

BELL SYSTEM PRACTICES
Outside Plant Construction
and Maintenance

SECTION G61.119.1
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AT&T Co Standard

N1 CARRIER TELEPHONE SYSTEMS
INSTALLATION OF OUTDOOR CABINETS

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1. GENERAL

1.01 This section provides instructions for mounting the KS-14296 cabinets which are used for housing outdoor installations of N1 carrier equipment.

1.02 Detail plans or other instructions will be provided for each installation, specifying the number of cabinets to be installed, their position on the pole, and any special information required.

1.03 The installations shown herein provide for mounting cabinets at a level which will permit working in the cabinets from the ground. Where special conditions (terrain, deep snow, etc.) may make it desirable to mount cabinets at some other level or in a manner other than shown herein the necessary instructions should be included in the detail plans.

2. DESCRIPTION OF CABINET

2.01 The cabinet is approximately six feet high, two feet wide, and 16 inches deep. It is intended to house a maximum of 12 repeaters and a cable terminal.

2.02 The cabinet is made of sheet steel, white enameled outside, and is ventilated through a screened opening in the bottom and a hooded vent on top. An automatic damper

provides regulation to maintain temperatures within safe limits for the apparatus.

2.03 A weather shield, hinged to the inside of the door near the top, can be swung up into a horizontal position and latched at the upper left-hand corner of the door opening. If greater protection from the weather is required a tarpaulin should be placed over the cabinet and the shield. A folding work shelf, for holding tools or test equipment, is attached near the bottom of the door opening.

2.04 Holes are provided in the top and bottom of the cabinet for the cable terminal stub so that the cable terminal can be mounted in the upper or lower portion of the cabinet as discussed in Section G61.614.1. A gasketed cover plate is furnished to close the unused stub hole in the cabinet. The under-side of the cabinet is equipped with a clamping device to fasten 2-inch galvanized iron pipe to the cabinet.

2.05 The back of the cabinet is equipped with lifting lugs in the upper right-hand and left-hand corners for use when raising the cabinet into position on poles or crossarms.

2.06 Upper and lower mounting brackets are furnished with the cabinet. All other items used in mounting the cabinet (bolts, metal pole gains, washers, drive screws, crossarms, braces, etc.) must be ordered separately.

3. MOUNTING ARRANGEMENTS FOR CABINETS

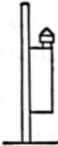
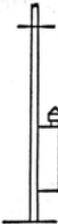
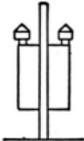
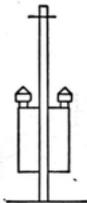
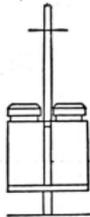
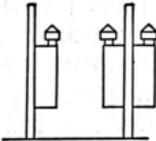
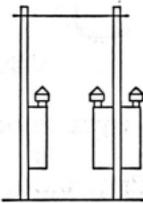
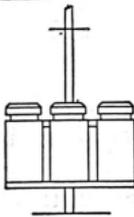
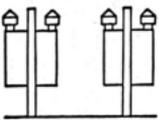
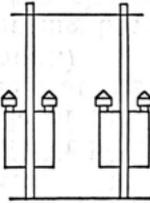
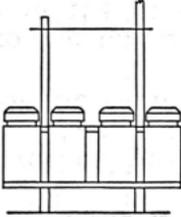
3.01 Cabinets along buried or underground cable routes shall be mounted on poles. (16-foot, Class 6 or Class 5 poles, set to a depth of five feet in firm ground, may be used.)

3.02 When used with aerial cables on **non-joint** poles, cabinets shall be mounted on poles. Where three or four cabinets are to be placed, a Class 6 or Class 5 pole of suitable length to permit attachment of the cable suspension strand is required in addition to the present cable pole. The location of the additional pole will be shown on the detail plans or other instructions.

3.03 When used with aerial cables on **joint** poles, single cabinet installations shall be pole-mounted, and multi-cabinet installations shall be made on pole-mounted crossarms. The detail plans or other instructions will show the side of the pole on which the crossarms and cabinets are to be mounted, and the location of the additional pole, when required.

3.04 The following drawing illustrates these recommendations.

RECOMMENDED MOUNTING ARRANGEMENTS FOR CABINETS

NUMBER OF CABINETS TO BE INSTALLED	WHEN USED WITH BURIED OR UNDERGROUND CABLES	WHEN USED WITH AERIAL CABLES	
		ON NON-JOINT POLES	ON JOINT POLES
1			
2			
3			
4			

4. INSTALLATION OF CABINETS ON POLES

4.01 In placing one or two cabinets on a pole, proceed as follows:

- (1) Bore an 11/16-inch bolt hole in the pole at a height of about 7 feet 6 inches above the ground line.
- (2) Using a crossarm bolt of suitable length, mount the bracket on the pole. If one cabinet is to be installed, a 3/4-inch x 2-1/4-inch square washer is used under the

nut. If two cabinets are to be installed, the bracket for the second cabinet (instead of the square washer) is used under the nut. Tighten the nut securely.

(3) Raise the cabinet into place and engage the two hooks over the channel iron cross-piece on the bracket. Lock the cabinet in place by tightening the set screw in each hook.

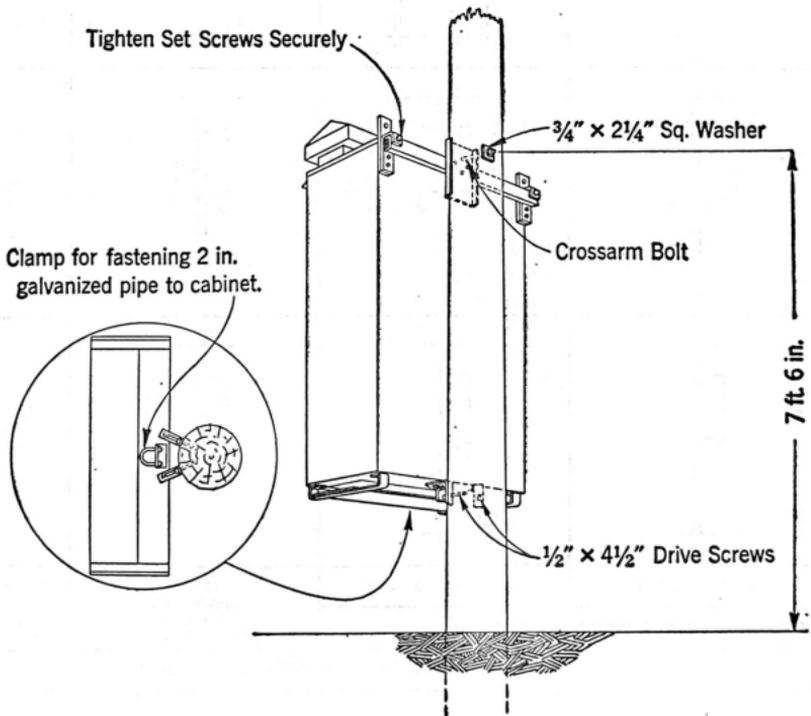
(4) Loosen the nut on the crossarm bolt slightly and align the cabinet so that it hangs in a vertical position, as viewed from the front of the cabinet. Tighten the nut on the crossarm bolt securely.

(5) Align the cabinet so that it hangs in a vertical position, as viewed from the side of the cabinet. (Place a board or wedge between the pole and the back of the cabinet to hold the cabinet in alignment.)

(6) Attach the lower mounting brackets to the under-side of the cabinet using the slotted hole in the bracket. Position both brackets so that the back surface of the bracket rests against the pole. Tighten the nut securely on each bracket bolt.

(7) Fasten brackets to pole with 1/2-inch x 4-1/2-inch drive screws.

(8) Remove board or wedge.



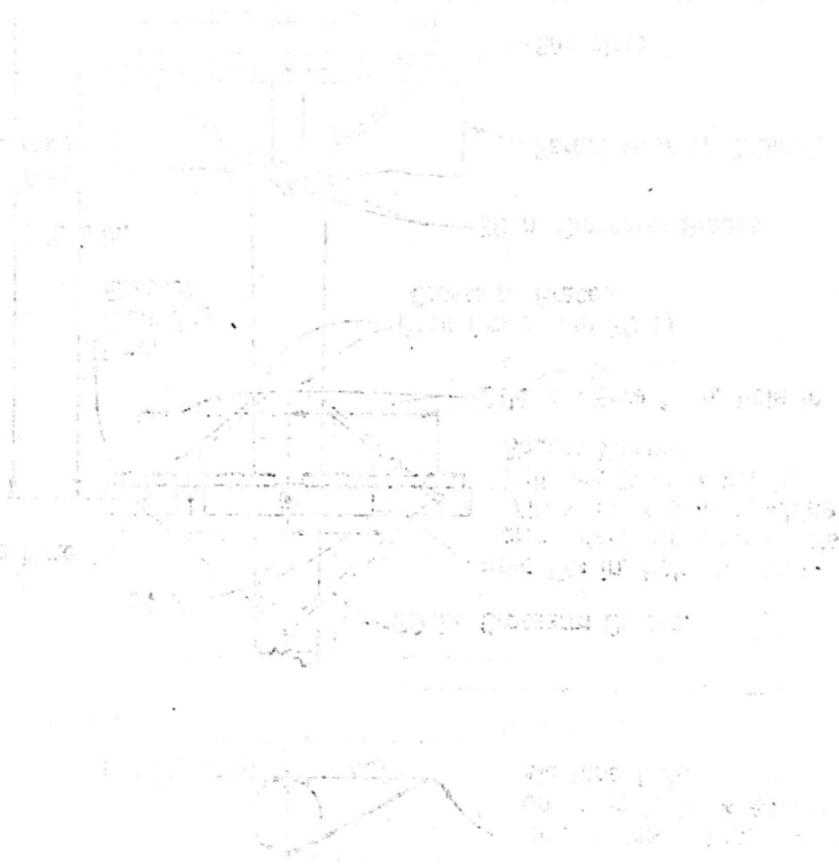
- (9) If a second cabinet is to be installed, follow operations (3) to (8) inclusive.

5. INSTALLATION OF CABINETS ON POLE-MOUNTED CROSSARMS

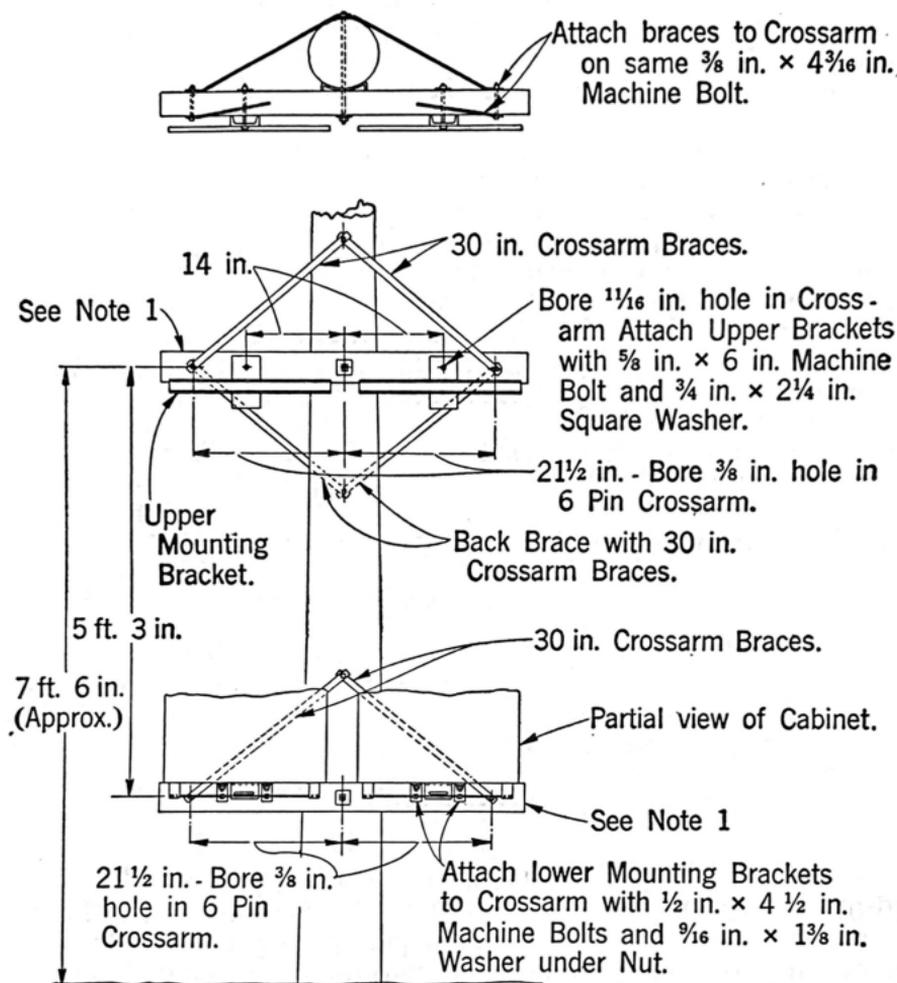
Mounting Two Cabinets

5.01 In placing two cabinets on pole-mounted crossarms, proceed as follows:

- (1) Bore an 11/16-inch hole in the pole (for the upper crossarm) at a height of about 7 feet 6 inches above the ground and another 11/16-inch hole (for the lower crossarm) 5 feet 3 inches below.
- (2) The cabinets are mounted on two 6-pin or 10-pin Type A crossarms as shown.



TWO CABINET MOUNTING



Note 1. - Use 6 Pin or 10 Pin Type A Crossarm, cut to 26 in. each side of center.

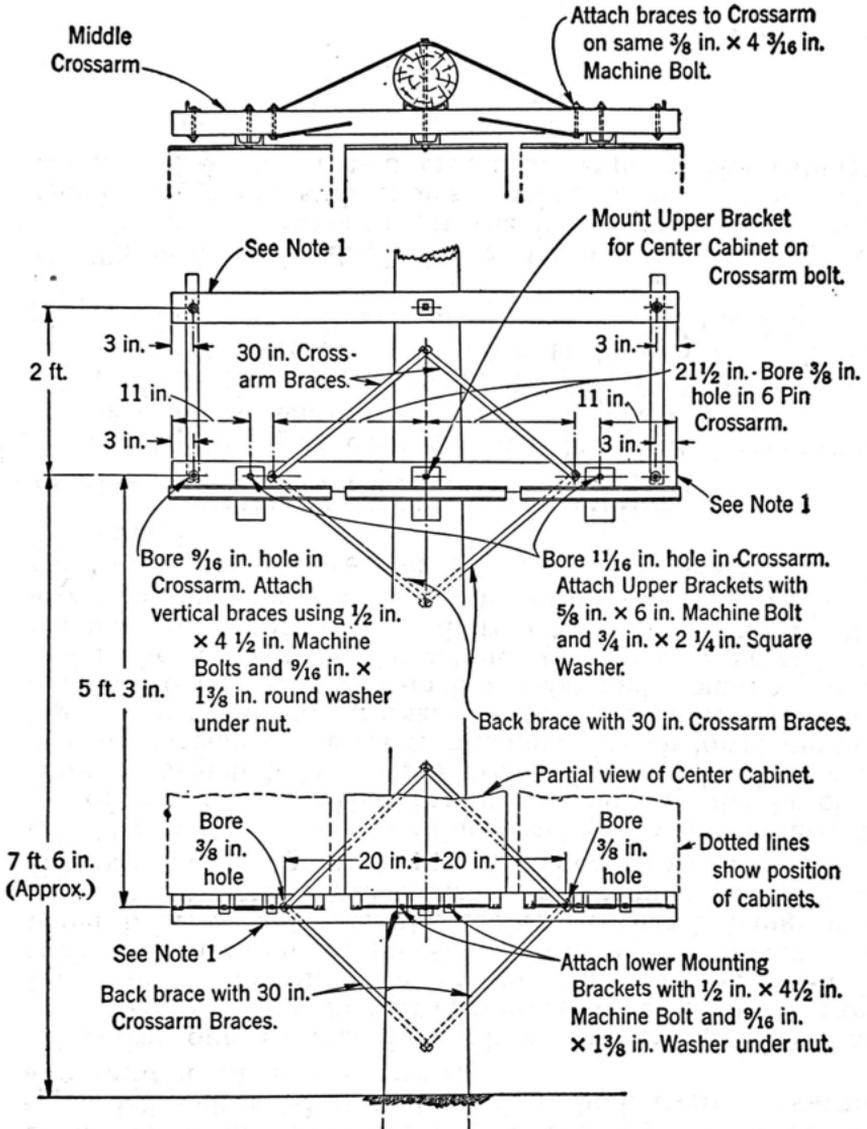
(3) Cut the crossarms to 26 inches each side of center. If 6-pin crossarms are used, bore $\frac{3}{8}$ -inch holes 21-1/2 inches each side of center for attaching the crossarm braces. Bore $\frac{11}{16}$ -inch holes 14 inches each side of center in the upper crossarm. Bolt the two upper mounting brackets securely to the arm using $\frac{5}{8}$ -inch \times 6-inch machine bolts with $\frac{3}{4}$ -inch \times $2\frac{1}{4}$ -inch square washers under the nuts.

- (4) Mount upper and lower crossarms as nearly horizontal as possible, and on the same side of the pole using crossarm bolts, metal pole gains, and 3/4-inch x 2-1/4-inch square washers under the heads and nuts of the bolt.
- (5) Brace both arms upward with 30-inch crossarm braces attached to the front of the arms. Back brace the upper arm downward with 30-inch crossarm braces. Front and back braces are attached to the arm by means of the same 3/8-inch x 4-3/16-inch machine bolt. Align crossarms and tighten all nuts securely.
- (6) Raise one cabinet into place and engage the two hooks over the channel iron cross-piece on the bracket. Lock the cabinet in place by tightening the set screw in each hook. Loosen the nut slightly on the bolt holding the upper bracket and align the cabinet so that it hangs in a vertical position, as viewed from the front of the cabinet. Tighten the nut on the upper bracket securely.
- (7) Attach the lower mounting brackets to the under-side of the cabinet using the slotted hole in the bracket. Bore 9/16-inch holes at the proper location in the lower arm for attaching the lower brackets. Attach lower mounting brackets to the crossarm with 1/2-inch x 4-1/2-inch machine bolts using 9/16-inch x 1-3/8-inch round washers under the nuts. Place the cabinet as nearly as possible in vertical alignment, as viewed from the side, by sliding the lower brackets on the bolts, and tighten nuts securely.
- (8) In placing the second cabinet follow operations (6) and (7).

Mounting Three Cabinets

- 5.02 In placing three cabinets on pole-mounted crossarms, proceed as follows:
- (1) Bore an 11/16-inch hole in the pole at 7 feet 6 inches above the ground, then bore 11/16-inch holes 2 feet above and 5 feet 3 inches below the hole at the 7-ft. 6-in. level.
 - (2) Three 6-pin or 10-pin Type B crossarms are required. The upper crossarm (at the 9-ft. 6-in. level) is provided to support stub cables coming from the two outer cabinets. The other two crossarms support the cabinets.

THREE CABINET MOUNTING



Note 1 Use 6 Pin or 10 Pin Type B Crossarm cut to 36 in. each side of center.

- (3) If 10-pin crossarms are used, cut the arms at 36 inches each side of center. Bore holes in crossarms as follows:
- Top Crossarm:

Bore 9/16-inch holes 3 inches from each end of the arm for attaching vertical braces.

(b) Middle Crossarm:

Bore 9/16-inch holes 3 inches from each end of the arm.

If a 6-pin crossarm is used, bore 3/8-inch holes 21-1/2 inches each side of center for attaching crossarm braces.

Bore 11/16-inch holes 11 inches from each end of the arm and bolt two upper mounting brackets securely to the arm using 5/8-inch x 6-inch machine bolts with 3/4-inch x 2-1/4-inch square washers under the nuts.

(c) Bottom Crossarm:

Bore 3/8-inch holes 20 inches each side of center for attaching crossarm braces.

(4) Mount the crossarms as nearly horizontal as possible and on the same side of the pole using crossarm bolts, metal pole gains, and 3/4-inch x 2-1/4-inch square washers under the heads and the nuts. The mounting bracket for the center cabinet is attached by means of the crossarm bolt in the middle crossarm. In this case, a washer is not used.

(5) Brace the middle and bottom arms upward with 30-inch crossarm braces attached to the front of the arm. Back brace both arms downward with 30-inch crossarm braces attached to the back of the arm. Front braces and back braces are attached by means of the same 3/8-inch x 4-3/16-inch machine bolts.

Place 30-inch vertical braces between the top and middle crossarms. Install braces on the pole side of the arms using 1/2-inch x 4-1/2-inch machine bolts and 9/16-inch x 1-3/8-inch round washers under the nuts.

Align crossarms and tighten all nuts securely.

(6) Raise the center cabinet into place and engage the two hooks over the channel iron cross-piece on the bracket. Lock the cabinet in place by tightening the set screw in each hook. Loosen the nut slightly on the crossarm bolt holding the mounting bracket and align the cabinet so that it hangs in a vertical position as viewed from the front of the cabinet. Tighten the nut securely.

(7) Attach the lower mounting brackets to the under-side of the cabinet using the slotted hole in the bracket. Bore 9/16-inch holes at the proper location in the bottom arm for attaching the lower brackets. Fasten brackets to the crossarm with 1/2-inch x 4-1/2-inch machine bolts using 9/16-inch x 1-3/8-inch round washers under the nuts. Place the cabinet as nearly as possible in vertical

alignment, as viewed from the side, by sliding the lower brackets on the bolts, and tighten nuts securely.

(8) To mount the two remaining cabinets, raise them into position and lock the hooks. Loosen the nuts slightly on the bolt holding the upper bracket and align the cabinet so that it hangs in a vertical position, as viewed from the front of the cabinet. Tighten the nut on the upper bracket securely. Then proceed as outlined in (7).

Mounting Four Cabinets

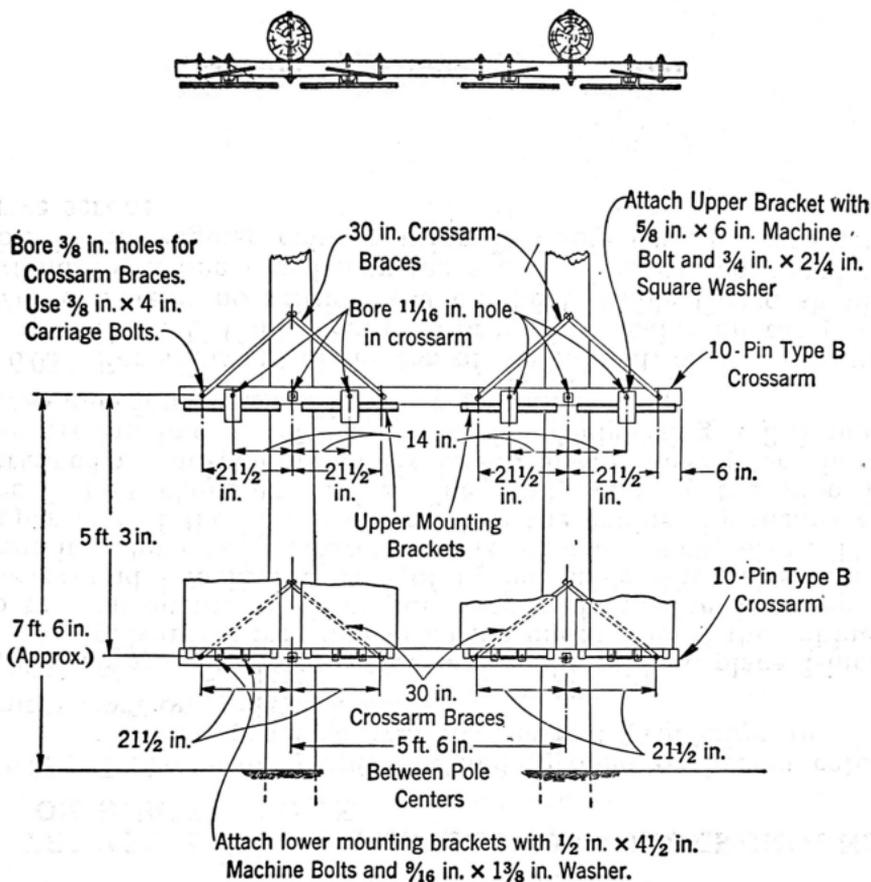
5.03 In placing four cabinets on pole-mounted crossarms, proceed as follows:

(1) Two poles, set 5 feet 6 inches between centers, are required. One of these poles will be the jointly used pole; the other pole should be a Class 6 or Class 5 pole of suitable length to permit attachment of the cable suspension strand.

(2) The cabinets are mounted on two 10-pin Type B crossarms as shown.

(3) Mount crossarm

FOUR CABINET MOUNTING



(3) Bore six $\frac{11}{16}$ -inch holes in the upper crossarm at the spacings indicated and bolt four upper mounting brackets securely to the arm using $\frac{5}{8}$ -inch \times 6-inch machine bolts with $\frac{3}{4}$ -inch \times $2\frac{1}{4}$ -inch square washers under the nuts. Bore an $\frac{11}{16}$ -inch hole in one pole at a height of about 7 feet 6 inches above the ground. Place the upper crossarm in position on one pole in as nearly a horizontal position as possible, using a hand level if available. Then insert a crossarm bolt through the crossarm bolt hole at the other pole, and tap the bolt with a hammer to mark the location of the upper bolt hole on the pole. Remove the crossarm and bore the $\frac{11}{16}$ -inch hole in the pole at the marked location. Bore another $\frac{11}{16}$ -inch hole

in each pole 5 feet 3 inches below the upper 11/16-inch crossarm bolt holes. Bore four 3/8-inch holes (for the 30-inch crossarm braces) in the upper crossarm at the locations indicated. Using crossarm bolts, metal pole gains, and 3/4-inch x 2-1/4-inch square washers under the heads and nuts of the bolts, mount the upper crossarm.

(4) Bore two 11/16-inch holes and four 3/8-inch holes in the lower crossarm at the locations indicated. Using crossarm bolts, metal pole gains, and 3/4-inch x 2-1/4-inch square washers under the heads and nuts of the bolts, mount the lower crossarm.

(5) Brace both crossarms upward with 30-inch crossarm braces.

(6) Mount each cabinet in place and align it vertically as covered in Paragraphs 5.01 (6) and (7).

6. TERMINAL STUB PROTECTION — UNDERGROUND OR BURIED CABLE

6.01 Cable terminal stubs to underground or buried cable shall be provided with mechanical protection of the type shown on the detail plans.

6.02 For stubs out of the **bottom** of the cabinet, place 2-inch galvanized iron pipe from the under-side of the cabinet to the cap on the subsidiary duct, or to about one foot below the ground line in the case of buried cable. Pipe should be bent in a long radius, reverse curve with a 5-inch offset. The upper end of the pipe is attached to the cabinet by means of the U-bolt clamping device. The lower end of the pipe is strapped to the pole about six inches above the cap or above the ground line in the case of buried cable using a 2-S pipe strap and 5/16-inch x 3-inch drive screws.

6.03 For stubs out of the **top** of the cabinet, place an 8-foot No. 4 U Cable Guard to protect the cable on the pole. Where there is no subsidiary duct, the U Cable Guard should extend about one foot below the ground line. Attach guard to pole in the regular manner using U Cable Guard straps and drive screws.