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Communications
Research

Bellcore Practice
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Placing Lashed Optical and Metallic Aerial Cable

General

PLACING LASHED OPTICAL AND METALLIC AERIAL CABLE

GENERAL

CONTENTS

LIST OF ILLUSTRATIONS

LIST OF TABLES

1. GENERAL

1.01 This practice covers general information pertaining to the placing of metallic conductor and optical fiber lashed aerial cable.

1.02 This practice is reissued to include information for lashing optical fiber cable to a strand already occupied by a metallic conductor cable or another optical fiber cable. Paragraphs that deal with optical cable have been highlighted with a bar in the left hand margin.

1.03 Requirements for bonding and grounding of suspension strand and the metallic components of cable are covered in Bellcore Practice BR 627-020-005.

1.04 Arrangement of lashed cable supports for optical and metallic conductor cable is covered in Bellcore Practice BR 627-340-205.

1.05 The method and materials for providing mechanical protection for aerial cable are covered in AT&T Practice 627-360-200.

1.06 A minimum of three feet of overlap must be provided at metallic conductor cable splice locations. When this cable has been preconnectorized, the center of splice markers must be aligned.

1.07 For optical cable that has been preconnectorized (ribbon type), the correct overlap is determined by a splice alignment bar. For cable that is not connectorized, several feet of overlap should be provided at the splice location. In all cases the cable lap must be temporarily held in place until the lashing operation is completed.

1.08 Strand associated with optical cable should be brought up to the same tension as required for copper conductor cable.

2. PRECAUTIONS

A. Placing

2.01 Before starting cable-placing operations, observe the following precautions.

(a) Protect the work location by placing warning signs, flags, or other warning devices at appropriate points to alert vehicles and pedestrians to the presence of obstructions and technicians working in the area.

(b) Whenever practical, cable placing should be done with the motor vehicle moving in the direction of traffic.

(c) Inspect cable reels for flange protrusions, irregularities, or structural damage which may be a hazard to the cable sheath and technicians.

(d) Inspect cable reels for obstructions that might interfere with the proper unwinding of the cable.

(e) Use a cable reel brake to control the rotation of the cable reel to prevent excessive free running of the reel. *Do not* use a plank to block or brake the reel.

(f) Inspect suspension strand for condition and proper size.

(g) Avoid abrasion to cable sheath. Do not drag the cable over obstructions that will damage the sheath.

(h) All cable bends should be smooth and gradual. When a specific bending radius for optical cable has not been specified by the cable manufacturer, the following bending radius should be used:

1. **Under no load conditions** - 10 times the diameter of the cable.

   Example: Optical cable diameter 0.8 inch;
   10 x 0.8 inch = 8 inch radius bend

2. **Under load conditions** - 20 times the diameter of the cable inch.

   Example: Optical cable diameter = 0.8 inch
   20 x 0.8 inch = 16 inch radius

   (a 32-inch diameter sheeve would be required under load conditions).

(i) Do not permit vehicular traffic to pass over cable.

(j) Tighten cable suspension clamps at least one span ahead of cable-lashing operations. This is necessary to keep tension from building up in the strand as lashing progresses. When an aerial lift truck is being used, all clamps should be tightened before cable placing begins.

B. Cutting Cable

2.02 ***DANGER: An electrical shock can occur when plastic-sheath cable is cut. An electrical charge on the metallic components of the cable can be produced by friction between the jacket and the cable guide or other equipment while the cable is being placed. An ac voltage may also be induced from parallel energized power wires. An electrical shock can occur if body contact is made between the metallic cable components and the strand or other ground.*** Since a voltage may exist, a ground shall be maintained during the cutting operation.

2.03 Ground the cutting tools with lashing wire or test clips to a grounded strand or other suitable ground before cutting the cable. ***Insulating gloves must be worn when cutting the cable.***

C. Aerial Lift Truck

2.04 ***DANGER: Should the vehicle accidentally become electrically charged by contacting power wires, bear in mind that the entire truck and its contents will also be electrically charged. In such cases, immediately caution anyone who is nearby not to attempt to enter or leave the truck, nor in any way to come in contact with the vehicle or its contents until after the contact has been broken.*** The following precautions should be observed when using aerial lift trucks:

(a) All technicians using an aerial lift truck must be thoroughly familiar with operating instructions covered in the 649 Division, Layers 351 and 352.

(b) The technician in the aerial lift truck bucket will be responsible for directing all operations required in:

- placing the lift in working position,
- using the lift,

- and restoring it to travel position.

The operator of the motor vehicle will operate the truck only as instructed by the technician working aloft. Radio voice communication must be used between the driver and the technician in the basket.

(c) The technician working aloft in an aerial lift truck bucket will face in the direction of movement of the vehicle. This technician will be watchful in all directions and will wear a body belt, safety strap, safety headgear, and eye protection.

(d) Extreme caution must be exercised not to exceed the safe weight and work limitations of the aerial lift unit as recommended by its manufacturer.

(e) Before operating the aerial lift, make certain that in raising, swinging, or otherwise operating it, there will be no interference from nearby objects and structures. Be particularly alert for the possibility of a power contact. Minimum approach distances to exposed energized power conductors must be observed. Approach distances are covered in AT&T Practice 620-100-011.

3. DESCRIPTION

3.01 Lashed aerial cable consists of one or more cables lashed to a suspension strand with lashing wire. Double lashing (two lashing wires) of optical cable to the support strand is recommended.

3.02 The following methods are used to place lashed aerial cable.

(a) Moving reel method (Bellcore Practice BR 627-320-205).

(b) Stationary reel method (AT&T Practice 627-320-206).

(c) Aerial lift method (AT&T Practice 649-352-101).

(d) Prelashing method (the stationary trailer method is covered in Subdivision 627-350). The stationary trailer equipment is no longer in use and has been replaced with aerial lift trucks equipped with prelashing equipment. The prelashing method that places optical cable and strand simultaneously is not recommended. This method can cause fiber damage when the lashed cable and strand pass over cable blocks or sheaves (see NOTE).

> **NOTE** - Some optical fiber cable manufacturers allow their cable to be placed using the prelashing method when the cable is enclosed in innerduct. Follow the manufacturer's placing recommendations when this method is used. Special consideration must be given to storm loading due to the increased weight and diameter of the innerduct.

4. PRESURVEY

4.01 The proposed cable route should be surveyed to determine the conditions that may be encountered in the cable-placing operation. The following factors should be considered.

(a) Safety.

(b) Correct anchor size and condition.

(c) Proper guying and attachments.

(d) Pole line condition.

(e) Correct suspension strand tension (AT&T Practice 627-210-018).

(f) Correct bonding and grounding of suspension strand and cable (Bellcore Practice BR 627-020-005).

(g) Trees and tree limb obstruction (for tree pruning refer to Bellcore Practice 620-310-200). Permission to trim must be obtained per local regulations.

(h) Where to provide a slack loop of cable, if required, as at a load point or splice.

(i) Clearances over roads and driveways.

(j) Clearances and separations on jointly used poles and at crossings.

(k) Pole replacement or rearrangements.

(l) Rearrangement of existing plant.

4.02 For successful placing of optical cable, it is essential that a thorough route survey be made jointly by engineering and construction personnel. A placing plan giving close attention to the routine details of route preparation prior to construction is necessary.

4.03 When selecting an optical cable route, the following factors should be given special consideration:

(a) Experience with broken poles.

(b) Future municipal, state, or federal improvement programs.

(c) Amount of activity associated with existing plant.

(d) Maintenance history of existing plant.

5. MOUNTING THE REEL

5.01 Before loading a cable reel, check the size, gauge, type, and length of cable with the information given on the work print. Check for any cable damage that might have occurred during shipment. If cable is pressurized, check for positive air pressure.

5.02 The reel of cable can be mounted on a cable trailer or reel carrier to pay out cable from the top or bottom of the reel. Generally, when a cable trailer is used the preferred method is from the top. This decreases the possibility of the cable being damaged by contact with the ground and eliminates reverse bending of the cable. When the cable is carried on a reel carrier of an aerial lift truck, the preferred method (unless restricted by the truck design) is to pay out the cable from the bottom of the reel. Where applicable, the bottom feed should always be used when placing optical cable using an aerial lift truck. This will eliminate reverse bending the cable as it passes through the truck bull wheel.

A. Locating Stationary Reel

5.03 Presurvey the job to determine the direction the cable should be pulled for an efficient and safe cable-placing job. Some factors governing the selection of the cable reel location are as follows:

(a) Where it has been decided to back-feed a portion of the optical cable run, select a cable reel location that will allow sufficient space to "figure-8" the cable.

(b) To prevent damage to the cable, avoid pulling cable around tight corners, wherever possible.

(c) Select locations that will cause the least interference with traffic.

(d) When power circuit exposures are encountered, be sure to observe specified clearances.

B. Setting Up Stationary Reel

5.04 Movement of the reel should be carefully controlled. Do not let the reel tilt. Where uneven ground is encountered, the ground should either be leveled or a runway of planks should be provided to prevent tilting of the reel. Use a cable reel trailer for transporting the larger and heavier cable reels. If it is necessary to move heavy cable reels with a construction truck, use a cable reel sling.

5.05 Position the cable reel in line with the strand, wherever possible. A cable reel setup installed on a cable reel trailer preparatory to pulling the cable is shown in Figures 1 and 2.

5.06 Use a cable reel trailer equipped with a cable reel brake, whenever possible. The brake provides control of cable reel rotation. Do not brake excessively.

5.07 Cable reel jacks or rollers may be used for setting up a cable reel. However, since these devices have no braking system, their use should be limited. When necessary to use cable reel jacks or rollers, do not allow the reel to tilt excessively. Place the cable reel jacks or rollers on a stable, level surface. Cable reel jacks or rollers are not recommended for setting up optical cable reels.

5.08 Avoid surges and jerks when placing optical cable. Any braking applied to optical cable reels should be the minimum required to prevent overrunning, surges, or jerking of the cable.

C. Setting Up Moving Reel

5.09 Optical and metallic cable may be placed using the moving reel method. This method is preferred because placing loads are lower and corner pulls can be avoided.

5.10 A typical reel set up where the cable is fed from the cable reel directly to the strand is shown in Figure 3.

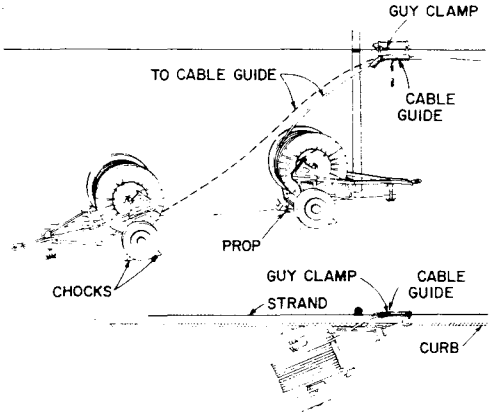


Figure 1. Positioning Cable Reel Trailer

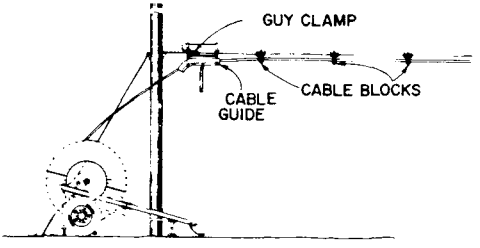


Figure 2. Cable Reel Trailer in Position

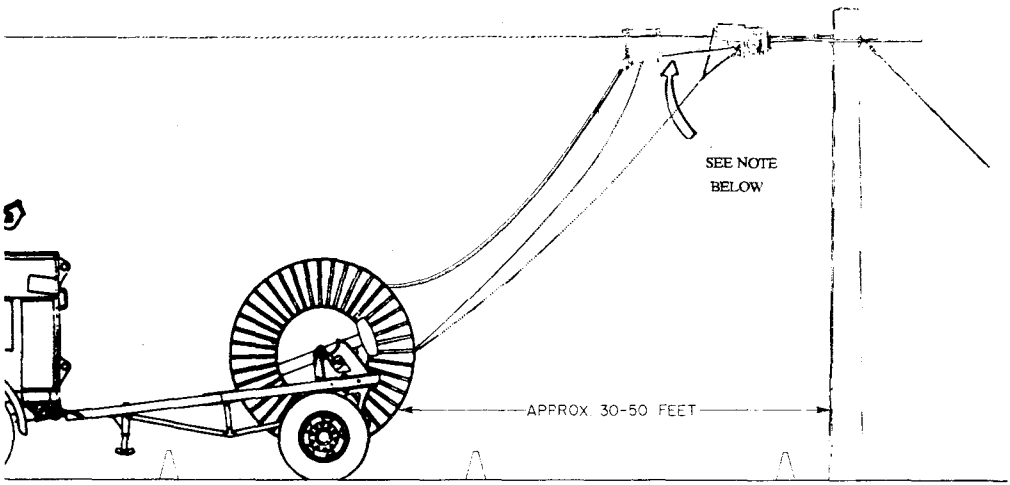


Figure 3. Positioning Cable Reel

NOTE - When lashing optical cable, the cable guide should be far enough ahead of the cable lasher so that the cable is slack as it enters the cable lasher.

5.11 Prior to placing cable with an aerial lift truck, the technician should be familiar with the procedures covered in AT&T Practice 649-352-101.

5.12 Special considerations are required when placing optical cable with an aerial lift and using the truck mounted cable rollers and bull wheel. It should be determined that the particular cable design is compatible with this method.

5.13 Movement of the truck between pole sections should not be erratic. A gradual acceleration and deceleration will reduce cable reel surges.

5.14 If the distance between the cable reel and strand becomes excessive, the lashing operation should be stopped. The truck can move forward while the cable is payed out on the ground. Lash the cable up to a point where the cable is better aligned with the strand before resuming the normal lashing operation. This situation usually occurs when a portion of the pole line is set back a considerable distance from the edge of the road.

5.15 The cable guide should be positioned a sufficient distance ahead of the cable lasher so that optical cable is slack as it enters the cable lasher.

5.16 When placing optical cable, the brake pressure on the cable reel should be at a low setting. Excessive reel brake pressure can cause over tension of the optical cable.

5.17 Optical cable should not be placed in the bucket fairlead during the placing operation. When slack is required at poles or other locations, it should be pulled from the cable reel by hand or the truck should be moved forward and then backed-up with the bucket operator giving directions.

6. LASHING AERIAL CABLE

6.01 Tighten cable suspension clamps at least one span ahead of cable-lashing operations. This is necessary to keep tension from building up in the strand as lashing progresses. When an aerial lift truck is being used, all clamps should be tightened before the start of cable placing. Strand movement will cause unequal loading of poles due to different strand tension in adjacent spans.

6.02 It is important that aerial cable be lashed tightly against the strand. This is accomplished by proper adjustment of the rear cable lifter (on the lasher) and particularly by not permitting the lashing wire to slack off during any of the lashing, terminating, or splicing operations. The following are some of the precautions that should be taken to keep the lashing wire tight.

(a) Do not start the lasher with a jerk. This will cause slippage on the strand resulting in uneven pitch of the lashing wire.

(b) If it is necessary to stop the cable lasher, maintain tension in the towing line until the lashing wire has been secured to the strand or until lashing is resumed.

(c) Do not stop the lasher abruptly.

(d) Maintain a short lead when pulling the lasher. A long lead will cause the lasher to slip on the strand.

(e) Secure the lashing wire to the strand with a lashing wire grip when the cable lasher is stopped at a terminating or transfer point and before the wire is cut or slack is drawn from the cable lasher.

(f) When terminating the lashing wire (either permanently or temporarily) remove any slack in the wire by tapping the strand sharply a few times while (at the same time) maintaining a pull on the wire.

6.03 When optical cable is payed off the reel, avoid jerks and excessive tension. Optical cable should be double-lashed to the strand. (This is recommended because of the long pitch of the lashing wire when lashing small diameter optical cable.) A splice alignment bar (Figure 4) should be used at preconnectorized splices to ensure a smooth transition of the optical cable from its lashed position to the splice case.

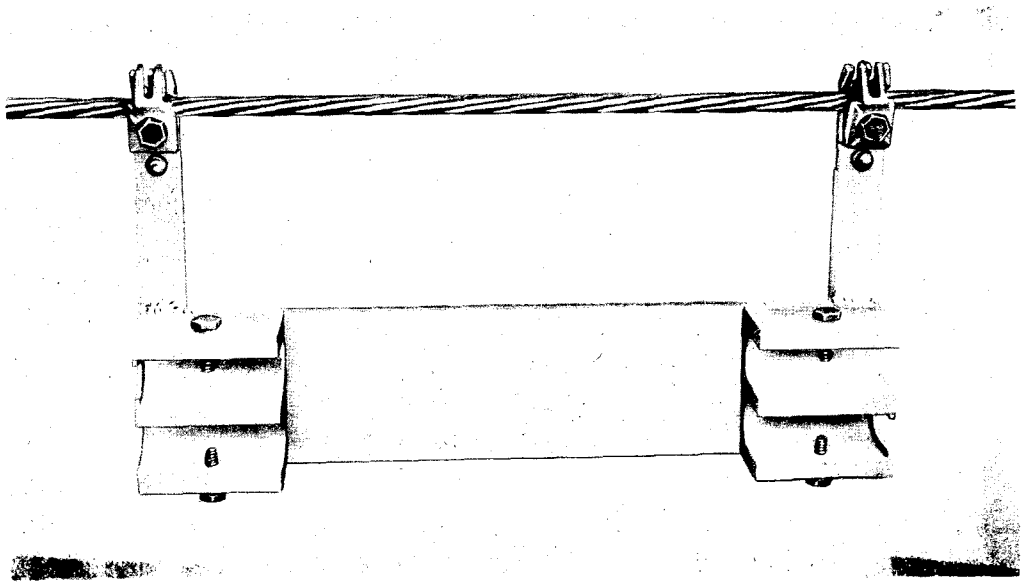


Figure 4. Typical Splice Alignment Bar

6.04 At poles, splices, or other points where the cable is not held snugly against the strand, the cable should be formed in a long, smooth curve, supported in this position, and kept free from possible contact with hardware or other points of interference that might cause sheath abrasion. Use lashed cable supports, cable spacers, and cable guards for this purpose. Bellcore Practice BR 627-340-205 covers supporting arrangements for optical and metallic lashed cables.

6.05 To provide separation (between strand and cable) at suspension clamps (when lashing existing cable in rings), place the suspension clamp so that the strand groove and strand are below the suspension bolt.

6.06 To keep excessive cable out of the spans during the lashing operation, observe the following:

(a) For metallic conductor cable, maintain a moderate amount of tension in the cable ahead of the lasher. ***There should be no tension ahead of the lasher for optical cable.***

(b) At cable section ends, securely tape the overlapping ends together. At cable end poles, tape the cable to the strand after the lashing wire has been terminated.

7. CABLE POSITIONING AND LASHING OF TWO OR MORE CABLES

7.01 The lashing of two or more cables to a suspension strand can be accomplished by the methods listed in paragraph 3.02 (a, b, and c). However, the positioning of the cables for lashing and supporting is the same for any method used.

7.02 The lashing of an additional cable to an existing strand may result in substantial savings as additional guys, anchors, rods, and the expense of placing a strand will ordinarily not be required. Lashing a new cable to the same strand with an existing cable assembly may be practical under the following conditions:

(a) Where the existing cable or cables and strand are in good condition and the strand is of adequate size to support both the existing and proposed cables.

(b) Where the addition of another cable on a separate suspension strand, or self-supporting cable either above or below the existing strand, would require a substantial number of poles to be replaced or rearrangement of existing plant to obtain proper ground clearance or separation from power supply conductors.

7.03 Some optical fiber cable manufacturers allow:

(a) Lashing of an optical cable to existing strand occupied by metallic conductor cable (overlashing).

(b) Placing more than one optical cable on the same support strand.

7.04 Where an optical cable manufacturer has not provided specific guidelines, the following recommendations should be considered before overlashing or lashing two optical cables to the same support strand:

(a) Minimum strand size for storm loading areas is given in Table A for ribbon type cable and Table B for stranded cable. (The tables apply to optical cable lashed to an unoccupied strand or a strand occupied by a metallic conductor cable.)

(b) Do not place more than one optical cable on the same support strand unless the strand is at the proper tension and meets the requirements in paragraph 7.04(a) above.

(c) When overlashing, the combined load of the cable combination must not exceed the strand limits under storm load conditions.

(d) The lashing of a metallic conductor cable to an existing optical cable is not recommended.

7.05 Lashing two or more cables to an existing strand will not generally be advisable if:

(a) The condition of the existing cable is such that replacement should be considered.

(b) The diameter of the nested cable assembly exceeds the maximum diameter that can be handled by the lasher (paragraph 7.11).

(c) It is necessary to increase the size of strand and place additional guys, anchors, and rods.

(d) It is practical to use self-supporting cable or to lash cable directly from a moving reel to a new strand at a substantially lower overall cost.

(e) The cable has been spiraled to prevent cable dancing.

7.06 Some factors to be considered when lashing two or more cables to a single suspension strand are:

(a) The sizes of the cables involved.

(b) Branch cables along the lead.

(c) New terminals to be installed.

(d) The types and locations of existing terminals.

The capabilities and the limitations of the cable lasher must also be taken into consideration.

Table A. Maximum Recommended Span Lengths of Ribbon-Type Optical Cable

(SPAN LENGTHS IN FEET)					
STORM-LOADING REGION	*STRAND SIZE*				
	6.6M	*6M*	*10M*	*16M*	*25M*
Heavy	150	250	350	500	900
Medium	300	500	700	1000	1600
Light	300	500	700	1100	1900

Table B. Maximum Recommended Span Lengths of Stranded Optical Cable

(SPAN LENGTHS IN FEET)					
STORM-LOADING REGION	*STRAND SIZE*				
	6.6M	*6M*	*10M*	*16M*	*25M*
Heavy	200	300	400	600	1000
Medium	400	650	800	1200	1900
Light	350	600	800	1200	2500

7.07 Ordinarily, the cable that will have the greater number of pole-mounted terminals should be positioned nearer the pole. Where sheath or strand-mounted terminals are involved, access to the terminals that are to remain in plant must not be obstructed by other cables.

7.08 Cables of equal or nearly equal diameter present little difficulty in lashing and normally are positioned properly in triangular relation with the strand during the lashing operation as shown in Figure 5.

7.09 Where a small cable and a larger cable are to be lashed, the small cable should be nested above the larger cable, as shown in Figure 6.

7.10 Nesting is facilitated by lashing in the direction that will cause the lashing wire to pull the small cable upward. It may also prove helpful, where small and large cables are being lashed, to tilt the lasher by means of the towing line as shown in Figure 7. Tilt the lasher so that the small cable will be raised with respect to the large cable as the cables pass over the cable lifters in the lasher.

7.11 Cable lashers are capable of lashing a maximum size, single cable of approximately 5 inches. When more than two cables are lashed, this requirement is often misinterpreted to mean that the sum of the diameters of all the individual cables may not exceed 5 inches. This is a ***false*** assumption because nesting will result in a cable assembly with a diameter less than the sum of the diameters of all the individual cables. An example is shown in Figure 8.

7.12 When a second cable is lashed to an existing cable and strand, the preferred cable arrangement is to lash the second cable alongside the first to present the minimum area to winds which might cause dancing. However, the second cable may be lashed underneath the existing cable but it must be recognized that this arrangement has a lower threshold of wind velocity for cable dancing than the "alongside lashing" method.

7.13 The combined diameter of the cables may require adding a spacer between the cable suspension clamp and the existing nut for cable clearance. When a spacer is used, place a reinforcing strap as an additional support for the bolt.

7.14 Whether the stationary or moving reel method is used to lash two or more cables to one suspension strand, the existing lashing wire should be inspected very carefully.

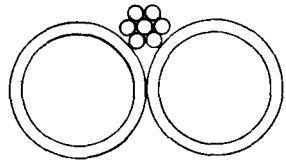


Figure 5. Cables of Equal Diameter

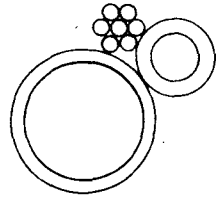


Figure 6. Large and Small Cable

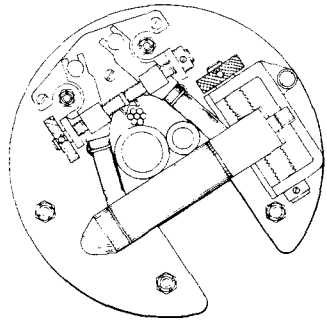


Figure 7. Tilting Lasher

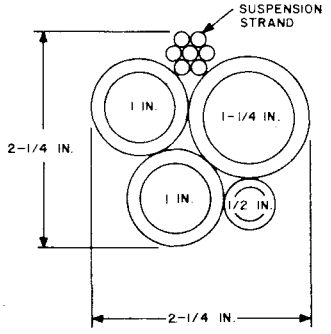


Figure 8. Cable Assembly

NOTE - Sum of diameters of individual cables is 3-3/4 inches. Nesting results in a cable assembly of considerably less than 3-3/4 inches.

7.15 If the existing lashing wire is severely corroded, pitted, or broken and there is a possibility that the sharp edges or points would damage the sheath of the new cable, the wire should be removed. Generally, it is not necessary to remove the existing lashing wire. **Metallic conductor or optical cable should not be lashed to the same strand with an existing aluminum conductor cable. A metallic conductor cable should not be lashed to an existing optical cable.**

A. Suspension Strand

7.16 The size of existing strand must be large enough to support the combined weight of the cables. Using this combined weight as applied to a single cable of equivalent weight, refer to AT&T Practice 627-200-015 to determine whether the existing strand is of the proper size for the span lengths involved. Refer to paragraph 7.04 for the strand size for optical cable.

7.17 If an inspection of the strand indicates that replacement of the strand (because of deterioration) is required, within a relatively short period, new strand should be placed and the existing cable or cables transferred to the new strand.

7.18 After determining that the existing strand is of sufficient size, use a strand dynamometer to measure the strand tension in several spans with the existing cable assembly in place. The effect of adding a new cable should be considered and the required action (described below) taken before the cable is placed. Among the items to be considered are the following:

(a) If the strand tension is considerably higher than shown in AT&T Practice 627-210-018, the addition of a cable may increase the tension beyond the safe working limit of the strand. In such cases, slack off the existing strand before the second cable is placed.

(b) The addition of a cable will increase the sag. If this increase in sag would reduce the vertical clearance to a value less than the minimum shown in the clearance practices, raise the strand attachment provided the vertical separation at the pole permits. If the strand tension is too low, it may be increased as an alternative to raising the attachment level on the pole, provided the resulting tension with the cables in place does not exceed the safe working limit of the strand. Do not increase the tension in a strand to which an optical cable is already lashed.

B. Cable Bowing—Existing Cable

7.19 Where severe bowing exists in metallic conductor cable, consider removing the bows before a new cable is lashed to the same strand. If only minor bowing exists, the increase in sag due to the additional cable will tend to reduce minor bows in the existing assembly. In the case of extremely taut cables, such as cables from which bows were previously removed, the addition of another cable may increase the tension in the existing cable or cables to an undesirable degree. Where this is expected to occur, relieve tension in the existing cable assembly before the new cable is placed.

C. Removal of Attachments

7.20 Drop wire span clamps must be removed from the strand and temporarily supported until the cable lasher is past the point of the permanent span clamp attachment.

8. LASHING CABLE PAST POLE, OMITTING SUPPORTS AND SPACERS

8.01 A method of lashing metallic conductor aerial cable that is adaptable to both the stationary and the moving reel method is to pass the cable lasher across the pole without cutting and

terminating the lashing wire. Using this method, cable supports, spacers, and lashing wire clamps can be omitted. This procedure is not recommended for optical cable.

8.02 Lashing the cable past the pole is limited to:

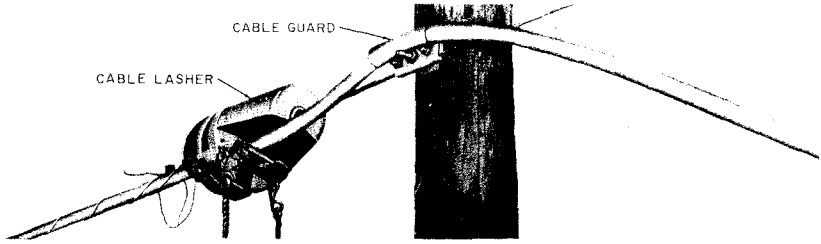
- metallic conductor cable,
- inline poles,
- 10-foot corners for 6M and 6.6M strand and,
- 5-foot corners for 10M strand.

The strand must be continuous and the cable or cables must weigh 2.3 pounds or less per foot.

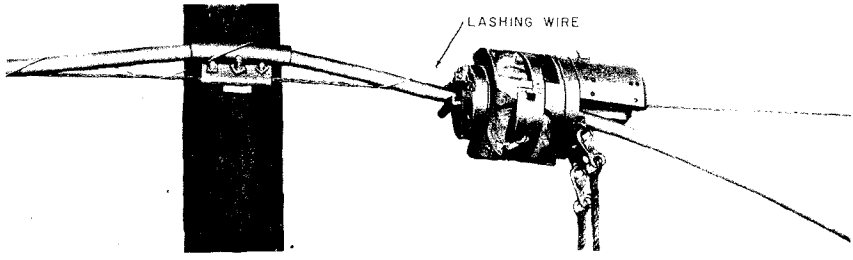
8.03 The procedure for transferring the lasher at poles or other attachments is as follows:

1. Pull the cable lasher up to the pole and secure the lashing wire to the strand with a lashing wire grip.
2. Remove lashing wire from around the tensioning pulleys and pull enough slack from the coil to permit the lasher to be transferred past the pole.
3. Rotate the lasher manually (about two turns) to place additional wraps of lashing wire around the cable and strand. The number of turns will depend on the position of the lasher opening when the lasher is pulled up to the pole. It is generally desirable to rotate the lasher at least 1-3/4 times.
4. Place a cable guard over the cable at the cable suspension clamp with the ***open side of the guard away from the pole.***
5. Transfer the lasher about 8 inches beyond the pole.
6. Draw the lashing wire up firmly around the strand and cable and rethread it onto the tensioning pulleys.
7. Arrange the lashing wire around the cable and strand so the turns and spacing between the lashing wire grip and the lasher conform as nearly to the spacing in the span as the hardware at the pole will permit. This may require further manual turning of the lasher and will also aid in obtaining proper tension in the lashing wire.
8. Before starting the lasher, draw the cable tightly to the strand at each side of the pole, making sure that the lashing wire passes under the bottom center of the cable guard to prevent it from slipping out of position. At corners it will be necessary to grip the cable and strand until the lasher has moved to a point where the wire will not slip at the corner.
9. Remove lashing wire grip.

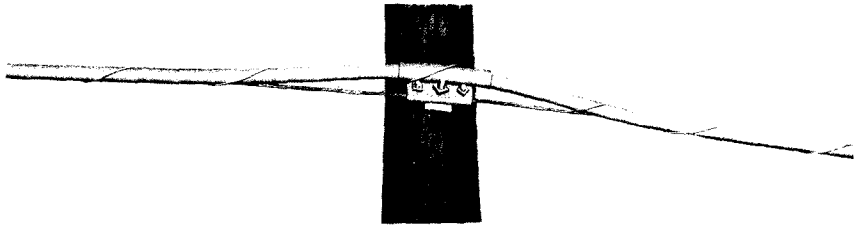
8.04 When lashing at in-line poles, if it is known that terminals will be required, loop the cable over the suspension clamp as shown in Figure 9 to introduce slack in the cable core. This slack is used for selecting and terminating cable pairs. In Figure 9 the moving reel method of lashing is illustrated, omitting the cable guide for clarity.



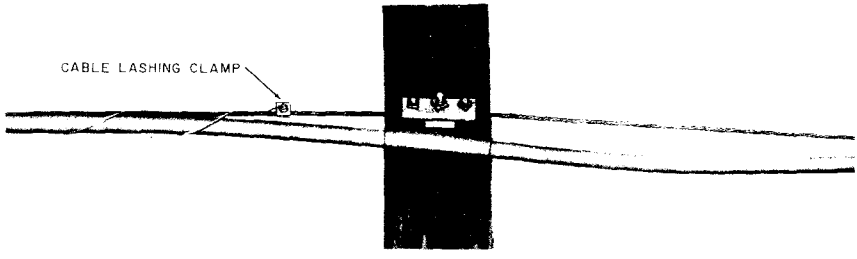
CABLE LASHER READY TO TRANSFER



CABLE LASHER TRANSFERRED



CABLE LOOP OVER SUSPENSION CLAMP



RESULTING CABLE SLACK

Figure 9. Slack in Cable Core

9. SUPPORTING HEAVY CABLES

9.01 Lashing wire failures occasionally occur when heavy cables (6 or more pounds per foot) are subject to a shock load, such as those due to a vehicle striking a pole, falling tree limbs, etc.

9.02 All newly placed and existing cables weighing 6 or more pounds per foot shall be supported with sealing clamps at spans where dropping or fallen cable would create a public hazard, such as at street and railway crossings, schoolyards, driveways, public sidewalks, etc.

9.03 Cable weights are listed in Division 626 practices.

9.04 The cables shall be supported by placing three sealing clamps, one at midspan and one at each quarterspan point, as illustrated in Figure 10.

9.05 To place the sealing clamp, position a cable guard over the cable. Then, place the sealing clamp over the guard and around the cable and strand. Place the sealing clamps so they do not pinch the lashing wire against the strand. Tighten the clamp slowly to prevent movement along the strand. Figure 11 illustrates a typical installation.

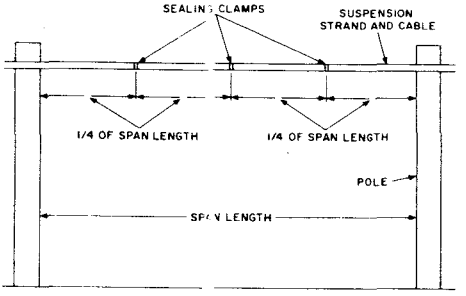


Figure 10. Location of Sealing Clamps

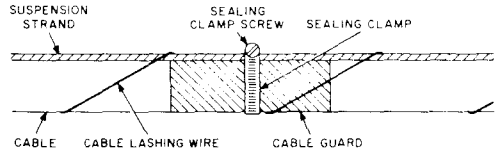


Figure 11. Placing Sealing Clamp