

**DMS-1\* DIGITAL MULTIPLEX SYSTEM**  
**CONTROL CONCENTRATOR TERMINAL**  
**CIRCUIT PACK INSTALLATION**

CONTENTS	PAGE	
1. GENERAL.....	1	1.02 <i>Reason for Reissue:</i> to add new and revised information. Since this is a general revision, changes are not marked.
<b>Charts</b>		1.03 <i>Test Apparatus:</i>
1. Installing Common Power Converters .....	3	1 Digital Voltmeter: with
2. Installing Common Circuit Packs .....	4	● 4-1/2 digit display
3. Loopback of Digroup Signals .....	5	● input impedance $\geq 1 M\Omega$
4. Installing Converters and Buffers .....	7	● accuracy, 0.1 percent minimum
5. Installing Line Circuit Packs .....	12	● pin-jack test leads (John Fluke 8100 A or 8040 A).
6. Adding Subscriber Lines .....	12	4 Jumper Leads: 8-inches long; Cambion part No. 445-3663-01-0312, or equivalent
7. Adding Optional Circuit Packs .....	13	<i>or</i>
8. Installing Order-Wire and Fault-Locate Circuit Packs .....	16	2 NE-P3Q1 Patch Cords, or equivalent.
9. Removing Digroup Loopback .....	17	
 1. GENERAL		
1.01 This section describes the procedures used when first equipping a Control Concentrator Terminal (CCT) with circuit packs, and when adding optional or line circuit packs.		

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Fig. 1 — Installing Circuit Packs on a CCT Shelf

1.04 The general order of installation is:

- (1) common 5/12-V power converters;
- (2) common circuit packs;
- (3) line shelf power converters and buffers;
- (4) line circuit packs;
- (5) order-wire and fault-locate circuit packs.

1.05 The office 48-V battery must be connected to the CCT before the steps in this section are started. (See 363-2011-201.)

1.06 If the requirements are not met at any step in this section, refer to 363-2011-500 for fault-locating procedures.

1.07 A circuit pack is installed (Fig. 1) by:

- (1) engaging it into the grooves of the upper and lower sliders;
- (2) inserting it until the projection of the upper and lower catches can be engaged in the grooves of the shelf support rails;
- (3) levering it into the connector using the catches until the projections on the catches can be snapped over the roll-pins in the card.

**CHART 1  
INSTALLING COMMON POWER CONVERTERS**

STEP	PROCEDURE
1	Remove all fuses from the fuse panel at the top of the CCT bay.
2	Plug a QPC85 5/12-V converter into digroup A.
3	Place a 5-A fuse (QFF-type) in the F2 fuseholder (Fig. 2).
4	Measure the voltages at the test points on the converter. Replace the circuit pack if the voltages are not as required in Table A.
5	If digroup B is equipped, plug a QPC85 5/12-V converter into digroup B.
6	Place a 5-A fuse (QFF-type) in the F3 fuseholder (Fig. 2).
7	Measure the voltages at the test points on the converter. Replace the circuit pack if the voltages are not as required in Table A.
8	Remove the fuses from the F2 and F3 fuseholders.

*Note 1:* The QPP425 system test circuit pack is powered from the QPP439 LINE PWR CONV on line shelf 0. This power converter must be installed before CCT tests are performed (Chart 3 and 4).

*Note 2:* The QPP416 LOC LK DET is powered from the QPP439 LINE PWR CONV on line shelf 1. This power converter must be installed before the system tests of 363-2011-213 are performed.

**TABLE A  
COMMON CONVERTER VOLTAGES**

TEST POINT	REQUIREMENT (range in Volts)
+5 V +12 V -12 V	+4.9 to +5.1 +11.85 to +12.15 -11.4 to -12.6
<p><i>Notes:</i></p> <ol style="list-style-type: none"> <li>1. Measured between the test points and the GRD test point.</li> <li>2. If correct readings are not obtained, press the RESET button on the power converter and remeasure the voltages.</li> </ol>	

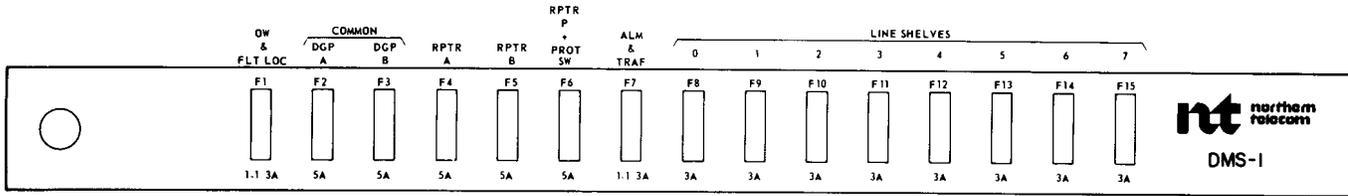


Fig. 2 — Fuse Panel

**CHART 2  
INSTALLING COMMON CIRCUIT PACKS**

STEP	PROCEDURE
1	Before plugging circuit packs into the common shelves, set option selector switches and straps on the QPP416 LOC LK DET, QPP419 DIGR, QPP421 ALARM OFFICE, and QPP437 RPTR as listed in Table C and as shown in Fig. 9.
2	Plug in all circuit packs on common shelf 1 and common shelf 2 (Fig. 3 and 4).  <i>Note:</i> If only one QPP431 SYS CONT circuit pack is installed, it must be installed in the left slot (Fig. 4).
3	Install 5-A fuses in the F2, F3, F4, F5, and F6 fuseholders, and a 1-1/3 A fuse in the F7 fuseholder (Fig. 2).
4	Check the 5/12-V converter voltages. Replace the converter if the voltages are not as required in Table A. If the voltages are still not as required in Table A, refer to 363-2011-500, Flowchart 8.

**CHART 3  
LOOPBACK OF DIGROUP SIGNALS**

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**Note:** The CCT common circuit packs will 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 to be used as follows:

- (a) If QPP436 or QPP437 repeaters are installed in the CCT bay, use the procedure outlined in Steps 1 through 3.
  - (b) If QPP436 or QPP437 repeaters are not installed in the CCT bay, use the procedure outlined in Steps 4 through 6.
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STEP	PROCEDURE
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***LOOPBACK WITH QPP436 or QPP437 REPEATERS INSTALLED***

**APPARATUS:**

2 NE-P3Q1 Patch Cords, or equivalent.

- 1 Plug one end of one P3Q1 patch cord into the XIN jack on the digroup A repeater (Fig. 3), and the other end of the cord into the XOUT jack on the same repeater.
- 2 With a second P3Q1 patch cord, repeat Step 1 on the digroup B repeater.

**Note:** The protection repeater does not require the loopback connection.

- 3 Loopback the QPP425 or QPP450 circuit pack as follows:
  - (1) Remove the QPP425 or QPP450 from Common Shelf 2.
  - (2) On the QPP425, remove shorting plug P4 (Fig. 5), and store it carefully for replacement after testing is completed; or, on the QPP450, set option selector S2, section 1, to ON.
  - (3) Replace the QPP425 or QPP450 on Common Shelf 2.

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Chart Continued

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CHART 3 Continued  
LOOPBACK OF DIGROUP SIGNALS

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STEP      PROCEDURE

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*LOOPBACK WITHOUT QPP436 or QPP437 REPEATERS INSTALLED*

APPARATUS:

4 jumper leads.

- 4    At the back of common shelf 2, identify the connectors for the QPP436 or QPP437 repeater circuit packs.
  - 5    Connect jumpers between the following pins on the backplane;

Digroup A	E5 to E11 E7 to E9
Digroup B	E35 to E37 E36 to E38
  - 6    Loopback the QPP25 or QPP450 circuit pack as follows:
    - (1) Remove the QPP425 or QPP450 from Common Shelf 2.
    - (2) On the QPP425, remove shorting plug P4 (Fig. 5), and store it carefully for replacement after testing is completed; or, on the QPP450, set option selector S2, section 1, to ON.
    - (3) Return the QPP425 or QPP450 to its position on Common Shelf 2.
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**CHART 4**  
**INSTALLING CONVERTERS AND BUFFERS**

*Note:* The QPP439 line power converter requires signals from the common circuit packs before it will operate. Therefore, the steps in Charts 1, 2, and 3 must be completed before Chart 4 is started.

STEP	PROCEDURE
1	<p>Plug a QPP439 line power converter, and a QPP412 or QPP496 buffer into each of the line shelves to be equipped with line circuit packs (Fig. 6). Ensure that;</p> <ul style="list-style-type: none"> <li>● on the QPP421, the configuration select switch S5, section 6 (Table C), is set to the correct position for the buffer installed.</li> <li>● the suitcase-type plug on the QPP496 is installed in the OFFICE position (Table C).</li> </ul>
2	<p>Place a 3-A (QFF-type) fuse in the F8 fuseholder (Fig. 2).</p> <p><i>Requirement:</i> The FAIL lamp on the line power converter on line shelf 0 shall light.</p> <p><i>Note:</i> The system controller tries automatically to turn on the converter, so the FAIL lamp may light only momentarily.</p>
3	<p>Push the RESET button on the QPP439 circuit pack, if the fail lamp is on.</p> <p><i>Requirement:</i> The FAIL lamp on the line power converter shall go out.</p>
4	<p>Measure the voltages at the test points on the QPP439. Replace the circuit pack, if the voltages do not meet the requirements of Table B.</p>
5	<p>Repeat Steps 2 through 4 for each of the other line shelves being equipped with line circuit packs. At Step 2, install 3-A fuses in fuseholders F9 through F15 for line shelves 1 through 7 respectively as required (Fig. 2).</p>

**TABLE B**  
**LINE POWER CONVERTER VOLTAGES**

TEST POINT	REQUIREMENT (range in Volts)
+5 V	+4.90 to +5.10
+6 V	+5.97 to +6.03
-6 V	-5.97 to - 6.03
+10 V	+9.75 to +10.25
-10 V	-9.75 to -10.25
<p><i>Note:</i> The voltages measured at the +6 V and -6 V test points must be within 0.03 V of each other.</p>	

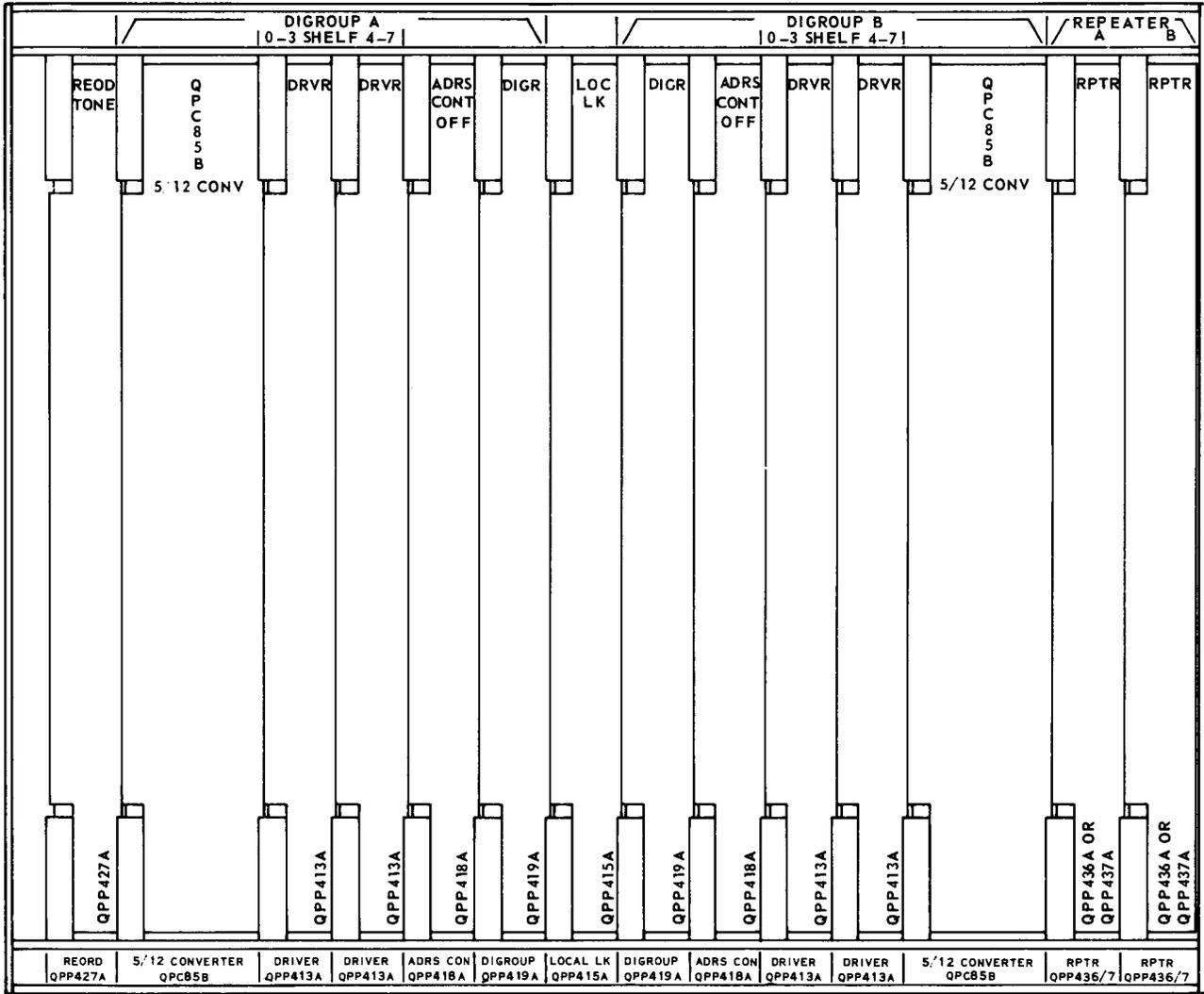
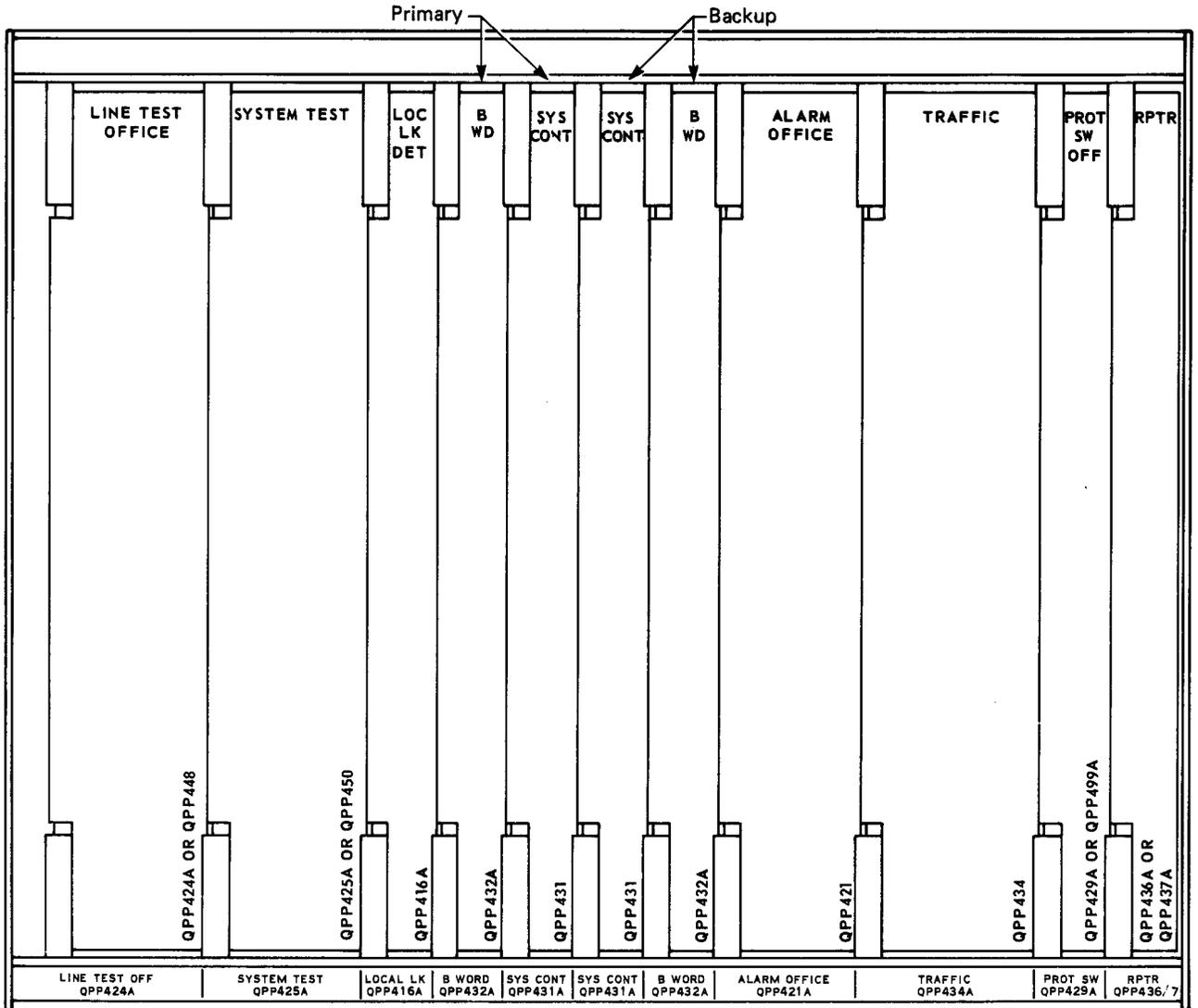


Fig. 3 – Common Shelf 1



Note: QPP448 test access office, QPP450 test control, and QPP499 1-for-N protection switch office can be used in place of the QPP424, QPP425, and QPP429.

Fig. 4 – Common Shelf 2

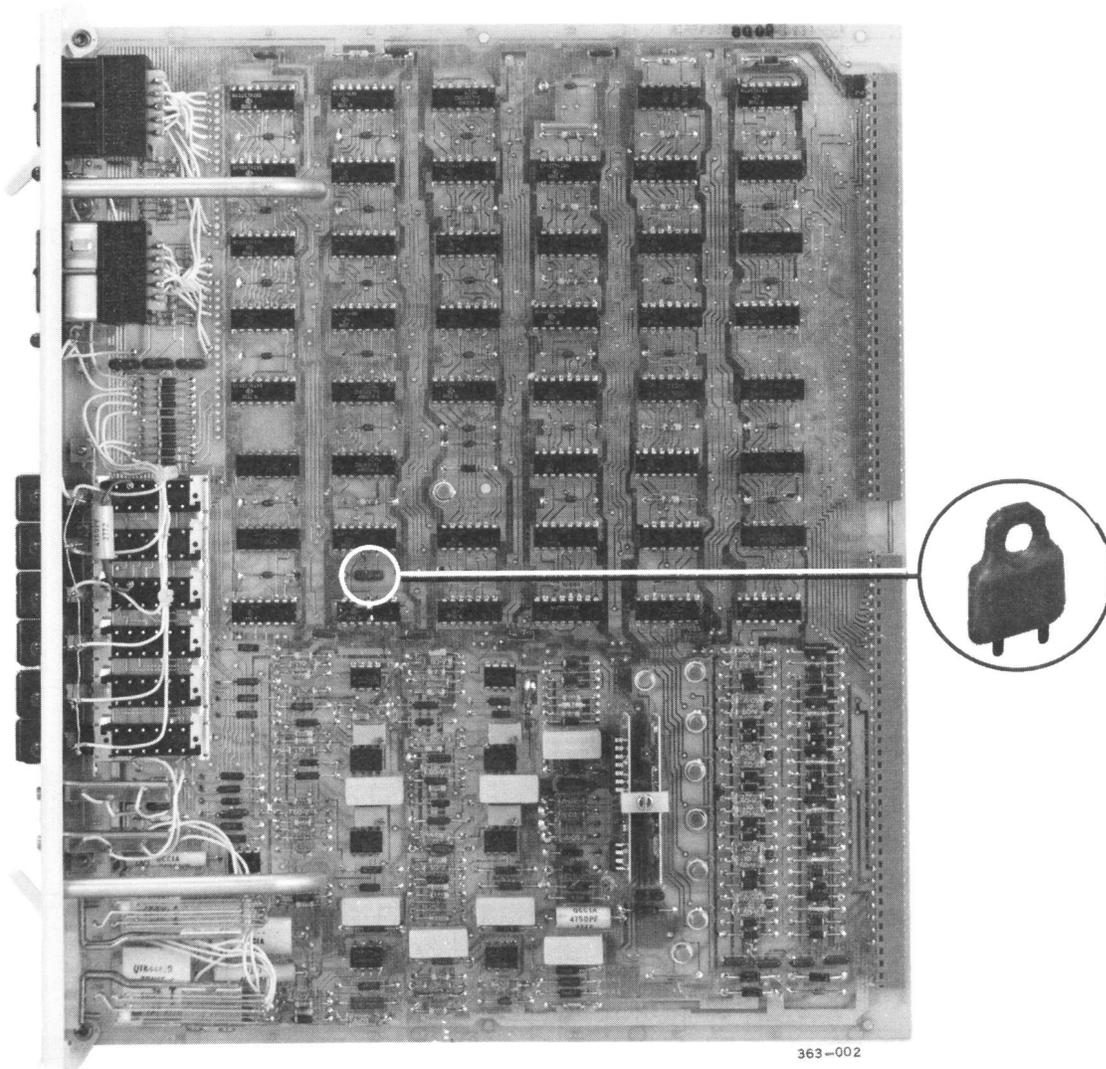
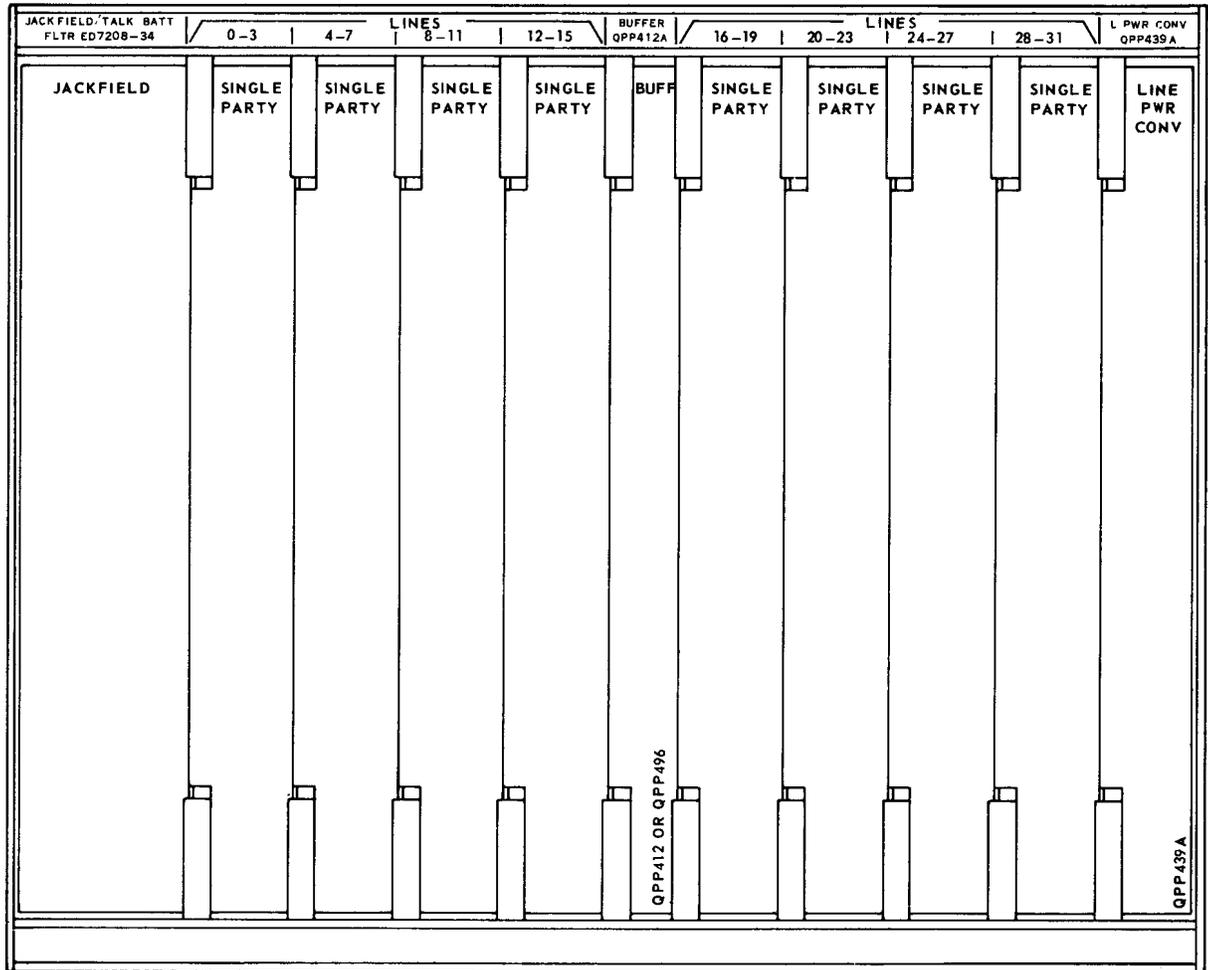


Fig. 5 — QPP425; Location of Plug P4



- Notes:
1. Line cards can be any required types but must obey the restrictions of 363-2011-150, Table D, Note 2.
  2. Line shelf is shown equipped with QPP412A BUFF. A separate designation strip is supplied when QPP496 BUFF is installed.
  3. Jack fields are available with line and equipment drop jacks with grounded sleeves, or line drop monitor jacks with isolated sleeves.

**Fig. 6 – Line Shelf**

**CHART 5  
INSTALLING LINE CIRCUIT PACKS**

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<b>STEP</b>	<b>PROCEDURE</b>
	<i>Note:</i> QPP410 Universal Coin-Office must be installed only in shroud position 0 and/or 1 on any line shelf.
1	Before plugging circuit packs into line shelf 0, set the option selector switches on the QPP410 Universal Coin-Office, QPP446 Superimposed-Office and QPP441C and QPP441D Frequency Selective-Office as listed in Table C and shown in Fig. 9.
2	Plug the line circuit packs into the line locations on line shelf 0 (see Fig. 6), as specified on the applicable job or office records.
3	Recheck the QPP439 voltages. Replace the converter if the voltages do not meet the requirements of Table B.
4	Repeat Steps 1, 2, and 3 for line shelves 1 through 7 as required.
	If no optional circuit packs are to be added, go to Chart 9.

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**CHART 6  
ADDING SUBSCRIBER LINES**

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<b>STEP</b>	<b>PROCEDURE</b>
<b><i>ADDING NEW LINE SHELF</i></b>	
1	If a new line shelf is added, carry out the procedures in Charts 4 and 5.
2	In the QPP421 ALARM OFFICE circuit pack, set the option selectors to the new line shelf configuration as shown in Table C.
<b><i>ADDING LINE CIRCUIT PACKS</i></b>	
3	If necessary, line circuit packs can be added to an operating line shelf with no disturbance to existing service.
4	Set the option selector switches on the QPP410 Universal Coin-Office, QPP446 Superimposed-Office and QPP441C and QPP441D Frequency Selective-Office as listed in Table C and shown in Fig. 9.
5	Plug in the new line circuit pack(s) on the applicable line shelf (Fig. 6) and measure the QPP439 voltages. See Chart 4 and Table B.

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**CHART 7  
ADDING OPTIONAL CIRCUIT PACKS**

**Note 1:** When an option is added, the applicable circuit packs may be added while the system is operating, but may cause a momentary service interruption while being plugged in.

**Note 2:** If QPP429 or QPP499 circuit packs are being added to provide protection switching to an installed system, changes to the option wiring on the backplane are required. For details refer to the schematic drawing, SD7208-01 Section D.

**Note 3:** If QPP448 is used instead of QPP424, different wiring **MUST** be used on the backplane; see SD7208-01 Section D. Damage **WILL** occur if the wrong option is used.

STEP	PROCEDURE
1	Refer to Table C, and select the option settings in the existing common circuit packs for the option being installed.
2	<p>If QPP448 circuit packs are being installed to provide subscriber line test extension, an OFFICE BYPASS assembly (ED7208-32, G3) must be mounted on the back of each CCT line shelf as follows:</p> <p>2.1 Set the Office Bypass assembly on the hinge pins on the left side of the shelf as viewed from the back (Fig. 7, item A).</p> <p>2.2 Secure the assembly on the hinge pins with the hinge screws (Fig. 7, item B).</p> <p>2.3 Swing the assembly shut, and tighten the clamp screws to secure the assembly to the connector bracket on the right of the shelf (Fig. 7, item C).</p> <p>2.4 Connect the power and control cables (Fig. 7, item D).</p> <p>2.5 Set option selector SW1 on the assembly as listed in Table C.</p> <p style="padding-left: 40px;"><i>Caution: Step 2.6 causes loss of service to all lines on the shelf.</i></p> <p>2.6 Connect the vf cables to the assembly (Fig. 7, item E).</p> <p>2.7 Provide spare line circuits according to the following rules:</p> <p style="padding-left: 40px;">(a) Only lines occupying the first position in each line shelf can be designated as spares.</p> <p style="padding-left: 40px;">(b) In a multi-RCT system, a spare line of each type of line in use should be made available at each RCT; a line can be spared only by an appropriate line at the same RCT.</p>

Chart Continued

**CHART 7 Continued**  
**ADDING OPTIONAL CIRCUIT PACKS**

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**STEP      PROCEDURE**

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(c) A given line can be spared by a spare line equipped as shown in the following table:

LINE TO BE SPARED	POSSIBLE SPARE LINE TYPE					
	406	408	441	443	410	446
Single Party QPP405/406	X	X	X	X	X	X
Universal QPP407/408 (Note)		X				
FSR QPP440/441 (Note)			X			
Post Paid Coin QPP442/443				X	X	
Universal Coin QPP409/410					X	
Superimposed Ring QPP445/QPP446						X

*Note:* If the sparing option is selected, QPP407/408 line cards cannot be used on the same system as QPP440/441 line cards.

- 3 Plug the circuit pack(s) for the option concerned into the designated location(s) on the shelves, and measure the voltages on the applicable 5/12-V converter. See Chart 1 and Table A.
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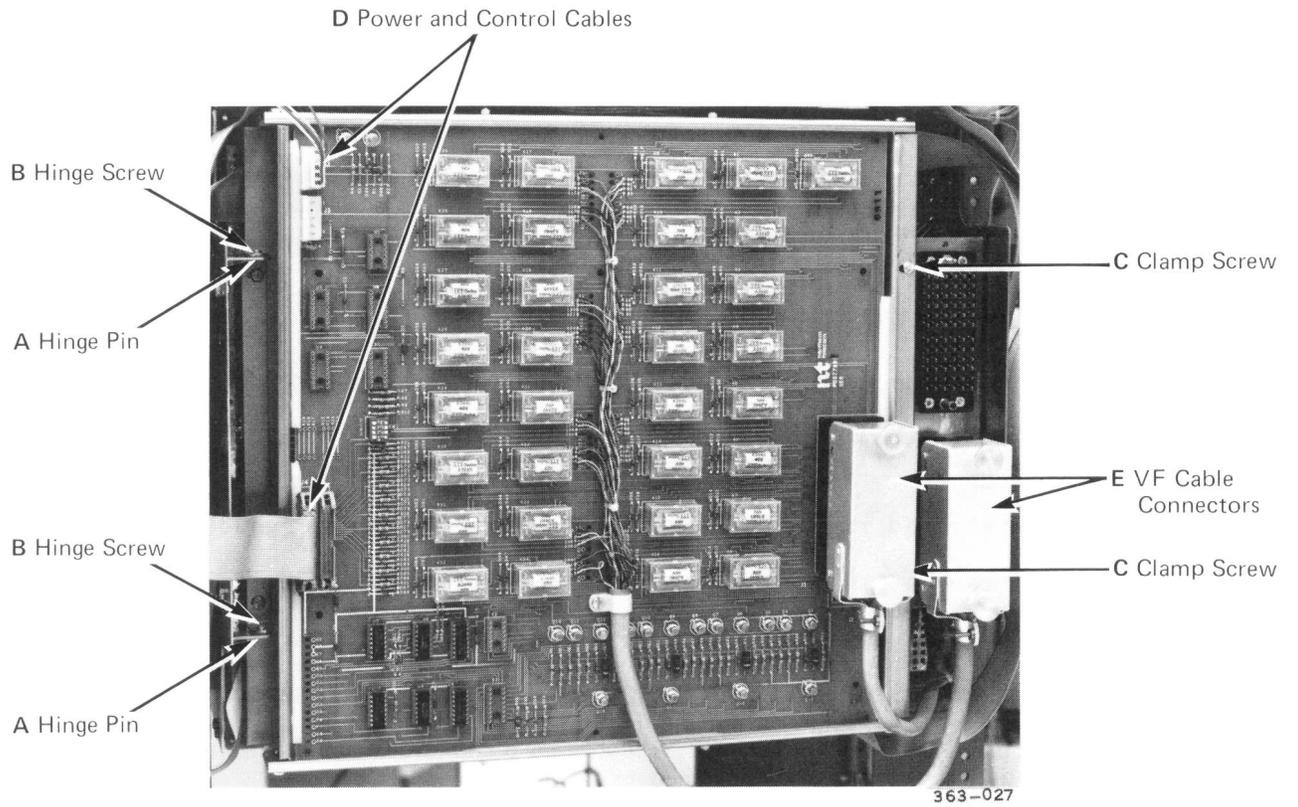
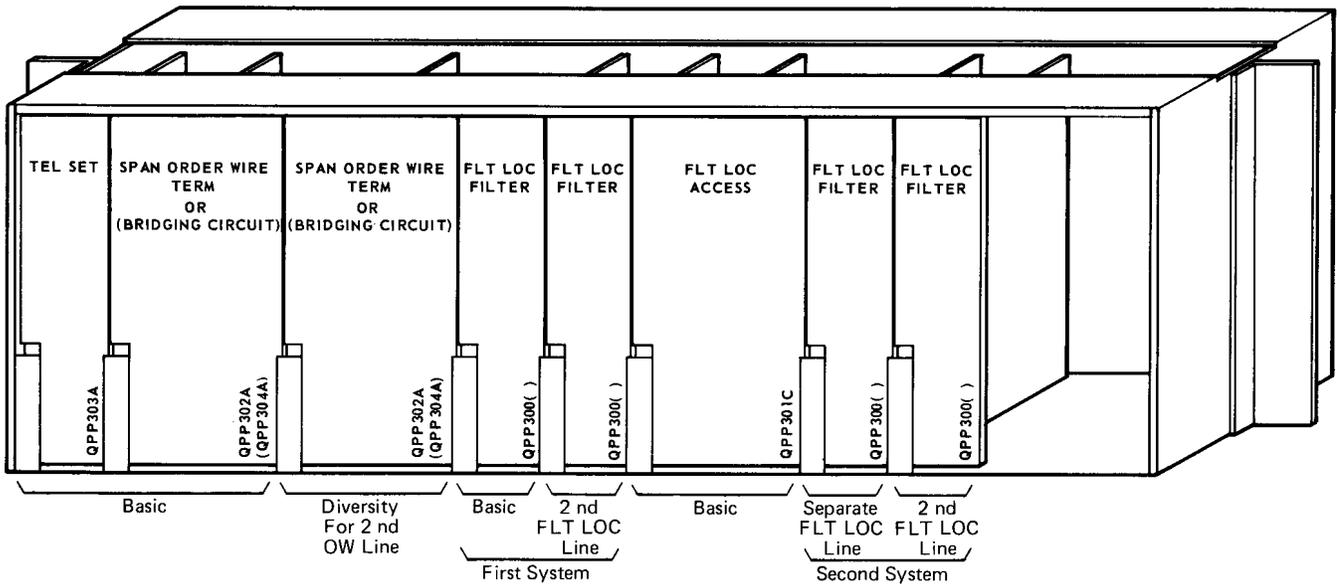


Fig. 7 – Office Bypass Assembly – Mounting

**CHART 8**  
**INSTALLING ORDER-WIRE AND FAULT-LOCATE CIRCUIT PACKS**

STEP	PROCEDURE
1	Before plugging the circuit packs into the order-wire and fault-locate shelf, set the option selector switches on the QPP300 and QPP302 circuit packs as specified for the job and as shown in Table D.
2	Remove the 1-1/3 A fuse from the F1 fuseholder on the fuse panel (Fig. 2).
3	Install the circuit packs on the order-wire and fault-locate shelf in the locations shown in Fig. 8.
4	Reinstall the 1-1/3 A fuse in the F1 fuseholder (Fig. 2). If the fuse blows, continue with the next step. If the fuse does not blow, the shelf is ready for testing; refer to 363-2011-212.
5	If F1 blows at Step 4, remove all the circuit packs from the order-wire and fault-locate shelf.
6	Remove the blown fuse from the F1 fuseholder, and reinstall the QPP303 circuit pack at the left-hand side of the shelf.
7	Install a new 1-1/3 A fuse (QFF-type) in the F1 fuseholder. If the fuse blows, replace the QPP303 circuit pack (Steps 6 and 7). If the fuse does not blow, continue with Step 8.
8	Working from left to right on the shelf, repeat Steps 6 and 7 for each circuit pack, one at a time, until all the circuit packs are reinstalled.
9	When all circuit packs are in place and F1 has not blown, the shelf is ready for testing; refer to 363-2011-212.

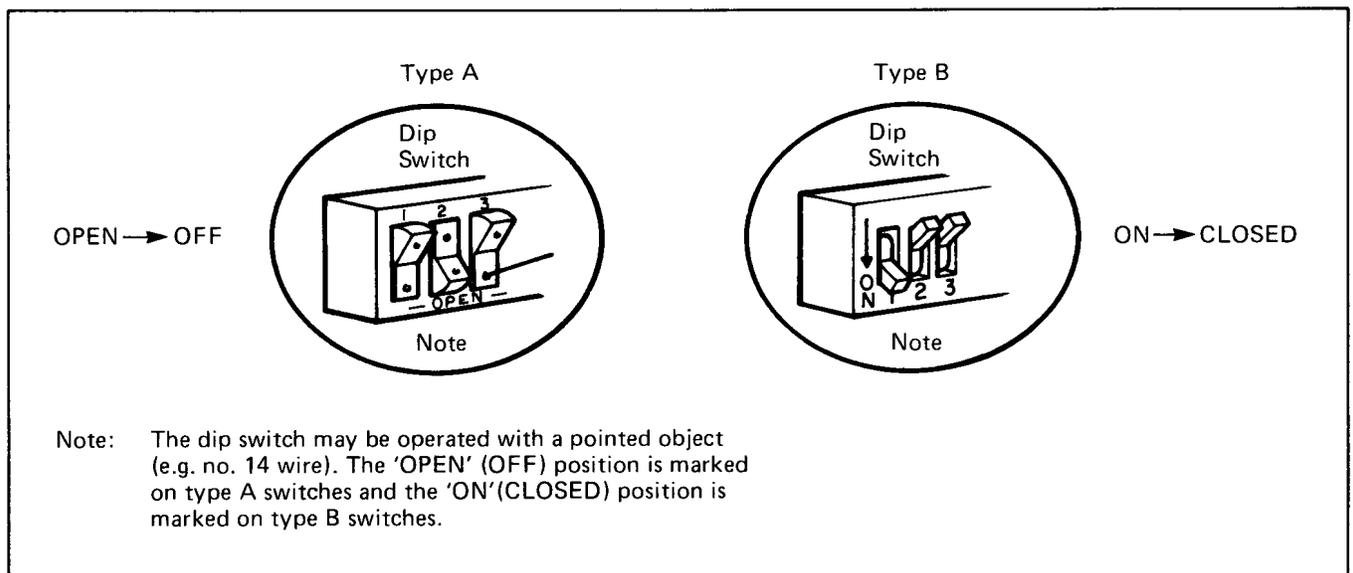


**Fig. 8 — Order-Wire and Fault-Locate Shelf**

### CHART 9 REMOVING DIGROUP LOOPBACK

**Note:** If convenient, the initial operating tests on the CCT (363-2011-210) can be done before the loopback conditions are removed.

STEP	PROCEDURE
1	Remove the patch cords installed on the QPP437 repeaters, Steps 1 through 3 of Chart 3.
<i>or</i>	
2	Remove the loopback jumpers which were installed on the common shelf 1 backplane in Steps 4 through 6 of Chart 3.
3	Remove the QPP425 SYSTEM TEST circuit pack from common shelf 2, replace the plug P4, and reinstall the QPP425 in common shelf 2.
<i>or</i>	
	Remove the QPP450 from common shelf 2, set the option selector S2, section 1 to OFF, and return the QPP450 to its position in common shelf 2.



**Fig. 9 — Option Selector Switches**

**TABLE C**  
**CCT CIRCUIT PACK OPTION SELECTORS**

CIRCUIT PACK	OPTION SELECTION (See Fig. 8)	PURPOSE
QPP410 UNIV COIN OFFICE	Option Selector Switches S1 and S2: S1 Sect A and B open S2 Sect. A and B open	line circuit 0      use on non-ground line circuit 2      isolated (NGI) systems.
	S1 Sect. A and B closed S1 Sect. A and B closed	line circuit 0      use on ground line circuit 2      isolated (GI) systems.
QPP419 DIGR	Equalizer Selector Switch S1	Use for cable lengths from QPP419A to office repeater of:
	Sect. 1 closed, all others open Sect. 2, 5, 8 closed, all others open Sect. 3, 4, 7 closed, all others open	0 – 150 ft ( 0 – 46 m) 150 – 400 ft ( 46 – 122 m) 400 – 750 ft (122 – 223 m).
QPP421 ALARM OFFICE	(a) Configuration Select Switch, S5	Use Sections 1 through 4 if QPP414 local switch is installed at:
	Sect. 1 open	RCT 0
	Sect. 2 open	RCT 1
	Sect. 3 open	RCT 2
	Sect. 4 open	RCT 3
	Sect. 5 open	Use Sections 5 to 8 as follows:
	Sect. 5 closed	QPP429 or QPP499 Prot. Sw. installed QPP429 or QPP499 Prot. Sw. not installed
	Sect. 6 open †	Spare Alarm 4 is minor
	Sect. 6 closed*	Space Alarm 4 is major
	Sect. 6 open †	QPP496 Buffer installed, Spare Alarm 4 is minor
Sect. 6 closed †	QPP412 Buffer installed. Spare Alarm 4 is major	
Sect. 7 open	Digroup B not installed	
Sect. 7 closed	Digroup B installed	
Sect. 8	Not used.	
(b) RCT Group 0 Switch S4: ‡	Open individual selector switch sections corresponding to the line shelves, as shown, installed at RCT 0:	
Sect. 1 open	line shelf 0	
Sect. 2 open	line shelf 1	
Sect. 3 open	line shelf 2	
Sect. 4 open	line shelf 3	
Sect. 5 open	line shelf 4	
Sect. 6 open	line shelf 5	
Sect. 7 open	line shelf 6	
Sect. 8 open	line shelf 7	

Table Continued

**TABLE C Continued**  
**CCT CIRCUIT PACK OPTION SELECTORS**

CIRCUIT PACK	OPTION SELECTION (See Fig. 8)	PURPOSE
<p>QPP436, QPP437 REPEATER</p> <p>QPP416 LOCAL LINK DETR Fig. 10</p>	<p>(c) RCT Group 1 Switch S3: ‡</p> <p>Sect. 1 open Sect. 2 open Sect. 3 open Sect. 4 open Sect. 5 open Sect. 6 open Sect. 7 open Sect. 8 open</p>	<p>Open individual selector switch sections corresponding to the line shelves, as shown, installed at RCT 1:</p> <p>line shelf 0 line shelf 1 line shelf 2 line shelf 3 line shelf 4 line shelf 5 line shelf 6 line shelf 7</p>
	<p>(d) RCT Group 2 Switch S2: ‡</p> <p>Sect. 1 open Sect. 2 open Sect. 3 open Sect. 4 open Sect. 5 open Sect. 6 open Sect. 7 open Sect. 8 open</p>	<p>Open individual selector switch sections corresponding to the line shelves, as shown, installed at RCT 2:</p> <p>line shelf 0 line shelf 1 line shelf 2 line shelf 3 line shelf 4 line shelf 5 line shelf 6 line shelf 7</p>
	<p>(e) RCT Group 3 Switch S1: ‡</p> <p>Sect. 1 open Sect. 2 open Sect. 3 open Sect. 4 open Sect. 5 open Sect. 6 open Sect. 7 open Sect. 8 open</p>	<p>Open individual selector switch sections corresponding to the line shelves, as shown, installed at RCT 3:</p> <p>line shelf 0 line shelf 1 line shelf 2 line shelf 3 line shelf 4 line shelf 5 line shelf 6 line shelf 7</p>
	<p>Install three suitcase-type plugs in the 3 dB locations (P3, P4, P5).</p>	<p>Use, if the distance to the first line repeater is 3000 ft (925 m) or more.</p>
	<p>Install three suitcase-type plugs in the 7.5 dB locations (P3, P4, P5).</p>	<p>Use, if the distance to the first line repeater is less than 3000 ft (9.25 m).</p>
	<p>(a) Threshold select plug, P4:</p> <p>P4 installed</p> <p>P4 removed</p>	<p>A local link search is performed:</p> <p>on every terminating call</p> <p>on terminating calls only when 36 channels are busy (16 channels on a single digroup system).</p>

Table Continued

TABLE C Continued  
CCT CIRCUIT PACK OPTION SELECTORS

CIRCUIT PACK	OPTION SELECTION (See Fig. 8)	PURPOSE
QPP424 LINE TEST OFFICE	(b) Tone application delay selector plug, P5:	Use when connected to a switching machine with an answer to talk connection delay of:
	P5 installed	>150 ms (e.g., No. 1 ESS)
	P5 removed	<150 ms (e.g., SXS, No. 5XB, SP-1)
		See 363-2011-213 for a test method to select this option.
QPP425 SYSTEM TEST	Option selector switch S2:	
	Sect. 8 ON	Frequency-selective line circuit packs installed (QPP440, 441).
	Sect. 8 OFF	No frequency-selective line circuit packs installed.
QPP429 PROT SW OFF	Digroup loopback plug P4 P4 installed P4 removed	<ul style="list-style-type: none"> <li>— used for normal operation</li> <li>— used for initial system installation test only (DS1 loopback).</li> </ul>
	<i>Caution: Do not remove P4 from an in-service system.</i>	(DS1 loopback).
QPP429 PROT SW OFF	S12 open	To disable automatic loopback in any one of the following cases:  systems where high ac induction causes frequent digital line failure;  systems with a single RCT;  systems using system controller vintages QPP431A5 to QPP431A7 and QPP431B5 to QPP431B7.
	S12 closed	To enable automatic digital line loopback in systems not described above.
	Front Panel switches	Where no protection line is supplied, PSA and PSB must be in the inhibit (down) position and ARM must be in the operate (UP) position.

Table Continued

**TABLE C Continued**  
**CCT CIRCUIT PACK OPTION SELECTORS**

CIRCUIT PACK	OPTION SELECTION (See Fig. 8)	PURPOSE
QPP441C QPP441D FREQUENCY SELECTIVE	Switch 1: Sect. 1 OFF line 0 Sect. 2 OFF line 1 Switch 2: Sect. 1 OFF line 2 Sect. 2 OFF line 3  Switch 1: Sect. 1 ON line 0 Sect. 2 ON line 1 Switch 2: Sect. 1 ON line 2 Sect. 2 ON line 3	For use with ANI detection other than Automatic Electric SATT type.  For use with Automatic Electric SATT ANI detection, or equivalent.
QPP446 Superimposed Office	Selector switches S1 and S2: Sect. 1 and 2 ON  Sect. 1 and 2 OFF	– use for Automatic Electric SATT ANI detector system or equivalent – use for other 2-party ANI systems.
QPP448 TEST ACCESS	(a) Selector switch S1: Sect. 1 – shelf 0 Sect. 2 – shelf 1 Sect. 3 – shelf 2 Sect. 4 – shelf 3 Sect. 5 – shelf 4 Sect. 6 – shelf 5 Sect. 7 – shelf 6 Sect. 8 – shelf 7  (b) Selector switch S2: Sect. 1 – auto spare Sect. 2 – manual spare Sect. 3 – manual bypass Sect. 4 – manual inhibit Sect. 5 – system test report Sect. 6 – bypass timeout Sect. 7 – bypass sleeve takedown Sect. 8 – SLTE system audit  (c) Select or switch S3: Sect 1 to 5 – not used Sect. 6 – downstream RCT  Sect. 7 – test train sleeve active state Sect. 8 – test line sleeve active state	For each switch section: ON = when the first line on the shelf is selected for normal service OFF = when the first line is selected for spare service.  For each switch section: ON = feature is disabled OFF = feature is enabled.  ON = disconnect OFF = connect ON = active, if input –48 V OFF = active, if input GRD ON = active, if input –48 V OFF = active, if input GRD.

Table Continued

**TABLE C Continued**  
**CCT CIRCUIT PACK OPTION SELECTORS**

CIRCUIT PACK	OPTION SELECTION (See Fig. 8)	PURPOSE
<p>QPP450 TEST CONTROL</p> <p>QPP496 BUFFER</p> <p>QPP499 1-FOR-N PROTECTION SWITCH</p>	<p>(d) Option plugs:</p> <p>In location J1 — test line sleeve conditions</p> <p>In location J2 — test train sleeve conditions</p> <p>Switch S2:</p> <p>Sect. 2, 3, 4, ON Sect. 1 OFF Sect. 1 ON Sect. 5 ON Sect. 5 OFF</p> <p>Install suitcase-type plug in the OFFICE (J2) location</p> <p>Switch S12:</p> <p>Sect 1 closed; all others open Sect 2, 5, 8 closed; all others open Sect 3, 4, 7 closed; all others open</p> <p>Switch S13: open</p>	<p>Shorting pins 1 and 2 = isolated relay contact closes to GRD.</p> <p>Shorting pins 2 and 3 = isolated relay contact closes to -48 V.</p> <p>Shorting pins 3 and 4 = use for sleeves that close to GRD and -48 V (J1 only).</p> <p>(OFF used only at factory)</p> <ul style="list-style-type: none"> <li>- for digroup loopback</li> <li>- normal operation</li> <li>- vf audit disabled</li> <li>- vf audit enabled.</li> </ul> <p>For correct ANI operation.</p> <p>Set to correspond to cable length from QPP499 to the office repeater (protection line) as follows:</p> <ul style="list-style-type: none"> <li>- 0 to 150 ft ( 0 - 46 m)</li> <li>- 150 to 400 ft (46 - 122 m)</li> <li>- 400 to 750 ft (122 - 228 m)</li> </ul> <p>Disables automatic loopback in the following cases:</p> <ul style="list-style-type: none"> <li>- systems with one RCT</li> <li>- systems where high ac induction causes frequent digital line failures</li> </ul>

Table Continued

**TABLE C Continued**  
**CCT CIRCUIT PACK OPTION SELECTORS**

CIRCUIT PACK	OPTION SELECTION (See Fig. 8)	PURPOSE																																							
ED7208-32 G3 OFFICE BYPASS	<p>Switch S13: closed</p> <p>Install plugs P1 and P2: in 10 SEC position in 80 SEC position</p> <p>Front Panel switches</p> <p>Selector switch SW1:</p> <p>Sect 1, 2, 3: set to binary code corresponding to the number of the shelf on which the assembly is mounted</p> <p>Sect 4: OFF ON</p>	<p>Enables automatic loopback for systems other than above.</p> <p>For automatic loopback delay of 10 seconds. For automatic loopback delay of 80 seconds. When no protection line is supplied, PSA and PSB must be in the inhibit (down) position and ARM must be in the operate (up) position.</p> <p>Sets the line shelf number:</p> <table border="1" data-bbox="1052 932 1539 1318"> <thead> <tr> <th rowspan="2">SHELF NO.</th> <th colspan="2">SWITCH</th> <th rowspan="2">SECTION</th> </tr> <tr> <th>1</th> <th>2</th> <th>3</th> </tr> </thead> <tbody> <tr><td>0</td><td>ON</td><td>ON</td><td>ON</td></tr> <tr><td>1</td><td>OFF</td><td>ON</td><td>ON</td></tr> <tr><td>2</td><td>ON</td><td>OFF</td><td>ON</td></tr> <tr><td>3</td><td>OFF</td><td>OFF</td><td>ON</td></tr> <tr><td>4</td><td>ON</td><td>ON</td><td>OFF</td></tr> <tr><td>5</td><td>OFF</td><td>ON</td><td>OFF</td></tr> <tr><td>6</td><td>ON</td><td>OFF</td><td>OFF</td></tr> <tr><td>7</td><td>OFF</td><td>OFF</td><td>OFF</td></tr> </tbody> </table> <p>— enables bypass assembly — set ON to disable shelf assembly circuit packs, or if shelf is not equipped</p>	SHELF NO.	SWITCH		SECTION	1	2	3	0	ON	ON	ON	1	OFF	ON	ON	2	ON	OFF	ON	3	OFF	OFF	ON	4	ON	ON	OFF	5	OFF	ON	OFF	6	ON	OFF	OFF	7	OFF	OFF	OFF
SHELF NO.	SWITCH			SECTION																																					
	1	2	3																																						
0	ON	ON	ON																																						
1	OFF	ON	ON																																						
2	ON	OFF	ON																																						
3	OFF	OFF	ON																																						
4	ON	ON	OFF																																						
5	OFF	ON	OFF																																						
6	ON	OFF	OFF																																						
7	OFF	OFF	OFF																																						

\* For system controller vintages QPP431A1 through A7 and QPP431B4 through B7.

† For system controller vintages QPP43A8 and QPP431B8 and later.

‡ For System Controller vintages QPP431A8, QPP431B8 and later, sections 1 through 8 of S1, S2, S3, and S4 should be closed for all shelves not equipped with line cards. If the switches are not correctly selected, an alarm is displayed.

**TABLE D  
ORDER-WIRE AND FAULT-LOCATE  
CIRCUIT PACK OPTION SELECTORS**

CIRCUIT PACK	OPTION SELECTOR SETTINGS	USE
QPP300-TYPE FLT LOC FILTER	SA Open <input type="checkbox"/> 1 Closed <input checked="" type="checkbox"/> 2 Open <input type="checkbox"/> 3 Closed <input checked="" type="checkbox"/> 1 Open <input type="checkbox"/> 2 Closed <input checked="" type="checkbox"/> 3	Use for high voltage interrogation of the fault-locate filter.  Use for low voltage interrogation of the fault-locate filter.
	SB Closed <input checked="" type="checkbox"/> 1 Open <input type="checkbox"/> 2 Open <input type="checkbox"/> 3 Closed <input checked="" type="checkbox"/> 4 Open <input type="checkbox"/> 1 Closed <input checked="" type="checkbox"/> 2 Closed <input checked="" type="checkbox"/> 3 Open <input type="checkbox"/> 4	Use for positive voltage interrogation of the fault-locate filter.  Use for negative voltage interrogation of the fault-locate filter.
QPP302-TYPE SPAN ORDERS WIRE TERM	SA Open <input type="checkbox"/> 1 Open <input type="checkbox"/> 2	Use if the dc resistance of the vf line to the CO switching equipment is less than 350 ohms.
	Closed <input checked="" type="checkbox"/> 1 Closed <input checked="" type="checkbox"/> 2	Use if the dc resistance of the vf line to the CO switching equipment is more than 350 ohms.

*Note:*

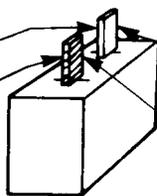
■ = Switch Section closed

□ = Switch Section open

*Symbols:*

Switch section open = □

Switch section closed = ■



Circuit open when plated end showing

Circuit closed when plastic-coated end showing.

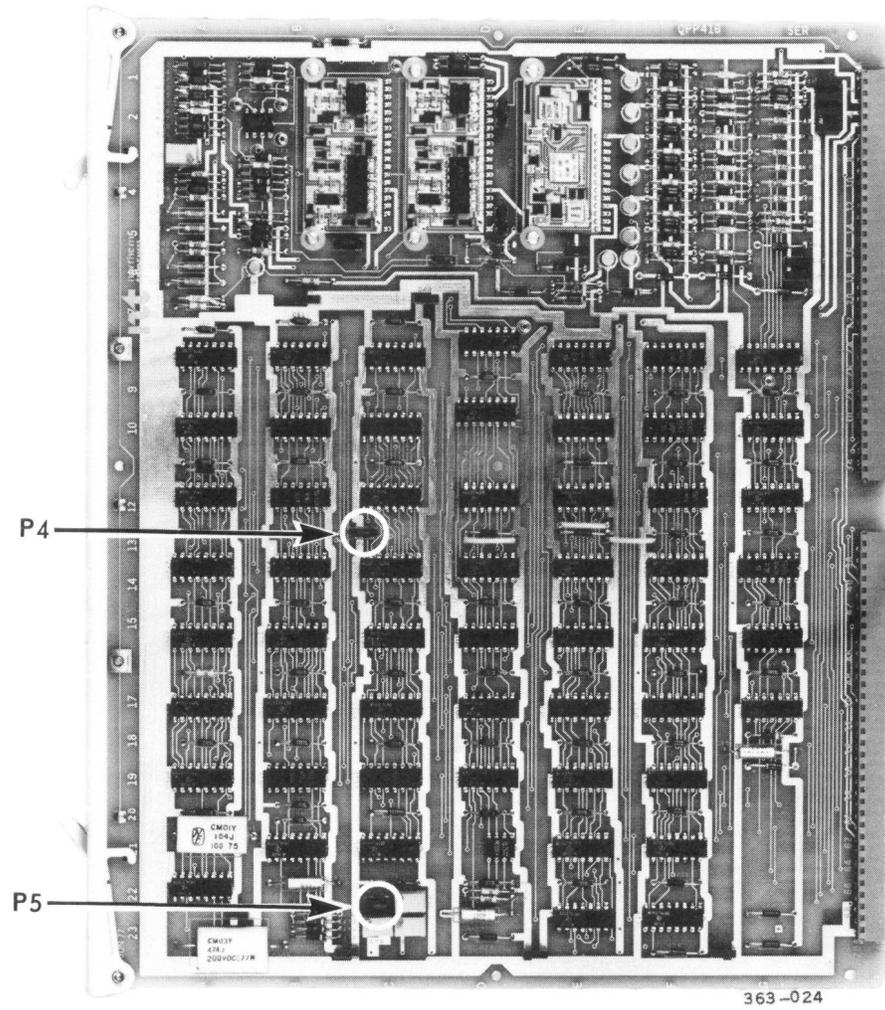


Fig. 10 – QPP416; Locations of Plugs P4 and P5