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CARVER

Powerful • Musical • Accurate

C-3 PREAMPLIFIER SERVICE MANUAL

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C-3 Carver

CARVER Corporation

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SAFETY INFORMATION

WARNING.

Any person performing the procedures described in this manual will be exposed to hazardous voltages and the risk of electric shock.

Carver Corporation assumes that any person who removes the cover from the unit has been properly trained in protecting against avoidable injury and shock.

Therefore, the procedures described here are to be performed by qualified electronics service personnel only.

We recommend that the unit be tested only when line isolation is provided by an isolation transformer. The line cord of the unit must be disconnected and the power supply fully discharged before any components are replaced. Failure to do so may result in severe damage to the unit and the risk of electric shock.

The safety tests described below must be performed properly.

CAUTION:

Before returning the unit to the customer, one of the following safety tests must be performed.



1. Check the leakage current. Connect the unit to 120 VAC supply and turn the power switch "ON". Using an ammeter, measure the current between the neutral side of the AC supply and chassis ground of the unit under test. If leakage current exceeds 0.5mA, the unit is defective.

Reverse the polarity of the AC supply and repeat.

2. Measure the resistance from either side of the linecord to chassis ground. If it is less than 500k ohms, the unit is defective.

WARNING - DO NOT return the unit to the customer if it fails one of these tests until the problem is located and corrected.

CAUTION

	CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN	
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT REMOVE COVER (OR BACK) NO USER-SERVICEABLE PARTS INSIDE REFER SERVICING TO QUALIFIED PERSONNEL		



The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure, that may be of sufficient magnitude to constitute a risk of electric shock to persons.



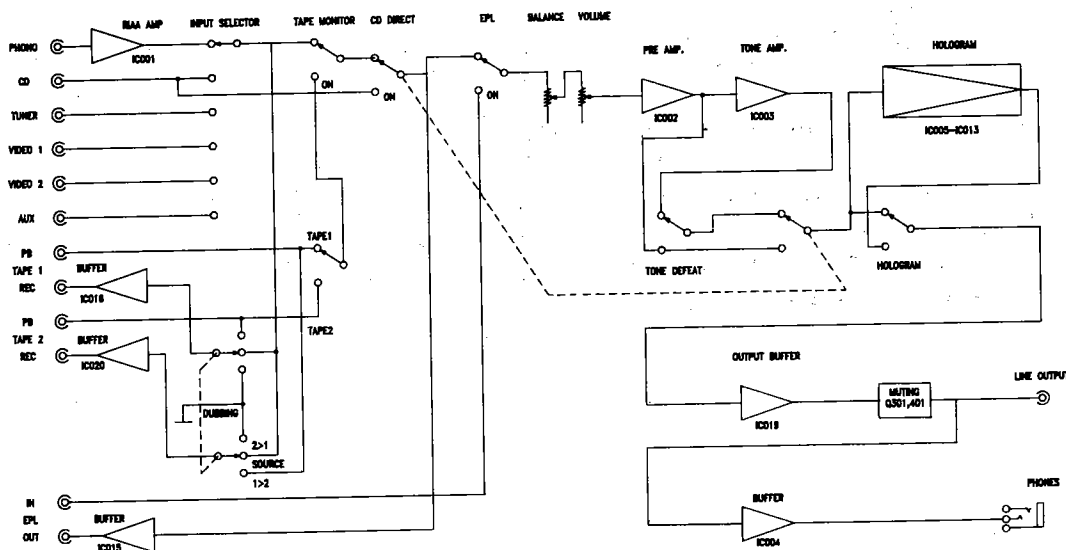
The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance...

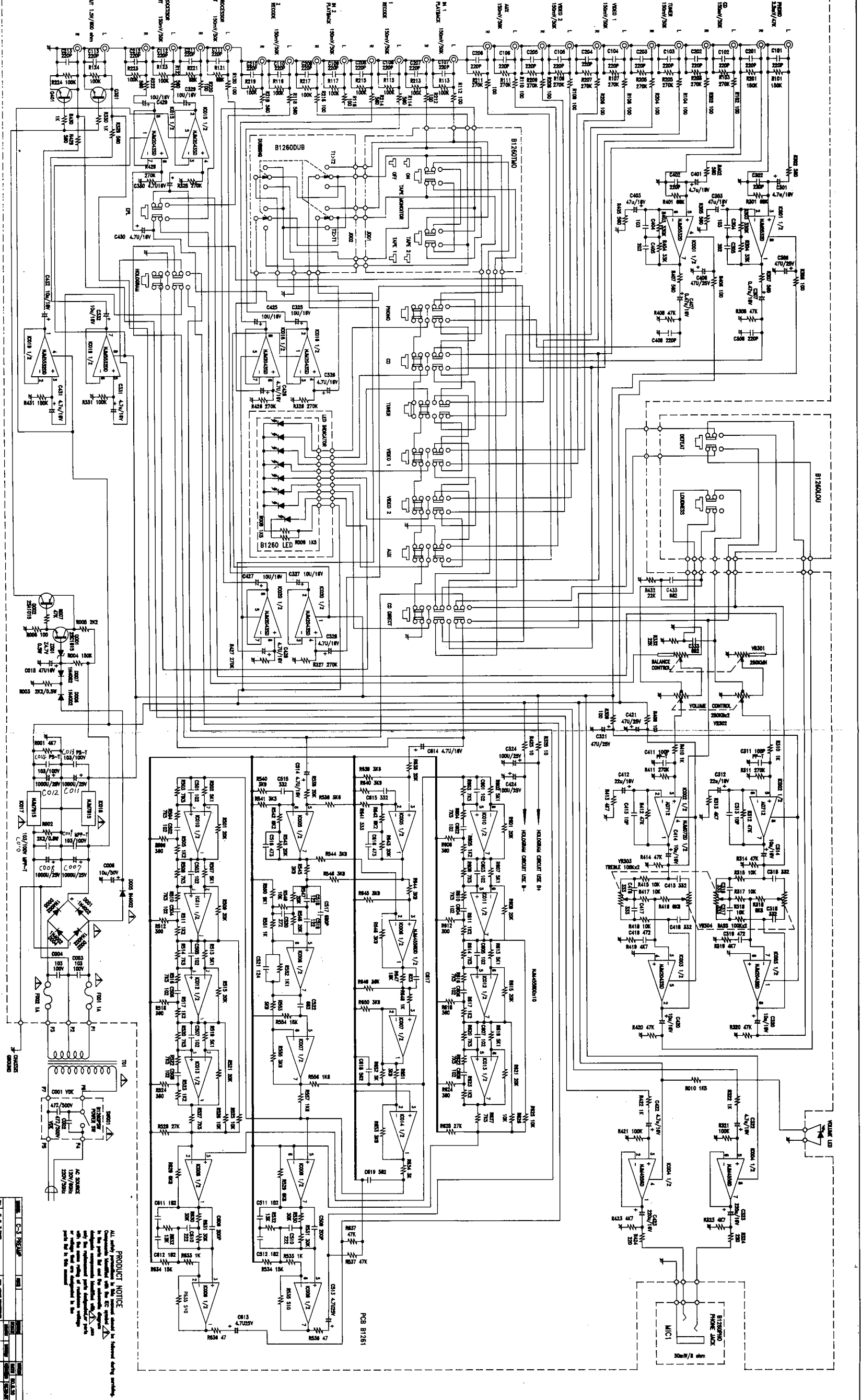
SPECIFICATIONS

Specifications for the C-3 Preamplifier

Frequency Response		
Phono:		RIAA 20Hz to 20kHz (+/- 1dB)
Line Level Inputs:		20Hz to 20kHz (+0, - 0.5dB)
Gain		
Phono:		57dB (+/-1dB) at 1kHz, measured at Main Out with Master Volume fully CW
		37dB (+/-1dB) at 1kHz, measured at Tape Out
Line Level Inputs:		20dB (+/-1dB) at Main Out with Master Volume fully CW
		0dB (+/-1dB) at Tape Out
Channel Balance:		+/- 1dB
Signal-to-Noise Ratio (IHF A-weighted)		
Phono:		80dB at Tape Out, below an input reference of 5mV rms at 1kHz
Line Level Inputs:		82dB at Preamp Out, below 0.5V rms output level at 1kHz, with gain set for unity
THD:		Less than 0.01%, with 2.0Vrms at Main Out, 20-20kHz
Sensitivity (for 0.5V rms at Main Out with Master Volume fully CW)		
Phono:		705µV rms
Line Level Inputs:		50mV rms
Maximum Input Signal		
Phono:		11mV rms
Line Level Inputs:		800mV rms
Input Impedance		
Phono:		47 kilohms
Line Level Inputs:		50 kilohms
Maximum Output		
Main Out:		6V rms into 1 kilohm
Headphone Out:		1.9V rms into 60Ω (60mW)
		6.5Vrms into 600Ω (70mW)
Output Impedance:		600 ohms, Main Out and Tape Out
Tone Controls		
Treble:		+/-12dB (+/-1dB) at 10kHz
Bass:		+/-12dB (+/-1dB) at 100Hz
Loudness:		+7dB at 100Hz, gain set at -10dB
Sonic Hologram Generator		
Image Resolution:		5° horizontal; 20° vertical
Power Consumption:		11W
Power Requirements:		120VAC/60Hz (USA and Canada) Other voltages as required for export
Size (H x W x D):		2" x 19" x 12" (13" overall) 51mm x 483mm x 305mm (330mm overall)
Weight		
Net Weight:		8.75 lbs. 4.0 kg
Shipping Weight:		11.25 lbs. 5.1kg

BLOCK DIAGRAM





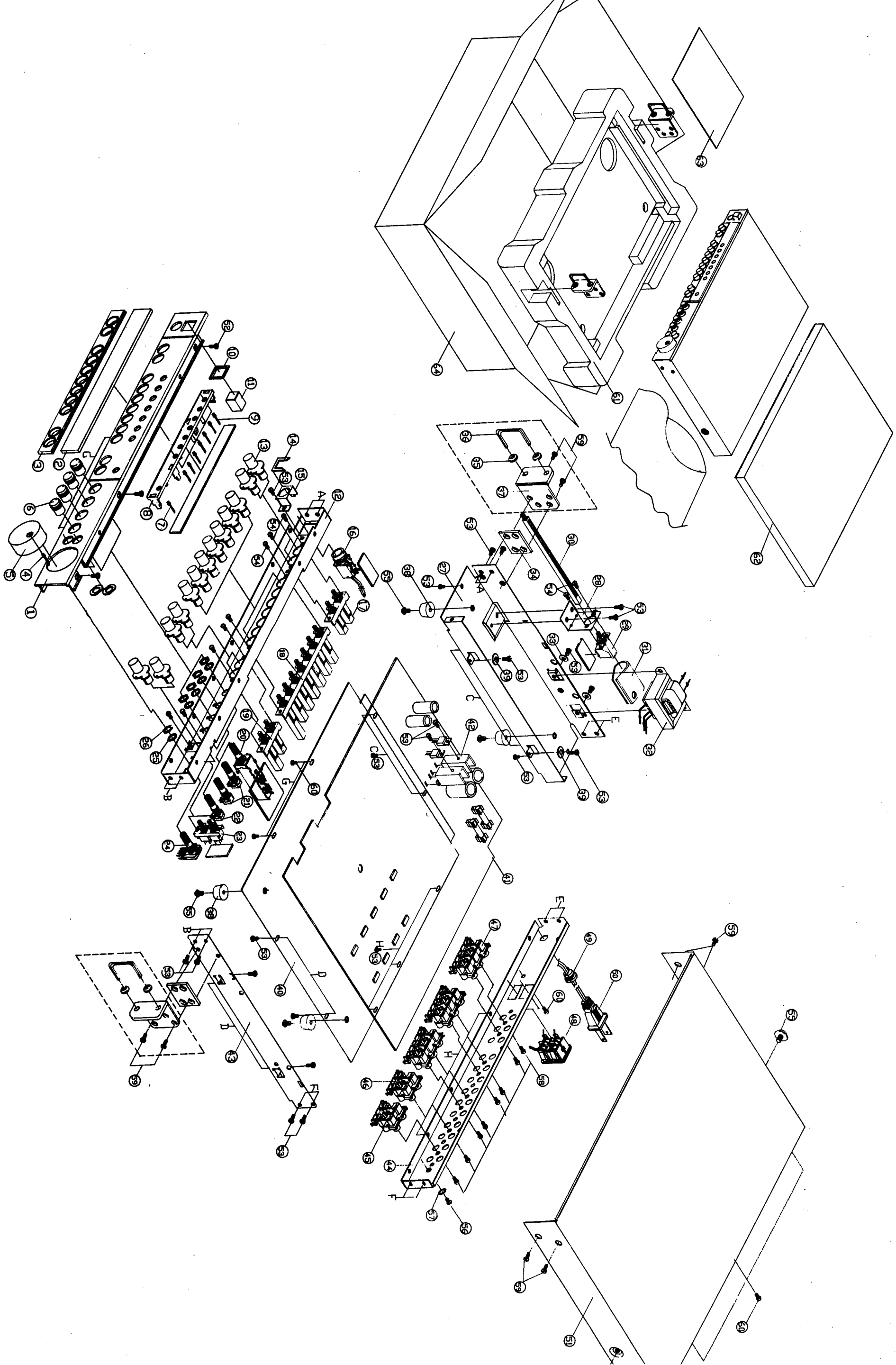
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PARTS VALUE TO CHANGE WITHOUT NOTICE

PRODUCT NOTICE
 All product numbers on this schematic are indicated within brackets. Components are shown in their original configuration. Changes in component values are indicated by a change in the value in brackets. Components are shown in their original configuration. Changes in component values are indicated by a change in the value in brackets.

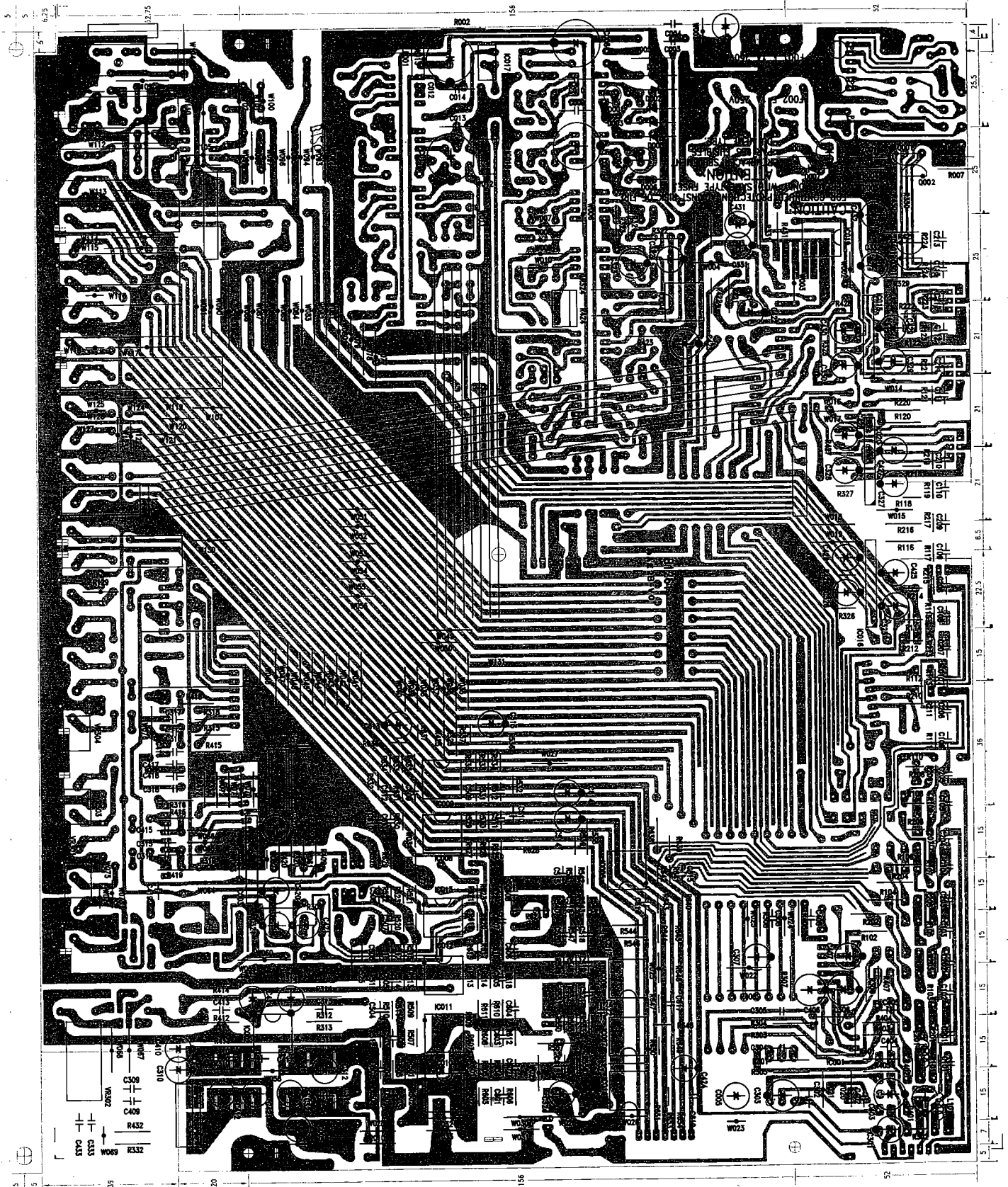
MODEL	C-3 TRIPLE	REV	1.0
DATE	8-1-83	BY	WJ
DESIGNED BY	C.S. CARVER	CHECKED BY	WJ
APPROVED BY		DATE	
REV	1.0	DATE	8-1-83
REV	1.1	DATE	8-1-83
REV	1.2	DATE	8-1-83
REV	1.3	DATE	8-1-83
REV	1.4	DATE	8-1-83
REV	1.5	DATE	8-1-83
REV	1.6	DATE	8-1-83
REV	1.7	DATE	8-1-83
REV	1.8	DATE	8-1-83
REV	1.9	DATE	8-1-83
REV	2.0	DATE	8-1-83



EXPLOD PART LIST

NO.	DESCRIPTION	P/N	Q'TY
1.	AL PANEL L - 366	78L366****	1
2.	ACRYLIC PANEL A - 377	85A377****	1
3.	PLASTIC FRAME, POWER A - 382	78A382****	1
4.	LED 2 ϕ , GREEN	16025*****	1
5.	KNOB KB - 270	80KB270***	1
6.	KNOB KB - 269	80KB269***	4
7.	LED 3 ϕ , L - 32ED (YELLOW)	1603I32ED*	1
8.	PLASTIC FRAME, LED A - 380	78A380****	1
9.	LED 3 ϕ , L - 32YD (YELLOW)	1603L32YD*	7
10.	WASHER, PUSH BUTTON A - 381	88WA381***	1
11.	PUSH BUTTON KB - 277	80KB277***	1
12.	FRONT PANEL C - 1617	78C1617***	1
13.	PUSH BUTTON KB - 268	80KB268***	13
14.	SPRING PLATE, PHONE	88SPC3****	1
15.	HOLDER FOR PHONE C - 1616	78C1616***	1
16.	EAR PHONE JY6318 - 01 - 030	28JY631801	1
17.	PUSH SWITCH SPU22A002	20UN22A002	1
18.	PUSH SWITCH SPUN72A007	20UN72A007	1
19.	PUSH SWITCH SPUN22A019	20UN22A019	1
20.	ROTATE SWITCH SRR2V43N25	21R2V43N25	1
21.	VR RK0971210063 100KBx2	32100KBx2*	2
22.	VR RK0971210066 250KMNx2	32250KMNx2	1
23.	PUSH SWITCH SPEC21HA02	20EC21HA02	1
24.	VR RK16312AS170 250KAx2	32250KAx2*	1
25.	WASHER 3 ϕ	88WF03P14W	1
26.	NUT M3	88N603W***	1
27.	CHASSIS (RIGHT) C - 1625	78C1625***	1
28.	HOLDER C - 1649	78C1649***	1
29.	POWER SWITCH TV - 3	20DLB1027*	1 
30.	LINK, FOR PUSH BUTTON A - 269	85A269****	1
31.	UL TUBE 30 ϕ	6230L40VW1	1
32.	TRANSFORMER (120V)	701065120*	1 
	TRANSFORMER (220V)	701065220*	1 
33.	WASHER, 3 ϕ	88WF3*****	1 
34.	WASHER, RUBBER E - 242	81E242****	2
35.	AL PAD FOR HOLDER H - 214	76H214****	1
36.	HOLDER H - 257	76H257****	1
37.	AL SIDE PLATE L - 373	78L373****	2
38.	FOOT CUSHION 16x7.5M/M	81016x7P5*	4
39.	WASHER SPRING 3 ϕ	88WS03P6**	1
40.	BOTTOM PLATE C - 1619	78C1619***	1
41.	P.C. BOARD B - 1261	97B1261***	1
42.	HEAT SINK H - 198	76H198****	2
43.	CHASSIS (RIGHT) C - 1626	78C1626***	1
44.	REAR PLATE C - 1624	78C1624***	1
	REAR PLATE C - 1663 EXV	78C1663EXV	1 EXV
45.	RCA JACK RT - 1019 - 010 - G	55RJ101910	1
46.	RCA JACK #204 - 1	552R2041**	1
47.	RCA JACK HSP - #206 - 1	55RJ2061**	3
48.	AC SOCKET AC - 004	55AC004***	2 
49.	AC WIRE CLIP SB4F	96SB4F****	1 
	AC WIRE CLIP 6W - 2 EXV	966W2*****	1 
50.	AC CORD 2 P VDE EXV	682PVDE2B*	1 
	AC CORD SPT - 2	682SPT22B*	1 
51.	UPPER COVER C - 1618	78C1618***	1
52.	SCREW CFTS 3x6 (B)	88ST0306FB	3
53.	SCREW CRTS 3x6 (Y)	88ST0306RY	26
54.	SCREW CRMS 3x6 (Y)	88SM0306MY	8
55.	SCREW CRWMS 4x6 (B)	88SM0406MB	6
56.	SCREW CRWMS 4x8 (W)	88SM0408MW	1
57.	SCREW CRMS 3x6 (Y)	88SM0306RY	10
58.	SCREW 1/8X9 (B)	88SME809RB	8
59.	SCREW CRWMS 4x10 (B)	88SM0410RB	4
61.	STYROFOAM PF - 132	97PF132***	1
62.	STYROFOAM PF - 128	97PF128***	1
63.	OWNER'S MANUAL C - 3	91C3*****	1
64.	GIFT BOX	93C3*****	1

PCB COMPONENT SIDE VIEWS AND PARTS LISTS

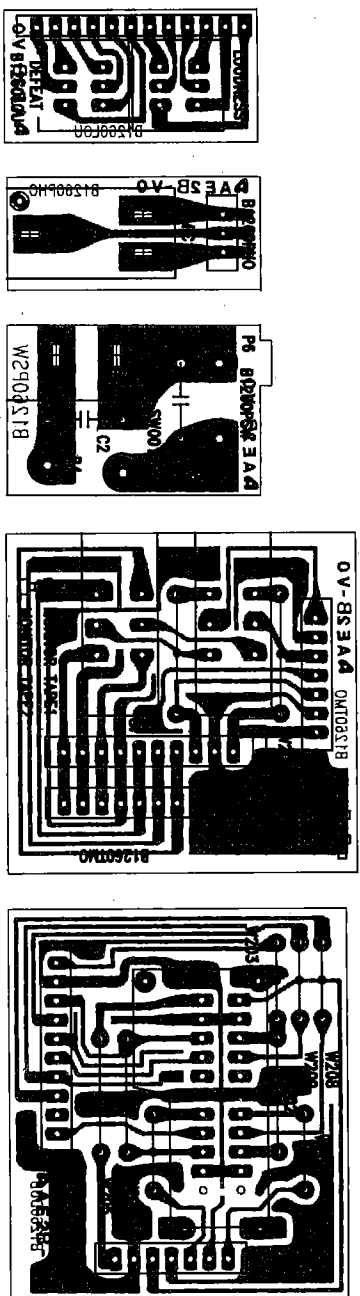


P. C. BOARD B - 1261 ASS'Y

REF. NO	DESCRIPTION	P/N	Q'TY
CARBON RESISTORS T-TYPE ALL RESISTORS			
RATED ARE +/- 5% TOLERANCE AND 1/6W			
R536, R636	47 OHM	300047C6TJ	2
R108, R110, R112, R206	100 OHM	300100C6TJ	4
R208, R210, R212	100 OHM	300100C6TJ	3
R103, R203	300 OHM	300300C6TJ	2
R506, R528, R524,	360 OHM	300360C6TJ	3
R606, R618	360 OHM	300360C6TJ	2
R535, R635	510 OHM	300510C6TJ	2
R122, R114, R118, R214,	560 OHM	300560C6TJ	4
R218, R222, R302, R402	560 OHM	300560C6TJ	4
R533, R551, R633, R648	1K OHM	3001K0C6TJ	4
R552	1K OHM	3001K0C6TJ	4
R505, R511, R517, R523,	1K2 OHM	3001K2C6TJ	4
R605, R611, R617, R623	1K2 OHM	3001K2C6TJ	4
R556	1K6 OHM	3001K6C6TJ	1
R654	3K OHM	3003K0C6TJ	1
R541, R641	3K3 OHM	3003K3C6TJ	2
R540, R545, R553, R555,	3K9 OHM	3003K9C6TJ	5
R640, R644, R645, R646,	3K9 OHM	3003K9C6TJ	5
R650, R653	3K9 OHM	3003K9C6TJ	2
R502, R507, R513, R519,	5K1 OHM	3005K1C6TJ	4
R602, R607, R613, R619	5K1 OHM	3005K1C6TJ	4
R521, R629	6K8 OHM	3006K8C6TJ	2
R503, R504, R508, R510,	7K5 OHM	3007K5C6TJ	4
R514, R516, R520, R522,	7K5 OHM	3007K5C6TJ	4
R527, R603, R604, R608,	7K5 OHM	3007K5C6TJ	4
R610, R614, R616, R620,	7K5 OHM	3007K5C6TJ	4
R622, R627, R642, R627,	7K5 OHM	3007K5C6TJ	4
R542	8K2 OHM	3008K2C6TJ	1
R542, R642	9K1 OHM	3009K1C6TJ	2
R555	10K OHM	30010K0C6TJ	3
R525, R526, R549,	10K OHM	30010K0C6TJ	2
R625, R626	13K OHM	30013K0C6TJ	2
R532, R632	15K OHM	30015K0C6TJ	2
R534, R634	18K OHM	30018K0C6TJ	1
R647	20K OHM	30020K0C6TJ	4
R501, R509, R515, R521,	20K OHM	30020K0C6TJ	4
R543, R547, R548, R601,	20K OHM	30020K0C6TJ	4
R609, R615, R621, R643	20K OHM	30020K0C6TJ	4
R528	27K OHM	30027K0C6TJ	1
R530, R531, R630, R631	30K OHM	30030K0C6TJ	4
R537, R637	47K OHM	30047K0C6TJ	2
R121, R221	68K OHM	30068K0C6TJ	2
R113, R115, R117, R119,	100K OHM	30100K0C6TJ	4
R123, R124, R213, R215,	100K OHM	30100K0C6TJ	4
R217, R219, R223, R224	100K OHM	30100K0C6TJ	4
R101, R201	150K OHM	30150K0C6TJ	2
R103, R105, R107, R109,	270K OHM	30270K0C6TJ	4
R111, R203, R205, R207,	270K OHM	30270K0C6TJ	4
R209, R211, R326, R327,	270K OHM	30270K0C6TJ	4
R328, R426, R427, R428	270K OHM	30270K0C6TJ	4
CARBON RESISTORS T-TYPE ALL RESISTORS			
RATED ARE +/- 5% TOLERANCE AND 1/4W			
R325, R425	10 OHM	300010C4TJ	2
R108, R208	10 OHM	300010C4TJ	2
R006, R102, R104, R106	100 OHM	300100C4TJ	4
R116, R120, R204, R216,	100 OHM	300100C4TJ	4
R220, R216, R306, R309,	100 OHM	300100C4TJ	4
R406, R407	100 OHM	300100C4TJ	2
R324, R424	220 OHM	300220C4TJ	2
R624	360 OHM	300360C4TJ	1
R305, R307, R329, R405,	560 OHM	300560C4TJ	4
R407, R429	560 OHM	300560C4TJ	2
R310, R322, R330, R410,	1K OHM	30001K0C4TJ	4
R422, R433	1K OHM	30001K0C4TJ	2
R010, R557	1K5 OHM	3001K5C4TJ	2
R005	2K2 OHM	3002K2C4TJ	1

REF. NO	DESCRIPTION	P/N	Q'TY
CARBON RESISTORS T-TYPE ALL RESISTORS			
RATED ARE +/- 5% TOLERANCE AND 1/2W			
R652	3K OHM	30003K0C4TJ	1
R544, R546, R651	3K9 OHM	3003K9C4TJ	3
R001, R313, R319, R323,	4K7 OHM	3004K7C4TJ	4
R413, R419, R423	4K7 OHM	3004K7C4TJ	3
R316, R416	6K8 OHM	3006K8C4TJ	2
R315, R317, R318, R415,	10K OHM	30010K0C4TJ	4
R417, R418	10K OHM	30010K0C4TJ	2
R647	18K OHM	30018K0C4TJ	2
R538, R638	20K OHM	30020K0C4TJ	4
R332, R432	22K OHM	30022K0C4TJ	2
R628	27K OHM	30027K0C4TJ	2
R304, R404	33K OHM	30033K0C4TJ	1
R007, R308, R312, R314,	47K OHM	30047K0C4TJ	4
R320, R408, R412, R414,	47K OHM	30047K0C4TJ	4
R420	68K OHM	30068K0C4TJ	1
R301, R401	100K OHM	30100K0C4TJ	2
R321, R331, R421, R431	100K OHM	30100K0C4TJ	4
R004	150K OHM	30150K0C4TJ	1
R311, R411	270K OHM	30270K0C4TJ	1
R303, R403	330K OHM	30330K0C4TJ	2
CARBON RESISTORS T-TYPE ALL RESISTORS			
RATED ARE +/- 5% TOLERANCE AND 1/2W			
R002, R003	2K2 OHM	3002K2C2TJ	1
CAPACITORS			
C313, C413	10P/500V CERAMIC	42010P5ARJ	2
C308, R408	100P/50V CERAMIC	42100P50RJ	2
C509, C609	200P/500V CERAMIC	42200P5ARJ	2
C101 - C113, C302,	220P/500V CERAMIC	42220P5ARJ	14
C201 - C213, C308,	220P/500V CERAMIC	42220P5ARJ	14
C402, C408	220P/500V CERAMIC	42220P5ARJ	2
C517	680P/500V CERAMIC	42680P5ARJ	1
C003, C004	.01/500V CERAMIC	42103U5ARJ	2
C501 - C508, C512,	.001 J MYLAR	41102U50RJ	9
C601 - C608, C612	.001 J MYLAR	41102U50RJ	9
C518, C519	.0012 J MYLAR	41122U50RJ	2
C418, C318, C415,	.0018 J MYLAR	41182U50RJ	3
C512, C511, C512,	.0018 J MYLAR	41182U50RJ	3
C611, C612	.0018 J MYLAR	41182U50RJ	2
C305, C405	.002 J MYLAR	41202U50RJ	2
C510, C610	.0022 J MYLAR	41222U50RJ	2
C515, C615	.0033 J MYLAR	41332U50RJ	2
C520	.0027 J MYLAR	41272U50RJ	1
C510, C610	.0047 J MYLAR	41472U50RJ	2
C618, C619	.0056 J MYLAR	41562U50RJ	2
C333, C433	.0068 J MYLAR	41682U50RJ	2
C304, C404	.0082 J MYLAR	41822U50RJ	2
C516, C614	.047 J MYLAR	41473U50RJ	2
C316, C317, C416,	.068 J MYLAR	41683U50RJ	3
C417, C522	.068 J MYLAR	41683U50RJ	2
C617	.082 J MYLAR	41823U50RJ	1
C521	.12 J MYLAR	41124U50RJ	1
C305, C405	.002 J MYLAR	41203U50RJ	2
C617	.082 J MYLAR	41823U50RJ	1
C307, C407	0.47U/50V ELEC	40047U50RM	2
C301, C322, C326,	4.7U/25V ELEC	404P7U25RM	3
C328, C330, C331,	4.7U/25V ELEC	404P7U25RM	3
C422, C426, C428,	4.7U/25V ELEC	404P7U25RM	3
C401, C430, C513,	4.7U/25V ELEC	404P7U25RM	3
C514, C614	4.7U/25V ELEC	404P7U25RM	3
C320, C322, C325,	10U/25V ELEC	40010U25RM	3
C327, C329, C332,	10U/25V ELEC	40010U25RM	3
C422, C427, C425,	10U/25V ELEC	40010U25RM	3
C432	10U/25V ELEC	40010U25RM	1
C006	10U/50V ELEC	40010U50RM	1
C324, C424	100U/25V ELEC	40100U25RM	2

REF. NO	DESCRIPTION	P/N	Q'TY
G323, C423	220U/16V ELEC	40220U16RM	2
C011, C012	2200U/16V ELEC	402K2U16RM	2
C007, C008	2200U/25V ELEC	402K2U25RM	2
C311, C411	100P/100V PP T	44100100PT	2
C102, C202	200P/100V PP T	44200100PT	2
C009, C010	.01K/160V MPP D	44103160MD	2
C013, C014	.01K/100V P.S	43103100PS	2
Z001	DIODE		
Z002, Z003	4.7V/0.5W	132047P5TO	1
D001 - D007	15V/0.5W	132150P5TO	2
	1N4002	131N4002TO	7
IC017	IC		
IC018	7915A JRC	117915A***	1
IC003, IC015, IC016,	7815A JRC	117815A***	1
IC020	2043SD NJM	112043SD***	3
IC005 - IC014	2043SD NJM	112043SD***	1
IC001	4558DD JRC	114558DD***	10
IC002, IC019	5532DD JRC	115532DD***	1
IC004	712JN JRC	11712JN***	2
	4556D NJM	114556D***	1
	TRANSISTOR		
Q002	2SA1015	122SA1015*	1
Q001	2SC1815	122SC1815*	1
Q301, Q401	2SC3327	122SC3327*	2
	OTHERS		
J207	WAFER 5045-2	6650452***	1
J003	WAFER 5045-3	6650453***	1
J013, J018,	WAFER 5045-4	6650454***	2
TVR701, TVR801	TVR 500 Ω, 6φ	31500083HS	2
	PIN 1x1x19	65010119**	6
	P.C. BOARD B - 1171	97B1171***	1
	WASHER, SPRING 3φ(Y)	88WS036P**	6
	WASHER 3.2x10x1	88W031010*	2
	FUSE CLIP 5φ (EXV)	67FH035***	4
	FUSE CLIP 6φ	67FH036***	4
	WAFER 52011-7	66520117**	2
	WAFER 52011-9	66520119**	1
	FLAT CABLE 3P x 110 m/m	823P110***	1
	FLAT CABLE 7P x 100 m/m	827P100***	1
	FLAT CABLE 8P x 120 m/m	828P120***	1
	FLAT CABLE 9P x 210 m/m	829P210***	1
	FUSE 6.3φ x 31.75X1A	59UL001A1F	2
F001, F002	FUSE 5φ x 20X1A EXV	59VDE01A1F	2



P.C. BOARD B - 1260 TMO ASS'Y

REF. NO.	DESCRIPTION	P/N	Q'TY
	WAFER 52011-7	66520117**	1
	WAFER 52011-10	665201110*	1
	FLAT CABLE 7P x 130 m/m	827P130***	1
	P.C. BOARD B - 1260 TMO	97B1260TMO	1
	PUSH SWITCH SPUN22A002	20UN22A002	1

P.C. BOARD B - 1260 PSW ASS'Y

REF. NO.	DESCRIPTION	P/N	Q'TY
	PIN 1x1x19	65010119**	4
	P.C. BOARD B - 1260 PSW	97B1260PSW	1
	CAPACITOR .0047/125V VDE TYPE	49472U52**	1
	PUSH SWITCH ESB - 8213V TV3	20UN24C004	1

P.C. BOARD B - 1260 DUB ASS'Y

REF. NO.	DESCRIPTION	P/N	Q'TY
	FLAT CABLE 7P x 220 m/m	827P220***	1
	FLAT CABLE 10P x 260 m/m	8210P260**	1
	P.C. BOARD B - 1260 DUB	97B1260DUB	1
	PUSH SWITCH SRR2V43N25	20R2V43N25	1

P.C. BOARD B - 1260 LOU ASS'Y

REF. NO.	DESCRIPTION	P/N	Q'TY
	FLAT CABLE 6P x 130 m/m	826P130***	2
	P.C. BOARD B - 1260 LOU	97B1260LOU	1
	PUSH SWITCH SPEC21HA02	20EC21HA02	1

P.C. BOARD B - 1260 LED ASS'Y

REF. NO.	DESCRIPTION	P/N	Q'TY
	P.C. BOARD B - 1260 LED ASS'Y	97B1260LED	1
	FLAT CABLE 9P x 130 m/m	829P130***	1
	FRAME, LED A - 380	78A380***	1
	LED 3φ, L - 32YD (4)	16032YD***	7
	LED 3φ, L - 32ED (4)	16032ED***	1

P.C. BOARD B - 1260 PHO ASS'Y

REF. NO.	DESCRIPTION	P/N	Q'TY
	PHONE JY6318-01-030	28JY631801	1
	P.C. BOARD B - 1260 PHO	97B1260PHO	1
	PVC WIRE # 1007 24 260 m/m (0)	72P7242600	1
	PVC WIRE # 1007 24 340 m/m (2)	72P7243402	1
	PVC WIRE # 1007 24 340 m/m (0)	72P7243406	1



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