

## CLIMBERS DESCRIPTION, USE AND MAINTENANCE

### 1. GENERAL

- 1.01 This practice provides updated information on linemen's climbers, and includes the description, use, maintenance, and safety procedures for climbers and associated items such as pads, straps, gaffs, and gaff guards.
- 1.02 This practice replaces and incorporates information contained in CTSP 405-600-101 and CTSP 405-600-606, and is numbered to place it in the proper Plant Practice subdivision.
- 1.03 Climbers are used for ascending, descending, and maintaining the working position on poles when no other means of support is available.

### 2. ADJUSTABLE CLIMBERS—DESCRIPTION

- 2.01 Climbers that are supplied with the 7-3/16-inch sleeve will adjust from 14-3/4 inches to 18-1/2 inches. A longer sleeve (10-3/16 inches), is also available that will allow adjustment up to 21-1/2 inches. See Figures 1 and 2.

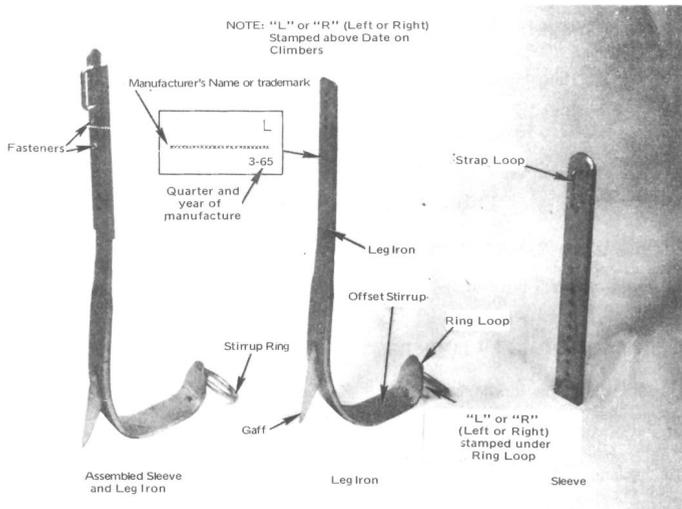


FIGURE 1. Climber

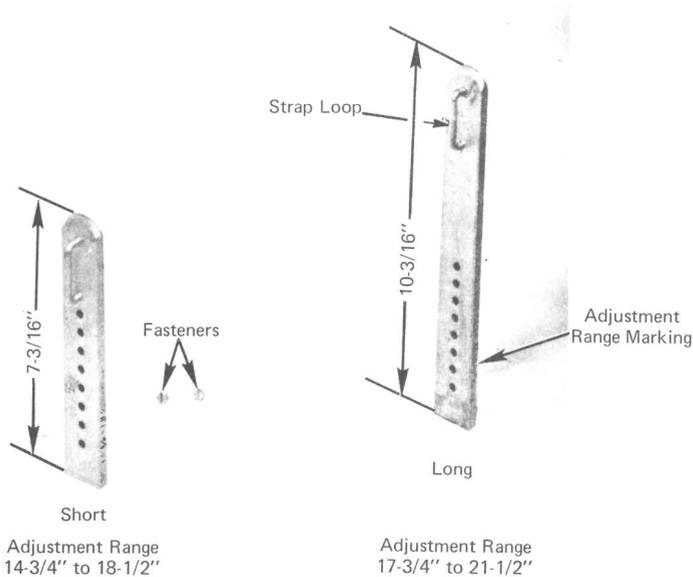


FIGURE 2. Sleeves for Adjustable Climbers

- 2.02 Adjustments of the sleeve on the shank may be made in increments of 1/4 inch.
- 2.03 Adjustable climbers are not furnished with straps, pads, or gaff guards; these items must be ordered separately.

### 3 FITTING ADJUSTABLE CLIMBERS

- 3.01 Adjustable climbers should be fitted to the legs at the longest comfortable length. Measure the distance from the lower edge of the projecting knee bone to the underside of the shoe at the arch; then subtract 1/2 to 1 inch. See Figure 3.
- 3.02 After measuring as directed in paragraph 3.01 and Figure 3, assemble the climber by:

- a. Sliding the sleeve over the shank and adjusting to the required length.
- b. Inserting the locking device from the stirrup side of the shank to secure positioning of the sleeve; then fasten.

*NOTE: Shanks shall not be bent to obtain a comfortable fit; use cushion pads. See Figures 4 and 5.*



FIGURE 3. Measuring for Climber Length

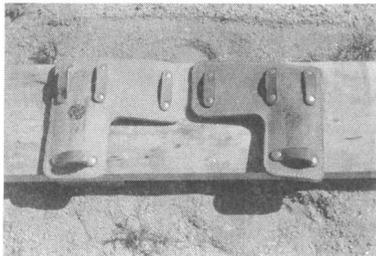


FIGURE 4. Climber Pad

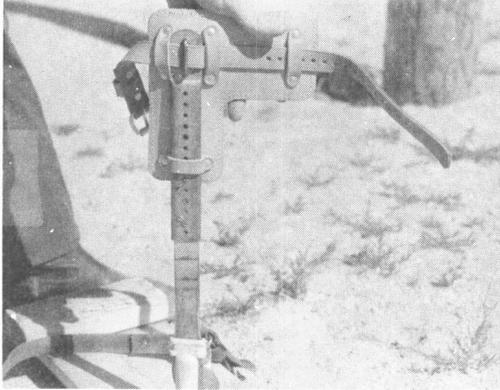


FIGURE 5. Left Leg Climber Pad Installed

#### 4. SAFETY PRECAUTIONS

- 4.01 The following precautions must be observed when using climbers:
- a. When climbing past another employee who has his safety strap in place around the pole, special care should be taken not to gaff him, his safety strap, or other equipment.
  - b. When climbing past attachments on poles, do not drag climbers or feet against these attachments.
  - c. Do not use the gaff as a pry.
  - d. When climbing, do not place the gaff in or near a crack, knot, nail, or tack, etc.
  - e. Inspect climbers in accordance with paragraph 5.
- 4.02 Do not wear climbers for work when they are not required, e.g., when walking between poles, when working on the ground, a ladder, a stepped pole where the work can be performed safely from the pole steps, or while traveling in a motor vehicle or any other type of conveyance.
- 4.03 In cold weather, remove climbers as frequently as work will permit. The metal shanks retain the cold and the straps restrict blood circulation.
- 4.04 When climbers are not in use, are being transported, or are stored in tool boxes or other storage spaces, they should be equipped with gaff guards. See Figure 6. The gaff guards protect the craftsman, as well as the gaff tips and cutting edges. Guards also prevent damage to safety straps and body belts when stored in the same compartments.



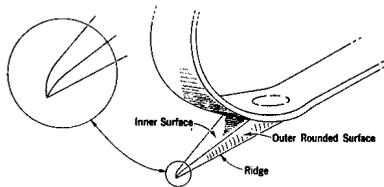
**FIGURE 6. Gaff Guard Installed**

**5. INSPECTION OF CLIMBERS**

- 5.01 Upon receipt of climbers, and at least once a week thereafter, each employee shall inspect his climbers and associated items in accordance with paragraph 5.04.
- 5.02 Each employee shall make a daily inspection of the climber gaffs to detect nicks or dulled cutting edges. To ensure that climber gaffs are in good condition, they should be tested according to the procedures outlined in paragraph 6.
- 5.03 Supervisors shall make a periodic inspection of craftsmen's climbers (once a month is recommended).
- 5.04 Procedures to be followed when inspecting climbers are:
- a. If any of the following conditions exist, the climbers shall be tagged defective, returned to the storeroom (for disposal as described in paragraph 8), and exchanged for a pair in good condition:
    - (1) Fractured gaff or hairline crack.
    - (2) Loose gaff.
    - (3) Nicks and depressions in gaff due to impact with a hard object.
    - (4) Ridge of gaff not straight.
    - (5) Gaff dull beyond restoration by means of honing or filing; or less than the minimum safe length, i.e., 1-1/4 inches.
    - (6) Broken or distorted gaff point.
    - (7) Broken stirrup ring or broken or loose ring loop.
    - (8) Fractured shank or start of a fracture.

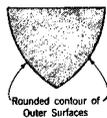
- b. If any of the following conditions exist, the defective item shall be replaced:
- (1) Fractured sleeve or start of a fracture.
  - (2) Broken or loose sleeve strap loop.
  - (3) One layer of fabric worn through on straps; or cuts in straps or enlarged buckle holes that would affect their strength.
  - (4) Broken or otherwise defective strap buckle.
  - (5) Broken or otherwise defective clip on foot strap.
  - (6) Broken or loose rivets on straps or pads.
  - (7) Broken or torn loop on strap or pad.
  - (8) Chipped or cracked plastic on gaff guard.
  - (9) Loose screw or rivet on sleeve.

5.05 Figure 7 shows the ridge of a properly shaped gaff; the ridge is straight.



**FIGURE 7. Gaff Profile and Point**

5.06 Figure 8 shows the properly rounded contour of the outer surfaces on a gaff.



**FIGURE 8. Outer Surfaces**

5.07 Figure 9 shows that insufficient penetration of the pole will result from a dull gaff.

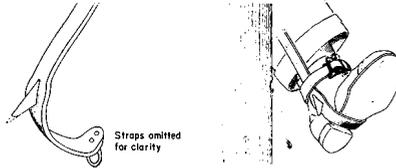


FIGURE 9. Dull Gaff

5.08 Figure 10 shows that ineffective penetration of the pole will result from the ridge not being straight.

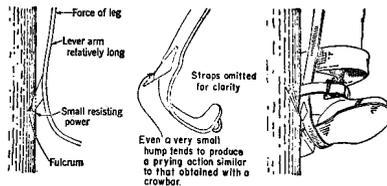


FIGURE 10. Ridge Not Straight

## 6. TESTING CLIMBER GAFFS

6.01 Climber gaffs shall be tested when received and at least once a week thereafter to ensure that they are properly shaped and sharpened. (Anytime there is doubt about the condition of the gaffs, they should be tested.)

6.02 Use a gaff gauge (see Figure 11) to measure the thickness, width, and length of gaffs:

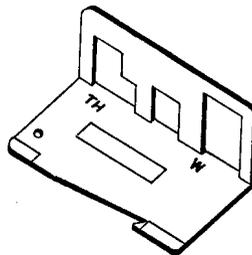


FIGURE 11. Gaff Gauge

- a. Insert the gaff as far as possible through the large slot marked TH. The point of the gaff should fall within the line as shown in Figure 12A. This ensures the proper thickness of the gaff approximately 1 inch from the point.

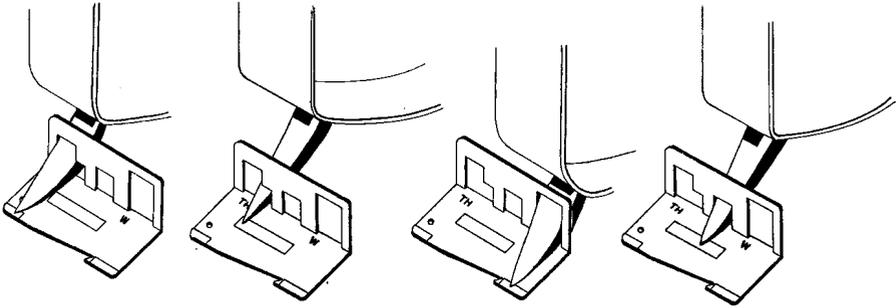


FIGURE 12A.

FIGURE 12B.

FIGURE 12C.

FIGURE 12D.

- b. Insert the gaff as far as possible through the small slot marked TH. The point should fall within the two center lines as shown in Figure 12B. This ensures the proper thickness of the gaff 1/2 inch from the point.
- c. Insert the gaff as far as possible through the large slot marked W. The point should fall within the line as shown in Figure 12C. This ensures the proper width of the gaff approximately 1 inch from the point.
- d. Insert the gaff as far as possible through the small slot marked W. The point should fall within the two center lines as shown in Figure 12D. This ensures the proper width of the gaff approximately 1/2 inch from the point.
- e. The small hole in the gauge is used to measure the length of the gaff point. When inserted in this hole, the point should be flush with the other side of the gauge.
- f. The gauge is marked to indicate minimum safe length of the gaff (1-1/4 inches). Gaffs that do not meet this requirement shall be replaced.

*NOTE: The difference in the length of gaffs for the same pair of climbers shall not vary more than 1/8 inch.*

6.03 Gaffs shall also be tested at regular intervals to determine if they are dull or properly sharpened. There are two types of tests:

- a. *Cutout Test of Climber Gaffs:*
  - (1) Place the climber on the leg and fasten the foot strap in the usual manner. Do not fasten the leg strap.
  - (2) Remove the gaff guard and put on gloves. Place the hand between the leg and the climber pad, palm facing the pole. Place the other hand around the pole for balance. With the leg at about a 30° angle (the normal climbing angle), aim the gaff toward the center of the pole about one foot above the ground line. Lightly jab the gaff in the pole so that it penetrates the wood about 1/4 inch. See Figure 13. Do this at a location where the pole surface is free of cuts.

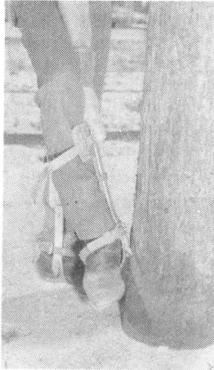


FIGURE 13. Jabbing Gaff in Pole

- (3) Keeping just enough pressure on the stirrup to keep the gaff in the pole (but not enough to cause the gaff to penetrate any deeper), push the climber and hand toward the pole by moving the knee until the strap loop of the sleeve is against the pole as shown in Figure 14.



FIGURE 14. Climber Holding

- (4) Make sure the strap loop is held against the pole with pressure from the leg, and *gradually* exert full pressure straight down on the stirrup without raising the other foot off the ground (this will maintain balance if the gaff does not hold).

- (5) A gaff which is correctly shaped and sharpened will cut into the pole and hold in a distance of 2 inches or less. Measure the cut from the point where the gaff enters the pole to the bottom of the cut at the surface of the pole. See Figure 15. A gaff that is properly shaped but dull or burred will cut in and hold; however, the length of the cut will be more than 2 inches. A gaff that is very dull or deformed in some way will cut out of the pole or plow through the wood for a distance greater than 2 inches. Do not use climbers that cut out or plow through the wood for a distance greater than 2 inches. If the climber gaff is dull, sharpen as directed in paragraph 7.01; then repeat the cutout test.



FIGURE 15. Measuring Gaff Cut

b. *Plane Test of Climber Gaffs:*

- (1) Place the climber on a soft pine or cedar board as shown in Figure 16, with the point of the gaff and the loop strap resting against the wood surface. Hold the stirrup of the climber in a vertical position, without exerting any downward pressure, and slide the climber along the wood by pushing forward on the leg iron. If the climber is properly sharpened, it will dig into the wood and begin to hold within a distance of approximately one inch.
- (2) If the climber gaff slides along the surface of the wood without cutting and leaves only a line or mark on the wood as shown in Figure 17, the point has not been properly sharpened or the outer surface of the gaff is deformed.

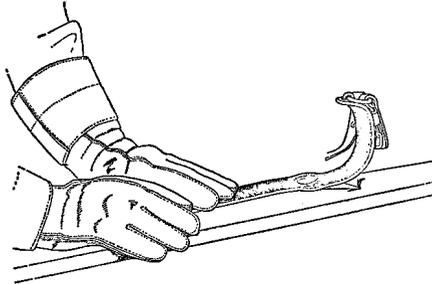


FIGURE 16.

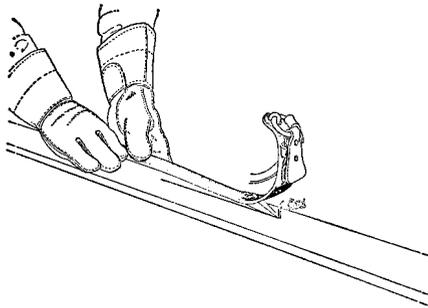


FIGURE 17.

## 7. MAINTENANCE OF CLIMBERS

7.01 Climber gaffs shall be maintained in a sharpened condition at all times. Use the following procedure for sharpening gaffs:

- a. Place the climber in a bench vise with the point of the gaff facing outward and the outer ridge facing downward. Protect the shank by placing wooden blocks between the vise jaws and the shank.
- b. Use an approved mill file and work with short strokes. File from the heel toward the point to sharpen the cutting edges. The point of the gaff should then be rounded back approximately 1/4 of an inch. See Figure 18.

*NOTE: The straight outer ridge of the gaff is not a cutting edge and should not be filed.*

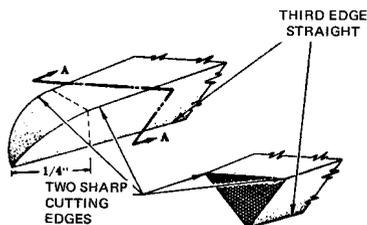


FIGURE 18. Rounding Off Gaff Point

- c. If it is necessary to remove any of the outside of the gaff, file from the heel to the point down the sides to retain the original shape. See Figure 19.

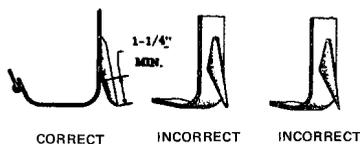


FIGURE 19. Correct and Incorrect Filing of Gaff Point

- d. A sharper edge can be obtained on each of the two cutting edges by using a honing stone instead of a file.

*NOTE: While using a honing stone, keep the stone well oiled with light machine oil to prevent clogging the stone.*

- e. If there are any small burrs along the cutting edge, remove them first by holding the stone against the side of the gaff and *carefully following the edge around to the tip.*
- f.hone the inner surface of the gaff by starting the stroke near the shank and continuing over the rounded curve of the tip. To prevent dulling the tip, stop the honing stroke before the stone slides off the end of the gaff. About 20 to 25 strokes of the stone should be sufficient. *Do not attempt to reshape the tip of the gaff.*

7.02 Pads should be maintained clean and pliable for maximum comfort. The following procedures are recommended:

- a. About every three months clean the pads with a damp sponge, using a neutral handsoap.
- b. With the sponge and clean water, work up a lather using a good grade of saddle soap. Work the lather well into the pad and place the pad in the shade to dry. When the pad is almost dry, rub the leather vigorously with a soft cloth.
- c. About every six months, instead of dressing the pads with saddle soap as described in b., clean as in a., and while the leather is still damp apply about 1/2 teaspoon of neat's-foot oil on the loop side of the pad. Apply oil gradually with the hands, using long light strokes to work it into the leather. After oiling, allow the pads to dry overnight and then rub vigorously with a soft cloth to remove any excess oil.

8. DISPOSAL OF DEFECTIVE CLIMBERS

- 8.01 Under no circumstances shall climbers that have been returned marked *defective* be placed where they might be reissued or reused.
- 8.02 Prior to disposal of defective climbers, storeroom personnel shall make them useless by *cutting the stirrups in two pieces*.