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INSTRUCTIONS

MODEL AVR-7B-PW-PS-ITT1 PULSE GENERATOR

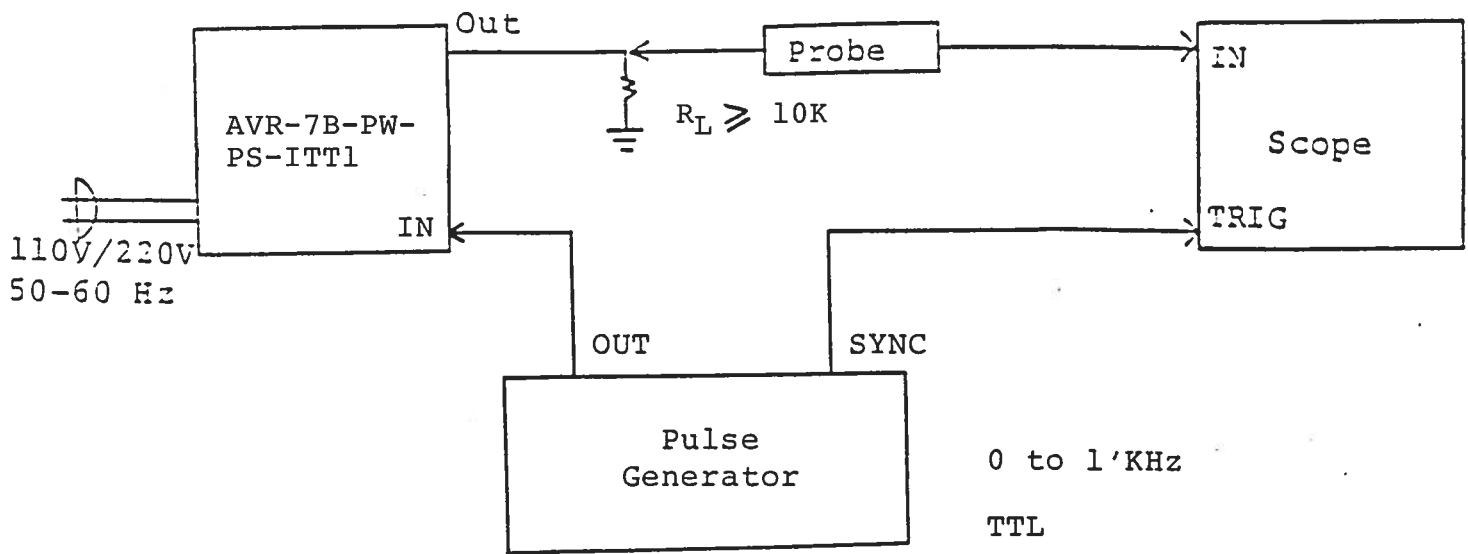
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WARRANTY

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

PULSE GENERATOR TEST ARRANGEMENT

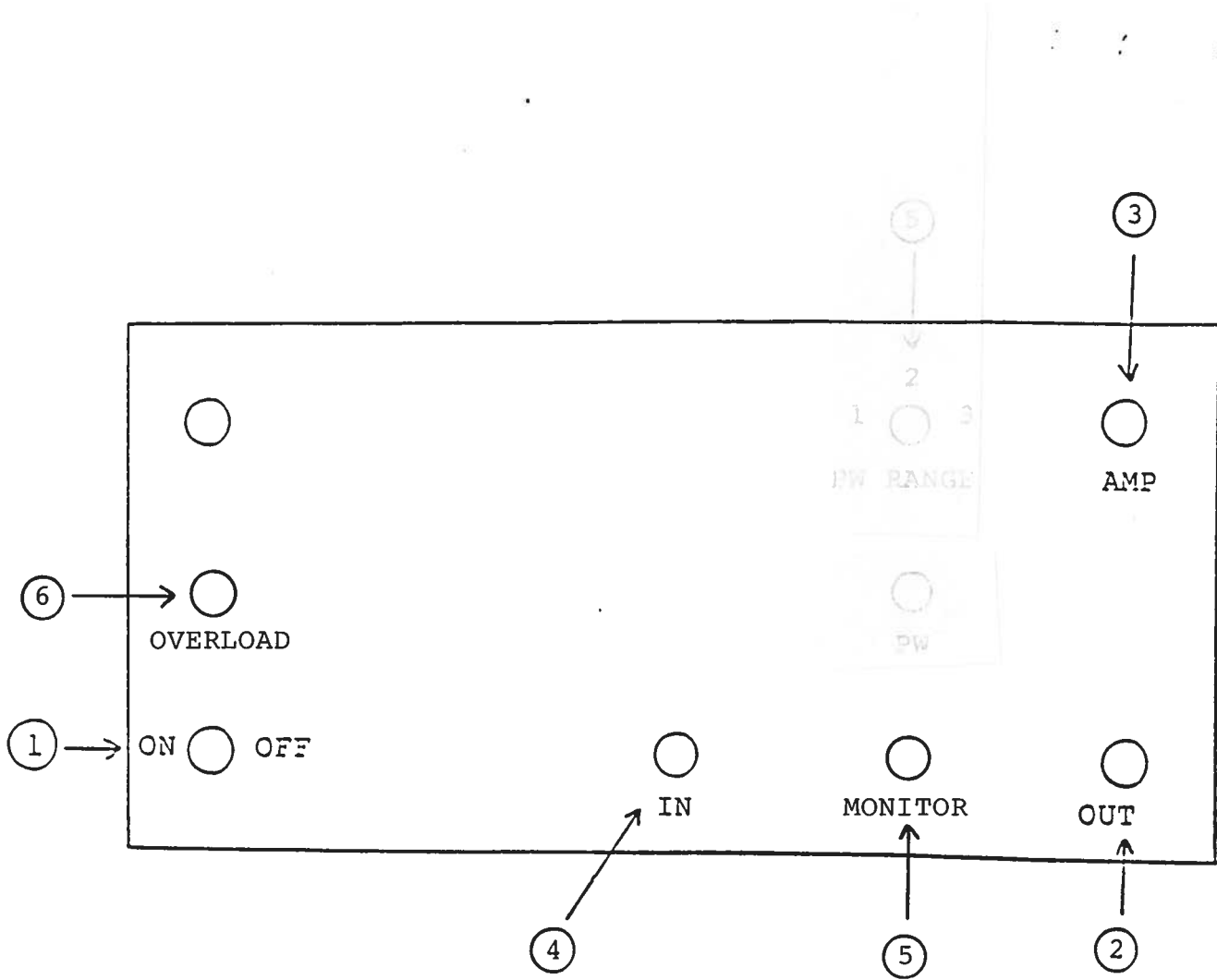


Notes:

- 1) The bandwidth capability of components and instruments used to display the pulse generator output signal (attenuators, cables, connectors, etc.) should exceed 100 MHz.
- 2) The output pulse width is equal to the input trigger pulse width.
- 3) The output pulse amplitude is controlled by means of the front panel ten turn AMP control. To voltage control the output amplitude, set the rear panel switch in the EXT position and apply 0 to +10 volts DC to the A terminal.
- 4) CAUTION: The output stage is protected against overload condition by a 1.0 A slow blow fuse on the main frame back panel. However, the output switching elements may fail if the unit is triggered at a PRF exceeding 1 KHz or at a PW exceeding 10 us or at duty cycles resulting in an average output power in excess of 16 watts. Heating and subsequent likely failure of the output stage is reduced if the following action is taken where possible:
 - a) PRF is kept to a minimum, ie. operate in a low PRF range when possible rather than in a high PRF range.
 - b) Keep the output PW to a minimum.
- 5) OVERLOAD INDICATOR. AVR units with a serial number higher than 5600 are protected by an automatic overload protective circuit which controls the front panel overload light. If the unit is overloaded (by operating at an exceedingly high duty cycle or by operating into a short circuit), the protective circuit will turn the output of the instrument OFF and turn the indicator light ON. The light will stay ON (i.e. output OFF) for about 5 seconds after which the instrument will attempt to turn ON (i.e. light OFF) for about 1 second. If the overload condition persists, the instrument will turn OFF again (i.e. light ON) for another 5 seconds. If the overload condition has been removed, the instrument will turn on and resume normal operation. Overload conditions may be removed by:
 - 1) Reducing PRF (i.e. switch to a lower range)
 - 2) Reducing pulse width (i.e. switch to a lower range)
 - 3) Removing output load short circuit (if any)
- 6) The unit can be converted from 110 to 220V 50-60 Hz operation by adjusting the voltage selector card in the rear panel fused voltage selector cable connector assembly.

Fig. 2

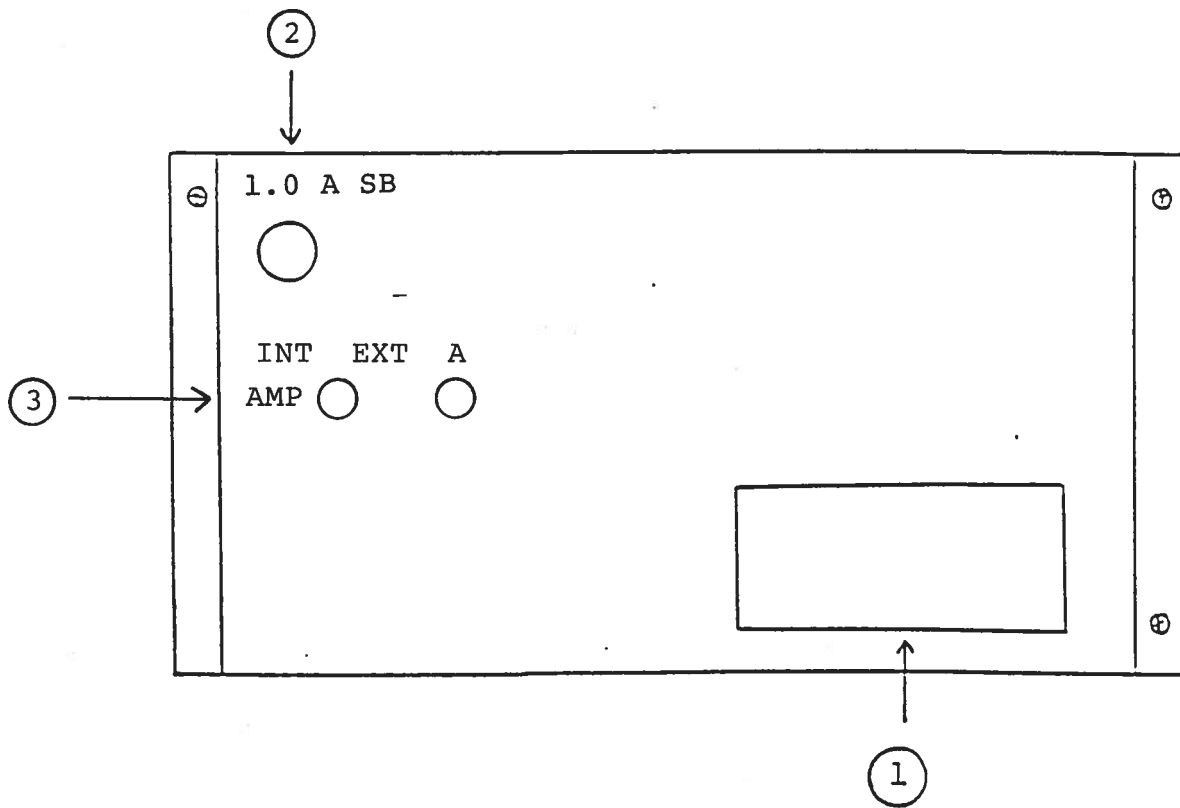
FRONT PANEL CONTROLS



- (1) ON-OFF Switch. Applies basic prime power to all stages.
- (2) OUT Connector. BNC connector provides output to a high impedance load ($R_L > 10K$).
- (3) AMP Control. A ten turn control which varies the output pulse amplitude from 0 to 700 V.
- (4) IN. The external trigger signal is applied at this input. Note that the output pulse width equals the input trigger pulse width (TTL).
- (5) MONITOR. Provides an attenuated ($\times 100$) coincident replica of the main output (to 50 ohms).
- (6) OVERLOAD INDICATOR. AVR units with a serial number higher than 5600 are protected by an automatic overload protective circuit which controls the front panel overload light. If the unit is overloaded (by operating at an exceedingly high duty cycle or by operating into a short circuit), the protective circuit will turn the output of the instrument OFF and turn the indicator light ON. The light will stay ON (i.e. output OFF) for about 5 seconds after which the instrument will attempt to turn ON (i.e. light OFF) for about 1 second. If the overload condition persists, the instrument will turn OFF again (i.e. light ON) for another 5 seconds. If the overload condition has been removed, the instrument will turn on and resume normal operation. Overload conditions may be removed by:
 - 1) Reducing PRF (i.e. switch to a lower range)
 - 2) Reducing pulse width (i.e. switch to a lower range)
 - 3) Removing output load short circuit (if any)

Fig. 3

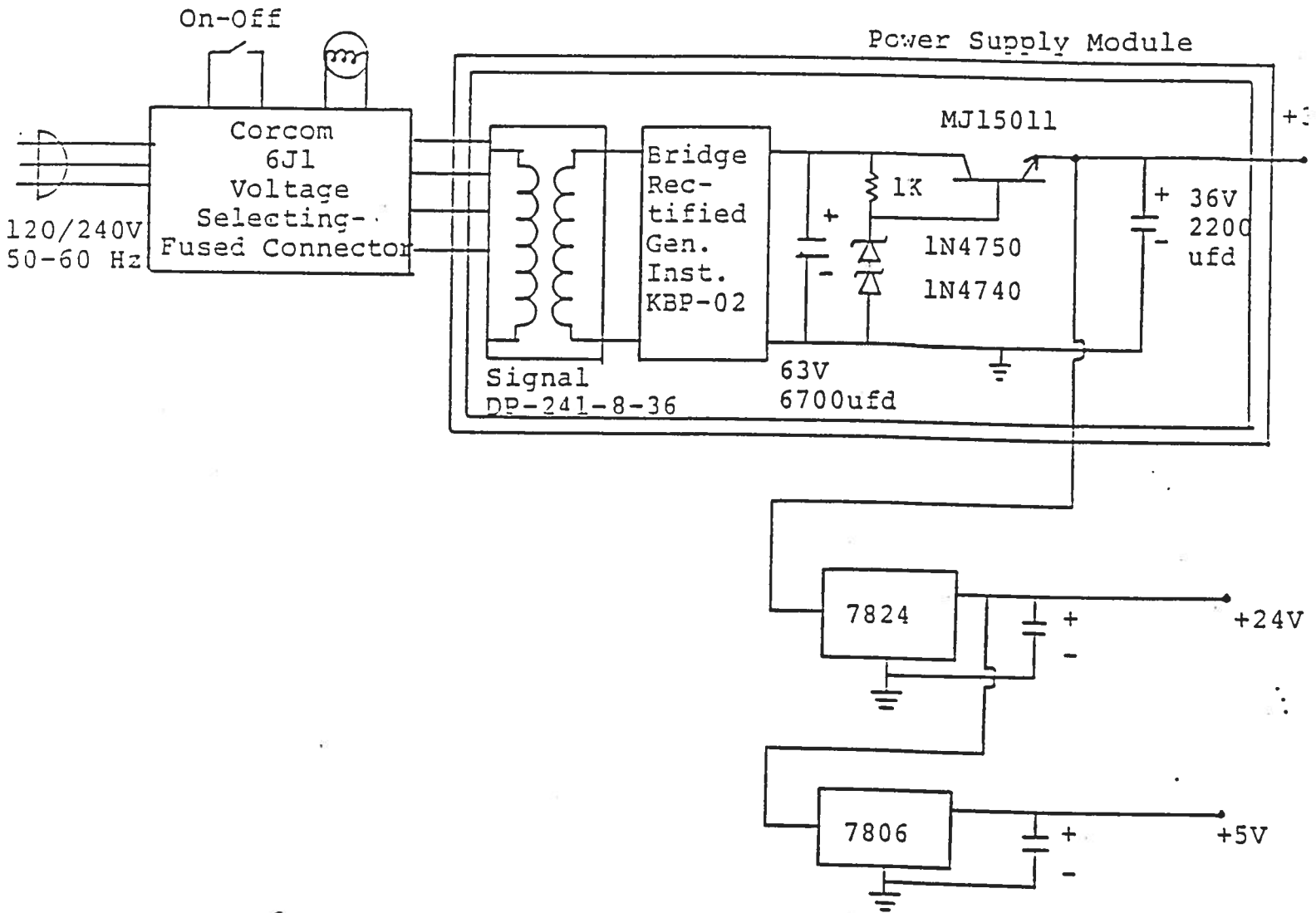
BACK PANEL CONTROLS



- (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 (0.5 A SB).
- (2) 1.0 A SB. Protects output stage against overload condition.
- (3) EA Option. To voltage control the output pulse amplitude, set the switch in the EXT position and apply 0 to +10 volts DC to the A terminal.

Fig. 4a

POWER SUPPLY



CAUTION!!

Points on this line are at a potential as high as 750 volts

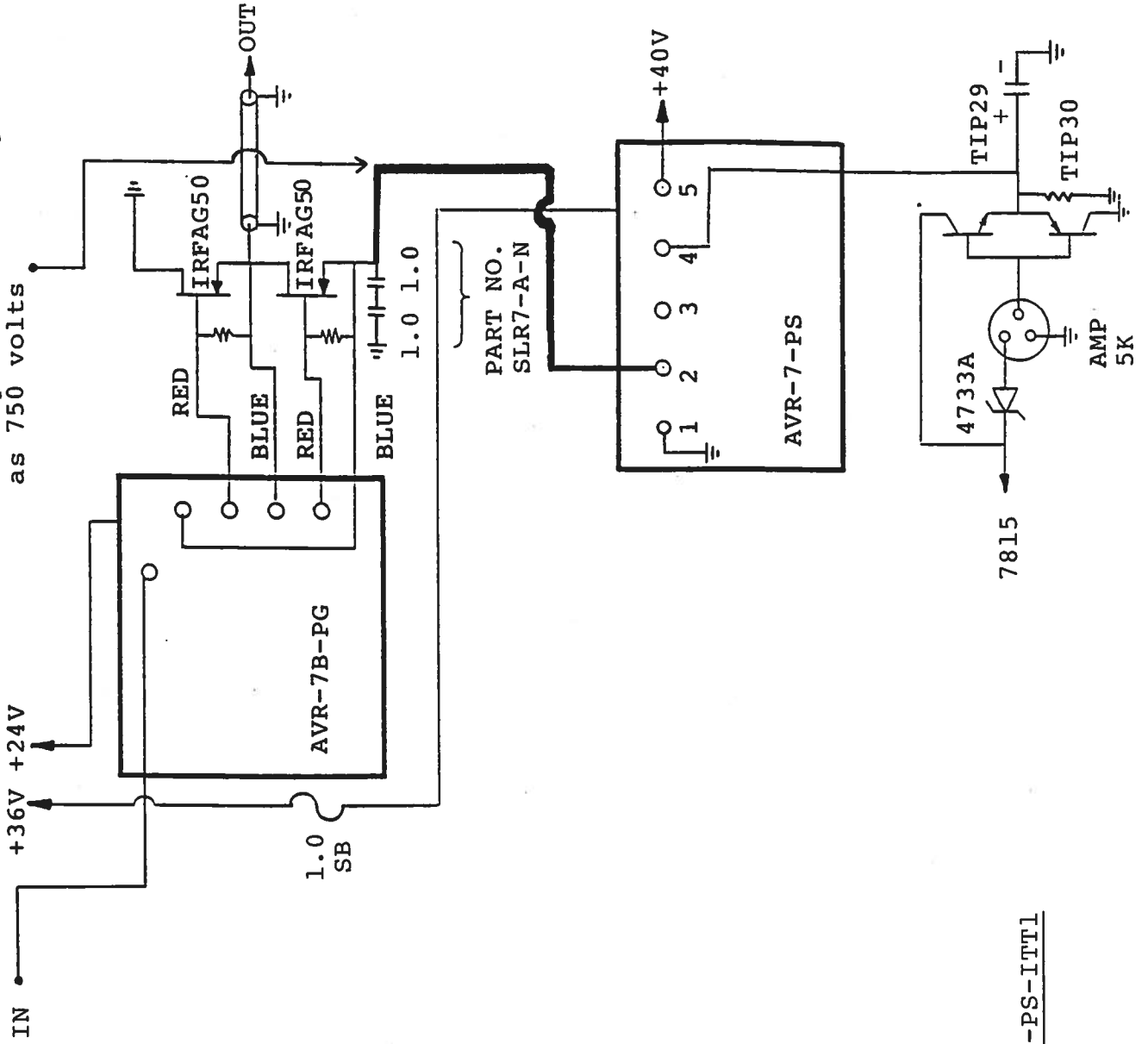


Fig. 4 AVR-7B-PW-PS-ITT1

SYSTEM DESCRIPTION AND REPAIR PROCEDURE

CAUTION: Potentials as high as 750 volts DC are employed in the interior of this instrument so extreme caution must be exercised when attempting repairs. The following parts may be at high potential:

- a) Pin 2 of module AVR-7B-PG (including associated leads and capacitors and Part No. SLR7-A).
- b) Pin 2 on module AVR-7B-PS (and associated leads and capacitors).

The AVR-7B-PS consists of the following basic modules:

- 1) AVR-7B-PW-PG pulse generator module
- 2) AVR-7B-PS power supply module

The modules are interconnected as shown in Fig. 4.

In the event of an instrument malfunction, it is most likely that the 1.0 A slow blow fuse or the main power fuse on the rear panel has blown. Replace if necessary. If the unit still does not function, it is most likely that some of the output switching elements (IRFAG50) may have failed due to an output short circuit condition or to a high duty cycle condition. The switching elements may be accessed by removing the top cover plate. The cover plate is removed by removing the 4 Phillips screws on the back panel. NOTE: First turn off the prime power. CAUTION: Thoroughly ground the IRFAG50 cases to discharge the 700 volts power supply potential. The IRFAG50 may be removed from the mounting bracket and checked on a curve tracer and replaced if necessary. AVTECH Part No. SLR7-A-N consists of the two transistors mounted on the bracket with insulating washers, 1 K resistors and output cable.

Schroff

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-EA

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