

SERVICE MANUAL

INTEGRATED STEREO AMPLIFIER

SANSUI AU-20000



Sansui

SANSUI ELECTRIC CO., LTD.

This service manual is designed for service engineers to repair, adjust, maintain and order the replacement parts of the AU-20000 correctly. When ordering the parts, use the stock number and parts name specifically referring to the Parts Location and Parts Lists. For general usage and maintenance of the unit, please refer to the Operating Instructions attached with the unit.

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1. SPECIFICATIONS

POWER OUTPUT

Min. RMS, both channels driven, from 20 to 20,000Hz, with no more than 0.05% total harmonic distortion
170 watts per channel into 8 ohms
170 watts per channel into 4 ohms
85 watts per channel into 16 ohms
Min. RMS, both channels driven, at 1,000Hz, with no more than 0.05% total harmonic distortion
180 watts per channel into 8 ohms
170 watts per channel into 4 ohms

LOAD IMPEDANCE 4, 8, 16 ohms (SYSTEM A or B)
8, 16 ohms (SYSTEM A+B)

POWER BANDWIDTH 20 to 20,000Hz at or below rated min. RMS power output and total harmonic distortion

TOTAL HARMONIC DISTORTION less than 0.05% at or below rated min. RMS power output

INTERMODULATION DISTORTION (70Hz:7kHz=4:1 SMPTE method) less than 0.05%

FREQUENCY RESPONSE (at 1 watt) 10 to 50,000Hz ± 0 dB

DAMPING FACTOR approximately 80 at 8 ohms load

INPUT SENSITIVITY AND IMPEDANCE (1kHz for rated power output)
PHONO-1 1.5, 3, 6 mV/30, 50, 100 kilo-ohms

PHONO-2 1.5, 3, 6 mV/50 kilohms
(Max. input capability: 800 mV at 1 kHz, less than 0.1% total harmonic distortion and SENSITIVITY switch at 6 mV)

TUNER 130 mV/50 kilohms

AUX 130 mV/50 kilohms

TAPE-1, 2 PLAY (pin jacks) 130 mV/50 kilohms

TAPE-2 REC/PLAY (DIN socket) 130 mV

MAIN IN 700 mV/50 kilohms

OUTPUT LEVEL (1,000Hz)

TAPE-1, 2, 3 REC (pin jacks) 130 mV

TAPE-2 REC/PLAY (DIN socket) 30 mV

PRE OUT 700 mV

CHANNEL SEPARATION (1 kHz, at rated power output)

PHONO-1, 2 better than 55dB

TUNER better than 60dB

AUX better than 60dB

TAPE-1, 2, 3 PLAY better than 60dB

MAIN IN better than 65dB

HUM AND NOISE (IHF)

PHONO-1, 2 better than 70dB

TUNER better than 80dB

AUX better than 80dB

TAPE-1, 2, 3 PLAY better than 80dB

MAIN IN better than 100dB

CONTROLS

BASS ± 10 dB (30Hz)

MIDRANGE ± 5 dB (1 kHz)

TREBLE ± 10 dB (20 kHz)

LOW FILTER -3dB (20, 40 Hz), 12dB/oct.

HIGH FILTER -3dB (7 kHz), 6dB/oct.

..... -3dB (12 kHz), 12dB/oct.

MUTING 0, -10, -30dB

POWER REQUIREMENTS

POWER VOLTAGE 100, 120, 220, 240V 50/60Hz
120V (Usable 110~130V)
(for U.S.A. & Canada only)

POWER CONSUMPTION 360 watts (rated)

1,110 watts (max.)

DIMENSIONS 460 mm (18 1/8") W

178 mm (7 1/16") H

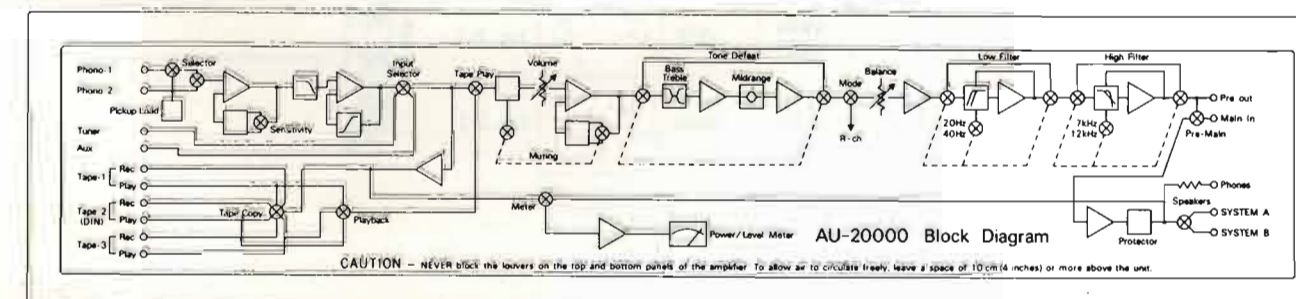
400 mm (15 3/4") D

WEIGHT 23.6 kg (52.0 lbs) net

26.4 kg (58.2 lbs) packed

* Design and specifications subject to change without notice for improvements.

BLOCK DIAGRAM



2. ADJUSTMENTS

2-1. Driver Circuit Board Adjustments

- Note: 1. Master Volume.....Minimum
 2. Room Temperature.....10~35°C
 3. For adjustment, run the unit for more than 5 minutes after the power is switched on.

| STEP | SUBJECT | EQUIPMENT | MEASURE OUTPUT | ADJUST | ADJUST FOR | CONDITION |
|------|--------------|---------------|---|----------------------------|--------------|--|
| 1. | DC 0V | DC Volt Meter | Speaker Terminal Fig. 3 | F-2507 VR01 (Fig. 2) | 0V ±10mV | VR02... Minimum (Counterclockwise) ※ 2) $I_1 = \frac{V}{R_1 + R_2} = \frac{35}{0.94} \approx 35\text{mA}$ $R_1, R_2 = 0.47\Omega$ $V = 35\text{mV}$ |
| 2. | Bias Current | DC Volt Meter | F-2510 2-4 (Connector Pin) (Fig. 1) | F-2507 VR02 (Fig. 2) | 35mV ※ 1) | |

※ 1) Instead of measuring bias current, set the voltage to 35mV by VR02 between connector-pins 2 and 4 on both channels as Fig. 1, since there are no quick acting fuses in the power amplifier sections.

※ 2) On one channel, bias current, I_1 is current which flows into one power transistor, 25C1585. Namely, total current on one channel = $I_1 \times 3$

L-CH.....TR01, TR05, TR09

R-CH.....TR02, TR06, TR10

Fig. 1

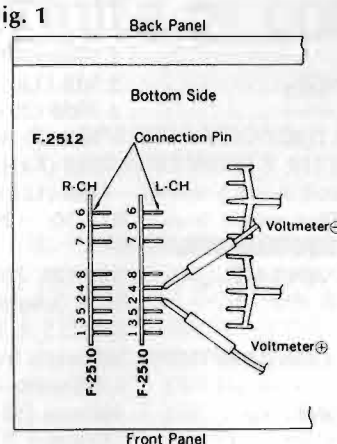


Fig. 2

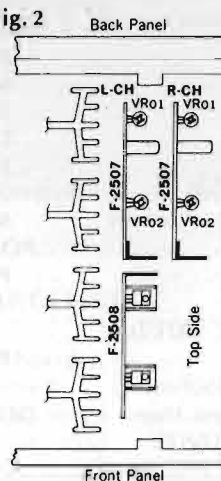
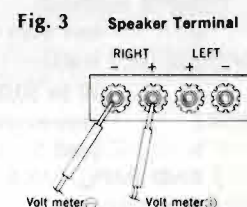


Fig. 3

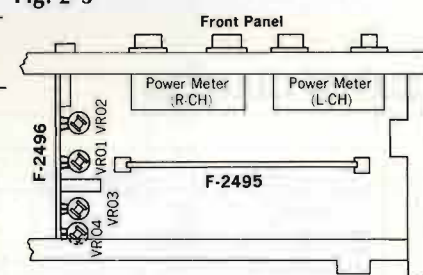


2-2. Power Meter Adjustments

- Note: 1. Room Temperature.....23±5°C
 2. Speaker load.....8Ω
 3. Meter Position.....0dB
 4. Master Volume.....Max.
 5. Input.....AUX
 6. Input Signal.....Sine Curve (1kHz)
 7. For adjustment, run the unit for more than 5 minutes after the power is switched on.

| STEP | SUBJECT | OUTPUT LEVEL | ADJUST | METER POSITION |
|------|------------------------|---------------|---|-------------------|
| 1. | Power Meter Adjustment | 36.9V (0dB) | F-2496 Fig. 2-3 R-CH.....VR04 L-CH.....VR03 | 0dB Fig. 2-1 |
| 2. | Same as above | 369mV (-40dB) | F-2496 Fig. 2-4 R-CH.....VR02 L-CH.....VR01 | -40dB Fig. 2-2 |

Fig. 2-3



3. TROUBLESHOOTING

3-1. Troubleshooting Chart

| Symptom | Cause |
|--|--|
| 1. Troubles on Power Supply Section | |
| 1-1. Voltage ±B not supplied to F-2496, F-2507 | |
| 1) Defective AC line of power section | 1. AC Fuse F701 open 2. Imperfect contact of AC switch, S702 3. R01 or R02 open on F-2511 4. Inoperative inrush absorber circuit |
| 2) ±85V, Input voltage not supplied to F-2508 | 5. F01 or F02 open on F-2511 6. Defective D03 or D04 on F-2511 |
| 3) ±35V not supplied to F-2496 | 7. Defective D01 or D02 on F-2508 8. Defective TR01, TR02 or TR05~TR11 on F-2508 9. Defective ZD01 on F-2508 |
| 4) ±65V not supplied to F-2507 | 10. Defective D01 or D02 on F-2508 11. Defective TR03, TR04 or TR11~TR16 12. Defective ZD02 on F-2508 |
| 2. Troubles on Power Amplifier Section | |
| 2-1. Power Amplifier inoperative | |
| 1) AC Fuse, F701 opens | 1. Power transistor shorted 2. TR01 opened on F-2497 3. TR10 or TR11 shorted on F-2507 |
| 2) AC fuse, F701 not opened (Protector lamp lighted) | 4. TR08 or TR09 shorted on F-2507 5. D06 or D07 shorted on F-2507 6. TR02, TR06 or TR07 shorted on F-2507 |
| 2-2. Improper Bias Current | 7. VR01 or VR02 out of adjustment or defective on F-2507 8. TR01 shorted on F-2497 |
| 3. Troubles on Power Meter Circuit | |
| | 1. VR01 or VR02 out of adjustment on F-2496 2. Defective IC01, IC02 on F-2496 3. Defective D01~D08 on F-2496 4. Defective TR01~TR04 on F-2496 5. Defective Meter switch S01 6. Defective Meter M701 |

Symptom

Cause

4. Troubles on Speaker Protector Circuit

- | | |
|---|--|
| 1) Relay, RL01 not switched OFF | 1. Defective D09~D14 on F-2511 |
| | 2. Defective TR03 or TR04 on F-2511 |
| | 3. Defective relay, RL01 |
| 2) RL01 & RL02 not switched OFF at the moment when setting power switch to ON | 4. Defective C08 on F-2511 |
| | 5. Defective TR01 or TR02 on F-2511 |
| | 6. Defective relay, RL02 |
| | 7. RL01 inoperative due to defective D17 on F-2511 |
| 3) When power transistors overheat protector relay RL01 inoperative | 8. Defective posistor PR01 on F-2509 |
| 4) Protector indicator lamp not lighted | 9. Defective TR05 on F-2511 |
| | 10. Defective LED, LD701 |

*As each voltage of speaker protector circuit floats from chassis, it can not be measured to the earth point.

5. Troubleshooting on Pre Amp. Section

*(Input Signal.....AUX or PHONO Input Terminal)

5-1. No signal from output terminal

- | | |
|--|---------------------------|
| 1) Inoperative Power Amp. when setting PRE-MAIN separate switch to SEPARATED (Input signal.....MAIN-IN Terminal) | 1. Power Amp. inoperative |
| 2) Operative Power Amp. when setting PRE-MAIN separate switch to SEPARATED (Input signal.....MAIN-IN Terminal) | 2. Pre Amp. inoperative |

5-2. AUX inoperative

- | | |
|---|---|
| 1) Inoperative Pre Amp. when setting Tone push switch to IN | 1. Defective Tone push switch S01 on F-2496 |
| | 2. Defective TR01~TR16 on F-2495 |
| 2) Inoperative Pre Amp. when setting Tone push switch to defeat | 3. Defective TR01~TR04 on F-2503 |
| | 4. Defective TR01~TR04 on F-2498 |
| 3) Inoperative on AUX of Input Selector switch | 5. Defective Input Selector switch, S01 on F-2502 |
| | 6. Defective TAPE PLAY switch, S02 on F-2502 |
| | 7. Defective Muting switch, S03 on F-2502 |
| | 8. Defective TR01~TR08 on F-2505 |

5-3. Filter inoperative

- | | |
|----------------------------|--|
| 1) Low filter inoperative | 1. Defective low filter switch, S02 on F-2504 |
| 2) High filter inoperative | 2. Defective high filter switch, S01 on F-2504 |

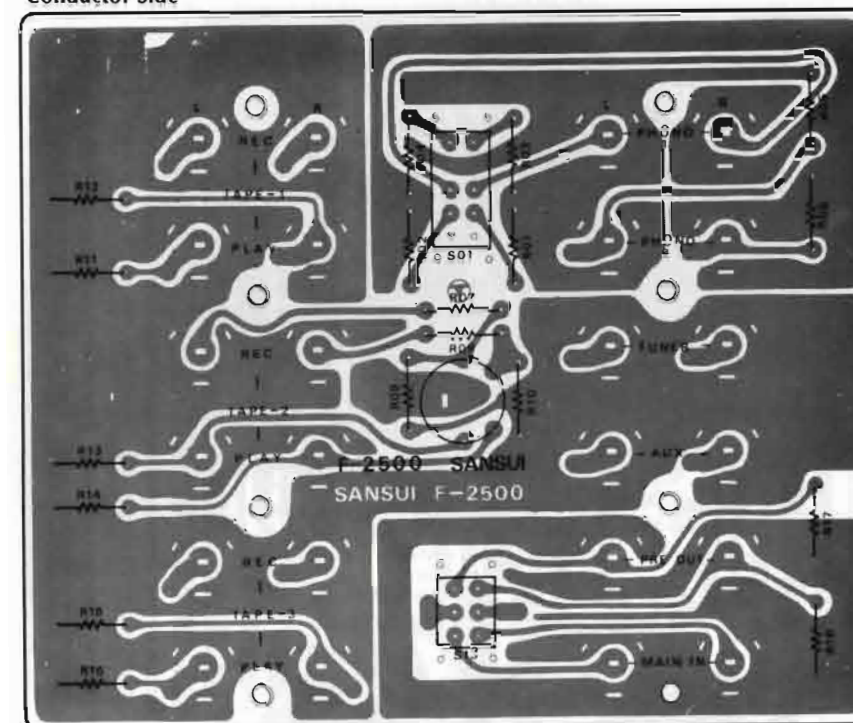
5-4. PHONO inoperative

- | |
|--|
| 1. Defective Pickup Load switch, S01 on F-2500 |
| 2. Defective Phono switch, S703 |
| 3. Defective TR01~TR16 on F-2501 |

4. PARTS LOCATIONS AND PARTS LISTS

4-1. F-2500 Input Circuit Board (Stock No. 7593641)

Conductor Side

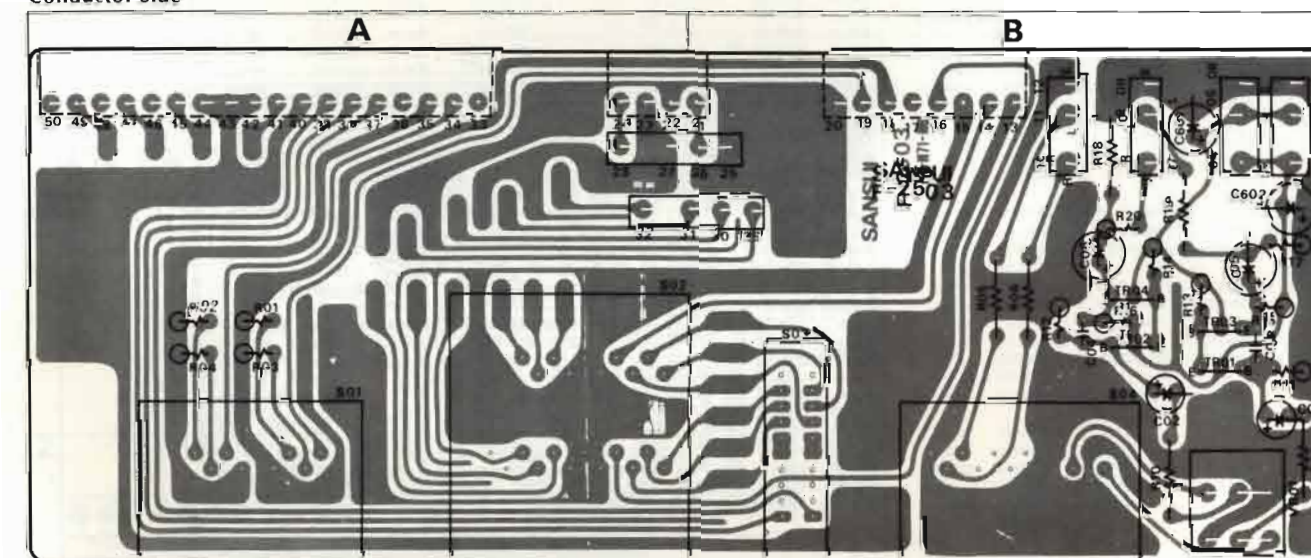


Parts List

| Parts No. | Stock No. | Description |
|-----------|-----------|---------------------|
| C601 | 0657473 | 47000 pF |
| C602 | 0657473 | 47000 pF |
| C603 | 0657473 | 47000 pF |
| C604 | 0657473 | 47000 pF |
| 50V C.C. | | |
| R01, 02 | 0107104 | 100kΩ |
| R03, 04 | 0107393 | 39kΩ |
| R05, 06 | 0107104 | 100kΩ |
| R07, 08 | 0107104 | 100kΩ |
| R09, 10 | 0107683 | 68kΩ |
| R11, 12 | 0107474 | 470kΩ |
| R13, 14 | 0107474 | 470kΩ |
| R15, 16 | 0107474 | 470kΩ |
| R17, 18 | 0107473 | 47kΩ |
| 1/4W C.R. | | |
| S01 | 1110290 | Slide Switch |
| S02 | 1110280 | Slide Switch |
| | 2090030 | SP Connector Socket |
| | 2430260 | 1P (white) Jack |
| | 2430270 | 1P (Red) Jack |

4-2. F-2503 Tape Copy Circuit Board (Stock No. 7593661)

Conductor Side

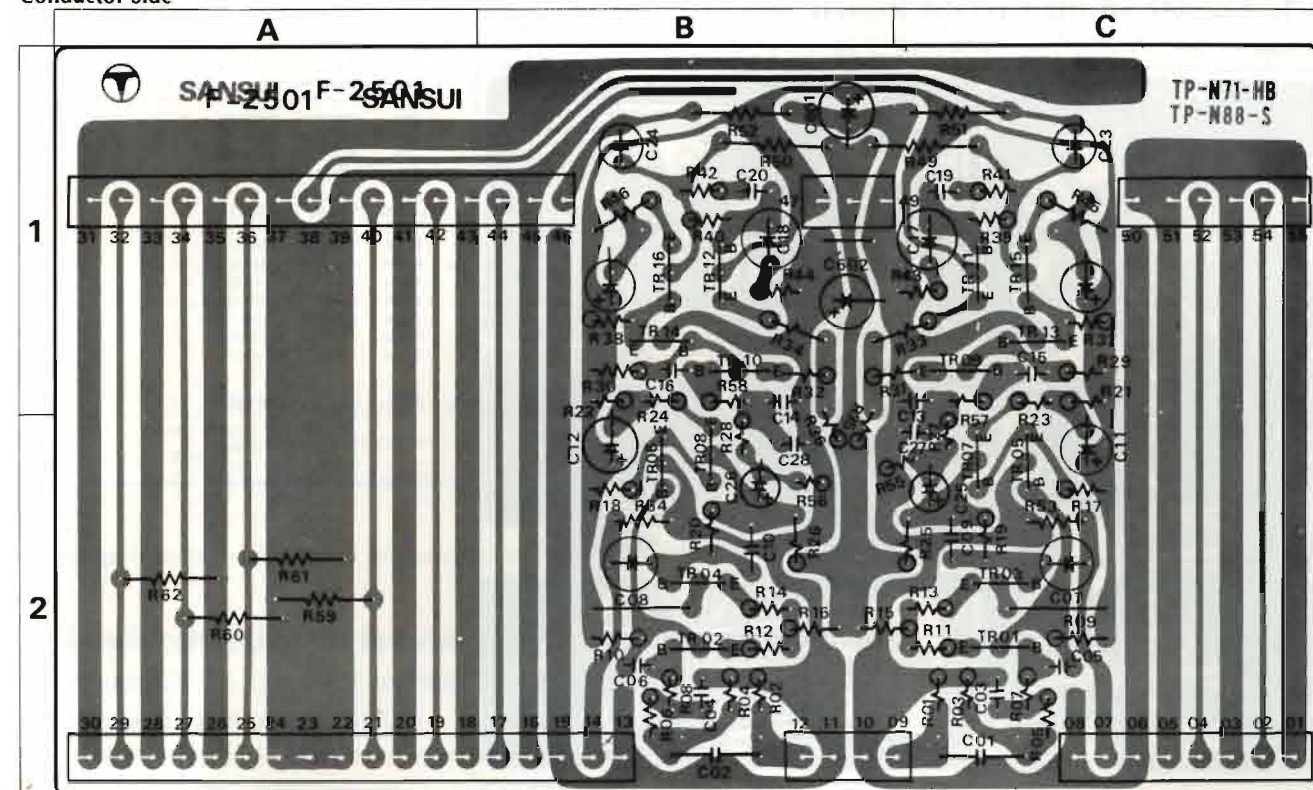


Parts List

| Parts List | | | | | | | | | | | | |
|------------|------------|-----------------|------------|-----------|-----------|-------------|-----------|-----------|-----------|--------------------------------|---------------|---------------|
| Parts No. | Stock No. | Description | Position | Parts No. | Stock No. | Description | Position | Parts No. | Stock No. | Description | Position | |
| TR01, 02 | 0300470, 1 | 2SA726 (F, G) | Transistor | R03, 04 | 0231392 | 3.9kΩ | 1/2W M.R. | VR01 | 1015160 | 50kΩ (A) × 2 Variable Resistor | B | |
| TR03, 04 | 0306270, 1 | 2SC1708 (F, G) | | R05, 06 | 0107272 | 2.7kΩ | | S01 | 1101730 | SRA-1-2-3 | | Rotary Switch |
| | | | | R09, 10 | 0107102 | 1kΩ | | S02 | 1102670 | SRA-2-4-4 | Rotary Switch | A |
| C01, 02 | 0519102 | 3.3μf 50V E.C. | B | R11, 12 | 0106104 | 100kΩ | | S03 | 1170960 | SLS Lever Switch | B | |
| C03, 04 | 0660151 | 150 pf 50V C.C. | B | R13, 14 | 0106274 | 270kΩ | | S04 | 1101720 | SRA-1-2-5 Rotary Switch | B | |
| C05, 06 | 0519106 | 4.7μf 60V | B | R15, 16 | 0106183 | 18kΩ | 1/4W C.R. | | 2410580 | 3P (D Type) Pin Ass'y | | |
| C601 | 0515100 | 10μf 50V | B | R17 | 0106104 | 100kΩ | | | | | | |
| C602 | 0515100 | 10μf 50V | B | R18 | 0107104 | 100kΩ | | | | | | |
| | | | | R19 | 0107561 | 560Ω | | | | | | |
| R01, 02 | 0231822 | 8.2kΩ 1/2W M.R. | A | R20 | 0106561 | 560Ω | | | | | | |

4-3. F-2501 Equalizer Circuit Board (Stock No. 7550801)

Conductor Side



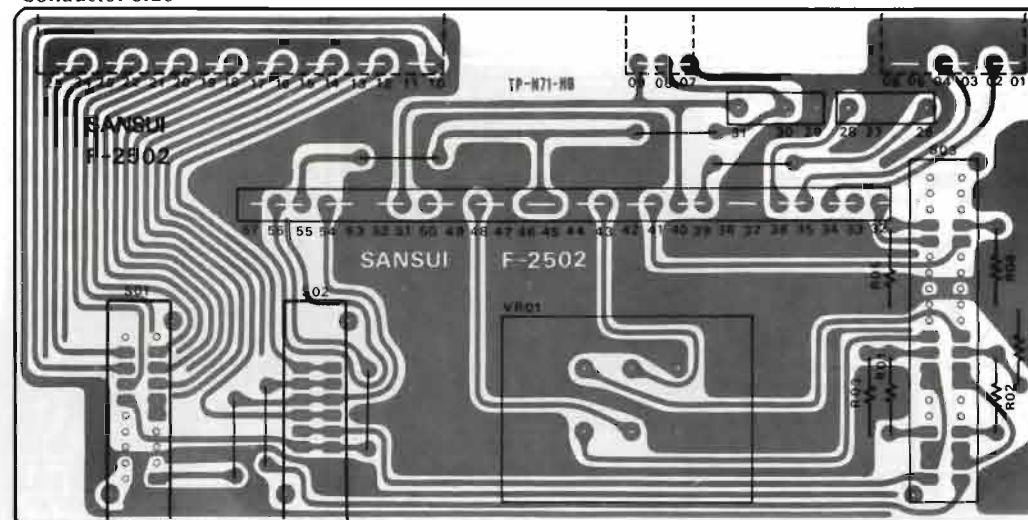
Parts List

| Parts No. | Stock No. | Description | Position | Parts No. | Stock No. | Description | Position | Parts No. | Stock No. | Description | Position |
|-----------|-----------|---------------|----------|-----------|-----------|-------------------------|----------|-----------|-----------|---------------|----------|
| TR01 | 0306071 | 2SC1313 (G) | 2C | C01.02 | 0600228 | 0.22 μ F 50V M.C. | 2C.2B | R23.24 | 0106391 | 390 Ω | 1C.1B |
| | or | | | C03.04 | 0660330 | 33pF | 2C.2B | R25.26 | 0106183 | 18k Ω | 2C.2B |
| | 0306072 | 2SC1313 (H) | | C05.06 | 0660100 | 10pF | 2C.2B | R27.28 | 0231153 | 15k Ω | 2C.2B |
| TR02 | 0306071 | 2SC1313 (G) | 2B | C07.08 | 0530470 | 47 μ F 6.3V E.C. | 2C.2B | R29.30 | 0231823 | 82k Ω | 1C.1B |
| | or | | | C09.10 | 0660100 | 10pF 50V C.C. | 2C.2B | R31.32 | 0106681 | 680 Ω | 1B.1B |
| | 0306072 | 2SC1313 (H) | | C11.12 | 0510470 | 47 μ F 6.3V E.C. | 2C.2B | R33.34 | 0106681 | 680 Ω | 1B.1B |
| TR03 | 0306071 | 2SC1313 (G) | 2C | C13.14 | 0630476 | 0.0047 μ F 50V P.C. | 1C.1B | R35.36 | 0231334 | 330k Ω | 1C.1B |
| | or | | | C15.16 | 0660330 | 33pF 50V C.C. | 1C.1B | R37.38 | 0106223 | 22k Ω | 1C.1B |
| | 0306072 | 2SC1313 (H) | | C17.18 | 0530470 | 47 μ F 6.3V E.C. | 1C.1B | R39.40 | 0231684 | 680k Ω | 1C.1B |
| TR04 | 0306071 | 2SC1313 (G) | 2B | C19.20 | 0630476 | 0.0047 μ F 50V P.C. | 1C.1B | R41.42 | 0231563 | 56k Ω | 1C.1B |
| | or | | | C21.22 | 0533339 | 3.3 μ F | 25V E.C. | R43.44 | 0231123 | 12k Ω | 1C.1B |
| | 0306072 | 2SC1313 (H) | | C23.24 | 0533339 | 3.3 μ F | 25V E.C. | R45.46 | 0106101 | 100 Ω | 1C.1B |
| TR05.06 | 0300470.1 | 2SA726 (F, G) | 2C.2B | C25.26 | 0533339 | 3.3 μ F | 25V E.C. | R49.50 | 0231472 | 47k Ω | 1C.1B |
| TR07.08 | 0300470.1 | 2SA726 (F, G) | 2C.2B | C27.28 | 0620221 | 220pF 50V P.C. | 2C.2B | R51.52 | 0107473 | 47k Ω | 1C.1B |
| | or | | | C401 | 0515100 | 10 μ F | 1B | R53.54 | 0231103 | 10k Ω | 2C.2B |
| TR09 | 0306071 | 2SC1313 (G) | 1C | C402 | 0515100 | 10 μ F | 50V E.C. | R55.56 | 0106224 | 220k Ω | 2C.2B |
| | or | | | C403.902 | 0519105 | 2.2 μ F | | R57.58 | 0106332 | 3.3k Ω | 1C.1B |
| | 0306072 | 2SC1313 (H) | | | | | | R59.60 | 0107474 | 470k Ω | 2A |
| TR10 | 0306071 | 2SC1313 (G) | 1B | | | | | R61.62 | 0107474 | 470k Ω | 2A |
| | or | | | | | | | | | | |
| TR11 | 0306072 | 2SC1313 (H) | 1C | | | | | | | | |
| | or | | | | | | | | | | |
| TR12 | 0306071 | 2SC1313 (G) | 1B | | | | | | | | |
| | or | | | | | | | | | | |
| TR13.14 | 0300470 | 2SA726 (F, G) | 1C.1B | | | | | | | | |
| TR15.16 | 0300760.1 | 2SA917 (1, 2) | 1C.1B | | | | | | | | |

※ Same rank transistors should be used in TR01, TR02, TR03, TR04, TR09, TR10, TR11 and TR12.
For example, in case that 2SC1313 (G) is used in TR01, TR02, use 2SC1313 (G) in TR03, TR04.

4-4. F-2502 Main Volume Circuit Board (Stock No. 7593651)

Conductor Side

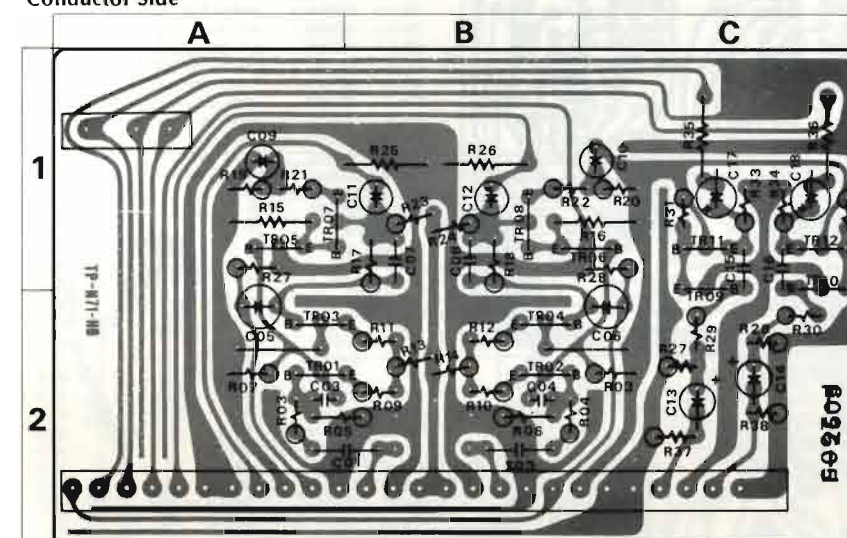


Parts List

| Parts No. | Stock No. | Description | Parts No. | Stock No. | Description | Parts No. | Stock No. | Description |
|-----------|-----------|------------------------|-----------|-----------|---------------|-----------|-----------|------------------------|
| TR01.02 | 0300470.1 | 2SA726 (F, G) | R03.04 | 0107103 | 10k Ω | S02 | 1170880 | Lever Switch |
| TR03.04 | 0306360.1 | 2SC1951 (1, 2) | R05.06 | 0107123 | 12k Ω | S03 | 1170990 | |
| C01.02 | 0515109 | 1 μ F 50V E.C. | R07.08 | 0106184 | 180k Ω | | 2410580 | 3P (D Type) Pin Ass'y |
| C03.04 | 0660151 | 150pF 50V C.C. | R09.10 | 0106274 | 270k Ω | | 2410720 | 4P (A Type) Pin Ass'y |
| C05.06 | 0513479 | 4.7 μ F 25V E.C. | R11.12 | 0106183 | 18k Ω | | 2420270 | 3P (A Type) Connector |
| C401 | 0515100 | 10 μ F | R13.14 | 0107561 | 560 Ω | | 2420290 | 6P (A Type) Connector |
| C402 | 0515100 | 10 μ F | VR01 | 1090180 | Volume | | 2410880 | 10P (A Type) Pin Ass'y |
| R01.02 | 0107823 | 82k Ω 1/2W C.R. | S01 | 1170950 | Lever Switch | | 2420300 | 8P (A Type) Connector |

4-5. F-2505 Flat Amplifier Circuit Board (Stock No. 7593681)

Conductor Side

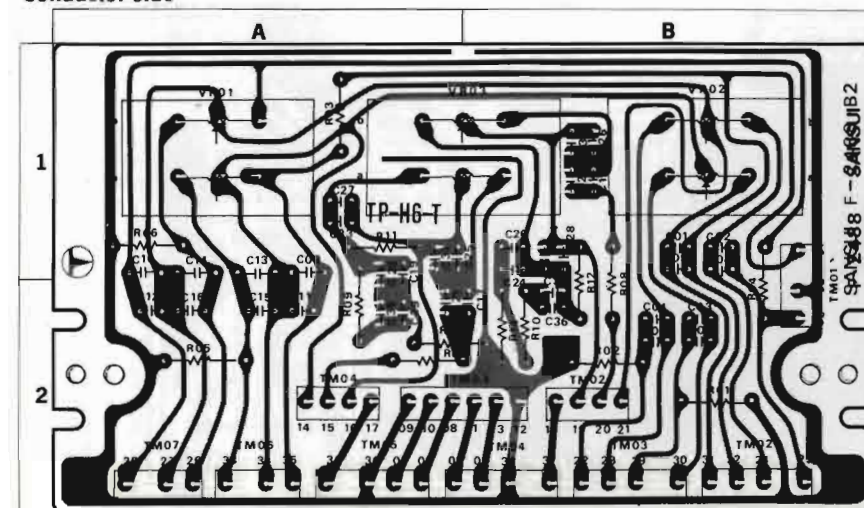


Parts List

| Parts No. | Stock No. | Description | Position |
|-----------|-----------|-----------------------|-----------|
| TR01.02 | 0306071.2 | 2SC1313 (G, H) | 2A.2B |
| TR03.04 | 0306071.2 | 2SC1313 (G, H) | 2A.2B |
| TR05.06 | 0300470.1 | 2SA726 (F, G) | 1A.1B.C |
| TR07.08 | 0300470.1 | 2SA726 (F, G) | 1A.1B |
| TR09.10 | 0300470.1 | 2SA726 (F, G) | 1C |
| TR11.12 | 0306360.1 | 2SC1951-1 (1, 2) | 1C |
| C01.02 | 0600228 | 0.22 μ F 50V M.C. | 2A.8.2B |
| C03.04 | 0660100 | 10pF 50V C.C. | 2A.2B |
| C05.06 | 0530470 | 47 μ F 6.3V E.C. | 1.2A.1.2C |
| C07.08 | 0660100 | 10pF 50V C.C. | 1B |
| C09.10 | 0510470 | 47 μ F 6.3V E.C. | 1A.1C |
| C11.12 | 0533100 | 10 μ F 25V E.C. | 1B |
| C13.14 | 0515109 | 1 μ F 50V E.C. | 2C |
| C15.16 | 0660151 | 150pF 50V C.C. | 1C |
| C17.18 | 0513479 | 4.7 μ F 25V E.C. | 1C |
| C401 | 0515100 | 10 μ F | |
| C402 | 0515100 | 10 μ F | 50V E.C. |
| R03.04 | 0106222 | 2.2k Ω | 2A.2B |
| R05.06 | 0106274 | 270k Ω | 2A.8.2B |
| R07.08 | 0106823 | 82k Ω | 2A |
| R09.10 | 0106681 | 680 Ω | 2B |
| R11.12 | 0106681 | 680 Ω | 2B |
| R13.14 | 0106334 | 330k Ω | 1/2W C.R. |
| R15.16 | 0107223 | 22k Ω | 1A.1B.C |
| R17.18 | 0106683 | 68k Ω | 1B |
| R19.20 | 0106561 | 560 Ω | 1C |
| R21.22 | 0106391 | 390 Ω | 1A.1B.C |
| R23.24 | 0106183 | 18k Ω | 1B |
| R25.26 | 0107104 | 100k Ω | 1A.8.1B |
| R27.28 | 0106473 | 47k Ω | 1A.2C |
| R29.30 | 0106472 | 47k Ω | 1/2W C.R. |
| R31.32 | 0106333 | 33k Ω | 1C |
| R33.34 | 0103472 | 4.7k Ω | 1/2W C.R. |
| R35.36 | 0107561 | 560 Ω | 1C |
| R37.38 | 0106474 | 470k Ω | 1/2W C.R. |
| R39.40 | 0106474 | 470k Ω | 2C |
| | 2420280 | 4P (A Type) | Connector |
| | 2420310 | 10P (A Type) | Connector |
| | 2410580 | 3P (D Type) | Pin Ass'y |

4-6. F-2488 Tone Control Circuit Board (Stock No. 7561291)

Conductor Side

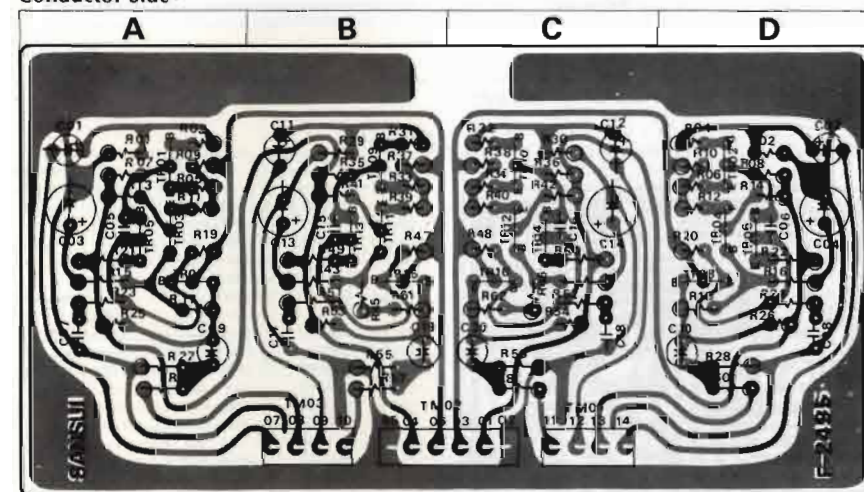


Parts List

| Parts No. | Stock No. | Description | Position |
|-----------|------------|------------------|-------------------|
| C01, 02 | 0600396 | 0.0039 μ F | 1B |
| C03, 04 | 0600157 | 0.015 μ F | 2B |
| C05, 06 | 0600106 | 0.001 μ F | 1B |
| C07, 08 | 0600226 | 0.0022 μ F | 2B |
| C09, 10 | 0600477 | 0.047 μ F | 1A |
| C11, 12 | 0600156 | 0.0015 μ F | 2A |
| C13, 14 | 0600158 | 0.15 μ F | 1A |
| C15, 16 | 0600227 | 0.022 μ F | 2A |
| C17, 18 | 0600157 | 0.015 μ F | 2B, 1B |
| C19, 20 | 0600277 | 0.027 μ F | 1, 2A, 1B |
| C25, 26 | 0600566 | 0.0056 μ F | 1A, 1B |
| C27, 28 | 0600157 | 0.015 μ F | 1A, 1B |
| C29, 30 | 0600566 | 0.0056 μ F | 2A, 2B |
| R01, 02 | 0107561 | 560 Ω | 2B |
| R03, 04 | 0107822 | 8.2k Ω | 1A, 1, 2B |
| R05, 06 | 0107272 | 2.7k Ω | 2A, 1A |
| R07, 08 | 0107822 | 8.2k Ω | 2A, 1, 2B |
| R09, 10 | 0107563 | 56k Ω | 1, 2A, 2B |
| R11, 12 | 0107223 | 22k Ω | 1A, 1, 2A |
| R13, 14 | 0107392 | 3.9k Ω | 2A, B, 2B |
| VR01 | 1090090, 1 | 50k Ω X 2 | 1A |
| VR02 | 1090110, 1 | 50k Ω X 2 | Variable Resistor |
| VR03 | 1090100, 1 | 50k Ω X 2 | 1A, B |
| 2410580 | | 3P (D Type) | |
| 2410590 | | 4P (D Type) | Pin Ass'y |
| 2410720 | | 4P (A Type) | |
| 2410860 | | 6P (B Type) | |

4-7. F-2495 Tone Amplifier Circuit Board (Stock No. 7561301)

Conductor Side

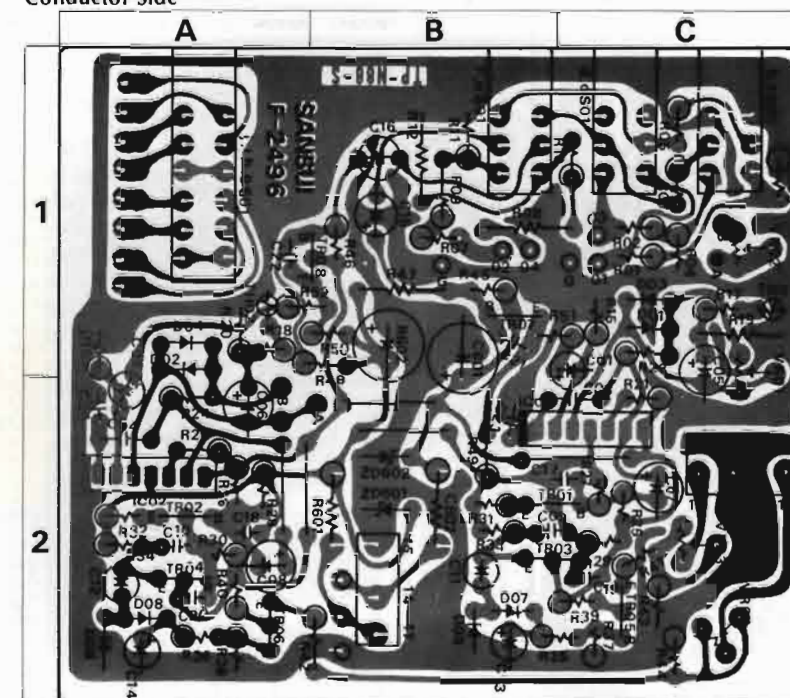


Parts List

| Parts No. | Stock No. | Description | Position |
|-----------|------------|----------------------|-----------|
| TR01, 02 | 0300470, 1 | 2SA726 (F, G) | A, D |
| TR03, 04 | 0300470, 1 | 2SA726 (F, G) | A, D |
| TR05, 06 | 0306270, 1 | 2SC1708 (F, G) | A, D |
| TR07, 08 | 0306270, 1 | 2SC1708 (F, G) | A, D |
| TR09, 10 | 0300470, 1 | 2SA726 (F, G) | B, C |
| TR11, 12 | 0300470, 1 | 2SA726 (F, G) | B, C |
| TR13, 14 | 0306270, 1 | 2SC1708 (F, G) | B, C |
| TR15, 16 | 0306270, 1 | 2SC1708 (F, G) | B, C |
| C01, 02 | 0519101 | 1 μ F 50V E.C. | A, D |
| C03, 04 | 0510470 | 47 μ F 6.3V E.C. | A, D |
| C05, 06 | 0600100 | 10 μ F 50V C.C. | A, D |
| C09, 10 | 0533479 | 4.7 μ F 25V E.C. | A, D |
| C11, 12 | 0519101 | 1 μ F 50V E.C. | B, C |
| C13, 14 | 0510470 | 47 μ F 6.3V E.C. | B, C |
| C15, 16 | 0600100 | 10 μ F 50V C.C. | B, C |
| C19, 20 | 0533479 | 4.7 μ F 25V E.C. | B, C |
| R01, 02 | 0106224 | 220k Ω | A, D |
| R03, 04 | 0106102 | 1k Ω | A, D |
| R05, 06 | 0106101 | 100 Ω | A, D |
| R07, 08 | 0106103 | 10k Ω | A, D |
| R09, 10 | 0106154 | 150k Ω | A, D |
| R11, 12 | 0106101 | 100 Ω | A, D |
| R13, 14 | 0106103 | 10k Ω | A, D |
| R15, 16 | 0106472 | 4.7k Ω | A, D |
| R17, 18 | 0106153 | 15k Ω | A, D |
| R19, 20 | 0106683 | 68k Ω | A, D |
| R21, 22 | 0106182 | 1.8k Ω | A, D |
| R25, 26 | 0106183 | 18k Ω | A, D |
| R27, 28 | 0106104 | 100k Ω | A, D |
| R29, 30 | 0106105 | 1M Ω | B, C |
| R31, 32 | 0106102 | 1k Ω | B, C |
| R33, 34 | 0106101 | 100 Ω | B, C |
| R35, 36 | 0106103 | 10k Ω | B, C |
| R37, 38 | 0106154 | 150k Ω | B, C |
| R39, 40 | 0106101 | 100 Ω | B, C |
| R41, 42 | 0106103 | 10k Ω | B, C |
| R43, 44 | 0106472 | 4.7k Ω | B, C |
| R45, 46 | 0106222 | 2.2k Ω | B, C |
| R47, 48 | 0106683 | 68k Ω | B, C |
| R49, 50 | 0106182 | 1.8k Ω | B, C |
| R53, 54 | 0106183 | 18k Ω | B, C |
| R55, 56 | 0106104 | 100k Ω | B, C |
| R57, 58 | 0106561 | 560 Ω | B, C |
| R59, 60 | 0106561 | 560 Ω | A, D |
| R61, 62 | 0106103 | 10k Ω | B, C |
| 2420280 | | 4P (A Type) | Connector |
| 2420290 | | 6P (A Type) | |

4-8. F-2496 Meter Circuit Board (Stock No. 7593621)

Conductor Side

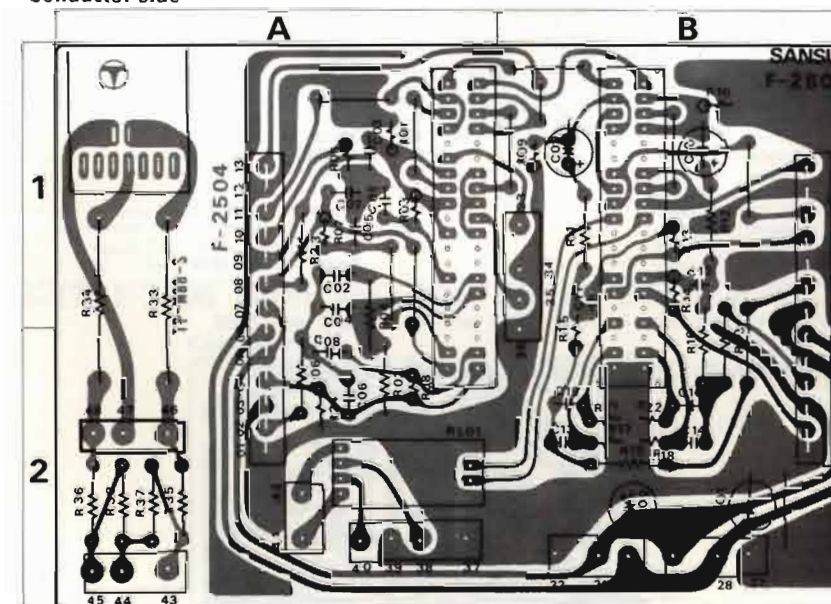


Parts List

| Parts No. | Stock No. | Description | Position |
|-----------|------------|------------------------|------------|
| TR01, 02 | 0305951-3 | 2SC945 (Q, P, K) | 2B, C, 2A |
| TR03, 04 | 0305951-3 | 2SC945 (Q, P, K) | 2B, C, 2A |
| TR04, 05 | 0306071 | 2SC1313 (G) | Transistor |
| | or | or | 2C, 2A |
| | 0306091 | 2SC1312 (G) | |
| TR07, 08 | 0306071, 2 | 2SC1313 (G, H) | 1B |
| IC01, 02 | 0360280 | TA-7136P/G | 2B, C, 2A |
| Dev, 02 | 0340130 | MV135A | 1C, 1A |
| Dev, 04 | 0340130 | MV135A | 1C, 1A |
| Dev, 06 | 0311160 | 1S2473D | 2B, 2A |
| Dev, 08 | 0311160 | 1S2473D | 2B, 2A |
| ZD01, 02 | 0316330 | VD-15E (B) Zener Diode | 2B |

4-9. F-2504 Filter Circuit Board (Stock No. 7593671)

Conductor Side



Parts List

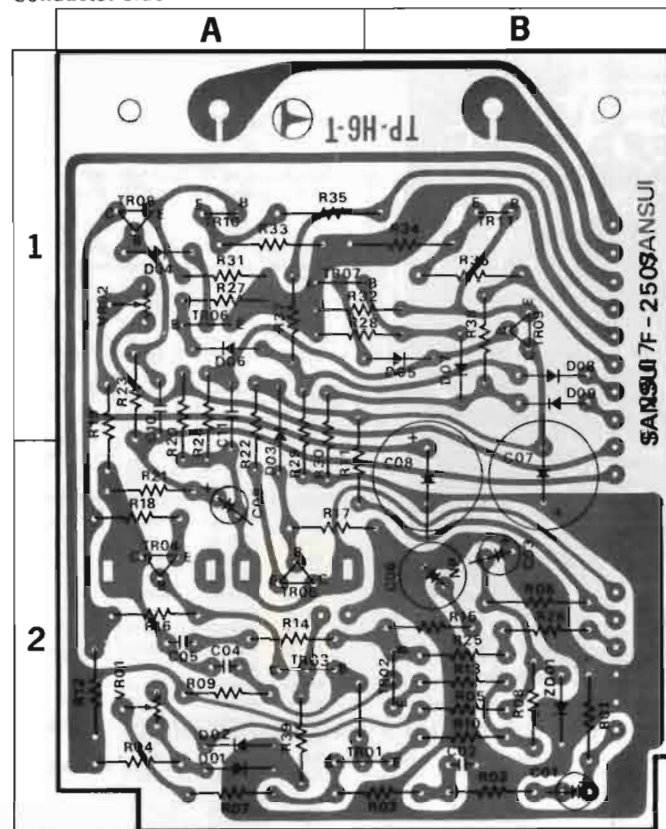
| Parts No. | Stock No. | Description | Position |
|-----------|-----------|------------------------|------------------------|
| TH01, 02 | 0320030 | 31D27 Thermistor | 1C, 1A |
| C01, 02 | 0515109 | 1 μ F 50V E.C. | 1B, C, 1A |
| C03, 04 | 0600330 | 33 μ F 50V C.C. | 2C, 2A |
| C05, 06 | 0511470 | 47 μ F 10V E.C. | 1, 2C, 2A |
| C09, 10 | 0600151 | 150 μ F 50V C.C. | 2B, C, 2A |
| C11, 12 | 0535109 | 1 μ F 50V E.C. | 2B, 2A |
| C13, 14 | 0573688 | 0.68 μ F 35WV T.C. | 2B, 2A |
| C15, 16 | 0515109 | 1 μ F 50V E.C. | 1B |
| C23, 24 | 0600330 | 33 μ F 50V C.C. | 2B, 2A |
| C601, 602 | 0513100 | 10 μ F 25V E.C. | 1, 2B, 2B |
| C901, 902 | 0600330 | 33 μ F 50V C.C. | |
| R01, 02 | 0107104 | 100k Ω | 1C |
| R03, 04 | 0106122 | 1.2k Ω | 1C |
| R05, 06 | 0106183 | 18k Ω | 1C |
| R09, 10 | 0106822 | 8.2k Ω | 1B, 1C |
| R11, 12 | 0106101 | 100 Ω | 1B |
| R15, 16 | 0106154 | 150k Ω | 1C, 1A |
| R17, 18 | 0106121 | 120 Ω | 1C, 1A |
| R19 | 0107222 | 2.2k Ω | 1C |
| R20 | 0106222 | 2.2k Ω | 1A |
| R21, 22 | 0106104 | 100k Ω | 2C, 2A |
| R23, 24 | 0106100 | 10 Ω | 1C, 2A |
| R25, 26 | 0106474 | 470k Ω | 2C, 2A |
| R27, 28 | 0106563 | 56k Ω | 2C, 2A |
| R29, 30 | 0106183 | 18k Ω | 2C, 2A |
| R31, 32 | 0106332 | 3.3k Ω | 2B, 2A |
| R33, 34 | 0106392 | 3.9k Ω | 2B, 2A |
| R35, 36 | 0106684 | 680k Ω | 2B, C, 2A |
| R37, 38 | 0106274 | 270k Ω | 2C, 2A |
| R39, 40 | 0106182 | 1.8k Ω | 2C, 2A |
| R41, 42 | 0106101 | 100 Ω | 2C, 2A, B |
| R43, 44 | 0106272 | 2.7k Ω | 2C |
| R45, 46 | 0106334 | 330k Ω | 1B |
| R47, 48 | 0106474 | 470k Ω | 1B, 1A, B |
| R49, 50 | 0106682 | 6.8k Ω | 2B, 1A, B |
| R51, 52 | 0106561 | 560 Ω | 1B, C, 1A, B |
| R601 | 0202681 | 680 Ω | 2B |
| R602 | 0202681 | 680 Ω | 1B |
| VR01, 02 | 1035490 | 1M Ω (B) | Semi-Variable Resistor |
| VR03, 04 | 1035310 | 1k Ω (B) | 1, 2C, 1C |
| S01 | 1131080 | SUE62 Push Switch | 1A, BC |
| 2410580 | | 3P (D Type) Pin Ass'y | |

Parts List

| Parts No. | Stock No. | Description | Position |
|-----------|-----------|----------------------------------|-----------|
| C01, 02 | 0600397 | 0.0039 μ F | 1A |
| C03, 04 | 0600477 | 0.047 μ F | 1A |
| C05, 06 | 0600397 | 0.0039 μ F | 50V M.C. |
| C07, 08 | 0600477 | 0.047 μ F | 1A, 2A |
| C09, 10 | 0519106 | 4.7 μ F | 1B |
| C11, 12 | 0600276 | 0.0027 μ F | 1B |
| C13, 14 | 0600156 | 0.0015 μ F | 50V M.C. |
| C15, 16 | 0600106 | 0.001 μ F | 2B |
| C601 | 0515100 | 10 μ F | 2B |
| C602 | 0515100 | 10 μ F | 2B |
| R01 | 0106104 | 100k Ω | 1A |
| R02 | 0107104 | 100k Ω | 2A |
| R03 | 0106105 | 1M Ω | 1A |
| R04 | 0107105 | 1M Ω | 1, 2A |
| R05 | 0106683 | 68k Ω | 1A |
| R06 | 0107683 | 68k Ω | 1A |
| R07, 08 | 0106105 | 1M Ω | 1A, 2A |
| R09, 10 | 0106104 | 100k Ω | 1B |
| R11, 12 | 0107472 | 4.7k Ω | 1B |
| R13, 14 | 0106105 | 1M Ω | 1B |
| R15 | 0106123 | 12k Ω | 1, 2B |
| R16 | 0107123 | 12k Ω | 1, 2A |
| R17, 18 | 0106105 | 1M Ω | 2B |
| R19, 20 | 0107102 | 1k Ω | 2B, 1, 2B |
| R21, 22 | 0106105 | 1M Ω | 2B |
| R23 | 0107184 | 180k Ω | 1A |
| R24 | 0106184 | 180k Ω | 2B |
| R33, 34 | 0135221 | 220 Ω 5W C.R. | 1, 2A |
| R35, 36 | 0107273 | 27k Ω | 2A |
| R37, 38 | 0107102 | 1k Ω | 2A |
| RL01 | 1150320 | HA-224N 10MA 1600 Ω Relay | 2A |
| S01 | 1171000 | Lever Switch | |
| S02 | 1171000 | Lever Switch | |
| J01 | 2430240 | L1178 Jack | |
| 2410580 | | 3P (D Type) | |
| 2410590 | | 4P (D Type) | Pin Ass'y |
| 2410710 | | 3P (A Type) | |
| 2410750 | | 10P (A Type) | |

4-10. F-2507 Driver Circuit Board (Stock No. 7571261)

Conductor Side



| Parts No. | Stock No. | Description | Position |
|-----------|--------------------------|--------------------------------|-----------|
| D01 | 0311160 | 1S24730 | 2 A |
| D02 | 0311160 | 1S24730 | 2 A |
| D03 | 0340120 | VD1212 | 1 A, B |
| D04 | 0311160 | 1S24730 | 1 A |
| D05 | 0311160 | 1S24730 | 1 B |
| D06 | 0311160 | 1S24730 | 1 A |
| D07 | 0311160 | 1S24730 | 1 B |
| D08 | 0311160 | 1S24730 | 1 B |
| D09 | 0311160 | 1S24730 | 1 B |
| ZD01 | 0316490 or 0316500 | RD-22E (B) or RD-22E (C) | 2 B |
| C01 | 0519102 | 3.3μF 50V E.C. | 2 B |
| C02 | 0660680 | 68μF 50V C.C. | 2 B |
| C03 | 0513330 | 33μF 25V E.C. | 2 B |
| C04 | 0660220 | 22μF 50V C.C. | 2 A |
| C05 | 0660209 | 2μF 50V C.C. | 2 A |
| C06 | 0530101 | 100μF 6.3V E.C. | 2 B |
| C07 | 0519903 | 100μF 80V E.C. | 1, 2 B |
| C08 | 0519903 | 100μF 80V E.C. | 1, 2 B |
| C09 | 0515339 | 3.3μF 50V E.C. | 2 A |
| C10 | 0657473 | 47000pF 50V C.C. | 1 A |
| C11 | 0657473 | 47000pF 50V C.C. | 1, 2 A |
| R01 | 0107224 | 220kΩ | 2 B |
| R02 | 0107222 | 2.2kΩ | 2 B |
| R03 | 0107102 | 1kΩ | 2 A, B |
| R04 | 0107333 | 33kΩ | 2 A |
| R05 | 0107123 | 12kΩ | 2 B |
| R06 | 0103822 | 8.2kΩ | 2 B |
| R07 | 0107104 | 100kΩ | 2 A |
| R08 | 0107822 | 8.2kΩ | 2 B |
| R09 | 0107182 | 1.8kΩ | 2 A |
| R10 | 0107470 | 47Ω | 2 B |
| R11 | 0107331 | 330Ω | 1, 2 A, B |
| R12 | 0107470 | 47Ω | 2 B |
| R13 | 0107681 | 680Ω | 2 A |
| R14 | 0107182 | 1.8kΩ | 2 B |
| R15 | 0107682 | 6.8kΩ | 2 A |
| R16 | 0107333 | 33kΩ | 2 A, B |
| R17 | 0107121 | 120Ω | 2 A |
| R18 | 0107392 | 3.9kΩ | 1, 2 A |
| R19 | 0107102 | 1kΩ | 1, 2 A |
| R20 | 0107560 | 56Ω 1/4W C.R. | 2 A |
| R21 | 0107121 | 120Ω | 1, 2 A |
| R22 | 0107391 | 390Ω | 1 A |
| R23 | 0107391 | 390Ω | 1, 2 A |
| R24 | 0107104 | 100kΩ | 2 B |
| R25 | 0107821 | 820Ω | 2 B |
| R26 | 0107122 | 1.2kΩ | 1 A |
| R27 | 0107122 | 1.2kΩ | 1 A, B |
| R28 | 0107103 | 10kΩ | 1, 2 A |
| R29 | 0107103 | 10kΩ | 1, 2 A |
| R30 | 0107103 | 10kΩ | 1 A |
| R31 | 0107222 | 2.2kΩ | 1 A, B |
| R32 | 0107222 | 2.2kΩ | 1 A, B |
| R33 | 0103470 | 47Ω | 1 A |
| R34 | 0103470 | 47Ω | 1 A, B |
| R35 | 0103479 | 4.7Ω | 1 A, B |
| R36 | 0103479 | 4.7Ω | 1 B |
| R37 | 0107331 | 330Ω | 1 A |
| R38 | 0107331 | 330Ω | 1 B |
| R39 | 0107103 | 10kΩ | 2 A |
| R40 | 0107103 | 10kΩ | 2 A |
| VR01 | 1035350 | 4.7kΩ (B) | 2 A |
| VR02 | 1035310 | 1kΩ (B) | 1 A |
| | 2420290 | 2145-6A 6P (A Type) | Connect- |
| | 2420310 | 2145-10A 10P (A Type) | tor |

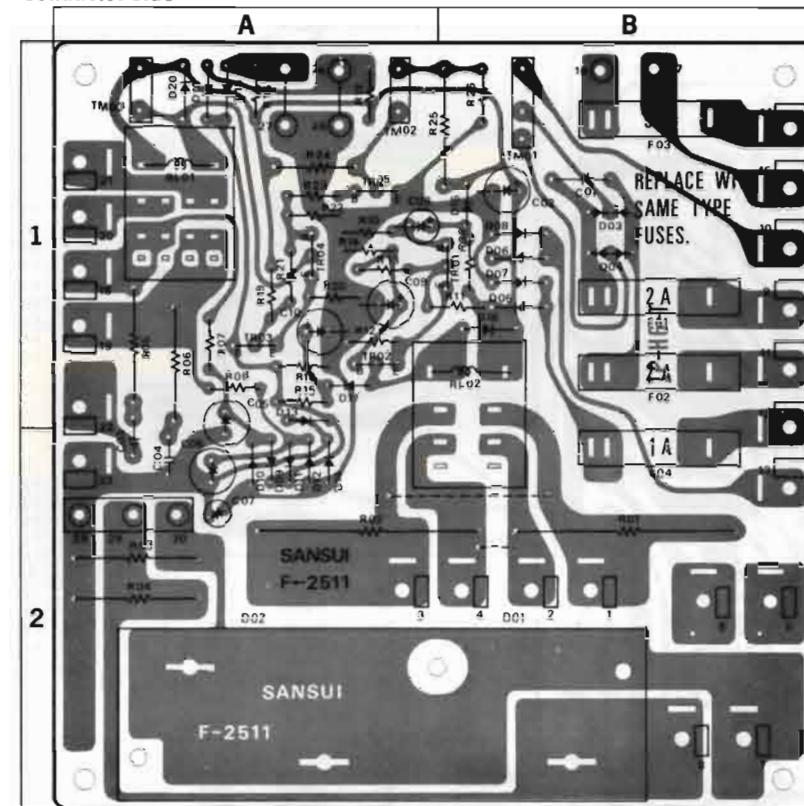
Parts List

| Parts No. | Stock No. | Description | Position |
|-----------|--|--|----------|
| ※TR01 | 0306270, 1 or 0306290, 1 or 0306270, 1 or 0306290, 1 or 0300710, 1 or 0300700 | 2SC1708 (F, G) 2SC1400 (E, V) 2SC1708 (F, G) 2SC1400 (E, V) 2SA847 (F, G) 2SA818 (O) | 2 A, B |
| ※TR02 | 0306290, 1 or 0300710, 1 or 0300700 | 2SC1400 (E, V) 2SA847 (F, G) 2SA818 (O) | 2 B |
| ※TR03 | 0300710, 1 or 0300700 | 2SA847 (F, G) 2SA818 (O) | 2 A |
| ※TR04 | 0300701 or 0306240 or 0306261 or 0305951, 2 or 0300510, 1 or 0306260 or 0306261 or 0306350 | 2SA818 (Y) 2SC1628 (O) 2SC1628 (Y) 2SC945 (Q, P) 2SA733 (Q, P) 2SC1628 (O) 2SC1628 (Y) 2SC1628 (Y) 2SC1811-1 (1) | 2 A |
| ※TR05 | 0306260 or 0306261 or 0305951, 2 or 0300510, 1 or 0306260 or 0306261 or 0306350 | 2SC1628 (O) 2SC1628 (Y) 2SC945 (Q, P) 2SA733 (Q, P) 2SC1628 (O) 2SC1628 (Y) 2SC1628 (Y) 2SC1811-1 (1) | 2 A |
| ※TR06 | 0306261 or 0305951, 2 or 0300510, 1 or 0306260 or 0306261 or 0306350 | 2SC1628 (Y) 2SC945 (Q, P) 2SA733 (Q, P) 2SC1628 (O) 2SC1628 (Y) 2SC1628 (Y) 2SC1811-1 (1) | 1 A |
| ※TR07 | 0306260 or 0306261 or 0305951, 2 or 0300510, 1 or 0306260 or 0306261 or 0306350 | 2SC1628 (O) 2SC1628 (Y) 2SC945 (Q, P) 2SA733 (Q, P) 2SC1628 (O) 2SC1628 (Y) 2SC1628 (Y) 2SC1811-1 (1) | 1 A, B |
| ※TR08 | 0306261 or 0305951, 2 or 0300510, 1 or 0306260 or 0306261 or 0306350 | 2SC1628 (Y) 2SC945 (Q, P) 2SA733 (Q, P) 2SC1628 (O) 2SC1628 (Y) 2SC1628 (Y) 2SC1811-1 (1) | 1 A |
| ※TR09 | 0306261 or 0305951, 2 or 0300510, 1 or 0306260 or 0306261 or 0306350 | 2SC1628 (Y) 2SC945 (Q, P) 2SA733 (Q, P) 2SC1628 (O) 2SC1628 (Y) 2SC1628 (Y) 2SC1811-1 (1) | 1 B |
| ※TR10 | 0306261 or 0305951, 2 or 0300510, 1 or 0306260 or 0306261 or 0306350 | 2SC1628 (Y) 2SC945 (Q, P) 2SA733 (Q, P) 2SC1628 (O) 2SC1628 (Y) 2SC1628 (Y) 2SC1811-1 (1) | 1 A |
| ※TR11 | 0306261 or 0305951, 2 or 0300510, 1 or 0306260 or 0306261 or 0306350 | 2SC1628 (Y) 2SC945 (Q, P) 2SA733 (Q, P) 2SC1628 (O) 2SC1628 (Y) 2SC1628 (Y) 2SC1811-1 (1) | 1 B |

※ Same rank transistors should be used in TR01, TR02 and TR04, TR05 and TR08, TR09, TR10, TR11.
For example, in case that 2SA818 (O) is used in TR04, use 2SC1628 (O) in TR05.

4-11. F-2511 Protector Circuit Board (Stock No. 7593711)

Conductor Side



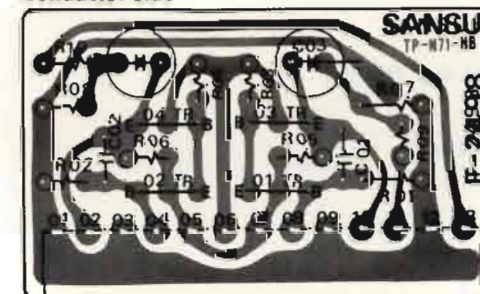
Parts List

| Parts No. | Stock No. | Description | Position |
|-----------|--------------------------|---------------------------|-----------|
| TR01 | 0306131-3 | 2SC1364 (6, 7, 8) | 1 B |
| TR02 | 0306131-3 | 2SC1364 (6, 7, 8) | 1 A |
| TR03 | 0306131-3 | 2SC1364 (6, 7, 8) | 1 A |
| TR04 | 0306131-3 | 2SC1364 (6, 7, 8) | 1 A |
| TR05 | 0306131-3 | 2SC1364 (6, 7, 8) | 1 A |
| D01 | 0311440 | 5G61 (S) | 2 B |
| D02 | 0311450 | 5G61 (R) | 2 A |
| ※D03 | 0310530 or 0311420 | 1S1850 or CO8P-2-N | 1 B |
| ※D04 | 0310540 or 0311430 | 1S1850R or CO8P-2-R | 1 B |
| D05 | 0310340 | 10D1 (1S2226) | 1 B |
| D06 | 0310340 | 10D1 (1S2226) | 1 B |
| D07 | 0310340 | 10D1 (1S2226) | 1 B |
| D08 | 0310340 | 10D1 (1S2226) | 1 B |
| D09 | 0311160 | 1S24730 | 2 A |
| D10 | 0311160 | 1S24730 | 2 A |
| D11 | 0311160 | 1S24730 | 2 A |
| D12 | 0311160 | 1S24730 | 2 A |
| D13 | 0311160 | 1S24730 | 1 A |
| D14 | 0311160 | 1S24730 | 2 A |
| D15 | 0311160 | 1S24730 | 1 B |
| D16 | 0310340 | 10D1 (1S2226) | 1 B |
| D17 | 0311160 | 1S24730 | 1 A |
| D18 | 0311160 | 1S24730 | 1 A |
| D19 | 0311160 | 1S24730 | 1 A |
| D20 | 0310340 | 10D1 (1S2226) | 1 A |
| C01 | 0659011 | 10000pF 500V C.C. | 1 B |
| C02 | 0515470 | 47μF 50V E.C. | 1 B |
| C03 | 0600108 | 0.1μF 50V M.C. | 1, 2 A |
| C04 | 0600108 | 0.1μF 50V M.C. | 2 A |
| C05 | 0530470 | 47μF 6.3V E.C. | 1, 2 A |
| C06 | 0530470 | 47μF 6.3V E.C. | 2 A |
| C07 | 0535109 | 1μF 50V E.C. | 2 A |
| C08 | 0519102 | 3.3μF 50V E.C. | 1 A, B |
| C09 | 0510470 | 47μF 6.3V E.C. | 1 A |
| C10 | 0515100 | 10μF 50V E.C. | 1 A |
| C501-504 | 0659011 | 10000pF 500V C.C. | |
| C505 | 0513100 | 10μF 25V E.C. | |
| R01 | 0137399 | 3.9Ω | 2 B |
| R02 | 0137399 | 3.9Ω | 2 A, B |
| R03 | 0202392 | 3.9kΩ | 2 A |
| R04 | 0202392 | 3.9kΩ | 2 A |
| R05 | 0132479 | 4.7Ω | 1 A |
| R06 | 0132479 | 4.7Ω | 1 A |
| R07 | 0113473 | 47kΩ | 1 A |
| R08 | 0113473 | 47kΩ | 1 A |
| R09 | 0113273 | 27kΩ | 1 B |
| R10 | 0113182 | 1.8kΩ | 1 A |
| R11 | 0113123 | 12kΩ | 1 A, B |
| R12 | 0113100 | 10Ω | 1 A |
| R13 | 0113100 | 10Ω | 1 A |
| R14 | 0113104 | 100kΩ 1/4W S.R. | 1 A |
| R15 | 0113333 | 33kΩ | 1 A |
| R16 | 0113333 | 33kΩ | 1 A |
| R17 | 0113104 | 100kΩ | 1 A |
| R18 | 0113123 | 12kΩ | 1 A |
| R19 | 0113220 | 22Ω | 1 A |
| R20 | 0113100 | 10Ω | 1 A |
| R21 | 0113122 | 1.2kΩ | 1 A |
| R22 | 0103182 | 1.8kΩ 1/4W C.R. | 1 A |
| R23 | 0113221 | 220Ω 1/4W S.R. | 1 B |
| RL01 | 1150101 | DC 19.2V 650Ω | 1 A |
| RL02 | 1150310 | DC 20.4V 650Ω | 1, 2 B |
| F01 | 0431240 | 2A 250V 6.35X31.8MM | 1 B |
| F02 | 0431240 | 2A 250V 6.35X31.8MM | 1 B |
| F03 | 0431280 | 5A 250V 6.35X31.8MM | 1 B |
| F04 | 0431220 | 1A 250V 6.35X31.8MM | 2 B |
| | 2250170 | Foster Tab | |
| | 2310051 | Fuse Holder | |
| | 2410580 | 3P (D Type) | Pin Ass'y |
| | 2410650 | 2P (D Type) | |

※ Please note the followings when replacing the diode D03 and D04.
In case of using 1S1850 in D03, use 1S1850R in D04 and use CO8P-2-N against CO8P-2-R in D03.

4-12. F-2498 Filter Amplifier Circuit Board (Stock No. 7593631)

Conductor Side

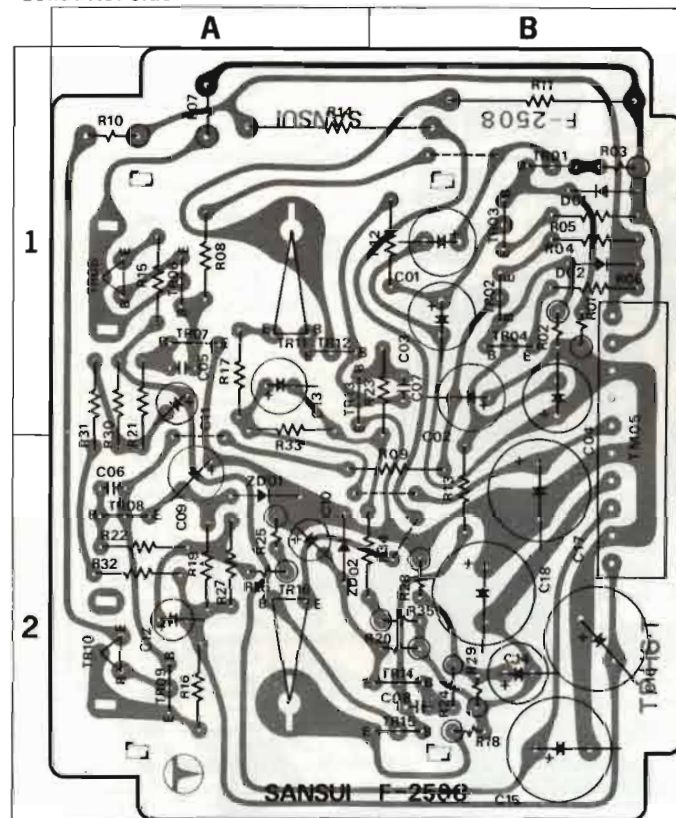


Parts List

| Parts No. | Stock No. | Description |
|-----------|-----------|----------------|
| TR01, 02 | 0300470 | 2SA726 (F, G) |
| TR03, 04 | 0306270 | 2SC1708 (F, G) |
| C01, 02 | 0660151 | 150pF 50V C.C. |
| C03, 04 | 0519106 | 4.7μF 50V E.C. |
| R01, 02 | 0106105 | 1MΩ |
| R03, 04 | 0106274 | 270kΩ |
| R05, 06 | 0106183 | 18kΩ 1/4W C.R. |
| R07, 08 | 0106104 | 100kΩ |
| R09, 10 | 0106561 | 560Ω |
| | 2420270 | 3P (A Type) |
| | 2420310 | 10P (A Type) |

4-13. F-2508 Regulated Power Supply Circuit Board (Stock No. 7501341)

Conductor Side



Parts List

| Parts No. | Stock No. | Description | Position | Parts No. | Stock No. | Description | Position |
|-----------|-----------|------------------|----------|-----------|-----------|------------------|----------|
| TR01 | 0300720 | 2SA850 (C, D) | 1 B | TR13 | 0306071 | 2SC1313 (G, H) | 1 A |
| TR02 | 0306280 | 2SC1735 (C, D) | 1 B | TR14 | 0300470 | 2SA726 (F, G) | 2 B |
| TR03 | 0300720 | 2SA850 (C, D) | 1 B | TR15 | 0300720 | 2SA850 (C, D) | 2 B |
| TR04 | 0306280 | 2SC1735 (C, D) | 1 B | TR16 | 0308441 | 2SD382 (M, L, K) | 2 A |
| TR05 | 0308431 | 2SD381 (M, L, K) | 1 A | DR1 | 0340120 | VD1212 | 1 B |
| TR06 | 0306280 | 2SC1735 (C, D) | 1 A | DR2 | 0340120 | VD1212 | 1 B |
| TR07 | 0306270 | 2SC1708 (F, G) | 1 A | ZD01 | 0316340 | RD-15E (C) | 2 A |
| TR08 | 0300710 | 2SA847 (F, G) | 2 A | ZD02 | 0316340 | RD-15E (C) | 2 A |
| TR09 | 0300720 | 2SA850 (C, D) | 2 A | CO1 | 0519404 | 10µF 100V E.C. | 1 B |
| TR10 | 0308431 | 2SD381 (M, L, K) | 2 A | | | | |
| TR11 | 0308441 | 2SD382 (M, L, K) | 1 A | | | | |
| TR12 | 0306280 | 2SC1735 (C, D) | 1 A | | | | |

4-14. F-2510 Connector Circuit Board (Stock No. 7593701)

Parts List

| Parts No. | Stock No. | Description |
|-----------|-------------|-------------|
| 2410760 | 3P (C Type) | Pin Ass'y |
| 2410780 | 6P (C Type) | Pin Ass'y |

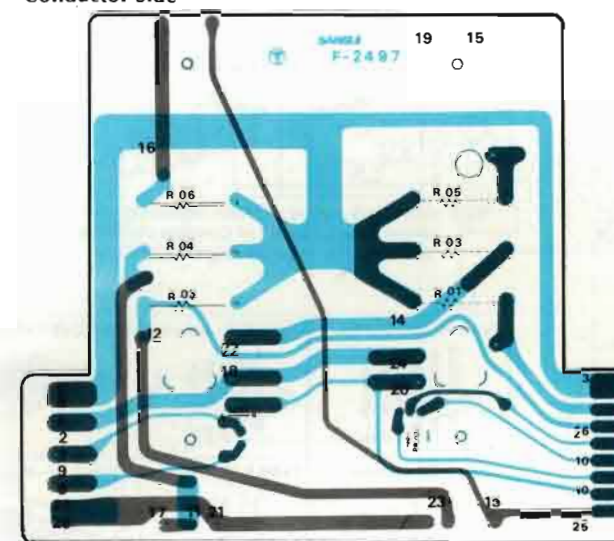
4-15. F-1512 Connector Circuit Board (Stock No. 7593721)

Parts List

| Parts No. | Stock No. | Description |
|-----------|--------------|----------------|
| C01 | 0549401 | 470µF |
| C02 | 0549401 | 470µF |
| C03 | 0519404 | 10µF 100V E.C. |
| C04 | 0519404 | 10µF |
| 2410730 | 6P (A Type) | Pin Ass'y |
| 2410750 | 10P (A Type) | Pin Ass'y |
| 2410880 | 10P (B Type) | Pin Ass'y |
| 2420320 | 3P (A Type) | Connector |
| 2420340 | 6P (A Type) | Connector |

4-16. F-2497 Circuit Board for Installing Emitter Resistor (Stock No. 7593691)

Conductor Side



Parts List

| Parts No. | Stock No. | Description |
|-----------|-----------|-------------------|
| TR01 | 0306131-3 | 2SC1364 (6, 7, 8) |
| PR01 | 0320130 | Thermistor |
| R01 | 0135478 | 0.47Ω |
| R02 | 0135478 | 0.47Ω |
| R03 | 0135478 | 0.47Ω |
| R04 | 0135478 | 0.47Ω |
| R05 | 0135478 | 0.47Ω |
| R06 | 0135478 | 0.47Ω |
| 2250051 | | Fasten Tab |

4-17. F-2484 Meter Lamp Circuit Board (Stock No. 7593611)

Conductor Side



Parts List

| Parts No. | Stock No. | Description |
|-----------|-----------|-------------------------|
| PL01, 02 | 0420050 | 7V 300mA Fuse Type Lamp |
| | 0420060 | 7V 300mA Fuse Type Lamp |
| | 2310051 | Fuse Holder |

5. FIGURES

5-1. Semiconductors

| SEMICONDUCTORS | COMPLETE CIRCUIT BOARD | SEMICONDUCTORS | COMPLETE CIRCUIT BOARD |
|--|--|---------------------------|------------------------------|
| 2SA726 2SA847 2SA850 2SC1313 2SC1708 2SC1735 | F-2508 F-2507 F-2498 F-2501 F-2495 F-2496 F-2502 F-2503 F-2505 | 10D-1 | F-2511 |
| 2SA733 2SC1400 2SC1364 2SC945 2SC1951 2SC1811 2SA917 2SA896 2SA849 | F-2497 F-2507 F-2511 F-2501 F-2502 F-2505 F-2496 | VD1212 MV13SA | F-2507 F-2508 F-2496 |
| 2SD381 | F-2508 | 1S2473 | F-2511 F-2507 F-2496 |
| 2SA839 2SC1669 2SD382 | F-2507 F-2508 | RD-15E RD-22E | F-2508 F-2507 F-2496 |
| 2SA818 2SC1628 | F-2507 | SG52TR (-) SG52TS (+) | F-2511 |
| TA7136 | F-2496 | 1S1850 (+) 1S1850R (-) | F-2511 |
| 2SA908 2SB554 2SC1585 2SD424 | POWER TRANSISTOR | | |
| 2SC1720 (6) | F-2507 | | |

5-2. Connector & Pin Ass'y

Connector

| Type A (3~10 pins) | Type B (2~6 pins) | Stock No. |
|--------------------|-------------------|--|
| | | 2 Pins 2420250 3 Pins 2420220 4 Pins 2420230 5 Pins 2420210 6 Pins 2420240 |

NOTE: Since stock number of female connectors (type B) with wires are not shown in each parts list of Complete circuit board, please refer to the above parts list when ordering the connector.

Pin Ass'y

| Type A (3~10 pins) | Type B (3~10 pins) | Type C (3~10 pins) |
|--------------------|--------------------|--------------------|
| | | |
| Type D (2~6 pins) | Type E (2~6 pins) | Type F (2~6 pins) |
| | | |

Abbreviations

| | |
|--|--|
| C.R. : Carbon Resistor | BP.E.C. : Bi-Polar Electrolytic Capacitor |
| S.R. : Solid Resistor | C.C. : Ceramic Capacitor |
| Ce.R. : Cement Resistor | Mi.C. : Mica Capacitor |
| M.R. : Metallized Film Resistor | O.C. : Oil Capacitor |
| M.C. : Mylar Capacitor | P.C. : Polystyrene Capacitor |
| E.C. : Electrolytic Capacitor | T.C. : Tantalum Capacitor |

5-3. Power Supply Voltage changeover

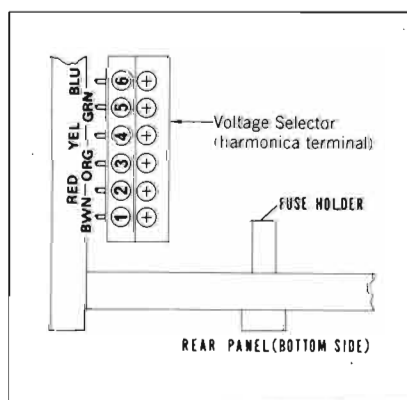
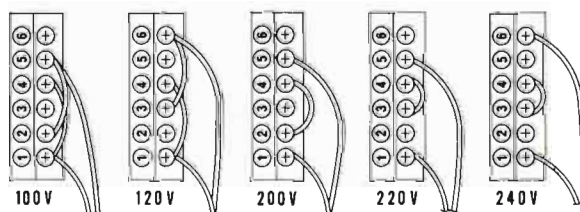


Fig. 5-1

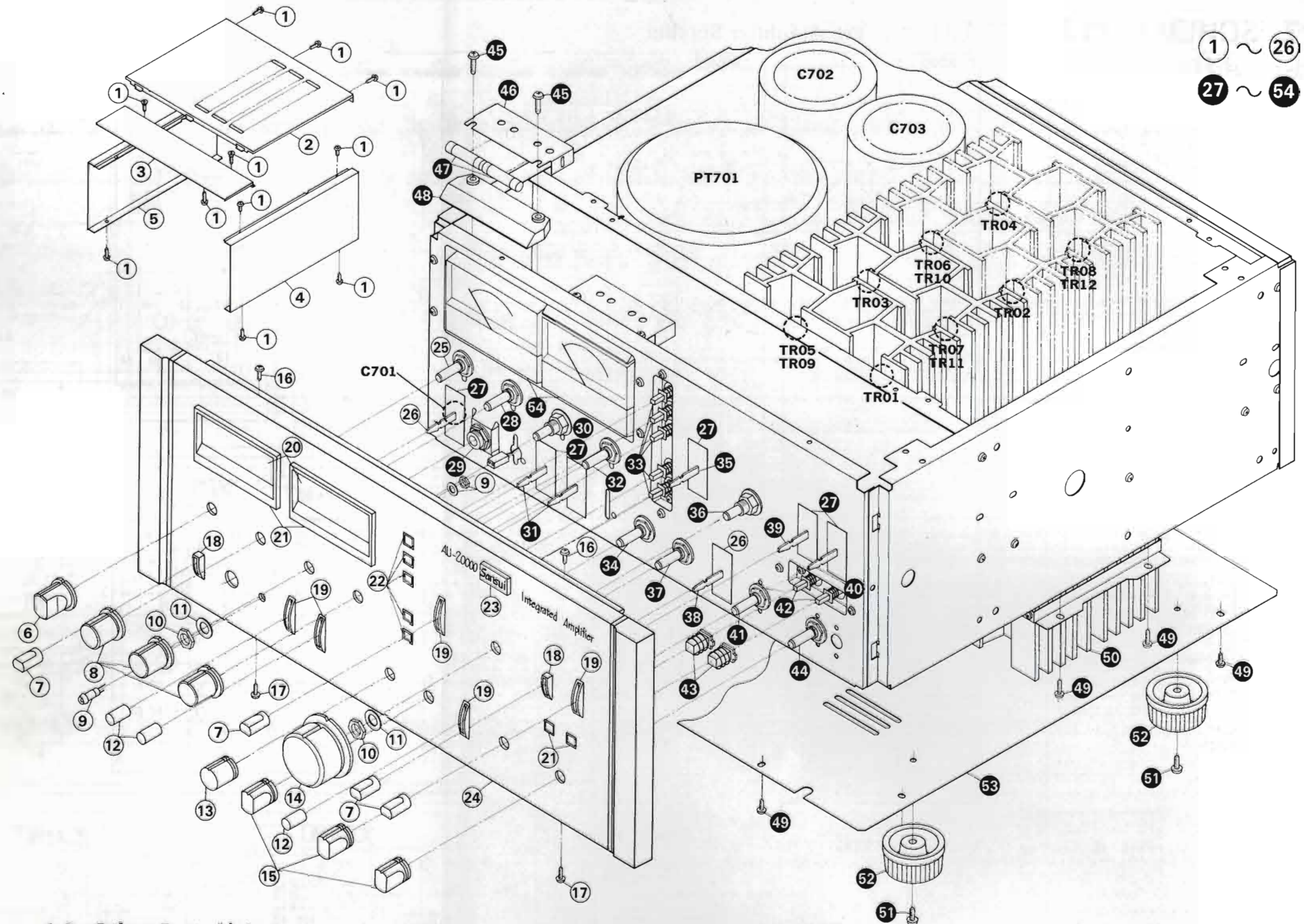
*In accordance with AC line voltage in your area, input AC voltages of this unit can be easily obtained by changing connections as shown in Fig. 5-1.



6. OTHER PARTS

6-1. Parts List (Front Side)

| Parts No. | Stock No. | Description |
|-----------|------------|-------------------------------------|
| 1 | 5109222 | Binding Head Tapping Screw, M3 × 8 |
| 2 | 5006411 | Metal Bonnet (2) |
| 3 | 5006500 | Metal Bonnet (1) |
| 4 | 5309700 | Side Plate (Right) |
| 5 | 5309690 | Side Plate (Left) |
| 6 | 5318260 | C-6 Type Knob, Speakers |
| 7 | 5326510 | E-2 Type Knob, lever switch |
| 8 | 5318250 | B-6 Type Knob, Triple Tone Control |
| 9 | 7726080 | Light Emitted Diode Ass'y (A) |
| 10 | 5110781 | Hex. Nut, M9 |
| 11 | 5120084 | Plain Washer, 9φ |
| 12 | 5326520 | E-3 Type Knob, lever switch |
| 13 | 5318270 | D-6 Type Knob, Balance |
| 14 | 5318230 | Z-5 Type Knob, Volume |
| 15 | 5318280 | F-6 Type Knob, rotary volume |
| 16 | 5166610 | Flat Countersunk Head Screw, M3 × 6 |
| 17 | 5109222 | Binding Head Tapping Screw, M3 × 8 |
| 18 | 5286731 | Lever Guide (1) |
| 19 | 5286741 | Lever Guide (2) |
| 20 | 5446250 | Meter Glass |
| 21 | 5309760 | Meter Hood |
| 22 | 5286721 | Knob Guide |
| 23 | 5336580 | SANSUI Mark |
| 24 | 7007250 | Front Panel |
| 25 | 1102630 | Rotary Switch Y-244, Speakers |
| 26 | 1170330 | Lever Switch, Power |
| 27 | 5047470 | Masking, lever switch |
| 28 | 1090090, 1 | 50kΩ × 2 Bass Volume |
| 29 | 2430240 | Headphone Jack |
| 30 | 1090100, 1 | 50kΩ × 2 Midrange Volume |
| 31 | 1171000 | Lever Switch, Filters |
| 32 | 1090110, 1 | 50kΩ × 2 Treble Volume |
| 33 | 1131080 | Push Switch (SUE-62) |
| 34 | 1090180 | 100kΩ × 2 Balance Volume |
| 35 | 1170090 | Lever Switch, Muting |
| 36 | 1015160 | 50kΩ × 2 Volume |
| 37 | 1101720 | Rotary Switch SRA-125, Mode |
| 38 | 1170960 | Lever Switch, Tape Playback |
| 39 | 1170880 | Lever Switch, Tape Play |
| 40 | 1170950 | Lever Switch, Input Selector |
| 41 | 1102670 | Rotary Switch SRA-244, Tape Copy |
| 42 | 1131070 | Push Switch (SUE24) |
| 43 | 5326530 | Push Switch Knob |
| 44 | 1101730 | Rotary Switch SRA-123, Sensitivity |
| 45 | 5101147 | Binding Head Screw, M3 × 14 |
| 46 | 5286780 | Illumination Cover |
| 47 | 0420050 | 7V 300mA Fuse Type Lamp |
| 48 | 5446240 | Illumination Plate |
| 49 | 5109222 | Binding Head Tapping Screw, M3 × 8 |
| 50 | 5937151 | Heat Sink |
| 51 | 5101163 | Binding Head Screw, M4 × 10 |
| 52 | 5517050 | Leg |
| 53 | 5058382 | Bottom Plate |
| 54 | 4300910 | Power Meter |



6-2. Other Parts List

| Parts No. | Stock No. | Description |
|-----------|--|--|
| TR01, 02 | { 0306310-3 or 0308470, 1 0300730-2 or 0303300 0306310-3 or 0308470, 1 0300730-2 or 0303300 } | { 2SC1585 (R, O, Y) 2SD424 (R, O) 2SA908 (R, O, Y) 2SB554 (R, O) 2SC1585 (R, O, Y) 2SD424 (R, O) 2SA908 (R, O, Y) 2SB554 (R, O) } |
| TR03, 04 | | Transistor |
| TR05, 06 | | Transistor |
| TR07, 08 | | Transistor |

| Parts No. | Stock No. | Description |
|-----------|---|---|
| TR09, 10 | { 0306310-3 or 0308470, 1 0300730-2 or 0303300 } | { 2SC1585 (R, O, Y) 2SD424 (R, O) 2SA908 (R, O, Y) 2SB554 (R, O) } |
| TR11, 12 | | Transistor |
| C701 | 0659801 | 0.01μF 150V C.C. |
| C702 | 0559842 | 22000μF 80V E.C. |
| C703 | 0559842 | 22000μF 80V E.C. |
| C705 | 0601477 | 0.047μF 50V C.C. |

| Parts No. | Stock No. | Description |
|-----------|-----------|-------------------|
| C706 | 0601477 | 0.047μF |
| C707 | 0601477 | 0.047μF 50V C.C. |
| C708 | 0601477 | 0.047μF |
| R701 | 0104100 | 10Ω |
| R702 | 0104100 | 10Ω |
| R703 | 0104100 | 10Ω |
| R704 | 0104100 | 10Ω |
| PT701 | 4002400 | Power Transformer |

| Parts No. | Stock No. | Description |
|-----------|------------------------|---|
| F701 | { 0431320 0431390 } | { 10A 250V (AC 100~120V) 6A 250V (AC 220~240V) } |
| | | AC Fuse |
| | 2230051 | Ground Terminal |
| | 2300060 | Fuse Holder |
| | 2450060 | AC Outlet |
| | 3800250 | Power Cord |
| | 3910190 | Cord Clip, power cord |
| | 2210280 | 4P Speaker Terminal |

F-2500 **F-2503** **F-2501** **F-2502** **F-2505**

PHONO 1
PHONO 2
AUX
TUNER
REC 1
TAPE 1
REC 2
TAPE 2
REC 3
TAPE 3
PRE OUT
MAIN IN

F-2488 **F-2495** **F-2496** **F-2504**

SYMBOL
 ○ MYLAR
 □ STYROL
 △ CERAMIC

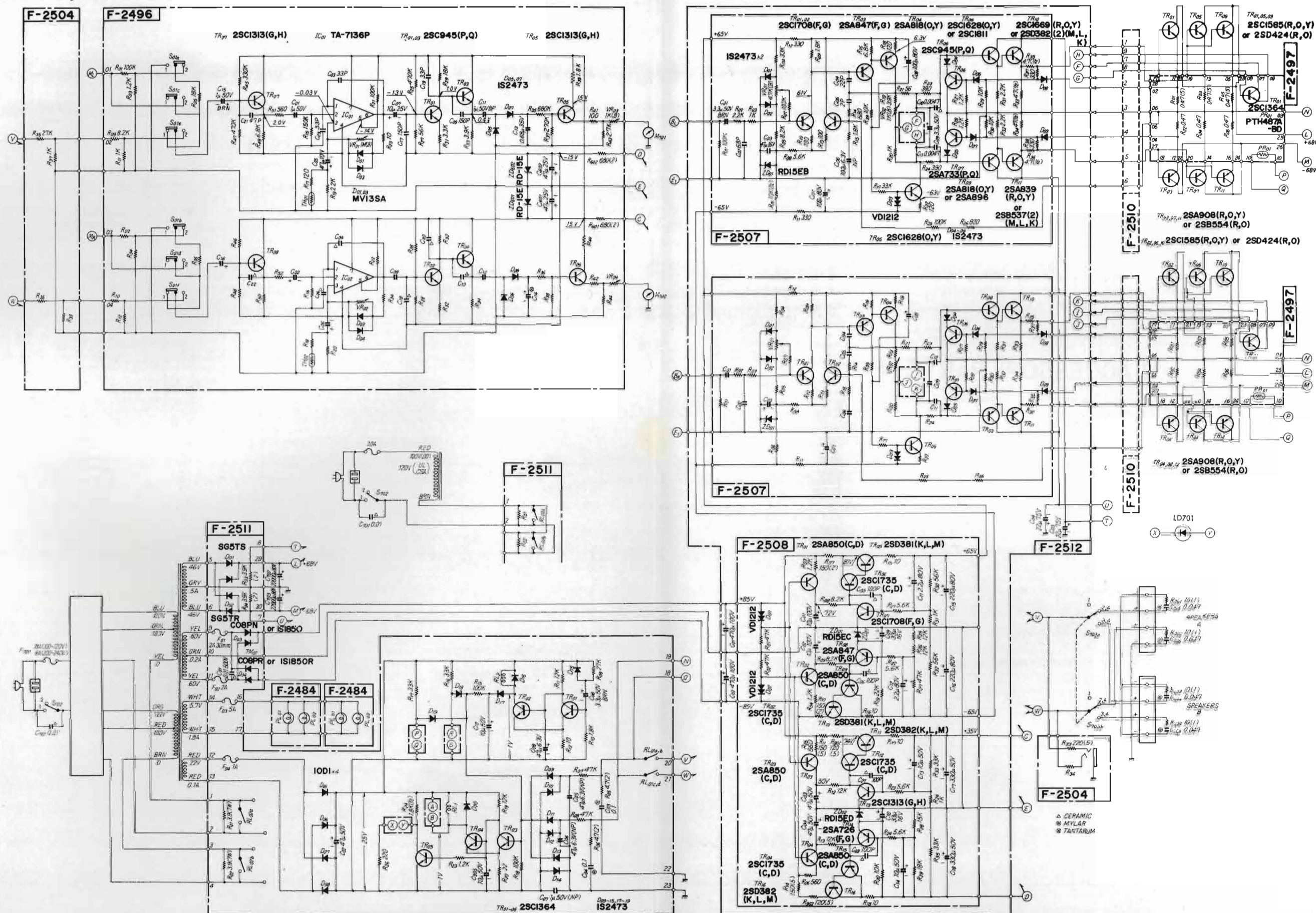
High Filter F-2504
 Meter F-2496
 Power S 701
 Speakers Sma-

Component List:

- PHONO LOAD F-2500 Sora-b 1. 30K 2. 50K 3. 100K
- POWER-PRE F-2500 Sora-b 1. CONNECTED 2. SEPARATED
- PHONO Sora-b 1. PHONO-1 2. PHONO-2
- Sensitivity F-2503 Sora-d 1. 15mV 2. 3mV 3. 6mV
- Output Selector F-2502 Sora-b 1. AUX 2. PHONO 3. TUNER
- Tape Copy F-2503 Sora-f 1. Source 2. 1 → 2, 3 3. 2 → 1, 3 4. 3 → 1, 2
- Tape Play F-2502 Sora-b 1. Source 2. Playback
- Tape Playback F-2503 Sora-b 1. Tape -1 2. Tape -2 3. Tape -3
- Muting F-2502 Sora-d 1. 0 2. -10dB 3. -30dB
- Tone F-2496 Sora-j 1. 1 2. deafeat
- Mode F-2503 Sora-c 1. reverse 2. normal 3. L+R 4. L 5. R
- Low Filter F-2504 Sora-x 1. 40Hz 2. Out 3. 20Hz

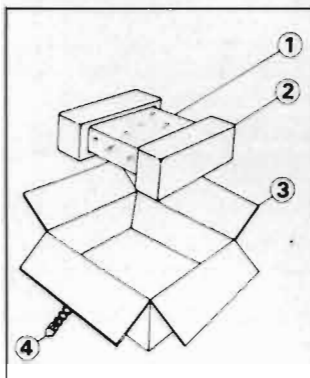
7-2. Power Amplifier Section

* La présentation et les spécifications sont susceptibles d'être modifiées sans préavis par suite d'améliorations éventuelles.
 * Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.
 * Design and specification subject to change without notice for improvements.



8. PACKING LIST

| Parts No. | Stock No. | Description |
|-----------|-----------|-------------------|
| 1 | 9116650 | Vinyl Cover |
| 2 | 9027890 | Stylofoam Packing |
| 3 | 9009130 | Carton Case |
| 4 | 5996080 | Curl Stopper |



9. ACCESSORY PARTS LIST

| Parts No. | Stock No. | Description |
|-----------|-----------|----------------------------------|
| 1 | 9209370 | Operating Instructions |
| 2 | 2410560 | Short Pin Plug |
| 3 | 9296090 | Caution Sheet |
| 4 | 9396700 | Caution Tug |
| 5 | 9396880 | Caution Tug (For Short Pin Plug) |
| 6 | 9566930 | Schematic Diagram |

The Sansui logo, featuring the word "Sansui" in a stylized, italicized serif font, enclosed within a black rectangular box.

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SM051

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