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INSTRUCTIONS

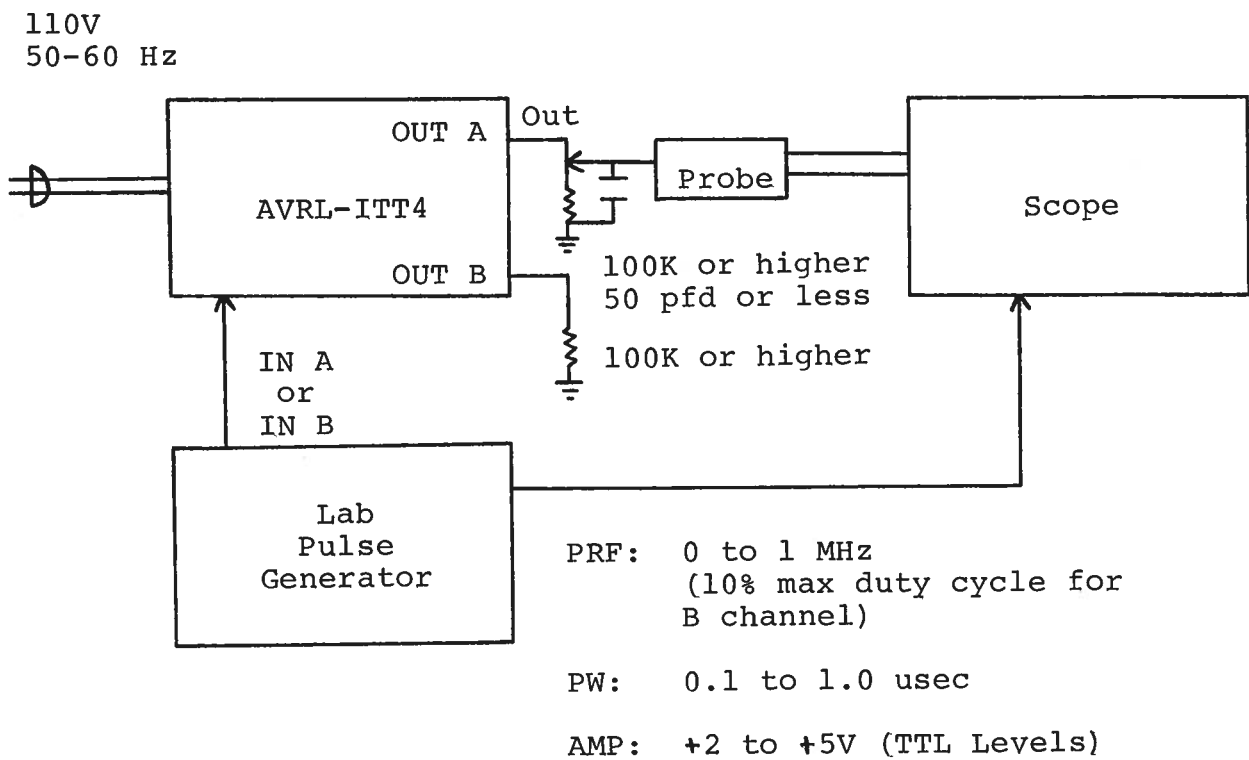
MODEL AVRL-ITT4 PULSE GENERATOR

S.N. :

WARRANTY

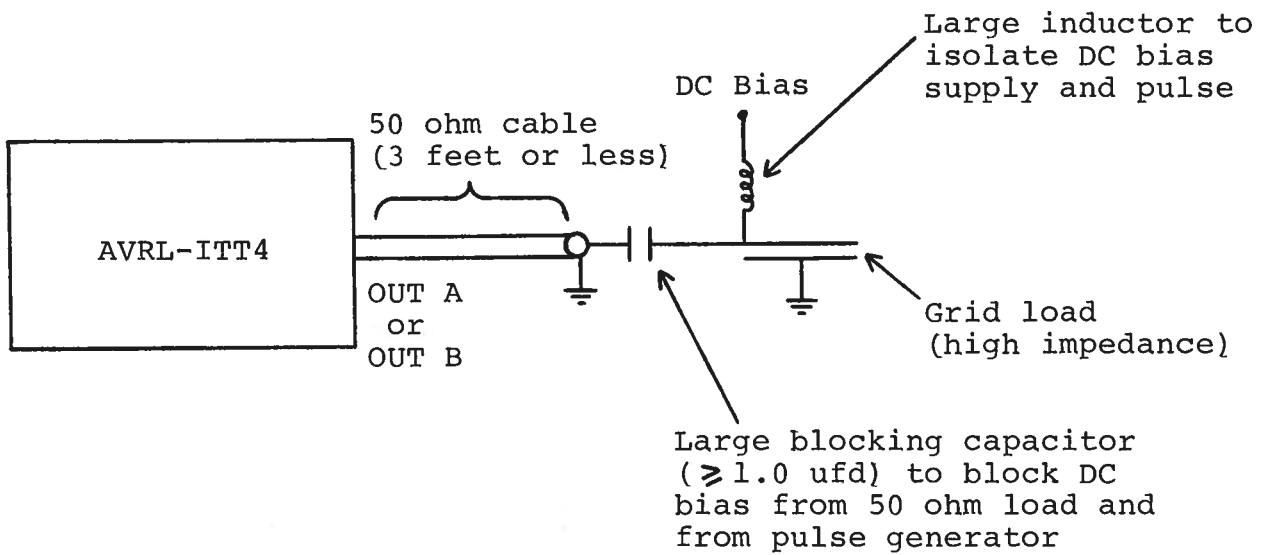
Avtech Electrosystems Ltd. warrants products of its manufacture to be free from defects in material and workmanship under conditions of normal use. If, within one year after delivery to the original owner, and after prepaid return by the original owner, this Avtech product is found to be defective, Avtech 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



Notes:

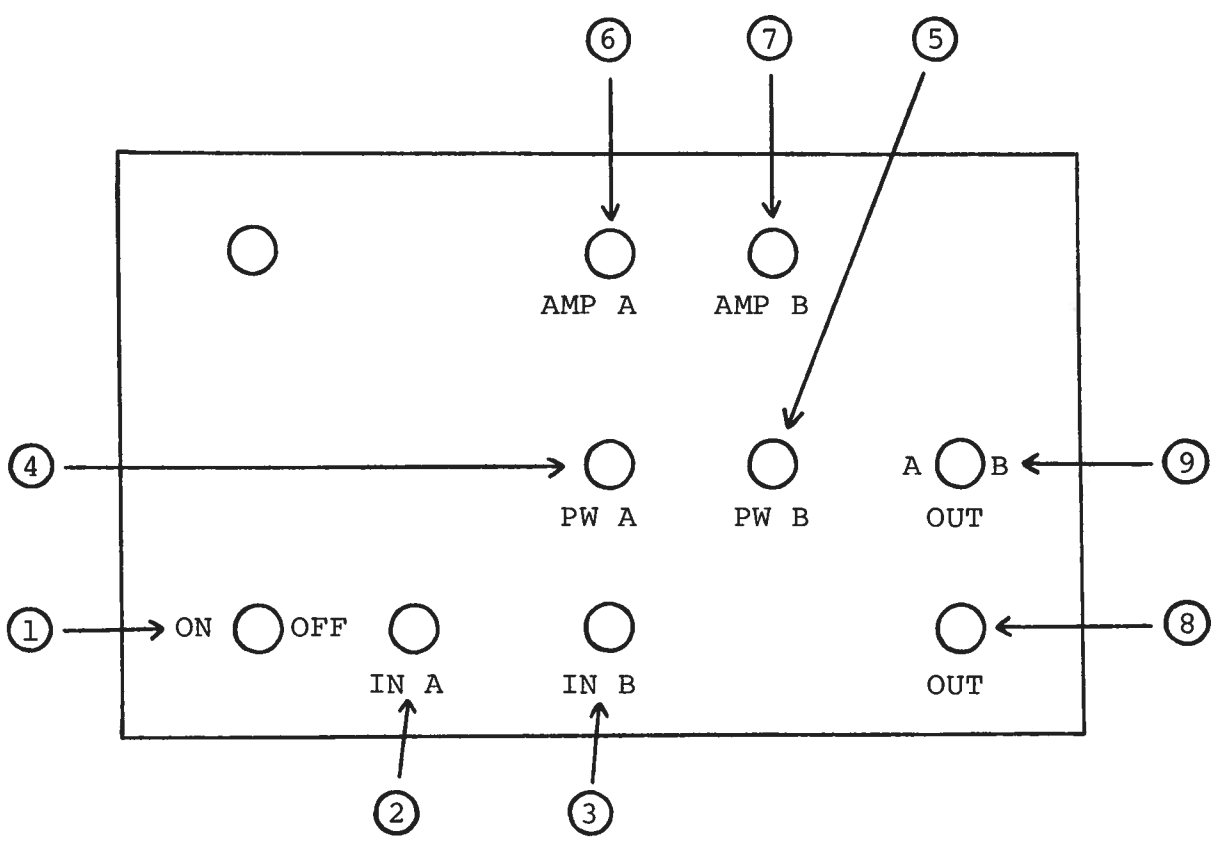
- 1) The equipment should be connected in the general fashion shown above. A scope with a bandwidth of at least 50 MHz should be used to view the outputs.
- 2) Both output amplitudes are variable from 0 to -200 volts. Care should be taken to insure that the scope and the load resistor can withstand this high voltage.
- 3) The output pulse width for output A is variable from 20 nsec to 100 nsec. The output pulse width for output B is variable from 100 nsec to 5 usec.
- 4) The output PRF is equal to the input PRF applied to the IN A or IN B ports. Note that both A and B outputs may fail if above PRF specifications and duty cycle are exceeded or if the load capacitance specification is exceeded.
- 5) Outputs A and B are designed to operate directly into a high impedance load (100K or higher). WARNING: Unit may fail if operated into a 50 ohm load. The following arrangement is recommended when the unit is used to pulse a biased high impedance load:



- 6) The output switching elements (SL9T) will probably fail if the output of the unit is accidentally short-circuited or if the unit is operated at high output pulse width - high PRF combinations. The switching elements are easily replaced following the instructions given in the REPAIR Section.

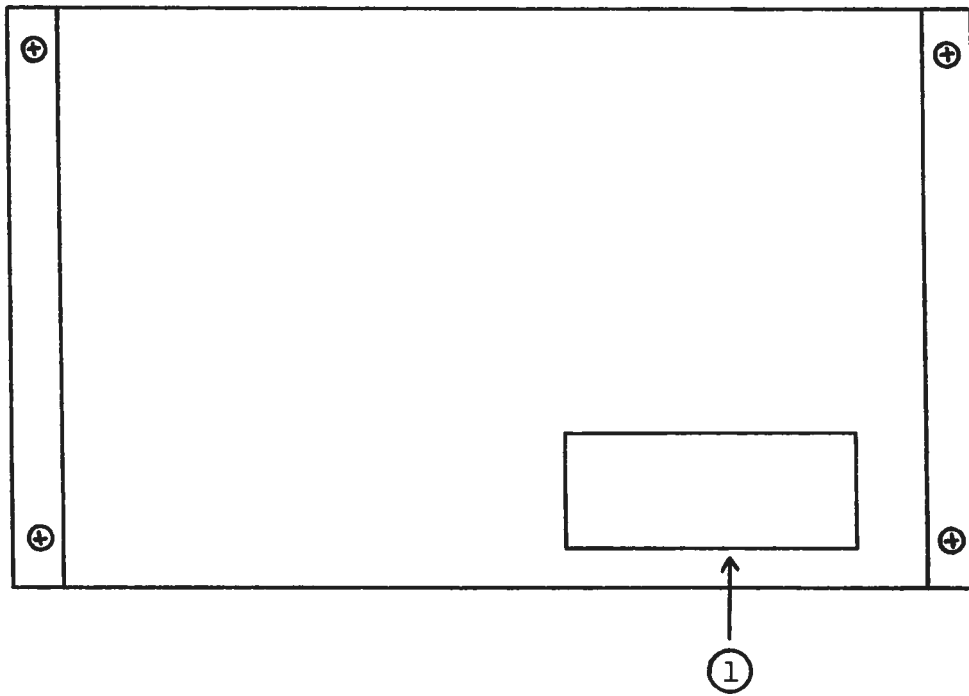
- 7) CAUTION: The instrument will be damaged if the load capacitance exceeds 50 pfd or if the duty cycle exceeds 10%. For example, the B channel PW at 1 MHz must not exceed 100 nsec or the load capacitance must not exceed 50 pfd. Note that coaxial cables connected to the pulse generator output ports typically contribute 15 pfd per foot of length and so this capacitance must be included in the total.

FRONT PANEL CONTROLS



- (1) ON-OFF Switch. Applies prime power to all stages.
- (2) IN A. Input trigger for A output applied here (TTL levels 0.1 to 1.0 usec).
- (3) IN B. Input trigger for B output applied here (TTL levels 0.1 to 1.0 usec). IN A and IN B may be connected in parallel.
- (4) PW A. One turn control used to vary output PW (A) from 20 to 100 nsec.
- (5) PW B. One turn control used to vary pulse width of output B from 100 nsec to 5 usec. Note that duty cycle must not exceed 10%.
- (6) AMP A. One turn control used to vary A output pulse from 0 to -200 volts to a high impedance load.
- (7) AMP B. One turn control used to vary B output pulse from 0 to -200 volts to a high impedance load.
- (8) OUT Connector. BNC connectors used to connect output of A and output of B to high impedance load.
- (9) A-B OUTPUT Switch. With switch in the A position, pulse generator A is connected to the output connector (8) and the B pulse generator is disabled. With switch in the B position, pulse generator B is connected to the output connector (8) and the A pulse generator is disabled.

BACK PANEL CONTROLS



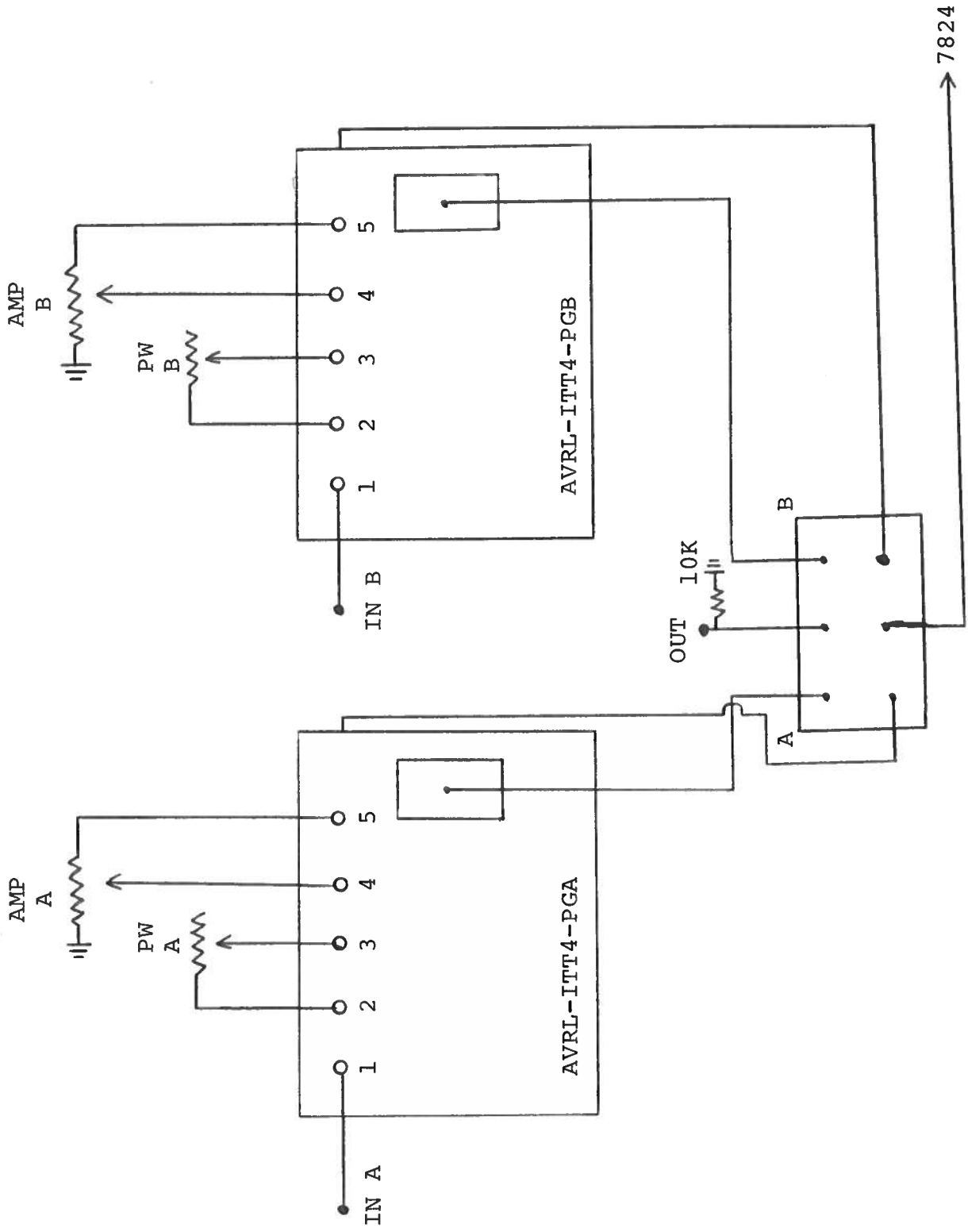
- (1) FUSED CONNECTOR. VOLTAGE SELECTOR. The detachable power cord is connected at this point. In addition, the removable cord is adjusted to select the desired input operating voltage. The unit also contains the main power fuse.

REPAIR PROCEDURE

- 1) WARNING: Before attempting any repairs, note that potentials as high as 210 volts are employed in the chassis structure.
- 2) The pulse generator is constructed from the following subsystems or modules:
 - a) Metal chassis
 - b) A pulse generator module (AVRL-ITT4-PGA)
 - c) B pulse generator module (AVRL-ITT4-PGB)
 - d) +24V power supply board

The modules are interconnected as shown in the following diagram.

- 3) If no output is provided by the A or B outputs then it is most likely that the SL9T switching elements in the output stages have been damaged and should be replaced using the following procedure:
 - i) Turn off prime power and remove cover plate on bottom of instrument (six 2-56 screws).
 - ii) By means of a screwdriver, briefly ground the tabs of the two SL9T transistors to discharge the bypass capacitors.
 - iii) Loosen the 2-56 Phillips head screws which secure the SL9T transistors to the chassis and extract the old SL9T transistors from their socket by means of needle-nosed pliers. Retain the plastic insulating washer and the grey heat sink pad.
 - iv) Transfer the small aluminum L brackets to the replacement SL9T transistors and reinsert the transistors into the sockets, insuring that the short lead is adjacent to the black dot on the chassis and insure that the L bracket or the transistors is not shorted to the pulse generator chassis.
 - v) Install the grey heat sink pad and the insulating washer and the 2-56 machine screw. Install cover plate and turn on prime power.

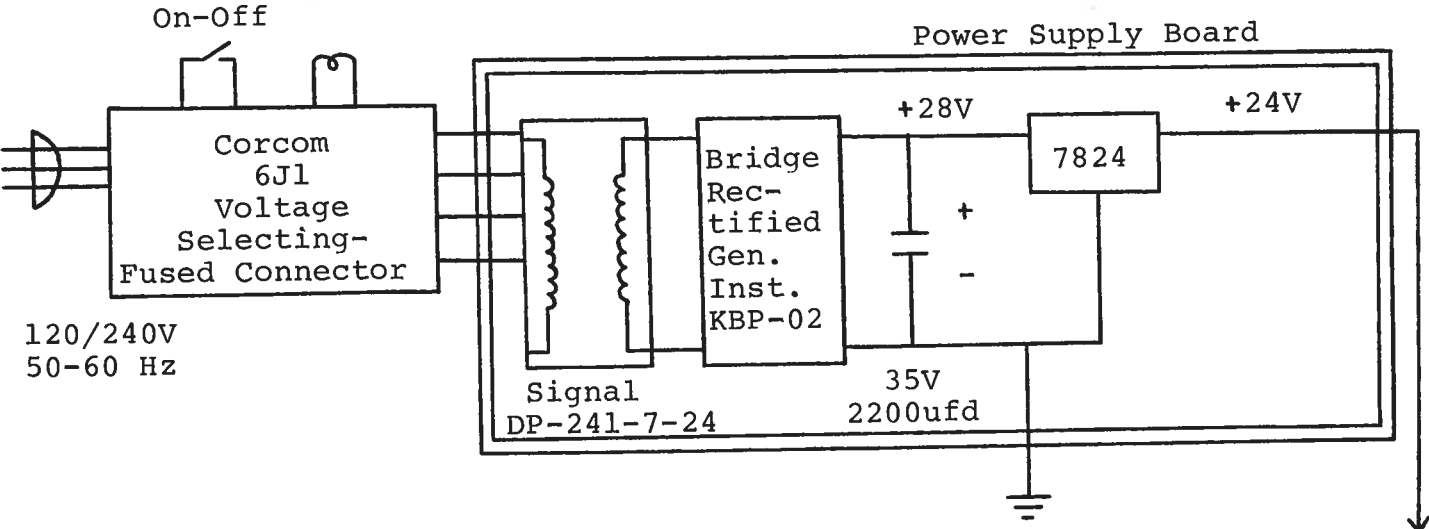


AVRL-ITT4

+24 VOLT POWER SUPPLY

The AVRL-ITT4 consists of the two standard modules and a power supply board which supplies +24 volts (600 mA max) to the modules. In the event that the unit malfunctions, remove the instrument top cover, thereby exposing the modules. Measure the voltage at the +24 V pin of the PS module. If this voltage is substantially less than +24 volts, unsolder the line connecting the power supply board output and connect a 50 ohm 10 W load to the power supply output. The voltage across this load should be about +24 V DC. If this voltage is substantially less than 24 volts the power supply board is defective and should be repaired or replaced. If the voltage is near +24V then see instructions in preceding section.

POWER SUPPLY BOARD



Schroff

09.11.84

