

**DROP WIRING**  
**PLACING DROP WIRE**  
**POWER EXPOSURE UP TO 300 VOLTS**

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<b>GENERAL</b>	1	<b>1.06</b> Under certain circumstances it may be desirable to attach the drop wire to the pole first and then raise it at the building. In such cases, raise the drop wire as instructed in paragraph 6.
<b>PRECAUTIONS</b>	2	<b>1.07</b> At the time of installation, drop wire should be twisted one complete turn for every ten feet of span length to reduce vibration and dancing.
<b>OVER STREET OR HIGHWAY— NOT CROSSING OVER POWER WIRES/CABLES—NO TREE INTERFERENCE</b>	3	<b>1.08</b> Refer to CTSP 490-060-001 for measuring clearances and separations in aerial plant and to CTSP 475-300-403 for stringing sags and span limits.
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<b>OTHER THAN OVER STREET OR HIGHWAY—CROSSING OVER POWER WIRES/CABLES—POWER EXPOSURE UP TO 300 VOLTS</b>	6	<b>2.01</b> If traffic, trees, or other conditions create a safety hazard for the one-man method, assistance shall be obtained before placing drop wire over streets, highways, etc.
<b>OVER STREET OR HIGHWAY— CROSSING OVER POWER WIRES/ CABLES—POWER EXPOSURE UP TO 750 VOLTS</b>	7	<b>2.02</b> High voltage insulating gloves shall be worn by all employees when performing any operation where the handline or the drop wire may come in contact with power wires or power cables.
<b>FROM BUILDING TO BUILDING</b>	8	<b>2.03</b> The handline used for raising drop wire shall be free from metallic strands and shall be dry. However, if it is not possible to keep the handline dry due to weather conditions, a wet handline may be used for placing drop wire over secondary electric wires operating at less than 300 volts.
<b>1. GENERAL</b>		<b>2.04</b> Two 3/8-inch handlines, one 50 feet and one 100 feet in length, are required for the operations in this practice. The handlines shall be served at the ends to prevent unraveling.
<b>1.01</b> This practice provides procedures for the one-man method of placing drop wire over and under power wires or power cables operating at 300 volts or less, or where there is no exposure to power.		<b>2.05</b> When it is necessary to carry a handline up a pole or ladder, use a handline carrier (CTS #74-56-031-0) or double the end of the handline back on itself for a distance of approximately 1 foot. Place this loop under the side or back of the body belt so that it will be released readily if placed under tension.
<b>1.02</b> This practice replaces in its entirety CTSP 475-300-400, all copies of which should be removed from the file and destroyed.		<b>2.06</b> Do not work from a ladder placed against a building with the side rails crossing a wire run, or in any other position where movement of the wire, due
<b>1.03</b> Refer to CTSP 475-301-410 for the method of placing drop wire over power wires or power cables operating at 300 volts or more. The methods of raising or lowering drop wire, and replacing drop wire are covered in CTSP 475-301-605 and CTSP 475-301-610.		
<b>1.04</b> This practice covers the installation of drop wire with the use of a handline to avoid accidents when tensioning the drop wire from a position on a pole or ladder.		
<b>1.05</b> Drop wire shall not be placed over secondary electric service wires if other means of installing the wire are possible.		

to loosening of the attachments, could cause an accident.

**2.07** When a drop wire is to be attached to a span clamp, place the foot of an extension ladder on the field side of the suspension strand so the ladder is not in the street or highway. If there is no street or highway adjacent to the span clamp, place the ladder against the opposite side of the strand from the drop wire run to the building.

**2.08** If conditions could cause the handline or the drop wire to which it is attached to become disengaged from a drive hook, crossarm, or to slide along the strand or guard arm while the work is being done, enclose the handline or drop wire with a temporary guide loop. This loop consists of a short length of wire or rope placed over the handline or drop wire, with the ends of the guide securely tied in the following manner (Figure 1):

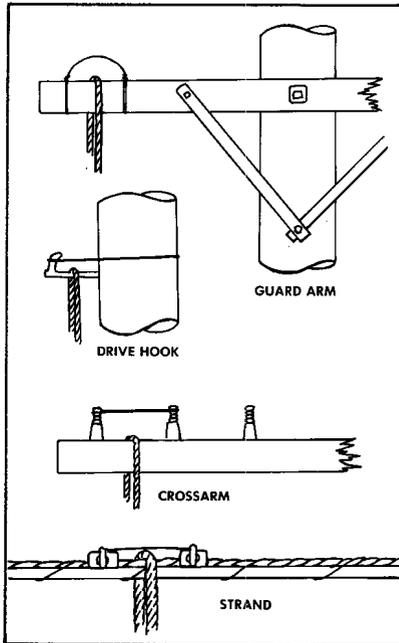
- a. **Guard Arm:** Tie the ends to the guard arm on each side of the handline or drop wire.
- b. **Drive Hook:** Tie one end to the vertical portion of the drive hook and lash the other end to the pole.
- c. **Crossarm:** Tie the ends to adjacent pins or insulators.
- d. **Strand:** Tie the ends across 2 span clamps.

### 3. OVER STREET OR HIGHWAY—NOT CROSSING OVER POWER WIRES/CABLES—NO TREE INTERFERENCE

**3.01** Where a drop wire to be placed over a street or highway will not cross over power wires or power cables and there is no tree interference, place the wire as follows:

**CAUTION:** Before proceeding with the following operations, fasten the inner end of the coil of drop wire securely to one of the springless spokes of the drop wire reel; then tighten the reel drag brake so the reel does not spin freely.

- a. Install the first building attachment; secure the drop wire to this support; then complete the building run. Keep the drop wire reel on the ground near the building to avoid accidents resulting from vehicles striking the wire, or pedestrians tripping on it. See Figure 2.
- b. Place a handline over the strand, guard arm, drive hook, or crossarm so that both ends reach the ground, with no excess length in that portion of the handline toward the building. If practicable, the handline may be formed into a coil at one end and thrown over the strand.



**FIGURE 1. Temporary Guide Loop—Pole**

After the handline has been placed, tie it to the base of the pole or the lower rungs of the ladder to avoid interference with pedestrians or vehicles. If it is necessary to climb the pole or ladder to place the handline, install any drop wire support that is needed.

c. Roll or carry the drop wire reel from the building to the building side of the street or highway. Pay out the wire along the ground with sufficient slack to ensure that the wire rests flat on the ground.

d. When no traffic is approaching, roll or carry the drop wire reel across the street or highway to the previously placed handline, paying out the wire so that it rests flat on the ground. If a metal or hard rubber-tired vehicle passes over the wire, carry the drop wire reel back to the building side of the highway and pull the wire from the highway. Inspect the wire for possible damage.



**FIGURE 2. Drop Wire Attached to Building**

e. Release the handline from the base of the pole or ladder, and tie a bowline knot in the end of the handline toward the building and around the drop wire at the reel. See Figure 3. Be careful not to raise the wire above the

highway. Wind any excess length of drop wire on the reel.

f. Set the brake of the drop wire reel so that when the wire is raised by the handline there

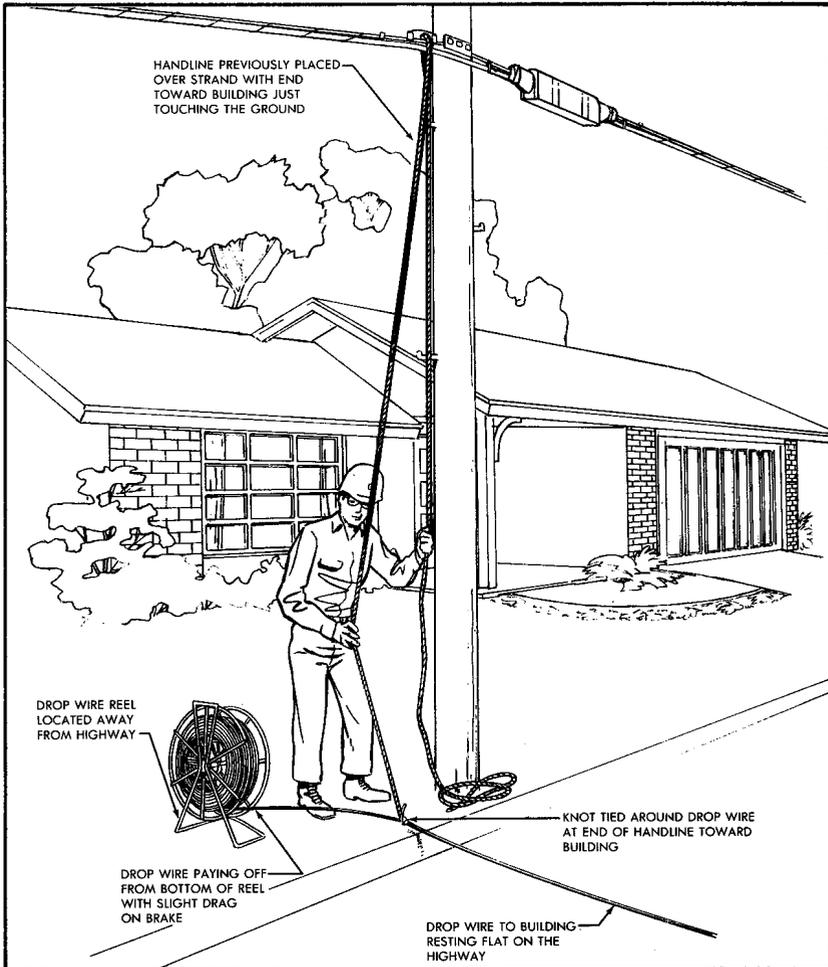


FIGURE 3. Preparing to Raise the Drop Wire

will be sufficient tension on the wire for it to be pulled up to the required height in the span over the street or highway.

g. After checking to make sure that the drop wire reel is in a stable position and that its brake is properly set, grasp the free end of the

handline. When no vehicles or pedestrians are approaching, raise the drop wire as shown in Figure 4. If it is necessary to remove excess slack from the wire span as it is being raised, pull the wire at the reel end to obtain the desired slack and wind the excess length of wire on the reel.

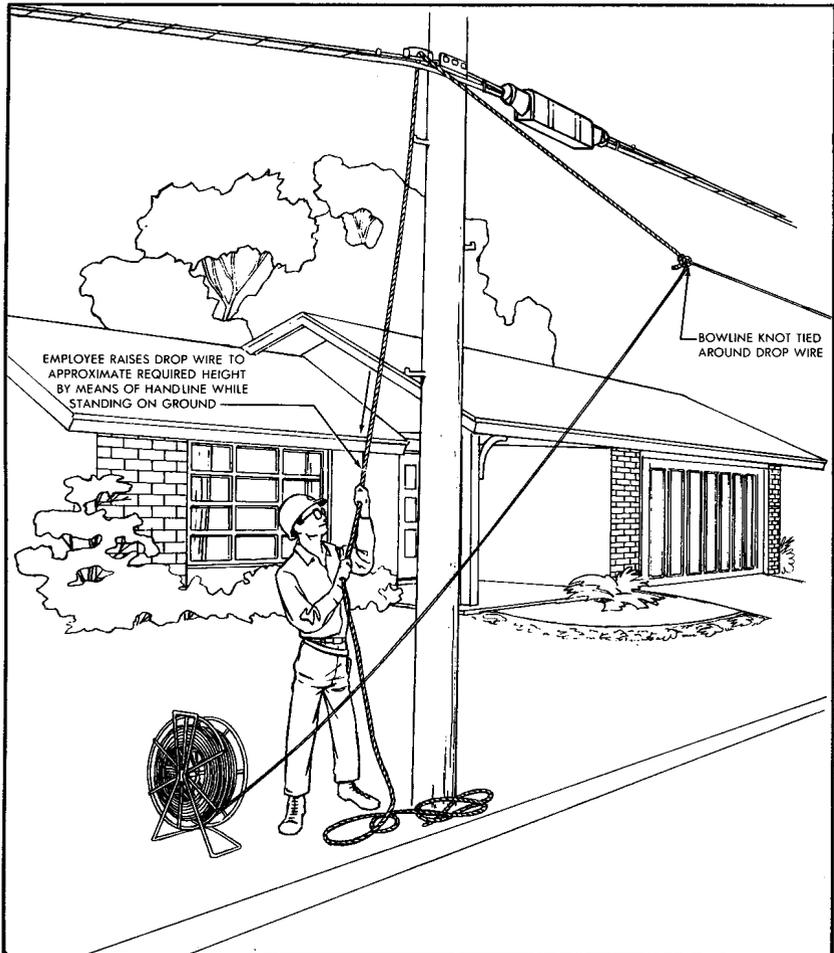


FIGURE 4. Raising the Drop Wire

h. After the drop wire has been raised to the required height, lash the handline with a clove hitch near the base of the pole or at a span clamp to the lower rungs of the ladder. See Figure 5.

i. Climb the pole or the ladder (if at a span clamp) and attach the drop wire to the pole or strand without removing the handline from the drop wire. When attaching the drop wire to a span clamp, keep in mind that the strand is

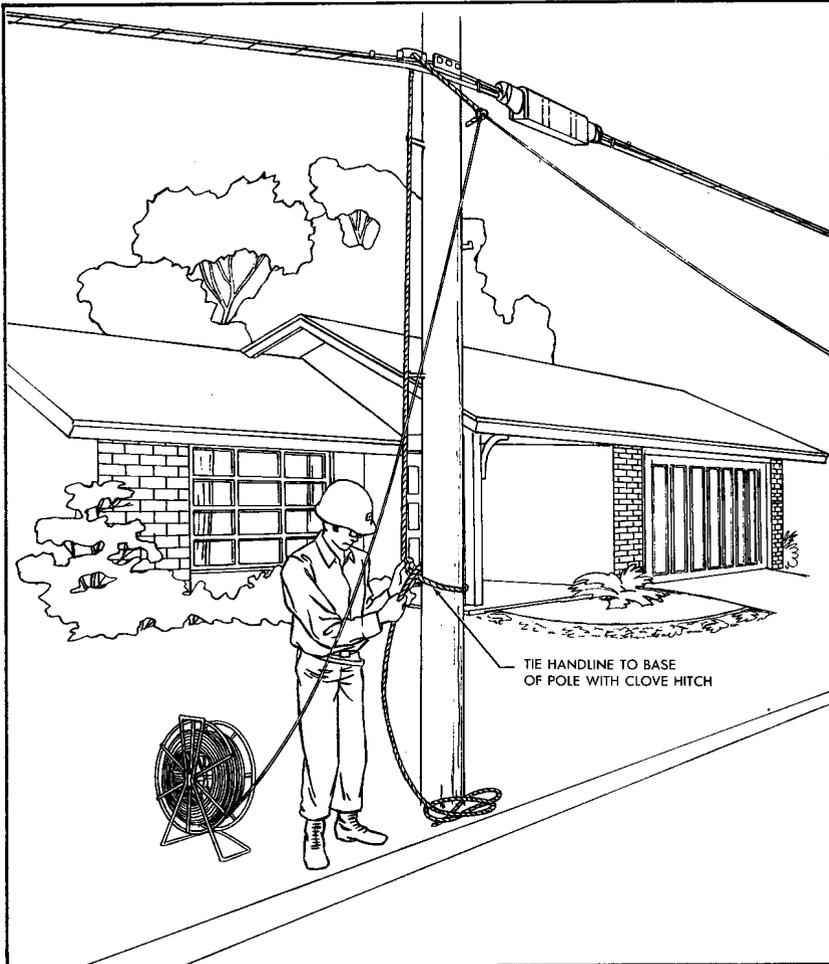


FIGURE 5. Drop Wire Raised to Approximate Height

forced out of line by the ladder resting against it. When working from the ladder, make any adjustments necessary to avoid excessive tension in the wire span to ensure proper sag and clearance after the ladder is removed.

j. Remove the handline from the drop wire. Cut the wire, leaving a sufficient length to reach the terminating point; then complete the connection.

k. Attach the handline and remaining drop wire under the body belt as instructed in paragraph 2.05, and carry them down the pole. **DO NOT DROP THEM TO THE GROUND.**

#### 4. OVER STREET OR HIGHWAY—NOT CROSSING OVER POWER WIRES/CABLES—TREE INTERFERENCE

4.01 Placing drop wire through trees shall be avoided whenever possible. However, if trees cannot be avoided, the method in paragraph 3.01 shall be modified as follows:

**CAUTION: Before proceeding with the following operations, fasten the inner end of the coil of drop wire securely to one of the springless spokes of the drop wire reel and set the brake.**

a. Where a tree is located on the same side of the street or highway as the building:

(1) Place the drop wire reel on the side of the tree toward the pole line. If the tree overhangs the street, the reel shall not be placed in the street unless it is properly guarded by means of a Telephone Company truck or another object equivalent in size.

(2) Place the handline among the branches of the tree in the desired location for the drop wire, and pull the wire into position among the branches. A wire raising tool may be used to facilitate this operation.

**CAUTION: The handline and drop wire shall not overhang the street unless properly guarded. If practicable, park the Telephone Company truck so that it will shield the handline and the drop wire.**

(3) Attach the drop wire to the building as instructed in paragraph 3.01 a., making sure that the wire rests flat on the ground between the tree and the building.

(4) Complete the wire run to the pole or to the span clamp as instructed in paragraph 3.01 b.

b. Where a tree is located in the immediate vicinity of the pole or span clamp:

(1) When placing the handline over the strand, guard arm, drive hook, or crossarm, locate it among the branches of the tree (Figure 6) so the drop wire may be raised to the proper position. A wire raising tool may be used to facilitate this operation. After the handline has been placed, tie it to the base of the pole or the lower rungs of the ladder to avoid interference with pedestrians or vehicles.

**CAUTION: The handline shall not overhang the street unless it is properly guarded. If practicable, park the Telephone Company truck so that it will shield the handline.**

(2) Proceed as instructed in paragraph 3.01 or paragraphs 4.01 a., (1), (2), (4), depending on the conditions, except that the wire shall be raised at the pole or strand end of the span as follows:

(a) With the drop wire crossing the street and resting flat on the ground, remove sufficient wire from the drop wire reel to reach the terminating point and cut the wire.

(b) Tie the end of the drop wire to the handline (Figure 6) at a point in that portion of the handline toward the building which will permit access to both ends of the handline from a position on the ground during the entire raising operation.

*NOTE: If the handline has been placed over a drive hook or other support on which a square knot would sag, fasten the wire to the handline as shown in Figure 7.*

c. When no vehicles or pedestrians are approaching, raise the drop wire by pulling that portion of the handline on the opposite side of the strand from the building. The portion of the handline toward the building should pass through employee's hand (Figure 8) so the employee can pull the handline in either direction to work the drop wire among the branches of the tree, or to pull the wire to the ground quickly, if necessary.

d. After the drop wire has been raised to the required height, tie the handline to the base of the pole or, if at a span clamp, to the lower

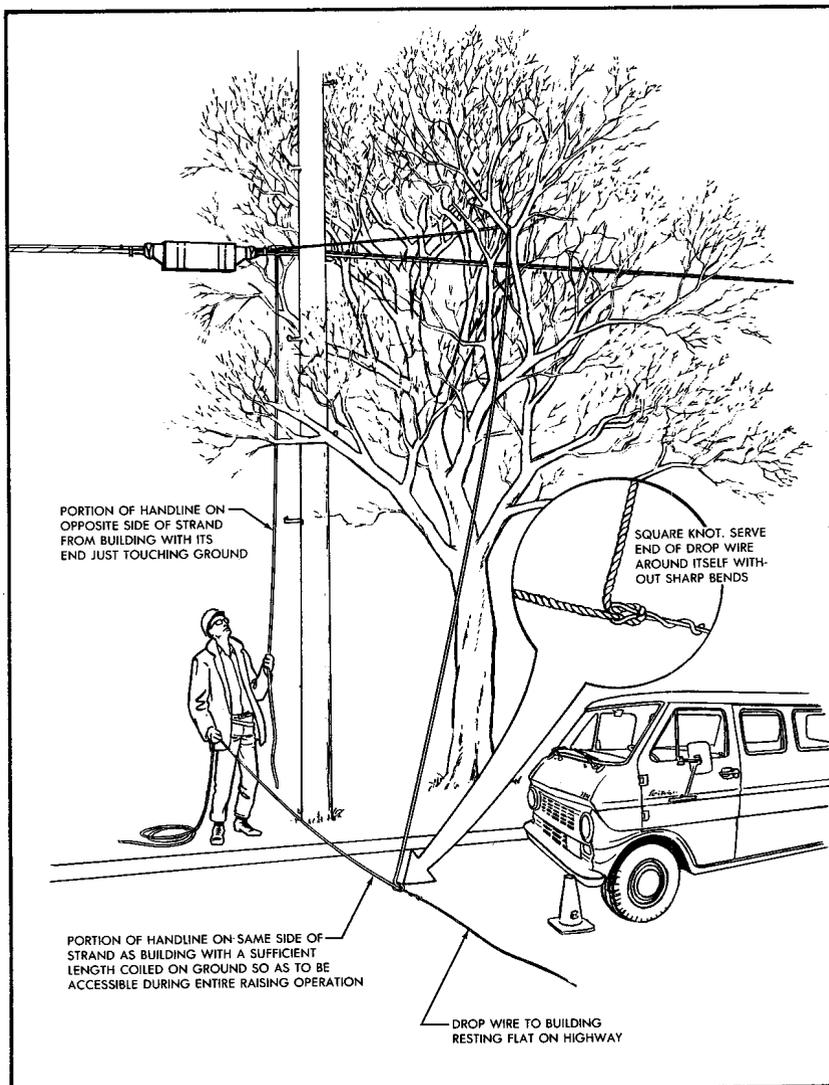


FIGURE 6. Drop Wire Tied to Handline

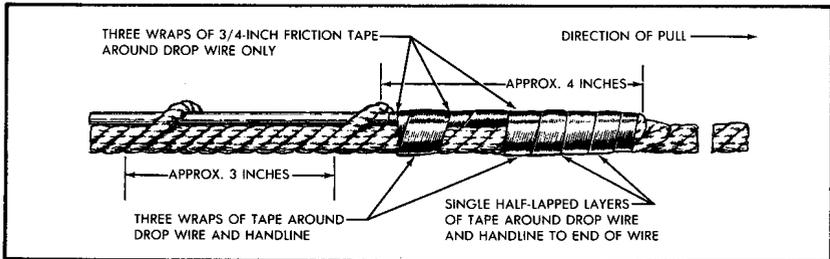


FIGURE 7. Alternate Tie to Prevent Sagging

rungs of the ladder, and proceed as instructed in paragraphs 3.01 i. and j.

**5. OTHER THAN OVER STREET OR HIGHWAY—NOT CROSSING OVER POWER WIRES/CABLES**

5.01 When placing a drop wire other than over a street or highway, and not crossing over power wires or cables, place the wire as follows:

**CAUTION:** Before proceeding with the following operations, fasten the inner end of the coil of drop wire securely to one of the springless spokes of the drop wire reel and set the brake.

a. Install the first building attachment and complete the wire run on the building, keeping the drop wire reel near the building to prevent accidents resulting from vehicles striking the wire, or pedestrians tripping on it.

*NOTE: If obstructions are encountered between the building and the pole or span clamp, locate the drop wire on the pole line side of the obstructions, place the wire over or through the obstruction, and attach the wire to the building, making sure that the wire rests flat on the ground between the obstruction and the building.*

b. Roll or carry the drop wire reel from the building to the pole or span clamp location, paying out the wire so that it rests flat on the ground.

c. Tie a bowline knot in one end of the handline around the drop wire at the reel. The length of the handline shall be greater than the distance from the ground to the drop wire attachment point.

d. Set the brake of the drop wire reel so that when the wire is raised by the handline there

will be sufficient tension in the wire for it to be pulled to the required height in the span.

e. Loop the other end of the handline under the body belt as instructed in paragraph 2.05, and climb the pole or the ladder (if at a span clamp).

f. Place the handline over the strand, guard arm, drive hook, or crossarm from the side toward the building. Return to the ground.

g. Raise the drop wire to the required height by pulling the handline over the strand or other support, and lash the handline to the pole or strand. Climb the pole.

h. Attach the drop wire to the pole or strand without removing the handline. When attaching the drop wire to a span clamp, keep in mind that the suspension strand is forced out of line by the ladder resting against it. Make any adjustments necessary to avoid excessive tension in the wire span when working from the ladder, and to ensure proper sag and clearances after removal of the ladder.

i. Remove the handline from the drop wire. Cut the wire, leaving a sufficient length to reach the terminating point, and complete the connection.

**6. OTHER THAN OVER STREET OR HIGHWAY—CROSSING OVER POWER WIRES/CABLES—POWER EXPOSURE UP TO 300 VOLTS**

6.01 Place the drop wire over power wires or power cables up to 300 volts as follows:

a. Install the first building attachment; or the pole attachment if the drop wire is to be attached to a pole on the building side of the power wires or power cables.

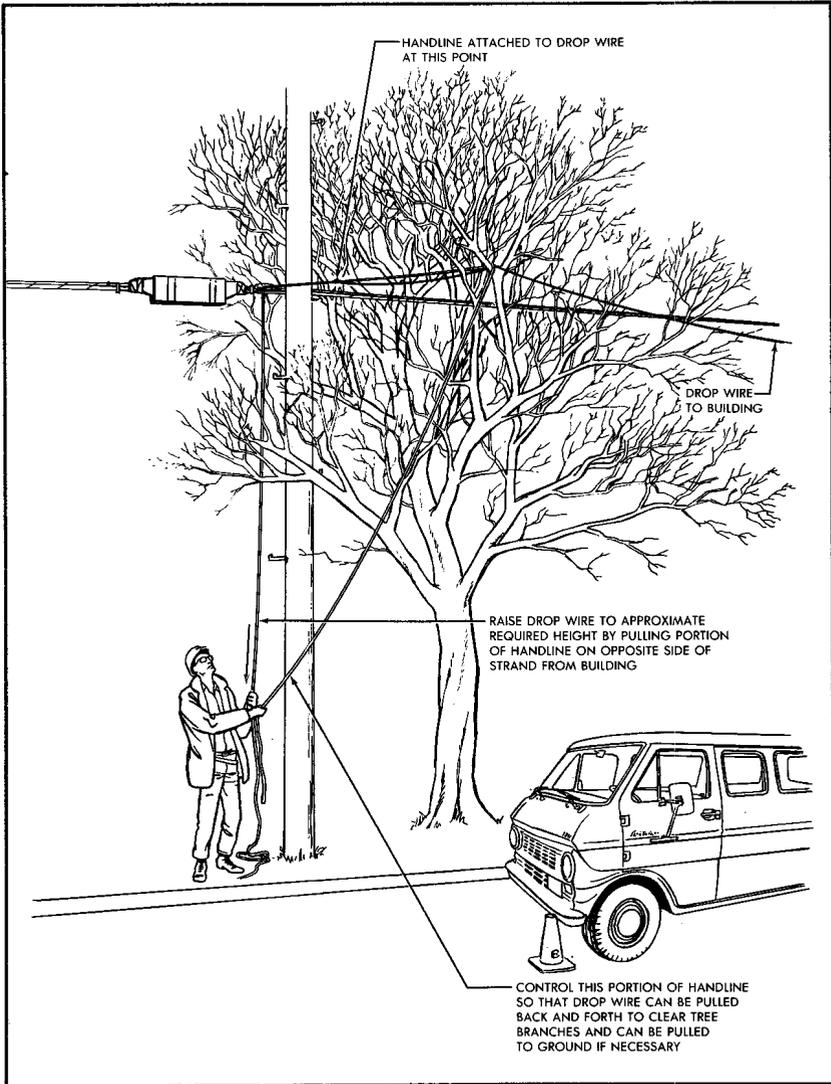


FIGURE 8. Raising Drop Wire

b. Attach a temporary guide loop to the attachment to prevent the drop wire from becoming accidentally disengaged during the placing operation. See Figures 1 and 9.

c. Place the drop wire reel, equipped with a coil of new wire, in a stable position near the foot of the ladder at the building, on the side away from the wire span.

**CAUTION: Fasten the inner end of the coil of drop wire securely to one of the spokes of the drop wire reel.**

d. Set the brake of the drop wire reel so that when the wire is pulled by the handline there will be sufficient tension in the wire to prevent it from sagging onto the power wires or power cables.

e. With the wire paying off from the bottom of the reel, pass the wire over the first building attachment and through the temporary guide loop until the end of the wire reaches the ground.

f. Go to the pole. Lash one end of a handline to the base of the pole. The handline shall be of a sufficient length to extend vertically from the ground to the strand or pole attachment, and horizontally at least 25 feet beyond the power wires or power cables.

g. Place the free end of the handline over the strand, guard arm, drive hook, or crossarm. If practicable, the handline may be formed into a coil at one end and thrown over the strand.

h. Standing on the ground, throw the free end of the handline over the power wires or power cables. Tie this end of the handline to the end of the drop wire by means of a square knot, serving the end of the wire around itself without sharp bends. If the handline has been placed over a drive hook or other support on which the square knot would snag, fasten the handline to the wire as shown in Figure 7.

*NOTE: If a tree is involved, place the handline among the branches of the tree in the desired location for the drop wire. A wire raising tool may be used to facilitate this operation.*

i. Go to the building. Reel up all slack in the handline and drop wire onto the drop wire reel, thereby raising the handline clear of the power wires or power cables. Make sure the drop wire reel is in a stable position and that its brake is properly set.

j. Return to the pole end of the handline and pull the handline and drop wire, being careful not to sag into the power wires or cable. After a sufficient length of drop wire has been pulled over the strand, guard arm, drive hook, or crossarm, the handline shall be lashed to the base of the pole.

k. Go to the building and fasten the drop wire to the first building attachment with a drop wire clamp, and then remove the temporary guide loop.

l. Climb the pole, fasten the drop wire and remove the handline.

## 7. OVER STREET OR HIGHWAY—CROSSING OVER POWER WIRES/CABLES—POWER EXPOSURE UP TO 750 VOLTS

7.01 Follow the procedures in CTSP 475-301-410, paragraph 2, when it is necessary to place drop wire over power wires or cables and where the drop wire crosses over a street or highway.

## 8. FROM BUILDING TO BUILDING

8.01 Place a drop wire between two buildings in the same manner as for a pole-to-building run, providing as much sag as practicable in the wire span. A temporary guide loop (Figure 9) should be installed on the first building attachment at which the wire span is to be raised; this will prevent accidental disengagement of the handline from the building attachment. Support the tension in the wire by lashing the handline (which was used in raising the wire) to a secure support near the base of the building, and install the second drop wire clamp on the span.

8.02 All safety precautions contained in this practice must also be observed when placing wire from building to building.

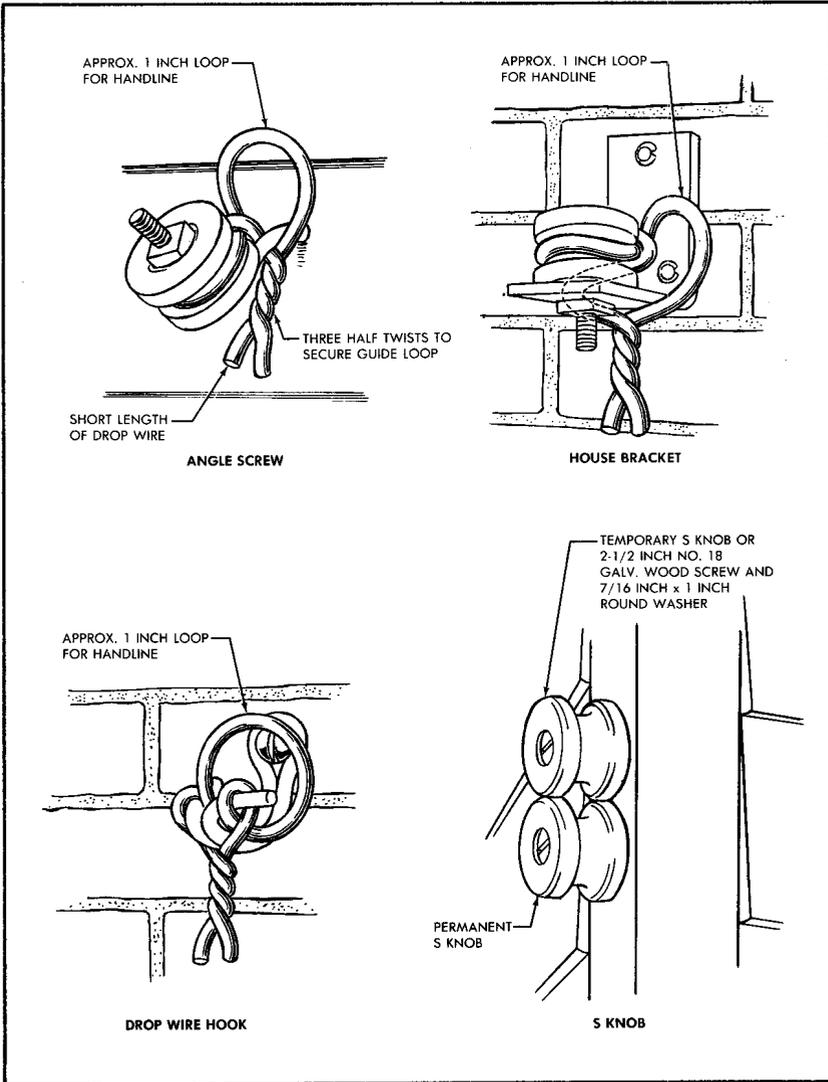


FIGURE 9. Temporary Guide Loop—Building