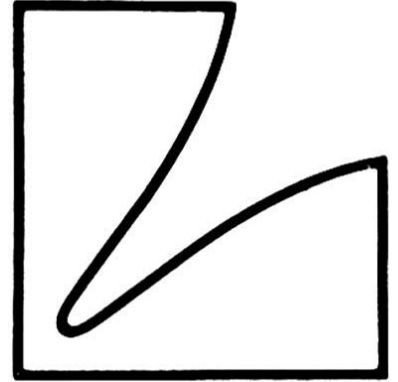
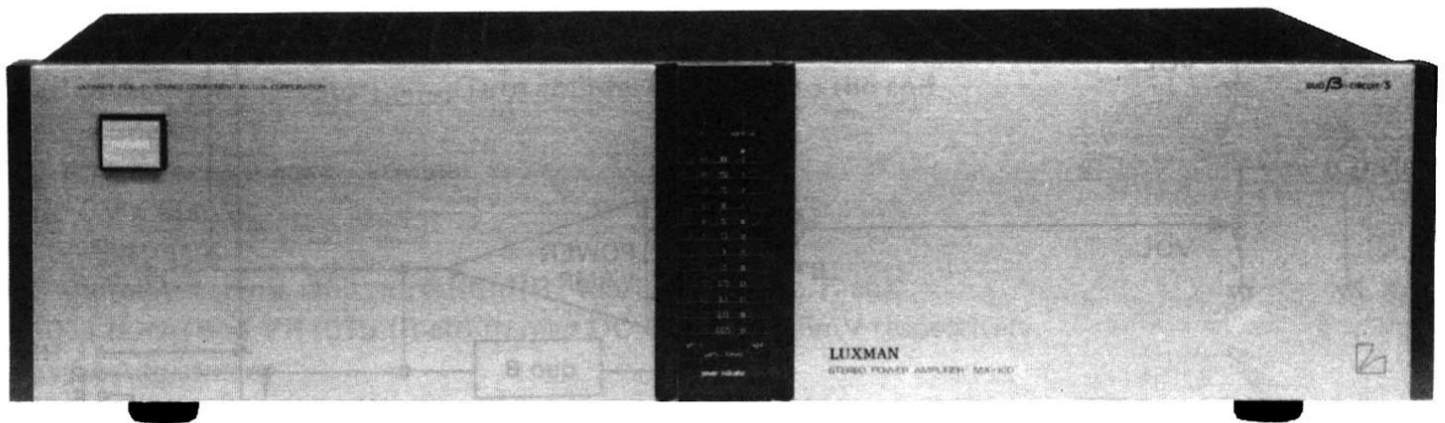


SERVICE MANUAL



Duo-Beta/S 140W/channel Power Amplifier

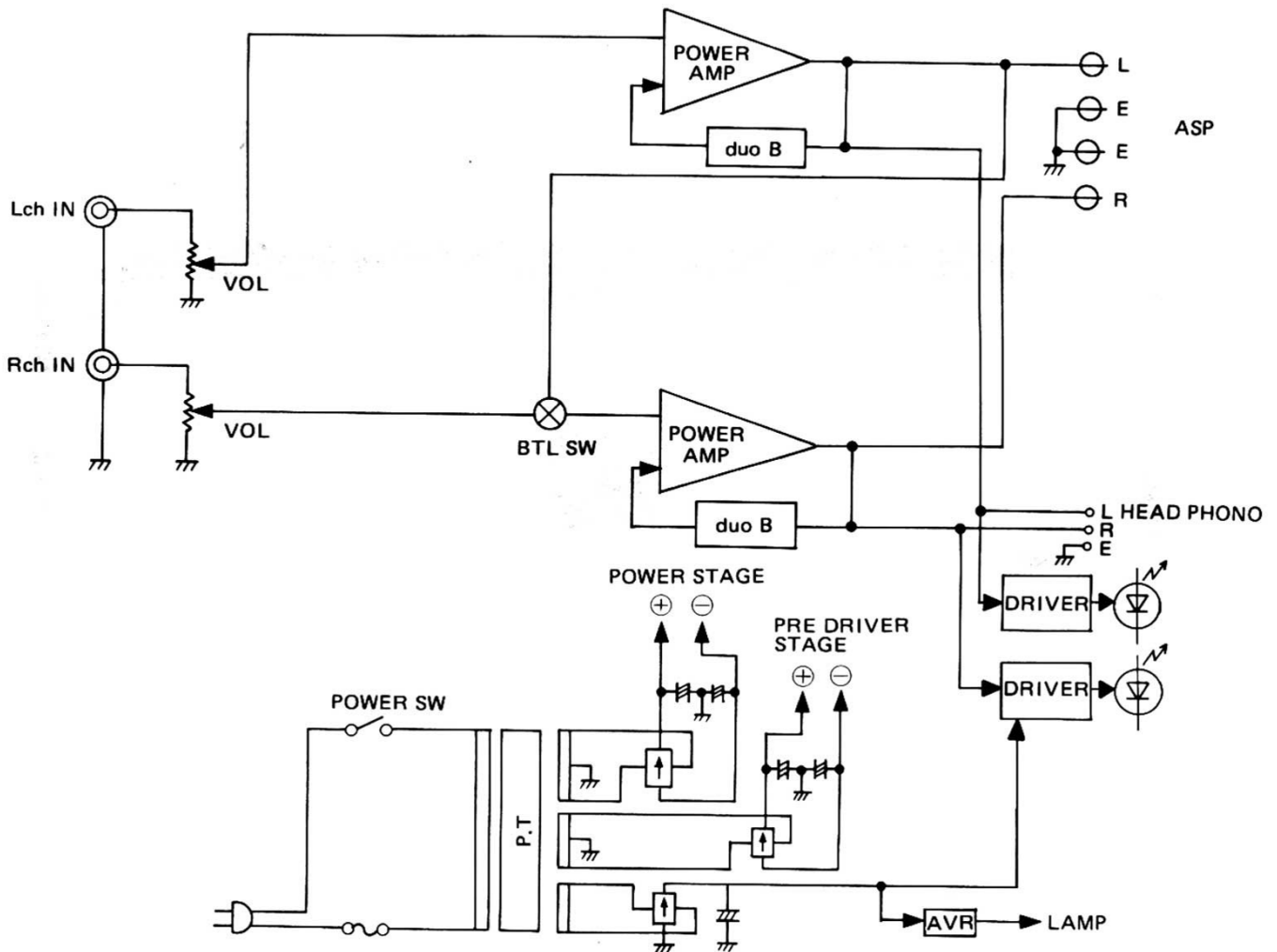
MX-100



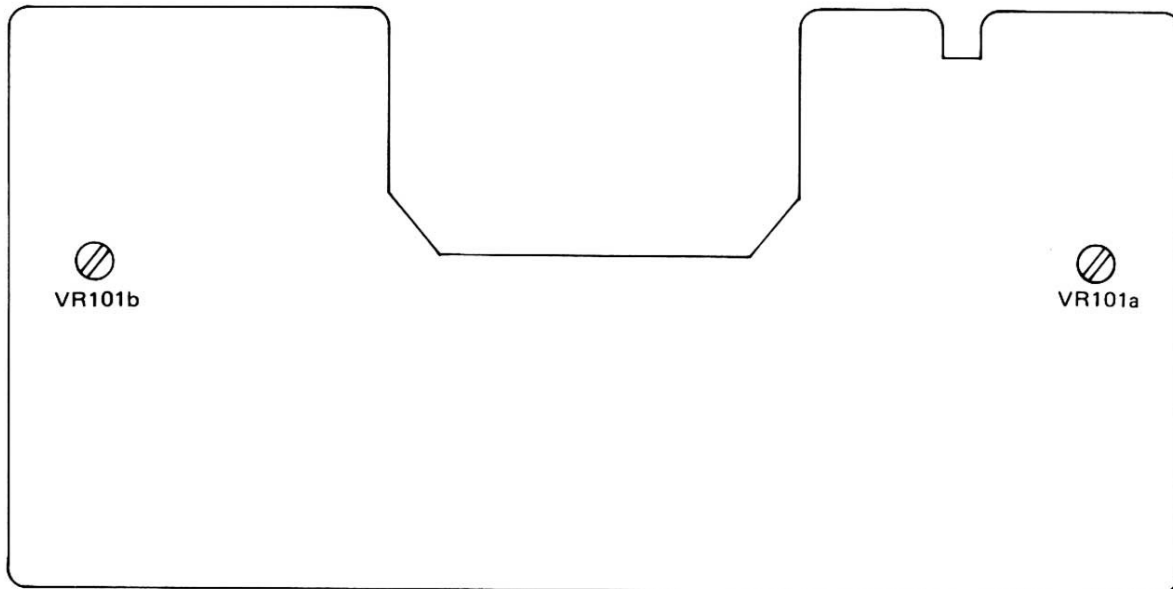
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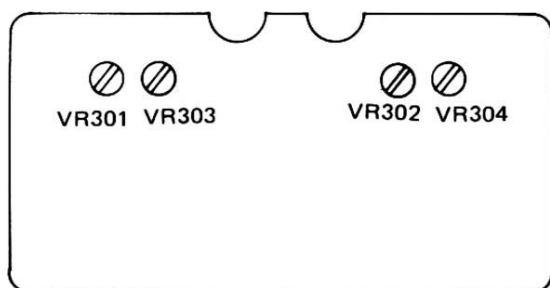
Block Diagram



Adjustment Locations



Main PCB

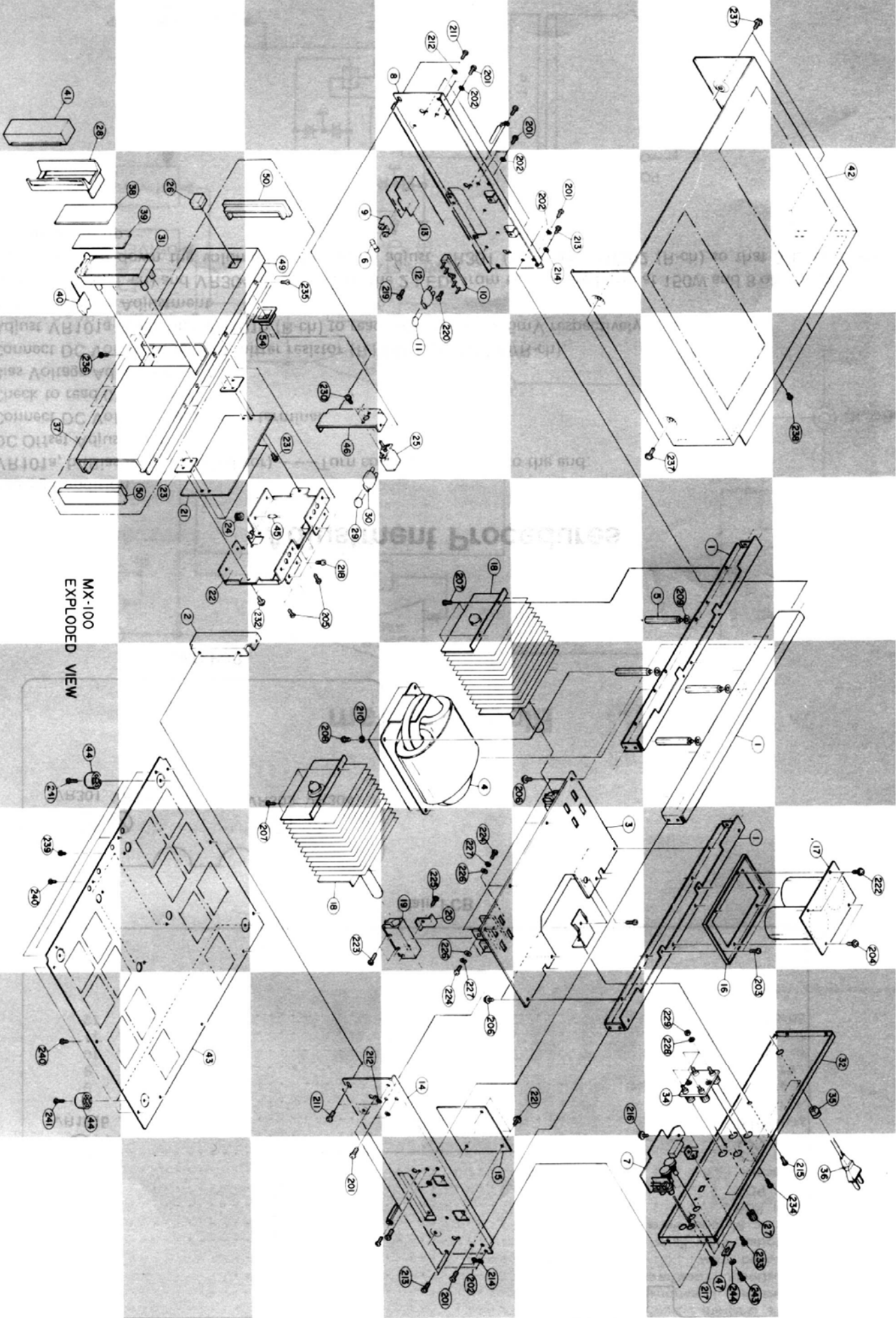


LED PCB

Adjustment Procedures

1. **Setting Condition**
VR101a, b (Bias Adjusting Resistor) ———Turn counter-clockwise to the end.
2. **DC Offset Adjustment**
Connect DC Voltmeter at speaker terminal.
Check to read $0V \pm 50mV$.
3. **Bias Voltage Adjustment**
Connect DC Voltmeter across emitter resistor (R143a/L-ch, R143b/R-ch).
Adjust VR101a (L-ch) and VR101b (R-ch) to read DC $4.5mV \pm 0.5mV$ respectively.
4. **Power Indicator Adjustment**
Adjust VR303 (L-ch) and VR304 (R-ch) so that the 2 LEDs from the top are lit up at 150W and 8 ohm load.
Moreover, turn down the volume by 27 dB and adjust VR301 (L-ch) and VR302 (R-ch) so that 3 LEDs from the bottom are lit up.

Exploded View



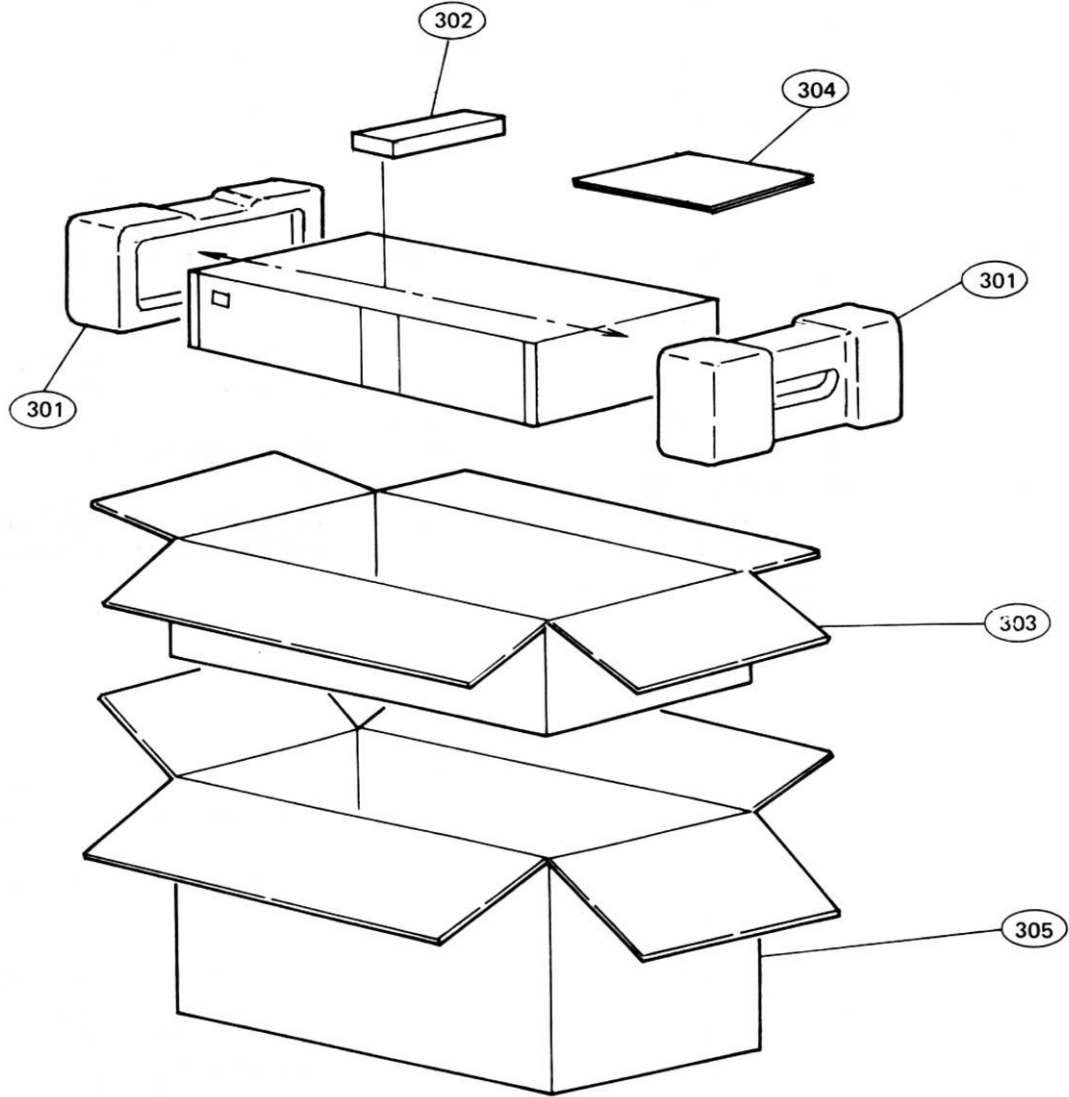
MX-100
EXPLODED VIEW

Exploded View Parts List

Index	Symbol No.	Stock No.	Description	Remarks
D2, E2	1	07C61423F01	Bracket, Channel (1060)	
D6	2	07B63540F01	Bracket 1467	
F3	3	01V64300F13	Ass'y PCB Main	
E4	4	25T61412F03	Trans Power UZ	
D2	5	47B64899F05	Shaft, 1074	
B5	6	65T65292F01	Fuse 10A UL	
H3	7	01V64300F18	Ass'y PCB Input	
A4	8	27C61427F01	Chassis, Side	
B5	9	09T51828F01	Fuse Holder X-N1157	
B4	10	29T61409F01	Terminal T5608	
C4	11	08T57437F08	Capacitor 0.0047uF	
B4	12	43T53136F01	Bushing, Capacitor TP150-301	
B4	13	43A57047F01	Spacer, Fuse	
G4	14	27C61427F02	Chassis, Side	
H4	15	01V64300F10	Ass'y PCB ACC	
G2	16	07B61425F01	Bracket, Capacitor (1439)	
F1	17	01V64300F12	Ass'y PCB Cap	
D4, F5	18	01C61428F01	Ass'y Heatpipe (1102)	
F4	19	07A61429F01	Heat Sink, (1103)	
F4	20	07A62428F01	Bracket, 1448	
D6	21	01V64300F15	Ass'y PCB LED	
D6	22	07B63538F01	Bracket 1465	
D6	23	07A63622F01	Bracket 1472	
D6	24	43A62016F01	Bushing, 1077-UZ 1077	
D5	25	40T57580F01	Switch Power SDGA1P	
B6	26	36B61434F08	Knob Push 1161-8	
H2	27	36A63624F01	Knob Control WJ0001	
A7	28	07C63534F01	Frame Indicator 1190	
D4	29	08T57437F08	Capacitor 0.0047uF	
D5	30	43T53136F01	Bushing, Capacitor TP150-301	
B6	31	07C63535F01	Frame Indicator 1191	
G1	32	15C63542F01	Cover Rear 1239	
H2	33	07A60439F01	Bracket, 1425	
G2	34	09T63607F01	Terminal Speaker T-5700	
G1	35	43B41625J02	Support, Cord	
H1	36	28T55335F01	Plug, AC Cord SPT-2	
C7	37	01V64300F20	Ass'y Panel Front	
B6	38	61A63543F01	Crystal Indicator 1074	
B6	39	61A63544F01	Crystal Indicator 1037	
B7	40	61A63545F01	Crystal Indicator 1254	
A7	41	61B63546F01	Crystal Indicator 1137	
B1	42	15C61436F01	Cover, Top	
G6	43	15C61437F01	Cover, Bottom	
E7, G7	44	75A52969F01	Pad, Trann-leg	
D5	45	01T60624F03	Ass'y Lamp Connector 12V	
C5	46	07B63539F01	Bracket 1466	
H2	47	07A61439F01	Support, Switch (1248)	
A5	48	14S53018F42	Insulator 50X5	
A6	49	64C63541F01	Panel Front 1289	
A6, C7	50	01B63621F01	Ass'y Panel Side	
C5	54	07B61445F01	Frame, Knob (1186)	
A3, A4	201	03S44205G49	Screw, T-Tite M4X8 Bind	
A4, B3	202	04S40072G03	Washer, Lock M4	
G2	203	03S44205G03	Screw, T-Tite M3X8	
F1	204	03S40036U02	Screw, T-Tite M3X8	
D5	205	03S40018G03	Screw, Tapping M3X10	

Index	Symbol No.	Stock No.	Description	Remarks
E3, G4	206	03S40036U02	Screw, T-Tite M3X8	
D4, F5	207	03S44205G03	Screw, T-Tite M3X8	
E5	208	03C40014G36	Screw, MCH M5X10	
D2	209	04S40070G07	Washer 5X12X0.8	
E5	210	04S40071G07	Washer, Spring M5	
A4, G5	211	03S44205G49	Screw, T-Tite M4X8 Bind	
A4, G5	212	04S40072G03	Washer, Lock M4	
B3, H4	213	03S44205G49	Screw, T-Tite M4X8 Bind	
B3, H4	214	04S40072G03	Washer, Lock M4	
H1	215	03S40012G41	Screw, Tapping M3X8	
G3	216	03S40036U02	Screw, T-Tite M3X8	
H2	217	03S40012G41	Screw, Tapping M3X8	
D5	218	03S40036U02	Screw, T-Tite M3X8	
B4	219	03S44205G03	Screw, T-Tite M3X8	
C4	220	03S44205G08	Screw, T-Tite M3X12	
G3	221	03S40036U02	Screw, T-Tite M3X8	
F1	222	03S40036U02	Screw, T-Tite M3X8	
F5	223	03A40155F03	Screw, MCH M3X16	
F4, G4	224	03A40155F04	Screw, MCH M3X10	
F4	225	03C40014G22	Screw, MCH M3X8	
F4, G4	226	04S40071G05	Washer 3.1X5.9X0.7	
F4, G4	227	04S40070G05	Washer 3.3X8X0.5	
G2	228	04S40071G07	Washer, Spring M5	
G2	229	02S40000G13	Nut, Hex M5	
C5	230	03C40014G04	Screw, MCH M3X6	
C5	231	03C40014G04	Screw, MCH M3X6	
D5	232	03C42723U01	Screw, CUP M3X6	
H2	233	03S44205G02	Screw, T-Tite M3X6	
H1	234	03S40012G41	Screw, Tapping M3X8	
B5	235	03S44205G16	Screw, T-Tite M3X6	
C7	236	03S44205G03	Screw, T-Tite M3X8	
A2, C2	237	03S40036U01	Screw, T-Tite M4X8	
C1	238	03S44205G19	Screw, T-Tite M3X8	
F7	239	03S44205G49	Screw, T-Tite M4X8 Bind	
F7, G7	240	03S44205G03	Screw, T-Tite M3X8	
E7, G7	241	03S44205G49	Screw, T-Tite M4X8 Bind	
H2	243	03S44205G34	Screw, T-Tite M2.6X5	
H2	244	04S40070G22	Washer 2.6X7.5X0.5	

Packing Material Parts List

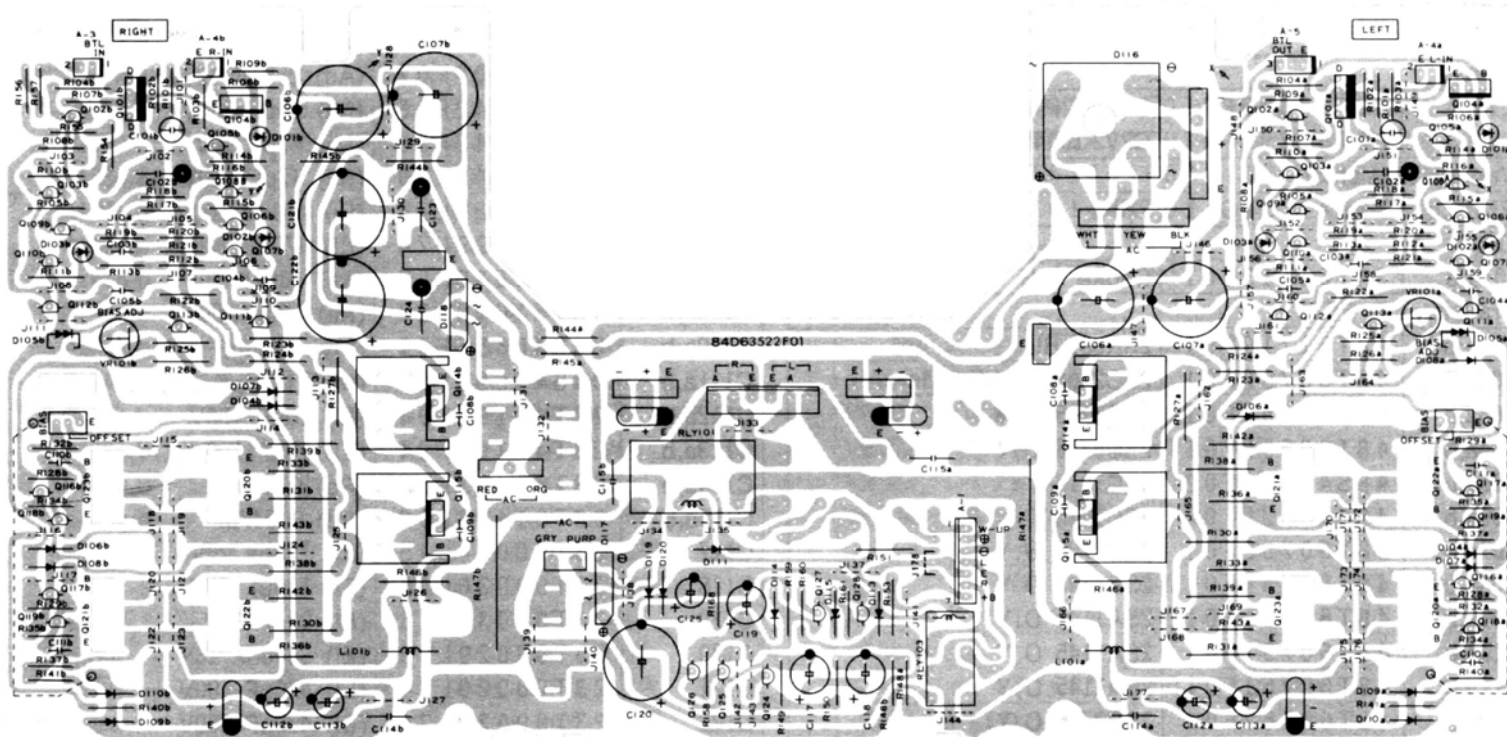


Packing Material Parts List

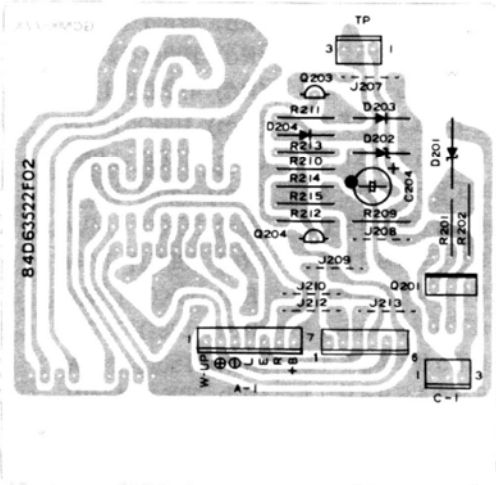
Index	Symbol No.	Stock No.	Description	Remarks
	301	56D61751F01	Packing Tray—XB 1067	
	302	56A61449F01	Packing Tray (1080)	
	303	56C58368F31	Carton Packing	
	304	68R63547F01	Owner's Manual	
	305		None Use	

PCB

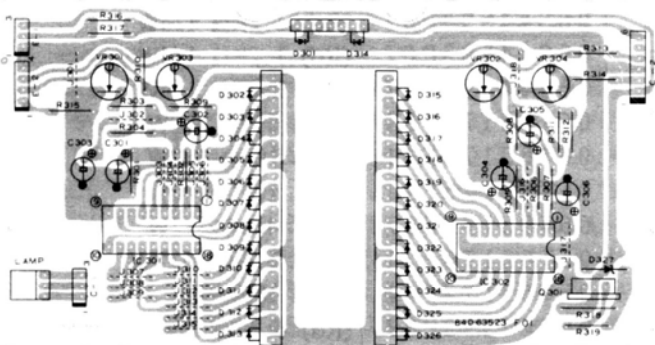
Main PCB



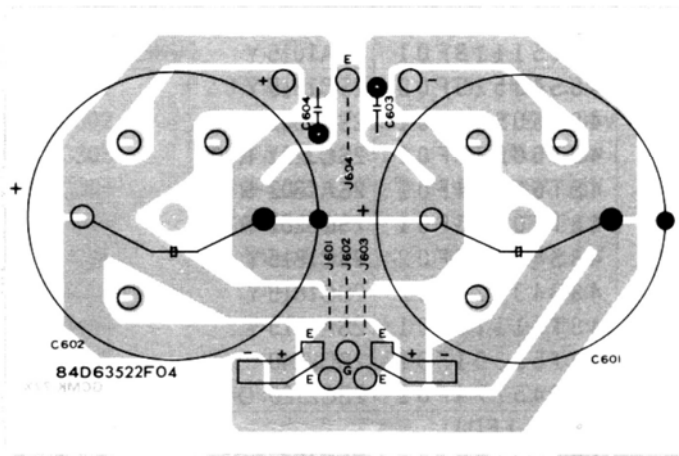
ACC PCB



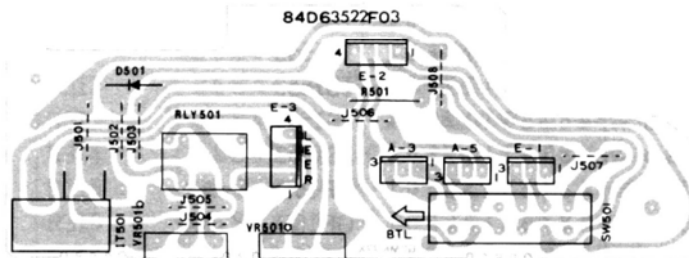
LED PCB



Capacitor PCB



In Put PCB



PCB Parts List

Main PCB Parts List

Symbol No.	Stock No.	Description
(Relay)		
RLY101	80T53350F01	G2Z-222P-US
RLY103	80T55298F01	G2V2-1004D
(Variable Resistor)		
VR101a,b	18C41732G11	220-B
(Coil)		
L101a,b	24T61413F01	Choke 2uH
(Transistor & FET)		
Q101a,b	48T61719F01	2SK389-BL
Q102a,b	48T60752F01	2SC2705 O,Y
Q103a,b	48T60752F01	2SC2705 O,Y
Q104a,b	48T60555F01	2SC3298 O,Y
Q105a,b	48S43525F02	2SC1815-Y
Q106a,b	48S43525F02	2SC1815-Y
Q107a,b	48T60752F01	2SC2705 O,Y
Q108a,b	48T60751F01	2SA1145 O,Y
Q109a,b	48T60751F01	2SA1145 O,Y
Q110a,b	48T60751F01	2SA1145 O,Y
Q111a,b	48T60751F01	2SA1145 O,Y
Q112a,b	48T60752F01	2SC2705 O,Y
Q113a,b	48T53301F01	2SC2240
Q114a,b	48T60556F01	2SA1306 O,Y
Q115a,b	48T60555F01	2SC3298 O,Y
Q116a,b	48S43525F02	2SC1815-Y
Q117a,b	48T51118F01	2SA1015-Y
Q118a,b	48T51118F01	2SA1015-Y
Q119a,b	48S43525F02	2SC1815-Y
Q120	48T60534F01	2SA1302 R,O
Q121	48T60533F01	2SC3281 R,O
Q122	48T60534F01	2SA1302 R,O
Q123	48T60533F01	2SC3281 R,O
Q124	48S43525F02	2SC1815-Y
Q125	48S43525F02	2SC1815-Y
Q126	48T51118F01	2SA1015-Y
Q127	48T53301F01	2SC2240
Q128	48T45274F01	2SC2120 O
(Diode & Zener & LED)		
D101a,b	48T40955T01	TLR124 RED
D102a,b	48T40955T01	TLR124 RED
D103a,b	48T40955T01	TLR124 RED
D104a,b	48T52198F01	1S2462
D105a,b	48T53389F01	STV-2H
D106a,b	48T52198F01	1S2462
D107a,b	48T51117F01	1S1553
D108a,b	48T51117F01	1S1553
D109a,b	48T51117F01	1S1553
D110a,b	48T51117F01	1S1553
D111	48T55186F01	GP10D -AX
D113	48T55186F01	GP10D -AX
D115	48T52739F35	HZ 6A-2 -AX
D116	48T61416F03	10G4B41
D117	48T61415F01	1B4B41
D118	48T61415F03	1G4B41
D119	48T55186F01	GP10D -AX
D120	48T55186F01	GP10D -AX

Symbol No.	Stock No.	Description
(Capacitor)		
C101a,b	08T61630F18	(St) 100pF
C102a,b	08T61407F07	(Ac) 2.2uF 125V
C103a,b	08T61642F06	(Mi) 10pF 500V
C104a,b	08T61642F20	(Mi) 47pF 500V
C105a,b	08T61642F20	(Mi) 47pF 500V
C106a,b	23T00029L74	(El) 470uF 100V
C107a,b	23T00029L74	(El) 470uF 100V
C108a,b	08T61642F27	(Mi) 100pF 500V
C109a,b	08T61642F27	(Mi) 100pF 500V
C110a,b	08S40656F01	(My) 1000pF
C111a,b	08S40656F01	(My) 1000pF
C112a,b	23T43197F94	(El) 10uF 100V
C113a,b	23T43197F94	(El) 10uF 100V
C114a,b	08T51403F03	(Pe) 0.01uF
C115a,b	08T51403F02	(Pe) 0.047uF
C117	23T00030L45	(El) 100uF 25V
C118	23T00030L45	(El) 100uF 25V
C119	23T00030L25	(El) 22uF 25V
C120	23T00029L89	(El) 3300uF 16V
C121	23T00029L74	(El) 470uF 100V
C122	23T00029L74	(El) 470uF 100V
C123	08T61407F05	(Ac) 1.0uF 125V
C124	08T61407F05	(Ac) 1.0uF 125V
C125	23T00030L11	(El) 4.7uF 25V
(Resistor)		
R101a,b	06S44593P57	(Rd) 470Ω 1/4W
R102a,b	06S44593P41	(Rd) 100Ω 1/4W
R103a,b	06S44594P30	(Rd) 470KΩ 1/4W
R104a,b	06T55175F41	(Rm) 100Ω 1/2W
R105a,b	06T55175F45	(Rm) 150Ω 1/2W
R106a,b	06T55175F45	(Rm) 150Ω 1/2W
R107a,b	06S44594P03	(Rd) 36KΩ 1/4W
R108a,b	06S44594P26	(Rd) 330KΩ 1/4W
R109a,b	06S44594P08	(Rd) 56KΩ 1/4W
R110a,b	06T55175F41	(Rm) 100Ω 1/2W
R111a,b	06T55175F45	(Rm) 150Ω 1/2W
R112a,b	06S44594P01	(Rd) 30KΩ 1/4W
R113a,b	06S44594P07	(Rd) 51KΩ 1/4W
R114a,b	06T55175F37	(Rm) 68Ω 1/2W
R115a,b	06T55175F37	(Rm) 68Ω 1/2W
R116a,b	06S44593P47	(Rd) 180Ω 1/4W
R117a,b	06S44594P54	(Rd) 4.7MΩ 1/4W
R118a,b	06S44593P67	(Rd) 1.2KΩ 1/4W
R119a,b	06S44593P67	(Rd) 1.2KΩ 1/4W
R120a,b	06S44593P67	(Rd) 1.2KΩ 1/4W
R121a,b	06S44593P67	(Rd) 1.2KΩ 1/4W
R122a,b	06T55175F59	(Rm) 560Ω 1/2W
R123a,b	06T55175F41	(Rm) 100Ω 1/2W
R124a,b	06T55175F41	(Rm) 100Ω 1/2W
R125a,b	06T55175F57	(Rm) 470Ω 1/2W
R126a,b	06T55175F71	(Rm) 1.8KΩ 1/2W
R127a,b	06T55177F41	(Rm) 100Ω 1W
R128a,b	06S44593P87	(Rd) 8.2KΩ 1/4W
R129a,b	06S44593P87	(Rd) 8.2KΩ 1/4W
R130a,b	06T55177F09	(Rm) 4.7Ω 1W
R131a,b	06T55177F09	(Rm) 4.7Ω 1W
R132a,b	06S44593P50	(Rd) 240Ω 1/4W

Symbol No.	Stock No.	Description
R133a,b	06T60132F02	(Rc) 0.22Ω 5W
R134a,b	06S44593P65	(Rd) 1KΩ 1/4W
R135a,b	06S44593P65	(Rd) 1KΩ 1/4W
R136a,b	06T60132F02	(Rc) 0.22Ω 5W
R137a,b	06S44593P50	(Rd) 240Ω 1/4W
R138a,b	06T55177F09	(Rm) 4.7Ω 1W
R139a,b	06T55177F09	(Rm) 4.7Ω 1W
R140a,b	06S44593P97	(Rd) 22KΩ 1/4W
R141a,b	06S44593P97	(Rd) 22KΩ 1/4W
R142a,b	06T60132F02	(Rc) 0.22Ω 5W
R143a,b	06T60132F02	(Rc) 0.22Ω 5W
R144a,b	06T55175F35	(Rm) 56Ω 1/2W
R145a,b	06T55175F35	(Rm) 56Ω 1/2W
R146a,b	06T55177F09	(Rm) 4.7Ω 1W
R147a,b	06T56661F29	(Rm) 33Ω 3W
R148a,b	06S44593P97	(Rd) 22KΩ 1/4W
R149	06S44593P87	(Rd) 8.2KΩ 1/4W
R150	06S44593P89	(Rd) 10KΩ 1/4W
R151	06T55175F31	(Rm) 39Ω 1/2W
R153	06T55175F33	(Rm) 47Ω 1/2W
R154	06S44593P67	(Rd) 1.2KΩ 1/4W
R155	06S44593P67	(Rd) 1.2KΩ 1/4W
R156	06S44593P67	(Rd) 1.2KΩ 1/4W
R157	06S44593P67	(Rd) 1.2KΩ 1/4W
R158	06S44594P02	(Rd) 33KΩ 1/4W
R159	06S44594P24	(Rd) 270KΩ 1/4W
R160	06S44593P81	(Rd) 4.7KΩ 1/4W
R161	06S44593P89	(Rd) 10KΩ 1/4W
R168	06S44593P77	(Rd) 3.3KΩ 1/4W
R168	06S44593P77	(Rd) 3.3KΩ 1/4W

Acc PCB Parts List

Symbol No.	Stock No.	Description
(Transistor)		
Q201	48T58614F01	2SD1406
Q203	48T52545F03	2SA970 BL,GR
Q204	48S43525F02	2SC1815-Y
(Diode & Zener)		
D201	48T52739F71	HZ12A-2 -AX
D202	48T52739F53	HZ 9A-2 -AX
D203	48T51117F01	1S1553
D204	48T51117F01	1S1553
(Capacitor)		
C209	23T42478F31	(EI) 47uF 25V
(Resistor)		
R201	06S44593P41	(Rd) 100Ω 1/4W
R202	06T55175F47	(Rm) 180Ω 1/2W
R209	06S44593P69	(Rd) 1.5KΩ 1/4W
R210	06S44594P06	(Rd) 47KΩ 1/4W
R211	06S44594P42	(Rd) 1.5MΩ 1/4W
R212	06S44593P97	(Rd) 22KΩ 1/4W
R213	06S44594P06	(Rd) 47KΩ 1/4W
R214	06S44593P73	(Rd) 2.2KΩ 1/4W
R215	06S44593P73	(Rd) 2.2KΩ 1/4W

Capacitor PCB Parts List

Symbol No.	Stock No.	Description
(Capacitor)		
C601	23T61408F01	(EI) 15000uF 71V
C602	23T61408F01	(EI) 15000uF 71V
C603	08T61407F03	(Ac) 0.47uF 125V
C604	08T61407F03	(Ac) 0.47uF 125V

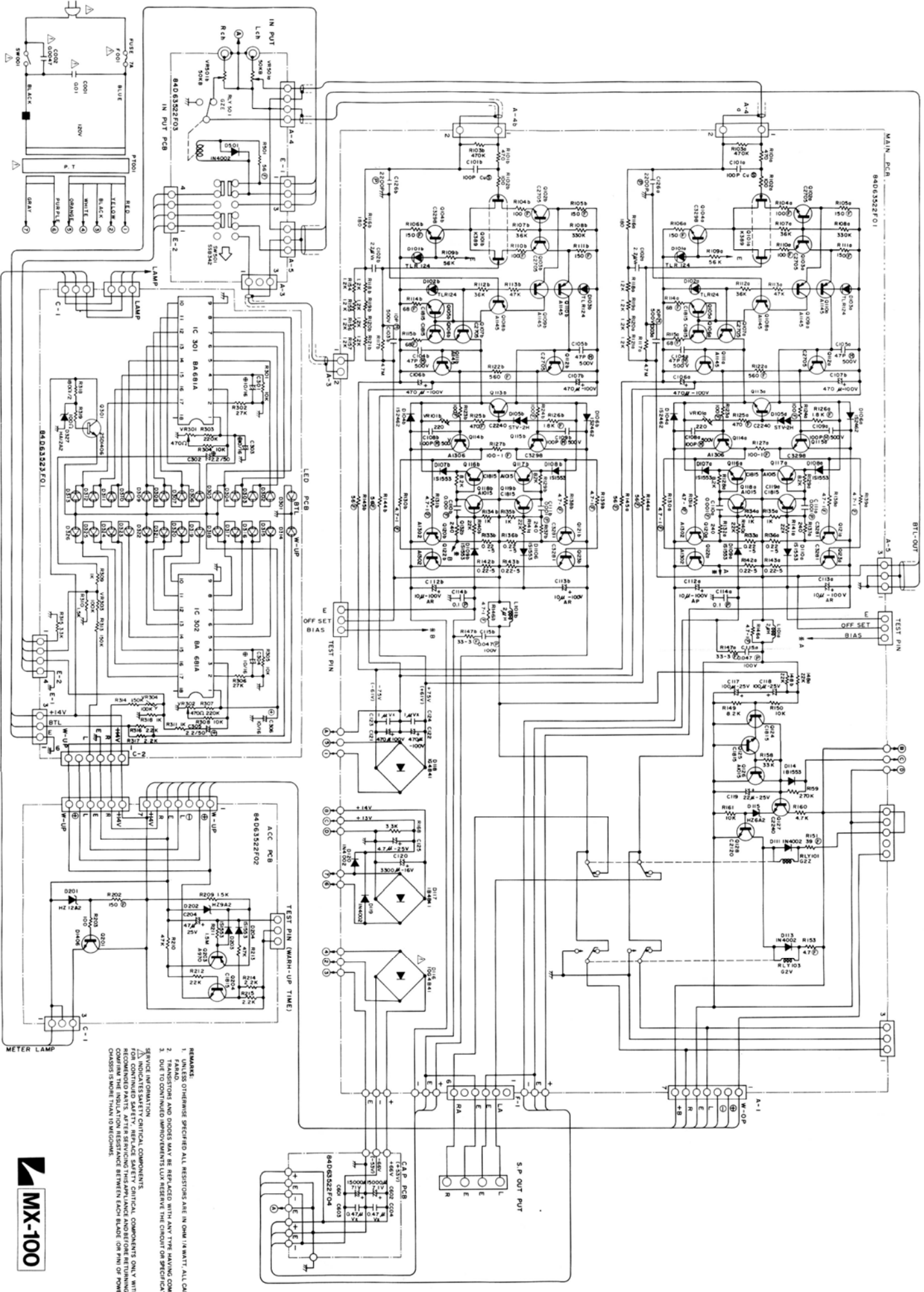
LED PCB Parts List

Symbol No.	Stock No.	Description
(Variable Resistor)		
VR301	18T61417F02	470
VR302	18T61417F02	470
VR303	18T61417F16	100KB
VR304	18T61417F16	100KB
(IC)		
IC301	51T60345F01	BA681 A
IC302	51T60345F01	BA681 A
(Transistor)		
Q301	48T60589F01	2SD1406
(Zener & LED)		
D301	48T60487F02	SLR-54GG3
D302~313	48T63555F01	SLB-72URHL
D314	48T60487F03	SLR-54YY3
D315~326	48T63555F01	SLB-72URHL
D327	48T52739F71	HZ12A-2 -AX
(Capacitor)		
C301	23S40657F10	(EI) 10uF 26V
C302	23S40657F29	(EI) 2.2uF 50V
C303	23S40657F10	(EI) 10uF 26V
C304	23S40657F10	(EI) 10uF 26V
C305	23S40657F29	(EI) 2.2uF 50V
C306	23S40657F10	(EI) 10uF 26V
(Resistor)		
R301	06S44593P89	(Rd) 10KΩ 1/4W
R302	06S44593P99	(Rd) 27KΩ 1/4W
R303	06S44594P22	(Rd) 220KΩ 1/4W
R304	06S44593P89	(Rd) 10KΩ 1/4W
R305	06S44593P89	(Rd) 10KΩ 1/4W
R306	06S44593P99	(Rd) 27KΩ 1/4W
R307	06S44594P22	(Rd) 220KΩ 1/4W
R308	06S44593P89	(Rd) 10KΩ 1/4W
R309	06S44593P65	(Rd) 1KΩ 1/4W
R310	06S44593P69	(Rd) 1.5KΩ 1/4W
R311	06S44593P65	(Rd) 1KΩ 1/4W
R312	06S44593P65	(Rd) 1KΩ 1/4W
R313	06S44594P06	(Rd) 47KΩ 1/4W
R314	06S40151T06	(Rd) 47KΩ 1/4W
R315	06S44593P77	(Rd) 3.3KΩ 1/4W
R316	06S44593P73	(Rd) 2.2KΩ 1/4W
R317	06S44593P73	(Rd) 2.2KΩ 1/4W
R318	06T55175F47	(Rm) 180Ω 1/2W
R319	06S40150T41	(Rd) 100Ω 1/4W

Input PCB Parts List

Symbol No.	Stock No.	Description
(Terminal)		
IT501	09T61410F01	T5856-AAAC
(Relay)		
RLY501	80B42571P03	(GZE) 12V
(Switch)		
SW501	40T61419F01	SSB342
(Variable Resistor)		
VR501a,b	18T61420F02	K-1611 50KB
(Diode)		
D501	48T55186F01	GP10D .AX
(Resistor)		
R501	06T55175F35	(Rm) 56Ω 1/2W

Schematic Diagram



REMARKS:

1. UNLESS OTHERWISE SPECIFIED ALL RESISTORS ARE IN OHM (Ω), IN KΩ (K), ALL CAPACITORS IN MICRO FARAD (μF) AND DIODES MAY BE REPLACED WITH ANY TYPE HAVING COMPARABLE RATINGS.
2. DUE TO CONTINUED IMPROVEMENTS LX RESERVE THE RIGHT OF SPECIFICATION.

SERVICE INFORMATION CRITICAL COMPONENTS:

FOR CONTINUED SAFETY, SERVICE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS. AFTER SERVICING THIS LAMP AND/OR RETURNING TO THE CUSTOMER, CHASSIS IS MORE THAN 10% HIGH.



Specifications

Power Output Stereo:	8 Ohm 1kHz 150W 0.012%
BTL Power Out:	8 Ohm 20–20kHz THD 140W 0.012%
Power Bandwidth:	8 Ohm 320W
Input Sensitivity/Impedance:	8 Ohm Half Rated Power 10~100kHz – 1 dB
Frequency Response:	8 Ohm Rated Power 1.2V/45k Ω
Signal-to-Noise Ratio:	5~100kHz – 1 dB
Intermodulation Distortion:	120 dB
Channel Separation: (Input Shorted)	0.012%
GENERAL	8 Ohm Half Rated Power 1kHz 90 dB
Power Consumption:	120V 7A
Dimensions:	453mm(W) x 141mm(H) x 336mm(D)
Weight:	(17.8"(W) x 5.6"(H) x 13.2"(D))
	Net 14.5 kgs (31.9 lbs.)

* Specifications and appearance design subject to change without notice.