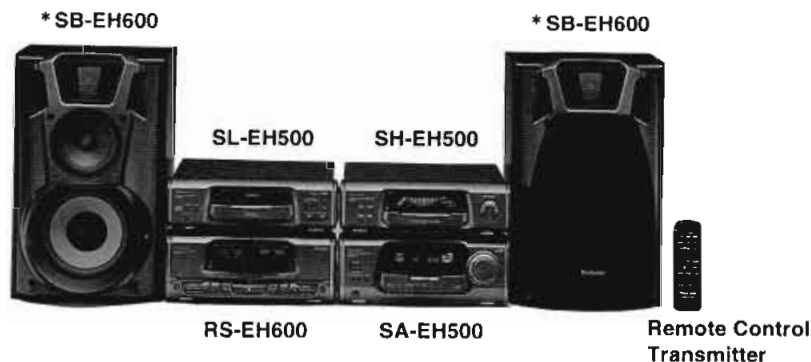


Service Manual

Sound Processor

Sound Processor
SH-EH500

**Colour**

(H) Gray Type

Area

(E) Europe.

System	SC-EH500
Sound Processor	SH-EH500
Tuner / Amplifier	SA-EH500
CD Player	SL-EH500
Cassette Deck	RS-EH600
Front Speakers*2	SB-EH600

* : Made in PAES

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

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

Spectrum analyzer Section

Display mode: NORMAL, PEAKHOLD, AURORA

General

Dimensions: 287 (W) × 89 (H) × 273.5 (D) mm
Weight: 1.1 kg

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

⚠ 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.

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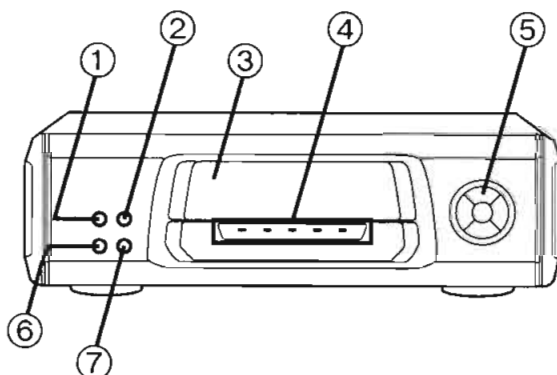
■ Contents

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NOTE:

Refer to the service manual for Model No. SA-EH500 for information on "Accessories", "Connections", "Installation", "Operations" and "Packaging".

■ Location of Controls



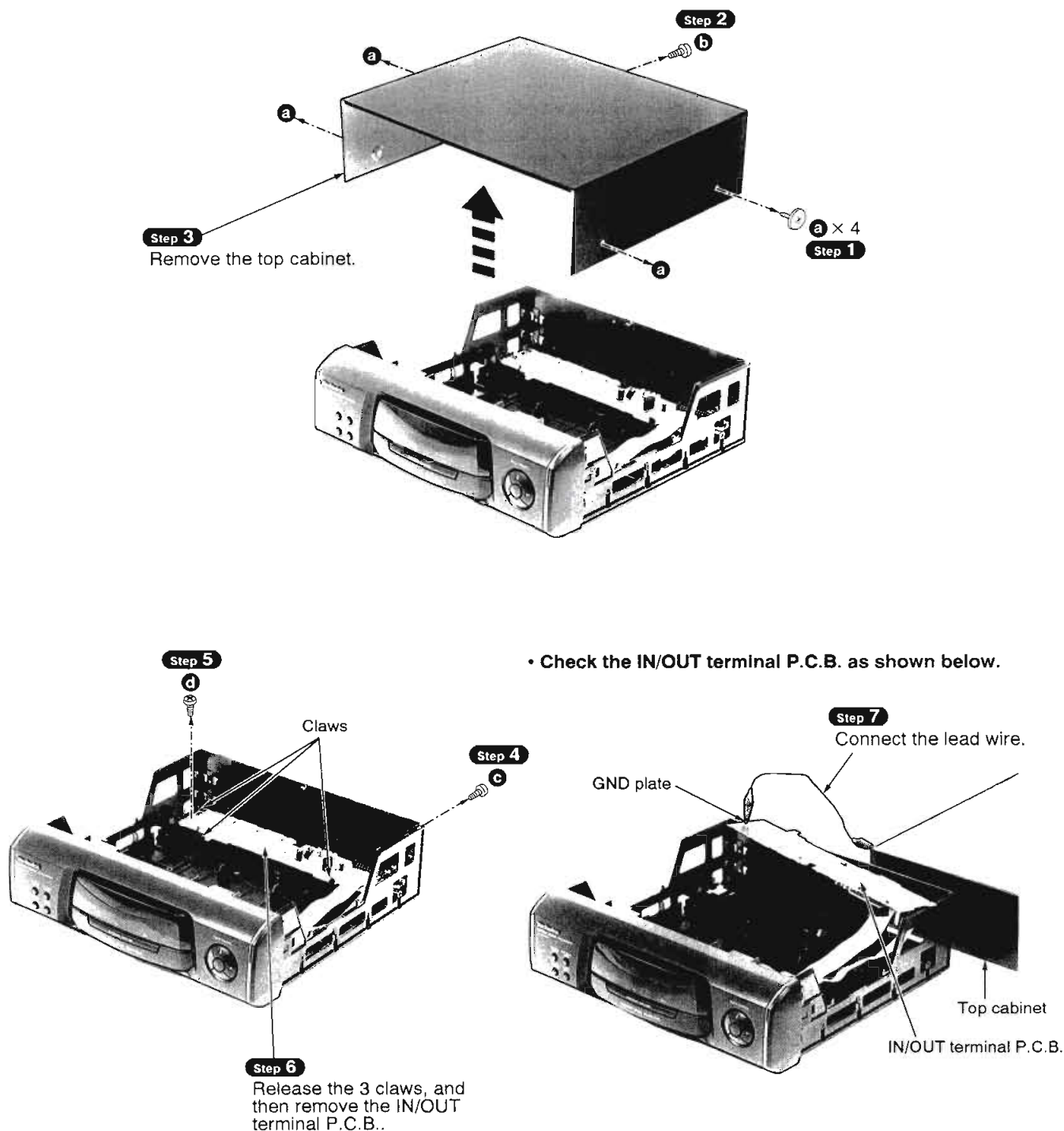
- ① EQ SPACE on/flat button (EQ SPACE ON/FLAT)
- ② Display mode select/demonstration button (DISP MODE/-DEMO)
- ③ Display
- ④ DOLBY PRO LOGIC indicators (SURROUND, 3 STEREO, NORMAL, WIDE, PHANTOM)
- ⑤ Multi control buttons (MULTI CONTROL, ►, ▲, ◄, ▼)
- ⑥ Acoustic image EQ button (ACOUSTIC IMAGE EQ)
- ⑦ EQ SPACE preset/manual select button (PRESET/MANUAL)

■ Operation Checks and Main Component Replacement Procedures

NOTE

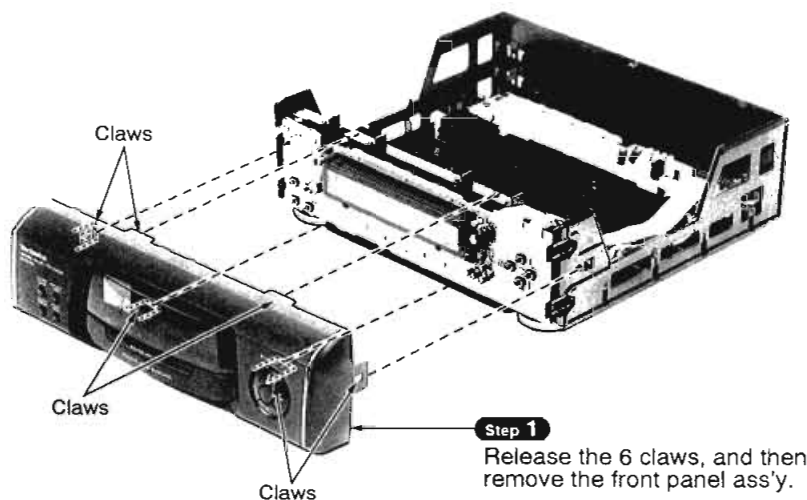
1. This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.
2. For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.

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



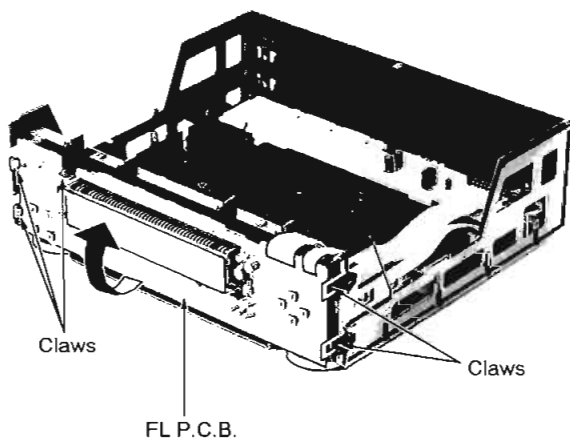
2. Checking for the FL P.C.B.

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

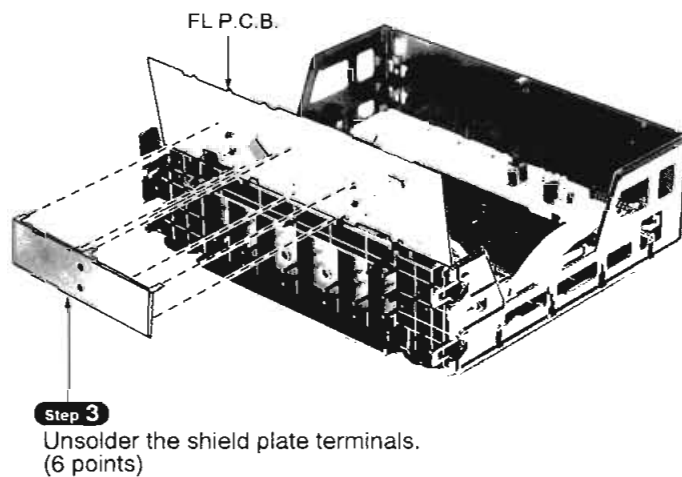


Step 2

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-EH500 is designed to operate on power supplied from the system connected. (For system connection, refer to Fig.1)

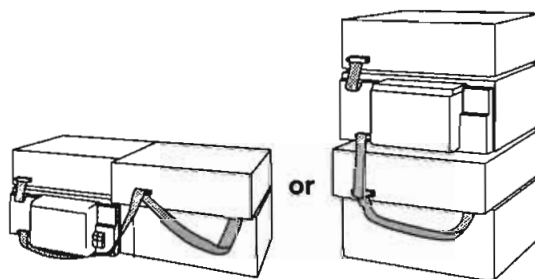
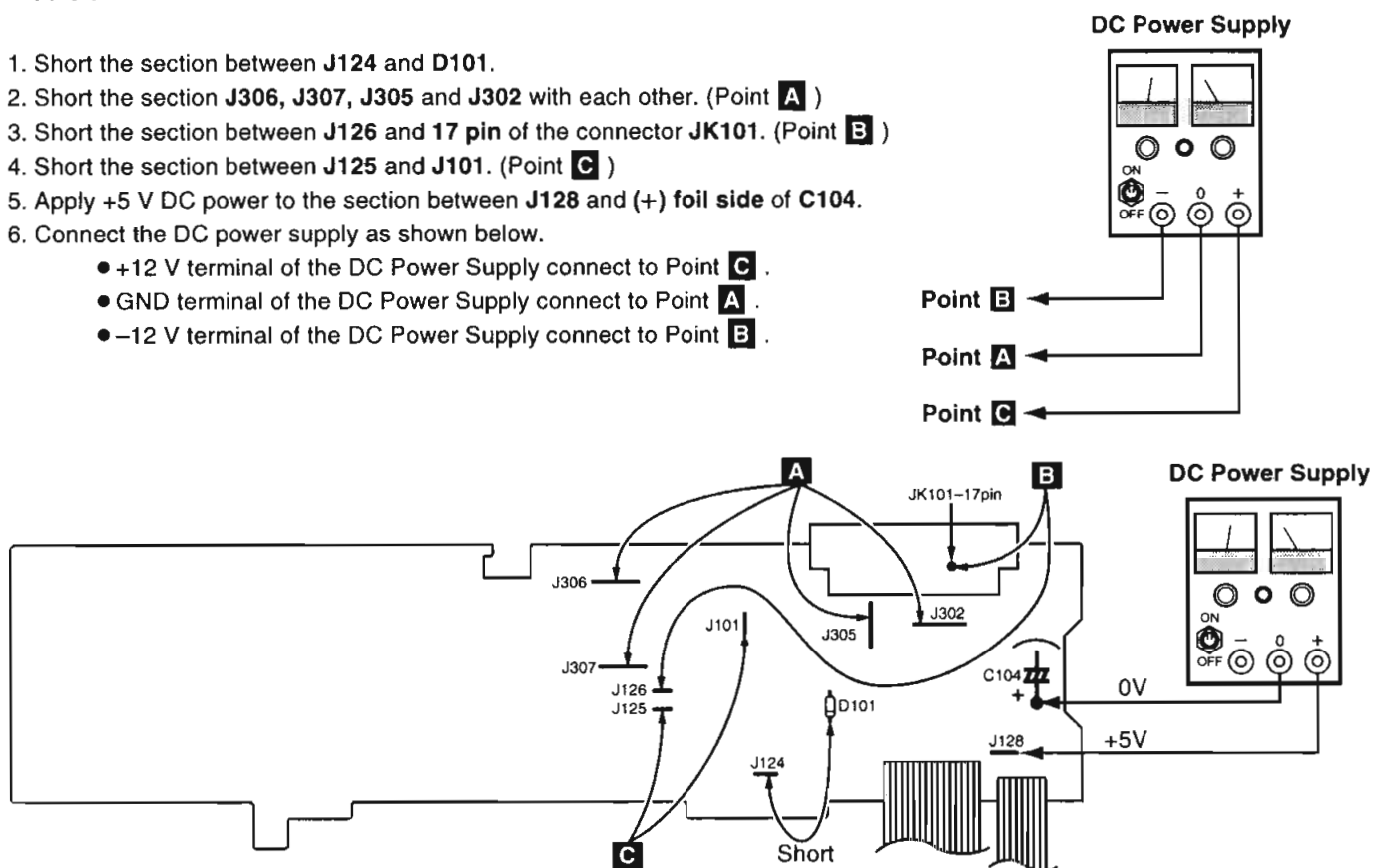


Fig. 1

When you have to test and service the unit SH-EH500 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** .



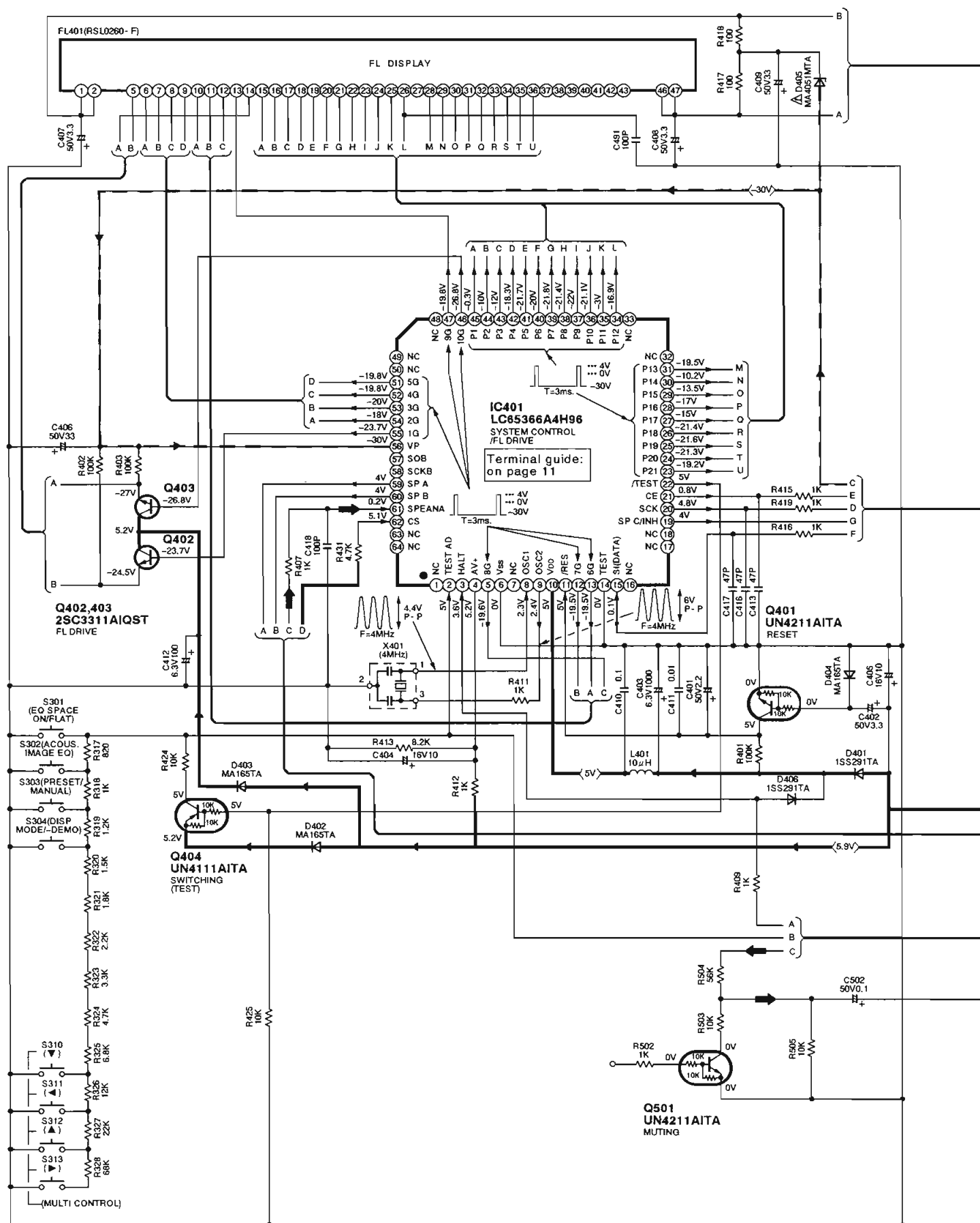
■ Schematic Diagram

	Page
A FL CIRCUIT	7, 8
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)
- **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 ⚠ 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
 - ▶ : Spectrum analyzer signal line

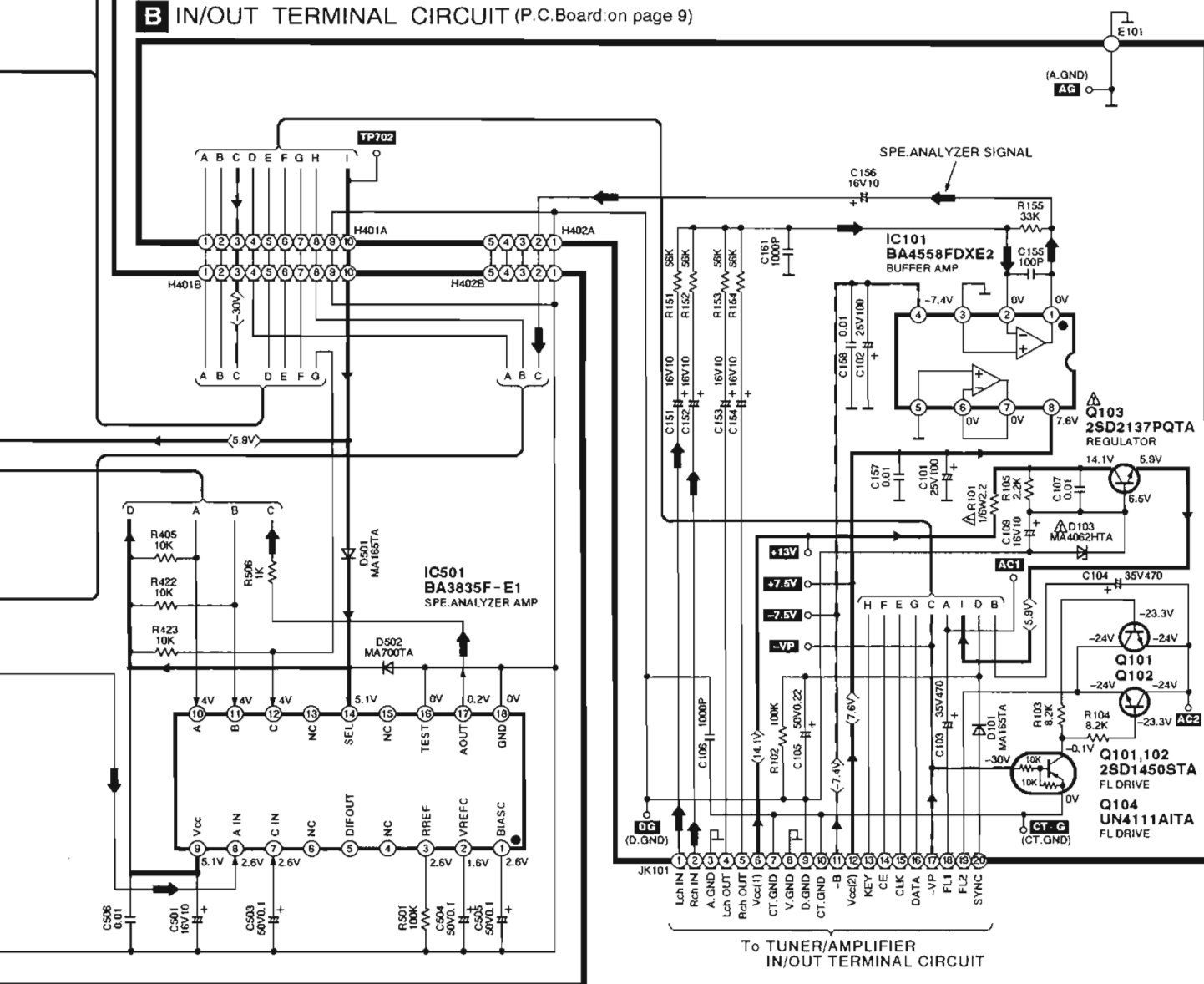


— : Positive voltage line

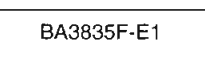
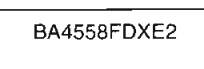
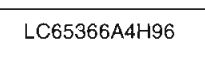
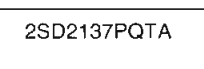



--- : Negative voltage line

— : Spectrum analyzer signal line

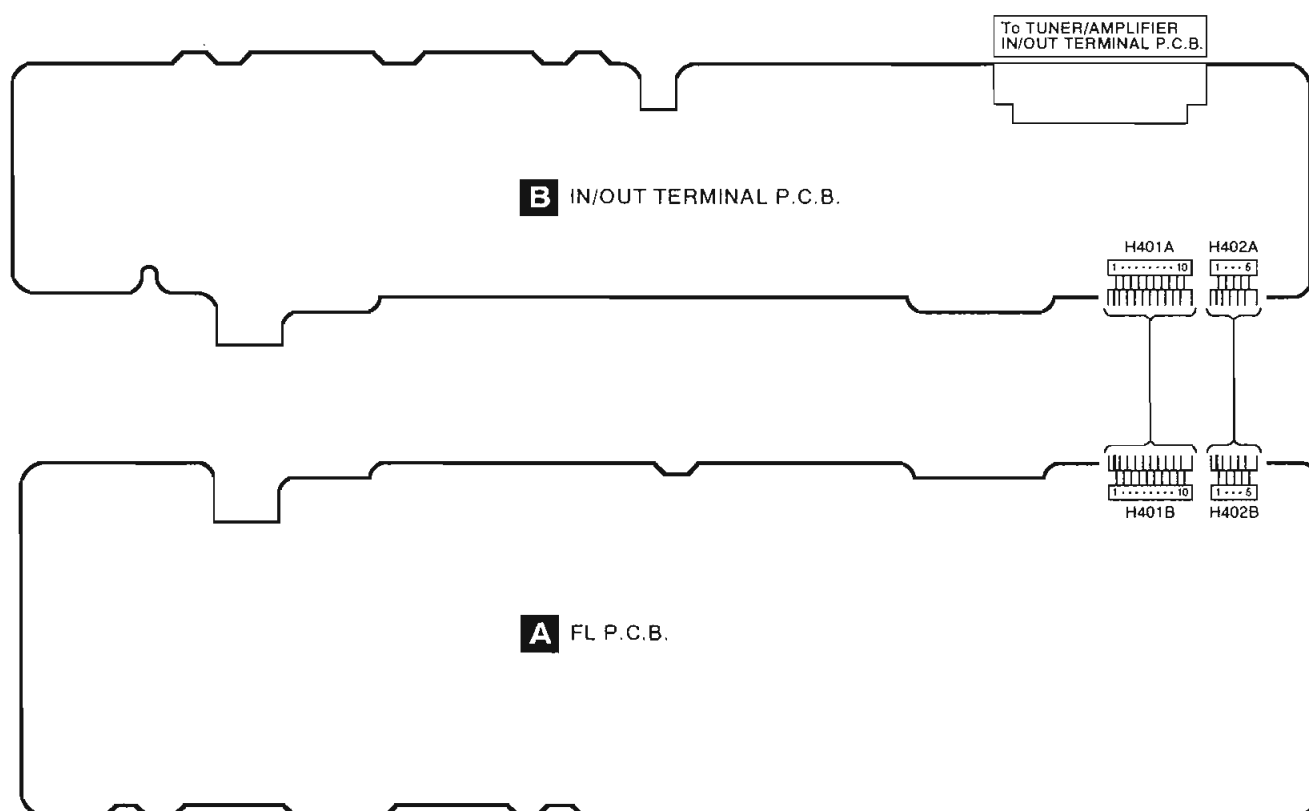
B IN/OUT TERMINAL CIRCUIT (P.C.Board: on page 9)



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

BA3835F-E1 	BA4558FDXE2 	LC65366A4H96 	2SD2137PQTA 	 2SC3311AIQST 2SD1450STA UN4111AITA UN4211AITA
MA4051MTA MA4062HTA 	1SS291TA MA165TA MA700TA 			

■ Wiring Connection Diagram



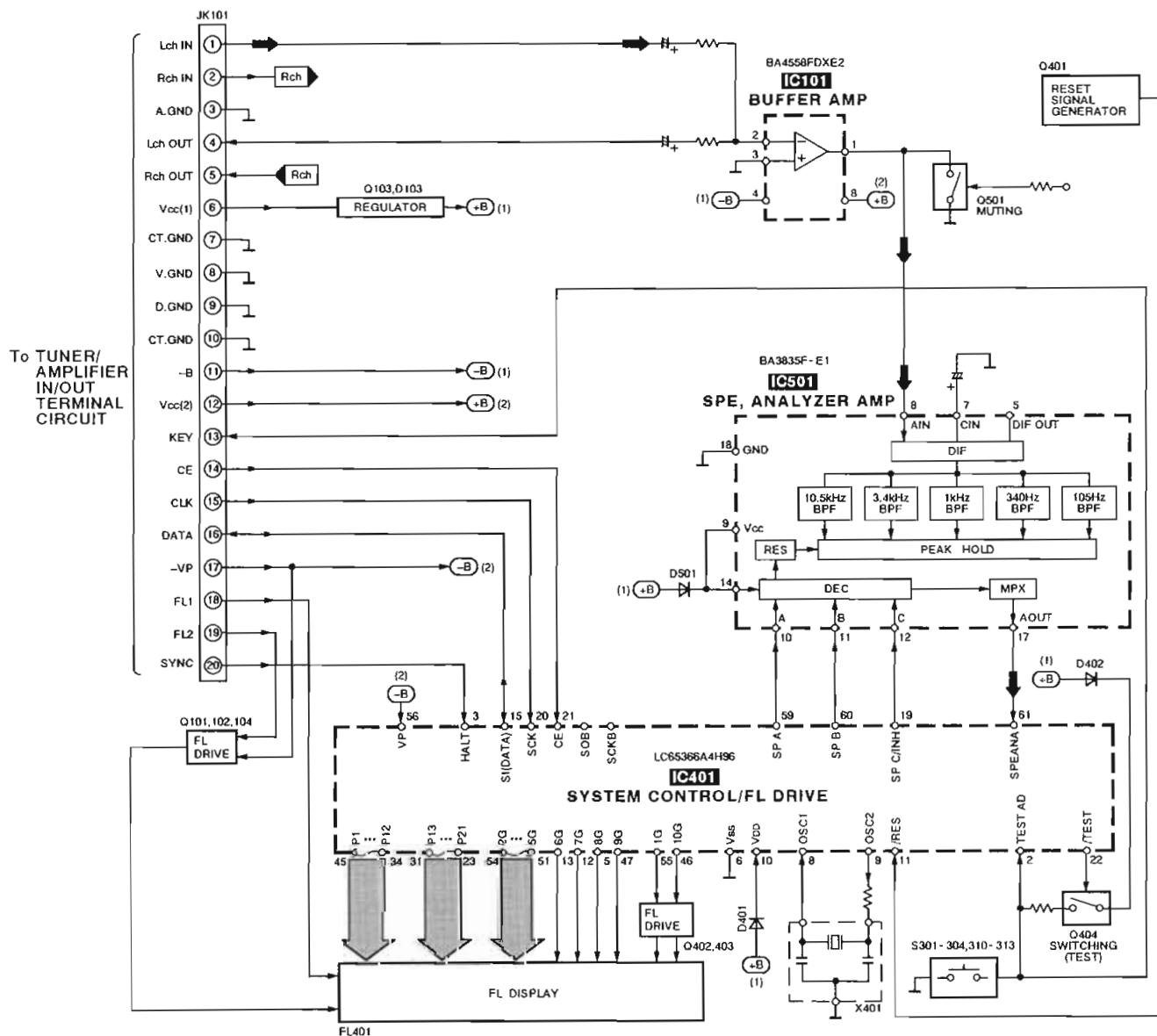
■ Terminal Function of IC's

● 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

➡ :SPE. ANALYZER SIGNAL



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 manufacture'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	RKM0302-H	CABINET	1		R151-54	ERDS2TJ563T	1/4W 56K	4	
2	RHD30007-K1	SCREW	4		R155	ERDS2TJ333T	1/4W 33K	1	
3	XTB3+8JFZ	SCREW	1		R317	ERDS2TJ821T	1/4W 820	1	
4	RMN0424	FL HOLDER	1		R318	ERDS2FJ102	1/4W 1K	1	
5	RKA0089-K	RUBBER	3		R319	ERDS2TJ122T	1/4W 1.2K	1	
6	RYP0733L-H	FRONT PANEL ASS'Y	1		R320	ERDS2TJ152T	1/4W 1.5K	1	
6-1	RKM0504-V	FL PANEL	1		R321	ERDS2TJ182T	1/4W 1.8K	1	
7	XTB3+8JFZ1	SCREW	1		R322	ERDS2FJ222	1/4W 2.2K	1	
8	XTB3+8JFZ	SCREW	1		R323	ERDS2TJ332T	1/4W 3.3K	1	
9	RWJ5710240UU	FLAT CABLE (10P)	1		R324	ERDS2FJ472	1/4W 4.7K	1	
10	RWJ5705240UU	FLAT CABLE (5P)	1		R325	ERDS2FJ682	1/4W 6.8K	1	
					R326	ERDS2TJ123T	1/4W 12K	1	
C101, 02	ECA1EM101B	25V 100U	2		R327	ERDS2TJ223T	1/4W 22K	1	
C103, 04	RCE1VM471BV	35V 470U	2		R328	ERDS2TJ683T	1/4W 68K	1	
C105	ECEA1HKA2R2B	50V 0.22U	1		R401-03	ERDS2FJ104	1/4W 100K	3	
C106	ECBT1H102KB5	50V 1000P	1		R405	ERDS2FJ103	1/4W 10K	1	
C107	ECBT1E103ZF5	25V 0.01U	1		R407	ERDS2FJ102	1/4W 1K	1	
C109	RCE1CKA100BG	16V 10U	1		R409	ERDS2FJ102	1/4W 1K	1	
C151-54	RCE1CKA100BG	16V 10U	4		R411, 12	ERDS2FJ102	1/4W 1K	2	
C155	ECBT1H101KB5	50V 100P	1		R413	ERDS2TJ822T	1/4W 8.2K	1	
C156	RCE1CKA100BG	16V 10U	1		R415, 16	ERDS2FJ102	1/4W 1K	2	
C157, 58	ECBT1E103ZF5	25V 0.01U	2		R417, 18	ERDS2FJ101	1/4W 100	2	
C161	ECBT1H102KB5	50V 1000P	1		R419	ERDS2FJ102	1/4W 1K	1	
C401	ECEA1HKA2R2B	50V 2.2U	1		R422-25	ERDS2FJ103	1/4W 10K	4	
C402	RCE1HKA3R3BG	50V 3.3U	1		R431	ERDS2FJ472	1/4W 4.7K	1	
C403	RCE0JU102BV	6.3V 1000U	1		R501	ERDS2FJ104	1/4W 100K	1	
C404, 05	RCE1CKA100BG	16V 10U	2		R502	ERDS2FJ102	1/4W 1K	1	
C406	ECEA1HKA330B	50V 33U	1		R503	ERDS2FJ103	1/4W 10K	1	
C407, 08	RCE1HKA3R3BG	50V 3.3U	2		R504	ERDS2TJ563T	1/4W 56K	1	
C409	ECEA1HKA330B	50V 33U	1		R505	ERDS2FJ103	1/4W 10K	1	
C410	ECBT1H104ZF5	50V 0.1U	1		R506	ERDS2FJ102	1/4W 1K	1	
C411	ECBT1E103ZF5	25V 0.01U	1						
C412	ECEA0JXS101B	6.3V 100U	1		S301-04	EVQPTD05Q	SW	4	
C413	ECBT1H470J5	50V 47P	1		S310-13	EVQPTD05Q	SW	4	
C416, 17	ECBT1H470J5	50V 47P	2						
C418	ECBT1H101KB5	50V 100P	1		X401	EF0EC4004T4	OSCILLATOR	1	
C491	ECBT1H101KB5	50V 100P	1						
C501	RCE1CKA100BG	16V 10U	1						
C502-05	ECEA1HKA0R1B	50V 0.1U	4						
C506	ECBT1E103ZF5	25V 0.01U	1						
D101	MA165	DIODE	1						
Δ D103	MA4062-H	DIODE	1						
D401	1SS291TA	DIODE	1						
D402-04	MA165	DIODE	3						
Δ D405	MA4051MTA	DIODE	1						
D406	1SS291TA	DIODE	1						
D501	MA165	DIODE	1						
D502	MA700TA	DIODE	1						
E101	SNE1004-2	EARTH TERMINAL	1						
FL401	RSL0260-F	DISPLAY TUBE	1						
IC101	BA4558PDXE2	IC	1						
IC401	LC65366AH96	IC	1						
IC501	BA3825F-E1	IC	1						
JK101	RJT065K20	SYSTEM	1						
L401	RLQA100JT-Y	COIL	1						
Q101, 02	2SD1450STA	TRANSISTOR	2						
Δ Q103	2SD2137PQTA	TRANSISTOR	1						
Q104	UN4111	TRANSISTOR	1						
Q401	UN4211	TRANSISTOR	1						
Q402, 03	2SC3371AIQST	TRANSISTOR	2						
Q404	UN4111	TRANSISTOR	1						
Q501	UN4211	TRANSISTOR	1						
Δ R101	ERQ16NKM2R2E	1/6W 2.2	1						
R102	ERDS2FJ104	1/4W 100K	1						
R103, 04	ERDS2TJ822T	1/4W 8.2K	2						
R105	ERDS2FJ222	1/4W 2.2K	1						

■ Cabinet Parts Location

