

CORD AND POSITION CIRCUIT OPERATION TEST 6A TELETYPEWRITER SWITCHBOARD

1. GENERAL

1.01 This section describes a method of making transmission and operation tests on the cord and position circuit for the 6A teletypewriter switchboard.

1.02 This section is reissued to revise the method of adjusting regenerative repeaters used with 100-speed to provide for an originating station with a parity keyboard. This method is included in Test F. The use of the 23A transmission measuring set (TMS) is added to the section and various steps are revised to specify either 60-speed or 100-speed.

1.03 The tests covered are:

A. **Signal Standard:** This test checks the ability of the signal standard lamps to light.

B. **Lamps:** This test checks that every lamp, exclusive of trunk lamps, is operative.

C. **Teaming and Mutual Exclusion:** This test checks the ability of the circuit to permit only one cord circuit to attach to the position circuit at any time.

D. **Position Busy Test:** This test checks the ability of the circuit to perform the busy test function.

E. **Operator Noninterfering Answer:** This test checks the ability of the circuit to assure that two operators cannot answer an incoming trunk at the same time.

F. **Seizure and Distortion Check:** This test checks the ability of the cord circuit to interconnect with customer data sets. This test also checks the ability of the cord circuit to operate properly with a distorted signal and provides a method of adjusting the regenerative

repeater. ♦This test should always be made after changing the regenerative repeater card.♦

G. **Error in Keypulse Procedure:** This test checks that the flashing S lamp functions when an error in keypulse procedure is made.

H. **Splitting Key:** This test checks the splitting feature of the circuit to assure that the split customer does not receive any transmission applied to the line.

I. **Clear Key and Originating Subscriber Hold:** This test checks the ability of the circuit to release any subscriber attached to a given cord circuit, and to check the ability of the circuit to hold the originating subscriber regardless of any action taken by the called subscriber.

J. **Recall Action:** This test checks the ability of the circuit to indicate a recall to the operator, and to check that the interrupter is properly connected.

K. **Telephone Mode:** This test checks the capability of the cord circuit transmitter to connect into the telephone mode and ascertain the ability of the operator to talk for those cases where telephone subscribers are dialed in error.

L. **Cord Circuit—Transmission for F2 Mark:** This test gives the method used in checking the cord circuit level of the F2M (ANS mode).

M. **Cord Circuit—Transmission for F1 Mark:** This test gives the method used in checking the cord circuit level of the F1M (CALL mode).

N. **Restraint Detect and Transmit (♦100-Speed♦ Only):** This test checks the ability of the circuit to detect a restraint signal on the ANS or CALL side of the cord and retransmit

SECTION 211-802-501

a restraint signal on the CALL or ANS side of the cord, respectively.

1.04 The interposition trunk has both telephone and TTY access jacks. For all tests herein the TTY jack is used.

1.05 In any test, when the outgoing trunk jack is seized and a connection is not completed, the AUX SUPV lamp may flash. This will in no way affect the test.

1.06 When two adjacent switchboard positions are used in any tests, they must be arranged for the same speed (60 or 100). Pos A will be the position to the left and also the position under test.

1.07 For Test K, any subscriber telephone can be used in lieu of the manual testboard telephone station.

1.08 In all tests, a perfect response from the TTY is an identical letter-for-letter verification of the character typed.

1.09 Maintenance personnel should be familiar with the location of the selector push lever in the teletypewriter. The lever nearest to the back of the teletypewriter is the first element and the lever nearest to the front of the teletypewriter is the eighth element. Recall that the eighth element will always be a mark.

1.10 **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 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

Tests L and M

2.01 2AB auxiliary transmission test set.

2.02 23A transmission measuring test set.

2.03 P3D cord, 6 feet long, equipped with two 309 plugs (3P3A) used to connect the 2AB and 23A test sets.

2.04 P3E cord, 6 feet long, equipped with two 310 plugs (3P7A) used to connect the 2AB and 23A test sets.

2.05 Test F requires the use of either a dc oscilloscope (2.06) or an electronic counter (2.07).

2.06 Oscilloscope, Tektronix 453, 535A or equivalent dc oscilloscope.

2.07 Electronic counter, Hewlett Packard 522B, 5223L or equivalent counter arranged to start-stop.

3. METHOD

| STEP | ACTION | VERIFICATION |
|---------------------------|----------------|------------------------------------|
| A. Signal Standard | | |
| 1 | Operate A key. | Top lamp lighted. |
| 2 | Release A key. | Top lamp extinguished. |
| 3 | Operate B key. | Second from top lamp lighted. |
| 4 | Release B key. | Second from top lamp extinguished. |
| 5 | Operate C key. | Third from top lamp lighted. |
| 6 | Release C key. | Third from top lamp extinguished. |

| STEP | ACTION | VERIFICATION |
|--|---|--|
| 7 | Operate D key. | Bottom lamp lighted. |
| 8 | Release D key. | Bottom lamp extinguished. |
| B. Lamps | | |
| 1 | Select any idle switchboard position. | |
| 2 | Operate ANS key to TYPE. | |
| 3 | Insert ANS cord plug into an idle outgoing interposition TTY trunk jack. | ANS supervisory, AUX SUPV lamps lighted. |
| 4 | Restore ANS key to normal. | |
| 5 | Remove ANS cord plug. | ANS supervisory, AUX SUPV lamps extinguished. |
| 6 | Operate CALL key to TYPE. | |
| 7 | Insert CALL cord plug into an idle outgoing interposition TTY trunk jack. | CALL supervisory, AUX SUPV lamps lighted. |
| 8 | Restore CALL key to normal. | |
| 9 | Remove CALL cord plug. | CALL supervisory, AUX SUPV lamps extinguished. |
| 10 | Operate ANS key to TYPE. | |
| 11 | Insert ANS cord plug into an idle outgoing interposition TTY trunk jack. | AUX SUPV lamp lighted. |
| 12 | Momentarily depress KP key. | KP (green), S (amber) lamps lighted. |
| 13 | Momentarily depress ST key. | KP, S lamps extinguished. |
| 14 | Restore ANS key to normal. | |
| 15 | Remove ANS cord plug. | ◆AUX SUPV lamp extinguished.◆ |
| C. Teaming and Mutual Exclusion | | |
| 1 | Select any two idle adjacent switchboard positions (POS A, POS B), ◆arranged for the same speed.◆ | |
| 2 | At POS A— Operate ANS keys 1, 2 to TYPE simultaneously. | |
| 3 | Insert ANS cord plug 1 into an idle outgoing interposition TTY trunk jack. | AUX SUPV lamp may or may not light. |

SECTION 211-802-501

| STEP | ACTION | VERIFICATION |
|-------------|--|-----------------------------|
| 4a | If AUX SUPV lamp does not light— Insert ANS cord plug 2 into an idle outgoing trunk jack. | AUX SUPV lamp lighted. |
| 5a | Remove ANS cord plug 2. | AUX SUPV lamp extinguished. |
| 6a | Restore ANS key 2 to normal. | AUX SUPV lamp lighted. |
| 7a | Remove ANS cord plug 1. | AUX SUPV lamp extinguished. |
| 8a | Restore ANS key 1 to normal. | |
| 9b | If AUX SUPV lamp lights— Remove ANS cord plug 1. | AUX SUPV lamp extinguished. |
| 10b | Insert ANS cord plug 2 into an idle outgoing interposition TTY trunk jack. | |
| 11b | Restore ANS key 1 to normal. | AUX SUPV lamp lighted. |
| 12b | Remove ANS cord plug 2. | AUX SUPV lamp extinguished. |
| 13b | Restore ANS key 2 to normal. | |
| 14 | At POS B— Operate ANS key 6 to TYPE. | |
| 15 | At POS A— Operate ANS key 10 to TYPE. | |
| 16 | Insert ANS cord plug 10 into an idle outgoing interposition TTY trunk jack. | AUX SUPV lamp lighted. |
| 17 | At POS B— Operate TEAM key 1. | |
| 18 | Operate ANS key 1 to TYPE. | |
| 19 | Insert ANS cord plug 1 into an idle outgoing trunk jack. | |
| 20 | At POS A— Remove ANS cord plug 10. | AUX SUPV lamp extinguished. |
| 21 | Restore ANS key 10 to normal. | AUX SUPV lamp lighted. |
| 22 | At POS B— Restore TEAM key to normal. | |
| 23 | At POS A— Operate ANS key 10 to TYPE. | |

| STEP | ACTION | VERIFICATION |
|------|---|-----------------------------|
| 24 | Insert ANS cord plug 10 into an idle outgoing interposition TTY trunk jack. | |
| 25 | At POS B— Remove ANS cord plug 1. | AUX SUPV lamp extinguished. |
| 26 | Restore ANS key to normal. | AUX SUPV lamp lighted. |
| 27 | Restore ANS key 6 to normal. | |
| 28 | At POS A— Remove ANS key 10 to normal. | AUX SUPV lamp extinguished. |
| 29 | Restore ANS key 10 to normal. | |

D. Position Busy Test

| | | |
|---|--|-----------------------------|
| 1 | Select any idle switchboard position. | |
| 2 | Operate ANS key 1 to TYPE. | |
| 3 | Insert ANS cord plug 1 into an idle outgoing interposition TTY trunk jack. | AUX SUPV lamp lighted. |
| 4 | Restore ANS key 1 to normal. | |
| 5 | Touch tip of ANS cord plug 2 to jack sleeve of multiple appearance of outgoing trunk jack of Step 2. | BT lamp lighted. |
| 6 | Remove ANS cord plug 2. | BT lamp extinguished. |
| 7 | Repeat Steps 5, 6 using CALL cord instead of ANS cord. | |
| 8 | Remove ANS cord plug 1. | AUX SUPV lamp extinguished. |

E. Operator Noninterfering Answer

| | |
|---|--|
| 1 | Select any two idle adjacent switchboard positions (POS A, POS B) arranged for the same speed. |
| 2 | At POS A— Operate ANS key 1 to TYPE. |
| 3 | At POS B— Operate ANS key 1 to TYPE. |

SECTION 211-802-501

| STEP | ACTION | VERIFICATION |
|-------------|---|---|
| 4 | At POS A, B— Insert (simultaneously) ANS cord plug 1 of each cord circuit into cord test trunk B jack and its multiple. <i>Note:</i> The cord circuit which is in the position where the AUX SUPV lamp lights is the noninterfering cord. The cord circuit which is in the position where the BT lamp lights is the interfering cord. | At POS A, POS B either AUX SUPV or BT lamp will light; however either position must light a different lamp. |
| 5 | Remove plug of interfering cord. | BT lamp extinguished. |
| 6 | Restore ANS key of interfering cord to normal. | |
| 7 | Remove plug of noninterfering cord. | AUX SUPV lamp extinguished. |
| 8 | Restore ANS key of noninterfering cord to normal. | |

F. Seizure and Distortion Check

Switchboard Arranged for 60-Speed

| | | |
|----|---|--|
| 1 | Select an idle cord in an idle switchboard position. | |
| 2 | Operate CALL key to TYPE. | |
| 3 | Insert CALL cord plug into test trunk A jack. | CALL supervisory, AUX SUPV lamps lighted. |
| 4 | Insert ANS cord plug into cord test trunk B jack. | |
| 5 | Momentarily operate KP key. | KP (green), S (amber) lamps lighted. |
| 6 | Key directory number of 4A Automatic Data Test Line Circuit (4A ADTL). | |
| 7 | Momentarily operate ST key. | KP, S lamps extinguished. |
| 8 | Wait for 4A ADTL to connect. | CALL supervisory, AUX SUPV lamps extinguished. |
| 9 | Operate ANS key to TYPE. | |
| 10 | Restore CALL key to normal. | |

Note: If the 4A ADTL is momentarily busy, letter indications will be transmitted until the time that the 4A ADTL transmits the test sentences.

| STEP | ACTION | VERIFICATION |
|------|--|--|
| 11 | Observe the following text: UNDIS THE QUICK BROWN FOX JUMPED OVER A LAZY DOG'S BACK 1234567890***SENDING THE QUICK BROWN FOX JUMPED OVER A LAZY DOG'S BACK 1234567890***SENDING DIS 28 THE QUICK BROWN FOX JUMPED OVER A LAZY DOG'S BACK 1234567890***SENDING THE QUICK BROWN FOX JUMPED OVER A LAZY DOG'S BACK 1234567890***SENDING DIS PAD THE QUICK BROWN FOX JUMPED OVER A LAZY DOG'S BACK 1234567890***SENDING THE QUICK BROWN FOX JUMPED OVER A LAZY DOG'S BACK 1234567890***SENDING GA RY | |
| 12a | If requirements of Step 11 are not met— Operate BREAK key once. | Undistorted test sentence is received. |
| 13a | Adjust potentiometer clockwise (CW) on regenerative repeater #1 card until errors are received or maximum adjustment of potentiometer is reached. Note position. | |
| 14a | Repeat Step 13a for counterclockwise rotation on potentiometer. Note position. | |
| 15a | Set potentiometer in center of the range obtained in Steps 13a and 14a. | Good copy received. |
| 16a | Operate BREAK key. | Programed test sentence is received. |
| 17 | Type approximately 10 RYs. <i>Note 1:</i> The 4A ADTL will check the transmitted distortion of the RYs and respond with: TRANS OK FLIP. <i>Note 2:</i> Steps 18 and 19 should be done in rapid succession to avoid disconnecting the 4A ADTL. | TTY responds. |
| 18 | Momentarily operate BREAK key. | |
| 19 | Remove CALL cord plug. | |
| 20 | Observe the following text: UNDIS THE QUICK BROWN FOX JUMPED OVER A LAZY DOG'S BACK 1234567890***SENDING THE QUICK BROWN FOX JUMPED OVER A LAZY DOG'S BACK 1234567890***SENDING DIS 28 THE QUICK BROWN FOX JUMPED OVER A LAZY DOG'S BACK 1234567890***SENDING THE QUICK BROWN FOX JUMPED OVER A LAZY DOG'S BACK 1234567890***SENDING | |

SECTION 211-802-501

| STEP | ACTION | VERIFICATION |
|-------------|--|---|
| | DIS PAD THE QUICK BROWN FOX JUMPED OVER A LAZY DOG'S BACK 1234567890***SENDING THE QUICK BROWN FOX JUMPED OVER A LAZY DOG'S BACK 1234567890***SENDING GA RY | |
| 21 | Type approximately 10 RYs. <i>Note 1:</i> The 4A ADTL will check the transmitted distortion of the RYs and respond with: TRANS OK. <i>Note 2:</i> The 4A ADTL will then inform the switchboard that the test is concluded with: TNX END. | TTY responds. |
| 22 | Wait for 4A ADTL to disconnect. | ANS supervisory, AUX SUPV lamps lighted. |
| 23 | Restore ANS key to normal. | |
| 24 | Remove ANS cord plug. | ANS supervisory, AUX SUPV lamps extinguished. |

Switchboard Arranged for 100-Speed

| | | |
|----|---|--|
| 25 | Select an idle cord in an idle switchboard position. | |
| 26 | Operate CALL key to TYPE. | |
| 27 | Insert CALL cord plug into test trunk A jack. | CALL supervisory, AUX SUPV lamps lighted. |
| 28 | Insert ANS cord plug into cord test trunk B jack. | |
| 29 | Momentarily operate KP key. | |
| 30 | Key directory number of 5A Automatic Data Test Line Circuit (5A ADTL). | |
| 31 | Momentarily operate ST key. | KP (green), S (amber) lamps lighted. |
| 32 | Wait for 5A ADTL to connect. | CALL supervisory, AUX SUPV lamps extinguished. |
| 33 | Operate ANS key to TYPE. | |
| 34 | Restore CALL key to normal. | |
| 35 | Observe the following text: THE QUICK BROWN FOX JUMPED OVER A LAZY DOG'S BACK 1234567890 # # UNDIST THE QUICK BROWN FOX JUMPED OVER A LAZY DOG'S BACK 1234567890 # # UNDIST THE QUICK BROWN FOX JUMPED OVER A LAZY DOG'S BACK 1234567890 # # SW-DIS THE QUICK BROWN FOX JUMPED OVER A LAZY DOG'S BACK 1234567890 # # SW-DIS | |

| STEP | ACTION | VERIFICATION |
|------|---|---|
| | <p>THE QUICK BROWN FOX JUMPED OVER A LAZY DOG'S BACK 1234567890 # # DISPAD THE QUICK BROWN FOX JUMPED OVER A LAZY DOG'S BACK 1234567890 # # DISPAD GA SEND</p> | |
| 36b | <p>If requirements of Step 35 are not met— Perform Steps 37 to 51.</p> | |
| 37b | <p>Select an idle circuit.</p> | |
| 38b | <p>Remove the regenerative repeater 1 card.</p> | |
| 39b | <p>Insert an extension card into the vacant slide position of regenerative repeater 1 card.</p> | |
| 40b | <p>Insert regenerative repeater 1 card into the extension card.</p> | |
| 41b | <p>Using a lead, (a clip on one side and a pin plug on the other side), connect the pin plug to the +5 test point on the regenerative repeater 2 card of any cord circuit except this one under test, and the clip lead to the No. 2 terminal on the regenerative repeater 1 card.</p> | |
| 42c | <p>If an electronic counter arranged to start-stop is available— Connect the input start of the counter to the SYNC test point of regenerative repeater 1 card and start on a positive (- to +) transition.</p> | |
| 43c | <p>Connect the output stop of the counter to the SYNC test point of regenerative repeater 1 card and stop on a negative (+ to -) transition. (On many counters a common access for start and stop is provided and then only one lead to the SYNC test point is necessary.) Care should be taken that the counter is set at the proper triggering level.</p> | <p>Reading on the counter is between 87 and 94 ms.</p> |
| 44d | <p>If requirements of Step 43 are not met— Adjust potentiometer clockwise on regenerative repeater 1 card.</p> | <p>Reading on the counter is between 80 and 87 ms.</p> |
| 45d | <p>Repeat Step 44d for counterclockwise rotation of potentiometer only until the verification is just met.</p> | <p>Reading on the counter is between 87 and 94 ms.</p> |
| | | <p>Note: When adjusting the potentiometer, the readings will jump in approximately 9.09 ms steps. It will not be possible to obtain linear readings with potentiometer adjustment. Any reading which falls within the 87 ms to</p> |

SECTION 211-802-501

| STEP | ACTION | VERIFICATION |
|------|--------|---|
| | | 94 ms range is acceptable and the potentiometer should be set so that the slightest adjustment will yield this acceptable reading. Hence, the desired adjustment is the high reading of crossover point between these ranges. |

46e If a dc oscilloscope is available—
Connect a probe to the SYNC test point of the regenerative repeater 1 card.

47e Connect trigger input of the oscilloscope to the SYNC test point of the regenerative repeater 1 card.
Set the SYNC switch for an external, negative trigger.
Adjust the time to 10 ms calibrated.
Adjust the triggering level until the trace of Fig. 1 is obtained.

Reading between the positive going and negative going transitions should be between 87 and 94 ms.

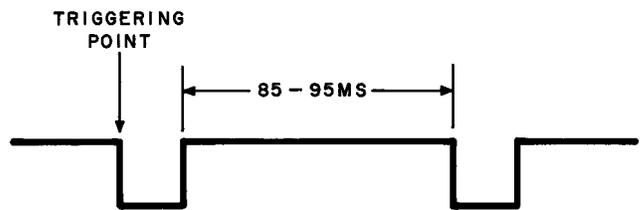


Fig. 1

48f If requirements of Step 47e are not met—
Adjust potentiometer clockwise of regenerative repeater 1 card.

Reading between the positive going and negative going transitions should be between 80 and 87 ms.

49f Repeat Step 48f for counterclockwise adjustment of potentiometer only until the verification is met.

Reading between the positive going and negative transitions should be between 87 and 94 ms.

50 Restore the cards to normal.

51 Repeat Steps 1 through 11.

52 Type any 20 characters.

TTY responds

Note 1: The 5A ADTL will check the transmitted distortion and respond with: 5% or 10% FLIP.

Note 2: Steps 53 and 54 should be performed in rapid succession to avoid disconnecting the 5A ADTL.

53 Momentarily operate BREAK key.

| STEP | ACTION | VERIFICATION |
|------|---|--|
| 54 | Remove CALL cord plug. | |
| 55 | Observe the following text: | |
| | THE QUICK BROWN FOX JUMPED OVER A LAZY DOG'S BACK 1234567890 # # UNDIST | |
| | THE QUICK BROWN FOX JUMPED OVER A LAZY DOG'S BACK 1234567890 # # UNDIST | |
| | THE QUICK BROWN FOX JUMPED OVER A LAZY DOG'S BACK 1234567890 # # SW-DIS | |
| | THE QUICK BROWN FOX JUMPED OVER A LAZY DOG'S BACK 1234567890 # # SW-DIS | |
| | THE QUICK BROWN FOX JUMPED OVER A LAZY DOG'S BACK 1234567890 # # DISPAD | |
| | THE QUICK BROWN FOX JUMPED OVER A LAZY DOG'S BACK 1234567890 # # DISPAD GA SEND | |
| 56 | Type any 20 characters. | TTY responds. |
| | <i>Note:</i> The 5A ADTL will check the transmitted distortion and respond with: 5% or 10% END. | |
| 57 | Wait for 5A ADTL to disconnect. | ANS supervisory, AUX SUPV lamps lighted. |
| 58 | Restore ANS key to normal. | |
| 59 | Remove ANS cord plug. | ANS supervisory, AUX SUPV lamps extinguished.◀ |

G. Error in Keypulse Procedure

| | | |
|----|--|----------------------------|
| 1 | Select an idle switchboard position. | |
| 2 | Operate ANS key 1 to TYPE. | |
| 3 | Insert ANS cord plug 1 into an idle answer interposition TTY trunk jack. | |
| 4 | Restore ANS key 1 to normal. | |
| 5 | Operate ANS key 2 to TYPE. | |
| 6 | Insert ANS cord plug 2 into outgoing interposition TTY trunk jack associated with that used in Step 3. | |
| 7 | Momentarily operate KP key. | KP lamp lighted. |
| 8 | Momentarily operate any digit key. | S lamp flashes at 120 IPM. |
| 9 | Restore all keys. | KP, S lamps extinguished. |
| 10 | Remove all plugs. | |

SECTION 211-802-501

| STEP | ACTION | VERIFICATION |
|-------------------------|---|--|
| H. Splitting Key | | |
| 1 | Select an idle supervisor desk and any two idle adjacent switchboard positions (POS A, POS B), arranged for the same speed. | |
| 2 | At supervisor desk— Originate a teletypewriter call to switchboard. | Incoming trunk lamp multiple at switchboard lighted. |
| 3 | At POS A— Operate ANS key 1 to TYPE. | |
| 4 | Insert ANS cord plug 1 into incoming trunk jack seized in Step 2. | Incoming trunk lamp extinguished, TTY connected. |
| 5 | Type on position TTY. | TTYs at position and supervisor desk respond. |
| 6 | Restore ANS key to normal. | |
| 7 | Operate CALL key 1 to TYPE. | |
| 8 | Insert CALL cord plug 1 into an outgoing interposition TTY trunk jack. | CALL supervisory, AUX SUPV lamps lighted. Interposition trunk lamp lighted. |
| 9 | Momentarily operate ST key. | |
| 10 | At POS B— Operate ANS key 1 to TYPE. | |
| 11 | Insert ANS cord plug 1 into answer interposition TTY trunk jack associated with lighted lamp of Step 9. | CALL supervisory, AUX SUPV lamps of POS A extinguished. Interposition trunk lamp extinguished. |
| 12 | Type on position TTY. | TTYs at POS A, POS B, and supervisor desk respond. |
| 13 | At POS A— Type on position TTY. | TTYs at POS A, POS B, and supervisor desk respond. |
| 14 | Operate SPLIT key to CALL. | |
| 15 | Type on position TTY. | TTYs at POS A, POS B respond. |
| 16 | Operate SPLIT key to ANS. | |
| 17 | Type on position TTY. | TTYs at POS A and supervisor desk respond. |
| 18 | Restore all circuits to normal. | |

| STEP | ACTION | VERIFICATION |
|---|---|--|
| I. Clear Key and Originating Subscriber Hold | | |
| 1 | Select any two idle adjacent switchboard positions, (POS A, POS B), arranged for the same speed. | |
| 2 | At POS B— Operate ANS key 1 to TYPE. | |
| 3 | Insert ANS cord plug 1 into No. 1 outgoing interposition TTY trunk jack. | AUX SUPV lamp lighted, interposition trunk lamp lighted. |
| 4 | Momentarily operate ST key. | |
| 5 | At POS A— Operate ANS key 1 to TYPE. | |
| 6 | Insert ANS cord plug 1 into No. 1 incoming interposition type trunk jack. | AUX SUPV lamp, interposition trunk lamp extinguished. |
| 7 | Restore ANS key 1 to normal. | |
| 8 | Operate CALL key 1 to TYPE. | |
| 9 | Insert CALL cord plug 1 into No. 2 outgoing interposition TTY trunk jack. | AUX SUPV lamp lighted, interposition trunk lamp lighted. |
| 10 | Momentarily operate ST key. | |
| 11 | At POS B— Restore ANS key 1 to normal. | |
| 12 | Operate ANS key 2 to TYPE. | |
| 13 | Insert ANS cord plug 2 into No. 2 incoming interposition TTY trunk jack. | AUX SUPV lamp, interposition trunk lamp extinguished. |
| 14 | Restore ANS key 2 to normal. | |
| 15 | Operate ANS key 1 to TYPE. | |
| 16 | Type character X. | TTY responds with character X. |
| 17a | If switchboard is arranged for 60-speed— At POS A— Operate CLEAR key for approximately 3 seconds. | At POS B— TTY should type three space characters after the character X, followed by any other character except a space. At POS A— TTY continues to space for the duration of period during which CLEAR key is operated. |

SECTION 211-802-501

| STEP | ACTION | VERIFICATION |
|-------------|--|---|
| 18b | If switchboard is arranged for 100-speed— At POS A— Operate CLEAR key for approximately 3 seconds. | At POS B— Tape advances three character lengths after character X. At POS A— TTY continues to space for period during which CLEAR key is operated. |
| 19b | Open teletypewriter cover, observe selector push levers. | The 6, 7, and 8 levers should be in marking position. |
| 20 | Restore all keys to normal, remove all plugs. | |

J. Recall Action

| | | |
|----|---|--|
| 1 | Select any two idle adjacent switchboard positions (POS A, POS B), arranged for the same speed. | |
| 2 | At POS B— Operate ANS key 1 to TYPE. | |
| 3 | Insert ANS cord plug 1 into an idle outgoing interposition TTY trunk jack. | AUX SUPV lamp lighted. |
| 4 | Momentarily operate KP key. | |
| 5 | At POS A— Operate ANS key 1 to TYPE. | |
| 6 | Insert ANS cord plug 1 into incoming interposition TTY trunk associated with that used in Step 3. | AUX SUPV lamp extinguished. |
| 7 | Restore ANS key 1 to normal. | |
| 8 | At POS B— Operate CLEAR key twice, each time for a period of approximately 1/2 second. | AUX SUPV, ANS supervisory lamps flash at 120 ipm at switchboard. |
| 9 | At POS A— Operate ANS key to TYPE. | AUX SUPV, ANS supervisory lamps extinguished. |
| 10 | Type on position TTY. | TTY responds. |
| 11 | Restore all keys to normal. | |
| 12 | Remove all plugs. | |

| STEP | ACTION | VERIFICATION |
|---|--|---|
| K. Telephone Mode | | |
| 1 | Contact and inform manual testboard of test to be performed. | |
| 2 | Select an idle switchboard position. | |
| 3 | Operate ANS key to TALK. | |
| 4 | Insert ANS cord plug into an idle outgoing trunk jack. | AUX SUPV lamp lighted. |
| 5 | Momentarily operate KP key. | KP, S lamps lighted. |
| 6 | Key directory number of telephone trunk at manual testboard. | |
| 7 | Momentarily operate ST key. | KP, S lamps extinguished. |
| 8 | Testboard answers. | AUX SUPV lamp extinguished. |
| 9 | Make certain a talking path is complete. | |
| 10 | Restore ANS key to normal. | |
| 11 | Remove ANS cord plug. | |
| 12 | Repeat Steps 4 through 11 using CALL cord. | |
| L. Cord Circuit—Transmission for F2 Mark | | |
| 1 | Operate ANS key to TYPE. | |
| 2 | Insert ANS cord plug into an idle outgoing interposition TTY trunk jack. | ANS supervisory, AUX SUPV lamps lighted. |
| 3 | Restore ANS key to normal. | |
| 4 | Remove ANS cord plug. | ANS supervisory, AUX SUPV lamps extinguished. |
| 5 | Operate CALL key to TYPE. | |
| 6 | At POS B— Operate ANS key to TYPE. | |
| 7 | Insert ANS cord plug into outgoing interposition TTY trunk jack. | AUX SUPV lamp lighted. Interposition trunk lamp lighted. |
| 8 | Momentarily operate ST key. | |

SECTION 211-802-501

| STEP | ACTION | VERIFICATION |
|-------------|--|---|
| 9 | Connect DIAL-309 jack of 2AB ♦auxiliary♦ transmission test set to incoming interposition TTY trunk jack seized in Step 8, using 3P3A cord. | |
| 10 | At POS A— Operate ANS key to TYPE. | |
| 11 | Insert ANS cord plug into MEAS-309 jack of 2AB ♦auxiliary♦ transmission test set. | TTY spaces, connects. Interposition trunk lamp extinguished. |
| 12 | Type on position TTY. | POS A, POS B TTYs respond. |
| 13 | Restore ANS cord keys on both POS A, POS B to normal. | |
| 14 | Restore DIAL-SLV key of 2AB ♦auxiliary♦ transmission test set to normal. | ♦23A♦ TMS reads -11.5 ± 1 dbm. |
| 15 | Remove ANS cord plugs of both POS A, POS B. | |
| 16 | Restore circuits to normal. | |

M. Cord Circuit—Transmission for F1 Mark

| | | |
|----|---|---|
| 1 | Operate ANS key to TYPE. | |
| 2 | Insert ANS cord plug into an idle outgoing interposition TTY trunk jack. | ANS supervisory, AUX SUPV lamps lighted. |
| 3 | Restore ANS key to normal. | |
| 4 | Remove ANS cord plug. | ANS supervisory, AUX SUPV lamps extinguished. |
| 5 | Operate CALL key to TYPE. | |
| 6 | Connect DIAL-309 jack of 2AB ♦auxiliary♦ transmission test set to outgoing interposition TTY trunk jack, using 3P3A cord. | |
| 7 | At POS A— Operate ANS key to TYPE. | |
| 8 | Insert ANS cord plug into MEAS-309 jack of 2AB ♦auxiliary♦ transmission test set. | ANS supervisory, AUX SUPV, and interposition trunk lamps lighted. |
| 9 | Momentarily operate ST key. | |
| 10 | At POS B— Operate ANS key to TYPE. | |

| STEP | ACTION | VERIFICATION |
|---|---|---|
| 11 | Insert ANS cord plug into interposition trunk jack seized in Step 8. | ANS supervisory, AUX SUPV of POS A extinguished. Interposition lamp extinguished. TTY spaces momentarily, connects. |
| 12 | Type on position TTY. | POS A, POS B TTYs respond. |
| 13 | Restore ANS cord keys on both POS A, POS B. | |
| 14 | Restore DIAL-SLV key of 2AB \blacklozenge auxiliary \blacklozenge transmission test set to normal. | \blacklozenge 23A \blacklozenge TMS reads -15.5 ± 1 dbm. |
| 15 | Remove ANS cord plugs of both POS A, POS B. | |
| 16 | Restore circuits to normal. | |
| N. Restraint Detect and Transmit (\blacklozenge100-Speed\blacklozenge Only) | | |
| 1 | Select an idle supervisory desk and an idle switchboard \blacklozenge arranged for 100-speed. \blacklozenge | |
| 2 | At supervisor desk— Originate a teletypewriter call to switchboard. | Incoming trunk lamp lighted. |
| 3 | At switchboard— Operate ANS key 1 to TYPE. | |
| 4 | Insert ANS cord plug 1 into incoming trunk jack seized in Step 2. | Incoming trunk lamp extinguished. |
| 5 | Type on position TTY. | TTYs at position and supervisor desk respond. |
| 6 | Restore ANS key 1 to normal. | |
| 7 | Operate CALL key 1 to TYPE. | |
| 8 | Insert CALL cord plug 1 into an idle outgoing trunk. | CALL supervisory, AUX SUPV lamps lighted. |
| 9 | Momentarily operate KP key. | KP, S lamps lighted. |
| 10 | Key directory number of \blacklozenge 5A \blacklozenge ADTL. | |
| 11 | Momentarily operate ST key. | KP, S lamps extinguished. |
| 12 | Wait for \blacklozenge 5A \blacklozenge ADTL to connect. | CALL supervisory, AUX SUPV lamps extinguished. |
| 13 | Restore CALL key 1 to normal. | |

SECTION 211-802-501

| STEP | ACTION | VERIFICATION |
|------|--|--|
| 14 | At supervisor desk— Observe following test. | |
| | <p>THE QUICK BROWN FOX JUMPED OVER A LAZY DOG'S BACK 1234567890 # # UNDIST THE QUICK BROWN FOX JUMPED OVER A LAZY DOG'S BACK 1234567890 # # UNDIST THE QUICK BROWN FOX JUMPED OVER A LAZY DOG'S BACK 1234567890 # # SW-DIS THE QUICK BROWN FOX JUMPED OVER A LAZY DOG'S BACK 1234567890 # # SW-DIS THE QUICK BROWN FOX JUMPED OVER A LAZY DOG'S BACK 1234567890 # # DISPAD THE QUICK BROWN FOX JUMPED OVER A LAZY DOG'S BACK 1234567890 # # DISPAD GA SEND</p> | |
| 15 | <p>Type any combination of characters continuously until keyboard is locked out.</p> <p><i>Note 1:</i> The 5A ADTL will check the transmitted distortion of the transmitted letters and respond with: 5% or 10% FLIP.</p> <p><i>Note 2:</i> Since this is not a normal call it will not be possible to FLIP this call.</p> | <p>TTY responds. REST lamp lighted. REST lamp extinguished. BREAK lamp lighted.</p> |
| 16 | Momentarily depress CLEAR key. | <p>At supervisor desk— BREAK lamp extinguished. TTY disconnects. At switchboard arranged for 100-speed— AUX SUPV lamp lighted.</p> |
| 17 | At switchboard— Restore all cords to normal. | AUX SUPV lamp extinguished. |
| 18 | Operate CALL key 1 to TYPE. | |
| 19 | Insert CALL cord plug 1 into an idle supervisor teletypewriter trunk. | CALL supervisory, AUX SUPV lamps lighted. |
| 20 | Momentarily operate ST key. | |
| 21 | At supervisor desk— Answer call from switchboard. | TTY connects, CALL supervisory and AUX SUPV lamps extinguished. |
| 22 | At switchboard— Restore CALL key 1 to normal. | |
| 23 | Operate ANS key 1 to TYPE. | |
| 24 | Insert ANS cord plug 1 into an idle outgoing trunk. | AUX SUPV lamp lighted. |
| 25 | Momentarily operate KP key. | KP, S lamps lighted. |
| 26 | Key directory number of 5A ADTL. | |

| STEP | ACTION | VERIFICATION |
|------|------------------------------|-----------------------------|
| 27 | Momentarily operate ST key. | KP, S lamps extinguished. |
| 28 | Wait for 5A ADTL to connect. | AUX SUPV lamp extinguished. |
| 29 | Restore ANS key 1 to normal. | |
| 30 | Repeat Steps 14 through 17. | |