



# Installation Manual:

## Sprinter Premium Light Bar Roof Rack V2, 170 High Roof

SKU: 1006-MK66-00 REV 1

Date: 7/11/2025

Revision: 0

# Notes

**Factory Roof Rails Required:** You must have factory roof rails installed on your Sprinter before installing a Unaka Roof Rack. These can be OEM roof rails from the factory, or other aftermarket brands i.e. Van Tech. This type of rail system is required by Mercedes to ensure you maintain your factory warranty while installing a roof rack. The Unaka washer plate that slides into the rails are 3-1/8" Long, x 7/8" wide x 1/16" thick and have been tested with the OEM rails and Van Tech rails.

**Disclaimer:** Unaka Gear Co. is committed to providing high-quality products, but it is important to note that we are not liable for any damage, failure, or loss resulting from incorrect installation or safety precautions taken during installation or use of our roof racks. Proper installation is crucial to ensure safety and functionality. We strongly recommend that all installation be performed by a qualified professional or according to the detailed instructions provided with the product. By using our roof racks, you acknowledge and accept that Unaka Gear Co. is not responsible for any issues arising from improper installation. For any questions or concerns, please contact our customer service team.

**Installation Safety:** Installation of this roof rack requires two ladders for two people to help with the installation. Make sure that your ladders are tall enough, and that you have a level area to use them on. Accessing the roof of your van will put you at risk to potential falls which can result in injury or death.

**Terms of Service & Warranty:** To see our complete terms, conditions, as well as warranty information use the link below or head over to our website. <https://unakagearco.com/policies/terms-of-service>

**Preventative Maintenance:** In order to ensure proper performance of your rack you must do an initial torque check after 4 to 7 days, follow up checks after 1 month, routine checks every 3 to 4 months, and after moderate driving on bumpy or gravel roads.

## Installation Overview

- Layout and identify all parts
  - Keep hardware separate; some pieces may be only slightly different and are **not** interchangeable
  - Failure to follow this step may result in extended delays in resolution and additional steps on the customer to determine origin of error
- Pre-install selected hardware
- Initial cross bar assembly
  - TIP: Review solar panel installation to ensure all t-nuts are installed during this step
- Install and locate roof rack brackets
- 8020 Side Rail installation and positioning
- Initial cross bar installation, and positioning
- Set side rail to side rail and rack brackets final position
- Premium side plate installation
- Final wind fairing installation, and positioning
- Solar panel installation (optional)
- Confirm all hardware torqued and tightened

## TOOLS NOT INCLUDED

2 x



Torque Wrench (75 to 132 in-lbs)



3/16" and 5/32" Allen tool



2 x Ladder



Metal Clippers or similar



SAE Socket set – 1/2" & 7/16" socket required



1/2" & 7/16" box wrench



Tape Measure



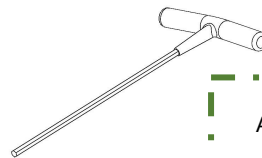
Loctite 242

\*Apply this to any bolt that is not used with a nylock nut



Loctite C5-A Anti-Seize

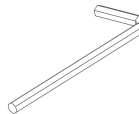
Apply a dab of anti-seize to the side of each bolt that will be paired with a nylock nut. Nylock nuts have a small plastic insert to make them vibration resistant.



21

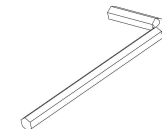
3/16 T-HANDLE  
ALLEN WRENCH

[ITEM 21] {QTY. 1}



22

1/8 ALLEN  
WRENCH  
[ITEM 22] {QTY. 1}

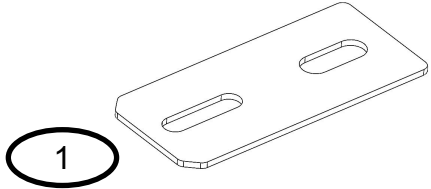


23

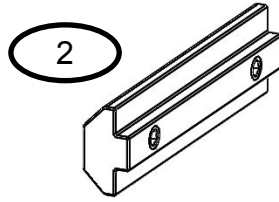
5/32 ALLEN  
WRENCH  
[ITEM 23] {QTY. 1}

## INCLUDED TOOLS

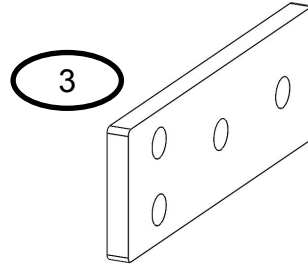
## Rack Components



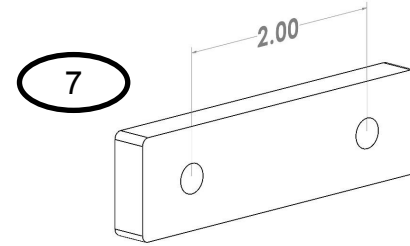
SOLAR PANEL TOP BRACKET  
[ITEM 1] {QTY. 16}



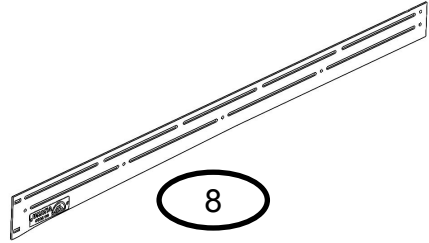
8020 INSIDE SPLICE PLATE  
[ITEM 2] {QTY. 8}



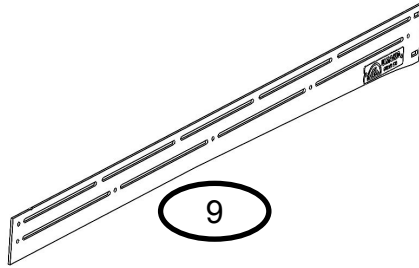
CROSS BAR CONNECTOR  
[ITEM 3] {QTY. 10}



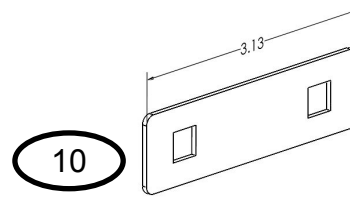
SIDE RAIL TAPPED SPLICE PLATE  
[ITEM 7] {QTY. 4}



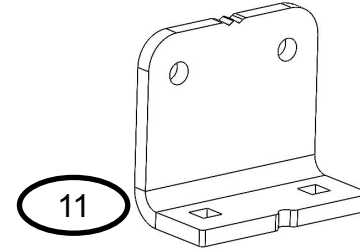
DRIVER FRONT SIDE PLATE  
[ITEM 8] {QTY. 1}



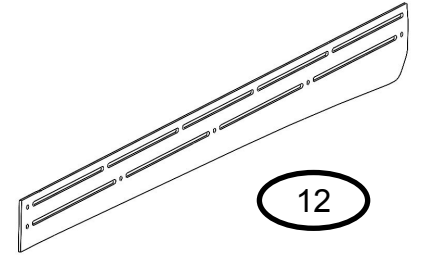
PASSENGER FRONT SIDE PLATE  
[ITEM 9] {QTY. 1}



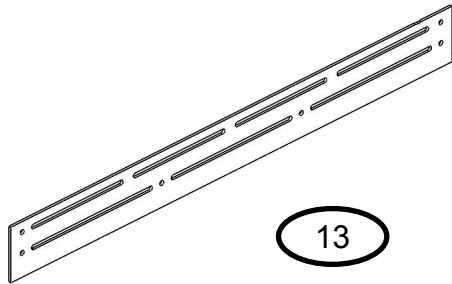
RACK RAIL DOUBLE WASHER  
[ITEM 10] {QTY. 10}



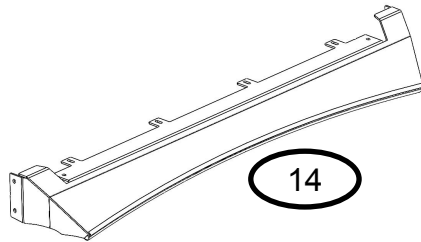
ROOF RACK ADAPTER BRACKET  
[ITEM 11] {QTY. 10}



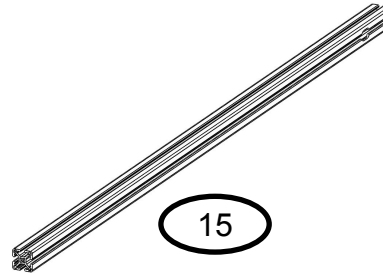
REAR SIDE PLATE  
[ITEM 12] {QTY. 2}



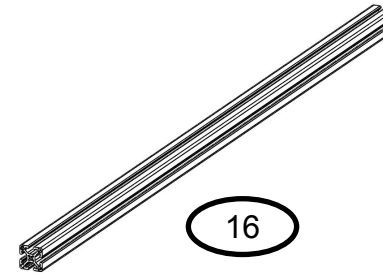
MIDDLE SIDE PLATE  
[ITEM 13] {QTY. 2}



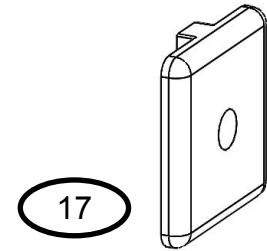
WIND DEFLECTOR WELDMENT  
[ITEM 14] {QTY. 1}



8020 CROSS BAR-53.75" LG  
[ITEM 15] {QTY. 5}  
\*One label per extrusion. 5 total



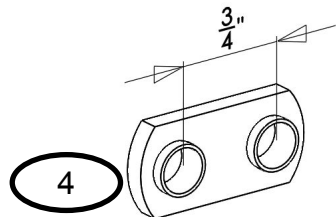
8020 SIDE RAIL-55.65" LG  
[ITEM 16] {QTY. 6}  
\*One label per extrusion. 6 total



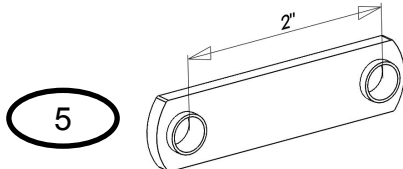
8020 SIDE RAIL END CAP  
[ITEM 17] {QTY. 2}

## Hardware Components

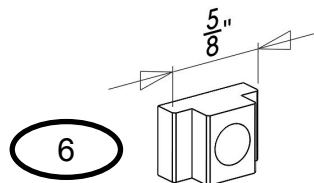
- Keep hardware separate; some pieces may be only slightly different and are **not** interchangeable



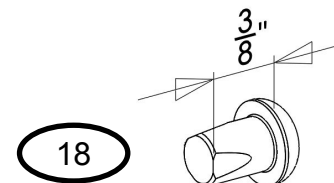
DOUBLE T-NUT  
[ITEM 4] {QTY. 10}



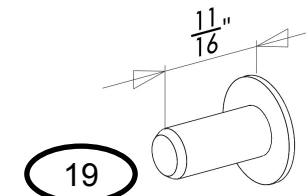
DOUBLE T-NUT, 2" SPACING  
[ITEM 5] {QTY. 10}



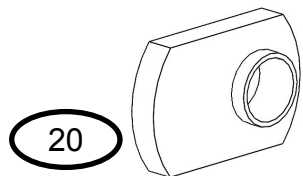
T-SLOT NUT  
[ITEM 6] {QTY. 4}



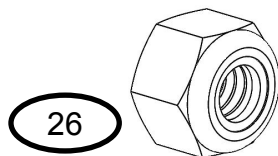
M7 x 0.36", SELF TAPPING SCREW  
[ITEM 18] {QTY. 2}



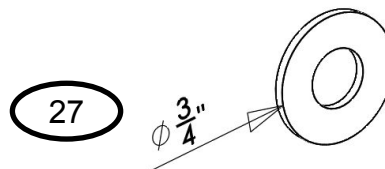
5/16-18 X 11/16" FLANGED SCREW  
[ITEM 19] {QTY. 60}



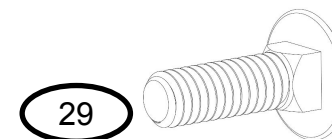
SINGLE T-NUT  
[ITEM 20] {QTY. 68}



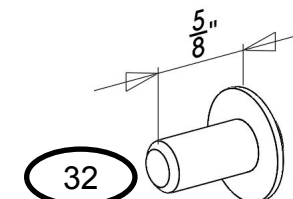
5/16-18 LOCKNUT  
[ITEM 26] {QTY. 20}



5/16" WASHER  
[ITEM 27] {QTY. 36}

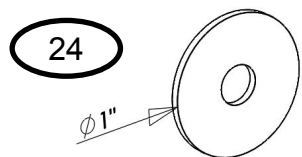


5/16"-18 X 1" CARRIAGE BOLT  
[ITEM 29] {QTY. 20}

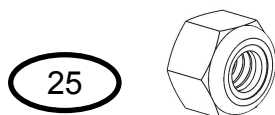


5/16-18 X 5/8" FLANGED SCREW  
[ITEM 32] {QTY. 44}

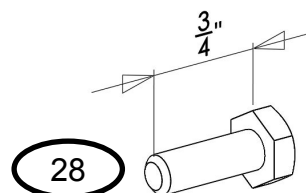
### Solar Panel Hardware



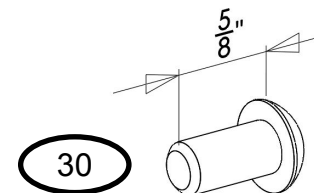
1/4" WASHER  
[ITEM 24] {QTY. 32}



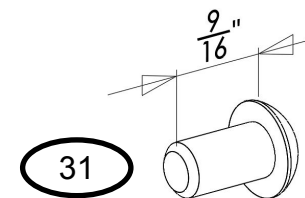
1/4-20 LOCKNUT  
[ITEM 25] {QTY. 16}



1/4-20 X 3/4" HEX SCREW  
[ITEM 28] {QTY. 16}



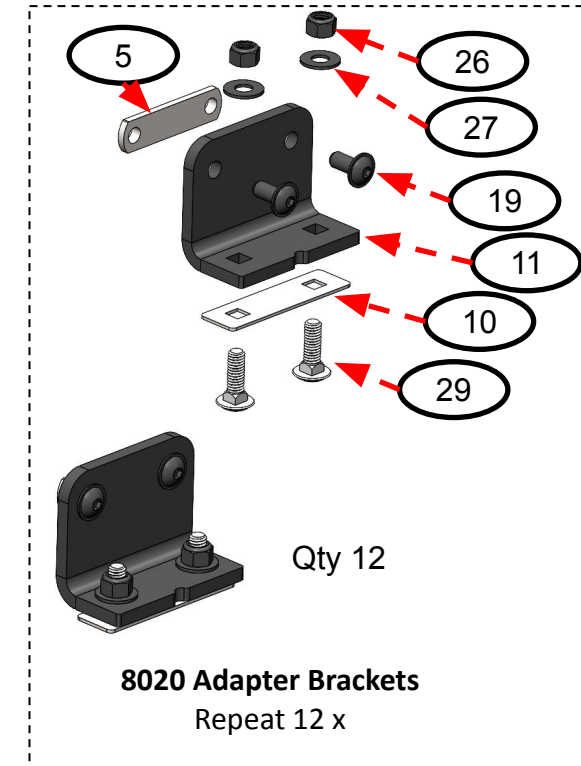
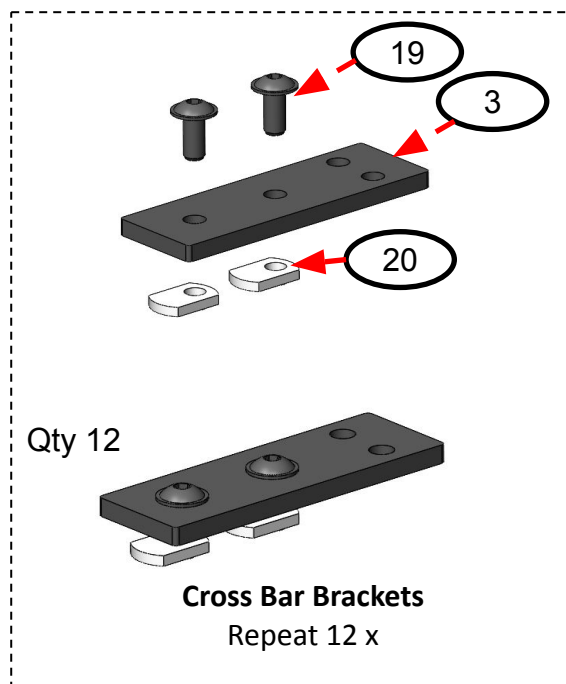
5/16-18 X 5/8" NON-FLANGED SCREW  
[ITEM 30] {QTY. 4}



5/16-18 X 9/16" NON-FLANGED SCREW  
[ITEM 31] {QTY. 16}

## Pre-install Select Hardware

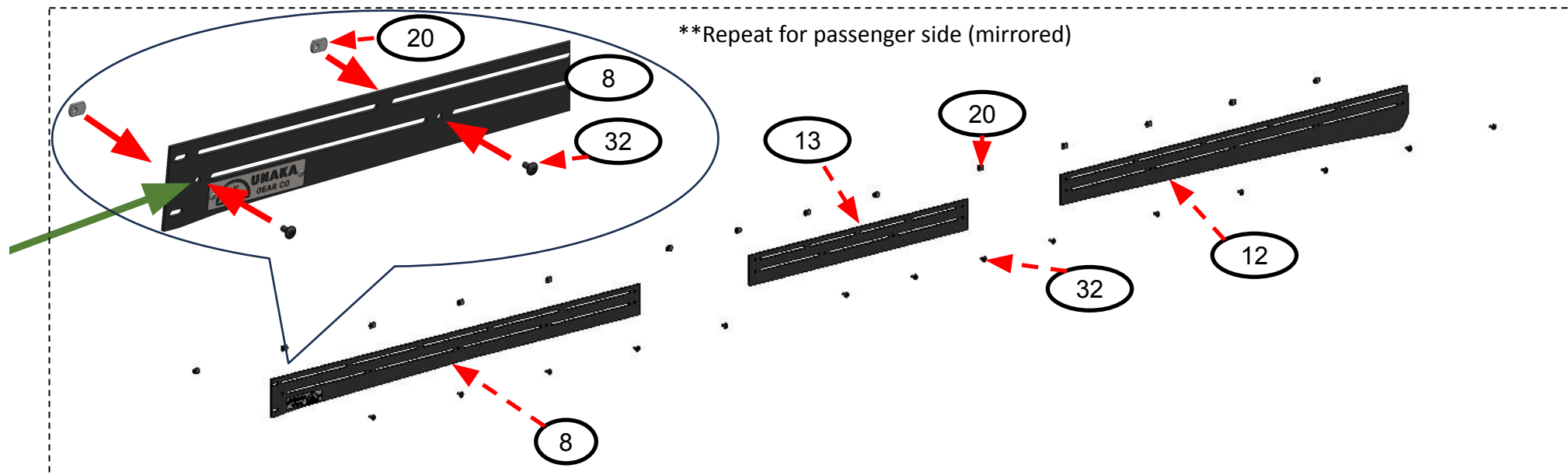
- Pre-install the hardware for each sub item as shown.
- Hardware should be loose so that the brackets or items can easily slide onto the 8020 channels in later steps.
- Take care not to leave hardware so loose that it falls off or out while being handled.



## Pre-install Side Plate Hardware

- Pre-install the Flanged BHCS (Button Head Cap Screw) and T-nuts into the designated holes in the side plates as shown.

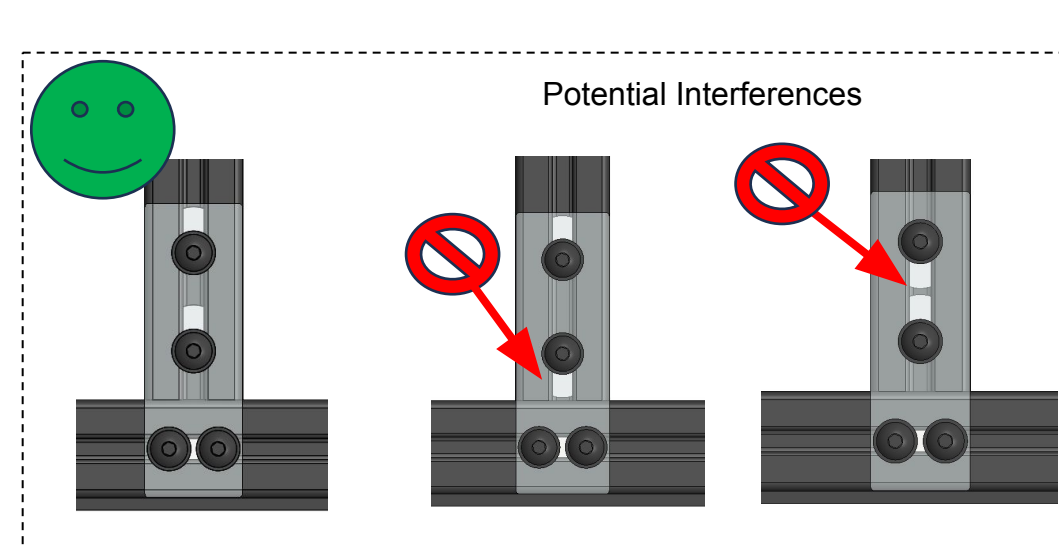
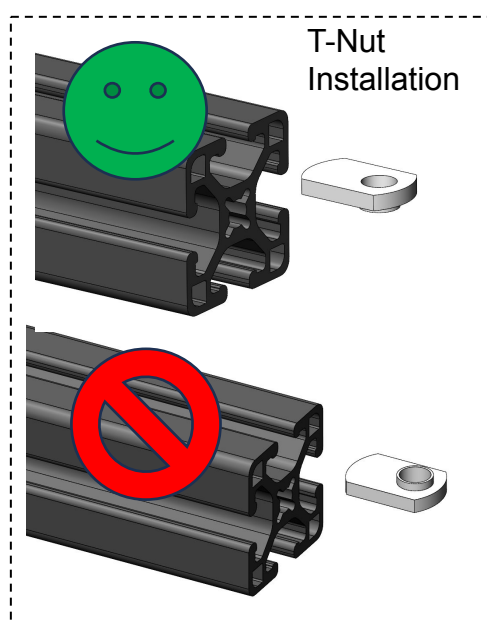
Bolts go through specified circular holes in side plate.





### General T-Nut Installation Tips

- Install T-nuts long side first and boss down.
- If long side of T-nut faces outside, it will interfere with adjacent 8020.
- If long side of adjacent t-nuts face each other, they may interfere.



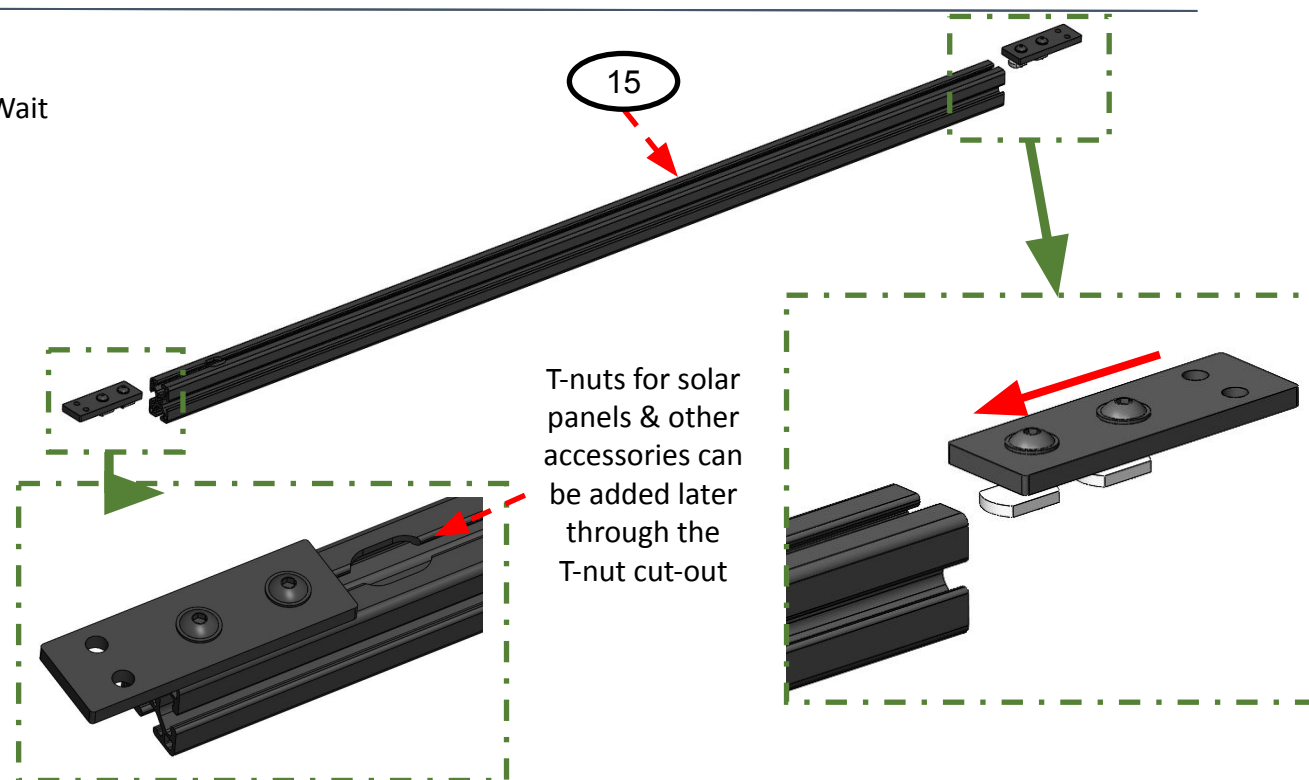
### Cross Bar Initial Assembly:

1 x   3/16 Allen  Wait



- The cross bar 8020 length is 53.75" long, and should be oriented so the machined cut out on one end is facing up
- Slide in Narrow crossbar connectors with T-nuts long side first and boss down from both ends.
- The Narrow crossbar connectors should be installed on the same side as the T-nut cut-out in the 8020 crossbar.
- DO NOT fully tighten the hardware at this time, but they should be snug enough so they can not slide off while handling.
  - Double T-nuts and remaining bolts are installed later.
- Repeat until all cross bars are ready


**Pro Tip:**

- See later pages for solar panel hardware information.



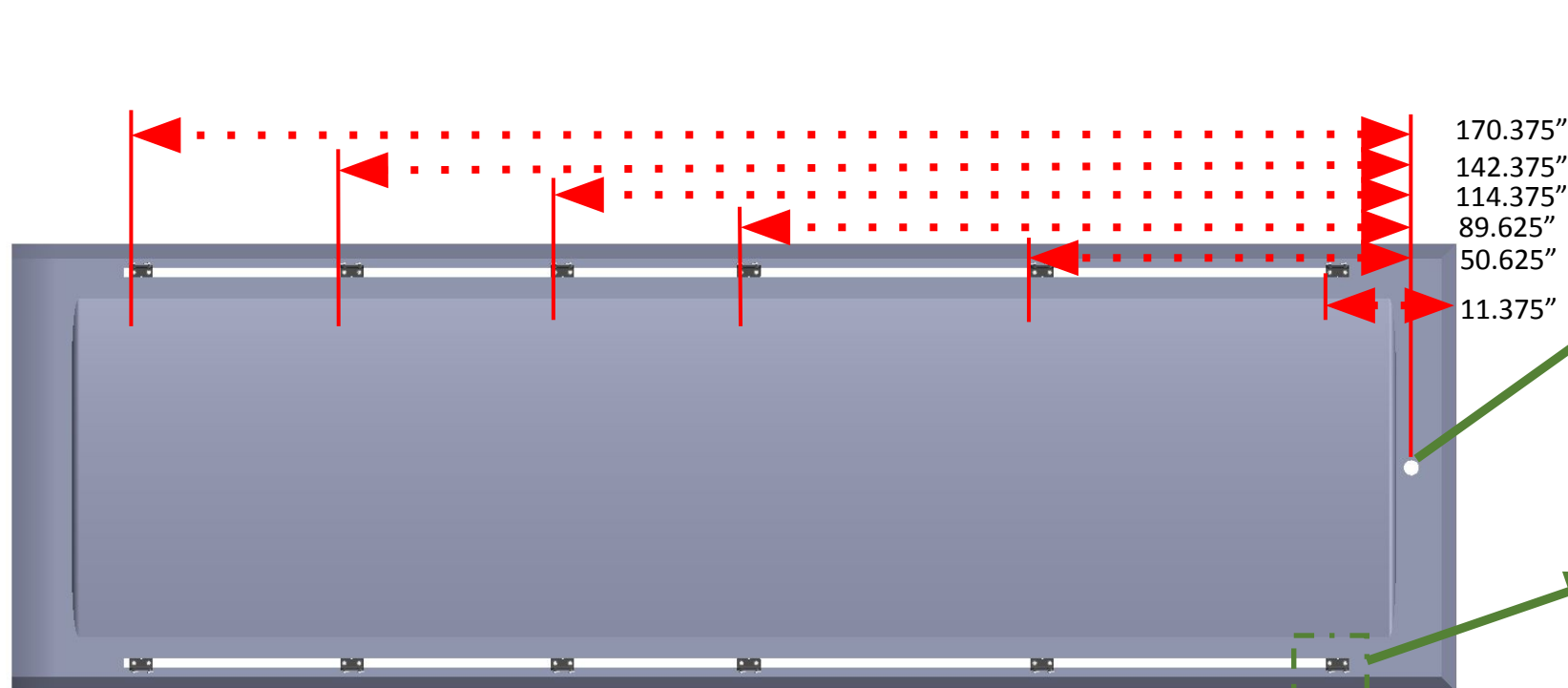
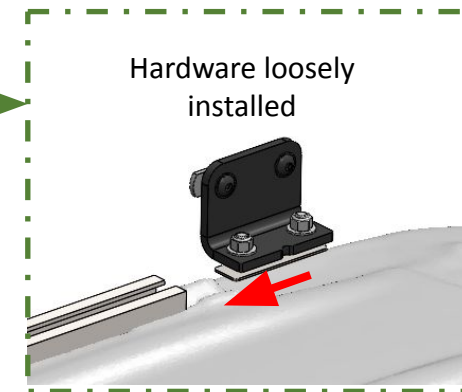
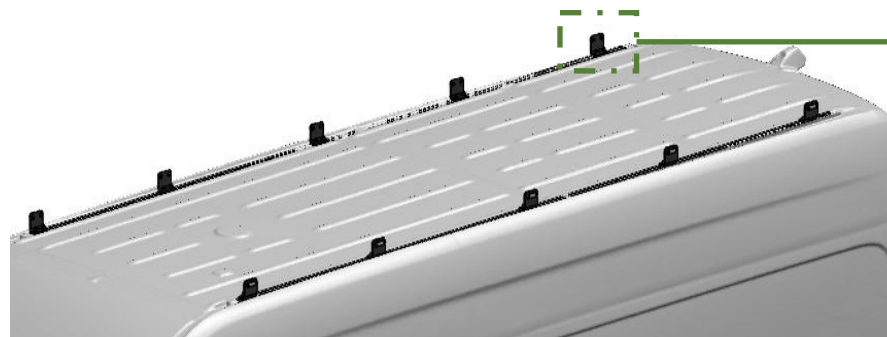
## Install Rack Brackets (Premium and Standard racks)

2 x  & 2 x 

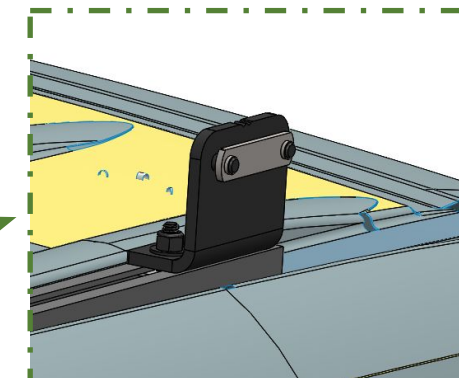
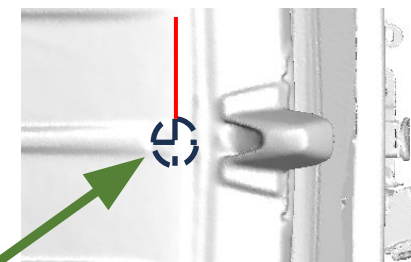
 :  $\frac{1}{2}$ " Socket  
: -

 Wait

- Take 8020 adapter brackets with pre-installed hardware and slide into factory roof channels to the positions shown in bottom graphic.
- Repeat for all brackets in both driver and passenger side channels.
- Note bracket locations below:
  - Dimensions are measured from the center of the roof identification mark to the front of the 8020 adapter bracket.
  - Bracket positions may be adjusted as desired or needed.
- Do not tighten brackets. Leave them loose enough to have play.







Roof Identification mark

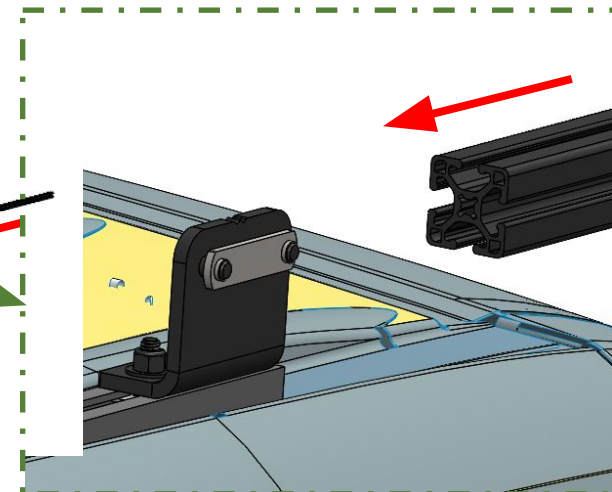
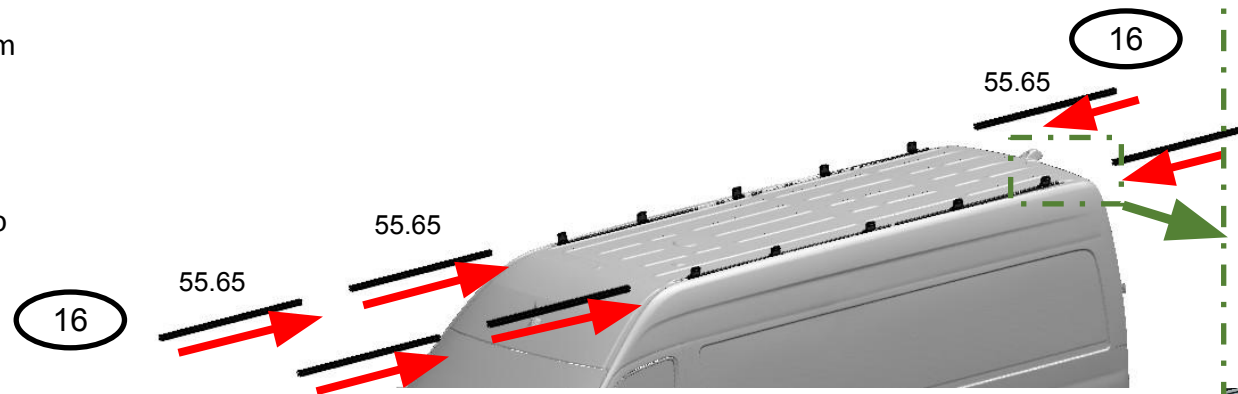








## Side Rail Assemblies (Premium and Standard racks)

2 x  & 2 x  :  : 1/2" Socket :  Wait

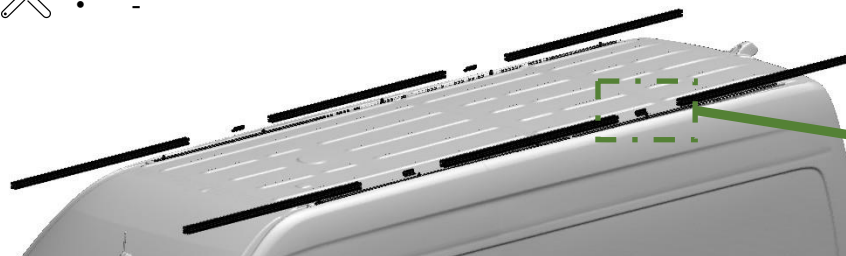
- Slide 8020 side rails onto rack brackets from the front and rear.
- PRO TIP:** If you encounter too much resistance to slide, loosen the t-nuts but do not fully unthread them.



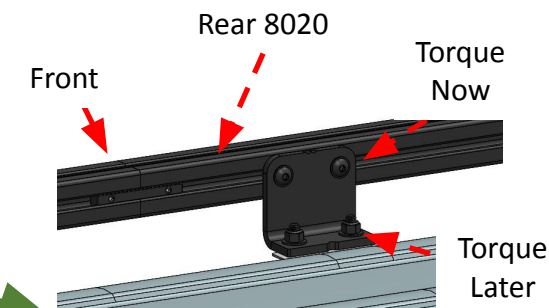
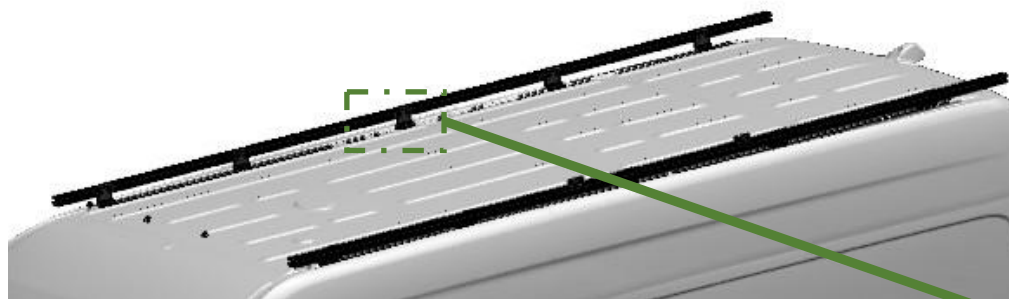
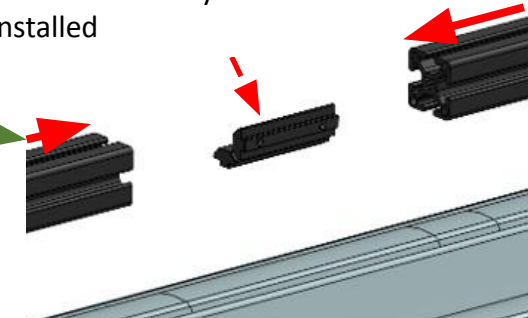
## Join Side Rails with Splice Plate (Premium and Standard racks)

2 x  & 2 x  :  : 3/16 Allen :  132 in-lbs





- Slide the 8020 Inside Splice Plates into the bottom and inside channels of the middle side rail halfway and tighten to hold position
- Align the rear side rail and front side rail to slide together and capture the other half of the 8020 Inside Splice Plates.
- Tighten set screws now - don't strip them
- Check position of 8020 adapter brackets to ensure position does not have crossbar interference (solar, decking, etc) then tighten and torque 11/16" flanged screw to 132 in-lbs.
- DO NOT fully tighten or torque hardware securing the brackets to the factory roof channels. The side rail should still be able to move around as a complete assembly (8020 brackets).



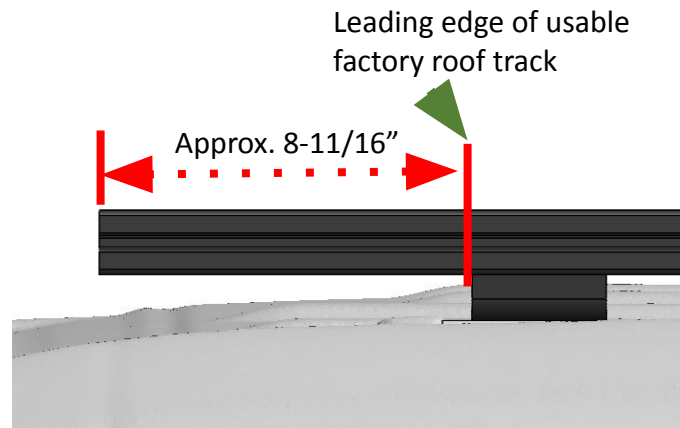
Hardware loosely installed



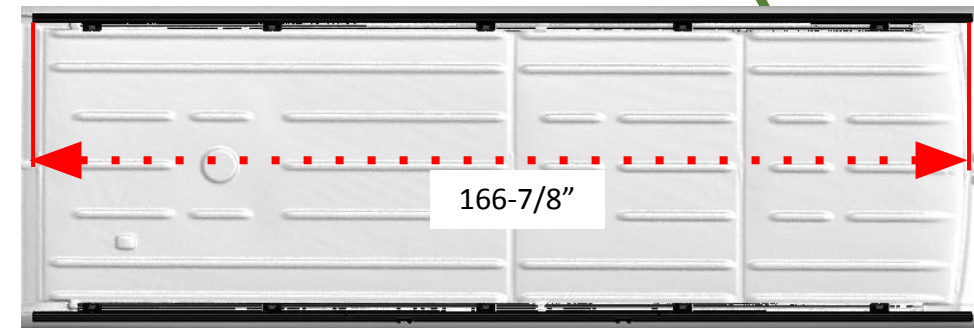
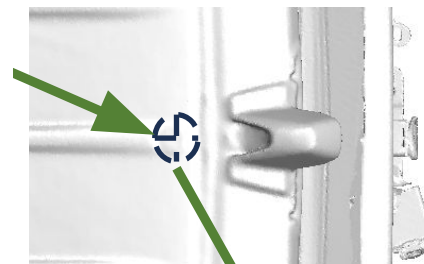
## Side Rail Positioning (Premium and Standard racks)

2 x  & 2 x  :  : 1/2" Socket :  Wait





- Position front side rails so they are 166.88" from the center of the roof identification mark on your van. Whatever final dimension you end with, ensure driver side and passenger side rails are set to same dimension.
- This should position the front of your side rail roughly 8-11/16" from the end of the useable factory roof channel.
- Note, this is a target dimension and can be adjusted as needed once wind fairing is installed but may require loosening hardware.



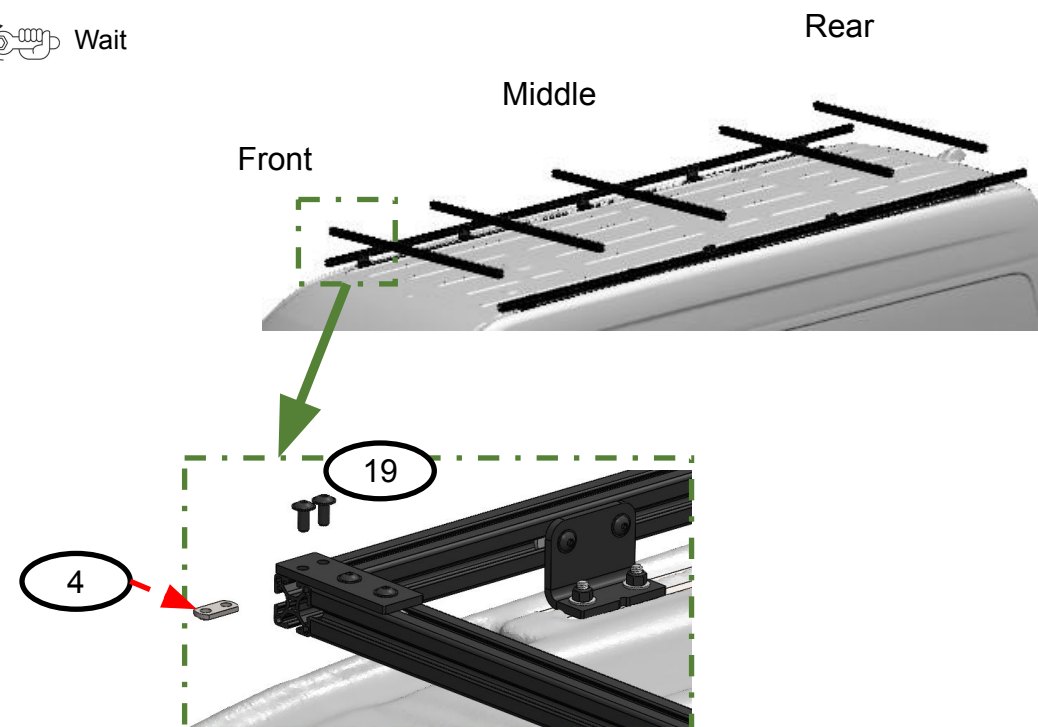
Roof  
Identification mark







## Install Cross Bar Assemblies

2 x  & 2 x  :  : 3/16 Allen :  Wait

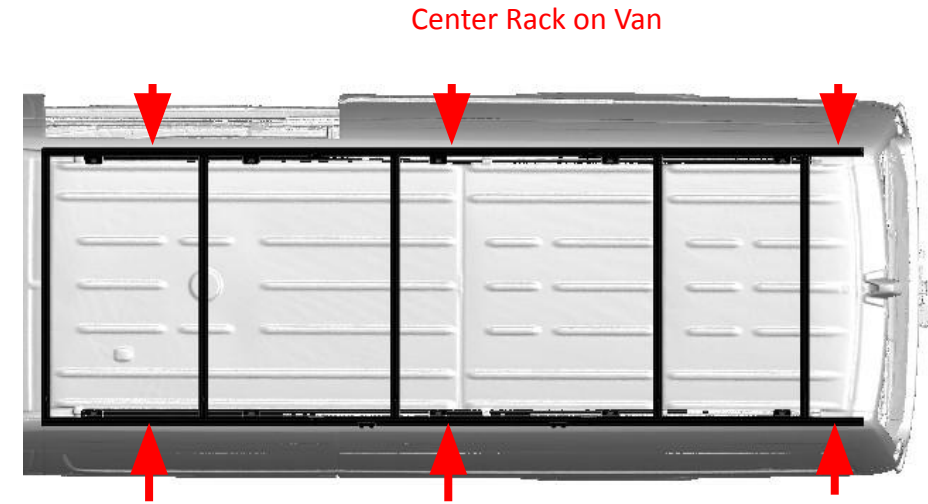
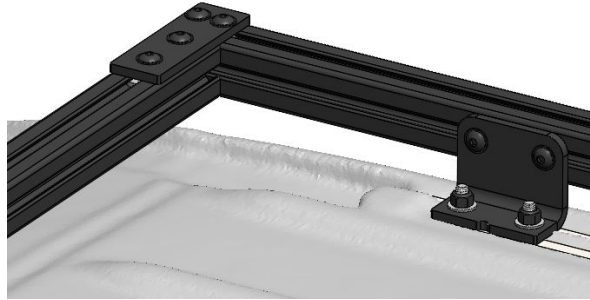
- Roughly position at least 3 cross bars to set the side rail spacing using at least one crossbar towards the front, one in the middle, and one towards the back – does not need to be their final location.
- Slide 1 double t-nut with bosses down into the top of each side rail assembly for each cross bar bracket.
- Slide any additional t-nuts into the top of your 8020 side rails that you may need for other accessories (awnings, tie downs, etc.).
- Lower your cross bars onto the 8020 side rails and thread the 11/16" flanged screw but do not fully tighten.







## Setting Side Rail Spacing

2 x  & 2 x  •  • 3/16 Allen  
• 1/2" Wrench & Socket  132 in-lbs

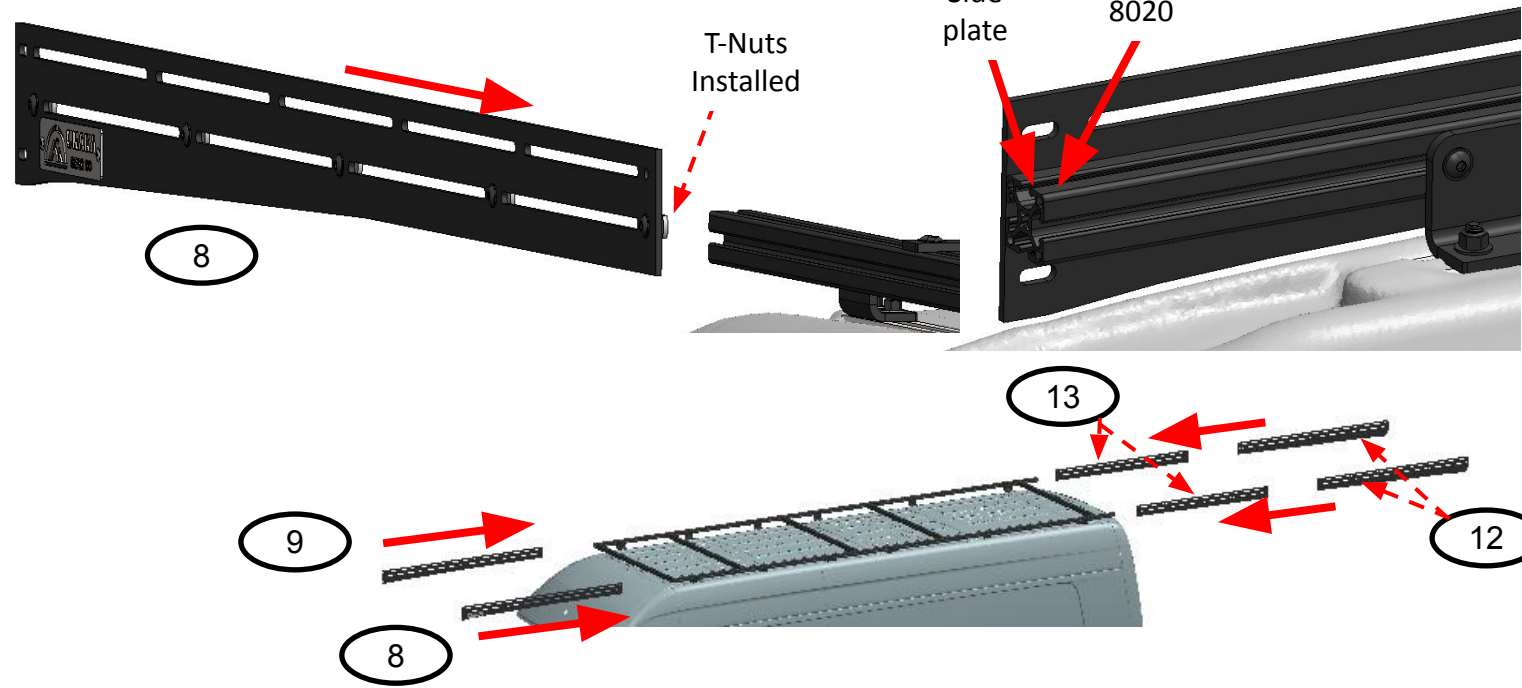
- Once cross bars are in place, center the rack on the van and set the side rail to side rail spacing so that the cross bars are snug, but can still be removed, or adjusted forward or backwards.
- As you adjust the rail to rail spacing, snug up the 8020 Adapter brackets and crossbar hardware to hold things in place.
  - If the 8020 adapter brackets are too tight, loosen just enough to allow the rail to rail spacing to be set.
- Once everything is parallel and square, Torque locknuts securing 8020 adapter brackets & side rail assemblies to the factory channels to 132 in-lbs.
- Double check that all 8020 adapter bracket BHCS are tight and torqued before moving to the next step. Once solar panels and other items are installed, tightening and checking these is difficult.







## Install Side Plates

2 x  & 2 x  :  • 3/16 Allen  
• 1/2" Wrench & Socket  132 in-lbs

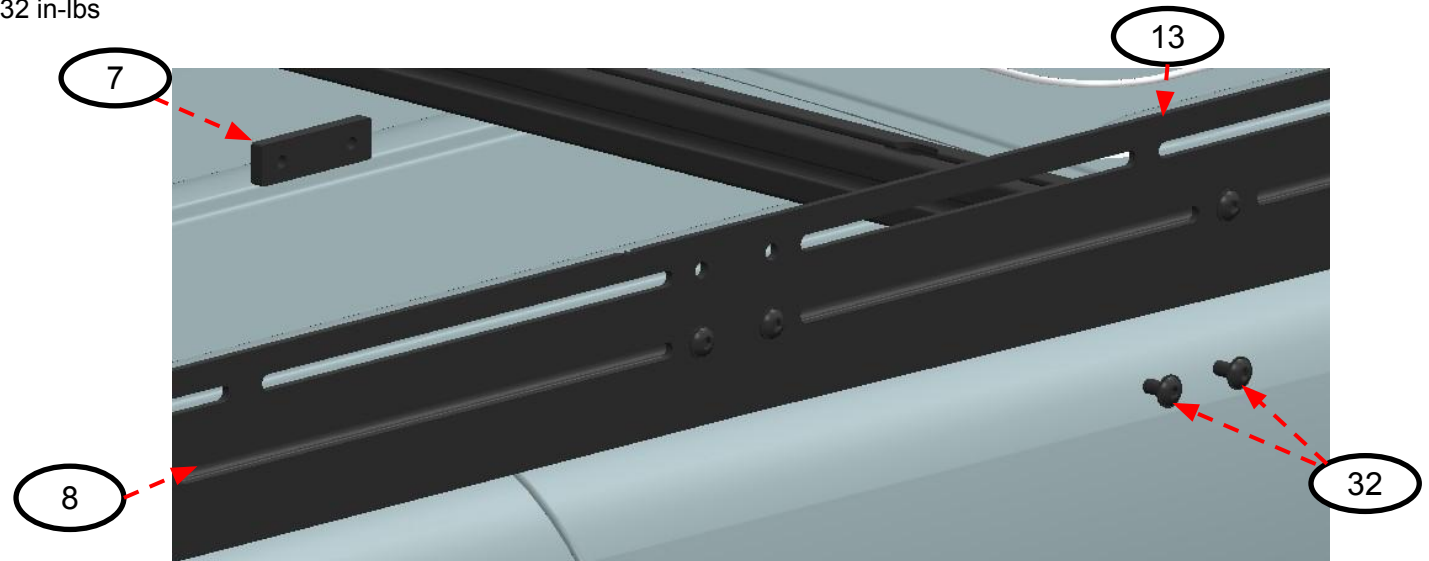
- Hardware should be pre-installed in side plates.
- Slide the front plate onto the 8020 from the front of the rack. Set the leading edge of the front plate to be flush with 8020 edge and snug up hardware.
- **PRO TIP:** If you encounter too much resistance to slide, loosen the t-nuts but do not fully unthread them.
- Slide the middle & rear plate onto the 8020 from the back of the rack and snug up hardware.
- Position plates together as desired then torque bolts to 132 in-lbs.



## Install Side Plates Cont.

2 x  & 2 x  :  • 3/16 Allen  
• 1/2" Wrench & Socket  132 in-lbs

- Install the Side Rail Tapped Splice Plate to join the front and rear side plates to the middle plate (2 on Driver Side, 2 on Passenger Side).
  - NOTE: This plate bolts through the top holes in the side plates.
- Apply anti-seize to the bolt threads during this step.
- Repeat for all 4 splice plates.
- Torque to 132 in-lbs.





## Install Light Bars

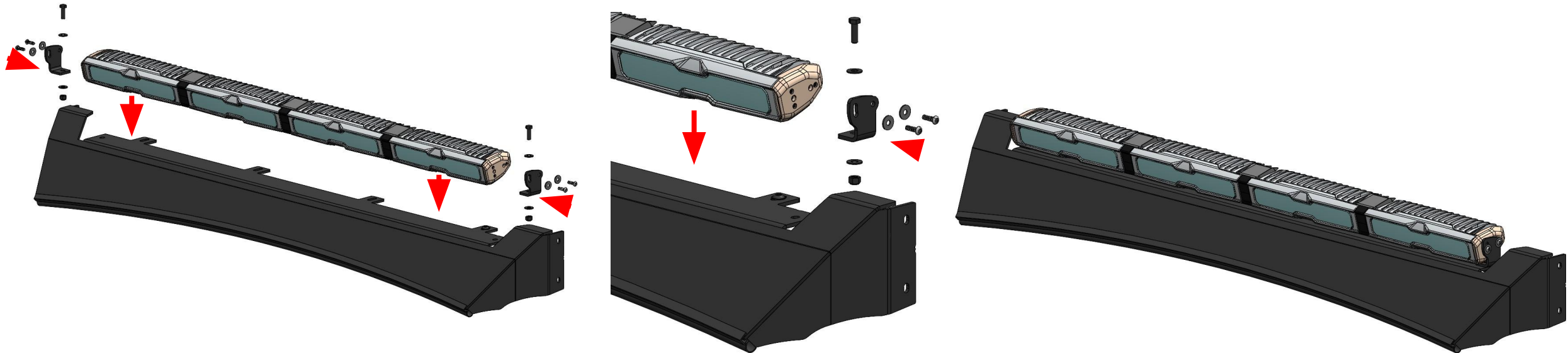
Our light bar compatible roof racks include a unique wind fairing to blend your light bar into the look of your roof rack. This wind fairing comes with some pre located mounting holes for our favorite light bars when paired with our custom mounting brackets. Note these light bars, and our adapter brackets do not come with this roof rack.

Install the light bar to the wind fairing





- Assembly the light bar, and install the brackets to the light bar
- Locate the light bar w/brackets on the Unaka Wind Fairing as desired
- If you are using your own light bar, you will likely need to mark new hole locations in the wind fairing, and to drill them out
- Install the light bar to the wind fairing

### Tyri Hyperion Series Light Bar Mounting Kit

- SKU: 1006-MK64-00 REV 0

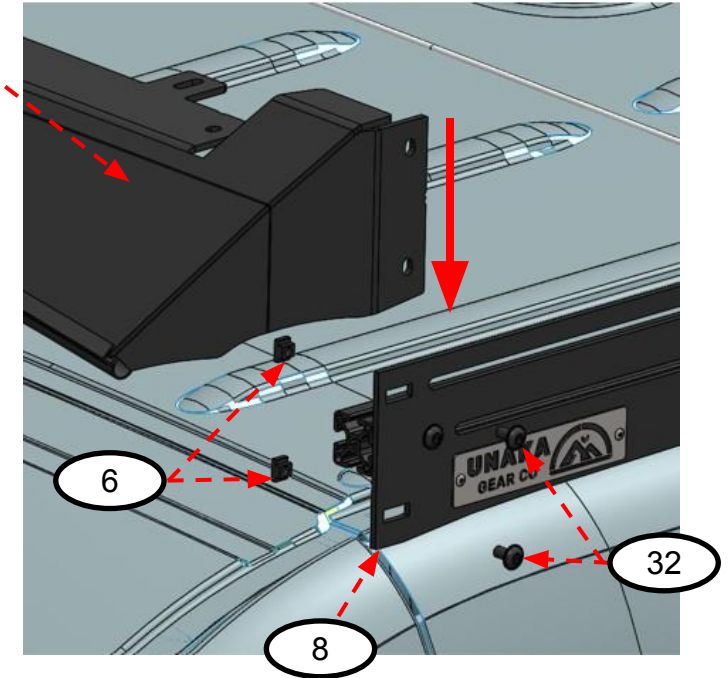


## Final Install of Wind Fairing





2 x  & 2 x  :  : 3/16" Allen :  132 in-lbs

- Lower wind fairing assembly down on the outside of the side plates
- Insert and start the hardware to secure the wind fairing to the rack. Apply anti-seize to the bolts during this step. Do not fully tighten.
- Position and angle the wind fairing as desired and snug up hardware.
- Tighten all hardware attaching wind fairing to side rail assemblies & Torque to 132 in-lbs.
- Note: The slots in the side plate allow for forward / backward adjustment of the wind fairing, as well as gives the ability to adjust the angle of the wind fairing.
- **Warning:** Take extra precautions to not drop the wind fairing onto the windshield or down the front of the van!

Wind fairing assembly



## Final Install of Cross Bar Assemblies

2 x  & 2 x  :  : 3/16 Allen :  132 in-lbs

- Remove and reposition any cross bars that were not located in their final locations during the rail to rail spacing step.
- The final position of the cross-bar assemblies can now be set.
- **TIP:** Complete your solar panel installations which is covered in the following pages as part of this step.
- Once in position, torque hardware securing cross bars to side rails to 132 in-lbs.
  - See subsequent pages on solar panel layouts.
- **PRO TIP:** If you completely loosen or find your self loosening a bolt that already has Loctite on it several times, remove it and apply some more.

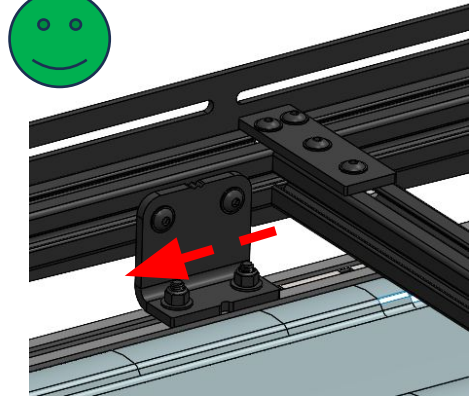
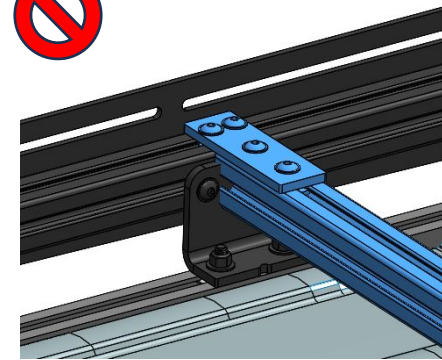


## Potential Interference / Adjustments

- Depending on your layout, you may need to adjust the position of your rack brackets, splice plate, or cross bars to eliminate interferences
- The inside splice plates should eliminate any issues with cross bar placements giving more flexibility. If one did cause an issue it could be slide out of the way, the rack is still plenty strong.
- If a cross bar and rack bracket interfere, the 8020 adapter bracket can be slid out of the way since its final location is not critical



Potential Interference



## End Caps

- End caps are used to cover the exposed 8020 at the back of the rack - do this last because you won't be able to slide in t-nuts afterwards
- Insert the Self tapping screw through the end cap and into the hole in the center of the 8020
- Tighten the self tapping screw until it is snug (Do Not Overtighten as these are easy to strip)
- Repeat for other side

1 x  & 1 x 

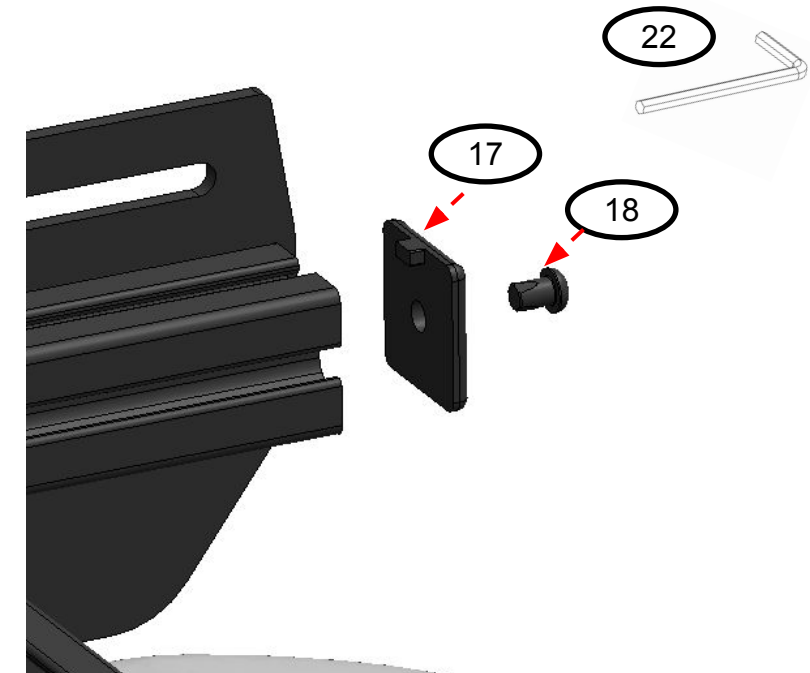


• 5/32 Allen

-



Snug



## Top Mount Solar Panel Bracket Install



1 x & 0 x



• 7/16" Wrench & Socket



75.2 in-lbs

**Hardware kit:** Top Mount Solar Panel Bracket Set of 4 w/8020 Hardware

### Top Mount Solar Panel Brackets

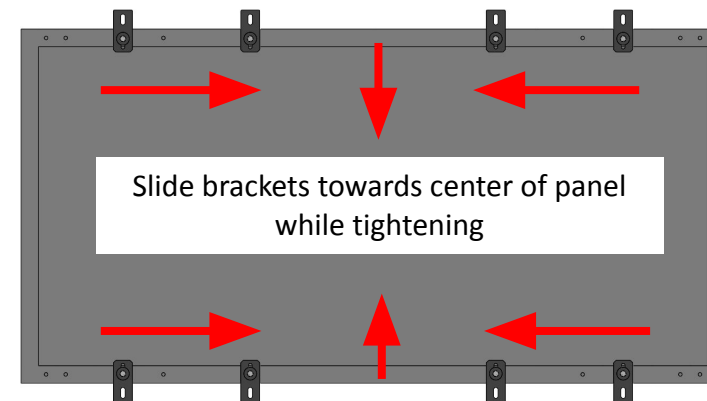
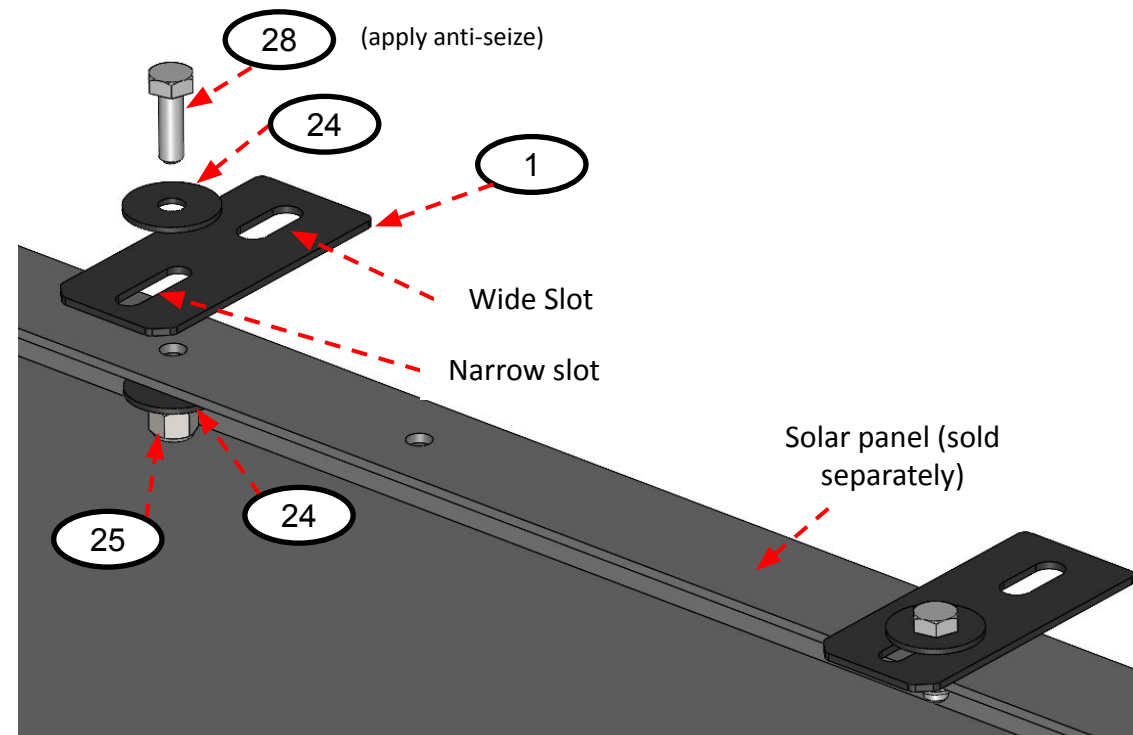
- If the solar panel manufacturer recommends more brackets, follow their requirements.
- 150W Solar Panel or Smaller: Minimum 4 Brackets.
- 150W to 250W Solar Panel: Minimum 8 Brackets.
- 300W and Larger: Minimum of 16 Brackets.

### Prepare Solar Panel

- Locate existing mounting holes in the bottom of solar panels.
- If you are adding additional holes, place a 1/2" or 3/4" backer board inside the panel so that you do not drill through the solar panel. Use a center punch, an 1/8" drill bit as a pilot, and 5/16" drill bit to finish if adding holes.
- TIP: If you are adding holes to multiple panels, and you plan for them to share a t-nut during final install, take extra time while adding these holes to ensure they line up from one panel to the next for an easier and cleaner install.
- Clean up all drill shavings from panel.


### Bolt solar panel brackets to the bottom of the solar panel

- Making sure you have the bracket oriented correctly (small slot goes to the solar panel, wider slot will go to the 8020).
- Apply anti-seize to the 1/4-20 bolt during this step.
- Slide bracket all the way in and towards the center of the panel while tightening.
- Note: Slots can be used to compensate for installation variations, we specify in and towards the center for consistency from one panel to the next.
- Tools: 7/16" box wrench & socket.
- Torque: 75.2 in-lbs.



## Top Mount Solar Panel Bracket Install

2 x  & 2 x  •  • 3/16" Allen

 132 in-lbs

### Install the solar panel to your roof rack / cross bar

- Cross bars should already be roughly positioned with t-nuts pre-installed.
- Typical installs use 4 x single T-nuts in each cross bar to support 1 x 200W panel. Use item **31** (9/16" non-flanged screw) to secure the bracket to the 8020.
- If 2 x 200W panels will share an adjacent cross bar, you can overlap the brackets so that two brackets use the same T-nut. If two solar panels are using the same T-nut, use item **30** (5/8" non-flanged screw) to go through both brackets.
- Lay the solar panel in place, then final position secure rack cross bars (Final torque cross bar hardware once in position).
- **Pro Tip:** Prop one end of the solar panel up, and pre route or manage your solar panel cables.
- Lay the loose end back down and bolt your solar panel to your cross bars (Torque to 132 in-lbs).

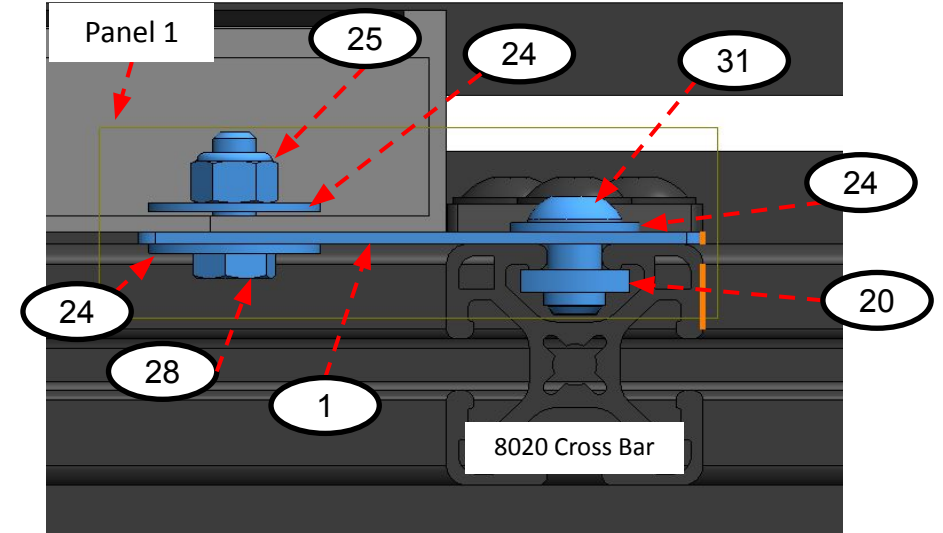
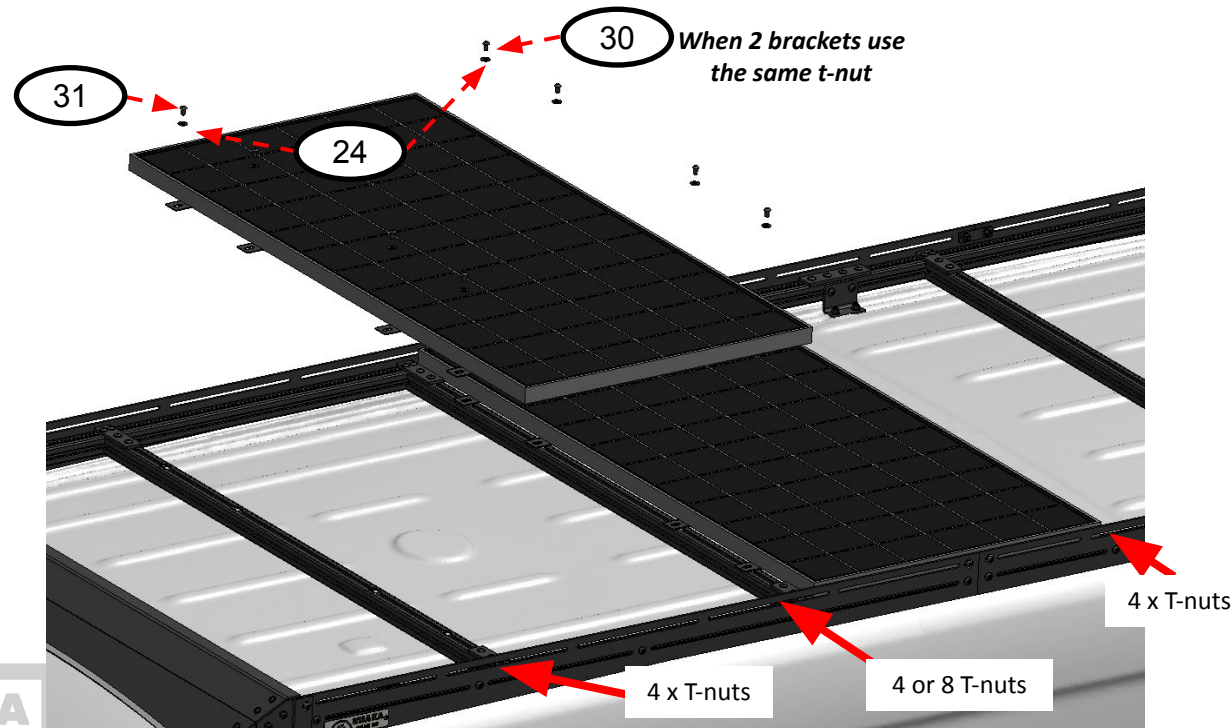


Image: 1 Panels using bracket & single T-nut

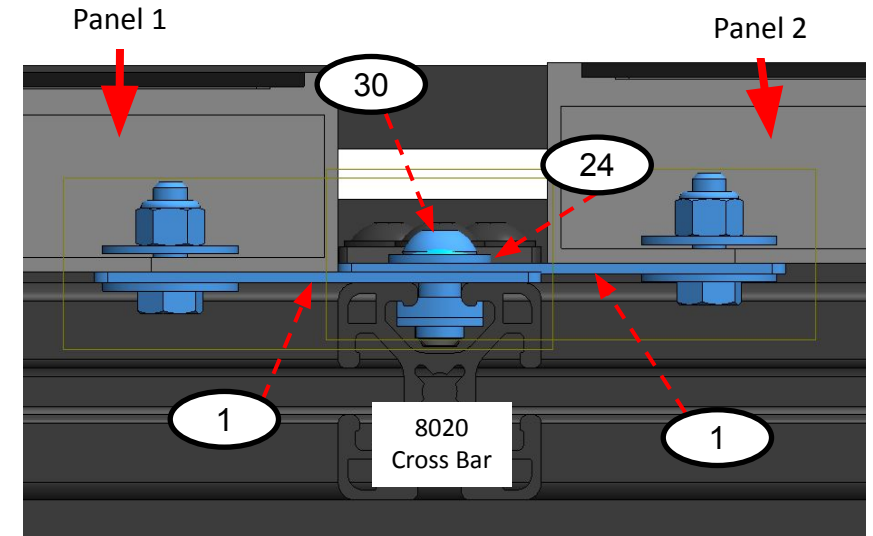
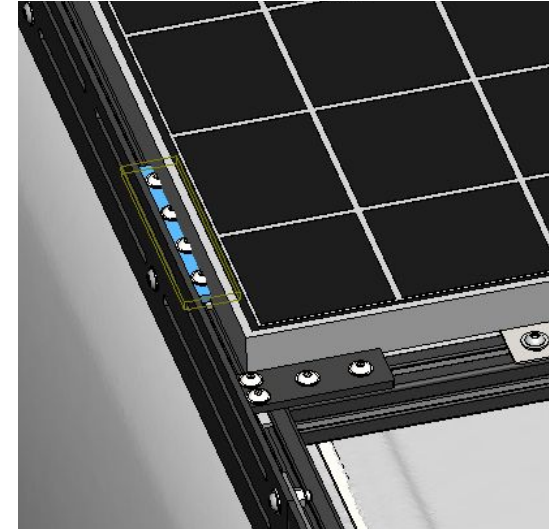
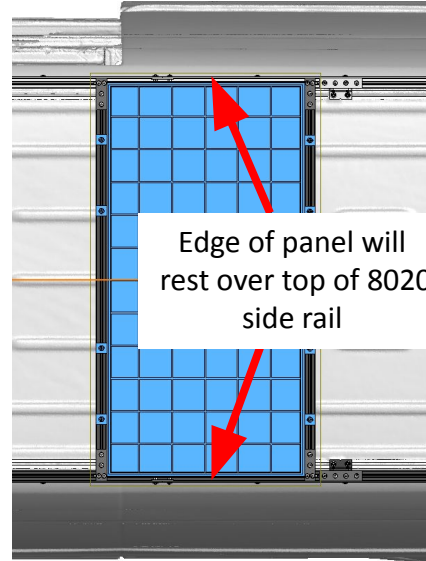


Image: 2 Panels Sharing Same T-Nut

## 200W Solar Panel Notes

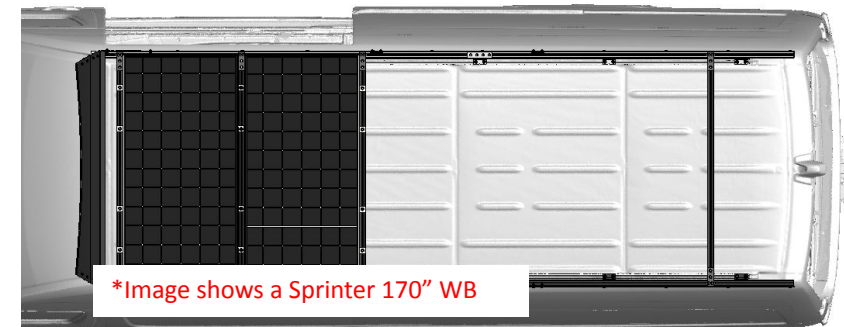
- This rack was designed to fit 200W and larger solar panels as long as their max solar panel length is 55.28" long.
- When these panels are installed, they will rest over the top of the 8020 side rails.

200W Newpowa Panel: 55.28 x  
27.76 x 1.38 in



## Final Torque Checks

Once everything is installed, go back and check that all hardware is tight and torqued.





## Optional Flush Mount Solar Panels: Renogy 175W Solar Panel Example

Flush Mount Solar Panel Brackets are not included with this rack kit and must be purchased separately.

- If you are using smaller solar panels, you may choose to install them with flush mount solar panel brackets. This allows the solar panels to rest down inside of the cross bars / side rail profiles in a more traditional flush style.
- To install solar panels with flush mount brackets, the total width must be less than 52.75" which is roughly the useable width between side rails.
- Flush mount solar panel brackets are sold separately.
- Approximately useable width between side rails: 52.75".
- The Renogy 175W solar panels are 49.7" long and fit down between the cross bars and side rails nicely.

