

800-SERIES DSX — TRANSITION PROCEDURES

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1. GENERAL

1.01 In many of the offices targeted for 800-series DSX installation, there are old-type DSX equipment (e.g. ED-2C544 panels) currently installed. The changing over to or *transition* to the 800-series DSX equipment from the old-type DSX equipment can involve several interface considerations. Three possible transition applications are:

(1) New Lineup Application — The installation of all the new 800-series DSX equipment in new lineups parallel to old-type DSX lineups.

(2) Adjacent Application — The installation of new 800-series DSX equipment in new bays adjacent to existing old-type DSX equipment within the same lineup.

(3) Replacement Application — The installation of new 800-series DSX equipment in existing bays to replace the old-type DSX equipment.

In this practice each application is defined and its unique problems addressed.

1.02 Whenever this practice is reissued, the reason(s) for reissue will be listed in this paragraph.

1.03 The definition of key terms and acronyms used throughout this practice are listed below.

DAB - Directly Adjacent Bay. The bay installed directly adjacent to (next to) the existing old-type bays.

DSX - Digital Signal Cross-Connect.

Lineup - Any number of equipment bays installed in a line (up to 23 bays). The 800-series DSX can have up to 3 lineups without violating the cross-connect length limits of the system.

Replacement - The installation of new 800-series DSX panels into existing bays (older-type bays) to replace the old-type DSX equipment.

Tie Pair Panels - The panels used for cross-aisle ties.

Transition - A general term to describe the installation of the new 800-series DSX in locations where other DSX equipment is currently in use.

709 Connector - The connector recommended for making a Y splice into the 600-series cable leads carrying the live circuits when transferring working circuits from the old DSX panel to the 800-series DSX panel without service interruption.

2. NEW LINEUP APPLICATION

2.01 The installation of a new lineup with 800-series DSX equipment follows standard procedures and standard configuration types (Practice 855-350-102). The difference between these two configurations is the method of installing cross-aisle ties to the existing old-type lineup(s).

Cross-Aisle Ties

2.02 Job specific engineering determines the number of cross-aisle ties needed from the old-type lineup(s) to the new lineup(s). These ties should be run from existing tie-pair panels in the old-type lineup(s) or new 800-series tie-pair panels installed in the old-type lineup(s) to new 800-series tie-pair panels in the new lineup(s). In some cases the old-type panels in the existing lineup(s) can be replaced to add tie-pair density. For replacement procedures on tie-pair panels, see Part 4(G); for tie-pair engineering guidelines, refer to Practice 855-350-102.

3. ADJACENT APPLICATION (Adding new bays within a lineup)

3.01 Install the 800-series panels in the new bays so that the jack fields face the same direction as the jack fields in the old-type panels existing in the lineup. However, since the old-type panels use back-running jumper methods and the new 800-series panels use front-running jumper methods, the first new-type bay added must be specially equipped. This specially equipped bay should be installed directly adjacent to the existing old-type bays and is further referenced throughout this practice as the DAB (directly adjacent bay). Refer to Fig. 1 and 2

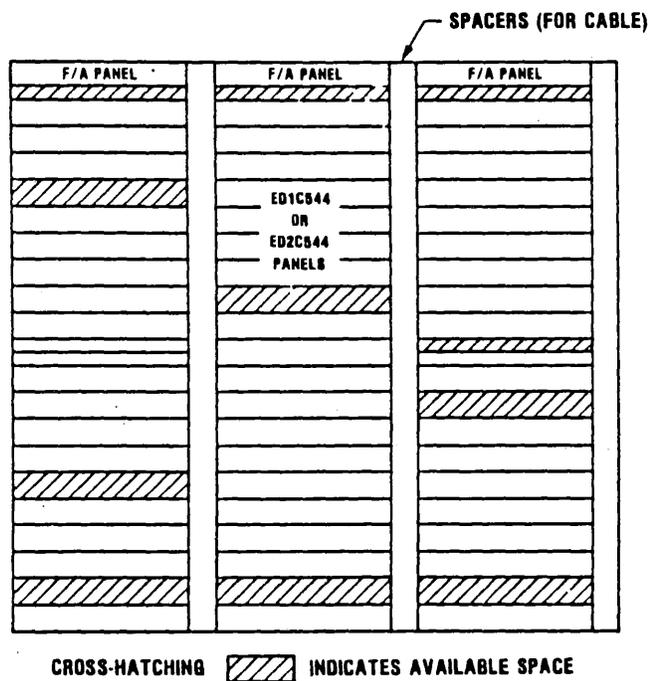


Fig. 1—Layout of Lineup Before Adjacent Application

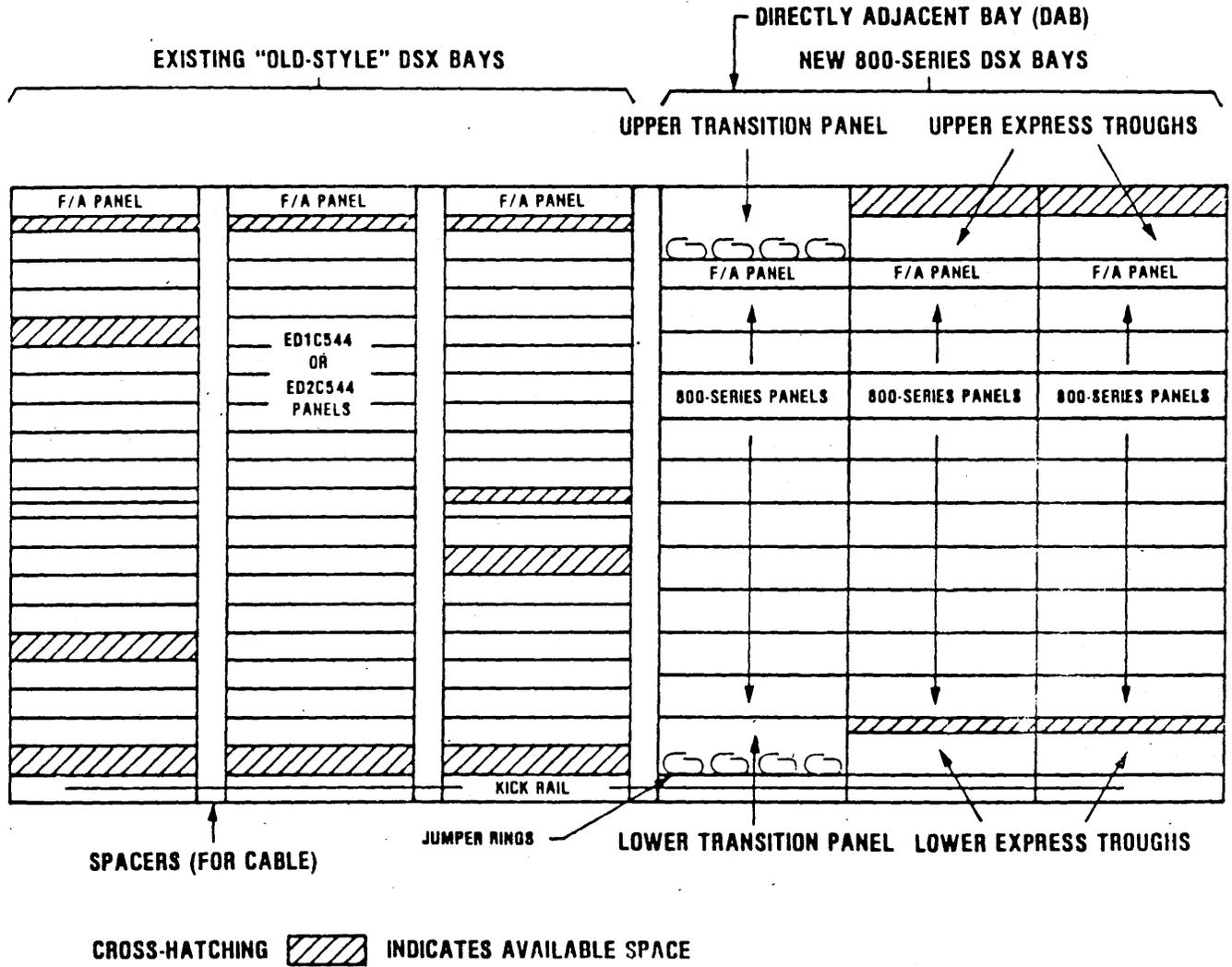


Fig. 2—Layout of Lineup After Adjacent Application

A. Bay Alignment

3.02 As shown in Fig. 3, the new ED-8C501 bays used for the 800-series DSX equipment is installed adjacent to the old bays, with the closed sides of the ducts aligned. This reduces the front-aisle spacing by 3 inches. for the new 800-series DSX bays.

B. DAB (Directly Adjacent Bay)

3.03 The DAB has transition panels installed in place of the upper and lower express troughs. These transition panels allow a back-running jumper from one of the old-type bays in the lineup to be passed through to the front of the bay. Jumper rings in the transition panels retain the back-to-front jumpers. All other bays added subsequently to the DAB have the standard 800-series configurations (Fig. 2).

C. Jumper Running

3.04 In an adjacent application there are four possible jumper types. Each of the four is listed below along with a brief description.

Old-Type Bay to Old-Type Bay

3.05 This is a back-running jumper and does not go through the DAB. The jumper is run from the

originating jack along the horizontal trough to the vertical trough - then, up/down to the nearest express trough. It runs along the express trough until it reaches the desired bay - then, up/down the vertical trough to the target horizontal trough and jack location.

Old-Type Bay to DAB

3.06 This is a back-to-front running jumper that terminates on a new 800-series panel located on the DAB. The jumper runs from the originating jack on the old-type bay along the horizontal trough to the vertical trough - then, up/down to the upper/lower express trough. It runs along the express trough until it reaches the DAB, at which point the jumper passes through the transition panel to the front of the DAB to the vertical trough - then, up/down to the target horizontal trough and jack location on the DAB.

Old-Type Bay to New-Type Bay

3.07 This is a back-to-front running jumper that passes through the transition panel on the DAB. The jumper runs from the originating jack on the old-type bay along the horizontal trough to the vertical trough - then, up/down to the upper/lower

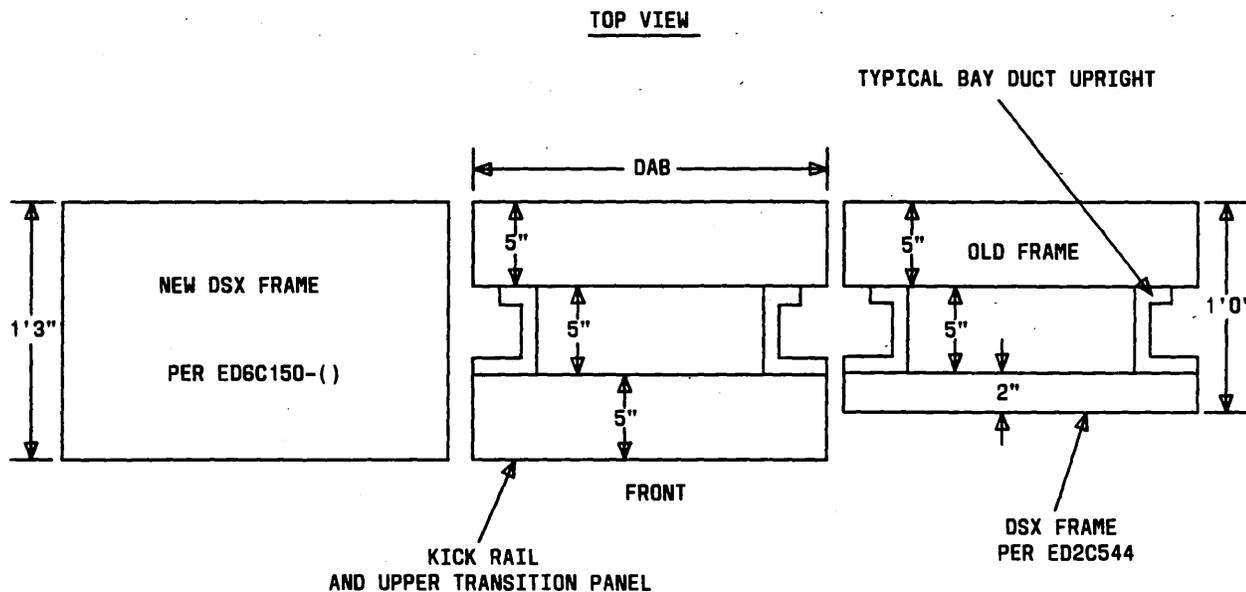


Fig. 3—Alignment of 800-Series Bays

express trough. It runs along the express trough until it reaches the DAB, at which point the jumper passes through the transition panel to the front of the DAB - then, along the upper/lower express trough until it reaches the desired bay - then, runs down/up the vertical trough to the target horizontal trough and jack location.

New-Type Bay to New-Type Bay

3.08 This is a front-running jumper that does not go through the transition panel on the DAB. The jumper runs from the originating jack along the horizontal trough to the vertical trough - then, up/down to the upper/lower express trough. It runs along the express trough until it reaches the desired bay - then, down/up the vertical trough to the target horizontal trough and jack location.

4. REPLACEMENT APPLICATIONS

4.01 Some offices may desire the added density the 800-series DSX equipment provides without adding new bays. In order to achieve this goal, the 800-series DSX equipment replaces the old-type equipment currently in operation. This swapping of equipment is called **replacement**, and the recommended procedures for accomplishing this are detailed in this practice.

A. Layout

4.02 Before starting the actual replacement, it is important to develop a new front equipment layout for the DSX. The new layout shows the new locations for equipment to reterminate on the new 800-series panels. Examples of front equipment layouts for a DSX undergoing replacement are shown in Fig. 4 and 5. The layout on the old type panels before the replacement is shown in Fig. 4, and the layout on the new panels after the replacement is shown in Fig. 5.

4.03 To simplify cable handling, all cables initially terminated in a bay should be moved onto a new 800-series panel in the same bay.

4.04 Since the application shown in Fig. 4 and 5 is for an overhead cable feed, all the terminations have been moved from the old DSX panels on the bottom of the bay to the new 800-series panels at the top of the bay. No terminations are moved between bays. This is done to ensure enough cable length is available. Likewise, all terminations should be moved to the bottom of each bay, if space permits, in an underfloor cable feed application.

B. Cabling

4.05 *Caution: When reusing cables, verify that they are constructed of Y1-type or Y2-type wire or other wire which has fire-retardant properties. Also, if the DSX equipment is being installed on a customer premises, ensure that the cables meet the revision to the National Electrical Code* (for 1987) which requires that only UL (Underwriters Laboratory) listed communication cables be used.*

4.06 If the cables to be reused do not meet the above criteria, remove them and run new approved cables. To simplify routing cables to the new 800-series panels, the existing cables are reused and may be left in the cabling duct that is part of the bay. The cables do not have to be moved and secured to the waterfall cable brackets. However, all new cabling for future 800-series panels should utilize the waterfall cabling slots to be installed on the back of the bay.

* Registered trademark of the National Fire Protection Association.

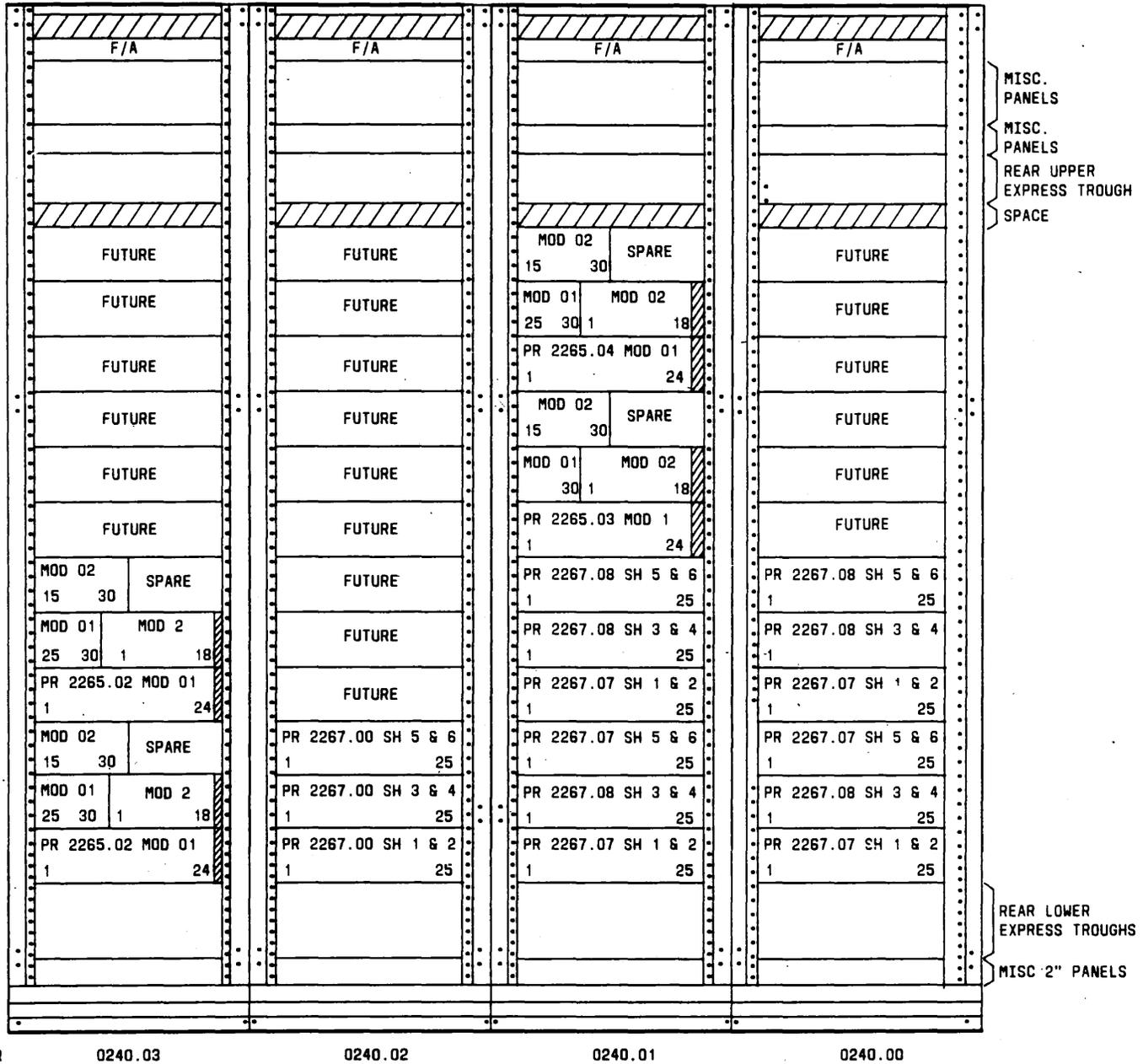


Fig. 4—Front Equipment Layout Prior to Transition (Old Panels)

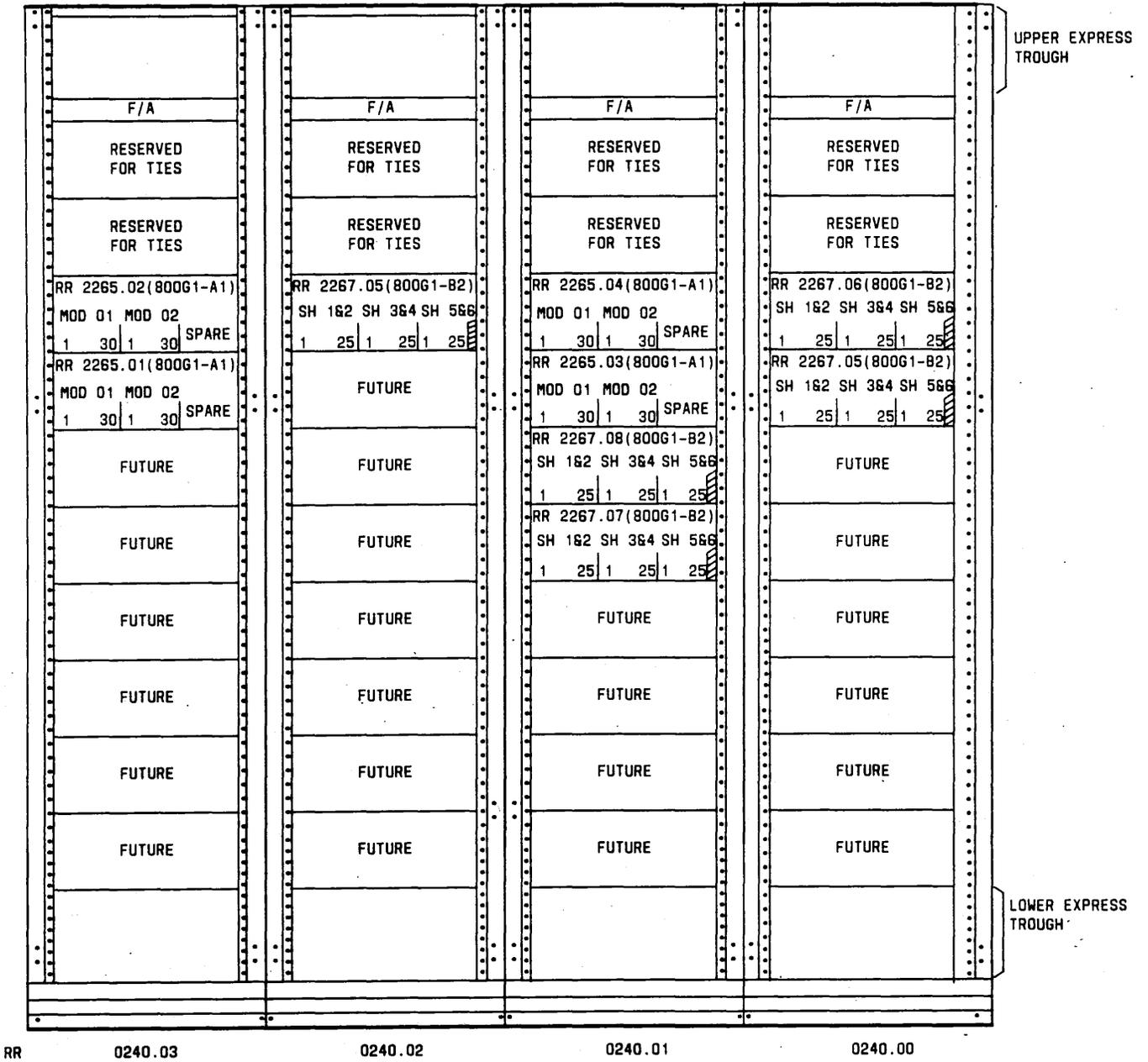


Fig. 5—Front Equipment Layout After Transition (New Panels)

C. Partial Replacement

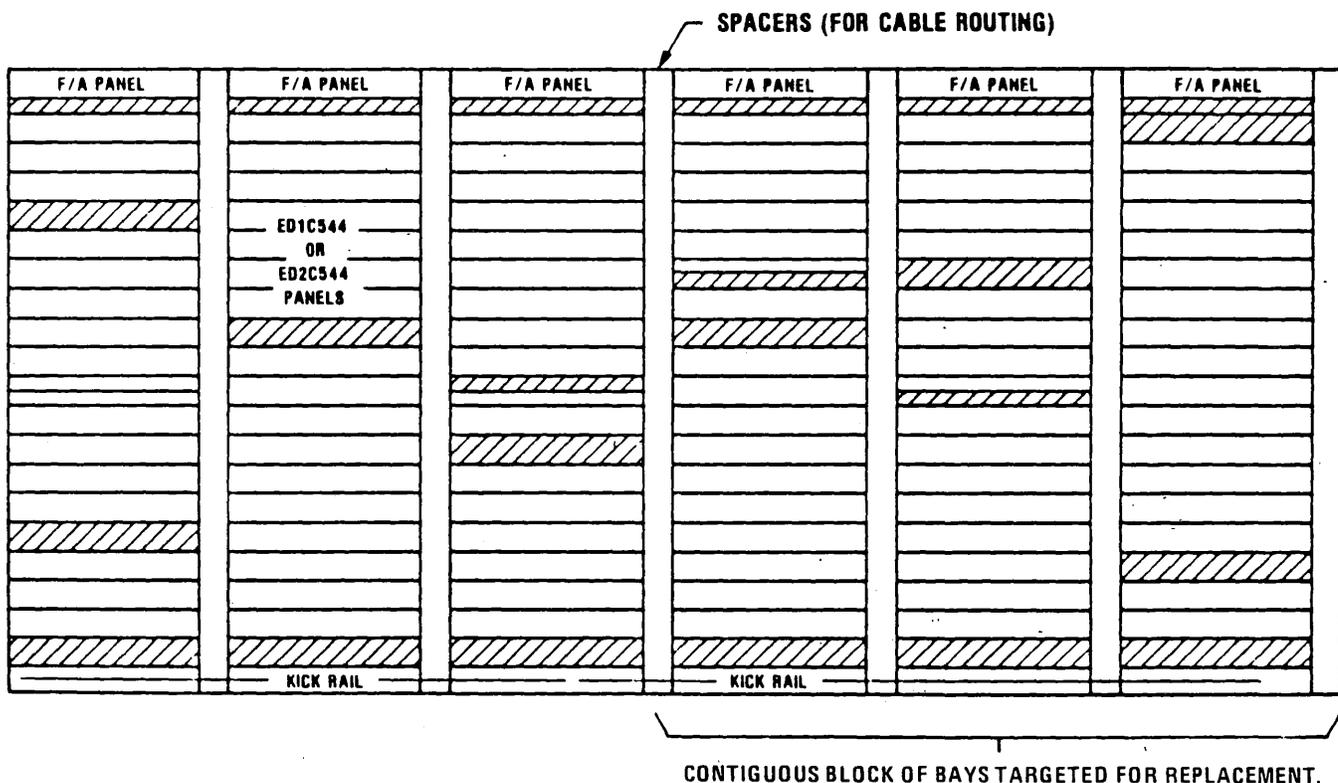
4.07 In a replacement situation where only part of an existing lineup is to be replaced with 800-series equipment, these guidelines should be adhered to (Fig. 6, 7, 8, 9, and 10).

- (1) Determine the number of replacement bays needed.
- (2) The bays targeted for replacement should be a contiguous block of bays terminating at either end of the lineup.
- (3) Replacement should begin with the innermost bay in the contiguous block of bays. This bay is to become the DAB.

(4) Install transition panels (see Adjacent Application) in the top and bottom of the DAB. If there is insufficient space to install both transition panels, one will suffice until replacement of the panels allows installation of the second.

(5) Proceed with replacing panels in the DAB. Jumper running procedures follow those specified in the Adjacent Application section.

(6) When the DAB has been completely replaced, proceed to the left or right of the DAB, using standard 800-series DSX configurations.

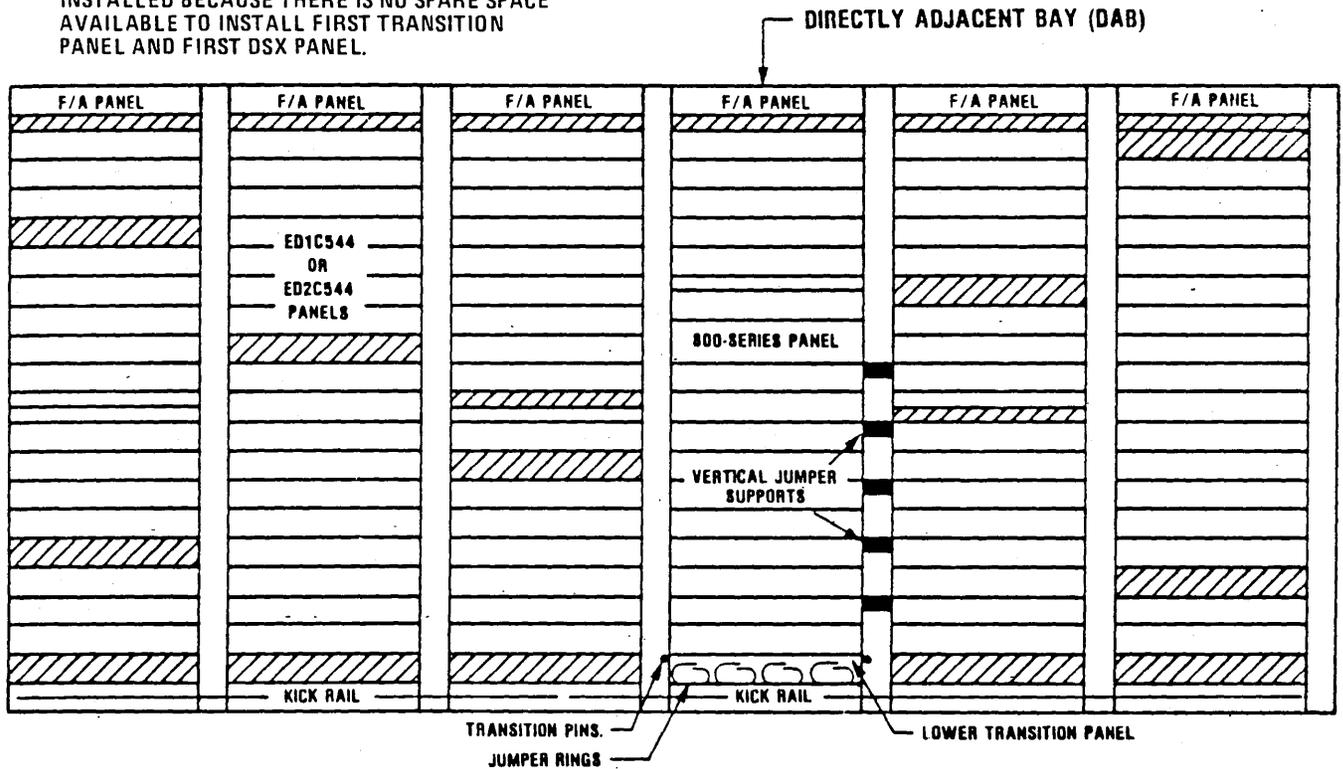


CROSS-HATCHING  INDICATES AVAILABLE SPACE

Fig. 6—Partial Retrofit—Front Equipment Layout of Old Panels and Bays Before Retrofit

NOTES:

- (1) NOTICE INSTALLATION OF LOWER TRANSITION PANEL AND FIRST 800 SERIES DSX PANEL IN DAB.
- (2) TEMPORARY VERTICAL JUMPER SUPPORTS BEEN INSTALLED BECAUSE THERE IS NO SPARE SPACE AVAILABLE TO INSTALL FIRST TRANSITION PANEL AND FIRST DSX PANEL.

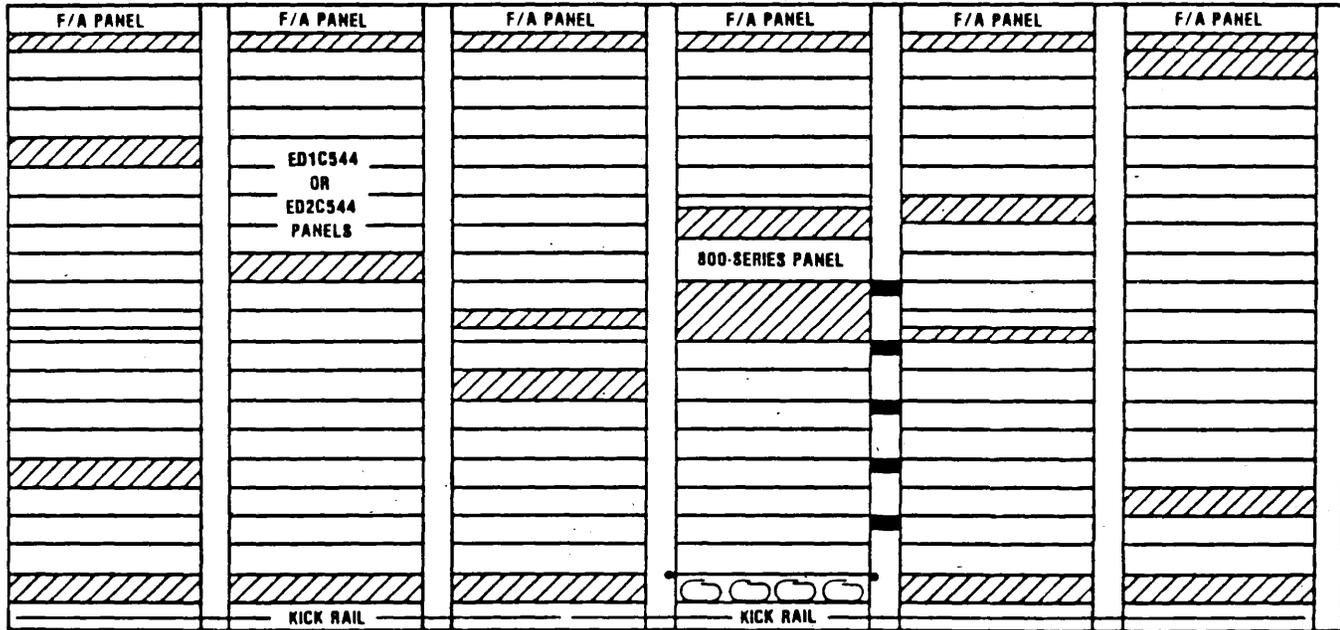


CROSS-HATCHING INDICATES AVAILABLE SPACE

Fig. 7—Partial Retrofit — Front Equipment Layout of Retrofitted Panels (New Panels) Into Existing Bays

NOTE:

- (1) NOTICE REMOVAL OF OLD TYPE PANELS AFTER FIRST 800-SERIES DSX PANEL RETROFIT IS COMPLETE. ADDED DENSITY IS OBTAINED BY REPLACING THREE OLD PANELS WITH A SINGLE DSX PANEL.



CROSS-HATCHING  INDICATES AVAILABLE SPACE

Fig. 8—Partial Retrofit — Showing Removal of Old Type Panels After First 800-Series DSX Panel Retrofit Is Complete

NOTES:

- (1) NOTICE RETROFITTED BAY CAN ACCOMMODATE 10 MAX 800 SERIES PANELS AND 2 TRANSITION PANELS. THE RETROFITTED BAY NOT ONLY ACCOMMODATES ALL THE CONNECTIONS OF THE OLD PANELS BUT ALSO HAS SPACE FOR NEW EQUIPMENT CONNECTIONS.

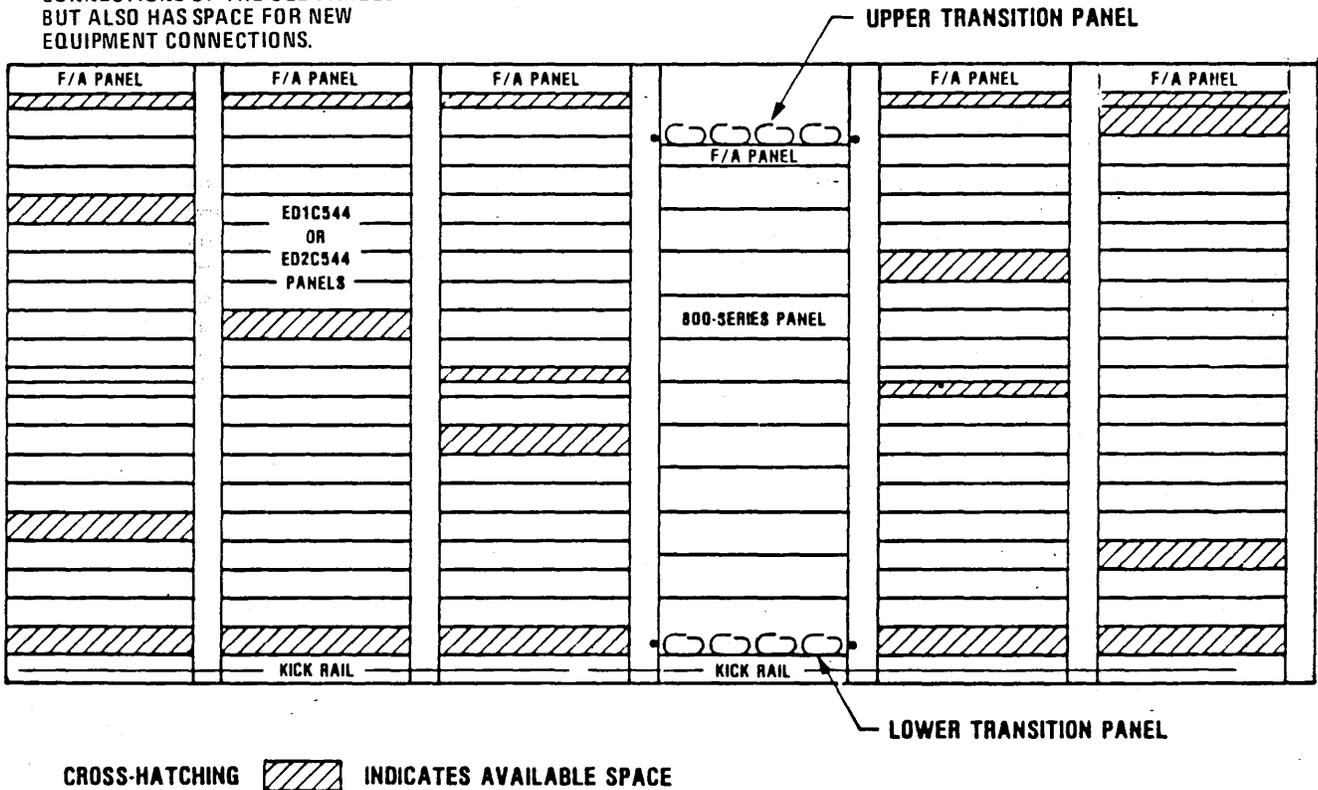


Fig. 9—Partial Retrofit — Layout of DAB After Entire Bay Has Been Retrofitted

NOTES:

(1) NOTICE UPPER AND LOWER TRANSITION PANELS IN DAB. THESE TRANSITION PANELS ALLOW THE BACK-TO-FRONT JUMPERS TO PASS THROUGH THE DAB TO THEIR DESIRED BAY AND BE TERMINATED ON THE FRONT OF THE NEW PANEL.

(2) THIS LINEUP COULD BE EXPANDED SIMPLY BY ADDING NEW BAYS TO THE RIGHT OF THE RIGHT MOST RETROFITTED BAY.

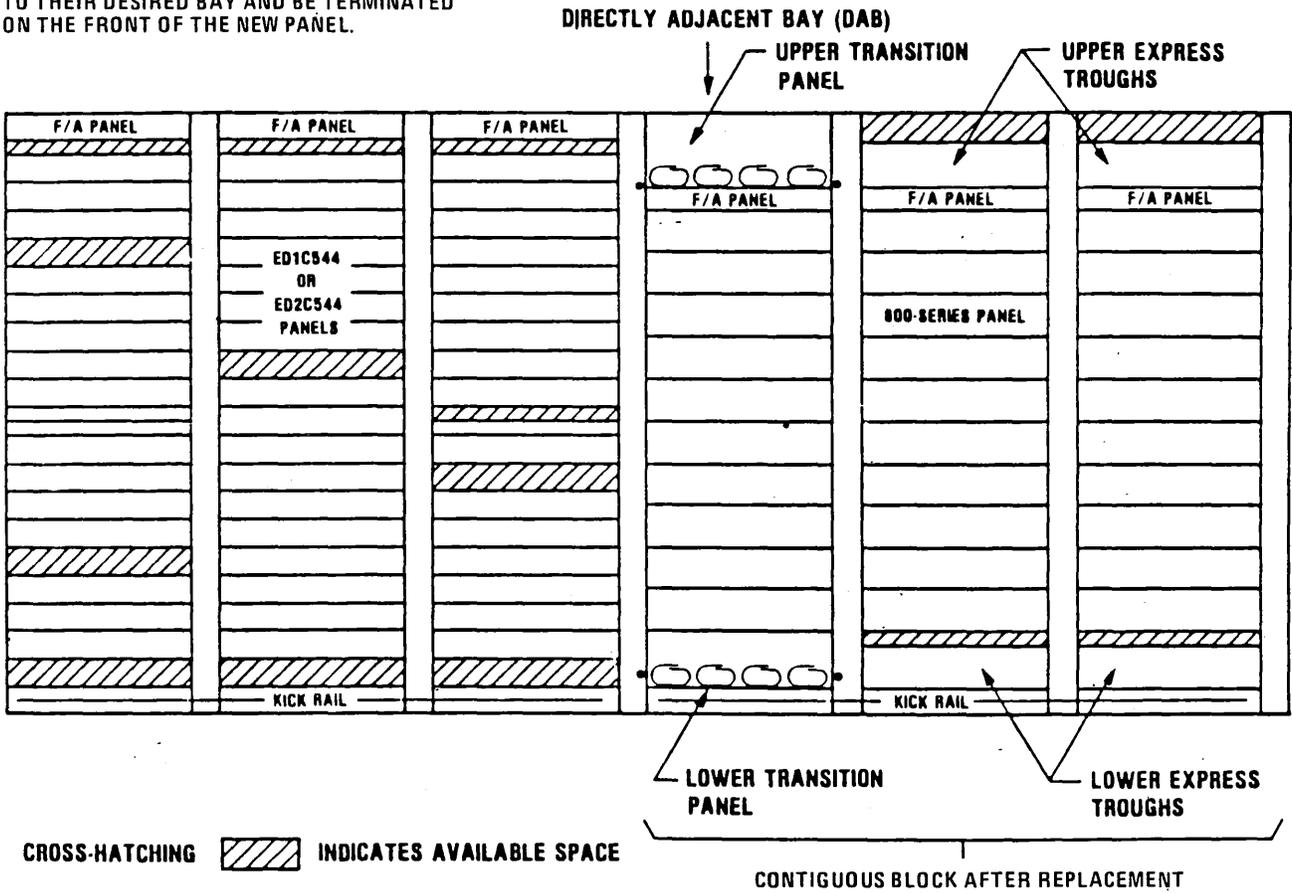


Fig. 10—Partial Retrofit — Layout of Lineup After Entire Contiguous Block of Bays Have Been Retrofitted

D. Full Replacement

4.08 In a replacement situation where an entire lineup is to be replaced with 800-series DSX equipment, these guidelines should be adhered to:

- (1) Replacement should begin in the middle bay of the lineup. This bay becomes the DAB.
- (2) Install transition panels (see Adjacent Application) in the top and bottom of the DAB. If there is insufficient space to install both transition panels, one will suffice until replacement of the panels allows installation of the second.
- (3) Proceed with replacing panels in the DAB. Jumper running procedures follow those specified in the Adjacent Application section.
- (4) When the DAB has been completely replaced, proceed to the left or right of the DAB, using standard 800-series DSX configurations.
- (5) After completion of the replacement from the DAB to the left or right end of the lineup, proceed with replacing from the DAB to the opposite side until the lineup has been completely replaced.
- (6) After all bays in the lineup have been replaced, there should be no back-to-front running jumpers (the transition panels should be empty) so the transition panels may be replaced with upper and lower express troughs.

E. Moving of Working Circuits

4.09 The replacement procedure is designed to transfer working circuits from the old DSX panel to the new 800-series DSX panel without service interruptions. The patching that must be performed may cause "hits"; however, these "hits" should not cause service interruptions, but may cause bit stream reframing.

4.10 The following procedure outlines the sequence of steps used to move working circuits from the old-type panels to the 800-series panels. Figure 11 and 12 depicts the DSX in various stages of the move.

- (1) Identify circuits to be moved and develop a new front equipment layout (paragraph 4.02).

- (2) Cut the cable sheaths back to the top (bottom for underfloor cable fed) of the new 800-series panel to be installed.

- (3) Y-splice matching gauge wire leads from a new 600-series cable onto the cable leads of the live circuits. It is best to preserve the color code of the original cable with the splice leads. Use AT&T 709-type connectors to accomplish the splice. Stagger the connectors along the old cable to reduce the bundle size. This Y-splice should be kept *as short as possible* to reduce the possibility of signal reflections distorting the DS1/1C signal. Experience has shown that adding a Y-splice of 3-feet or less to DS1/1C cabling is possible without causing noticeable distortion. (For additional information on the Y-splice using the 709-type connector, see Practice 632-205-216.)

- (4) For the non-working circuits, remove the cable leads from the old-type panel.

- (5) Terminate all the splice leads from the working circuits and the cable leads from the non-working circuits to the new 800-series panel. Leave approximately 10 inches of slack in the leads (for jumper tracing or retermination) when terminating them on the new panel.

- (6) Test, via the monitor jacks, the quality of the working signals at the new blocks to ensure the splices are adequate. Cords used with the test sets must not exceed 6 feet in length (DS1-C rates are especially sensitive to cord length). Use shorter cords if possible.

- (7) Patching and moving cross-connects (steps 7 through 9) can be done one circuit or any number of circuits at a time. Install patch cords between a working circuit of the new panel and the DSX location on the far end of the DSX cross-connects. Insert both ends of the patch cords simultaneously (e.g., at the count of 3) to minimize "hits" on the circuits. Installing the patch cords provides a transmission path through the patch cords and disables the cross-connect jumpers so that they may be moved without causing service outages.

Note: Patch cords are installed from the *out* jack in the old panel to the *in* jack of the new panel and from the *out* jack in the new panel to the *in* jack of the old panel.

(8) Install plastic inserts or **non-terminating** dummy plugs (e.g., 258-type plug) in the old DSX panel location (both the **out** and **in** jack locations). These dummy plugs disable the near end of the old cross-connects without introducing a load across tip and ring (open circuit), thus reducing any effects of a long cross-connect jumper on the Y-splice. If one end of a patch cord is used to disable the near end (instead of plastic inserts), be sure the cord lengths are no greater than 1 foot in length.

(9) Move the cross-connects from the old panel to the new 800-series panel.

(10) Remove both ends of each patch cord simultaneously (e.g., the IN and OUT plugs at each of the ends).

(11) Cut the cable leads going to the old panel (**one wire at a time to prevent shorts**) and remove the plastic inserts or dummy plugs. The cable leads should be cut as close to the 709 connectors as possible to avoid possible shorts.

(12) Tape each 709 connector to ensure there will be no shorts.

(13) Remove the old panel.

(14) Dress the cables and connector bundles into the frame. The cables that are being reused need not be dressed into the waterfall cable brackets, but may be left in the cable ducts.

4.11 The above procedure should be used to reterminate each circuit from the old-type DSX panels onto the new 800-series DSX panels.

4.12 When a bay is completely filled with old type panels, the first 800-series DSX panel (the top panel in an overhead cable application, or the bottom panel in an underfloor cable application) may need to be temporarily mounted in front of the bay before the transition procedure can begin.

4.13 Fuse/alarm panels, miscellaneous panels, and old rear express troughs are relocated or removed as required.

F. Moving of Non-working Circuits

4.14 Circuits that are terminated on an old-type DSX panel, but are not part of a live circuit, can simply be recabled to the new 800-series DSX panels. The above procedure for "Live Circuits" includes steps for the non-working circuits.

G. Moving Working Tie-Pair Circuits

4.15 To move working tie-pair circuits, the circuit need only be **patched out** (via multi-bay patch cords or interbay patch panel) and the in and out tie-pair leads moved from the old-type tie-pair panel to the 800-series tie-pair panel. No bridging or Y-splicing is necessary. Once the entire old-type panel has been reterminated on the 800-series tie-pair panel, the old-type panel may be removed.

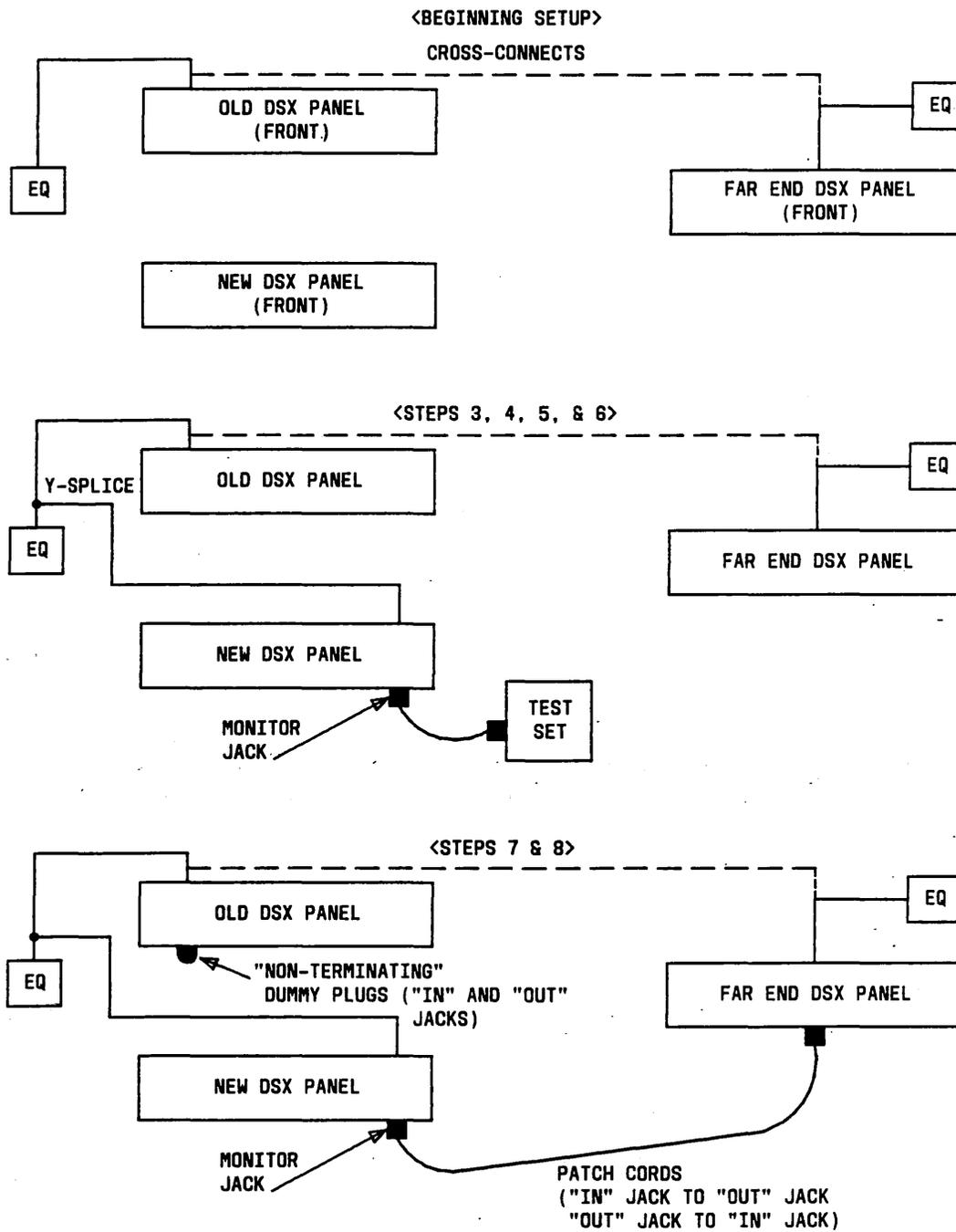


Fig. 11—Moving Working Circuits From Old Type Panels to the 800-Series DSX Panel Without Service Interruptions — Steps 1 Thru 8

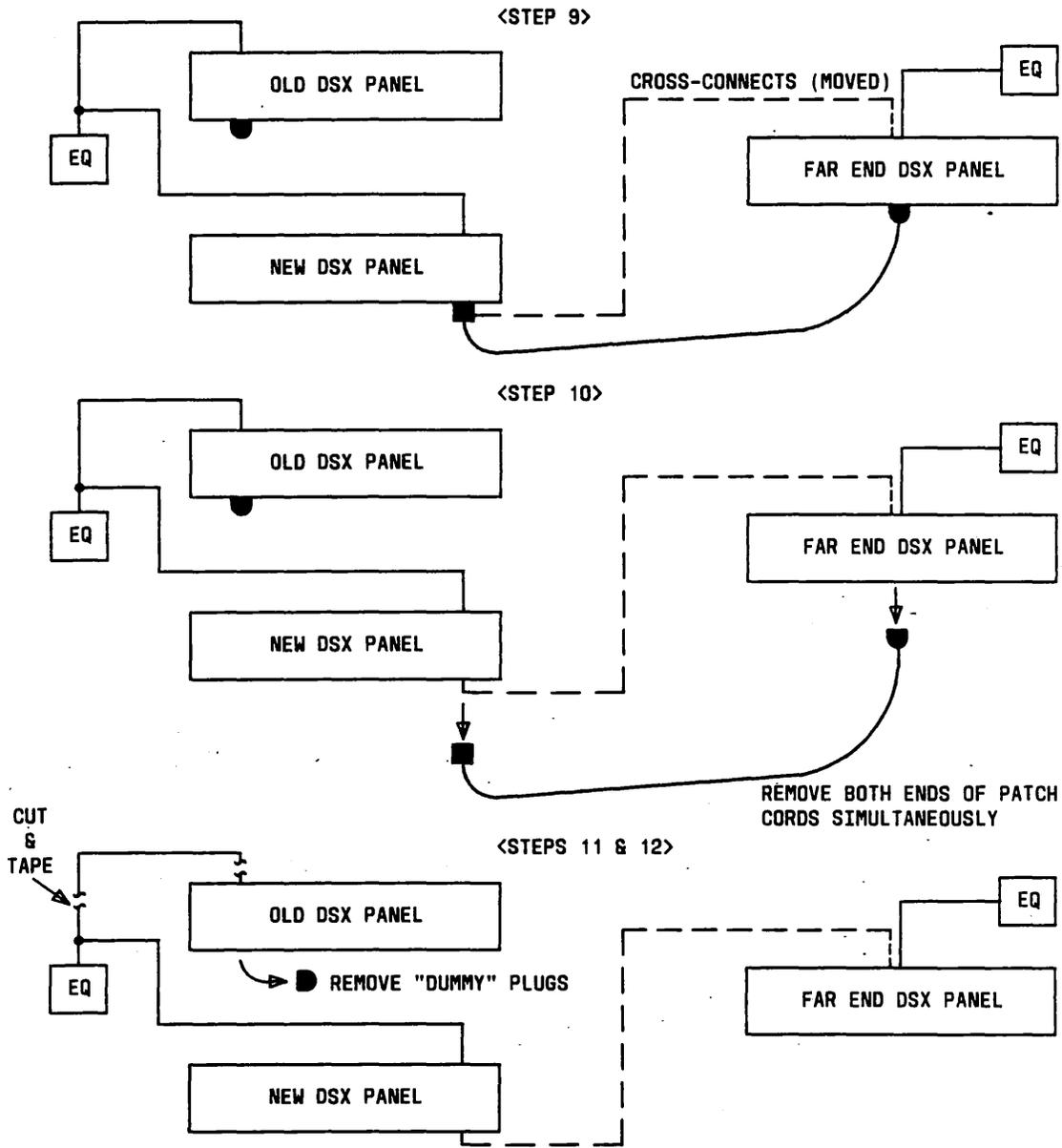


Fig. 12—Moving Working Circuits From Old Type Panels to the 800-Series DSX Panel Without Service Interruption — Steps 9 Thru 12

5. REFERENCES

5.01 The following documents supply additional information on the 800-series DSX:

PRACTICE	TITLE
365-099-025 TD	800-Series DSX Frame System
365-301-102	800-Series DSX - General Description—Digital Transmission Systems
855-350-102	800-Series DSX - New Installation—Digital Transmission Systems Carrier Engineering
644-200-080	800-Series DSX - Repair and Replace Procedure For Connecting Blocks

6. ISSUING ORGANIZATION

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