

BELL SYSTEM PRACTICES
Outside Plant Construction
and Maintenance

SECTION G51.410.1
Issue 1, October, 1957
AT&T Co Standard

REPLACING DETERIORATED STRAND

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1. GENERAL

- 1.01 This section describes procedures to be followed when replacing deteriorated strand.
- 1.02 Information contained in Section G51.305.1 describes a procedure to be followed in making inspections and measuring the diameter of corroded strand for the purpose of determining its remaining strength.
- 1.03 Deteriorated poles and guys should be replaced before the strand replacement work is started.

2. PRECAUTIONS

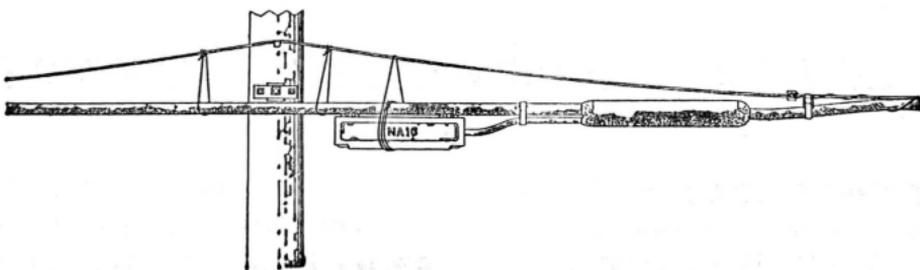
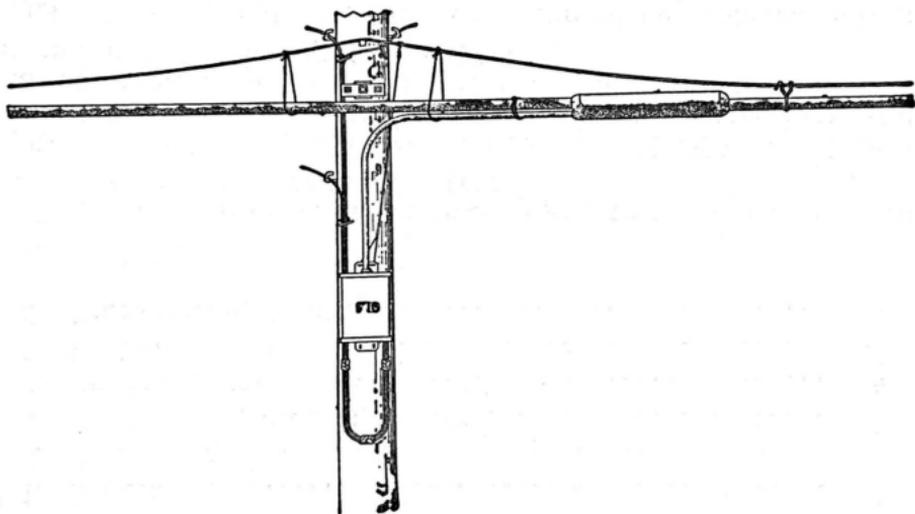
- 2.01 Exercise caution when handling and stringing strand to protect the public, workmen and telephone plant from mechanical or electrical hazards involved in the work operations.
- 2.02 When working with ladders, cable cars, or splicing platforms, observe the precautions outlined in Section G51.205.1, Testing Suspension Strand.
- 2.03 When removing existing cable rings, lashing wire, strand, or strand attachments, suitable eye protection is required.
- 2.04 Cable rings or lashing wire should not be dropped or thrown to the ground. All recovered material should be disposed of promptly to avoid personal injury or property damage.

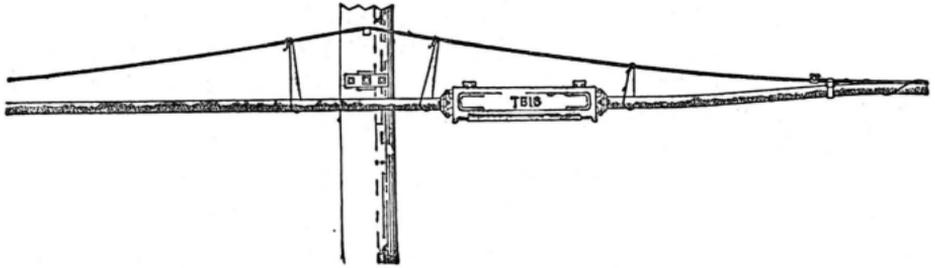
2.05 All work operations shall be performed from the new strand.

3. REARRANGING EXISTING PLANT

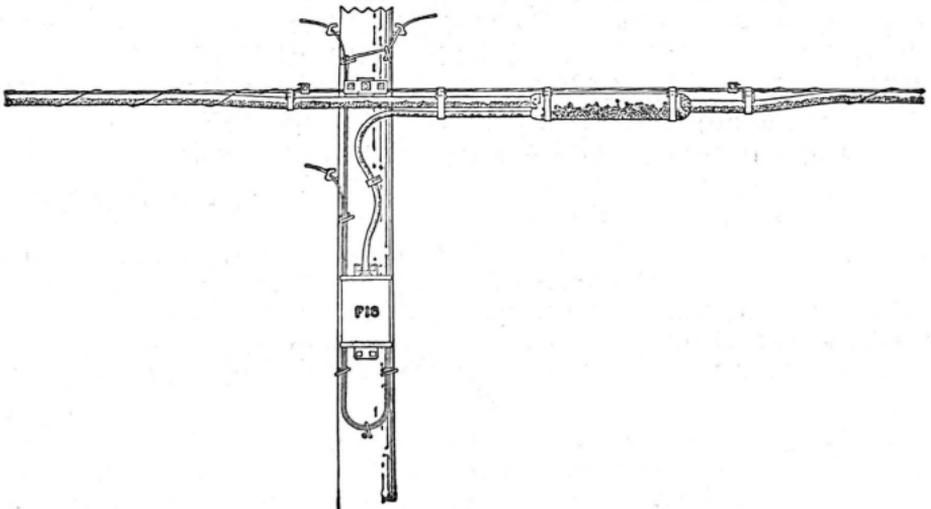
3.01 Remove existing strand attachments (spacers, supports, cable rings, etc.) adjacent to the pole for a distance of about 5 feet. In most cases, it will not be necessary to remove the midspan drop attachments in this section. Midspan drop attachments are transferred after the cable has been lashed to the new strand. Raise the existing strand to a point about 6 inches above its original location. Secure strand to the pole using a 1/2-inch by 4-1/2-inch drive screw or a cable suspension bolt and clamp.

3.02 The cable should be in its original position or level and temporarily suspended from the old strand with lashing wire or rope ties, as illustrated.





3.03 If the existing cable is free of excessive bowing (and the tension is satisfactory) it is not necessary to remove a pole mounted terminal and suspend it with temporary ties from the suspension strand. If a small amount of slack is gained during the relashing operation and the location of the terminal sleeve is changed, the resulting slack can be absorbed by reforming the terminal tail. If the lashing operation moves the terminal sleeve away from the pole, it will be necessary to raise the terminal on the pole. Section G61.102 specifies the minimum separation between strand and upper mounting holes of terminals. If these cannot be complied with, the terminal may be relocated on the face or back of the pole.



3.04 If the existing cable has an appreciable amount of bowing which would result in an excessive amount of slack during the relashing operation it will be necessary to remove this excessive slack from the cable. However, the relashing operation should be done in the direction of a location that can absorb some of the excessive slack, that is, to a corner where the cable has pulled away from the pole, or to a dip or dead end, etc.

3.05 Cable slack that cannot be absorbed should be accumulated in as few locations as possible, preferably at an existing sleeve. To accomplish this, the lashing may be done from opposite directions in order to accumulate the slack at one point in the middle of the run.

4. PLACING STRAND

4.01 The type and location of the plant involved will determine the method to be used in placing the strand.

4.02 Procedures to be followed when placing strand are covered in Sections G51.113.1, Suspension Strand Placing—Precautions; G51.114.1, Placing Strand from a Moving Reel; G51.115.1, Suspension Strand Placing—General.

5. TENSIONING STRAND

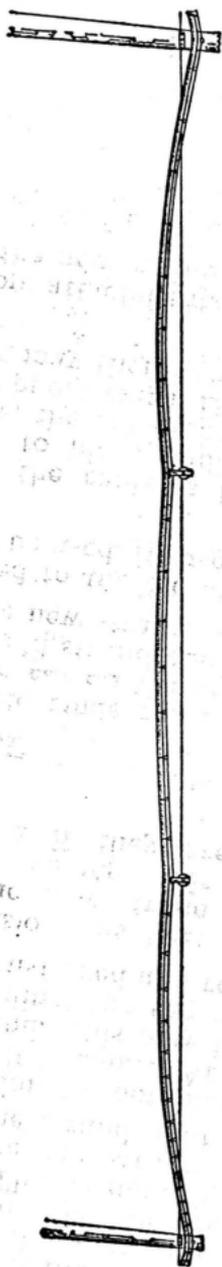
5.01 The new strand shall be placed at a tension so the cable, when transferred from the old strand to the new, is free of any appreciable bowing but shall not be overtensioned. Overtensioning of the strand results in cable bowing. Undertensioning of the strand results in the cable being at too high a tension. It is not essential that new strand be placed at the existing standard tension. It is necessary to work toward a compromise between the high and low tension for a satisfactory job.

5.02 If the cable appears to be overtensioned, the new strand should be placed at a slightly higher tension than the old strand. If the cable appears to be losing its tension and bowing slightly the new strand may be placed at a slightly lower tension than the old strand.

5.03 After the new strand has been placed and ready to be pulled to final tension, proceed as follows:

- (1) In alternate spans attach the new strand to the old strand at about the $1/3$ and $2/3$ point in the span. This is done with connecting links, cable rings, or one-sheave cable blocks.

(2) The new strand is pulled until the old strand and cable starts to rise, as illustrated.



(3) Check the entire run and if the old cable and strand did not rise in spans where they are attached to the new strand, it will be necessary to adjust or even the tension in spans throughout the run. This is done by passing a rope (1/2 inch or larger) over the new strand, in the middle of the spans, and oscillating the strand gently.

(4) After the proper tension is obtained, the strand is dead-ended using 3-bolt clamps. At least 2 feet of strand is left at the dead end. This may be used at a later time if it is necessary to adjust the sag of the new strand after the cable has been transferred and relashed.

5.04 When the proper tension has been obtained and the strand dead-ended, the new strand is secured to the pole with suspension clamps. Existing cable suspension clamps and bolts should be replaced if they are badly rusted or deteriorated.

6. TRANSFERRING CABLE

6.01 When removing cable rings from the old strand and cable, **place the cable car on the new strand.** The cable rings are removed from the old strand allowing the cable to be transferred and lashed to the new strand.

6.02 If the cable is lashed to the old strand, the B Lashing Wire Remover may be used. Its use is covered in Section G52.506.1.

6.03 In sections where the cable is bowing excessively it may be necessary to place additional tension in the cable. If this is to be done, the cable should be transferred to the new strand using B support rings, D cable blocks, or temporary supports. The cable may then be retensioned and lashed to the new strand.

6.04 The midspan drop attachments are transferred from the old strand to the new strand. The old strand is then removed.