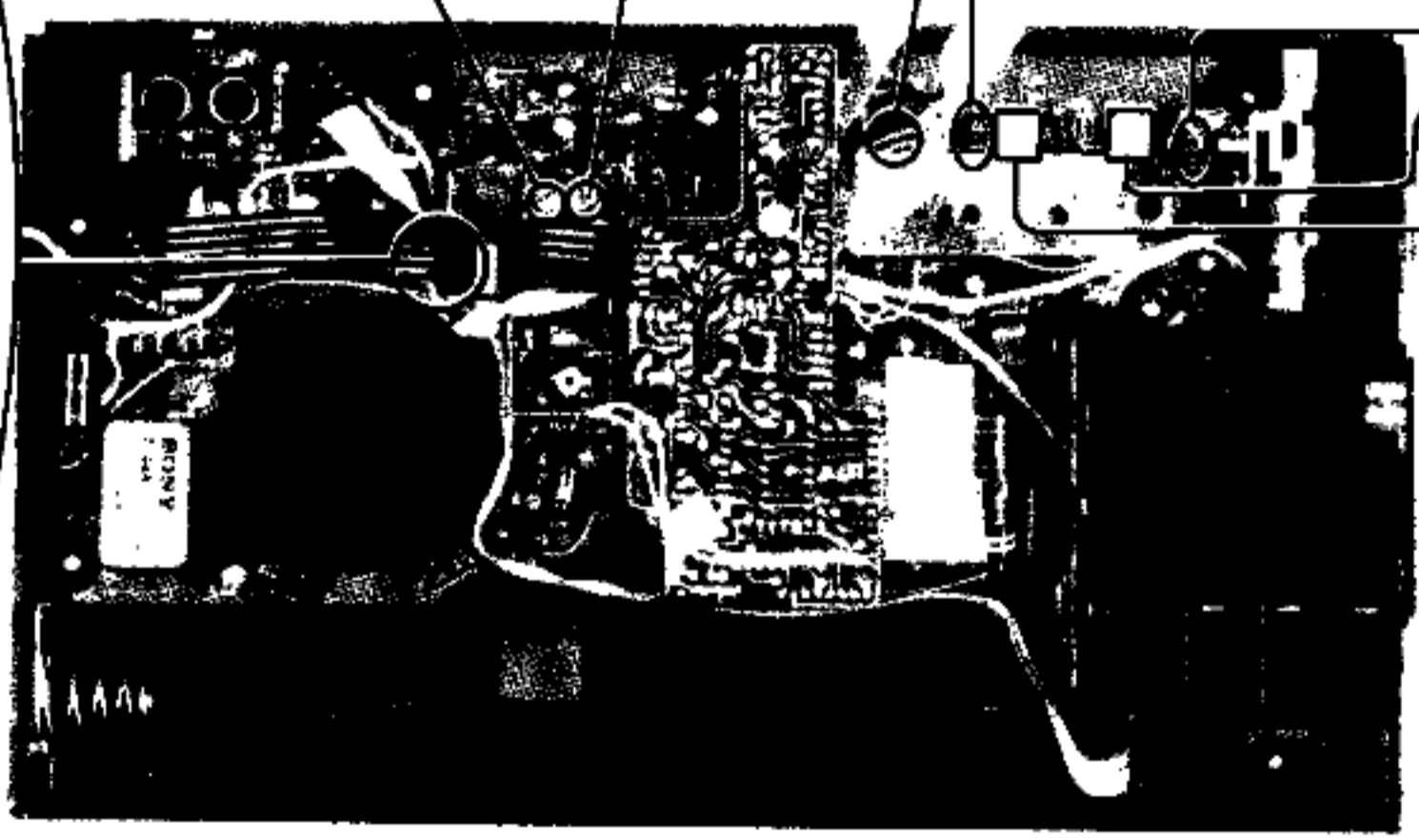
| |
|---|
| FM IF ALIGNMENT 2 (10.7 MHz with no modulation) |
| Adjust for 0V reading on VOM ②. |
| IFT-F3 |

| |
|--|
| FM IF ALIGNMENT 1 (10.7 MHz with modulation) |
| Adjust for a maximum reading on VOM ①. |
| IFT-F2 IFT-F1 |



| TRACKING ADJUSTMENT | |
|--|------------|
| Adjust for a maximum reading on VOM ①. | |
| L2 | 76 MHz |
| L1 | (87.5 MHz) |
| CT1 | 108 MHz |
| CT2 | |

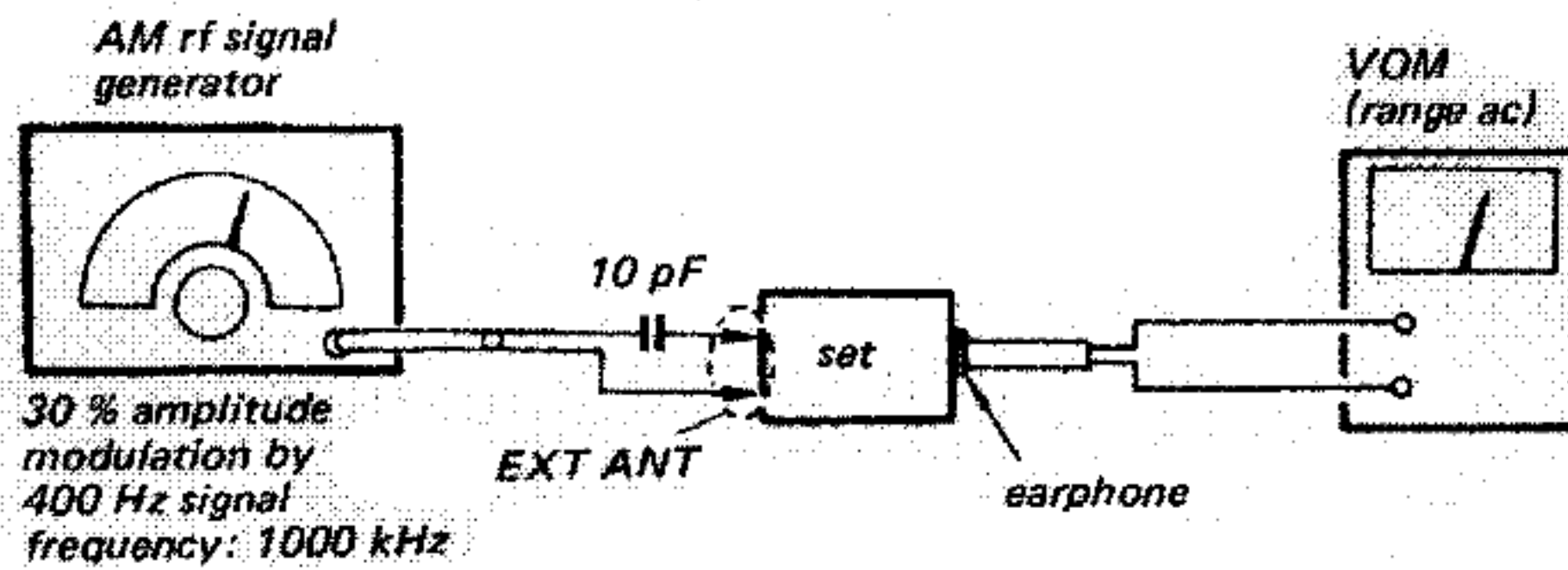
(): AEP model



AM IF Alignment

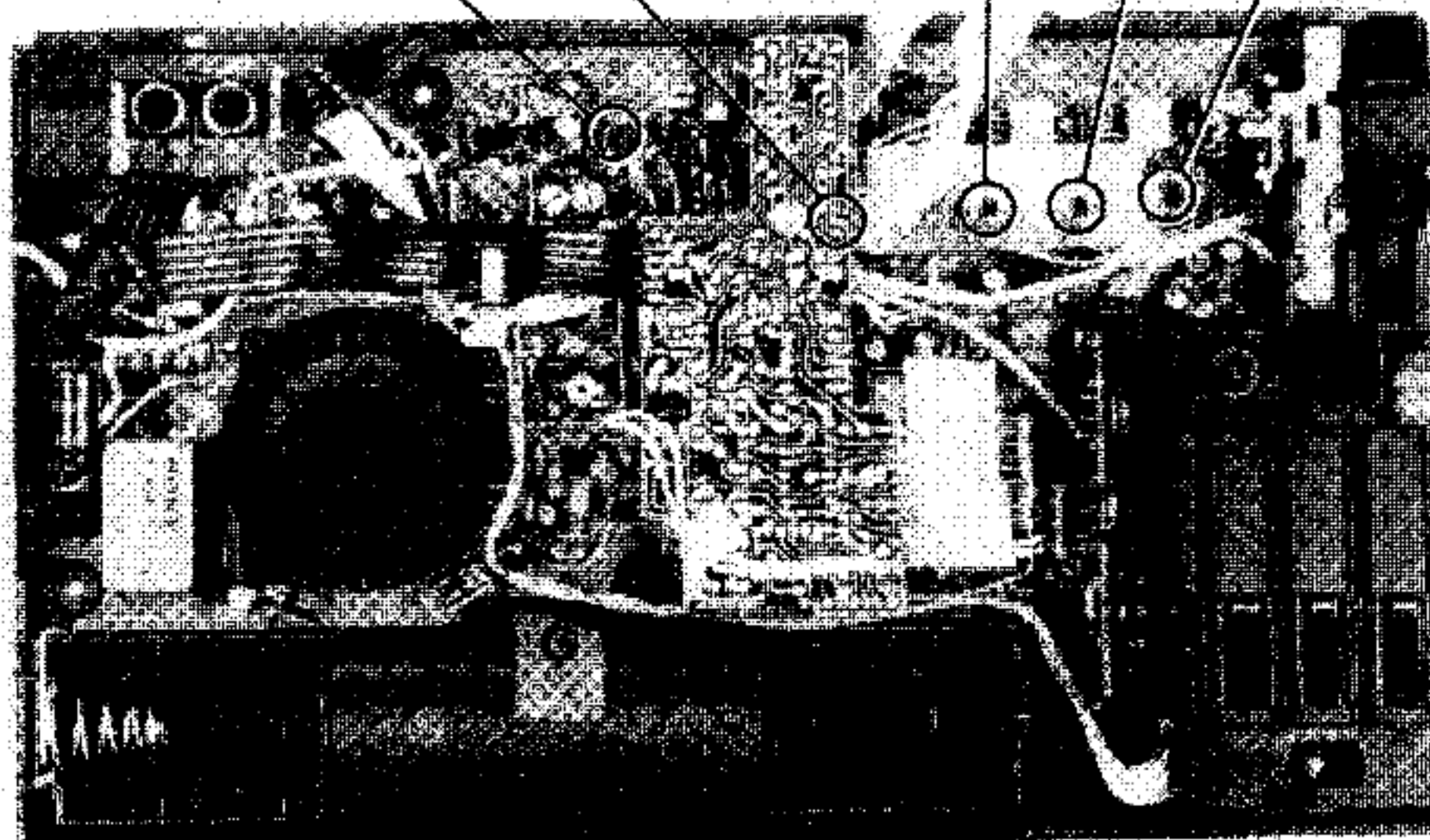
Setting:

BAND Switch: AM



| 2ND IF ALIGNMENT | |
|---------------------------------------|--------|
| Adjust for a maximum reading on VOM . | |
| IFT-A1 | IFT-A3 |

| 1ST IF ALIGNMENT | | |
|---------------------------------------|-----|--------|
| Adjust for a maximum reading on VOM . | | |
| L14 | L13 | IFT-A2 |

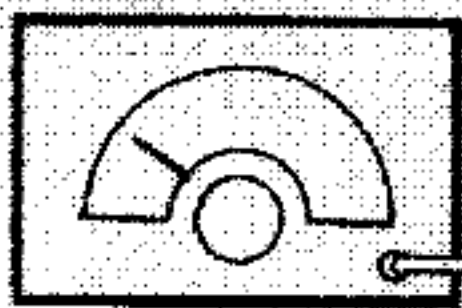


AM Antenna Tracking Adjustment

Setting:

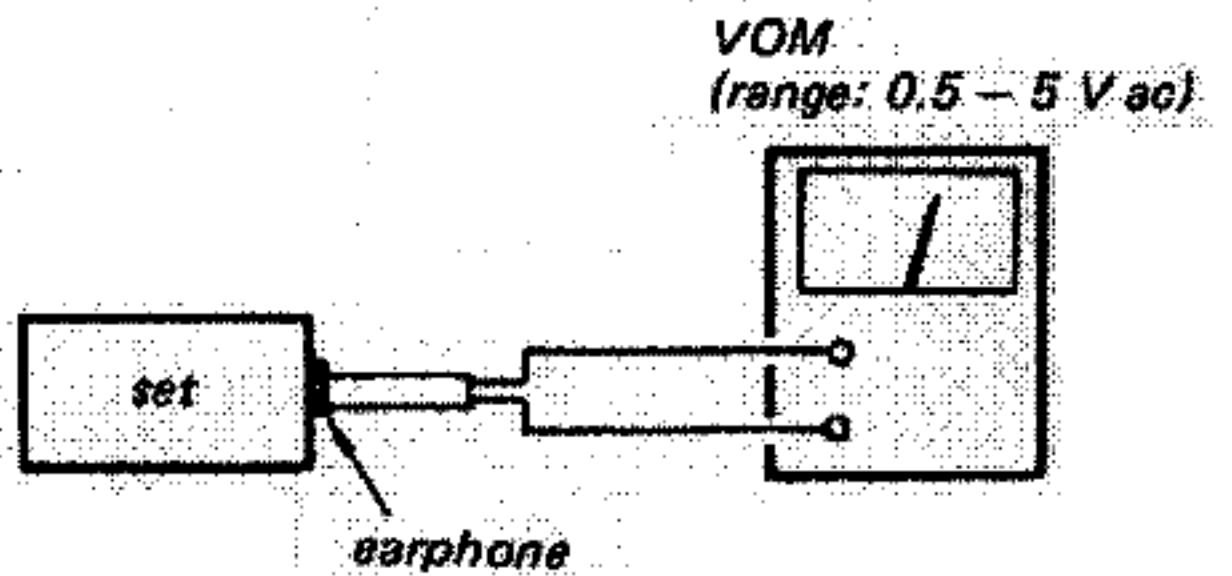
BAND Switch: AM

AM rf signal generator



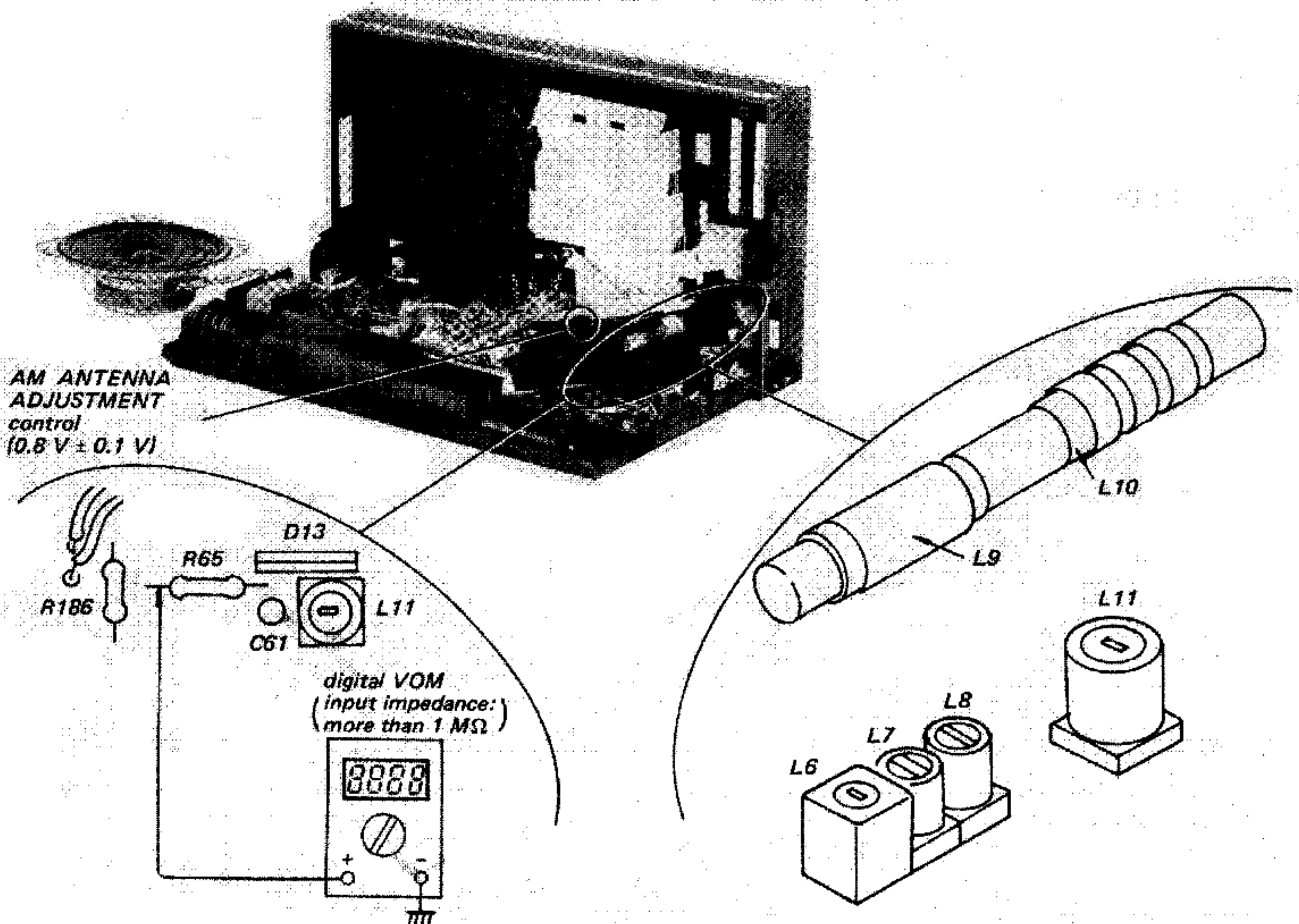
30 % amplitude modulation by 400 Hz signal

Put the lead-wire antenna close to the set.



1. Press the Counter Keys for 150 kHz reading on the Frequency Display.
2. Adjust the AM ANTENNA ADJUSTMENT control for 0.8 ± 0.1 V dc reading on the digital VOM.
3. Adjust each coil for the maximum reading on the VOM.

| Frequency Display Reading (kHz) | Adjustment Part |
|---------------------------------|-----------------|
| 881 | L9 |
| 361 | L10 |
| 150 | L11 |
| 2149 | L8 |
| 5242 | L7 |
| 12786 | L6 |



SECTION 5 EXPLODED VIEWS

Note:

- Items marked "⊕" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All screws are Phillips (cross recess) type unless otherwise noted.
(-) = slotted head

A

B

C

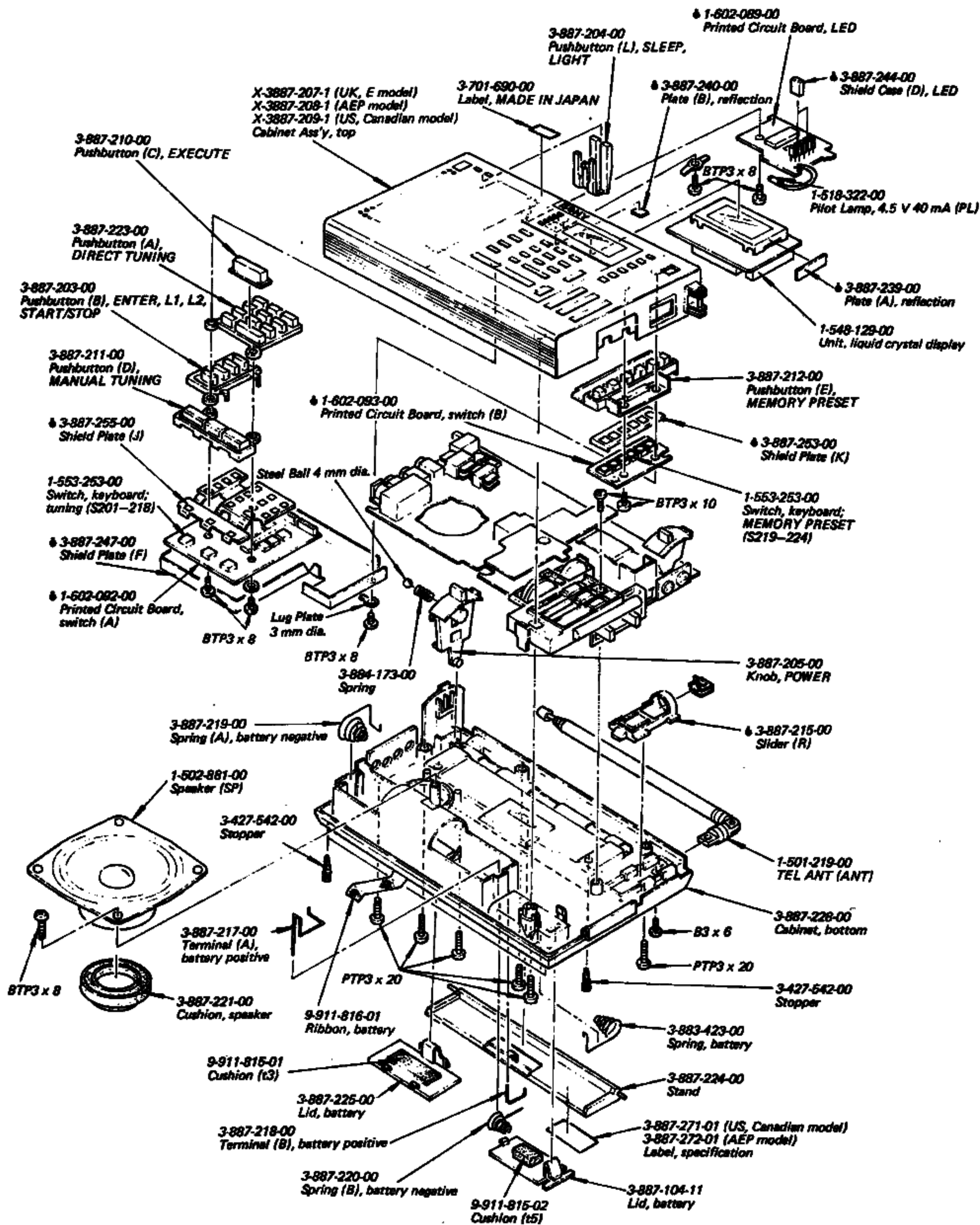
5-1.

1

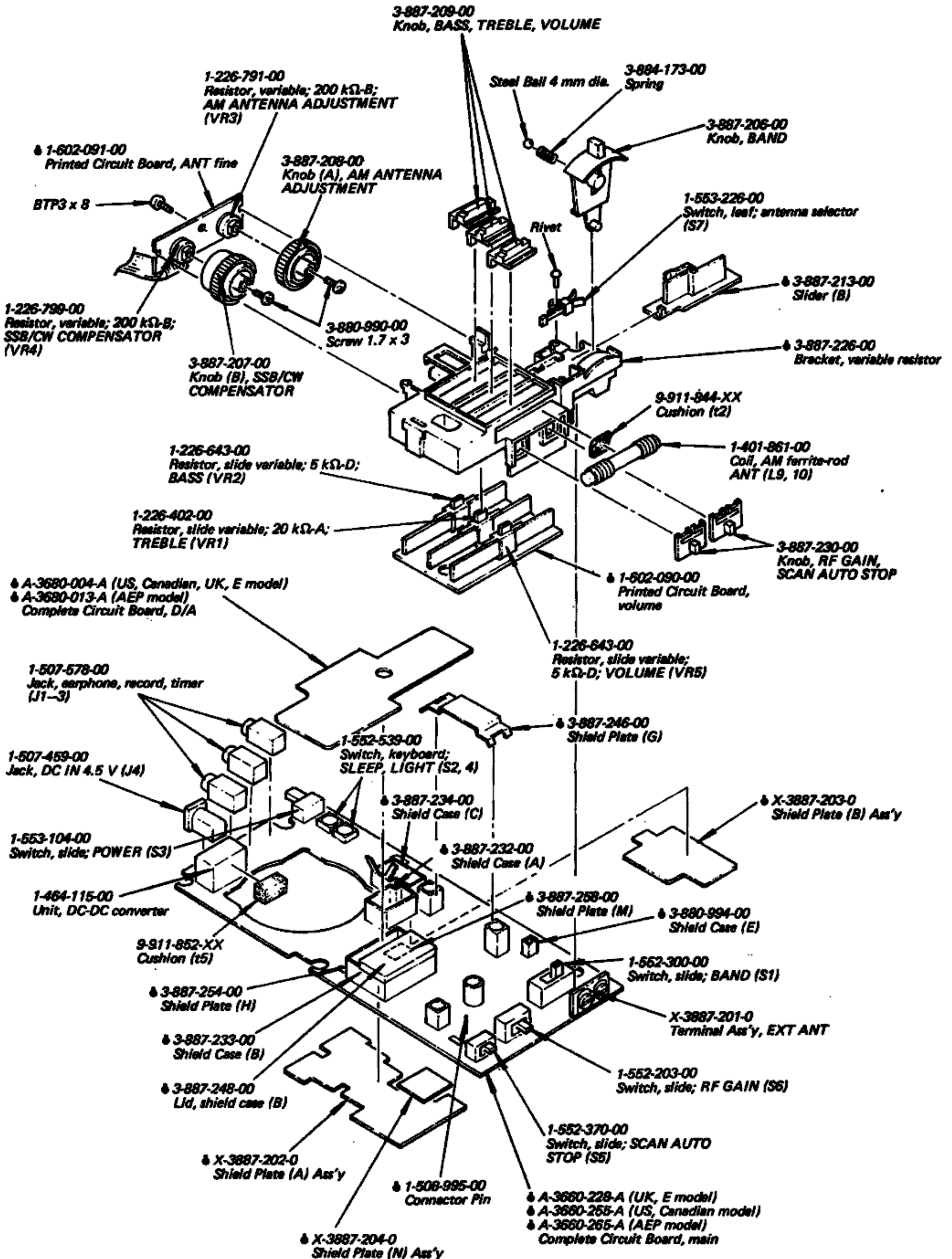
2

3

4



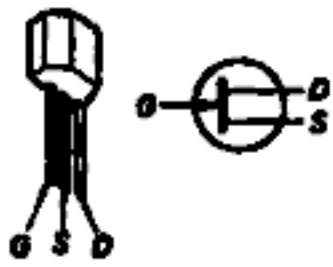
5-2.



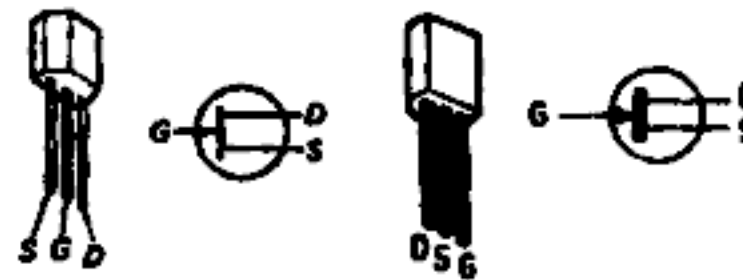
Replacement Semiconductors

For replacement, use semiconductors except in ().

Q1, 22: 2SK42-2 (2SK42)
 Q21, 25 } : 2SK161
 Q29, 43 }



Q41, 52: 2SK23A-834 (2SK107)



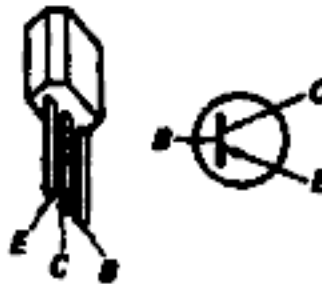
D1, 2, 21, 25: SVC201



Q2, 3, 4, 7 } : 2SC930
 Q34, 35, 37 }
 Q44, 47, 50 }
 Q5, 46, 48 } : 2SC1364 (2SC536)
 Q49, 51, 53 }
 Q201~208, 211 }
 Q11, 12: 2SC1474



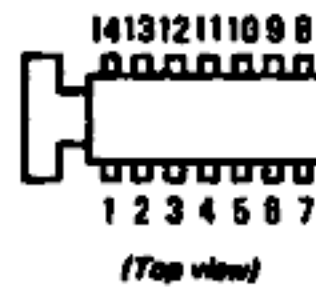
Q209: 2SA1027R (2SA1026)



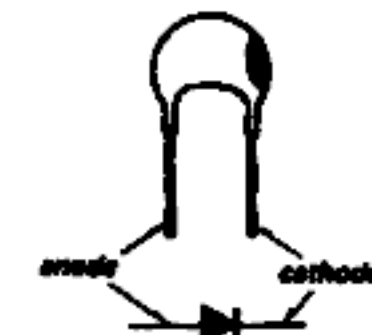
D3~5: 1T261
 D6: 1T26
 D24: 1S2139C (SD115)
 D27: RD3.6E-B28
 D28, 33~35, 201: 1S1555
 D29: RD16E (RD16E-B1)
 D36: RD6.2E



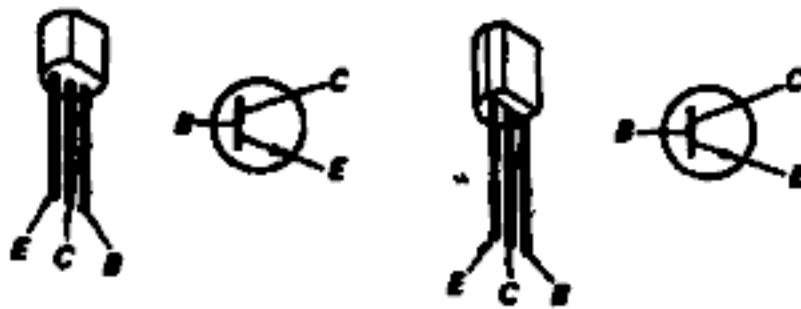
IC1: CX162



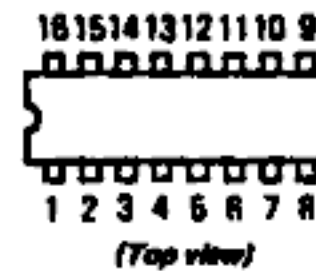
D7, 20: VD1120



Q6, 8~10 } : 2SC1364 (2SC1633)
 Q13~18, 23 }
 Q33, 38, 39 }
 Q45: 2SC1364 (2SC945)



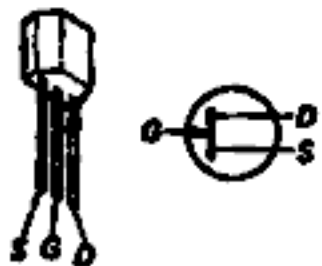
IC2: LB1405
 IC201, 202: TC4015BP (MSM4015)
 IC205: TC40174BP



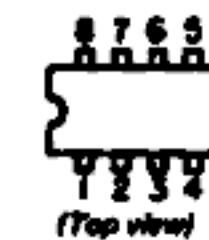
D8~12: 1S2222



Q19, 20: 2SK184
 Q24: 2SK23A-834 (2SK23A)
 Q31: 2SK23A-812 (2SK23A)



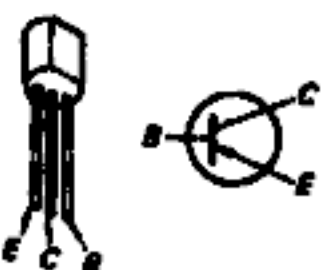
IC3: μPB552C



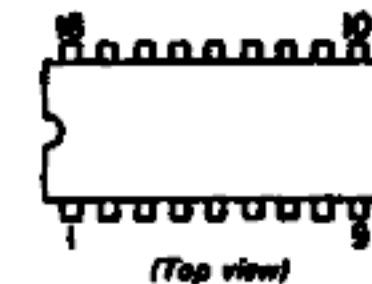
D13: KV1211



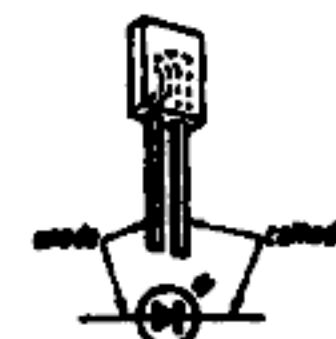
Q27: 2SA772-14 (2SA772)



IC4, 5: μPD2819C



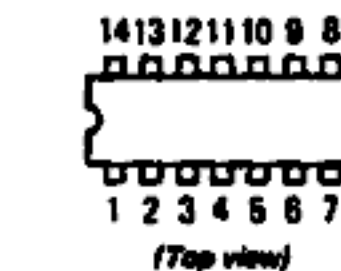
D15~19: SLP155B



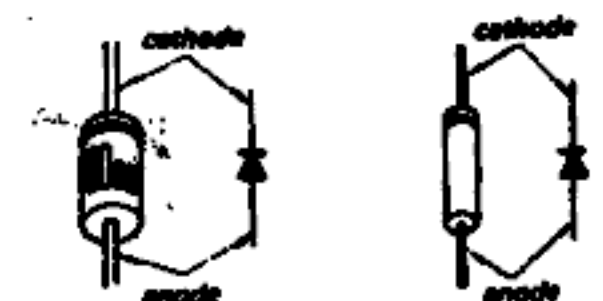
Q28, 30, 36: 2SC668



IC203: TC4011BP (MSM4011)



D23: EQB01-12Z (RD12E-B2)



Q32: 2SC1364 (2SC634A)



SECTION 4 DIAGRAMS

4-1. MOUNTING DIAGRAM

Refer to page 14 for replacement semiconductors.

1

2

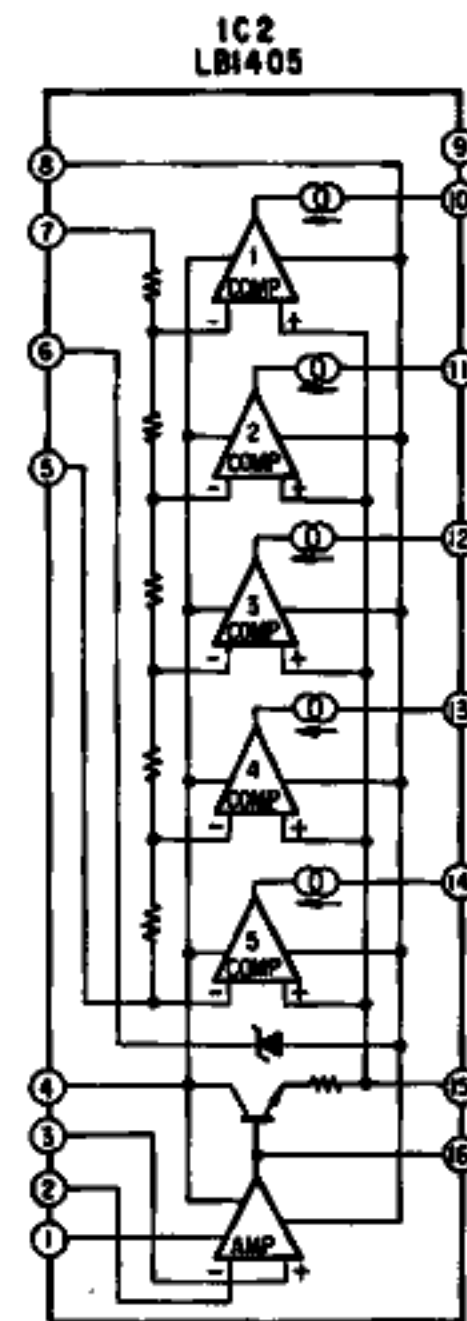
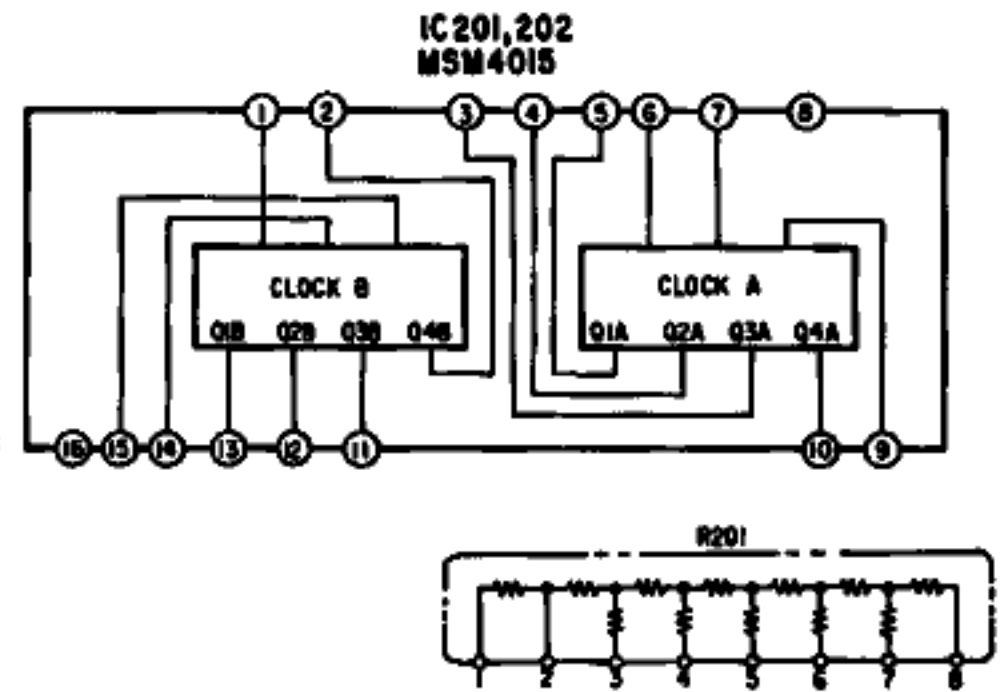
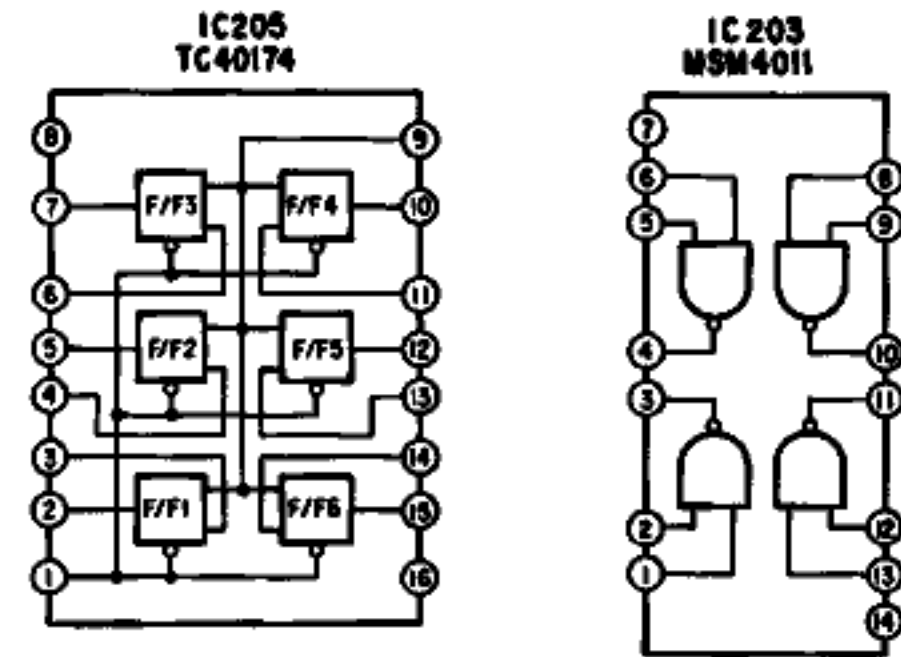
3

4

5

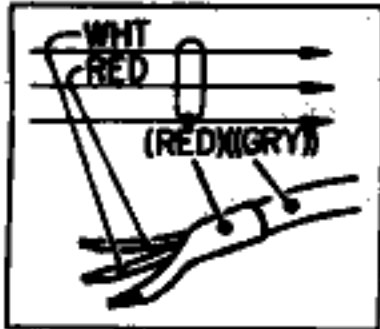
A

B



Note:

- Color code of sleeving over the end of the jacket.



- : parts extracted from the component side.
- : part mounted on the conductor side.
- : indicates side identified with part number.
- DC resistance measurements are with coils and transformers connected on the circuit board, and are approximate.
- ▨ : B + pattern
- : signal path (FM)
- Readings are taken under no-signal (detuned) conditions with a VOM (20 kΩ/V).
- no mark: FM FREQUENCY DISPLAY: 98.1 MHz
- () : AM FREQUENCY DISPLAY: 1023 kHz
- () : SSB/CW

Note:

- All capacitors are in μF unless otherwise noted. $\text{pF} : \mu\mu\text{F}$
50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, $\frac{1}{2}\text{W}$ unless otherwise noted.
 $\text{k}\Omega : 1000\ \Omega$, $\text{M}\Omega : 1000\ \text{k}\Omega$
- Δ : internal component.
- --- : B+ bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal (detuned) conditions with a VOM ($20\ \text{k}\Omega/\text{V}$).

no mark: FM FREQUENCY DISPLAY: 98.1 MHz

() : AM FREQUENCY DISPLAY: 1023 kHz

【 】 : SSB/CW

- $\text{---}\rightarrow$: signal path.
- Voltage variations may be noted due to normal production tolerances.
- Switches

| Ref. No. | Switch | Position |
|----------|----------------|----------|
| S1 | BAND | FM |
| S2 | LIGHT | OFF |
| S3 | POWER | OFF |
| S4 | SLEEP | OFF |
| S5 | SCAN AUTO STOP | OFF |
| S6 | RF GAIN | NORMAL |
| S7 | ANT SELECTOR | ON |
| S201 | DOWN | OFF |
| S202 | FAST | OFF |
| S203 | UP | OFF |
| S204 | START STOP | OFF |
| S205 | L2 | OFF |
| S206 | L1 | OFF |
| S207 | ENTER | OFF |
| S208 | EXECUTE | OFF |
| S209 | 0 | OFF |
| S210 | 1 | OFF |
| S211 | 2 | OFF |
| S212 | 3 | OFF |
| S213 | 4 | OFF |
| S214 | 5 | OFF |
| S215 | 6 | OFF |
| S216 | 7 | OFF |
| S217 | 8 | OFF |
| S218 | 9 | OFF |
| S219 | MEMORY 1 | OFF |
| S220 | MEMORY 2 | OFF |
| S221 | MEMORY 3 | OFF |
| S222 | MEMORY 4 | OFF |
| S223 | MEMORY 5 | OFF |
| S224 | MEMORY 6 | OFF |

SECTION 6 ELECTRICAL PARTS LIST

• Items marked "Ⓢ" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

| <u>Ref. No.</u> | <u>Part No.</u> | <u>Description</u> |
|-----------------------|-----------------|--------------------|
| SEMICONDUCTORS | | |
| Transistors | | |
| Q1 | 8-727-312-00 | 2SK42-2 |
| Q2-4 | 8-729-803-04 | 2SC930 |
| Q5, 6 | 8-729-663-47 | 2SC1364 |
| Q7 | 8-729-803-04 | 2SC930 |
| Q8-10 | 8-729-663-47 | 2SC1364 |
| Q11, 12 | 8-760-335-10 | 2SC1474 |
| Q13-18 | 8-729-663-47 | 2SC1364 |
| Q19, 20 | 8-729-218-42 | 2SK184 |
| Q21 | 8-729-216-13 | 2SK161 |
| Q22 | 8-727-312-00 | 2SK42-2 |
| Q23 | 8-729-663-47 | 2SC1364 |
| Q24 | 8-722-383-40 | 2SK23A-834 |
| Q25 | 8-729-216-13 | 2SK161 |
| Q26 | 8-729-663-47 | 2SC1364 |
| Q27 | 8-760-514-10 | 2SA772-14 |
| Q28 | 8-729-806-84 | 2SC668 |
| Q29 | 8-729-216-13 | 2SK161 |
| Q30 | 8-729-806-84 | 2SC668 |
| Q31 | 8-722-381-20 | 2SK23A-812 |
| Q32, 33 | 8-729-663-47 | 2SC1364 |
| Q34, 35 | 8-729-803-04 | 2SC930 |
| Q36 | 8-729-806-84 | 2SC668 |
| Q37 | 8-729-803-04 | 2SC930 |
| Q38, 39 | 8-729-663-47 | 2SC1364 |
| Q41 | 8-722-383-40 | 2SK23A-834 |
| Q43 | 8-729-216-13 | 2SK161 |
| Q44 | 8-729-803-04 | 2SC930 |
| Q45, 46 | 8-729-663-47 | 2SC1364 |
| Q47 | 8-729-803-04 | 2SC930 |
| Q48, 49 | 8-729-663-47 | 2SC1364 |
| Q50 | 8-729-803-04 | 2SC930 |
| Q51 | 8-729-663-47 | 2SC1364 |
| Q52 | 8-722-383-40 | 2SK23A-834 |
| Q53 | 8-729-663-47 | 2SC1364 |
| Q201-208 | 8-729-663-47 | 2SC1364 |

| <u>Ref. No.</u> | <u>Part No.</u> | <u>Description</u> |
|--|-----------------|---------------------|
| Q209 | 8-729-612-77 | 2SA1027R |
| Q211 | 8-729-663-47 | 2SC1364 |
| ICs | | |
| IC1 | 8-751-620-00 | CX162 |
| IC2 | 8-759-814-05 | LB1405 |
| IC3 | 8-759-155-21 | μPB552C |
| IC4, 5 | 8-759-128-19 | μPD2819C |
| IC201, 202 | 8-759-240-15 | TC4015BP |
| IC203 | 8-759-240-11 | TC4011BP |
| IC205 | 8-759-241-74 | TC40174BP |
| Diodes | | |
| D1, 2 | 8-719-912-01 | SVC201 |
| D3-5 | 8-719-026-11 | 1T261 |
| D7 | 8-719-112-01 | VD1120 |
| D8 | 8-712-600-00 | 1T26 |
| D9-12 | 8-719-100-02 | 1S2222 |
| D13 | 8-719-912-11 | KV1211 |
| D15-19 | 8-719-921-55 | SLP155B |
| D20 | 8-719-112-01 | VD1120 |
| D21 | 8-719-912-01 | SVC201 |
| D23 | 8-719-930-12 | EQB01-12Z |
| D24 | 8-719-713-93 | 1S2139C |
| D25 | 8-719-912-01 | SVC201 |
| D27 | 8-719-136-17 | RD3.6E-BZ8 |
| D28 | 8-719-815-55 | 1S1555 |
| D29 | 8-719-116-07 | RD16E |
| D33-35 | 8-719-815-55 | 1S1555 |
| D36 | 8-719-162-07 | RD6.2E |
| D201 | 8-719-815-55 | 1S1555 |
| CAPACITORS | | |
| Common capacitors are omitted. Refer to the lists on pages 28 and 29 for their part numbers. pF: μF. | | |
| C28 | 1-161-317-00 | 330 pF 50 V ceramic |
| C74 | 1-102-602-00 | 27 pF 50 V ceramic |
| C83 | 1-102-607-00 | 43 pF 50 V ceramic |

| <u>Ref. No.</u> | <u>Part No.</u> | <u>Description</u> |
|-----------------|-----------------|--------------------|
| C100 | 1-102-653-00 | 82 pF 50 V ceramic |
| C101 | 1-102-654-00 | 91 pF 50 V ceramic |
| CT1, 2 | 1-141-179-12 | Trimmer |
| CTS | 1-141-232-00 | 11 pF, trimmer |

RESISTORS

All resistors are in ohms. Common 1/2 W carbon resistors are omitted. Refer to the list on the last page for their part numbers. k: 1000 Ω , M: 1000 k Ω .

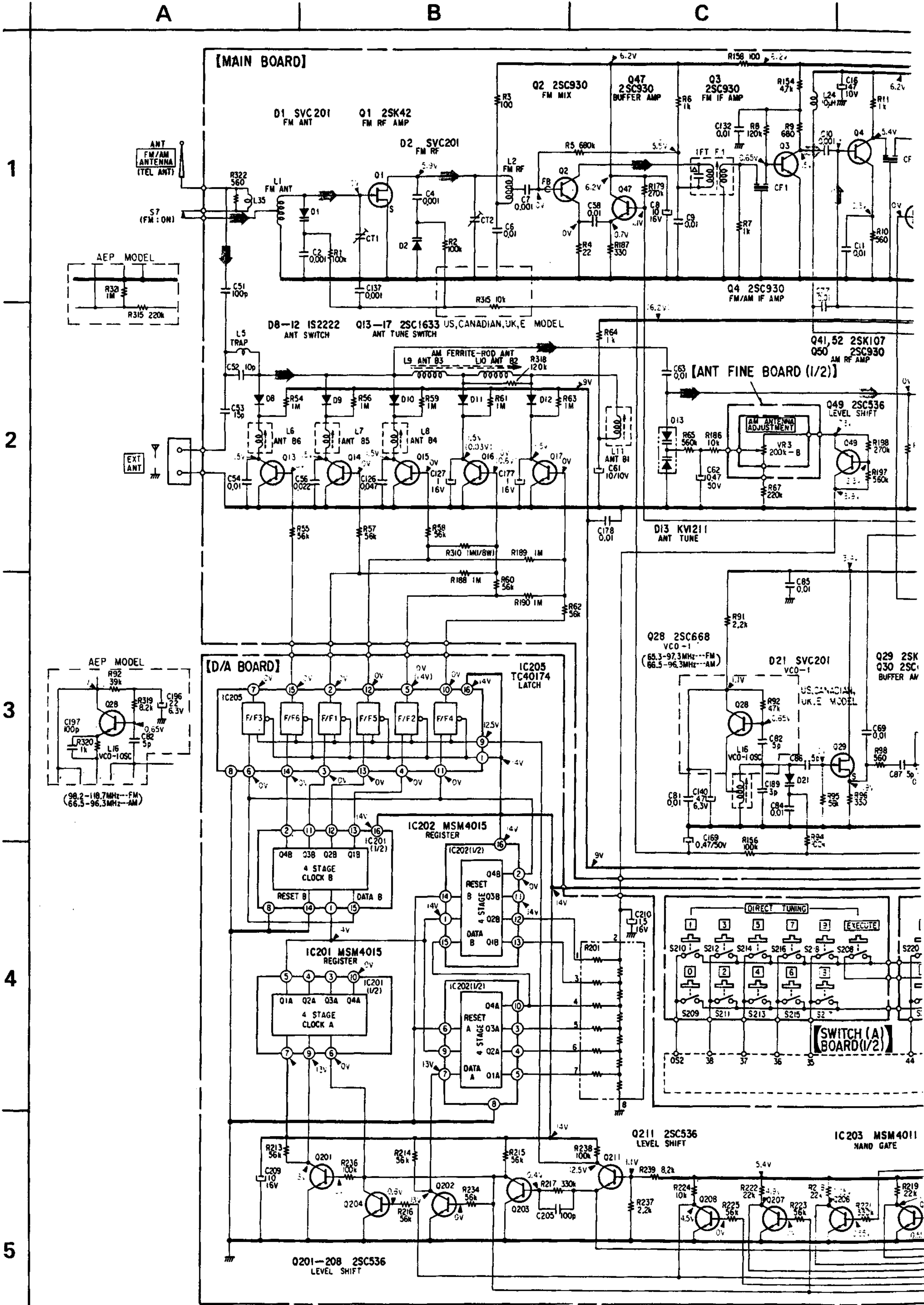
| | | |
|------|--------------|---|
| R13 | 1-247-053-00 | 1 M 1/8 W carbon |
| R104 | 1-209-775-00 | 5.6 k 1/16 W micro |
| R105 | 1-209-765-00 | 1.2 k 1/16 W micro |
| R106 | 1-209-878-00 | 1.8 k 1/16 W micro |
| R124 | 1-247-053-00 | 1 M 1/8 W carbon |
| R127 | 1-246-795-00 | 10 k 1/8 W carbon |
| R129 | 1-209-773-00 | 4.7 k 1/16 W micro |
| R132 | 1-209-771-00 | 3.9 k 1/16 W micro |
| R160 | 1-246-514-00 | 51 k 1/4 W carbon (1 %) |
| R161 | 1-246-506-00 | 24 k 1/4 W carbon (1 %) |
| R201 | 1-231-615-00 | Encapsulated Component |
| R243 | 1-246-795-00 | 10 k 1/8 W carbon |
| R301 | 1-209-775-00 | 5.6 k 1/16 W micro |
| R308 | 1-211-695-00 | 560 k 1/16 W micro |
| R310 | 1-247-053-00 | 1 M 1/8 W carbon |
| VR1 | 1-226-402-00 | 20 k-A, slide variable; TREBLE |
| VR2 | 1-226-643-00 | 5 k-D, slide variable; BASS |
| VR3 | 1-226-791-00 | 200 k-B, variable; AM ANTENNA ADJUSTMENT |
| VR4 | 1-226-799-00 | 200 k-B, variable; SSB/CW COMPENSATOR |
| VR5 | 1-226-643-00 | 5 k-D, slide variable; VOLUME |

MISCELLANEOUS

| | | |
|--------|--------------|---------------------------|
| ANT | 1-501-219-00 | TEL ANT |
| CF1, 2 | 1-527-184-XX | Filter, ceramic; 10.7 MHz |
| FB | 1-543-152-00 | Ferrite Bead |
| IFT-A1 | 1-404-235-00 | Transformer, AM IF |
| IFT-A2 | 1-404-233-00 | Transformer, AM IF |
| IFT-A3 | 1-404-234-00 | Transformer, AM IF |

| <u>Ref. No.</u> | <u>Part No.</u> | <u>Description</u> |
|-----------------|-----------------|--|
| IFT-F1 | 1-403-872-00 | Transformer, FM IF |
| IFT-F2 | 1-403-959-00 | Transformer, FM discriminator |
| IFT-F3 | 1-403-953-00 | Transformer, FM discriminator |
| J1-3 | 1-507-578-00 | Jack; earphone, record, timer |
| J4 | 1-507-459-00 | Jack, DC IN 4.5 V |
| ⊕L1 | 1-422-008-00 | Coil, FM ANT (US, Canadian, UK, E model) |
| | 1-422-026-00 | Coil, FM ANT (AEP model) |
| ⊕L2 | 1-420-995-00 | Coil, FM RF (US, Canadian, UK, E model) |
| | 1-422-026-00 | Coil, FM RF (AEP model) |
| ⊕L5 | 1-401-456-00 | Coil, AM trap |
| L6 | 1-401-843-00 | Coil, AM ANT |
| L7 | 1-401-842-00 | Coil, AM ANT |
| L8 | 1-401-841-00 | Coil, AM ANT |
| L9, 10 | 1-401-861-00 | Coil, AM ferrite-rod ANT |
| L11 | 1-401-838-00 | Coil, AM ANT |
| L13, 14 | 1-459-287-00 | Coil, AM IF |
| | 1-459-289-00 | Coil, VCO-1 OSC (US, Canadian, UK, E model) |
| L16 | 1-459-337-00 | Coil, VCO-1 OSC (AEP model) |
| L17 | 1-459-290-00 | Coil, VCO-2 OSC |
| L18 | 1-408-072-00 | Microinductor, 47 μ H |
| L19 | 1-422-013-00 | Coil, 0.22 μ H |
| ⊕L20 | 1-425-608-00 | Coil, 0.47 μ H |
| L21 | 1-405-895-00 | Coil, OSC; 1.3 μ H |
| L22 | 1-408-080-00 | Microinductor, 100 μ H |
| L23 | 1-407-182-XX | Microinductor, 2.2 μ H |
| L24 | 1-408-117-00 | Microinductor, 10 μ H |
| L25 | 1-407-169-XX | Microinductor, 100 μ H |
| L26 | 1-408-188-XX | Microinductor, 6.8 μ H |
| L28 | 1-408-362-00 | Microinductor, 517 μ H |
| L30-33 | 1-408-284-00 | Microinductor, 10 μ H |
| L34 | 1-408-362-00 | Microinductor, 517 μ H |
| ⊕L35 | 1-425-607-00 | Coil, ANT |
| L36 | 1-408-096-00 | Microinductor, 470 μ H |
| L37 | 1-408-080-00 | Microinductor, 100 μ H |
| PL | 1-518-322-00 | Pilot Lamp, 4.5 V 40 mA |
| S1 | 1-552-300-00 | Switch, slide; BAND |

4-2. SCHEMATIC DIAGRAM



ICF-2001 ICF-2001

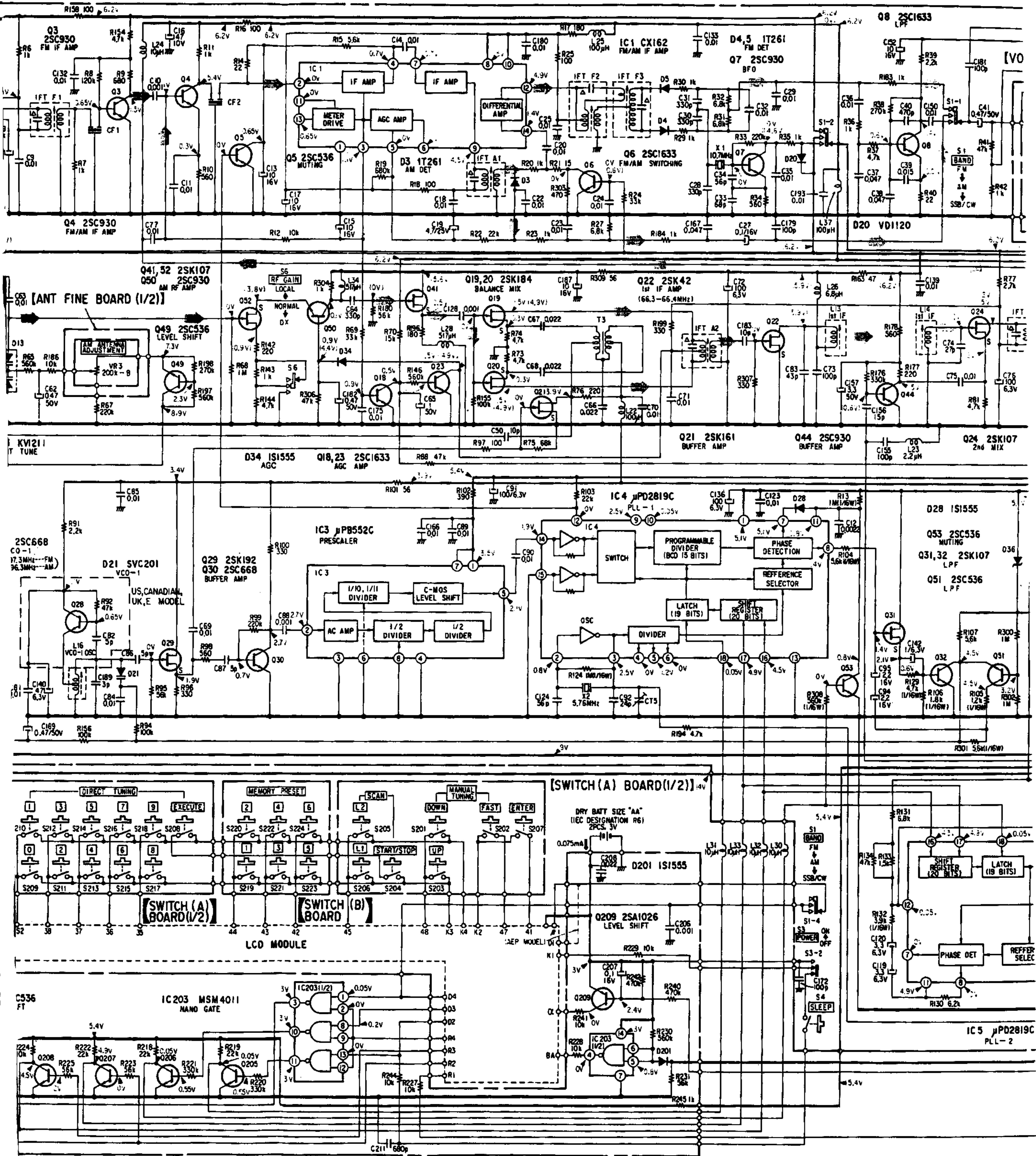
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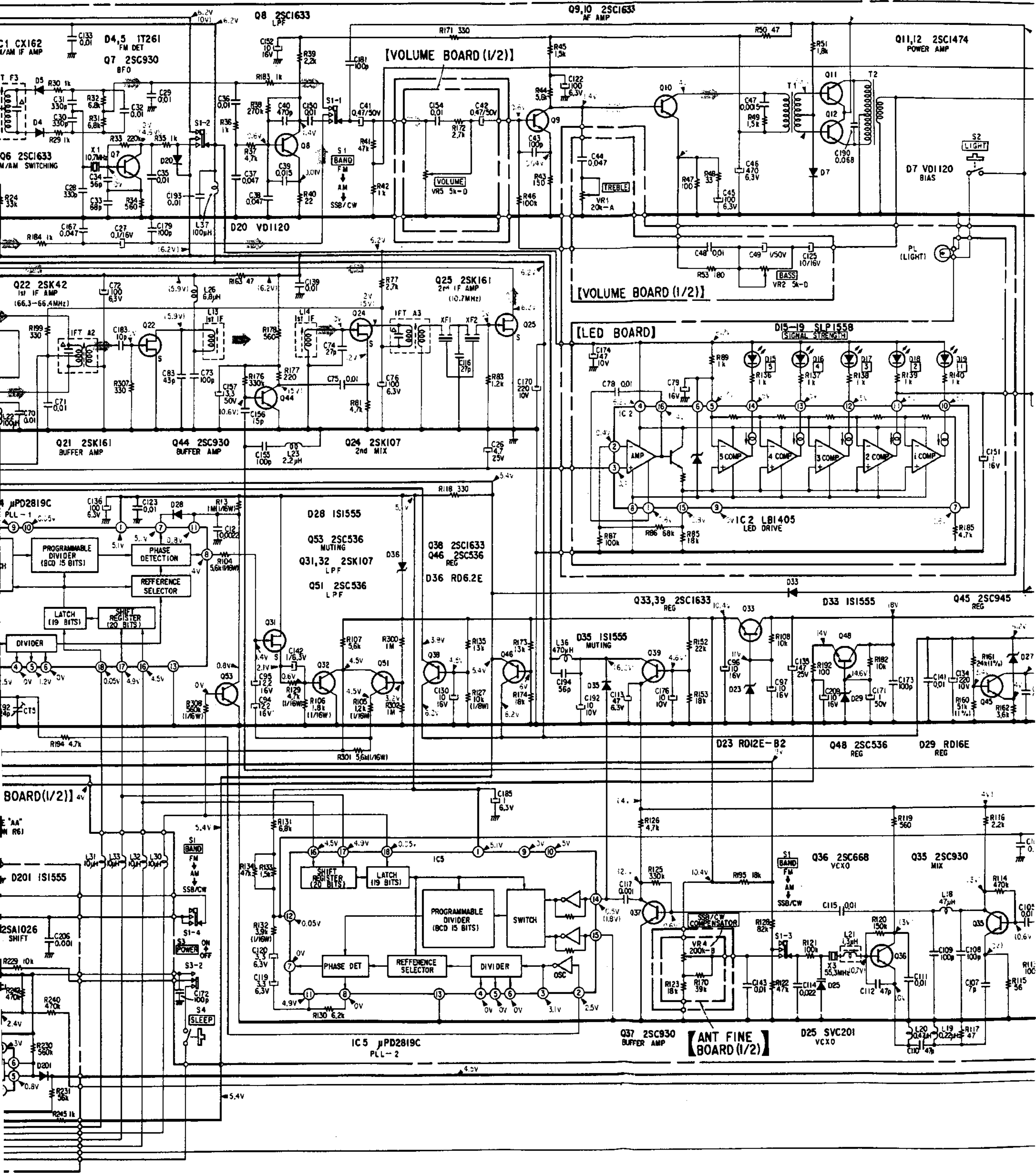


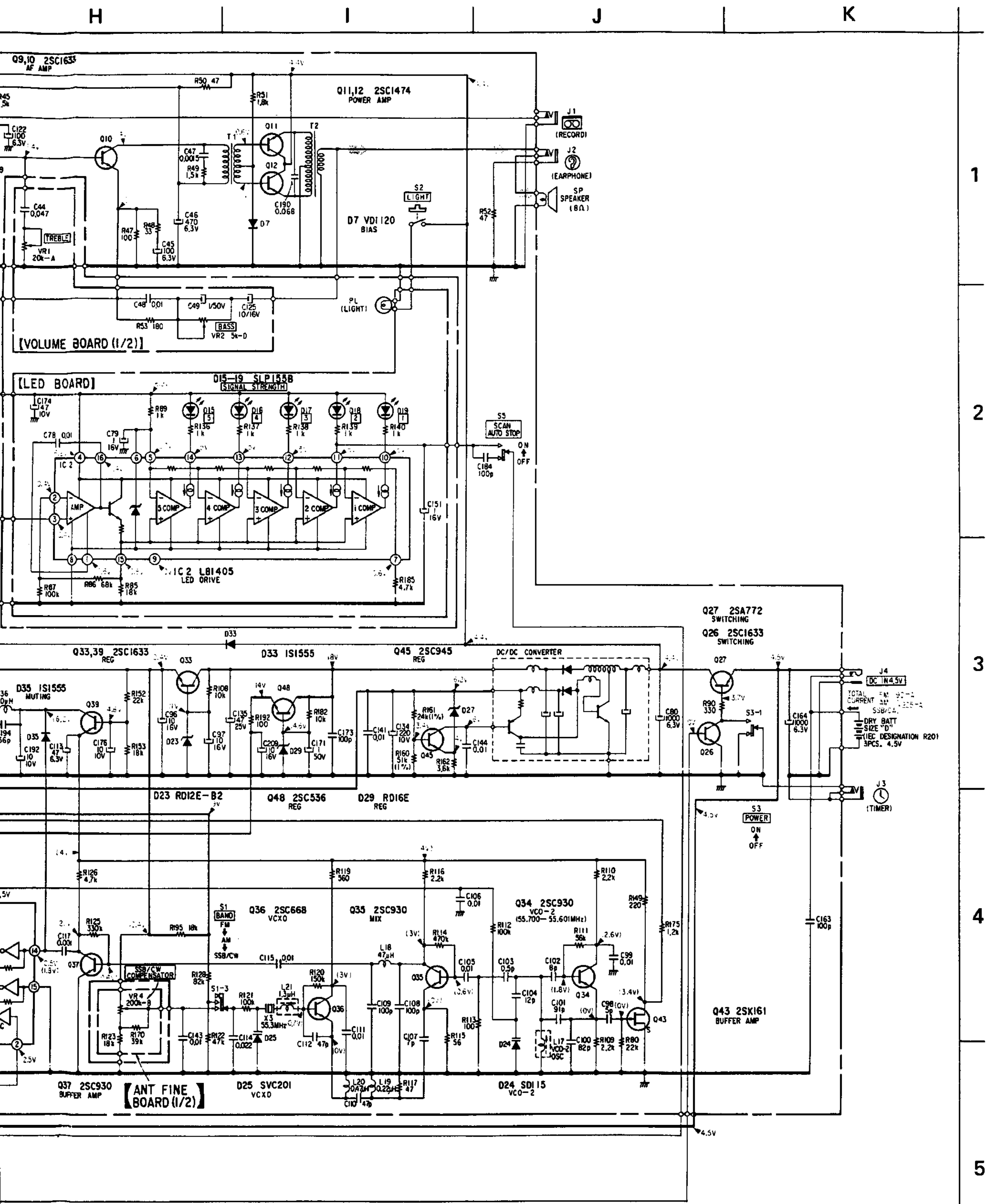
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SECTION 1
BLOCK DIAGRAM

