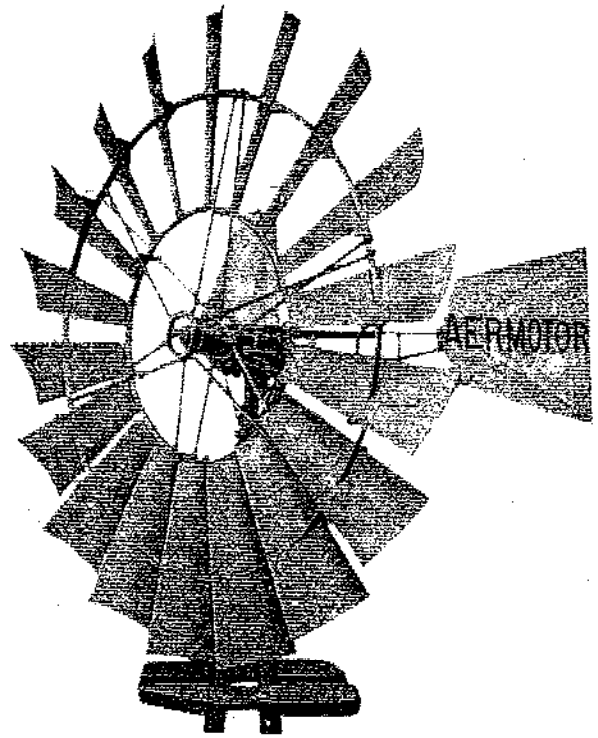


**INSTALLATION  
INSTRUCTIONS  
4-POST STANDARD  
TOWER**

**AERMOTOR  
WINDMILL CORPORATION**

*It is important to use a tower high enough for good wind exposure from every direction. The mill will pump more often, and will be safer in storms. The wheel should be at least 15 feet above all surrounding wind obstructions, such as buildings and trees, within a radius of 400 feet.*

*Please read thoroughly these instructions **BEFORE** attempting to install your **AERMOTOR WINDMILL TOWER**. It can not only save you time but also enable you to get the maximum performance from your water system.*



## **HOW TO INSTALL THE AERMOTOR STANDARD 4-POST AND WIDESPREAD WINDMILL TOWERS**

### **General Information and Precautions.**

It is recommended that there be at least two men, working together on the installation, to save time and make the job easier and safer.

As in any installation of this type, safety is extremely important. If proper safety measures are not taken, it can result in severe physical impairment, or even loss of life, not only to the workers but to innocent bystanders as well.

**WE STRONGLY RECOMMEND THAT THE FOLLOWING SAFETY PRECAUTIONS BE TAKEN FOR THE PERSONAL SAFETY OF EACH WORKER AND THE SAFETY OF ANYONE NEAR THE TOWER WHILE WORK IS IN PROGRESS:**

1. Wear approved (construction type) hard hats.
2. Wear and use approved safety belts.
3. Wear safety shoes having steel toes and rubber or cork soles and heels.
4. Avoid wearing loose-fitting or torn clothing which might snag on a steel member of the tower.
5. Be certain that shovels, iron bars and tools are located a distance away from the tower when they are not in use.

6. Be certain that all bolts and nuts are secure at each level of tower construction before standing or climbing on that section.
7. Make certain that there are no overhead electrical lines nearby that could come into contact with tower or windmill.

When these safety precautions have been taken, you are now ready to begin the assembly and installation of your tower.

### **Methods of Assembling A Standard 4-Post Tower.**

Your Aermotor windmill tower can be built complete on the ground and hoisted into place by means of a crane, boom truck or similar equipment.

It can also be built, section by section, from the ground up.

The method selected will depend largely upon the experience of the installer. If you elect to build the tower on the ground, care should be taken to pre-

vent the bending of the corner posts when the tower is hoisted into position. Temporary bracing, installed near the bottom of the lower corner posts, will help to prevent bending until the tower can be securely anchored in place.

Aermotor towers are so designed that they can be built from the ground up. All girts are located just below the splice of the corner posts so that the installer, who is standing on planks at any set of girths, can build the section above.

It is recommended that the planks used as scaffolding be at least 2" X 12" of solid, sound material and placed on the girts as close to the corner posts as possible so that the girts will not sag in the middle.

Lay two (2) planks on **each side** in one direction and two (2) planks each on the opposite sides, over the first planks, in the other direction (total of 8 planks, See Figure 6). Leave them in place as each section is completed so that you can return to the lower section for tightening bolts. It will also enable you to store

your material for the next section of the tower to be built.

## Check Your Material.

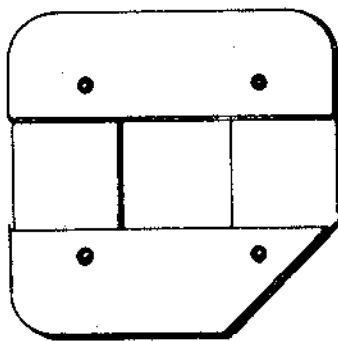
Open the bundles of tower materials and group similar pieces together. Open the bolt box and separate the different sizes. Check everything against the Components Listing to see that you have the parts you need to do your job.

On towers for 8-foot and 10-foot mills, the regular corner posts are 13 feet, 8½ inches long and extend over two panels of the tower. For 27-foot and 40-foot widespread towers, the bottom corner posts are 7 feet long.

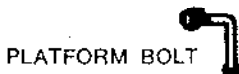
The top corner post for 21-foot, 33-foot and 47-foot towers are 7 feet long. For widespread towers for 12-foot, 14-foot and 16-foot mills, they are also 7 feet long but they are bent slightly just below the platform location.

After the material has been checked, you are ready to begin with the installation.

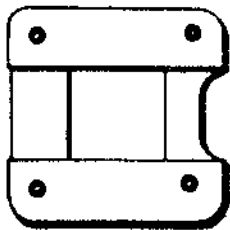
## Components For Aermotor Towers.



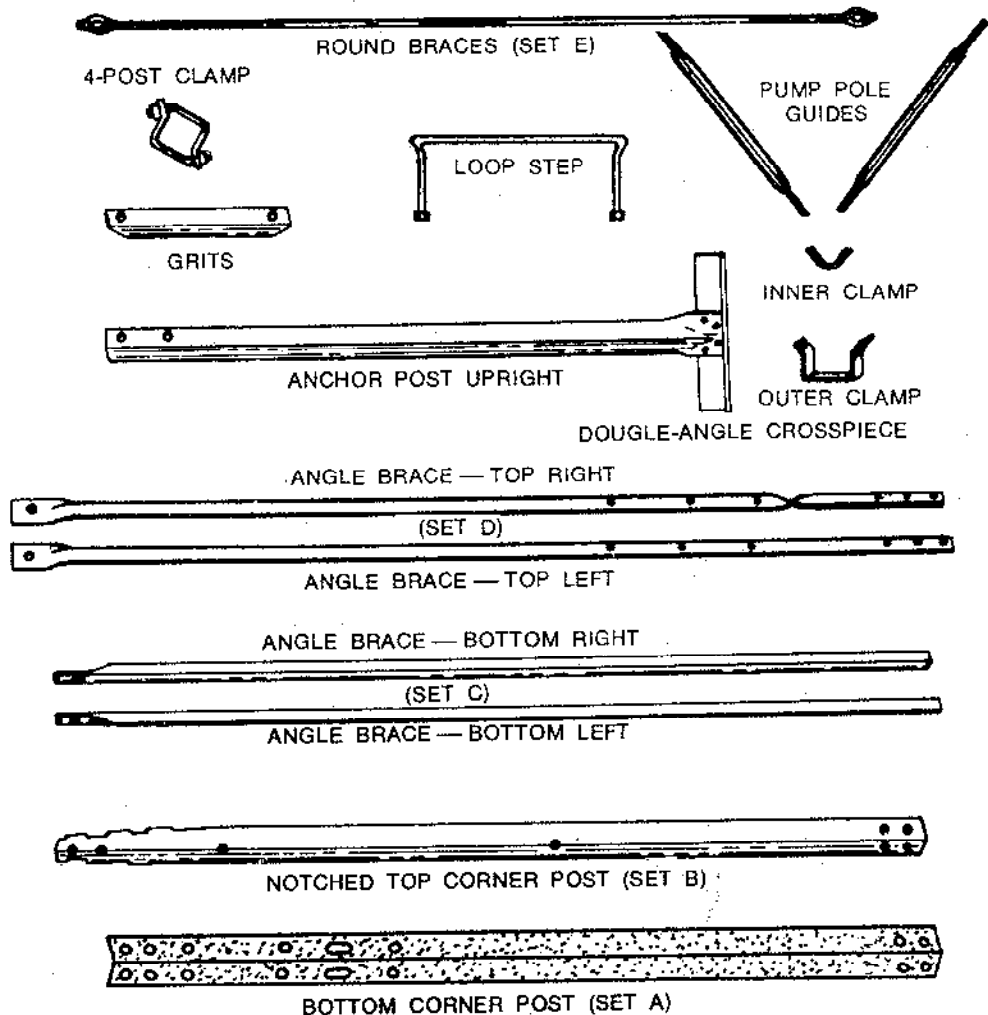
PLATFORM



PLATFORM BOLT



OILING PLATFORM  
(For Widespread Towers  
only with 12-ft., 14-ft.,  
16-ft. Mills)



- 4-POST CLAMP
- GRITS
- ANCHOR POST UPRIGHT
- DOUGLE-ANGLE CROSSPIECE
- ROUND BRACES (SET E)
- LOOP STEP
- PUMP POLE GUIDES
- INNER CLAMP
- OUTER CLAMP
- ANGLE BRACE — TOP RIGHT (SET D)
- ANGLE BRACE — TOP LEFT
- ANGLE BRACE — BOTTOM RIGHT (SET C)
- ANGLE BRACE — BOTTOM LEFT
- NOTCHED TOP CORNER POST (SET B)
- BOTTOM CORNER POST (SET A)

**BOLT LISTS FOR 4-POST STANDARD TOWERS FOR 6 OR 8 FOOT AND 10 FOOT MILLS**

Where Used	SIZE OF TOWER		HEIGHT OF TOWERS — FEET							
	10 Foot	6 or 8 Foot	7	14	20	21	27	33	40	47
Angle Brace, Cross	3/8 x 3/4"	3/8 x 3/4"	—	—	—	4	4	4	4	4
Corner Posts	3/8 x 3/4"	3/8 x 3/4"	17	33	50	17	34	50	50	67
Angle Braces	3/8 x 1"	3/8 x 1"	—	—	—	9	17	17	17	17
Corner Posts	3/8 x 1"	3/8 x 1"	—	—	—	33	—	—	—	—
Anchor Post-Crosspieces	3/8 x 1"	3/8 x 1"	—	—	—	17	17	17	17	17
Girt and 1 Brace	3/8 x 1"	3/8 x 1"	—	17	17	—	9	9	9	9
Girt and 2 Braces	3/8 x 1 1/4"	3/8 x 1 1/4"	—	—	9	—	9	17	25	33
Pipe Base, Short	1/2 x 2"	3/8 x 1 1/2"	2	2	2	2	2	2	2	2
Pipe Base, Long	1/2 x 2 1/2"	3/8 x 1 3/4"	2	2	2	2	2	2	2	2
Pump Pole Splices	3/8 x 2 1/4"	3/8 x 2"	—	—	—	2	4	4	8	8
Tower Top Bolts	3/8 x 4 1/2"	3/8 x 4"	4	4	4	4	4	4	4	4
Pole Splice Straps (Pair)	B-82	A-82	—	—	—	—	1	1	2	2
Pole Connection	B-62	A-62	—	—	1	1	1	1	1	1
Bolts for Pole Connection	3/8 x 2 1/4"	3/8 x 2"	—	—	2	2	2	2	2	2
Washers for Pole Connection	7/16 x 1 x 1/8"	7/16 x 1 x 1/8"	—	—	2	2	2	2	2	2
Pole Guide Clamp, Outer	T-3293	T-3291	—	1	1	1	2	3	4	5
Pole Guide Clamp, Inner	T-3294	T-3292	—	1	1	1	2	3	4	5
Bolts for Pole Guide	1/4 x 1"	1/4 x 1"	—	2	2	2	5	7	9	11
Clamp Complete	T-179 1/2	T-177	1	1	1	1	1	1	1	1
V-Bolt for Furl Handle	A-333	A-334	1	1	1	1	1	1	1	1
Loop Steps	—	U-397	2	7	12	11	17	22	27	32
Loop Steps	U-397	—	1	6	11	10	16	21	26	31

Specifications subject to change without notice.

**BOLT LISTS FOR 4-POST WIDE SPREAD TOWERS**

Where Used	Size of Mill			Height of Tower, Feet			
	16-ft.	14-ft.	12-ft.	27	33	40	47
Angle Braces	1/2 x 1	3/8 x 3/4	3/8 x 3/4	10	10	10	10
Angle or Truss Brace, Lower End	5/8 x 1 1/2	1/2 x 1 1/4	1/2 x 1 1/4	9	9	9	9
Corner Posts	5/8 x 1 1/4	1/2 x 1	1/2 x 1	57	57	74	74
Girt and 1 Brace	5/8 x 1 1/2	1/2 x 1 1/4	1/2 x 1 1/4	11	11	11	11
Girt and 2 Braces	5/8 x 1 3/4	1/2 x 1 1/2	1/2 x 1 1/2	9	17	25	33
Pipe Base, short	5/8 x 3	1/2 x 2 1/4	1/2 x 2	2	2	2	2
Pipe Base, long	5/8 x 3 1/2	1/2 x 2 1/2	1/2 x 2 1/4	2	2	2	2
Pump Pole Splices	3/8 x 3 1/2	3/8 x 3	3/8 x 2 1/2	4	4	8	8
Tower Top Bolts	5/8 x 7 1/2	1/2 x 6	1/2 x 5 1/2	4	4	4	4
Pole Splice Straps (pair)	F-82	E-82	D-82	1	1	2	2
Pump Connection	—	E-62	D-62	1	1	1	1
Bolts for Pump Connection	—	1/2 x 3	1/2 x 2 3/4	2	2	2	2
Washers for Pump Connection	—	9/16 x 1 1/4	9/16 x 1 1/4	2	2	2	2
Pole Guide Clamp, outer	T-3491	T-3393	T-3391	2	3	4	5
Pole Guide Clamp, inner	T-3492	T-3394	T-3392	2	3	4	5
Bolts for Pole Guide	3/8 x 1 1/4	1/4 x 1	1/4 x 1	5	7	9	11
Clamp Complete	T-777	T-274	T-277	1	1	1	1
V Bolt for Furl Handle	—	D-333	D-333	1	1	1	1
V Bolt for Furl Handle	D-333	—	—	2	2	2	2
Steps	—	U-397	U-397	17	22	27	32
Steps	U-397	—	—	16	21	26	31
Truss Braces	—	3/8 x 3/4	3/8 x 3/4	4	4	3	4
Truss Braces	—	3/8 x 1	3/8 x 1	8	8	8	8
Truss Braces	1/2 x 1	—	—	11	11	7	11
Truss Braces	1/2 x 1 1/4	—	—	—	—	4	—
Corner Washer f/Pipe Base Bolts	T-779	—	—	4	4	4	4
Anchor Post-Crosspiece	5/8 x 1 1/2	1/2 x 1 1/4	1/2 x 1 1/4	17	17	17	17

Specifications subject to change without notice.

## Anchor Holes.

The anchors are the foundation of your tower so you must exercise care in locating and digging the holes. Determine how you will fill the holes around the anchors. It is recommended that the bottom two feet of the holes be filled with cement and topped with dirt. The holes should be at least two feet in diameter to give a secure foundation for the tower. Refer to Figure 1 for information on locating the holes and to Figure 2 for the proper base dimensions of the tower you plan to build.

For mills of 14-foot diameter, or less, the holes should be 4 feet, 9 inches deep. For 16-foot mills, the holes should be 6 feet, 6 inches deep. Be certain that the bottom of all four holes are on the same level.

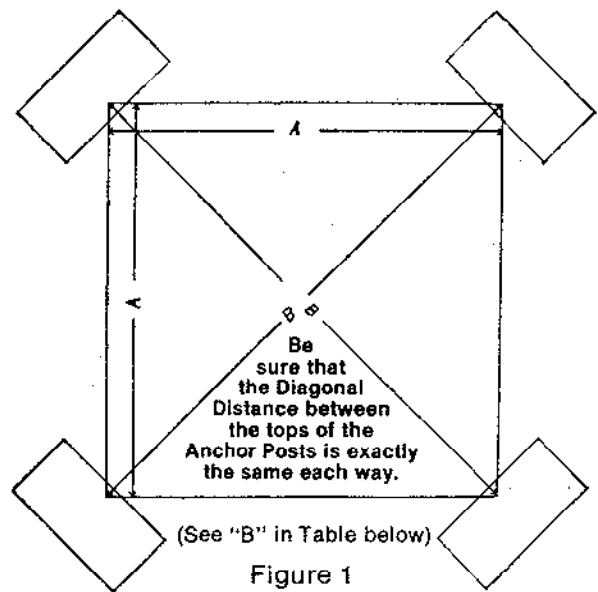


Figure 2 BASE DIMENSIONS... 4-POST TOWERS																
STANDARD TOWER					WIDE-SPREAD TOWER											
FOR 6, 8 and 10-FT. MILLS					12-FT. MILLS				14-FT. MILLS				16-FT. MILLS			
HEIGHT	A		B		A		B		A		B		A		B	
(Feet)	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.
21	6	0	8	5 <sup>13</sup> / <sub>16</sub>	—	—	—	—	—	—	—	—	—	—	—	—
27	5	6 <sup>13</sup> / <sub>16</sub>	7	10 <sup>1</sup> / <sub>2</sub>	6	8 <sup>1</sup> / <sub>8</sub>	9	5 <sup>5</sup> / <sub>16</sub>	6	8 <sup>1</sup> / <sub>4</sub>	9	5 <sup>1</sup> / <sub>2</sub>	—	—	—	—
33	6	10 <sup>3</sup> / <sub>4</sub>	9	9	8	4 <sup>1</sup> / <sub>4</sub>	11	9 <sup>3</sup> / <sub>4</sub>	8	4 <sup>3</sup> / <sub>8</sub>	11	9 <sup>15</sup> / <sub>16</sub>	8	5 <sup>1</sup> / <sub>2</sub>	11	11 <sup>1</sup> / <sub>16</sub>
40	8	2 <sup>11</sup> / <sub>16</sub>	11	7 <sup>1</sup> / <sub>2</sub>	9	11 <sup>7</sup> / <sub>8</sub>	14	1 <sup>1</sup> / <sub>2</sub>	10	0	14	1 <sup>1</sup> / <sub>16</sub>	10	1	14	3 <sup>1</sup> / <sub>8</sub>
47	9	6 <sup>6</sup> / <sub>16</sub>	13	6	11	8 <sup>1</sup> / <sub>16</sub>	16	6 <sup>1</sup> / <sub>16</sub>	11	8 <sup>3</sup> / <sub>16</sub>	16	6 <sup>1</sup> / <sub>4</sub>	11	9 <sup>3</sup> / <sub>8</sub>	16	7 <sup>7</sup> / <sub>16</sub>

## Anchor Posts.

Bolt two (2) anchor post crosspieces back to back to the anchor post upright (See Figure 3). Tighten the nuts securely. Put the anchors in the anchor holes BUT DO NOT FILL THE HOLES AT THIS TIME.

## Ladder.

Attach the steps to the ladder corner post before you begin assembling the tower in order that you might use them to climb the tower as it is built up.



### Loop Steps

Smooth loop steps on the corner post of the tower form a very solid ladder. Greater slope at the corner post makes climbing easy.

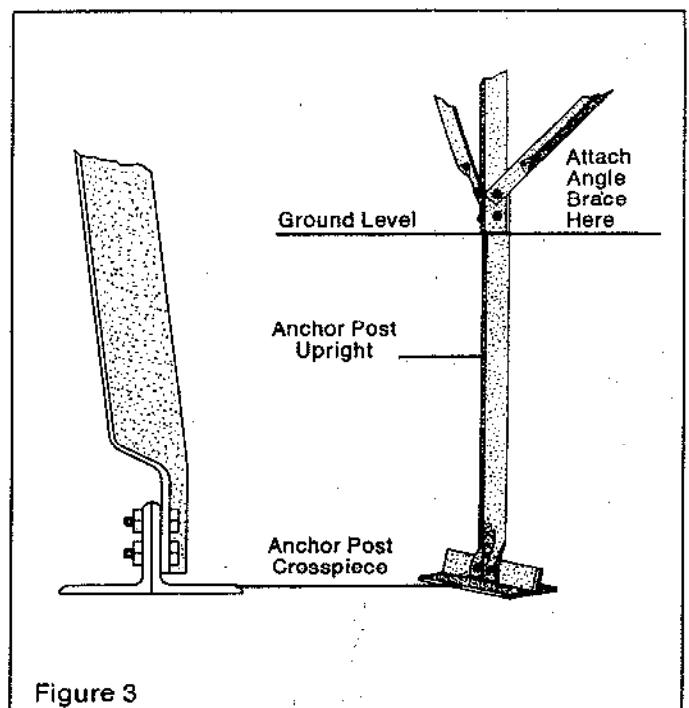


Figure 3

## Assembling The First Section.

There are two types of corner posts. (Refer to Components For Aermotor Towers.) Set B, which has notches at the top end, is used at the top of the tower only. Set A is used from the bottom of the tower to the point where the posts join to Set B.

Bolt a corner post (from Set A) to each anchor post upright (the end of the post having two holes).

Install the longest set of girts, **inside** the corner posts, about 7 feet from the ground at the bolt holes provided in the corner posts. Install bolts with the nuts to the outside. Snug but do not tighten.

Install the lower sections of the angle braces, Set C, on the **outside** of the corner posts, bolting the bottom end of the brace to the upper hole of the anchor post splice. These braces are made right hand and left hand so that the flat side of both of them will be up when they are properly attached. Splice the top section of the angle braces, Set D, to Set C at the bottom girt and bolt in place on the corner post at the second girt from the ground. Snug but do not tighten nuts. (See Figure 4 for proper method of crossing and connecting angle braces.) The angle braces have extra holes so that they will fit different tower heights. Attach the top ends of the angle braces at the corner posts with the same bolts that are used to fasten the girts. At the second girt, install a round brace (Set E) at each corner post using the same bolts that are used to fasten the angle braces and girts (See Figure 5). Let the round braces hang free until the next section has been built. Snug the nuts but do not tighten the nuts in any section until the section above has been built.

## The Second Section.

When the bottom section has been assembled, lay planks across the girts as close to the corner posts as possible (See Figure 6). Bring up material for the next section and use the planks for storage until the material can be installed in its proper place. Install the girts and fasten the round braces in place. Beginning at the second girt from the ground, the round braces extend diagonally across each tower section to the next highest girt and are used in much the same manner that the angle braces were used in the lower section.

When the second section is completed, return to the section below and tighten all nuts securely.

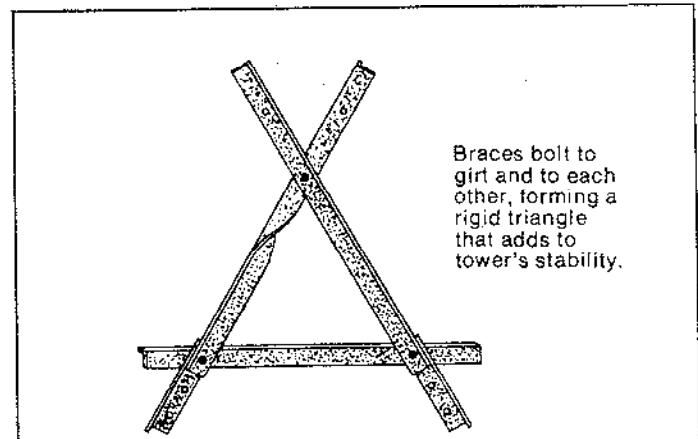


Figure 4

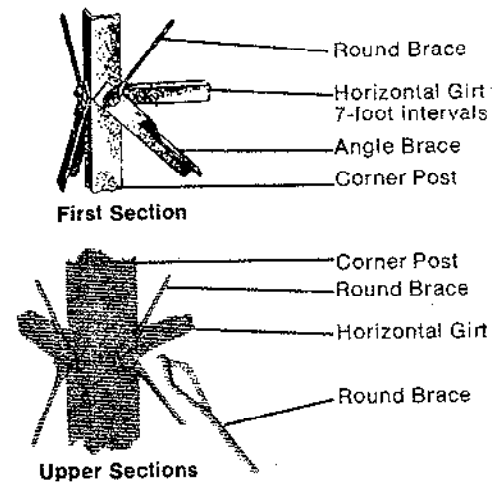


Figure 5

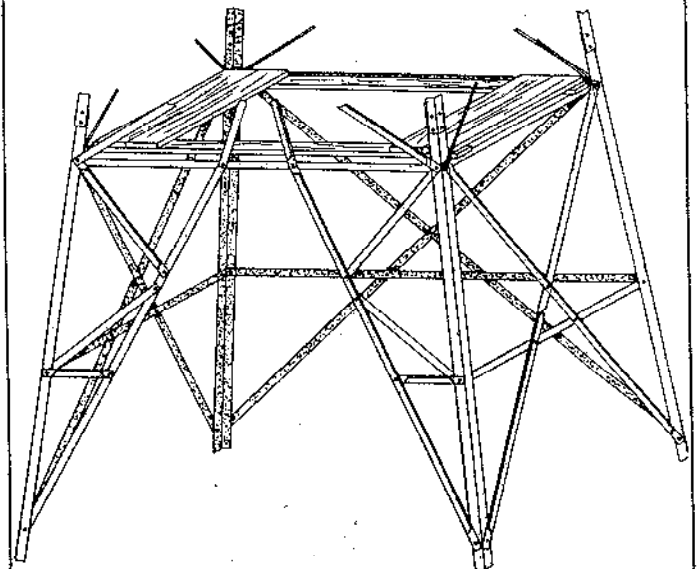


Figure 6

## Setting The Anchors.

When two sections of the tower have been assembled, level the anchor posts carefully. Be certain that the pump or well casing is in the exact center of the tower and that the base of the tower is square. To level the tower, use a straight edge and spirit level on the bottom girts.

To square the tower, measure diagonally across the tower between the top of the anchor posts, making certain that the distance is the same in both directions.

When everything is level, plumb and square, fill the anchor holes. It is recommended that cement be used in the bottom two feet of each hole and allowed to set up. Fill the balance of the hole with dirt and tamp it well. **Be certain that the tower does not move when tamping the dirt.**

## The Top Of The Tower.

When the top corner posts (Set B) are in position, install the platform (Figure 8) and secure it to the corner posts with four (4) "L" shape bolts. The notched corner of the platform installs at the ladder side of the tower.

Slip the mill mast pipe into position and install the two shorter bolts on that side of the tower to which the furl handle is to be attached. The two longer bolts, which support the furl lever, install on the opposite side.

**The furl lever of the mill must be on the opposite side of the tower from the furl handle at the foot of the tower so that the furl wire will pull across the tower and clear the platform.**

Be certain to lock the notches at the top of the corner posts, install the clamp and tie bolts, and tighten securely (See Figure 7).

Connect the furl wire to the furl lever at the top of the tower and to the furl handle at the bottom. When the furl handle is all the way down, the furl lever will bear against the nuts at the bottom of the supporting angles.

**When both furl rings are in place,** installation of the motor can proceed.

## Assembling The Mill.

Assemble the tailbone and vane on the ground.

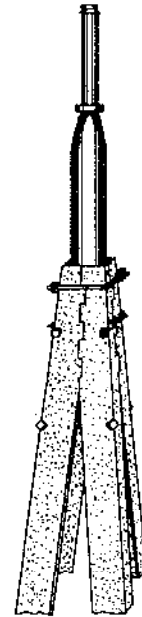
Using a gin pole and tackle, lift the motor to the top of the tower and slip it onto the pipe. Lift the tailbone and vane and attach it to the motor. When

the vane is in place, install the vane spring and pull the mill out of the wind.

**Be certain that the furl handle is secure so that there will be no danger of the mill turning into the wind while the wheel is being assembled.**

## The Wheel.

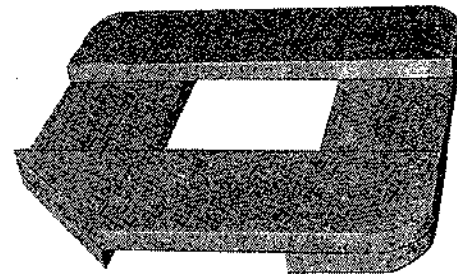
Preassemble the six sections of the wheel on the ground and install according to the instructions packaged with your mill.



Corner Posts

Notched together for added strength and rigidity.

Figure 7



Platform

Heavy lumber, bolted through corner posts. Corner of the platform is cut for easy climbing.

Figure 8

hooked into the oblong holes in the corner posts on the same side of the tower and should be horizontal when the mill is half way up on the stroke. (See Figure 9.) Tighten the nuts so that the clamps will be held firmly to the pump pole, but not so tight as to prevent the pole guides from working freely. A nail or screw, secured into the pole through the hole in the back of the clamp will prevent the clamp from slipping out of position.

Turn the wheel until the pump pole is at the lowest point of the stroke and attach the pump pole connection so that there will be about equal clearance at the top and bottom of the cylinder.

**MAKE DOUBLY CERTAIN THAT ALL NUTS ON BOTH THE MILL AND THE TOWER ARE DRAWN UP TIGHT.**

## **WIDESPREAD TOWERS**

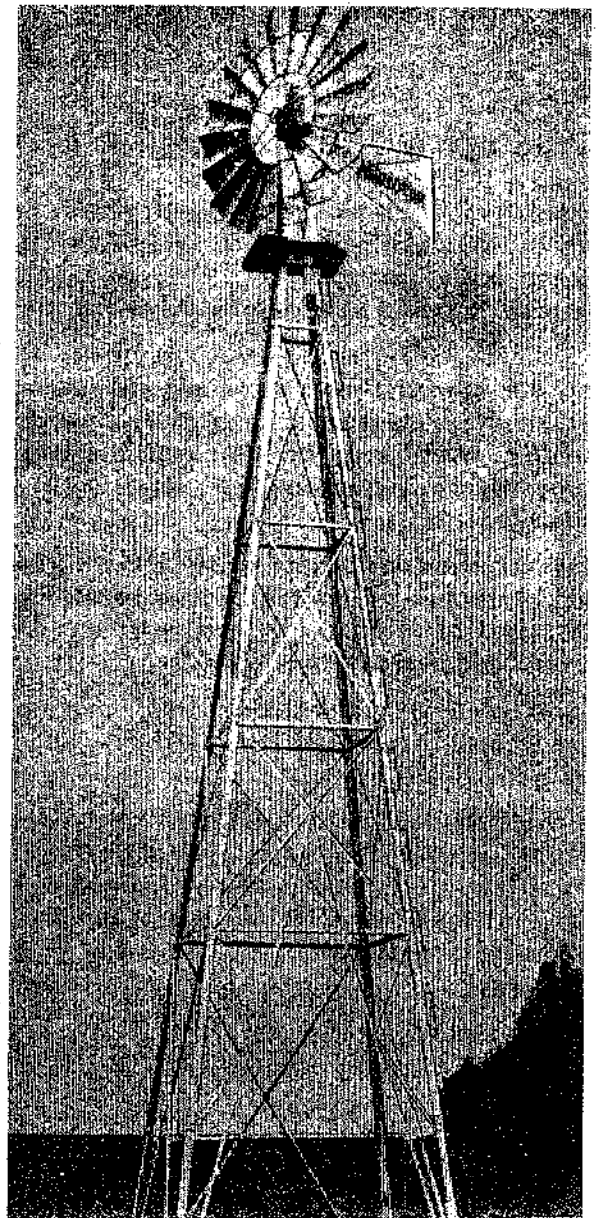
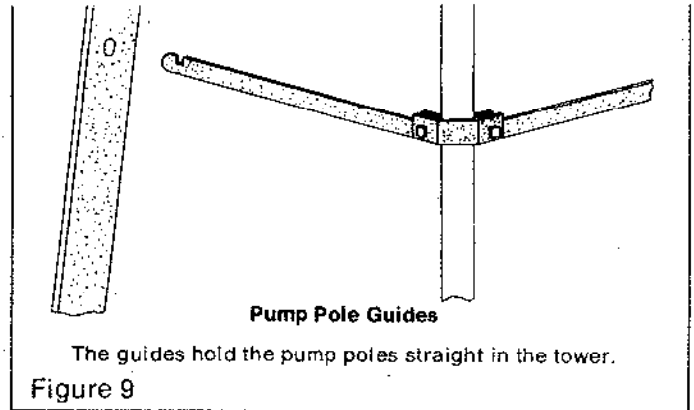
Installation of widespread towers for 12-foot, 14-foot and 16-foot mills is similar to other standard towers but there are a few exceptions.

These towers have a wider base dimension for a given tower height and one side of the tower is left open for pulling the well by having angle braces that extend up to the second girt. There is no bottom girt on the open side of the tower and truss braces are used to strengthen it.

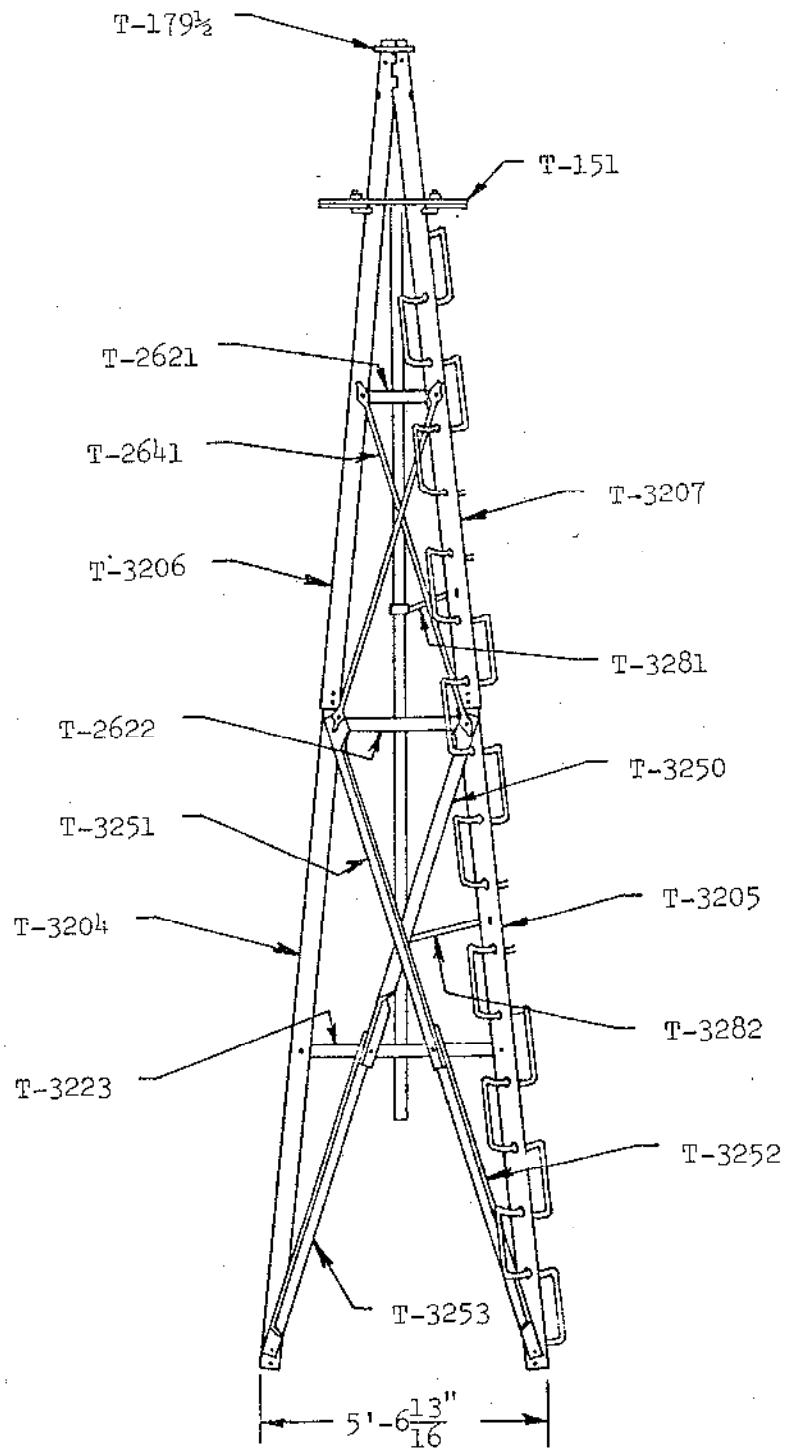
All of the widespread towers have 7-foot top corner posts which are slightly bent just below the platform. For 27-foot and 40-foot towers, the bottom corner posts are also just 7-feet long.

Widespread towers have heavy channel girts in the tower above the platform to provide solid support for the tackle when pulling the well. The tower components and the windmill are much heavier than the smaller sizes and require special equipment and tackle for lifting them into position.

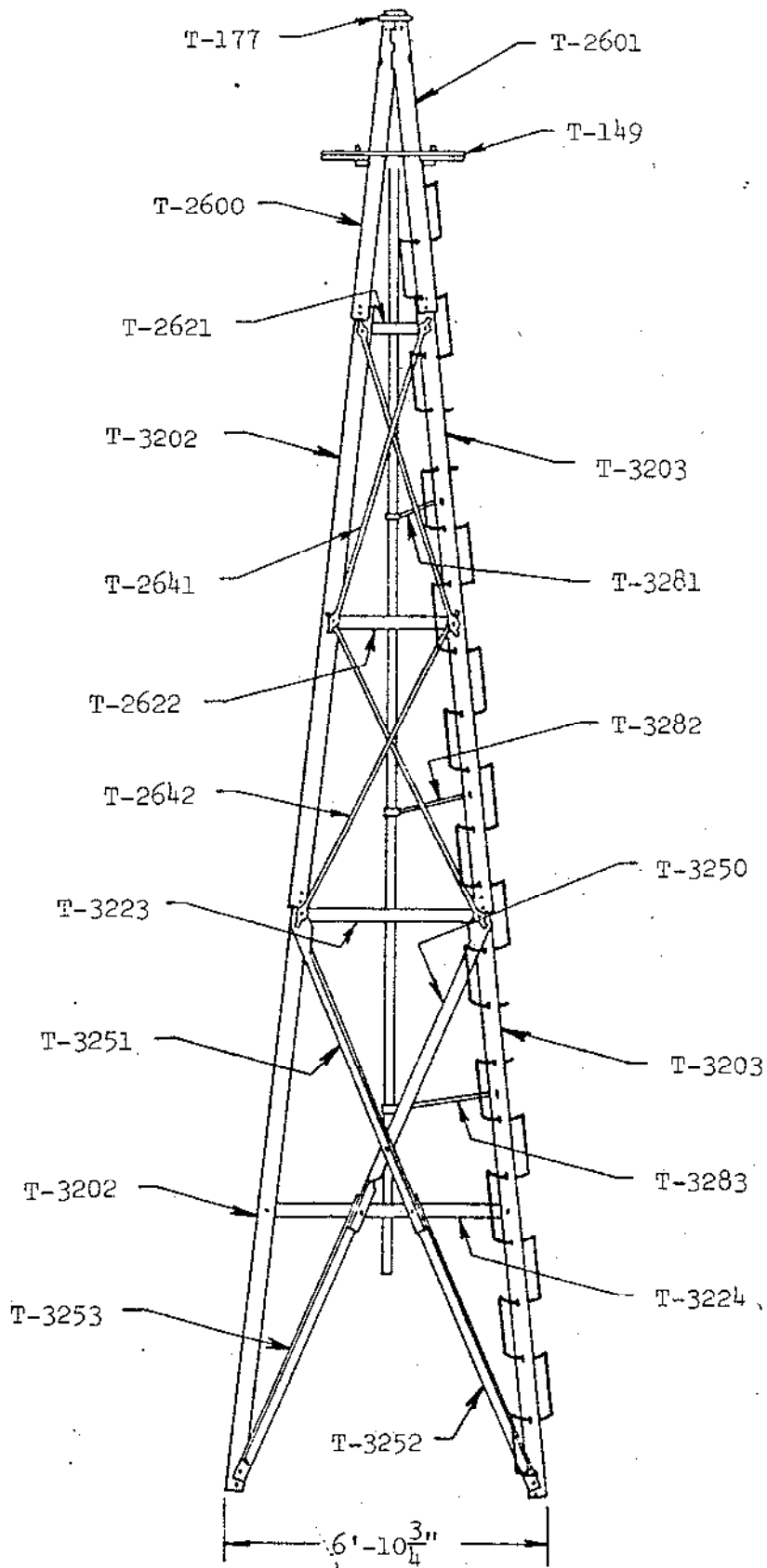
Widespread towers for 12-foot, 14-foot and 16-foot also have oiling platforms. Install with the cutaway side on the same side of the tower as the long bolts for the pipe base.



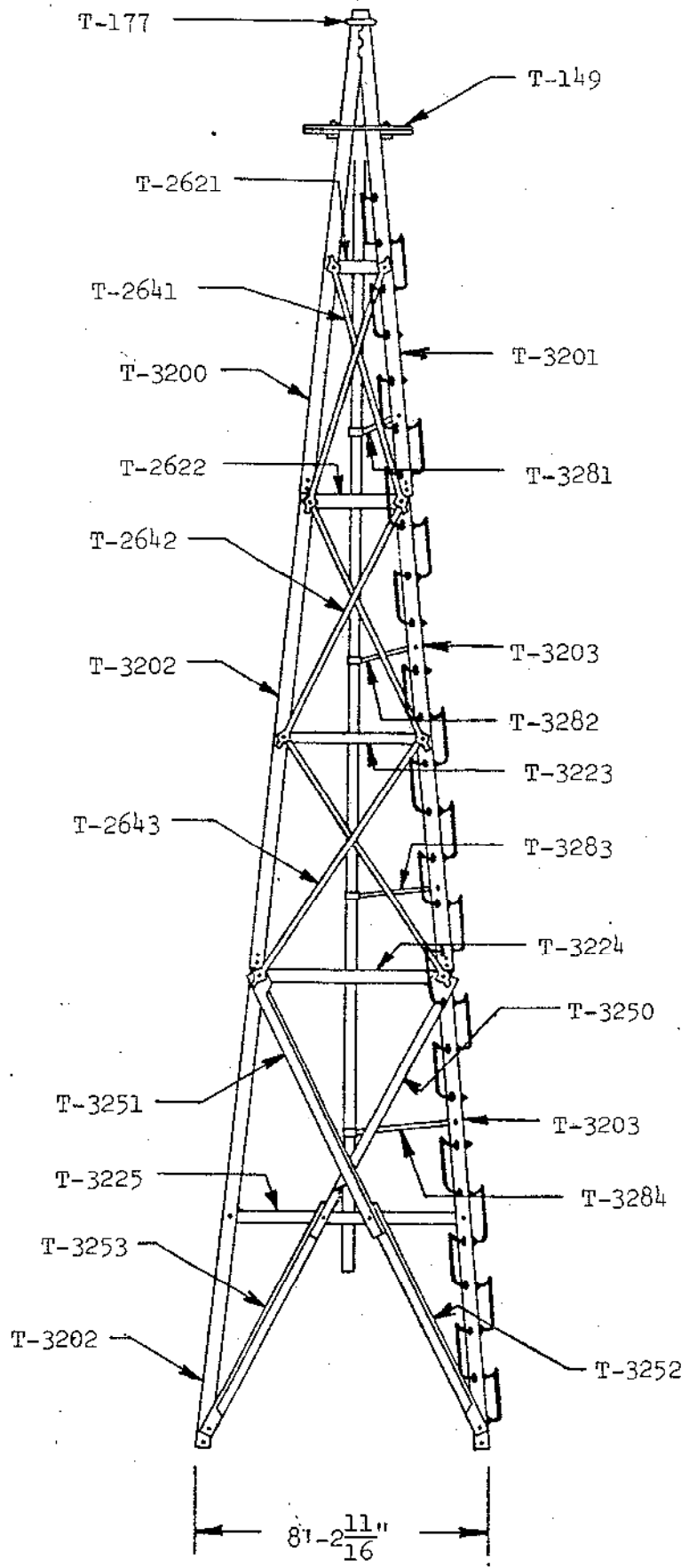




27 FT. 4 POST TOWER  
 FOR 10 FT. MILL



33 FT. 4 POST TOWER  
 FOR 6 OR 8 FT. MILL



8/40' 4 POST TOWER  
FOR 6 OR 8 FT. MILL