INTERCEPTING AND SPECIAL SERVICE CORD CIRCUITS
OPERATION TEST USING TESTING CIRCUIT SD-31025-01 OR SD-90501-01
STEP-BY-STEP SYSTEMS

1. GENERAL

1.01 This section describes a method of making operating tests of intercepting special service and combined intercepting and special service cord circuits. These tests are based on the use of cord test circuit SD-31025-01 or SD-90501-01.

1.02 This section is reissued to incorporate material from the addendum in its proper location. In this process marginal arrows have been omitted.

1.03 The tests covered are:

(A) Talking and Supervision Test

(B) Busy Test

(C) Ringing Test

(D) Flashing Recall Signal Test

(E) Message Register Test

(F) Coin Control Test

(G) Tripping and Flashing Test

(H) Intercepting Test from Toll

(I) Test for False Pulse Generation

1.04 Tests D, G, and H are applicable to intercepting cords.

1.05 Tests A to D, H, and I are applicable to special service cords.

1.06 Tests A to I are applicable to combined intercepting and special service cords.

2. APPARATUS

All Tests

2.01 Operator's Telephone Set (Except Tests (D) to (F)).

2.02 Cord Testing Circuit SD-31025-01 or SD-90501-01.

Test (A)

2.03 Connector Multiple Test Line Circuit.

Tests (E), (F), and (H)

2.04 No. 716E Receiver equipped with a No. R2CU Cord and a No. 309 Plug (2W29A Cord) or with a No. R2CF Cord and a No. 310 Plug (2W4A Cord).

Test (G)

2.05 Dial Hand Test Set No. 1011G connected to a cord equipped with a W2CK Cord, 471A Jack and 310 Plug (2W38A Cord) or a cord made locally consisting of an R2CU Cord and a No. 309 Plug (2W29A Cord) and 471A Jack.

3. METHOD

(A) Talking and Supervision Test

3.01 This test checks the operation of cord, position and operator's telephone circuits by connecting the operator to a called number. It also checks the cord supervision.

3.02 Connect an operator's telephone set to the telephone jacks of the position under test.

3.03 Insert the calling cord under test into the jack of an idle outgoing trunk to the local dial office. The calling cord supervisory lamp lights. Operate the talking key.

3.04 Originate a call to the connector multiple test line circuit in the local office, by using the key set after depressing the

KP key and observing the sender lamp lights before keying digits or by using the positional dial. The interrupted tone supplied by the test line circuit should be heard in the operator's receiver and the calling cord supervisory lamp should flash in unison with the tone interruptions. Restore the talking key and operate the monitoring key. Note that tone is heard in the receiver. Restore the monitoring key and remove the cord from the jack.

(B) Busy Test

3.05 This test checks the operation of the busy test feature of cord and operator's telephone circuit.

3.06 With an operator's telephone set connected to the telephone jacks of the position, insert the answering cord under test into the RING-TEST jack of the cord testing circuit. Note that the back supervisory lamp lights.

3.07 With the talking key normal, touch the tip of the calling cord to the sleeve of the cord in the jack. Note that a click is heard in the receiver.

3.08 Restore the talking key and remove the cord from the jack.

(C) Ringing Test

3.09 This test checks the operation of the ringing key and the control of ringing polarity by the master ringing key. It also checks for ring-off supervision when the feature is provided for use with rural lines.

Answering Cords

3.10 Insert the answering cord under test into the RING-B or RING-F jack of the cord testing circuit. Operate the ringing key associated with the cord, and a master key if provided. Observe that the correct test bell rings or test lamp lights. Repeat this test, using each of the other master ringing keys, once for each operator's position. Remove the cord from the jack.

Note: With cord testing circuit SD-31025-01 test line jack RING-B is used when 4-party full selective ringing is employed and test jack RING-F when semiselective ringing is employed. With cord testing circuit SD-90501-01 use test jack RING-TEST.

Calling Cord

3.11 With an operator's telephone set connected to the telephone jacks of the position, insert an answering cord with talking key operated into the REC jack of the cord test circuit.

3.12 Insert the answering cord under test into the CON jack and the calling cord into RING-B or RING-F jack of the cord testing circuit SD-31025-01 or the RING-TEST jack of the cord testing circuit SD-90501-01. Operate the associated ringing key, and a master ringing key if provided, and observe that correct test line bell rings or test lamp lights, also that audible ringing if provided is heard in the receiver of the operator's telephone set. Repeat this test, using each of the other master ringing keys, once for each operator's position. Remove the cords from the test jacks.

Ring-Off Signal Test - With Cord Testing Circuit SD-31025-01

3.13 When ring-off signal feature is provided insert the cord under test into the RING-SUP jack. Observe that the supervisory lamp is not lighted. When testing calling cords, operate the ringing key momentarily to prepare the cord for ring-off supervision.

3.14 Insert a calling cord into the RING-B jack of the cord testing circuit. Operate and release the associated ringing key. Observe that the supervisory lamp of the cord under test lights indicating proper operation of the ring-off feature.

3.15 Operate the talking key of the cord under test and observe that the supervisory lamp is extinguished. Remove the cords from the test jacks.

(D) Flashing Recall Signal Test

3.16 This test checks the operation of the cord circuit to provide a flashing and audible signal to the operator when the calling subscriber desires to recall the operator.

3.17 Insert the answering cord under test into the CON jack of the cord testing circuit and observe the supervisory lamp. If it flashes and the audible flashing recall signal sounds, proceed according to 3.19.

3.18 If the lamp does not flash when the connection is made to the CON jack, operate and release the answering cord ringing key to

bring in the recall signal. Observe that the supervisory lamp flashes and the audible flashing recall signal sounds.

3.19 Operate the talking key. The supervisory lamp should stop flashing and remain extinguished. The audible signal should stop.

3.20 Restore the talking key and remove the cord from the jack.

(E) Message Register Test

3.21 This test checks the operation of cord circuits arranged to operate the message register by the operation of the coin collect key.

3.22 Insert the plug of the cord attached to the receiver into the REC jack of the cord testing circuit.

3.23 Insert the answering cord under test into the MR jack of the cord testing circuit. Observe that low tone is heard in the receiver.

3.24 Operate the cord coin collect key. Observe that the message register pilot (green) lamp lights and that the low tone has changed to high tone when the coin collect key is released, indicating that the cord circuit has functioned to operate the message register.

3.25 Remove the cords from the jacks of the cord testing circuit.

(F) Coin Control Test

3.26 This test checks the application of the correct polarity of coin collect and return potential.

3.27 Insert the plug of the cord attached to the receiver into the REC jack of the cord testing circuit.

3.28 Insert the plug of the answering cord under test into the COIN jack of the cord testing circuit. Operate the coin collect key of the cord under test. Observe that the coin pilot lamp lights and note that low tone is heard in the receiver. Release the coin collect key. On this test an operate test is applied to the position coin collect relay and the lighting of the pilot lamp indicates the proper operation of the relay. The fact that the tone is heard in the receiver indicates that the coin collect current was applied to both tip and ring of the cord and that the polarity was correct for collecting a coin.

3.29 Operate the coin return key of the cord under test. Observe that the coin pilot lamp lights and note that high tone is heard in the receiver. On this test an operate test is applied to the position coin return relay. Release the coin return key and remove the answering cord from the COIN jack.

3.30 Using one cord circuit per position, insert the answering cord plug into the RING-TEST jack. Apply the non-operate test to the coin relays by separately operating and releasing the coin collect and coin return keys associated with this cord circuit and observe that the coin pilot lamp does not light. If the coin pilot lamp lights, remove the plug of the cord from the RING-TEST jack and partially reinsert the plug so that the tip of the plug just engages the ring spring of the jack. Separately operate and release the coin collect and coin return keys. If the coin pilot lamp does not light under this condition the coin relays should be considered satisfactory.

Note 1: In offices where the cord circuits are arranged for message register operation, it will be necessary to operate the position master coin key in addition to the cord coin collect or return key when performing tests 3.27 to 3.30.

Note 2: In offices where cord testing circuit SD-31025-01 and negative current is used for coin collect high tone will be heard instead of low tone as in 3.28. The positive current used for coin return will cause low tone to be heard instead of high tone as in 3.29.

(G) Tripping and Flashing Test

3.31 This test checks that ringing is tripped within the proper time interval and that the talking path is cut through to the operator's telephone circuit. The ability to flash the originating operator's supervisory lamp is also checked.

With Cord Testing Circuit SD-90501-01

3.32 With an operator's telephone set connected to the telephone jacks of the position, insert the plug of the answering cord under test into the TRIP jack of the cord testing circuit.

3.33 Operate the talking key of the cord circuit. Low tone should be heard, indicating that tripping condition was properly applied. If an interrupted high tone is heard,

it is an indication that the tripping condition was maintained too long. Failure to hear any tone would indicate that the cut-through feature of the cord had not functioned.

3.34 Restore the talking key. Remove the plug of the answering cord under test from the TRIP jack.

3.35 Operate the talking key and insert the plug of the answering cord under test into the FLASH jack of the cord testing circuit. Note that low tone is heard indicating that ringing has tripped within the proper time interval. If an interrupted high tone is heard, it is an indication that the tripping condition was not removed in the cord circuit soon enough. Failure to hear any tone would indicate that the cut-through feature of the cord circuit has not functioned.

3.36 When low tone is heard operate the flashing key several times and note that after the first operation, a short period of low tone is heard each time the flashing key is released. If an interrupted high tone is heard, it is an indication that the flashing relays functioned too slowly. Remove the answering cord from the FLASH jack.

Note: In some offices, when performing tests 3.32, 3.33 and 3.35, 3.36, it may be necessary to operate the talking key before inserting the plug of the answering cord under test into the TRIP or FLASH jack to prevent a false operation of the cord testing circuit.

With Cord Testing Circuit SD-31025-01

3.37 With an operator's telephone set connected to the telephone jacks of the position, operate the talking key of the cord to be tested.

Local - Cords Not Arranged for Completing Intercepted Calls

3.38 With cord circuits arranged to give supervision, insert the plug of the answering cord under test into the LOCAL jack of the cord testing circuit. Low tone should be heard, indicating that the tripping condition was removed. If high tone is heard it indicates that ringing was not tripped or the tripping bridge was applied for too long an interval.

3.39 If the tripping feature has operated correctly and low tone is heard, operate and release the flashing key. The low tone should change to high tone on each operation of the key indicating that the flash feature has operated correctly. Remove the answering cord from the LOCAL test jack.

Local - Cords Arranged for Completion of Intercepted Calls

3.40 Insert the plug of the answering cord under test into the LOCAL jack of the cord testing circuit. Low tone should be heard, indicating that the tripping condition has been removed. Failure to hear tone indicates a failure of the tripping feature or that the tripping bridge was applied for too long an interval. If low tone is heard operate the TR key and high tone should be heard indicating correct operation of the cord circuit.

3.41 In making the flashing test proceed as in 3.40 except the operating of TR key. When low tone is heard operate the flashing key and note that the low tone changes to high and is locked in and further operation of the flashing key is ineffective. Remove the answering cord from the LOCAL test jack.

Toll - Cords Not Arranged for Completing Intercepted Calls

3.42 Insert the plug of the answering cord under test into the TOLL jack of the cord testing circuit. Low tone should be heard indicating that the tripping condition was removed. If high tone is heard a failure of the tripping feature is indicated.

3.43 If low tone is heard operate the flashing key several times and observe that the low tone changes to high tone on each operation of the key. Remove the answering cord from the TOLL jack.

Toll - Cords Arranged for Completing Intercepted Calls

3.44 Insert the plug of the answering cord under test into the TOLL jack of the cord testing circuit. High tone should be heard in the receiver. Operate the positional TR key. The high tone should change to low tone. If high tone continues a failure is indicated.

3.45 In making the flashing test proceed as in 3.41 except for the operation of the TR key. When high tone is heard operate the flashing key several times and observe that high tone is changed to low tone on each operation of the flashing key.

In Offices Where Intercepting Cord Circuit SD-32078-01 Is Provided

Local

3.46 Insert the plug of the answering cord under test into the LOCAL jack of the cord testing circuit. Low tone should be heard in the operator's telephone receiver indicating that the tripping condition has been removed. If high tone is heard, it indicates a failure of the cord tripping failure or a reversed tip and ring.

3.47 Insert the 310 or 309 plug of the cord connected to the hand test set into a multiple appearance of the LOCAL jack. Operate and release the flash key two or three times while listening on the dial hand test set with condenser key normal. Low tone should continue. High tone during the operation of the flash key indicates false return of supervision. Remove the dial hand test set and answering cord from the LOCAL jack.

Toll

3.48 Insert the 310 or 309 plug of the cord connected to the hand test set into a multiple appearance of the TOLL jack of the cord testing circuit.

3.49 Insert the plug of the answering cord under test into the TOLL jack of the cord testing circuit. High tone should be heard in the receiver of the dial hand test set and of the operator's telephone set with equal volume. A momentary spurt of low tone is heard until the cord circuit cuts through to the high tone. Low volume in the dial hand test set receiver indicates a failure of the cord circuit to furnish identification tone.

3.50 If high tone is heard with equal volume in the receiver of the dial hand set and operator's telephone set operate the flashing key and note that high tone is removed from the operator's telephone receiver. While the flash key is operated, listen on the dial hand test set receiver and note that low tone is received from the test circuit, indicating that supervision is returned during the operation of the flashing key. Check that high tone is received on the release of the flashing key, indicating that supervision is not returned. Remove the dial hand test set and answering cord from the TOLL jack.

(H) Intercepting Test from Toll

3.51 This test checks the operation of the cord and position circuits to provide a tone indication to the operator when an intercepted call is received from the toll operator.

3.52 With an operator's telephone set connected to the telephone jacks of the position insert an answering cord with talking key operated or insert the plug of the cord attached to the receiver into the REC jack of the cord testing circuit.

3.53 Insert the answering cord to be tested, with the talking key normal, into the SUP jack of the cord testing circuit SD-31025-01 or the TOLL jack of the cord testing circuit SD-90501-01. Low tone heard in the receiver of the cord connected to the REC jack indicates that the 10,000-ohm resistance to ground feature of the cord circuit has operated correctly and will function with a toll switching trunk arranged to give a tone indication.

3.54 Remove the receiver cord or answering cord from the REC jack and restore the talking key.

3.55 Operate the talking key of the cord under test and observe that low tone is heard indicating that the cord, position and operator telephone circuits have operated correctly. If no tone is heard a failure of the cord, position or operator's telephone circuit is indicated.

3.56 Operate and restore the positional TR or cord flashing key and observe that low tone ceases.

3.57 Remove the answering cord from the testing circuit jack SUP or TOLL.

I. Test for False Pulse Generation

3.58 This test checks for open periods in the dial loop to a distant sender type office which would be of a duration long enough to allow the pulsing relay in the sender register circuit to momentarily release.

3.59 Insert the switchboard cord under test into the FP jack of the test circuit.

3.60 Operate the talk key.

3.61 Pull the dial off normal far enough to light the cord supervisory lamp. (The dial should not be operated far enough to allow the digit "1" to be sent out since this pulse would allow relay L in the test circuit to release.)

3.62 After a slight pause release the dial; the supervisory lamp should be extinguished. If the supervisory lamp remains lighted, this is an indication that an open which might cause a false pulse has occurred and the splitting relay of the cord circuit requires adjustment.

3.63 In order to repeat the test when no false pulse has been indicated, operate the dial off normal and release it as described in Paragraphs 3.61 and 3.62.

3.64 To repeat the test when a false pulse has been indicated, remove the cord from, and reinsert it into, the FP jack and proceed as in Paragraphs 3.61 and 3.62.

3.65 Restore the talking key and remove the cord from the jack.

4. REPORTS

4.01 The required record of these tests should be entered on the proper form.