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SINCE 1975

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INSTRUCTIONS

**MODEL AVO-2-A-C-P-LA1 PULSE GENERATOR
MODEL AVX-S3A-MI-LA1A BIAS INSERTION UNIT**

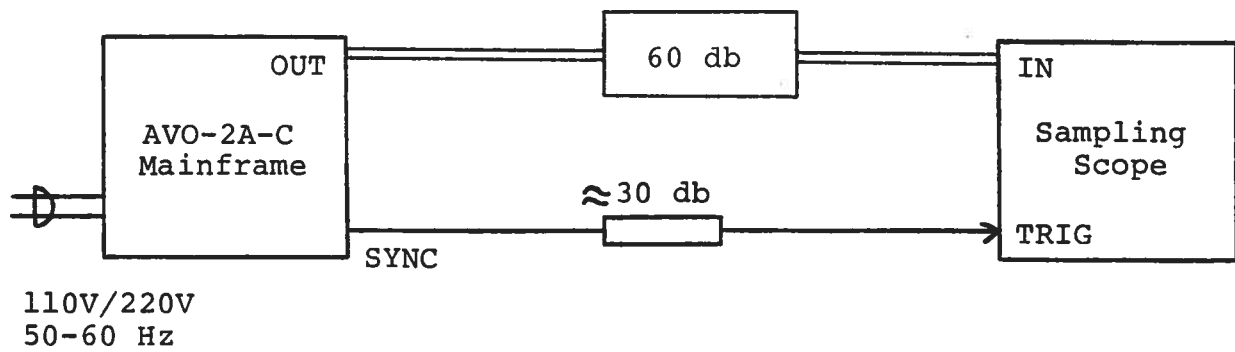
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WARRANTY

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
(WITHOUT AVX-S3A-MI-LA1A MODULE)

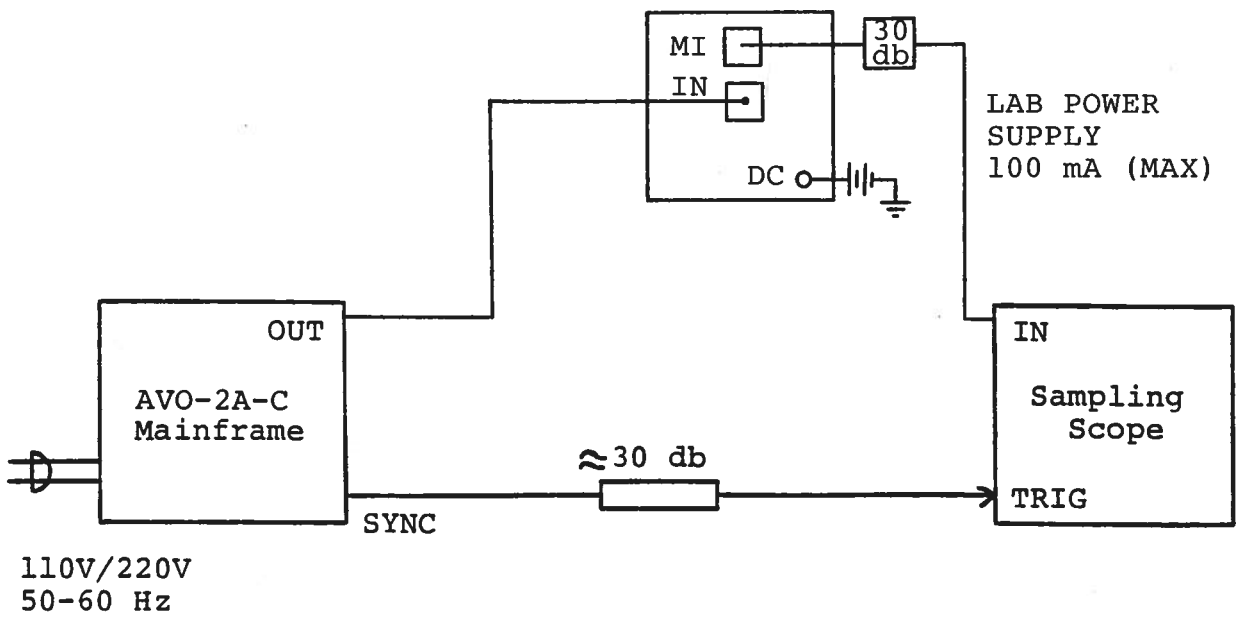


Notes:

- 1) The bandwidth capability of components and instruments used to display the pulse generator output signal (attenuators, cables, connectors, etc.) should exceed two gigahertz.
- 2) The use of 60 db attenuator at the sampling scope vertical input channel will insure a peak input signal to the sampling scope of less than one volt (the mainframe outputs a 110 volt pulse!!).
- 3) The sync output channel provides TTL level signals. To avoid overdriving the TRIG input channel of some sampling scopes, a 30 db attenuator should be placed at the input to the sampling scope trigger channel.
- 4) To obtain a stable output display the PRF control on the front panel should be set in the 1 KHz position. The front panel TRIG toggle switch should be in the INT position. The front panel DELAY controls and the scope triggering controls are then adjusted to obtain a stable output.
- 5) The output pulse width is controlled by means of the front panel one turn PW control. The control should initially be set maximum clockwise and the pulse width adjusted using an oscilloscope.
- 6) The output pulse amplitude is controlled by means of the front panel one turn AMP control.
- 7) An external clock may be used to control the output PRF of the AVD 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.

Fig. 1

PULSE GENERATOR TEST ARRANGEMENT
(WITH AVX-S3A-MI-L1A1A MODULE)

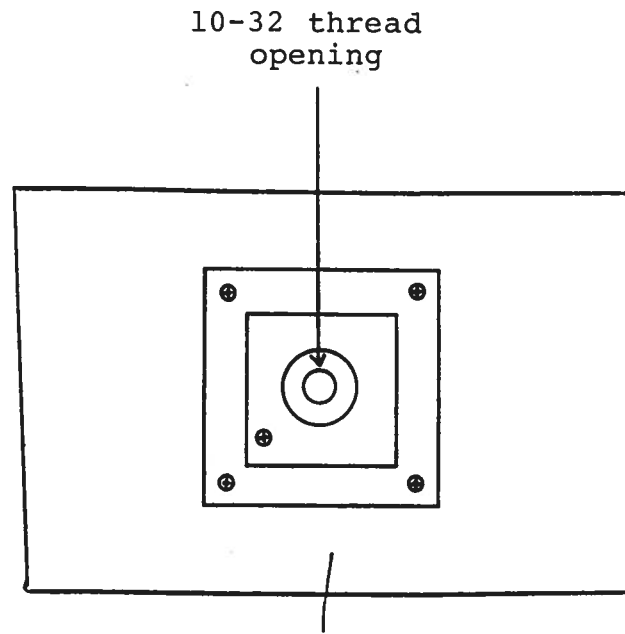
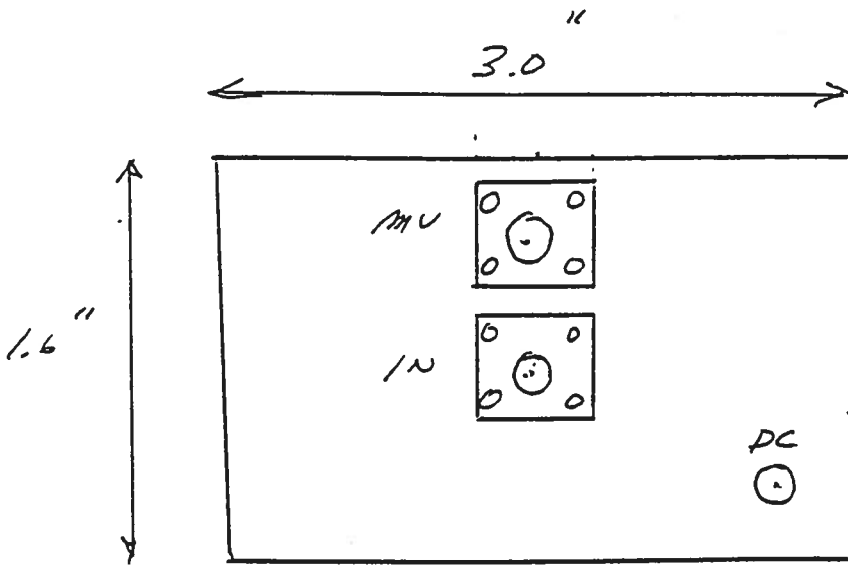
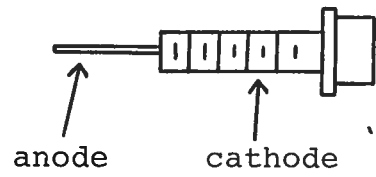
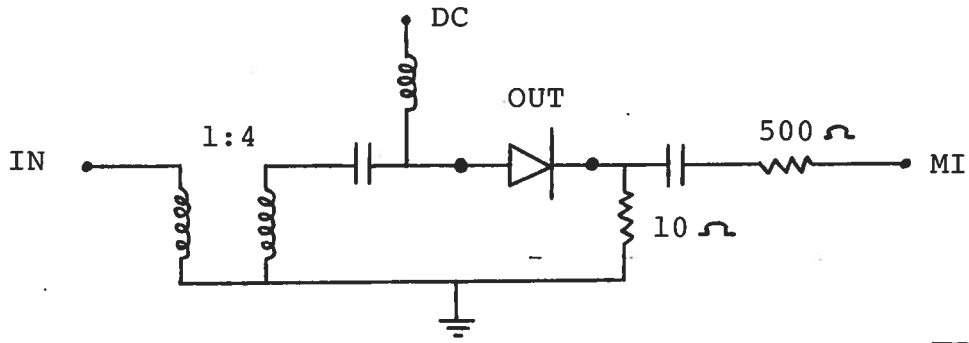


Notes:

- 1) Gently insert the anode lead of the OP-3 package into the 10-32 threaded opening of the AVX-S3A unit and contact the pin socket which is located about 1 centimeter into the 10-32 opening. Push the anode lead into the socket until the 10-32 threads on the package contact the body of the AVX-S3A unit. Then screw the package into the threads using finger force only. Note that the above operation is much easier if the anode lead is very straight.
- 2) The DC terminal of the bias insertion must either be shorted to ground (if a DC offset is not required) or a DC power supply must be applied. The laser diode will not function if the DC terminal is open circuited. Note that the DC current must not exceed ± 100 mA (applying a DC potential of 0 to +3 volts is normally adequate).
- 3) The MI port must be terminated into 50 ohms. Note that a 30 db attenuator should be placed between the AVX-S3A MI output and the scope input.
- 4) The diode current I_D (Amps) and the MI output voltage (volts) are related as follows:

$$I_D = M_I$$

FUNCTIONAL EQUIVALENT CCT

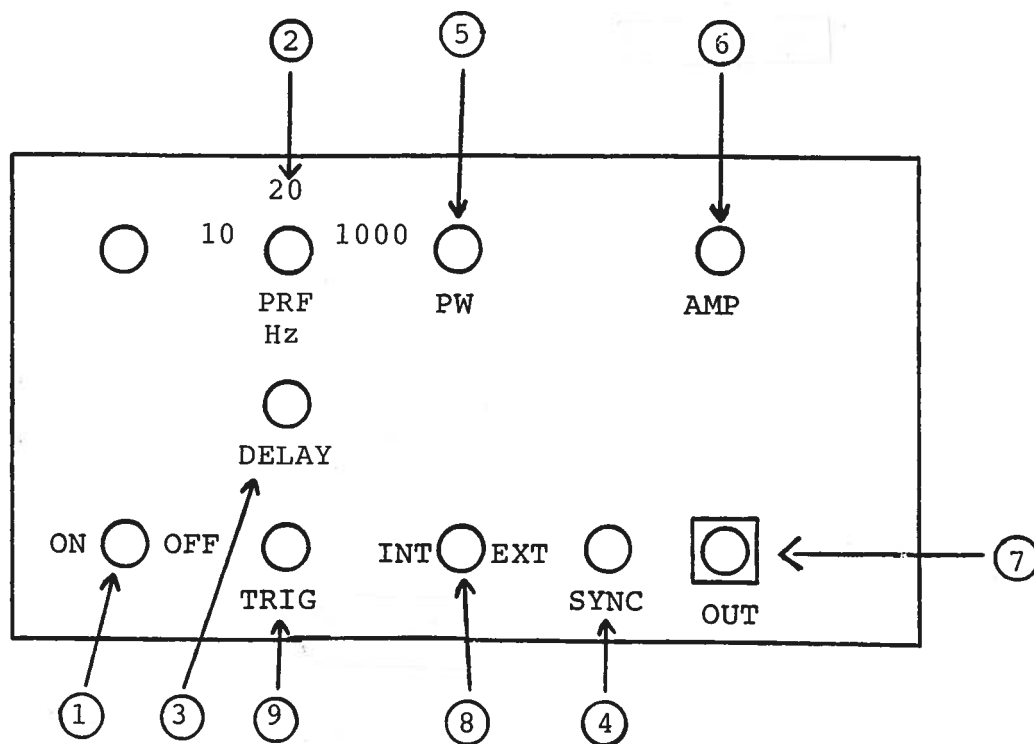


FRESH-MOUNTED
SOCIETY
ASSEMBLY

ZIP CODE

Fig. 2

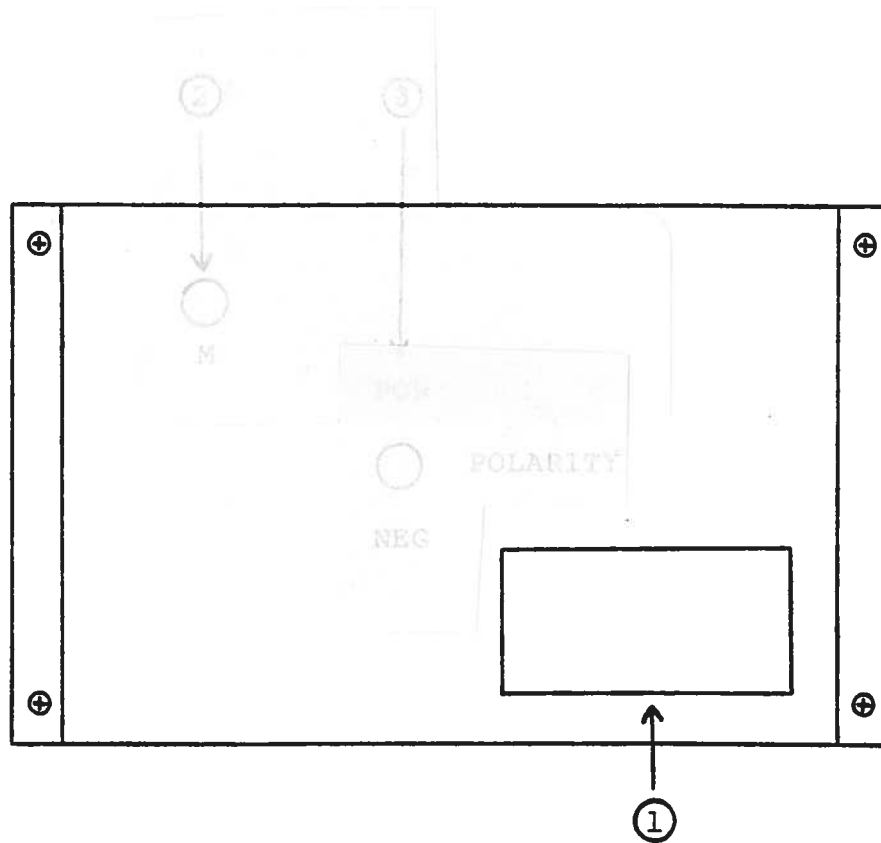
FRONT PANEL CONTROLS



- (1) ON-OFF Switch. Applies basic prime power to all stages.
- (2) PRF Control. 3 position switch controls PRF as follows:
 - 10 Hz
 - 20 Hz
 - 1000 Hz
- (3) DELAY Control. Controls the relative delay between the reference output pulse provided at the SYNC output (4) and the main output (7). This delay is variable over the range of 0 to at least 500 nsec.
- (4) SYNC Output. This output precedes the main output (7) and is used to trigger the sampling scope time base. The output is a TTL level 100 nsec (approx) pulse capable of driving a fifty ohm load.
- (5) FW Control. A one turn control which varies the output pulse width.
- (6) AMP Control. A one turn control which varies the output pulse amplitude.
- (7) OUT Connector. SMA connector provides output to AVX-S3A module.
- (8) 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.
- (9) TRIG Input. The external trigger signal is applied at this input when the EXT-INT toggle switch is in the EXT position.

Fig. 3

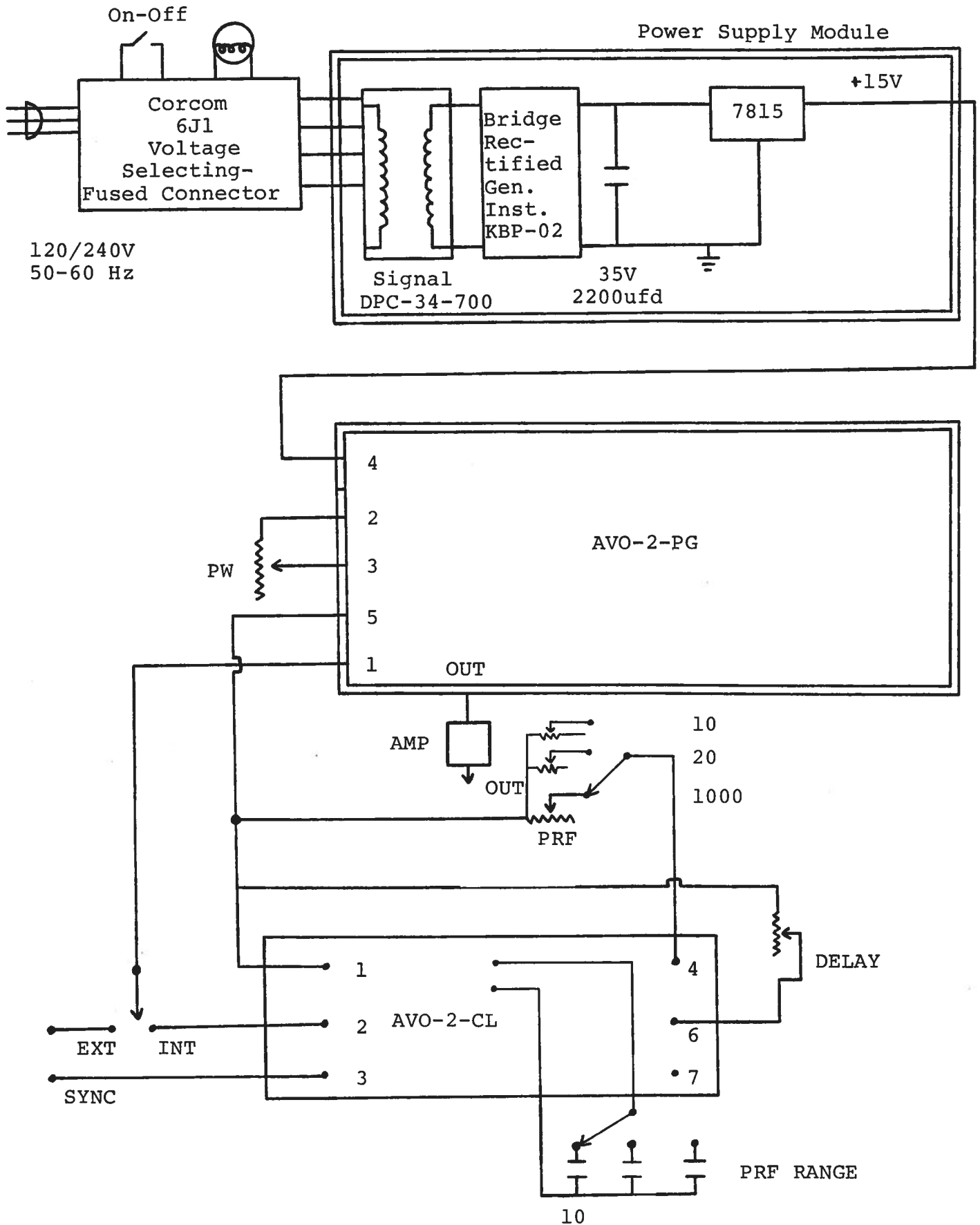
BACK PANEL CONTROLS



- (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.

Fig. 4

SYSTEM BLOCK DIAGRAM



SYSTEM DESCRIPTION AND REPAIR PROCEDURE

The AVD-2-C consists of a pulse generator module (AVD-2-PG), a clock module (AVD-2-CL) and a power supply board which supplies +15 volts (600 mA max) to the pulse generator module. In the event that the unit malfunctions, remove the instrument cover by removing the four Phillips screws on the back of the unit. The top cover may then be slid off. Measure the voltage at the +15V pin of the PG module. If this voltage is substantially less than +15 volts, unsolder the line connecting the power supply and PG modules and connect 50 ohm 10 W load to the PS output. The voltage across this load should be about +15 V DC. If this voltage is substantially less than 15 volts the PS module is defective and should be repaired or replaced. If the voltage across the resistor is near 15 volts, then the PG module should be replaced or repaired. The sealed PG module must be returned to Avtech for repair (or replacement). The clock module provides a 0.1 usec TTL level trigger pulse at pin 2 to trigger the PG module and a 0.1 usec TTL level sync pulse at pin 3 to trigger the sampling scope display device. The output at pin 3 precedes the output at pin 2 by almost 0 to 500 nsec depending on the DELAY control setting. With the INT-EXT switch in the EXT position, the clock module is disconnected from the PG module. The clock module is functioning properly if:

- a) 0.1 usec TTL level outputs are observed at pins 2 and 3.
- b) The PRF of the outputs can be varied over the range of 10 Hz to 1 KHz using the PRF and PRF RANGE controls.
- c) The relative delay between the pin 2 and 3 outputs can be varied by at least 500 nsec by the DELAY control.

The sealed clock module must be returned to Avtech for repair or replacement if the above conditions are not observed.

Schroff

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