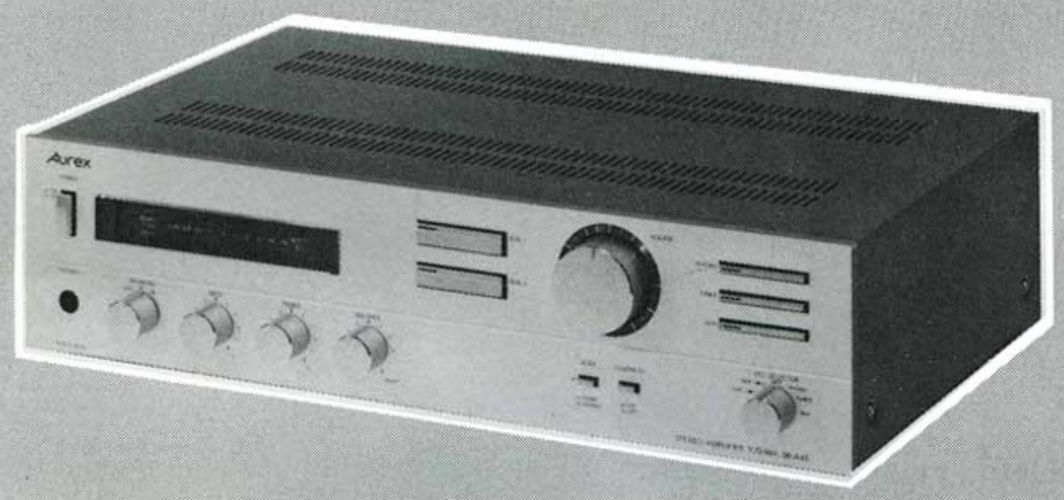
STEREO AMPLIFIER

# SB-A45




## SPECIFICATIONS

■ **Amplifier**

| | |
|---|---|
| **Continuous power output 20 Hz – 20 kHz both ch. driven:** | 40W x 2 (4Ω) for Europe<br>40W x 2 (8Ω) for U.K./Australia |
| **1 kHz both ch. driven:** | 50W x 2 (4Ω) for Europe<br>47W x 2 (8Ω) for U.K./Australia |
| **Total harmonic distortion (20 Hz –20 kHz):** | 0.015% (at rated power, 8Ω) |
| **Frequency response:** | 5 Hz – 100 kHz ($\pm^{0}_{3}$ dB) |
| **Power band width (IHF):** | 10 Hz – 35 kHz |
| **Load impedance:** | 4Ω – 16Ω for Europe<br>8Ω – 16Ω for U.K./Australia |
| **Damping factor:** | 25 |
| **S/N (IHF A Network):** | 100 dB (TUNER/AUX)<br>72 dB (PHONO) |

| | | |
|---|---|---|
| **Input sensitivity/ impedance:** | PHONO | 2.5mV/47kΩ |
| | TUNER | 150mV/47kΩ |
| | AUX/TAPE | 150mV/47kΩ |
| **Output level:** | TAPE REC | 150mV |
| **Tone control:** | BASS (at 100 Hz) ± 8 dB | |
| | TREBLE (at 10 kHz) ± 8 dB | |
| **Phono overload level:** | 130mV (RMS) | |

■ **General**

| | |
|---|---|
| **Power supply:** | 220V – 50 Hz for Europe<br>240V – 50 Hz for U.K./Australia |
| **Power consumption:** | 310W (for Europe)<br>280W (for U.K./Australia) |
| **Weight:** | 6.5 kg |
| **Dimensions:** | 420(W) x 107.5(H) x 285(D)mm |

Specifications are subject to change without notice.

TE, TU, AY

# CONTENTS

# 1. OPERATING CONTROLS

**① Power**
Depress this switch to turn the power on, depress again to turn the power off.

**② Peak power meters**
These meters indicate the peak (instantaneous) power output levels when using 8 ohm speakers. For 4 ohm speakers, multiply the indicated readings by 2 to obtain approximate values. Note that these meters are designed to indicate instantaneous output levels, not average or continuous levels.

**③ Function selectors**
Choose the desired programme source by pressing one of these buttons:

**TAPE 1:** For a tape deck connected to TAPE 1 terminals
**TAPE 2:** For a tape deck connected to TAPE 2 terminals
**PHONO:** For a turntable
**TUNER:** For a radio tuner
**AUX:** For any kind of audio equipment (excluding turntables and microphones)

**Note:** To choose programme source for recording, use REC SELECTOR ⑪ . For detailed description of the rec selector, refer to Operation – To Use the Rec Selector, Page 5.

**④ Volume**
Turn this knob to adjust volume level.

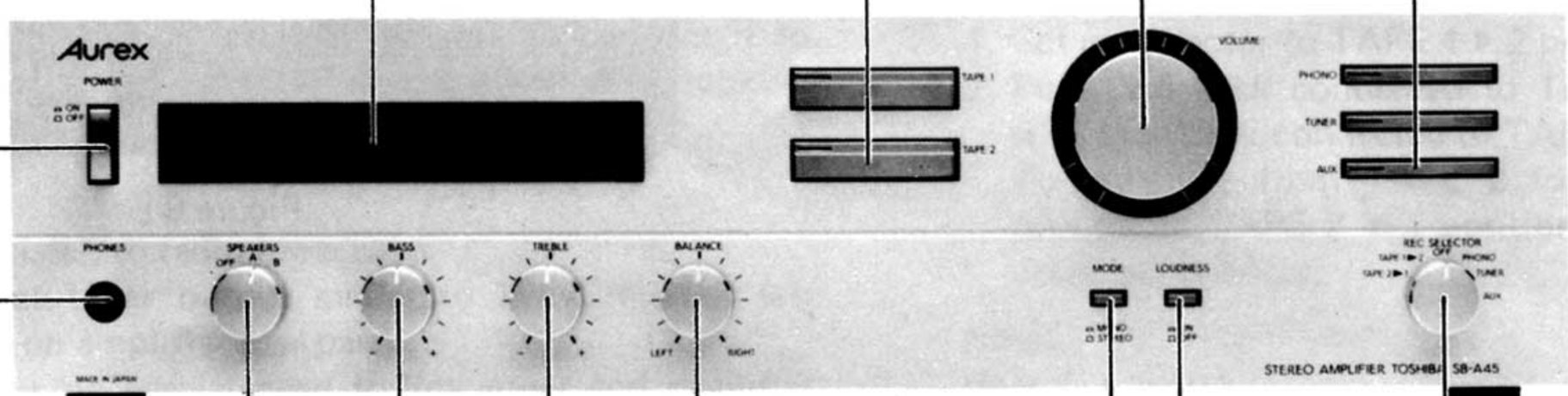



Figure 1

**⑤ Phones**
Plug into this jack for listening with headphones.

**⑥ Speaker selector**

**OFF:** Sound from headphones only.
**A:** Sound from speakers connected to rear panel terminals A.
**B:** Sound from speakers connected to rear panel terminals B.

**⑦ Bass and treble controls**
Turn these knobs clockwise from the centre zero (flat) position to emphasize bass or treble tones. Turn counterclockwise to attenuate (decrease) bass or treble tones.

**⑧ Balance control**
Turn this knob to adjust volume balance between left and right speakers.

**⑨ Mode switch**
Set this switch in mono (depressed) position for monaural reproduction when the input signal is monaural or to convert stereo input signal to monaural form. Otherwise keep the switch in stereo (normal) position.

**⑩ Loudness switch**
Depress this switch for listening at very low volume levels. The loudness circuit emphasizes the low-and high-frequency regions for a natural sound balance at low volume. (This switch is effective between zero and midpoint positions of the volume knob.)

**⑪ Rec selector**
Use this selector to choose a programme source for recording. Note that you may record from one source while listening to another. Note also that the function selectors ③ are used only to choose the programme source for listening, not for recording. Since the signal to be recorded transits the function selectors' electronic circuit, however, the amplifier power switch should be ON during recording. Signal interference or increased distortion may otherwise result.

# 2. SYSTEM CONNECTIONS

**Note:** Until all connections have properly completed, leave the power supply cords unplugged and the power switches OFF.

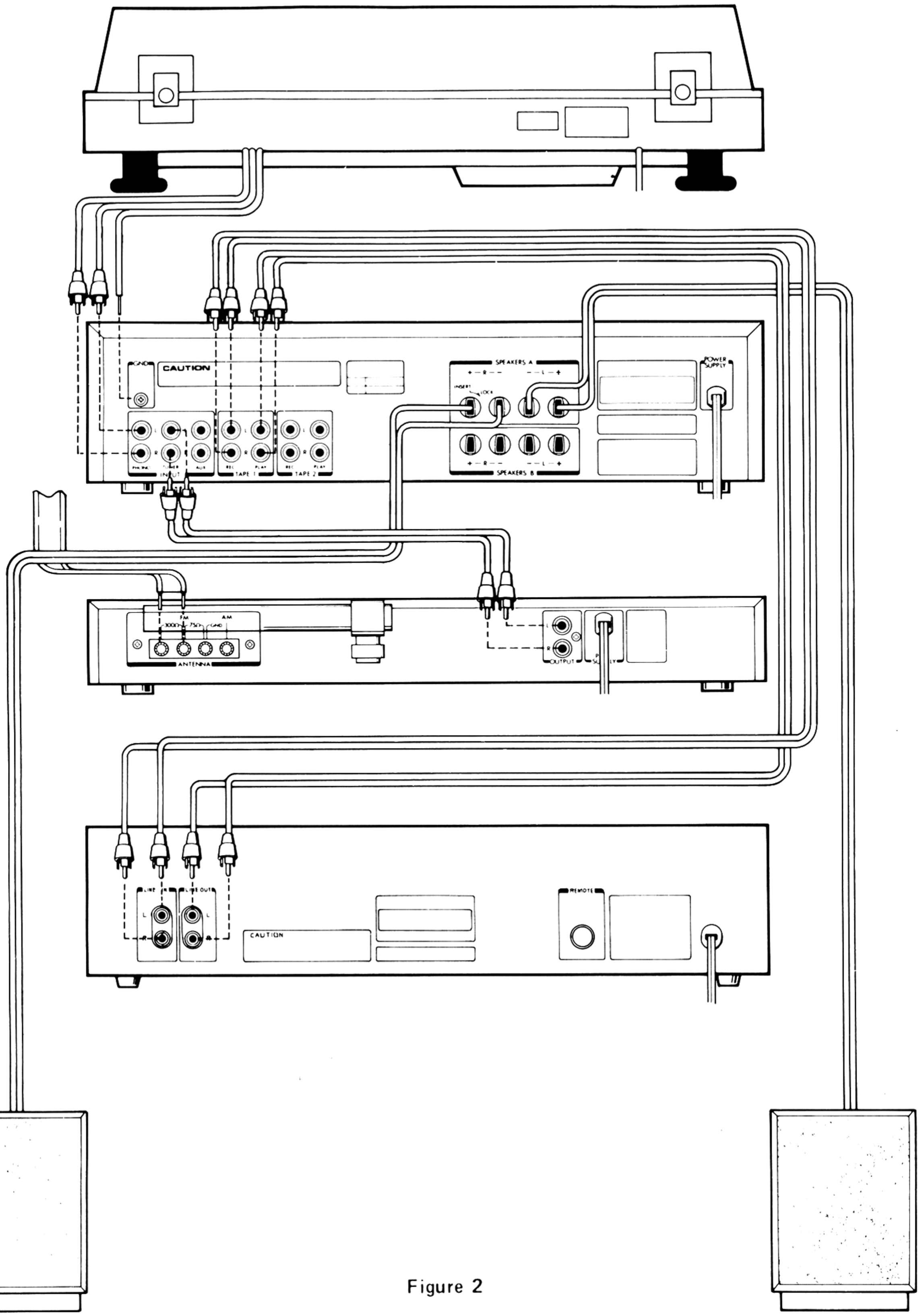



Figure 2

# 3. OPERATION

■ **Connections of speaker to amplifier**

Connect right speaker cord to "R" amplifier speaker output terminal and left speaker cord to "L" terminal. Be sure to connect the plus terminal of speaker to the plus terminal of amplifier speaker output terminal and minus to minus. Wrong connection of plus and minus results in loss of playback sound quality in stereo mode.

- Be sure to leave amplifier power switch OFF while making connections.
- Don't short circuit the amplifier speaker output terminals.

**Note:** Use speakers with an impedance of at least 4 ohms to avoid overloading the amplifier.

- Confirm that volume knob is in zero position before power is turned on.

■ **To play phonograph records**

Connect output cables from turntable to PHONO terminals of amplifier. If turntable is equipped with an earth wire or terminal, be sure to connect it to earth wire terminal (GND) of amplifier. Overlooking this simple point may result in a hum.

■ **To listen to radio broadcasts**

Connect tuner output cables to TUNER input terminals on amplifier rear panel.

There is no special need to link tuner and amplifier with an earth wire.

■ **To use the AUX terminals**

When an audio component is connected to the AUX terminals, depress "AUX" function selector. Operate connected component according to its instruction manual. Finally, adjust volume and tone as desired.

■ **To play tape deck**

**(1) Tape deck connections**

Connect tape deck input terminals (LINE IN) to amplifier's record terminal (REC), and deck output terminals (LINE OUT) to amplifier's playback (PLAY) terminals. Since the SB-A45 provides two sets of tape deck terminals (TAPE 1 and 2), two decks can be connected at the same time.

**(2) To play**

Depress appropriate function selector button, TAPE 1 or TAPE 2, and play the corresponding tape deck.

**(3) Tape monitoring**

When recording with a tape deck equipped with proper tape monitoring facilities, monitoring of the recording is possible by depressing TAPE 1 or TAPE 2 function selector (3).

■ **To use rec selector**

The SB-A45 is provided with a convenient rec selector for choosing a programme source for recording. This selector enables you to record one programme source while listening to another. Be sure that the amplifier power switch is ON when recording, to avoid signal interference or increased distortion.

**(1) To record**

Prepare programme source (from turntable, tuner or other audio equipment) to be recorded, set rec selector (11) to corresponding position and set tape deck in recording mode. Note that during the actual recording, amplifier volume and tone controls will have no effect on recording level or tone. Note also that function selectors (3) do not control choice of programme source for recording.

**(2) Tape duplication**

By setting rec selector to either of two deck-to-deck positions, tape duplication is possible between two tape decks.

1. Set rec selector to TAPE 1 ▶ 2 position.
2. Play tape deck connected to TAPE 1 and record with tape deck connected to TAPE 2.

* To duplicate from TAPE 2 to TAPE 1, set rec selector to TAPE 2 ▶ 1 position and operate tape decks accordingly.

**Note:**

Heat dissipation:

When stacking audio equipment such as amplifier, tuner and cassette deck, always be sure to place the amplifier at the top. Because the amplifier radiates a significant amount of heat when driven at high power output, do not cover the ventilation openings.

■ **Examples of Control Settings for Recording**

(1) When recording a radio programme while listening to it.

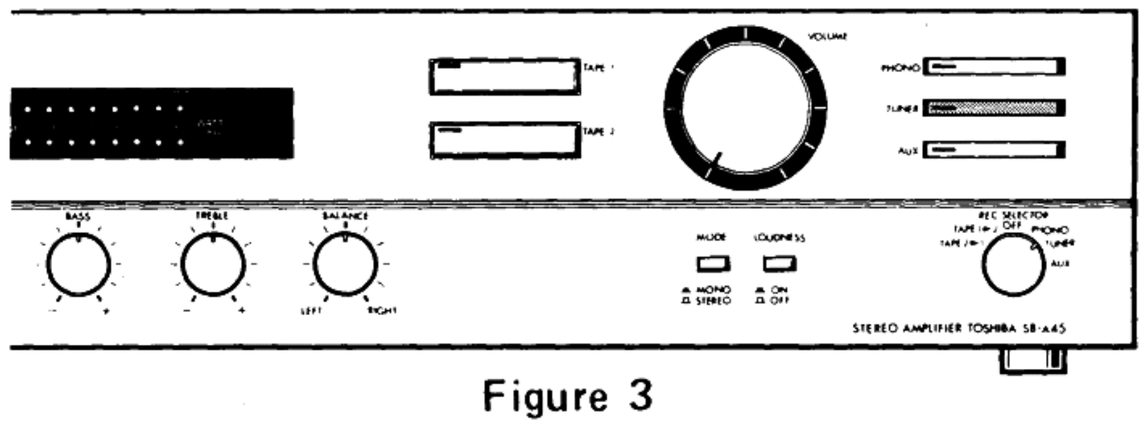



Figure 3

(2) When recording a radio programme while listening to a phonograph record.

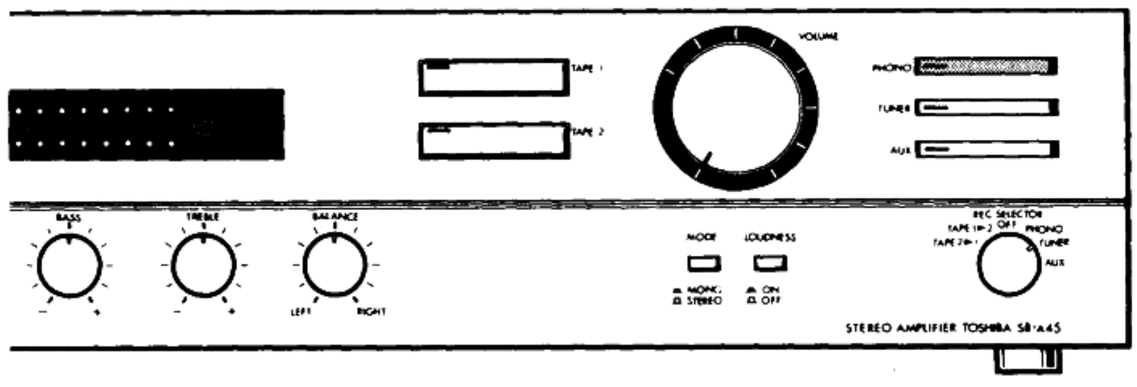



Figure 4

# 4. DISASSEMBLY INSTRUCTIONS

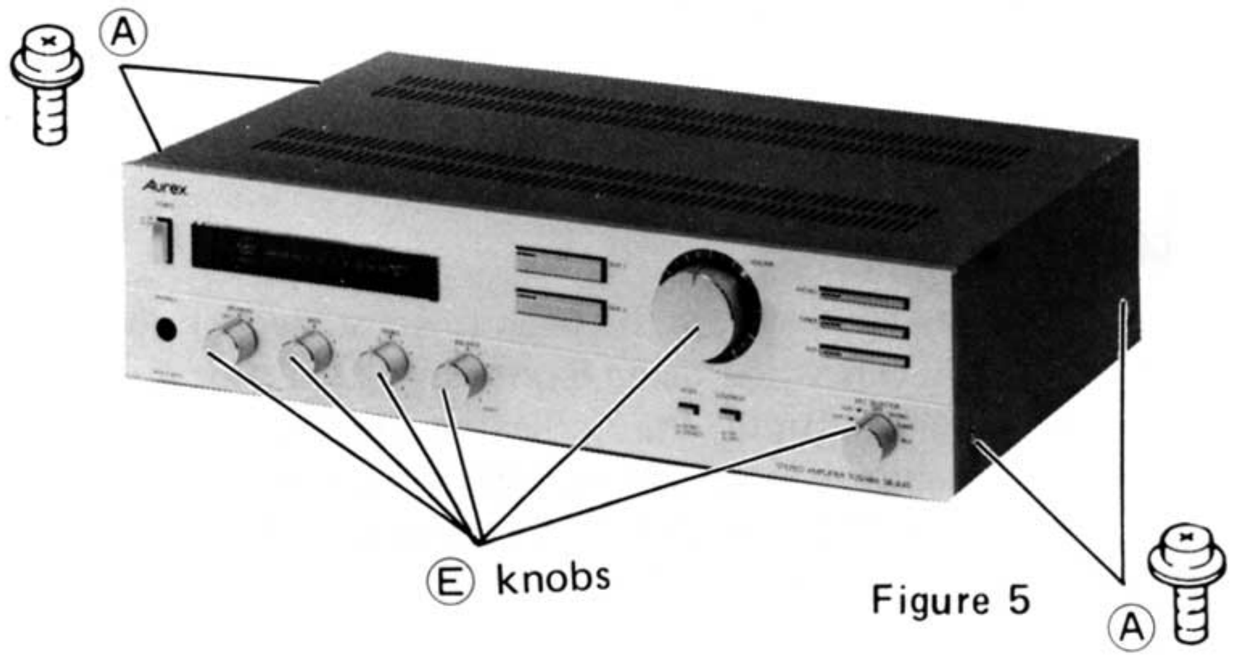



Figure 5

**Top Cover Removal**

1 Remove four screws Ⓐ (3$\phi$ x 6mm). See Figure 5.
2 Remove two screws Ⓑ (3$\phi$ x 8mm) holding the top cover, then the Jack plate can be removed. See Figure 6.

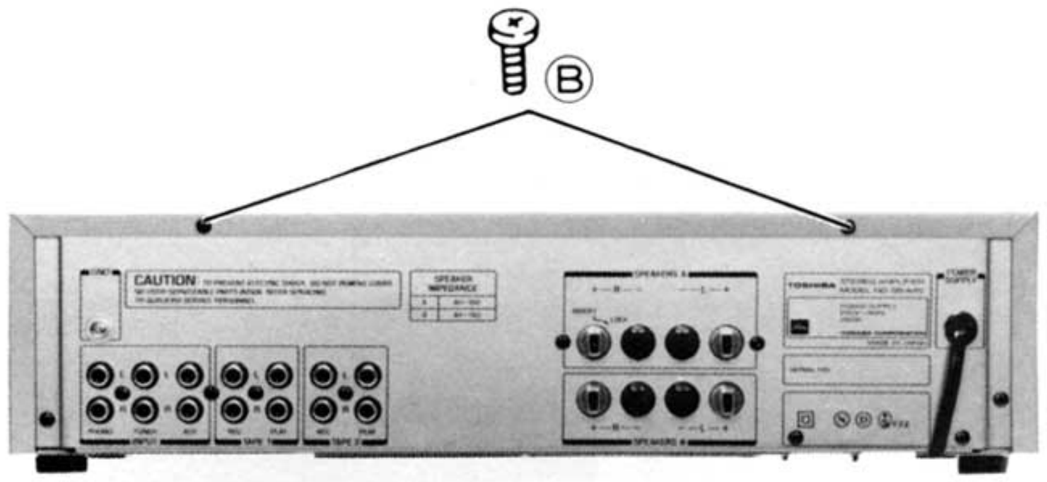



Figure 6

**Bottom Plate Removal**

1 Remove two screws Ⓒ (3$\phi$ x 6mm). See Figure 7.
2 Remove four screws Ⓓ (3$\phi$ x 8mm) holding the Foots and bottom plate, then the bottom plate can be removed from the unit. See Figure 7.
   - Then parts on main P.C. Board can be checked easily.

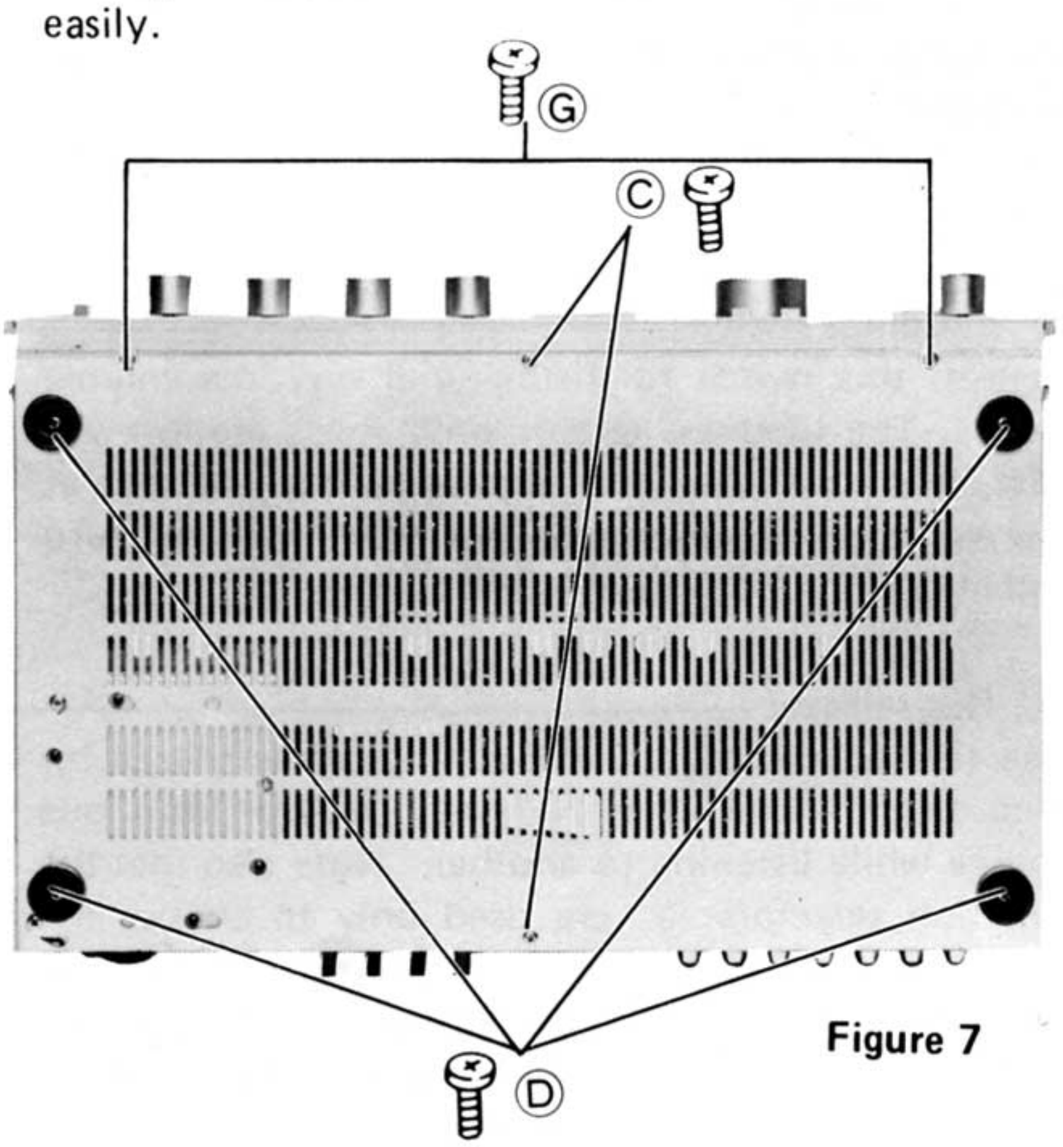



Figure 7

**Front Panel Removal**

1 Remove the Top Cover. See Figure 5 and 6.
2 Remove six knobs Ⓔ. See Figure 5.
3 Remove three plastic rivets Ⓕ (3$\phi$ x 4.5mm) holding the front panel. See Figure 8.
4 Remove two screws Ⓖ (3$\phi$ x 6mm) holding the back plate. See Figure 7.

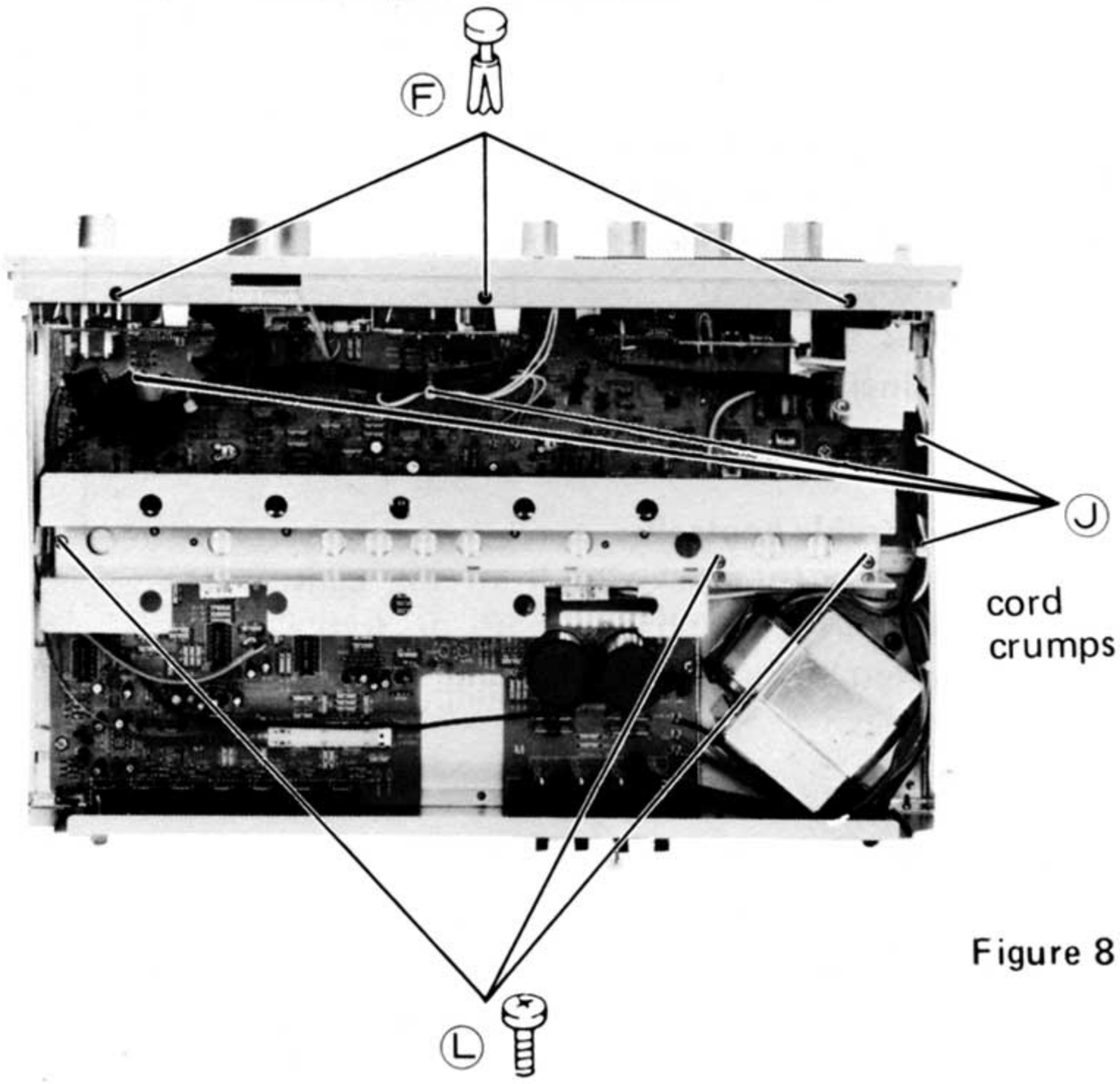



Figure 8

5. Remove two plastic rivets (H) (3$\phi$ x 6.5mm) holding the LEVEL Meter P.C. Board. See Figure 9.
6 Loosen the four nail (I) holding the LEVEL Meter P.C. Board, then the front chassis can be removed from the unit. See Figure 10.

**Power Meter, Tape Switch and Function Switch P.C. Board Removal**

1 Remove four cord crumps (J) holding cords connected to the each P.C. Boards. See Figure 8.
2 Remove four plastic rivets (K) (3$\phi$ x 4.5mm) installing each P.C. Board, then each P.C. Board can be removed from the front chassis. See Figure 9.

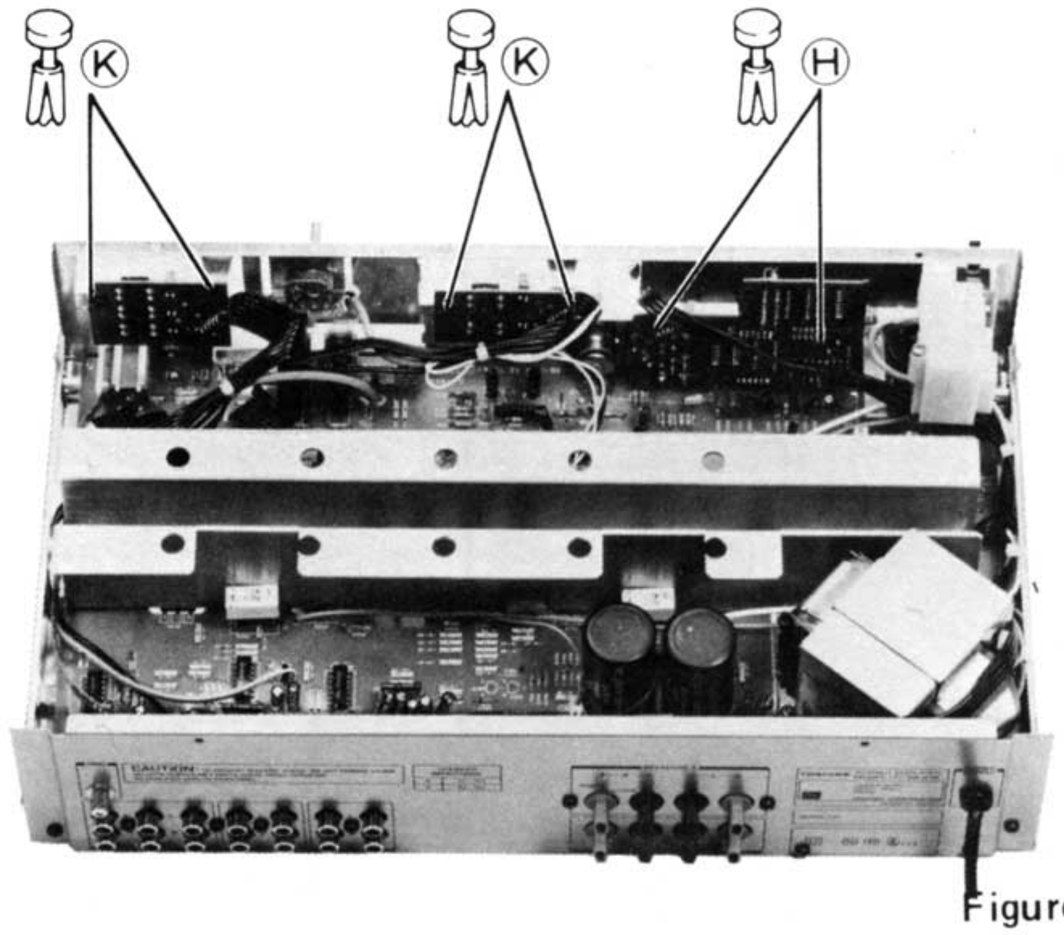


Figure 9

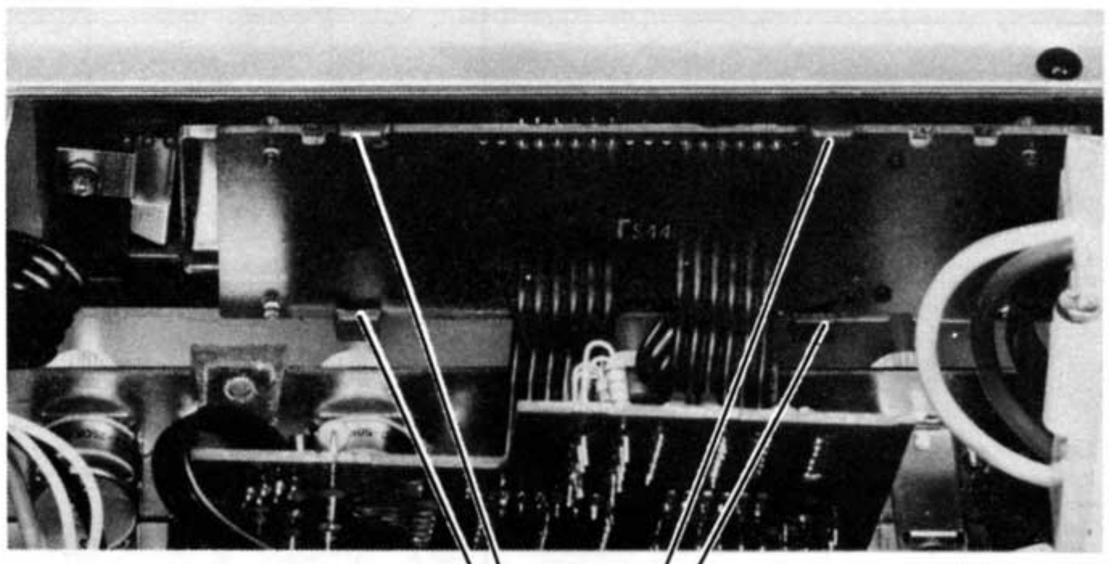


Figure 10

**Power Transistor Exchanging**

1 Remove three screws (L) (3$\phi$ x 8mm) holding Heat sink. See Figure 8.
2 Remove two screws (M) (3$\phi$ x 8mm) holding Main P.C. Board. See Figure 11.
3 Dissolve eight soldering parts (N) of the transistor on Main P.C. Board, then Heat sink can be removed and Power Transistor can be exchanged. See Figure 11.

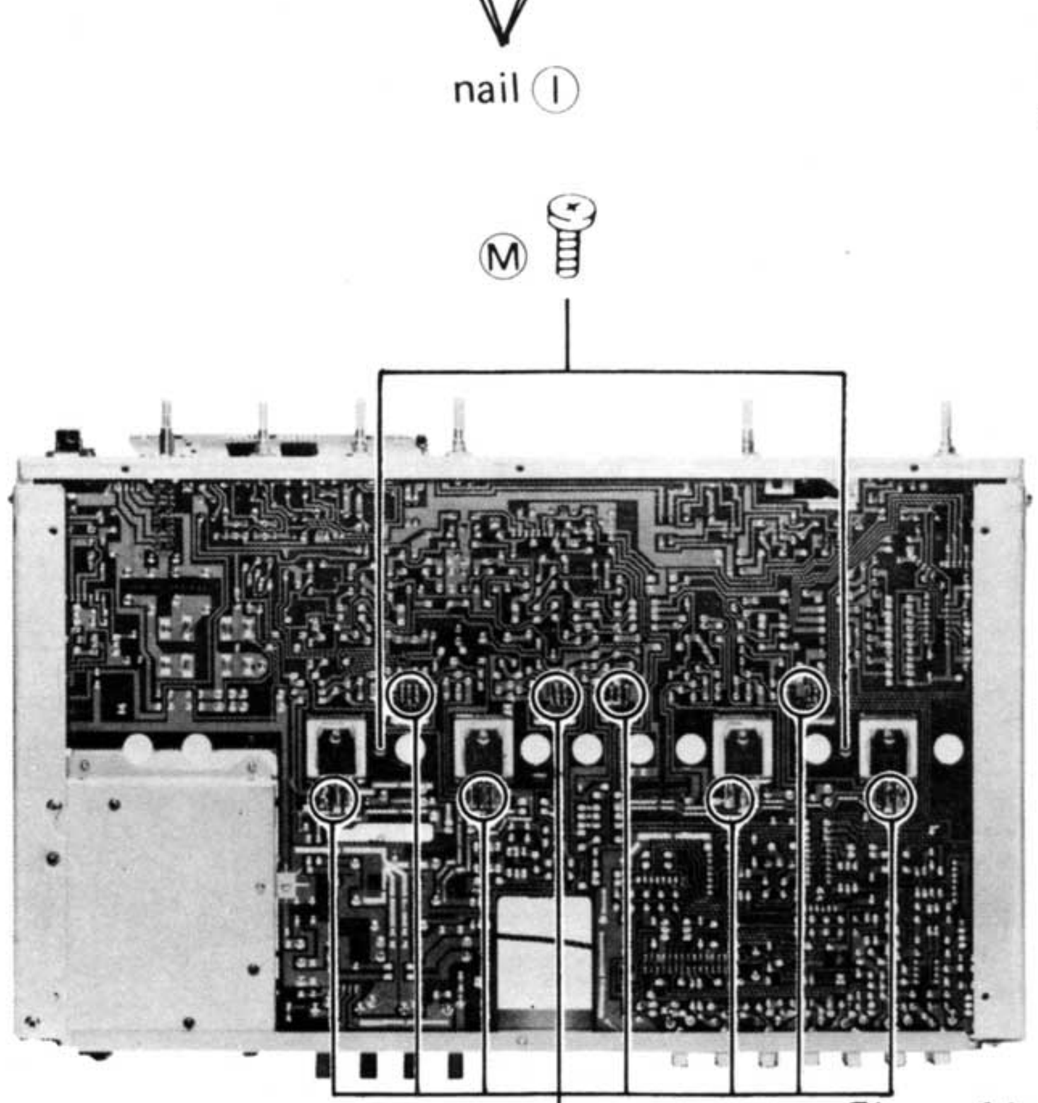


Figure 11

# 5. BLOCK DIAGRAM

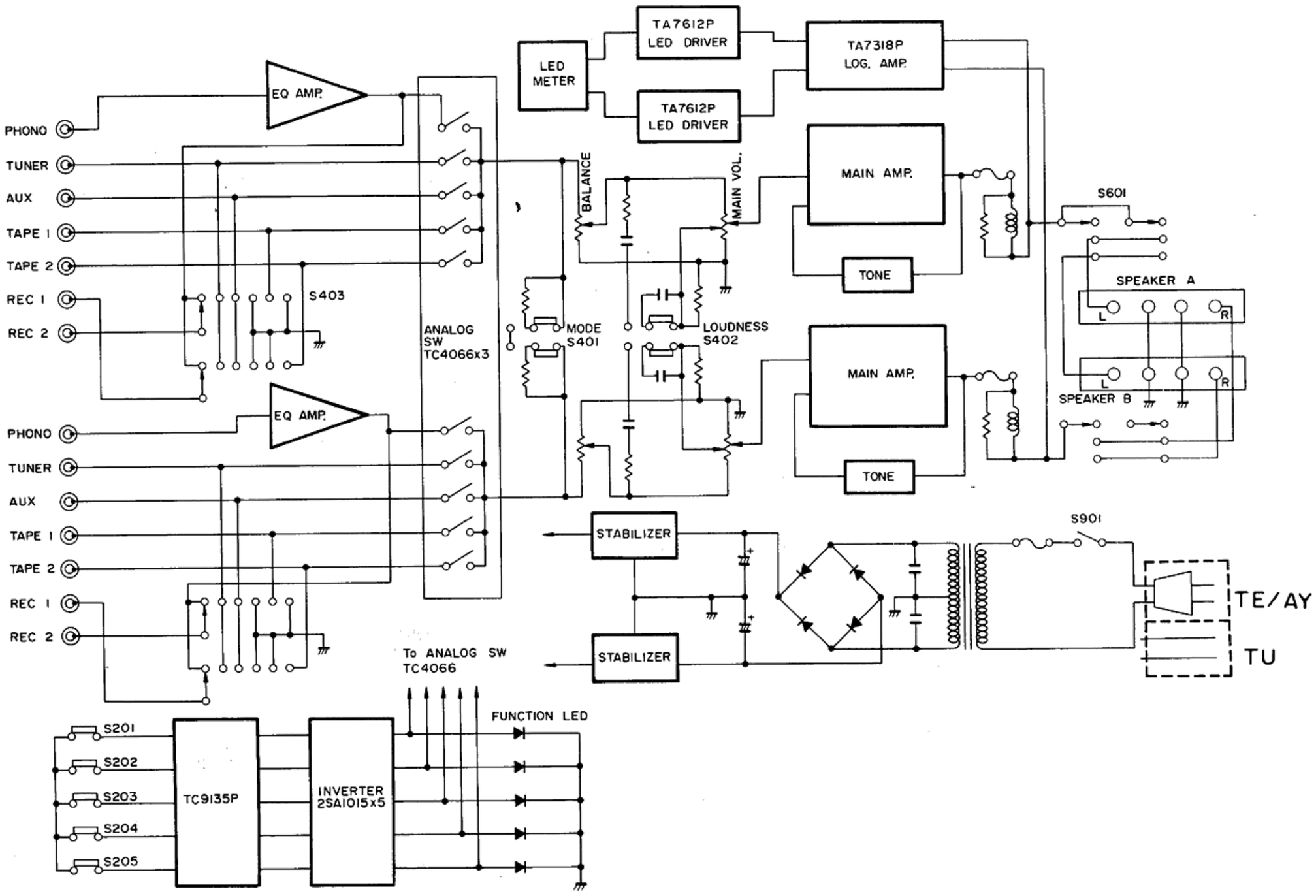



Figure 12

# 6. ADJUSTMENTS

## IDLE CURRENT ADJUSTMENT

1. Idle current adjustment can easily be done by setting the semi-fixed VR R641, R642 (500 ohm) to mechanical mid point VR as shown in Figure 13.
2. The idle current between TP and TP must be less than 2mA when power has been on for one minute.

## PEAK METER ADJUSTMENT (1 kHz)

1. At output 2.83V (8 ohm), 1W, adjust R735 (5k ohm) for Rch LED Meter and R736 (5k ohm) for Lch LED Meter so that each Meter lights to indicate up to 1W.

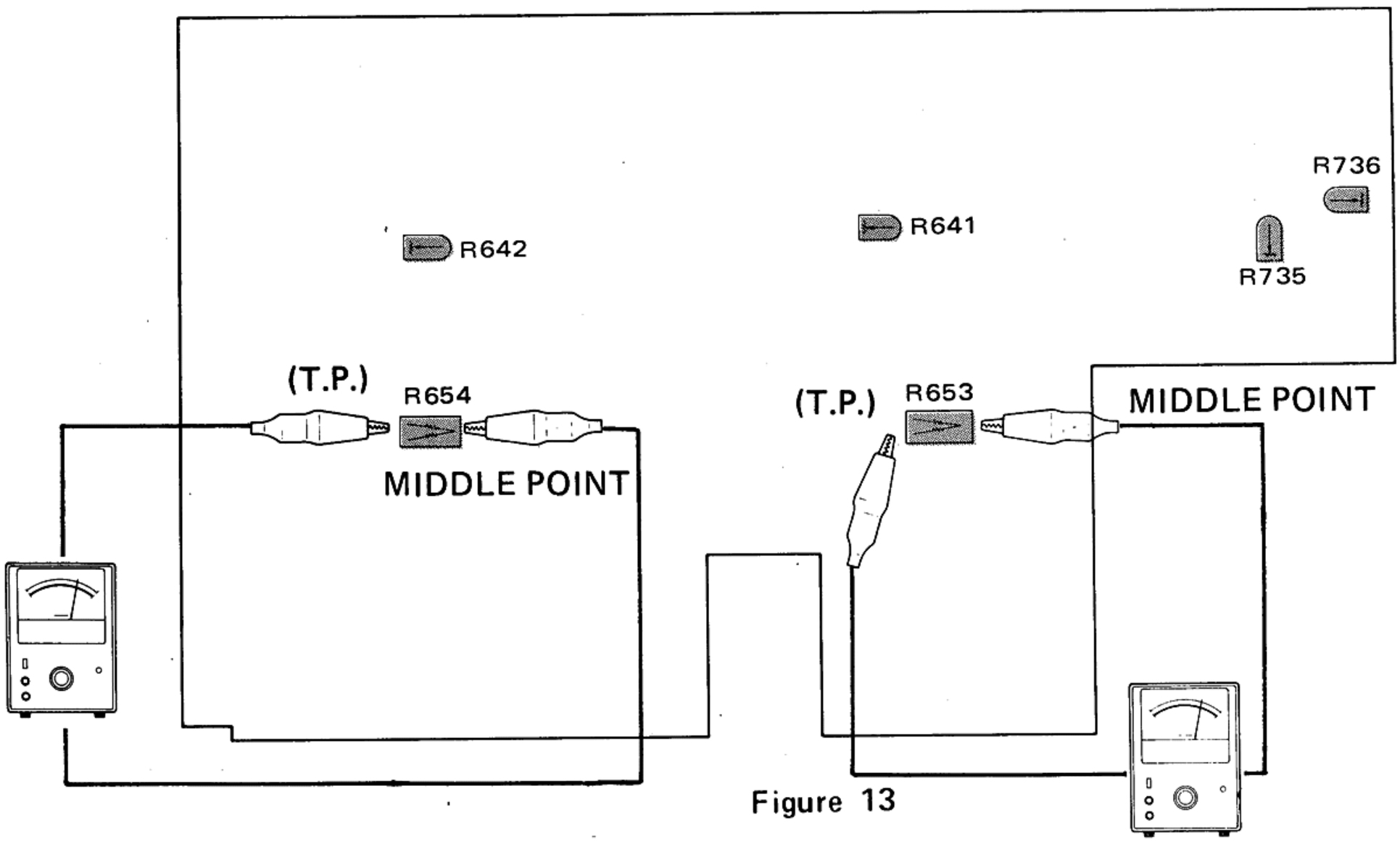



Figure 13

# 7. ELECTRICAL PARTS LOCATIONS

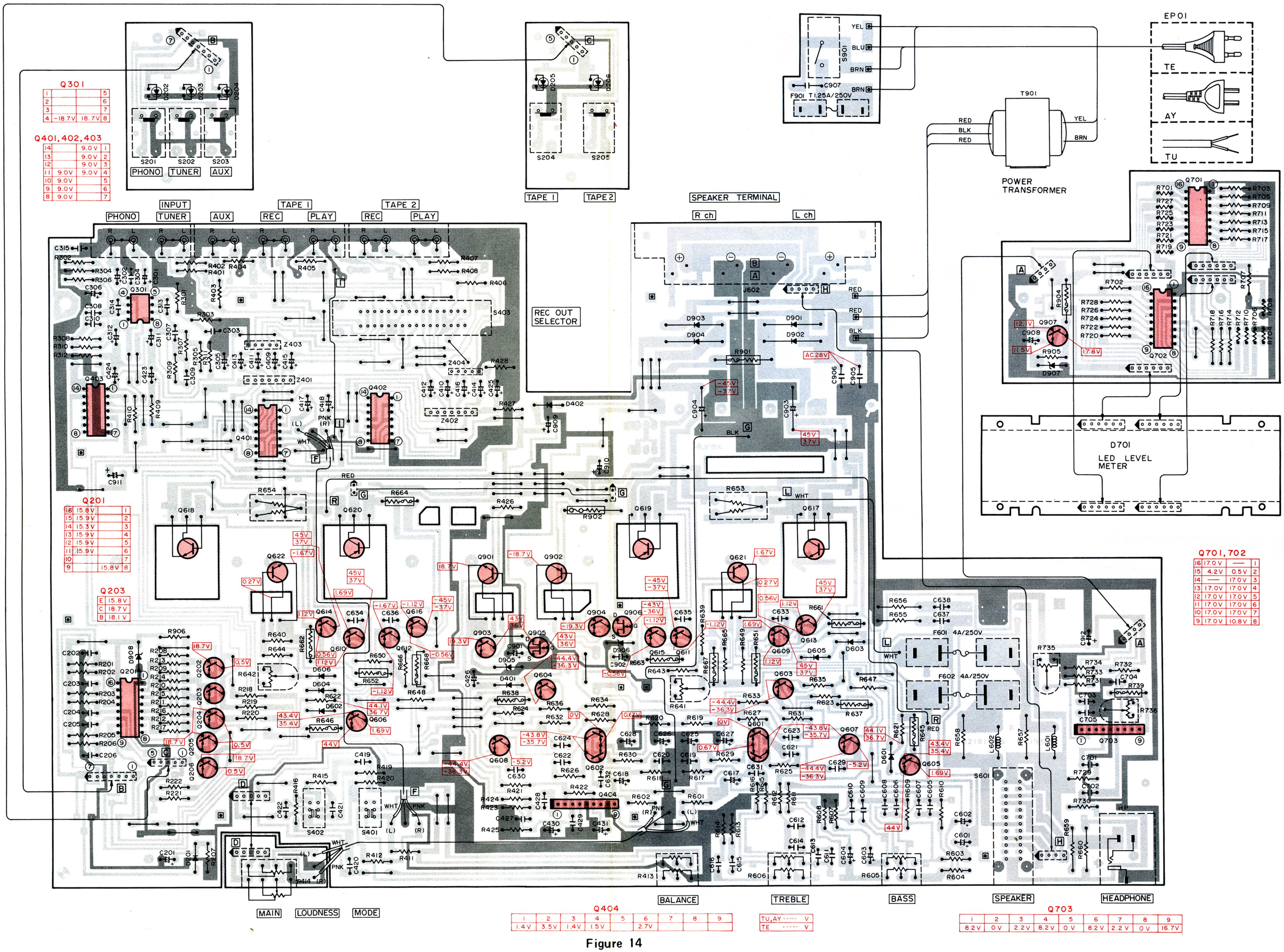
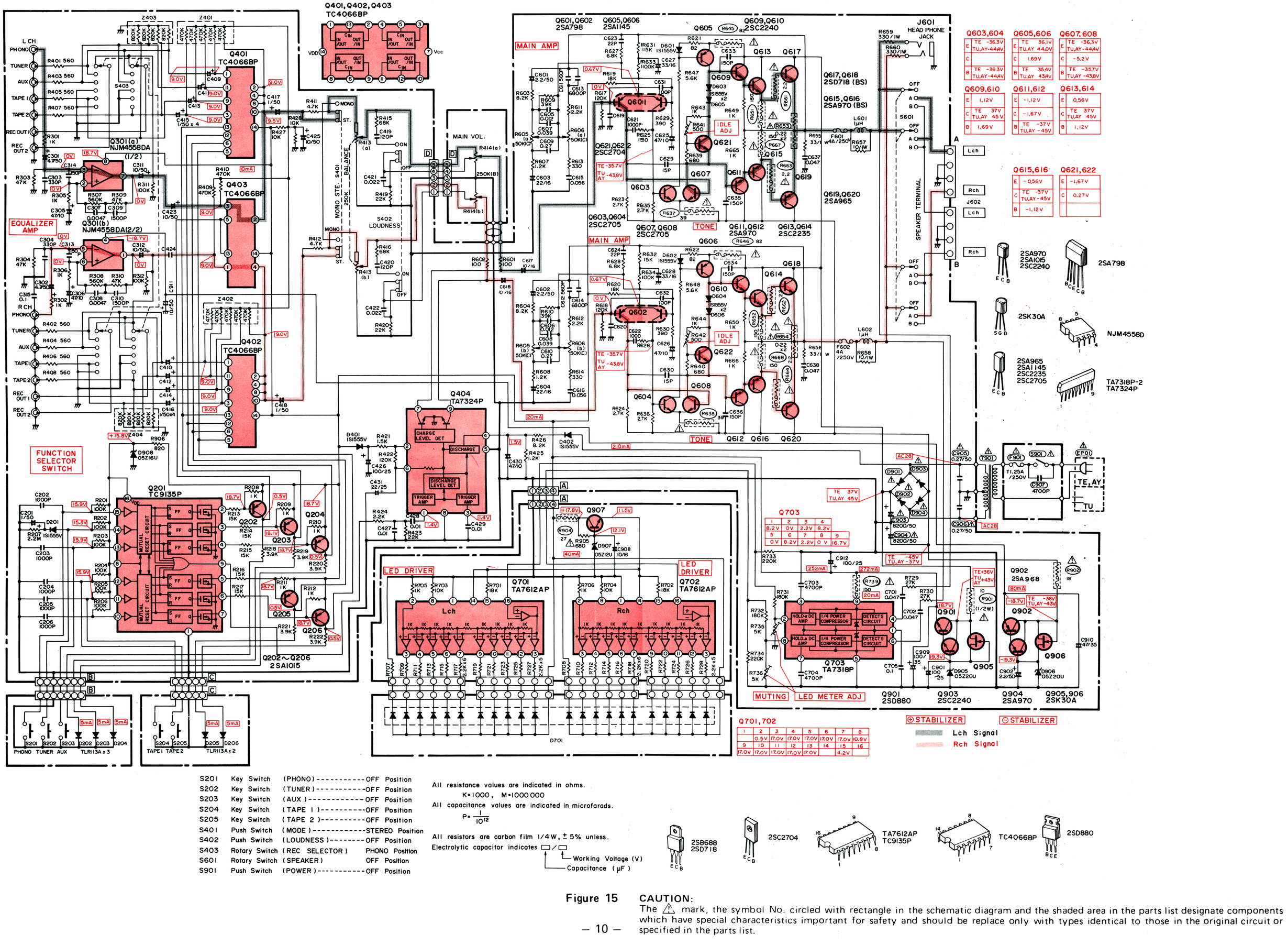



Figure 14

# 8. SCHEMATIC DIAGRAM




| Q603,604 | | | Q605,606 | | | Q607,608 | | |
|---|---|---|---|---|---|---|---|---|
| E | TE -36.3V | TU,AY-44.4V | E | TE 36.1V | TU,AY 44.0V | E | TE -36.3V | TU,AY-44.4V |
| C | | | C | 1.69V | | C | -5.2V | |
| B | TE -36.3V | TU,AY-44.4V | B | TE 35.4V | TU,AY 43.4V | B | TE -35.7V | TU,AY -43.8V |

| Q609,610 | | | Q611,612 | | | Q613,614 | | |
|---|---|---|---|---|---|---|---|---|
| E | 1.12V | | E | -1.12V | | E | 0.56V | |
| C | TE 37V | TU,AY 45V | C | -1.67V | | C | TE 37V | TU,AY 45V |
| B | 1.69V | | B | TE -37V | TU,AY -45V | B | 1.12V | |

| Q615,616 | | | Q621,622 | | |
|---|---|---|---|---|---|
| E | -0.56V | | E | -1.67V | |
| C | TE -37V | TU,AY -45V | C | 0.27V | |
| B | -1.12V | | | | |

| Q703 | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | | | | |
| 8.2V | 0V | 2.2V | 8.2V | | | | |
| 5 | 6 | 7 | 8 | 9 | | | |
| 0V | 8.2V | 2.2V | 0V | 16.7V | | | |

| Q701,702 | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| | 0.5V | 17.0V | 17.0V | 17.0V | 17.0V | 17.0V | 10.8V |
| 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 17.0V | 17.0V | 17.0V | 17.0V | 17.0V | | 4.2V | |

2SA970 2SA1015 2SC2240 — 2SA798

2SK30A — NJM4558D

2SA965 2SA1145 2SC2235 2SC2705 — TA7318P-2 TA7324P

| | | | |
|---|---|---|---|
| S201 | Key Switch | (PHONO) | OFF Position |
| S202 | Key Switch | (TUNER) | OFF Position |
| S203 | Key Switch | (AUX) | OFF Position |
| S204 | Key Switch | (TAPE 1) | OFF Position |
| S205 | Key Switch | (TAPE 2) | OFF Position |
| S401 | Push Switch | (MODE) | STEREO Position |
| S402 | Push Switch | (LOUDNESS) | OFF Position |
| S403 | Rotary Switch | (REC SELECTOR) | PHONO Position |
| S601 | Rotary Switch | (SPEAKER) | OFF Position |
| S901 | Push Switch | (POWER) | OFF Position |

All resistance values are indicated in ohms.
K=1000, M=1000 000
All capacitance values are indicated in microfarads.
P= 1/10^12
All resistors are carbon film 1/4W, ± 5% unless.
Electrolytic capacitor indicates □/□ (Working Voltage (V) / Capacitance (μF))

2SB688 2SD718 — 2SC2704 — TA7612AP TC9135P — TC4066BP — 2SD880

**Figure 15**

**CAUTION:**
The ⚠ mark, the symbol No. circled with rectangle in the schematic diagram and the shaded area in the parts list designate components which have special characteristics important for safety and should be replace only with types identical to those in the original circuit or specified in the parts list.

# 9. CABINET PARTS LOCATIONS

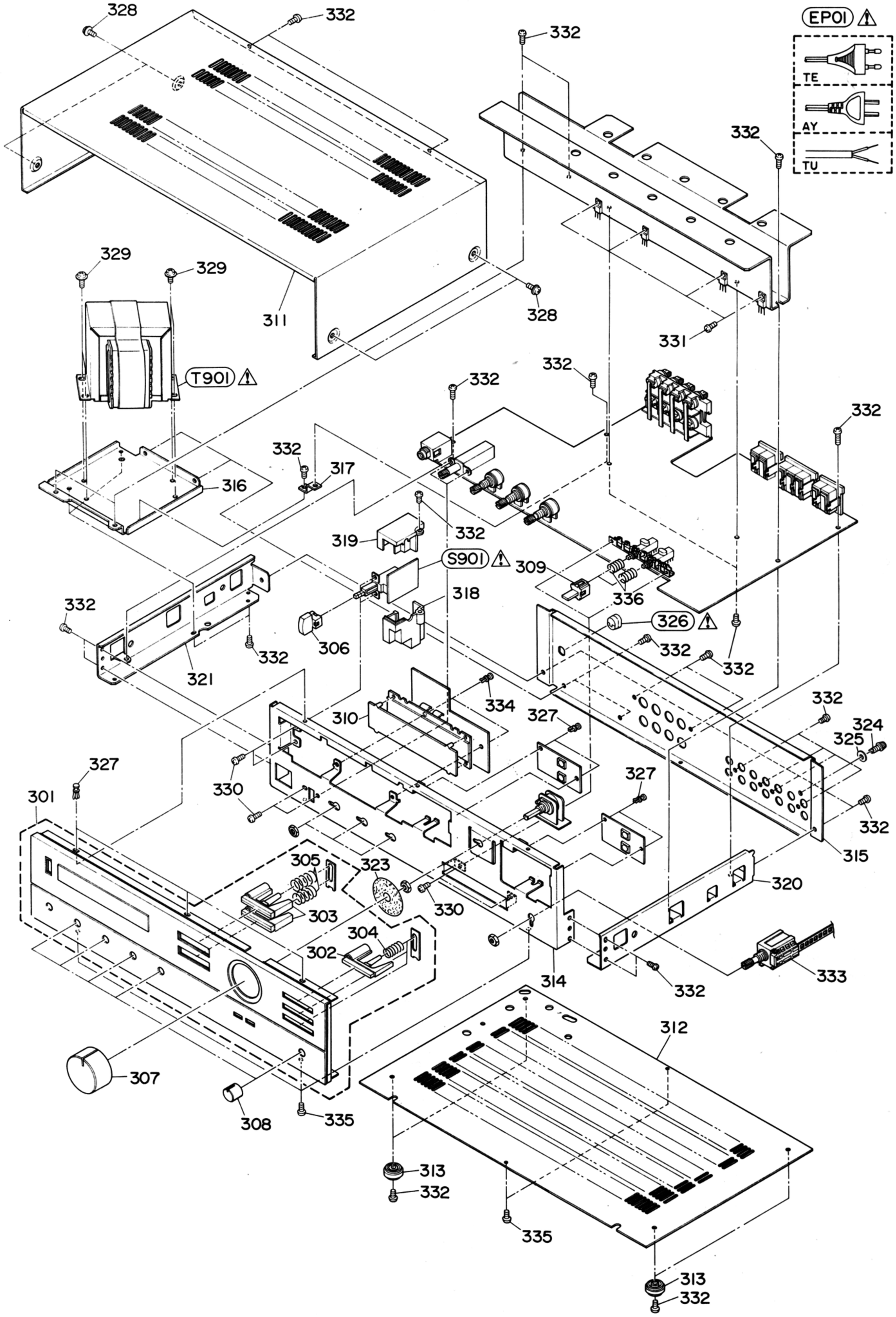



**Figure 16**

**NOTE:** Parts excluded in the parts list are not available as replacement parts.

# 10. PARTS LIST

**CAUTION:**
The ⚠ mark, the symbol No. circled with rectangle in the schematic diagram and the shaded area in the parts list designate components which have special characteristics important for safety and should be replace only with types identical to those in the original circuit or specified in the parts list.

| Symbol No. | Part No. | Description |
|---|---|---|
| **CABINET PARTS** | | |
| 301 | 20017176 | Panel Ass'y |
| 302 | 22884126 | Knob, Function (PHONO/TUNER/AUX) |
| 303 | 22884127 | Knob, Function (TAPE 1/TAPE 2) |
| 304 | 25777058 | Spring, Push (PHONO/TUNER/AUX) |
| 305 | 25777059 | Spring, Push (TAPE 1/TAPE 2) |
| 306 | 22824350 | Knob Ass'y, Power |
| 307 | 22826352 | Knob Ass'y, Volume |
| 308 | 22826353 | Knob Ass'y, Tone |
| 309 | 22884130 | Knob Ass'y, Push |
| 310 | 22836405 | Plate, Dial Meter |
| 311 | 22841289 | Cover, Top |
| 313 | 22874044 | Foot |
| 315 | 20015251 | Plate, Jack (TE) |
| 315 | 20015258 | Plate, Jack (TU, AY) |
| 324 | 20794122 | Screw, Ground |
| 325 | 22703189 | Washer, Ground |
| 326 | 25845528 | Bush, Nylon |
| 327 | 22705020 | Rivet, Plastic, 3$\phi$ x 4.5mm |
| 328 | 22707522 | Screw, FL DT, 3$\phi$ x 6mm |
| 329 | 22707196 | Screw, FLFT PAN, 4$\phi$ x 8mm |
| 330 | 22701313 | Screw, BID, 3$\phi$ x 4mm |
| 331 | 22707163 | Screw, BID, 3$\phi$ x 10mm |
| 332 | 22701326 | Screw, BID, Tapping, 3$\phi$ x 8mm |
| 333 | 22195891 | Remote Wire with Rotary Switch (S403) |
| 334 | 22705026 | Rivet, Plastic, 3$\phi$ x 6.5mm |
| 335 | 22701237 | Screw, BID, Tapping 3$\phi$ x 6mm |
| 336 | 25777081 | Spring, Push Switch |

| Symbol No. | Part No. | Description |
|---|---|---|
| **IC'S & TRANSISTORS** | | |
| Q201 | | IC, TC9135P |
| Q202, 203 Q204, 205 | | Transistor, 2SA1015-GR |
| Q206 | | |
| Q301 | 22114470 | IC, NJM4558D-A |
| Q401, 402 Q403 | | IC, TC4066BP |
| Q404 | | IC, TA7324P |
| Q601, 602 | 22114468 | Transistor, 2SA798-G-DU |
| Q603, 604 | | Transistor, 2SC2705-Y |
| Q605, 606 | | Transistor, 2SA1145-Y |
| Q607, 608 | | Transistor, 2SC2705-Y |
| Q609, 610 | | Transistor, 2SC2240-BL |
| Q611, 612 | | Transistor, 2SA970-BL |
| Q613, 614 | | Transistor, 2SC2235-Y |
| Q615, 616 | | Transistor, 2SA965-Y |
| Q617, 618 | | Transistor, 2SD718-O (BS) |
| Q619, 620 | | Transistor, 2SB688-O (BS) |
| Q621, 622 | | Transistor, 2SC2704-Y |
| Q701, 702 | | IC, TA7612AP |
| Q703 | | IC, TA7318P-2 |
| Q901 | | Transistor, 2SD880-Y |
| Q902 | | Transistor, 2SA968-Y |
| Q903 | | Transistor, 2SC2240-BL |
| Q904 | | Transistor, 2SA970-BL |
| Q905, 906 | | Transistor, 2SK30A-Y |
| **DIODES** | | |
| D201 | | Diode, 1S1555V |
| D202, 203 D204, 205 D206 | | Diode, TLR113A |
| D401, 402 | | Diode, 1S1555V |
| D601, 602 D603, 604 D605, 606 | | Diode, 1S1555V |

| Symbol No. | Part No. | Description |
|---|---|---|
| D701 | | Diode, S-4489 (LED Meter) |
| ⚠ D901, 902 | 22115496 | Diode, S3V20-X |
| ⚠ D903, 904 | | |
| D905, 906 | | Diode, 05Z20U |
| D907 | | Diode, 05Z12U |
| D908 | | Diode, 05Z16U |

## ELECTRICAL PARTS

| | | |
|---|---|---|
| ⚠ T901 | 22224015 | Transformer, Power (TE) |
| ⚠ T901 | 22224016 | Transformer, Power (TU, AY) |
| S201 | 22195145 | Switch, Key (PHONO) |
| S202 | | Switch, Key (TUNER) |
| S203 | | Switch, Key (AUX) |
| S204 | | Switch, Key (TAPE 1) |
| S205 | | Switch, Key (TAPE 2) |
| S401 | 22195889 | Switch, Push (MODE) |
| S402 | | (LOUDNESS) |
| S403 | 22195890 | Switch, Rotary (REC SELECTOR) |
| S601 | 22195776 | Switch, Rotary (SPEAKER) |
| ⚠ S901 | 22195631 | Switch, Push (POWER) |
| J401 | 22163830 | Jack, 6P (PHONO/TUNER/AUX) |
| J402, 403 | 22163831 | Jack 4P (TAPE/REC OUT) |
| J601 | 22163665 | Jack, Headphone |
| J602 | 22162489 | Terminal, Speaker |
| L601, 602 | 22210107 | Coil, 1 $\mu$H |
| Z401, 402 | 22130634 | Composite Parts, IB-634 |
| Z403, 404 | 22130636 | Composite Parts, IB-636 |
| F601, 602 | 22144365 | Fuse, 4A/250V |
| ⚠ F901 | 22144357 | Fuse, T1.25A/250V |
| ⚠ EP01 | 22176286 | Cord, Power (TE) |
| ⚠ EP01 | 22176628 | Cord, Power (TU) |
| ⚠ EP01 | 22176588 | Cord, Power (AY) |

## CAPACITORS

J = ±5%, K = ±10%, M = ±20%

ABBREVIATIONS: CD = Ceramic Disk, EL = Electrolytic
MY = Mylar Film, BL = Barrier Layer
PP = Polypropylene

| | | |
|---|---|---|
| C201 | 22488109 | EL, 1mfd, 50V, M |
| C202, 203 | 22343102 | CD, 1000pF, 50V, M |
| C204, 205 | | |
| C206 | | |
| C301, 302 | 22488479 | EL, 4.7mfd, 50V, M |
| C303, 304 | 22340331 | CD, 330pF, 50V, K |
| C305, 306 | 22483470 | EL, 47mfd, 10V, M |
| C307, 308 | 22371472 | MY, 4700pF, 50V, J |
| C309, 310 | 22371152 | MY, 1500pF, 50V, J |
| C311, 312 | 22488100 | EL, 10mfd, 50V, M |
| C313, 314 | 22349151 | CD, 150pF, 50V, K |
| C315 | 22360333 | BL, 0.1mfd, 25V, M |
| C409, 410 | 22468109 | EL, 1mfd, 50V, LS |
| C411, 412 | 22468109 | EL, 1mfd, 50V, LS |
| C413, 414 | 22468109 | EL, 1mfd, 50V, LS |
| C415, 416 | 22468109 | EL, 1mfd, 50V, LS |
| C417, 418 | 22468109 | EL, 1mfd, 50V, LS |
| C419, 420 | 22349151 | CD, 150pF, 50V, K |
| C421, 422 | 22372223 | MY, 0.022mfd, 50V, K |
| C423, 424 | 22488100 | EL, 10mfd, 50V, M |
| C425 | 22488100 | EL, 10mfd, 50V, M |
| C426 | 22486101 | EL, 100mfd, 25V, M |
| C427 | 22360327 | BL, 0.01mfd, 25V, M |
| C428 | 22360327 | BL, 0.01mfd, 25V, M |
| C429 | 22360327 | BL, 0.01mfd, 25V, M |
| C430 | 22483470 | EL, 47mfd, 10V, M |
| C431 | 22466220 | EL, 22mfd, 25V, M |
| C601, 602 | 22488229 | EL, 2.2mfd, 50V, M |
| C603, 604 | 22485220 | EL, 22mfd, 16V, M |
| C605, 606 | 22371123 | MY, 0.012mfd, 50V, J |
| C607, 608 | 22371393 | MY, 0.039mfd, 50V, J |
| C609, 610 | 22370281 | MY, 0.27mfd, 50V, J |
| C611, 612 | 22321054 | PP, 560pF, 50V, J |
| C613, 614 | 22371682 | MY, 6800pF, 50V, J |
| C615, 616 | 22371563 | MY, 0.056mfd, 50V, J |
| C617, 618 | 22485100 | EL,10mfd, 16V, M |
| C621, 622 | 22349102 | CD, 1000pF, 50V, K |
| C623, 624 | 22362220 | CD, 22pF, 50V, K |
| C625, 626 | 22483470 | EL, 47mfd, 10V, M |
| C627, 628 | 22485330 | EL, 33mfd, 16V, M |
| C629, 630 | 22362150 | CD, 15pF, 50V, K |
| C631, 632 | 22349101 | CD, 100pF, 50V, K |
| C633, 634 | 22349151 | CD, 150pF, 50V, K |
| C635, 636 | 22349151 | CD, 150pF, 50V, K |
| C637, 638 | 22372473 | MY, 0.047mfd, 50V, K |
| C701, 702 | 22372473 | MY, 0.047mfd, 50V, K |
| C703, 704 | 22372472 | MY, 4700pF, 50V, K |
| C705 | 22360333 | BL, 0.1mfd, 25V, M |
| C901 | 22486101 | EL, 100mfd, 25V, M |
| C902 | 22488479 | EL, 4.7mfd, 50V, M |
| ⚠ C903, 904 | 22440461 | EL, 8200mfd, 50V, M |
| ⚠ C905, 906 | 22370281 | MY, 0.27mfd, 50V, J |
| C907 | 22340150 | CD, 4700pF, 400V, M |
| C908 | 22485100 | EL, 10mfd, 16V, M |

| Symbol No. | Part No. | Description |
|---|---|---|
| C909 | 22487101 | EL, 100mfd, 35V. M |
| C910 | 22487470 | EL, 47mfd, 35V, M |
| C911 | 22488100 | EL, 10mfd, 50V, M |
| C912 | 22486101 | EL, 100mfd, 25V, M |

## RESISTORS

All resistors are carbon film, ¼W, ±5% unless otherwise noted.

| | | |
|---|---|---|
| R201, 202 | 22545104 | 100K ohm |
| R203, 204 | | |
| R205, 206 | | |
| R207 | 22545225 | 2.2M ohm |
| R208, 209 | 22545102 | 1K ohm |
| R210, 211 | | |
| R212 | | |
| R213, 214 | 22545153 | 15K ohm |
| R215, 216 | | |
| R217 | | |
| R218, 219 | 22545392 | 3.9K ohm |
| R220, 221 | | |
| R222 | | |
| R301, 302 | 22545102 | 1K ohm |
| R303, 304 | 22545473 | 47K ohm |
| R305, 306 | 22545102 | 1K ohm |
| R307, 308 | 22545564 | 560K ohm |
| R309, 310 | 22545473 | 47K ohm |
| R311, 312 | 22545104 | 100K ohm |
| R401, 402 | 22545561 | 560 ohm |
| R403, 404 | | |
| R405, 406 | | |
| R407, 408 | | |
| R409, 410 | 22545474 | 470K ohm |
| R411, 412 | 22545472 | 4.7K ohm |
| R413 | 22651566 | 250K ohm, W, Variable (Balance) |
| R414 | 22651567 | 250K ohm, B, Variable (Main) |
| R415, 416 | 22545683 | 68K ohm |
| R419, 420 | 22545223 | 22K ohm |
| R421 | 22545152 | 1.5K ohm |
| R422 | 22545124 | 120K ohm |
| R423 | 22545223 | 22K ohm |
| R424 | 22545222 | 2.2K ohm |
| R425 | 22545122 | 1.2K ohm |
| R426 | 22545822 | 8.2K ohm |
| R427 | 22545103 | 10K ohm |
| R428 | 22545103 | 10K ohm |

| | Symbol No. | Part No. | Description |
|---|---|---|---|
| | R601, 602 | 22545101 | 100 ohm |
| | R603, 604 | 22545822 | 8.2K ohm |
| | R605, 606 | 22651568 | 50K ohm, C, Variable (Tone) |
| | R607, 608 | 22545122 | 1.2K ohm |
| | R609, 610 | 22545393 | 39K ohm |
| | R611, 612 | 22545222 | 2.2K ohm |
| | R613, 614 | 22545331 | 330 ohm |
| | R615, 616 | 22545562 | 5.6K ohm |
| | R617, 618 | 22545124 | 120K ohm |
| | R619, 620 | 22545183 | 18K ohm |
| | R621, 622 | 22545820 | 82 ohm |
| | R623, 624 | 22545272 | 2.7K ohm |
| | R625, 626 | 22545151 | 150 ohm |
| | R627, 628 | 22545682 | 6.8K ohm |
| | R629, 630 | 22545391 | 390 ohm |
| | R631, 632 | 22545153 | 15K ohm |
| | R633, 634 | 22545104 | 100K ohm |
| | R635, 636 | 22545272 | 2.7K ohm |
| ⚠ | **R637, 638** | **22500178** | **39 ohm, Fusible** |
| | R639, 640 | 22545681 | 680 ohm |
| | R641, 642 | 22658588 | 500 ohm, Semi-fixed |
| | R643, 644 | 22545102 | 1K ohm |
| ⚠ | **R645, 646** | **22500180** | **82 ohm, Fusible** |
| | R647, 648 | 22545562 | 5.6K ohm |
| | R649, 650 | 22547562 | 5.6K ohm, ½W |
| ⚠ | **R651, 652** | **22500139** | **150 ohm, Fusible** |
| ⚠ | **R653, 654** | **22500260** | **0.22 ohm, 3W, Wire Wound** |
| | R655, 656 | 22570256 | 33 ohm,1W, Metal Oxied Film |
| | R657, 658 | 22570250 | 10 ohm, 1W, Metal Film |
| | R659, 660 | 22570268 | 330 ohm, 1W, Metal Oxied Film |
| ⚠ | **R661, 662** | **22500167** | **2.2 ohm, Fusible** |
| ⚠ | **R663, 664** | **22500167** | **2.2 ohm, Fusible** |
| | R665, 666 | 22547102 | 1K ohm, ½W |
| ⚠ | **R667, 668** | **22500139** | **150 ohm, Fusible** |
| | R701, 702 | 22555183 | 18K ohm |
| | R703, 704 | 22555103 | 10K ohm |
| | R705, 706 | 22555102 | 1K ohm |
| | R707, 708 | 22555222 | 2.2K ohm |
| | R709, 710 | 22555222 | 2.2K ohm |
| | R711, 712 | 22545222 | 2.2K ohm |
| | R713, 714 | | |
| | R715, 716 | | |
| | R717, 718 | | |
| | R719, 720 | | |
| | R721, 722 | | |
| | R723, 724 | | |
| | R725, 726 | | |
| | R727, 728 | | |
| | R729, 730 | 22545273 | 27K ohm |
| | R731, 732 | 22545184 | 180K ohm |
| | R733, 734 | 22545224 | 220K ohm |
| | R735, 736 | 22658513 | 5K ohm, Semi-fixed |

| Symbol No. | Part No. | Description |
|---|---|---|
| R737 | 22545123 | 12K ohm |
| ⚠ **R739** | **22500139** | **150 ohm, Fusible** |
| ⚠ **R901** | **22500208** | **10 ohm, ½W, Fusible** |
| ⚠ **R902** | **22500175** | **18 ohm, Fusible** |
| ⚠ **R904** | **22500118** | **27 ohm, Fusible** |
| R905 | 22545102 | 1K ohm |
| R906 | 22545821 | 820 ohm |
| **ACCESSORY** | | |
| AC01 | 22903075 | Owner's Manual |

| Symbol No. | Part No. | Description |
|---|---|---|