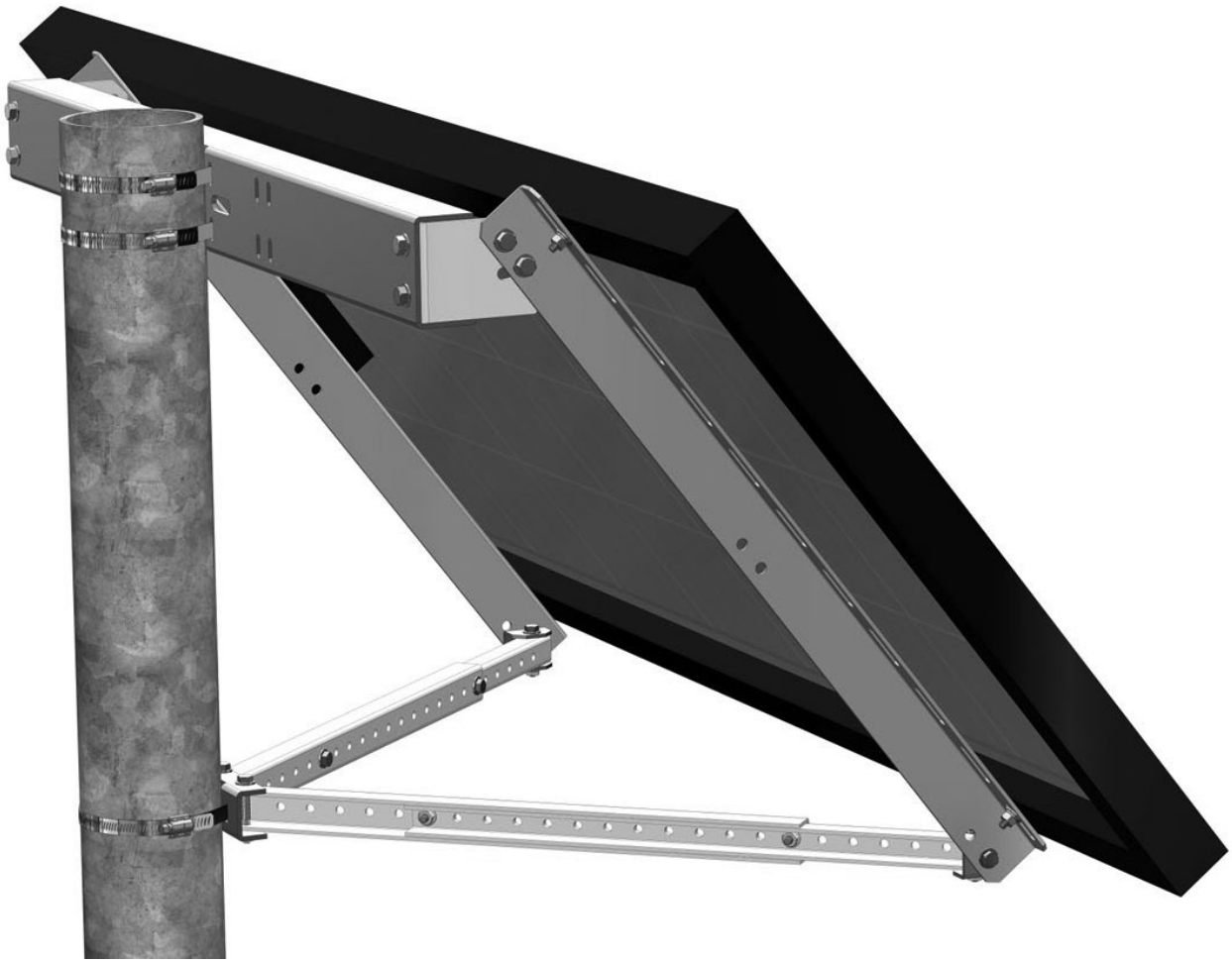
Tamarack Solar Products

Installation Manual

UNI-SPXH Manual v3

Formodel:

UNI-SP/01XH



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Introduction

This Braced Side of Pole Mount is a simple and universal pole mounting solution for small area solar photovoltaic (PV) needs. With its user-adjustable angle settings, the Side of Pole Mount can support installations in a wide range of locations. These can be installed on 2 to 4 inch schedule 40 pipe which have an outside diameter of 2.375 inches to 4.5 inches, and flat surfaces. The module support rails can be adjusted to **18° to 60°.**

Customer Support

Tamarack Solar makes every effort to ensure your mounting kit is easy to install. If you need assistance at any point with your installation or have suggestions on how we can improve your experience, call our customer support at **1-800-819-7236 ext. 556** or email us at support@tamaracksolar.com.

Tools Required and Torque Specifications

Use a torque wrench with a range of up to 144 inch-pounds or 12 Ft-Lbs.

5/16" socket (for the hose clamps) torque to 35 Inch-pounds
7/16" socket
1/2" socket

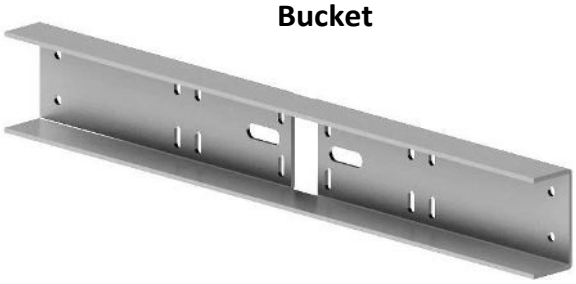
Torque Values in Ft Lbs \ (In Lb)		
	18-8 Stainless	
Bolt Size	Dry	Lubricated
1\4-20	6 \ (75)	5 \ (64)
5\16-18	11 \ (132)	9 \ (112)

Component List

Part Number	Description	Quantity		
51-3517-242	Bucket, 35.6"	1		
51-3517-243	Clip, left	1		
51-3517-244	Clip Right	1		
51-3517-203	KNBR Knee Bucket	1		
51-3517-204	Bracket swivel 1"	2		
51-3517-207	Channel, inner 19" x 1"	2		
51-3517-208	Channel outer 19" x 1.28"	2		
51-0527-000	Rail, 27.5	2		
27-5000-010	Band Clamp 5"	3		
29-5002-000	Spare Hardware 1/4 + 5/16 x 3/4	1		
29-5020-010	Bracket Hardware	1 Set		
23-2520-158	BOLT, HEX 1/4-20 X 1 5/8 SST.	3		
23-2520-200	BOLT, HEX 1/4-20 X 2.0 SST	3		
25-2501-014	NUT, HEX 1/4-20 SERRATED FLANGE	8		
23-2520-050	Bolt, 1/4-20 x .75 SS	6		
25-2502-000	Washer, flat 1/4 SS	10		
29-5000-000	Module Mounting Hardware	1 Set		
23-2520-050	Bolt, 1/4-20 x .75 SS	4		2
25-2502-000	Washer, flat 1/4 SS	8		2
25-2501-000	Washer, lock 1/4" SS	4		2
24-2520-440	Nut, 1/4-20 Fin Hex SS	4		2
29-5001-000	Mount Assembly Hardware	1 Set		
23-3118-021	Bolt 5/16-18x3/4 Hex SS	8		2
24-3118-440	Nut, 5/16-18 Hex SS	8		2
25-3101-000	Washer, lock 5/16 Med Split SS	8		2
25-3102-000	Washer, flat 5/16 SS	16		2

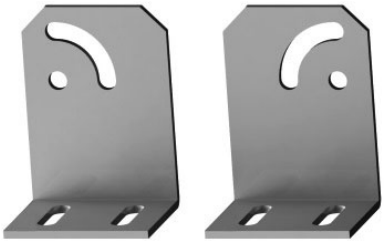
Component images

Bucket



Band Clamp

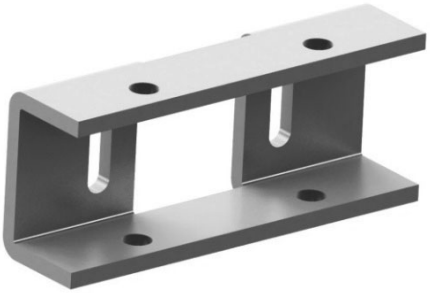
Left and right Clips



Inner\Outer channels

Panel Support Rail

Lower Knee Bucket



Swivel Bracket

Optional Components

For mounting **(Not included)**

Depending on mounting surface: (for the upper bucket)

1 Pair of 1/2-13 U-bolts for 2”,3”,4” pipe sizes

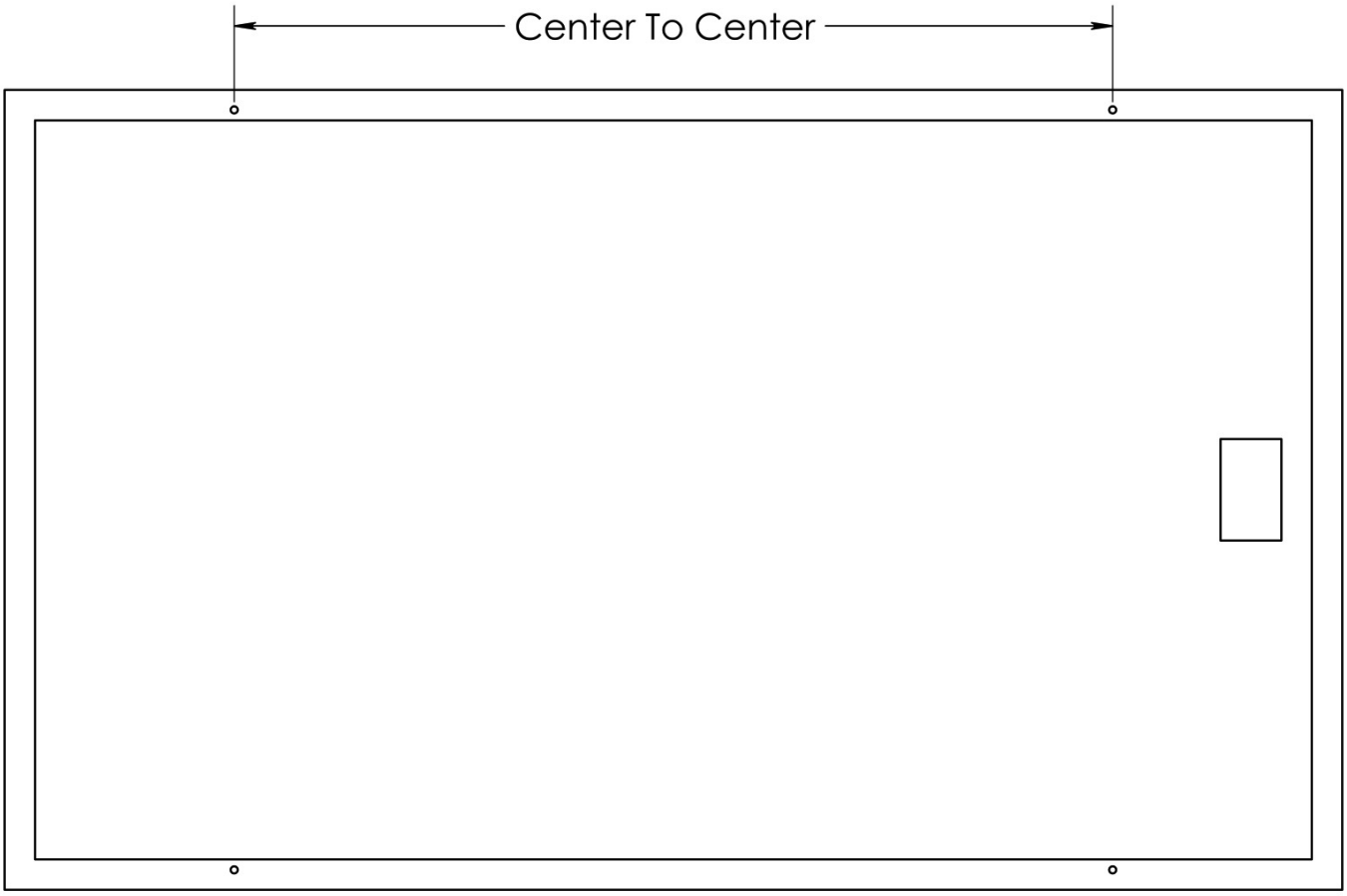
2 sets of ½” lag bolts and washers.

(For lower bucket)
2 sets of 1/4" lag bolts and washers

Step 1. Measure PV Mounting Hole Distance

A. Lay the panel(s) face down on a protected surface in the suitable orientation.

B. Measure the center-to-center distance between the inside mounting holes on the back of the PV module as shown and make a note of it.

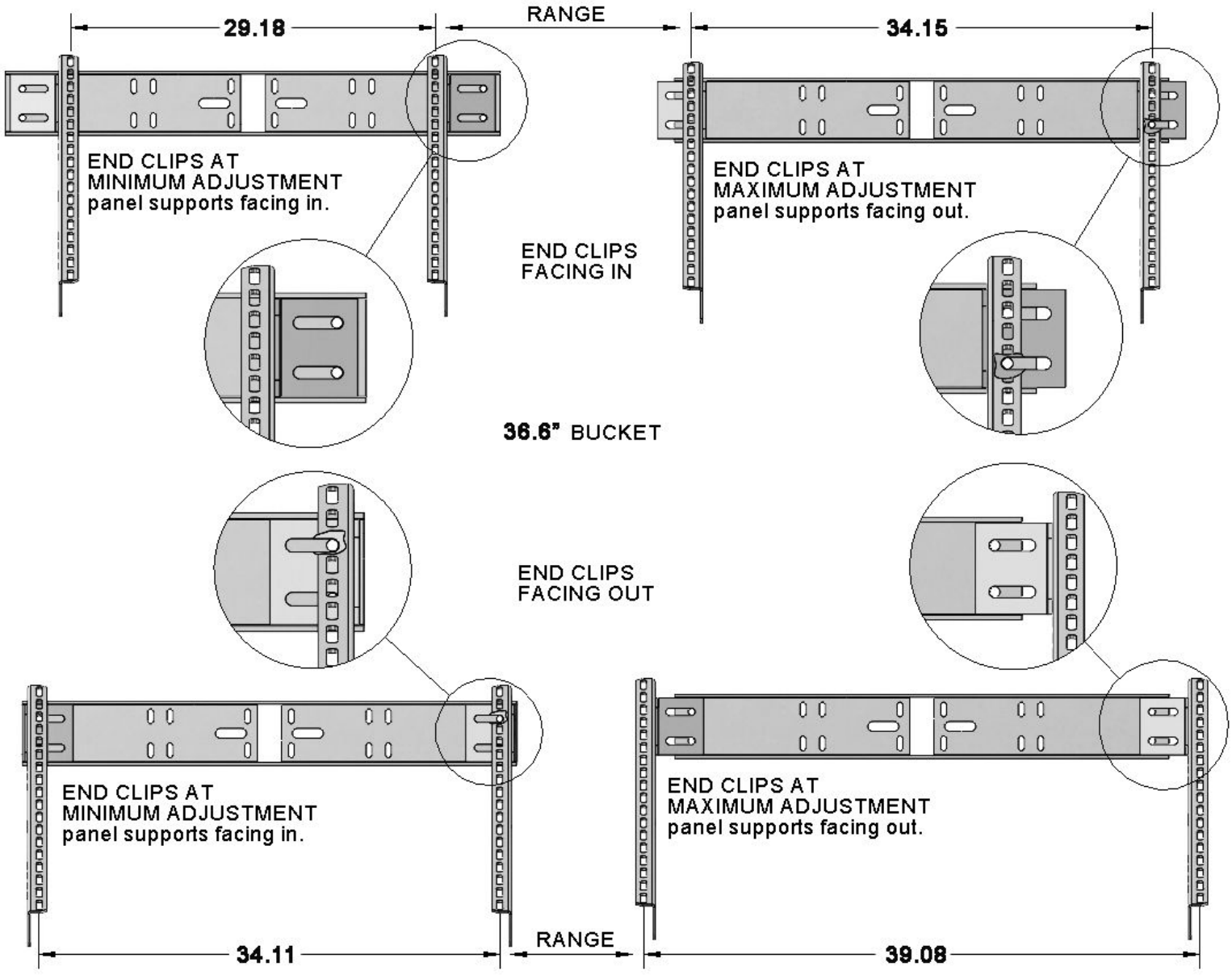


Step 2. Mounting Rail Supports on PV Module

A. Review the reference diagrams to determine the orientation of the panel support rails (facing in or out) and the end clips (facing in or out), based on the center-to-center range of your module.

B. Secure the rails with a 1/4-20 x 3/4" bolt, lock washer, and hex nut in each of the PV mounting holes see page 6 for reference view.

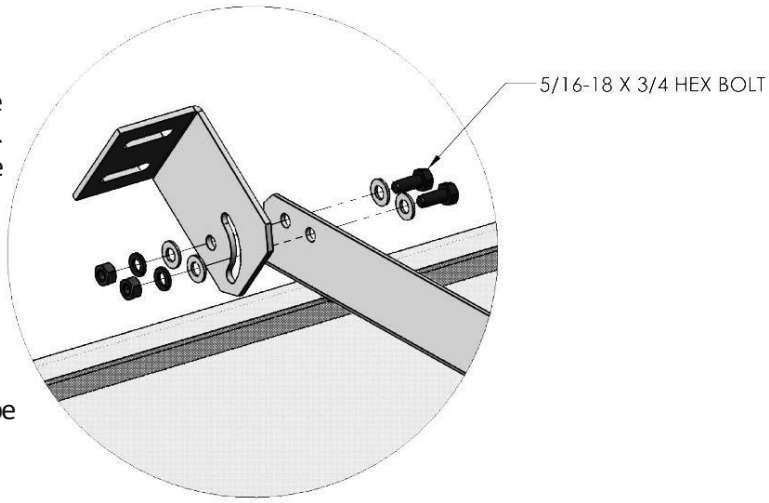
C. Torque the bolts

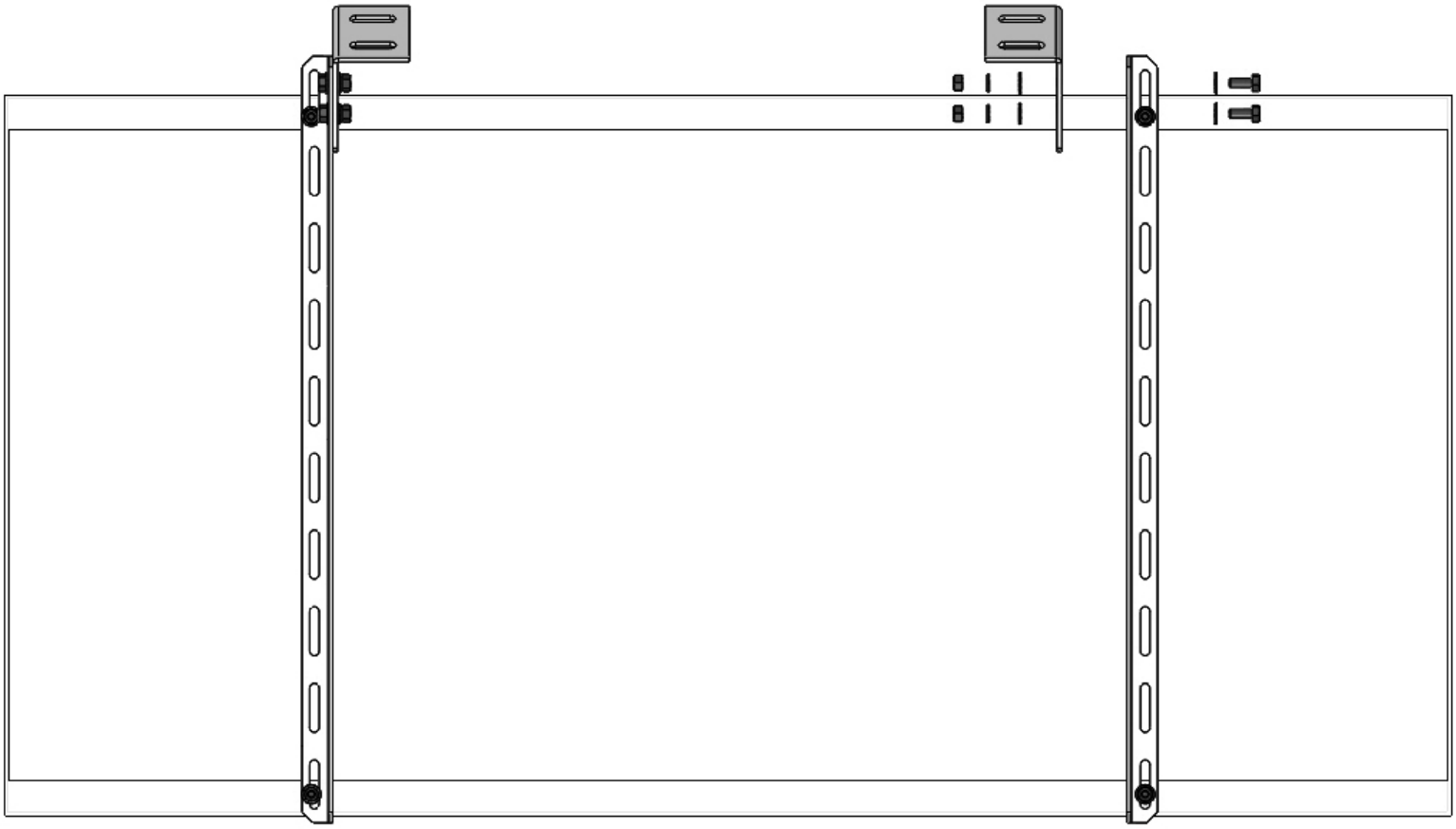


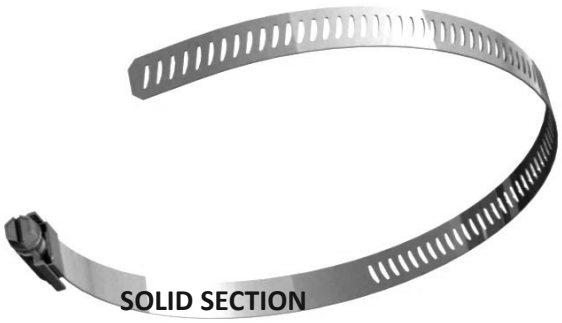
Step 3. Attaching Clips to Rails

A. Attach the clips to the rails as determined by the bucket range diagrams (shown in previous step). Example shown has the clips facing in on the inside of the rails that are facing out.
Note the orientation of the curved slot

B. In each of the clip mounting holes, use a 5/16-18 x 3/4" bolt and flat washer on one side and a flat washer, lock washer and nut on the other. Tighten these bolts finger tight only at this time (these will be torqued after assembly is finished and the tilt angle is final.)





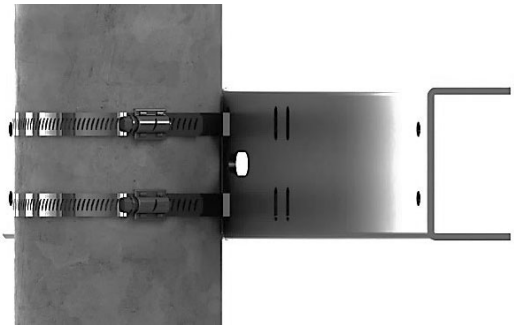


Step 4. Attaching Bucket to Pole

A. Un-screw the Band Clamp to release the end and thread each hose clamp through one of the sets of narrow center slots in the bucket(s) as shown and place at the desired location on the pole.

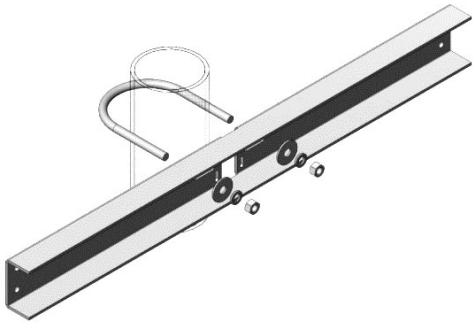
NOTE: KEEP THE SOLID SECTION OF THE CLAMP CROSSING OVER BOTH SLOTS.

B. Once the Band Clamps are in the desired position, tighten the hose clamp screws to 35 in-lbs.
NOTE: ALWAYS RECHECK TORQUE ON HOSE CLAMPS AFTER EXPOSURE TO WINDY CONDITIONS.

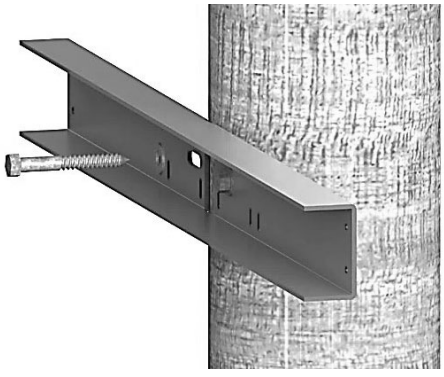


Optional Mounting Methods (This hardware is not included)

High Wind Conditions
In high wind loading conditions, in conjunction with the hose clamps, add the optional 1/2-13 U-Bolts as appropriate for the pipe size being used, (2" to 4" pipe size) Tighten securely but take care not to deform the bucket



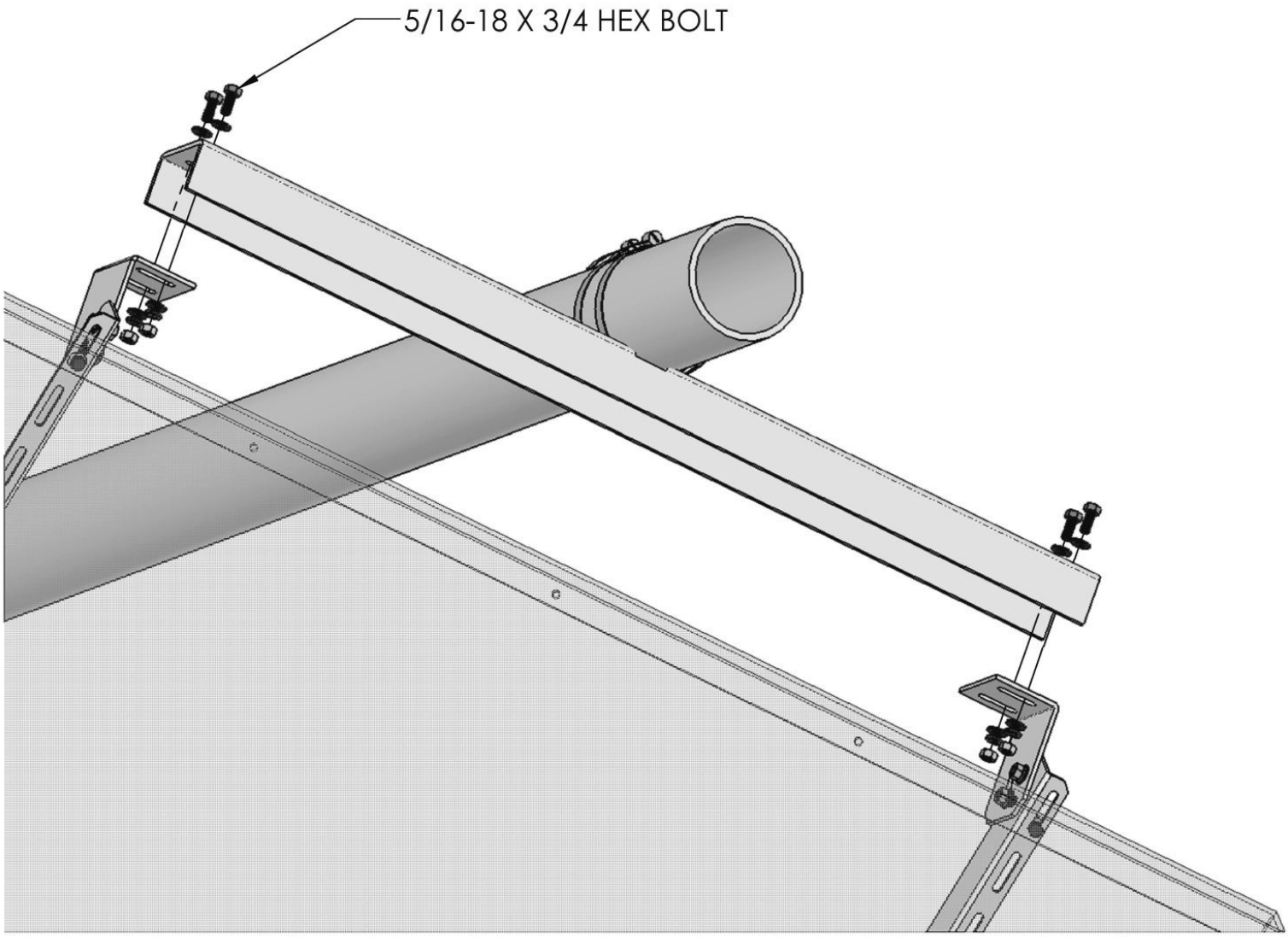
Mounting on Wood Posts
Use 1/2" lag bolts as appropriate to a wooden structure being mounted to (telephone pole or post Etc.). Tighten securely but take care not to deform the bucket.



Step 5. Mounting PV Assembly on Pole

A. Place the PV module assembly so the holes on the clips line up with holes in the inside of the bucket. Depending on the size of the panel and the location of mounting holes, your assembly may look different than the picture below, with the clips and rails facing in the opposite direction.

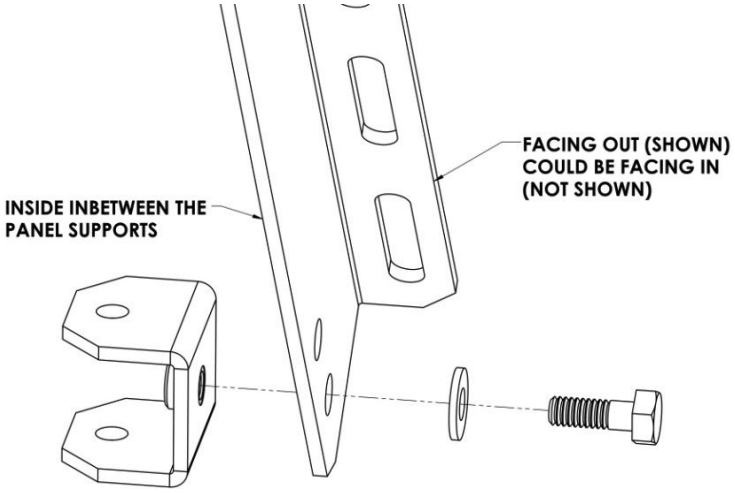
B. Attach the clips to the bucket. In each of the 4 mounting holes, use a 5/16-18 x 3/4" bolt and flat washer on one side and a washer, lock washer and nut on the other. Torque the bolts.
Set desired angle and **Tighten bolts only enough to hold angle to install knee brace**.
After Knee brace is installed then Torque the bolts.



Step 6. Attaching Swivel Bracket to Panel Support

A. Using a 1/4-20 x 3/4" bolt and flat washer, attach the bracket to the inside end of the panel support in the hole as shown.

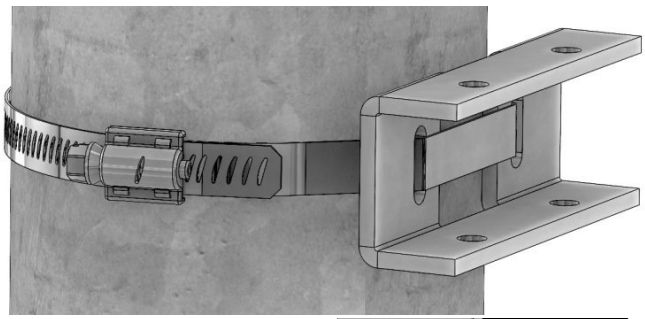
B. Repeat on the opposite panel support, leave brackets "finger tight" for final adjustment of the knee brace assembly.

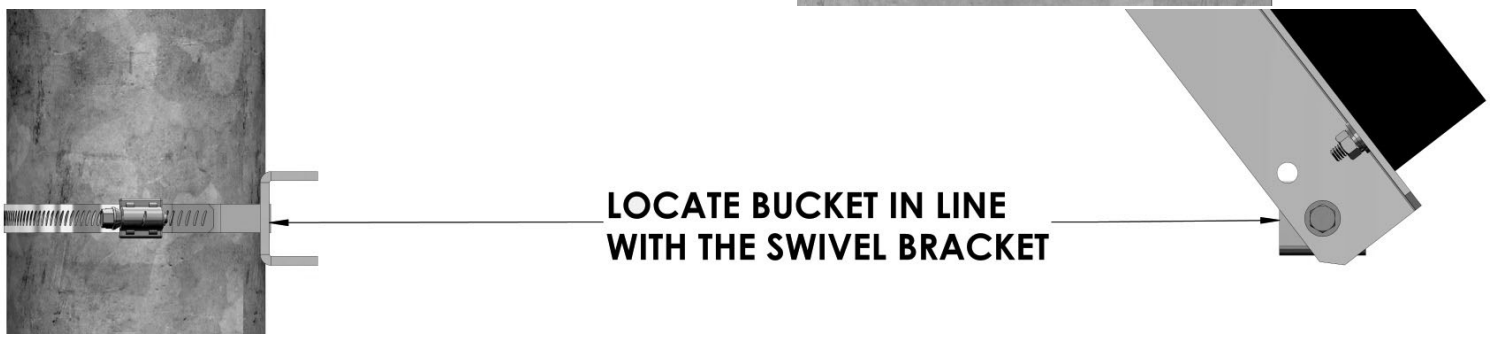


Step 7. Attaching Lower Knee Brace Bucket

A. Thread the banding through the set of narrow slots in the lower bucket.

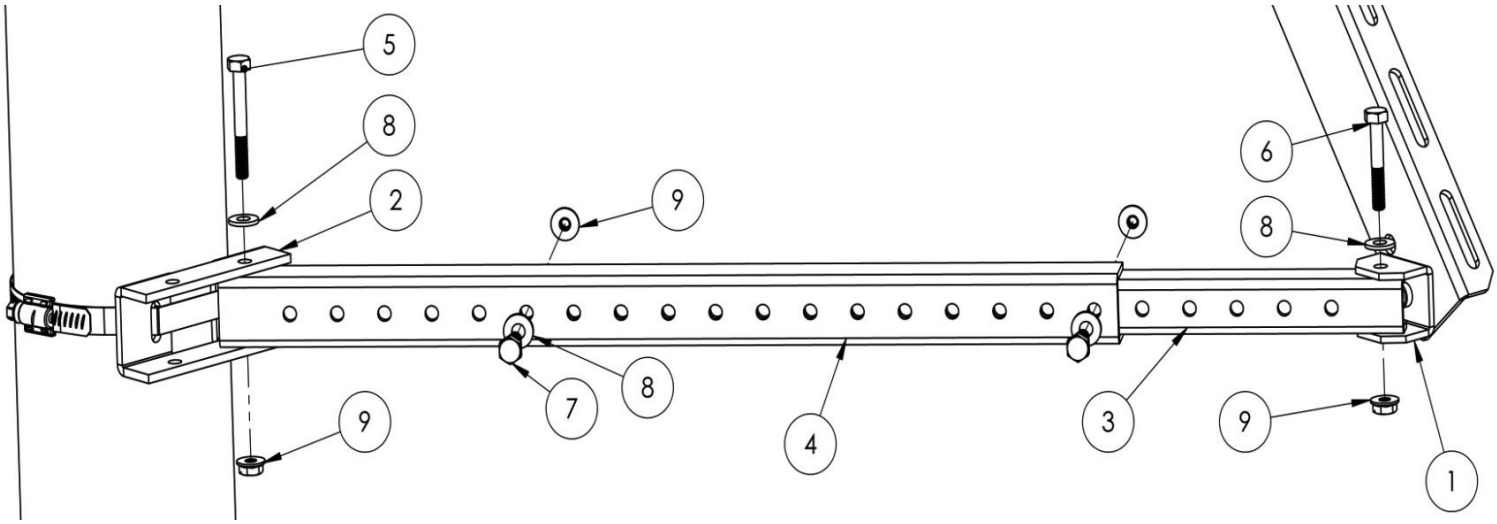
B. Place on the pole such that the knee braces will be level with the tips of the panel supports as shown, **leave loose enough to move for final adjustments.**





Step 8. Attaching Inner and Outer Brace Channels

A. Loosely attach the outer channel to the Knee bucket as shown.
B. Loosely attach the inner channel to the swivel bracket as shown.
C. Align the inner channel inside the outer channel and align the holes to install the bolts.
D. Install the bolts in the holes at the end of the channels.
E. Repeat for the other side.
F. Torque the 1/4" bolts.
G. Torque the 5/16” bolts from step 6.
H. Torque the hose clamp from step 8 to 35in-lbs



ITEM	PART NUMBER	DESCRIPTION	QTY.
1	51-3517-204	BRACKET, SWIVEL 1" CHANNEL ATTACHING	2
2	51-3517-203	BUCKET, KNEE LOWER BRACE	1
3	51-3517-207	CHANNEL, INNER 19" X 1"	2
4	51-3517-208	CHANNEL, OUTER 19" X 1.28"	2
5	23-2520-200	BOLT, HEX 1/4-20 X 2.0 SST	2
6	23-2520-158	BOLT, HEX 1/4-20 X 1 5/8 SST.	2
7	23-2520-050	Bolt, 1/4-20 x .75 SS	10
8	25-2502-000	Washer, flat 1/4 SS	14
9	25-2501-014	NUT, HEX 1/4-20 SERRATED FLANGE	8

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 warranty.

iv. Ensuring safe installation of all electrical aspects of the PV array.

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.
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. **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