



Install Guide

MT SOLAR POLE MOUNTS

Revised: March 2024

HARDWARE TABLE		TORQUE (FT-LBS.)
A	3/4" x 9"(SD), 11"(HD), or 13"(XD) bolt, 3/4" flat washer & flange nut	20 / 100
B	3/4" x 3" set bolt	see instructions
C	1/2" x 2" bolt, 1/2" nylon lock nut, flat washer	snug
D	1/2" x 1" set bolt	45
E	3/4" x 5" bolt, 3"x3" square washer, 3/4" split washer	45
F	1/2" x 4 1/2" bolt, flat & split washer	45
G	3/4" x 2" bolt, 3/4" flat washer & 3/4" split washer	100
H	1/2" x 2" bolt & 1/2" flange nut (SD & HD) ---OR--- 3/4" x 2" bolt & 3/4" flange nut (XD)	45 100
I	3/8" x 1 1/4" carriage bolt, 3/8" flange nut or 3/8" x 1" stainless bolt, 3/8" flange nut, 1 5/8" square washer (spread clamps)	20

TOOLS REQUIRED
1/2" Socket
9/16" Socket
3/4" Socket
1 1/8" Socket
3/4" 8-Point Socket
Crescent Wrench
Torque Wrench
Tape Measure
Angle Finder
Compass
Ladder
Drill (for spin prevention)

Thank you for choosing MT Solar Pole Mounts.



It is the installer's responsibility to determine the foundation parameters based on local site conditions, such as wind speed, snow load, soil type, exposure category, etc. Installations also must comply with local building regulations and permitting requirements.

We recommend consulting a licensed engineer to determine appropriate foundation dimensions and pipe size and thickness. MT Solar can also provide a stamped drawing engineered for site-specific requirements for an additional fee. Please contact us to find out more.

Tips for Conventional Pipe Installation:

- Dig hole according to recommended depth & diameter.
- Set pipe in hole and use a level to ensure it is plumb.
- If installing multiple poles, use a string to line up pipes.
- When required, build rebar cage according to specification.
- Brace pipe to prevent movement while pouring concrete.
- Pouring concrete in direct contact with the soil is recommended when possible.
- If forming or using sonotube, properly compact backfill.
- Allow concrete to cure for recommended length of time.

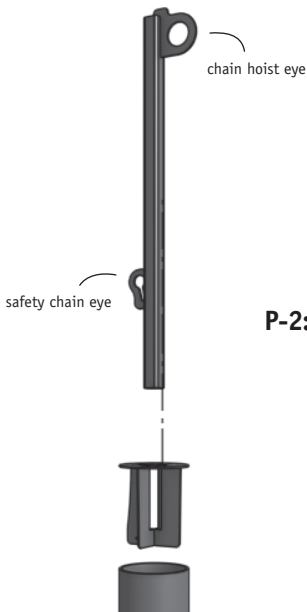


VIDEO TIPS

Setting Poles in Concrete



P-1: With the vertical steel support pole installed in the ground, orient the compass to the north and place the lifting insert into the pole until it sits flush with the top.



P-2: Place the lifting bracket* into the lifting insert with the chain hoist eye facing south.

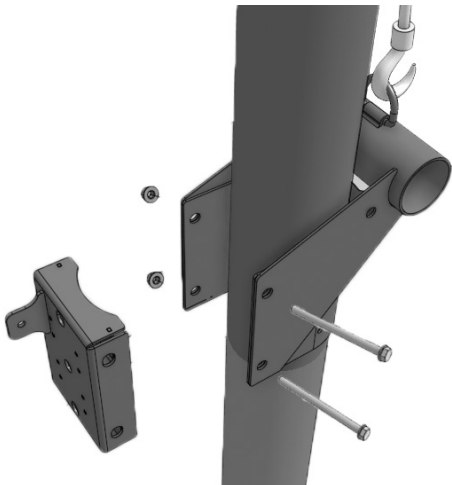
*lifting brackets are re-usable and sold separately from the mount.



P-3: Hang a 1 ton or greater chain hoist from the lifting eye.

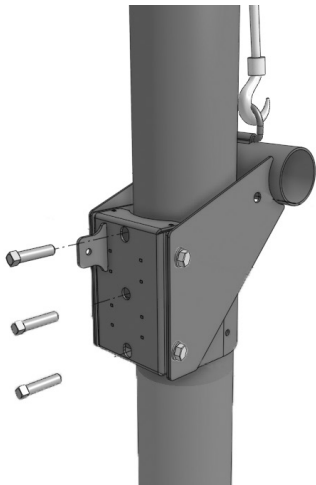
P-4: Hang the U-Bracket on the Chain Hoist.

P-5: Attach safety chain. To tie off, connect the U-Bracket to the lifting bracket with a 5/16" transport chain. Shorten chain as array is hoisted.

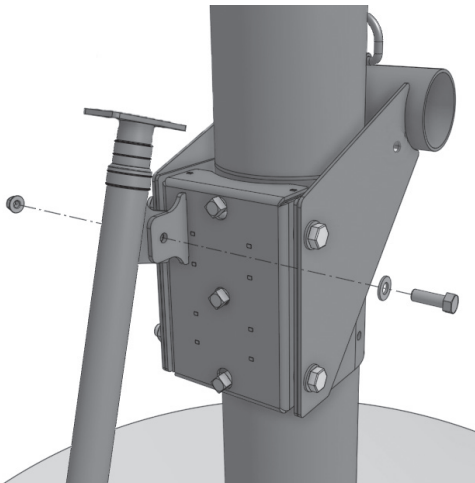


1-1: Secure U-Bracket by installing the two bolts (A) through the back plate. Hand-tighten hardware.

1: U-BRACKET

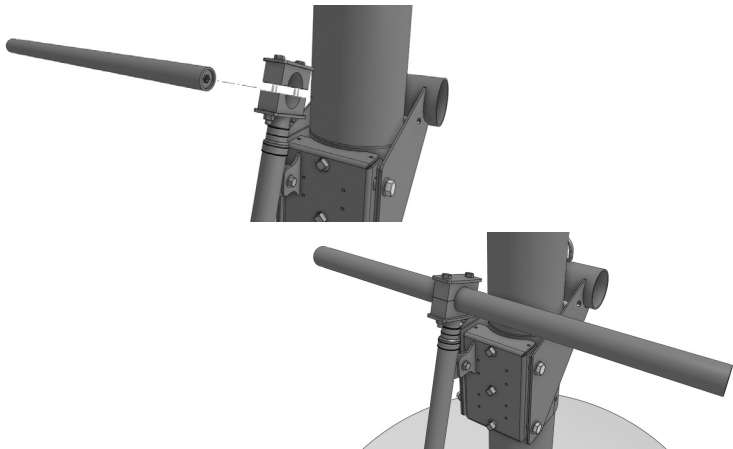


1-2: Insert the 3 set bolts (B) in the back plate, but do not tighten until hoisted.

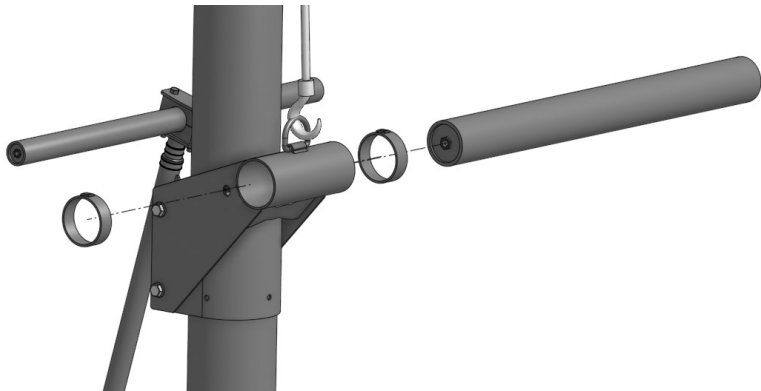


2-1: Attach the Screw Adjuster to the tab on the Back Plate with the 1/2" hardware (C) provided. Make sure the bolt is snug tight, but do not over-tighten to allow for some movement of the adjuster tab.

2: PIPES

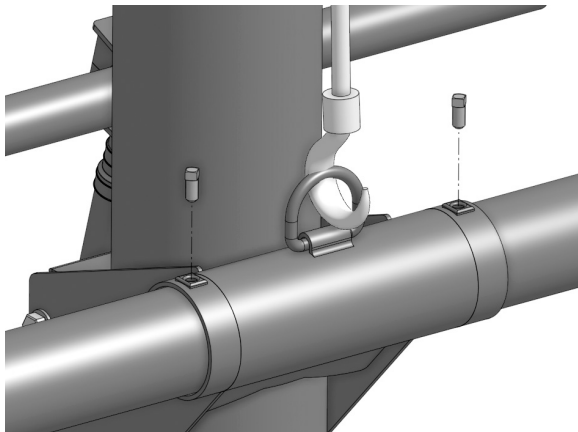


2-2: Assemble adjuster clamp around 2-inch pipe and center. Tighten the pre-assembled bolts to 10 ft-lbs.



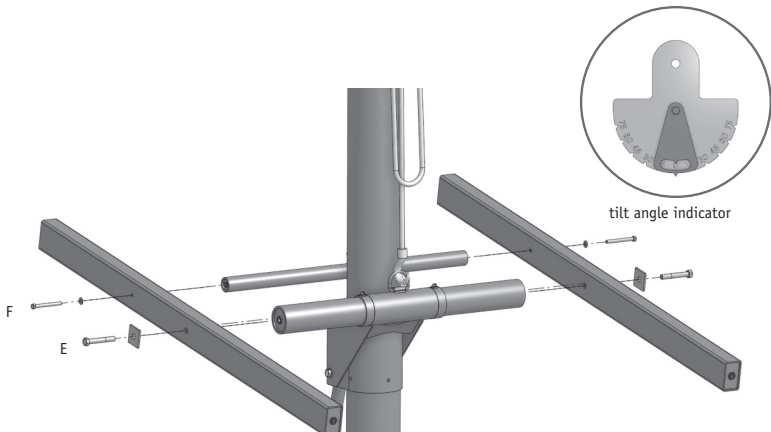
2: PIPES

2-3: Slide the 4.5" pipe through the U bracket sleeve.
Center pipes.

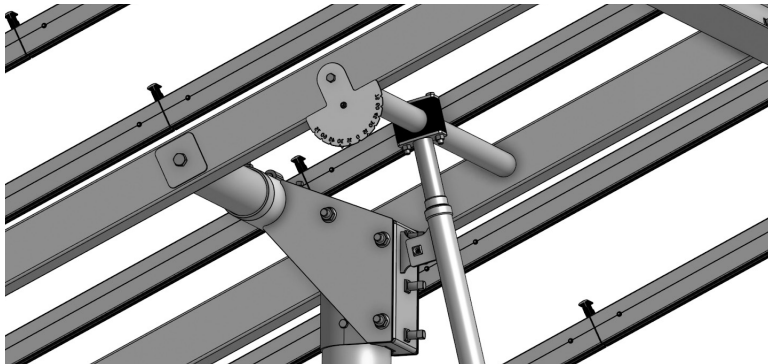


2-4: Slide collars on and tighten set bolts (D). Hold the collar firmly against the sleeve when tightening.

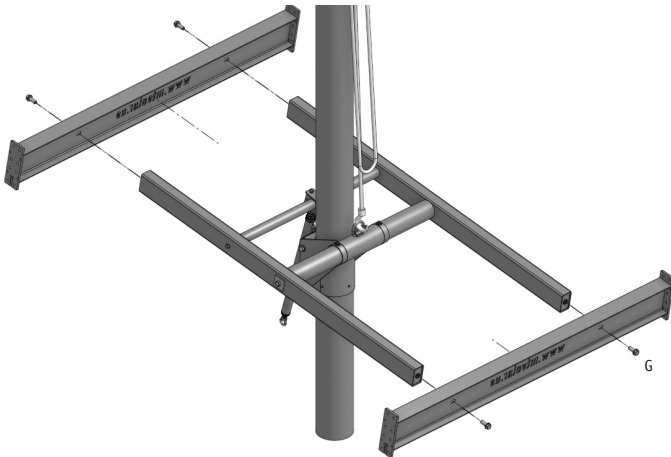
***FOR MULTI-POLE ONLY:** leave collars loose until beams are spliced together*



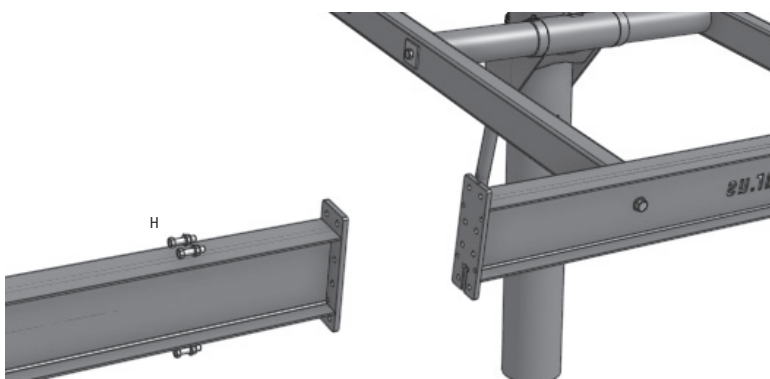
- 3-1:** Attach the rectangular tubes to the 4.5" pipe using hardware (E) and 3" x 3" square washers.
- 3-2:** Attach the rectangular tubes to the 2" pipe using hardware (F).
- 3-3:** If installing Tilt Angle Indicator, use hardware on either side of the 2" pipe.



3-4: Hand tighten all four bolts. Leave loose enough to allow for some play when installing I-beams.

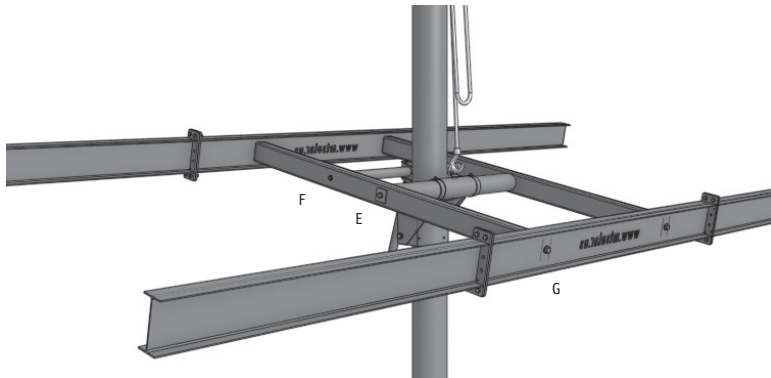


4-1: Install center I-Beams (with “www.mtsolar.us” text up) to rectangular tubes using hardware (G). Hand tighten only at this step.



4-3: Attach the two I-Beams wings using hardware (H).

4-4: The notch on the end of the beams will align the Center I-Beams to the Wing I-Beams. Once I-beams are level, tighten bolts (H).



- 5-1:** Stand on the North side of the mount to sight the I-beams. Twist the I-beams until they are level with each other.
- 5-2:** With beams parallel, tighten Hardware E, F, and G. See Hardware Table for torque. Do not overtighten, steel tubes may be crushed.

6: BEAM CLAMPS

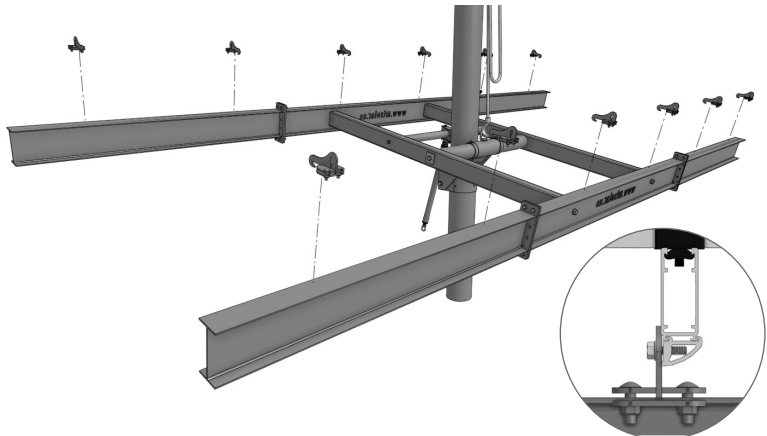


figure 1

- 6-1:** Plan the rail layout according to the module manufacturer's recommendation. See figure 1 for how rails align with clamps.
- 6-2:** Install Beam Clamps with hooks toward the center of the mount, using hardware (I) and tighten.

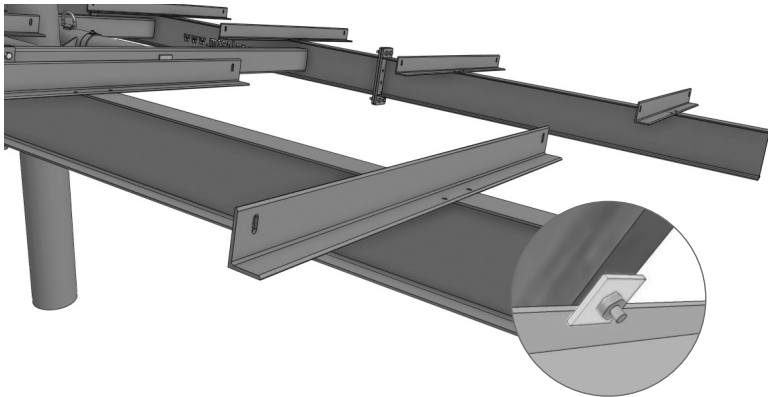
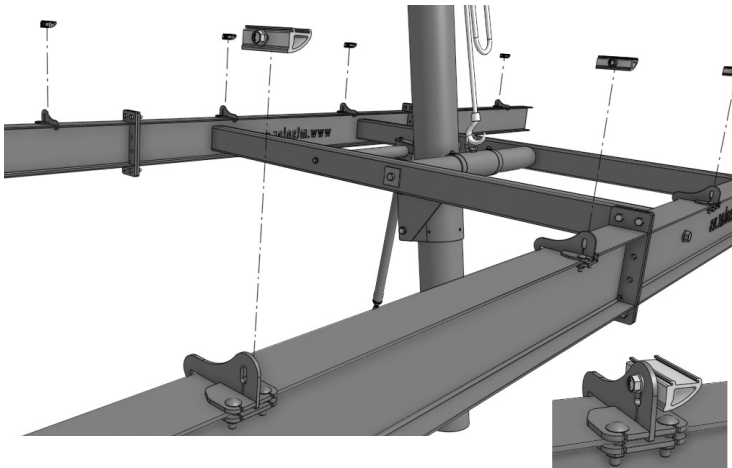


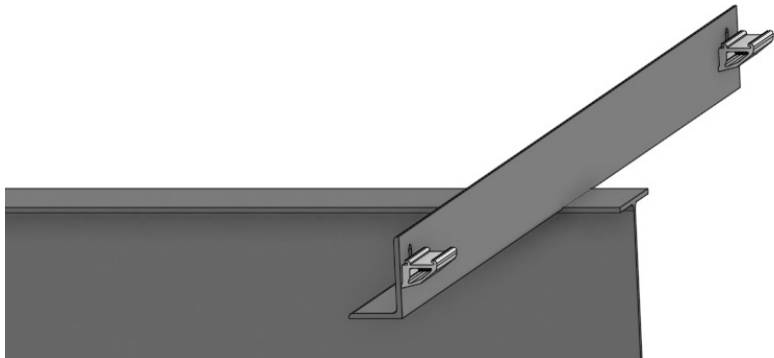
figure 2

6-2A: Alternatively, mounts with higher wind or snow loads may require the 4 ft. “Spread Clamp”. This provides extra support to the span and cantilever. Attach Spread Clamps using the square plates (figure 2) provided and hardware (I) and tighten.



7-1: Install the rail adapter into the beam clamp slot using the stainless hardware.

*If using rails other than Tamarack 3.1, refer to manufacturer's manual.



7-1A: If using spread clamps, mount the rail adapter to the two ends of the spread clamp.



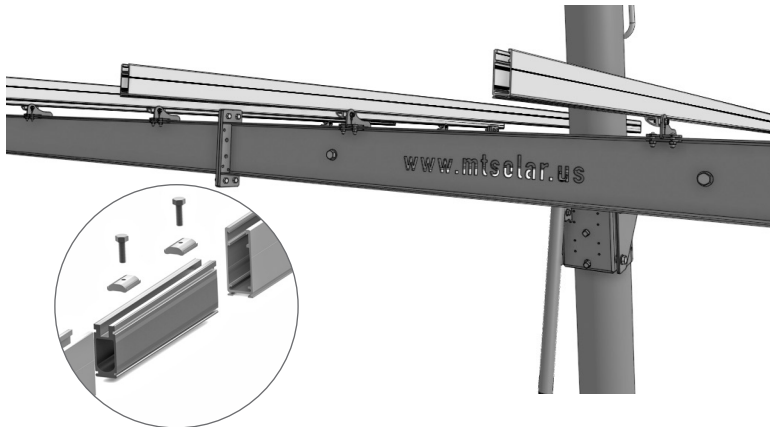


figure 3

- 7-2:** Tamarack 3.1 Rails use structural splices (figure 3), allowing the splice to land anywhere along the rail run.
- 7-3:** Center rails over I-beams, keeping equal length of rail off the end of each beam. Tighten rail adapter hardware to 22 ft-lbs.

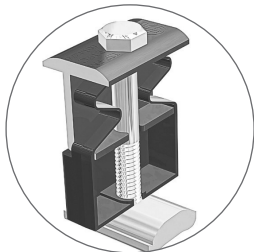


figure 4

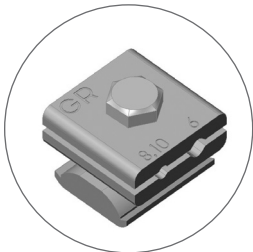


figure 5

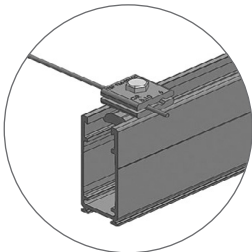
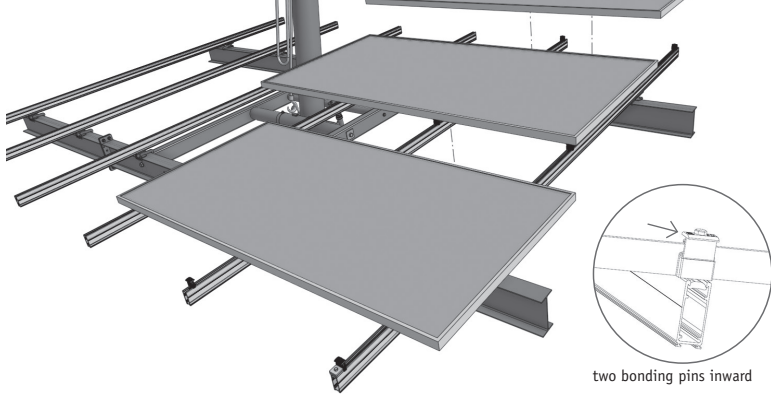


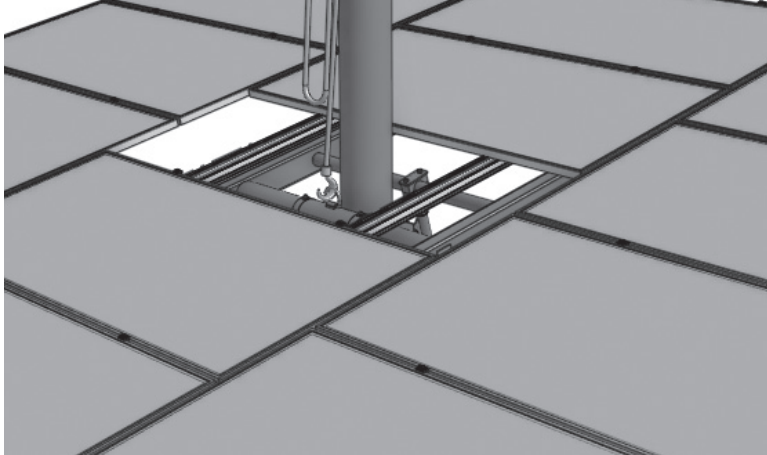
figure 6

7-4: Equipment Grounding - Tamarack Rails and PV modules are bonded by 50-50 Module Clamps (figure 4) and rail splices. The 50-50 clamps achieve bonding to the module frames by stainless-steel teeth in the clamping surface, which penetrate module frame coatings. One Ground Lug (figure 5) is required for each column of PV modules and can be attached at any location on either of the module support rails. Connect all ground lugs to the ground wire in the system (figure 6) according to local code.

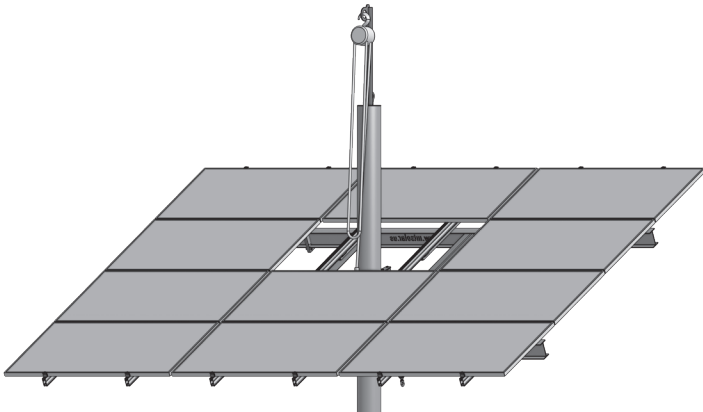


two bonding pins inward

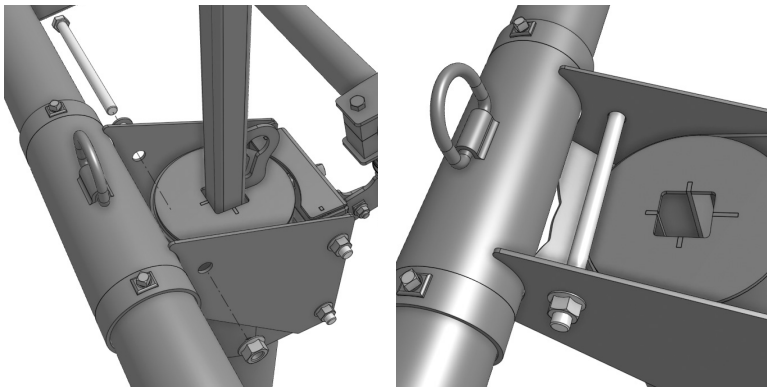
7-5: Install a 50-50 clamp at the end of each rail with the 2 bonding pins facing inward. Place the first module onto the rails, making sure the module is touching the inside edge of the clamps and tighten the clamps with a 1/2" socket. Install the remaining modules along the column using the 50-50 clamps, continuing to check for contact between the module frame and clamp surface.



8-1: Leave out the appropriate module(s) to allow for the vertical pipe to pass through.



- 8-2:** Raise and or tilt the array to facilitate wiring and wire management from the ground.
- 8-3:** When wiring is completed, hoist the array to the top of the pole.



8-4: Hoist until the U-Bracket Top Bolt (A) can be installed above the vertical pipe.

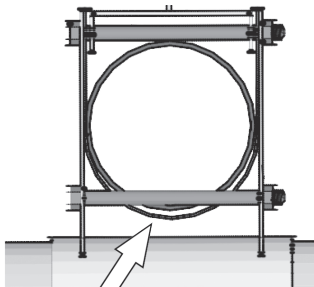
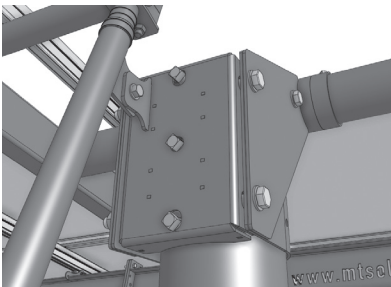
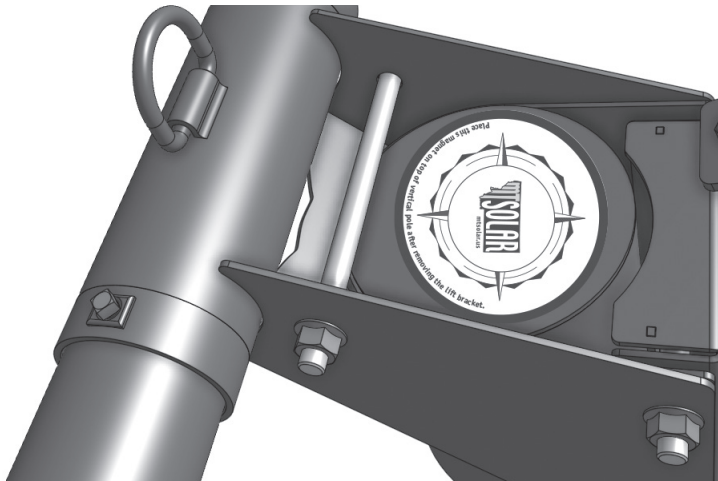


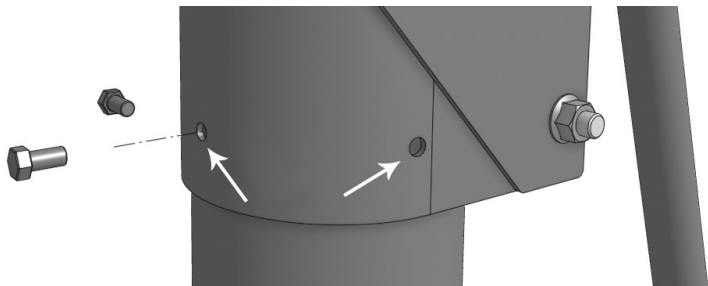
figure 6

9: CLOSE THE GAP

- 9-1:** Tighten square-headed set bolts (B) in the back mounting plate until they are snug against the pole. Relieve tension in the chain hoist. Now remove the gap between U-Bracket and Pole (figure 6) by tightening the square set bolts (B) 3 more full rotations of the bolt on a single pole or one full rotation on a multi-pole.
- 9-2:** Tighten the long bolts (A) in the back mounting plate.



10-1: Remove the chain hoist and lifting bracket and place the magnet over the square hole (set bolts must be tight first).



10-2: Spin Prevention:

For single pole mounts only, add through bolts as needed. This is the final step, to be done once array is installed, hoisted into place, and the set bolts are tightened. Use the drill bit provided by MT Solar to drill through the existing 15/32" holes in the U-bracket and through the support pipe on both sides and front. Thread in the 1/2" x 1" bolt through the pole cap and support pipe.



- 10-3:** Attach adjuster handle. You may cut the handle to length depending on pole height and site conditions.
- 10-4:** It may be advantageous to tilt array to vertical to facilitate placement of the final module(s).
- 10-5:** Using an angle finder, adjust the array to proper tilt.



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