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ENGINEERING - MANUFACTURING

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INSTRUCTIONS

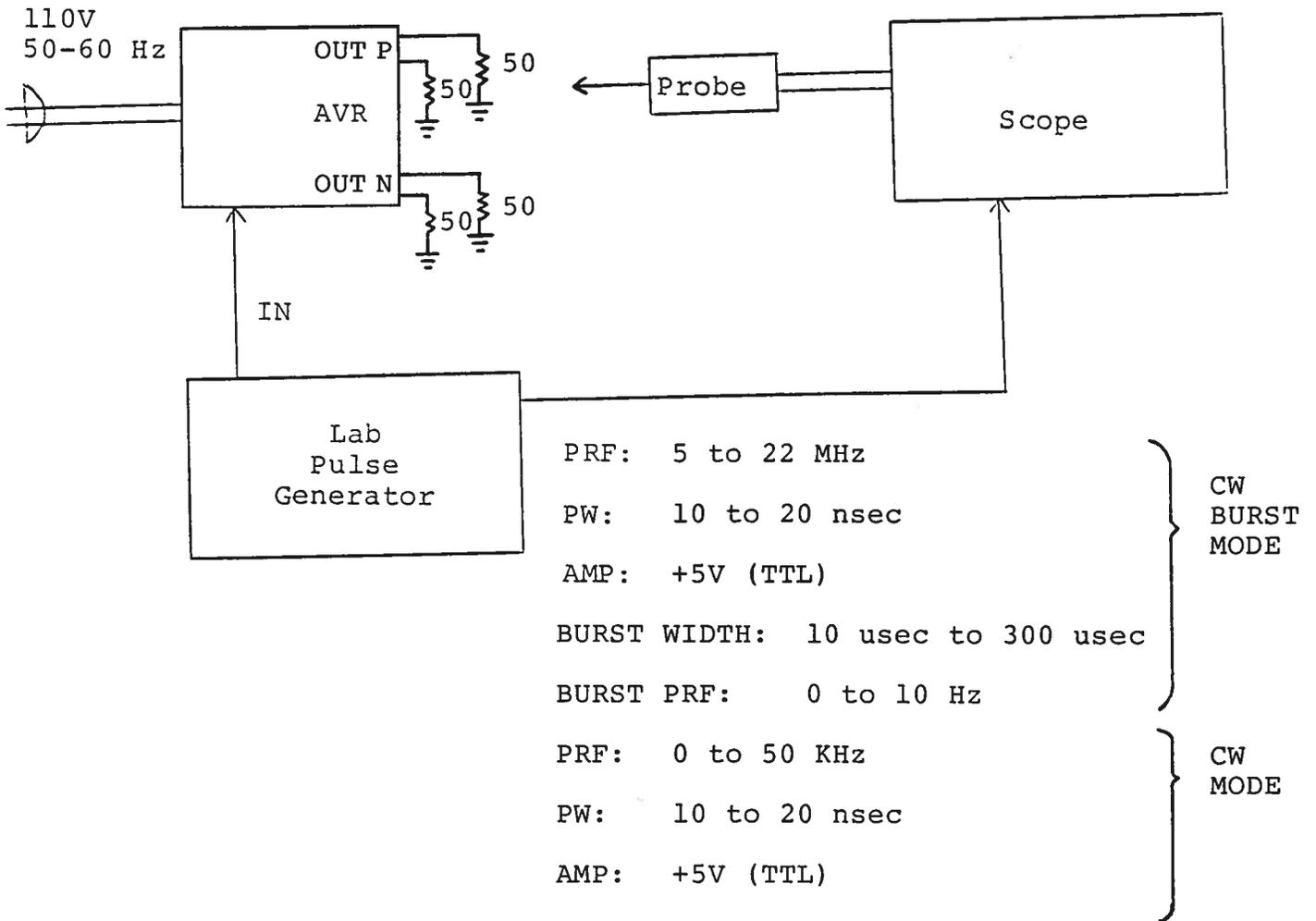
MODEL AVR-B4-PN-PS-LA2 PULSE GENERATOR

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.

TEST ARRANGEMENT

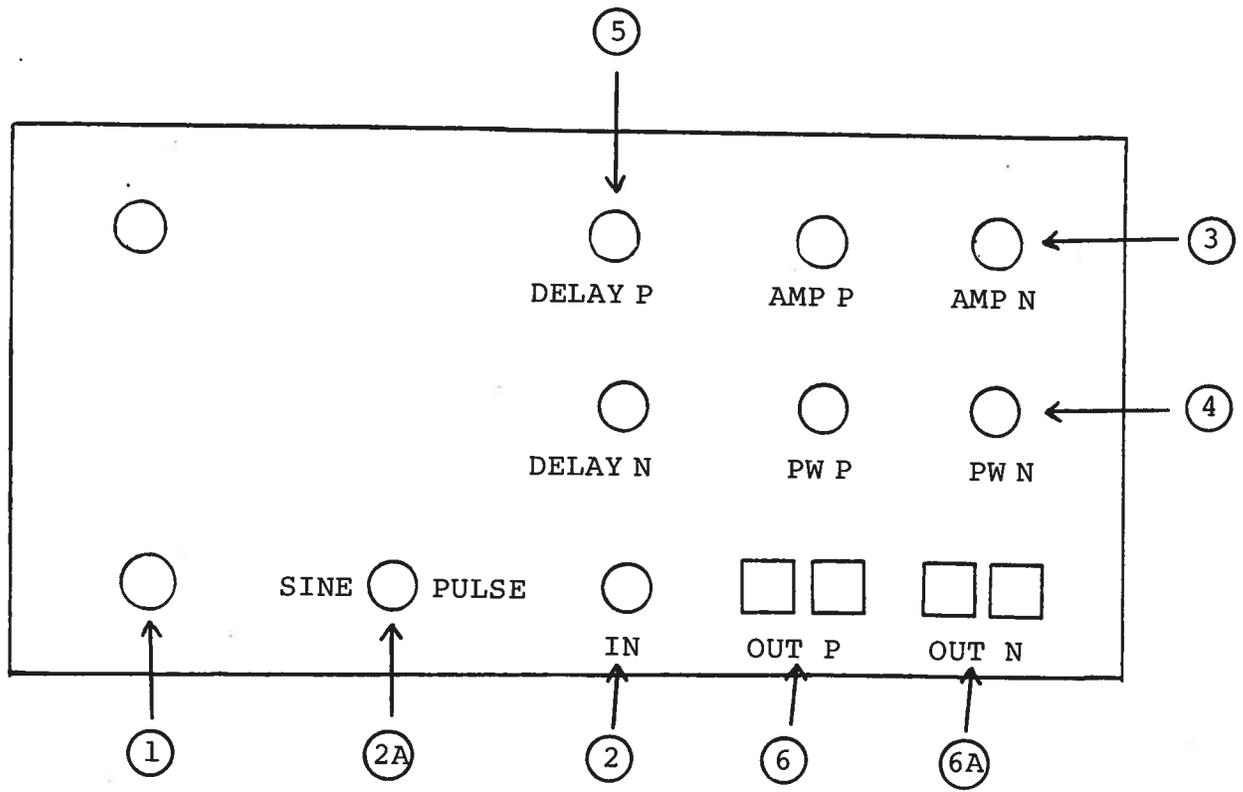


GENERAL OPERATING INSTRUCTIONS

- 1) The equipment should be connected in the general fashion shown above. A scope with a bandwidth of at least 200 MHz should be used to view output.
- 2) The two output 50 ohm cables on each channel may be separately terminated in fifty ohms or connected in parallel and terminated in 25 ohms.
- 3) The output amplitude is controlled by means of the one turn potentiometer (AMP).
- 4) The output pulse width is controlled by means of the one turn potentiometer (PW).
- 5) The propagation delay through the unit is variable by 0 to 4 nsec using the delay controls. Note that the delay control adjusts only the leading edge of the output pulse so consequently the delay and PW controls interact.
- 6) To DC offset the output pulse connect a DC power supply set to required DC offset value to the back panel terminals marked O.S. The maximum attainable DC offset voltage is ±50 volts (OS option).
- 7) The rise time of the output pulse is controlled by the rear panel TRP and TRN pots. These pots are inactive (and the rise time at maximum) when the TRP and TRN switches are in the OFF position. The spurious signal level on the baseline between the pulses tends to be much lower when the switches are in the ON position.
- 8) The rear panel M outputs provide an attenuated (x10) coincident replica of the main output (to 50 ohms). The M outputs are AC coupled to the output line and so do not indicate any DC level.
- 9) The unit triggers from a TTL level pulse when the front panel SINE-TTL switch is in the TTL position. The unit will trigger from a 3.0 VRMS RF sine wave burst when the switch is in the SINE position.

Fig. 2

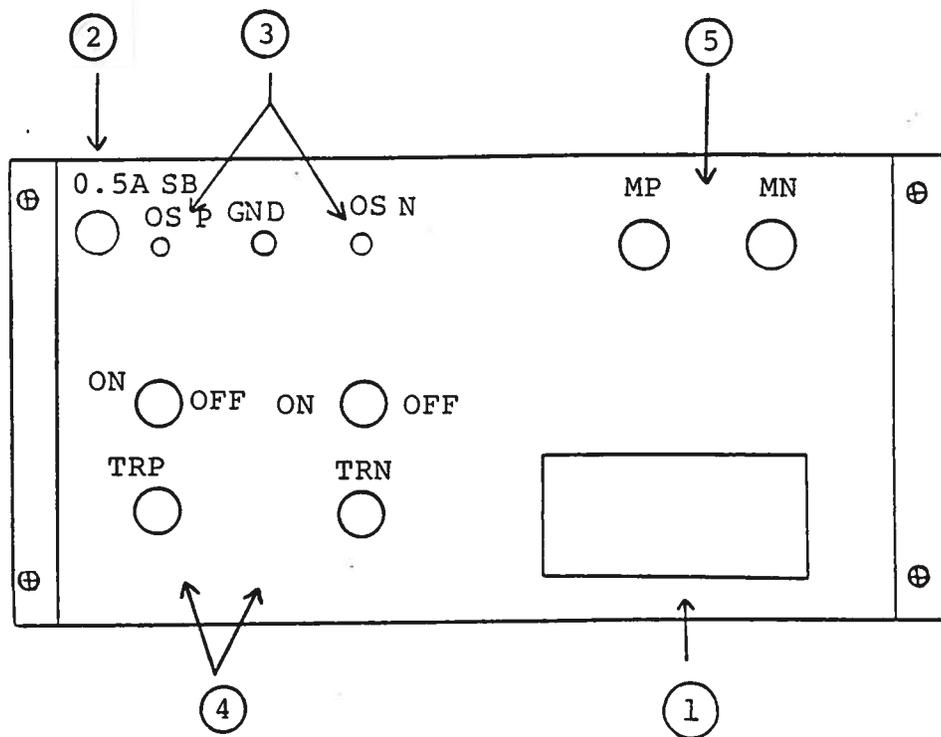
FRONT PANEL CONTROLS



- (1) ON-OFF Switch. Applies basic prime power to all stages.
- (2) The unit triggers from a TTL level pulse when the front panel SINE-TTL switch is in the TTL position. The unit will trigger from a 3.0 VRMS RF sine wave burst when the switch is in the SINE position. The TTL level pulse should have width of about 10 to 20 nsec.
- (2A)
- (3) The output amplitude is controlled by means of the one turn potentiometer (AMP).
- (4) The output pulse width is controlled by means of the one turn potentiometer (PW).
- (5) The propagation delay through the unit is variable by 0 to 4 nsec using the delay controls. Note that the delay control adjusts only the leading edge of the output pulse so consequently the delay and PW controls interact.
- (6) The two output 50 ohm cables on each channel may be separately terminated in fifty ohms or connected in parallel and terminated in 25 ohms.
- (6A)

Fig. 3

BACK PANEL CONTROLS



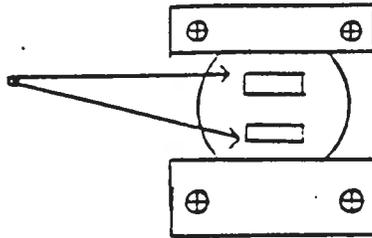
- (1) FUSED CONNECTOR, VOLTAGE SELECTOR. The detachable power cord is connected at this point. In addition, the removable cord is adjusted to select the desired input operating voltage. The unit also contains the main power fuse.
- (2) 1.0A SB. This fuse limits the DC prime power supplied to the output stage and will blow in the case of severe overloading. Do not exceed the duty cycle limits described in paragraph 12 of the general operating instructions.
- (3) DC OFFSET Input. To DC offset the output pulse, connect a DC power supply set to the desired offset value to these terminals. The maximum allowable DC offset voltage is ± 50 volts (10 mA).
- (4) The rise time of the output pulse is controlled by the rear panel TRP and TRN pots. These pots are inactive (and the rise time at maximum) when the TRP and TRN switches are in the OFF position. The spurious signal level on the baseline between the pulses tends to be much lower when the switches are in the ON position.
- (5) The rear panel M outputs provide an attenuated ($\times 10$) coincident replica of the main output (to 50 ohms). The M outputs are AC coupled to the output line and so do not indicate any DC level.

SYSTEM DESCRIPTION AND REPAIR PROCEDURE

The AVR consists of two pulse generator modules (POS and NEG) and a power supply board which supplies +24 volts (600 mA max) to the pulse generator module. In the event of an instrument malfunction, it is most likely that the 1.0 A slow blow fuse or the main power fuse on the rear panel has blown. Replace if necessary. If the unit still does not function, it is most likely that some of the output switching elements (SL5T) may have failed due to an output short circuit condition or to a high duty cycle condition. The switching elements may be accessed by removing the cover plate on the bottom side of the instrument. The elements may be removed from their sockets by means of a needle nosed pliers after removing the four counter sunk 2-56 Phillips screws which attach the small aluminum heat sinks to the body of the instrument. The SL5T is a selected VMOS power transistor in a TO 220 package and may be checked on a curve tracer. If defective, replacement units should be ordered directly from Avtech. When replacing the SL5T switching elements, take care to insure that the short lead (of the three leads) is adjacent to the black dot (see following Fig.). The SL5T elements are electrically isolated from the small aluminum heat sinks but are bonded to the heat sinks using WAKEFIELD TYPE 155 HEAT SINK ADHESIVE.

AVR-B4-PS SL5T HEAT SINKING

155
HEAT SINK
ADHESIVE*



SHORT LEAD →



Schroff

04.18.89

-OS

-M

WAGNER'S TEST HEAT SINKING

ANS-24-72 2121

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