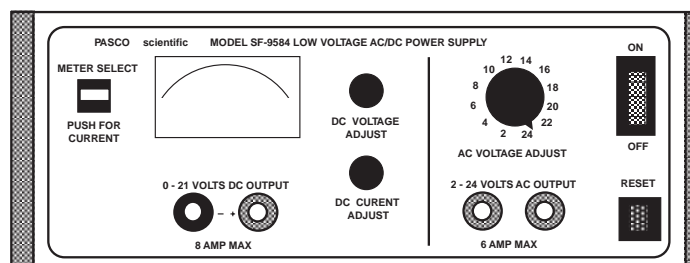


**Instruction Sheet
for the PASCO
Model SF-9584**

LOW VOLTAGE AC/DC POWER SUPPLY



Introduction:

The PASCO scientific Model SF-9584 Low Voltage AC/DC Power Supply provides two outputs: a regulated DC output and an unregulated AC output.

The DC output is regulated for both constant-voltage and constant-current operation. In the constant-voltage mode, the voltage is continuously variable over the range 0–21 Volts for any load up to 8 Amperes. In the constant-current mode the output current is continuously variable over the range 0–8 Amperes for any load requiring up to 21 Volts. An analog meter is provided to allow monitoring of either voltage or current for the DC output.

The AC output is unregulated and is adjustable in 2-volt increments from 2 to 24 Volts, with a maximum output current of 6 Amperes. This output is protected by a 6-amp circuit breaker.

To Use the Power Supply:

►**NOTE:** If at any time the power supply fails to come on, or if it shuts down during operation due to excessive current, check the following: If the ON/OFF switch does not light when unit is plugged into the appropriate power source and the switch is turned ON, check the fuse on the back of the unit. If it is blown, replace it only with a similarly rated fuse (see the parts list at the end of this manual). If the indicator on the circuit breaker below the power switch is popped out, it can be reset by simply pushing it back in. Of course, it may be necessary to reduce the AC output voltage or the load connected to the AC output in order to resume operation.

DC Output Operation:

- ① Flip the power ON/OFF switch to OFF.
- ② Plug the power cord into a well-grounded outlet of the appropriate voltage (117 VAC, 60 Hz; 220 VAC, 50 Hz; or 240 VAC, 50 Hz).
- ③ Connect the 0–21 VOLTS DC OUTPUT terminals of the power supply to the circuit. (Connecting wires are not provided with the power supply.)
- ④ Rotate the DC VOLTAGE ADJUST knob and the DC CURRENT ADJUST knob fully counterclockwise.
- ⑤ Flip the power ON/OFF switch to ON. The switch will light to show that the power supply is on.
- ⑥ Constant Voltage Mode: Turn the DC CURRENT ADJUST knob fully clockwise. Then adjust the DC VOLTAGE ADJUST knob to obtain the desired output voltage, as indicated on the meter. To measure the output current, push the METER SELECT push-button. The meter will indicate the DC output current until the METER SELECT push-button is pushed again (alternate action switch).
- ⑦ Constant Current Mode: Turn the DC VOLTAGE ADJUST knob fully clockwise. Push the METER SELECT push-button to measure current and adjust the DC CURRENT ADJUST knob to obtain the

© 1989 PASCO scientific

This instruction sheet written/edited by: Frederiksen


desired output current, as indicated on the meter. To measure the output voltage, push the METER SELECT push-button again. The meter will indicate the DC output voltage until the METER SELECT push-button is pushed again (alternate action switch).

AC Output Operation:


- ① Flip the power ON/OFF switch to OFF.
- ② Plug the power cord into a well-grounded outlet of the appropriate voltage (117 VAC, 60 Hz; 220 VAC, 50 Hz; or 240 VAC, 50 Hz).
- ③ Connect the 2–24 VOLTS AC OUTPUT terminals of the power supply to the circuit. (Connecting wires are not provided with the power supply.)
- ④ Rotate the AC VOLTAGE ADJUST knob to the 2-volt position.
- ⑤ Flip the power ON/OFF switch to ON. The switch will light to show that the power supply is on.
- ⑥ Set the AC VOLTAGE ADJUST knob to the desired setting.

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION:
TO PREVENT THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER ON UNIT. NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrowhead, within an equilateral triangle, is intended to alert the user of the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Specifications:

Outputs:

DC: regulated for both constant-voltage and constant-current operation. Both current and voltage continuously variable over the range 0–21 Volts DC and 0–8 Amperes. Independent floating ground reference.

AC: 2 to 24 Volts (rms) AC, unregulated, selectable in 2-volt increments, current up to 6 Amperes. Output protected from overload by a 6-amp thermally-activated circuit breaker. Independent floating ground reference.

►NOTE: Both DC and AC outputs are available simultaneously on separate floating output terminals. Either one of the DC output terminals can be connected to either one of the AC output terminals to form a composite signal without damage to the unit.

LINE REGULATION:

Less than 1% change in DC output voltage or current for full range change in line voltage. AC output not regulated.

Load Regulations:

Better than 1% no-load to full-load on the DC output voltage or current. AC output not regulated.

Ripple:

Less than 1% on DC output.

Metering:

DC voltage and DC current

Accuracy is +/- 3% or better

Power:

107–128 VAC, 60 Hz (model SF-9584)

198–242 VAC, 50 Hz (model SF-9584-220)

216–262 VAC, 50 Hz (model SF-9584-240)

150 Watts maximum, all models

Fuse: 4 A Slo-Blo, all models

Size:

11.8 X 28.5 X 24 mm (HxWxD incl. controls)

(4-3/4 X 11-1/4 X 9-1/2 inches)

Other PASCO Power Supplies

PASCO scientific offers a variety of rugged, reliable power supplies. From low-voltage, fixed-output supplies to a 6 KV DC supply, all PASCO power supplies are easy to use, ruggedly built, and short circuit protected for long life in the student lab. For information, check our catalog or call toll-free 1-800-772-8700 (USA).

Equipment Return

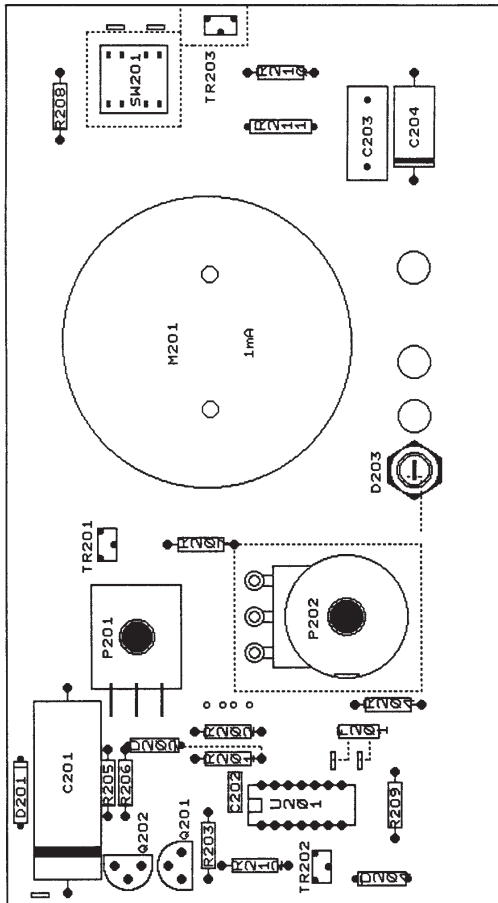
Should this product have to be returned to PASCO scientific, for whatever reason, notify PASCO scientific by letter or phone BEFORE returning the product. Upon notification, the return authorization and shipping instructions will be promptly issued.

► **NOTE:** NO EQUIPMENT WILL BE ACCEPTED FOR RETURN WITHOUT AN AUTHORIZATION.

When returning equipment for repair, the units must be packed properly. Carriers will not accept responsibility for damage caused by improper packing. To be certain the unit will not be damaged in shipment, observe the following rules:

- ① The carton must be strong enough for the item shipped.
- ② Make certain there are at least two inches of packing material between any point on the apparatus and the inside of the carton.
- ③ Make certain that the packing material cannot shift in the carton, or become compressed, thus letting the instrument come in contact with the edge of the carton.

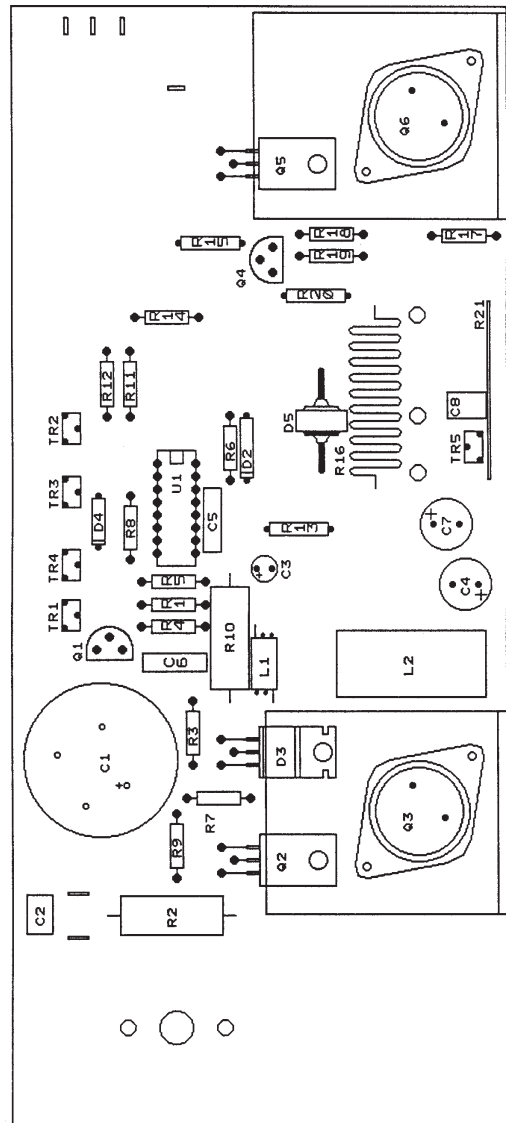
Component Layout SF-9485



Limited Warranty

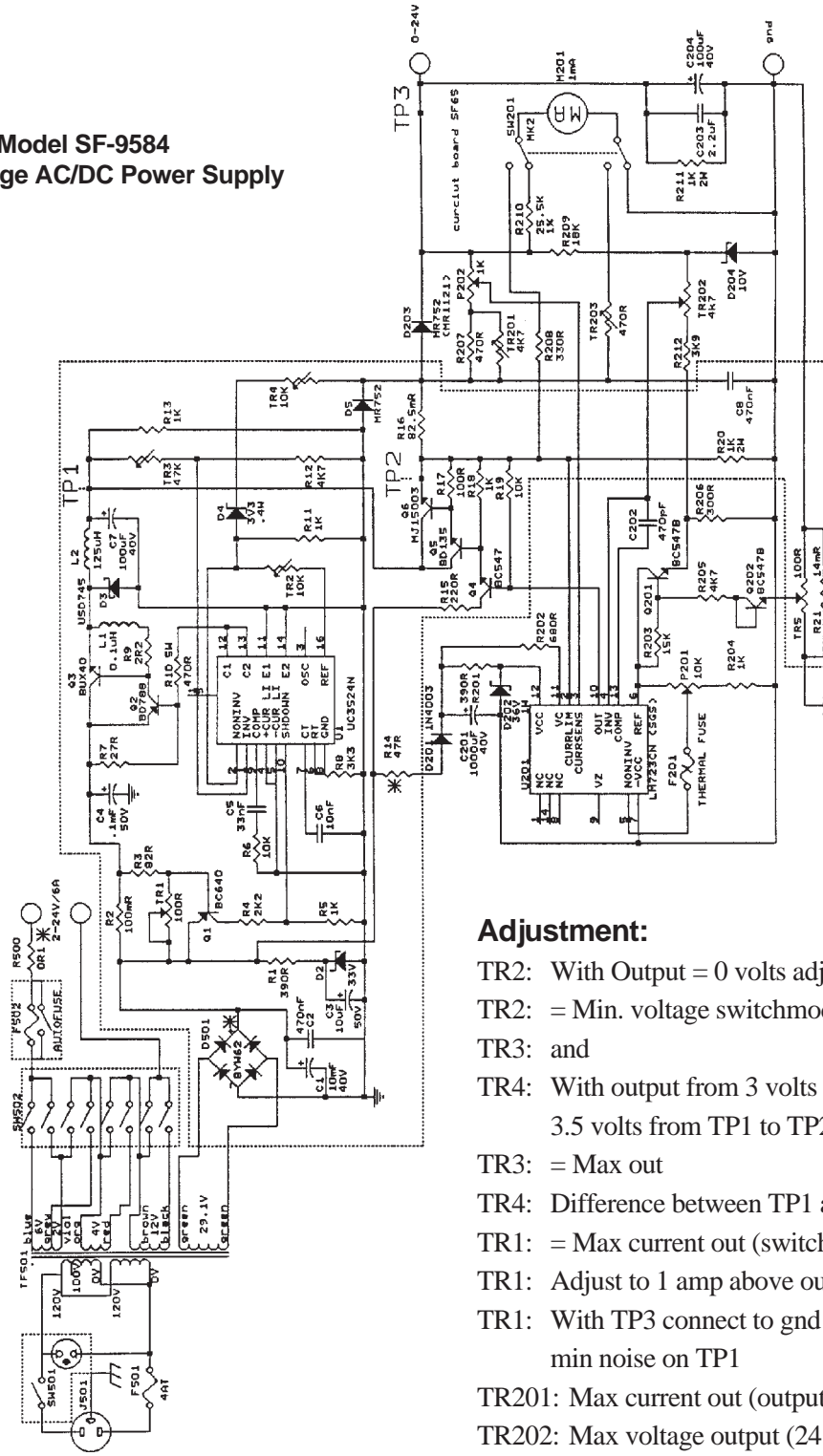
PASCO scientific warrants this product to be free from defects in materials and workmanship for a period of one year from the date of shipment to the customer. PASCO will repair or replace, at its option, any part of the product which is deemed to be defective in material or workmanship. This warranty does not cover damage to the product caused by abuse or improper use. Determination of whether a product failure is the result of a manufacturing defect or improper use by the customer shall be made solely by PASCO scientific. Responsibility for the return of equipment for warranty repair belongs to the customer. Equipment must be properly packed to prevent damage and shipped postage or freight prepaid. (Damage caused by improper packing of the equipment for return shipment will not be covered by the warranty.) Shipping costs for returning the equipment, after repair, will be paid by PASCO scientific.

Component Layout SF-9485



Schematic:

Model SF-9584
Low Voltage AC/DC Power Supply



Adjustment:

- TR2: With Output = 0 volts adjust to 6 volts on TP1
- TR2: = Min. voltage switchmode
- TR3: and
- TR4: With output from 3 volts to 24 volts adjust to 3.5 volts from TP1 to TP2
- TR3: = Max out
- TR4: Difference between TP1 and TP2
- TR1: = Max current out (switchmode)
- TR1: Adjust to 1 amp above output current!
- TR1: With TP3 connect to gnd max. current adjust to min noise on TP1
- TR201: Max current out (output circuit (6A or 6A))
- TR202: Max voltage output (24 V)
- TR203: Current adjust for Meter
- TR5: Output imp. adjust (20 V / 6A)
- * Not on circuit board

PARTS LIST

►Caution: *If repairs are needed, they should be performed only by experienced personnel.*

PART NO.	RATING	DESCRIPTION	PART NO.	RATING	DESCRIPTION
<u>Integrated Circuits:</u>			<u>Resistors:</u> 1/4 W , +/- 5% unless otherwise specified.		
U1	40 V / 200 mA	UC3524N	R1, 201	390 W	Carbon
U202	80 V / 100 mA	LM723CN (SGT)	R2	.1 W / 1/2 W / 10%	Wirebound
<u>Transistors:</u>			R3	82 W	Carbon
Q1	80 V / 200 mA	BC640	R4	2.2 kW	Carbon
Q2	60 V / 4 A / 30ns	BD788	R5,11, 13, 21	.14 W	Wire
Q3	125 V / 20 A	BUX40	R202	680 W	Carbon
Q4, 201, 202	45 V / 100 mA	BC547B	R203	15 kW	Carbon
Q5	45 V / 1.5 A	BD135	R206	300 W	Carbon
Q6	140 V / 20 A	MJ15003	R208	330 W	Carbon
<u>Diodes:</u>			R209	18 kW	Carbon
D2, 202	33 V / 1 W	BCX33V	R20, 211	1 kW / 2 W	Wirewound
D3	45 V / 2x8 A	USD745	R210	25.5 kW / 1%	Metalfilm
D4	3.3 V / 4 A	BZX3V3	R212	3.9 kW	Carbon
D5	200 V / 6 A	MR752	R500	.1 W / 5 W	Wire
D203	200 V / 12 A	MR1121	TR1, 202,203	470 W / 1/4 W	Trimpot
D201	200V / 1 A	1N4003	TR3	47 kW / 1/4 W	Trimpot
D204	10 V / 4 W	BZX79C	TR2, 4	10 kW / 1/4 W	Trimpot
D501	200 V / 35 A	BYW62	TR5	100 W / 1/4 W	Trimpot
<u>Capacitors:</u>			TR201	4.7 kW / 1/4 W	Trimpot
C1	10 mF / 40 V	Electrolytic	P201	10 kW / 1/4 W	Panel Pot
C3	10 mF / 50 V	Electrolytic	P202	1 kW / 1/4 W	Panel Pot
C4	.1 mF / 50 V	Electrolytic	<u>Inductors:</u>		
C5	33 nF / 250 V	Con.	L1	.1 mH / 8A	Noise Suppressor
C6	10 nF / 400 V	Con.	L2	125 mH / 8A	Output Choke
C7	100 mF / 40 V	Electrolytic	<u>Mechanical List:</u>		
C2, 8	470 nF / 63 V	Con.	F201	UP62-T150-70C	Thermal Fuse
C201	1000 mF / 40 V	Electrolytic	F501	4 AT	Slo-Blo Fuse
C202	470 pF / 100 V	Con.	F502	6 A	Autofuse
C203	2.2 mF / 100 V	Con.	J501	777	Main Input Rcept.
C204	100 mF / 40 V	Electrolytic	M201	1 mA / 70 W	Meter
			SW201	200 mA / 35 V	MK2 Meter Switch
			SW501	10 A / 250 V	c5403f Main Switch
			SW502	AC	Rotating Switch
			TF501	12 V / 4-3-0 V / 8 A	NT14704 2x8 V / 200mA

<h2><i>Notes</i></h2>
