PLANT REGISTERS

TESTS

NO. 1 CROSSBAR OFFICES

1. GENERAL

1.01 ▶This section describes methods of testing the plant registers used in No. 1 crossbar offices.◀

1.02 This section is reissued to add Tests AK and AL.

This issue affects the Equipment Test List.

1.03 The tests covered are:

1.04 The plant register readings should be noted before and after tests in accordance with local instructions.

1.05 Where SS and PD registers for auxiliary senders also appear at the traffic register rack, the register readings should be noted before and after the tests are made and forwarded in accordance with local instructions.

1.06 The tests of registers required for the service results plan are included in Tests AD through AH, and AJ.

1.07 ***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 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.

2. APPARATUS

2.01 349A (make-busy) plugs as required.

2.02 322A (make-busy) plugs as required.

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

Tests F and G

2.04 1011G dial hand test set, equipped with W3AA cord (3W8A cord assembly).

Tests AJ ▶and AL◀

2.05 1W13A cord equipped with two KS-6278 tools.

3. METHOD

STEP	ACTION	VERIFICATION
A. Incoming Trunk Test Line Group Busy Register		
1	At incoming trunk test line circuit— Insert 349A plugs into MB jacks of all incoming	At incoming trunk test line circuit— Associated group busy (GB) register scores

STEP	ACTION	VERIFICATION
	trunk test line circuits in group.	when plug is inserted into MB jack of last circuit of group.
2	Remove and reinsert plug into one of the MB jacks.	GB register scores when plug is reinserted into MB jack.
3	Repeat Step 2 for each test line in group.	
4	Remove 349A plugs from MB jacks of all circuits in group.	
B. Originating Marker Trouble Release Register		
1	At originating trouble indicator frame— Insert a 322A plug into DB jack of originating marker associated with trouble release register under test.	
2	At originating marker— Momentarily short-circuit 6T, 7T springs of TR relay.	At originating trouble indicator frame— Marker trouble release (DTR) register scored.
3	At originating trouble indicator frame— Remove 322A plug from DB jack.	
C. Terminating Marker Trouble Release Register		
1	At terminating trouble indicator frame— Insert a 322A plug into DB jack of terminating marker associated with trouble release register under test.	
2	At terminating marker— Momentarily short-circuit 10T, 11T springs of TR relay.	At terminating trouble indicator frame— Marker trouble release (DTR) register scored.
3	At terminating trouble indicator frame— Remove 322A plug from DB jack.	
D. Stuck Sender Register		
Subscriber Senders		
1	At sender make-busy frame— Make certain that there are no stuck subscriber senders in group or subgroup.	
2a	If timed release is provided— Pull out CTR key associated with subscriber sender under test.	

STEP	ACTION	VERIFICATION
3b	If sender monitoring is provided— Establish a talking connection with monitoring operator and request that stuck sender signals be transferred promptly.	
4	At originating sender test frame— Set up a stuck sender timing test call (skip office and full selector code) as outlined in Section 216-251-501.	
5	Operate ST key.	At sender make-busy frame— Associated stuck sender lamp lights and stuck sender (SS) register scores within 60 to 80 seconds after test circuit RLS lamp lighted.
6a	If timed release is provided— Push in CTR key associated with stuck sender at sender make-busy frame.	Stuck sender lamp extinguished.
7	At originating sender test frame— Restore TA key. Momentarily operate CA key.	Originating sender test circuit advances to next sender.
8	Repeat Steps 1 through 7 for other subscriber senders in group or subgroup.	
9	Restore test circuit to normal.	
Auxiliary Senders		
10	At sender make-busy frame— Make certain that there are no stuck senders in group and that CTR keys associated with subscriber and auxiliary senders are pulled out.	
11	At originating sender test frame— Set up a 10-digit MF call stuck auxiliary sender-primed release test call as outlined in Section 216-251-501.	
12	Select a subscriber sender having access to the particular auxiliary sender to be tested and operate corresponding PAS key. ***Note:*** When PAS key is used, all auxiliary senders are made busy for a short interval.	At sender make-busy frame— Stuck sender lamp associated with auxiliary sender lighted.
13	Operate ST key.	Auxiliary sender stuck sender lamp flashes and auxiliary sender stuck sender (AS-SS) register scores within 6 to 12 seconds after test circuit EP lamp lighted.

STEP	ACTION	VERIFICATION
14	Restore ST key.	
15	Momentarily operate CA key.	Test circuit restored to normal.
16	Restore PAS key.	At sender make-busy frame— Auxiliary sender stuck sender lamp extinguished.
17	Repeat Steps 10 through 15 for other auxiliary senders in group.	
Keypulsing Senders		
18	At the sender make-busy frame— Make certain that there are no stuck senders in group and that CTR key associated with sender to be tested is pulled out.	
19	At originating sender test frame— Set up a stuck sender timing test call for keypulsing senders as outlined in Section 216-251-501.	
20	Operate ST key.	At sender make-busy frame— Stuck sender lamp lights and associated stuck sender (KP-SS) register scores within proper time interval (40 to 60 seconds for short time-out codes and 70 to 90 seconds for long time-out codes).
21	At sender make-busy frame— Push in associated CTR key.	At sender make-busy frame— Stuck sender lamp extinguished.
22	At originating sender test frame— Restore TA key.	
23	Momentarily operate CA key.	Test circuit advances to next sender.
24	Repeat Steps 17 through 21 for other keypulsing senders in group.	
Number Checking Senders		
24	At sender make-busy frame— Make sure there are no stuck senders in group.	
25	At number checking sender— Manually hold ON relay operated from 30 to 60 seconds.	At sender make-busy frame— Associated stuck sender register scored.
26	Release ON relay.	

STEP	ACTION	VERIFICATION
27	Repeat Steps 23 through 25 for other number checking senders in group.	

E. Subscriber Sender Partial Dial Register

1	At subscriber sender— Manually operate REG relay momentarily (not over 10 seconds).	At sender make-busy frame— Partial dial (PD) register scored.
2	Repeat Step 1 for all other subscriber senders in group.	

F. False Start Register—Subscriber Sender Link, Auxiliary Subscriber Sender Link, and Controller

1	Choose a line link frame that prefers the sender link frame associated with false start register under test.	
2	At line link frame— Originate a call on a spare line. ***Note:*** It may be necessary to originate the call a second time in order to select a given sender link frame since the preference of the line link frame for the sender link frame alternates between calls.	
3	Disconnect the call immediately after line hold magnet operates. (It is necessary to disconnect at this time in order to open the line before subscriber sender link controller is restored in the normal manner.) ***Note:*** The false start registers of several sender link frames may be checked from one line link frame by establishing a channel to a given sender link frame by means of 349A plugs inserted into the SS0-9 jacks on the line link frame. A 349A plug inserted into an SS jack prevents the line link controller circuit from selecting that group of districts, and hence the associated sender link frame. After one sender link frame has been checked, the plugs can be shifted to establish a channel to another sender link frame.	At sender make-busy frame— False start (SSL-SF) register scored.
4	Repeat Steps 1 through 3 for subscriber sender link frame associated with each false start register to be tested.	

STEP	ACTION	VERIFICATION
5	At subscriber sender link frame— Transfer frame to emergency controller circuit.	
6	Repeat Steps 1 through 3.	False start register associated with emergency sender link and controller circuit scored.
7	At subscriber sender link frame— Transfer frame from emergency controller circuit.	

G. False Start Register—"A" Sender Link and Controller and Coin Supervisory Link and Controller

"A" Sender Link and Controller

1	At "A" sender link and controller circuit associated with register under test— Block nonoperated TS relay.	
2	Instruct operator to start a test call through a keypulsing district junctor circuit that appears on this frame.	At sender make-busy frame— False start (KSL-LF) register scored after an interval of 0.350 to 1.250 second from the time test call entered link and controller circuit.
3	Instruct operator to release test call.	
4	Remove blocking tool from TS relay.	

Coin Supervisory Link and Controller

5	At coin supervisory link and controller circuit associated with register under test— Block nonoperated TS relay.	
6	At district junctor test frame— Originate a test call on a coin district junctor circuit having access to coin supervisory link and controller under test.	At sender make-busy frame— False start (CSRL-LF) register scored after an interval of 0.350 to 1.250 second from the time test call entered link and controller circuit.
7	Restore district junctor test circuit to normal.	
8	At coin supervisory link and controller circuit— Remove blocking tool from TS relay.	

H. Controller Trouble Register

Line Link Controller

1a	If a controller trouble indicator is not provided— At line link frame associated with register	At sender make-busy frame— Controller trouble (LTR) register scored.

STEP	ACTION	VERIFICATION
	under test— Momentarily operate TRL relay.	
2b	If a controller trouble indicator is provided— At line link frame associated with register under test— Block operated TA-1, TA-2 relays.	At sender make-busy frame— Controller trouble (LTR) register scored. At line link frame— AL lamp lighted. Minor alarm sounds.
3b	Remove blocking tools from TA-1, TA-2 relays.	
4b	Operate TR key.	AL lamp extinguished. Minor alarm silenced.
5b	Block operated TB-1, TB-2 relays.	At sender make-busy frame— Controller trouble (LTR) register scored. At line link frame— AL lamp lighted. Minor alarm sounds.
6b	Remove blocking tools from TB-1, TB-2 relays.	
7b	Operate TR key.	AL lamp extinguished. Minor alarm silenced.
	Subscriber Sender Link, Auxiliary Subscriber Sender Link and Controller	
8	At subscriber sender link frame associated with trouble register under test— Momentarily short circuit 7B, 8B springs of AL relay.	At sender make-busy frame— Controller trouble (SSL-TR) register scored.
	"A" Sender Link and Controller	
9	At "A" sender link and controller associated with trouble register under test— Momentarily operate AL relay.	At sender make-busy frame— Trouble register (KSL-TR) scored.
	Coin Supervisory Link and Controller	
10	At coin supervisory link and controller associated with trouble register under test— Momentarily operate AL relay.	At sender make-busy frame— Trouble register (CSRL-TR) scored.

STEP	ACTION	VERIFICATION
1.	**Registers of Terminating Sender Test Circuit, Originating Sender Test Circuit, District Junctor Test Circuit, Incoming Trunk Test Circuit, and Zone Registration Test and Timing Circuit**	
	CT (Circuits Tested) Register	
1	At test frame associated with the register under test— Set up test call with repeat key normal.	
2	Operate ST key.	CT register scored once for each circuit tested.
	RST (Repeat Single Test) Register	
3	Operate REP key.	RST register scored once for each repeat test.
4	Restore REP, ST keys.	Test circuit restored when test of circuit completed.
	PB (Pass Busy) Register	
5	Make busy some of circuits tested by test circuit.	
6	Set up a test call on busy circuits and operate APB key.	
7	Operate ST key.	PB register scored each time test circuit passed a busy circuit.
8	Restore APB, ST keys.	
9	Momentarily operate CA key.	Test circuit restored to normal.
10	Restore to service circuits made busy for test.	
	ST (Single Test) Register—District Junctor Test Circuit Only	
11	At district junctor test circuit— Set up test call. Operate ST key.	ST register scored once for each completed test.
12	Restore ST key.	
13	Momentarily operate CA key.	District junctor test circuit restored to normal.

STEP	ACTION	VERIFICATION
J. Waiting Assignment Register		
1	At sender make-busy frame— Make certain that there are no stuck subscriber senders in group.	
2	Pull out CTR keys associated with subscriber senders in group.	
3	At sender test frame— Block nonoperated ASI relay of test circuit.	
4	Operate TA key and the proper class, code, and numerical keys for a direct or tandem PCI test call.	
5	Operate ST key.	At sender make-busy frame— Waiting assignment (WA) register scored and stuck sender lamp lighted within 60 to 80 seconds after test circuit RLS lamp lighted.
6	Push in CTR key associated with sender under test.	Stuck sender lamp extinguished.
7	Restore TA key.	
8	Momentarily operate CA key.	Originating sender test circuit advanced to next sender.
9	Repeat Steps 1 through 7 for other senders in group.	
10	Restore TA, ST keys.	
11	Momentarily operate CA key.	Test circuit restored to normal.
12	Remove blocking tool from ASI relay.	

K. Deleted.

L. Deleted

M. Mutilated Digit Register

Caution: This test is to be performed during light load periods.

TOUCH-TONE Converter Circuits

1	At sender make-busy frame— Insert 322A plug into GB jack of sender subgroup associated with dial pulse converter group under test.	GB lamp lighted.

STEP	ACTION	VERIFICATION
2	At first TOUCH-TONE converter in group— Block operated ON relay.	
3	Block operated TBL relay.	
4	Momentarily operate MTD relay.	At sender make-busy frame— MTD register scored.
5	Remove blocking tools from ON, TBL relays.	
6	Repeat Steps 2 through 5 for each TOUCH-TONE converter in subgroup.	
7	At sender make-busy frame— Remove 322A plug from GB jack.	GB lamp extinguished.
8	Repeat Steps 1 through 7 for each TOUCH-TONE converter in group.	
Subscriber Sender SD-27810-01		
9	At sender make-busy frame— Insert 322A plug into GB jack of SD-27810-01 sender subgroup.	GB lamp lighted.
10	At first sender in subgroup— Block operated ON1 and REG relays.	
11	Momentarily operate TBL relay.	At sender make-busy frame— MTD register scored.
12	Remove blocking tools from ON1 and REG relays.	
13	Repeat Steps 10 through 12 for each sender in subgroup.	
14	At sender make-busy frame— Remove 322A plug from GB jack.	GB lamp extinguished.
15	Repeat Steps 9 through 14 for each sender in group.	
N. TOUCH-TONE Sender Load		
1	Inform traffic department to disregard lamps and alarms associated with subscriber sender load.	
2	At sender make-busy frame— Insert 322A plugs into subscriber sender MB jacks associated with subgroup under test	TSLR register scored. LR lamp lighted. Minor alarm sounds.

STEP	ACTION	VERIFICATION
	until the number of senders required to advance the register have been made busy.	
3	Remove make-busy plug from lowest numbered MB jack and insert it into next higher numbered MB jack.	TSLR register scored.
4	Repeat Step 3 until all senders in subgroup have been tested.	
5	Remove all make-busy plugs.	
6	Momentarily operate AR key.	LR lamp extinguished. Minor alarm silenced.
7	Insert one less 322A plug into MB jack than is required to score register.	TSLR register did not score.
8	Repeat Step 7 until all senders in subgroup have been tested.	
9	Remove all make-busy plugs.	
10	Inform traffic department that testing is complete and to retire lamp signal if provided at "A" switchboard.	
11	Repeat Steps 1 through 9 for each sender group serving TOUCH-TONE customers.	

O. DID OG Sender—Stuck Sender and Trunk Guard Failures

1	At DID test circuit— Insert 322A plug into sender make-busy SMB jack of DP sender.	
2	At DP sender— Block operated CT relay.	
3	Momentarily operate TRL relay.	TGF and SSG registers score.
4	Block operated TG1 relay.	
5	Momentarily operate TRL relay.	SSF register scored.
6	Release TG1 and CT relays.	
7	At DID test circuit— Release made busy DP sender.	

STEP	ACTION	VERIFICATION
8	Repeat Steps 1 through 7 for other DP senders in group or subgroup.	
P.	**DID First Trial Translator Failure**	
1	At translator preference control— Momentarily operate TRSA relay.	TRS register scored.
2	Repeat Step 1 for other TRSA relays.	
AA.	**Deleted**	
AB.	**Deleted**	
AC.	**Deleted**	
AD.	**Originating Marker and Originating Marker Second Trial Failure**	
1	At originating trouble indicator— Make busy originating marker.	
2	At originating marker— Block operated PEG1 relay.	
3	Momentarily operate PEG relay.	OMPC magnetic counter and associated OMC register scored.
4	Release PEG1 relay.	
5	Block operated ARA relay.	
6	Momentarily operate TR relay.	OM2F register scored.
7	Release ARA relay.	
8	At originating trouble indicator— Release originating marker.	
9	Repeat Steps 1 through 8 for other originating markers in originating marker group.	
AE.	**Terminating Marker and Terminating Marker Second Trial Failure**	
1	At terminating trouble indicator— Make terminating marker busy.	
2	At terminating marker— Block operated CK10 relay.	
3	Momentarily operate CK4 relay.	TMPC magnetic counter and associated TMC register scored.
4	Block operated STF relay.	

STEP	ACTION	VERIFICATION
5	Momentarily operate TRB relay.	TM2F register scored.
6	Release STF and CK10 relays.	
7	At terminating trouble indicator— Release terminating marker.	
8	Repeat Steps 1 through 7 for other terminating markers in terminating marker group.	
AF.	**DP and MF Outgoing Sender Starts—LLP Offices**	
1	At terminating trouble indicator— Make terminating marker busy.	
2	At associated terminating marker applique— Block operated OSK and SKA relays.	
3	Momentarily operate OSG0 relay.	Associated DPCA magnetic counter and DPC register scored. ***Note:*** If subgroup consists of MF senders, MFCA magnetic counter and MFC register scored instead of DPCA and DPC respectively.
4	Repeat Step 3, using OSG1 through OSG5 relays if provided.	
5	Release SKA relay.	
6	Block operated SKB relay.	
7	Momentarily operate OSG0 relay.	Associated DPCB magnetic counter and DPC register scored. ***Note:*** If subgroup consists of MF senders, MFCB magnetic counter and MFC register scored instead of DPCB and DPC respectively.
8	Repeat Step 7, using OSG1 through OSG5 relays if provided.	
9	Release OSK and SKB relays.	
10	At terminating trouble indicator— Release terminating marker.	
AG.	**AMA Recorder Seizures**	
1	At district junctor test frame— Select a district junctor associated with particular recorder.	

STEP	ACTION	VERIFICATION
2	Set up local charge test using LC and STC keys.	AMPC magnetic counter and AMAC register scored twice.
3	Restore district junctor test frame to normal.	
4	Repeat Steps 1 through 3 for each recorder furnished.	

AH. Transverter Seizures, Two-Line Bulk Billed Calls, Second Trial Failures, and Bulk Billed Free Calls

1	At transverter trouble indicator— Make transverter busy.	
2	At transverter— Strap T2 to T3 spring of SDTA relay.	
3	At sender test frame— Perform test of transverter as described in Section 216-801-501, using any test which operates CK8 relay and does not result in transverter failure.	TVPC magnetic counter and TVC register scored.
4	Perform test of transverter, selecting office code and class of service that will cause a message unit billing (2L entry).	2LB magnetic counter and 2LBB register scored.
5	At transverter— Strap B1 to B2 spring of SDTA relay.	
6	At sender test frame— Perform test of transverter, simulating a second trial failure.	TV2F register scored.
7	Perform test of transverter, simulating a bulk-billed failure.	BBF register scored.
8	At transverter— Remove straps from T2, T3, B1 and B2 springs. of SDTA relay.	
9	At transverter trouble indicator— Release transverter.	
10	Repeat Steps 1 through 9 for each transverter in group.	

STEP	ACTION	VERIFICATION
AI.	**Number Identification Request, Number Identification Request Failure, PBX Request, and Failure to Store**	
1	At translator circuit SD-99319-01— Strap contacts 11B and 11F of TST relay.	
2	At central office test facility— Perform a long loop-around test of translator, simulating a number identification request.	NIR register scored.
3	Perform a long loop-around test of translator, simulating a number identification request failure.	NIR and NIRF registers scored.
4	At translator— Remove strap from contacts 11B and 11F of TST relay.	
5	At SIT circuit— Perform test of PBX-AIOD equipment, simulating a PBX request. See Section 201-831-501.	PBX register scored.
6	Perform test of station identification store and control circuit, simulating a failure to store condition. See Section 201-831-501. Operate one out of five keys in station number.	FS register scored.
AJ.	**MF Outgoing Sender Starts and Trouble Releases—AIS Without LLP**	
1	Originate a service call to any intercepted number served by AIS frame associated with register sender test.	MFCA register scored.
2	At MFCA register— Momentarily short circuit contacts 3 and 4.	MFC register scored.
3	At outgoing sender circuit— Block operated MB relay.	
4	Block operated ON and TRL relays.	
5	Momentarily release MB relay.	AISS register scored.
6	Remove blocking tools in sequence from TRL, ON and MB relays.	

STEP	ACTION	VERIFICATION
AK.	**▶Originating Marker-Crossed MR Leads-Message Charging System**	
1	At originating trouble indicator— Insert make-busy plug into DB_ jack of marker to be tested.	
2	At originating marker— Block operated any S_ relay not associated with an operator class of call.	
3	Momentarily operate the XMR1 relay.	At sender make-busy frame— Crossed MR lead register (XMR) scored.
4	At originating marker— Remove blocking tool from S_ relay.	
5	At originating trouble indicator— Remove make-busy plug from DB_ jack.	
6	Repeat Steps 1 to 5 for other originating markers in the group.	
AL.	**Simultaneous Outpulser Seizure Failure and All Outpulsers Busy ANI-B**	
1	▶At outgoing trunk circuit— Connect ground to any idle trunk, (A and ON relays normal) at 28 terminal, B terminal strip. ***Note:*** Connect ground at terminal 30, B terminal strip if trunk is SD-26209-01 or SD-26210-01.	
2	Insulate 3B of TT1 and 1M of SI relays. If trunk is PCI type (SD-26210-01), insulate 1M of CT1 relay instead of the SI relay.	
3a	If trunk is coin type (SD-27814-01)— At outgoing trunk circuit— Block operated CS relay.	
4	Block operated ON and SI relays.	
5	At trouble ticketer frame— Insert make-busy plugs into OP-B jacks of all outpulsers associated with trunk being tested.	
6	At outgoing trunk circuit— Manually operate CT1 relay.	At trouble ticketer frame— In 3 to 6.24 seconds— BSF-register scored.

STEP	ACTION	VERIFICATION
7	At outgoing trunk circuit— Release CT1 relay.	
8	At trouble ticketer frame— Remove make-busy plugs from OP-B jacks of all outpulsers associated with trunk being tested.	
9	Remove blocking tools from ON and SI relays.	
10a	If trunk is coin type (SD-27814-04)— At outgoing trunk circuit— Remove blocking tool from CS2 relay.	
11	Remove insulators from 1M of SI or CT1 relay and 3B of TT1 relay.	
12	Remove ground from B terminal strip.	
13	Repeat Steps 1 through 12 for other identifier groups.	