

407-TYPE MULTIPLE DATA STATION USING 2B AUTOMATIC CALL DISTRIBUTOR SYSTEM TEST

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1. GENERAL

1.01 This section describes the test procedures and associated test requirements to be met at the time of installation or when investigating trouble conditions associated with the 407-type multiple data station using the 2B automatic call distributor (ACD).

1.02 This section is reissued to change "407A-type" data station to "407-type" data station.

1.03 Before proceeding with any test, verify that the data loops have been tested and meet requirements specified in the section entitled Data Systems—Dataphone® Service on Direct Distance Dialing Network—Test Requirements for Subscriber, Foreign Exchange, and Remote Exchange Lines (314-205-501) or Voice Bandwidth Private Line Data Circuits—Tests and Requirements (314-410-500).

1.04 When test or demonstration calls are made, refer to the section entitled Crediting Charges

on Test Calls (010-250-001) for the proper procedure for crediting charges.

1.05 The following is a list of test equipment necessary to perform the tests outlined in this section:

- 914-type data test set (DTS)
- ACD test set (J5313AG).



The following test procedures require coordination with the local private branch exchange (PBX) telephone company (telco) employee(s) when installing and/or troubleshooting the 2B ACD while working with the 407-type multiple data station.

1.06 Lettered Steps: A letter a, b, c, etc, added to a step number of the following part 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 PROCEDURE column, and all steps governed by the same condition are designated by the same letter within the test. Where a condition does not apply, all steps designated by that letter should be omitted.

2. VERIFICATION TEST FOR NEW SYSTEMS

2.01 The following test procedure is used for new system installations.

| STEP | PROCEDURE |
|------|-----------|
|------|-----------|



This test procedure should be read and fully understood prior to testing. A maximum of three telco employees (located at the data station, 2B ACD, and referral station) may be required for the test. If the telco employees are not within talking distance, communications between the telco employees will be required for testing.

| STEP | PROCEDURE |
|------|---|
| | At Data Station |
| 1 | Perform local and remote tests on all data sets per Section 594-800-500 or label on the 41-type data mounting. |
| | At 2B ACD |
| 2 | Verify that all incoming trunks are checked per Section 476-270-503 entitled 2B Automatic Call Distributor Operational Test. |
| | At Referral Position |
| 3 | Make referral station No. 0 (transfer trunk No. 0) available by operating the exclusion key on referral telephone to ON. Make all other referral stations unavailable by operating the exclusion key to OFF. |
| | At Data Station |
| 4 | Apply power to 914-type DTS. |
| 5 | Condition 914-type DTS matrix by inserting programming pins as follows: <ul style="list-style-type: none">● GRD—1 and 24● S1—22● DS1—3● DS2—4● S2—21● DS3—5● S3—20● DS4—6● DS5—9● S4—15● S5—25● DS6—10● DS7—11● DS8—12 |

| STEP | PROCEDURE |
|------|--|
| 6 | Operate INTERFACE MODE switch to VOLTAGE. <i>Note:</i> The following switch settings on the 914-type DTS (ie, lettered Steps a or b) are necessary because of the reverse logic of the two optional interfaces provided by data set 407-type. |
| 7a | If option H [(Electronic Industries Association) EIA interface] is installed in data set— Operate S1 through S5 (on 914-type DTS) to down position (OFF). |
| 8b | If option J (contact equivalent interface) is installed in data set— Operate S1 through S5 (on 914-type DTS) to up position (OFF). <i>Note:</i> The following must be read and understood before proceeding. (a) If option H (EIA interface) is installed in the data set, DS1 through DS8 are normally lighted and go off when data is received. S1 through S5 are operated down for the OFF condition and up for the ON condition . (b) If option J (contact equivalent interface) is installed in the data set, DS1 through DS8 (on 914-type DTS) are normally off and light when data is received. S1 through S5 are operated up for the OFF condition and down for the ON condition . |
| 9 | Connect 914-type DTS to first data set mounted in far left slot on 41-type data mounting. At 2B ACD |
| 10 | Call into the 2B ACD incoming trunk using the ACD test set. <i>Requirement:</i> The data set will not answer until Step 11 is performed at the data station. At Data Station |
| 11 | Operate S1 (914-type DTS) to ON condition (see note after Steps 6 or 8b). <i>Requirements:</i> (a) Data set answers (ringing tripped) (b) MR LED lights on front of data set. At 2B ACD <i>Requirement:</i> 2025-Hz tone is heard. At Data Station |
| 12 | Operate S2 to ON condition. |
| 13 | Operate S3 to ON condition. |

STEP

PROCEDURE

At 2B ACD

Requirement: 2025-Hz tone is heard.

At Data Station

14 Operate S3 to OFF condition.

At 2B ACD

Requirement: 2025-Hz tone stops.

Note: The above step checks the ability of the data set to answer a call and checks answer-back.

15 Depress and hold Touch-Tone® pushbutton 1 on the ACD test set.

At Data Station**Requirements:**

- DP LED lights on data set receiving the Touch-Tone signal.
- DS1 and DS5 (A1 and B1 outputs) flash once.

Note: Step 15 checks that a Touch-Tone signal can be transmitted through the 2B ACD to the data set.

16 Operate S4 to ON condition.

Requirement: DS1 and DS5 lamps (on 914-type DTS) flash twice. AR LED on data set and associated lamp on data connecting circuit light.

At Referral Position

Requirement: After the 2-digit code is received at the data station, the referral telephone rings.

17 Answer the referral telephone and verify talking path.

Requirement: There is a 3-way bridge connection between the data set, ACD test set, and referral telephone.

Note: If the double flash of the DS1 and DS5 lamps cannot be recognized in Step 16, hang up referral telephone and repeat Steps 16 and 17.

At 2B ACD

18 Input Touch-Tone signals via the ACD test set.

STEP

PROCEDURE

At Data Station

Requirement: Touch-Tone signals are received at data set under test.

19 Operate S1 through S4 to OFF condition.

Requirement: The data set releases from the call.

At Referral Position

20 Talk into the referral telephone.

Requirement: There is still a talking path between the referral telephone and the ACD test set (or originating Touch-Tone telephone).

21 Hang up the referral telephone.

At Data Station

22 Disconnect 914-type DTS from data set under test and connect to next data set to be tested.

23 Repeat Steps 10 through 22 for all other data sets, ***except the last data set to be checked.***

24 For ***last data*** set to be tested, complete Steps 10 through 15 and proceed to next step.

At Referral Position

25 Make referral station No. 0 unavailable by operating the exclusion key on referral telephone to OFF.

26 Make referral station No. 1 available by operating the exclusion key on referral telephone to ON.

At Data Station

27 Operate S4 (on 914-type DTS) to ON condition.

Requirement: See Table A for station No. 1. (DS1 and DS5 lamps flash, then DS1 and DS6 lamps flash). AR LED on data set and associated green lamp on data connecting circuit light.

At Referral Position

Requirement: After the 2-digit code is received at the 914-type DTS, the referral telephone rings.

28 Answer the referral telephone and talk.

STEP

PROCEDURE

TABLE A

LAMP FLASHING SEQUENCE

| STATION | NUMERIC CODE | LAMP FLASHES | STATION | NUMERIC CODE | LAMP FLASHES |
|---------|--------------|----------------------|---------|--------------|----------------------|
| 0 | 11 | (DS1-DS5), (DS1-DS5) | 24 | 41 | (DS2-DS5), (DS1-DS5) |
| 1 | 12 | (DS1-DS5), (DS1-DS6) | 25 | 42 | (DS2-DS5), (DS1-DS6) |
| 2 | 13 | (DS1-DS5), (DS1-DS7) | 26 | 43 | (DS2-DS5), (DS1-DS7) |
| 3 | 14 | (DS1-DS5), (DS2-DS5) | 27 | 44 | (DS2-DS5), (DS2-DS5) |
| 4 | 15 | (DS1-DS5), (DS2-DS6) | 28 | 45 | (DS2-DS5), (DS2-DS6) |
| 5 | 16 | (DS1-DS5), (DS2-DS7) | 29 | 46 | (DS2-DS5), (DS2-DS7) |
| 6 | 17 | (DS1-DS5), (DS3-DS5) | 30 | 47 | (DS2-DS5), (DS3-DS5) |
| 7 | 18 | (DS1-DS5), (DS3-DS6) | 31 | 48 | (DS2-DS5), (DS3-DS6) |
| 8 | 21 | (DS1-DS6), (DS1-DS5) | 32 | 51 | (DS2-DS6), (DS1-DS5) |
| 9 | 22 | (DS1-DS6), (DS1-DS6) | 33 | 52 | (DS2-DS6), (DS1-DS6) |
| 10 | 23 | (DS1-DS6), (DS1-DS7) | 34 | 53 | (DS2-DS6), (DS1-DS7) |
| 11 | 24 | (DS1-DS6), (DS2-DS5) | 35 | 54 | (DS2-DS6), (DS2-DS5) |
| 12 | 25 | (DS1-DS6), (DS2-DS6) | 36 | 55 | (DS2-DS6), (DS2-DS6) |
| 13 | 26 | (DS1-DS6), (DS2-DS7) | 37 | 56 | (DS2-DS6), (DS2-DS7) |
| 14 | 27 | (DS1-DS6), (DS3-DS5) | 38 | 57 | (DS2-DS6), (DS3-DS5) |
| 15 | 28 | (DS1-DS6), (DS3-DS6) | 39 | 58 | (DS2-DS6), (DS3-DS6) |
| 16 | 31 | (DS1-DS7), (DS1-DS5) | 40 | 61 | (DS2-DS7), (DS1-DS5) |
| 17 | 32 | (DS1-DS7), (DS1-DS6) | 41 | 62 | (DS2-DS7), (DS1-DS6) |
| 18 | 33 | (DS1-DS7), (DS1-DS7) | 42 | 63 | (DS2-DS7), (DS1-DS7) |
| 19 | 34 | (DS1-DS7), (DS2-DS5) | 43 | 64 | (DS2-DS7), (DS2-DS5) |
| 20 | 35 | (DS1-DS7), (DS2-DS6) | 44 | 65 | (DS2-DS7), (DS2-DS6) |
| 21 | 36 | (DS1-DS7), (DS2-DS7) | 45 | 66 | (DS2-DS7), (DS2-DS7) |
| 22 | 37 | (DS1-DS7), (DS3-DS5) | 46 | 67 | (DS2-DS7), (DS3-DS5) |
| 23 | 38 | (DS1-DS7), (DS3-DS6) | 47 | 68 | (DS2-DS7), (DS3-DS6) |

| STEP | PROCEDURE |
|------|---|
| | <p>Requirement: There is a 3-way bridge connection between the data set, ACD test set or originating Touch-Tone telephone, and referral telephone.</p> <p>Note: If the flash on the lamps in Step 27 cannot be recognized, hang up referral telephone and repeat Steps 27 and 28.</p> |
| 29 | Hang up referral telephone. |
| | At Data Station |
| 30 | Operate S4 to OFF condition. |
| | At Referral Position |
| 31 | For referral stations 2 through 48, make each referral station available one at a time and repeat Steps 27 through 30 for each referral station checking for appropriate identification code per Table A. |
| | <p>Note: Table A contains the proper lamp combination (codes) for 48 referral stations although most installations will have fewer.</p> <p>At Data Station</p> |
| 32 | Operate S1 through S4 to OFF condition. |
| 33 | Remove test equipment. |
| 34 | End of test. |

3. VERIFICATION TEST FOR ADDITIONS TO SERVICE

3.01 The following test procedure is used for additions of new data sets and/or referral positions to an existing 407-type multiple data

station using a 2B ACD. The referral test for the new data set and the test for new referral positions may require a service interruption upon customer approval.

| STEP | PROCEDURE |
|------|-----------|
|------|-----------|

DATA SET AND ATTENDANT TRUNK TEST



This test procedure should be read and fully understood prior to testing. A maximum of three telco employees (located at the data station, 2B ACD, and referral station) may be required for the test. If the telco employees are not within talking distance, communications between the telco employees will be required for testing.

| STEP | PROCEDURE |
|--|--|
| At Data Station | |
| 1 | Perform a local test on all new data sets per Section 594-800-500 or label on the 41-type data mounting. |
| 2 | Apply power to 914-type DTS. |
| 3 | Condition the 914-type DTS matrix by inserting programming pins as follows: <ul data-bbox="313 642 529 1493" style="list-style-type: none"><li data-bbox="313 642 529 667">● GRD—1 and 24<li data-bbox="313 705 423 730">● S1—22<li data-bbox="313 768 431 793">● DS1—3<li data-bbox="313 831 431 856">● DS2—4<li data-bbox="313 894 423 919">● S2—21<li data-bbox="313 957 431 982">● DS3—5<li data-bbox="313 1020 423 1045">● S3—20<li data-bbox="313 1083 431 1108">● DS4—6<li data-bbox="313 1146 431 1171">● DS5—9<li data-bbox="313 1209 423 1234">● S4—15<li data-bbox="313 1272 423 1297">● S5—25<li data-bbox="313 1335 444 1360">● DS6—10<li data-bbox="313 1398 444 1423">● DS7—11<li data-bbox="313 1461 444 1486">● DS8—12 |
| 4 | Operate INTERFACE MODE switch to VOLTAGE. |
| Note: The following must be read and understood before proceeding. | |
| (a) If option H (EIA interface) is installed in the data set, DS1 through DS8 are normally lighted and go off when data is received. <i>S1</i> through <i>S5</i> are operated down for the OFF condition and up for the ON condition . | |
| (b) If option J (contact equivalent interface) is installed in the data set, DS1 through DS8 (on 914-type DTS) are normally off and light when data is received. <i>S1</i> through <i>S5</i> are operated up for the OFF condition and down for the ON condition . | |

| STEP | PROCEDURE |
|------|--|
| 5 | Connect 914-type DTS to the first <i>new</i> data set to be tested. At 2B ACD <i>Note:</i> Check all new incoming trunks per Section 476-270-503 entitled 2B Automatic Call Distributor Operational Test. |
| 6 | Call into the 2B ACD <i>attendant trunk</i> associated with data set under test using the ACD test set. <i>Requirement:</i> No answer until Step 7 is performed. At Data Station |
| 7 | Operate S1 (on 914-type DTS) to ON condition. <i>Requirements:</i> (a) Data set answers. (b) After a delay MR LED on data set lights. At 2B ACD <i>Requirement:</i> 2025-Hz tone is heard for about 1.5 seconds. At Data Station |
| 8 | Operate S2 to ON condition. |
| 9 | Operate S3 to ON condition. At 2B ACD <i>Requirement:</i> 2025-Hz tone is heard. At Data Station |
| 10 | Operate S3 to OFF condition. At 2B ACD <i>Requirement:</i> 2025-Hz tone stops. |
| 11 | Depress and hold Touch-Tone pushbutton 1 on the ACD test set. |

STEP

PROCEDURE

At Data Station**Requirements:**

- DP LED lights on data set receiving the Touch-Tone signal.
- DS1 and DS5 (A1 and B1 digits) flash once.

Note: Step 11 checks that a Touch-Tone signal can be transmitted through the 2B ACD to the data set.

12 Operate S4 to ON condition.

Requirement: AR LED on data set lights.

13 Operate S1 through S4 to OFF condition.

Requirement: Data set releases from test call.

14 Repeat Steps 5 through 13 for all new data sets.

REFERRAL TEST FOR NEW DATA SETS

Note: The following test procedure should be performed during periods of light traffic after the new data sets are tested from the attendant trunk. Service may have to momentarily be interrupted for the duration of the following test procedure upon customer approval.

At Data Station

15 Condition 914-type DTS per Steps 2 through 4.

16 Connect 914-type DTS to the first **new** data set.

17 Operate S1 and S2 (on 914-type) to ON condition. (Refer to note after Step 4 if required.)

At 2B ACD

18 Interrupt service momentarily in the following manner:

- (a) If night-service is provided, block nonoperate all NS relays in night-service trunks (maximum of four).
- (b) Using blocking tools, block to the operated condition the TG1 and TG2 relays in the link controller and gate circuit located in cabinet A slide one of the 2B ACD.

Requirement: Observe that the T relay is released. (Do **not** proceed with test until T relay is released.)

STEP**PROCEDURE**

- (c) Using another blocking tool, block the BCO relay to the operated condition (located in link controller and gate circuit).
- (d) Using ACD test set, plug into the selected incoming trunk and seize the trunk per Section 476-270-503.
- (e) Manually operate the ST relay located in the incoming trunk.
- (f) Momentarily operate the H relay in the attendant trunk associated with the data set under test.

Requirement: 2025-Hz tone is heard if data installer has operated S1 and S2 to ON condition (on 914-type DTS).

- (g) Remove blocking tools from TG1, TG2, and BCO relays. Service is now back to normal.

At Referral Position

- 19 Make any existing referral station available by operating the exclusion key on referral telephone to ON condition.
- 20 Make all new referral stations unavailable (exclusion key off).

At Data Station

- 21 Operate S4 (on 914-type DTS) to ON condition.

Requirement: DP lamp on data set under test flashes twice.

At Referral Position

Requirement: The referral telephone rings.

- 22 Answer referral telephone.

Requirement: There is a 3-way bridge connection between the data set, ACD test set, and referral telephone.

At Data Station

- 23 Operate S1 through S4 to OFF condition.

Requirement: The data set releases from the call and the MR LED goes off.

At Referral Position

Requirement: There is still a talking path between the referral telephone and the ACD test set.

| STEP | PROCEDURE |
|------|--|
| 24 | Hang up the referral telephone. |
| 25 | Disconnect 914-type DTS from data set under test. |
| 26 | Repeat Steps 15 through 25 for all other <i>new</i> data sets. |
| 27a | If there are <i>no</i> new referral positions to be added to the system— Go to Step 41. |
| 28b | If there are new referral positions to be added to the system— Perform the following test: |
| | TEST FOR NEW REFERRAL POSITIONS |
| | At Data Station |
| 29 | Condition 914-type DTS per Steps 2 through 4. |
| 30 | Connect 914-type DTS to <i>any</i> data set. |
| 31 | Operate S1 and S2 (on 914-type DTS) to ON condition. (Refer to note after Step 4 if required.) |
| 32c | If service is not already interrupted— Perform Step 18. |
| | At Referral Position |
| 33 | Make the <i>new</i> referral position to be tested available (exclusion key on referral telephone on). |
| 34 | Verify that <i>all</i> other idle referral positions are made unavailable (exclusion key on referral telephone off). |
| | At Data Station |
| 35 | Operate S4 (on 914-type DTS) to ON condition. |
| | Requirement: The DS lamps (on 914-type DTS) associated with the 2-digit code of the referral station (transfer trunk) in Step 33 will flash. See Table A for 2-digit code associated with the above referral station. |
| | At Referral Position |
| | Requirement: The referral telephone rings. |
| 36 | Answer referral telephone. |

| STEP | PROCEDURE |
|------|--|
| | <p>Requirement: There is a 3-way bridge connection between the data set, ACD test set, and referral telephone.</p> <p>Note: If the flash of the lamps in Step 35 cannot be recognized, hang up referral telephone and repeat Steps 35 and 36.</p> <p>Note: If the customer requires a referral, unavailable referral stations will have to be made available.</p> <p>At Data Station</p> |
| 37 | Operate S1 through S4 (on 914-type DTS) to OFF condition. |
| | <p>Requirement: The data set releases from the call.</p> <p>At Referral Position</p> <p>Requirement: There is still a talking path between the referral telephone and the ACD test set.</p> |
| 38 | Hang up the referral telephone. |
| | <p>At Data Station</p> |
| 39 | Repeat Steps 32c through 38 for all other <i>new</i> referral positions. |
| 40 | Remove blocking tools from all NS relays in night-service trunks. |
| 41 | Remove test equipment and return station to pretest condition. |
| 42 | End of test. |
