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INSTRUCTIONS

MODEL AVP-AV-HV2-C 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.

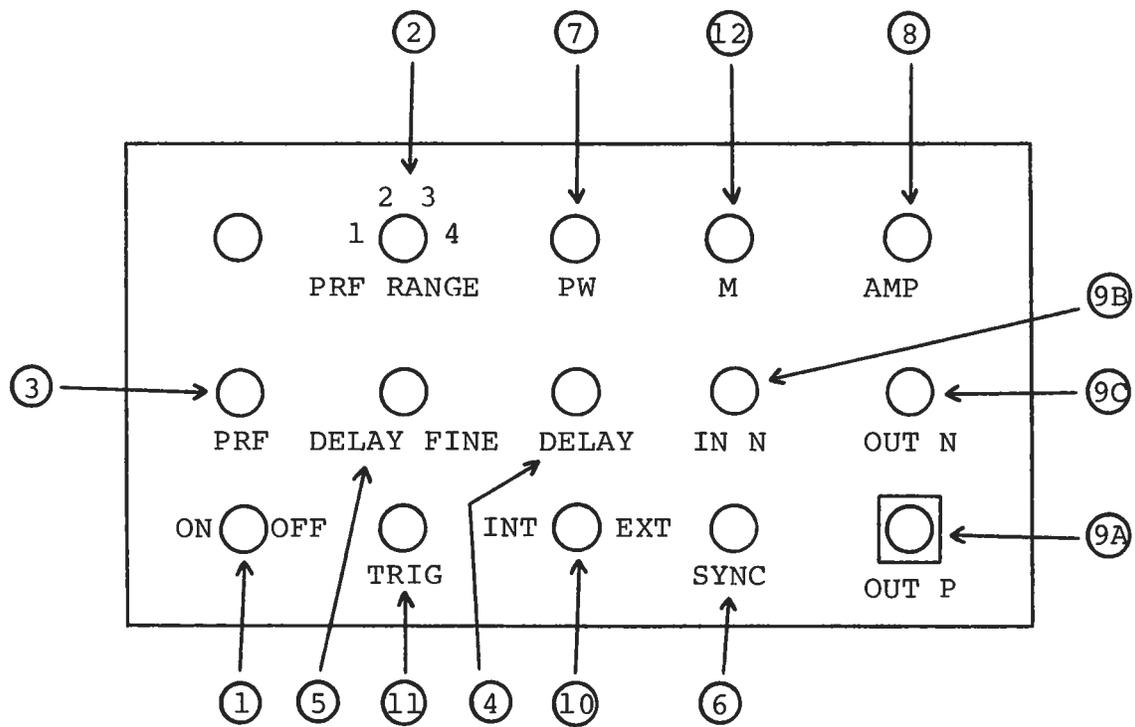Fig. 1   PULSE GENERATOR TEST ARRANGEMENT
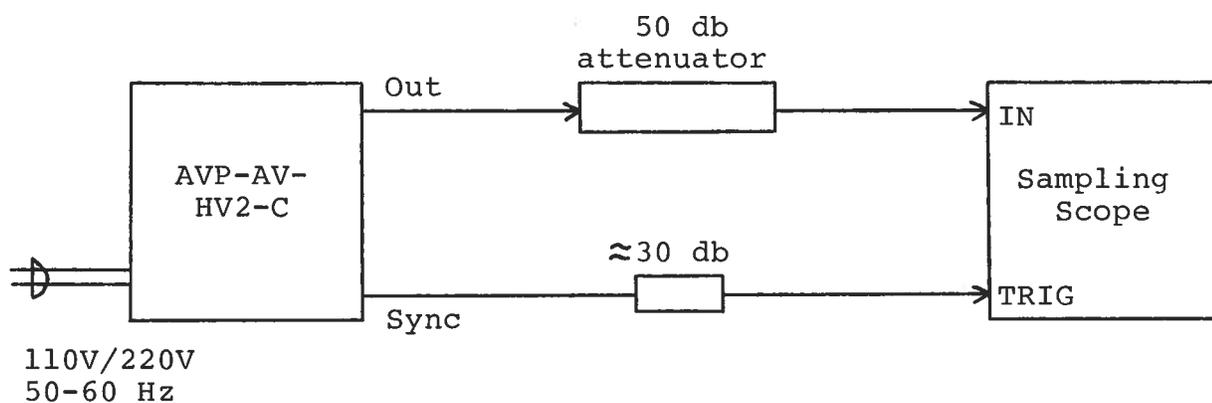
Notes:

1)   The bandwidth capability of components and instruments
     used to display the pulse generator output signal
     (attenuators, cables, connectors, etc.) should exceed
     ten gigahertz.

2)   The use of 50 db attenuator at the sampling scope
     vertical input channel will insure a peak input signal
     to the sampling scope of less than one volt.

3)   The sync output channel provides TTL level signals. To
     avoid overdriving the TRIG input channel of some
     sampling scopes, a 30 db attenuator should be placed at
     the input to the sampling scope trigger channel.

4)   To obtain a stable output display the PRF control on the
     front panel should be set mid-range while the PRF range
     switch may be in either range. The front panel TRIG
     toggle switch should be in the INT position. The front
     panel DELAY controls and the scope triggering controls
     are then adjusted to obtain a stable output. The scope
     may then be used to set the desired PRF by rotating the
     PRF control.

5)   The output pulse width is controlled by means of the
     front panel one turn PW control. The control should
     initially be set maximum clockwise and the pulse width
     adjusted using an oscilloscope.

6)   The output pulse amplitude is controlled by means of the
     front panel one turn AMP control. The pulse width may
     change by several nanoseconds as the output amplitude is
     reduced from maximum to minimum. Therefore it is
     convenient to first set the desired amplitude and then
     set the desired pulse width. Rotation of the PW pot
     causes the position of the falling edge of the pulse to
     change.

7)   Some properties of the output pulse may change as a
     function of the amplitude pot setting. For some
     demanding applications, it may be desirable to use a
     combination of external attenuators and the amplitude
     pot to achieve the desired output amplitude.

8)   To DC offset the output pulse connect a DC power supply
     set to required DC offset value to the back panel
     terminals marked O.S. The maximum attainable DC offset
     voltage is $\pm$50 volts. (option).

9)   An external clock may be used to control the output PRF
     of the AVP unit by setting the front panel TRIG toggle
     switch in the EXT position and applying a 0.2 usec
     (approx) TTL level pulse to the TRIG BNC connector

input. For operation in this mode, the scope time base
must also be triggered by the external clock rather than
from the SYNC output.

10) The   monitor   output   (-M)   provides   a 20 db attenuated
     coincident replica of the main output.   Should be
     terminated in 50 ohms when not in use.   (option).

11) For units with the dual output polarity option (-PN) a
     positive output pulse is obtained at the OUT P SMA
     connector. To obtain a negative output pulse, the OUT P
     port is connected to the IN N port via a short length of
     miniature 50 ohm coaxial cable. A negative output pulse
     is then obtained at the OUT N port.

Fig. 2   FRONT PANEL CONTROLS

②   ⑦   ⑫   ⑧

    2 3
1 ○ 4   ○   ○   ○
PRF RANGE   PW   M   AMP   ⑨B

③ → ○   ○   ○   ○   ○ ← ⑨C
PRF   DELAY FINE   DELAY   IN N   OUT N

ON ○ OFF   ○   INT ○ EXT   ○   ▣ ← ⑨A
        TRIG   SYNC   OUT P

①   ⑤   ⑪   ④   ⑩   ⑥

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

(2)   PRF Control. The PRF RANGE and PRF controls   determine
(3)   output PRF as follows:

	PRF MIN	PRF MAX
Range 1	100 Hz	1 KHz
Range 2	1 KHz	10 KHz
Range 3	10 KHz	100 KHz
Range 4	100 KHz	1 MHz

(4)   DELAY Controls. Controls the relative delay between the
(5)   reference output pulse provided at the SYNC output (6)
      and the main output (9).   This delay is variable over
      the range of 0 to at least 500 nsec.

(6)   SYNC Output. This output precedes the main output (9)
      and is used to trigger the sampling scope time base.
      The output is a TTL level 100 nsec (approx) pulse
      capable of driving a fifty ohm load.

(7)   PW Control. A one turn control which varies the output
      pulse width from 0 to 2 nsec.

(8)   AMP Control. A one turn control which varies the output
      pulse amplitude from 0 to 40 V to a fifty ohm load.

(9A) OUT P.   For units with dual output polarity option,
      provides positive output pulse.

(9B) IN N, OUT N. For dual polarity option units connect OUT
(9C) P to IN N port to obtain negative output pulse at OUT N
      port.

(10) EXT-INT Control.   With this toggle switch in the INT
      position, the PRF of the AVP unit is controlled via an
      internal clock which in turn is controlled by the PRF
      controls.   With the toggle switch in the EXT position,
      the AVP unit requires a 0.2 usec TTL level pulse applied
      at the TRIG input in order to trigger the output stages.
      In addition, in this mode, the scope time base must be
      triggered by the external trigger source.

(11) TRIG Input. The external trigger signal is applied at
      this input when the EXT-INT toggle switch is in the EXT
      position.

(12) MONITOR OUT M. Provides an attenuated (x10) coincident
      replica of the main positive output pulse to fifty ohms.
      (option).

Fig. 3   <u>BACK PANEL CONTROLS</u>
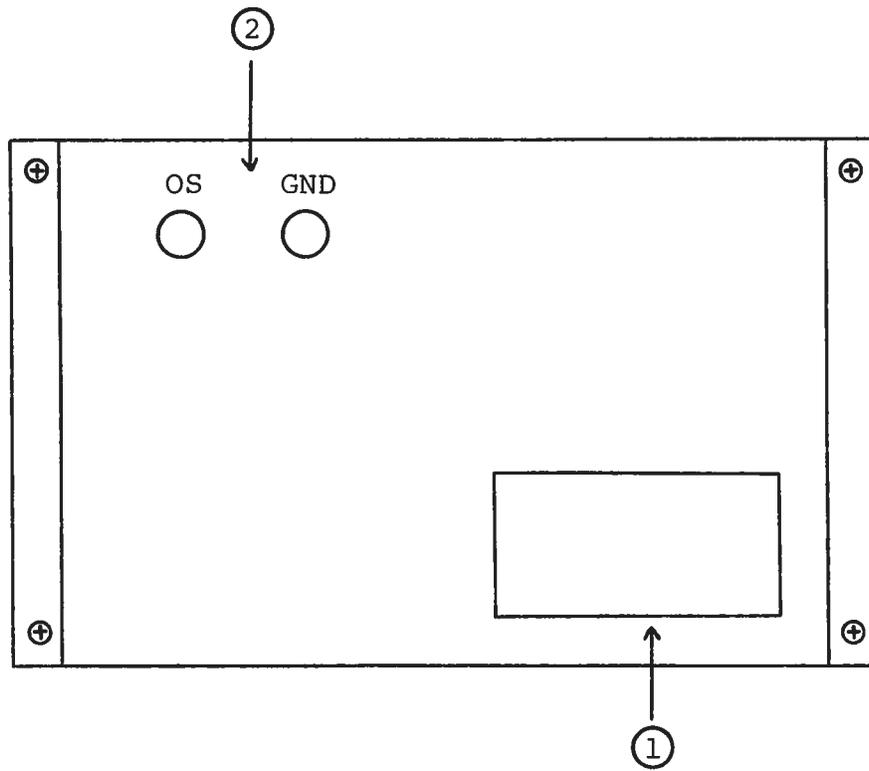
(1)   FUSED CONNECTOR, VOLTAGE SELECTOR. The detachable power
       cord is connected at this point.   In addition, the
       removable cord is adjusted to select the desired input
       operating voltage.   The unit also contains the main
       power fuse.

(2)   DC OFFSET Input. To DC offset the output pulse, connect
       a DC power supply set to the desired offset value to
       these terminals.   The maximum   allowable DC offset
       voltage is $\pm$50 volts.   (option).

Fig. 4   SYSTEM BLOCK DIAGRAM
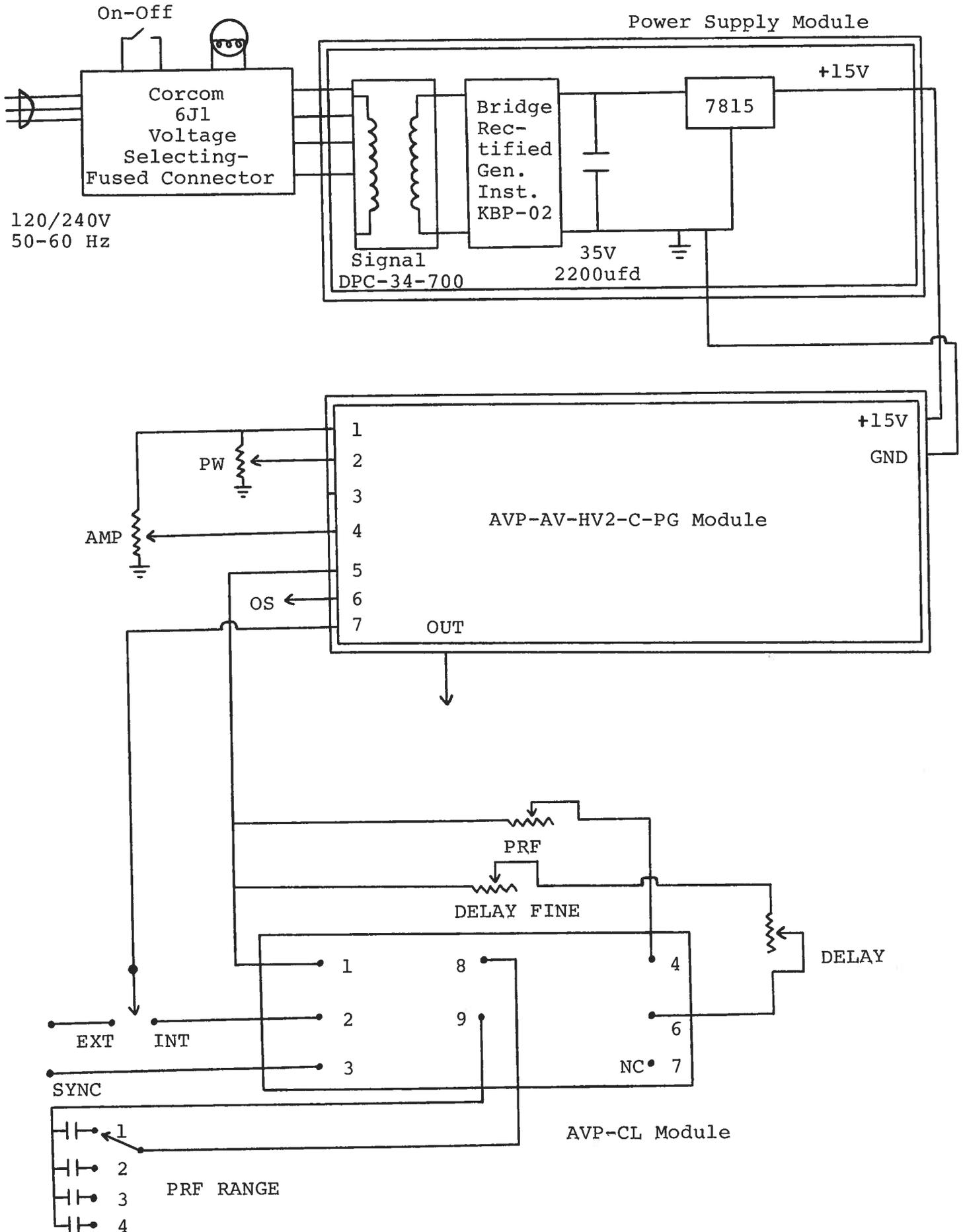
SYSTEM DESCRIPTION AND REPAIR PROCEDURE

The AVP-AV-HV2-C consists of a pulse generator module
(AVP-AV-HV2-PG), a clock module (AVP-AV-HV2-CL) and a power
supply board which supplies +15 volts (600 mA max) to the
pulse generator module. In the event that the unit
malfunctions, remove the instrument cover by removing the
four Phillips screws on the back of the unit. The top cover
may then be slid off. Measure the voltage at the +15V pin of
the PG module. If this voltage is substantially less than
+15 volts, unsolder the line connecting the power supply and
PG modules and connect 50 ohm 10 W load to the PS output.
The voltage across this load should be about +15 V DC. If
this voltage is substantially less than 15 volts the PS
module is defective and should be repaired or replaced. If
the voltage across the resistor is near 15 volts, then the PG
module should be replaced or repaired. The sealed PG module
must be returned to Avtech for repair (or replacement). The
clock module provides a 0.1 usec TTL level trigger pulse at
pin 2 to trigger the PG module and a 0.1 usec TTL level sync
pulse at pin 3 to trigger the sampling scope display device.
The output at pin 3 precedes the output at pin 2 by almost 0
to 100 nsec depending on the DELAY control setting. The
clock module is powered by +5.8 V supplied by the PG module
(from pin 5 to pin 1). With the INT-EXT switch in the EXT
position, the clock module is disconnected from the PG
module. The clock module is functioning properly if:

a) 0.1 usec TTL level outputs are observed at pins 2
    and 3.

b) The PRF of the outputs can be varied over the range
    of 1 KHz to 1 MHz using the PRF and PRF RANGE
    controls.

c) The relative delay between the pin 2 and 3 outputs
    can be varied by at least 500 nsec by the DELAY
    controls.

The sealed clock module must be returned to Avtech for repair
or replacement if the above conditions are not observed.

1/ Schroff

- PN
- M
- OS

Schroff

- PN
- M