

Installation Manual

STP-LSCR-MAN 2017 Edition v1.0

Formodels:

STP-SCR/045
STP-SCR/060
STP-SCR/070
STP-LCR/090
STP-LCR/120





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Introduction

The Top of Pole Mount is an extremely sturdy, universal pole mounting solution for small area solar photovoltaic (PV) needs. With its user adjustable angle settings (0° to 50° in 10° increments), the Top of Pole Mount can support installations in a wide range of locations.

Customer Support

Tamarack Solar makes every effort to ensure your mounting kit is easy to install. If you need assistance at any point in your installation or have suggestions on how we can improve your experience, call customer support at **1-800-819-7236** or email us



STP Mount Series

Tools Required

Tools that support the following size Hex heads: Torque values are “dry”, add 15% if using anti-seize lubricant on

Stainless hardware (Recommended). A deep socket or short extension needed for 3/8”, in one location.

1. 3/8”= 240\20 In\Ft Lbs
2. 5/16”= 144\12 In\Ft Lbs
3. 1/4”= 84\7 In\Ft Lbs

Components List The following parts are for all the STP mount models:

Galvanized coated sheet steel components will show rust on cut edges and is normal and will not affect the structure and function of the mount.

COMMON TO ALL STP MOUNTS, STP-SCR/045, STP-SCR/060, STP-SCR/070, STP-LCR/090, STP-LCR/120			
PART NUMBER	DESCRIPTION	QTY.	
51-04PC-012	6" Strong Back Pipe Clamp Half	2	
51-04CH-012	Clamp Strong Back Cap	1	
51-04BC-TLT	Channel, Tilt Plate Mounting	2	
51-04TP-LR2	Tilt Plate L/R	2	
23-2520-050	Bolt, 1/4-20 x .75 SS	20	Qty's Vary by model
25-2502-000	Washer, flat 1/4 SS	20	Qty's Vary by model
25-2501-014	Nut, Flange Serrated 1/4-20 SST	20	Qty's Vary by model
27-0456-700	Rod, threaded, SST 5/16-18 x 7" long	4	
23-3118-875	Bolt, Hex 5/16-18 x .875 SST	4	
25-3102-000	Washer, flat 5/16" SS	4	
25-2501-015	Nut, flange 5/16 SST	20	
23-3716-100	Bolt, 3/8-16 x 1.0 Hex SST.	10	Qty's Vary by model
25-3702-000	Washer, Flat 3/8" SST.	20	Qty's Vary by model
25-3701-000	Washer, lock 3/8" SST.	10	Qty's Vary by model
24-3716-440	Nut, 3/8-16 Hex SST.	10	

STP MOUNT SPECIFIC			
PART NUMBER	DESCRIPTION	QTY.	MODEL
51-04CR-048	Cross Rail, 48"	2	STP-SCR/045, STP-SCR/060, STP-SCR/070,
51-04CR-060	Cross Rail, 60"	2	STP-LCR/090
51-07CR-058	Cross Rail, 58"	2	STP-LCR/120
51-04TC-045	Panel Support, STP 45"		STP-SCR/045, (2) STP-LCR/090 (4)
51-07TC-060	Panel Support, STP/LTP 60"		STP-SCR/060,(2) STP-LCR/120 (4)
51-07TC-070	Panel Support, STP/LTP 70"	2	STP-SCR/070
51-07CN-030	Connector, 30"	2	STP-SCR/090, STP-LCR/120
51-04CB-225	Backing Channel	4	STP-SCR/045, STP-SCR/060, STP-SCR/070, STP-LCR/090
23-3118-901	Bolt, 5/16-18x2.50 Hex CS Zinc	4	STP-SCR/045, STP-SCR/060, STP-SCR/070, STP-LCR/090
25-3102-001	Washer, flat 5/16 Zinc.	8	STP-SCR/045, STP-SCR/060, STP-SCR/070, STP-LCR/090
25-3101-001	Washer, lock 5/16 med split Zinc	4	STP-SCR/045, STP-SCR/060, STP-SCR/070, STP-LCR/090
24-3118-441	Nut, 5/16-18 fin hex Zinc.	4	STP-SCR/045, STP-SCR/060, STP-SCR/070, STP-LCR/090



Pre Assembly for Models STP-LCR/090, STP-LCR/120)

Step 1: Connecting Panel Support Channels

- A. Lay two panel support channels end to end with a connector in the middle.
- B. Using a connector, bolt the panel support channels together. Tighten the 5/16-18 x 7/8" hardware (hex bolt, flat washer, and flange nut) to 144 in-lbs (dry). **(Detail A)** Repeat with the remaining set of channel rails and set aside.

Final Assembly to Pole

Step 2: Attach Pole Clamp Assembly to Pole

- A. Slide the pre-assembled pole clamp over the pole, the assembly should rest on the notches on the top edge of the pole. **(Detail B)**.
- B. Loosen the four 1/4" bolts slightly to allow the clamp halves to tighten up on the pole.
- C. Orientate brace to face south.
- D. Tighten the 8 outside 5/16 flange nuts on the threaded rods evenly, making sure that each nut is tightened the same amount of turns so the distance between the clamp halves is the same on each side of the pole, until the torque setting is reached. 144 in-lbs (dry).
- E. Finger tighten the 8 inside 5/16 flange nuts up to the flanges of the clamp halves.
- F. Using a long 5/16 box wrench, tighten 5/16 flange nuts, alternating turns from side to side, pulling the flanges together. (Close or touching, not flattened out).
- G. Install 5/16 x 7/8 bolt, flat, and flange nuts in the 4 holes of the clamp halves flange ends. Tighten 5/16 bolts, alternating turns from side to side, pulling the flanges together. (close or touching, not flattened out) **(Detail C)**.
- H. Check the torque of the 8 outside flange nuts, re torque as needed.
- I. Torque the four 1/4" bolts on top to 84 in-lbs. **(previously loosened slightly)**
- J. **(Optional)** caulk the seams on top of pipe clamp to seal preventing rain water entering the pipe.

Step 3: Attach Tilt Plate Mounting Channel

- A. Place tilt plate mounting channels on the sides of the pole clamp assembly **(Detail D)**.
- B. Install 1/4" bolt, flat and flange nuts 6 places on both sides, tighten to 84 in-lbs. Note: placing the flange nut in the "closed" side of the wrench to align with the bolt through the cutout will make it easier to start. **(Detail E)** Dropped nuts cannot be retrieved very easily.



Step 4: Attach Tilt plates

Attach tilt plates, flanges facing to the outside using 3/8-16 x 1.00 bolts, flats, locks and nuts; position the tilt plates with the top parallel to the ground (0°). Do not torque at this time, tighten only enough to hold firmly for next assembly steps. **(Detail F)**.

Step 5: Attach Cross Rails to Tilt Plates.

MODEL STP-LCR/120

Attach cross rails to the tilt plates, open sides facing to the inside, using 3/8 x 1.00" bolts, flats, locks and nuts. Cross rails are to be on center across the tilt plates and parallel to each other, Torque to 20 ft-lbs. **(Detail G)**

MODELS STP-SCR/045, STP-SCR/060, STP-SCR/070, STP-LCR/090

Attach cross rails to the tilt plates, open sides facing down, using a Backing Channel, 5/-16 x 2.50" bolts, flats, locks and nuts. Cross rails are to be on center across the tilt plates and parallel to each other, Torque to 144 in-lbs. **(Detail H)**

Step 6: Attach Panel Supports to Cross Rails

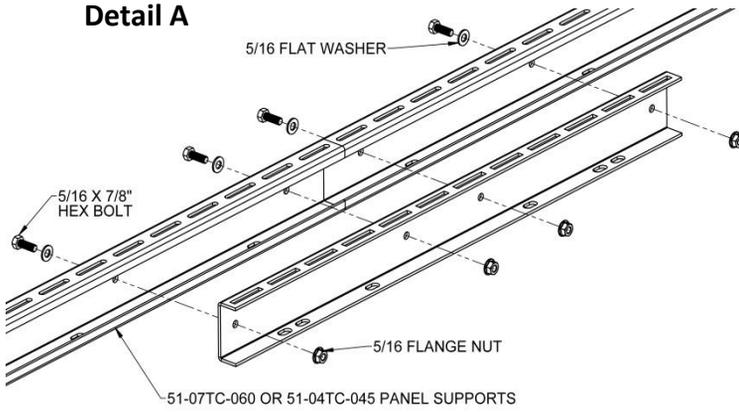
- A. Confirm the center to center distance of the mounting holes on the PV modules and mark on the cross rails the slots that will match that dimension.
- B. Attach the panel supports with the open side facing in with the 3/8 x 1.0 bolts, flats, locks, and nuts, in the slots that are marked, hand tighten, do not torque at this time so slight adjustments can be done on the next step.
- C. Lift the PV module up onto the panel supports; align mounting holes to the panel supports so the module is centered on the panel supports, or equally spaced for 2 or more modules. Install with 1/4 x 3/4 bolts, flat and flange nuts. Torque to 84 in-lbs.
- D. Torque to 20 ft-lbs the 3/8" bolts connecting the panel supports to the cross rails.

Step 7: Adjust Tilt Angle

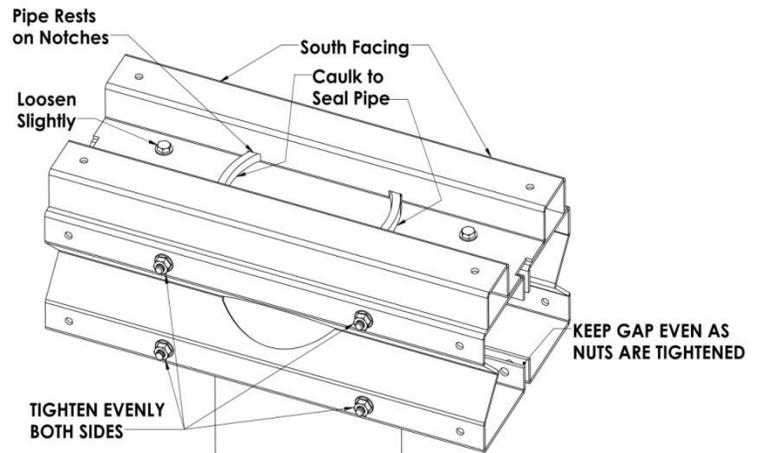
Remove the lower two 3/8-16 x 1.0 bolts from the tilt plates and tilt the array to desired angle, the array tilts in 10° increments from 0° to 50°. Re install 3/8-16 x 1.0 bolts and torque all six 3/8-16 x 1.0 bolts to 20 ft-lbs

Detailed Diagrams for Assembly

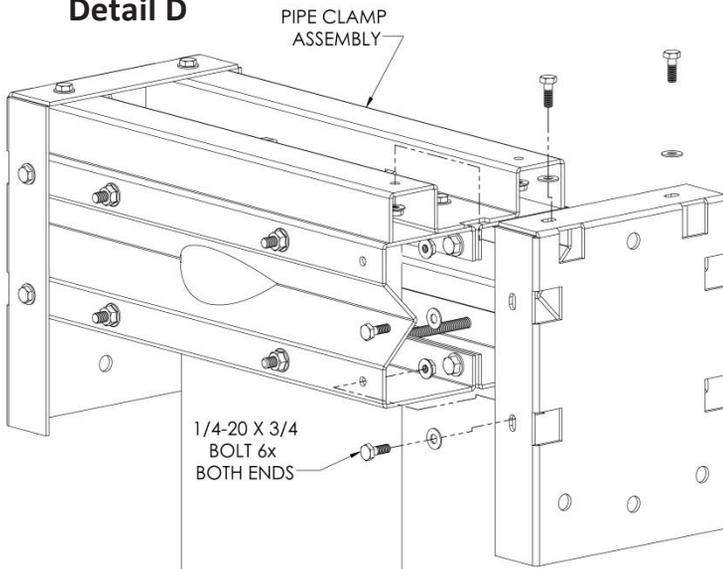
Detail A



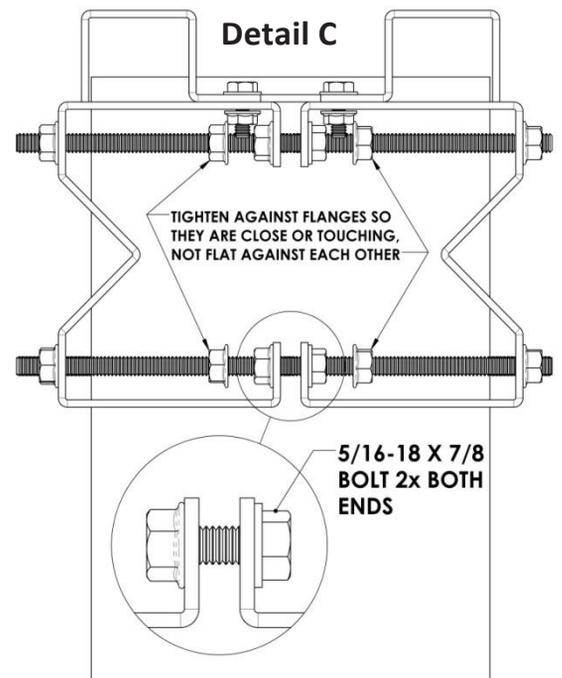
Detail B



Detail D



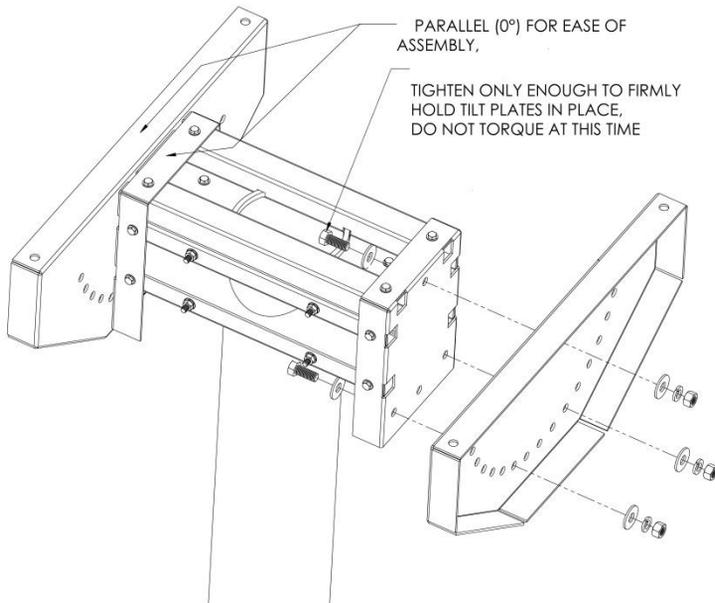
Detail C



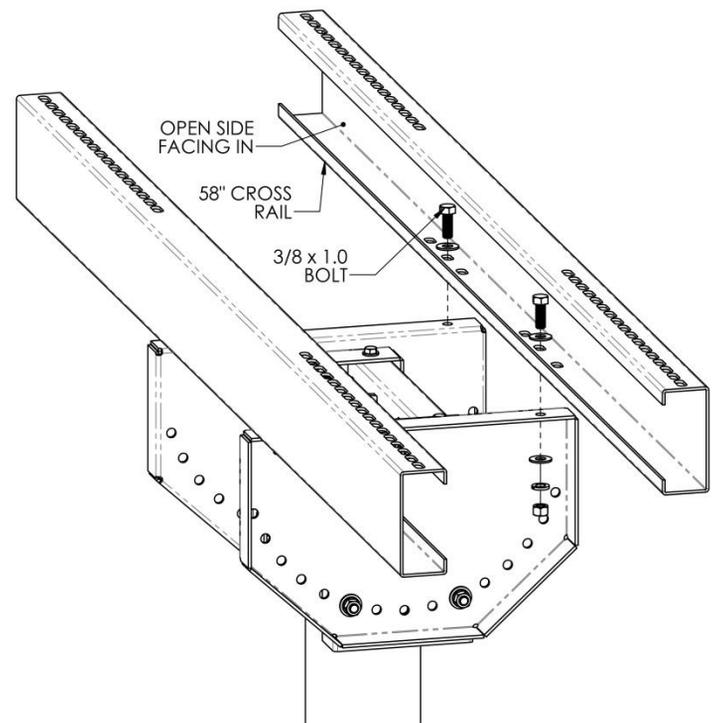
Detail E



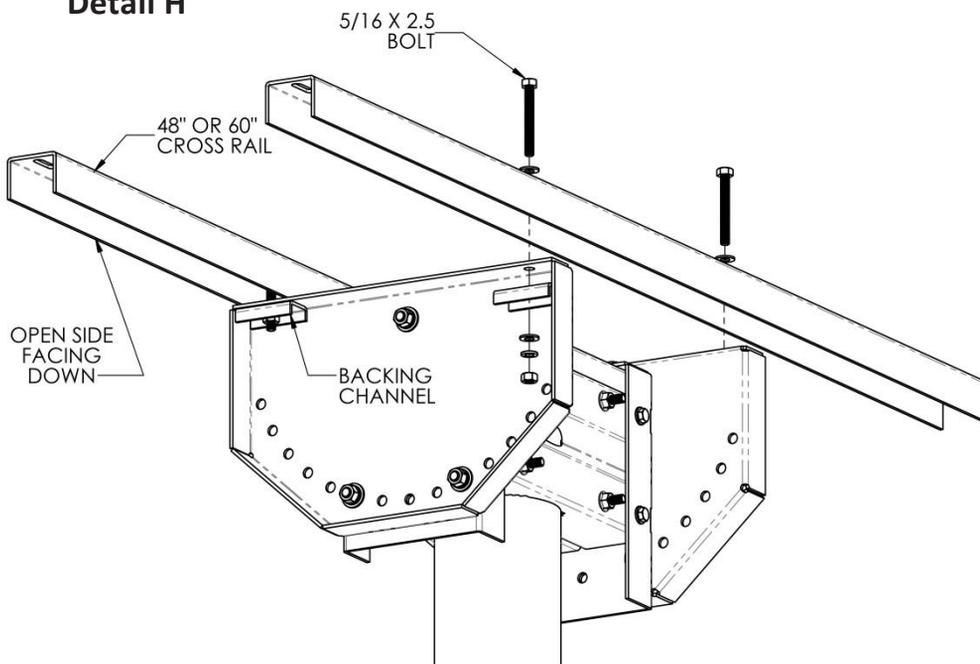
Detail F



Detail G



Detail H





Installer Responsibility

The installer is solely responsible for:

- i. Complying with all applicable local or national building codes, including any that may supersede this manual;
- ii. Ensuring that Tamarack Solar and other products are appropriate for the particular installation and the installation environment;
- iii. Using only Tamarack Solar parts and installer-supplied parts as specified by Tamarack Solar. Substitution parts may void the warranty;
- iv. Ensuring safe installation of all electrical aspects of the PV array; and
- v. Ensuring correct and appropriate design parameters are used in determining the design loading used for the specific installation. Parameters, such as snow loading, wind speed, exposure and topographic factor should be confirmed with the local building official or a licensed professional engineer.

Warranty Information

Tamarack Solar warrants each Mounting Structure to be free from defects in materials and workmanship for ten (10) years from the date of first purchase (“Warranty Period”), when installed properly and used for the purpose for which it is designed, except for the finish, which shall be free from visible peeling, or cracking or chalking under normal atmospheric conditions for a period of three (3) years, from the earlier of 1) the date the installation of the Product is completed, or 2) 30 days after the purchase of the Product by the original Purchaser (“Finish Warranty”). The Finish Warranty does not apply to any foreign residue deposited on the finish.

Galvanized coated sheet steel components will show rust on cut edges and is normal and will not affect the structure and function of the mount.

All installations in corrosive atmospheric conditions are excluded. The Finish Warranty is VOID if the practices specified by AAMA 609 & 610-02 – “Cleaning and Maintenance for Architecturally Finished Aluminum” (www.aamanet.org) are not followed by Purchaser for Tamarack Solar’s aluminum based products.

The warranty covers the replacement cost of parts to repair the product to proper working condition. Transportation and incidental costs associated with warranty items are not reimbursable. The warranty does not cover normal wear, or damage resulting from misuse, abuse, improper installation, negligence, or accident, or **typographical errors in instruction manuals**. The Warranty does not cover any defect that has not been reported in writing to Tamarack Solar within ten (10) days after discovery of such defect. Furthermore, it does not cover units that have been altered, modified or repaired without written authorization from the manufacturer or its authorized representative, or units used in a manner or for a purpose other than that specified by the manufacturer. Tamarack Solar’s entire liability and Purchaser exclusive remedy, whether in contract, tort or otherwise, for any claim related to or arising out of breach of the warranty covering the Mounting Structures shall be correction of defects by repair, replacement, or credit, at Tamarack Solar’s discretion. Refurbished Mounting Structures may be used to repair or replace the Mounting Structures

Tamarack Solar shall have no liability for any injuries or damages to persons or property resulting from any cause, whatsoever, or any claims or demands brought against Tamarack Solar by Purchaser, any employee of Purchaser, client of Purchaser, end-user of the Product or other party, even if Tamarack Solar has been advised of the possibility of such claims or demands (collectively, “Third Party Claims”). This limitation applies to all materials provided by Tamarack Solar during and after the Warranty Period.

Foundation Hole Guidelines

The suggestions below are recommendations only. It is the installer's responsibility to validate foundation parameters prior to installation, as local geotechnical report may be required to assess ground conditions. We recommend consulting with a local engineer familiar with local regulations and build site requirements, including soil conditions, terrain and load criteria (wind, snow, seismic). All of these parameters may impact foundation requirements.

Foundation Hole Guidelines Nominal Pipe Size 6" Schedule 40, 6' Above Grade				
Module Area	Max Wind Speed	Min. Hole Diameter	Min. Hole Depth	Min. Pole Depth
70	90MPH	24"	60"	54"
80	90MPH	24"	66"	60"
90	90MPH	24"	74"	68"
110	90MPH	24"	82"	76"

Installation Recommendations:

1. Auger hole to minimum depth shown in foundation guidelines.
2. The bottom 6" of hole should be filled with crushed rock or a blocking; this will prevent the pipe(s) from touching the base of the hole, insuring complete encapsulation of the pipe when concrete is poured, as well as allowing for water drainage.
3. The pipe(s) should be installed vertically no matter the slope of the install site.
4. Make arrangements to prevent the pipe(s) from twisting or moving prior to and during pouring of the concrete.
5. The pipe(s) should be braced to remain plumb and in position until concrete has cured at least 24hrs

