

OPERATING AND PREPARATION OF CONTROL TAPES
AUTOMATIC PROGRESSION TRUNK TEST FRAME
(MODIFIED PER PD OPTION)
NO. 5 CROSSBAR OFFICES

1. GENERAL

1.01 This section describes testing procedures and preparation of control tapes for the modified (PD option) Automatic Progression Trunk Test Frames (APTT).

1.02 The features covered are:

Preparation of Control Tapes For:

A. Control Tape For Trunk Testing: These tapes are for testing trunks for "C" digit transfer, prefix verification, reverse battery, ability of trunk to return reorder, and one-way transmission test.

B. Control Tape For Incoming Register Tests: These tapes test incoming registers DP or MF from the APTT Frame.

C. Control Tape For Outsender Tests: These tapes test outsiders from the APTT frame.

D. Control Tape For Originating Register Tests: These tapes test originating registers from the APTT frames.

E. Control Tape For Loop Around Transmission Tests: These tapes are for loop around transmission tests from the APTT frame.

Testing Procedures:

A. One-Way Transmission Test: This tests one-way transmission of outgoing trunks from APTT frame.

B. Loop Around Transmission Tests: This tests loop around transmission of outgoing trunks from APTT frame.

C. Originating Register Tests: This is a method to test originating registers by using the APTT frame in conjunction with the master test frame.

E. Outsender Tests: This is a method to test outsiders by using the APTT frame in conjunction with the master test frame.

F. Reverse Battery Tests: This tests reverse battery of outgoing trunks from APTT frame.

G. "C" Digit Transfer Test: This tests the "C" digit transfer feature for outgoing trunks from the APTT frame.

I. Prefix Verification Test: This tests the prefix verification on outgoing trunks from the APTT frame.

J. Combined Charge-No Charge Test: This tests the no charge test of outgoing trunks from the APTT frame.

1.03 All of these tests are performed by first taking steps required in the standard Bell System Practices referred to at beginning of tests.

2. APPARATUS

2.01 Automatic Progression Trunk Test Circuit (SD-25938-01).

2.02 Master Test Control Circuit (SD-25800-01).

2.03 Automatic Monitor, Register and Sender Test Circuit (SD-25680-01).

2.04 Apparatus as required in Bell System Practice referred to for test being performed.

3. PREPARATION

3.01 Preparation as required in Bell System Practice referred to for test being performed.

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4. METHOD

STEP	ACTION	VERIFICATION
Preparation of Control Tapes		
A. CONTROL TAPE FOR TRUNK TESTING		
1	Prepare for tape perforation as covered in Section 218-220-302 steps 1 through 21.	KEY lamp lights. PERF lamp lights.
2	Manually key the one-way transmission test information as shown on DS-25938-01-D10 ahead of the first trunk of the group. This pad information keyed in should be the difference of the calculated db loss of the trunks to be tested and the number 10.	
3	Manually operate the SPA key 5 times.	SPA lamp lights momentarily.
4	Set wafer switches as required to correspond to the numerical information specified in Table A, B, C, or D of Section 218-220-320 (Table used determined by number of line segments required).	Wafer switch set according to table used.
5	Operate the AP key.	Tape perforated automatically corresponding to numbers set up on wafer switches up to point requiring Trunk Frame and Trunk information.
6	Manually key in the Trunk Link Frame, Tens (FTCD) and Units (FU) and the Trunk Tens (TT) and Units (TU) information.	Tape perforated for Trunk Link Frame and Trunk information.
7	The frame will now automatically perforate the information set on the AGRA, CRG and CRU switches (according to line segments required) 3 spaces and then repeat the information set up on the wafer switches up to point requiring Trunk Frame and Trunk information.	Tape automatically perforated.
8	Manually key in the Trunk information of the second trunk in the group.	Tape perforated for Trunk Link Frame and Trunk information.
9	After each automatic perforation of step 7 repeat step 8 for all other trunks in the group <u>except the last trunk.</u>	
10	Restore the AP key to normal.	

STEP	ACTION	VERIFICATION
11	Manually key in the Frame and Trunk information of the last trunk in the group.	Tape perforated.
12	Manually key in the information set up on the AGRA, CRG and CRU as required.	Tape perforated.
13	Operate SPA key 5 times.	Tape perforated.
14	Operate 5H key momentarily.	Tape perforated.
15	Operate LDR key.	
16	Operate SPA key.	Tape advances for leader section.
17	In approximately 15 seconds restore LDR key to normal.	Tape advance stops.
18	Operate 5H key.	Tape perforated.
19	Operate SPA key 5 times momentarily.	Tape advance.
20	Repeat steps 2 through 18 for each trunk group that is to be put on a master tape.	
21	If no other tests are to be performed - Restore all keys, turn off all power switches.	Tape completed.

B. CONTROL TAPE FOR INCOMING REGISTER TESTS

1	Prepare for tape perforation as specified in Section 218-220-302 steps 1 through 21.	KEY lamp lights. PERF lamp lights.
2	Refer to DS-25938-01-D11 for incoming registers.	
3	Make separate tapes for DP and MF registers. (Requires different key to be operated on MTF).	
4	Manually key incoming register group tens and units information.	Tape perforated.
5	Manually key type of register under test (DP or MF see Note 5, sheet D11).	Tape perforated.
6	Manually key incoming register select information.	Tape perforated.
7	Manually key the number 0 for filler digit.	Tape perforated.
8	Operate SPA key 5 times.	Tape advance.
9	Repeat steps 4 to 8 for all other DP or MF registers in the marker or group.	

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STEP	ACTION	VERIFICATION
10	Put leader on tape.	
11	Restore all keys and turn off power switches if no other tapes are to be made.	Tape completed.

C. CONTROL TAPE FOR OUTSENDER TESTS

1	Prepare for tape perforation as covered in Section 218-220-302, steps 1 through 21.	KEY lamp lights. PERF lamp lights.
2	Refer to DS-25938-01-D11 for Outsenders.	
3	Manually key in the A, B, and C of an office code for sender group to be tested.	Tape perforated.
4	Manually key in the sender sub-group information. See note 4 of DS-25938-01-D11.	Tape perforated.
5	Manually key in the sender select information for the sender under test.	Tape perforated.
6	Operate SPA key 5 times.	Tape perforated.
7	Repeat steps 3 through 6 for all senders in the marker group.	Tape perforated.
8	Put leader on tape.	
9	Restore all keys and turn off power switches if no other tapes are to be made.	Tape completed.

D. CONTROL TAPES FOR ORIGINATING REGISTER TESTS

1	Prepare for tape perforation as covered in Section 218-220-302, Steps 1 through 21.	KEY lamp lights. PERF lamp lights.
2	Refer to DS-25938-01-D11 for originating registers.	
3	Manually key the trunk link frame tens and units information.	Tape perforated.
4	Manually key C, OA, AB, OC and X filler digits as required.	Tape perforated.
5	Manually key the trunk link frame switch number of originating register location.	Tape perforated.
6	Manually key a filler digit 0-9.	Tape perforated.
7	Operate SPA key 5 times.	Tape perforated.

STEP	ACTION	VERIFICATION
8	Repeat steps 4 through 7 for all originating registers in the marker group.	
9	Put leader on tape.	Tape completed.
10	Restore all keys and turn off power switches if no other tapes are to be made.	

E. CONTROL TAPES FOR LOOP AROUND TRANSMISSION TEST

1	Prepare for tape perforation as specified in Section 218-220-302, steps 1 through 21. NOTE: Loop around tapes to be made for Carrier and E type repeater trunks.	KEY lamp lights. PERF lamp lights.
2	Manually key in loop around transmission test information for the first loop around test number as specified on DS-25938-01-D10 (The pad information keyed in should be the difference of the calculated DB loss of the trunk to be tested and the number 10).	Tape perforated.
3	Operate SPA key 5 times.	Tape advance.
4	Set wafer switches as required to correspond to the numerical information specified in table A, B, C, or D of section 218-220-302 (Table used determined by number of line segments required).	
5	Operate the AP key.	Tape perforated automatically corresponding to number set up on wafer switches, up to point requiring Trunk Frame and trunk information.
6	Restore the AP key.	
7	Manually key the trunk link frame tens and units and the trunk tens and units of the first trunk.	Tape perforated.
8	Manually key the information set up on the AGRA or CRG, CRU switches as required.	Tape perforated.
9	Operate the SPA key 5 times.	Tape advanced.
10	Manually key the loop around transmission test information for the second loop around test number as specified in DS-25938-01-D10.	Tape perforated.
11	Operate the SPA key 5 times.	Tape advanced.

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STEP	ACTION	VERIFICATION
12	Operate the AP key.	The frame will perforate information corresponding to the numbers set up on the wafer switches up to point requiring Trunk Link Frame and Trunk information.
13	Release AP key.	
14	Manually key the trunk link frame tens and units and the trunk tens and units of the second trunk in the group.	Tape perforated.
15	Manually key the information set up on the AGRA, CRG and CRU as required.	Tape perforated.
16	Repeat step 2 through 15 substituting the 3rd trunk of the group in step 14 but continue to use the first trunk of the group in step 7. (Repeat steps substituting succeeding trunk in step 14 until all trunks of the group have been perforated on tape).	
17	Put leader on tape.	Tape completed.
18	If no other tests are to be performed, restore all keys and turn off all power switches.	

Testing Procedures

A. ONE-WAY TRANSMISSION TEST

1	Prepare APTT frame as specified in Section 218-262-501, steps 1 through 13.	Transmitter-distributor motor running.
2	At test frame: Operate keys in accordance with table A test A, Section 218-262-501. NOTE: Calibrate Weston Meter on APTT frame by operating CALA and CALB key (Meter reads 0). Adjustment made at amplifier A and B at bottom of frame.	
3	Operate TMT key.	
4	Operate NCO key.	
5	Set BYP wafer switch to number of attempts you wish to make to seize a busy trunk.	0 to 9 attempts at 1 minute intervals.
6	Operate PBT key if trouble record is to be taken.	

STEP	ACTION	VERIFICATION
7	Set Weston Meter moveable pointer for required tolerance of transmission limits for trunks being tested.	Failure if trunk transmission outside pointer setting of meter.
8	Operate the ST key momentarily.	At test frame - Test of trunk on tape starts. When all trunks on tape have been tested or passed - EC lamp lights.
9	Operate RL key momentarily.	All lamps extinguished.
10	Restore all keys, turn off all power switches.	
	NOTE: Trouble tape perforated automatically on transmission failures. When testing trunks read from the transmission trouble tape, operate the <u>TTT</u> key and set up 1 milliwatt test number of distant office on the TH, H, T, and V wafer switches.	

B. LOOP AROUND TRANSMISSION TEST

1	Prepare APTT frame as covered in Section 218-262-501 steps 1 through 13.	Transmitter distributor motor running.
2	<u>Important</u> - Make busy the first trunk of each trunk group that loop around transmission test is to be made on. This test should be done during periods of light traffic.	First trunk Busy.
3	At test frame: Operate keys in accordance with table A, Section 218-262-501, BSP test A. NOTE: Calibrate Weston meter on APTT frame by operating CALA and CALB key (meter reads 0). Adjustment made at amplifier A and B at bottom of frame.	
4	Operate NTTS key.	
5	Operate LAR key.	
6	Operate NCO key.	
7	Set the BYP wafer switch to the number of attempts you wish to seize a busy trunk.	0 to 9 attempts at 1 minute intervals.
8	Operate the PBT key if trouble record is to be taken.	

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STEP	ACTION	VERIFICATION
9	Operate the ST key momentarily.	At test frame - Tests of trunk on tape starts. When all trunks on tape have been tested or passed EC lamp lights.
10	Operate RL keys momentarily.	All lamps extinguished.
11	If no other tests are to be performed, restore all keys. Turn off all power switches.	

C. ORIGINATING REGISTER TEST

1	Refer to Section 218-135-501 on testing Originating Register Dial Pulse or "Touch-Tone" using the Automatic Monitor, Register and Sender Test Circuit.	
2	Select the particular test you want to make.	
3	Operate keys on MTF as covered in Section 218-135-501, steps 1 through 9 with the following exceptions. <u>Do Not Operate Keys</u> FS-, TS- and FG-.	
4	At APTT frame insert originating register test tape in reader.	
5	Operate ORT key.	
6	Operate MG- key.	
7	Do Not operate PBT key. APTT will not perforate busy registers or registers in trouble. The MTF will block and bring in an alarm.	
8	Operate the APTT frame ST key momentarily.	Tape starts register tests.
9	At end of tape - Operate R1 key momentarily.	All lamps extinguished.
10	If no other tests are to be performed, restore all keys and turn off all power switches.	

D. INCOMING REGISTER TESTS

1	Refer to Section 218-137-501, Dial Pulse, or Section 218-137-501 Multifrequency, Incoming register tests using Automatic Monitor, Register and Sender Test Circuit.
2	Prepare the MTF for the particular test to be performed.

STEP	ACTION	VERIFICATION
3	Operate keys as specified with the following exception. Do Not operate the <u>SRS-</u> key or the <u>IG-</u> key.	
4	At APTT frame insert incoming register test tape in the reader.	
5	Operate the IRT key on the APTT frame.	
6	Operate MG- key on the APTT frame.	
7	Do not operate PBT key. The APTT frame will not perforate a tape on busy registers or registers in trouble. The MTF will block and bring in an alarm.	
8	Operate the ST key on the APTT frame.	Tape starts register tests. OK lamp lights.
9	Operate RL key momentarily.	All lamps extinguished.
10	If no other tests are to be performed, restore all keys. Turn off all power switches.	

E. OUTSENDER TESTS

1	Refer to Section 218-150-501 for Dial Pulse or Section 218-156-501 for Multifrequency Senders.
2	Select the particular test to be performed.
3	Operate keys on the MTF as specified in Section 218-150-501 or 218-156-501 steps 1 through 11 with the following exceptions. <u>Do Not Operate OS-</u> or <u>SGA</u> or <u>SGB</u> .
4	Operate keys on the MTF as specified in the test chart of Section 218-150-501 or Section 218-156-501 with the following exceptions. <u>Do Not Operate A-</u> , <u>B-</u> , or <u>C-</u> keys for the office code.
5	Operate OST key on APTT frame.
6	Operate MG- key or APTT frame.
7	Do not operate PBT on the APTT frame. The frame will not perforate the information on senders found busy or in trouble. The frame will block and bring in an alarm.

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STEP	ACTION	VERIFICATION
8	Operate ST key on the APTT frame momentarily.	Tape starts Outsender tests.
9	Operate RL key momentarily.	All Lamps extinguished.
10	If no other tests are to be performed, restore all keys. Turn off all power switches.	
F. REVERSE BATTERY TEST		
1	Prepare APTT frame as covered in Section 218-262-501, steps 1 through 13.	Transmitter - distributor motor running.
2	Operate keys as specified in Section 218-262-501, Table A BSP test A.	
3	Set number selector switches to thousands, hundreds, tens, and units for reverse battery test number.	
4	Set BYP wafer switch to the number of attempts you wish to make to seize a busy trunk.	0 to 9 attempts at 1 minute intervals.
5	Operate PBY key.	Busy trunks will be perforated - Trunks in trouble will be held for trace.
6	Operate ST key momentarily.	At test frame - Tests of trunks on tape start. When all trunks on tape have been tested or passed - EC lamp lights.
7	At end of tape, operate RL key momentarily.	All lamps extinguished.
8	If no other tests are to be performed, restore all keys. Turn off all power switches.	

G. "C" DIGIT TRANSFER FEATURE TEST

1	Prepare APTT frame as covered in Section 218-262-501, steps 1 through 13.	Transmitter - distributor motor running.
2	Operate keys as specified in table A of Section 218-262-501, BSP test A.	

NOTE: C Digit transfer feature provided for testing other office by sending other than the C digit perforated on tape. Example: If control tape ABC code is perforated 938 and we want to test for "no ring" to 936 code, set CTR wafer switch to 6 for "C" digit 6.

STEP	ACTION	VERIFICATION
3	Operate CTR key.	
4	Set the CTR wafer switch to the "C" digit to be outpulsed.	
5	Set the BYP wafer switch to the number of attempts you wish to make to seize a busy trunk.	0 to 9 attempts at 1 minute intervals.
6	Operate PBY key.	Tape perforated for all trunks found busy. Trouble conditions will cause a frame block.
7	Set the number selector switches thousands, hundreds, tens and units to the test number to be outpulsed.	
8	Operate ST key momentarily.	At test frame - Tests of trunk on tape start. When trunks on tape have been tested or passed, EC lamp lights
9	Operate RL key momentarily, after the trunk group has been tested.	All lamps extinguished.
10	If no other tests are to be performed, restore all keys. Turn off all power switches.	

H. TRUNK ABILITY TO RETURN REORDER

1	Prepare APTT frame as covered in Section 218-262-501 steps 1 through 13.	Transmitter - distributor motor running.
2	Operate keys as specified, in Table A, Section 218-262-501, BSP Test A.	
3	Operate ROT key.	
4	Set the BYP wafer switch to the number of attempts you want to make to seize a busy trunk.	0-9 attempts at 1 minute intervals.
5	Operate PBT key.	
6	Operate ST key momentarily.	At test frame - Tests of trunk on tape start. When all trunks on tape have been tested or passed - EC lamp lights.
7	Operate RL key momentarily.	All lamps extinguished.
8	If no other tests are to be performed, - Restore all keys. Turn off all power switches.	

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STEP	ACTION	VERIFICATION
I. PREFIX VERIFICATION TEST		
1	Prepare APTT frame as covered in Section 218-262-501, steps 1 through 13.	Transmitter - distributor motor running.
2	Operate keys as specified in Section 218-262-501, Tabel A BSP test A.	
3	Operate NCO key.	
4	Operate PVN key.	
5	Set the BYP wafer switch to the number of attempts you want make to seize a busy trunk.	0-9 attempts at 1 minute intervals.
6	Operate PBY key.	
7	Operate ST key momentarily.	At test frame - Tests of trunks on tape start. When all trunks on tape have been tested or passed - EC lamp lights.
8	Operate RL key momentarily.	All lamps extinguished.
9	If no other tests are to be performed, restore all keys. Turn off all power switches.	
J. COMBINED CHARGE - NO CHARGE TEST		
1	Prepare APTT frame as covered in Section 218-262-501, steps 1 through 13.	Transmitter - distributor motor running.
2	Operate keys as specified in Table A, Section 218-262-501, BSP test B. (Do not operate <u>CH</u> key).	
3	Operate CH-NC key.	
4	Operate REP-1 key.	
5	Set the BYP wafer switch to the number of attempts you wish to make to seize a busy trunk.	0-9 attempts at 1 minute intervals.
6	Operate PBT key.	Tape perforated for busy trunks.
7	Operate the ST key momentarily.	At test frame - Tests of trunk on tape start. When all trunks on tape have been tested or passed, EC lamp lights.
8	Operate the RL key momentarily.	All lamps extinguished.
9	If no other tests are to be performed, restore all keys. Turn off all power switches.	