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**INWATS SERVICE**  
**CENTRAL OFFICE TESTING PROCEDURES**  
**MASTER TEST FRAME**  
**NO. 5 CROSSBAR OFFICES**

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**1. GENERAL**

1.01 This section describes the tests to be performed by Central Office (CO) personnel following the installation of an INWATS service order. These tests can also be used to verify the proper functioning of the equipment on existing services whenever customer complaints, etc, make them warranted. It is intended that they be performed after the normal line test, PBX hunt test, etc, have been performed ensuring that the lines involved are properly cross-connected.

1.02 The tests covered are:

- A. *Interstate INWATS Call-Band Discrimination:* This test ensures that the interstate INWATS service under test is able to receive calls from all of the bands subscribed to and that calls from a higher band are routed to a recording.
- B. *Intrastate INWATS Call — Home Region Discrimination:* This test ensures that the intrastate INWATS service under test is able to receive calls from its home region.

C. *Intrastate INWATS Call — Distant Region Discrimination:* This test ensures that the intrastate INWATS service under test is able to receive calls from the distant region if it subscribes to that region, or that calls from the distant region are routed to a recording if that region is not subscribed to.

D. *INWATS Call Termination — Test of Auxiliary Line Circuit (SD-99439-01):* This test checks the ability of the Auxiliary Line Circuit to terminate incoming calls and verifies the accuracy of the TM timer. Also, included is the testing of the peg count and overflow traffic registers.

*Note:* Additional operation tests of the Auxiliary Line Circuit equipped with clock timers can be found in Section 201-826-501.

*Notes:*

- 1. Tests A and D should be performed whenever an interstate INWATS service is installed. Tests B, C, and D should be performed whenever an intrastate INWATS service is installed.
- 2. Tests A, B, and C should be performed on the first line of a hunt group being installed initially or the first line being added to an existing group. Test D should be performed on each individual line being installed.



*Caution: If these tests are to be performed on existing, working services it is essential that an accurate account of the testing time be recorded. Since the TM timer scores on a 6 minute interval, use a stopwatch to record the exact time lapse. On all tests, start timing each time the handset key is operated to TALK. Stop the stopwatch when the handset key is operated to MON. Record the time lapse*



and prepare a Form K 3343 for forwarding to Revenue Accounting so they can deduct the testing time from the customers bill. (Refer to Section 002-591-913PT, Appendix 7, for a description of Form K 3343.) In addition, it will be necessary to make arrangements with the customer to permit these tests to be performed at a time convenient for the customer.

**1.03 Lettered Steps:** A letter a, b, c, etc, added to a step number in Parts 4 and 5 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.

## 2. DESCRIPTION

**2.01** The test procedures described in this section for testing interstate INWATS are only applicable to those INWATS serving offices that have outgoing trunks to a crossbar tandem or 4A machine that serves INWATS calls.

**2.02** In many locations the SD-99439-01 Auxiliary Line Circuit associated with INWATS line under test is located in a bay distant from the Master Test Frame (MTF) and not equipped for remote control of the MTF. In this instance two CO equipment personnel will be required to perform the tests; one at the MTF and the other at the Auxiliary Line Circuit location. Offices having Auxiliary Line Circuit bays equipped for remote control of the MTF can perform the tests with one CO equipment individual using a 32A test set (remote cord).

*Note:* Section 680-511-010 describes Plant Service Center responsibilities.

**2.03** INWATS is a form of long distance telephone service which allows a subscriber to receive calls from within specified areas or bands without charge to the originating party. INWATS lines only have the ability to receive calls.

(a) Interstate INWATS service is available in both "Full Business Day" and "Measured" service.

(b) Intrastate INWATS service is available on either a statewide or restricted basis. Southern California subscribers desiring intrastate service may subscribe to the Southern California Region only or the entire state, but cannot subscribe to the Northern Region only. This same principle applies to Northern Region subscribers.

**2.04** Attempts by customers to place calls to an INWATS line from an area not subscribed to by that INWATS line, will result in the call being routed to a recording. Interstate INWATS customers subscribing to a certain band can receive calls originated in the band subscribed to, or calls originated in a lower number band (eg, Band 3 can receive calls from Bands 1, 2, and 3, but not from Bands 4 or 5).

**2.05** On interstate INWATS calls, the crossbar tandem or 4A machine switching the call for the terminating area receives a 1XB-XXXX (see Table B) from the originating toll switching machine.

*Note:* The 1XB indicates that the call is an INWATS call with the B indicating the band the call is originated from.

9 = Band 1  
2 = Band 2  
3 = Band 3  
4 = Band 4  
5 = Band 5

The XXXX represents the last 4-digits of the INWATS directory number as dialed.

**2.06** On intrastate INWATS calls, the terminating crossbar tandem or 4A machine will, in most cases, determine from the digits received if the call should be completed or blocked. In some instances the terminating class 5 office is arranged to determine if the call should be completed or blocked. In these cases the "C" digit received from the terminating crossbar tandem or 4A machine indicates the originating band and the local office will either complete or block the call according to the C digit received.

*Note:* The C digits used for this purpose must be other than the office normal C digit used for POTS calls.

**3. APPARATUS**

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

**3.02** Master Test Control Circuit, SD-25800-01.

**3.03** Trunk Test Circuit, SD-25918-01.

**3.04** 1011G dial handset, equipped with 2W38A cord assembly.

**3.05** 32A test set if Auxiliary Line Circuit bay equipped. (See 2.02.)

**TABLE A**

APPARATUS	TESTS			
	A	B	C	D
TEST CIRCUIT (3.02)	✓	✓	✓	✓
TEST CIRCUIT (3.03)	✓	✓	✓	✓
HANDSET (3.04)				✓
TEST SET (3.05)				✓
KS-3008 STOPWATCH OR EQUIVALENT				✓

✓ AS REQUIRED

**4. PREPARATION**

STEP	ACTION	VERIFICATION
	<b>All Tests</b>	
1	At MTF, restore all keys and switches.	All lamps extinguished.
2	Momentarily operate RL key.	
3	Select MISC class of test.	
4	Operate KY, TLK keys.	
5	Operate GPA/GPB key as required when trunk group desired is allotted.	
6	Select route advance as necessary for trunk group under test.	
7	Select class-of-service necessary to gain access to selected trunk group.	
8a	If Auxiliary Line Circuit bay is equipped for remote control of MTF, insert plug of 32A test set (remote cord) into RC jack located on the side of the relay rack frame for Auxiliary Line Circuit under test.	
9b	If Auxiliary Line Circuit bay is not equipped for remote control of MTF, establish a talking path between the MTF and the equipment bay containing the Auxiliary Line Circuit.	

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STEP	ACTION	VERIFICATION
	<p><b>Test B</b></p>	
10	Select Completing marker.	
	<p><b>All Tests Except B</b></p>	
10c	If MTF is equipped with DL3 key, operate DL3 key and select A, B, C digits which will direct the call to an outgoing trunk to the crossbar tandem or 4A machine switching IN-WATS service.	
11c	Select completing marker.	
12d	<p>If MTF is not equipped with DL3 key, determine from local records the test code (usually 95X) which is used to access the crossbar tandem or 4A trunks for transmission tests.</p> <p><i>Note:</i> This test code is usually wired in one marker, to a route relay which is cross-connected DL to DL3 and CR to CR5S and accessed via an official class-of-service.</p>	
13d	Select A, B, C digits determined in Step 12d.	
14d	Select completing marker that is cross-connected for test code per Step 12d.	
	<p><b>Test D</b></p>	
15	<p>If the INWATS service to be tested is:</p> <ul style="list-style-type: none"> <li>• Interstate — Follow preparation steps listed for Test A.</li> <li>• Intrastate — Follow preparation steps listed for Test B.</li> </ul>	
16	At Auxiliary Line Circuit, with handset key in the MON position, insert 310 plug from handset into T jack on Auxiliary Line Circuit.	

## 5. METHOD

STEP	ACTION	VERIFICATION
15	<p><b>A. Interstate INWATS Call – Band Discrimination Test</b></p> <p>Determine, from Table B, the 2-digit code the home tandem (or 4A machine) serving this office for INWATS would expect to receive from a distant tandem (or 4A machine) in order to complete the interstate INWATS call to this area.</p> <p><i>Note:</i> This is done by finding the INWATS NNX Code for the office in column 2 of Table A and then noting the 2-digit code in column 3.</p>	
16	At the MTF, select D and E digits to correspond with the digits determined in Step 15.	
17	<p>Select F digit to correspond with INWATS Band 1 from the following:</p> <p style="margin-left: 40px;">Band 1 = 9 Band 2 = 2 Band 3 = 3 Band 4 = 4 Band 5 = 5</p> <p><i>Note:</i> F digit corresponds to the originating zone.</p>	
18	Select G through J digits to correspond with the last 4-digits of the directory number of the interstate INWATS line under test.	
19	Momentarily operate ST key.	<p>At the MTF, MISC, AS lamps lighted. After a short interval, ringing heard.</p> <p>At the Auxiliary Line Circuit, SL relay operated. R and R1 relays operated during ringing cycle; released during silent period.</p>
20	Momentarily operate RL key.	<p>At the MTF, all lamps extinguished. Ringing silenced.</p> <p>At the Auxiliary Line Circuit, SL relay released. R, R1 lamp released.</p>

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STEP	ACTION	VERIFICATION
21	<p>Repeat Steps 17 through 20, changing the F digit to correspond to the next higher zone number each subsequent test until all 5 zones have been tested.</p> <p><i>Note:</i> In order to perform this test it is necessary to determine the band subscribed to by the service under test. (See Table D.)</p>	<p>Verification will be the same as in Steps 16 through 18 until a zone number higher than the one subscribed to is tested.</p> <p>When a zone higher than the one subscribed to is tested, at the MTF recording is heard stating the call cannot be completed.</p>
22	<p>Restore all keys and switches not required in the next test.</p>	
<b>B. Intrastate INWATS Call – Home Region Discrimination Test</b>		
11	<p>Select A through J digits to correspond with the complete INWATS directing number of the line under test.</p> <p><i>Note:</i> Include 800 Area Code.</p>	
12	<p>Momentarily operate ST key.</p>	<p>At the MTF, MISC, AS lamps lighted. After a short interval, ringing heard.</p> <p>At the Auxiliary Line Circuit, SL relay operated. R and R1 relays operated during ringing cycle; released during silent period.</p>
13	<p>Momentarily operate RL key.</p>	<p>At the MTF, all lamps extinguished. Ringing silenced.</p> <p>At the Auxiliary Line Circuit, SL relay released. R, R1 relays released.</p>
14	<p>Restore all keys and switches not required in the next test.</p>	
<b>C. Intrastate INWATS Call – Distant Region Discrimination Test</b>		
15	<p>Determine, from Table C, the 3-digit code the home tandem (4A machine) serving this office for INWATS, would expect to receive from the distant region tandem office (or 4A machine) in order to complete an intrastate INWATS call to this office from the distant region.</p> <p><i>Note:</i> This is done by finding your office (by Common Language code) in column 2 of Table C and noting the 3-digit code in column 3 of Table C.</p>	

STEP	ACTION	VERIFICATION
16	Select D, E, F digits determined in Step 15.	
17	Select G through J digits to correspond with the last 4-digits of the directory number of the intrastate INWATS line under test.	
18	Momentarily operate ST key.	<p>If INWATS service under test subscribes to distant region:</p> <ul style="list-style-type: none"> <li>• At the MTF, MISC, AS lamps lighted. After a short interval, ringing heard.</li> <li>• At the Auxiliary Line Circuit, SL relay operated. R and R1 relays operated during ringing cycle; released during silent period.</li> </ul> <p>If INWATS service under test subscribes to home region only:</p> <ul style="list-style-type: none"> <li>• At the MTF, MISC, AS lamps lighted after a short interval. Recording heard stating cannot complete call.</li> <li>• At the Auxiliary Line Circuit, SL relay nonoperated. R and R1 relays non-operated.</li> </ul>
19	Momentarily operate RL key.	<p>At the MTF, all lamps extinguished, ringing silenced.</p> <p>At the Auxiliary Line Circuit, SL relay released; R, R1 relays released.</p>
20	Restore all keys and switches not required for next test.	
<b>D. INWATS Call Termination – Test of Auxiliary Line Circuit (SD-99439-01)</b>		
17e	If INWATS service to be tested is interstate, select F digit for a band that will allow call to complete.	
18	At the location of the message registers, observe and record the readings on the peg count and overflow registers associated with the INWATS service under test.	

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STEP	ACTION	VERIFICATION
19	At the MTF, momentarily operate ST key. (Momentarily operate white button of 32A test set.)	At the MTF, MISC, AS lamps lighted. After a short interval, ringing heard.  At the Auxiliary Line Circuit, SL relay operated. R and R1 relays operated during ringing cycle; released during silent period.
20	At the Auxiliary Line Circuit, operate handset key to TALK position.	L, TM, and TMA relays operated, associated clock timer motor is running.  <i>Note:</i> To observe clock timer motor, it is necessary to remove clock timer cover.
21	When clock timer register advances to next unit digit, start timing with stopwatch.	
22	When clock timer register advances again, stop timing and restore TALK key.	L, TM, and TMA relays released.
23	Note reading of stopwatch.	Reading should be 6 minutes.
24	At the MTF, momentarily operate RL key. (Momentarily operate red button of 32A test set.)	All lamps extinguished.
25	Note reading of peg count register.  <i>Note:</i> If the circuit under test is the last line in the hunting group, perform Steps 26f through 27f to verify the function of the overflow register.	Reading should be 1 count higher than in Step 18.
26f	At the Auxiliary Line Circuit, operate handset key to TALK.	L, SL, R1, and TM relays operated.
27f	At the MTF, momentarily operate ST key. (Momentarily operate white button of 32A test set.)	At the MTF, MISC, AS lamps lighted. After a short interval, 60 IPM busy tone heard.  At the Auxiliary Line Circuit, L, SL, R1, and TM relay operated.
28f	At the MTF, momentarily operate RL key. (Momentarily operate red button of 32A test set.)	At the MTF, all lamps extinguished.
29f	Note reading of overflow register.	Reading should be 1 count higher than in Step 18.
30	If no further tests are to be made, restore all circuits to normal.	

**TABLE B  
INTERSTATE INWATS OFFICES  
NNX CODES**

<b>HOME TANDEM</b>	<b>NNX CODE</b>	<b>1XB* CODE</b>
OAKLAND	227	12B
LOS ANGELES	235	14B
STOCKTON	344	13B
SANTA ROSA	358	13B
LOS ANGELES	421	12B
LOS ANGELES	423	13B
SAN JOSE	538	14B
SACRAMENTO	824	12B
SAN BERNARDINO	854	12B

\*Note: B = Band number of originating area.

TABLE C  
INTRASTATE SERVING OFFICES

	NN2	SAC 800		SERVING OFFICE LOCATION	DIGITS SENT FROM DISTANT TANDEM TO HOME TANDEM
		XXXX			
		STATEWIDE (8)	RESTRICTED (7)		
S O U T H E R N  R E G I O N	222	28XX	-	LSAN-15	192
	242	44XX	45XX	ROSM-11	192
	252	00XX	90XX	LSAN-08	195
		01XX	91XX		
		02XX	92XX		
		03XX	93XX		
	262	13XX	14XX	GRDN-01	192
		15XX	16XX		
	272	32XX	35XX	SHOK-01	192
	282	28XX	491X	LSAN-15	192
		48XX	to		
		49XX	499X		
		58XX			
	372	63XX	65XX	LSAN-34	192
64XX					
382	33X	34XX	SHOK-01	192	
805	342	36XX	38XX	SHOK-01	159
714	422	42XX	41XX	ANHM-01	142
	432	70XX	71XX	SANA-11	143
	442	48XX	49XX	RILT-11	140
	452	200X	208X	ELCN-01	149
		201X	209X		
	522	15XX	10XX	SNDG-01	144
			11XX		
			12XX		
			13XX		
	532	37XX	330X	SNDG-02	145
386X		384X			
		331X			
		385X			
542	60XX	61XX	SNDG-03	146	
		332X			
		386X			
		333X			
552	88XX	89XX	SNDG-11	147	
		387X			
		389X			

	NN2	SAC 800		SERVING OFFICE LOCATION	DIGITS SENT FROM DISTANT TANDEM TO HOME TANDEM	
		XXXX				
		STATEWIDE (8)	RESTRICTED (7)			
209	692	58XX	57XX	MDST-02	165	
	742	20XX	10XX	FRSN-11	163	
	752	28XX	27XX	VISL		
	662	98XX	07XX	SNJS-02	163	
	408	672	35XX	34XX	SNTC-11	155
		682	48XX	47XX	SLNS-14	165
	722	08XX	06XX	MARN-11		
	632	47XX	46XX	SNBU-02	134	
		642	02XX			
			01XX			
		23XX				
772	24XX	23XX	CNCR-01	135		
	39XX	31XX				
		32XX				
		33XX				
415	792	29XX	SNFC-01	153		
		07XX				
		80XX				
		81XX				
882	10XX	-	SNFC-21	133		
	86XX					
972	59XX	09XX	HYWR-11	139		
982	58XX	57XX	RDCY-01	155		
707	862	49XX	46XX	SNRS-01	124	
805	582	39XX	32XX	BKFD-13	156	
	592	59XX	69XX	SNLO-01	156	
916	822	02XX	01XX	YBCY-01	139	
	822	5950-89	5900-30	STAH-01	139	
	822	9650-99	9600-49	RDNG	139	
	952	52XX	53XX	SCRM	135	
		55XX				
		57XX				
		38XX				

**TABLE D**  
**USOC CODES – INWATS SERVICE**

**USOC****INTRASTATE INWATS**

WAC	INTRASTATE INWARD – STATEWIDE SERVICE – MEASURED TIME – 15 HOURS
WK5	INTRASTATE INWARD – N CAL SERVICE – MEASURED TIME – 15 HOURS
WKW	INTRASTATE INWARD – S CAL SERVICE – MEASURED TIME – 15 HOURS
WKE	INTRASTATE INWARD – N CAL SERVICE – MEASURED TIME – 125 HOURS
WKF	INTRASTATE INWARD – S CAL SERVICE – MEASURED TIME – 125 HOURS
WKG	INTRASTATE INWARD – STATEWIDE SERVICE – MEASURED TIME – 125 HOURS

**INTERSTATE INWATS***Measured Time*

SAS	INWATS INTERSTATE – MEASURED SERVICE – AREA 1	
SBS	INWATS INTERSTATE – MEASURED SERVICE – AREA 2	
SES	INWATS INTERSTATE – MEASURED SERVICE – AREA 3	
SFS	INWATS INTERSTATE – MEASURED SERVICE – AREA 4	
SGS	INWATS INTERSTATE – MEASURED SERVICE – AREA 5	
WXM	SECOND LINE FOR SERVICE DESCRIBED BY SAS	} PER RESTRUCTURED INTERSTATE WATS TARIFF (1/1/75)
WXN	SECOND LINE FOR SERVICE DESCRIBED BY SBS	
WXO	SECOND LINE FOR SERVICE DESCRIBED BY SES	
WXP	SECOND LINE FOR SERVICE DESCRIBED BY SFS	
WXQ	SECOND LINE FOR SERVICE DESCRIBED BY SGS	

*Full Time*

SKS	INWATS INTERSTATE – FULL SERVICE – AREA 1	
SLS	INWATS INTERSTATE – FULL SERVICE – AREA 2	
SNS	INWATS INTERSTATE – FULL SERVICE – AREA 3	
SOS	INWATS INTERSTATE – FULL SERVICE – AREA 4	
SQS	INWATS INTERSTATE – FULL SERVICE – AREA 5	
WXF	SECOND LINE FOR SERVICE DESCRIBED BY SKS	} PER RESTRUCTURED INTERSTATE WATS TARIFF (1/1/75)
WXG	SECOND LINE FOR SERVICE DESCRIBED BY SLS	
WXH	SECOND LINE FOR SERVICE DESCRIBED BY SNS	
WXJ	SECOND LINE FOR SERVICE DESCRIBED BY SOS	
WXL	SECOND LINE FOR SERVICE DESCRIBED BY SQS	