

**KS-13834 PERFORATOR AND TROUBLE RECORDER CIRCUIT
TESTS USING TROUBLE RECORDER TEST CIRCUIT SD-25682-01
NO. 5 CROSSBAR OFFICES**

1. GENERAL

1.01 This section describes a method of testing the KS-13834 perforator and trouble recorder circuit using the trouble recorder test circuit SD-25682-01 in No. 5 crossbar offices.

1.02 The tests and features tested are:

- (A) Speed and Accuracy of Record Test: This test checks that the proper number of accurate service trouble record cards are ejected within the record timing interval.
- (B) Spare Interposer Magnet and Punch Test: This test checks that the spare interposer magnets and punches are available for emergency use.
- (C) Record Slow Completing Alarm Feature: This test checks that if a record card is not completed within the specified time, the major alarm functions.
- (D) Card Disengaged from Hook Alarm Feature: This test checks that if a card becomes disengaged from the hooks on the chain driven by the L shaft, the major alarm functions.
- (E) Unused Card Bin Nearly Empty Alarm Feature: This test checks that if the unused card bin is nearly empty, the minor alarm functions.

1.03 The mechanical requirements and adjusting procedures for the KS-13834 perforator are covered in Section 034-305-701.

1.04 The pattern of perforations set up on the trouble recorder test panel shall be accurately perforated on each of the trouble cards resulting from these tests.

2. APPARATUS

All Tests

2.01 No. 322A (Make-Busy) Plug.

Tests (A) and (C)

2.02 KS-3008 Stop Watch or equivalent.

Test (A)

2.03 Trouble Recorder Test Circuit SD-25682-01.

2.04 Test Set for Timing Test SD-25707-01 (J24753A).

Test (B)

2.05 One No. 893 Cord, 6 feet long, equipped with two No. 360A Tools (1W13B Cord), one No. 419A Tool and one KS-6278 Tool (for establishing test connection between a terminal strip and a relay spring).

3. METHOD

<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
	<u>(A) Speed and Accuracy of Record Test</u>	
1	At the master test frame - Make busy the trouble recorder by inserting a No. 322A plug into the MB (or the TRMB) jack.	MB lamp lighted.
2	At the trouble recorder test panel - Restore all keys to normal.	

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<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
3	<p>In the rear of the trouble recorder - Remove the plugs associated with the trouble recorder from the CONT, SCN, BGF, and BGR jacks and insert the T-CONT, T-SCN, T-BGF, and T-BGR plugs of the trouble recorder test circuit into these jacks.</p> <p><u>Caution: No plugs should be inserted or removed from these jacks unless all keys associated with the trouble recorder test circuit are normal.</u></p>	
4	<p>Remove the MJK plug associated with the trouble recorder from the MP jack and insert the T-MJK plug of the recorder test circuit into that jack.</p>	
5	<p>Remove the plugs associated with the trouble recorder from the BW0, BW20, BW40, BW60, BW80, and BW100 jacks and insert the correspondingly numbered T-BW plugs of the trouble recorder test circuit into these jacks.</p>	
6	<p>At the trouble recorder test panel - Operate the MC key.</p>	<p>Perforator motor starts.</p>
7	<p>After the perforator motor has attained full speed, note reading on MST register. Operate the MST key and start the stop watch in unison, and observe the number of registrations scored in one minute on the MST register.</p> <p><u>Note: The indicated number of registrations is equivalent to the revolutions per minute of the eccentric shaft in the KS-13834 perforator.</u></p>	<p>Revolutions per minute are between 475 and 580.</p> <p><u>Note: If in excess of 580 rpm, see note in Step 10 of this section.</u></p>
8	<p>Restore the MST and MC keys to normal.</p>	
9	<p>Check the time required for the TD tube to fire, using the timing test set patched to the TDC jack, as outlined in Section 100-130-101 and in accordance with the circuit requirement table instructions in SD-25682-01.</p> <p><u>Note: Make certain the MCF key of the timing test set is turned to the NORM (normal) position.</u></p>	

<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
10	Using the chart in Note 301 of SD-25682-01, determine any variation in the time delay interval from that specified for the speed of the eccentric shaft determined in Step 7.	
	<u>Note:</u> In cases where nonadjustable pulleys are provided, it is anticipated that the speed of the eccentric shaft may reach up to 625 rpm. In these cases, decrease the time delay by turning the potentiometer to the maximum counterclockwise position and extend the test conditions on the chart for 576 rpm up to 625 rpm.	
11	Disconnect the timing test set.	
12	At the trouble recorder test panel - Operate the IGO through IG9 keys, either singly or in combination, to make the desired pattern of perforations. The relationship of the IG- keys and connecting jacks to the perforations is shown in Table A.	

TABLE A

PERFORATIONS IN EACH RECORDING POSITION*

CONNECTING JACK USED

Key Operated	Lower Rows						Upper Rows					
	BW0		BW20		BW40		BW60		BW80		BW100	
IGO	0	10	20	30	40	50	0	10	20	30	40	50
IG1	1	11	21	31	41	51	1	11	21	31	41	51
IG2	2	12	22	32	42	52	2	12	22	32	42	52
IG3	3	13	23	33	43	53	3	13	23	33	43	53
IG4	4	14	24	34	44	54	4	14	24	34	44	54
IG5	5	15	25	35	45	55	5	15	25	35	45	55
IG6	6	16	26	36	46	56	6	16	26	36	46	56
IG7	7	17	27	37	47	57	7	17	27	37	47	57
IG8	8	18	28	38	48	58	8	18	28	38	48	58
IG9	9	19	29	39	49	59	9	19	29	39	49	59

* The perforator has nine recording positions. The first position perforates the first and tenth horizontal rows from the bottom of the trouble record card, the second position perforates the second and eleventh horizontal rows. Subsequent positions perforate the horizontal rows progressively two at a time, perforating the next horizontal rows above the previously perforated rows, until the last rows have been perforated.

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<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
13	At the trouble recorder test panel - Operate the STS key.	ON lamp lighted. TRC lamp lighted. SC lamp may be lighted. Perforator delivers one trouble record card and when perforator coasts to home position - ON lamp extinguished. SC lamp (if lighted) extinguished.
14	Restore the STS key.	TRC lamp extinguished.
15	Check the trouble record card.	Each perforation is accurately placed with relation to its designation.
16	If it is desired to receive a number of trouble record cards - Operate MC and STC keys.	Perforator delivers several record cards in succession.
17	When desired number of cards has been received - Restore the STC key and then restore the MC key.	
18	Check the trouble record cards.	On each card - Each perforation is accurately placed with relation to its designation.
19	Restore the IGO through IG9 keys to normal.	
20	Remove the plugs of the trouble recorder test circuit from the jacks at the rear of the trouble recorder and reinsert the plugs of the trouble recorder circuit which were removed for this test.	
21	Remove the plug from the MB (or TRMB) jack.	MB lamp extinguished.

(B) Spare Interposer Magnet and Punch Test

1	At the master test frame - Make busy the trouble recorder by inserting a No. 322A plug into the MB (or the TRMB) jack.	MB lamp lighted.
2	At the MISC "A" terminal strip on the RCDR (recorder) bay - Strap punchings 80, 81, 100, and 101 to- gether and connect to 1B of ST relay in the trouble recorder circuit.	
3	At the master test frame - Restore to normal all keys that may be operated on master test control panel.	
4	Operate RL key momentarily.	All lamps extinguished.
5	Operate DT, VFO, VGO, HGO, FTO, FUO, REC, and MT- keys.	

<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
6	Remove the plug from the MB (or TRMB) jack.	MB lamp extinguished.
7	Operate ST key momentarily.	MRL lamp lighted. Perforator delivers one trouble record card.
8	Operate RL key momentarily.	MRL lamp extinguished.
9	Check trouble record card.	Two perforations, in the position of the spare interposer magnet punches, are accurately placed on each of the 18 lines on the trouble record card.
10	Insert a No. 322A plug into the MB (or TRMB) jack.	MB lamp lighted.
11	At the MISC "A" terminal strip on the RCDR bay - Remove the strap from punchings 80, 81, 100, and 101 and remove the connection from 1B of ST relay.	
12	Remove the plug from the MB (or TRMB) jack.	MB lamp extinguished.

(C) Record Slow Completing Alarm Feature

1	At the master test frame - Make busy the trouble recorder by inserting a No. 322A plug into the MB (or the TRMB) jack.	MB lamp lighted.
2	Insulate 9B contact of MCO relay.	
3	Operate MCC key.	
4	Manually operate and hold ON relay, and start timing.	Within 2 to 3.56 seconds the major alarm sounds.
5	Release ON relay.	
6	Operate AR key momentarily.	Major alarm silenced.
7	Operate MCOR key momentarily.	
8	Manually operate and hold TRC1 relay, and start timing.	Within 2 to 3.56 seconds the major alarm sounds.
9	Release TRC1 relay.	
10	Operate AR key momentarily.	Major alarm silenced.
11	Operate MCOR key momentarily.	
12	Restore MCC key.	
13	Remove insulator from MCO relay.	
14	Remove the plug from the MB (or TRMB) jack.	MB lamp extinguished.

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<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
<u>(D) Card Disengaged from Hook Alarm Feature</u>		
1	At the master test frame - Make busy the trouble recorder by inserting a No. 322A plug into the MB (or the TRMB) jack.	MB lamp lighted.
2	Lower the In Bin platform until the latch engages, as described in Section 034-305-701 under Requirements for In Bin.	The latch holds the platform securely in place.
3	Carefully disengage the card that is in place in the channel and destroy it.	Major alarm sounds. <u>Note:</u> Due to alarm contacts closing.
4	Operate AR key momentarily.	Major alarm silenced.
5	Restore the In Bin platform to normal and manually restore a card to the channel, as described in Section 034-305-701 under Method of Loading In Bin.	
6	Operate MCOR key momentarily.	
7	Remove the plug from the MB (or TRMB) jack.	MB lamp extinguished.

(E) Unused Card Bin Nearly Empty Alarm Feature

1	At the master test frame - Make busy the trouble recorder by inserting a No. 322A plug into the MB (or the TRMB) jack.	MB lamp lighted.
2	Remove all but about 40 cards from the unused card bin.	
3	At the master test frame - Restore to normal all keys that may be operated on master test control panel.	
4	Operate RL key momentarily.	All lamps extinguished.
5	Operate DT, VFO, VGO, HGO, FTO, FVO, REC, and MT- keys.	
6	Remove the plug from the MB (or TRMB) jack.	MB lamp extinguished.
7	Operate ST key momentarily.	Minor alarm sounds. WAR lamp lighted. MRL lamp lighted.
8	Operate RL key momentarily.	MRL lamp extinguished.
9	Insert a No. 322A plug into the MB (or TRMB) jack.	MB lamp lighted.
10	Operate AR key momentarily.	Minor alarm silenced.
11	Replace the cards in the unused card bin that were removed in Step 2.	WAR lamp extinguished.
12	Remove the plug from the MB (or TRMB) jack.	MB lamp extinguished.