

STR-232L

AEP Model

UK Model



FM STEREO/FM-AM RECEIVER

SPECIFICATIONS

GENERAL

| | |
|----------------------------|--|
| Power Requirements: | 240 V ac, 50 Hz (UK model) 120 V, 220 V or 240 V ac adjustable, 50 Hz (AEP model) |
| Power Consumption: | 110 W (UK model) 95 W (AEP model) |
| Dimensions: | Approx. 410 (w) x 145 (h) x 305 (d) mm 16 (w) x 5 7/8 (h) x 12 (d) inches including projecting parts and controls. |
| Weight: | 5.9 kg, 13 lb (net) Approx. 7.1 kg, 15 lb 11 oz (in shipping carton) |


FM SECTION

| | |
|--------------------------------------|---|
| Tuning Range: | 87.5 – 108 MHz |
| Antenna: | 300 Ω balanced 75 Ω unbalanced |
| Intermediate Frequency: | 10.7 MHz |
| Sensitivity at 50dB Quieting: | 4 μ V (12 dB) (MONO) 45 μ V (33 dB) (STEREO) |

| | |
|--------------------------------------|--|
| Sensitivity at 46dB Quieting: | 4.5 μ V (13 dB) (MONO) 50 μ V (34 dB) (STEREO) |
| Usable Sensitivity: | 1.9 μ V (5.5 dB), IHF 1.7 μ V (4.5 dB), S/N = 26 dB (40 kHz deviation) |
| S/N Ratio: | 73 dB (MONO) 68 dB (STEREO) |
| Harmonic Distortion: | At 1 kHz 0.3 % (MONO) 0.5 % (STEREO) |
| IM Distortion: | 0.3 % (MONO) 0.5 % (STEREO) |
| Separation: | 45 dB at 1 kHz |
| Frequency Response: | 40 – 12,500 Hz +0.5 dB -1.0 dB 30 – 15,000 Hz +0.5 dB -2.0 dB |

– Continued on page 2 –

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

Selectivity: 55 dB (300 kHz, S/N = 26 dB, 40 kHz deviation)
Capture Ratio: 1.0 dB
AM Suppression Ratio: 54 dB
Image Response Ratio: 45 dB
Spurious Response Ratio: 75 dB
Muting Threshold: Approx. 5 μ V

MW/LW SECTION

Tuning Range: MW: 530 – 1,605 kHz
 LW: 150 – 350 kHz
Antenna: MW: External antenna terminal
 Built-in ferrite-rod antenna
 LW: External antenna terminal
 Built-in ferrite-rod antenna
Intermediate Frequency: 468 kHz
Usable Sensitivity: MW: 250 μ V/m (40 dB/m),
 built-in antenna (1,000 kHz)
 LW: 500 μ V/m (53.8 dB/m),
 built-in antenna (230 kHz)
 100 μ V (40 dB),
 external antenna (230 kHz)
S/N Ratio: MW: 52 dB at 5 mV
 LW: 52 dB at 5 mV
Harmonic Distortion: MW: 0.3 % at 5 mV, 400 Hz
 LW: 0.3 % at 5 mV, 400 Hz
Selectivity: 28 dB (9 kHz)

AUDIO AMPLIFIER SECTION

Continuous RMS Power

Output: Less than 0.7 % THD, both channels driven simultaneously
 At 40 – 20,000 Hz
 18 W + 18 W (8 Ω)
 At 1 kHz
 20 W + 20 W (8 Ω)
 According to DIN 45500
 20 W + 20 W (8 Ω)

Dynamic Power Output: IHF constant power supply method
 56 W at 8 Ω
Power Bandwidth: 10 – 40,000 Hz, IHF
Damping Factor: 20 at 1 kHz (8 Ω)
Harmonic Distortion: Less than 0.7 % at rated output
 Less than 0.3 % at 1 W output
IM Distortion: Less than 0.7 % at rated output
 Less than 0.3 % at 1 W output
 (60Hz : 7kHz = 4 : 1)
Residual Noise: Less than 0.08 μ W at 8 Ω
Frequency Response: PHONO:
 RIAA equalization curve \pm 1.0 dB
 TAPE:
 10 – 50,000 Hz +1 dB
 -3 dB

Inputs:

| | Sensitivity | Impedance | S/N | Weighting network |
|-------|-------------------|----------------|-------|-------------------|
| PHONO | 2.5 mV (-50 dB) | 50 k Ω | 70 dB | A |
| TAPE | 150 mV (-14.5 dB) | 100 k Ω | 90 dB | A |

Measured with rated output power into 8 Ω loads (both channels driven simultaneously) at 1 kHz.

Outputs:

(with rated input)

| | Voltage | Impedance |
|---------|-------------------|---------------|
| REC OUT | 150 mV (-14.5 dB) | 10 k Ω |

Headphones: Accepts all low or high impedance headphones.

Speaker: 8 – 16 Ω speakers are suitable.

Tone Controls: BASS: \pm 8 dB at 100 Hz
 TREBLE: \pm 8 dB at 10 kHz

Loudness Control: +8 dB at 100 Hz
 (att. 30dB) +3 dB at 10 kHz

0 dB = 0.775 V

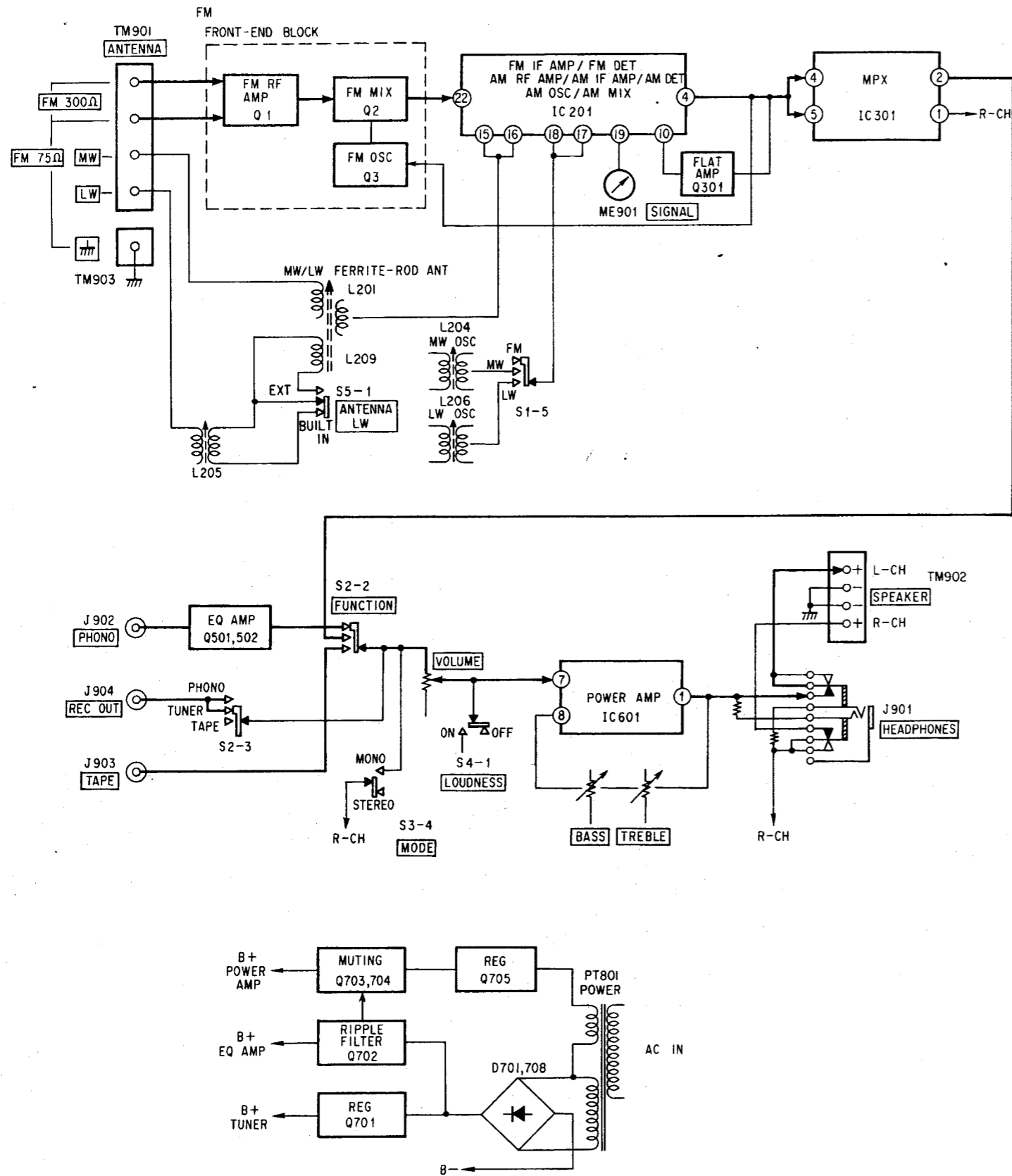
• MODEL IDENTIFICATION

– Voltage Selector –

Only in AEP models, the voltage selectors are installed.

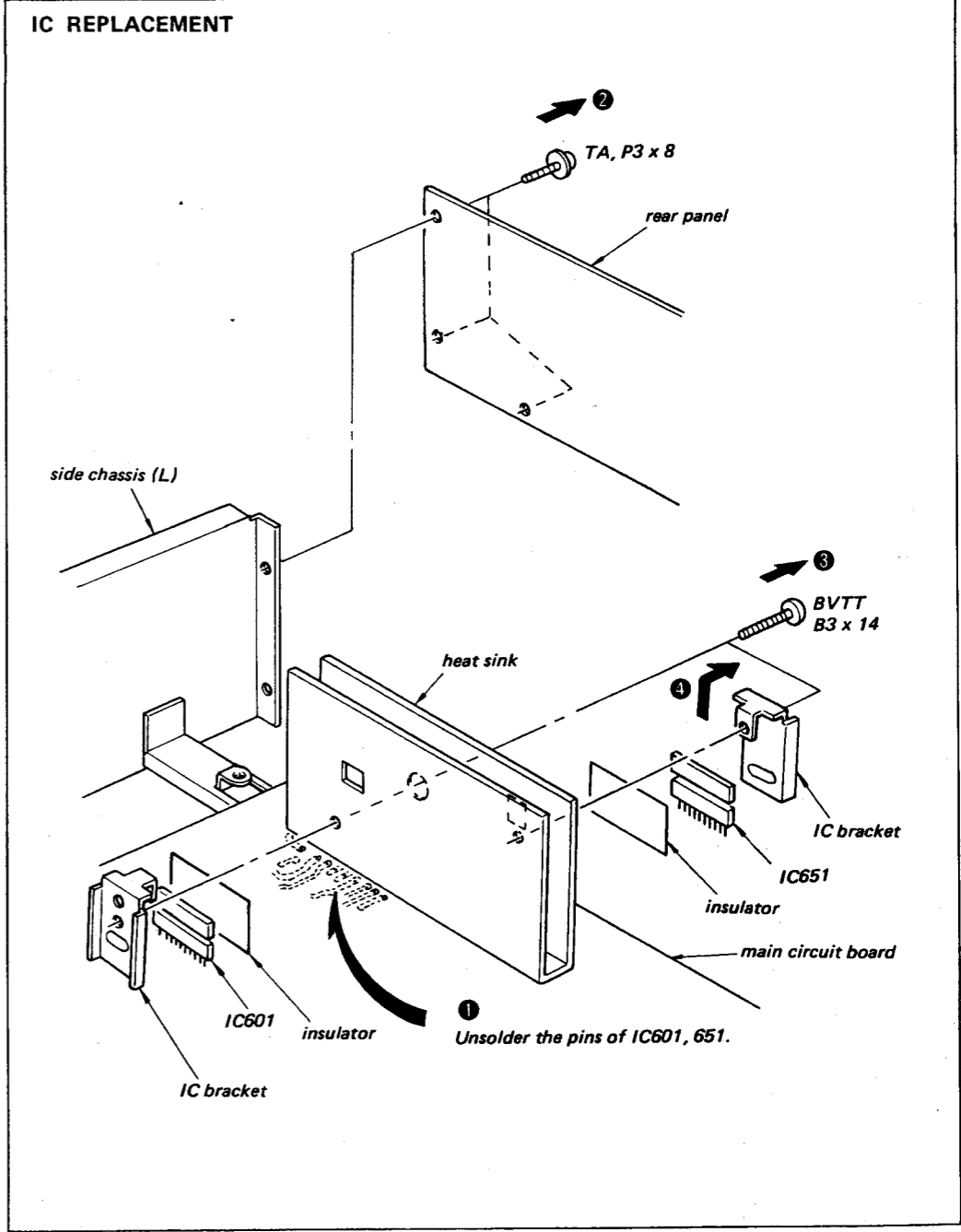
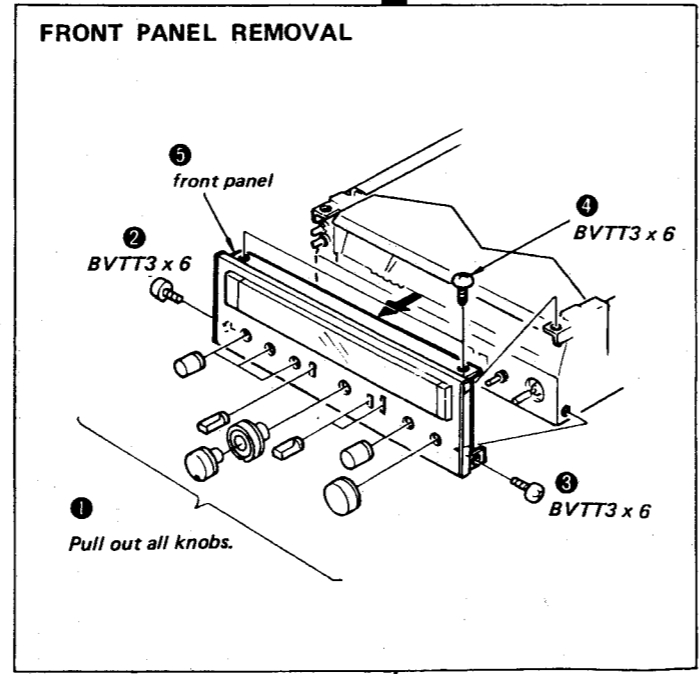
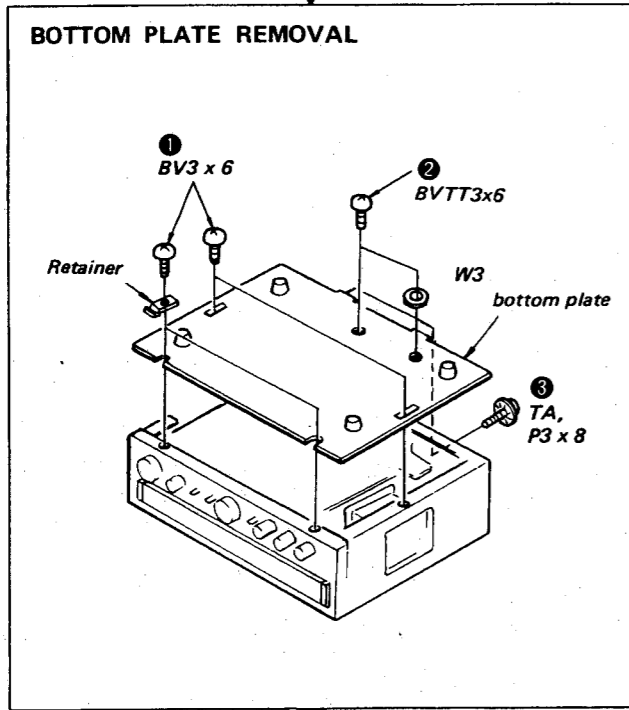
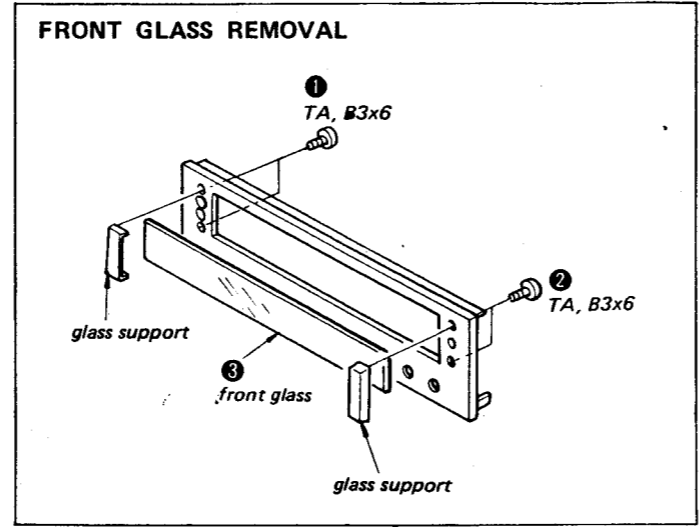
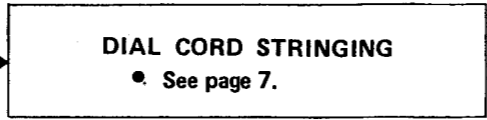
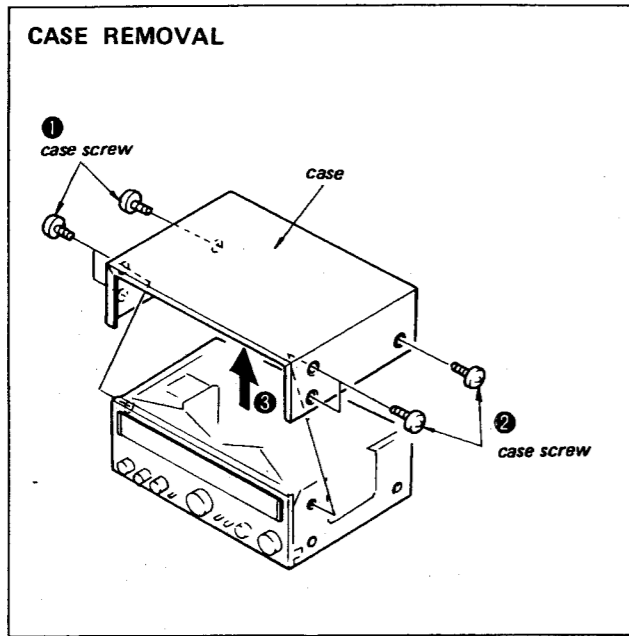
SECTION 1
OUTLINE

1-1. BLOCK DIAGRAM



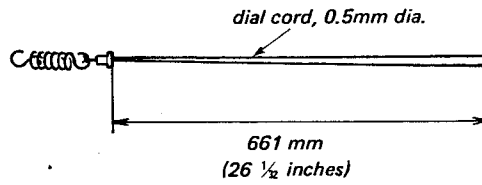
SECTION 2
DISASSEMBLY

• Follow the disassembly procedure in the numerical order given.



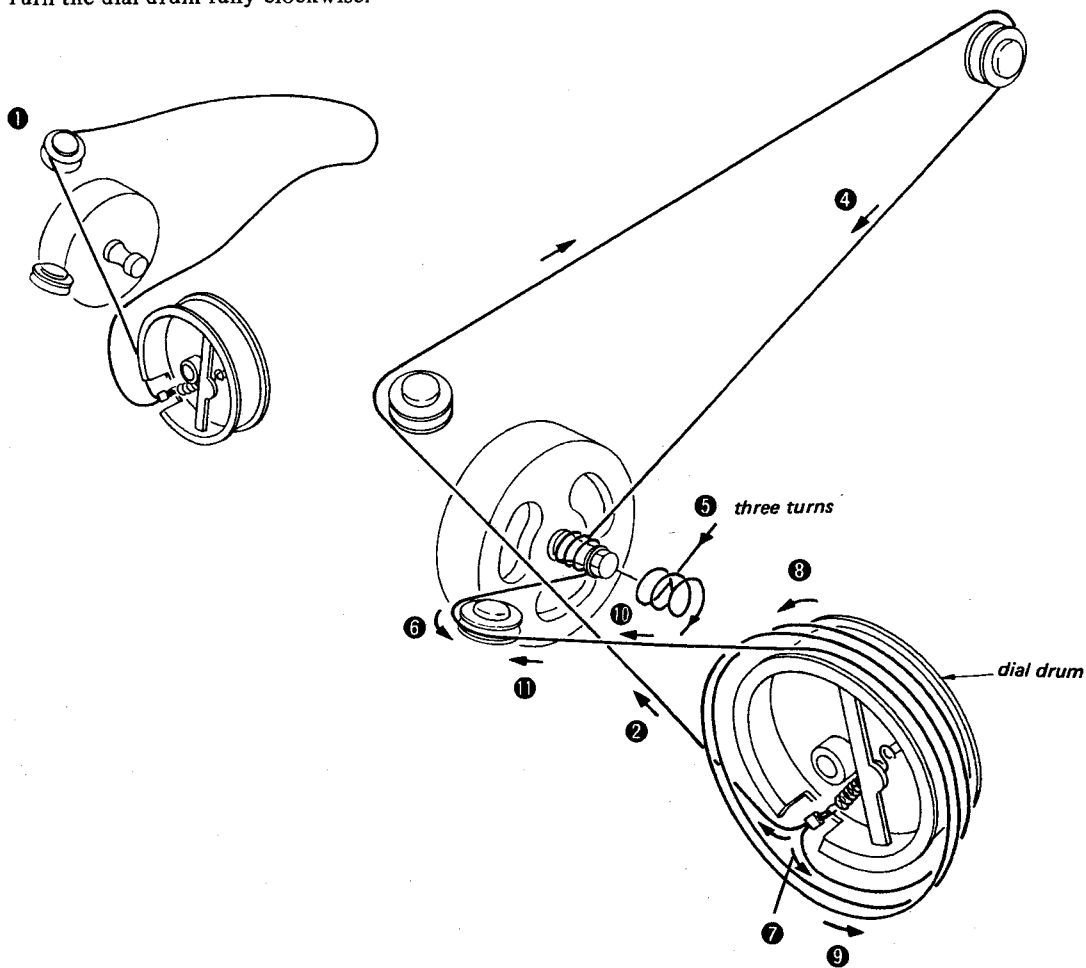
DIAL CORD STRINGING

1) Preparation



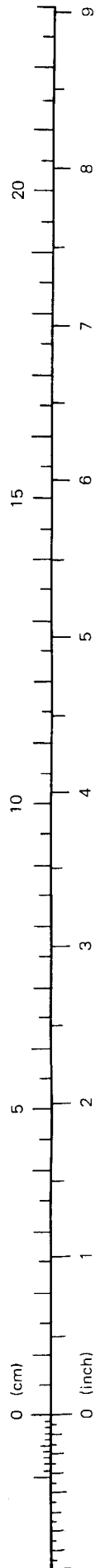
2) Stringing

- Turn the dial drum fully clockwise.



3) Dial Pointer Installation

1. Tune the receiver to the off-the-air signal.
2. Set the dial pointer to the frequency of the dial scale and install it.

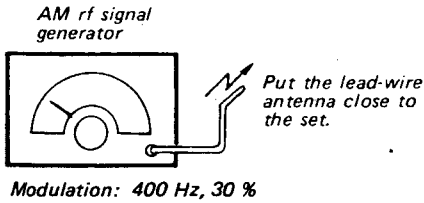
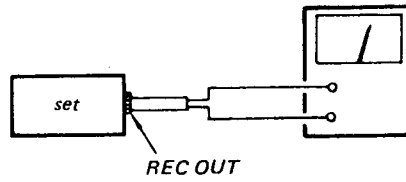


**SECTION 3
ADJUSTMENTS**

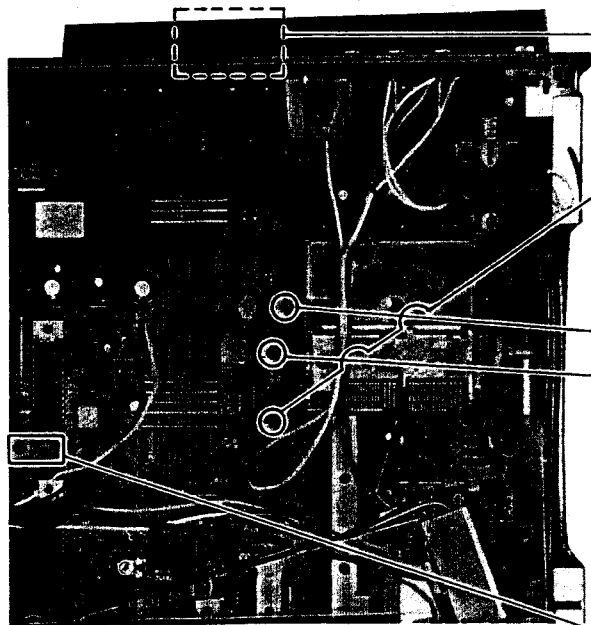
3-1. MW SECTION

Setting: FUNCTION Selector: TUNER
 Band Selector: MW
 MODE Selector: STEREO/FM-AM MUTE

VOM
 (range: 0.5–5 V ac)



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



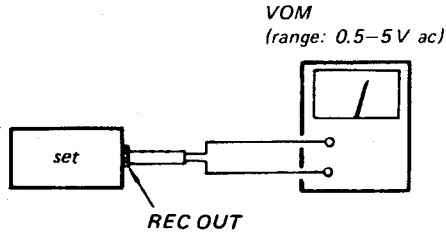
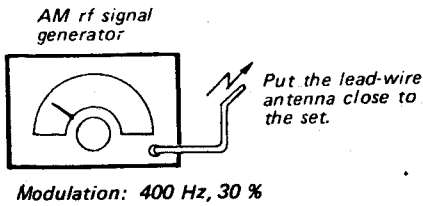
| MW TRACKING ADJUSTMENT | |
|--------------------------------------|----------|
| Adjust for a maximum reading on VOM. | |
| L201 | 600 kHz |
| CT203 | 1400 kHz |

| MW FREQUENCY COVERAGE ADJUSTMENT | |
|--------------------------------------|----------|
| Adjust for a maximum reading on VOM. | |
| CT201 | 1680 kHz |
| L204 | 520 kHz |

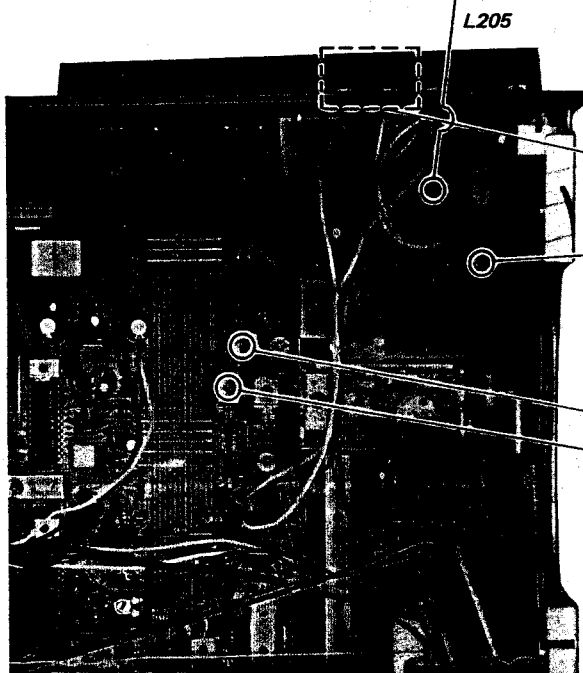
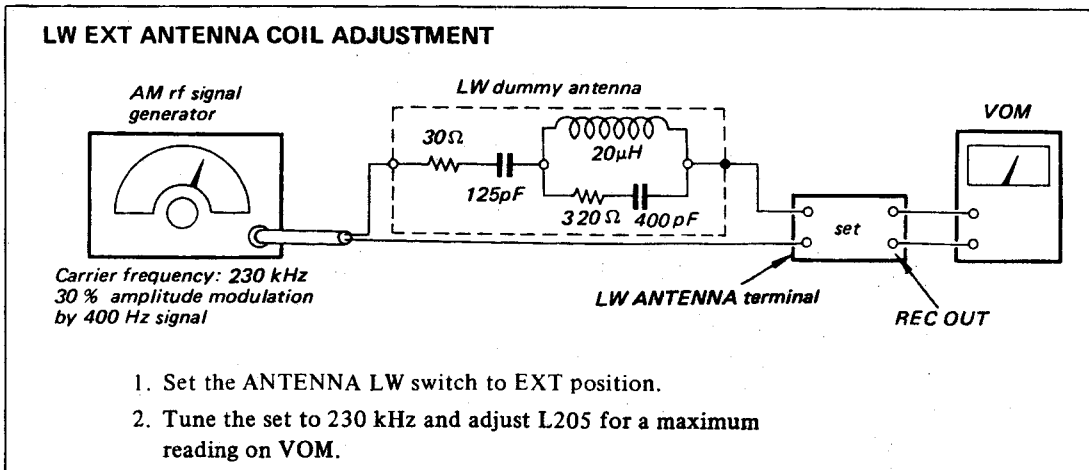
| AM IF ALIGNMENT | |
|--------------------------------------|--|
| Adjust for a maximum reading on VOM. | |
| CFT201 | |

3-2. LW SECTION

Setting: FUNCTION Selector: TUNER
 Band Selector: LW
 MODE Selector: STEREO/FM-AM MUTE
 LW ANTENNA Selector: BUILT IN



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

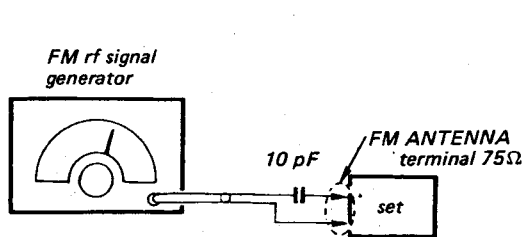


| LW TRACKING ADJUSTMENT | |
|--------------------------------------|---------|
| Adjust for a maximum reading on VOM. | |
| L209 | 170 kHz |
| CT204 | 310 kHz |

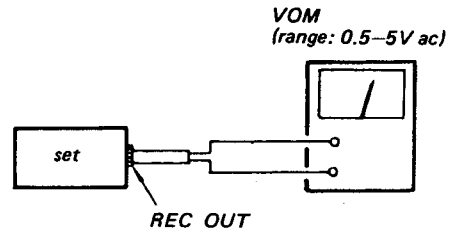
| LW FREQUENCY COVERAGE ADJUSTMENT | |
|--------------------------------------|---------|
| Adjust for a maximum reading on VOM. | |
| CT202 | 365 kHz |
| L206 | 145 kHz |

3-3. FM SECTION

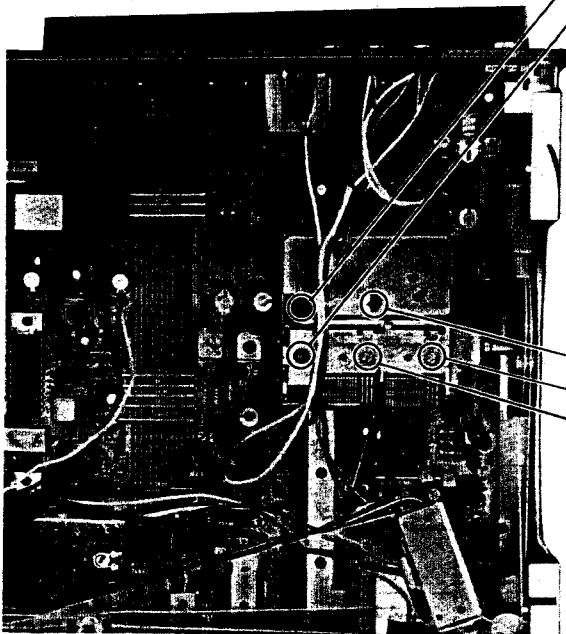
Setting: FUNCTION Selector: TUNER
 Band Selector: FM
 MODE Selector: STEREO/FM-AM MUTE



Modulation: 400 Hz, 40 kHz deviation (100%)



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



| FM FREQUENCY COVERAGE ADJUSTMENT | |
|--------------------------------------|---------------------|
| Adjust for a maximum reading on VOM. | |
| L3 | 87.1 MHz (87.5 MHz) |
| CT3 | 108.5 MHz (108 MHz) |

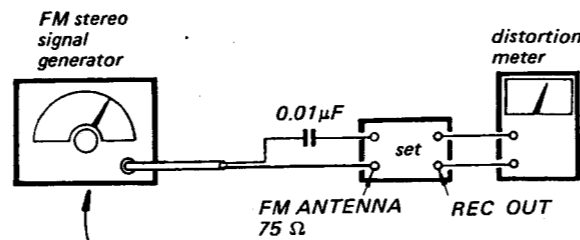
() : in West Germany

| FM TRACKING ADJUSTMENT | |
|--------------------------------------|---------------------|
| Adjust for a maximum reading on VOM. | |
| L2 | 87.1 MHz (87.5 MHz) |
| CT1 | 108.5 MHz |
| CT2 | (108 MHz) |

() : in West Germany

FM DISCRIMINATOR ALIGNMENT 2

Setting: FUNCTION Selector: TUNER
 Band Selector: FM
 MODE Selector: MONO



Carrier frequency: 98 MHz
 Output level: 1 mV (60 dB)
 Modulation: 400 Hz, 40 kHz deviation (100 %)

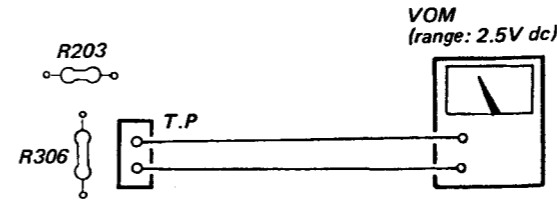
Procedure:

Adjust the black core (secondary side) of IFT201 for minimum distortion.

IFT201 (secondary side: black)

FM DISCRIMINATOR ALIGNMENT 1

Setting: FUNCTION Selector: TUNER
 Band Selector: FM
 MODE Selector: MONO
 TUNING: Detuned position

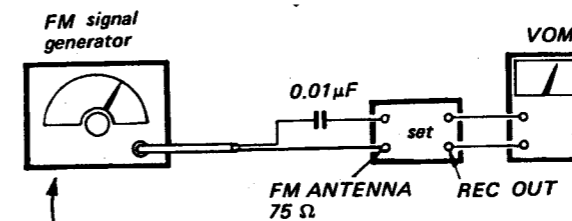


Procedure:

Adjust the blue core (primary-side) of IFT201 for 0 V reading on VOM.

Note: When replacing the ceramic filter (CF201), perform this alignment.

FM IF ALIGNMENT



Carrier frequency: 98 MHz
 Output level: 12.5 μV (22 dB)
 Modulation: 400 Hz, 40 kHz deviation (100 %)

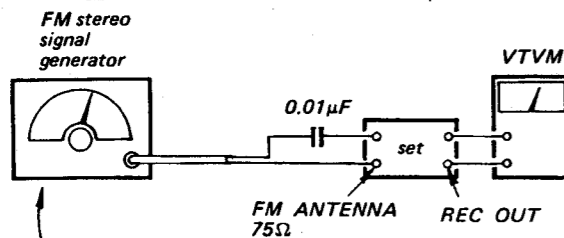
Setting: FUNCTION Selector: TUNER
 Band Selector: FM
 MODE Selector: MONO

Procedure:

Adjust IFT1 for maximum reading on the VOM.

FM STEREO SEPARATION ADJUSTMENT

Setting: FUNCTION Selector: TUNER
 Band Selector: FM
 MODE Selector: STEREO/FM-AM MUTE

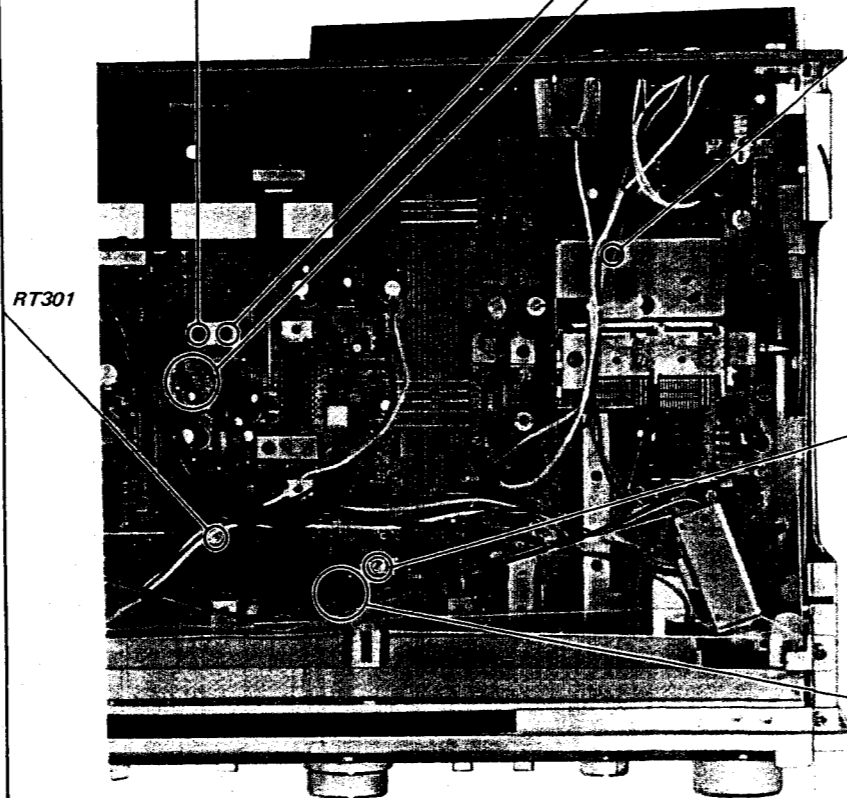


Carrier frequency: 98 MHz
 Output level: 1 mV (60 dB)
 Modulation:
 Audio (400 Hz): 20 kHz deviation (50 %)
 Pilot (19 kHz): 6.3 kHz deviation (16 %)
 Sub channel (38 kHz): 20 kHz deviation (50 %)

Procedure:

| FM stereo signal generator output channel | VTVM connection | VTVM reading |
|---|-----------------|--|
| L-CH | L-CH | (A) |
| | | (B) |
| R-CH | L-CH | Adjust RT301 resistor for minimum reading. |
| R-CH | R-CH | (C) |
| | | (D) |
| L-CH | R-CH | Adjust RT301 resistor for minimum reading. |

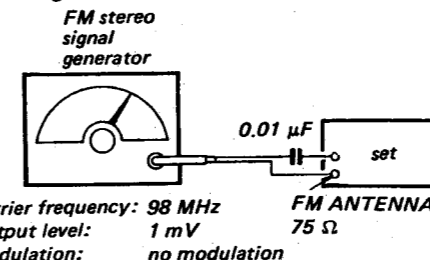
L-CH Stereo separation: (A) - (B)
 R-CH Stereo separation: (C) - (D)
 The difference between separations (A) - (B) and (C) - (D) are to be equal.



19kHz ADJUSTMENT

Setting: FUNCTION Selector: TUNER
 Band Selector: FM
 MODE Selector: STEREO/FM-AM MUTE

A) Regular Method

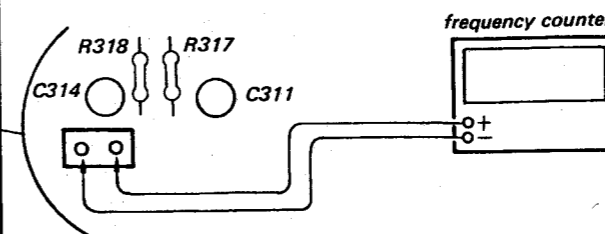
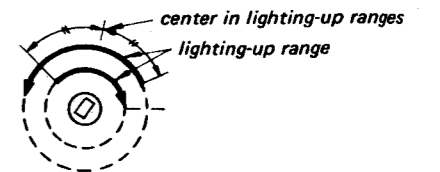


Carrier frequency: 98 MHz
 Output level: 1 mV
 Modulation: no modulation

B) Simple Method

Procedure:

1. Turn the set to the FM stereo broadcasting signal.
2. Turn RT302 clockwise or counterclockwise and memorize the lighting-up range of STEREO lamp.
3. Secure RT302 at the center in lighting-up range of both turns as shown below.



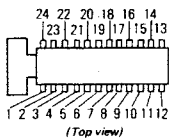
Procedure:

Adjust RT302 for 76 kHz ±100 Hz on the frequency counter.

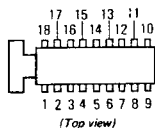
• Replacement Semiconductors

For replacement, use semiconductors except in ().

IC201: CX168



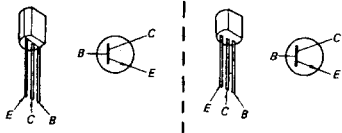
IC301: CX178



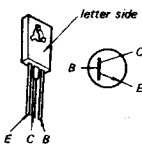
IC601, 651: HA1350S



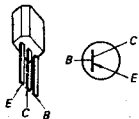
Q301, 702, 703 : 2SC1364
 Q501, 502 : 2SC1362 } (2SC1815)
 Q551, 552 : 2SC1362



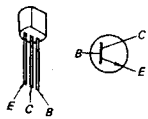
Q701: 2SD809



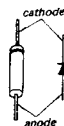
Q704: 2SA1027R (2SA844)



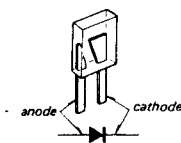
Q705: 2SC1475 (2SD789)



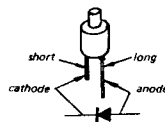
D201, 301, 302, 308, 309 } : 1S1555
 D704, 706, 707, 709, 710 }
 D703 : 10E2



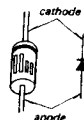
D303 : GL9PR21 (GL9PR)



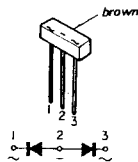
D304, 305, 306 : GL2PR1 (GL2PR)



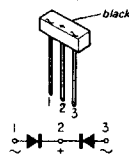
D307: EQB01-11Z (EQA01-11R)
 D702: EQB01-16 (EQA01-16R)
 D705: EQB01-26 (EQA01-26R)



D701: S3VC40R (S2VC20R)



D708: S3VC40 (S2VC20)

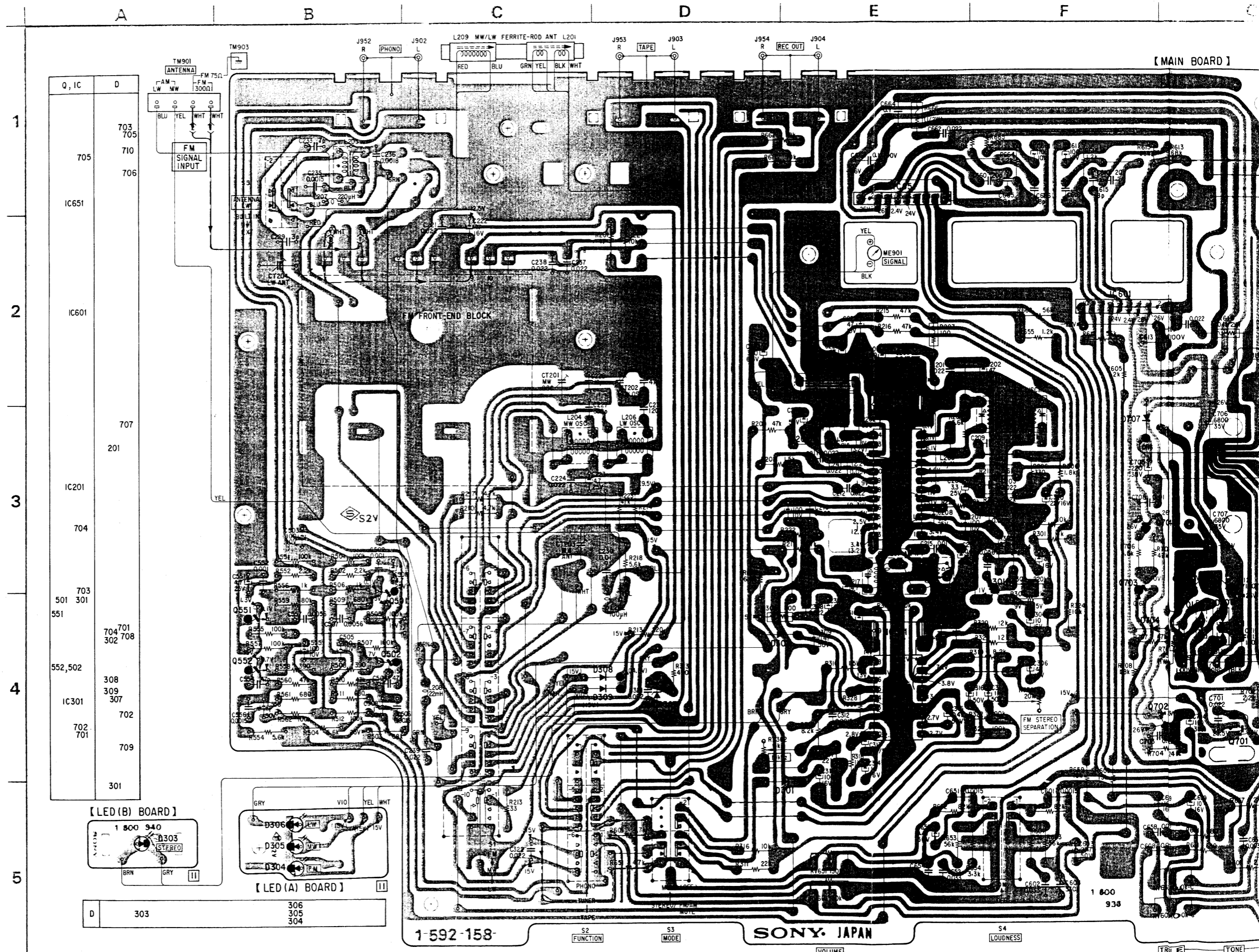


SECTION 4
DIAGRAMS

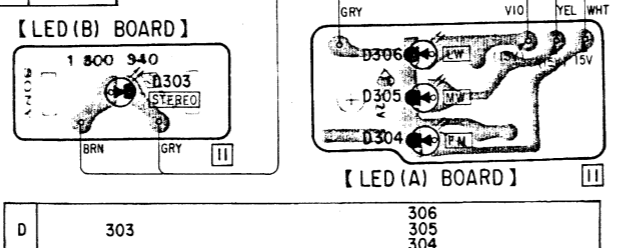
4.1. MOUNTING DIAGRAM
- Conductor Side -

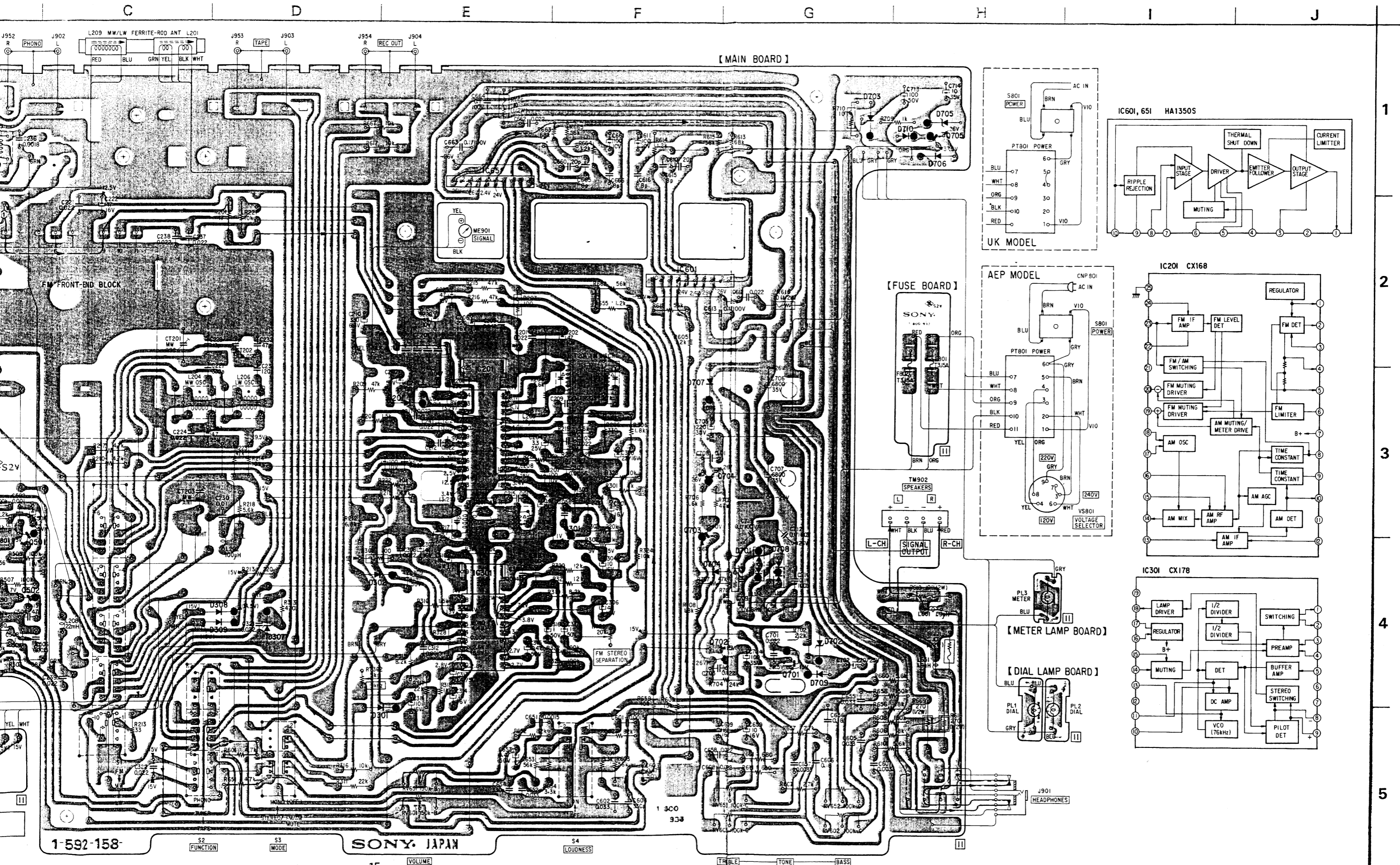
Note:

- [Symbol]: indicates side identified with part number.
- Color code of sleeving over the end of the jacket.
- [Symbol]: B+ pattern
- [Symbol]: B- pattern
- Signal Path
- L-CH
- R-CH
- Readings are taken under no-signal conditions with a VOM (20 kΩ/V).
- (): AM

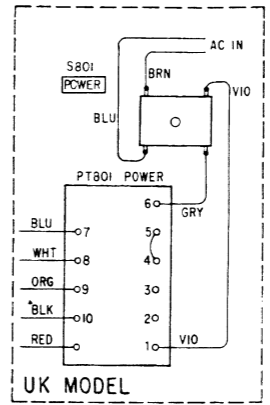


| Q, IC | D |
|----------|-----------------|
| 703 | 705 |
| 705 | 710 |
| 706 | 706 |
| IC651 | |
| IC601 | |
| 707 | 201 |
| IC201 | |
| 704 | 704 |
| 703 | 501 301 |
| 551 | 704 701 302 708 |
| 552, 502 | 308 |
| IC301 | 309 |
| 702 | 307 |
| 701 | 702 |
| | 709 |
| 301 | |

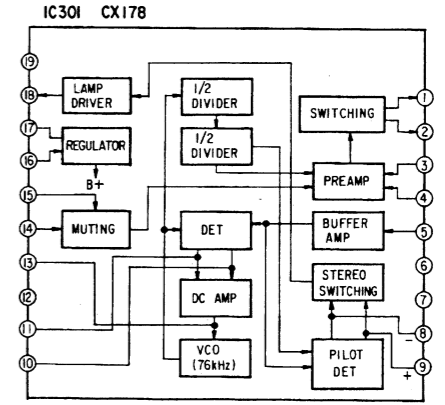
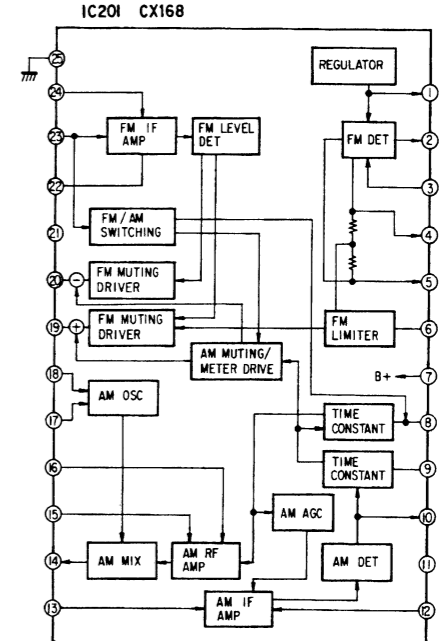
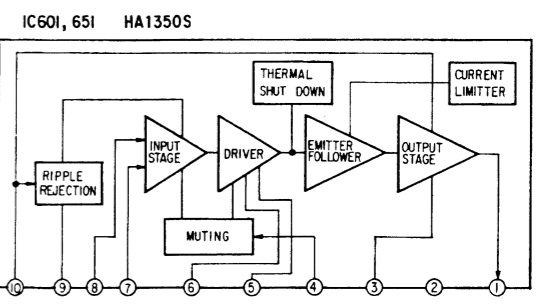
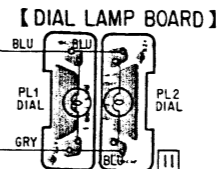
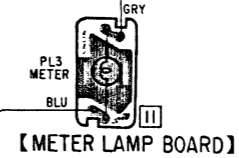
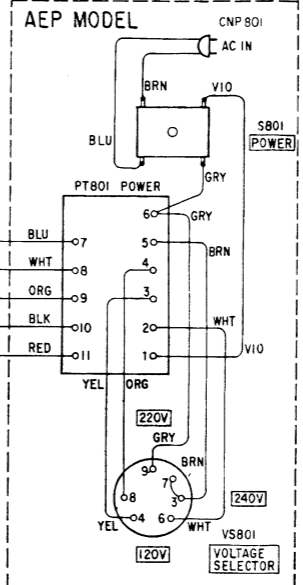
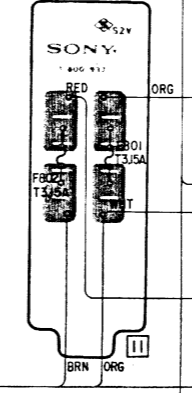




[MAIN BOARD]



[FUSE BOARD]



1-592-158

S2 FUNCTION S3 MODE

SONY JAPAN

S4 LOUDNESS

TREBLE TONE BASS

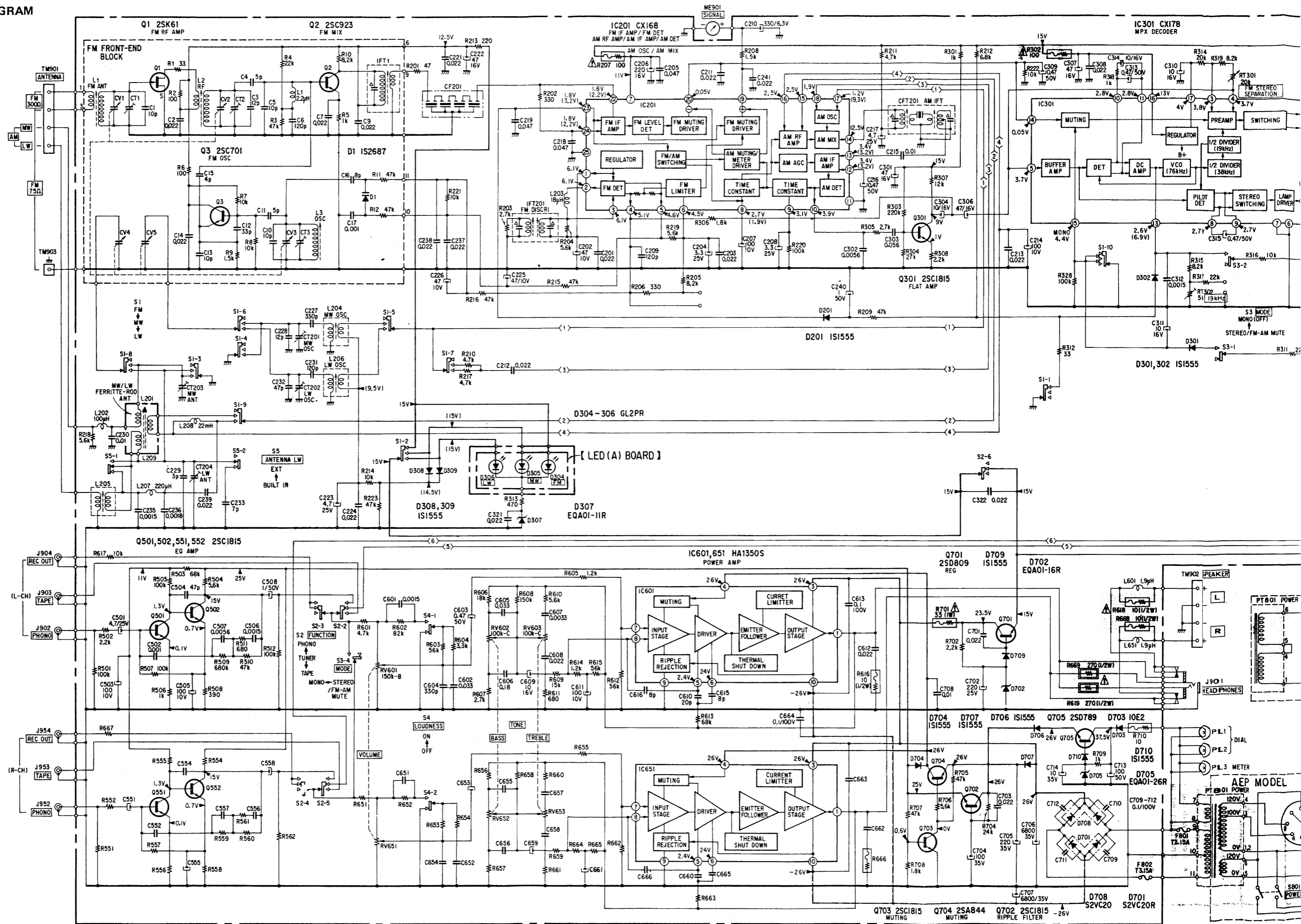
-15- [VOLUME]

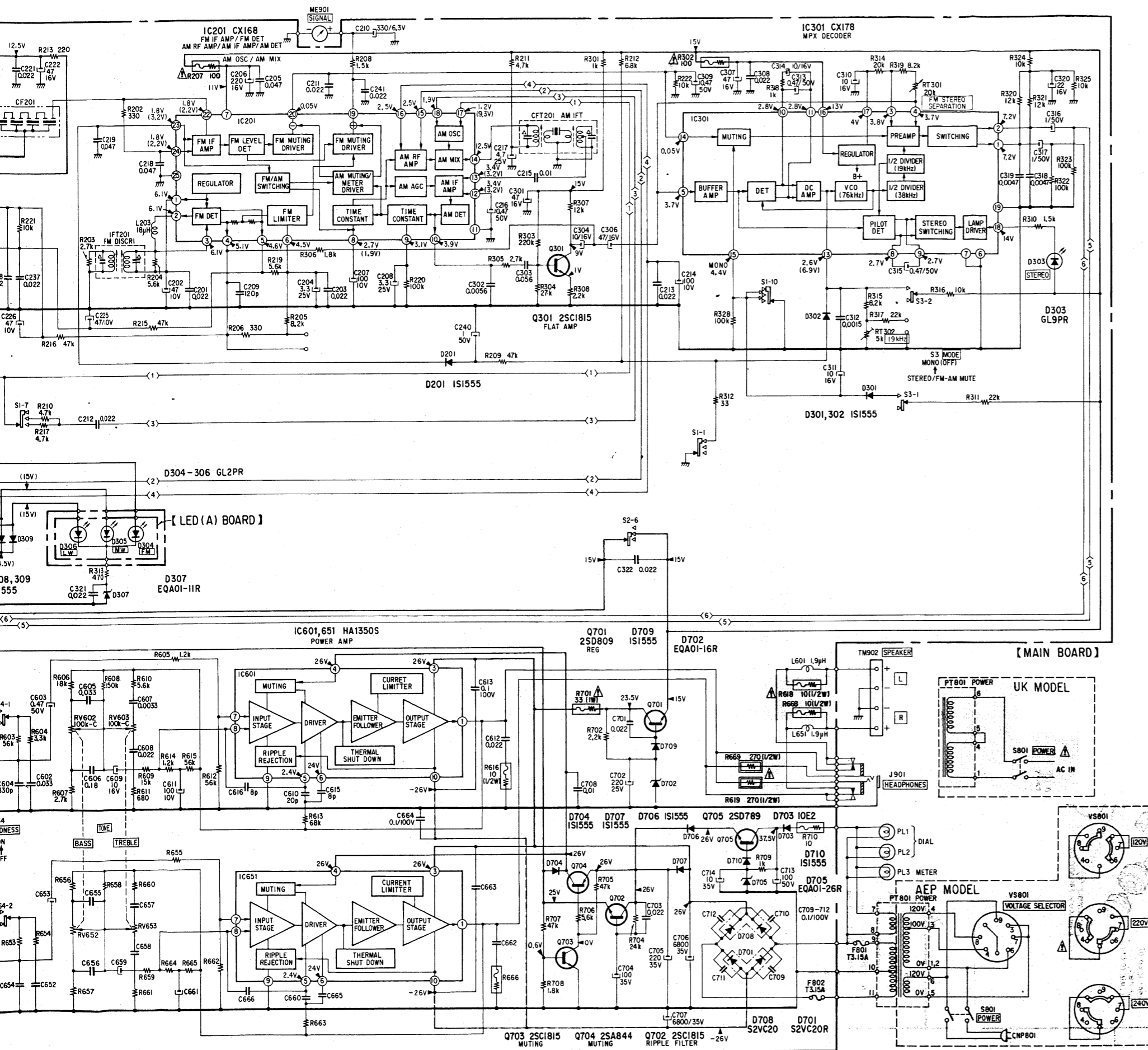
-16-

1
2
3
4
5

STR-232L STR-232L

4.2. SCHEMATIC DIAGRAM





- 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 tantalum.
 - All resistors are in ohms, $\frac{1}{4}\text{W}$ unless otherwise noted. $\text{k}\Omega = 1000\Omega$, $\text{M}\Omega = 1000\text{k}\Omega$
 - : nonflammable resistor.
 - : fusible resistor.
 - : panel designation.
 - : B+ bus.
 - : B- bus.
 - : adjustment for repair.
 - Readings are taken under no-signal conditions with a VOM (20 $\text{k}\Omega/\text{V}$).
 - () : AM
 - Voltage variations may be noted due to normal production tolerances.
 - Switch

| Ref. No. | Switch | Position |
|----------|---------------|-------------------|
| S1 | Band Selector | FM |
| S2 | FUNCTION | TUNER |
| S3 | MODE | STEREO/FM-AM MUTE |
| S4 | LOUDNESS | OFF |
| S5 | ANTENNA LW | BUILT IN |
| S801 | POWER | OFF |

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

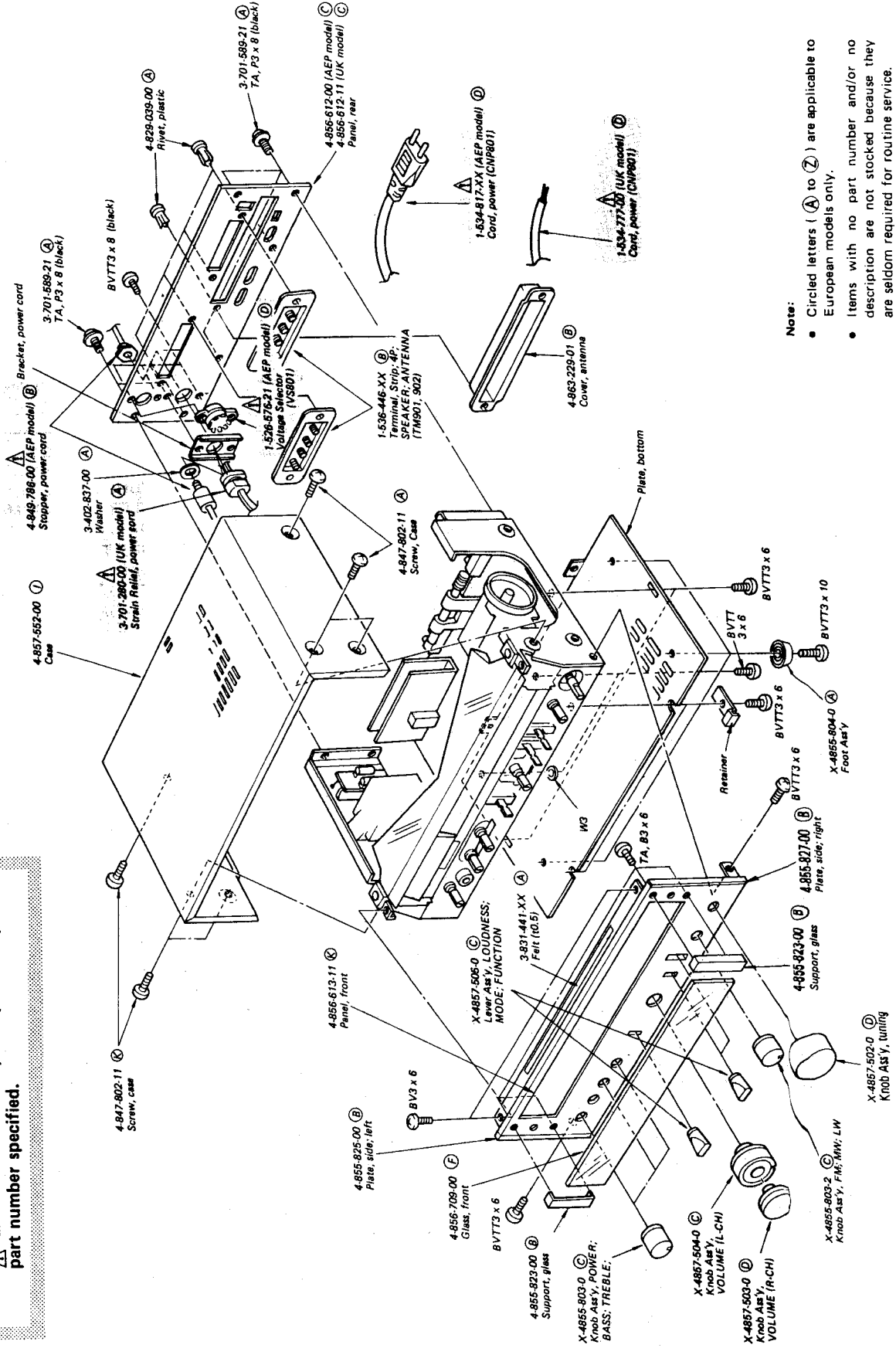
1
2
3
4
5

SECTION 5
EXPLODED VIEWS

5-1.

A B C D E

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

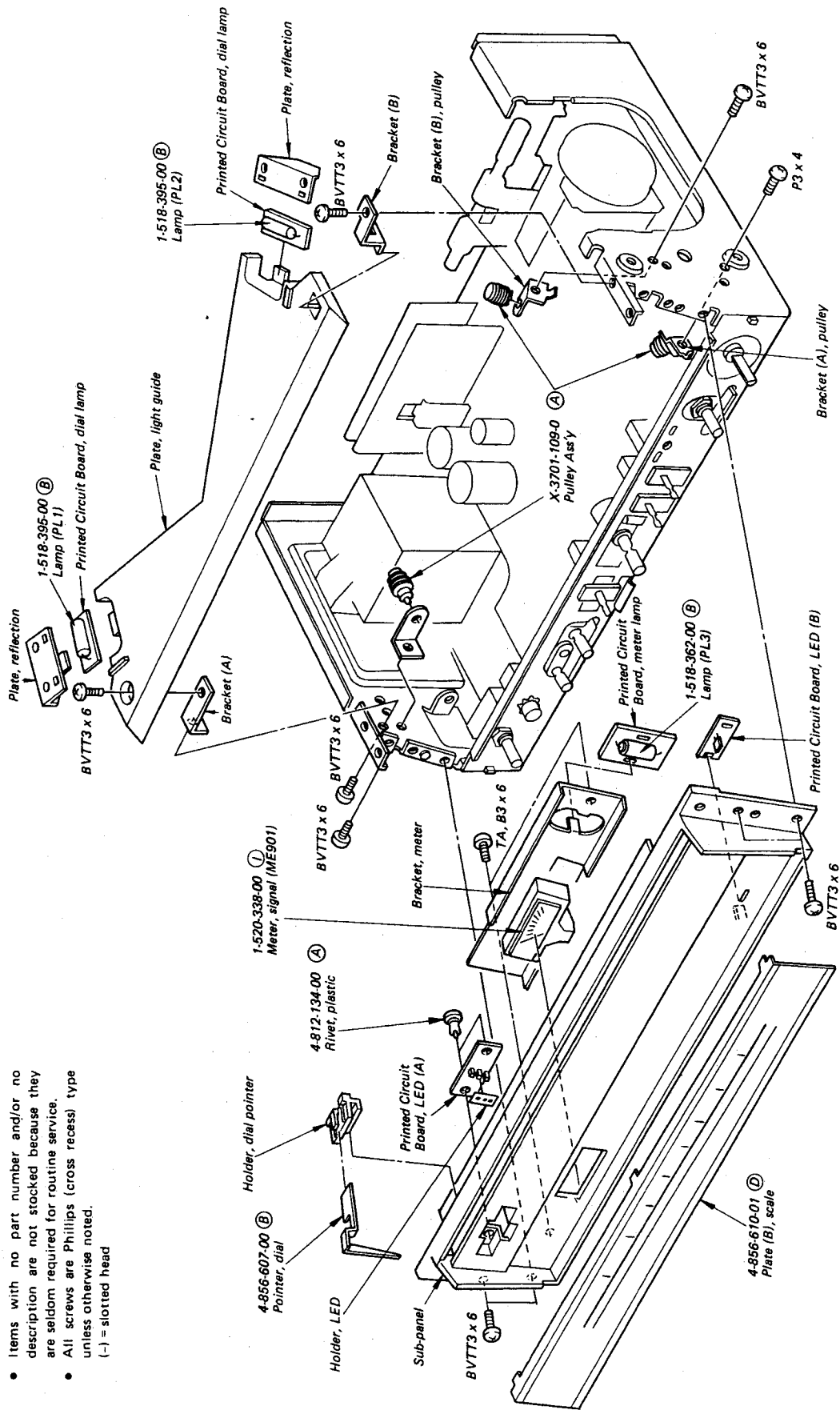


Note:

- Circled letters (A to Z) are applicable to European models only.
- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.

5-2.

- Note:
- Circled letters (A to Z) are applicable to European models only.
 - Items with no part number and/or no description are not stocked because they are seldom required for routine service.
 - All screws are Phillips (cross recess) type unless otherwise noted.
 - (-) = slotted head



E

D

C

B

A

1

2 -21-

3

4

5-3.

A B C D E

Note:

- Circled letters (A) to (Z) are applicable to European models only.
- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
- (-) = slotted head

1-226-346-00 (F)
Resistor, variable, 150K Ω /150K Ω (B);
VOLUME (RV601, 651)

1-226-345-00 (C)
Resistor, variable, 100K Ω /100K Ω (C);
BASS, TREBLE (RV602, 652, 603, 653)

1-507-589-00 (C)
Jack, HEADPHONES (J901)

1-533-131-00 (A)
Holder, fuse

Printed Circuit Board, fuse

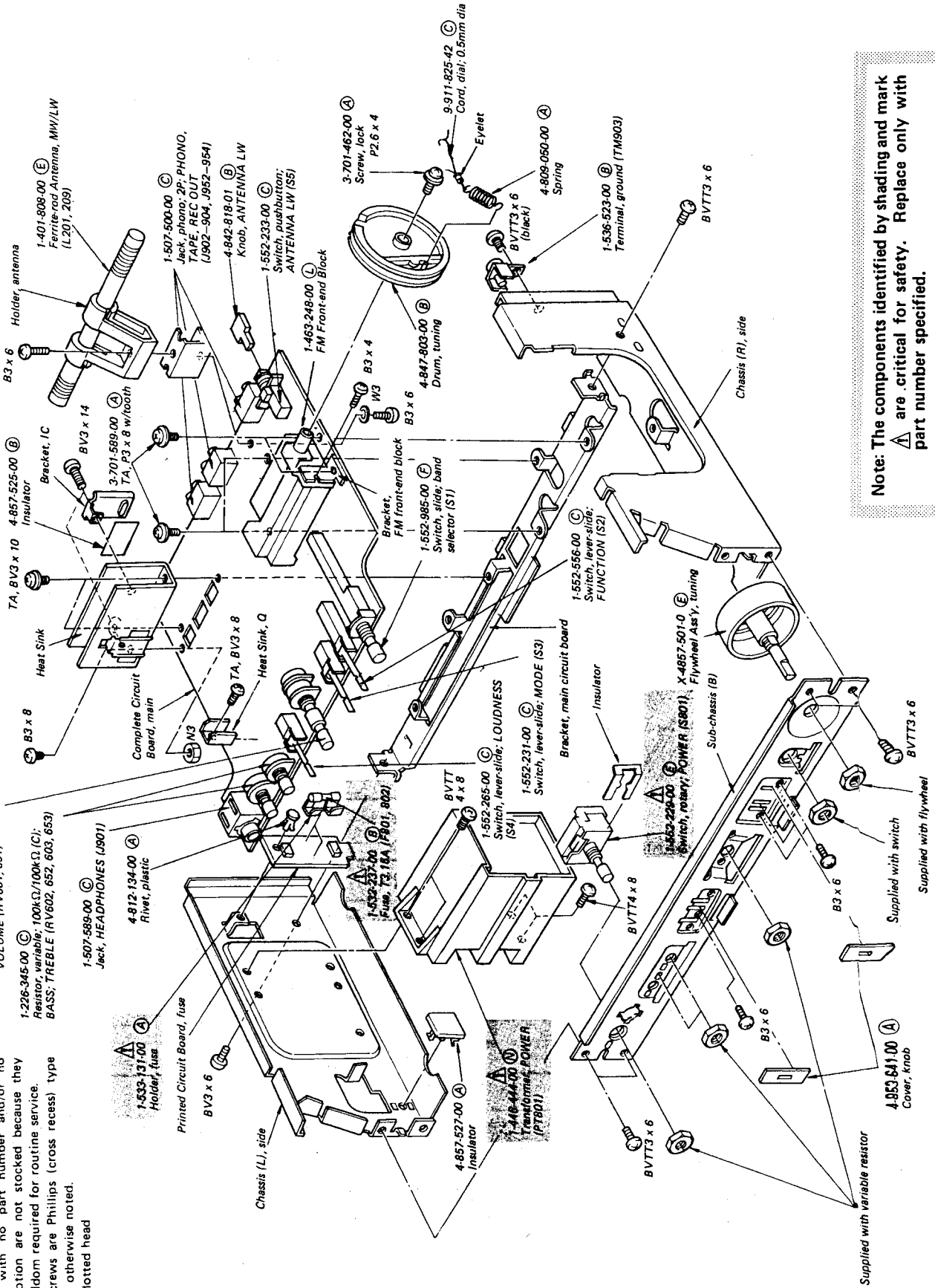
Chassis (L), side

2

-22-

3

4



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

SECTION 6 ELECTRICAL PARTS LIST

Note: Circled letters (A to Z) are applicable to European models only.

| <u>Ref. No.</u> | <u>Part No.</u> | <u>Description</u> |
|----------------------------|-----------------|-----------------------|
| SEMICONDUCTORS | | |
| Transistors | | |
| Q1-3 | | included in front-end |
| ⇒ Q301 | 8-729-663-47 | (C) 2SC1364 |
| ⇒ Q501, 502 ⇒ Q551, 552 | 8-729-665-47 | (B) 2SC1362 |
| Q701 | 8-729-180-93 | (B) 2SD809 |
| ⇒ Q702, 703 | 8-729-663-47 | (C) 2SC1364 |
| ⇒ Q704 | 8-729-612-77 | (B) 2SA1027R |
| ⇒ Q705 | 8-760-413-10 | (B) 2SC1475 |
| ICs | | |
| IC201 | 8-751-680-01 | (I) CX168 |
| IC301 | 8-751-780-00 | (G) CX178 |
| IC601, 651 | 8-759-313-50 | (G) HA1350S |
| Diodes | | |
| D1 | | included in front-end |
| D201 | 8-719-815-55 | (B) 1S1555 |
| D301, 302 | 8-719-815-55 | (B) 1S1555 |
| ⇒ D303 | 8-719-909-21 | (B) GL9PR21 |
| ⇒ D304-306 | 8-719-921-00 | (B) GL2PR1 |
| ⇒ D307 | 8-719-930-11 | (B) EQB01-11Z |
| D308, 309 | 8-719-815-55 | (B) 1S1555 |
| ⇒ D701 | 8-719-501-34 | (C) S3VC40R |
| ⇒ D702 | 8-719-931-16 | (B) EQB01-16 |
| D703 | 8-719-200-02 | (B) 10E2 |
| D704 | 8-719-815-55 | (B) 1S1555 |
| ⇒ D705 | 8-719-931-26 | (B) EQB01-26 |
| D706, 707 | 8-719-815-55 | (B) 1S1555 |
| ⇒ D708 | 8-719-500-34 | (C) S3VC40 |
| D709, 710 | 8-719-815-55 | (B) 1S1555 |

⇒: Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

| <u>Ref. No.</u> | <u>Part No.</u> | <u>Description</u> |
|-----------------|-----------------|--------------------------------|
| COILS | | |
| L201, 209 | 1-401-808-00 | (E) Antenna, MW/LW ferrite-rod |
| L202 | 1-407-169-XX | (A) 100μH, microinductor |
| L203 | 1-407-741-00 | (B) 18μH, microinductor |
| L204 | 1-405-797-00 | (B) MW OSC |
| L205 | 1-401-709-00 | (C) LW ANT |
| L206 | 1-405-813-00 | (B) LW OSC |
| L207 | 1-407-173-XX | (A) 220μH, microinductor |
| L208 | 1-407-210-XX | (A) 22mH, microinductor |

| <u>Ref. No.</u> | <u>Part No.</u> | <u>Description</u> |
|---------------------|-----------------------|----------------------|
| TRANSFORMERS | | |
| CF201 | 1-527-534-XX | (D) Filter |
| CFT201 | 1-404-087-11 | (D) AM IFT |
| IFT201 | 1-404-011-00 | (C) FM Discriminator |
| PT801 | A 1-446-444-00 | (N) Power |

| <u>Ref. No.</u> | <u>Part No.</u> | <u>Description</u> |
|---|-----------------|--------------------|
| CAPACITORS | | |
| All capacitors are in μF and ceramic unless otherwise noted. 50WV or less are not indicated except for electrolytics. | | |
| p : μμF, elect : electrolytic | | |

| | | | | |
|-----------|--------------|-----------|------|-------|
| C201 | 1-101-005-00 | (A) 0.022 | | |
| C202 | 1-123-306-00 | (B) 47 | 10V | elect |
| C203 | 1-101-005-00 | (A) 0.022 | | |
| C204 | 1-121-392-00 | (A) 3.3 | 25V | elect |
| C205 | 1-101-006-00 | (A) 0.047 | | |
| C206 | 1-123-068-00 | (B) 220 | 16V | elect |
| C207 | 1-123-307-00 | (A) 100 | 10V | elect |
| C208 | 1-121-392-00 | (A) 3.3 | 25V | elect |
| C209 | 1-102-816-00 | (A) 120p | | |
| C210 | 1-123-297-00 | (B) 330 | 6.3V | elect |
| C211-213 | 1-101-005-00 | (A) 0.022 | | |
| C214 | 1-123-307-00 | (A) 100 | 10V | elect |
| C215 | 1-101-004-00 | (A) 0.01 | | |
| C216 | 1-123-351-00 | (B) 0.47 | 50V | elect |
| C217 | 1-123-328-00 | (B) 4.7 | 25V | elect |
| C218, 219 | 1-101-006-00 | (A) 0.047 | 50V | |
| C221 | 1-101-005-00 | (A) 0.022 | 50V | |
| C222 | 1-123-319-00 | (B) 47 | 16V | elect |

Note: The components identified by shading and mark **A** are critical for safety. Replace only with part number specified.

STR-232L

Note: Circled letters (A to Z) are applicable to European models only.

| Ref. No. | Part No. | Description |
|-----------|-------------------------|-------------|
| C223 | 1-123-328-00 (B) 4.7 | 25V elect |
| C224 | 1-101-005-00 (A) 0.022 | |
| C225, 226 | 1-123-306-00 (B) 47 | 10V elect |
| C227 | 1-104-065-00 (B) 330p | polystyrol |
| C228 | 1-102-262-00 (B) 12p | |
| C229 | 1-102-940-00 (A) 3p | |
| C230 | 1-108-239-00 (A) 0.01 | mylar |
| C231 | 1-104-055-00 (B) 120p | polystyrol |
| C232 | 1-101-880-00 (A) 47p | |
| C233 | 1-102-944-00 (A) 7p | |
| C235 | 1-108-228-00 (A) 0.0015 | mylar |
| C236 | 1-108-352-00 (A) 0.0018 | mylar |
| C237-239 | 1-101-005-00 (A) 0.022 | |
| C240 | 1-123-352-00 (B) 1 | 50V elect |
| C241 | 1-101-005-00 (A) 0.022 | |
| C301 | 1-123-319-00 (B) 47 | 16V elect |
| C302 | 1-108-355-00 (A) 0.0056 | mylar |
| C303 | 1-108-361-00 (A) 0.056 | mylar |
| C304 | 1-123-316-00 (B) 10 | 16V elect |
| C306 | 1-123-319-00 (B) 47 | 16V elect |
| C307 | 1-123-319-00 (B) 47 | 16V elect |
| C308 | 1-101-005-00 (A) 0.022 | |
| C309 | 1-123-351-00 (B) 0.47 | 50V elect |
| C310, 311 | 1-123-316-00 (B) 10 | 16V elect |
| C312 | 1-104-081-00 (B) 0.0015 | polystyrol |
| C313 | 1-123-351-00 (B) 0.47 | 50V elect |
| C314 | 1-123-316-00 (B) 10 | 16V elect |
| C315 | 1-123-351-00 (B) 0.47 | 50V elect |
| C316, 317 | 1-123-352-00 (B) 1 | 50V elect |
| C318, 319 | 1-108-234-00 (A) 0.0047 | mylar |
| C320 | 1-123-317-00 (B) 22 | 16V elect |
| C321, 322 | 1-101-005-00 (A) 0.022 | |
| C501, 551 | 1-123-328-00 (B) 4.7 | 25V elect |
| C502, 552 | 1-108-227-00 (A) 0.001 | mylar |
| C503 | 1-123-307-00 (A) 100 | 10V elect |
| C504, 554 | 1-101-880-00 (A) 47p | |
| C505, 555 | 1-123-307-00 (A) 100 | 10V elect |

| Ref. No. | Part No. | Description |
|------------|--------------------------|----------------|
| C506, 556 | 1-108-228-00 (A) 0.0015 | mylar |
| C507, 557 | 1-108-355-00 (A) 0.0056 | mylar |
| C508, 558 | 1-123-352-00 (B) 1 | 50V elect |
| C601, 651 | 1-108-228-00 (A) 0.0015 | mylar |
| C602, 652 | 1-108-244-00 (B) 0.033 | mylar |
| C603, 653 | 1-123-351-00 (B) 0.47 | 50V elect |
| C604, 654 | 1-102-820-00 (A) 330p | |
| C605, 655 | 1-108-244-00 (B) 0.033 | mylar |
| C606, 656 | 1-108-364-00 (A) 0.18 | mylar |
| C607, 657 | 1-108-232-00 (A) 0.0033 | mylar |
| C608, 658 | 1-108-242-00 (A) 0.022 | mylar |
| C609, 659 | 1-123-316-00 (B) 10 | 16V elect |
| C610, 660 | 1-102-958-00 (A) 20p | |
| C611, 661 | 1-123-307-00 (A) 100 | 10V elect |
| C612, 662 | 1-108-242-00 (A) 0.022 | mylar |
| C613, 663 | 1-108-389-00 (B) 0.1 | 100V mylar |
| C615, 665 | 1-102-945-00 (A) 8p | |
| C616, 666 | | |
| C664 | 1-108-389-00 | 0.1 100V mylar |
| C701 | 1-101-005-00 (A) 0.022 | |
| C702 | 1-123-334-00 (B) 220 | 25V elect |
| C703 | 1-101-005-00 (A) 0.022 | |
| C704 | 1-123-062-00 (B) 100 | 35V elect |
| C705 | 1-123-063-00 (B) 220 | 35V elect |
| C706, 707 | 1-125-155-00 (E) 6800 | 35V elect |
| C708 | 1-108-239-00 (A) 0.01 | mylar |
| C709-712 | 1-108-389-00 (B) 0.1 | 100V mylar |
| C713 | 1-123-059-00 (B) 100 | 50V elect |
| C714 | 1-123-341-00 (B) 10 | 35V elect |
| CT201 | 1-141-213-00 (B) Trimmer | |
| CT202 | 1-141-180-00 (B) Trimmer | |
| CT203, 204 | 1-141-213-00 (B) Trimmer | |

RESISTORS

All resistors are in ohms. Common 1/4W carbon resistors are omitted. Refer to the list on the last page for their part numbers.

R207, 302 (A) 1-217-399-00 (B) 100 1/4W fusible

Note: The components identified by shading and mark (A) are critical for safety. Replace only with part number specified.

Note: Circled letters (A to Z) are applicable to European models only.

| <u>Ref. No.</u> | <u>Part No.</u> | <u>Description</u> |
|-----------------|------------------|---|
| R616, 666 | 1-212-958-00 | (A) 10 1/2W fusible |
| R618, 668 | (A) 1-212-958-00 | (A) 10 1/2W fusible |
| R619, 669 | (A) 1-211-624-00 | (B) 270 1/2W carbon (nonflammable) |
| R701 | (A) 1-213-072-00 | (B) 33 1W fusible |
| R710 | 1-212-857-00 | (A) 10 1/2W fusible |
| RT301 | 1-226-237-00 | (B) 20k, adjustable; FM STEREO SEPARATION |
| RT302 | 1-226-235-00 | (A) 5k, adjustable; 19kHz |
| RV601,651 | 1-226-346-00 | (E) 150k/150k-B, variable; VOLUME |
| RV602,652 | 1-226-345-00 | (C) 100k/100k-C, variable; BASS/TREBLE |
| RV603,653 | | |

SWITCHES

| | | |
|------|------------------|----------------------------|
| S1 | 1-552-985-00 | (G) Slide, FM/MW/LW |
| S2 | 1-552-556-00 | (D) Lever-slide, FUNCTION |
| S3 | 1-552-231-00 | (C) Lever-slide, MODE |
| S4 | 1-552-265-00 | (C) Lever-slide, LOUDNESS |
| S5 | 1-552-233-00 | (C) Pushbutton, ANTENNA LW |
| S801 | (A) 1-552-229-00 | (F) Rotary, POWER |

JACKS

| | | |
|----------|--------------|------------------------|
| J901 | 1-507-589-00 | (C) HEADPHONES |
| J902-904 | 1-507-500-00 | (B) PHONO/TAPE/REC OUT |
| J952-954 | | |

MISCELLANEOUS

| | | |
|-----------|------------------|----------------------------------|
| CNP801 | (A) 1-534-777-00 | (D) Cord, power (UK model) |
| CNP801 | (A) 1-534-817-XX | (D) Cord, power (AEP model) |
| F801, 802 | (A) 1-532-237-00 | (B) Fuse, T3.15A |
| ME901 | 1-520-338-00 | (I) Meter, signal |
| PL1, 2 | 1-518-395-00 | (B) Lamp |
| PL3 | 1-518-362-00 | (B) Lamp, |
| TM901,902 | 1-536-446-XX | (B) Terminal, ANTENNA/SPEAKER |
| TM903 | 1-536-523-00 | (B) Terminal, ground |
| VS801 | (A) 1-526-576-21 | (E) Voltage Selector (AEP model) |

Note: The components identified by shading and mark **A** are critical for safety. Replace only with part number specified.

| <u>Ref. No.</u> | <u>Part No.</u> | <u>Description</u> |
|-----------------|------------------|------------------------|
| | 1-463-248-00 | (L) FM Front-end Block |
| | (A) 1-533-131-00 | (A) Holder, fuse |

ACCESSORIES AND PACKING MATERIALS

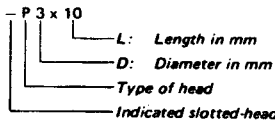
| <u>Part No.</u> | <u>Description</u> |
|-----------------|---------------------------|
| 1-501-184-00 | (C) Antenna, FM ribbon |
| 3-770-945-11 | (D) Manual, instruction |
| 4-857-573-00 | (C) Cushion, lower; left |
| 4-857-574-00 | (C) Cushion, lower; right |
| 4-857-575-00 | (E) Cushion, upper |
| 4-864-401-00 | (B) Carton |
| 4-891-037-00 | (B) Bag, plastic |

1/4 WATT CARBON RESISTORS Ⓐ

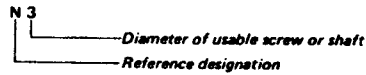
| Ω | Part No. | Ω | Part No. | Ω | Part No. | Ω | Part No. | Ω | Part No. | Ω | Part No. | Ω | Part No. |
|-----|--------------|----|--------------|-----|--------------|------|--------------|-----|--------------|------|--------------|------|--------------|
| 1.0 | 1-246-401-00 | 10 | 1-246-425-00 | 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 | |