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INSTRUCTIONS

MODEL AVO-BC-C-F-NRL2-DP PULSE GENERATOR

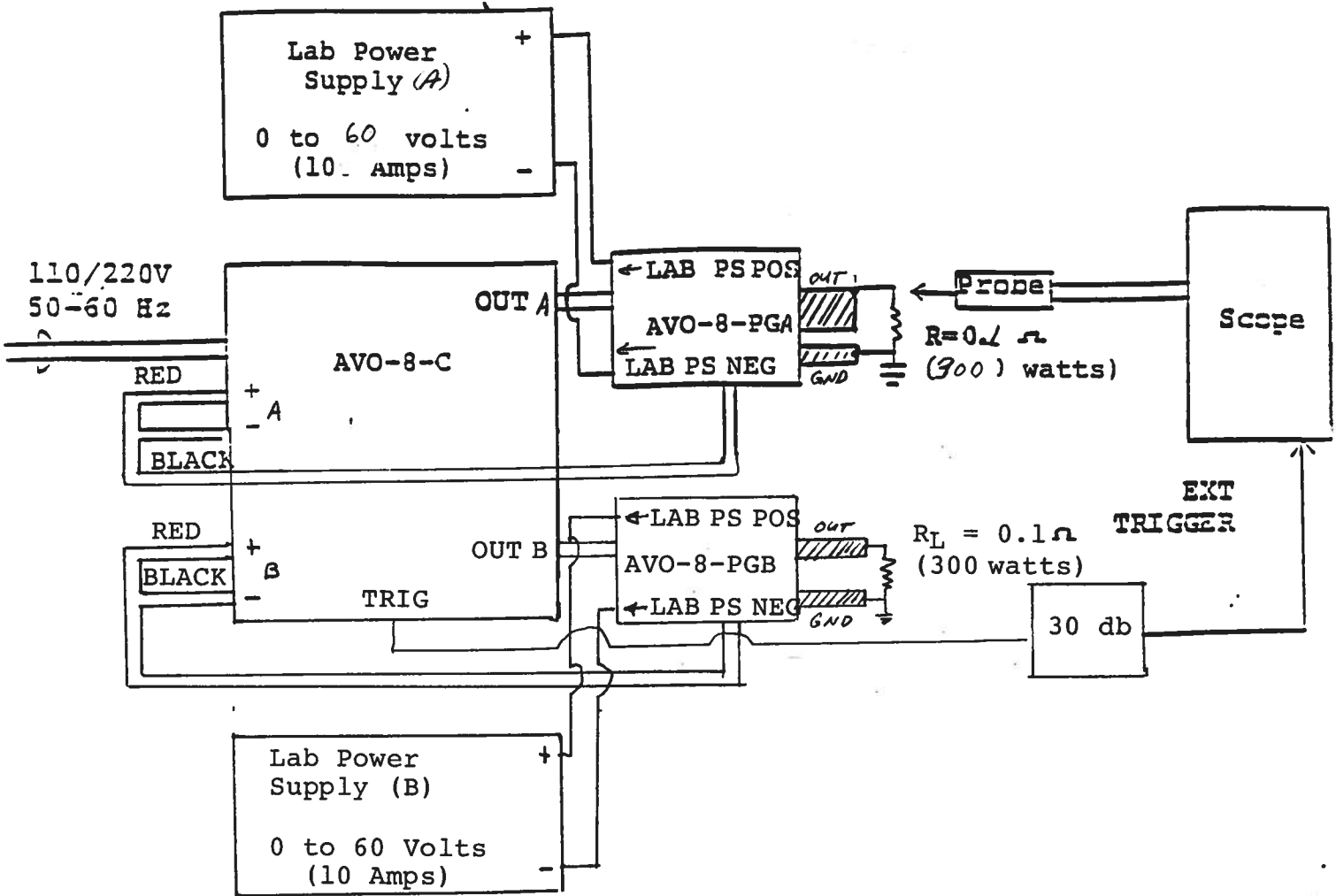
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WARRANTY

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. Since the AVO unit provides an output pulse rise time as low as 1.0 us a fast oscilloscope (at least 50 MHz) should be used to display the waveform.
- 2) The user supplied lab power supplies attach to the -PG output modules 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 -PG module. The negative terminal on the lab power supply is to be connected to ground and to the BLACK SUPERCON connector on the -PG module. The black 1/2" diameter power cable which is permanently attached to the -PG module connects to the banana terminals on the rear panel of the instrument mainframe. The RED lug on the end of the cable is to be connected to the RED banana while the BLACK lug is to be connected to the BLACK banana. The -PGA and -PGB modules are identical and are interchangeable. The two modules may be powered from a single lab power supply.
- 3) The TRIG 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 TRIG output precedes the main output when the front panel LEAD-LAG switch is in the LEAD position. The TRIG output lags the main output when the switch is in the LAG position.
- 4) 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.
- 5) The output terminals of the pulse generator module consists of the 1.5 x 4.0 cm copper bus bars protruding from the end of the -PG modules. The load may be bolted to the output bus bars using 10-32 bolts.
- 6) The output pulse width is controlled by the one turn fine control.
- 7) The output amplitude is controlled by the amplitude of the DC potential supplied to the SUPERCON connectors on the PG module. **CAUTION: DO NOT EXCEED 60 VOLTS!!** The lab power supplies should have an average output current rating of at least 5 Amperes (and preferably higher).

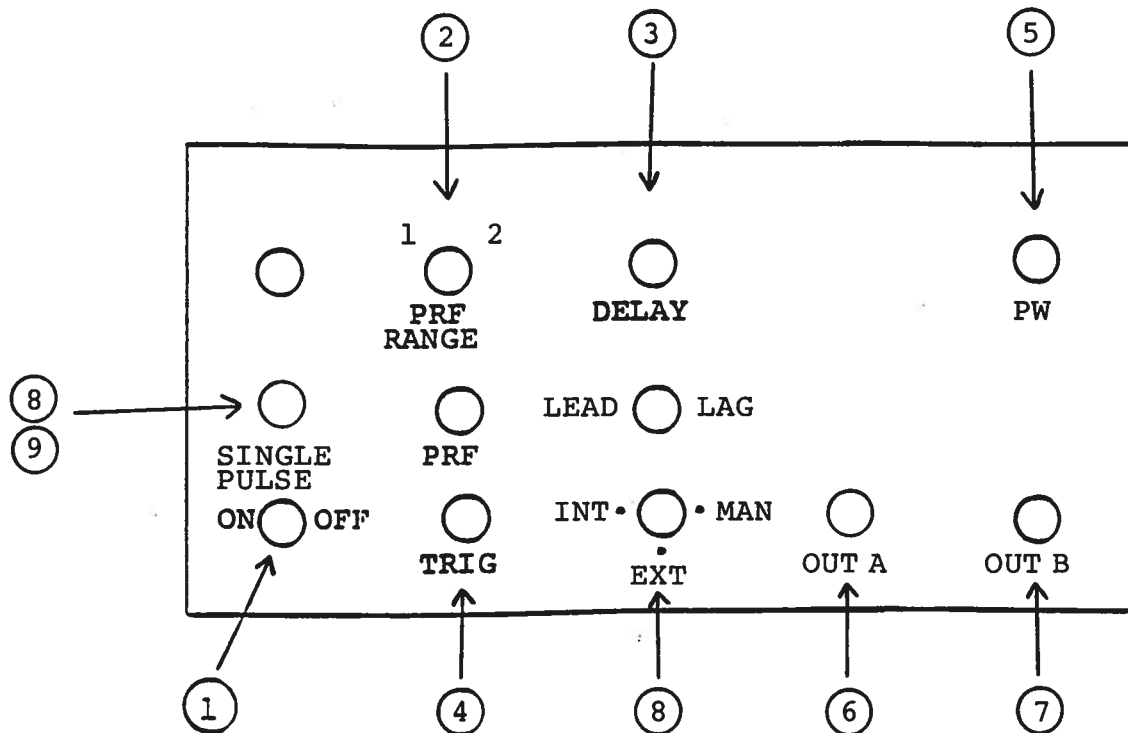
Note that the peak output current of 500 Amperes is supplied by the energy storage capacitors in the -PG unit and in the mainframe.

CAUTION:

- a) The lab power supplies should be turned down to zero before applying the prime power to the mainframe or before switching ranges on the front panel controls.
 - b) The output pulse amplitude should never be less than 5 Volts lower than the lab power supply setting. For example, if 50 Volts is applied to the PG unit, the output pulse amplitude should be 45 Volts or higher. If it is less it is possible that the unit is supplying more than 500 amps to the load.
- 8) 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 us (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.
 - 9) Each -PG module is designed to supply up to 500 amperes peak to a maximum load voltage of 50 Volts. Factory tests are conducted with a 0.1 Ohm load capable of dissipating at least 300 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 500 Amp.
 - 10) Model AVD-8C will operate with a duty cycle at least as high as 1.5% (50 Hz, 300 us). Note that the output stages may be damaged if this duty cycle rating is exceeded.
 - 11) 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.
 - 12) If application assistance is required, call (613) 226-5772.

Fig. 2

FRONT PANEL CONTROLS

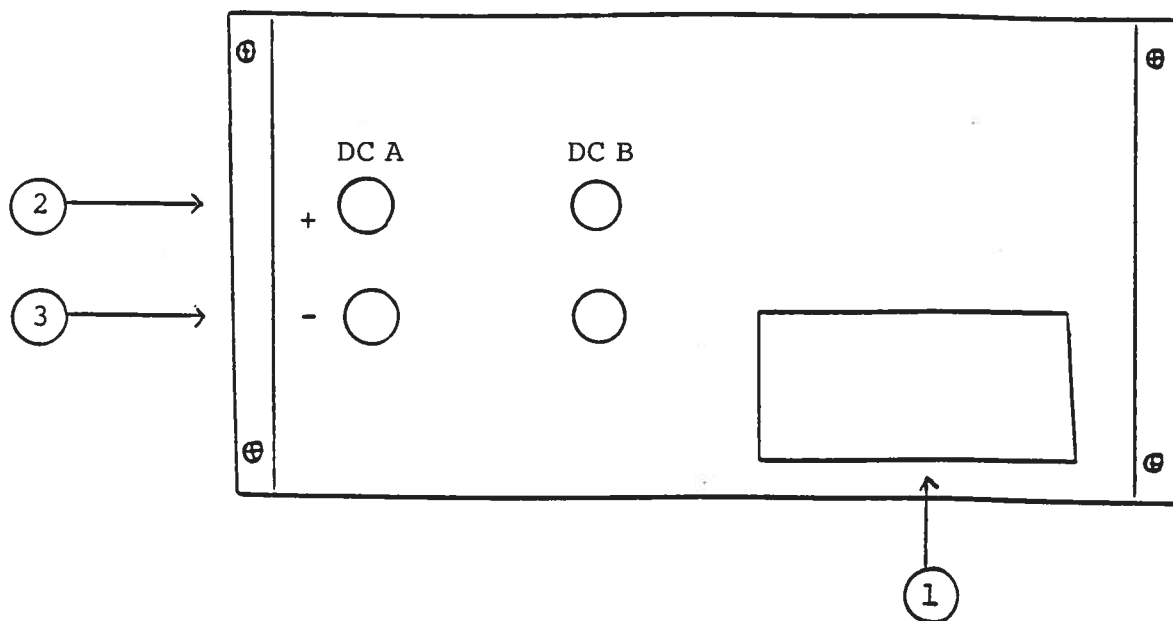


- (1) ON-OFF Switch. Applies basic prime power to all stages.
- (2) PRF Control. Varies PRF from 0.5 Hz to 50 Hz as follows:

Range 1	0.5 Hz	to	5	Hz	
Range 2	5	Hz	to	50	Hz
- (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 to 1.0 us. 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 ns (approx.) pulse capable of driving a fifty Ohm load.
- (5) PW Control. A one turn control which varies the output pulse width from 10 us to 300 us.
- (6) OUT A Connector. A multi pin connector which attaches the 2 foot cable from the PGA pulse generator module to the mainframe.
- (7) OUT B Connector. A multi pin connector which attaches the 2 foot cable from the PGB pulse generator module to the mainframe. Note that PGA and PGB may be interchanged.
- (8) EXT-INT Control. With this switch in the INT position,
- (9) the PRF of the AVO unit is controlled via an internal clock which in turn is controlled by the PRF controls. With the switch in the EXT position, the AVO unit requires a 0.2 us 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. When in the MAN position, the pulse generator may be operated in the single pulse mode by pressing the SINGLE pulse button.

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 (0.5 A SB).
- (2) RED BANANA. RED lug on 1/2" BLACK cable from PG module connects to this terminal.
- (3) BLACK BANANA. BLACK lug on 1/2" BLACK cable from PG module connects to this terminal.

AVO-8-C BLOCK DIAGRAM

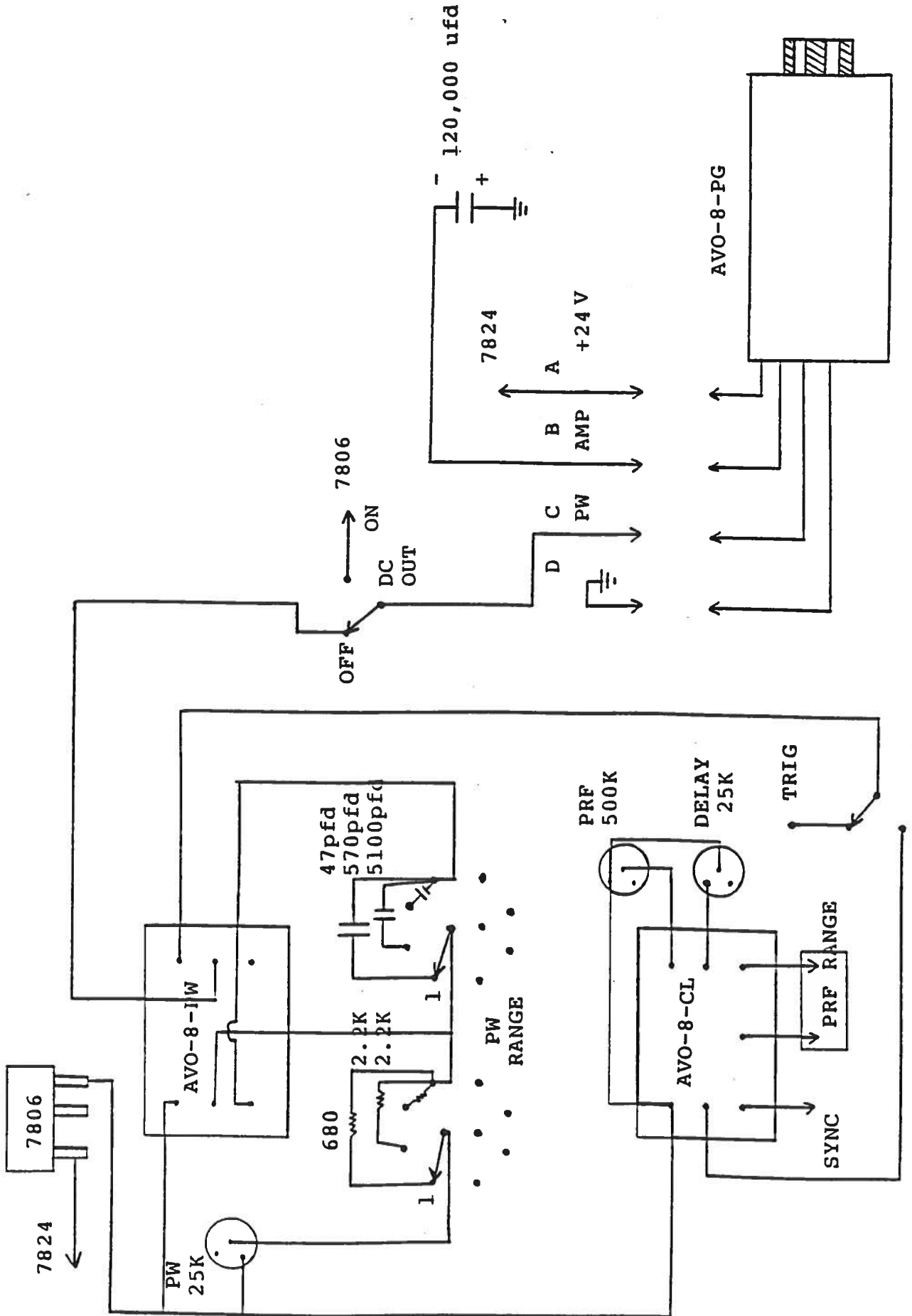
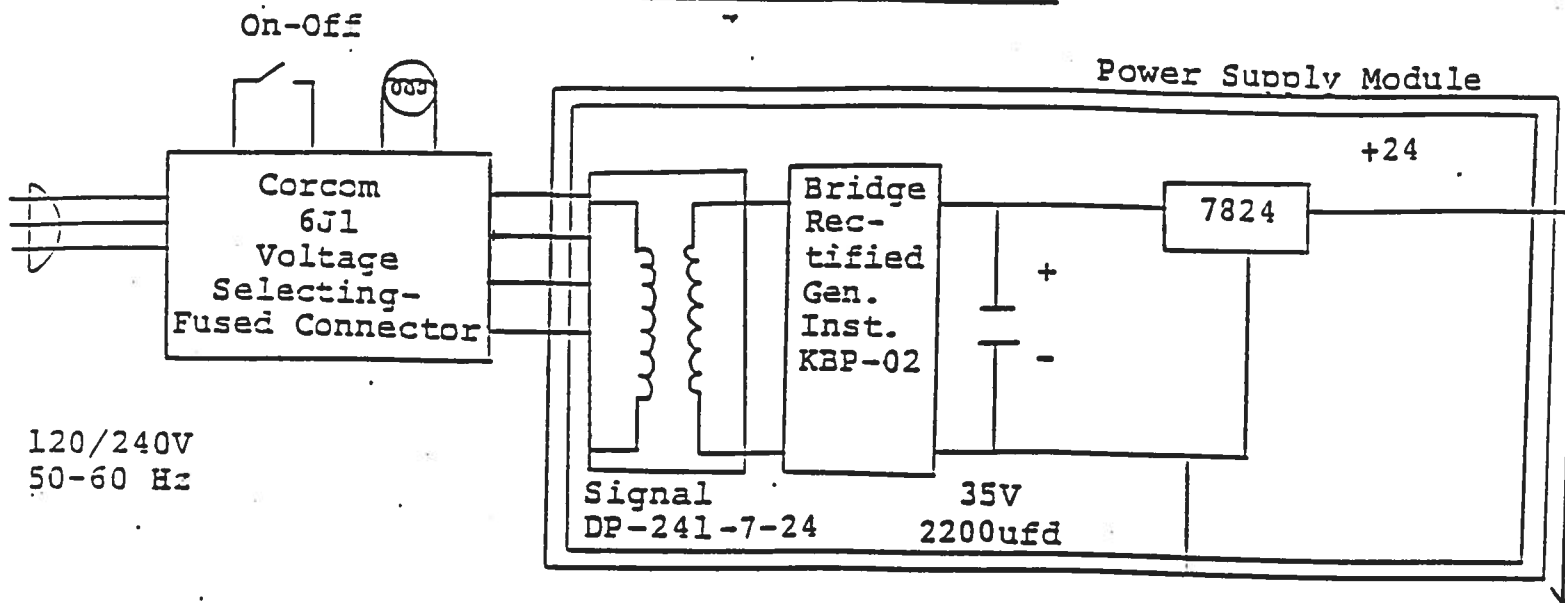


Fig. 4

SYSTEM BLOCK DIAGRAM



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