Outdoor™ water solutions

Outdoor Water Solutions, Inc.
Large Backyard Windmill™

Installation Manual

Customer Service: 1-866-471-1614
Website: www.outdoorwatersolutions.com
Springdale, Arkansas 72762
Phone: 1-866-471-1614 • Fax: 1-479-750-9178

Working with Nature®

Thank you for purchasing an Outdoor Water Solutions Backyard Windmill™. We designed this traditional style windmill with the same great engineering as our full-size aeration windmills.

The following is the complete manual for the assembly of the OWS Backyard Windmill™, company contact information, and a copy of our 1-Year Workmanship and parts Warranty.

CAUTION

1. DO NOT climb the tower. The head can turn without warning and is very dangerous. DO NOT use the tower cross members as steps, as they cannot support your weight. The recommended method to service the windmill is to lay the tower on its side.

2. DO NOT attempt to repair or service the windmill on a very windy day. It is too unpredictable and dangerous, and you could easily be injured. Even in low winds, be very careful when servicing. Be certain that the blade is securely tied before beginning any work.

3. ALWAYS teach children about the dangers of the windmill and keep them away from it.

4. Keep your distance from the windmill in thunder, strong winds, and lightning storms.

IGNORING THESE SAFETY WARNINGS
CAN RESULT IN SERIOUS INJURY OR DEATH

Package Contents:

Ensure that all components are included prior to beginning assembly.

Item	Quantity	Item	Quantity
Tower Cone	1	Head Connection Bracket	1
Decorative Maintenance Platform	1	Pivot Tube	1
Tower Top Leg	4	Hardware Package Contents:	
Tower Leg	8	L-Bracket	8
12" Cross Member	4	Anchor Bracket	4
21½" Cross Member	4	Tail Fin Bracket	1
31" Cross Member	4	Nut & Bolt Package Contents:	
15⅞" Cross Brace	8	6mm x 12mm Bolt	16
19½" Cross Brace	8	6mm x 20mm Bolt	24
23½" Cross Brace	4	6mm Flange Nut	36
24½" Cross Brace	4	6mm Washer	16
27¼" Cross Brace	4	6mm x 25mm Bolt	4
28¼" Cross Brace	4	Pivot Tube Washer	1
Tail Arm	1		
Tail Fin	1		
30" Fan with Bearing	1		
Nylock Nut	1		

Figure 1:

Tower Cone (1)

6mm x 12mm bolts; 6mm washers

Decorative Maintenance Platform (1) & 6mm x 12mm bolts with nuts (4)

Tower Top Leg (4)

12" Cross Member (4)

6mm x 20mm bolts with nuts (24) (to be used for all Leg connections)

15⅞" Cross Brace (8)

Tower Leg (8)

6mm x 12mm bolts with nuts (8) (to be used for all Cross Brace "X" centers) (Pre-Assembled)

27¼" Cross Brace (4)

23½" Cross Brace (4)

Cross Brace Tensioning System, Eye Bolt (8), 8mm x 12mm bolts (8), L-Brackets (8), 6mm nuts (16), & 8mm Flange Nuts (8) (Pre-Assembled)

21½" Cross Member (4)

19½" Cross Brace (8)

28¼" Cross Brace (4)

24½" Cross Brace (4)

31" Cross Member (4)
Stake Clamps (4) and 6mm x 25mm bolts with nuts (4) (to tighten the stake clamps around the stakes)

Decorative Maintenance Platform Installation

Leg Connection, Backside View

Anchor Bracket Installation

TOWER SETUP INSTRUCTIONS

IMPORTANT NOTES:

- Unless directed otherwise, do not completely tighten any bolts until your tower is fully assembled.
- When connecting leg sections, always ensure that the lower leg section is behind the top leg section.
- There are two different styles of tower leg. The legs with the holes punched in one side are for the top section; these holes are used to install the decorative maintenance platform.

1. Begin the tower at the very top. Take the four tower top legs and fasten them to the tower cone with the eight 6mm x 12mm bolts and 6mm washers, ensuring that the holes in the tower top legs are toward the top of the tower and are across from each other (see Figure 2). If this is not done, the entire top section will need to be taken apart and reassembled, in order to install the decorative maintenance platform. Completely tighten all of these bolts.

TIP: From this point on, it will be simplest to assemble the tower while it is laying on its side. Assemble on a soft surface (e.g., lawn, cardboard, drop cloth, etc.) to prevent scratching.

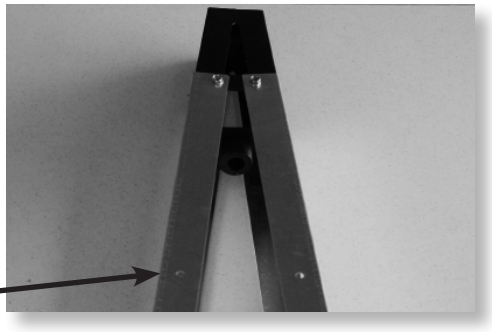


Figure 2

2. The next step is to build out the top section of the windmill. First, set the next leg section on top of the one above so the top overlaps the bottom leg. (See Figure 3.) Insert a 6mm x 20mm bolt thru the holes, then the one of the 15 7/8" short cross braces from the 4 cross brace assemblies. (See Figure 4.) Next put the 12" cross member on top of the cross brace and finally the nut. (See Figure 5.) Do the same for the other side. Do not fully tighten the nuts yet. Repeat this process for all four sides by turning the windmill over each time.

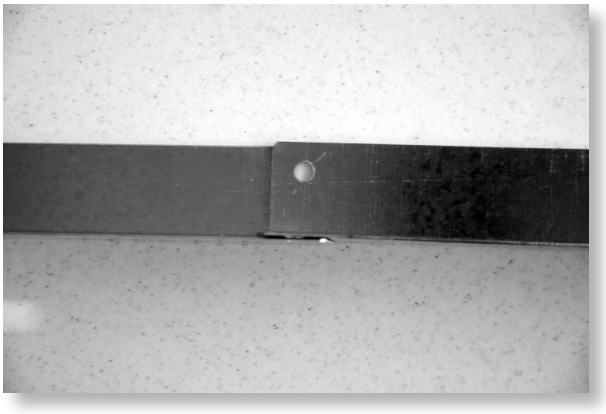


Figure 3

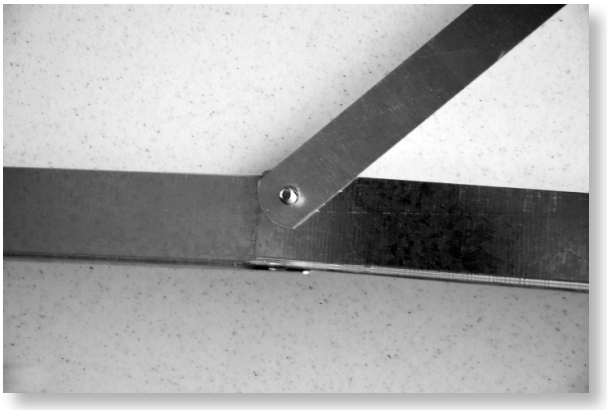


Figure 4

3. Next attach the bottom leg section. Make sure that the 27¼" cross braces and cross brace tensioner L-brackets are included when connecting the bottom section parts to the middle section. See Figure 1 for a diagram of how to install the21½" cross member and lower cross brace section. Install the anchor brackets and 31" cross member as part of this step. The anchor brackets should be installed first (see Figure 6), then the leg, then the 28¼" cross braces or L-bracket, then the 31" cross member.

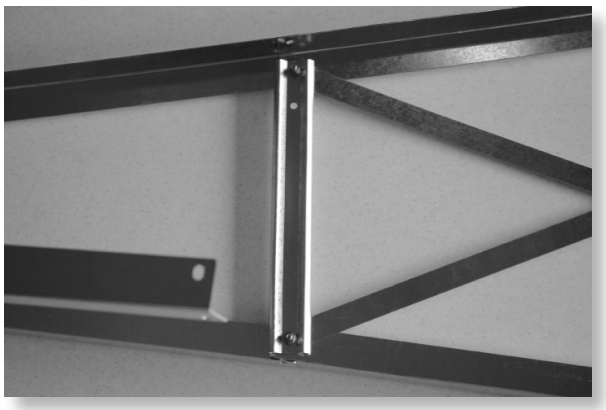


Figure 5

TOWER SETUP INSTRUCTIONS

4. Make sure that the anchor bracket is leaning outwards at the top as you'll need to install your anchor rods through the bracket once the windmill has been assembled.

Figure 6

Figure 7

5. Next, stand the windmill up on a level surface and shake it a little so that everything adjusts to become level. Then start at the 12" cross member and tighten those 8 bolts. Next, tighten the 8 bolts on the 21 ½" cross member. Next tighten up the 4 bolts holding the cross braces together.

   Lastly, adjust the tensioners so that you take out any unnecessary play in the cross braces.

   Install the decorative maintenance platform using 4 of the 6mm x 12mm bolts and nuts. (See Figure 9.)

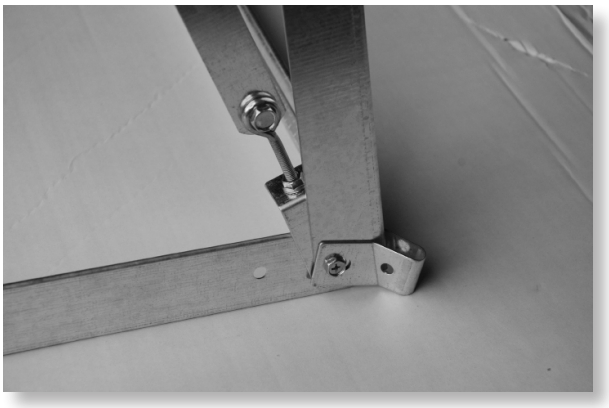


Figure 8

Figure 9

You have now completed assembling the tower of your Backyard Ornamental Windmill.

WINDMILL HEAD INSTALLATION

IMPORTANT NOTES:

- When installing the tail arm, it is very important to ensure that one end butts up against the fan support shaft welded inside the head connection bracket and the other end is flush with the back of the tail fin bracket. If this is not done, the windmill may not track the wind properly.
- Ensure that all bolts are completely tightened throughout the head assembly.

Figure 10:

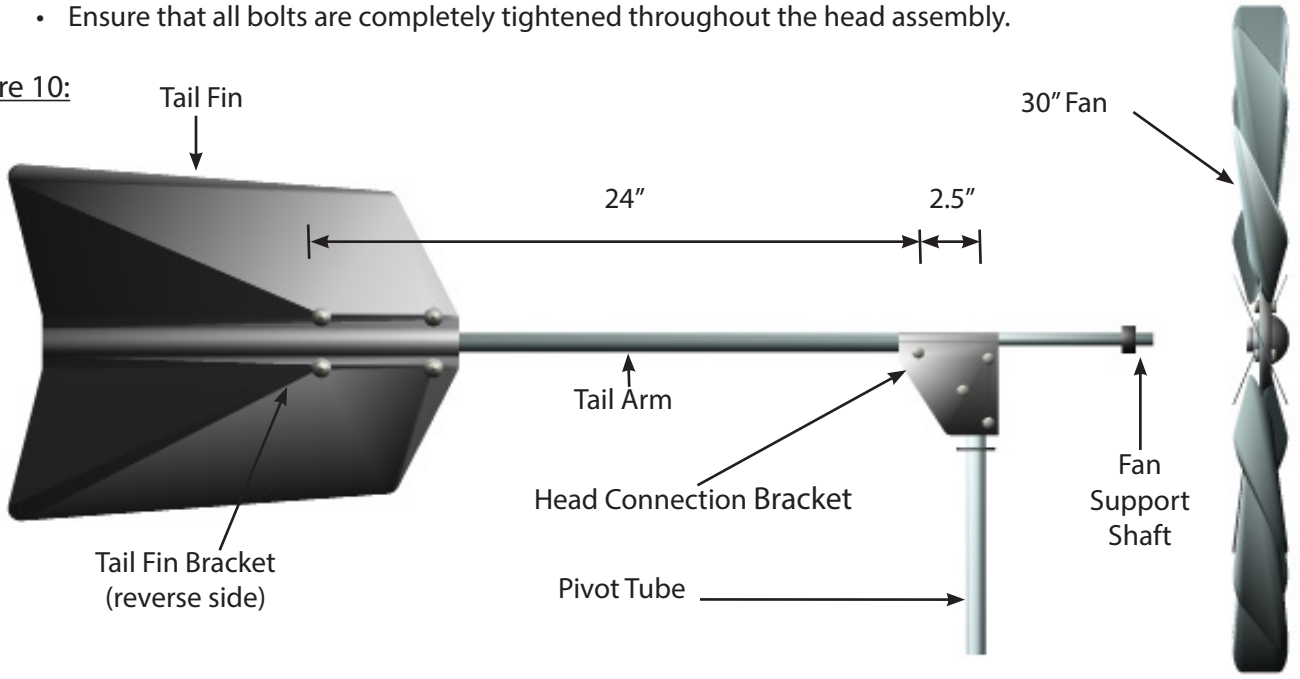
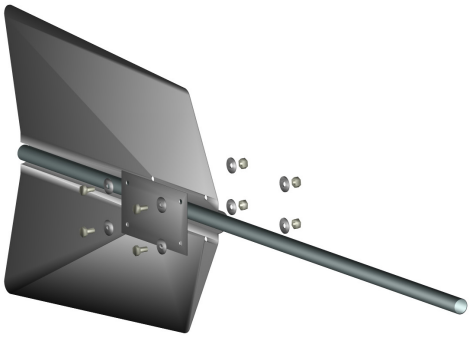


Figure 11:



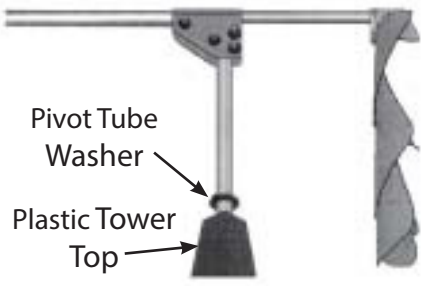
1. Install the tail fin onto the tail arm with the tail fin bracket and four 6mm x 12mm bolts and nuts, and eight washers, as shown in Figure 11.

IMPORTANT: Make sure that the end of the tail arm is flush with back of the bracket.

2. Insert the other end of the tail arm into the head connection bracket, until it butts up against the welded fan support shaft. Once the tail arm is inserted completely, use one of the 6mm x 32mm bolts and nuts to clamp the tail arm into place. Tighten the bolt fully, to ensure that the tail arm cannot come out.

IMPORTANT: Make sure that the end of the tail arm butts up against the fan support.

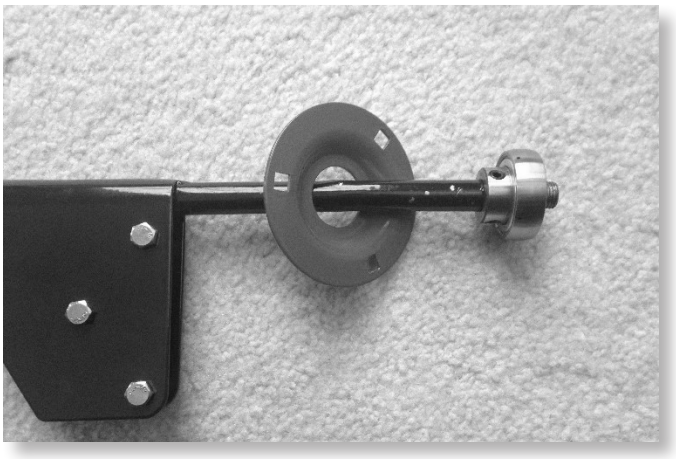
Figure 12:



3. Insert the pivot tube into the head connection bracket, so that the pivot tube is between the three remaining holes in the head connection bracket, as shown in Figure 10. Securely tighten all four bolts.

The next step is to install the nylock nut on the front of the shaft. This helps secure and lock the windmill head onto the shaft which is very important.

Figure 13:



4. Remove the three nuts and bolts holding the bearing onto the windmill fan. Next slide the rear bearing nest onto the shaft.

5. Slide the bearing down onto the shaft with the locking set screws facing the back of the windmill. (See Figure 13). Next, align the bearing so that the two set screws are on the two flats on the shaft and tighten securely. Note: The tighter you can get these set screws, the better.

Figure 14:

6. Next, install the nylock nut on the shaft. Be sure to tighten the nut down securely with a wrench. (See Figure 14). Do not skip this step!

7. Set the windmill head on top of the bearing. Now, install the front bearing hub to the windmill head and the back bearing nest. Tighten the three bolts and nuts securely (as you don't want the bearing to spin inside) (See Figure 15)

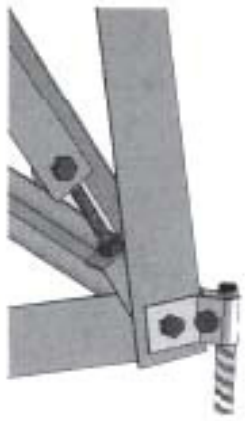
Figure 15:

8. Insert the pivot tube through the pivot tube washer, then into the plastic inserts in the cone and you're good to go. (See Figure 12)

Lastly, we recommend you spin the windmill head once it's mounted to make sure it spins straight. Each head has been precision machined to be balanced but from time to time some of the blades can get bent in transit from the factory to you. If you notice the head wobbles, you can bend the blades that are not running true either forward or backward by ¼ - ½" to align them so they turn without a wobble.

WINDMILL ANCHOR INSTALLATION

Figure 16



IMPORTANT NOTE:

- Outdoor Water Solutions Windmills™ will not determine soil and wind conditions for any windmill installation. Therefore, these conditions must be determined by the customer. Anchoring of the windmill tower is very important. It is the customer's responsibility to adequately anchor the tower. Outdoor Water Solutions, Inc. supplies a basic anchoring kit with each unit. However, in certain circumstances — such as light soil conditions and high-to-extreme wind areas — it may be necessary to utilize other anchoring techniques. Concrete piling, concrete pads, or screw-in anchors are some examples. The customer is responsible to anchor the windmill adequately, or consult the appropriate people to do so.
- Read through this entire procedure prior to beginning.

1. Choose an area in your yard (approximately 3' x 3') that is level, or close to level.

2. Stand the assembled windmill up on the location you have selected for installation.

3. Drive the stakes into the ground through the anchor brackets. Make sure to leave the stake clamps at approximately the same height, to simplify the leveling process.

4. Level the windmill as follows:
   a. Starting with the highest leg, drive the stake until it is ¼" above the stake clamp, as shown in Figure 16. Tighten the 6mm x 25mm bolt in the stake clamp, to secure the leg to the stake.
   b. Moving in a clockwise direction, move the stake clamp on the next leg to the top of the stake, leaving ¼" above the stake. Tighten the 6mm x 25mm bolt in the stake clamp, to secure the leg to the stake. Drive the stake into the ground until the leg is level with the last secured leg.
   c. Repeat 'b.' above, until the tower base is level.

The Outdoor Water Solutions One-Year Limited Warranty

Warranty covers all Outdoor Water Solutions Windmill™ products for a period of one year from Date of Purchase, against defects in workmanship or material. The conditions of the Warranty and the extent of the responsibilities of Outdoor Water Solutions, Inc.™ under this Warranty are as follows.

1. Outdoor Water Solutions, Inc.™ will repair or replace any part or material deemed to be defective by Outdoor Water Solutions, Inc.™ due to quality and/or workmanship, within a one-year period from the initial purchase date;
2. Product returned for Warranty must be returned to the address specified by the Manufacturer, freight prepaid, and any warranty product sent to the customer will be sent freight prepaid;
3. Warranty does not apply to product which has been subject to abuse, neglect, accident, or incorrect installation;
4. Warranty does not apply to damage resulting from severe weather factors;
   * Private Insurance Coverage is recommended *
5. If parts other than genuine Outdoor Water Solutions™ parts are utilized for repair or attached to an Outdoor Water Solutions Windmill™ system, warranty coverage may be void;
6. Proof of Date of Purchase is required for warranty service. Since the customer is responsible for assembly, setup, and installation, please follow instructions carefully, to ensure the validity of warranty claims;
7. If you have any warranty concerns, please contact Outdoor Water Solutions, Inc.™ at 1-866-471-1614 or 1-479-756-1614.

Outdoor Water Solutions, Inc.™ recommends that, for future reference, you keep this Installation Manual, along with your proof of purchase and a photo of the windmill in a convenient location.

Date of Purchase: _____