AVTECH ELECTROSYSTEMS LTD.
NANOSECOND WAVEFORM ELECTRONICS
SINCE 1975

P.O. BOX 265
OGDENSBURG, NY
U.S.A. 13669-0265
TEL: (315) 472-5270
FAX: (613) 226-2802

TEL: 1-800-265-6681
FAX: 1-800-561-1970
U.S.A. & CANADA

e-mail: info@avtechpulse.com

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

INSTRUCTIONS

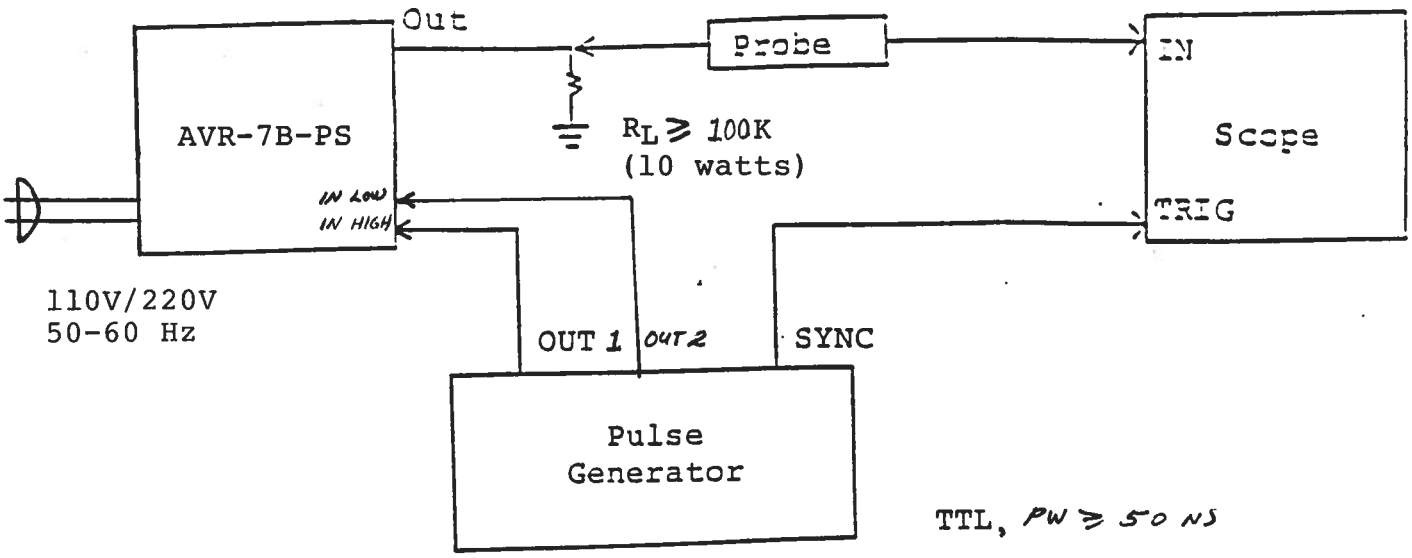
MODEL AVR-7B-PS-P-UMA1 PULSE GENERATOR

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.

Fig. 1 PULSE GENERATOR TEST ARRANGEMENT



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Fax Ref No: 562 From: Avtech Electrosystems Ltd.

To: University of Melbourne, School of Physics, Australia Our Fax No: (613) 226-2802

Date: June 7, 1996

Attn: Dr. Andrew Saint, MARC Receivers Fax No: 011 61 3 347-4783

Subject: Your FAX dtd. June 7/96 No. of pages: 4

We are pleased to re-quote as follows:

Model designation:	AVR-7B-PS-P-UMA1
Output amplitude:	0 to +800 Volts to R_L > 100K. Ten turn locking dial control (we cannot provide 1000 Volts)
Output pulse width:	1 us to DC. Pulse width controlled as per enclosed sketch
Other:	See standard AVR-7B-PS, pages 38 & 39, Cat. No. 9
Price:	$5,950.00 US each, FOB Victoria, Australia. Customs clearance, duties and broker's fees are not included in above price (for the account of consignee)
Delivery:	60-90 days ARO

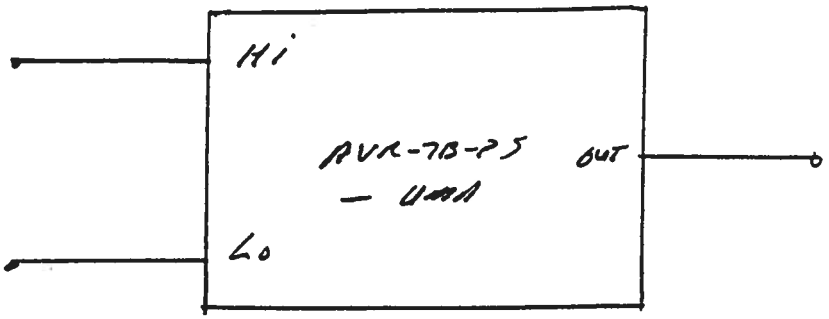
A copy of our current general catalog (No. 9) has been mailed to you today.

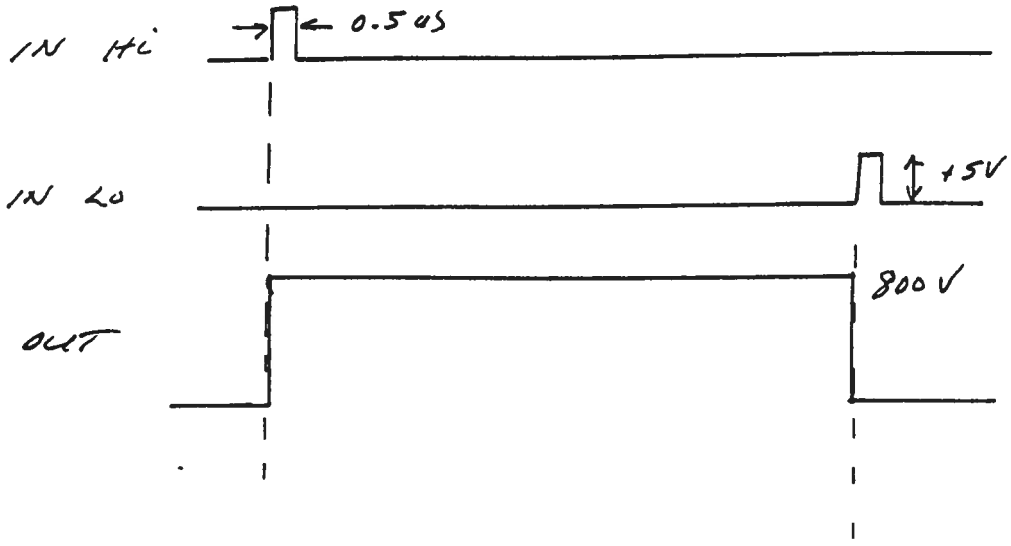
Thank you for your continuing interest in our products.

Rgds

Dr. Walter Chudobiak
Chief Engineer

WC:pr





AVR-7B-25-UMA1 TIMING

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) CAUTION: THIS MODEL WAS DESIGNED TO OPERATE INTO A HIGH IMPEDANCE LOAD (R_L > 100K) AND MAY FAIL IF OPERATED INTO A LOW IMPEDANCE LOAD (EG. 50 OHM).

3) The output pulse width equals the time difference between the "IN HIGH" and "IN LOW" leading edges. The pulse width may extend to DC.

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

5) 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 1.0 kHz or at duty cycles resulting in an average output power in excess of 20 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, i.e. operate in a low PRF range when possible rather than in a high PRF range.
   b) Keep the output PW to a minimum.

6) OVERLOAD INDICATOR. AVR-7 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)

   Note that the output stage will safely withstand a short-circuited load condition.

7) The unit can be converted from 120 to 240V 50-60 Hz operation by adjusting the voltage selector card in the rear panel fused voltage selector cable connector assembly.

8) For additional assistance:

Tel: (613) 226-5772
Fax: (613) 226-2802

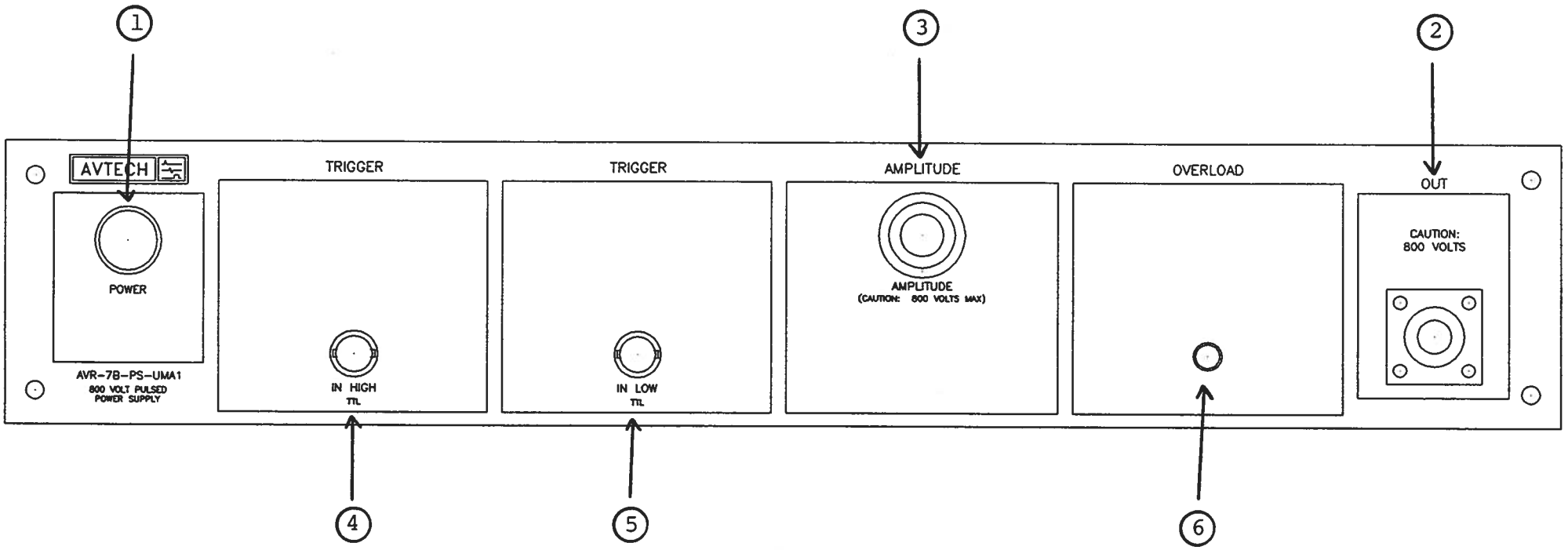


Fig. 2

FRONT PANEL CONTROLS

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

(2) OUT Connector. N 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 800 V to a high impedance load.

(4) IN HIGH. The "START" pulse trigger signal is applied at this input (TTL, PW ≥ 50 ns).

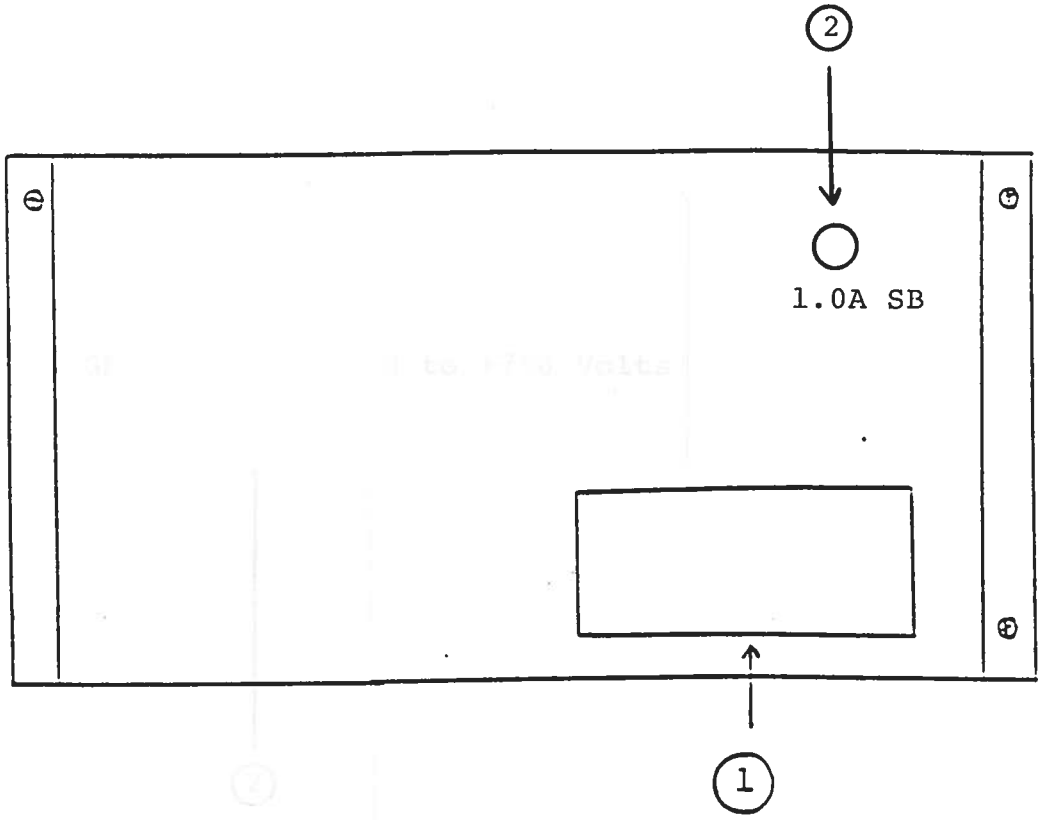
(5) IN LOW. The "STOP" pulse trigger signal is applied at this input (TTL, PW ≥ 50 ns).

(6) OVERLOAD INDICATOR. AVR-7 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)

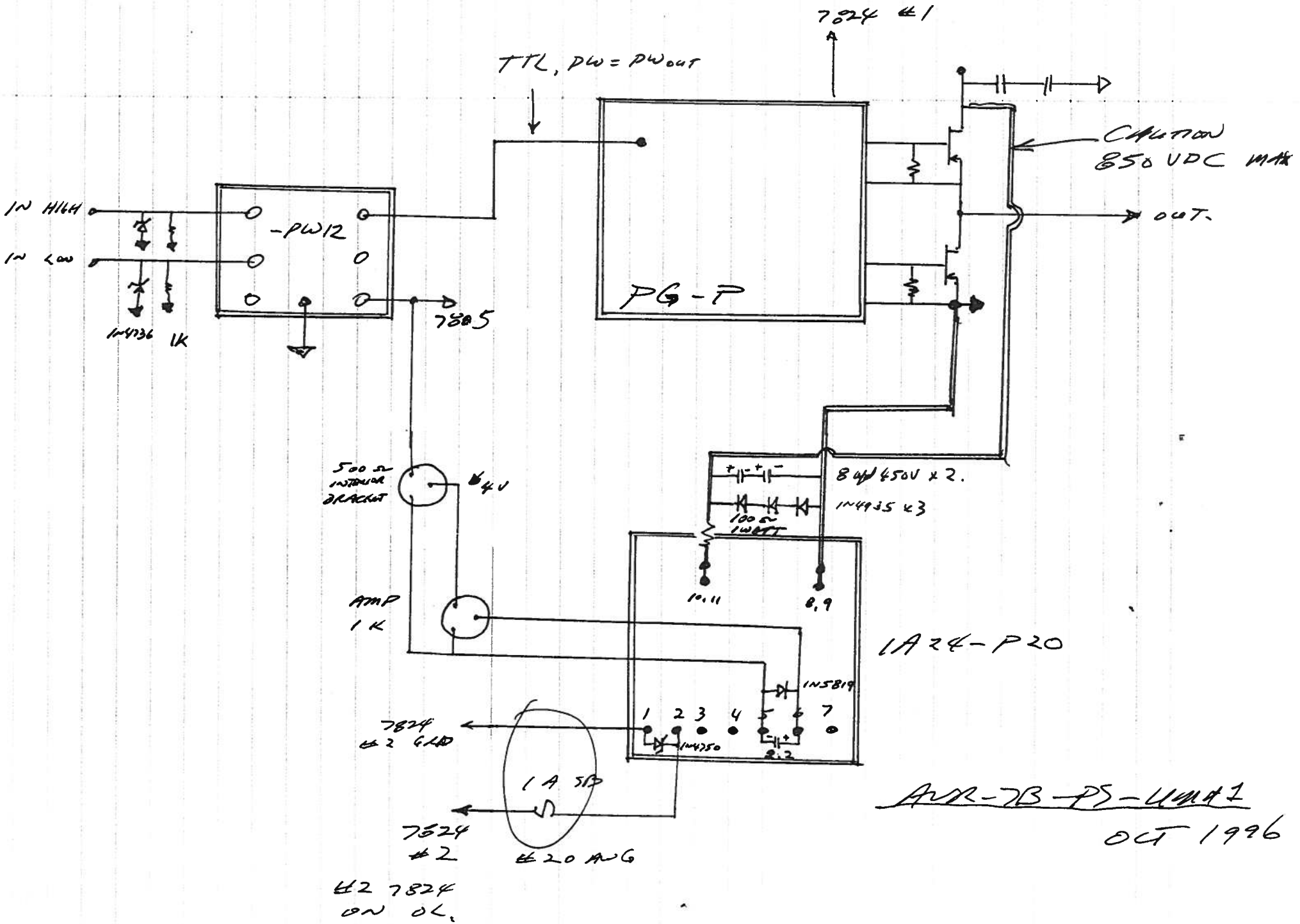
Fig. 3

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) 1.0A SB. Fuse which protects the output stage if the output duty cycle rating is exceeded.


7824 #1
TTL, PW = PWout
CAUTION
850 VDC MAX
OUT.
IN HIGH
IN LOW
-PW12
1N4936 1K
7805
PG-P
500 Ω
INTERNAL
BRACKET
64V
8μF 450V x 2.
1N4935 x3
100Ω
1WATT
10, 11
8, 9
AMP
1K
1A 24-P20
1N5819
1 2 3 4 5 6 7
7824
#2 GND
1N4750
2.2
1A SLO
7824
#2
#20 AWG
#2 7824
ON OL.
AUX-7B-PS-Unit1
OCT 1996

SYSTEM DESCRIPTION AND REPAIR PROCEDURE

DC potentials as high as 850 Volts are employed in the generation of the 800 Volt pulse so extreme caution must be employed when repairing this instrument. It is therefore highly recommended that the unit be returned to AVTECH for all repairs beyond the replacement of the 0.5 Amp line fuse or the 1.0 Amp SB rear panel fuse.

Oct. 23/96

Disk: AVR-7

Name: 7BPSUMA1.INS