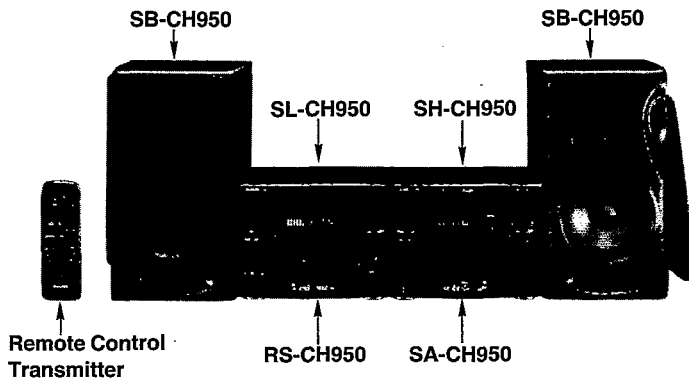


Service Manual

Tuner Amplifier

Tuner Amplifier

SA-CH950



Because of unique interconnecting cables, when a component requires service, send or bring in the entire system.

Colour

(K) Black Type

Areas

| Suffix for Model No. | Area | Colour |
|----------------------|--|--------|
| (E) | Europe | (K) |
| (EB) | Great Britain | |
| (EG) | Germany and Italy | |
| (GC) | Asia, Latin America, Middle Near East and Africa | |
| (GN) | Oceania | |

SPECIFICATIONS

(DIN 45 500)

■ Main Amp. Section

Power output
 DIN 1 kHz THD 1%, both channel driven 2×60 W (6Ω)
 SFP, Dolby Pro-Logic mode 1 kHz THD 1%
 MAIN 2×55 W (6Ω)
 SURROUND 2×7 W (8Ω)
 Total harmonic distortion
 Rated power at 1 kHz 1% (6Ω)
 Half power at 1 kHz 0.07% (6Ω)
 Load impedance
 MAIN 6–8Ω
 SURROUND 8Ω
 S/N (rated power) 84 dB
 Frequency response 40 Hz–30 kHz (–3 dB)

■ FM Tuner Section

Frequency range 87.50 MHz–108.00 MHz (0.05 MHz steps)
 Sensitivity 1.8 μV (IHF, usable)
 S/N 26 dB 1.5 μV (75Ω)
 MONO 70 dB (75 dB, IHF)
 Stereo separation at 1 kHz 35 dB
 Antenna terminal(s) 75Ω (unbalanced)

■ AM Tuner Section

Frequency range MW
 For (E), (EB), (EG), (GN) areas 522–1611 kHz (9 kHz steps)
 530–1620 kHz (10 kHz steps)
 For (GC) area 531–1602 kHz (9 kHz steps)
 530–1600 kHz (10 kHz steps)

System: SC-CH950

LW
 For (E), (EB), (EG), (GN) areas 144–288 kHz, (9 kHz steps)
 For (GC) area 153–279 kHz (9 kHz steps)
 Sensitivity (S/N 20 dB)
 MW 500 μV/m
 LW 50 μV

■ Timer Section

Clock Quartz-lock type
 Function 24-hour programmable; Play timer (1 time)
 Rec timer (1 time)
 Sleep (120 min. 1 min. intervals)
 Setting 1 minute–23 hours 59 minutes (1 min. intervals)

■ General

Power consumption 190 W
 Power supply
 For (E), (EG) areas AC 50/60 Hz, 230 V
 For (EB), (GN) areas AC 50/60 Hz, 230 V–240 V
 For (GC) area AC 50/60 Hz, 110/127/220/240 V
 Dimension (W×H×D) 270×119×334 mm
 Weight 6.1 kg

Notes:

1. Specifications are subject to change without notice.
2. Weight and dimensions shown are approximate.
3. Total harmonic distortion is measured by the digital spectrum analyzer.

| System | Sound processor | Tuner amplifier | Compact disc player | Cassette deck | Speakers |
|----------|-----------------|-----------------|---------------------|---------------|-----------|
| SC-CH950 | SH-CH950 | SA-CH950 | SL-CH950 | RS-CH950 | *SB-CH950 |

* (E), (EB), (EG) areas...Made in PAES

Technics

CONTENTS

| | Page | | Page |
|---------------------------------|-------|-------------------------------------|-------|
| ●BEFORE REPAIR | 2 | ●SCHEMATIC DIAGRAM | 14~24 |
| ●PROTECTION CIRCUITRY | 2 | ●PRINTED CIRCUIT BOARD DIAGRAM..... | 25~29 |
| ●ACCESSORIES | 2, 3 | ●WIRING CONNECTION DIAGRAM | 30 |
| ●LOCATION OF CONTROLS | 3, 4 | ●FUNCTION OF IC TERMINALS | 31 |
| ●STACKING THE COMPONENTS | 5 | ●BLOCK DIAGRAM | 32~34 |
| ●CONNECTIONS | 5~8 | ●REPLACEMENT PARTS LIST | 35~40 |
| ●SETTING THE TIME OF DAY | 9 | ●CABINET PARTS LOCATION | 41 |
| ●DISASSEMBLY INSTRUCTIONS | 10~13 | ●PACKAGING | 42 |

BEFORE REPAIR

- (1) Turn off the power supply. Using a 10Ω, 10 W resistor, connect both ends of power supply capacitors (C701, C702) in order to discharge the voltage.
- (2) Before turning the power supply on, after completion of repair, slowly apply the primary voltage by using a power supply voltage controller to make sure that the consumed current at 50/60 Hz in NO SIGNAL mode is mode should be shown below with respect to supply voltage 110 V/127 V/ 220 V/240 V.

| Power supply voltage | AC 230 V | AC 240 V |
|------------------------|------------|------------|
| Consumed current 50 Hz | 130~230 mA | 115~215 mA |

PROTECTION CIRCUITRY

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

*No sound is heard when the power is switched ON.

*Sound stops during a performance.

The functions 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 this unit are used.

If this occurs, follow the procedure outlined below:

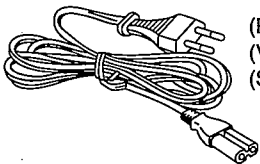
1. Switch OFF the power.
2. Determine the cause of the problem and correct it.
3. Switch ON the power once again.

Note:

When the protection circuitry functions, the unit will not operate unless the power is first switched OFF and then ON again.

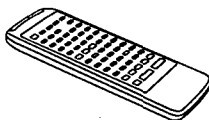
ACCESSORIES

Check the packing carton for these accessories.



(RJA0019-2K) for (E), (EG), (GC) areas
(VJA0733) for (EB) area
(SJA173) for (GN) area

- AC power supply cord 1 pc.



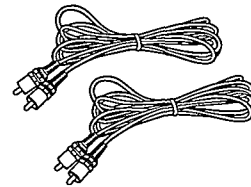
(RAK-SC707WH)

- Remote control transmitter 1 pc.

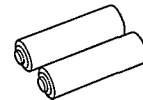


(REX0462)

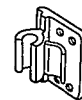
- Flat cable 1 pc.



- Surround speaker cords 2 pcs.
(RJL1P001B25)

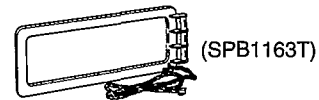


- Remote control batteries
UM-4, AAA, R03 2 pcs.
Note: These are available on sale route.

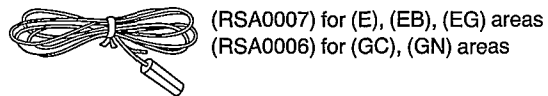


(SMA233-1M)

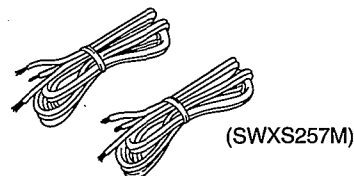
- Antenna holder 1 pc.



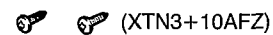
•LW/MW loop antenna 1 pc.



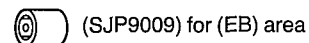
•FM indoor antenna 1 pc.



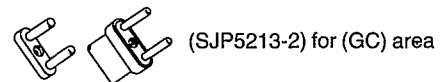
•Speaker cords 2 pcs.



•Mounting screws 2 pcs.



•Attachment plug 1 pc.

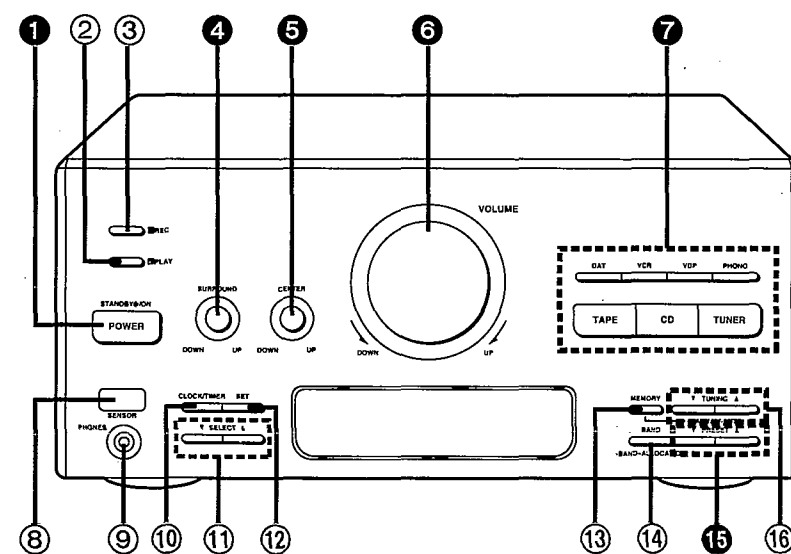


•Power plug adaptor 1 pc.

Note:

The configurations of AC power supply cord and FM indoor antenna differ according to area.

LOCATION OF CONTROLS



The functions indicated by the numbers with black background (for example ①) can also be activated from the remote control.

① Power "STANDBY \odot /ON" switch (POWER, STANDBY \odot /ON)

This switch switches ON and OFF the secondary circuit power only. The unit is in the "standby" condition when this switch is set to the STANDBY \odot position. Regardless of the switch setting, the primary circuit is always "live" as long as the power cord is connected to an electrical outlet.

② Timer play button (▶ PLAY)

Press to confirm, exit or reset the play timer.

③ Timer recording button (▶ REC)

Press to confirm, exit or reset the record timer.

④ Surround speaker level control (SURROUND)

Turn to adjust the volume level of the surround speaker.

⑤ Center speaker level control (CENTER)

Turn to adjust the volume level of the center speaker.

⑥ Volume level control (VOLUME)

Turn to adjust the volume level.
Note that --- dB is the lowest volume setting and 0 dB is the highest.

⑦ Input select buttons (TAPE, CD, TUNER, DAT, VCR, VDP, PHONO)

Press to select the sound source.

⑧ Remote control signal sensor (SENSOR)

Receives the signals from the remote control.

⑨ Headphones jack (PHONES) (\varnothing 3.5, 32 Ω)

Plug headphones cord into this jack.

⑩ Clock/timer button (CLOCK/TIMER)

Press to select the clock set mode or desired timer mode.

⑪ Timer select buttons (▼ SELECT ▲)

Use when setting the current time and timer.

⑫ Setting button (SET)

Press to set the present time in the clock mode, or set the various selection in the timer mode.

⑬ Preset memory button (MEMORY, -MANUAL, -AUTO)

Press to put a broadcast station into the memory.

⑭ Band select/allocation change button (BAND, -BAND -ALLOCATION)

Press to select the MW, LW or FM radio band.
Press and hold to change the MW frequency step.

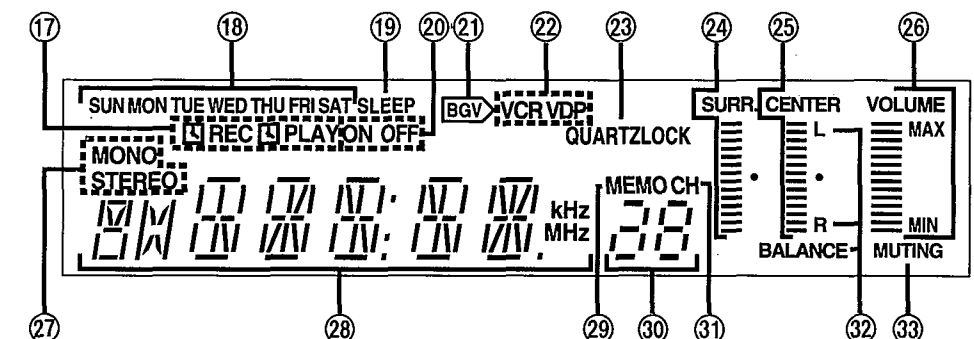
⑮ Preset tuning buttons (▼ PRESET ▲)

Use to select channel number for a broadcast station which has been stored in the tuner's memory.

⑯ Tuning buttons (▼ TUNING ▲)

Use to tune in a desired broadcast station.

Display section



⑰ Timer mode indicators (▶ REC, ▶ PLAY)

▶ REC: Lights when you have set the record timer mode.
▶ PLAY: Lights when you have set the play timer mode.

⑱ Day indicators (SUN-SAT)

Shows the day of the week or the day the timer has been set for.

⑲ Sleep timer indicator (SLEEP)

Lights when you have set the sleep timer mode.

⑳ Timer on/off indicator (ON, OFF)

Lights together with the setting time to show the timer ON time and OFF time.

㉑ BGV (background visual) indicator (▶ BGV)

Lights when listening to audio sound source.

㉒ Visual source indicators (VCR, VDP)

Lights to show it is possible to enjoy BGV (Back Ground Visual) if you connect video deck or video disc player to this system.

㉓ Quartz lock indicator (QUARTZLOCK)

Lights when you precisely tune in a broadcast station.

㉔ Surround level display (SURRE.)

Shows the volume level of the surround speakers.

㉕ Center level display (CENTER)

Shows the volume level of the center speaker.

㉖ Volume level display (VOLUME, MAX, MIN)

Shows the volume level.

㉗ FM STEREO/MONO indicator (MONO, STEREO)

"STEREO" lights when an FM stereo broadcast is being received. If you press FM mode button on the remote control to select monaural mode, "MONO" lights.

㉘ Alpha-numeric display

Shows the selected source, present time, and the contents of the timer setting, received frequencies, volume level.

㉙ Memory indicator (MEMO)

Lights when the preset memory button is pressed.

㉚ Preset channel display

Shows the preset channel you select.

㉛ Channel indicator (CH)

Lights when the unit is in the preset tuning mode.

㉜ Balance display (L, R, BALANCE)

Shows the left-right volume balance.

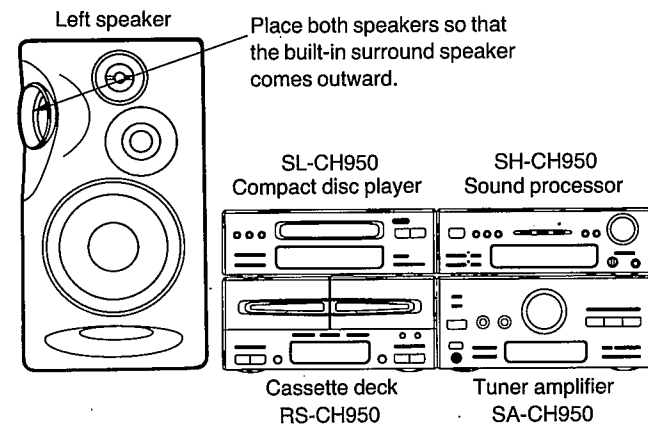
㉝ Muting indicator (MUTING)

Lights when you activate the muting mode.

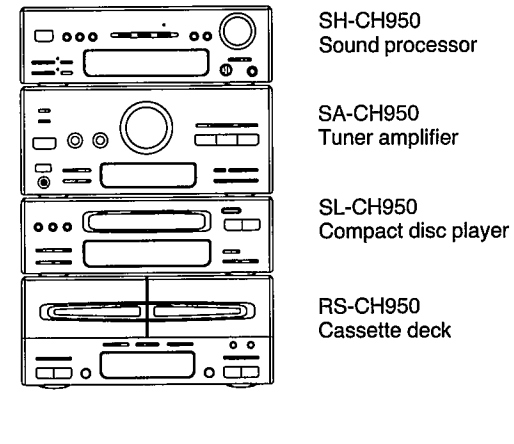
■ STACKING THE COMPONENTS

Install the various components as shown below.

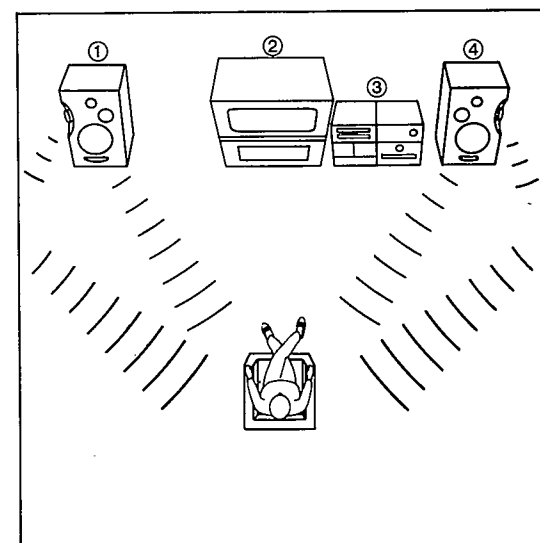
■ Horizontal stacking



■ Vertical stacking



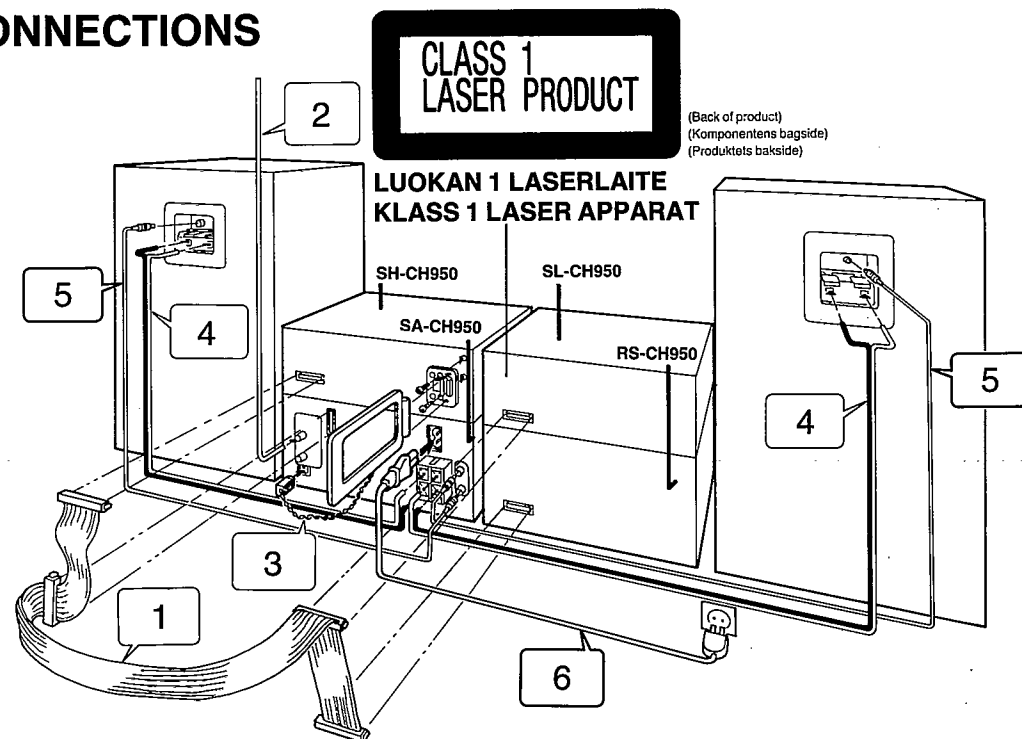
■ System layout



- ① Left speaker
- ② Television set (not included)
- ③ This system
- ④ Right speaker
- ⑤ Surround speaker (not included)

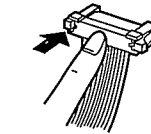
To produce a better stereo sound, install both speakers away from the system.
This speaker system has built-in surround speaker, so you can easily enjoy the surround sound.

■ CONNECTIONS

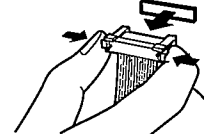


1 Connect the flat cable.

Connecting



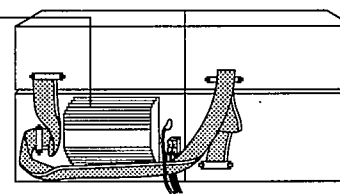
Disconnecting



Hold the connector with the recessed part up and press in at the center until you hear a click.
First connect the blue-colored connector to the terminal of the sound processor (A), then connect the rest in the order B, C, D.
Route the cable horizontally (underneath the heat outlet grille) so that the side with the white-color lead is positioned at the front.

After connection, fold and press the cable as flat to the back of the unit as possible.

Heat outlet grille



Do not try connecting or disconnecting the flat cable while the power is switched to ON.

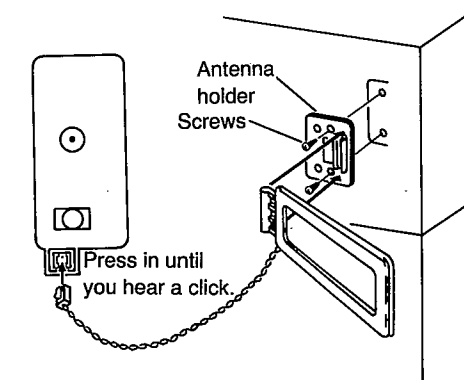
3 Connect the LW/MW loop antenna.

1. Attach the antenna holder with screws (included) to the rear panel of the sound processor.
2. Clamp the antenna to the antenna holder and connect the antenna terminal to the rear panel of the tuner amplifier.
3. Position the loop for the best reception.

You may attach the LW/MW antenna holder to a rack or other structure.

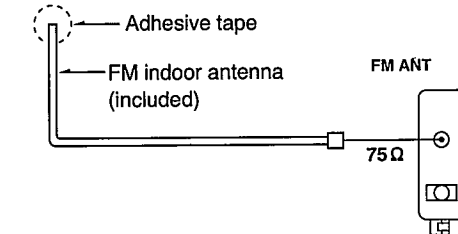
Notes:

- To minimize noise pickup, keep the LW/MW loop antenna away from the speaker cable, power cord, and metal surfaces.
- For better reception, keep the LW/MW loop antenna cord along the heat outlet grille, and away from the flat cable.



2 Connect the FM indoor antenna.

Install the antenna on a wall at a height and in a direction which result in the best reception.



The tip of the internal antenna wire should not come into contact with any metal objects.
When you cannot get a good reception with this FM indoor antenna, we recommend you install an FM outdoor antenna (not included). Disconnect the FM indoor antenna if you install an FM outdoor antenna.

4 Connect the speaker cables.

Connection of speaker cables

1. Strip off the outer covering, and twist the center conductor.

Make sure the bare ends of the wires are not unraveled. (If they are, twist them tight again.)

2. Insert the wire to the rear panel of the speakers, and then pull down the lever.

3. Insert the wire to the rear panel of the tuner amplifier, and close the lever.

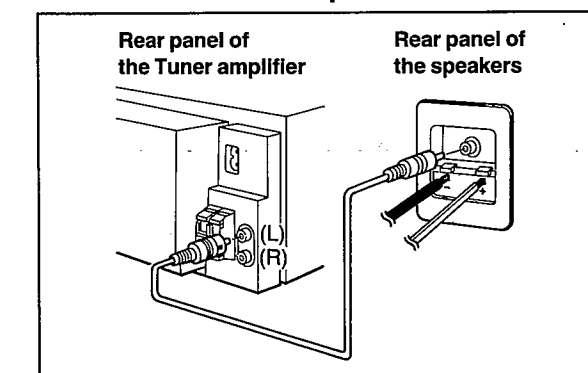
Notes:

- To prevent damage to circuitry, never short-circuit positive (+) and negative (-) speaker wires.
- Be sure to connect only positive (red) wires to positive (+) terminals and negative (black) wires to negative (-) terminals.

Note:

- Be sure to connect speaker cables before connecting the AC power supply cord.

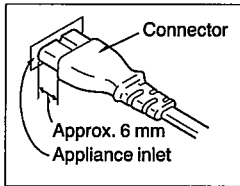
5 Connect the surround speaker cord.



6 Connect the AC power supply cord after you have connected all other cables and cords.

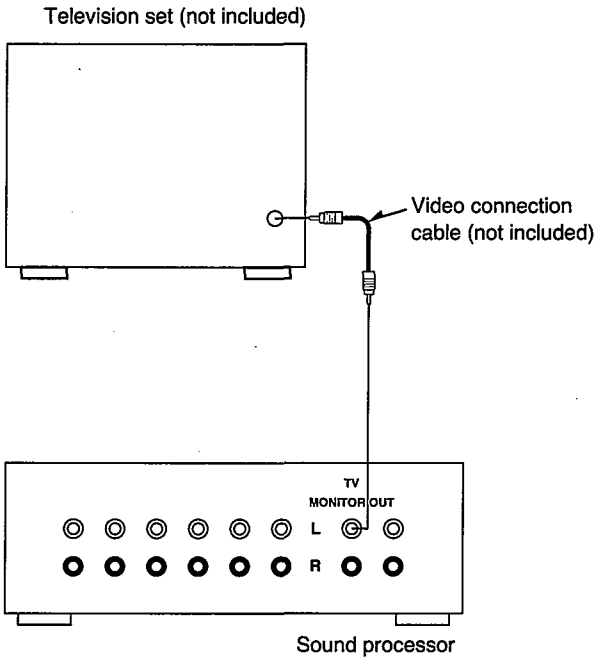
Insertion of Connector

Even when the connector is perfectly inserted, depending on the type of inlet used, the front part of the connector may jut out as shown in the drawing. However there is no problem using the unit.

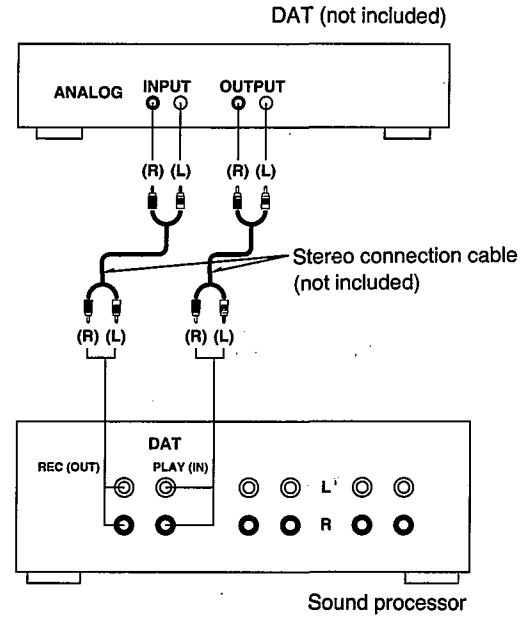


External unit connection

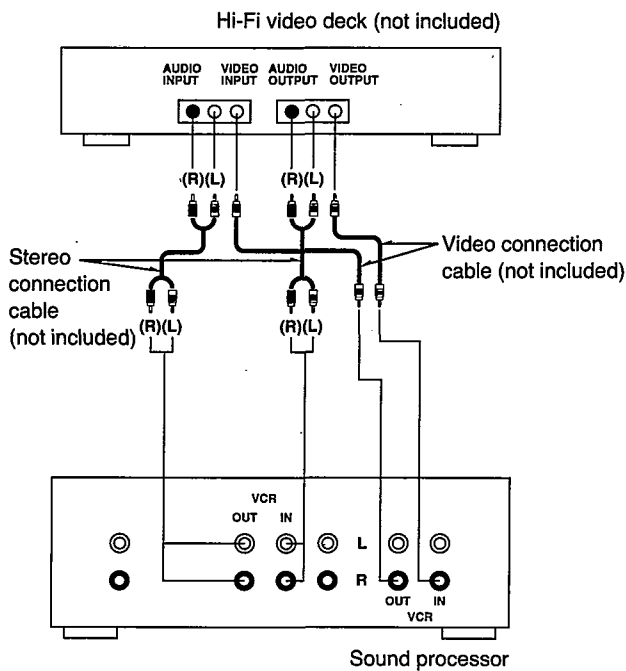
Television



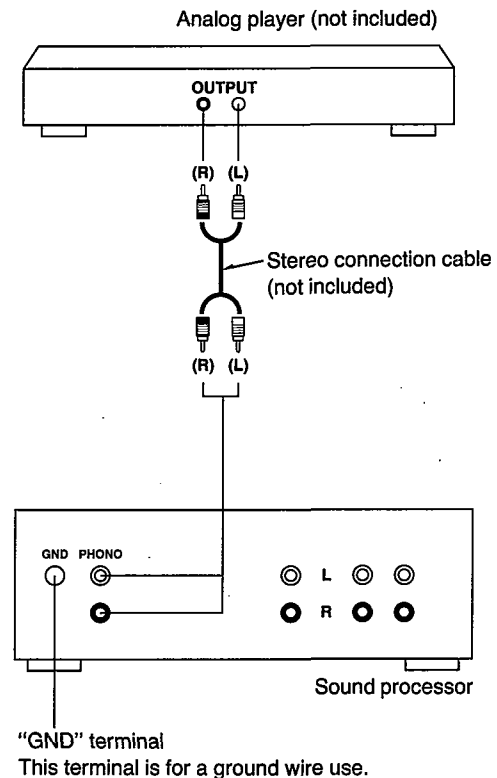
DAT (digital audio tape deck)



Video deck



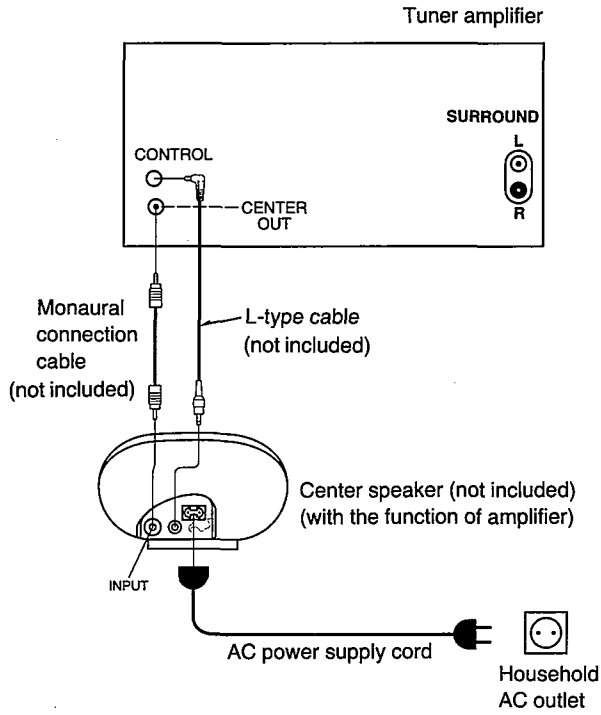
Analog player



When you use a monaural video deck, connect it with monaural video connection cable.

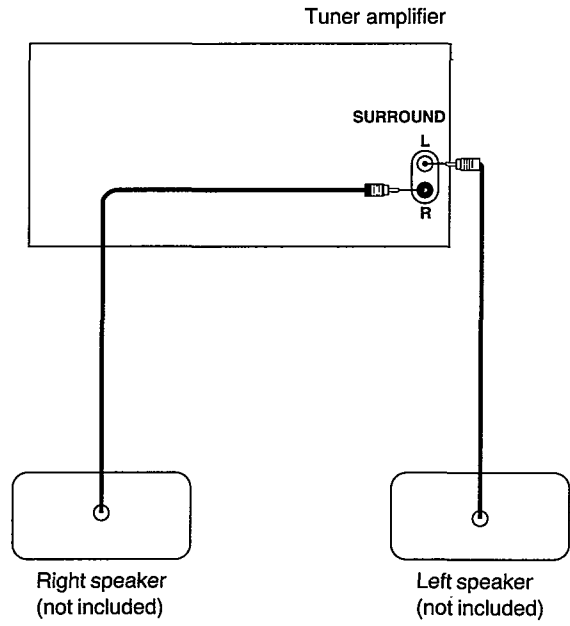
"GND" terminal
This terminal is for a ground wire use.

Center speaker



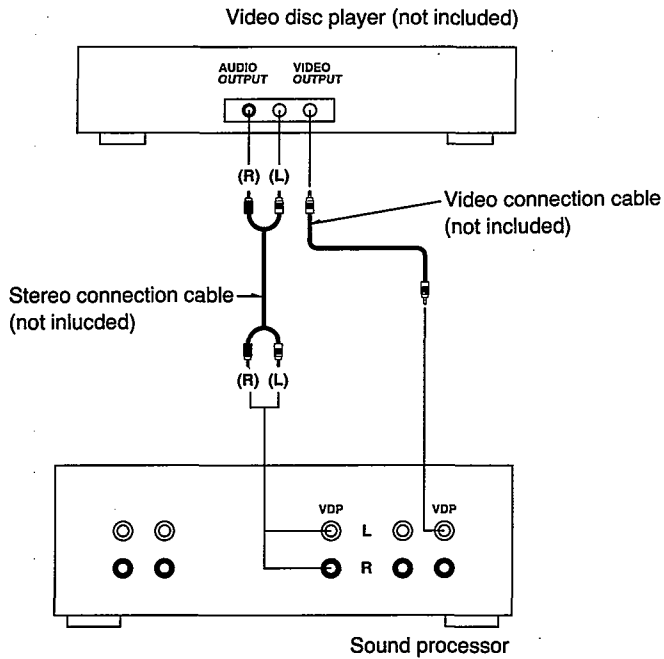
Note:
When you use a center speaker which has not a built-in amplifier, connect it to an another amplifier.

Surround speaker

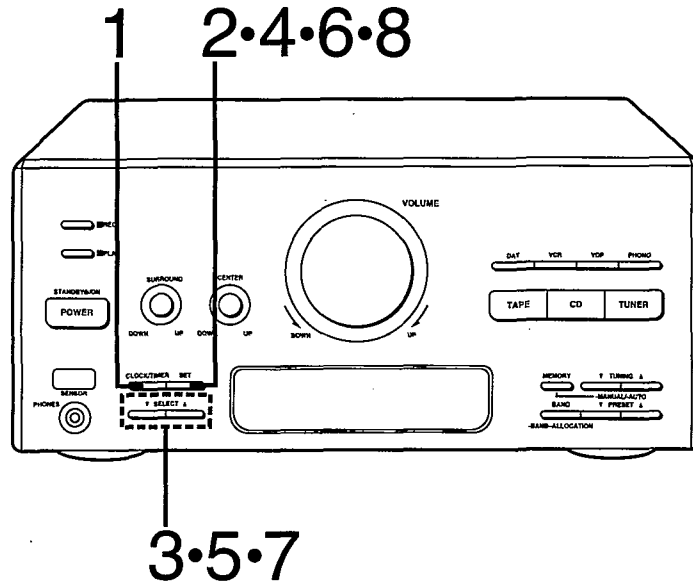
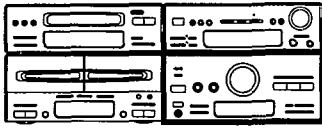


Notes:
Install each speaker left and right at the back of the listening space. Disconnect the surround speaker cords provided for model SC-CH950 (see step 5 on page 6) when connecting the optional surround speaker system.

Video disc player



■ SETTING THE TIME OF DAY



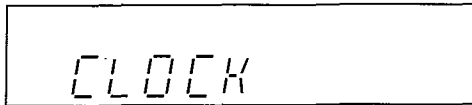
These instructions explain how to set the time for 16:25 (4:25 p.m.) on Wednesday.

Switch on the power.

1 Press **CLOCK/TIMER** to select "CLOCK".

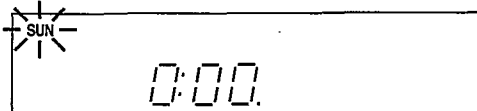
The display will show **CLOCK**.

The display will return to what was previously indicated if you allow 7 or more seconds to elapse before you accomplish the next operation.

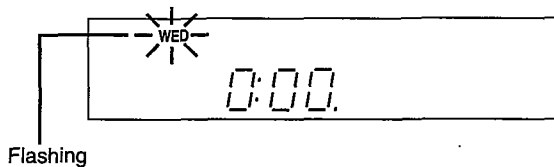


2 Press **SET**.

The day indicator will start to flash.



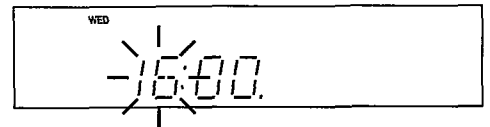
3 Press one of the **SELECT** buttons to select "WED".



4 Press **SET**.

5 Press one of the **SELECT** buttons to select "16".

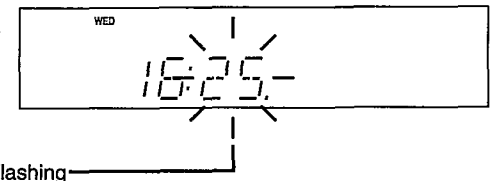
Going from 23:59 to 00:00 on the hour display will not change the day display.



6 Press **SET**.

7 Press one of the **SELECT** buttons to select "25".

Going from 59 to 00 on the minute display will not change the hour display.



8 Press **SET** to finish setting the time.

After about 2 seconds, the display will return to what it were before entering the clock setting mode.

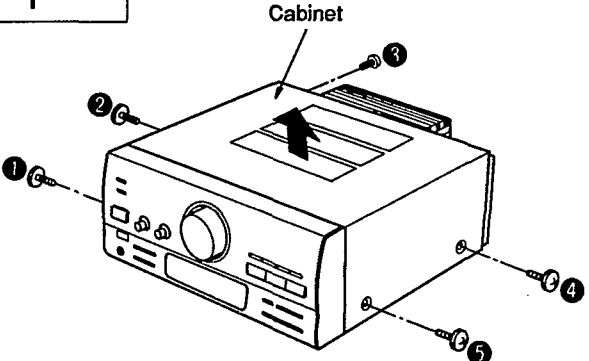
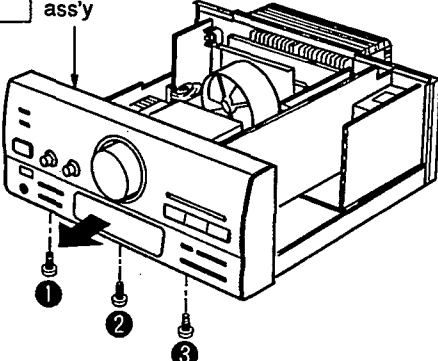
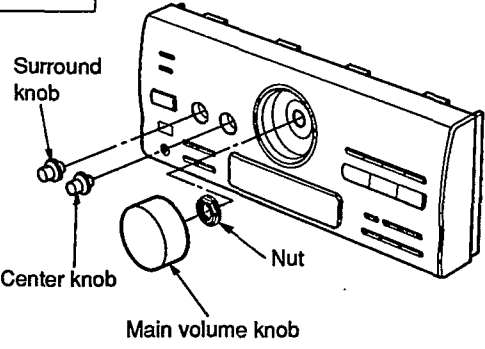
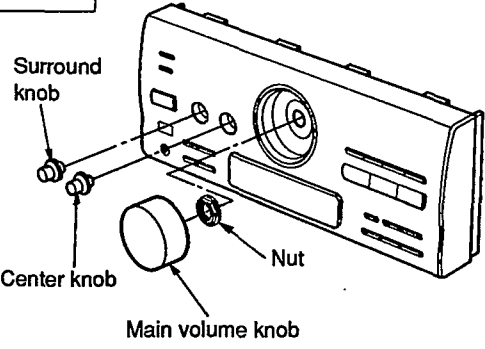
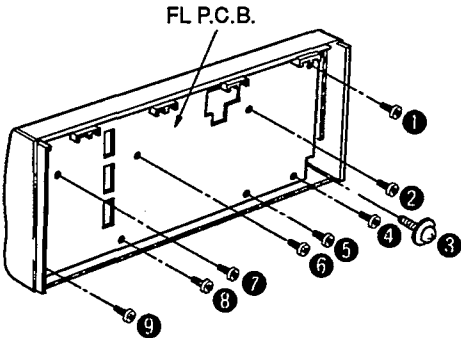
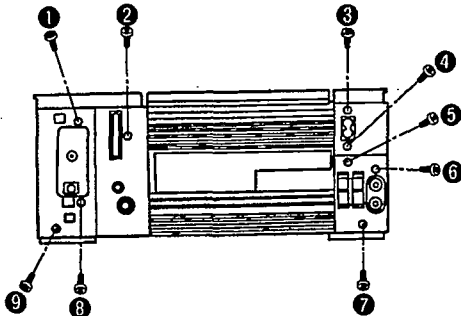
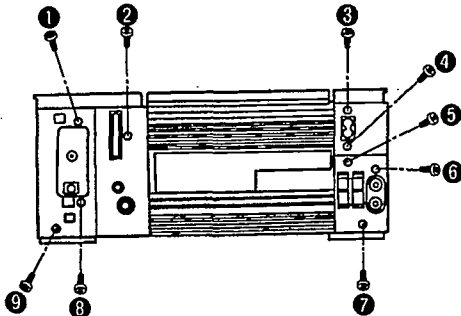
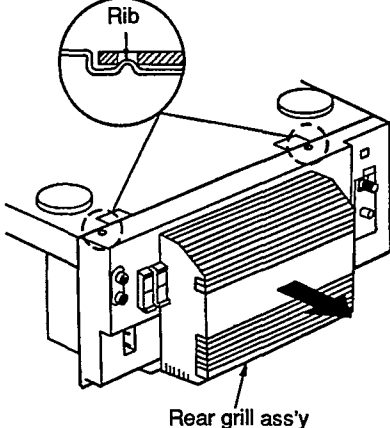
To display the clock again, press **CLOCK/TIMER**. The display will show "CLOCK", and then clock will appear for 5 seconds.

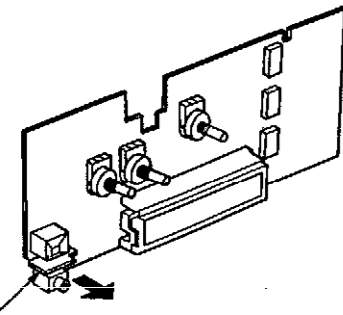
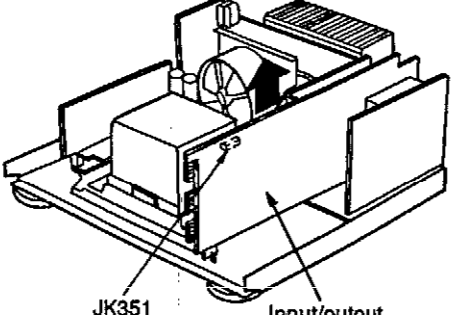
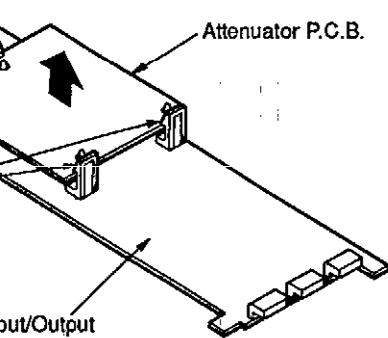
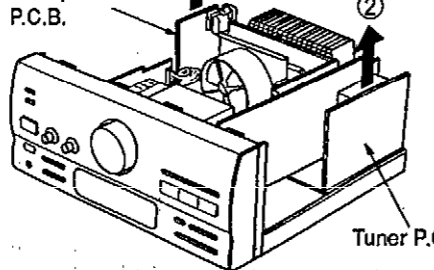
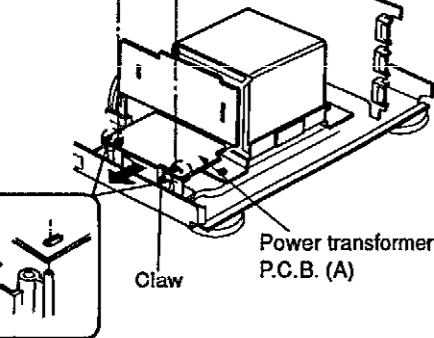
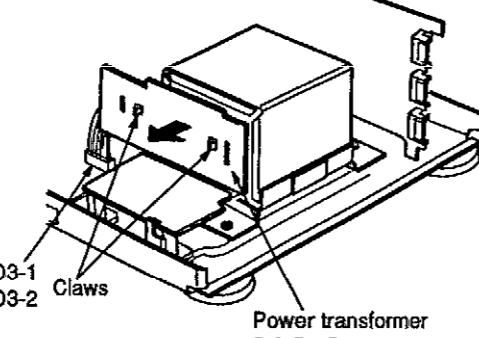
"E" appears on the display if the power cord has been once disconnected or there has been a power failure. If this happens, reset the time.

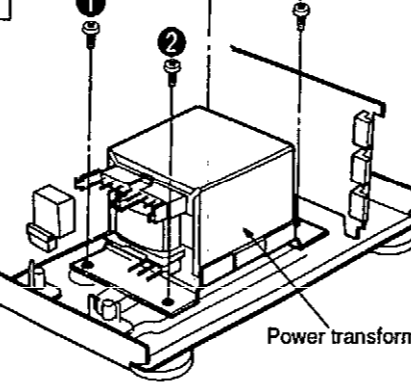
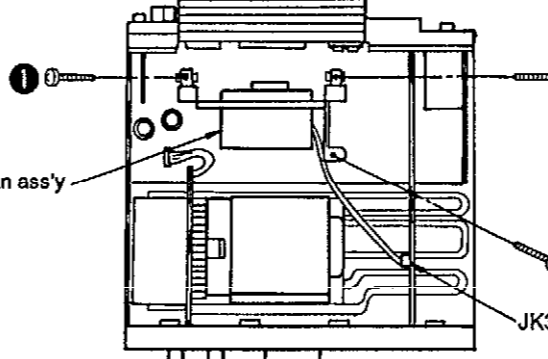
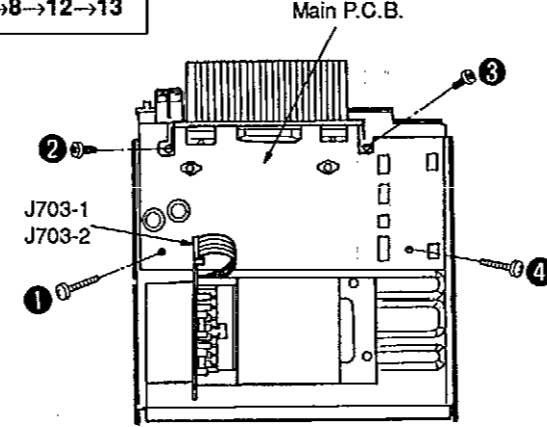
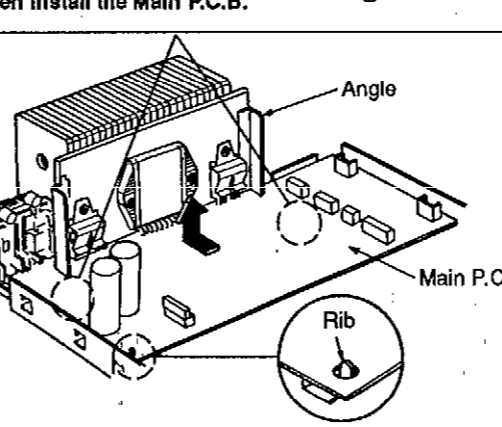
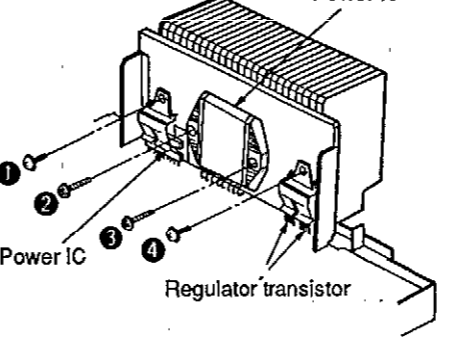
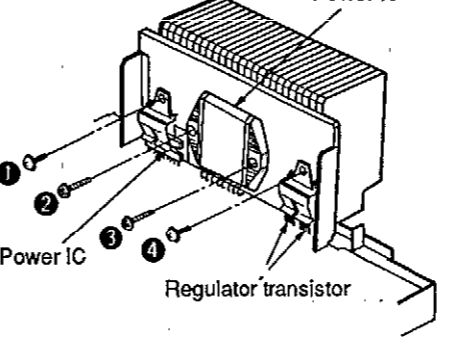
DISASSEMBLY INSTRUCTIONS

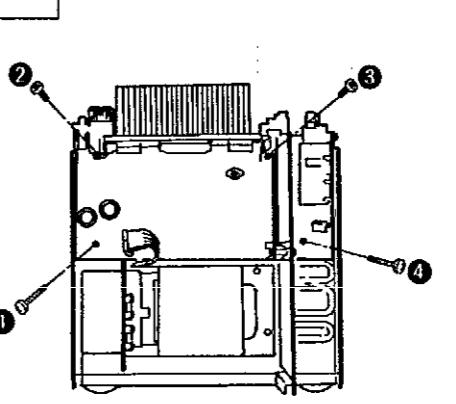
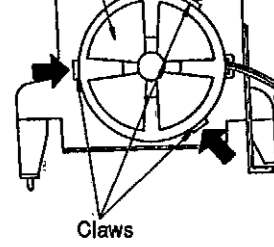
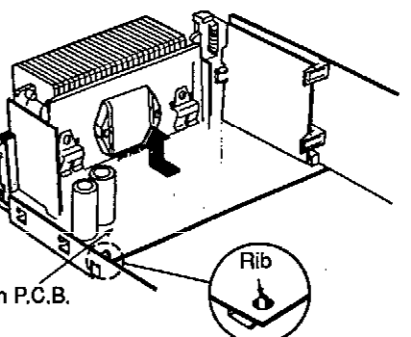
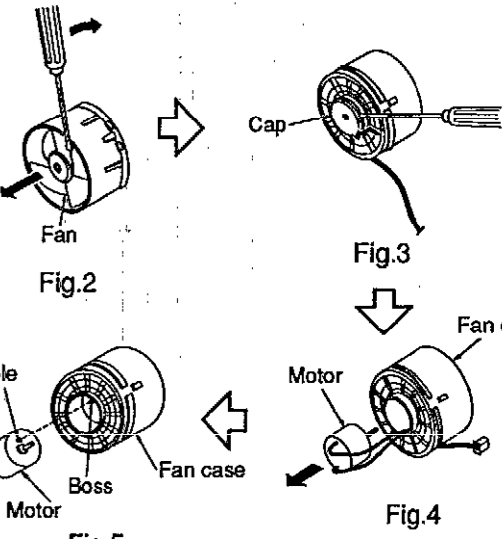
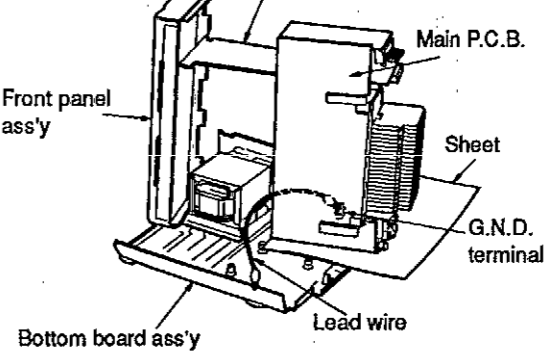
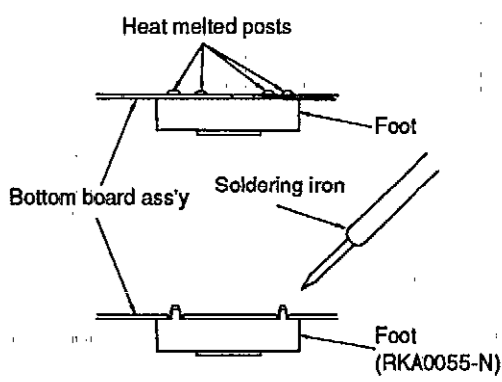
"ATTENTION SERVICER"

Some chassis components may have sharp edges. Be careful when disassembling and servicing.

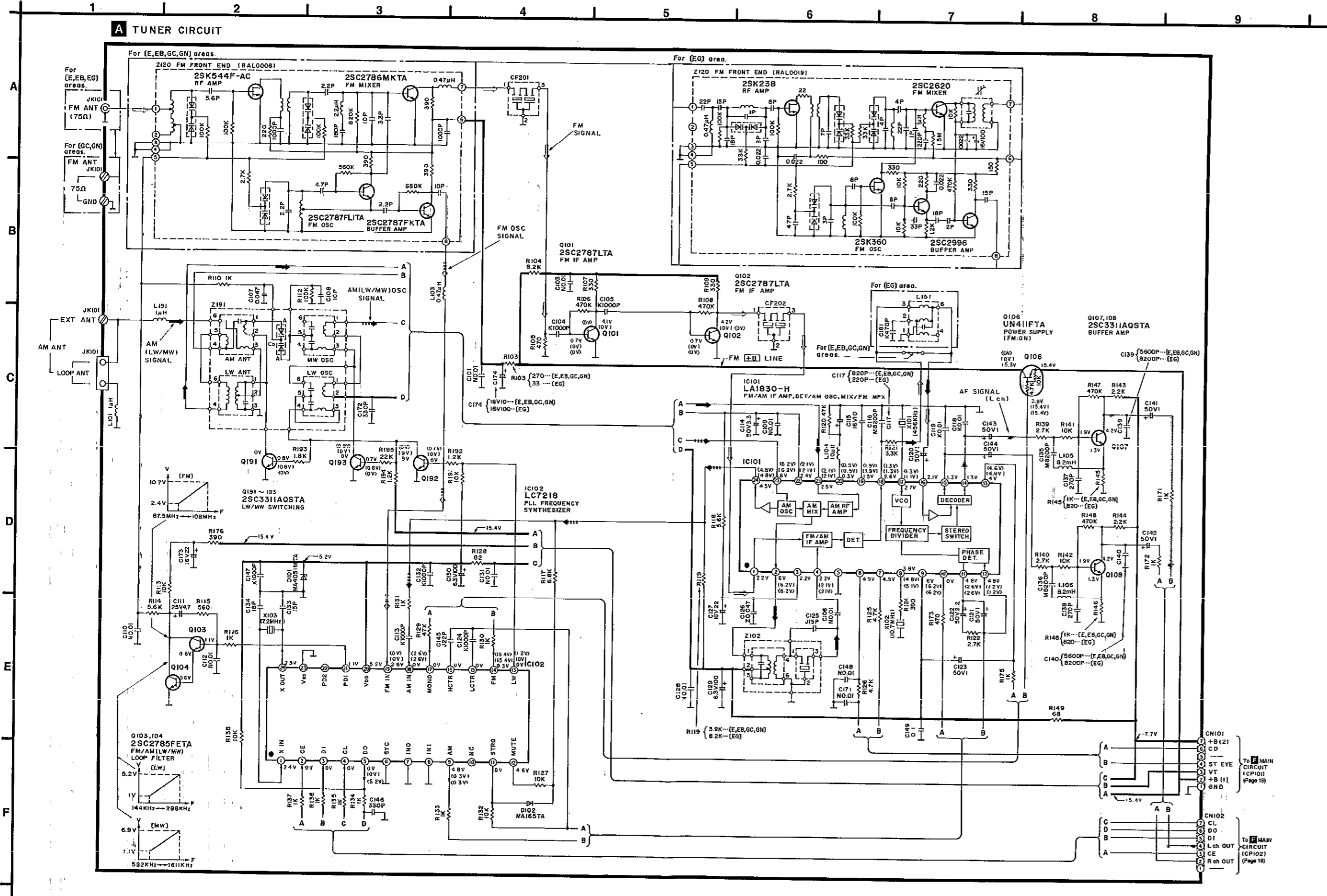
| | | | |
|----------------------------|---|---|---|
| <p>Ref. No. 1</p> | <p>Removal of the Cabinet</p> | <p>Ref. No. 2</p> | <p>Removal of the Front Panel Ass'y</p> |
| <p>Procedure 1</p> |  <p>1. Remove the 5 screws (1~5).</p> <p>2. Remove the cabinet in the direction of arrow.</p> | <p>Procedure 1→2</p> |  <p>1. Remove the 3 screws (1~3).</p> <p>2. Remove the front panel ass'y in the direction of arrow.</p> |
| <p>Ref. No. 3</p> | <p>Removal of the FL P.C.B.</p> |  <p>1. Pull out the main volume knob.</p> <p>2. Remove the nut.</p> <p>3. Pull out the surround knob and center knob.</p> | |
| <p>Procedure 1→2→3</p> |  <p>1. Pull out the main volume knob.</p> <p>2. Remove the nut.</p> <p>3. Pull out the surround knob and center knob.</p> | <p>Ref. No. 4</p> |  <p>4. Remove the 9 screws (1~9).</p> |
| <p>Ref. No. 4</p> | <p>Removal of the Rear Grill Ass'y</p> |  <p>1. Remove the 9 screws (1~9).</p> | |
| <p>Procedure 1→4</p> |  <p>1. Remove the 9 screws (1~9).</p> | <p>Procedure 1→4</p> |  <p>2. Remove the 2 ribs.</p> <p>3. Remove the rear grill ass'y in the direction of arrow.</p> |

| | | | | | |
|--|---|--|----------------|--|----------------------|
| Ref. No. 5 | Removal of the Headphones Jack P.C.B. | Procedure 1→2→3→5 | Ref. No. 6 | Removal of the Input/output Terminal P.C.B. | Procedure 1→2→4→6 |
|  <p>Headphones jack P.C.B.</p> <p>Remove the headphones jack P.C.B. in the direction of arrow.</p> | |  <p>JK351 Input/output terminal P.C.B.</p> <p>1. Remove the 1 connector (JK351). 2. Remove the input/output terminal P.C.B. in the direction of arrow.</p> | | | |
| Ref. No. 7 | Removal of the Attenuator P.C.B. | Procedure 1→2→4→6→7 | Ref. No. 8 | Removal of the AC Input Terminal P.C.B. and Tuner P.C.B. | Procedure 1→4→8 |
|  <p>Attenuator P.C.B.</p> <p>Claws</p> <p>Input/Output terminal P.C.B.</p> <p>Release the 3 claws.</p> | |  <p>AC input terminal P.C.B.</p> <p>Tuner P.C.B.</p> <p>Removal of the AC Input Terminal P.C.B. Remove the AC input terminal P.C.B. in the direction of arrow ①.</p> <p>Removal of the Tuner P.C.B. Remove the tuner P.C.B. in the direction of arrow ②.</p> | | | |
| Ref. No. 9 | Removal of the Power Transformer P.C.B. (A) | Procedure 1→2→9 | Ref. No. 10 | Removal of the Power Transformer P.C.B. (B) | Procedure 1→2→10 |
|  <p>Ribs</p> <p>Claw</p> <p>Power transformer P.C.B. (A)</p> <p>1. Remove the 2 screws (①, ②). 2. Release the 1 claw. 3. Remove the 2 ribs. 4. Remove the power transformer P.C.B. (A) in the direction of arrow.</p> | |  <p>J703-1 J703-2 Claws</p> <p>Power transformer P.C.B. (B)</p> <p>1. Remove the 2 connector (J703-1, J703-2). 2. Release the 2 claws. 3. Remove the power transformer P.C.B. (B) in the direction of arrow.</p> | | | |

| | | | | | |
|---|--|--|---|--------------------------|-------------------|
| Ref. No. 11 | Removal of the Power Transformer | Procedure 1→2→9→10→11 | Ref. No. 12 | Removal of the Fan Ass'y | Procedure 1→12 |
|  <p>Power transformer</p> <p>Remove the 4 screws (①-④).</p> | |  <p>Fan ass'y</p> <p>JK351</p> <p>1. Remove the 1 connector (JK351). 2. Remove the 3 screws (①-③).</p> | | | |
| Ref. No. 13 | Removal of the Main P.C.B. | Procedure 1→2→4→6→8→12→13 | <p>NOTE Insert the projection on the angle into the hole of the bottom board ass'y and then install the Main P.C.B.</p> <p>[Bottom view] Projection</p> | | |
|  <p>Main P.C.B.</p> <p>J703-1 J703-2</p> <p>1. Remove the 4 screws (①-④). 2. Remove the 2 connector (J703-1, J703-2).</p> | |  <p>Angle</p> <p>Main P.C.B.</p> <p>Rib</p> <p>3. Remove the rib. 4. Remove the main P.C.B. in the direction of arrow.</p> | | | |
| Ref. No. 14 | Removal of the Power IC and Regulator Transistor | Procedure 1→2→4→6→8→12→13→14 | <p>1. Unsolder the power IC or regulator transistors. 2. Remove the 4 screws (①-④). When mounting the power IC or regulator transistor, apply silicone compound (RFKX0002) to the rear side of power IC or regulator transistors.</p> | | |
|  <p>Power IC</p> <p>Regulator transistor</p> | |  <p>Power IC</p> <p>Regulator transistor</p> | | | |

| | | | | | |
|---|------------------------------|--|----------------|--------------------------|----------------------|
| Ref. No. 15 | How to check the Main P.C.B. | Procedure 1→2→4→12→15 | Ref. No. 16 | Removal of the Fan Ass'y | Procedure 1→12→16 |
|  <p>When checking the soldered surfaces of main P.C.B. and replacing the parts, do as show.</p> <p>1. Remove the 4 screws (①-④).</p> | |  <p>Fan ass'y</p> <p>Claws</p> <p>Fig.1</p> <p>1. Release the 3 claws (shown in Fig.1).</p> | | | |
|  <p>Main P.C.B.</p> <p>Rib</p> <p>2. Remove the rib. 3. Remove the main P.C.B. in the direction of arrow.</p> | |  <p>Cap</p> <p>Fan</p> <p>Fig.2</p> <p>Fig.3</p> <p>Fan case</p> <p>Motor</p> <p>Hole</p> <p>Boss</p> <p>Fig.4</p> <p>Fig.5</p> <p>2. Insert a screwdriver at the root of the fan (shown in Fig. 2). 3. Remove the cap (shown in Fig.3). 4. Remove the motor from the fan case (shown in Fig.4). 5. When mounting the motor, align the fan case projection with the hole of the motor (shown in Fig.5).</p> | | | |
|  <p>Input/output terminal P.C.B.</p> <p>Main P.C.B.</p> <p>Front panel ass'y</p> <p>Sheet</p> <p>G.N.D. terminal</p> <p>Bottom board ass'y</p> <p>Lead wire</p> <p>4. Connect the G.N.D. terminal of the bottom board ass'y by the lead wire. 5. Reinstall the front panel ass'y to the input/output terminal P.C.B.</p> | | <p>Replacement of the Foot</p> <p>1. Remove the 4 heat melted posts on the Bottom board ass'y with a pair of nippers or similar tool. 2. To replace the foot (RKA0055-N) on the Bottom board ass'y melt the 4 posts with a soldering iron.</p>  <p>Heat melted posts</p> <p>Foot</p> <p>Bottom board ass'y</p> <p>Soldering iron</p> <p>Foot (RKA0055-N)</p> | | | |

SCHEMATIC DIAGRAM • TUNER CIRCUIT (Parts list on pages 35~39)



- Notes:**
- S601 : Power "STANDBY ON" switch (POWER, STANDBY ON)
 - S602 : Timer recording switch (□ REC)
 - S603 : Timer play switch (□ PLAY)
 - S604 : Clock/Timer switch (CLOCK/TIMER)
 - S605 : Timer select switch (▼)
 - S606 : Timer select switch (▲)
 - S607 : Setting switch (SET)
 - S608 : Preset memory switch (MEMORY, -MANUAL, -AUTO)
 - S609 : Preset tuning switch (▼)
 - S610 : Preset tuning switch (▲)
 - S611 : Band select/allocation change switch (BAND, -BAND -ALLOCATION)
 - S612 : Tuning switch (▼)
 - S613 : Tuning switch (▲)
 - S614 : Input select switch (TUNER)
 - S615 : Input select switch (CD)
 - S616 : Input select switch (TAPE)
 - S617 : Input select switch (PHONO)
 - S618 : Input select switch (DAT)
 - S619 : Input select switch (VDP)
 - S620 : Input select switch (VCR)

Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester. No mark: FM mode (); MW mode < >; LW mode

Important safety notice: Components identified by Δ mark have special characteristics important for safety. Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

Caution! IC and LSI are sensitive to static electricity. Secondary trouble can be prevented by taking care during repair. Cover the parts boxes made of plastics with aluminum foil. Ground the soldering iron. Put a conductive mat on the work table. Do not touch the legs or IC or LSI with the fingers directly.

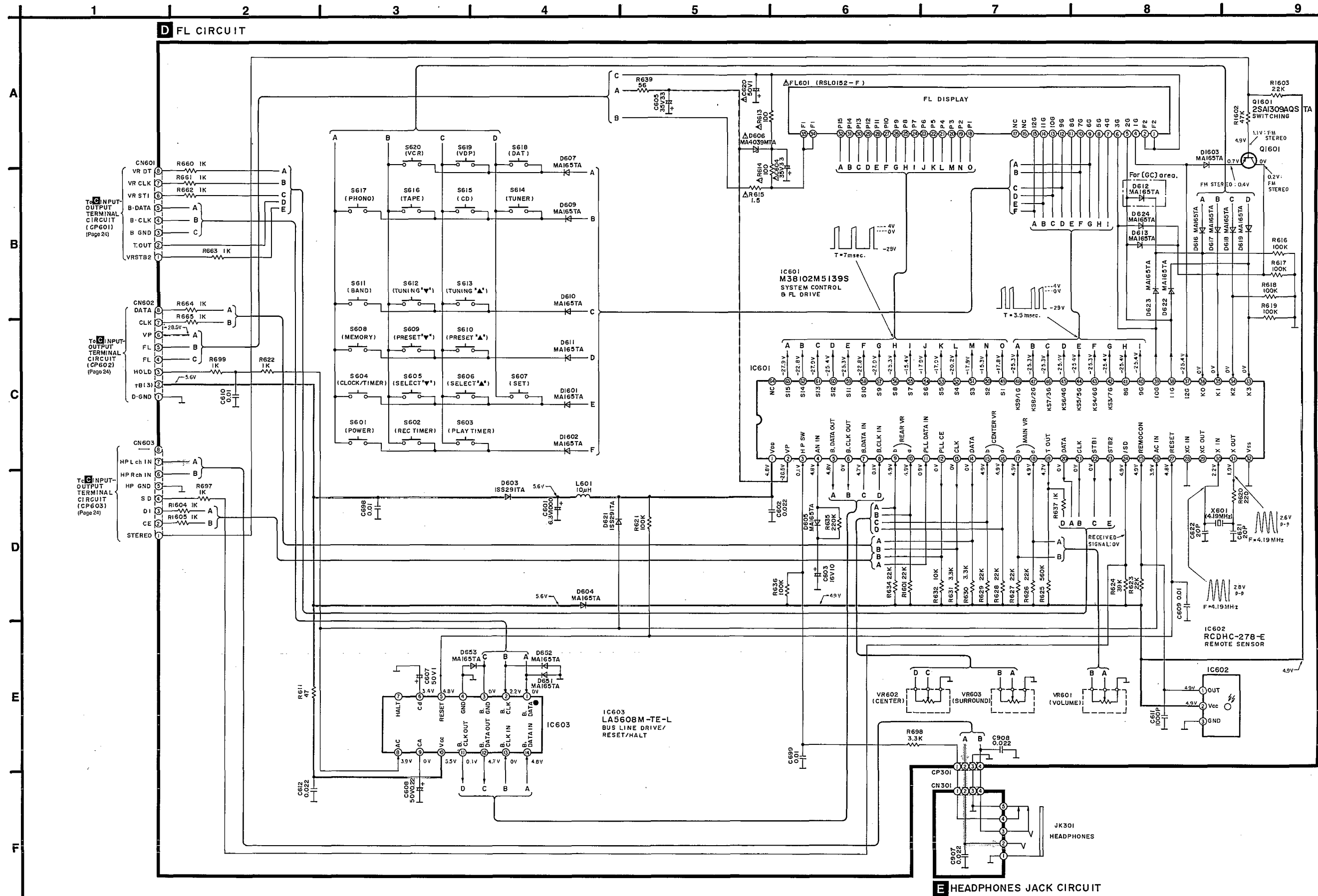
The supply part number is described alone in the replacement parts list.

| Ref. No. | Production Parts No. | Supply Parts No. |
|----------|----------------------|------------------|
| IC202 | M5219FPTA | M5219FP |
| IC203 | BA4558FT1 | SVIBA4558F |
| IC301 | M5218AL | M5218L |
| IC602 | RCDHC-278-E | RCDHC-278 |

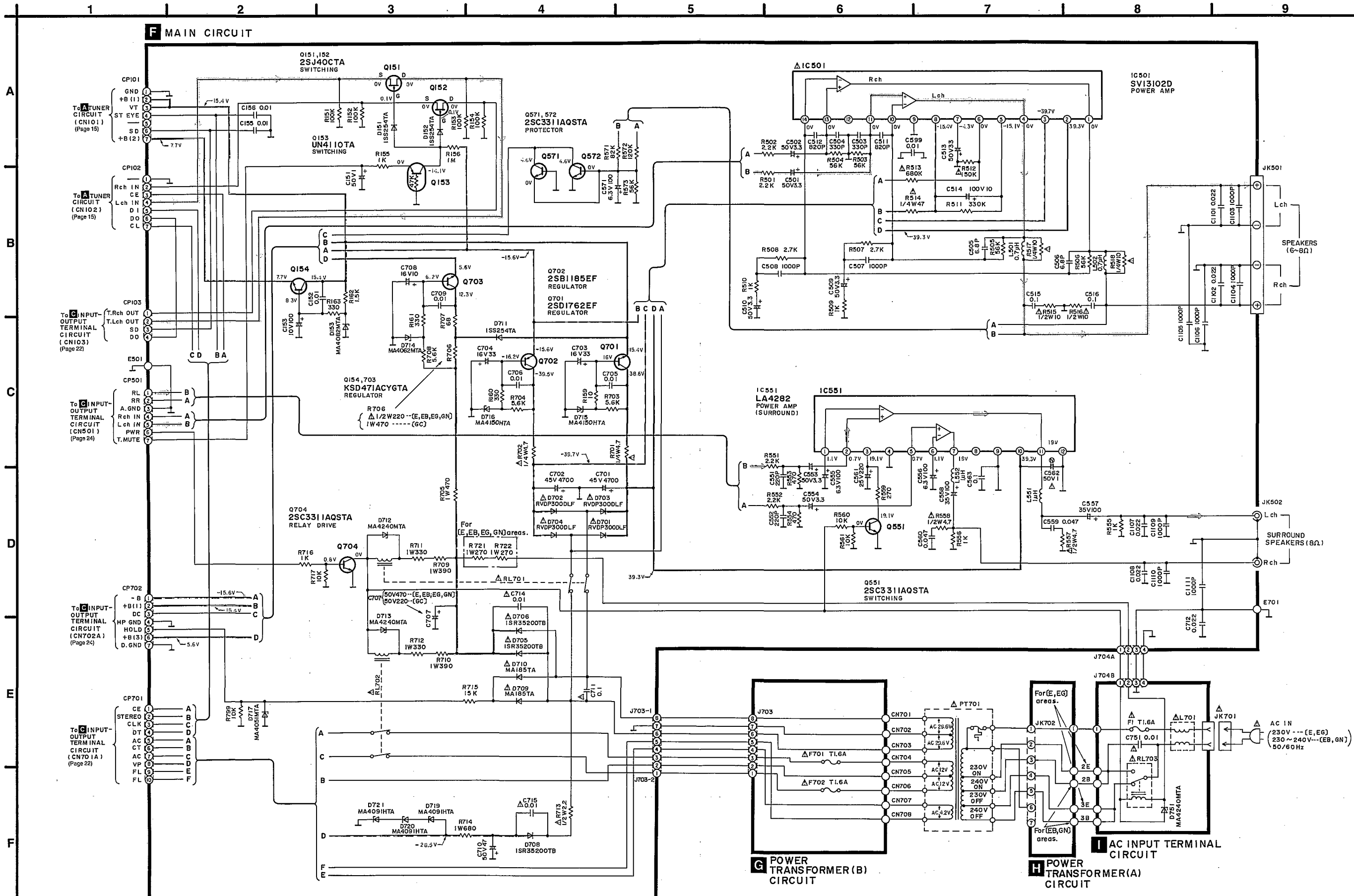
This schematic diagram may be modified at any time with the development of new technology.

- : Positive voltage line
- ▨ : AF signal line
- ➡ : AM (LW/MW) signal line
- ⇨ : FM signal line
- ▣➡ : AM (LW/MW) OSC signal line
- ⇨ : FM OSC signal line

SCHEMATIC DIAGRAM • FL/HEADPHONES JACK CIRCUIT (Parts list on pages 35~39)

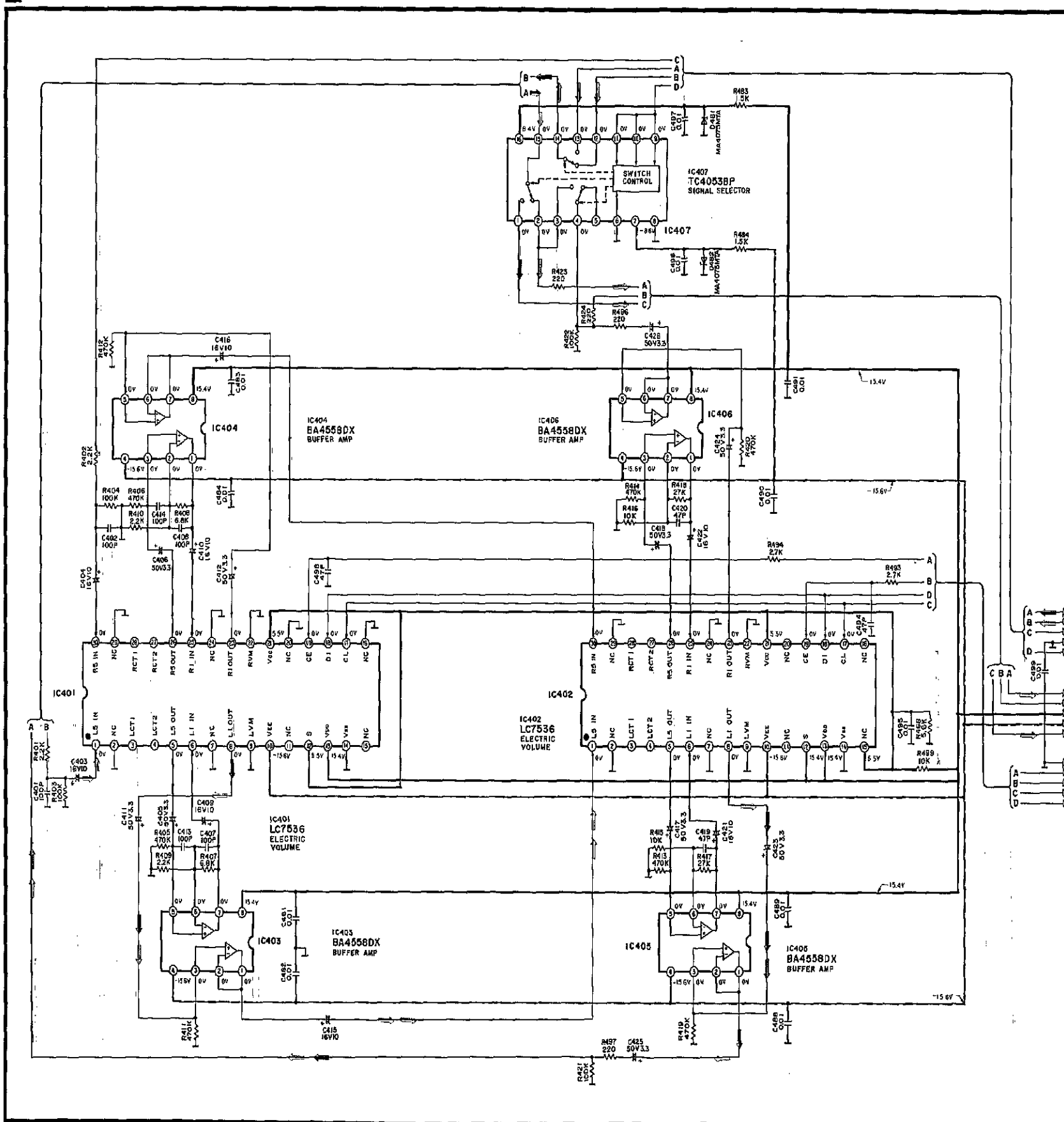


SCHEMATIC DIAGRAM • MAIN/POWER TRANSFORMER (A)/(B)/AC IN TERMINAL CIRCUIT (Parts list on pages 35-39)

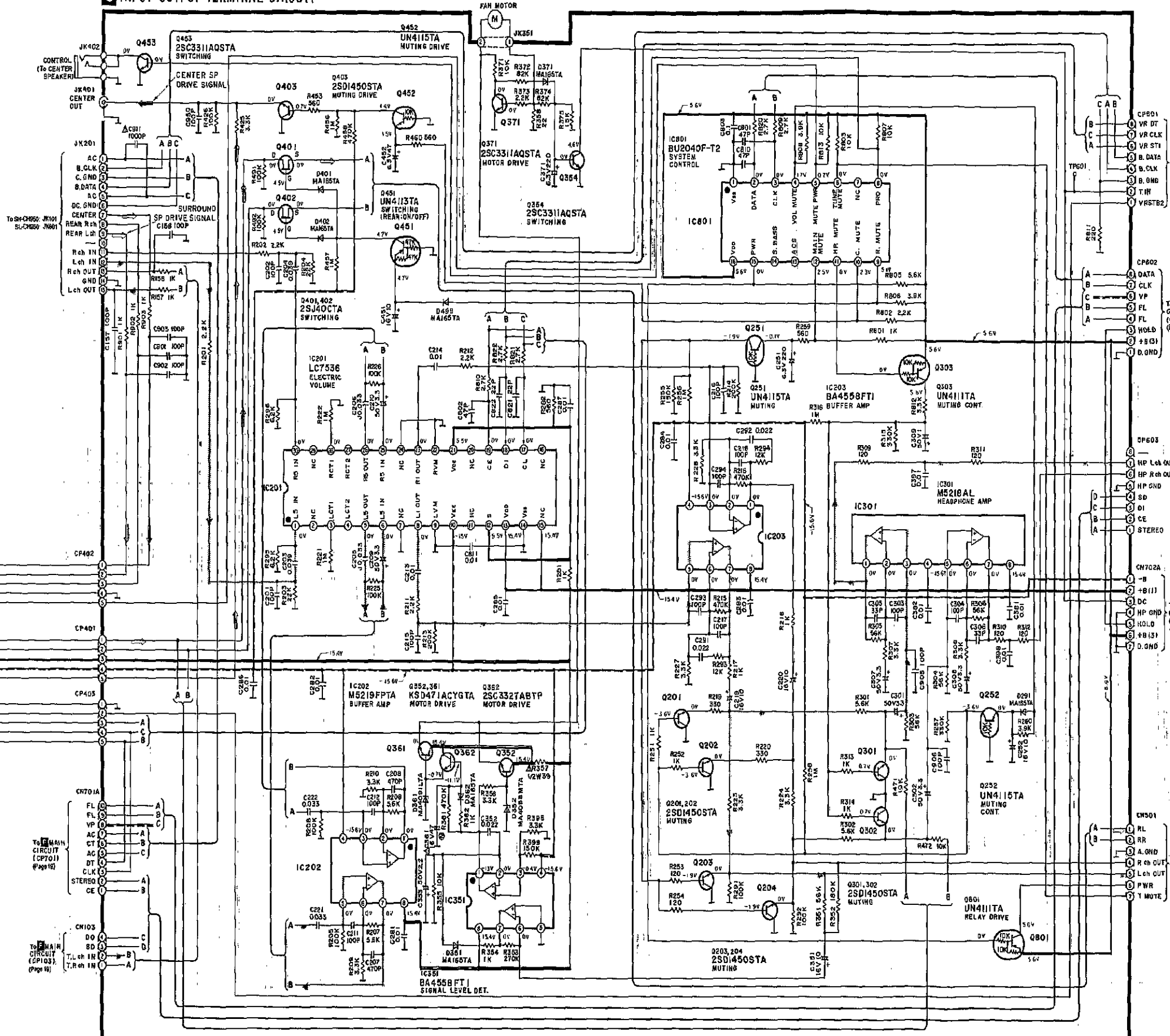


SCHEMATIC DIAGRAM ATTENUATOR/INPUT/OUTPUT TERMINAL CIRCUIT (Parts list on pages 35-39)

B ATTENUATOR CIRCUIT



C INPUT-OUTPUT TERMINAL CIRCUIT

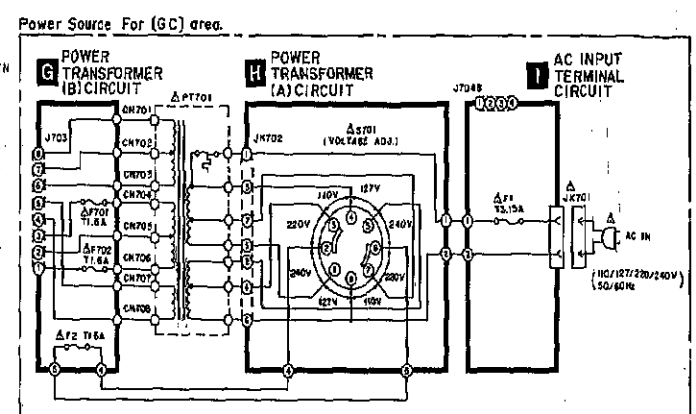
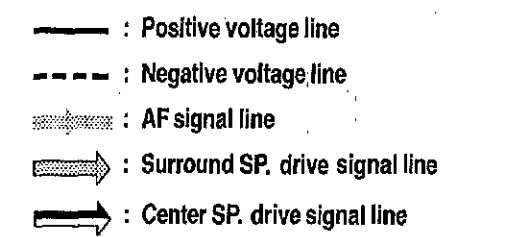


Notes:

- S701: Voltage selector switch in "220 V" position (110 V/127 V/220 V/240 V) <for (GC) area only>
- Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester. No mark: FM mode
- Important safety notice: Components identified by Δ mark have special characteristics important for safety. Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.
- This schematic diagram may be modified at any time with the development of new technology.

Caution!

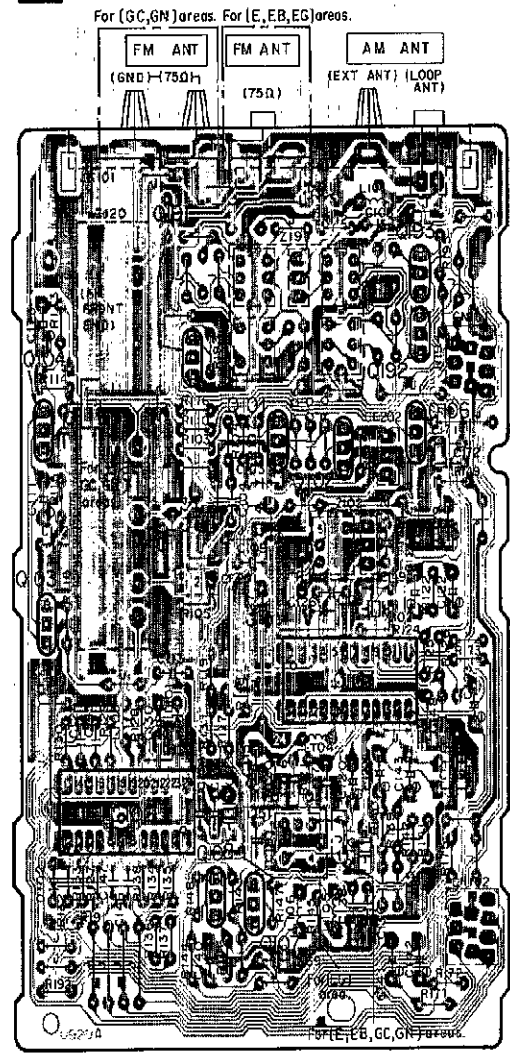
IC and LSI are sensitive to static electricity. Secondary trouble can be prevented by taking care during repair. Ground the soldering iron. Put a conductive mat on the work table. Do not touch the legs of IC of LSI with the fingers directly.



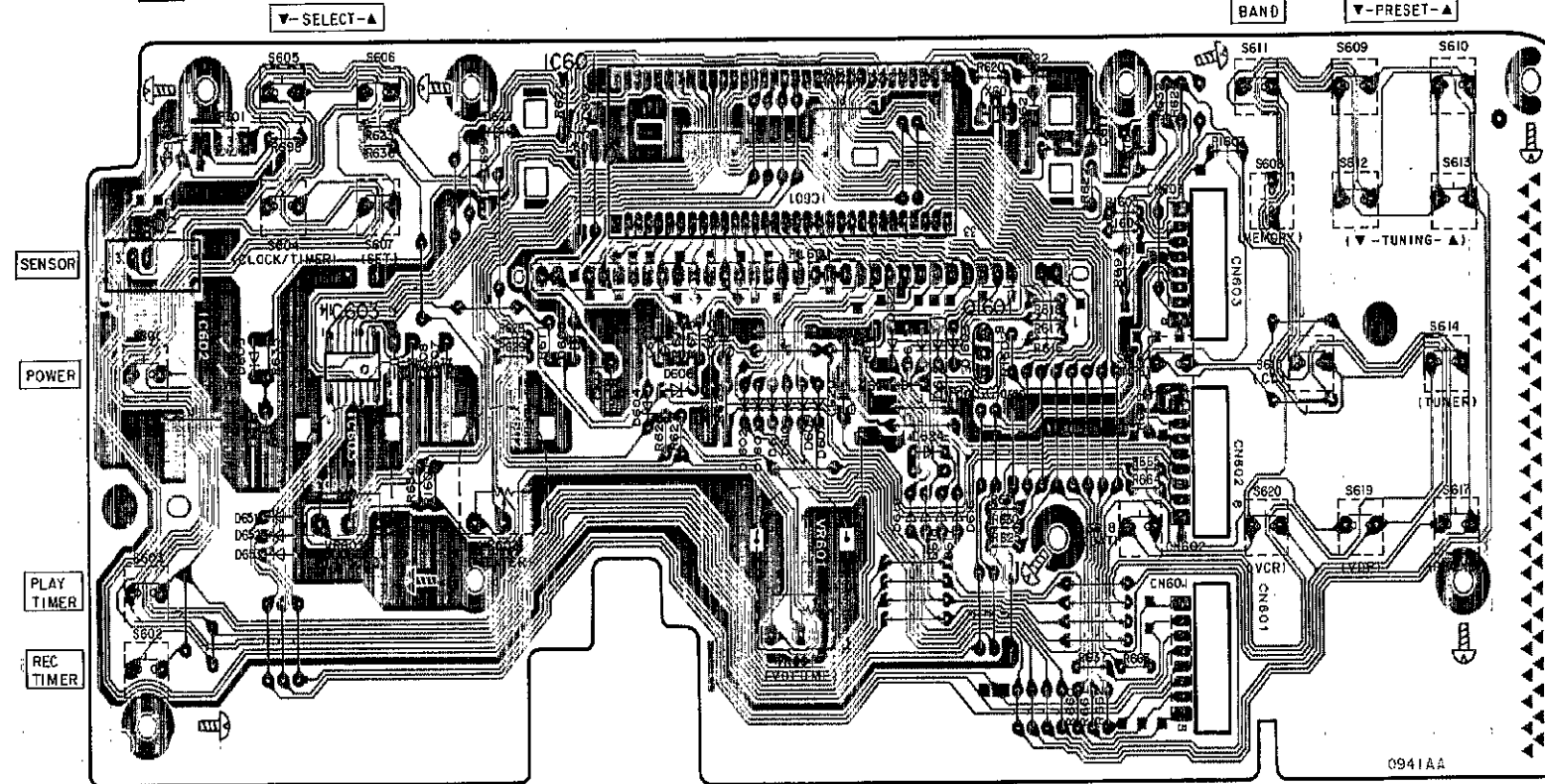
PRINTED CIRCUIT BOARD DIAGRAM

Note: This circuit board diagram may be modified at any time with the development of new technology.

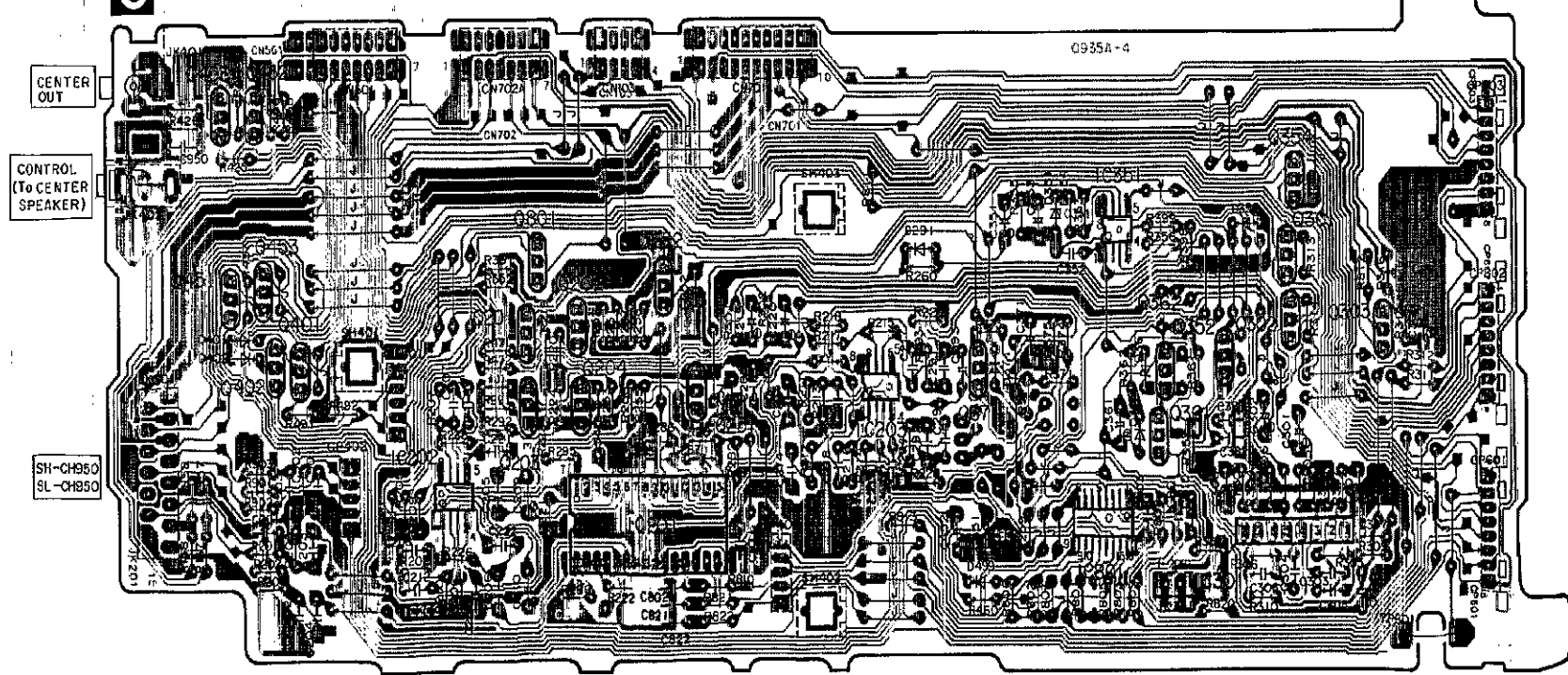
A TUNER P.C.B. (REP1452C-T... (EG)
REP1452D-T... (E,EB)
REP1452E-T... (GC,GN))



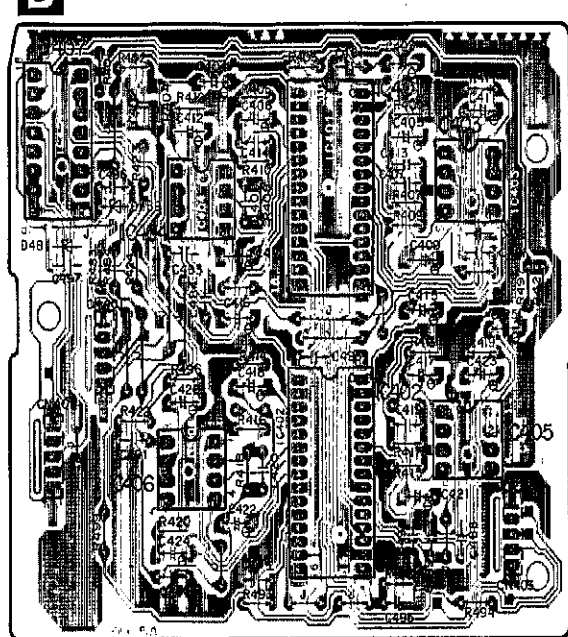
D FL P.C.B. (REP1481E-S... (GC)
REP1481F-S... (E,EB,EG,GN))



C INPUT-OUTPUT TERMINAL P.C.B. (REP1482B-T)



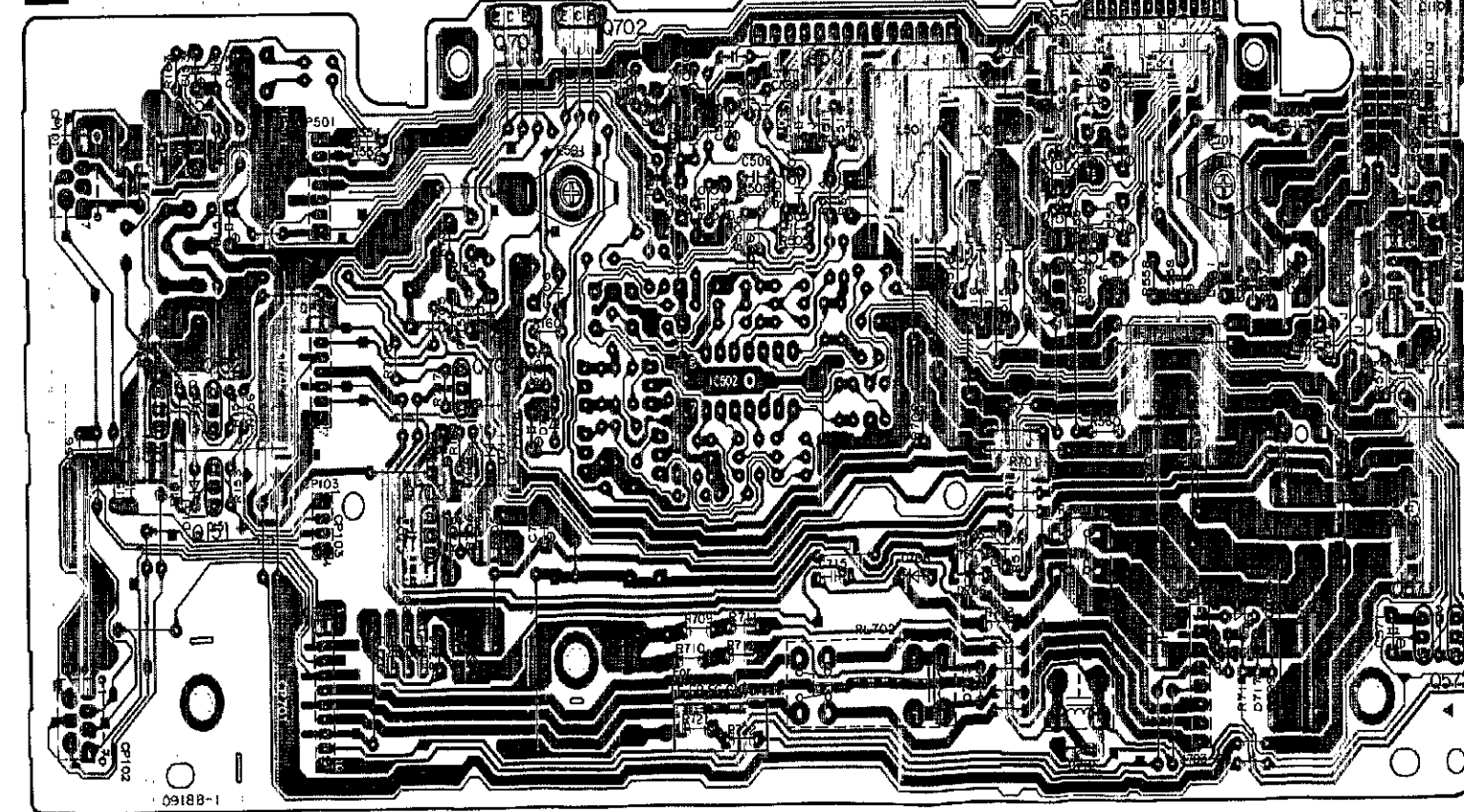
B ATTENUATOR P.C.B. (REP1478A-T)



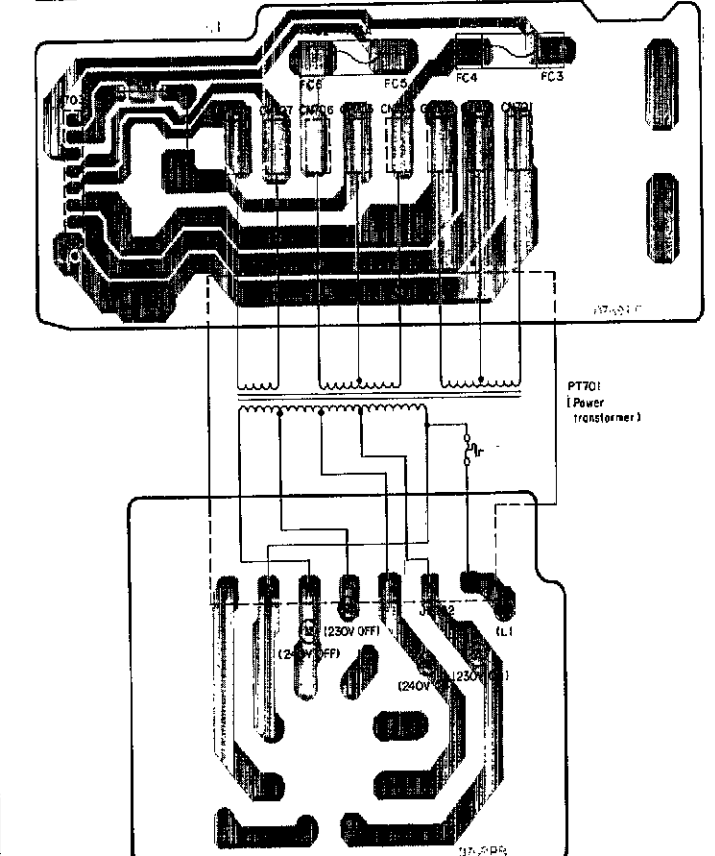
Terminal guide of IC's, transistors and diodes

| | | | | | | | | | |
|--|---|----------------------------|--|--------------|---|-------------|--------------|------------|-----------------|
| BA4558FT1 | M5219FFTA 8 Pin LA5603M-TE-L 14 Pin BU2040F-T2 16 Pin | TC4053BP | LA1830-H LC7218 | LC7535 | BA4558DX 8 Pin M38102M5139S 64 Pin | M5218AL | SV13102D | LA4282 | PCDHC-278-E |
| 2SA1309AQSTA 2SC2785FETA 2SC2787LTA 2SC3311AQSTA 2SC3327ABTP 2SD1450STA UN411FTA | UN4110TA UN4111TA UN4113TA UN4115TA | 2SB1185EF 2SD1762EF | KSD471ACYGTA | 2SJ40CTA | RVDP300DLF Cathode Anode | | | | |
| MA165TA MA185TA 1SS254TA 1SR35200TB | 1SS291TA Cathode Anode | MA4150LTA MA4240MTA | MA4039MTA MA4051MTA MA4062MTA MA4075MTA MA4082MTA MA4091HTA MA4098MTA MA4091LTA | | | | | | |

F MAIN P.C.B. (REP1480B-M... (GC)
REP1480C-M... (E,EB,EG,GN))



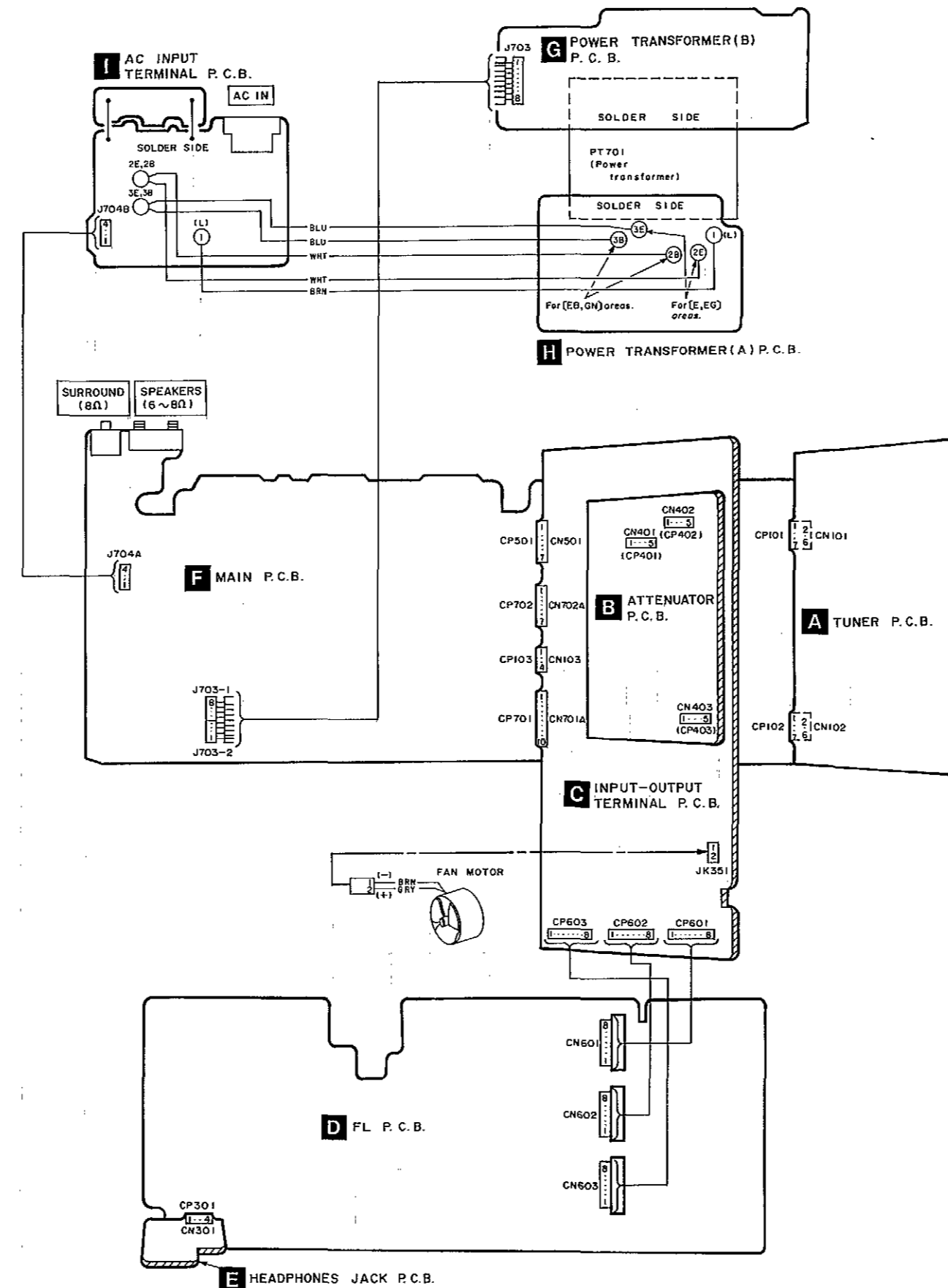
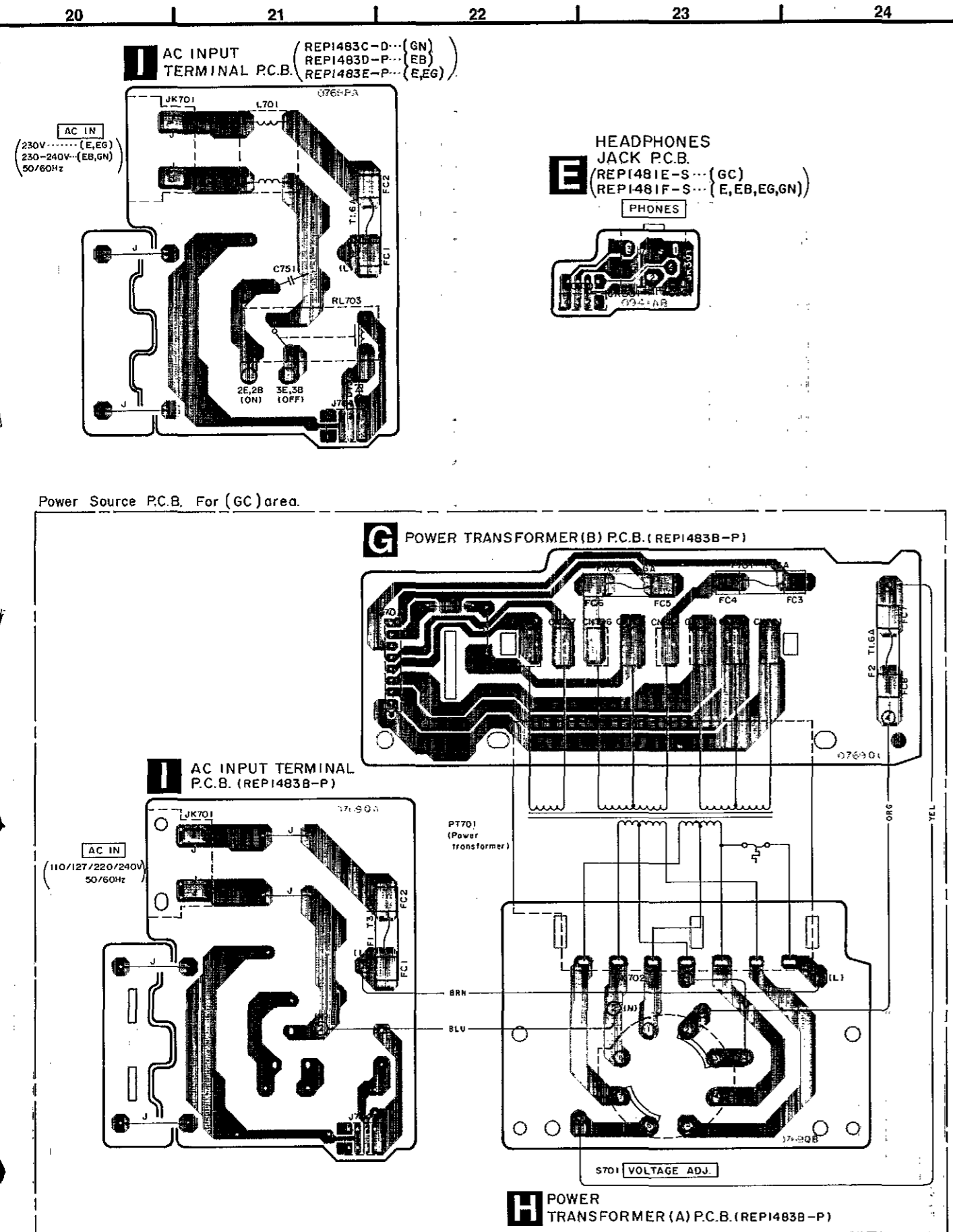
G POWER TRANSFORMER(B) P.C.B. (REP1483C-P... (GN)
REP1483D-P... (EB)
REP1483E-P... (E,EG))



H POWER TRANSFORMER(A) P.C.B. (REP1483C-P... (GN)
REP1483D-P... (EB)
REP1483E-P... (E,EG))



WIRING CONNECTION DIAGRAM



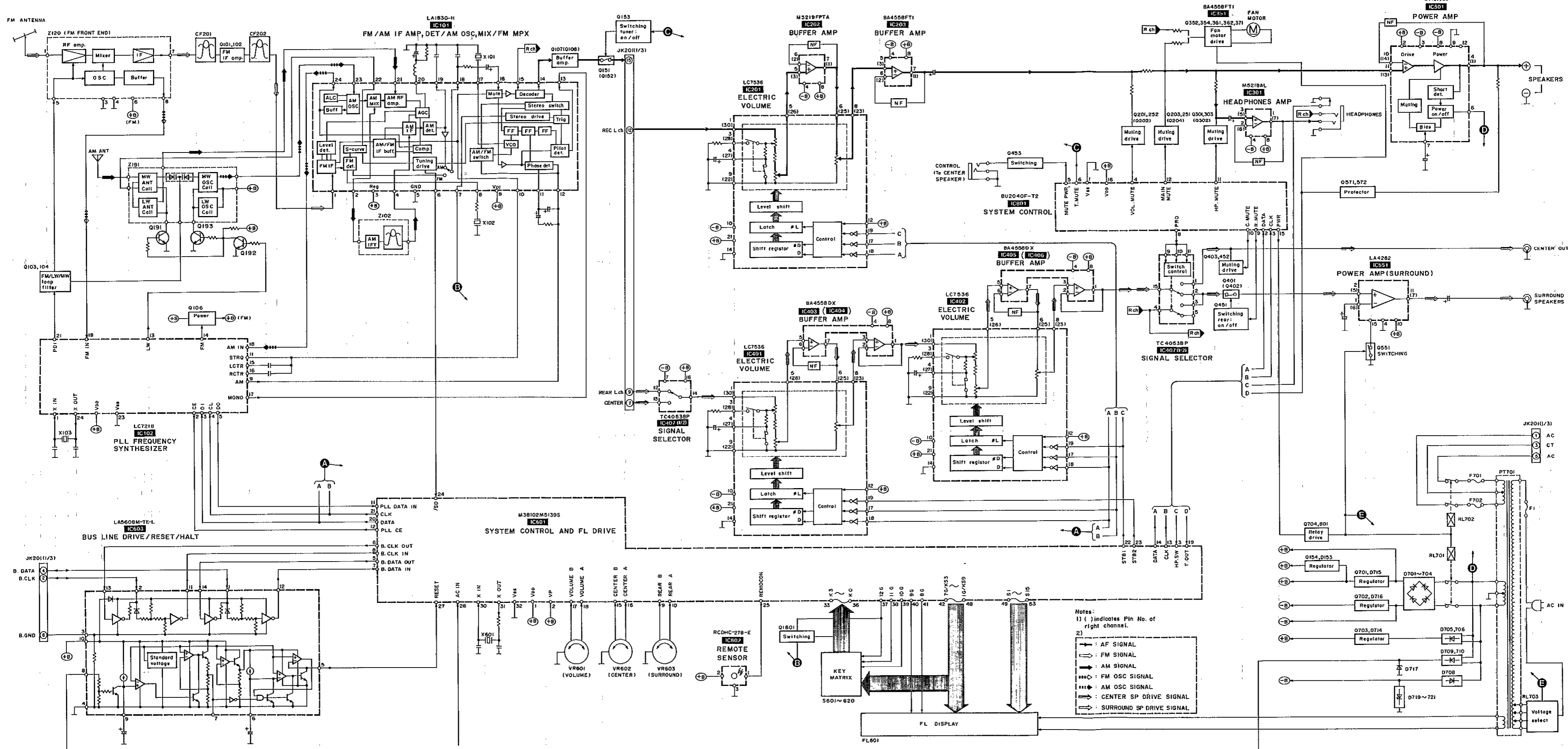
FUNCTION OF IC TERMINALS

IC601 (M38102M5139S)

| Pin No. | Terminal Name | I/O | Function |
|---------|-----------------|-----|--|
| 1 | V _{DD} | — | Power supply (+5 V) |
| 2 | VP | — | Pull-down voltage |
| 3 | HP SW | I | Headphones switch |
| 4 | AN IN | I | CR timer during backup |
| 5 | B.DATA OUT | O | Bus data output |
| 6 | B.CLK OUT | O | Bus clock output |
| 7 | B.DATA IN | I | Bus data input |
| 8 | B.CLK IN | I | Bus clock input |
| 9 | REAR VR. b | I | Rotary encoder input (for REAR) |
| 10 | REAR VR. a | I | Rotary encoder input (for REAR) |
| 11 | PLL DATA IN | I | Serial data input for PLL tuner |
| 12 | PLL CE | O | Serial chip enable output for PLL tuner |
| 13 | CLK | O | Clock for M50253 |
| 14 | DATA | O | Clock for M50253 |
| 15 | CENTER VR. b | I | Rotary encoder input (for CENTER) |
| 16 | CENTER VR. a | I | Rotary encoder input (for CENTER) |
| 17 | MAIN VR. b | I | Rotary encoder input (for MAIN) |
| 18 | MAIN VR. a | I | Rotary encoder input (for MAIN) |
| 19 | T OUT | I/O | I: Starting clock adjustment O: 131.072 kHz (POWER OFF) Malfunction detection (POWER ON) |
| 20 | DATA | O | Data output for LC7536 & PLL tuner |
| 21 | CLK | O | Clock output for LC7536 & PLL tuner |
| 22 | STB1 | O | Strobing for LC7536 (switched) |

| Pin No. | Terminal Name | I/O | Function |
|---------|-----------------|-----|-----------------------------------|
| 23 | STB2 | — | No use |
| 24 | /SD | I | Tuner/SD input |
| 25 | REMOCON | I | Remote control input |
| 26 | AC IN | I | Power down input |
| 27 | RESET | I | No use |
| 28 | XC IN | — | No use |
| 29 | XC OUT | — | No use |
| 30 | X IN | I | 4.194304 oscillator |
| 31 | X OUT | O | |
| 32 | V _{SS} | — | Power supply (GND) |
| 33 | K3 | I | Key input |
| 34 | K2 | I | Key input |
| 35 | K1 | I | Key input |
| 36 | K0 | I | Key input |
| 37 | 12G | O | Digit 12 & key scan (lock switch) |
| 38 | 11G | O | Digit 11 (No use) & RESET |
| 39 | 10G | O | Digit 10 (No use) & RESET |
| 40 | 9G | O | Digit 9 |
| 41 | 8G | O | Digit 8 |
| 42 | KS3/7G | O | Digit 7 & key scan |
| 43 | KS4/6G | O | Digit 6 & key scan |
| 44 | KS5/5G | O | Digit 5 & key scan |
| 45 | KS6/4G | O | Digit 4 & key scan |
| 46 | KS7/3G | O | Digit 3 & key scan |
| 47 | KS8/2G | O | Digit 2 & key scan |
| 48 | KS9/1G | O | Digit 1 & key scan |
| 49 | S1 | O | Segment output |
| 63 | S15 | O | Segment output |
| 64 | NC | — | No use |

■ BLOCK DIAGRAM



REPLACEMENT PARTS LIST

Notes: *Important safety notice:
Components identified by Δ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.
*The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.
*Remote Control Ass'y:
Supply period for three years from termination of production.

| Ref. No. | Part No. | Part Name & Description | Remarks | Ref. No. | Part No. | Part Name & Description | Remarks |
|------------|--------------|-----------------------------|----------|------------|--------------|-------------------------|-----------------|
| | | INTEGRATED CIRCUIT(S) | | | | | |
| IC101 | LA1830-H | I. C, FM/AM IF AMP. /AM OSC | | Q701 | 2SD1762EF | TRANSISTOR | |
| IC102 | LC7218 | I. C, PLL FREQ. SYNTHESIZER | | Q702 | 2SB1185EF | TRANSISTOR | |
| IC201 | LC7536 | I. C, ELECTRIC VOLUME | | Q703 | KSD471ACYGTA | TRANSISTOR | |
| IC202 | M5219FP | I. C, BUFFER AMP. | | Q704 | 2SC3311A-Q | TRANSISTOR | |
| IC203 | SV1BA4558F | I. C, BUFFER AMP. | | Q801 | UN4111 | TRANSISTOR | |
| IC301 | M5218L | I. C, HEADPHONE AMP. | | Q1601 | 2SA1309A-R | TRANSISTOR | |
| IC351 | SV1BA4558F | I. C, SIGNAL DET. | | | | DIODE(S) | |
| IC401, 402 | LC7536 | I. C, ELECTRIC VOLUME | | D101 | MA4051MTA | DIODE | |
| IC403-406 | BA4558DX | I. C, BUFFER AMP. | | D102 | MA165 | DIODE | |
| IC407 | TC4053BP | I. C, SIGNAL SELECTOR | | D151, 152 | 1SS254TA | DIODE | |
| IC501 | SV13102D | I. C, POWER AMP. | Δ | D153 | MA4082MTA | DIODE | |
| IC551 | LA4282 | I. C, POWER AMP. (SURROUND) | | D291 | MA165 | DIODE | |
| IC601 | M38102M5139S | I. C, FL DRIVE/SYSTEM CONT. | | D351 | MA165 | DIODE | |
| IC602 | RCDHC-278 | I. C, REMOTE SENSOR | | D352 | MA4068M | DIODE | |
| IC603 | LA5608M-TE-L | I. C, BUS LINE/HALT/RESET | | D361 | MA4091LTA | DIODE | |
| IC801 | BU2040F-T2 | I. C, SYSTEM CONT. | | D362 | MA165 | DIODE | |
| | | TRANSISTOR(S) | | D371 | MA165 | DIODE | |
| | | | | D401, 402 | MA165 | DIODE | |
| Q101, 102 | 2SC2787L | TRANSISTOR | | D481, 482 | MA4075MTA | DIODE | |
| Q103, 104 | 2SC2785FE | TRANSISTOR | | D499 | MA165 | DIODE | |
| Q106 | UN411FTA | TRANSISTOR | | D603 | 1SS291TA | DIODE | |
| Q107, 108 | 2SC3311A-Q | TRANSISTOR | | D604, 605 | MA165 | DIODE | |
| Q151, 152 | 2SJ40CTA | TRANSISTOR | | D606 | MA4039MTA | DIODE | Δ |
| Q153 | UN4110TA | TRANSISTOR | | D607 | MA165 | DIODE | |
| Q154 | KSD471ACYGTA | TRANSISTOR | | D609-611 | MA165 | DIODE | |
| Q191-193 | 2SC3311A-Q | TRANSISTOR | | D612 | MA165 | DIODE | (GC) |
| Q201-204 | 2SD1450RTA | TRANSISTOR | | D613 | MA165 | DIODE | |
| Q251, 252 | UN4115 | TRANSISTOR | | D616-619 | MA165 | DIODE | |
| Q301, 302 | 2SD1450RTA | TRANSISTOR | | D621 | 1SS291TA | DIODE | |
| Q303 | UN4111 | TRANSISTOR | | D622-624 | MA165 | DIODE | |
| Q352 | KSD471ACYGTA | TRANSISTOR | | D651-653 | MA165 | DIODE | |
| Q354 | 2SC3311A-Q | TRANSISTOR | | D701-704 | RVDP300DLF | DIODE | Δ |
| Q361 | KSD471ACYGTA | TRANSISTOR | | D705, 706 | 1SR35200TB | DIODE | Δ |
| Q362 | 2SC3327-A | TRANSISTOR | | D708 | 1SR35200TB | DIODE | |
| Q371 | 2SC3311A-Q | TRANSISTOR | | D709, 710 | MA185TA | DIODE | Δ |
| Q401, 402 | 2SJ40CTA | TRANSISTOR | | D711 | 1SS254TA | DIODE | |
| Q403 | 2SD1450RTA | TRANSISTOR | | D712, 713 | MA4240H | DIODE | |
| Q451 | UN4113TA | TRANSISTOR | | D714 | MA4062MTA | DIODE | |
| Q452 | UN4115 | TRANSISTOR | | D715, 716 | MA4150M | DIODE | |
| Q453 | 2SC3311A-Q | TRANSISTOR | | D717 | MA4051MTA | DIODE | |
| Q551 | 2SC3311A-Q | TRANSISTOR | | D719-721 | MA4091HTA | DIODE | |
| Q571, 572 | 2SC3311A-Q | TRANSISTOR | | D751 | MA4240H | DIODE | (E, EB, EG, GN) |
| | | | | D1601-1603 | MA165 | DIODE | |

| Ref. No. | Part No. | Part Name & Description | Remarks | Ref. No. | Part No. | Part Name & Description | Remarks |
|-----------|--------------|-----------------------------|--------------------------|------------|--------------|-------------------------|---------------|
| | | VARIABLE RESISTOR(S) | | | | | |
| VR601 | EVQWVF2024B | V. R, MAIN VOLUME CONT. | | S601 | EVQ21405R | SW, POWER | |
| VR602 | EVQWQ2F1524B | V. R, CENTER VOLUME CONT. | | S602 | EVQ21405R | SW, TIMER REC | |
| VR603 | EVQWQ2F1524B | V. R, SURROUND VOLUME CONT. | | S603 | EVQ21405R | SW, TIMER PLAY | |
| | | COMPONENT COMBINATION(S) | | S604 | EVQ21405R | SW, CLOCK/TIMER | |
| Z102 | RLI2Z006M-T | COMPONENT COMBINATION | | S605 | EVQ21405R | SW, SELECT (DOWN) | |
| Z120 | RAL0006 | TUNER PACK (FM FRONT END) | (E, EB, GC, GN) | S606 | EVQ21405R | SW, SELECT (UP) | |
| Z120 | RAL0019 | TUNER PACK (FM FRONT END) | (EG) | S607 | EVQ21405R | SW, SET | |
| Z191 | RLA6Z005M-T | COMPONENT COMBINATION | | S608 | EVQ21405R | SW, MEMORY | |
| | | COIL(S) | | S609 | EVQ21405R | SW, PRESET (DOWN) | |
| L101 | ELESN1ROMA | COIL | | S610 | EVQ21405R | SW, PRESET (UP) | |
| L103 | ELEXT47MA9 | COIL | | S611 | EVQ21405R | SW, BAND | |
| L104 | ELEXT100KA9 | COIL | | S612 | EVQ21405R | SW, TUNING (DOWN) | |
| L105, 106 | RLQZB822KT-D | COIL | | S613 | EVQ21405R | SW, TUNING (UP) | |
| L151 | SLM1B10M-1M | COIL | (EG) | S614 | EVQ21405R | SW, TUNER | |
| L191 | ELESN1ROMA | COIL | | S615 | EVQ21405R | SW, CD | |
| L501, 502 | SLQY07G-40 | COIL | | S616 | EVQ21405R | SW, TAPE | |
| L551, 552 | ELEY1ROKA | COIL | | S617 | EVQ21405R | SW, PHONO | |
| L601 | ELEXT100KA9 | COIL | | S618 | EVQ21405R | SW, DAT | |
| L701 | RLQZ271M | COIL | Δ | S619 | EVQ21405R | SW, VDP | |
| | | FILTER(S) | | S620 | EVQ21405R | SW, VCR | |
| CF201 | RLFFETWND01M | FILTER | (E, EB, GC, GN) | S701 | ESE37263 | SW, VOLTAGE SELECTOR | Δ (GC) |
| CF201 | RLFFETNGD01L | FILTER | (EG) | | | CONNECTOR(S) | |
| CF202 | RLFFETWND01M | FILTER | (E, EB, GC, GN) | J703 | RWJ1808110XX | FLAT CABLE (8P) | |
| CF202 | RLFFETMGD01L | FILTER | (EG) | J703-1, 2 | RJS1A6604 | SOCKET (4P) | |
| | | OSCILLATOR(S) | | J704A | RJT057W004-1 | CONNECTOR (4P) | |
| X101 | RSXZ456KM07M | OSCILLATOR (456kHz) | | J704B | RJU057W004 | SOCKET (4P) | |
| X102 | RLFDFTD03M | OSCILLATOR (10.7MHz) | | CN101, 102 | RJU063W07T | SOCKET (7P) | |
| X103 | SVQ49U722-S | OSCILLATOR (7.2MHz) | | CN103 | RJU057W004 | SOCKET (4P) | |
| X601 | RSXA4M19S03 | OSCILLATOR (4.19MHz) | | CN301 | RJU057W004 | SOCKET (4P) | |
| | | DISPLAY(S) | | CN401-403 | SJS50581BB | SOCKET (5P) | |
| FL601 | RSL0152-F | FL DISPLAY | Δ | CN501 | RJU057W007 | SOCKET (7P) | |
| | | FUSE(S) | | CN601-603 | RJT003K008-1 | CONNECTOR (8P) | |
| F1 | XBA2C16TB0 | FUSE 250V T1.6A | Δ (E, EB, EG, GN) | CN701 | RJS1A1101T1 | SOCKET (1P) | |
| F1 | XBA2C31TB0 | FUSE 250V T3.15A | Δ (GC) | CN701A | RJU057W010 | SOCKET (10P) | |
| F2 | XBA2C16TB0 | FUSE 250V T1.6A | Δ (GC) | CN702 | RJS1A1101T1 | SOCKET (1P) | |
| F701, 702 | XBA2C16TB0 | FUSE 250V T1.6A | Δ | CN702A | RJU057W007 | SOCKET (7P) | |
| | | SWITCH(ES) | | CN703-708 | RJS1A1101T1 | SOCKET (1P) | |
| | | | | CP101, 102 | RJT063W07T | CONNECTOR (7P) | |
| | | | | CP103 | RJT057W004-1 | CONNECTOR (4P) | |
| | | | | CP301 | RJT057W004-1 | CONNECTOR (4P) | |
| | | | | CP401-403 | SJT30549BB1 | CONNECTOR (5P) | |
| | | | | CP501 | RJT057W007-1 | CONNECTOR (7P) | |
| | | | | CP601-603 | RJU003K008M1 | SOCKET (8P) | |
| | | | | CP701 | RJT057W010-1 | CONNECTOR (10P) | |
| | | | | CP702 | RJT057W007-1 | CONNECTOR (7P) | |
| | | | | | | EARTH TERMINAL(S) | |

Table with columns: Ref. No., Part No., Part Name & Description, Remarks. Rows include components like GND PLATE, FUSE HOLDER, RELAY, HOLDER, and various terminal and connector parts.

Notes : * Capacity values are in microfarads (uF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F) * Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM) , 1M=1,000k(OHM)

Large table with columns: Ref. No., Part No., Values & Remarks. Rows list various resistor and capacitor values such as 1/4W 270 E, EB, GC, GN, 1/4W 33 EG, etc.

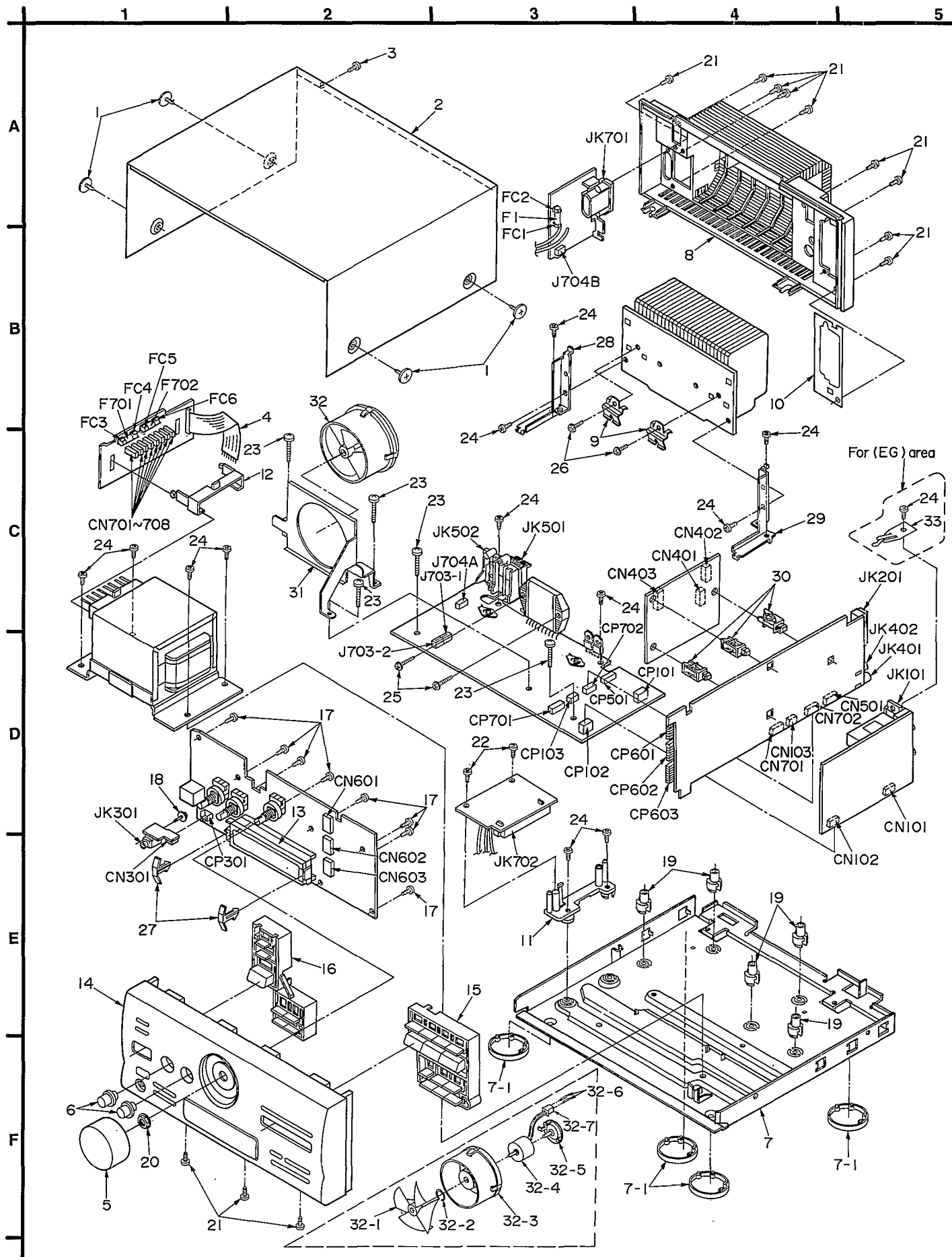
Large table with columns: Ref. No., Part No., Values & Remarks. Rows list various electronic components including resistors (R301-302, R511, etc.), capacitors (C101-138), and other parts like transformers and relays.

| Ref. No. | Part No. | Values & Remarks | Ref. No. | Part No. | Values & Remarks | Ref. No. | Part No. | Values & Remarks |
|-----------|--------------|-------------------------|-----------|--------------|------------------------|-------------|--------------|--------------------------|
| C139, 140 | ECFR1E562KR | 25V 5600P E, EB, GC, GN | C413, 414 | ECBT1H101KB5 | 50V 100P | C709 | ECBT1E103ZF | 25V 0.01U |
| C139, 140 | ECFR1E822KR | 25V 8200P EG | C415, 416 | ECEA1CKA100B | 16V 10U | C710 | ECA1HM470B | 50V 47U |
| C141-144 | ECEA1HKA010B | 50V 1U | C417, 418 | ECEA1HKA3R3B | 50V 3.3U | C711 Δ | ECQE1104KF3 | 100V 0.1U |
| C145 | ECBT1H220JC5 | 50V 22P | C419, 420 | ECBT1H470J5 | 50V 47P | C712 | ECBT1E223ZF | 25V 0.022U |
| C146 | ECBT1H331KB5 | 50V 330P | C421, 422 | ECEA1CKA100B | 16V 10U | C714, 715Δ | ECKR1H103ZF5 | 50V 0.01U |
| C147 | ECBT1H102KB5 | 50V 1000P | C423-426 | ECEA1HKA3R3B | 50V 3.3U | C751 Δ | ECKWNS103ZVS | 500V 0.01U E, EB, EG, GN |
| C148 | ECBT1C103NS5 | 16V 0.01U | C451 | ECEA1CKA100B | 16V 10U | C801, 802 | ECBT1H470J5 | 50V 47P |
| C149 | ECBT1H104ZF5 | 50V 0.1U | C452 | ECEA0JKA470B | 6.3V 47U | C803 | ECBT1H104ZF5 | 50V 0.1U |
| C151 | ECEA1HKA010B | 50V 1U | C481-484 | ECBT1E103ZF | 25V 0.01U | C810 | ECBT1H470J5 | 50V 47P |
| C152 | ECKR1H103ZF5 | 50V 0.01U | C488-491 | ECBT1E103ZF | 25V 0.01U | C811 | ECBT1E103ZF | 25V 0.01U |
| C153 | ECEA1AKA101B | 10V 100U | C494 | ECBT1H470J5 | 50V 47P | C821, 822 | ECBT1H220J5 | 50V 22P |
| C155, 156 | ECBT1E103ZF | 25V 0.01U | C495-497 | ECBT1E103ZF | 25V 0.01U | C901-903 | ECBT1H101KB5 | 50V 100P |
| C157, 158 | ECBT1H101KB5 | 50V 100P | C498 | ECBT1H470J5 | 50V 47P | C905, 906 | ECBT1H101KB5 | 50V 100P |
| C171 | ECBT1C103NS5 | 16V 0.01U | C499 | ECBT1E103ZF | 25V 0.01U | C907, 908 | ECBT1E223ZF | 25V 0.022U |
| C172 | ECBT1H331KB5 | 50V 330P | C501, 502 | ECA1HAP3R3B | 50V 3.3U | C911 Δ | ECKR1H102ZF5 | 50V 1000P |
| C173 | ECEA1CKA220B | 16V 22U | C503, 504 | ECBT1H331KB5 | 50V 330P | C950 | ECBT1H101KB5 | 50V 100P |
| C174 | ECEA1CKA100B | 16V 10U E, EB, GC, GN | C505, 506 | ECBT1H6R8K5 | 50V 6.8P | C1101, 1102 | ECBT1E223ZF | 25V 0.022U |
| C174 | ECEA1CKA101B | 16V 100U EG | C507, 508 | ECBT1H102KB5 | 50V 1000P | C1103-1106 | ECBT1H102KB5 | 50V 1000P |
| C181 | ECBT1H471KB5 | 50V 470P EG | C509, 510 | ECA1HAP3R3B | 50V 3.3U | C1107, 1108 | ECBT1E223ZF | 25V 0.022U |
| C201, 202 | ECBT1H101KB5 | 50V 100P | C511, 512 | ECBT1H821KB5 | 50V 820P | C1109-1111 | ECBT1H102KB5 | 50V 1000P |
| C203, 204 | ECQB1H393JF3 | 50V 0.039U | C513 | ECA1HAP330B | 50V 33U | | | |
| C205, 206 | ECQB1H333JF3 | 50V 0.033U | C514 | ECA2AAP100B | 100V 10U | | | |
| C207, 208 | ECBT1H471KB5 | 50V 470P | C515, 516 | ECBT1H104ZF5 | 50V 0.1U | | | |
| C209, 210 | ECEA1HKA3R3B | 50V 3.3U | C551, 552 | ECBT1H221KB5 | 50V 220P | | | |
| C211, 212 | ECBT1H101KB5 | 50V 100P | C553, 554 | ECEA1HKA3R3B | 50V 3.3U | | | |
| C213, 214 | ECQB1H103JF3 | 50V 0.01U | C555, 556 | ECEA0JKA101B | 6.3V 100U | | | |
| C215-218 | ECBT1H101KB5 | 50V 100P | C557, 558 | ECA1VM101B | 35V 100U | | | |
| C219, 220 | ECEA1CKA100B | 16V 10U | C559, 560 | ECQV1H473JM3 | 50V 0.047U | | | |
| C221, 222 | ECQB1H333JF3 | 50V 0.033U | C561 | ECEA1EU221 | 25V 220U | | | |
| C251 | ECEA0JKA221B | 6.3V 220U | C562 Δ | ECEA1HKN010B | 50V 1U | | | |
| C252 | ECEA1CKA100B | 16V 10U | C563 | ECQV1H104JM3 | 50V 0.1U | | | |
| C281-287 | ECBT1E103ZF | 25V 0.01U | C571 | ECEA0JKA101B | 6.3V 100U | | | |
| C291, 292 | ECQB1H223JF3 | 50V 0.022U | C599 | ECBT1C103MS5 | 16V 0.01U | | | |
| C293, 294 | ECBT1H101KB5 | 50V 100P | C601 | ECEA0JU102 | 6.3V 1000U | | | |
| C301, 302 | ECEA1HKA3R3B | 50V 3.3U | C602 | ECBT1E223ZF | 25V 0.022U | | | |
| C303, 304 | ECBT1H101KB5 | 50V 100P | C603 | ECEA1CKS100L | 16V 10U | | | |
| C305, 306 | ECBT1H330J5 | 50V 33P | C604 Δ | ECEA1VKA330B | 35V 33U | | | |
| C307, 308 | ECEA1HKA3R3B | 50V 3.3U | C605 | ECEA1VKA330B | 35V 33U | | | |
| C309 | ECEA1HKA010B | 50V 1U | C607 | ECEA1HKS010 | 50V 1U | | | |
| C351 | ECEA1CKA100B | 16V 10U | C608 | ECEA1HKA2R2B | 50V 0.22U | | | |
| C352 | ECBT1E223ZF | 25V 0.022U | C609, 610 | ECBT1E103ZF | 25V 0.01U | | | |
| C353 | ECEA1HKA2R2B | 50V 2.2U | C611 | ECBT1H102KB5 | 50V 1000P | | | |
| C361 Δ | ECEA1CN470SB | 16V 47U | C612 | ECBT1E223ZF | 25V 0.022U | | | |
| C371 | ECEA0JKA221B | 6.3V 220U | C620 Δ | ECEA1HKS010 | 50V 1U | | | |
| C381, 382 | ECBT1E103ZF | 25V 0.01U | C621, 622 | ECBT1H200JC5 | 50V 20P | | | |
| C397, 398 | ECBT1E103ZF | 25V 0.01U | C698, 699 | ECBT1E103ZF | 25V 0.01U | | | |
| C401, 402 | ECBT1H101KB5 | 50V 100P | C701, 702 | ECEA45V472YB | 45V 4700U | | | |
| C403, 404 | ECEA1CKA100B | 16V 10U | C703, 704 | ECEA1CKA330B | 16V 33U | | | |
| C405, 406 | ECEA1HKA3R3B | 50V 3.3U | C705, 706 | ECKR1H103ZF5 | 50V 0.01U | | | |
| C407, 408 | ECBT1H101KB5 | 50V 100P | C707 | ECA1HM471B | 50V 470U E, EB, EG, GN | | | |
| C409, 410 | ECEA1CKA100B | 16V 10U | C707 | ECA1HM221B | 50V 220U GC | | | |
| C411, 412 | ECEA1HKA3R3B | 50V 3.3U | C708 | ECEA1CKA100B | 16V 10U | | | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|----------|--------------|-------------------------|-----------------|
| | | CABINET PARTS | |
| 1 | RHD30007 | SCREW | |
| 2 | RKMD202A-1K | CABINET | |
| 3 | XTBS3+8JFZ1 | SCREW | |
| 4 | RWJ1808110XX | FLAT CABLE (8P) | |
| 5 | RGW0157-K | KNOB, MAIN VOLUME | |
| 6 | RGW0158-K | KNOB, SURROUND/CENTER | |
| 7 | RFKJACH550PK | BOTTOM BOARD ASS'Y | (E, EB, EG, GN) |
| 7 | RFKJACH550GC | BOTTOM BOARD ASS'Y | (GC) |
| 7-1 | RKA0055-N | FOOT | |
| 8 | RFKHACH950EK | REAR GRILL ASS'Y | (E) |
| 8 | RFKHACH950EB | REAR GRILL ASS'Y | (EB) |
| 8 | RFKHACH950EG | REAR GRILL ASS'Y | (EG) |
| 8 | RFKHACH950GC | REAR GRILL ASS'Y | (GC) |
| 8 | RFKHACH950GN | REAR GRILL ASS'Y | (GN) |
| 9 | RMCO158 | TRANSISTOR HOLDER | |
| 10 | RMCO182 | EARTH PLATE | (EG) |
| 10 | RMCO164 | EARTH PLATE | (E, EB, GC, GN) |
| 11 | RMNO190 | HOLDER (A) | |
| 12 | RMNO191-1 | HOLDER (B) | |
| 13 | RMNO194 | FL HOLDER | |
| 14 | RFKGACH950EK | FRONT PANEL ASS'Y | |
| 15 | RGUD796-K | BUTTON, INPUT SELECTOR | |
| 16 | RGUD797-K | BUTTON, POWER | |
| 17 | XTBS26+8J | SCREW | |
| 18 | XTWS3+10T | SCREW | |
| 19 | SHE187-2 | P. C. B. SPACER | |
| 20 | SNE4021-1 | NUT | |
| 21 | XTBS3+8JFZ1 | SCREW | |
| 22 | XTB3+12JFZ | SCREW | |
| 23 | XTB3+20JFZ | SCREW | |
| 24 | XTB3+8JFZ | SCREW | |
| 25 | XTW3+15T | SCREW | |
| 26 | XTW3+8T | SCREW | |
| 27 | RMNO195 | FL SPACER | |
| 28 | RMQ0260 | HOLDER (L) | |
| 29 | RMQ0261 | HOLDER (R) | |
| 30 | RMRO509 | HOLDER | |
| 31 | RMNO215 | FAN ANGLE | |
| 32 | SYE1128-2 | FAN ASS'Y | |
| 32-1 | SHE232 | FAN | |
| 32-2 | SJS271 | SPRING | |
| 32-3 | SHE233-1 | FAN CASE | |
| 32-4 | MDN-4RB4MRC | MOTOR | |
| 32-5 | SHE234 | CAP | |
| 32-6 | SJT783 | TERMINAL | |
| 32-7 | SJS5215 | CONNECTOR (2P) | |
| 33 | RMCO197 | EARTH PLATE | (EG) |

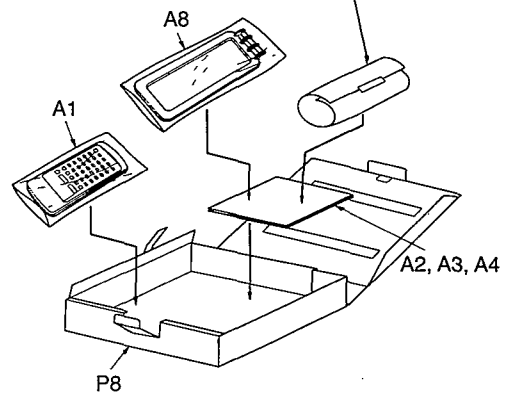
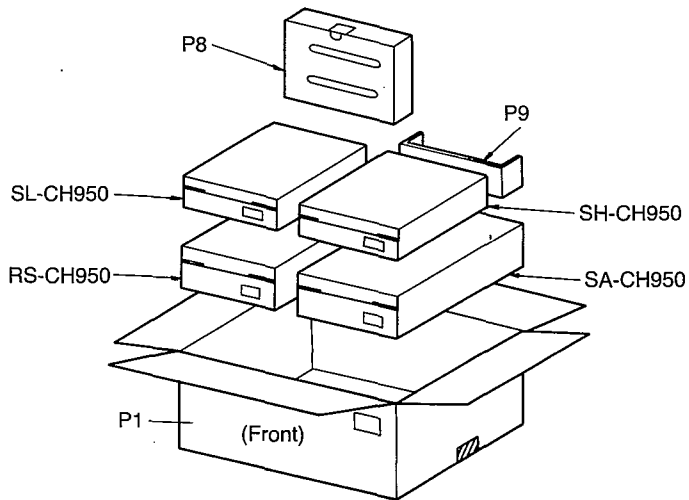
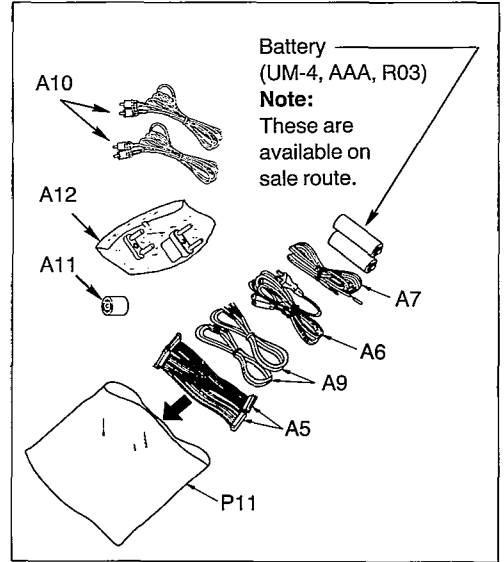
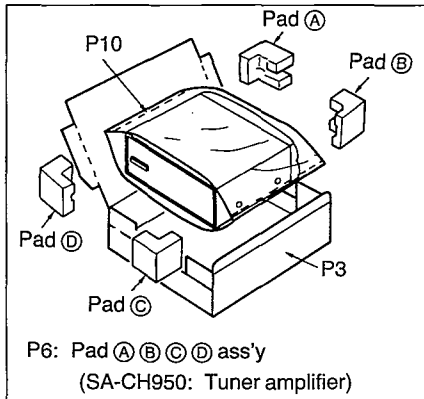
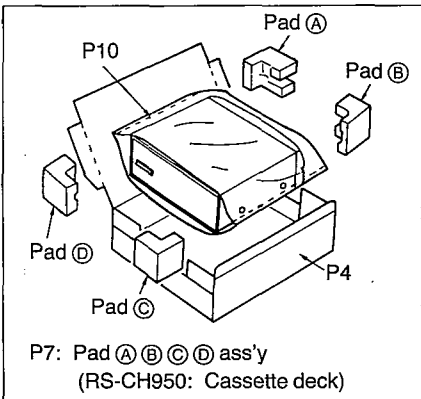
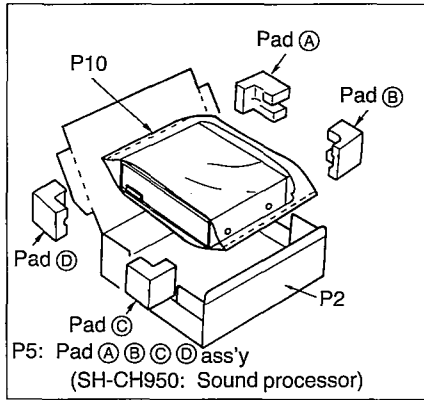
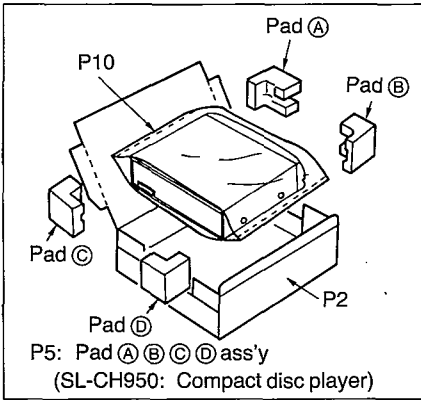
| Ref. No. | Part No. | Part Name & Description | Remarks |
|----------|--------------|-----------------------------|---------------|
| | | PACKING MATERIALS | |
| P1 | RPG1413 | PACKING CASE (SYSTEM) | (E, EG) |
| P1 | RPG1414 | PACKING CASE (SYSTEM) | (EB) |
| P1 | RPG1455 | PACKING CASE (SYSTEM) | (GC) |
| P1 | RPG1415 | PACKING CASE (SYSTEM) | (GN) |
| P2 | RPG1314 | PACKING CASE (CD/PROCESSOR) | |
| P3 | RPG1312 | PACKING CASE (AMPLIFIER) | |
| P4 | RPG1313 | PACKING CASE (DECK) | |
| P5 | RPN0627 | PAD (CD/PROCESSOR) | |
| P6 | RPN0625 | PAD (AMPLIFIER) | |
| P7 | RPN0626 | PAD (DECK) | |
| P8 | RPQF0047 | ACCESSORY BOX | |
| P9 | RPQ0244 | SPACER | |
| P10 | XZB45X50A01Z | PROTECTION COVER | |
| P11 | XZB22X20C03 | PROTECTION COVER | |
| | | ACCESSORIES | |
| A1 | RAK-SC707WH | REMOTE CONTROL TRANSMITTER | |
| A1-1 | RKK0020-K | BATTERY COVER | |
| A2 | RFKSACH950EK | INSTRUCTIONS MANUAL | (E) |
| A2 | RFKSACH950EB | INSTRUCTIONS MANUAL | (EB) |
| A2 | RFKSACH950EG | INSTRUCTIONS MANUAL | (EG) |
| A2 | RFKSACH950GC | INSTRUCTIONS MANUAL | (GC) |
| A2 | RFKSACH950GN | INSTRUCTIONS MANUAL | (GN) |
| A3 | RQA0013 | WARRANTY CARD | (E, EB, EG) |
| A3 | RQX7433ZA | WARRANTY CARD | (GN) |
| A4 | RQCB0169 | SERVICE CENTER LIST | |
| A5 | REX0462 | FLAT CABLE (15P) | |
| A6 | RJA0019-2K | AC POWER SUPPLY CORD | △ (E, EG, GC) |
| A6 | VJA0733 | AC POWER SUPPLY CORD | △ (EB) |
| A6 | SJA173 | AC POWER SUPPLY CORD | △ (GN) |
| A7 | RSAD007 | FM INDOOR ANTENNA | (E, EB, EG) |
| A7 | RSAD006 | FM INDOOR ANTENNA | (GC, GN) |
| A8 | SPB1163T | LW/MW LOOP ANTENNA | |
| A8-1 | SMA233-1M | ANTENNA HOLDER | |
| A8-2 | XTN3+10AFZ | SCREW | |
| A9 | SWXS257M | SPEAKER CORD | |
| A10 | RJL1P001B25 | SURROUND SPEAKER CORD | |
| A11 | SJP9009 | ATTACHMENT PLUG | △ (EB) |
| A12 | SJP5213-2 | POWER PLUG ADAPTOR | △ (GC) |

CABINET PARTS LOCATION

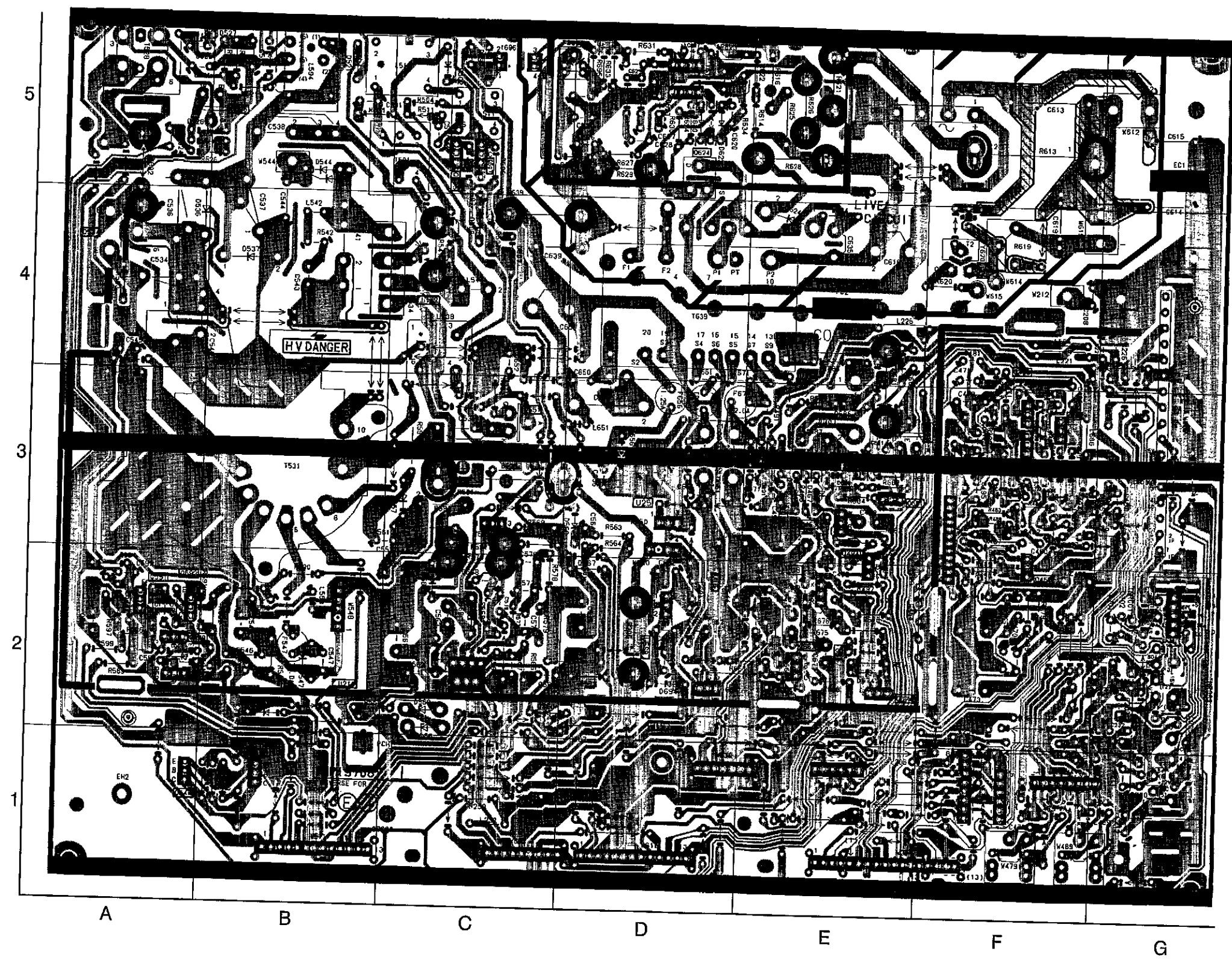


PACKAGING

904



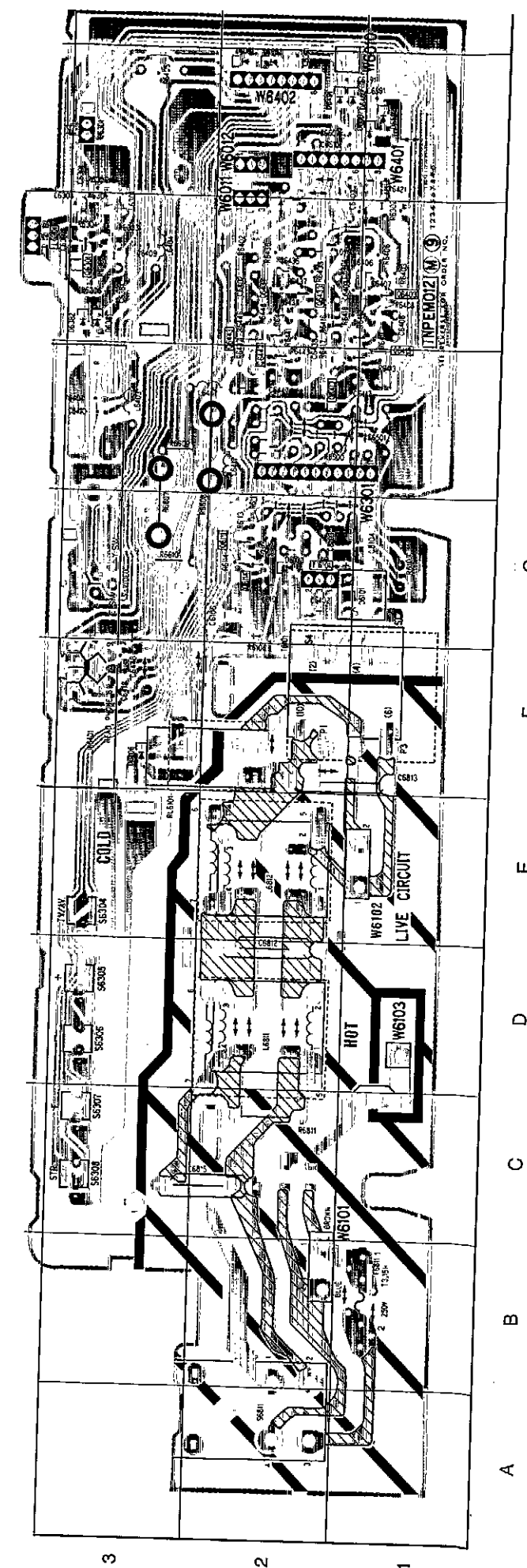
E-BOARD TNP197087



| DIODES | TRANS |
|--------|------------|
| D206 | G2 Q463 E3 |
| D465 | G3 Q465 F2 |
| D466 | E3 Q494 E3 |
| D467 | E3 Q496 F4 |
| D471 | F3 Q497 F3 |
| D481 | F3 Q498 F3 |
| D491 | E3 Q506 C5 |
| D502 | C5 Q507 C5 |
| D507 | C4 Q524 D5 |
| D508 | C4 Q526 B5 |
| D513 | E5 Q543 B1 |
| D521 | B5 Q544 A1 |
| D526 | A5 Q591 A2 |
| D527 | B5 Q592 A2 |
| D536 | A4 Q593 A2 |
| D537 | B4 Q594 A2 |
| D544 | B5 Q651 C3 |
| D548 | B2 Q667 E2 |
| D549 | A3 Q674 E2 |
| D557 | C3 Q681 E3 |
| D561 | C2 Q682 F3 |
| D562 | C2 |
| D563 | D3 IC'S |
| D564 | B2 I561 C2 |
| D565 | C2 I611 D5 |
| D566 | C2 I661 D2 |
| D567 | D2 I676 E2 |
| D568 | C2 I691 D2 |
| D569 | C2 I696 C5 |
| D591 | A2 |
| D622 | D5 |
| D624 | E4 |
| D630 | D5 |
| D636 | C5 |
| D651 | D3 |
| D656 | D3 |
| D661 | D3 |
| D671 | D3 |
| D678 | E2 |
| D681 | E4 |
| D686 | E3 |
| D689 | E3 |
| D694 | D2 |

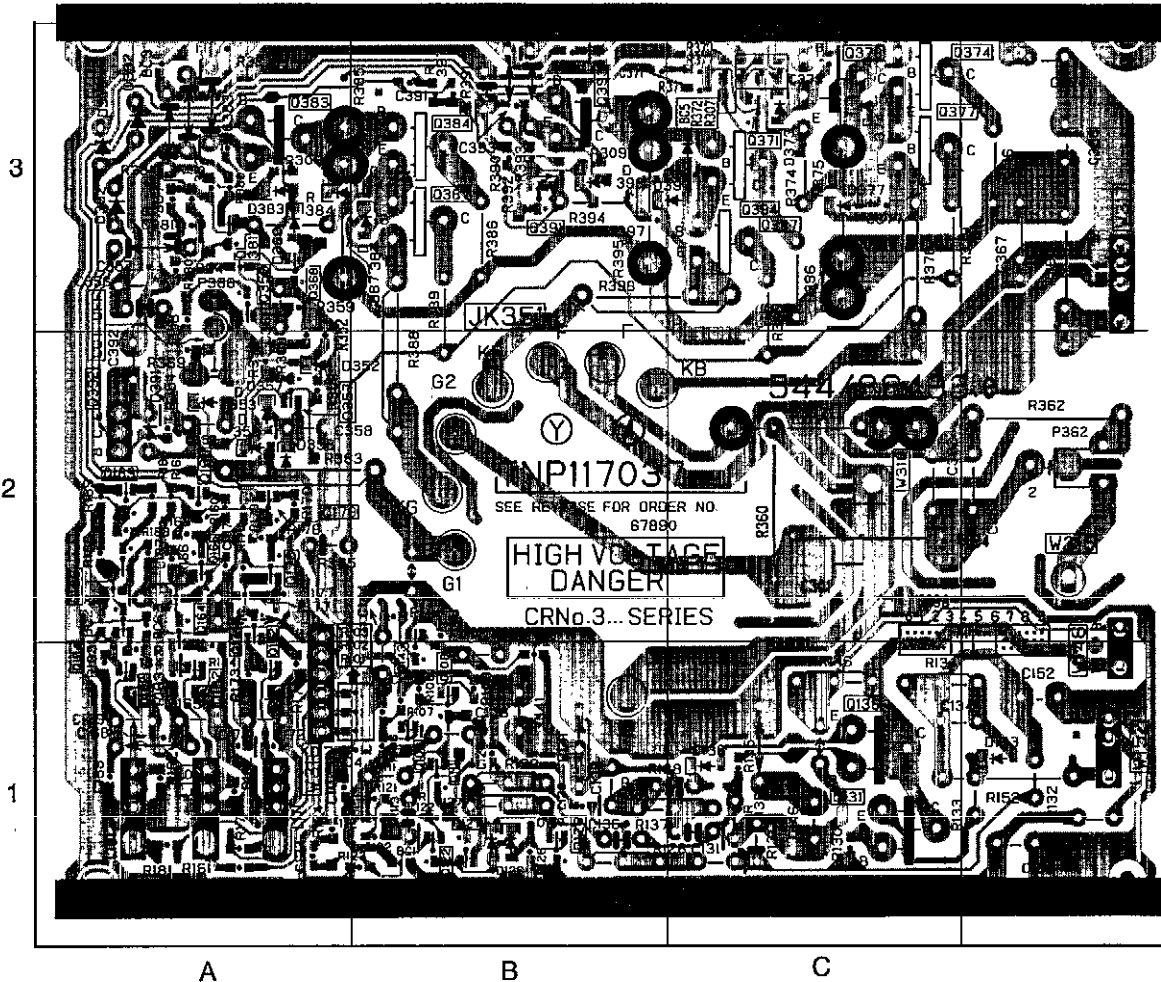
M BOARD TNP8EM012

| DIODES | TRANS |
|--------|-------------|
| D6101 | G1 Q6111 G2 |
| D6103 | G2 Q6114 G2 |
| D6106 | F3 Q6301 I3 |
| D6301 | J3 Q6403 I1 |
| D6381 | I3 Q6413 H1 |
| D6382 | I3 Q6417 H2 |
| D6391 | J2 Q6433 I2 |
| D6392 | J2 Q6443 I2 |
| D6491 | J2 Q6447 H2 |
| D6492 | J2 |
| D6591 | J1 I.C.s |
| D6592 | J1 I6101 G2 |
| | I6301 I4 |

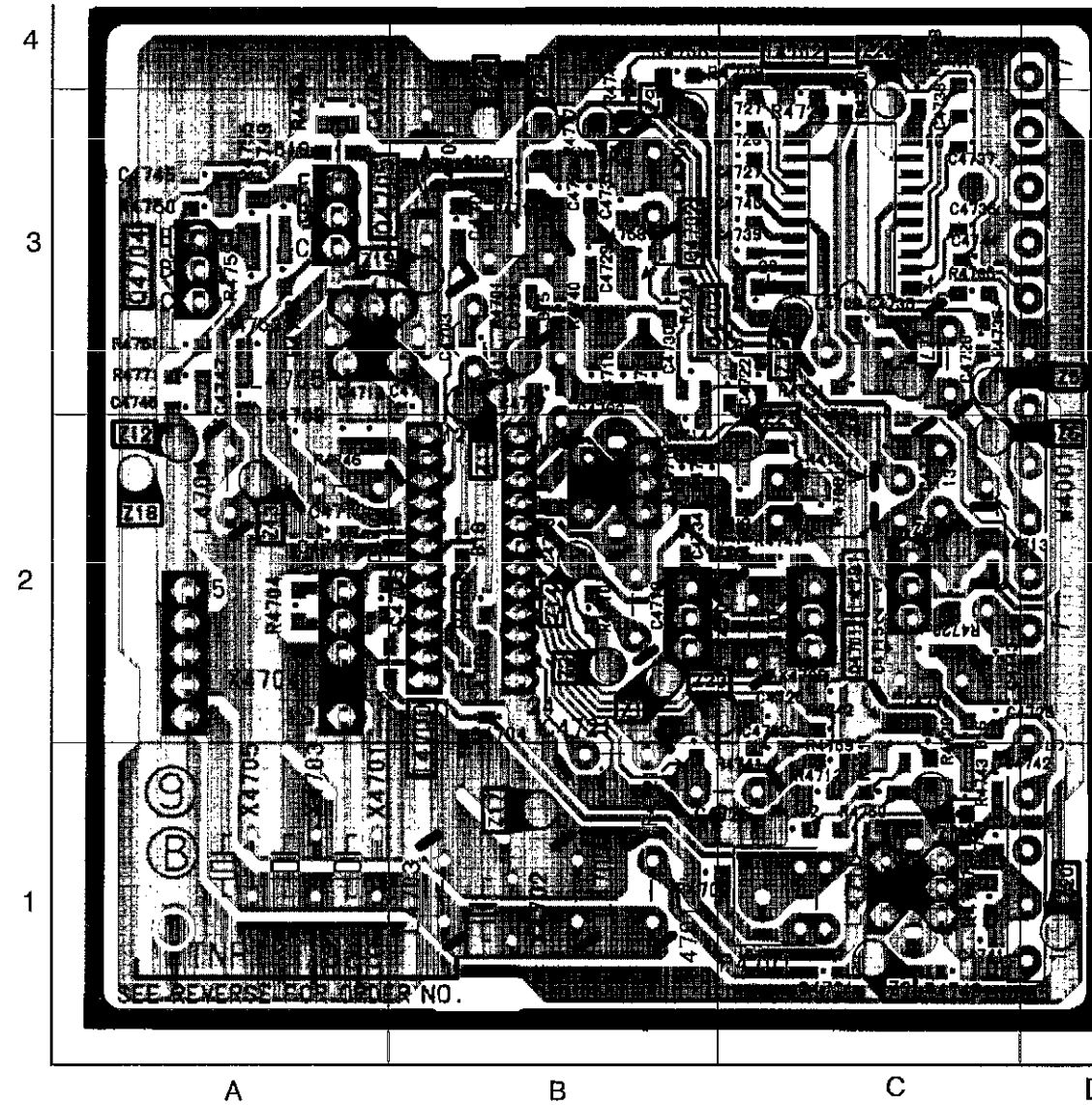


Y – BOARD TNP117037

| TRANS | | | | DIODES | | | | | |
|-------|----|------|----|--------|----|------|----|------|----|
| Q108 | B1 | Q172 | A2 | Q374 | D3 | D126 | B1 | D377 | C3 |
| Q109 | B1 | Q174 | A2 | Q377 | D3 | D127 | B1 | D382 | A3 |
| Q111 | B1 | Q176 | A2 | Q381 | A3 | D133 | D1 | D383 | A3 |
| Q122 | B1 | Q179 | A2 | Q383 | A3 | D138 | C1 | D384 | B3 |
| Q126 | B1 | Q182 | A1 | Q384 | B3 | D352 | A2 | D387 | B3 |
| Q127 | B1 | Q184 | A1 | Q387 | B3 | D353 | A2 | D391 | A2 |
| Q131 | C1 | Q186 | A2 | Q391 | B3 | D356 | A2 | D392 | A3 |
| Q136 | C1 | Q189 | A2 | Q392 | A2 | D357 | A2 | D393 | B3 |
| Q143 | B1 | Q357 | A2 | Q393 | B3 | D358 | A2 | D394 | C3 |
| Q162 | A1 | Q359 | A3 | Q394 | C3 | D368 | A3 | D397 | C3 |
| Q164 | A2 | Q368 | A3 | Q397 | C3 | D372 | A3 | | |
| Q166 | A2 | Q371 | C3 | | | D373 | C3 | | |
| Q169 | A2 | Q373 | C3 | | | D374 | C3 | | |



B – BOARD TNP117039









| TP'S | | TRANS | | | |
|------|----|-------|----|-------|----|
| Z1 | B2 | Z14 | B2 | Q4701 | C2 |
| Z2 | B2 | Z15 | B3 | Q4702 | B3 |
| Z3 | C1 | Z16 | C3 | Q4703 | C3 |
| Z4 | B3 | Z17 | B1 | Q4704 | A3 |
| Z5 | C3 | Z18 | A2 | Q4705 | A3 |
| Z6 | C2 | Z19 | B3 | | |
| Z7 | C3 | Z20 | D1 | IC'S | |
| Z8 | C2 | Z21 | C2 | I4700 | B2 |
| Z9 | C3 | Z23 | C2 | I4701 | C2 |
| Z10 | C1 | Z24 | B3 | I4702 | C3 |
| Z11 | B3 | Z25 | B3 | | |
| Z12 | A2 | Z26 | C3 | | |
| Z13 | A2 | | | | |

**SCHEMATIC DIAGRAM FOR MODELS
TX-29AD2/M
(EURO-2S CHASSIS)**

IMPORTANT SAFETY NOTICE

Components identified by Δ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

Notes

- RESISTOR**
All resistors are carbon 1/4W resistor, unless marked.
Unit of resistance is OHM (Ω) (K=1,000, M=1,000,000).
- CAPACITOR**
All capacitors are ceramic 50V capacitors, unless marked, the unit of capacitance is μ F unless otherwise stated.
- COIL**
Unit of inductance is μ H, unless otherwise stated.
- TEST POINT**
 Test Point Position
- EARTH SYMBOL**
 Chassis Earth (cold)
 Line Earth (Hot)
- VOLTAGE MEASUREMENT**
Voltage is measured by a DC voltmeter.
Measurement conditions are as follows:
Power source AC 220-240V, 50Hz
Receiving Signal Colour Bar signal (RF)
All customer controls Maximum position
-  Indicates the Video signal path
 Indicates the Audio signal path
 Indicates the Vertical/Horizontal signal path
- This schematic diagram is the latest at the time of printing and is subject to change without notice.

Precautions

- Do not touch the hot part, or the hot and cold parts at the same time, as you are liable to a shock hazard.
- Do not short-circuit the hot and cold circuits as electrical components may be damaged.
- Do not connect an instrument, such as an oscilloscope, to the hot and cold circuits simultaneously, as this may cause fuse failure. Connect the earth of the instruments to the earth connection of the circuit being measured.
- Make sure to disconnect the power plug before removing the chassis.

Remarks

- The Power Circuit contains a circuit area which uses a separate power supply to isolate the earth connection. The circuit is defined by HOT and COLD indications in the schematic diagram. All circuits, except the Power Circuit, are COLD.

E BOARD
TNP197087

