

SERVICE MANUAL

AM/FM STEREO RECEIVER **SX-434** **KCU, GN, FV**

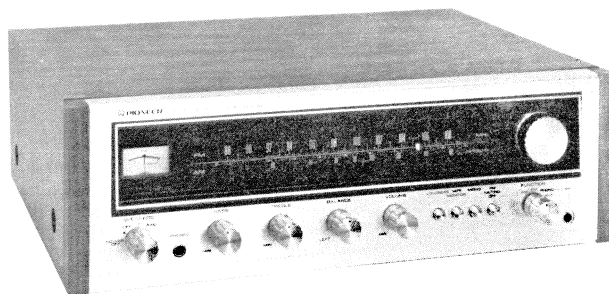
NOTE:

MODEL SX-434 COMES IN THREE VERSIONS DISTINGUISHED AS FOLLOWS:

| Round label on rear panel | Voltage | Type |
|---------------------------|------------------------------------|---|
| KCU GN | 120V only 220V only | UL (U.S.A.) and CSA (Canada) approved. SEMCO (Sweden), NEMCO (Norway) and DEMCO (Denmark) approved. |
| FV | 110V, 120V, 130V 220V, and 240V | General export model. |

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1. SPECIFICATIONS

SEMICONDUCTORS

| | |
|-------------|----|
| FETs | 1 |
| ICs | 3 |
| Transistors | 27 |
| Diodes | 13 |

AMPLIFIER SECTION

| | |
|---|----------------------------------|
| Continuous Power Output 40Hz~20kHz (Both channels driven) | 15W + 15W (8Ω) 15W + 15W (4Ω) |
| 1kHz (Both channels driven) | 16W + 16W (8Ω) 18W + 18W (4Ω) |
| Harmonic Distortion (40Hz~20kHz Continuous Power Output) | Less than 0.8% |
| (1W + 1W, Power Output) | Less than 0.1% |
| Intermodulation Distortion (Continuous Power Output) | Less than 0.8% |
| (1W + 1W, Power Output) | Less than 0.1% |
| Power Bandwidth (IHF, Both channels driven) | 10Hz~70kHz (T.H.D. 0.8%) |
| Output Speaker | A, B, A + B, (4Ω~16Ω) |
| Headphone | 4Ω~16Ω |
| Damping Factor (1kHz, 8Ω) | More than 25 |
| Residual Hum & Noise (8Ω, Pre & Power amplifier) | Less than 0.5mV |
| Input Sensitivity/Impedance Phono | 2.5mV/50kΩ |
| Phono Overload Level (rms/p-p) | 100mV/280mV |
| MIC | 10mV/90kΩ |
| AUX | 150mV/80kΩ |
| Tape PB | 150mV/80kΩ |
| Tape PB (DIN connector) | 150mV/80kΩ |
| Output Level/Impedance Tape REC | 150mV |
| Tape REC (DIN connector) | 30mV/80kΩ |
| Frequency Response Phono | |
| (RIAA equalization) | 30Hz~15kHz ±1dB |
| AUX, Tape PB | 30Hz~25kHz ±1dB |
| Tone Control BASS | +9dB, -8dB (100Hz) |
| TREBLE | +5dB, -7dB (10kHz) |

| | |
|---|-----------------------------|
| Loudness Contour (Volume control set at -40dB position) | +10dB (100Hz), +5dB (10kHz) |
| Hum & Noise (IHF, short-circuited, A Network) | |
| PHONO | More than 70dB |
| MIC | More than 65dB |
| AUX, Tape PB | More than 90dB |

FM SECTION

| | |
|------------------------------|--|
| Usable Sensitivity (IHF) | 1.9μV |
| Capture Ratio (IHF) | 1.0dB |
| Selectivity (IHF) | 60dB |
| Signal-to-Noise Ratio | 70dB |
| Image Rejection (98MHz) | 60dB |
| IF Rejection (98MHz) | 90dB |
| Spurious Rejection | 75dB |
| AM Suppression | 50dB |
| Harmonic Distortion: MONO | Less than 0.2% |
| STEREO | Less than 0.4% |
| Frequency Response | 20Hz~15kHz ± 0.2 -2.0 dB 50Hz~10kHz ± 0.2 -0.5 dB |
| Stereo Separation: 1kHz | More than 40dB |
| 50Hz~10kHz | More than 30dB |
| Sub Carrier Suppression | 40dB |
| Antenna Input | 300Ω Balanced 75Ω Unbalanced |
| Muting | ON-OFF |

AM SECTION

| | |
|---------------------------------------|--------|
| Sensitivity (IHF, Ferrite antenna) | 30μV/m |
| (IHF, Ext. antenna) | 15μV |
| Selectivity | 35dB |
| Signal-to-Noise Ratio | 50dB |
| Image Rejection | 40dB |
| IF Rejection | 50dB |

MISCELLANEOUS

| | |
|----------------------------|--|
| Power Requirements | AC 120V 60Hz, 220V 50/60Hz or 110, 120, 130, 220 and 240V (switchable) 50/60Hz |
| Power Consumption | 75W (UL approved model only) 110W Others |
| Dimensions | 430(W) x 140(H) x 347(D)mm 16-15/16 x 5-1/2 x 13-11/16 in. |
| Weight: Without Package | 8.1kg (17 lb 13 oz) |
| With Package | 9.1kg (20 lb 1 oz) |

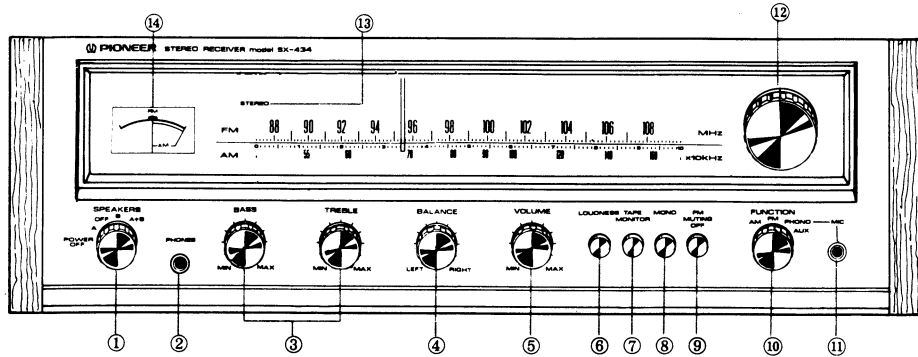
FURNISHED PARTS

| | |
|------------------------|-------------------------------|
| FM T-type Antenna | 1 |
| Operating Instructions | 1 |
| Fuse 3A | 1 (5 line voltage model only) |
| Fuse 1.5A | 1 (5 line voltage model only) |

NOTE:

Specifications and the design subject to possible modification without notice due to improvements.

2. FRONT PANEL FACILITIES



① SPEAKERS SWITCH

A combination of the power ON/OFF switch and the speaker system selector switch.

POWER OFF: Receiver off.

A: Speaker systems connected to speaker outputs A operate.

OFF: All speakers off. Use this position when listening through headphones.

B: Speaker systems connected to speaker outputs B operate.

A+B: Both speaker systems A and B operate.

② HEADPHONE JACK

Accepts stereo headphones.

A wide variety of quality headphones are available from Pioneer.

③ BASS & TREBLE CONTROLS

Control bass and treble. Turning each control clockwise (counterclockwise) from the center position will boost (diminish) the tone.

④ BALANCE CONTROL

Balances the relative sound volume of the left and right channel speakers. Clockwise rotation will reduce the volume from the left speaker, counterclockwise rotation will decrease the volume from the right speaker.

⑤ VOLUME CONTROL

Governs both the volume of sound outputs from the speaker systems and from the headphones.

⑥ LOUDNESS BUTTON

Depress when listening at low volume levels for proper sound balance relative to human ear sensitivity.

⑦ TAPE MONITOR BUTTON

Depress this button to ON for monitoring a recording now in progress and for playback of recorded tapes, with the tape deck connected to the TAPE PB jacks and TAPE REC jacks or TAPE REC/PB connector.

⑧ MODE BUTTON

Selects stereo or mono sound.

STEREO: Leave it undepressed.

MONO: Depress it for monophonic sound into which the left and right channel signals blend.

⑨ FM MUTING BUTTON

Keep the button undepressed (ON) to make the FM MUTING circuit cancel out noise on unused bands (inter-station noise), but it also rejects very weak, faint FM stations. To receive such a station, depress the button to OFF.

⑩ FUNCTION SWITCH

This selects the program source:

AM: AM reception.

FM: FM reception with automatic switching for either of stereo or mono programs.

PHONO/MIC: For playing records or using a microphone.

AUX: For playing component connected to the AUX terminals.

⑪ MIC INPUT JACK

Accepts the plug of the microphone.

When a microphone is connected to the MIC jack, the turntable connected to PHONO input jacks cannot be used.

⑫ TUNING KNOB

Rotate to tune in AM or FM reception.

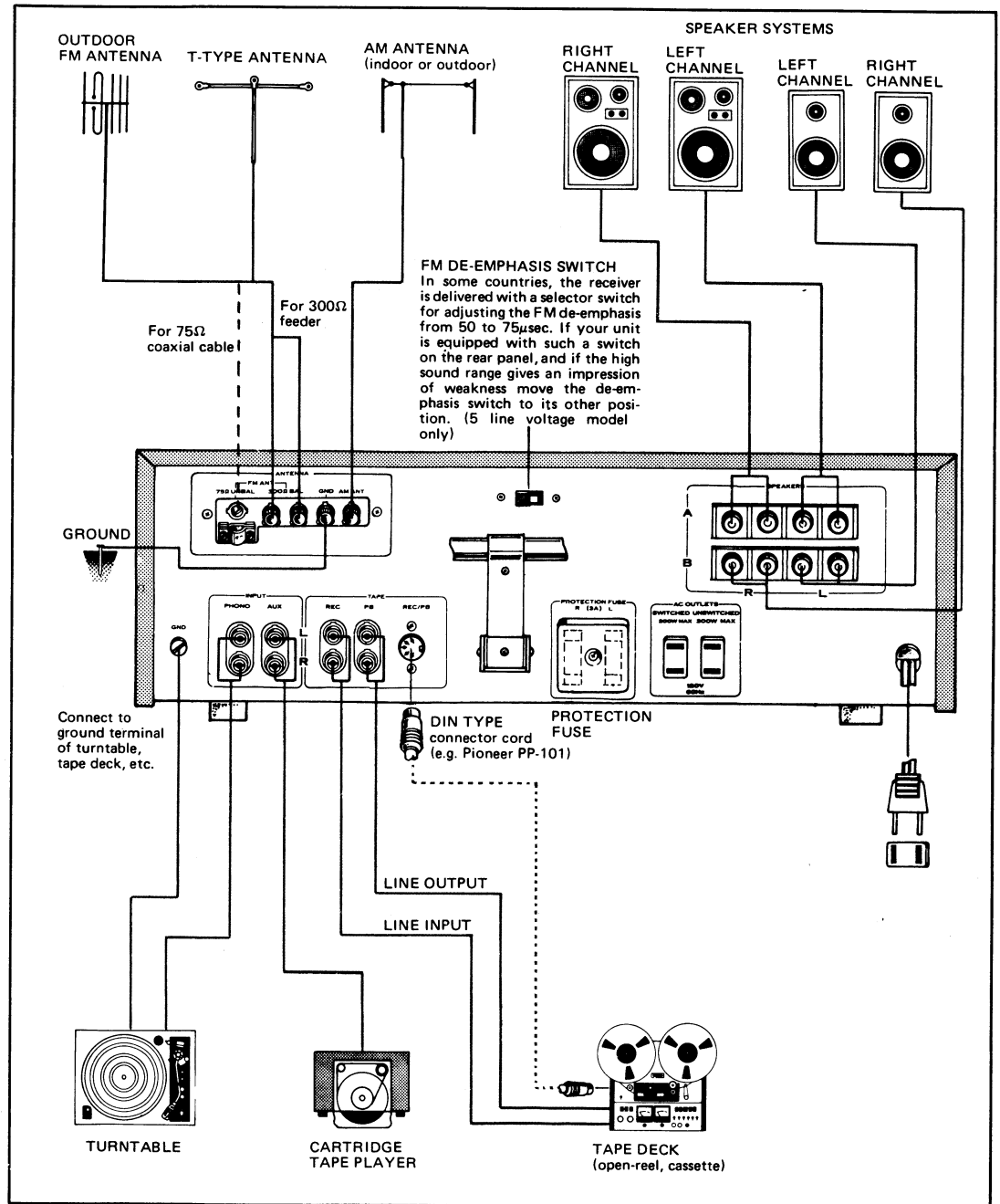
⑬ FM STEREO INDICATOR

This indicator will light up when the broadcast is in stereo.

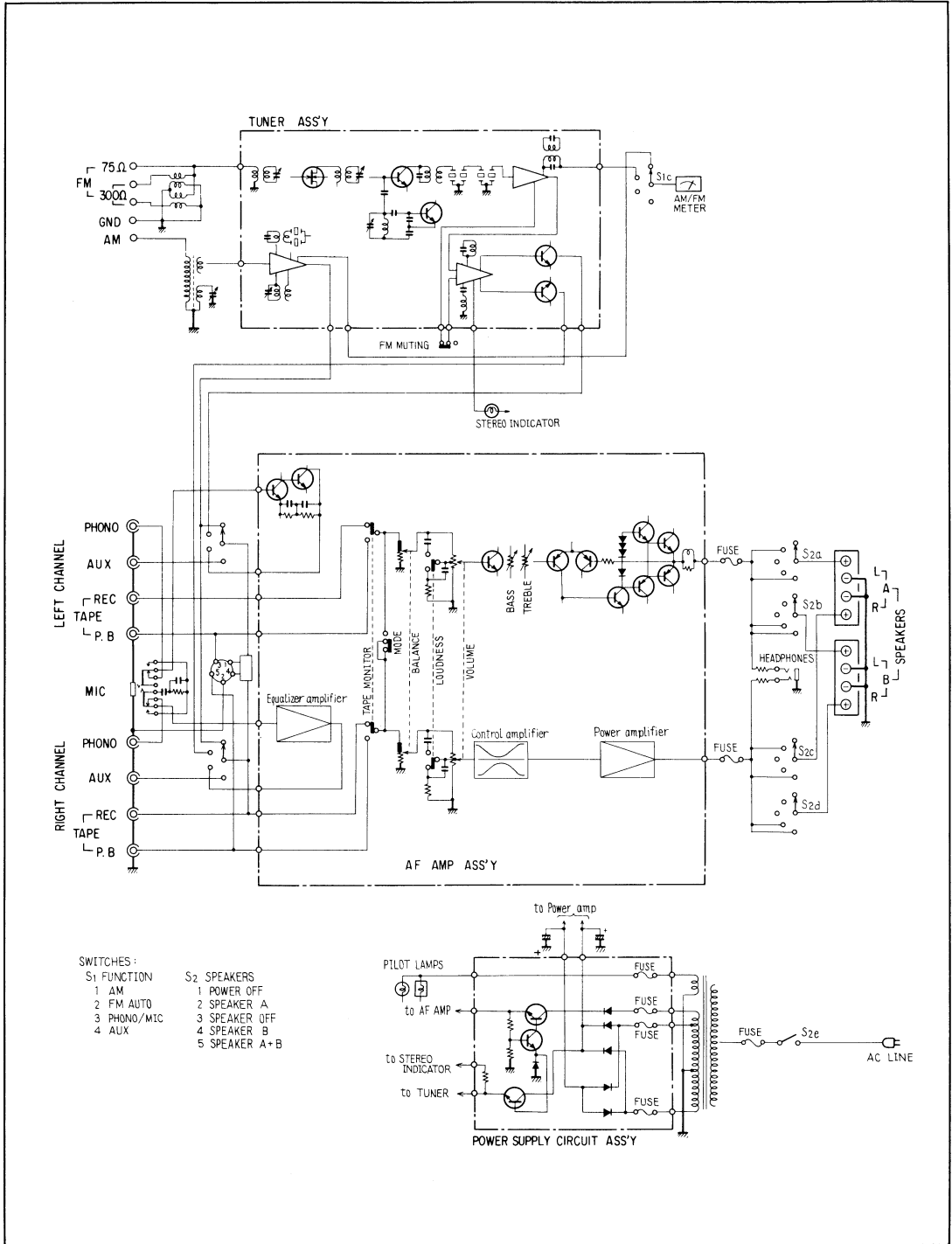
⑭ AM/FM TUNING METER

When tuning FM stations, meter should indicate in the center "FM" area. When tuning AM stations, tune for maximum meter deflection toward the right of the scale.

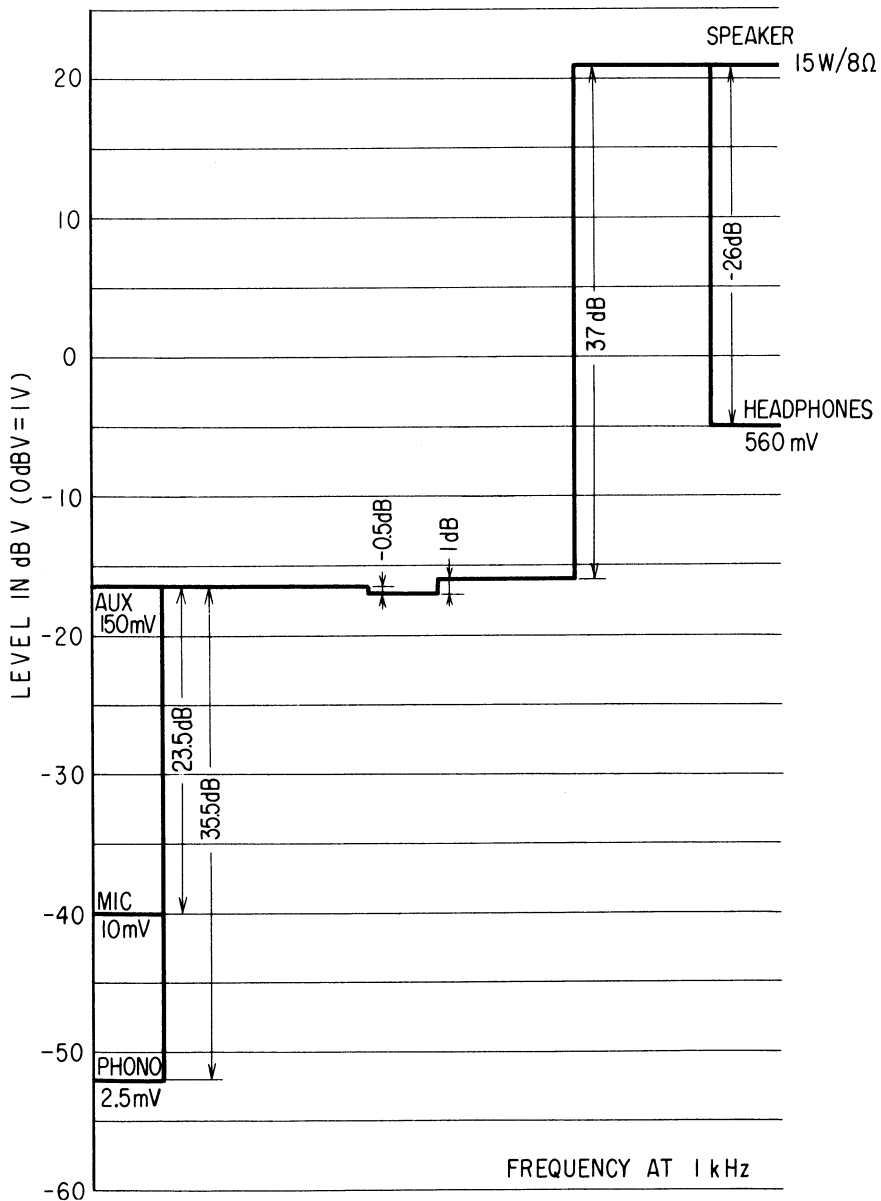
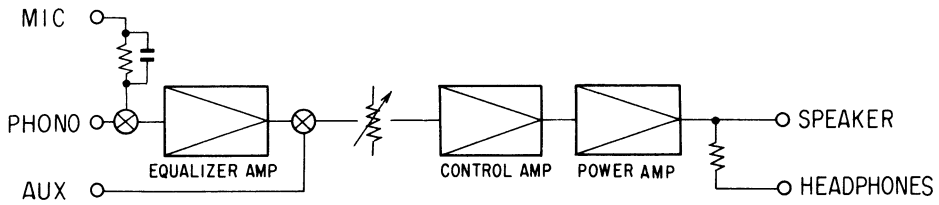
3. CONNECTION DIAGRAM



4. BLOCK DIAGRAM

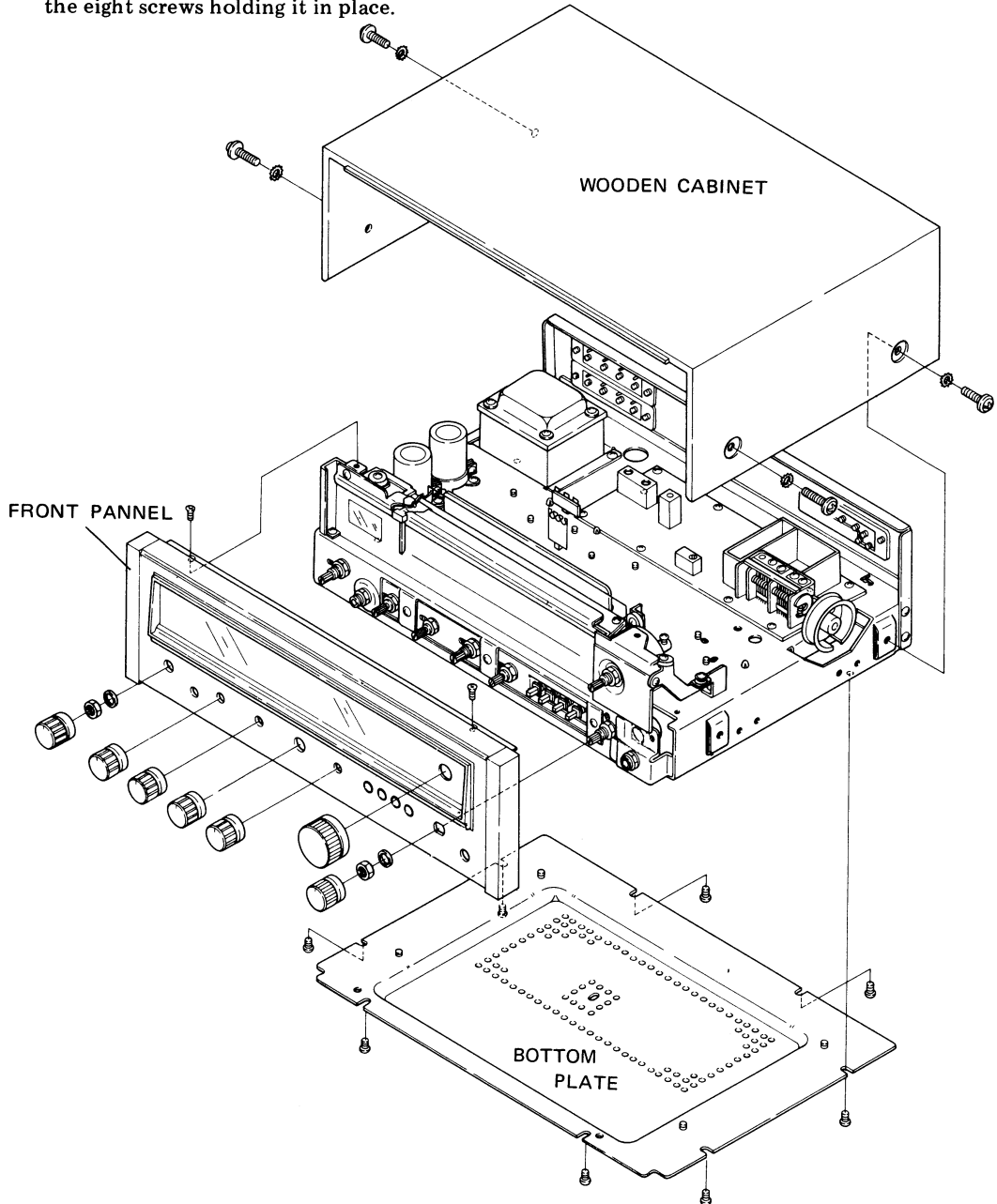


5. LEVEL DIAGRAM



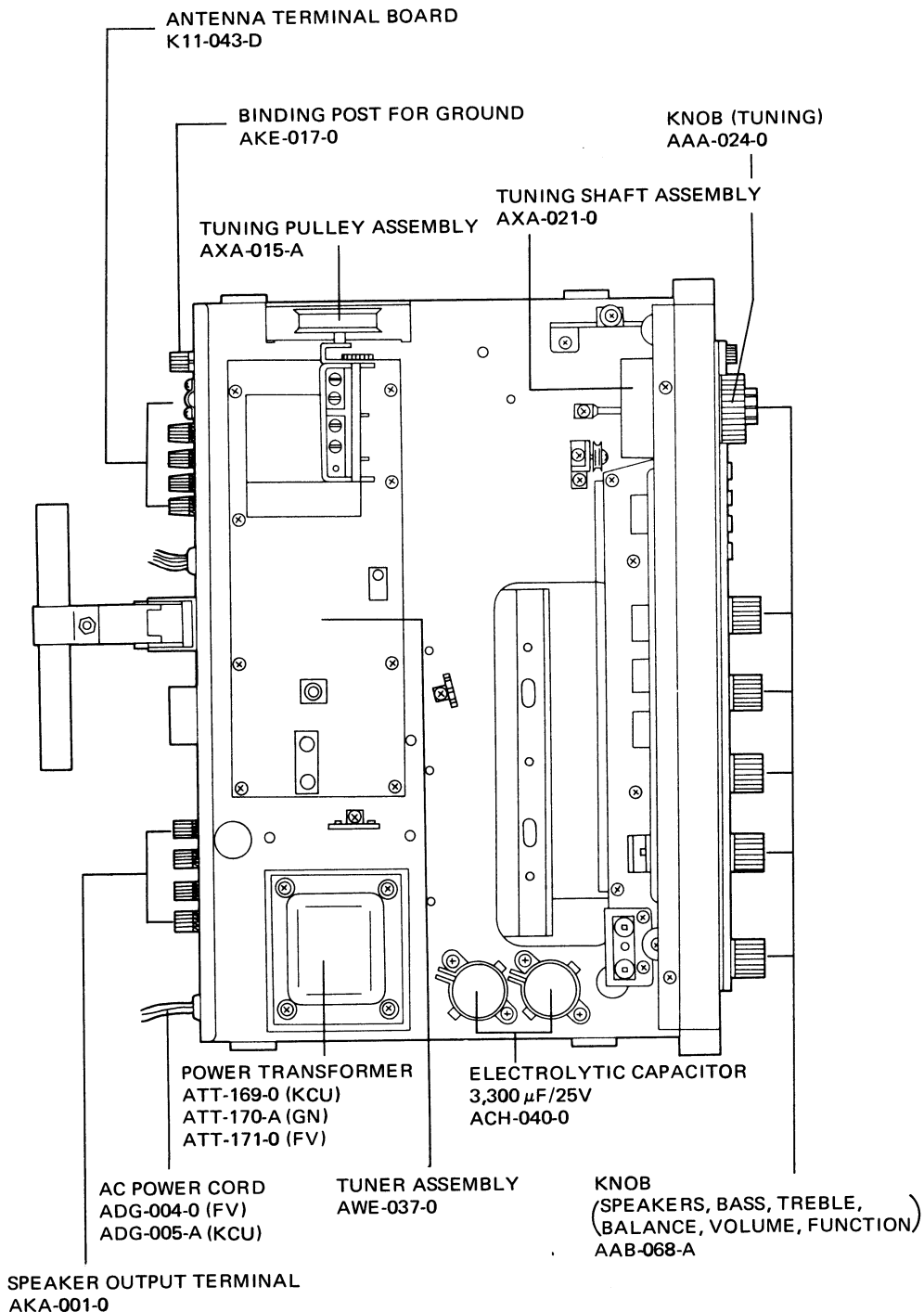
6. DISASSEMBLY

1. To remove the wooden cabinet, first remove the two screws holding each side, then lift the back of the wooden cabinet upward.
2. Pull off all knobs.
3. Remove the two screws in the upper edge of the front panel and remove two nuts and washers from the FUNCTION and SPEAKERS shaft. Then pull the panel gently forward.
4. To remove the bottom plate, first remove the eight screws holding it in place.

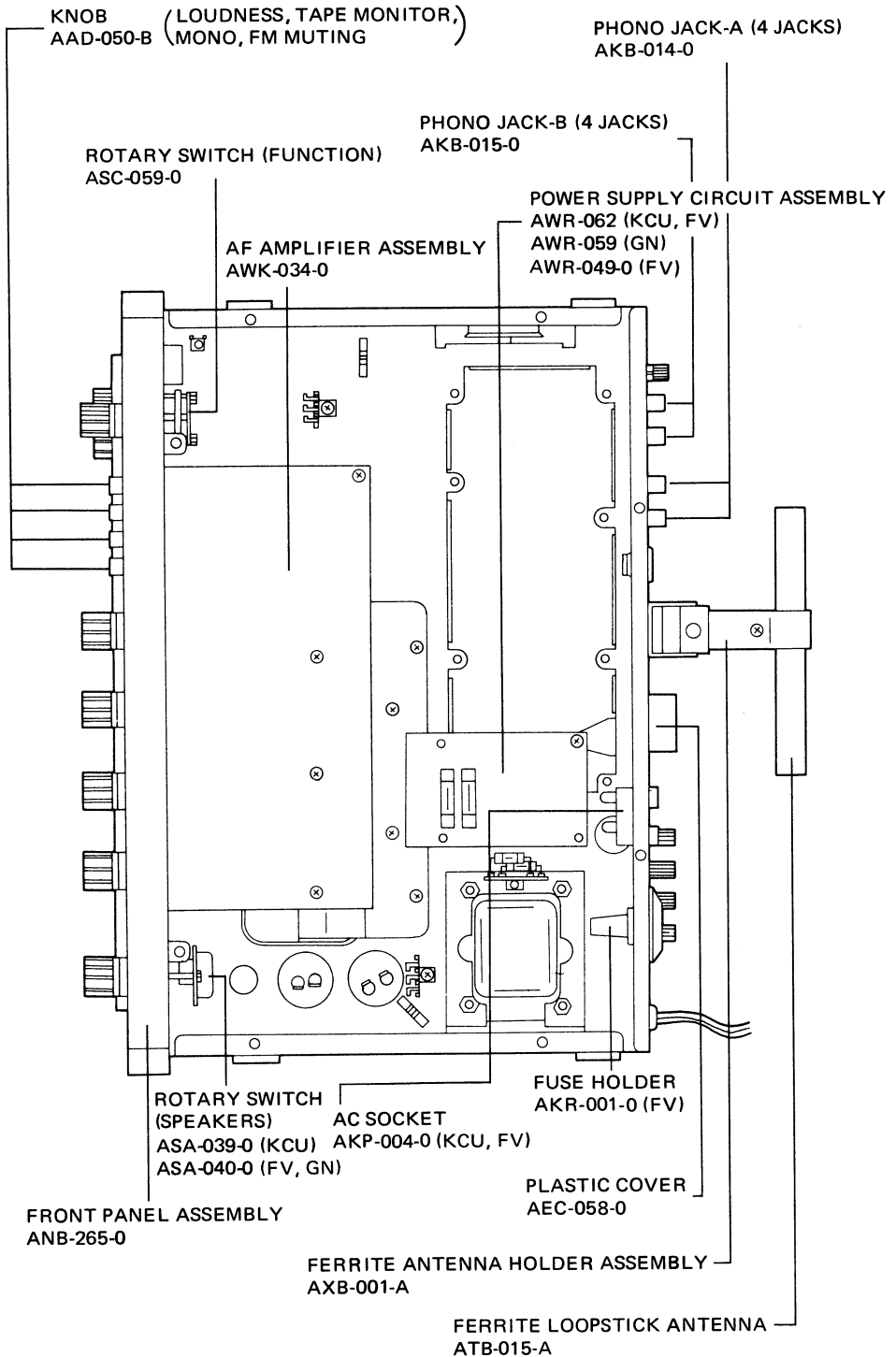


7. PARTS AND P.C. BOARD LOCATION

Top View

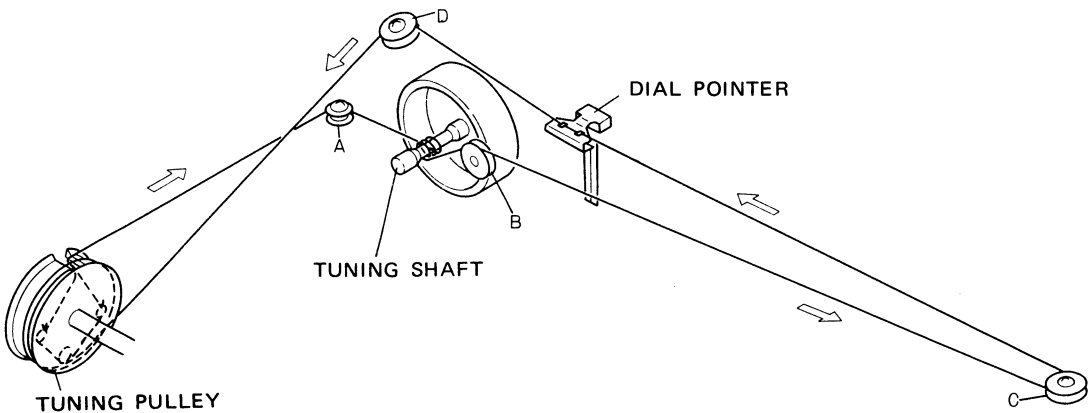


Bottom View



8. DIAL CORD STRINGING

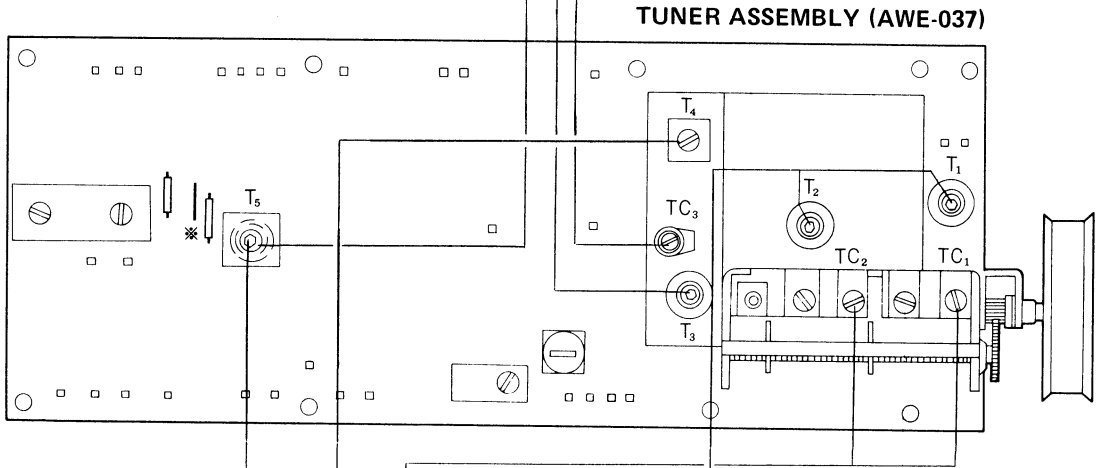
1. Turn the tuning capacitor so that its plates protrude as much as possible.
2. Tie one end of the string to the spring on the TUNING pulley (attached to the tuning capacitor).
3. Lead the string around pulley A, then wind it three turns around the TUNING shaft.
4. Lead the string around pulleys B, C and D, then wind it 2 turns around the TUNING pulley.
5. Now tie the other end of the string to the spring on the TUNING pulley. Turn the TUNING shaft and check for proper function. Then trim the ends of the string.
6. Turn the TUNING shaft until the plates of the variable are all the way in. Move the dial pointer to the right-end "0" point on the dial and fasten it to the string in that position.



9. ALIGNMENT PROCEDURE

Aligning The FM Section

1. SX-434 control settings
Set the controls (knobs and switches) of the SX-434 as follows:
FUNCTION: FM
FM MUTING: OFF
SPEAKERS: OFF (POWER ON)
2. Connections between Test Equipment and the SX-434
 - The output from an FM signal generator should be connected to the 300Ω antenna terminals of the SX-434.
 - A distortion meter should be connected to the TAPE REC terminal jacks on the SX-434.
 - An AC millivolt meter should be connected to the TAPE REC terminal jacks on the SX-434 in parallel with the distortion meter.
3. Set both the FM signal generator and the SX-434 to indicate 90 MHz.
4. Set the FM signal generator output level to 100dB, modulated at 400Hz, with a deviation of 75kHz.
5. Turn the lower core and adjust so that the AM/FM meter needle is centered.
6. Set the FM signal generator output level to 10dB, modulated at 400Hz, with a frequency deviation of ±75kHz.
7. Adjust for maximum output at 87.4 MHz.
8. Adjust for maximum output at 106MHz.



9. Adjust for maximum output at 90MHz.
10. Adjust for maximum output at 106MHz. Steps 7~10 above should be repeated several times in succession, until no further significant improvement is obtained.
11. Adjust for maximum output at both 90MHz and 106MHz.
12. Turn the FM signal generator output level down to minimum.
13. Turn the lower core and adjust so that the AM/FM meter needle is centered.
14. Set both the FM signal generator and the SX-434 to indicate 98MHz.
15. Turn the upper core and adjust so that the distortion is at a minimum. Steps 12~15 above should be repeated several times in succession, until no further significant improvement is obtained.

Aligning The FM MPX Section

Notes:

This set of adjustments should not be carried out until the alignment of the FM section (1~15 on P-13) has been completed. The multiplex signal generator should be connected to the external modulator terminals of the FM signal generator.

1. SX-434 Control Settings

Set the controls (knobs and switches) of the SX-434 as follows:

FUNCTION: FM

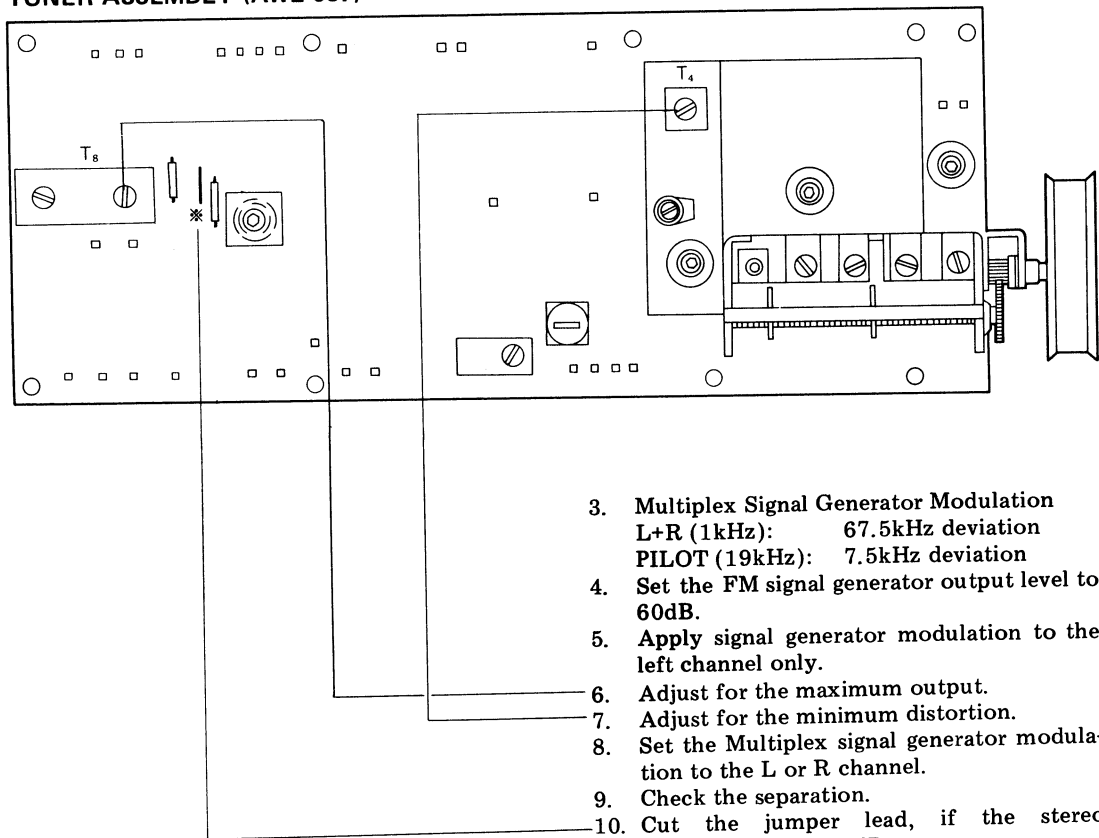
FM MUTING: OFF

SPEAKERS: OFF (POWER ON)

2. Connections between the Test Equipment and the SX-434.

- The output from the FM signal generator should be connected to the 300Ω antenna terminals of the SX-434.
- A distortion meter should be connected to the TAPE REC terminals.
- An AC millivolt meter should be connected to the TAPE REC terminals in parallel with the distortion meter (with changeover possible from L to R channels).

TUNER ASSEMBLY (AWE-037)



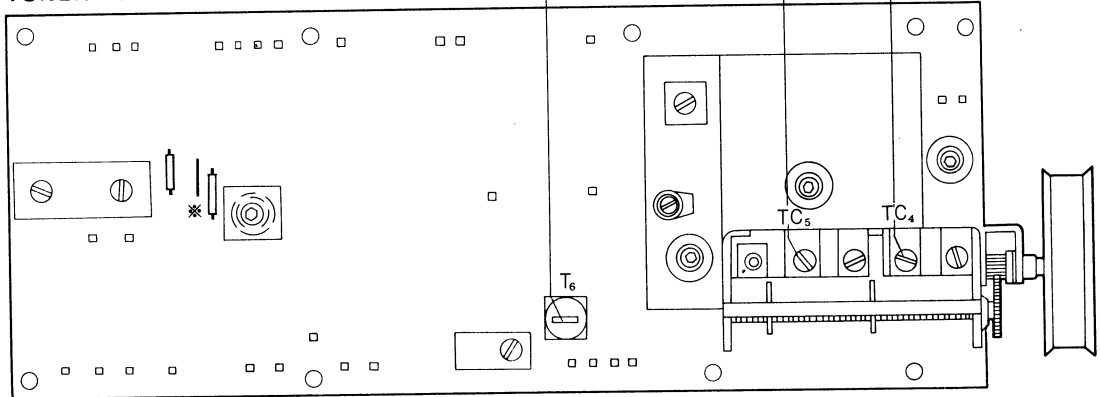
3. Multiplex Signal Generator Modulation
L+R (1kHz): 67.5kHz deviation
PILOT (19kHz): 7.5kHz deviation
4. Set the FM signal generator output level to 60dB.
5. Apply signal generator modulation to the left channel only.
6. Adjust for the maximum output.
7. Adjust for the minimum distortion.
8. Set the Multiplex signal generator modulation to the L or R channel.
9. Check the separation.
10. Cut the jumper lead, if the stereo separation under 35dB.

Aligning The AM Section

1. **SX-434 Control Settings**
Set the controls (knob and switch) of the SX-434 as follows:
FUNCTION: AM
SPEAKERS: OFF (POWER ON)
2. **Connections between Test Equipment and the SX-434**
 - Connect the AM signal generator to the AM antenna terminals.
 - Connect the AC millivolt meter to the TAPE REC terminal jacks.

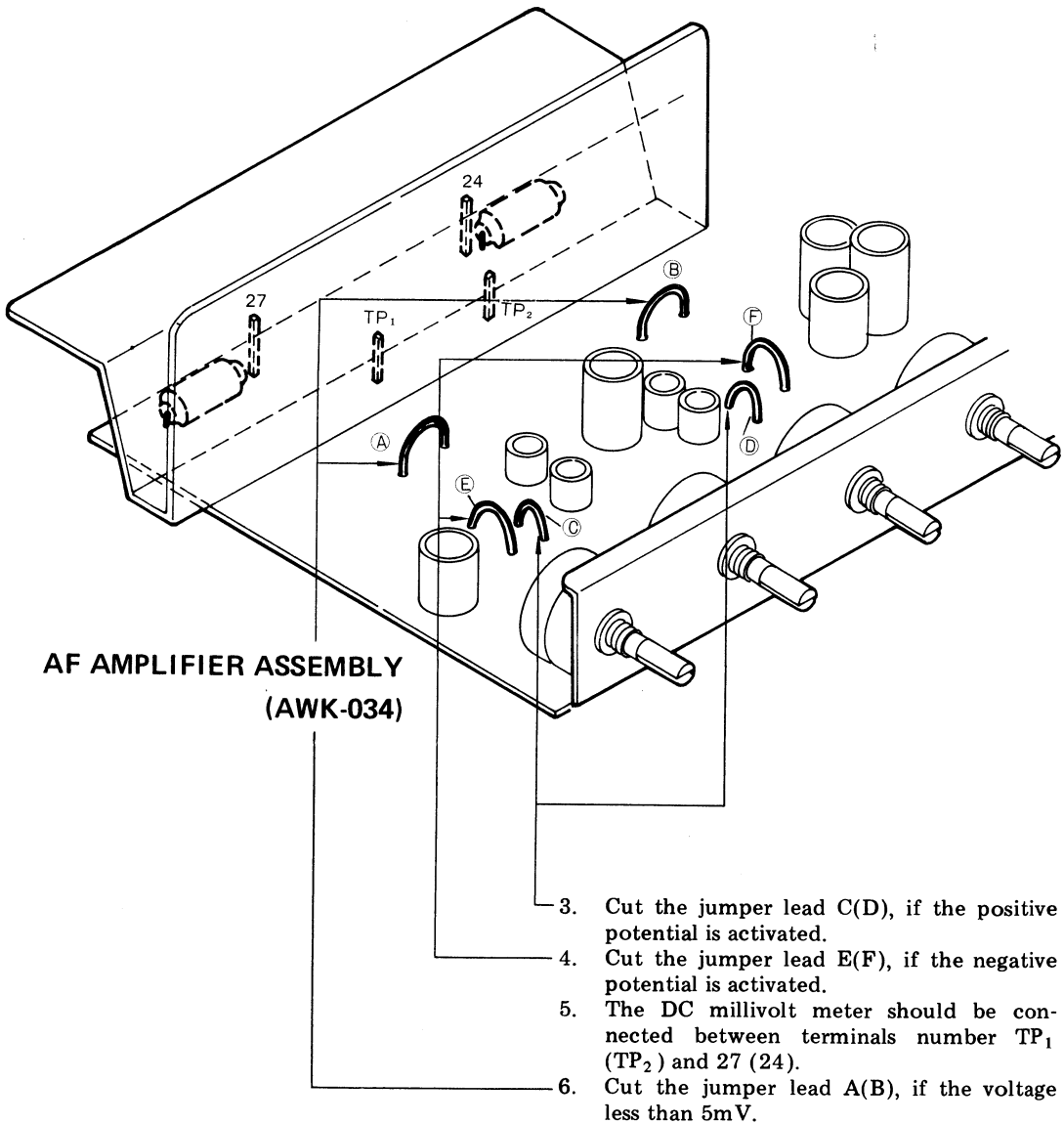
3. Set the AM signal generator to 30% modulation at 400Hz.
4. Set the AM signal generator output to 30dB at 600kHz.
5. Adjust for maximum output (carry out the ferrite loopstick antenna core adjustment at the same time).
6. Adjust for maximum output with the frequency set at 1,400kHz. Adjustments 4~6 above should be repeated several times until no further significant improvement is obtained.

TUNER ASSEMBLY (AWE-037)



Aligning The Power Amplifier

1. Nothing should be connected to the input jacks of the SX-434, and an 8Ω dummy resistor should be connected across the speaker terminals.
2. A DC millivolt meter should be connected across between terminal number 27 (left channel, 24: for right channel) and earth.

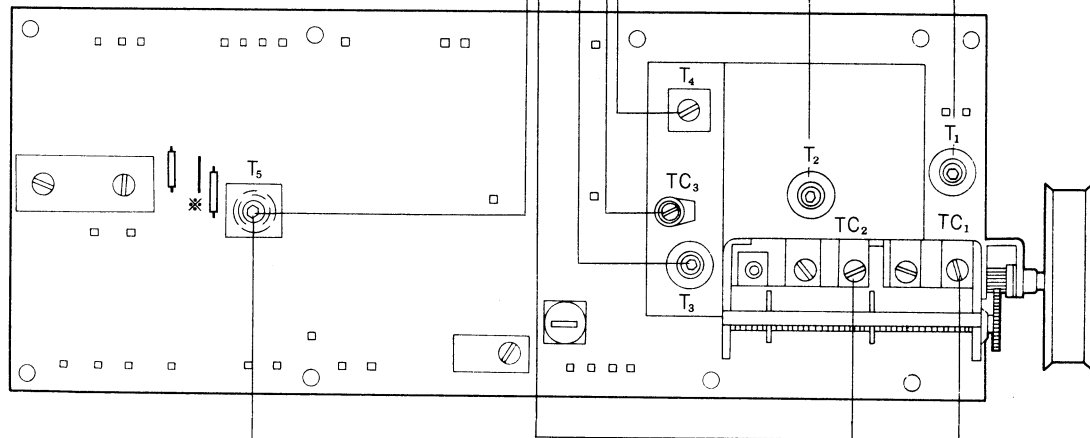


ABGLEICHVERFAHREN

Abgleichen Des FM-Teils

1. Regeleinstellungen am SX-434
Die Steuerelemente (Knöpfe und Schalter) des SX-434 sind wie folgt einzustellen:
FUNCTION (Betriebsartenschalter):
FM (UKW)
FM MUTING (FM-Stummabstimmung):
OFF (Aus)
SPEAKERS (Lautsprecher):
OFF (Aus), POWER ON
(Strom eingeschaltet)
2. Schaltungen zwischen Prüfsatz und dem SX-434
– Der Ausgang von einem FM-Prüfsender ist mit den 300-Ohm-Anschlüssen des SX-434 zu verbinden.
– Ein Klirrfaktormeßgerät ist mit den Anschlußbuchsen TAPE REC (Band/Aufnahme) des SX-434 zu verbinden.
– Ein Millivolt-Wechselspannungsmesser ist parallel zum Klirrfaktormeßgerät mit den Anschlußbuchsen TAPE REC (Band/Aufnahme) des SX-434 zu verbinden.
3. Der FM-Prüfsender und der SX-434 sind beide auf eine Anzeige von 98 MHz einzustellen.

TUNER-Schaltung (AWE-037)



4. Der Ausgang des FM-Prüfsenders ist, moduliert bei 400 Hz bei einer Abweichung von ± 75 kHz, auf 100 dB einzustellen.
5. Der untere Kern ist zu drehen und so einzustellen, daß die Nadel des Abstimm-Meters zentriert ist.
6. Der Ausgangspegel des FM-Prüfsenders ist, moduliert bei 400 Hz bei einer Frequenzabweichung von ± 75 kHz, auf 10 dB einzustellen.
7. Es ist auf maximalen Ausgang bei 87.4 MHz einzustellen.
8. Es ist auf maximalen Ausgang bei 106 MHz einzustellen.
9. Es ist auf maximalen Ausgang bei 90 MHz einzustellen.
10. Es ist auf maximalen Ausgang bei 106 MHz einzustellen.
Obige Schritte 7-10 sind mehrmals nacheinander zu wiederholen, bis keine weitermerkliche Verbesserung erzielt wird.
11. Es ist auf maximalen Ausgang bei 90 MHz und 106 MHz einzustellen.
12. Der Ausgangspegel des FM-Prüfsenders ist auf minimale Einstellung herunterzudrehen.
13. Der untere Kern ist zu drehen und so einzustellen, daß die Nadel des Abstimm-Meters Zentriert ist.
14. Der FM-Prüfsender und der SX-434 sind beide auf eine Anzeige von 98 MHz einzustellen.
15. Der obere Kern ist zu drehen und so einzustellen, daß die Verzerrung minimal wird.
Die obigen Schritte 12-15 sollten mehrmals nacheinander wiederholt werden, bis keine weitere merkliche Verbesserung erzielt wird.

Abgleichen Des FM-MPX-Teils

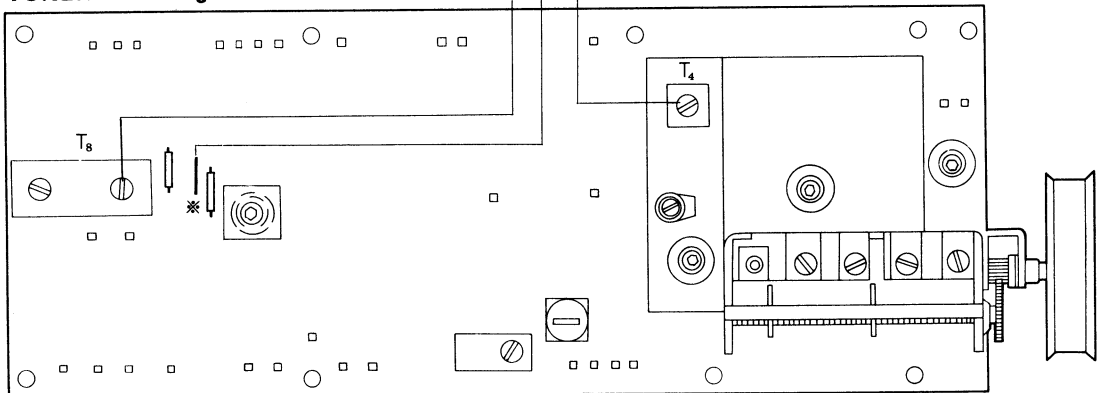
Zur Beachtung: Die folgenden Einstellschritte sollten nicht vor Beendigung des Abgleichs des FM-Teils (siehe oben 1 – 15) durchgeführt werden.

Der Multiplex-Prüfsender ist mit den Außenmodulatoranschlüssen des FM-Prüfsenders zu verbinden.

1. Regeleinstellungen am SX-434
Die Steuerelemente (Knöpfe und Schalter) des SX-434 sind wie folgt einzustellen:
FUNCTION (Betriebsartenschalter):
FM (UKW)
FM MUTING (FM-Stummabstimmung):
OFF (Aus)
SPEAKERS (Lautsprecher):
OFF (Aus), POWER ON (Strom eingeschaltet)

2. Schaltungen zwischen Prüfsatz und dem SX-434.
– Der Ausgang vom FM-Prüfsender ist mit den 300-Ohm-Antennenanschlüssen des SX-434 zu verbinden.
– Ein Klirrfaktormessgerät ist mit den Anschlußbuchsen TAPE REC (Band/Aufnahme) zu verbinden.
– Ein Millivolt-Wechselspannungsmesser ist parallel zum Klirrfaktormessgerät mit den Anschlußbuchsen TAPE REC (Band/Aufnahme) zu verbinden (mit Umschaltmöglichkeit von den Kanälen L auf R).
3. Modulation des Multiplex-Prüfsenders L + R (1 kHz) : Abweichung von 67,5kHz PILOT (19 kHz): Abweichung von 7,5kHz
4. Der FM-Prüfsender ist auf einen Pegelausgang von 60 dB einzustellen.
5. Die Prüfsender-Modulation ist nur auf den linken kanal anzuwenden.
6. Es ist auf einen maximalen Ausgang einzustellen.
7. Es ist auf eine minimale Verzerrung einzustellen.
8. Die Multiplex-Prüfsender-Modulation ist auf den L- oder R-Kanal anzuwenden.
9. Die Trennung ist zu überprüfen.
10. Der Schaltdraht ist zu trennen, wenn die Stereo-Trennung unter 35 dB liegt.

TUNER-Schaltung (AWE-037)

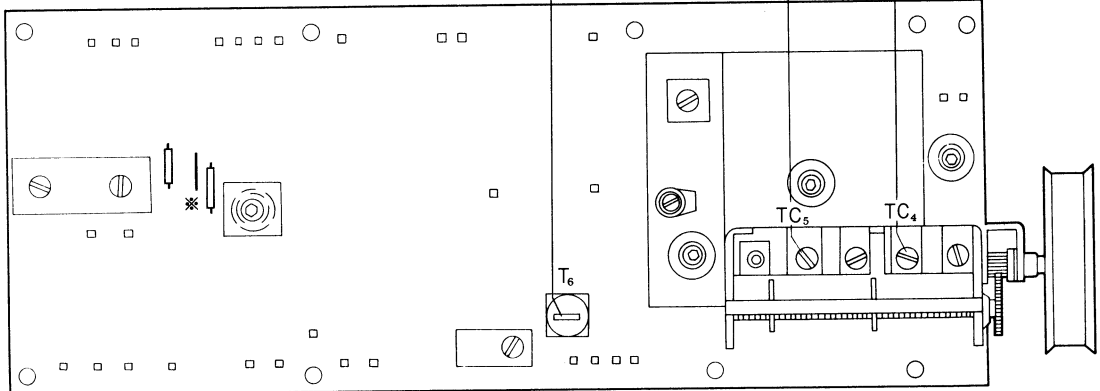


Abgleichen Des AM-Teils

1. Regeleinstellungen am SX-434
Die Steuerelemente (Knöpfe und Schalter) des SX-434 sind wie folgt einzustellen:
FUNCTION (Betriebsartenschalter):
AM (MW)
SPEAKERS (Lautsprecher):
OFF (Aus), POWER ON
(Strom eingeschaltet)
2. Schaltungen zwischen Prüfsatz und dem SX-434
 - Der AM-Prüfsender ist mit den AM-Antennenanschlüssen zu verbinden.
 - Der Millivolt-Wechselspannungsmesser ist mit den Anschlußbuchsen TAPE REC (Band/Aufnahme) zu verbinden.

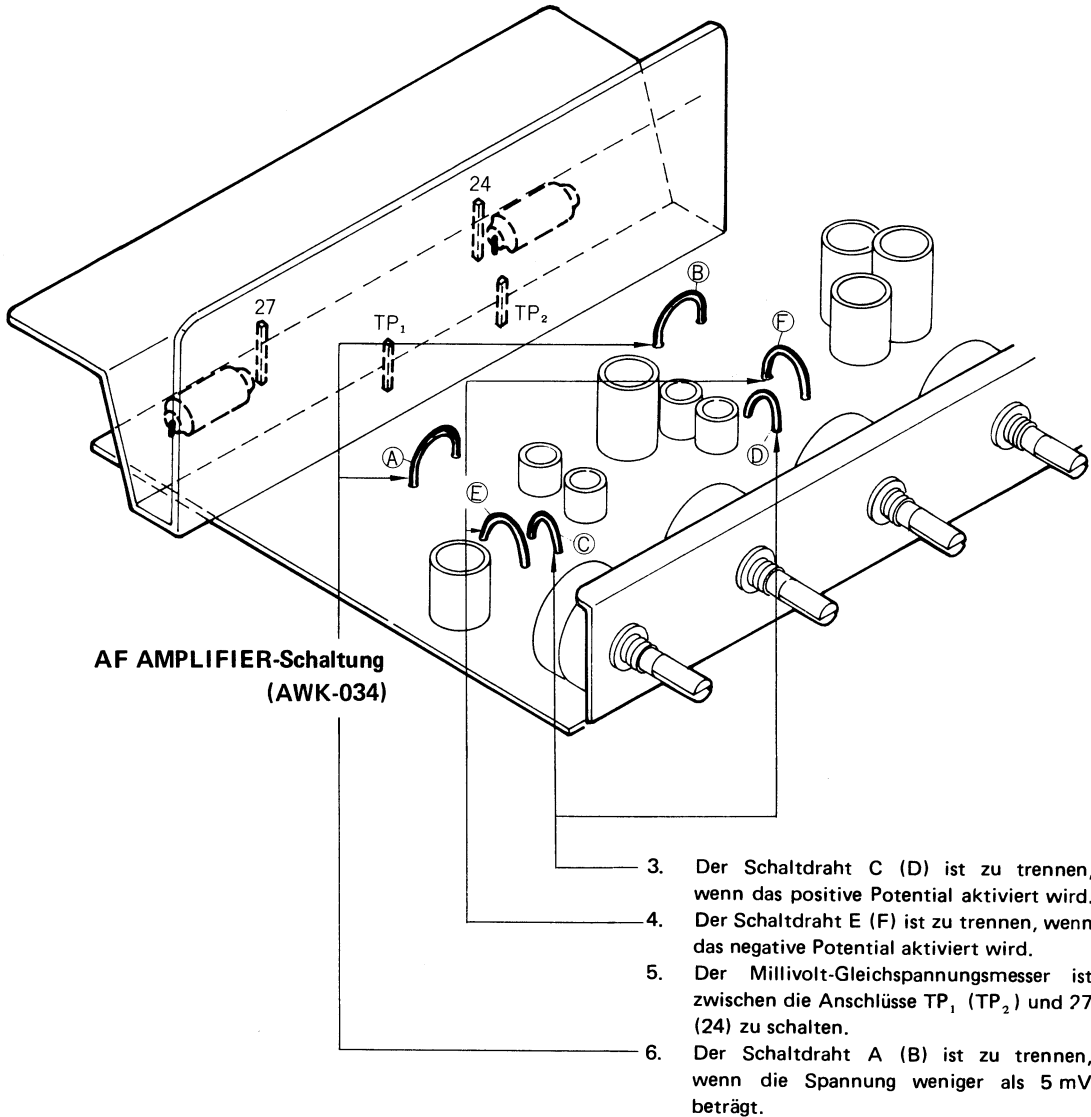
3. Der AM-Prüfsender ist auf eine Modulation von 30 % bei 400 Hz einzustellen.
4. Der Ausgang des AM-Prüfsenders ist auf 30 dB bei 600 kHz einzustellen.
5. Es ist der maximale Ausgang (bei gleichzeitiger Einstellung des Ferritstabantennenkerns) einzustellen.
6. Es ist der maximale Ausgang bei einer Frequenzeinstellung auf 1400 kHz einzustellen. Die obigen Einstellungen 4 – 6 sind mehrmals zu wiederholen, bis keine weitere merkbliche Verbesserung erzielt wird.

TUNER-Schaltung (AWE-037)



Abgieichen Der Endverstärkerstufe

1. Es ist nichts an die Eingangsbuchsen des SX-434 anzuschließen; ein künstlicher Widerstand von 8Ω ist über die Lautsprecheranschlüsse anzulegen.
2. Ein Millivolt-Gleichspannungsmesser ist zwischen Anschluß 27 (linker Kanal, 24: für den rechten Kanal) und Erde zu schalten.



10. EXPLODED VIEW AND PARTS LIST

NOTE:

Parts number is subject to change for the purpose of improvement with notice of a service bulletin.

Service bulletin will be furnished whenever necessary and you are requested to amend parts number in this manual according to the instructions.

Parts List of Exploded View

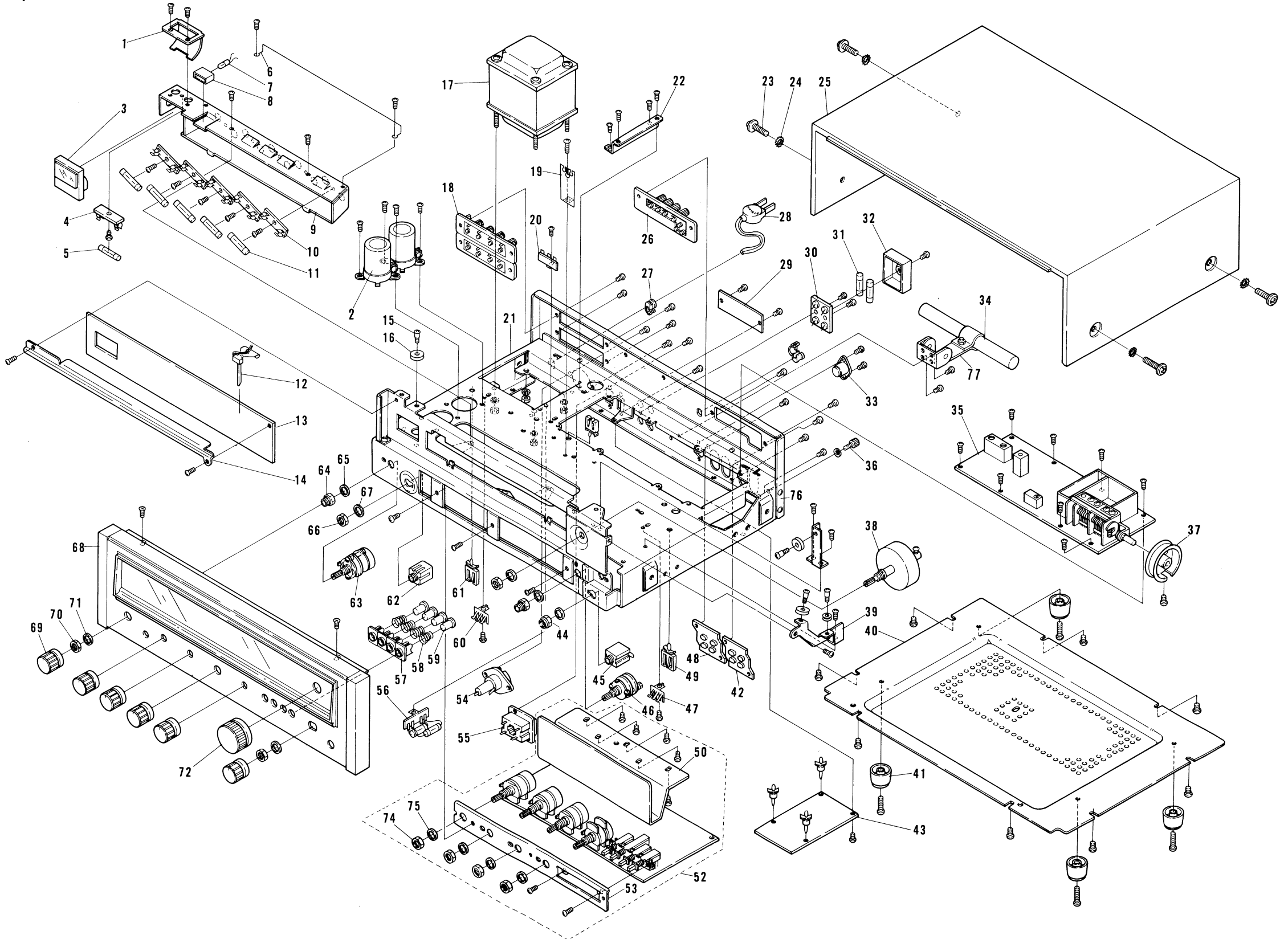
NOTICE: Any parts asterisked (*) are subject to being not supplied.

| Key No. | Description | Part No. | |
|---------|---|-----------|---------|
| 1* | Meter-held metal | ANK-017-A | |
| 2 | Electrolytic capacitor 3,300 μ F, 25V | ACH-040-0 | |
| 3 | Tuning meter | AAW-026-A | |
| 4 | Pilot lamp socket | AKK-002-0 | |
| 5 | Pilot lamp 8V, 0.3A (meter) | E22-032-0 | |
| 6* | Wire supporter | M46-138-0 | |
| 7 | Pilot lamp 6V, 30mA (stereo indicator) | AEL-017-0 | |
| 8 | Rubber bracket | AEB-014-A | |
| 9* | Lamp box | ANH-078-B | |
| 10 | Pilot lamp socket | AKK-002-0 | |
| 11 | Pilot lamp 8V, 0.3A (dial scale) | E22-032-0 | |
| 12 | Dial pointer | AAF-028-0 | |
| 13 | Dial scale | AAG-076-A | |
| 14* | Dial scale-held metal | ANG-096-0 | |
| 15* | Pulley shaft | M49-025-E | |
| 16 | Pulley | AEC-101-0 | |
| 17 | Power transformer | ATT-169-0 | KCU |
| | Power transformer | ATT-170-A | GN |
| | Power transformer | ATT-171-0 | FV |
| 18 | Speaker output terminal | AKA-001-0 | |
| 19* | Wire supporter | M45-105-C | |
| 20 | Terminal strip (2P) | AKC-015-0 | |
| 21* | Chassis | ANA-062-B | |
| 22* | Reinforced metal | ANF-204-0 | |
| 23 | Screw M4x15 | ABA-010-A | |
| 24 | Washer | B21-011-A | |
| 25 | Wooden cabinet | AMM-031-A | |
| 26 | Antenna terminal board | K11-043-D | |
| 27 | AC cord grommet | AEC-079-0 | KCU, FV |
| | Connector (AC power) | AKP-008-0 | GN |
| 28 | AC power cord | ADG-005-A | KCU |
| | AC power cord | ADG-004-0 | FV |
| 29* | Model name plate | AAL-211-0 | KCU |
| | Model name plate | AAL-212-0 | GN |
| | Model name plate | AAL-213-0 | FV |
| 30 | Fuse holder (protection) | AKR-011-0 | KCU, FV |
| | Fuse holder (protection) | AKR-017-0 | GN |
| 31 | Fuse 3A (protection) | E21-036-A | KCU, FV |
| | Fuse 3.15A (protection) | AEK-042-0 | GN |
| 32 | Plastic cover | AEC-058-0 | |
| 33 | Connector (DIN type 5P) | K93-003-B | |
| 34 | Ferrite loopstick antenna | ATB-015-A | |
| 35 | Tuner assembly | AWE-037-0 | |

NOTICE: Any parts asterisked (*) are subject to being not supplied.

| Key No. | Description | Part No. | |
|---------|--|-----------|---------|
| 36 | Binding post for ground | AKE-017-0 | |
| 37 | Tuning pulley assembly | AXA-015-A | |
| 38 | Tuning shaft assembly | AXA-021-0 | |
| 39* | Pulley-held metal | ANG-043-0 | |
| 40* | Bottom plate | ANE-016-C | |
| 41 | Foot | AEC-061-A | |
| 42 | Phono jack-B (4 jacks) | AKB-015-0 | |
| 43 | Power supply circuit assembly | AWR-062-0 | KCU, FV |
| | Power supply circuit assembly | AWR-059-0 | GN |
| | Power supply circuit assembly | AWR-049-0 | FV |
| 44 | Nut (insulator) | B71-031-0 | |
| 45 | Phone jack (Microphone) | K72-020-0 | |
| 46 | Rotary switch (Function) | ASC-059-0 | |
| 47 | Ground terminal strip (4P) | K13-047-0 | |
| 48 | Phono jack-A (4 jacks) | AKB-014-0 | |
| 49* | Wire clip | AEC-004-0 | |
| 50* | Heat sink | ANH-192-0 | |
| 51 | | | |
| 52 | AF amplifier assembly | AWK-034-0 | |
| 53* | P.C. board holder | ANF-202-0 | |
| 54 | Fuse holder (AC power) | AKR-001-0 | FV |
| 55 | AC socket | AKP-004-0 | KCU, FV |
| 56 | Terminal strip (4P) | AKC-016-0 | |
| 57 | Spacer | AEC-090-0 | |
| 58 | Spring | AEF-002-C | |
| 59 | Knob (FM muting, Mono, Tape monitor, Loudness) | AAD-050-B | |
| 60 | Ground terminal strip (4P) | K13-047-0 | |
| 61* | Wire clip | AEC-004-0 | |
| 62 | Phone jack (Headphone) | K72-026-0 | |
| 63 | Rotary switch (Power) | ASA-039-0 | KCU |
| | Rotary switch (Power) | ASA-040-0 | FV, GN |
| 64 | Special nut | ALA-008-0 | |
| 65 | Washer 1t | M45-086-A | |
| 66 | Nut 9 ϕ | B71-004-0 | |
| 67 | Washer 1t | M45-086-A | |
| 68 | Front panel assembly | ANB-265-0 | |
| 69 | Knob (Speaker, Bass, Treble, Balance, Volume, Function) | AAB-068-A | |
| 70 | Nut 9 ϕ | B71-004-0 | |
| 71 | Washer 1t | M45-086-A | |
| 72 | Knob (Tuning) | AAA-024-0 | |
| 73 | | | |
| 74 | Nut 9 ϕ | B71-004-0 | |
| 75 | Spacer 1t | M45-086-A | |
| 76* | Rear panel | ANC-108-A | KCU |
| | Rear panel | ANC-109-A | GN |
| | Rear panel | ANC-110-A | FV |
| 77 | Ferrite antenna holder assembly | AXB-001-A | |

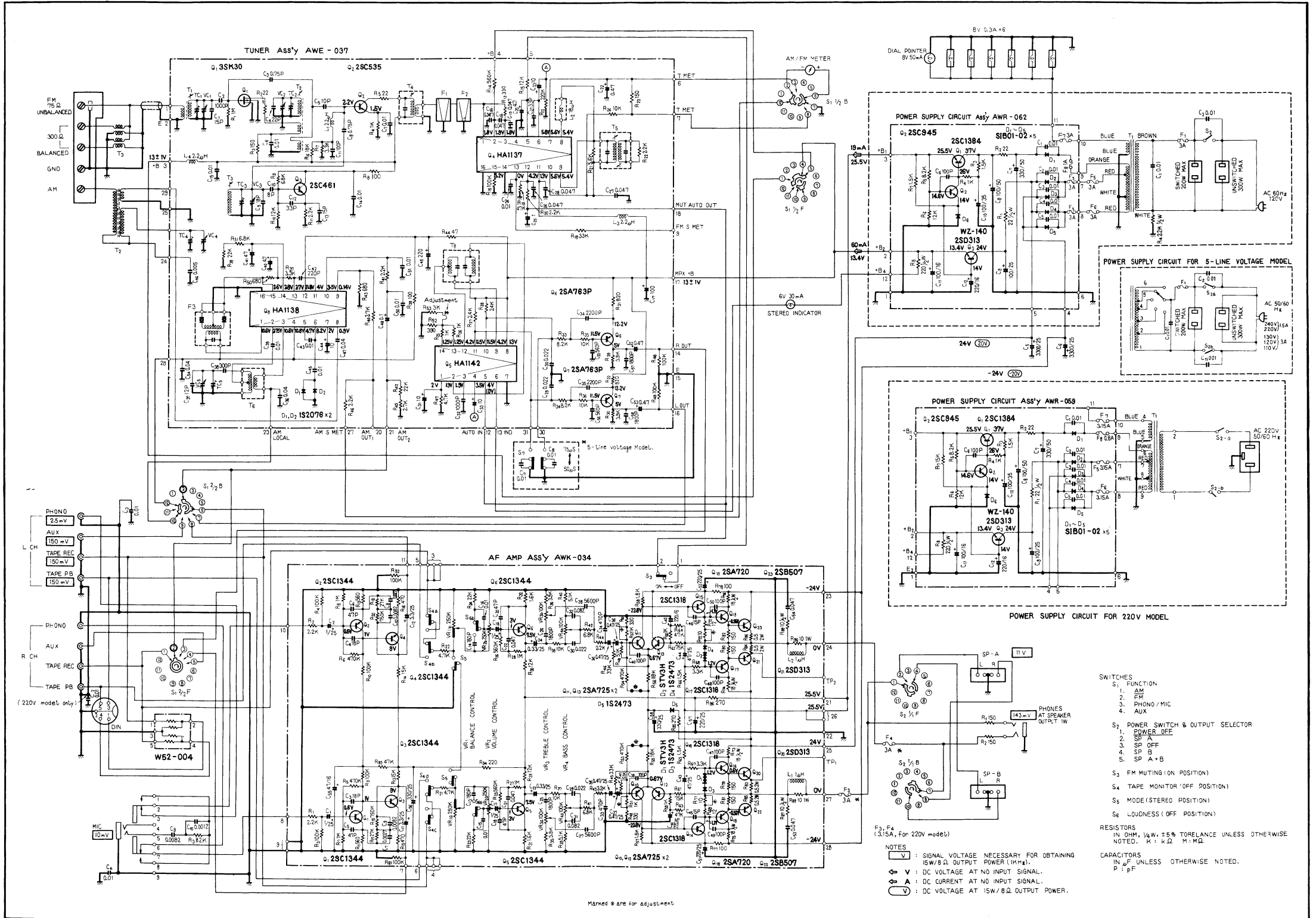
Exploded View



11. SCHEMATIC DIAGRAMS, P.C. BOARD PATTERNS AND PARTS LIST

11.1 CIRCUIT CONNECTION DIAGRAM AND MISCELLANEOUS PARTS

See KCU/GN/FW Schematic for Clarity



Miscellaneous Parts

- CAPACITORS: IN μ F UNLESS OTHERWISE NOTED p: pF
- RESISTORS: IN Ω , $\frac{1}{4}$ W UNLESS OTHERWISE NOTED k: k Ω , M: M Ω

CAPACITORS

| Symbol | Description | | | Part No. | |
|--------|--------------|--------|------|---------------|---------|
| C1 | Ceramic | 0.01 | 250V | ACG-001-0 | FV |
| | Ceramic | 0.01 | 250V | ACG-003-0 | KCU |
| C2 | Ceramic | 0.01 | 250V | ACG-001-0 | KCU, FV |
| | Ceramic | 0.01 | 50V | CKDYF 103Z 50 | GN |
| C3 | Ceramic | 0.01 | 50V | CKDYF 103Z 50 | |
| C4 | Ceramic | 0.01 | 50V | CKDYF 103Z 50 | |
| C5 | Electrolytic | 3,300 | 25V | ACH-040-0 | |
| C6 | Electrolytic | 3,300 | 25V | ACH-040-0 | |
| C7 | Mylar | 0.01 | 50V | CQMA 103K 50 | KCU, FV |
| C8 | Mylar | 0.01 | 50V | CQMA 103K 50 | KCU, FV |
| C9 | Mylar | 0.0082 | 50V | CQMA 822K 50 | |
| C10 | Mylar | 0.0012 | 50V | CQMA 122K 50 | |
| C11 | Ceramic | 0.01 | 250V | ACG-001-0 | FV |

RESISTORS

| Symbol | Description | | | Part No. | |
|--------|-------------|------|-----------------|--------------------------|-----|
| R1 | Carbon film | 150 | $\frac{1}{2}$ W | RD $\frac{1}{2}$ PS 151J | |
| R2 | Carbon film | 150 | $\frac{1}{2}$ W | RD $\frac{1}{2}$ PS 151J | |
| R3 | Carbon film | 82k | | RD $\frac{1}{4}$ PS 823J | |
| R4 | Carbon film | 2.2M | $\frac{1}{2}$ W | RD $\frac{1}{2}$ PW 225J | KCU |

SWITCHES

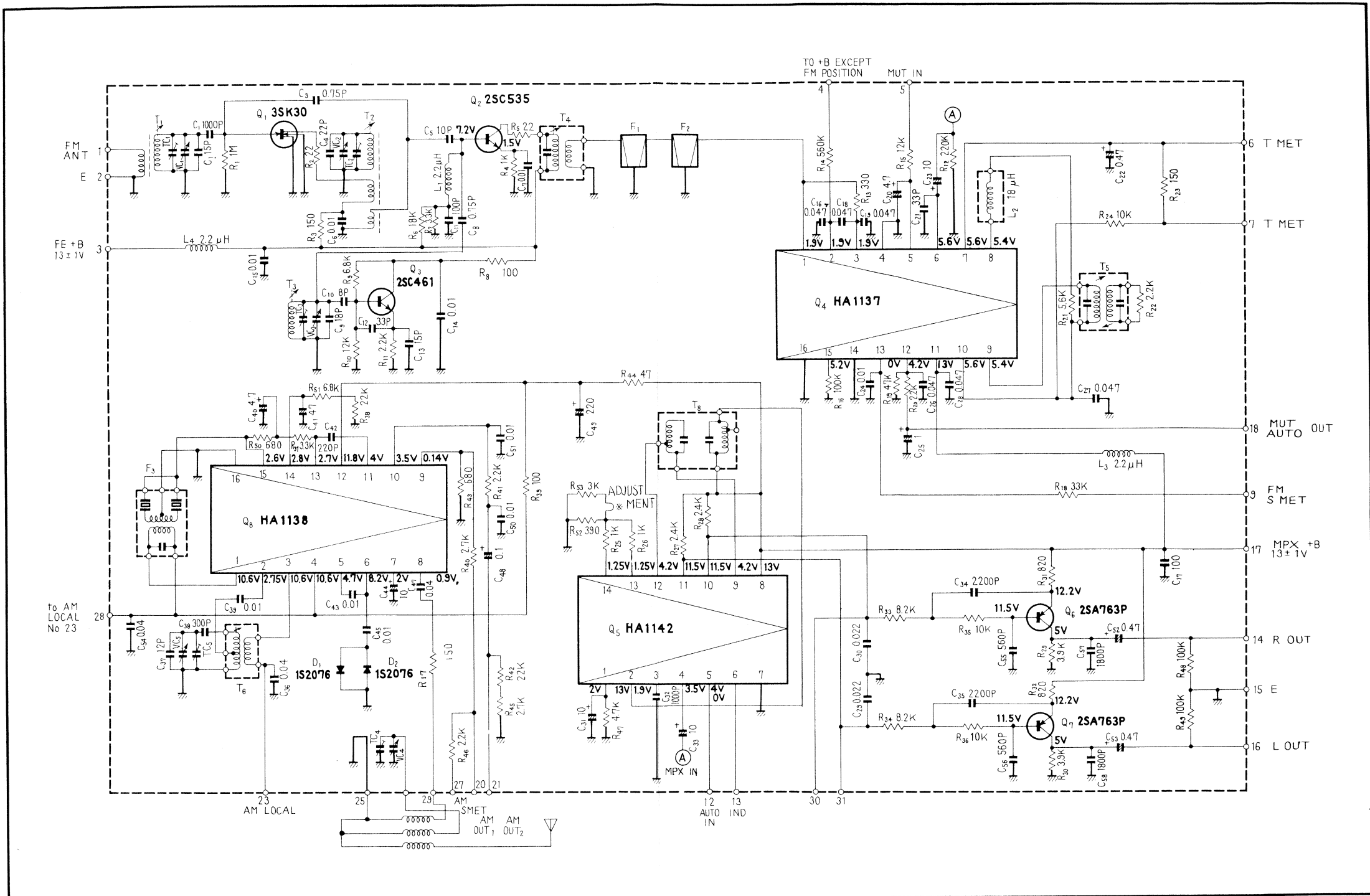
| Symbol | Description | Part No. | |
|--------|----------------------------|-----------|--------|
| S1 | Rotary switch (Function) | ASC-059-0 | |
| S2 | Rotary switch (Power) | ASA-039-0 | KCU |
| | Rotary switch (Power) | ASA-040-0 | GN, FV |
| S7 | Slide switch (De-emphasis) | ASH-008-0 | FV |

OTHERS

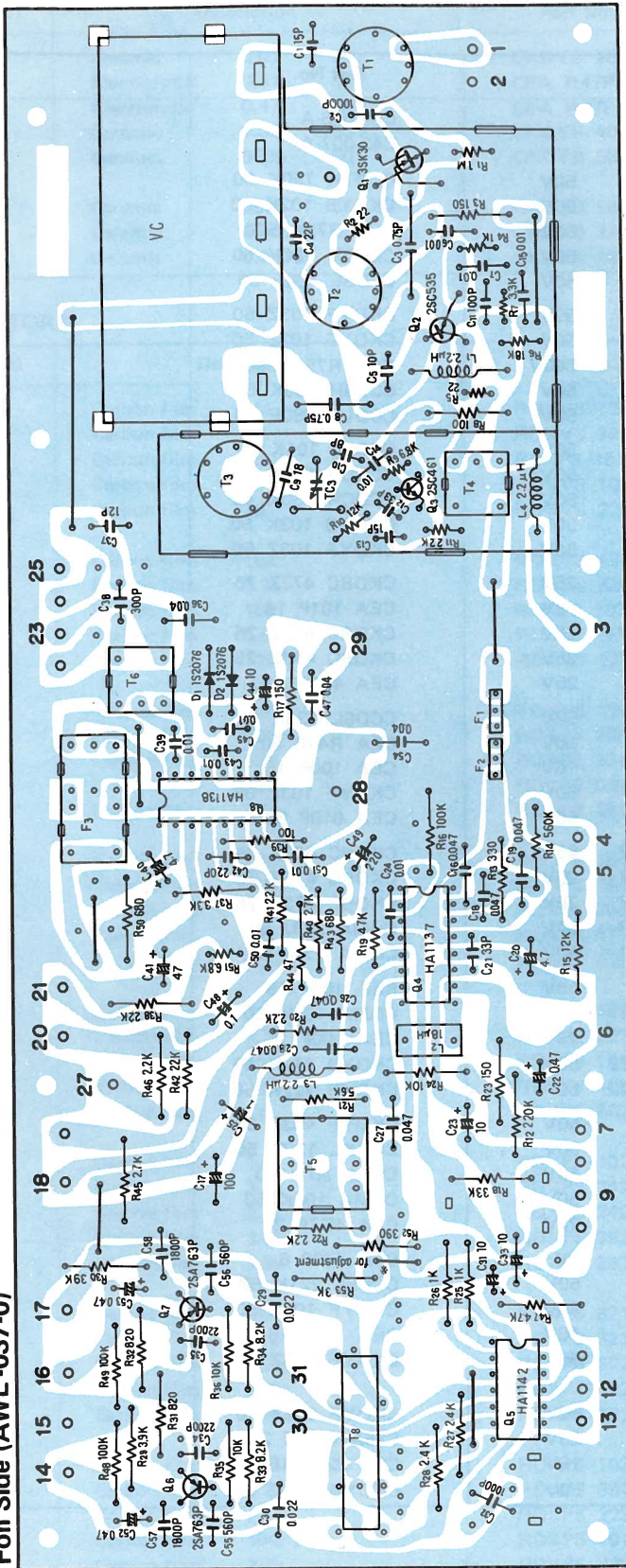
| Symbol | Description | Part No. | |
|--------|---|-----------|---------|
| | Tuner assembly | AWE-037-0 | |
| | AF amplifier assembly | AWK-034-0 | |
| | Power supply circuit assembly | AWR-062-0 | KCU, FV |
| | Power supply circuit assembly | AWR-059-0 | GN |
| | Power supply circuit assembly | AWR-049-0 | FV |
| | Front panel assembly | ANB-265-0 | |
| | Foot | AEC-061-A | |
| | Ferrite antenna holder assembly | AXB-001-A | |
| | Tuning pulley assembly | AXA-015-A | |
| | Tuning shaft assembly | AXA-021-0 | |
| | Wooden cabinet | AMM-031-A | |
| | Knob (Tuning) | AAA-024-0 | |
| | Knob (Speaker, Bass, Treble, Balance, Volume, Function) | AAB-068-A | |
| | Knob (FM muting, Mono, Tape monitor, Loudness) | AAD-050-B | |
| | Spring | AEF-002-C | |
| | Dial pointer | AAF-028-0 | |

| Symbol | Description | Part No. | |
|--------|--|-----------|---------|
| T1 | Dial scale | AAG-076-A | |
| | Tuning meter | AAW-026-A | |
| | Spacer | AEC-090-0 | |
| | Power transformer | ATT-169-0 | KCU |
| | Power transformer | ATT-170-A | GN |
| | Power transformer | ATT-171-0 | FV |
| T2 | Ferrite loopstick antenna | ATB-015-A | |
| T3 | Balun | T22-025-A | |
| | Antenna terminal board | K11-043-D | |
| | Phono jack-A (4 jacks) | AKB-014-0 | |
| | Phono jack-B (4 jacks) | AKB-015-0 | |
| F1 | Fuse 3A (AC power) | AEK-200-0 | KCU |
| | Fuse 1.5A (AC power) | AEK-009-0 | FV |
| F3 | Fuse 3A (protection) | E21-036-A | KCU, FV |
| | Fuse 3.15A (protection) | AEK-042-0 | GN |
| F4 | Fuse 3A (protection) | E21-036-A | KCU, FV |
| | Fuse 3.15A (protection) | AEK-042-0 | GN |
| F5 | Fuse 3A (protection) | AEK-101-0 | KCU |
| | Fuse 3.15A (protection) | AEK-042-0 | GN |
| | Fuse 3A (protection) | E21-036-A | FV |
| F6 | Fuse 3A (protection) | AEK-101-0 | KCU |
| | Fuse 3.15A (protection) | AEK-042-0 | GN |
| | Fuse 3A (protection) | E21-036-A | FV |
| F7 | Fuse 3A (protection) | AEK-101-0 | KCU |
| | Fuse 3A (protection) | E21-036-A | FV |
| | Fuse 3.15A (protection) | AEK-042-0 | GN |
| F8 | Fuse 1A (protection) | AEK-106-0 | KCU |
| | Fuse 0.8A (protection) | AEK-031-0 | GN |
| | Fuse 1A (protection) | E21-034-A | FV |
| | Pilot lamp 6V, 30mA (stereo indicator) | AEL-017-0 | |
| | Pilot lamp 8V, 0.3A (dial scale) | E22-032-0 | |
| | Compound part for REC terminal | W52-004-A | |
| | Phone jack (Microphone) | K72-020-0 | |
| | Phone jack (Headphone) | K72-026-0 | |
| | Speaker output terminal | AKA-001-0 | |
| | AC socket | AKP-004-0 | KCU, FV |
| | Connector (AC power) | AKP-008-0 | GN |
| | Connector (DIN type 5P) | K93-003-B | |
| | Fuse holder (AC power) | AKR-001-0 | FV |
| | Fuse holder (protection) | AKR-011-0 | KCU, FV |
| | Fuse holder (protection) | AKR-017-0 | GN |
| | Plastic cover | AEC-058-0 | |
| | Pilot lamp socket | AKK-002-0 | |
| | AC power cord | ADG-005-A | KCU |
| | AC power cord | ADG-004-0 | FV |
| | Binding post for ground | AKE-017-0 | |
| | FM T-type antenna | ADH-002-0 | |
| | Operating instructions (English) | ARB-102-0 | |
| | Fuse 1.5A (AC power) | AEK-009-0 | FV |
| | Packing case | AHD-215-0 | |
| | Side pad | AHA-019-0 | |
| | Operating instructions (French/German) | ARD-064-0 | FV, GN |

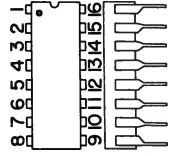
11.2 TUNER ASSEMBLY (AWE-037)



Foil Side (AWE-037-0)



HA1138
HA1137



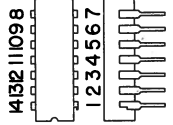
2SA725



2SA725
2SA763P



HA1142



2SC535
2SC461



3SK30



Parts List of Tuner Assembly (AWE-037-0)

CAPACITORS

| Symbol | Description | Part No. |
|--------|-----------------------|---------------|
| VC1 | Tuning capacitor | C64-046-A |
| TC3 | Ceramic trimmer | C43-007-A |
| C1 | Ceramic 15p 50V | CCDTH 150K 50 |
| C2 | Ceramic 0.001 50V | CKDYB 102K 50 |
| C3 | Ceramic 0.75p 500V | CGB R75K 500 |
| C4 | Ceramic 22p 50V | CCDTH 220K 50 |
| C5 | Ceramic 10p 50V | CCDSL 100F 50 |
| C6 | Ceramic 0.01 50V | CKDYF 103Z 50 |
| C7 | Ceramic 0.01 50V | CKDYF 103Z 50 |
| C8 | Ceramic 0.75p 500V | CGB R75K 500 |
| C9 | Ceramic 18p 50V | CCDSH 180K 50 |
| C10 | Ceramic 8p 50V | CCDLH 080F 50 |
| C11 | Ceramic 100p 50V | CCDSL 101K 50 |
| C12 | Ceramic 33p 50V | CCDCH 330K 50 |
| C13 | Ceramic 15p 50V | CCDCH 150K 50 |
| C14 | Ceramic 0.01 50V | CKDYB 103K 50 |
| C15 | Ceramic 0.01 50V | CKDYF 103Z 50 |
| C16 | Ceramic 0.047 25V | CKDBC 473Z 25 |
| C17 | Electrolytic 100 16V | CEA 101P 16 |
| C18 | Ceramic 0.047 25V | CKDBC 473Z 25 |
| C19 | Ceramic 0.047 25V | CKDBC 473Z 25 |
| C20 | Electrolytic 4.7 25V | CEA 4R7P 25 |
| C21 | Ceramic 33p 50V | CCDSL 330K 50 |
| C22 | Electrolytic 0.47 50V | CEA R47P 50 |
| C23 | Electrolytic 10 16V | CEA 100P 16 |
| C24 | Ceramic 0.01 50V | CKDYF 103Z 50 |
| C25 | Electrolytic 1 50V | CEA 010P 50 |
| C26 | Ceramic 0.047 25V | CKDBC 473Z 25 |
| C27 | Ceramic 0.047 25V | CKDBC 473Z 25 |
| C28 | Ceramic 0.047 25V | CKDBC 473Z 25 |
| C29 | Mylar 0.022 50V | CQMA 223J 50 |
| C30 | Mylar 0.022 50V | CQMA 223J 50 |
| C31 | Electrolytic 10 1 16V | CEA 100P 16 |
| C32 | Mylar 0.001 50V | CQMA 102K 50 |
| C33 | Electrolytic 10 16V | CEA 100P 16 |
| C34 | Ceramic 0.0022 50V | CKDYB 222K 50 |
| C35 | Ceramic 0.0022 50V | CKDYB 222K 50 |
| C36 | Ceramic 0.04 50V | CKDYF 403Z 50 |
| C37 | Ceramic 12p 50V | CCDXL 120K 50 |
| C38 | Styrol 300p 50V | CQSA 301J 50 |
| C39 | Mylar 0.01 50V | CQMA 103K 50 |
| C40 | Electrolytic 4.7 25V | CEA 4R7P 25 |
| C41 | Electrolytic 47 6V | CEA 470P 6 |
| C42 | Ceramic 220p 50V | CCDSL 221K 50 |
| C43 | Ceramic 0.01 50V | CKDYF 103Z 50 |
| C44 | Electrolytic 10 16V | CEA 100P 16 |
| C45 | Ceramic 0.01 50V | CKDYF 103Z 50 |
| C46 | | |
| C47 | Ceramic 0.04 50V | CKDYF 403Z 50 |
| C48 | Electrolytic 0.1 25V | CSSA 0R1M 25 |
| C49 | Electrolytic 220 16V | CEA 221P 16 |
| C50 | Ceramic 0.01 50V | CKDYB 103K 50 |

| Symbol | Description | | | Part No. |
|--------|--------------|--------|-----|---------------|
| C51 | Ceramic | 0.01 | 50V | CKDYB 103K 50 |
| C52 | Electrolytic | 0.47 | 50V | CEA R47P 50 |
| C53 | Electrolytic | 0.47 | 50V | CEA R47P 50 |
| C54 | Ceramic | 0.04 | 50V | CKDYF 403Z 50 |
| C55 | Ceramic | 560p | 50V | CKDYB 561K 50 |
| C56 | Ceramic | 560p | 50V | CKDYB 561K 50 |
| C57 | Ceramic | 0.0018 | 50V | CKDYB 182K 50 |
| C58 | Ceramic | 0.0018 | 50V | CKDYB 182K 50 |

RESISTORS

| Symbol | Description | | | Part No. |
|--------|-------------|------|--|--------------------------|
| R1 | Carbon film | 1M | | RD $\frac{1}{4}$ VS 105J |
| R2 | Carbon film | 22 | | RD $\frac{1}{4}$ VS 220J |
| R3 | Carbon film | 150 | | RD $\frac{1}{4}$ PS 151J |
| R4 | Carbon film | 1k | | RD $\frac{1}{4}$ VS 102J |
| R5 | Carbon film | 22 | | RD $\frac{1}{4}$ VS 220J |
| R6 | Carbon film | 18k | | RD $\frac{1}{4}$ VS 183J |
| R7 | Carbon film | 3.3k | | RD $\frac{1}{4}$ VS 332J |
| R8 | Carbon film | 100 | | RD $\frac{1}{4}$ PS 101J |
| R9 | Carbon film | 6.8k | | RD $\frac{1}{4}$ VS 682J |
| R10 | Carbon film | 12k | | RD $\frac{1}{4}$ VS 123J |
| R11 | Carbon film | 2.2k | | RD $\frac{1}{4}$ VS 222J |
| R12 | Carbon film | 220k | | RD $\frac{1}{4}$ PS 224J |
| R13 | Carbon film | 330 | | RD $\frac{1}{4}$ PS 331J |
| R14 | Carbon film | 560k | | RD $\frac{1}{4}$ PS 564J |
| R15 | Carbon film | 12k | | RD $\frac{1}{4}$ PS 123J |
| R16 | Carbon film | 100k | | RD $\frac{1}{4}$ PS 104J |
| R17 | Carbon film | 150 | | RD $\frac{1}{4}$ PS 151J |
| R18 | Carbon film | 33k | | RD $\frac{1}{4}$ PS 333J |
| R19 | Carbon film | 47k | | RD $\frac{1}{4}$ PS 473J |
| R20 | Carbon film | 2.2k | | RD $\frac{1}{4}$ PS 222J |
| R21 | Carbon film | 5.6k | | RD $\frac{1}{4}$ PS 562J |
| R22 | Carbon film | 2.2k | | RD $\frac{1}{4}$ PS 222J |
| R23 | Carbon film | 150 | | RD $\frac{1}{4}$ PS 151J |
| R24 | Carbon film | 10k | | RD $\frac{1}{4}$ PS 103J |
| R25 | Carbon film | 1k | | RD $\frac{1}{4}$ PS 102J |
| R26 | Carbon film | 1k | | RD $\frac{1}{4}$ PS 102J |
| R27 | Carbon film | 2.4k | | RD $\frac{1}{4}$ PS 242J |
| R28 | Carbon film | 2.4k | | RD $\frac{1}{4}$ PS 242J |
| R29 | Carbon film | 3.9k | | RD $\frac{1}{4}$ PS 392J |
| R30 | Carbon film | 3.9k | | RD $\frac{1}{4}$ PS 392J |
| R31 | Carbon film | 820 | | RD $\frac{1}{4}$ PS 821J |
| R32 | Carbon film | 820 | | RD $\frac{1}{4}$ PS 821J |
| R33 | Carbon film | 8.2k | | RD $\frac{1}{4}$ PS 822J |
| R34 | Carbon film | 8.2k | | RD $\frac{1}{4}$ PS 822J |
| R35 | Carbon film | 10k | | RD $\frac{1}{4}$ PS 103J |
| R36 | Carbon film | 10k | | RD $\frac{1}{4}$ PS 103J |
| R37 | Carbon film | 3.3k | | RD $\frac{1}{4}$ PS 332J |
| R38 | Carbon film | 22k | | RD $\frac{1}{4}$ PS 223J |
| R39 | Carbon film | 100 | | RD $\frac{1}{4}$ PS 101J |
| R40 | Carbon film | 2.7k | | RD $\frac{1}{4}$ PS 272J |

Continued on the Next Page 33

| Symbol | Description | Part No. |
|--------|------------------|------------|
| R41 | Carbon film 2.2k | RD¼PS 222J |
| R42 | Carbon film 22k | RD¼PS 223J |
| R43 | Carbon film 680 | RD¼PS 681J |
| R44 | Carbon film 47 | RD¼PS 470J |
| R45 | Carbon film 2.7k | RD¼PS 272J |
| R46 | Carbon film 2.2k | RD¼PS 222J |
| R47 | Carbon film 4.7k | RD¼PS 472J |
| R48 | Carbon film 100k | RD¼PS 104J |
| R49 | Carbon film 100k | RD¼PS 104J |
| R50 | Carbon film 680 | RD¼PS 681J |
| R51 | Carbon film 6.8k | RD¼PS 682J |
| R52 | Carbon film 390 | RD¼PS 391J |
| R53 | Carbon film 3k | RD¼PS 302J |

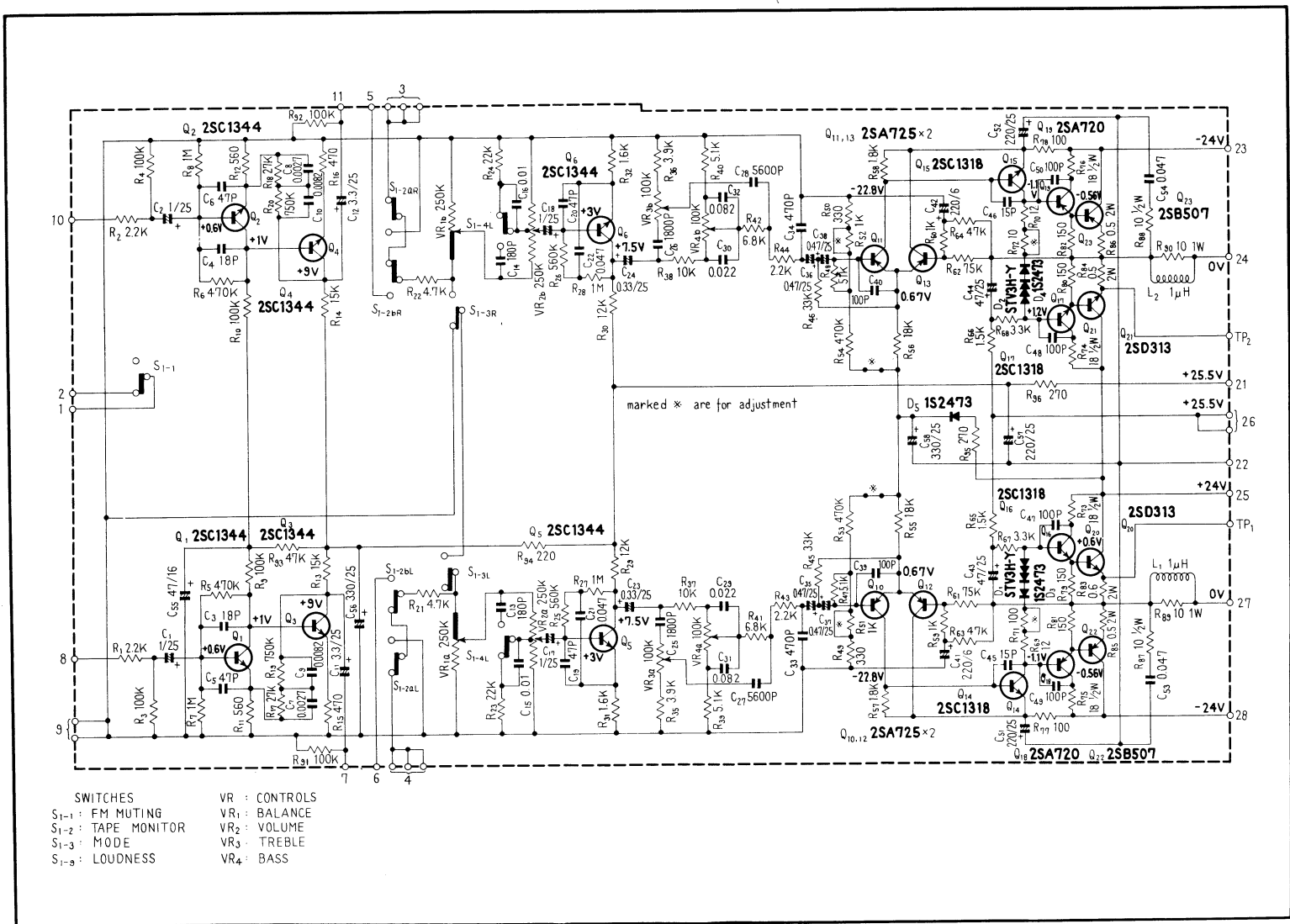
SEMICONDUCTORS

| Symbol | Description | Part No. |
|--------|--|----------|
| Q1 | FET 3SK30-B | |
| Q2 | Transistor 2SC535-A or B | |
| Q3 | Transistor 2SC461-B | |
| Q4 | IC HA1137 | |
| Q5 | IC HA1142 | |
| Q6 | Transistor 2SA763P-6 or 5 (2SA725-F or G) | |
| Q7 | Transistor 2SA763P-6 or 5 (2SA725-F or G) | |
| Q8 | IC HA1138 | |
| D1 | Diode 1S2076 | |
| D2 | Diode 1S2076 | |

COILS, TRANSFORMERS AND FILTERS

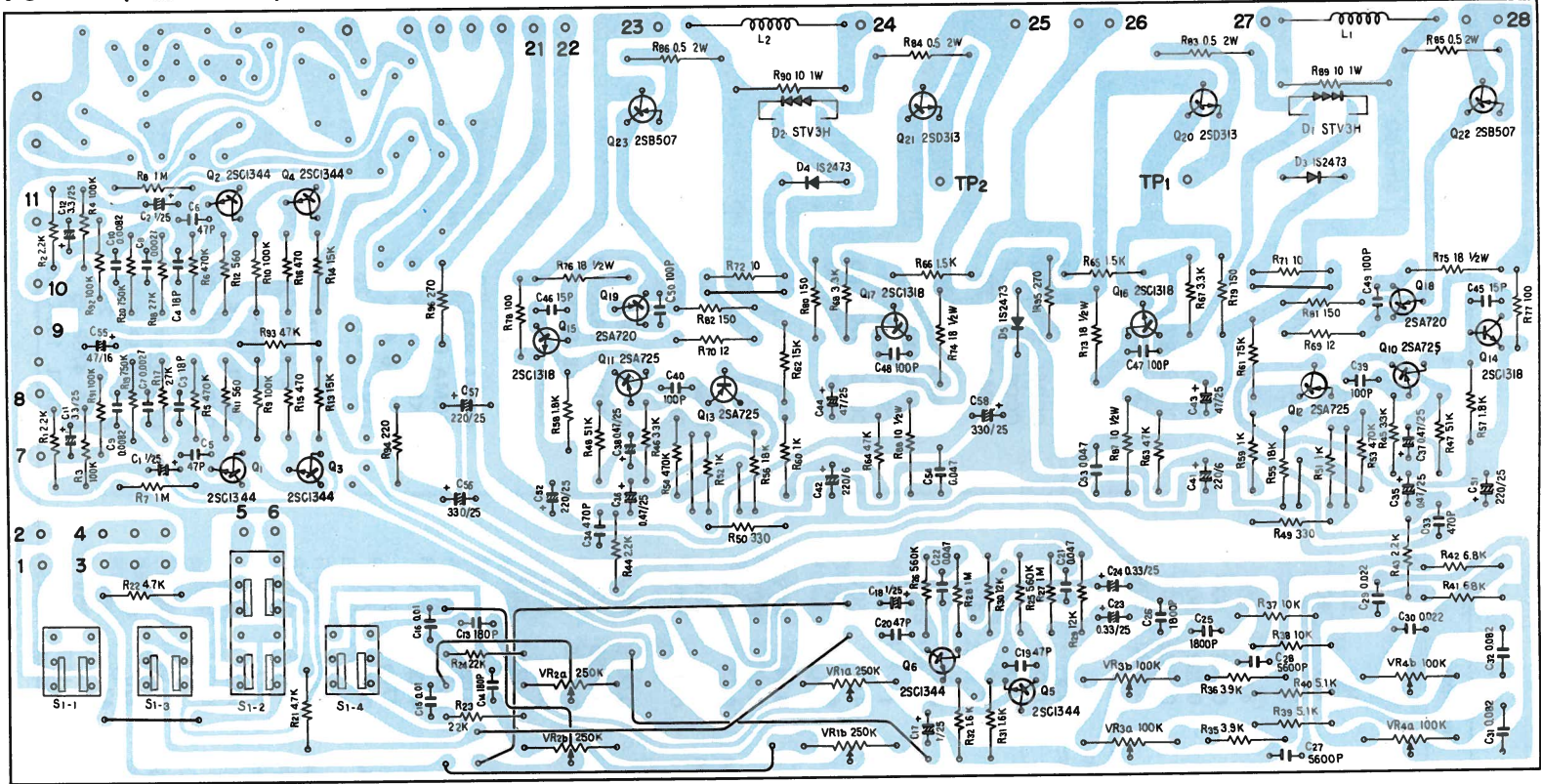
| Symbol | Description | Part No. |
|--------|-------------------------|-----------|
| T1 | FM antenna coil | ATC-023-0 |
| T2 | FM RF coil | ATC-024-0 |
| T3 | FM OSC coil | ATC-025-0 |
| T4 | FM matching transformer | ATE-008-0 |
| T5 | FM IF transformer | T73-035-A |
| T6 | AM OSC coil | ATB-013-0 |
| T7 | | |
| T8 | MPX transformer | ATM-020-0 |
| F1 | FM ceramic filter | ATF-013-B |
| F2 | FM ceramic filter | ATF-013-B |
| F3 | AM ceramic filter | ATF-009-0 |
| L1 | RF choke coil | T24-028-A |
| L2 | Choke coil | ATH-007-0 |
| L3 | RF choke coil | T24-028-A |
| L4 | RF choke coil | T24-028-A |

11.3 AF AMPLIFIER ASSEMBLY (AWK-034)

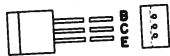


- | | |
|---------------------------------|---------------------------|
| SWITCHES | VR : CONTROLS |
| S ₁₋₁ : FM MUTING | VR ₁ : BALANCE |
| S ₁₋₂ : TAPE MONITOR | VR ₂ : VOLUME |
| S ₁₋₃ : MODE | VR ₃ : TREBLE |
| S ₁₋₉ : LOUDNESS | VR ₄ : BASS |

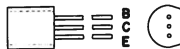
Foil Side (AWK-034-0)



2SC1344

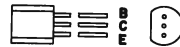


2SA725
2SC1312



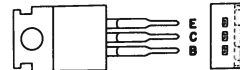
2SA720
2SA763P

2SC900
2SC1318



2SD313
2SB507

2SA489
2SC789



Parts List of AF Amplifier Assembly (AWK-034-0)

CAPACITORS

| Symbol | Description | | | Part No. |
|--------|--------------|--------|-----|---------------|
| C1 | Electrolytic | 1 | 25V | CSSA 010M 25 |
| C2 | Electrolytic | 1 | 25V | CSSA 010M 25 |
| C3 | Ceramic | 18p | 50V | CCDSL 180K 50 |
| C4 | Ceramic | 18p | 50V | CCDSL 180K 50 |
| C5 | Ceramic | 47p | 50V | CCDSL 470K 50 |
| C6 | Ceramic | 47p | 50V | CCDSL 470K 50 |
| C7 | Mylar | 0.0027 | 50V | CQMA 272J 50 |
| C8 | Mylar | 0.0027 | 50V | CQMA 272J 50 |
| C9 | Mylar | 0.0082 | 50V | CQMA 822J 50 |
| C10 | Mylar | 0.0082 | 50V | CQMA 822J 50 |
| C11 | Electrolytic | 3.3 | 25V | CEANL 3R3P 25 |
| C12 | Electrolytic | 3.3 | 25V | CEANL 3R3P 25 |
| C13 | Ceramic | 180p | 50V | CCDSL 181K 50 |
| C14 | Ceramic | 180p | 50V | CCDSL 181K 50 |
| C15 | Mylar | 0.01 | 50V | CQMA 103J 50 |
| C16 | Mylar | 0.01 | 50V | CQMA 103J 50 |
| C17 | Electrolytic | 1 | 25V | CSSA 010M 25 |
| C18 | Electrolytic | 1 | 25V | CSSA 010M 25 |
| C19 | Ceramic | 47p | 50V | CCDSL 470K 50 |
| C20 | Ceramic | 47p | 50V | CCDSL 470K 50 |
| C21 | Mylar | 0.047 | 50V | CQMA 473J 50 |
| C22 | Mylar | 0.047 | 50V | CQMA 473J 50 |
| C23 | Electrolytic | 0.33 | 25V | CSSA R33M 25 |
| C24 | Electrolytic | 0.33 | 25V | CSSA R33M 25 |
| C25 | Ceramic | 0.0018 | 50V | CKDYB 182K 50 |
| C26 | Ceramic | 0.0018 | 50V | CKDYB 182K 50 |
| C27 | Ceramic | 0.0056 | 50V | CKDYB 562K 50 |
| C28 | Ceramic | 0.0056 | 50V | CKDYB 562K 50 |
| C29 | Mylar | 0.022 | 50V | CQMA 223J 50 |
| C30 | Mylar | 0.022 | 50V | CQMA 223J 50 |
| C31 | Mylar | 0.082 | 50V | CQMA 823J 50 |
| C32 | Mylar | 0.082 | 50V | CQMA 823J 50 |
| C33 | Ceramic | 470p | 50V | CKDYB 471K 50 |
| C34 | Ceramic | 470p | 50V | CKDYB 471K 50 |
| C35 | Electrolytic | 0.47 | 25V | CSSA R47M 25 |
| C36 | Electrolytic | 0.47 | 25V | CSSA R47M 25 |
| C37 | Electrolytic | 0.47 | 25V | CSSA R47M 25 |
| C38 | Electrolytic | 0.47 | 25V | CSSA R47M 25 |
| C39 | Ceramic | 100p | 50V | CCDSL 101K 50 |
| C40 | Ceramic | 100p | 50V | CCDSL 101K 50 |
| C41 | Electrolytic | 220 | 6V | CEA 221P 6 |
| C42 | Electrolytic | 220 | 6V | CEA 221P 6 |
| C43 | Electrolytic | 47 | 25V | CEA 470P 25 |
| C44 | Electrolytic | 47 | 25V | CEA 470P 25 |
| C45 | Ceramic | 15p | 50V | CCDSL 150K 50 |

| Symbol | Description | | | Part No. |
|--------|--------------|-------|-----|---------------|
| C46 | Ceramic | 15p | 50V | CCDSL 150K 50 |
| C47 | Ceramic | 100p | 50V | CCDSL 101K 50 |
| C48 | Ceramic | 100p | 50V | CCDSL 101K 50 |
| C49 | Ceramic | 100p | 50V | CCDSL 101K 50 |
| C50 | Ceramic | 100p | 50V | CCDSL 101K 50 |
| C51 | Electrolytic | 220 | 25V | CEA 221P 25 |
| C52 | Electrolytic | 220 | 25V | CEA 221P 25 |
| C53 | Mylar | 0.047 | 50V | CQMA 473J 50 |
| C54 | Mylar | 0.047 | 50V | CQMA 473J 50 |
| C55 | Electrolytic | 47 | 16V | CEA 470P 16 |
| C56 | Electrolytic | 330 | 25V | CEA 331P 25 |
| C57 | Electrolytic | 220 | 25V | CEA 221P 25 |
| C58 | Electrolytic | 330 | 25V | CEA 331P 25 |

RESISTORS AND POTENTIOMETERS

| Symbol | Description | | | Part No. |
|--------|-------------|------|--|--------------------------|
| R1 | Carbon film | 2.2k | | RD $\frac{1}{4}$ PS 222J |
| R2 | Carbon film | 2.2k | | RD $\frac{1}{4}$ PS 222J |
| R3 | Carbon film | 100k | | RD $\frac{1}{4}$ PS 104J |
| R4 | Carbon film | 100k | | RD $\frac{1}{4}$ PS 104J |
| R5 | Carbon film | 470k | | RD $\frac{1}{4}$ PS 474J |
| R6 | Carbon film | 470k | | RD $\frac{1}{4}$ PS 474J |
| R7 | Carbon film | 1M | | RD $\frac{1}{4}$ PS 105J |
| R8 | Carbon film | 1M | | RD $\frac{1}{4}$ PS 105J |
| R9 | Carbon film | 100k | | RD $\frac{1}{4}$ PS 104J |
| R10 | Carbon film | 100k | | RD $\frac{1}{4}$ PS 104J |
| R11 | Carbon film | 560 | | RD $\frac{1}{4}$ PS 561J |
| R12 | Carbon film | 560 | | RD $\frac{1}{4}$ PS 561J |
| R13 | Carbon film | 15k | | RD $\frac{1}{4}$ PS 153J |
| R14 | Carbon film | 15k | | RD $\frac{1}{4}$ PS 153J |
| R15 | Carbon film | 470 | | RD $\frac{1}{4}$ PS 471J |
| R16 | Carbon film | 470 | | RD $\frac{1}{4}$ PS 471J |
| R17 | Carbon film | 27k | | RD $\frac{1}{4}$ PS 273J |
| R18 | Carbon film | 27k | | RD $\frac{1}{4}$ PS 273J |
| R19 | Carbon film | 750k | | RD $\frac{1}{4}$ PS 754J |
| R20 | Carbon film | 750k | | RD $\frac{1}{4}$ PS 754J |
| R21 | Carbon film | 4.7k | | RD $\frac{1}{4}$ PS 472J |
| R22 | Carbon film | 4.7k | | RD $\frac{1}{4}$ PS 472J |
| R23 | Carbon film | 22k | | RD $\frac{1}{4}$ PS 223J |
| R24 | Carbon film | 22k | | RD $\frac{1}{4}$ PS 223J |
| R25 | Carbon film | 560k | | RD $\frac{1}{4}$ PS 564J |
| R26 | Carbon film | 560k | | RD $\frac{1}{4}$ PS 564J |
| R27 | Carbon film | 1M | | RD $\frac{1}{4}$ PS 105J |
| R28 | Carbon film | 1M | | RD $\frac{1}{4}$ PS 105J |
| R29 | Carbon film | 12k | | RD $\frac{1}{4}$ PS 123J |
| R30 | Carbon film | 12k | | RD $\frac{1}{4}$ PS 123J |
| R31 | Carbon film | 1.6k | | RD $\frac{1}{4}$ PS 162J |
| R32 | Carbon film | 1.6k | | RD $\frac{1}{4}$ PS 162J |
| R33 | | | | |
| R34 | | | | |
| R35 | Carbon film | 3.9k | | RD $\frac{1}{4}$ PS 392J |

| Symbol | Description | Part No. |
|--------|-------------------|------------|
| R36 | Carbon film 3.9k | RD¼PS 392J |
| R37 | Carbon film 10k | RD¼PS 103J |
| R38 | Carbon film 10k | RD¼PS 103J |
| R39 | Carbon film 5.1k | RD¼PS 512J |
| R40 | Carbon film 5.1k | RD¼PS 512J |
| R41 | Carbon film 6.8k | RD¼PS 682J |
| R42 | Carbon film 6.8k | RD¼PS 682J |
| R43 | Carbon film 2.2k | RD¼PS 222J |
| R44 | Carbon film 2.2k | RD¼PS 222J |
| R45 | Carbon film 33k | RD¼PS 333J |
| R46 | Carbon film 33k | RD¼PS 333J |
| R47 | Carbon film 51k | RD¼PS 513J |
| R48 | Carbon film 51k | RD¼PS 513J |
| R49 | Carbon film 330 | RD¼PS 331J |
| R50 | Carbon film 330 | RD¼PS 331J |
| R51 | Carbon film 1k | RD¼PS 102J |
| R52 | Carbon film 1k | RD¼PS 102J |
| R53 | Carbon film 470k | RD¼PS 474J |
| R54 | Carbon film 470k | RD¼PS 474J |
| R55 | Carbon film 18k | RD¼PS 183J |
| R56 | Carbon film 18k | RD¼PS 183J |
| R57 | Carbon film 1.8k | RD¼PS 182J |
| R58 | Carbon film 1.8k | RD¼PS 182J |
| R59 | Carbon film 1k | RD¼PS 102J |
| R60 | Carbon film 1k | RD¼PS 102J |
| R61 | Carbon film 75k | RD¼PS 753J |
| R62 | Carbon film 75k | RD¼PS 753J |
| R63 | Carbon film 47k | RD¼PS 473J |
| R64 | Carbon film 47k | RD¼PS 473J |
| R65 | Carbon film 1.5k | RD¼PS 152J |
| R66 | Carbon film 1.5k | RD¼PS 152J |
| R67 | Carbon film 3.3k | RD¼PS 332J |
| R68 | Carbon film 3.3k | RD¼PS 332J |
| R69 | Carbon film 12 | RD¼PS 120J |
| R70 | Carbon film 12 | RD¼PS 120J |
| R71 | Carbon film 10 | RD¼PS 100J |
| R72 | Carbon film 10 | RD¼PS 100J |
| R73 | Carbon film 18 ½W | RD½PS 180J |
| R74 | Carbon film 18 ½W | RD½PS 180J |
| R75 | Carbon film 18 ½W | RD½PS 180J |
| R76 | Carbon film 18 ½W | RD½PS 180J |
| R77 | Carbon film 100 | RD¼PS 101J |
| R78 | Carbon film 100 | RD¼PS 101J |
| R79 | Carbon film 150 | RD¼PS 151J |
| R80 | Carbon film 150 | RD¼PS 151J |
| R81 | Carbon film 150 | RD¼PS 151J |
| R82 | Carbon film 150 | RD¼PS 151J |
| R83 | Metal film 0.5 2W | RN2H 0R5K |
| R84 | Metal film 0.5 2W | RN2H 0R5K |
| R85 | Metal film 0.5 2W | RN2H 0R5K |

Continued on the Next Page

| Symbol | Description | Part No. |
|--------|-------------------------------------|------------|
| R86 | Metal film 0.5 2W | RN2H 0R5K |
| R87 | Carbon film 10 ½W | RD½PS 100J |
| R88 | Carbon film 10 ½W | RD½PS 100J |
| R89 | Metal oxide 10 1W | RS1P 100J |
| R90 | Metal oxide 10 1W | RS1P 100J |
| R91 | Carbon film 100k | RD½PS 104J |
| R92 | Carbon film 100k | RD½PS 104J |
| R93 | Carbon film 47k | RD½PS 473J |
| R94 | Carbon film 220 | RD½PS 221J |
| R95 | Carbon film 270 | RD½PS 271J |
| R96 | Carbon film 270 | RD½PS 271J |
| VR1 | Variable resistor 250k-HB (Balance) | ACV-111-B |
| VR2 | Variable resistor 250k-B1 (Volume) | ACV-124-0 |
| VR3 | Variable resistor 100k-A2 (Treble) | ACV-137-0 |
| VR4 | Variable resistor 100k-A2 (Bass) | ACV-137-0 |

SEMICONDUCTORS

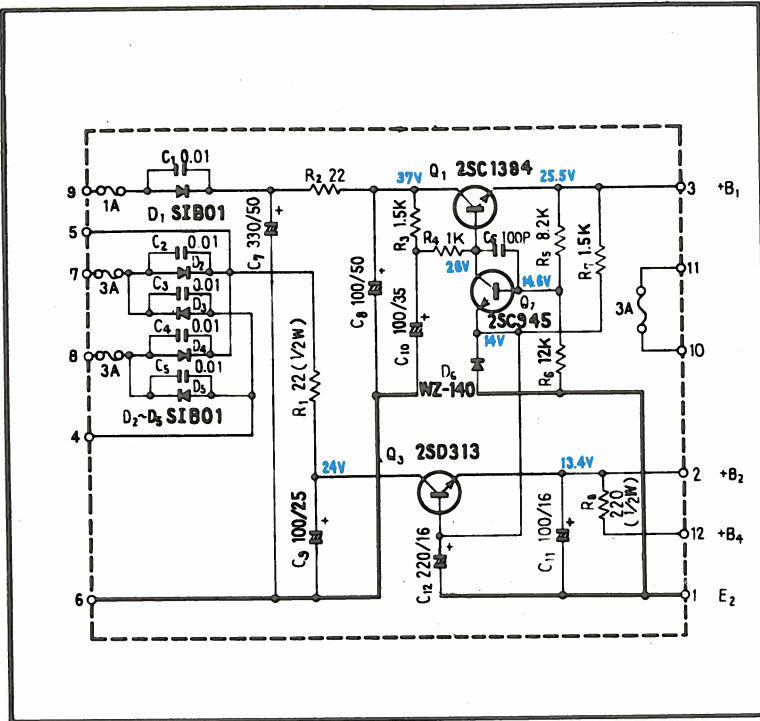
| Symbol | Description | Part No. |
|--------|--|----------|
| Q1 | Transistor 2SC1344-E or D (2SC1312-G or F) (2SC900-E or U) | |
| Q2 | Transistor 2SC1344-E or D (2SC1312-G or F) (2SC900-E or U) | |
| Q3 | Transistor 2SC1344-E or D (2SC1312-G or F) (2SC900-E or U) | |
| Q4 | Transistor 2SC1344-E or D (2SC1312-G or F) (2SC900-E or U) | |
| Q5 | Transistor 2SC1344-E or D (2SC1312-G or F) (2SC900-E or U) | |
| Q6 | Transistor 2SC1344-E or D (2SC1312-G or F) (2SC900-E or U) | |
| Q10 | Transistor 2SA725-G or F (2SA763P-5 or 6) | |
| Q11 | Transistor 2SA725-G or F (2SA763P-5 or 6) | |
| Q12 | Transistor 2SA725-G or F (2SA763P-5 or 6) | |
| Q13 | Transistor 2SA725-G or F (2SA763P-5 or 6) | |
| Q14 | Transistor 2SC1318-R or Q | |
| Q15 | Transistor 2SC1318-R or Q | |
| Q16 | Transistor 2SC1318-R or Q | |
| Q17 | Transistor 2SC1318-R or Q | |
| Q18 | Transistor 2SA720-R or Q | |

| Symbol | Description | Part No. |
|--------|-------------|---------------------------------|
| Q19 | Transistor | 2SA720-R or Q |
| Q20 | Transistor | 2SD313-D or E (2SC789-Oor Y) |
| Q21 | Transistor | 2SD313-D or E (2SC789-Oor Y) |
| Q22 | Transistor | 2SB507-D or E (2SA489-Oor Y) |
| Q23 | Transistor | 2SB507-D or E (2SA489-Oor Y) |
| D1 | Varistor | STV3H-Y or O |
| D2 | Varistor | STV3H-Y or O |
| D3 | Diode | 1S2473 |
| D4 | Diode | 1S2473 |
| D5 | Diode | 1S2473 |

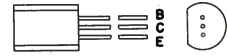
OTHERS

| Symbol | Description | Part No. |
|--------|--|-----------|
| L1 | Choke coil | ATH-003-A |
| L2 | Choke coil | ATH-003-A |
| | Heat sink | ANH-192-0 |
| | Socket (transistor) | AKH-002-0 |
| | Spacer (insulator) | AEC-078-0 |
| | Push switch (Loudness, Mono, Tape monitor, FM muting) | ASG-055-0 |
| | Nut 9φ | B71-004-0 |
| | Washer 1t | M45-086-A |

11.4 POWER SUPPLY CIRCUIT ASSEMBLY (AWR-062-0)



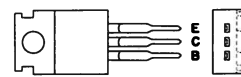
2SC1384



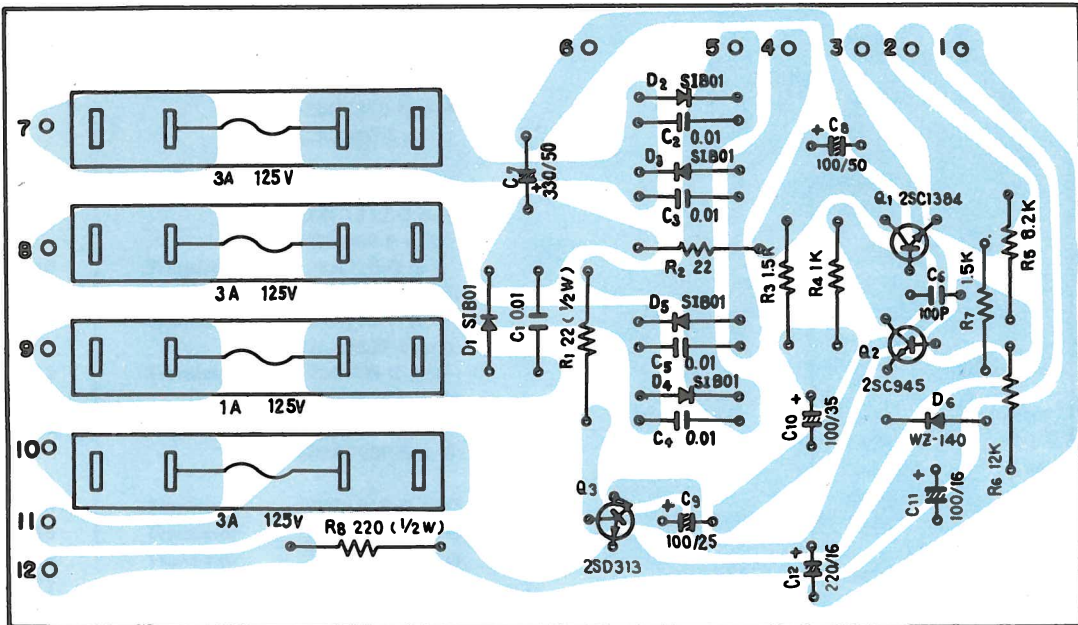
2SC945



2SD313



Foil Side (AWR-062-0)



Parts List of Power Supply Circuit Assembly (AWR-062-0)

CAPACITORS

| Symbol | Description | | | Part No. |
|--------|--------------|------|------|---------------|
| C1 | Ceramic | 0.01 | 150V | ACG-004-0 |
| C2 | Ceramic | 0.01 | 150V | ACG-004-0 |
| C3 | Ceramic | 0.01 | 150V | ACG-004-0 |
| C4 | Ceramic | 0.01 | 150V | ACG-004-0 |
| C5 | Ceramic | 0.01 | 150V | ACG-004-0 |
| C6 | Ceramic | 100p | 50V | CCDSL 101K 50 |
| C7 | Electrolytic | 330 | 50V | CEA 331P 50 |
| C8 | Electrolytic | 100 | 50V | CEA 101P 50 |
| C9 | Electrolytic | 100 | 25V | CEA 101P 25 |
| C10 | Electrolytic | 100 | 35V | CEA 101P 35 |
| C11 | Electrolytic | 100 | 16V | CEA 101P 16 |
| C12 | Electrolytic | 220 | 16V | CEA 221P 16 |

RESISTORS

| Symbol | Description | | | Part No. |
|--------|-------------|------|----|------------|
| R1 | Carbon film | 22 | ½W | RD¼PS 220J |
| R2 | Carbon film | 22 | | RD¼PS 220J |
| R3 | Carbon film | 1.5k | | RD¼PS 152J |
| R4 | Carbon film | 1k | | RD¼PS 102J |
| R5 | Carbon film | 8.2k | | RD¼PS 822J |
| R6 | Carbon film | 12k | | RD¼PS 123J |
| R7 | Carbon film | 1.5k | | RD¼PS 152J |
| R8 | Carbon film | 220 | ½W | RD¼PS 221J |

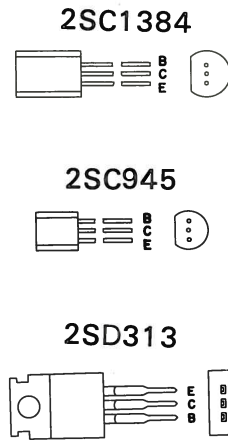
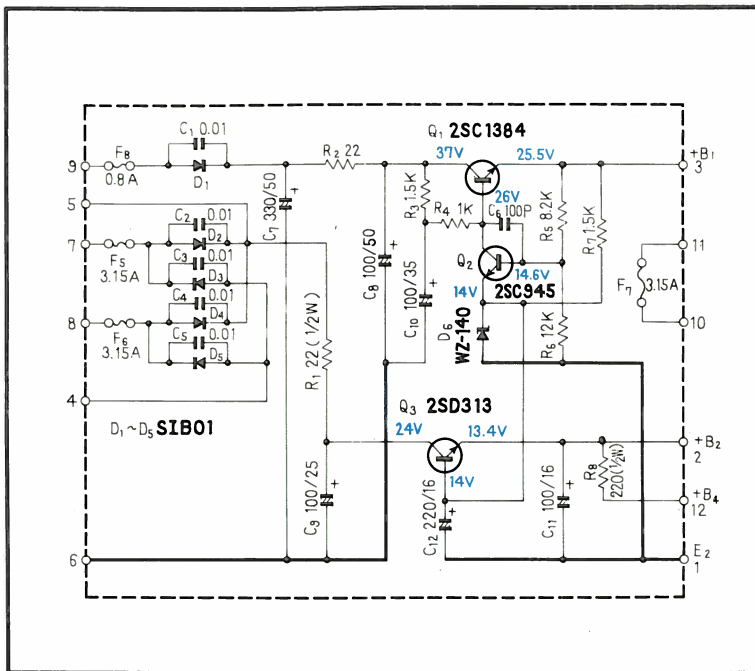
SEMICONDUCTORS

| Symbol | Description | | | Part No. |
|--------|-------------|--------------------|--|----------|
| Q1 | Transistor | 2SC1384-R or Q | | |
| Q2 | Transistor | 2SC945-R or Q | | |
| Q3 | Transistor | 2SD313-D or E | | |
| D1 | Diode | S1B01-02 or 1S1886 | | |
| D2 | Diode | S1B01-02 or 1S1886 | | |
| D3 | Diode | S1B01-02 or 1S1886 | | |
| D4 | Diode | S1B01-02 or 1S1886 | | |
| D5 | Diode | S1B01-02 or 1S1886 | | |
| D6 | Zener diode | WZ-140 | | |

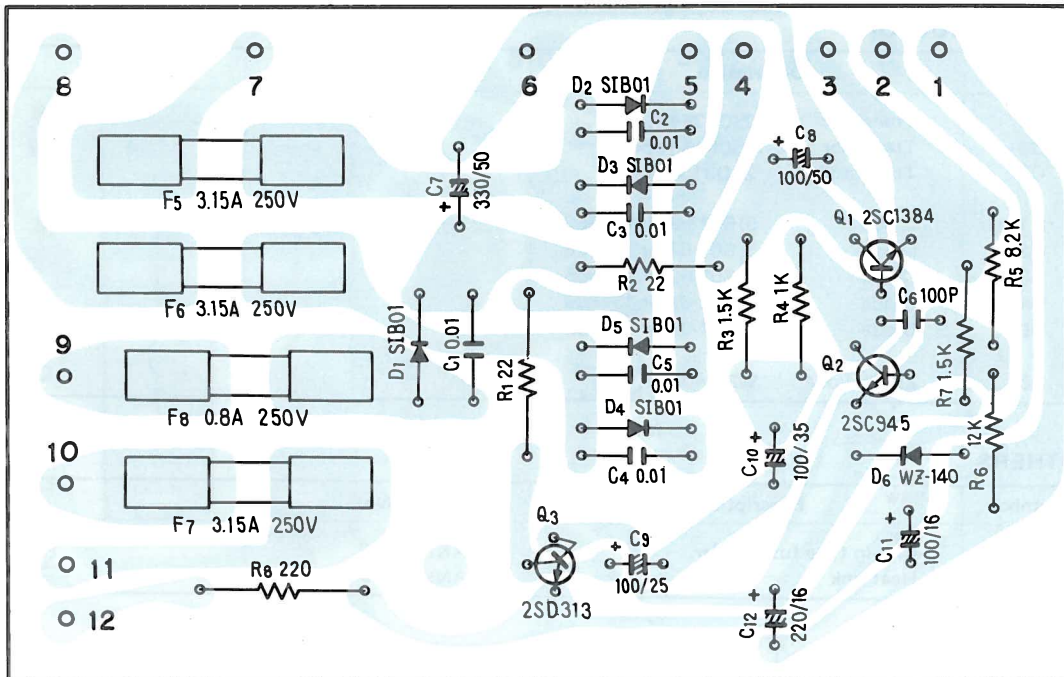
OTHERS

| Symbol | Description | Part No. |
|--------|--------------------------|-----------|
| | Clip-in type fuse holder | AKR-013-0 |
| | Heat sink | ANH-117-0 |

11.5 POWER SUPPLY CIRCUIT ASSEMBLY FOR GN MODEL (AWR-059-0)



Foil Side (AWR-059-0)



Parts List of Power Supply Circuit Assembly (AWR-059-0)

CAPACITORS

| Symbol | Description | | | Part No. |
|--------|--------------|------|------|---------------|
| C1 | Ceramic | 0.01 | 150V | ACG-004-0 |
| C2 | Ceramic | 0.01 | 150V | ACG-004-0 |
| C3 | Ceramic | 0.01 | 150V | ACG-004-0 |
| C4 | Ceramic | 0.01 | 150V | ACG-004-0 |
| C5 | Ceramic | 0.01 | 150V | ACG-004-0 |
| C6 | Ceramic | 100p | 50V | CCDSL 101K 50 |
| C7 | Electrolytic | 330 | 50V | CEA 331P 50 |
| C8 | Electrolytic | 100 | 50V | CEA 101P 50 |
| C9 | Electrolytic | 100 | 25V | CEA 101P 25 |
| C10 | Electrolytic | 100 | 35V | CEA 101P 35 |
| C11 | Electrolytic | 100 | 16V | CEA 101P 16 |
| C12 | Electrolytic | 220 | 16V | CEA 221P 16 |

RESISTORS

| Symbol | Description | | | Part No. |
|--------|-------------|------|----|------------|
| R1 | Carbon film | 22 | ½W | RD¼PS 220J |
| R2 | Carbon film | 22 | | RD¼PS 220J |
| R3 | Carbon film | 1.5k | | RD¼PS 152J |
| R4 | Carbon film | 1k | | RD¼PS 102J |
| R5 | Carbon film | 8.2k | | RD¼PS 822J |
| R6 | Carbon film | 12k | | RD¼PS 123J |
| R7 | Carbon film | 1.5k | | RD¼PS 152J |
| R8 | Carbon film | 220 | ½W | RD¼PS 221J |

SEMICONDUCTORS

| Symbol | Description | | Part No. |
|--------|-------------|--------------------|----------|
| Q1 | Transistor | 2SC1384-R or Q | |
| Q2 | Transistor | 2SC945-R or Q | |
| Q3 | Transistor | 2SD313-D or E | |
| D1 | Diode | S1B01-02 or 1S1886 | |
| D2 | Diode | S1B01-02 or 1S1886 | |
| D3 | Diode | S1B01-02 or 1S1886 | |
| D4 | Diode | S1B01-02 or 1S1886 | |
| D5 | Diode | S1B01-02 or 1S1886 | |
| D6 | Zener diode | WZ-140 | |

OTHERS

| Symbol | Description | Part No. |
|--------|-------------|-----------|
| | Fuse holder | AKR-010-0 |
| | Heat sink | ANH-117-0 |

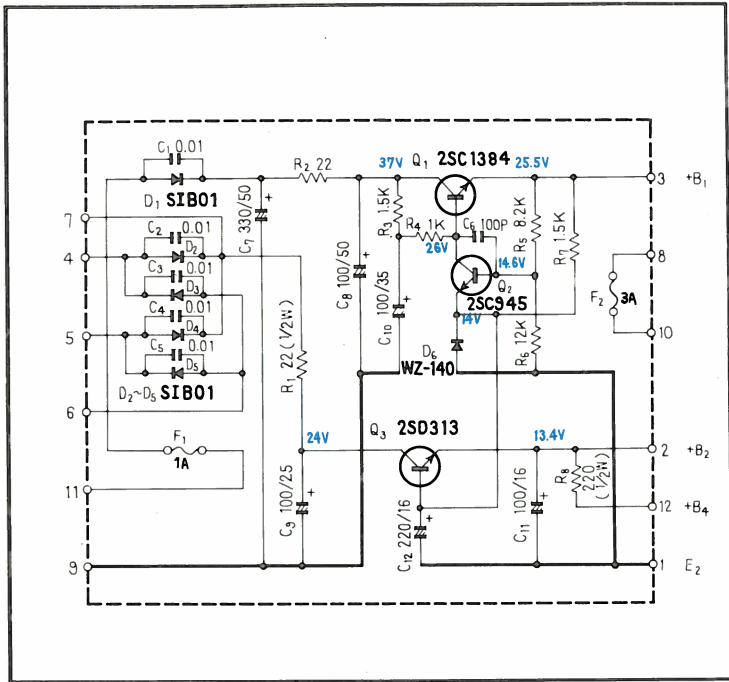
11.6 POWER SUPPLY CIRCUIT ASSEMBLY (AWR-049-0)

NOTE:

The assembly boards (AWR-049-0) are all used in 5-line voltage models marked with Serial numbers from 1300001 to 1302000.

However, the model which begins from Serial No. 1302001 and the following models use the power supply circuit assembly boards (AWR-062-0).

Before servicing, confirm serial number corresponding to the model to be repaired.



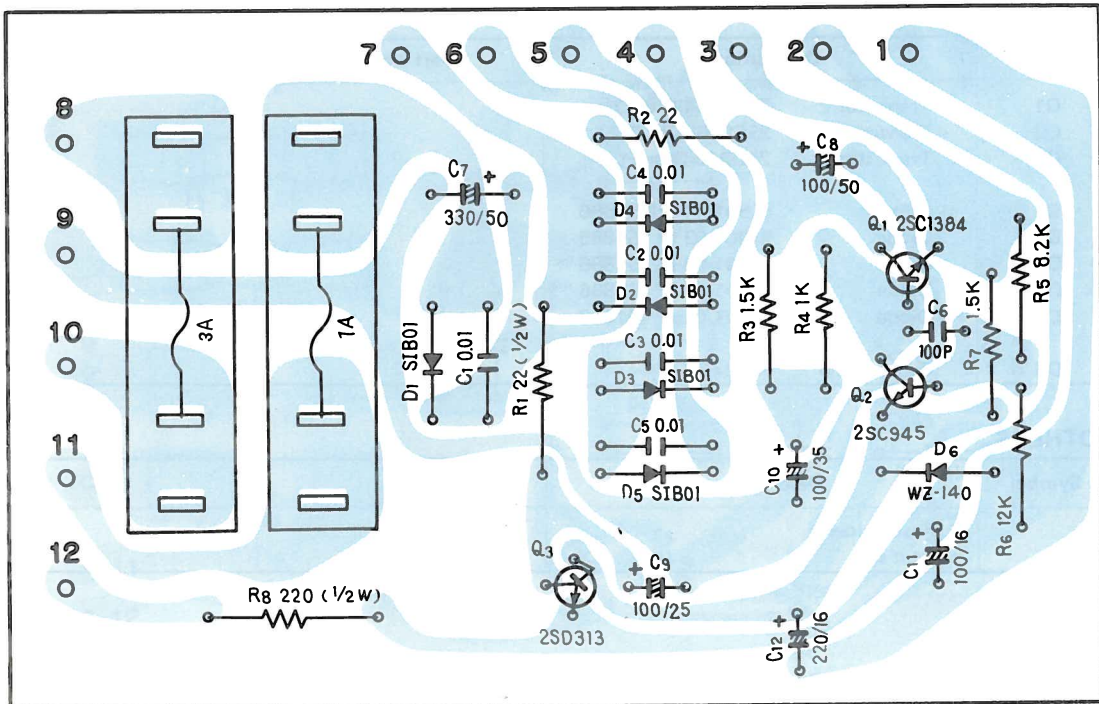
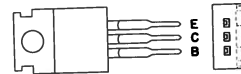
2SC1384



2SC945



2SD313



Parts List of Power Supply Circuit Assembly (AWR-049-0)

CAPACITORS

| Symbol | Description | Part No. |
|--------|----------------------|---------------|
| C1 | Ceramic 0.01 150V | ACG-004-0 |
| C2 | Ceramic 0.01 150V | ACG-004-0 |
| C3 | Ceramic 0.01 150V | ACG-004-0 |
| C4 | Ceramic 0.01 150V | ACG-004-0 |
| C5 | Ceramic 0.01 150V | ACG-004-0 |
| C6 | Ceramic 100p 50V | CCDSL 101K 50 |
| C7 | Electrolytic 330 50V | CEA 331P 50 |
| C8 | Electrolytic 100 50V | CEA 101P 50 |
| C9 | Electrolytic 100 25V | CEA 101P 25 |
| C10 | Electrolytic 100 35V | CEA 101P 35 |
| C11 | Electrolytic 100 16V | CEA 101P 16 |
| C12 | Electrolytic 220 16V | CEA 221P 16 |

RESISTORS

| Symbol | Description | Part No. |
|--------|--------------------|------------|
| R1 | Carbon film 22 ½W | RD½PS 220J |
| R2 | Carbon film 22 | RD¼PS 220J |
| R3 | Carbon film 1.5k | RD¼PS 152J |
| R4 | Carbon film 1k | RD¼PS 102J |
| R5 | Carbon film 8.2k | RD¼PS 822J |
| R6 | Carbon film 12k | RD¼PS 123J |
| R7 | Carbon film 1.5k | RD¼PS 152J |
| R8 | Carbon film 220 ½W | RD½PS 221J |

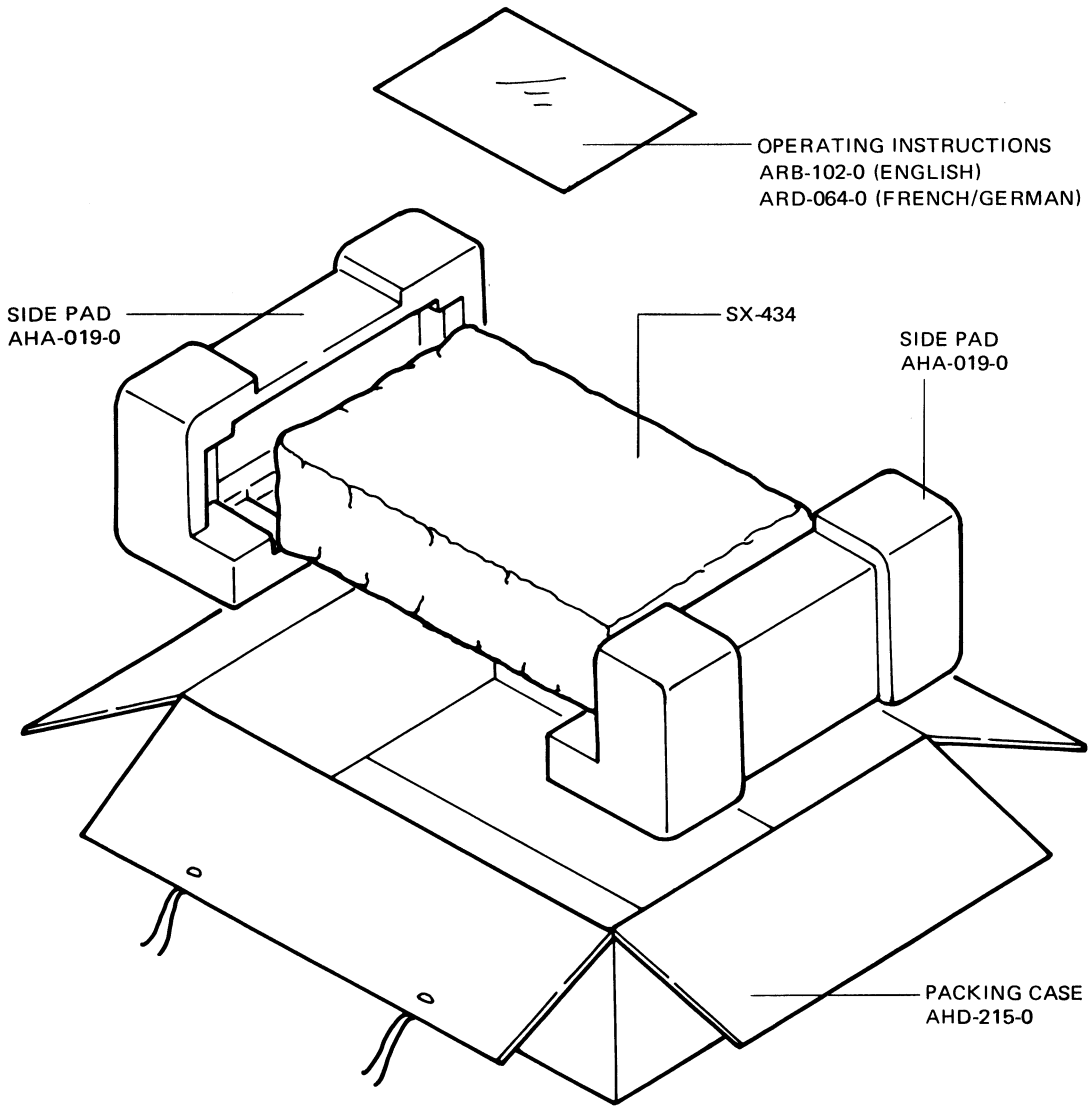
SEMICONDUCTORS

| Symbol | Description | Part No. |
|--------|---------------------------|----------|
| Q1 | Transistor 2SC1384-R or Q | |
| Q2 | Transistor 2SC945-R or Q | |
| Q3 | Transistor 2SD313-D or E | |
| D1 | Diode SIB01-02 or 1S1886 | |
| D2 | Diode SIB01-02 or 1S1886 | |
| D3 | Diode SIB01-02 or 1S1886 | |
| D4 | Diode SIB01-02 or 1S1886 | |
| D5 | Diode SIB01-02 or 1S1886 | |
| D6 | Zener diode WZ-140 | |

OTHERS

| Symbol | Description | Part No. |
|--------|--------------------------|-----------|
| | Clip-in type fuse holder | AKR-013-0 |
| | Heat sink | ANH-117-0 |

12. PACKING METHOD AND PARTS NUMBERS





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