

AD-50

U,C,E

GRAPHIC EQUALIZER BOOSTER

SERVICE MANUAL



SPECIFICATIONS

Power source	DC 13.8 V (11 ~ 16 V allowable)
Grounding system	Negative type
Max. current consumption	6 A
Dimensions (W x H x D)	150 x 65 x 180 mm (5-7/8 x 2-1/2 x 7-1/8 in.)
Weight	1.6 kg (3.5 lbs.)
Power output (max.)	25 W + 25 W
(continuous at 1 kHz, 1% distortion)	15 W + 15 W
Graphic range	
Equalization range	± 12 dB
Equalization frequency	60 Hz, 250 Hz, 1 kHz, 3.5 kHz, 10 kHz
Frequency response	30 ~ 30,000 Hz (-3 dB)
Signal-to-noise ratio	More than 65 dB
Input level	2 V / 150 Ω
Load impedance	4 Ω (4 ~ 8 Ω allowable)

Note:

Specifications and the design subject to possible modification without notice due to improvements.

 **PIONEER**[®]

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1. PARTS LOCATION AD-50

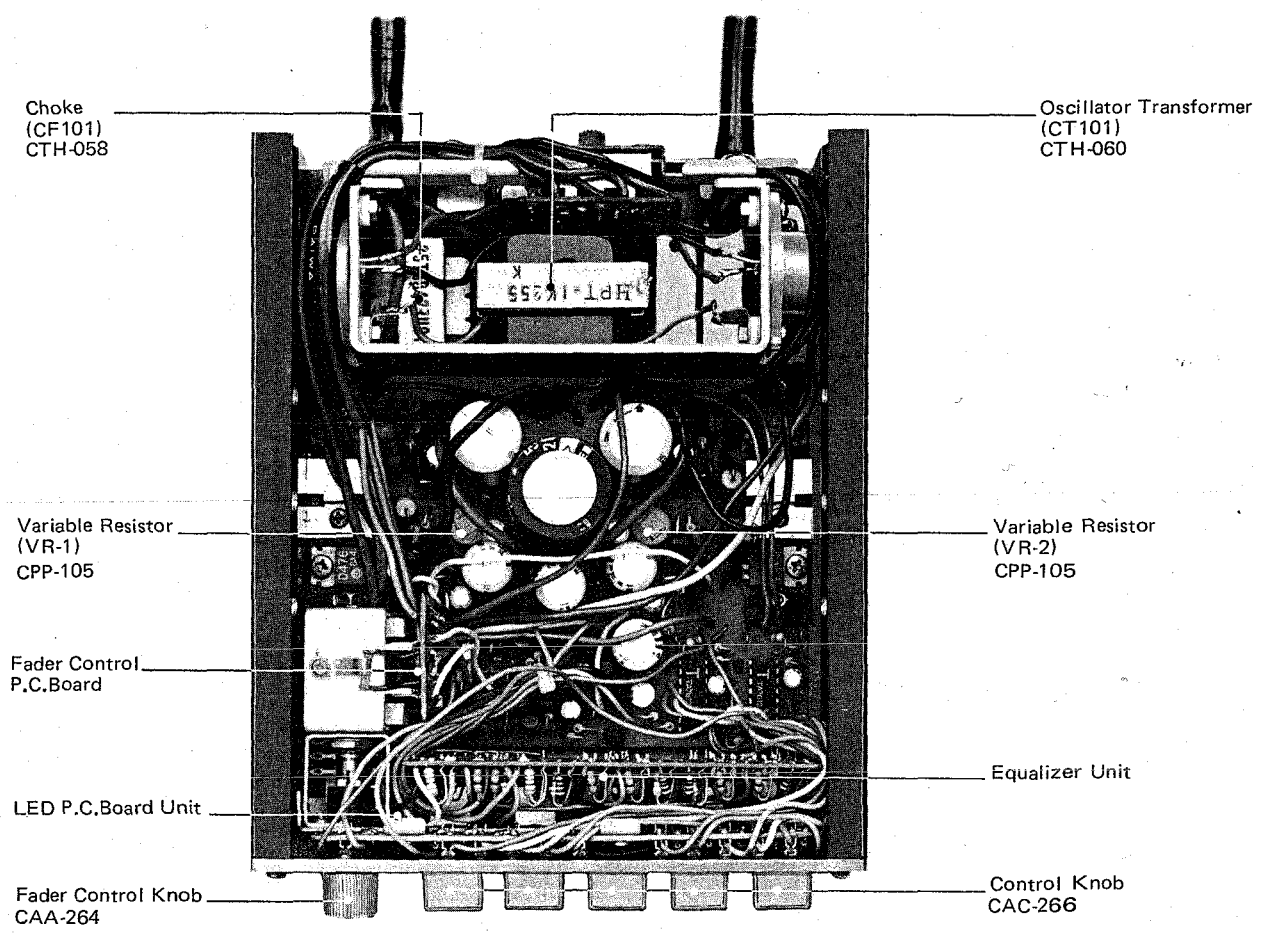


Figure 1

2. DISASSEMBLY

- To remove TOP COVER (See figure 2.)

1. Remove four "A" screws from the rear side.
2. Slide off the top cover in the direction of the arrow.

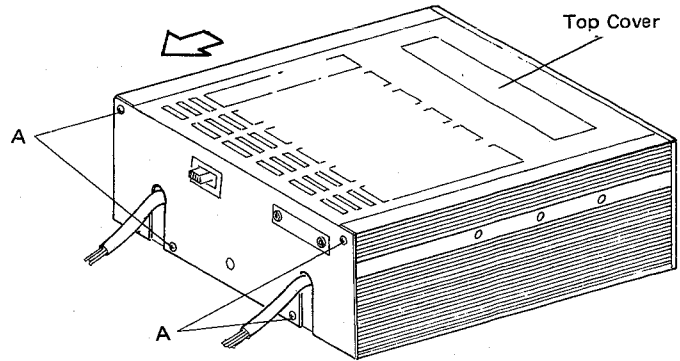


Figure 2

- To remove BEZEL FRONT (See figure 3.)

1. Remove four "B" screws and pull off the control knobs.
2. Now, the bezel front will be detached by moving it toward you.

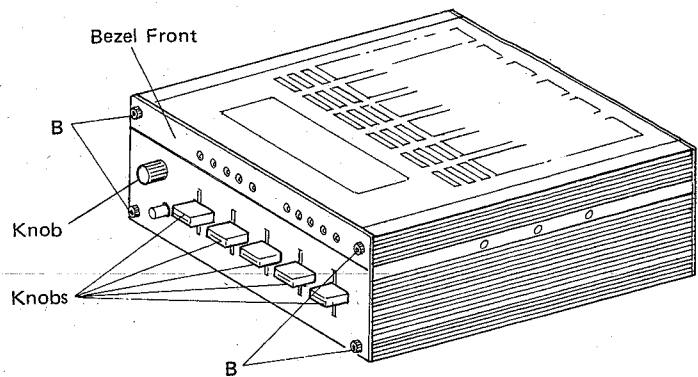


Figure 3

- To remove BOTTOM COVER (See figure 4.)

1. Remove the top cover.
2. Remove two "C" screws from the bottom cover.
3. Remove cord clampers located at the rear part of the bottom cover by removing the securing screws.
4. Slide off the bottom cover in the direction of the arrow.

- To remove LED P.C.Board and FRONT BRACKET (See figure 4.)

1. Remove two "D" screws.
2. Disconnect all wires from the P.C.Board.
3. LED P.C.Board will be then completely removed.
4. Remove ten "E" screws securing the slide controls and two "F" screws.
5. Then, detach the bracket.

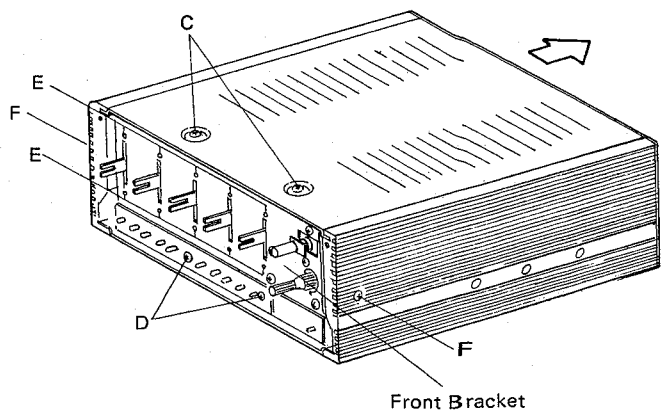


Figure 4

3. ADJUSTMENT

AD-50

• Connection Diagram

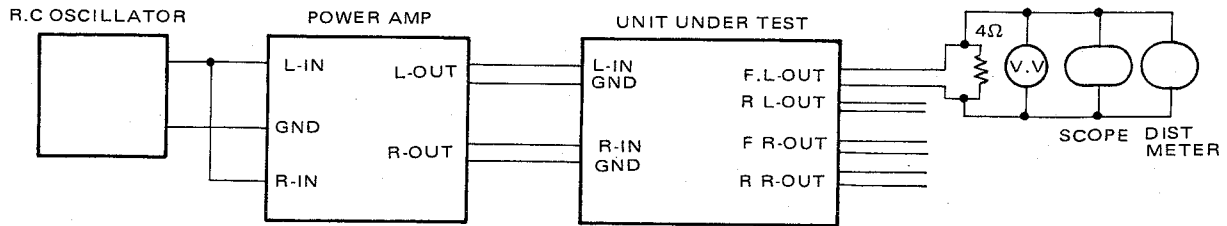


Figure 5

• Control Settings

Fader Control Extreme front or rear position
 —Do not test front and rear outputs simultaneously.

Equalizer Controls Center position (Flat)

• Procedure

Figure 6 shows the typical characteristic curve.

1. Connect instruments as shown in figure 5.
2. Set the fader and equalizer controls as described above.
3. Adjust the test oscillator output for 0.02 volt inputs to the unit under testing.
4. Gradually increase the oscillator output until non-clipping maximum output is obtained watching the oscilloscope and read V.T.V.M. to measure the output level. The value must be no less than 7.5 volts.
5. If the output is less than this level, adjust VR1 for the right channel, or VR2 for the left channel.

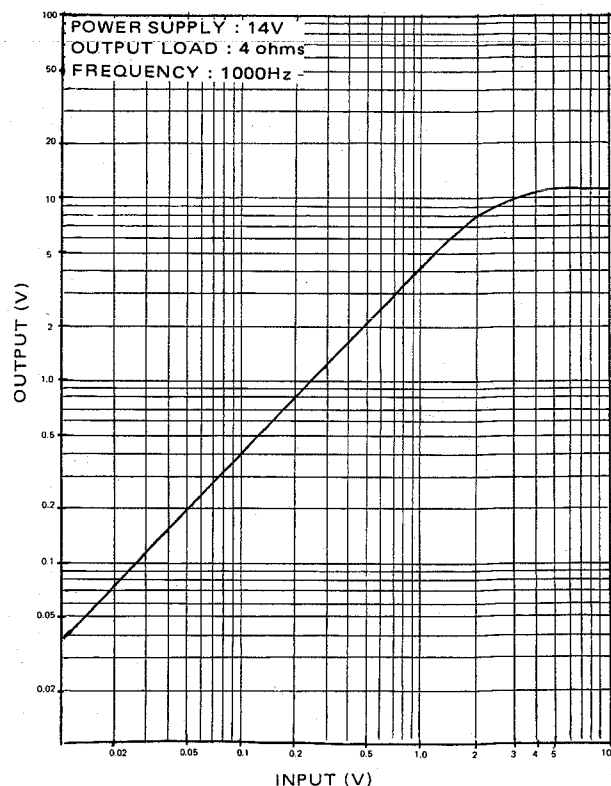


Figure 6

4. BLOCK DIAGRAM

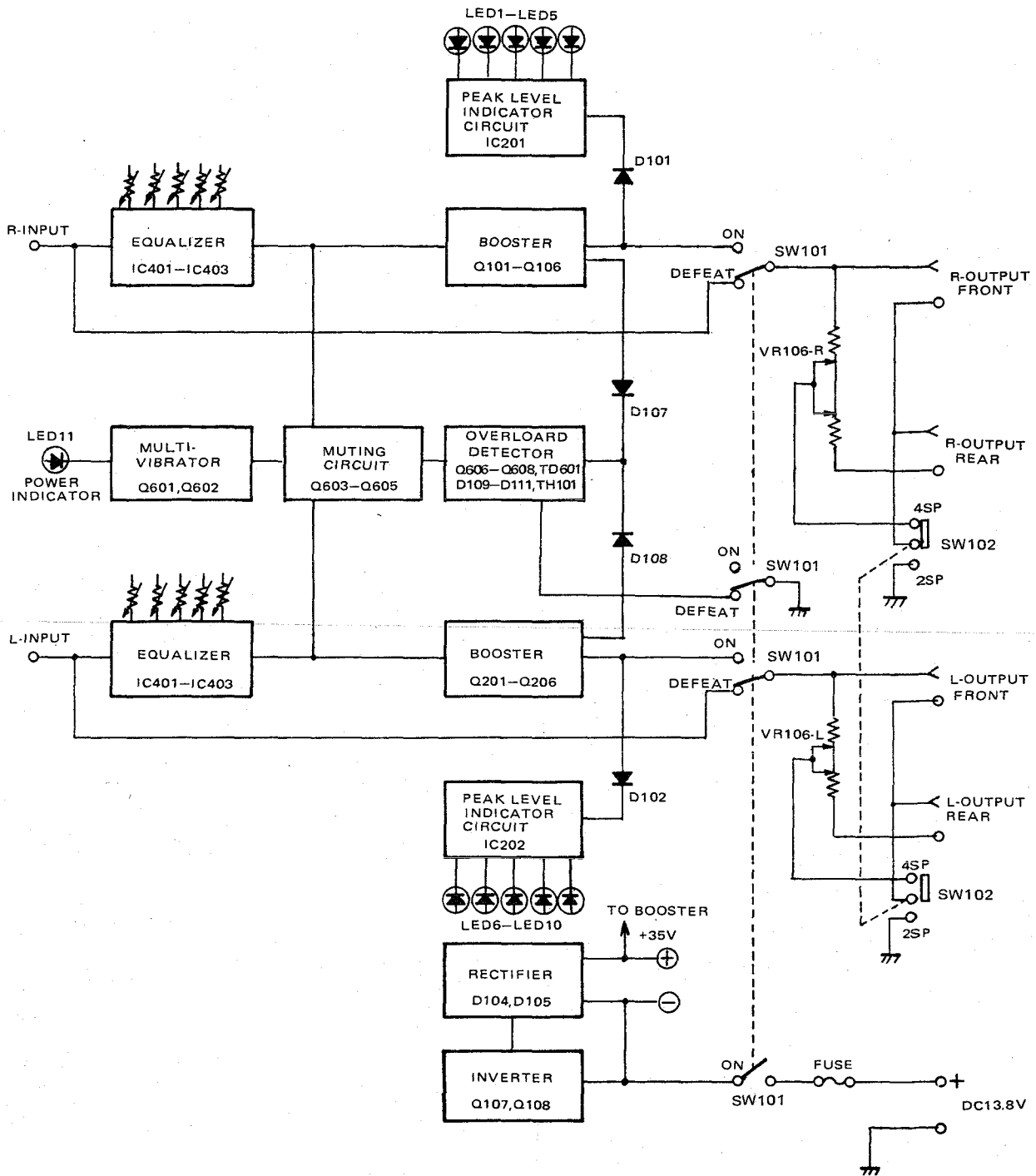


Figure 7

BOOSTER P.C.BOARD UNIT (CXB-893)

• Parts List

MISCELLANEOUS

Ref. Key	Parts No.	Description	Notes
IC201	TA7612P	IC	
IC202	TA7612P	IC	
Q101	2SD476-C	Transistor	
Q102	2SD476-C	Transistor	
Q103	2SD667-C	Transistor	
Q104	2SB647-C	Transistor	
Q105	2SC1213	Transistor	
Q106	2SA673-C	Transistor	
Q107	2SD673-AC	Transistor	
Q108	2SD673-AC	Transistor	
Q201	2SD476-C	Transistor	
Q202	2SD476-C	Transistor	
Q203	2SD677-C	Transistor	
Q204	2SB647-C	Transistor	
Q205	2SC1213	Transistor	
Q206	2SA673-C	Transistor	
Q601	2SC373	Transistor	interchangeable with 2SC945
Q602	2SC373	Transistor	interchangeable with 2SC945
Q603	2SC733-BL	Transistor	interchangeable with 2SC900-E
Q604	2SC733-BL	Transistor	interchangeable with 2SC900-E
Q605	2SC373	Transistor	interchangeable with 2SC945
Q606	2SC733-BL	Transistor	interchangeable with 2SC900-E
Q607	2SC733-BL	Transistor	interchangeable with 2SC900-E
Q608	2SC373	Transistor	interchangeable with 2SC945
D101	1S1555	Diode	
D102	1S1555	Diode	
D103	HZ9B-3	Diode	
D104	C3A1L	Diode	
D105	C3A1LR	Diode	
D106	30D1	Diode	
D107	1S1555	Diode	
D108	1S1555	Diode	
D109	1S1555	Diode	
D110	1S1555	Diode	
D111	1S1555	Diode	
D112	VD1220	Diode	
D113	VD1220	Diode	
TD601	O3P1N	S.C.R.	interchangeable with FOR1B
TH101	D33A	Thermistor	
VR1	CPP-105	Variable Resistor 470Ω	
VR2	CPP-105	Variable Resistor 470Ω	
CT101	CTH-060	Converter	
CF101	CTH-058	Choke Filter (0.3mH)	

BOOSTER P.C.BOARD UNIT (CXB-893) AD-50

RESISTORS

Ref. Key	Parts No.	Description			Ref. Key	Parts No.	Description		
R101	RD1/4VS273J	Resistor	27kΩ	1/4W	R219	RD1/4VS473J	Resistor	47kΩ	1/4W
R102	RD1/4VS223J	Resistor	22kΩ	1/4W	R220	RD1/4VS152J	Resistor	1.5kΩ	1/4W
R103	RD1/4VS681J	Resistor	680Ω	1/4W	R221	RD1/4VS103J	Resistor	10kΩ	1/4W
R104	RD1/4VS151J	Resistor	150Ω	1/4W	R222	RD1/4VS183J	Resistor	18kΩ	1/4W
R105	RD1/4VS222J	Resistor	2.2kΩ	1/4W	R228	RD1/4VS153J	Resistor	15kΩ	1/4W
R106	RD1/4VS102J	Resistor	1kΩ	1/4W	R231	RS2P0R2K	Resistor	0.2Ω	2W
R107	RD1/4VS332J	Resistor	3.3kΩ	1/4W	R232	RS2P0R2K	Resistor	0.2Ω	2W
R108	RD1/4VS391J	Resistor	390Ω	1/4W	R230	RD1/8PS153J	Resistor	15kΩ	1/8W
R109	RD1/4VS150J	Resistor	15Ω	1/4W	R501	RS2P221J	Resistor	220Ω	2W
R110	RD1/4VS181J	Resistor	180Ω	1/4W	R502	RS1P220J	Resistor	22Ω	1W
R111	RD1/4VS2R7J	Resistor	2.7Ω	1/4W	R504	RD1/2VS121J	Resistor	120Ω	1/2W
R112	RD1/4VS181J	Resistor	180Ω	1/4W	R505	RD1/4VS562J	Resistor	5.6kΩ	1/4W
R113	RS2P0R2K	Resistor	0.2Ω	2W	R506	RD1/4VS562J	Resistor	5.6kΩ	1/4W
R114	RS2P0R2K	Resistor	0.2Ω	2W	R601	RD1/4VS122J	Resistor	1.2kΩ	1/4W
R115	RD1/4VS150J	Resistor	15Ω	1/4W	R602	RD1/4VS103J	Resistor	10kΩ	1/4W
R116	RD1/2VS471J	Resistor	470Ω	1/2W	R603	RD1/4VS123J	Resistor	12kΩ	1/4W
R117	RD1/2VS101J	Resistor	100Ω	1/2W	R604	RD1/4VS103J	Resistor	10kΩ	1/4W
R118	RD1/4VS470J	Resistor	47Ω	1/4W	R605	RD1/4VS683J	Resistor	68kΩ	1/4W
R119	RD1/4VS473J	Resistor	47kΩ	1/4W	R607	RD1/4VS105J	Resistor	1MΩ	1/4W
R120	RD1/4VS152J	Resistor	1.5kΩ	1/4W	R608	RD1/4VS222J	Resistor	2.2kΩ	1/4W
R121	RD1/4VS103J	Resistor	10kΩ	1/4W	R609	RD1/4VS221J	Resistor	220Ω	1/4W
R122	RD1/4VS183J	Resistor	18kΩ	1/4W	R610	RD1/4VS223J	Resistor	22kΩ	1/4W
R128	RD1/4VS153J	Resistor	15kΩ	1/4W	R611	RD1/4VS223J	Resistor	22kΩ	1/4W
R129	RD1/4VS272J	Resistor	2.7kΩ	1/4W	R612	RD1/4VS222J	Resistor	2.2kΩ	1/4W
R130	RD1/8PS153J	Resistor	15kΩ	1/8W	R613	RD1/4VS472J	Resistor	4.7kΩ	1/4W
R131	RS2P0R2K	Resistor	0.2Ω	2W	R614	RD1/4VS102J	Resistor	1kΩ	1/4W
R132	RS2P0R2K	Resistor	0.2Ω	2W	R615	RD1/4VS152J	Resistor	1.5kΩ	1/4W
R201	RD1/4VS273J	Resistor	27kΩ	1/4W	R616	RD1/4VS223J	Resistor	22kΩ	1/4W
R202	RD1/4VS223J	Resistor	22kΩ	1/4W	R617	RD1/4VS272J	Resistor	2.7kΩ	1/4W
R203	RD1/4VS681J	Resistor	680Ω	1/4W	R618	RD1/4VS222J	Resistor	2.2kΩ	1/4W
R204	RD1/4VS151J	Resistor	150Ω	1/4W	R619	RD1/4VS104J	Resistor	100kΩ	1/4W
R205	RD1/4VS222J	Resistor	2.2kΩ	1/4W	R620	RD1/4VS104J	Resistor	100kΩ	1/4W
R206	RD1/4VS102J	Resistor	1kΩ	1/4W	R621	RD1/4VS152J	Resistor	1.5kΩ	1/4W
R207	RD1/4VS332J	Resistor	3.3kΩ	1/4W	R622	RD1/8PS562J	Resistor	5.6kΩ	1/8W
R208	RD1/4VS391J	Resistor	390Ω	1/4W	R623	RD1/8PS124J	Resistor	120kΩ	1/8W
R209	RD1/4VS150J	Resistor	15Ω	1/4W	R624	RD1/4PS561J	Resistor	560Ω	1/4W
R210	RD1/4VS181J	Resistor	180Ω	1/4W	R626	RD1/4PS273J	Resistor	27kΩ	1/4W
R211	RD1/4VS2R7J	Resistor	2.7Ω	1/4W					
R212	RD1/4VS181J	Resistor	180Ω	1/4W					
R213	RS2P0R2K	Resistor	0.2Ω	2W					
R214	RS2P0R2K	Resistor	0.2Ω	2W					
R215	RD1/4VS150J	Resistor	15Ω	1/4W					
R216	RD1/2VS471J	Resistor	470Ω	1/2W					
R217	RD1/2VS101J	Resistor	100Ω	1/2W					
R218	RD1/4VS470J	Resistor	47Ω	1/4W					

BOOSTER P.C.BOARD UNIT (CXB-893)

CAPACITORS

Ref. Key	Parts No.	Description	Ref. Key	Parts No.	Description
C101	CEA100P25	Capacitor 10 μ F 25V	C207	CEA470P16	Capacitor 47 μ F 16V
C102	CKDYB331M50	Capacitor 330pF 50V	C208	CQMA333K50	Capacitor 0.033 μ F 50V
C103	CEA471P16	Capacitor 470 μ F 16V	C209	CEA222P25	Capacitor 2200 μ F 25V
C104	CCDSL470J50	Capacitor 47pF 50V	C210	CEA220P10	Capacitor 22 μ F 10V
C105	CEA470P16	Capacitor 47 μ F 16V	C211	CEAR47M50	Capacitor 0.47 μ F 50V
C106	CCDSL101K50	Capacitor 100pF 50V	C212	CKDYF104Z25	Capacitor 0.1 μ F 25V
C107	CEA470P10	Capacitor 47 μ F 10V	C501	CEA102P16	Capacitor 1000 μ F 16V
C108	CQMA333K50	Capacitor 0.033 μ F 50V	C502	CEA101M10BP	Capacitor 100 μ F 10V
C109	CEA222P25	Capacitor 2200 μ F 25V	C503	CQMA104K50	Capacitor 0.1 μ F 50V
C110	CEA220P10	Capacitor 22 μ F 10V	C504	CEA471P35	Capacitor 470 μ F 35V
C111	CEAR47M50	Capacitor 0.47 μ F 50V	C505	CEA222P50	Capacitor 2200 μ F 50V
C112	CKDYF104Z12	Capacitor 0.1 μ F 12V	C506	CEA471P10	Capacitor 470 μ F 10V
C113	CEA221P35	Capacitor 220 μ F 35V	C507	CEA470P10	Capacitor 47 μ F 10V
C201	CEA100P25	Capacitor 10 μ F 25V	C508	CKDYF103Z50	Capacitor 0.01 μ F 50V
C202	CKDYB331M50	Capacitor 330pF 50V	C601	CEAR33M50	Capacitor 0.33 μ F 50V
C203	CEA471P16	Capacitor 470 μ F 16V	C602	CEA4R7P25	Capacitor 4.7 μ F 25V
C204	CCDSL470J50	Capacitor 47pF 50V	C603	CEA220P10	Capacitor 22 μ F 10V
C205	CEA470P16	Capacitor 47 μ F 16V	C604	CEA010P50	Capacitor 1 μ F 50V
C206	CCDSL101K50	Capacitor 100pF 50V	C605	CEA4R7P25	Capacitor 4.7 μ F 25V
			C606	CQMA222K50	Capacitor 0.0022 μ F 50V

8. LED P.C. BOARD UNIT

• Parts Connection

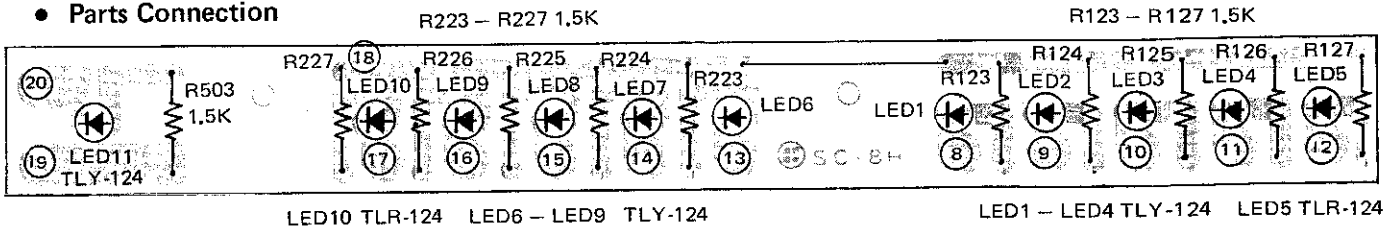


Figure 11

• Parts List

Ref. Key	Parts No.	Description	Ref. Key	Parts No.	Description
LED1	TLY-124	L.E.D.	R123	RD1/4PS152J	Resistor 1.5k Ω 1/4W
LED2	TLY-124	L.E.D.	R124	RD1/4PS152J	Resistor 1.5k Ω 1/4W
LED3	TLY-124	L.E.D.	R125	RD1/4PS152J	Resistor 1.5k Ω 1/4W
LED4	TLY-124	L.E.D.	R126	RD1/4PS152J	Resistor 1.5k Ω 1/4W
LED5	TLR-124	L.E.D.	R127	RD1/4PS152J	Resistor 1.5k Ω 1/4W
LED6	TLY-124	L.E.D.	R223	RD1/4PS152J	Resistor 1.5k Ω 1/4W
LED7	TLY-124	L.E.D.	R224	RD1/4PS152J	Resistor 1.5k Ω 1/4W
LED8	TLY-124	L.E.D.	R225	RD1/4PS152J	Resistor 1.5k Ω 1/4W
LED9	TLY-124	L.E.D.	R226	RD1/4PS152J	Resistor 1.5k Ω 1/4W
LED10	TLR-124	L.E.D.	R227	RD1/4PS152J	Resistor 1.5k Ω 1/4W
LED11	TLR-124	L.E.D.	R503	RD1/4VS152J	Resistor 1.5k Ω 1/4W

9. FADER CONTROL P.C. BOARD

• Parts Connection

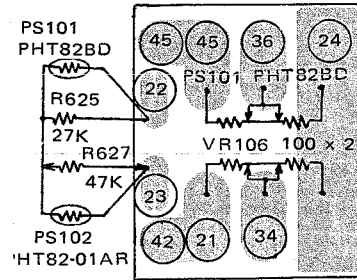


Figure 12

• Parts List

Ref. Key	Parts No.	Description	Notes
VR106	CCW-006	Variable Resistor 100Ωx2	
PS101	PHT82BD	Posistor	
R625	RD1/4PS273J	Resistor 27kΩ	
PS102	PHT82-01AR	Posistor	interchangeable with PHT82-02AR + R627 (47kΩ RD1/4PS473J 1/4W)

10. PUSH SWITCH P.C. BOARD UNIT

• Parts Connection

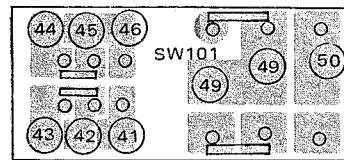


Figure 13

• Parts List

Ref. Key	Parts No.	Description	Notes
SW101	CSG-124	Push Switch	

11. SLIDE SWITCH P.C. BOARD UNIT

• Parts Connection

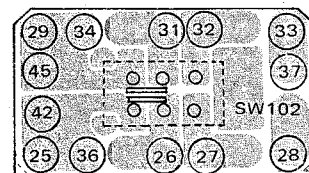


Figure 14

• Parts List

Ref. Key	Parts No.	Description	Notes
SW102	CSH-064	Slide Switch	

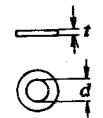
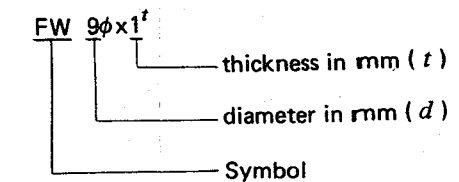
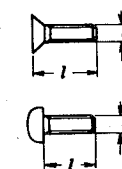
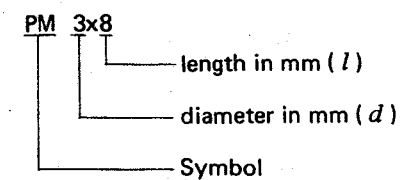
12. NOMENCLATURE OF SCREWS, WASHERS AND NUTS

The following symbols stand for screws, washers and nuts as shown in exploded view.

Symbol	Description	Shape
RT	Brazier head tapping screw	
PT	Pan head tapping screw	
BT	Binding head tapping screw	
CT	Countersunk head tapping screw	
TT	Truss head tapping screw	
OCT	Oval countersunk head tapping screw	
PM	Pan head machine screw	
CM	Countersunk head machine screw	
OCM	Oval countersunk head machine screw	
TM	Truss head machine screw	
BM	Binding head machine screw	
PSA	Pan head screw with spring lock washer	
PSB	Pan head screw with spring lock washer and flat washer	
PSF	Pan head screw with flat washer	

Symbol	Description	Shape
EW	E type washer	
FW	Flat washer	
SW	Spring lock washer	
N	Nut	
WN	Washer faced nut	
ITW	Internal toothed lock washer	
OTW	Outernal toothed lock washer	
SC	Slotted set screw (Cone point)	
SF	Slotted set screw (Flat point)	
HS	Hexagon socket headless set screw	
OCW	Oval countersunk head wood screw	
CW	Countersunk head wood screw	
RW	Round head wood screw	

EXAMPLE



NOTICE: Parts whose numbers are omitted are subject to being not supplied.

14. PACKING METHOD

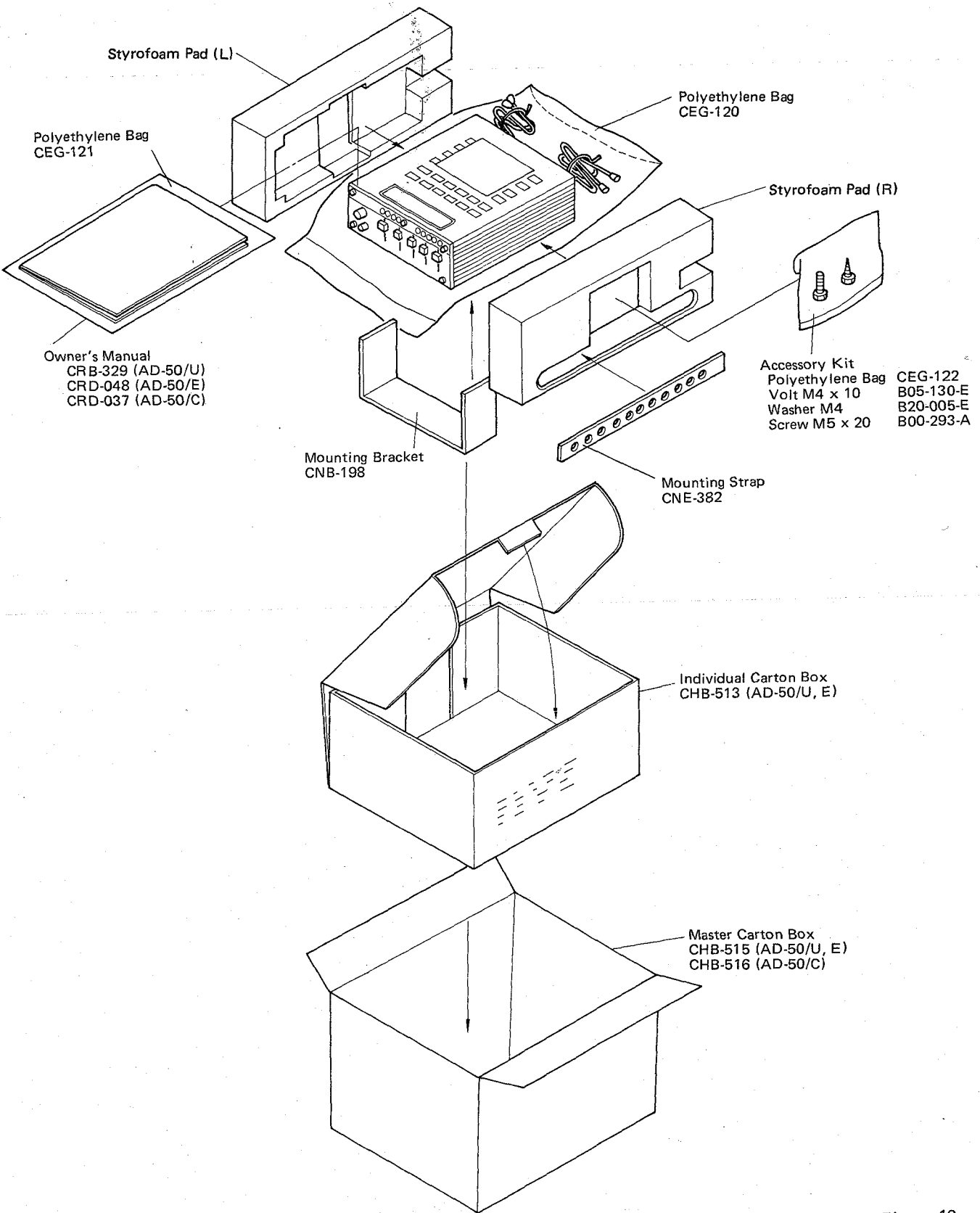


Figure 16