

hy-gain®

INSTRUCTION MANUAL

Antennas, Towers and Accessories for
Commercial, Industrial, Military and
Private use.



HG-52SS

52-Foot Self-Supporting Tower

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TELEX COMMUNICATIONS, INC.
9600 ALDRICH AVE. SO. MINNEAPOLIS, MN 55420 U.S.A.

WARNING

DO NOT CLIMB

Do not attempt to climb this tower under any circumstances. **Serious injury or fatality** may result. Keep hands and feet outside of tower. Do not attempt to reach inside the structure unless the tower has been fully retracted against the lower stops.

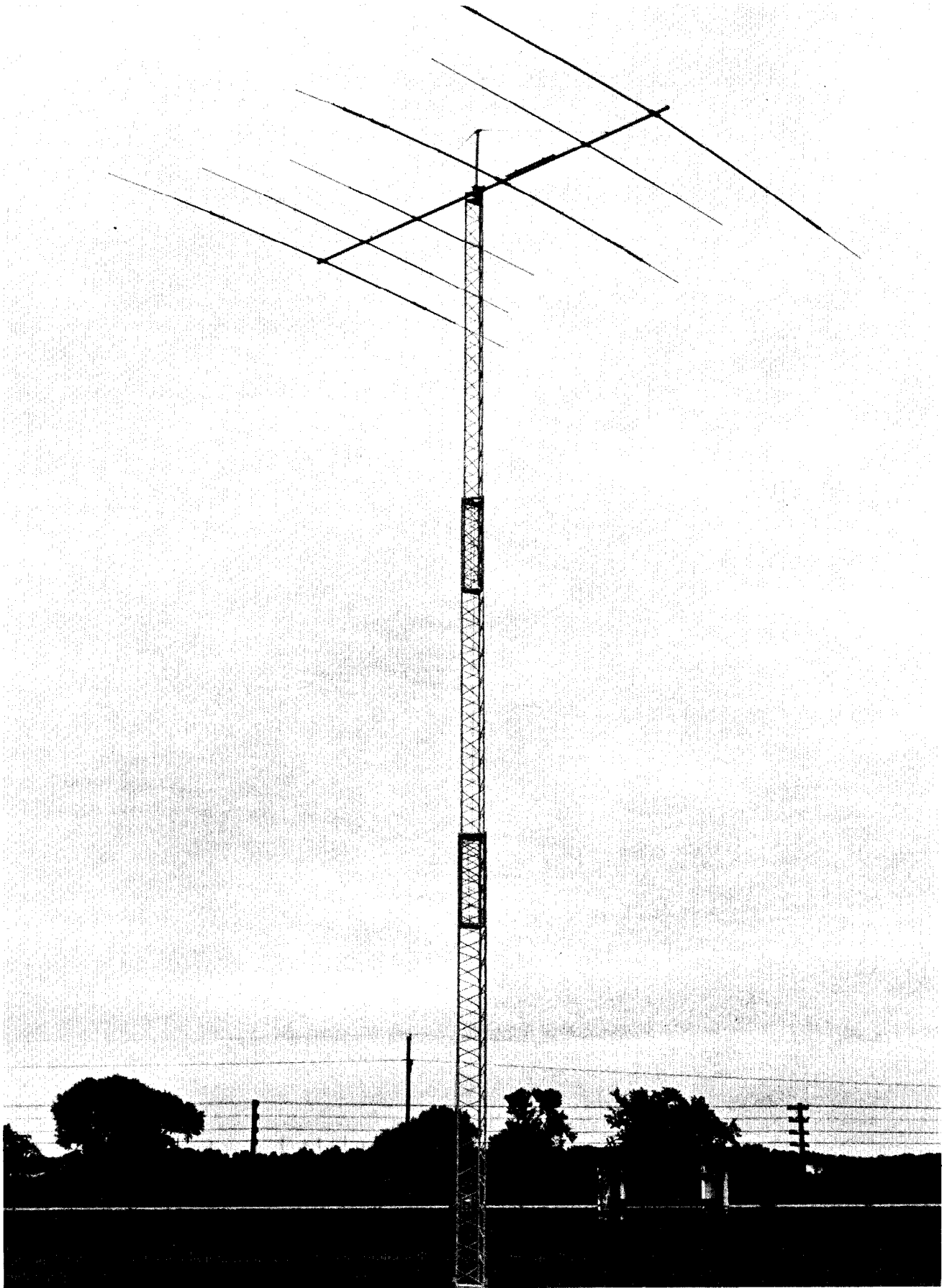


Figure 1. Overall View of HG-52SS Tower

CHAPTER 1. GENERAL INFORMATION

WARNING

Installation of this product near power lines is dangerous. For your safety follow the instructions.

General Description

This model is a 52-foot, self-supporting tower designed to support 9.0 square feet of antenna area with winds up to 50 mph. This all steel tower has a guide system that allows the tubing to be open at each end insuring complete galvanizing and total moisture drainage.

The tower can be extended from its nested position by manual crank or the use of an electric motor. A thrust bearing can be bolted to the top section allowing a 2" diameter mast.

Unpacking and Uncrating

Be sure to check your tower for any freight damage or missing parts. If you find damage, notify the trucking line that delivered the equipment immediately, and advise Hy-Gain of the damage. Send a copy of the freight damage claim to:

Hy-Gain
Telex Communications, Inc.
9600 Aldrich Avenue
Minneapolis, Minnesota 55420
Attention: Traffic Department

Specifications

Height	
Extended	52 feet (15.85 m)
Nested	21 feet (6.40 m)
Guying	Self-supporting
Construction	All welded construction with leg guides and "W" configuration torsion resistant bracing
Material	All steel
Plating	Hot dipped galvanized
Wind survival (fully extended with max. load)	50 mph (80.5 kmph)
Antenna load limits	9 square feet (0.837 sq. m)

Equipment Supplied

The HG-52SS tower is supplied complete, including reinforcing steel and base mount. The tower corresponds to the drawings contained in this manual. Refer to the Parts List section for a complete breakdown of parts.

The Parts List shows the standard commercial packaging. Any changes or modifications, if any, which may be incorporated as the result of special contractual agreements are covered under Contract Requirements.

Equipment Required But Not Supplied

Description	Use
1 tool box with common hand tools	Tower Assembly & Base Foundation
1 measuring tape 12'	Base Foundation
1 level	Base Foundation

CHAPTER 2. SAFETY PRECAUTIONS

WARNING

Before you start installation of your tower let us warn you of the danger of letting any part of your metal tower system touch electrical power lines — YOU MAY BE KILLED!

General Safety Rules

Hundreds of people are killed each year because they don't use common sense when they install their towers or antennas. It happens more often than you realize. Someone falls of a roof or gets electrocuted by touching a power line with an antenna tower or metal ladder.

There is no such thing as a good tower site if it is near electrical power lines. Unfortunately, most tower systems, and in many cases, the ladders used during an installation are metal. If any metal tower part or ladder touches a power line, it completes an electrical path from the power line through the metal tower and the installer (YOU!).

DON'TS

1. Don't install any tower near power lines.
2. Don't install a tower on a windy day.
3. Don't try to do the job by yourself.
4. Don't try to catch the tower if it starts to fall.
5. Don't try to remove any metal objects from the power lines.
6. Don't be afraid to call the power company for advice when picking a tower site or removing a fallen tower from the power lines.
7. Don't remove winch handle; use safety chain with lock to secure.
8. Don't climb tower; use separate ladder or lower tower with gin pole for antenna rotator servicing.
9. Don't overload. The design load limit is 9 sq. ft. of antenna on a 2 foot mast for winds up to 50 mph.

DO'S

1. Do install the tower away from power lines. Check the distance to the power lines before you start installing - we recommend you stay a minimum of twice the maximum length of the tower assembly away from all power lines.
2. Do install the tower on a calm day and assure yourself of having plenty of daylight to complete installation.
3. Do stay clear if the tower starts to fall or come in contact with power lines.
4. Do call the power company to remove fallen towers from power lines or to help pick out a safe antenna site.
5. Do crank tower down to retracted position when winds are anticipated to exceed 50 mph.

If someone is accidentally electrocuted, don't touch him or the tower if he is still in contact with the tower or downed power lines. Use a dry stick, like a broom handle or wooden ladder, etc. and in one sweep push the person free from the tower or knock the wire away and off the victim. Don't allow the wire to touch the victim again. Have someone call the power company and an ambulance.

Site Selection

The tower requires a concrete base approximately 2½' x 2½' x 4' deep. Among the factors to be evaluated in selecting a tower site are the types of earth at the installation site and the nearness of power lines or overhanging tree limbs. Soil conditions around the tower foundation should allow access to the tower during all weather conditions.

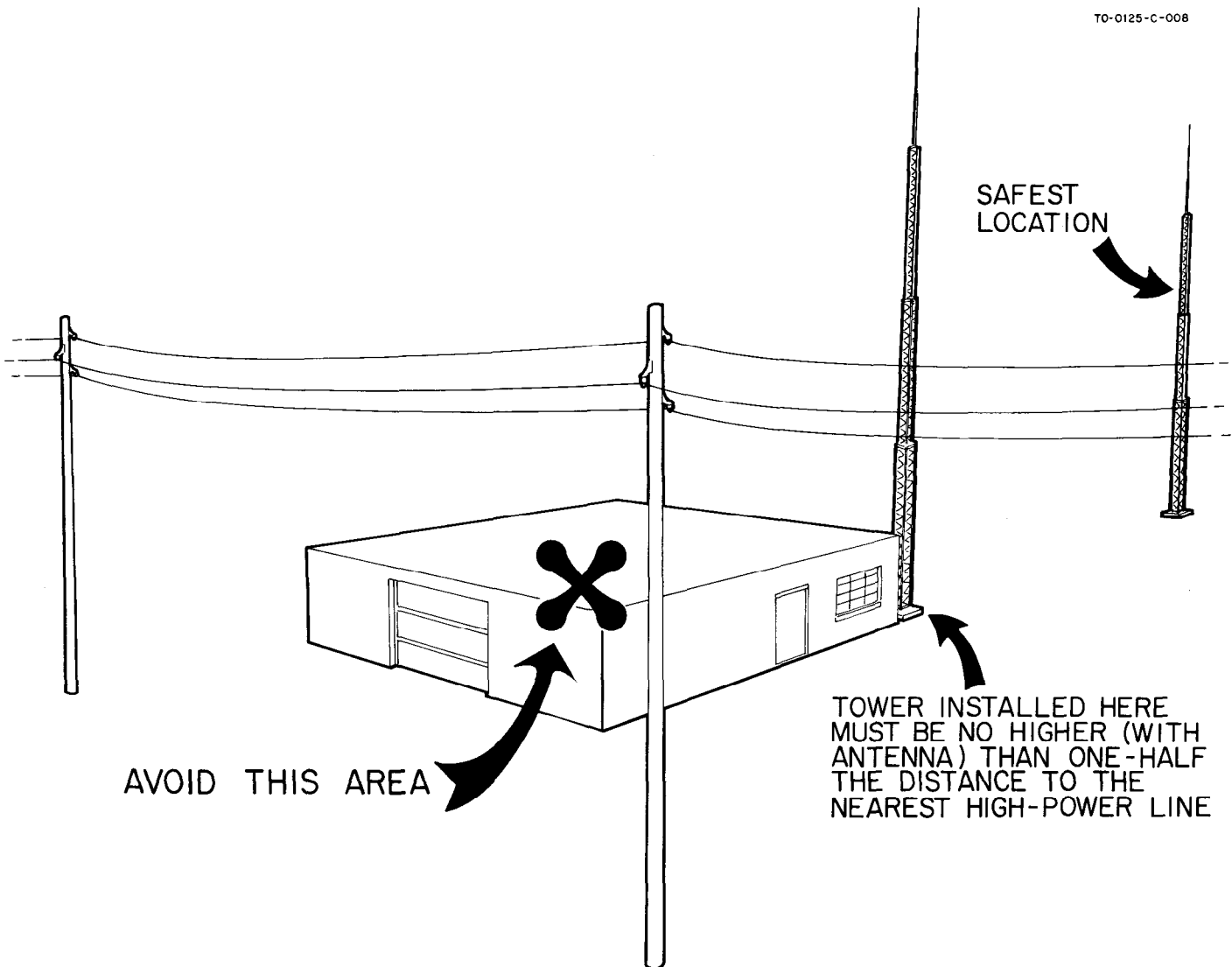


Figure 2. Safe Location of Tower

CHAPTER 3. INSTALLATION PROCEDURES

Planning Your Procedure

Good planning is a key to a successful and safe tower installation. If you're not sure about a careful, safe installation, don't try to do it yourself. Call for professional help (Yellow Pages under Towers or your local power company).

The tower should be as close as possible to its related equipment. Determine the best possible site while thinking about power lines, but also think about overhanging tree limbs that may be blown into the tower during high winds.

Foundation

Dig a hole 30" square x 4'3" deep as shown in Figure 3.

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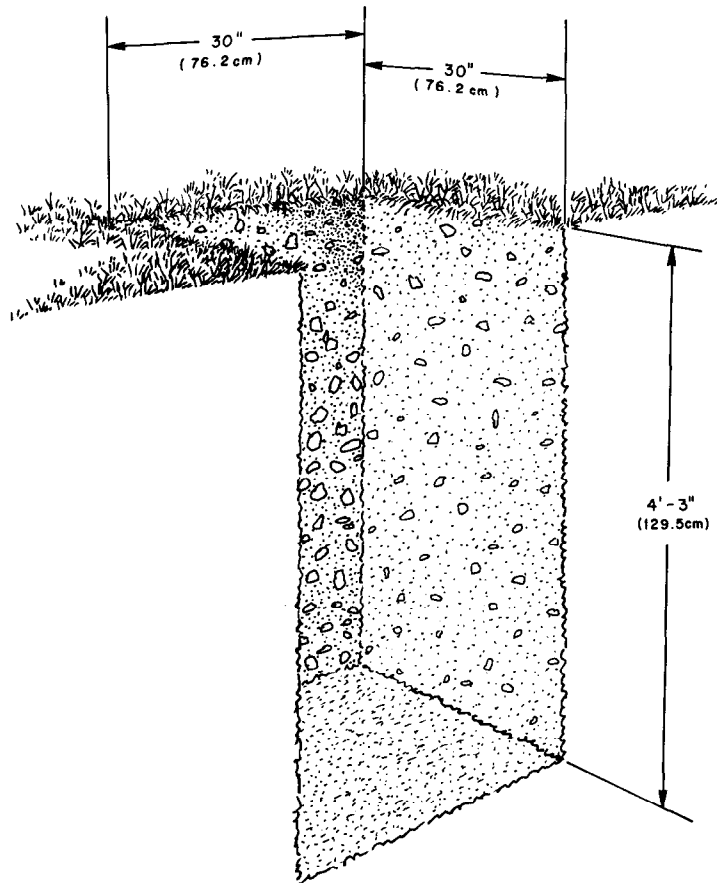


Figure 3. Digging Hole for Foundation

Wood Forms Construction

Construct a wooden frame around the hole to support the base assembly as shown in Figure 4.

In the U.S.A. the dimensions of lumber is listed, and referred to, as the size after it is rough-cut at the sawmill; prior to being dried, planed and sold on the market.

A sample would be the "2 x 4" (2" x 4"), which after being dried and planed will measure 1½" x 3½" (3.81 x 8.89cm), or a "2 by 6" (2" x 6") which will measure 1½" x 5½" (3.81 x 13.97cm).

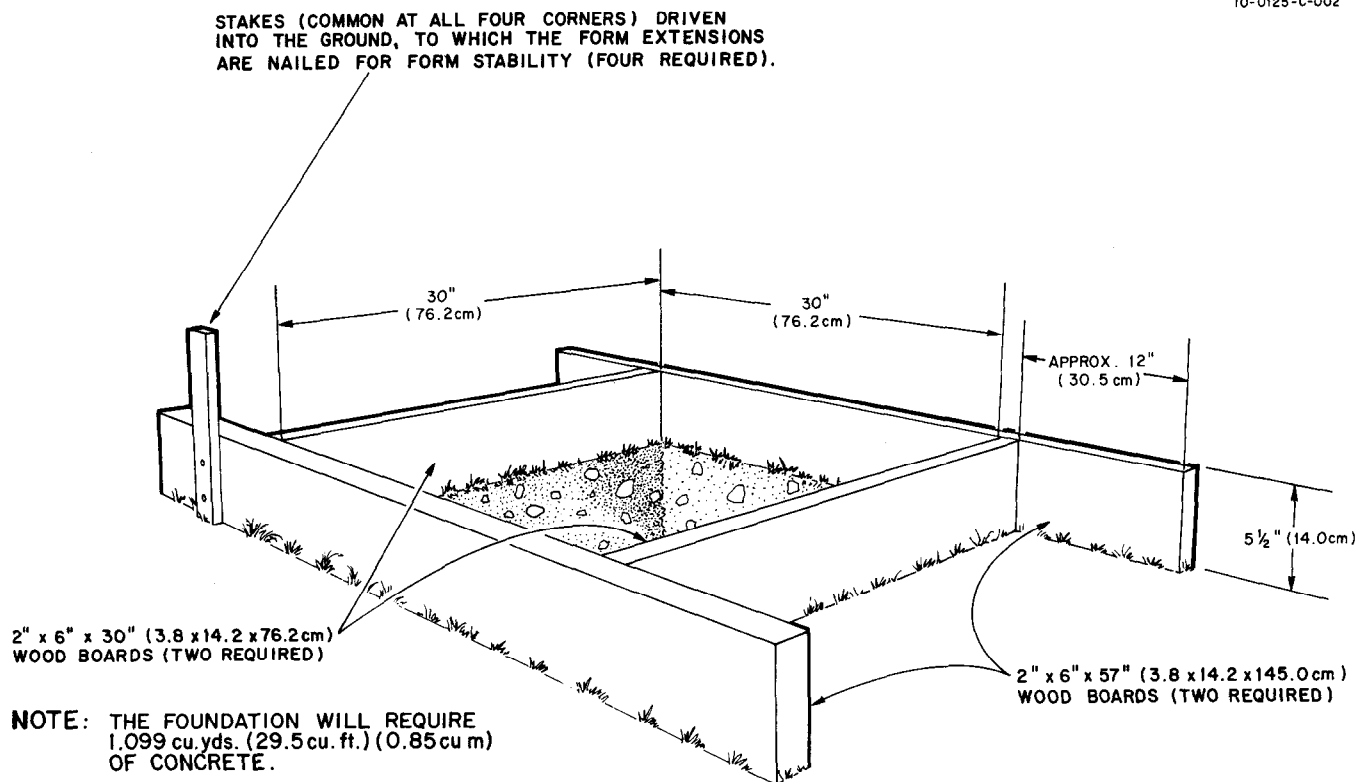


Figure 4. Constructing Frame for Concrete Base

Orient your tower base in the direction your tower will be raised. The two parallel ears of the base assembly will be the hinged side.

IMPORTANT

THE TABS ON THE BASE ASSEMBLY MUST MATCH THE SPACING DIMENSIONS CALLED OUT IN FIGURE 5.

The tabs on the tower base assembly may have been knocked out of alignment during shipment or while in storage.

Check and realign the tabs, using a large hammer, so they will agree with the dimensions given in Figure 5.

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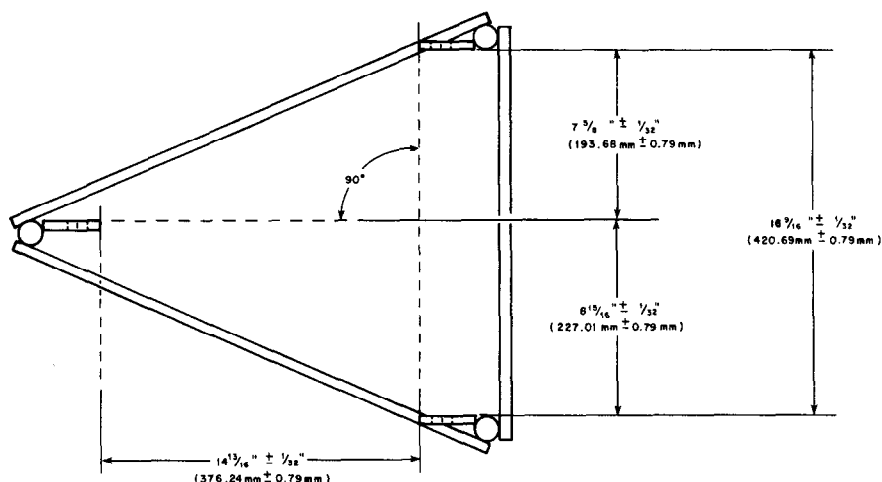


Figure 5. Top View of Foundation Structure Assembly

Drill a $\frac{3}{4}$ " hole in each cross member in line with the lower holes in the base assembly as shown in Figure 6.

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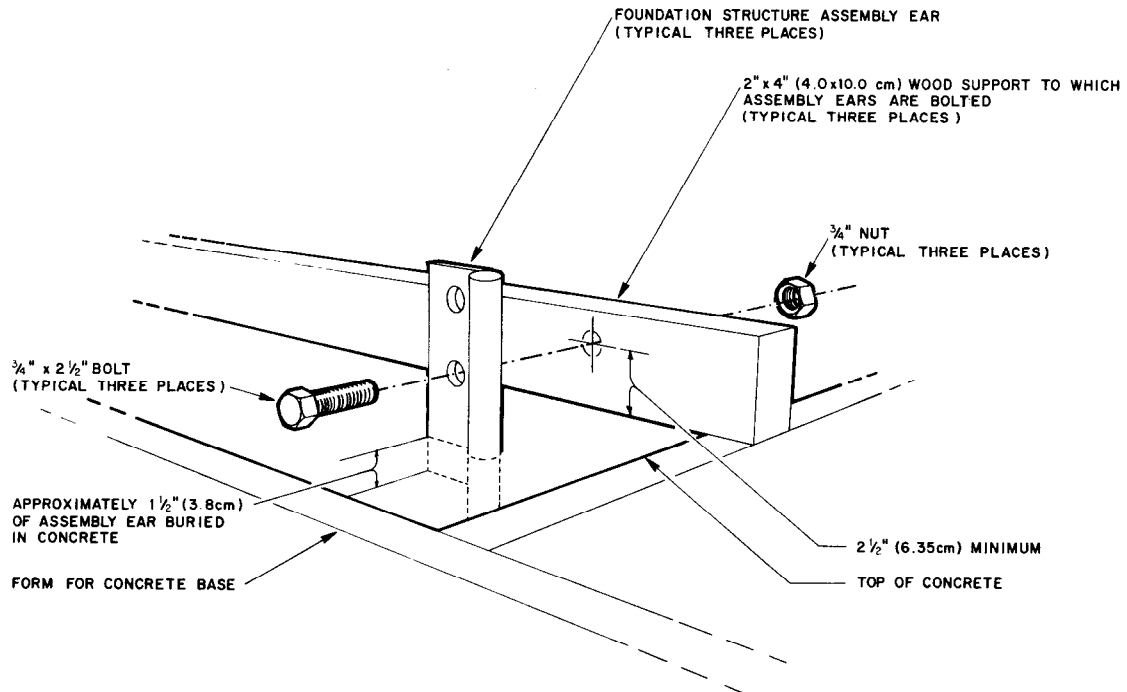


Figure 6. Hanging Base Foundation From Forms

Attach the base assembly to the wood frame using $\frac{3}{4}$ " bolts.

Using a carpenter's level check all points to make sure base frame is level.

IMPORTANT

Base frame must be level for tower to raise and lower properly.

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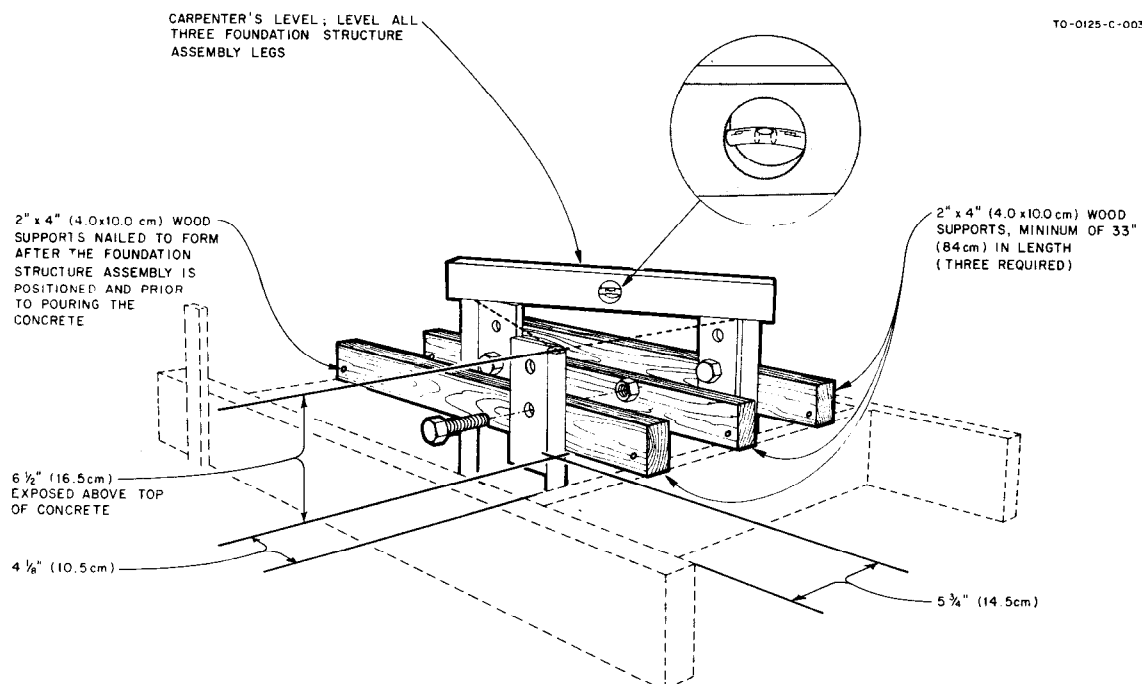
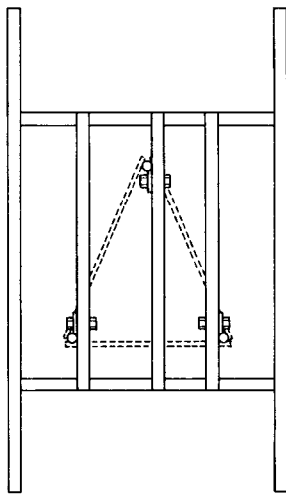


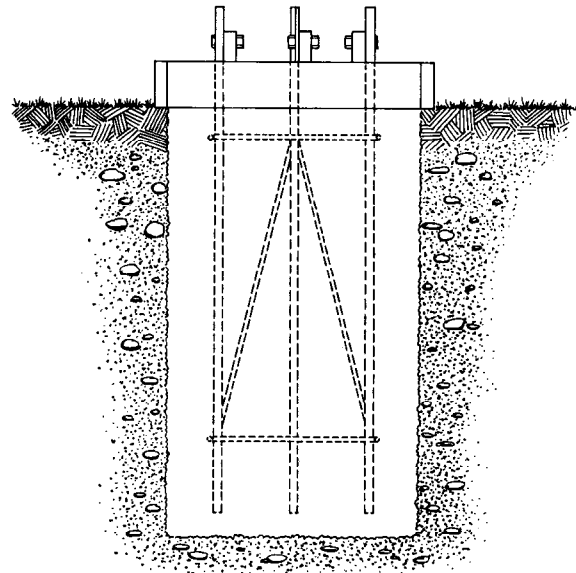
Figure 7. Attaching and Leveling Base Frame to Wood Forms

Pour concrete carefully into hole. Make certain base assembly maintains the proper clearance from the outside edges of the hole. Refer to Figure 8.

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TOP VIEW



SIDE VIEW

Figure 8. Tower Foundation

The concrete shall be designed to provide a minimum 28 day strength of 2000 PSI and shall contain not more than 7½ gallons of water per sack of cement.

After concrete is poured, check base assembly, making sure it is level and it hasn't shifted during the pour.

If the base is not level, tap the ears of the base with a hammer to level.

Let the base cure for at least one week before setting tower!

Attaching Tower to Base Plate

Set your tower on the hinged side of the base, align the bottom holes of the tower with the bottom holes in the base assembly. Install a single ¾" bolt in each of the two parallel base ears. See Figure 9.

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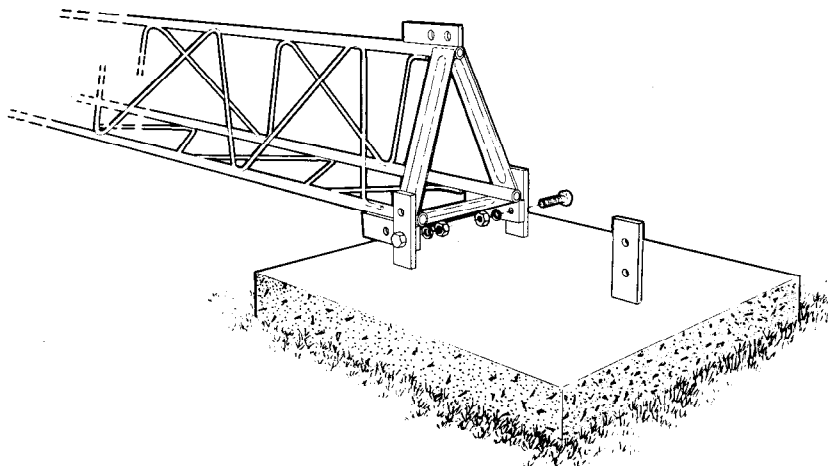


Figure 9. Attaching Tower to Base Tabs

Support the tower on a support, like a sawhorse, and attach your antenna and/or rotator to the tower before raising the tower as shown in Figure 10. The support should not have any sharp edges that may come into contact with the winch cable.

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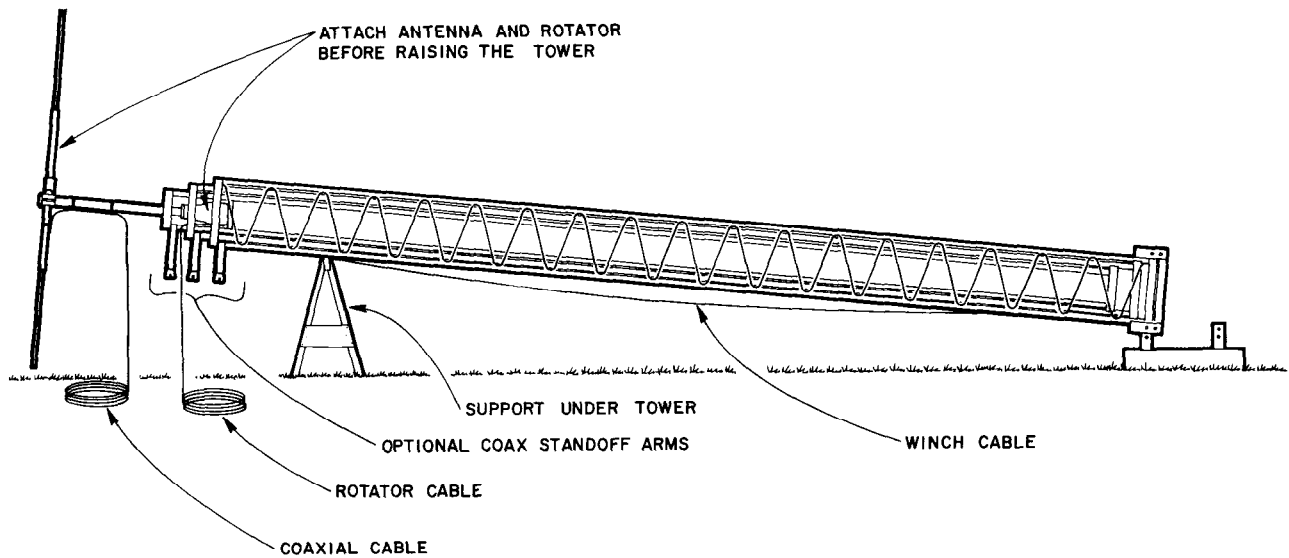


Figure 10. Supporting Tower While Attaching Related Products

Lift tower into place with gin pole, block and tackle as shown in Figure 11.

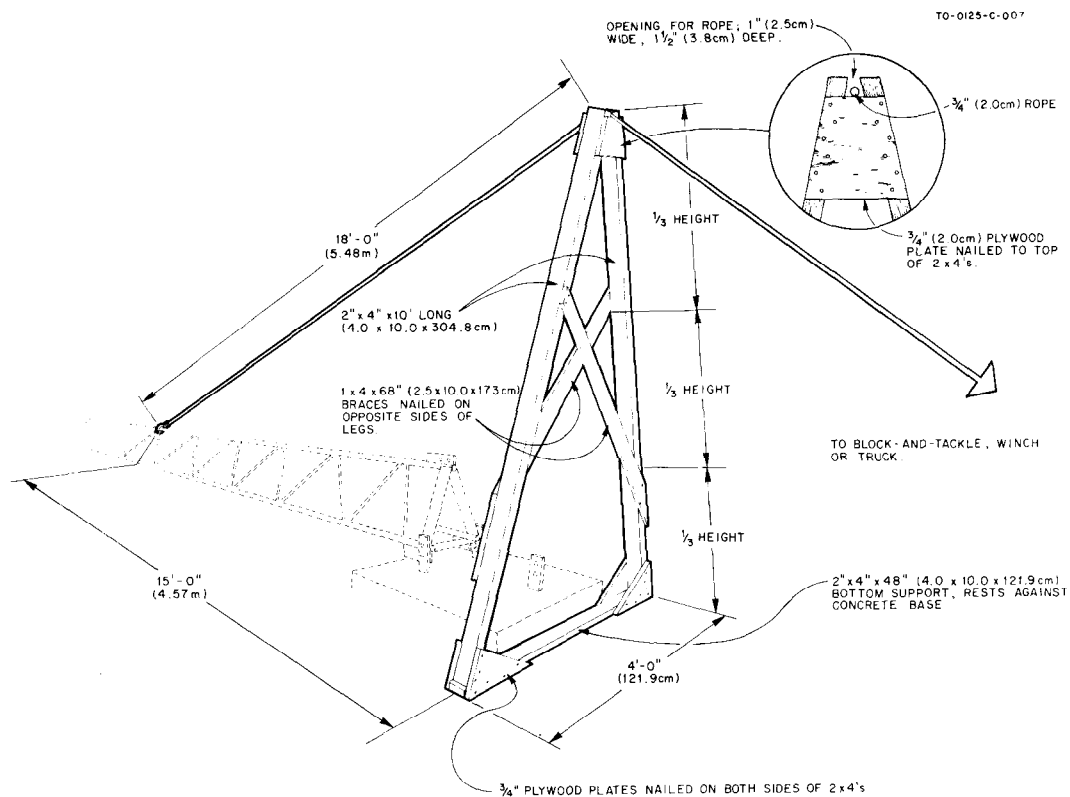


Figure 11. Constructing Gin Pole

After tower is up, put all base bolts in place and secure tower in vertical position.

Attach winch assembly to tower winch plate as shown in Figure 12.

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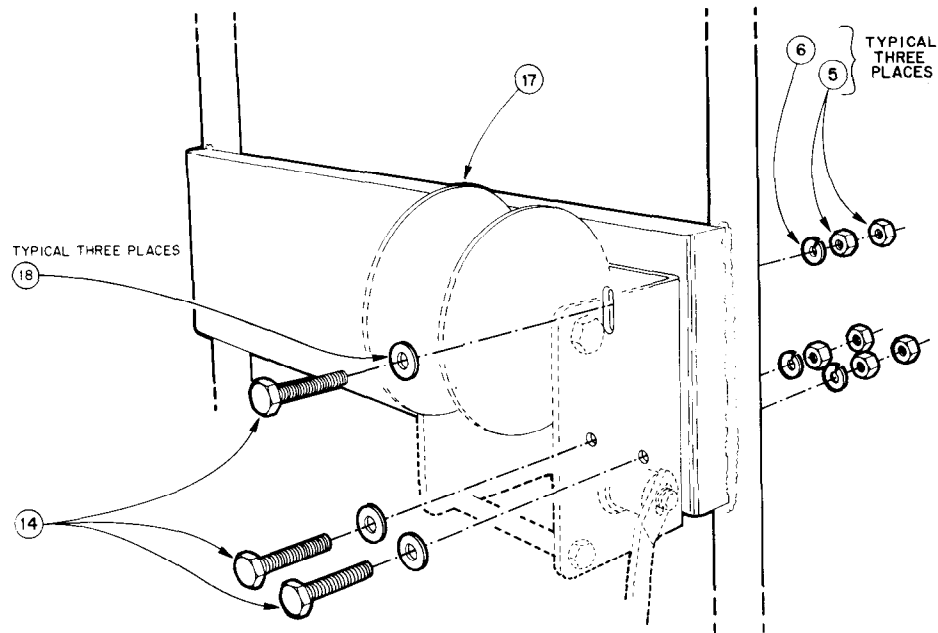


Figure 12. Attaching Winch Assembly to Tower

Connect the cable to the winch as shown.

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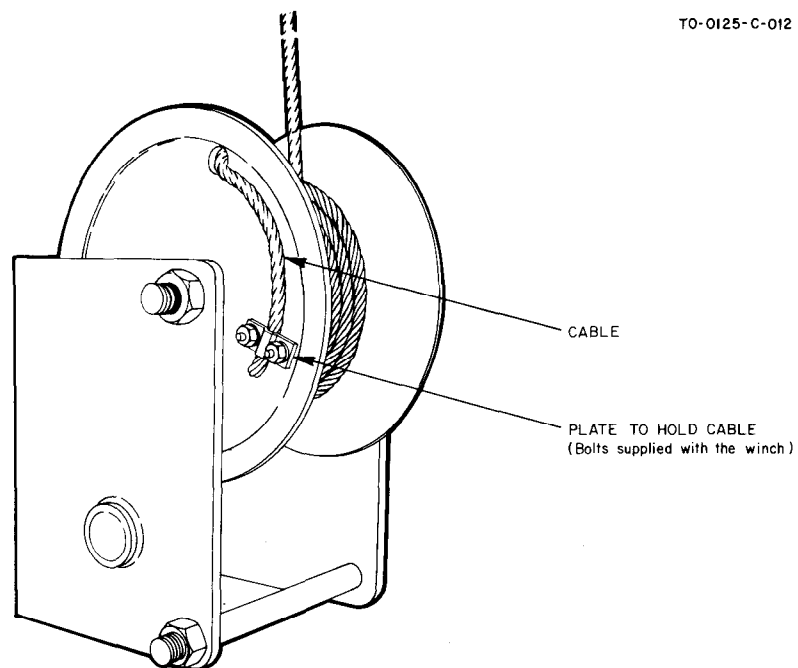


Figure 13. Connecting Cable to Winch

Lightning Protection

To protect your installation and your radio equipment, the tower system must be properly grounded. Drive a 4'-8' ground rod as close as possible to the tower structure.

Then connect a #8 (or larger) copper or aluminum wire between the base of the tower and the ground rod. Also, a static discharge unit (Hy-Gain Model LA-1, Order No. 229, Lightning Arrestor) should be connected to the antenna lead-in at the place where it enters the home. (Follow the instructions provided with the static discharge unit.)

Parts List

NOTE: Item numbers are not in numerical sequence.

Item No.	Part Number	Description	Qty
1	871124	Sheave, cable, 1/2" x 3", with 3/8" oil bushing	2
2	350685	Sleeve, nicopress, 3/16"	6
3	506880	Screw, 3/8"-16 x 1 1/2", hex head	1
4	509320	Screw, 3/8"-16 x 1", hex head	2
5	558137	Nut, 3/8"-16, hex, jam	3
6	561295	Lockwasher, 3/8", split	3
7	690193	Cable, 3/16" x 39 ft.	1
8	690197	Cable, 3/16" x 20 1/2 ft.	1
9	871094	Structure, foundation	1
10	871069	Parts Pack, Product 125	1
12	380396	Plate, rotator support	1
13	500116	Screw, 3/4"-10 x 2", hex head	6
14	509320	Screw, 3/8"-16 x 1", hex head	4
15	557628	Nut, 3/4"-10, hex	6
5	558137	Nut, 3/8"-16, hex, jam	7
6	561295	Lockwasher, 3/8", split	3
16	567626	Lockwasher, 3/4", split	6
17	871067	Winch	1
18	567105	Flatwasher, 3/8"	3
19	170427	Tube, brace, 1/2" x 9"	1
20	165123	Clamp, compression, 1/2" ID	2
21	356788	Thimble, rope, 3/16"	3
22	380401	Pin, 3/8" x 1 1/2"	2
23	506465	Screw, #10-24 x 5/8", hex head	2
24	555362	Nut, #10-24, square	2
25	556970	Nut, #10-24, hex	2
26	567105	Flatwasher, 3/8"	4
27	590009	Pin, cotter, 3/32" x 3/4"	4

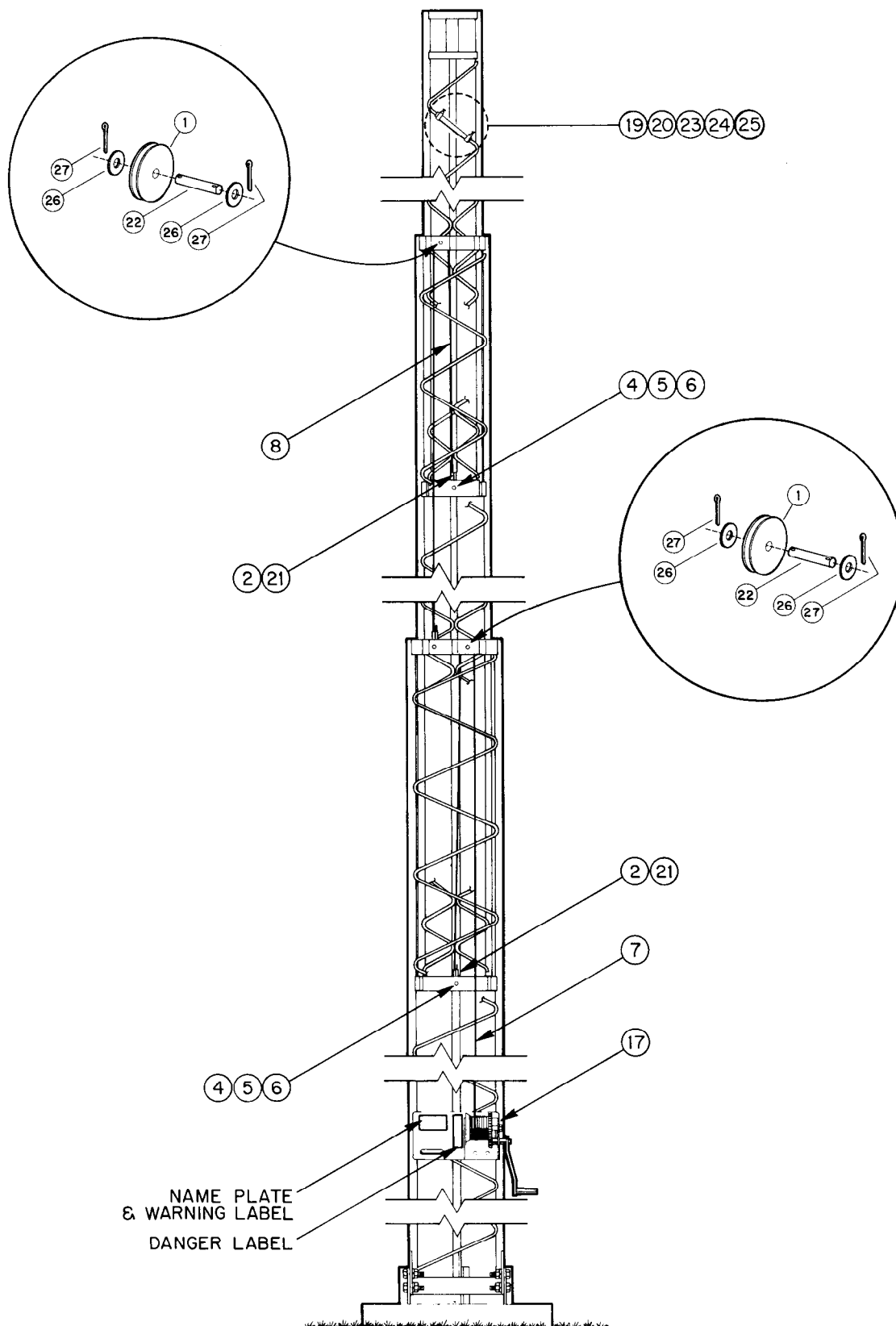


Figure 14
Tower with Call-Outs of all Parts

Installation Instructions For Rotator and Mounting Plate

General

This tower is designed to accept most any style rotator.

The smallest tower section has a removable brace to allow insertion of the rotator and rotator mounting plate.

Refer to Instruction Manual enclosed in parts pack for complete tower installation procedures.

CAUTION

The tower must be in the nested position before any work begins.

Rotator Installation

Using the winch, crank the tower only high enough to allow the removable brace to clear the top of the second tower section.

- Refer to Figure A-1. Loosen the two #10 x $\frac{3}{4}$ " bolts on each end of the removable brace. Loosen the two #10 locknuts then loosen the two #10 x $\frac{3}{4}$ " bolts.
 - Slide the brace up and out to remove.
 - For a rotator that installs below the mounting plate follow the steps below and refer to Figure A-2.
1. Set the rotator in the tower with the shaft bearing pointing up. If the mast brackets or clamps are attached to the rotator shaft, they must be removed.
 2. Set the rotator mounting plate in the tower so it will set directly on the three stops welded to the inside of each tower leg.
 3. Bolt the rotator to the mounting plate using the mounting bolts supplied with the rotator.
 4. Assemble the rotator-to-mast, mast platform and mast as shown in Figure A-2.
 5. Re-connect the removable brace to its original position on tower.

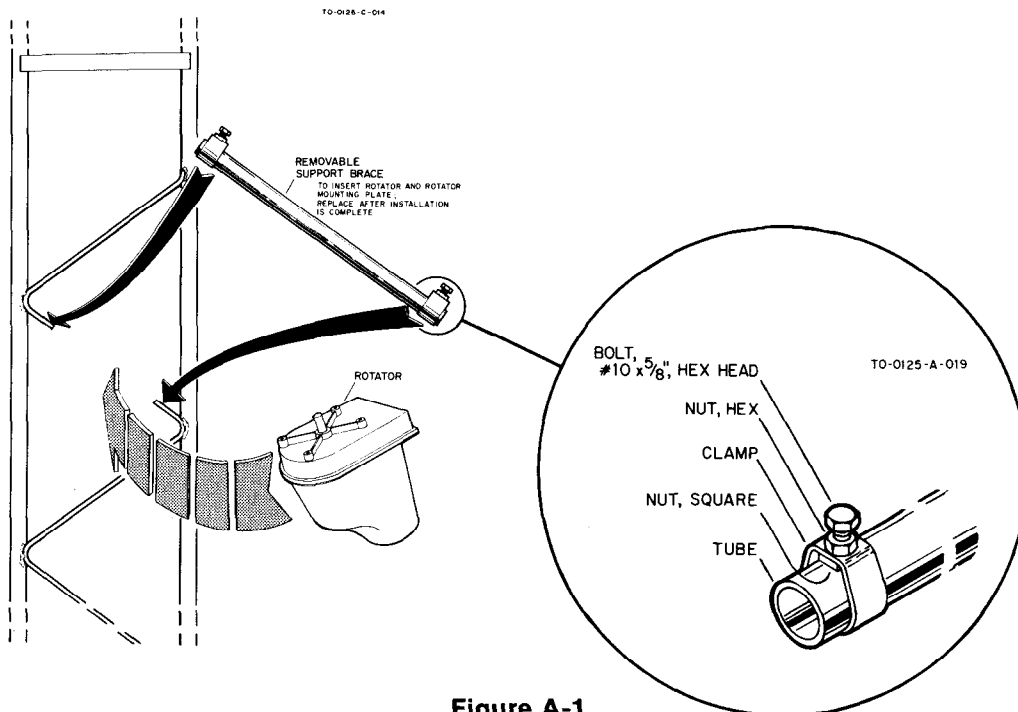


Figure A-1

Rotator mounted above the rotator mounting plate, follow these instructions and refer to Figure A-3.

1. Insert the rotator mounting plate in the tower so it rests on the mounting plate stops.
2. Install the rotator on the mounting plate. Use the mounting bolts supplied with the rotator.
3. Loosen the mast clamp so the mast can be inserted in the clamp.
4. Tighten the mast clamp around the mast.
5. Mount your antenna on the top of the mast. If you are using coax arms, tie your rotator coax to the coax arms.
6. Connect your coax to the radio equipment.
7. Reconnect the removable brace to its original position on the tower section. Tighten the #10 hardware securely. Tighten the #10 x $\frac{3}{4}$ " bolts and secure with the #10 hex lock nuts.

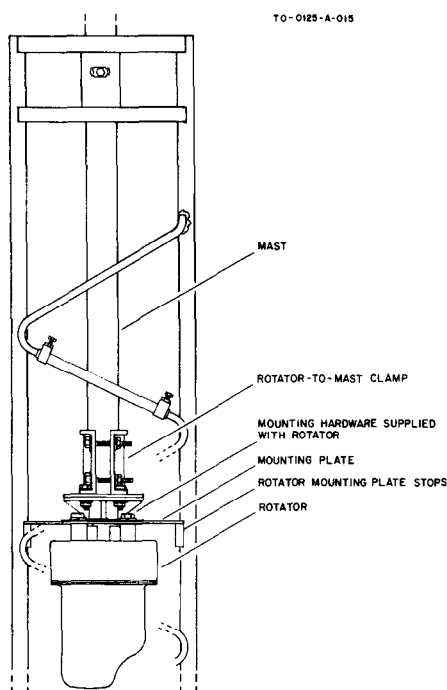


Figure A-2
Typical Installation
of Rotator Mounted
Below Plate

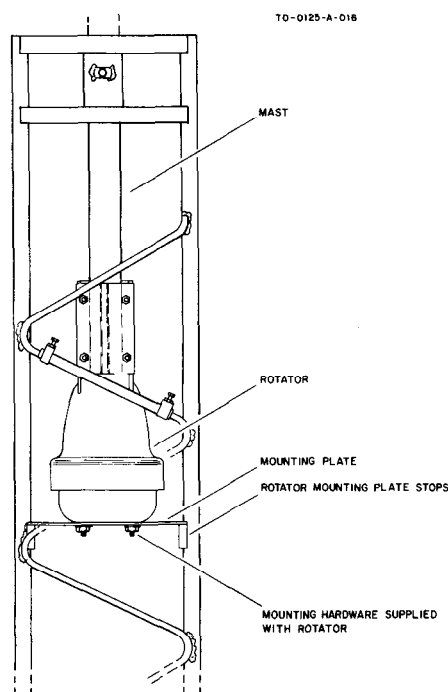


Figure A-3
Typical Installation
of Rotator Mounted
Above Plate



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