

DMS-1* DIGITAL MULTIPLEX SYSTEM
CONTROL CONCENTRATOR TERMINAL
INITIAL OPERATING TESTS

Table with 3 columns: CONTENTS, PAGE, and detailed descriptions of sections 1.01 through 1.06. Includes sub-sections like 'Charts' and 'Test Apparatus'.

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**CHART 1
INITIAL INSTALLATION TESTS**

The tests in this chart are done with the CCT in a special loopback mode.

APPARATUS:

- 2 Patch Cords; NE-P3Q1, or equivalent (for Step 1, if used)
- 4 Jumper Leads; Cambion 445-3663-01-0312, or equivalent (for Step 2, if used).

STEP PROCEDURE

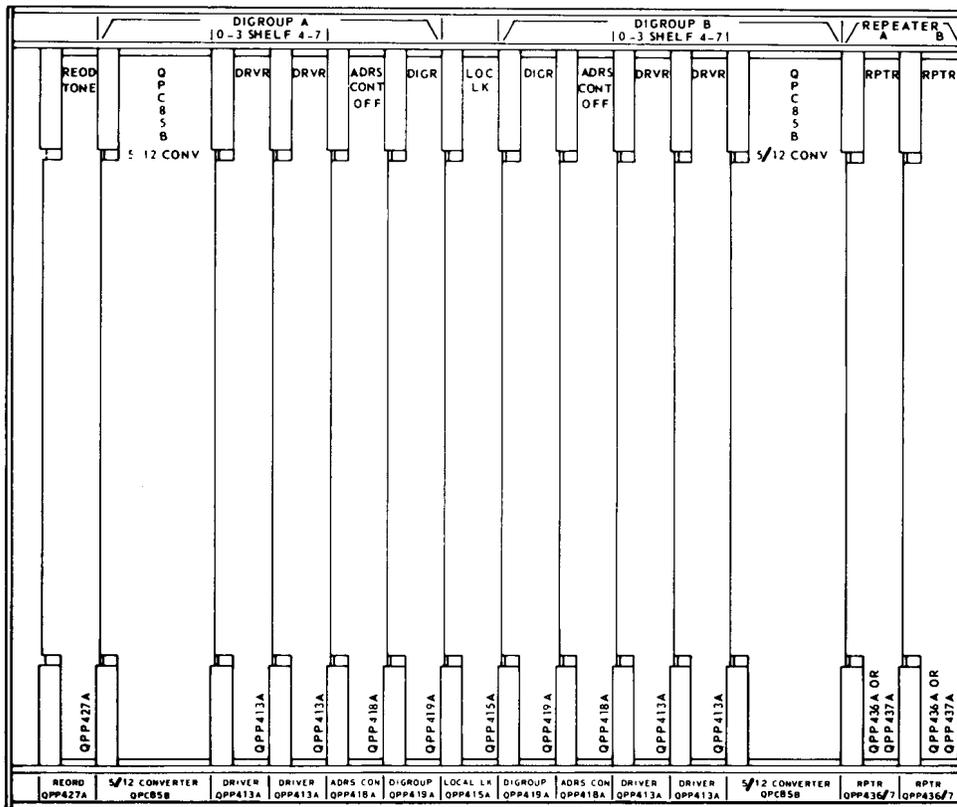


Fig. 1 – CCT Common Shelf 1

Chart Continued

**CHART 1 Continued
INITIAL INSTALLATION TESTS**

STEP PROCEDURE

LOOPBACK OF DIGROUP SIGNALS

Note: The CCT common circuit packs do not supply signals to the circuit packs on the line shelves unless the digital output signal is looped back to the digital input. There are two methods for looping back the CCT:

- (a) If repeaters are installed, use the procedure in Steps 1.1 through 1.4.
- (b) If repeaters are *NOT* installed, use the procedures in Steps 2.1 through 2.4.

1 Loopback with Repeaters Installed:

- 1.1 Plug one end of a patch cord (P3Q1) into the X IN jack on the digroup A repeater (see Fig. 1), and the other end into the X OUT jack on the same repeater.
- 1.2 With a second patch cord, repeat Step 1.1 on the digroup B repeater.

Note: The protection-line repeater does not need a loopback connection.

1.3 Loopback the QPP425 or QPP450 as follows:

- (a) Remove the QPP425 or QPP450 from Common Shelf 2.
- (b) On the QPP425, remove shorting plug P4 (Fig. 2), and store it carefully for replacement after testing has been completed; or on the QPP450, set option selector S2, section 1 to ON.
- (c) Replace the QPP425 on Common Shelf 2.

1.4 Loopback is now completed; proceed to Step 3.

2 Loopback with Repeaters *NOT* Installed:

- 2.1 At the back of common shelf 1, identify the connector pins for the repeater positions (one for a single-digroup system; two for a dual-digroup system);

- 2.2 On the repeater connector pins, connect jumpers between the pins as follows:

DIGROUP A: E5 to E11
 E7 to E9

DIGROUP B: E35 to E37
 E36 to E38.

- 2.3 Loopback the QPP425 or QPP450 on Common Shelf 2 as detailed in Step 1.3.

- 2.4 Loopback is now completed; proceed to Step 3.

Chart Continued

**CHART 1 Continued
INITIAL INSTALLATION TESTS**

STEP	PROCEDURE
<i>SYSTEM START UP</i>	
3	On the QPP431 circuit pack, momentarily press and release the RESTART and RESTART ARM pushbuttons simultaneously.
4	Press the RESET buttons on the line shelf power converters (QPP439) if the FAIL lamps are on.
<p><i>Note:</i> If any alarms are indicated, refer to 363-2011-500, paragraph 1.03 to locate the trouble.</p>	

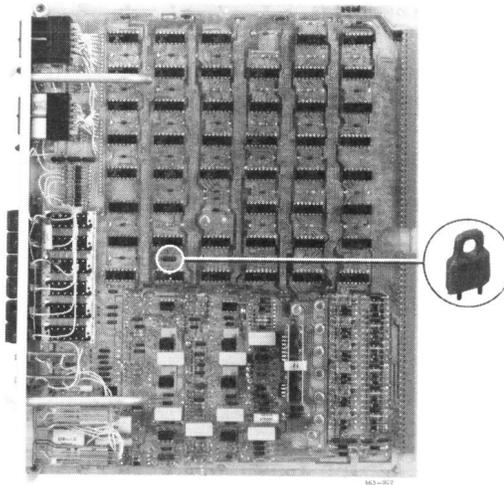


Fig. 2 — Removal of Shorting Link on QPP425

***SELF-CHECK OF QPP425 SYSTEM TEST CIRCUIT PACK,
OR QPP450 TEST CONTROL CIRCUIT PACK***

Note: The QPP439A line power converter must be installed on line shelf 0 to power the QPP425 circuit pack.

- 5 Do the following self-check on the QPP425 or QPP450 circuit pack:
- 5.1 Depress the ON/OFF button.

Requirement: On QPP450 only; all indicators light for about 1 second.

If this requirement is not met, replace the QPP450 and repeat the test.

- 5.2 *On QPP425 only;* depress and hold the LAMP TEST button while observing all indicator lamps on the QPP425; then release the button.

Requirement: All indicators on the QPP425 must be lit while the LAMP TEST button is being pressed.

If this requirement is not met, replace the QPP425, and repeat the test.

Chart Continued

**CHART 1 Continued
INITIAL INSTALLATION TESTS**

STEP	PROCEDURE
5.3	<p>On the QPP425A depress the SELF TEST button; press and hold the button on the QPP425B or QPP450.</p> <p><i>Requirement:</i> The OK lamp must light.</p> <p><i>Note:</i> Ignore any transient flashes of other lamps.</p>
5.4	<p>Release the SELF TEST button.</p> <p><i>Requirement:</i> The OK lamp must go out.</p> <p>If the requirements of 5.3 and 5.4 are not met, replace the QPP425 or QPP450.</p>
5.5	<p>Release the ON/OFF button.</p>
LOOPBACK TEST: LINES	
	<p><i>Purpose:</i> This test verifies the vf loss of each office line circuit pack using a test tone generated and detected by the QPP425 or QPP450.</p>
6	<p>Adjust the controls of the QPP425 or QPP450 as follows:</p>
6.1	<p>Depress the ON/OFF button.</p>
6.2	<p>Adjust the CHANNEL thumbwheel selector to A00.</p>
6.3	<p>Select the first line to be tested by setting the LINE thumbwheel selector appropriately.</p> <p><i>Note:</i> Line numbers indicated on the thumbwheel switch are related to the line circuit pack plug-in positions by shelf designations.</p>
6.4	<p>On the QPP425A, depress the LOOP OFFICE button; press and hold the button on the QPP425B or QPP450.</p> <p><i>Requirement:</i> The OK and HOOK indicators on the QPP425, or the OK and RING indicators on the QPP450, must light.</p> <p>If the requirement is not met, replace the line circuit pack on the selected line.</p>

Chart Continued

CHART 1 Continued
INITIAL INSTALLATION TESTS

STEP PROCEDURE

6.5 Release the LOOP OFFICE button.

Requirement: The OK and HOOK indicators on the QPP425, or the OK and RING indicators on the QPP450, must go out.

6.6 Repeat Steps 6.2 through 6.5 for each line in the CCT.

If more than one line per shelf fails the test at 6.4 refer to 363-2011-500, Part 4 to locate and correct the fault.

LOOPBACK TEST: CHANNELS

Purpose: This test verifies the loss of one office line circuit through each of the digital channels.

7 Adjust the controls on the QPP425 or QPP450 as follows:

7.1 Depress the ON/OFF button.

7.2 Adjust the LINE thumbwheel selector to a line number for which a line circuit pack is present in the CCT.

7.3 Set the CHANNEL thumbwheel selector to A00.

7.4 On the QPP425A, depress the LOOP OFFICE button; press and hold the button on the QPP425B or QPP450.

Requirement: The OK and HOOK indicators on the QPP425, or the OK and RING indicators on the QPP450, must light.

If the requirement is not met, replace the line circuit pack on the selected line.

Chart Continued

CHART 1 Continued
INITIAL INSTALLATION TESTS

STEP	PROCEDURE
7.5	Release the LOOP OFFICE button. <i>Requirement:</i> The OK and HOOK indicators on the QPP425, or the OK and RING indicators on the QPP450, must go out.
7.6	Repeat Steps 7.3 through 7.5 for channels A01 through A23. If the system is equipped for dual-digroup operation continue repeating Steps 7.3 through 7.5 for channels B00 through B23.
7.7	Press and release the ON/OFF button.
LOOPBACK TEST: LINES, WHEN SYSTEM IS EQUIPPED FOR 2-DIGROUP OPERATION	
<i>Note:</i> This test, must be performed in addition to the tests outlined in Steps 6 and 7 when the system is equipped for dual-digroup operation; i.e., when the CCT is equipped with two QPP419 DIGR circuit packs.	
8	Adjust the controls of the QPP425 or QPP450 as follows:
8.1	Depress the ON/OFF button.
8.2	Adjust the CHANNEL thumbwheel selector to B00.
8.3	Adjust the LINE thumbwheel selector to correspond to any line in line shelf 0.
8.4	On the QPP425A, depress the LOOP OFFICE button; press and hold the button on the QPP425B or QPP450. <i>Requirement:</i> The OK and HOOK indicators on the QPP425, or the OK and RING indicators on the QPP450, must light. If the requirement is not met, replace the line circuit pack on the selected line.
8.5	Release the LOOP OFFICE button. <i>Requirement:</i> The OK and HOOK indicators on the QPP425, or the OK and RING indicators on the QPP450, must go out.
8.6	If a line fails the test, refer to 363-2011-500, Part 4 to locate and correct the fault. Repeat Steps 8.3 through 8.5 for each line shelf present in the CCT.
8.7	Press and release the ON/OFF button.

Chart Continued

CHART 1 Continued
INITIAL INSTALLATION TESTS

STEP	PROCEDURE
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DIGITAL PATH TEST

Purpose: This test verifies the operation of the digital path within the CCT, up to the output of the QPP419 circuit packs.

- 9 Adjust the controls of the QPP425 or QPP450 as follows:
 - 9.1 Depress the ON/OFF button.
 - 9.2 Adjust the LINE thumbwheel selector to any line for which a circuit pack is present in the CCT.
 - 9.3 Adjust the CHANNEL thumbwheel selector to A00.
 - 9.4 On the QPP425A, depress the LOOP REM button; press and hold the button on the QPP425B or QPP450.

Requirement: The HIGH lamp lights. (HIGH indication is normal when in this loopback mode.)

 - 9.5 If the system is equipped for dual-digroup operation, repeat Steps 9.3 through 9.4 with the CHANNEL selector adjusted to B00 in Step 9.3.
 - 9.6 Press and release the LOOP REM button.
- 10 Press and release the ON/OFF button to switch off the QPP425 or QPP450.

REMOVING THE DIGROUP LOOPBACK

- 11 Remove the patch cords from the repeaters, or the jumpers from the back of the Common Shelf 1, which were installed in Step 1 or 2.
 - 12 Change the loopback option settings as follows:
 - 12.1 Remove the QPP425 or QPP450 from the common shelf 2.
 - 12.2 On the QPP425, replace shorting link P4 (Fig. 2); *or*
On the QPP450, set option selector S2, section 1, to OFF.
 - 12.3 Replace the QPP425 or QPP450 in common shelf 2.
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CHART 2
EXPANDING THE NUMBER OF LINES AT THE CCT

This test procedure verifies the operation of new line circuit packs added to a working system. The test is made in a loopback mode, using the test tone generated and detected in the QPP425 or QPP450.

STEP PROCEDURE

***SELF-CHECK OR QPP425 SYSTEM TEST CIRCUIT PACK, OR
QPP450 TEST CONTROL CIRCUIT PACK***

Note: The QPP439A line power converter must be installed on line shelf 0, to power the QPP425 or QPP450 circuit pack.

1 Do the following self-check on the QPP425 or QPP450 circuit pack:

1.1 Depress the ON/OFF button.

Requirement: On QPP450 only; all indicators light for about 1 second.

If this requirement is not met, replace the QPP450, and repeat the test.

1.2 *On QPP425 only;* depress and hold the LAMP TEST button while observing all indicator lamps on the QPP425; then release the button.

Requirement: All indicators on the QPP425 must be lit while the LAMP TEST button is being pressed.

If this requirement is not met, replace the QPP425, and repeat the test.

1.3 On the QPP425A depress the SELF TEST button; press and hold the button on the QPP425B or QPP450.

Requirement: The OK lamp must light.

Note: Ignore any transient flashes of other lamps.

1.4 Release the SELF TEST button.

Requirement: The OK lamp must go out.

If the requirements of 1.3 and 1.4 are not met, check the QPP425 or QPP450, using the procedures in 363-2011-300, Chart 8 or Chart 10. Replace the QPP425 or QPP450 if the unit does not meet the test requirements.

1.5 Release the ON/OFF button.

Chart Continued

CHART 2 Continued
EXPANDING THE NUMBER OF LINES AT THE CCT

STEP PROCEDURE

LOOPBACK TEST

2 Adjust the controls of the QPP425 or QPP450 as follows:

2.1 Depress the ON/OFF button.

2.2 Set the CHANNEL thumbwheel selector to A24.

2.3 Set the LINE thumbwheel selector to the first new line to be tested.

Note: Line numbers are related to line circuit pack plug-in positions by shelf designations.

Caution: The **BUSY** lamps must be out. If either **BUSY** lamp is on, check the **LINE** and **CHANNEL** thumbwheel settings for the desired indications. Pressing the **LOOP OFFICE** switch when a **BUSY** lamp is on results in loss of service on the busy line or channel.

2.4 On the QPP425A, depress the LOOP OFFICE button; press and hold the button on the QPP425B or QPP450.

Requirement: The OK and HOOK indicators on the QPP425, or the OK and RING indicators on the QPP450, must light.

If the requirement is not met, replace the line circuit pack on the selected line.

Note: Up to a 12-second delay may occur before a response is received from a newly inserted line card.

2.5 Release the LOOP OFFICE button.

Requirement: The OK and HOOK indicators on the QPP425, or the OK and RING indicators on the QPP450, must go out.

3 Repeat Steps 2.3 through 2.5 for each additional line added to the CCT.

4 Press and release the ON/OFF button on the QPP425 or QPP450.
