

SEWED FORMS
SEWING INFORMATION, METHODS AND REQUIREMENTS

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1. GENERAL

1.1 Scope of Section

1.11 This section covers general information, methods and requirements for forming and sewing local cable forms, switchboard cable forms, main forms, branch arms, superimposed forms and superimposed wiring. The requirements covered in this section shall be followed, except when modified, by applicable specifications and/or drawings.

1.12 Each figure in this section illustrates only conditions to which reference is made in the text and is not to be considered as requirements for other conditions that may be involved or illustrated. For instance, the figure that illustrates stitching conditions should not be used for determining the type of form to be used.

1.2 Precautions Against Personal Injury,
Equipment Damage and Service
Interruptions

1.21 The specific precautions to be taken against personal injury, equipment damage, and service interruptions are covered in this section with the associated method. General precautions are covered in Handbook 0 and are to be observed at all times as they apply to the operations being performed.

2. INSTALLING INFORMATION

2.1 Tools and Supplies

2.11 Tools

284	Chicago Needle
R-1102	Plastic Spudger
R-1682	5" Electricians Scissors
R-2434	8" Scissors
R-4266	Cable Tie Fastening Tool
R-4411-L2	Pneumatic Banding Tool
R-4630	Wire Threading Tool
R-4827	Cable Tie Fastening Tool, Variable Setting

2.12 Supplies

R-2916	Twine
R-3428	Gray PVC Tape, 3/4" Wide
R-3455	White Shellac
R-4412B	Cable Tie Cartridge

2.2 Nylon Cable Ties

2.21 It is permissible to use either the manually applied Nylon Cable Ties, R-4265 or the pneumatically applied nylon ties (using tools R-4411 L2 to sew (band) switchboard or local cable forms. However, refer to Section 205 for requirements, methods, and size of form restrictions prior to application of ties.

This section includes material from BSP's 800-612-151 (1975), 800-612-153 (1977) and 800-612-154 (1978) by the American Telephone and Telegraph Company
Printed in U.S.A.

NOTICE: NOT FOR USE OR DISCLOSURE OUTSIDE THE BELL
SYSTEM EXCEPT UNDER WRITTEN AGREEMENT

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2.22 Where cable ties are being applied either manually or pneumatically, the spacing requirements of the nylon ties shall be the same as those used for sewing with approved twine (refer to Figure 6).

2.3 Stitches-Type and Use

2.31 Starting Stitch - Make this stitch as shown in Figures 1, 2 and 3. It consists of a lock stitch applied to a form at a point where the diameter is the largest. Sewing will then proceed toward the tip end of the form when the form is single leg. This stitch can also be applied to the center of a double leg form and then the sewing can then proceed toward the tip end of both legs.

2.32 Regular Lock Stitch - Make this stitch as shown in Figures 2 and 4. All local forms should be sewn completely using the lock stitch. The stems of this stitch should be located on the side of the form where the skimmers or arms break out as shown in Figure 4. (See winding stitch for exception.)

2.33 Winding Stitch - Make this stitch as shown in Figure 4. This should be used on all forms where the spacing of lead break outs are 1/2 inches or less apart. Forms to jack and lamp strips are examples of where this stitch can be used efficiently. When applying this stitch it should begin with a starting stitch placed at the butt end and then wound either in a clockwise or counterclockwise direction separating the leads breaking out of the form. Lock stitches (ending stitch) should be applied at the tip end of the form to retain the twine in place.

2.34 Ending Stitch - This stitch consists of two lock stitches placed close together where the last skimmers break out, or at the tip end of the form when it contains spare leads or has a stiffening wire (See Figure 5).

2.35 Cross Stitch - Make this stitch as shown in Figure 6. Use this stitch on large diameter forms where the branch arms require additional support and rigidity.

2.36 Chain Stitch - Make this stitch as shown in Figure 7. This type of stitch can be used to conveniently segregate individual groups of wire entering into a slotted type fanning strip. This type of stitch is seldom used in the field.

2.37 Broom Stitch - Make this stitch as shown in Figure 8. This stitch is made by sewing between groups of cable or local cable leads to retain the form in a flat confined shape. Exercise care to avoid insulation damage when using this stitch.

2.38 Double Lock Stitch - Make this stitch as shown in Figure 9. This stitch is similar to an ending stitch except that it is usually placed adjacent to the main form where a leg breaks away and additional support is required to maintain the shape of the break out leg.

2.39 "F" Stitch - This stitch is a supplementary lock stitch placed adjacent to a regular stitch and located toward the tip end of the form on both vertical and horizontal forms (see Figure 10). This stitch is used to identify duplicate colored wires that break out of the form at the same piece of apparatus but connect to different terminals.

2.391 If more than one "F" stitch is required, they shall be designated "F", "F1", "F2", etc. and will be so indicated on the wiring drawing. Ladder-type forms have neither a tip or butt end, therefore, the "F" stitches should be located on the right side of the regular stitch when facing the wiring side of the apparatus.

2.4 Splicing Twine

2.41 When a single strand of twine breaks or needs to be extended, splice it as shown in Figure 11.

2.42 When a double strand of twine breaks or needs to be extended, splice it as shown in Figure 12.

2.5 Securing Forms to Brackets

2.51 Where switchboard cable or local cable forms are to be secured to brackets, towel bars, etc., use either the "Chicago" or "Kansas City" stitch (see Figures 13 and 14). Nylon cable ties may be used to secure forms over 1/2 inch in diameter to brackets, etc. However, refer to Section 205 of this handbook for specific methods and requirements applying to the use of cable ties.

2.52 Forms composed of polyvinyl chloride (PVC) insulated wires (such as types (BH, BU and BY), polyethylene (PE) insulated wires (such as type BF and shielded pairs in 750 and 760 type cables), teflon (TFE) insulated wires (such as those in KS-19195 and KS-19224 Cables) shall be protected against contact with metalwork when secured to cable brackets, wiring supports, or other parts of the framework not provided with an approved protective finish such as No. 483. (Refer to Section 225 of this handbook for methods of providing protection).

3. FORMING AND SEWING

3.1 Forming

3.11 Shape of Form - In general, the shape of a form should follow the contour of the equipment framework and conform to the associated apparatus arrangement. Bends in a direction other than in the plane of the form should be avoided. Where unavoidable, sufficient distance between the break out points of the arms and skimmers should be applied to permit the form to be installed properly.

3.12 Sewed forms should be used for local and switchboard leads serving apparatus that is not equipped with fanning strips or other wire forming device. These forms should not interfere with access to apparatus requiring adjustment, repair, cleaning or replacement.

3.13 Skimmers should break out of the form approximately at the center of the apparatus to which they connect. If there is more than one breakout point for the same piece of apparatus, the leads should be formed out at the approximate center of the area they serve. Any variation should not interfere with the proper dress of the skimmers.

3.14 Refer to Figures 15 through 19 when forming leads to apparatus. If the particular type of apparatus you are working on is not shown, then form your leads in a manner close to one shown. If none closely resemble the apparatus you are working on, then style your own form being sure that it has a neat appearance and conforms to other apparatus forms in the close vicinity.

3.15 Paired, tripled and quadded wires should not be untwisted within a cable form. Where one or more, but not all wires of a pair, triple or quad are to be looped and connected to a piece of apparatus, the wires to be looped should be cut, untwisted and withdrawn from the other wires and formed out to the apparatus. Any remaining leads that are not to be looped and connected should be doubled back and sewed into the form.

3.16 When "C2", "C4", or "C5" wiring symbols are specified on the wiring drawing, they shall be segregated from the regular form and sewed into a separate form or forms and placed on the outside of the regulator form.

3.161 Any "C2, C4 or "C5 wiring being superimposed on an existing form, should not cover up any existing similar wiring already superimposed on the form (keep segregated).

3.162 Any superimposed "C2, C4, or C5" wiring added to a keyshelf form should not interfere with the free motion of the form when opening or closing the keyshelf.

3.2 Sewing

3.21 Where forms are to be sewn entirely with lock stitches or lock stitches preceding a winding stitch, the starting stitch should be made as shown in Figure 1.

3.22 Where several cables have been butt, stripped and secured to a bracket and are then joined together to make one large form, the starting stitch should be made as shown in Figure 3.

3.23 Where cable leads are to be sewn with a winding stitch (breakouts 1/2 inch or less apart), the starting stitch should be made as shown in Figure 4.

3.24 Stitches placed between the starting stitch and the first skinner break out point should be of the same type as used throughout the entire form. An exception to this is when a winding stitch is to be used and the distance from the butt of the form to the first breakout point is 1-1/2 inches or greater. In such cases, utilize lock stitches from the butt to the first skinner lead breakout point.

3.25 To complete sewing a cable form, apply the ending stitch as shown in Figures 5 or 9.

3.26 Sewing PVC insulated wires such as BU, BY, BW and DM-1, or PE insulated wire such as BF and shielded pairs of 750 and 760 type cables or TFE insulated such as KS-19195 or KS-19224 type cables and textile insulated wires do not require protection when sewn into a cable form. Twine spacing for these forms should meet the requirements shown in Figure 5.

3.261 PE insulated wire forms secured to a cable bracket requires protection. Refer to Section 225 of this handbook. Also, refer to Section 710 when sewing PE insulated wires of a toll system.

3.27 Sewing rubber or neoprene covered wires or coaxial cables having foam-type conductor insulations: Where these wires are sewn into a form made up principally of textile or PVC insulated wires, they should be embedded into the form so that the sewing twine does not come in contact and cut into the insulation of the rubber, neoprene, or coaxial insulated wires, otherwise protection is required.

3.271 Where this is impracticable, as at points where the rubber and/or neoprene covered wires leave the main form, two layers of plastic tape shall be applied half-lapped, around the main form and the arm to protect the insulation from the twine.

3.272 Where cable forms that would normally be sewed are made up principally of rubber and/or neoprene or KS-21112 Type Coaxial covered wires, tape the form completely with two layers of plastic tape lapped, instead of sewing the form with twine.

3.273 Where a cable form of rubber and/or neoprene covered wire is to be secured to switchboard cables, cable brackets, or other supports, the cable form shall be secured with twine. In such cases, the wires at each stitch shall be protected with 1/64 inch fiber strips about 1 inch wide, placed centrally under the stitch and wrapped completely around the cable form.

3.28 Twin conductor shielded office cables and coaxial cables, except for KS-21112 Foam Insulated Type shall not be sewn or tied so tightly so as to disturb the circular cross section of the coaxial cables.

3.281 Where only a few coaxial cables are sewed into a form with other wiring, the coaxial cables, should be embedded in the form where practiceable, to avoid contact with the twine.

3.3 Superimposed Wiring

3.31 The requirements for the number of strands of twine and the spacing of stitches when superimposing wiring (either loose wires or sewed forms) on main forms are shown in Figure 6. The requirements in this figure apply only to sewed forms and superimposed wiring by the Installer (which requires less handling than wiring superimposed by the shop).

3.32 "C" wiring forms shall be attached to the main form in accordance with the requirements shown in Figure 6 for superimposed forms.

3.33 Secure superimposed cables of rubber and/or neoprene covered wire to other sewed cables with bands of plastic tape (min. 1-1/4 inch turns) spaced not farther apart than five times the diameter of the larger cable. At bends, the tape shall extend completely around the bend.

3.34 When wires other than the various types of "C" wiring are to be added to existing sewed cable forms, except those in keyshelves, the additional wires may be sewed or nylon tied into a separate form and superimposed on the existing forms, provided that a satisfactory appearance is obtained. Otherwise the additional wires shall be distributed uniformly around the existing forms and secured by means of twine in the usual manner.

3.35 When adding only a few wires to an existing cable form, it is usually more economical to slide the added wires under the existing stitches instead of resewing or rebanding the form. The quickest way to do this is to slide the tip of the R-4630 Wire Threading Tool under the stitch or tie and passing the added wire through the groove in the tool. This method should not be attempted when adding wires to forms with old, very brittle insulation and twine. In such as case, resew or reband the form area where the leads are added.

NOTE: The R-4630 has a pointed end and requires a certain amount of precaution to avoid personal or cable form insulation damage.

3.351 The R-4630 Wire Threading Tool will also facilitate removal of twine stitches or nylon ties from cable forms and/or bundles. Slide the R-4630 Tip under the stitch or tie and cut an R-4633 Diagonal Cutter.

3.36 When wires, other than "C" wiring of any type as defined in Section 201, are to be added to existing sewed forms in keyshelves they may be sewed into a separate form and superimposed on the existing form or distributed uniformly around the existing form, whichever is more practicable. If the added wires can be placed on the original form so that they are not subject to damage by the keyshelf, no additional protection is required.

3.37 Supplementary keyshelf local cables which are formed by the shop and installed in the field, shall be superimposed on the existing form in the usual manner, i.e., a separate form sewed or nylon tied to the regular form.

3.371 When nylon cable ties are used to form or superimpose leads to the keyshelf, the heads of the cable ties shall be placed in such a manner so as to eliminate any possible rubbing or chafing of the keyshelf form.

4. VERIFICATION ITEMS

VERIFICATION ITEMS AND BRIEF STATEMENT OF REQUIREMENTS		REFERENCE	
		PAR. NO.	FIG. NO.
4.01	Nylon cable ties utilize the same spacing requirements as twine.	2.22	
4.02	Starting stitches made properly.	2.31	1,2,3
4.03	Lock stitches made properly.	2.32	2,4
4.04	Winding stitch made properly.	2.33	5
4.05	Ending stitch made properly.	2.34	6
4.06	Crosstitch made properly.	2.35	7
4.07	Chain Stitch Made Properly.	2.36	8
4.08	Broom stitch made properly.	2.37	9
4.09	Double lock stitch made properly.	2.38	10
4.10	"F" stitches made properly.	2.39	11
4.11	Splice single strand of twine correctly.	2.41	12
4.12	Splice double strand of twine correctly.	2.42	13

VERIFICATION OF ITEMS AND BRIEF STATEMENT (CON'T) OF REQUIREMENTS		REFERENCE	
		PAR. NO.	FIG. NO.
4.13	Secure forms to brackets with either a Kansas City or Chicago stitch.	2.51	14,15
4.14	Forms composed of PVC, PE and TFE insulated wire shall be protected from metal not having a No. 483 Protective Paint Finish.	2.52	
4.15	The shape of an Installer made form should conform to the contour of the frame and apparatus.	3.11	
4.16	Sewed forms should be used for switchboard and local cable leads serving apparatus that does not have fanning strips or devices.	3.12	
4.17	Forms should not interfere with access for cleaning, repairing, adjusting or replacing.	3.12	
4.18	Skinner leads should break out of the form at the approximate center of apparatus they serve.	3.13	
4.19	Form skinner leads per figures, or in a neat appearing manner.	3.14	16-19
4.20	Pair, triple and quad leads remain twisted in form until breakout position.	3.15	
4.21	"C2, C4, C5" leads segregated in form.	3.16	
4.22	"C2, C4, C5" leads cannot cover up previous similar leads.	3.161	
4.23	Sew forms with lockstitch and/or winding stitch.	3.21	1
4.24	Where winding stitch is used and distance from butt to breakout is 1-1/2 inches or more, use lock stitch.	3.24	
4.25	Winding stitch spacing 1/2 inch or less apart.	3.23	
4.26	Complete sewing form with ending stitch.	3.25	
4.27	Spacing of sewing stitches to conform to Figure 6.	3.26	6
4.28	PE insulated wires require protection when secured to brackets, etc.	3.261	
4.29	Rubber/neoprene covered wires and/or foam-type insulated coaxial wire should be embedded in the form to prevent contact with twine, otherwise provide protection.	3.27	
4.30	When form is principally rubber/neoprene covered wires and/or foam-type coaxial wire the form should be taped completely instead of twine sewed.	3.272	
4.31	When rubber/neoprene insulated wire forms are secured to brackets, etc. provide fiber protection.	3.273	

VERIFICATION OF ITEMS AND BRIEF STATEMENT (CON'T) OF REQUIREMENTS		REFERENCE	
		PAR. NO.	FIG. NO.
4.32	Shielded office cable and coaxial cable forms (except KS-21112 Type) shall not be sewn or tied tightly. Do not distort cross section of coax.	3.28	
4.33	Coaxial cable forms - Avoid contact with twine.	3.281	
4.34	Sewed forms or superimposed forms to meet spacing requirements of Figure 6.	3.31	6
4.35	"C" wiring forms attached to form according to Figure 6.	3.32	6
4.36	Rubber/neoprene forms superimposed with tape bands.	3.33	
4.37	Wires, except for "C" wiring, superimposed on form except for keyshelf form, can use separate form superimposed or wires distributed evenly around the form and secured.	3.34	
4.38	When adding wires to old form causes the stitches to break, resew form where leads are added.	3.35	
4.39	Wires, except for "C" wiring superimposed on keyshelf form can use separate form or wire distributed evenly around the form and secured.	3.36	
4.40	Supplemental keyshelf shop forms superimposed and secured in place with twine or cable ties.	3.37	
4.41	Keyshelf forms secured with cable ties should have tie heads turned to avoid chafing keyshelf form.	3.371	

No arrows due to extensive changes.

[Brackets at side of paragraph
indicates requirements.

Engineering Planning Manager
(Installation)

ATTACHMENTS:

Figures 1 through 18.

Reason for Reissue:

Sections 220 and 221 combined to eliminate
superfluous information and reduce size.

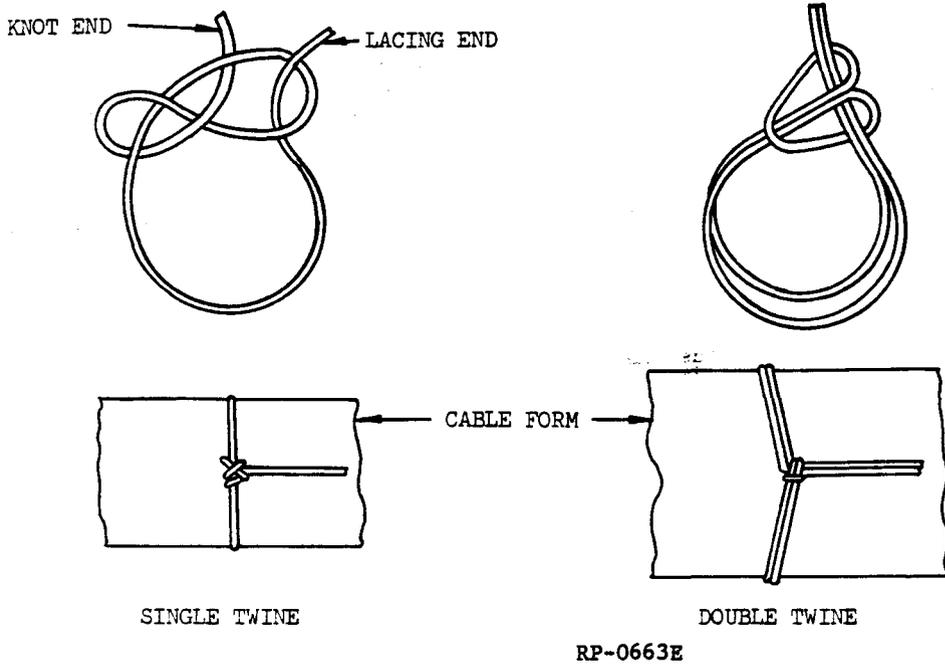


FIG. 1 STARTING STITCHES FOR CABLE FORMS
SEWED IN ONE DIRECTION ONLY
(PARS. 2.31, 3.21)

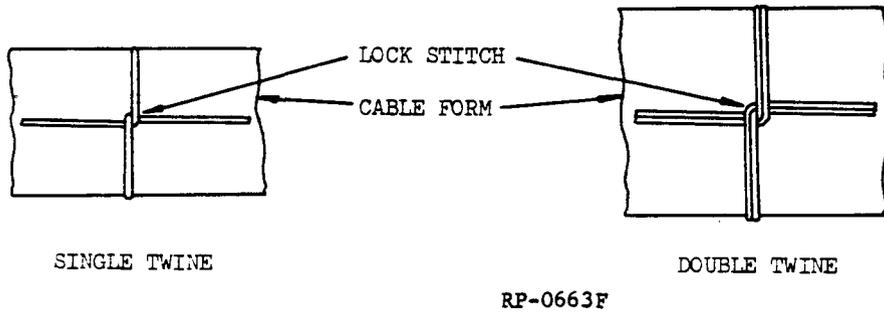


FIG. 2 STARTING STITCHES FOR CABLE FORMS
SEWED IN BOTH DIRECTIONS
(PARS. 2.31, 2.32)

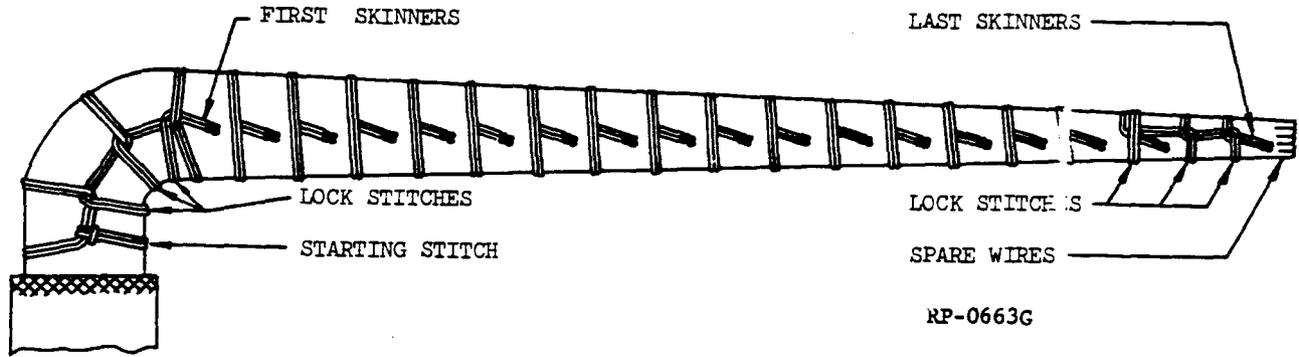


FIG. 3 SEVERAL CABLES IN RECTANGULAR FORMATION FORMED OUT AS A SINGLE ROUND CABLE ARM (PARS. 2.31, 3.22)

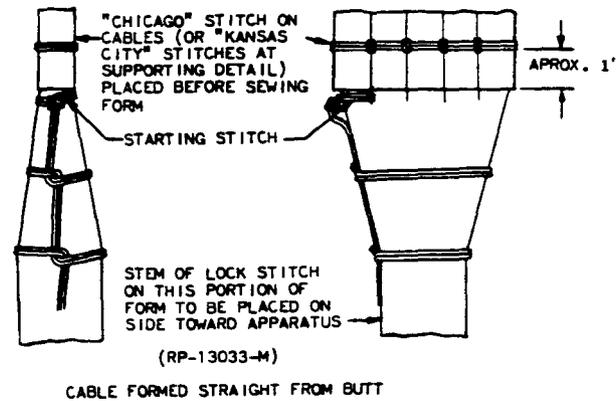
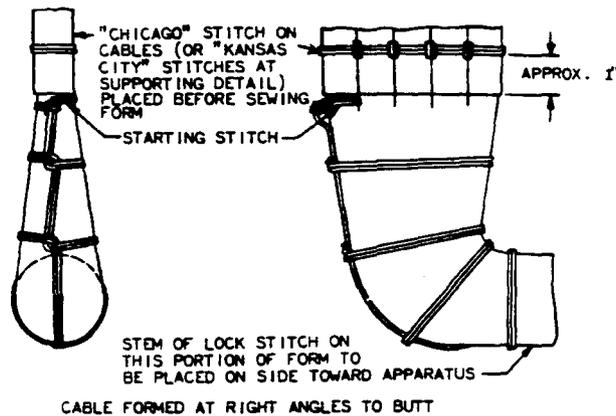


FIG. 4 SINGLE LEG CABLE FORM AT RIGHT ANGLES TO BUTT SEWED WITH LOCK AND WINDING STITCHES. (PARS. 2.32, 2.33, 3.23)

SPACING OF STITCHES (SEE NOTES 1 AND 2)								
Main Form Without Branch Arm or Skinner Breakout	Main Form With Branch Arm or Skinner Breakouts				For Superimposed Wire			For Superimposing Forms
Place stitch every 2 inches on main form where it is not necessary to conform to the spacing of branch arms or skinner breakouts.	Space between breakouts of branch arms or skinners.	Break-Out	Mid-Point	2" Spacing	Break-Out	Mid-Point	2" Spacing	
	1/2" or less	X			X			
	Over 1/2" to 2"	X			X			
	Over 2" to 4"	X	X		X	X		
	Over 4" to 8"	X		X	X		X	
	Over 8"	X		X	X		X	
See A	See A B C D E							See F G H

NUMBER OF STRANDS OF TWINE FOR ORIGINAL FORMS

In determining the number of strands of twine to use for sewing original forms, the maximum diameter of each separate part (main form or branch arm, straight or tapered) is the controlling dimension for that part.

- (a) Use 1 strand of approved twine for all sewing on forms (main form and branch arms) where the maximum diameter of the forms is not greater than 1-1/2".
- (b) Use 2 strands of twine for sewing the entire main form and all branch arms of the main form where the maximum diameter of the forms is greater than 1-1/2".
- (c) Where cable forms are to be protected with tape, it is permissible to double space stitches, providing the space between stitches does not exceed 3".

BANDS OR TIES

Where bands or ties are specified in the handbook or on the drawing for tying forms, use bands of 2 strands of twine, made as a starting stitch and ended with a square knot, for the entire form. Place the bands at approximately 8" intervals on Horizontal Forms, and approximately 14" on Vertical Forms unless otherwise specified. The requirements of this paragraph should not be considered as those requirements necessary for securing forms to cable brackets, supports, etc.

EXCEPTION: Where a specific handbook section specified size of twine different from the above, the specific handbook section shall be followed.

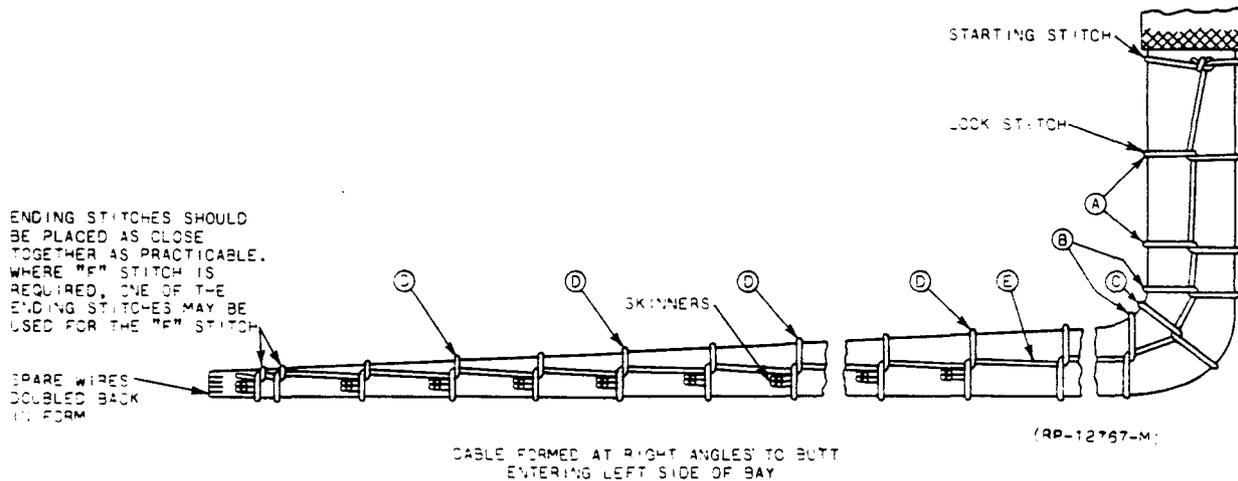


FIG. 5 SEWING REQUIREMENTS FOR SEWED FORMS AND SUPERIMPOSED WIRING (PARS. 2.34, 3.25, 3.26, 3.31, 3.32)

NUMBER OF STRANDS OF TWINE FOR
SUPERIMPOSED WIRING AND FORMS

(a) When superimposing wires around a forms, or superimposing one form on another; if the maximum diameter of the original form and superimposed wires together is not greater than 3", use 1 strand of twine; if it is greater than 3", use 2 strands of twine.

- A Place stitch every 1-3/4" (2" max.) on that part of form not having branch arm or skinner breakouts.
- B Place stitch at beginning and end of each bend and at beginning of branch arms.
- C Place intermediate stitches at bends so that stitch spacing does not exceed 1-1/4" on the outside radius.
- D Place stitch at each branch arm and skinner breakout and at midpoints to maintain equal spacing as nearly as practicable but not to exceed 2".
- E Place stem of stitches on side of form adjacent to apparatus. On single leg forms at double row fuse panels use the stem of the lock stitch to separate the upper and lower sets of skimmers. (Shop forms may have the skimmers separated by an extra stitch.)
- F Space stitches on that portion of a form which is to be superimposed and which is not controlled by branch arm or skinner breakouts, every 4 inches.
- G Place stitches used for superimposing one form on another midway between each stitch of the superimposed form except, as covered in H.
- H Where shop formed cables are to be superimposed, place superimposing stitches every 4 inches. Place additional stitches at breakouts of branch arms or skimmers as required to prevent the superimposed form pulling away from the main form at these locations.

NOTE 1: Place additional stitches where F stitches are specified on the drawing.

NOTE 2: Forms serving 286, 287 and similar type multi-contact relays or 218-type terminal strips mounted on 2-1/8" centers, should have stitches spaced 2-1/8" apart on that portion of the form where the vertical branch arms for these equipments break out.

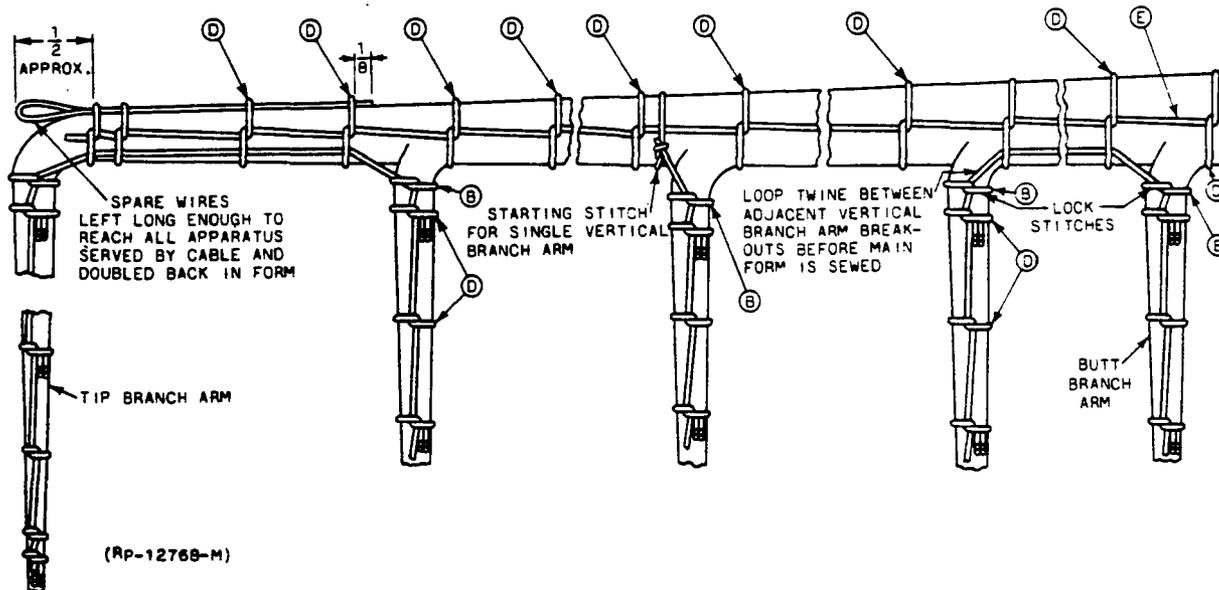


FIG. 5 SEWING REQUIREMENTS FOR SEWED FORMS AND SUPERIMPOSED WIRING (CONT'D)
(PARS. 2.34, 3.25, 3.26, 3.31, 3.32)

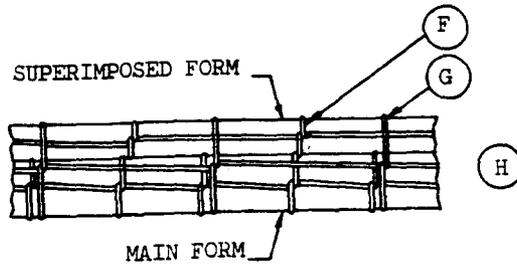


FIG. 5 SEWING AND BANDING (NYLON TIE) REQUIREMENTS FOR SEWED FORMS AND SUPERIMPOSED WIRING (PARS. 2.34, 3.25, 3.26, 3.31, 3.32) (Contd)

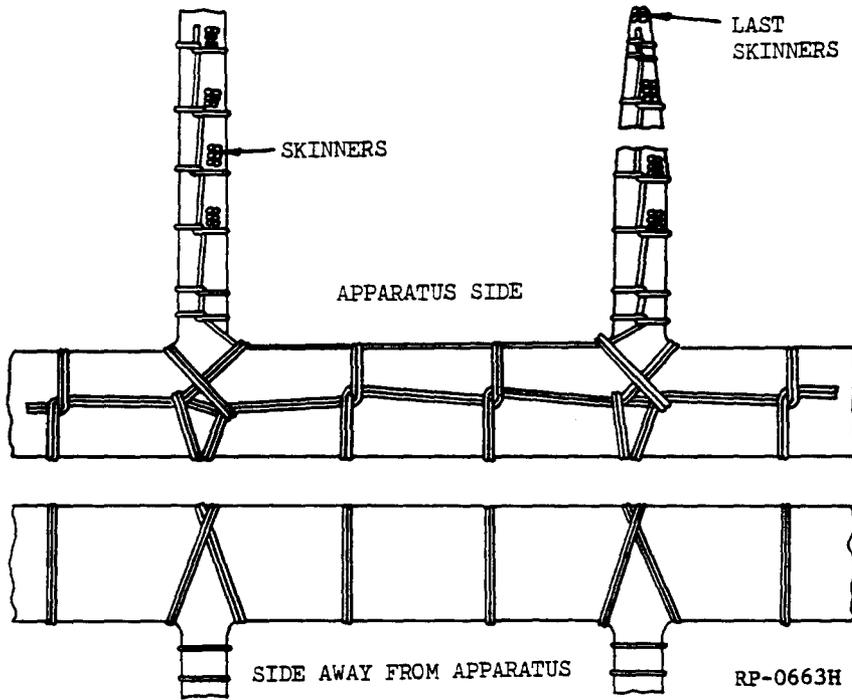
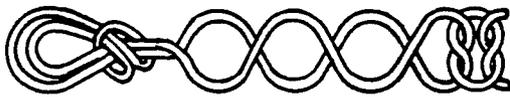
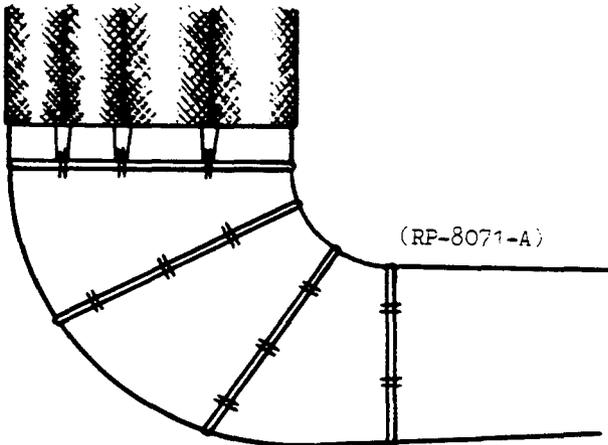


FIG. 6 CROSS STITCHES ON LARGE DIAMETER FORMS (PAR. 2.35)



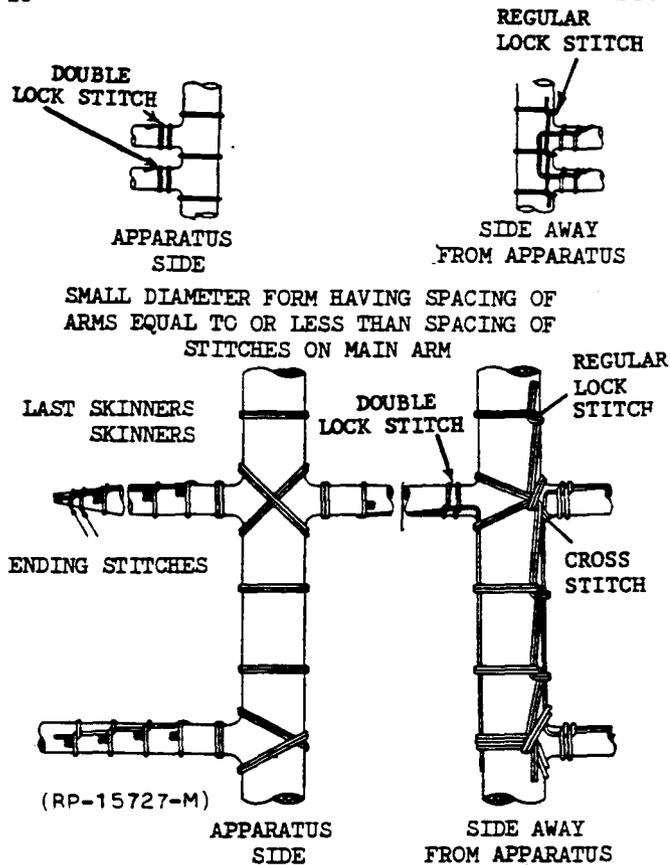
RP-0663J

FIG. 7 CHAIN STITCHES (PAR. 2.36)



(RP-8071-A)

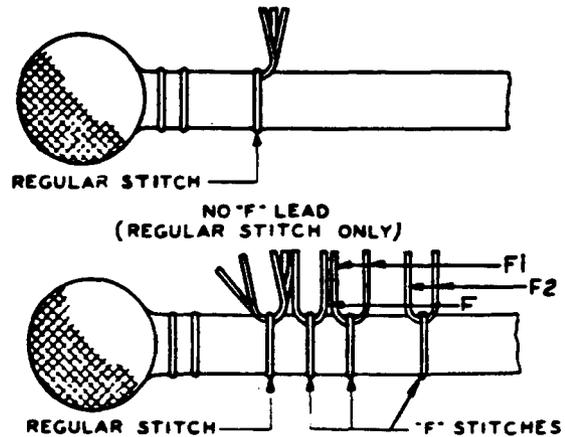
FIG. 8 BROOM STITCHES (PAR. 2.37)



NOTE: THE DOUBLE LOCK STITCH SHALL BE LOCATED AS CLOSE AS PRACTICABLE TO THE MAIN FORM.

FORM HAVING SPACING OF ARMS GREATER THAN SPACING OF STITCHES ON MAIN FORM

FIG. 9 SEWING LOCAL CABLE FORMS (PARS. 2.38, 3.25)



THREE "F" LEADS - TWO APPROACHING IN THE SAME DIRECTION AND THE OTHER IN THE OPPOSITE DIRECTION (TWO "F" STITCHES)

RP-0663K

NOTE: "F" STITCHES SHALL BE PLACED AS CLOSE AS PRACTICABLE TO THE REGULAR STITCH, AS WELL AS CLOSE TO EACH OTHER.

FIG. 10 "F" LEADS AND "F" STITCHES (PAR. 2.39)

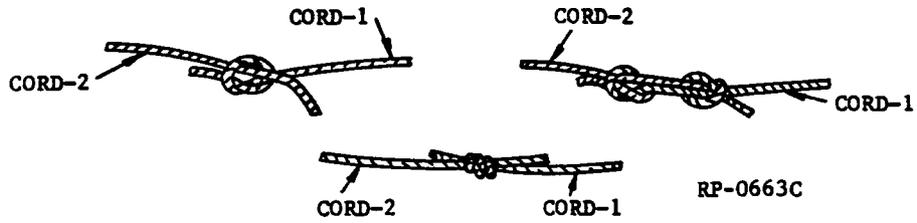


FIG. 11 SPLICING SINGLE TWINE (PAR. 2.41)

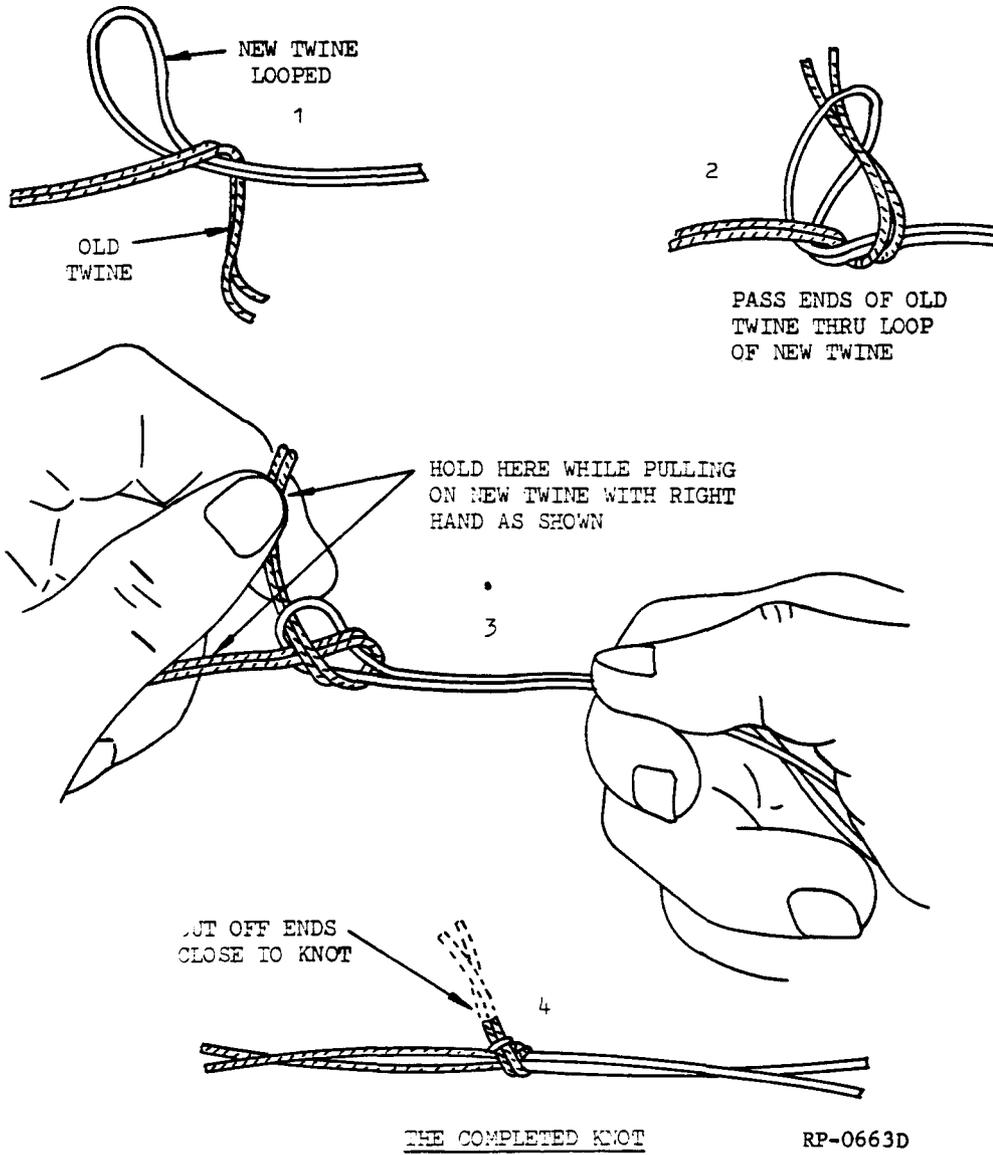
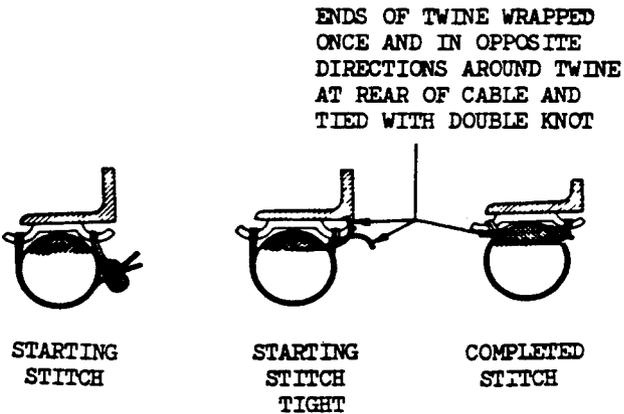
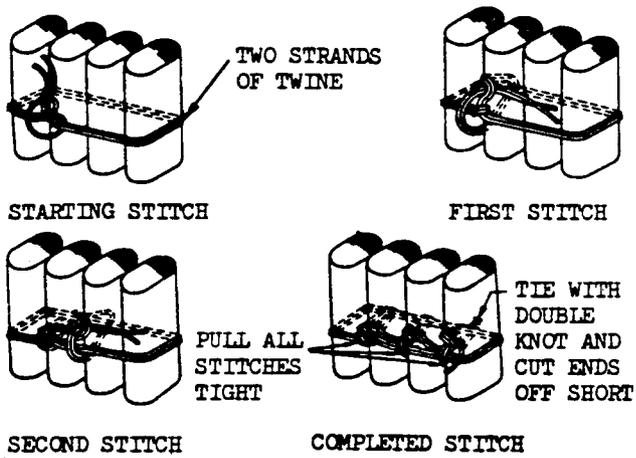


FIG. 12 SPLICING DOUBLE TWINE (PAR. 2.42)



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FIG. 13 "CHICAGO" STITCHES (PAR. 2.51)

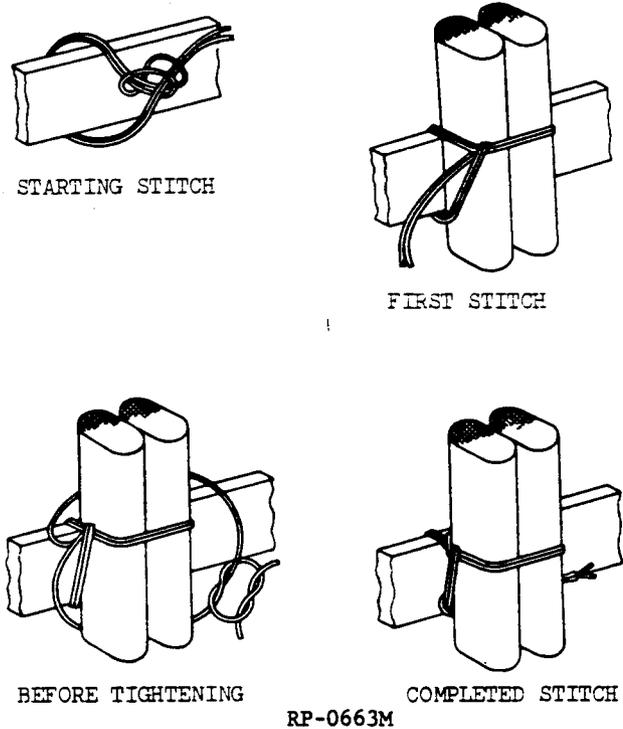
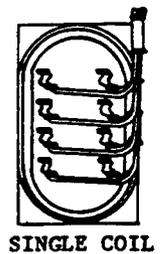
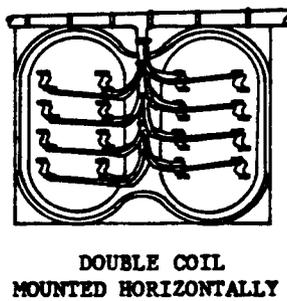
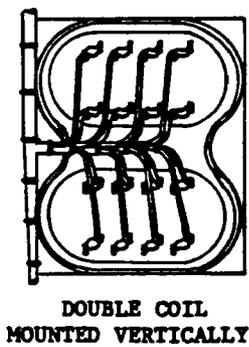


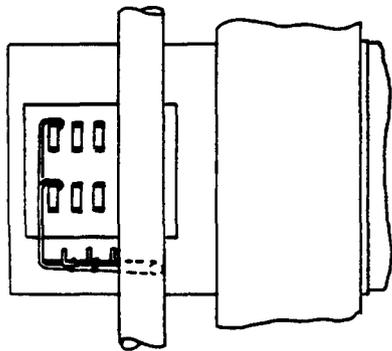
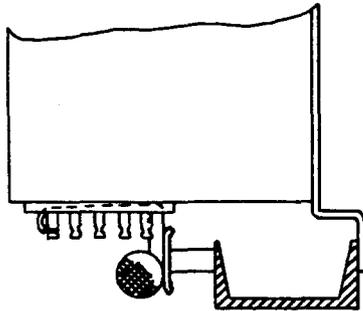
FIG. 14 "KANSAS CITY" STITCHES (PAR. 2.51)



RP-0670-A

FIG. 15 FORM SERVING VARIOUS TYPES OF COILS (PAR. 3.14)

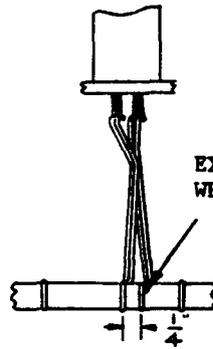
NOTE: THE OUTER RUBBER JACKET OF 720 TYPE CABLES AT C AND H CARRIER EQUIPMENT SHOULD BE TERMINATED AT THE VERTICAL FORM AND THE SKINNERS DRESSED IN THE NORMAL MANNER WITH THE PAIR TWIST RETAINED IN THE SKINNER TO THE FIRST TERMINAL.



RP-0670-B

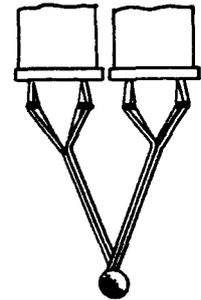
CHANNEL TYPE RELAY RACK SHOWN

FIG. 16 FORM SERVING 38 AND SIMILAR TYPE FILTERS (PAR. 3.14)



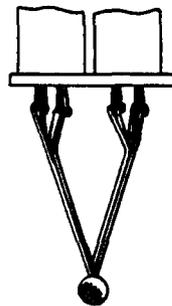
PLAN VIEW

EXTRA STITCH REQUIRED WHERE TOTAL NUMBER OF SKINNERS EXCEEDS FOURTEEN (14)



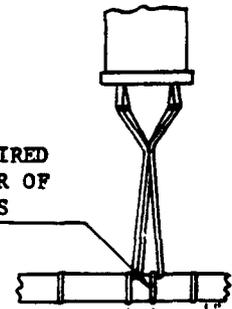
SIDE VIEW

HORIZONTAL FORM SERVING TWO PIECES OF APPARATUS MOUNTED ONE ABOVE THE OTHER



PLAN VIEW

EXTRA STITCH REQUIRED WHERE TOTAL NUMBER OF SKINNERS EXCEEDS FOURTEEN (14)

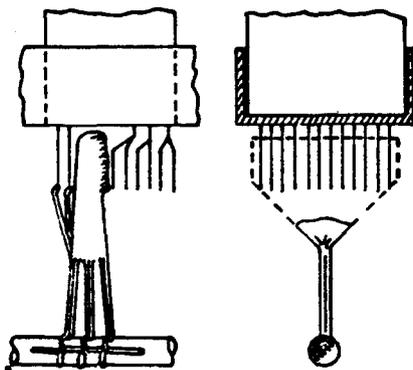


SIDE VIEW

RP-0670-C

VERTICAL FORM SERVING TWO PIECES OF APPARATUS MOUNTED SIDE BY SIDE

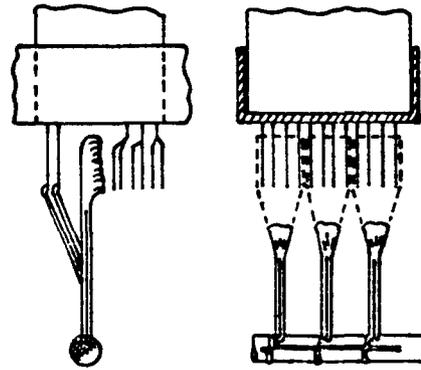
FIG. 17 SINGLE FORM SERVING TWO PIECES OF APPARATUS (PAR. 3.14)



PLAN VIEW

SIDE VIEW

HORIZONTAL FORM



PLAN VIEW

SIDE VIEW

VERTICAL FORM

RP-0713

FIG. 18 FORM SERVING WIRE SPRING RELAYS (PAR. 3.14)