

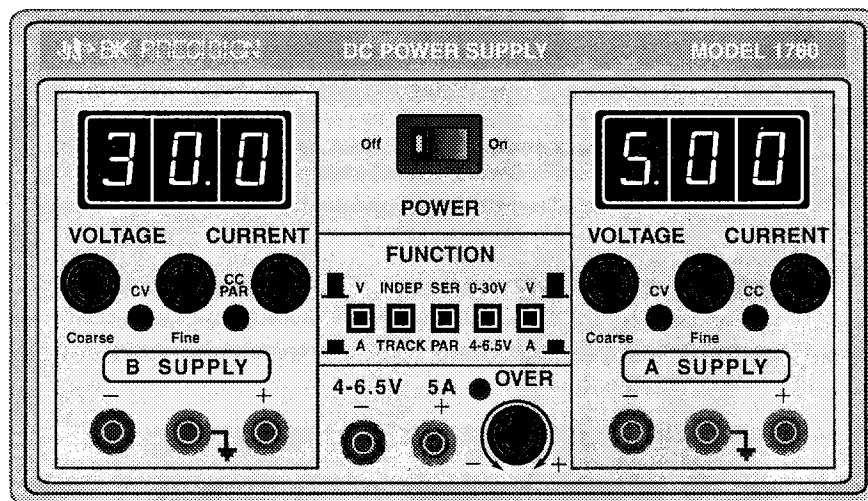
# SERVICE MANUAL

FOR



Model 1760

Triple Output  
DC POWER SUPPLY



**BK PRECISION®**

4353 West Lawrence Ave • Chicago, IL 60630

# SERVICE MANUAL

FOR



Model 1760

Triple Output  
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.*



4353 West Lawrence Avenue  
Chicago, Illinois 60630

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# SPECIFICATIONS

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## **“A” AND “B” SUPPLIES**

### **Output Voltage Range:**

0 V to 30 V.

### **Output Current Limit Range:**

0.1 A (5%) to 2 A (100%).

### **Load Regulation (Constant Voltage):**

$\leq 0.01\% + 3 \text{ mV}$ .

### **Line Regulation 108 – 132 V (Constant Voltage):**

$\leq 0.01\% + 3 \text{ mV}$ .

### **Ripple (Constant Voltage):**

$\leq 1 \text{ mV RMS}$ .

### **Recovery Time (Constant Voltage):**

$\leq 100 \mu\text{s}$ .

### **Temp. Coefficient (Constant Voltage):**

$\leq 300 \text{ ppm}/^\circ\text{C}$ .

### **Load Regulation (Constant Current):**

$\leq 0.4\% + 3 \text{ mA}$ .

### **Line Regulation 108 - 132 V (Constant Current):**

$\leq 0.4\% + 3 \text{ mA}$ .

### **Ripple Current (at 108 V for Constant Current):**

$\leq 3 \text{ mA RMS}$ .

### **Tracking (Series) Accuracy:**

$\pm 0.2\% + 10 \text{ mV}$ .

### **Tracking Series, “B” tracks “A”:**

5% to 100%.

### **Panel Meter Accuracy (Volts):**

$\pm 0.5\% + 2 \text{ digits}$ .

### **Panel Meter Accuracy (Current):**

$\pm 0.5\% + 2 \text{ digits}$  ( $\pm 2.0\% + 2 \text{ digits}$  at continuous full load).

## **4-6.5 V SUPPLY**

### **Output Voltage Range:**

4 V to 6.5 V.

### **Load Regulation (Constant Voltage):**

$\leq 10 \text{ mV}$  (0 to 5 A load).

### **Line Regulation 108 - 132 V (Constant Voltage):**

$\leq 10 \text{ mV}$ .

### **Ripple and Noise:**

$\leq 2 \text{ mV RMS}$ .

### **Overvoltage Protection Threshold:**

6.8 V to 7.3 V.

### **Panel Meter Accuracy:**

Same as “A” Supply Meter.

## **GENERAL**

### **Power Requirements:**

Domestic: 120 VAC  $\pm 10\%$ , 50 Hz.

International: 120/220/240 VAC  $\pm 10\%$ , 50/60 Hz.

### **Power Consumption (Fully Loaded):**

Approximately 350 W.

### **Protection:**

Reverse polarity protection and current limiting.

### **Dimensions (H x W x D):**

5.7" x 10.5" x 15" (145 mm x 267 mm x 381 mm).

### **Weight:**

10 kg (21 lbs).

### **Accessories Supplied:**

Two earth ground bus straps.

### **Optional Accessories:**

Model TL-5 Hook-Up Cables (3 sets recommended)

# MAINTENANCE

## WARNING

*The following instructions are for use by qualified personnel only. To avoid electrical shock, do not perform any servicing other than contained in the operating instructions unless you are qualified to do so.*

*Line voltage is exposed when the top cover is removed from the power supply, and is present on the fuseholder and power switch even when the unit is turned off.*

## FUSE REPLACEMENT

If the fuse blows, the CV or CC indicators will not light and the power supply will not operate. The fuse should not normally open unless a problem has developed in the unit. Try to determine and correct the cause of the blown fuse, then replace only with a fuse of the correct rating as listed in Table 1. The fuse is located on the rear panel.

## LINE VOLTAGE CONVERSION, INTERNATIONAL UNITS

The primary winding of the power transformer is tapped to permit operation from 120, 220, 230, or 240 VAC, 50/60 Hz

Table 1. Fuse Values

OPERATION	FUSE VALUE	TYPE
120 V	3.0 A	Slow Blow
220/230/240 V	1.5 A	Slow Blow

line voltage. Conversion from one line voltage to another is done by a simple wiring change as shown in Fig. 1.

A label on the rear panel identifies the line voltage to which the unit was factory wired. To convert to a different line voltage, perform the following procedure:

1. Make sure the power cord is unplugged.
2. Remove the case and locate the power transformer.
3. Rewire the power transformer to the desired line voltage as shown in Fig. 1.
4. A change in line voltage may also require a corresponding change of fuse value. Install the correct fuse value as listed in Table 1.
5. Replace the cover.
6. Affix a label showing the correct line voltage for the unit after conversion. Place this label directly over the factory label.

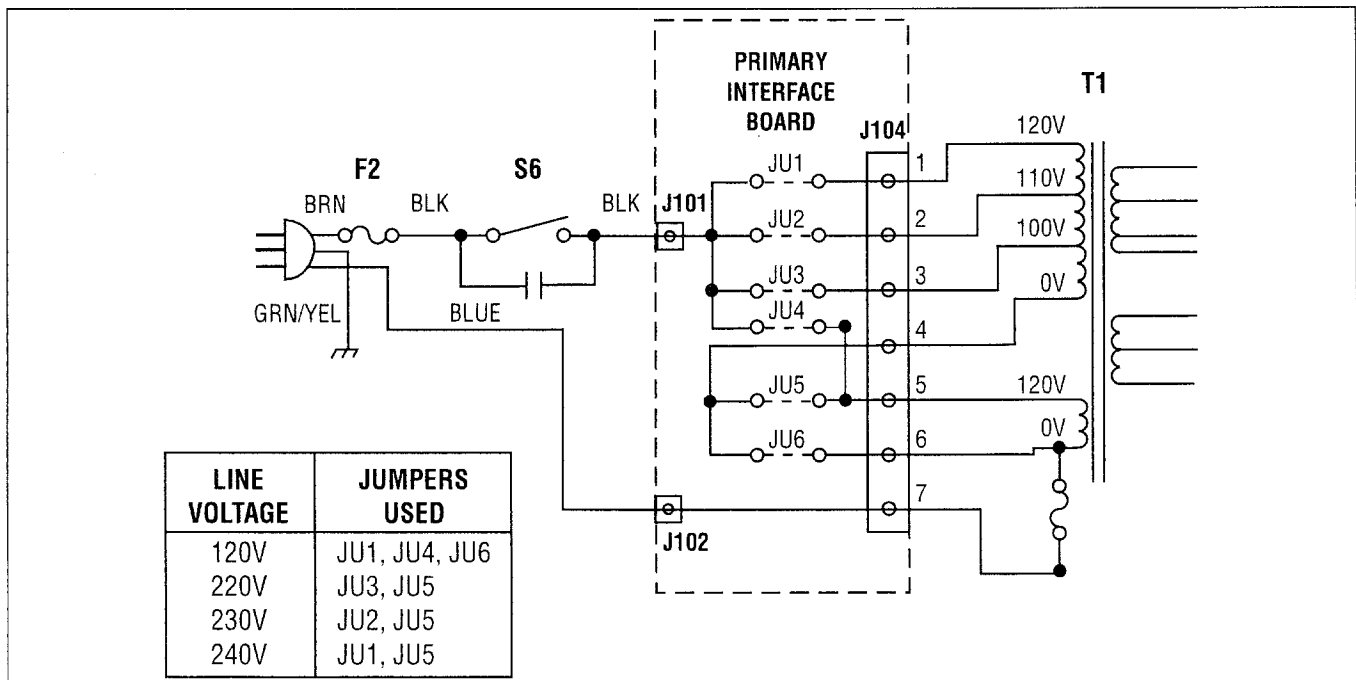


Fig. 1. Line Voltage Conversion, International Units

# CALIBRATION

This unit was accurately calibrated at the factory before shipment. Readjustment is recommended only if repairs have been made in a circuit affecting adjustment accuracy, or if you have a reason to believe the unit is out of adjustment. However, adjustments should be attempted only if a 4-1/2 digit multimeter with an accuracy of  $\pm 0.1\%$  dcV or better is available (**B+K Precision Model 391** or equivalent).

If readjustment is required, use the following procedure. All references to left and right are correct when facing the front of the supply. The functions of the adjustments are shown in Table 2 and their locations are shown in Fig. 2.

## I. "A" SUPPLY AND "A" METERING ADJUSTMENTS

1. Connect an accurate ( $\pm 0.1\%$ ) external 4-1/2 digit multimeter to measure the dc voltage at the output terminals of the **"A" SUPPLY**.
2. Disengage the **INDEP/TRACK** mode switch (out) so that the power supply is in the **INDEP**endent operating mode.
3. Set the **"A" VOLTAGE** controls (both **Coarse** and **Fine**) to maximum (fully clockwise).

Table 2. Functions of Calibration Adjustments

ADJ	FUNCTION OF ADJ	LOCATION OF ADJ
R6	"A" SUPPLY +5V REF.	MAIN BOARD
R10	"B" SUPPLY +5V REF.	MAIN BOARD
R119	"B" SUPPLY SERIES TRACKING	MAIN BOARD
R122	4-6.5V A METER & A LIMIT	MAIN BOARD
R133	4-6.5V V METER	MAIN BOARD
R134	4-6.5V 3.9V REF.	MAIN BOARD
R159	4-6.5V 6.8V REF.	MAIN BOARD
R163	"A" SUPPLY A METER	MAIN BOARD
R164	"B" SUPPLY A METER	MAIN BOARD
R304L	"B" SUPPLY V METER	"B" PANEL METER
R304R	"A" SUPPLY V METER	"A" PANEL METER

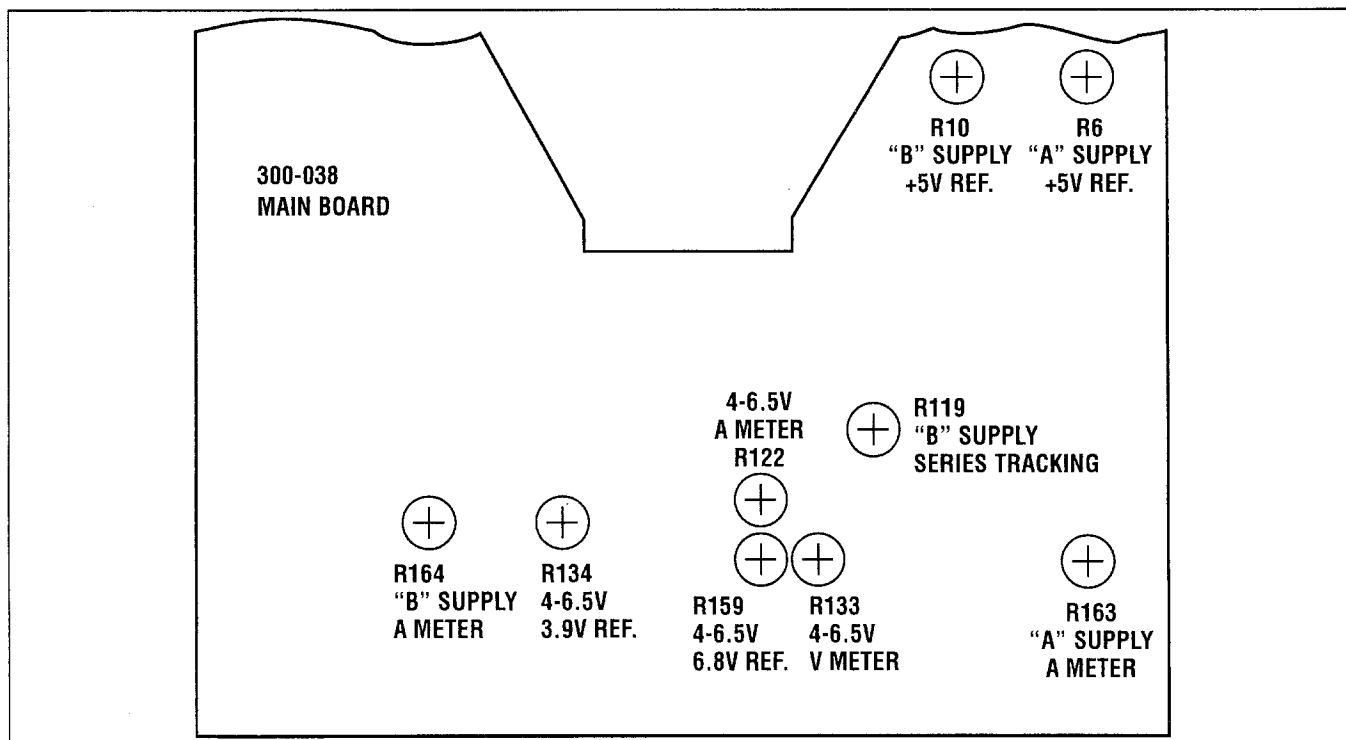


Fig. 2. Location of Adjustments (Main Circuit Board).

4. Adjust **R6 ("A" SUPPLY +5V REF)** on the main circuit board (located on the right rear side of the supply) for a reading as close to **30.40** volts (on the multimeter) as possible.
5. Set the **0-30V/4-6.5V** switch to the **0-30V** position and the **Right V/A** switch to the **V** position.
6. Adjust **R304 ("A" SUPPLY V METER ADJ)** on the "A" panel meter board (located on the right side of the supply behind the "A"/4-6.5V LED Display) for a reading of **30.4** volts on the "A"/4-6.5V LED Display.
7. Set the "A" **Coarse VOLTAGE** control for a reading of **05.0** volts on the "A"/4-6.5V LED Display.
8. Set the **Right V/A** switch to the **A** position.
9. Connect the external multimeter across the "A" **SUPPLY** output terminals to read the output current (so that the meter causes a short circuit across the terminals) and adjust the "A" **CURRENT** control so that **2.00** amps is read on the "A"/4-6.5V LED Display.
10. Adjust **R163 ("A" SUPPLY A METER ADJ)** so that the multimeter also reads **2.00** amps.

## II. 4-6.5V SUPPLY AND 4-6.5V METERING ADJUSTMENTS

1. Set the **0-30V/4-6.5V** switch to the **4-6.5V** position and the **Right V/A** switch to the **V** position.
2. Connect an accurate ( $\pm 0.1\%$ ) external 4-1/2 digit multimeter across the output terminals of the **4-6.5V SUPPLY** to read output voltage and adjust the **4-6.5V** front panel voltage level control to minimum (4V, fully counterclockwise).
3. Adjust **R134 (4-6.5V 3.9V REF)** located on the main board for a reading of **3.90** volts on the external multimeter.
4. Adjust **R133 (4-6.5V V METER ADJ)** located on the main board so that the "A"/4-6.5V LED Display reads **3.90** volts.
5. Set the **Right V/A** switch to the **A** position.
6. Turn **R122 (4-6.5V A METER & A LIMIT ADJ)** located on the main board fully counterclockwise.
7. Connect a 1 $\Omega$  load (rated at 30W or more) across the output terminals of the **4-6.5V SUPPLY** and connect the multimeter to read the output current.
8. Adjust the **4-6.5V** voltage level control to obtain an output of **5.30** amps (read on the multimeter).

9. Adjust **R122 (4-6.5V A METER & A LIMIT ADJ)** so that the "A"/4-6.5V LED Display also reads **5.30** amps.
10. Slowly adjust **R159 (4-6.5 V 6.8V REF)** counterclockwise until the **OVER** indicator on the 1760 Front Panel just lights.

## III. "B" SUPPLY AND METERING ADJUSTMENTS

1. Connect an accurate ( $\pm 0.1\%$ ) external 4-1/2 digit multimeter to measure the dc voltage at the output terminals of the "B" **SUPPLY**.
2. Disengage the **INDEP/TRACK** mode switch (out) so that the power supply is in the **INDEP**endent operating mode.
3. Set the "B" **VOLTAGE** controls (both **Coarse** and **Fine**) to maximum (fully clockwise).
4. Adjust **R10 ("B" SUPPLY +5V REF)** on the main board for as close to **30.70** volts (on the multimeter) as possible.
5. Set the **Left V/A** switch to the **V** position.
6. Adjust **R304 ("B" SUPPLY V METER ADJ)** on the "B" panel board (located on the left side of the supply behind the "B" LED Display) for a reading of **30.7** volts on the "B" LED Display.
7. Set the "B" **Coarse VOLTAGE** control for a reading of **05.0** volts on the "B" LED Display.
8. Set the **Left V/A** switch to the **A** position.
9. Connect the external multimeter across the "B" **SUPPLY** output terminals to read the output current (so that the meter causes a short circuit across the terminals) and adjust the "B" **CURRENT** control so that **2.00** amps is read on the multimeter.
10. Adjust **R164 ("B" SUPPLY A METER ADJ)** so that the "B" LED Display also reads **2.00** amps.

## IV. "B" SERIES TRACKING ADJUSTMENT

1. Set the supply to the **TRACKing SER**ies mode by engaging the **INDEP/TRACK** switch and releasing the **SER/PAR** switch.
2. Set the "B" **VOLTAGE** controls (both **Coarse** and **Fine**) to maximum (fully clockwise).
3. Set the "A" **VOLTAGE** controls (both **Coarse** and **Fine**) to maximum (fully clockwise).
4. Connect the multimeter to the "A" **SUPPLY** outputs and measure the voltage.

## CALIBRATION

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5. Disconnect the multimeter from the **"A" SUPPLY** outputs and connect it to the **"B" SUPPLY** outputs.
6. Adjust **R119 (SERIES TRACKING ADJ)** (located on the MAIN board) until the voltage read from the multimeter is the same as it was across the **"A" SUPPLY** output terminals. Return the multimeter to the **"A" SUPPLY** output terminals and verify that the output voltage is identical. If not, repeat this step.

## INSTRUMENT REPAIR SERVICE

Because of the specialized skills and test equipment required for instrument repair and calibration, many customers prefer to rely upon **B+K Precision** for this service. We maintain a network of **B+K Precision** authorized service agencies for this purpose. To use this service, even if the instrument is no longer under warranty, follow the instructions given in the **WARRANTY SERVICE INSTRUCTION** section of this manual. There is a nominal charge for instruments out of warranty.

# PARTS LIST

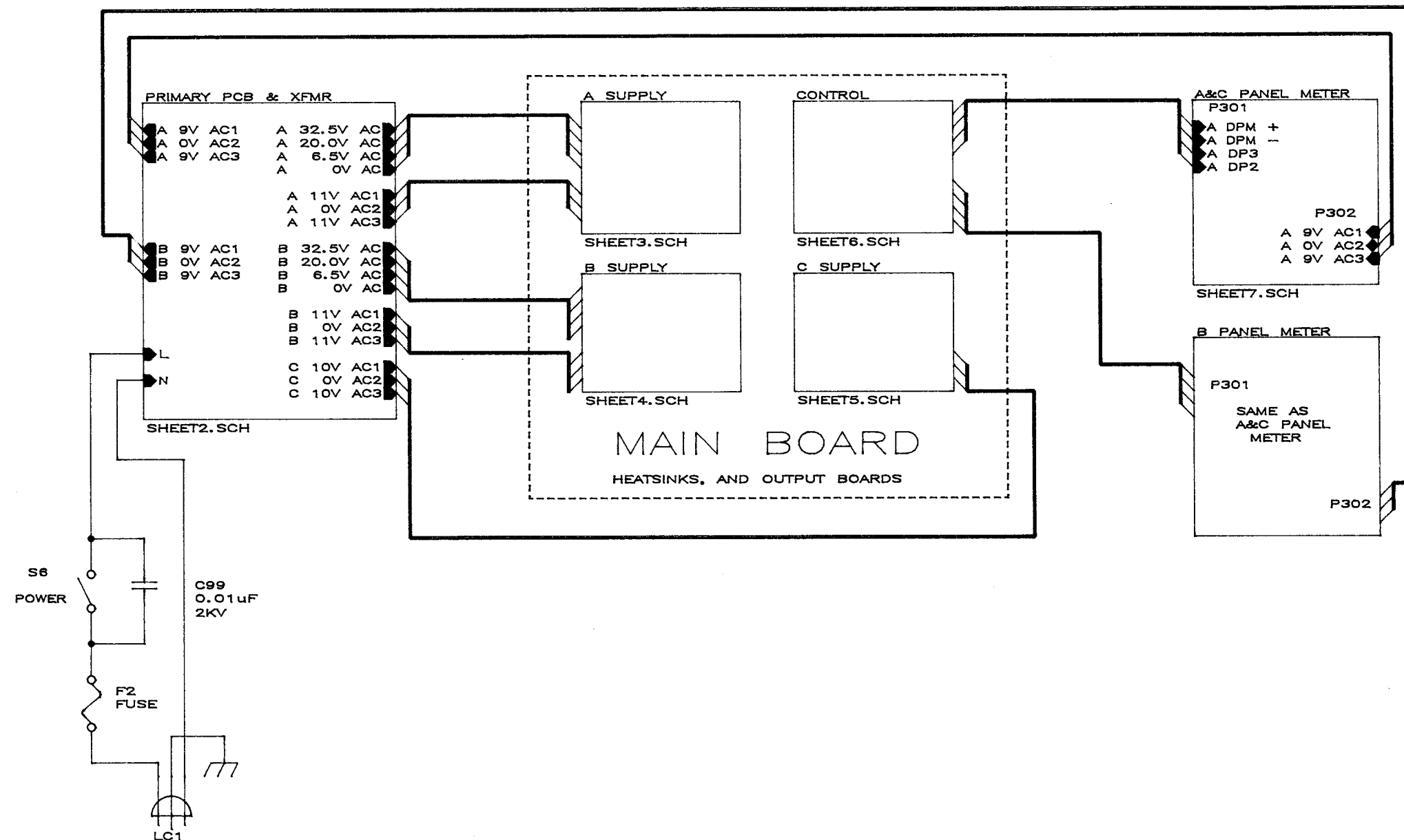
Reference Number	Description	B+K Part Number
<b>RESISTORS</b>		
Unlisted resistors are $\pm 5\%$ , 1/4 Watt. See schematic diagram for value		
R1,12,39,66	4.7 k $\Omega$ , 5%, 1W Carbon Film Res.	002-001-A-472
R6,10,122,133,134,159,163, 164	1 k $\Omega$ , Trimmer Pot	008-247-9-001
R13,21,26,34,49,52,61,62,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



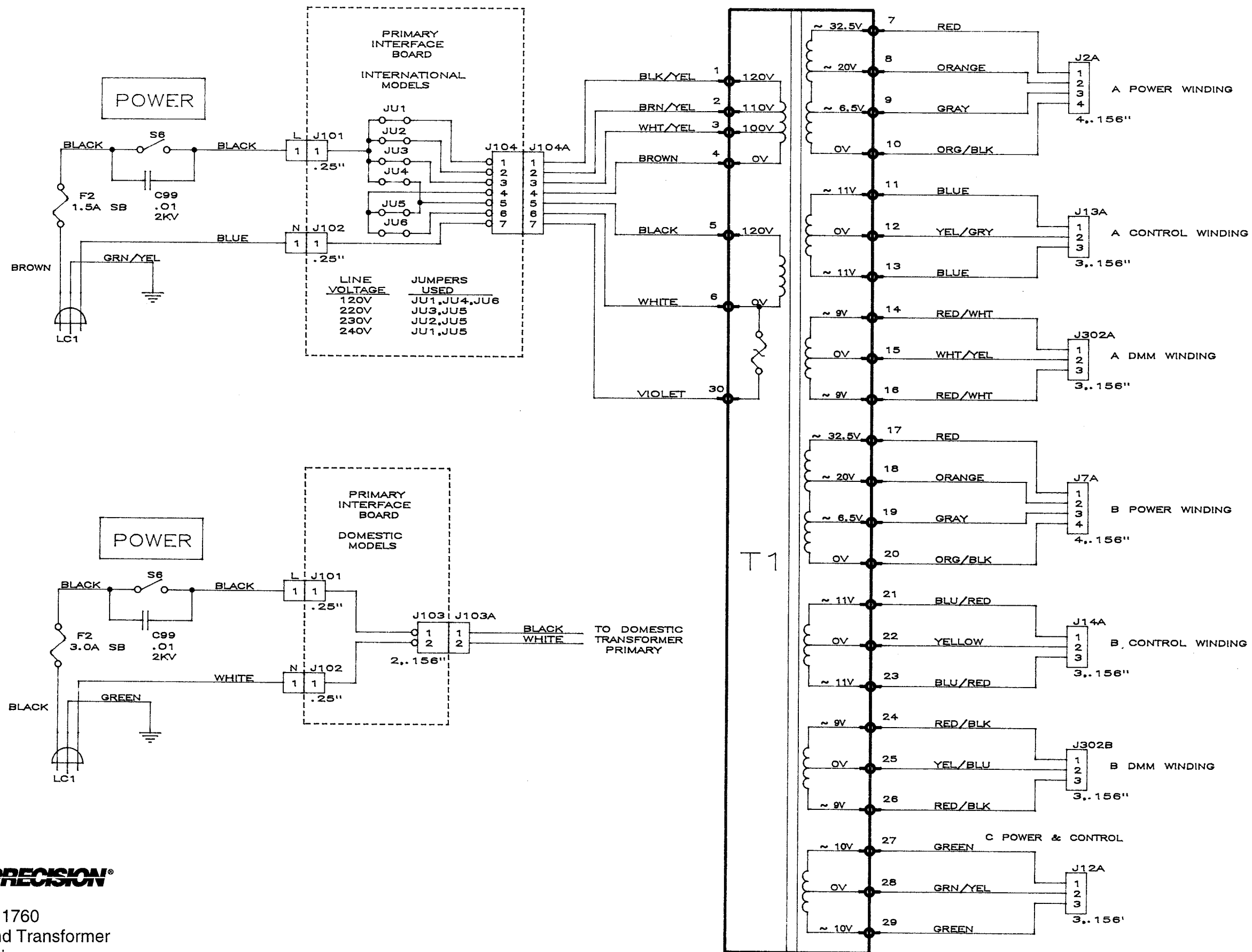
## PARTS LIST

Reference Number	Description	B+K Part Number
<b>DIODES AND TRANSISTORS (Continued)</b>		
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
<b>INTEGRATED CIRCUITS</b>		
U1,2,5	723 Voltage Regulator	307-009-9-001
U3,4,6	CA324 OP AMP	307-060-9-001
<b>MISCELLANEOUS</b>		
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

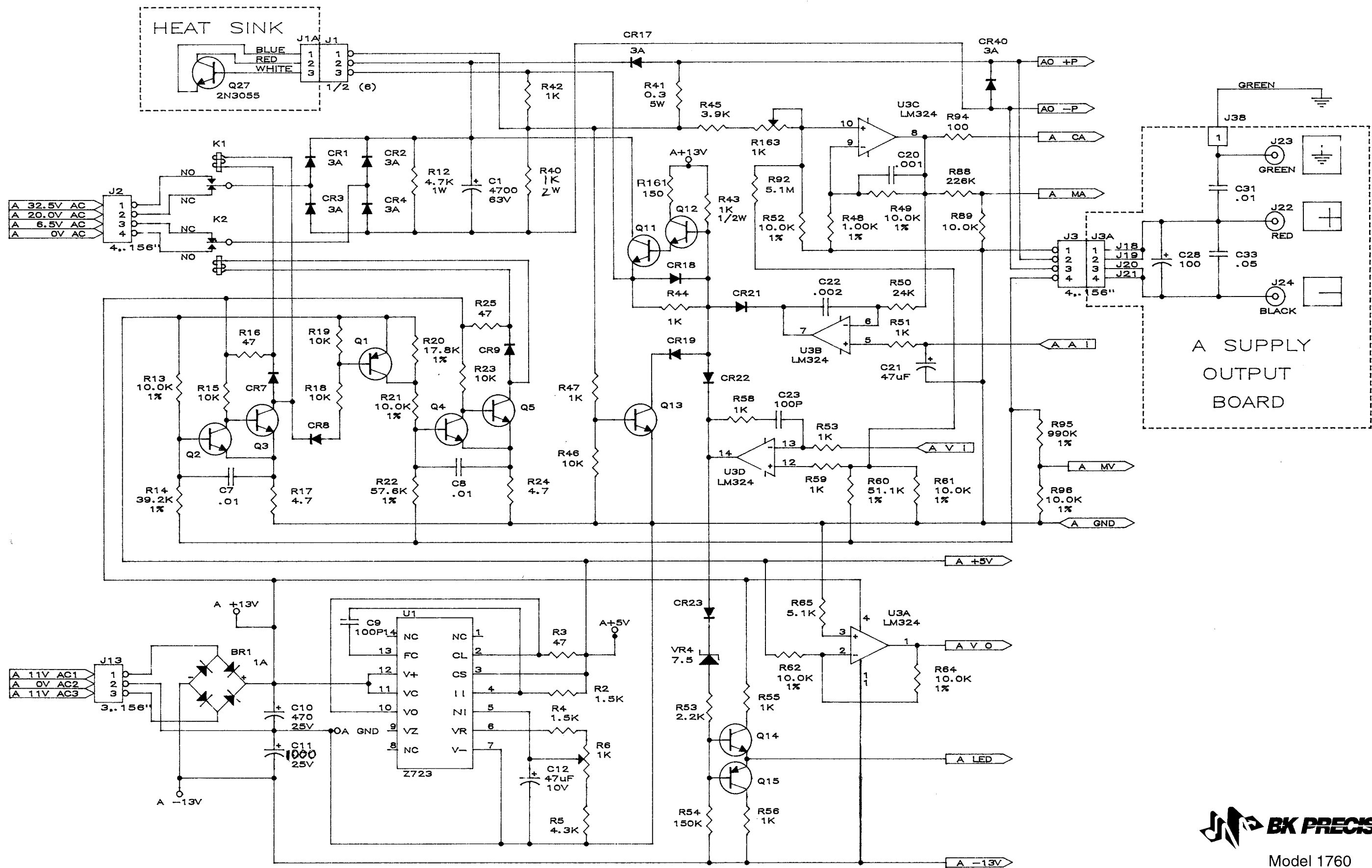
Reference Number	Description	B+K Part Number
<b>MISCELLANEOUS (Continued)</b>		
For Panel Pots	Knob, Push On Type	751-395-9-017
For Panel Pots	M7P0.75 Hex Nut	653-140-9-001
For (7) Panel Pots (Outside Panel)	7 x 12 mm Flatwasher, Zinc	724-106-9-001
For (7) Panel Pots (Inside Bracket)	7 x 12 mm Flatwasher, 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
<b>Red 3-Digit Panel Meter Assembly 539-156-0-000</b>		
<b>RESISTORS</b>		
Unlisted resistors are $\pm 5\%$ , 1/4 Watt. See schematic diagram for value		
R301	100 k $\Omega$ , 1%, 1/4 Watt	015-14A-1-003
R302	475 k $\Omega$ , 1%, 1/4 Watt	015-14A-4-753
R303	15.4 k $\Omega$ , 1%, 1/4 Watt	015-14A-1-542
R304	1 k $\Omega$ , 20%, Trimpot	008-247-9-001
R305	3.48 k $\Omega$ , 1%, 1/4 Watt	015-14A-3-481
R311	470 $\Omega$ , 5%, 1/2 Watt	002-102-A-471
<b>CAPACITORS</b>		
C301	100 pF, 10%, 100 V Ceramic Cap.	020-487-C-001
C302	0.047 $\mu$ F, 10%, 50 V Polyester Cap.	025-325-B-473
C303	0.22 $\mu$ F, 10%, 50 V Polyester Cap.	025-325-B-224
C304,306,310	0.01 $\mu$ F, +80/-20%, 25 V Ceramic Cap.	020-473-C-001
C305	0.1 $\mu$ F, 10%, 50 V Polyester Cap.	025-325-B-104
C307	470 $\mu$ F, 20%, 16 V Electrolytic Cap.	022-446-B-471
C308	100 $\mu$ F, 20%, 16 V Electrolytic Cap.	022-446-B-101
C309	47 $\mu$ F, 10%, Low Leakage Electrolytic Cap.	036-001-B-019
<b>SEMICONDUCTORS</b>		
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
<b>DISPLAY</b>		
DS301,302,303	7-segment LED, Red, 0.43"	238-021-9-001



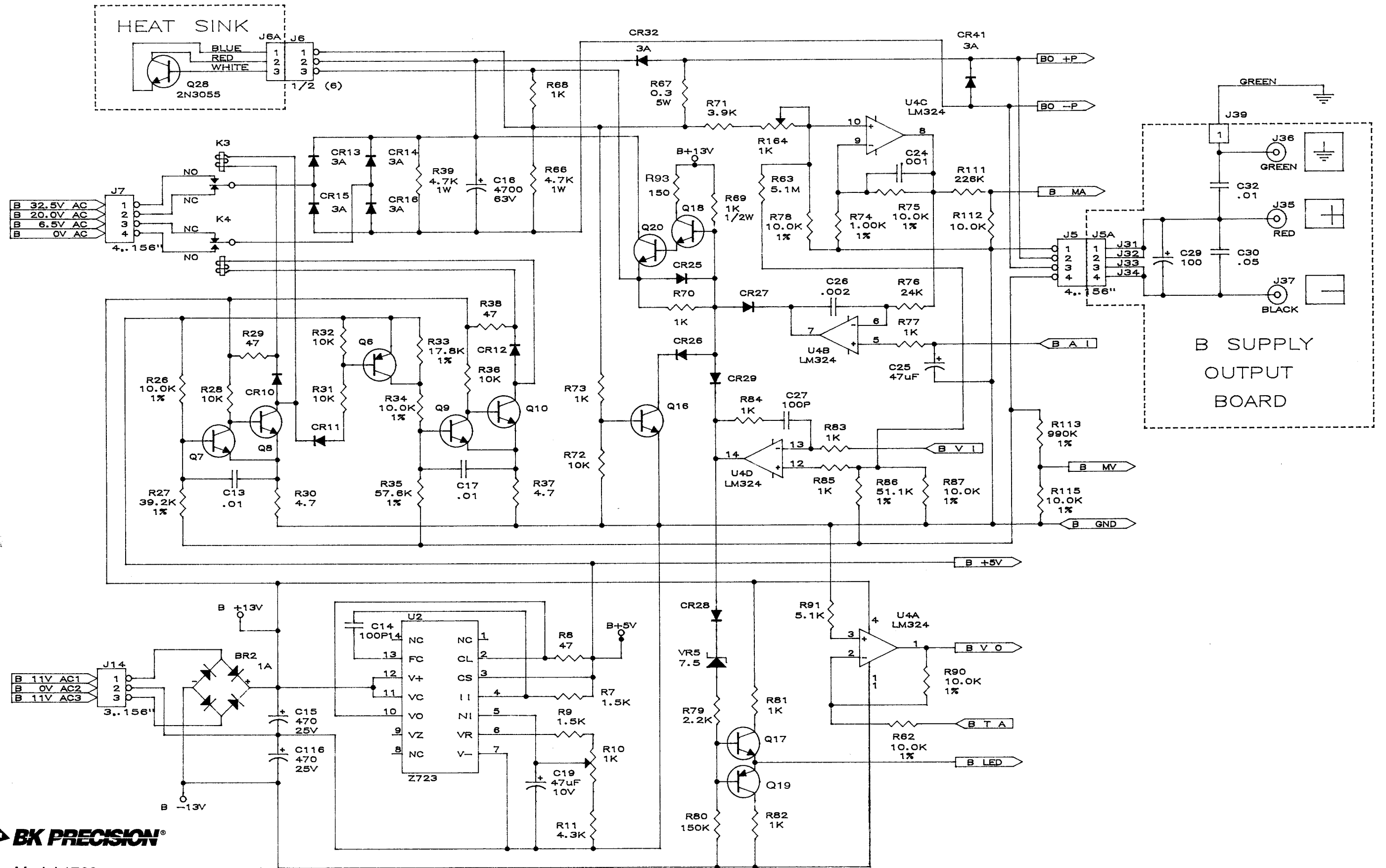
Model 1760  
Overall Wiring Diagram



Model 1760  
Primary PCB and Transformer  
Wiring Diagram

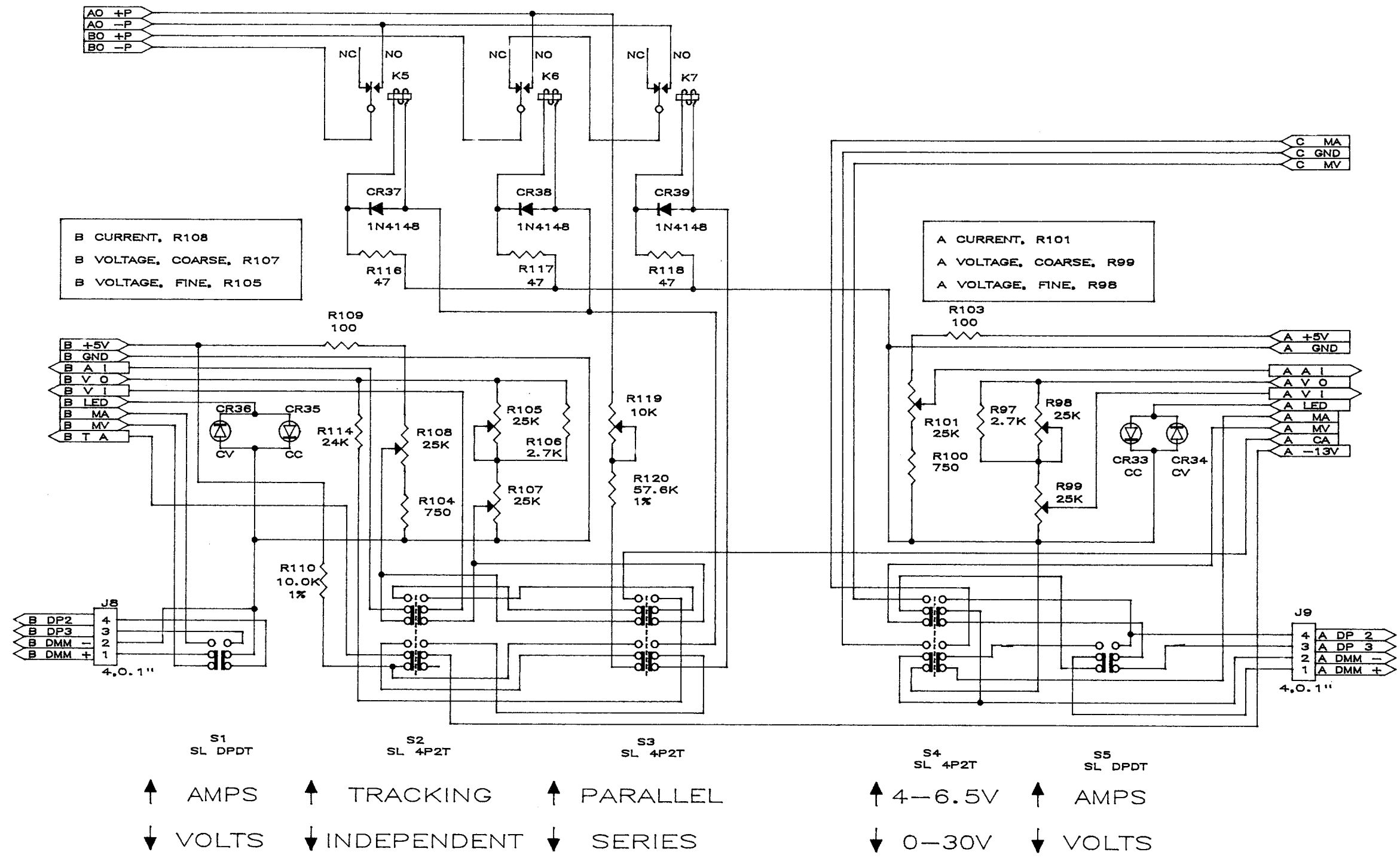


Model 1760  
"A" Supply Schematic



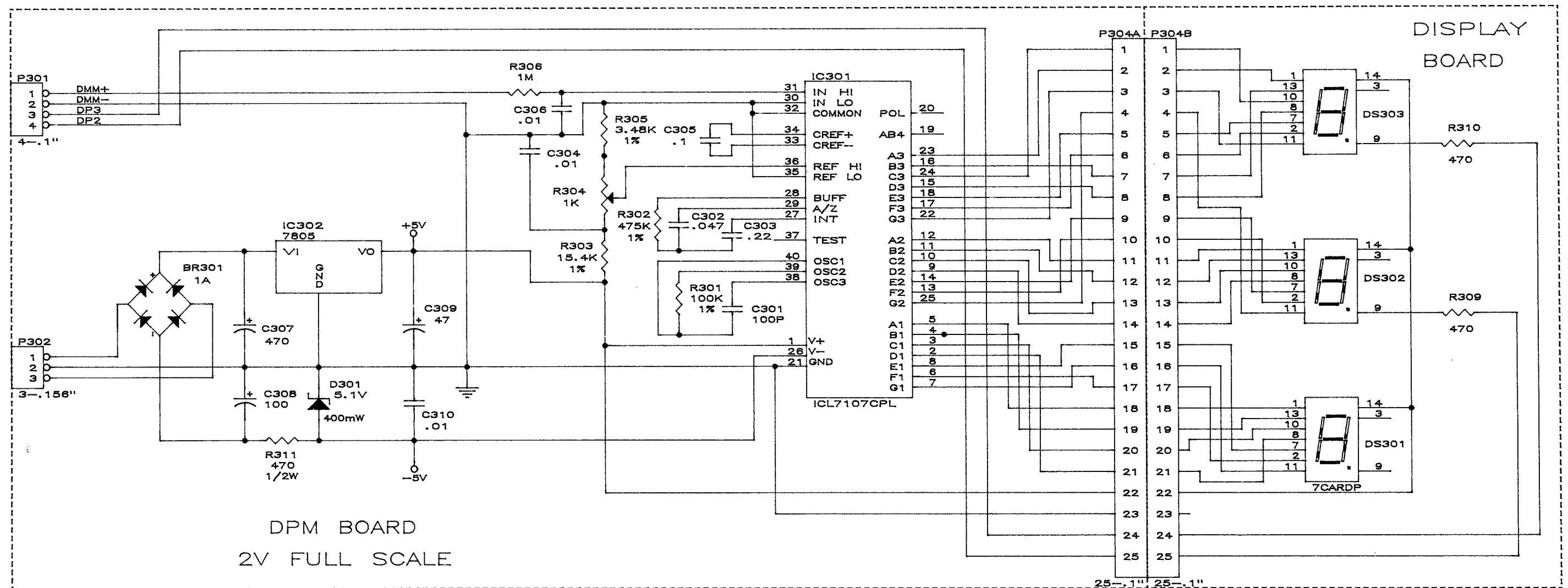
Model 1760  
"B" Supply Schematic





Model 1760  
 "A" and "B" Control Schematic





Model 1760  
LED Panel Meter Schematic