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INSTRUCTIONS

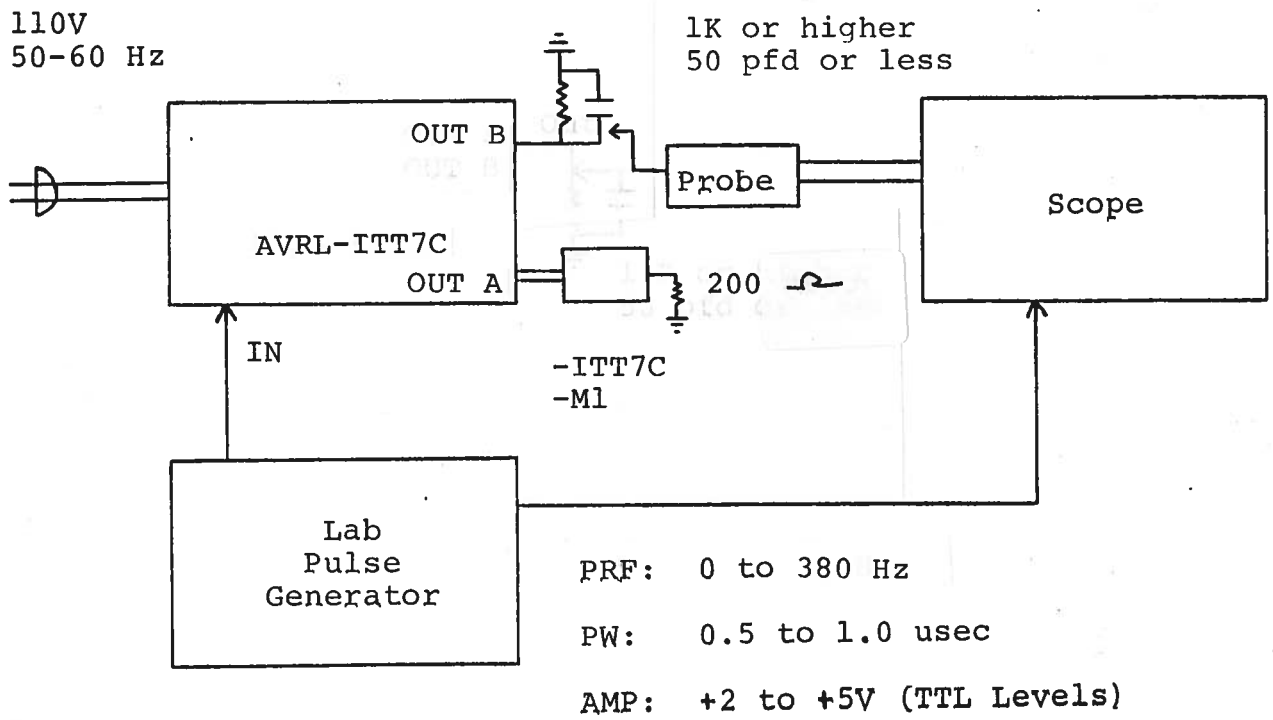
MODEL AVRL-ITT7C PULSE GENERATOR

S.N. :

WARRANTY

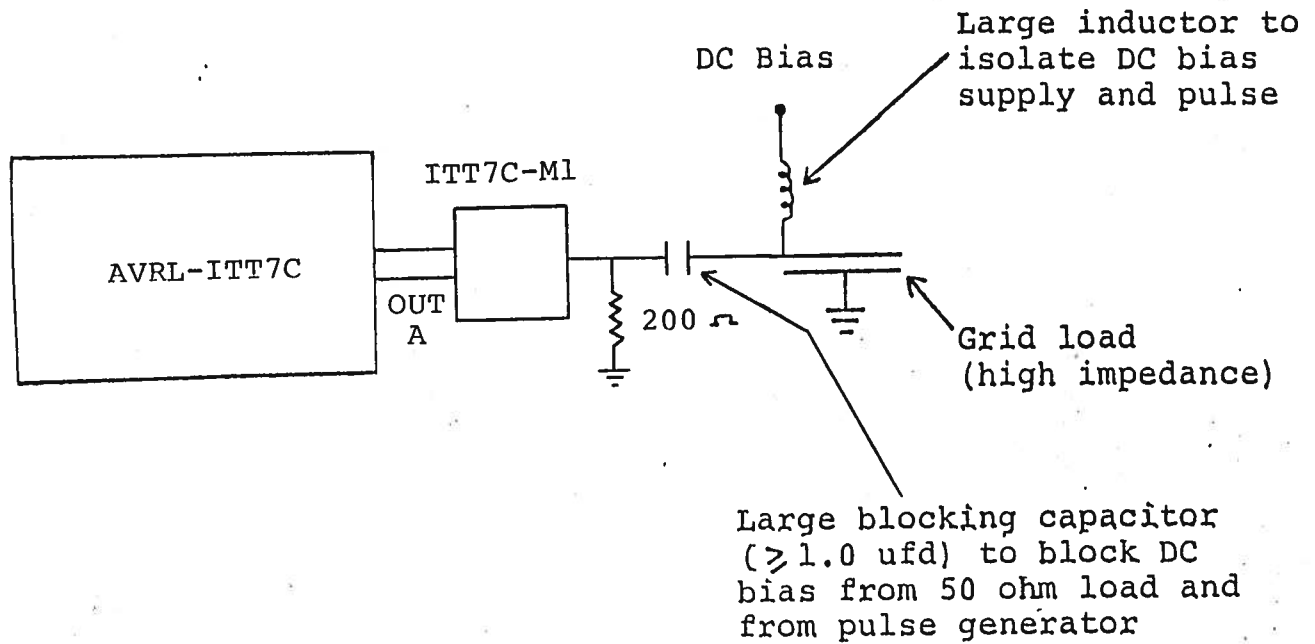
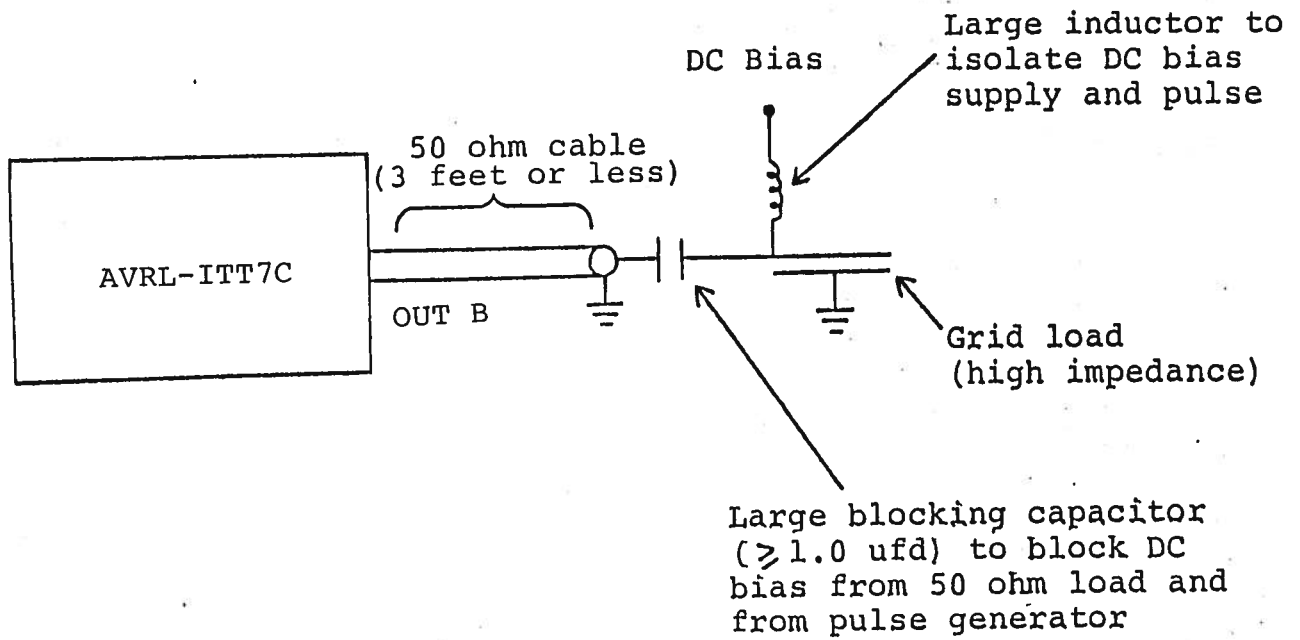
Avtech Electrosystems Ltd. warrants products of its manufacture to be free from defects in material and workmanship under conditions of normal use. If, within one year after delivery to the original owner, and after prepaid return by the original owner, this Avtech product is found to be defective, Avtech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

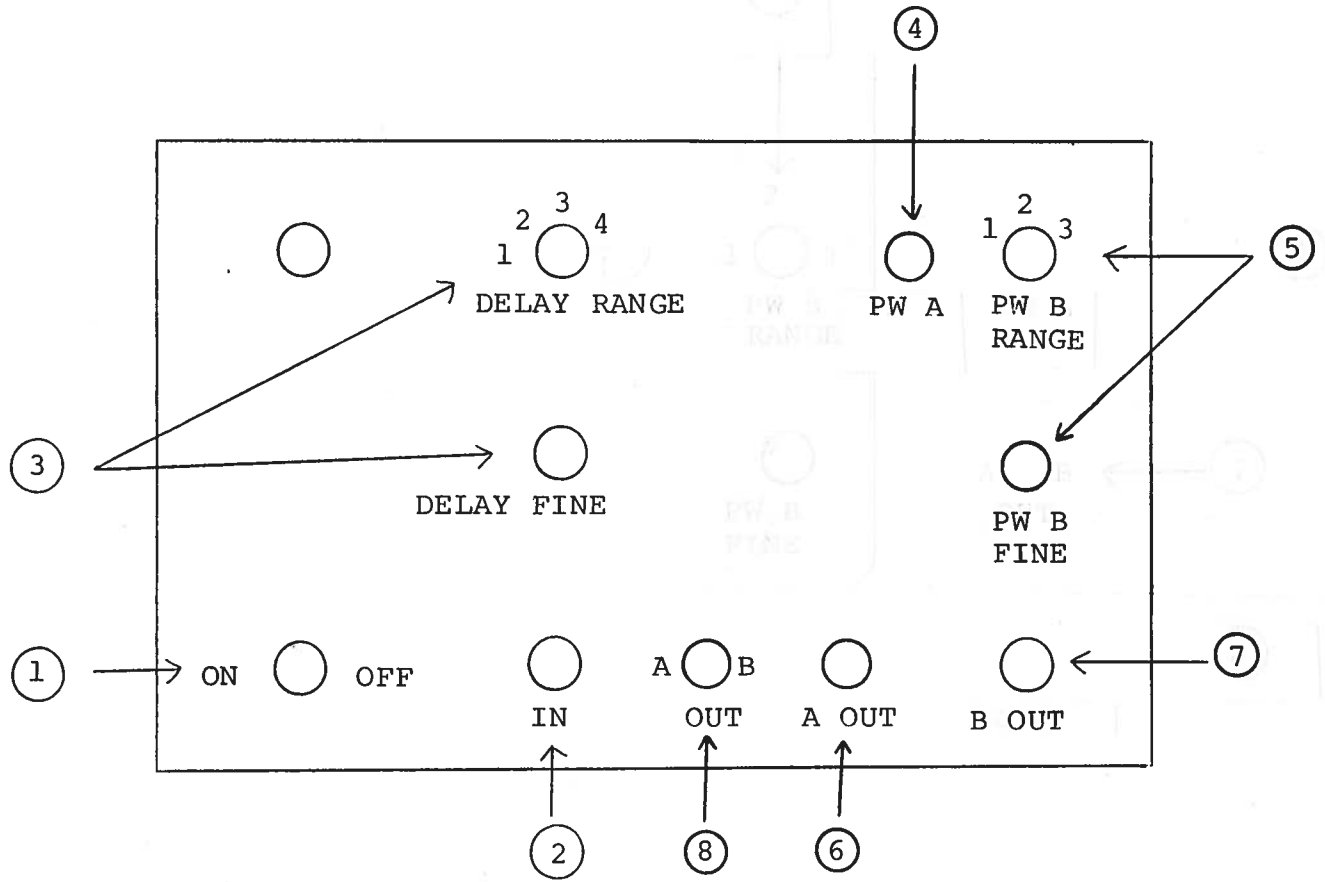
- 1) The equipment should be connected in the general fashion shown above. A scope with a bandwidth of at least 50 MHz should be used to view the outputs.
- 2) Both output amplitudes are fixed at -200 V. Care should be taken to insure that the scope and the load resistor can withstand this high voltage (and high output power for wide output pulse widths).
- 3) The output pulse width for output A is variable from 6 nsec to 100 nsec by adding 50 ohm coaxial to the PW A connector. Cable such as RG 174 or RG 58 (or better) is recommended. The output pulse width increases by 3 nsec for every additional foot of cable added. **CAUTION:** The center conductor at the PW A port is at a potential of about 320 volts so the prime power should be turned off when replacing or adjusting the PW cable.
- 4) The output PW for output B is variable from 100 nsec to 50 usec via the 3 position range switch and one turn control.
- 5) The output PRF is equal to the input PRF applied to the IN port. 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.
- 6) The ITT7C-M1 module connects to the OUT A port via a 50 ohm cable. The length of this cable is not critical. The output terminals of the ITT7C-M1 module are shunted by a 200 ohm resistor. This resistor must not be removed. The load is placed in parallel across this resistor.
- 7) Outputs A and B are designed to operate directly into a high impedance load (1 K 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:



- 8) The output switching elements (SL4) 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.

- 9) **CAUTION:** The instrument may be damaged if the load capacitance exceeds 50 pfd or if the load resistance is less than 1 K. 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. Input trigger for A and B outputs applied here (TTL levels, 0.5 to 1.0 usec).
- (3) DELAY RANGE, DELAY FINE. Varies propagation delay from IN to OUT as follows:

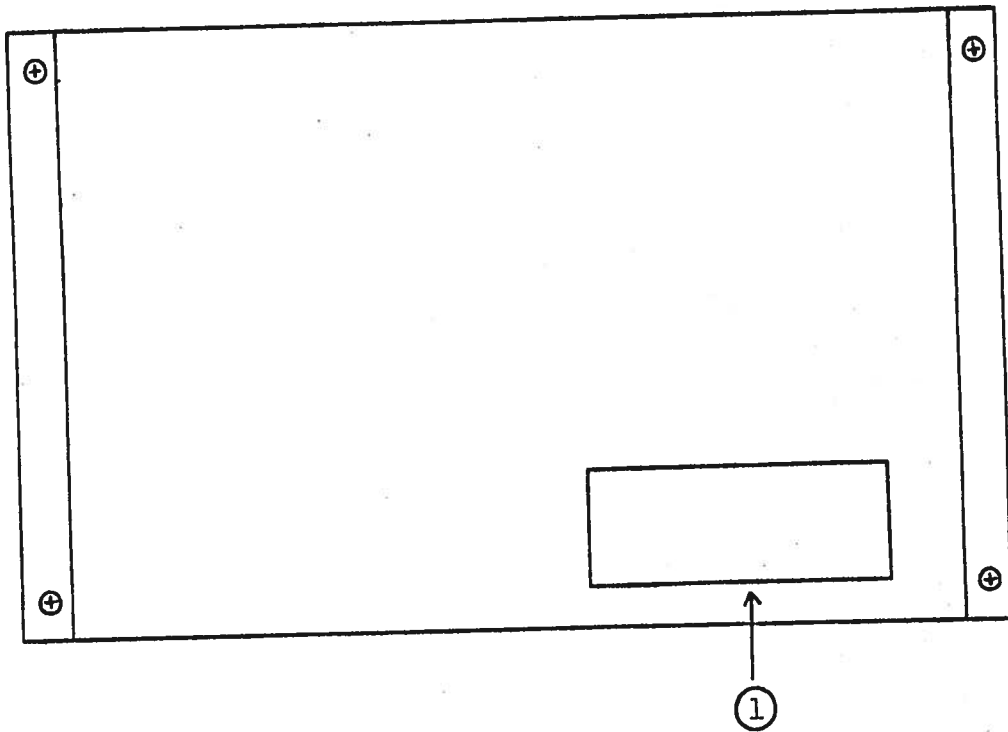
	A OUT	B OUT
RANGE 1:	20 nsec to 150 nsec	90 nsec to 220 nsec
RANGE 2:	100 nsec to 1.5 usec	200 nsec to 1.5 usec
RANGE 3:	1 usec to 13 usec	1 usec to 13 usec
RANGE 4:	6 usec to 56 usec	6.0 usec to 56 usec

- (4) PW A. SMA connector to which fifty ohm cable is attached to control output pulse width of A channel. Pulse width increases 3 nsec for each additional foot of cable added. Use RG 174 or RG 58 (or better) cable.
- (5) PW B. One turn control and 3 position range switch used to vary pulse width of output B from 100 nsec to 50 usec as follows:

RANGE 1:	100 nsec to 0.6 usec
RANGE 2:	0.5 usec to 12 usec
RANGE 3:	10 usec to 60 usec

- (6) OUT A Connector. SMA connector to which ITT7C-M1 module is connected via fifty ohm cable. Load for A channel connects to output terminals on ITT7C-M1 module. NOTE: Do not remove 200 ohm resistor from output terminals of ITT7C-M1 module.
- (7) OUT B Connector. BNC connector used to connect output of B to high impedance load.
- (8) A-B OUTPUT Switch. With switch in the A position, pulse generator A is connected to the output connector (A) and the B pulse generator is disabled. With switch in the B position, pulse generator B is connected to the output connector (B) 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.

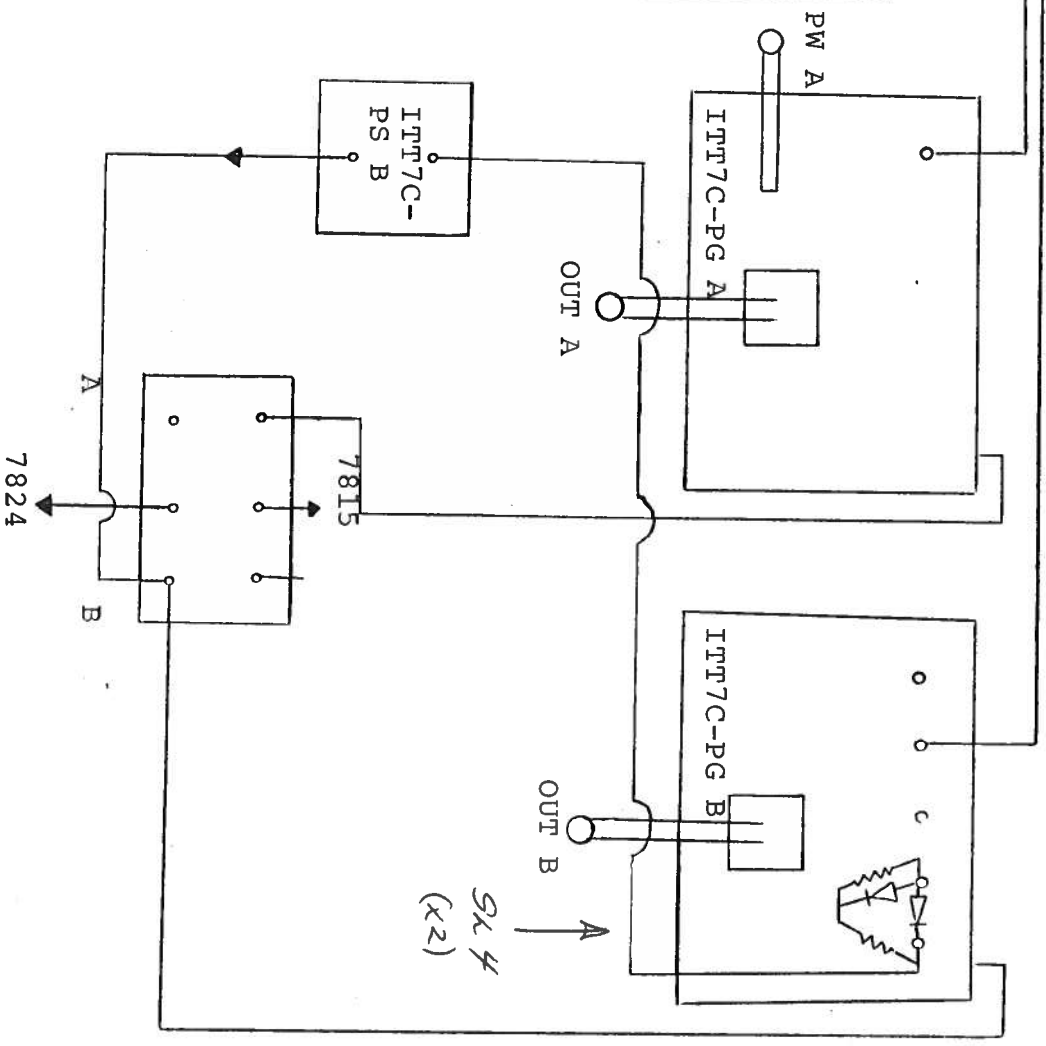
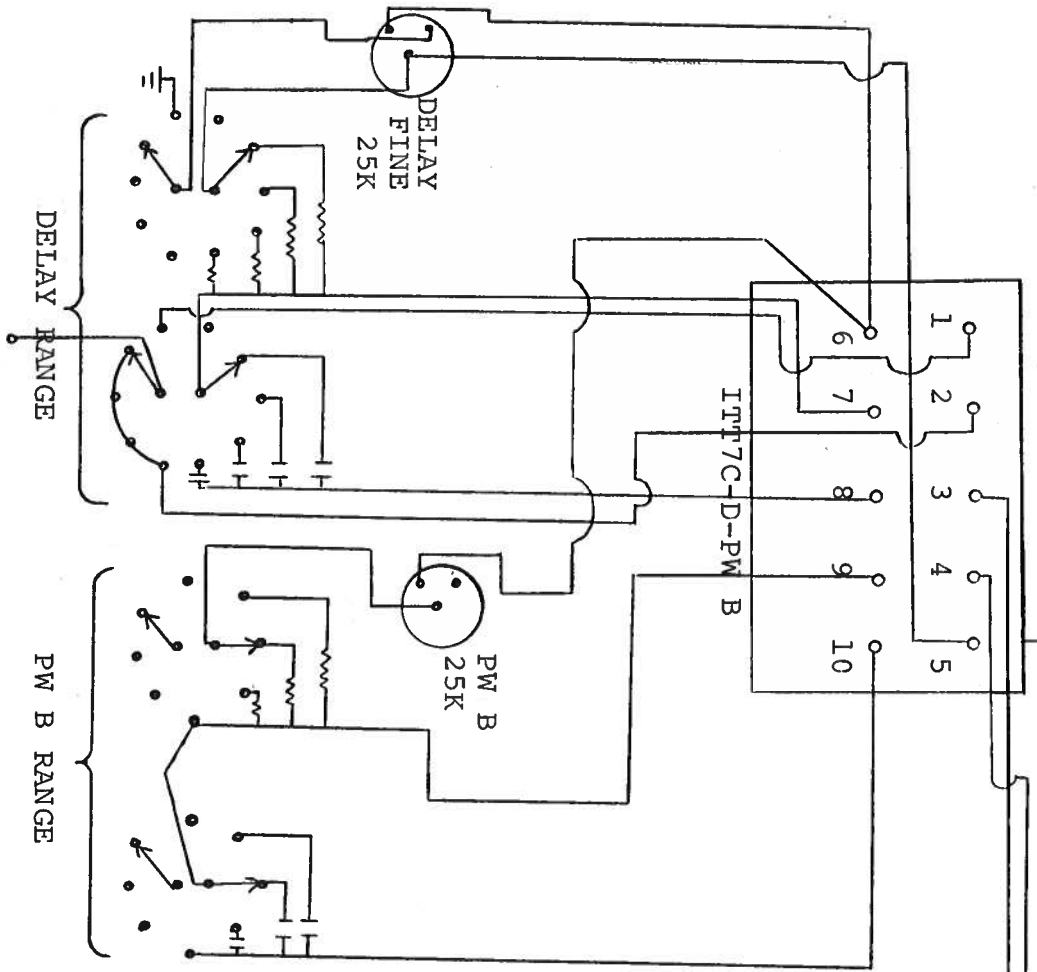
REPAIR PROCEDURE

- 1) **WARNING:** Before attempting any repairs, note that potentials as high as 320 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-ITT7C-PGA)
 - c) B pulse generator module (AVRL-ITT7C-PGB)
 - d) Delay module (AVRL-ITT7C-D-PW)
 - e) +24V power supply board
 - f) B pulse generator power supply (AVRL-ITT7C-PSB)

The modules are interconnected as shown in the following diagram.

- 3) If no output is provided by the B output then it is most likely that the SL4 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 (two 2-56 screws).
 - ii) By means of a screwdriver, briefly ground the tabs of the two SL4 transistors to discharge the bypass capacitors.
 - iii) Extract the old SL4 transistors from their socket by means of needle-nosed pliers.
 - iv) Install replacement SL4 transistors and install cover plate.
- 4) The PG A unit is a sealed module and must be returned to AVTECH for repair purposes.

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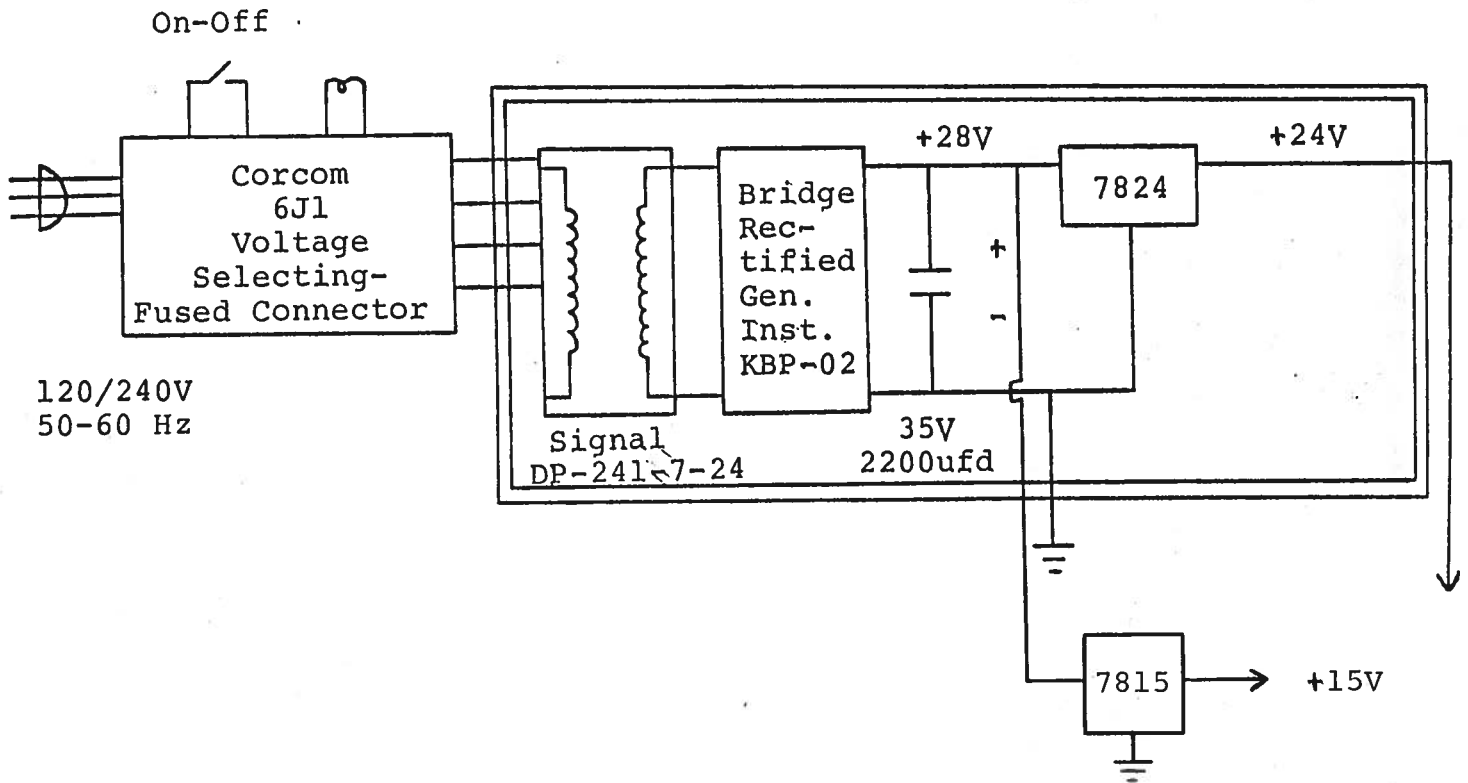


AVRL-I777C

+24 VOLT POWER SUPPLY

The AVRL-ITT7C consists of the four 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



Schnoff

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