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SINCE 1975

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INSTRUCTIONS

MODEL AVO-3A-PS PULSE GENERATOR

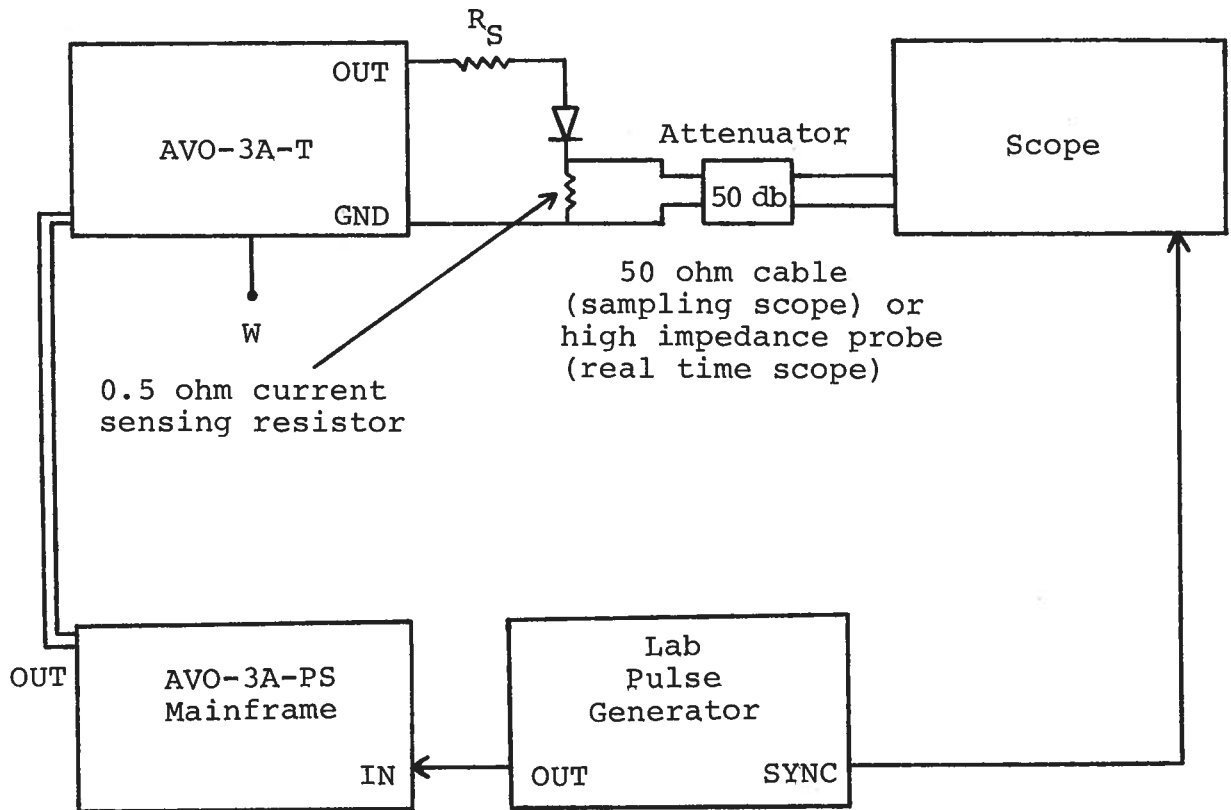
S.N.:

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

AVO-3 TEST ARRANGEMENT



PRF: 0 to 20 KHz

PW: >50 nsec

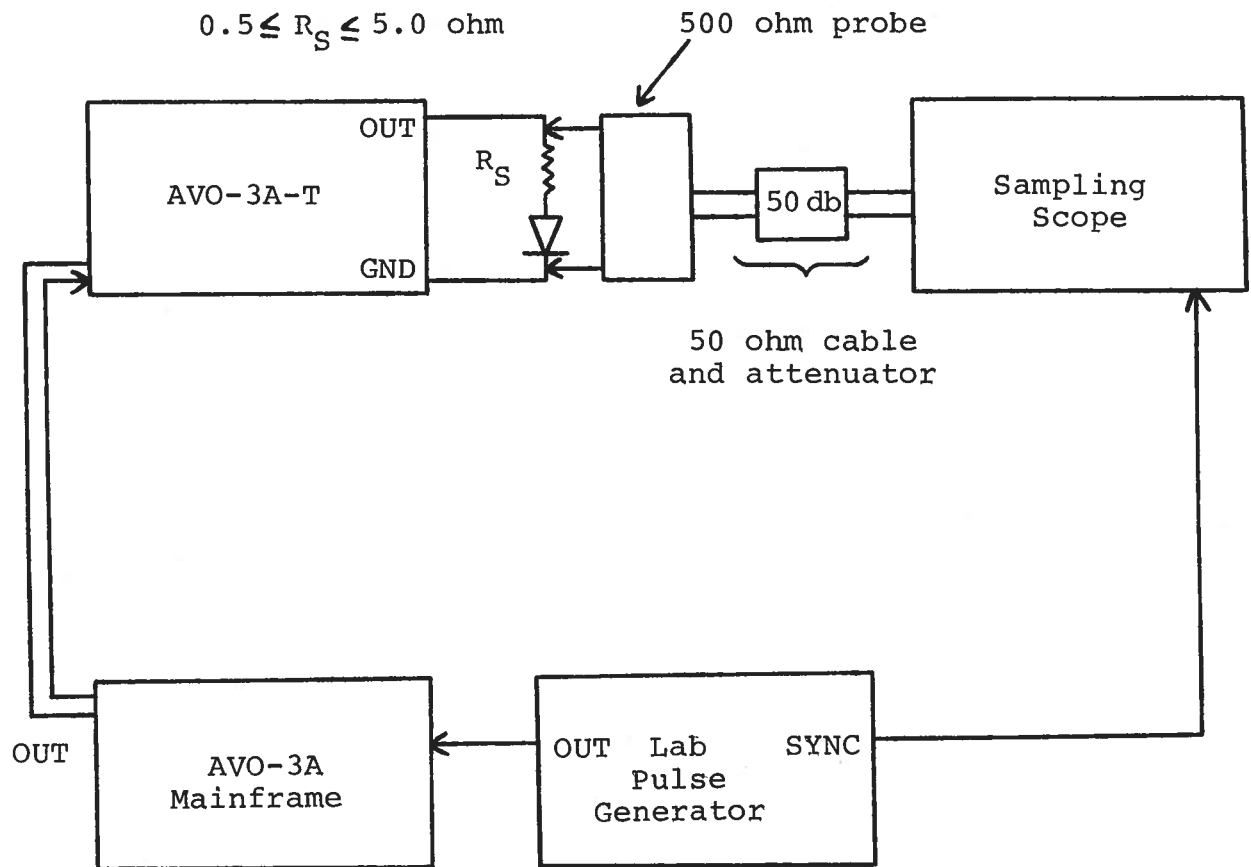
V_{OUT} : +3 to +5 volts
(TTL)

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 1 nsec a fast oscilloscope (at least 1 GHz) should be used to display the waveform. If a sampling scope is used, a 50 db (or greater) attenuator should be used to insure a peak input to the scope of less than 0.5 volts.
- 2) The laser diode is connected in series with a current limiting resistor ($0.5 < R_B < 10$ ohm) between the GND and OUT terminals on the AVO-3A-T module. In order to monitor the diode current a 0.5 ohm current sensing resistor may be connected in series with the diode and resistor R_B . 1/4 watt carbon film or carbon composition resistors may be used but all leads must be as short as possible (≤ 0.1 inch). Solder leads directly to the GND and OUT terminals. An alternative current monitoring arrangement employing a high impedance probe is shown in Fig. 2. With either arrangement (Fig. 1 or Fig. 2), some ringing may be observed following the output impulse. This ringing is largely the consequence of the exceedingly low probe load impedance.
- 3) The amplitude of the diode current is determined by the setting of the AMP pot control, the series resistor $R_B + 0.5$ ohm, and by the series resistance of the laser diode. The performance check results given in the following page were obtained using a 1N4736 diode to simulate a laser diode load. With this diode a peak current of 20 amperes was obtained with $R_B = 5.1$ ohm and the pot set maximum clockwise. A peak current of 75 amperes was obtained with $R_B = 1.1$ ohm and the pot set near maximum clockwise.
- 4) WARNING: The unit may fail if triggered at a PRF exceeding 20 KHz. Use moderate heat when soldering to the OUT terminal.
- 5) The AVO-3A-T module connects to the AVO-3A mainframe via a 2 foot long cable which is permanently attached to the AVO-3A-T module. Note that this cable should not be disconnected from the mainframe when the prime power is on as voltages as high as 400 volts are transmitted on the cable.

Fig. 2

AVO-3 TEST ARRANGEMENT



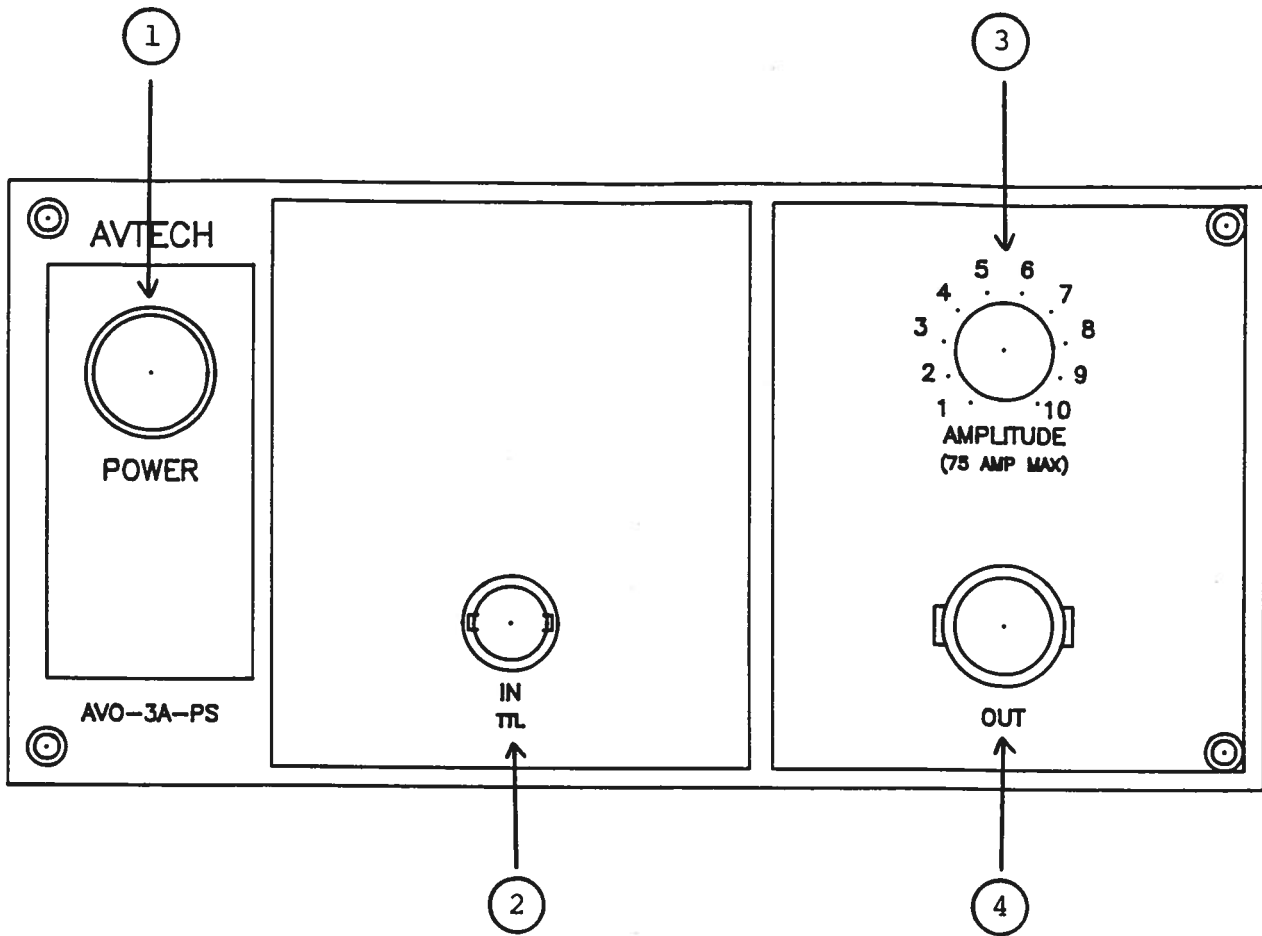


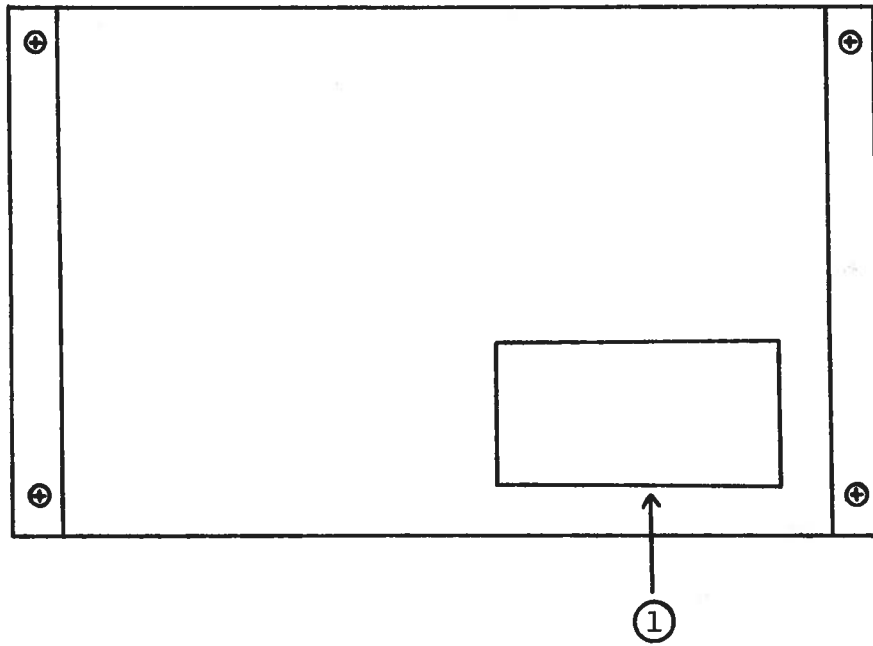
Fig. 3

FRONT PANEL CONTROLS

- (1) ON-OFF Switch. Applies basic prime power to all stages.
- (2) IN. The external trigger signal is applied at this point.
- (3) AMP Control. A one turn control which varies the output pulse amplitude in combination with the diode series resistor.
- (4) OUT Connector. Multiwire cable from AVO-3A-T connects to mainframe at this point.

Fig. 4

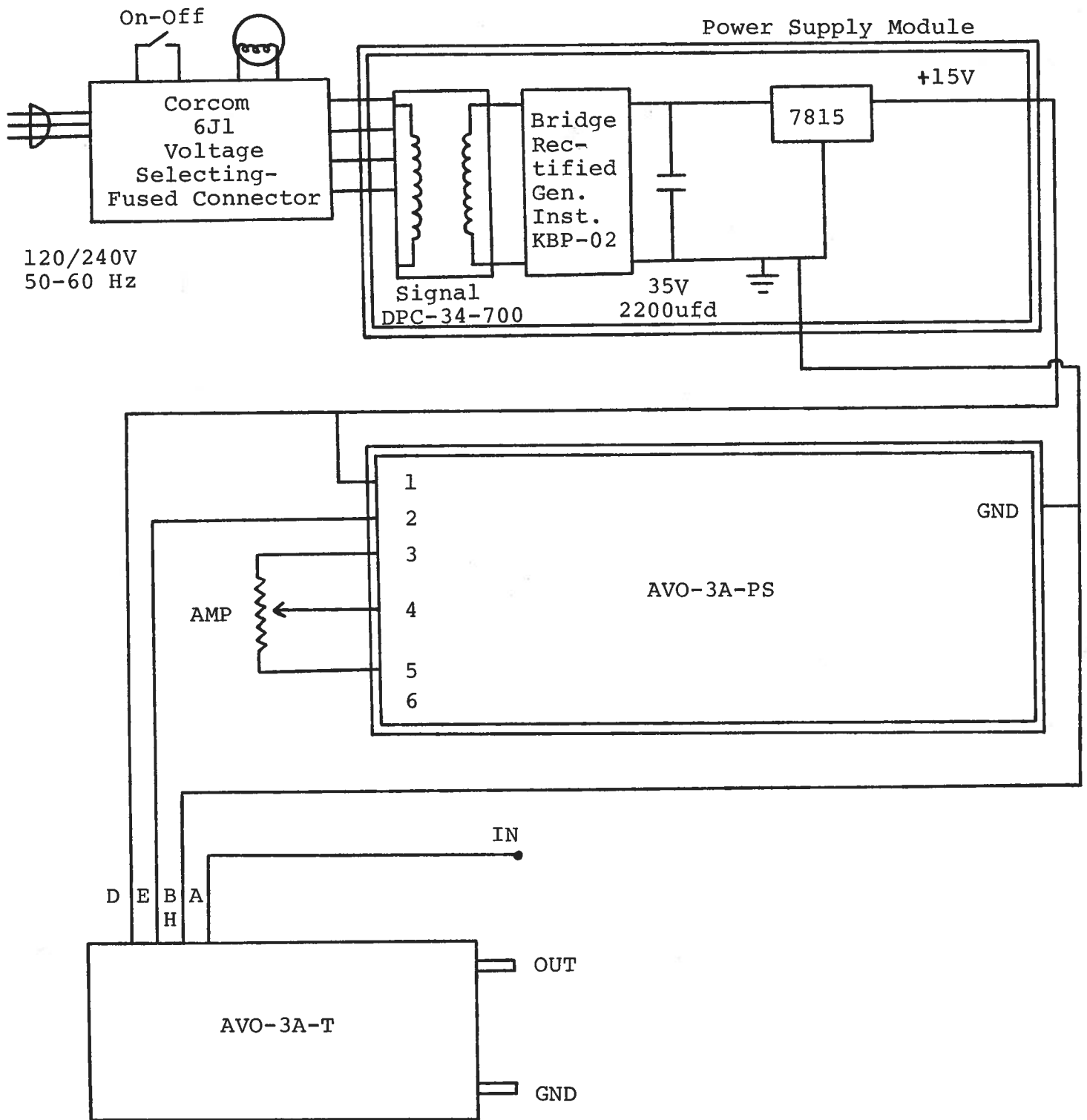
BACK PANEL CONTROLS



- (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. 5

SYSTEM BLOCK DIAGRAM



1) The AVO-3A-PS unit consists of four basic components or modules:

- a) Metal chassis
- b) AVO-3A-PS module (Power Supply)
- c) AVO-3A-T module (Pulse Generator)
- d) +15V power supply board

The modules are interconnected as shown above.

- 2) If the unit malfunctions, disconnect from the 60 Hz supply and the trigger source and remove the two screws on each side of the unit. With the screws removed, the chassis cover consisting of the top and two sides will lift upwards exposing the modules shown above.
- 3) Reconnect to the 60 Hz source and check the voltage on the line connecting the 7815 output to pin 1 of the AVO-3A-PS module. A voltage of +15 volts should be recorded. If the voltage is substantially less than +15 volts, disconnect the 60 Hz source and disconnect the line from pin 1. Connect a 100 ohm 5 watt resistance to the output of the 7815. Reconnect to the 60 Hz source and measure the voltage across this resistor. A voltage of +15 volts should be indicated. If the voltage is substantially less than 15 volts the power supply module is defective and should be either repaired or replaced. If the measured voltage is equal to +15 volts then either the -PS or -T modules have failed. Disconnect the AVO-3A-T module from the AVO-3A mainframe and apply prime power and measure the voltage at pin 3. If this voltage is about 360 volts then the -T module has failed and should be returned to Avtech for repair or replacement. If the voltage is substantially less than 360 volts then the PS module has failed and should be returned to Avtech for repair.

Schroff 05.08.85

Revised Aug. 22/94 (Fig. 3 only)