

**SWITCHBOARD POWER CABLING  
MISCELLANEOUS WIRING OF MAJOR FRAMES  
EQUIPMENT DESIGN REQUIREMENTS  
TANDEM CROSSBAR SYSTEM**

**1. GENERAL**

**Scope**

**1.01** This specification, together with the supplementary information listed herein, covers the equipment design requirements of the miscellaneous wiring of major frames by switchboard cabling in tandem crossbar offices.

**1.02** This specification is reissued:

(a) To cover the practice of using separate cables for the DPTS and SDPTS as compared with the earlier practice of using a multisection cable with duplicate color codes.

(b) To replace BTL ED power cabling drawings with corresponding WECO ED drawings.

(c) To remove information now covered on the respective frame switchboard power cable drawings listed herein.

**Capacity**

**1.03** In general, a switchboard power cable is provided from distributing power terminal strips (DPTS) which are located on the end guard of a line of frames to all frames of the same type in a line-up. Some types of frames require secondary distributing power terminal strips (SDPTS) which are located on the frame end guard at the opposite end of a line-up of frames from the DPTS. The SDPTS is utilized to provide alternate paths for certain critical leads. The following table indicates the maximum number of frames in a line that may be included in the various frame switchboard power cables and the number of lines of frames which may be accommodated on the DPTS or SDPTS on any one end guard.

	NO. OF FRAMES PER LINE	NO. OF LINES OF FRAMES
*Incoming Trunk Frame	18	6
Trunk Link Frame	8	3
*Sender Link Frame	10	6
*Sender Frame	8	6
Marker Connector Frame	2	6
Marker Frame	6	6
Office Link Frame	9	6

\*Frames requiring only a DPTS

The limitations on the number of frames or lines of frames, which may be accommodated on one end guard DPTS or SDPTS, may necessitate the location of power terminal strips for one type of frame or more than one end guard.

**Description**

**1.04** The function of the switchboard power cable is to connect the frame miscellaneous leads from punchings on the frame terminal strips to terminal punchings located at a central point in the frame end guard at the end of a line-up of frames. These terminal punchings are known as DPTS or SDPTS, depending on their location, and afford a means of combining leads to their various destinations in larger switchboard cables than would otherwise be possible if individual cables were run from each frame.

**1.05** Important leads, such as the start leads to the marker from the trunk link frame, are divided. The leads from the trunk link frame to even-numbered marker frames are run through the DPTS and those to odd-numbered marker frames are run through the SDPTS. At the marker end, these leads to odd and even frames are brought in at different ends of the line-up. This division of leads and the use of different paths insures the operation of half of

the frames in the event that a case of trouble at some point renders the other path inoperative.

**1.06** In general, all switchboard power cabling shall be run in cables having 60 or less conductors to avoid duplication of colors in the same cable. Separate switchboard power cables are furnished for the leads to the DPTS and SDPTS, there being a minimum of two cables for line-ups having both sets of terminal strips. The code and quantity of switchboard cables required will depend upon the number of the frames in the line-up and the number of lines of frames. The common leads, such as spare jack leads, are looped at the frame terminal strips. The leads individual to each frame are terminated on the frame terminal strips and the other end of the loop stored away with other leads in the switchboard cable which are not required for the particular frame.

## 2. SUPPLEMENTARY INFORMATION

817-000-000 — Tandem Crossbar System Index  
 J25551 (817-060-150) — End Guards, Aisle Pilot Lamp and DPTS Supports, Fuse Record Book and Holder, and Spare Fuse Mountings  
 J29253 (817-010-100) — General Outline — Tandem Crossbar System

## 3. DRAWINGS

### Keysheet

SD-25435-01 — Tandem Crossbar Office

### Framework

ED-25269-01 — DPTS and Aisle Pilot Lamp Supports  
 ED-90697-01 — Frame Designation Sign, DPTS, Pilot Lamps and Fuse Holder— Mounting Arrangement  
 ED-90706-01 — Number Plate, DPTS and Aisle Pilot Lamp Supports — Method of Mounting When End Guards Are Not Available  
 ED-90707-01 — Number Plate, DPTS and Aisle Pilot Lamp Support Assembly  
 ED-91423-01 — End Guard Assembly

## Switchboard Power Cabling

ED-25114-01 — Office Link Frame  
 ED-25123-10 — Switchboard Power Cables and Cables to Grouping Terminal Strips  
 ED-25601-11 — Sender Link Frame  
 ED-25602-11 — Revertive Pulse, Dial Pulse (SD-25478-01 and SD-25866-01), and Multifrequency Pulse (SD-25769-01 and SD-25978-01) Senders  
 ED-25607-10 — Trunk Link Frame  
 ED-25608-11 — Marker Connector Frame  
 ED-25610-11 — Incoming Trunk Frame  
 ED-25615-11 — Marker Frame  
 ED-27039-11 — PCI Sender Frame  
 ED-27040-10 — Dial Pulse Sender (SD-25999-01) Frame

## 4. GENERAL NOTES

**4.01** The DPTS and SDPTS are centrally located for each group of major frames and shall be furnished, as required, for the line in the group having the largest number of frames. If the capacity of a DPTS or SDPTS on an end guard is exceeded, two or more distributing points shall be provided for the particular type of frame with the common leads multiplied between the several points, as required.

**4.02** If one frame of a particular type should be located in a line-up of frames of another type or across a main aisle, it shall be classed as a separate row and cabled to its own DPTS or SDPTS and not to those for the group in which it may be located.

**4.03** Important leads, such as the start leads from the trunk link frames to the markers, are run over separate paths in order to minimize service reactions in the event that a case of trouble renders one path inoperative. Half of the leads are run through the DPTS to even marker frames and the other half through the SDPTS to odd marker frames. This is shown on the switchboard power cable drawing for the trunk link frame.

**4.04** One switchboard power cable is usually required for each line-up of frames, the size of cable to be selected in accordance with

the tables on the switchboard power cabling drawings, depending on the number of frames in the line-up. At each frame the required number of leads shall be connected and looped, as required, in accordance with the information covered on the circuit cross-connecting diagrams and on the switchboard power cabling drawings. All switchboard power cables containing leads to the markers shall include initially sufficient leads to provide for the ultimate marker requirements.

**4.05** The terminal strip layouts on the various switchboard power cabling drawings show the strapping of terminals which are common to all frames of a type such as frame talking line jacks and spare jacks. For leads which are common to frames in the same aisle no strapping is shown since, due to job conditions, this strapping is variable and must necessarily be done on a job basis by the installer.

**4.06** Switchboard power cables shall, in general, be furnished for both the initial and ultimate frames in a line, the cabling being looped at the position of each frame as indicated on the switchboard cabling plan listed herein. In the case of the cable for future frames, the loops shall be stripped, the wires untwisted so that they may be separated without cutting after the cable is in place, and the form shall be wrapped with a single layer of tape and securely fastened to the inside of the cable rack stringer. Where future circuit changes require additional leads beyond the capacity of the switchboard power cable initially provided, a new cable shall be added as required. Where full lines of frames are not installed initially, the DPTS and SDPTS shall, where possible, be located at the ultimate end of a line in order to provide for the addition of frames to com-

plete the line-up. In order to determine the ultimate end of a line of frames, where not otherwise indicated, this information should be obtained from the telephone company.

**4.07** Switchboard power cable shall be No. 24 gauge type "CL" wire, unless otherwise noted on the switchboard power cable drawings, and shall be cut to length by the installer. The cables shall preferably be located on the top of the cable rack as shown on ED-25123-10. However, as an alternative, the cables may be placed on the underside of the rack.

**4.08** Strapping and incoming cables shall be placed on the side of the DPTS or SDPTS away from the frame, and the switchboard power cable shall be placed on the side toward the end of the frame.

**4.09** The incoming switchboard cables and the switchboard power cables to the DPTS or SDPTS shall be butted above the top terminal strip and supported by the cable ring, as shown on ED-25123-10. These cables are then fanned to the DPTS or SDPTS through rings furnished as a group on the end guard assembly drawing. One ring shall be mounted at the top of each terminal strip.

#### **Sender Link Frame**

**4.10** Wiring for the aisle pilot lamps is not included in the switchboard power cabling. These lamps shall be wired or cabled directly from the floor alarm frame to the DPTS, as shown on the audible and visual alarm circuit. The 1400-type cable shall be used from the DPTS to the lamps, except where the lamps are located on the same end guard as the DPTS, in which case, No. 20 gauge type "F" wire shall be used.

Bell Telephone Laboratories, Incorporated

Dept 2324