AVTECH ELECTROSYSTEMS LTD.

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ENGINEERING - MANUFACTURING

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INSTRUCTIONS

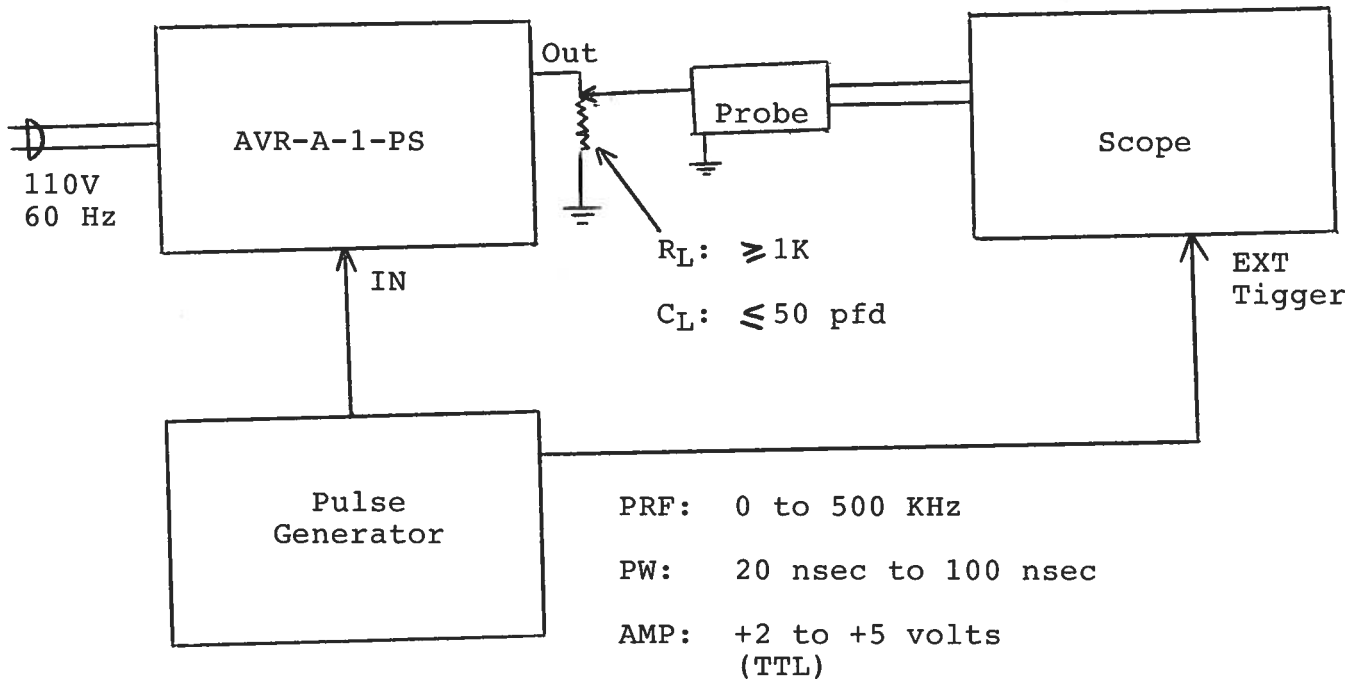
Model AVR-A-1-PS-JPL2 Pulse Generator

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.

A. TEST ARRANGEMENT



B. GENERAL OPERATING INSTRUCTIONS

1) The equipment should be connected in the general fashion shown above. Since the AVR unit provides an output pulse rise time as low as 10 nsec a fast oscilloscope (at least 50 MHz and preferably 200 MHz) should be used to display the waveform. CAUTION: The instrument may be damaged if:

a) the load capacitance exceeds 50 pfd
b) the load resistance is less than 1K
c) the PRF exceeds 500 KHz
d) the pulse width exceeds 100 nsec

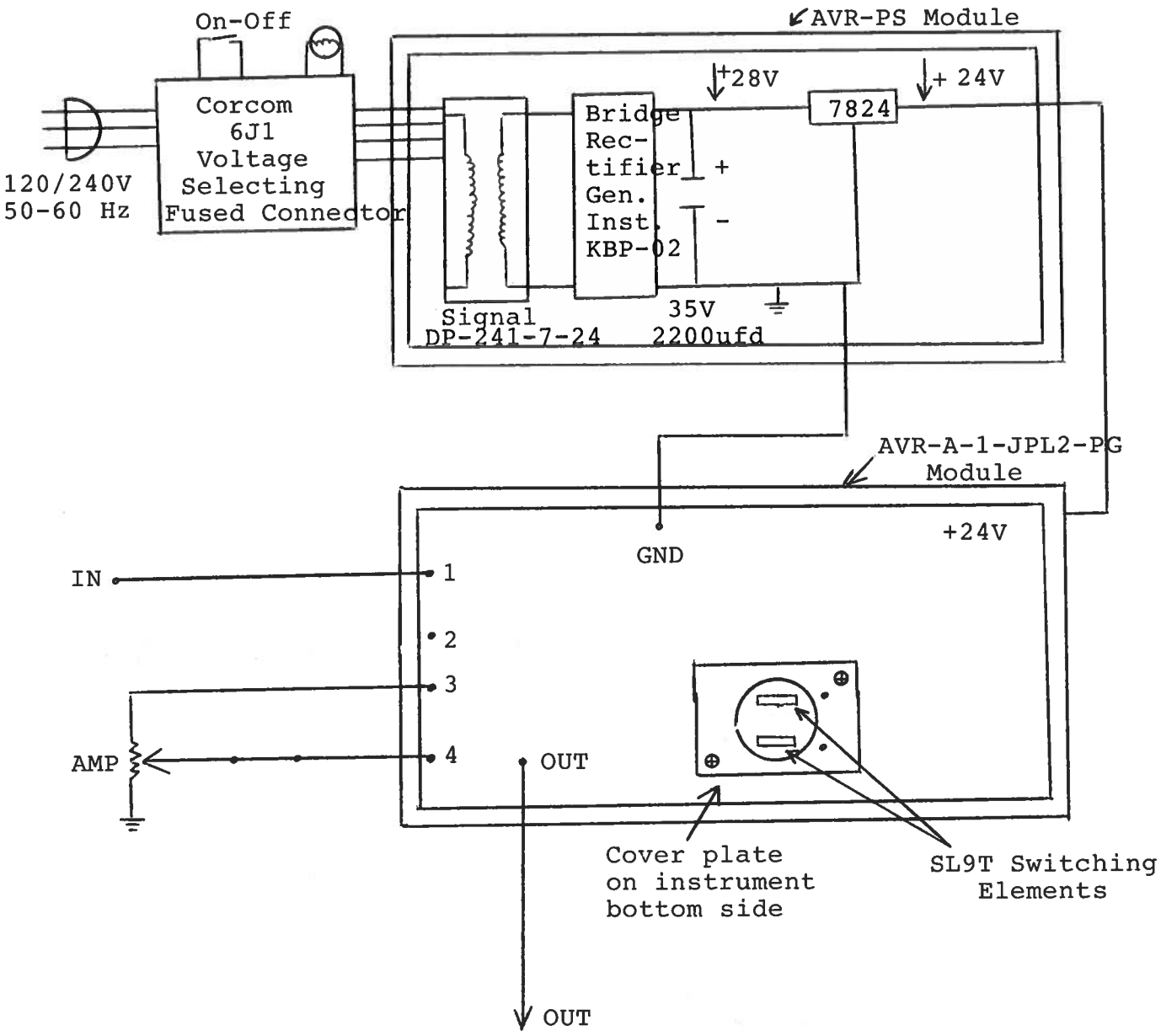
Note that coaxial cables connected to the pulse generator output ports typically contribute 15 pfd per foot of length and so this capacitance must be included in the total. At wide pulse widths, high PRF and high load current, the bias voltage applied to the output power stage decreases and as a result the attainable output peak voltage decreases to less than 250 volts. Under conditions of severe loading the output stage may be damaged. Instructions for replacing the output switching elements are given in the following section.

2) The output PRF is equal to the input trigger pulse PRF.

3) The output pulse width is equal to the input trigger pulse width.

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

C. SYSTEM BLOCK DIAGRAM AND REPAIR PROCEDURE



1) The AVR unit consists of three basic components or modules:

a) Metal chassis
b) AVR-PS module (Power Supply)
c) AVR-PG module (Pulse Generator)

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 four Phillips screws on the back panel of the unit. With the screws removed, the top cover may be slid off.

3) Reconnect to the 60 Hz source and check the voltage on the line connecting the AVR-PS output to the +24 V pin of the AVR-PG module. A voltage of +24 volts should be recorded. If the voltage is substantially less than +24 volts, disconnect the 60 Hz source and disconnect the line from the +24 volt pin. Connect a 50 ohm 8 watt resistance to the output of the AVR-PS module. Reconnect to the 60 Hz source and measure the voltage across this resistor. A voltage of +24 volts should be indicated. If the voltage is substantially less than 24 volts the AVR-PS module is defective and should be either repaired or replaced. If the measured voltage is equal to +24 volts then the SL9T switching elements in the AVR-PG module have probably failed. The SL9T switching elements are easily replaced by removing the cover plate on the instrument bottom side and removing the four countersunk 2-56 Phillips screws which attach the 0.5 by 2.5 cm heat sink bars to the chassis. The SL9T elements may then be removed using needle nose pliers. Before attempting this first insure that the prime power is off and also briefly ground the metal tabs on the SL9T elements to the chassis as the bypass capacitors may be charged to 225 volts. Replacement SL9T units must be ordered directly from Avtech. When reinstalling the SL9T units in their sockets, insure that the shortest of the three terminals is adjacent to the black dot on the AVR-PG chassis. When installing replacement SL9T elements, the SL9T element is first inserted in the sockets and then the small aluminum heat sink bar is attached adjacent to the SL9T tab but leaving a space of about 0.05 inches. This space is then filled with WAKEFIELD TYPE 155 HEAT SINK ADHESIVE. The heat sink adhesive is thermally conductive but electrically isolates the SL9T tab from the heat sink bar and therefore from the electrical ground of the instrument.

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