

**BELL SYSTEM PRACTICES**  
**Outside Plant Construction**  
**and Maintenance**

**SECTION G57.110**  
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## **SUBMARINE CABLE PLACING**

### **PLACING FROM A BARGE**

<b>Contents</b>	<b>Page</b>
General .....	1
Loading Cable on Permanently Mounted Reel.....	2
Loading Cable on Standard Shipping Reel.....	3
Loading Cable and Stowing in Figure 8 Coil.....	3
Placing Cable .....	6
Landing Shore Ends.....	7

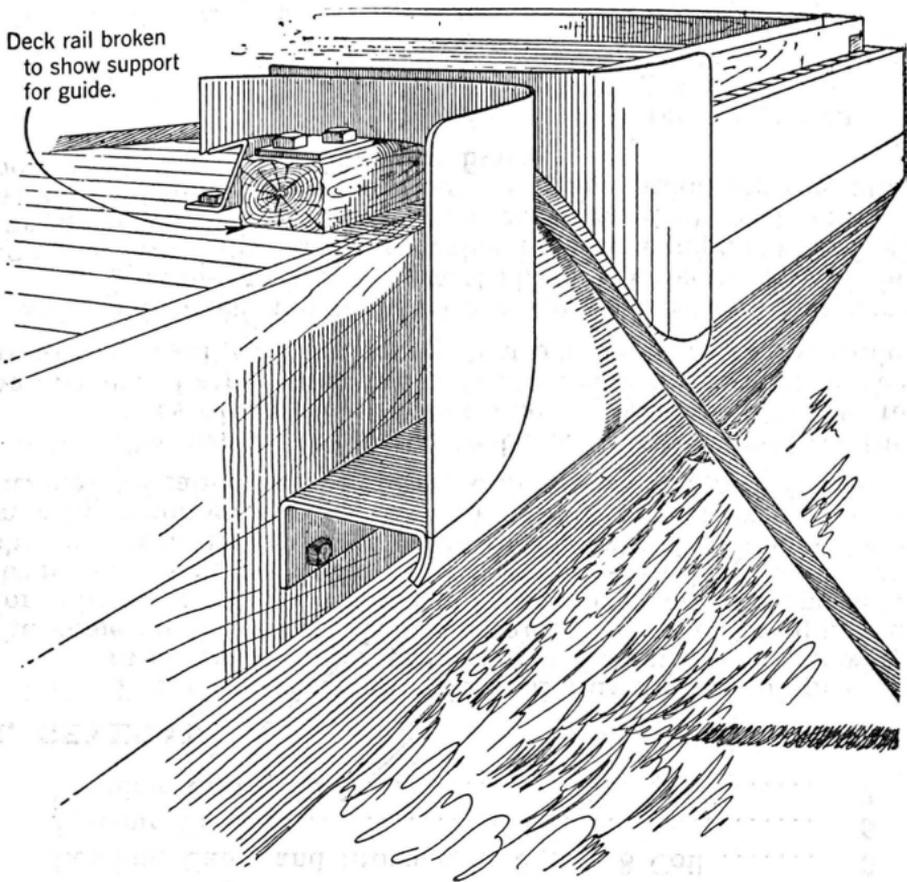
#### **1. GENERAL**

1.01 There are three variations of this method of placing cable which differ primarily in the method of stowing the cable on the barge. If the barge is permanently equipped for submarine cable work, it will usually have a power operated drum on which the cable can be wound as it is paid off the shipping reel. If the barge is not so equipped the shipping reel may be mounted on the deck. Where it appears more practicable, the cable may be stowed on the deck in figure 8 coils.

1.02 The size of the barge to be used will depend on the types of barges available and the amount of cable to be placed. Large steel railroad car floats usually have the greatest capacity of the barges that are likely to be available.

1.03 The deck should be cleared of obstructions and projections so far as practicable. The barge should be equipped with the necessary cable braking equipment, and at the stern with a runway or guide constructed of steel through which the cable can be paid out. A typical guide for this purpose is shown in the following figure.

Deck rail broken  
to show support  
for guide.



1.04 The barge should be brought as close as possible to the freight car on which the cable is shipped in order to facilitate loading from the car to the barge. The method of loading the cable will depend on how it is to be stowed on the barge.

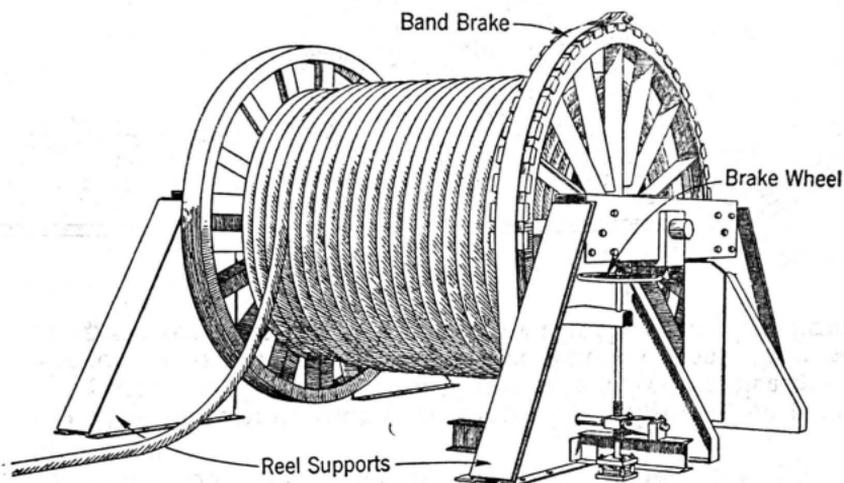
## 2. LOADING CABLE ON PERMANENTLY MOUNTED REEL

2.01 When loading the cable onto a barge permanently equipped with a power drum, the barge should be placed so that the drum is in line with the shipping reel on the car. The end of the cable should be pulled aboard the barge and attached to the drum. The cable should then be wound onto the drum as it is paid off the reel. If more than one reel length of cable is to be loaded the ends of succeeding lengths of cable should be spliced before they are placed on the drum.

### 3. LOADING CABLE ON STANDARD SHIPPING REEL

3.01 When loading a shipping reel of cable onto a barge, the reel may be raised from the freight car or trailer and lowered onto the deck by a crane if one is available, or it may be practicable to roll the reel onto the barge, using skids and tackle.

3.02 The reel should be mounted on substantial supports that will permit it to turn freely as the cable is paid off. For large reels of cable a band brake placed over one rim should be provided to control the speed of the reel. A typical method of supporting the reel and equipping it with a band brake is illustrated in the following figure.

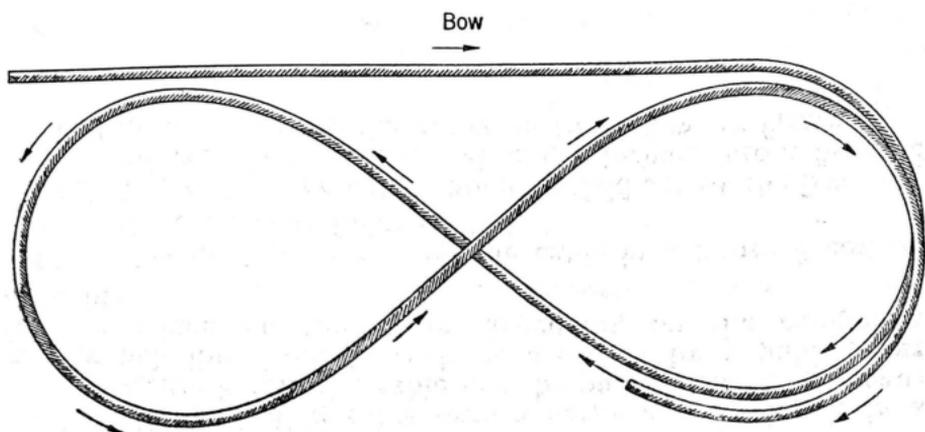


### 4. LOADING CABLE AND STOWING IN FIGURE 8 COIL

4.01 When loading cable onto a barge and placing it in a figure 8 coil, the cable may be pulled aboard by means of a winch line from a truck on shore or by a pulling line from a winch on the barge, depending on the equipment available.

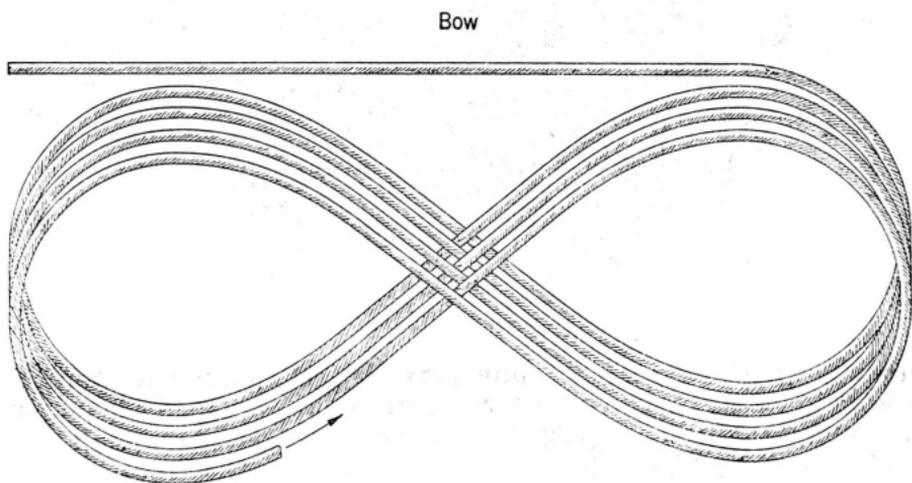
4.02 The method of placing the cable in a figure 8 coil on the deck is as follows:

- (a) The end of the cable should be laid across the bow and the remainder of the reel length formed into a figure 8 coil as indicated by the arrow in the following figure.



The end of the cable should be kept free so that tests can be made on the cable if required during the placing operations.

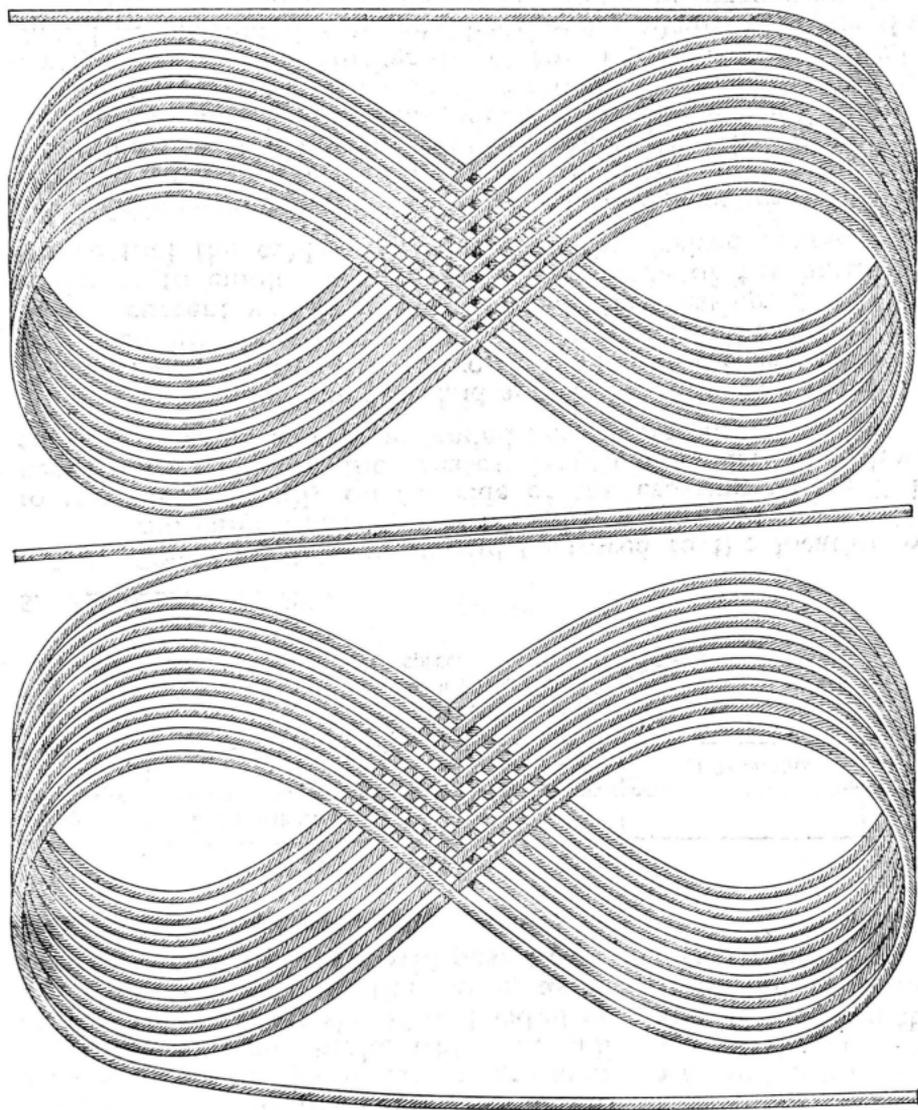
(b) It is important that each loop of the figure 8 be placed properly. The coils should not be stacked vertically one above the other but should be so stacked that they will progress towards the stern as shown in the following figure.



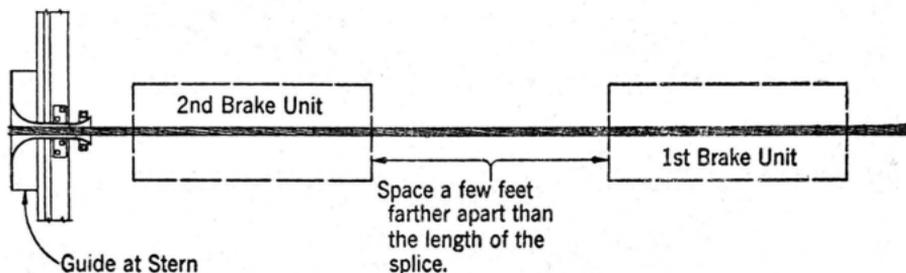
(c) The length of the figure 8 coils should be as great as can be accommodated by the width of the deck. The width of the loops will depend upon the flexibility of the cable. In general, the width of the loop should be as narrow as can be made without undue force in forming the cable.

(d) Sufficient space should be left between successive coils for splicing the lengths of cable together as shown in the following figure.

Bow



4.03 When the cable is placed from a figure 8 coil it will be necessary to provide some type of brake that can be applied directly to the cable. Where two or more reel lengths of cable have been spliced together, two brake units, each adequate to hold the cable, will be found desirable. These brakes should be spaced far enough apart to permit controlling the cable with one brake while the splice passes through the other. These brakes should be located near and in line with the guide on the stern of the barge, as shown in the following figure, so that the cable will pass through in a straight line.



## 5. PLACING CABLE

5.01 The loaded barge should be towed to the location of the cable crossing and brought as close as practicable to the shore, usually on the side of the crossing where it is necessary to pull off the greatest length of cable. The shore end of the cable should be landed and anchored.

5.02 The cable should be laid across the waterway from the barge as it is towed across. In general, the barge should be towed by a tugboat alongside. However, in cases where tide or current will be encountered at the crossing, it may be advisable to employ a tugboat on each side of the barge, to ensure that the cable will be laid on the desired course.

5.03 The cable should be watched to ensure that the required pressure is being applied to the brake and that the cable is not being paid out so rapidly that it will coil up on the bottom. The rate at which the cable is paid out will depend on local conditions, such as the character of the bottom, depth of water, etc. During the placing of the cable the brake should be prevented from overheating by adequate application of water. The guide at the stern should be prevented from overheating by frequent applications of heavy oil.

5.04 When paying out the cable from a figure 8 coil only one loop should be permitted to leave the coil at a time and the cable should be guided from the coil to the brake in a smooth bend. This can be done by men standing back of

the top loop and raising it with manhole hooks. The hooks should have blunt points so that they will not injure, or catch on, the cable. Each loop should be raised and held back until it advances towards the brake in a smooth bend. When the splice is drawn towards the brake, the speed of the barge should be reduced and the first brake released to permit passing the splice. Close the forward brake as soon as the splice clears and as soon as the cable is under the control of the first brake release the other brake to permit passing of the splice. The second brake should be closed as soon as the splice has passed it and full placing speed should be resumed.

5.05 The barge should be brought as close to the second shore as practicable and anchored. The cable should then be held by a rope stopper attached to it just beyond the guide. The stopper should be secured to the barge near one side and as far forward as practicable. The cable should be raised clear of any brakes or guides.

5.06 The second shore end of the cable should then be landed.

## **6. LANDING SHORE ENDS**

6.01 The first shore end can be landed by pulling it ashore from the barge before starting across the waterway. Before the second end is landed it will be necessary to provide the required cable for this operation. If the cable has been placed from a figure 8 coil, the coil should be turned over by taking one loop at a time and turning it. If the cable has been placed from a reel or drum, the cable should be pulled from the reel or drum and placed in a figure 8 coil.

6.02 The cable may be pulled ashore with a pulling line from a truck stationed near the point at which the cable will be terminated. When a power winch is provided on the barge, it may be desirable to run a pulling line from the winch through a sheave attached at the terminating point on shore, or other anchorage, and then back to the end of the cable on the barge.

6.03 If the distance from the barge to the shore is several hundred feet or if the bottom is muddy, or rocky, it may be advisable to float the cable ashore in a manner similar to that outlined in the practices for pulling cable across waterways. The floats should be attached to the cable as it enters the water from the barge by men working from a boat or raft.

6.04 In landing shore ends with a pulling line from a power winch aboard the barge, the pulling line should be attached to the cable at some distance from the end and lashed temporarily to the cable in several places between this point and the end. It is desirable that all the slack be obtained in

one pull and so it is essential that the line be attached back of the end far enough to provide this slack. As the end of the cable approaches the sheave on the shore the temporary lashings between the cable and the pulling line should be cut so that the slack required for terminating the cable can be obtained in one pull.

6.05 After the second shore end has been landed and anchored, the rope stopper should be removed and the cable laid overboard from the barge.

### 6. FINDING BROKE ENDS

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