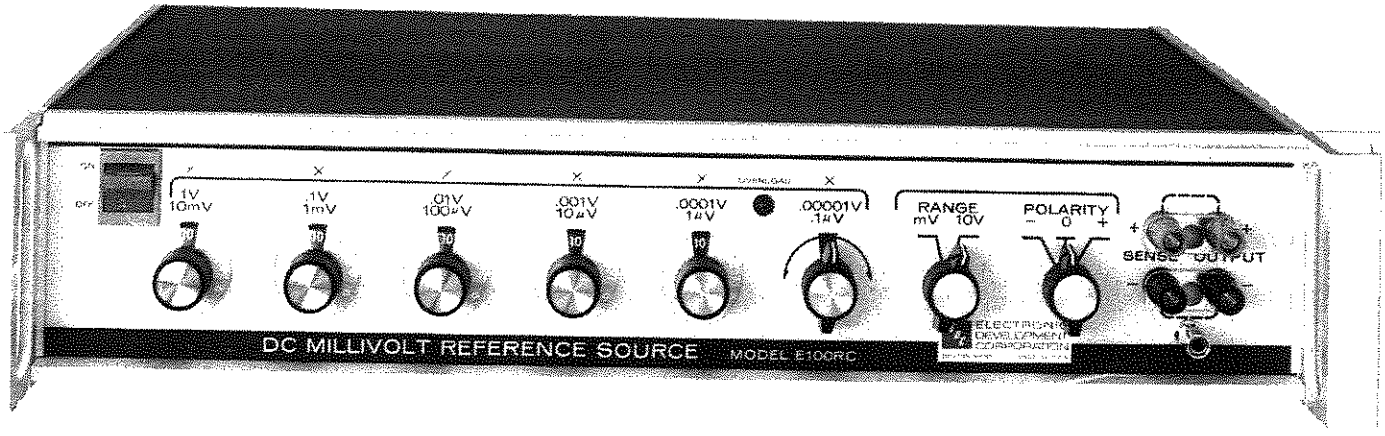
MANUALLY OPERATED
DC VOLTAGE CALIBRATOR
Model E-100-RC

Serial No._____

E-100-RC
OPERATORS
MANUAL



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NOTE: Errata and addendum (if any) will appear in the back of this manual.

LIST OF DRAWINGS

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CA-4683B	Power Supply
CB-4684B	Main Board Schematic
CB-4680C	Calibration Layout
930727A	Reference Drawing

WARRANTY

The ELECTRONIC DEVELOPMENT COMPANY (E.D.C.) warrants to the original purchaser each instrument manufactured by them to be free from defects in material and workmanship. This warranty is limited to servicing, repairing and/or replacing any instrument or part thereof returned to the E.D.C. factory for that purpose in accordance with the instructions set forth below; and furthermore to repair or replace all materials, except tubes, fuses, transistors and other semiconductor devices which shall within one year of shipment to the original purchaser be returned to the E.D.C. factory and upon examination be deemed defective.

E.D.C. instruments may not be returned to the factory under the terms of this warranty without the prior authorization of the E.D.C. Service Department. All instruments returned to E.D.C. for service hereunder should be carefully packed and shipped. All transportation charges shall be paid by the purchaser.

EDC reserves the right to discontinue instruments without notice and to make changes to any instrument at any time without incurring any obligation to so modify instruments previously sold.

This warranty is expressly in lieu of all other obligations or liabilities on the part of EDC. No other person or persons is authorized to assume in the behalf of EDC any liability in the connection with the sale of its instruments.

> CAUTION: The instrument you have purchased is a precision instrument manufactured under exacting standards. Any attempts to repair, modify or otherwise tamper with the instrument by anyone other than an EDC employee or authorized representative may result in this warranty becoming void.

FACTORY SERVICE REQUEST
AND
AUTHORIZATION

WARRANTY SERVICE

Instruments may be returned only on prior authorization. Please obtain a RETURN AUTHORIZATION NUMBER either directly from the factory or from an authorized E.D.C. Representative. (See General Information below.)

CHARGEABLE REPAIRS

If requested, an estimate of charges will be submitted prior to repairs. We suggest that you request a RETURN AUTHORIZATION NUMBER to facilitate handling.

GENERAL INFORMATION

A) Please provide the following information in order to expedite the repair:

1) Indicate MODEL

2) Serial Number

3 Complete description of the trouble:

Symptoms, measurements taken, equipment used, lash-up procedures, attempted repairs, suspected location of failure and any other pertinent information.

B) Freight Charges must be PREPAID.

C) The RETURN AUTHORIZATION NUMBER should be noted on your documentation.

D) See Packing Suggestions - next page.

PACKING SUGGESTION

Although your E.D.C. instrument is built for laboratory, production environment and some field environment, it is NOT ruggedized. Therefore...

1. Be sure the carton is STRONG enough to carry the weight of the instrument, e.g. use double wall corrugation.

2. Be sure the carton is LARGE enough to allow for sufficient packing material, e.g., at least 2 inches all around the instrument. The packing material should be able to be compressed and then return to its approximate original volume.

3. For better handling, the shipment should always be by AIR FREIGHT (expect for short distances). You might use either UPS "blue label" or common air freight carrier, second day air.

   Please do not bounce it across the country in a truck. It may not hurt it, but it certainly is not going to do a laboratory instrument much good.

4. QUESTIONS? Just contact us. We will be pleased to help you.

SECTION I

1.0.0 DESCRIPTION AND APPLICATIONS

1.1.0 General Description

1.1.1 The precision DC Voltage Standard Source is a highly versatile reference source, designed to meet the needs of computer systems, production line testing, automated calibration, and standards laboratories.

1.1.2 The instruments have a specified accuracy, and are traceable through a bank of saturated standard cells to the U. S. National Institute of Standards and Technology.

1.1.3 Depending on the model of the instrument, resolutions of 0.1 ppm are attainable.

1.1.4 The instruments are highly accurate references which can be used for calibration of digital voltmeters, analog meters, semiconductor analyzing systems, analog references for computers, analog-to-digital converters, telemetry and data acquisition systems, and where ever a stable source is required.

1.1.5 There are no adjustments made during normal operation. The trims are made during calibration and are described under the calibration procedure.

1.1.6 The circuitry is completely solid state made of discrete, hybrid and/or integrated circuits packaged on etched glass circuit boards. These are proven circuits, using derated components to insure long life and maximum reliability.

1.1.7 The instrument is overload and short-circuit proof, and is fully operational in adverse environmental conditions.

1.1.8 The Standard Source will drive a short circuit indefinitely without damage to the instrument, and will recover to rated specifications in less than 2 minutes.

1.1.9 When used with a voltmeter, the source becomes a potentiometer for measuring DC voltages.

1.2.0 Output Specifications

1.2.1 Output:

Range 1	±10 Vdc +10% over-ranging
Range 2	±100 mV dc +10% over-ranging

1.2.2 Resolution:

Range 1	100 μV (10 ppm) 5 decades
Range 2	1 μV (10 ppm) 5 decades

1.2.3 Accuracy:

Range 1	±0.005% of setting +50 μV
Range 2	±0.01% of setting +5 μV

1.2.4 Stability:

1 hour	±0.0005%
8 hours	±0.0010%
1 year	±0.0025% of range +5 μV

1.2.5 Ripple & Noise, rms (Band pass 0.8 Hz to 100 kHz)

Range 1	100 μV rms
Range 2	1 μV rms

1.2.6 Current:

Range 1	75 mA with short circuit protection
Range 2	1 MΩ load minimum

1.2.7 Load Regulation
(non-additive) ±0.0005%
no load to full load

1.2.8 Impedance

Range 1	50 milliohms
Range 2	20 Ohms (constant)

1.2.9 Thermal EMF
mV, µV ranges 1 µV

1.2.10 Vernier Control

Range 1	±100 µV

Vernier Control allows for infinite resolution and operates through zero.

1.3.0 General Specifications

1.3.1 Warm Up Time: 30 seconds (min); 15 minutes (max)

1.3.2 Temperatures:

Calibration	23°C ±1°C
Ambient	20°C to 30°C
Operating Limit	-10°C to 50°C
Storage	-40°C to 85°C

1.3.3 Temperature Coefficient:

Ambient	±0.0005%/°C
Operating Limit	±0.001%/°C

1.3.4 Power Requirements

10 W, 50 - 400 Hz	105 Vac to 125 Vac
	220 Vac to 240 Vac

1.3.5 Dimensions:

Bench Series	3 1/2 x 16 3/4 x 7 inches

1.3.6 Weight: 10 lbs.; 4.53 kg

1.3.7 Shipping Weight: 15 lbs; 6.81 kg

1.3.8 Circuit Condition Indicator: Front panel indicator for short circuit, overload, over-voltage condition low line voltage or malfunction.

1.3.9 Protection: Short circuit and overload protection. Automatic recovery.

1.3.10 Documentation:

A) Certification of Compliance traceability to U. S. National Institute of Standards and Technology.

B) Calibration laboratory certification.

C) Operators' manual including block diagrams, mechanical layout and schematics.

1.3.11 Warranty: One year - includes accuracy and stability.

SECTION II

2.0.0 INSTALLATION

2.1.0 General Information

2.1.1 Electronic Development Corporation's instruments may be obtained in several case configurations.

2.1.2 This portable unit is rugged and light weight. EDC Model E100RC is completely enclosed.

2.1.3 Rack mountable instruments are designed primarily for mounting in the standard 19" relay rack. We recommend that nylon inserts be placed between the cup washer and the front panel to prevent scratching the paint while installing into the rack.

2.1.4 All instruments are supplied with a standard three (3) prong polarized plug and power cord.

2.1.5 A multi-tap transformer is provided, however it is set to 115 Vac or 230 Vac via the slide switch on the internal chassis. Other voltages can be accommodated by making the proper selections of the transformer taps.

SECTION III

3.0.0 OPERATION OF INSTRUMENT

3.1.0 Front Panel Controls

3.1.1 Power Switch:Rocker off-on, line power.

3.1.2 Polarity Switch: This switch has 3 settings with the polarity switch on "+" the red output terminals are positive with respect to the black terminals. On "-" the red output terminals are negative with respect to the black terminals. On "0" a short circuit exists between the red and black voltage output terminals, the current terminals are open circuit.

3.1.3 Voltage Output and Sense Terminals: 4 terminals are provided for output and sense. The red terminals represent the polarity with respect to the black as the common terminals. The red terminals are indicated by the polarity switch.

3.1.4 If a high impedance or a low current load is connected, the output and sense terminals may be shorted with the sense links (provided) e.g. plus output to plus sense.

3.1.5 When drawing relatively large amounts of current in the voltage mode, or if the load is far from the source, the remote sense capability should be used. The advantage of remote sense is that you have a 4 wire output and the sense lines are brought directly to the load, thus eliminating the IR drop of the output lines.

3.1.6 The metal terminal is case ground.

3.1.7 Decade Switches: The decade switches are used to select the desired output.

3.1.8 A Vernier Control is to provide a means of adjusting out any undesirable offset. The range of adjustment is ±100 μV. The adjustment is disabled when the vernier control is set to its maximum counter clock-wise position.

3.1.9 Range Switch: The range switch is used to manually select one of the 2 range modes.

3.2.0 Front Panel Indicators

3.2.1 Overload lamp: This lamp will be on during initial power on. It should turn off after a few seconds. This lamp is used to indicate failure in the chopper stage. Refer to section 4.7.0 of the manual.

3.3.0 Operation as a Voltage Source

3.3.1 With power switch off, connect power cord to recommended power source, e.g. 115 VAC 60 Hz or 220 VAC 50 Hz. (See paragraph 2.1.5.)

3.3.2 Connect the output terminals of the instrument to their respective loads as required, observing the sensing rules (see drawing #930727)

NOTICE: THE SENSING CIRCUIT MUST BE COMPLETE

Please refer to DRAWING #930727, in the rear of this manual, for the two wire and four wire connections.

CAUTION

Do not place more than a 500 volt potential between the output terminals and chassis ground when using a floating output. In some applications it may be necessary to isolate chassis from line common. This practice is not recommended.

3.3.3 With polarity switch on "0" position, place power on switch to the "On" position. This procedure will prevent any possible turn on transient from appearing across the output terminals.

3.3.4 Select the desired output voltage on the decade switches, set range switch to appropriate range, and switch the polarity switch to required polarity.

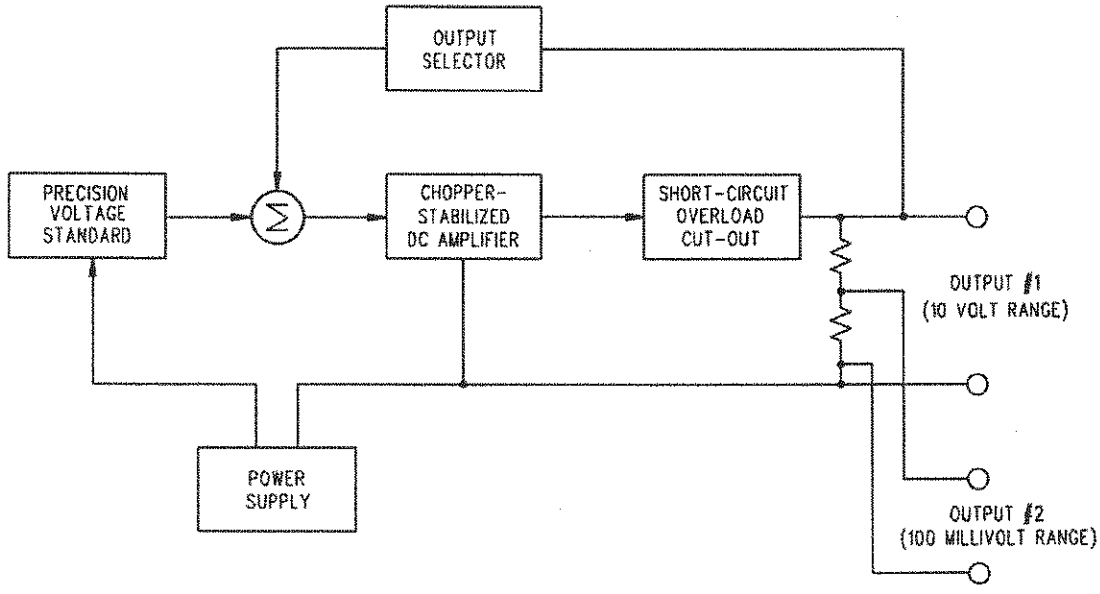
SECTION IV

4.0.0 THEORY OF OPERATION

4.1.0 Introduction

As shown in the block diagram below, the model E100RC is conveniently broken down into functional blocks.

TYPICAL UNIT BLOCK DIAGRAM



MODEL "MV" SERIES

4.1.1 The Basic Circuitry for Electronic Development Company's standards/sources are similar. Refer to Drawings CA-4682A, CA-4683B, and CB4684B.
The Basic circuitry is:

1. Power supply
2. Internal Precision Zener reference
3. Precision Amplifier
4. Feedback circuitry
5. Output selector
6. Overload circuitry

4.2.0 Power Supply

4.2.1 The main line power is stepped down via the power transformer. The secondary windings of the transformer drives a bridge rectifier. The voltage rectifier output is clamped to ± 24 volts. This ± 24 volts drive ± 15 volt linear regulators located on the main boards.

4.3.0 Internal Precision Reference

4.3.1 The internal reference is made up of a "0" temperature coefficient zener driven by a constant current source.

4.4.0 Precision Amplifier

4.4.1 The basic amplifier has a very high open-loop gain in order to maintain the high accuracy.

4.4.2 Brief Mathematical Model of the Operation of a Voltage Reference Source.

4.4.3 An operational amplifier using negative feedback tries to drive the summing or error point to ground potential. This is useful in that the current flow into the error point through the (R_f) feedback string is equal to the current (IR_i) flowing through the input resistance (R_i), e.g. if $R_f = 63\ k\Omega$ then:

$$E_o = \frac{-E_i\ R_f}{R1} = -6.3V\ x\ \frac{63K}{63K} = -6.3V\ (1) = -6.3V$$

4.4.4 It is interesting to note that F_f times the input current (IR_i) is the same output voltage therefore:

$$E_o = -I_{Rin}\ X\ R_{Fb} = -100\ \mu A\ X\ 100K = -10V$$

4.5.0 Feedback

4.5.1 The feedback resistor string is made up of the decade switches mounted on the front panel. These low resistance switches have precision resistors used for the amp feedback mounted to them.

4.5.2 With all decades set to zero, the feedback resistor and output goes to zero. With the MSD decade set to ten, the feedback resistor totals 100Kohms. This will generate full scale output for the range that is selected.

4.6.0 Output selector

4.6.1 The output selector (polarity switch) is used to connect the amp output to the correct output terminals. This switch has three positions. Refer to section 3.1.2

4.7.0 Overload circuitry

4.7.1 Overload protection is provided by a current limiting resistor in the output stage. In the event of an overload or short circuit, the amplifier will be saturated and its output will be approximately +14 V. This condition is detected by a comparator. The comparator output goes negative and turns on the indicator light driver transistor.

4.7.2 Overload indicator light basically shows the condition of the output of the Amplifier. Any or all of the following conditions can cause the indicator to light:

1) Amplifier is correcting output voltage
2) Low line voltage
3) Load is drawing more than rated current
4) Short circuit on output
5) Sense loops open

SECTION V

5.0.0 Maintenance

5.1.0 Preventive Maintenance

5.1.1 The decade and polarity (rotary) switches are lubricated at the factory. We recommend that these switches are NOT serviced during the first year.

NOTE: Over-zealous, arbitrary, or unnecessary cleaning may damage the switches.

CLEANING: DO NOT ARBITRARILY CLEAN THE SWITCHES

5.1.2 In many instances, lubrication may be all that is required.

RELUBRICATE AFTER CLEANING!

THE USE OF A CLEANER WITHOUT LUBRICATING WILL SHORTEN THE LIFE OF THE SWITCHES TO ABOUT TWO MONTHS.

LUBRICATING - DO NOT USE OIL!!!

5.1.3 Switch Contacts cleaner: Electronic Development Company recommends that the switches be cleaned with CAIG LABORATORIES DeoxIT D5.

5.1.4 Switch Contacts lubrication: Electronic Development Company recommends that the switches be coated with CAIG LABORATORIES PreservIT P5.

5.1.5 Apply a small amount of the above product carefully to the switch contacts. Rotate switch several times to disperse the lubricant.

5.2.0 Noise Measurements

5.2.1 Electronic Development Company uses the following procedure to measure the noise levels on the voltage calibrators. Techniques are employed to minimize external ground loops and radiation paths which may introduce improper data into the desired measurements.

5.2.2 "Rule of Thumb": If the measurement indicates more than 1 mV pp of noise on any EDC instrument, the operator should re-check his equipment and lash-up.

5.2.3 Noise may appear in many forms, therefore EDC recommends the use of an oscilloscope to make the noise measurements.

5.2.4 A high gain of 50 μV/cm or better, differential pre-amp such as the 5A22 or the 7A22 Tektronix models or equivalent, is required.

5.2.5 In an environment with excessive EMI levels, these tests should be performed in a screen room. A comparison test in the normal environment will permit calibration for radiated noise pickup on the test measurements.

5.2.6 The noise test should not be made simultaneously with regulation and voltage accuracy test. The "pump back" currents from some measuring devices will seriously disturb noise measurements.

5.2.7 Differential input measurements are the most reliable. They will cancel out common mode, due to slight errors in lash-up.

5.2.8 The scope and the EDC calibrator under test should be connected to adjacent power outlets on the same phase. A three wire ground is required. In the event the line does not have a ground, the scope and unit under test should have a separate, heavy wire chassis-to-chassis connection separate from the shield of the differential input leads.

5.2.9 The lead used between the scope input and the source output should be a shield, twisted pair with the shield connected to the frame of the scope, and to the ground lug adjacent to the output terminals of the EDC source.

5.2.10 Do not use the shield of the input cable as the chassis-to-chassis connection in place of line system ground. Use additional separate heavy wire.

5.2.11 If the EDC instrument has remote sensing, be sure that the "output" and "sense" terminals are bussed.

SECTION VI

6.1.0 Calibration Procedure for EDC Model E100RC

Refer to Layout.

STEP	RANGE SETTING	DECADE SETTING	TEST POINT	ADJ. PT.	MEASURED VOLTAGE	REMARKS
1	ANY	ANY	REF ZENER	R6	VOLTAGE ON TAG	NORMAL FACTORY ADJ.±<100μv
2	10V	ALL ZEROS	OUTPUT TERMINALS	R42	"0" ±<10μV	OUTPUT ZERO ADJ. CHECK ZERO ON 100 mV & 10mV RANGES
2A	10V	ALL ZEROS	BET. BLACK OUTPUT TERMINALS	R29	"0" <50μV	REMOVE SENSE LINK
3	REPEAT STEPS 2 AND 2A SEVERAL TIMES IF NECESSARY AS R2 AND R2A ARE INTERACTING.					
4	10V	"10" ON 2ND DECADE	OUTPUT TERMINALS	R40	1V	COARSE ADJ.
5	10V	2 ON MSD	OUTPUT TERMINALS	P2	2V	MSD CALIBRATION
6	10V	1 ON MSD	OUTPUT TERMINALS	P1	1V	MSD CALIBRATION
7	10V	4 ON MSD	OUTPUT TERMINALS	P4	4V	MSD CALIBRATION
8	10V	6 ON MSD	OUTPUT TERMINALS	P6	6V	MSD CALIBRATION
9	10V	8 ON MSD	OUTPUT TERMINALS	P8	8V	MSD CALIBRATION
10	10V	10 ON MSD	OUTPUT TERMINALS	P10	10V	MSD CALIBRATION
11	100mV	10 ON MSD	OUTPUT TERMINALS	R39	100 mV	100 mV RANGE ADJ.

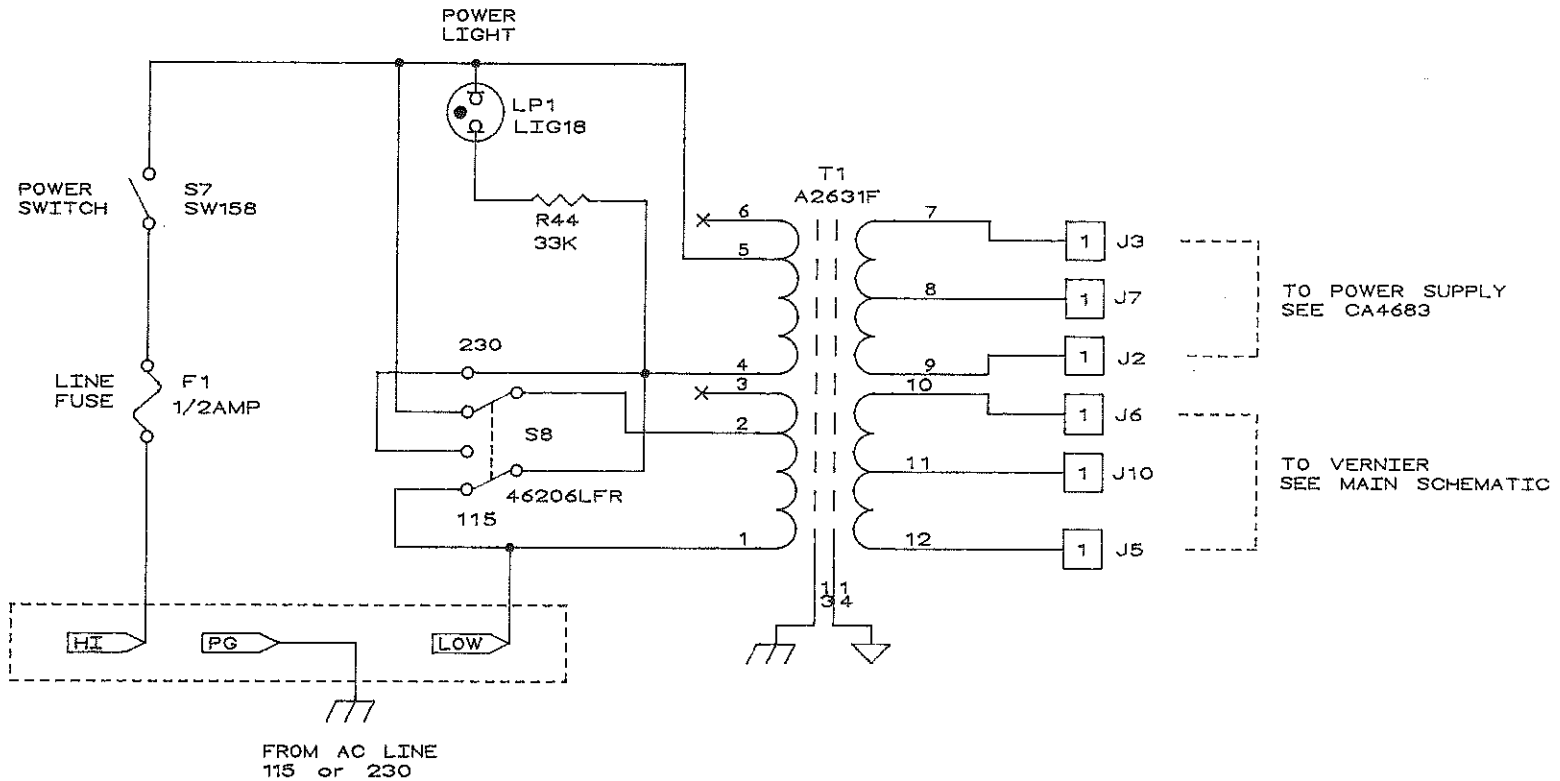
SECTION VII

7.1.0 Replacement Parts for E100RC

DESCRIPTION	EDC PART NUMBER	QTY.
Binding Posts Blk	CON036	2
Binding Post Red	CON035	2
Binding Post #137	CON024	1
Capacitor 500PF Dm15	CAP012	1
Capacitor 1000PF DM19	CAP014	1
Capacitor 0.01/400 P1070-ND	CAP019	1
Capacitor 0.1/100 104MCW100K	CAP029	2
Capacitor 0.22/400 150224J400FE	CAP033	1
Capacitor 1/35 TDC105K035NSE	CAP040	2
Capacitor 1 /100V 105MCW100K	CAP041	2
Capacitor 6.8/35V ETW-3F	CAP050	3
Capacitor 100/63V TUXIJ101M	CAP056	2
Capacitor 1000/63 UVX1J102M	CAP070	4
Capacitor 0.1/63 18174100064	CAP077	2
Cover Top B4561 11 Inch	BUC005	1
Cover Bottom B4562 11 Inch	BUC006	1
Diode 1N914B HS	DIO003	7
Diode 1N4005 500V RECT	DIO004	4
Diode 1N5359B 24V SGS	DIO015	2
Diode 2KBP02M OR MDA202	DIO018	1
Diode 1N825 #2 6V	DIO025	2
Divider A3600 20 OHM	PRE054	1
Fuse Post	ODD007	1
Fuse Main Line ½ MDL	ODD025	1
Heat Sink Small	HEA005	1
IC Amplifier LM 741CN	ICC003	1
IC Amplifier OP37F	ICC005	1
Knob Pointer	KNO001	2
Knob Decade	KNO008	5
Knob Vernier	KNO011	1
Led Red	LIG018	1
Potentiometer 68WR 200	POT003	3
Potentiometer 68WR 1K	POT005	1
Potentiometer 68WR 50K	POT008	1
Potentiometer 68XR 20	POT011	6
Power Line Cord	CAB009	1

7.1.0 Replacement Parts for E100RC continued.

DESCRIPTION	EDC PART NUMBER	QTY.
Resistor 160 Ohm 1W 5%	ABP008	1
Resistor 270 Ohm 1W 5%	ABP009	1
Resistor 1K 1W 5%	ABP013	1
Resistor 100 Ohm Rn60d	ABR018	2
Resistor 240 Ohm Rn60d	ABR024	1
Resistor 330 Ohm Rn60d	ABR027	1
Resistor 1K Rn60d	ABR039	3
Resistor 1.8K Rn60d	ABR044	1
Resistor 2K Rn60d	ABR045	2
Resistor 3K ½ W 5%	ABR049	1
Resistor 4.7K Rn60c	ABR054	2
Resistor 7.5K ½ W 5%	ABR059	1
Resistor 10K Rn60d	ABR062	1
Resistor 30K Rn60d	ABR070	2
Resistor 33K Rn60c	ABR071	2
Resistor 39K Rn60d	ABR072	1
Resistor 180K ½ W 5%	ABR083	1
Resistor 220k Rn60d	ABR085	1
Resistor 50 Ohm 5W	POW013	2
Resistor 1.0 Ohm 0.5%	PRE002	1
Resistor 2 Ohm .25% 30ppm	PRE003	6
Resistor 20 Ohm .02% Vta55	PRE007	6
Resistor 200 Ohm .005% 5ppm	PRE011	6
Resistor 600-900 .1% 5ppm	PRE015	1
Resistor 2K .005% 5ppm	PRE022	6
Resistor 10K .01% 5ppm	PRE031	2
Resistor 19.99K 5PPM .02%	PRE032	6
Resistor 61.NK .05% 5ppm	PRE043	1
Resistor 770 Ohm 1/8W .1%	PRP012	1
Sense Link	SPE033	2
Socket 8 Pin Dip	SOC001	2
Switch Polarity	SWI021	1
Switch Decade	SWI032	5
Switch Power	SWI058	1
Switch Slide 115/230	SWI060	1
Switch Polarity Wafer	SWI067	1
Transformer A2631F	XFM003	1
Transistor TIP 48	TRA001	1
Transistor MC 7815UC Moto	TRA009	1
Transistor MC 7915UC Moto	TRA010	1
Transistor 2N2905A Motorola	TRA018	1
Transistor 2N5086	TRA019	1
Transistor 2N5088	TRA020	1



ELECTRONIC DEVELOPMENT CORPORATION.

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Title

E100 POWER TRANSFORMER

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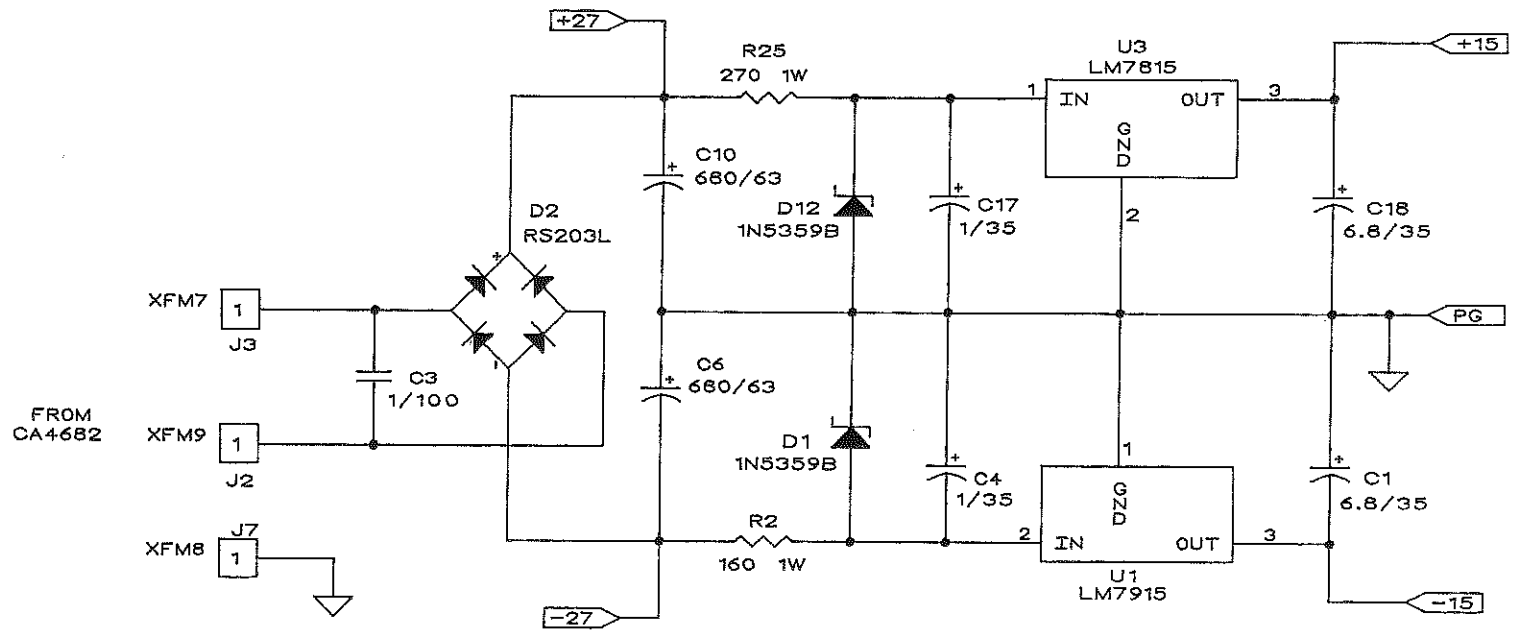
Date: November 23, 1993 Sheet 2 of 3



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Unit 4 15 Jonathan Drive
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Title: E100 POWER SUPPLY

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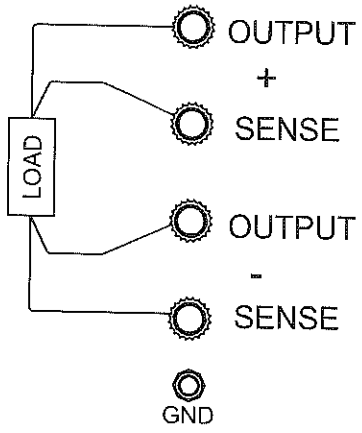
SENSE CONNECTIONS

HIGH CURRENT LOAD



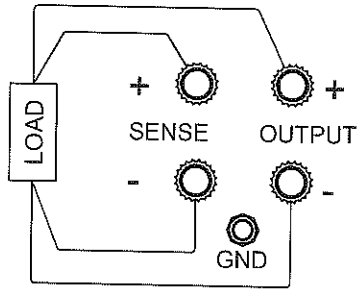


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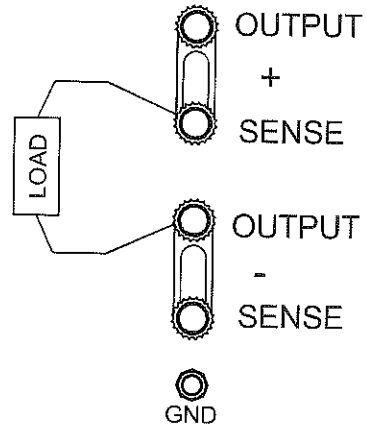
FIG 1

LIGHT LOAD



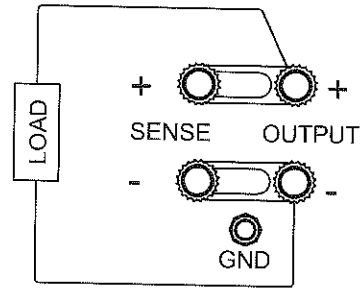


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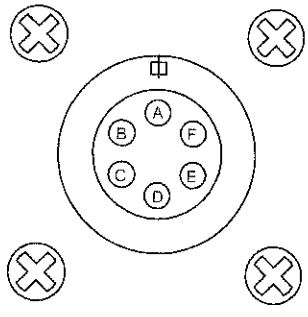
FIG 2

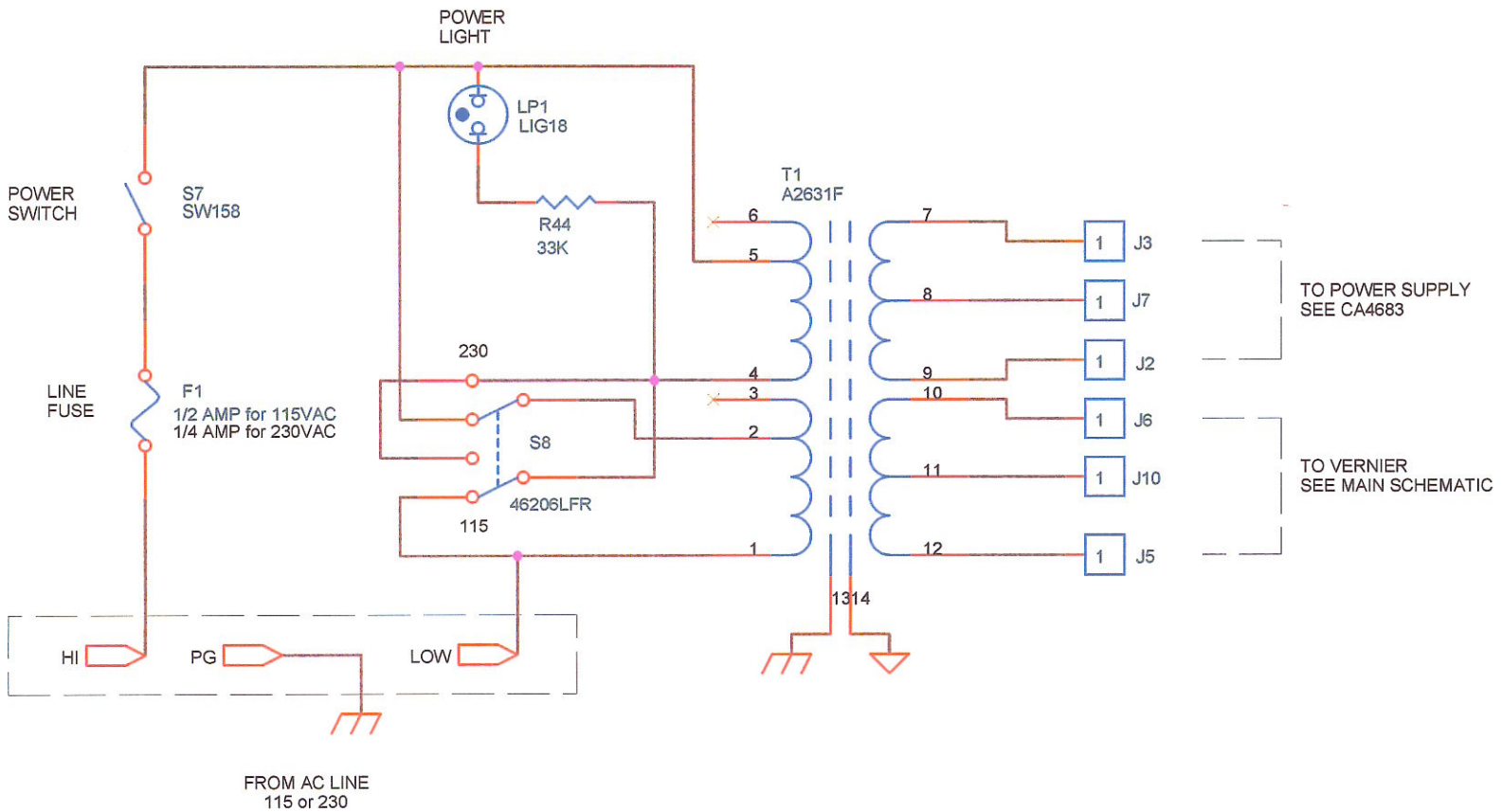
OUTPUT CONNECTOR PIN FUNCTIONS



PIN A Chassis Ground
PIN B + Output
PIN C - Output
Pin D Not Used
Pin E - Sense
Pin F + Sense

FIG 3

Reference Drawing #930727-A



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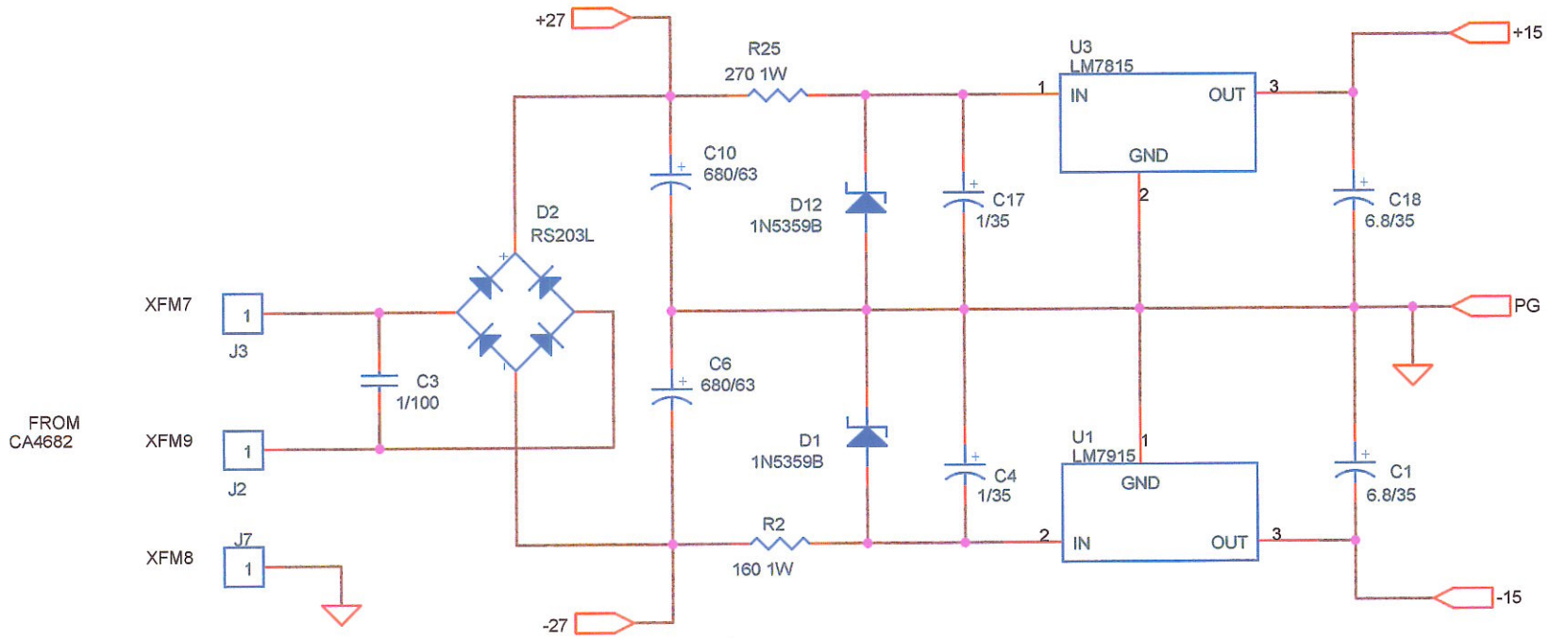
Title: E100 Power Transformer

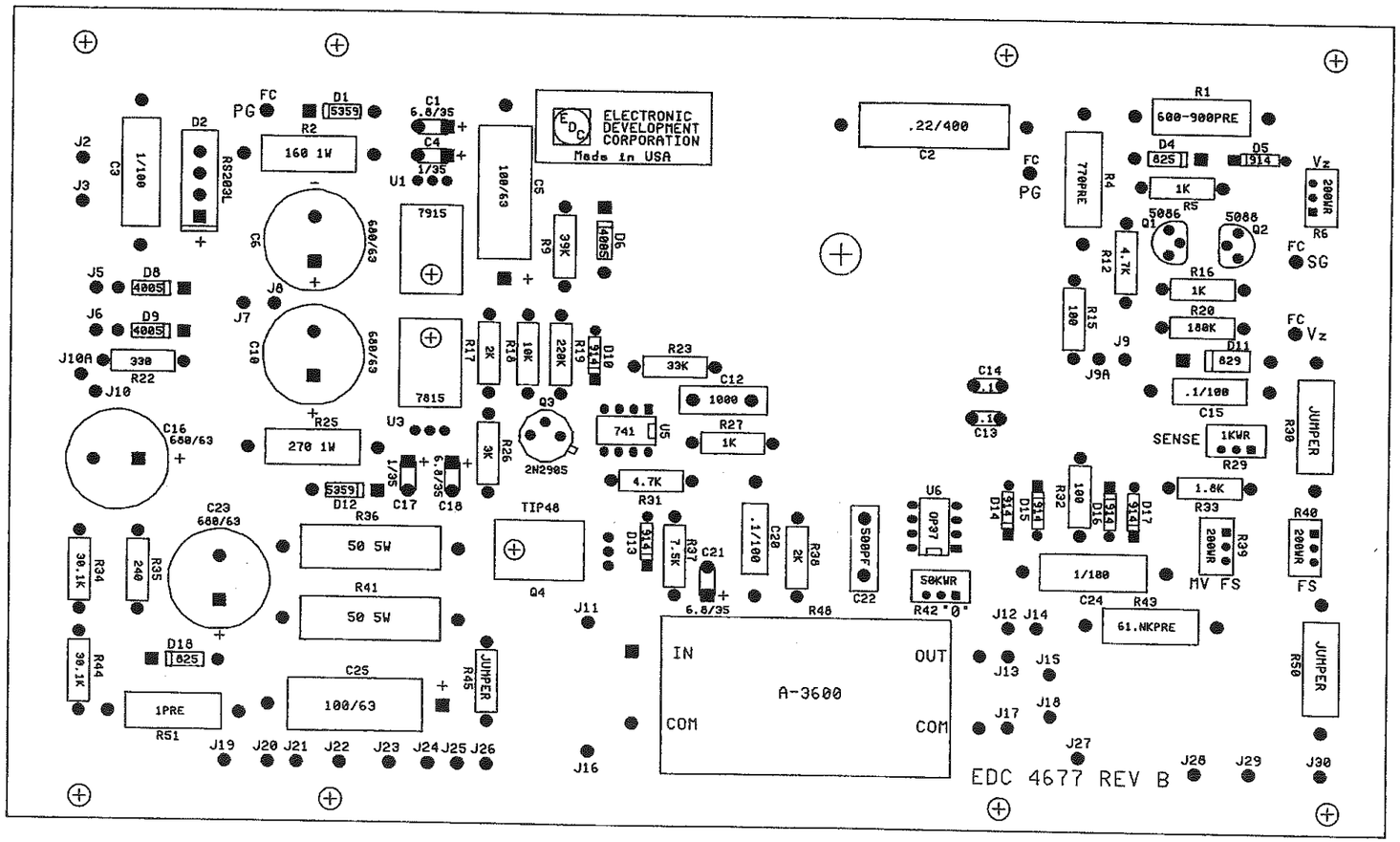
Size	Document Number	Rev
A	CA-4682	A

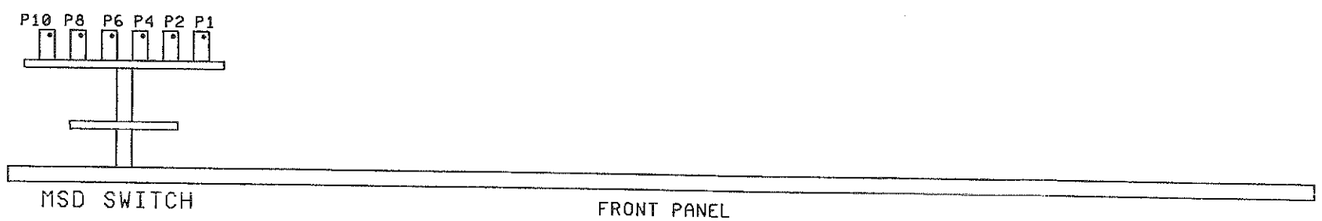
Date: Wednesday, February 16, 2005 Sheet 1 of 1



KROHN-HITE CORPORATION 15 Jonathan Drive BROCKTON, MA 02301 (508) 580-1660 WWW.Krohn-Hite.com		
Title: E100 Power Supply		
Size: A	Document Number: CA-4683	Rev: B
Date: Wednesday, February 16, 2005	Sheet 1 of 1	

REAR OF UNIT

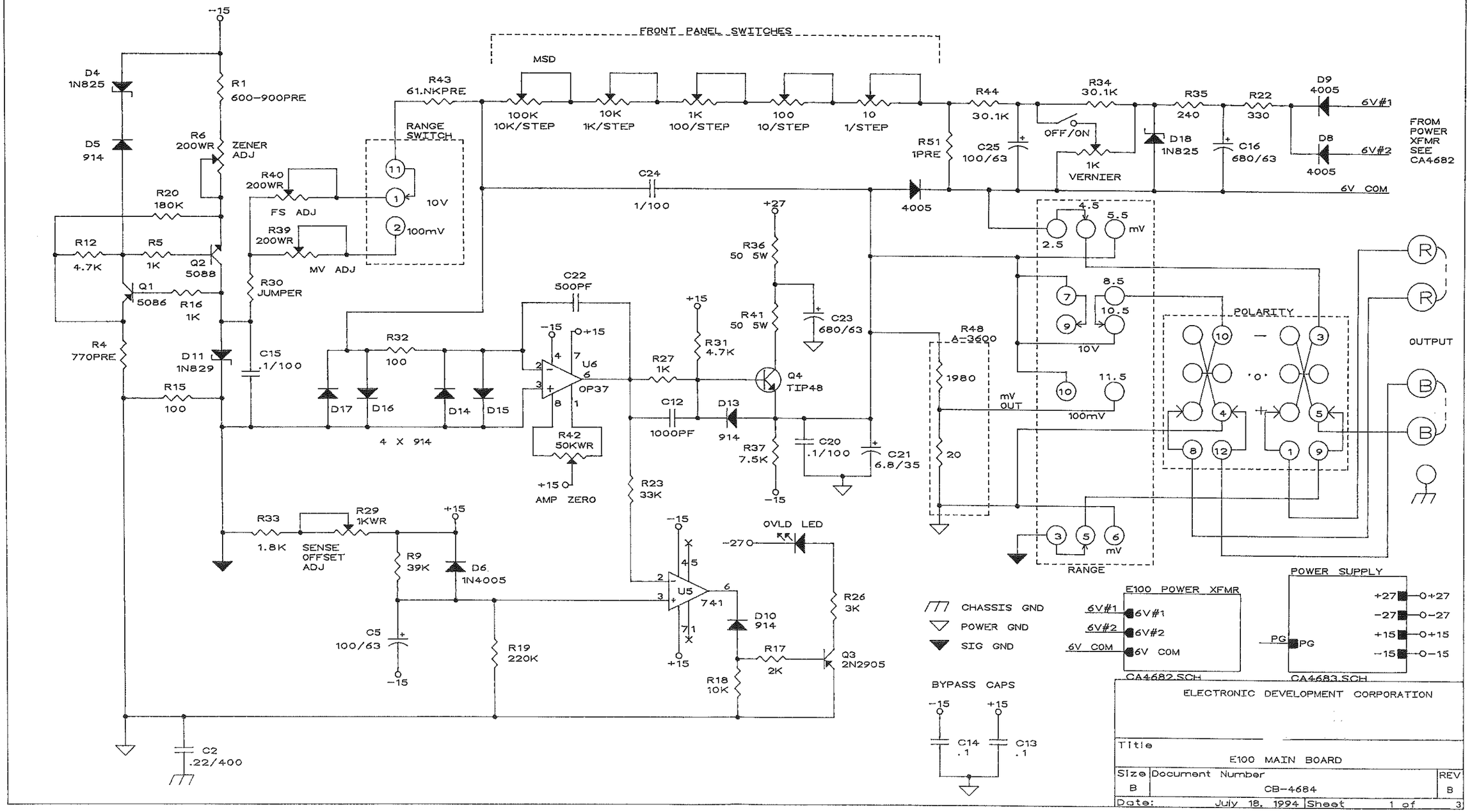




ELECTRONIC DEVELOPMENT COMPANY

Unit 4 15 Jonathan Drive
Brockton, MA 02301-5566

Title	E100RC CALIBRATION LAYOUT	
Document Number	CB-4680	REV C
DATE: DECEMBER 12, 1994	MODEL: E100RC	


-15
D4
1N825
D5
914
R1
600-900PRE
R6
200WR
ZENER
ADJ
R20
180K
R12
4.7K
R5
1K
Q2
5088
Q1
5086
R16
1K
R4
770PRE
D11
1N829
C15
.1/100
R15
100
R30
JUMPER
R40
200WR
FS ADJ
R39
200WR
MV ADJ
RANGE
SWITCH
11
1
10V
2
100mV
FRONT PANEL SWITCHES
MSD
R43
61.NKPRE
100K
10K/STEP
10K
1K/STEP
1K
100/STEP
100
10/STEP
10
1/STEP
R44
30.1K
R51
1PRE
C25
100/63
R34
30.1K
OFF/ON
1K
VERNIER
R35
240
R22
330
D18
1N825
C16
680/63
D9
4005
6V#1
D8
4005
6V#2
FROM
POWER
XFMR
SEE
CA4682
6V COM
C24
1/100
4005
+27
R36
50 5W
R41
50 5W
C23
680/63
C22
500PF
+15
R31
4.7K
R27
1K
Q4
TIP48
R32
100
D17
D16
D14
D15
4 X 914
U6
OP37
C12
1000PF
D13
914
R37
7.5K
C20
.1/100
C21
6.8/35
R42
50KWR
+15
AMP ZERO
-15
R23
33K
R33
1.8K
R29
1KWR
SENSE
OFFSET
ADJ
R9
39K
D6
1N4005
C5
100/63
R19
220K
U5
741
OVLD LED
-27
R26
3K
D10
914
R17
2K
R18
10K
Q3
2N2905
R48
A=3600
1980
20
mV
OUT
4.5
5.5
mV
2.5
8.5
10.5
10V
11.5
100mV
POLARITY
OUTPUT
RANGE
CHASSIS GND
POWER GND
SIG GND
BYPASS CAPS
C14
.1
C13
.1
E100 POWER XFMR
6V#1
6V#2
6V COM
CA4682.SCH
POWER SUPPLY
PG
+27
-27
+15
-15
CA4683.SCH
C2
.22/400
ELECTRONIC DEVELOPMENT CORPORATION
Title
E100 MAIN BOARD
Size
B
Document Number
CB-4684
REV
B
Date:
July 18, 1994
Sheet
1 of
3