

INSTALLATION GUIDE



1520-M Single Clamp Ladder Rack

RAM Cargo Van (Aluminum)



QUICK START GUIDE

Phase 1 - Assembly

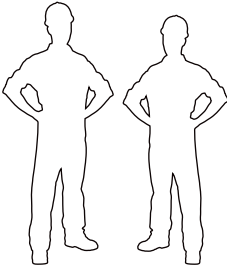
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Phase 2 - Installation

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REQUIRED ITEMS

NOTE: Use Sawhorses if possible, or use the box as a flat protective surface on the ground or table.



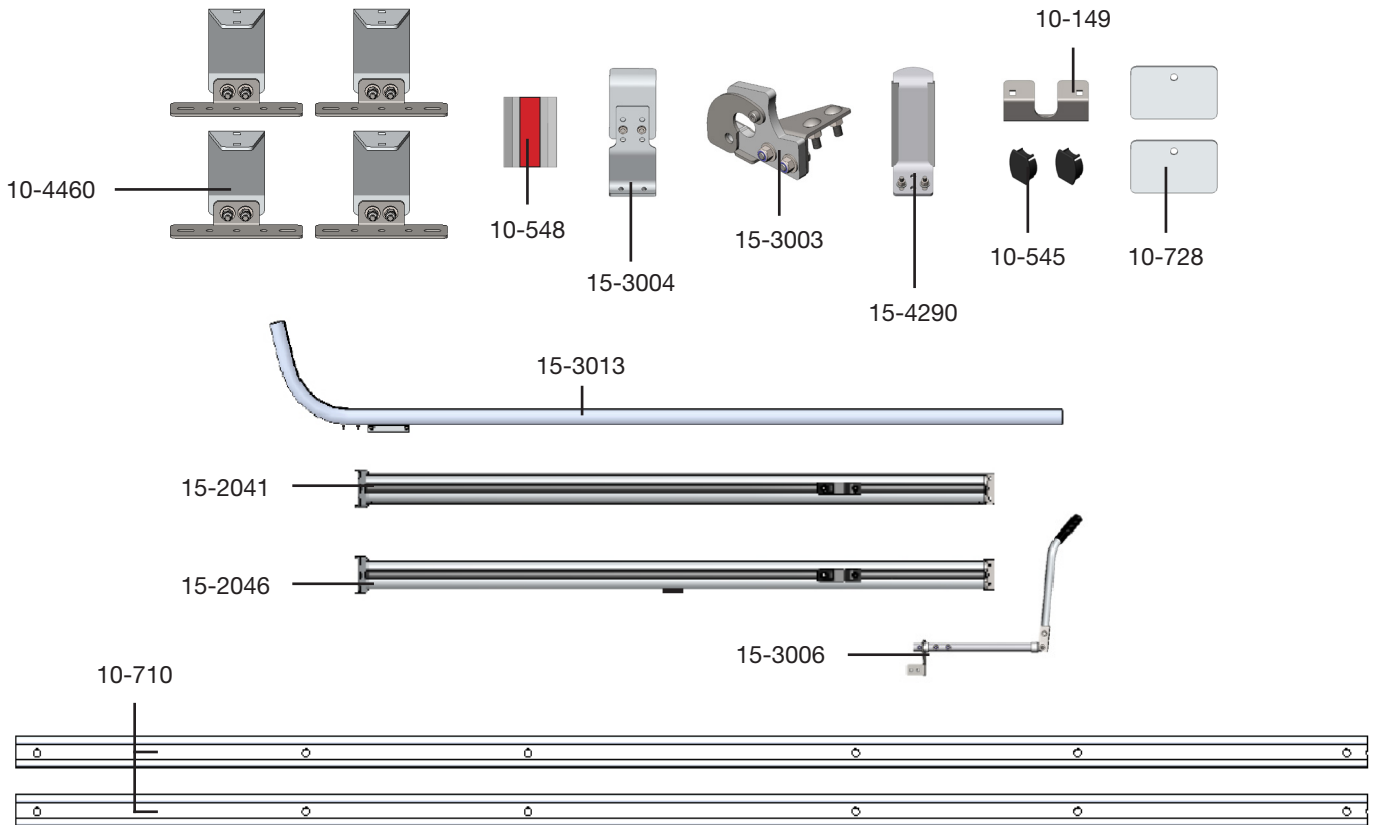
**2
PERSONS**

- Cordless Impact
- Ratchet
- Tape Measure
- Mallet
- Marker
- Ladder
- Cutter
- 1/2" Socket
- Sawhorse (Optional)
- Box
- Knife
- 1/2" Wrench
- 7/16" Socket
- Plusnut Tool
- Silicone

PHASE 1 – ASSEMBLY

1.1 SETUP

1.1.1 Unpack components; compare with the bill of materials.



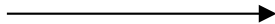
1.1.2 Verify all parts are present.

BILL OF MATERIALS

Item No.	Description	Qty.
10-149	Clamp Handle Support	1
10-545	Ski Plastic Plug	2
10-548	Hook Protector (4 - 3/8" L)	1
10-710	Mounting Track	2
10-728	Installation Plate	2
10-4460	"C" Foot	4
15-2041	Front Crossbow	1
15-2046	Rear Crossbow	1
15-3003	Ladder Clamp Hasp	1
15-3004	Ladder Clamp Rear Hook	1
15-3006	Ladder Clamp Bar (Passenger Side)	1
15-3013	Ski (Right)	1
15-4290	Front Hook	1
94-1006	Assembly Fastener Kit	1
96-1012	Install Fastener Kit	1

1.1.3 Fastener kits.

94-1006 Fastener Kit



Fastener Assembly

2x



90-487

Carriage Bolt
5/16"-18 x 3/4"
SS304

11x



90-491

Carriage Bolt
5/16"-18 x 1"
SS304

15x



94-105

Hex Nut
5/16"-18
SS316wax

1x



98-160

Spacer
SS18-8

15x



98-117

Flat Washer
5/16", O.D 3/4"
SS18-8

15x



98-123

Lock Washer
Regular 5/16"
SS304

2x



#90-487 Carriage Bolt 5/16" x 3/4"



#98-117 Flat Washer



#98-123 Lock Washer



#94-105 Hex Nut

10x



#90-491 Carriage Bolt 5/16" x 1"



#98-117 Flat Washer



#98-123 Lock Washer



#94-105 Hex Nut

2x



#98-117 Flat Washer



#98-123 Lock Washer



#94-105 Hex Nut

1x



#90-491 Carriage Bolt 5/16" x 1"



#98-160 Spacer



#98-117 Flat Washer

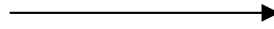


#98-123 Lock Washer



#94-105 Hex Nut

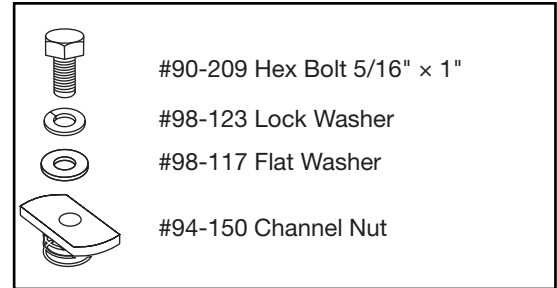
96-1012 Fastener Kit



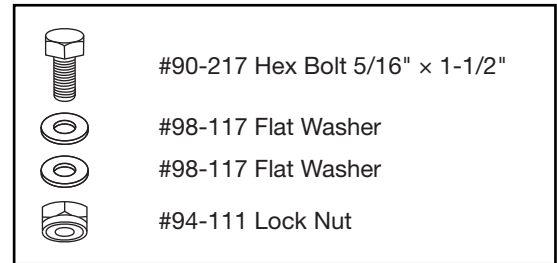
Fastener Assembly

8x		# 90-209	Hex Bolt 5/16"-18 x 1" SS304
8x		# 90-115	Hex Bolt 1/4"-20 x 1" SS304
4x		# 90-217	Hex Bolt 5/16"-18 x 1-1/2" SS304
4x		# 94-111	Lock Nut 5/16" SS304wax
8x		# 94-130	Plusnut .250
8x		# 94-150	Channel Nut 5/16"
8x		# 98-113	Flat Washer 1/4", O.D. 5/8" SS18-8
16x		# 98-117	Flat Washer 5/16", O.D. 3/4" SS18-8
8x		# 98-119	Lock Washer 1/4" SS304
8x		# 98-123	Lock Washer 5/16" SS304

8x



4x



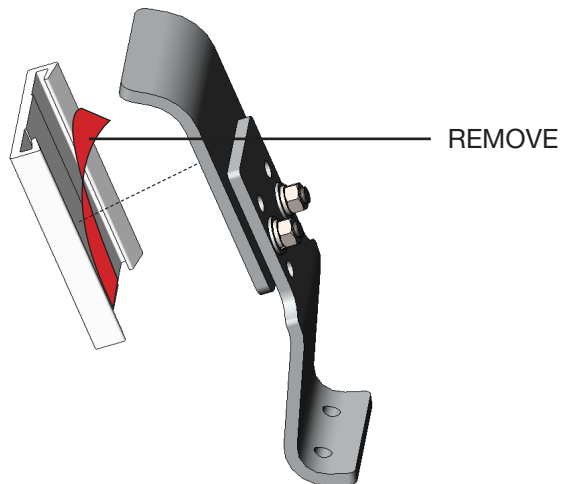
8x



PHASE 1 – ASSEMBLY

1.2 LADDER RACK ASSEMBLY

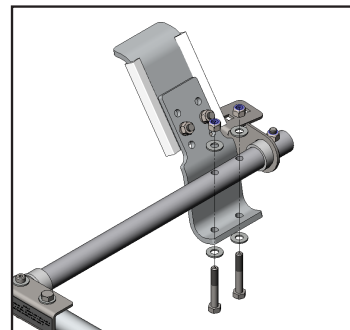
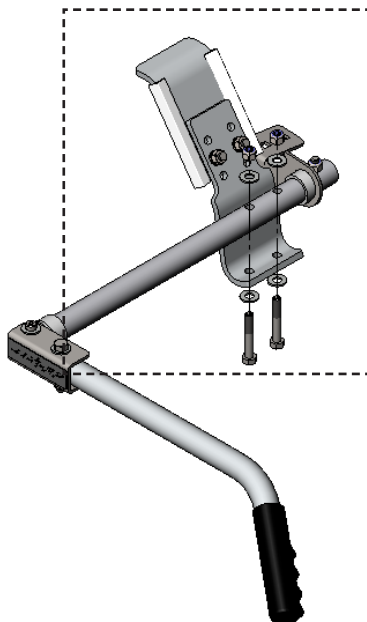
1.2.1 Peel the backer off of the adhesive on the hook protector, then attach the hook protector to the upper rear hook.



TOOLS

- Knife

1.2.2 Attach the rear hook to the ladder clamp, with the pre-assembled hardware on the pivot bar.



TOOLS

- Cordless Impact
- 1/2" Socket
- 1/2" Wrench

HARDWARE USED

2x HARDWARE IS PRE-ASSEMBLED.



#90-225 Hex Bolt
5/16" - 18 x 2" SS304



#98-117 Flat Washer



#98-117 Flat Washer

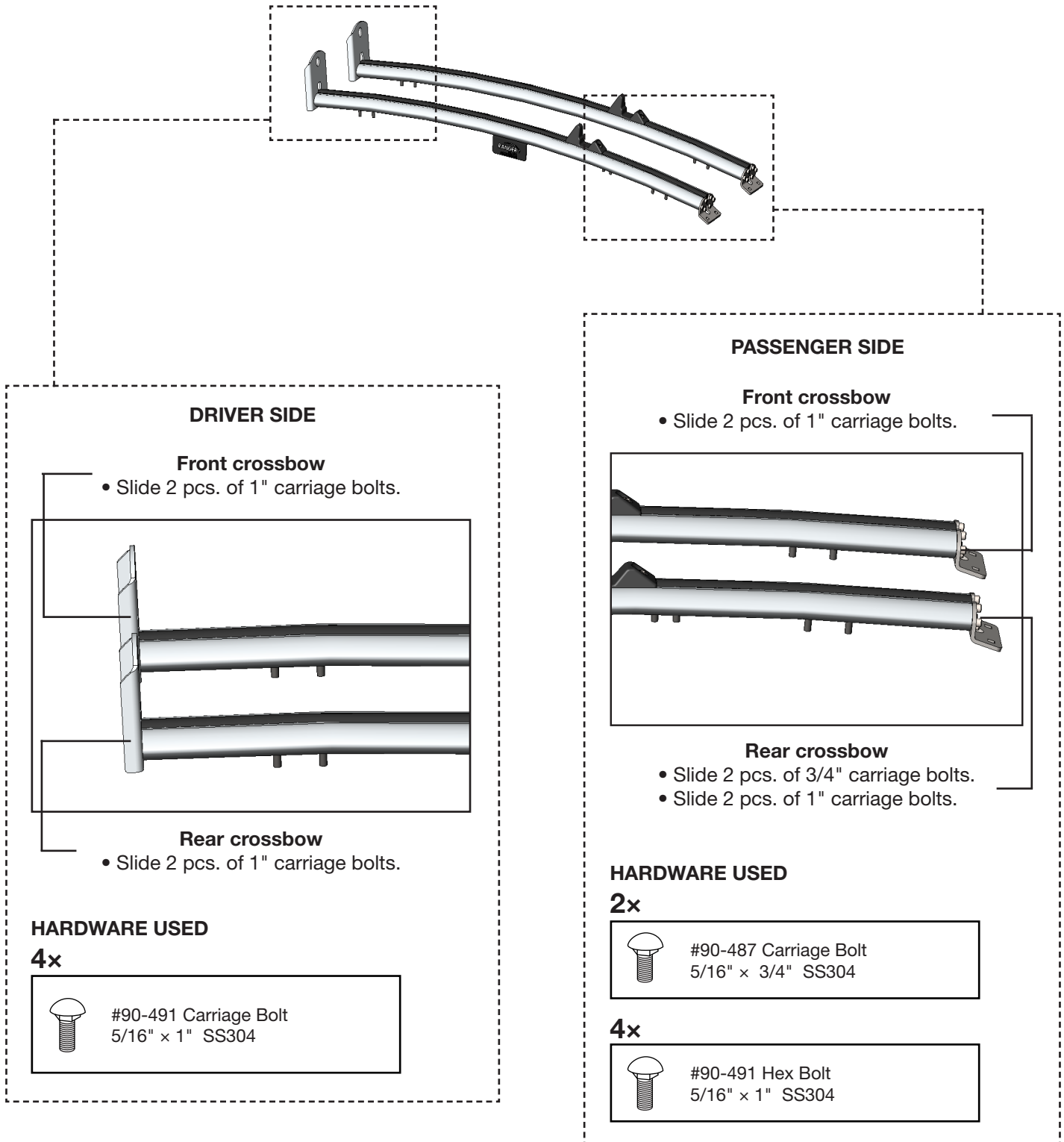


#94-111 Lock Nut

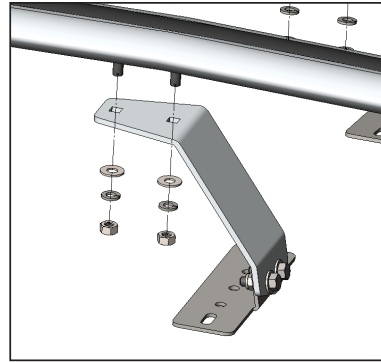
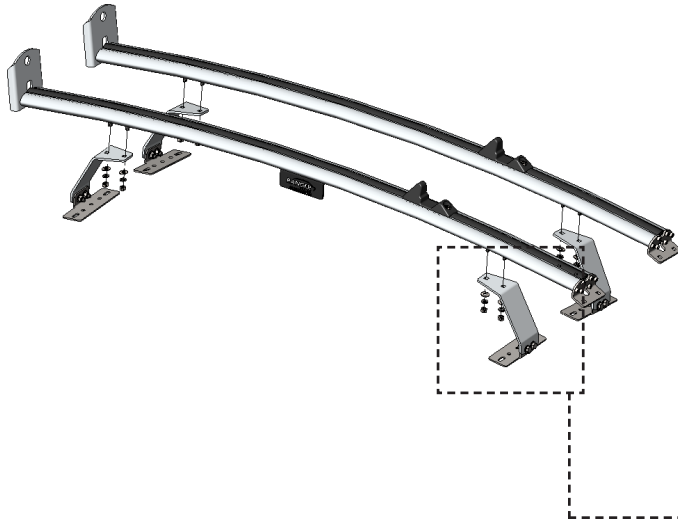
1.2.3 Slide carriage bolts on the bottom face of the crossbows.

NOTE: The track plug must be removed from the underneath of the front crossbow, and reinstalled after the feet have been installed in the final position.

TIPS: Use tape to keep the bolts from sliding off.



1.2.4 Install the feet on the Front, and Rear Crossbows.



HARDWARE USED

8x HAND-TIGHTEN THE NUTS.



Carriage bolts are already on the crossbows.



#98-117 Flat Washer

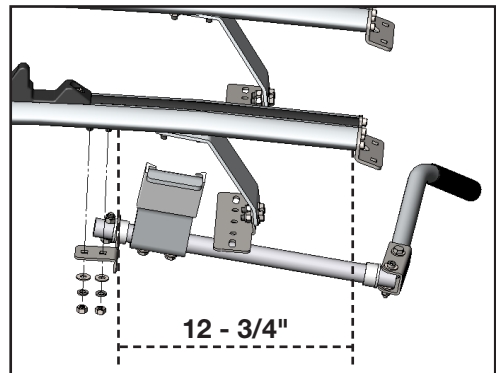
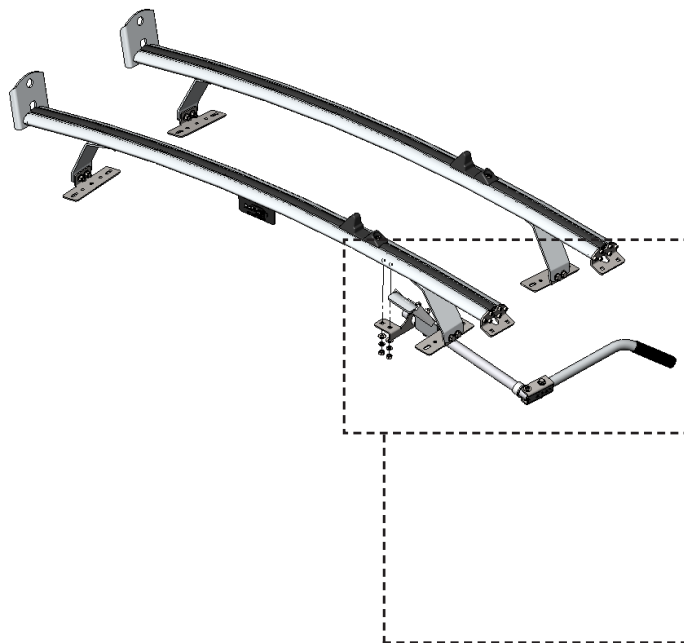


#98-123 Lock Washer



#94-105 Hex Nut

1.2.5 Fasten the Ladder Clamp assemblies to the Rear Crossbow.



TOOLS

- Cordless Impact
- 1/2" Socket
- Tape Measure
- Marker

HARDWARE USED

2x



Carriage bolts are already on the crossbows.



#98-117 Flat Washer

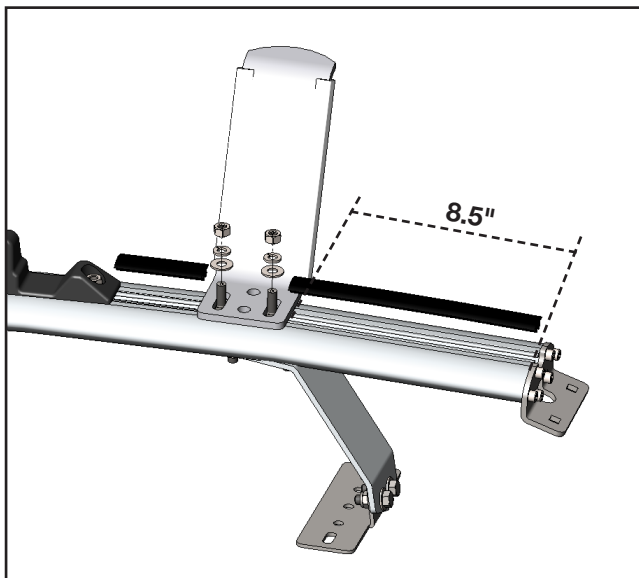
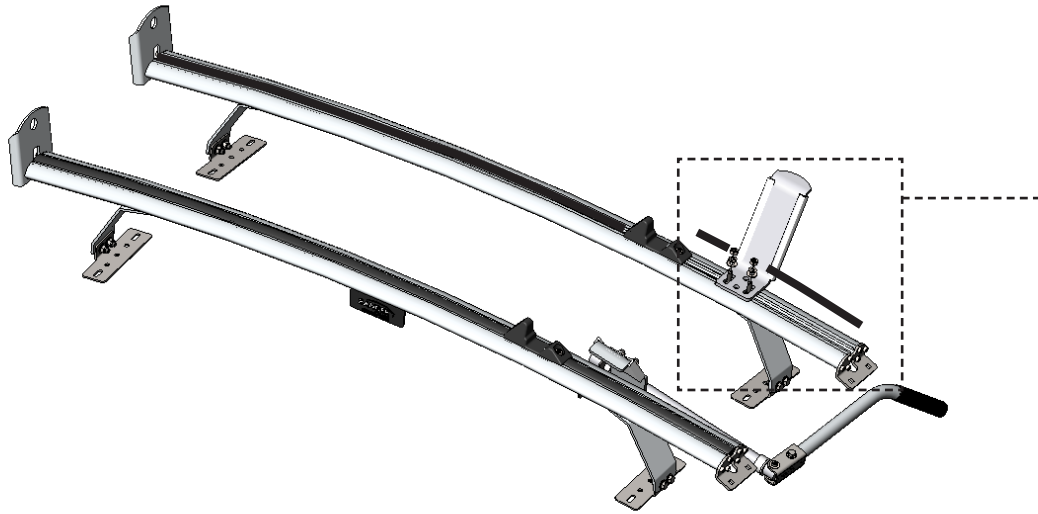


#98-123 Lock Washer



#94-105 Hex Nut

- 1.2.6 • Pull out the 14.5" track plug on the passenger side of the front crossbow.
- Loosen the pre-assembled hardware on the front hook and slide the hook onto the passenger side of the front crossbow to the position shown below.
- Cut the track plug, then attach it back to the crossbow.







Tighten the nuts just to hold the front hook for adjustment.

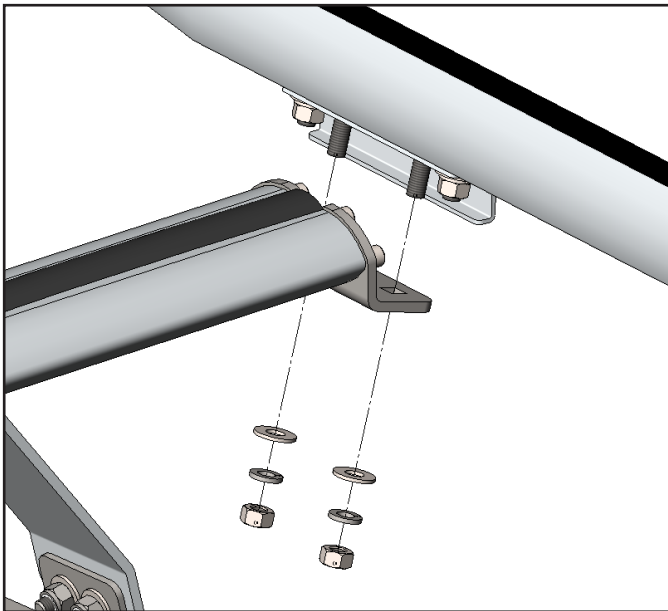
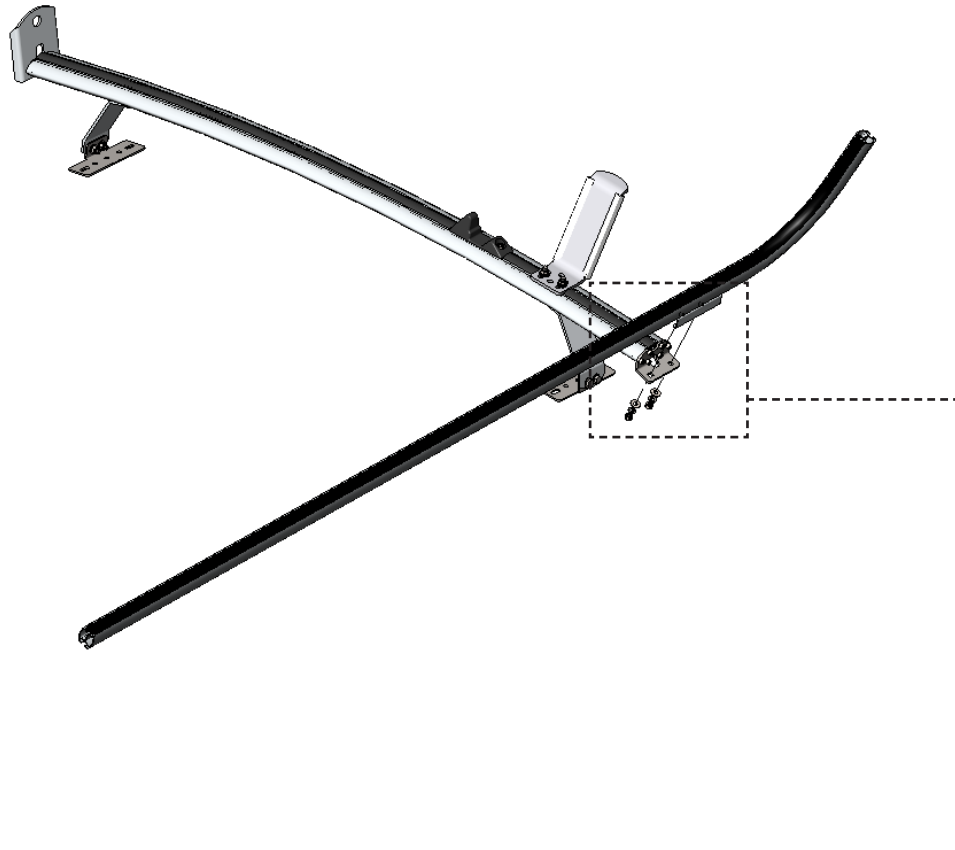
TOOLS
 □ Marker

HARDWARE USED

2x HARDWARE IS PRE-ASSEMBLED.

-  #90-491 Carriage Bolt 5/16" x 1"
-  #98-117 Flat Washer
-  #98-123 Lock Washer
-  #94-105 Hex Nut

1.2.7 Install the front crossbow to the ski.







TOOLS

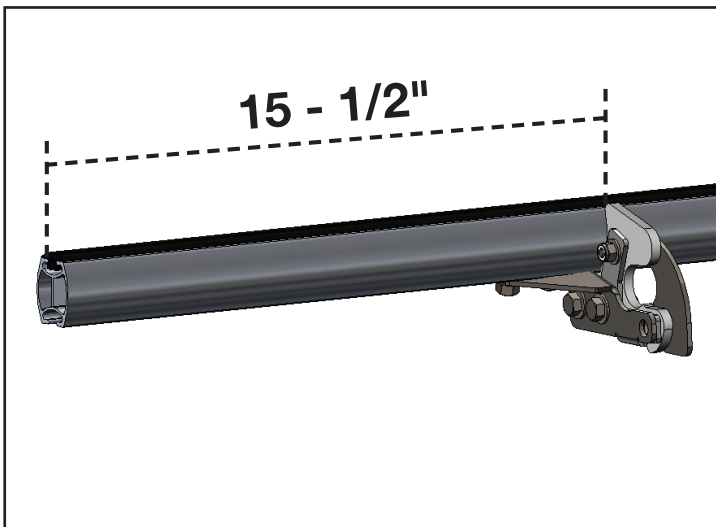
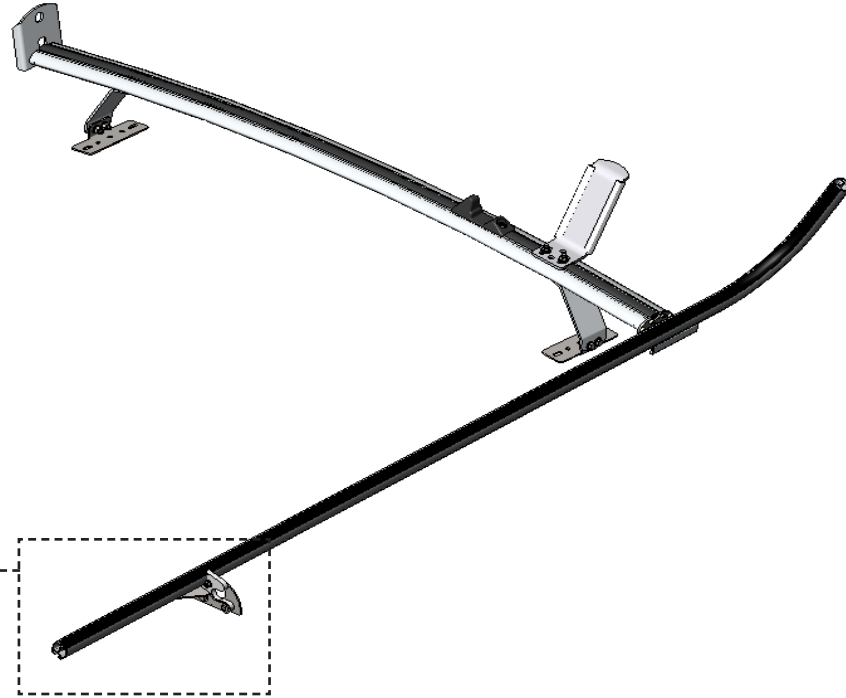
- Cordless Impact
- 1/2" Socket

HARDWARE USED

2x

-  Carriage bolts are already on the ski.
-  #98-117 Flat Washer
-  #98-123 Lock Washer
-  #94-105 Hex Nut

1.2.8 Loosen the pre-assembled hardware on the ladder clamp hasp, slide the hasp on the ski to the position shown below, and tighten the nuts.







TOOLS

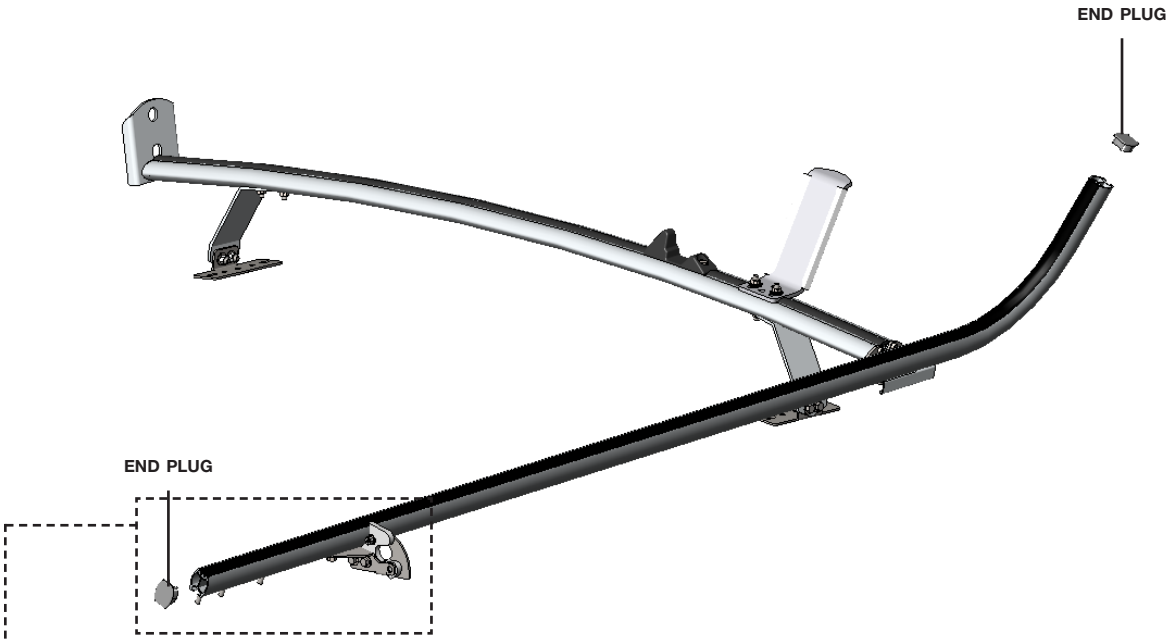
- Cordless Impact
- 1/2" Socket
- Tape Measure
- Marker

HARDWARE USED

2x HARDWARE IS PRE-ASSEMBLED.

- | | |
|--|------------------------------------|
|  | #90-487 Carriage Bolt 5/16" x 3/4" |
|  | #98-117 Flat Washer |
|  | #98-123 Lock Washer |
|  | #94-105 Hex Nut |

1.2.9 Slide 3pcs. of carriage bolts on the rear end of the ski, then attach end plugs on both ends of the ski.




TOOLS

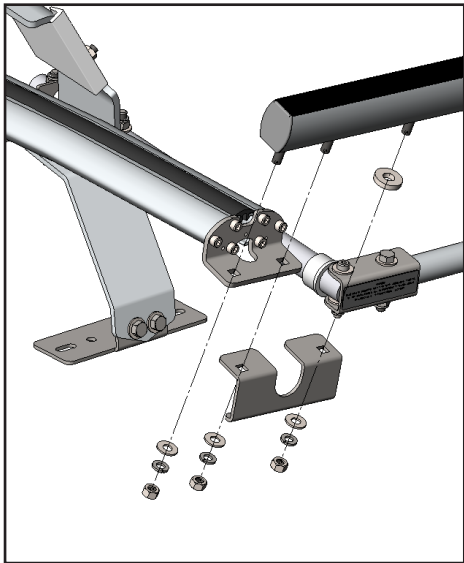
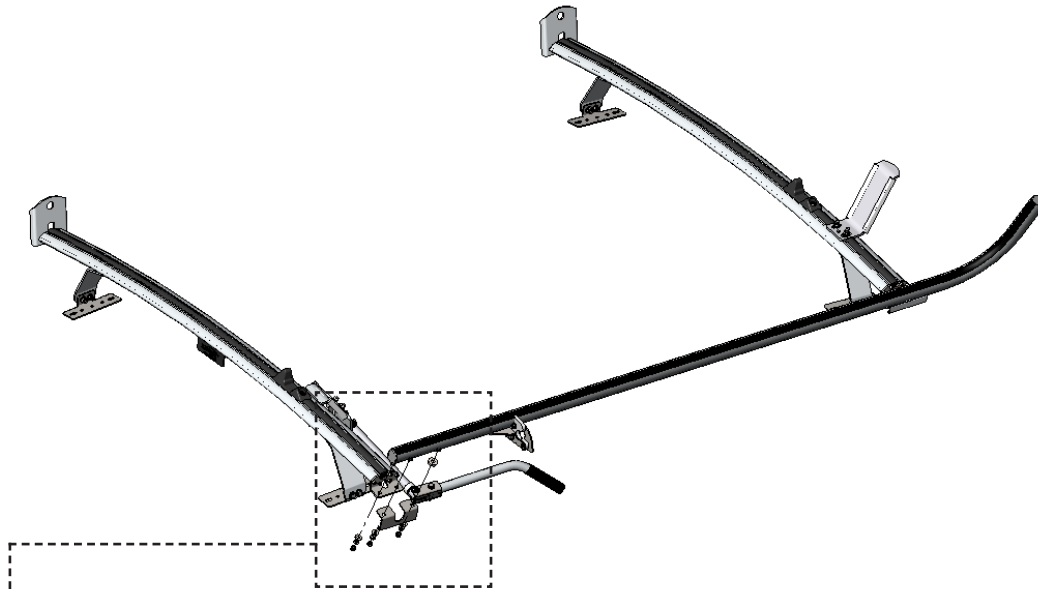
- Mallet

HARDWARE USED

3x

-  #90-491 Carriage Bolt
5/16" x 1" SS304

1.2.10 Install the Rear Crossbow to the ski with the clamp handle support, aligning the rear surface of the crossbow bracket to the rear surface of the ski.







TOOLS




- Cordless Impact
- 1/2" Socket

HARDWARE USED

2x

-  Carriage bolts are already on the ski.
-  #98-117 Flat Washer
-  #98-123 Lock Washer
-  #94-105 Hex Nut

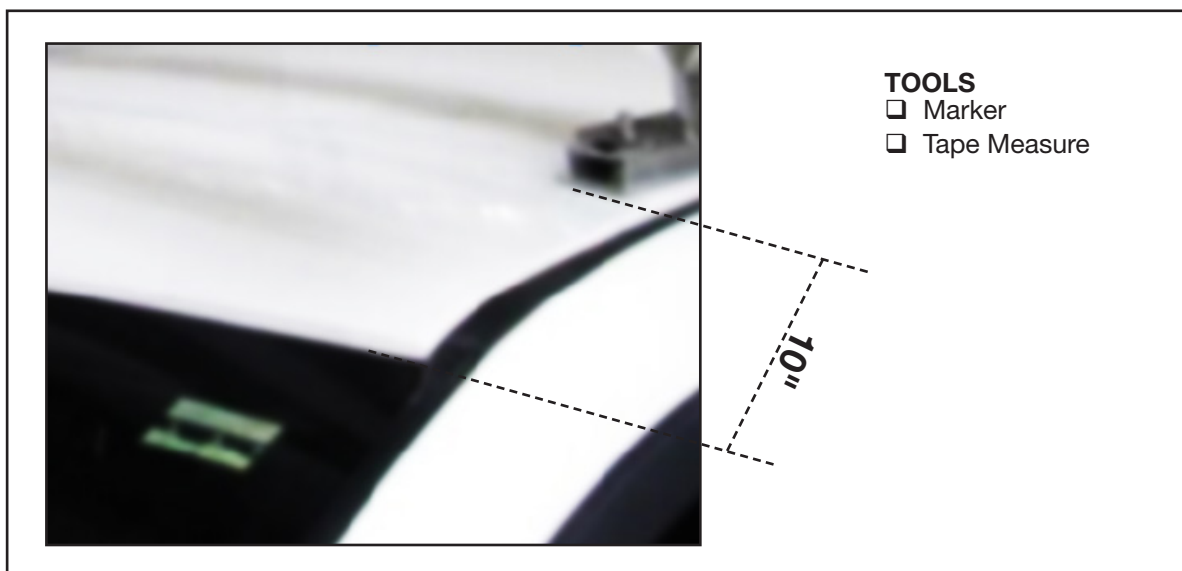
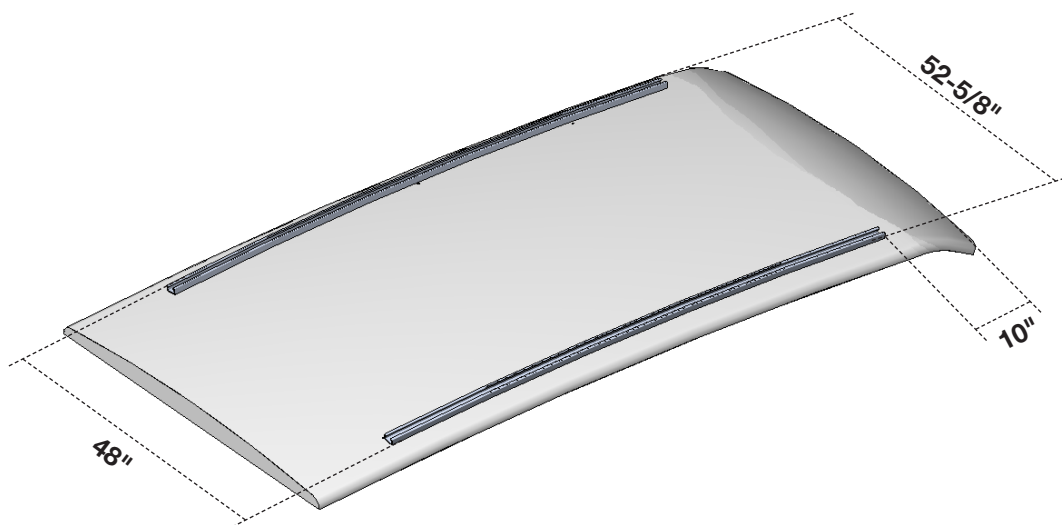
1x

-  Carriage bolts are already on the ski.
-  #98-160 Spacer
-  #98-117 Flat Washer
-  #98-123 Lock Washer
-  #94-105 Hex Nut

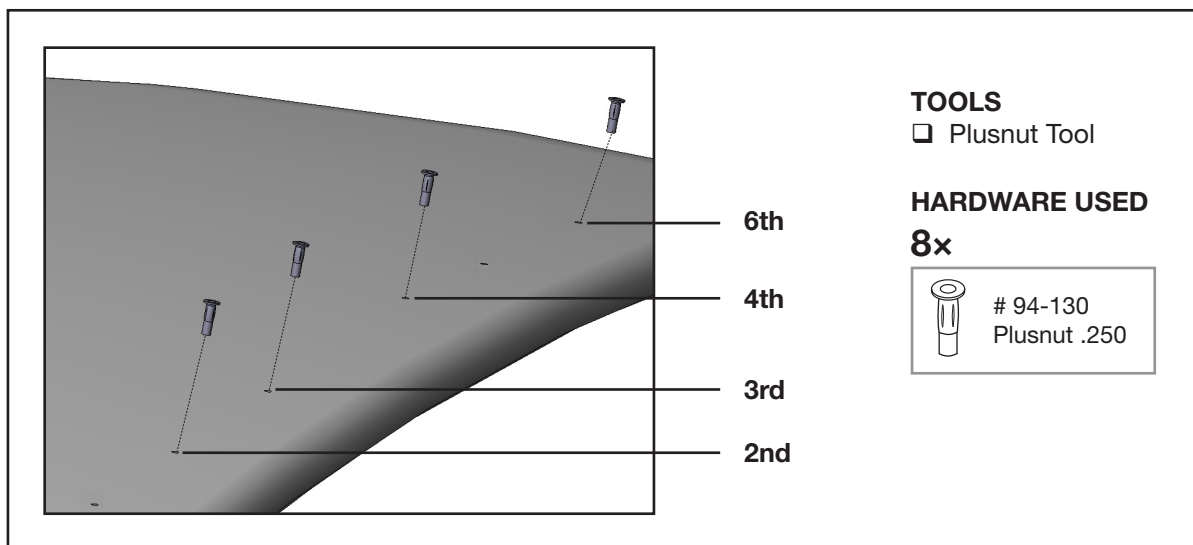
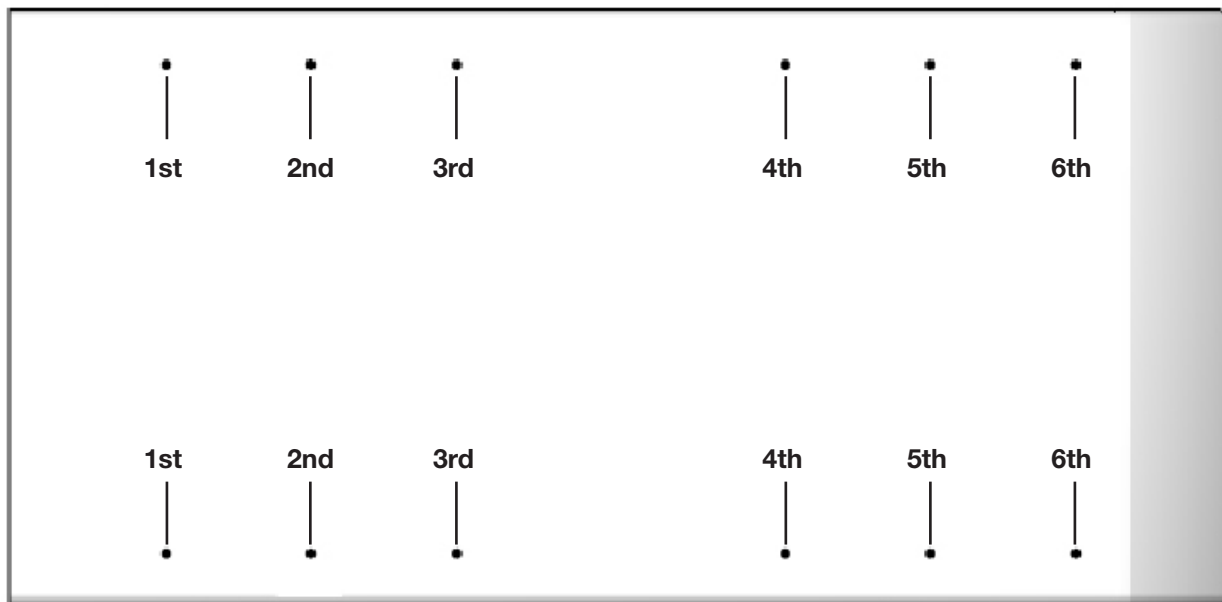
PHASE 2 – INSTALLATION

2.1 MOUNTING TRACKS INSTALLATION

2.1.1 Position and align the tracks, 10" from the windshield, 52-5/8" outside tracks in the front and 48" outside tracks to the rear of the vehicle, then mark all 12 holes from the mounting tracks to the roof.



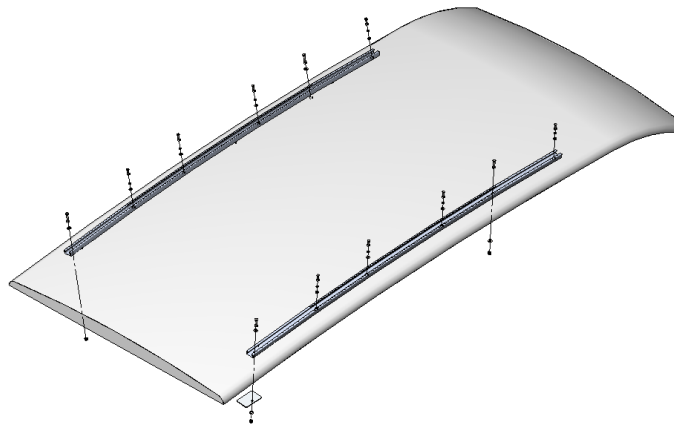
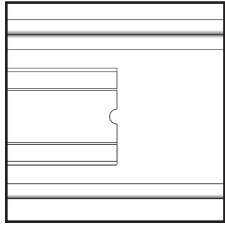
- 2.1.2**
- Drill all marks by 3/8" dia. The 5th hole from the rear will be drilled through to the sliding door opening.
 - Apply a bead of silicone around each hole.
 - Attach plusnuts in the 2nd, 3rd, 4th and 6th holes.



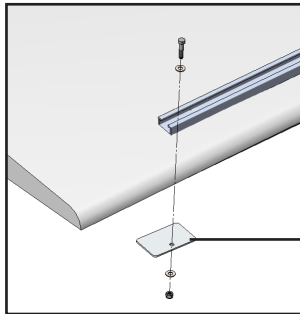
2.1.3 Apply bead of silicone around each plusnut holes, then install the mounting track to the vehicle.

NOTE: The ends of the mounting tracks with the half-circles go to the front of the vehicle.

FRONT



1st holes



TOOLS

- Cordless Impact
- 1/2" Socket
- 1/2" Wrench

Install the installation plate inside between the roof and the headliner.

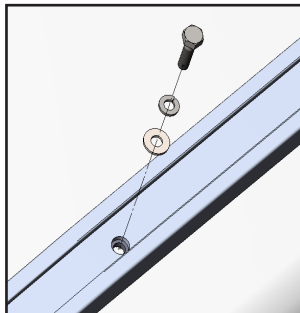
HARDWARE USED

2x



- #90-217 Hex Bolt 5/16" x 1-1/2"
- #98-117 Flat Washer
- #98-117 Flat Washer
- #94-111 Lock Nut

2nd, 3rd, 4th and 6th holes



TOOLS

- Cordless Impact
- 7/16" Socket

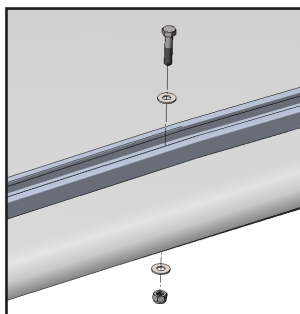
HARDWARE USED

8x



- #90-115 Hex Bolt 1/4" x 1"
- #98-119 Lock Washer
- #98-113 Flat Washer
- Plusnuts are already on the roof.

5th holes



TOOLS

- Cordless Impact
- 1/2" Socket
- 1/2" Wrench

NOTE: be sure there's a bead of silicone around the hole.

HARDWARE USED

2x



- #90-217 Hex Bolt 5/16" x 1-1/2"
- #98-117 Flat Washer
- #98-117 Flat Washer
- #94-111 Lock Nut

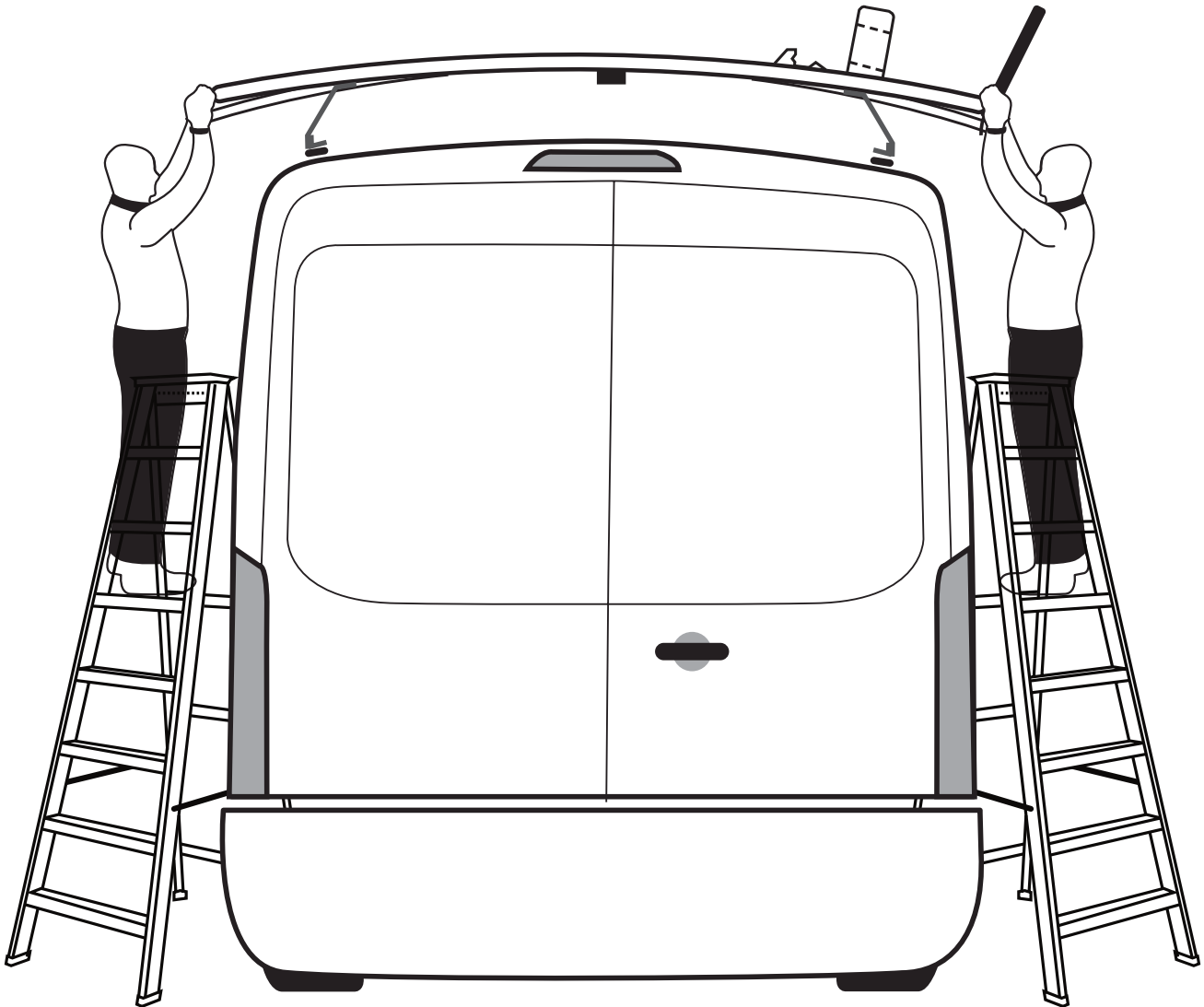
PHASE 2 – INSTALLATION

2.2 LADDER RACK INSTALLATION

2.2.1 Position the Ladder Rack (**minimum two persons**) on the vehicle so that the feet are on the tracks.

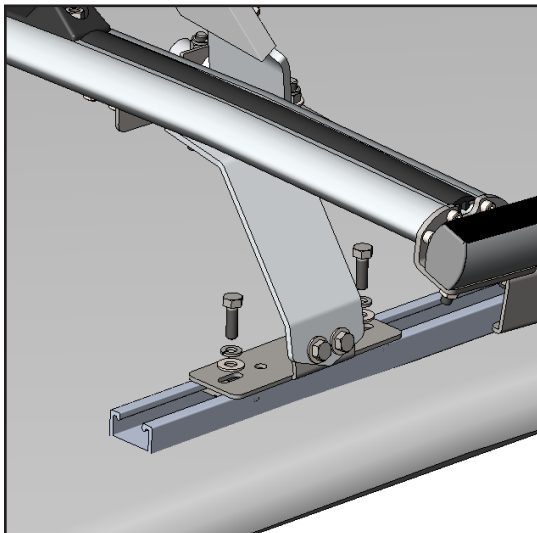
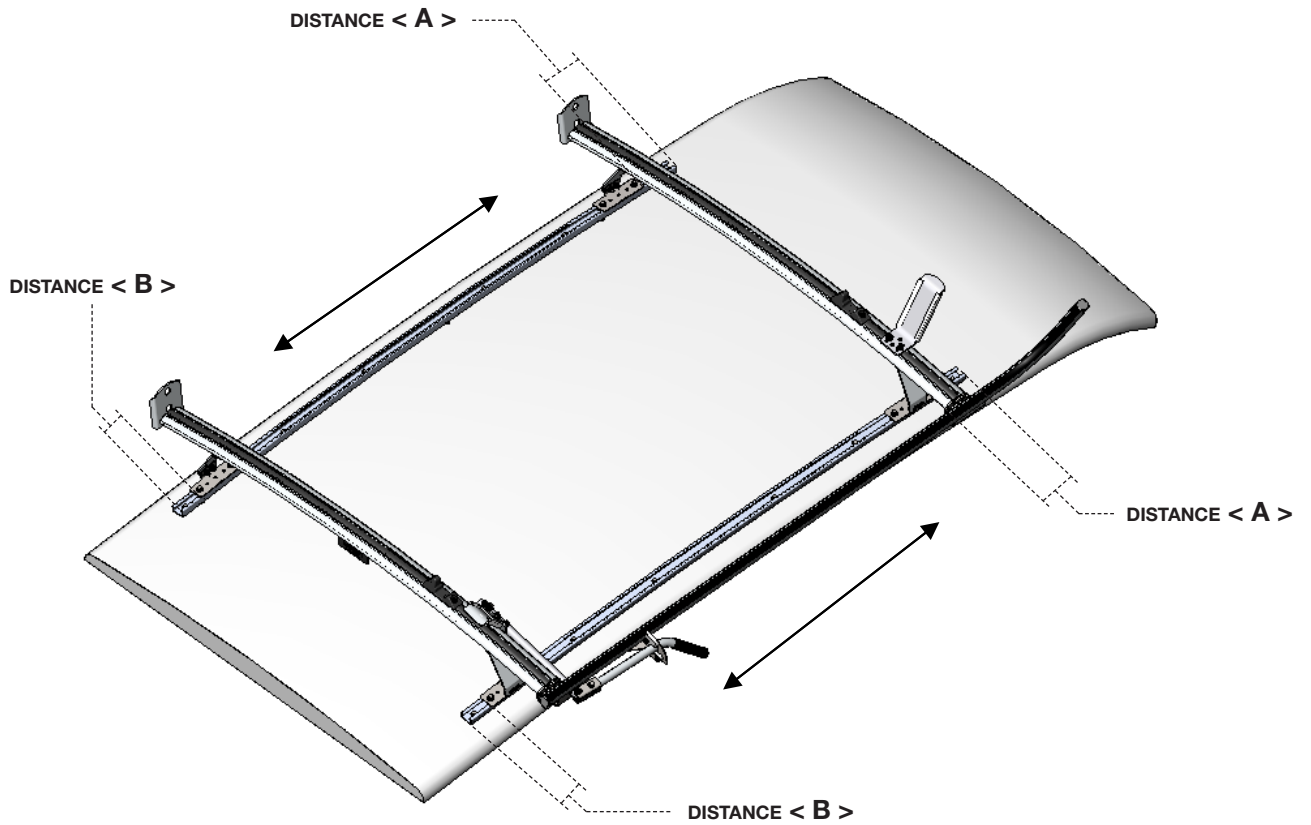
NOTE: If you do not have a hoist, lift the ladder rack onto the roof manually.

Ladder Rack



- 2.2.2** • While making sure the crossbows are parallel to each other, slide the rack to the appropriate position, then attach all the “C” feet to the mounting tracks.
- Tighten the bolts that attach the foot plate to the ladder rack leg.

DISTANCE < FOOT TO END OF TRACK >







TOOLS

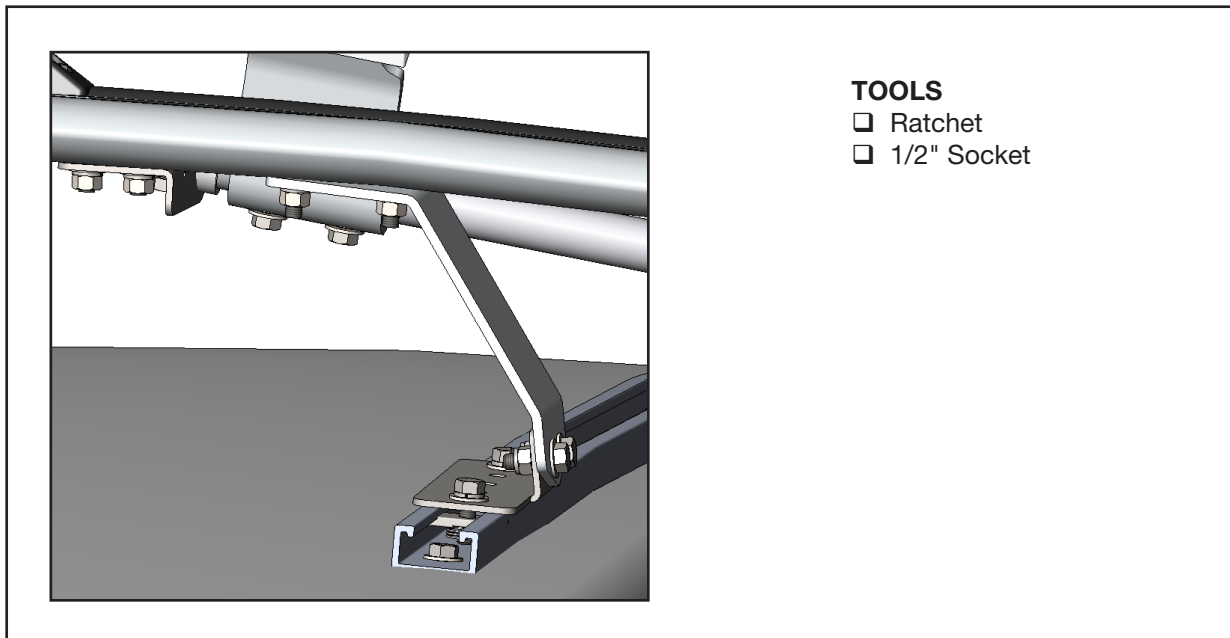
- Ratchet
- 1/2" Socket
- Tape Measure

FASTENERS USED

8x

- | | |
|---|-----------------------------|
|  | #90-209 Hex Bolt 5/16" x 1" |
|  | #98-123 Lock Washer |
|  | #98-117 Flat Washer |
|  | #94-150 Channel Nut |

2.2.3 Center the crossbows on the vehicle, then tighten all the "C" feet to the crossbows.



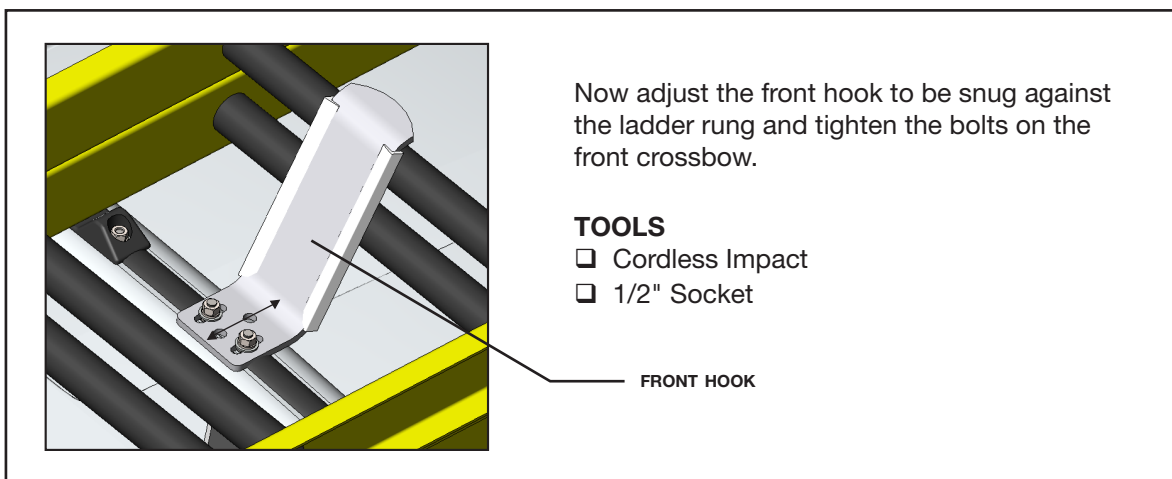
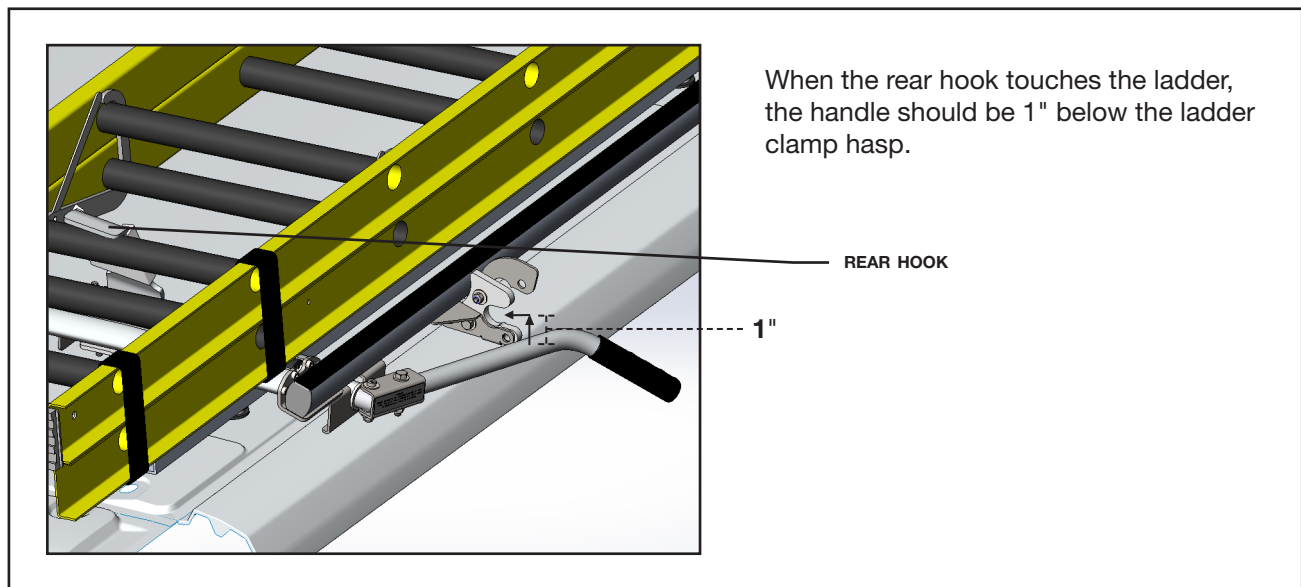
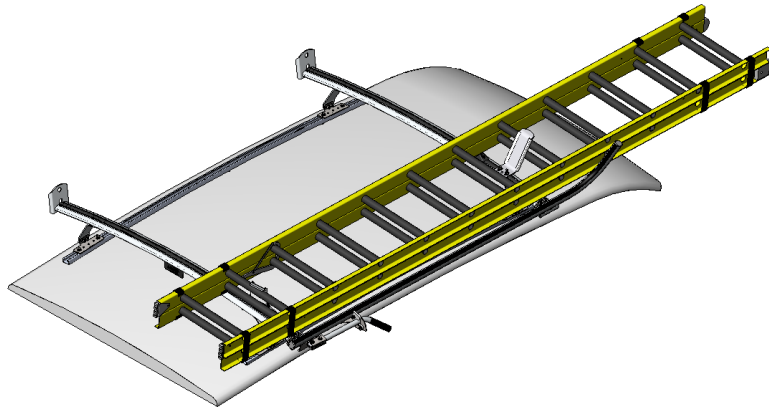
- TOOLS**
- Ratchet
 - 1/2" Socket

2.2.4 Ladder Rack adjustment.

NOTE: The ladder cannot extend beyond the rear bumper of the vehicle.

IMPORTANT:

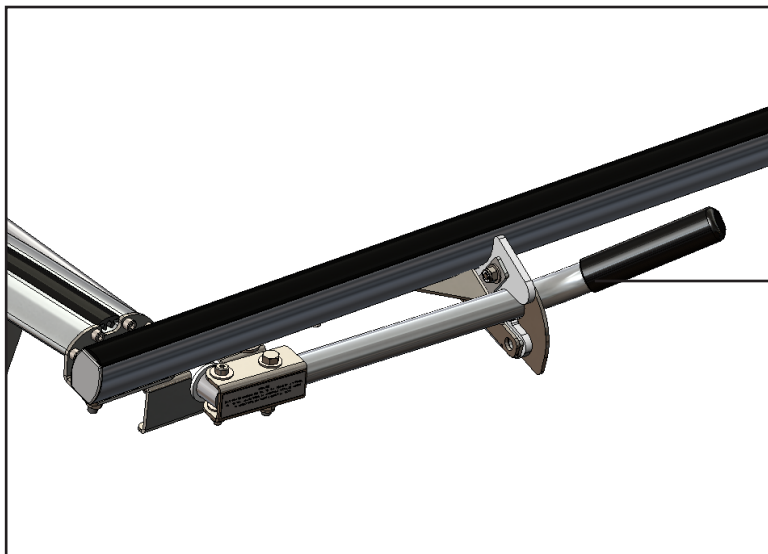
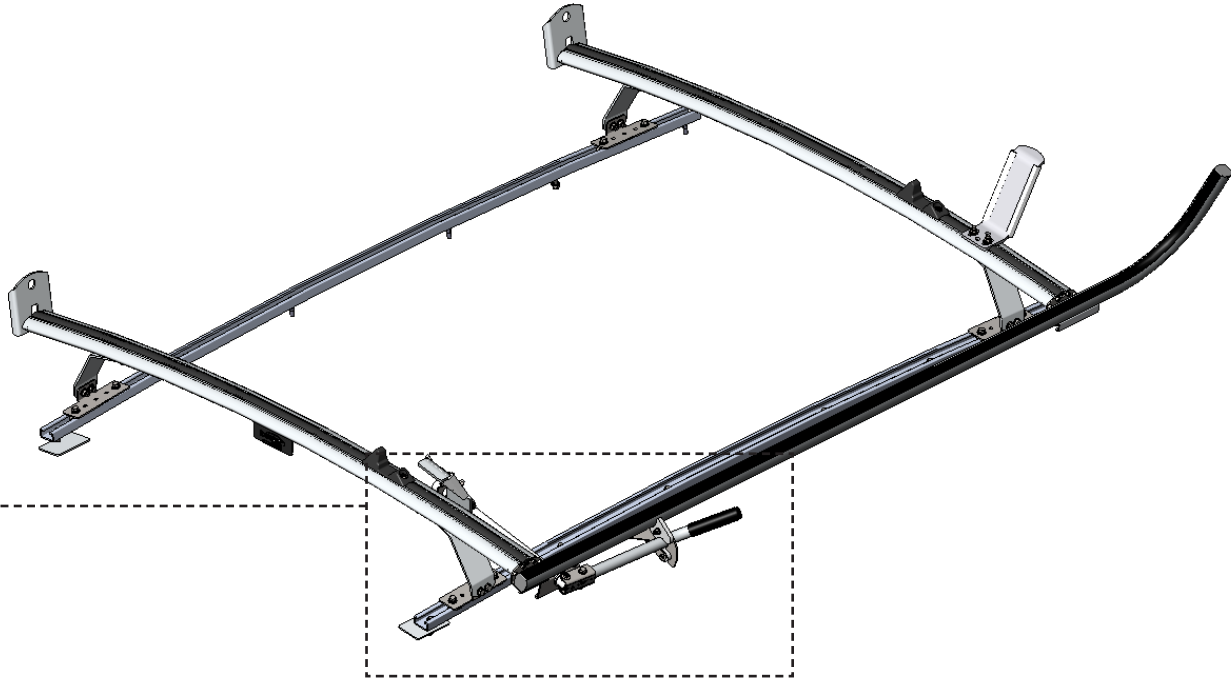
- After installation is complete, cut the track plug underneath the front crossbow to fill all the unused space.
- Place the ladder rack warning label on a visible area, recommended on a partition.



PHASE 2 – INSTALLATION

2.3 NOTE

2.3.1 If the handle is interfering with the door or roof of the vehicle, the handle can be installed in an alternate position.



If the handle is interfering with the door or roof of the vehicle, disassemble the handle, then assemble it in an alternate position as shown.

Handle



**“You have successfully installed your
1520-M Ladder Rack**

Thank you for doing business with us.”

For any feedback or suggestions you may have, please contact: cs@rangerdesign.com

