

## REVERTIVE PULSE INTERRUPTER OF INCOMING REGISTERS

### TESTS

### NO. 5 CROSSBAR OFFICES

#### 1. GENERAL

1.01 This section outlines the procedure for testing the revertive pulse interrupter of the No. 5 crossbar office revertive pulse incoming and central B (terminating office part) registers, and No. 5 crossbar office revertive pulse incoming register for tandem operation, under maximum and minimum loop conditions.

1.02 This section is reissued to bring it in conformity with other material in the Plant Series. In this process marginal arrows have been omitted.

1.03 The "pulse speed" and the "per cent break" requirements are specified on the circuit requirement table for the register.

1.04 Method A: This test applies where the 35-type test set, per cent break meter, and impulse counter are available.

1.05 Method B: This test applies where the pulse checking test set, J94723 (SD-96362-01), is available. With the lever type key in the PCB (per cent break) position, the pulsing circuit is connected to the meter in series with a suitable network to read "per cent break." With the lever type key in the PPS (pulses per second) position, the pulsing circuit is connected to an auxiliary relay which charges a precision condenser resistance network and then discharges the network through the meter, as each pulse is received, resulting

in a direct reading of pulse speed in pulses per second.

1.06 Lettered Steps: The letters a, b, c, etc, are added to a step number to indicate that the steps cover an action which may or may not be required, depending on local conditions. The conditions under which a lettered step or series of steps should be made are given in the ACTION column, and all steps governed by the same condition are designated by the same letter. Where a condition does not apply, the associated steps should be omitted.

#### 2. APPARATUS

Method A: Using 35-Type Test Set, Per Cent Break Meter, and Impulse Counter

2.01 35-Type Test Set.

2.02 KS-7361 Per Cent Break Meter.

2.03 KS-7608 Impulse Counter (or No. F-789 Cenco Impulse Counter).

2.04 KS-3008 Stop Watch or equivalent.

2.05 Four No. 364 Tools (Spade Terminals).

2.06 One P2P Cord, 10 feet long, equipped with one No. 309 Plug and one No. 310 Plug (2P10A).

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2.07 Two W2W Cords, 6 feet long, equipped with one No. 310 Plug and one No. 360B Tool and one No. 360C Tool (2W17A) and two No. 364 Tools.

2.08 Two P3F Cords, 6 feet long, equipped with one No. 309 Plug and one No. 310 Plug (3P12E).

Method B: Using Pulse Checking Test Set

2.09 35-Type Test Set.

2.10 Pulse Checking Test Set J94723 (SD-96362-01).

2.11 One P3K Cord, 6 feet long, equipped with two No. 310 Plugs (3P15A).

2.12 One W2W Cord, 6 feet long, equipped with one No. 310 Plug and one No. 360B Tool and one No. 360C Tool (2W17A).

2.13 One W3M Cord, 6 feet long, equipped with one No. 310 Plug and one No. 360A Tool, one No. 360B Tool, one No. 360C Tool (3W4A).

2.14 Three No. 141 Cord Tips.

2.15 One No. 364 Tool (Spade Terminal).

3. PREPARATION

<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
1	At register - Check GR relay.	Relay meets contact make requirements shown in Section 040-518-701.
2	Using the 35-type test set - Check the STP or STA, and L relays.	Relays meet electrical requirements shown on circuit requirement tables.
3a	In register equipped with S-type L relay - While test set is still connected to L relay - Open circuit through test set.	L relay released.
4a	Remove block from Ll or LA relay.  <u>Note:</u> Block had been placed in accordance with circuit requirement table instructions.	
5a	Close circuit through test set - Adjust current to value shown in following table:	
	No. 5 Crossbar RP Incoming Register 240ma	
	No. 5 Crossbar Central B Register 240ma	
	No. 5 Crossbar RP Incoming Register for Tandem Operation 295ma	
6a	Operate Ll or LA relay manually.	Current flow drops to approximately 210 ma.  <u>Note:</u> This is a check that the shunt normally present is removed after the Ll or LA relay is operated.

<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
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Method A: Using 35-Type Test Set, Per Cent Break Meter, and Impulse Counter

- |   |   |  |
|---|---|--|
| 7 | Restore switches and keys of test set to normal and move resistance sliders to extreme right.   |  |
| 8 | Connect TEST BATT and GRD jack of test set to battery and ground supply A jack, or the 48V jack, using P2P cord with the No. 309 plug connected to test set.  |  |
| 9 | Connect 3R jack of test set to per cent break meter, using W2W cord equipped with No. 364 tools, with white (tip) conductor to positive (+) terminal and black (ring) conductor to negative (-) terminal. |  |

Note: To insure proper accuracy of per cent break meter, it should be approximately level and should not be located closer than 12 inches to magnetic material.

- |    |  |   |
|----|--|---|
| 10 | Connect 4W jack of test set to impulse counter, using W2W cord equipped with No. 364 tools, with white (tip) conductor to left terminal of counter and black (ring) conductor to right terminal. |   |
| 11 | Connect TEST T&R jack of test set to MX jack in register frame panel, using P3F cord.  |   |
| 12 | Connect TEST S jack of test set to T jack of register, using P3F cord.   |   |
| 13 | Block and insulate register relays as specified for the pulsing requirements on the circuit requirement tables.  |   |
| 14 | Block GR relay operated.   |   |
| 15 | Close key No. 3 on test set -<br>Adjust resistance sliders so that the current, through the per cent break meter, is 12 milliamperes.  | Needle of per cent break meter deflects to left and coincides with the 0 line on meter scale. |

Caution: Exercise extreme care to see that the current is not allowed to exceed this value while adjusting the resistance sliders.

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|----|---------------------------------|--|
| 16 | Open key No. 3 on test set.     |  |
| 17 | Operate key on impulse counter. |  |



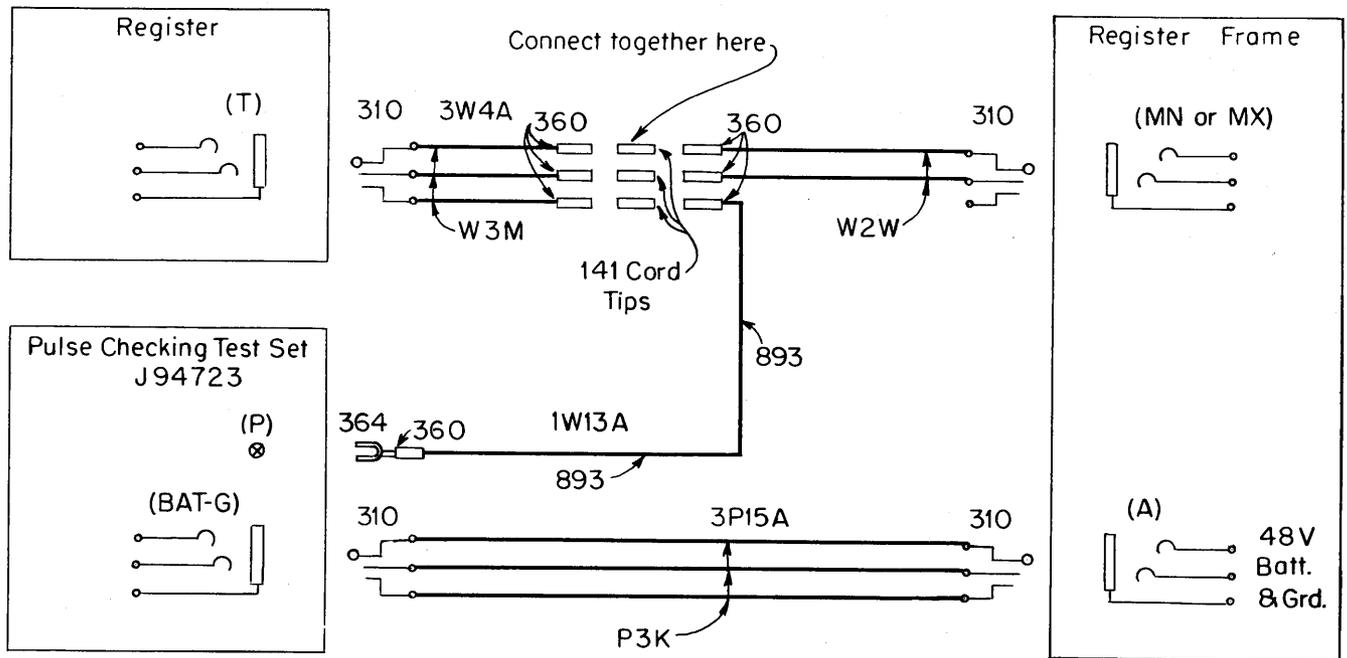


Fig. 1 - Pulse Checking Test Set Connections

4. METHOD

STEP	ACTION	VERIFICATION
<u>Method A: Using 35-Type Test Set, Per Cent Break Meter, and Impulse Counter</u>		
26	Block and insulate the register relays in accordance with circuit requirement table instructions to start the interrupter.	
27	Close key No. 3 on test set.	Needle on per cent break meter deflects to right and stabilizes.
28	Observe reading on per cent break meter.	
29	Open key No. 3 on test set.	
30	Close key No. 4 on test set - Start timing simultaneously with starting of impulse counter.	Impulse counter counts number of pulse cycles.
31	At the end of one minute - Open key No. 4 on test set.	Impulse counter stops counting pulse cycles.

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<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
32	Observe number of pulses recorded on impulse counter - Divide by 60 to obtain number of pulses per second.	
33	Consult the pulsing requirement chart on the circuit requirement tables - Find the line corresponding to the pulse speed in pulses per second, and note the extent of allowable per cent break.  <u>Note:</u> When the pulsing requirement chart is not provided, the per cent break and pulse speed requirements are shown in tabular form on the circuit requirement tables.	The measured per cent break, noted in Step 28, falls within the allowable limits. The measured pulses per second, noted in Step 32, falls within the allowable limits.
34	Repeat Steps 27 through 33, using the MN instead of the MX jack.	

Method B: Using Pulse Checking Test Set

35	Block and insulate the register relays in accordance with circuit requirement table instructions to start the interrupter.	
36	Operate PCB key of the pulse checking test set.	Meter needle stabilizes.
37	Estimate midpoint of range of oscillations of meter needle and record reading.	
38	Restore PCB key to normal.	
39	Operate PPS key of pulse checking test set.	Meter needle stabilizes.
40	Record reading of pulse speed on 40-0 scale.	
41b	If the indicated pulse speed is less than 20 pulses per second - Rotate SCALE key to 20 position.	
42b	Record reading of pulse speed on 20-0 scale.	
43	Restore PPS key to normal.	

<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
44	<p>Consult the pulsing requirement chart on the circuit requirement tables - Find the line corresponding to the pulse speed in pulses per second and note the extent of allowable per cent break.</p> <p><u>Note:</u> When the pulsing requirement chart is not provided, the per cent break and pulse speed requirements are shown in tabular form on the circuit requirement tables.</p>	<p>The measured per cent break, noted in Step 37, falls within the allowable limits. The measured pulses per second, noted in Step 40 or in Step 42B, falls within the allowable limits.</p>
45	<p>Repeat Steps 36 through 44 using the MN instead of the MX jack.</p>	