

GUYING

METHODS OF INSTALLATION

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- (a) Corrosive conditions
- (b) Availability of materials
- (c) Field conditions.

2. POLE ATTACHMENTS

2.01 B guy hooks or guy bolts are used to attach guys to poles or stubs. The B guy hook method is described in 2.02 and 2.03. The B guy hook is the preferred method of attaching guys. The guy bolt method, described in 2.04 and 2.05, should be used only as an alternate method when B guy hooks are not available.

B GUY HOOK

2.02 Description and Use

- (a) The B guy hook illustrated in Fig. 1 is used for attaching guys to poles or stubs.

1. GENERAL

1.01 This section describes the various materials and methods used for installing guys on poles, stubs, and guy rods; typical arrangements of special guys at bridges, trees, and storm guy locations; and use of guy shields.

1.02 This section is reissued to:

- Include information on the redesigned D guy shield.
- Include information on 6.6M strand and hardware.
- Update illustrations.
- Delete information on CR strand.

1.03 The general principles outlined in this section should be used for any installations not directly covered.

1.04 The method to be used for a particular installation should be determined after considering the following factors:

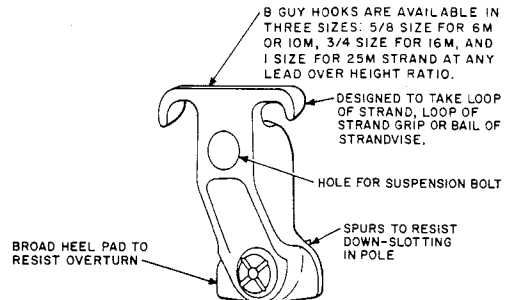


Fig. 1—B Guy Hook

- (b) B guy hooks are available in three sizes designated 5/8, 3/4, and 1. The 5/8 size is for use with 10M or smaller size strand, the 3/4 size is for use with 16M strand, and the 1 size is for use with 25M strand. The designated

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sizes of the B guy hooks are associated with the diameter of the Type A cable suspension bolt required.

(c) B guy hooks are also used to dead end suspension strand, as described in Section 627-240-212 and -213.

2.03 Installation

- (a) To install the B guy hook on poles or stubs, refer to Fig. 2 and proceed as follows:
- (1) Select a cable suspension bolt of proper size to match the guy hook and place it through the hole in the guy hook and through the pole with the threaded portion on the opposite side of the pole from the guy hook.
 - (2) Place a curved washer of proper size (B curved washer for 5/8-inch bolts, E curved washer for 3/4-inch bolts, C curved washer for 1-inch bolts) between the nut on the bolt and the pole.
 - (3) Permanently seat the guy hook by alternately tightening the nut and striking the heel pad of the guy hook with a hammer until the spurs are firmly engaged in the pole. A typical installation is illustrated in Fig. 2.

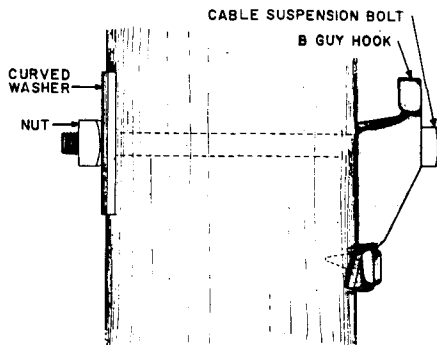


Fig. 2—B Guy Hook Installed on Pole

- (4) For pole-to-pole guys, invert the lower hook so that the load is on the shoulder as illustrated in Fig. 3.

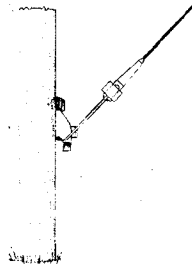
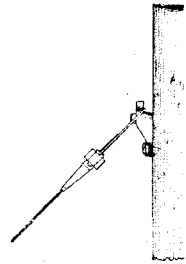


Fig. 3—B Guy Hook Installed—Pole-to-Pole Guy

GUY BOLTS

2.04 Description and Use

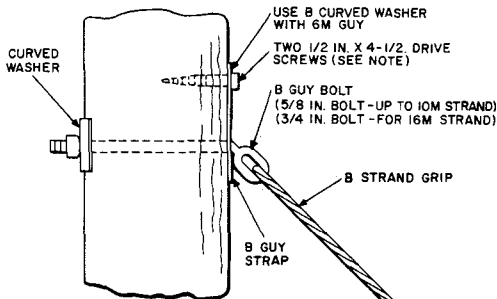
- (a) Guy bolts are of two types, a B guy bolt for use where the lead over height ratio is 1-1/4 or less, and an S guy bolt for use where the lead over height ratio is more than 1-1/4.
- (b) Guy bolts are marked along the shank near the eye with the maximum strand size that can be used.
- (c) Table A specifies the various materials for making guy attachments.
- (d) Methods of attaching or dead ending suspension strand on the same bolt with the guy strand are described in Sections 627-220-200, 627-240-212, and 627-240-213. When both guy and suspension strand are attached to the same bolt, the size of bolt is determined by the size of the guy strand or the suspension strand, whichever is greater.

TABLE A
MATERIALS FOR GUY ATTACHMENTS
GUY BOLT METHOD

SIZE OF GUY STRAND (POUNDS)	LEAD OVER HEIGHT 1-1/4 OR LESS			LEAD OVER HEIGHT MORE THAN 1-1/4	
	SIZE OF B GUY BOLT (INCHES)	TYPE OF CURVED WASHER (THREADED) END OF BOLT)	TYPE OF WASHER OR GUY STRAP (EYE END OF BOLT)	SIZE OF S GUY BOLT (INCHES)	TYPE OF CURVED WASHER (THREADED END OF BOLT)
2.2M	5/8	B	B Curved Washer	5/8	B
6M	5/8	B	B Curved Washer	5/8	B
6.6M	5/8	B	B Curved Washer	5/8	B
10M	5/8	B	B Guy Strap	5/8	B
16M	3/4	E	B Guy Strap	3/4	E
25M	1	C	L Guy Strap	1	C

2.05 Installation

- (a) For guys of 16M strand or less, install B guy bolts as illustrated in Fig. 4.



NOTE:
 IF THE GUY BOLT IS LOCATED WITHIN 16 IN. OF THE TOP OF THE POLE THE GUY STRAP SHOULD BE REVERSED WITH THE DRIVE SCREWS BELOW THE GUY BOLT.

Fig. 4—Installation of B Guy Bolt—16M Strand or Smaller

- (b) For guys of 25M strand, install B guy bolts as follows:

- (1) Cut a gain 7 inches long to a depth of 3/4 inch in the pole, so that the base of the strap will be supported on a square shoulder of the pole as shown in Fig. 5.

- (2) Place an L guy strap in the gain with the turned-over base toward the pole and resting on the shoulder of the gain.

- (3) Where the upper edge of the strap is located more than 16 inches from the top of the pole, secure the strap to the pole with two 1/2-inch by 4-1/2 inch drivescrews.

- (4) Where the upper edge of the strap is located 16 inches or less from the top of the pole, secure the strap to the pole with a 5/8-inch cable suspension bolt placed so that the head of the bolt is against the guy strap.

- (5) Place a 1-inch B guy bolt and attach guy as illustrated in Fig. 5.

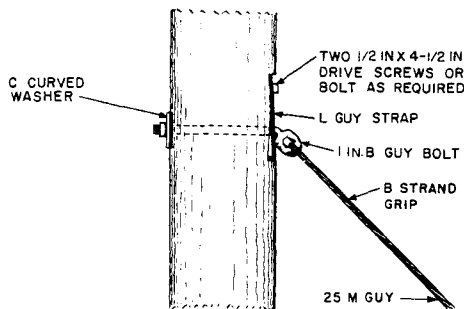


Fig. 5—Installation of B Guy Bolt—25M Strand

- (c) A typical installation showing the use of the S guy bolt is illustrated in Fig. 6.

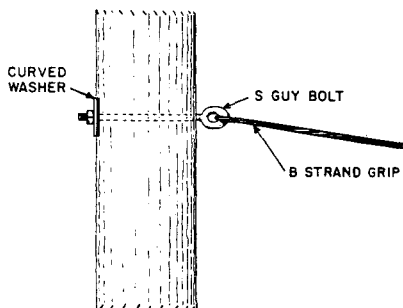


Fig. 6—Installation of S Guy Bolt

3. TERMINATING GUY STRAND ON POLES OR STUBS

GENERAL

3.01 Guy strand may be terminated at poles or stubs by the use of B strand grips, Strandvises®, or guy clamps. The method of terminating guy strand using B strand grips is described in 3.02 and 3.03. The Strandvise method is described in 3.05 and 3.06; the guy clamp method is described in 3.07 and 3.08.

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B STRAND GRIP

3.02 Description and Use

(a) The B strand grip is made of spirally formed, galvanized, high-strength steel wire formed to close tolerances to maintain a permanent grip. The inner surfaces of the wires are coated with an abrasive grit which increases the holding power of the grips. The B strand grip may be used for terminating guy strand on B guy hooks, strain insulators, and eye-type hardware.

(b) The strand grips are available in five sizes corresponding to the outside diameter of standard galvanized strand. The strand size is indicated on a tape fastened to each grip and may also be identified by the color of the paint marking at the starting or crossover point as

shown in Table-B. The paint mark (A) in Fig. 7 indicates starting or crossover point for all installations except where strain insulators are used. Paint mark (B) indicates crossover point when using strain insulators. Strand grips for 16M and 25M strand have only one paint mark which is the crossover point for all installations.

TABLE B

DIMENSIONS AND COLOR MARKINGS
OF B STRAND GRIPS

STRAND SIZE	STRAND DIAMETER (INCHES)	OVERALL LENGTH (INCHES)	CROSSOVER POINTS COLOR MARKING
2.2M	3/16	20	Red
6M	5/16	31	Black
6.6M	1/4	25	Yellow
10M	3/8	35	Orange
16M	7/16	38	Green
25M	1/2	50	Blue

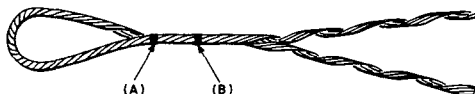


Fig. 7—B Strand Grip

(c) B strand grips may be used on class C galvanized strand as well as the generally used class A galvanized strand.

(d) Strand grips *shall not be reused* after initial installation.

3.03 Installation

Note: Gloves and eye protection should be worn when wrapping or unwrapping strand grips.

(a) In most cases, the strand grip may be applied to the pole top end of the guy on the ground. When a B guy hook is the pole attachment, assemble the B strand grip as follows:

(1) Select the proper size grip for the strand being used. (See Table B.)

- (2) Apply one or two layers of vinyl tape around the cut end of the strand to keep the wires in lay. Avoid excessive taping.
- (3) With thumb pressure, hold taped strand firmly inside one leg of the strand grip extending the end of the strand approximately 1 inch past paint mark A. The starting leg is referred to as the first leg. (If a guy bolt is used as the pole attachment, insert this leg through the eye of the guy bolt.)
- (4) Wrap the first leg around the strand while pulling the strand grip away from the strand with enough force to permit easy application as illustrated in Fig. 8. Make two or three wraps. Do not bend the leg of the strand grip enough to permanently deform it.

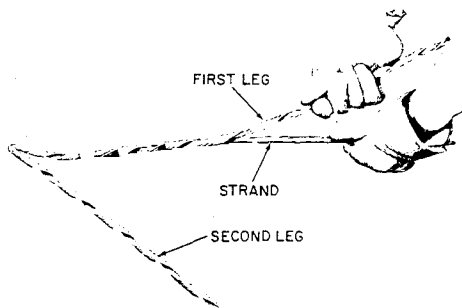


Fig. 8—Applying First Leg

- (5) Start the second leg in the open space of the first leg by matching the painted crossover marks and then wrap the leg around the strand. (See Fig. 9.)

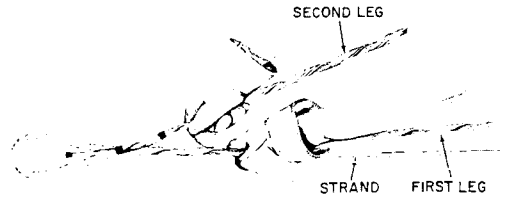


Fig. 9—Applying Second Leg

- (6) Finish wrapping the leg by pulling around and away from the strand. Generally, for strand grips used on strand smaller than 16M (7/16 inch), the last wrap can be snapped into the lay of the strand by a twisting, pushing motion of the hand away from the loop of the strand grip. For larger grips it will be easier to apply the last pitch of each leg if the leg is split in half (three wires at a time) a pitch or two back from the end. (See Fig. 10.)

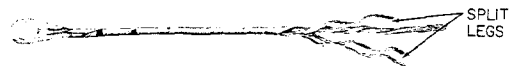
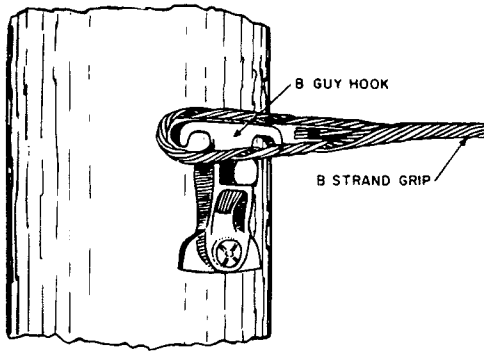
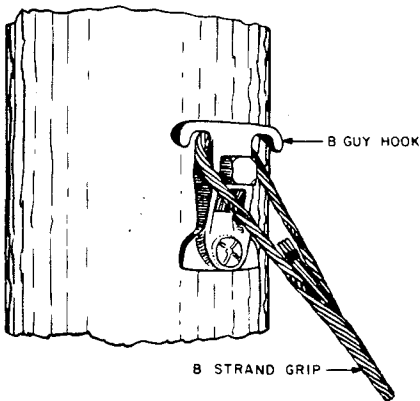


Fig. 10—Legs Split for Easy Application

(b) Raise the completed assembly to the top of the pole and attach by turning the B strand grip at right angles to the ears of the B guy hook and rotating the loop into proper position as shown in Fig. 11.



POSITIONING B STRAND GRIP



B STRAND GRIP POSITIONED

Fig. 11—Guy Installed Using B Strand Grip and B Guy Hook

(c) When a strain insulator is required, the guy strand is cut and attached to each side of the insulator with strand grips in a similar manner except the loop of the grip must be

passed through the opening of the strain insulator and the crossover point starts at point B. (See Fig. 7.)

3.04 When a guy bolt is used as the pole attachment, the installation is similar except the loop of the B strand grip must be passed through the eye of the guy bolt before the second leg of the strand grip is wrapped on the guy strand.

STRANDVISE

3.05 Description and Use

(a) A Strandvise may be used to terminate guy strand on B guy hooks, strain insulators, and eye-type hardware.

(b) Each Strandvise as shown in Fig. 12 consists of an aluminum cartridge, containing a spring-loaded 3-jaw chuck linked to a stainless steel bail by an aluminum yoke. To facilitate insertion of the strand, a pilot cup is provided at the outer end of the cartridge to prevent spreading of the individual wires as the end of the strand passes through the chuck. The cartridge also has an embossment to keep it from slipping out of the yoke during installation and a slot to permit removal of the strand from the jaws when necessary. On the short bail one head is flattened to facilitate insertion through eye-type hardware.

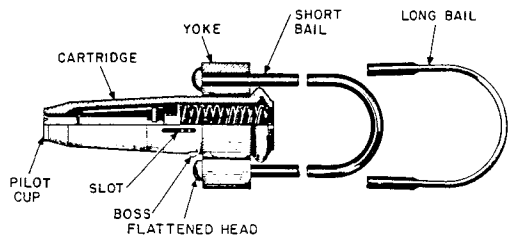


Fig. 12—Strandvise and Associated Bails

(c) There are four sizes of Strandvises as specified in Table C and each size may be obtained with either a short or long bail. The short bail Strandvise is for use with eye-type hardware and B guy hooks. The long bail Strandvise is to be used only with strain insulators.

Do not use the long bail Strandvise with eye-type hardware.

◆ **TABLE C** ◆

SIZES OF STRANDVISES

STRAND SIZE (POUNDS)	STRANDVISE SIZE (INCHES)	OVERALL LENGTH (INCHES)	
		SHORT BAIL	LONG BAIL
6M	5/16	9-7/8	13-1/8
6.6M	1/4	9-1/8	11-1/2
10M	3/8	11-3/8	13-5/8
16M	7/16	11-7/8	14-0

(d) **Precautions**

(1) Strandvises are intended for use on new galvanized strand. However, corroded strand that has been inspected and is to remain in plant may be terminated with a Strandvise. Loose rust and scale should be removed from the strand with emery cloth before installation. Strand on which no galvanizing remains shall be considered unsafe for use in a Strandvise.

(2) Do not use a Strandvise at sea coast locations where extreme conditions of salt spray or salt fog may be encountered.

(3) The bail and yoke of Strandvises may be reused provided they are in good condition.
Do not reuse the cartridges of Strandvises.

3.06 Installation

Note: Work gloves and eye protection should be worn when working with strand or strand attachment devices.

(a) In most cases, installation of the Strandvise on the pole-top end of the guy may be done on the ground.

(b) When a B guy hook is used as the pole attachment, assemble the Strandvise to the strand as follows:

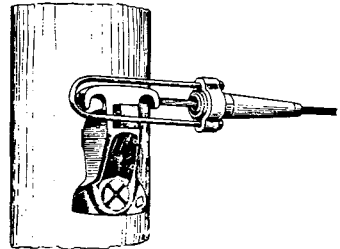
(1) If strand end is deformed or unraveled, cut off a length sufficient to ensure that

the length of strand which is placed into the Strandvise is in good condition.

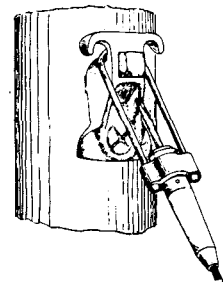
(2) Tape the strand about 1/2 inch from where it is to be cut. Before cutting, straighten strand to remove coil curvature.

(3) Cut the strand, insert the end into the pilot cup, remove tape, and push the strand through the cartridge until it extends about 2 inches beyond the cartridge.

(4) Raise the completed assembly to the pole top and attach by turning the bail at right angles to the ears of the B guy hook and rotating the bail into proper position as illustrated in Fig. 13.



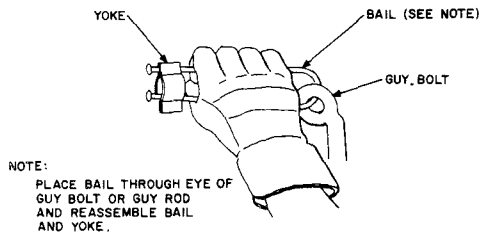
POSITIONING STRANDVISE



STRANDVISE POSITIONED

Fig. 13—Installing Strandvise on B Guy Hook

(c) If a guy bolt is used as the pole attachment, the installation is similar except the Strandwise must be disassembled and the bail passed through the eye of the guy bolt before the strand is inserted in the cartridge (Fig. 14 and 15).

**CAUTION:**

TO AVOID INJURY KEEP HAND OR FINGER AWAY FROM YOKE WHILE SQUEEZING BAIL THROUGH YOKE OPENING.

Fig. 14—Assembling Strandwise to Guy Bolt

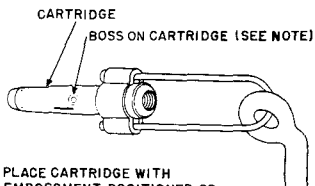


Fig. 15—Completed Assembly

(d) When a strain insulator is required, the guy strand is cut and attached to each side of the insulator with *long bail Strandwises* in a similar manner.

B GUY CLAMPS

3.07 Description and Use

(a) B guy clamps may be used to terminate guy strand on B guy hooks, strain insulators, and eye-type hardware. The number and type of clamps to be used are specified in Table D.

TABLE D

NUMBER AND TYPE OF CLAMP USED
TO TERMINATE GUY STRAND

SIZE OF STRAND (POUNDS)	NUMBER AND TYPE OF GUY CLAMPS
2.2M	1 1-Bolt Clamp
6M	1 B Guy Clamp
6.6M	1 B Guy Clamp
10M	1 B Guy Clamp
16M	2 B Guy Clamps
25M	3 B Guy Clamps

(b) Terminate guy strand using guy clamps as follows:

(1) Bend the main part of the guy and tail so that the portions to be placed in the clamp will be parallel.

Note: The tail of the strand should protrude approximately 6 inches beyond the guy clamp.

(2) Place the clamp on the strand. (If eye-type hardware is used, pass the tail of the guy through the eye before placing the clamp on the strand.) If more than one clamp is required, butt the clamps together.

(3) Tighten each nut until it bears firmly on the clamp side. The chamfered sides of the nuts should be against the clamp.

(4) After this preliminary tightening of all nuts, turn each nut down as tightly as practical using a B lineman's wrench.

(5) Where it is convenient and practical, tighten the bolts of the clamps again after the guys are under tension.

Note: Where strain insulators are to be placed in the guy, and where the guy clamp can be attached on the ground, the tightening of the bolts will be facilitated if the clamp is held in a vise.

(6) Serve the tail of the guy as described in 3.08 and raise the completed assembly to the pole top. If guy bolts are used as the

pole attachment, fasten in place as described in 2.05. When B guy hooks are used as the pole attachment, place the loop of the strand over the ears of the B guy hook in a manner similar to that described in 3.06.

3.08 Serving Tails of Guys

- (a) The strand serving sleeve illustrated in Fig. 16 is used for serving the tails of guys when the guy clamp method is used. They are available in sizes corresponding to the outside diameter of standard galvanized strand. The strand size is indicated on each sleeve.

SLEEVE SIZE	STRAND GALV.	A (INS.)
3/16	2.2M	1 1/4
1/4	6.6M	1 3/8
5/16	6M	1 1/2
3/8	10M	1 3/4
7/16	16M	2
1/2	25M	2 1/4

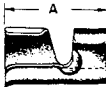


Fig. 16—Strand Serving Sleeve

- (b) Install the sleeve by placing it over the strand at approximately right angles so the flared inner side contacts the tail and the unflared inner side contacts the standing part of the strand. (See Fig. 17.)
- (c) Slide the sleeve along the strand until the flared end engages the tail. Using a hammer, drive the sleeve over the end of the tail until the full length of the sleeve is over the tail.
- (d) As an alternate method secure the end of tail of guy by means of 109 steel construction wire as shown in Fig. 18.

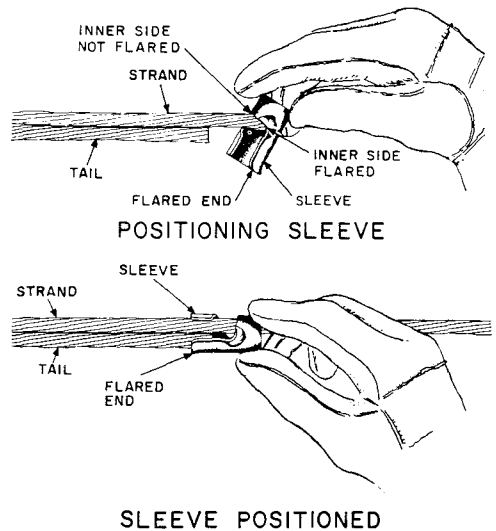


Fig. 17—Installing Strand Serving Sleeve

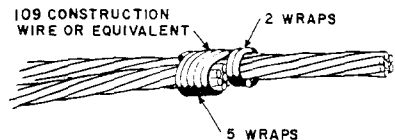


Fig. 18—Guy Tail Served with 109 Wire

4. TENSIONING AND TERMINATING GUY STRAND ON GUY RODS AND STUBS

GENERAL

4.01 When tensioning and terminating guy strand at guy rods or stubs, the strand may be terminated by the use of B strand grips, Strandvises, or B guy clamps. The strand grip method is described in 4.04 through 4.06. The Strandvise method is described in 4.07 through 4.13. The B guy clamp method is described in 4.14 and 4.15.

4.02 The figures in this section show the use of chain hoists for tensioning guy strand. *Care should be exercised not to exceed the safe working loads for hoists as shown in various sections of the Bell System Practices describing their use.* Some examples of the proper hoists for tensioning guys are illustrated in Table E.

TABLE E

SIZE OF CHAIN HOIST USED FOR TENSIONING GUYS

GUY STRAND SIZE	HOIST CAPACITY (TONS)	
	TENSIONING GUYS BEFORE SUSPENSION STRAND OR WIRE IS TENSIONED	RETENSIONING OR HOLDING GUYS AFTER SUSPENSION STRAND OR WIRE IS TENSIONED
2.2M	3/4	3/4
6M	3/4	1-1/2
6.6M	3/4	1-1/2
10M	3/4	3
16M	1-1/2	See Note 1
25M	1-1/2	See Note 1

Note 1: Truck winch must be used.

4.03 When retensioning 16M and 25M guys after the suspension strand or wire has been tensioned, slack may be provided in the guy strand by use of the truck winch as follows:

- (a) Attach a wire rope snatch block to the pole within 1 foot of the guy attachment.
- (b) Remove winch line from derrick and place the winch line through snatch block.

- (c) Dead end the winch line to a solid anchorage on the truck.
- (d) Take up slowly on winch line to provide slack in guy.
- (e) Pull up slack in guy with 1-1/2 ton chain hoist.

B STRAND GRIP

4.04 At single guy locations tension and terminate guy strand as follows:

- (a) Apply a strand puller to the guy strand a short distance above the point where the strand grip will terminate. Fasten a B pulling eye on the guy rod and apply tension to the guy with a chain hoist. (See Fig. 19.) Overtension the guy (two or three clicks of the chain hoist will usually be sufficient) to compensate for the slight slack produced in attaching the strand grip.

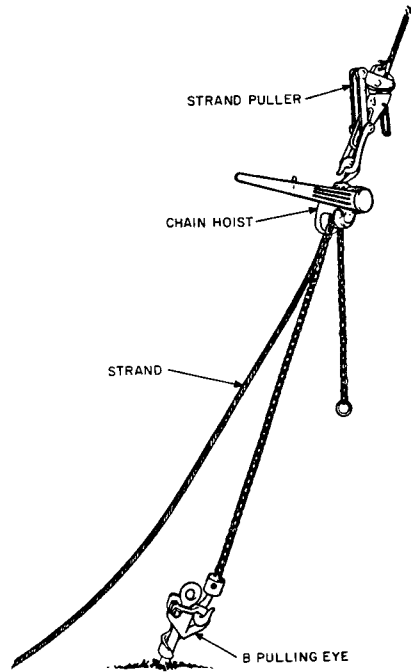


Fig. 19—Tensioning Guy

(b) Apply two layers of tape to the strand approximately 4 inches from the guy rod eye and cut the strand at that point.

(c) Align the loop of the strand grip with the guy strand tail and the groove in the eye of the guy rod, removing as much slack as possible. (See Fig. 20.) Keeping this alignment, hold the strand and grip away from the chain of the hoist and apply the first leg of the strand grip except for the last two pitches.

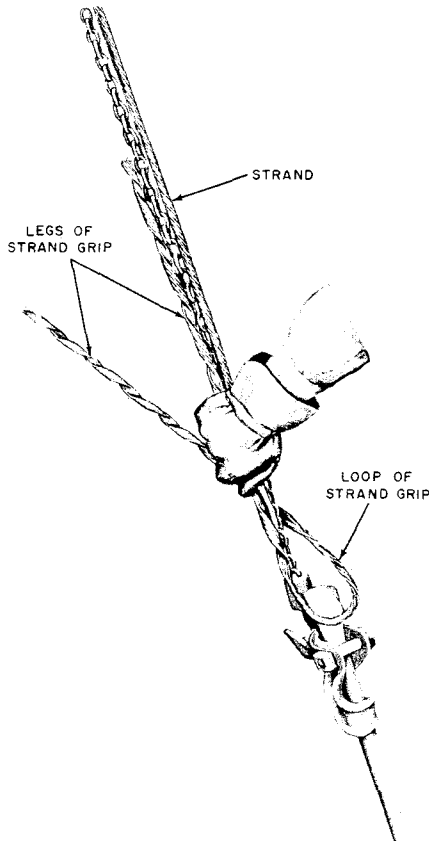


Fig. 20—Measuring Terminating Point of Guy Strand

(d) Insert the free leg through the eye of the guy rod, pull up this leg until the crossover marks match, and wrap the leg around the strand

except for the last two pitches. When possible, bend the leg out and away from the strand when wrapping. (See Fig. 21.)

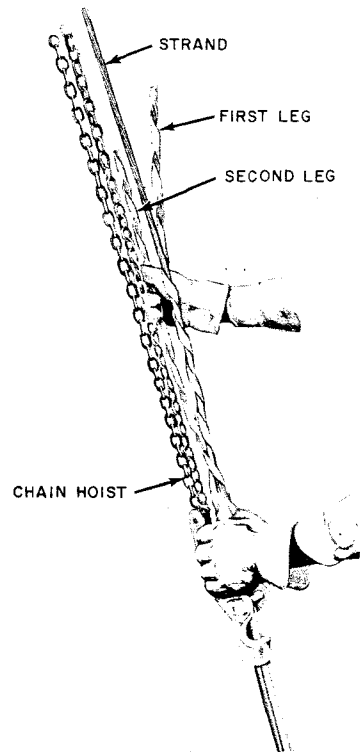


Fig. 21—Wrapping Legs Around Strand

(e) Make sure the loop of the grip is properly positioned in the groove of the guy rod. Back off the chain hoist and check the tension of the guy. If the guy needs further tightening, take up tension on the hoist, unwrap the grip, and reapply.

(f) When the guy is properly tensioned, remove the chain hoist and apply the last two pitches of the legs of the strand grip.

(g) If the guy tail needs further shortening, bend the projecting end away from the strand grip crotch, tape the strand if required, and cut as close as possible to the crotch.

4.05 At multiple guy locations, tension and terminate guy strand as follows:

- (a) Complete the pole top installation for all grips.
- (b) If there is no existing guy, tension the first guy as described in 4.04.
- (c) Tension the second guy as described in 4.04(a) until the first guy is slightly slack.
- (d) Apply the legs of the strand grip as described in 4.04(b) through (d), but the legs should be wrapped **only** to the **second crossover mark**, or for 16M and 25M sizes where there is only one crossover mark, apply **one wrap**. (See Fig. 22.)
- (e) Guy tension can now be equalized by releasing the chain hoist until the tension is equal on both guys.

Note: Since the strand grip is only partially wrapped on, the strand will slip through as tension is applied to the strand grip.

- (f) When the guy tensions are equal, wrap all but two pitches of each leg and complete the application as described in 4.04(f) and (g).

4.06 At pole-to-stub locations install a B or C fabric sling or rope sling, strand puller, and chain hoist, as shown in Fig. 23, at the location where the guy will be tensioned, and proceed as outlined in 4.04.

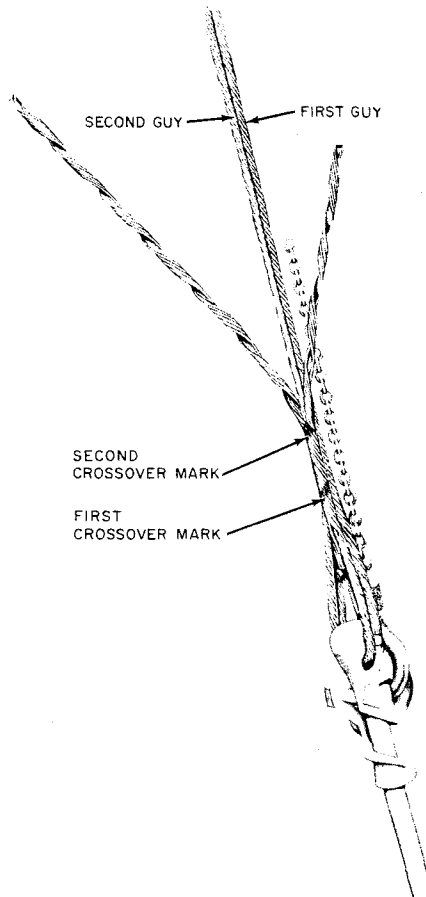


Fig. 22—Legs Applied to Crossover Points

STRANDVISE

4.07 When tensioning and terminating guy strand on guy rods where Strandvises are used as the terminating device, proceed as follows:

- (a) Assemble the Strandvise to the guy rod. Measure the strand to reach about 1-1/2 inches beyond the large end of the cartridge and tape it at that point. Cut the strand 1/2 inch beyond the tape.
- (b) Insert the end of the strand in the pilot cup, remove the tape, and push the strand through the cartridge until the guy is handtight. (See Fig. 24.)

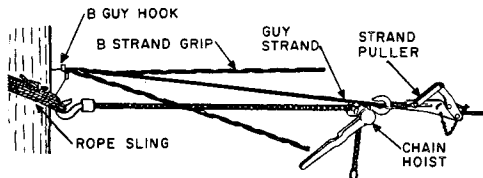


Fig. 23—Pole-to-Stub Installation

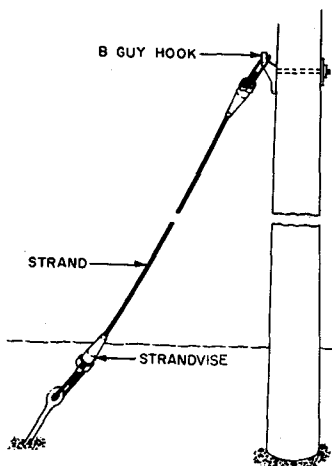


Fig. 24—Guy Assembled Hand-Tight

(c) Tensioning the guy may be performed with either a pulling eye or a pulling hook:

(1) **B Pulling Eye:** (See Fig. 25.) Assemble the pulling eye on the guy rod and place the strand puller on the guy strand. Apply the desired tension with a chain hoist and feed the strand through the cartridge. Release the chain hoist tension to set the jaws of the Strandvise.

(2) **Reliable No. 9055 Pulling Hook:** (See Fig. 25.)

Note: The pulling hook may be used only on guys up to and including 16M rating which terminate in Strandvises.

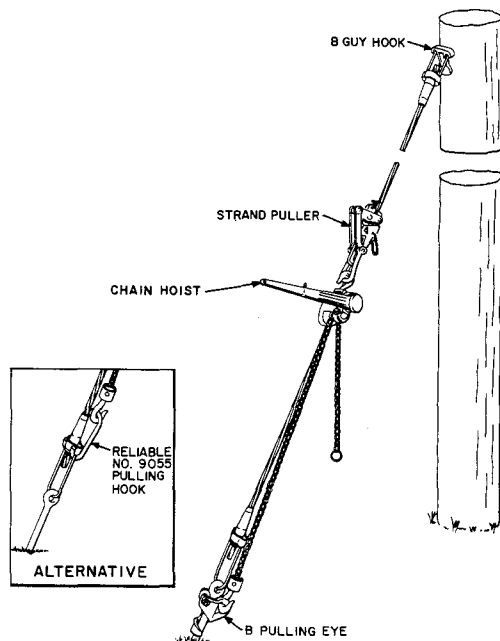


Fig. 25—Tensioning Guy Using Pulling Eye or Pulling Hook

Place both hooks behind the cartridge of the Strandvise and place the strand puller on the guy strand. Make certain both hooks are engaged before tension is applied. Apply the desired tension with a chain hoist and feed the strand through the cartridge. Release the chain hoist tension to set the jaws of the Strandvise..

(d) Cut off the projecting end of guy strand if necessary and remove the tensioning tools.

4.08 When tensioning strand at pole-to-stub locations where sling method is used, proceed as follows:

(a) Install the B or C fabric sling or rope sling, strand puller, and chain hoist as shown in Fig. 26 and proceed as described in 4.05.

As an alternative method, a Reliable No. 9055 pulling hook can be used when tensioning strand at pole-to-stub locations where Strandvises are used.

(b) Engage both hooks behind the cartridge of the Strandvise and install the strand puller and chain hoist as shown in Fig. 27. Then proceed as described in 4.05.

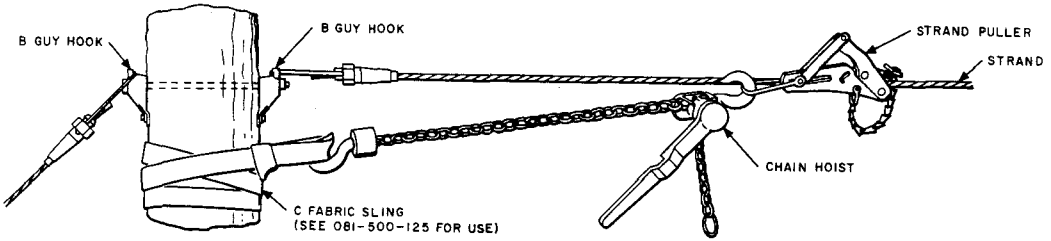


Fig. 26—Tensioning Pole-to-Stub Installation Using Fabric Sling

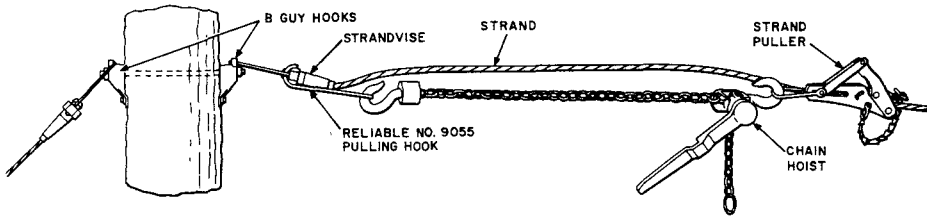


Fig. 27—Tensioning Pole-to-Stub Installation Using Pulling Hook

4.09 To retension a guy when it is terminated by means of Strandvises, apply tension until the section of strand between the chain hoist hooks is slack as illustrated in Fig. 28.

4.10 To remove slack from guy, strike several sharp blows to collar of cartridge or end of pulling hook to unseat gripping jaws of Strandvise as shown in Fig. 29. Then push strand through cartridge and release tension in hoist to reset jaws. Repeat operation if necessary.

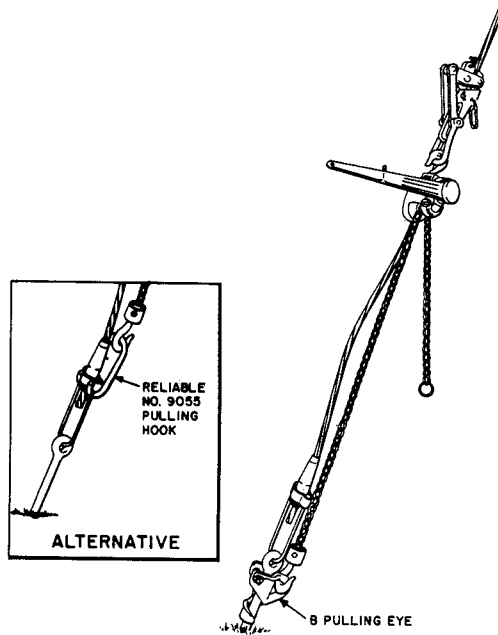


Fig. 28—Retensioning or Removing Guys

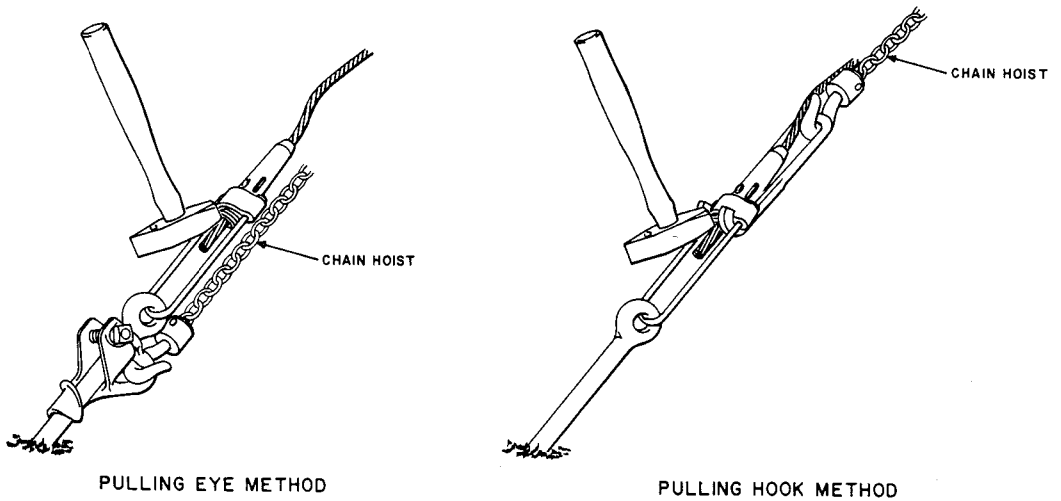


Fig. 29—Unseating Gripping Jaws of Strandvise

4.11 To slacken guy, apply tension as described in 4.09. The gripping jaws can be seen by looking through the slot in cartridge of the Strandvise. Using 109E wire or small screwdriver as a pry, hold back washer and jaws while strand is let out as illustrated in Fig. 30. Release tension in hoist to reset jaws. Repeat operation if necessary.

Caution: Leave a minimum of 1/2 inch of strand extending from cartridge; otherwise, cut and piece out strand to proper length.

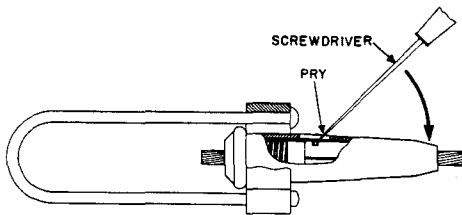


Fig. 30—Releasing Jaws of Strandvise

4.12 When the guy is to be completely removed or replaced, follow all the precautions and safe procedures on guy and pole removal as outlined in other sections and then proceed to remove the Strandvise as follows:

- (a) Obtain slack around Strandvise and unseat gripping jaws as covered in 4.09 and 4.10.
- (b) Cut strand about 3 inches above or beyond cartridge and push it completely through the cartridge.
- (c) Disassemble Strandvise and complete removal or replacement of the guy.

4.13 If necessary to lengthen the guy, a B strand connector may be used unless the strand should be replaced because of corrosion, change in size, or other reasons.

GUY CLAMPS

Caution: Only B guy clamps shall be used with 6.6M strand.

4.14 When tensioning and terminating guy strand at guy rods using the guy clamp method, proceed as follows:

- (a) Insert the guy strand through the eye of the guy rod.
- (b) Apply a strand puller to the guy a short distance above where the guy tail will terminate and also to the tail of the guy. (See Fig. 31.)

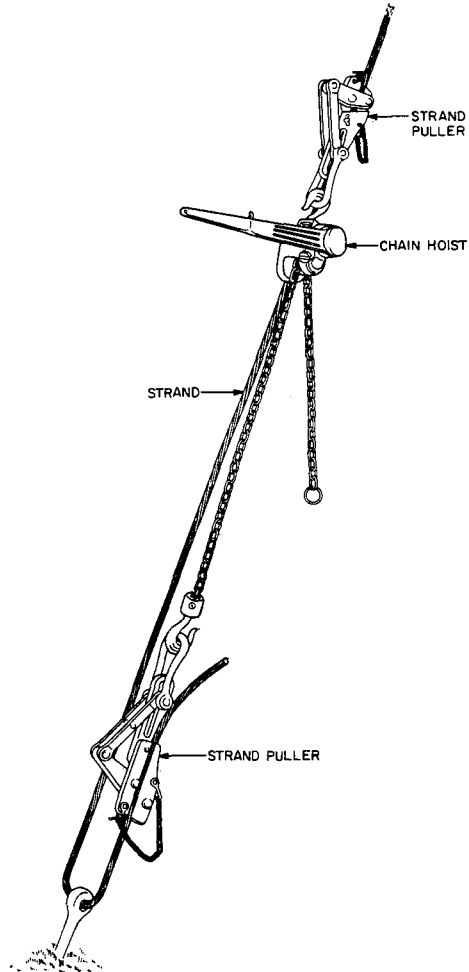


Fig. 31—Tensioning Guy

(c) Tension the guy with a chain hoist until the desired tension is obtained and apply the guy clamp or clamps as described in 3.07.

(d) Cut the tail to the desired length and serve the end as described in 3.08.

4.15 Installations at pole-to-stub locations should be done in a similar manner.

5. SPECIAL GUYS

5.01 Attaching Storm Guys

(a) Attach storm guys as shown in Fig. 32. Either method or a combination of the methods may be used.

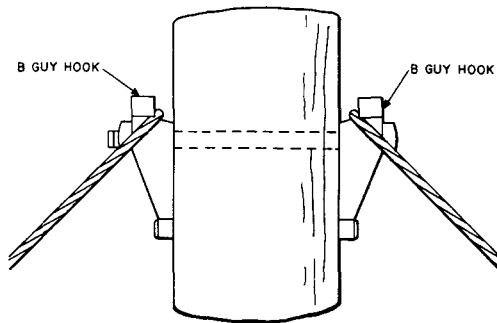


Fig. 32—Installing Storm Guys Using B Guy Hooks

5.02 Attaching Guys to Trees

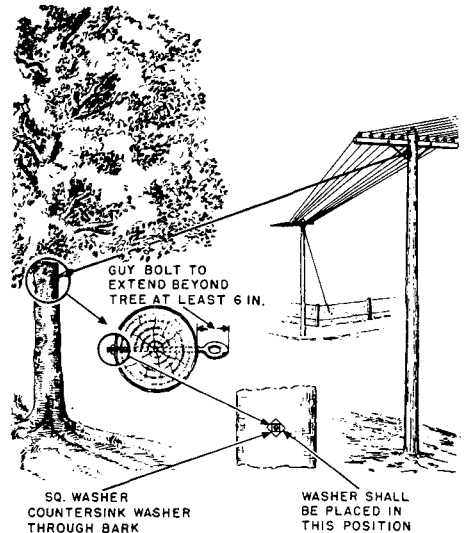
(a) Use tree guys only where anchor guys cannot be placed and when the **necessary permission** has been obtained. Tree guys should not be used on important toll lines except under emergency conditions or for temporary use.

(b) Where permission can be obtained, use an S guy bolt for making the attachment.

(c) Attach guys only to sound trees of satisfactory strength. Place the shank of the guy bolt through the trunk or a limb as close to the trunk as practical. If the attachment is made to a forked or crotched tree, select the point of attachment so that the guy will tend to pull

the fork or crotch together rather than to split it.

(d) Make attachment as shown in Fig. 33. The washer is placed as shown in order to permit the bark to grow over it readily. Use tree pruning compound or similar paint to cover parts of the tree that have been cut before placing the hardware.



SIZE OF STRAND (POUNDS)	S GUY BOLT (INCHES)	SQ WASHER (INCHES)
6 M	5/8	3/4 X 3
6.6M	5/8	3/4 X 3
10M	3/4	7/8 X 3 1/2
16M	3/4	1 1/8 X 4
25M	1	1 1/8 X 4

Fig. 33—Attaching Guy to Tree

5.03 Attaching Guys to Masonry, Abutments, Piers, and Bridges

(a) Attach guys to masonry walls, piers, abutments, bridges, etc, or to the ironwork of bridges and elevated structures where no other method of guying is practical, **provided permission has been obtained** and the structure is capable of sustaining the load.

(b) The method to be used in attaching the guy to the structure depends upon the size of guy strand and the nature and condition of the structure to which the attachment is to be made. A few methods of attaching these guys are shown in Fig. 34.

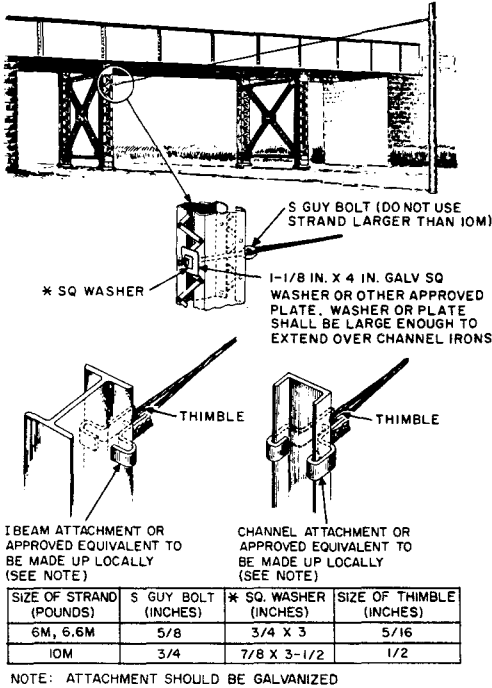


Fig. 34—Typical Attachments

6. USE AND INSTALLATION OF GUY SHIELDS

GENERAL

6.01 Place guy shields to attract attention to the guy where it is so located that persons, vehicles, or animals are likely to come in contact with the guy. In general, do not place shields on

guys that are close to buildings or fences except where their use would tend to keep vehicles away from the guys.

6.02 Where two or more guys are attached to an anchor rod, place a guy shield on only the upper guy.

6.03 Install the redesigned D guy shield as shown in Fig. 35.

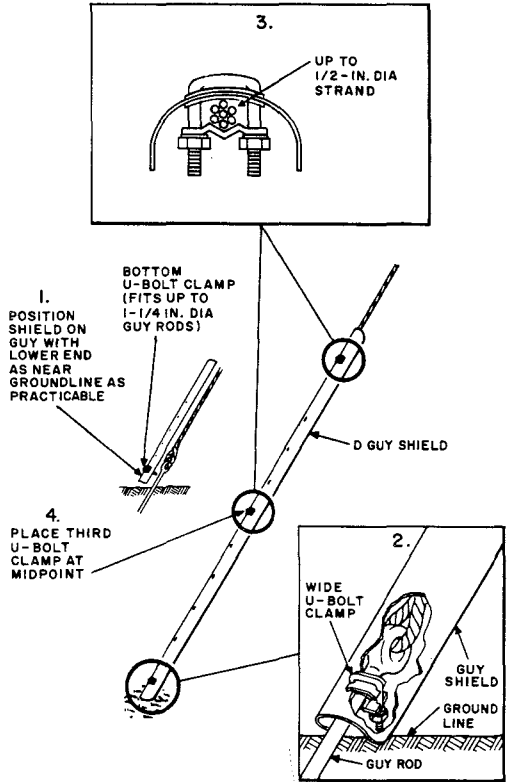


Fig. 35—Installation of Redesigned D Guy Shield