SWITCHBOARD POWER CABLING OF MISCELLANEOUS WIRING OF MAJOR FRAMES EQUIPMENT DESIGN REQUIREMENTS NO. 1 CROSSBAR SYSTEM

1. GENERAL

Scope

1.01 This specification, together with the supplementary information listed herein, covers the equipment design requirements for the switchboard power cabling of the miscellaneous wiring of the major frames in the No. 1 crossbar system.

1.02 This specification is reissued for the following reasons:

(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 list Western Electric Company Bell System switchboard power cabling drawings instead of the corresponding Bell Telephone Laboratories' drawings.

(c) To delete 4.11 to 4.46 relating to specific frames, since the information now appears on the respective switchboard power cable drawings listed herein.

Capacity

1.03 The following table lists the frames for which switchboard power cables are furnished, the number of frames per line-up provided for in the respective cables, and the number of lines of frames that may be accommodated on the DPTS and SDPTS.

Type of Frame	No. of Frs Per Line	No. of Lines of Frs
Line Link	9	3 or 6
Subscriber Sender Link and District Link	3	3
Office Link	10	6
Incoming Link	3	3 or 6
Coin Supervisory and Keypulsing Sender Link	4	6
Terminating Sender Link	5	6
Subscribers and Keypulsing Sender	9	3 or 6
Terminating Sender	13	3 or 6
Originating Marker Connector	2	6
Terminating Marker Connector	3	6
Originating Marker	6	6
Terminating Marker	10	6
Line Choice Connector	6	3
Line Junctor Connector	5	3
Number Group Connector	6	3
Block Relay	15	3

Description

1.04 The term switchboard power cable originated with early telephone systems with cables that included battery, ringing, and tone leads as well as miscellaneous leads. As used in the No. 1 crossbar system, the cable has no power distribution function, but instead is used to extend miscellaneous leads, individual and common, from frames of the same type in the same line-up to grouping terminal strips called distributing power terminal strips, abbreviated DPTS. The latter are arranged to terminate the switchboard power cables for a number of lines of frames, all of the same type, and are located on an end guard centrally with respect to the group of frames served. At this point the leads are grouped in switchboard cables which extend them to their various points of termination. In this way larger and fewer cables are required than would be the case if the miscellaneous leads were carried direct from each frame. Also the amount of loose type "AM" wire is reduced.

1.05 Leads included in the switchboard power cables are represented by the following:

Telephone talking line to MDF
Spare jack circuit to MDF

Remote control jacks to test frames
Leads to floor alarm frame
Leads to traffic register equipment
Certain leads to sender MB frame
Certain leads to trouble indicator frames
Start leads to markers

1.06 For certain groups of frames where important leads are involved, a second set of terminal strips called secondary distributing power terminal strips, abbreviated SDPTS, are furnished. These are located in the opposite cross aisle from the DPTS so as to provide separated grouping points. Critical leads such as start leads to markers are divided between these two locations; those to even-numbered markers are run through the DPTS and those to odd-numbered markers are run through the SDPTS.

1.07 The DPTS and SDPTS are mounted at the top of end guards behind the cabinet enclosure. DPTS are located on the cross aisles having the aisle pilot lamps for the respective lines of frames. SDPTS are located on the cross aisle opposite the associated DPTS. Both groups of terminal strips are centrally located with reference to the lines of frames they serve.

1.08 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 size and number of the cables are dependent on the leads to be accommodated and the requirement that within a given cable there be no duplication of colors. The cables are run on the over-frame cable racks and are stripped and looped at the position of the miscellaneous terminal strips on the frames served by the cable. Common leads are terminated in an in and out direction at each frame and individual leads are terminated in the direction toward the DPTS or SDPTS, the unused portion of such leads being grouped with other unassigned leads and stored in a tube.

2. SUPPLEMENTARY INFORMATION

816-000-000 - No. 1 Crossbar System Index
J25551 (816-040-150) - End Guards, Aisle Pilot Lamp Supports, DPTS Supports, Record Books and Holders, Spare Fuse Mountings, and Print Display Boards

3. DRAWINGS

Switchboard Power Cabling

ED-25114-11 - Office Link Frame
ED-25117-11 - Originating Marker Connector Frame
ED-25118-11 - Terminating Marker Connector Frame
ED-25123-10 - Switchboard Power Cables and Cables to Grouping Terminal Strips
ED-25148-12 - Subscriber and Keypulsing Sender Frame
ED-25190-11 - Keypulsing or Coin Supervisory Link Frame
ED-25202-11 - Terminating Sender Frame
ED-25203-11 - Originating Marker Frame
ED-25323-11 - Block Relay Frame
ED-25324-11 - Line Choice Connector Frame
ED-25324-12 - " " " "
ED-25325-11 - Number Group Connector Frame
ED-25326-11 - Line Junctor Connector Frame
ED-25414-11 - Terminating Marker Frame
ED-25433-12 - Line Link Frame
ED-25520-11 - Incoming Link Frame
ED-25520-12 - " " "
ED-25523-11 - Terminating Sender Link Frame
ED-25620-12 - Subscriber Sender Link and District Link Frame

4. GENERAL NOTES

4.01 The conductors in switchboard power cables shall be 24 gauge type "C" wire unless otherwise specified on the drawings.

4.02 Because switchboard power cables include important leads, it is necessary that every precaution be taken to avoid errors in the selection and use of leads, especially when additions or changes are being made in the office. The following rules are designed to minimize such hazards.

(a) Use separate switchboard cables for the leads to the DPTS and SDPTS.

(b) Specify switchboard cables of 60 or less conductors not having duplicate colors.

(c) Color assignment for all leads shall be shown on the switchboard power cable drawings.

(d) The unconnected leads of each switchboard cable in the loops over frames are segregated into two groups: assigned and unassigned. The two groups of leads for each cable are tagged to identify the group, cable code, and termination: DPTS or SDPTS. All groups of assigned and unassigned leads to the DPTS or SDPTS are enclosed in separate tubes that are stamped DPTS (or SDPTS) ASGD (or UASGD).

(e) In the loops above a future frame in the line-up, the leads are segregated and tagged to identify those to the future frame, those to other frames, assigned and unassigned, and the DPTS or SDPTS termination. The cable stripper is then taped and stored on the underside of the cable rack.

(f) Common and individual leads are assigned to separate cables where this can be done without increasing the number of cables.

(g) Cables carrying individual leads need not be looped at frames not served by the cable.

4.03 The switchboard power cable drawings listed herein show the codes of the cables used for various numbers of frames per line-up, the specific leads included in the cables, the grouping and color of the leads in the cables, and the punching assignment on the DPTS, SDPTS, and on the miscellaneous frame terminal strips. ED-25123-10 shows the over-all switchboard power cabling plan and detailed instructions for looping, tagging, and protecting the leads over the frames.

4.04 The DPTS (and SDPTS) are centrally located on an end guard for each group of major frames and are furnished as required to care for the line-up in the group having the largest number of frames. If the capacity of the DPTS on an end guard is exceeded, two or more distributing points are provided, with the common leads cabled together as required. When the terminal strip capacity of the end guard permits, the DPTS for two or more types of frames may be mounted on one end guard. Separate terminal strips are furnished for each type of frame with the exception of the line junctor connector and block relay frames. The switchboard power cables for these frames are small and accordingly are terminated on the DPTS for the line choice connector and number group connector frames, respectively.

4.05 Where one or more frames of a group are located with another group or across a main aisle, they shall be treated as a separate line-up and cabled to their associated DPTS and not to the DPTS of the group in which they are located.

4.06 Switchboard power cables are furnished for the ultimate frames in the line-up, the cables being looped and treated at the position of future frames as shown on ED-25123-10. Where an end guard is not available due to an incomplete line of frames, the terminal strips shall be supported at the ultimate position from the frame cable rack as provided for in J25551.

4.07 Strapping and incoming cables are placed on the side of the DPTS (and SDPTS) away from the frame line-up, and the switchboard power cables are connected on the side toward the frame line-up.

4.08 The incoming switchboard cables and the switchboard power cables to the DPTS are butted above the top terminal strip and supported by the cable ring as shown on the cabling plan drawing. These cables are then fanned to the DPTS through rings furnished as a group on the end guard assembly drawing. One ring is mounted at the top of each terminal strip.

4.09 Wiring for aisle pilot lamps is not included in the switchboard power cables. Instead these lamps are wired or cabled direct to the DPTS as shown on the aisle pilot circuit, using 1400-type cable or 20 gauge type "AM" wire. The DPTS for each type of frame has terminals allotted for five frame or main aisle pilot locations. The frame aisle numbers shall be stamped on the DPTS to identify the location of the associated frame aisle pilot.

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