

CARVER

M-500t Power Amplifier

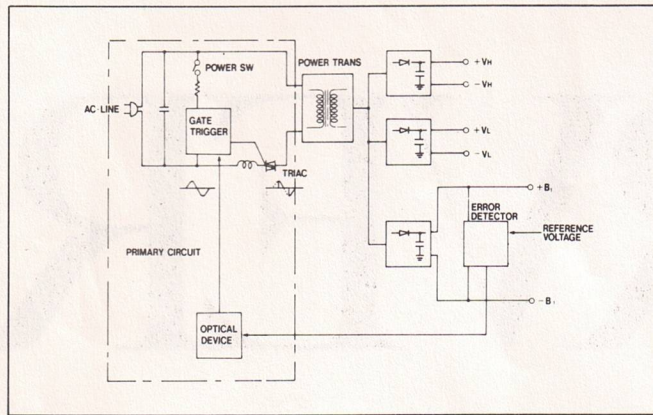
SERVICE MANUAL

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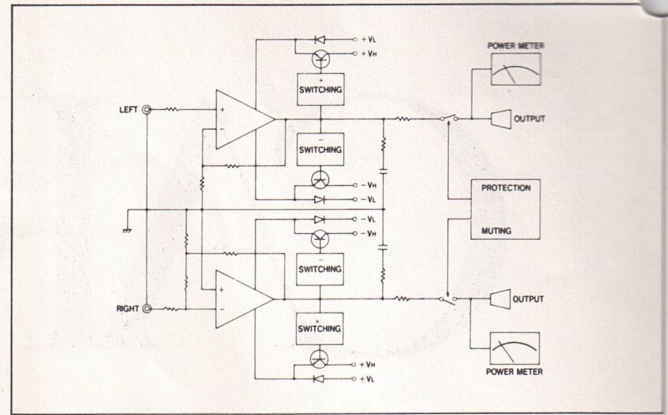
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BLOCK DIAGRAM

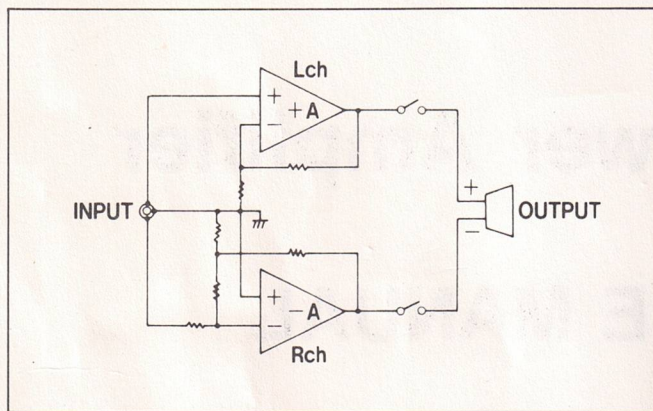
POWER SUPPLY CONTROL



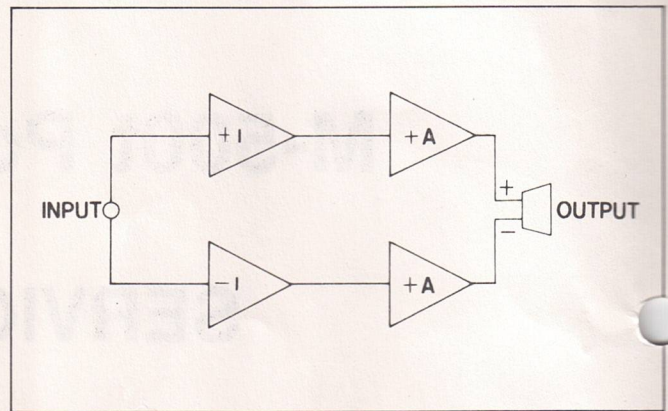
AMPLIFICATION



BTL CIRCUIT



UNIT



SPECIFICATIONS

- **Sensitivity** 2.0V
Input : 1000Hz
Output: 200W
- **Output power** more than 200W
Input : Main in
Output: 0.05% THD
20Hz-20000Hz continuous both CH. driven
- **IM Distortion factor** less than 0.05%
Input : Aux 60Hz: 7000Hz/4.1
Output: 200W
- **Frequency response** 20Hz-20000Hz
Input : Main in
Output: 1000Hz 20W±0.5dB
- **Signal to noise ration (IHF-A)** more than 100dB
(input short) Main in
- **Residual noise (IHF-A)** 300μV
- **Damping factor** more than 30
Input : Aux 150Hz
Output: 20W

- **Input impedance** 15 Kohm
at 1000Hz Main in
- **Dynamic head room** stereo +1dB (8Ω)
mono +1dB (8Ω)
- **Crosstalk**
Between the channels of stereo equipment
Output: 20W
Main in (Input: Shorted)
1000Hz more than 80dB
20000Hz more than 60dB
- **Output load**
Speaker output 8ohm
- **Maximum power consumption** 1100watts
- **AC power supply** 220V, 50/60Hz
- **Netweight** 10.5kg
- **Dimension** W=440 H=110 D=348mm

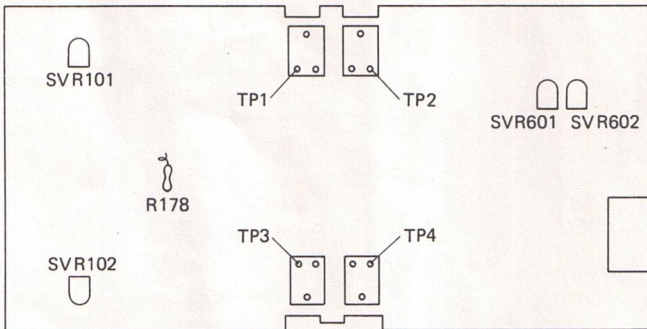
Specifications and design are subject to change without notice.

ALIGNMENT PROCEDURES

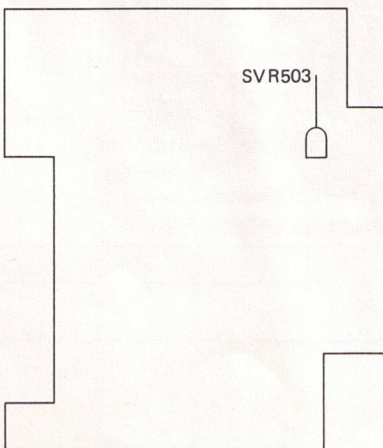
Step	Connect	Ajust	Adjust for
POWER SUPPLY			
1	Rotate SVR503 and SVR504 fully counter-clockwise.		
2	<u>VTVM</u> R178 (test point side)	SVR503	74V
BIAS CURRENT			
3	Preheat for more than 5 minutes.		
4	<u>DC digital voltmeter</u> LIVE/GND TP1/TP2 (L) TP3/TP4 (R)	SVR101 (L) SVR102 (R)	6mV ± 1mV
METER			
5	Confirm that the meters indicate 0 watt at no input.		
6	Input 1kHz to input jacks. Output Speaker out		Speaker out 100W
7		SVR601 (L) SVR602 (R)	Meters 100W

ALIGNMENT POINTS

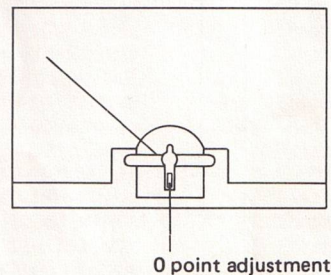
MA-375 PCB



PS-533 PCB

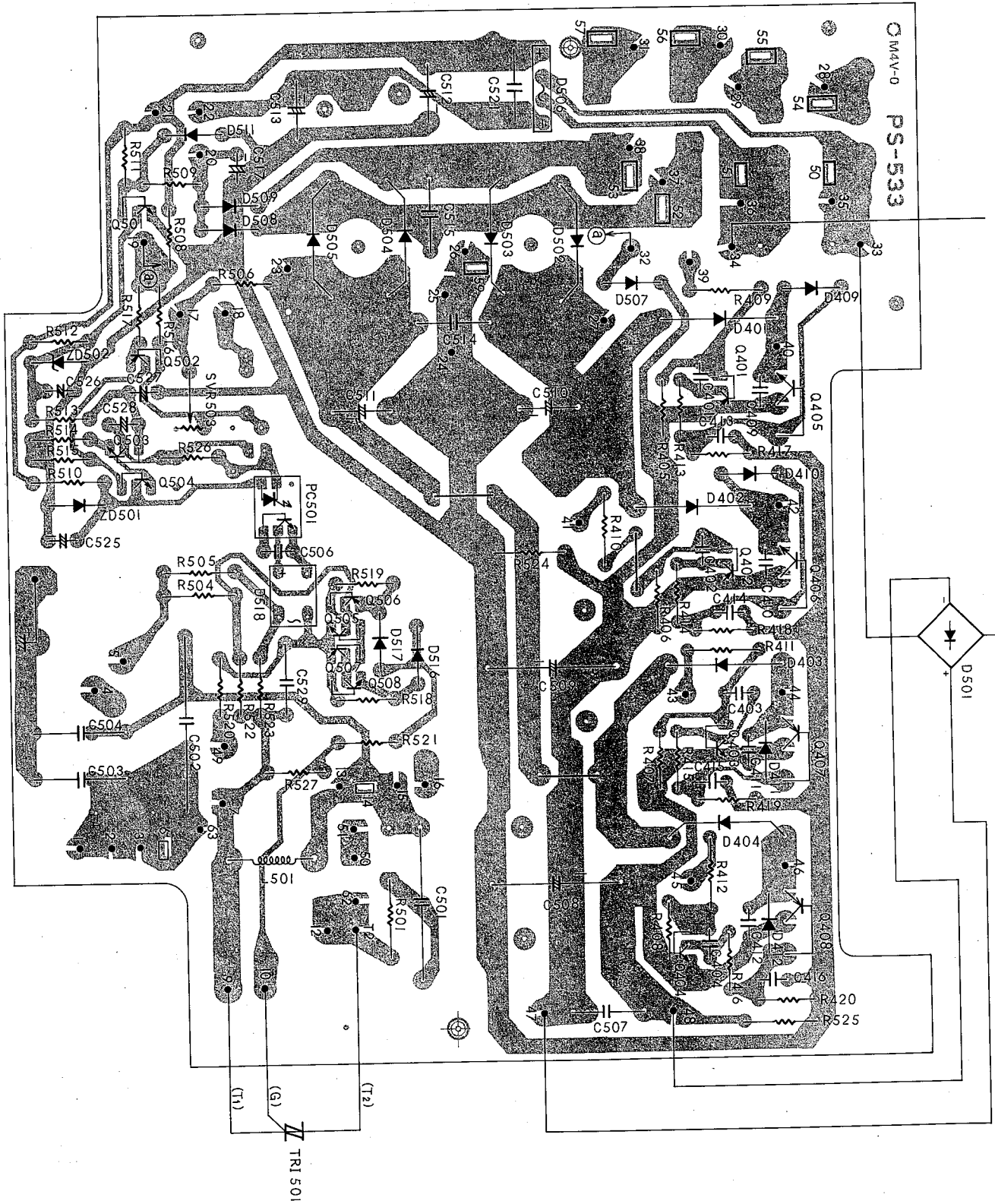


METER UNIT



PCB FOIL SIDE VIEWS

POWER SUPPLY BOARD (PS-533)



1. IS-533 P.C. Board Assembly

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
Switches				
	1		HSW0302-01-330	Slide Switch

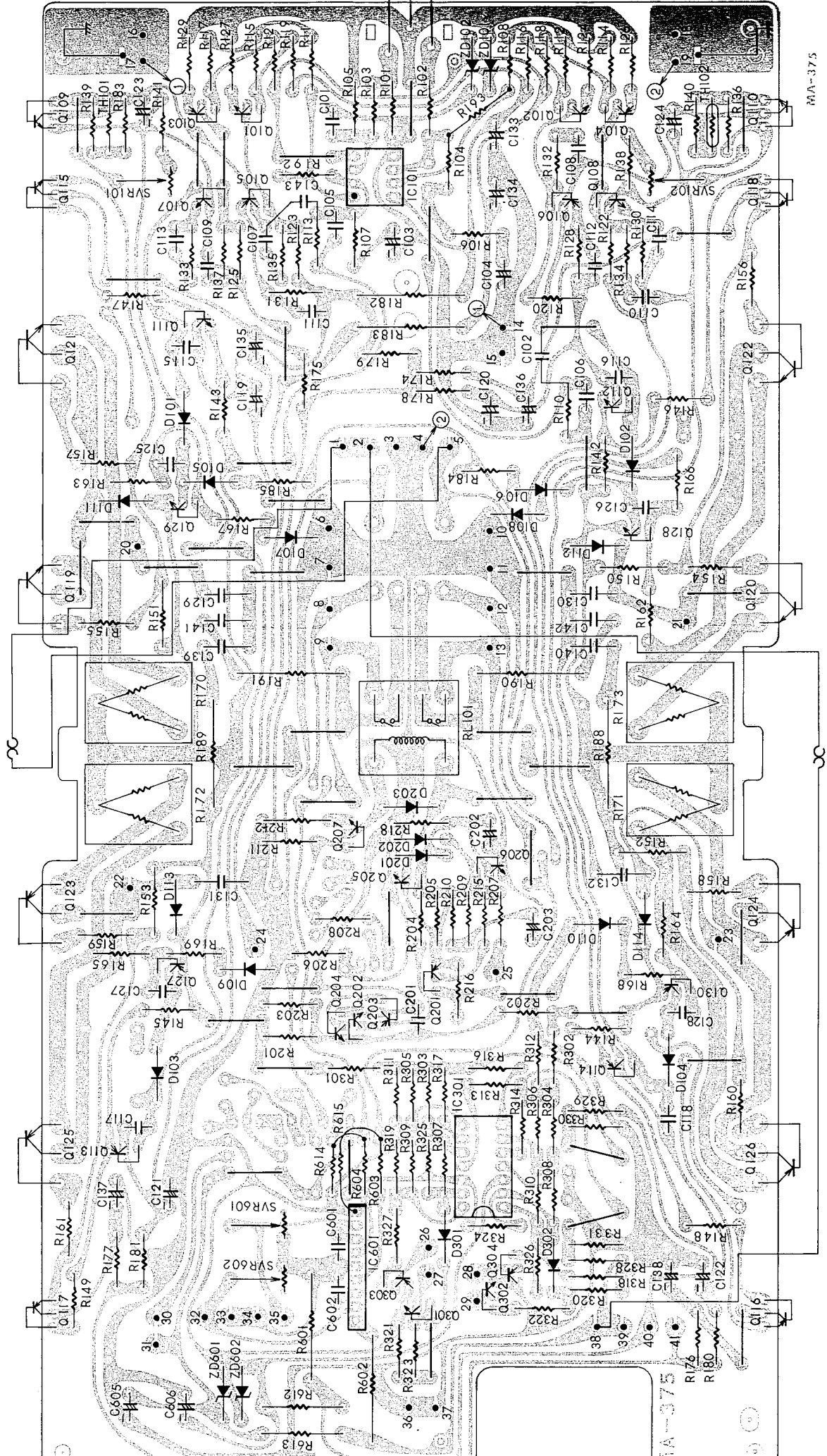
2. LP-533 P.C. Board Assembly

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
Miscellaneous				
LA501	1		BF352-53001A	Lamp, 8V, 0.25A
LA502	1		BF352-53002A	Lamp, 8V, 0.25A

3. MA-375 P.C. Board Assembly

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
Semiconductors				
D101~110	10		1N4148	Diode
D111~114	4		1N4002	Diode
D201	1		DS442	Diode
D202,203	2		1N4002	Diode
D301,302	2		DS442	Diode
Q101,102	2		2SC1980-S,T	Transistor
Q103,104	2		2SA921-S,T	Transistor
Q105,106	2		2SA1110-Q,R	Transistor
Q107,108	2		2SC2590-Q,R	Transistor
Q109,110	2		2SC1567-Q,R	Transistor
Q111,112	2		2SC2590-Q,R	Transistor
Q113,114	2		2SA1110-Q,R	Transistor
Q115	1		2SC2591-Q,R	Transistor
Q116,117	2		2SA1111-Q,R	Transistor
Q118	1		2SC2591-Q,R	Transistor
Q119~122	4		2SD845-O,R	Transistor
Q123~126	4		2SB755-O,R	Transistor
Q127	1		2SA777-Q,R	Transistor
Q128,129	2		2SC1509-Q,R	Transistor
Q130	1		2SA777-Q,R	Transistor
Q201	1		2SA722-S,T	Transistor
Q202	1		2SC1328-S,T	Transistor
Q203	1		2SA722-S,T	Transistor
Q204~206	3		2SC1328-S,T	Transistor
Q207	1		2SC1509-Q,R	Transistor
Q301,302	2		2SC1980-S,T	Transistor
Q303,304	2		2SA921-S,T	Transistor
IC101	1		NJM072DE	IC
IC301	1		AN6912	IC
IC601	1		TA7318P	IC
TH101,102	2		SDT65	Thermistor
ZD101,102	2		ZD50-147	Zener Diode, 1/2W, 14.7V
ZD601,602	2		ZD50-117	Zener Diode, 1/2W, 11.7V
Capacitors				
C101	1		HE90SJSL471K	Ceramic Capacitor
C102	1		HE40SJSL220K	Ceramic Capacitor
C103,104	2		MS-16TW471M	Electrolytic Capacitor
C105	1		HE40SJSL560K	Ceramic Capacitor
C106	1		HE50SJSL820K	Ceramic Capacitor
C107~110	4		HE50SJSL101K	Ceramic Capacitor
C111~114	4		MY-50VS683J	Mylar Capacitor
C115~118	4		HM60SJSL220K	Ceramic Capacitor
C119~122	4		MS100TW1R0M	Electrolytic Capacitor
C123,124	2		MS-50TW1R0M	Electrolytic Capacitor
C125~128	4		MY-50VS103J	Mylar Capacitor
C129~132	4		ECQM1473MZ	Polyester Film Capacitor
C133	1		MS-16TW470M	Electrolytic Capacitor
C134	1		MS-16TW101M	Electrolytic Capacitor
C135~138	4		MS100TW1R0M	Electrolytic Capacitor
C139~142	4		ECQM1473MZ	Polyester Film Capacitor
C143	1		HE40SJSL220K	Ceramic Capacitor
C201	1		NP-25TW470M	Electrolytic Capacitor
C202	1		MS-16TW221M	Electrolytic Capacitor
C203	1		MS-50TW470M	Electrolytic Capacitor
C601	1		MY-50VS103J	Mylar Capacitor

MAIN AMP BOARD (MA-375)



Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
C602	1		MY-50VS103J	Mylar Capacitor
C605,606	2		MS-16TW470M-RT	Electrolytic Capacitor
Resistors				
R101	1		KA25ST333J	Carbon Resistor
R102	1		KA25ST153J	Carbon Resistor
R103	1		KA25ST102J	Carbon Resistor
R104	1		KA25ST133J	Carbon Resistor
R105	1		KA25ST333J	Carbon Resistor
R106	1		KA25ST102J	Carbon Resistor
R107	1		KA25ST112J	Carbon Resistor
R108	1		KA25ST102J	Carbon Resistor
R110	1		MF25ST223J	Metal Film Resistor
R111	1		KA25ST102J	Carbon Resistor
R112	1		KA25ST272J	Carbon Resistor
R113	1		MF25ST223J	Metal Film Resistor
R114,115	2		KA25ST272J	Carbon Resistor
R116	1		KA25ST153J	Carbon Resistor
R117	1		KA25ST272J	Carbon Resistor
R118,119	2		KA25ST153J	Carbon Resistor
R120	1		KA25ST102J	Carbon Resistor
R121	1		KA25ST153J	Carbon Resistor
R122,123	2		KA25ST102J	Carbon Resistor
R124	1		KA25ST152J	Carbon Resistor
R125	1		KA25ST102J	Carbon Resistor
R126,127	2		KA25ST152J	Carbon Resistor
R128	1		KA25ST221J	Carbon Resistor
R129	1		KA25ST152J	Carbon Resistor
R130,131	2		KA25ST221J	Carbon Resistor
R132	1		KA25ST102J	Carbon Resistor
R133	1		KA25ST221J	Carbon Resistor
R134,135	2		KA25ST102J	Carbon Resistor
R136	1		KA25ST332J	Carbon Resistor
R137	1		KA25ST102J	Carbon Resistor
R138	1		KA25ST561J	Carbon Resistor
R139	1		KA25ST332J	Carbon Resistor
R140,141	2		KA25ST561J	Carbon Resistor
R142~145	4		KA25ST471J	Carbon Resistor
R146~149	4		KA25ST560J	Carbon Resistor
R150~153	4		KA50ST680J	Carbon Resistor
R154,155	2		KA25ST4R7J	Carbon Resistor
R156	1		KA25ST4R7J	Carbon Resistor
R157~161	5		KA25ST4R7J	Carbon Resistor
R162~165	4		KA25ST271J	Carbon Resistor
R166~169	4		KA25ST472J	Carbon Resistor
R170~173	4		ERF5GEKR22N	Cement Resistor
R174~177	4		KA25ST100J	Carbon Resistor
R178~181	4		KA25ST220J	Carbon Resistor
R182	1		SA-2WT682J	Metal Oxide Resistor
R183	1		KA25ST561J	Carbon Resistor
R183	1		SA-2WT682J	Metal Oxide Resistor
R184,185	2		KA25ST183J	Carbon Resistor
R188~191	4		SA-2WT100J	Metal Oxide Resistor
R192	1		KA25ST303J	Carbon Resistor
R193	1		KA25ST224J	Carbon Resistor
R201~203	3		KA25ST563J	Carbon Resistor
R204	1		KA25ST102J	Carbon Resistor
R205	1		KA25ST563J	Carbon Resistor
R206	1		KA25ST223J	Carbon Resistor
R207	1		KA25ST562J	Carbon Resistor
R208	1		KA25ST102J	Carbon Resistor
R209	1		KA25ST104J	Carbon Resistor
R210	1		KA25ST473J	Carbon Resistor
R211	1		KA25ST223J	Carbon Resistor
R212	1		KA50ST271J	Carbon Resistor
R215	1		KA25ST102J	Carbon Resistor
R216	1		KA25ST561J	Carbon Resistor
R218	1		KA25ST223J	Carbon Resistor
R301~306	6		KA25ST103J	Carbon Resistor
R307~310	4		KA25ST474J	Carbon Resistor
R311,312	2		KA25ST182J	Carbon Resistor
R313~327	14		KA25ST103J	Carbon Resistor
R328,329	2		KA25ST683J	Carbon Resistor
R330	1		KA25ST912J	Carbon Resistor
R331	1		KA25ST822J	Carbon Resistor

4. PS-533 P.C. Board Assembly (cont'd)

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
C521	1		TDXM-2J103KZBT	Metallized Film Capacitor
C525	1		NS-25TW101M	Electrolytic Capacitor
C526	1		NS-16TW101M	Electrolytic Capacitor
C527	1		MS-16TW100M	Electrolytic Capacitor
C528	1		MS-25TW4R7M	Electrolytic Capacitor
C529	1		ECQM1H224V	Polyester Film Capacitor
Resistors				
R405~408	4		KA25ST102J	Carbon Resistor
R409~412	4		KA50ST103J	Carbon Resistor
R413~416	4		KA25ST100J	Carbon Resistor
R417~420	4		KA25ST223J	Carbon Resistor
R501	1		KA50ST180J	Carbon Resistor
R504	1		KA50ST274J	Carbon Resistor
R505	1		KA50ST683J	Carbon Resistor
R506	1		KA25ST683J	Carbon Resistor
R508	1		KA25ST101J	Carbon Resistor
R509	1		KA25ST103J	Carbon Resistor
R510	1		KA50ST103J	Carbon Resistor
R511	1		KA25ST224J	Carbon Resistor
R512	1		KA25ST223J	Carbon Resistor
R513	1		KA25ST103J	Carbon Resistor
R514	1		KA25ST472J	Carbon Resistor
R515~517	3		KA25ST103J	Carbon Resistor
R518~519	2		KA25ST104J	Carbon Resistor
R520	1		KA25ST100J	Carbon Resistor
R521	1		KA25ST4R7J	Carbon Resistor
R522	1		KA25ST273J	Carbon Resistor
R523	1		KA25ST153J	Carbon Resistor
R524,525	2		KA50ST223J	Carbon Resistor
R526	1		KA25ST182J	Carbon Resistor
R527	1		KA25ST102J	Carbon Resistor
SVR503	1		SVR-08T3B503	Semi-Variable Resistor
Coils				
L501	1		SF-HP-8A-01	Choke Coil
Miscellaneous				
	1		FS-014	Receptacle
	1		FS-015	Receptacle
	1		FS-016	Receptacle
	3		JP-Y24C01	Jump Wire
	4		1S3MPB	Mica
	1		59BS4795	Gnd Lug

5. Inner Construction Parts

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
Switches				
11E1	1		ESB70231T	Power Switch
11E19	1		HSW0302-01-330	Slide Switch
P.C.Board Assembly				
12E1	1		16A1P01B	P.C.Board Ass'y (MA-375)
12E2	1		16A1P01B-1	P.C.Board Ass'y (SPS-375)
12E3	1		16A1P02C	P.C.Board Ass'y (PS-533)
12E5	1		16A1P02C-1	P.C.Board Ass'y (IS-533)
12E6	1		16A1P02C-2	P.C.Board Ass'y (LP-533)
Miscellaneous				
1E3	1		NPT-1644	Power Transformer
1E4	1		NPT-1654	Power Transformer
5E26	4		1S3MPB	Mica
10E11	8		AC243	Mica
10E12	4		NO.18A	Mica
10E13	4		NO.24B	Insulator Bush
2M1	1		N20822A	Front Chassis
2M2	1		N30553	Center Chassis
2M3	1		N30554	Support Chassis (P.T.)

5. Inner Construction Parts (cont'd)

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
2M4	2		N30555	Joint Angle
2M5	1		N30556	Fittings (Lamp)
2M6	2		N42388	Fittings (Thermal Relay)
2M7	1		N30557A	Heat Sink
2M8	2		N30559	Heat Sink
2M9	1		N30558	Shower-Glass
2M10	2		N42666	Cushion
2M11	3		N41960	Cabinet Mat
2M12	4		N42667	Meter Cushion
2M13	1		N42669	Shield Paper (Lamp)
2M14	2		N42710	Meter Cushion
2M15	1		N42711	Cushion
2M16	1		N42789	Spacer
2M17	1		N42792	Cushion
2M20	1		N42635	Fittings (P.C.B.)
2M21	2		N43125	Spacer
3M29	4		TSP+40X14-B	Tap Screw S, Pan Head, B
3M30	2		VJR-3	Snake Lug
4M1	2		SSP+20X06-B	Screw, Pan Head, B
4M2	2		TBB+26X06-Y	Tap Screw B, Bind Head, Y
4M3	19		TSB+30X06-Y	Tap Screw S, Bind Head, Y
4M8	8		TSB+30X06-B	Tap Screw S, Bind Head, B
4M10	14		TSB+30X08-Y	Tap Screw S, Bind Head, Y
4M11	4		TSB+30X10-Y	Tap Screw S, Bind Head, Y
4M12	16		TSB+30X12-Y	Tap Screw S, Bind Head, Y
4M13	17		TSC+30X06-Y	Tap Screw S, Washer Faced, Y
4M17	2		TSS+30X06-Y	Tap Screw S, Flat Head, Y
4M18	2		SSS+30X12-Y	Screw, Flat Head, Y
4M19	3		TPM+30X08-B	Tap Screw P, Round Head, B
4M20	4		ZB+STR30X12-2Y	Tap Screw, Bind Head, Y
4M21	11		TSB+40X08-B	Tap Screw S, Bind Head, B
4M22	7		TSB+40X10-Y	Tap Screw S, Bind Head, Y
4M23	4		TSB+40X14-B	Tap Screw S, Bind Head, B
4M24	2		TSB+40X12-Y	Tap Screw S, Bind Head, Y
4M25	1		TST+40X18-Y	Tap Screw S, Truss, Y
4M26	15		2AWX0830-05-Y	Plain Washer, Y
4M27	6		2AWX1040-08-B	Plain Washer, B
4M28	2		2BNX30-2Y	Nut, Hexagonal Head
4M29	3		59BS1692	GND Lug
4M30	4		3TWX30	Toothed Washer (A.B)

6. Appearance Parts

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
11E13	1		ACC-022DIG7EIA	Line Cord
11E15	1		SR-5N-4	Cord Stopper
11E17	1		FH-032C	Fuse Holder
11E25	1		UB-0029-1	Terminal (GND.)
1M1	1		N21138-GY3	Front Panel
1M2	1		N30561-1	Meter Plate
1M3	1		N42650A	Tinted Window
1M4	1		N42573-BR2	Side Cap R
1M5	1		N42574-BR2	Side Cap L
1M6	2		N43858	Trim (Window)
1M8	1		N43095-GY3	Push Button (Power)
1M9	1		N42572A	Knob Guide
1M10	1		N20824-1	Cabinet
1M12	1		N20828C-1	Rear Panel
1M13	1		N30551A-1	Bottom Board
1M14	4		T-C	Foot
1M16	2		N44093-GY3	Handle
1M17	4		N44092-GY3	Handle Spacer
1M18	2		N43847-GY3	Bracket
1M19	4		N43881	Spacer

7. Packing Parts

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
3M1	1		N41318	Polyethylene Bag (Unit)
3M2	1		N40487	Polyethylene Bag (Accessories)
3M3	1		N20859	Packing Pad R
3M4	1		N20860A	Packing Pad L
3M5	1		N42674-1A	Shipping Carton
3M6	2		SL.1024	Label, Serial No.

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
3M7	2		N41366B	Label, Caution
3M8	1		N42235	Sheet, Serial Number
3M11	1		OM-498	Instruction Manual
3M13	1		N42785	Packing Pad (Top)
3M16	1		N43871	Handle Case
3M17	1		N43870	Protection Sheet
3M18	1		N43874	Polyethylene Bag (Accessories)
3M19	1		N43880	Instruction (Handle)

Capacitors description

• Electrolytic Capacitor

NS	-16	TW	221	M
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Tolerance (%); M = ±20
 Value (μF); R22=0.22, 100=10, 1R0=1.0, 221=220, 3R3=3.3, 102=1000
 Voltage (V); -16 = 16, 6R3 = 6.3

• Mylar Capacitor

MY	-50V	S	223	M
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Tolerance (%); J = 5, K = 10, M = 20
 Value (pF); 122 = 1200, 104 = 100000 = 0.1 (μF), 223 = 22000
 Voltage (V); -50 = 50

• Ceramic Capacitor

HE	90	SJ	YF	223	Z
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Tolerance (%); D = ±0.5pF, J = ±5 (%), K = ±10 (%), Z = ±⁸⁰/₂₀ (%)
 Value (pF); 050 = 5, 102 = 1000, 560 = 56, 223 = 22000, 821 = 820
 Voltage (V); HC = 25, HE = 50, HK = 250, HM = 500, H = 100

Resistors description

• Fixed Resistors

KA	25S	T	473	J	-LP
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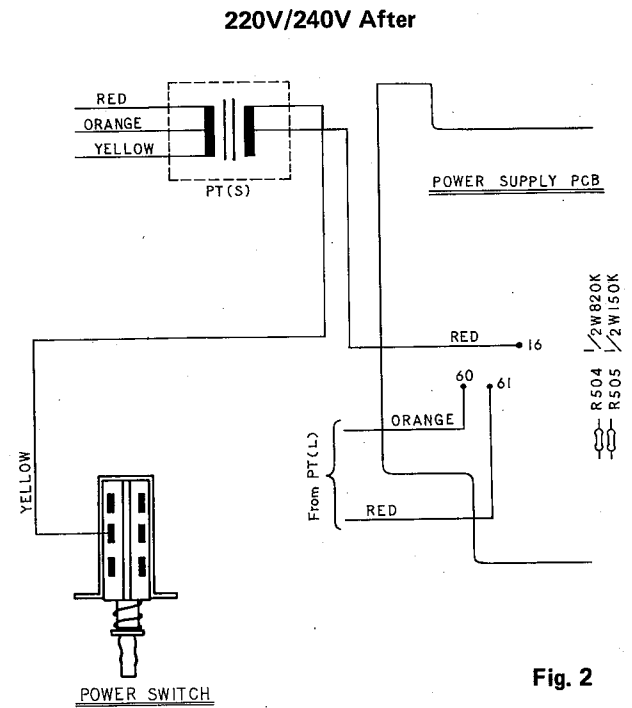
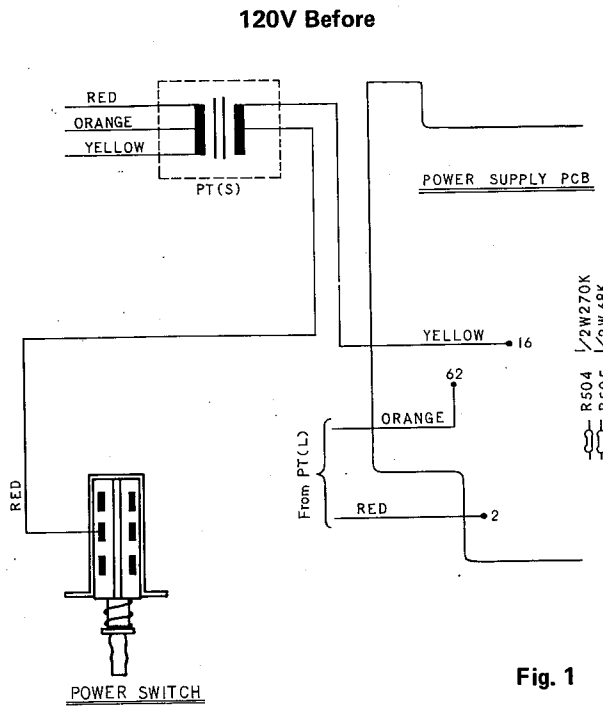
Tolerance (%); D = ±0.5, F = ±1, G = ±2, J = ±5
 Value (Ω); 2R2 = 2.2, 682 = 6.8k, 125 = 1.2M, 470 = 47, 473 = 47k,
 221 = 220, 394 = 390k
 Wattage (W); 25S = 1/4, 50S or 50X = 1/2, -2W = 2
 Type; KA = Carbon, FR = Flame Proof, SA = Metal Oxide,
 RF = Fusible, MF = Metal Film

VOLTAGE CONVERSION

Direction for Change

1. Locate power supply circuit board on the left of the front panel side. (See Fig. 1 and 2)
 - A. Move the red wire of PT (L) from 2 to 61.
 - B. Move the orange wire of PT (L) from 62 to 60.
 - C. Move the yellow wire of PT (S) from 16 to the power switch.
 - D. Move the red wire of PT (S) from the power switch to 16.
 - E. Change R504 from 270K 1/2W to 820K 1/2W.
 - F. Change R505 from 68K 1/2W to 150K 1/2W.
- Note. PT(L): Power Transformer, large
PT(S): Power Transformer, small

Power Supply P.C. Board PS-533



2. Change fuse on the right of the rear panel from AGC10 to AGC5.

