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INSTRUCTIONS

MODEL AVO-8C-C PULSE GENERATOR

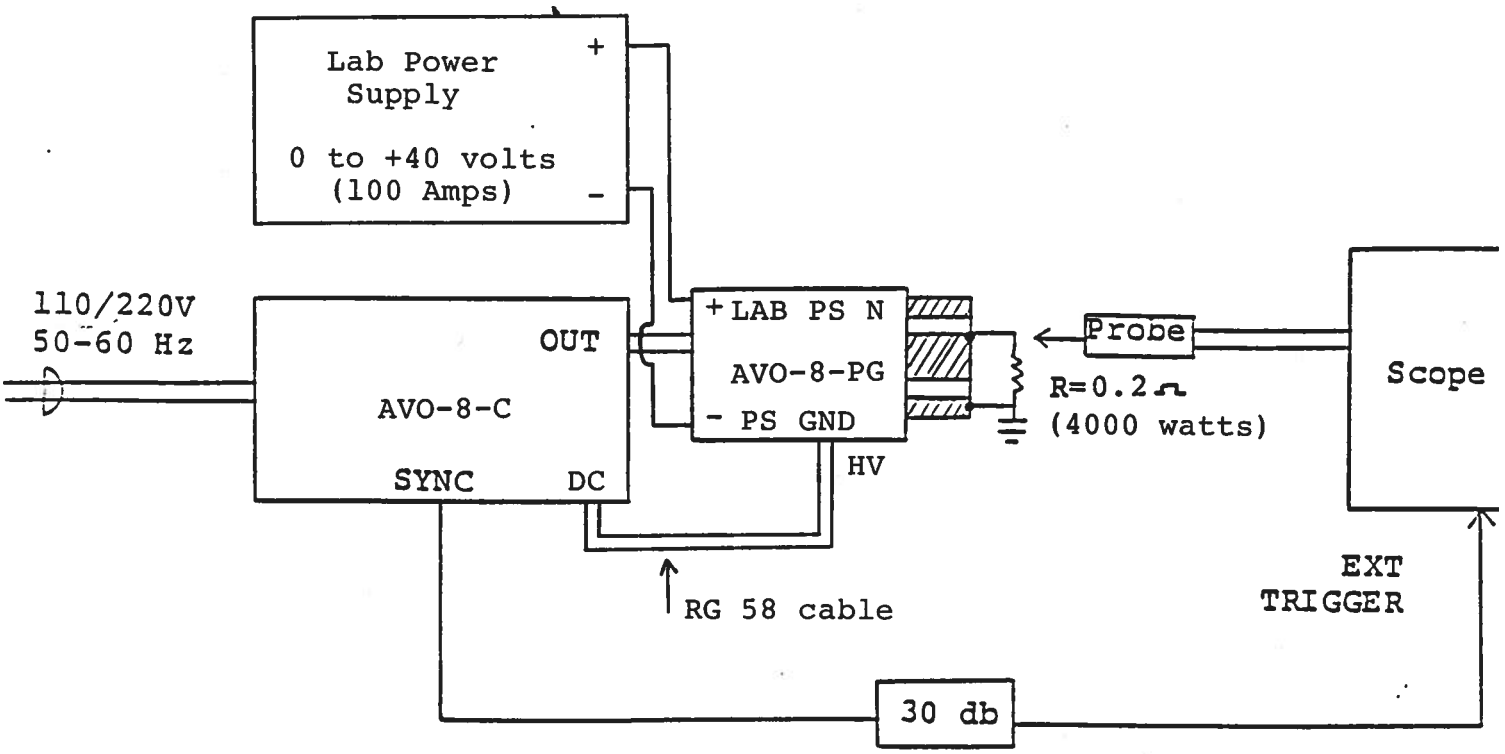
S.N.:

WARRANTY

Avtech Electrosystems Ltd. warrants products of its manufacture to be free from defects in material and workmanship under conditions of normal use. If, within one year after delivery to the original owner, and after prepaid return by the original owner, this Avtech product is found to be defective, Avtech shall at its option repair or replace said defective item. This warranty does not apply to units which have been dissembled, modified or subjected to conditions exceeding the applicable specifications or ratings. This warranty is the extent of the obligation or liability assumed by Avtech with respect to this product and no other warranty or guarantee is either expressed or implied.

Fig. 1

PULSE GENERATOR TEST ARRANGEMENT



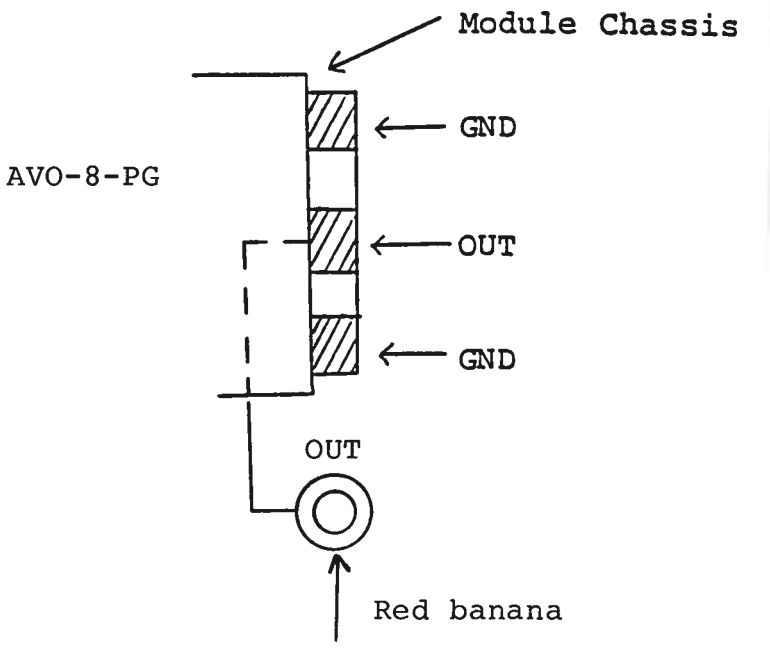
GENERAL OPERATING INSTRUCTIONS

1) The equipment should be connected in the general fashion shown above. Since the AVO unit provides an output pulse rise time as low as 0.1 usec a fast oscilloscope (at least 50 MHz) should be used to display the waveform.

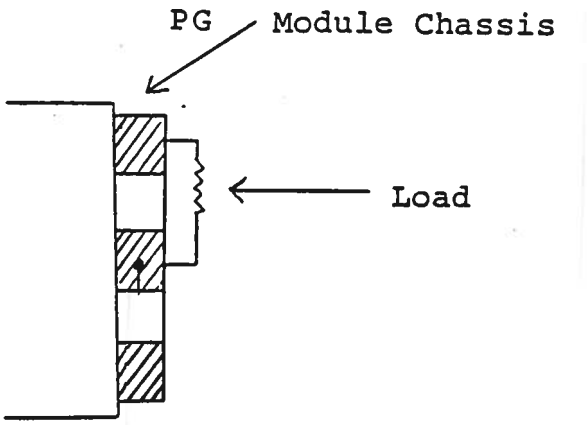
2) The sync output channel provides TTL level signals. To avoid overdriving the TRIG input channel of some scopes, a 30 db attenuator should be placed at the input to the scope trigger channel. The SYNC output precedes the main output when the front panel LEAD-LAG switch is in the LEAD position. The SYNC output lags the main output when the switch is in the LAG position.

3) To obtain a stable output display the PW and PRF controls on the front panel should be set mid-range. The front panel TRIG toggle switch should be in the INT position. The DELAY controls and the scope triggering controls are then adjusted to obtain a stable output. The scope may then be used to set the desired PRF by rotating the PRF controls.

4) The output terminals of the pulse generator module consists of a short length of microstrip transmission line protruding from the module chassis. The OUT terminal is the center conductor which is bounded on both sides by the ground plane (see below). Note that the "OUT" red banana terminal is in parallel with the microstrip center conductor and so may also be used as the output terminal.



The load should be connected between the OUT and GND terminals using very short leads (≤2.0 cm).



Take care to insure that during soldering the OUT conductor is not shorted to the chassis. Also, use minimal heat when soldering.

5) The output pulse width is controlled by the 4 position range switch and one turn fine control.

6) The output amplitude is controlled by the amplitude of the DC potential supplied to the rear panel of the PG module (red banana terminal and ground terminal).

7) An external clock may be used to control the output PRF of the unit by setting the front panel TRIG toggle switch in the EXT position and applying a 0.2 usec (approx) TTL level pulse to the TRIG BNC connector input. For operation in this mode, the scope time base must also be triggered by the external clock rather than from the SYNC output.

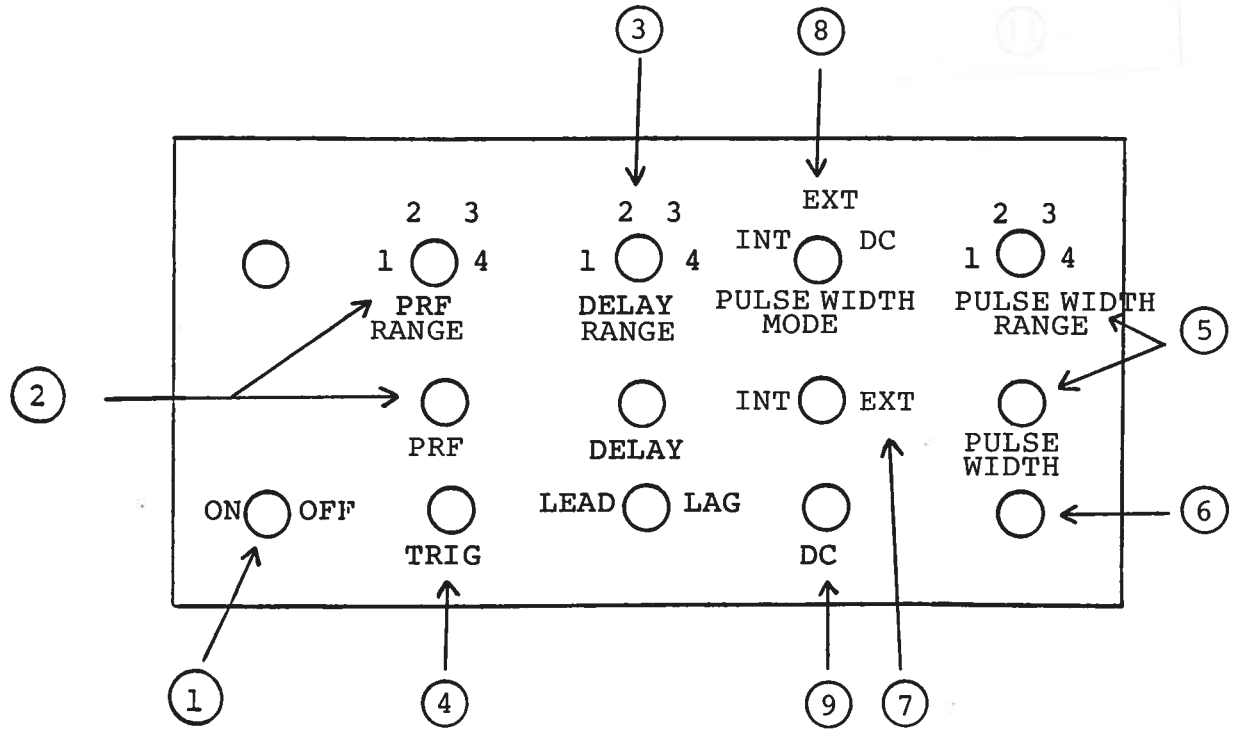
8) The AVO-8C is designed to supply up to 200 amperes peak to a maximum load voltage of 40 volts. Factory tests are conducted with a 0.2 ohm load capable of dissipating at least 4000 watts. Higher load resistance values may be used but the input voltage must be limited to 40 volts or less. Note that the unit may fail if the average output current exceeds 100 Amp.

9) Model AVO-8C will operate with a duty cycle at least as high as 85% when the pulse width is controlled by the front panel Pulse Width and Pulse Width Range controls. A duty cycle of 100% is obtained by setting the pulse width mode switch in the DC position. In this position the PW controls are no longer active. In this position the load voltage will be about 1.5 volts less than the applied DC voltage for a load current of 100 amperes. Note that the average output current must never exceed 100 Amp.

10) The unit can be converted from 110 to 220V 50-60 Hz operation by adjusting the voltage selector card in the rear panel fused voltage selector cable connector assembly.

11) If application assistance is required, call (613) 226-5772.

Fig. 2 FRONT PANEL CONTROLS



(1) ON-OFF Switch. Applies basic prime power to all stages.

(2) PRF Control. Varies PRF from 10 Hz to 5 KHz as follows:

Range 1	0.5	Hz	to 5	Hz
Range 2	5	Hz	to 50	Hz
Range 3	50	Hz	to 0.5	KHz
Range 4	0.5	KHz	to 5	KHz

(3) DELAY Control. Controls the relative delay between the reference output pulse provided at the TRIG output (4) and the -PG output. This delay is variable as follows:

Range 1	0.2	us	to 10	us
Range 2	10	us	to 100	us
Range 3	100	us	to 1	ns
Range 4	1	ns	to 10	ns

The TRIG output precedes the main output when the LEAD-LAG switch is in the LEAD position and lags when the switch is in the LAG position

(4) TRIG Output. This output is used to trigger the scope time base. The output is a TTL level 100 nsec (approx.) pulse capable of driving a fifty ohm load.

(5) PW Control. A one turn control and four position range switch which varies the output pulse width as follows:

Range 1	2.0	us	to 20	us
Range 2	20	us	to 200	us
Range 3	200	us	to 2	ms
Range 4	2	ms	to 20	ms

(6) OUT Connector. A multi pin connector which attaches the 2 foot cable from the pulse generator module to the main frame.

(7) EXT-INT Control. With this toggle switch in the INT position, the PRF of the AVO unit is controlled via an internal clock which in turn is controlled by the PRF controls. With the toggle switch in the EXT position, the AVO unit requires a 0.2 usec TTL level pulse applied at the TRIG input in order to trigger the output stages. In addition, in this mode, the scope time base must be triggered by the external trigger source.

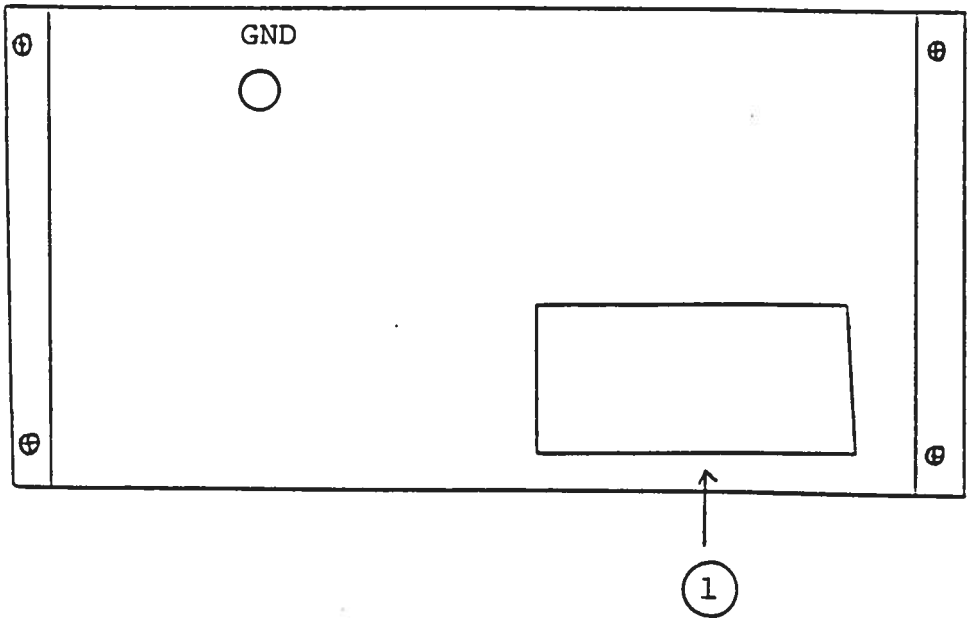
(8) PW MODE. With the MODE switch in the INT position the PW is controlled by the front panel controls whether the unit is triggered internally or externally. When the switch is in the EXT position, the PW is controlled by the TTL PW applied externally to the TRIG input. Model AVO-8C-C will operate with a duty cycle at least as high as 85% when the PW MODE switch is in the INT position

and the pulse is controlled by the front panel Pulse Width and Pulse Width Range controls. A duty cycle of 100% is obtained by setting the MODE switch in the DC position. In this position the PW controls are no longer active. In this position the load voltage will be about 1.5 volts less than the applied DC voltage for a load current of 100 amperes.

(9) DC BNC. This connector should be connected to the HV BNC (on the -PG module) via the supplied 2 foot long RG58 cable.

Fig. 3

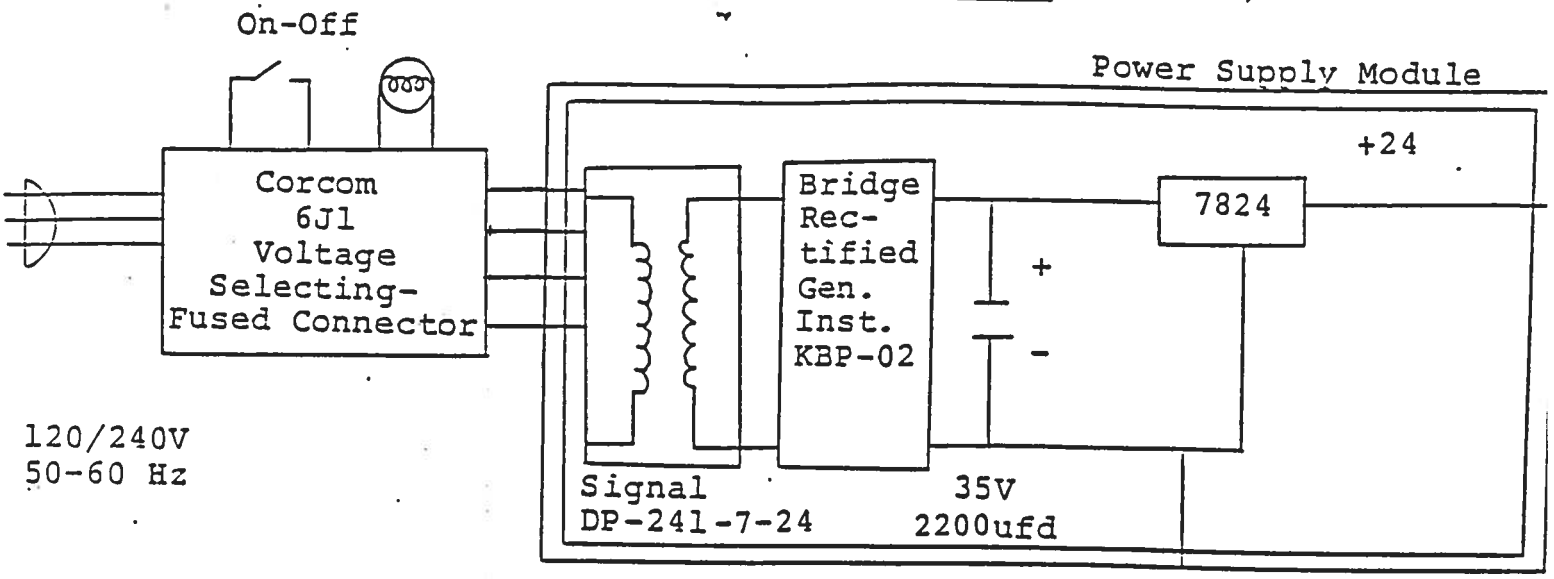
BACK PANEL CONTROLS



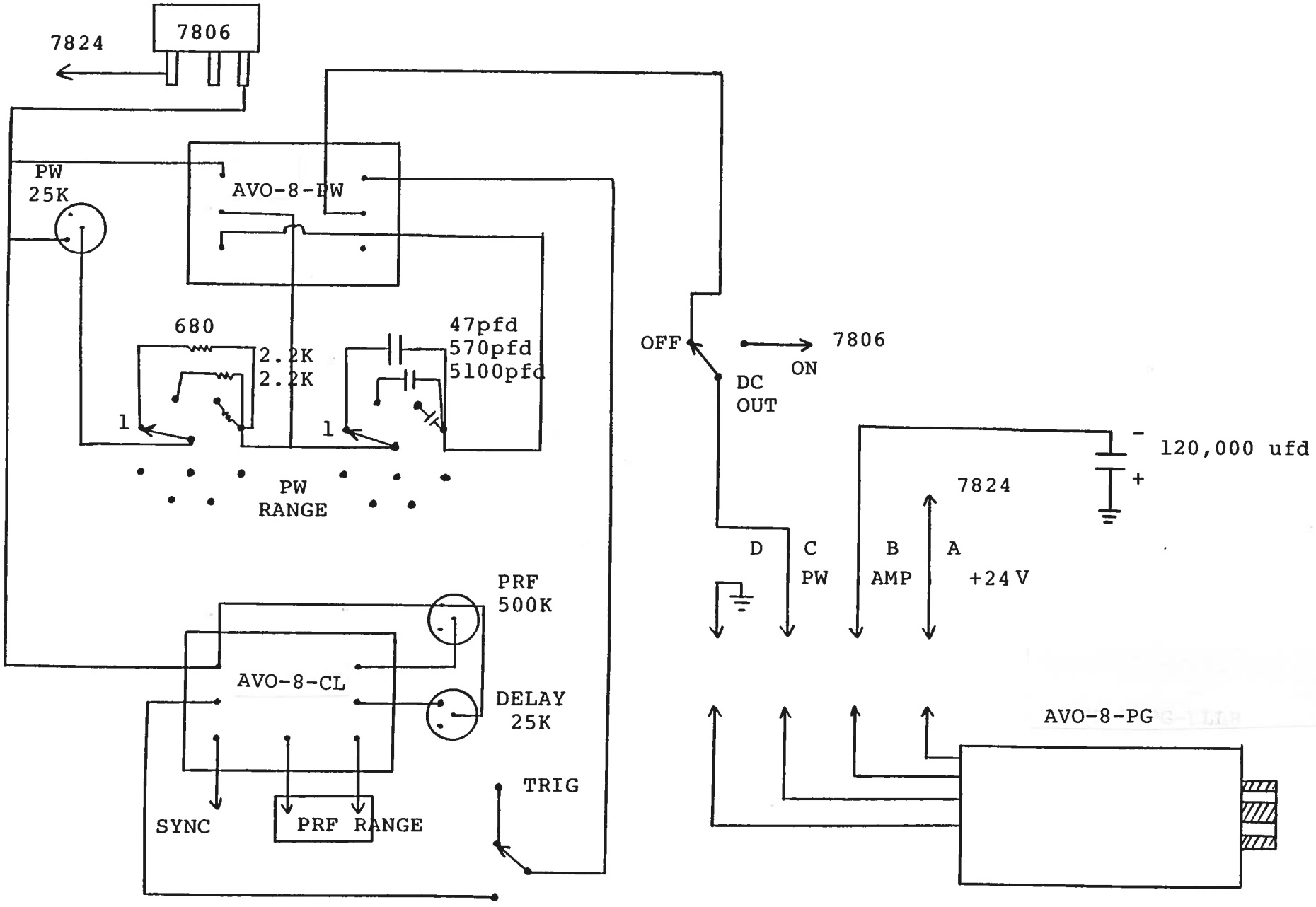
(1) FUSED CONNECTOR, VOLTAGE SELECTOR. The detachable power cord is connected at this point. In addition, the removable cord is adjusted to select the desired input operating voltage. The unit also contains the main power fuse (0.25 A SB).

Fig. 4

SYSTEM BLOCK DIAGRAM (-N ONLY)



AVO-8-C BLOCK DIAGRAM



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