GROUP-BUSY CIRCUITS
FOR ORIGINATING, INCOMING, TRANSFER REGISTERS AND FOR SENDERS
TESTS USING MASTER TEST FRAME
NO. 5 CROSSBAR OFFICES

1. GENERAL

1.01 This section describes a method of testing: (a) group-busy circuit SD-25795-01 for use with originating, transfer, and incoming registers; (b) sender group-busy alarm control circuit SD-27638-01 used in offices arranged for line link pulsing; and (c) sender group-busy alarm circuit SD-25500-01. When SD-25795-01 is used with originating registers, it is tested with the master test control circuit and the automatic monitor, register and sender test circuit or with the master test control circuit and the test set circuit for register and CAMA sender circuits.

1.02 This section is reissued for the following reasons:

(a) To add information covering the EADAS/NM (Engineering and Administration Data Acquisition System/Network Management) feature if provided.

(b) To furnish procedures covering testing of the ED and TM relays for signaling sender group busy conditions, to the EADAS/NM scanner.

(c) To revise Part 2 Apparatus

This reissue does not affect Equipment Test Lists.

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SENDER GROUP BUSY ALARM CONTROL CIRCUIT SD-27638-01

1.04 Perform tests without delay because test conditions require all registers or senders in a group to be made busy and could result in service interference. Tests should therefore be performed during periods of light traffic.

1.05 If a regular alarm sounds during a test, immediately discontinue the test. Make proper notification that a regular alarm has sounded.

1.06 Tests B, C, and F require action and verification at a switchboard if an auxiliary signal circuit is provided.

1.07 Refer to local instructions for recording and reporting register operations caused by performing the following tests.

(a) Test A—The all-originating-registers-busy register will score.

(b) Test B—The all-incoming-registers-busy register will score.

(c) Test F—A traffic register or traffic data registration will be made on the ASB- leads associated with the SG- termials used in the test.

(d) Test G—The all-senders-busy register will score.

(e) ▶If EADAS/NM is provided the EADAS/NM center should be notified before tests are performed.◀

1.08 ***Lettered Steps:*** A letter, a, b, c, etc, added to a step number in Part 3 of this section indicates an action which may or may not be required depending on local conditions. The condition under which a lettered step or a series of lettered steps should be made is given in the ACTION column, and all steps governed by the same condition are designated by the same letter within a test. Where a condition does not apply, all steps designated by that letter should be omitted.

1.09 The manner of selecting some circuits and test conditions at the master test frame (MTF) and its associated circuits varies depending on the apparatus options furnished with these circuits. Therefore, where variable means of selection are provided, precise instructions for the selection of circuits and test conditions are not given. Precise instructions for the use of these variable means are given in Section 218-106-301.

1.10 The location statement, At MTF—, is used to refer to all apparatus located on the four basic bays of the MTF.

1.11 When performing Tests C through F on SD-27638-01, any 768A blocking tools found on SB— relays for unequipped sender groups should not be disturbed.

2. APPARATUS

Test A

2.01 Master test control circuit, SD-25800-01.

2.02 Master test frame trunk test circuit, SD-25918-01.

2.03 Automatic monitor, register, and sender test circuit, SD-25680-01.

2.04 Test set circuit for register and CAMA sender circuits (test set), SD-25676-01.

2.05 Two patching cords, P3K cord, 6 feet long, equipped with two 310 plugs (3P15A cord) for patching test set to MTF.

Tests A, B, C, G

2.06 KS-3008 stopwatch or equivalent.

2.07 322A (make-busy) plugs as required.

2.08 ▶Testing cord 893 cord, 6 foot long, equipped with two 360 tools (1W13B cord), one KS-6278 connecting clip, and 419A tool.◀

Tests A, E, F

2.08 Blocking and insulating tools as required. Use tools and apply as covered in Section 069-020-801.

Tests A, E, F, G

2.09 67C test set or equivalent, equipped with one KS-6728 connecting clip or 624B (terminal connector) tool as required and one 411B tool (for checking the presence of battery or ground on relay contacts and terminal strip terminals).

3. METHOD

STEP	ACTION	VERIFICATION
	GROUP-BUSY CIRCUIT FOR USE WITH ORIGINATING, TRANSFER, AND INCOMING REGISTERS SD-25795-01	
	A. Group-Busy Timing Recycle and Timeout for Originating Registers	
1	At MTF— Restore all keys and switches.	
2	Momentarily operate RL key.	All lamps extinguished.
3	Select originating register group.	
4	Select originating register.	
5a	If circuit under test serves 4-wire originating registers— Operate 4W key.	
6b	If test set is to be used in test— Patch test set ORT jack to trunk test circuit ORT jack.	
7b	Patch test set RC jack to RC jack on MTF.	
8b	At test set— Operate STT, RC keys.	
9	At MTF— Operate FS, TS, STT keys.	
10	Select OR class of test.	

STEP	ACTION	VERIFICATION
11	Insert make-busy plug into OR-MB jack associated with originating register selected.	
12	Select marker.	
13	Insert make-busy plug into M-D-MB jack associated with selected marker.	
14	At marker selected for test— Block nonoperated MT13 relay associated with marker selected for use in test.	
15c	If line-load control cabinet, ungating feature, and marker connector circuit SD-25686-01 are provided— At marker connector circuit— Block nonoperated RFC, RFC1 relays.	
16c	At MTF— Momentarily operate ST key.	OR, TB, ORST- lamps lighted. At line-load control cabinet— ORST- lamp lighted. At group-busy circuit— RB1 relay operated. At marker connector circuit— RFC, RFC1 relays energized. Ground present on 1B of RFC1 relay.
17d	If line-load control cabinet, ungating feature, and master traffic control circuit SD-26020-01 are provided— At master traffic control circuit— Block nonoperated RFC, RFC1 relays.	
18d	At MTF— Momentarily operate ST key.	OR, TB, ORST- lamps lighted. At line-load control cabinet— ORST- lamp lighted. At group-busy circuit— RB1 relay operated. At master traffic control circuit— RFC, RFC1 relays energized. Ground present on terminal 37 of terminal strip A.
19e	If ungating feature and marker connector circuit SD-25586-01 are provided— At marker connector circuit— Block nonoperated RFC, RFC1 relays.	
20c	At MTF— Momentarily operate ST key.	OR, TB, ORST- lamps lighted. At group-busy circuit— RB1 relay operated. At marker connector circuit—

STEP	ACTION	VERIFICATION
		RFC, RFC1 relays energized. Ground present on 1B of RFC1 relay.
21f	If ungating feature and master traffic control circuit SD-26020-01 are provided— At master traffic control circuit— Block nonoperated RFC, RFC1 relays.	
22f	At MTF— Momentarily operate ST key.	OR, TB, ORST- lamps lighted. At group-busy circuit— RB1 relay operated. At master traffic control circuit— RFC, RFC1 relays energized. Ground present on terminal 37 of terminal strip A.
23g	If line-load control cabinet only is provided— At MTF— Momentarily operate ST key.	OR, TB, ORST- lamps lighted. At line-load control cabinet— ORST- lamp lighted.
24h	If line-load control cabinet and ungating feature are not provided— At MTF— Momentarily operate ST key.	OR, TB, ORST- lamps lighted.
25	At marker connector circuit or master traffic control circuit— Remove blocking tools from RFC, RFC1 relays.	
26	At MTF— Momentarily operate RL key.	OR, TB lamps extinguished.
27	Momentarily operate ST key followed by operation of RL key five times at approximately 5-second intervals.	ORST- lamp remains lighted. If line-load control cabinet is provided— At line-load control cabinet— ORST- lamp remains lighted.
28	When ST key is operated for last repeat step; ***start timing.***	In 9 to 15 seconds— ORST- lamp extinguished. If line-load control cabinet is provided— At line-load control cabinet— In 9 to 15 seconds— ORST- lamp extinguished.
29	At marker selected for test— Remove blocking tool from MT-13 relay.	
30	At MTF— Remove make-busy plug from M-D-MB jack.	
31	Repeat Steps 12 through 30 until all markers have been tested.	

STEP	ACTION	VERIFICATION
32b	If test set is to be used in test— Remove patching cords from test set and MTF.	
33	Restore all keys and switches not required in next test.	

B. Group-Busy Timing Recycle and Timeout for Incoming and Transfer Registers

Note: Refer to 1.04 and 1.05.

1	At jack, lamp, and key circuit— Insert make-busy plugs into IRMB- or TRFMB- jacks of all link group registers associated with circuit under test.	Minor alarm sounds immediately or in 7 to 15 seconds. At switchboard— LR- lamp associated with circuit under test lighted. If circuit under test is associated with incoming registers— At MTF— IRGB_ lamp associated with circuit under test lighted. If circuit under test is associated with dial pulse or revertive pulse incoming registers— ISRT_ lamp associated with circuit under test lighted. If circuit under test is associated with transfer registers— TRFST- lamp associated with circuit under test lighted.
2	At jack, lamp, and key circuit— Remove two make-busy plugs from IRMB- or TRFMB- jacks.	
3	After approximately 5 seconds— Replace make-busy plugs.	
4	Repeat Steps 2 and 3 five times.	TRST- or TRFST- lamp remains lighted.
5	Remove all make-busy plugs. When first plug is removed, ***start timing.***	After 9 to 15 seconds— IRST- or TRFST- lamp extinguished.
6	Momentarily operate TR-AR key.	Minor alarm silenced.
7	At switchboard— Momentarily operate RL key.	RL- lamp extinguished.

STEP	ACTION	VERIFICATION
	SENDER GROUP-BUSY ALARM CONTROL CIRCUIT SD-27638-01	
	C. Sender Group-Busy	
	Note: Refer to 1.04, 1.05, and 1.07	
1	At jack, lamp, and key circuit— Operate SDA key.	
2	Insert make-busy plugs into SMB- jacks for all senders of the two sender subgroups associated with circuit under test.	SGB- lamp associated with circuit under test lighted. Minor alarm sounds. At outgoing LLP sender link frame— SB- relays in all senders associated with circuit under test operated. If sender group-busy load alarm leads are extended to switchboard locations— At switchboard— LR- lamp associated with circuit under test lighted.
3	At jack, lamp, and key circuit— Remove make-busy plug from one SMB- jack.	
4	Momentarily operate TR-AR key.	SGB- lamp extinguished. Minor alarm silenced. If sender group-busy load alarm leads are extended to switchboard locations— At switchboard— LR- lamp extinguished. *Note:* A service call will cause the SGB- lamp to remain lighted. Hold TR-AR key operated while awaiting release of sender.
5	At jack, lamp, and key circuit— Replace make-busy plug in SMB- jack.	SGB- lamp associated with circuit under test lighted. Minor alarm sounds. If sender group-busy load alarm leads are extended to switchboard locations— At switchboard— LR- lamp associated with circuit under test lighted.
6	Repeat Steps 3, 4, and 5 until all make-busy plugs have been removed and replaced.	
7	At jack, lamp, and key circuit— Remove make-busy plug from one SMB- jack.	

STEP	ACTION	VERIFICATION
8	Momentarily operate TR-AR key.	SGB- lamp extinguished. Minor alarm silenced. If sender group-busy load alarm leads are extended to switchboard locations— At switchboard— LR- lamp associated with circuit under test lighted.
9	At jack, lamp, and key circuit— Restore SDA key.	
10	Replace make-busy plug in SMB- jack; ***start timing.***	In 7 to 15 seconds— SGB- lamp associated with circuit under test lighted. Minor alarm sounds. At circuit under test— DL- (or DL) relay operated. If sender group-busy load alarm leads are extended to switchboard locations— At switchboard— LR- lamp associated with circuit under test lighted.
11	At jack, lamp, and key circuit— Remove all make-busy plugs from SMB- jacks used for test.	
12	Momentarily operate TR-AR key.	SGB- lamp extinguished. Minor alarm silenced. If sender group-busy load alarm leads are extended to switchboard locations— At switchboard— LR- lamp extinguished.
13a	◗If EADAS/NM is provided— Connect direct ground to 3 top of the TM relay; ***starting timing***	In 7 to 14 seconds— ED relay operates.
14a	At supplementary sender group busy alarm unit— Check if ground present on TSA terminal 32.	
15a	At TM Relay— Remove ground.	ED relay released.◖

D. False Sender Busy (for Offices Arranged for LLP)

1	At outgoing sender link frame— When all SG- relays at sender group-busy relay rack frame are released— Manually operate any SB- relay associated with sender group alarm under test.	At sender group-busy alarm control circuit— FSB lamp lighted. Major alarm sounds.

STEP	ACTION	VERIFICATION
2	Momentarily operate FB-AR key.	FSB lamp extinguished. Major alarm silenced.
3	Repeat Steps 1 and 2 until all SB- relays associated with sender group under test have been operated.	
E.	**Test for Continunity, Crosses, and Grounds of LLP Overflow Peg Count Leads (More Than One Sender Group Served)**	
1	At jack, lamp, and key circuit— Operate SDA key. ***Note:*** If a minor alarm sounds as a result of performing Steps 2a or 3B, momentarily operate TR-AR key at jack, lamp, and key circuit.	
2a	If circuit under test is arranged with double ground chain through make contacts of SB-relays— At relay rack fame— When all SB- relays are operated— Insulate 1M and 2M of lowest numbered SB-relay.	Ground present on 1 and 2 of SB- relay under test. Ground absent on terminals 54 and 55 of terminal strip A.
3b	If circuit under test is arranged with single ground chain through contacts of SB- relays— At relay rack frame— When all SB- relays are operated— Insulate 2M of lowest numbered SB- relay.	Ground present on 2 of SB- relay under test. Ground absent on terminal 54 of terminal strip A.
4	Remove insulator from contact(s) of SB- relay under test.	If circuit under test is arranged with double ground chain through make contacts of SB-relays— Ground present on terminals 54 and 55 of terminal strip A. If circuit under test is arranged with a single ground chain through make contacts of SB-relays— Ground present on terminal 54 of terminal strip A.
5	Repeat Steps 2a through 4 for next higher numbered SB- relay until all SB- relays have been tested.	
6	At jack, lamp, and key circuit— Restore SDA key if not required in next test.	

STEP	ACTION	VERIFICATION
F.	**Tests for Continuity, Crosses, and Grounds of LLP All-Senders-Busy Leads**	
	Note: If a minor alarm sounds as a result of performing Step 1, momentarily operate TR-AR key at jack, lamp, and key circuit.	
1	At relay rack frame— Insulate 11B of SBO relay.	
2	Block nonoperated SBO relay.	
3	Connect ground to terminal 18 of terminal strip E.	Ground present on all terminals of terminal strip E as listed in Table A.

TABLE A

SB- RELAY TEST TERMINALS

SB- RELAY	TERMINAL STRIP E
	TERMINAL NUMBER
0	31
1	32
2	33
3	34
4	35
5	36

4	Block operated SBO relay.	Ground absent on associated terminal for SB- relay under test in accordance with Table A.
5	Remove blocking tool from SBO relay.	
6	Remove insulator from SBO relay.	
7	Repeat Steps 1, 4 through 6 for remaining SB- relays.	
8	Remove ground connection from terminal 18 of terminal strip E.	

STEP	ACTION	VERIFICATION
	SENDER GROUP-BUSY ALARM CIRCUIT SD-25500-01	
	G. Sender Group-Busy	
	▶***Note:*** Refer to 1.04, 1.05, and 1.07.◀	
1	At jack, lamp, and key circuit— Operate SDA key.	
2	Insert make-busy plugs into SMB- jacks of all senders of the two sender subgroups associated with circuit under test.	SGB- lamp associated with circuit under test lighted. Minor alarm sounds. If switchboard auxiliary signal circuit is provided— At switchboard— LR- lamp lighted.
3	At jack, lamp, and key circuit— Remove make-busy plug from one SMB- jack.	
4	Momentarily operate TR-AR key.	SGB- lamp extinguished. Minor alarm silenced. ***Note:*** A service call will cause the SBG- lamp to remain lighted. Hold TR-AR key operated while awaiting release of sender.
5	Replace make-busy plug in SMB- jack.	SGB- lamp lighted. Minor alarm sounds.
6	Repeat Steps 3, 4, and 5 until all make-busy plugs associated with circuit under test have been removed and replaced.	
7	▶Repeat Steps 3 and 4.	
8	Restore SDA key.	
9	Insert make-busy plug into SMB-jack; ***start timing.***◀	SGB- lamp extinguished. Minor alarm silenced. In 7 to 15 seconds— SGB- lamp lighted. Minor alarm sounds. If circuit is equipped with 227-type terminal strip— At unit terminal strip— Ground present on terminal 26. If circuit is equipped with D-type terminal strip— At unit terminal strip— Ground present on terminal 27.

STEP	ACTION	VERIFICATION
10	Remove all make-busy plugs.	
11	Momentarily operate TR-AR key.	SGB- lamp extinguished. Minor alarm silenced.
12a	If switchboard auxiliary signal circuit is provided— At switchboard— Momentarily operate RL- key.	LR— lamp extinguished.
13b	▶If EADAS/NM is provided— Connect direct ground to contact 3 top of the TM relay; ***start timing.***	In 7 to 14 seconds— ED relay operates.
14b	At supplementary sender group busy alarm unit— Check if ground present on TSA, terminal 32.	
15b	At TM relay— Remove ground.	ED relay released.◀