

BURIED CABLE MARKERS

CONTENTS	PAGE
1. GENERAL	1
2. DESCRIPTION AND USE OF POST, MARKERS, SIGNS, AND ASSOCIATED HARDWARE	1
General	1
C Sign Post	1
Concrete Marker	2
Steel Post	3
Buried Cable Signs	3
Cable Location Signs	5
Cable Location Number Plate	5
3. DESCRIPTION AND USE OF WARNING DECALS	5
4. LOCATING MARKERS	6
5. INSTALLATION	6

1. GENERAL

1.01 This section covers the description and installation of the signs and posts used to mark the route of buried cable and decals used on buried cable closures and terminals to indicate the location of buried cables.

1.02 This section is reissued to include description and installation of:

- G and F warning decal
- H identification decal
- G and H buried cable signs which replace the B and C signs, respectively

**Reprinted to comply with modified final judgment.

- J buried cable sign
- Steel post
- Mounting bracket for D and F sign.

Since this is a general revision, arrows ordinarily used to indicate changes have been omitted.

2. DESCRIPTION AND USE OF POST, MARKERS, SIGNS, AND ASSOCIATED HARDWARE

General

2.01 Markers may be either wood, concrete, or steel. They are used to establish the location of the buried cable route and, when equipped with signs, serve as a warning that cables are present. They may also be used for mounting electrolysis test wires, pressure contactors, pressure testing valves, and test terminals.

2.02 The concrete markers present a good appearance and are fireproof. The wood markers will withstand considerably more shock and impact such as experienced when struck by farm machinery, but they will be more susceptible to damage by fire. The steel post is used in lieu of the wood marker to provide a convenient installation compatible with the local environment. An optional hard iron driving cap is available to protect post ends from driving damage. *The type of marker and length will be specified in the detail plans.*

C Sign Post

2.03 The C sign post is a round wood post for use as a sign and marker post for buried plant. Posts are available in lengths of 7, 10, and 16 feet, with a full length preservative treatment applied. The posts are available with either creosote or penta-petroleum treatments.

2.04 Each post is burn branded 6 feet from the butt as follows:

- (1) Supplier's code or trademark

- (2) Treating plant location and year of treatment
- (3) Code letters denoting species and preservative treatment (see Section 621-020-013 for codes used).

Concrete Marker

2.05 Concrete markers are for use in marking routes in localities where good appearance is desirable and extra height is not required. The markers should be approximately 5 inches square

and 4 or 6 feet in length. The 6-foot marker is for use in fence lines, at road crossings, and for general use. The 4-foot marker is used where the 6-foot marker would be too conspicuous.

2.06 The concrete markers may be made locally, or purchased from a local concrete products supplier. The markers should be made of 3000 pound concrete with 3/8-inch the maximum size of the course aggregate. The markers should be reinforced and formed as illustrated in Fig. 1.

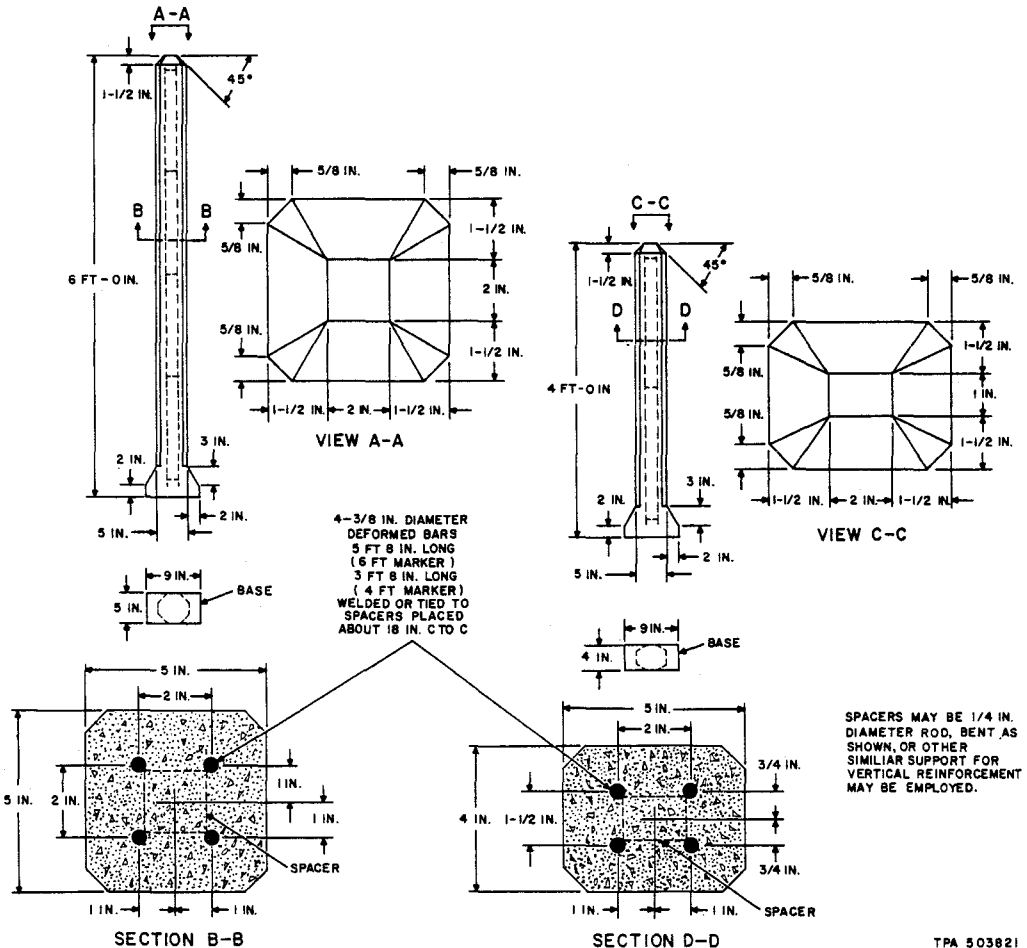


Fig. 1—Concrete Markers

Steel Post

2.07 The steel post is a commercial hot rolled, V channel design made from high tensile rail steel and finished with deep green baked enamel. Its standard weight is 2 pounds per foot and is available in 6 to 12 foot lengths in 6-inch increments.

2.08 Standard mounting holes are 3/8-inch diameter on 1-inch centers beginning 1 inch from top of posts.

Buried Cable Signs

2.09 D, E, F, G, H, and J buried cable signs are illustrated in Fig. 2.

2.10 The G and H buried cable signs are warning signs intended for use on cross-country routes at locations where there is a possibility that the cable path may be disturbed by excavation or other means. The G and H sign dimensions are 12-inches by 18-inches. The signs are enameled sheet aluminum and weigh 1-1/2 pounds. They are available with either black lettering on a yellow background, or blue lettering on a white background with the opposite side unpainted.

2.11 *G Buried Cable Sign:* The G sign is intended to be used at crossings of the cable route with roads, streams, railroads, pipe lines, or other structures where the likelihood of future excavation exists. In such cases the sign should be placed to face the structure crossed by the cable.

2.12 *H Buried Cable Sign:* The H sign, which omits the word "Crossing," is intended to be used at any other location where it may be advisable to give notice of the presence of the

cable. Such locations might be at entrances to the property traversed by the cable, points where the cable is in proximity to highways, railroads, or borrow pits or on lands where irrigation, erosion control, or similar activities are practiced. These signs should face in the direction from which approach to the cable route is most likely. In some situations it may be advisable to place two signs back to back.

2.13 *D Buried Cable Sign:* The D buried cable sign (Fig. 2) is used where some indication other than the alignment of the markers themselves is required to establish the line of the cable. The sign is made of enameled sheet aluminum 3-1/2 inches by 12-inches. The D sign is available with either black lettering and yellow background, or blue lettering on a white background with the opposite side in solid yellow or white, respectively.

2.14 *E and J Buried Cable Sign:* The E and J buried cable signs are used for banding the tops of sign posts to increase their visibility. The E sign is used specifically with the C sign post and the J sign with the steel post. They may also be used to indicate valve and contactor locations with two signs indicating a valve point and three signs indicating a contactor location. They are not generally required on markers carrying other signs. The signs are made of yellow-enameled flexible aluminum. The E sign measures 4-inches by 15-inches, and the J sign 4-inches by 9-1/4 inches. They contain no lettering.

2.15 *F Buried Cable Sign:* The F buried cable sign (Fig. 2) is used to indicate the direction to L Carrier auxiliary stations. The F sign is made of enameled sheet aluminum 3-1/2 inches by 12-inches. It is available with black on yellow only.

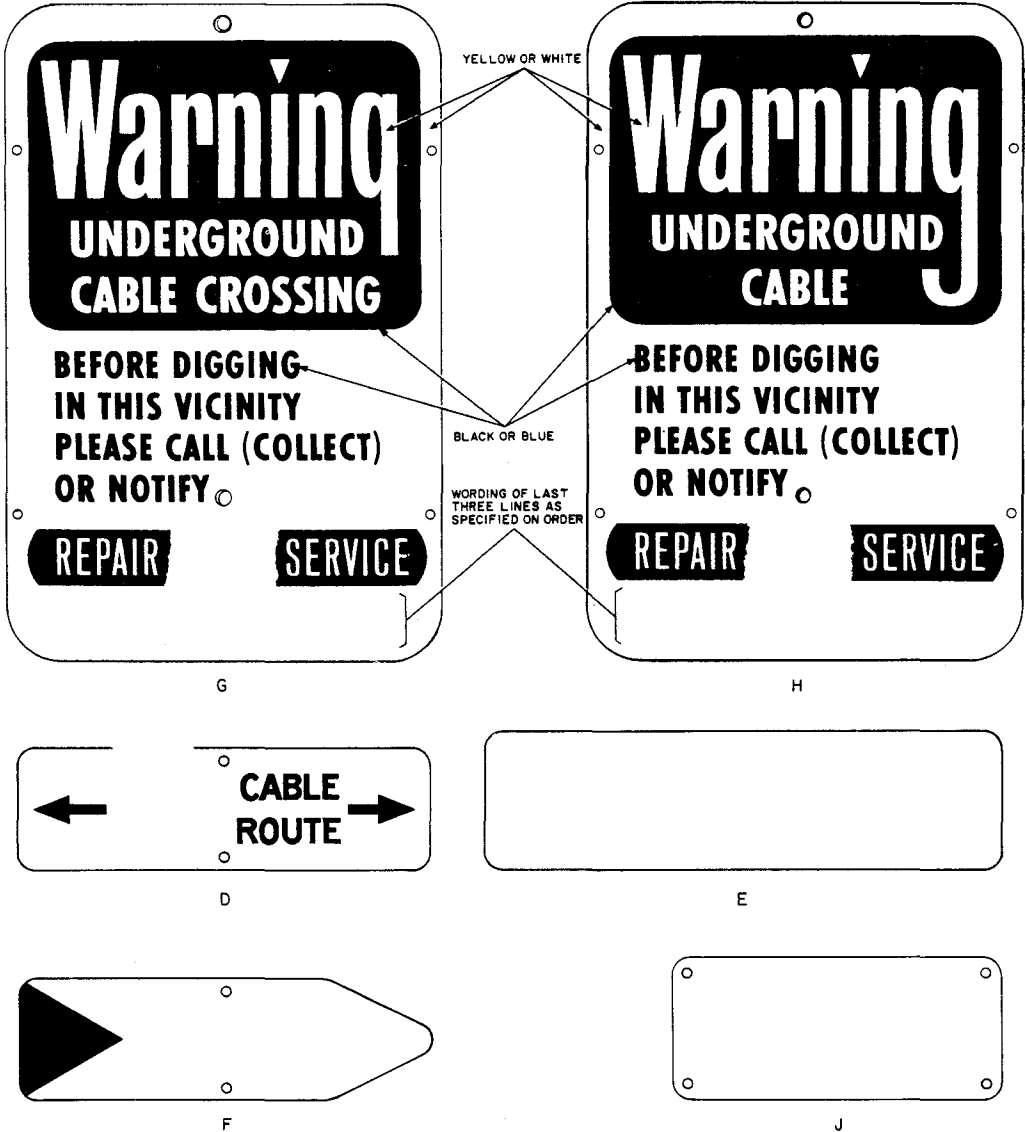


Fig. 2—D, E, F, G, H, and J Buried Cable Signs

Cable Location Signs

2.16 The cable location sign (Fig. 3) is for use on short marker posts or fence posts where the warning provided by a small sign is adequate. The sign is made of porcelain enameled steel 3-1/2 inches by 7-1/8 inches.

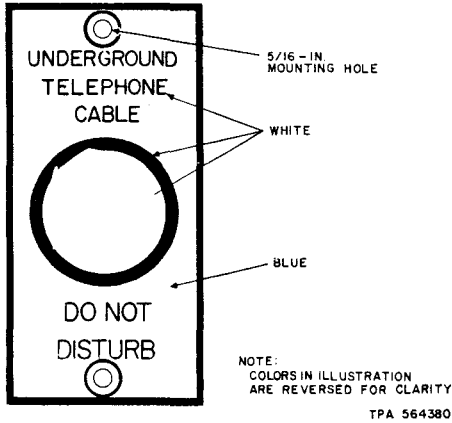


Fig. 3—Cable Location Sign

Cable Location Number Plate

2.17 The cable location number plate (Fig. 4) is used to provide information for locating the cable for maintenance work. The number plate is an elliptical shaped, flat unmarked aluminum plate. The plate may be marked with steel dies as indicated on the detail plans of the project.

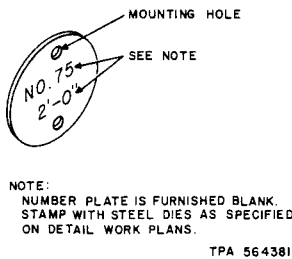


Fig. 4—Cable Location Number Plate

3. DESCRIPTION AND USE OF WARNING DECALS

3.01 The F and G warning decals, and the H identification decal are intended for use on buried cable terminals and closures to indicate the location of buried telephone cables. They consist of a flexible, self-adhering, vinyl plastic film with a treated split paper backing which is removable without packing in water or other solvents.

3.02 The F warning decal (Fig. 5) is a gray-green and blue decal for use in urban areas and at other locations where a decal that blends into the landscape is considered desirable. The F warning decal is 4-1/2 inches long and 3-1/2 inches wide.

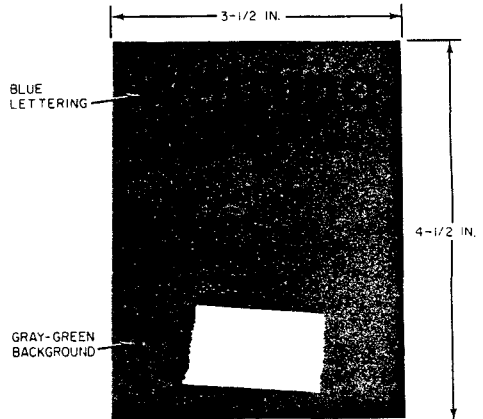


Fig. 5—F Warning Decal

3.03 The G warning decal (Fig. 6) is yellow and is used in rural areas where higher visibility is required, it is 1 inch wide and 22 inches long.

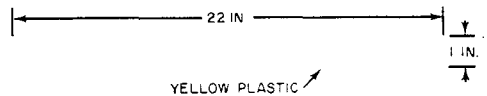


Fig. 6—G Warning Decal

3.04 The H identification decal (Fig. 7) has a gray-green background with the words "JOINT BURIED" printed in white lettering. The H identification decal is used to identify all new and existing pedestal closures used in joint buried cable plant and should be placed directly below the F warning decal. It is 3-1/2 inches wide and 1 inch high.



Fig. 7—H Identification Decal

4. LOCATING MARKERS

4.01 Markers will usually be placed at or near splice locations, points where the route of the cable changes direction and at other points where they will be helpful in identifying the cable route or in locating the cable for maintenance work. Where practicable, the markers should be placed in fence lines or at other locations where they will not inconvenience the occupant of the property. They should not be placed where they would be hazardous to pedestrians or vehicles. The location of markers will be shown on the detail plans.

4.02 At road crossings, crossings under pipe lines, railroads, and at other locations where excavating work is likely to be carried on, markers should be installed on each side of the crossing adjacent to the cable as an indication that a buried telephone cable is located between them.

4.03 Approval by highway authorities may be required before buried cable markers and signs can be placed within highway limits.

5. INSTALLATION

Posts

5.01 C sign posts, concrete markers and steel sign posts should be set at the depths shown in Table A.

TABLE A
DEPTH OF SETTING FOR C SIGN POSTS
AND CONCRETE MARKERS

POST	LENGTH (FEET)	DEPTH OF SETTING (FEET)
C Sign Post	7	2-1/2
C Sign Post	10	3
C Sign Post	16	3-1/2
Concrete Marker	4	2
Concrete Marker	6	2-1/2
Steel Post	6	2
Steel Post	8	3
Steel Post	10	3
Steel Post	12	3

Cable Location Signs

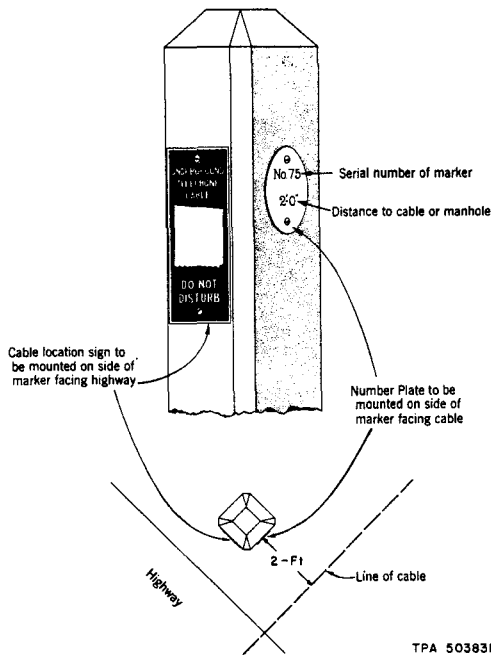
Cable Location Number Plates

5.02 Cable location signs and cable location number plates should be attached to concrete or wood markers by means of 1 inch #10 RH galvanized wood screws. In attaching to concrete markers, No. 12 D plastic anchors should be used with the screws.

5.03 An example of the arrangement of the cable location sign and cable location number plate on a concrete marker is illustrated in Fig. 8. The number plate should be mounted on the side of the marker toward the cable, and the location sign on the side where it will be most conspicuous, on both wooden and concrete markers. The information to be stamped on the number plate will be specified on the detail work prints. This information may consist of numerals indicating the serial number of the marker and the distance in feet from the marker to the cable.

G and H Buried Cable Signs

5.04 G and H buried cable signs should be attached to C sign posts with two 5/16-inch by 3 inches drive screws through the two 3/8-inch holes provided. On existing posts if insufficient space



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Fig. 8—Cable Location Sign and Cable Location Number Plate Installed on Concrete Marker

is available for mounting the G or H signs or if greater height of mounting is desired, the sign can be attached to a galvanized steel channel or angle extension bolted to the top of the pole. These signs can be attached to fences, gates, or stiles by lashing with wire or by 1 inch #10 RH galvanized wood screws through the four 1/4-inch holes provided.

- 5.05** G and H buried cable signs should be attached to steel posts with two 5/16-inch by 2-inch

aluminum hexagon head bolts, lockwashers, and nuts. A 11/32-inch id by 5/8-inch od by 1/16 inch thick fiber washer is placed between the head of the bolt and the sign.

- 5.06** An example of the installation of a G buried cable sign on a C sign post is shown in Fig. 9.

- 5.07** An example of the installation of a G buried cable sign on a steel post is shown in Fig. 10.

D and F Buried Cable Signs

- 5.08** D and F buried cable signs should be attached to C sign posts with two 1/4-inch by 2-1/2 inches drive screws in the holes provided. Mount the D sign with the arrows aligned with the cable route, and the F sign pointing in the direction of the auxiliary station (Fig. 11). When used with the G or H sign the D sign should be placed above the warning sign, as illustrated in Fig. 9. This sign can be bent if desired to indicate that a change in direction of the cable occurs at the post.

- 5.09** D and F buried cable signs should be attached to steel posts with two 5/16 inch by 2-inches aluminum hexagon head bolts, lockwashers, and nuts. A fiber washer 11/32 inch id by 5/8-inch od by 1/16 inch thick is placed between the head of the bolt and the sign. Mount the D buried cable sign with the arrows aligned with the cable route and the F buried cable sign pointing in the direction of the auxiliary station (Fig. 11). When used with the G and H buried cable signs the D buried cable sign should be placed above the warning sign using the aluminum bracket provided as illustrated in Fig. 12. This sign can be bent if desired to indicate that a change in direction of the cable occurs at the post.

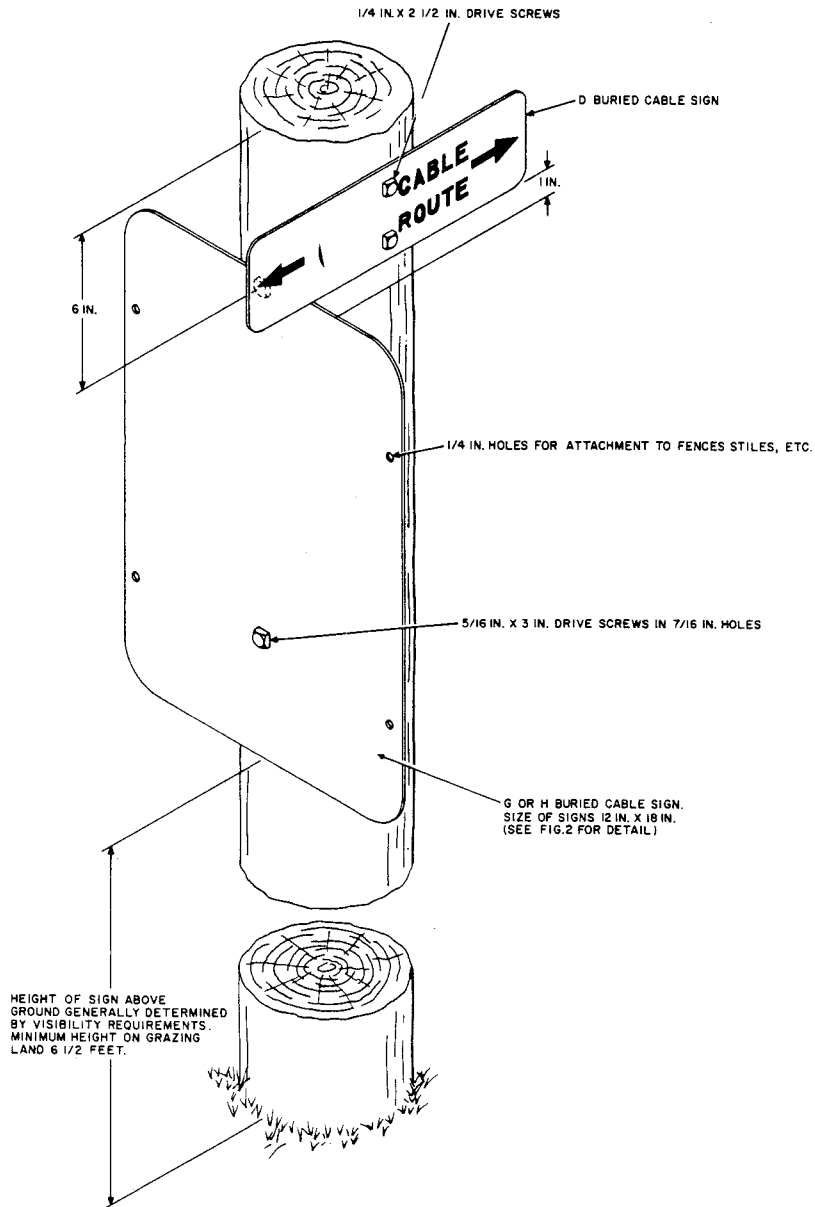


Fig. 9—G and H Buried Cable Sign Installed on Wood Post

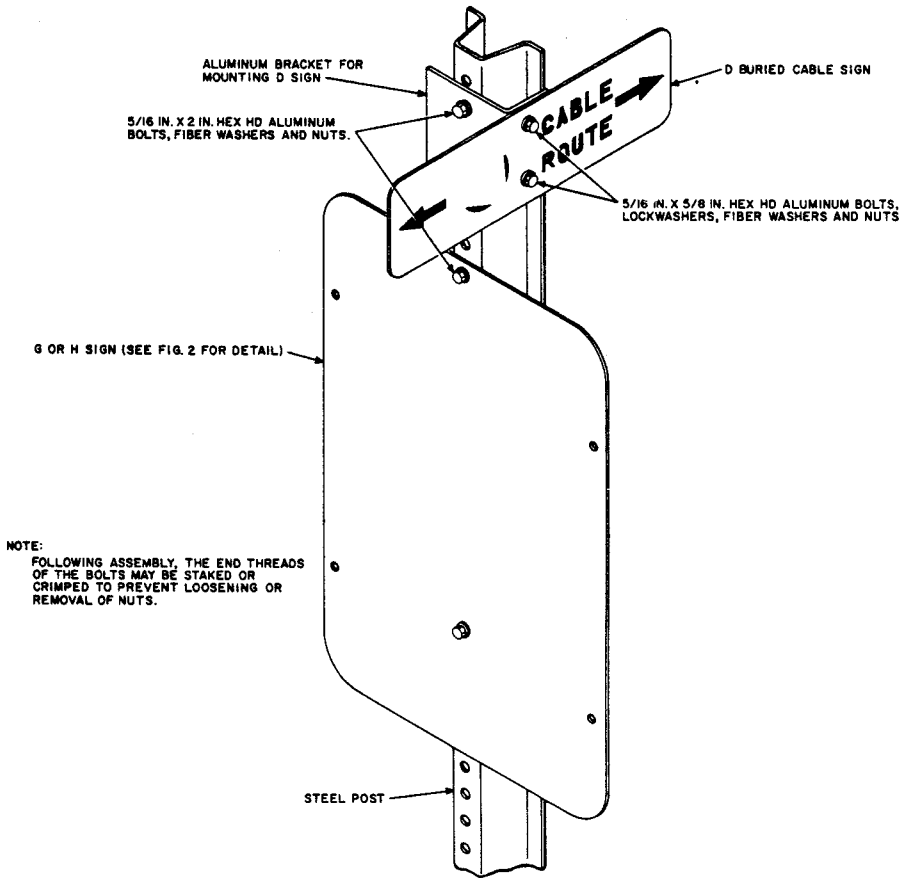


Fig. 10—G and H Buried Cable Sign Installed on Steel Post

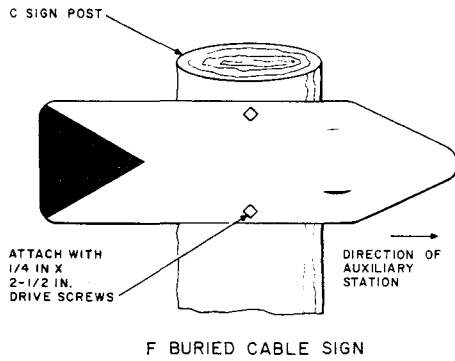
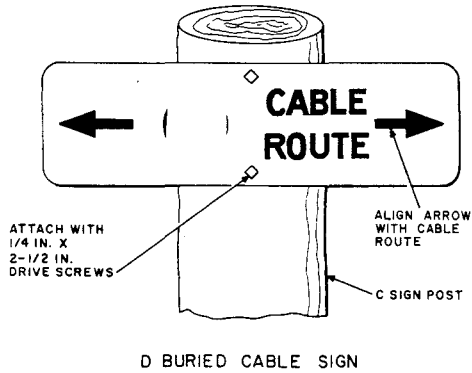
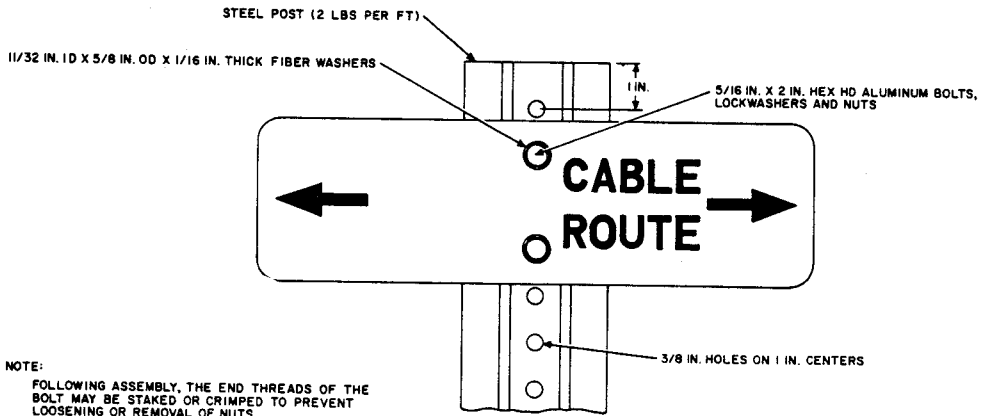
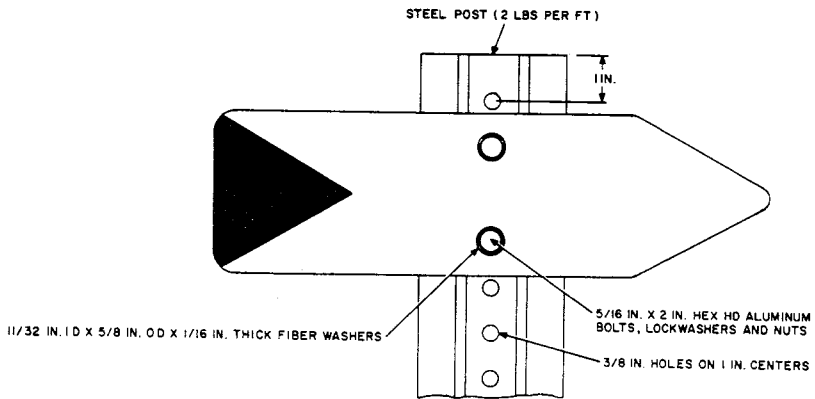


Fig. 11—D and F Buried Cable Sign Installed on Wood Post



D BURIED CABLE SIGN



F BURIED CABLE SIGN

Fig. 12—D and F Buried Cable Sign Installed on Steel Post

E and J Buried Cable Signs

5.10 The E buried cable sign is installed on the C sign post by wrapping around the post (yellow side outward) and driving 4 penny galvanized nails or pole tag nails through the four corners of the sign (Fig. 13).

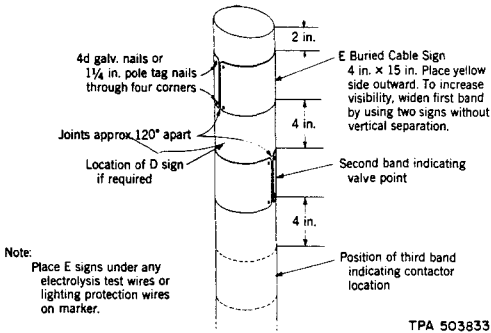


Fig. 13—E Buried Cable Sign Installed on Wood Post

5.11 The J buried cable sign is installed on the steel post by bending around the post (yellow side outward). Prior to bending, two 5/16-inch by 5/8-inch aluminum hexagon head bolts are placed through the required holes in the post as illustrated in Fig. 14. One end of the E buried cable sign, provided with two mounting holes, is placed on the bolts and the E sign bent around the post to engage the opposite mounting holes over the post. When in position assemble the fiber washer, aluminum lockwasher, and hexagon nut.

F and G Warning Decal

5.12 The F warning decal is factory-installed. However, when the cable closures are used in rural areas where higher visibility is required place a G warning decal on the closure just above the F warning decal.

H Identification Decal

5.13 The H identification decal is used to identify all new and existing closures used in joint

buried cable plant. This decal should be placed directly below the existing F warning decal.

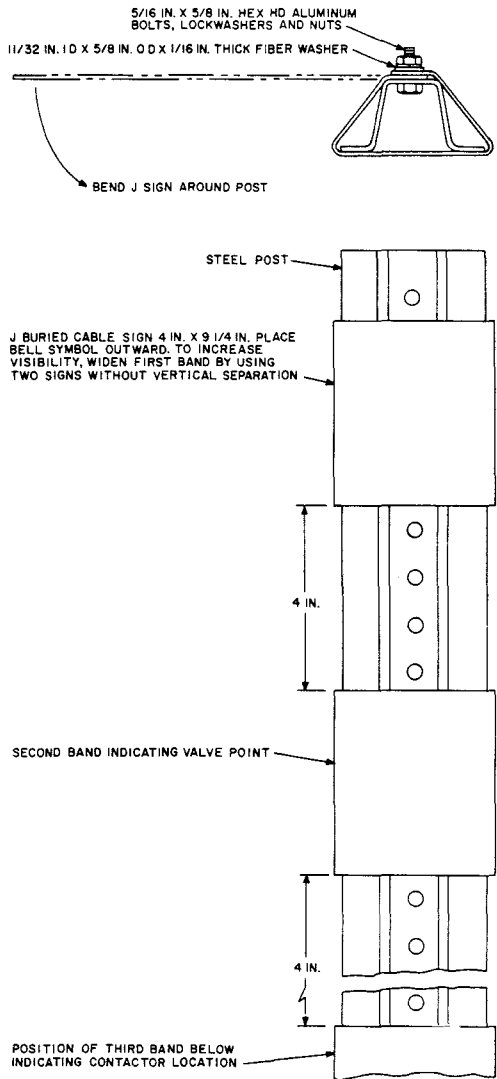


Fig. 14—J Buried Cable Sign Installed on Steel Post