

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
(613) 226-5772
TELEX 053.4591

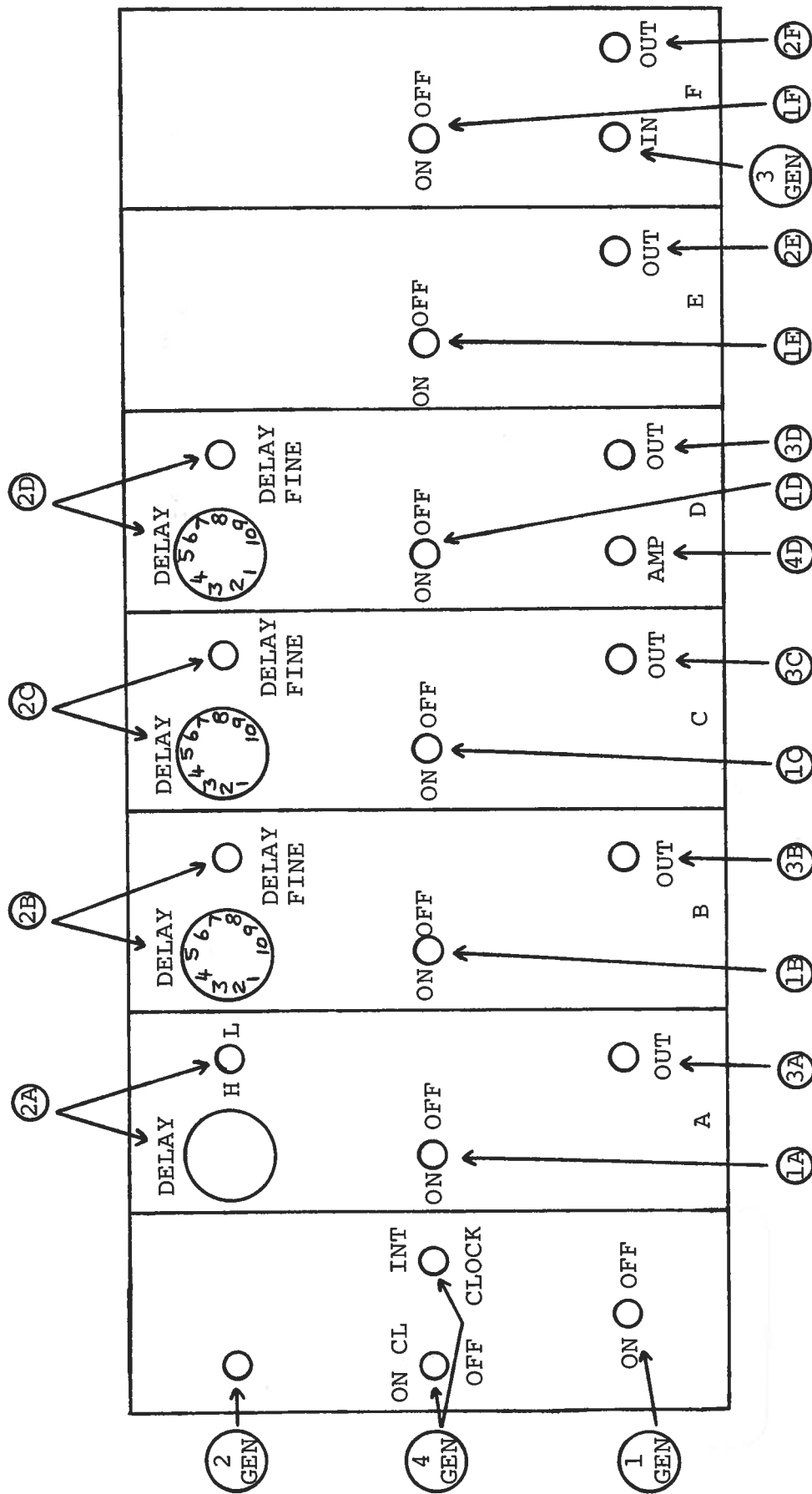
INSTRUCTIONS

Model AVX-D-NRL3 Delay 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.



FRONT PANEL CONTROLS AND GENERAL OPERATING INSTRUCTIONS

GENERAL:

The six channel AVX-D-NRL3 requires 120/240V, 50-60 Hz prime power and an external trigger signal of +5 to +10V (PW > 3 nsec). The unit may also be triggered at a rate of 1 Hz using the internal clock. When triggered externally, the unit will operate at PRF from 0 to 20 KHz. All six channels are triggered in parallel and all may be operated simultaneously. All connectors are SMA with SMA to N adapters supplied.

1 GEN: On-off switch applies prime power to all stages.

2 GEN: Indicator light denotes that prime power is on.

3 GEN: Input trigger signal applied at this point. SMA connector with SMA to N adapter provided.

4 GEN: With switch in the OFF position the indicator light is off and the unit requires an external trigger signal to operate. With the switch in the ON CL position the indicator light is on and all six channels are triggered internally at a 1 Hz rate.

Channel A:

Provides +5V to 50 ohms, pulse width fixed at 200 nsec and rise time of 2 nsec. Propagation delay variable from 20 nsec to 150 nsec (low range) or 100 nsec to 300 nsec (high range), selected by two position switch and 10 turn control.

1A: Two position switch turns A channel ON or OFF.

2A: Propagation delay variable from 20 nsec to 300 nsec via a 10 turn control and a two position range switch (20-150 nsec and 100 to 300 nsec).

3A: Provides output to 50 ohms. SMA connector with SMA to N adapter.

Channel B:

Provides +5V to 50 ohms, pulse width fixed at 10 nsec and rise time of 1 nsec. Propagation delay variable from 20 to 130 nsec via a 10 position switch and a one turn fine control.

1B: Two position switch turns B channel ON or OFF.

2B: Propagation delay variable from 20 nsec to 130 nsec via a 10 position switch (10 nsec per step) and a one turn fine control.

3B: Provides output to 50 ohms. SMA connector with SMA to N adapter.

Channel C:

Provides $\geq +60$ volts to 50 ohms, pulse width fixed at 2 nsec and rise time of 0.5 nsec. Propagation delay variable from 20 nsec to 130 nsec via a 10 position switch and a one turn fine control.

1C: Two position switch turns C channel ON or OFF.

2C: Propagation delay variable from 20 nsec to 130 nsec via a 10 position switch (10 nsec per step) and a one turn fine control.

3C: Provides output to 50 ohms. SMA connector with SMA to N adapter.

Channel D:

Provides 0 to $\geq +50$ volts to 50 ohms, pulse width fixed at 20 nsec and rise time of less than 1 nsec. Propagation delay variable from 20 nsec to 130 nsec via a 10 position switch and a one turn fine control.

1D: Two position switch turns D channel ON or OFF.

2D: Propagation delay variable from 20 nsec to 130 nsec via a 10 position switch (10 nsec per step) and a one turn fine control.

3D: Provides output to 50 ohms. SMA connector with SMA to N adapter.

4D: One turn control varies output amplitude from 0 to $\geq +50$ volts.

Channel E:

Provides $\geq +60$ volts to 50 ohms, pulse width fixed at 2 nsec and rise time of 0.5 nsec. Propagation delay fixed at less than 2 nsec.

1E: Two position switch turns E channel ON or OFF.

2E: Provides output to 50 ohms. SMA connector with SMA to N adapter.

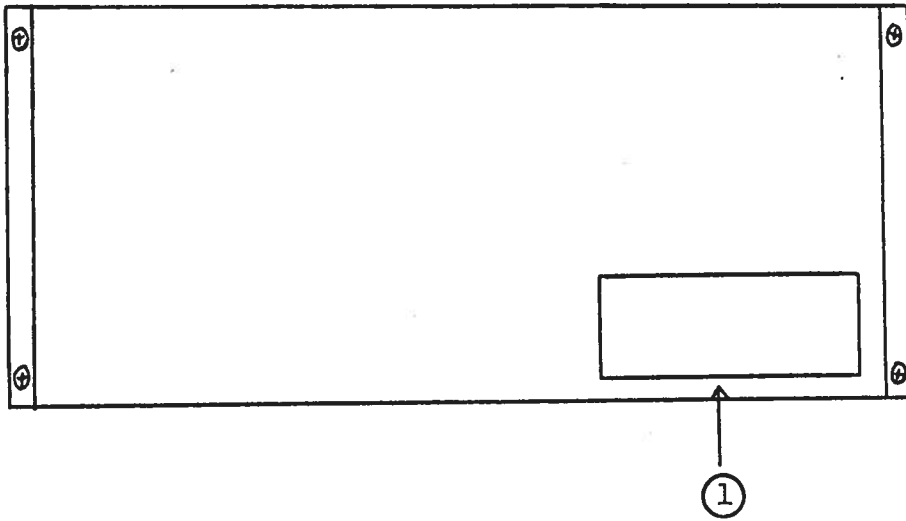
Channel F:

Provides $\geq +50$ volts to 50 ohms, pulse width fixed at 4 nsec and rise time of 0.5 nsec. Propagation delay fixed at less than 2 nsec.

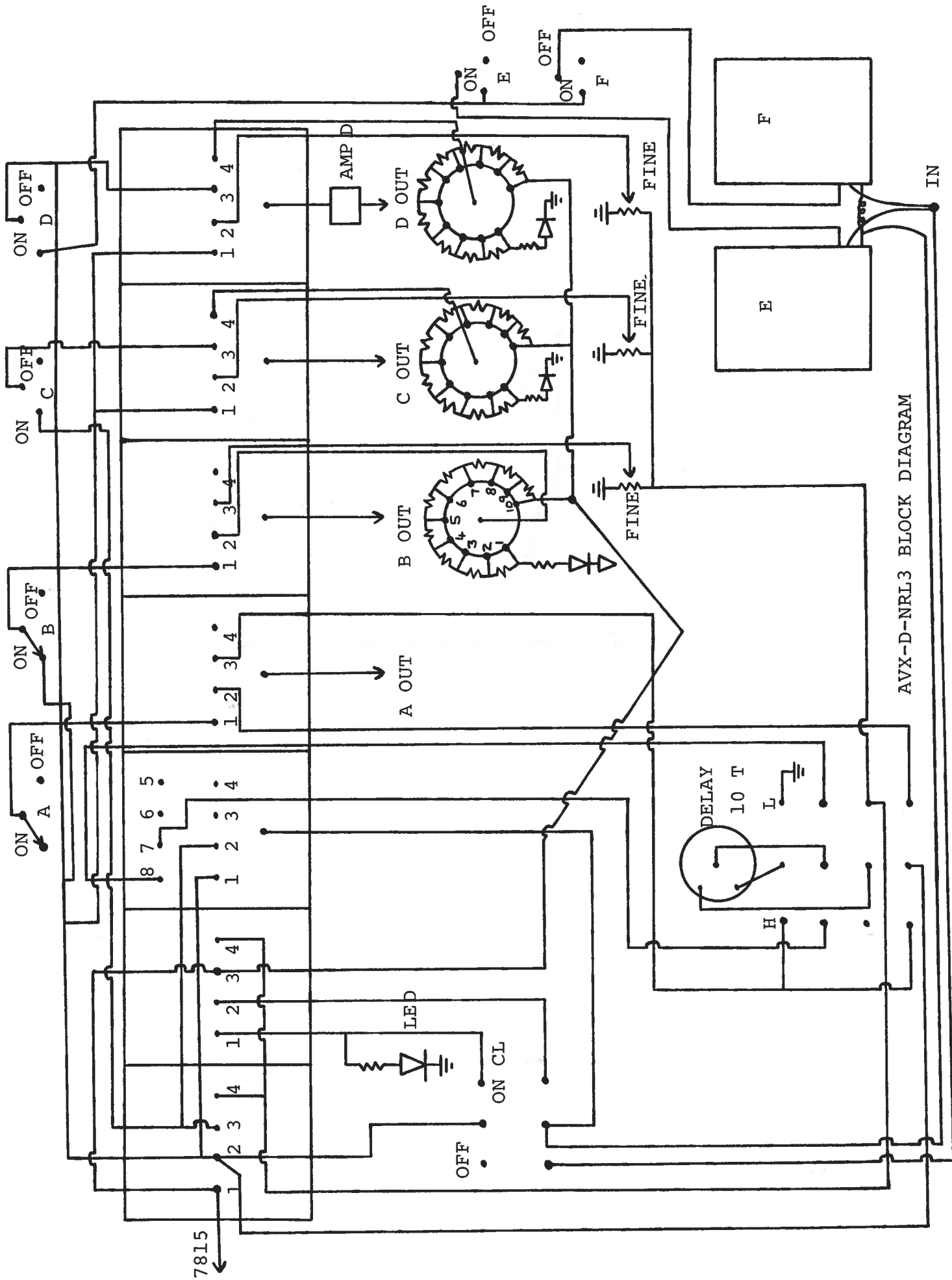
1F: Two position switch turns F channel ON or OFF.

2F: Provides output to 50 ohms. SMA connector with SMA to N adapter.

REAR PANEL CONTROLS



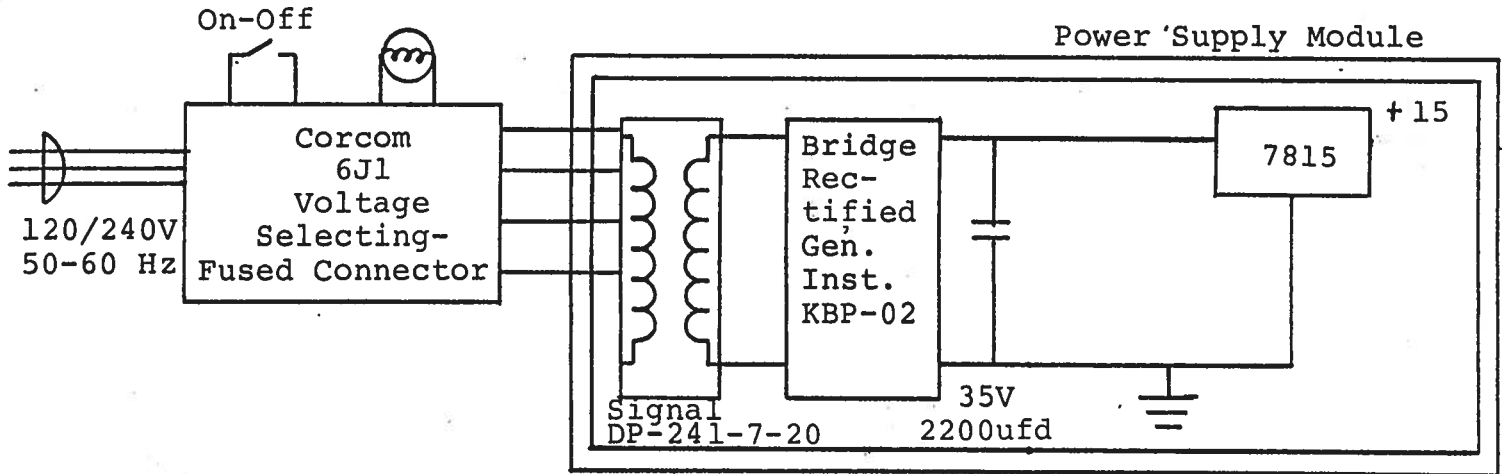
- ① FUSED CONNECTOR, VOLTAGE SELECTOR. The detachable power cord is connected at this point. In addition, the removable cord is adjusted to select the desired input operating voltage. The unit also contains the main power fuse.



AVX-D-NRL3 BLOCK DIAGRAM

7815

DC POWER SUPPLY



SYSTEM DESCRIPTION AND REPAIR PROCEDURE

The AVX-D-NRL3 consists of the following basic modules:

- 1) AVX-D-NRL3-PG pulse generator-delay module (six parallel stages)
- 2) Power supply board to generate +15V

The modules are interconnected as shown on the preceding drawings.

In the event of an instrument malfunction, remove the four Phillips screws on the back of the instrument. The top cover may then be slid off. Check the DC output voltages at the 7815 output. Repair or replace if this voltage is less than +15 volts. If the voltage is about 15 volts, then the sealed module is defective and must be replaced (order from Avtech). Note that the sealed modules can be repaired at the factory and that field repair should not be attempted.

Schroff 07.03.85

11