

SECURING CABLE AND WIRE

CLIPS, GENERAL

CONTENTS

- |  |                                  |
|--|----------------------------------|
| 1. GENERAL   | 3.3 Regular Clips                |
| 1.1 Scope of Section   | 3.4 Clip Dimensions              |
| 1.2 General Information Pertaining to the Arrangement of Tools, Precautions, Verifications, Specs and Drawings and Figures | 3.5 Sleeves on adjustable Clips  |
| 1.3 Specific Precautions   |                                  |
| 2. INSTALLING EQUIPMENT  | 4. PLAN FOR CLIPPING             |
| 3. DESCRIPTION OF ADJUSTABLE FLAT TYPE CLIPS   | 4.1 Preliminary to Running Cable |
| 3.1 Anchor Clips   | 4.2 Placing of Anchor Clips      |
| 3.2 Start Clips  | 4.3 Arrangement of Cable on Rack |
|  | 4.4 Start of Clipping            |

1. GENERAL

1.1 Scope of Section

1.11 This section covers the description of Flat Type Adjustable Clips for securing switchboard cable and wire on cable racks.

1.111 "Wire" or "wires" as used in this section covers all codes of bulk wire ordered in installer's cable running lists including flexible cordage such as KS-15141 and KS-15143.

1.12 Adjustable flat type clips are to be ordered by installers as an 86 Kit. for jobs with less than 120,000 feet of cable. For jobs with over 120,000 feet of cable, clips will be furnished as equipment and are listed in the cabling specification.

1.121 Clips will not be furnished for No. 12 installations or small PBX, dial and No. 11 installations where the original installation involves less than 500 lines.

1.2 General Information Pertaining to the Arrangement of Tools, Precautions, Verification, Specs 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 placing boxes of clips on cable runs or scaffolding. A canvas apron provides a convenient carrier for clips and clip remover.

1.32 Carrying the clip remover loose in clothes pocket may result in an injury from the blade.

1.33 When engaging the vertical legs of clips and working at eye level, keep the face away while pressing down outside clips to avoid particles of plating material getting in the eyes.

1.34 When clipping cables located over live equipment, care should be taken to prevent clips from falling into the equipment and causing trouble

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

1.36 Exercise the greatest care at all times in working offices to guard against service hazards which exist as a result of unsecured fabric covered and shielded wire and cable.

1.361 Tape ends of all cable and wire when working in the vicinity of live equipment by placing a single layer (or as many as required to cover the end) 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.

1.37 Observe the condition of the insulation on cable and wire as it is being grouped and secured and repair any damaged insulation. Refer to Section 140 of this handbook.

1.38 When using cable clips avoid troubles caused by damage to cable sheathing and grounding of conductors caused by:

- (a) Clips not assembled correctly and the wrong size clips selected.
- (b) Vertical leg of a clip not engaged in the tooth of the clip below, i.e. leg placed in back of the engaging tooth.

1.381 The preceding conditions should be avoided by taking the following precautions.

- (a) Select the proper size clip.
- (b) Make certain that clips are properly engaged and avoid undue pressure, pounding, etc.

(c) When adding cables, take care to avoid any undue pressure on the existing runs such as that which might be caused by sitting, crawling, or walking on runs.

**CAUTION:** Walking, crawling or sitting on cable runs may lead to serious accidents and should be avoided.

**2. INSTALLING EQUIPMENT**

2.1 The tools and supplies normally required for the operations covered in this section are covered in Section 300 of this handbook.

**3. DESCRIPTION OF ADJUSTABLE FLAT TYPE CLIPS**

**3.1 Anchor Clips**

3.11 Anchor clips, designated A1 in Figure 2, are attached directly to channel cable rack straps and provide the means for attaching the adjustable clips.

**3.2 Start Clips**

3.21 Start clips, designated SA, SB, SC and SD in Figure 2, are used with regular clips to enclose and fasten the first group of cables in each layer of clips. They are also used as regular clips for fastening small groups of cables as shown in Figure 1, View C.

3.211 On runs only one clip wide, when the group of cables is 1-7/8" or less, two start clips may be used as shown in Figure 1, View D.

**3.3 Regular Clips**

3.31 Regular clips, designated RA, RB, RC and RD in Figure 2, are used to enclose and fasten the cables in groups across the cable rack. They are arranged to engage with anchor, start or other regular clips for building up the cable run as shown in Figure 1, Views A, B and C.

**NOTE:** Both start and regular clips may be designated as such; SA-S, RA-S. This indicates these clips are sleeved with KS-15997 L-1, L-2, L-3 or L-4 sleeves.

**3.4 Clip Dimensions**

3.41 The maximum and minimum heights of cable groups that the different clips will accommodate are shown in Figure 3.

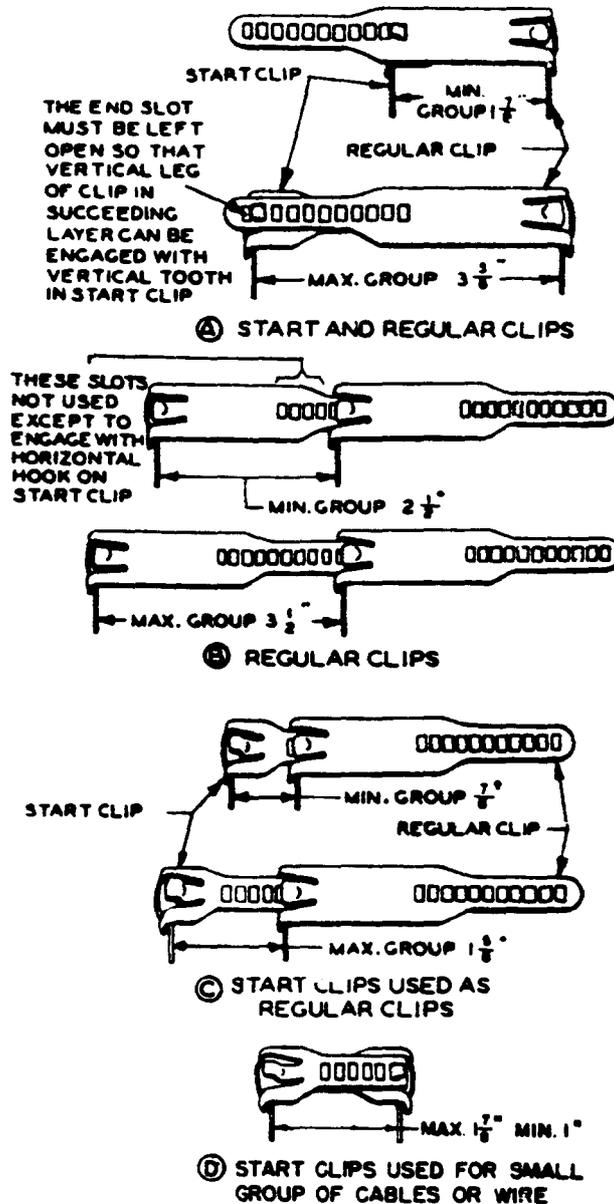
3.42 The maximum and minimum widths of cable groups that the various clip combinations will accommodate are shown in Figure 1.

**3.5 Sleeves on Adjustable Clips**

3.51 A rigid polyvinyl sleeve fits snugly over the wide portion of the clip vertical leg. The sleeves are made in four lengths which correspond to the different length of the legs on the start and regular clips.

3.511 All adjustable clips installed must be equipped with the

KS-15997 L-1, L-2, L-3 or L-4 sleeve.



**NOTE:** WHEN USING ARRANGEMENT D FOR CABLE OR WIRE ACCOMMODATION LESS THAN THE MAX. 1 7/8", MODIFY ONE START CLIP BY BREAKING OFF PART OF THE HORIZONTAL MEMBER. (RP-9770-L)

**FIG. 1** MAXIMUM AND MINIMUM WIDTHS OF GROUPS UNDER FLAT TYPE CLIPS (PARS. 3.21, 3.211, 3.31, 3.42)

3.512 Sleeved clips can be connected with unsleeved clips already in use on existing runs.

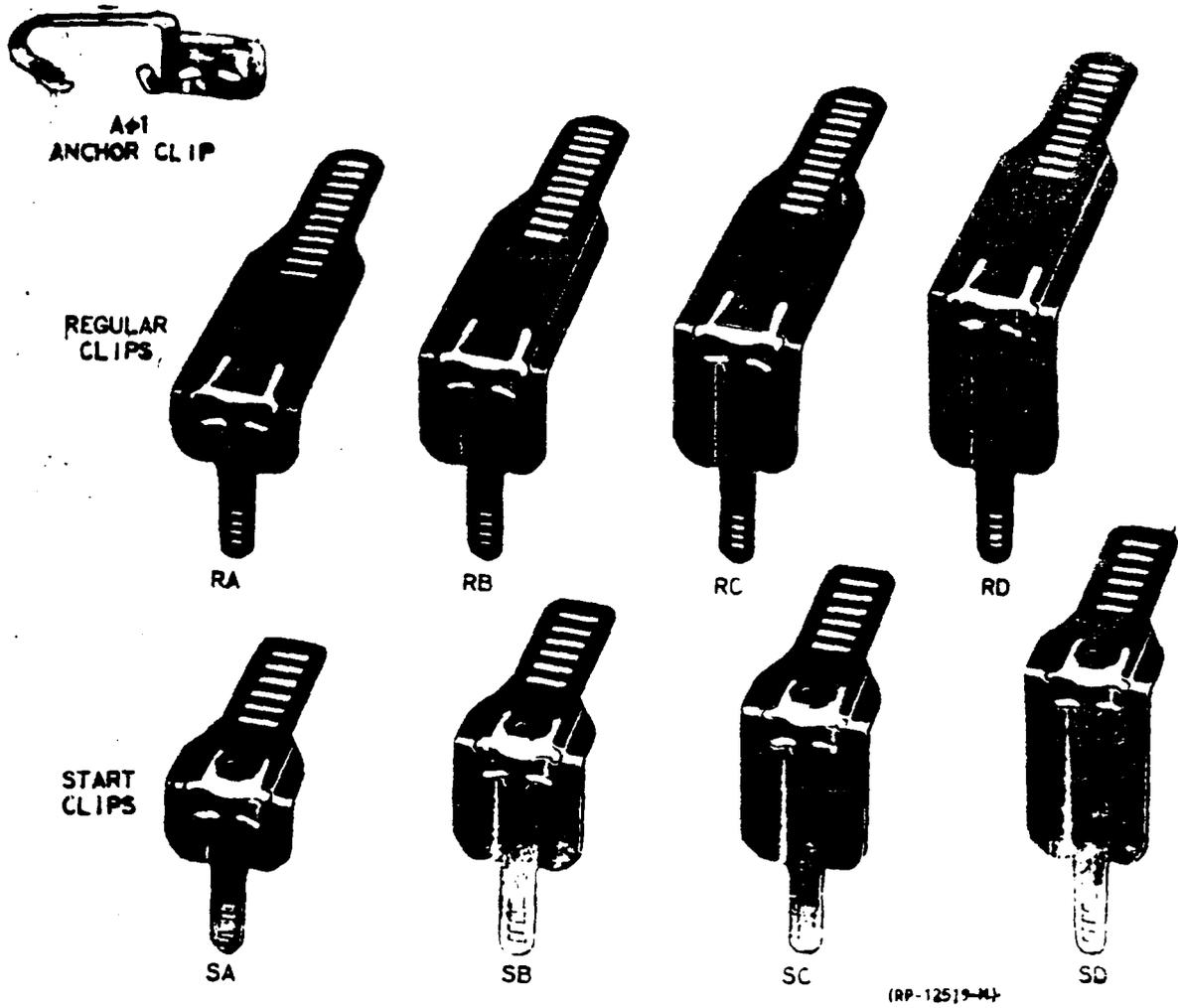


FIG. 2 LETTERED ADJUSTABLE FLAT TYPE CLIPS USED FOR CLIPPING SWITCHBOARD CABLE (FOR CLARITY, PLASTIC SLEEVES ARE NOT SHOWN ON CLIPS) (PARS. 3.11, 3.21, 3.31)

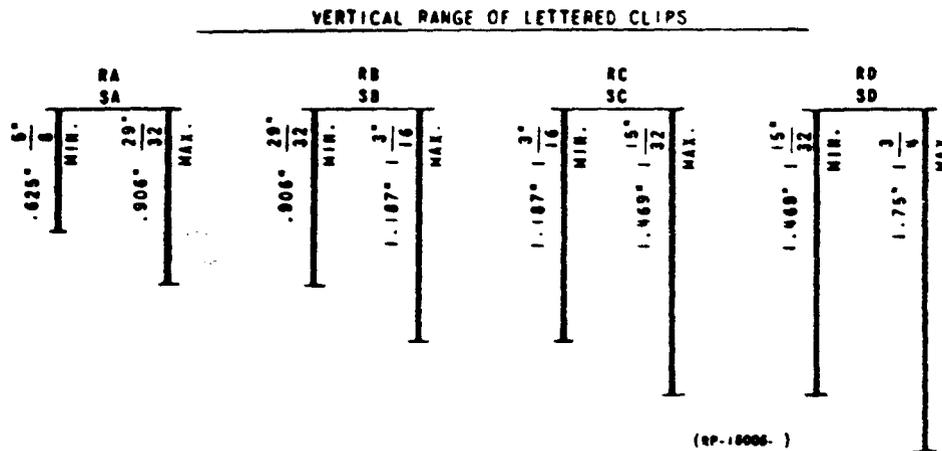


FIG. 3 VERTICAL RANGE OF FLAT TYPE CLIPS USED FOR CLIPPING SWITCHBOARD CABLE (PAR. 3.41)

**4. PLAN FOR CLIPPING****4.1 Preliminary to Running Cables**

4.11 Plan clipping arrangement for switchboard cables before the first cables are run to obtain full advantage of clips and to avoid possible difficulty later. Items to be considered follow.

**4.2 Placing of Anchor Clips**

4.21 Place anchor clips as far as practicable before cables are run in, locating them approximately 3" apart where cables are to be clipped.

4.211 Refer to Section 312 for information relative to the mounting of anchor clips.

**4.3 Arrangement of Cable on Rack**

4.31 It is desirable to place oval cables on edge.

4.32 It is desirable to place large size cables on the bottom layer.

4.321 Where job drawings or conditions make this impracticable and small cables are placed on the bottom layer, plan to space the clips so that groups of larger cables which form the layer above can be accommodated.

4.33 When power cables are to be run on the same rack with switchboard cables, it is particularly important that supervisors should confer to determine an arrangement on the rack so the power cable connectors will remain in the open sufficiently to remove the covers for maintenance purposes and which will be most favorable for installing the entire run.

4.34 Consider the clips capacities (number of cables which may be placed under a clip).

4.35 Plan to group cables so as to utilize the full depth of the clips. (See Section 311 of this handbook.)

4.36 Plan to clip cable groups so as to utilize the full rack width capacity (1-1/2" less than rack width) and to provide sufficient cables to fill last clip. (See Section 311 of this handbook)

4.37 At points where cables leave the rack, plan for clipping arrangements which will give best results. (See Section 311 of this handbook.)

**4.4 Start of Clipping**

4.41 Where clipping is to be started:

4.411 Start clipping at one point in a run and clip from this point toward the loose end or ends.

4.412 Shop formed cables should have the formed end permanently secured from the cable rack to the butt location. Start clipping on the rack nearest the formed end of the cable.

4.413 Start clipping so vertical runs will be clipped from top down.

4.414 Clipping of horizontal resting runs may be started at any point, preferably the approximate center of the run, so the cables may be clipped in both directions except where one end is shop formed. (See Paragraph 4.412.)

➔ Arrowed lines indicate new or changed information.

[ Vertical lines indicate requirements.

Assistant Manager  
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Reason for Reissue:  
Change paragraph 1.12  
Add NOTE to paragraph 3.31