

## PLACING

### 460-AND 470-TYPE APPARATUS CASES

### AERIAL AND UNDERGROUND

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#### 1. GENERAL

**1.01** This section covers the methods of placing the 466-, 467-, 468-, 469-, 470A- and 476-type apparatus cases on poles or at manhole locations. The 470B, 471, and 472-type apparatus cases used in L4/L5 Carrier Systems are covered in other 640 Plant Series Practices.

**1.02** This section includes information formerly contained in Section 632-515-206 which is canceled. It also includes the use of a modified locking channel for padlocking aerial mounted apparatus cases and information regarding the handling of apparatus cases under air pressure.

**1.03** The work authorizations will indicate the location for installation of the apparatus case. There should be no deviation from the specified location, especially in a manhole. If there is any deviation, it may adversely affect future installations.

**1.04** Refer to other 640 Division Practices for the description, splicing, and maintenance of apparatus cases.

**1.05** The apparatus cases are hermetically sealed at the factory and shipped under air pressure and after installation are maintained under air pressure from the pressurized cables air supply.

**Caution:** *All apparatus cases must be considered under air pressure and handled accordingly. The container may blow off with high velocity if the V-band coupling*

*is released suddenly before air pressure is bled from inside the case.*

#### 2. PRECAUTIONS

**2.01** The following precautions should be observed:

- (a) Observe all the safety precautions relating to working in manholes or on poles.
- (b) Never use an apparatus case as a step.
- (c) Always release the air pressure inside the apparatus case by removing the valve core in the air pressure valve located on the baseplate before loosening the V-band coupling preparatory to removing the container. See 1.05.
- (d) Always use a handline, winch line, or block and tackle for raising or lowering cases, brackets, parts, etc, at aerial installations.
- (e) After all work operations have been completed, check the seals for leaks with a pressure-testing solution. If the apparatus case is leaking, the cause must be located and corrected.
- (f) Never pressure test the apparatus case with more than 15 psi pressure.

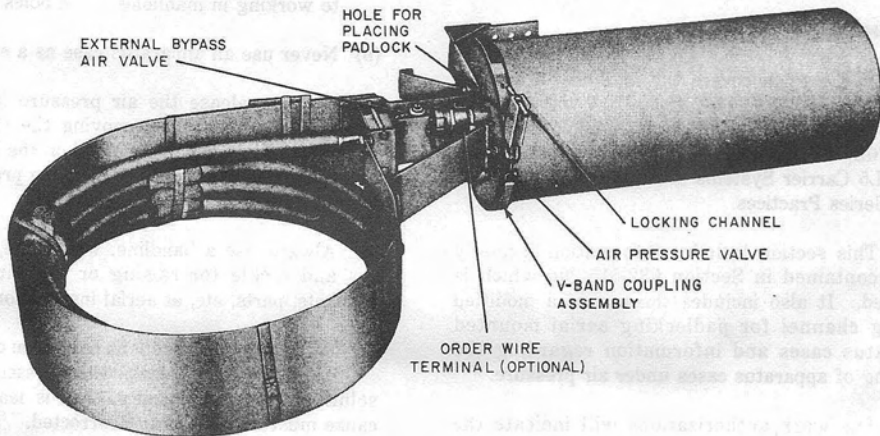
#### 3. PLACING APPARATUS CASES

**3.01** Apparatus cases may be mounted horizontally or vertically. When mounted horizontally the stub cable should normally extend to the left and when mounted vertically with the stub on top for proper equipment orientation. The stub cable may extend to the right or from the bottom, however, if required to facilitate mounting.

**3.02** Apparatus cases are designed for both aerial and manhole installations as indicated in Table A. In mounting apparatus cases the following clearances should be observed:

- (a) There should be sufficient space around a mounted apparatus case for removing the V-band coupling and for pressure testing the seal.
- (b) There should be sufficient space to permit easy access to the order wire terminal, air pressure valve and external air bypass valve.
- (c) Sufficient space must be maintained to permit racking of the stub cable.
- (d) Sufficient space must be provided for removal of the apparatus case containers as follows:

- (1) On one-piece containers (Fig. 1) allow 30 inches from end of container to nearest obstruction (except when installing 468C Apparatus Case shown in Fig. 2.) If installing 468C Apparatus Case allow 18 inches to the nearest obstruction (such as the manhole end wall, floor, or pole mounted working platform).
- (2) On two-piece containers (Fig. 3) allow 16 inches from end of container to nearest obstruction (such as the manhole end wall or floor).



**Fig. 1—Typical Apparatus Case (One-piece Container)**

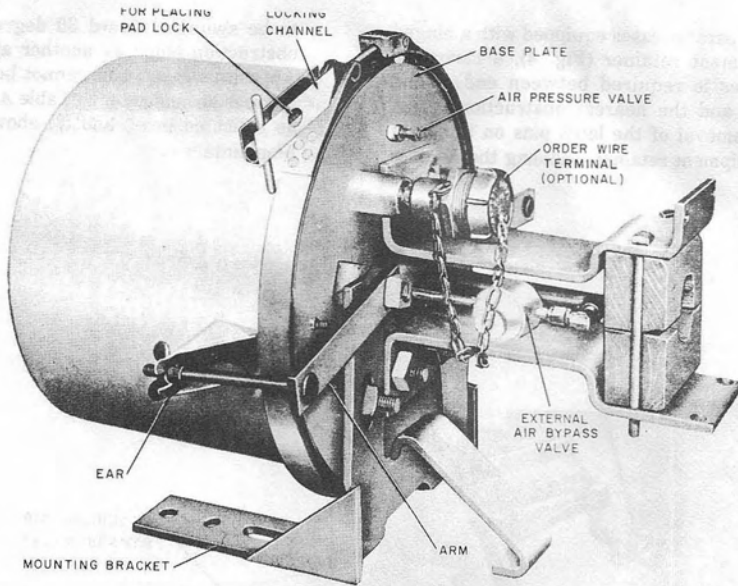


Fig. 2—Apparatus Case (468C)

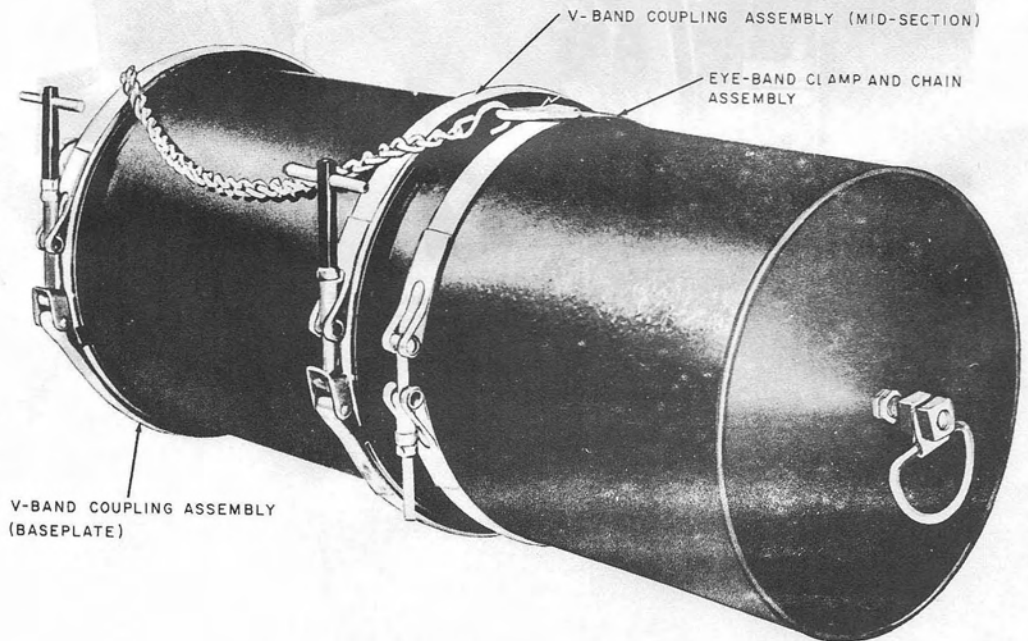


Fig. 3—Typical Apparatus Case (Two-piece Container)

(3) On apparatus cases equipped with a hinged equipment retainer (Fig. 4), a clearance of 4 inches is required between end of the container and the nearest obstruction. This permits removal of the latch pins on the sides of the equipment retainer, enabling the retainer

to be swung outward 30 degrees to clear an obstruction (such as another apparatus case). Apparatus cases that cannot be swung out 30 degrees are indicated in Table A and clearances as indicated in (2) and (3) above must always be maintained.

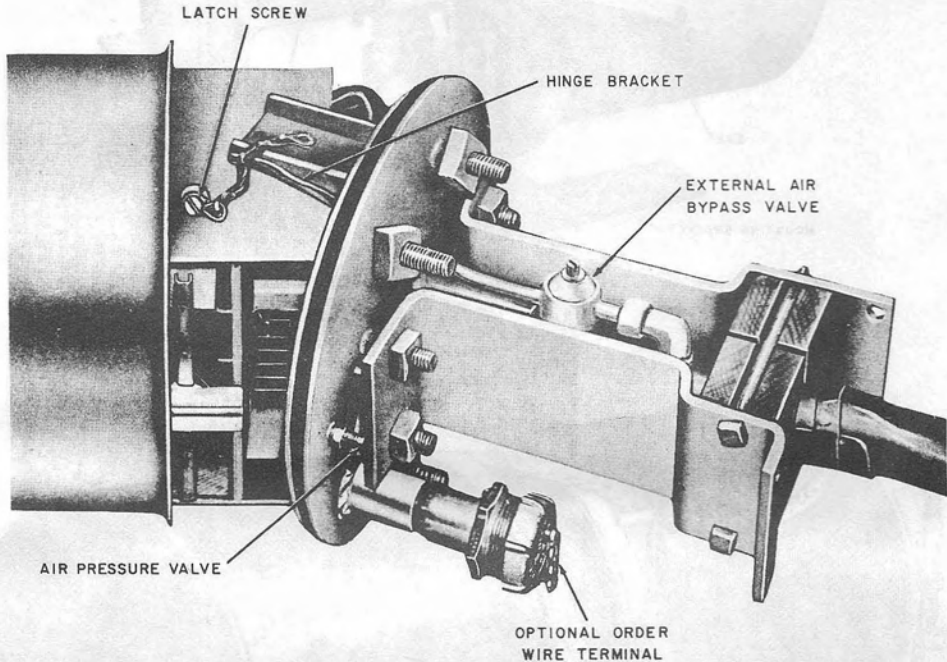


Fig. 4—Repeater Retainer Swung 30 Degrees

TABLE A

APPARATUS CASES — USES AND DESCRIPTIONS									
APPARATUS CASE CODE NUMBERS	USES		CONTAINERS				APPARATUS CASES		
	AERIAL	UNDER- GROUND	COLOR	SHELL (UNITS)	DIAMETER (INCHES)	LENGTH (INCHES)	OVERALL		TYPE EQUIPMENT HOUSED
							LENGTH (INCHES)	WEIGHT <sup>3</sup>	
466A	—	UG	Black	Single	9-1/2	27-3/4	40	140	T1 Repeaters
466A2 <sup>1</sup>	—	UG	Black	Single	9-1/2	27-3/4	40	140	T1 Repeaters
466B	—	UG	Black	Double	9-1/2	27-3/4	40	140	T1 Repeaters
466B2 <sup>1</sup>	—	UG	Black	Double	9-1/2	27-3/4	40	140	T1 Repeaters
467A <sup>2</sup>	—	UG	Black	Single	9-1/2	27-3/4	40	125	Program Amplifier
467B <sup>2</sup>	—	UG	Black	Single	9-1/2	27-3/4	40	125	Program Amplifier
467C <sup>2</sup>	Aer.	—	White	Single	9-1/2	27-3/4	40	125	Program Amplifier
467D <sup>2</sup>	Aer.	—	White	Single	9-1/2	27-3/4	40	125	Program Amplifier
468A	Aer.	UG	White	Single	11	28-1/4	40	140	T1 Repeaters
468A2 <sup>1</sup>	—	UG	Black	Single	11	28-1/4	40	140	T1 Repeaters
468B	—	UG	Black	Double	11	28-1/4	40	140	T1 Repeaters
468B2 <sup>1</sup>	—	UG	Black	Double	11	28-1/4	40	140	T1 Repeaters
468C <sup>2</sup>	Aer.	UG	White	Single	11	9-1/2	22	91	T1 Repeaters
468C2 <sup>1,2</sup>	—	UG	Black	Single	11	9-1/2	22	91	T1 Repeaters
469A	Aer.	UG	White	Single	11	28-1/4	40	180	Flat Gain N Repeaters
469B	—	UG	Black	Double	11	28-1/4	40	180	
470A <sup>2</sup>	Aer.	UG	White	Single	11	28-1/4	40	140	WLR Repeaters
476	Aer.	UG	White	Single	11	21	33	110	PICTUREPHONE® Equalizer

**Note 1:** Container has additional flange sprayed zinc coating for use in highly corrosive environments and is identified by a 1 inch unpainted band.

**Note 2:** Equipment retainers are rigidly mounted and cannot be swung outward to remove container.

**Note 3:** Equipped with 10 foot stubs.

**3.03** The following brackets are furnished with each apparatus case for mounting the cases on poles or in manholes:

Mounting Bracket (P-42F928) Intended for use in fastening the apparatus case to the pole or manhole walls.

Support Bracket (P-48D201) Intended for use in supporting the container end of the apparatus case when mounted in a horizontal position.

Pole Mounting Bracket (P-15C651) Intended for use in securing the mounting bracket (P-42F928) to the pole. This bracket supports the apparatus case when it is mounted in a vertical position.

Hinge Bracket Assembly (P-42E759) This dual purpose bracket braces the container end of the apparatus case and also holds the repeater retainer at a 30-degree angle from the pole, wall, or support bracket.

Flat Head Mach. Screw (2) (P-46M553) Used to fasten the hinge bracket to the support bracket (P-42E759) in underground installations.

T-Bolts and Nuts (P-14C114) (5) (P-48D239) (1) Used for bolting the mounting bracket and support bracket to the cable racks.

**3.04** To install the brackets provided with the apparatus cases, place the special T-Bolts and nuts as follows:

- (1) Insert the head of the T-Bolt in the proper hole in the cable rack.
- (2) Rotate the T-Bolt 90 degrees and hold it in this position while the bracket and nuts are installed.

(3) Tighten the nuts finger-tight.

(4) Insert a screwdriver in the slot in the end of the bolt to prevent the bolt from turning and securely tighten the nut. The slot in the end of the bolt is parallel to the head of the bolt to facilitate positioning.

**3.05** When placing an apparatus case in a horizontal position, proceed as follows:

(1) Remove the mounting bracket from the top of the apparatus case and bolt it to the vertical cable rack as shown in Fig. 5.

(2) Bolt an 18- or 37-hole standard cable rack (cut to the proper length) to the bottom part of the mounting bracket and the opposite vertical cable rack (Fig. 5).

(3) Bolt the hinge bracket to the L-shaped support bracket, and with the exception of the 468C Apparatus Case, bolt the support bracket about 30 inches from the mounting bracket (Fig. 5).

(4) *On 468C Apparatus Cases only*, bolt the support bracket 10 inches from the mounting bracket (Fig. 5). On this type apparatus case, the hinge bracket is not required.

(5) Place the apparatus case in position (with the container in place); insert the baseplate mounting studs into the mounting bracket holes and install the nuts on the mounting studs.

(6) Connect the hinge bracket to the end of the container.

**3.06** The stub cable clamp brackets and the wood reinforcing blocks should be left in place on the baseplate whenever clearance permits. After removal of the cable guard, the stub cable should be racked to the splice location. Figure 6 illustrates an apparatus case mounted in a horizontal position.

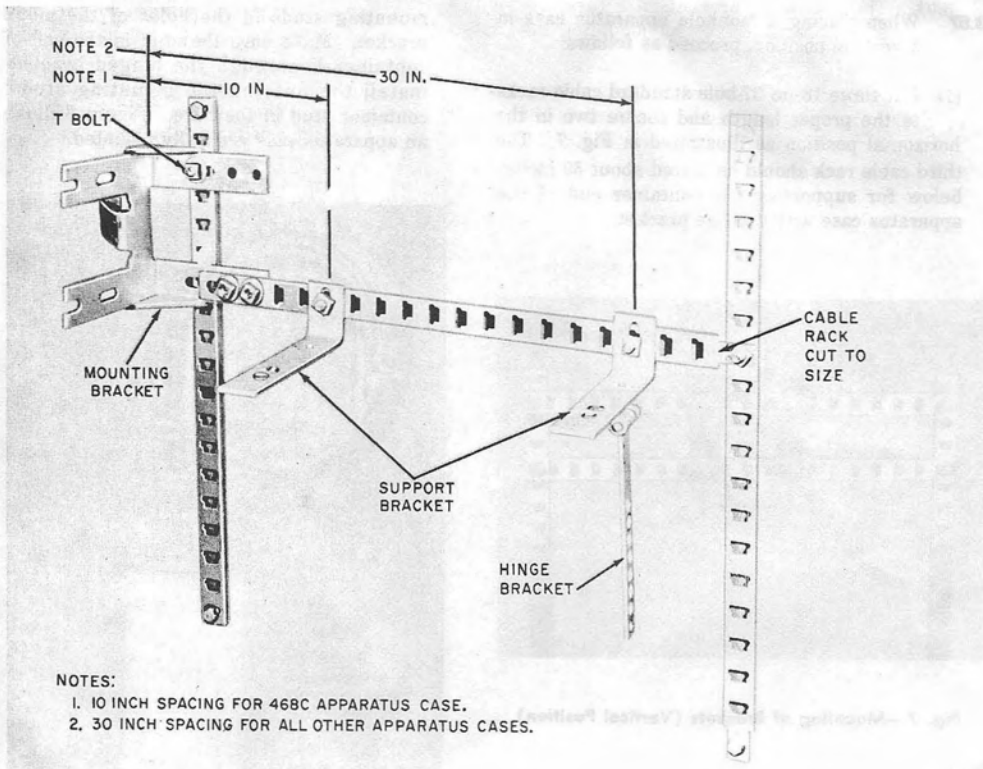


Fig. 5—Mounting of Brackets

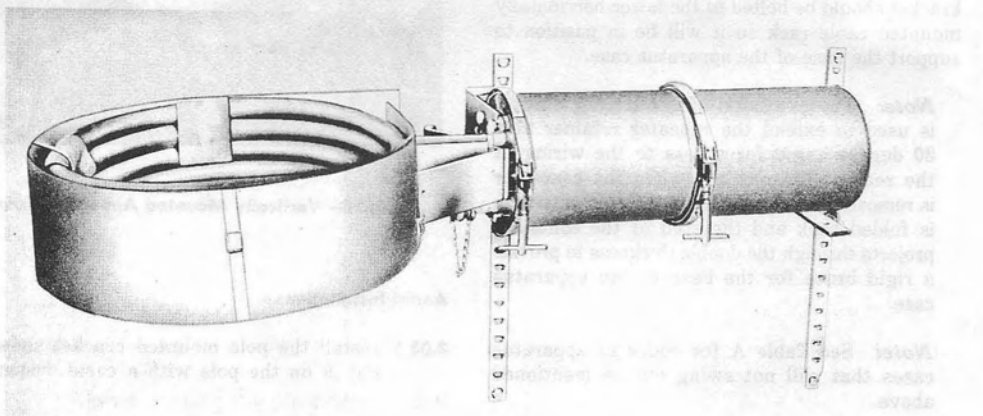
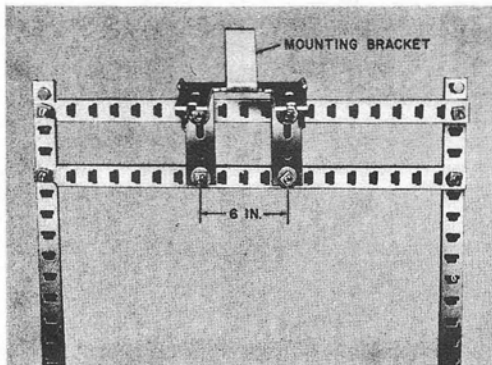


Fig. 6—Horizontal Position

**3.07** When placing a manhole apparatus case in a vertical position, proceed as follows:

- (1) Cut three 18- to 37-hole standard cable racks to the proper length and secure two in the horizontal position as illustrated in Fig. 7. The third cable rack should be placed about 30 inches below for supporting the container end of the apparatus case with a hinge bracket.



**Fig. 7—Mounting of Brackets (Vertical Position)**

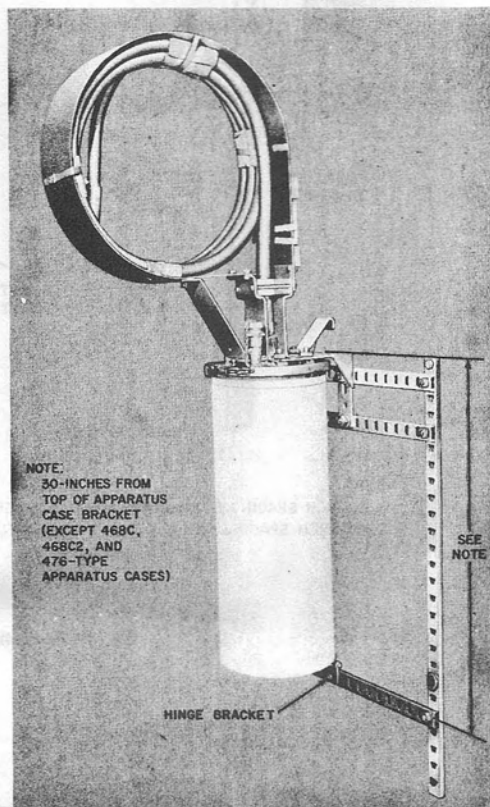
- (2) Remove the mounting bracket from the apparatus case and bolt it to the two horizontal cable racks (Fig. 7). The hinged bracket should be bolted to the lower horizontally mounted cable rack so it will be in position to support the base of the apparatus case.

**Note:** The extension of the hinged bracket is used to extend the repeater retainer at a 30 degree angle for access to the wiring at the rear of the retainer when the container is removed. In normal use the hinged extension is folded back and the stud of the container projects through the double thickness to provide a rigid brace for the base of the apparatus case.

**Note:** See Table A for codes of apparatus cases that will not swing out as mentioned above.

- (3) Raise the apparatus case into position (with the container in place) and insert baseplate

mounting studs in the holes of the mounting bracket. Make sure the stud in the end of the container is through the hinged bracket and install the nuts on the mounting studs and container stud in the base. Figure 8 illustrates an apparatus case vertically mounted.



**Fig. 8—Vertically Mounted Apparatus Case**

#### Aerial Installations

**3.08** Install the pole mounted bracket shown in Fig. 9 on the pole with a cable suspension bolt.

- (1) Raise the apparatus case into position with block and tackle or truck winch line until



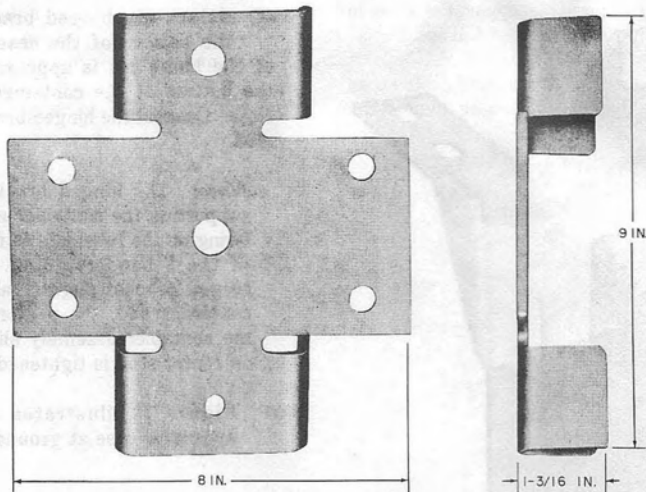


Fig. 9—Pole Mounting Brackets

the curved hook of the apparatus case mounting bracket engages the top of the pole mounting bracket (Fig. 10). Insert the bolts through the holes of the apparatus case and pole mounting brackets. Only the bottom two bolts are used in this method (Fig. 10).

- (2) Install the nuts on the bolts and secure the case to the pole mounting bracket.

**Note:** Do not hook the legs of the apparatus case mounting bracket over the pole mounting bracket. The apparatus case bracket should be bolted to the outer face of the pole mounting bracket.

- (3) **Alternate Method:** Remove the mounting bracket from the apparatus case. Bolt the bracket to the pole mounting bracket as shown in Fig. 11. Insert the suspension bolt through the hole in the pole mounting bracket. Reattach the mounting bracket to the apparatus case. Raise the apparatus case to its position on the pole and insert the suspension bolt through the hole in the pole. Tighten the suspension bolt attachments.

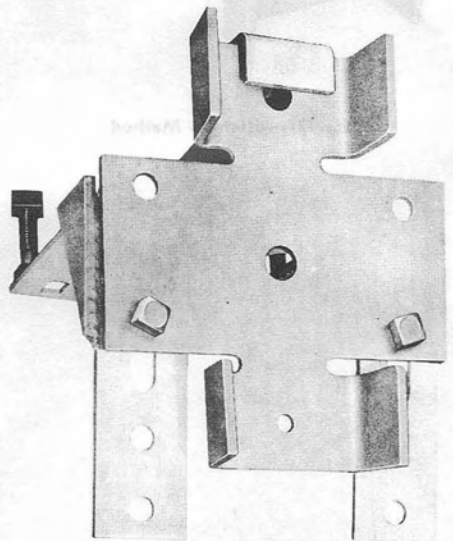


Fig. 10—Position of Mounting Brackets

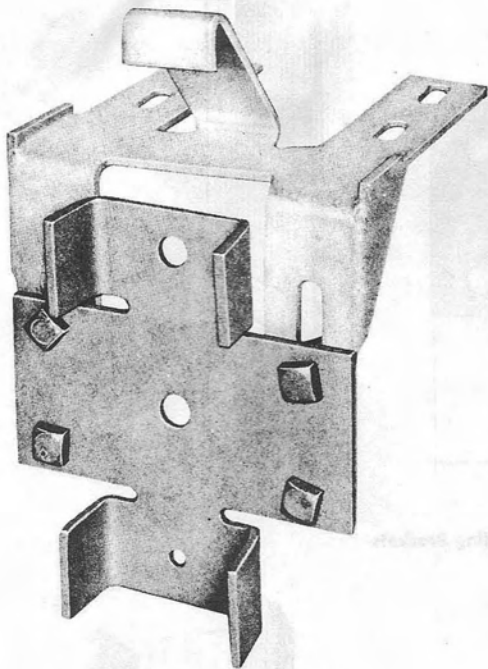


Fig. 11—Alternate Method

- (4) Attach the hinged bracket to the pole at the bottom of the case so the center line of the hinge pin is approximately in line with the bottom of the container. See 3.07 (2) and Note. Connect the hinged bracket to the container stud.

**Note:** The hinged bracket can be used for supporting the container assembly against the O-ring on the baseplate to facilitate replacement of the V-band coupling. By mounting the hinged bracket slightly above bottom of the container end, the perforated strap will lift the container assembly slightly when the nut on center stud is tightened.

- 3.09 Figure 12 illustrates the pole mounted apparatus case at ground level.

- 3.10 When placing the apparatus case on the pole at strand level, the case must be mounted at least 4 feet below the strand as shown in Fig. 13. The cable clamp bracket and wood supporting blocks must be left in place on the apparatus case.

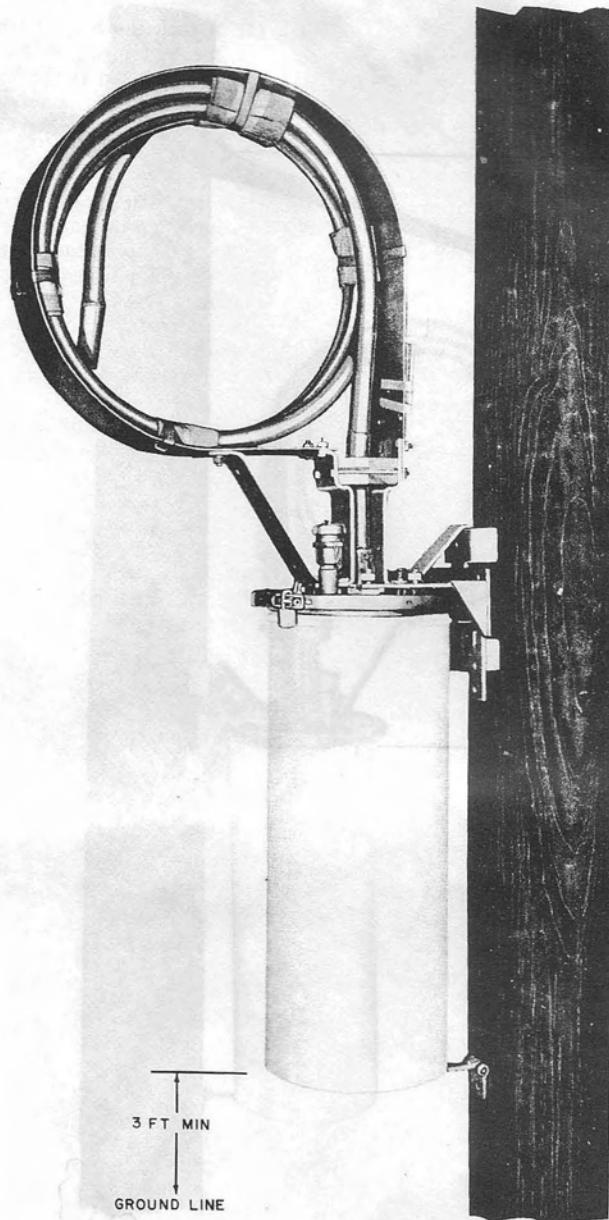


Fig. 12—Apparatus Case—Ground Level

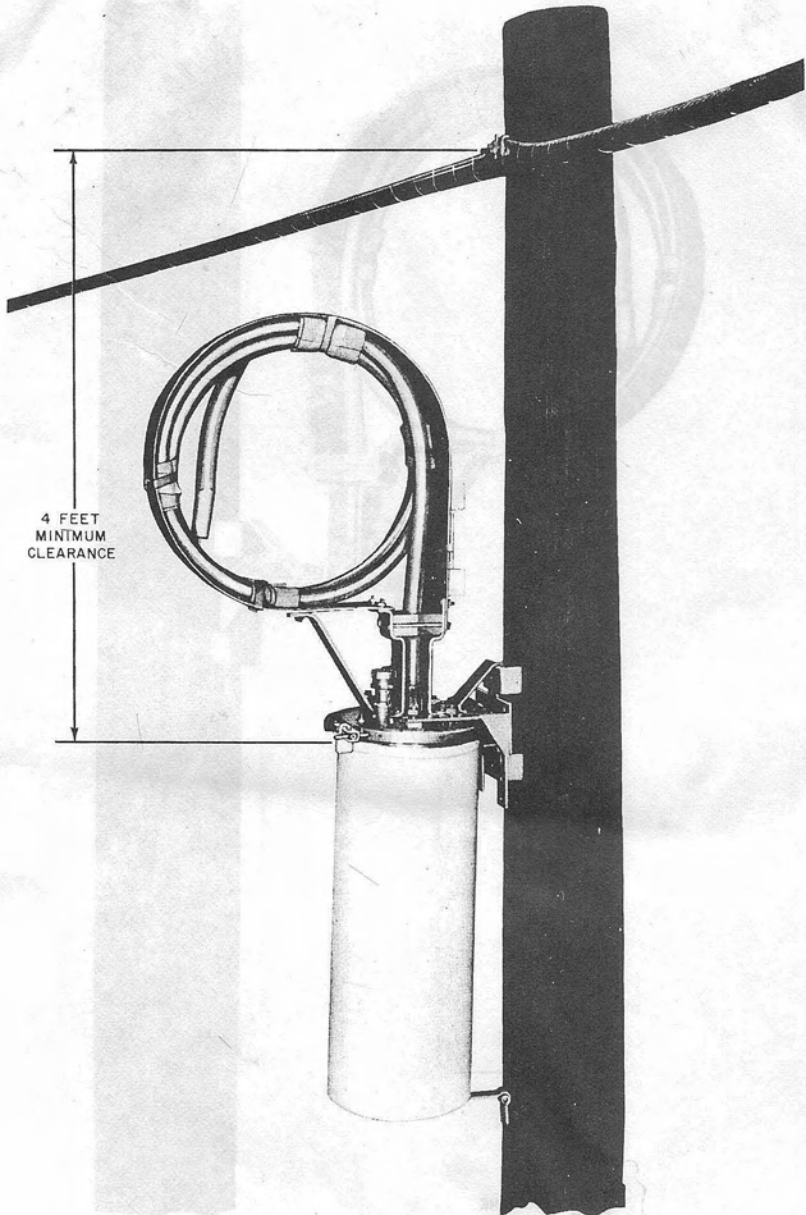


Fig. 13—Apparatus Case—Strand Level