

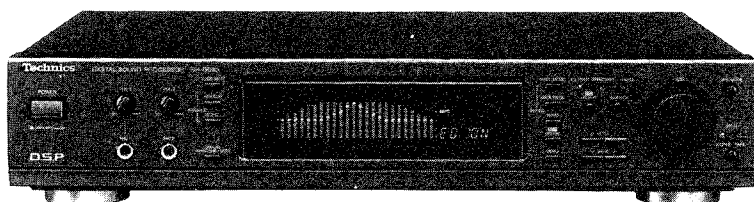
Service Manual

Digital Sound Processor

Digital Sound Processor
SH-GE90

Colour

(K) Black Type



Areas

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

SPECIFICATIONS

(DIN 45 500)

■ EQUALIZER SECTION

Frequency response (center position) 15 Hz–20 kHz, –1 dB
 Maximum output voltage 6 V
 Rated output voltage 1 V
 Rated total harmonic distortion (full scale input) 0.08% (1 kHz)

Input sensitivity 1 V
 S/N (full scale input) 86 dB
 Maximum input voltage 2.3 V (1 kHz)
 Input impedance 47 k Ω
 Gain 0 \pm 1 dB
 Band level controls \pm 12 dB

3 element parametric equalizer

Center frequency

LOW 31.5, 40, 50, 63, 80, 100, 125, 160, 220 (Hz)
 HIGH 1, 2 315, 450, 630, 800, 1 k, 1.25 k, 1.6 k, 2.2 k, 3.15 k, 4.5 k, 6.3 k, 8 k, 10 k, 12.5 k, 16 k (Hz)

(Q) control

Narrow 1.8
 Wide 0.7

Fixed mode

Equalizer (6 modes) HEAVY, CLEAR, SOFT, VOCAL, HEADPHONE STEREO, CAR STEREO

Sound Field Processor (6 modes)

HALL, LIVE, DISCO, CHURCH, STADIUM, THEATER

■ KARAOKE SECTION

Key control –300~+300 cent
 MIC1, MIC2 1.4 mV/4.7 k Ω
 Mic echo 0.2–1.6 sec

■ GENERAL

Power consumption 17 W
 Power supply
 For (E) (EB) (EG) (GN) area AC 50/60 Hz, 230–240 V
 For (GC) area AC 50/60 Hz, 110 V/127 V/220 V/240 V
 Dimensions (W \times H \times D) 430 \times 92 \times 290 mm
 Weight 3 kg

Notes:

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

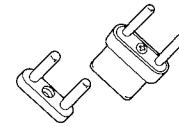
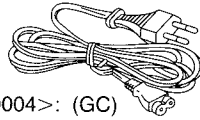
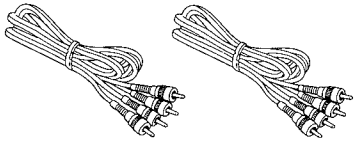
Technics

CONTENTS

	Page		Page
•ACCESSORIES	2	•DESCRIPTION OF FL PANEL	20
•LOCATION OF CONTROLS	2, 3	•FUNCTION OF IC TERMINALS	21, 22
•CONNECTIONS	4	•BLOCK DIAGRAM	23, 24
•DISASSEMBLY INSTRUCTIONS	5-7	•REPLACEMENT PARTS LIST	25-28, 30
•SCHEMATIC DIAGRAM	8-14	•CABINET PARTS LOCATION	29
•PRINTED CIRCUIT BOARD DIAGRAM	15-18	•PACKAGING	30
•WIRING CONNECTION DIAGRAM	19		

ACCESSORIES

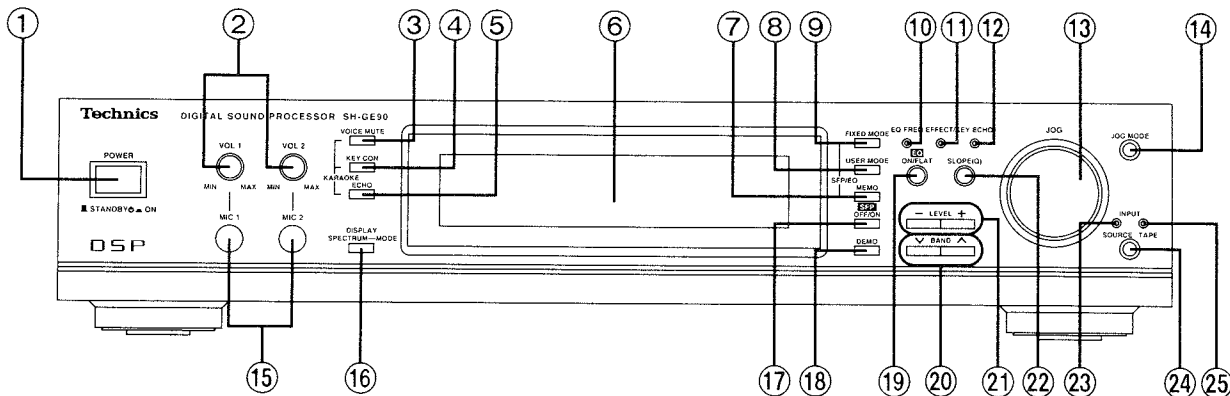
- | | | | | | |
|---------------------------------|---|-----------------------------|---|---------------------------|---|
| •Stereo connection cables | 2 | •AC power supply cord | 1 | •Power plug adaptor | 1 |
| <SJP2276> | | <RJA0019-1K>: (E) (EG) | | <SJP9215>: (GC) | |
| | | <SJA193>: (EG) | | | |



<RJA0004>: (GC)
<SJA173>: (GN)

Note: The configuration of the AC power supply cord differs according to area.

LOCATION OF CONTROLS



Control section

① Power "STANDBY / ON" switch (POWER STANDBY ON)

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

Note:

For this unit, even if this switch is switched to the "STANDBY" position, there is still a slight power consumption of about 2.7 watts; this is in order to assure the retention of the "most recent" memory and the preset-memory functions.

"Power-through" function

Discs, radio broadcasts, etc. can be heard even if the power of this unit is switched to STANDBY.

Note, however, that the power plug should be left connected to the AC outlet.

② Microphone volume controls (VOL1, VOL2)

③ Voice mute button (VOICE MUTE)

This button is used to change "KARAOKE" (using microphone with an accompaniment).

④ Key control button (KEY CON)

This button is used to adjust key level when performing "KARAOKE".

⑤ Echo button (ECHO)

This button is used to adjust the reverberation sound when in performing "KARAOKE".

⑥ Display section

⑦ Memory button (MEMO)

This button is used to store an original equalization curve or simulated listening environments.

⑧ User mode select button (USER MODE)

This button is used to select the user mode of equalization curve or simulated listening environments.

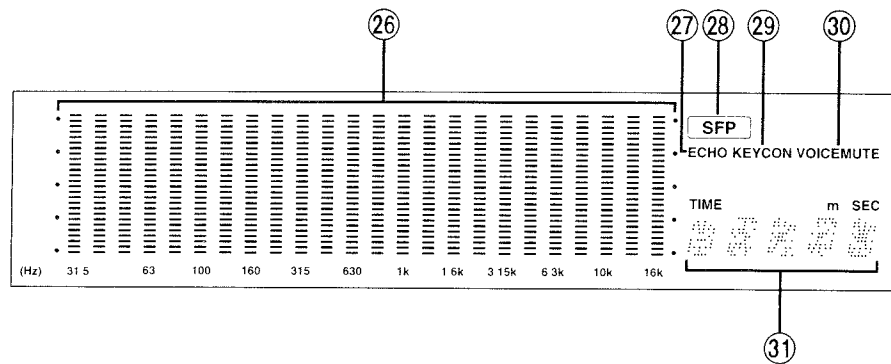
⑨ Fixed mode select button (FIXED MODE)

This button is used to select the fixed mode of equalization curve or simulated listening environments.

⑩ Equalizer frequency indicator (EQ FREQ)

⑪ Effect/key control indicator (EFFECT/KEY)

- ⑫ **Echo indicator (ECHO)**
- ⑬ **Sound effect level control (JOG)**
This control is used for adjusting the level of simulated listening environments effect, equalization level and specific frequency shift.
- ⑭ **Jog mode button (JOG MODE)**
This button is used to control the equalizer frequency, the reverberation sound (effect), the key in the "KARAOKE" mode and the reverberation sound (echo) in the "KARAOKE" mode.
- ⑮ **Microphone jacks (MIC1, MIC2)**
- ⑯ **Display mode select button (DISPLAY, -SPECTRUM -MODE)**
This button is used to select one of three spectrum curves. If you press and hold this button, the display mode will change.
- ⑰ **SFP OFF/ON button (SFP , OFF/ON)**
This button is used to activate Sound Field Processor.
- ⑱ **Demonstration button (DEMO)**
This button is used to change sound effects sequentially.
- ⑲ **Equalizer ON/FLAT button (EQ , ON/FLAT)**
This button is used to switch the equalizer on or flat.
- ⑳ **Equalizer frequency select buttons (v BAND ^)**
These buttons are used to select the equalization frequency.
- ㉑ **Equalizer level-control buttons (- LEVEL +)**
These buttons are used to adjust of equalization level.
- ㉒ **Slope (Q) select button [SLOPE (Q)]**
- ㉓ **Source indicator**
Press the input selector to select "SOURCE", and the source indicator will illuminate to RED.
- ㉔ **Input selector button (INPUT, SOURCE TAPE)**
SOURCE: Set to this position to listen to the radio or a compact disc, etc.
TAPE: Set to this position to listen to a tape deck connected to the back of this unit.
- ㉕ **Tape indicator**
Press the input selector to select "TAPE", and the tape indicator will illuminate to YELLOW.



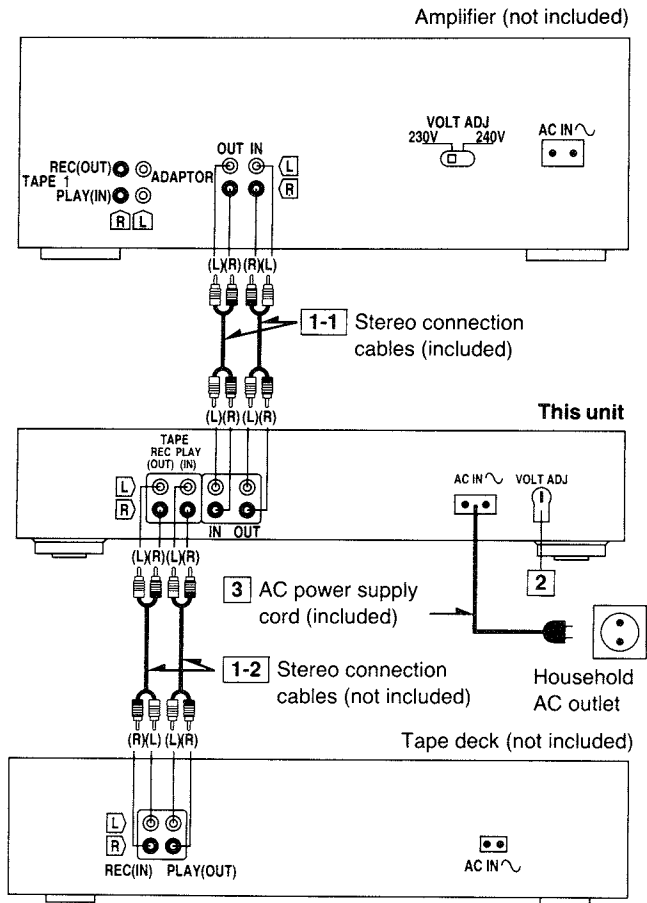
Display section

- ⑳ **Multi level display**
This display shows the equalization/spectrum analysis level.
- ㉗ **Echo indicator (ECHO)**
- ㉘ **SFP indicator (SFP)**
This indicator illuminate to activate simulated listening environments.
- ㉙ **Key control indicator (KEY CON)**
- ㉚ **Voice mute indicator (VOICE MUTE)**
This indicator illuminates to activate "KARAOKE" function.
- ㉛ **Sound effect display**
This display shows the mode of equalization curve or simulated listening environments , or delay time, etc.

■ CONNECTIONS

Make connections in the numbered sequence by using the included cables.

The illustration below shows an example of connections made when this unit is combined with a Technics electronic component system, and shows only the connections to be made to and from this unit in that combination.



1 Connect the stereo connection cables.

Stereo connection cable



1-1 Connect the stereo connection cables (included).

When you have an amplifier which has the terminals for external units (ADAPTOR/GRAPHIC EQ/EXT), connect this unit to those terminals.

When you have an amplifier which has no terminals for external units, connect this unit to the TAPE MONITOR terminal.

1-2 Connect the stereo connection cables (not included).

2 Setting the voltage selector (VOLT ADJ)

(For areas except continental Europe, United Kingdom and Australia)

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

[Use a minus (-) screwdriver]

•Note that this unit will be seriously damaged if this setting is not made correctly. (There is no voltage selector for some countries; the correct voltage is already set.)

•If the power supply in your area is 117 V or 120 V, set to the "127 V" position.

3 Connect the AC power supply cord.

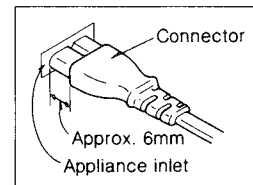
Connect the AC power supply cord (included) after all other cables and cords are connected.

For Continental Europe and United Kingdom

Insertion of Connector

Even when the connector is perfectly inserted, depending on the type of inlet used, the front part of the connector may jut out as shown in the drawing.

However there is no problem using the unit.

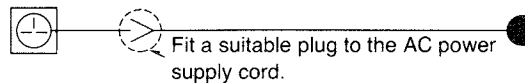


Note:

The configuration of AC power supply cord differs according to area.

For United Kingdom

Household AC outlet



For areas except continental Europe, United Kingdom and Australia

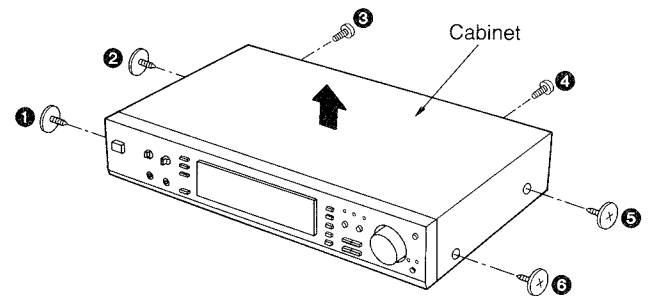
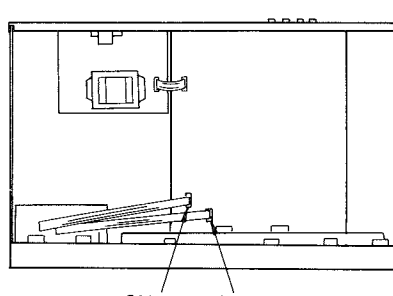
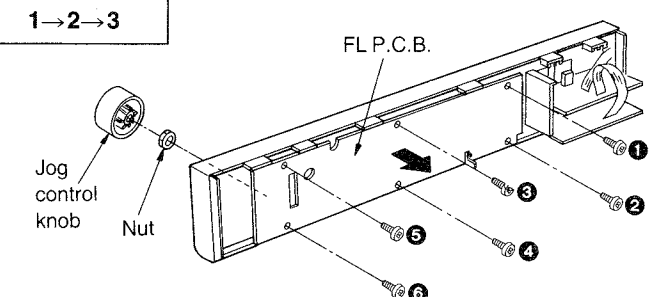
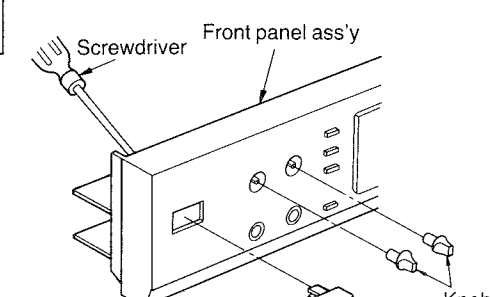
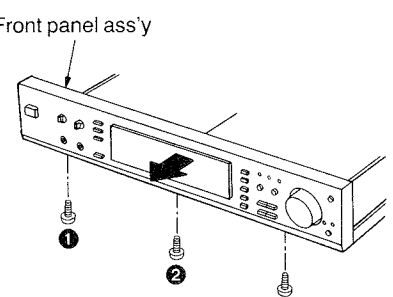
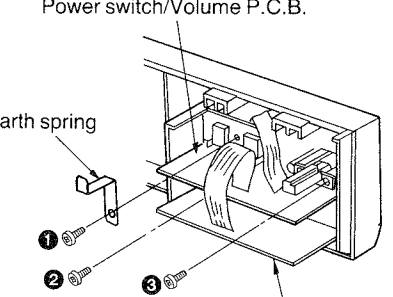
If the power plug will not fit your Household AC outlet, use the power plug adaptor (included).

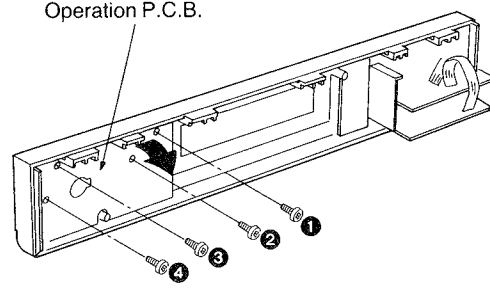
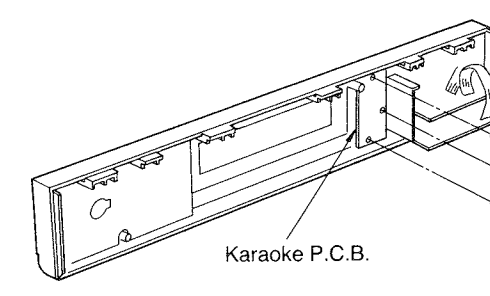
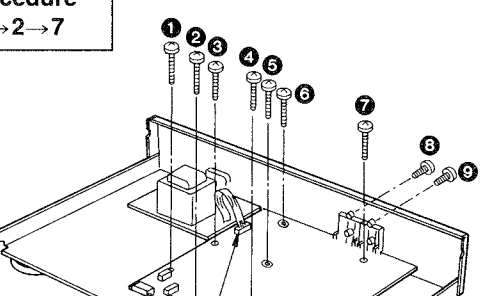
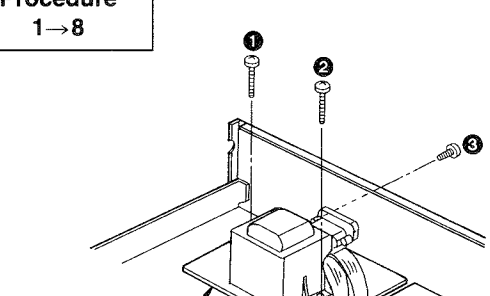
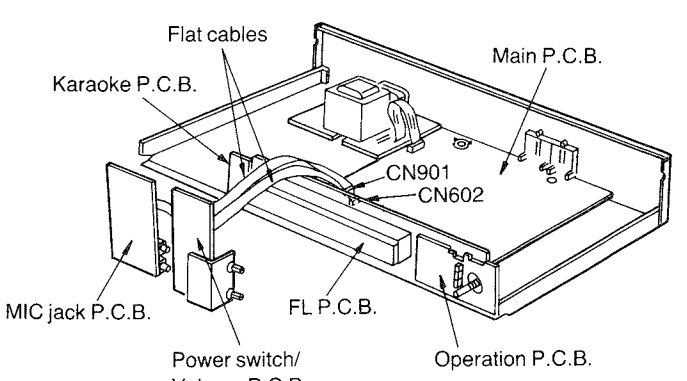


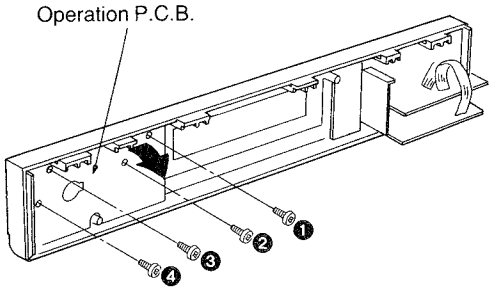
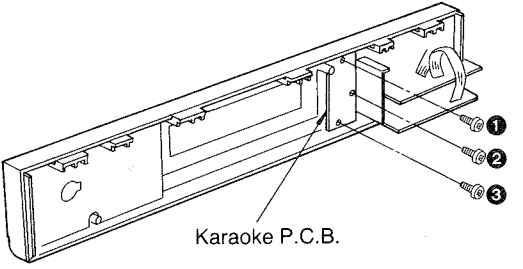
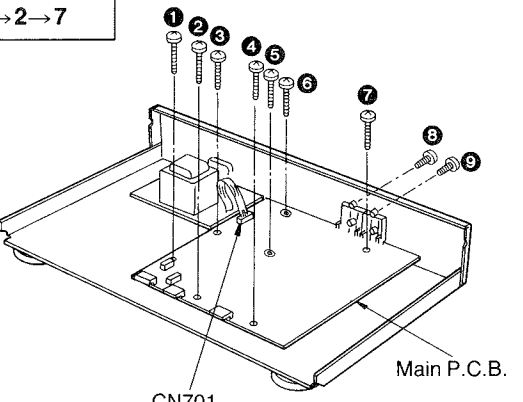
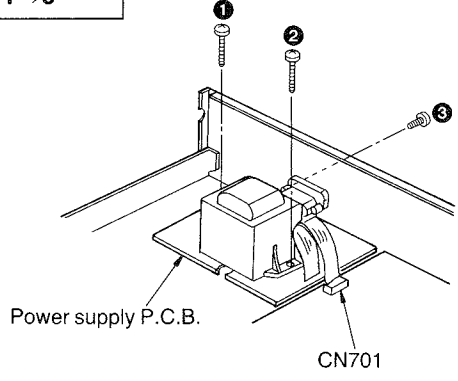
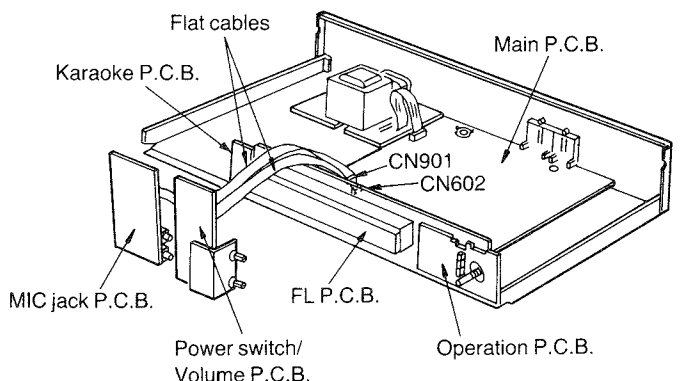
DISASSEMBLY INSTRUCTIONS

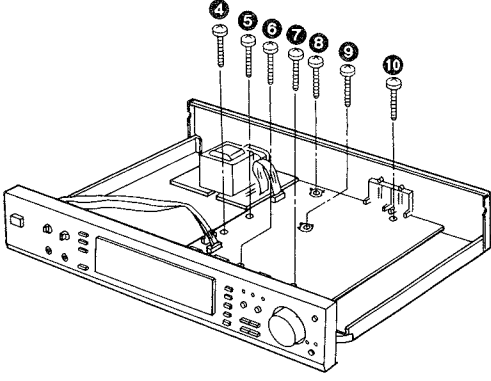
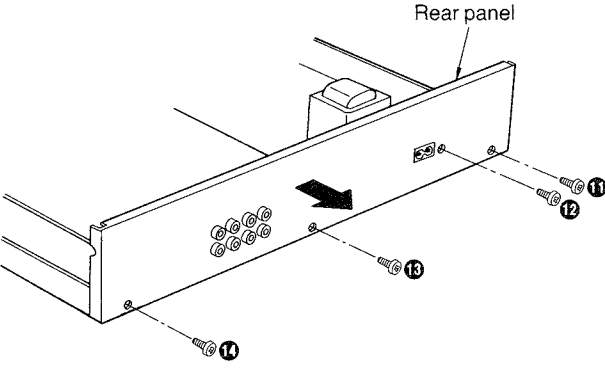
“ATTENTION SERVICER”

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

Ref. No. 1	Removal of the Cabinet	Ref. No. 2	Removal of the Front Panel Ass'y
Procedure 1	 <p>●Remove the 6 screws (1~6).</p>	Procedure 1→2	 <p>1. Remove the 2 flat cables (CN602, CN901).</p>
Ref. No. 3	Removal of the FL P.C.B.	Ref. No. 4	Power switch/Volume P.C.B. and MIC Jack P.C.B.
Procedure 1→2→3	 <p>1. Pull out the jog control knob. 2. Remove the nut. 3. Remove the 6 screws (1~6). 4. Remove the FL P.C.B. in the direction of arrow.</p>	Procedure 1→2→4	 <p>1. Remove the power switch button by pushing it from behind the front panel ass'y. 2. Pull out the 2 knobs.</p>
		Procedure 1→2	 <p>2. Remove the 3 screws (1~3). 3. Remove the front panel ass'y in the direction of arrow.</p>
		Procedure 1→2→4	 <p>3. Remove the 3 screws (1~3). 4. Remove the earth spring.</p>

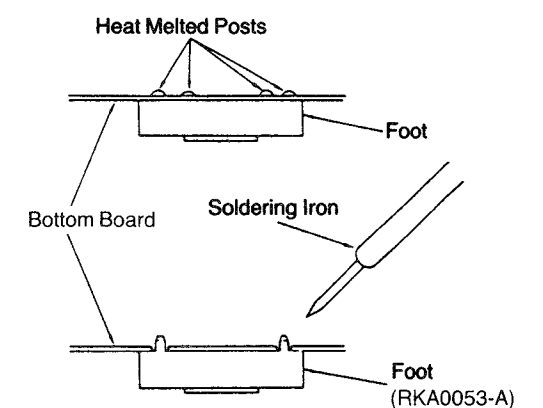
Ref. No. 5	Removal of the Operation P.C.B.	Ref. No. 6	Removal of the karaoke P.C.B.
Procedure 1→2→3→5	 <p>1. Remove the 4 screws (1~4). 2. Remove the operation P.C.B. in the direction of arrow.</p>	Procedure 1→2→3→6	 <p>●Remove the 3 screws (1~3).</p>
Ref. No. 7	Removal of the Main P.C.B.	Ref. No. 8	Removal of the Power Supply P.C.B.
Procedure 1→2→7	 <p>1. Remove the 9 screws (1~9). 2. Remove the 1 flat cable (CN701).</p>	Procedure 1→8	 <p>1. Remove the 1 flat cable (CN701). 2. Remove the 3 screws (1~3).</p>
Ref. No. 9	How to check the Power Switch/Volume P.C.B. MIC Jack P.C.B. and Operation P.C.B.		
Procedure 1→2→4→ 5→6→9	<p>1. Reinstall the FL P.C.B. to the main P.C.B. 2. Install the operation P.C.B. and karaoke P.C.B. to the FL P.C.B. 3. Connect the flat cables of the power switch/volume P.C.B. to the connectors (CN602 and CN901) on the main P.C.B. 4. Place the MIC Jack P.C.B., power switch/volume P.C.B. and operation P.C.B. as shown right to check their foil patterns.</p>		
			

Ref. No. 5	Removal of the Operation P.C.B.	Ref. No. 6	Removal of the karaoke P.C.B.
Procedure 1→2→3→5	 <p>1. Remove the 4 screws (1~4).</p> <p>2. Remove the operation P.C.B. in the direction of arrow.</p>	Procedure 1→2→3→6	 <p>•Remove the 3 screws (1~3).</p>
Ref. No. 7	Removal of the Main P.C.B.	Ref. No. 8	Removal of the Power Supply P.C.B.
Procedure 1→2→7	 <p>1. Remove the 9 screws (1~9).</p> <p>2. Remove the 1 flat cable (CN701).</p>	Procedure 1→8	 <p>1. Remove the 1 flat cable (CN701).</p> <p>2. Remove the 3 screws (1~3).</p>
Ref. No. 9	How to check the Power Switch/Volume P.C.B. MIC Jack P.C.B. and Operation P.C.B.		
Procedure 1→2→4→ 5→6→9	 <p>1. Reinstall the FL P.C.B. to the main P.C.B.</p> <p>2. Install the operation P.C.B. and karaoke P.C.B. to the FL P.C.B.</p> <p>3. Connect the flat cables of the power switch/volume P.C.B. to the connectors (CN602 and CN901) on the main P.C.B.</p> <p>4. Place the MIC Jack P.C.B., power switch/volume P.C.B. and operation P.C.B. as shown right to check their foil patterns.</p>		

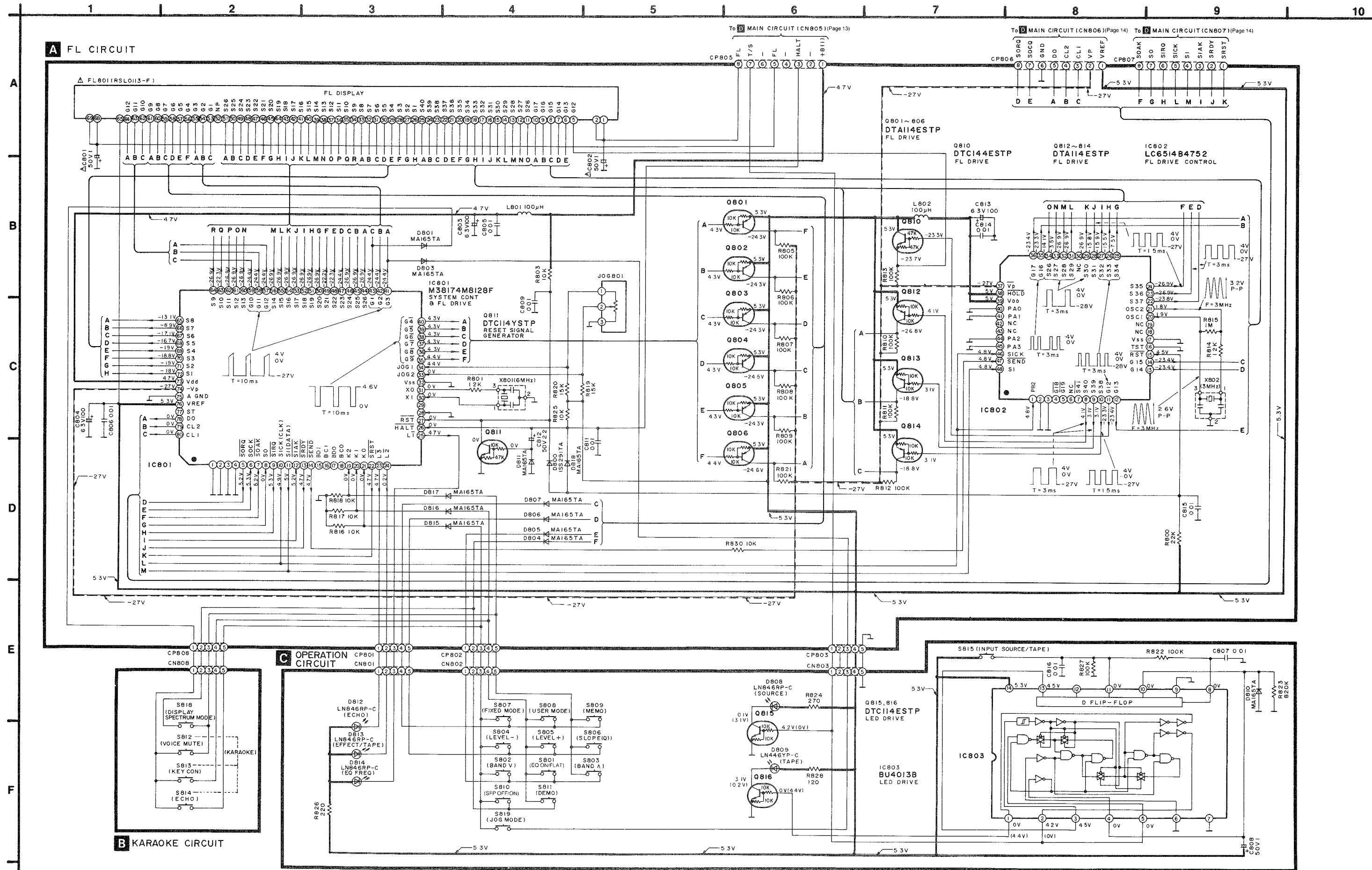
Ref. No. 10	How to check the Main P.C.B.	 <p>3. Remove the 7 screws (4~10).</p>
Procedure 1→10	<p>•When checking the soldered surfaces of main P.C.B. and replacing the parts, do as show.</p>	 <p>1. Remove the 3 screws (1~3).</p> <p>2. Remove the front panel ass'y in the direction of arrow.</p> <p>4. Remove the 4 screws (11~14).</p> <p>5. Remove the rear panel in the direction of arrow.</p> <p>6. As shown left, turn the main P.C.B. over to face the foil pattern toward you.</p> <p>7. Spread insulating material under the main P.C.B. to prevent short circuit.</p> <p>8. Connect the G.N.D terminal to the bottom board ass'y by the lead wire.</p> <p>9. Reinstall the front panel ass'y to the main P.C.B.</p>

•Replacement of the Foot

1. Remove the 4 heat melted posts on the Bottom Board with a pair of nippers or similar tool.
2. To replace the foot (RKA0053-A) on the Bottom Board, melt the 4 posts with soldering iron.



SCHEMATIC DIAGRAM (Parts list on pages 25-28)

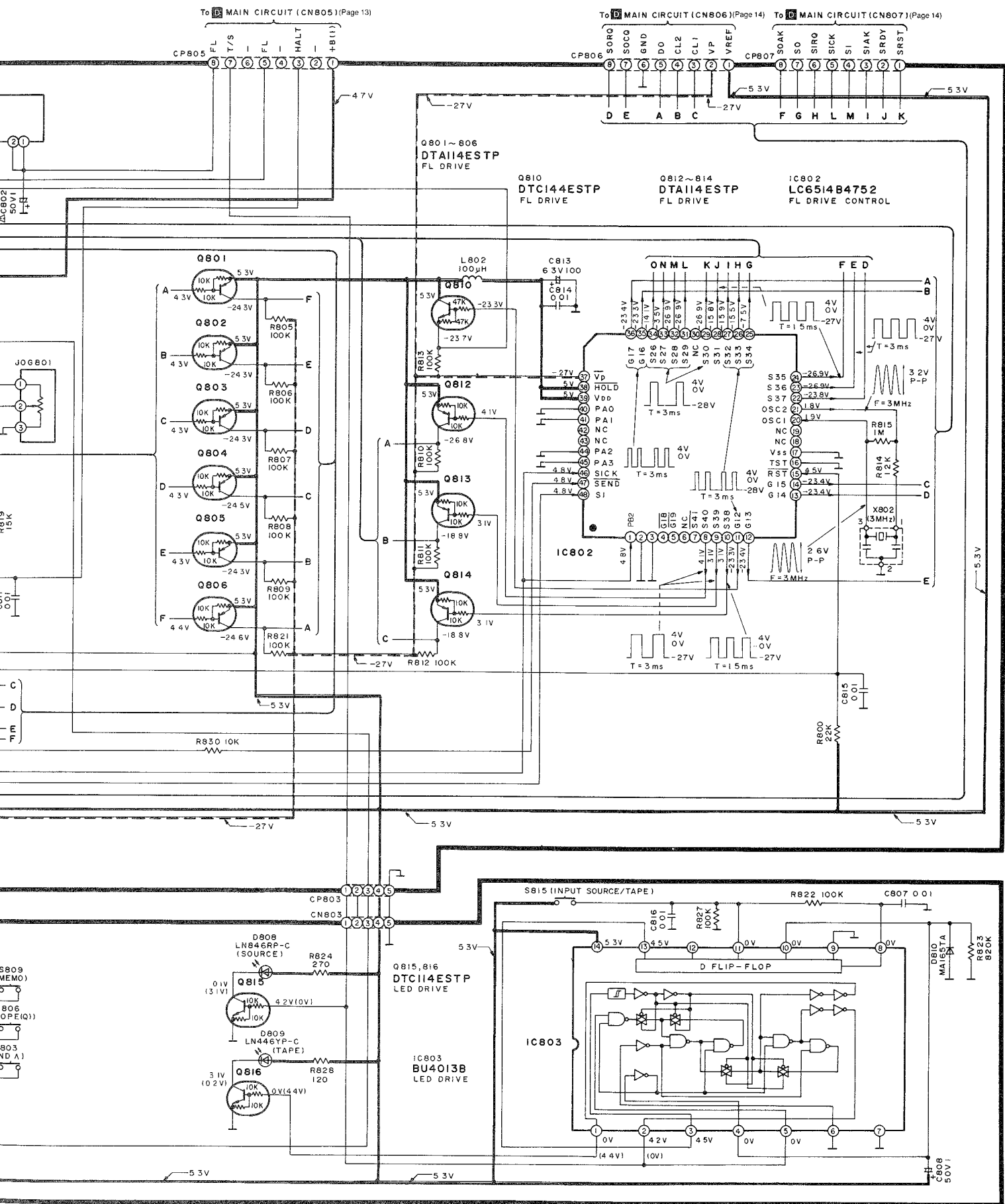


Notes:

- S701 : V
- S801 : E
- S802 : E
- S803 : E
- S804 : E
- S805 : E
- S806 : S
- S807 : U
- S808 : U
- S809 : M
- S810 : S
- S811 : D
- S812 : V
- S813 : K
- S814 : E
- S815 : I
- S818 : D
- S819 : J
- S901-1~
- S901-3 : P

- Indicated voltage chassis taken as circuit tester.
- No mark...INPU
- Important safety Components ide
- Furthermore, sp
- are used. When
- This schematic

- Caution!
- IC and LSI are se
- Secondary troub
- *Cover the part
- *Ground the sold
- *Put a conductive
- *Do not touch the



Notes:

- S701 : Voltage select switch (VOL ADJ) in "240 V" position. for (GC) area.
- S801 : Equalizer ON/FLAT switch. (EQ, ON/FLAT)
- S802 : Equalizer-frequency select switch. (BAND V)
- S803 : Equalizer-frequency select switch. (BAND ^)
- S804 : Equalizer level-control switch. (LEVEL-)
- S805 : Equalizer level-control switch. (LEVEL+)
- S806 : Slope (Q) select switch. [SLOPE (Q)]
- S807 : Fixed mode select switch. (FIXED MODE)
- S808 : User mode select switch. (USER MODE)
- S809 : Memory switch. (MEMO)
- S810 : SFP OFF/ON switch. (SFP, OFF/ON)
- S811 : Demonstration switch. (DEMO)
- S812 : Voice mute switch. (VOICE MUTE)
- S813 : Key control switch. (KEY CON)
- S814 : Echo switch. (ECHO)
- S815 : Input select switch. (INPUT, SOURCE TAPE)
- S818 : Display mode select switch. (DISPLAY, -SPECTRUM MODE)
- S819 : Jog mode switch. (JOG MODE)
- S901-1 ~ S901-3 : Power "STANDBY ON" switch (POWER ■ STANDBY ○ ■ ON) in "ON" position.

●Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.

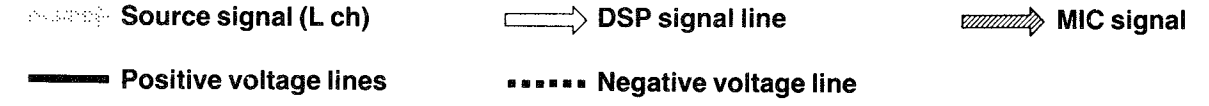
No mark...INPUT: SOURCE ()...INPUT: TAPE

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

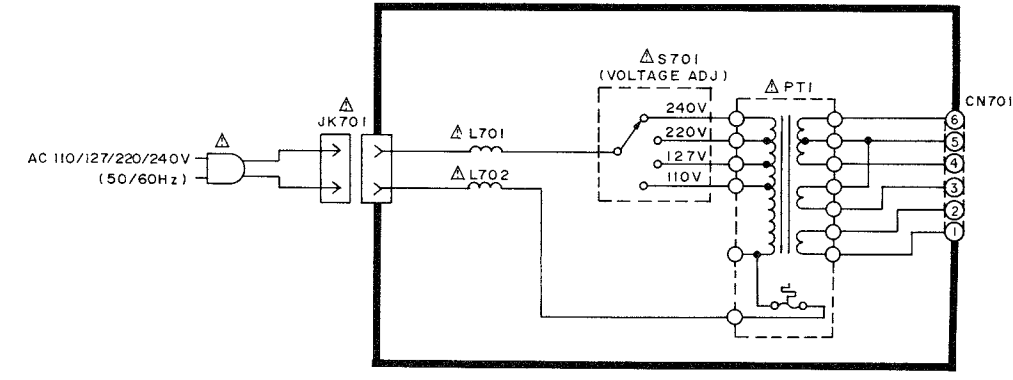
●This schematic diagram may be modified at any time with the development of new technology.

***Caution!**

- IC and LSI are sensitive to static electricity.
- Secondary trouble can be prevented by taking care during repair.
- *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.



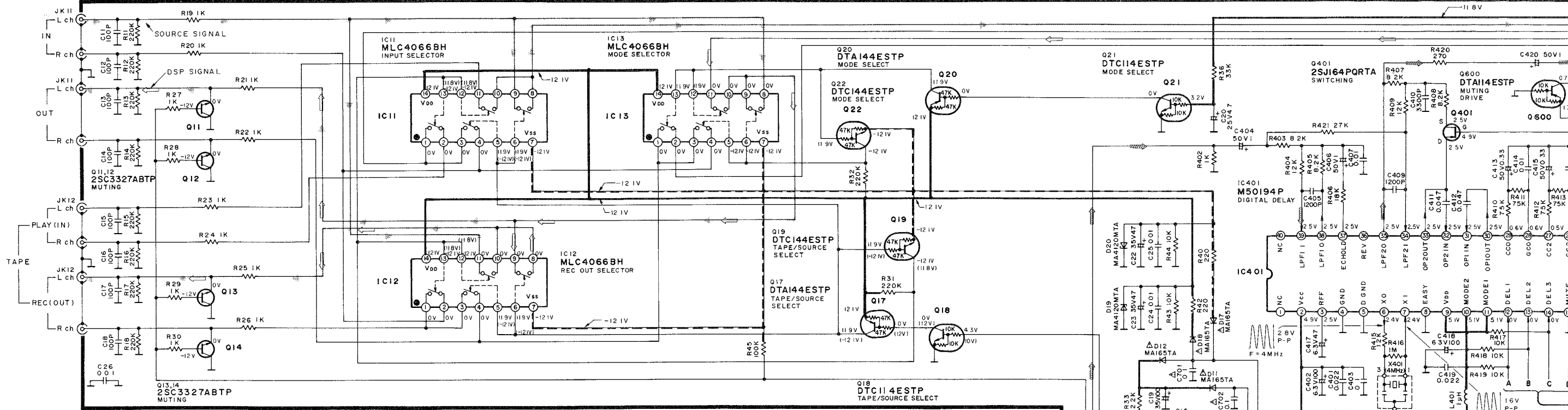
F POWER SUPPLY CIRCUIT For [GC] area.



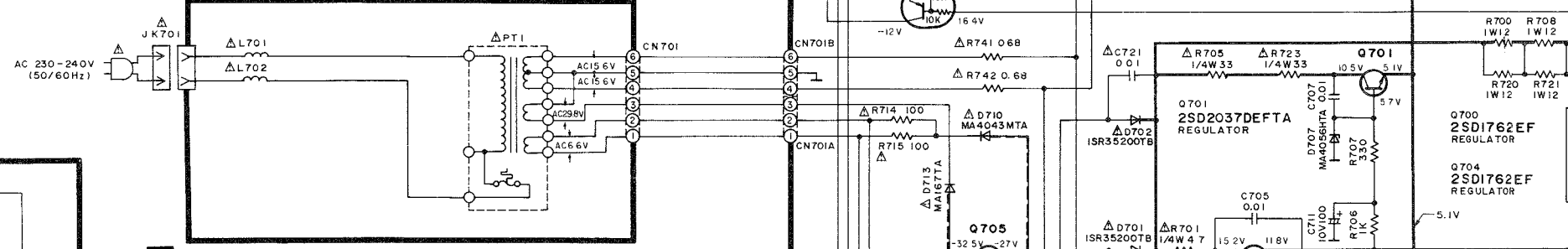
SCHEMATIC DIAGRAM (Parts list on pages 25-28)

1 2 3 4 5 6 7 8 9 10

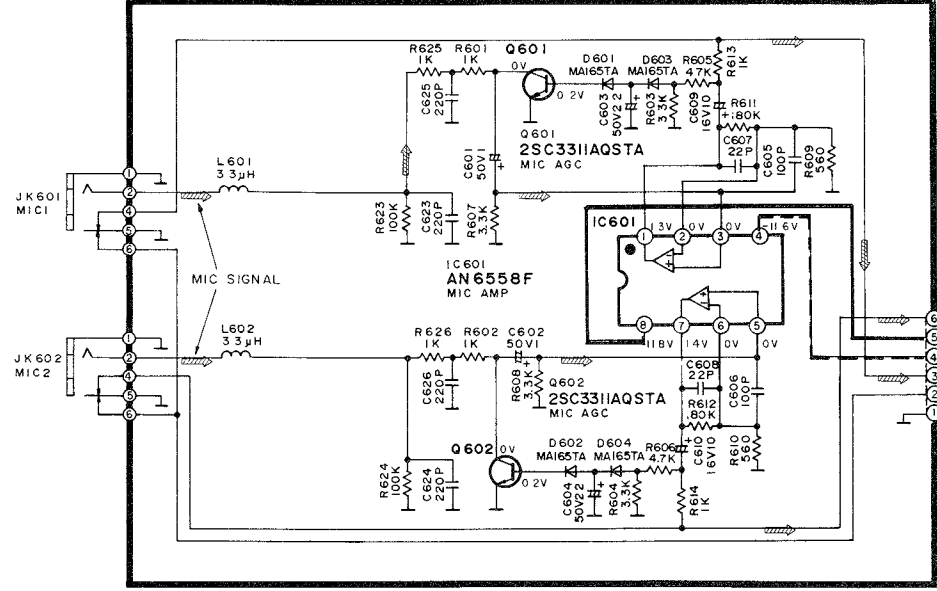
D MAIN CIRCUIT



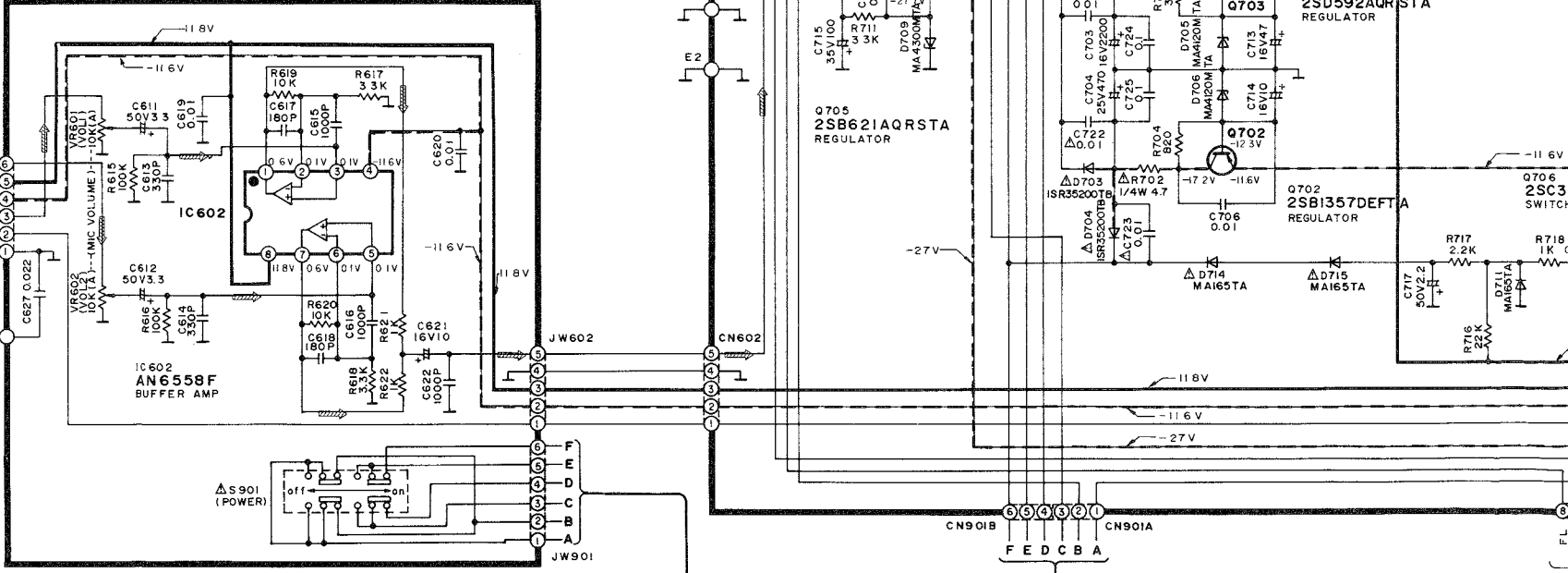
F POWER SUPPLY CIRCUIT For [E,EB,EG,GN] areas.

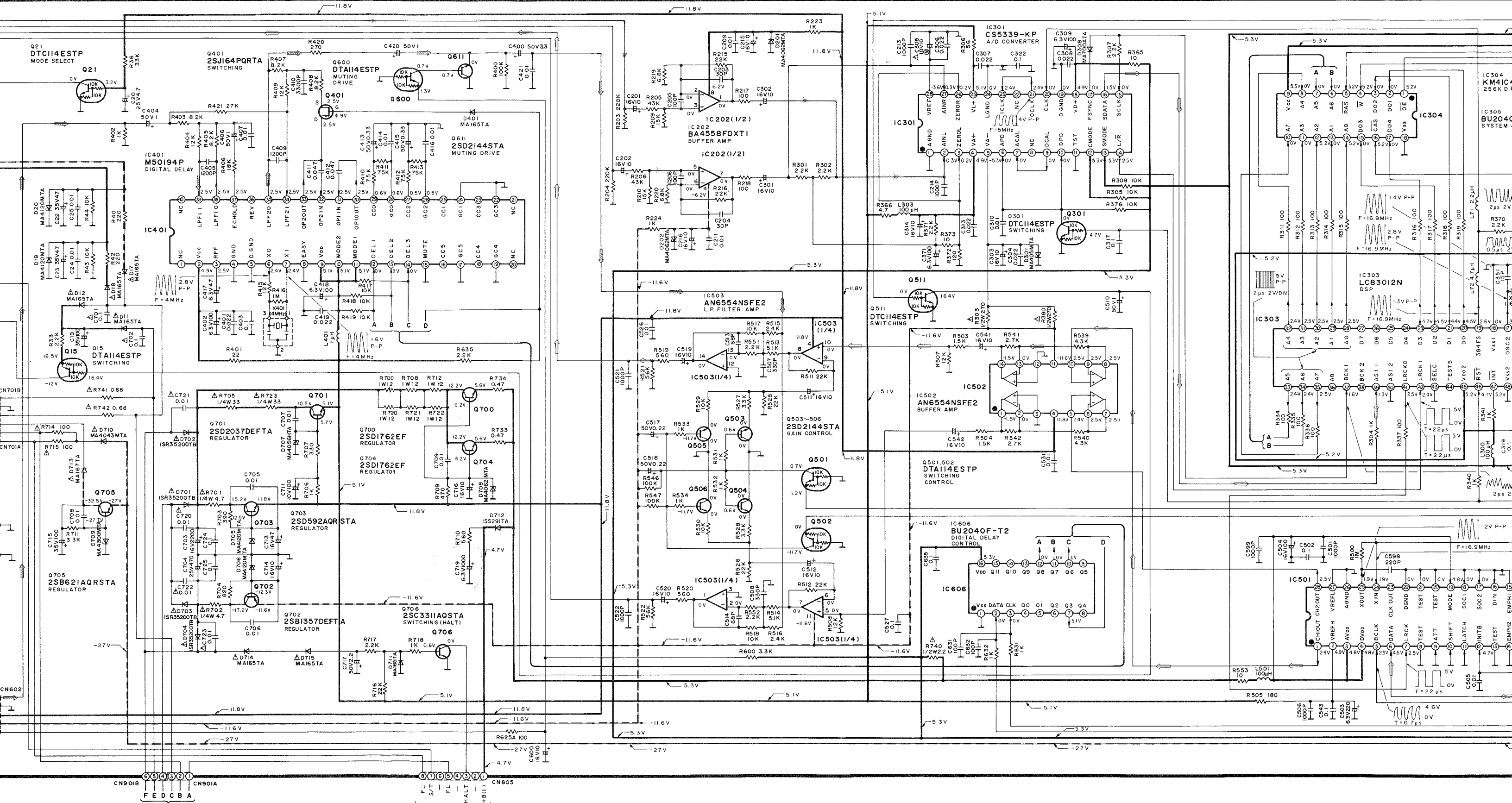


E MIC JACK CIRCUIT

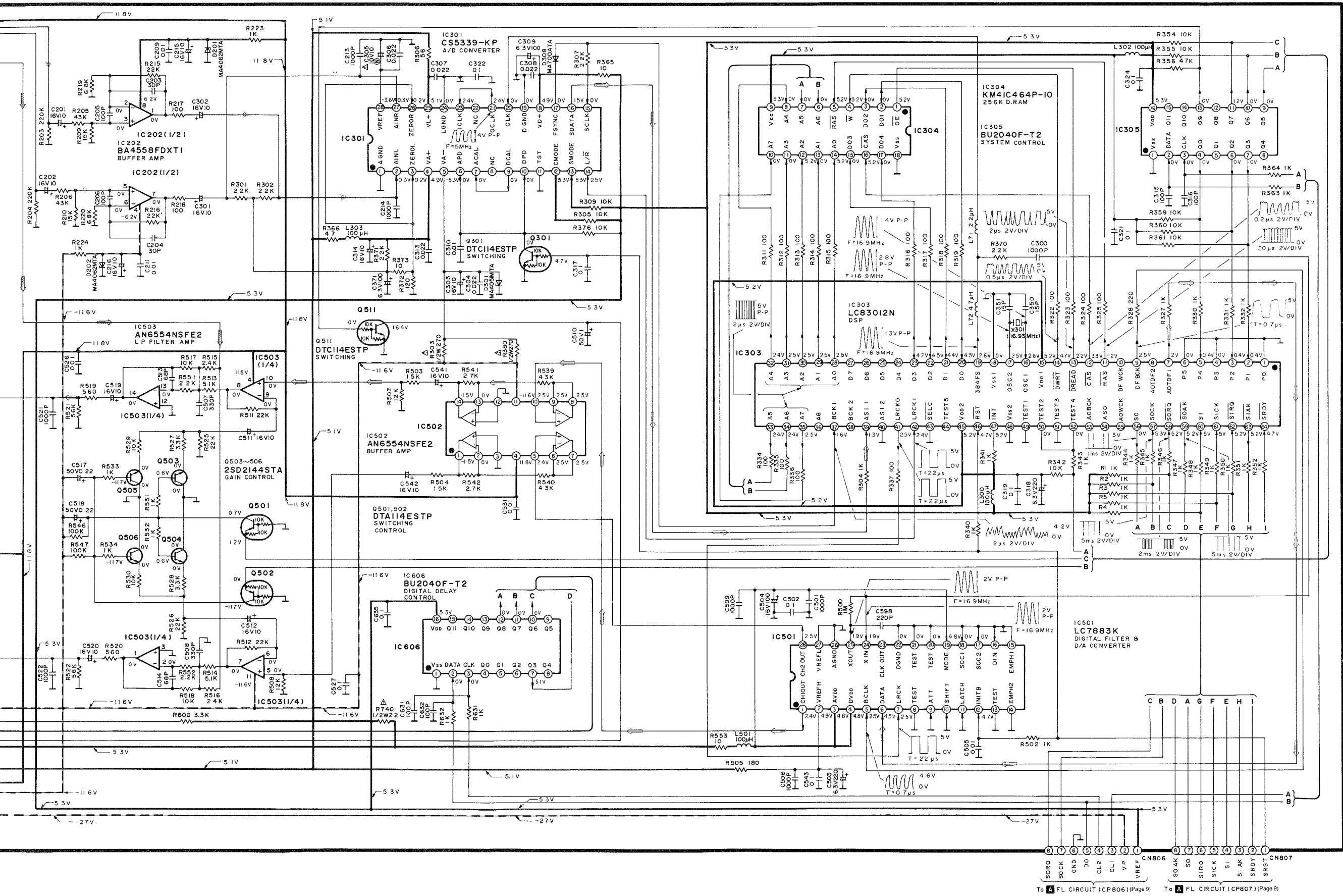


G POWER SWITCH/VOLUME CIRCUIT





Ta FL CIRCUIT (CPB05) (Page 9)

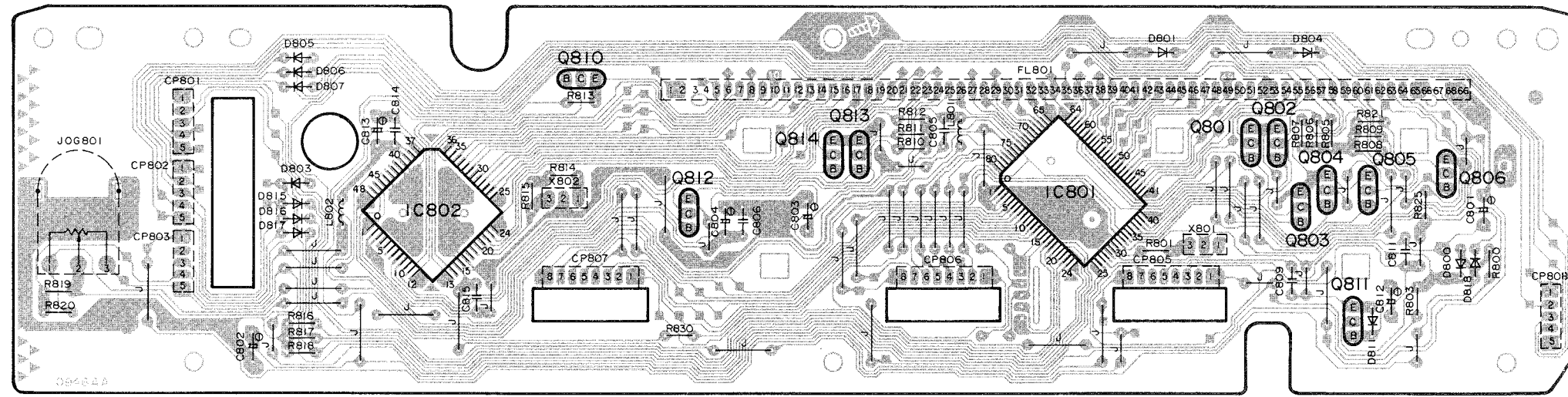


To A FL CIRCUIT (CP806) (Page 9) To A FL CIRCUIT (CP807) (Page 9)

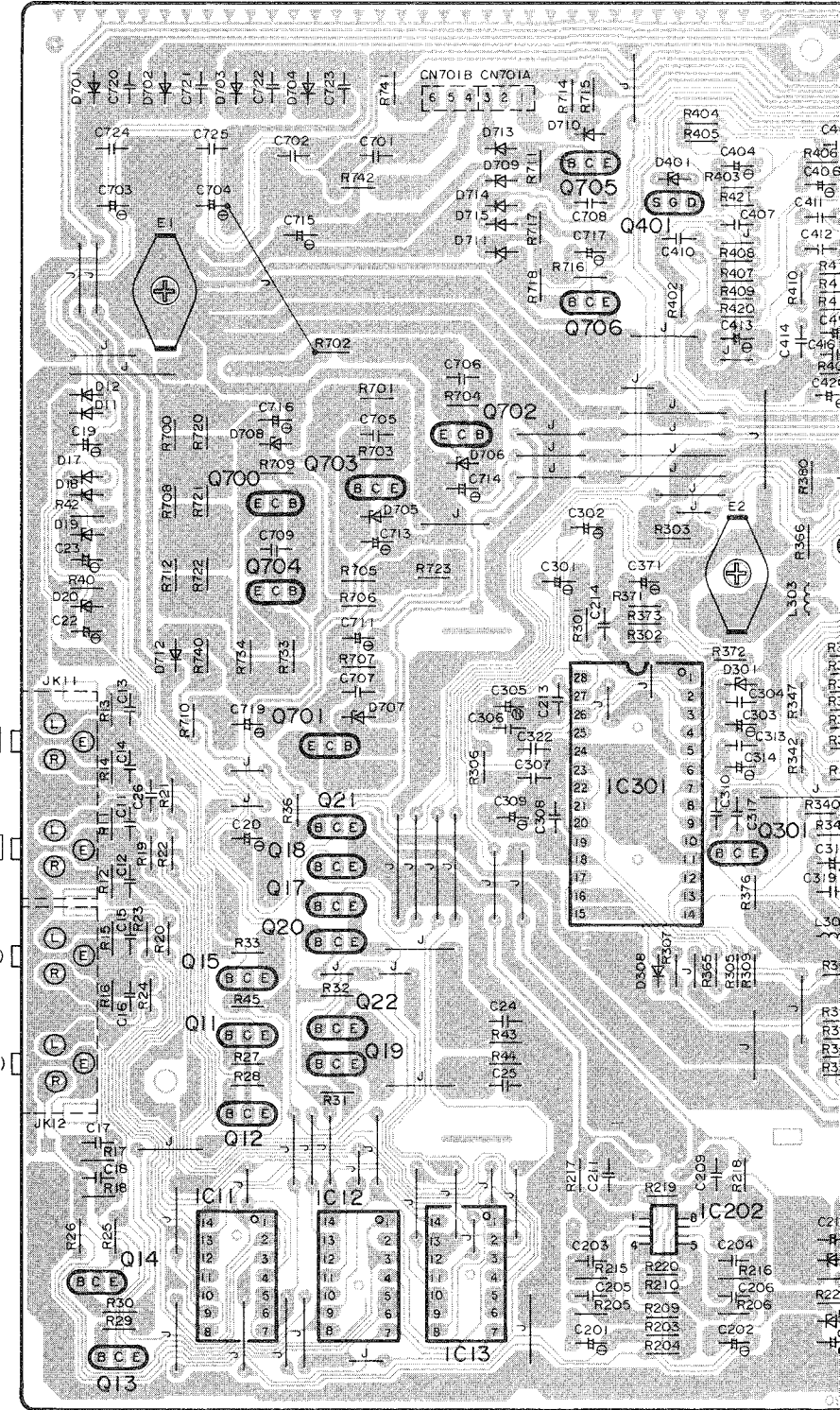
PRINTED CIRCUIT BOARD DIAGRAM

1 2 3 4 5 6 7 8 9 10

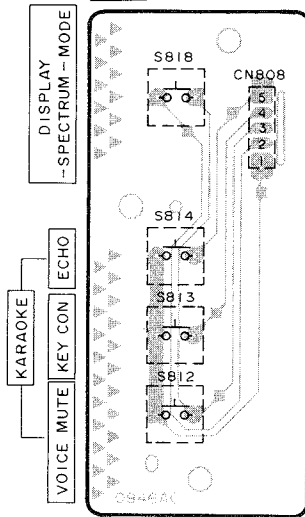
A FL P.C.B. (REP1460A-S)



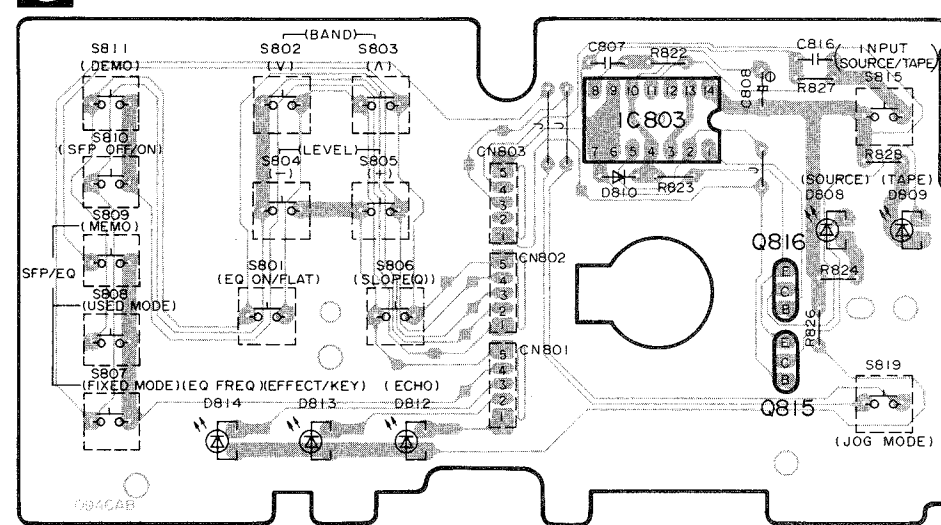
D MAIN P.C.B. (REP1461A-M)



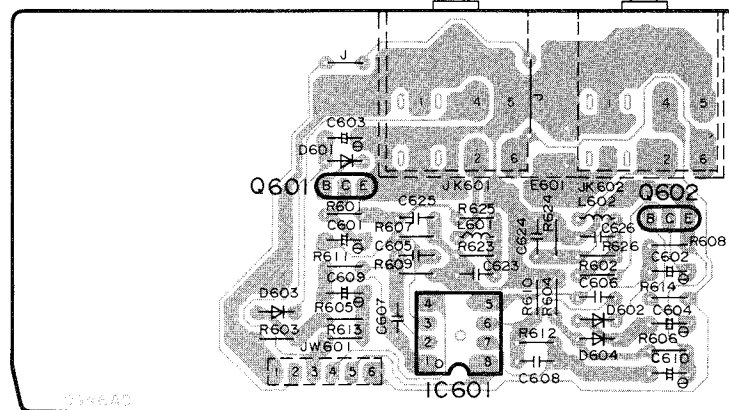
B KARAOKE P.C.B. (REP1460A-S)



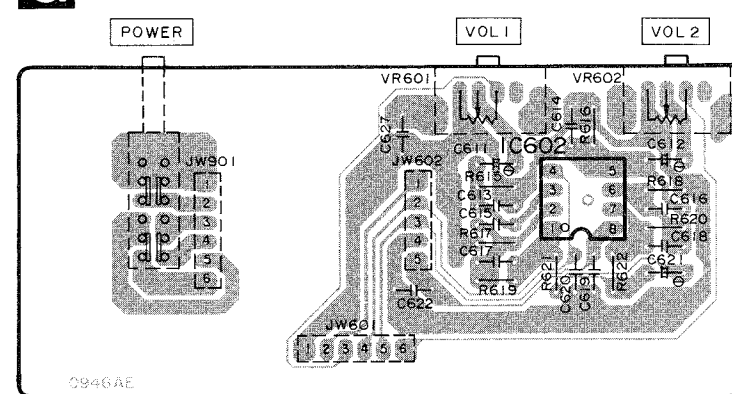
C OPERATION P.C.B. (REP1460A-S)



E MIC JACK P.C.B. (REP1460A-S)

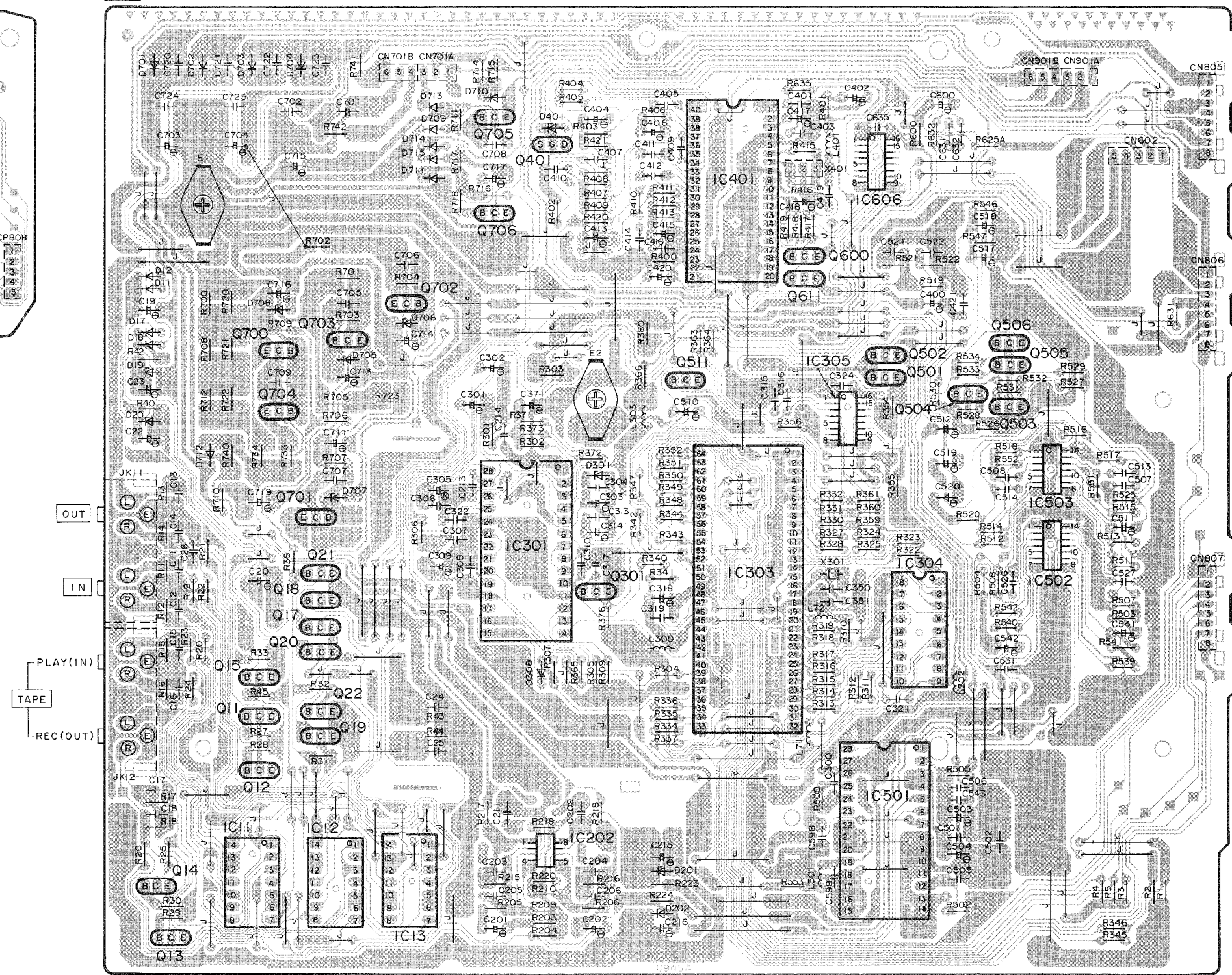


G POWER SWITCH/VOLUME P.C.B. (REP1460A-S)

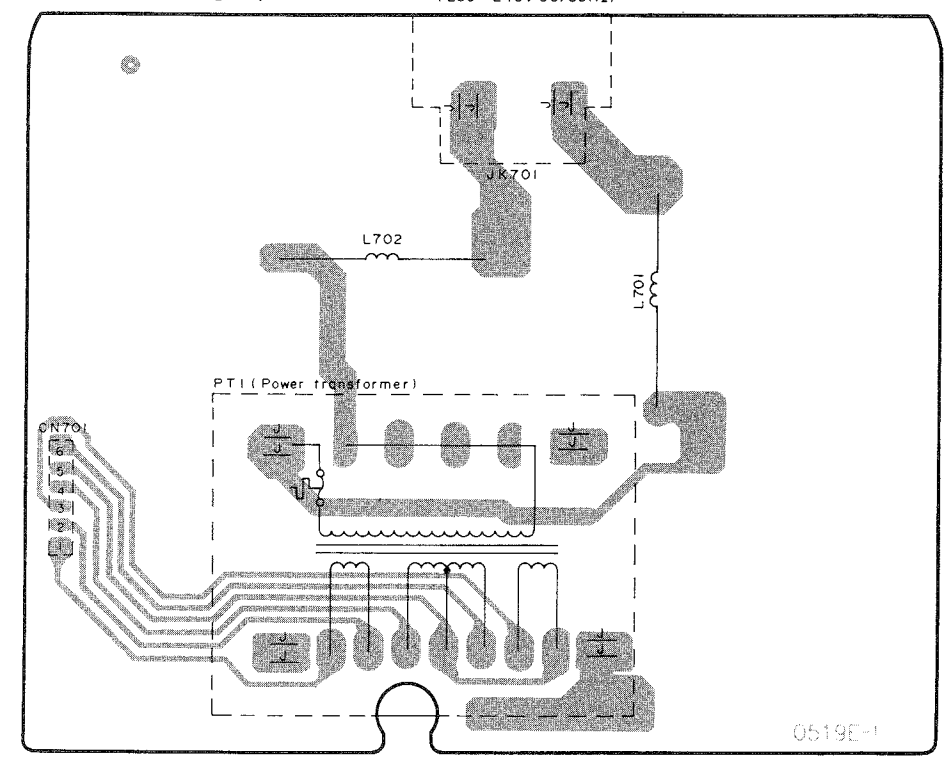


7 8 9 10 11 12 13 14 15 16 17

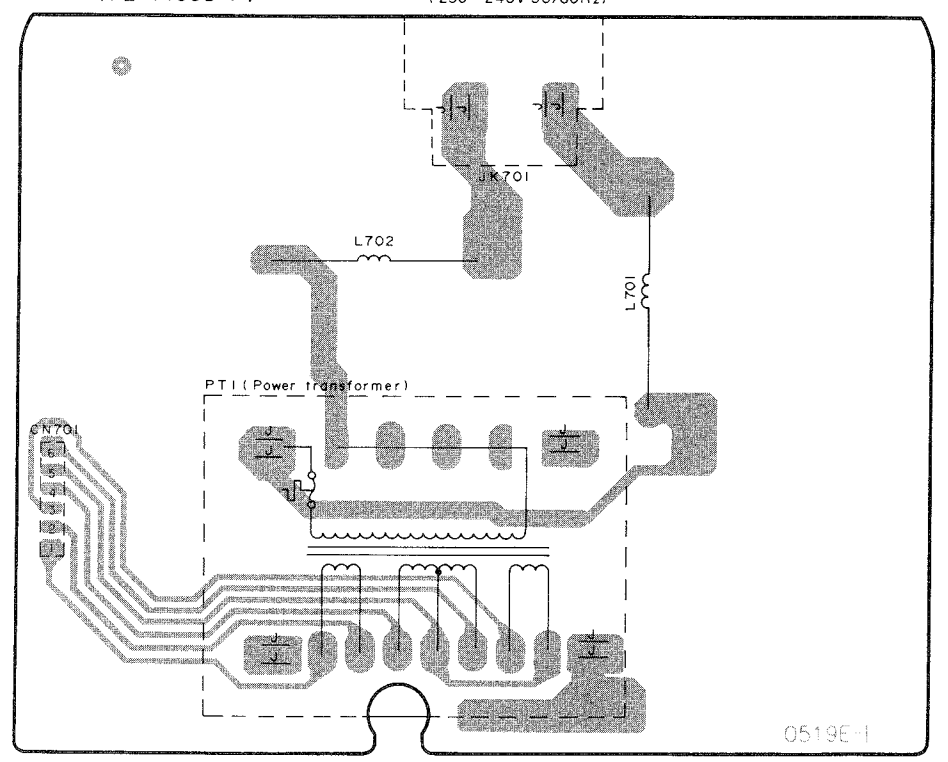
D MAIN P.C.B. (REPI461A-M)

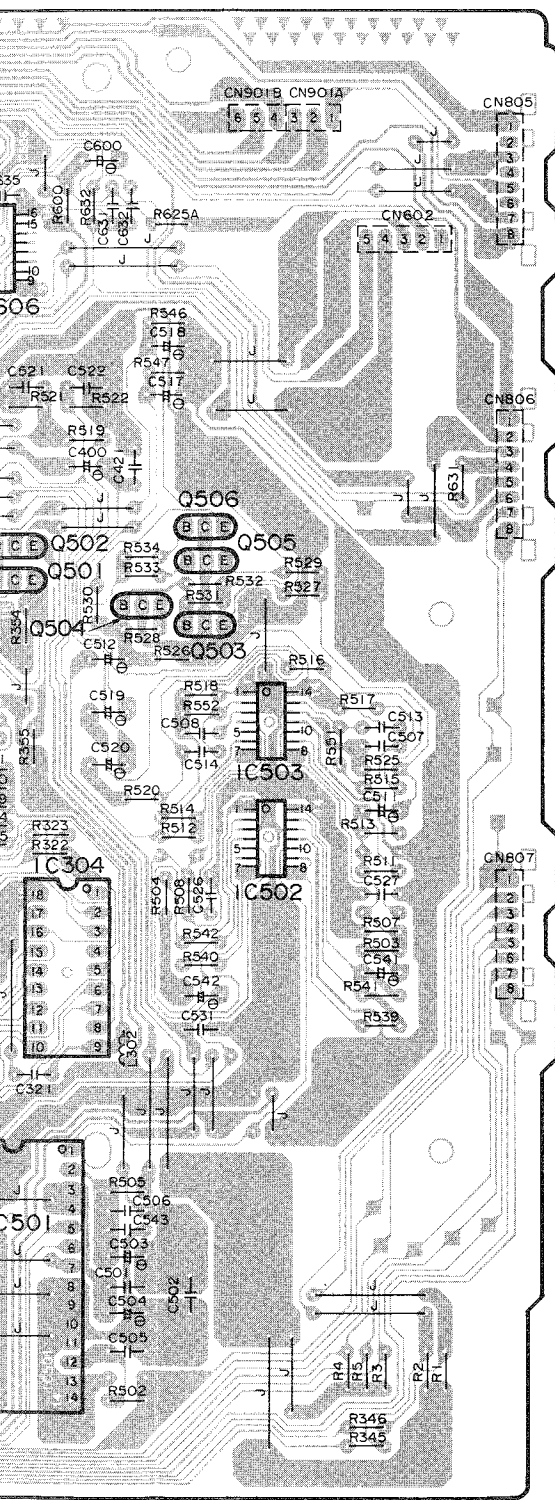


F POWER SUPPLY P.C.B. FOR (E, E B, E G) AREAS. (REPI463B-P)

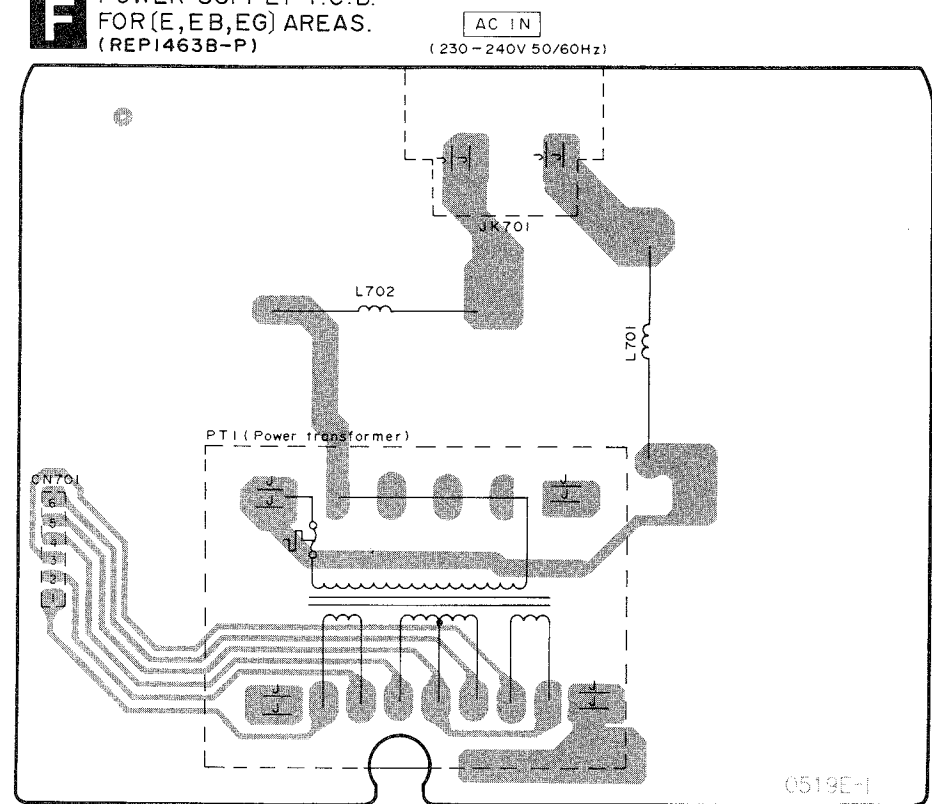


F POWER SUPPLY P.C.B. FOR (GN) AREA. (REPI463D-P)

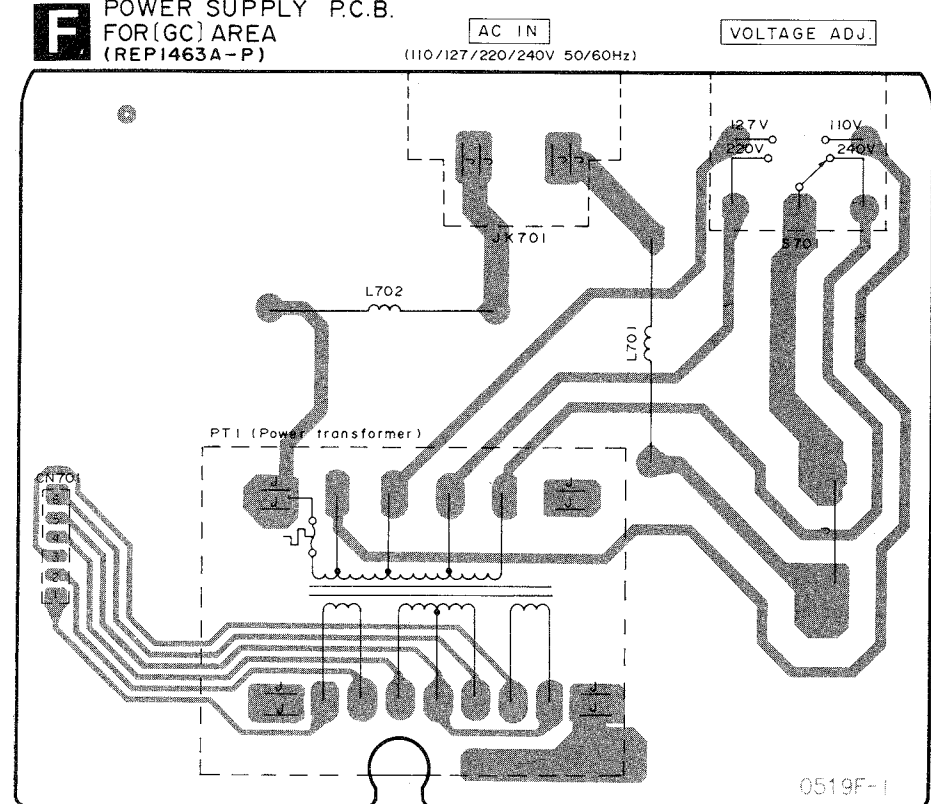




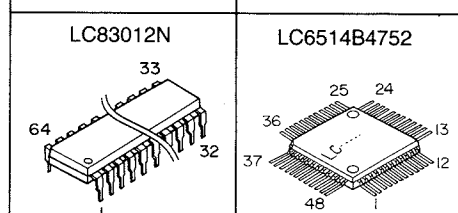
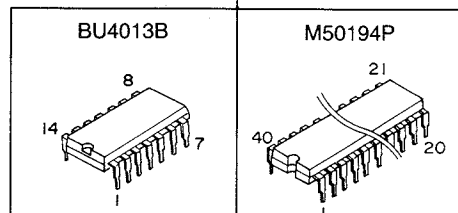
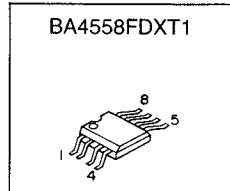
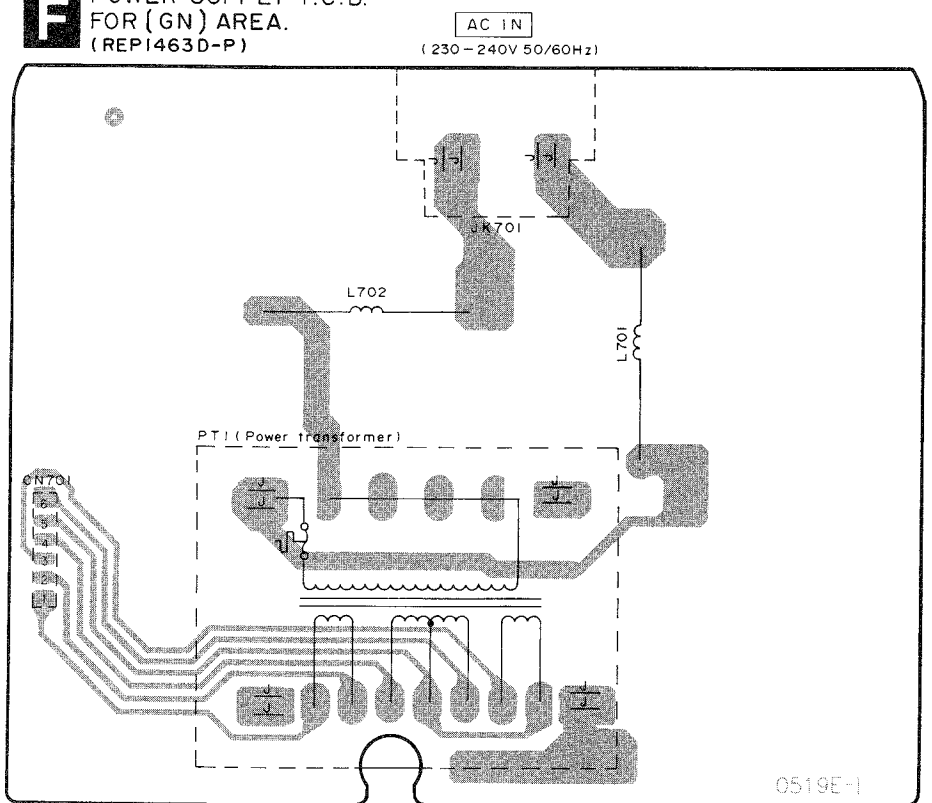
F POWER SUPPLY P.C.B.
FOR (E, E B, E G) AREAS.
(REP1463B-P)

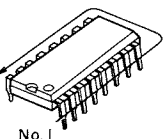


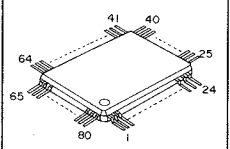
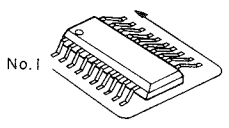
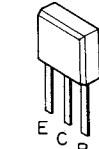
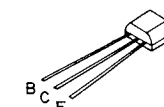
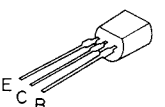
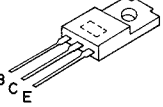
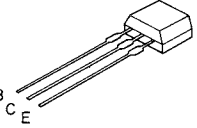
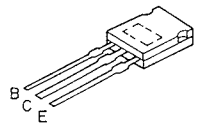

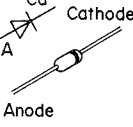
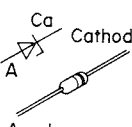
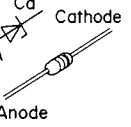
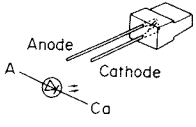
F POWER SUPPLY P.C.B.
FOR (G C) AREA
(REP1463A-P)



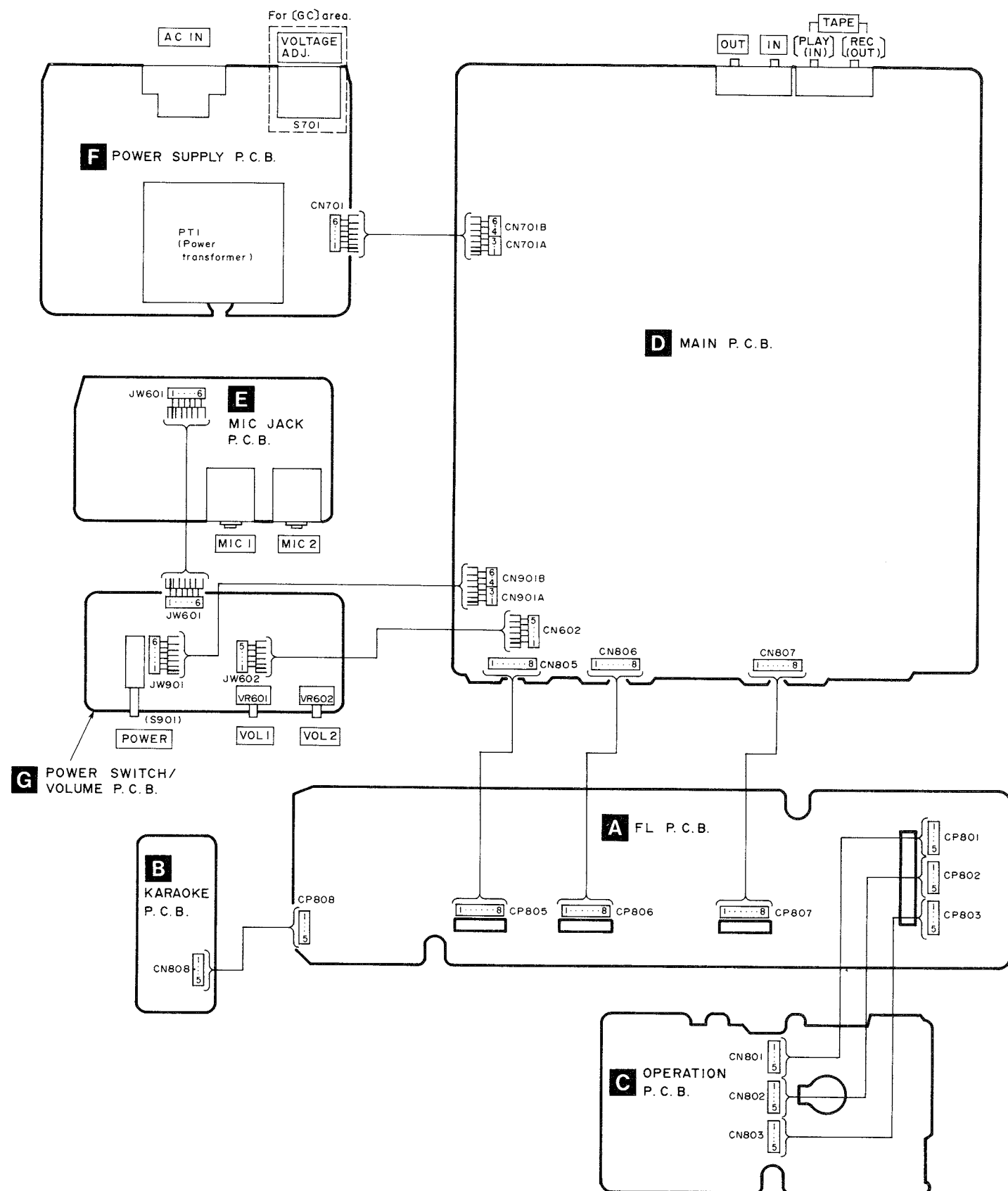
F POWER SUPPLY P.C.B.
FOR (G N) AREA.
(REP1463D-P)



	AN6558F	8 Pin
	MLC4066BH	14 Pin
	KM41C464P-10	18 Pin
	CS5339-KP	28 Pin
	LC7883K	28 Pin

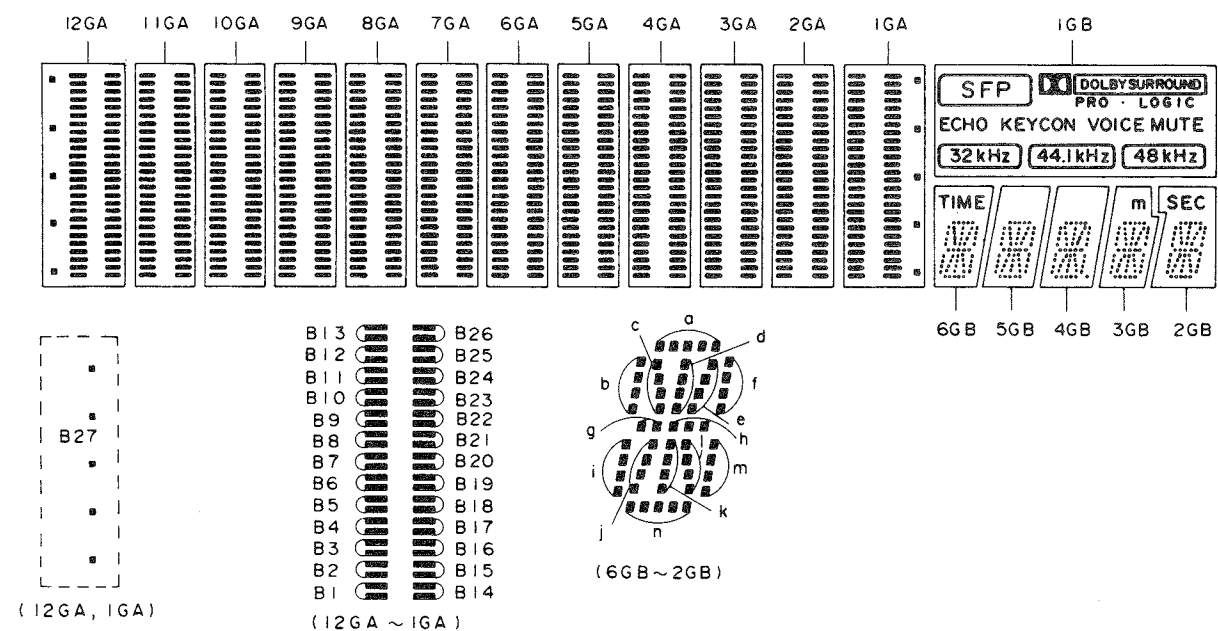
	M38174M8128F		AN6554NSFE2	14 Pin		2SC3311AQSTA		2SC3327ABTP	
			BU2040F-T2	16 Pin					
	2SB621AQRSTA 2SD592AQRSTA		2SD1762EF		DTA114ESTP DTA144ESTP DTC114ESTP DTC114YSTP DTC144ESTP 2SD2144STA		2SB1357DEFTA 2SD2037DEFTA		2SJ164PQRTA
	1SR35200TB 1SS291TA MA165TA MA167TA MA700ATA		MA4120MTA MA4300MTA		MA4043MTA MA4051MTA MA4056HTA MA4062MTA		LN446YP-C LN846RP-C		

■ WIRING CONNECTION DIAGRAM



■ DESCRIPTION OF FL PANEL [FL801 (RSL0113-F)]

●Grid assignment



●Pin connection

Pin No.	3	3	3	3	3	3	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	9	8	7	6	5	4	3	2	1	
Connection	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	8	5	4	3	2	1	N	N	F	F	F
	10	9	8	7	6	5	4	3	2	1	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	9	8	7	6	5
	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B

Pin No.	6	6	6	6	6	6	6	6	6	5	5	5	5	5	5	5	5	5	5	4	4	4	4	4	4	4	4	4	4	3	3	3	3
Connection	F	F	N	N	P	12	11	10	9	8	7	6	5	4	3	2	1	N	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	2	2	P	P	A	A	A	A	A	A	A	A	A	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A

●Anode connection

	12GA, 1GA	11GA~2GA
P1A	B1	B1
P2A	B2	B2
P3A	B3	B3
P4A	B4	B4
P5A	B5	B5
P6A	B6	B6
P7A	B7	B7
P8A	B8	B8
P9A	B9	B9
P10A	B10	B10
P11A	B11	B11
P12A	B12	B12
P13A	B13	B13
P14A	B14	B14
P15A	B15	B15

	12GA, 1GA	11GA~2GA
P16A	B16	B16
P17A	B17	B17
P18A	B18	B18
P19A	B19	B19
P20A	B20	B20
P21A	B21	B21
P22A	B22	B22
P23A	B23	B23
P24A	B24	B24
P25A	B25	B25
P26A	B26	B26
P27A	B27	—

	6GB	5GB	4GB	3GB	2GB	1GB
P1B	a	a	a	a	a	—
P2B	b	b	b	b	b	SFP
P3B	c	c	c	c	c	ECHO
P4B	d	d	d	d	d	KEYCON
P5B	e	e	e	e	e	VOICE MUTE
P6B	f	f	f	f	f	32kHz
P7B	g	g	g	g	g	44.1kHz
P8B	h	h	h	h	h	48kHz
P9B	i	i	i	i	i	—
P10B	j	j	j	j	j	—
P11B	k	k	k	k	k	—
P12B	l	l	l	l	l	—
P13B	m	m	m	m	m	—
P14B	n	n	n	n	n	—
P15B	TIME	—	o	m	SEC	—

FUNCTION OF IC TERMINALS

IC303 (LC83012N)

Pin No.	Terminal Name	I/O	Function
1, 4, 6	P0, P3, P5	I/O	Not used (connect to GND)
2, 3, 5	P1, P2, P4	I	Mode signal input terminal
7	AOTDF1	O	Audio data output terminal
8	AOTDF2	O	Not used
9	DFBCK	O	Bit clock signal output terminal
10	DFWCK	O	Word clock signal output terminal
11	RAS	O	Random access signal output terminal
12	CAS	O	CAS signal output terminal
13	DREAD	O	Data read signal output terminal
14	DWRT	O	Data writing signal output terminal
15	V _{DD1}	I	Power supply (+5 V)
16	OSC1	I	Clock signal input terminal (384Fs)
17	OSC2	O	Not used
18	V _{SS1}	I	GND terminal
19	384FS	O	Not used
20~23	D0~D3	I/O	IC304 (DRAM) Data signal input/output terminal
24~27	D4~D7	I/O	Not used
28~35	A0~A7	O	IC304 (DRAM) Address data signal output terminal
36	A8	O	Not used
37	BCK1	I	Bit clock signal output terminal
38	BCK2	I	Bit clock signal output terminal
39	AS11	I	Audio data signal input terminal
40	AS12	I	Not used
41	LRCK0	O	L-R ch Identifier signal output terminal
42	LRCK1	I	L-R ch Identifier signal input terminal
43, 44	SELCTEST5	—	Not used
45	V _{DD2}	I	Power supply (+5 V)
46	RST	I	Reset terminal
47	INT	I	Interrupt signal input terminal
48	V _{SS2}	I	GND terminal
49~52	TEST1~TEST4	I	Not used
53~55	AOBCKASO AOWCK	—	Not used
56	SO	O	8 bit serial data output terminal
57	SOCK	I	Serial clock signal input terminal
58	SORQ	I	Serial data control signal input terminal (request signal input)
59	SOAK	O	Predict (serial data output) control signal output terminal
60	SI	I	8 bit serial data input terminal
61	SICK	I	Serial clock signal input terminal
62	SIRQ	I	Serial data request signal input
63	SIK	O	Predict (serial data input) control signal output terminal
64	SRDY	I	Ready signal input terminal

IC501 (LC7883K)

Pin No.	Terminal Name	I/O	Function
1	CH1OUT	O	DAC signal output (L-ch out)
2	VREFH	I	Reference voltage input
3	AV _{DD}	I	Analog power supply
4	DV _{DD}	I	Digital power supply
5	BCLK	I	Bit-clock signal input
6	DATA	I	Digital audio tape signal input
7	LRCK	I	L-R Clock signal input
8	TEST	I	Connected to GND
9	ATT	I	Connected to GND
10	SHIFT	I	Connected to GND
11	LATCH	I	Connected to GND
12	INITB	I	Initial signal input
13	TEST	I	Connected to GND
14, 15	EMPH2 EMPH1	I	Deemphasis institute signal input
16	DIN	—	Connected to GND
17	SOC2	—	Connected to GND
18	SOC1	—	Connected to GND
19	MODE	I	Mode select signal input
20	TEST	—	Connected to GND
21	DGND	—	Connected to GND
22	CLK OUT	—	Not used
23	XIN XOUT	I/O	Clock signal input/output terminal
24, 25	AGND VREFL	—	Connected to GND
26	CH2OUT	O	DAC signal output (R-ch out)

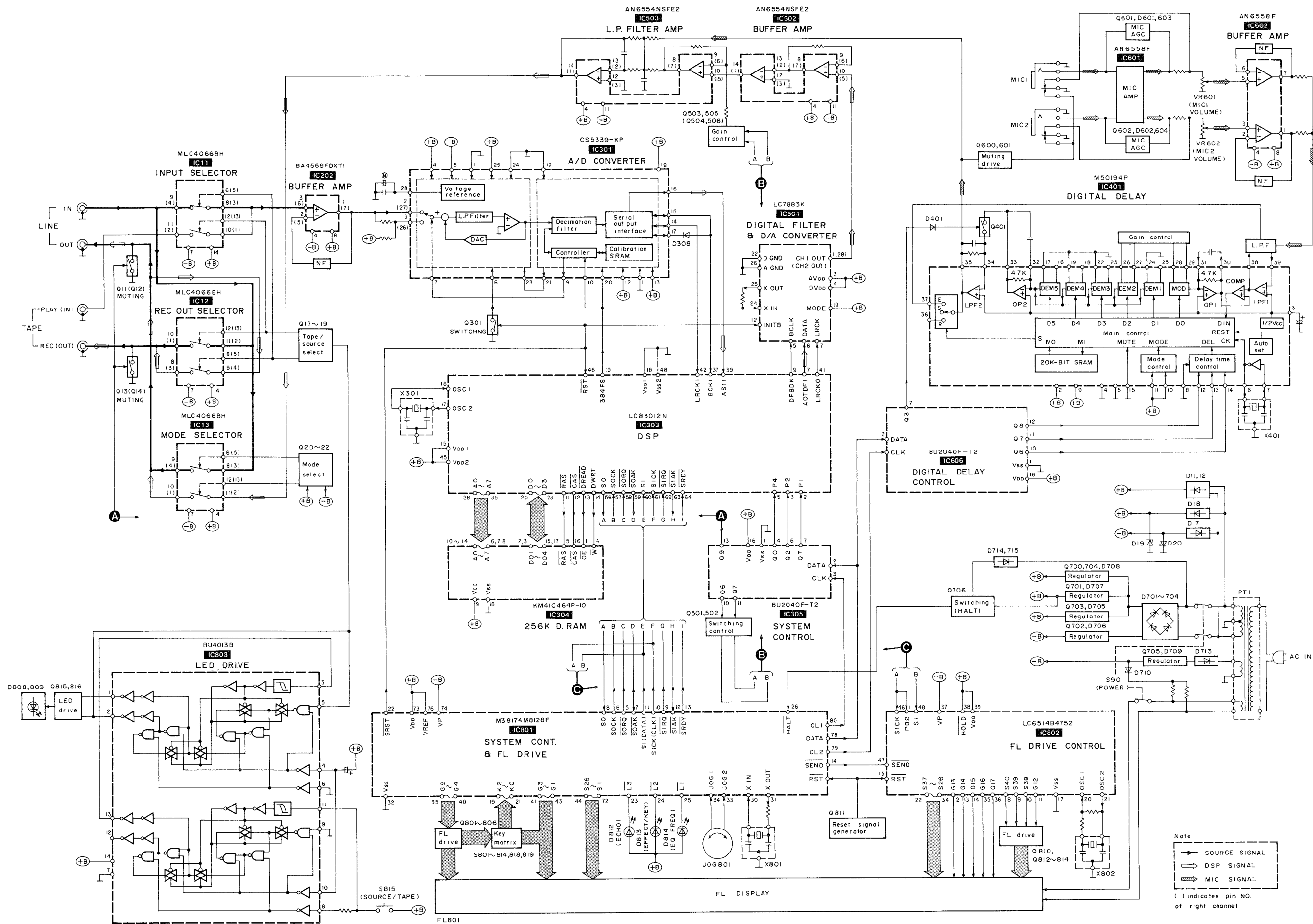
IC801 (M38174M8128F)

Pin No.	Terminal Name	I/O	Function
1	—	—	Connected to GND
2	—	—	Connected to GND
3	—	—	Connected to GND
4	—	—	Connected to GND
5~9	SORQ, SOCK, SOAK, SO, SIRQ	I/O	Display control signal input-output terminal
10~13	SICK (CLK), SI (DATA), SIAK, SRDY	I/O	Display control signal, data signal and clock signal input-output terminal
14	SEND	O	Display control signal output
15	BDI	—	Not used
16	BCI	—	Not used
17	BDO	—	Not used
18	BCO	—	Not used
19~21	K2~K0	I	Key scan signal input terminal
22	SRST	O	System reset signal output
23~25	L3, L2, L1	O	JOG mode display control signal output
26	HALT	I	Backup detect signal input
27	RST	I	Reset signal input terminal
28	—	—	Connected to GND
29	—	—	Not used
30, 31	X I X O	I/O	Crystal oscillator (X801 6 MHz) connect terminal
32	V _{SS}	I	GND terminal
33, 34	JOG2 JOG1	I	JOG Encoder signal input terminal
35	G9	O	FL Grid control signal output
36~43	G8~G4, G3~G1	O	FL Grid control signal and key scan control signal output
44~56	S26~S14	O	FL Segment control signal output
57~59	G12~G10	O	FL Grid control signal output
60~72	S13~S1	O	FL Segment control signal output
73	V _{DD}	I	Power supply (+5 V)
74	-VP	I	FL Pull-up voltage input
75	A. GND	I	GND terminal
76	VREF	I	A/D Converter reference voltage input terminal
77	ST	O	Strobe signal output terminal
78	DO	O	Data signal output terminal
79, 80	CL2 CL1	O	Clock signal output terminal

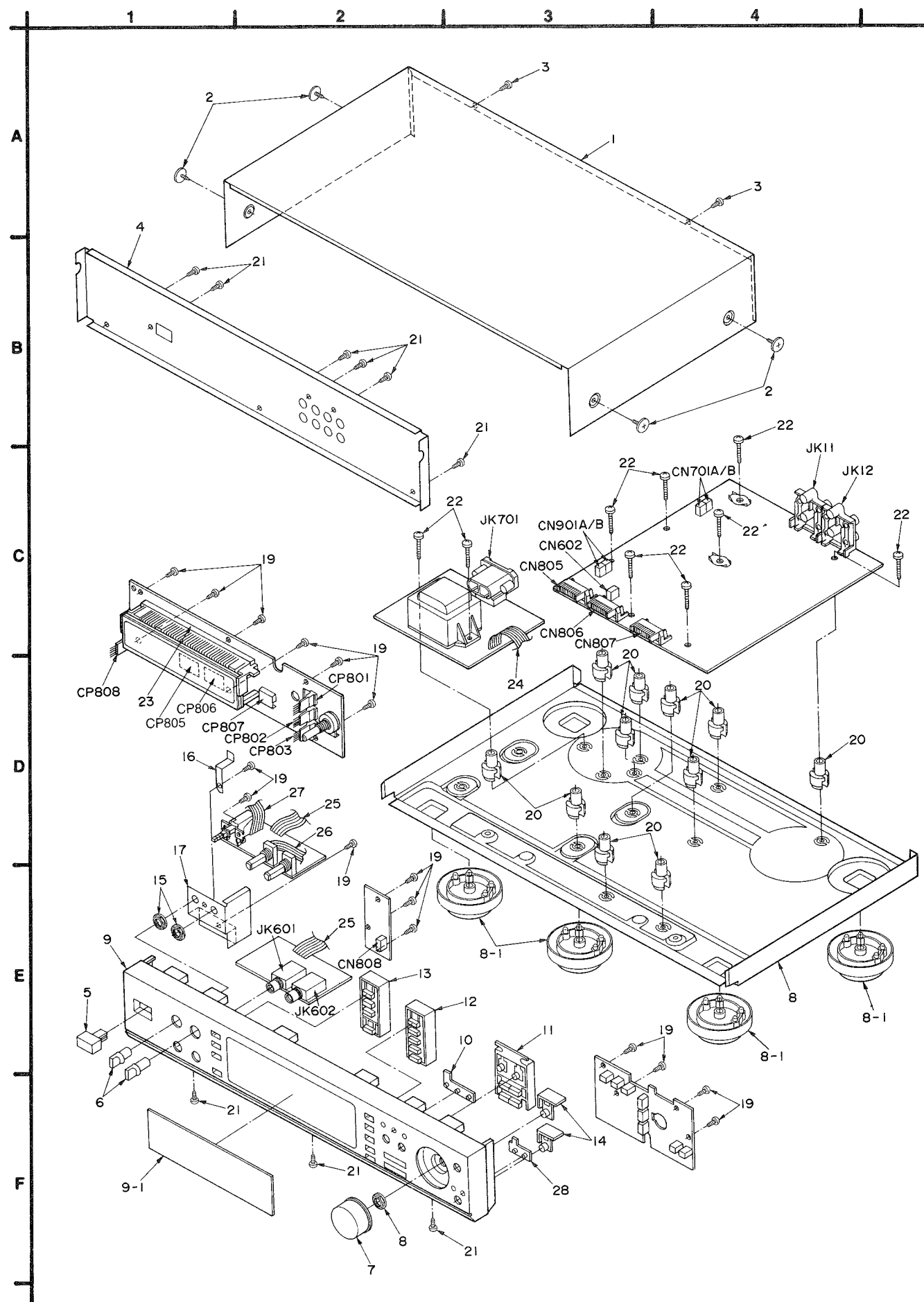
IC802 (LC6514B4752)

Pin No.	Terminal Name	I/O	Function
1, 46	PB2, SICK	I	Clock signal input terminal
2, 3	—	—	Connected to GND
4, 5	G18 G19	—	Not used
6, 7	NC S14	—	Not used
8~10	S40~S38	O	FL Segment control signal output terminal
11	G12	O	FL Grid control signal output terminal
12~14	G13~G15	O	FL Grid control signal output terminal
15	RST	I	Reset terminal
16	TST	I	Not used
17	V _{SS}	I	GND terminal
18, 19	NC	—	Not used
20, 21	OSC1 OSC2	I/O	Crystal oscillator (X802 3 MHz) connect terminal
22~25	S37~S34	O	FL Segment control signal output terminal
26~29	S33~S30	O	FL Grid control signal output terminal
30	NC	—	Not used
31~34	S29~S26	O	FL Segment control signal output terminal
35, 36	G16 G17	O	FL Grid control signal output terminal
37	VP	I	FL Pull-down voltage input
38	HOLD	I	Connect V _{DD}
39	V _{DD}	I	Power supply (+5 V)
40, 41	PA0 PA1	—	Connected to GND
42, 43	NC	—	Not used
44, 45	PA2 PA3	—	Connected to GND
47	SEND	I	Display control signal input
48	SI	I	Serial data input terminal

■ BLOCK DIAGRAM



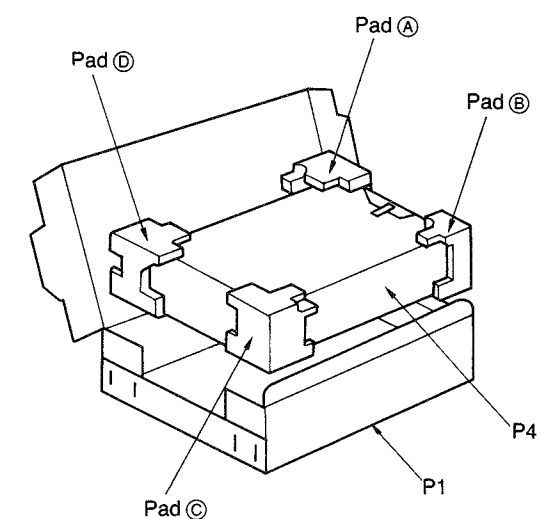
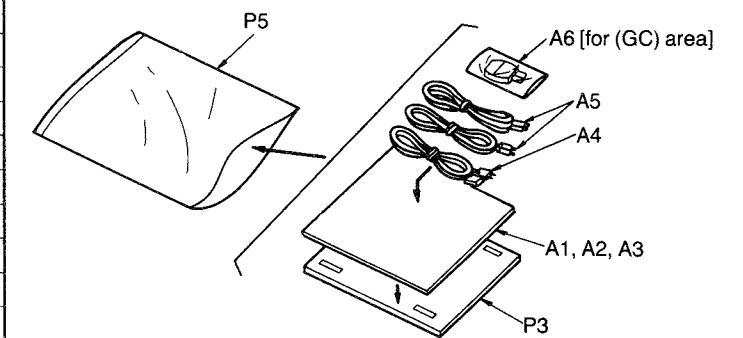
■ CABINET PARTS LOCATION



Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET PARTS	
1	RQM0078-1K	CABINET	
2	SNE2129-1	SCREW	
3	XTBS3+8JFZ1	SCREW	
4	RGR0151A-B1	REAR PANEL	(E)
4	RGR0151A-C1	REAR PANEL	(EB)
4	RGR0151A-A1	REAR PANEL	(EG)
4	RGR0151B-A1	REAR PANEL	(GC)
4	RGR0151A-C1	REAR PANEL	(GN)
5	RGU0030	POWER BUTTON	
6	RGW0048	MIC VOLUME KNOB	
7	RGW0155-K	JOG CONTROL KNOB	
8	RFKJHGE90E-K	BOTTOM BORAD ASS'Y	
8-1	RKA0053-A	FOOT	
9	RFKJHGE90E-K	FRONT PANEL ASS'Y	
9-1	RKW0231-K	FL. PANEL	
10	RFKNHGE90EAK	ORNAMENT (A) ASS'Y	
11	RGU0780-K	SELECT BUTTON (A)	
12	RGU0781-K	SELECT BUTTON (B)	
13	RGU0781A-K	SELECT BUTTON (C)	
14	RGU0782-K	MONITOR BUTTON	
15	RHN90001	NUT	
16	RMCO183	EARTH SPRING	
17	RMNO188	ANGLE	
18	SNE4021-1	NUT	
19	XTBS26+8J	SCREW	
20	SHE187-2	P. C. B. SPACER	
21	XTBS3+8JFZ1	SCREW	
22	XTB3+20JFZ	SCREW	
23	RMNO156	FL HOLDER	
24	FWJ1806110KQ	FLAT CABLE (6P)	
25	FWJ1806110KK	FLAT CABLE (6P) (JW601)	
26	FWJ1805230KQ	FLAT CABLE (5P) (JW602)	
27	FWJ1806230KQ	FLAT CABLE (6P) (JW901)	
28	RFKNHGE90EBK	ORNAMENT (B) ASS'Y	
		PACKING MATERIALS	
P1	RPG1344	PACKING CASE	
P2	RPN0628	PAD	
P3	RPQ0164	ACCESSORY PAD	
P4	XZB50X65A02Z	PROTECTION COVER	
P5	XZB24X34C04	PROTECTION COVER	
		ACCESSORIES	
A1	RFKSHGE90E-K	INSTRUCTIONS MANUAL	(E)
A1	RQT1633-B	INSTRUCTIONS MANUAL	(EB)
A1	RFKSHGE90EGK	INSTRUCTIONS MANUAL	(EG)
A1	RFKSHGE90GCK	INSTRUCTIONS MANUAL	(GC)

Ref. No.	Part No.	Part Name & Description	Remarks
A1	RQT1633-B	INSTRUCTIONS MANUAL	(GN)
A2	RQA0013	WARRANTY CARD	(E, EB, EG)
A2	RQX7433ZA	WARRANTY CARD	(GN)
A3	RQCB0169	SERVICE CENTER LIST	
A4	RJA0019-1K	AC POWER SUPPLY CORD	△ (E, EG)
A4	SJA193	AC POWER SUPPLY CORD	△ (EB)
A4	RJA0004	AC POWER SUPPLY CORD	△ (GC)
A4	SJA173	AC POWER SUPPLY CORD	△ (GN)
A5	SJP2276	STEREO CONNECTION CABLE	
A6	SJP9215	POWER PLUG ADAPTOR	△ (GC)

■ PACKAGING



P2 Pad (A) (B) (C) (D) ass'y: RPN0628