ORDER NO. SD8203214108

# Service Manual

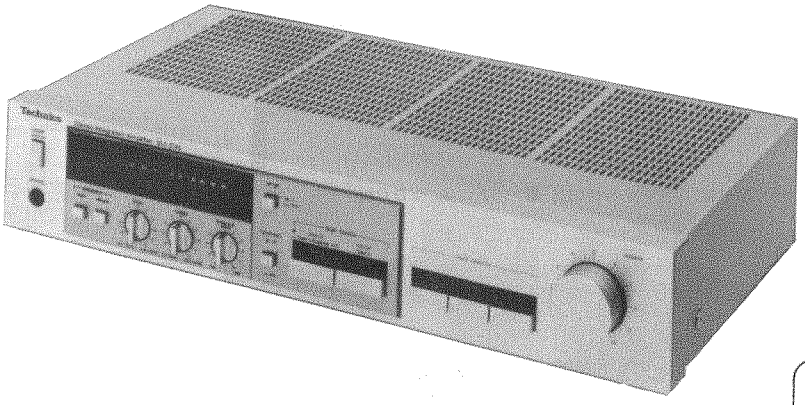
Stereo Integrated Amplifier

# SU-Z45

[E],[EG],[EK],[EF],[EH],
[EB],[Ei],[XA],[XL]

# SU-Z45(K)

[E],[EG],[EH],[Ei]



* The cabinet and front panel are available in black color and silver types.
* The black type model is provided with (K) in the Service Manual.

**Areas**

* [E] is available in Scandinavia and Switzerland.
* [EG] is available in F.R. Germany.
* [EK] is available in United Kingdom.
* [EF] is available in France.
* [EH] is available in Holland.
* [EB] is available in Belgium.
* [Ei] is available in Italy.
* [XA] is available in Southeast Asia, Oceania, Africa, Middle Near East and Central South America.
* [XL] is available in Australia.

## Specifications

(Specifications are subject to change without notice for further improvement.)

**(DIN 45 500)**

### ■ AMPLIFIER SECTION

| | |
|---|---|
| 20 Hz~20 kHz continuous power output | 2 × 35W (4Ω) |
| both channels driven | 2 × 35W (8Ω) |
| 40 Hz~16 kHz continuous power output | 2 × 35W (4Ω) |
| both channels driven | 2 × 35W (8Ω) |
| 1 kHz continuous power output | 2 × 40W (4Ω) |
| both channels driven | 2 × 40W (8Ω) |
| Total harmonic distortion | |
| rated power at 20 Hz~20 kHz | 0.05% (4Ω), 0.03% (8Ω) |
| rated power at 40 Hz~16 kHz | 0.05% (4Ω), 0.03% (8Ω) |
| rated power at 1 kHz | 0.007% (4Ω), 0.005% (8Ω) |
| half power at 20 Hz~20 kHz | 0.03% (8Ω) |
| half power at 1 kHz | 0.005% (8Ω) |
| −26 dB power at 1 kHz | 0.01% (4Ω) |
| 50 mW power at 1 kHz | 0.01% (4Ω) |
| Intermodulation distortion | |
| rated power at 250 Hz: 8 kHz=4:1, 4Ω | 0.05% |
| rated power at 60 Hz: 7 kHz=4:1, SMPTE, 8Ω | 0.03% |
| Power bandwidth | |
| both channels driven, −3 dB | 10 Hz~25 kHz (4Ω) |
| | 10 Hz~25 kHz (8Ω) |
| Residual hum and noise | 0.6 mV |
| Damping factor | 20 (4Ω), 40 (8Ω) |
| Input sensitivity and impedance | |
| PHONO | 2.5 mV/47kΩ |
| TUNER, AUX | 150 mV/22kΩ |
| TAPE 1 | 150 mV/22kΩ |
| TAPE 2 | 150 mV/22kΩ |
| PHONO maximum input voltage (1 kHz, RMS) | 150 mV |
| Frequency response | |
| PHONO | RIAA standard curve |
| | ±0.8 dB (30 Hz~15 kHz) |
| TUNER, AUX, TAPE | 5 Hz~80 kHz (−3 dB) |
| S/N | |
| rated power (4Ω) | |
| PHONO | 75 dB (IHF, A: 81 dB) |
| TUNER, AUX, TAPE | 86 dB (IHF, A: 97 dB) |
| −26 dB power (4Ω) | |
| PHONO/TUNER, AUX, TAPE | 65 dB/65 dB |
| 50 mW power (4Ω) | |
| PHONO/TUNER, AUX, TAPE | 62 dB/62 dB |
| Tone controls | |
| BASS | 50 Hz, +10 dB~ −10 dB |
| TREBLE | 20 kHz, +10 dB~ −10 dB |
| Loudness control (volume at −30 dB) | 50 Hz, +9 dB |
| Output voltage | |
| REC OUT | 150 mV |
| Channel balance, AUX 250 Hz~6,300 Hz | ±1 dB |
| Channel separation, AUX 1 kHz | 50 dB |
| Headphones output level and impedance | 390 mV/330Ω |
| Load impedance | |
| MAIN or REMOTE/MAIN and REMOTE | 4Ω~16Ω/8Ω~16Ω |

### ■ GENERAL

| | |
|---|---|
| Power consumption | 310W |
| Power supply | AC 50 Hz/60 Hz, 220V |
| | (For continental Europe) |
| | AC 50 Hz/60 Hz, 240V |
| | (For United Kingdom and Australia) |
| | AC 50 Hz/60 Hz, 110V/120V/220V/240V |
| | (For others) |
| Dimensions (W×H×D) | 430 × 86 × 288 mm |
| | (16-15/16" × 3-3/8" × 11-11/32") |
| Weight | 5.8 kg (12.8 lb.) |

**Note:**
Total harmonic distortion is measured by the digital spectrum analyzer (H.P. 3045 system).

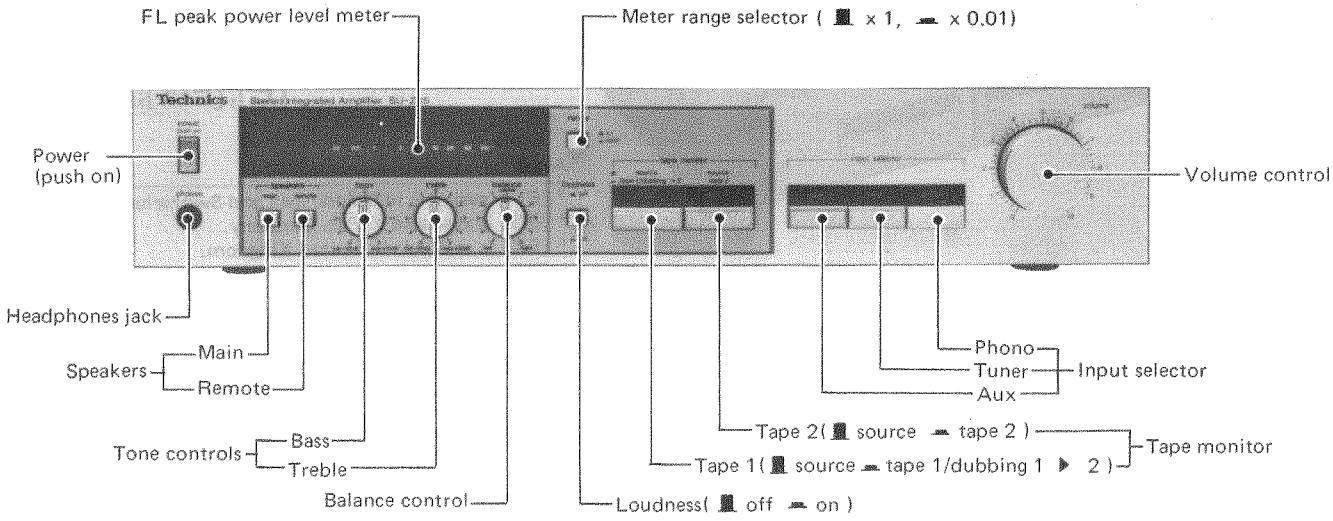
Technics

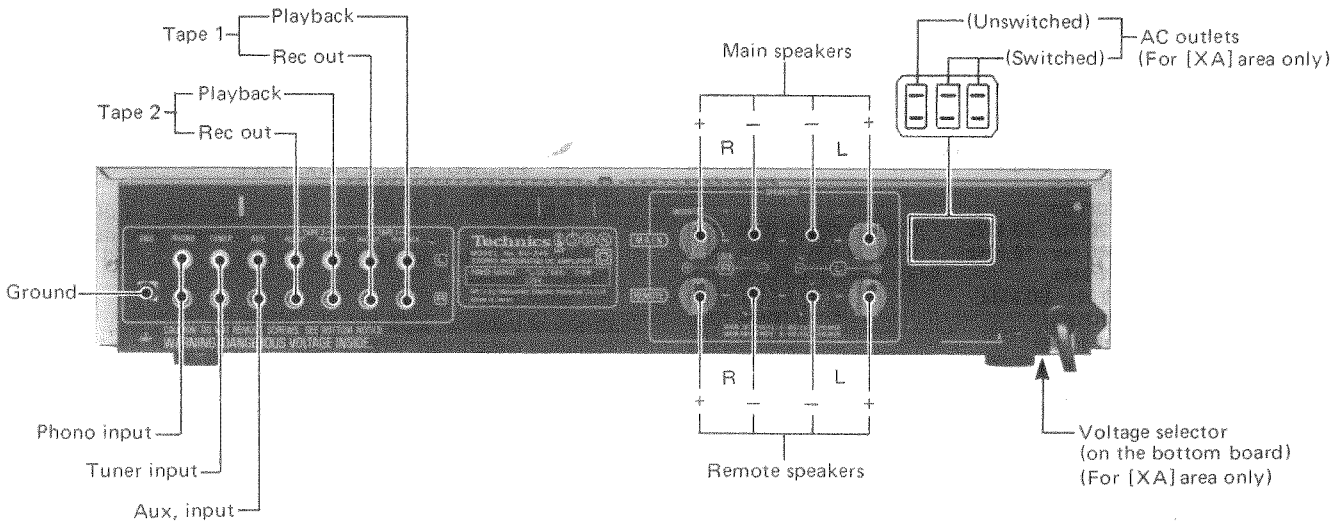
Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

# CONTENTS



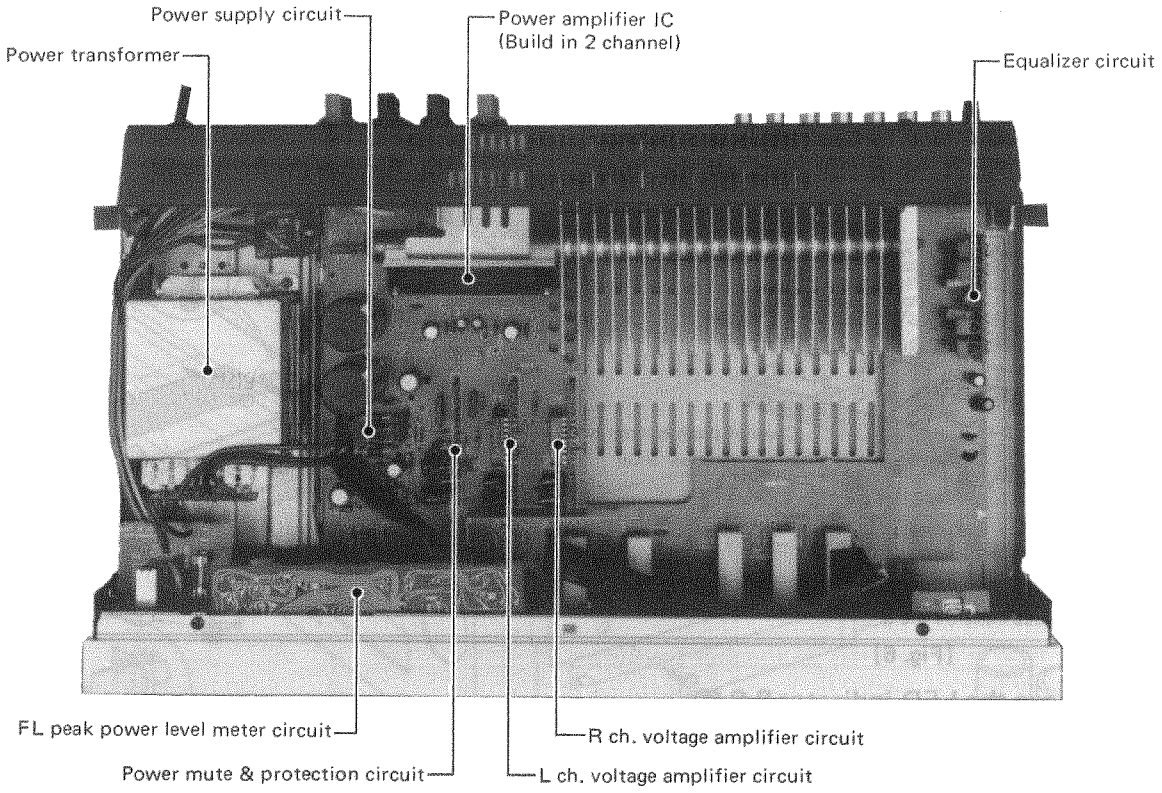
# LOCATION OF CONTROLS




- The power supply for this unit varies depending upon the areas. Also, the parts used for power supply are different. So, refer to the circuit diagram and the replacement parts list.

* 220V (50/60Hz) for continental Europe.
* 240V (50/60Hz) for United Kingdom and Australia.
* 110V/120V/220V/240V (50/60Hz) for other areas.
– [XA area] for other areas is provided with voltage selector and AC outlets.
* Phono input capacitance is about 150pF.




## ■ PROTECTION CIRCUITRY

The protection circuitry may have operated if either of the following conditions is noticed:

- No sound is heard when the power is turned on.
- Sound stops during performance.

The function of this circuitry is to prevent circuitry damage if, for example, the positive and negative speaker connection wires are "shorted", or if speaker systems with an impedance less than the indicated rated impedance of the amplifier are used.

If this occurs, follow the procedure outlined below:

1. Turn off the power.
2. Determine the cause of the problem and correct it.
3. Turn on the power once again.

**Note:**

When the protection circuitry functions, the unit will not operate unless the power is first turned off and then on again.

## ■ BEFORE REPAIR AND ADJUSTMENT

Turn off the power supply and short-circuit both ends of power supply condensers (401, C402, 6800μF) at resistance (about 10Ω, 5W) in order to discharge the charged voltage. Avoid short-circuit with a screwdriver or the like, otherwise the transistors or diodes may break down.

Before turning on the power supply after completion of repair, slowly apply the primary voltage by using a voltage regulator to make sure that the current consumed is free of abnormality. The current consumed at 60Hz/50Hz in no-signal mode is shown below with respect to supply voltage 110V/120V/220V/240V.

| Power supply voltage | | AC 110V | AC 120V | AC 220V | AC 240V |
|---|---|---|---|---|---|
| Current consumed | 50Hz | 210 ~ 310mA | 190 ~ 290mA | 100 ~ 200mA | 90 ~ 190mA |
| | 60Hz | 200 ~ 300mA | 180 ~ 280mA | 90 ~ 190mA | 80 ~ 180mA |

# ■ TECHNICAL GUIDE

The power amplifier IC is provided with a protection circuit.

## 1. Muting (shock noise prevention) with power switch ON

(1) When power supply is turned ON, the voltage at point Ⓐ becomes negative due to power from D403 and D404, causing Q42 to turn ON.
(2) After lapse a few seconds, the charge voltage of C41 and C42 rises due to power from D414, then the voltage at point Ⓐ rises as well.
(3) Q42 turns OFF, and subsequently Q41 turns ON.
(4) Negative voltage is applied to IC21 and IC301, then the operation begins.
*The signal is applied to the power amplifier a few seconds later so that shock noise can be prevented.

## 2. Muting (shock noise prevention) with power switch OFF

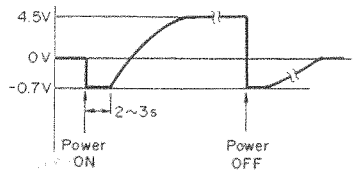
(1) When power supply is turned OFF, the positive voltage at point Ⓐ is quickly discharged by D42, and then negative voltage remains.
(2) The negative voltage causes Q42 to turn ON, then Q41 turns OFF.
*The signal is cut off on the input side while the operation voltage of power amplifier still remains, thus preventing shock noise.

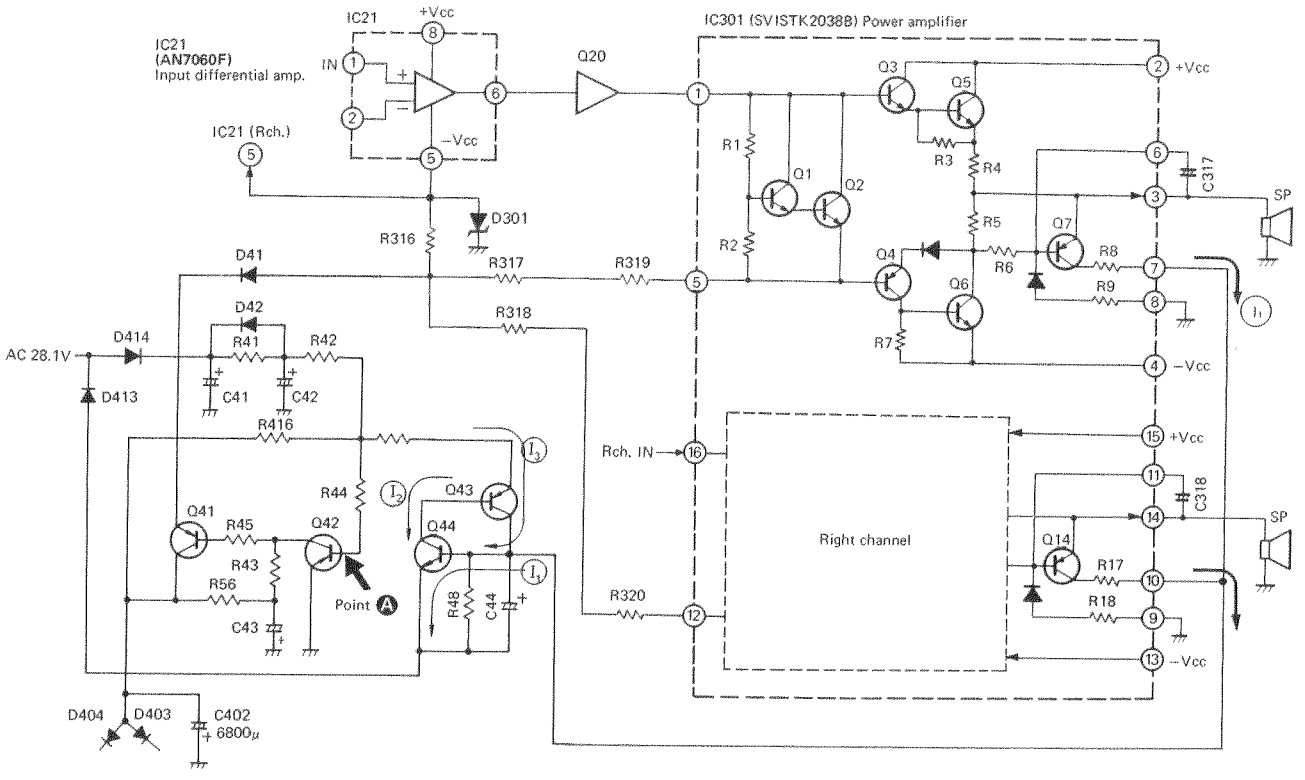
## 3. When over-load is connected to speaker terminals

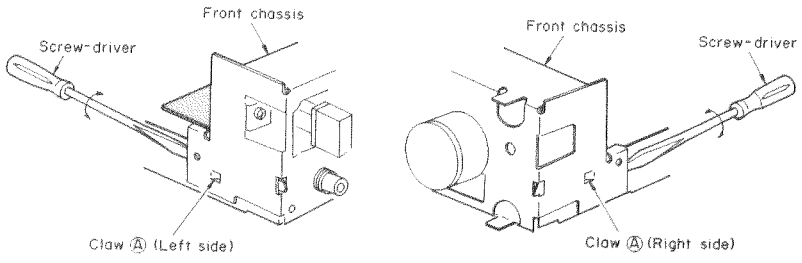
(1) Due to over-load connected to the speaker terminal or excessive output, voltage is generated in R5 causing Q7 in power amplifier to turn ON which should be usually OFF.
(2) With Q7 ON, $I_1$ flows causing Q44 to turn ON.
(3) With Q44 ON, $I_2$ flows causing Q43 to turn ON.
(4) With Q43 ON, $I_3$ flows and Q44 ON is hold.
(5) The holding circuit functions to decrease the voltage at point Ⓐ, causing Q42 ON and Q41 OFF.

If no output is delivered due to the holding circuit, turn OFF the power supply to check the cause. After lapse a few minutes, turn ON the power supply. (The holdng circuit will not be reset soon.)

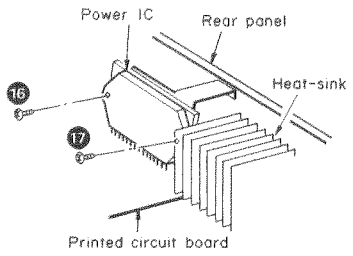
**Voltage of point Ⓐ**






[Fig. 11]




[Fig. 12]

### 9. How to remove the power IC

(1) Remove the cabinet and bottom board. (Refer to "How to remove the cabinet" and "How to remove the bottom board")
(2) Unsolder the power IC.
(3) Remove the 2 setscrews (Fig. 12: ⑯ , ⑰ ) used to secure the power IC on the heat-sink, and then pull out the power IC.
(4) When installing the power IC, apply heat diffusing agent (silicon powder, etc.) to back side of the IC, and secure it on the heat-sink with setscrews.

## ■ ADJUSTMENTS

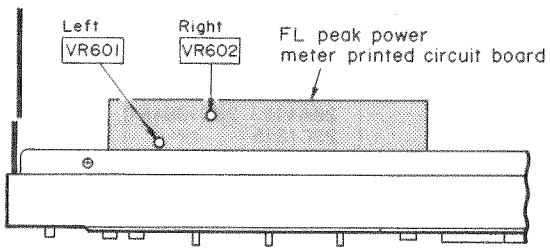
### Fluorescent peak power meter

**Setting**

- Connect a low frequency oscillator to the tuner input terminal, and 8-ohm load resistor and AC electronic voltmeter to the speaker terminal.
- Add 1kHz signal from the low frequency oscillator to the set.
- Set the sound volume to the maximum point.

| Item | Meter range select switch position | VR adjusted | Adjustment |
|---|---|---|---|
| Peak-power indicators | Range switch ... X0.01 | VR601 (L ch)<br>VR602 (R ch) | 1. Adjust the input level so that the AC voltmeter indicates 2 volts.<br>2. Adjust the semi-fixed variable resistors VR601 (L ch.) and VR602 (R ch.) so that the 50W segment of FL meter lights up dimly. (Fig. 14) |

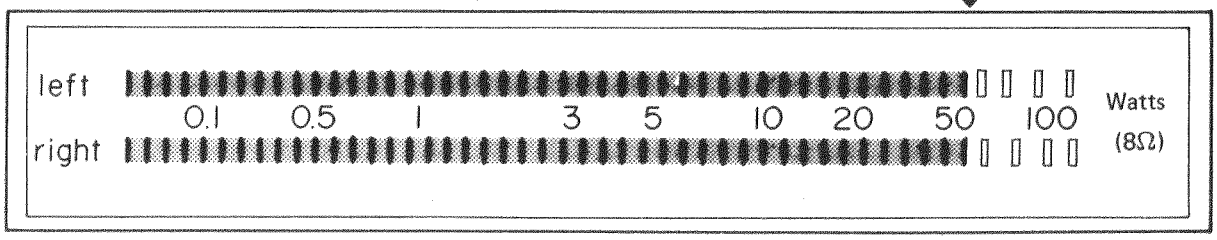
- **Adjustment points**




[Fig. 13]
[Abb. 13]

x 0.01 meter range
(8Ω, 2V output)

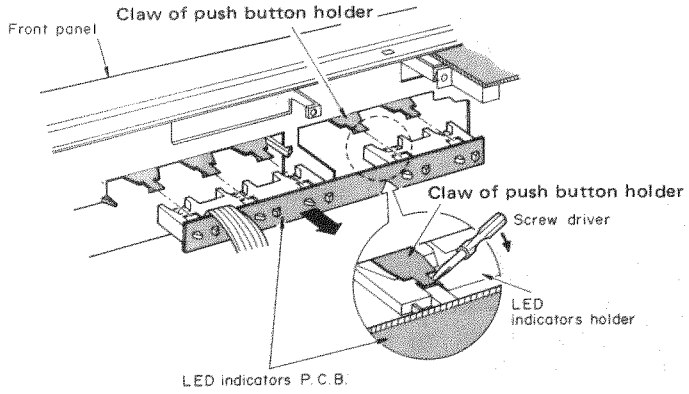
(Bass, Treble and Balance control to center)




[Fig. 14] [Abb. 14]

## 4. How to remove the front panel

(1) Remove the 5 setscrews [Fig. 1: ❼ ~ ⓫ ] of front panel. [Screw ❼ is also used to fit the bottom board.]
(2) Stick an adhesive tape to bass, treble and balance knobs as in Fig. 1, then pull them off the front panel.




[Fig. 6]

## 5. How to remove the LED indicator P.C.B.

(1) Remove the LED indicator holder and push-button holder by use of a screwdriver, gaining access from the inside of chassis as shown in Fig. 6. [Remove the 5 claws of push-button holder.]
(2) Pull the P.C.B. toward the inside of chassis.

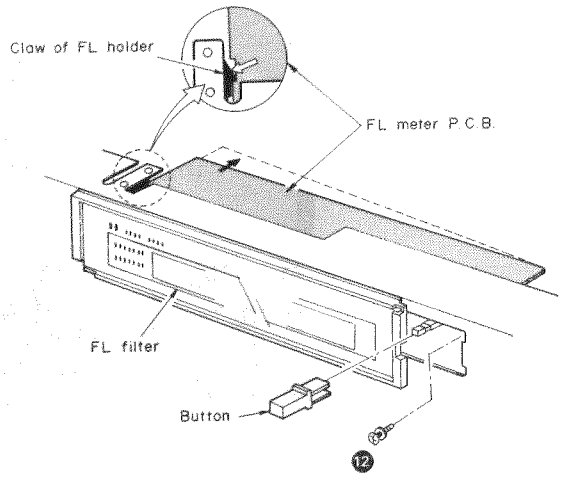
## 6. How to remove the FL meter P.C.B.

(1) Remove the front panel.
(2) Remove the setscrew ⓬ of meter range switch button as in Fig. 7.
(3) Push the FL holder claw in the direction of the arrow (➡) and then pull the P.C.B. backwards.
(4) Next, incline the P.C.B. in the direction of the arrow ① as in Fig. 8. Then pull it in the direction of the arrow ② to remove it from the chassis.

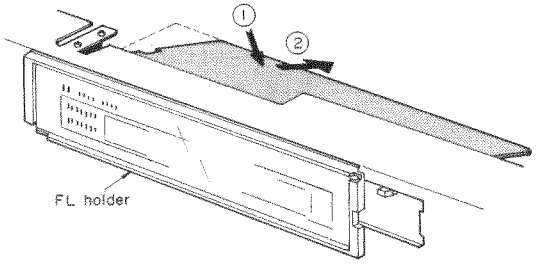
## 7. How to install the FL meter P.C.B.

*The P.C.B. can be installed by reversing the procedure for removal. Fit the FL as follows:
(1) Remove the FL filter. [Fig. 7]
(2) Fit the right and left sides of FL into the stopper of FL holder as in Fig. 9.
(3) Fit the P.C.B. in the original position.
(4) Set the FL filter in place.

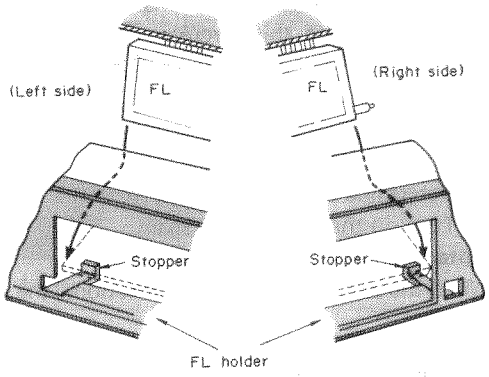
(3) Remove the nuts of bass, treble and balance knobs.
(4) Insert a falt-head screwdriver between the front panel and chassis in order to remove claw Ⓓ. [See Fig. 1.]
(5) Remove the front panel.




[Fig. 7]



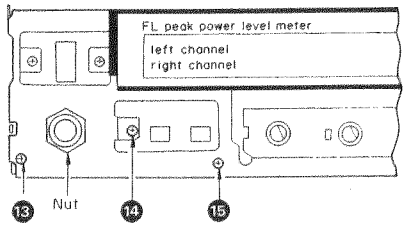

[Fig. 8]



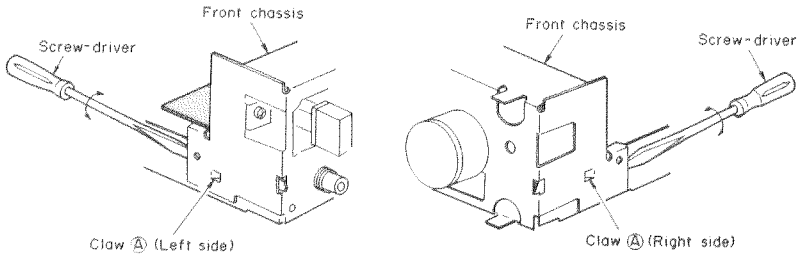

[Fig. 9]

## 8. How to remove the front chassis

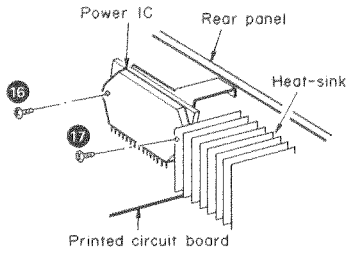
*When replacing the push-button switches or the repairing the headphone jack P.C.B., remove the front chassis as follows:
(1) Remove the front panel.
(2) Remove the bottom board.
(3) Remove the LED indicator P.C.B. [See Fig. 6.]
(4) Remove the 3 setscrews [Fig. 10: ⓭ ~ ⓯ ] and the nut of headphone jack.
(5) Insert a screwdriver between the front chassis and the panel in order to remove claw Ⓐ as shown in Fig. 11.
(6) Remove the front chassis from the main P.C.B.




[Fig. 10]




[Fig. 11]




[Fig. 12]

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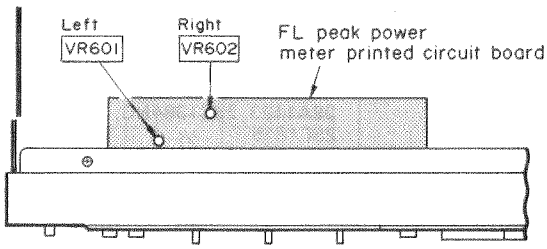
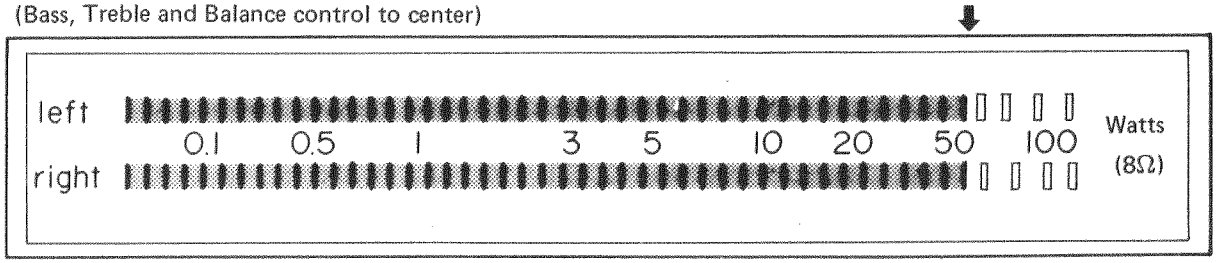
- **Adjustment points**




[Fig. 13]
[Abb. 13]

x 0.01 meter range
(8Ω, 2V output)

(Bass, Treble and Balance control to center)

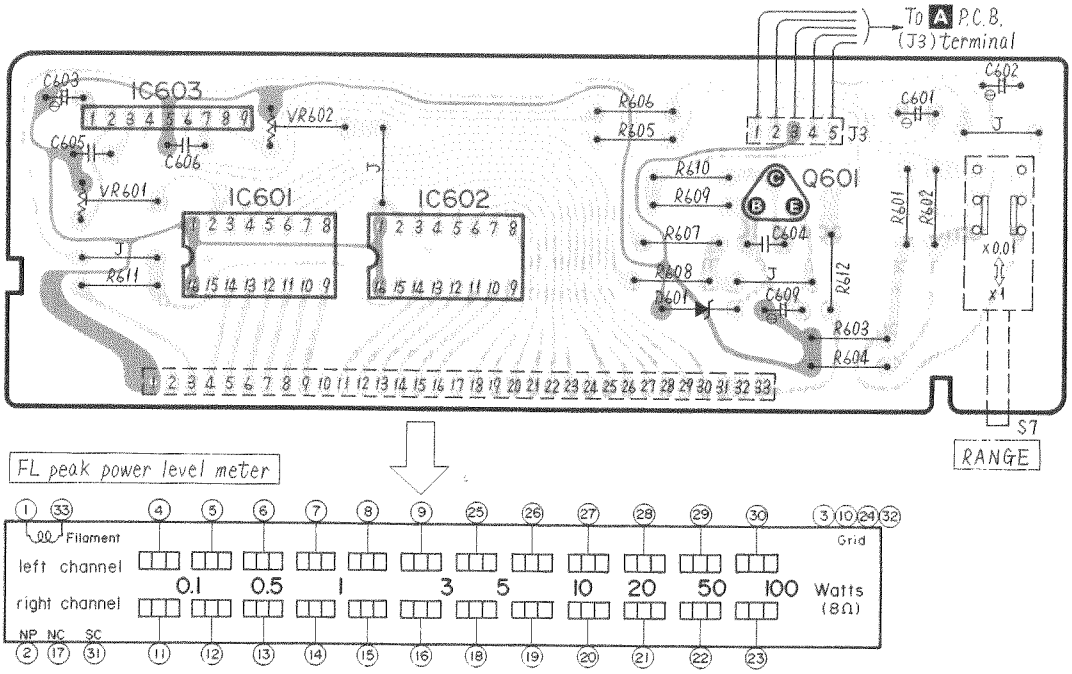



[Fig. 14] [Abb. 14]

## ■ PRINTED CIRCUIT BOARDS

### F PCB (FL meter circuit)

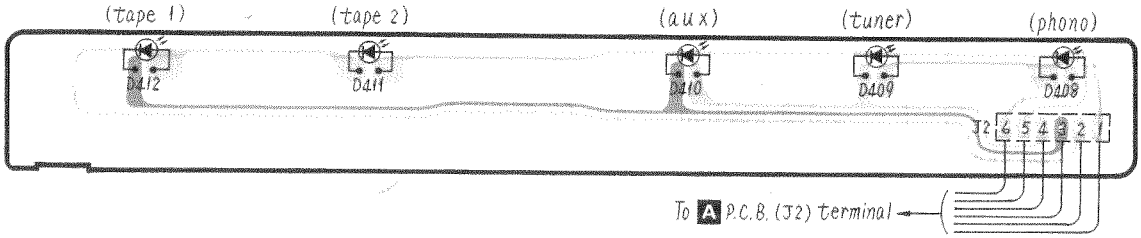
Ground (Earth) line





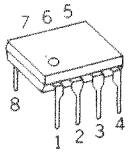


### C PCB (Selector position LED indicators)

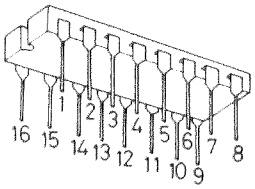



## ■ TERMINAL GUIDE OF TRANSISTORS, DIODES AND IC'S

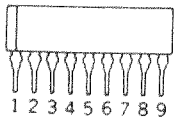
SVINJM2043DD



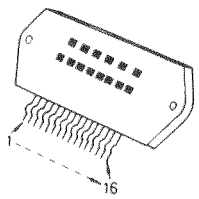

SVIHA12010



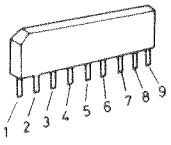

AN7060F



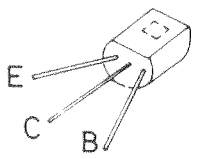

SVISTK2038B



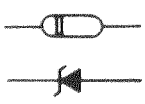

SVITA7318P



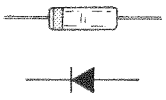

2SA564A, 2SA1015, 2SA1123, 2SC1384NC, 2SC1815



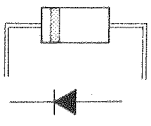

MA1200, SVDMZ306A



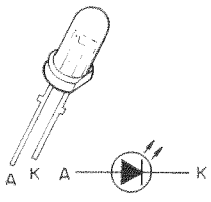
MA150, MA162A



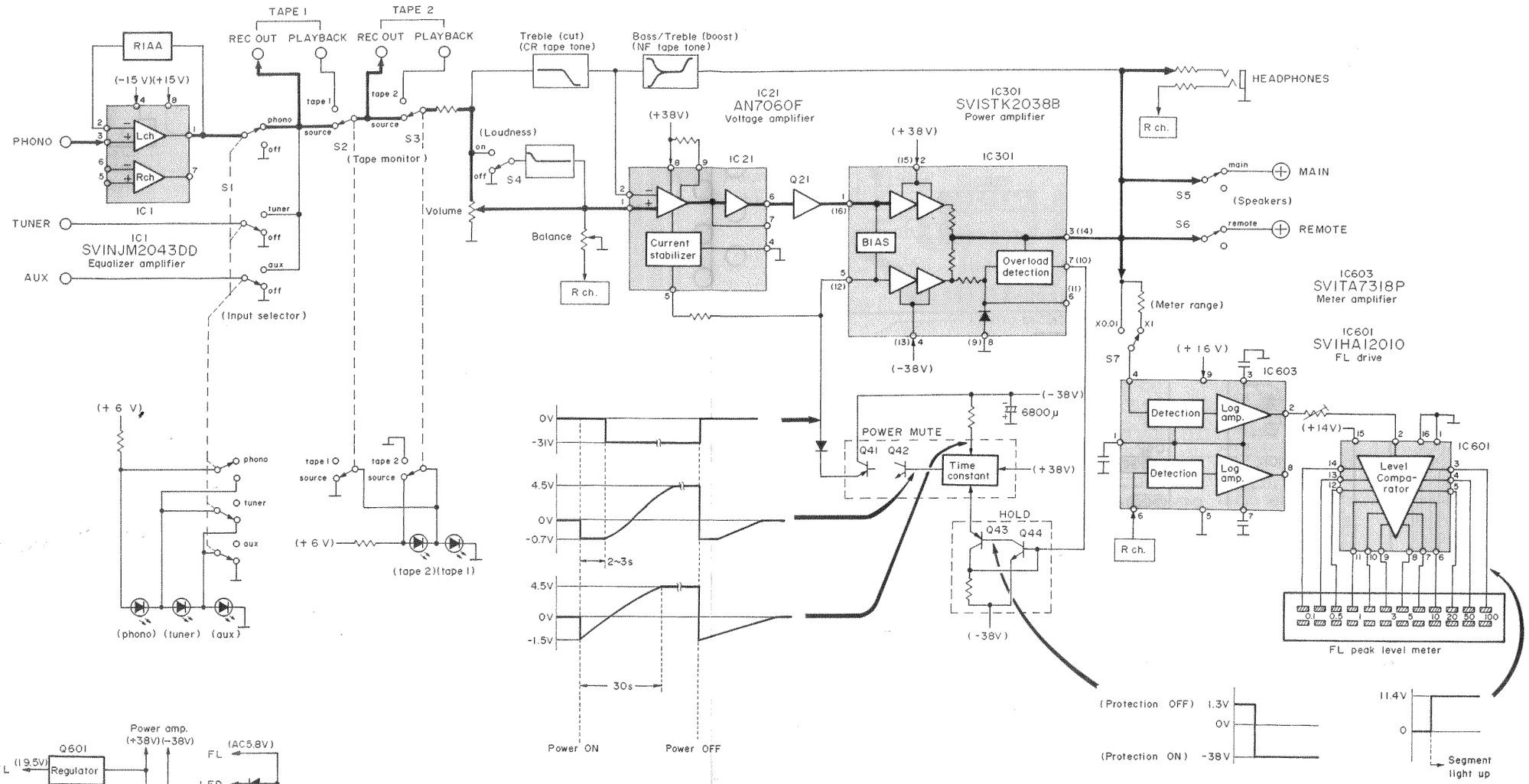
SVDS2V20, SVDSR1K2



LN31GCPHL (Green)
LN41YCPHL (Yellow)



## ■ BLOCK DIAGRAM




## ■ HOW TO REPLACE CHIPS (RESISTORS)

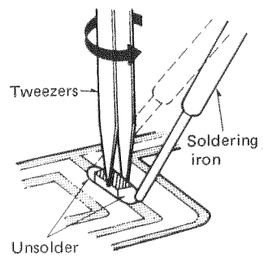



Fig. 1

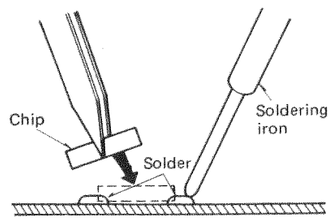



Fig. 2

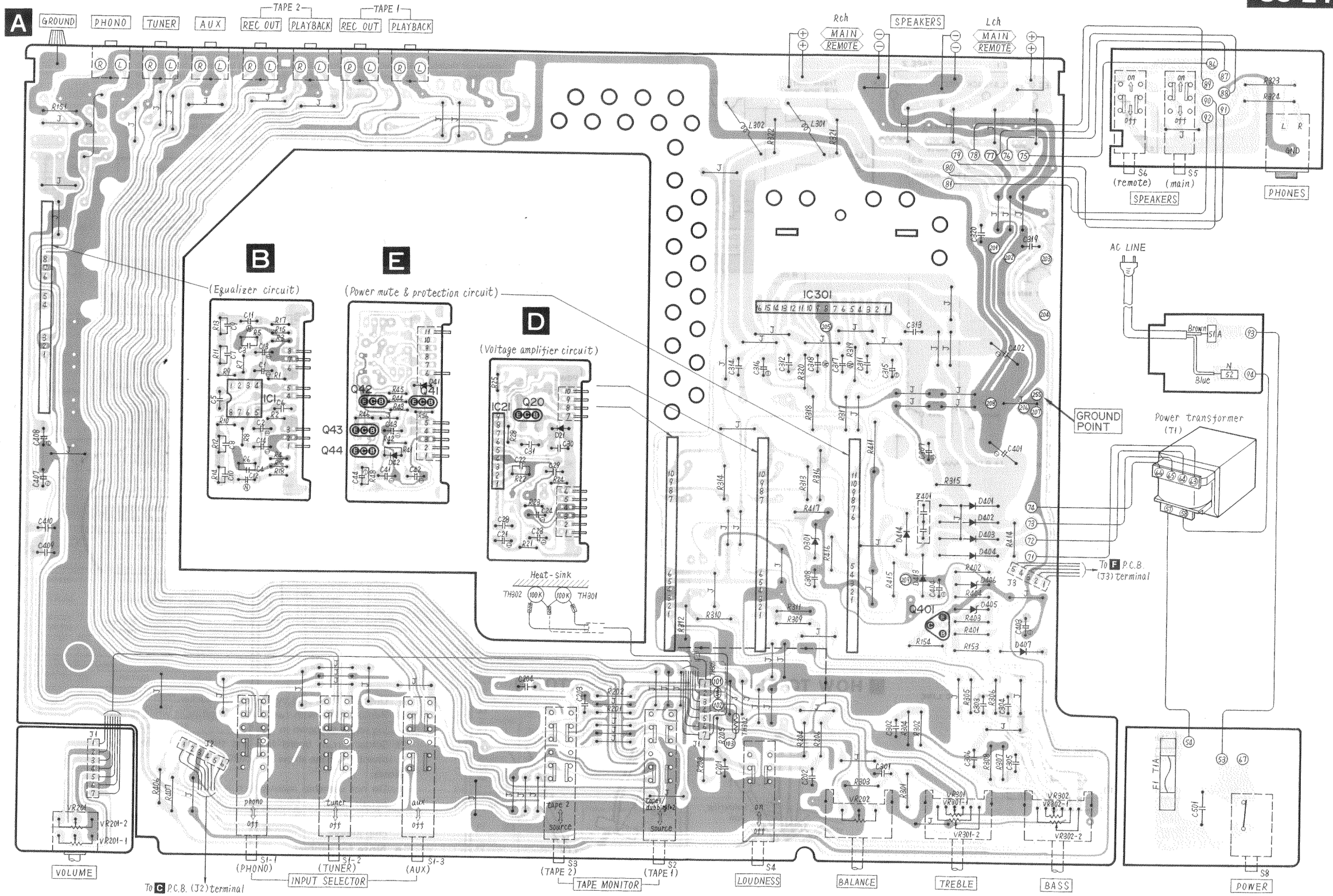
1. Unsolder from chip by using solder sucker.
2. Remove chip with tweezers by rotating it while removing solder as shown in Fig. 1.
3. Solder circuit board first and then solder chip in the direction of the arrow as shown in Fig. 2.

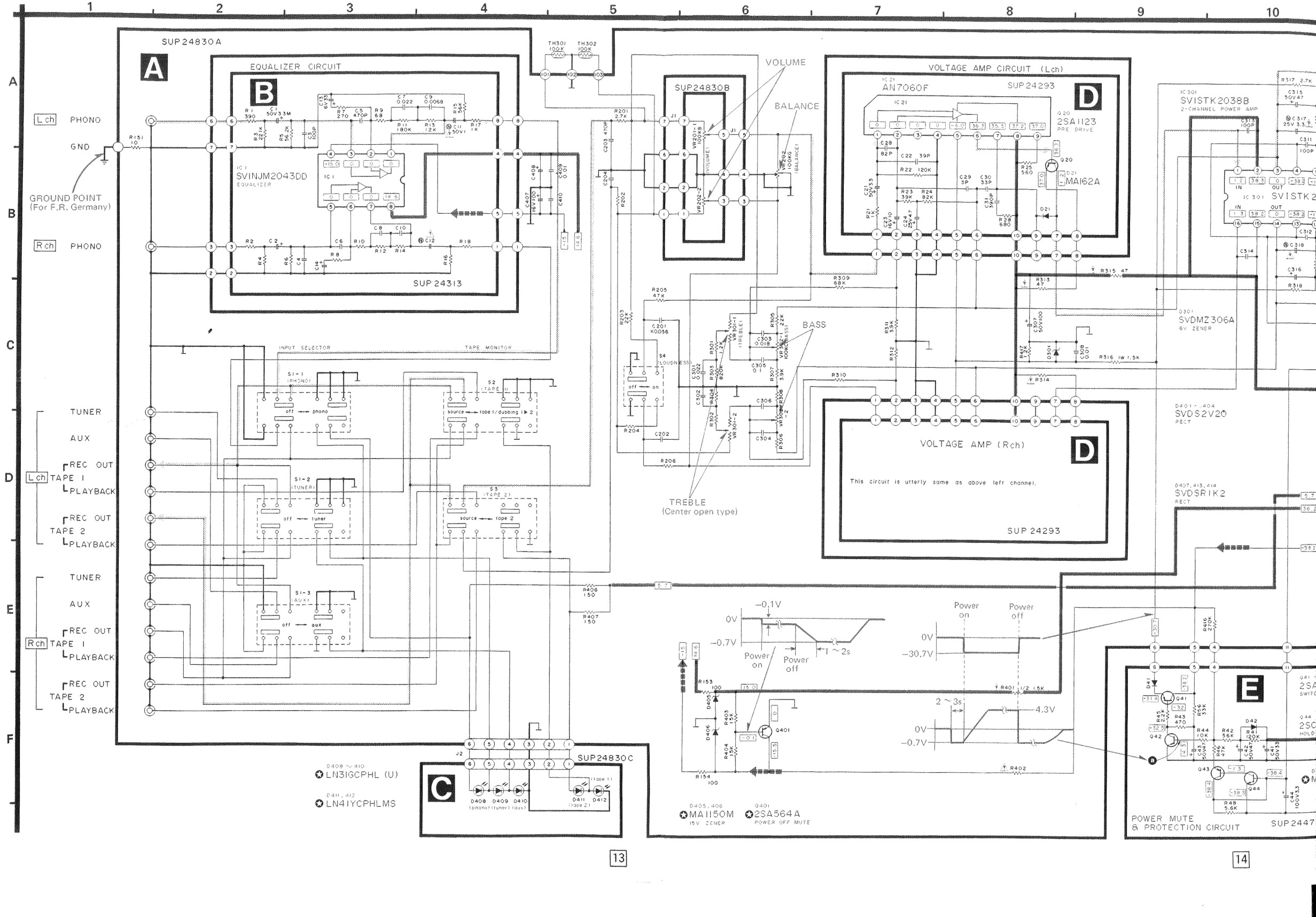
**Notes:**

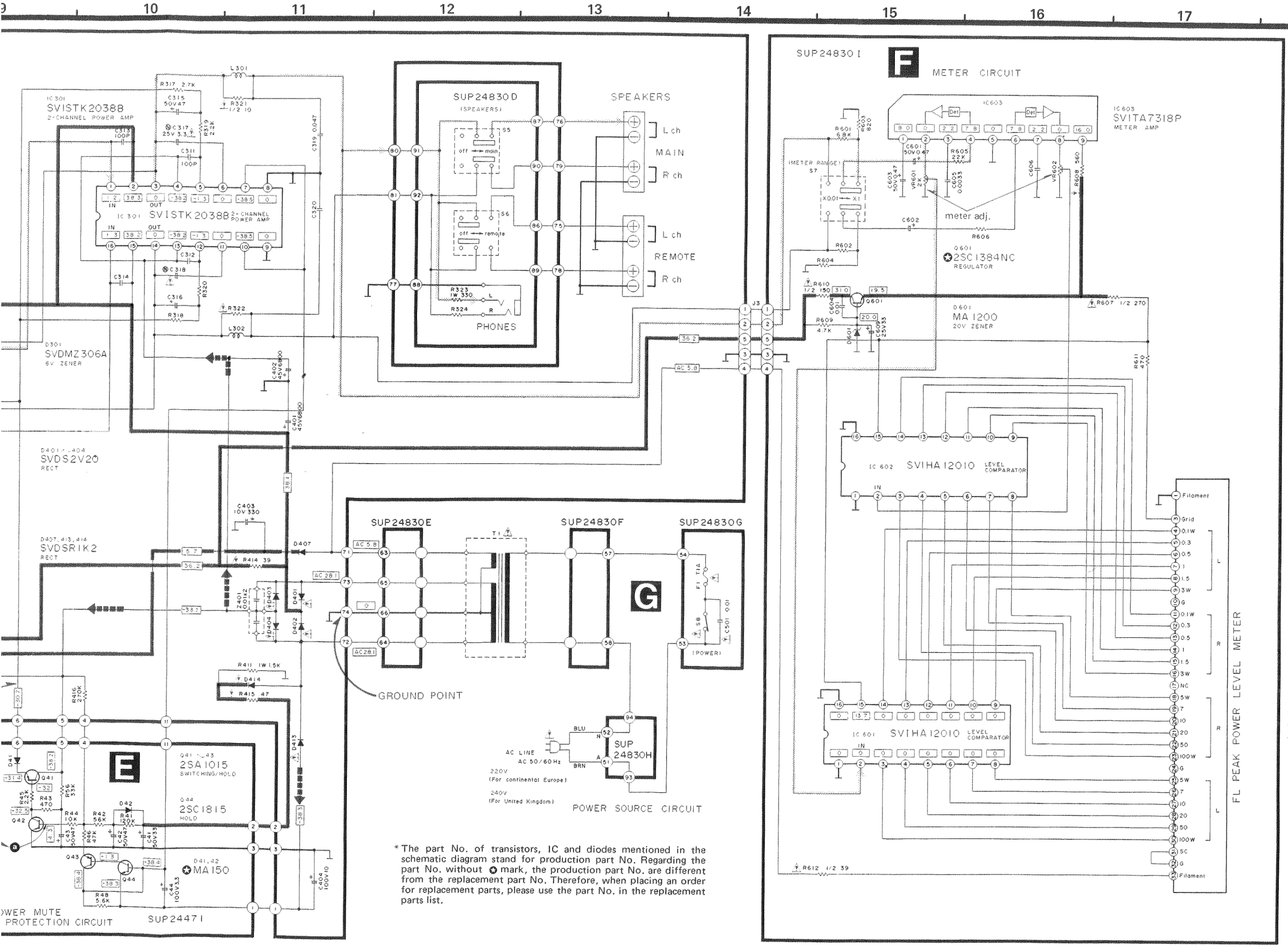
1. Do not use chip again which is removed from printed circuit board.
2. Use lead wire with insulator for replacement instead of chip jumper.

- **Note for replacing chips**

1. Do not heat chips more than three (3) seconds.
2. Be careful not to damage the electrode of chips.
3. Use soldering iron (less than 60W) and tweezers for replacing chips.


A
GROUND
PHONO
TUNER
AUX
TAPE 2
REC OUT
PLAYBACK
TAPE 1
REC OUT
PLAYBACK
Rch
MAIN
REMOTE
SPEAKERS
Lch
MAIN
REMOTE
B
(Equalizer circuit)
E
(Power mute & protection circuit)
D
(Voltage amplifier circuit)
IC301
Q42
Q43
Q44
IC21
Q20
Heat-sink
TH302 100K
100K TH301
S6 (remote)
S5 (main)
SPEAKERS
PHONES
AC LINE
Brown
Blue
GROUND POINT
Power transformer (T1)
Q401
To F P.C.B. (J3) terminal
VOLUME
VR201-2
VR201-1
To C P.C.B. (J2) terminal
phono
tuner
aux
tape 2
tape 1/ dubbing 2
on
off
source
S1-1 (PHONO)
S1-2 (TUNER)
S1-3 (AUX)
INPUT SELECTOR
S3 (TAPE 2)
S2 (TAPE 1)
TAPE MONITOR
S4
LOUDNESS
BALANCE
TREBLE
BASS
F1 T1A
S8
POWER


SUP24830A
A
EQUALIZER CIRCUIT
B
IC1
SVINJM2043DD
EQUALIZER
SUP24313
L ch PHONO
GND
GROUND POINT
(For F.R. Germany)
R ch PHONO
TUNER
AUX
REC OUT
L ch TAPE 1
PLAYBACK
REC OUT
TAPE 2
PLAYBACK
TUNER
AUX
REC OUT
R ch TAPE 1
PLAYBACK
REC OUT
TAPE 2
PLAYBACK
INPUT SELECTOR
TAPE MONITOR
S1-1 (PHONO)
off → phono
S2 (TAPE 1)
source → tape 1/dubbing 1 ▶ 2
S1-2 (TUNER)
off → tuner
S3 (TAPE 2)
source → tape 2
S1-3 (AUX)
off → aux
TH301 100K
TH302 100K
SUP24830B
VOLUME
BALANCE
VR201-1 100KB (VOLUME)
VR202-2 100KG (BALANCE)
VR201-2 100KB (VOLUME)
VR202-1 100KG (BALANCE)
BASS
TREBLE
(Center open type)
S4 (LOUDNESS)
off → on
VOLTAGE AMP CIRCUIT (Lch)
IC21
AN7060F
SUP24293
D
Q20
2SA1123
PRE DRIVE
D21
MAI62A
VOLTAGE AMP (Rch)
This circuit is utterly same as above left channel.
SUP24293
IC301
SVISTK2038B
2-CHANNEL POWER AMP
D301
SVDMZ306A
6V ZENER
D401 ~ 404
SVDS2V20
RECT
D407, 413, 414
SVDSR1K2
RECT
SUP24830C
C
D408 ~ 410
LN31GCPHL (U)
D411, 412
LN41YCPHLMS
D408 D409 D410
(phono) (tuner) (aux)
D411 D412
(tape 2)
(tape 1)
J2
-0.1V
0V
-0.7V
Power on
Power off
1 ~ 2s
0V
-30.7V
2 ~ 3s
4.3V
D405, 406
MA1150M
15V ZENER
Q401
2SA564A
POWER OFF MUTE
E
POWER MUTE
& PROTECTION CIRCUIT
SUP2447
13
14




* The part No. of transistors, IC and diodes mentioned in the schematic diagram stand for production part No. Regarding the part No. without ✪ mark, the production part No. are different from the replacement part No. Therefore, when placing an order for replacement parts, please use the part No. in the replacement parts list.

## ■ SCHEMATIC DIAGRAM

( This schematic diagram may be modified at any time with the development of new technology.

**Notes:**

1. This is the basic circuit diagram (For continental Europe) of this unit.
   Note that part of the circuit is subject to change depending on the areas.
2. Regarding the circuits to be changed in the basic circuit diagram (For continental Europe) and related areas [EG], [EF], [XL] and [XA], refer to the separate service manual (Order No. SD82033214C8–A).
3. **S1-1 ~ S1-3:** Input selector switch in **"phono"** position.
   (S1-1: phono S1-2: tuner S1-3: aux)
4. **S2:** Tape monitor (tape 1) switch in **"source"** position.
   source ⟷ tape 1/dubbing 1 ▶ 2
5. **S3:** Tape monitor (tape 2) switch in **"source"** position.
   source ⟷ tape 2
6. **S4:** Loudness switch in **"off"** position.
7. **S5:** Main speaker switch in **"on (main)"** position.
8. **S6:** Remote speaker switch in **"off"** position.
9. **S7:** FL meter range selector switch in **"X1"** position.
   X1 ⟷ X0.01
10. **S8:** Power source switch in **"on"** position.
11. **S9 ([XA] area only):** Voltage selector switch in **"240V"** position. (Refer to booklet contain)
    120V ⟷ 110V ⟷ 220V ⟷ 240V
12. ▭ Indicated voltage values are the standard values for the DC electronic circuit tester (high impedance) with the ground point taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
13. **Description of "GROUND POINT"**
    The GND terminal of the rear panel and the chassis can serve as ground (earth) for signals. However, for direct current, they may sometimes fail to work as ground to check the DC voltage because they are connected to the ground line through 10Ω resistor – except for F.R. Germany [EG]. For DC voltage check, the "GROUND POINT" shown in "Printed circuit board" must be used.
14. Phono signal lines of left channel
15. Positive (+B) voltage lines
16. Negative (–B) voltage lines
17. Important safety notice:
    Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

# REPLACEMENT PARTS LIST

**Notes:**
1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. Important safety notice:
   Components identified by ⚠ mark have special characteristics important for safety.
   When replacing any of these components use only manufacturer's specified parts.
3. Bracketed indications in Ref. No. columns specify the area.
   Parts without these indications can be used for all areas.
4. The "**S**" mark is service standard parts and may differ from production parts.
5. The parenthesized numbers in the column of description stand for the quantity per set.
6. [K] -marked parts are used for black only, while ○-marked parts are for silver type only.
7. Parts other than [K] - and ○- marked are used for both black ans silver types.

Black type model No. SU-Z45 (K)

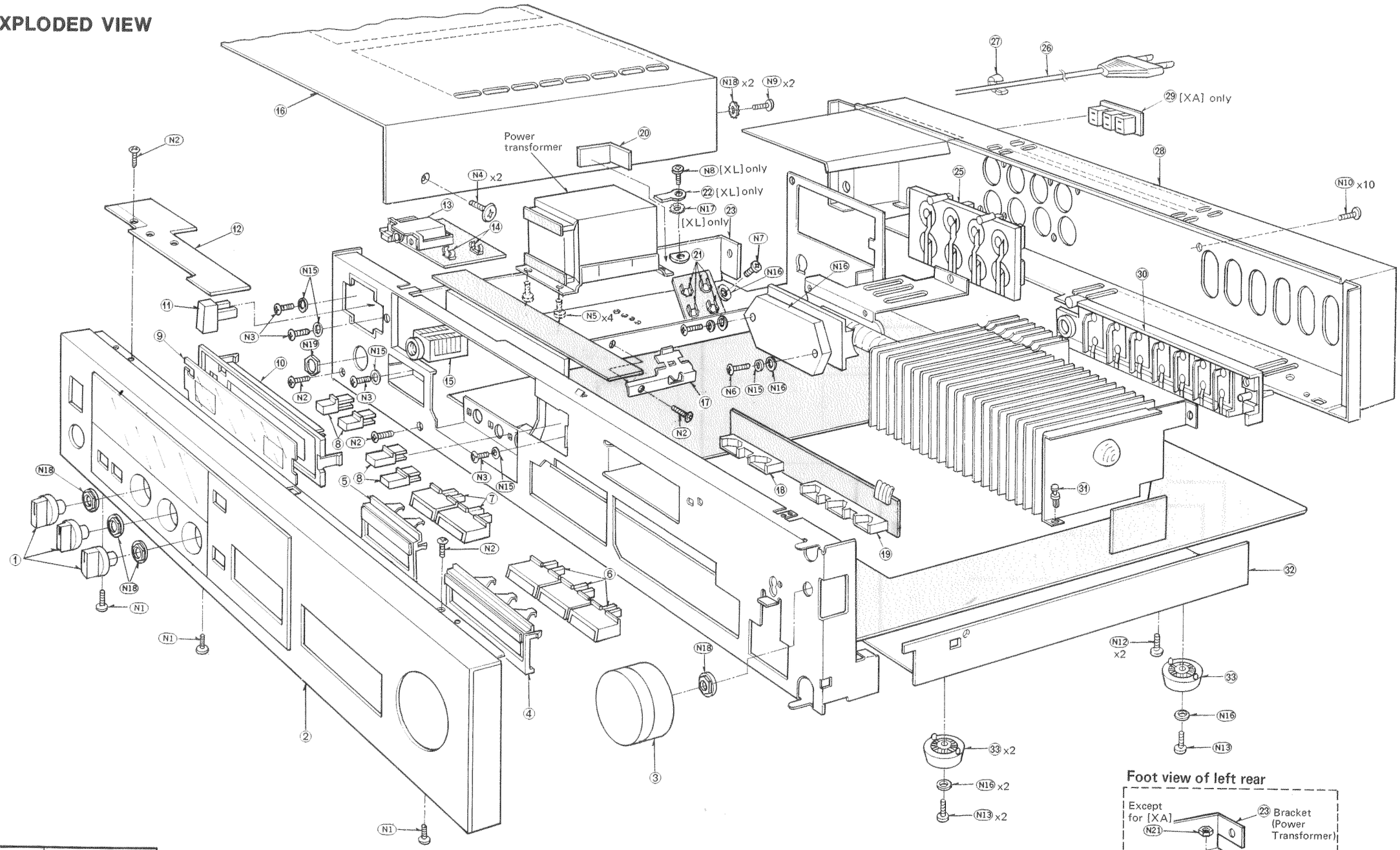
| Ref. No. | Part No. | Description |
|---|---|---|
| **INTEGRATED CIRCUITS** | | |
| IC1 | SVINJM2043DD | Equalizer |
| (IC21)x2 | AN7060F | Voltage AMP. |
| IC301 | SVISTK2038B | Power AMP. |
| IC601, 602 | SVIHA12010 | Level Comparator |
| IC603 | SVITA7318P | Meter AMP. |
| **TRANSISTORS** | | |
| (Q20)x2 | 2SA1123–R | Pre Drive |
| Q41~43 | 2SA1015–Y | Switching/Hold |
| Q44 | 2SC1815–Y | Hold |
| Q401 S | 2SA722–S | LED Drive |
| Q601 S | 2SC1384AR | Regulator |
| **DIODES** | | |
| (D21)x2, 41, 42 S | MA162A | Switching |
| D301 | SVDMZ306A | 6V, Zener |
| D401~404 ⚠ | SVDS2V20 | Rectifier |
| D405, 406 S | MA1150A | 15V, Zener |
| D407, 413, 414 ⚠S | SVDSR1K2 | Rectifier |
| D408~410 | LN31GCPHL | Light Emitting Diode |
| D411, 412 | LN41YCP | Light Emitting Diode |
| D601 | MA1200 | 20V, Zener |
| **COILS** | | |
| L101~104 (for [EG] only) | ELQS181KB | Output |
| L301, 302 | SLQY15G–30 | Choke |
| L321~324 (for [EG] only) | SLQY07G–30 | Choke |
| **TRANSFORMERS** | | |
| **T1** other areas ⚠ | SLT5M219 | Power Source |
| **T1** [EK, XL] ⚠ | SLT5M221 | Power Source |
| **T1** [XA] ⚠ | SLT5M223 | Power Source |
| **VARIABLE RESISTORS** | | |
| VR201 | EWJG2A052B15 | Volume, 100kΩ (B) |
| VR202 | EWHFKA004G15 | Balance, 100kΩ (G) |
| VR301 | EWCX9A005012 | Treble |
| VR302 | EWCXAA005C15 | Bass, 100kΩ(C) |
| VR601, 602 | EVNK6AA00B23 | FL Level Meter, 2kΩ(B) |
| **THERMISTORS** | | |
| TH301, 302 | RRT104 | 100kΩ |
| **COMPONENT COMBINATION** | | |
| Z401 | SXRFS203ZSM | (0.01μF) x 2 |
| **FLUORESCENT DISPLAY TUBE** | | |
| FL | SADBG89Z | Power Meter |
| **FUSES** | | |
| F1 ⚠ | XBA2C10TRO | 250V, T1A |
| F2 [XA]only ⚠ | XBA2C20TRO | 250V, T2A |
| **SWITCHES** | | |
| S1 | SSH3033 | Input Selector |
| S2, 3, 4 | SSH3043 | Tape Monitor, Loudness |
| S5, 6 | SSH2017 | Speaker (Main/Remote) |
| S7 | SSH1053 | Range Selector |
| **S8** other areas ⚠ | SSH1057 | Power Source |
| **S8** [E, EK] ⚠ | ESB822S | Power Source |
| **S8** [EG, XA] ⚠ | ESB902175 | Power Source |
| S9 [XA]only ⚠ | ESE37219 | Voltage Selector |

| Ref. No. | Part No. | Description & Pcs |
|---|---|---|
| **CABINET and CHASSIS PARTS** | | |
| 1 | SBN1089 | Knob, Bass, Treble and Balance (3) |
| 2 ○ | SYW573 | Front Panel Ass'y (Silver) (1) |
| 2 [K] | SYW573–1 | Front Panel Ass'y (Black) (1) |
| 3 | SBN1125 | Knob, Volume (1) |
| 4 ○ | SGXUZ45E | Holder, Input Selector (Silver) (1) |
| 4 [K] | SGXUZ45KE | Holder, Input Selector (Black) (1) |
| 5 ○ | SGXUZ45E1 | Holder, Tape (Silver) (1) |
| 5 [K] | SGXUZ45KE1 | Holder, Tape (Black) (1) |
| 6 | SBC443 | Button, Input Selector (3) |
| 7 | SBC445 | Button, Tape Monitor (2) |
| 8 | SBC441 | Button, Speaker, Range, Loudness (4) |
| 9 ○ | SDU131 | Filter, FL (Silver) (1) |
| 9 [K] | SDU131–1 | Filter, FL (Black) (1) |
| 10 | SGX7327 | Holder, FL (1) |
| 11 | SBC337–1 | Button, Power Source (1) |
| 12 | SMX617 | Shield Cover (1) |
| **13** other areas | SMX609 | Shield Cover (1) |
| **13** [EG,XA] only | SMX453 | Shield Cover (1) |
| 14 (Except for[EG, XA]) | SJT347 | Holder, Fuse (2) |
| 15 | SJJ71B | Jack, Headphone (1) |
| **16** ○ | SKC1050S1 | Cabinet (Silver) (1) |
| **16** [K] | SKC1050B1 | Cabinet (Black) (1) |
| 17 | SUS275 | Bracket (1) |
| 18 | SMP323–1 | Holder, LED (Tape) (1) |
| 19 | SMP321–1 | Holder, LED (Input) (1) |
| 20 | SMX365 | Shield Cover (1) |
| **21** [EG] only | SJT347 | Holder, Fuse (2) |
| **21** [XA] only | SJT347 | Holder, Fuse (4) |
| 22 [XL] only | RJT202B | Terminal (1) |
| **23** | SML129 | Bracket, Power Transformer (1) |
| **23** [XL] only | SML129–1 | Bracket, Power Transformer (1) |
| 24 | SMX615 | Shield Cover (1) |
| 25 | SJF4815 | Terminal Board (1) |
| **26** other areas ⚠S | SJA88 | AC Cord (1) |
| **26** [EK] ⚠ | RJA45YA | AC Cord (1) |
| **26** [XA] ⚠ | SJA111 | AC Cord (1) |
| **26**[XL] ⚠S | QFC1207MA | AC Cord (1) |
| **27** other areas | SHR127 | Bushing, AC Cord (1) |
| **27** [EK]only | SHR129 | Bushing, AC Cord (1) |
| **27** [XL]only | SHR131 | Bushing, AC Cord (1) |

| Ref. No. | Part No. | Description & Pcs |
|---|---|---|
| **28** other areas | SGP3170B | Rear Panel (1) |
| **28** [EK]only | SGPUZ45E | Rear Panel (1) |
| **28** [XA]only | SGP3170–1A | Rear Panel (1) |
| **28** [XL]only | SGP3170–2A | Rear Panel (1) |
| 29 ⚠ [XA]only | SJS601–2 | Socket (1) |
| 30 | SJF3051–3N | Terminal Board (1) |
| 31 | SHR401–1 | Look Pin (1) |
| 32 | SKUUZ45E | Bottom Board (1) |
| 33 | SKL249 | Foot (4) |
| **SCREWS** | | |
| N1 | XTBS3+8BFYR1 | Tapping,with Detent (3) |
| N2 S | XTB3+8BFN | Tapping,⊕ 3x8 (5) |
| N3 S | XSN3+6S | ⊕ 3x6 (4) |
| **N4** ○ | SNE2095–2 | Tapping (2) |
| **N4** [K] | SNE2095–3 | Tapping (2) |
| N5 S | XTB4+10BFZ | Tapping,⊕ x 10 (4) |
| N6 S | XSN3+12BNS | ⊕ 3x12 (2) |
| **N7** S | XTN3+8B | Tapping,⊕ 3x8 (1) |
| **N7** [EG]only | XTWS3+8HFZ | Tapping,⊕ 3x8 (1) |
| N8 S [XL]only | XTB3+8BFN | Tapping,⊕ 3x8 (1) |
| **N9** S ○ | XTB3+8BFN | Tapping,⊕ 3x8 (2) |
| **N9** S [K] | XTB3+8BFZ | Tapping,⊕ 3x8 (2) |
| N10 | XTBS3+8BFZ1 | Tapping,with Detent (10) |
| N12 | XTBS3+8BFYR1 | Tapping,with Detent (2) |
| N13 S | XTN3+10B | Tapping,⊕ 3x10 (4) |
| **WASHERS** | | |
| N14 S | XWA3B | Spring,φ3 (6) |
| N15 S | XWG3 | Plain,φ3 (7) |
| N16 S [XL] only | XWC3B | External Toothed Lock φ3 (2) |
| N17 S | XWC3B | External Toothed Lock φ3 (2) |
| **NUTS** | | |
| N18 | SNE4021 | Nut, with Plain (4) |
| N19 S | XNS12 | φ12 (1) |
| **ACCESSORIES** | | |
| A1 ⚠ [XA]only | SJP5213–1 | Plug Adapter, (C → U) (1) |
| A2 ⚠ [XA]only | SJP5215 | Plug Adapter, (U → B) (1) |
| **A3** [E,EH,EB] | SQF11213 | Instructions Book (1) |
| **A3** [EG] | SQF11215 | Instructions Book (1) |
| **A3** [EK, XL] | SQF11217 | Instructions Book (1) |
| **A3** [EF] | SQF11219 | Instructions Book (1) |
| **A3** [XA] | SQF11221 | Instructions Book (1) |
| **A3** [Ei] | SQF11363 | Instructions Book (1) |
| **PACKING PARTS** | | |
| **P1** ○ | SPP699 | Polyethylene Bag (Silver) (1) |
| **P1** [K] | SPP649 | Polyethylene Bag (Black) (1) |
| **P2** other areas | SPS3661–2 | Pad, Left Side (1) |
| **P2** [XL]only | SPS3661–1 | Pad, Left Side (1) |

| Ref. No. | |
|---|---|
| **P3** other areas | S |
| **P3** [XL]only | S |
| **P4** other ○ areas | S |
| **P4** [EF] ○ | S |
| **P4** [Ei] ○ | S |
| **P4** [XL] ○ | S |
| **P4** [E] [K] | S |
| **P4** [EG] [K] | S |
| **P4** [K] [EH, Ei] | S |

## ■ EXPLODED VIEW




No. SU-Z45 (K)

| Description & Pcs | |
|---|---|
| Rear Panel | (1) |
| Rear Panel | (1) |
| Rear Panel | (1) |
| Rear Panel | (1) |
| Socket | (1) |
| Terminal Board | (1) |
| Look Pin | (1) |
| Bottom Board | (1) |
| Foot | (4) |
| Tapping, with Detent | (3) |
| Tapping, ⊕ 3x8 | (5) |
| ⊕ 3x6 | (4) |
| Tapping | (2) |
| Tapping | (2) |
| Tapping, ⊕ x 10 | (4) |
| ⊕ 3x12 | (2) |
| Tapping, ⊕ 3x8 | (1) |
| Tapping, ⊕ 3x8 | (1) |
| Tapping, ⊕ 3x8 | (1) |
| Tapping, ⊕ 3x8 | (2) |
| Tapping, ⊕ 3x8 | (2) |
| Tapping, with Detent | (10) |
| Tapping, with Detent | (2) |
| Tapping, ⊕ 3x10 | (4) |
| Spring, φ3 | (6) |
| Plain, φ3 | (7) |
| External Toothed Lock φ3 | (2) |
| External Toothed Lock φ3 | (2) |
| Nut, with Plain φ12 | (4) |
| | (1) |
| Plug Adapter, (C → U) | (1) |
| Plug Adapter, (U → B) | (1) |
| Instructions Book | (1) |
| Instructions Book | (1) |
| Instructions Book | (1) |
| Instructions Book | (1) |
| Instructions Book | (1) |
| Instructions Book | (1) |
| Polyethylene Bag (Silver) | (1) |
| Polyethylene Bag (Black) | (1) |
| Pad, Left Side | (1) |
| Pad, Left Side | (1) |

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| Ref. No. | Part No. | Description & Pcs | |
|---|---|---|---|
| P3 other areas | SPS3663 | Pad, Right Side | (1) |
| P3 [XL] only | SPS3663–1 | Pad, Right Side | (1) |
| P4 other ○ areas | SPG3895 | Carton Box (Silver) | (1) |
| P4 [EF] ○ | SPG3897 | Carton Box (Silver) | (1) |
| P4 [Ei] ○ | SPG3899 | Carton Box (Silver) | (1) |
| P4 [XL] ○ | SPG3901 | Carton Box (Silver) | (1) |
| P4 [E] ⊗ | SPG3991 | Carton Box (Black) | (1) |
| P4 [EG] ⊗ | SPG3993 | Carton Box (Black) | (1) |
| P4 ⊗ [EH, Ei] | SPG3995 | Carton Box (Black) | (1) |

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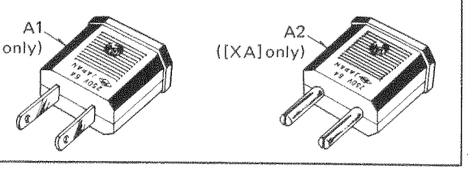
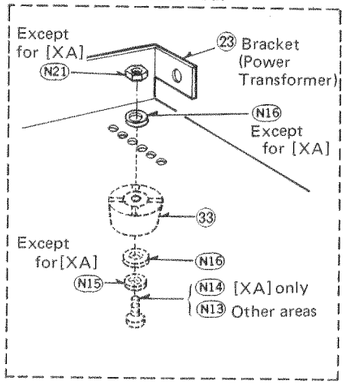
**Areas**

* [E] is available in Scandinavia and Switzerland.
* [EG] is available in F.R. Germany.
* [EK] is available in United Kingdom.
* [EF] is available in France.
* [EH] is available in Holland.
* [EB] is available in Belgium.
* [Ei] is available in Italy.
* [XA] is available in Southeast Asia, Oceania, Africa, Middle Near East and Central South America.
* [XL] is available in Australia.

**• Accessories**




**Foot view of left rear**

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# ■ RESISTORS & CAPACITORS

**Notes:**
1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
3. Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.
4. The "**S**" mark is service standard parts and may differ from production parts.
5. Unless otherwise specified.
   All resistors are in OHMS (Ω) K = 1000Ω , M = 1000kΩ
   All capacitors are in MICROFARADS (μF) P = μμF

## Numbering System of Resistor

Example

| ERD | 25 | F | J | 101 |
|---|---|---|---|---|
| Type | Wattage | Shape | Tolerance | Value |

| Resistor Type | Wattage | Tolerance |
|---|---|---|
| ERD : Carbon | 10 : 1/8W | G : ± 2% |
| ERG : Metal Oxide | 25 : 1/4W | J : ± 5% |
| ERO : Metal Film | 1 : 1W | |
| | S1 : 1/2W | |

ERD10TLJ□□□ ⟶ Chip type carbon
ERO10MKG□□□ ⟶ Chip type metal film

## Numbering System of Capacitor

Example

| ECKD | 1H | 103 | Z | F | ECEA | 50 | M | R47 | R |
|---|---|---|---|---|---|---|---|---|---|
| Type | Voltage | Value | Tolerance | Peculiarity | Type | Voltage | Peculiarity use | Value | Special use |

| Capacitor Type | Voltage: ECEA Type | Voltage: Others | Tolerance |
|---|---|---|---|
| ECEA : Electrolytic | 1A : 10V | 1H : 50V DC | C : ± 0.25pF |
| ECEA. . . N : Non Polar Electrolytic | 1C : 16V | 2H : 500V DC | J : ± 5% |
| ECCD : Ceramic | 1E : 25V | MY : 125V AC | K : ± 10% |
| ECKD : Ceramic | 1V : 35V | KC : 400VAC | M : ±20% |
| ECQM : Polyester | 1H : 50V | 2A : 250VAC | Z : +80%, −20% |
| ECQE : Polyester | 1J : 63V | | P : +100%, −0% |
| ECET : Electrolytic | 50 : 50V | | |
| | 25 : 25V | | |
| | 2A : 100V | | |

| Ref. No. | Part No. | Value |
|---|---|---|
| **RESISTORS** | | |
| R1, 2 | ERD10TLJ391U | 390 |
| R3, 4 | ERO10MKG2213 | 221K |
| R5, 6 | ERO10MKG5622 | 56.2K |
| R7, 8 | ERD10TLJ271U | 270 |
| R9, 10 | ERD10TLJ680U | 68 |
| R11, 12 | ERD10TLJ184U | 180K |
| R13, 14 | ERD10TLJ123U | 12K |
| R15, 16 | ERD10TLJ563U | 56K |
| R17, 18 | ERD10TLJ102U | 1K |
| (R21)x2 | ERD10TLJ102U | 1K |
| (R22)x2 | ERD10TLJ124U | 120K |
| (R23)x2 | ERD10TLJ393U | 39K |
| (R24)x2 | ERD10TLJ823U | 82K |
| (R25)x2 | ERD10TLJ561U | 560 |
| (R28)x2 | ERD10TLJ681U | 680 |
| R41 | ERD10TLJ124U | 120K |
| R42 | ERD10TLJ563U | 56K |
| R43 | ERD10TLJ471U | 470 |
| R44 | ERD10TLJ103U | 10K |
| R45 | ERD10TLJ222U | 2.2K |
| R46 | ERD10TLJ473U | 47K |
| R48 | ERD10TLJ562U | 5.6K |
| R56 | ERD10TLJ333U | 33K |
| R101, 102 **S** (for [EG] only) | ERD25FJ391 | 390 |
| R103, 104 **S** (for [EG] only) | ERD25FJ272 | 2.7K |
| R105~112 **S** (for [EG] only) | ERD25FJ102 | 1K |
| R151 **S** (Except for [EG]) | ERD25FJ100 | 10 |
| R153, 154 **S** | ERD25FJ101 | 100 |
| **R201, 202 S** (Except for [EG]) | ERD25FJ272 | 2.7K |
| **R201, 202 S** (for [EG] only) | ERD25FJ222 | 2.2K |
| R203, 204 **S** | ERD25TJ223 | 22K |
| R205, 206 **S** | ERD25TJ473 | 47K |
| R301, 302 **S** | ERD25FJ122 | 1.2K |
| R303, 304 **S** | ERD25TJ824 | 820K |
| R305, 306 **S** | ERD25TJ223 | 22K |
| R307, 308 **S** | ERD25FJ392 | 3.9K |
| R309, 310 **S** | ERD25TJ683 | 68K |
| R311, 312 **S** | ERD25FJ392 | 3.9K |
| R313, 314 ⚠**S** | ERD25FJ470 | 47 |
| R315 ⚠**S** | ERD25FJ470 | 47 |
| R316 **S** | ERG1ANJ152 | 1.5K |
| R317, 318 **S** | ERD25FJ272 | 2.7K |
| R319, 320 **S** | ERD25FJ222 | 2.2K |
| R321, 322 ⚠ | ERDS1FJ100 | 10 |
| R323, 324 **S** | ERG1ANJ331 | 330 |
| R410, 402 ⚠ | ERDS1FJ152 | 1.5K |
| R403, 404 **S** | ERD25TJ153 | 15K |
| R406, 407 **S** | ERD25FJ151 | 150 |
| R411 **S** | ERG1ANJ152 | 1.5K |
| R414 ⚠**S** | ERD25FJ390 | 39 |
| R415 ⚠**S** | ERD25FJ470 | 47 |
| R416 **S** | ERD25TJ274 | 270K |
| R417 **S** | ERD25FJ122 | 1.2K |
| R601, 602 **S** | ERD25FJ682 | 6.8K |
| R603, 604 **S** | ERD25FJ821 | 820 |
| R605, 606 **S** | ERD25TJ223 | 22K |
| R607 ⚠ | ERDS1FJ271 | 270 |
| R608 ⚠**S** | ERD25FJ561 | 560 |
| R609 **S** | ERD25FJ472 | 4.7K |
| R610 ⚠ | ERDS1FJ151 | 150 |
| R611 **S** | ERD25FJ471 | 470 |
| R612 ⚠ | ERDS1FJ391 | 390 |

| Ref. No. | Part No. | Value |
|---|---|---|
| **CAPACITORS** | | |
| C1, 2 **S** | ECEA50M3R3R | 3.3 |
| C3, 4 **S** | ECCD1H101KC | 100P |
| C5, 6 **S** | ECKD1H471KB | 470P |
| C7, 8 **S** | ECQM1H223JZ | 0.022 |
| C9, 10 **S** | ECQM1H682JZ | 0.0068 |
| C11, 12 ⚠ | ECEA1HN010S | 1 |
| C13, 14 **S** | ECEA1CS330 | 33 |
| (C21)x2 **S** | ECEA50Z3R3 | 3.3 |
| (C22)x2 **S** | ECCD1H390KC | 39P |
| (C23)x2 **S** | ECEA1HS100 | 10 |
| (C24)x2 **S** | ECEA25Z4R7 | 4.7 |
| (C28)x2 **S** | ECCD1H820K | 82P |
| (C29)x2 **S** | ECCD1H030CC | 3P |
| (C30)x2 **S** | ECCD1H330KC | 33P |
| (C31)x2 **S** | ECCD1H391KB | 390P |
| C41 **S** | ECEA1JS330 | 33 |
| C42, 43 **S** | ECEA1HS470 | 47 |
| C44 **S** | ECEA2AS3R3 | 3.3 |
| C101, 102 **S** (for [EG] only) | ECCD1H180KC | 18P |
| C201, 202 **S** | ECQM1H563JZ | 0.056 |
| C203, 204 **S** (Except for [EG]) | ECKD1H471KB | 470P |
| C221~228 **S** (for [EG] only) | ECKD1H471KB | 470P |
| C301, 302 **S** | ECQM1H223JZ | 0.022 |
| C303, 304 **S** | ECQM1H183JZ | 0.018 |
| C305, 306 **S** | ECQM1H104JZ | 0.1 |
| C307 **S** | ECEA1HS101 | 100 |
| C308 **S** | ECKD1H103ZF | 0.01 |
| C311, 312 **S** | ECCD1H101KC | 100P |
| C313, 314 **S** | ECCD1H101KC | 100P |
| C315, 316 **S** | ECEA1HS470 | 47 |
| C317, 318 ⚠ | ECEA1EN3R3S | 3.3 |
| C319, 320 **S** | ECQM1H473JZ | 0.047 |
| C321~324 **S** (for [EG] only) | ECKD1H103ZF | 0.01 |
| C325, 326 **S** (for [EG] only) | ECKD1H333ZF | 0.033 |
| C391, 392 (for [EG] only) | ECQM1H124KZ | 0.12 |
| C393 **S** (for [EG] only) | ECKD1H333ZF | 0.033 |
| C401, 402 | ECETS45V682U | 6800 |
| C403 **S** | ECEA1AS331 | 330 |
| C404 **S** | ECEA2AS100 | 10 |
| C407, 408 **S** | ECEA1ES101 | 100 |
| C409, 410 **S** | ECKD1H103ZF | 0.01 |
| C501 ⚠ (Except for [EG] & [XA]) | ECKDKC103PF | 0.01 |
| C502 ⚠ (for [EF] only) | ECQE2A473MW | 0.047 |
| C503~506 ⚠ (for [EG] only) | ECKDKC222MF | 0.0022 |
| C507 ⚠ (for [EG] only) | ECQE2A473MW | 0.047 |
| C508, 509 ⚠ (for [EG] & [XA] only) | ECKDKC103PF | 0.01 |
| C601, 602 **S** | ECEA50ZR47 | 0.47 |
| C603 **S** | ECEA50ZR47 | 0.47 |
| C604 **S** | ECKD1H103ZF | 0.01 |
| C605, 606 **S** | ECKD1H332KB | 0.0033 |
| C609 **S** | ECEA1VS330 | 33 |



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