PULSE CHECKING TEST SET SD-96362-01 (J-94723A)

DESCRIPTION AND APPLICATION

1. GENERAL

1.01 This section covers the description and application of the Pulse Checking Test Set SD-96362-01 (J94723A).

1.02 This section is reissued to:

- Correct the error in 5.02. "500 position" should read "Zero position".
- Change PBC to PPS 6.02.

1.03 The pulse checking test set (Fig. 1) was designed to measure pulsing speed and percent break of interrupter circuits by the direct reading method. The working limits for these tests are:

(1) A maximum of 40 pulse and a minimum of 3 pulses per second (pps) when measuring pulsing speed.

(2) A 20 to 80 percent break when measuring pulsing speed.

(3) A minimum of 3 pps when measuring percent break.

1.04 The test set provides for measuring pulse speeds of interrupters from 0 to 20 pps on one scale of the meter and 0 to 40 pps on the other scale. Percent break of interrupters is measured on the 0 to 100 scale.

1.05 An external power source of 48 volts is required for the operation of the test set.

2. EQUIPMENT DESCRIPTION

2.01 The overall dimensions of the pulse checking test set, excluding the carrying handle assembly, are approximately 14-1/2 inches long, 9-3/4 inches wide and 8 inches high.

2.02 A protective cover (ED-90972-71, G4) is available for the test set. The use of the cover increases the overall height of the test set to approximately 9-1/2 inches.

2.03 A ladder strap is provided on the side of the test set for holding it in place when used on the step of a rolling ladder.

2.04 The end panel of the pulse checking test set contains the following connection facilities:

BAT G Jack: This jack is used for patching the test set to battery and ground supply.

P Jack: This jack is used for patching the test set to an interrupter circuit.

BAT and G Binding Posts: These binding posts are used for direct wiring the test set to battery and ground supply.

P Binding Post: This binding post is used for direct wiring the test set to an interrupter circuit.

2.05 The front panel of the pulse checking test set contains:

(a) ***MAM Meter:*** A shielded, direct-reading milliammeter, used as a percent break meter and pulse speed indicator.

(b) ***PSS-PCB Key:*** A three position lever-type key. The normal or center position is used for calibration. In the PPS position, the circuit of the test set is conditioned for the pulsing speed test. The PCB position conditions the circuit for the percent break test.

(c) ***SCALE 20-40 Key:*** A turnbutton type key used to select either the 0 to 20, or 0 to 40 scale of the milliammeter during the pulsing speed test.

(d) ***CAL 0-500 Potentiometer:*** This control is used to adjust 0 percent break on the milliammeter.

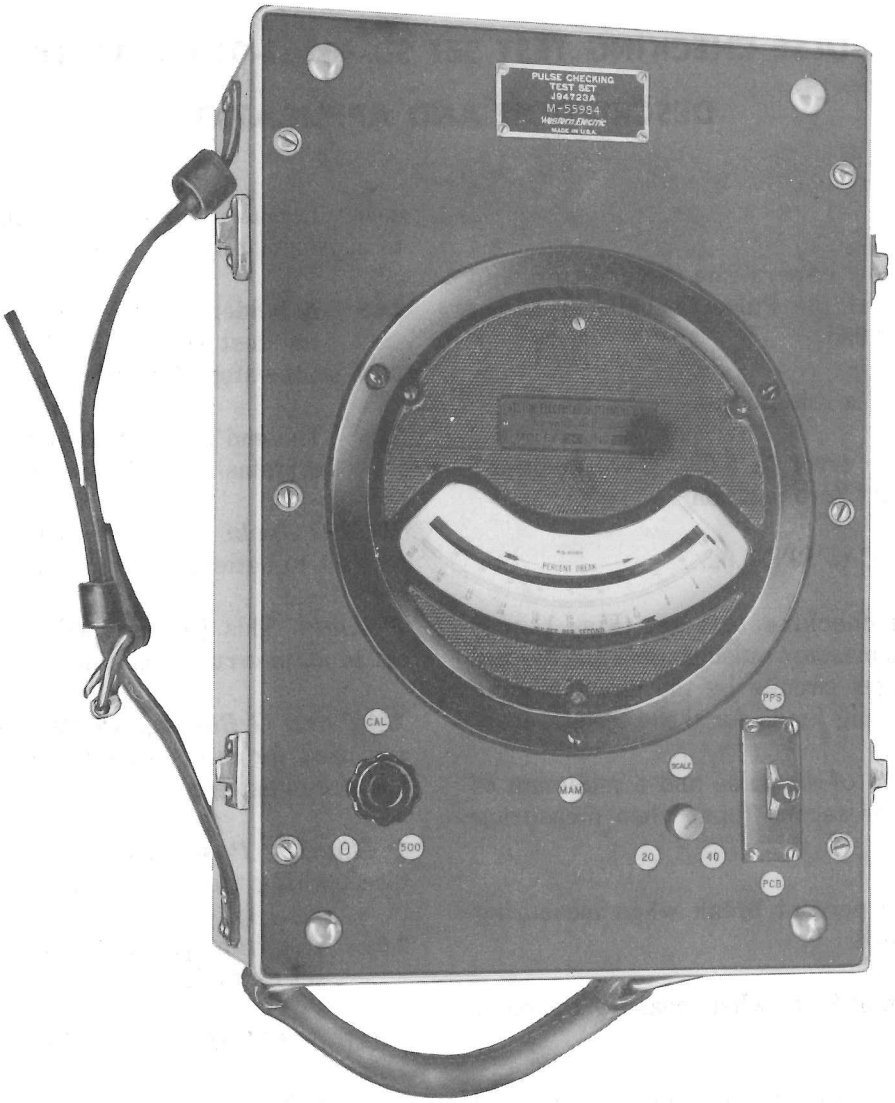


Fig. 1—Pulse Checking Test Set

3. CIRCUIT OPERATION

3.01 A simplified schematic of the circuit as used for the percent break test is shown in Fig. 2. The meter is calibrated to read full scale or zero percent break with the PPS-PCB switch nonoperated. When the PCB switch is operated and interrupter contacts are connected across the tip and ring of the P jack, the meter reading will be inversely proportional to the percentage of time the interrupter contacts are closed.

3.02 A simplified schematic of the circuit as used for the pulse speed test is shown in Fig. 3. The circuit is broken into two portions, the relay circuit and the meter circuit. A polar relay P is used to follow the interrupter contacts. When the interrupter contacts across the tip and ring of the P jack are open, the P relay operates with resistance battery on terminal 1 closing contacts 3 and 5 in the meter circuit. Contacts 3 and 5 closed charge the capacitors in the circuit. When the interrupter contacts close, placing ground on the tip of the P jack, the P relay is operated in the other direction closing the 2 and 5 contacts and opening the 3 and 5 contacts. The 2 and 5 contacts closed cause the meter to read in proportion to the charge placed on the capacitors. The SCALE

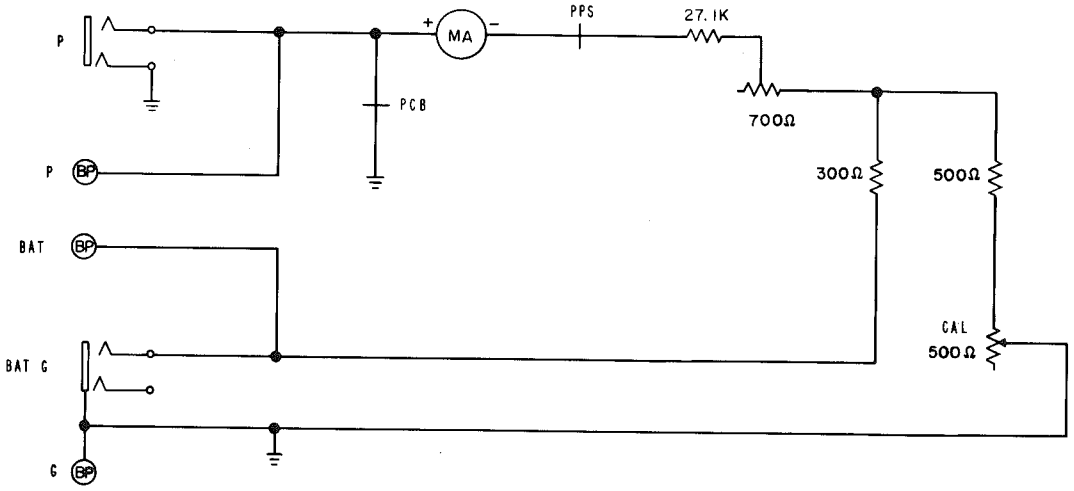


Fig. 2—Percent Break Test Circuit

switch when operated to the 20 position places an additional capacitance in the circuit.

4. CONNECTIONS

4.01 Connections to the pulse checking test set may be made using the cords shown in Table A or direct wiring may be connected to the binding posts.

5. PERCENT BREAK TEST

5.01 Position the PPS-PCB lever key to normal (center position). With no patch cords connected, adjust the screw on top of the meter so that the pointer is on the 100 percent break scale division.

5.02 Turn the CAL 0-500 potentiometer in a counterclockwise direction to the limit of its travel (Zero position). This action is performed to prevent the needle from moving off scale when battery and ground are connected to the test set.

5.03 Connect the BAT G jack of the test set to the 48-volt battery supply.

Note: To ensure proper accuracy of the pulse checking test set, it should be set in a level position.

5.04 Adjust the CAL 0-500 potentiometer in a clockwise direction as required to bring the pointer to 0 percent break.

5.05 Connect the interrupter to be tested to the P jack of the test set.

5.06 Operate the PPS-PCB lever key to the PCB position. The circuit of the test set is now connected so that an intermittent ground is applied from the interrupter. Each time a ground is applied, the pointer of the meter will deflect, indicating the percent break. Estimate the midpoint oscillation range of the meter needle and record the reading.

6. PULSING SPEED TEST

6.01 With the CAL 0-500 potentiometer left in the position to which it was adjusted for the percent break test discussed in 5.02, position the SCALE 20-40 turnbutton key to the 40 position.

6.02 Operate the PPS-PCB lever key to the PPS position. After the meter movement has stabilized, record the pulse speed reading indicated on the 0 to 40 scale.

6.03 If the pulse speed indicated on the 0 to 40 scale is less than 20 pps, rotate the SCALE 20-40 turnbutton key to the 20 position. Record

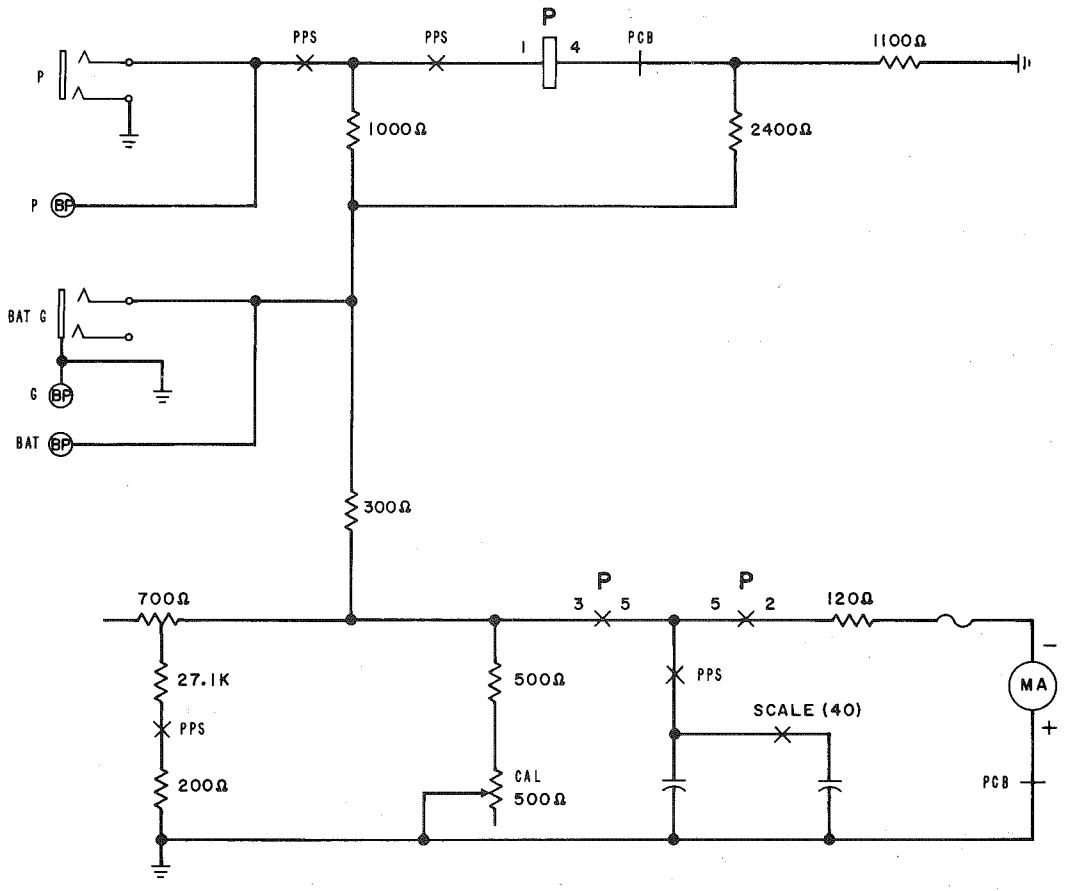


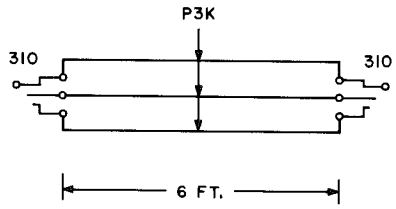
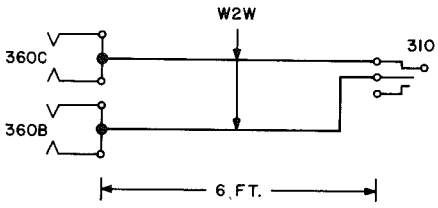
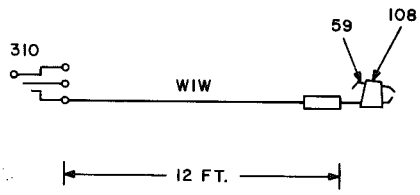
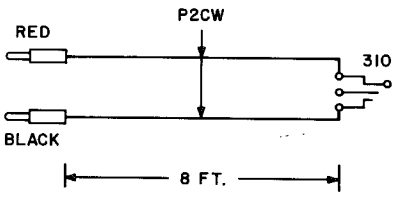
Fig. 3—Pulse Speed Test Circuit

the reading of pulse speed indicated on the 0 to 20 scale.

6.04 Restore the PPS-PCB lever key to the normal (center) position.

Note: The appropriate pulsing-requirements chart should be consulted to see if the pulse speed and percent break fall within the allowable limits.

TABLE A
CORD ASSEMBLIES

CORD	QUANTITY	USE
3P15A 	2	CONNECTS TEST SET TO BATTERY AND INTERRUPTER CIRCUIT. WHEN USED WITH NO. 1 ESS OFFICE, ONLY ONE CORD IS REQUIRED AND IS USED FOR CONNECTING TO THE INTERRUPTER CIRCUIT.
2W17A 	1	CONNECTS TEST SET TO INTERRUPTER CIRCUIT WHEN TEST JACK IS NOT AVAILABLE IN THE INTERRUPTER CIRCUITS.
1W7A 	1	CONNECTS P JACK OF TEST SET TO SLEEVE OF MX OR MN JACK OF THE REVERTIVE IMPULSE INTERRUPTER TEST SET.
2P32A 	1	CONNECTS TEST SET TO BATTERY SUPPLY WHEN USED WITH NO. 1 ESS OFFICE.