

## PATENT GUY ANCHORS EXPANDING ANCHORS

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### 1. GENERAL

1.01 This section covers the description, use, and installation of patent expanding guy anchors and associated guy rods used on pole lines supporting aerial cables or open wire.

1.02 This section is reissued to add information pertaining to 6.6M suspension strand and to revise Tables A and B, accordingly.

1.03 Expanding anchors are generally satisfactory for average soils but *should not be used in swampy soils, loosely compacted soils (sandy), or soils that have a tendency to remain wet for long periods of time due to inadequate drainage.*

1.04 Specific requirements for other types of anchors are covered in other sections of the 621 Practices.

### 2. DESCRIPTION

#### Expanding Anchors

2.01 The expanding anchor shown in Fig. 1 consists of an integral unit forming the blades and striking surfaces and a separate curved baseplate unit. The two units are aligned by placing the

guy rod through the holes in each unit. A formed metal cavity on the underside of the curved base unit receives the nut of the guy rod when assembling the anchor. This facilitates removal of the rod from the anchor by unscrewing the rod from the nut which is prevented from rotating. The blades are expanded in a lateral motion by forcing the curved blades against the curved base. This force is applied by striking the surface of the blade unit with the anchor expanding bar.

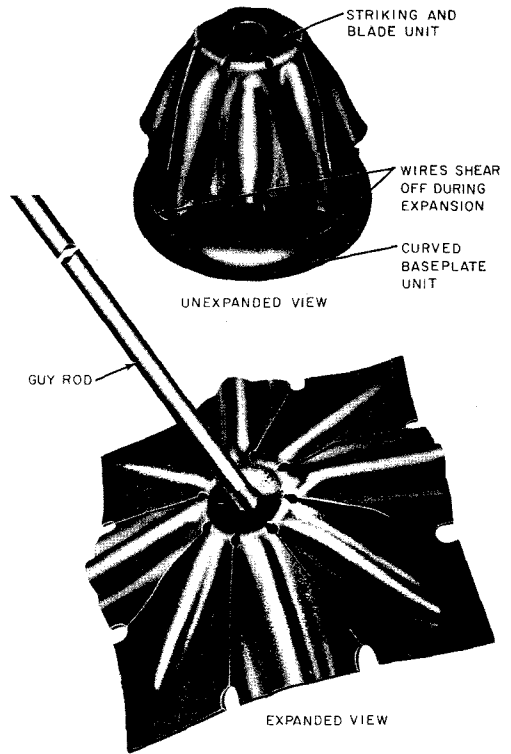


Fig. 1—Expanding Anchor

**2.02** See Table A for the sizes of expanding anchors available and the associated guy rod and strand requirements.

#### Guy Rods

**2.03** Guy rods used with expanding type anchors are made of galvanized steel. Depending on the number of guy strands to be terminated, guy rods are available with single, double, or triple thimble eyes. Figure 2 illustrates the three types of guy rods in general Bell System use.

**2.04** Guy rods are marked just below the thimble eye (Fig. 2) to show the maximum size or combination of sizes of strand recommended for use with them. For example, a rod marked 18M may be used with one 16M guy, a 10M and 6M guy, or 10M and 6.6M guy, three 6M guys or three 6.6M guys.

**2.05** Existing guy rods which are not marked with a strand size, should be limited to the strand sizes shown in Table B.

TABLE A  
ANCHORS AND GUY RODS

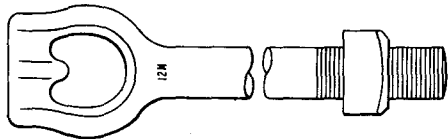
ANCHOR		GUY ROD				FOR USE WITH GUY STRAND SIZE <sup>2</sup>
TYPE	DIA. (INCHES)	DIA. (INCHES)	LENGTH (FEET)	ROD MARKING	THIMBLE EYE	
8 Way	6	1/2	7	6M	Single only	1-2.2M or 1-6M or 1-6.6M
8 Way	8	5/8	8	12M	Double only	1-10M or 2-6M or 2-6.6M
4 Way 8 Way	10	3/4	9	18M	Double or Triple	1-16M or 1-6M and 1-10M or 1-6.6M and 1-10M or 3-6M or 3-6.6M
6 Way	12	1	10	26M	Double or Triple	1-25M or 2-10M or 1-10M and 1-16M or 1-10M and 2-6M or 1-10M and 2-6.6M
6 Way <sup>1</sup> 8 Way <sup>1</sup>	12	1-1/4	10	32M	Double or Triple	2-16M or 3-10M

*Note 1:* New size available.

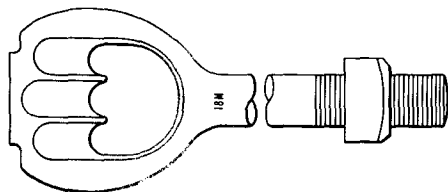
*Note 2:* Or any other combination which does not exceed the recommended maximum marked on the guy rod.



S GUY ROD  
(S FOR SINGLE THIMBLE EYE)



D GUY ROD  
(D FOR DOUBLE THIMBLE EYE)



T GUY ROD  
(T FOR TRIPLE THIMBLE EYE)

Fig. 2—Types of Guy Rods

TABLE B  
UNMARKED GUY RODS

DIAMETER (INCHES)	LENGTH (FEET)	STRAND SIZE
1/2	7	2.2M
5/8	8	6M or 6.6M
3/4	9	16M
1	10	26M
1-1/4	10	32M

### 3. USE OF EXPANDING ANCHORS

3.01 The recommended sizes or combination of sizes of guy strand in Table A for the various sizes of expanding anchors are based on the holding power of the anchors in **average soils or better**. An average soil or better may be **medium-firm clay**, loose sand and gravel, or compact coarse sand. In soils such as **soft pliable clay**, loose coarse sand, clay silt combination, or compact fine sand, use an anchor **one size larger** than recommended in Table A. In such soils as land fill, loose fine sand, **wet clay**, or silt, use an anchor **two sizes larger** than recommended. See 1.03 for soils not recommended for expanding type anchors.

### 4. INSTALLATION

4.01 The small screws or wires used to hold the blade unit to the curved baseplate unit should not be removed. These wires or screws will be sheared off during the expanding process by striking the blade unit with an anchor expanding bar.

4.02 Where practical, use earth augers to bore holes for the installation of anchors. Expanding guy anchors develop a major portion of their holding power by the blades engaging undisturbed earth in the sides of the hole. **It is therefore important that the hole should be no larger than necessary to admit the unexpanded anchor.**

4.03 The type of soil, existing utilities, or accessibility for power augers at the proposed anchor location will usually determine the method of installation.

4.04 On light sandy loam or soils that tend to collapse, dig a vertical hole to the required depth. Then cut a narrow slot to align the guy rod to the pole guy attachment as shown in Fig. 3. The slot should be made before the anchor is

placed in the hole. The dimensions D, S, and R indicated in Fig. 3 are approximately as shown in Table C when Lead/Height = 1 and when Lead/Height = 1/2.

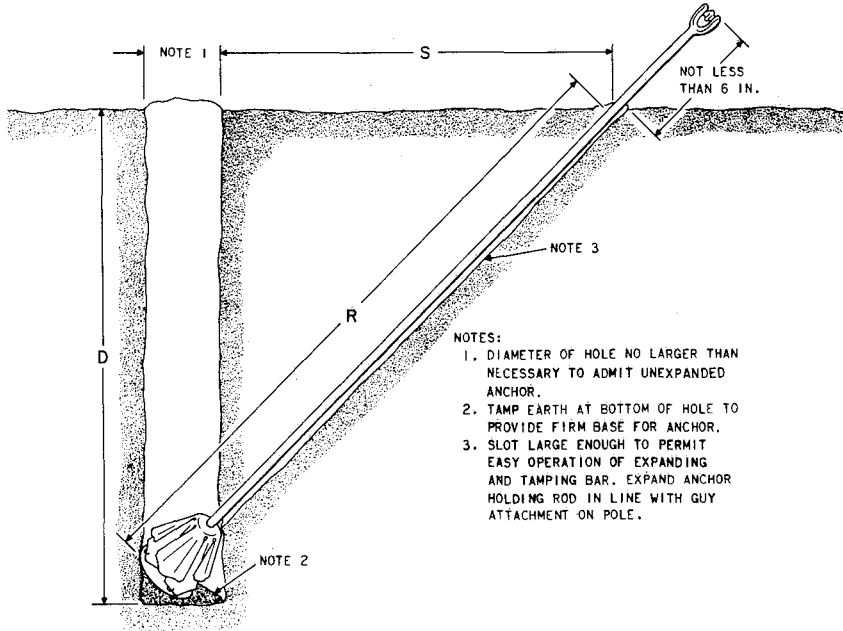


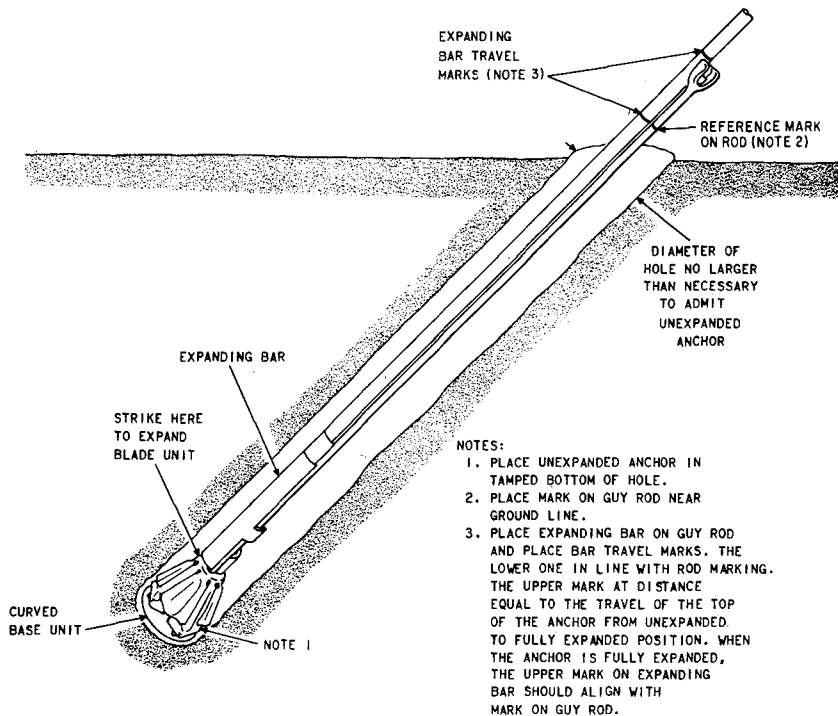
Fig. 3—Placing Anchor

TABLE C  
ANCHOR PLACING MEASUREMENTS

LENGTH OF ROD (FEET)	LEAD = 1 HEIGHT			LEAD = 1/2 HEIGHT		
	R	D	S	R	D	S
	FT - INS	FT - INS	FT - INS	FT - INS	FT - INS	FT - INS
7	6-6	4-7	4-7	6-0	5-5	2-8
8	7-6	5-4	5-4	7-0	6-4	3-1
9	8-6	6-0	6-0	8-0	7-2	3-7
10	9-6	6-8	9-0	9-0	8-1	4-0

- 4.05** Assemble the required guy rod and anchor (Table A). Tighten the guy rod nut securely against the anchor baseplate.
- 4.06** Tamp the earth at the bottom of the hole with the expanding bar to provide a firm base for expanding the anchor.
- 4.07** Lower the unexpanded anchor and rod assembly into the vertical hole and align the guy rod in the slot toward the pole guy attachment.

- 4.08** Expand the anchor by striking the top of the anchor with repeated sharp blows of the anchor expanding bar. Figure 4 illustrates the method for marking the rod and bar to indicate a fully expanded anchor.
- 4.09** When soil conditions, location, and type of digger permit, bore the anchor hole at an angle as shown in Fig. 4 so the guy rod will be in alignment with the pole guying attachment.
- 4.10** Backfill, tamping the earth firmly throughout the depth of the hole.



**Fig. 4—Method for Expanding Anchor**