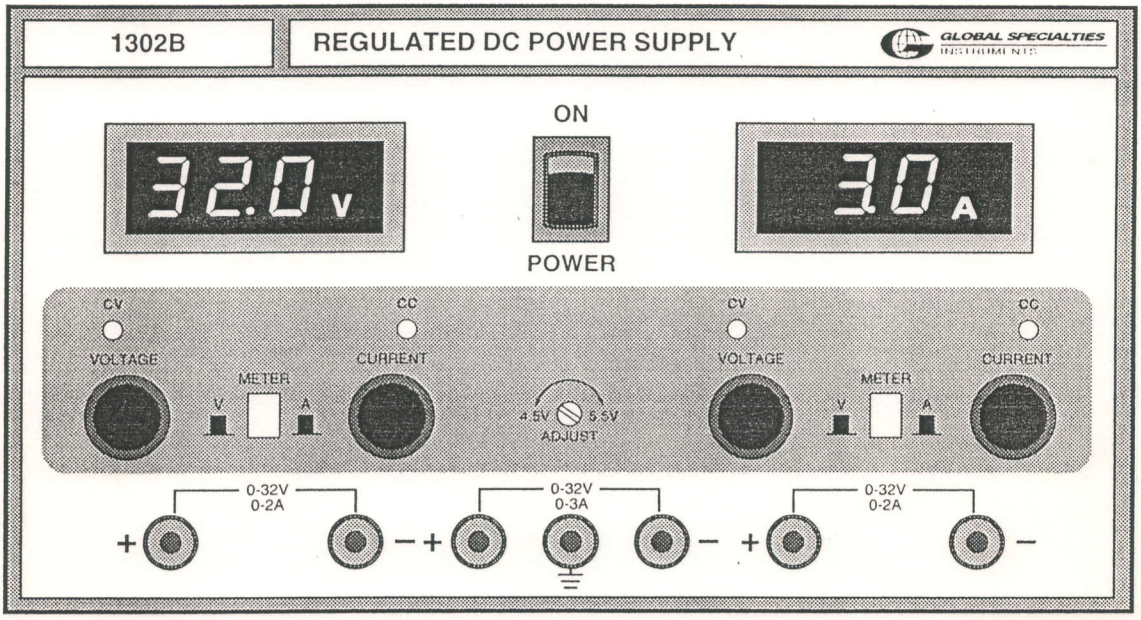
1302B

DC Power Supply



Instruction Manual

GLOBAL SPECIALTIES

GLOBAL SPECIALTIES
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GENERAL INFORMATION

DESCRIPTION

The 1302B Power Supply is a high performance triple output DC power supply for industrial and laboratory use. Performance and economy have successfully been combined to provide a compact, fully solid state instrument.

The two main outputs are continuously variable from 0 to 32V and can supply 2A max each. They can be operated in constant voltage or constant current modes. Automatic overload protection is achieved by fast transition from CV to CC mode and may be set at any point in the voltage or current range. Separate front panel meters are provided to monitor output voltage and load current for the 32V sections. Switch selection is provided to enable either voltage or current monitoring for each section.

In addition, a separate 5V output is provided with variation from 4.5VDC to 5.5VDC maximum & maximum current of 5A with feedback current limit.

The output voltage and current limit settings of the 0-32V outputs can be varied manually using front panel controls.

All the outputs are floating i.e. neither the output positive terminal nor the negative terminal (nor any point within the regulator circuitry) is connected to ground.

The power supply is designed to operate in ambient temperature of up to 40˚C and full output may be drawn continuously provided free air circulation is allowed. The unit works from mains supply of 115VAC, 47-63 Hz.

SPECIFICATIONS

Detailed specifications of the power supply are given in the following table.

Dual 0 to 32 V Section

Output Voltage I & II:	0-32V DC continuously variable by voltage control.
Load Current I & II:	0-2 Amp max., continuously variable by current control.

Constant Voltage Mode Operation:

Line Regulation:	± 0.01% + 2mV for ±10% line change.
Load Regulation:	± 0.01% + 2mV for load change from zero to full load
Ripple & Noise:	1 mV rms max.

Constant Current Mode Operation:

Line Regulation:	± 0.1% +250μA for ±10% line change.
Load Regulation:	± 0.1% +250μA for change in output voltage from zero to maximum.
Ripple & Noise:	0.8 mA rms max.

Metering:

Two separate 3 digit DPMs are provided for 0/P I and 0/P II.

Meter Selection:	Switch selection for voltage or current monitoring.
Meter Accuracy:	± 0.5% of rdg. + 2 counts.
Overload Protection:	Automatic overload and short circuit protection.

5V Section

Output Voltage:	4.5VDC to 5.5VDC.
Output Current:	5 A max. with feedback current limit.
Ripple & Noise:	2 mV rms max.

General

Operating Temperature:	0 to 40˚C.
Input Voltage:	115 VAC, 47 to 63 Hz.
Dimensions:	230 mm(W) x 285 mm(D) x 133 mm(H)
Weight:	13.0 Kg. net approx.

LOCATION AND DESCRIPTION OF OPERATING CONTROLS

In order to use the full capabilities of the 1302-B, it is highly recommended that the user become familiar with the controls associated with this instrument.

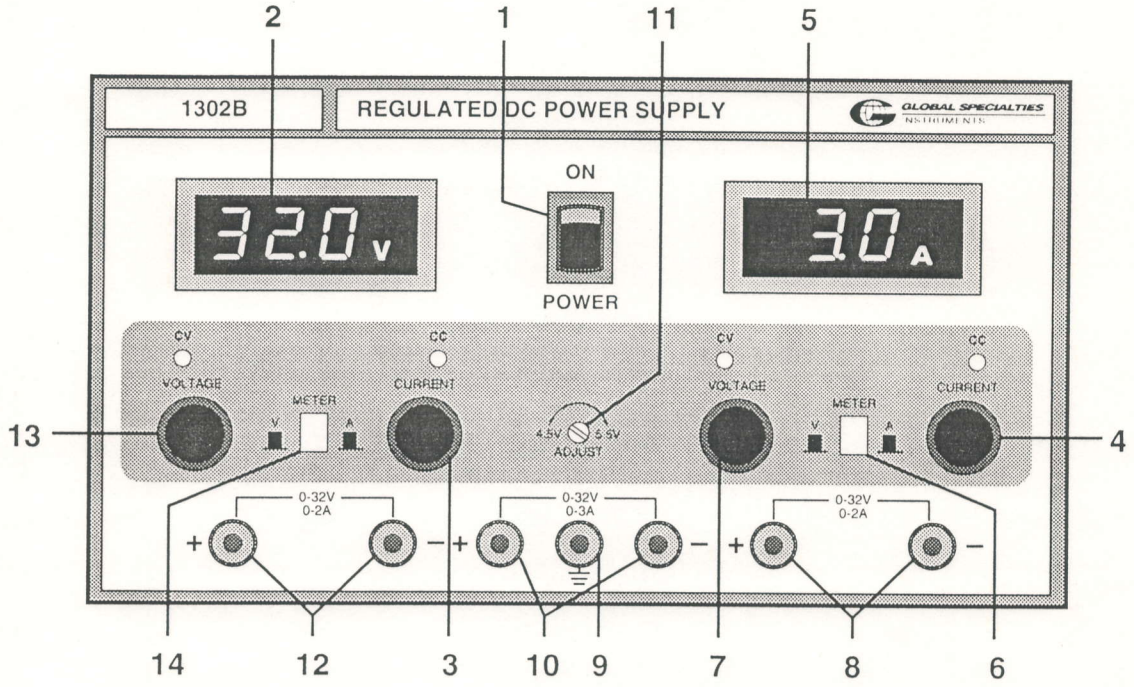


Figure 1. Location of operating controls.

1- Power switch
2- A-Supply LED Display: Displays voltage or current 0 to 32V.
3- A-Current Control: Clockwise rotation increases adjustable current limit.
4- B-Current Control: Clockwise rotation increases adjustable current limit.
5- B-Supply LED Display: Displays voltage or current 0 to 32V.
6- B-Supply V/A selection:
V-displays output voltage;
A-displays output current.
7- B-Variable voltage control: Clockwise rotation increases variable voltage from 0 to 32V
8- B-Output Terminals: Red terminal is (+); Black terminal is (-)
9- Ground terminal: Connected to chassis and earth through third wire of AC Line cord.
10- 5 Volt Output Terminals: Red terminal is (+); Black terminal is (-)
11- 5 Volt control: Screwdriver adjustment for variation from 4.5V - 5.5V.
12- A-Output terminals: Red terminal is (+) Black terminal is (-)
I3- A-Variable voltage control: Clockwise rotation increases variable voltage from 0-32 v.
14- A-Supply V/A Selection:
V-displays output voltage;
A-displays output current.

INSTALLATION

INITIAL INSPECTION

As soon as the power supply unit is unpacked inspect for any damage that may have occurred during transit. Save all packing material until inspection is completed. If any damage is found, notify the carriers immediately. Our authorized representatives should also be notified.

PHYSICAL CHECK

This check should confirm that there are no broken knobs or connectors, that the cabinet and panel surfaces are free of dents and scratches and the meters are not scratched and cracked.

ELECTRICAL CHECK

The power supply unit should be checked against electrical specifications. An in-cabinet performance check will verify proper operation.

INSTALLATION DATA

The power supply unit is shipped ready for bench operation. It is necessary only to connect the unit to a rated source of power and it is ready for operation.

LOCATION

The power supply unit is naturally cooled. Sufficient space should be kept around the unit while in operation, so that heat sinks do not remain in confined space or close to another heating source. The ambient temperature of the area around the unit should be less than 40°C.

INPUT POWER REQUIREMENTS

The power supply unit may be operated continuously from input voltage of 115 volts 47 to 63Hz power source.

REPACKAGING FOR SHIPMENT

To ensure safe shipment of the power supply unit, it is recommended that the package designed for. the unit be used. The original packaging material is reusable. Be sure to attach a tag to the unit specifying the owner, and the fault observed with a brief description. (See Page 17 for service information).

REMOVING COVER

The top cover is retained in place by 6 self tapping screws & two handle mounting screws. To remove cover, proceed as follows:

a) Remove the chrome-plated handle caps.

b) Remove the handle mounting screws.

c) Remove the self tapping screws on sides.

d) Lift the cover from rear side, slide backwards & pull.

OPERATING INSTRUCTIONS

The 1302B power supply consists of three sections. The two main outputs are continuously variable from 0 to 32V and can supply 2A max. each. In addition, a separate 5V output is provided with variation from 4.5VDC to 5.5VDC maximum & maximum current of 5A with feedback current limit.

TURN ON SETTING PROCEDURE:

The following procedure describes the use of controls and indicators.

a) Set 'POWER ON' Switch, ON.

b) Adjust the 'VOLTAGE" controls and "CURRENT' controls.

CONSTANT VOLTAGE MODE:

To select a constant voltage output, proceed as follows:

a) Adjust desired voltage by adjusting the voltage controls.

b) When in CV mode CV LED should glow.

c) If a load change causes the current limit to be exceeded, the power supply will automatically cross over to constant current output at preset current limit and output voltage will drop proportionately. In setting the current limit, allowance must be made for high peak currents which can cause unwanted crossover.

CONSTANT CURRENT MODE

To select a constant current output, proceed as follows:

a) Adjust desired current by adjusting the current controls.

b) When in CC mode CC LED should glow.

c) if a load change causes the voltage limit to be exceeded, the power supply will automatically cross over to constant voltage output at the preset voltage limit and output current will drop proportionately. In setting voltage limit, allowance must be made for high peak voltages which can cause unwanted crossover.

LOAD CONNECTIONS:

The load should be connected to the power supply output terminals using separate pairs of connecting wires. This will minimize mutual coupling effects between loads and will retain full advantage of the low output impedance of the power supply. Each pair of connecting wires should be as short as possible and twisted or shielded to reduce noise pick up. (If a shielded pair is used, connect one end of the shield to ground at power supply and leave the other end unconnected).

Positive or negative voltage can be obtained from this supply by grounding either one of the output terminals or one end of the load. Always use two leads to connect load to the supply, regardless of where the set up is grounded. This will eliminate any possibility of the output current return paths through the power source ground which would damage the line cord plug. This supply can also be operated up to ±300VDC above ground, if neither output terminal is grounded.

POWER SUPPLY OPERATION

INITIAL SET UP

Refer to the preceding section for initial set up of the power supply.

OPERATING INSTRUCTIONS

Proper operation of most circuitry depends on correct supply voltages. It is recommended that both A and B supplies be set to the required voltage levels with their loads disconnected. When the desired voltage is set (using the A or B variable voltage control),turn the AC power OFF, connect each load to the proper supply, then turn the AC power ON. Output current of either supply may be read by simply changing the V/A switch from V to A position.

COMBINING POWER SUPPLIES

Each of the three power supplies may be used independently. Any two or all three may be used simultaneously, if desired. Power supplies may be combined to get voltage or current as described below and in the accompanying interconnection table. (See Table 1)

Power Supply	Connection	Voltage Range	Max. Current
5V	——	4.5-5.5V	5.0A
A	——	0-32V	2.0A
B	——	0-32V	2.0A
A+B	Series	0-64V	2.0V
A+B	Parallel with Equalizing resistors	0-32V	4.0A
A+5V or B	Series	5-37V	2.0A
5V+A and B	Series	5-69V	2.0A
A+B	Split Supply	0 -plus 32V 0-minus 32V	2.0A

Table 1. DC Power supply interconnections.

SERIES CONNECTION

The output of both A and B Power supplies may be connected in series to provide a variable 0 to 64V at up to 2.0A (see figure 2). The total voltage may be read by adding a separate voltage readings for both A and B supplies. Load current may be monitored from the output of either the A or B supply.

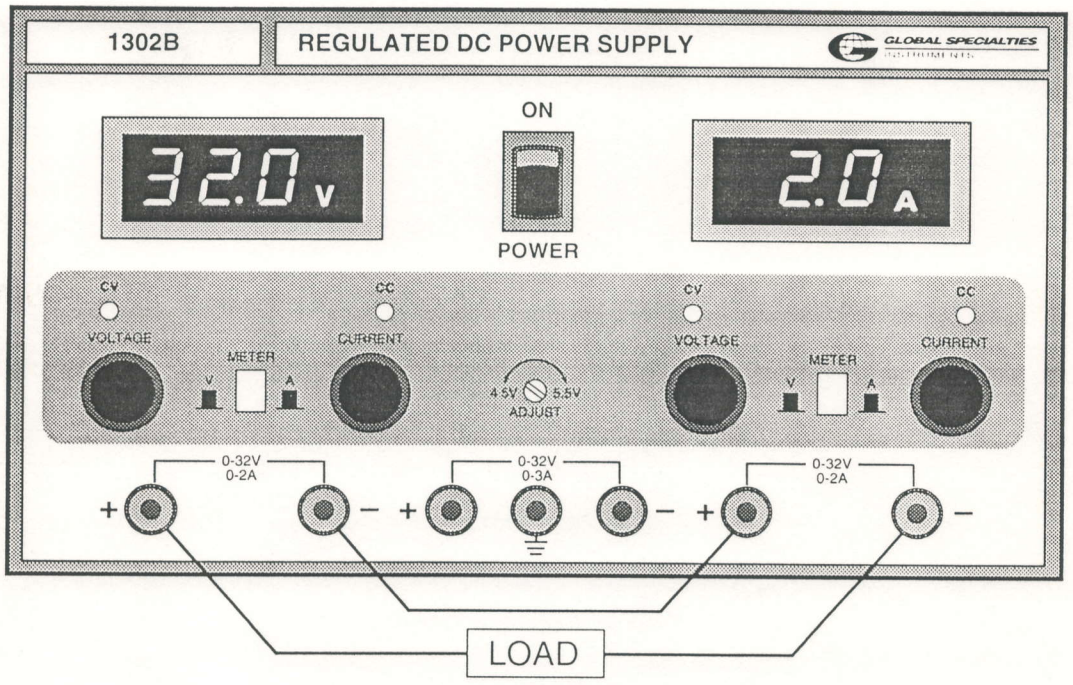


Figure 2. Series connection: 0 to 64 V @ 2.0 A

NOTE

When both A and B power supplies are connected in series, each supply should be set to one-half the desired combined voltage. This will assure even power distribution between the supplies. For example, to obtain an output of 35 Volts, set both A and B supplies to 17.5 Volts.

The highest voltage may be achieved by connecting all three supplies in series, giving a range of 5-69V with a maximum current of 2.0A.(See figure 2A). Again the total voltage may be read by adding the individual output voltages, and the current may be read from the output of either the A or B supply.

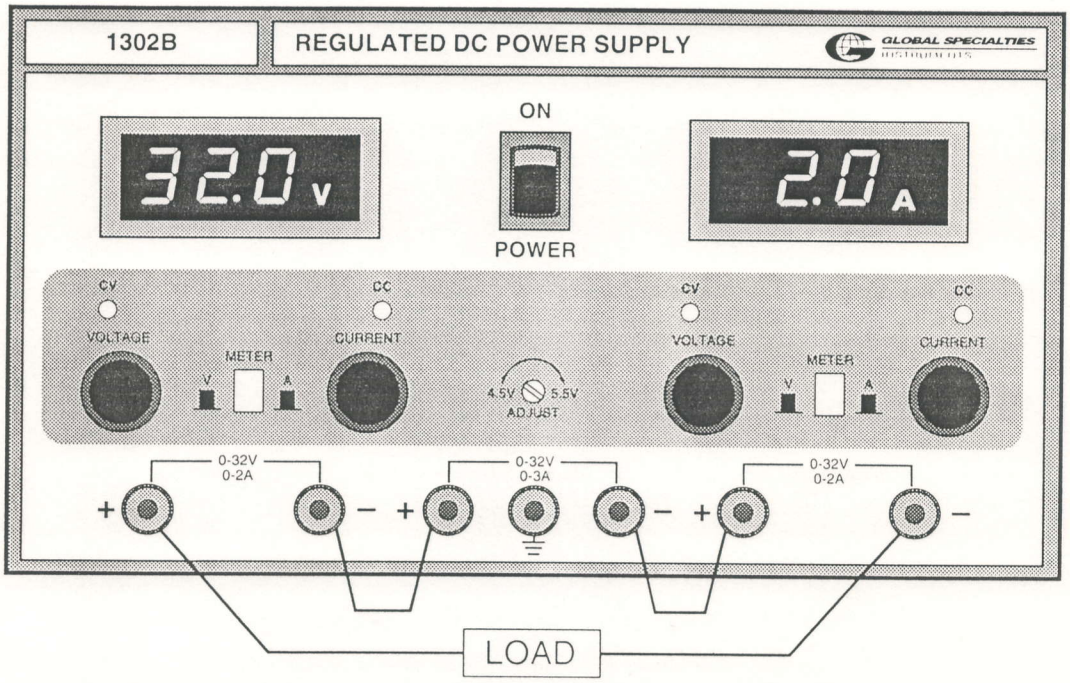


Figure 2A. Series connection: 5 to 69V supply @ 2.0A

A split supply may be arranged by connecting the positive terminal (+) of one supply to the negative (-) of any other supply. (See figure 2B). This connection is then used as a circuit ground (Also called circuit common). This arrange arrangement is often used with op-amps which require a +V and -V supply.

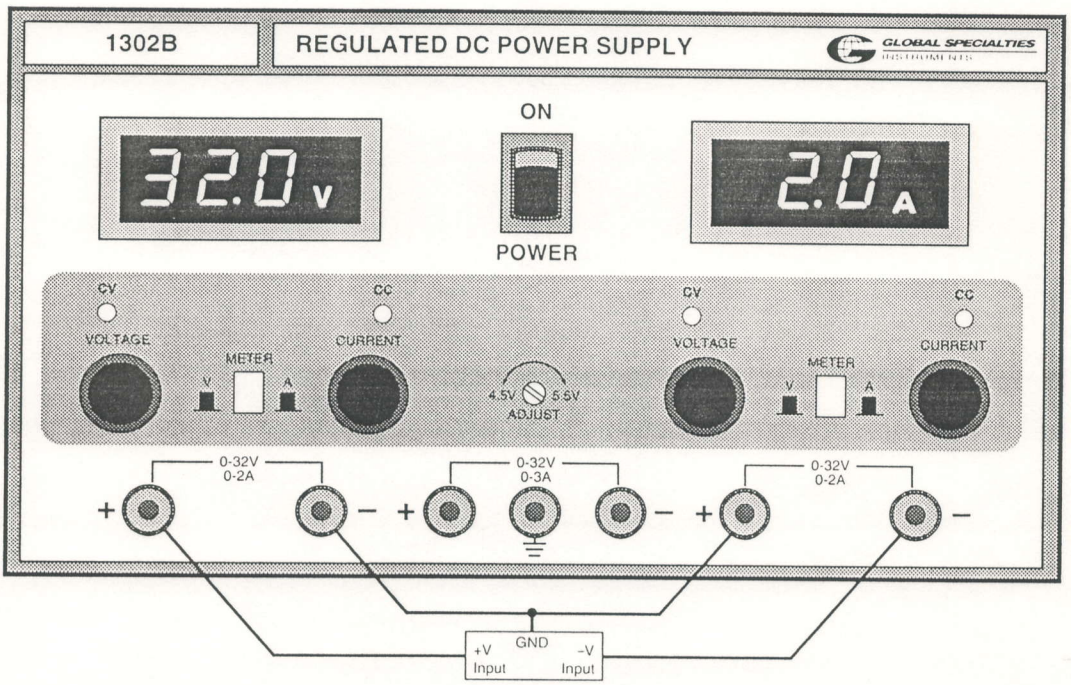


Figure 2B. Series connection: for a split supply + and -32V supply @2.0A

CAUTION

The power supplies should not be connected in any manner which causes electron current to flow into a negative(-) terminal or out a(+) positive terminal. An example of this is a series subtraction.

THIS WILL DAMAGE THE SUPPLY *(See figure 3).*

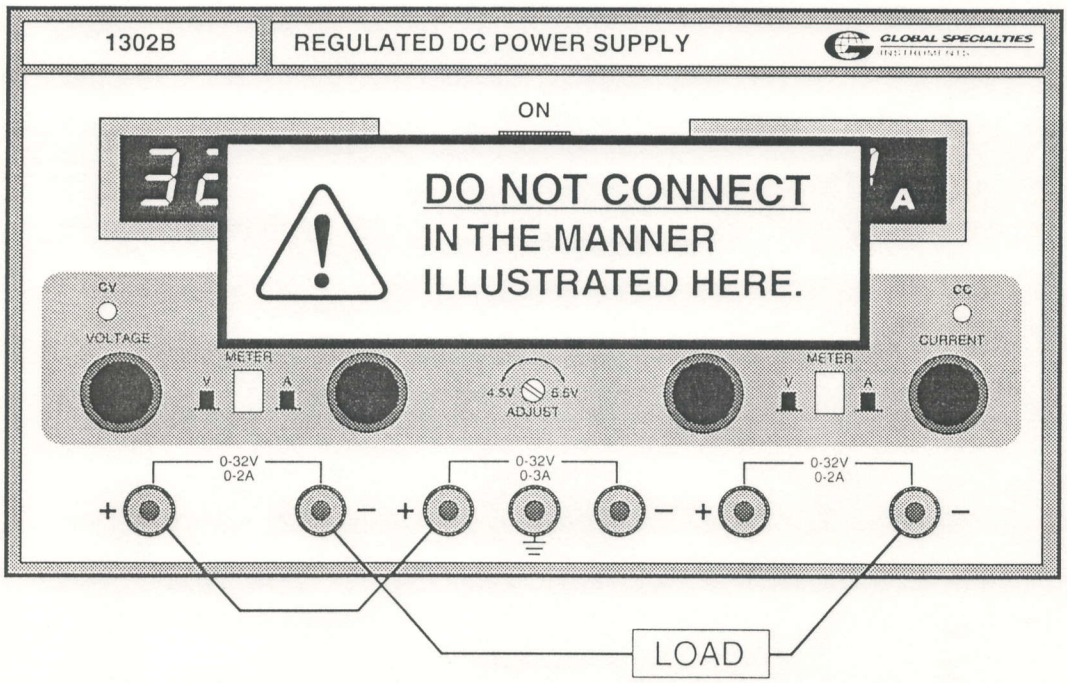


Figure 3. Example of *IMPROPER* connection: series subtraction

PARALLEL CONNECTION

The A and B supplies may be connected in parallel to double the available load current giving an output of 0 to 32V at up to 4.0A. However, current equalizing resistors must be used. (See figure 4).

For best results, set the A and B supplies to the desired voltage before any connections are made. If the current equalizing resistors are matched, current balance may be obtained. By measuring the differential voltage between the two supplies with external voltmeter and adjusting for zero, the resistors are not well matched. It is preferable that current balance may be achieved by slightly unbalancing the two supplies. A precise voltage reading may be made by measuring across the load with an external voltmeter.

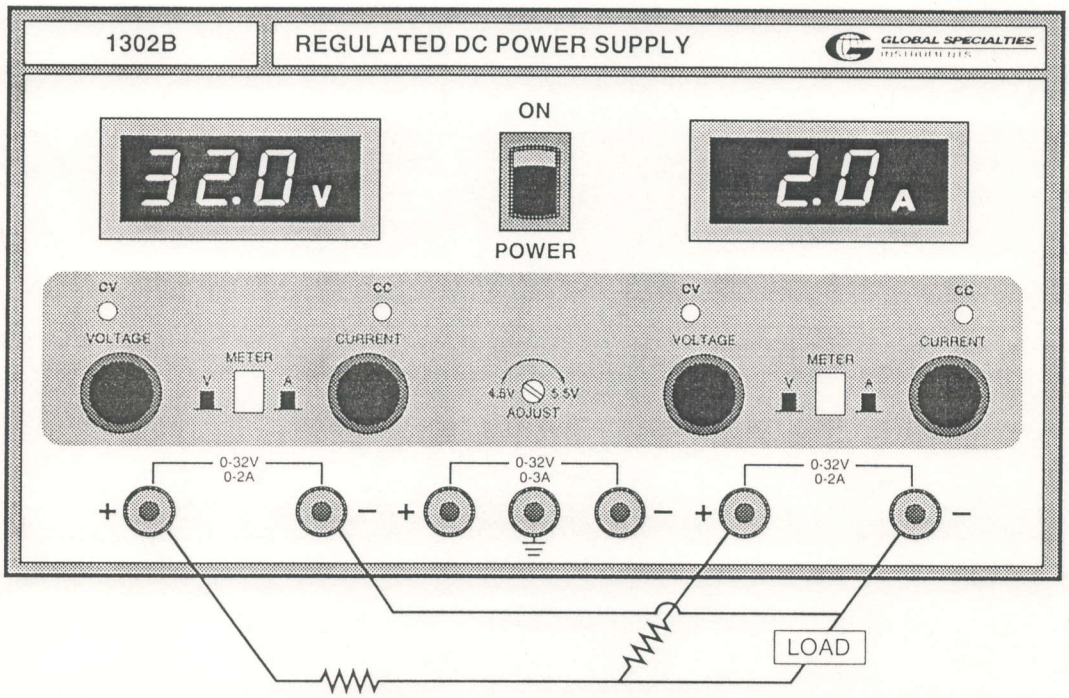


Figure 4. Parallel connection of A and B supplies with equalizing resistors

OPERATING PRECAUTIONS

The power supply is ideally suited for virtually any type of IC bread boarding from TTL, CMOS and ECL to op amps audio and video amps, phase locked loops, and microprocessor circuitry. However, certain normal breadboarding precautions should be taken to avoid ground loops and inadvertent loading. Observance of correct load polarity is also important since most ICs may be damaged by improper power supply connections.

Polarity

Observe proper polarity when connecting the power supplies to the load, especially if the load is polarity sensitive and does not have reverse polarity protection.

GROUND LOOPS

A ground loop is a voltage drop on a ground bus caused by a power stage output entering the ground bus some distance away from the power supply ground binding post.

This small voltage drop, though only milliVolts or microVolts, is a part of the output load. If a preamplifier input of circuit ground is connected to a portion of this ground bus, feedback and oscillation may occur. To prevent this, all output stages should be positioned as close as possible to the ground terminal preamps farther away. Many audio IC's have separate input and output grounds to prevent ground loops.

Even though power supplies are tightly regulated, a short length of a power bus can present enough inductance to cause linear IC oscillation at high frequencies. For this reason, effective bypass capacitors are needed to bypass the power buses. Place these capacitors as close as possible to the power supply pins of the IC. Disc ceramics (0.1μF) work well and should be placed across as many ICs as possible. Do not use electrolytic or paper capacitors because they have high inductances and cease to act as bypasses above one or two MHz. Bypassing is required with digital IC's also; problems such as inability to reset or to clear and false triggering can occur if IC's are not properly bypassed.

CASE DISASSEMBLY AND ASSEMBLY

WARNING

Potentially lethal AC power is present whenever the line cord is plugged into the AC outlet, even when the power switch is OFF. Always disconnect the power cord when opening the case. Avoid touching the fuse post on the inside of the unit.

Should access to the inside of the unit be required proceed as follows

1. Remove the line cord from the AC outlet before disassembly
2. To disassemble the case, remove the screws that secure the cover to the chassis and lift the cover off.
3. To reassemble the case, place the cover on the chassis line up the screw holes, and replace the screws.

MAINTENANCE AND RECALIBRATION

ADJUSTMENTS

All circuitry is factory calibrated. No user adjustments are required.

FUSE REPLACEMENT.

Remove the line cord from the AC outlet before changing fuses. Using the screwdriver, remove the fuse holder cap. Replace the fuse with another of identical type and current rating. Replace the fuse holder cap.

SERVICE AND WARRANTY INFORMATION

FACTORY SERVICE AND REPAIR

Global Specialties will service and repair this instrument free of charge for a period of three full years subject to the warranty conditions stated below.

To obtain a return merchandise authorization (RMA) required for all returns, phone our customer service department for a RMA and all shipping instructions:

Phone 800-572-1028 or write:
GLOBAL SPECIALTIES

1486 Highland Ave. Unit 2
Cheshire, CT 06410
Tel: (203) 272-3285
Fax: (203) 272-4330

WARRANTY

Global Specialties warrants this device to be free from defective material or workmanship for a period of 3 years from the date of original purchase.

Global Specialties under this warranty is limited to repairing the defective device when returned to the factory, shipping charges prepaid, within three full years from the date of original purchase.

Units returned to Global Specialties that have been subject to abuse, misuse, damage or accident or have been connected, installed or adjusted contrary to the instructions furnished by Global Specialties, or that have been repaired by unauthorized persons will not be covered by this warranty.

Global Specialties reserves the right to discontinue models, change specifications, price or design of this device at any time without incurring any obligation whatsoever.

The purchaser agrees to assume all liabilities for any damages and/or bodily injury which may result from the use or misuse of this device by the purchaser, his employees or agents.

This warranty is in lieu of all other representations or warranties expressed implied and no agent or representative of Global Specialties is authorized to assume any other obligation in connection with the sale and purchase of this device.

PART LIST

PCB Components	2 X ZSDT-CT/01 PCB REV - 01
Ref Designator	Value
RESISTORS	
R1	270E,2W,5%,MOR
R2	47E,MFR,1/4W,5%
R3	10K,MFR,1/4W.
R4*	1K,MFR, 1/4W,5% (OPTO)
R5	10E,MFR,1/4W5%(SCR)
R6	3.9K,MFR,1/4W
R7	3.3K,2W,5%,MOR.
R8	10K,MFR,1/4W.
R9	8.2KMFR,1/4W.
R10	100K,MFR,1/4W
R11	4.7OHM,MFR,1/4W.
R12	1.5K,MFR,1/4W.
R13	180K,MFR,1/4W.
R14	390E,MFR,1/4W.
R15	6.8K,MFR,1/4W,5%
R16	12K,MFR,1/4W,5%
R17	3.9K,MFR, 1/4W,5%
R18	10K.MFR,1/4W.
R19	10K,MFR,1/4W.
R20	10K,MFR,1/4W.
R21	3.3K,2W,5%,MOR
R22	270E,2W,5%,MOR.
R23	82K,MFR,1/4W,5%
R24	4.7K,MFR,1/4W,5%
R25	24E,MFR,1/4W,5%
R28	820E,MFR,1/4W,5%
R27	330K,MFR,1/4W,5%
R28	39K,MFR,1/4W,5%
R29	180K,MFR,1/4W,5%
R30	1K,MFR,1/4W,5%
R31	15E,MFR,1/4W,5%
R32	6.8K,MFR,1/4W,5%
R33	15K,MFR,1/4W,5%
R34	6.8K,MFR,1/4W,5%
R35	15K,MFR,1/4W,5%
R36	1K,MFR,1/4W,5%
R37	2K,MFR,1/4W,5%
R38	1K,MFR,1/4W,5%

PCB Components	2 X ZSDT-CT/01 PCB REV - 01
Ref Designator	**Value**
R39	1K,MFR,1/4W,5%
R40	4.7K,MFR,1/4W,5%
R41	330K,MFR, 1/4W,5%
R42	100E,MFR,1/4W,5%(I CAL)
R43*	4.7K,MFR,1/4W,5%(I CAL,SEL)
R44	1K,MFR,1/4W,5%
R45	1K,MFR,1/4W,5%
R46*	5.1 K,MFR,1/4W,5%(V CAL,SEL)
R47*	100E,MFR,1/4W,5%(V CAL)
R48	2K,MFR,1/4W,5%
R49	3.6K,MFR,1/4W,5%
R50	Shorting Link
R51	10E,MFR,1/4W,5%
PRESETS	
PR 101	5K,PRE,LIN(V)(DEV. DROP)
PR 102	500E,PRE,LIN,(V)(V CAL)
PR 103	500EPRE,UN,(V) (I CAL)
CAPACITORS	
C1	0.1μF/100V,MP
C2	0.1μF/250VAC MKP
C3	10,000μF/50V ELE, LUG TYPE
C4	0.1μF/50V,MP 10%
C5	33μFR/50V,ELE
C6	100μF/50V,ELE
C7	100μF/50V,ELE.
C8	1μF/50V,ELE
C9	4.7μF/50V,ELE
C10	10μF/50V,ELE.
C11	100μF/50V,ELE.
C12	47μF/50V,ELE.
C13	1KPF/50V,CD.
C14	1KPF/50V,CD
C15	0.1μF/50V,CD.
C16	10μF/50V,ELE.
C17	10μF/50V,ELE.
C18	0.1μF/50V,CD.
C19	220μF/50V,ELE
C20	220μF/50V,ELE
C21	47μF/50V,ELE

PCB Components	2 X ZSDT-CT/01 PCB REV - 01
Ref Designator	**Value**
C22	10μF/50VELE
C23	0.1μF/50V,CD.
C24	10μF/50V,ELE.
C25	10μF/50V,ELE.
C28	0.1μF/50V,CD.
DIODES	
CR1	Not Used
CR2	1N4007,1KV/1A
CR3	1N4007,1KV/1A
CR4	1N4007,1KV/1A.
CR5	1N4007,1KV/1A
CR6	1N4007,1KV/1A
CR7	1N4007,1KV/1A
CR8	1N4007,1KV/1A.
CR9	1N4007,1KV/1A.
CR10	1N4007,1KV/1A
CR11	1N4007,1KV/1A
CR12	1N4007,1KV/1A.
CR13	1N4007,1KV/1A.
CR14	1N4007,1KV/1A
CR15	1N4007,1KV/1A.
CRIB	1N4007,1KV/1A.
CR17	1N4007,1KV/1A.
CR18	1N4007,1KV/1A.
CR19	1N4007,1KV/1A.
CR20	1N4007,1KV/1A.
CR21	1N4007,1KV/1A.
CR22	1N4007,1KV/1A.
CR23	1N4007,1KV/1A.
CR24	1N4007,1KV/1A.
CR25	1N4148,100V/10mA
CR26	1N4148,100V/10mA
CR27	1N4148,100V/10mA
CR28	1N4148,100V/10mA
CR29	1N4007,1KV/1A.
ZENERS	
Z1	1N758,10V/0.4W
Z2	1N758,10V/0.4W
Z3	1N750,4.7V/0.4W

PCB Components	2 X ZSDT-CT/01 PCB REV - 01
Ref Designator	Value
BRIDGE	
BR1	6A/600VDC,PC MTG BRIDGE
BR2	CSB-1,100V/1APC MTG BRIDGE.
IC's	
IC1	4N25OPTO
IC2	7812 (+12V/1A FIXED)
IC3	TL431(2.5V SHUNT REG)
IC4	LM324
IC5	7812(+12/1A FIXED)
IC6	TL431(2.5V SHUNT REG)
IC7	79L05 (-5V/100mA FIXED).
IC8	7805 (+5V/1A FIXED).
Transistor's/FET/SCR	
Q1	BC109 (TO-18)
Q2	MPSAI2 (TO-92)
Q3	BC557 (TO-92)
Q4	BC557 (TO-92)
Q5	BC547 (TO-92)
FET1	IRFP46O
SCR1	SCR 2N6396
CONNECTORS	
CON1	3.96mmPITCH, 3PIN M
CON2	2.54mmPITCH, 12PIN M
CON3	2.54mmPITCH, 12PIN M, L TYPE
CON4	2.54mmPITCH, 6PIN M, L TYPE
MISCELLANEOUS	
TP1	RIM PIN MALE
TP2	RIM PIN MALE
TP3	RIM PIN MALE
TP4	RIM PIN MALE
TP5	RIM PIN MALE
TP6	RIM PIN MALE

PCB Components	2 X Z-DPM/01 PCB REV-01
Ref Designator	**Value**
RESISTORS	
R1	39K,0.25,5%,MFR
R2	470K,0.25W,5%,MFR
R3	1M,0.25W,5%,MFR
R4*	SEL(INPUT)
R5	10K,0.25W,5%,MFR
R6	2K4,0.25W,5%,MFR
R7	330E,0.25W,5%,MFR
R8	330E,0.25W,5%,MFR
R9	6K8, 0.25W,5%,MFR
PRESETS	
PR1	2.5K,LIN,VER (REF ADJ)
CAPACITORS	
C1	220pF, 50V, CD
C2	0.1μF,100V,MP
C3	0.01μF,50V,CD
C4	0.47μF,100V,MP
C5	0.1μF,100V,MP
C6	0.1μF,100VMP
C7	10μF,50V,EL
C8	0.1μF,50V,CD
C9	10μF,50V,EL
C10	0.1μF,50V,CD
IC's	
IC1	7107 DECODER DRIVER
VR1	TLO-431
FND's	
DS1	TSD566 GREEN
DS2	TSD566 GREEN
DS3	TSD566 GREEN
LED's	
LED1*	3MM GREEN (VOLTAGE) FOR DUAL/TRIPLE O/P
LED1*	3MM GREEN (CURRENT) FOR DUAL/TRIPLE O/P
MISCELLANEOUS	
J1	2.54PITCH, 5 PIN M
J2	2.54PITCH, 3 PIN M
J3	2.54PITCH, 4 PIN M

PCB Components — Z-TR/01 PCB REV-01

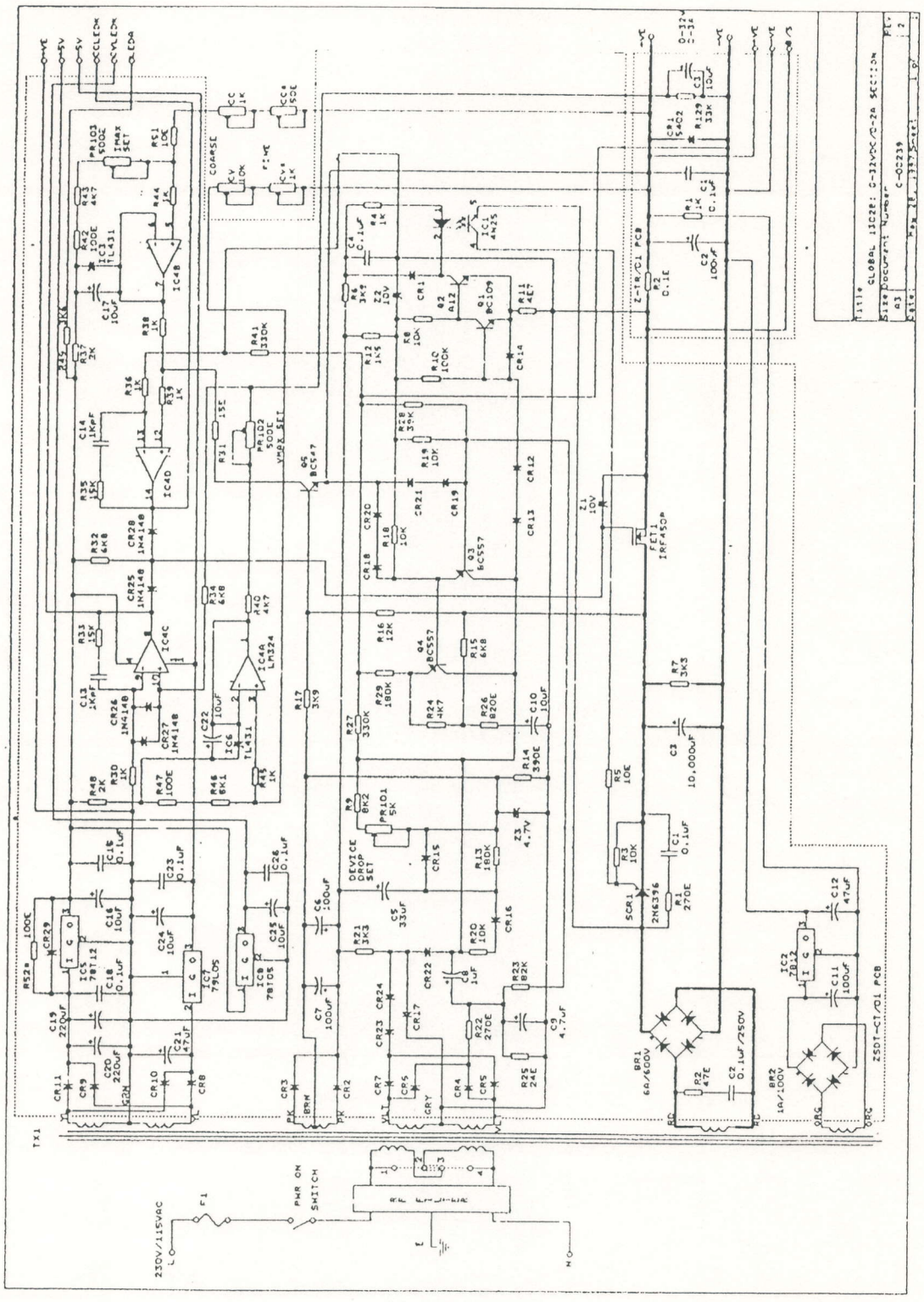
Ref Designator	Value
RESISTORS	
R1	1K,2W5%,MOR
R2	0.1E,2.5W,5%,WW
R129*	33K,0.25W,5%,MFR
CAPACITORS	
C1	0.1μF,50V,CD
C2	100μF,50V,EL
C3	10μF,50V,EL
DIODE	
CR1	1N5402

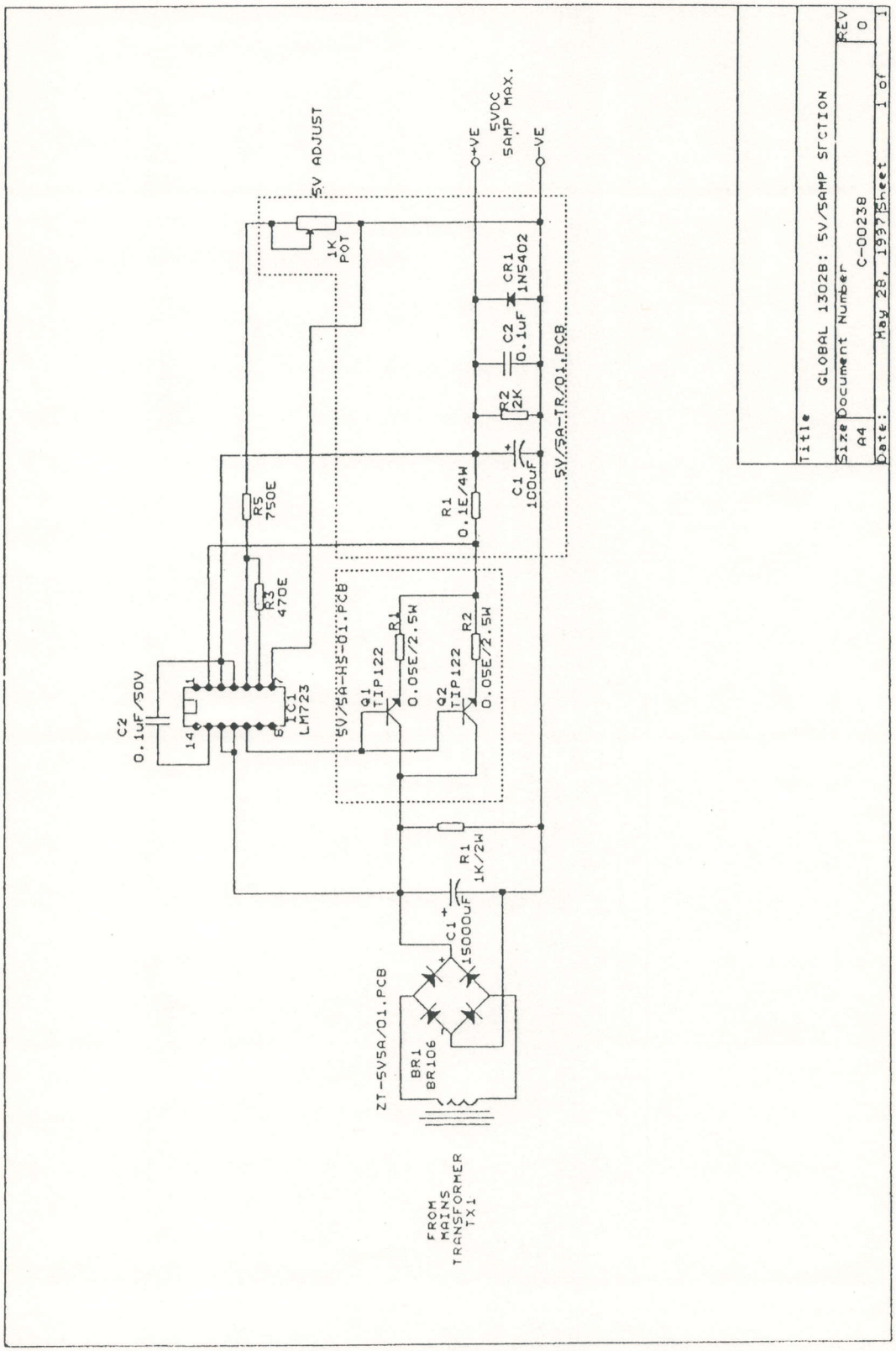
PCB Components — ZT-5V5A/01 PCB REV-01

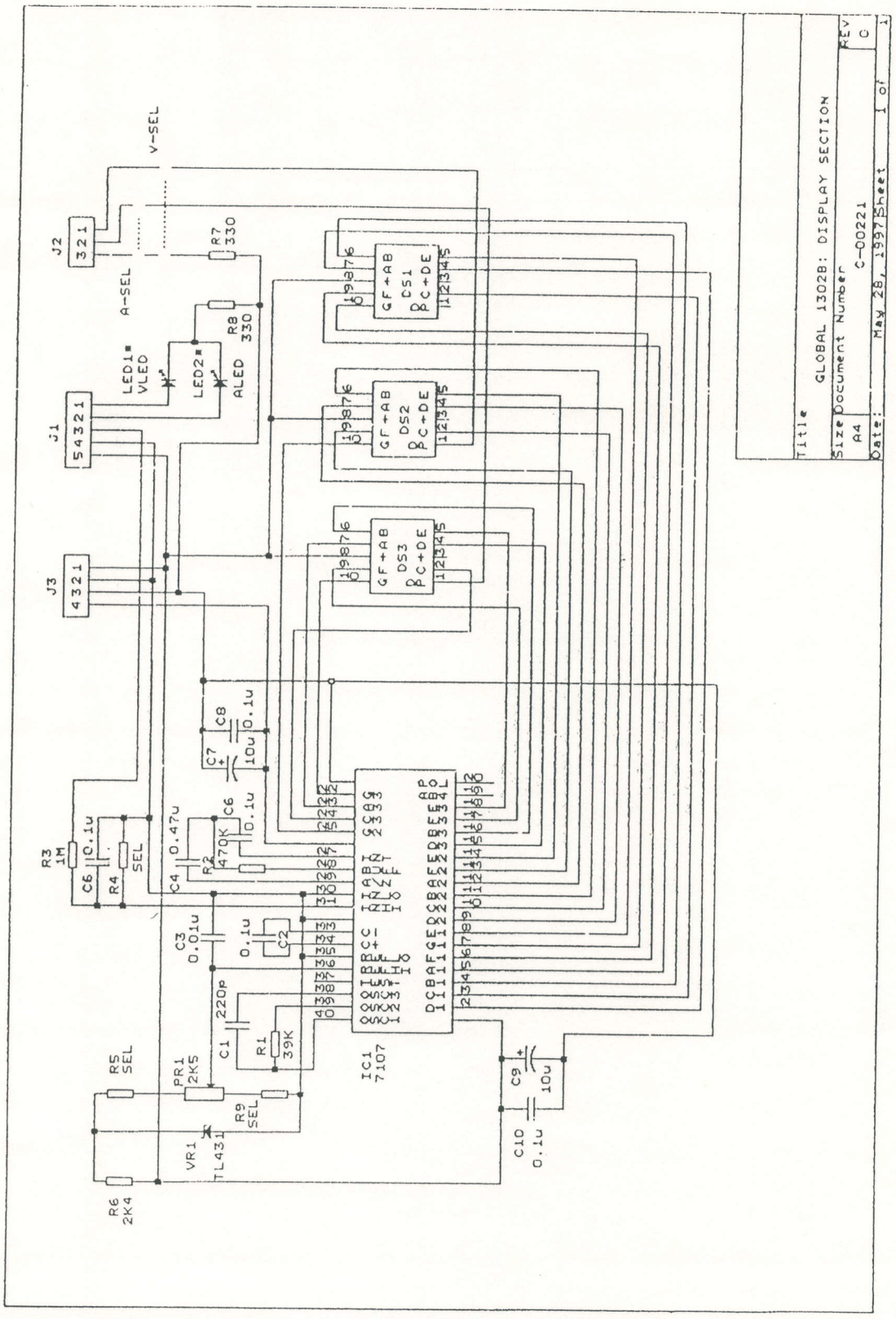
Ref Designator	Value
RESISTORS	
R1	1K.2W.MOR,5%
R2	NOT USED
R3	470E,0.25W,MFR,5%
R4	SHORT
R5	750E,0.25W,MFR,5%
CAPACITORS	
C1	15000μF/35V,EL
C2	0.1μF/50V,CD
IC's	
IC1	LM723
BRIDGES	
BR1	10A,600VDC,PCB MTG TYPE
CONNECTORS	
CON-1	2.54 MM PITCH, 5 PIN MALE
CON-2	3.96 MM PITCH, 8 PIN MALE

PCB Components	ZT-5VTR/01 PCB REV-01
Ref Designator	Value
RESISTORS	
R1	1K,0.25W,MFR.5%
CAPACITORS	
C1	100μF/16V,EL
C2	0.1μF/50V,CD
DIODES	
CR1	1N5402
LED's	
LED1	3MM,RED(OVER LOAD)
PORTS	
PR1	1K,CARBON,.25W

PCB Components	2X 5V5A-HS PCB REV-01
Ref Designator	Value
RESISTORS	
R1	0.05E,2.5W;WWR
TRANSISTORS	
Q1	TIP 122




5V ADJUST
1K POT
+VE
5VDC 5AMP MAX.
-VE
CR1 1N5402
C2 0.1uF
R2 2K
C1 100uF
R1 0.1E/4W
5V/5A-TR/01.PCB
R5 750E
R3 470E
C2 0.1uF/50V
IC1 LM723
5V/5A-HS-01.PCB
Q1 TIP122
R1 0.05E/2.5W
Q2 TIP122
R2 0.05E/2.5W
R1 1K/2W
C1 15000uF
BR1 BR106
ZT-5V5A/01.PCB
FROM MAINS TRANSFORMER TX1
Title
GLOBAL 1302B: 5V/5AMP SECTION
Size
A4
Document Number
C-00238
REV
0
Date:
May 28, 1997
Sheet
1 of
1


GLOBAL 1302B: DISPLAY SECTION
Size: A4
Document Number C-00221
REV C
Date: May 28, 1997 Sheet 1 of 1
V-SEL
A-SEL
J2
321
R7 330
R8 330
LED1 VLED
LED2 ALED
J1
54321
J3
4321
GF+AB DS1 DC+DE
GF+AB DS2 DC+DE
GF+AB DS3 DC+DE
C8 0.1u
C7 10u
C6 0.1u
R3 1M
C6 0.1u
R4 SEL
C4 0.47u
R2 470K
C3 0.01u
C2 0.1u
C1 220p
R1 39K
R5 SEL
PR1 2K5
R9 SEL
VR1 TL431
R6 2K4
IC1 7107
C9 10u
C10 0.1u