OPERATIONAL AND TRANSMISSION TESTS
ON
OUTGOING DIAL TRUNKS
USING AUTOMATIC OUTGOING TRUNK TEST FRAME SD-32504-01
STEP-BY-STEP SYSTEMS

1. GENERAL

1.01 This section describes the method of making automatic operational tests and transmission loss and noise measurements on outgoing dial trunks using the automatic outgoing trunk test frame (AOTT) SD-32504-01.

1.02 This section is reissued to correct steps in Parts 2 and 3 and to update the section. This reissue does not affect the Equipment Test List.

1.03 The director of the automatic transmission measuring system (ATMS) per J94051A must be associated with the AOTT for making transmission measurements. The AOTT is controlled by perforated 5-level chadless paper tape. This test procedure gives the key and switch settings that must be made before the automatic test is started. It also explains the methods of placing the control tape in the transmitter-distributor and the tape winder, and of starting and ending the automatic test.

1.04 Particular circuit tests and repeat tests on trunks can be made by the use of a single short tape or a loop tape containing the information for the trunk or group of trunks requiring testing.

1.05 The control tape preparation and the printout explanation are covered in Sections 226-591-301 and 226-591-101 respectively.

1.06 The AOTT may be arranged (RCO-RPA key normal) to perforate a busy retest tape which will contain the information on trunks which could not be tested because of trunk busy, far-end test line busy, or reorder. This tape may then be used as a control tape for the AOTT to retest these trunks at a later time. If a busy retest tape is not required, the AOTT can be arranged (RCO-RPA key operated to RPA) to perforate all of the information normally printed on the page copy (data tape). This tape can then be used, if desired, for mechanized analysis at another location. If neither tape is desired, the RCO-RPA key is operated to RCO. If a second reperforator has been provided with the AOTT, a data tape and busy retest tape can be produced simultaneously.

1.07 The AOTT may be arranged to provide any one of the following printout modes by operation of the APM switch to the proper position:

(1) Full printout—No Repeat (NO REP). All of the measurements are made on each trunk and the results are printed. The appropriate cue 1 or 2 is printed if any of the measurements exceeds one of the limits contained in the control tape. None of the measurements are repeated.

(2) Full printout—Repeat on Cue 2 (REP Q2). All of the measurements are made and printed as above, and a cue 1 is printed if any of the measurements exceeds the cue 1 limit. If any of the measurements exceeds the cue 2 limit, the cue is not printed, but all of the measurements on that trunk are repeated and the results are printed again. At this time, the appropriate cue 1 or 2 is printed.

(3) Full printout—Repeat on Cue 1 or Cue 2 (REP Q1, Q2). The sequence is the same as in case (2) above. However, if any of the measurements exceeds the cue 1 or cue 2 limit, the cue is not printed, but all of the measurements on that trunk are repeated and printed again. At this time, the appropriate cue 1 or 2 is printed.

(4) Abbreviated printout—Repeat on Cue 1 or Cue 2 (APO). The results of the first set

of measurements on each trunk are not printed. However, if any of the measurements exceeds the cue 1 or cue 2 limit, all of the measurements on that trunk are repeated. At this time the results of the measurement and the appropriate cue 1 or cue 2 are printed.

1.08 The AOTT is equipped with a feature which permits it to start the tests at a pre-determined time every day. This feature allows it to operate on an unattended basis. To do this, a 24-hour timer is set to the desired time. If it is desired to omit these unattended tests on certain days, pins are placed in the tapped spoke holes of the 7-day calendar wheel corresponding to the days on which the test are not to be made. If no pins have been placed in the spoke holes, the test frame will start each day at the time set on the 24-hour timer, assuming that control tape is in the tape reader. The test frame will stop automatically when the end of the control tape is reached. The procedures in this Section require actions and verifications at the teletypewriter (TTY) equipment.

1.09 ***Lettered Steps:*** A letter a, b, c, etc, added to a step number in Part 3 or 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 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 AOTT frame SD-32504-01.

2.02 28B teletypewriter.

2.03 KS-8483 L1 perforator tape.

2.04 5C tape winder.

2.05 Western Apparatus TU2 tape unwinder.

2.06 1A45 paper winder.

2.07 TP193950 copy display rod.

2.08 KS-1920 TTY paper.

3. PREPARATION

STEP	ACTION	VERIFICATION
	Reloading the Reperforator With Tape	
1	At AOTT and teletypewriter (TTY)— Restore all keys and switches to normal.	
2	At TTY— Open center top door and tear off old tape at tape chute.	
3	At AOTT— Operate LOC and TTY keys.	
4	At TTY— Momentarily and repeatedly operate LTRS key until remaining tape is fed out of reperforator.	
5	Lift used roll of tape out of holder and place new roll of tape on spindle with tape feeding out from top of roll.	
6	Open center front door and thread tape through tape guide arm and down into tape chute.	

STEP	ACTION	VERIFICATION
7	As paper is eased through chute— Momentarily and repeatedly operate LTRS key until tape goes through punch head.	
8	Close top and front doors.	
9	Depress and hold REPT key.	
10	Momentarily operate space bar.	
11	When sufficient length of tape leader is perforated to permit threading into tape winder— Restore REPT key to normal.	
12	Remove outside reel from tape winder and raise tape arm until secured by latch (Fig. 1).	

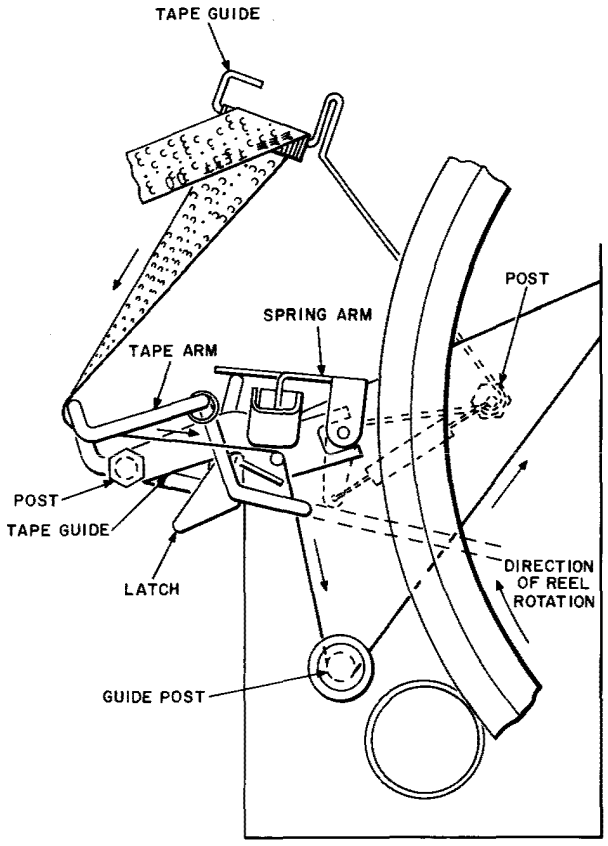

Fig. 1—Tape Threading Method

STEP	ACTION	VERIFICATION
13	Thread approximately 6 inches of tape through any post in center of tape reel and manually wind two or more turns to secure tape. ***Note:*** Tape should be wound so that tape winds on top of reel.	
14	Replace reel in tape winder and thread tape through tape arm and guides as shown in Fig. 1 and 2, then release latch.	
15	Set tape winder switch to ON.	Tape slack taken up. Reel stopped.
16a	If tension of tape is too tight— On tape arm— Loosen locking screw on U bracket and slide U bracket ▶toward rear of TTY◀ until tension is correct. (See Fig. 3.) ***Note:*** If the tension of tape is too tight, the chads will begin to interlock between the layers of tape on the reel.	
17b	If tension of tape is too slack— On tape arm— Loosen locking screw on U bracket and slide U bracket toward ▶front of TTY◀ until tension is correct. (See Fig. 3.)	
18	Secure locking screw on U bracket.	

Loading the Teletypewriter With Paper

19	At AOTT and TTY— Restore all keys and switches to normal.	
20	At TTY— Open right front and top doors and move paper release lever back.	
21	Lift paper fingers and pull paper from under platen.	
22	Lift out used roll and remove spindle from core of used roll, and place in new paper roll.	
23	Place new roll in TTY with spindle in spindle grooves.	

STEP	ACTION	VERIFICATION

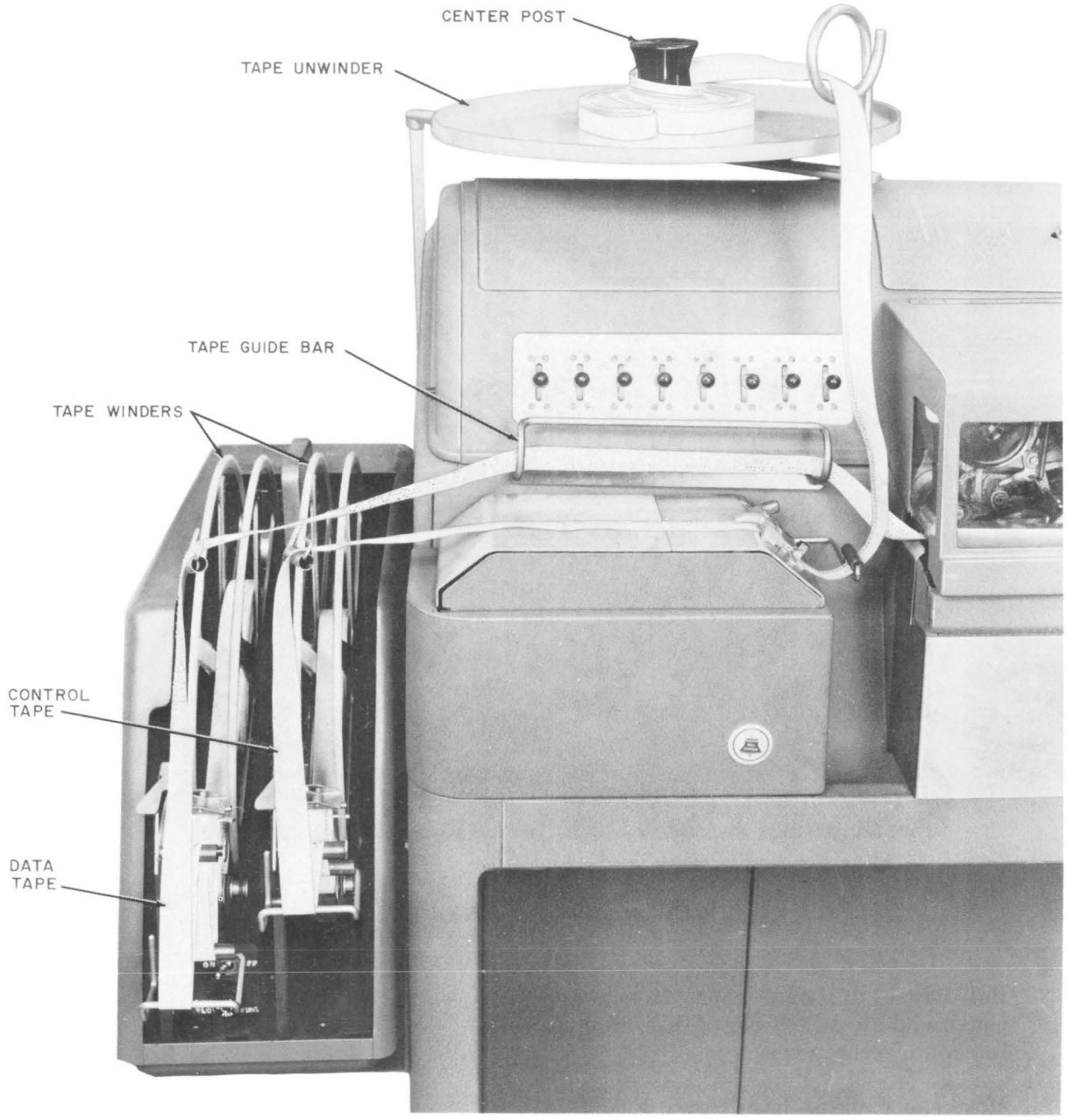

Fig. 2—28B Teletypewriter Set

Note: Have paper feeding from underneath roll toward platen.

24 Feed paper over paper straightener rod, under platen and up between platen and paper fingers.

STEP	ACTION	VERIFICATION

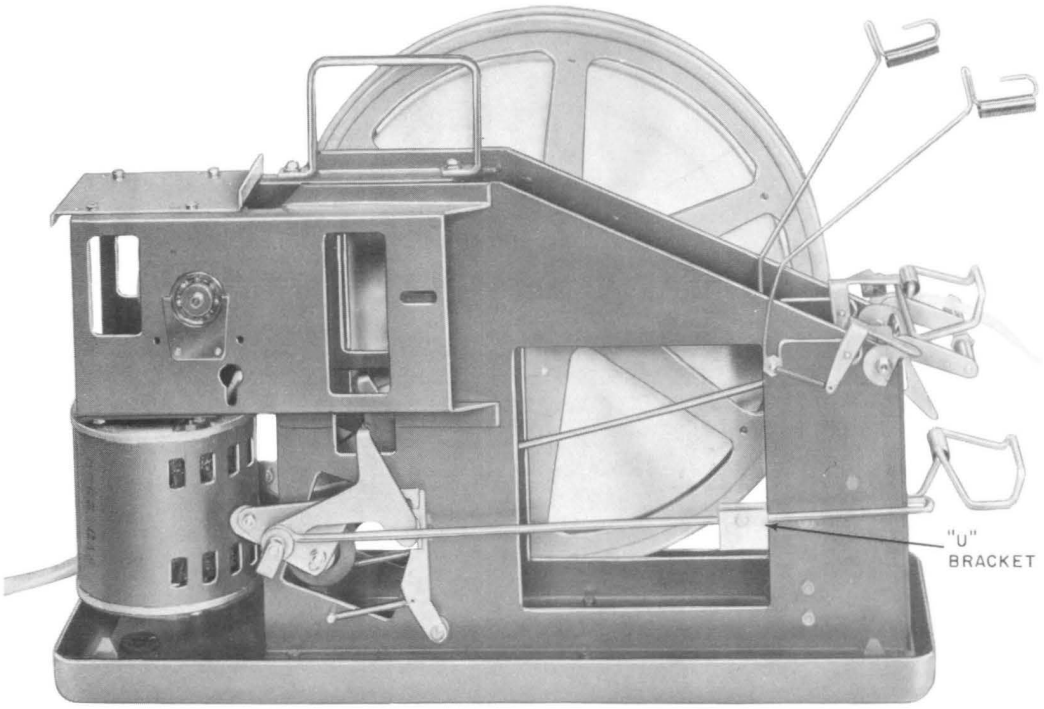

Fig. 3—Adjustment for Tape Tension

25 Pull paper up a few inches beyond top of platen and straighten paper then lower paper fingers to secure paper.

26 Move paper release lever forward.

Caution: Do not disturb ribbon or type box.

27 Close right top door and bring up end of paper so that it feeds out between doors before closing right front door.

28 Close right front door.

STEP	ACTION	VERIFICATION
29	When page copy is of sufficient length— Place paper over display rod and thread into paper winder.	
30	Set paper winder switch to ON.	

Loading the Control Tape

31	At AOTT and TTY— Restore all keys and switches to normal.	
32	Determine that TTY has a sufficient supply of paper and paper is engaged in paper winder. (Refer to method of loading the TTY with paper covered in Steps 19 through 30.)	
33	Determine that the reperforators have a sufficient supply of tape and that tape is threaded and engaged in outside (left) tape winder. (Refer to method of reloading the reperforator with tape covered in Steps 1 through 18.)	
34	Select control tape containing trunks to be tested, place on tape unwinder.	
35	Unwind sufficient tape leader from inner side of tape roll to permit attachment at tape winder.	
36	Set tape read switch of transmitter-distributor to STOP. ***Caution: Pin will tear tape if switch is in RUN position when tape is placed in transmitter-distributor.***	
37	Open tape gate of transmitter-distributor.	
38	Place tape feed holes over feed pins of transmitter-distributor. The first printed character or symbol on the tape is to be aligned with engraved guide line.	
39	Close tape gate.	
40	Set tape read switch to RUN.	
41	Install tape on inside (right) reel of tape winder.	
42	Set tape winder switch to ON.	

STEP	ACTION	VERIFICATION
4. METHOD		
43	At AOTT— Restore any operated keys.	
44	Momentarily operate RLS key (releases all previous test connections).	
▶Control Tapes Having an Active Preamble◀		
45	▶At TTY— Operate ST1 key.	Page printout produced showing information applicable to trunks within control tape.
46	After preamble is completed— Operate TAH key.	Control tape stops progressing.
47	Proceed as directed by page printout then restore TAH key to normal.	At AOTT— Test of first trunk on tape is started. When all trunks on tape have been tested or passed— If ACO key is normal— Minor alarm sounded. ALM lamp lighted.◀
▶Control Tapes Without an Active Preamble◀		
48c	If transmission test is to be made— Operate APM switch to desired position (see 1.07).	
49d	If an audible alarm is desired on cue 2 indications— Operate AQ2 key.	
50e	If an audible alarm is desired on operational failures (operational marks)— Operate OMA key.	
51	Operate RCO-RPA key for desired position (see 1.06).	
52f	If a second reperforator has been provided and it is desirable to have it perforate a data tape— Operate PDT key.	
53g	If page printout is not desired— Operate PCO-PTA key to PCO. ***Note:*** This position is not used for trunk testing.	

STEP	ACTION	VERIFICATION
54h	If a remote page printer has been provided and its operation is desired— Operate RTU key.	
55i	If it is desired to omit printing and reperforating of busies— Operate APB key.	
56	Operate MIN key as follows, depending on the length of time desired that the AOTT should camp on each busy trunk while waiting for it to become idle. 0-none 3-3 minutes 6-6 minutes	
57j	If a sleeve release test on synchronous and nonsynchronous tests is desired— Operate SRLS key.	
58k	If the AOTT is to be automatically started at a later time— Set 24-hour timer to desired start time.	
59k	▶Place pins into the tapped spoke holes of the 7-day calendar wheel for those days of operation to be omitted.◀	
60k	Operate TC key.	After the time set on the timer is reached— At AOTT— Tests of trunks on tape start. When all trunks on tape have been tested or passed— If ACO key is normal— Minor alarm sounded. ALM lamp lighted.
61l	If tests are to be started immediately— At AOTT— Operate ST key.	At AOTT— Tests of trunk on tape started. When all trunks on tape have been tested or passed— If ACO key is normal— Minor alarm sounded. ALM lamp lighted.
62	Momentarily operate RLS key.	
63	At AOTT and TTY— Restore all keys and switches to normal.	Minor alarm silenced. All lamps extinguished.

STEP	ACTION	VERIFICATION
64	At TTY— Remove tapes from tape winders and printed paper from page printer.	