



AVTECH ELECTROSYSTEMS LTD.

NANOSECOND WAVEFORM ELECTRONICS
SINCE 1975

P.O. BOX 265
OGDENSBURG, NY
U.S.A. 13669-0265
TEL: (315) 472-5270
FAX: (613) 226-2802

TEL: 1-800-265-6681
FAX: 1-800-561-1970
U.S.A. & CANADA

BOX 5120 STN. F
OTTAWA, ONTARIO
CANADA K2C 3H4
TEL: (613) 226-5772
FAX: (613) 226-2802

INSTRUCTIONS

MODEL AV0-8C-PS-LA2 PULSE GENERATOR

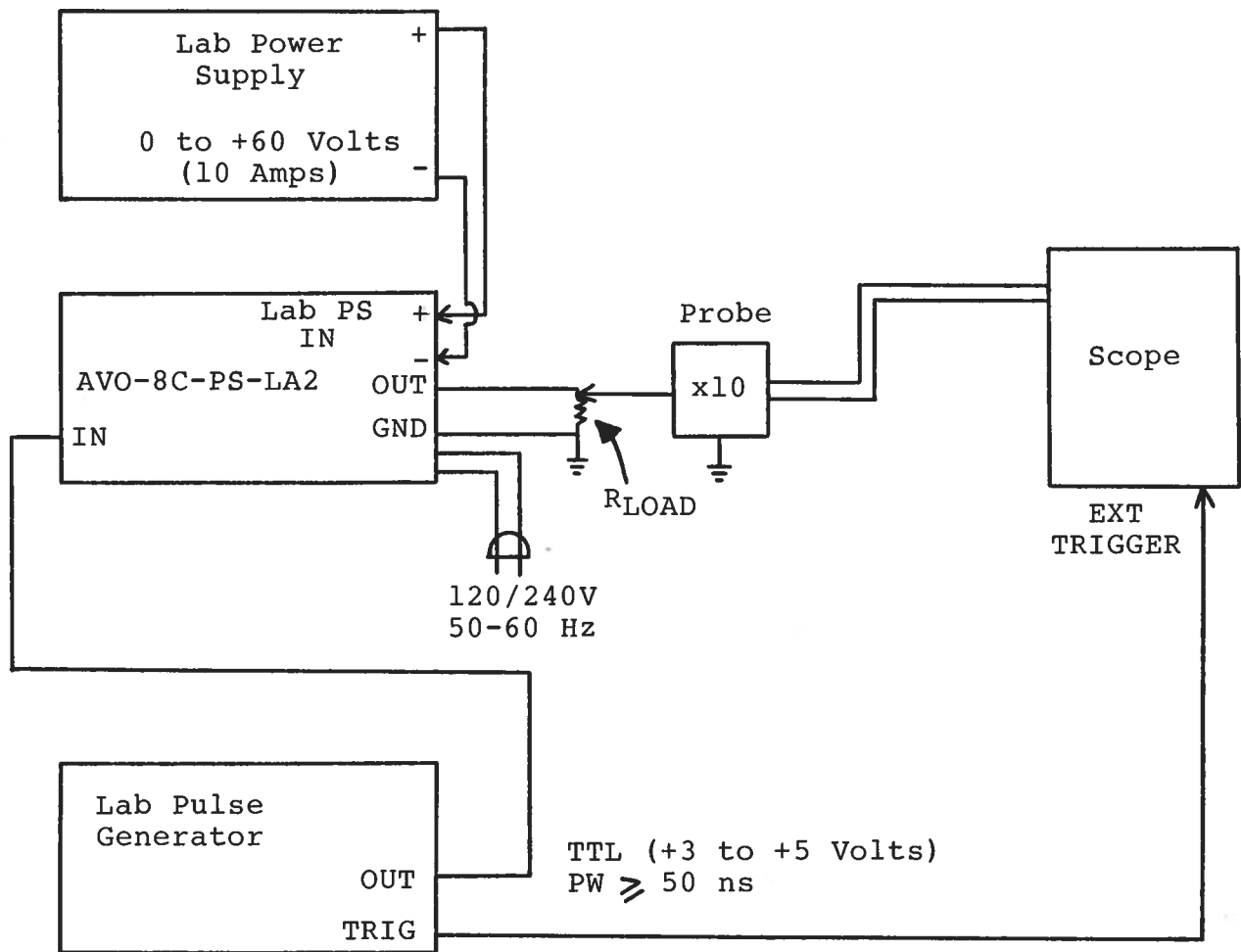
S.N.:

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 disassembled, 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.
- 2) The user supplied lab power supply attaches to pulser via the red and black SUPERCON connectors which are supplied. The positive terminal of the power supply is to be connected to the RED SUPERCON connector on the instrument back panel while the negative terminal on the lab power supply is to be connected to the BLACK SUPERCON connector on the back panel. **CAUTION:** The unit will be damaged if the applied DC voltage exceeds +65 Volts or if a reverse voltage is applied.
- 3) The output pulse amplitude is controlled by the amplitude of the DC potential supplied to the rear panel SUPERCON connectors.

$$V_{out} \approx V_{dc} - 1.0$$

The lab power supply should be capable of supplying an average current of at least 10 Amps. Pulse top droop and hum will be reduced if the current rating of the power supply is increased.

- 4) The load is connected to the heavy duty banana connectors on the back panel. A positive output pulse is provided at the red banana connector while the silver connector is at ground. The load must be capable of dissipating at least 400 Watts.
- 5) When the front panel MODE switch is in the A position, the output pulse width is controlled by the front panel ten turn pulse width control. When the MODE switch is in the B position, the output pulse width is equal to the width of the TTL pulse applied to the IN BNC connector. **CAUTION:** Do not exceed 500 us.
- 6) The pulse repetition frequency (PRF) is controlled by the PRF of the TTL level pulse applied to the front panel IN BNC connector. The trigger pulse width must exceed 50 ns.
- 7) The AVO-8C-PS-LA2 is designed to supply up to 160 amperes peak to a maximum load voltage of +55 Volts. Factory tests are conducted with a 0.3 ohm load capable of dissipating at least 1000 watts. Higher load resistance values may be used but the input voltage must be limited to 60 Volts or less. Note that the unit may fail if the peak output current exceeds 200 Amps or the average output current exceeds 10 Amps.

8) 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.

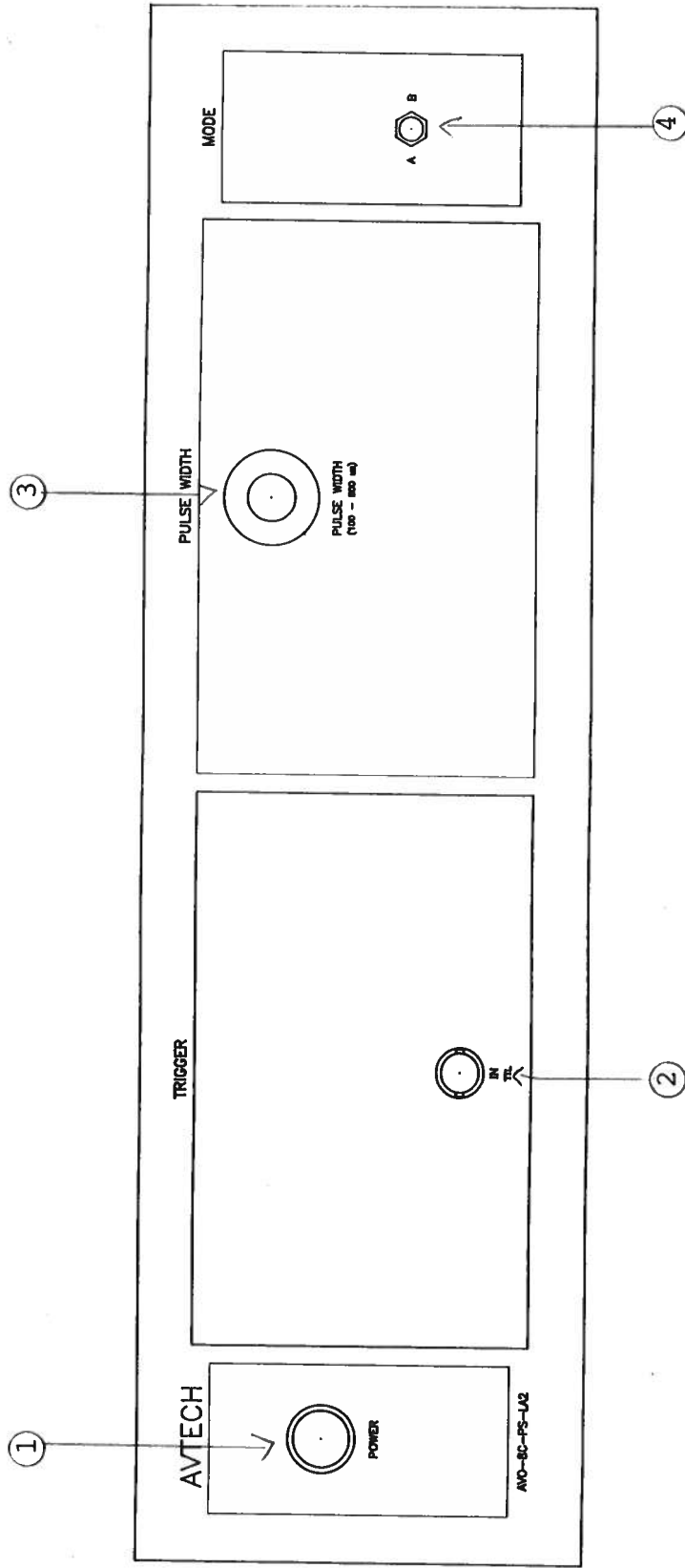
9) If application assistance is required:

Tel: (613) 226-5772

Fax: (613) 226-2802

FRONT PANEL CONTROLS

Fig 2.



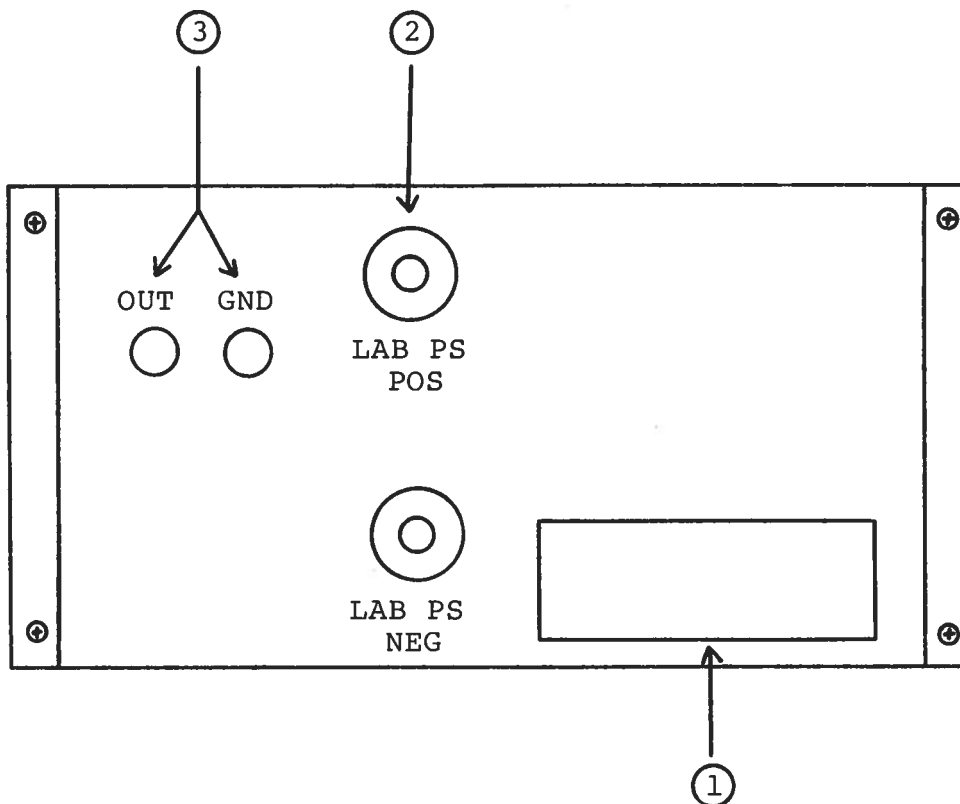
- (1) ON-OFF Switch. Applies prime power to the timing circuits.
- (2) IN. The TTL level trigger pulse is applied to this BNC connector. The pulse controls the output PRF (and also the output pulse width if the MODE switch is in the B position).
- (3) PW. This ten turn pot controls the output pulse width (100 to 500 us) when the MODE switch is in the A position.
- (4) MODE AB. When this switch is in the A position the output pulse width is controlled by the PW control. When the switch is in the B position, the output pulse width equals the width of the TTL pulse applied to the IN BNC connector.

TOP COVER REMOVAL AND RACK MOUNTING

- 1) The interior of the instrument may be accessed by removing the four Phillips screws on the top panel. With the four screws removed, the top cover may be slid back (and off).
- 2) The -R5 rack mount kit may be installed after first removing the one Phillips screw on the side panel adjacent to the front handle.

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).
- (2) LAB PS CONNECTORS. SUPERCON connectors to which the 0 to +60 Volts (10 Amp) lab power supply is connected.
- (3) OUT CONNECTORS. The output positive pulse is provided by the RED heavy duty banana connector. Note that the load must be capable of dissipating at least 400 Watts.

AVO-8-C BLOCK DIAGRAM

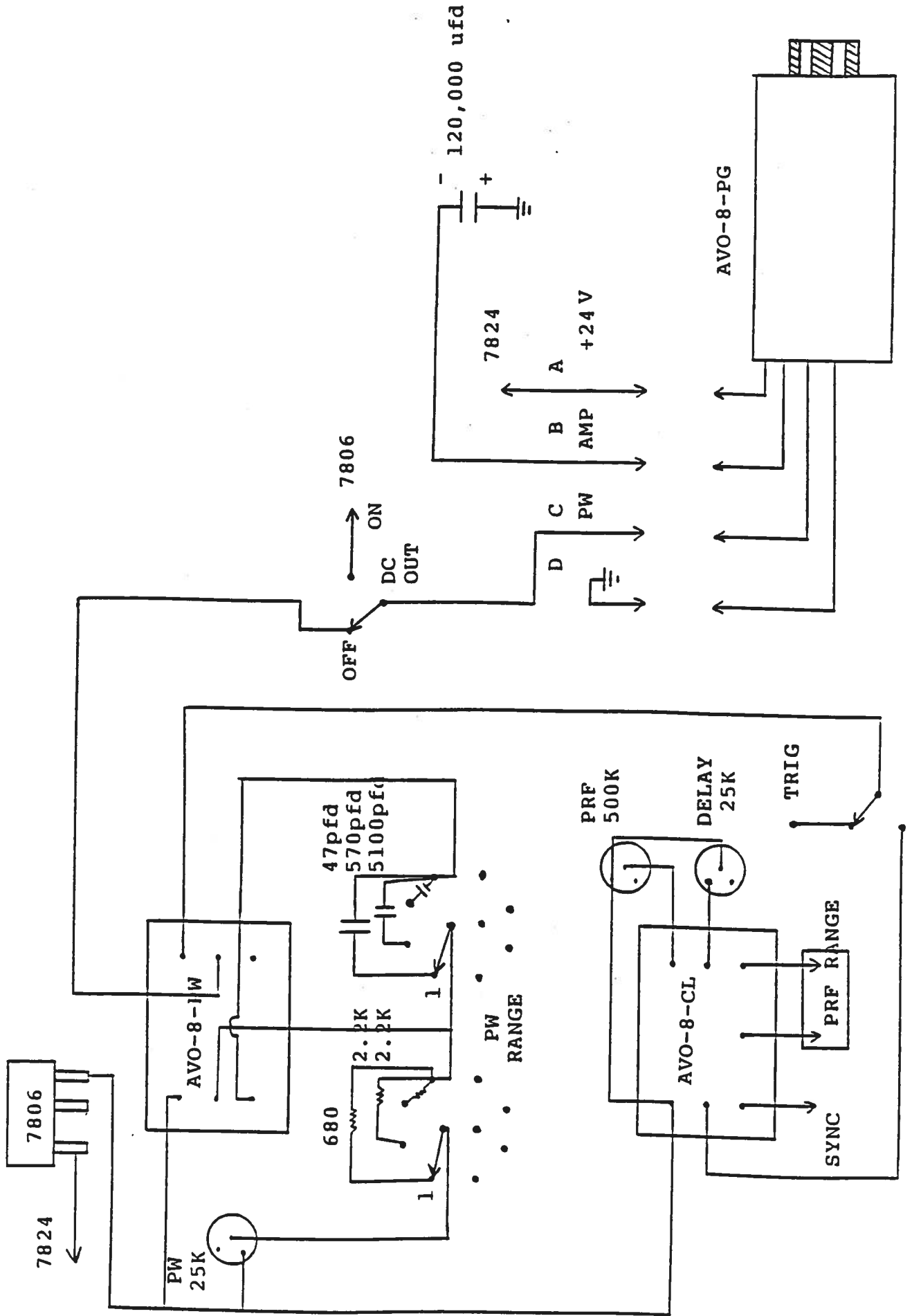
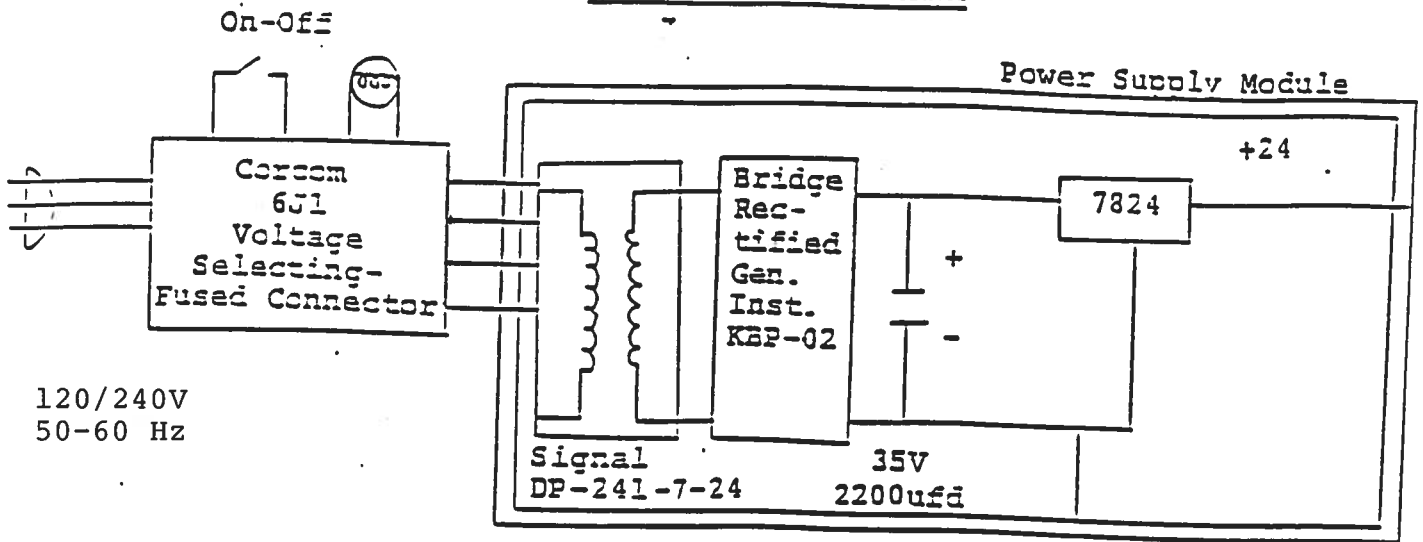


Fig. 4

SYSTEM BLOCK DIAGRAM



SYSTEM DESCRIPTION

The Model AVO-8C-PS-LA2 comprises the following modules:

- 1) AVO-8C-LA2-PG-P pulse driver module
- 2) AVO-8C-PW2 pulse width module
- 3) International Rectifier IRFK4H150 MOSFET switch transistors (2)
- 4) Capacitor bank (4700 ufd x 10)
- 5) +24 VDC power supply

The modules are interconnected as shown in Fig. 4. The -PW2 module controls the pulse width of the TTL level pulse supplied to the -PG-P driver module. The driver module supplies the necessary gate driver to the MOSFET output stage. The 47,000 ufd capacitor bank stores the charge which is necessary to provide the 150 Ampere, 500 us output pulse.

Jan. 14/94

-R5

SYSTEM OF CONNECTION

The Model AV0-60-75-125 computer the following modules:

- 1. AV0-60-1A7-75-125 driver module
- 2. AV0-60-1A7-75-125 pulse width module
- 3. Integru base Receiver (RTR) Model switch
- 4. Transistor (T)
- 5. Capacitor bank (4000 uF x 10)
- 6. 12V VBO power supply

The modules are interconnected as shown in Fig. 4. The -PWS module controls the pulse width of the TTL level pulse supplied to the PWS driver module. The driver module supplies the necessary gate driver to the MOSFET output stage. The 47,000 uF capacitor bank stores the charge which is necessary to provide the 100 Ampere, 800 uS output pulse.