

INCOMING AND OUTGOING TRUNK DISTRIBUTION CENTERS IN THE NO. 4A TOLL SWITCHING SYSTEM

DESCRIPTION

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1.04 By the use of the TDC, toll completing trunks can be tested before the switching machine is operational.

2. INCOMING TRUNK DISTRIBUTION BAY

2.01 An incoming TDC bay is composed of four link panels, four trunk panels, and a jack panel (Fig. 1).

1. GENERAL

1.01 This section describes the patched cross-connection distribution centers for trunks in the No. 4A Toll Switching System. The cross-connections are made using plug ended patch cords at the trunk distribution center (TDC). The incoming and outgoing TDC terminates only trunk and link frame appearances.

1.02 Each distribution center consists of either ten or twelve 11-foot, 6-inch frames equipped with 23-inch wide trunk relay and link termination panels separated by 4" x 4" horizontal channels, having dressed fingers and containing D rings which organize and hold the horizontal jumpers. D-rings mounted on the frame uprights retain the jumpers vertically.

1.03 Jack equipment for frame line, switch side trunk access for extension to the MTF/IMTF, and test posts for resistance, battery, and ground appear on a conventional jack panel located in the frame's first mounting plate position. Ladder-type tubular cable racks mounted vertically between the frames at the lineup ends offer a place for securing and supporting vertical switchboard cabling. On the rear of each frame, horizontal fanning strips positioned at the top and bottom of each wiring channel permit forming, fanning, and securing the switchboard cabling.

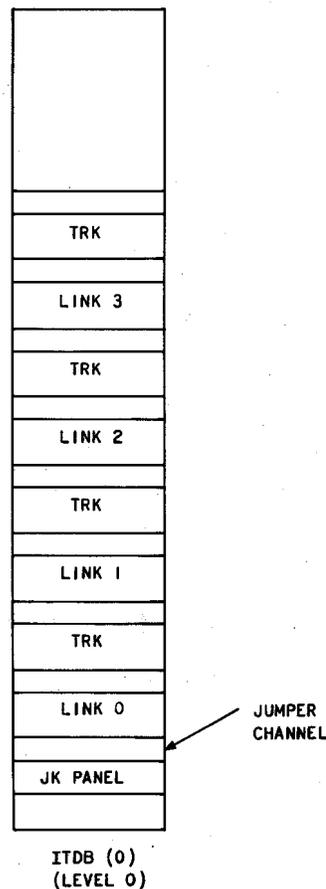


Fig. 1—Incoming Trunk Distribution Bay

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2.02 All panels are black anodize finished 1/8" aluminum, channel-type mounting plates which accept KS-21274 connectors. These connectors mount on .2 inch vertical and horizontal centers and are color grouped for circuit identification and patching convenience. In the TDC application these are arranged in quadrants bounded by PVC spacers which accept white designation tapes having the desired nomenclature and application information printed in black (Fig. 2). The incoming link panel layout is shown in Fig. 3.

2.03 The connectors are removed and inserted in the panels by use of specially designed tools (Fig. 4).

2.04 One incoming panel terminates incoming links while the other incoming panel accepts the sender link SMI and SMC leads and the trunk appearance. Four 7-row by 100-column connector matrices comprise the trunk and link panel, for a total capacity of 400 circuits, seven terminations per circuit. This capacity permits each link panel to terminate a single level of a specific switch group (or bay) for all 40 frames. Four panels are required per each incoming trunk distribution bay to represent the 0, 1, 2, and 3 switch groups associated with an entire link frame. A corresponding number of trunk panels yields a total of eight panels per incoming trunk distribution bay. These panels are alternately mounted on the bay; link panel then trunk panel from bottom to top.

2.05 The jumpers are plug-ended patch cords available in 2- and 5-cord arrangements. Plugs have color codes that correspond to the various number of predetermined lead lengths.

3. OUTGOING TRUNK DISTRIBUTION BAY

3.01 Panels for the outgoing bay are similarly configured in quadrants, and accept 400 circuits, 5 terminations per circuit. These are available in three designs, two switch panels (TC0 and IT0), and one trunk panel. The outgoing trunk distribution bays mount the panels alternately as in the incoming trunk distributor bay case; however, twelve 6-trunk and 6-link panels may be provided in lieu of eight (Fig. 5).

4. TERMINATION AND BAY NUMBERING

4.01 The incoming and outgoing TDCs terminate trunk and link frame appearances only.

Thus, their use necessitates toll switching 4-wire E and M trunk appearances at the ADF. Also, trouble tracing leads TL and RL and 17C toll testboard appearances of intertoll trunks require termination on a small standard trunk distribution frame. Offices using intertoll manual test frames will not have to utilize any trunk distribution frame. The incoming TDC and outgoing TDC can accommodate a 40 x 40, 480-360 office.

4.02 A TDC's size is directly related to the type of link frames used. Offices using only large links (10 levels per switch) will have 10 trunk distribution bays per TDC. Those having small switch link frames (12 levels per switch) will have 12 bays in each center (Fig. 6). Bay numbering thus corresponds to the assigned link switch level, i.e., incoming trunk distribution bay 0 terminates all IT and TC incoming links (bay or SW group 0, 1, 2, 3) switches 0 - 9 horizontal 0, for a total of 1600 link horizontal appearances.

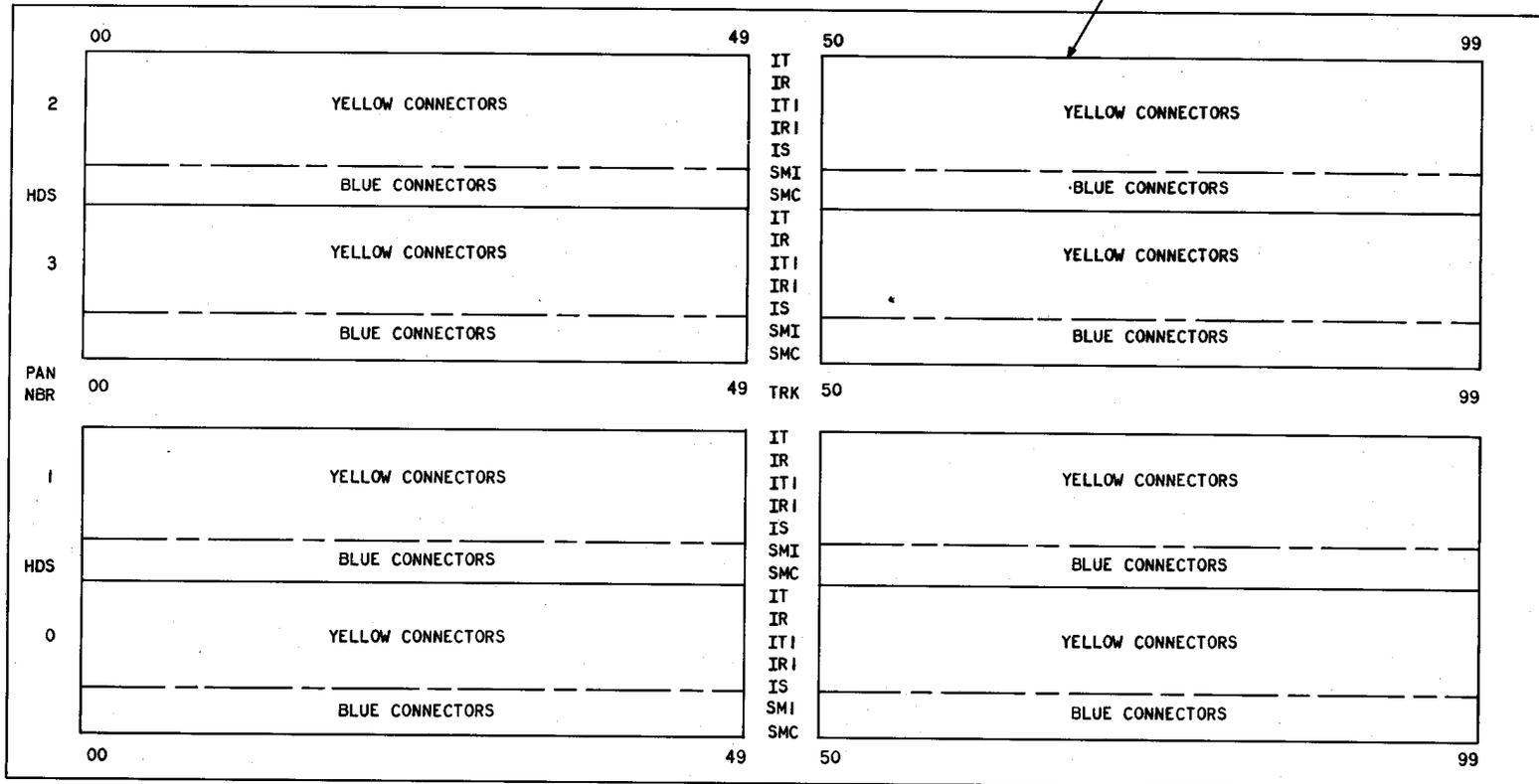
5. SYSTEM CABLING

5.01 The standard switch link frames are cabled to the trunk distribution frame on a cable per switch basis for both incoming and outgoing links. The incoming link multiple of a two-train office is accomplished at one of the trains. For TDC application, the link frames must be cabled on a level (horizontal) basis instead of a switch basis.

5.02 The small switch link frames are connectorized and cabled to the trunk distribution frame with six cables per switch group and two levels per cable. The incoming link multiple of a two-train office is accomplished at the trunk distribution frame. For TDC application the link frames must again be cabled on a level basis instead of a switch basis. Twelve transmission and sleeve and twelve select magnet cables are run per frame, one per level, such that one cable contains a single level of all switch groups for the frame. The incoming link multiple is accomplished at the intertoll train by connecting the cables from the TCI frames to the rear of the frame-mounted connectors on the ITI frames.

5.03 The incoming link frames are cabled to the incoming TDC by levels (horizontals). The multiple of the incoming appearances in a two-train combined operation system is implemented at the intertoll link frames (Fig. 7). The outgoing link

DESIGNATION TAPE
ON SPACERS



400 TRUNKS (4 ROWS - 100 PER ROW)
EACH ROW RESIDES IN 2 QUADRANTS

Fig. 2—Incoming Trunk Panel

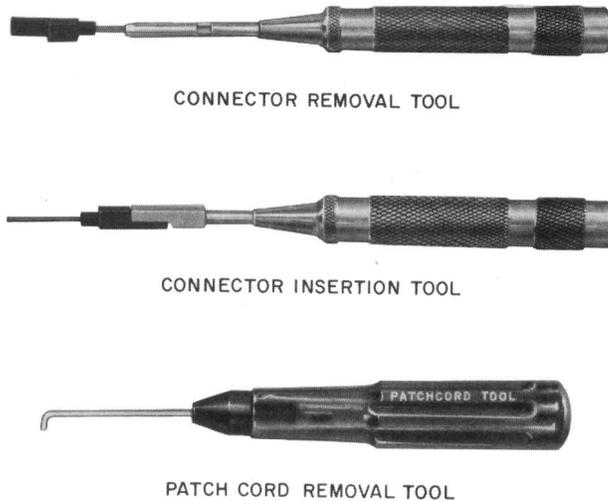


Fig. 4—Special Tools

frames are cabled to the outgoing TDC by levels (horizontal) also. There is no outgoing multiple; therefore, the toll connecting links are cabled to the toll connecting panels and the intertoll links are connected to the intertoll panels (Fig. 8).

5.04 The various types of incoming, outgoing, and two-way trunks (OSAE, 21T, IIH, etc.) are cabled to the TDCs and spread as follows.

- (1) The incoming trunk panels of the incoming TDC are divided into four groups, ten panels per group for standard switch links (Fig. 9) and twelve panels per group for small switch links (Fig. 10). The trunks are then spread by type across all groups by skipping from the first panel of group 1, to the first panel of group 2, then group 3, then group 4, and continuing on the second panel of group 1, etc.
- (2) The outgoing trunks are spread evenly over all outgoing trunk panels by type of trunk (OSY, OSAE, etc.).
- (3) The incoming appearance of two-way trunk is assigned as an incoming trunk. It is recommended that the outgoing appearance is assigned to the corresponding panel of the

outgoing TDC. This is done to simplify locating the two sets of leads.

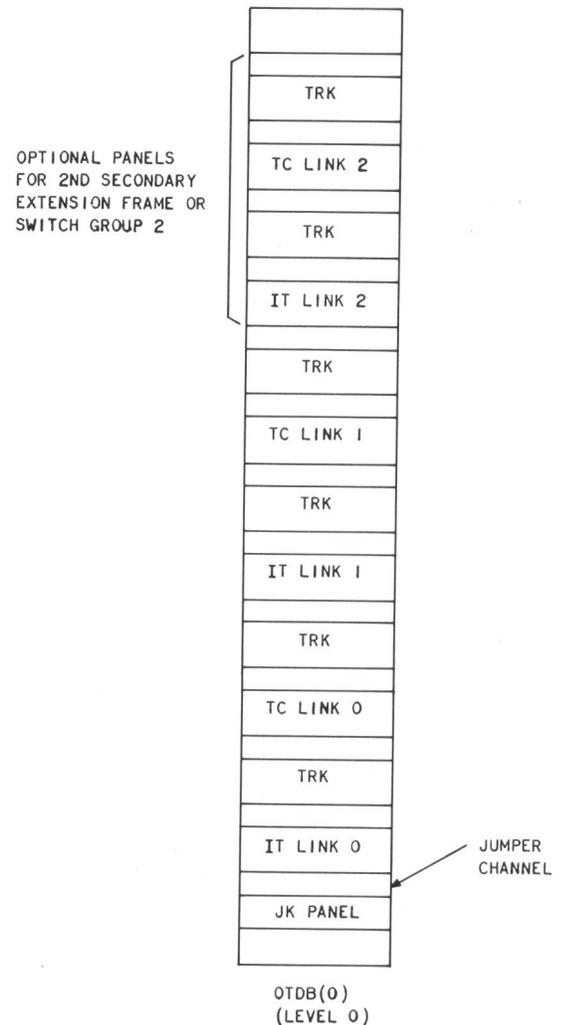
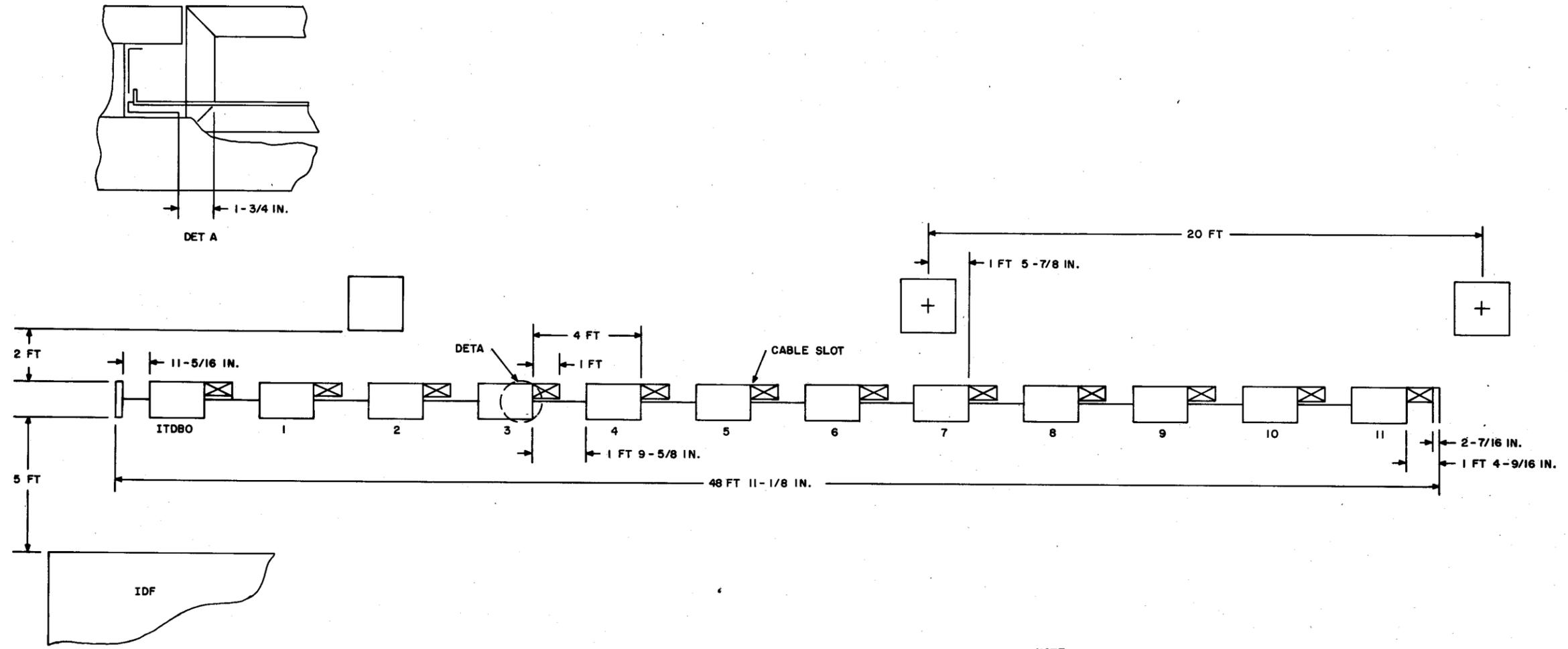


Fig. 5—Outgoing Trunk Distribution Bay

5.05 The TDC plan whereby all link switches appear in each bay, as well as trunks of every type, permits the use of short jumpers for cross-connections. Most jumpers will be patched only from a trunk panel to an adjacent link panel and *no* jumpers will be required to connect between bays.



NOTE
THE OUTGOING ARRANGEMENT IS IDENTICAL
EXCEPT FOR IDF LOCATION.

Fig. 6—Incoming Trunk Distribution Center Floor Plan Data

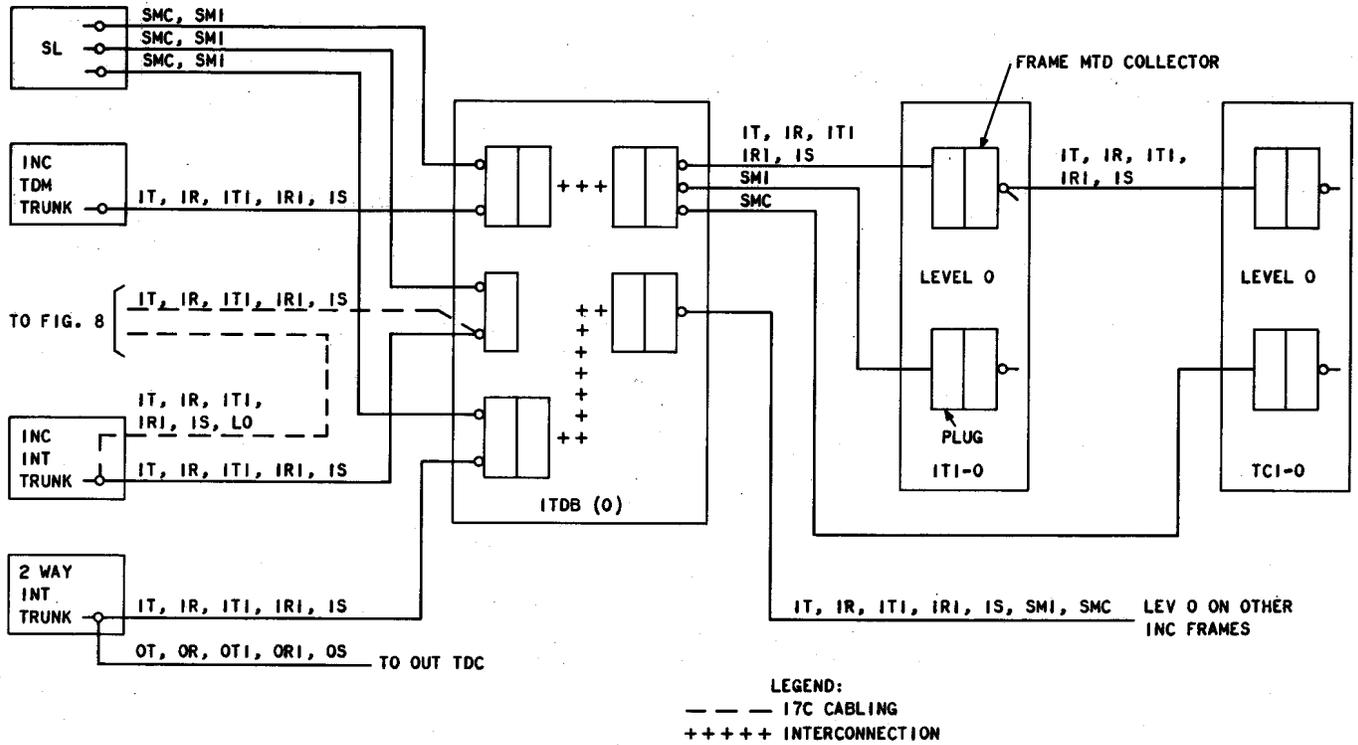


Fig. 7—Block Diagram—Incoming TDC Arrangement

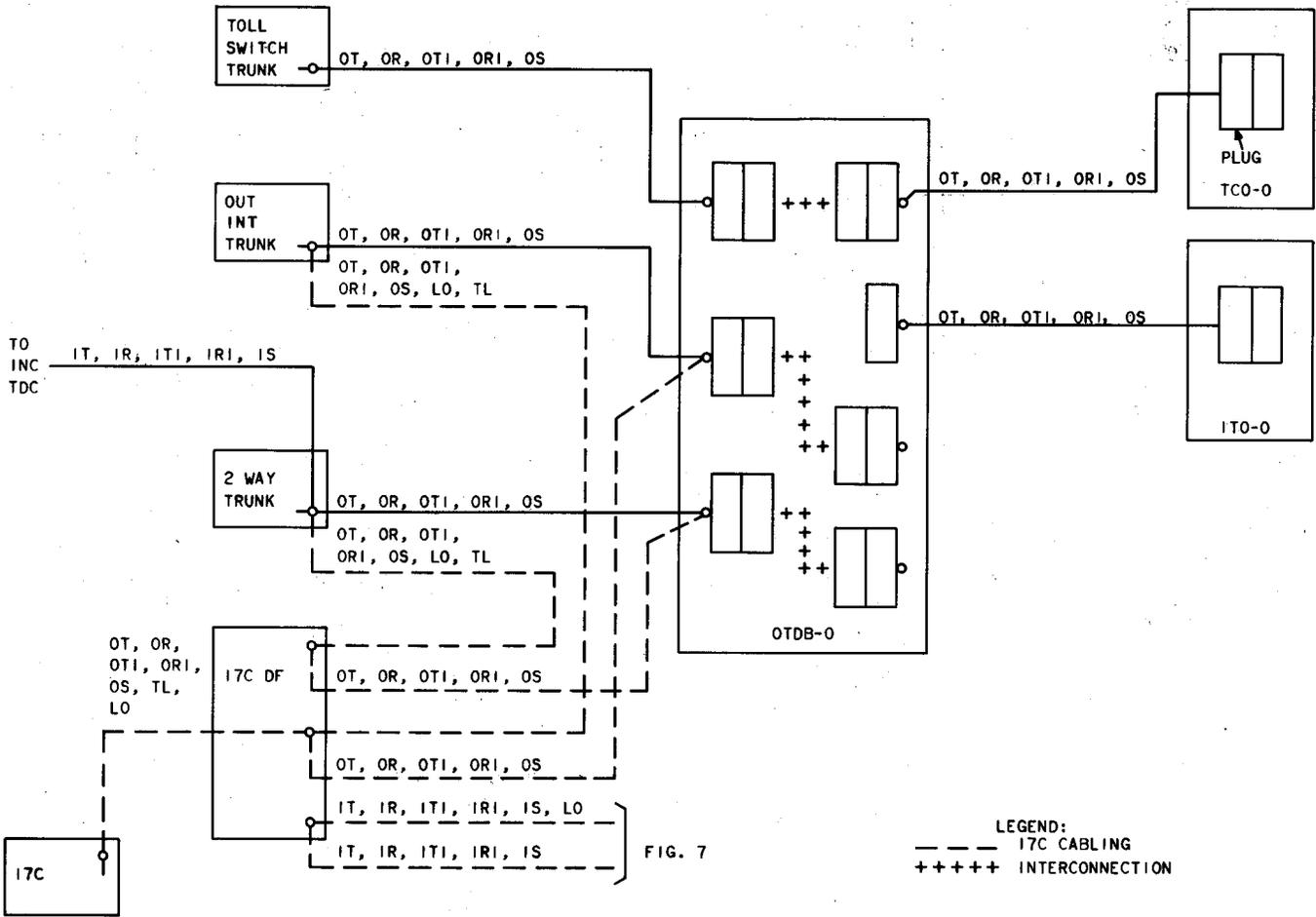


Fig. 8—Block Diagram—Outgoing TDC Arrangement

TYPICAL INCOMING TRUNK DISTRIBUTION CENTER
INCOMING TRUNK ASSIGNMENTS

TRK PNL 3	1	1	2	2	2	3	3	4	4	4
	4TH	8TH	2ND	6TH	10TH	4TH	8TH	2ND	6TH	10TH
BAY 3										
TRK PNL 2	1	1	2	2	2	3	3	4	4	4
	3RD	7TH	1ST	5TH	9TH	3RD	7TH	1ST	5TH	9TH
BAY 2										
TRK PNL 1	1	1	1	2	2	3	3	3	4	4
	2ND	6TH	10TH	4TH	8TH	2ND	6TH	10TH	4TH	8TH
BAY 1										
TRK PNL 0	1	1	1	2	2	3	3	3	4	4
	1ST	5TH	9TH	3RD	7TH	1ST	5TH	9TH	3RD	7TH
BAY 0										
	ITDB0	1	2	3	4	5	6	7	8	ITDB9

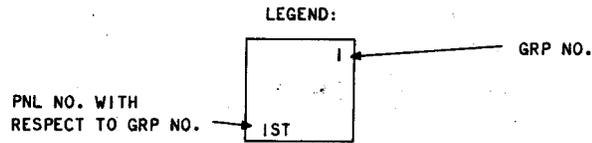


Fig. 9—Large Switch Link Frame

TYPICAL INCOMING TRUNK DISTRIBUTION CENTER
INCOMING TRUNK ASSIGNMENTS

	TRK PNL GRP 1			TRK PNL GRP 2			TRK PNL GRP 3			TRK PNL GRP 4		
TRK PNL 3	4TH	8TH	12TH									
SW GRP 3												
TRK PNL 2	3RD	7TH	11TH									
SW GRP 2												
TRK PNL 1	2ND	6TH	10TH									
SW GRP 1												
TRK PNL 0	1ST	5TH	9TH									
SW GRP 0												
	ITDB0	1	2	3	4	5	6	7	8	9	10	ITDB11

Fig. 10—Small Switch Link Frame