

SERVICE MANUAL

FOR



Model 1672MOD

DC POWER SUPPLY

This service manual is intended for use by qualified electronics technicians only. To avoid electrical shock, do not perform servicing unless you are qualified to do so.

For calibration information please refer to instruction manual or Cal Procedure.

Please note that information contained in this manual is subject to change without notice.



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Yorba Linda, CA 92887

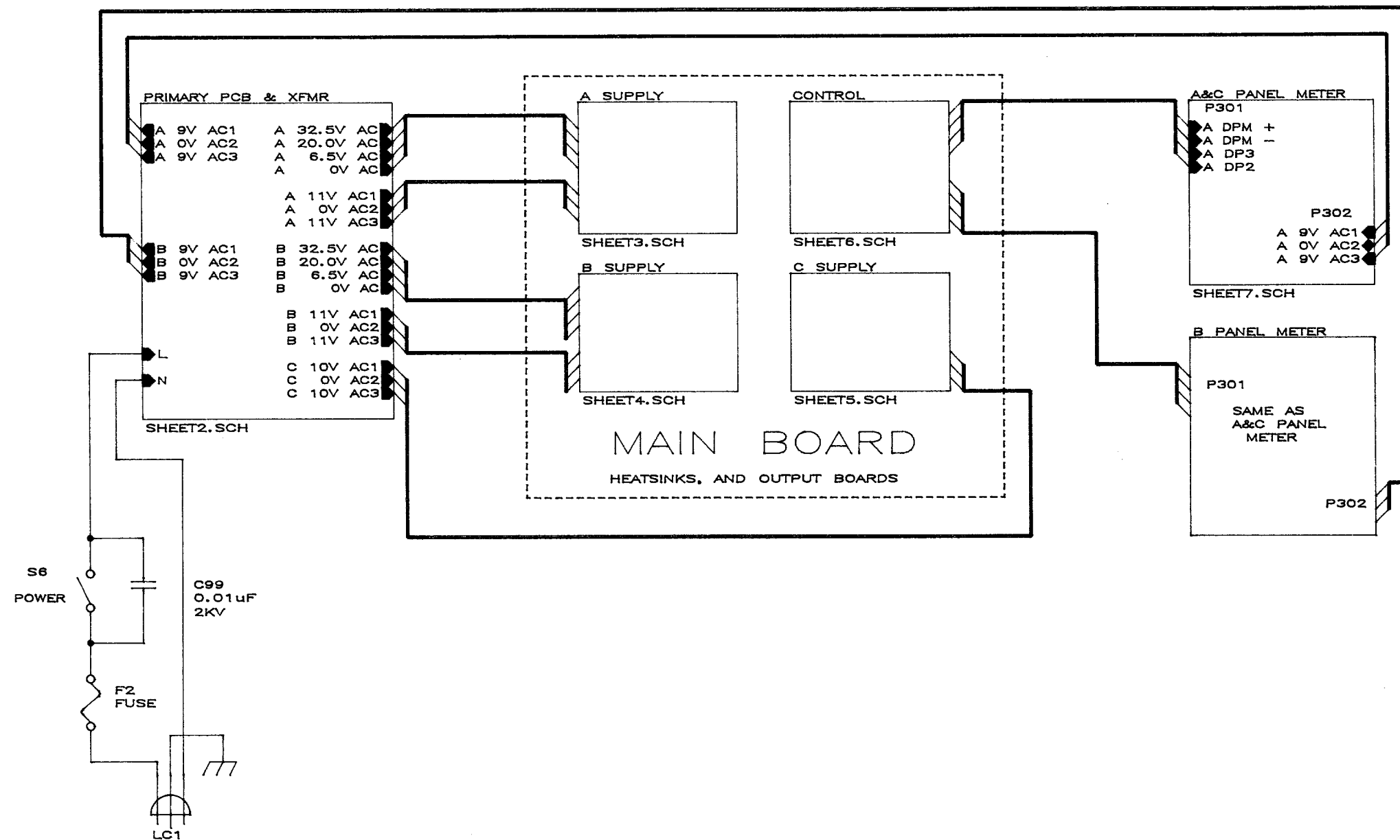
PARTS LIST

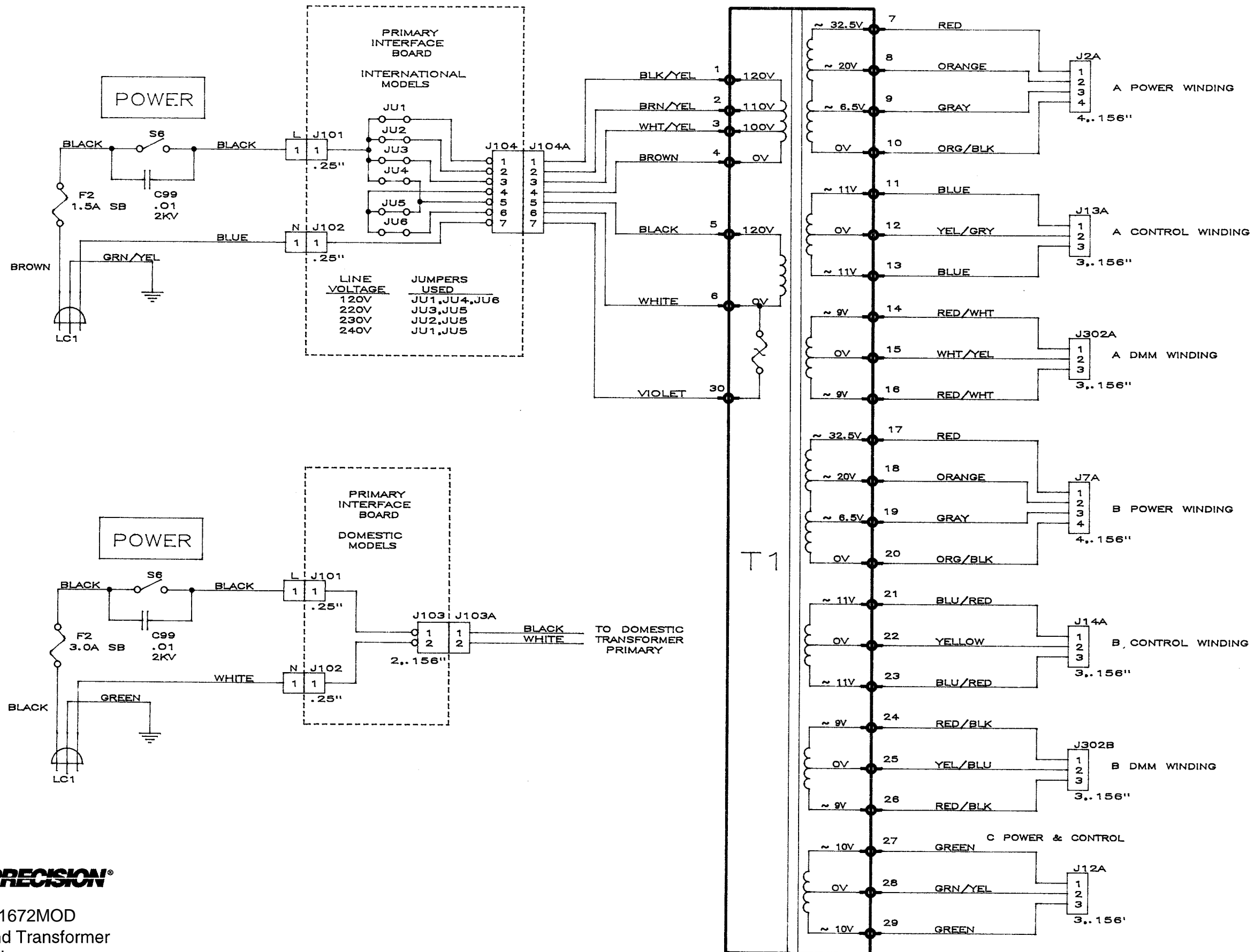
Reference Number	Description	B+K Part Number
RESISTORS		
Unlisted resistors are $\pm 5\%$, 1/4 Watt. See schematic diagram for value		
R1,12,39,66	4.7 k Ω , 5%, 1W Carbon Film Res.	002-001-A-472
R6,10,122,133,134,159,163, 164	1 k Ω , Trimmer Pot	008-247-9-001
R13,21,26,34,49,52,61,62, 64,75,78,87,89,90,96, 110, 112,115	10.0 k Ω , 1%, 1/4W, Metal Film Res.	015-14A-1-002
R14,27	39.2 k Ω , 1%, 1/4W, Metal Film Res.	015-14A-3-922
R20,33,142	17.8 k Ω , 1%, 1/4W, Metal Film Res.	015-14A-1-782
R22,35,120	57.6 k Ω , 1%, 1/4W, Metal Film Res.	015-14A-5-762
R40	1 k Ω , 5%, 2W, Carbon Res.	001-002-5-102
R41,67	0.3 Ω , 5% 5W, Wirewound Res.	004-245-9-001
R43,69	1 k Ω , 5%, 1/2W, Carbon Film Res.	002-102-A-102
R48,74,141,149	1.00 k Ω , 1%, 1/4W, Metal Film Res.	015-14A-1-001
R60,86	51.1 k Ω , 1%, 1/4W, Metal Film Res.	015-14A-5-112
R88,111	226 k Ω , 1%, 1/4W, Metal Film Res.	015-14A-2-263
R93,161	150 Ω , 5%, 1/2W Carbon Film Res.	002-102-A-151
R95,113	990 k Ω , 1%, 1/4W, Metal Film Res.	011-186-9-001
R98,99,101,105,107,108,152	25 k Ω , 20% Pot (VOLTAGE, CURRENT adjust)	008-919-9-001
R119	10 k Ω , Trimmer Pot	010-022-9-007
R124	3.92 k Ω , 1%, 1/4W, Metal Film Res.	015-14A-3-921
R126	3.01 k Ω , 1%, 1/4W, Metal Film Res.	015-14A-3-011
R127,129,162	1.91 k Ω , 1%, 1/4W, Metal Film Res.	015-14A-1-911
R128	80.6 Ω , 1%, 1/4W, Metal Film Res.	015-14A-8-069
R140	9.09 k Ω , 1%, 1/4W, Metal Film Res.	015-14A-9-091
R143A,143B,144A,144B	0.5 Ω , 5%, 5W Wirewound Res.	004-265-9-001
R145	470 Ω , 5%, 1W Carbon Film Res.	002-001-8-471
R146	1.2 k Ω , 5%, 1/4W, Carbon Film Res.	002-104-A-122
R153,157	1.82 k Ω , 1%, 1/4W, Metal Film Res.	015-14A-1-821
R158	1.37 k Ω , 1%, 1/4W, Metal Film Res.	015-14A-1-371
R160	1.15 k Ω , 1%, 1/4W, Metal Film Res.	015-14A-1-151
CAPACITORS		
C1,18	4700 μ F, 20%, 63V Electrolytic Cap.	022-418-9-001
C2,10,15,16	470 μ F, +50/-10%, 25V Electrolytic Cap.	022-284-9-001
C3	100 μ F, 20%, 35V, Electrolytic Cap.	022-186-9-001
C4,5,6	4700 μ F, 20%, 25V, Electrolytic Cap.	022-447-9-001
C7,8,13,17,39	0.01 μ F, +80/-20%, 25V, Disc Ceramic Cap.	020-473-C-001
C9,14	100pF, 10%, 100V, NP0 Disc Ceramic Cap.	020-487-C-001
C11	1000 μ F, +150%/-10%, 25V Electrolytic Cap.	022-101-9-001
C12,19,21,25,38,41	47 μ F, 20%, 10V Low Leakage Electrolytic	036-001-B-019
C20,23,24,27,40	0.001 μ F, 10%, 500V, Disc Ceramic Cap.	020-472-C-001
C22,26	0.002 μ F, 20%, 100V, Disc Ceramic Cap.	020-486-C-001
C28,29,34	150 μ F, 20%, 35V, Electrolytic Cap.	022-054-9-001
C30,33,35	0.05 μ F, +80/-20%, 100V, Disc Ceramic Cap.	020-485-C-001
C31,32	0.01 μ F, 10%, 500V, Disc Ceramic Cap.	020-484-C-001
C37	10 μ F, 20%, 25V Low Leakage Electrolytic	036-001-B-018
C42	0.22 μ F,10%, 50V,10% PF Polyester Cap.	025-325-B-224
DIODES AND TRANSISTORS		
BR1,2	1 Amp Bridge Rectifier	157-038-9-001
BR3	6 Amp, 200PIV Bridge Rectifier	157-057-9-001
CR1,2,3,4,13,14,15,16, 17,32,40,41,42,44	3 Amp, 200 PIV, Silicon Diode	151-179-F-001

PARTS LIST

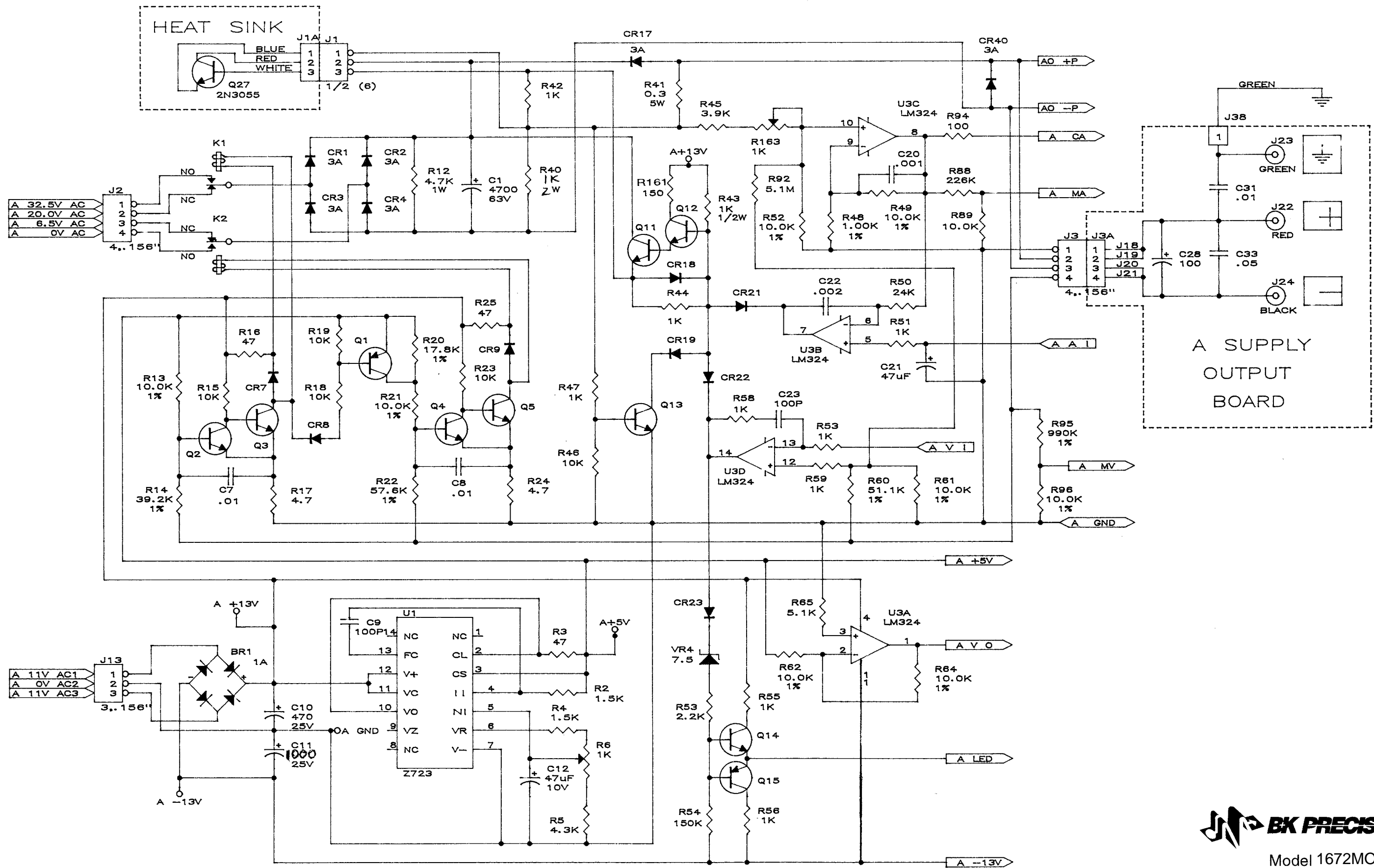
Reference Number	Description	B+K Part Number
DIODES AND TRANSISTORS (Continued)		
CR20,33,35	L.E.D., Red, Right Angle With Holder	158-126-9-001
CR34,36	L.E.D., Green, Right Angle With Holder	158-127-9-001
CR5.6	1 Amp, 600V, Silicon Diode	151-050-E-001
CR7,8,9,10,11,12,18,19,21,22,23,25,26,27,28, 29, 37,38,39,43	1N4148 Silicon Diode	151-038-E-001
Q1,6,15,19,25	2N5819 PNP Silicon Transistor	177-093-H-001
Q2,3,4,5,7,8,9,10,12, 13,14,16,17,18,21,22	2N5818 NPN Silicon Transistor	176-051-H-001
Q11,20,23	2N5496 NPN Silicon Power Transistor	172-016-9-001
Q24	SCR, Power	181-015-9-001
Q27,28,29,30	2N3055 NPN Silicon Power Transistor	172-033-9-001
VR1,2	4.3V, 400mW Zener Diode	152-062-E-001
VR3	6.8V, 400mW, 5%, Zener Diode	152-218-9-001
VR4,5,6	7.5V, 1W Zener Diode	152-038-9-001
VR7	6.2V, 400mW Zener Diode	152-071-9-001
INTEGRATED CIRCUITS		
U1,2,5	723 Voltage Regulator	307-009-9-001
U3,4,6	CA324 OP AMP	307-060-9-001
MISCELLANEOUS		
F1	6A, 250V, 3AG Slow Blow Fuse	198-303-6-000
For F1	Fuse Clips, PCB	741-058-9-001
F2 & Spare (120 V, 60 Hz version)	3A, 250V, 3AG Slow Blow Fuse	198-303-3-000
F2 & Spare (120/220/230/240 V, 50/60 Hz version)	1.5A, 250V, 5 x 20 mm Slow Blow Fuse	198-300-1-500
For F2	Fuseholder, Snap In	742-068-9-001
For F2	Carrier, 3AG	742-068-9-002
For F2	Carrier 5 x 20 mm	742-068-9-003
For K1-7	Relay, SPDT, 10A Contacts, 12V Coil	441-067-9-001
For (1)Q11,(1)Q20,(1)Q23,(1)Q24	#5 x 5/16" x 0.025" Flat Washer, Stainless	724-109-9-001
For (1)Q11,(1)Q20,(1)Q23,(1)Q24	0.133" ID x 0.25" OD x 0.030" Thk Flat Washer	724-110-9-001
For Q11,Q20,Q23,Q24	Heatsink	747-083-9-001
For Q27,Q28,Q29,Q30	Transistor Insulator	342-048-9-001
For Q27,Q28,Q29,Q30	Transistor Insulator, Mica, T0-3	347-002-9-001
For Q27,Q28,Q29,Q30	Thermal Insulator, TO-3	347-154-9-001
For Q27,Q28,Q29,Q30,J38,J39	Solder Lug, #6, 45 Deg.	744-001-9-001
For Q27,Q28,Q29,Q30	Heat Sink, 3" Long	747-184-9-001
For (2)Q27,(2)Q28,(2)Q29, (2)Q30,(1)BR3	6-32 X 1/2", Nickel Plate Philips Screw	628-008-1-301
For (2)Q27,(2)Q28,(2)Q29,(2)Q30,(1)BR3, (1)CSA,(1)FPG,(2)PRIMARY PCB	6-32 KEPS Nut	648-608-1-106
S1-5	Switch, Pushbutton, 5 Station, 4PDT	088-213-9-001
For S1-5	Pushbuttons, Black	384-149-9-001
S6	SPST Rocker Switch, 0.187" Faston Terms (POWER)	093-026-9-001
T1 (120 V, 60 Hz version)	Transformer, Power	065-275-9-001
T1 (120/220/230/240 V, 50/60 Hz version)	Transformer, Power	065-275-9-002
For T1	Sub Plate, Transformer	261-226-9-001
For T1	10-32 Elastic Stop Nuts	651-312-1-416
	Line Cord, European	420-088-9-001
	Line Cord, 3-Wire, CSA Approved	420-089-9-001
For Line Cord	Heyco Stain Relief	380-001-9-001
For Control PCB	Bracket, PCB Mounting	251-647-9-001
	Chassis	257-186-9-001
For (2)Chassis To PCB Spacer (2)PCB To Spacers	6-32 x 5/16", Nickel Plate Philips Screw	628-005-1-301
	Top Cover	253-165-9-001
	Panel Inlay, Model No.	260-563-9-004
	Label, Nameplate	483-845-9-007
	Panel Inlay, Controls	260-564-9-004
	Bezel, Window	380-677-9-001
	Filter, Window, Red	753-058-9-001
For Heat Sinks (M) To Chassis	#6 x 7/16", "AB" Nickel Philips Screw	706-814-1-301
For Heat Sinks (M) to Chassis	5/32" I.D. x 5/8" O.D. Flat Washer	725-040-3-210
	Shield, Transistor, Heatsink	256-320-9-001

Reference Number	Description	B+K Part Number
MISCELLANEOUS (Continued)		
For Panel Pots	Knob, Push On Type	751-395-9-017
For Panel Pots	M7P0.75 Hex Nut	653-140-9-001
For (7) Panel Pots (Outside Panel)	7 x 12 mm Flatwasher, Zinc	724-106-9-001
For (7) Panel Pots (Inside Bracket)	7 x 12 mm Flatwasher, Stainless Steel	724-108-9-001
For Panel Mtrs	6-32 x 3/4", Nickel Plate Philips Screw	628-012-1-301
For Control Brkt	4-40 KEPS Nut	645-608-1-106
For Output Jacks	M8P1.25 Hex Nut	653-142-9-001
For Output Jacks	8.2 mm Split Lockwasher	731-130-9-001
For Casing	#6 x 1/4, PPHSMS, Type "AB", Nickel	706-808-1-301
For (4)PCB Brkt.Q11.Q20.Q23.Q24	1/8" Pop Rivet, Aluminum	733-019-9-001
Primary PCB Mtg	3/8" Spacer, 0.147" I.D. x 1/4" O.D.	759-139-9-001
Rear PCB Support	0.25" Hex Spacer, #6-32 x 1.556"	759-275-9-001
	Red 3-Digit Panel Meter Assembly	539-156-0-000
	Foot	380-675-9-001
	Bushing	380-679-9-001
	Instruction Manual	480-734-9-001
	Shorting Link	769-121-9-001
Red 3-Digit Panel Meter Assembly 539-156-0-000		
RESISTORS		
Unlisted resistors are $\pm 5\%$, 1/4 Watt. See schematic diagram for value		
R301	100 k Ω , 1%, 1/4 Watt	015-14A-1-003
R302	475 k Ω , 1%, 1/4 Watt	015-14A-4-753
R303	15.4 k Ω , 1%, 1/4 Watt	015-14A-1-542
R304	1 k Ω , 20%, Trimpot	008-247-9-001
R305	3.48 k Ω , 1%, 1/4 Watt	015-14A-3-481
R311	470 Ω , 5%, 1/2 Watt	002-102-A-471
CAPACITORS		
C301	100 pF, 10%, 100 V Ceramic Cap.	020-487-C-001
C302	0.047 μ F, 10%, 50 V Polyester Cap.	025-325-B-473
C303	0.22 μ F, 10%, 50 V Polyester Cap.	025-325-B-224
C304,306,310	0.01 μ F, +80/-20%, 25 V Ceramic Cap.	020-473-C-001
C305	0.1 μ F, 10%, 50 V Polyester Cap.	025-325-B-104
C307	470 μ F, 20%, 16 V Electrolytic Cap.	022-446-B-471
C308	100 μ F, 20%, 16 V Electrolytic Cap.	022-446-B-101
C309	47 μ F, 10%, Low Leakage Electrolytic Cap.	036-001-B-019
SEMICONDUCTORS		
BR301	Bridge Rectifier, 1 A	157-038-9-001
D301	Zener Diode, 5.1 V, 5%, 400 mW	152-112-9-001
IC301	IC, ICL7107CPL, DVM	308-262-9-001
IC302	IC, 7005, +5 Volt Regulator	307-080-9-001
DISPLAY		
DS301,302,303	7-segment LED, Red, 0.43"	238-021-9-001

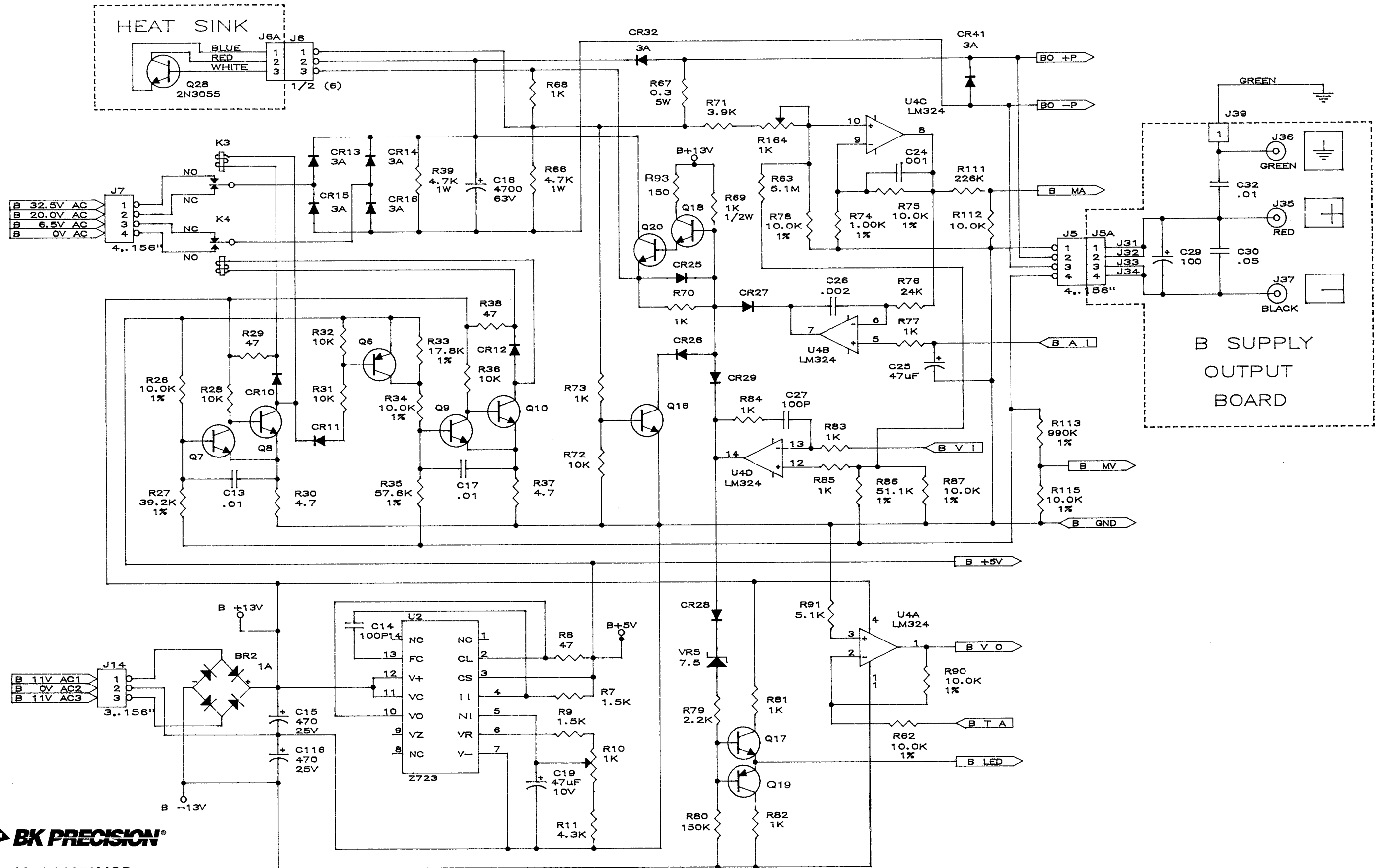




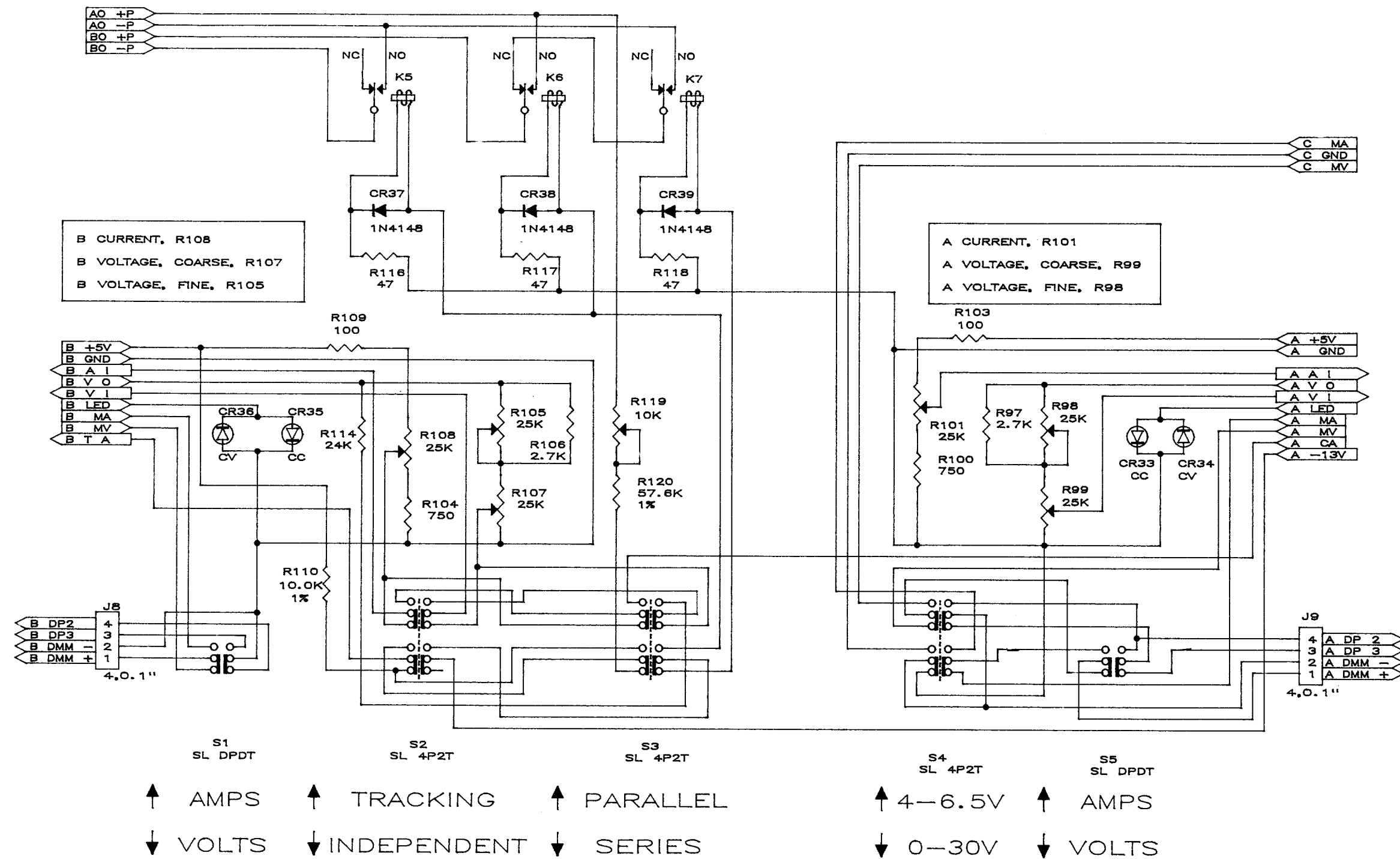
Model 1672MOD
Primary PCB and Transformer
Wiring Diagram



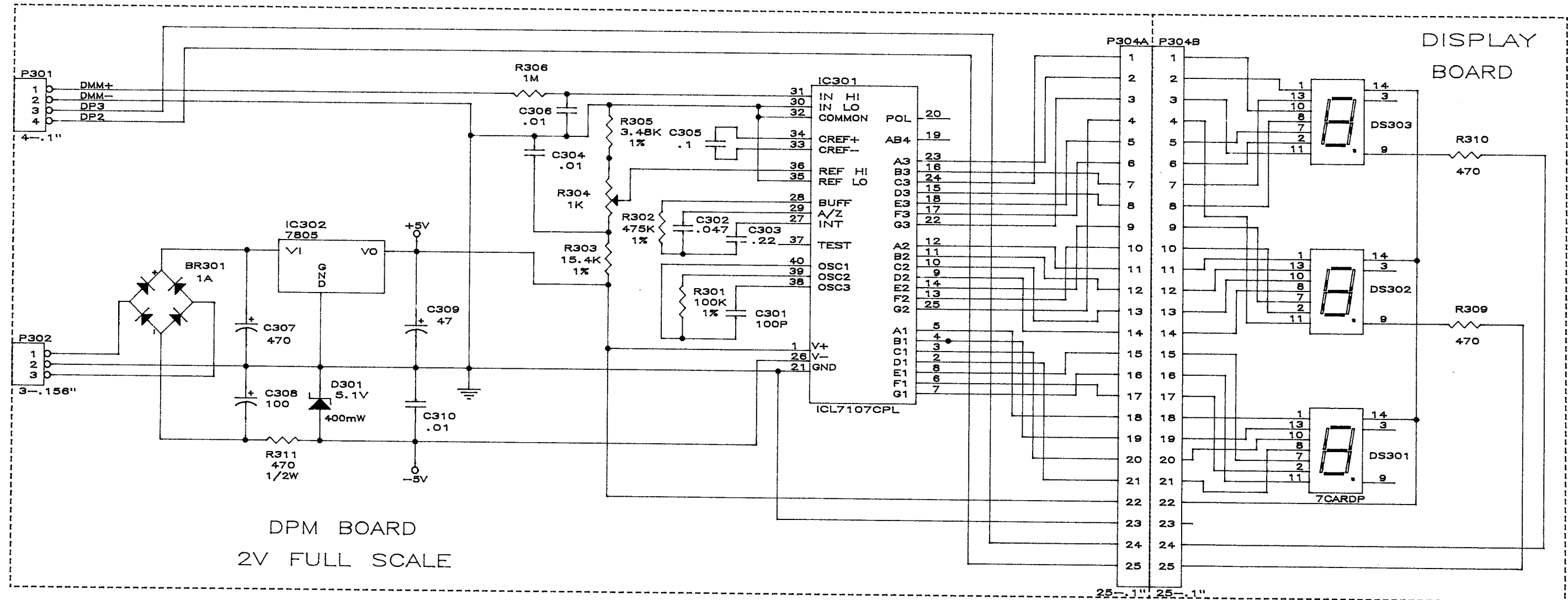
Model 1672MOD
"A" Supply Schematic



Model 1672MOD
"B" Supply Schematic



Model 1672MOD
"A" and "B" Control Schematic



Model 1672MOD
LED Panel Meter Schematic