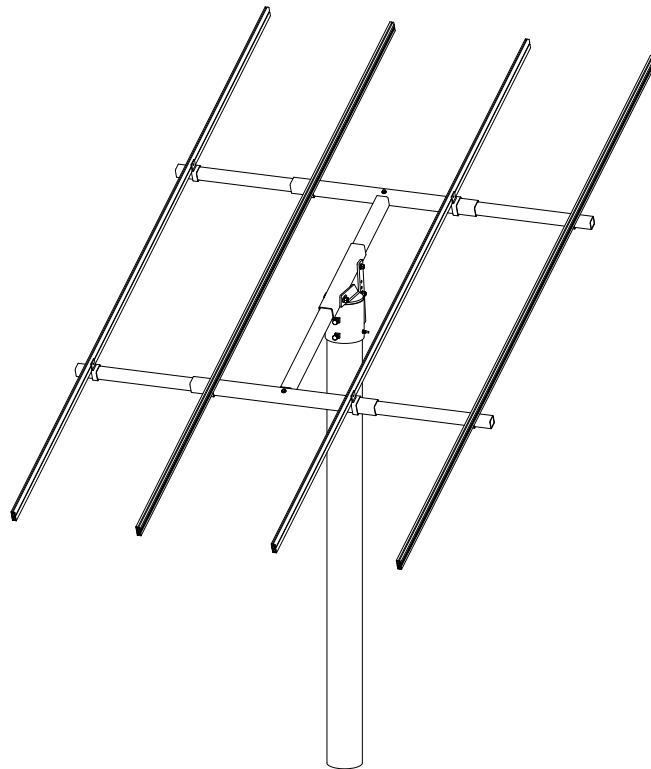


ZOMEWORKS

CORPORATION

FXL FIXED RACK

ASSEMBLY INSTRUCTIONS



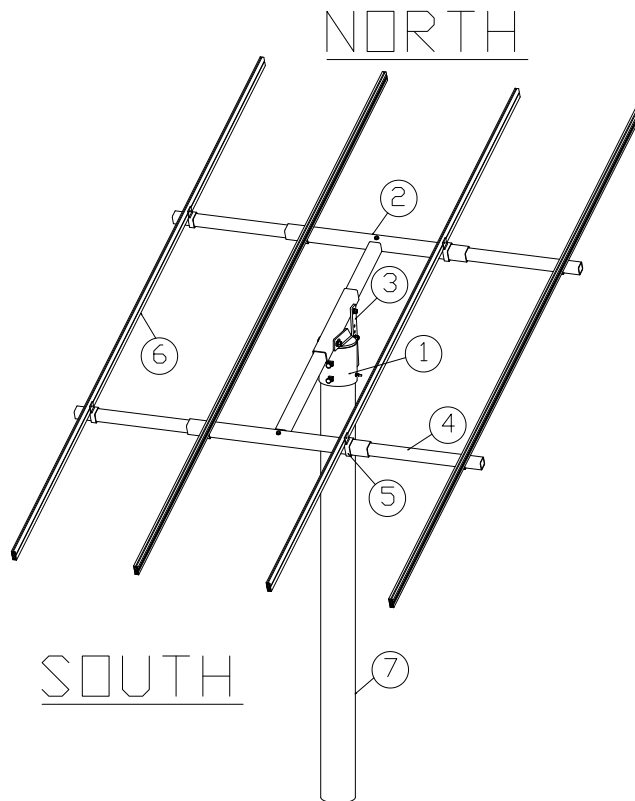
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Revised 4/11/16

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FXL Series Recommended Tools & Parts List



RECOMMENDED TOOLS:

- (2) Adjustable 12ö Crescent Wrenches.
- (2) 1-1/8ö, 15/16ö, 3/4ö, 9/16 and 7/16ö Wrenches.
- Rubber Mallet (Hammer will scratch the finish).
- Heavy hammer and wooden block (for truss tubes).
- (2) Sawhorses (Not required, but helpful).
- (2) 6ft Step ladders.
- Tape Measure.
- Permanent marker

NOTE TO INSTALLER: The installer must provide their, own schedule 40 steel pipe. Your Fixed RackÎ may hold more modules than illustrated, but the concept is the same. Before assembling your Fixed RackÎ , use the list below to assure that you have all of your components. In the event that you may have missing parts, contact **ZOMEWORKS Customer Service @ 1-800-279-6342**. **PLEASE** have your **SALES ORDER NUMBER**, **DATE OF PURCHASE**, along with your **DEALER NAME** when calling.

FXL PARTS LIST		
Key	Quantity	Structural Component Description
1	1 ea.	Gimbal Can
2	1 ea.	I-Beam
3	1 ea.	Seasonal Adjustment Arm
4	2 ea.	Truss Tube
5	8 ea.	Truss Tube Sliders (12 each if an extra rail set is included)
6	4 ea.	Module Mounting Rails (6 each if an extra rail set is included)
7	n/a	Customer Supplied Mounting Pole

FXL FIXED RACK HARDWARE LIST	
Quantity	Description
GIMBAL CAN (ALL HARDWARE ATTACHED)	
2 ea.	3/4" x 2" YZP Hex Bolts
1 ea.	3/4" x 5 1/2" ZP Hex Bolt
1 ea.	3/4" ZP Flat Washer
1 ea.	3/4" ZP Lock Washer
1 ea.	3/4" ZP Hex Nut
I-BEAM (SMALL LABELED BAG)	
2 ea.	1/2" x 3 1/2" ZP Hex Bolts
4 ea.	1/2" ZP Flat Washers
2 ea.	1/2" ZP Nylock Nuts
SEASONAL ADJUSTMENT BAR (ALL HARDWARE ATTACHED)	
1 ea.	5/8" x 4 1/2" ZP Hex Bolt
1 ea.	5/8" x 2" ZP Hex Bolt
4 ea.	5/8" ZP Flat Washers
2 ea.	5/8" ZP Lock Washers
2 ea.	5/8" ZP Hex Nuts
TRUSS TUBE SLIDERS (ALL HARDWARE ATTACHED)	
8 ea.	3/8" x 1" ZP Carriage Bolts
8 ea.	3/8" x 3/4" YZP Hex Bolts
8 ea.	3/8" ZP Flat Washers
8 ea.	3/8" ZP Nylock Nuts
8 ea.	3/8" ZP Jam Nuts
PV MODULE MOUNTING HARDWARE (QUANTITY X # OF MODULES)	
4 ea.	1/4" x 5/8" Stainless Steel Bolts
4 ea.	1/4" Stainless Steel Hex Flange Lock Nut

FXL-SERIES POLE INSTALLATION

IMPORTANT NOTE: ZOMEWORKS CORP. ASSUMES NO LIABILITY FOR THE STRUCTURAL INTEGRITY OF THE POLE AND ITS INSTALLATION. SOIL AND WIND CONDITIONS VARY. IF THERE IS ANY DOUBT, CONSULT WITH A LOCAL STRUCTURAL ENGINEER.

LOCATION CONSIDERATIONS:

For installations in sandy or muddy areas, for tall mounting poles, or for any mounting different from the situations described in these instructions, you will need to consult a local structural engineer. Large racks can receive significant wind loads, so a strong mounting pole and foundation is very important. The site should receive the maximum possible sunlight from AM to PM, in the winter and summer. Avoid shade from buildings and trees, including shade that may occur in other seasons. The height of the pole should result in adequate ground clearance for the mounted modules.

CAUTION 6 **BE CAREFUL WORKING AROUND THE RACK AFTER INSTALLATION ON THE POLE. SOME OF THE STRUCTURAL MEMBERS MAY BE AT HEAD LEVEL.**

- The customer provided pole is a 6ø (nominal) schedule 40 steel pipe with a 6-5/8ø OD (FXL-090 & FXL-120) or a 8ø (nominal) schedule 40 steel pipe with a 8-5/8ø OD (FXL-168 only). Pole can be black or galvanized steel pipe.
- **Note:** Heavier schedule steel pipe schedule 80, schedule 160 can be used as long as OD is 6-5/8ø or 8-5/8ø.
- The **MINIMUM** recommended hole depth is 1/3 the pole length, with 1/3 of the pole length in the ground, and 2/3 of the pole above the ground. **Example:** 5ø below grade, 10ø above grade, total of a 15ø pole.
- Center the pipe in the hole, and using a level, make sure pole is vertical.
- Fill the hole with concrete (3000-psi minimum strength), and check level of the pole.
- The pole may be filled with concrete for added strength (only to approximate ground level).
- Allow concrete and pole to set for a **MINIMUM** of 36 hours **BEFORE** installing the Rack.

Description	Model					
	FX3	FX4	FX6	FX90	FX120	FX168
Minimum Schedule 40 Pipe	3" (3½" OD)	4" (4½" OD)	6" (6⅝" OD)	6" (6⅝" OD)	6" (6⅝" OD)	8" (8⅝" OD)
Min. Pole Height (Above Grade)	72"	72"	72"	108"	120"	120"
Min. Pole Depth (Below Grade)	36"	36"	36"	54"	60"	60"
Min. Recommended Hole Diameter	12" Ø Set in Concrete	14" Ø Set in Concrete	20" Ø Set in Concrete	24" Ø Set in Concrete	24" Ø Set in Concrete	30" Ø Set in Concrete

POLE INSTALLATION DETAIL

IMPORTANT NOTE: ZOMEWORKS CORP. ASSUMES NO LIABILITY FOR THE STRUCTURAL INTEGRITY OF THE POLE AND ITS INSTALLATION. SOIL AND WIND CONDITIONS VARY. IF THERE IS ANY DOUBT, CONSULT WITH A LOCAL STRUCTURAL ENGINEER.

Step 1: Attaching the Gimbal to the mouning pole

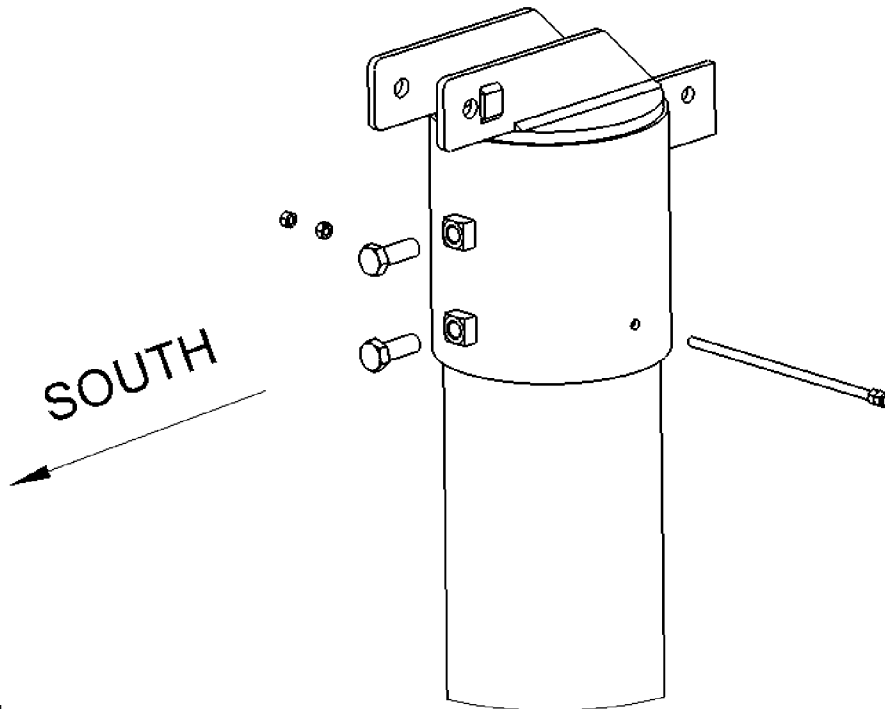


Diagram 1:

- Place Gimbal on top of pole.
- Orient Gimbal so that 3/4" x 2" bolts are facing **true** south (adjust for magnetic declination)
- Tighten bolts to 75-100 ft-lbs torque in turns to insure both are tight.

3/8" CARRIAGE BOLT CAN BE INSTALLED TO PROVIDE ADDITIONAL RESISTANCE TO UPLIFT AND TWIST. THIS MAY ALSO BE A REQUIREMENT OF THE PERMITTING AUTHORITY.

- With Gimbal oriented properly (set bolts pointed true south), use pre-drilled 7/16" holes as a guide to drill through the pipe on both sides.
- Slide the long carriage bolt through the Gimbal and pipe, using two 3/8" hex nuts and a 3/8" flat washer to fix the bolt in place.

**Step 2:
Attaching the I-Beam to the Gimbal:**

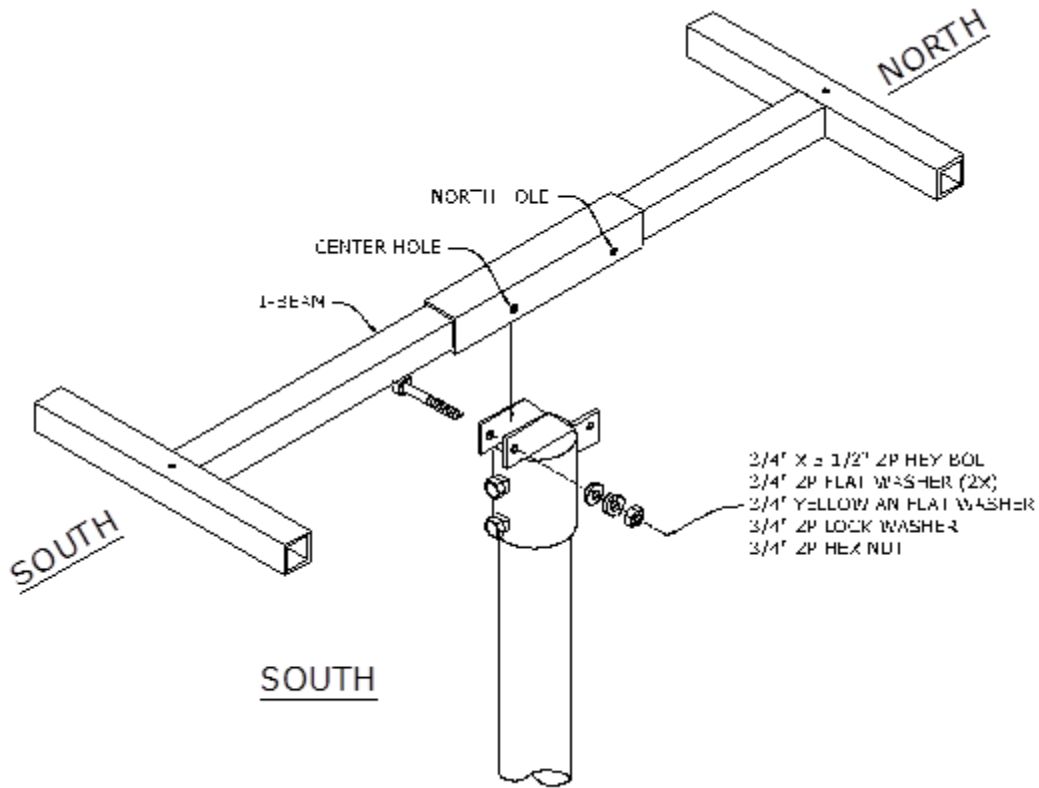
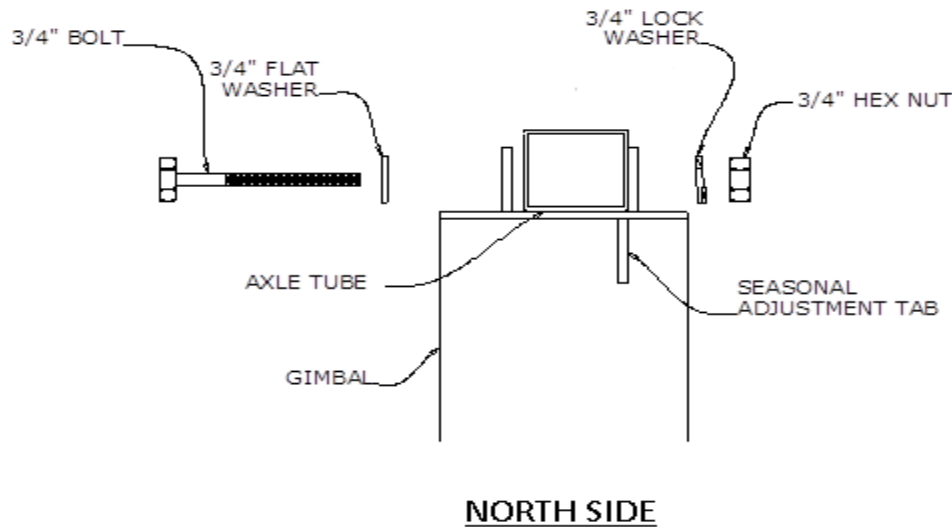


Diagram 2

- Remove 3/4" x 4 1/2" bolt from top of Gimbal.
- Place I-Beam atop the Gimbal between the two vertical tabs and align center bolt on I-Beam with holes on tabs see Diagram 2.
- Insert the 3/4" x 4 1/2" bolt through both tabs and I-Beam according to Diagram 2a.
- Recommended final bolt torque is 150-200 foot-pounds.



Step 3:
Installation of the Seasonal Adjustment Arm:

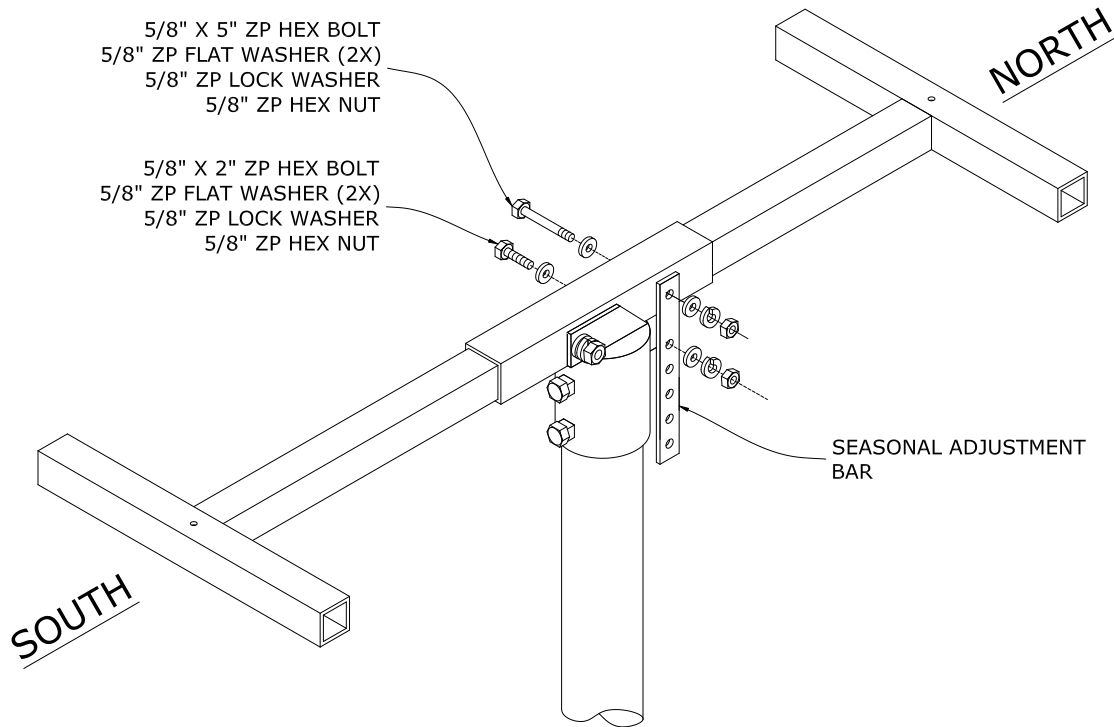


Diagram 3

- Level I-Beam.
- Bolt Seasonal Adjustment Arm to I-Beam through the north hole using a 5/8" x 5" Bolt, Flat Washers on both sides, Lock Washer and Hex Nut.
- Bolt Seasonal Adjustment Arm to the tab on the Gimbal using 5/8" x 2" Bolt, Flat Washers on both sides, Lock Washer and Hex Nut. **See Diagram 3.**
- Recommended bolt torque for the long bolt going through the I-beam is 100-120 ft-lbs. For the seasonal adjustment bar the recommended torque is 75 ft-lbs.

Step 4:
Attaching the Truss Tubes to the I-Beam:

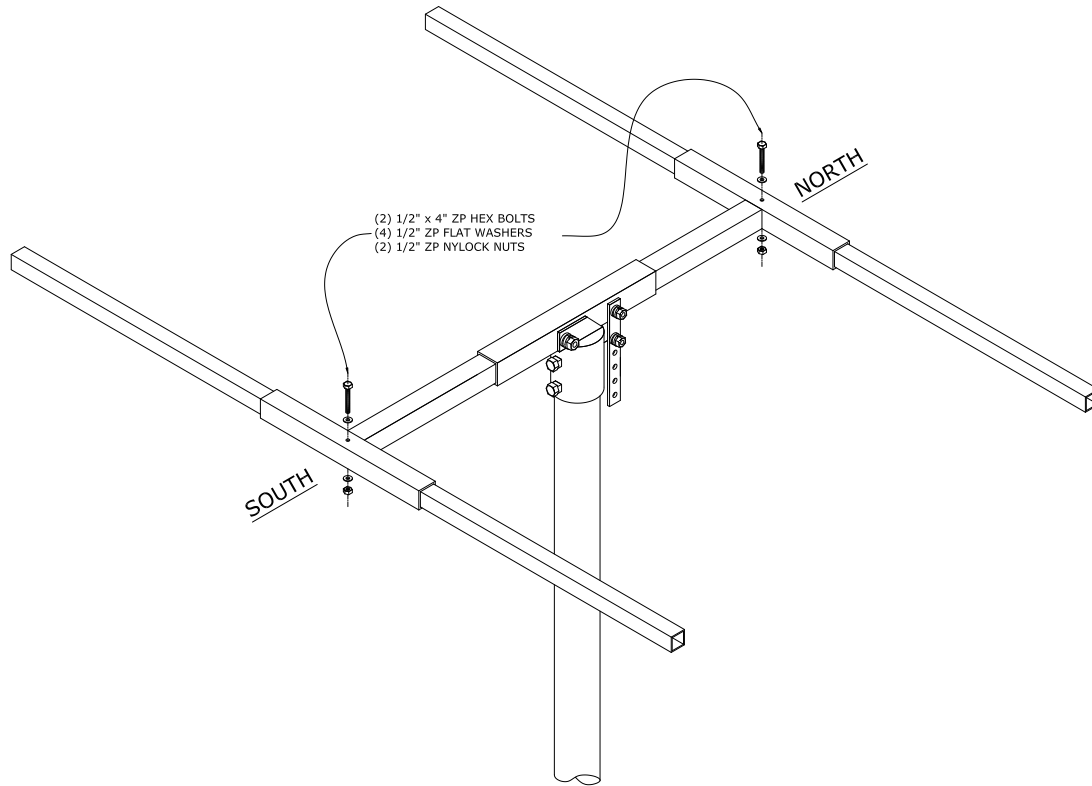
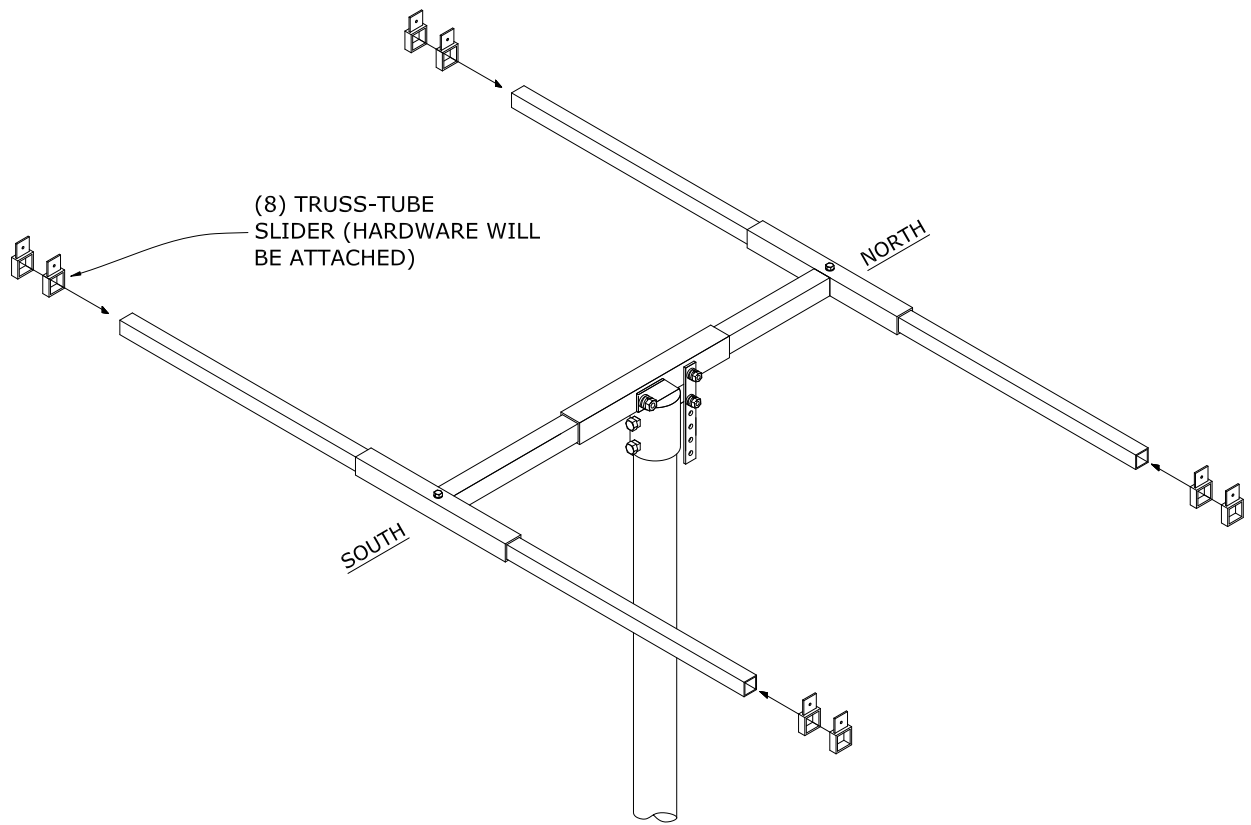


Diagram 4

- Insert Truss-Tubes into ends of the installed I-beam and slide in until hole in I-Beam aligns with that of the Truss-Tube (you may need to tap the trusses into the I-Beam with a heavy hammer and wood block).
- Insert 1ea. 1/2" x 4" ZP hex bolt and hardware according to Diagram 4 and tighten.

Step 5:
Installation of Truss-Tube Sliders:



1

Diagram 5

- Remove all Truss-Tube Sliders from the Gimbal box, loosen the set bolts on each Truss-Tube Slider and insert 2 ea. on each end of the truss-tubes (see **Diagram 5**). If your rack has an extra rail set you will need to install 3 Truss-Tube sliders on each end of the tubes.
- Do not tighten the set screws until the modules have been mounted.

Step 6:

Module-Mounting Rail Installation:

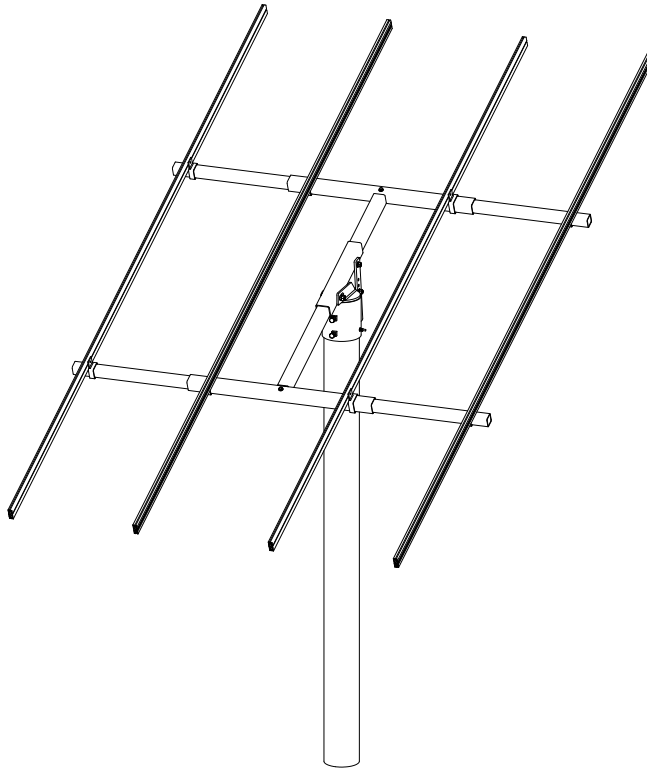
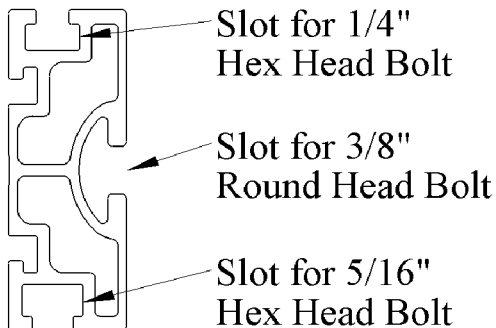


Diagram 6

- Description: The Zomeworks Extruded Rail is designed to be mounted to the sliders using 3/8" round-head, square-neck bolts. The edges of the extrusion are different & one side has a slot to accommodate standard 1/4" hex bolts and the other 5/16" hex bolts* (see diagram below). When installing rails on to the Truss Tube pay attention to this orientation!



*- Zomeworks only provides 1/4" hardware for modules. For specific modules, 5/16" hardware can be supplied by the customer / installer.

- In order to mount the Extruded Rails in the correct spot, use a permanent marker to layout the position of the Rail Sliders. This can be done a couple of ways:

Method 1: Find the center of the Extruded Rail. Mark lines the “Half Distance” away on both sides of center. Refer to the table below to find the correct distance. These marks will coincide with the centerline spacing of the Truss Tubes.

RACK MODEL	TRUSS TUBE SPACING	HALF DISTANCE
FXL-090	61 3/4"	30 7/8"
FXL-120	73 3/4"	36 7/8"
FXL-168	74 1/4"	37 1/8"
FXL-168HD	84 3/4"	42 3/8"

Method 2: Take a look at the layout drawing provided in the instruction packet. There is a dimension showing the distance from the cut end of the Extruded Rail to the centerline location of the Rail Slider. With the Extruded Rail in the correct orientation (the 3/8” slot facing the outside edge of the Rail Slider, and either the 1/4” or 5/16” slot on top (depending on hardware used)) mark a line.

Pre-Installing Mounting Hardware

- Now that the Extruded Rails have been marked, slide the provided module mounting hardware (1/4” or 5/16” x 5/8” hex bolts) into the tracks at the approximate mounting locations. It is only necessary to locate the bolts in the general area of the module frame holes (this will make the installation of the modules easier. Also slide two 3/8” round head bolts to the center of the marked lines.

Installing Rails on Truss Tubes

- Using the marked lines as a guide, align the Extruded Rail to the Rail Sliders. Install one flat washer and Nylock nut. Loosely tighten the nut.
- In the process of installing the rails, use a measuring tape to verify that the rails are square and parallel with the rack.
- The Fixed Rack with Module-Mounting Rails installed should look similar to Diagram 6 on page 10.

Step 7:

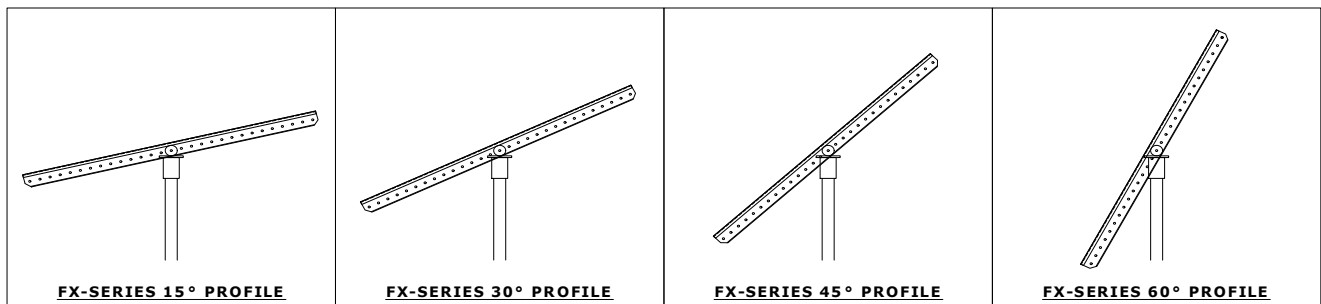
Solar Module Installation:

- See enclosed Module Mounting Zone drawing. This drawing is a plan view of the Fixed Rack with your individual modules mounted on it.
- The Modules should be mounted according to this drawing. The Truss-Tubes have been cut to length to accommodate the modules in this orientation **ONLY**
- There are no spacing requirements between panels or about the center of the I-Beam; the only requirement is that the modules be center about the I-Beam to distribute the load evenly between East and West sides.
- When all modules have been mounted and centered about the center of the I-beam tighten the set bolts on the underside of each truss-tube slider.

Step 8:

Seasonal Adjustments and Final Instructions:

- For maximum solar gain, adjust the angle of your Track Rack[®] at least twice a year in spring and fall. Setting the Seasonal Adjustment Arm so the Track Rack[®] faces the mid-morning sun. Your settings will vary according to your location and latitude. See diagram below for guidelines.



- **GO BACK AND MAKE SURE ALL BOLTS AND SCREWS ARE TIGHTENED.**

IMPORTANT NOTES TO REMEMBER:

1. The photovoltaic modules should be centered and mounted evenly as per the instructions and provided drawings.
2. The FXL-168 fixed rack should be in a location that maintains a clear line-of-sight to the sun throughout the day, and during different seasons. Remember that the sun's position in the sky changes from season to season.
3. To maintain optimum sun exposure you may want to adjust your FXL-168 fixed rack for the winter & summer seasons. Use the seasonal adjustment arm. This will vary with your location's latitude.

MAINTENANCE:

1. Paint touch up will be necessary to prevent rusting (Rustoleum® is recommended).
2. Retighten any nuts or bolts that aren't tight.

ZOMEWORKS FXL-SERIES

Limited Warranty

Zomeworks Corporation guarantees, to the original owner, its fixed racks against defects in materials and workmanship for TEN YEARS from date of purchase. This warranty is limited to the repair or replacement of the rack in compliance with the instructions provided by Zomeworks.

Some problems can be solved with a simple on site adjustment. Please contact Zomeworks Corporation at the address and phone number below before returning your product. You must have an RMA number to return the product for warranty repair. If possible, return only the parts that are defective or damaged. Reuse your original packing material, if it's available, or call the factory for further instructions.

IT IS THE OWNER'S RESPONSIBILITY TO CHECK FOR DAMAGED OR MISSING PARTS IMMEDIATELY UPON RECEIPT OF THE FIXED RACK. Freight claims are time sensitive and require immediate notice. If the packaging is damaged, write this on the receipt (freight bill) and have the driver initial this. Use this information to contact your freight carrier when damage is noticed.

Upon receipt of a defective part(s), freight pre-paid, Zomeworks will determine whether the defect was caused in manufacturing. If so, the part(s) will be repaired or replaced at no charge to the customer, and will be returned freight pre-paid. If the damage is not a manufacturing defect, the factory will contact the customer before any repairs are made. Original owners should contact their dealer if an immediate replacement part(s) are needed. Individuals contacting Zomeworks Corporation desiring immediate replacement part will be required to provide Zomeworks Corporation with a valid credit card number to be charged for the replacement part(s). Zomeworks Corporation will credit the valid credit card upon receipt of the warranted returned part(s) from the individual.

This warranty does not cover rusting of the steel due to a corrosive environment (such as salt air). Standard fixed racks are made of aluminum and painted mild steel and will require maintenance. It is the owner's responsibility to maintain the paint on the fixed rack in order to protect the steel against corrosion. For corrosive environments, Zomeworks Corporation can manufacture fixed racks with an epoxy primer.

Limitations on Warranty

The above ten-year warranty is the only warranty and remedy provided by Zomeworks to user. Zomeworks disclaims all implied warranties of merchantability and fitness. In no event shall Zomeworks be liable for consequential or incidental losses or damages under any theory of liability, except to the extent that this limitation is found to be unenforceable under applicable state law. Some states do not allow the exclusion or limitation of incidental or consequential damages, so this exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights that vary from state to state.

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