# HG-33MT2

## 33 Foot Crank-up Tower

# ORDER NO. 132



TELEX® hy-gain®

TELEX COMMUNICATIONS, INC.

8601 East Cornhusker Highway, P.O. Box 5579, Lincoln, NE 68505-5579

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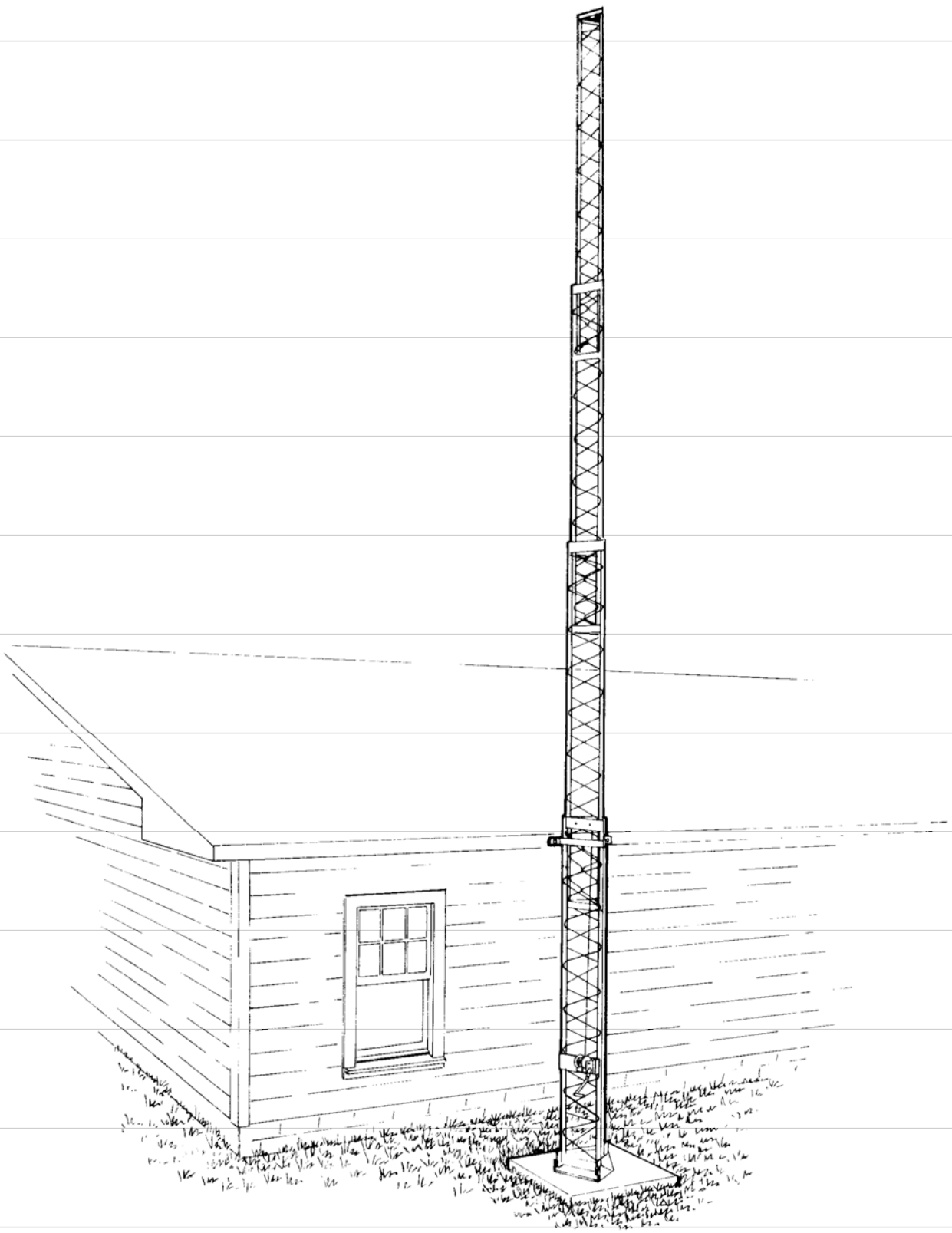
05-TD06-C-001



# CHAPTER 1
# GENERAL INFORMATION

**Warning**

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

## General Description

The Hy-Gain Model HG-33MT2 is a 33-foot, 4-Section, side-supported crank-up tower designed for antenna loads of up to 8.5 square feet in 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. The bottom section is supported by guying or by a side bracket attached to a building. The top three sections are self-supporting.

## 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.
8601 East Cornhusker Highway
P.O. Box 5579
Lincoln, Nebraska 68505-5579
Attention: Traffic Department

### Specifications

| | |
|---|---|
| Height | |
| Extended | 33 feet (10.06 m) |
| Nested | 11.5 feet (3.51 m) |
| Guying | Bottom section roof bracket |
| 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 | 8.5 square feet (0.791 sq. m) |

## Equipment Supplied

The HG-33MT2 tower is supplied complete, including anchor bolts, base plate and roof bracket. 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 |
| 1 Power Drill with 3/8" bit | Attaching Tower Bracket to Wall |

# Warning

## Do Not Climb

**Do Not attempt two 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.**

# 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 off 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 parts 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 side 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 for antenna rotator servicing.
9. Don't overload. The design load limit is 8.5 square feet 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 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, such as 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 24" x 24" x 18" 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.

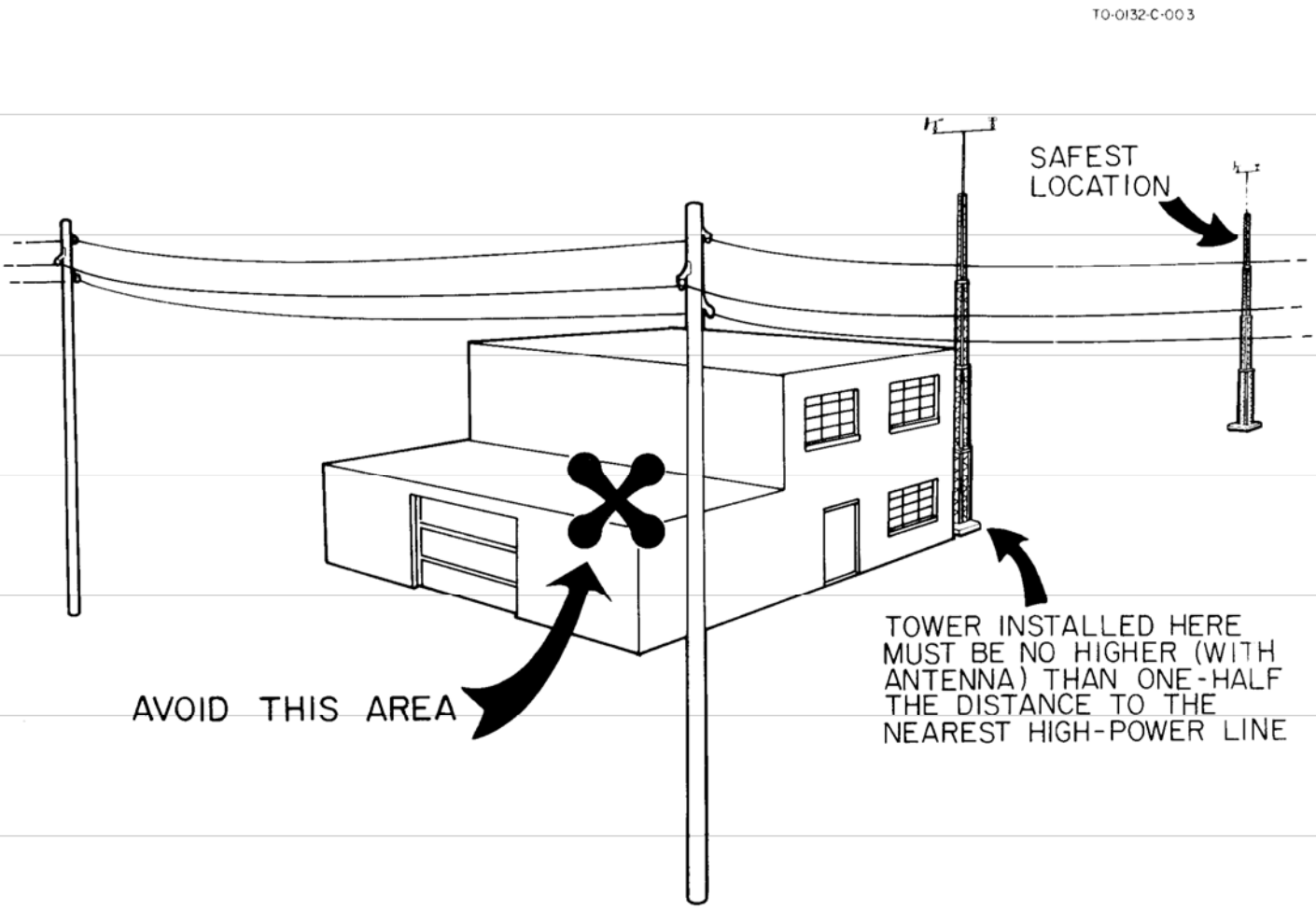



**Figure 1**
**Safe Location of Tower**

# CHAPTER 3
# INSTALLATION PROCEDURES

## Planning Your Procedure

Good planning is the key to a successful and safe tower installation. If you've 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 libs that may be blown into the tower during high winds.

## Foundation

Dig a hole 24" square x 18" deep.

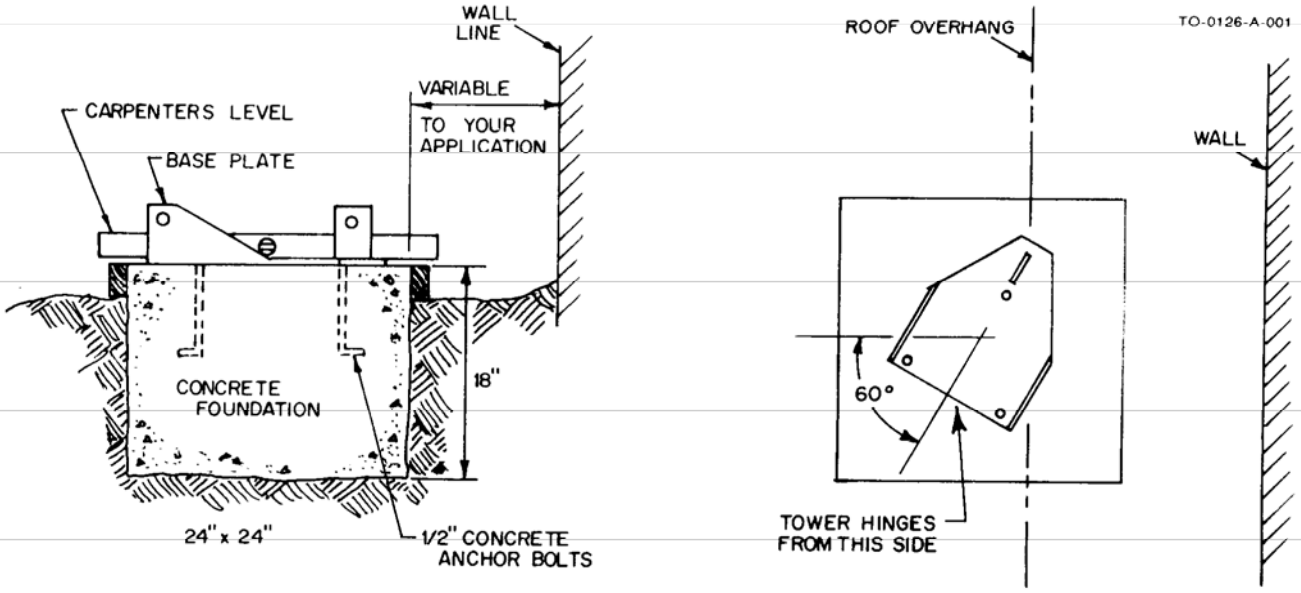
Pour concrete and vibrate well to eliminate all voids.

**NOTE:** The tower base plate shipped with the tower can be used as a template to align the anchor bolts in the concrete.

The tower base plate must set level to allow the tower to stand vertical. Use a carpenter's level when building your concrete forms. Check for levelness again after base plate has been installed on concrete. Tap base plate lightly to level.

After the concrete is poured, push the three 1/2" x 10" concrete anchor bolts through the three holes in the base assembly.

Adjust the base plate so the tower can be hinged from the two parallel ears and when erected will stand next to your building or overhang of your roof. See Figure 2.




**Elevation** **Top View**

**Figure 2**
**Tower Base Detail**

Push the concrete anchor bolts into the wet concrete so the base plate sets directly on the poured concrete.

Allow the concrete to cure for seven (7) days before installing your 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 holes in the base plate assembly. Install a single 3/4" bolt in each of the two parallel base ears, see Figure 3. Flatwasher (3/4") are furnished for use as shims, if needed, between the tower leg and the base plate ears.

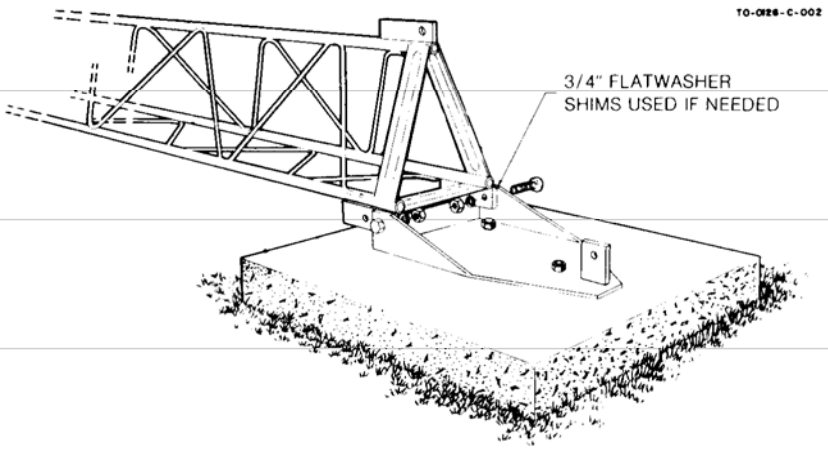



**Figure 3**
**Attaching Tower to Base Tabs**

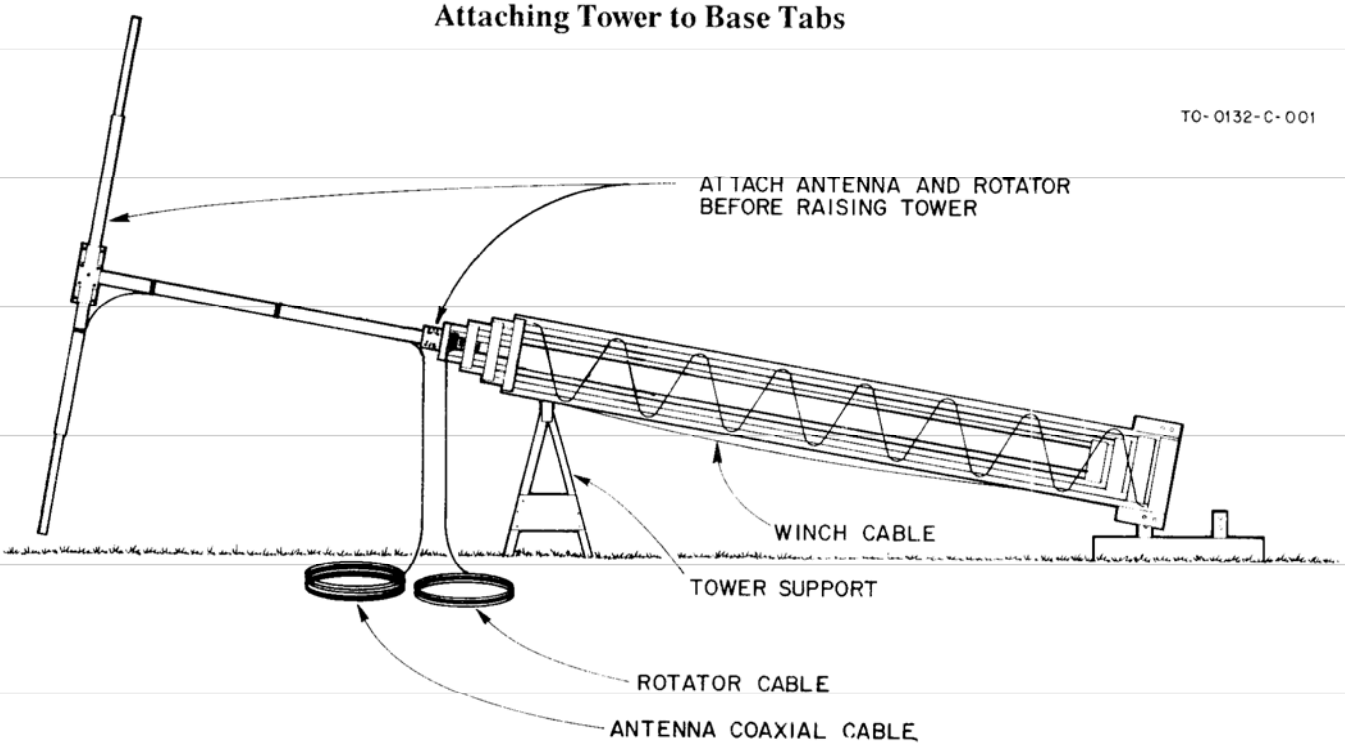



**Figure 4**
**Supporting Tower While Attaching Related Products**

Support the tower on a support, such as a sawhorse, and attach your antenna and/or Rotator to the tower before raising the tower as shown in Figure 4. The support should not have any sharp edges that may come into contact with the winch cable.

NOTE: The antenna load limits should not exceed the limits listed in the specifications.

## Winch Cable

Untie the coil of cable from the top of the tower. Uncoil and lay it along the outside of the tower near the tower base.

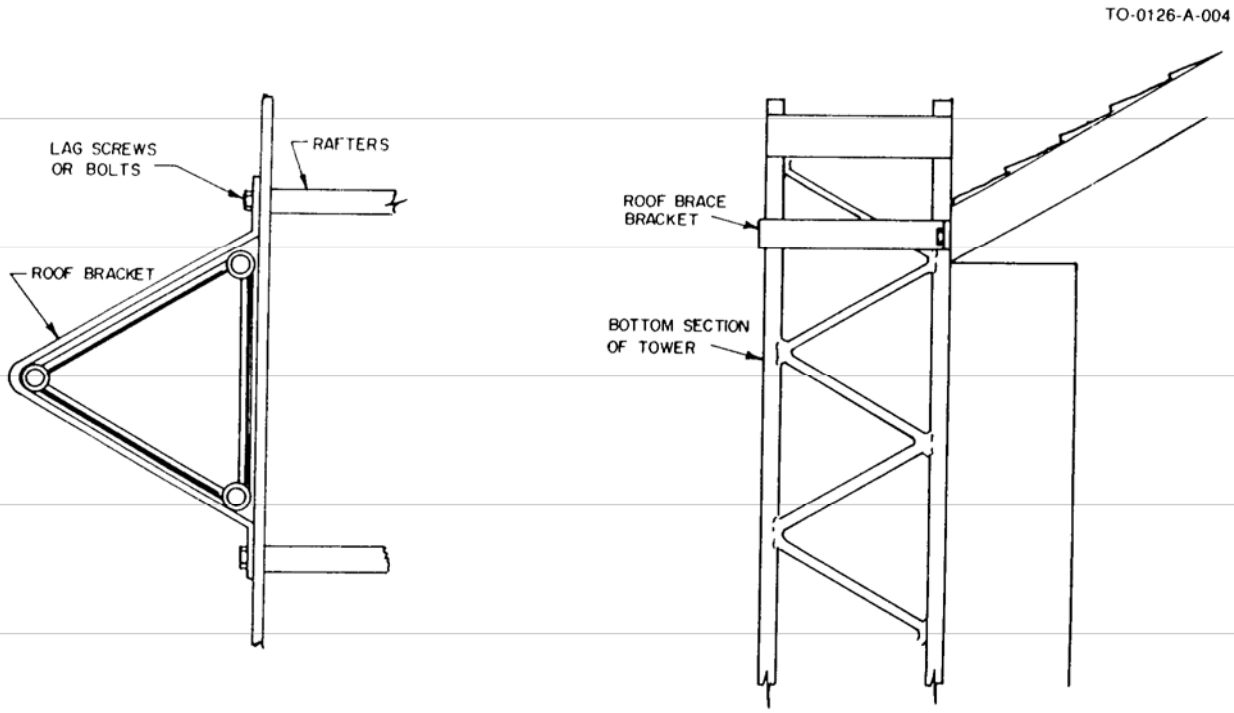
## Raising Tower to Vertical Position

Raise the tower up to the vertical position and bolt the third leg to the base plate with the 3/4" x 2" bolts and associated hardware.

Figure 5 shows only one typical application of the Roof Brace Bracket. Your application may vary from that shown. Use good judgement when attaching the bracket to any support structure. The manufacturer is not held responsible for improper anchoring methods.

Whatever your application, make sure the roof brace bracket is attached to solid construction such as a rafter or a solid concrete wall with lag screws or bolts. Damage to the support structure and/or tower may result if proper anchoring methods are not followed.

Attach winch assembly to tower winch plate as shown in the winch manual. Use the 3/8" bolts, flatwasher, lockwasher, and nuts. Attach the winch cable as shown in the winch manual.




**Top View** **Side View**

**Figure 5**
**Attaching Roof Bracket Around Bottom Section of Tower**

## Lightning Protection

To protect your installation and your radio equipment, the tower system must be properly grounded. Drive a four to eight foot 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 should be connected to the antenna lead-in at the place where it enters the home. (Follow the instructions provided with a static discharge unit.)

## Tower Maintenance

To maintain proper and safe operation, inspect and lubricate your tower at least once a year; more often if subject to frequent use. Always be sure you tower is in the retracted position before attempting any maintenance procedures.

Inspect all bolts for tightness including cable termination, winch and base bolts.
Inspect raising cables and replace if excessively kinked or frayed.
Inspect pulleys and pins for excessive wear and replace as required.
Place a few drops of light machine oil on all pulley bearings.
Prefer to winch manual for proper lubrication of winch.

## Raising and Lowering Tower

Before cranking the winch to raise the tower, examine the raising cables to be certain that they are securely terminated and properly positioned in the cable sheave groves.

The tower should raise with only moderate effort with the hand crank winch. If excessive force is required, check again for possible shipment damage. DO NOT force the tower up. It may become jammed in an extended position and won't retract under its own weight.

When lowering the tower, simply crank the winch in the opposite direction. Constantly check the upper section cables to make sure they remain taut as the tower is lowered.

**CAUTION**
When cranking the tower down, make sure all sections lower simultaneously.

A second person should watch the lowering sequence carefully to make sure all sections of the tower lower together.

A good way to tell is by watching the raising cable. If any of the cables become slack at any location, STOP. The tower sections is binding up and must be cleared before lowering continues.

## Procedures for Freeing Binding Tower Sections

Some causes for the sections to bind can be:

1. Bent tower braces during shipment or installation.
2. A heavy object has been accidentally knocked into the tower bracing after installation is complete.
3. Excessive wind force can cause a tower section to bind up and not retract straight in line with the next larger tower section
4. Unbalanced antenna or other equipment
5. Foreign objects such as tree limbs, dirt or ice can reduce clearance between sections.

To correct these problems, crank the tower back up until the cable is tight. A soft, rubber faced hammer can be used on the tower legs while lowering the tower to jar the obstruction free. If you use a rubber mallet, tap only on the tower leg where the bracing meets the leg and tap as far up on the bottom section as you can reach. NEVER TAP ON ANY TOWER BRACING!!! See Figure 6.

If cable becomes slack again, raise the tower to tighten the cable and repeat the procedure.

Another procedure to free binding sections is to rotate the antenna or equipment to a different heading one or more times. Doing so can help solve the binding caused by 3 and 4 above.

If foreign objects must be removed to free the tower, DO NOT CLIMB THE TOWER! Be sure all cable are tight before doing so.

If none of the previous methods work to free the tower, seek professional help. A snorkel or boom truck can be utilized to inspect, and correct the cause of the binding. Never leave the cable slack hoping the tower will free itself. If it does come free it could collapse completely, damaging both the tower and your equipment attached. All Hy-Gain towers are factory tested (fully extended and retracted) and inspected before being shipped, to insure proper operation.

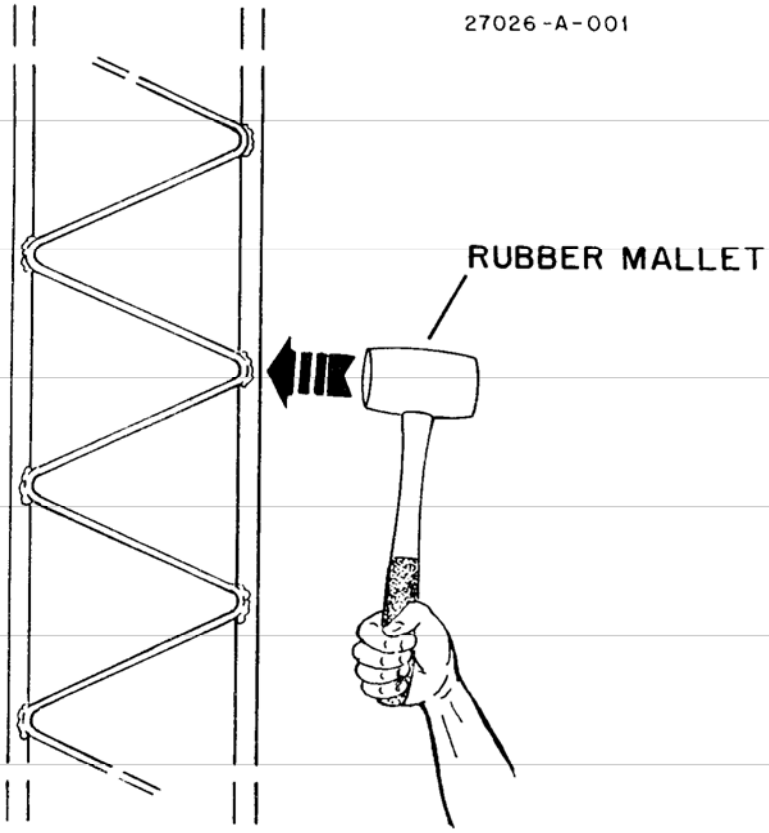



**Figure 6**
**Freeing Binding Tower**

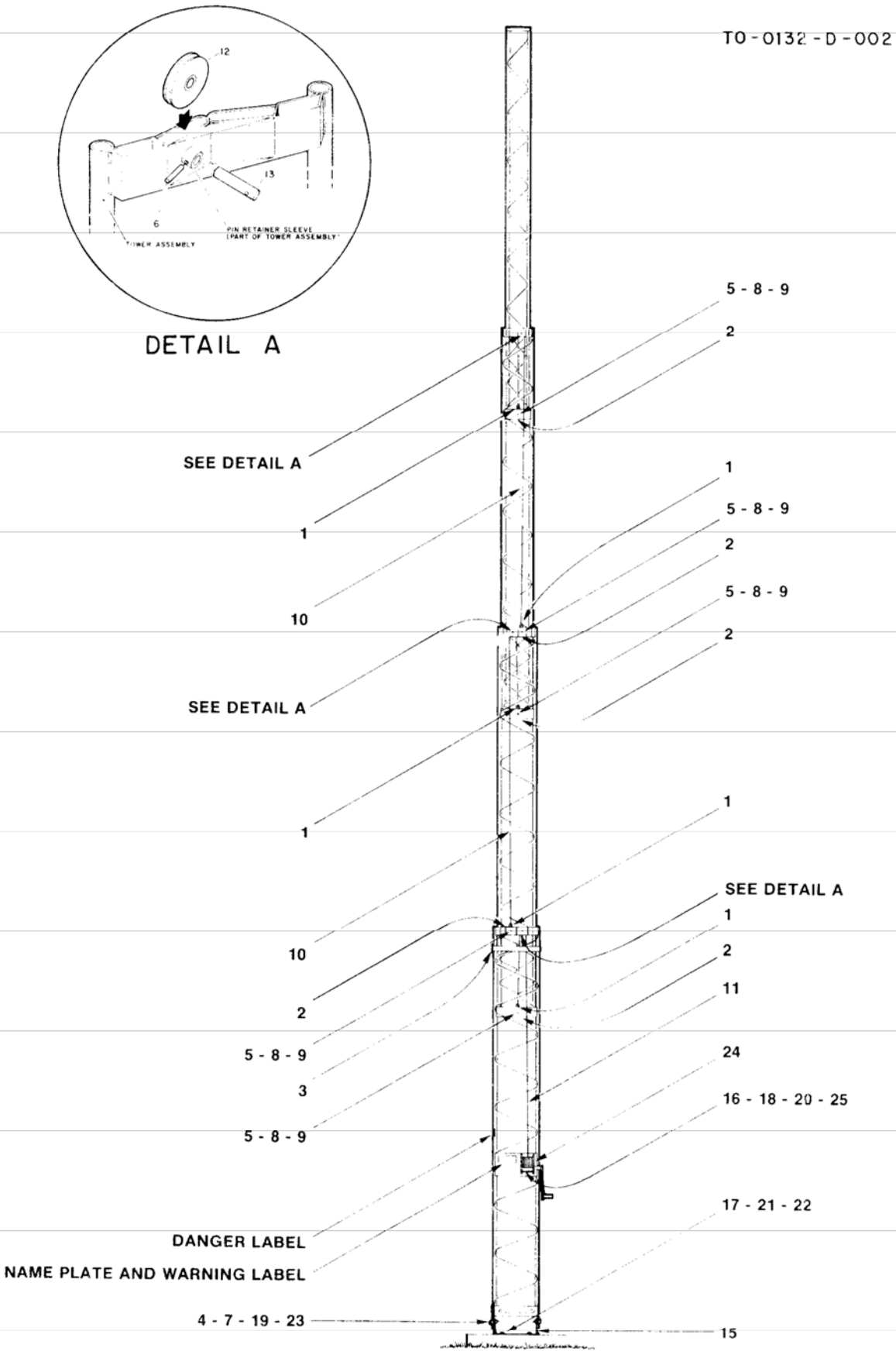



**Figure 7**
**Tower with Call-Outs of All Parts**

# CHAPTER 4
# PARTS LIST

| Item No. | Part No. | Description | Qty |
|---|---|---|---|
| 1 | 350685 | Nicopress® Sleeve, 3/16" | 10 |
| 2 | 356788 | Rope Thimble, galvanized, 3/16" | 5 |
| 3 | 380395 | Roof Bracket , 10 Gauge x 1 1/2" | 1 |
| 4 | 500116 | Bolt, hex heac, 3/4"-10 x 2" | 3 |
| 5 | 506865 | Bolt, hex heac, 1/2"-13 x 1 1/2" | 5 |
| 6 | 590023 | Pin, Retainer, 5/32" x 7/8" | 3 |
| 7 | 557628 | Nut, hex, 3/4"-10 | 3 |
| 8 | 550064 | Nut, hex jam, 1/2"-13 | 5 |
| 9 | 567055 | Lockwasher, split, 1/2" | 5 |
| 10 | 690195 | Cable, 3/16" x 11" | 2 |
| 11 | 690196 | Cable, 3/16 x 19' | 1 |
| 12 | 871154 | Cable Sheave w/oil bushing, aluminum | 3 |
| 13 | 380664 | Pin Pulley, 1/2" x 1 9/16", stainless steel | 3 |
| 14 | 880099 | Tower Assembly | 1 |
| 15 | 880119 | Base Plate Assembly | 1 |
| | 871129 | Parts Pack, 132 | 1 |
| 16 | 509320 | Bolt, hex head, 3/8"-16 x 1" | 3 |
| 17 | 540080 | Anchor Bolt w/Nut, 1/2"-13 x 10" | 3 |
| 18 | 558137 | Nut, hex jam, 3/8-16 | 6 |
| 19 | 560060 | Flatwahser, 3/4" | 3 |
| 20 | 561295 | Lockwasher, split, 3/8" | 3 |
| 21 | 565872 | Lockwasher, split, 1/2" | 3 |
| 22 | 567066 | Flatwasher, 1/2" | 3 |
| 23 | 567626 | Lockwasher, split, 3/4" | 3 |
| 24 | 871076 | Winch | 1 |
| 25 | 567105 | Flatwasher, 3/8" | 3 |

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