



AVTECH ELECTROSYSTEMS LTD.

NANOSECOND WAVEFORM ELECTRONICS
SINCE 1975

P.O. BOX 265
OGDENSBURG, NY
U.S.A. 13669-0265
TEL: (315) 472-5270
FAX: (613) 226-2802

TEL: 1-800-265-6681
FAX: 1-800-561-1970
U.S.A. & CANADA

e-mail: info@avtechpulse.com

BOX 5120 STN. F
OTTAWA, ONTARIO
CANADA K2C 3H4
TEL: (613) 226-5772
FAX: (613) 226-2802

INSTRUCTIONS

MODEL AVO-6D-PS-AP1-N PULSE GENERATOR

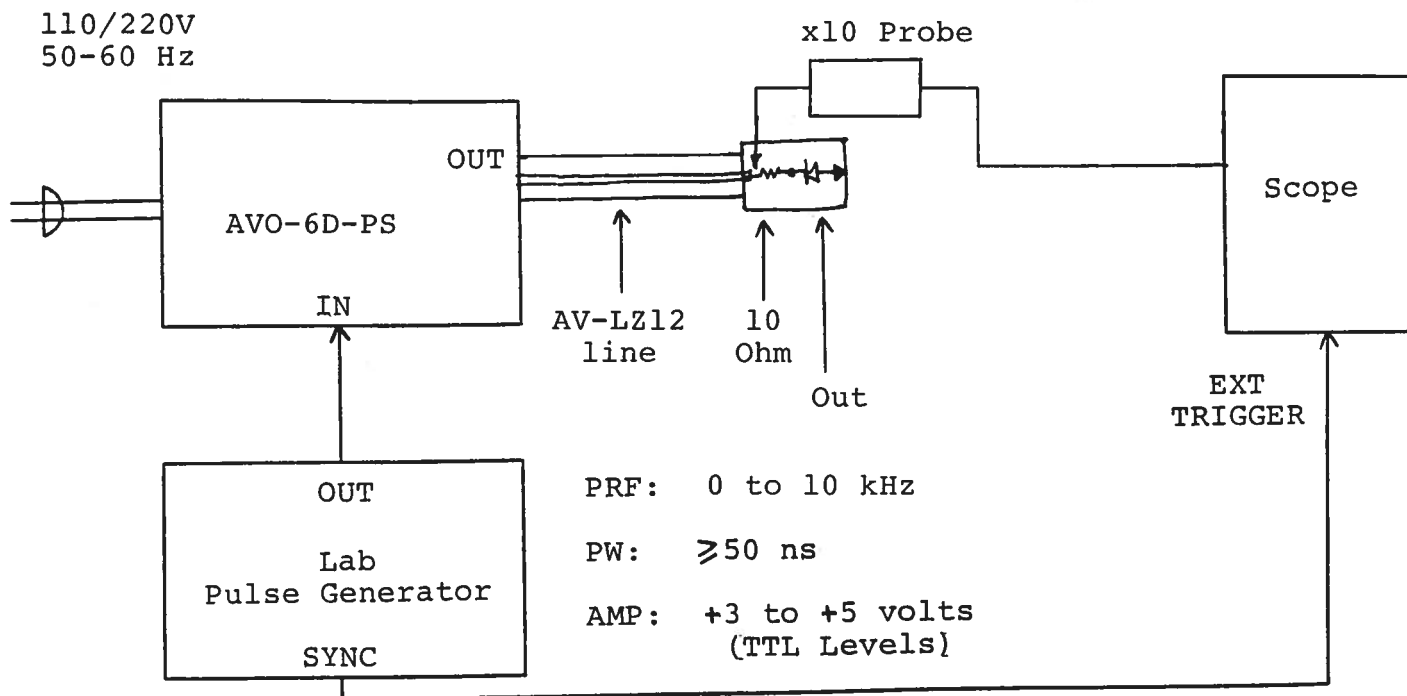
S.N. :

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 equipment should be connected in the general fashion shown above. Since the AVO unit provides an output pulse rise time as low as 10 ns a fast oscilloscope (preferably 100 MHz) should be used to display the waveform. CAUTION: The pulse amplitude at the input to the 10 Ohm resistor is as high as 110 Volts.
- 2) The laser diode should be soldered between ground and the end of the 10 Ohm resistor. The diode lead lengths should not exceed several millimeters. Note that the position of the 10 Ohm resistor and the laser diode may be interchanged so the voltage across the resistor (with respect to ground) may be monitored and related to diode current.
- 3) The output pulse amplitude is controlled by the one turn AMP control.
- 4) The output pulse width is controlled by the one turn PW control and the two-position range switch.
- 5) CAUTION: The unit may fail if operated at a duty cycle exceeding 1% (eg. 5 us at 2 kHz, 1 us at 10 kHz).
- 6) AVO 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)
- 7) 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.
- 8) For additional assistance: Tel: (613) 226-5772
Fax: (613) 226-2802

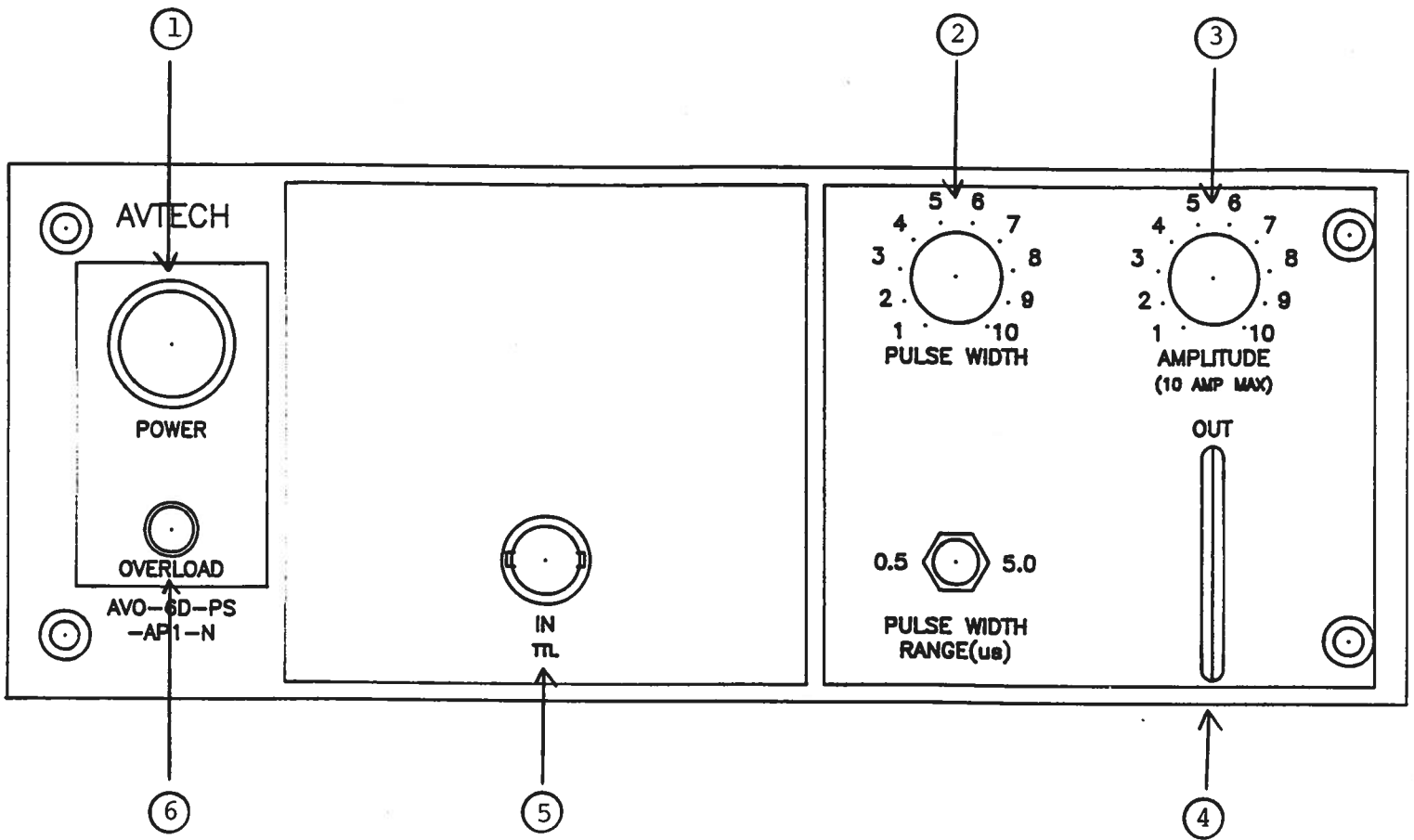


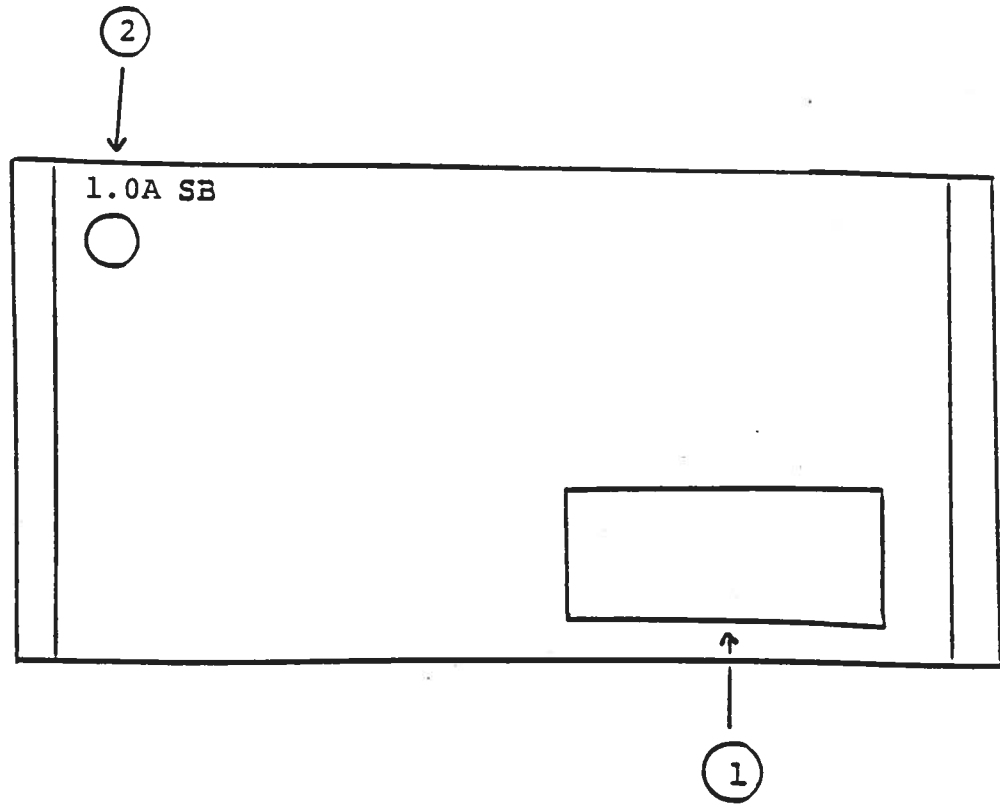
Fig. 2

FRONT PANEL CONTROLS

- (1) ON-OFF Switch. Applies basic prime power to all stages.
- (2) PW Control. A one turn control and a two-position range switch which varies the output pulse width from 50 to 500 ns and 500 ns to 5.0 us (1% max duty cycle).
- (3) AMP Control. The output pulse amplitude is controlled by means of the one turn potentiometer (AMP).
- (4) OUTPUT CABLE. A one meter length of AV-LZ12 cable protrudes from this point. The cable is terminated in a 1 x 2 cm length of PCB on which a series 10 Ohm resistor is connected. The laser diode is to be solder connected between the 10 Ohm resistor and ground.
- (5) IN. The TTL trigger signal (PW \geq 50 ns) is applied at this input.
- (6) OVERLOAD. AVO-6 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)

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

SYSTEM DESCRIPTION AND REPAIR PROCEDURE

The AVO-6B-PS unit consists of the following basic modules:

- 1) AVO-6B-PG pulse generator module
- 2) AVO-6B-PS power supply module
- 3) -PW pulse width module
- 4) -OL (471) overload module
- 5) +24V power supply board

The modules are interconnected as shown in Fig. 4. In the event of an instrument malfunction, it is most likely that some of the output switching elements (SL4T) 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. NOTE: First turn off the prime power. The elements may be removed from their sockets by means of a needle nosed pliers. The SL4T is a selected VMOS power transistor in a TO 220 packages and may be checked on a curve tracer. If defective, replacement units should be ordered directly from Avtech. When replacing the SL4T switching elements, take care to insure that the short lead (of the three leads) is adjacent to the black dot on the chassis. If the switching elements are not defective, then the four Phillips screws on the back panel should be removed. The top cover may then be slid off and the operation of the power supply module checked. The power supply board generates +24V DC to power the other modules. If the voltage is less than +24V, turn off the prime power and unsolder the lead from the 7824 regulator chip on the power supply board. Solder a 100 Ohm 5 Watt resistor to the 7824 output to ground and turn on the prime power. A voltage of +24 Volts should be read. If the voltage is less then the power supply board is defective and should be repaired or replaced.

June 2/95

Disk: AVO-6

Name: 6DPSAP1.INS