RUNNING CABLE AND WIRE
BASIC INFORMATION

CONTENTS

1. GENERAL

1.1 Scope of Section

1.11 This section covers the basic information concerning precautions, drawings, conservation and defective cables associated with cabling.

1.2 General Information Pertaining to Arrangement of Tools, Precautions, Verification, Specifications and Drawings and Figures

1.21 Refer to Section 1 of this handbook for information pertaining to these items.

1.3 Specific Precautions

1.31 Avoid using snap-on cable retaining brackets installed on cable racks as a support. They may be dislodged by a pull or jerk.

1.32 Handle cable and wire carefully so the normal shape and condition of the cable will not be altered.

1.33 Exercise the greatest care at all times in working offices to guard against such service hazards as operating fuses, breaking off wire and crossing terminals on "in service" and "live" equipment.

1.34 When running cable or wire above or in the vicinity of live equipment, tape their ends by applying a single layer (or as many as required to cover the ends) across the end of the cable and longitudinally along the sides for approximately 1-1/2 inches. Then wrap a single layer of tape over the 1-1/2 inch area of the tape previously applied.

1.35 Take extreme care at frames with exposed wiring and switches to prevent cables and wires from coming in contact with the wiring or equipment and damaging it.

1.36 All cable reels shall be checked to verify that the cable tag on the reel agrees with the type of cable on that reel, prior to any cable running operations.

1.37 CAUTION WHEN OPENING CABLE REELS: Care should be taken when opening a cable reel to cut the wire or band securing the cable in such a manner that the cut ends do not fly up and strike the face.

1.38 CAUTION WHEN CUTTING CABLE:

(a) The use of the R-1514 Cable Shears requires care to avoid personal injury. Ordinarily, the cable cutting operations should be performed by one man. When it is necessary for two men to perform the operation, the man holding the cable should keep his hands at least 6 inches away from the cutting mark. The man using the shears should close them slowly until the blades touch the cable before applying sufficient pressure to sever the cable. Both

men should make certain that they are standing firmly to avoid possible body movement during the cutting operation.

(b) The R-4131 8-Inch Cable Cutter was designed to cut small cables and loose wire. It is not recommended for cutting cable exceeding 100 conductors. When using this tool, keep the hand holding the cable at least 3 inches away from the cutting mark.

NOTE: The R-1514 Shears and R-4131 8-Inch Cable Cutters should not be used to cut any iron or steel wire such as might be used for packing or crating purposes.

1.39 CAUTION WHEN PULLING CABLE: Care should be taken when pulling an end of the cable to prevent it from striking the face. Sitting, crawling or walking on cable racks may lead to serious injury and should be avoided.

2. INSTALLING EQUIPMENT

2.1 Tools

2.11 The tools and supplies generally used for operations covered in the 200 Series are as follows:

R-1514	Shears, Cable
R-3662	Cutter, Steel Strapping, Safety (for cutting band wire on cable reels)
R-1682	Scissors, Electrician's 5", Serrated
R-2061	Guide, Cable
R-4397	Guide, Cable
R-2118	Strap, Trunk
R-2122	Tape, Measuring, Woven
R-2704	Support, Cable Reel
R-2727	Reel, Cable
R-3311	Lamp, Test, Flashlight
R-3409	Dispenser, Coil Cable
R-3410	Dispenser, Spool Wire
R-3489	Truck, Platform
R-3953	Carrier, Cable Reel
R-4131	Cutter, Cable 8"
R-4133	Counter, Linear Cable Footage
R-4145	Puller, Cable, Motor Driven Set
R-62729	Template, Cable
ITE-4137	Continuity Test, AC

NOTE: The R-2061 Cable Guide is to be used until all stock has been depleted. The R-4397 Cable Guide will eventually replace it.

2.2 Supplies

RM-669152	Gloves, Cotton
R-3359	Tape, Gray Plastic Adhesive, 1/2"
R-3428	Tape, Gray Plastic Adhesive, 3/4"
R-2916	Twine
R-3850	Tie, Cable Tag
ID-217	Tag, New Cable (duplicate of shop tag for indicating bulk cable lengths)
SD-4-218A	Tag, Cable (with carbon attached)
R-4362	Sleeve, Protective

3. CABLING AND CABLE RACK PLAN DRAWINGS

3.1 Cabling and cable rack plan drawings include the following information:

(a) Location of cable racks

(b) Layout of the cable runs

(c) Cable runs shown with heavy outlines indicate present runs (including current order) while light outlines indicate future runs.

(d) Cross-section views of "regular" and "semiregular" runs illustrating such points are necessary to show changes in the arrangement of the cables. The views show the ultimate height of the cables on the rack, the cross-section designation, the width of the cable rack, code of cable and dimensions for location of the cables on the cable rack.

(e) Sectional views of the layouts of the cables at such points as are necessary to show arrangement of cables in switchboards, on frames and on racks.

(f) Location designations on the cable rack consisting of letters and numbers, for use in determining cable route listed in specifications.

(g) Table for "miscellaneous" runs, which lists all "miscellaneous" cross-sections, giving the number of cables at each section per order, the width of the cable rack, the height of the ultimate run and the total capacity of the rack in terms of cables.

3.2 Classification and Types of Cable Runs

3.21 "Regular" cable runs consist of a large group of cables usually of the same code and for a particular group of circuits, with the individual cables, arranged in a predetermined order as indicated by cross-sections on the cable plan drawing.

3.22 "Semiregular" cable runs are runs where groups of cable on a cable rack are given a predetermined location on the rack shown by a cross-section on the job cabling drawing. A semiregular run may consist of regular groups (shown by a cross-section giving individual cable arrangement) and miscellaneous groups, or the groups may consist of cables for a particular group of circuits and miscellaneous cables as shown in a cross-section without individual cable arrangements.

3.23 "Miscellaneous" cable runs consist, in general, of cables which are run one layer at a time (or one clip in height) completely across the rack before the next layer is started, without regard to code, shape or size of the cables. All racks for the "miscellaneous" cable runs on a job are placed on a common level as far as practicable.

3.24 Cable runs are said to be resting, hanging or side runs depending upon the position on which the cable rack straps are placed to which the cables are to be attached. Resting runs are used wherever practicable.

3.25 Due to cramped conditions being encountered under beams and girders, it is sometimes necessary to place cable racks in an inverted position and carry the cables on the flanges of the cable rack channels. Such runs are known as "basket" runs and are so designated on the cable plan drawing.

3.26 Special arrangements and formations of the cables on the rack are not necessary where cables leaving the cable rack are stripped at the top of the frame or rack and the strippers grouped together into a form or placed in fanning rings where they pass down the frame.

4. CONSERVATION OF CABLE

4.1 Selection and Use of Bulk Cable

4.11 Conservation of cable requires that care and judgement be exercised in the selection and use of bulk cable.

4.12 The following procedures should be employed to conserve cable:

4.121 Avoid excessive lengths at turns, breakoff points and terminations.

4.122 Follow routine shown in the cabling specifications and on the cabling plan drawings.

4.123 Select cable in a manner which will result in the accumulation of the smallest number of short lengths.

4.124 Use "symbol" cable (★, & and #) in the runs for which they are specified. Symbol "MC" indicates cable to be used as multiple cable for switchboards.

5. CABLES WITH DEFECTIVE CONDUCTORS

5.1 Cable defects are tagged by the shop to indicate defect and the conductors involved. The following defects may be shown on the tags:

(a) Missing conductors

(b) Open conductors

(c) Breakdown or cross between conductors

(d) Wrong conductor colors

(e) Wrong gauge conductors

(f) Conductors in wrong binders

(g) Missing binders when more than one binder of a unit cable is missing. The Defective Circuit tag will show the number of feet of a cable length affected by the defect.

5.2 Operations to Follow When a Defective Cable Is Received

5.21 Locate shop printed cable tags and write the nature of the defect on the back of the original and duplicate tags.

5.22 Make the defect information conspicuous on the front of the tags.

5.23 While the cable is being run, remove the defective circuit tag from the reel and save. Transfer the tag back to the remaining cable after the running operation is complete.

→Indicates new or changed information.

[Vertical lines at sides of paragraphs indicate requirements.

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Reason for Reissue:
1. Add tools R-3662, R-4131, R-4397.
2. Remove tools R-1615, R-3195, R-1614, R-2542, R-2281 and ITE-2046
3. Change Paragraph 1.36 and 1.38