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SINCE 1975

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INSTRUCTIONS

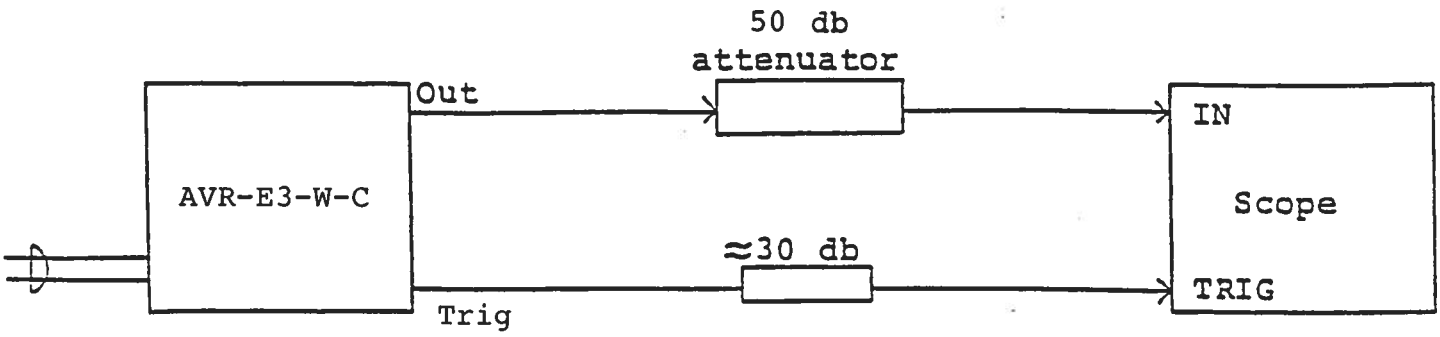
MODEL AVR-E3-W-C-PN-OP2 PULSE GENERATOR

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



110V/220V
50-60 Hz

Notes:

1) For front panel manual control of the output parameters the rear panel LOCAL-REMOTE switch must be in the LOCAL position. For remote control using the PINNACLE INSTRUMENTS PC-1 controller, the switch should be in the REMOTE position. See the PC-1 instruction manual for this mode of operation.

2) The bandwidth capability of components and instruments used to display the pulse generator output signal (attenuators, cables, connectors, etc.) should exceed 2 GHz.

3) The use of 50 dB attenuator at the scope vertical input channel will insure a peak input signal to the scope of less than one Volt (necessary only if sampling scope used). If a high impedance real time scope is used, the pulse generator should be terminated using a shunt 50 Ohm resistor.

4) 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 ADVANCE-DELAY switch is in the ADVANCE position. The TRIG output lags the main output when the switch is in the DELAY position.

5) 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.

6) The output pulse width is controlled by means of the front panel one turn PW control and a two-position range switch.

7) The output pulse amplitude is controlled by means of the front panel one turn AMP control.

8) The output pulse polarity is controlled by the front panel two-position polarity switch. To avoid possible damage to the output stage, the output amplitude should be reduced to near zero before changing the output polarity.

9) An external clock may be used to control the output PRF of the AVR 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.

10) AVR units with a serial number higher than 5600 are protected by an automatic overload protective circuit which controls the front panel overload light. If the unit is overloaded (by operating at an exceedingly high duty cycle or by operating into a short circuit), the protective circuit will turn the output of the instrument OFF and turn the indicator light ON. The light will stay ON (i.e. output OFF) for about 5 seconds after which the instrument will attempt to turn ON (i.e. light OFF) for about 1 second. If the overload condition persists, the instrument will turn OFF again (i.e. light ON) for another 5 seconds. If the overload condition has been removed, the instrument will turn on and resume normal operation. Overload conditions may be removed by:

    1) Reducing PRF (i.e. switch to a lower range)
    2) Reducing pulse width (i.e. switch to a lower range)
    3) Removing output load short circuit (if any)

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) For additional assistance:

    Tel: (613) 226-5772
    Fax: (613) 226-2802

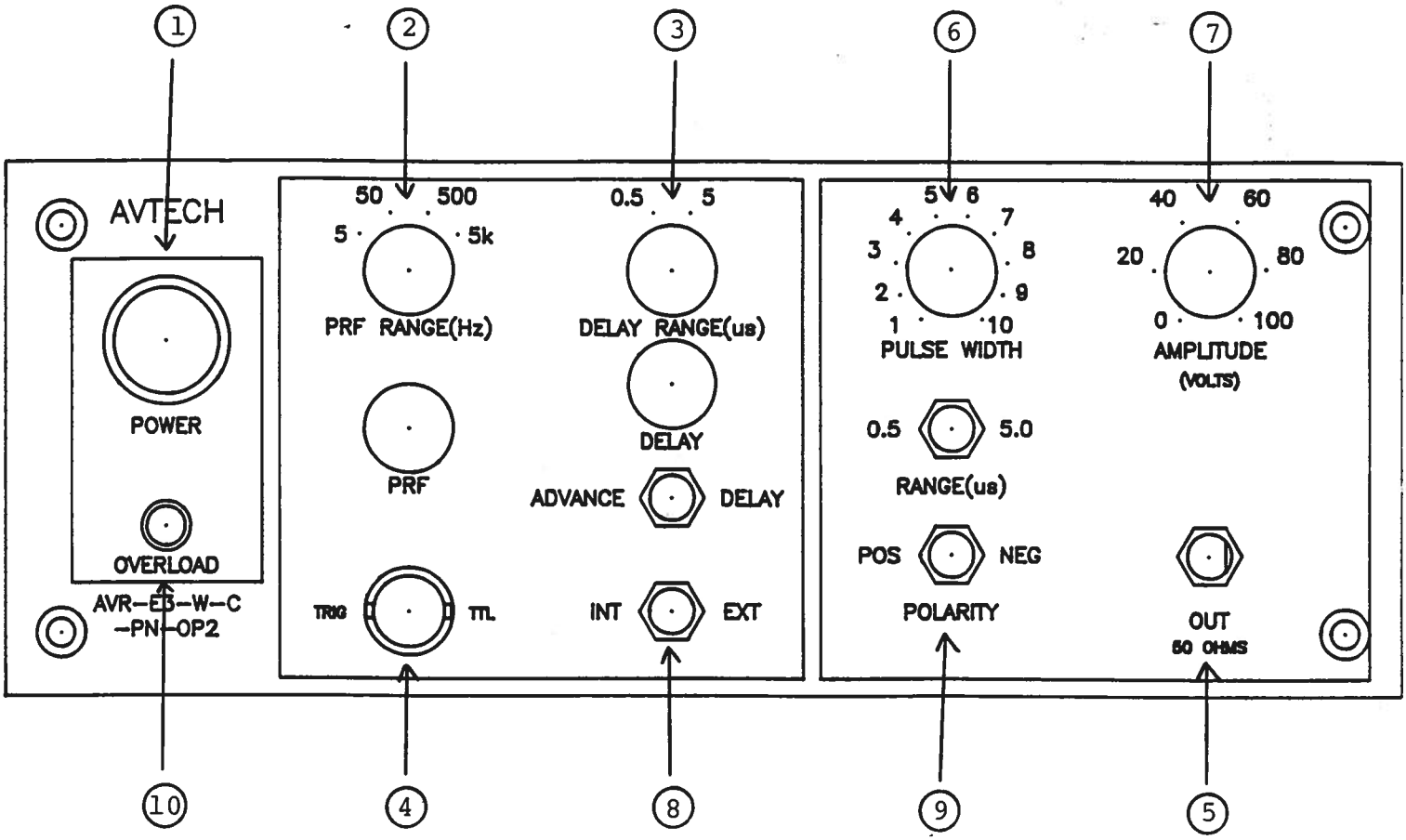


Fig. 2 FRONT PANEL CONTROLS

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

(2) PRF Control. Varies PRF as follows:

	MIN	MAX
Range 1	5 Hz	50 Hz
Range 2	50 Hz	0.5 kHz
Range 3	0.5 kHz	5 kHz

The operating PRF should be set using a scope.

(3) DELAY Control. Controls the relative delay between the reference output pulse provided at the TRIG output (4) and the main output (5). This delay is variable over the range of 0.1 to about 0.5 us (RANGE 1) and 0.5 to 5.0 us (RANGE 2). The TRIG output precedes the main output when the ADVANCE-DELAY switch is in the ADVANCE position and lags when the switch is in the DELAY 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) OUT Connector. SMA connector provides output to a fifty Ohm load.

(6) PW Control. A one turn control and two-position range switch which varies the output pulse width from 50 ns to 0.5 us (RANGE 1) and 0.5 us to 5.0 us (RANGE 2).

(7) AMP Control. A one turn control which varies the output pulse amplitude to a fifty Ohm load.

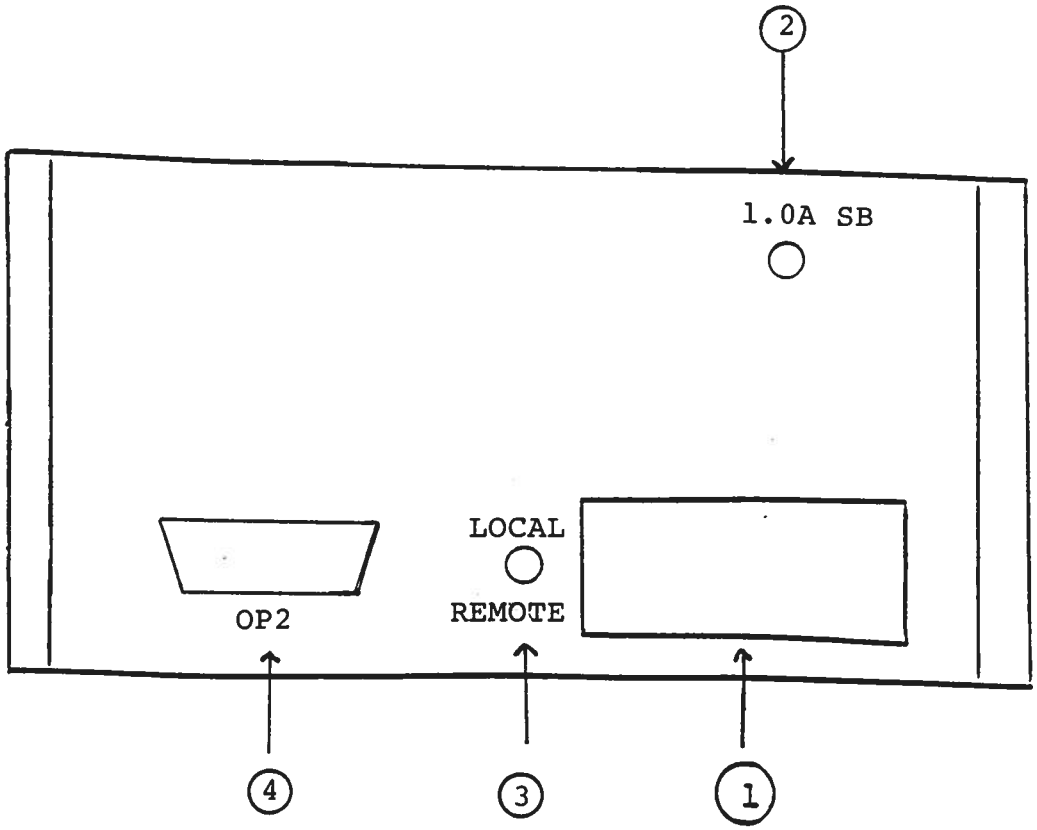
(8) EXT-INT Control. With this toggle switch in the INT position, the PRF of the AVR unit is controlled via an internal clock which in turn is controlled by the PRF controls. With the toggle switch in the EXT position, the AVR unit requires a 0.2 us TTL level pulse applied at the TRIG input in order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

(9) POLARITY. This two-position switch controls the polarity of the output pulse. The output amplitude should be set near zero before changing the switch position.

(10) OVERLOAD. AVR units with a serial number higher than 5600 are protected by an automatic overload protective circuit which controls the front panel overload light. If the unit is overloaded (by operating at an exceedingly high duty cycle or by operating into a short circuit), the protective circuit will turn the output of the instrument OFF and turn the indicator light ON. The light will stay ON (i.e. output OFF) for about 5 seconds after which the instrument will attempt to turn ON (i.e. light OFF) for about 1 second. If the overload condition persists, the instrument will turn OFF again (i.e. light ON) for another 5 seconds. If the overload condition has been removed, the instrument will turn on and resume normal operation. Overload conditions may be removed by:

1) Reducing PRF (i.e. switch to a lower range)
2) Reducing pulse width (i.e. switch to a lower range)
3) Removing output load short circuit (if any)

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 (0.5A SB).

(2) 1.0A SB. Fuse which protects the output stage if the output duty cycle rating is exceeded.

(3) LOCAL REMOTE SWITCH. This two-position switch must be in the LOCAL position to operate the instrument from the front panel controls. To control the instrument using the PINNACLE INSTRUMENTS Model PC-1, the switch must be in the REMOTE position.

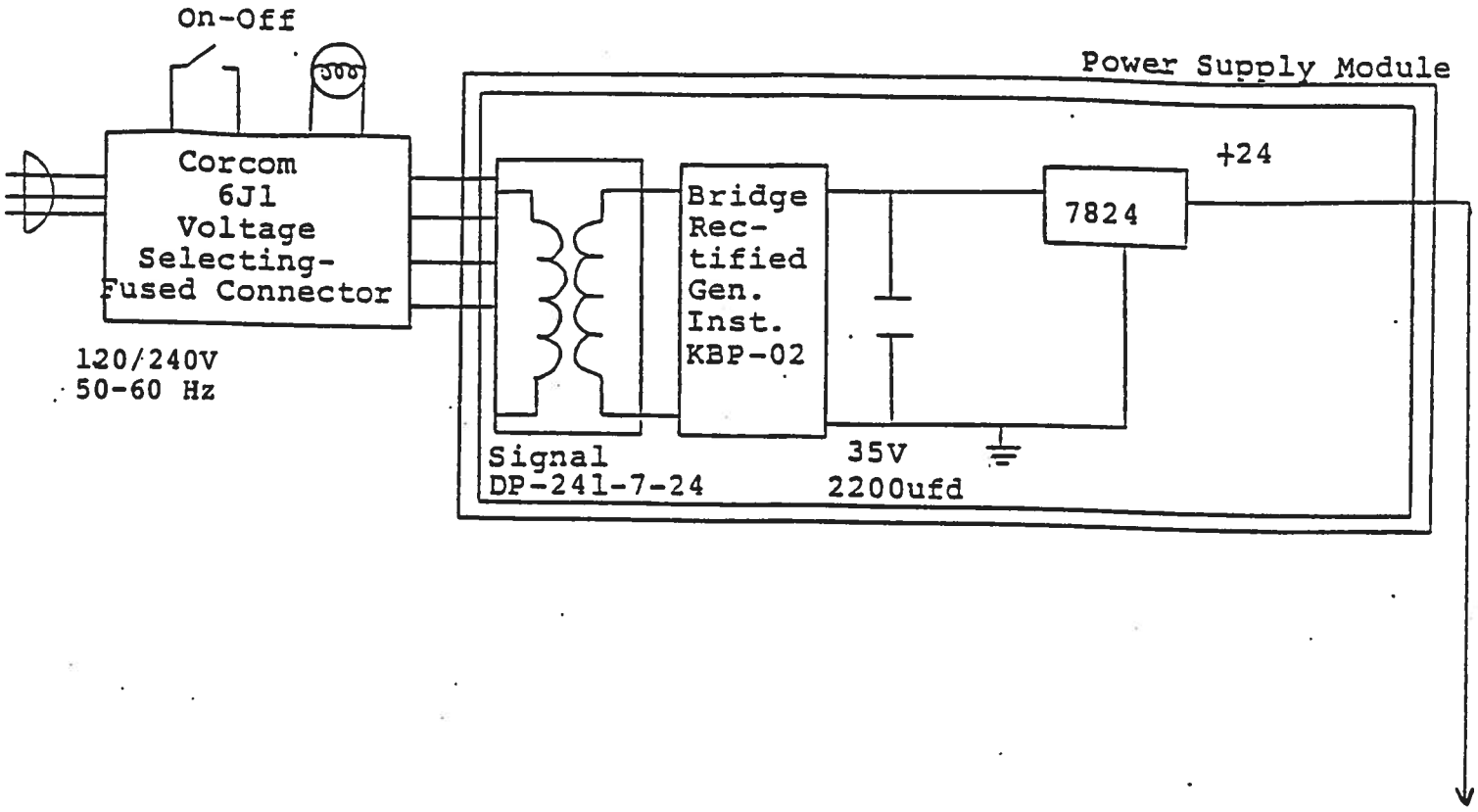
(4) OP2 CONNECTOR. 36 conductor CENTRONICS CAT. NO. 45-4395 cable (supplied) connects between this connector and the PINNACLE INSTRUMENTS Model PC-1.

COVER REMOVAL

The top cover may be removed by removing the 4 Phillips screws on the top on the instrument. The top cover may then be slid back and off.

Fig. 4

SYSTEM BLOCK DIAGRAM



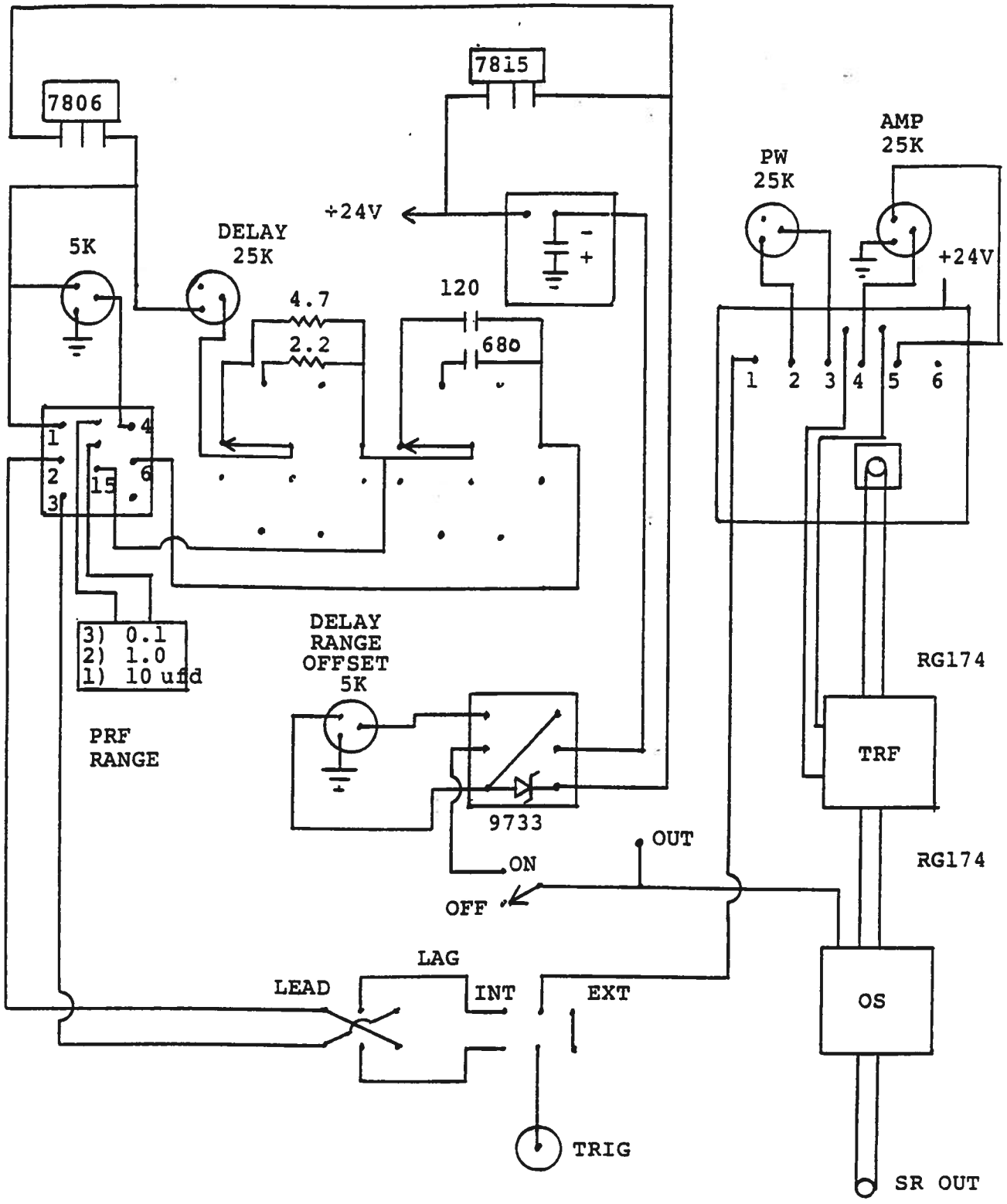


Fig. 5 AVR-E1-W-C-P-OT (GGB MOD)

SYSTEM DESCRIPTION AND REPAIR PROCEDURE

The AVR-E3-W-C-PN-OP2 consists of the following basic modules:

1) AVR-E3-W-PG pulse generator modules (P and N)
2) -OP2 timing board
3) +24V power supply board
4) Overload module
5) PS-PN power supply module
6) -PW pulse width module

The modules are interconnected as shown in Fig. 4.

The -OP2 board controls the output pulse width, the output PRF and the relative delay between the main output and the TRIG output. The PG pulse generator modules generate the output pulse. In the event of an instrument malfunction, it is most likely that the rear panel 1.0A SB fuse or 0.5A line fuse may have failed due to an output short circuit condition or to a high duty cycle condition. If the fuse is not blown, then it is recommended that the unit be returned to Avtech for servicing.

Oct. 26/94

-EW

-EA

-of 2

Disk: AVR-E

Name: 3WCPNOP2.INS