

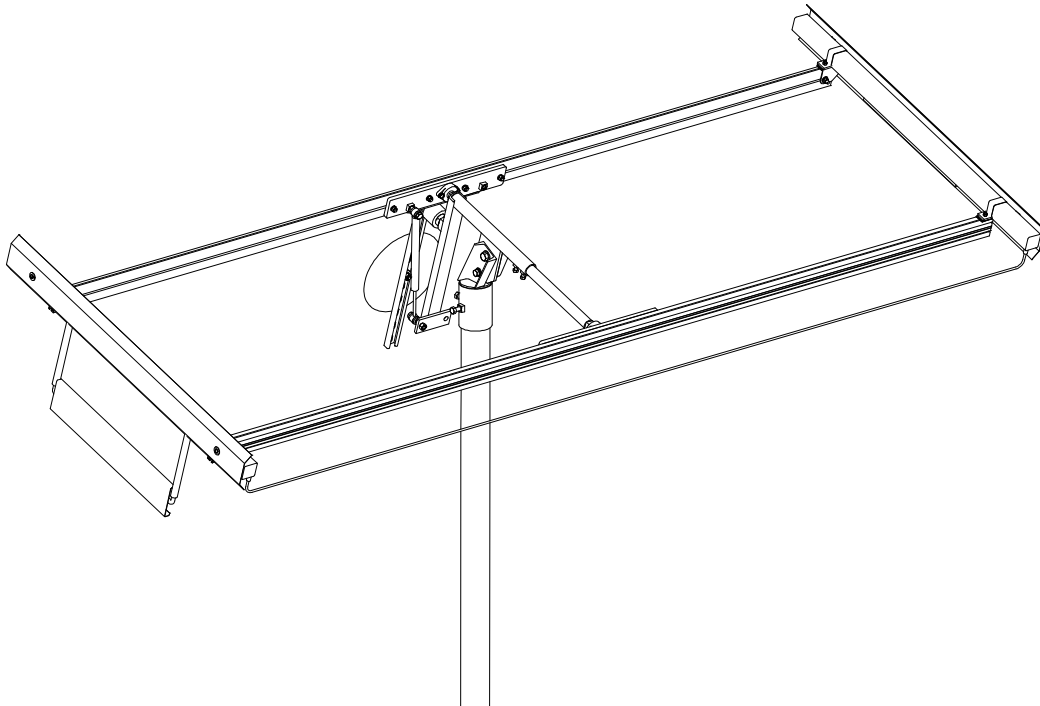
# ZOMEWORKS

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# CORPORATION

## UTRK-040 Track Rack™

## Assembly Instructions



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## **Thanks!**

Thank you for your purchase of a Zomeworks Track Rack™. The Zomeworks Track Rack is an ingenious and economical way to increase the annual output of photovoltaic modules by an average of 25% over those mounted on a fixed array.

## **Tracker Operation**

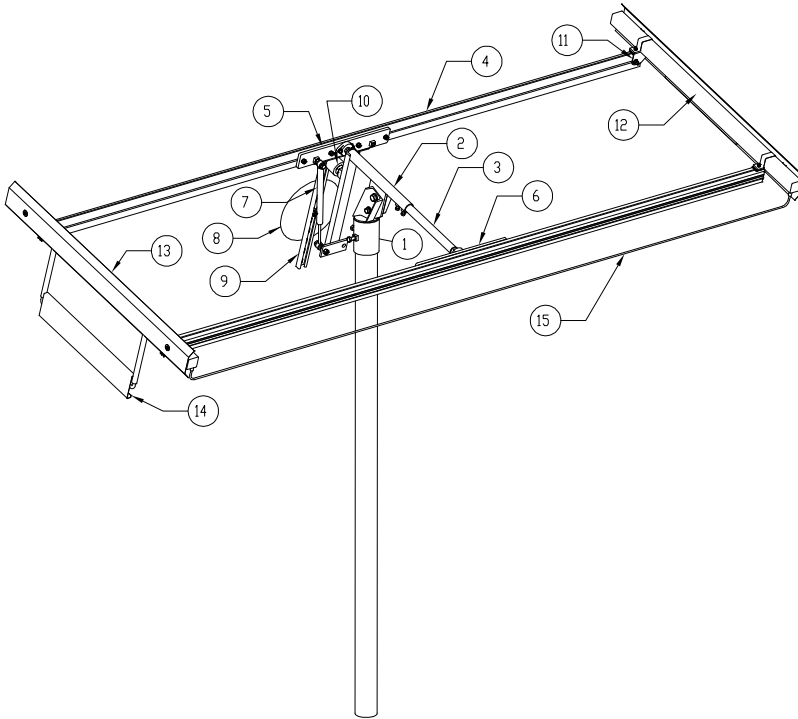
The Track Rack™ changes its orientation to the sun by shifting a mass of refrigerant between canisters on the east and west sides through a copper tube located at the southern-most end of the canisters. Aluminum “shadow plates” vary the amount of sunlight hitting both canisters. When the rack is not directly facing the sun, the canister farther from the sun absorbs more heat and builds pressure. This forces the fluid to move to the other canister, resulting in movement of the rack. Tracking is the result of a constant search for equilibrium. This process is effective throughout a very wide temperature range, and works well even in hazy and intermittent light conditions.

## **Choosing A Location**

Choose a location where the tracker will receive clear, unobstructed light throughout the day. Keep in mind that the Sun rises and sets north of east and west in the summer, and rises and sets south of east and west in the winter. It is particularly important that your Track Rack™ receive morning light that is unshaded by structures, trees, bushes, etc. As the rack starts the day facing west (the position as of the previous sunset), clear morning light is required to “flip” the rack to the east. Morning shadows will delay wake-up time.

## **Trackers and Wind**

The shock absorbers are the first line of defense for the Track Rack™ against wind. They prevent sudden gusts from pushing the rack off-course, as well as restricting any violent movement that may harm the rack and modules. The shocks yield to a constant force by design, thus promoting tracking and, as a result, will be affected in a constant wind-loading situation. The bumper bolt/s are the second failsafe in the structure. They prevent catastrophic failure from occurring by limiting the overall travel of the Track Rack™.



## **Part Names**

- 1) Gimbal
- 2) Upper Axle
- 3) Lower Axle
- 4) Extruded Rail
- 5) North Bearing Plate
- 6) South Bearing Plate
- 7) Shock
- 8) 25 lb Counterweight
- 9) Counterweight Arm
- 10) Bumper Bolt
- 11) Canister Mounting Tab
- 12) Canister/s
- 13) Shadow Plate/s
- 14) Wake-Up Fin
- 15) Transfer Tube

## **Recommended Tools:**

- 12" Adjustable Wrench (1-1/2" capacity)
- Open-End Wrenches: 7/16", 1/2", 9/16", \*3/4", \*15/16", 1-1/2"
- Socket Wrench: 3/4", 15/16" (Not Heavy-Duty Wall) – for seasonal adjustment bolt, and bearing bolts, respectively.
- Flat-Blade Screwdriver
- Tape Measure
- Permanent Marker
- Rubber Mallet (to protect finish)
- Two Sawhorses, 4' x 8' Sheet of Plywood (not required, but useful)

\* if adjustable wrench is available, only 1 wrench required

## **Pole Installation**

Zomeworks can only provide general guidelines for the design and installation of the mounting pole. Our recommended hole diameters and depths are based on "typical soils". For installations in sandy or muddy areas, for tall mounting poles, or for any situation different than what is described in these instructions, you should consult a local structural engineer. Large trackers can receive very high wind loads – so a sufficiently strong pole and foundation is crucial. The height of the pole must provide adequate ground clearance for the rack and mounted modules. Zomeworks can provide assistance for spacing multiple racks to avoid shading.

**NOTE: ZOMEWORKS CORPORATION 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. TALK TO YOUR CERTIFYING ENGINEER BEFORE THE POLE IS INSTALLED!**

- The correct pipe (to be provided by customer) is as follows:

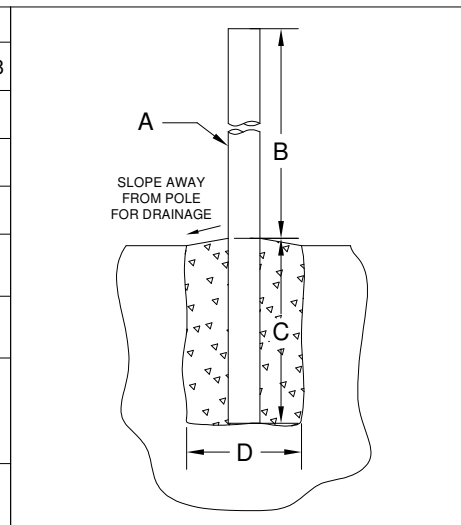
UTRK-040	Schedule 40 – 3" nominal
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- Heavier steel pipe (sch 80 or sch 120) can be used as long as outer diameter is 3-1/2".
- Using the chart provided below, find the **MINIMUM** acceptable pole height above your finished grade. The suggested pole heights will provide approximately 3' of ground clearance with the largest module arrays installed. It is strongly recommended that the pole height meet our minimum specifications.
- The **MINIMUM** recommended hole depth is 1/3 the total length of the pole – 1/3 in the ground, 2/3 above the ground.

For example: 10' above grade, 5' below grade – 15' total length.

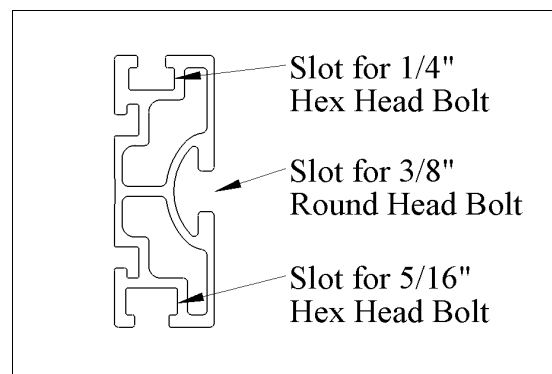
- Center pipe in hole, use a level or plumb line to insure pipe is vertical.
- Fill the hole with concrete (3000 psi minimum strength), and recheck verticality.
- The pipe may be filled with concrete for added strength (only to approximate ground level)
- Allow concrete and pipe to set for a **MINIMUM** of 36 hours before installing Track Rack™

<b>MOUNTING POLE RECOMMENDATIONS</b>						
Model	UTR-020	UTRK-040	UTRF-064	UTRF-090	UTRF-120	UTRF-168
Sch 40 Steel Pipe (A)	2 1/2" (3" OD)	3" (3 1/2" OD)	6" (6 5/8" OD)	6" (6 5/8" OD)	6" (6 5/8" OD)	8" (8 5/8" OD)
Minimum Pole Height (B)	76"	84"	96"	108"	120"	144"
Minimum Pole Depth (C)	38"	42"	48"	54"	60"	72"
Ground Clearance at 45° Tilt	36"	23"	26"	21"	24"	33"
Minimum Hole Diameter (D)	18"Ø	18"Ø	24"Ø	24"Ø	24"Ø	30"Ø
Maximum Rack Dimensions (as viewed from above)	67" E-W 44" N-S	124" E-W 48" N-S	124" E-W 80" N-S	146" E-W 128" N-S	146" E-W 150" N-S	169" E-W 192" N-S
Capacity (Module Area)	20 ft²	40 ft²	64 ft²	90 ft²	120 ft²	168 ft²



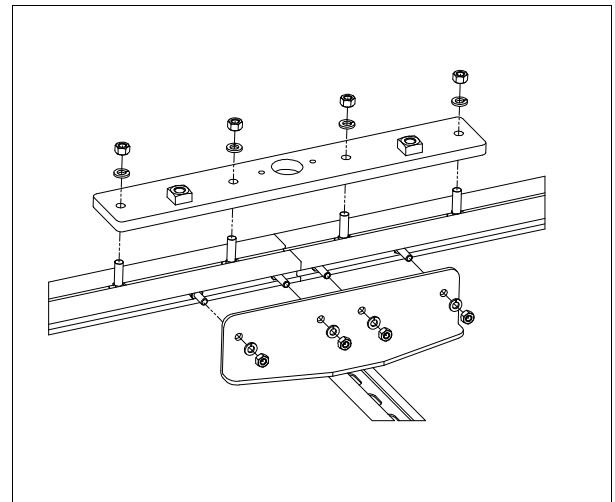
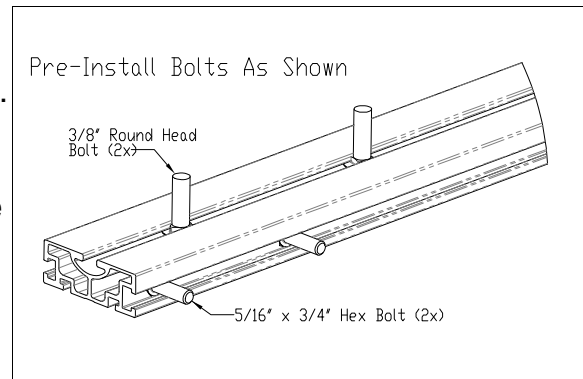
## Extruded Mounting Rail

Description: The Zomeworks Extruded Rail is designed to be mounted to structural components 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 at right). When assembling the rack pay attention to this orientation!



## North Cross Arm Assembly

- The North Cross Arm Assembly consists of two Extruded Rail sections joined by the North Bearing Plate and Counterweight Arm.
- The North Bearing Plate **has two welded-on square nuts** for mounting the shock/s.
- Orient the Extruded Rail sections so that the 1/4" slot is on the top.
- Pre-install two of the 3/8" x 1-1/4" round head bolts in each rail section.
- Pre-install two 5/16" x 3/4" hex bolts in each rail section.
- Adjust the 3/8" bolts as necessary to align with holes in North Bearing Plate.
- Cutout for bearing should be closest to the 1/4" slot, the welded nuts should be closest to the Counterweight Arm.
- Make sure the rail sections are butted together and close to straight. Install spring lock washers and nuts and tighten lightly.
- Install the Counterweight Arm in the same way. Make sure that the arm is close to centered on the rail sections.
- Install spring lock washers and nuts.
- When the alignment looks good (rails are butted/centered, and rails make a straight line), tighten 3/8" nuts to 30 ft-lbs, and 5/16" nuts to 15 ft-lbs.



## South Cross Arm Assembly

- The South Bearing Plate **does not** have weld-on square nuts.
- Assemble similarly to the North Cross Arm.
- Again, make sure the cutout for the bearing is offset closer to the 1/4" slot.

## Method #1 or Method #2

At this point there are a couple of ways to proceed:

- 1) Building the rack from the "pole-up", one component at a time.
- 2) Assembling rails, modules, and axle together and lifting on to the pole.

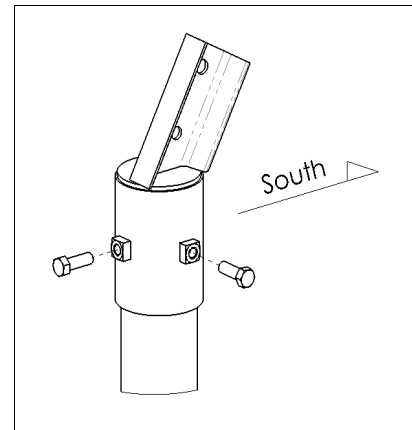
**Method 1** eliminates the step of lifting the completed sub-assembly (up to 200 lbs) on to the pole, but also makes installing / aligning the modules more difficult on the rails.

If there is access to a flat surface (garage / shop floor, saw horses with plywood, etc.), **Method 2** makes the alignment / installation of the modules quite a bit easier. The completed sub-assembly can then be lifted on to the pole and tightened in place.

## Method #1

### Attaching Gimbal to Pole

- Place Gimbal on top of pole.
- Orient Gimbal so that the welded channel “leans” towards **true** south (adjust for magnetic declination).
- Tighten bolts to 60 ft-lbs torque in turns to insure both are tight.

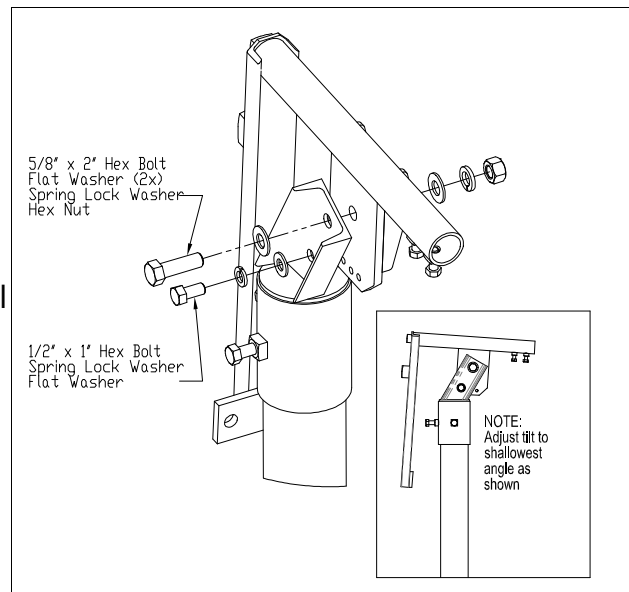


### Installing Axle

- Install bolts in the order shown.
- For purposes of installation, tilt the axle in the shallowest position.
- Bolts only need to be lightly tightened for rack assembly.
- After assembly is completed, tighten the 5/8” bolt to 75 ft-lbs, and the 1/2” seasonal adjustment bolt to 30 ft-lbs.

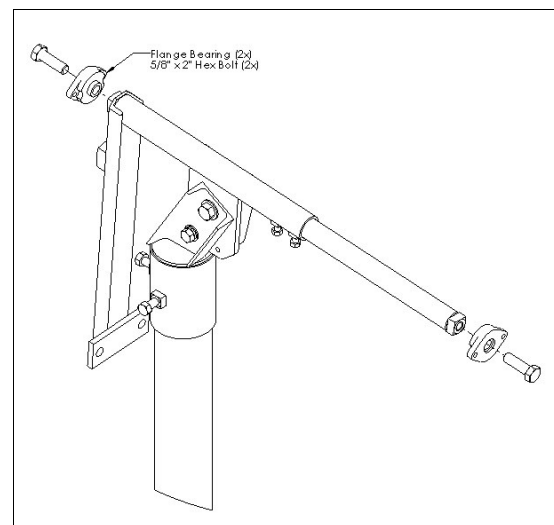
### Inner Axle

- Install Inner Axle and tighten 3/8” bolts enough to keep it in place.
- The position of the Inner Axle will need to be adjusted when installing modules.



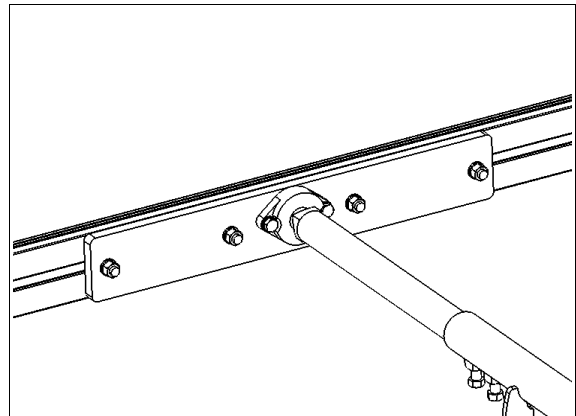
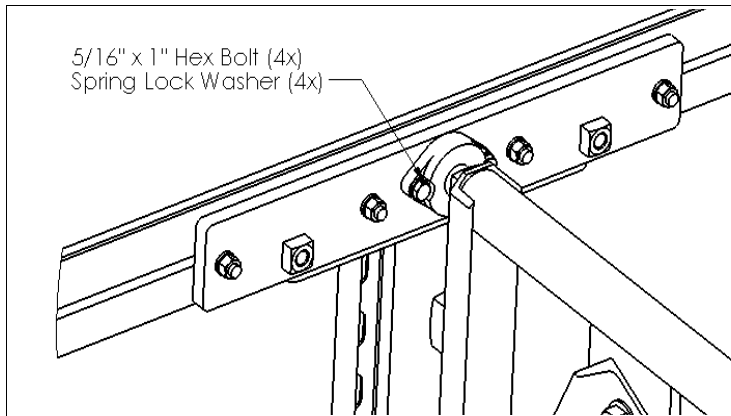
### Installing Bearings

- Install bearings as shown. Note the mounting side of the bearings faces outwards.
- While holding the square welded nuts with either a 1” open-end wrench or adjustable wrench, tighten 5/8” bolts to approximately 40-50 ft-lbs.
- The bearings are designed to swivel and may not look “square” with respect to the axle.



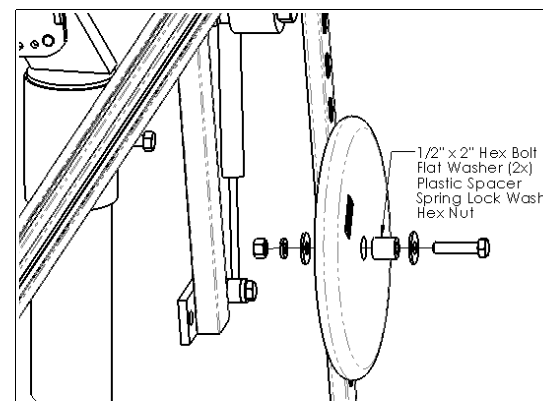
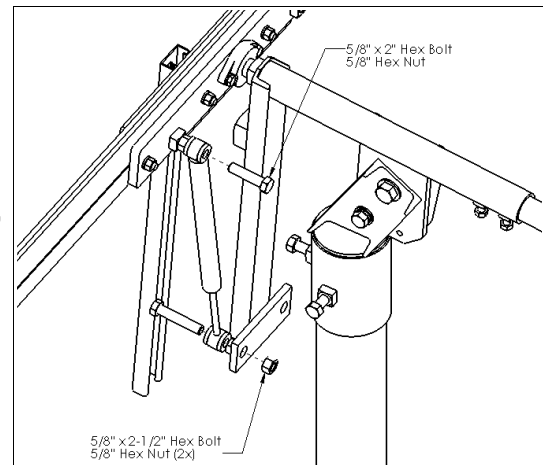
## Attaching Cross Arms

- The Cross Arms are bolted to the flange bearings by 5/16" x 1" hex bolts.
- Don't forget the spring lock washers under the bolts!
- If the bearing is turned in its housing, it may be necessary to twist it into alignment in order to fit the 5/8" bolt head in to the clearance hole in the Bearing Plate.
- Start bolts by hand, and tighten to 9 ft-lbs (108 in-lbs) torque.
- Note the Counterweight Arm and Shock mounting nuts on the North Cross Arm. Both bearings should be flush with the top of the Cross Arms.



## Shock, Bumper Bolt, and Counterweight Installation

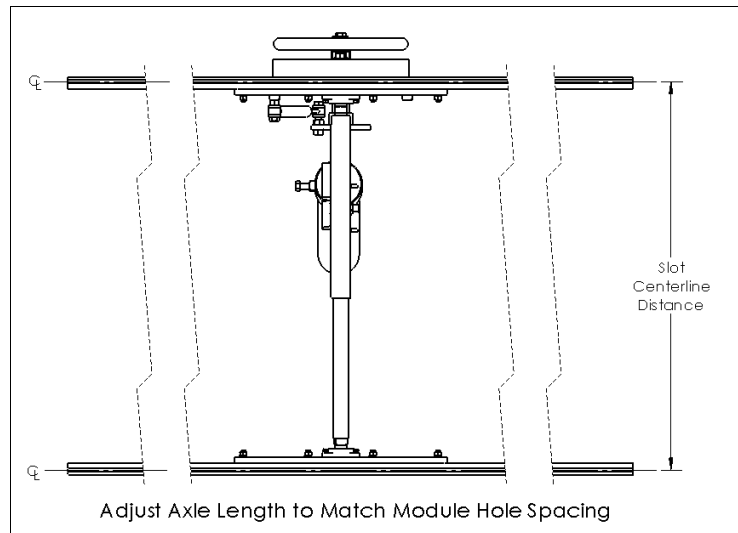
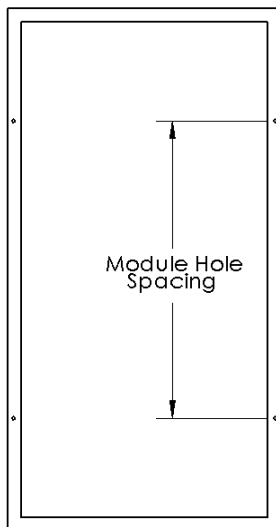
- Bolt the upper half of the Shock to the Cross Arm using the 1/2" x 2" hex bolt and hex nut.
- Do not tighten down on the urethane bushing – there should be enough play to allow free movement of Shock eye (approx. 1/16").
- Attach the lower half of the Shock using the 1/2" x 2-1/2" hex bolt and hex nuts.
- Using two 3/4" wrenches, tighten the nuts to 40-50 ft-lbs torque.
- The Bumper Bolt does not need to be tightened between the head of the bolt and the jam nut.
- Using the 1-1/2" wrench or adjustable wrench, tighten the Bumper Bolt jam nut against the welded nut to 75 ft-lbs.
- Install the counterweight as shown. At this point, the position of the Counterweight is not critical. Somewhere close to the lower 2/3 of the adjustment range is a good starting point.



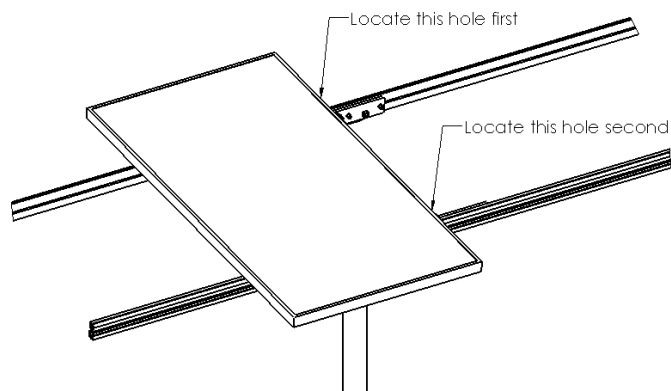
## Module Installation

**NOTE: Modules must be installed so that they are balanced on the rack. At least 1/4" space between modules is recommended.**

- Make sure that the Axle Assembly is at its shallowest tilt angle, this will make installation easier.
- Square the Cross Arms as best as you can. Some force is required to swivel the bearing in its housing.
- Measure the distance between the module mounting holes along the long edge.
- Adjust the spacing of the Cross Arms (by adjusting Inner Axle) so that the centerline distance of the slots matches the measured distance on the modules.
- Start by pre-installing the provided 1/4" hex bolts in to the slots on the extruded rails (2 bolts on each rail per module).
- Lift module up to the Cross Arms and locate the innermost hex bolt on the North Cross Arm with the mounting hole on the backside of the module. Install provided flange nut.
- **HINT: First lightly tighten the bolt closest to the center of the North Cross Arm. Next, align the edge of the module so that it is aligned with the centerline of the rack. Lightly tighten the same-side bolt on the South Cross Arm. At this point, make any needed adjustments to the alignment or spacing of the Cross Arms. If done correctly, installing the other modules will be quite a bit easier.**



- When the alignment looks good install remaining bolt / nuts.
- Tighten 1/4" hardware to no more than 75 in-lbs (6 ft-lbs).

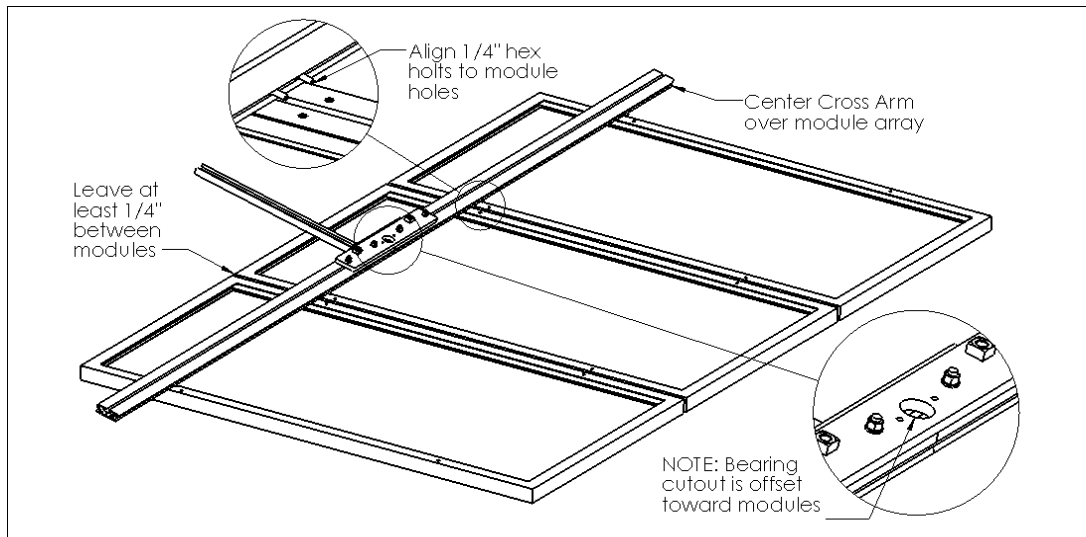




## Method #2

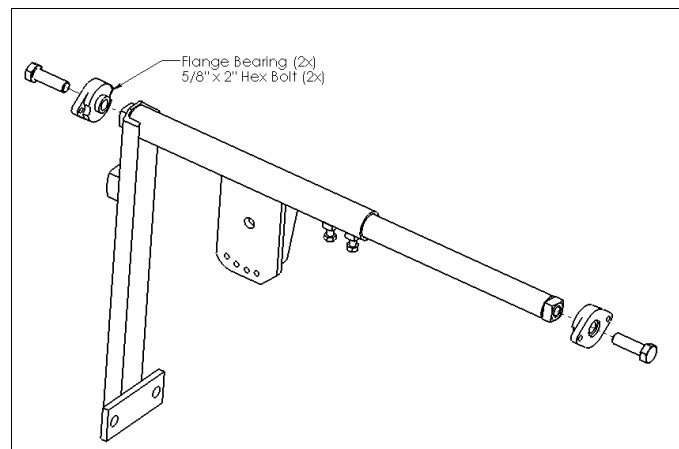
### Module Layout

- Lay the modules face-down on a flat surface (plywood on sawhorses, shop floor, large workbench, etc.) as they will be configured on the rack.
- Leave at least 1/4" space between adjacent module edges.
- The outside to outside distance of the module array must be 115" or less. This is necessary to allow at least 2" between the canister and the outside edge of the module.
- Pre-install the required number of 1/4" hex bolts in the extruded rail. Make sure to use the correct slot and check to be sure that the bearing cutout faces towards the inside of the rack and is offset towards the module (see drawing).
- Carefully arrange the 1/4" bolts so they line up with the module holes.
- Install the Cross Arm on to the row of modules. Install provided flange nuts. Hand tighten only.
- Repeat this process with the other Cross Arm.
- Check alignment.
- Tighten the flange nuts to no more than 75 in-lbs (6 ft-lbs).



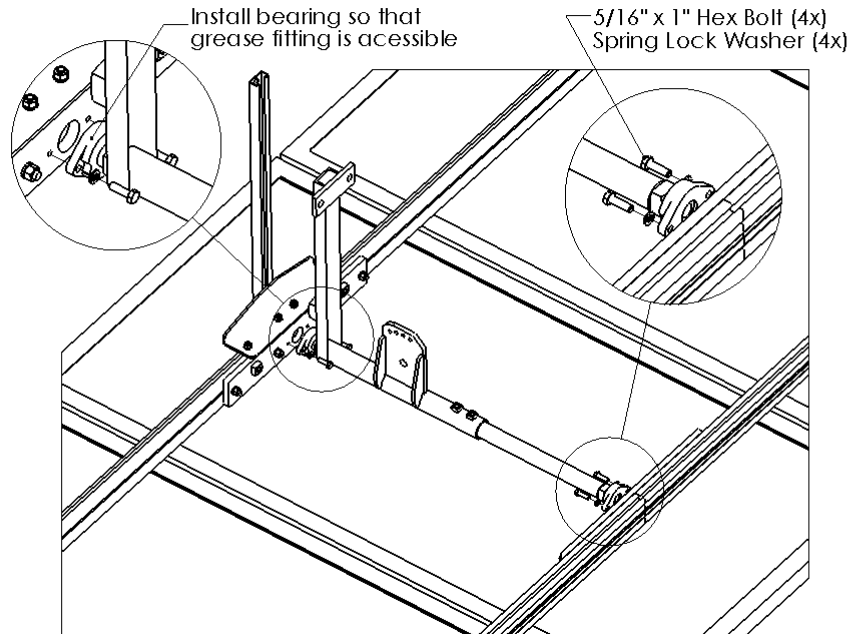
### Bearing Installation

- Install bearings as shown. Note the mounting side of the bearings faces outwards.
- While holding the square welded nuts with either a 1" open-end wrench or adjustable wrench, tighten 5/8" bolts to approximately 40-50 ft-lbs.
- The bearings are designed to swivel and may not look "square" with respect to the axle.



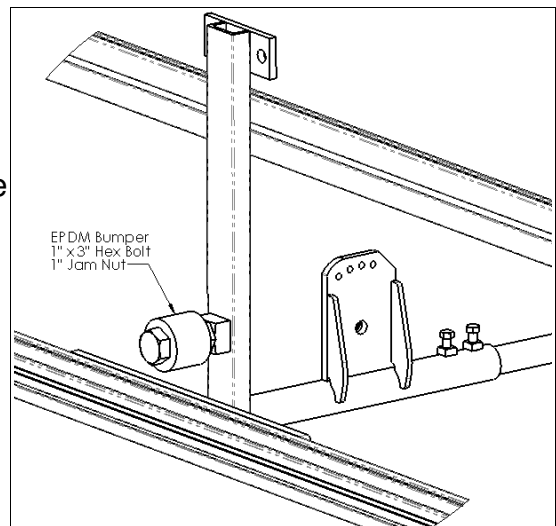
## Axle Installation

- Install Axle Assembly as shown.
- Orient that bearings so that the grease fitting can be accessed from underneath the rack.
- Adjust the length of the Axle Assembly to fit between Cross Arms.
- 5/16" hex bolts should be tightened to 9 ft-lbs (108 in-lbs) torque.
- 3/8" axle set bolts can now be tightened to approximately 20 ft-lbs.



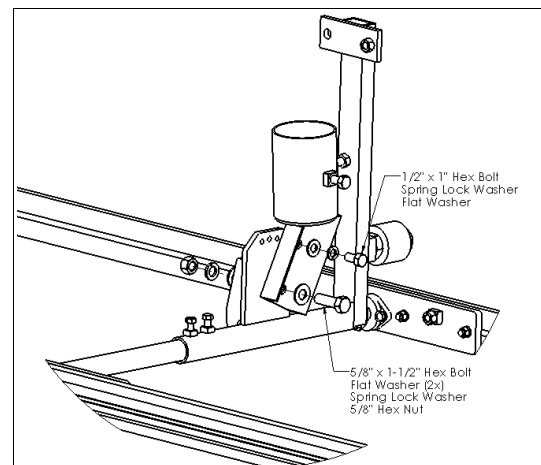
## Bumper Bolt Installation

- The Bumper Bolt does not need to be tightened between the head of the bolt and the jam nut.
- Using the 1-1/2" wrench or adjustable wrench, tighten the Bumper Bolt jam nut against the welded nut to 75 ft-lbs.



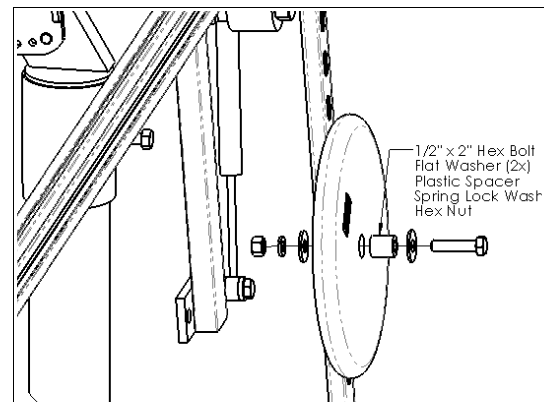
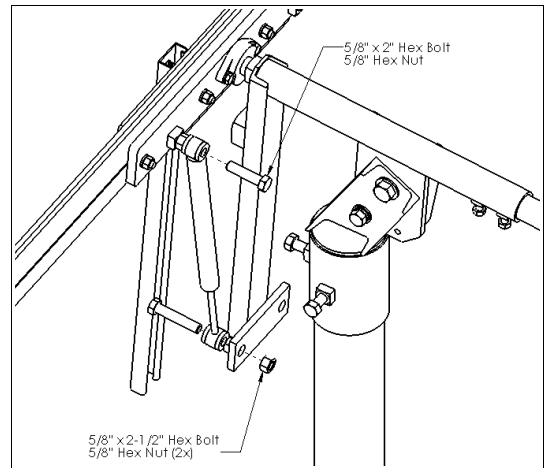
## Gimbal Installation

- Install the Gimbal as shown.
- The 5/8" and 1/2" bolts should be lightly tightened.
- With the Gimbal installed, the rack can now be lifted on to the mounting pole.
- At this point the rack with modules can weight up to 200 lbs or more – **use caution!**
- Orient Gimbal so that the welded channel "leans" towards **true** south (adjust for magnetic declination).
- Tighten set bolts to 60 ft-lbs torque in turns to insure both are tight.



## Shock and Counterweight Installation

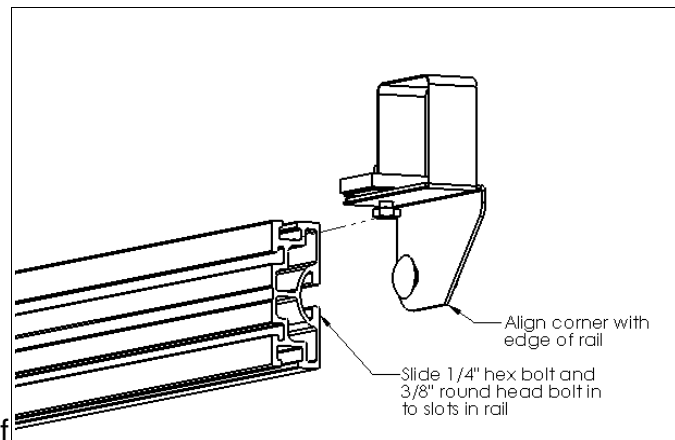
- Bolt the upper half of the Shock to the Cross Arm using the 1/2" x 2" hex bolt and hex nut.
- Do not tighten down on the urethane bushing – there should be enough play to allow free movement of Shock eye (approx. 1/16").
- Attach the lower half of the Shock using the 1/2" x 2-1/2" hex bolt and hex nuts.
- Using two 3/4" wrenches, tighten the nuts to 40-50 ft-lbs torque.
- Install the counterweight as shown. At this point, the position of the Counterweight is not critical. Somewhere close to the lower 2/3 of the adjustment range is a good starting point.



## End of Method #2 Instructions

## Canister Mounting Tabs

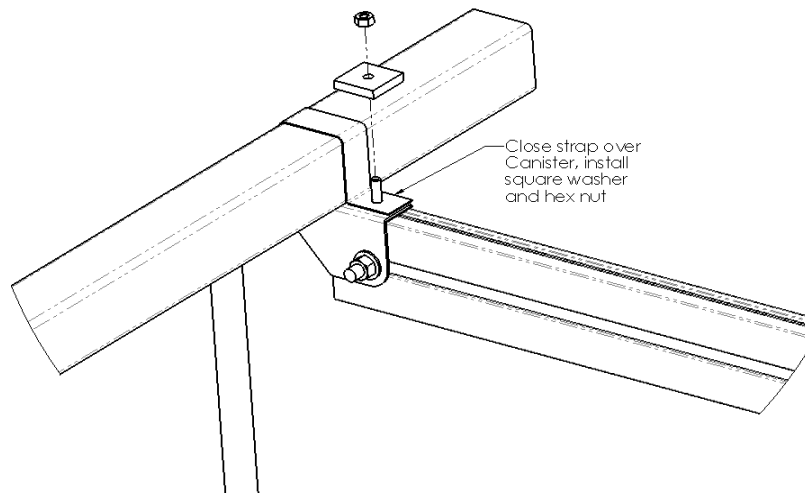
- Canister Mounting Tabs are pre-assembled with the necessary hardware.
- Two of the tabs are mirrored copies of the other.
- The strap goes on the top side of the rack.
- Loosen the hardware a few turns and install as shown.
- Slide the Mounting Tab on to the extrusion until the corner of the chamfered edge is even with the end of the Extruded Rail.
- Press the Tab firmly against the corner of the Rail and tighten the 3/8" nut to 30 ft-lbs.
- Repeat procedure for all corners.



## Canister Installation

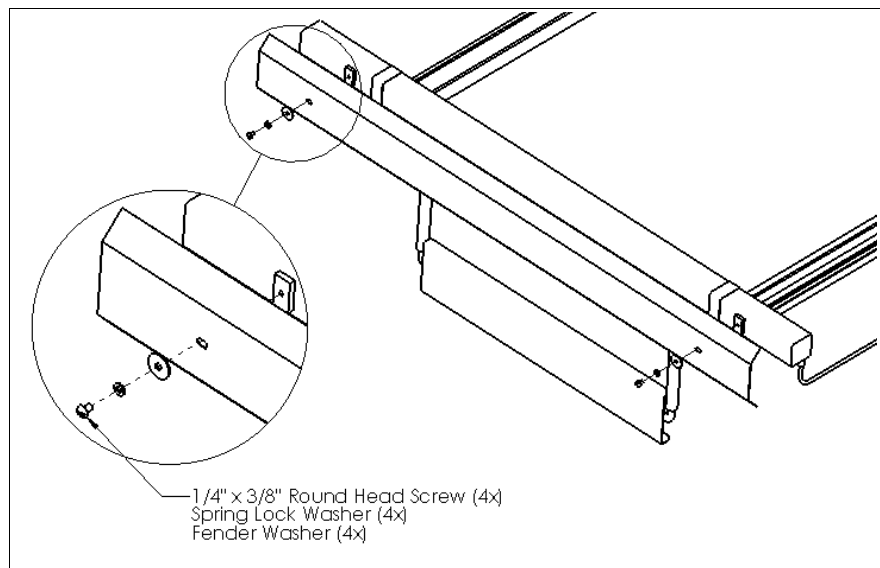
- **Important Note: Fluid is driven between canisters via 1/4" copper tube. When removing the Canister Set from the package and when straightening the transfer tube, be careful to not crimp it. We recommend that at least two people handle the canisters to prevent any damage.**

- Orient the Canister Set so that the unit with the wake-up fin is on the west side of the rack (with the wake-up fin underneath the rack). The transfer tube is designed to enter from the bottom (underside) of each canister.
- Remove the 1/4" hex nuts and square washers from the top of the Canister Mounting Tabs and open up the strap.
- Align the Canister as necessary in order to find a place for the strap clamps. The Canisters can usually be installed so that they are centered with respect to the Cross Arms. If the Canisters must be offset, this will not affect the function of the rack.
- Re-install the strap, square washer and 1/4" hex nut.
- Tighten the 1/4" hardware to no more than 75 in-lbs (6 ft-lbs).
- Repeat the procedure for remaining Canister clamps.



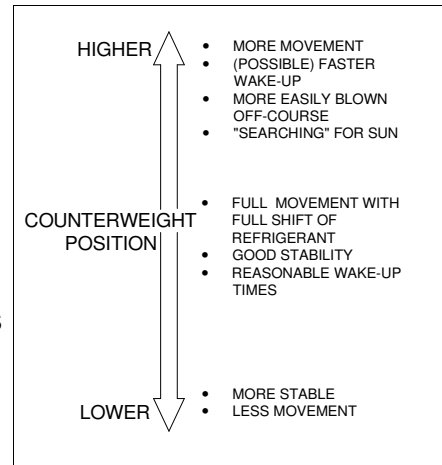
## Installing Shadow Plates

- Each canister must have a Shadow Plate. The plate that has a Zomeworks sticker can be installed on either side of the rack.
- Using the 1/4" round-head bolts, lock washers, and wide flat washers provided, install as shown.



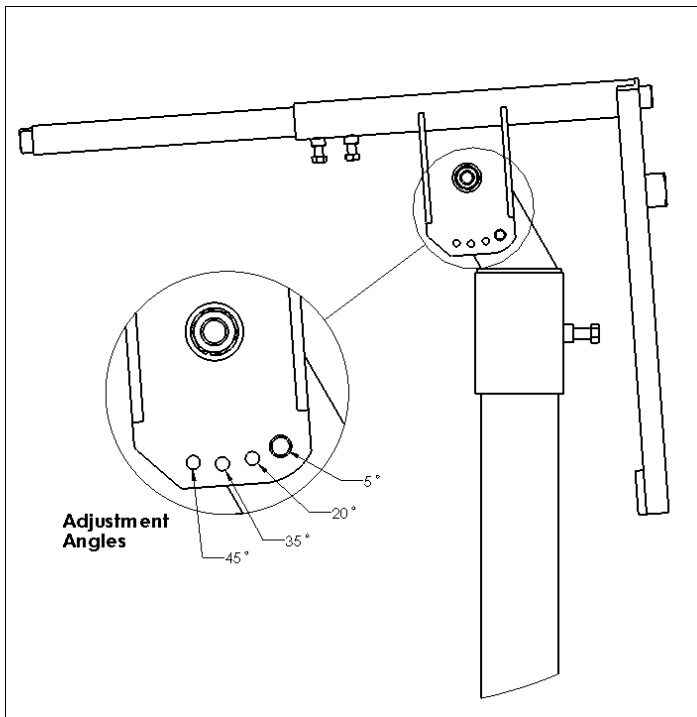
## Balancing and Counterweight Adjustments

- Balancing and set-up is crucial to getting the most out of your Track Rack™
- Start by ensuring that the module rails are installed equidistant from the center axle.
- Pay attention to balance when installing additional components (inverters, wires / conduit, etc.)
- Track Racks™ will work within a range of Counterweight adjustments.
- If the tracker is not going through the full travel range, raise the Counterweight.
- Keeping the Counterweight low will make the tracker more stable in wind.
- Provided that additional stability is not required for gusty winds, the optimal Counterweight position results in the Truss Tube lightly touching the Bumper Bolt at the beginning and end of the day (when all Freon has been shifted).



## Seasonal Adjustments

- Trackers can be tilted in one position or adjusted seasonally to increase output. Adjusting tilt throughout the year can add approximately 3-6% to the annual output (will vary with location, climate, etc).
- If setting the rack for one year-round setting, the tilt should be close to the latitude.



For example: In Albuquerque, NM (latitude 35.1° N) a tracker should be tilted close to 35° (as measured from horizontal). The Seasonal Adjustment Plate offers a position of 35° – this angle will work well.

- If adjusting the rack throughout the year, adjust the tilt so that the sun hits the surface of the modules as close to a right angle as possible.
  - A good compromise is to adjust the rack to a tilt of latitude + 15° (or max.) around the fall equinox (September 22<sup>th</sup>) and latitude – 15° (or min.) around the spring equinox (March 20<sup>th</sup>).
- **After setting the tilt of the rack, tighten the 5/8" pivot bolt to 75 ft-lbs, and the 1/2" bolt to 30 ft-lbs.**

## Maintenance

- Bearings with grease fittings should be lubricated with a general-purpose bearing grease twice a year.
- Paint touch-up will be necessary to prevent rusting. Sand off all rust prior to painting. Use a high-quality enamel or Rustoleum® type paint.
- If the Track Rack™ is installed in a corrosive climate, check the axle and bearings frequently for rust or corrosion; you may need to grease the bearings 3 to 4 times per year and keep the axle coated with grease or a corrosion inhibitor.
- Check the Shock bolts, Shock Mounting Arm bolts, and Bumper bolts twice a year and tighten if necessary. Also check the Axle pivot bolt and Seasonal Adj. Bar bolts. Loose bolts increase wear on mating parts and introduce the potential for failure.
- Inspect the pivot bolt area of the Axle-Gimbal junction for wear. Signs of excessive movement may indicate that the bolt has worn down. Another indication of wear is that the bolt, even when tightened properly, repeatedly comes loose. If this is the case, replace the bolt.

**PROPER MAINTENANCE IS THE RESPONSIBILITY OF THE CUSTOMER!**

**HIGH WINDS:** Trackers should be tied in horizontal position if high-wind events are anticipated. Tie-down straps or ratchet straps can be used to secure the rack (not provided by Zomeworks).

**EXTREME COLD:** In cold weather the fluid in the shocks thickens and can increase wake-up times. In very cold temperatures (< -10F°), trackers may cease to track. In these conditions we recommend tying the tracker in a fixed due-south position at the steepest tilt angle.

## Tracker Troubleshooting

- **TRACKER SITS LEVEL, LEANS TO ONE SIDE, OR DOES NOT MOVE**
  1. Manually move tracker through its entire range of motion. Check for any mechanical interference, for example: wiring, tree branches, protruding bolts, etc. and correct if necessary.
  2. Check Shadow Plates for proper installation. The tracker **will not** work without them.
  3. Be sure the Track Rack™ is pointing south (in the Northern Hemisphere) and the copper transfer tube is mounted on the south (lower) end of the frame, and is not crimped in any way.
  4. Check for any wiring that may stop the Track Rack™ from turning freely. Also check if wiring and junction boxes, etc. are balanced about center axle.
  5. A shock absorber might be sticking. On a calm sunny day remove the shocks at the Bearing Plate. If it tracks without shocks, call Zomeworks. The shock may be defective.
  6. The Track Rack™ moves when sunlight warms one canister which then forces liquid into the other canister. You may simulate the sunlight's effect by warming the lower canister with a hair dryer or carefully with a hand torch (alternately, the upper canister can be cooled with wet towels or water spray). Within 10 minutes the tracker should begin to rotate toward the cooler canister. If the tracker does not move, and you have checked the assembly for free movement, the Canisters may have lost their charge. Call Zomeworks tech support.

- **TRACKER IS SLOW TO WAKE UP**

1. Check that your tracker is getting full, early morning sun shining underneath the framework. The wake-up fin (under the west-side canister) must see the sun.
2. Check that modules and electrical components are balanced over the center axle.
3. Check that bearings are lubricated and move easily. **NOTE:** If the Track Rack™ is installed in a corrosive climate, check the axle and bearings frequently for rust / corrosion.
4. The shock/s may be sticking when collapsed or extended. Remove the shock bolt at the Bearing Plate and check the shock motion for “stick”. If the tracker wakes-up without the shocks, they may be defective. **IMPORTANT:** Do not leave the tracker defenseless without shocks – a strong wind could easily damage it. The rack can easily be tied down by using customer-supplied tie-downs or ratchet straps.

- **TRACKER DOES NOT HIT THE BUMPER STOPS**

1. Trackers are very effective even if they don't track all the way to the bumper stop. The bumper stops are set for approximately 90° of rotation.
2. To increase the amount of rotation, raise the counterweight. **NOTE:** Raising the counterweight also makes the tracker slightly less stable in wind. For optimum tracking and stability, the Cross Arm should be only be resting lightly on the bumper bolt at the beginning and ending of the day. If the tracker rotates further to one side than the other, this may indicate that it is imbalanced left to right. This can be fixed by making small adjustments to the position of the mounting rails / modules.

- **GENERAL SUMMARY**

1. For proper performance, trackers must be assembled correctly.
2. The Track Rack™ should rotate smoothly throughout the entire range, with the only drag supplied by the shock absorbers. If friction or interference is noted, check assembly against instructions and make required corrections.
3. Photovoltaic modules should be mounted as shown in the module layout diagram and as described in the instructions. Balance is critical!
4. There must be a minimum of 2” from the edge of the solar module to the Canister. Insufficient space will interfere with tracking.
5. The Track Rack™ must be in a location that maintains a clear line-of-sight to the sun throughout the day, and during different seasons. Shadows cast in the early-morning light can significantly delay the wake-up time.
6. If high winds or severe storms are expected, securing the rack in a horizontal position with straps is the best way to prevent damage.
7. **Zomeworks Track Racks™ will move in the wind, much as trees do. This motion is expected and does not harm the tracker or its performance. Unless a tracker is blown far off the sun and stays there, the output is hardly affected. Overall, Track Racks™ far exceed the performance of a fixed array.**

## **ZOMEWORKS TRACK RACK™ LIMITED WARRANTY**

Zomeworks Corporation guarantees, to the original owner, its Track Rack™ passive solar tracker and fixed racks against defects in materials and workmanship for TEN YEARS from date of purchase. Shock absorbers and bearings are warranted against defects in materials and workmanship for TWO YEARS from date of purchase.

This warranty is limited to the repair or replacement of the Track Rack™ or fixed 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 TRACK RACK™ OR 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 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 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 Track Racks™ and fixed racks are painted mild steel and will require maintenance. It is the owner's responsibility to maintain the paint on the rack in order to protect the steel against corrosion. For corrosive environments, Zomeworks Corporation can manufacture the mounting racks with an epoxy primer.

### **Limitations on Warranty**

The above ten-year and two-year warranties are the only warranties and remedies 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.