

HG-37SS



hy-gain.

308 Industrial Park Road

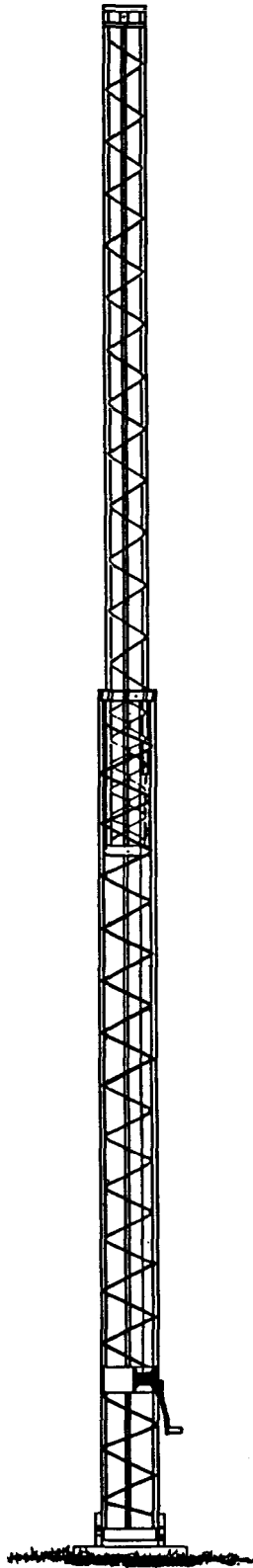
Starkville, MS 39759 USA PH: 662-

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Overall View of HG-37SS Tower

CHAPTER 1 - GENERAL INFORMATION

WARNING

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

General

This model is a 36-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. 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

308 Industrial Park Road
Starkville, Mississippi 39759
USA

Phone: 662-323-9538

FAX: 662-323-6551

Specifications

Height	
Extended	36 feet (10.97 m)
Nested	self-supporting
Nested	20' 6" (6.25 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 (0.84 sq. m)

Equipment

The HG-37SS 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

Description	Use
Common hand tools	Tower Assembly & Base Foundation
1 Measuring Tape, 12'	Base Foundation
1 Level	Base Foundation

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.

CHAPTER 2 - SAFETY PRECAUTIONS

WARNING

Before you start installation of your tower let us warn you of the danger of letting any part of the 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 part or ladder touches a power line, it completes an electrical path from the power line though the metal tower and the installer (**YOU!**).

DON'TS

Don't install any tower near power lines. • Don't install a tower on a windy day.

• Don't try to do the job yourself.

• Don't try to catch the tower if it starts to fall. • Don't try to remove any metal objects from the power lines.

• 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.

Don't remove winch handle; use safety chain with lock to secure.

• Don't climb tower; use separate ladder or lower tower with gin pole for antenna rotator servicing.

DO'S

- 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.
- Do install the tower on a calm day and assure yourself of having plenty of daylight to complete installation.
- Do stay clear if the tower starts to fall or come in contact with power lines.
- Do call the power company to remove fallen towers from power lines or to help pick out a safe antenna site.
- Do crank tower down to retract 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 21/2' x 21/2' 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.

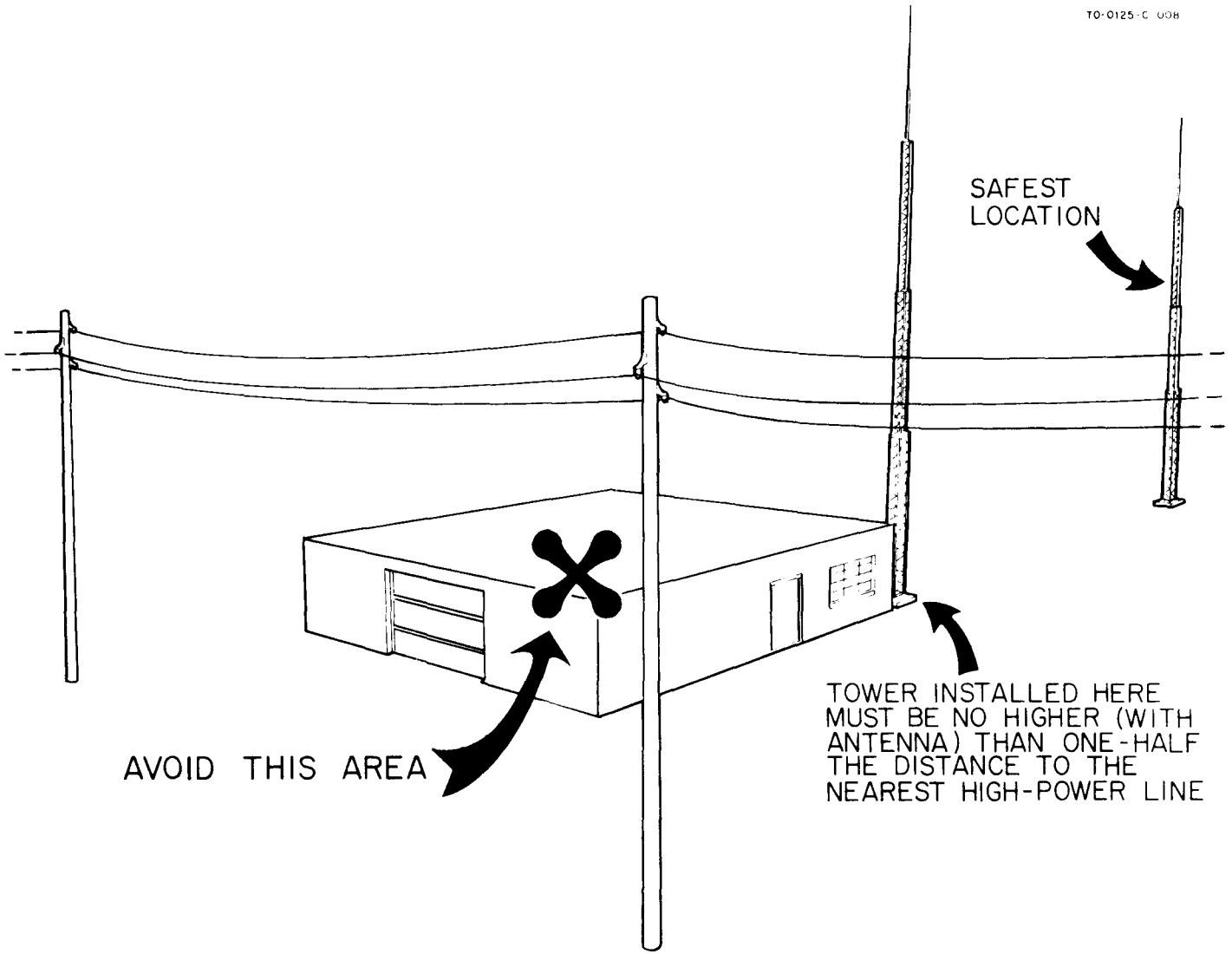


Figure 1 Safe Location of Tower

CHAPTER 3 - INSTALLATION

Checking Base Foundation

IMPORTANT
FOR PROPER ALIGNMENT, THE
TABS ON THE TOWER BASE
FOUNDATION ASSEMBLY MUST
CORRESPOND WITH THE TABS ON
THE



During shipment or while in storage, damage may have resulted to the tabs on the tower base foundation assembly.

Before installation of this tower, check proper alignment of the tabs. To do this, set the tower horizontally on two supports. Attach the base foundation assembly to the tower using the three-quarter inch (3/4") hardware, as shown below.

If the tabs on the base foundation assembly are out of alignment, use a large hammer to realign.

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' deep as shown in Figure 3.

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Figure 2 Checking Base Foundation
Assembly

Figure 3 Digging Hole for
Foundation

Wood Forms

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 are 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 by 4" (2" x 4"), which after being dried and planed will measure 1 1/2" x 3 1/2" (3.8 cm x 8.9 cm), or a "2 by 6" (2" x 6") which will measure 1 1/2" x 5 1/2" (3.8cm x 14.0 cm).

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.

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 3/4" bolt in each of the two parallel base ears. See Figure 9.

Support the tower on a support like a saw horse 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. For Rotator Installation see page 13.

TO - 0125 - C -

Figure 9 Attaching Tower to Base Tabs

Figure 10 Supporting Tower while Attaching Related Products

The use of a thrust bearing, HG-TBT, Order No. 121-B, is recommended for use on this tower if the combined weight of the antenna, mast and rotator is greater than 150 pounds. The use of this thrust bearing is also recommended on all systems used in areas where ice loading may be experienced.

A fourth man may be used to operate a tag line after the tower reaches mid point in its raising sequence. Refer to Figure 11.

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

Figure 11 Raising

The tower itself weighs 220 pounds. Three men can raise the tower into the standing position, use extreme care during the raising process.

Winch Assembly

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

TO-0129-C-007

Figure 12 Attaching Winch Assembly to Tower

Connect the cable to the winch as shown in the winch manual. Thread the handle onto the winch drive shaft as described and shown in the separate winch manual.

Lightning

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.

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 grooves.

Wind cable on winch reel by turning handle in clockwise direction. This should produce a loud sharp clicking noise when the tower is raised. The tower section will remain in position when the handle is released.

NOTE: 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.

To raise tower to full height, turn the winch handle clockwise until the tower end-stops are reached. **DO NOT** try to crank the winch tighter if the end stops or any other obstruction stops tower raising.

The winch handle may be reversed and/or chained to the tower to prevent unauthorized use of the winch. See additional instructions and safety measures in the winch manual.

If the winch handle is turned counter-clockwise, the tower section will start moving down, and no noise will be made. To stop the section at any height, the winch handle should be turned clockwise until at least two clicks are heard. This will add extra tightness to the brake mechanism.

If the winch does not operate as described, see the section entitled "Winch Maintenance".

CAUTION

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

You should watch the lowering sequence carefully to make sure the top section of the tower lowers smoothly.

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

Continue the lowering sequence until the top section is completely nested. Inspect the tower for probable cause of binding problems.

Procedures for Freeing Binding Tower Sections

Some causes for the sections to bind can be:

Bent tower braces during shipment or installation.

A heavy object has been accidentally knocked into the tower bracing after installation is complete.

Excessive wind force can cause a tower section to bind up and not retract straight in line with the next larger tower section.

Unbalanced antenna or other equipment.

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 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 illustration below.

If foreign objects must be removed to free the tower, DO NOT CLIMB THE TOWER! Be sure all cables 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 the antenna.

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 to a different heading one or more times. Doing so can help solve the binding caused by Steps 3 and 4 of this section.

All Hy-Gain towers are factory tested (fully extended and retracted) and inspected before being shipped, to insure proper condition.

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.

CAUTION

This Hy-Gain crank-up tower comes equipped with a rotator support plate for mounting a rotator inside the upper tower section. This plate will support approximately 150 pounds of vertical load when properly installed.

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 14. Loosen the two (2) #10x/8" bolts on each end of the removable brace. Loosen the two (2) #10 hex lock nuts then loosen the two (2) #10-24 x 5/8" bolts.

Slide the brace up and out to remove.

For a rotator that installs below the mounting plate follow the steps in the next column and refer to Figure 15.

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.

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.

Bolt the rotator to the mounting plate using the mounting bolts supplied with the

Assemble the rotator-to-mast, mast platform and mast as shown in Figure 15.

Reconnect the removable brace to its original position on tower.

When mounting the rotator above the rotator mounting plate, follow these instructions and refer to Figure 16.

Insert the rotator mounting plate in the tower so it rests on the mounting plate

Install the rotator on the mounting plate. Use the mounting bolts supplied with the rotator.

Loosen the mast clamp so the mast can be inserted in the clamp.

Tighten the mast clamp around the

Mount your antenna on the top of the mast. If you are using coax arms, tie your rotator coax to the coax arms.

Connect your coax to the radio equipment.

Reconnect the removable brace to its original position on the tower section. Tighten # 10 hardware securely. Tighten the #10-24 x 5/8" bolts and secure with the #10 hex lock nuts.

Tower Maintenance

To maintain proper and safe operation, inspect and lubricate your tower at least once a year; more often if subject to heavy or frequent use.

Always be sure your 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 cable 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.

Refer to winch manual for proper lubrication of winch.

Winch Maintenance

In order to insure maximum performance, a periodic inspection for any necessary preventive maintenance should be made. Check at least once annually and more frequently when the winch is exposed to an environment which is particularly dirty or wet. For continued smooth performance and increased life, occasionally grease gears, reel shaft (Items N and BB), and handle threads (Item F). An occasional drop of oil on the drive shaft bearings (Items B and L) is also recommended.

NOTE: DO NOT OIL OR GREASE BRAKE MECHANISM (Pressure Plate)

The winch finish can be protected and will provide longer service if it is periodically washed with water and then wiped with light oil or wax.

NOTE: Item numbers may not necessarily be in numerical sequence and may appear more than one time, depending on how often a part is used, or identical parts being placed in different parts packs.

FRACTION AND METRIC EQUIVALENTS
FOR ONE INCH

Fractional		Fractional	
Inch	Millimeters	Inch	Millimeters
1/16	1.588	9/16	14.288
1/8	3.175	5/8	15.875
3/16	4.700	11/16	17.463
1/4	6.350	3/4	19.050
5/16	7.937	13/16	20.638
3/8	9.525	7/8	22.225
7/16	11.112	15/16	23.813
1/2	12.700	1	25.400

by gain Warrants to the original owner of this product, if manufactured by *hy gain* and purchased from an authorized dealer or directly from *hygain* to be free from defects in material and workmanship for a period of 12 months for rotator products and 24 months for antenna products from date of purchase provided the following terms of this warranty are satisfied.

1. The purchaser must retain the dated proof-of-purchase (bill of sale, canceled check, credit card or money order receipt, etc.) describing the product to establish the validity of the warranty claim and submit the original or machine reproduction of such proof-of-purchase to *hygain* at the time of warranty service. *hygain* shall have the discretion to deny warranty without dated proof-of-purchase. Any evidence of alteration, erasure, or forgery shall be cause to void any and all warranty terms immediately.

2. *hygain* agrees to repair or replace at *hygain's* option without charge to the original owner any defective product under warranty, provided the product is returned postage prepaid to *hygain* with a personal check, cashiers check, or money order for \$8.00 covering postage and handling.

3. Under no circumstances is *hygain* liable for consequential damages to person or property by the use of any *hygain* products.

4. Out-of-warranty Service: *hygain will* repair any out-of-warranty product provided the unit is shipped prepaid. All repaired units will be shipped COD to the owner. Repair charges will be added to the COD fee unless other arrangements are

5. This warranty is given in lieu of any other warranty expressed or implied.

6. *hygain* reserves the right to make changes or improvements in design or manufacture without incurring any obligation to install such changes upon any of the products previously manufactured.

7. All *hygain* products to be serviced in-warranty or out-of-warranty should be addressed to *hygain*, 308 Industrial Park Road, Starkville, Mississippi 39759, USA and must be accompanied by a letter describing problem in detail along with a copy of your dated proof-of-purchase.

8. This warranty gives you specific rights, and you may also have other rights which vary from state to state. _____ -