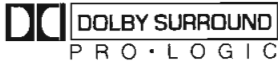


# Service Manual

Sound Processor

 Sound Processor  
**SH-EH600**
**Colour**

(H) ..... Gray Type

**Area**

(E) ..... Europe.



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

System	SC-EH600
Sound Processor	<b>SH-EH600</b>
Tuner / Amplifier	SA-EH600
CD Changer	SL-EH600
Cassette Deck	RS-EH600
Front Speakers*2	SB-EH600
Center Speaker*2	SB-PC600
Surround Speakers*2	SB-PS600

\* : Made in PAES

## Specifications

### EQ/SFP Section

**MANUAL GEQ:**

Center frequency; 100 Hz, 315 Hz, 1 kHz,  
3.15 kHz, 10 kHz

Level control;  $\pm 3, \pm 6, \pm 9$  dB

**EQ SPACE mode**

3 modes; HALL, CLEAR, HEAVY

Acoustic Image Selector: 36 pattern

### Pre-amplifier Section

**Input sensitivity/impedance:**

VCR; 250 mV/15 k $\Omega$

VDP; 250 mV/15 k $\Omega$

**Output level:**

### DOLBY PRO LOGIC Section

**PRO LOGIC mode:** SURROUND, 3 STEREO

**CENTER mode:** NORMAL, WIDE, PHANTOM

**DELAY TIME:** 20 ms (Fixed)

### Spectrum analyzer Section

**Display mode:** NORMAL, PEAKHOLD, AURORA

### General

**Dimensions:** 287 (W)  $\times$  89 (H)  $\times$  273.5 (D) mm

**Weight:** 1.1 kg

**Note:** Specifications are subject to change without notice.  
Weight and dimensions are approximate.

Manufactured under license from Dolby Laboratories Licensing Corporation.  
DOLBY, the double-D symbol and "PRO LOGIC" are trademarks of Dolby Laboratories Licensing Corporation.

### ⚠ 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.

# Technics®

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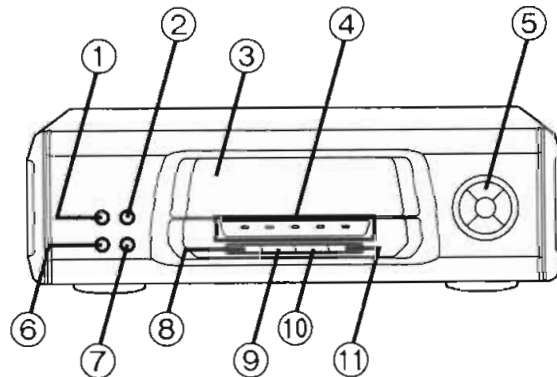
## ■ Contents

	Page		Page
Location of Controls .....	2	Type Illustration of IC's, Transistors and Diodes .....	10
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### NOTE:

Refer to the service manual for Model No. SA-EH600 for information on "Accessories", "Connections", "Installation", "Operations" and "Packaging".

## ■ Location of Controls



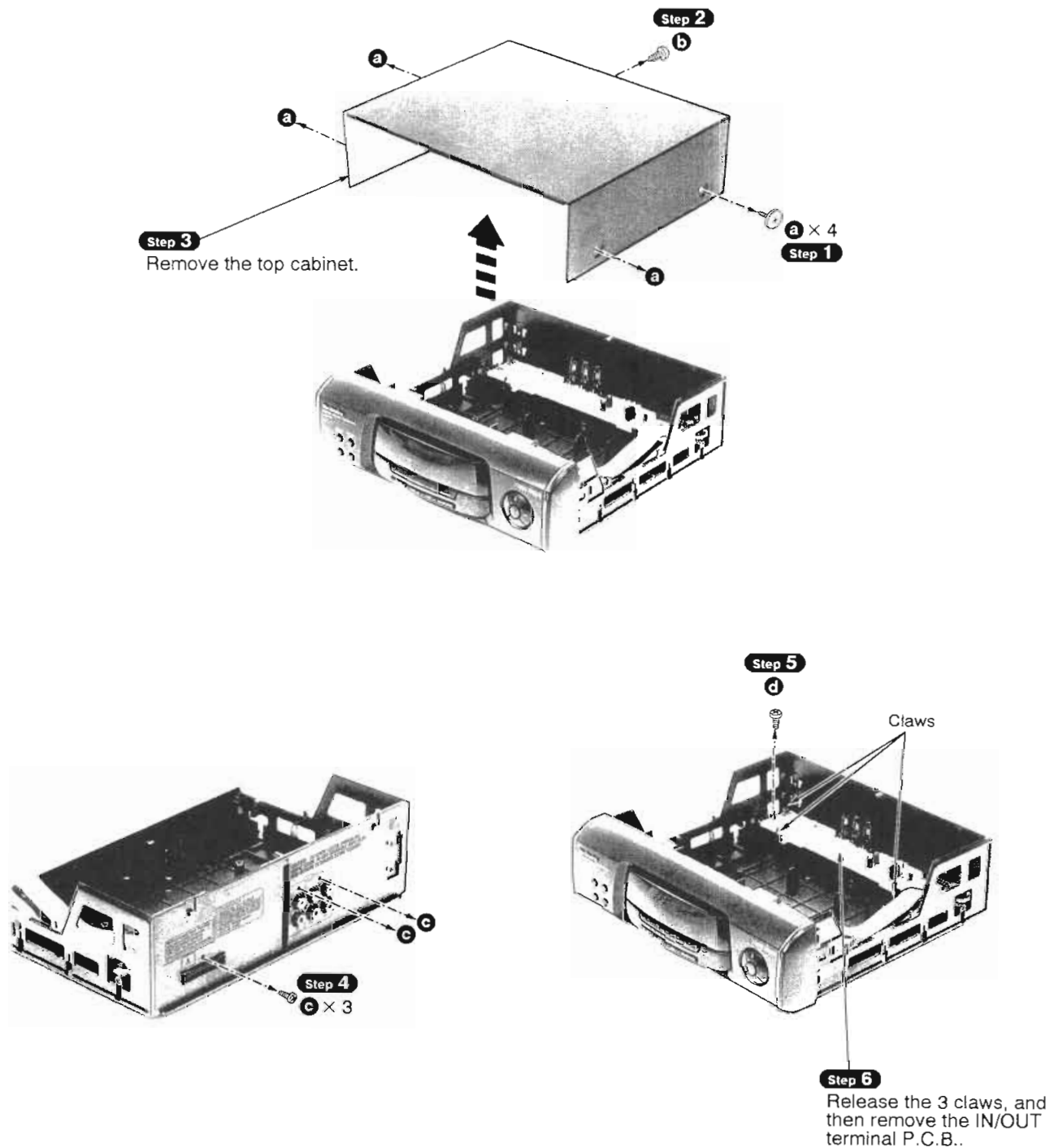
- ① EQ SPACE on/flat button (EQ SPACE ON/FLAT)
- ② Display mode select/demonstration button (DISP MODE/-DEMO)
- ③ Display
- ④ DOLBY PRO LOGIC indicators (SURROUND, 3 STEREO, NORMAL, WIDE, PHANTOM)
- ⑤ Multi control buttons (MULTI CONTROL, ►, ▲, ◀, ▼)
- ⑥ Acoustic image EQ button (ACOUSTIC IMAGE EQ)
- ⑦ EQ SPACE preset/manual select button (PRESET/MANUAL)
- ⑧ DOLBY PRO LOGIC on/off button (DOLBY PRO LOGIC, OFF/ON)
- ⑨ DOLBY PRO LOGIC mode select button (MODE)
- ⑩ DOLBY PRO LOGIC test signal button (TEST)
- ⑪ DOLBY PRO LOGIC center mode button (CENTER MODE)

## ■ Operation Checks and Main Component Replacement Procedures

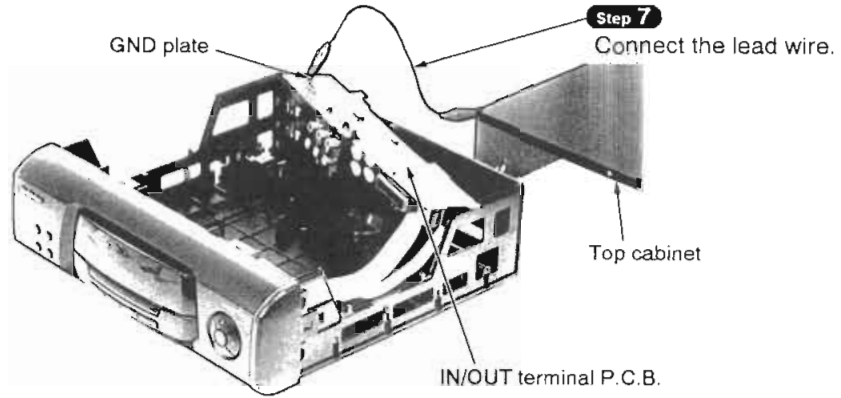
### NOTE

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.

### 1. Checking for the IN/OUT terminal P.C.B.

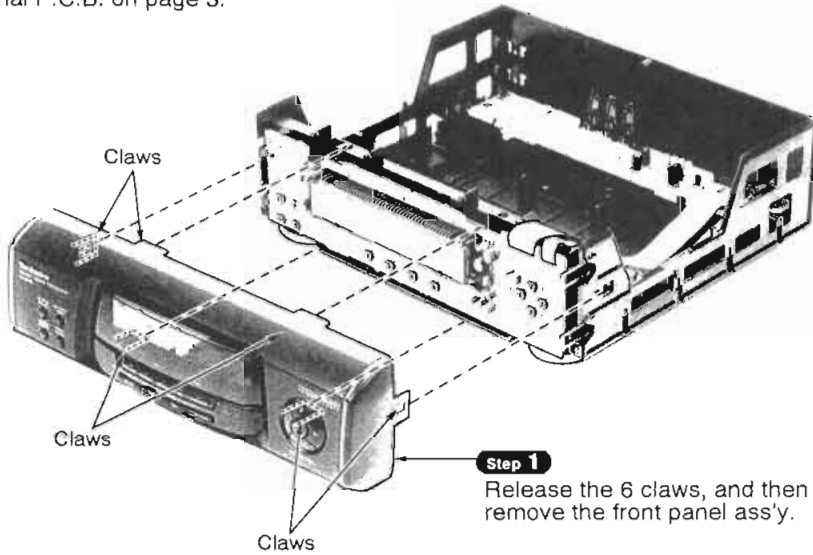


• Check the IN/OUT terminal P.C.B. as shown below.



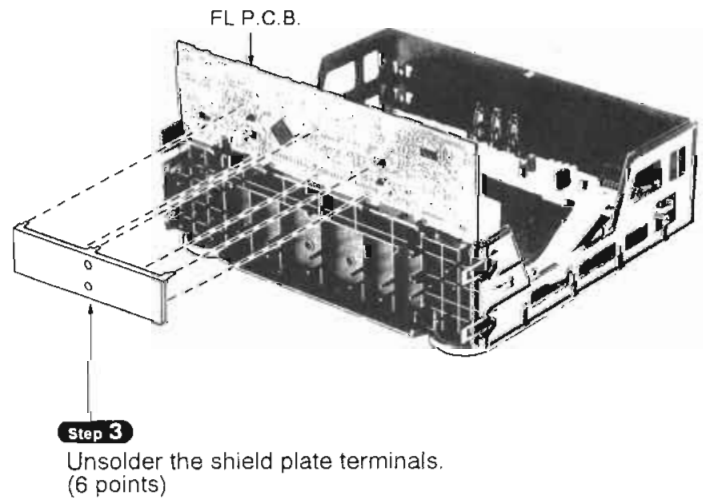
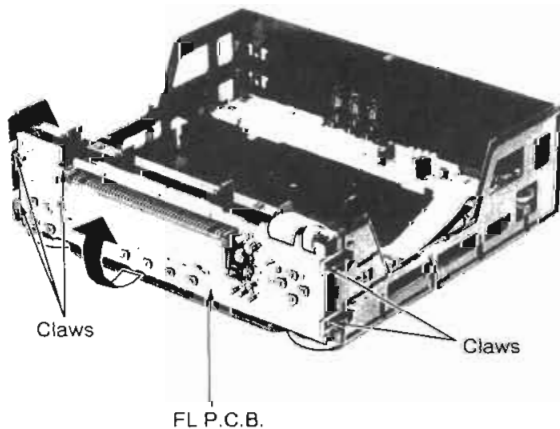
## 2. Checking for the FL P.C.B.

• Follow the **Step 1** ~ **Step 3** of the item 1 in checking for the IN/OUT terminal P.C.B. on page 3.



**Step 2**  
Release the 5 claws, and then remove the FL P.C.B..

• Check the FL P.C.B. as shown below.



## ■ To Supply Power Source

This unit SH-EH600 is designed to operate on power supplied from the system connected. (For system connection, refer to Fig.1)

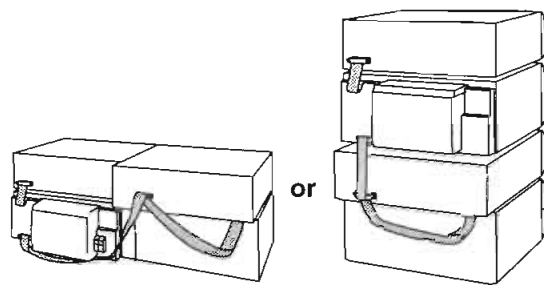
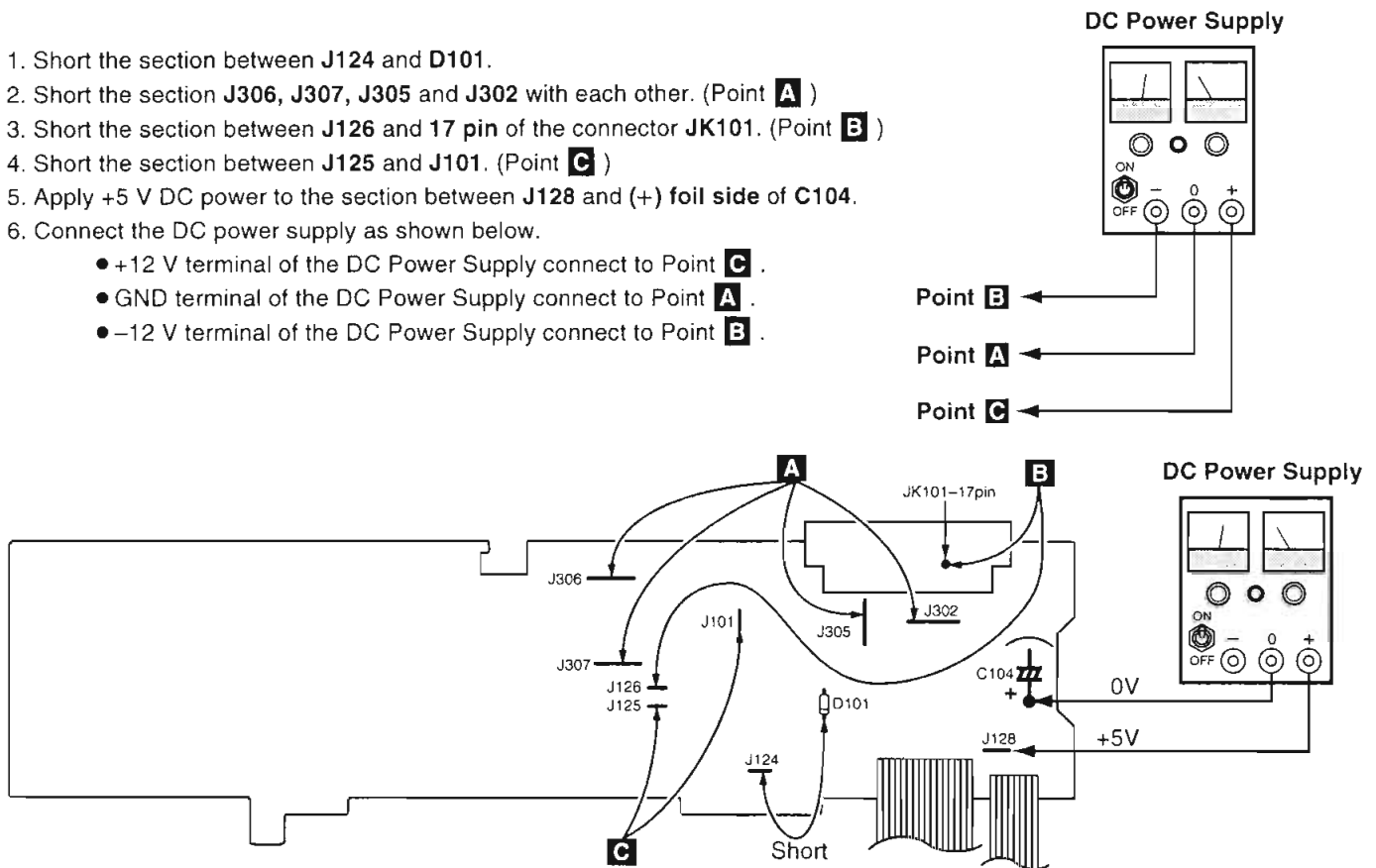


Fig. 1

When you have to test and service the unit SH-EH600 alone, use the following method to supply power source and operate the unit:

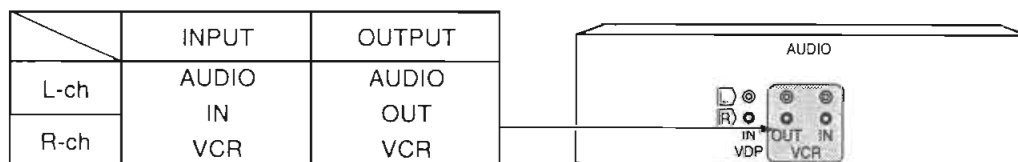
1. Short the section between J124 and D101.
2. Short the section J306, J307, J305 and J302 with each other. (Point **A**)
3. Short the section between J126 and 17 pin of the connector JK101. (Point **B**)
4. Short the section between J125 and J101. (Point **C**)
5. Apply +5 V DC power to the section between J128 and (+) foil side of C104.
6. Connect the DC power supply as shown below.

- +12 V terminal of the DC Power Supply connect to Point **C**.
- GND terminal of the DC Power Supply connect to Point **A**.
- -12 V terminal of the DC Power Supply connect to Point **B**.



## ■ To Check Signals

Input the audio signal and confirm in to be outputted from the terminal.



## ■ Schematic Diagram

Page




<b>A</b> FL CIRCUIT .....	7, 8
<b>B</b> IN/OUT TERMINAL CIRCUIT .....	8

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

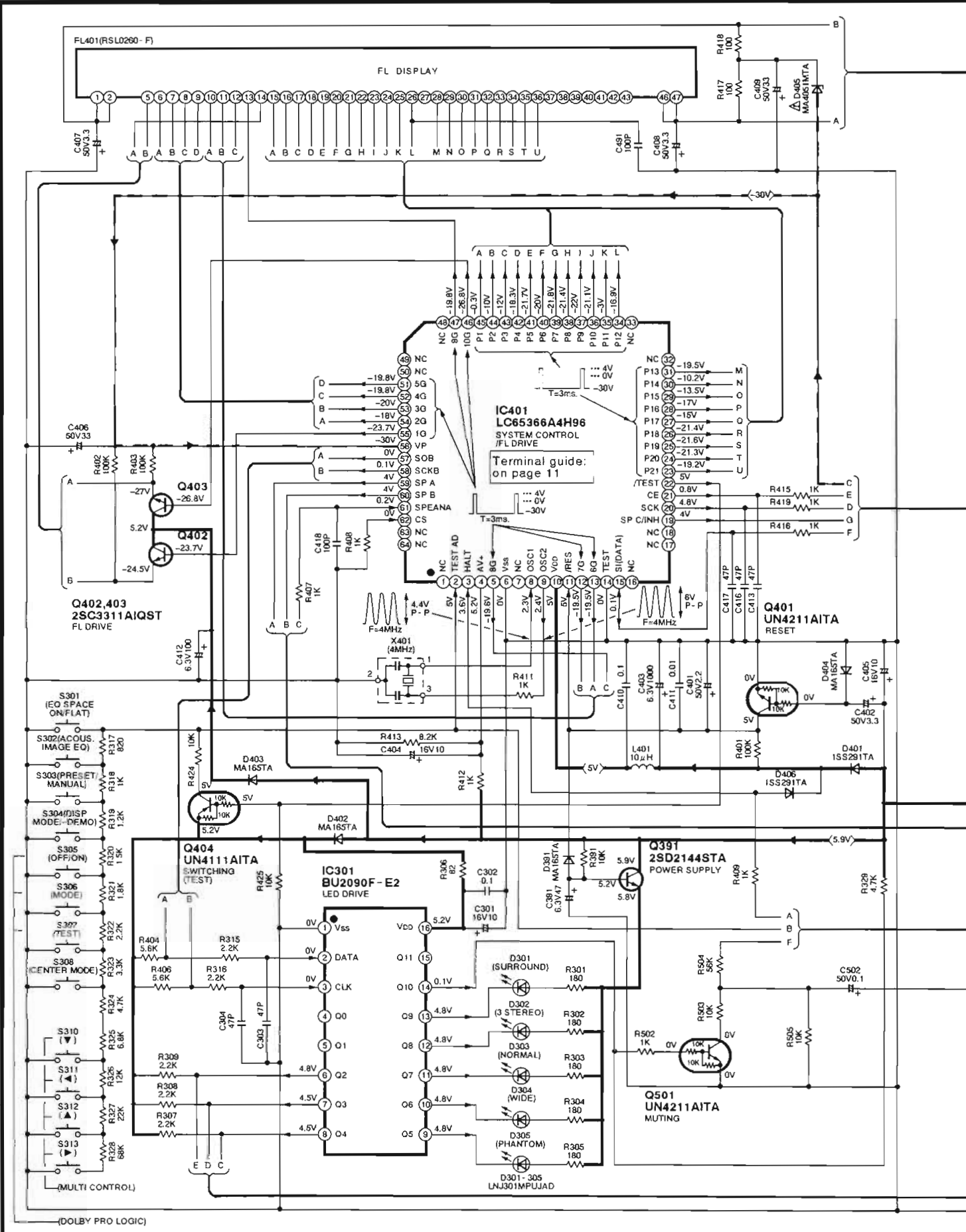
### Notes:

- **S301** : EQ SPACE on/off switch (EQ SPACE ON/FLAT)
- **S302** : Acoustic image EQ switch (ACOUSTIC IMAGE EQ)
- **S303** : EQ SPACE preset/manual select switch (PRESET/MANUAL)
- **S304** : Display mode select/demonstration switch (DISP MODE/--DEMO)
- **S305** : DOLBY PRO LOGIC on/off switch (OFF/ON)
- **S306** : DOLBY PRO LOGIC mode select switch (MODE)
- **S307** : DOLBY PRO LOGIC test signal switch (TEST)
- **S308** : DOLBY PRO LOGIC center mode select switch (CENTER MODE)
- **S310 ~ S313** : Multi control switch  
(MULTI CONTROL , S310 : ▼ , S311 : ◀ , S312 : ▲ , S313 : ▶)
- 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.
- Voltage values and waveforms are measured as indicated in the schematic diagram when test points between **DG** and **CT-G** , and between **AG** and **DG** are shorted.
- 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.  
When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.
- **Caution!**  
IC and LSI are sensitive to static electricity.  
Secondary trouble can be prevented by taking care during repair.  
Cover the parts boxes made of plastics with aluminum foil.  
Ground the soldering iron.  
Put a conductive mat on the work table.  
Do not touch the legs of IC or LSI with the fingers directly.

### • Voltage and signal line

-  : Positive voltage line
-  : Negative voltage line
-  : Source signal line (L-ch)

A FL CIRCUIT (P.C.Board: on page 9)

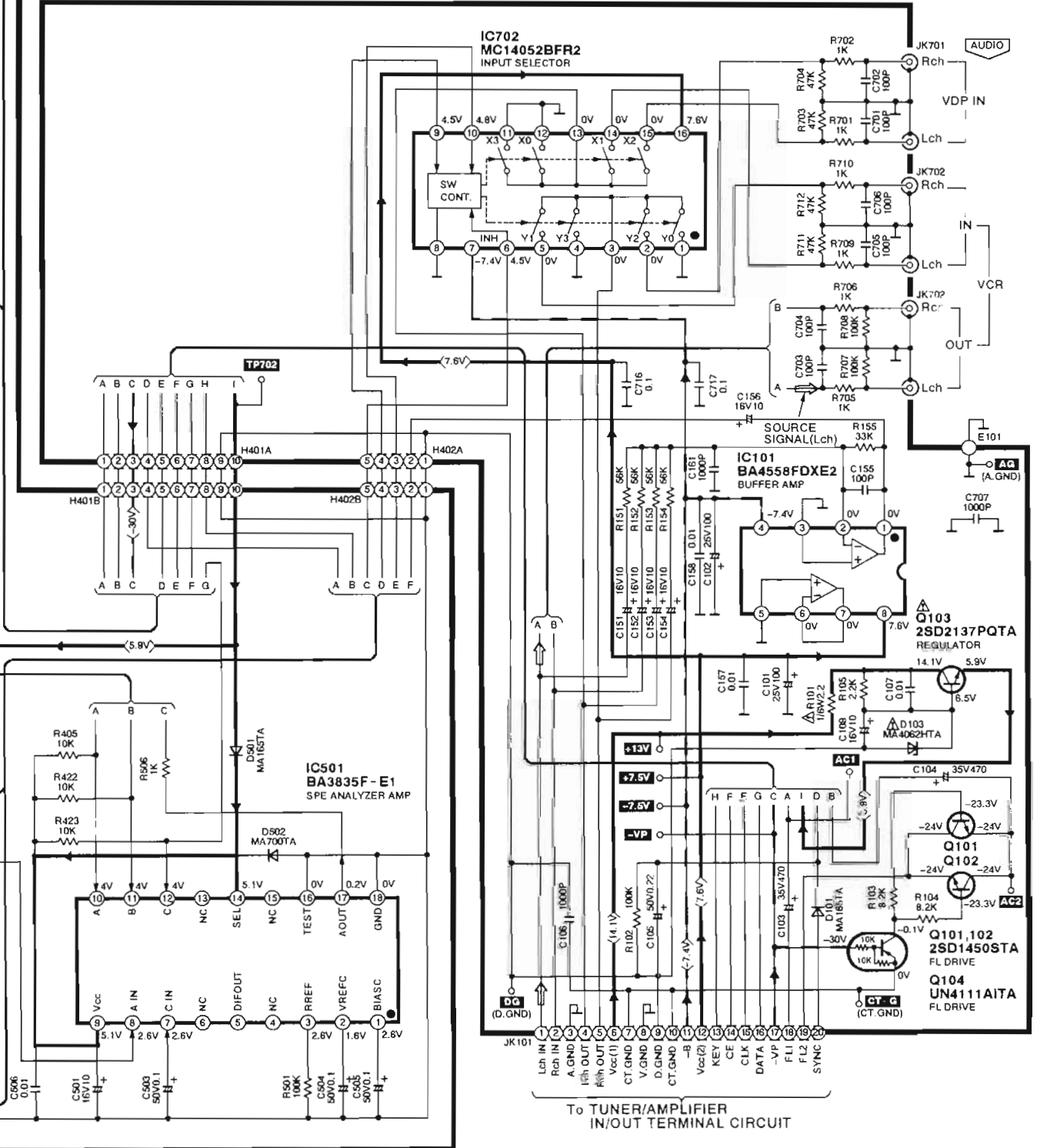


➔ : Positive voltage line

➔➔➔ : Negative voltage line

➔ : Source signal line (L-ch)

**B** IN/OUT TERMINAL CIRCUIT (P.C.Board: on page 9)



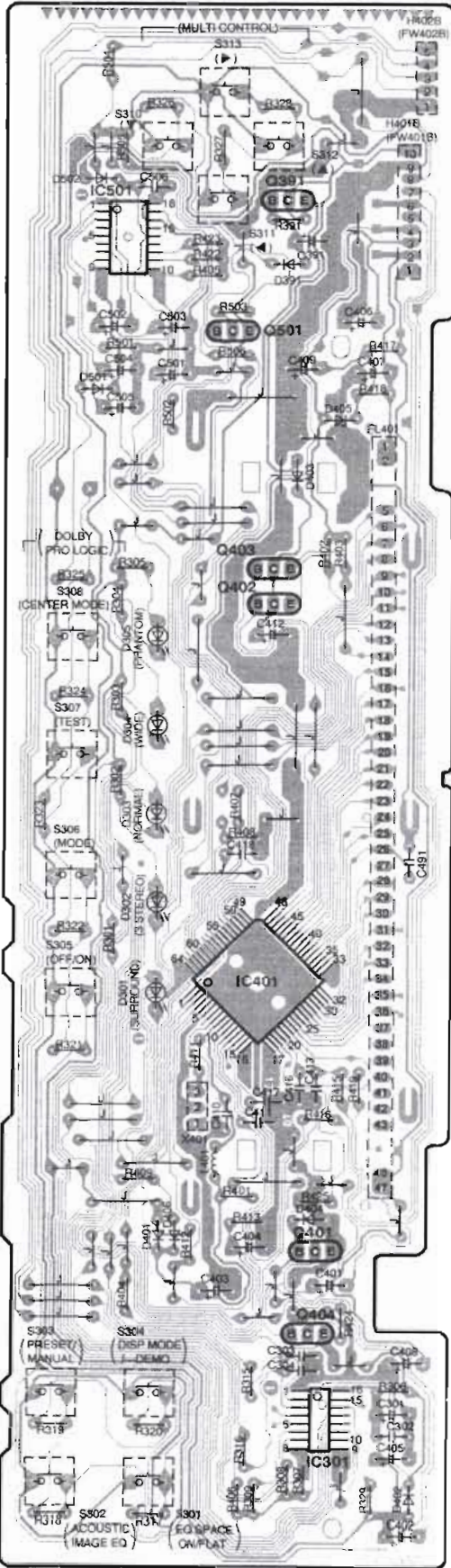
To TUNER/AMPLIFIER IN/OUT TERMINAL CIRCUIT



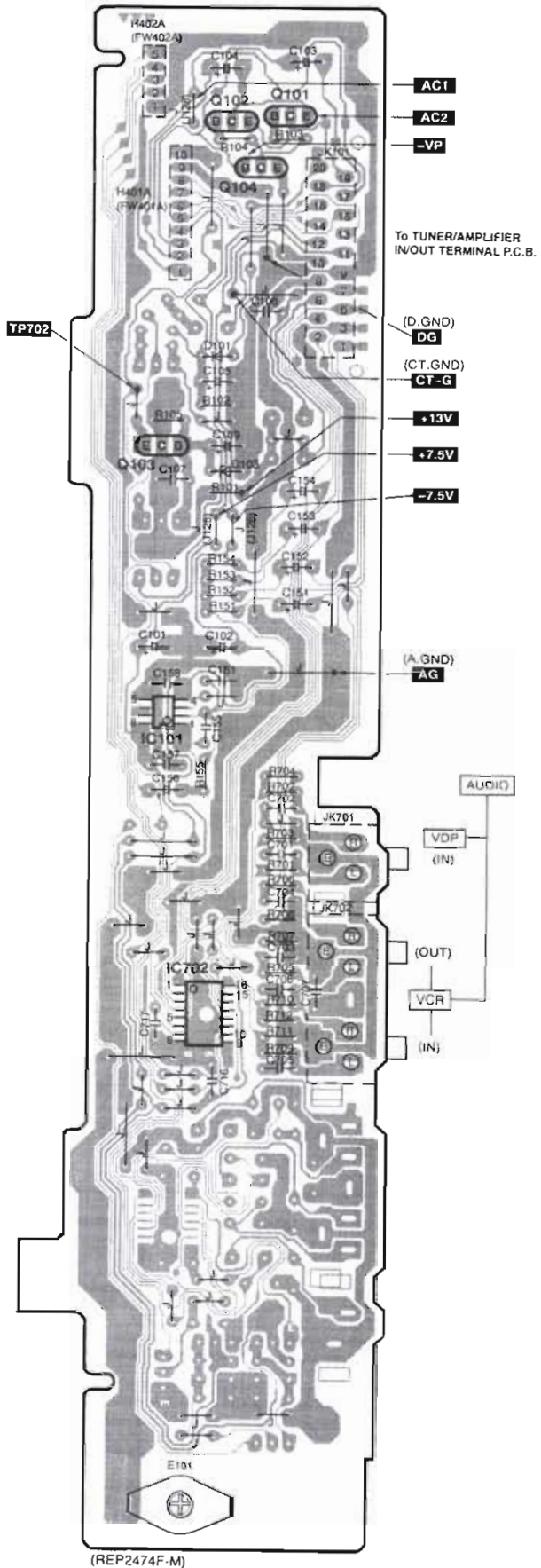
# Printed Circuit Board Diagram

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

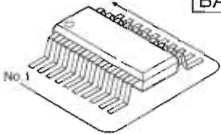
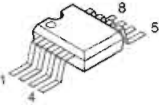
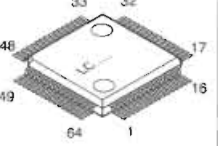
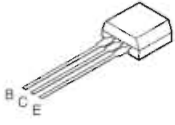
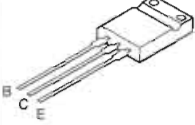

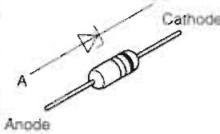
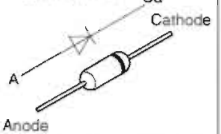
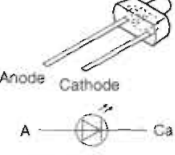
**A** FL P.C.B.



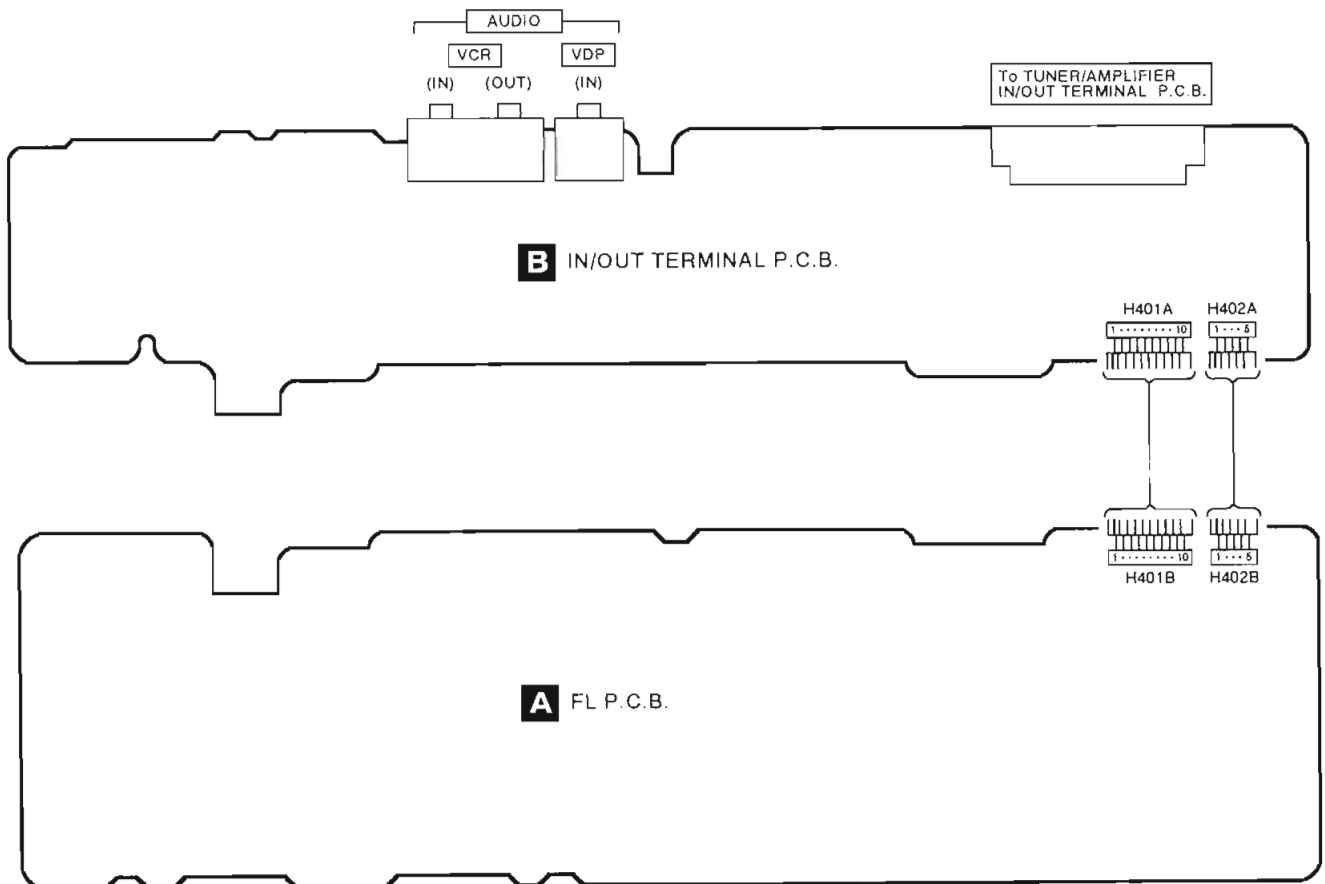
**B** IN/OUT TERMINAL P.C.B.



## ■ Type Illustration of IC's, Transistors and Diodes

 <table border="1" data-bbox="266 153 505 229"> <tr> <td>BU2090F-E2</td> <td>16PIN</td> </tr> <tr> <td>MC14052BFR2</td> <td>16PIN</td> </tr> <tr> <td>BA3835F-E1</td> <td>18PIN</td> </tr> </table>	BU2090F-E2	16PIN	MC14052BFR2	16PIN	BA3835F-E1	18PIN	<p>BA4558FDXE2</p> 	<p>LC65366A4H96</p> 	<p>2SD2144STA</p> 	<p>2SD2137PQTA</p> 
BU2090F-E2	16PIN									
MC14052BFR2	16PIN									
BA3835F-E1	18PIN									
 <p>2SC3311AIQST 2SD1450STA UN4111AITA UN4211AITA</p>	<p>MA4051MTA MA4062HTA</p> 	<p>1SS291TA MA165TA MA700TA</p> 	<p>LNJ301MPUJAD</p> 							

## ■ Wiring Connection Diagram



## ■ Terminal Function of IC's

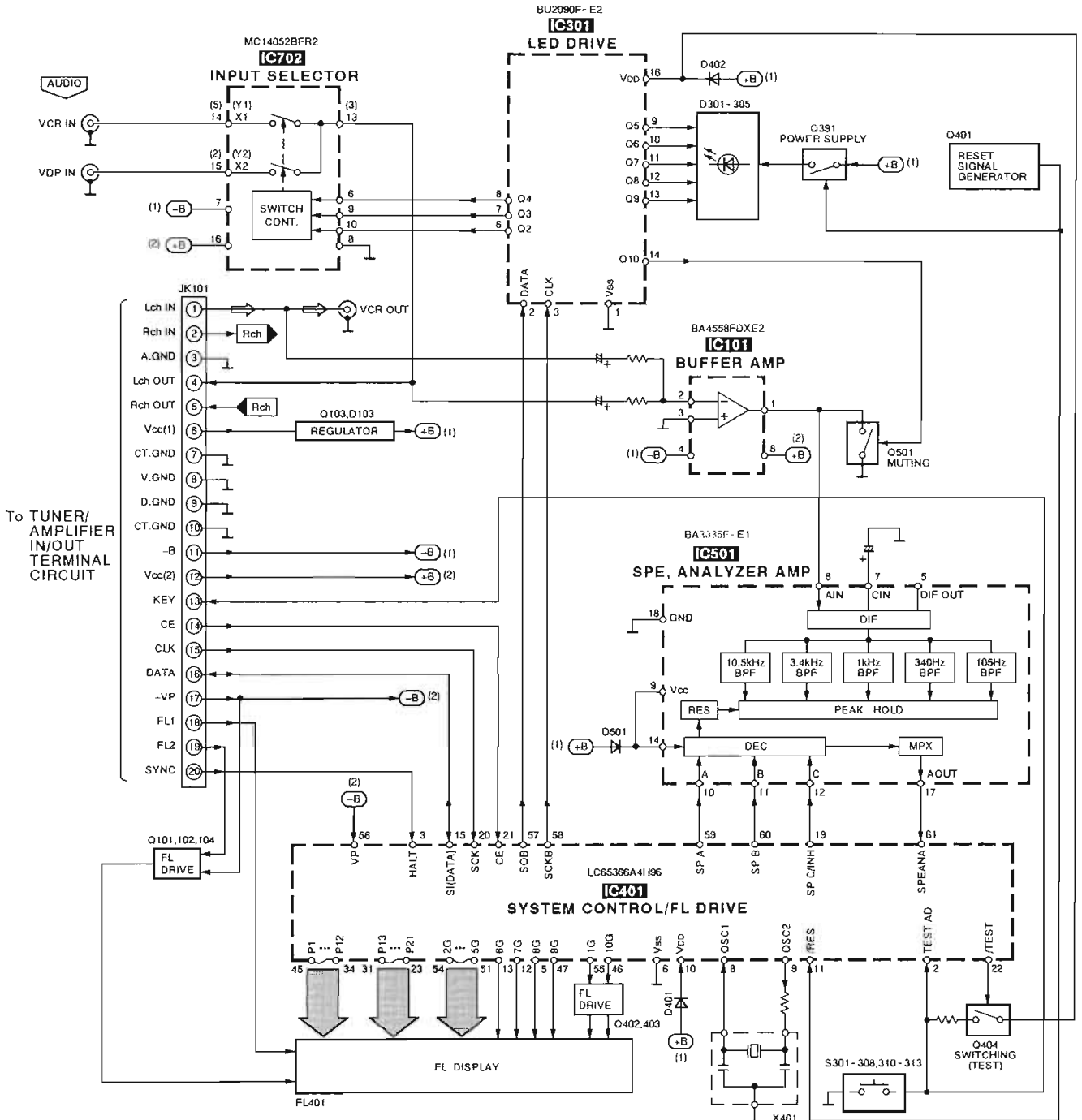
### ● IC401 (LC65366A4H96) : System Control / FL Drive

Pin No.	Terminal Name	I/O	Function
1	NC	—	No used, open
2	TEST AD	I	TEST mode key signal input
3	HALT	I	Power failure detect signal input
4	AV+	—	Power supply for analog circuit (+5 V)
5	8G	O	Grid signal output
6	VSS	—	GND terminal
7	NC	—	No used, open
8	OSC1	I	Oscillator connected terminal (4 MHz)
9	OSC2	O	
10	VDD	—	Power supply
11	/RES	I	Reset signal input
12, 13	7G, 6G	O	Grid signal output
14	TEST	—	No used, connected to VSS
15	SI	I/O	Communication data signal input/output
16-18	NC	—	No used, open
19	SP C/INH	O	Select terminal for Spectrum analyzer IC output
20	SCK	O	Serial communication signal output (Clock signal output)

Pin No.	Terminal Name	I/O	Function
21	CE	O	Serial communication signal output (Chip enable signal output)
22	/TEST	O	Test signal terminal
23-31	P21~P13	O	Segment signal output
32, 33	NC	—	No used, open
34-45	P12~P1	O	Segment signal output
46, 47	10G, 9G	O	Grid signal output
48-50	NC	—	No used, open
51-55	5G~1G	O	Grid signal output
56	VP	—	Negative power supply
57	SOB	O	Serial data signal output
58	SCKB	O	Serial clock signal output
59	SP A	O	Select terminal from spectrum analyzer IC output
60	SP B	O	
61	SPEANA	I	Analog signal input from spectrum analyzer IC
62	CS	I	Chip select signal input terminal
63, 64	NC	—	No used, open

# Block Diagram

NOTES:  
 1) ( ) INDICATES Pin No. OF RIGHT CHANNEL.  
 2) ⇨ :SOURCE SIGNAL





# Replacement Parts List

**Notes:** \* Important safety notice:

 Components identified by  $\Delta$  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.

\* All parts are supplied by MESA.

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks	Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
1	RKW0302-H	CABINET	1		L401	RLQA100JT-Y	COIL	1	
2	RHD30007-K1	SCREW (BLACK)	4		Q101, 02	ZS01450STA	TRANSISTOR	2	
3	XTB3+8JFZ	SCREW (BLACK)	1		$\Delta$ Q103	ZSD2137PQTA	TRANSISTOR	1	
4	RMND424	FL HOLDER	1		Q104	UN4111	TRANSISTOR	1	
5	RKA0089-K	RUBBER	3		Q391	ZSD2144STA	TRANSISTOR	1	
6	RYPD733N-H	FRONT PANEL ASS'Y	1		Q401	UN4211	TRANSISTOR	1	
6-1	RKW0504-V	FL PANEL	1		Q402, 03	ZSC3311AIQST	TRANSISTOR	2	
6-2	RGL0358-Q	LENS	1		Q404	UN4111	TRANSISTOR	1	
6-3	RMZ0423	SHEET	1		Q501	UN4211	TRANSISTOR	1	
7	XTB3+8JFZ1	SCREW	1		$\Delta$ R101	ERQ16NKW2R2E	1/6W 2.2	1	
8	XTB3+8JFZ	SCREW	3		R102	ERDS2FJ104	1/4W 100K	1	
9	RWJ5710240UU	FLAT CABLE (H401A/10P)	1		R103, 04	ERDS2TJ822T	1/4W 8.2K	2	
10	RWJ5705240UU	FLAT CABLE (H402A/5P)	1		R105	ERDS2FJ222	1/4W 2.2K	1	
C101, 02	ECA1EM101B	25V 100U	2		R151-54	ERDS2TJ563T	1/4W 56K	4	
C103, 04	RCE1VM471BV	35V 470U	2		R155	ERDS2TJ333T	1/4W 33K	1	
C105	ECEA1HKAR22B	50V 0.22U	1		R301-05	ERDS2FJ181	1/4W 180	5	
C106	ECBT1H102KB5	50V 1000P	1		R306	ERDS2TJ820T	1/4W 82	1	
C107	ECBT1E103ZF5	25V 0.01U	1		R307-09	ERDS2FJ222	1/4W 2.2K	3	
C109	RCE1CKA100BG	16V 10U	1		R315, 16	ERDS2FJ222	1/4W 2.2K	2	
C151-54	RCE1CKA100BG	16V 10U	4		R317	ERDS2TJ821T	1/4W 820	1	
C155	ECBT1H101KB5	50V 100P	1		R318	ERDS2FJ102	1/4W 1K	1	
C156	RCE1CKA100BG	16V 10U	1		R319	ERDS2TJ122T	1/4W 1.2K	1	
C157, 58	ECBT1E103ZF5	25V 0.01U	2		R320	ERDS2TJ152T	1/4W 1.5K	1	
C161	ECBT1H102KB5	50V 1000P	1		R321	ERDS2TJ182T	1/4W 1.8K	1	
C301	RCE1CKA100BG	16V 10U	1		R322	ERDS2FJ222	1/4W 2.2K	1	
C302	ECBT1H104ZF5	50V 0.1U	1		R323	ERDS2TJ332T	1/4W 3.3K	1	
C303, 04	ECBT1H470J5	50V 47P	2		R324	ERDS2FJ472	1/4W 4.7K	1	
C391	RCE0JKA470BG	6.3V 47U	1		R325	ERDS2FJ682	1/4W 6.8K	1	
C401	ECEA1HKA2R2B	50V 2.2U	1		R326	ERDS2TJ123T	1/4W 1.2K	1	
C402	RCE1HKA3R3BG	50V 3.3U	1		R327	ERDS2TJ223T	1/4W 22K	1	
C403	RCE0JU102BV	6.3V 1000U	1		R328	ERDS2TJ683T	1/4W 68K	1	
C404, 05	RCE1CKA100BG	16V 10U	2		R329	ERDS2FJ472	1/4W 4.7K	1	
C406	ECEA1HKA330B	50V 33U	1		R391	ERDS2FJ103	1/4W 10K	1	
C407, 08	RCE1HKA3R3BG	50V 3.3U	2		R401-03	ERDS2FJ104	1/4W 100K	3	
C409	ECEA1HKA330B	50V 33U	1		R404	ERDS2TJ562	1/4W 5.6K	1	
C410	ECBT1H104ZF5	50V 0.1U	1		R405	ERDS2FJ103	1/4W 10K	1	
C411	ECBT1E103ZF5	25V 0.01U	1		R406	ERDS2TJ562	1/4W 5.6K	1	
C412	ECEA0JKS101B	6.3V 100U	1		R407-09	ERDS2FJ102	1/4W 1K	3	
C413	ECBT1H470J5	50V 47P	1		R411, 12	ERDS2FJ102	1/4W 1K	2	
C415, 17	ECBT1H470J5	50V 47P	2		R413	ERDS2TJ822T	1/4W 8.2K	1	
C418	ECBT1H101KB5	50V 100P	1		R415, 16	ERDS2FJ102	1/4W 1K	2	
C491	ECBT1H101KB5	50V 100P	1		R417, 18	ERDS2FJ101	1/4W 100	2	
C501	RCE1CKA100BG	16V 10U	1		R419	ERDS2FJ102	1/4W 1K	1	
C502-05	ECEA1HKA0R1B	50V 0.1U	4		RA22-25	ERDS2FJ103	1/4W 10K	4	
C506	ECBT1E103ZF5	25V 0.01U	1		R501	ERDS2FJ104	1/4W 100K	1	
C701-06	ECBT1H101KB5	50V 100P	6		R502	ERDS2FJ102	1/4W 1K	1	
C707	ECBT1H102KB5	50V 1000P	1		R503	ERDS2FJ103	1/4W 10K	1	
C716, 17	ECBT1H104ZF5	50V 0.1U	2		R504	ERDS2TJ563T	1/4W 56K	1	
D101	MA165	DIODE	1		R505	ERDS2FJ103	1/4W 10K	1	
$\Delta$ D103	MA4062-H	DIODE	1		R506	ERDS2FJ102	1/4W 1K	1	
D301-05	LNJ301MPLVAD	LED	5		R701, 02	ERDS2FJ102	1/4W 1K	2	
D391	MA165	DIODE	1		R703, 04	ERDS2TJ473T	1/4W 47K	2	
D401	1SS291TA	DIODE	1		R705, 06	ERDS2FJ102	1/4W 1K	2	
D402-04	MA165	DIODE	3		R707, 08	ERDS2FJ104	1/4W 100K	2	
$\Delta$ D405	MA4051MTA	DIODE	1		R709, 10	ERDS2FJ102	1/4W 1K	2	
D406	1SS291TA	DIODE	1		R711, 12	ERDS2TJ473T	1/4W 47K	2	
D501	MA165	DIODE	1		S301-08	EVQPTD05Q	SW	8	
D502	MA700TA	DIODE	1		S310-13	EVQPTD05Q	SW	4	
E101	SNE1004-2	EARTH TERMINAL	1		A401	EFDECA004T4	OSCILLATOR	1	
FL401	ISL0260-F	DISPLAT TUBE	1						
IC101	BA4558FDIE2	IC	1						
IC301	BU2090F-E2	IC	1						
IC401	IC65366A4H9B	IC	1						
IC501	BA3835F-E1	IC	1						
IC702	MC14052BFR2	IC	1						
JK101	RLT06SK20	SYSTEM	1						
JK701	SJF306R-7N	VCR IN	1						
JK702	SJF3069N	VCR	1						

# ■ Cabinet Parts Location

