

30' Tower Model 8508



User's Manual



Contents

Theory of Operation	1
Installation	2
Site Selection	2
Tower Foundation	2
Tower Installation	2
Foundation and Anchor Tolerances	3
Maintenance	4
Warranty	5
Specifications	6
Accessory List	7
Specification Drawings	8

Theory of Operation

All Weather Inc. provides a variety of towers for the installation of meteorological instruments at various levels above the ground. One of the most popular towers is the 12.5" wide stacked tower Model 8508.

The 12.5" wide stacked tower features stable triangular design, galvanized steel legs, diagonal bracing and easy installation. The tower is constructed on a 12.5" equilateral triangle with continuous ZIG-ZAG bracing. The bracing is spaced at 15.75" (400 mm) and is electrically welded. The tower legs are constructed from 1.25" (32 mm) steel tubing. The complete assembly is finished by a hot-dip galvanizing process for long life. The tower can be painted if painting is required.

The Model 8508 tower consists of 3 ten-foot sections which are bolted together to form a 30 foot high structure. All tower joints are double bolted for sturdiness and safety.

The Model 8508 tower requires the use of a mounting base. The strength of the tower allows it to be self-supporting when installed onto the 5 foot free standing tower base. Guying is required when the tower is installed onto the hinged base, pier base or flat roof base.

Guying kits are available with screw type earth anchors or eyebolts for anchoring into concrete blocks. When guying kit is used for roof mounted tower anchor bolts are not supplied. Due to the many variations in roof construction these parts should be selected locally by the tower installer.

Installation

Towers should only be installed by experienced, well-trained personnel. Consult the All Weather Inc. Customer Service Department for information.

Site Selection

Tower site selection should take into consideration the location of nearby obstructions, trees, buildings and power lines. If power lines are in the immediate area, select a site a distance from the power lines that is at least twice as high as the tower and mast. Consult local building and electrical codes to be certain that the tower and tower grounding system are acceptable.

Tower Foundation

For ground mounted towers, first prepare a concrete base. Refer to foundation detail drawings in the *Specification Drawings* chapter of this manual. Check local soil conditions to be sure the base is the correct size. When using a hinged base plate, the stationary portion of the plate can be set into the wet concrete along with the anchor bolts. Make sure that the base plate is level.

For roof mounted towers bolt the base plate to the roof or to a platform attached to the roof. Use hardware suited to the type of roof or platform.

Tower Installation

NOTE: All tower hardware is shipped inside one of the tower legs. The leg is identifiable by a colored plastic bag which is visible through the leg bolt holes.

After the base is set, place the first section of tower onto the base. Check the plumb of the tower and make any necessary adjustments. (When installing the 5' freestanding base, it is easier to plumb the tower if the first 10' tower section is bolted to the 5' freestanding base before the base concrete is poured.)

Use a 10" alignment punch that tapers from 1/2" to 1/32" over a 6 1/2" length. If a bolt cannot be easily pushed through a tower leg, use the punch to en-

large the hole. Do not hammer the bolts into the legs. Try rocking the tower section slightly. Never drill out a tower leg hole.

Tighten all bolts until the sleeve is partially flattened. The sleeves will actually grip the legs inside. Always replace stripped bolts. There should be no vertical movement at the tower joints when the tower is moved from side to side.

Installation can be simplified by using an erection fixture. Anti-climb devices are strongly recommended to prevent unauthorized persons from climbing the tower.

Please note that for hinged tower bases the hinge bolts are always loosened before hinging the tower over. Never hinge up more than 33 feet of tower. All hinge-type bases are recommended to raise or lower the tower without instruments or antennas installed. During the raising and lowering of the tower, the loads applied for hinging the tower must be applied equally on both sides of the tower to reduce the possibility of twisting on the tower and on the hinged base.

Install any auxiliary booms, lighting kits, lightning protection kits and conduit using the hardware supplied with each of those items. Refer to the particular installation drawing and manual for mounting instructions. Do not overtighten u-bolts when installing booms. Check booms for level installation and adjust as necessary. For some instruments, wind vanes in particular, a level mounting fixture is absolutely necessary to prevent false readings.

Upon completion of the tower installation recheck all mounting and guy wire bolts and retighten if necessary. Recheck in several days and readjust the guy wire tension if necessary.

For towers requiring the use of guy wires, the guy wire anchors should be located a distance from the center of the base that is 80% of the tower height. The distance may vary slightly depending upon site conditions.

Prepare anchor footings in accordance with local building codes and in reference to the enclosed specification drawings.

Foundation and Anchor Tolerances

- All dimensions shown in the specification drawings are within ± 1 .
- The foundation depth of the tower base should be within +3" or -0".
- Reinforcing steel placement should be within $\pm \frac{1}{2}$ ".
- All anchor bolts shall be tightened to "SNUG TIGHT" condition per A.I.S.C. specifications. "SNUG TIGHT" is defined as the full effort of a man using an ordinary spud wrench.
- Pad nuts must be installed on all tower bolts when specified.
- Guy anchor radius from the tower base is 80% of the tower height within $\pm 3\%$.
- The anchor elevation is $\pm 3\%$ of the tower height above or below the level of the tower base.
- The anchor alignment is perpendicular to the guy radius within ± 0.1 degrees.
- The anchor rod slope is ± 1 degree.
- Initial guy tension is $\pm 10\%$ of the value specified on the tower drawing.
- After anchor bolts are installed and the concrete has set, the anchor bolts can not be moved, bent or realigned in any manner.

Maintenance

Maintenance of the tower is not required, but a yearly inspection should be made by a tower installer with attention paid to anchor bolt tightness, guy wire tension and surface corrosion. Correct any of these problem areas as recommended by the installer.

Warranty

Unless specified otherwise, All Weather Inc. (the Company) warrants its products to be free from defects in material and workmanship under normal use and service for one year from date of shipment, subject to the following conditions:

- a. The obligation of the Company under this warranty is limited to repairing or replacing items or parts which have been returned to the Company and which upon examination are disclosed, to the Company's satisfaction, to have been defective in material or workmanship at time of manufacture.
- b. The claimant shall pay the cost of shipping any part or instrument to the Company. If the Company determines the part to be defective in material or workmanship, the Company shall prepay the cost of shipping the repaired instrument to the claimant. Under no circumstances will the Company reimburse claimant for cost incurred in removing and/or reinstalling replacement parts.
- c. This warranty shall not apply to any Company products which have been subjected to misuse, negligence, or accident.
- d. This warranty and the Company's obligation thereunder is in lieu of all other warranties, express or implied, including warranties of merchantability and fitness for a particular purpose, consequential damages, and all other obligations or liabilities.

No other person or organization is authorized to give any other warranty or to assume any additional obligation on the Company's behalf, unless made in writing and signed by an authorized officer of the Company.

Due to the complex nature of towers, All Weather Inc. cannot provide warranty service on towers installed by the user without the help of a professional tower installer.

Specifications

Height: 30 feet (3 10' sections)
Leg size: 1.25 inch (32 mm)
Face size: 12.5 inch (318 mm)
Bracing: welded diagonal rods, 5/16" diameter
Material: Steel
Finish: Galvanize
Weight: 120 lbs. (54 kg)

Accessory List

Description	All Weather Inc. Part Number
Free standing tower base, 5'	M667124
Hinged base ^{1,2}	M667121
Pier base ^{1,3}	M667120
Flat roof base ^{1,4}	M667123
Guying kit without anchors	85081
Screw type earth anchor ⁵	M667129
Anchor rod for concrete anchor ⁶	M667258
Tower grounding kit ⁷	M667257
Pier pin ⁸	M667256
Base plate bolt ⁹	M667255

Notes:

1. These bases require guying at all times.
2. Hinged baseplate requires 4 each baseplate bolts part number M667255.
3. Pier base requires 1 each pier pin part number M667256.
4. Due to variations in roof construction a local engineer should be consulted for mounting requirements.
5. Used with guying kit, 3 each required.
6. Used with guying kit, 3 each required.
7. Use of 1 or more grounding kits per tower recommended.
8. Used with pier base.
9. Used with hinged baseplate.

Specification Drawings

The following section contains specification drawings for towers. Some of the information included is for towers other than the Model 8508. Refer only to those specifications for the 25G series of towers.



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