TRANSLATORS

TESTS USING OFFICE TEST FRAME TEST CIRCUIT SD-27633-01 (J23260) NO. 5 CROSSBAR OFFICES ARRANGED FOR LAMA OR ANI

1. GENERAL

1.01 This section describes a method of testing translator circuits in No. 5 crossbar offices arranged for local automatic message accounting (LAMA) or automatic number identification (ANI) using office test frame test circuit (OTF) SD-27633-01 (J23260) and trouble indicator and connector circuit (TIC) SD-27634-01.

1.02 This section is reissued for the following reasons:

(a) To add the J number in the title to identify the OTF as an Issue 2D or later

(b) To revise Part 3, Preparation, to include positive test call control features

(c) To revise Tests A, B, C, E, and F to include positive test call control features

(d) To make minor changes as required.

Since this reissue is a general revision, arrows ordinarily used to indicate changes have been omitted. This reissue does not affect Equipment Test List information for this section.

1.03 The tests covered are:

PAGE

I. Overlap: This test checks the overlap feature of the translator to delay the operation of the connector relays until the vertical group relay used in a preceding call has released. . . . 14

1.04 Tests A, B, and E require actions at the transverters and line link frames.

1.05 Test A requires action at the translator under test.

1.06 Test D requires action at the sender selected for test.

1.07 Tests A through E require verification at the trouble indicator frame.

1.08 Cold cathode tubes that fail during performance of Test A should be replaced, whether or not they operate satisfactorily, when checked with the cold cathode tube test set per J94731A or the replaced J24754A.

1.09 ***Lettered Steps:*** A letter a, b, c, etc, added to a step number in Part 4 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 goverened 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.

2. APPARATUS

2.01 The apparatus required for each test is listed in Table A. The details of each item are covered in the paragraph indicated by the number in parentheses.

2.02 A minimum of five shields is required, but if desired and if sufficient tube shields are available, the tubes on a portion of or on the entire frame may be equipped with shields to facilitate making this test.

2.03 67C test set or equivalent, equipped with a KS-6278 connecting clip (for use in checking the presence or absence of battery or ground).

TABLE A

APPARATUS	TESTS								
	A	B	C	D	E	F	G	H	I
KS-14378 Shield (2.02)	√								
Test Set (2.03)									1
322A (make-busy) Plug	1	1	1	2	1	2			1
Patching Cord (2.04)	1	1	1		1				
Patching Cord (2.05)	1	1	1		1				
Testing Cord (2.06)			1						
Test Cord (2.07)				1				1	
Tools (2.08)	√			√			√		√
Meter (2.09)				1					

√As required.

2.04 Patching cord, P3E cord, 8 feet long, equipped with two 310 plugs (3P63 cord) (used for patching SP jack to OTL jack on jack, lamp, and key circuit).

2.05 Patching cord, P3U cord, 7 feet long, equipped with one 310 plug and one 351A plug (used for patching SP jack to line location on line link frame).

2.06 Testing cord, 893 cord, 3 feet long, equipped with two 360A tools (1W13A cord) and two 624B (terminal connector) tools (used when interconnecting punchings on terminal strips).

2.07 Testing cord, 893 cord, 6 feet long, equipped with two 360A tools (1W13B cord), one KS-6278 connecting clip, and one 411A (test pick) tool (for use in applying momentary ground on terminal strip punchings).

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

2.09 KS-14510 L5 meter or equivalent (used for measuring resistance values).

3. PREPARATION

3.01 ***Test A:*** From local records, obtain the line equipment numbers and associated directory or billing numbers for lines served by the translator under test, selecting lines that use, at least once, each of digits 0 through 9 in each of the directory or billing number thousands, hundreds, tens, and units positions. In addition, select these lines to use each equipped office digit position, including each office coil when two office coils serve the same office digit.

3.02 ***Test B:*** From local records, obtain the line equipment numbers and associated directory or billing numbers for lines served by the translator under test, selecting lines that use, at least once, each of vertical files 0 through 4 and horizontal groups (switches) 0, 1, 3, and 6.

3.03 ***Test C:*** From local records, obtain the line equipment number and the associated directory or billing number for any line served by the translator under test.

3.04 ***Test E:*** From local records, obtain the line equipment numbers and associated directory or billing numbers for lines served by the translator under test, selecting a line for each vertical group served by the translator.

3.05 ***Test G:*** From local records, obtain the line equipment number and the associated directory number or billing number for any line served by the translator under test.

3. PREPARATION (Cont)

STEP	ACTION	VERIFICATION
Tests A, B, C, E, F		
1	At OTF— Restore all keys and switches.	All lamps extinguished.
2	At TIC— Momentarily operate RLS key.	All lamps extinguished.
3	At OTF— Operate TVR, MCB, MKR-, FS- keys.	
4	Operate MFS or DPS key, depending on route selected.	
5	Set L-L switch to 0.	
6	Set PS switch to 34-10.	
7	Operate WK or CL2S key, depending on trunk group selected.	
Tests A, B, C, E		
8	Set STP switch as required when TSPS is provided.	
9	Operate OTLP, OGT keys.	

STEP	ACTION	VERIFICATION
Tests A, B, E		
	Note: If OTF is arranged for positive test call control, omit Steps 10a through 12a.	
10a	If office is arranged for AMA— Select from office records an outgoing sender equipped for LAMA service.	
11a	At OTF— Set RSG switch to OSB- to select sender group.	
12a	Set RSS switch to select particular sender.	
Tests A, C, E, F		
13	Operate TV- key.	
	Note: If OTF is arranged for positive test call control, do not operate TV- key.	

4. METHOD

STEP	ACTION	VERIFICATION
A. Operate Test of Directory Number Cold Cathode Tubes and Check of Directory Number Coils and Alternate Surge Start		
14	At translator frame— Block operated TOP relay in translator under test.	
15	Place KS-14378 shields on all tubes or on tubes corresponding to directory or billing number. (Refer to 1.08 and 2.02.)	
16	At line link frame— Patch SP jack to primary line switch vertical as determined in 3.01.	
17	At OTF— Patch SP jack to OTL jack.	
18a	If office is arranged for AMA— Set A- through N- DIAL switches to select an AMA route to a permanent busy test line number.	
19a	Operate -SD key for number of digits expected from sender.	

STEP	ACTION	VERIFICATION
	Note: When 12 digits are expected from the sender, do not operate any -SD key.	
20a	Set A- through M- SDR switches for digits expected from sender.	
21a	Operate AMA key.	
22b	If office is arranged for ANI— Set A- through N- DIAL switches to select an ANI route to a permanent busy test line number.	
23b	Set A- SDR switch as required for identifying digit.	
24b	Set B- through H- SDR switches for directory number of line used in test.	
25b	Operate 8SD, ANI keys.	
26	Operate -D key for number of digits dialed.	
	Note: When a 13-digit call is required, do not operate any -D key.	
27	Operate ST key.	At TIC— TV- lamp lighted. FU 2/5, VG 2/6, HG 2/5, VF 1/5, OFF-, TH-, HN-, T-, U- lamps lighted corresponding to directory or billing number of line link location.
28	At OTF— Restore ST key.	All lamps extinguished.
29	At TIC— Momentarily operate RLS key.	All lamps extinguished.
30	Repeat Steps 15 through 29 for each line as determined in 3.01.	
31	At translator frame— Remove all shields from tubes.	
32	Remove blocking tool from TOP relay.	
33	At line link frame— Remove patching cord.	
34	At OTF— Remove all patching cords.	

STEP	ACTION	VERIFICATION
35	Restore all keys and switches not required in next test.	
B. Transposition Test of VF and SW Leads		
13	Operate TV- key.	
14b	If office is equipped with more than one transverter— At jack, lamp, and key circuit— Insert make-busy plug into TVMB- jack of transverter used in test.	
15	At line link frame— Patch SP jack to primary line switch vertical as determined in 3.02.	
16	At jack, lamp, and key circuit— Patch SP jack to OTL jack.	
17a	If office is arranged for AMA— At OTF— Set A- through N- DIAL switches to select an AMA route to a permanent busy test line number.	
18a	Operate -SD key for number of digits expected from sender. ***Note:*** When 12 digits are expected from the sender, do not operate any -SD key.	
19a	Set A- through M- SDR switches for digits expected from sender.	
20a	Operate AMA key.	
21c	If office is arranged for ANI— At OTF— Set A- through N- DIAL switches to select an ANI route to a permanent busy test line number.	
22c	Set A- SDR switch as required for identifying digit.	
23c	Set B- through H- SDR switches for directory number of line used in test.	
24c	Operate 8SD, ANI keys.	
25	Operate -D key for number of digits dialed.	

STEP	ACTION	VERIFICATION
	Note: When a 13-digit call is required, do not operate any -D key.	
26	Operate ST key.	At TIC— TV- lamp lighted. FU 2/5, VG 2/6, HG 2/5, VF 1/5 lamps lighted corresponding to line location of line link equipment.
27	At OTF— Restore ST key.	All lamps extinguished.
28	At TIC— Momentarily operate RLS key.	All lamps extinguished.
29	Repeat Steps 16 through 28 for each directory or billing number and line location as determined in 3.02.	
30	Repeat Steps 13 through 29 for other transverters if provided.	
31	At line link frame— Remove patching cord.	
32b	If office is equipped with more than one transverter— At jack, lamp, and key circuit— Remove make-busy plug from TVMB- jack.	
33	At OTF— Remove all patching cords.	
34	Restore all keys and switches not required in next test.	

C. Vertical File Lead Cross Detection

14	At line link frame— Patch SP jack to primary line switch vertical as determined in 3.03.	
15	At OTF— Patch SP jack to OTL jack.	
16	Select from office records an outgoing sender equipped for LAMA or ANI service as required.	
17	Set RSG switch to OSB- to select the sender group.	

STEP	ACTION	VERIFICATION
18	Operate RSS(0-9) switch to select the particular sender.	
19a	If office is arranged for AMA— Set A- through N- DIAL switches to select an AMA route to a permanent busy test line number.	
20a	Operate -SD key for number of digits expected from sender. ***Note:*** When 12 digits are expected from sender, do not operate any -SD key.	
21a	Set A- through M- SDR switches for digits expected from sender.	
22a	Operate AMA key.	
23b	If office is arranged for ANI— Set A- through N- DIAL switches to select an ANI route to a permanent busy test line number.	
24b	Set A- SDR switch as required for identifying digit.	
25b	Set B- through H- SDR switches for directory number of line used in test.	
26b	Operate 8SD, ANI keys.	
27	Operate -D key for number of digits dialed. ***Note:*** When 13-digit call is required, do not operate any -D key.	
28	At sender being used for test— Using testing cord, connect VF- terminal associated with vertical file location as noted in Step 10 to any other VF- terminal listed in Table B.	
29	At OTF— Operate ST key.	At TIC— TV-, XVF lamps lighted. More than 1/5 lamps lighted for VF- location.
30	At OTF— Restore ST key.	All lamps extinguished.
31	At TIC— Operate RLS key.	All lamps extinguished.

STEP	ACTION	VERIFICATION

TABLE B	
VF TERMINAL (TERMINAL STRIP L)	VERTICAL FILE
14	0
24	1
34	2
44	3
54	4

32 At sender being used for test—
Remove testing cord from VF- terminals.

33 Repeat Steps 28 through 32 until all VF- terminals have been connected for test.

34 At line link frame—
Remove patching cord.

35 At OTF—
Remove all patching cords.

36 Restore all keys and switches not required in next test.

D. Equipment Terminal Cross or Ground Detection

Caution: The bulk billed calls made by the customers served by the translator being tested will be completed without a charge record and detail billed calls will be routed to overflow. In ANI offices, calls made by customers served by the translator will require operator identification. Therefore, perform this test as rapidly as possible.

1 At jack, lamp, and key circuit—
Insert make-busy plug into AMAT- or TRNSL- jack for translator under test.

2 Operate KS-14510, L5 meter selector to Rx100.

3 At translator—
Connect red and black leads of meter to resistors and relays listed in Table C, observe meter readings, and remove red and black lead connections of meter.

STEP	ACTION	VERIFICATION

TABLE C

RED LEAD TO CENTER TERMINAL OF RESISTOR	BLACK LEAD TO CONTACT OF RELAY		METER READING
XD0	2F	ESW	50 (5000 ohms)
XD0	2F	OSW	50 (5000 ohms)
XD0	4F	VF0	50 (5000 ohms)
XD1	4F	ESW	50 (5000 ohms)
XD1	4F	OSW	50 (5000 ohms)
XD1	4F	VF1	50 (5000 ohms)
XD2	6F	ESW	50 (5000 ohms)
XD2	6F	OSW	50 (5000 ohms)
XD2	4F	VF2	50 (5000 ohms)
XD3	8F	ESW	50 (5000 ohms)
XD3	8F	OSW	50 (5000 ohms)
XD3	4F	VF3	50 (5000 ohms)
XD4	10F	ESW	50 (5000 ohms)
XD4	10F	OSW	50 (5000 ohms)
XD4	4F	VF4	50 (5000 ohms)

4	At jack, lamp, and key circuit— Insert make-busy plug into TVMB- jack for transverter to be used in test.	
5	At translator— Block operated TVD- relay associated with transverter made busy.	
6	Momentarily ground center terminal of XD0 resistor.	At TIC— TV-, DR- lamps lighted.
7	Momentarily operate RLS key.	All lamps extinguished.
8	Repeat Steps 6 and 7, momentarily grounding center terminals of XD1, XD2, XD3, XD4 resistors.	
9	At translator— Remove blocking tool from TVD- relay.	
10	At jack, lamp, and key circuit— Remove make-busy plug from TVMB- jack.	

STEP	ACTION	VERIFICATION
11	Insert make-busy plug into TVMB- jack for other transverter if provided.	
12	Repeat Steps 5 through 10.	
13	At jack, lamp, and key circuit— Remove make-busy plug from AMAT- or TRNSL- jack.	
E. Translator Identification		
14	At line link frame— Patch SP jack to primary line switch vertical as determined in 3.04.	
15	At OTF— Patch SP jack to OTL jack.	
16a	If office is arranged for AMA— Set A- through N- DIAL switches to select an AMA route to a permanent busy test line number.	
17a	Operate -SD key for number of digits expected from sender. ***Note:*** When 12 digits are expected from sender, do not operate any -SD key.	
18a	Set A- through M- SDR switches for digits expected from sender.	
19a	Operate AMA key.	
20b	If office is arranged for ANI— Set A- through N- DIAL switches to select an ANI route to a permanent busy test line number.	
21b	Set A- SDR switch as required for identifying digit.	
22b	Set B- through H- SDR switches for directory number of line used in test.	
23b	Operate 8SD, ANI keys.	
24	Operate -D key for number of digits dialed. ***Note:*** When 13-digit call is required, do not operate any -D key.	

STEP	ACTION	VERIFICATION
25	Operate ST key.	At TIC— TV- lamp lighted. FU 2/5, VG 2/6, HG 2/5, VF 1/5 lamps lighted corresponding to directory or billing number of line link location.
26	At OTF— Restore ST key.	All lamps extinguished.
27	At TIC— Momentarily operate RLS key.	All lamps extinguished.
28	Repeat Steps 14 through 27 for each line as determined in 3.04.	
29	At line link frame— Remove patching cord.	
30	At OTF— Remove all patching cords.	
31	Restore all keys and switches not required in next test.	

F. Make Busy

Caution: The bulk billed calls made by the customer served by the translator being tested will be completed without a charge record and detail billed calls will be routed to overflow. In ANI offices, calls made by customers served by translator will require operator identification. Therefore, perform this test as rapidly as possible.

14 Operate OTL key.

15 At jack, lamp, and key circuit—
Insert make-busy plug into AMAT- or TRNSL- make-busy jack for translator being tested.

16 Operate -D key for number of digits dialed.

Note: When a 13-digit call is required, do not operate any -D key.

17a If office is arranged for AMA—
Set A- through N- DIAL switches to select an AMA route to any test line number having a message billing other than 9.

STEP	ACTION	VERIFICATION
18a	Operate ST key.	Call completed to test line number. At jack, lamp, and key circuit— AMAT- lamp associated with translator made busy remains lighted.
19a	At OTF— Restore ST key.	All lamps extinguished.
20a	Set A- through N- DIAL switches to select an AMA route to any test line number having a message billing 9.	
21a	Operate ST key.	Overflow tone heard. At jack, lamp, and key circuit— AMAT- lamp associated with translator made busy remains lighted.
22a	At OTF— Restore ST key.	Overflow tone silenced. All lamps extinguished.
23a	At jack, lamp, and key circuit— Remove make-busy plug from AMAT- or TRNSL- make-busy jack.	
24b	If office is arranged for ANI— Set A- through N- DIAL switches to select an ANI route to any test line number.	
25b	Set A- SDR switch as required for identifying digit.	
26b	Set B- through H- SDR switches for directory number of line used in test.	
27b	Operate 8SD, ANI keys.	
28b	Operate ST key.	Call completed to operator for identification of calling number. ***Note:*** Inform operator that this is a test call and proceed to next step.
29b	Restore ST key.	Call disconnected.
30b	At jack, lamp, and key circuit— Remove make-busy plug from AMAT- or TRNSL- make-busy jack.	
31	At OTF— Restore all keys and switches not required in next test.	

STEP	ACTION	VERIFICATION
G. Transverter Preference Chain Transfer and Alarm		
1	At translator frame under test— Restore TR key if operated.	TRT, TR- relays released.
2	Insulate 8B of TRT relay.	CH relay momentarily operated. CH, aisle pilot lamps lighted. Minor alarm sounds.
3	Remove insulator from TRT relay.	
4	Momentarily operate (push in) AR key.	CH, aisle pilot lamps extinguished. Minor alarm silenced.
5	Insulate 4B of TRT relay.	CH1 relay momentarily operated. CH, aisle pilot lamps lighted. Minor alarm sounds.
6	Remove insulator from TRT relay.	
7	Momentarily operate (push in) AR key.	CH, aisle pilot lamps extinguished. Minor alarm silenced.
8	Insulate 6B of TRT relay.	CH, CH1 relays operated. CH, aisle pilot lamps lighted. Minor alarm sounds.
9	Remove insulator from TRT relay.	
10	Momentarily operate (push in) AR key.	CH, aisle pilot lamps extinguished. Minor alarm silenced.
11	Operate TR key.	TRT, TR- relays operated.
12	Restore TR key.	TRT, TR- relays released.
H. TB Lead Ground Detection		
1	At translator frame under test— Momentarily connect ground to punching 20 on terminal strip A.	XTB, aisle pilot lamps lighted. Minor alarm sounds.
2	Momentarily operate RXTB key.	XTB, aisle pilot lamps extinguished. Minor alarm silenced.
I. Overlap		
	Caution: The bulk billed calls made by the customers served by the translator being tested will be completed without a charge record and detail billed calls will be routed to overflow. In ANI offices, calls	

STEP	ACTION	VERIFICATION
	made by customers served by translator will require operator identification. Therefore, perform this test as rapidly as possible.	
1	At jack, lamp, and key circuit— Insert make-busy plug in AMAT- jack for translator under test.	
2	Manually operate momentarily GAA0 through GAA19 relays in succession.	GON relay momentarily operated for each GAA- and GBA- relay.
3	Block operated GON relays.	Battery absent on 1B through 10B of GON relay.
4	Remove blocking tool from GON relay.	
5	At jack, lamp, and key circuit— Remove make-busy plug from AMAT- jack.	