AVTECH ELECTROSYSTEMS LTD.

NANOSECOND WAVEFORM ELECTRONICS
ENGINEERING - MANUFACTURING

P.O. BOX 265
OGDENSBURG
NEW YORK
13669
(315) 472-5270

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

INSTRUCTIONS

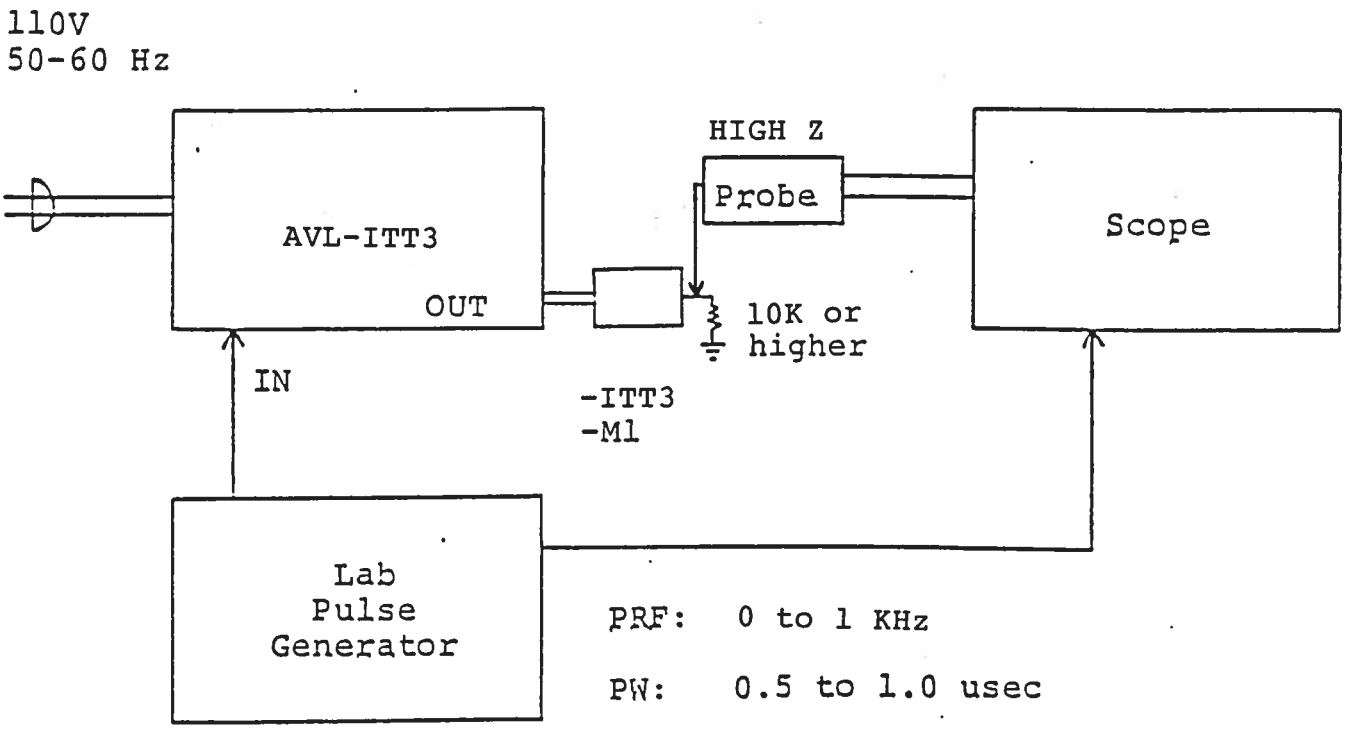
MODEL AVL-ITT3-OT-M-D1-ED-DND1 PULSE GENERATOR

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.

TEST ARRANGEMENT



PRF: 0 to 1 KHz

PW: 0.5 to 1.0 usec

AMP: +2 to +5V (TTL Levels)

Notes:

1) The equipment should be connected in the general fashion shown above. A scope with a bandwidth of at least 500 MHz should be used to view the outputs.

2) The output amplitude is fixed at -300 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 is variable from 5 nsec to 100 nsec by adding 50 ohm coaxial to the rear panel PW 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 port is at a potential of about 400 volts so the prime power should be turned off when replacing or adjusting the PW cable.

4) The output PRF is equal to the input PRF applied to the IN port.

5) The pulse generator mainframe generates a -150 volt pulse to 50 ohms. The ITT3-M1 module transforms this to -300 volts to 200 ohms. The 200 ohm resistor is mounted internally in the ITT3-M1 module. The equivalent circuit of the ITT3-M1 module is shown on the following page. The ITT3-M1 module connects to the OUT A port via a 50 ohm cable. The length of this cable is not critical but does add to the propagation delay at the rate of 1.5 nsec per foot. The high impedance load is placed in parallel across the ITT3-M1 output terminals.

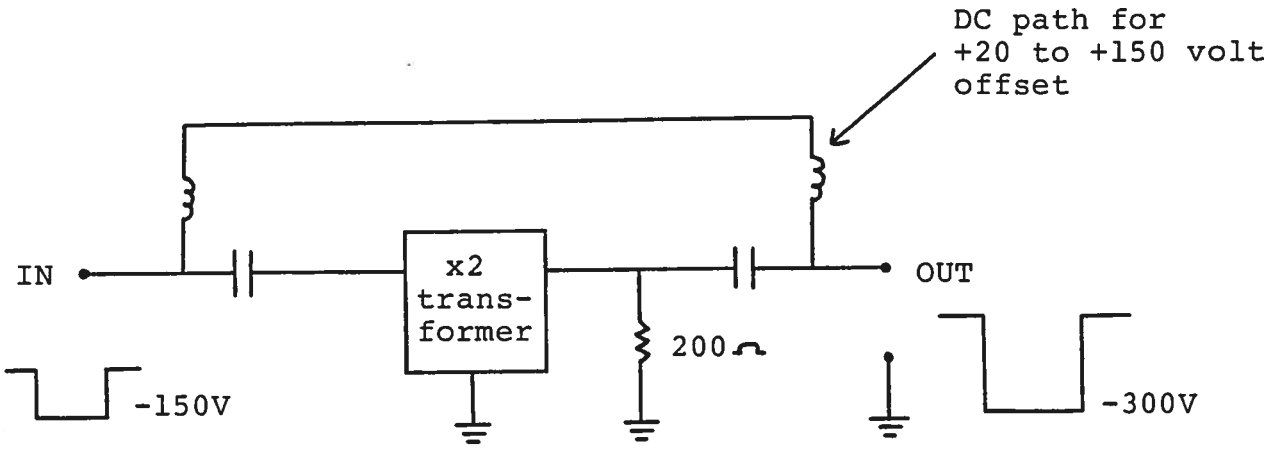
6) The DC offset to the output is controlled by the rear panel ON-OFF switch and the OT one turn pot which is accessed by removing the top lid of the mainframe. This voltage is variable over the range of +10 to +100 volts.

7) The rear panel monitor output provides an attenuated (x20) version of the output of the ITT3-M1 module.

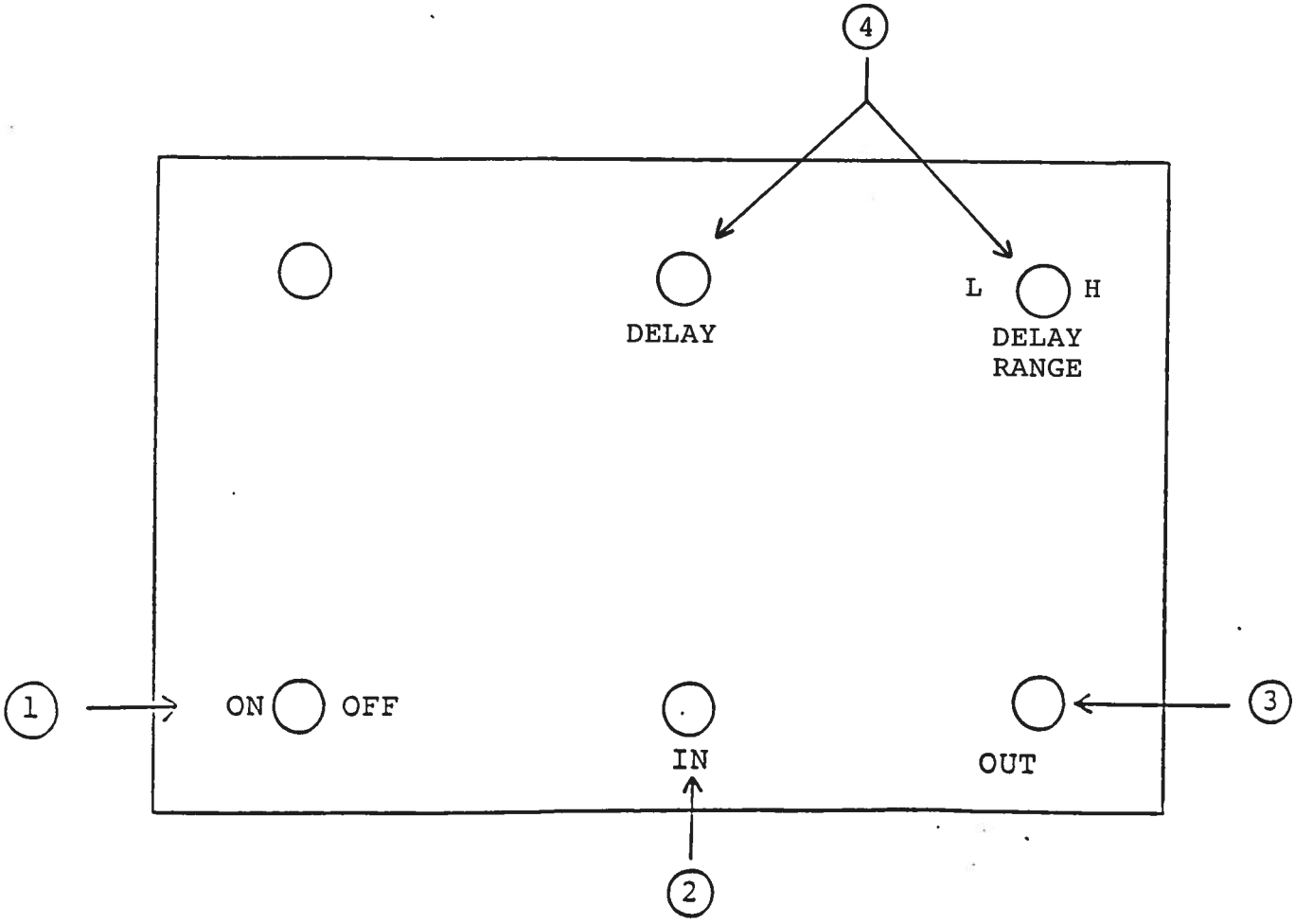
8) The propagation delay is variable as follows:

RANGE	MIN	MAX
LOW	80 ns	550 ns
HIGH	80 ns	1.7 us

The delay may be controlled by the front panel 10 turn DELAY control or it may be electronically controlled by placing the rear panel INT-EXT switch in the EXT position and applying 0 to +10 volts DC to the A BNC connector (R_{IN} > 10K). The two position LATCH switch may be used to LOCK the delay at its last setting by placing the switch in the ON position.


DC path for
+20 to +150 volt
offset
IN
x2
trans-
former
OUT
200Ω
-150V
-300V

FRONT PANEL CONTROLS



(1) ON-OFF Switch. Applies prime power to all stages.

(2) IN. Input trigger applied here (TTL levels, 0.5 to 1.0 usec).

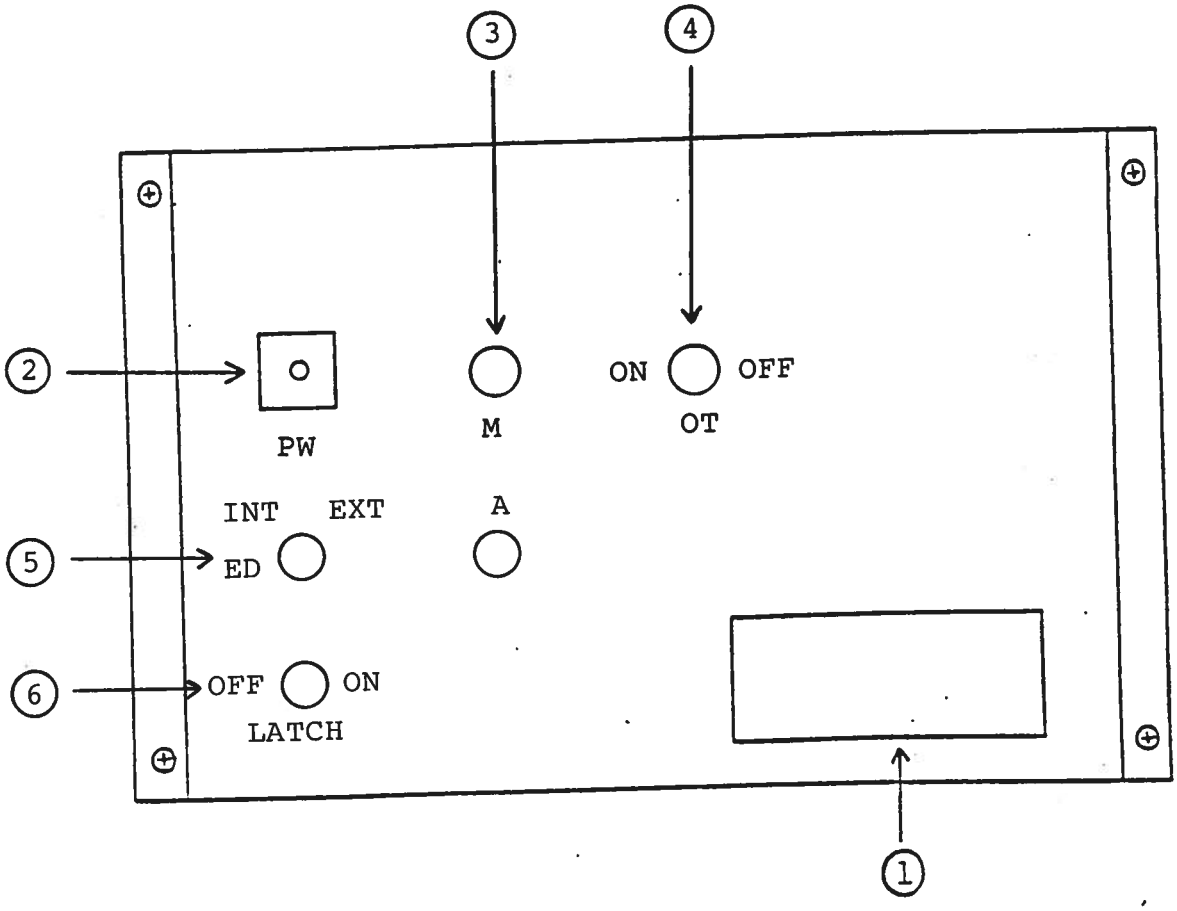
(3) OUT Connector. SMA connector to which ITT3-M1 module is connected via fifty ohm cable. High impedance load connects to output terminals on ITT3-M1 module.

(4) DELAY. The propagation delay is variable as follows:

RANGE	MIN	MAX
LOW	80 ns	550 ns
HIGH	80 ns	1.7 us

The delay may be controlled by the front panel 10 turn DELAY control or it may be electronically controlled by placing the rear panel INT-EXT switch in the EXT position and applying 0 to +10 volts DC to the A BNC connector (R_{IN} > 10K). The two position rear panel LATCH switch may be used to LOCK the delay at its last setting by placing the switch in the ON position.

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.

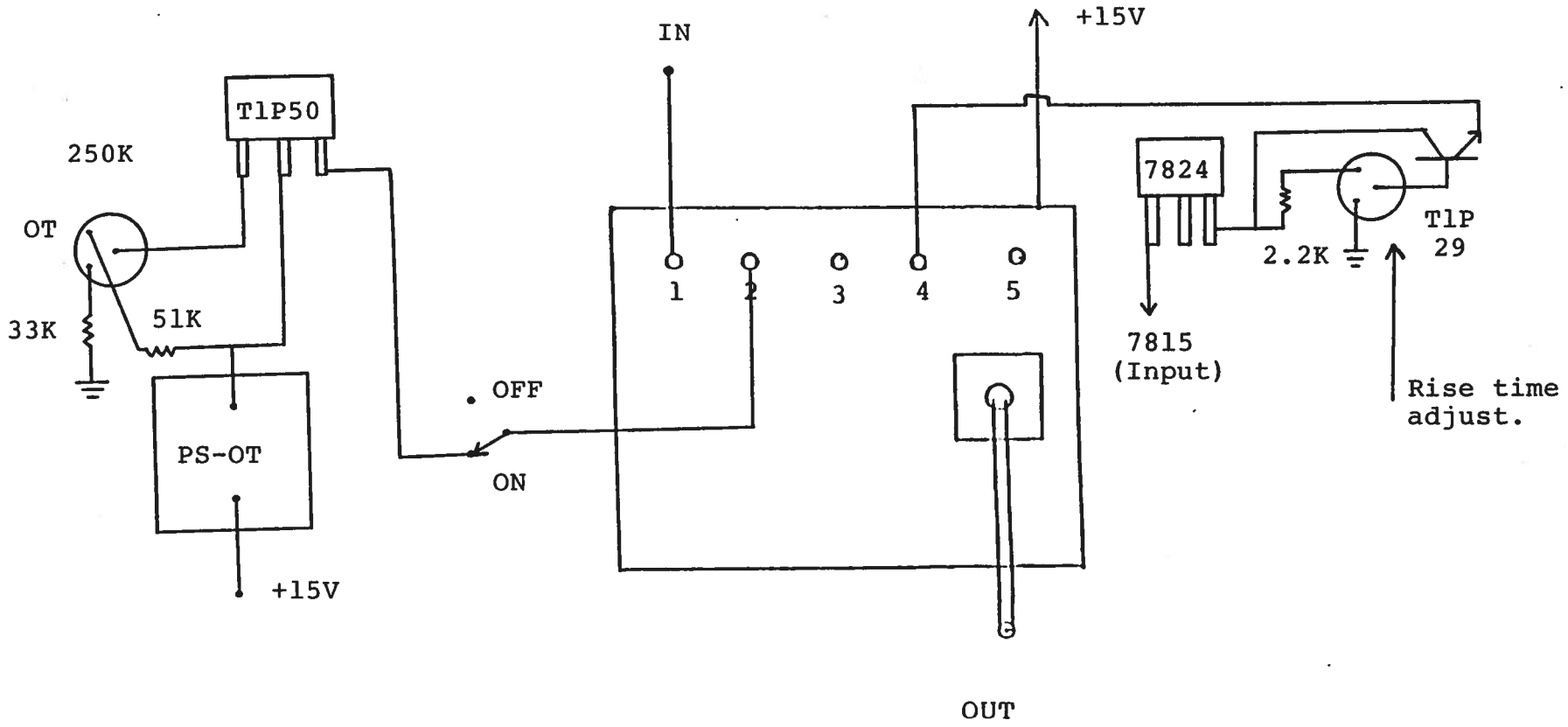
(2) PW. SMA connector to which fifty ohm cable is attached to control output pulse width. Pulse width increases 3 nsec for each additional foot of cable added. Use RG 174 or RG 58 (or better) cable.

(3) M. Monitor output provides attenuated (x20) replica of ITT3-M1 output (to 50 ohms).

(4) OT. ON-OFF switch controls DC offset applied to output of ITT3-M1 module (+10 to +100 volts, set by OT pot in mainframe interior).

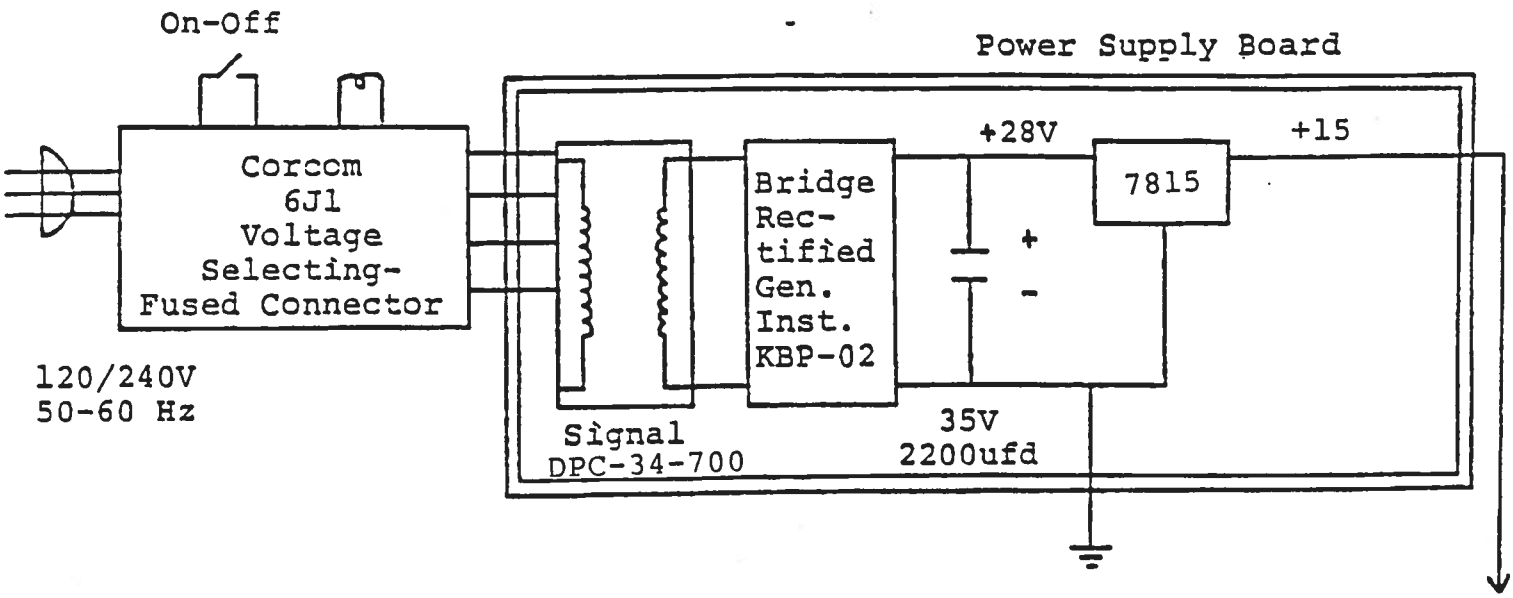
(5) ED. The delay may be controlled by the front panel 10 turn DELAY control or it may be electronically controlled by placing the rear panel INT-EXT switch in the EXT position and applying 0 to +10 volts DC to the A BNC connector (R_{IN} > 10K).

(6) LATCH. The two position LATCH switch may be used to LOCK the delay at its last setting by placing the switch in the ON position.



AVL-ITT3-OT-M BLOCK DIAGRAM

POWER SUPPLY BOARD



SYSTEM DESCRIPTION

The AVL-ITT3 consists of pulse generator module and a power supply board which supplies +15 volts (600 mA max) to the module. In the event that the unit malfunctions, remove the instrument top cover (by removing the four Phillips screws on the back panel) thereby exposing the modules. Measure the voltage at the +15 V pin of the PG module. If this voltage is substantially less than +15 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 +15 V DC. If this voltage is substantially less than 15 volts the power supply board is defective and should be repaired or replaced. If the voltage is near +15V then the pulse generator module is defective and the unit should be returned to Avtech for repair.

Schroff 05.21.91