

**AVTECH**



**AVTECH ELECTROSYSTEMS LTD.**  
NANOSECOND WAVEFORM ELECTRONICS

---

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

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

INSTRUCTIONS

MODEL AVP-1-C-P-CSIROB 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 disassembled, modified or subjected to conditions exceeding the applicable specifications or ratings. This warranty is the extent of the obligation assumed by Avtech with respect to this product and no other warranty or guarantee is either expressed or implied.

### TECHNICAL SUPPORT

Phone: 613-226-5772 or 1-800-265-6681

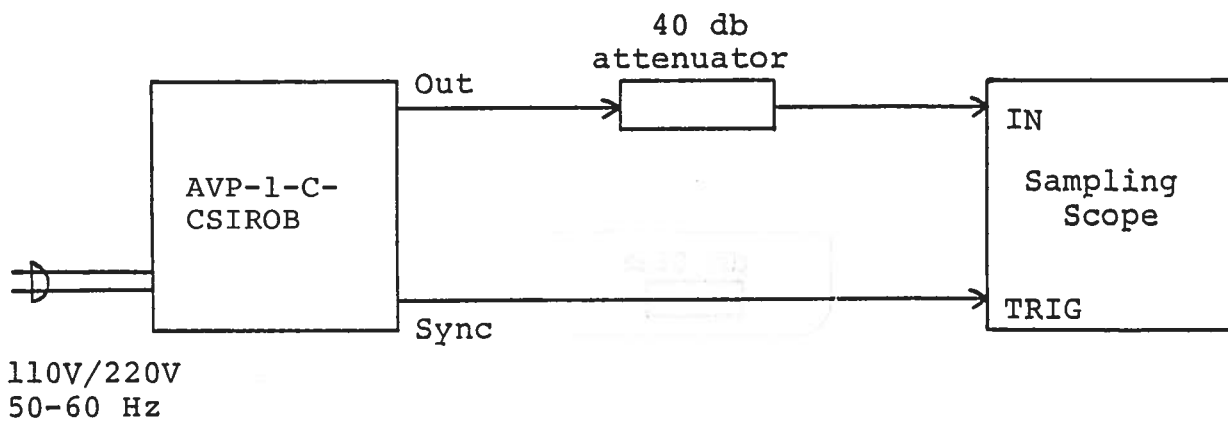
Fax: 613-226-2802 or 1-800-561-1970

E-mail: [info@avtechpulse.com](mailto:info@avtechpulse.com)

World Wide Web: <http://www.avtechpulse.com>

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 40 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 a +0.5 Volt 50 ns pulse.
- 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 and by means of the PRF range switch.
- 5) When the rear panel INT-EXT switch is in the INT position, the output pulse width is controlled by means of the front panel 3 position range switch as follows:
  - A) 200 ps
  - B) 600 ps
  - C) 6 ns

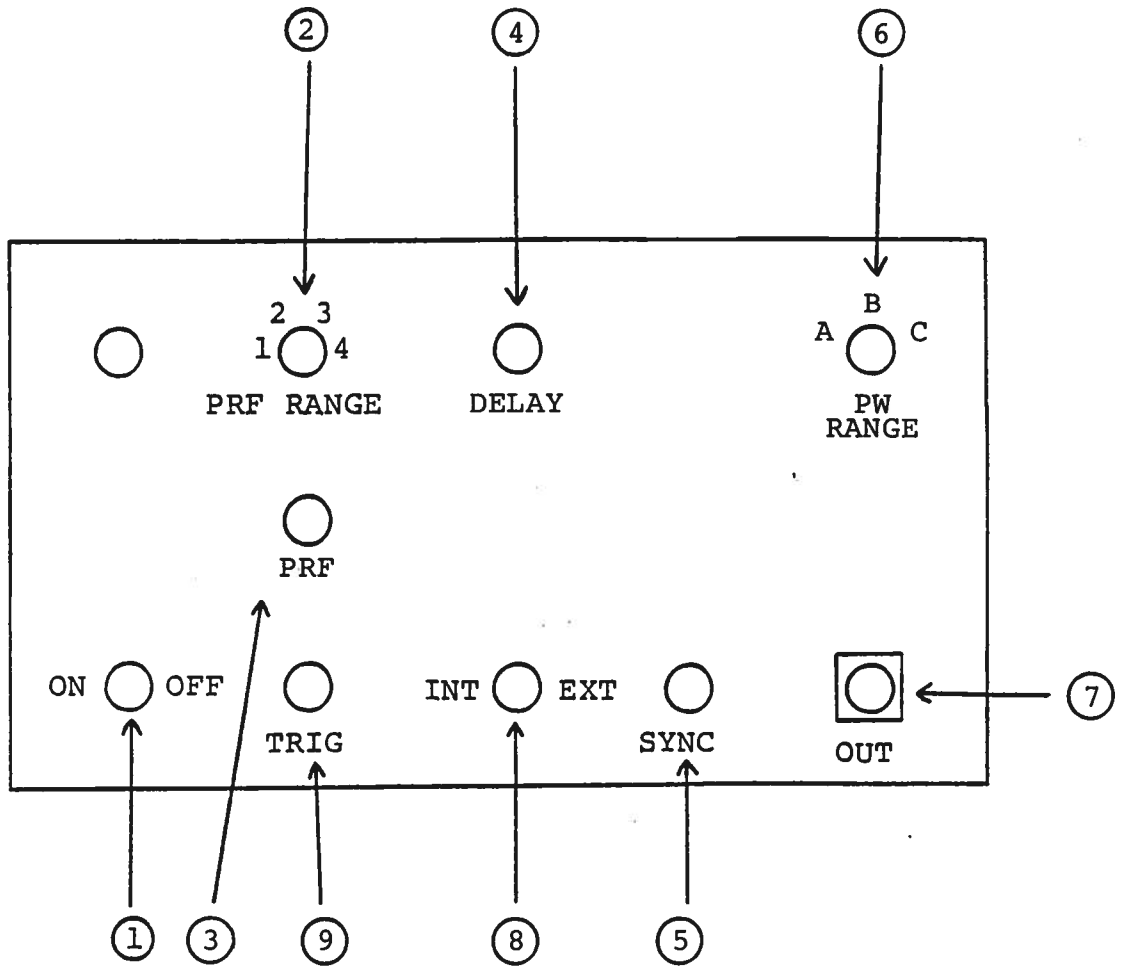
When the switch is in the EXT position, the output PW is controlled by a TTL level word applied to the rear panel D connector (AMPHENOL 57-40240) as follows ( $R_{IN} > 1K$ ):

<u>PIN_1</u>	<u>PIN_2</u>	<u>PIN_24</u>	<u>OUTPUT</u>
0 V	0 V	GND	200 ps
+5V	0 V	GND	600 ps
0 V	+5V	GND	6.0 ns

- 6) 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 us (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.
- 7) The AVP-C 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.

Fig. 2

FRONT PANEL CONTROLS



- (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	1 Hz	10 Hz
Range 2	10 Hz	100 Hz
Range 3	100 Hz	1 kHz
Range 4	1 kHz	10 kHz

- (4) DELAY Control. Controls the relative delay between the reference output pulse provided at the SYNC output (5) and the main output (7). This delay is variable over the range of 0 to at least 500 ns.
- (5) SYNC Output. This output precedes the main output (9) and is used to trigger the sampling scope time base. The output is a +0.5V ns (approx) pulse capable of driving a fifty ohm load.
- (6) PW. When the rear panel INT-EXT switch is in the INT position, the output pulse width is controlled by means of the front panel 3 position range switch as follows:

- A) 200 ps
- B) 600 ps
- C) 6 ns

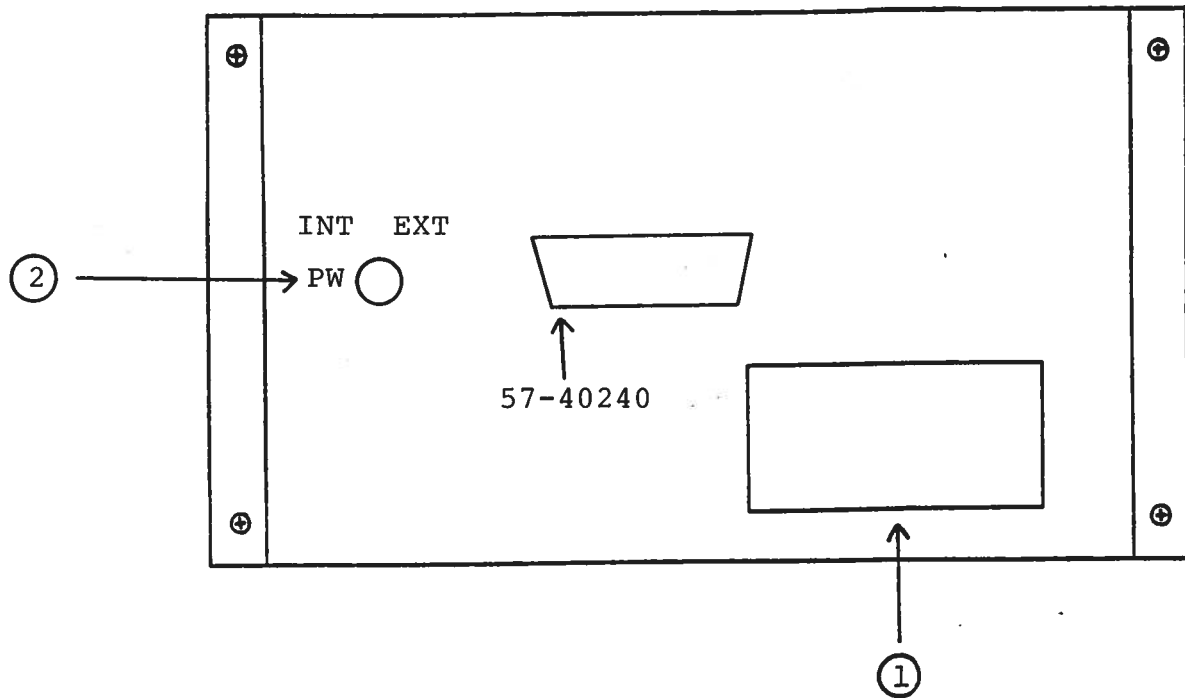
When the switch is in the EXT position, the output PW is controlled by a TTL level word applied to the rear panel D connector (AMPHENOL 57-40240) as follows ( $R_{IN} > 1K$ ):

<u>PIN_1</u>	<u>PIN_2</u>	<u>PIN_24</u>	<u>OUTPUT</u>
0 V	0 V	GND	200 ps
+5V	0 V	GND	600 ps
0 V	+5V	GND	6.0 ns

- (7) OUT. SMA connector provides output to 50 ohm load.
- (8) 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 us 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.
- (9) TRIG Input. The external trigger signal is applied at this input when the EXT-INT toggle switch is in the EXT position.

Fig. 3

BACK PANEL CONTROLS



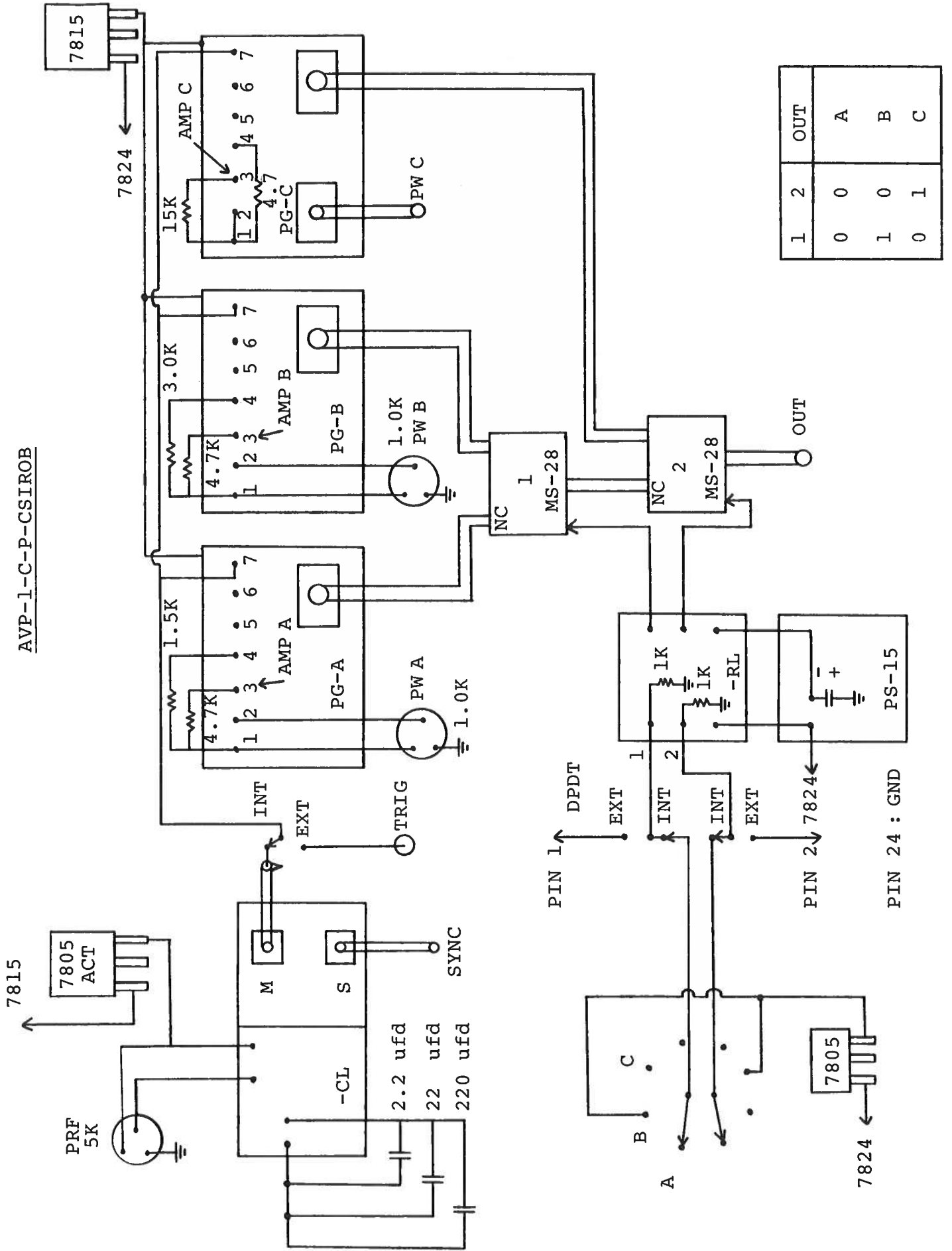
- (1) FUSED CONNECTOR, VOLTAGE SELECTOR. The detachable power cord is connected at this point. In addition, the removable cord is adjusted to select the desired input operating voltage. The unit also contains the main power fuse (0.25 A SB).
- (2) When the INT-EXT switch is in the INT position, the output pulse width is controlled by means of the front panel 3 position range switch as follows:
- A) 200 ps
  - B) 600 ps
  - C) 6 ns

When the switch is in the EXT position, the output PW is controlled by a TTL level word applied to the D connector (AMPHENOL 57-40240) as follows ( $R_{IN} > 1K$ ):

<u>PIN_1</u>	<u>PIN_2</u>	<u>PIN_24</u>	<u>OUTPUT</u>
0 V	0 V	GND	200 ps
+5V	0 V	GND	600 ps
0 V	+5V	GND	6.0 ns



AVP-1-C-P-C-SIROB



1	2	OUT
0	0	A
1	0	B
0	1	C

PIN 24 : GND

PIN 2 : 7824

PIN 1 : DPDT

## SYSTEM DESCRIPTION AND REPAIR PROCEDURE

The AVP-1-C-CSIROB consists of:

- 1) 3 pulse generator modules
- 2) 1 clock module (-CL)
- 3) 1 relay control module (-RL)
- 4) 1 -15 volt PS module
- 5) 1 +15 volt power supply PC

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 modules should be replaced or repaired. The sealed PG modules must be returned to Avtech for repair (or replacement). The clock module provides a 0.2 us TTL level trigger pulse at pin M to trigger the PG module and a 0.1 us +0.2 V sync pulse at pin S to trigger the sampling scope display device. The output at pin S precedes the output at pin M by almost 0 to 100 ns 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) 0.2 us TTL level outputs are observed at pins M and 0.1 us 0.5 volt outputs are observed at pin S.
- b) The PRF of the outputs can be varied over the range of 1 Hz to 10 kHz using the PRF and PRF RANGE controls.
- c) The relative delay between the pin M and S outputs can be varied by at least 100 ns by the DELAY controls.

The sealed clock module must be returned to Avtech for repair or replacement if the above conditions are not observed. The output pulse width for A and B can be adjusted using the PWA and PWB pots which are internally accessible. The pulse width for C may be increased beyond 6 ns by adding 50 ohm delay line to the PWC SMA connector. The output amplitudes for all outputs may be varied by varying the value of the resistor between PINS 1 and 3 on the PG modules.

If additional assistance is required:

Tel: (613) 226-5772

Fax: (613) 226-2802

Schroff

03.19.92

... ..  
... ..  
... ..  
... ..  
... ..  
... ..  
... ..  
... ..  
... ..  
... ..

... ..

... ..  
... ..