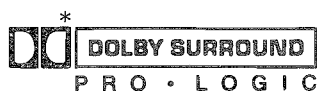


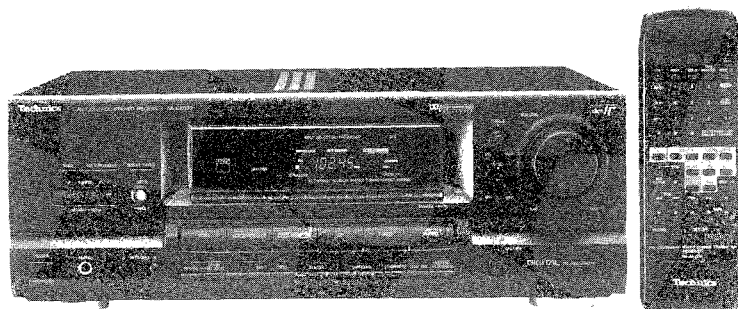
Service Manual

AV Control Stereo Receiver



Receiver

SA-GX690



Colour

(K) ... Black Type

Areas

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

* Manufactured under license from Dolby Laboratories Licensing Corporation. Additionally licensed under one or more of the following patents: U.S. numbers 3,632,886, 3,746,792 and 3,959,590; Canadian numbers 1,004,603 and 1,037,877.

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SPECIFICATIONS (DIN 45 500)

■ AMPLIFIER SECTION

Power output (at 240 V)	
DIN 1 kHz (T.H.D. 1%)	
[For (E, EB, EG) areas.]	2 × 100 W (4 Ω)
[For (G, GN) areas.]	2 × 100 W (8 Ω)
20 Hz–20 kHz continuous power output	
both channels driven	
[For (E, EB, EG) areas.]	2 × 65 W (8 Ω)
[For (G, GN) areas.]	2 × 90 W (8 Ω)
Total harmonic distortion	
rated power at 20 Hz–20 kHz	0.05% (8 Ω)
half power at 1 kHz	0.03% (8 Ω)
Power output at the Dolby Pro Logic operation	
DIN 1 kHz (T.H.D. 1%)	
Front [For (E, EB, EG) areas.]	2 × 60 W (4 Ω)
[For (G, GN) areas.]	2 × 70 W (8 Ω)
Center [For (E, EB, EG) areas.]	60 W (8 Ω)
[For (G, GN) areas.]	70 W (8 Ω)
Surround [For (E, EB, EG) areas.]	60 W (8 Ω)
[For (G, GN) areas.]	70 W (8 Ω)
Intermodulation distortion	
rated power at 60 Hz: 7 kHz=4:1, SMPTE	0.5% (8 Ω)
Power bandwidth	
both channels driven, –3 dB	10 Hz–40 kHz (8 Ω)
Damping factor	30 (8 Ω)
Input sensitivity and impedance	
PHONO	3 mV/47 kΩ
CD, VCR 1, VCR 2/VIDEO CD, TAPE	200 mV/22 kΩ
S/N at rated power (8 Ω)	
PHONO	70 dB (IHF, A: 80 dB)
CD, VCR 1, VCR 2/VIDEO CD, TAPE	75 dB (IHF, A: 88 dB)
Frequency response	
PHONO	RIAA standard curve
	(30 Hz–15 kHz) ±0.8 dB
CD, VCR 1, VCR 2/VIDEO CD, TAPE	10 Hz–40 kHz, ±3 dB
Tone controls	
BASS	50 Hz, +10 to –10 dB
TREBLE	20 kHz, +10 to –10 dB

Loudness control (volume at –30 dB)	50 Hz, +9 dB
Output voltage	
VCR 1 OUT, TAPE REC (OUT)	200 mV
Channel balance (250 Hz–6.3 kHz)	±1 dB
Channel separation	55 dB
Headphones output level and impedance	430 mV/330 Ω
Load impedance	
Front	
A or B [For (E, EB, EG) areas.]	4–16 Ω
[For (G, GN) areas.]	8–16 Ω
A and B	8–16 Ω
Center	8–16 Ω
Surround	14–16 Ω

■ FM TUNER SECTION

Frequency range	87.50–108.00 MHz
Sensitivity	
S/N 30 dB	1.5 μV/75 Ω
S/N 26 dB	1.3 μV/75 Ω
S/N 20 dB	1.2 μV/75 Ω
IHF usable sensitivity	(IHF '58) 1.5 μV/75 Ω
IHF 46 dB stereo quieting sensitivity	22 μV/75 Ω
Total harmonic distortion	
MONO	0.2%
STEREO	0.3%
S/N	
MONO	60 dB (75 dB, IHF)
STEREO	58 dB (71 dB, IHF)
Frequency response	20 Hz–15 kHz, +1 dB, –2 dB
Alternate channel selectivity	
±400 kHz	65 dB
Capture ratio	1 dB
Image rejection at 98 MHz	40 dB
IF rejection at 98 MHz	70 dB
Spurious response rejection at 98 MHz	70 dB
AM suppression	50 dB
Stereo separation	
1 kHz	40 dB
Carrier leak	
19 kHz	–30 dB (–35 dB, IHF)
38 kHz	–50 dB (–55 dB, IHF)
Channel balance (250 Hz–6.3 kHz)	±1.5 dB

Technics®

△ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Limiting point	1.2 μ V
Bandwidth	
IF amplifier	180 kHz
FM demodulator	1000 kHz
Antenna terminal(s)	75 Ω (unbalanced)

■ AM TUNER SECTION

• For (E, EB) areas.

Frequency range	
MW	522 – 1611 kHz (9 kHz steps) 530 – 1620 kHz (10 kHz steps)
LW	144 – 288 kHz

Sensitivity

MW	20 μ V, 330 μ V/m
LW	45 μ V

Selectivity

MW (at 999 kHz)	55 dB
LW (at 252 kHz)	55 dB

Image rejection

MW (at 999 kHz)	40 dB
LW (at 252 kHz)	40 dB

IF rejection

MW (at 999 kHz)	55 dB
LW (at 252 kHz)	55 dB

• For (EG, G, GN) areas.

Frequency range	522 – 1611 kHz (9 kHz steps) 530 – 1620 kHz (10 kHz steps)
-----------------	---

Selectivity (S/N 20 dB)	20 μ V, 330 μ V/m
-------------------------	---------------------------

Selectivity at 999 kHz	55 dB
------------------------	-------

Image rejection at 999 kHz	40 dB
----------------------------	-------

IF rejection at 999 kHz	55 dB
-------------------------	-------

■ VIDEO SECTION

Output voltage at 1 V input (unbalanced)	1 \pm 0.1 Vp-p
--	------------------

Maximum input voltage	1.5 Vp-p
-----------------------	----------

Input/output impedance	75 Ω (unbalanced)
------------------------	--------------------------

■ CONTENTS

	Page
BEFORE REPAIR AND ADJUSTMENT	2
CAUTIONS FOR AC MAINS LEAD	3
PROTECTION CIRCUITRY	3
FRONT PANEL CONTROLS	4
TO SET THE POWER VOLTAGE	4
ACCESSORIES	5
EQUIPMENT CONNECTIONS	5, 6
REMOTE CONTROL OPERATION	7, 8
OPERATION CHECK AND MAIN COMPONENT REPLACEMENT PROCEDURE	9~14
FAN MOTOR TROUBLESHOOTING GUIDE	15
TROUBLESHOOTING	16~19

■ GENERAL**Power consumption (In standby condition: 3)**

[For (E, EB, EG) areas.]	235 W
--------------------------	-------

[For (G) area.]	240 W
-----------------	-------

[For (GN) area.]	225 W
------------------	-------

Power supply

[For (E, EB, EG, GN) areas.]	AC 50/60 Hz, 230 – 240 V
------------------------------	--------------------------

[For (G) area.]	AC 50/60 Hz, 110 – 127 V/220 – 240 V
-----------------	--------------------------------------

Dimensions (W × H × D)

430 × 158 × 352 mm

Weight

[For (E, EB, EG, GN) areas.]	9.8 kg
------------------------------	--------

[For (G) area.]	10.1 kg
-----------------	---------

■ REMOTE CONTROL TRANSMITTER**Control keys**

[For (E, EB, EG) areas.]	38 keys
--------------------------	---------

[For (G, GN) areas.]	58 keys
----------------------	---------

Dimensions (W × H × D)

[For (E, EB, EG) areas.]	62 × 24.5 × 176 mm
--------------------------	--------------------

[For (G, GN) areas.]	70 × 28 × 215 mm
----------------------	------------------

Weight (including batteries)

[For (E, EB, EG) areas.]	104 g
--------------------------	-------

[For (G, GN) areas.]	160 g
----------------------	-------

Power source

Two UM-4/AAA
(Panasonic R03/LR03 or equivalent)

Notes:

- Design and specifications are subject to change without notice. Weight and dimensions are approximate.
- Total harmonic distortions is measured by the digital spectrum analyzer.

OVERLOAD DETECTIONFUNCTION	19
BLOCK DIAGRAM	20~24
SCHEMATIC DIAGRAM	25~39
TERMINAL GUIDE OF IC'S TRANSISTORS AND DIODES	40
TERMINAL GUIDE	41
WIRING CONNECTION DIAGRAM	42
PRINTED CIRCUIT BAORDS	43~49
REPLACEMENT PARTS LIST	50~53, 60
CABINET PARTS LOCATION	54, 55
RESISTORS AND CAPACITORS	56~59
PACKAGING	60

■ BEFORE REPAIR AND ADJUSTMENT

Disconnect AC power, Discharge both Power Supply Capacitors C703 and C704 (75V 7500 μ F), C705 and C706 (50V 3300 μ F) through a 10 Ω , 5W resistor to ground.

DO NOT SHORT-CIRCUIT DIRECTLY (with a screwdriver blade, for instance), as this may distroy solid state devices. After repairs are completed, restore power gradually using a variac, to avoid overcurrent.

Current consumption at 50Hz/60Hz in NO SIGNAL mode should be shown below with respect to supply voltage AC 230V/240V.

Power supply voltage	AC 230V		AC 240V		AC 110 – 127V		AC 220 – 240V	
Consumed current 50/60Hz	50 Hz	140~420mA	50 Hz	150~450mA	50 Hz	400~1000 mA	50 Hz	150~450mA
	60 Hz	112~336mA	60 Hz	120~360mA	60 Hz	320~800 mA	60 Hz	120~360mA



■ CAUTIONS FOR AC MAINS LEAD

("EB" area code model only)

For your safety, please read the following text carefully.

This appliance is supplied with a moulded three pin mains plug for your safety and convenience.

A 5-ampere fuse is fitted in this plug.

Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5-ampere and that it is approved by ASTA or BSI to BS1362. Check for the ASTA mark  or the BSI mark  on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.

If you lose the fuse cover the plug must not be used until a replacement cover is obtained.

A replacement fuse cover can be purchased from your local dealer.

CAUTION!

IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY.

THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13-AMPERE SOCKET.

If a new plug is to be fitted please observe the wiring code as shown below.

If in any doubt please consult a qualified electrician.

IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

Blue: Neutral

Brown: Live

As these colours may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured BLUE must be connected to the terminal in the plug which is marked with the letter N or coloured BLACK.

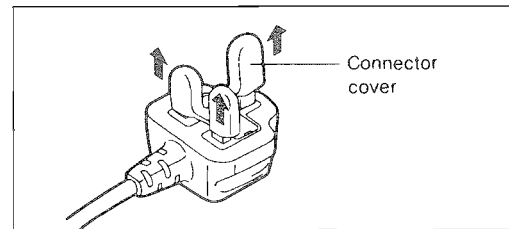
The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.

WARNING: DO NOT CONNECT EITHER WIRE TO THE EARTH TERMINAL WHICH IS MARKED WITH THE LETTER E, BY THE EARTH SYMBOL \perp OR COLOURED GREEN OR GREEN/YELLOW.

THIS PLUG IS NOT WATERPROOF – KEEP DRY.

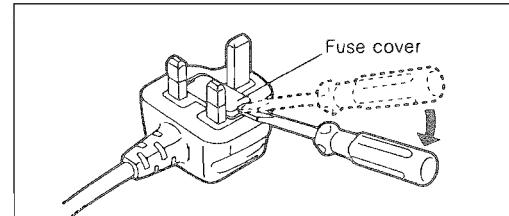
Before use

Remove the connector cover as follows.

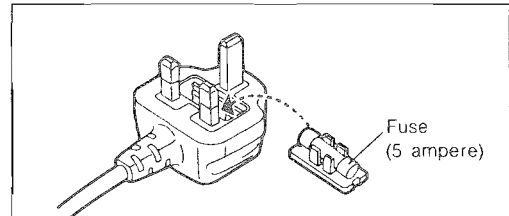


How to replace the fuse

1. Remove the fuse cover with a screwdriver.



2. Replace the fuse and attach the fuse cover



■ 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 a 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.

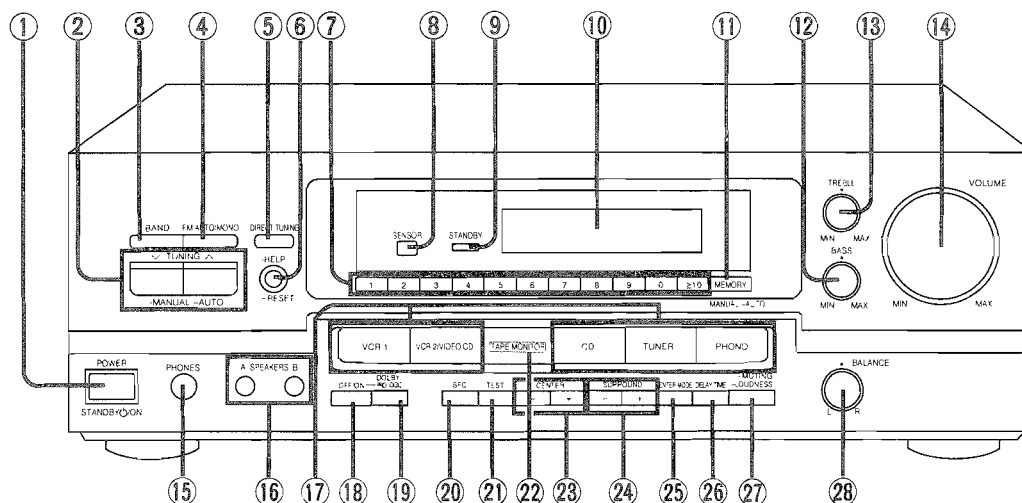
If this occurs, follow the procedure outlines below:

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

Note:

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

FRONT PANEL CONTROLS



No.	Name	Ref. page
-----	------	-----------

①	Power “STANDBY \odot /ON” switch (POWER, STANDBY \odot /ON) Press to switch the unit from on to standby mode or vice versa. In standby mode, the unit is still consuming a small amount of power.	
---	---	--

②	Tuning control (TUNING)	
---	--------------------------------	--

③	Band select button (BAND)	
---	----------------------------------	--

④	FM mode select button (FM AUTO/MONO)	
---	---	--

⑤	Direct tuning button (DIRECT TUNING)	
---	---	--

⑥	Help/reset button (-HELP – RESET)	
---	--	--

⑦	Numeric buttons (1–0, \geq10)	
---	---	--

⑧	Remote control signal receptor	
---	---------------------------------------	--

⑨	“STANDBY” indicator	
---	----------------------------	--

When the unit is connected to the AC mains supply, this indicator lights up in standby mode and goes out when the unit is turned on.

⑩	Display	
---	----------------	--

⑪	Memory button (MEMORY)	
---	-------------------------------	--

⑫	Bass control (BASS)	
---	----------------------------	--

⑬	Treble control (TREBLE)	
---	--------------------------------	--

No.	Name	Ref. page
-----	------	-----------

⑭	Volume control (VOLUME)	
---	--------------------------------	--

⑮	Headphone jack (PHONES)	
---	--------------------------------	--

⑯	Speaker select buttons (SPEAKERS)	
---	--	--

⑰	Input select buttons	
---	-----------------------------	--

⑱	DOLBY PRO LOGIC/SFC OFF ON button (OFF/ON)	
---	---	--

⑲	DOLBY PRO LOGIC mode select button (PRO LOGIC)	
---	---	--

⑳	SFC mode select button (SFC)	
---	-------------------------------------	--

㉑	Test signal button (TEST)	
---	----------------------------------	--

㉒	Tape monitor button (TAPE MONITOR)	
---	---	--

㉓	Center level adjust button (CENTER)	
---	--	--

㉔	Surround level adjust button (SURROUND)	
---	--	--

㉕	Center mode select button (CENTER MODE)	
---	--	--

㉖	Delay time adjust button (DELAY TIME)	
---	--	--

㉗	Muting/loudness button (-MUTING – LOUDNESS)	
---	--	--

㉘	Balance control (BALANCE)	
---	----------------------------------	--

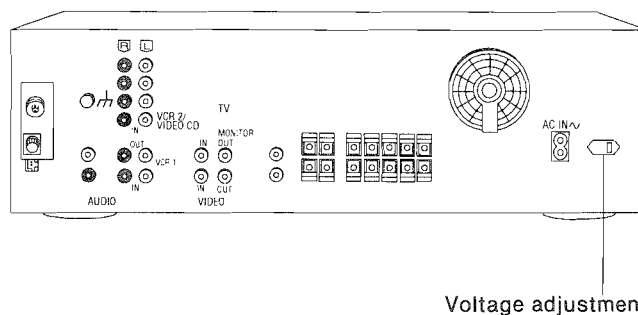
TO SET THE POWER VOLTAGE

[For (G) area only.]

Set the voltage adjustment to the voltage setting for the area in which the unit will be used.

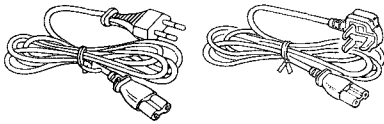
Note

Note that this unit will be seriously damaged if this setting is not made correctly.

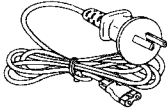


ACCESSORIES

AC power supply cord..... 1 pc.
 [RJA0019-2K [VJA0733 (EB)]
 (E, EG, G)]



[RJA0036-K (GN)]



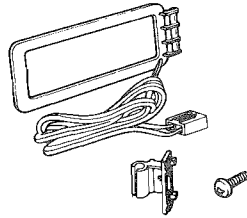
FM indoor antenna 1 pc.
 (RSA0007)



Attachment plug..... 1 pc.
 [SJP9009 (EB)]



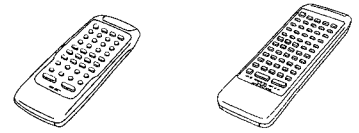
AM loop antenna set..... 1 pc.
 (RSA0010)
 • AM antenna holder..... 1 pc.
 (RMN0244)
 • Screw..... 1 pc.
 (XTN3+12AFZ)



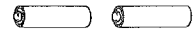
Power plug adaptor..... 1 pc.
 [SJP5213-2 (G)]



Remote control transmitter..... 1 pc.
 [RAK-SA179XH [RAK-SA603MH
 (E, EB, EG)] (G, GN)]

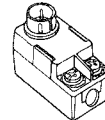


Batteries for remote control transmitter..... 2 pcs.
 ("AAA", R03)



Note: These are available on sale route.

Antenna plug..... 1 pc.
 [RFE0014 (G, GN)]



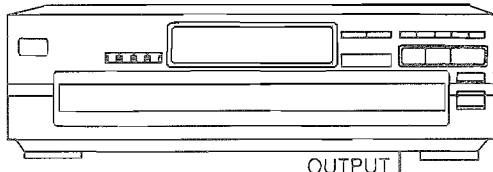
EQUIPMENT CONNECTIONS

Connecting audio equipment

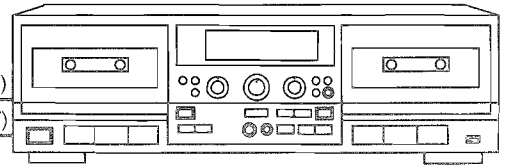
Stereo connection cable (not included)

White (L)  
 Red (R)  

CD changer (or CD player)
 (not included)



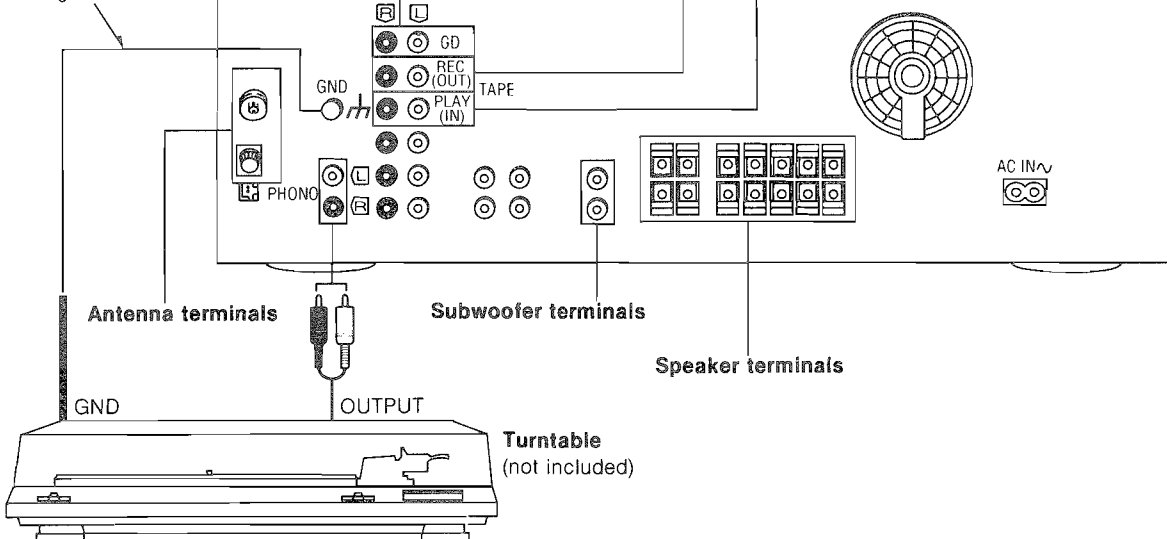
Tape deck (not included)



Note

Do not place books, etc., on top of this unit or block the heat radiation vents in any way.

Only for turntable with ground terminal

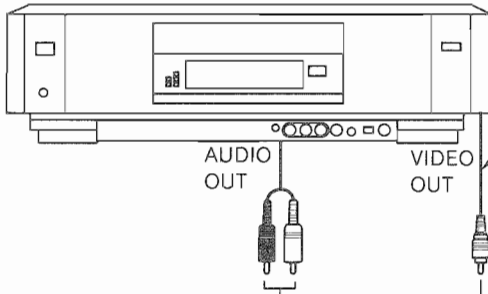


Connecting video equipment

Stereo connection cable (not included)

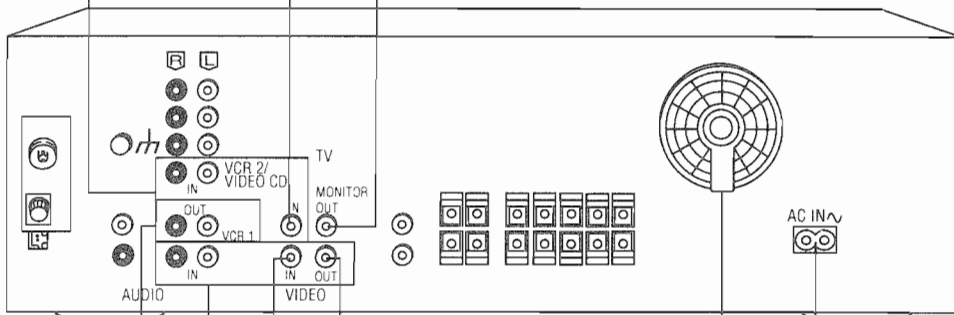
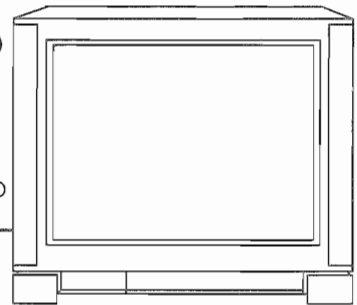


Second VCR (for playback only) or video CD changer (not included)



Video connection cables (not included)

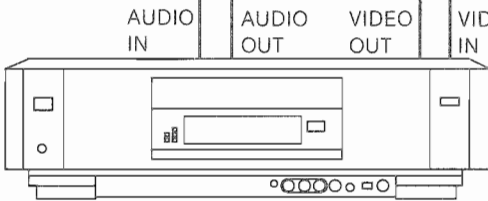
TV (not included)



Cooling fan

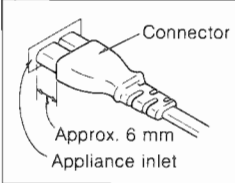
The cooling fan operates at high power output levels only.

Video connection cables (not included)



VCR (not included)

[For (EB) area.]



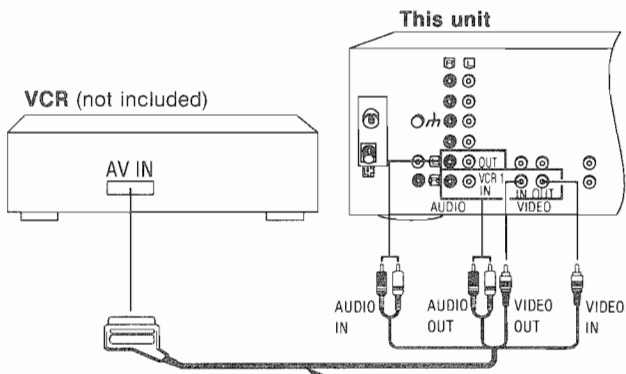
Even when the connector is perfectly inserted, the front part of the connector jut out as shown in the drawing. However there is no problem using the unit.

AC power supply cord (included)

Connect this cord after all other cables and cords are connected.



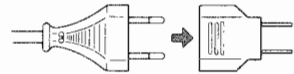
To connect a video deck with 21 pin scart terminal



21 pin scart cable (not included)

[For (G) area.]

If the power plug will not fit your socket, use the power plug adaptor (included).



REMOTE CONTROL OPERATION

[For (E, EB, EG) areas.] (RAK-SA179WH)

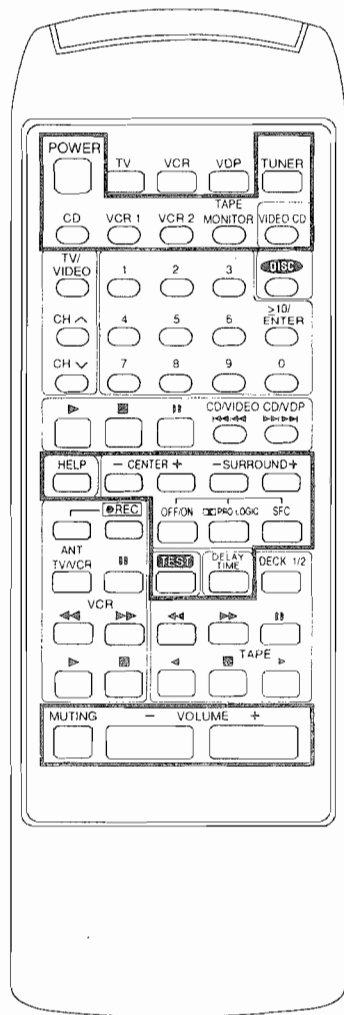
This remote control transmitter can be used to operate other units manufactured by this company in addition to this receiver, including TVs and VCRs manufactured since 1985, CD players (or CD changers), tape decks and video CD changers.

- For detailed information concerning operation steps, etc., please refer to the appropriate page for each unit and the respective operating instructions.
- Make sure that the power of each unit is set to the "ON" position before beginning the operations.

To operate the receiver

	To turn the unit ON/OFF	(Touch only)	
	To select an input source	<p>Note</p> <ul style="list-style-type: none"> • PHONO can not be selected with this remote control. • Selecting TAPE turns ON the tape monitor function. Pressing it again or another input select button turns the function OFF. 	
	To select the Dolby Pro Logic mode	<input checked="" type="checkbox"/> PRO LOGIC Changes as follows each time the button is pressed. <p>→ SURROUND → 3 STEREO → (OFF)</p>	
	To output a test signal	When the 3 STEREO or SURROUND mode is ON Press once more to stop the test signal.	
	To adjust the output level of the center speaker	When the 3 STEREO or SURROUND mode is ON - CENTER + Note Output level cannot be changed when the surround mode is ON and the center mode is on PHANTOM.	
	To adjust the output level of the surround speakers	When the SURROUND mode is ON - SURROUND + 	
	To mute the sound level	MUTING Press once more to return to the original volume. 	
	To adjust the volume level	- VOLUME + 	
	If your unit is equipped with the New Technics Remote Control System (see below)		
	To turn the system OFF	Press for approx. 2 seconds.	
To listen to radio broadcasts			
Specify the preset channel using the numeric button(s). (Example: Channel 9)			
TUNER →		(Example: Channel 12) → 1 → 2	

[For (G, GN) areas.] (RAK-SA603MH)

To operate the receiver**Basic operations**

To turn the power supply ON/OFF

TUNER → POWER Once the power has been set to ON, it can be turned ON and OFF simply by pressing POWER.

To select an input source

TUNER CD VCR 1 VCR 2 TAPE MONITOR VIDEO CD

Note:

- PHONO can not be selected with this remote control.
- Selecting TAPE MONITOR turns ON the tape monitor function. Pressing it again or another input select button turns the function OFF.

To turn on the Dolby Pro Logic and select the desired mode

PRO LOGIC Changes as follows each time the button is pressed.
→ SURROUND → 3 STEREO → (OFF)

To turn on the SFC function and select the desired mode

SFC Changes as follows each time the button is pressed
HALL → LIVE → THEATER
← SIMULATED ←

To output a test signal

When the SURROUND or 3 STEREO mode is ON
TEST Press once more to stop the test signal.

To adjust the output level of the center speaker

When the SURROUND or 3 STEREO mode is ON
- CENTER + **Note:** Output level cannot be changed when the surround mode is ON and the center mode is on PHANTOM.

To adjust the output level of the surround speakers

When the SURROUND or SFC mode is ON
- SURROUND +

To turn the Dolby Pro Logic/SFC OFF and ON

OFF/ON

To display simple receiver information and procedures for remedying trouble

HELP

To adjust the delay time

When the SURROUND or SFC mode is ON
DELAY TIME

To mute the sound level

MUTING The message "MUTING ON NOW" runs repeatedly from right to left across the display as long as the muting function is on. Press once more to return to the original volume.

To adjust the volume level

- VOLUME +

Note

After turning the power of the TV, VCR or laser disc player ON or OFF (see pages 5-7) always press TUNER before pressing POWER when turning the power of the receiver ON and OFF.

OPERATION CHECKS AND MAIN COMPONENT REPLACEMENT PROCEDURE

NOTE

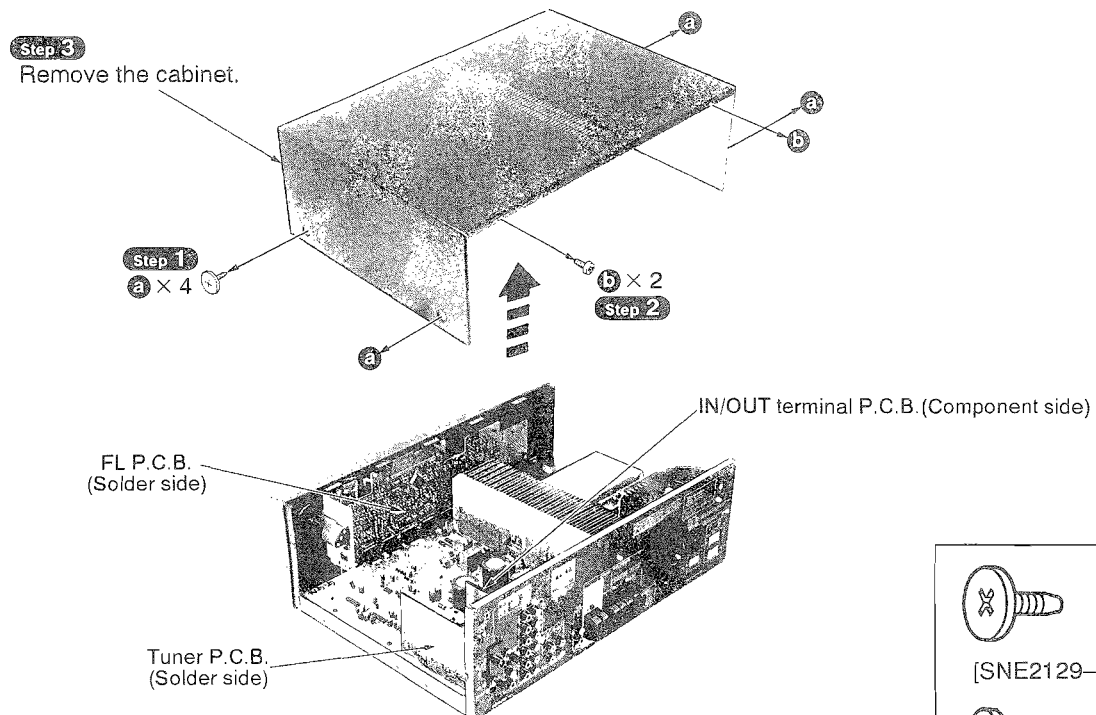
1. This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.
2. For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.
3. Select items from the following index when checks or replacement are required.
4. Illustrated screws are equivalent to actual size.
5. Refer the parts No. on the page of "Main component Replacement Procedures", if necessary.

Contents

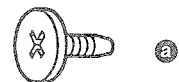
•Checking Procedure for each P.C.B.	Page.
1.Checking for the FL P.C.B., Tuner P.C.B. and IN/OUT terminal P.C.B.	9,10.
2.Checking for the Main P.C.B.	10,11.
•Main Component Replacement Procedures	
1.Replacement for the foot.	12.
2.Replacement for the power IC and regulator transistor.	12-14.
3.Replacement for the fan motor.	14.

Checking Procedure for each P.C.B.

1. Checking for the FL P.C.B., tuner P.C.B. and IN/OUT terminal P.C.B.



- Check the FL P.C.B., tuner P.C.B. and IN/OUT terminal P.C.B. as shown above.



a

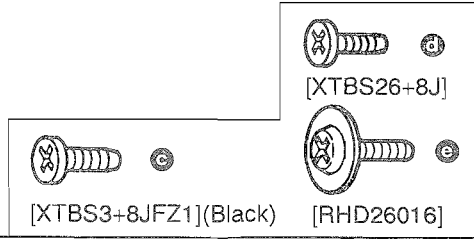
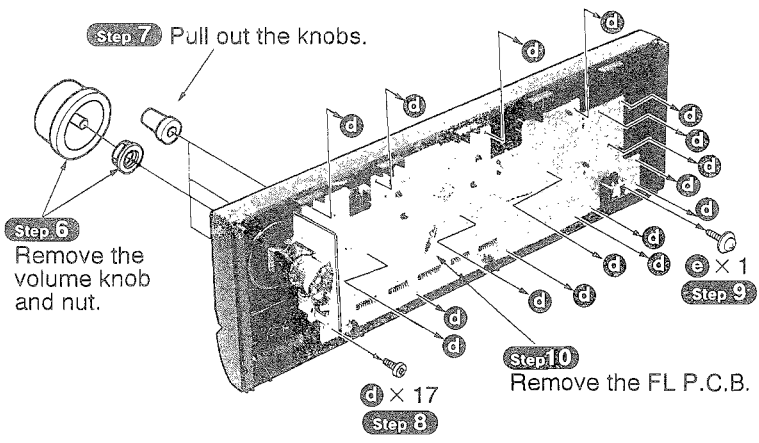
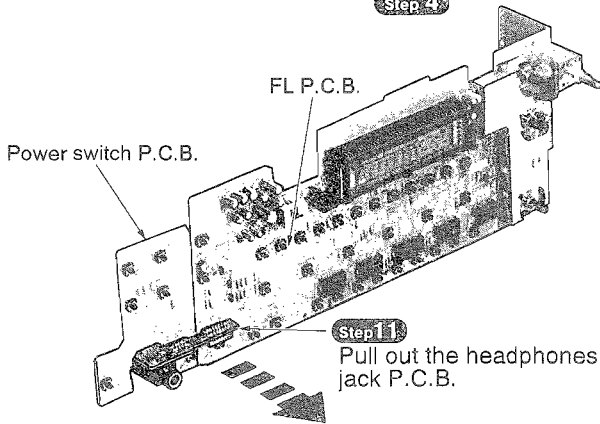
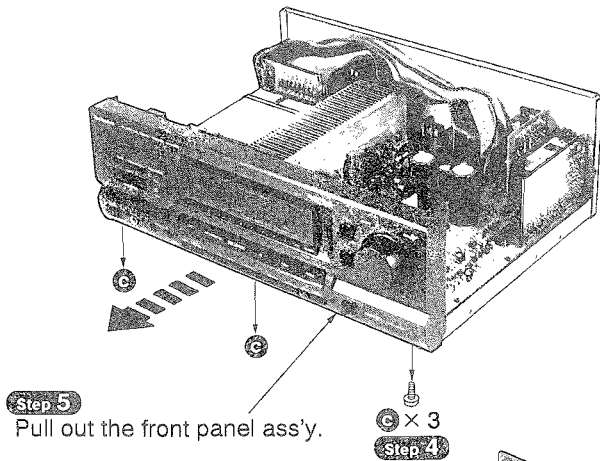
[SNE2129-3] (Black)



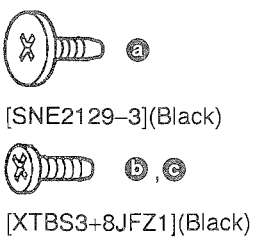
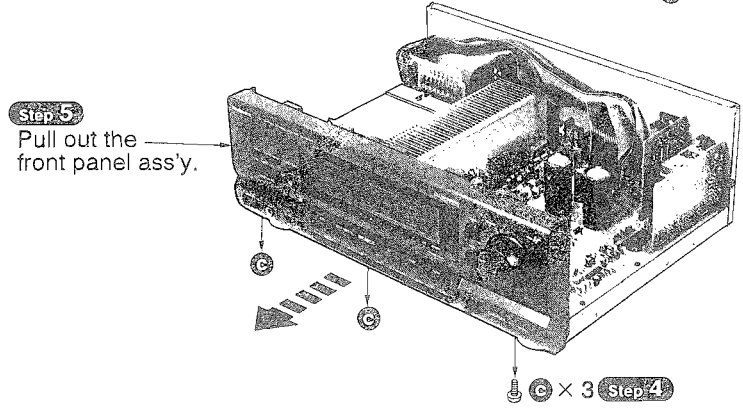
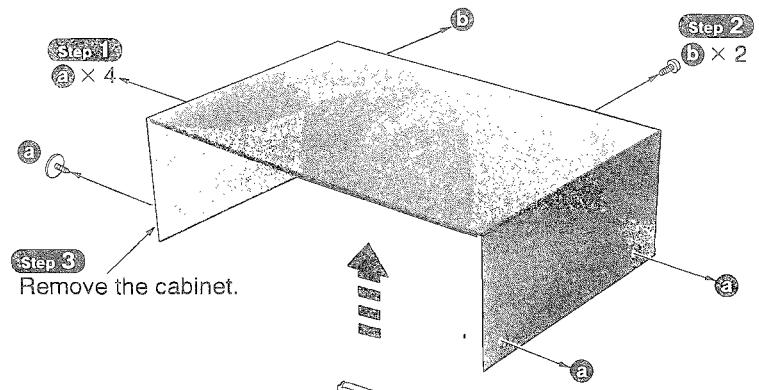
b

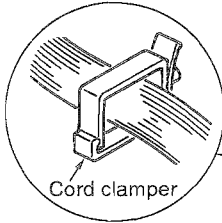
[XTBS3+8JFZ1] (Black)

To remove each P.C.B.

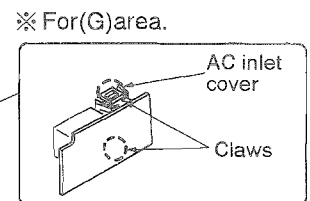


2. Checking for the main P.C.B.

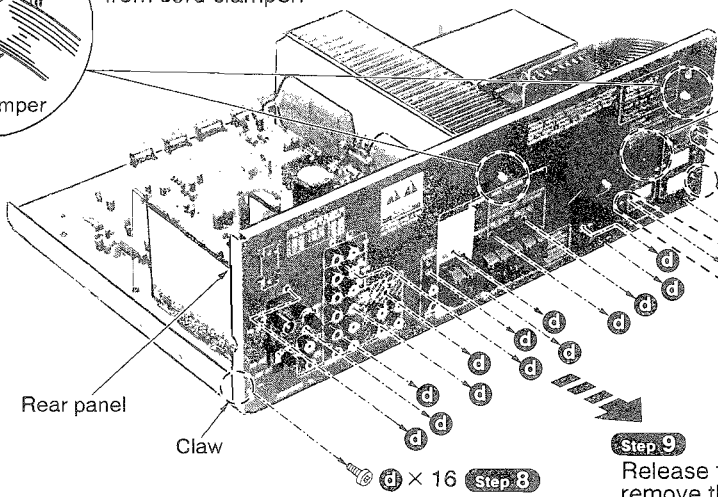




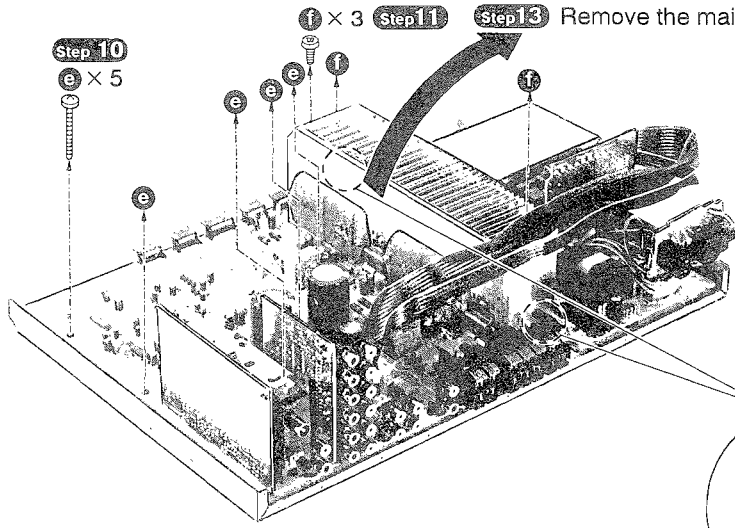
Step 6
Remove the flat cables from cord clamer.



Step 7 Release the claws.



Step 9
Release the claws, and then remove the rear panel.

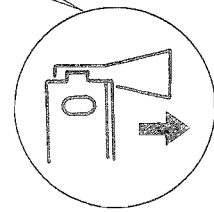


Step 10
e x 5

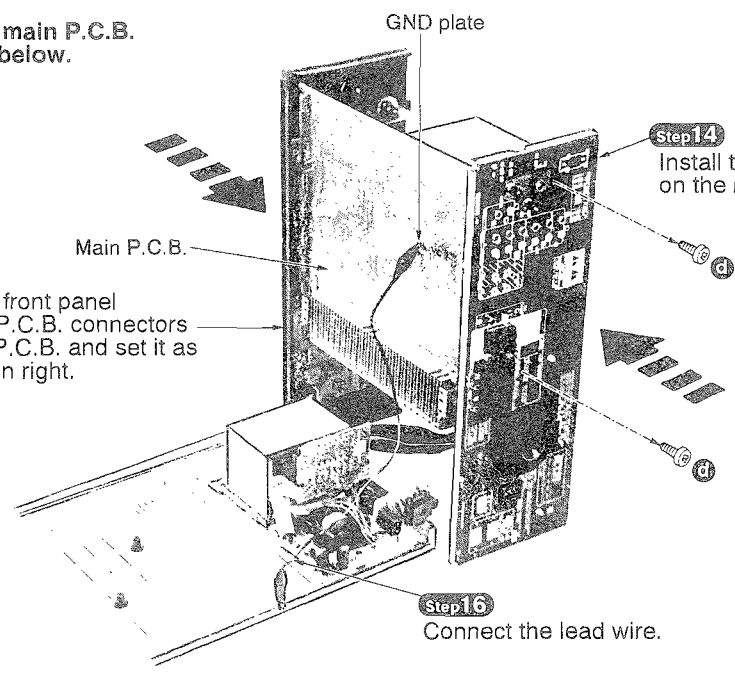
f x 3 **Step 11**

Step 13 Remove the main P.C.B.

Step 12
Release the hooks.




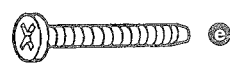
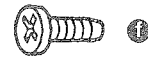
*Check the main P.C.B. as shown below.



Step 15
Connect the front panel ass'y of the P.C.B. connectors to the main P.C.B. and set it as the illustration right.

Step 14
Install the rear panel temporarily on the main P.C.B. again.

Step 16
Connect the lead wire.

-  d
[XTBS3+8JFZ1](Black)
-  e
[XTB3+20JFZ](Black)
-  f
[XTB3+8JFZ](Black)

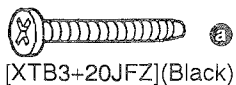
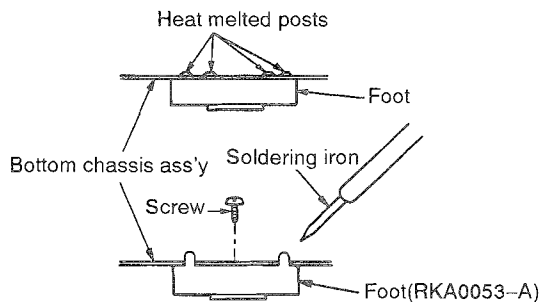
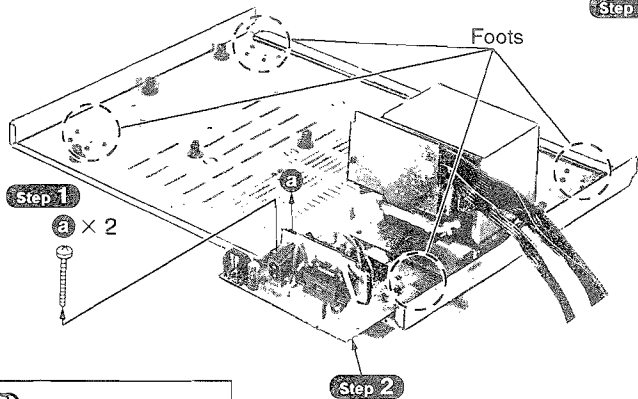
Main Component Replacement Procedures

1. Replacement of the foot

• Follow the **Step 1** ~ **Step 12** in item 2 on checking procedure for each P.C.B. on pages 10 and 11.

Step 3 Remove the 4 heat melted posts on the Bottom chassis ass'y with a pair of nippers or similar tool.

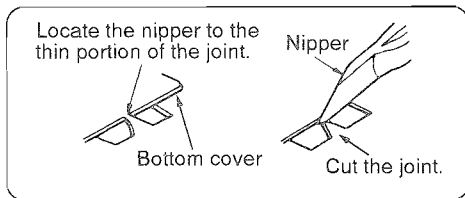
Step 4 To replace the foot(RKA0053-A) on the Bottom chassis ass'y melt the 4 posts with a soldering iron or install it with a screw (XTB3+6J).



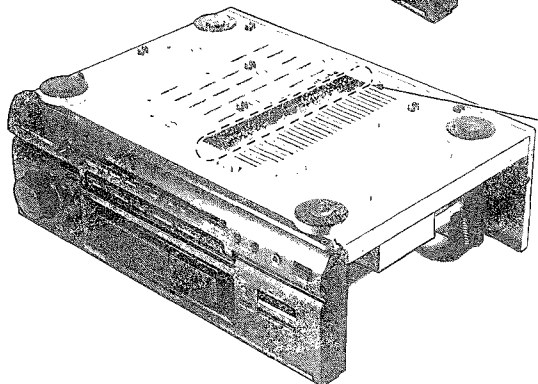
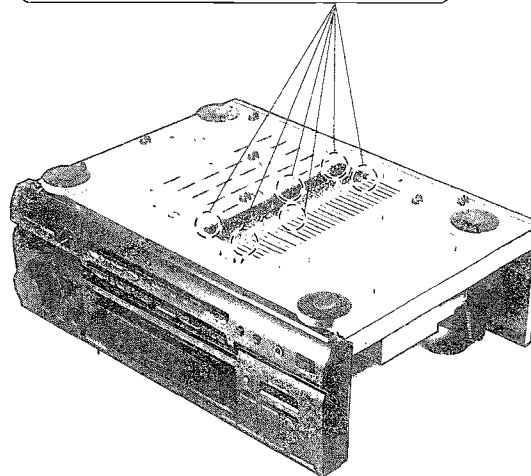
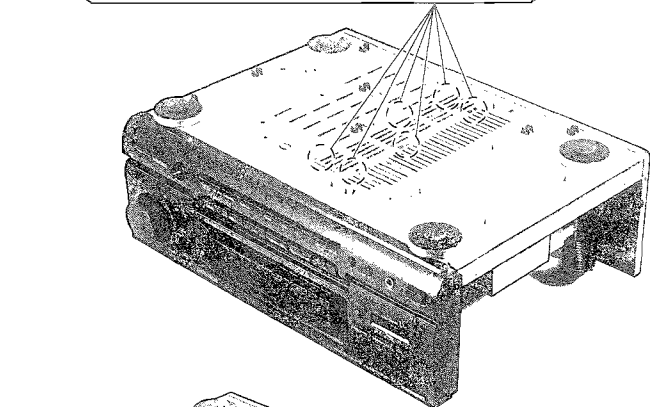
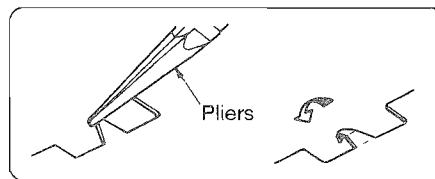
2. Replacement for the power IC and regulator transistor

• Follow the **Step 1** ~ **Step 3** in item 1 on checking procedure for each P.C.B. on page 9.

Step 1 Cut the joints as shown below.(6 portions)

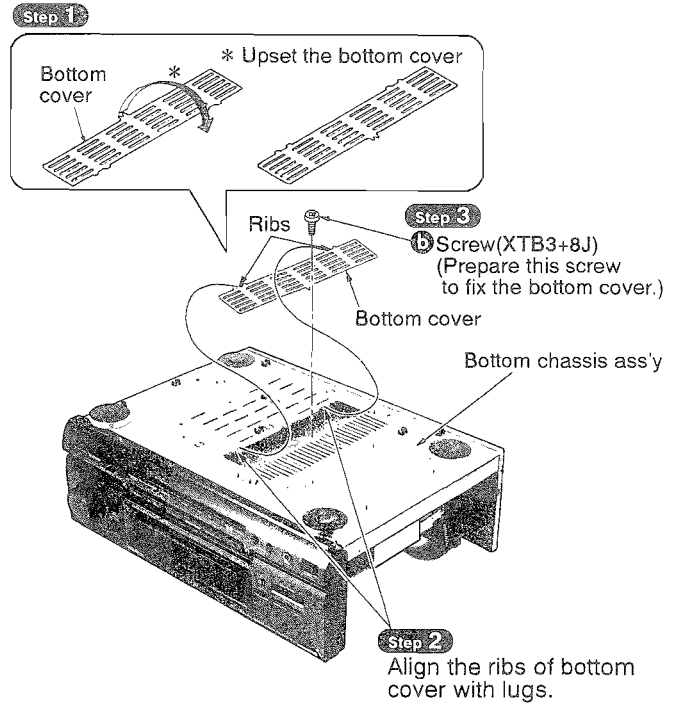
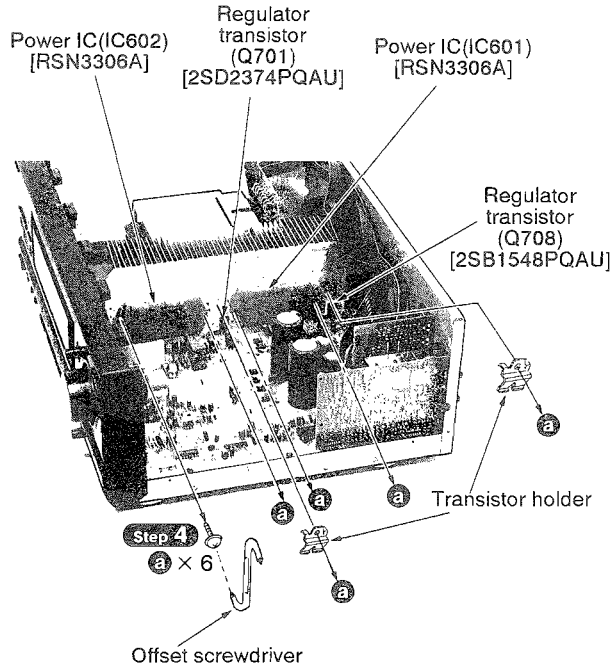


Step 2 Fold the joints.(6 portions)



Step 3 Unsolder the terminals of power IC and regulator transistor.

Installation of the bottom cover after replacement



CAUTION

1. After replacing the power IC or regulator transistor, apply a sufficient quantity of compound grease (RFKX0002) between the heat sink and the power IC or regulator transistor (Radiation of power IC).
2. Tighten enough the screws (a) after replacing the power IC and regulator transistor. Otherwise, the heat radiation works little.
3. When installing or removing the power IC or transistor holder, be sure to use an offset screwdriver.

- A long straight screwdriver cannot be used for removal or mounting since its long grip interferes with the neighboring P.C.B. (See Fig.1)
- A short straight screwdriver may be used for removal, but cannot be used for mounting because the limited space in the unit will not allow sufficient tightening torque. (See Fig.2)

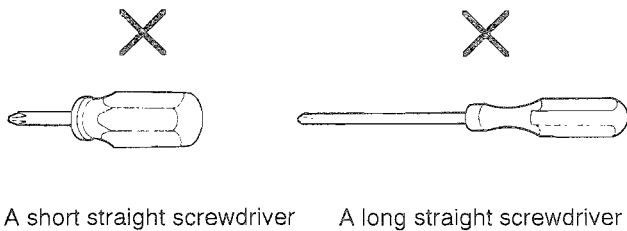
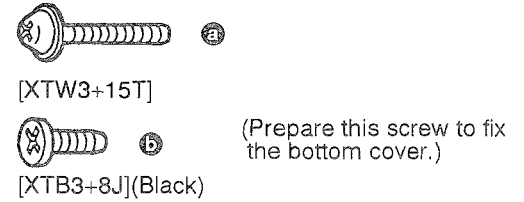
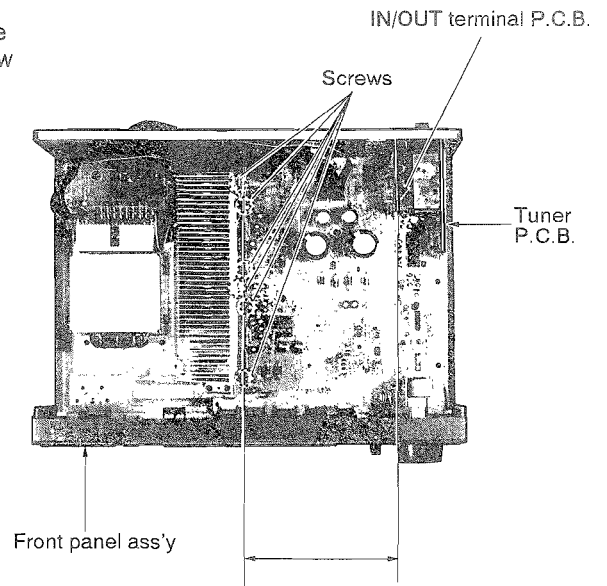


Fig.2



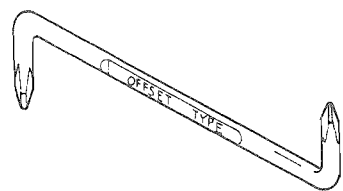
About 16cm
 (A long straight screwdriver cannot be used.)

Fig.1

- Insufficient tightening will cause poor heat dissipation from the power IC and regulator transistor and, in the worst case, may lead their thermal breakdown. (See Fig.2)

—OFFSET SCREWDRIVER—

• The PROTO offset screwdriver No.34- 1/4 is recommended for use in the application above.



No.		
34 1/4	1 & 2	4 3/4"

• The address of PROTO International Sales is as follows.



International Sales

International Sales Office
Stanley-Proto Industrial Tools
14117 Industrial Park Blvd.
Covington, GA 30209 U.S.A.
Fax: 706-786-4387
Phone: 706-787-3800

Singapore, Indonesia,
Philippines, Korea, Hong
Kong, Malaysia, China.
Stanley-Proto Asia Pacific
12 Gul Drive
Singapore 2262
Fax: 65-861-3206
Phone: 65-862-0883

Australia, New Zealand &
South Pacific
Stanley-Proto Industrial Tools
P.O.Box 10
400 Whitehorse Road
Nunwading 3131
Victoria, Australia
Fax: 61-3-894-1173
Phone: 61-3-878-9244

Thailand
Stanley-Proto Thailand Ltd.
1017 Moo 13 Bangnatrad
Highway, Tambol Bankaew
Amphur Bangplee
Samutprakarn, Thailand
Fax: 66-2-316-6071
Phone: 66-2-316-8655

Japan
Stanley Works Japan
2-7-16 Hyakunin-Cho
Shinjuku-ku
Tokyo 160 Japan
Fax: 81-3-3360-8456
Phone: 81-3-3360-8458

Mexico
Herramientas Stanley S.A.
DE C.V.
Apartado Postal 675
72030 Puebla, Pue, Mexico
Fax: 52-22-494-4880
Phone: 52-22-495-300

South & Central America,
Puerto Rico, The Caribbean
Stanley Inter-America
2101 N.W. 84th Ave.
Miami, Florida 33122
Fax: 305-594-4261
Phone: 305-591-3828

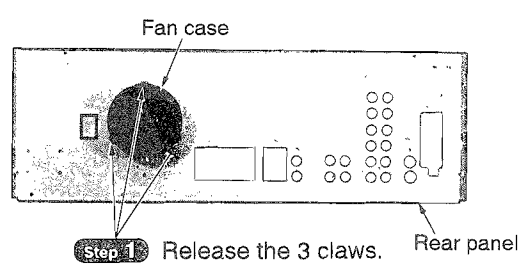
Europe
Stanley-Proto Europe
Woodside, Sheffield
S39PD
England
Fax: 44-742-739-038
Phone: 44-742-768-888

Canada
Stanley-Proto Canada
1100 Corporate Drive
Burlington, Ontario
Canada, L7L 5R6
Fax: 416-335-0075
Phone: 416-335-0075

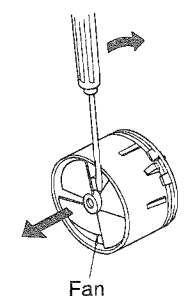
Middle East, Mediterranean
& Africa
Stanley-MEMA
Cory House The Ring
Bracknell Berkshire
RG 12 1A2
England
Fax: 44-344-485-526
Phone: 44-344-51813

3. Replacement for the fan motor

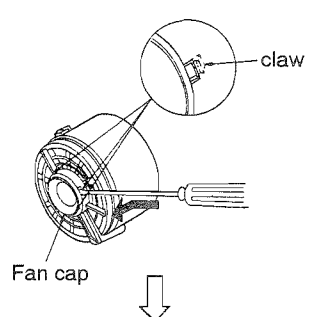
• Follow the **Step 1** ~ **Step 7** in item 2 on checking procedure for each P.C.B. on pages 10 and 11.



Step 2:
Put a screwdriver at the root of the fan and remove it.

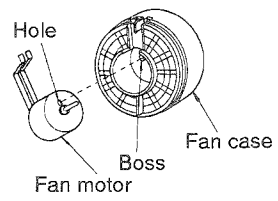


Step 3:
Remove the fan cap.

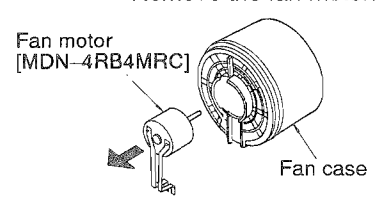


NOTE

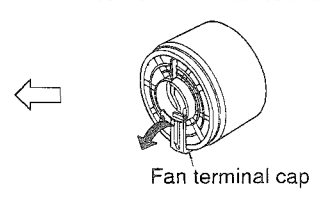
When replacing the fan motor, align the boss of the fan case with the hole of the fan motor.



Step 5:
Remove the fan motor.



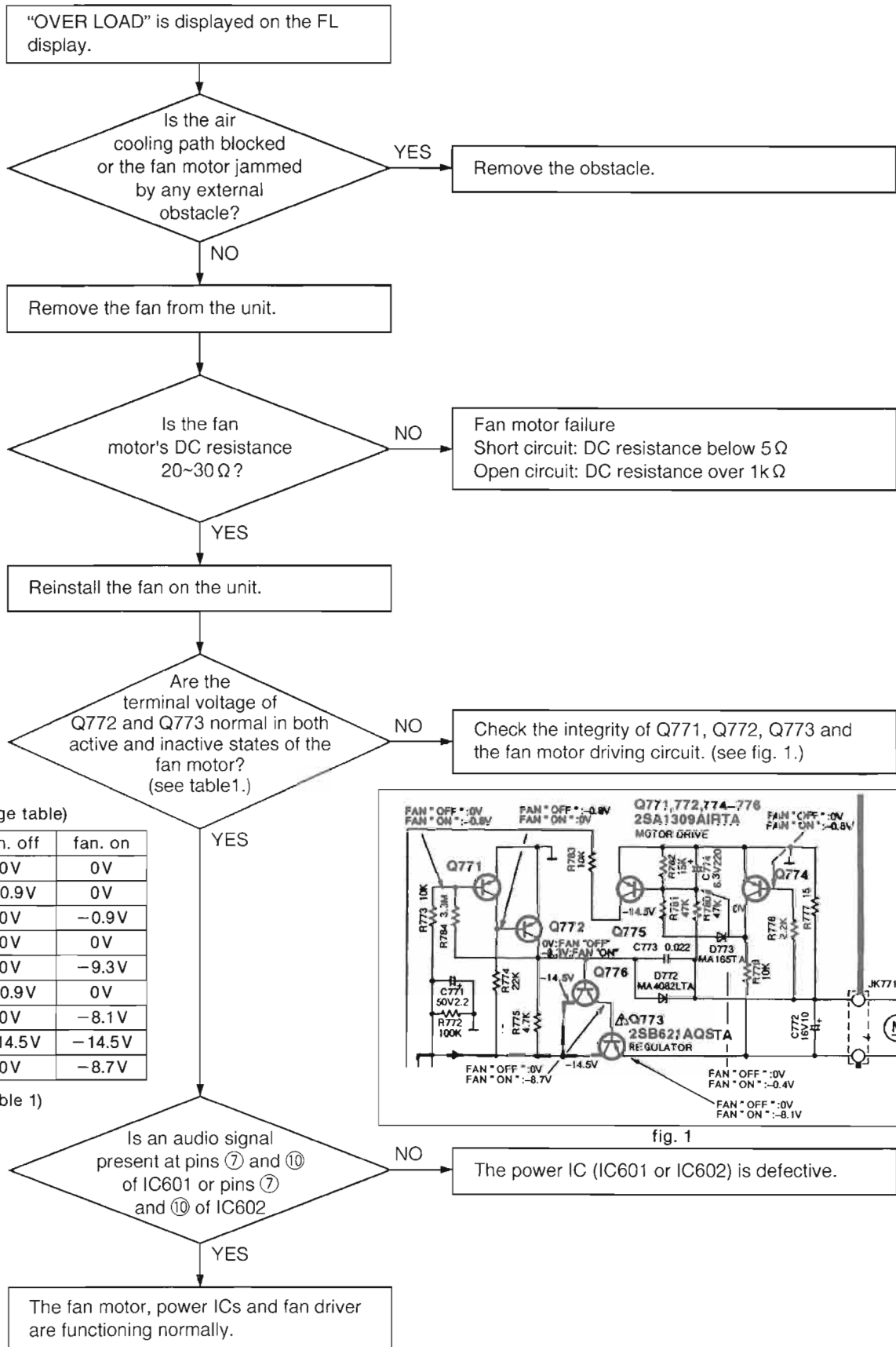
Step 4:
Remove the fan terminal cap.



FAN MOTOR TROUBLESHOOTING

The Model SA-GX690 employ fan motor error sensing electronics.

If the cooling fan is not operation and "OVER LOAD" is displayed on the FL display, check the fan motor and its driving circuit.

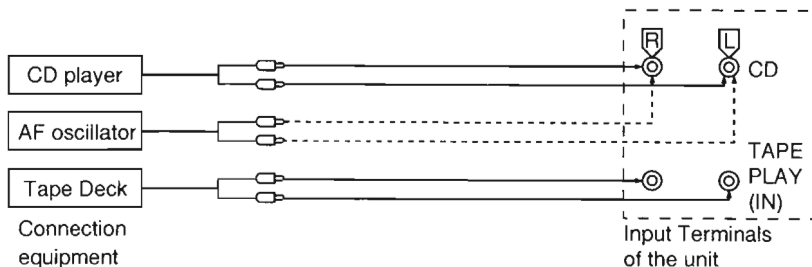


■ TROUBLESHOOTING

This unit has test terminals on each circuit board block for use in troubleshooting.

CONNECTION

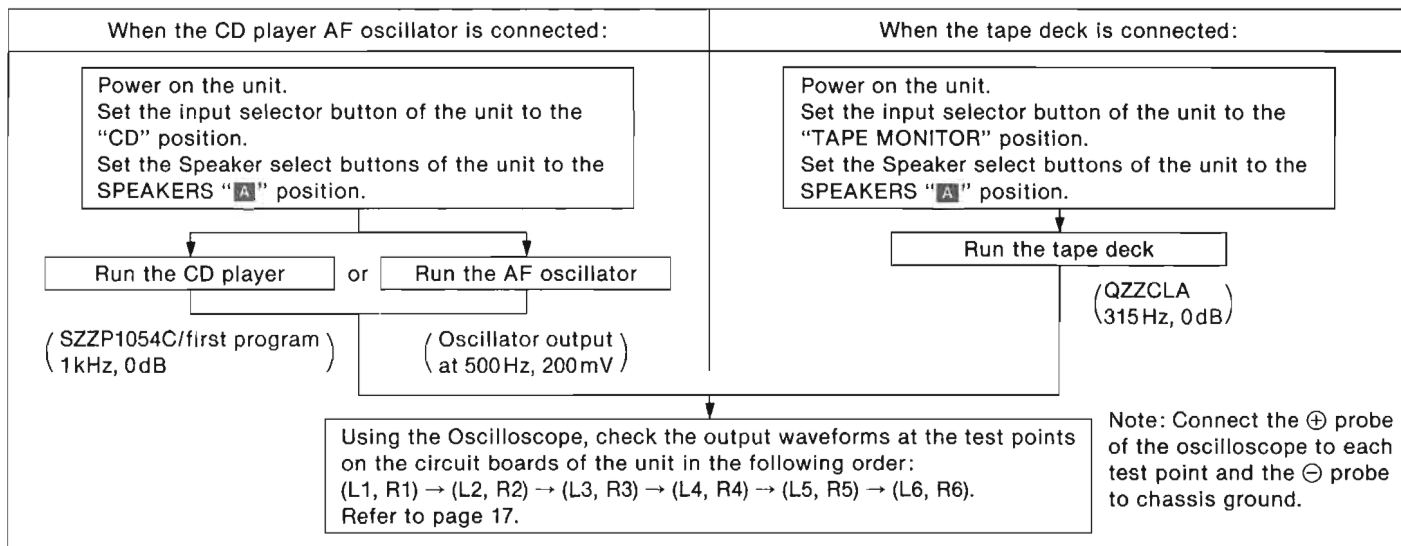
Connect either a CD player, tape deck or AF oscillator to the input terminals of the unit.



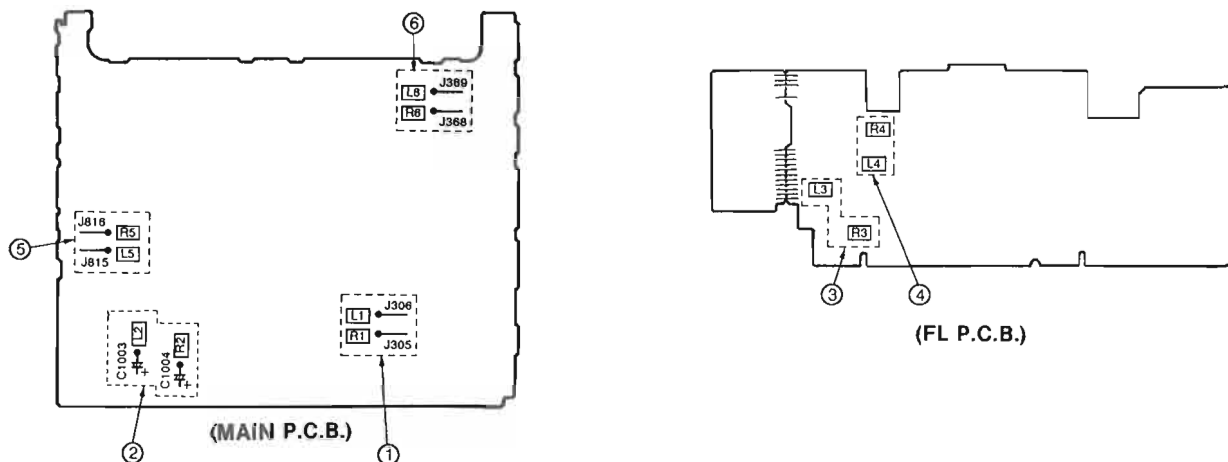
REQUIRED ITEMS

- ① Testing with a CD player ————— Test deck (SZZP1054C/first program, 1 kHz, 0dB)
- ② Testing with a tape deck ————— Test tape (QZZCLA/315Hz, 0dB)
- ③ Testing with a AF oscillator ————— Set the output at 500Hz, 200mV
- ④ Oscilloscope (min. 10MHz) To measure the output waveform at the test points.

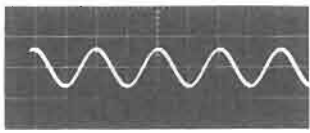
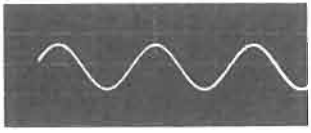
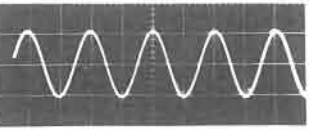
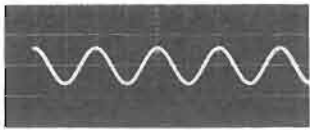
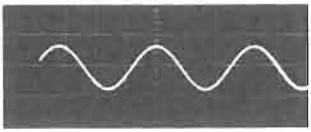
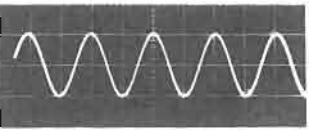
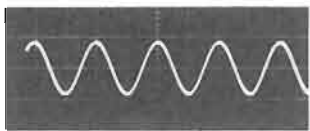
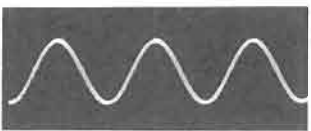
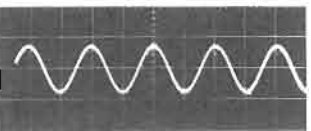
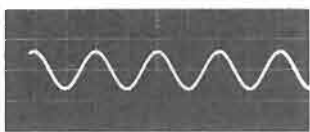
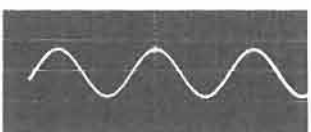
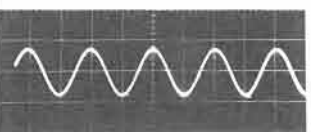
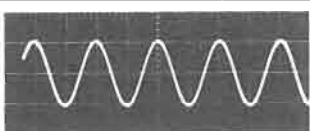
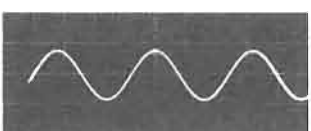
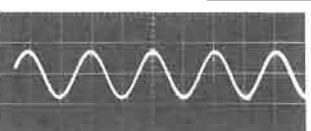
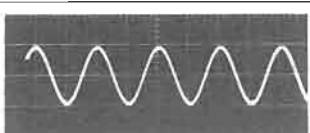
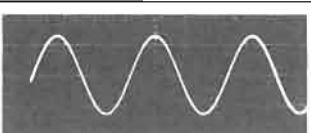
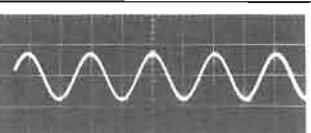
TEST PROCEDURE FOR AMPLIFIER CIRCUIT



TEST POINTS POSITIONS OF AMPLIFIER CIRCUIT



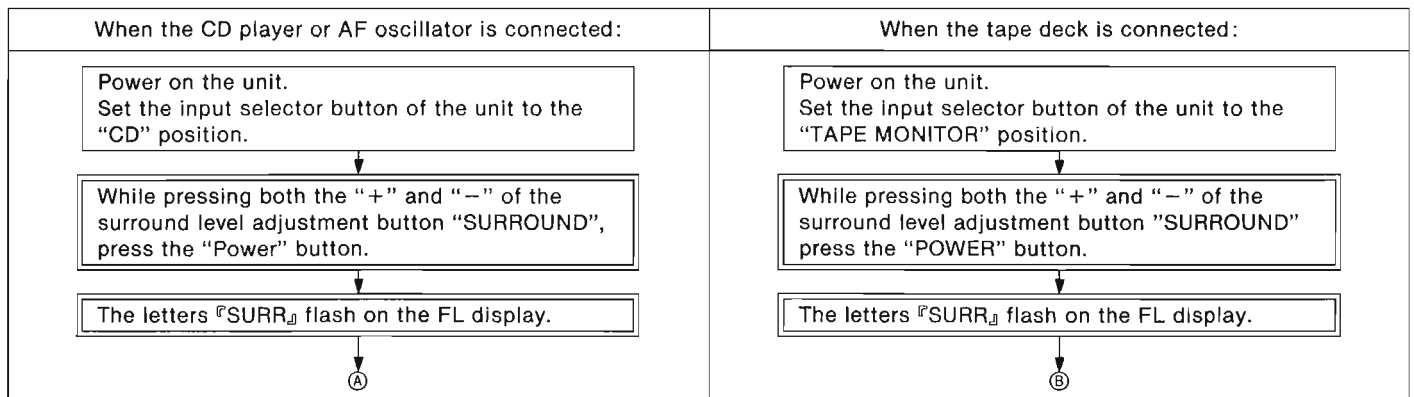
NORMAL WAVEFORMS OF AMPLIFIER CIRCUIT AND LIKELY FAULY BLOCKS

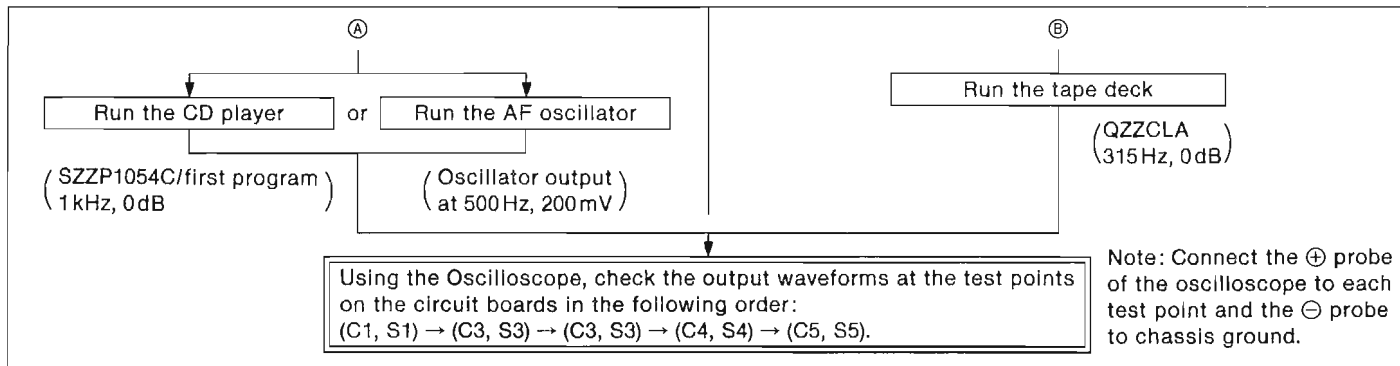
No.	TP	CD player	Tape deck	AF oscillator	Likely faulty block if the normal waveform shown at left is not present.
①	L1/R1	 0.5msec 5V	 1msec 500mV	 1msec 500mV	Input selector block IC402 & area
②	L2/R2	 0.5msec 5V	 1msec 500mV	 1msec 500mV	Dolby pro logic block IC1001 and IC1002 & area
③	L3/R3	 0.5msec 500mV	 1msec 50mV	 1msec 100mV	Master volume block VR501 & area
④	L4/R4	 0.5msec 1V*	 1msec 1V	 1msec 1V	Tone control block IC511 & area
⑤	L5/R5	 0.5msec 200mV	 1msec 500mV	 1msec 500mV	Power limiter block Q581 to Q584 & area
⑥	L6/R6	 0.5msec 10V*	 1msec 10V	 1msec 20V	Main amplifier block IC601 & area

Measurement conditions. Volume control (VR501), Treble control (VR512) and Bass control (VR511) positions:
 *Volume control (VR501) position for these test

CHECKING PROCEDURE FOR SURROUND CIRCUIT

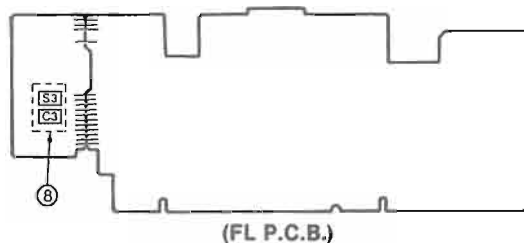
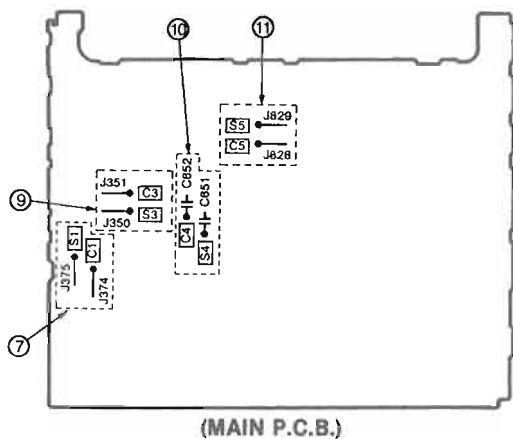
Outputting surround signals normally requires that opposite phase signals be applied to both the left and right channels. However, this unit incorporates a service mode, allowing the surround circuit to be tested using in-phase signals.





• To Exit the service mode, power off the unit.

TEST POINTS POSITIONS OF SOURROUND CIRCUIT



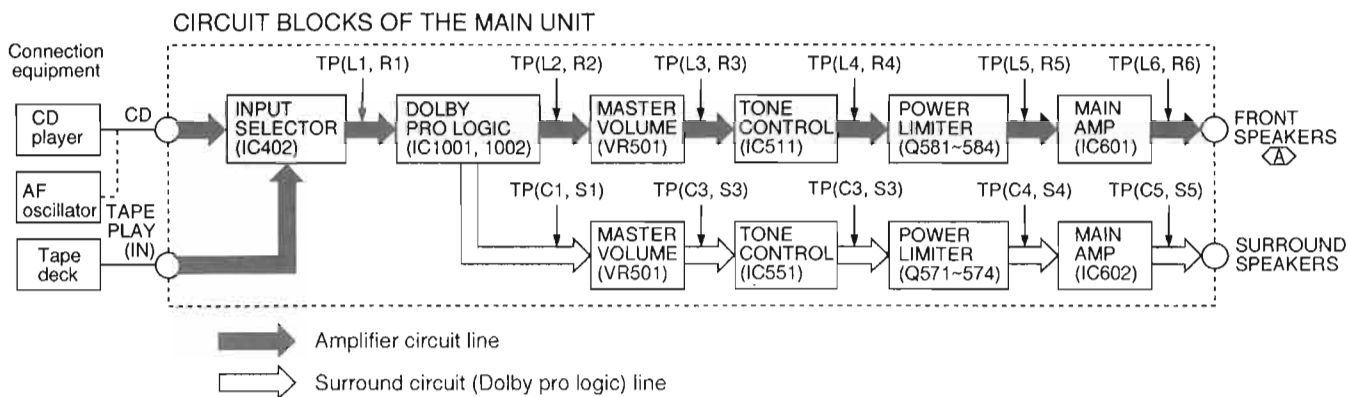
NORMAL WAVEFORMS OF SURROUND CIRCUIT AND LIKELY FAULTY BLOCKS

No.	TP	CD player	Tape deck	AF oscillator	Likely faulty block if the normal waveform shown at left is not present.
⑦	C1 S1	 0.5msec 1V	 1msec 100mV	 1msec 200mV	Dolby pro logic block IC1001 and IC1002 & area
⑧	C3 S3	 0.5msec 200mV	 1msec 20mV	 1msec 50mV	Master volume block VR501 & area
⑨	C3 S3	 0.5msec 5V	 1msec 500mV	 1msec 500mV	Tone control block IC551 & area

No.	TP	CD player	Tape deck	AF oscillator	Likely faulty block if the normal waveform shown at left is not present.
⑩	C4				Power limiter block and Q571 through Q574 & area
	S4				
⑪	C5				Main amplifier block IC602 & area
	S5				

Measurement conditions. Volume control (VR501), Treble control (VR512) and Bass control (VR511) positions: ○
 * Volume control (VR501) position for these test : ◎

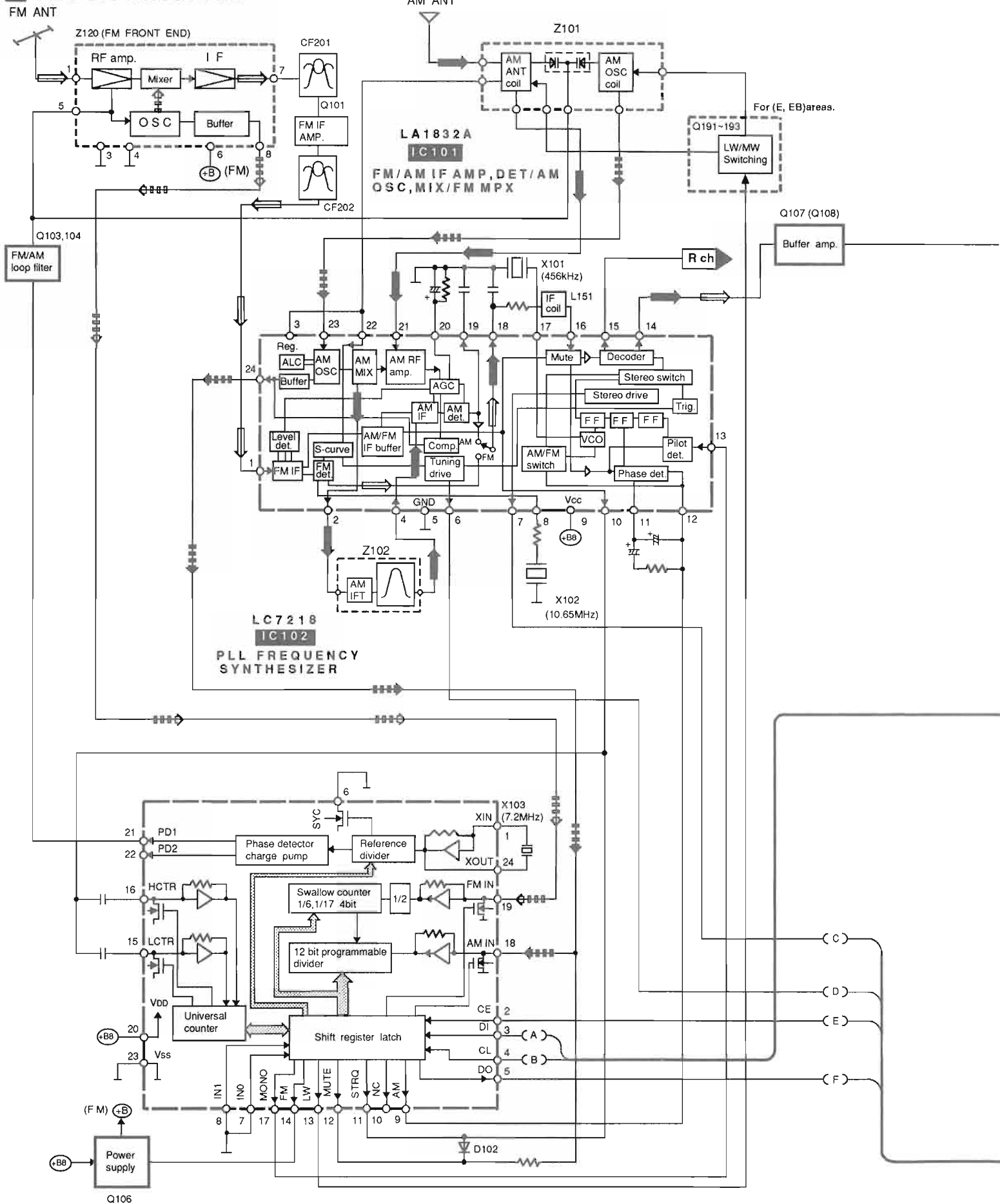
CIRCUIT BLOCKS

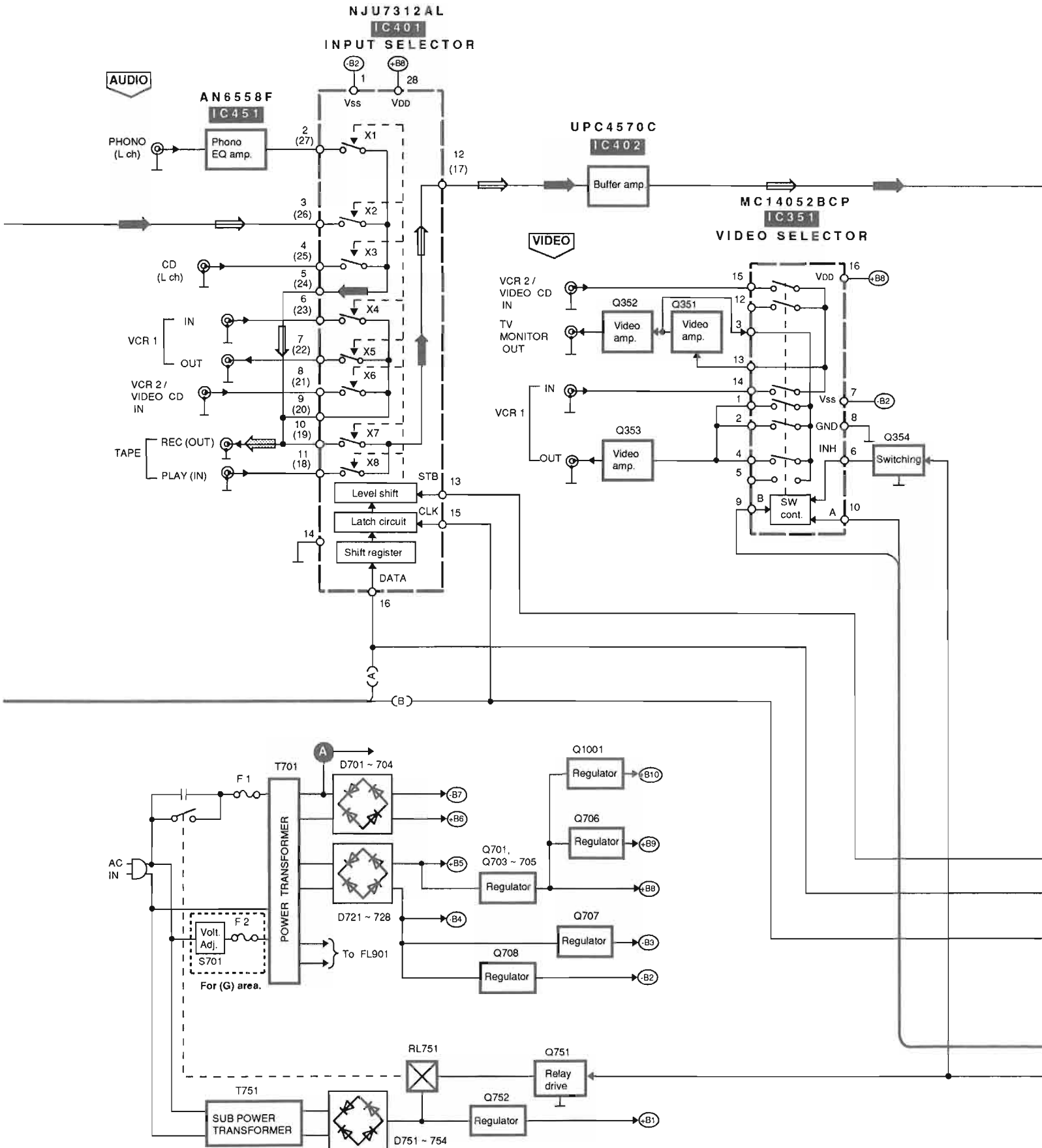


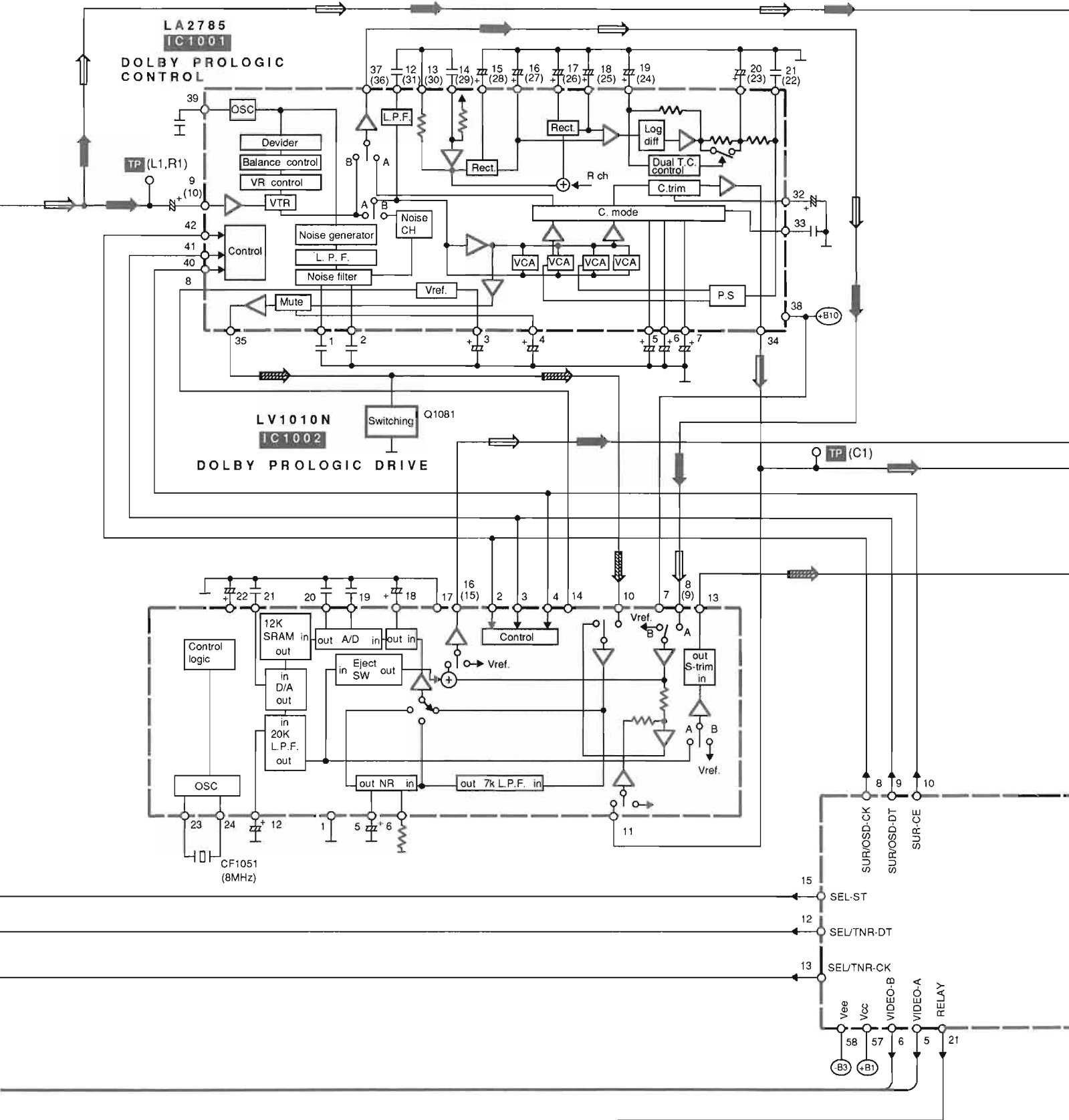
OVERLOAD DETECTION FUNCTION

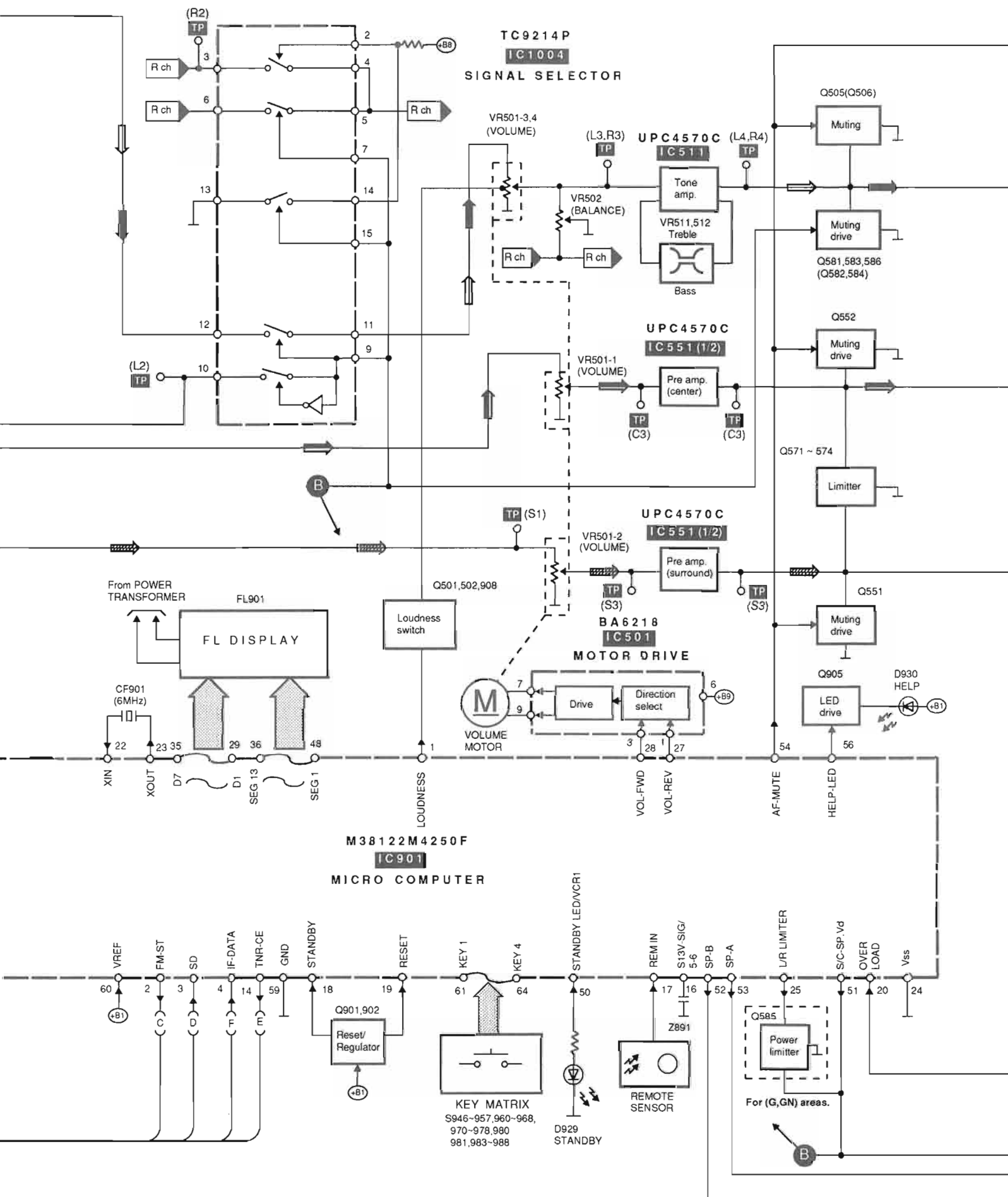
The HIC protection circuit functions if any cord at a speaker terminal is short-circuited or if the unit overheats because of improper operation. At the same time, 『OVERLOAD』 scrolls across the FL display. In this state, all keys remain inoperative; if any key is pressed, 『SWITCH OFF POWER』 scrolls across the FL display. If an overload occurs, immediately power off the unit and check the speaker connections, venting holes and cooling fans. After fixing any faults, power on the unit again and check for proper operation. If no defects are found, or if the unit remains overloaded after it is power on again, check the circuit for faults.

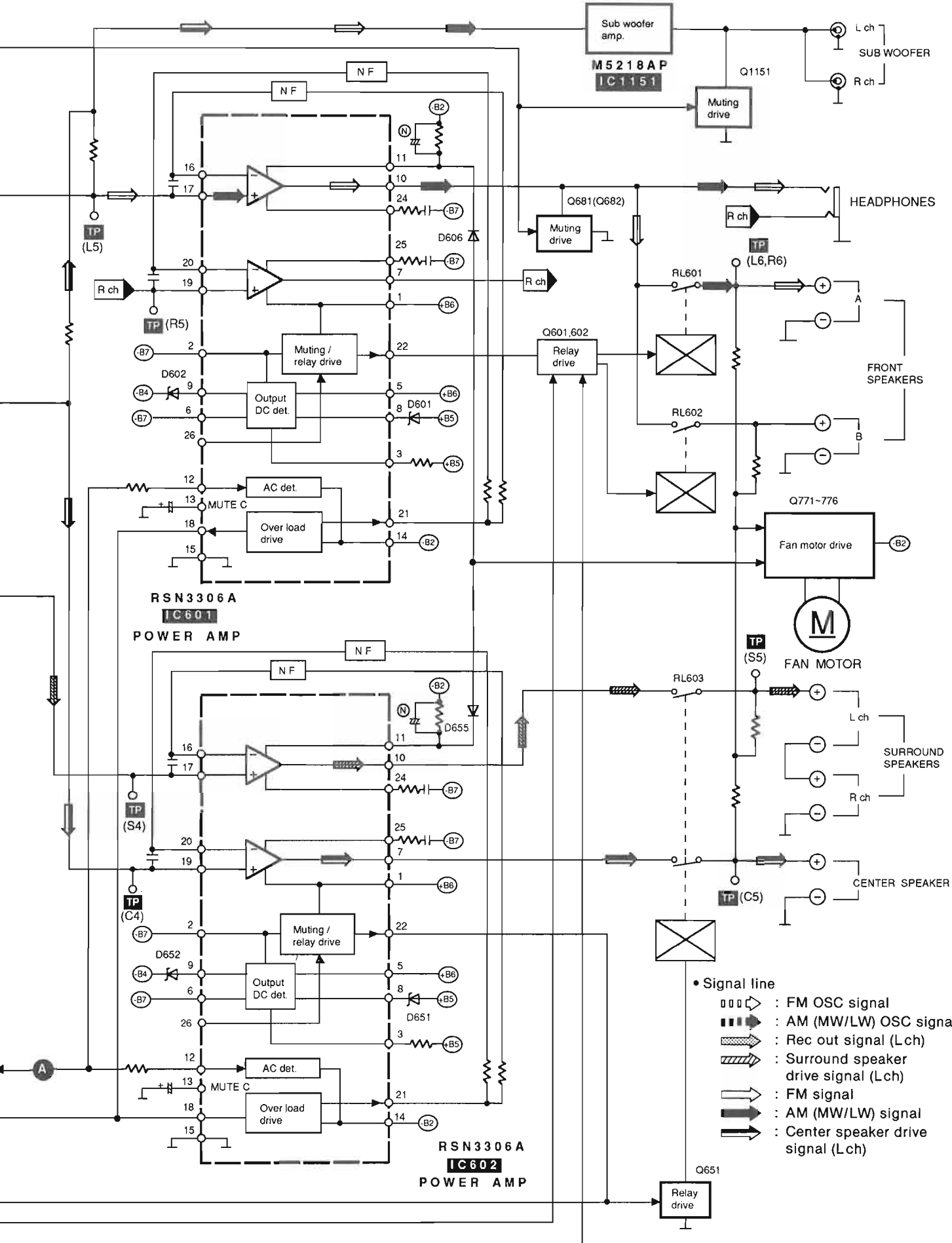
BLOCK DIAGRAM




















- Signal line
- : FM OSC signal
 - ▣▣▣▣ : AM (MW/LW) OSC signal
 - ▨▨▨▨ : Rec out signal (Lch)
 - ▧▧▧▧ : Surround speaker drive signal (Lch)
 - ▬▬▬▬ : FM signal
 - ▬▬▬▬ : AM (MW/LW) signal
 - ▬▬▬▬ : Center speaker drive signal (Lch)

■ SCHEMATIC DIAGRAM (Parts list on pages 50~52, 56~59.)

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

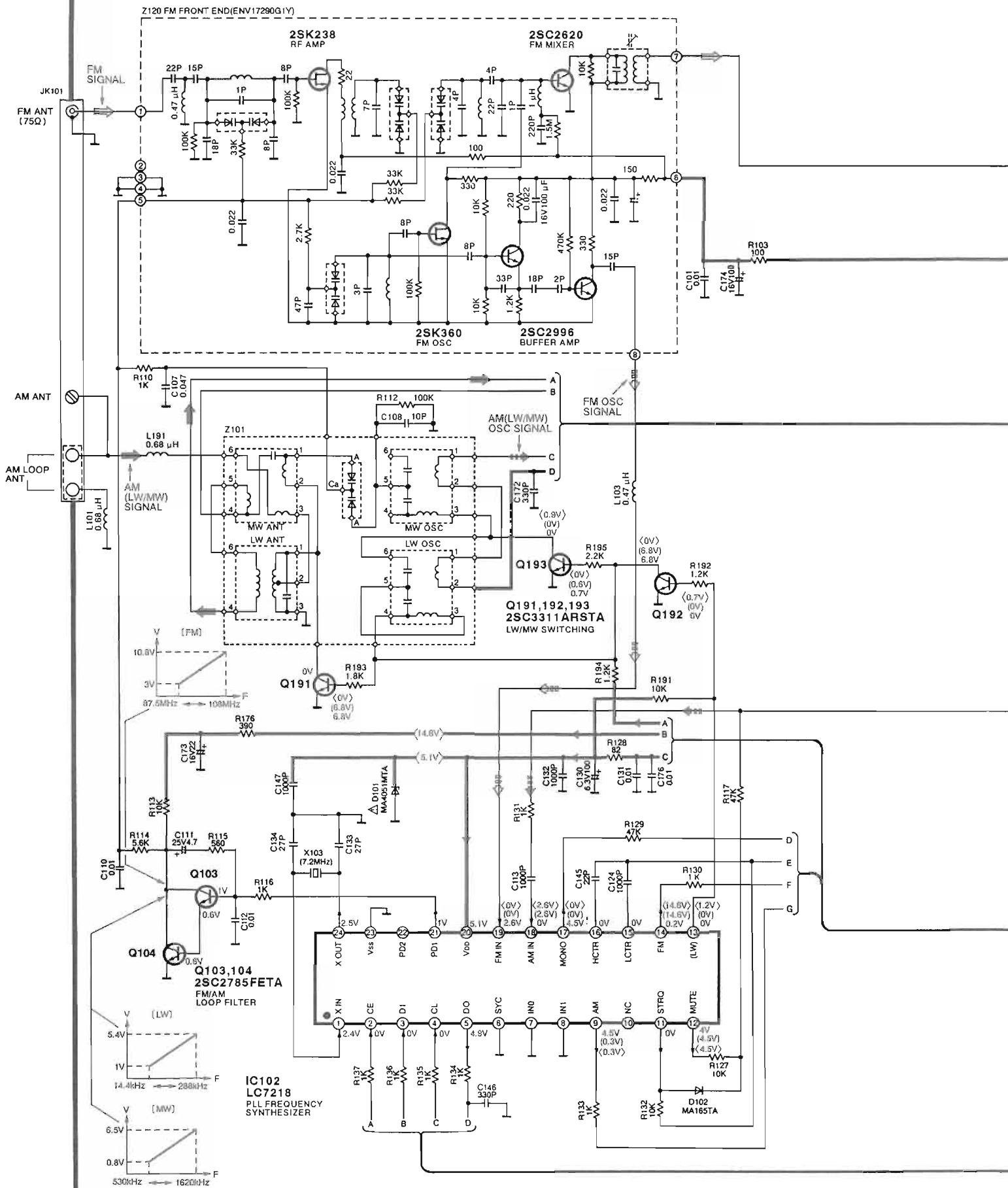
Note:

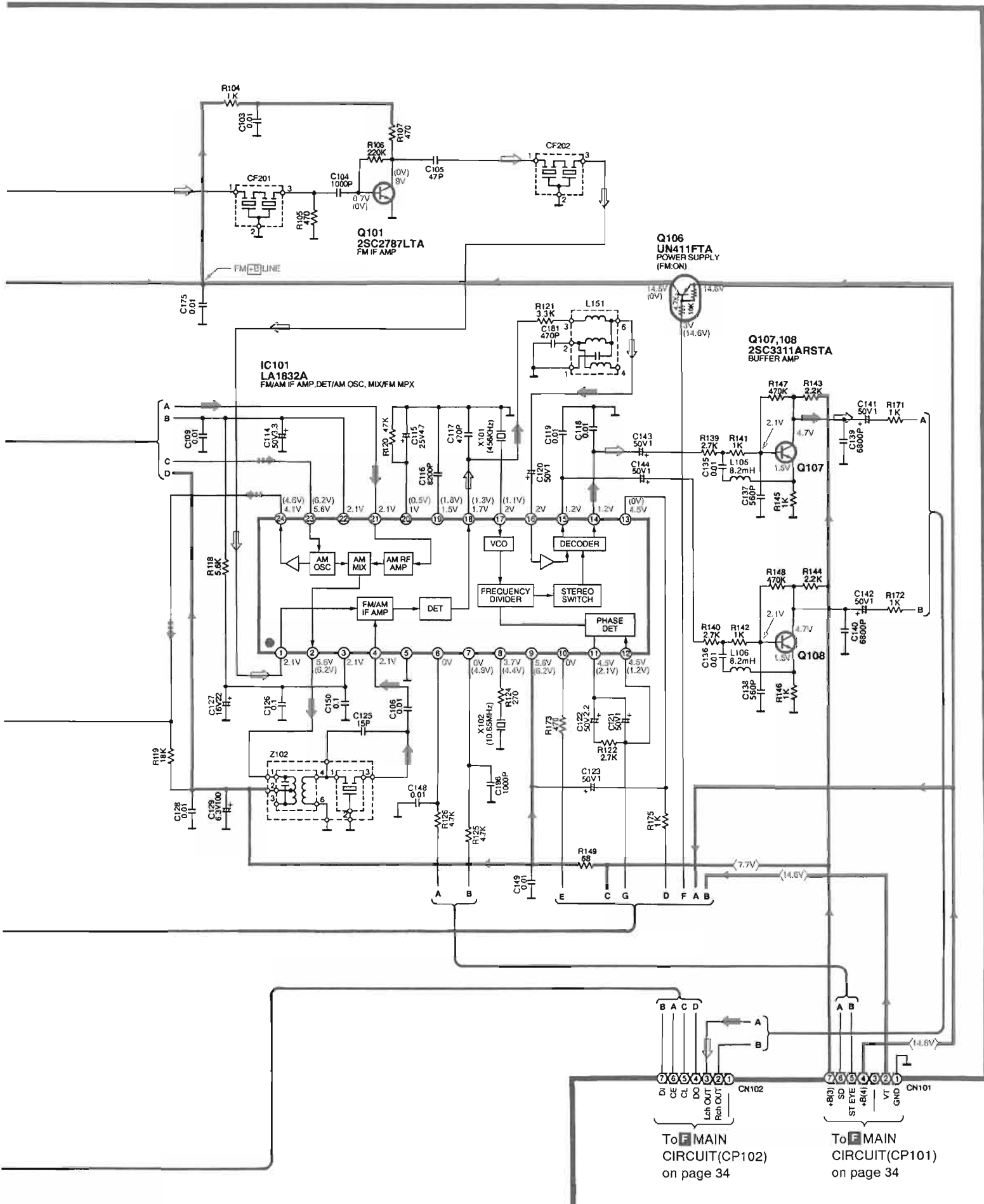
- **S701** : Voltage adjustment switch in "240V" position.
(110-127V ↔ 220-240V)
[For (G) area only.]
 - **S946** : Numeric (5) switch.
 - **S947** : Center level adjust (CENTER (-)) switch.
 - **S948** : Test signal ON/OFF (TEST) switch.
 - **S949** : Numeric (4) switch.
 - **S950** : Numeric (6) switch.
 - **S951** : Center level adjust (CENTER (+)) switch.
 - **S952** : Numeric (7) switch.
 - **S953** : Surround select (SURROUND (-)) switch.
 - **S954** : Input select (CD) switch.
 - **S955** : Input select (TUNER) switch.
 - **S956** : Center mode select (CENTER MODE) switch.
 - **S957** : Numeric (9) switch.
 - **S960** : Surround select (SURROUND (+)) switch.
 - **S961** : Numeric (8) switch.
 - **S962** : Numeric (0) switch.
 - **S963** : Delay time adjust (DELAY TIME) switch.
 - **S964** : Input select (PHONO) switch.
 - **S965** : Muting/loudness (-MUTING/-LOUDNESS) switch.
 - **S966** : Memory (MEMORY) switch.
 - **S967** : Help/reset (-HELP/-RESET) switch.
 - **S968** : Numeric (≥ 10) switch.
 - **S970** : Tape monitor ([TAPE MONITOR]) switch.
 - **S971** : Input select (VCR 2/VIDEO CD) switch.
 - **S972** : Input select (VCR 1) switch.
 - **S973** : Speaker select (SPEAKERS A) switch.
 - **S974** : Tuning control (TUNING ^) switch.
 - **S975** : Tuning control (TUNING v) switch.
 - **S976** : Band select (BAND) switch.
 - **S977** : FM mode select (FM AUTO/MONO) switch.
 - **S978** : Power (POWER) switch.
 - **S980** : SFC mode select (SFC) switch.
 - **S981** : Speaker select (SPEAKERS B) switch.
 - **S983** : DOLBY PRO LOGIC mode select (PRO LOGIC) switch.
 - **S984** : DOLBY PRO LOGIC/SFC OFF ON (OFF/ON) switch.
 - **S985** : Numeric (3) switch.
 - **S986** : Numeric (2) switch.
 - **S987** : Numeric (1) switch.
 - **S988** : Direct tuning (DIRECT TUNING) switch.
- **Signal line**
-  : FM OSC signal
 -  : AM (MW/LW) OSC signal
 -  : Rec out signal (Lch)
 -  : Surround speaker drive signal (Lch)
 -  : Positive voltage lines
 -  : Negative voltage lines
 -  : FM signal
 -  : AM (MW/LW) signal
 -  : Center speaker drive signal (Lch)

- **Important safety notice**
Components identified by \triangle 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 as occasion calls. When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.
- The supply part number is described alone in the replacement parts.
- All voltage values shown in circuitry are DC voltage in FM signal (Stereo signal) reception mode.
- * Figures in () stand for DC-voltage in AM (MW) signal reception mode.
- * Figures in < > stand for DC-voltage in AM (LW) signal reception mode.
- L1~L6, R1~R6, C1, C3, C4, C5, S1, S3, S4 and S5 in the schematic diagram show the test points.
For detail, please refer to p. 16~p. 19.

- **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 of IC or LSI with the fingers directly.

A TUNER CIRCUIT For(E,EB)areas. (P.C. Board: on page 43)





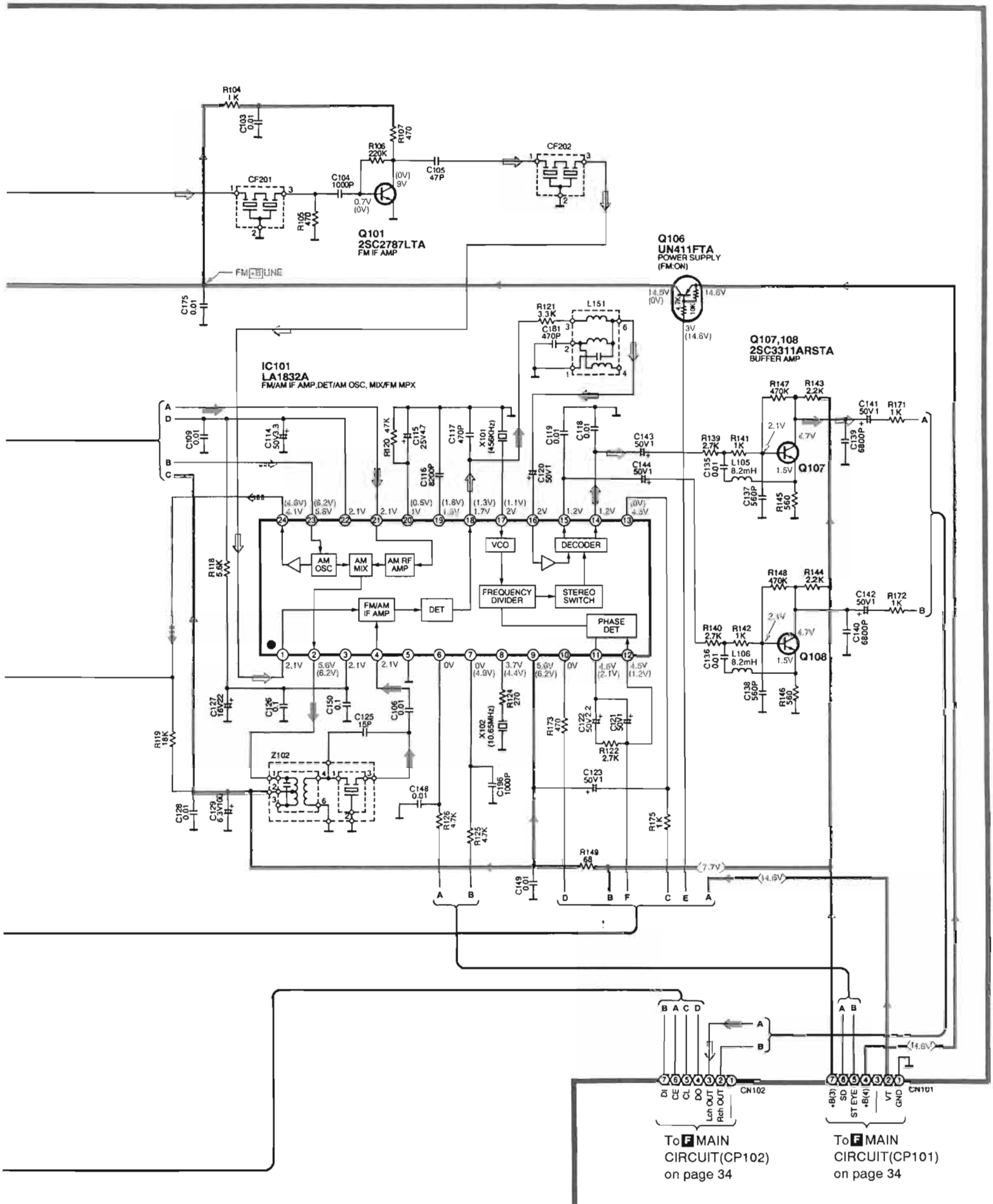
Q106
UN411FTA
POWER SUPPLY
(FM ON)

IC101
LA1832A
FM/AM IF AMP, DET/AM OSC, MIX/FM MPX

Q107, 108
2SC3311ARSTA
BUFFER AMP

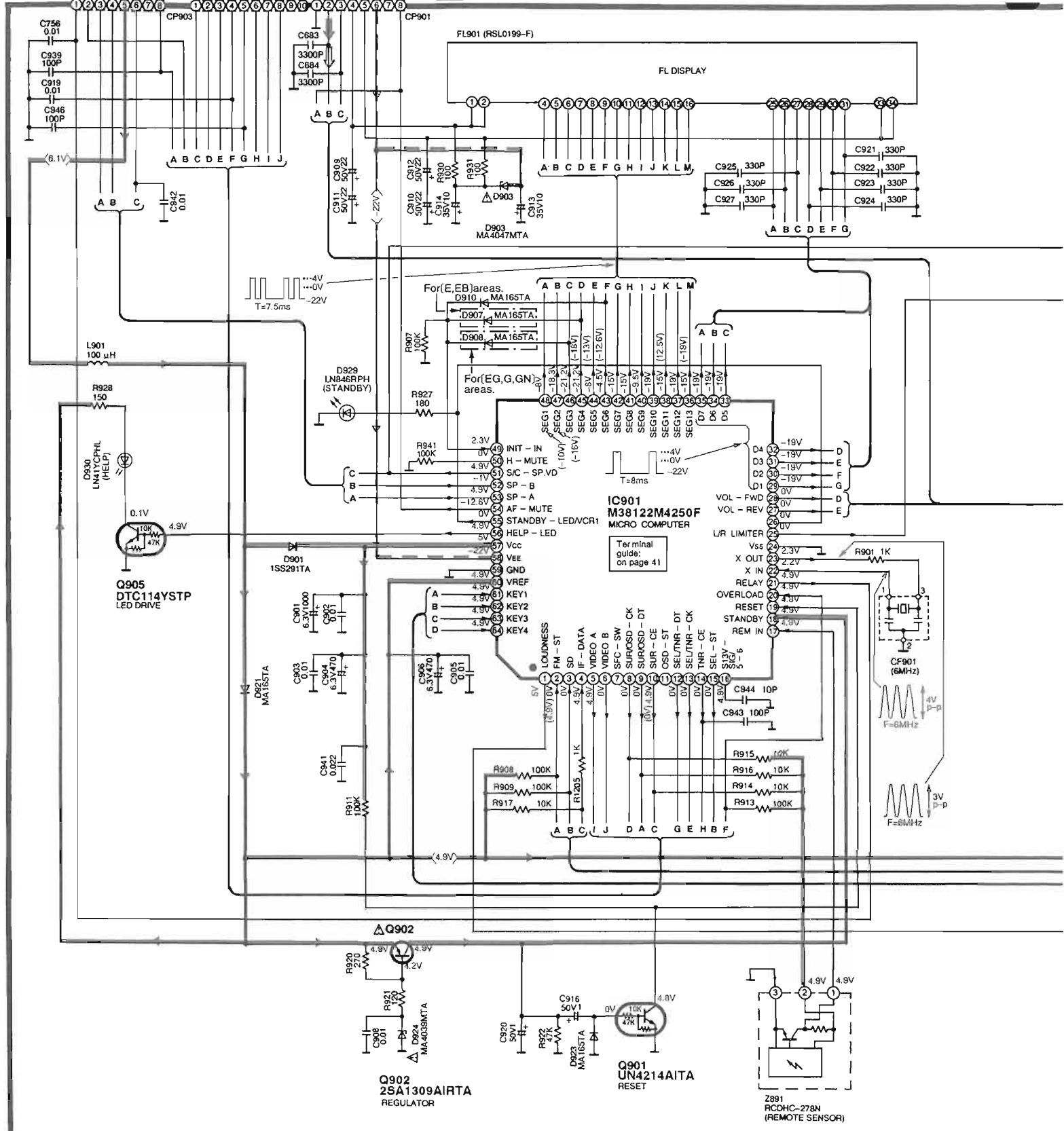
To MAIN
CIRCUIT (CP102)
on page 34

To MAIN
CIRCUIT (CP101)
on page 34

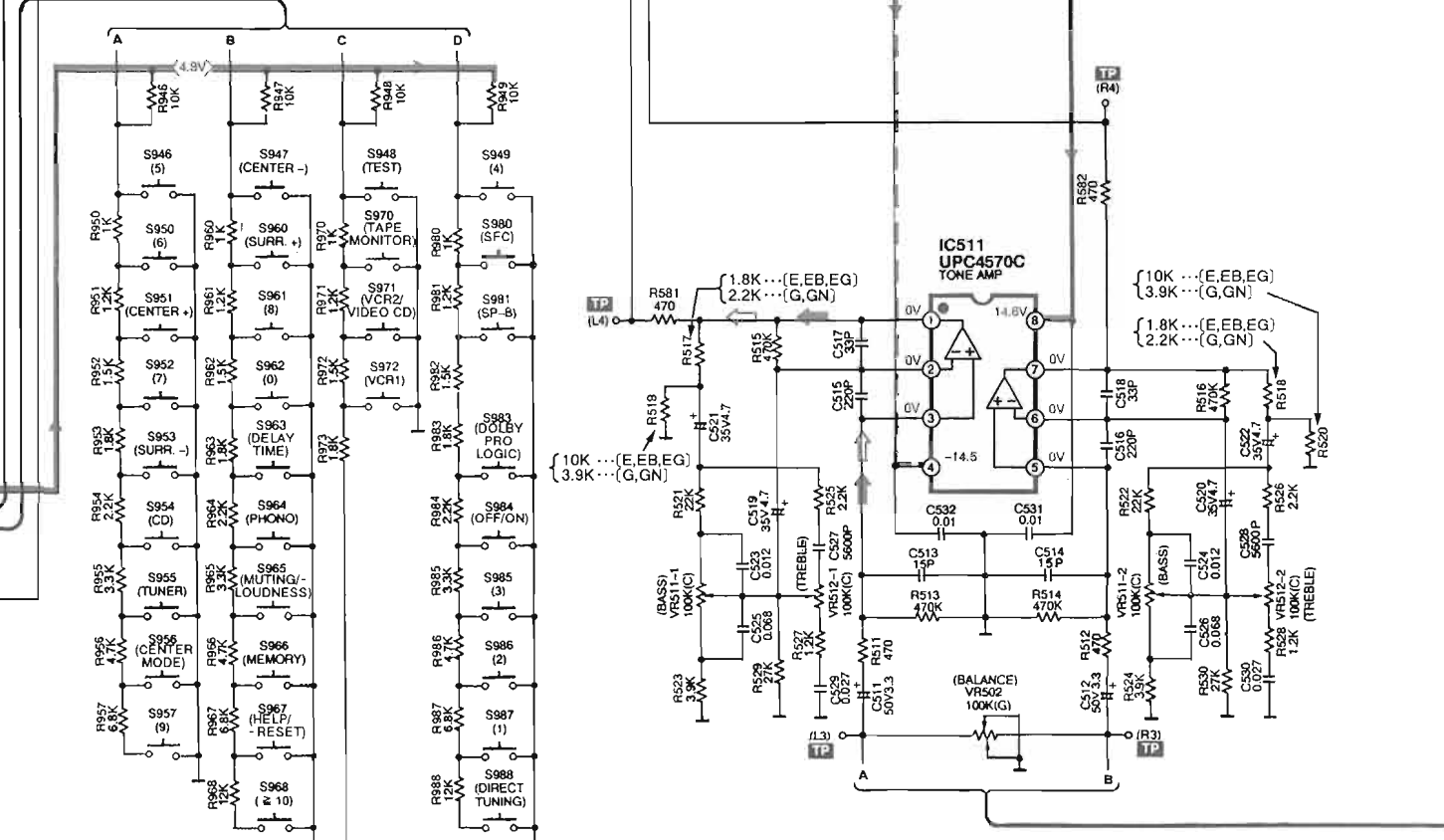
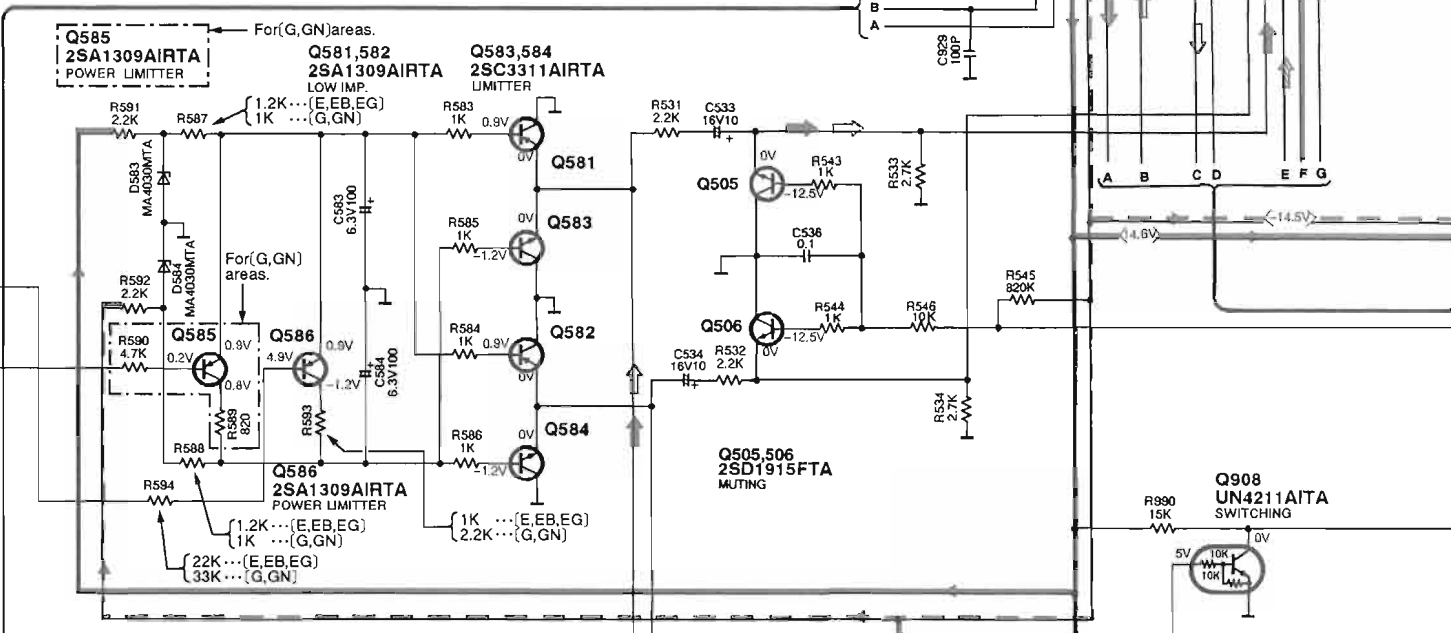


To MAIN CIRCUIT (CN902) on page 34
 To MAIN CIRCUIT (CN903) on page 34
 To MAIN CIRCUIT (CN901) on page 34

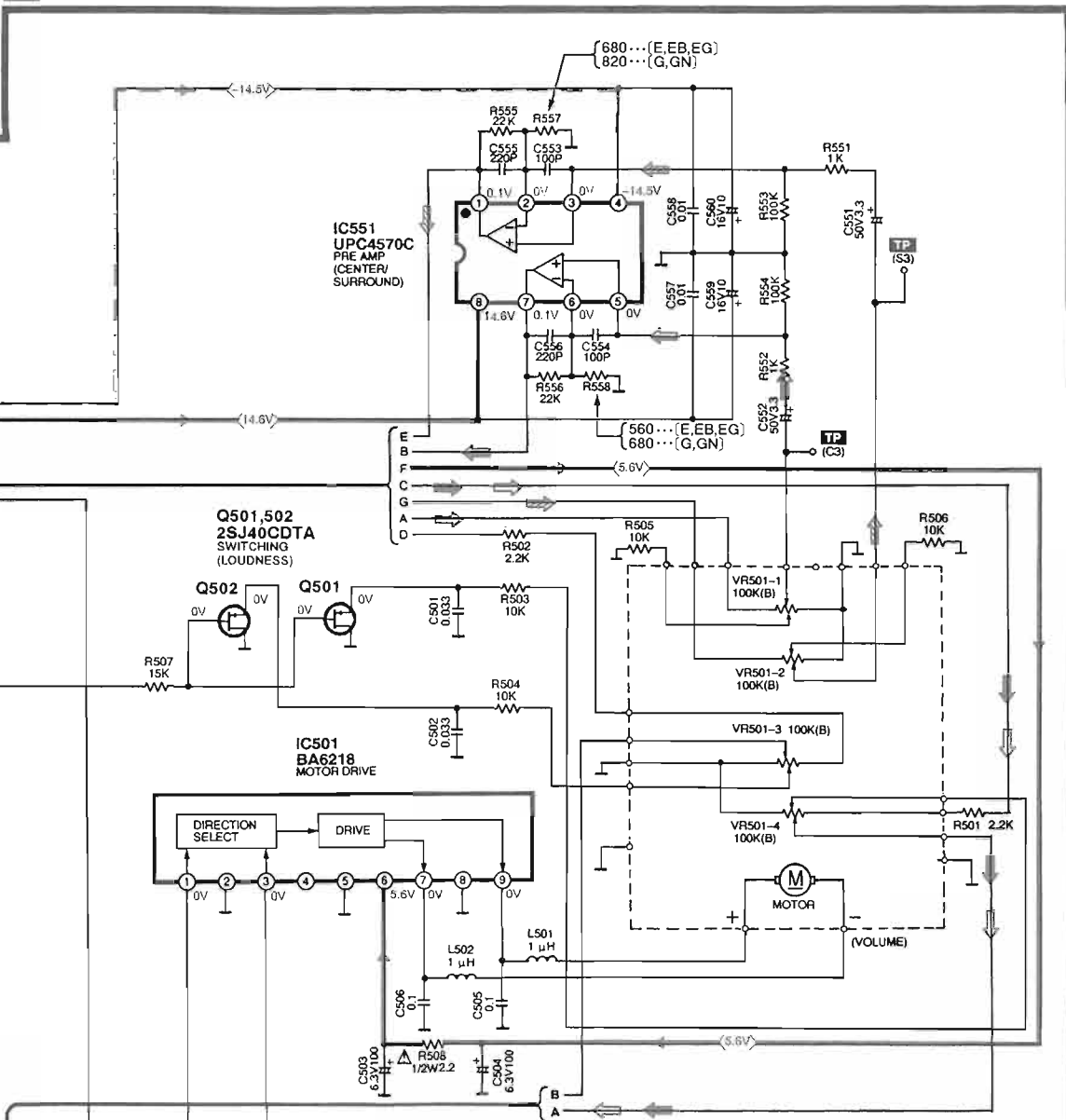
B FL CIRCUIT (P.C. Board : on pages 46,47)



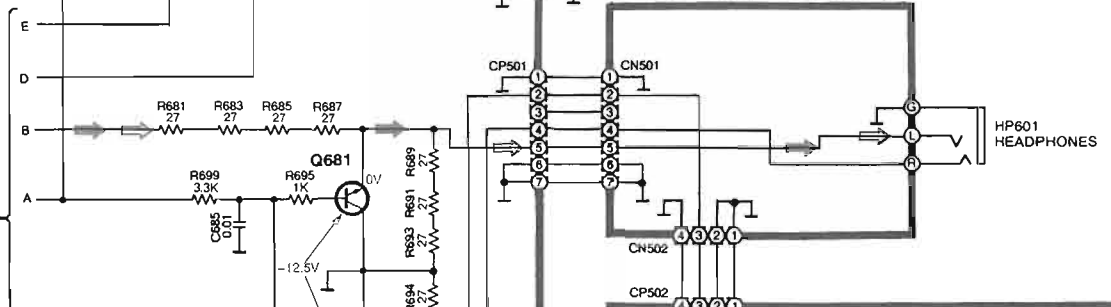
To MAIN CIRCUIT(CN904) on page 35
To MAIN CIRCUIT(CN905) on page 35



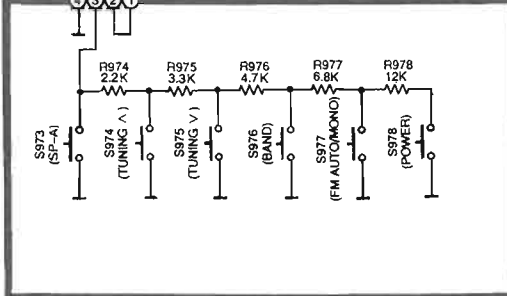
B FL CIRCUIT (P.C. Board: on pages 46,47)



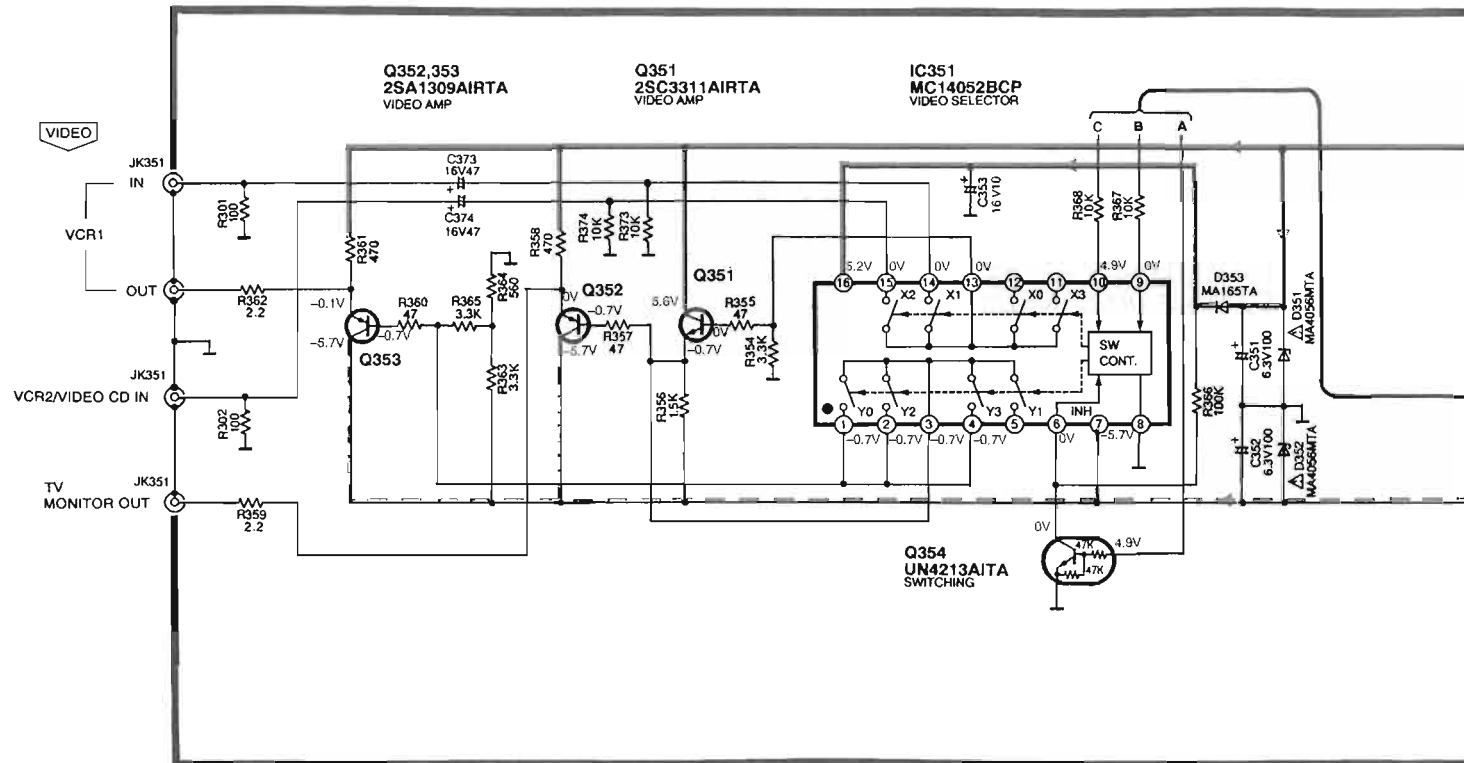
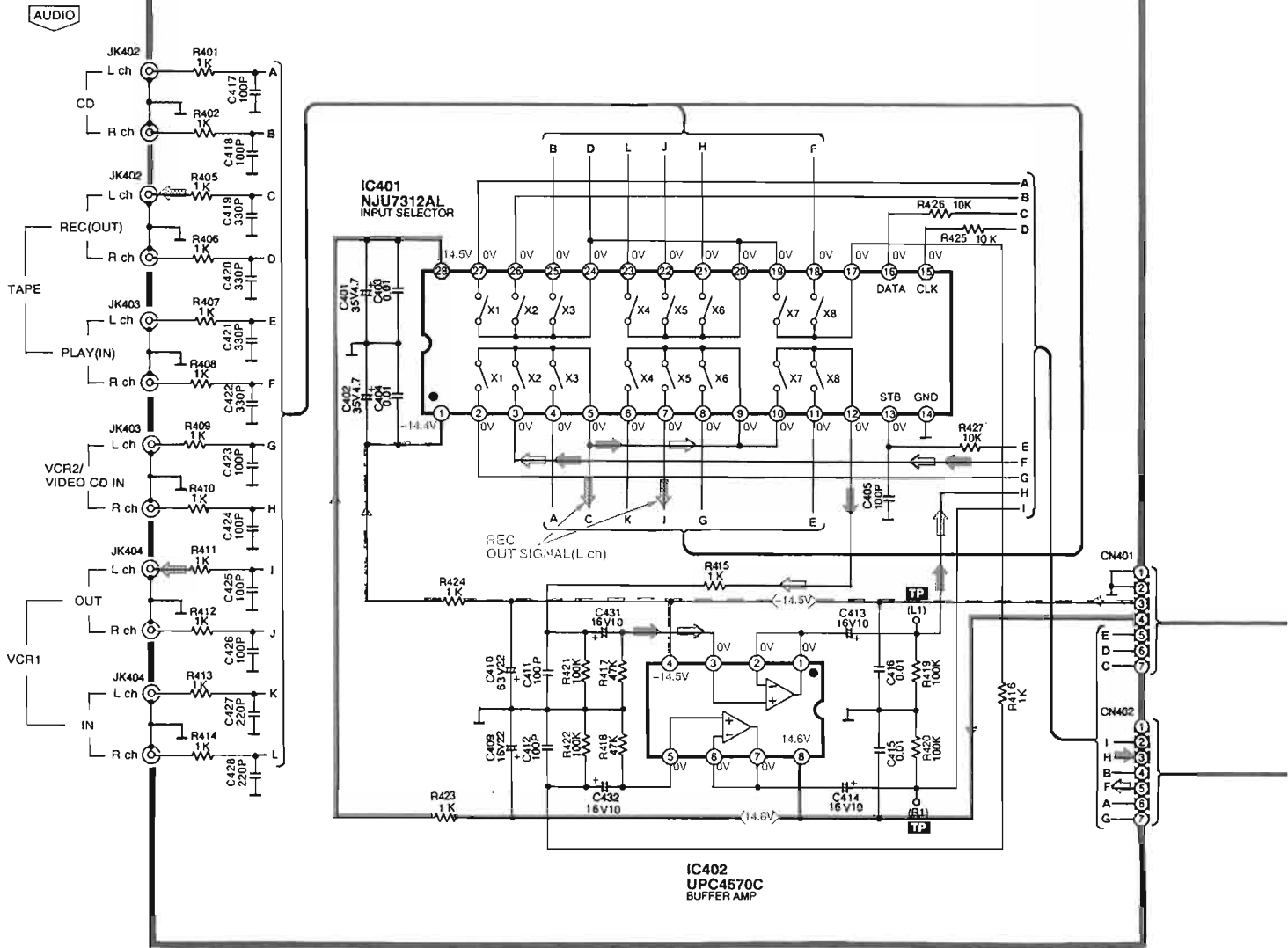
C HEADPHONES JACK CIRCUIT (P.C. Board: on page 46)

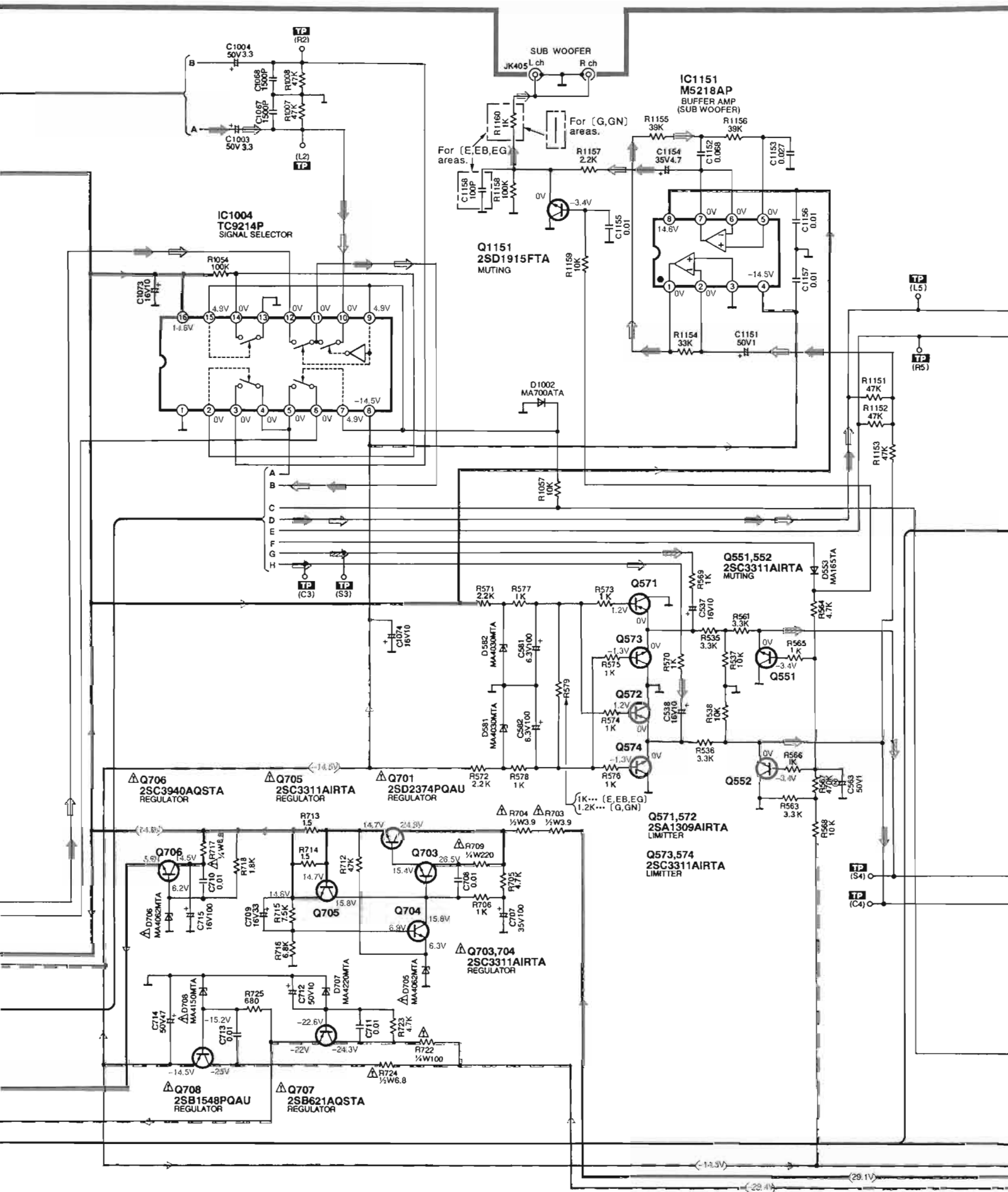


D POWER SWITCH CIRCUIT (P.C. Board: on page 46)

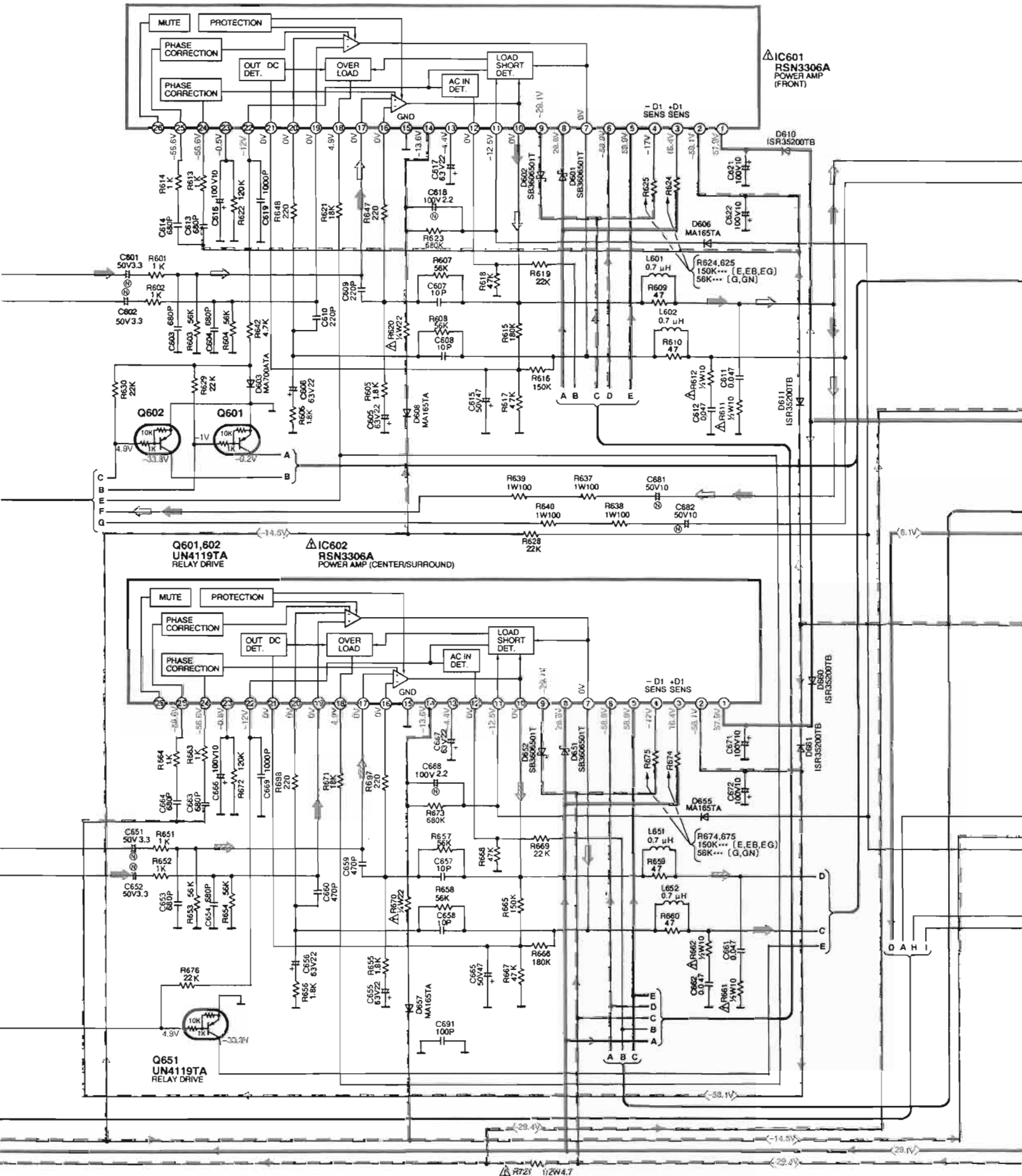


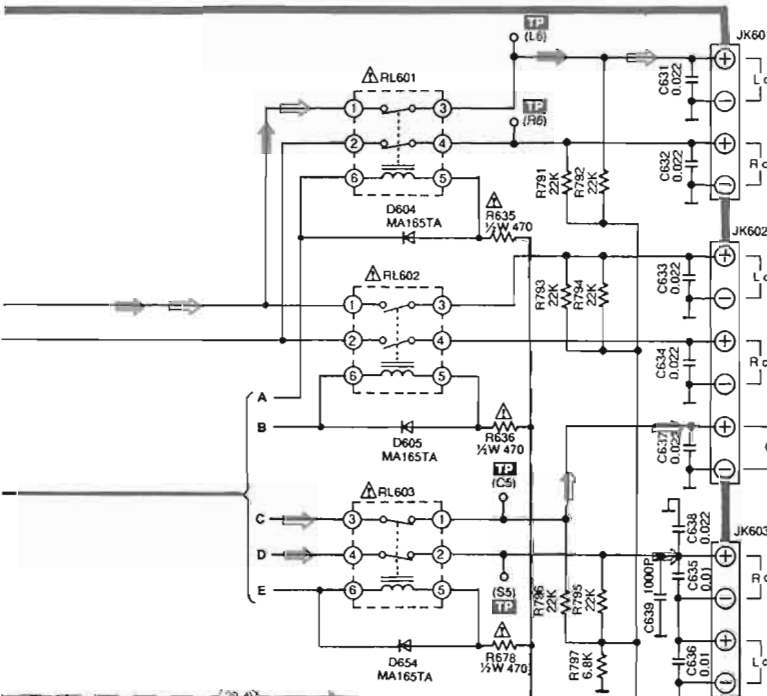
E IN/OUT TERMINAL CIRCUIT (P.C. Board : on page 47)



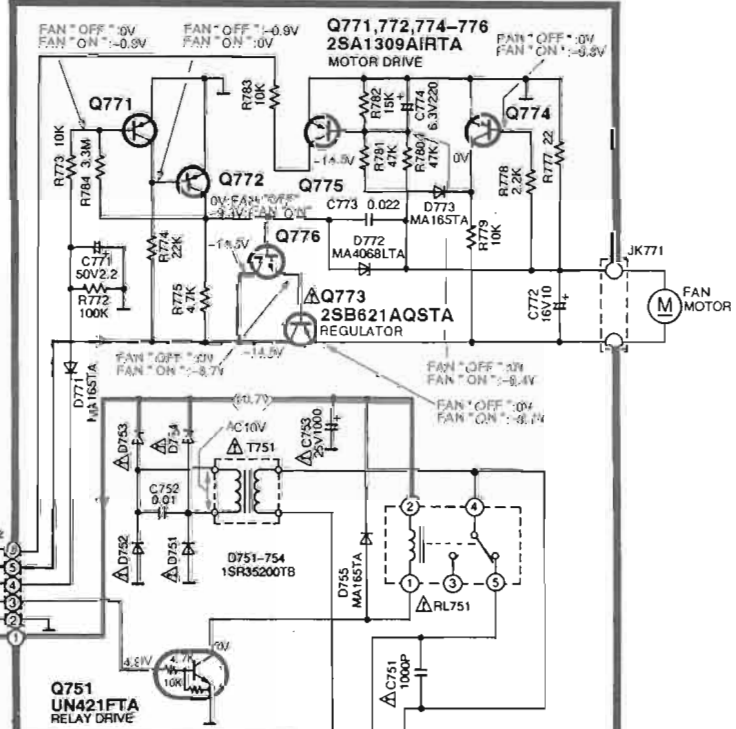


F MAIN CIRCUIT (P.C.Board: on pages 44,45)

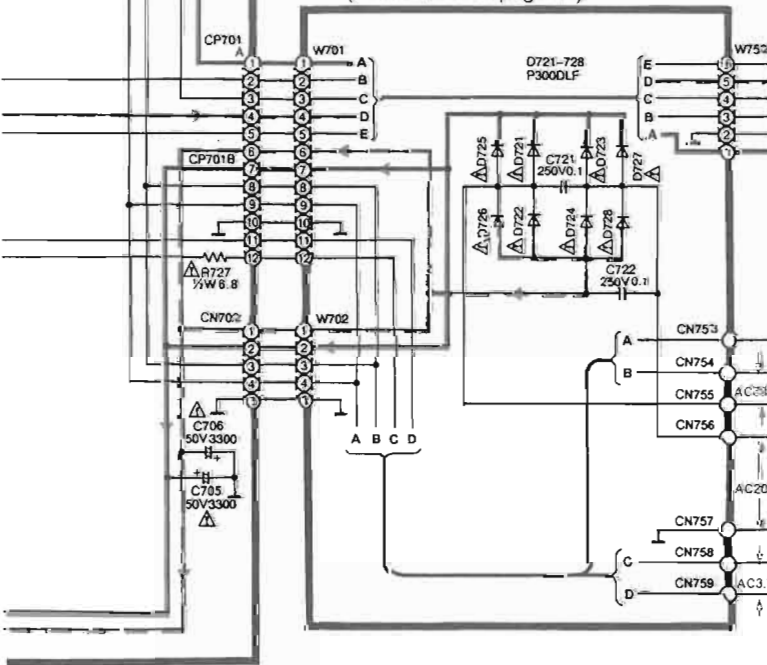




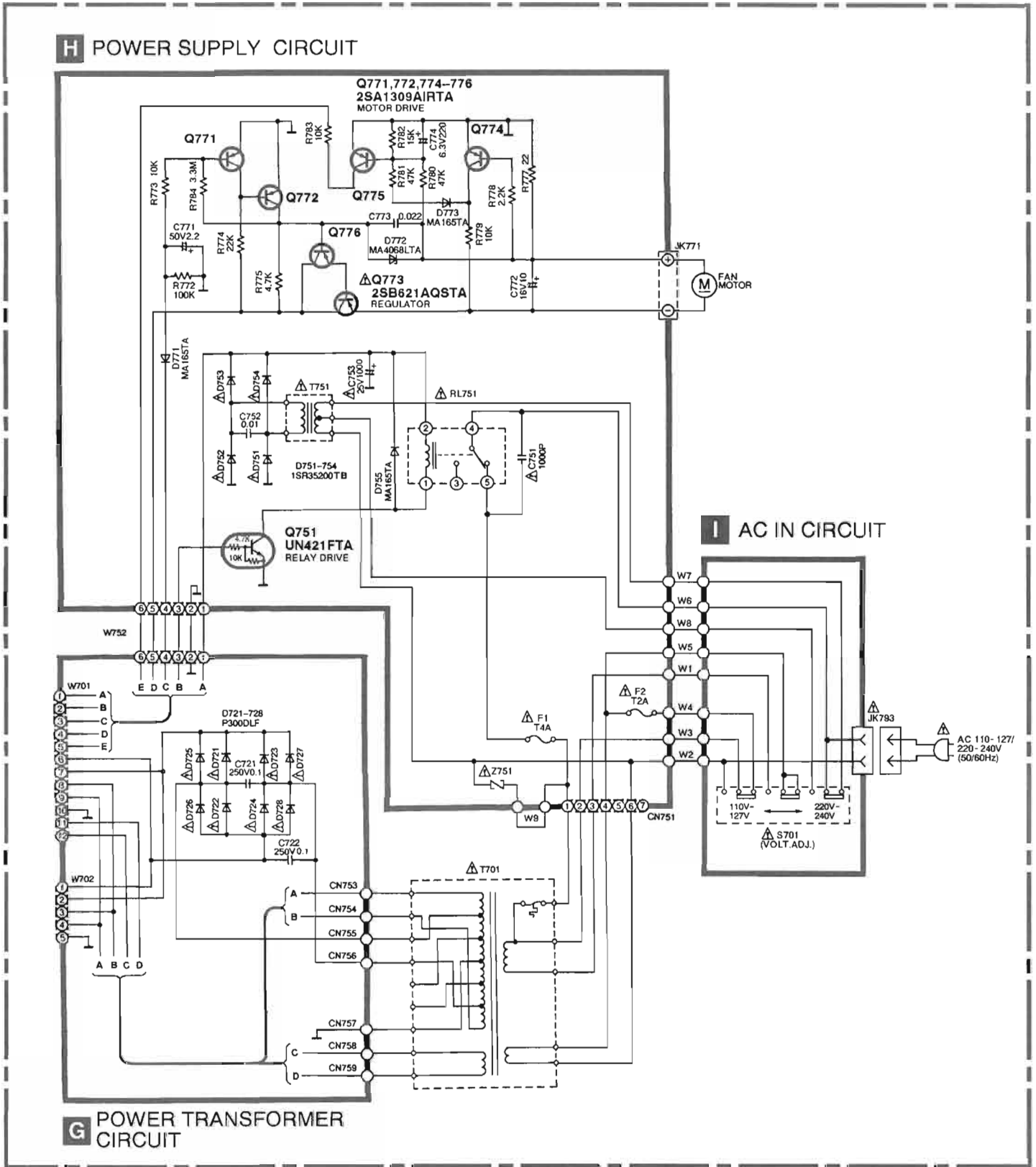
H POWER SUPPLY CIRCUIT
(P.C. Board: on page 48)



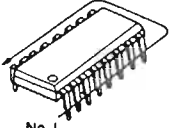
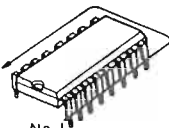
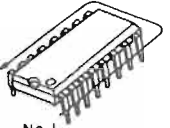
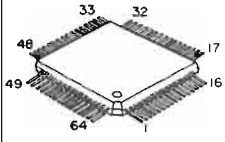
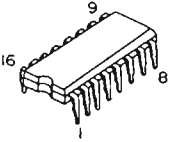
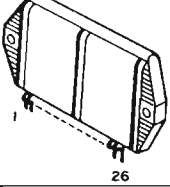
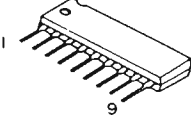
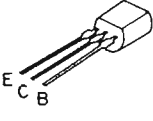
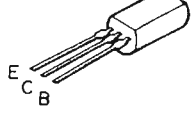
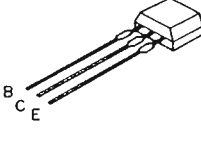
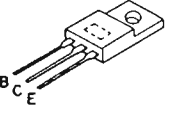
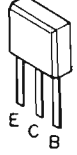
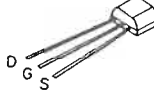
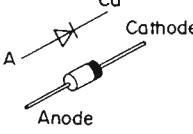
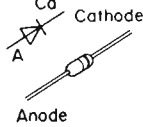
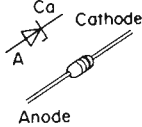
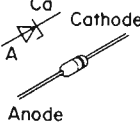
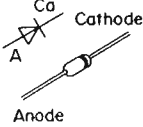
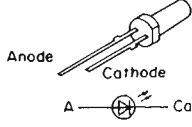
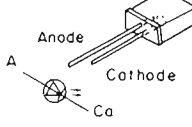
G POWER TRANSFORMER CIRCUIT
(P.C. Board: on page 48)



Power Source Circuit For [G] area. (P.C. Board: on page 49)



■ TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

 <p>No. 1</p> <table border="1" data-bbox="305 191 513 296"> <tr><td>M5218AP</td><td>8 Pin</td></tr> <tr><td>LA1832A</td><td>24 Pin</td></tr> <tr><td>LC7218</td><td>24 Pin</td></tr> <tr><td>LV1010N</td><td>24 Pin</td></tr> </table>	M5218AP	8 Pin	LA1832A	24 Pin	LC7218	24 Pin	LV1010N	24 Pin	 <p>No. 1</p> <table border="1" data-bbox="751 191 959 243"> <tr><td>AN6558F</td><td>8 Pin</td></tr> <tr><td>LA2785</td><td>42 Pin</td></tr> </table>	AN6558F	8 Pin	LA2785	42 Pin	 <p>No. 1</p> <table border="1" data-bbox="1203 191 1411 268"> <tr><td>UPC4570C</td><td>8 Pin</td></tr> <tr><td>MC14052BCP</td><td>16 Pin</td></tr> <tr><td>NJU7312AL</td><td>28 Pin</td></tr> </table>	UPC4570C	8 Pin	MC14052BCP	16 Pin	NJU7312AL	28 Pin
M5218AP	8 Pin																			
LA1832A	24 Pin																			
LC7218	24 Pin																			
LV1010N	24 Pin																			
AN6558F	8 Pin																			
LA2785	42 Pin																			
UPC4570C	8 Pin																			
MC14052BCP	16 Pin																			
NJU7312AL	28 Pin																			
<p>M38122M4250F</p> 	<p>TC9214P</p> 	<p>RSN3306A</p> 	<p>BA6218</p> 	<p>2SB621AQSTA</p> 	<p>2SC3940AQSTA</p> 															
<p>DTC114YSTP</p> 	<p>2SD2374PQAU 2SB1548PQAU</p> 		<p>2SA1309AIRTA 2SC2785FETA 2SC2787LTA 2SC3311AIRTA 2SC3311ARSTA 2SD1915FTA</p>	<p>UN411FTA UN4119TA UN421FTA UN4211AITA UN4213AITA UN4214AITA</p>	<p>2SJ40CDTA</p> 															
 <p>Anode</p>	<p>1SS291TA</p>  <p>Anode</p>	 <p>Anode</p>	<p>MA4030MTA MA4039MTA MA4047MTA MA4051MTA MA4056MTA MA4062MTA</p>	<p>MA4068MTA MA4068LTA MA4075MTA</p>																
 <p>Anode</p>	 <p>Anode</p>	<p>MA165TA MA700ATA 1SR35200TB</p>	<p>LN41YCPHL</p> 	<p>LN846RPH</p> 																

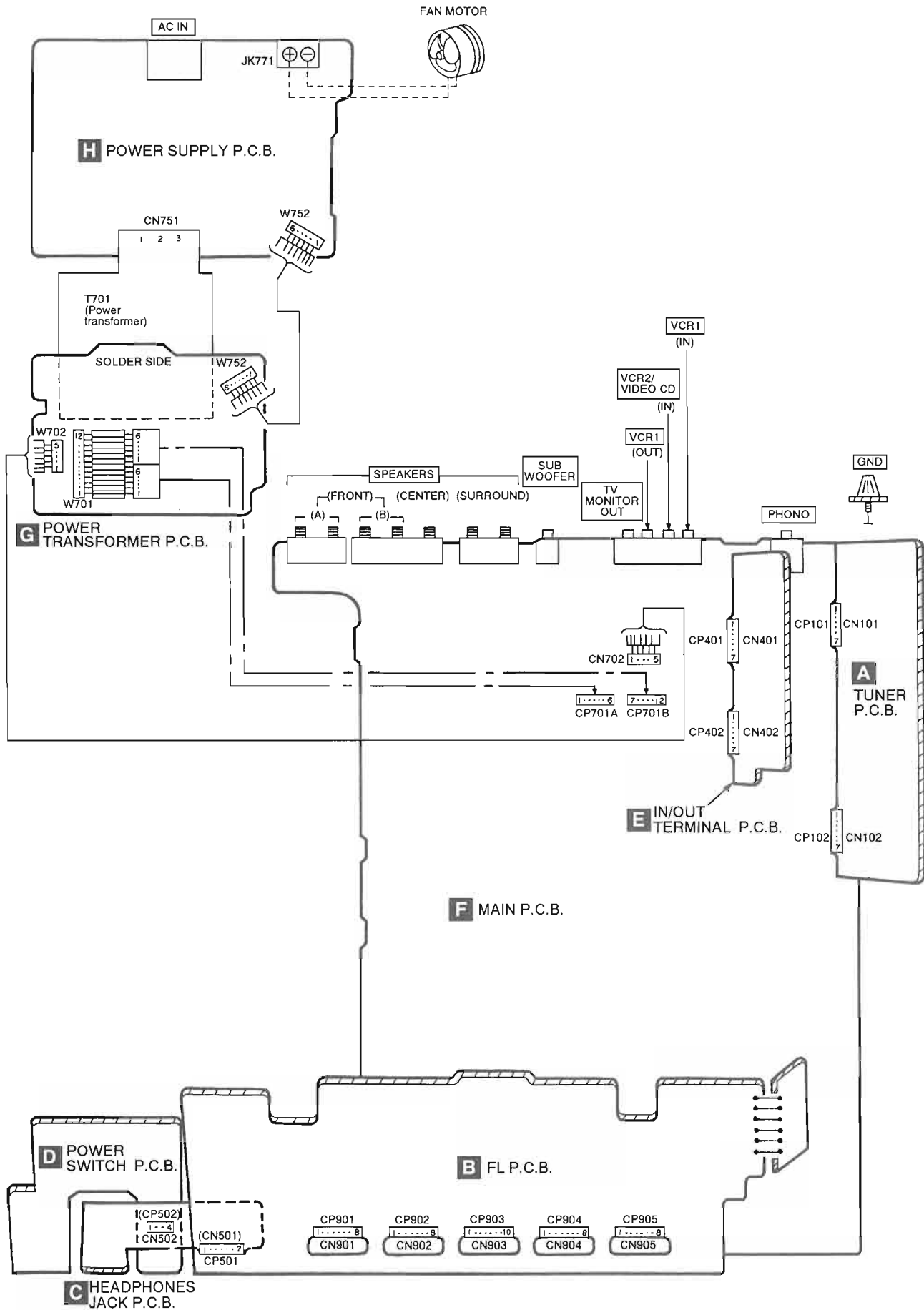
■ TERMINAL GUIDE

• IC901 (M38122M4250F): MICROCOMPUTER

Pin No.	Mark	I/O Division	Function
1	LOUDNESS	O	Loudness control terminal
2	FM_ST	I	Stereo signal detect terminal
3	SD	I	Received signal detect terminal
4	IF_DATA	I	Serial data signal
5	VIDEO_A	O	Video selector control terminal
6	VIDEO_B		
7	SFC_SW	—	Not used, open
8	SUR/ OSD_CK	O	Serial clock signal
9	SUR/ OSD_DT	O	Serial data signal
10	SUR_CE	O	Chip enable signal
11	OSD_ST	—	Not used, open
12	SEL/ TNR_DT	O	Serial data signal
13	SEL/ TNR_CK	O	Serial clock signal
14	TNR_CE	O	Chip enable signal
15	SEL_ST	O	Level shift control terminal
16	S13V_SIG /5-6	O	Not used, connected to capacitor
17	REM_IN	I	Remote control terminal
18	STANDBY	I	Power detect terminal
19	RESET	I	Reset detect terminal
20	OVERLOAD	I	Over load detect terminal
21	RELAY	O	Relay control terminal
22	Xin	I	Crystal oscillator terminal (6 MHz)
23	Xout	O	

Pin No.	Mark	I/O Division	Function
24	Vss	—	GND terminal
25	L/R_LIMITER	O	Muting drive control
26	NC	—	Not used, connected to resistor
27	VOL_REV	O	Rotation control terminal of volume motor
28	VOL_FWD		
29 } 35	D1 } D7	O	Digit signal of FL display
36 } 48	Seg13 } Seg1	O	Segment signal of FL display
49	INIT_IN	I	Not used, connected to resistor
50	H_MUTE	—	Not used, connected to resistor
51	S/C_SP. Vd	O	Surround and speaker select control terminal
52	SP_B	O	Speaker select control terminal
53	SP_A		
54	AF_MUTE	O	Muting control terminal
55	STANDBY_ LED/VCR1	O	LED drive signal (STANDBY)
56	HELP_LED	O	LED drive signal (HELP)
57	Vcc	I	Power supply terminal
58	Vee	I	Power supply terminal
59	GND	—	GND terminal
60	Vref	I	Power supply terminal
61 } 64	KEY1 } KEY4	I	Key matrix detect terminal

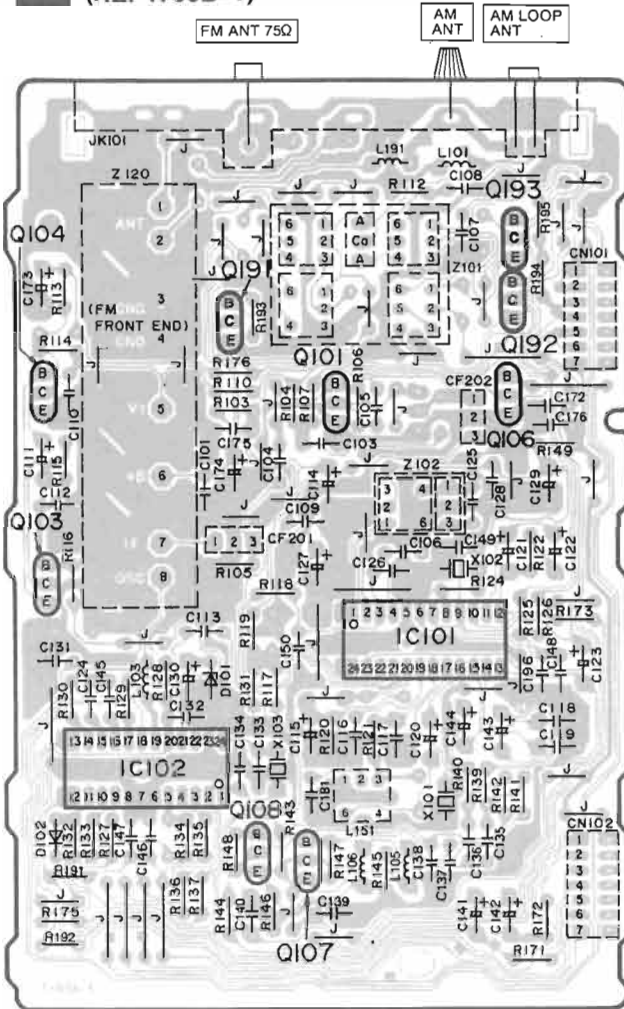
■ WIRING CONNECTION DIAGRAM



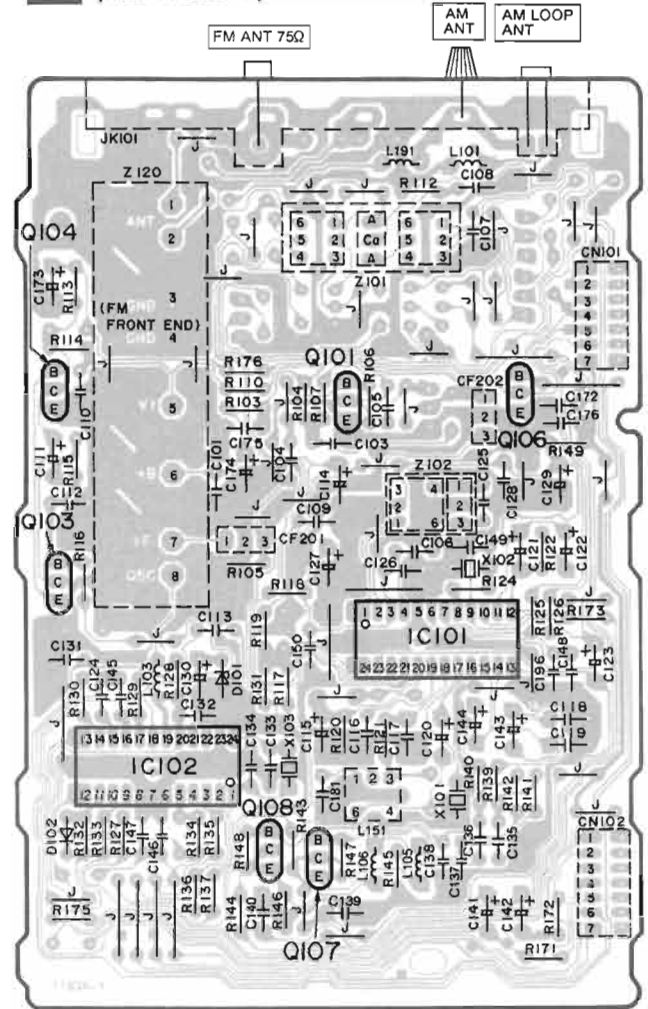
PRINTED CIRCUIT BOARDS

- This circuit board diagram may be modified at any time with the development of new technology.
- L1~L6, R1~R6, C1, C3, C4, C5, S1, S3, S4 and S5 in the circuit board diagram show the test points. For detail, please refer to p. 16~p. 19.

A TUNER P.C.B. For [E,EB] areas.
(REP1750B-T)



A TUNER P.C.B. For [EG,G,GN] areas.
(REP1750C-T)



1 2 3 4 5

A

B

C

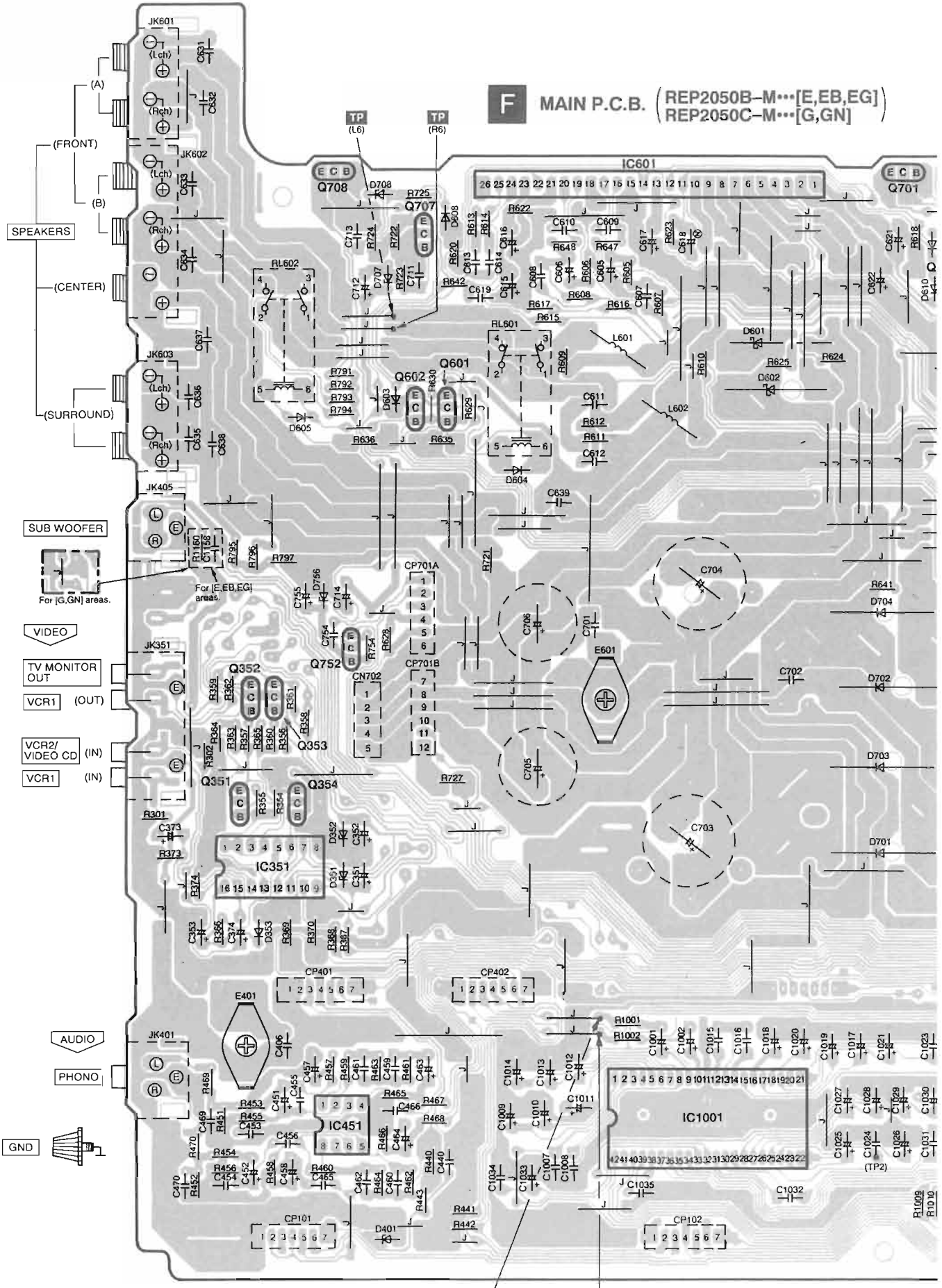
D

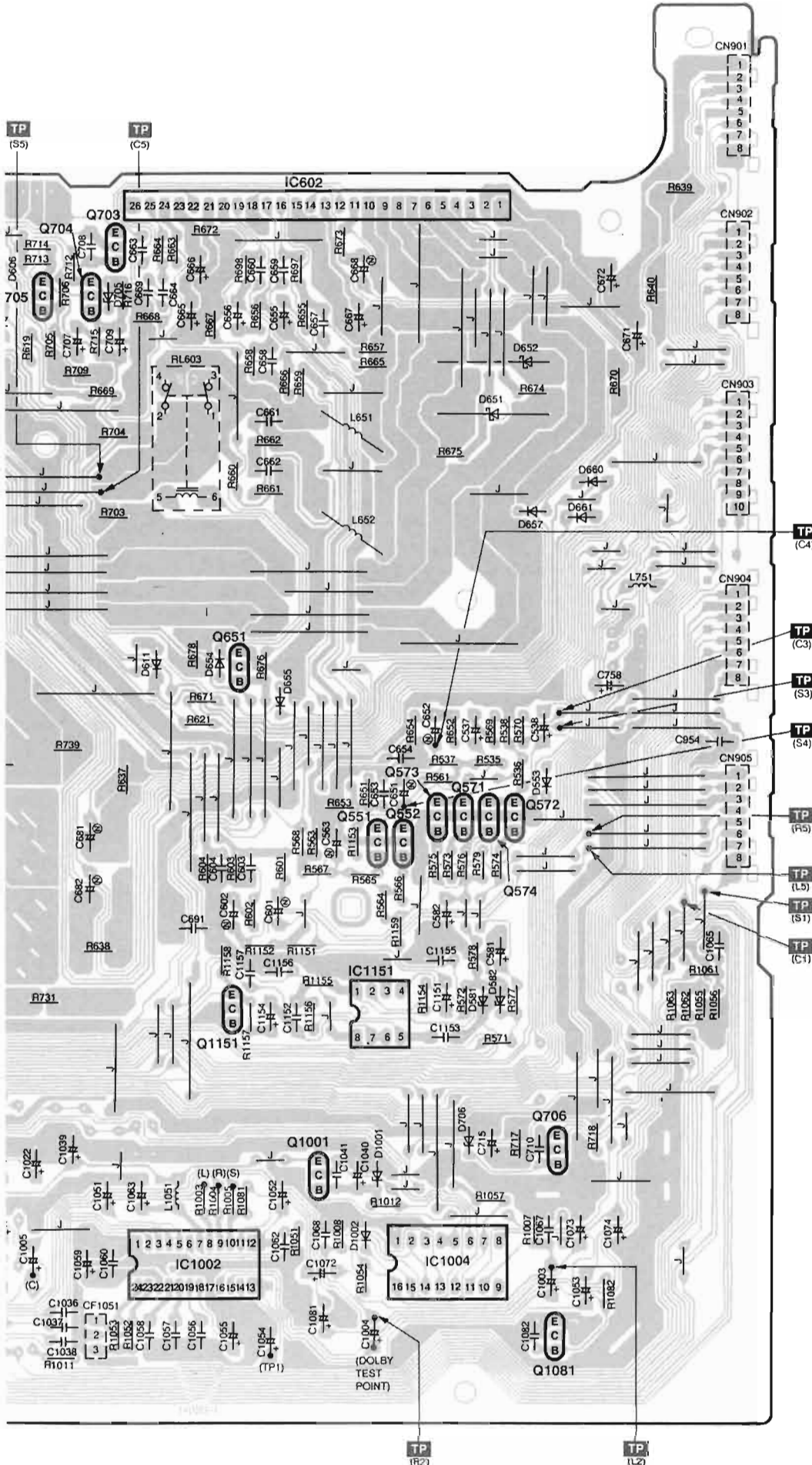
E

F

G

F MAIN P.C.B. (REP2050B-M...[E,EB,EG]
REP2050C-M...[G,GN])

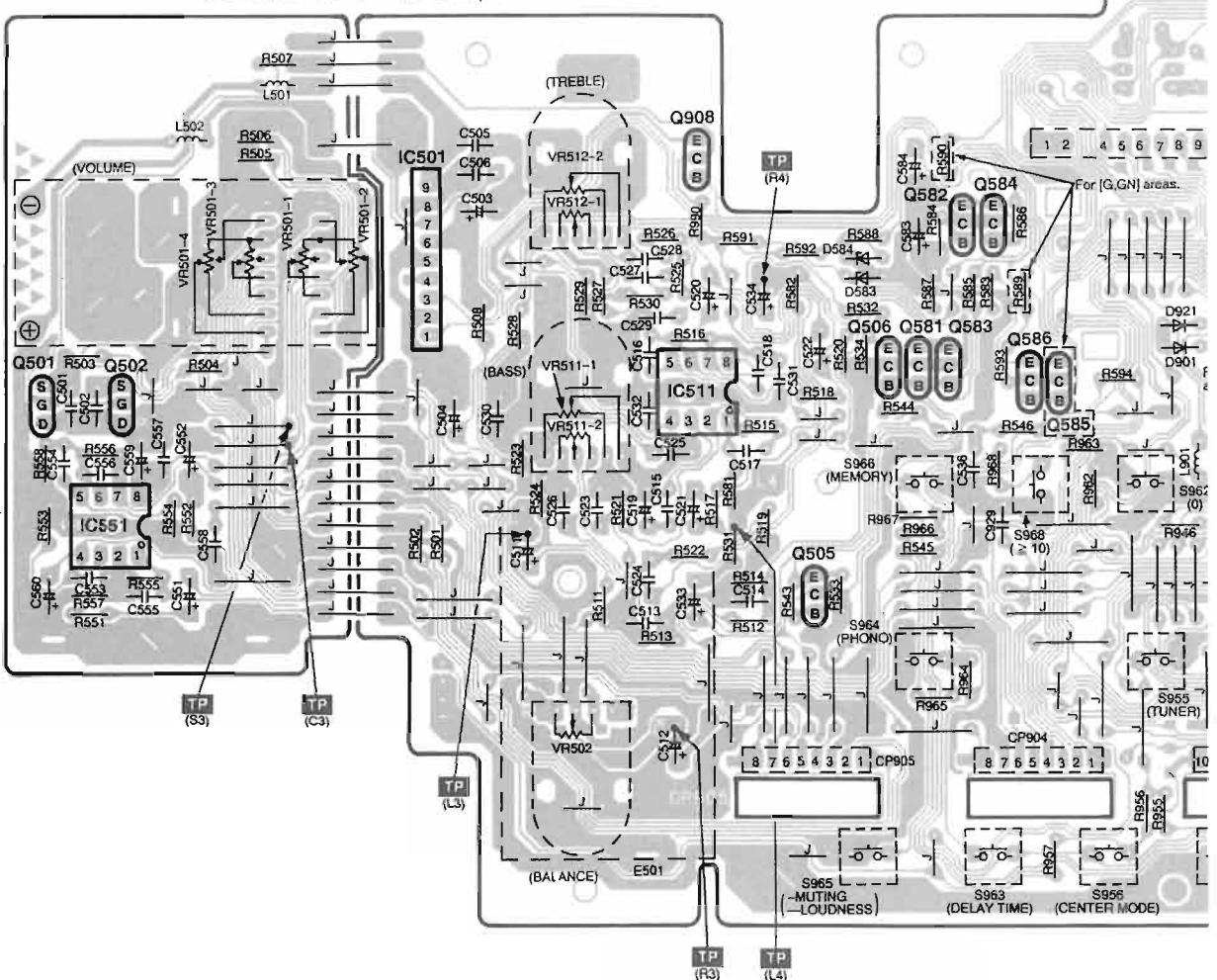




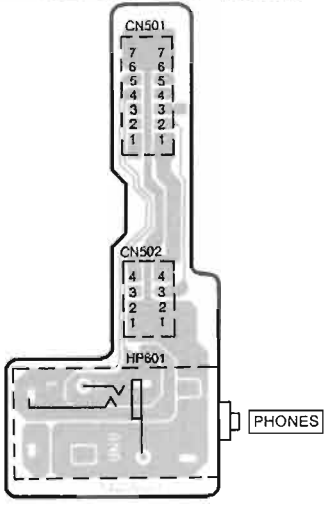
1 2 3 4 5

A
B
C
D
E
F
G

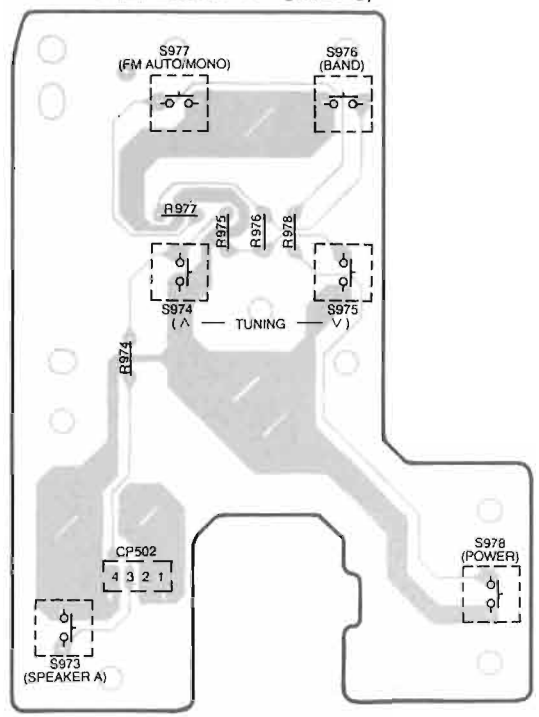
B FL P.C.B. (REP2051B-S...[E,EB])
(REP2051C-S...[EG])
(REP2051E-S...[G,GN])



C HEADPHONES JACK P.C.B. (REP2051B-S...[E,EB])
(REP2051C-S...[EG])
(REP2051E-S...[G,GN])



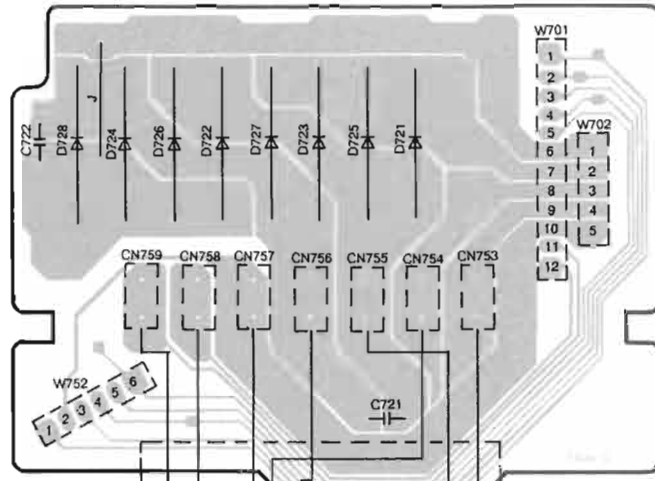
D POWER SWITCH P.C.B. (REP2051B-S...[E,EB])
(REP2051C-S...[EG])
(REP2051E-S...[G,GN])



1 2 3 4 5

A

G POWER TRANSFORMER P.C.B.
 (REP2052B-P...[E,EB,EG])
 (REP2052D-P...[GN])

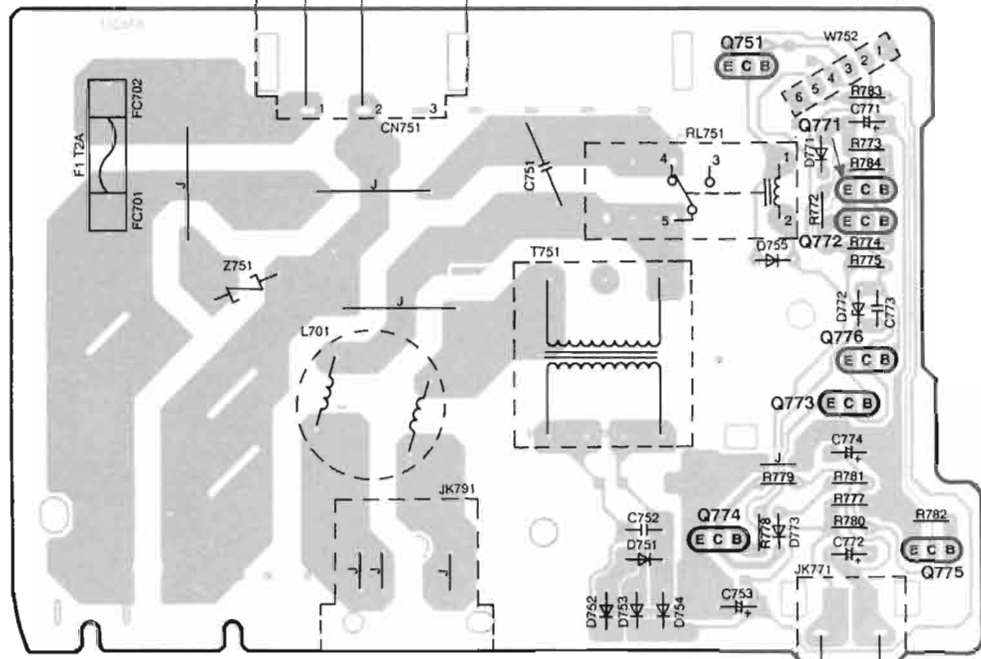


B

C

T701
(Power transformer)

H POWER SUPPLY P.C.B.
 (REP2052B-P...[E,EB,EG])
 (REP2052D-P...[GN])



D

E

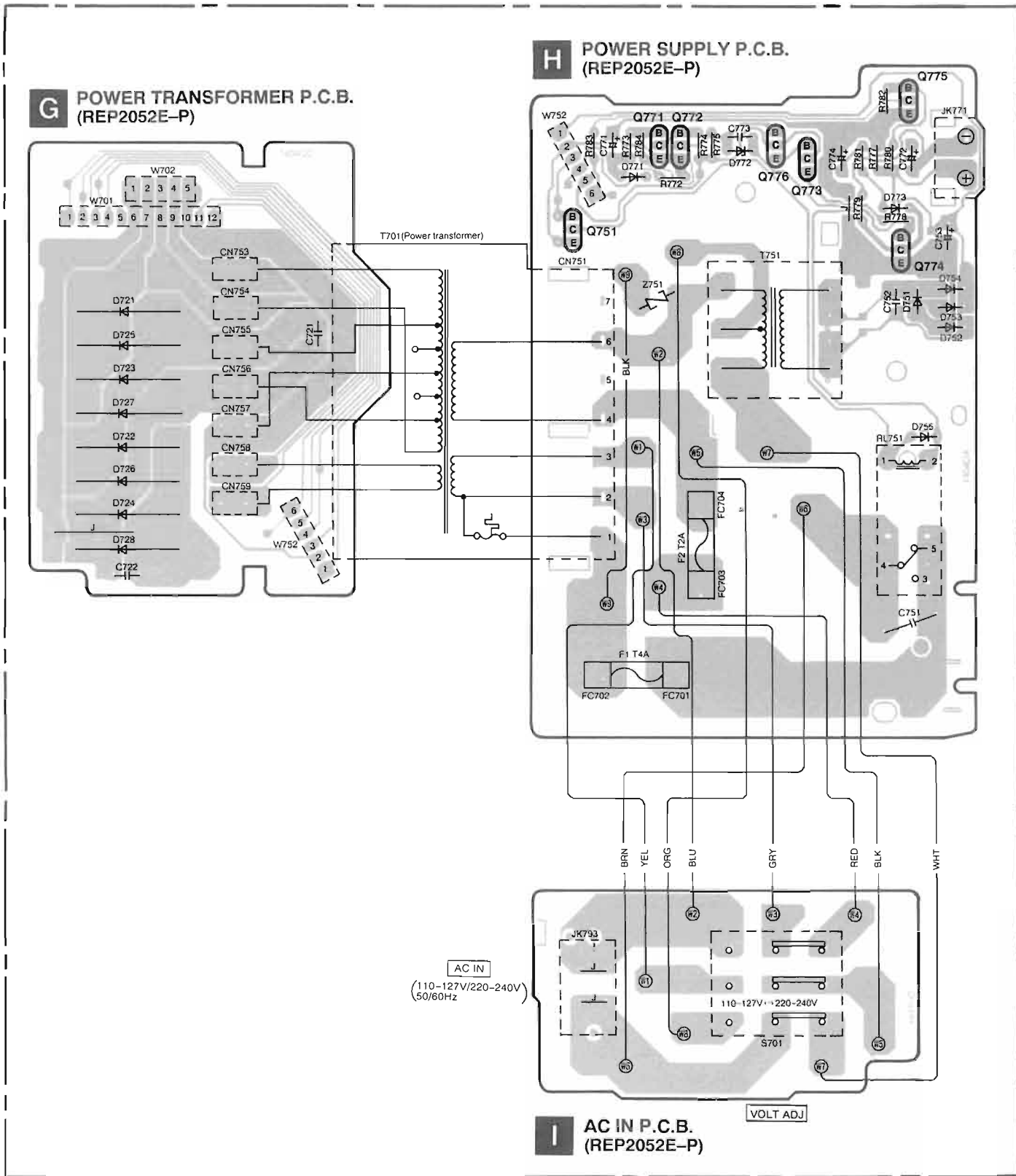
F

AC IN
 (230-240V...[E,EB,GN])
 (230V...[EG])
 50/60Hz

FAN MOTOR

G

Power Source P.C.B. For[G] area.



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.)

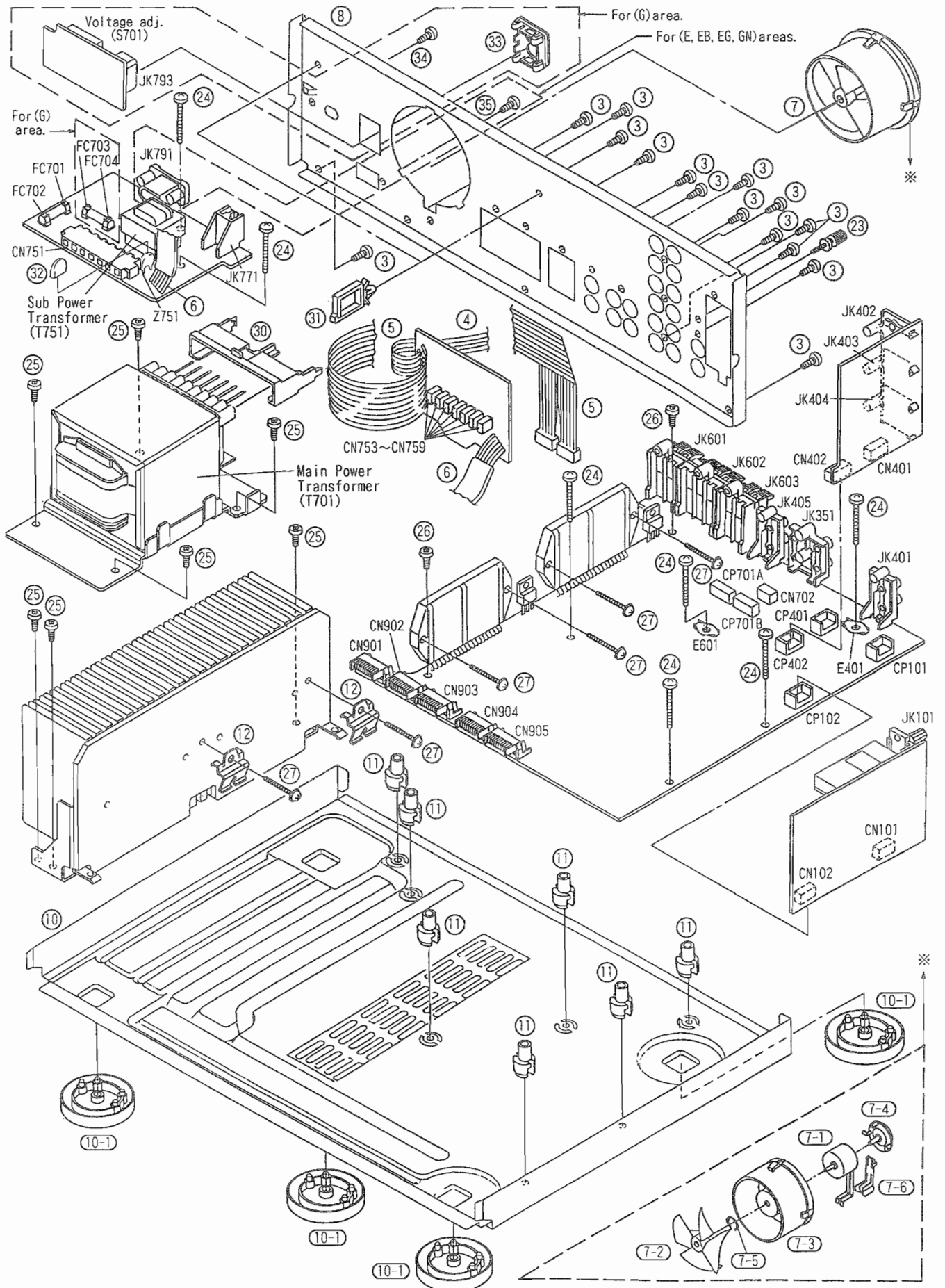
Parts without these indications can be used for all areas.

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT (S)		Q751	UN421FTA	TRANSISTOR	
IC101	LA1832A	FM/AM IF AMP. /AM OSC		Q752	2SC3940AQSTA	TRANSISTOR	Δ
IC102	LC7218	PLL FREQ. SYNTHESIZER		Q771, 772	2SA1309AIRTA	TRANSISTOR	
IC351	MC14052BCP	VIDEO SELECTOR		Q773	2SB621AQSTA	TRANSISTOR	Δ
IC401	NJU7312AL	INPUT SELECTOR		Q774-776	2SA1309AIRTA	TRANSISTOR	
IC402	UPC4570C	BUFFER AMP.		Q901	UN4214TA	TRANSISTOR	
IC451	AN6558F	PHONO EQ. AMP.		Q902	2SA1309AIRTA	TRANSISTOR	Δ
IC501	BA6218	MOTOR DRIVE		Q905	DTC114YSTP	TRANSISTOR	
IC511	UPC4570C	TONE AMP.		Q908	UN4211	TRANSISTOR	
IC551	UPC4570C	PRE AMP.		Q1001	2SC3940AQSTA	TRANSISTOR	Δ
IC601, 602	RSN3306A	POWER AMP.	Δ	Q1081	2SA1309AIRTA	TRANSISTOR	
IC901	M38122M4250F	MICROCOMPUTER		Q1151	2SD1915FTA	TRANSISTOR	
IC1001	LA2785	DOLBY PRO LOGIC CONTROL				DIODE (S)	
IC1002	LV1010N	DOLBY PRO LOGIC DRIVE		D101	MA4051MTA	DIODE	Δ
IC1004	TC9214P	SIGNAL SELECTOR		D102	MA165	DIODE	
IC1151	M5218AP	BUFFER AMP. (SUB WOOFER)		D351, 352	MA4056MTA	DIODE	Δ
		TRANSISTOR (S)		D353	MA165	DIODE	
Q101	2SC2787L	TRANSISTOR		D401	MA4075MTA	DIODE	Δ
Q103, 104	2SC2785FE	TRANSISTOR		D553	MA165	DIODE	
Q106	UN411FTA	TRANSISTOR		D581-584	MA4030MTA	DIODE	
Q107, 108	2SC3311ARSTA	TRANSISTOR		D601, 602	SB3606501T	DIODE	
Q191-193	2SC3311ARSTA	TRANSISTOR	(E, EB)	D603	MA700	DIODE	
Q351	2SC3311AIRTA	TRANSISTOR		D604-606	MA165	DIODE	
Q352, 353	2SA1309AIRTA	TRANSISTOR		D608	MA165	DIODE	
Q354	UN4213AITA	TRANSISTOR		D610, 611	1SR35200TB	DIODE	
Q501, 502	2SJ40CDTA	TRANSISTOR		D651, 652	SB3606501T	DIODE	
Q505, 506	2SD1915FTA	TRANSISTOR		D654, 655	MA165	DIODE	
Q551, 552	2SC3311AIRTA	TRANSISTOR		D657	MA165	DIODE	
Q571, 572	2SA1309AIRTA	TRANSISTOR		D660, 661	1SR35200TB	DIODE	
Q573, 574	2SC3311AIRTA	TRANSISTOR		D701-704	P300D5002T	DIODE	Δ
Q581, 582	2SA1309AIRTA	TRANSISTOR		D705, 706	MA4062MTA	DIODE	Δ
Q583, 584	2SC3311AIRTA	TRANSISTOR		D707	MA4220MTA	DIODE	
Q585	2SA1309AIRTA	TRANSISTOR	(G, GN)	D708	MA4150M	DIODE	Δ
Q586	2SA1309AIRTA	TRANSISTOR		D721-728	P300DLF	DIODE	Δ
Q601, 602	UN4119	TRANSISTOR		D751-754	1SR35200TB	DIODE	Δ
Q651	UN4119	TRANSISTOR		D755	MA165	DIODE	
Q681, 682	2SD1915FTA	TRANSISTOR		D756	MA4068M	DIODE	Δ
Q701	2SD2374PQAU	TRANSISTOR	Δ	D771	MA165	DIODE	
Q703-705	2SC3311AIRTA	TRANSISTOR	Δ	D772	MA4068L	DIODE	
Q706	2SC3940AQSTA	TRANSISTOR	Δ	D773	MA165	DIODE	
Q707	2SB621AQSTA	TRANSISTOR	Δ	D901	1SS291TA	DIODE	
Q708	2SB1548PQAU	TRANSISTOR	Δ	D903	MA4047MTA	DIODE	Δ
				D907	MA165	DIODE	(E, EB)
				D908	MA165	DIODE	(EG, G, GN)

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
D910	MA165	DIODE		CF202	RLFFETMGD01L	FILTER	
D921	MA165	DIODE		CF901	RSXY6M00M03T	OSCILLATOR (6MHz)	
D923	MA165	DIODE		CF1051	EFOEC8004T4	OSCILLATOR (8MHz)	
D924	MA4039MTA	DIODE	△	X101	RSXZ456K907M	OSCILLATOR (456KHz)	
D929	LN846RPH	L. E. D.		X102	RLFDGTD01I	OSCILLATOR (10. 65MHz)	
D930	LN41YCPHL	L. E. D.		X103	RSXC7M20S05T	OSCILLATOR (7. 2MHz)	
D1001	MA4100MTA	DIODE	△			DISPLAY TUBE (S)	
D1002	MA700	DIODE					
		VARIABLE RESISTOR(S)		FL901	RSL0199-F	DISPLAY TUBE	
						FM FRONT END PACK ASS'Y (S)	
VR501	EUMWR0026B15	VOLUME CONTROL					
VR502	EVJ02QF02G15	BALANCE CONTROL		Z120	ENV17290G1Y	FM FRONT END	
VR511, 512	EVJYA1FA5C15	TONE CONTROL				FUSE (S)	
		COIL (S)					
L101	ELESNR68MA	COIL	(E, EB)	F1	XBA2C20TB0	FUSE, 250V T2A	(E, EB, EG, GN) △
L101	ELESNR0MA	COIL	(EG, G, GN)	F1	XBA2C40TB0	FUSE, 250V T4A	(G) △
L103	ELEXTR47MA9	COIL		F2	XBA2C20TB0	FUSE, 250V T2A	(G) △
L105, 106	RLQZB822KT-D	COIL				SWITCH (ES)	
L151	SLM1B10M-1M	COIL					
L191	ELESNR68MA	COIL	(E, EB)	S701	ESD26840A	VOLTAGE ADJ.	(G) △
L191	ELESNR56MA	COIL	(EG, G, GN)	S946	EVQ21405R	NUMERIC (5)	
L501, 502	RLQZP1R0KT-Y	COIL		S947	EVQ21405R	CENTER LEVEL (-)	
L601, 602	RLQYR73M	COIL		S948	EVQ21405R	TEST	
L651, 652	RLQYR73M	COIL		S949	EVQ21405R	NUMERIC (4)	
L701	SLQZ650MH49	COIL	(E, EB, EG, GN) △	S950	EVQ21405R	NUMERIC (6)	
L751	RLQB101JTA-Y	COIL		S951	EVQ21405R	CENTER LEVEL (+)	
L901	RLQB101JTA-Y	COIL		S952	EVQ21405R	NUMERIC (7)	
L1051	RLQB101JTA-Y	COIL		S953	EVQ21405R	SURROUND LEVEL (-)	
		TRANSFORMER (S)		S954	EVQ21405R	CD	
				S955	EVQ21405R	TUNER	
T701	RTP1P5E020	POWER TRANSFORMER (MAIN)	(EG) △	S956	EVQ21405R	CENTER MODE	
T701	RTP1P5E021	POWER TRANSFORMER (MAIN)	(GN) △	S957	EVQ21405R	NUMERIC (9)	
T701	RTP1P5E024	POWER TRANSFORMER (MAIN)	(E, EB) △	S960	EVQ21405R	SURROUND LEVEL (+)	
T701	RTP1Q5E012	POWER TRANSFORMER (MAIN)	(G) △	S961	EVQ21405R	NUMERIC (8)	
T751	RTP1I5E006	POWER TRANSFORMER (SUB)	(E, EB, EG, GN) △	S962	EVQ21405R	NUMERIC (0)	
T751	RTP1I5E007	POWER TRANSFORMER (SUB)	(G) △	S963	EVQ21405R	DELAY TIME	
		COMPONENT COMBINATION (S)		S964	EVQ21405R	PHONO	
				S965	EVQ21405R	MUTING/-LOUDNESS	
Z101	RLA6Z005M-T	COMPONENT COMBINATION	(E, EB)	S966	EVQ21405R	MEMORY	
Z101	RLA2Z002M-T	COMPONENT COMBINATION	(EG, G, GN)	S967	EVQ21405R	HELP/-RESET	
Z102	RLI2Z006M-T	COMPONENT COMBINATION		S968	EVQ21405R	NUMERIC (>10)	
Z751	ERZV10V511CS	SURGE ABSORBER	△	S970	EVQ21405R	TAPE MONITOR	
Z891	RCDHC-278N	REMOTE SENSOR		S971	EVQ21405R	VCR2/VIDEO CD	
		FILTER(S) AND OSCILLATOR(S)		S972	EVQ21405R	VCR1	
				S973	EVQ21405R	SPEAKERS A	
CF201	RLFFETNGD01L	FILTER		S974	EVQ21405R	TUNING UP	
				S975	EVQ21405R	TUNING DOWN	
				S976	EVQ21405R	BAND	

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
S977	EVQ21405R	FM AUTO/MONO		JK791	SJS9236	AC INLET	(E, EB, EG) △
S978	EVQ21405R	POWER		JK791	SJSD16	AC INLET	(GN) △
S980	EVQ21405R	SFC MODE		JK793	SJS9231-1B	AC INLET	(G) △
S981	EVQ21405R	SPEAKERS B		HP601	RJ63TA01	HEADPHONES JACK	
S983	EVQ21405R	DOLBY PRO LOGIC MODE					
S984	EVQ21405R	DOLBY PRO LOGIC/SFC OFF/ON				GND PLATE(S)	
S985	EVQ21405R	NUMERIC (3)					
S986	EVQ21405R	NUMERIC (2)		E401	SNE1004-2	GND PLATE	
S987	EVQ21405R	NUMERIC (1)		E501	RSCO413	GND PLATE	
S988	EVQ21405R	DIRECT TUNING		E601	SNE1004-2	GND PLATE	
		RELAY(S)				FUSE HOLDER(S)	
RL601-603	RSY0013M-0	RELAY	△	FC701, 702	EYF52BC	FUSE HOLDER	
RL751	RSY0013M-0	RELAY	△	FC703, 704	EYF52BC	FUSE HOLDER	(G)
		CONNECTOR(S) AND SOCKET(S)					
CN101, 102	RJU057W007	SOCKET (7P)					
CN401, 402	RJU057W007	SOCKET (7P)					
CN501	RJU057W007	SOCKET (7P)					
CN502	RJU057W004	SOCKET (4P)					
CN702	RJS1A6605	CONNECTOR (5P)					
CN751	SJS305-1	CONNECTOR (3P)	(E, EB, EG, GN)				
CN751	SJS702-2	CONNECTOR (7P)	(G)				
CN753-759	RJS1A1101T1	CONNECTOR (1P)					
CN901, 902	RJU003K008M1	SOCKET (8P)					
CN903	RJU003K010M1	SOCKET (10P)					
CN904, 905	RJU003K008M1	SOCKET (8P)					
CP101, 102	RJT057W007-1	CONNECTOR (7P)					
CP401, 402	RJT057W007-1	CONNECTOR (7P)					
CP501	RJT057W007-1	CONNECTOR (7P)					
CP502	RJT057W004-1	CONNECTOR (4P)					
CP701A	RJT039W06T	CONNECTOR (6P)					
CP701B	RJT039W06T	CONNECTOR (6P)					
CP901, 902	RJT003K008-1	CONNECTOR (8P)					
CP903	RJT003K010-1	CONNECTOR (10P)					
CP904, 905	RJT003K008-1	CONNECTOR (8P)					
		JACK(S) AND TERMINAL(S)					
JK101	RJH4202M	ANT TERMINAL					
JK351	SJF3069-3N	TV MONITOR OUT/VIDEO					
JK401	SJF3068-7N	PHONO TERMINAL					
JK402	SJF3069N	CD IN/REC OUT TERMINAL					
JK403	SJF3069N	PLAY IN/VCR2 IN TERMINAL					
JK404	SJF3069N	VCR1 OUT/VCR1 IN TERMINAL					
JK405	SJF3068-7N	SUB WOOFER OUT					
JK601	RJR0054	FRONT SPEAKER(A) TERMINAL					
JK602	RJH5601	CENTER/FRONT SP(B) TERMINAL					
JK603	RJR0054	SURROUND SPEAKER TERMINAL					
JK771	RJS1A7402-1	FAN MOTOR TERMINAL					

Ref. No.	Part No.	Part Name & Description	Remarks				
		CABINET AND CHASSIS					
1	RKMO041A-K	CABINET					
2	SNE2129-3	SCREW					
3	XTBS3+8JFZ1	SCREW					
4	REZO684	FLAT CABLE (5P) (W702)					
5	RFKEUG95GAK	CONNECTOR ASS' Y (12P) (W701)					
6	RFKEUG95GBK	FLAT CABLE ASS' Y (6P) (W752)					
7	REMO020-1	FAN MOTOR UNIT					
7-1	MDN-4RB4MRC	FAN MOTOR					
7-2	SHE232-1	FAN					
7-3	RMQ0209-K	FAN CASE					
7-4	RMQ0208-K	FAN CAP					
7-5	SUS271	SPRING					
7-6	RMQ0212-K	FAN TERMINAL CAP					
8	RGR0214C-C	REAR PANEL	(E)				
8	RGR0214C-B	REAR PANEL	(EB)				
8	RGR0214C-A	REAR PANEL	(EG)				
8	RGR0214D-A	REAR PANEL	(G)				
8	RGR0214C-D	REAR PANEL	(GN)				
9	RGW0163A-K	VOLUME KNOB					
10	RFKJAGX470PK	BOTTOM CHASSIS ASS' Y					
10-1	RKA0053-A	FOOT					
11	RKQ0089	P. C. B. SUPPORT					
12	RMCO158	TRANSISTOR HOLDER					
13	RMNO304	FL HOLDER					
14	RMNO313-J	LED HOLDER					
15	RFKGAGX690EK	FRONT PANEL ASS' Y	(E, EB, EG)				
15	RFKGAGX690GK	FRONT PANEL ASS' Y	(G, GN)				
15-1	RKW0388B-Q	TRANSPARENT PLATE					
16	RFKNAGX690PA	MODE BUTTON ASS' Y					
17	RFKNAGX690PB	TUNING BUTTON ASS' Y					
18	RGU1174-Q	HELP BUTTON					
19	RGW0175-1K	BALANCE/BASS/TREBLE KNOB					
20	RHD26016	SCREW					
21	RHN90001	NUT					
22	XTBS26+8J	SCREW					
23	SNE2123	GND TERMINAL					
24	XTB3+20JFZ	SCREW					
25	XTB3+8JFZ	SCREW					
26	XTWS3+8T	SCREW					
27	XTW3+15T	SCREW					
28	RFKNAGX690PC	SELECTOR BUTTON(1) ASS' Y					
29	RFKNAGX690PD	SELECTOR BUTTON(2) ASS' Y					
30	RMNO217	POWER SUPPLY P. C. B. HOLDER					
31	SHR9814	CORD CLAMPER					
32	RMZO339	SURGE ABSORBER COVER					
33	SJS9231A	AC INLET COVER	(G)				
34	XTBS3+8JFZ1	SCREW	(G)				
35	XTBS3+8JFZ1	SCREW	(E, EB, EG, GN)				



RESISTORS AND CAPACITORS

Notes : * Capacity values are in microfarads (μF) 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)

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
		RESISTORS	R358	ERDS2TJ471	1/4W 470	R543, 544	ERDS2TJ102	1/4W 1K
			R359	ERDS2TJ2R2T	1/4W 2.2	R545	ERDS2TJ824	1/4W 820K
			R360	ERDS2TJ470	1/4W 47	R546	ERDS2TJ103	1/4W 10K
R103	ERDS2TJ101	1/4W 100	R361	ERDS2TJ471	1/4W 470	R551, 552	ERDS2TJ102	1/4W 1K
R104	ERDS2TJ102	1/4W 1K	R362	ERDS2TJ2R2T	1/4W 2.2	R553, 554	ERDS2TJ104	1/4W 100K
R105	ERDS2TJ471	1/4W 470	R363	ERDS2TJ332	1/4W 3.3K	R555, 556	ERDS2TJ223	1/4W 22K
R106	ERDS2TJ224T	1/4W 220K	R364	ERDS2TJ561	1/4W 560	R557	ERDS2TJ681	1/4W 680 (E, EB, EG)
R107	ERDS2TJ471	1/4W 470	R365	ERDS2TJ332	1/4W 3.3K	R557	ERDS2TJ821	1/4W 820 (G, GN)
R110	ERDS2TJ102	1/4W 1K	R366	ERDS2TJ104	1/4W 100K	R558	ERDS2TJ561	1/4W 560 (E, EB, EG)
R112	ERDS2TJ104	1/4W 100K	R367, 368	ERDS2TJ103	1/4W 10K	R558	ERDS2TJ681	1/4W 680 (G, GN)
R113	ERDS2TJ103	1/4W 10K	R369, 370	ERDS1FVJ271T	1/2W 270 Δ	R561	ERDS2TJ332	1/4W 3.3K
R114	ERDS2TJ562	1/4W 5.6K	R373, 374	ERDS2TJ103	1/4W 10K	R563	ERDS2TJ332	1/4W 3.3K
R115	ERDS2TJ561	1/4W 560	R401, 402	ERDS2TJ102	1/4W 1K	R564	ERDS2TJ472	1/4W 4.7K
R116	ERDS2TJ102	1/4W 1K	R405-416	ERDS2TJ102	1/4W 1K	R565, 566	ERDS2TJ102	1/4W 1K
R117	ERDS2TJ473	1/4W 47K	R417, 418	ERDS2TJ473	1/4W 47K	R567	ERDS2TJ474	1/4W 470K
R118	ERDS2TJ562	1/4W 5.6K	R419-422	ERDS2TJ104	1/4W 100K	R568	ERDS2TJ103	1/4W 10K
R119	ERDS2TJ183T	1/4W 18K	R423, 424	ERDS2TJ102	1/4W 1K	R569, 570	ERDS2TJ102	1/4W 1K
R120	ERDS2TJ473	1/4W 47K	R425-427	ERDS2TJ103	1/4W 10K	R571, 572	ERDS2TJ222	1/4W 2.2K
R121	ERDS2TJ332	1/4W 3.3K	R440	ERDS1FVJ820T	1/2W 82 Δ	R573-578	ERDS2TJ102	1/4W 1K
R122	ERDS2TJ272T	1/4W 2.7K	R441, 442	ERDS2TJ473	1/4W 47K	R579	ERDS2TJ102	1/4W 1K (E, EB, EG)
R124	ERDS2TJ271	1/4W 270	R443	ERDS2TJ330	1/4W 33	R579	ERDS2TJ122	1/4W 1.2K (G, GN)
R125, 126	ERDS2TJ472	1/4W 4.7K	R451, 452	ERDS2TJ224T	1/4W 220K	R581, 582	ERDS2TJ471	1/4W 470
R127	ERDS2TJ103	1/4W 10K	R453, 454	ERDS2TJ391	1/4W 390	R583-586	ERDS2TJ102	1/4W 1K
R128	ERDS2TJ820	1/4W 82	R455, 456	ERDS2TJ563	1/4W 56K	R587, 588	ERDS2TJ122	1/4W 1.2K (E, EB, EG)
R129	ERDS2TJ473	1/4W 47K	R457, 458	ERDS2TJ271	1/4W 270	R587, 588	ERDS2TJ102	1/4W 1K (G, GN)
R130, 131	ERDS2TJ102	1/4W 1K	R459, 460	ERDS2TJ680T	1/4W 68	R589	ERDS2TJ821	1/4W 820 (G, GN)
R132	ERDS2TJ103	1/4W 10K	R461, 462	ERDS2TJ184T	1/4W 180K	R590	ERDS2TJ472	1/4W 4.7K (G, GN)
R133-137	ERDS2TJ102	1/4W 1K	R463, 464	ERDS2TJ123	1/4W 12K	R591, 592	ERDS2TJ222	1/4W 2.2K
R139, 140	ERDS2TJ272T	1/4W 2.7K	R465, 466	ERDS2TJ563	1/4W 56K	R593	ERDS2TJ102	1/4W 1K (E, EB, EG)
R141, 142	ERDS2TJ102	1/4W 1K	R467-470	ERDS2TJ102	1/4W 1K	R593	ERDS2TJ222	1/4W 2.2K (G, GN)
R143, 144	ERDS2TJ222	1/4W 2.2K	R501, 502	ERDS2TJ222	1/4W 2.2K	R594	ERDS2TJ223	1/4W 22K (E, EB, EG)
R145, 146	ERDS2TJ102	1/4W 1K (E, EB)	R503-506	ERDS2TJ103	1/4W 10K	R594	ERDS2TJ333	1/4W 33K (G, GN)
R145, 146	ERDS2TJ561	1/4W 560 (EG, G, GN)	R507	ERDS2TJ153	1/4W 15K	R601, 602	ERDS2TJ102	1/4W 1K
R147, 148	ERDS2TJ474	1/4W 470K	R508	ERDS1FVJ2R2T	1/2W 2.2 Δ	R603, 604	ERDS2TJ563	1/4W 56K
R149	ERDS2TJ680T	1/4W 68	R511, 512	ERDS2TJ471	1/4W 470	R605, 606	ERDS2TJ182	1/4W 1.8K
R171, 172	ERDS2TJ102	1/4W 1K	R513-516	ERDS2TJ474	1/4W 470K	R607, 608	ERDS2TJ563	1/4W 56K
R173	ERDS2TJ471	1/4W 470	R517, 518	ERDS2TJ182	1/4W 1.8K (E, EB, EG)	R609, 610	ERDS2TJ470	1/4W 47
R175	ERDS2TJ102	1/4W 1K	R517, 518	ERDS2TJ222	1/4W 2.2K (G, GN)	R611, 612	ERDS1FVJ100T	1/2W 10 Δ
R176	ERDS2TJ391	1/4W 390	R519, 520	ERDS2TJ103	1/4W 10K (E, EB, EG)	R613, 614	ERDS2TJ102	1/4W 1K
R191	ERDS2TJ103	1/4W 10K (E, EB)	R519, 520	ERDS2TJ392T	1/4W 3.9K (G, GN)	R615	ERDS2TJ184T	1/4W 180K
R192	ERDS2TJ122	1/4W 1.2K (E, EB)	R521, 522	ERDS2TJ223	1/4W 22K	R616	ERDS2TJ154	1/4W 150K
R193	ERDS2TJ182	1/4W 1.8K (E, EB)	R523, 524	ERDS2TJ392T	1/4W 3.9K	R617, 618	ERDS2TJ473	1/4W 47K
R194	ERDS2TJ122	1/4W 1.2K (E, EB)	R525, 526	ERDS2TJ222	1/4W 2.2K	R619	ERDS2TJ223	1/4W 22K
R195	ERDS2TJ222	1/4W 2.2K (E, EB)	R527, 528	ERDS2TJ122	1/4W 1.2K	R620	ERD25FJ220	1/4W 22 Δ
R301, 302	ERDS2TJ101	1/4W 100	R529, 530	ERDS2TJ273	1/4W 27K	R621	ERDS2TJ183T	1/4W 18K
R354	ERDS2TJ332	1/4W 3.3K	R531, 532	ERDS2TJ222	1/4W 2.2K	R622	ERDS2TJ124T	1/4W 120K
R355	ERDS2TJ470	1/4W 47	R533, 534	ERDS2TJ272T	1/4W 2.7K	R623	ERDS2TJ684	1/4W 680K
R356	ERDS2TJ152	1/4W 1.5K	R535, 536	ERDS2TJ332	1/4W 3.3K	R624, 625	ERDS2TJ154	1/4W 150K (E, EB, EG)
R357	ERDS2TJ470	1/4W 47	R537, 538	ERDS2TJ103	1/4W 10K	R624, 625	ERDS2TJ563	1/4W 56K (G, GN)

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
R628-630	ERDS2TJ223	1/4W 22K	R777	ERDS2TJ220T	1/4W 22	R984	ERDS2TJ222	1/4W 2.2K
R635, 636	ERDS1FVJ471T	1/2W 470 Δ	R778	ERDS2TJ222	1/4W 2.2K	R985	ERDS2TJ332	1/4W 3.3K
R637-640	ERG1SJ101E	1W 100	R779	ERDS2TJ103	1/4W 10K	R986	ERDS2TJ472	1/4W 4.7K
R641	ERDS2TJ684	1/4W 680K	R780, 781	ERDS2TJ473	1/4W 47K	R987	ERDS2TJ682T	1/4W 6.8K
R642	ERDS2TJ472	1/4W 4.7K	R782	ERDS2TJ153	1/4W 15K	R988	ERDS2TJ123	1/4W 12K
R647, 648	ERDS2TJ221	1/4W 220	R783	ERDS2TJ103	1/4W 10K	R990	ERDS2TJ153	1/4W 15K
R651, 652	ERDS2TJ102	1/4W 1K	R784	ERDS2TJ335T	1/4W 3.3K	R1001-1004	ERDS2TJ102	1/4W 1K
R653, 654	ERDS2TJ563	1/4W 56K	R791-796	ERDS2TJ223	1/4W 22K	R1005	ERDS2TJ203T	1/4W 20K
R655, 656	ERDS2TJ182	1/4W 1.8K	R797	ERDS2TJ682T	1/4W 6.8K	R1007, 1008	ERDS2TJ473	1/4W 47K
R657, 658	ERDS2TJ563	1/4W 56K	R901	ERDS2TJ102	1/4W 1K	R1009-1011	ERDS2TJ332	1/4W 3.3K
R659, 660	ERDS2TJ470	1/4W 47	R907-909	ERDS2TJ104	1/4W 100K	R1012	ERDS2TJ102	1/4W 1K
R661, 662	ERDS1FVJ100T	1/2W 10 Δ	R911	ERDS2TJ104	1/4W 100K	R1051	ERDS2TJ393	1/4W 39K
R663, 664	ERDS2TJ102	1/4W 1K	R913	ERDS2TJ104	1/4W 100K	R1052	ERDS2TJ105T	1/4W 1M
R665	ERDS2TJ154	1/4W 150K	R914-917	ERDS2TJ103	1/4W 10K	R1053	ERDS2TJ102	1/4W 1K
R666	ERDS2TJ184T	1/4W 180K	R920	ERDS2TJ271	1/4W 270	R1054	ERDS2TJ104	1/4W 100K
R667, 668	ERDS2TJ473	1/4W 47K	R921	ERDS2EJ121	1/4W 120	R1055, 1056	ERDS2TJ473	1/4W 47K
R669	ERDS2TJ223	1/4W 22K	R922	ERDS2TJ472	1/4W 4.7K	R1057	ERDS2TJ103	1/4W 10K
R670	ERD25FJ220	1/4W 22 Δ	R927	ERDS2TJ181T	1/4W 180	R1061	ERDS2TJ222	1/4W 2.2K
R671	ERDS2TJ183T	1/4W 18K	R928	ERDS2TJ151	1/4W 150	R1062	ERDS2TJ273	1/4W 27K
R672	ERDS2TJ124T	1/4W 120K	R930, 931	ERDS2TJ101	1/4W 100	R1063	ERDS2TJ332	1/4W 3.3K
R673	ERDS2TJ684	1/4W 680K	R941	ERDS2TJ104	1/4W 100K	R1081	ERDS2TJ104	1/4W 100K
R674, 675	ERDS2TJ154	1/4W 150K (E, EB, EG)	R946-949	ERDS2TJ103	1/4W 10K	R1082	ERDS2TJ474	1/4W 470K
R674, 675	ERDS2TJ563	1/4W 56K (G, GN)	R950	ERDS2TJ102	1/4W 1K	R1151-1153	ERDS2TJ473	1/4W 47K
R676	ERDS2TJ223	1/4W 22K	R951	ERDS2TJ122	1/4W 1.2K	R1154	ERDS2TJ333	1/4W 33K
R678	ERDS1FVJ471T	1/2W 470 Δ	R952	ERDS2TJ152	1/4W 1.5K	R1155, 1156	ERDS2TJ393	1/4W 39K
R681-694	ERDS2TJ270T	1/4W 27	R953	ERDS2TJ182	1/4W 1.8K	R1157	ERDS2TJ222	1/4W 2.2K
R695, 696	ERDS2TJ102	1/4W 1K	R954	ERDS2TJ222	1/4W 2.2K	R1158	ERDS2TJ104	1/4W 100K
R697, 698	ERDS2TJ221	1/4W 220	R955	ERDS2TJ332	1/4W 3.3K	R1159	ERDS2TJ103	1/4W 10K
R699	ERDS2TJ332	1/4W 3.3K	R956	ERDS2TJ472	1/4W 4.7K	R1160	ERDS2TJ102	1/4W 1K (E, EB, EG)
R703, 704	ERDS1FVJ3R9T	1/2W 3.9 Δ	R957	ERDS2TJ682T	1/4W 6.8K	R1205	ERDS2TJ102	1/4W 1K
R705	ERDS2TJ472	1/4W 4.7K	R960	ERDS2TJ102	1/4W 1K			
R706	ERDS2TJ102	1/4W 1K	R961	ERDS2TJ122	1/4W 1.2K			CAPACITORS
R709	ERD25FVJ221T	1/4W 220 Δ	R962	ERDS2TJ152	1/4W 1.5K			
R712	ERDS2TJ472	1/4W 4.7K	R963	ERDS2TJ182	1/4W 1.8K	C101	ECBT1C103NS5	16V 0.01U
R713, 714	ERDS2TJ1R5T	1/4W 1.5	R964	ERDS2TJ222	1/4W 2.2K	C103	ECBT1C103NS5	16V 0.01U
R715	ERDS2TJ752T	1/4W 7.5K	R965	ERDS2TJ332	1/4W 3.3K	C104	ECBT1H102KB5	50V 1000P
R716	ERDS2TJ682T	1/4W 6.8K	R966	ERDS2TJ472	1/4W 4.7K	C105	ECBT1H470J5	50V 47P
R717	ERD2FCVJ6R8T	1/4W 6.8 Δ	R967	ERDS2TJ682T	1/4W 6.8K	C106	ECBT1C103NS5	16V 0.01U
R718	ERDS2TJ182	1/4W 1.8K	R968	ERDS2TJ123	1/4W 12K	C107	ECBT1H473ZF5	50V 0.047U
R721	ERDS1FVJ4R7T	1/2W 4.7 Δ	R970	ERDS2TJ102	1/4W 1K	C108	ECBT1H100JC5	50V 10P (E, EB)
R722	ERD25FJ101	1/4W 100 Δ	R971	ERDS2TJ122	1/4W 1.2K	C108	ECBT1H8R2KC5	50V 8.2P (EG, G, GN)
R723	ERDS2TJ472	1/4W 4.7K	R972	ERDS2TJ152	1/4W 1.5K	C109, 110	ECBT1C103NS5	16V 0.01U
R724	ERDS1FVJ6R8T	1/2W 6.8	R973	ERDS2TJ182	1/4W 1.8K	C111	ECEA1EKA4R7B	25V 4.7U
R725	ERDS2TJ681	1/4W 680	R974	ERDS2TJ222	1/4W 2.2K	C112	ECBT1C103NS5	16V 0.01U
R727	ERDS1FVJ6R8T	1/2W 6.8 Δ	R975	ERDS2TJ332	1/4W 3.3K	C113	ECBT1H102KB5	50V 1000P
R731	ERD25FVJ180T	1/4W 18 Δ	R976	ERDS2TJ472	1/4W 4.7K	C114	RCE1HKA3R3BG	50V 3.3U
R739	ERD25FVJ180T	1/4W 18 Δ	R977	ERDS2TJ682T	1/4W 6.8K	C115	ECEA1EKA4R7B	25V 4.7U
R754	ERDS2TJ102	1/4W 1K	R978	ERDS2TJ123	1/4W 12K	C116	ECBT1C822MS5	16V 8200P
R772	ERDS2TJ104	1/4W 100K	R980	ERDS2TJ102	1/4W 1K	C117	ECQB1H471JF3	50V 470P
R773	ERDS2TJ103	1/4W 10K	R981	ERDS2TJ122	1/4W 1.2K	C118, 119	ECQB1H103JF3	50V 0.01U
R774	ERDS2TJ223	1/4W 22K	R982	ERDS2TJ152	1/4W 1.5K	C120, 121	ECEA1HKA010B	50V 1U
R775	ERDS2TJ472	1/4W 4.7K	R983	ERDS2TJ182	1/4W 1.8K	C122	ECEA1HKA2R2B	50V 2.2U

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
C123	ECEA1HKA010B	50V 1U	C503, 504	RCE0JKA101BV	6. 3V 100U	C681, 682	ECEA1HN100SB	50V 10U
C124	ECBT1H102KB5	50V 1000P	C505, 506	ECFR1C104MR	16V 0. 1U	C683, 684	ECBT1C332KR5	16V 3300P
C125	ECBT1H150JC5	50V 15P	C511, 512	RCE1HKA3R3BG	50V 3. 3U	C685	ECBT1E103ZF	25V 0. 01U
C126	ECBT1H104ZF5	50V 0. 1U	C513, 514	ECBT1H150J5	50V 15P	C691	ECKT1H101KB	50V 100P
C127	RCE1CKA220BG	16V 22U	C515, 516	ECBT1H221KB5	50V 220P	C701	ECBT1E103ZF	25V 0. 01U
C128	ECBT1C103NS5	16V 0. 01U	C517, 518	ECBT1H330J5	50V 33P	C702	ECQE2104KF3	250V 0. 1U
C129, 130	RCE0JKA101BV	6. 3V 100U	C519-522	ECEA1VKA4R7B	35V 4. 7U	C703, 704	ECES1K752VUX	75V 7500U Δ
C131	ECBT1C103NS5	16V 0. 01U	C523, 524	ECFR1E123KR	25V 0. 012U	C705, 706	ECA1HM332B	50V 3300U Δ
C132	ECBT1H102KB5	50V 1000P	C525, 526	ECQV1H683JM3	50V 0. 068U	C707	ECA1VM101B	35V 100U
C133, 134	ECBT1H270JU5	50V 27P	C527, 528	ECBT1C562KR5	16V 5600P	C708	ECKR1H103ZF5	50V 0. 01U
C135, 136	ECBT1C103KS5	16V 0. 01U	C529, 530	ECQB1H273JF3	50V 0. 027U	C709	ECEA1CKA330B	16V 33U
C137, 138	ECBT1H561KB5	50V 560P	C531, 532	ECBT1E103ZF	25V 0. 01U	C710	ECBT1E103ZF	25V 0. 01U
C139, 140	ECQB1H682JF3	50V 6800P	C533, 534	RCE1CKA100BG	16V 10U	C711	ECKR1H103ZF5	50V 0. 01U
C141-144	ECEA1HKA010B	50V 1U	C536	ECBT1H104ZF5	50V 0. 1U	C712	ECEA1HKA100B	50V 10U
C145	ECBT1H220JC5	50V 22P	C537, 538	RCE1CKA100BG	16V 10U	C713	ECKR1H103ZF5	50V 0. 01U
C146	ECBT1H331KB5	50V 330P	C551, 552	RCE1HKA3R3BG	50V 3. 3U	C714	ECA1HM470B	50V 47U
C147	ECBT1H102KB5	50V 1000P	C553, 554	ECBT1H101KB5	50V 100P	C715	RCE1CKA101BV	16V 100U
C148, 149	ECBT1C103NS5	16V 0. 01U	C555, 556	ECBT1H221KB5	50V 220P	C721, 722	ECQE2104KF3	250V 0. 1U
C150	ECBT1H104ZF5	50V 0. 1U	C557, 558	ECBT1E103ZF	25V 0. 01U	C751	ECKWNS102MBM	400V 1000P Δ
C172	ECBT1H331KB5	50V 330P	C559, 560	RCE1CKA100BG	16V 10U	C752	ECKR1H103ZF5	50V 0. 01U
C173	RCE1CKA220BG	16V 22U	C563	ECEA1HSN010B	50V 1U	C753	ECA1EM102B	25V 1000U Δ
C174	RCE1CKA101BV	16V 100U	C581-584	RCE0JKA101BV	6. 3V 100U	C754	ECBT1E103ZF	25V 0. 01U
C175, 176	ECBT1C103NS5	16V 0. 01U	C601, 602	ECEA1HKN3R3B	50V 3. 3U	C755	RCE1CKA470BG	16V 47U
C181	ECBT1H471KB5	50V 470P	C603, 604	ECBA1H681KB5	50V 680P	C756	ECBT1E103ZF	25V 0. 01U
C196	ECBT1H102KB5	50V 1000P	C605, 606	ECEA1JU220	63V 22U	C758	RCE1AKA101BG	10V 100U
C351, 352	RCE0JKA101BV	6. 3V 100U	C607, 608	ECCR1H100K5	50V 10P	C771	ECEA1HKA2R2B	50V 2. 2U
C353	RCE1CKA100BG	16V 10U	C609, 610	ECBT1H221KB5	50V 220P	C772	RCE1CKA100BG	16V 10U
C373, 374	RCE1CKA470BG	16V 47U	C611, 612	ECQV1H473JM3	50V 0. 047U	C773	ECBT1E223ZF	25V 0. 022U
C401, 402	ECEA1VKA4R7B	35V 4. 7U	C613, 614	ECBA1H681KB5	50V 680P	C774	RCE0JKA221BV	6. 3V 220U
C403, 404	ECBT1E103ZF	25V 0. 01U	C615	ECA1HM470B	50V 47U	C901	ECA0JM102B	6. 3V 1000U
C405, 406	ECBT1H101KB5	50V 100P	C616	ECEA2AU100	100V 10U	C902, 903	ECBT1E103ZF	25V 0. 01U
C409	RCE1CKA220BG	16V 22U	C617	ECEA1JU220	63V 22U	C904	ECA0JM471B	6. 3V 470U
C410	ECEA1JU220	63V 22U	C618	ECEA2AN2R2SB	100V 2. 2U	C905	ECBT1E103ZF	25V 0. 01U
C411, 412	ECBT1H101KB5	50V 100P	C619	ECBT1H102KB5	50V 1000P	C906	ECA0JM471B	6. 3V 470U
C413, 414	RCE1CKA100BG	16V 10U	C621, 622	ECEA2AU100	100V 10U	C908	ECBT1E103ZF	25V 0. 01U
C415, 416	ECBT1E103ZF	25V 0. 01U	C631-634	ECKT1H223ZF	50V 0. 022U	C909-912	ECEA1HKA220B	50V 22U
C417, 418	ECBT1H101KB5	50V 100P	C635, 636	ECKR1H103ZF5	50V 0. 01U	C913, 914	RCE1VKA100BG	35V 10U
C419-422	ECBT1H331KB5	50V 330P	C637, 638	ECKT1H223ZF	50V 0. 022U	C916	ECEA1HKA010B	50V 1U
C423-426	ECBT1H101KB5	50V 100P	C639	ECKT1H102KB	50V 1000P	C919	ECBT1E103ZF	25V 0. 01U
C427, 428	ECBT1H221KB5	50V 220P	C651, 652	ECEA1HKN3R3B	50V 3. 3U	C920	ECEA1HKA010B	50V 1U
C431, 432	RCE1CKA100BG	16V 10U	C653, 654	ECBA1H681KB5	50V 680P	C921-927	ECBT1H331KB5	50V 330P
C440	ECBT1E103ZF	25V 0. 01U	C655, 656	ECEA1JU220	63V 22U	C929	ECBT1H101KB5	50V 100P
C451, 452	ECEA1VKA4R7B	35V 4. 7U	C657, 658	ECCR1H100K5	50V 10P	C939	ECBT1H101KB5	50V 100P
C453, 454	ECBT1H100JC5	50V 10P	C659, 660	ECBT1H471KB5	50V 470P	C941	ECBT1E223ZF	25V 0. 022U
C455, 456	ECBT1H102KB5	50V 1000P	C661, 662	ECQV1H473JM3	50V 0. 047U	C942	ECBT1E103ZF	25V 0. 01U
C457, 458	RCE1AKA330BG	10V 33U	C663, 664	ECBA1H681KB5	50V 680P	C943	ECBT1H101KB5	50V 100P
C459, 460	ECFR1E223KR	25V 0. 022U	C665	ECA1HM470B	50V 47U	C944	ECBT1H100JC5	50V 10P
C461, 462	ECFR1E682KR	25V 6800P	C666	ECEA2AU100	100V 10U	C946	ECBT1H101KB5	50V 100P
C463, 464	ECEA1VKA4R7B	35V 4. 7U	C667	ECEA1JU220	63V 22U	C954	ECBT1H101KB5	50V 100P
C465, 466	ECBT1E103ZF	25V 0. 01U	C668	ECEA2AN2R2SB	100V 2. 2U	C1001, 1002	ECEA1HKA010B	50V 1U
C469, 470	ECBT1H181KB5	50V 180P	C669	ECBT1H102KB5	50V 1000P	C1003, 1004	RCE1HKA3R3BG	50V 3. 3U
C501, 502	ECFR1E333KR	25V 0. 033U	C671, 672	ECEA2AU100	100V 10U	C1005	ECEA1HKA010B	50V 1U

Ref. No.	Part No.	Values & Remarks						
C1007	ECFR1E223KR	25V 0.022U						
C1008	ECFR1E473KR	25V 0.047U						
C1009	RCE0JKA221BV	6.3V 220U						
C1010-1013	RCE1CKA100BG	16V 10U						
C1014	RCE0JKA221BV	6.3V 220U						
C1015, 1016	ECQV1H104JM3	50V 0.1U						
C1017	RCE1HKAR47BG	50V 0.47U						
C1018	ECEA1VKA4R7B	35V 4.7U						
C1019	RCE1HKAR47BG	50V 0.47U						
C1020	ECEA1VKA4R7B	35V 4.7U						
C1021	ECEA1HKAR15B	50V 0.15U						
C1022	RCE1HKA3R3BG	50V 3.3U						
C1023, 1024	ECQV1H154JM3	50V 0.15U						
C1025	RCE1HKA3R3BG	50V 3.3U						
C1026	ECEA1HKAR15B	50V 0.15U						
C1027	ECEA1VKA4R7B	35V 4.7U						
C1028	RCE1HKAR47BG	50V 0.47U						
C1029	ECEA1VKA4R7B	35V 4.7U						
C1030	RCE1HKAR47BG	50V 0.47U						
C1031, 1032	ECQV1H104JM3	50V 0.1U						
C1033	RCE0JKA470BG	6.3V 47U						
C1034	ECQV1H474JM3	50V 0.47U						
C1035	ECBA1H681KB5	50V 680P						
C1036-1038	ECBT1H101KB5	50V 100P						
C1039	RCE1CKA101BV	16V 100U						
C1040	RCE1CKA100BG	16V 10U						
C1041	ECBT1E103ZF	25V 0.01U						
C1051	ECEA1HKA2R2B	50V 2.2U						
C1052	ECEA1HKA010B	50V 1U						
C1053	RCE1HKA3R3BG	50V 3.3U						
C1054	RCE0JKA221BV	6.3V 220U						
C1055	ECEA1HKA010B	50V 1U						
C1056	ECFR1E563KR	25V 0.056U						
C1057	ECFR1E152KR	25V 1500P						
C1058	ECFR1E563KR	25V 0.056U						
C1059	RCE1CKA101BV	16V 100U						
C1060	ECBT1E223ZF	25V 0.022U						
C1062	ECBT1E223ZF	25V 0.022U						
C1063	RCE1CKA101BV	16V 100U						
C1065	ECBT1C472KR5	16V 4700P						
C1067, 1068	ECBT1C152KR5	16V 1500P						
C1072	ECEA1HKA010B	50V 1U						
C1073, 1074	RCE1CKA100BG	16V 10U						
C1081	ECEA1HKA010B	50V 1U						
C1082	ECBT1E223ZF	25V 0.022U						
C1151	ECEA1HKA010B	50V 1U						
C1152	ECFR1C683KR	16V 0.068U						
C1153	ECFR1C273JR	16V 0.027U						
C1154	ECEA1VKA4R7B	35V 4.7U						
C1155-1157	ECBT1E103ZF	25V 0.01U						
C1158	ECBT1H101KB5	50V 100P (E, EB, EG)						

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.
 *The "(SF)" mark denotes the standard part.
 *[V] indicates in Remarks columns parts that are supplied by Video Recorder Division.

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		PACKING MATERIAL		A5	RQCB0169	SERVICENTER LIST	
				A6	RQA0013	WARRANTY CARD	(E, EB, EG)
				A6	RQX7433ZA	WARRANTY CARD	(GN)
P1	RPG2536	PACKING CASE	(E, EG, G, GN)	A7	RAK-SA179XH	REMOTE CONTROL TRANSMITTER	(E, EB, EG)
P1	RPG2537	PACKING CASE	(EB)	A7	RAK-SA603MH	REMOTE CONTROL TRANSMITTER	(G, GN)
P2	RPN0682-2	CUSHION		A7-1	RKK0057-K	BATT. COVER FOR R/C TRANS.	(E, EB, EG)
P3	RPQ0164	PAD (ACCESSORIES)	(EB, EG, G, GN)	A7-1	RKK0020-K	BATT. COVER FOR R/C TRANS.	(G, GN)
P4	RPF0139	PROTECTION BAG (ACCESSORIES)		A8	SJP9009	ATTACHMENT PLUG	(EB) Δ
P5	SPP730	PROTECTION BAG (UNIT)		A9	RFED014	ANTENNA PLUG	(G, GN)
P6	RPH0032	PROTECTION SHEET	(EB, GN)	A10	RQLA0134	VOLTAGE CAUTION LABEL	(G)
		ACCESSORIES		A11	SJP5213-2	POWER PLUG ADAPTOR	(G) Δ
						<GREASE OR JIG/TOOL>	
						TEST DISC	
A1	RFKSAGX390E	INSTRUCTION MANUAL ASS'Y	(E)	SA1	SZZP1054C	PLAYABILITY TEST DISC	
A1	RFKSAGX490GN	INSTRUCTION MANUAL ASS'Y	(EB)			TEST TAPE	
A1	RFKSAGX390EG	INSTRUCTION MANUAL ASS'Y	(EG)				
A1	RFKSAGX690G	INSTRUCTION MANUAL ASS'Y	(G)				
A1	RFKSAGX690GN	INSTRUCTION MANUAL ASS'Y	(GN)	SA2	QZZCLA	DISTORTION ADJUSTMENT	
A2	RJAD019-2K	AC POWER SUPPLY CORD	(E, EG, G) Δ (SF)			GREASE	
A2	VJAD733	AC POWER SUPPLY CORD	(EB) Δ (SF) [V]	SA3	RFKX0002	COMPOUND GREASE	
A2	RJAD036-K	AC POWER SUPPLY CORD	(GN) Δ				
A3	RSAD007	FM INDOOR ANTENNA					
A4	RSAD010	AM LOOP ANTENNA SET					
A4-1	RMND244	AM ANTENNA HOLDER					
A4-2	XTN3+12AFZ	SCREW					

PACKAGING

