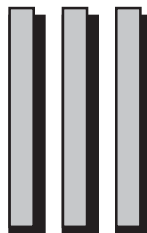


30' Foldover Tower



Models 8518/8518-A

User's
Manual



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Introduction

Product Overview

The Models 8518 and 8518-A 30' Foldover Towers are lightweight, anodized angle aluminum, free-standing, unpainted towers. The Model 8518 is unpainted, and the Model 8518-A is painted orange and white in 6 stripes. The towers are articulated at the 10-foot level, allowing easy access to the sensors and other equipment mounted at the top by simply lowering the upper section. A hand-operated winch mounted to the bottom section of the tower lowers the upper section, allowing a single person to service the equipment easily without climbing the tower or using a bucket truck.

Two legs of the tower are hinged at the 10-foot level, with the third separating from the bottom section as the upper section is lowered. A two-inch pipe bolted to the separating leg serves as a leverage arm, with the bottom end of the arm tied to the winch.

The Model 8518 and 8518-A are engineered to withstand 85 knot winds. Guying kits are available from All Weather Inc. to increase the load rating. **Table 1** shows the maximum area of attached equipment allowed at various heights above the ground or guy wires (whichever is higher) under specific wind conditions.

All parts are rugged, satin-finish anodized aluminum, and all hardware is stainless steel, ensuring long life in harsh environments.

This tower complies with BOCA, UBC, and EIA building codes.

Height (feet)	Design Wind (MPH)					Max. Sq. Ft. Area
	70	80	90	100	110	
10	71	52	40	33	26	
15	43	31	23	18	13	
20	28	19	13	9	6	
25	15	9	4	1	--	
30	8	3	1	--	--	

Table 1
Allowable Equipment Area

SAFETY RULES

1. Never mount any tower system close to wires or power lines. Stay at least 1½ times the overall height away from any power lines or wires.
 2. Never attempt to touch someone who is in contact with power lines or wires.
 3. Never climb the tower. Serious injury could result from a fall.
 4. Never attempt to install or repair equipment while under the influence of drugs, alcohol or any medication.
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Installation

Tools Required

The following tools are required for installation of the tower:

- Socket set
- Adjustable end (crescent) wrench
- Tape measure

Siting and Foundation

(See **Figure 1**). Locate and orient the tower considering the fold-over position. When in the fold-over position, the tower extends approximately 25 feet horizontally from the center of the tower footing. Make certain the proposed fold over area is clear of any equipment, power lines, buildings, trees, etc. within 25 feet of tower footing. Also provide clearance for the mast pipe protruding approximately 6 feet from the center of the footing opposite the tower when the tower is in the fold over position. Maintain at least one-and-a-half to twice the height of the tower from all power lines. Once the tower foundation/footing is in place, the tower can be mounted in any of three positions, 120 degrees apart.

- 1 Bolt three legs of the tower footing section together (see notes in **Figure 1**) and slip the bottom tower section into the tower footing section.
- 2 Align the footing section with the tower leg holes, then ream 5/16" holes in 18 places (from square holes to round holes) in the tower legs.
- 3 Bolt the footing section to the bottom section of the tower prior to setting the footing section in the hole (with 5/16" hex head bolts and nuts, 18 places).
- 4 The steel portion of the tower footing section legs should extend about nine inches above the top of the concrete, so that the aluminum tower sections never come into direct contact with the concrete.
- 5 The footing section assembly and bottom tower section should be leveled, plumbed and temporarily guyed or braced while pouring the concrete. Tolerance for plumb/level is $\pm 2^\circ$.

- 6 Crown the top of the concrete slightly to prevent water accumulation.
- 7 Take care that all joining tower surfaces are flush.
- 8 The concrete must have 3,000 psi minimum 28-day compressive strength. The foundation shall be designed by the installer for 2,000 psf soil bearing capacity. It may be necessary to secure the services of a geotechnical engineer to verify soil capacity at the installation site, and, if necessary, to recommend alteration when soil conditions are questionable.

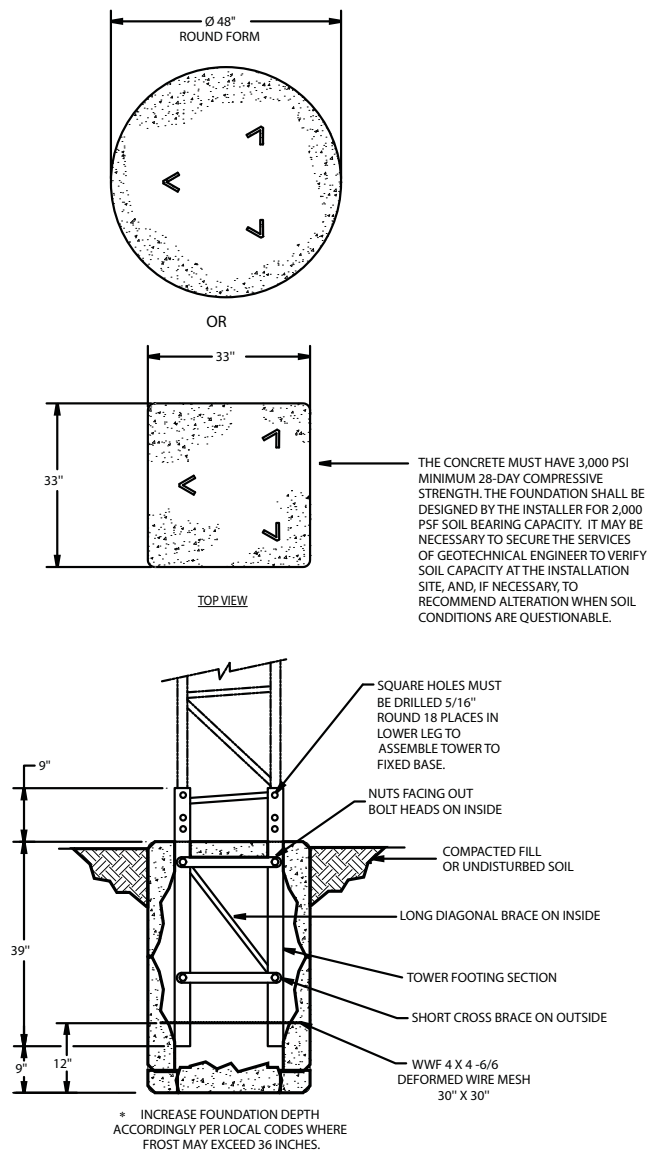


Figure 1

Assembly and Installation

(See **Figure 2**). The assembly and installation of the 8518 and 8518-A towers is the same, except for the need to ensure that the painted sections of the 8518-A are in the proper order (alternating white and orange, an orange section on top).

Winch Assembly

Assemble the tower's winch assembly as follows:

- 1 Thread the handle onto the winch drive shaft. When properly installed, a clicking noise is produced when the handle is turned clockwise.
- 2 Install the spring and lock nut on the end of the drive shaft. These parts may appear to serve no function, but they provide several important fail-safe features and should not be altered or removed.

Tower Assembly

Assemble the tower as follows:

- 1 Once the concrete has set, unbolt the bottom tower section from the tower footing section.
- 2 Lay the three 10' sections of the tower end to end on the ground in the position of final assembly.
- 3 Remove the paint from adjoining tower sections where they will be in contact with one another when assembled.
- 4 Bolt the winch assembly to the winch plate on the bottom tower section using two 3/8" bolts and flat washers on the lower holes and two 5/16" bolts on the top holes.
- 5 The hinge assembly is pre assembled at the top end of the bottom tower section. Position the middle tower section in the hinge assembly so the 12 mounting holes align.
- 6 Drill through the mounting holes with a 5/16" bit to enlarge the square holes in the tower legs.

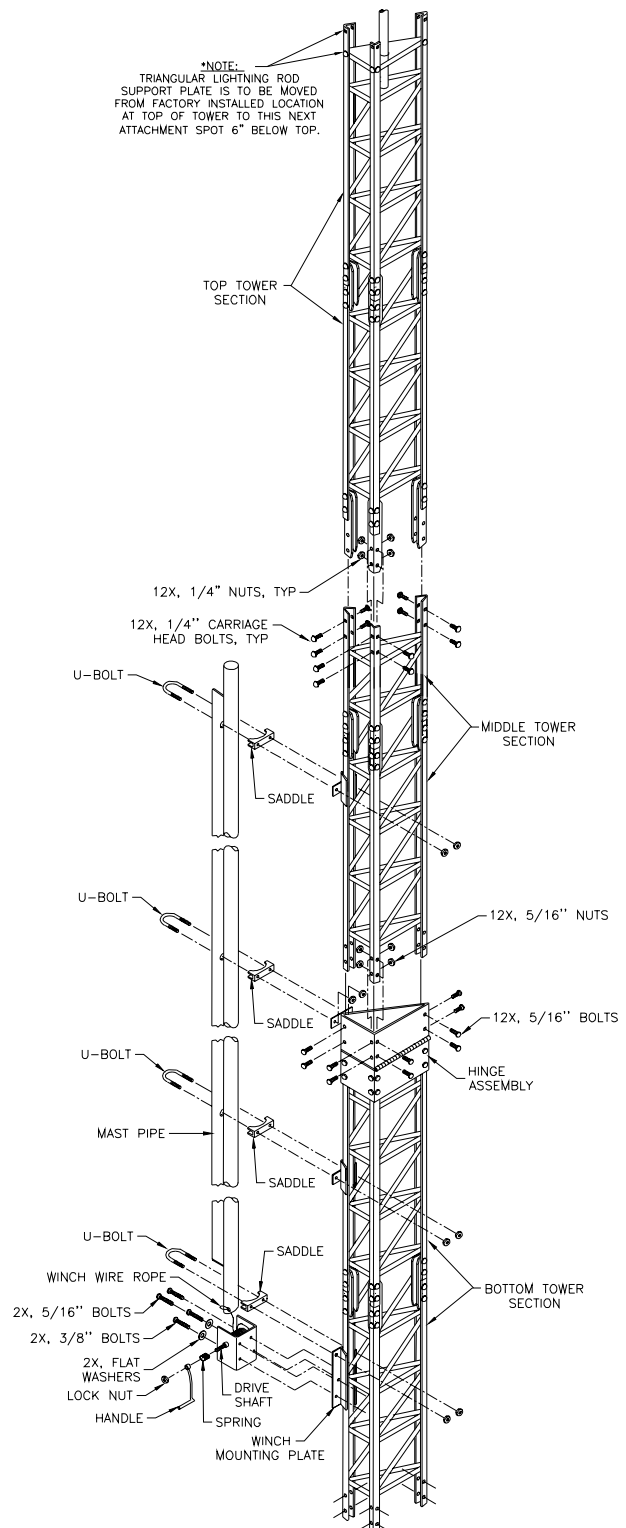


Figure 2

- 7 Secure the hinge assembly to the middle tower section with twelve 5/16" hex head bolts and nuts.
- 8 Assemble the middle and top tower sections (loosening several of the adjacent cross and diagonal brace bolts may facilitate sliding the tower sections together. Be certain to retighten any bolts loosened.) With the 8518-A, be sure the white half of the middle section is on the bottom so that it mates with the orange half of the bottom section.
- 9 Attach the horizontal and diagonal cross braces at the joint between the middle and top tower sections using 1/4" carriage bolts and nuts. Make certain the square shoulder of the carriage bolt is properly seated, and torque the nuts to nine foot-pounds.
- 10 Attach the mast pipe to the tower using four U-bolts and saddles placed between the mast pipe and mast mounts. Check the lock plate at the bottom of the mast pipe to make sure it aligns with the lock hole in the winch plate.
- 11 Tighten the four nuts on the two U-bolts above the hinge to 15 ft. lbs. Leave the lower four nuts and two U-bolts loose for removal during tower erection.
- 12 Insert the winch wire rope through the 1/4" hole in the lower end of the mast pipe.

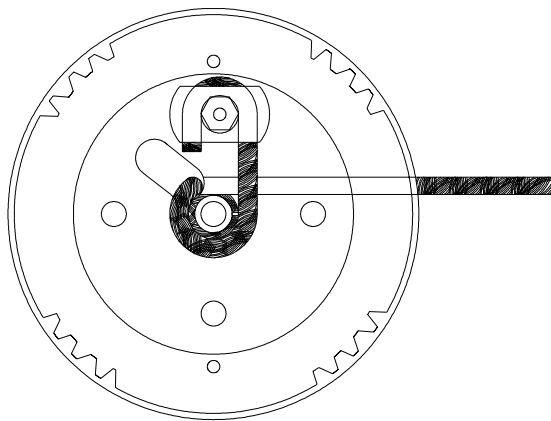


Figure 3

- 13 Route and secure the loose end of the wire rope to the winch with the clamps provided as shown in **Figure 3**.
- 14 Wind the wire rope onto the winch by turning the winch handle clockwise.
- 15 Remove the lower four nuts and two U-bolts from the lower portion of the mast pipe.
- 16 Allow the wire rope to unwind from the winch as you bend the tower at the hinge.
- 17 Install the tower onto the foundation by raising the bottom section to vertical while at the same time allowing the upper two sections (above the hinge) to hinge over and remain in contact with the ground. Be careful not to damage the top of the tower.
- 18 Plumb the tower to within $\pm 2^\circ$ and secure the tower to the foundation with eighteen 5/16" bolts and nuts.
- 19 Install the 18" aluminum lightning rod to the top of the mast with the mounting clamp as shown in **Figure 4**.

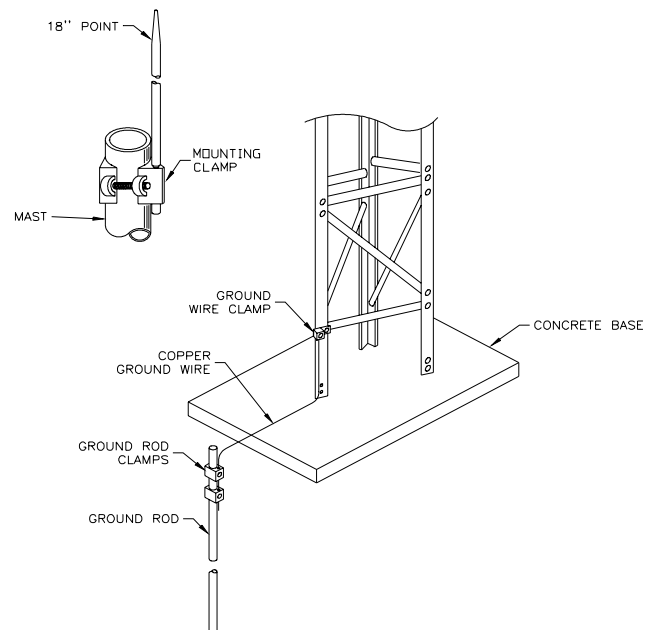


Figure 4

- 20** Connect the copper ground wire to the tower base and to the ground rod with ground wire clamps as shown in **Figure 4**.
- 21** Raise the tower by turning the winch handle clockwise until the tower is vertical.
- 22** Secure the mast pipe to the lower tower section with four nuts and two U-bolts.
- 23** Install a padlock (customer furnished) between the mast pipe's lock plate and the winch mounting plate to prevent any unwanted lowering of the tower.

Operation

Lowering the Tower

To lower the hinged section of the tower:

- 1 Remove and retain the four nuts from the bottom two U-bolt clamps. Remove the U-bolt clamps.
- 2 If a padlock is used to secure the leverage arm, remove the padlock.
- 3 Pull the bottom of the leverage arm outward from the tower.
- 4 Crank the winch cable counterclockwise to continue lowering the tower. Lower the tower slowly. If the tower begins bouncing during lowering, cease lowering and wait until the motion stops. Continue lowering slowly until the tower rests firmly on the cradle.

Note: The tower should remain in the lowered position for no more than two days, with little or no lateral loads imposed.

Raising the Tower

To return the tower to the normal position:

- 1 Crank the tower vertical with the hand winch.
- 2 While holding the leverage arm in place against the bottom section of the tower, replace the two bottom U-bolt clamps and install the four nuts on the clamps.
- 3 To lock the tower in place, insert a padlock through the lock tab at the base of the leverage arm and then through the tower face plate.

Maintenance

The only maintenance required with the Model 8518 and Model 8518-A towers is replacement of tower light bulbs. Both bulbs should be replaced upon the failure of one bulb.

AWOS Periodic Maintenance

Monthly Maintenance

During monthly maintenance:

- Visually verify that the tower lights are in working order. Replace both bulbs if any bulb fails.
- Visually inspect the winch cable for damage or fraying.

Quarterly Maintenance

During quarterly maintenance:

- Visually verify that the tower lights are in working order. Replace both bulbs if any bulb fails.
- Check for any corrosion to the tower or lightning protection components.
- Check for any bending or twisting of the tower that may have occurred during extreme weather.

Annual Maintenance

During annual maintenance:

- Visually verify that the tower lights are in working order. Replace both bulbs if any bulb fails.
- Apply lightweight lubricating grease to the winch gears and reel shaft.
- Apply several drops of light machine oil to the drive shaft bearings.

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.

Specifications

Tower height	33'
Material	anodized aluminum
Mast length	5'
Mast diameter O.D.	1.32"
Foldover hinge height	10'
Tower side width	12 ³ / ₄ "
Section length	10'
Section weight	29 lbs.
Tower package shipping weight	202 lbs.
Concrete base width	33"
Concrete base depth	45"
Concrete volume	1.05 cu. yards



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8518-A-001
Revision C
ECO 1051
March, 2008