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INSTRUCTIONS

MODEL AVD-C-500-AE2 PULSE GENERATOR

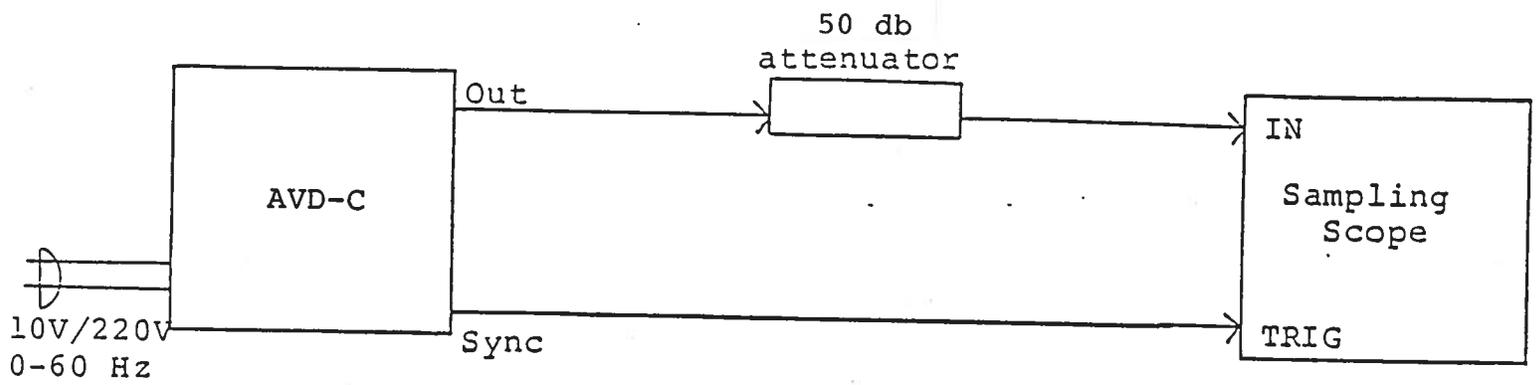
S.N.:

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

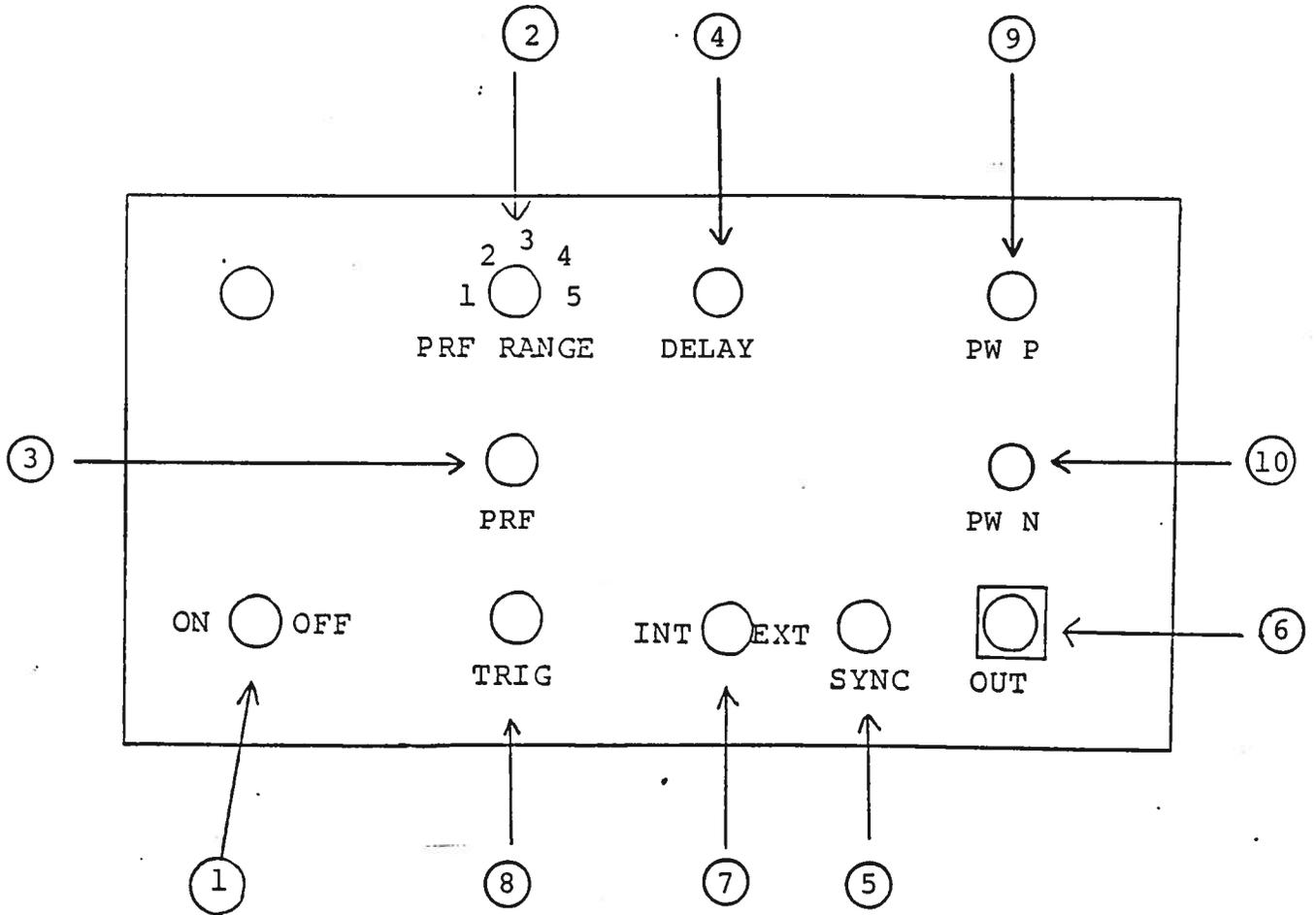


Notes:

- 1) The bandwidth capability of components and instruments used to display the pulse generator output signal (attenuators, cables, connectors, etc.) should exceed one gigahertz.
- 2) The use of 50 db attenuator at the sampling scope vertical input channel will insure a peak input signal to the sampling scope of less than one volt.
- 3) The sync output channel provides a +0.5V pulse to 50 ohms.
- 4) To obtain a stable output display the PRF control on the front panel should be set mid-range while the PRF range switch may be in either range. 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. The scope may then be used to set the desired PRF by rotating the PRF control and by means of the PRF range switch.
- 5) The shape of the positive going pulse is determined by the front panel PW P pot (falling edge) and the rear panel TR P pot (leading edge). The shape of the negative going pulse is determined by the front panel PW N pot (rising edge) and the rear panel TR N pot (falling edge). The time separation between the positive and negative pulses is determined by the rear panel T pot. Only minor adjustments to the pots should be necessary, particularly when changing the PRF. At time of shipping, the controls were adjusted to yield 500 MHz at a 5.0 MHz PRF.
- 6) Iterative adjustments of PW P, PW N and T will normally be necessary to achieve the desired 1 nsec waveform period and low spurious level. PW P and PW N should normally be set about mid range.

Fig. 2

FRONT PANEL CONTROLS



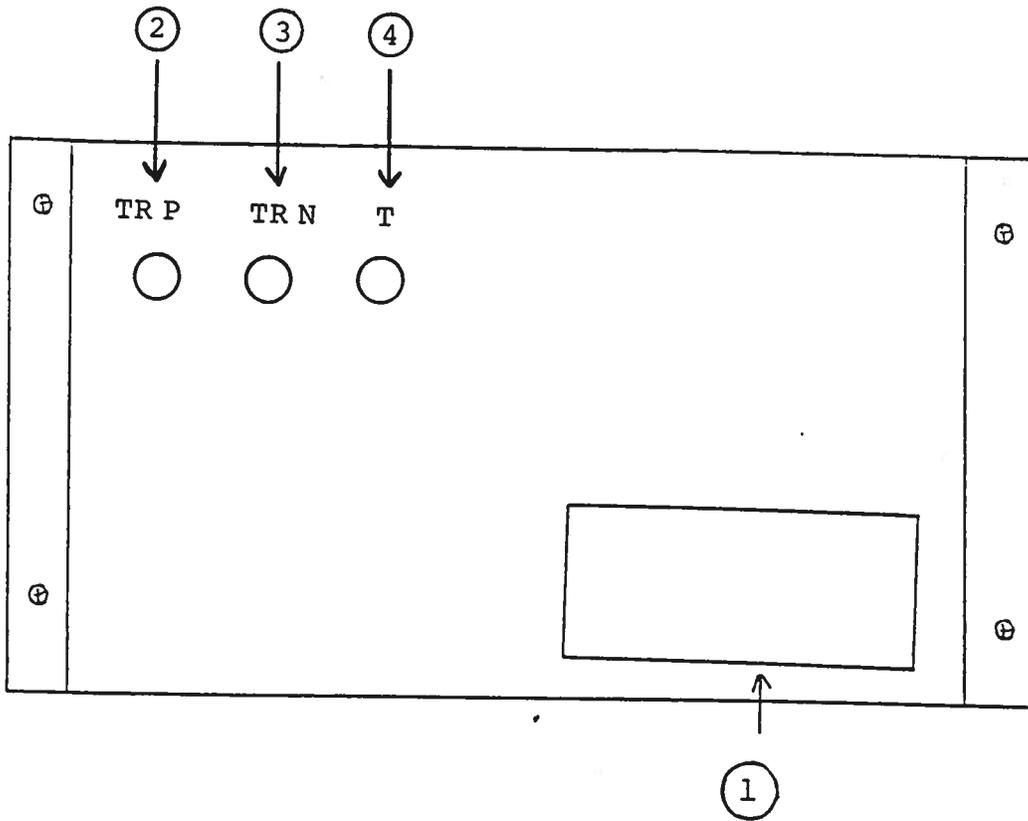
- (1) ON-OFF Switch. Applies basic prime power to all stages.
- (2) PRF Control. The PRF RANGE and PRF controls determine
- (3) output PRF as follows:

	PRF MIN	PRF MAX
Range 1	200 Hz	2 KHz
Range 2	2 KHz	22 KHz
Range 3	22 KHz	220 KHz
Range 4	180 KHz	1.8 MHz
Range 5	0.6 MHz	5 MHz

- (4) DELAY Control. Controls the relative delay between the reference output pulse provided at the SYNC output (5) and the main output (6). This delay is variable over the range of 0 to at least 100 nsec.
- (5) SYNC Output. This output precedes the main output (6) and is used to trigger the sampling scope time base. The output is a +0.5V 20 nsec (approx) pulse capable of driving a fifty ohm load.
- (6) OUT. SMA output connect provides output to a fifty ohm load.
- (7) EXT-INT Control. With this toggle switch in the INT position, the PRF of the AVD 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 AVD 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) TRIG Input. The external trigger signal is applied at this input when the EXT-INT toggle switch is in the EXT position.
- (9) PW P. Controls the width of the positive going pulse (falling edge).
- (10) PW N. Controls the width of the negative going pulse (rising edge).

Fig. 3

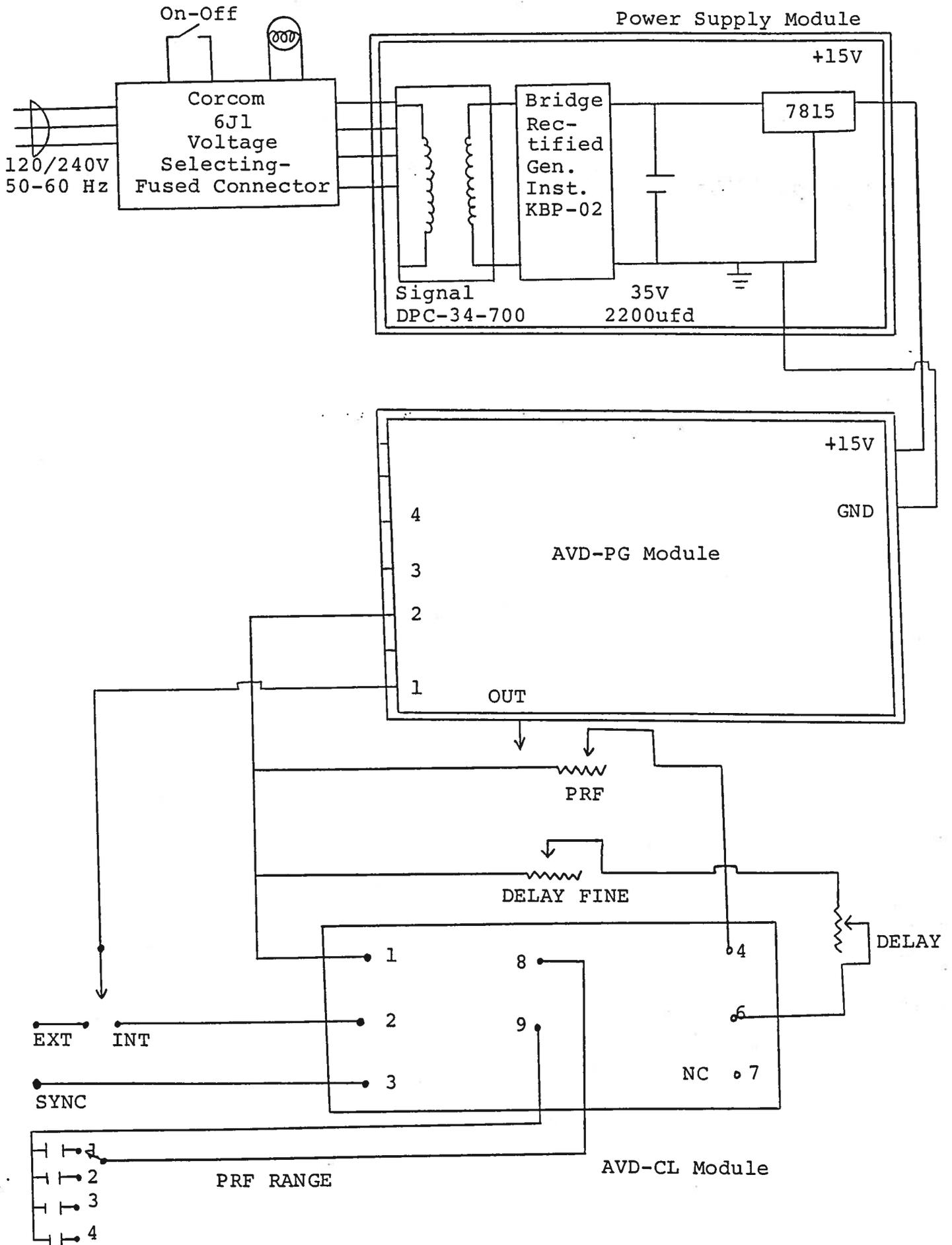
BACK PANEL CONTROLS



- (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.
- (2) IR_P. Controls the leading edge (and amplitude) of the positive going pulse. Only minor adjustments should be necessary.
- (3) IR_N. Controls the leading edge (and amplitude) of the negative going pulse. Only minor adjustments should be necessary.
- (4) I. Controls time separation between positive and negative going pulse. Adjustment may be necessary when PRF is changed dramatically.

Fig. 4

SYSTEM BLOCK DIAGRAM



SYSTEM DESCRIPTION AND REPAIR PROCEDURE

The AVD-C consists of a pulse generator module (AVD-PG), a clock module (AVD-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 panel of the unit. The top cover may then be slid off. Measure the voltage at the +15 V 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 FS output. The voltage across this load should be about +15V 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 100 nsec depending on the DELAY control setting. The clock module is powered by +5.8 V supplied by the PG module (from Pin 2 to Pin 1). 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 1 KHz to 1 MHz 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.

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