

INSTALLATION GUIDE



1520-MM Single Clamp Ladder Rack

Metris (Aluminum)



QUICK START GUIDE

Phase 1 - Assembly

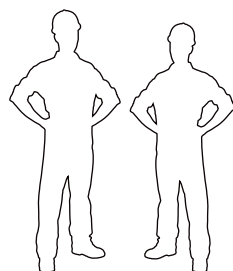
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REQUIRED ITEMS

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



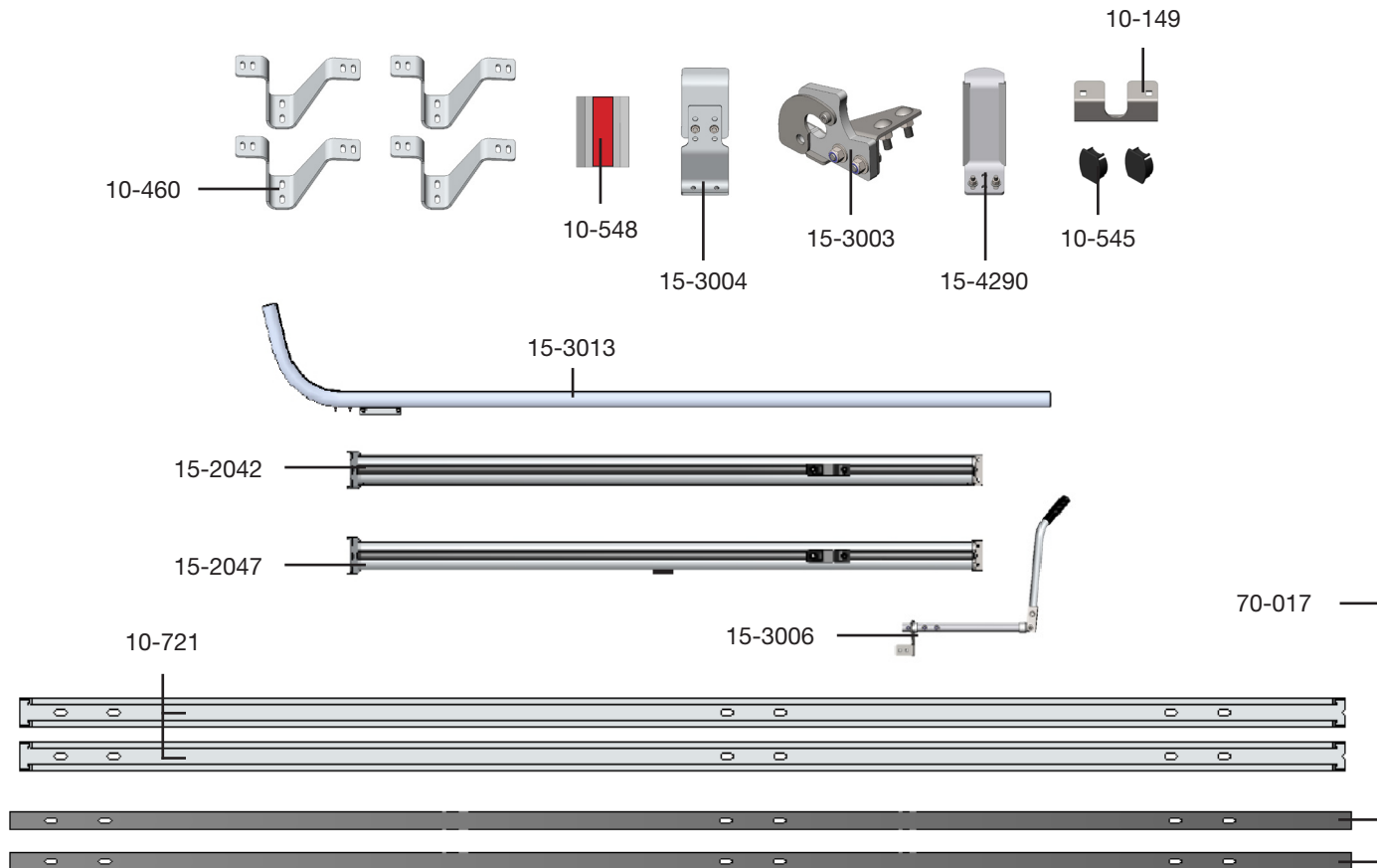
**2
PERSONS**

- ❑ Cordless Impact
- ❑ Ratchet
- ❑ Tape Measure
- ❑ Mallet
- ❑ Marker
- ❑ Ladder
- ❑ Cutter
- ❑ 1/2" Socket
- ❑ Sawhorse (Optional)
- ❑ Box
- ❑ Knife
- ❑ 1/2" Wrench
- ❑ T27 Torque Bit
- ❑ 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.

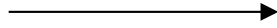
BILL OF MATERIALS

Item No.	Description	Qty.
10-149	Clamp Handle Support	1
10-460	“V” Foot	4
10-545	Ski Plastic Plug	2
10-548	Hook Protector (4 - 3/8" L)	1
10-721	Mounting Track	2
70-017	Rubber Strip	2
15-2042	Front Crossbow	1
15-2047	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
94-1005	Assembly Fastener Kit	1
96-1000	Install Fastener Kit	1

1.1.3 Fastener kits.

94-1005 Fastener Kit			Fastener Assembly
2x		# 90-487 Carriage Bolt 5/16"-18 x 3/4" SS304	2x <div> #90-487 Carriage Bolt 5/16" x 3/4"  #98-117 Flat Washer  #98-123 Lock Washer  #94-105 Hex Nut</div>
19x		# 90-491 Carriage Bolt 5/16"-18 x 1" SS304	18x <div> #90-491 Carriage Bolt 5/16" x 1"  #98-117 Flat Washer  #98-123 Lock Washer  #94-105 Hex Nut</div>
23x		# 94-105 Hex Nut 5/16"-18 SS316wax	
1x		# 98-160 Spacer SS18-8	2x <div> #98-117 Flat Washer  #98-123 Lock Washer  #94-105 Hex Nut</div>
23x		# 98-117 Flat Washer 5/16", O.D 3/4" SS18-8	
23x		# 98-123 Lock Washer Regular 5/16" SS304	1x <div> #90-491 Carriage Bolt 5/16" x 1"  #98-160 Spacer  #98-117 Flat Washer  #98-123 Lock Washer  #94-105 Hex Nut</div>

96-1000 Fastener Kit



Fastener Assembly

8x



90-209

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

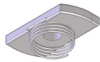
12x



90-991

Hex Bolt
M6 x 20

8x



94-150

Channel Nut
5/16"

12x



98-113

Flat Washer
1/4", OD 5/8"
SS18-8

8x



98-117

Flat Washer
5/16", OD 3/4"
SS18-8

12x



98-119

Lock Washer
1/4"
SS304

8x



98-123

Lock Washer
5/16"
SS304

8x



#90-209 Hex Bolt 5/16" x 1"



#98-123 Lock Washer



#98-117 Flat Washer



#94-150 Channel Nut

12x



#90-991 Hex Bolt M6 x 20



#98-113 Lock Washer

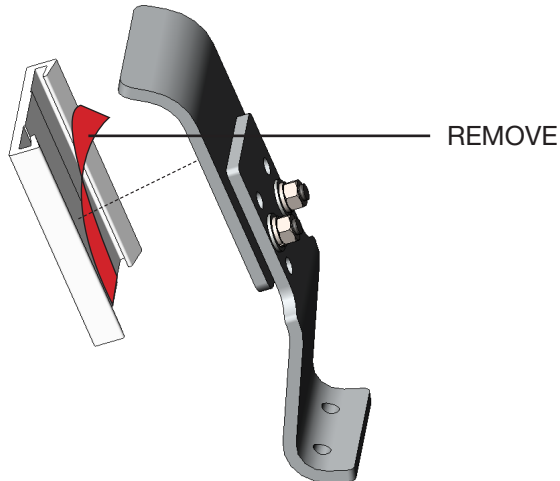


#98-119 Flat Washer

PHASE 1 – ASSEMBLY

1.2 LADDER RACK ASSEMBLY

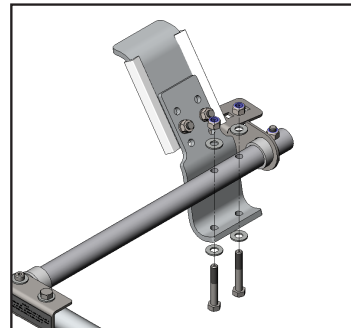
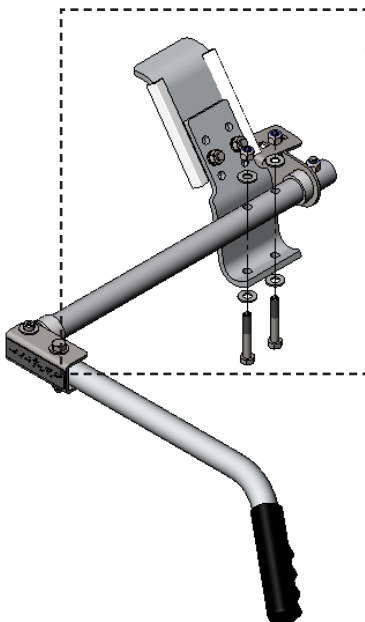
1.2.1 Peel the backer off of the adhesive on the hook protector, then attach the hook protector to the upper rear hook.



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

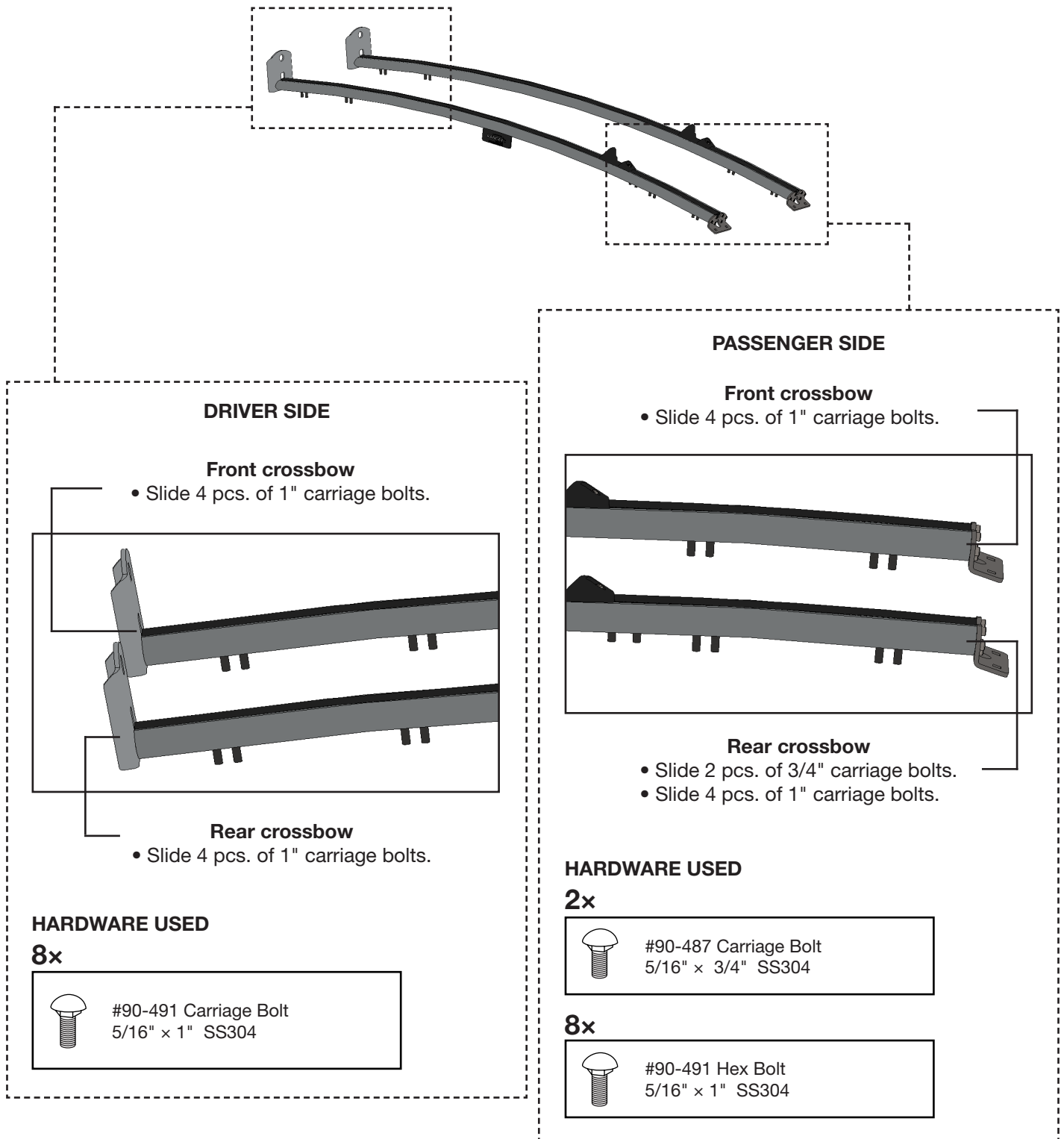


#94-111 Lock Nut

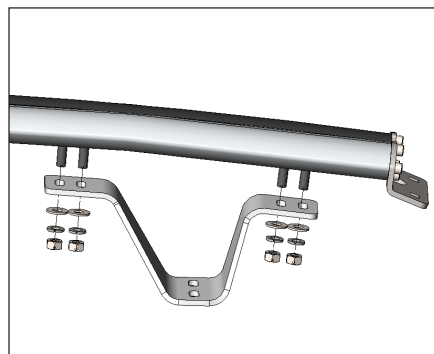
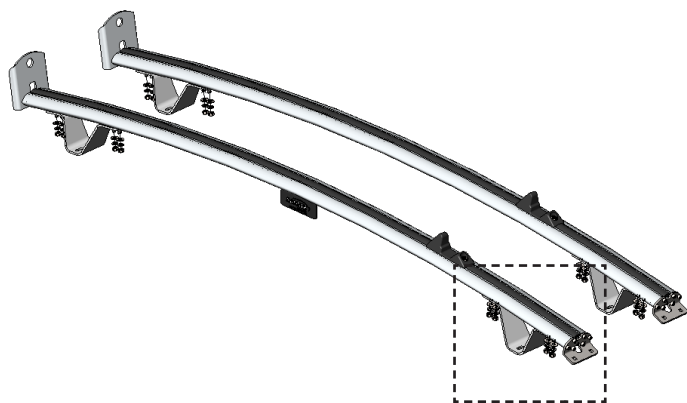
1.2.3 Slide carriage bolts on the bottom face of the crossbows.

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

16x HAND-TIGHTEN THE NUTS.



Carriage bolts are already on the crossbows.



#98-117 Flat Washer

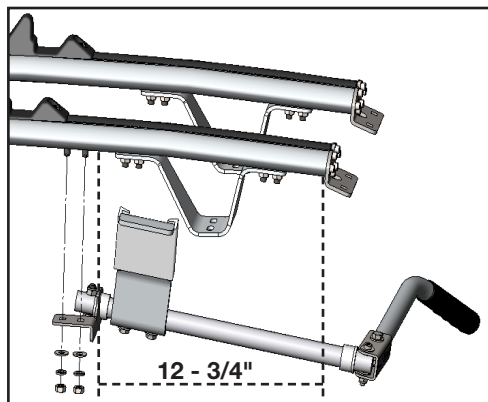
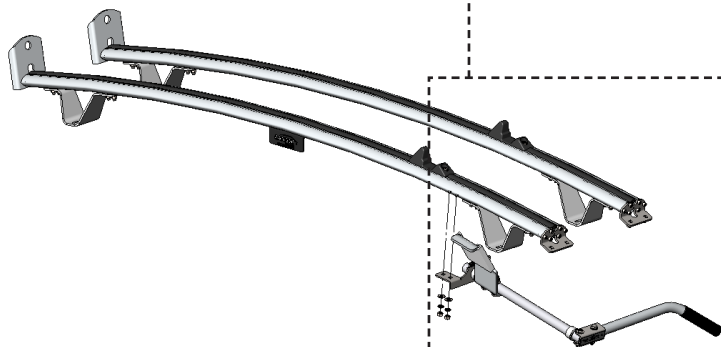


#98-123 Lock Washer



#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

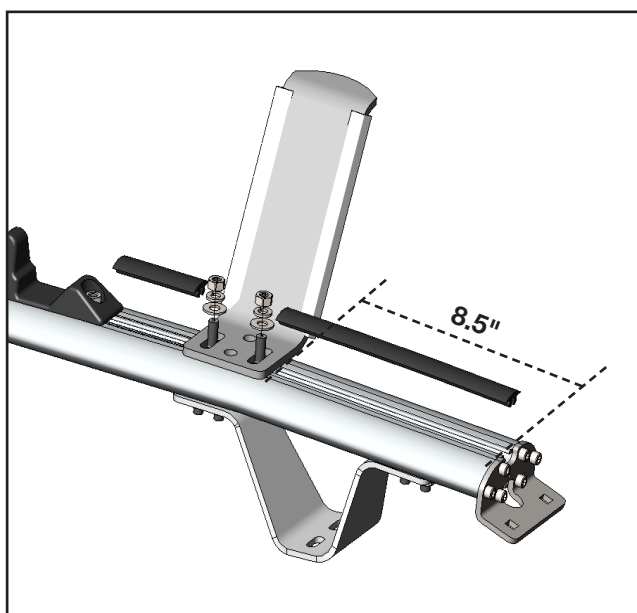
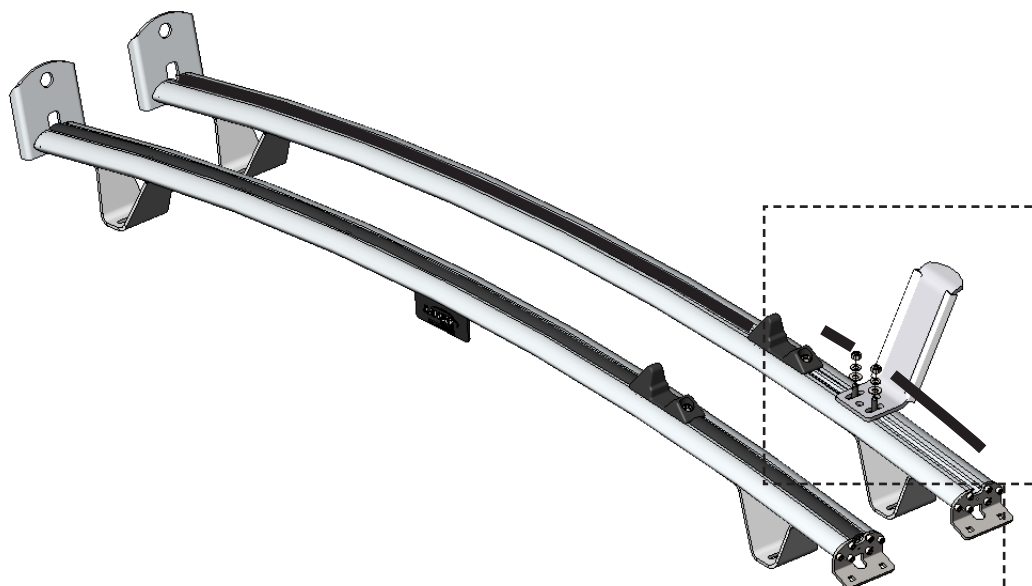


#98-123 Lock Washer



#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

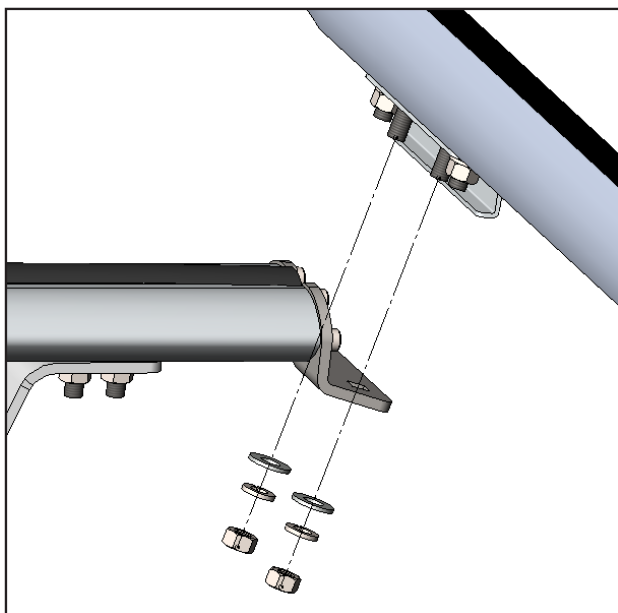
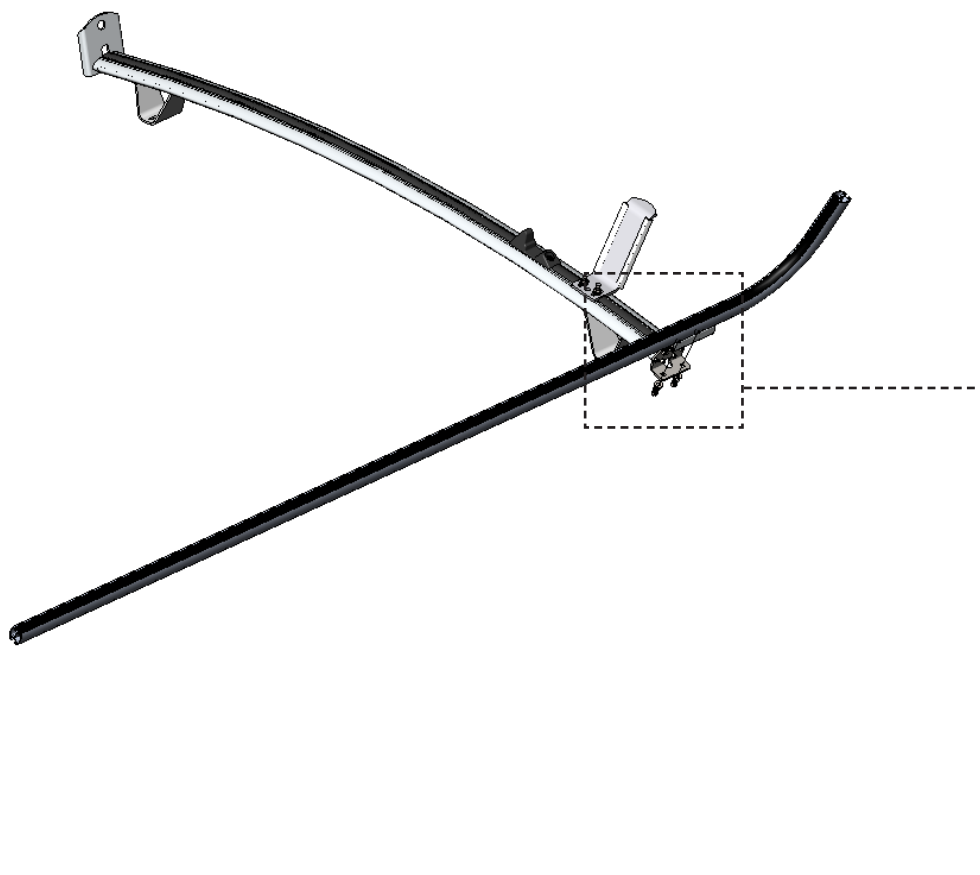
- Marker

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



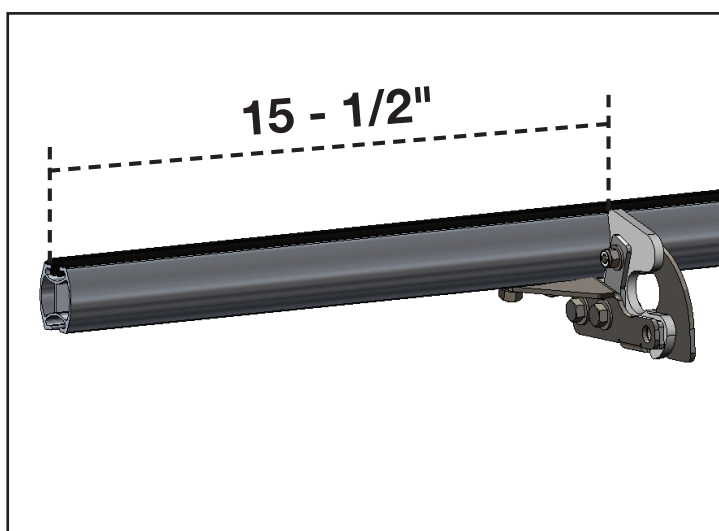
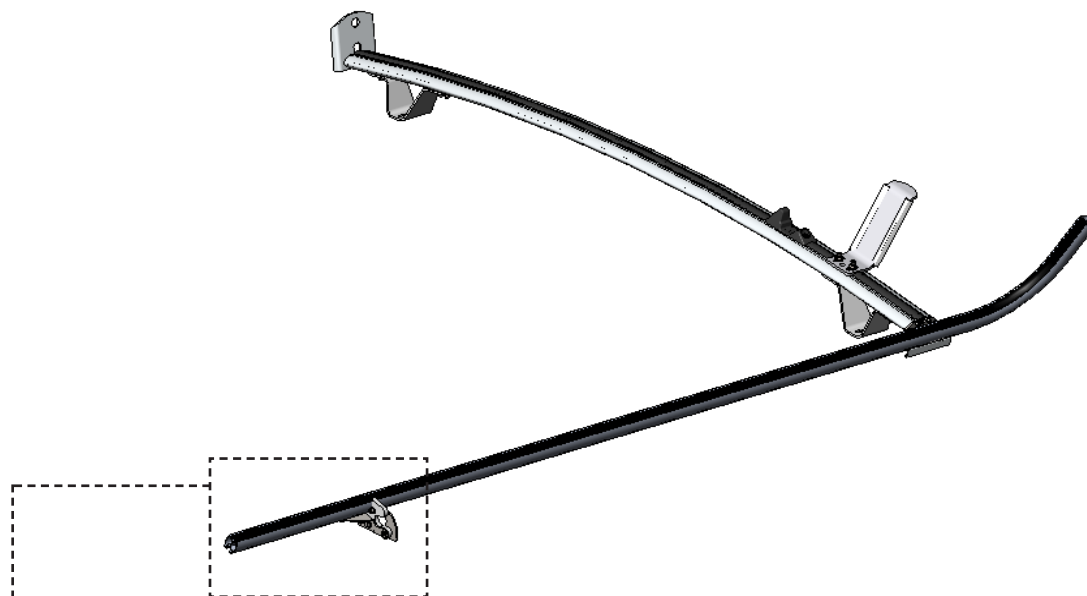
Carriage bolts are already on the ski.

#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

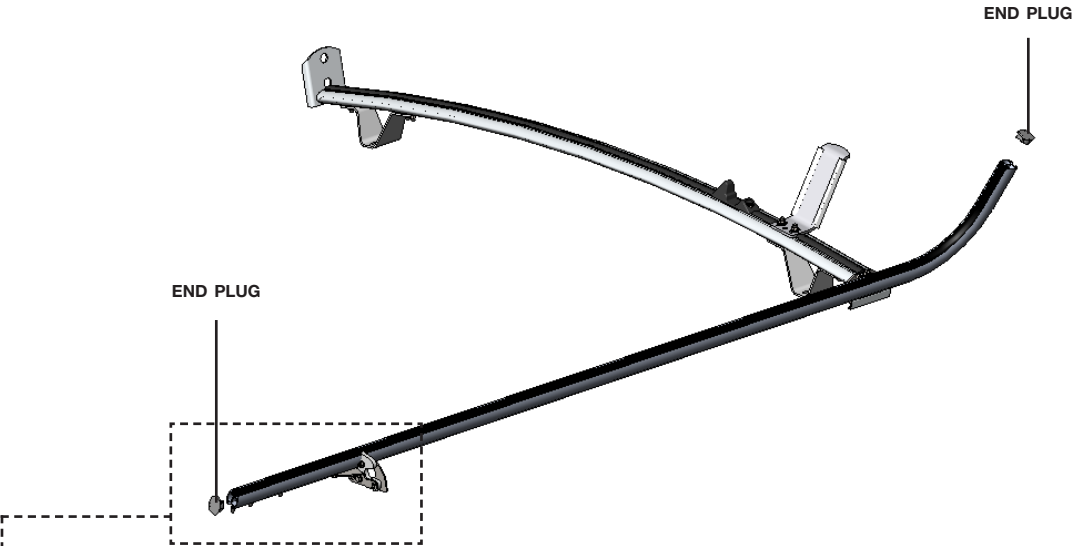


#98-123 Lock Washer



#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

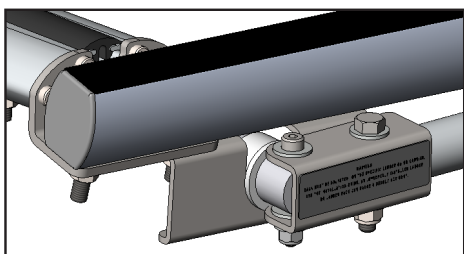
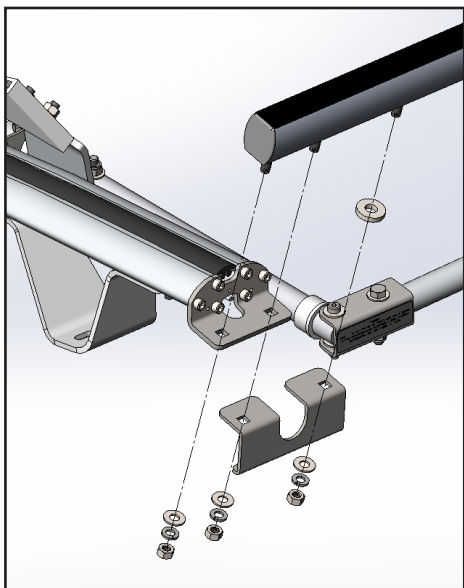
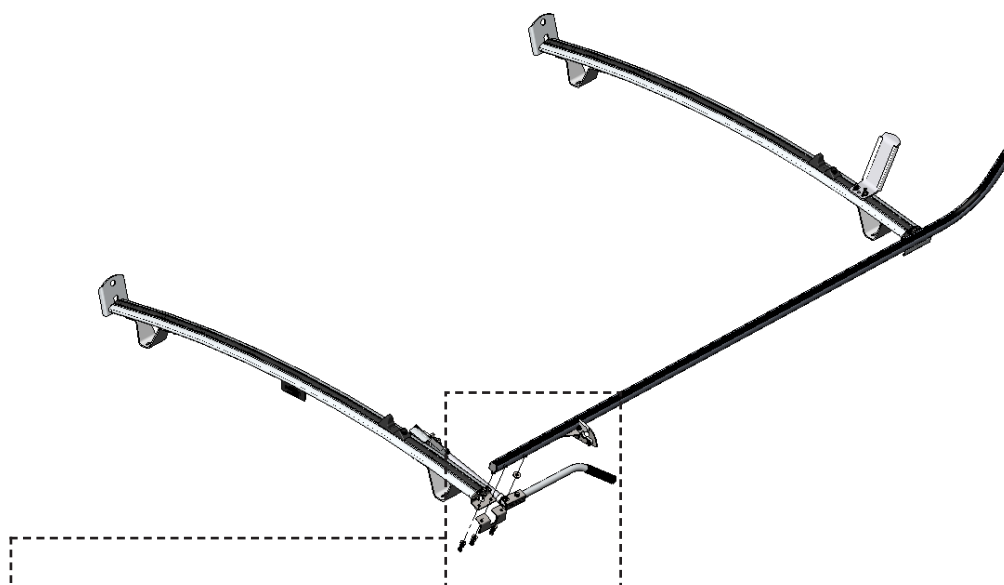
HARDWARE USED

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

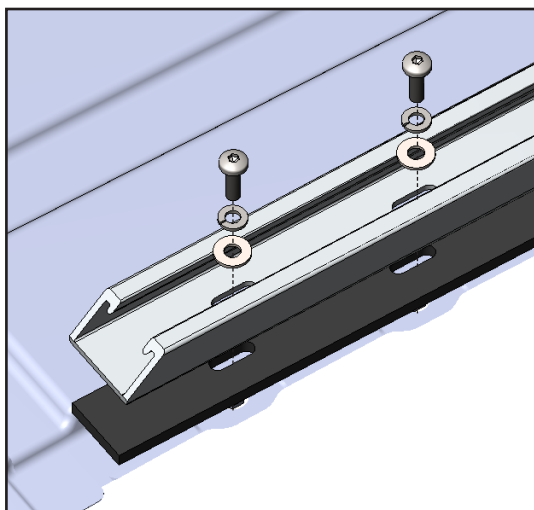
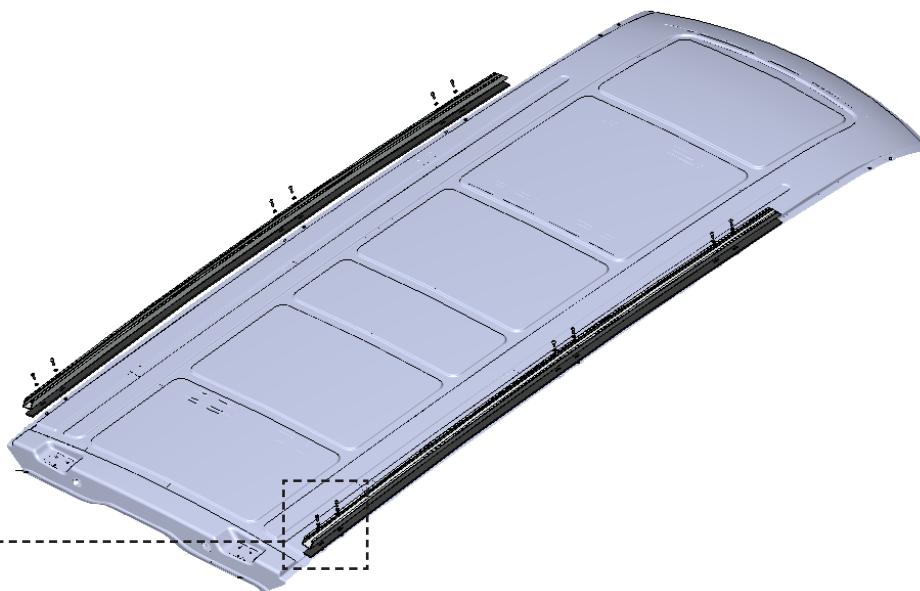
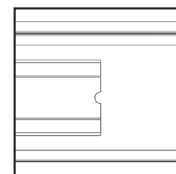
2.1 MOUNTING TRACKS INSTALLATION

2.1.1 Pull the plugs off, and apply a bead of silicone around each hole, then install the mounting tracks on the roof with rubber strips underneath.

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



FRONT



TOOLS

- ☐ Cordless Impact
- ☐ T27 Torque Bit

HARDWARE USED

12x



#90-991 Hex Bolt M6 x 20



#98-113 Lock Washer



#98-119 Flat Washer

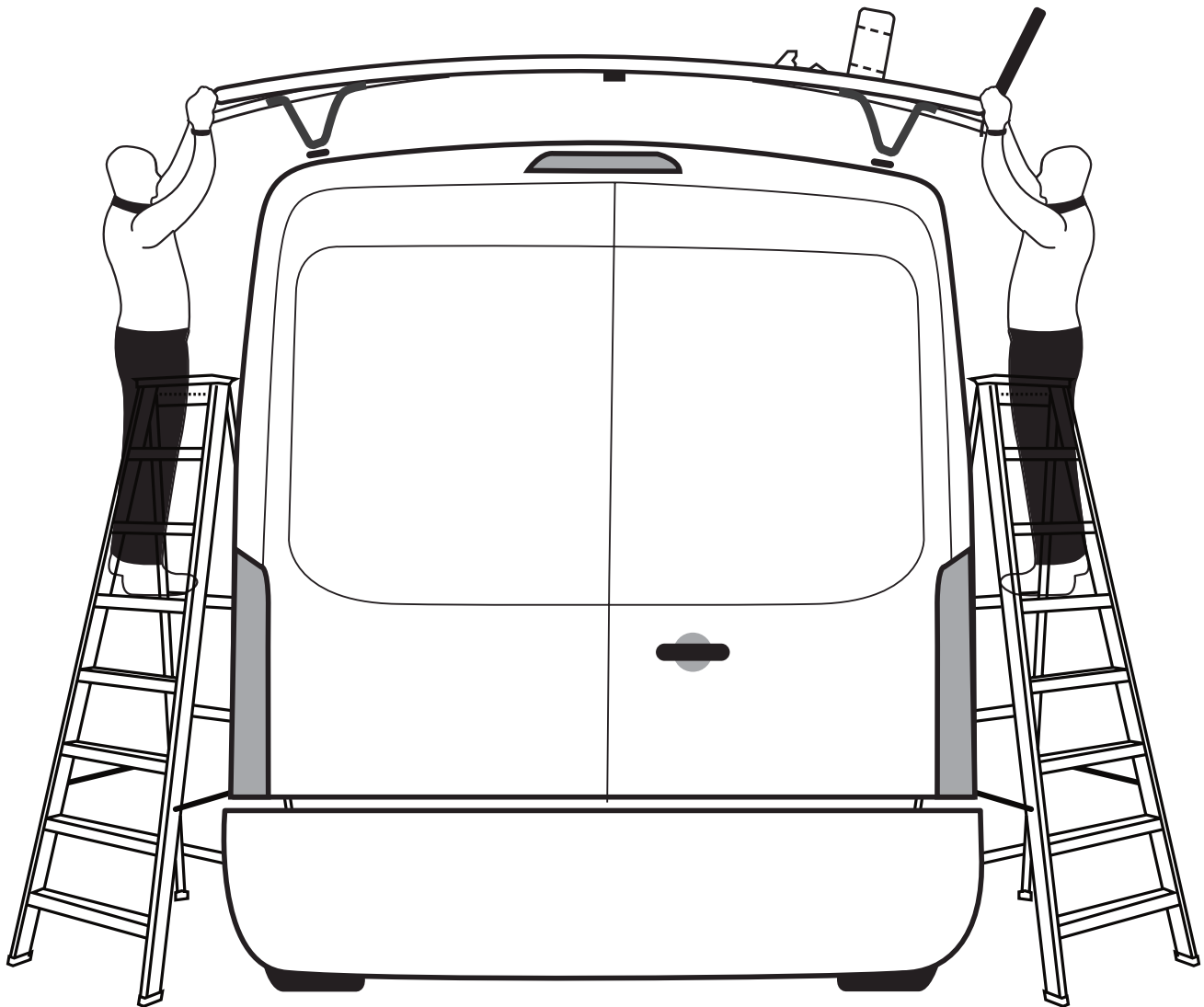
PHASE 2 – INSTALLATION

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.

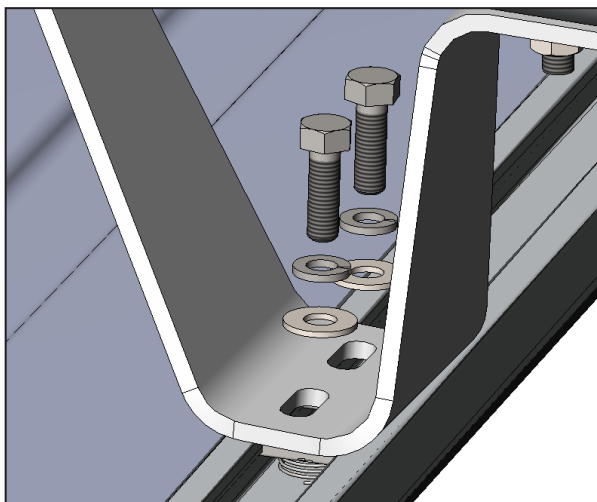
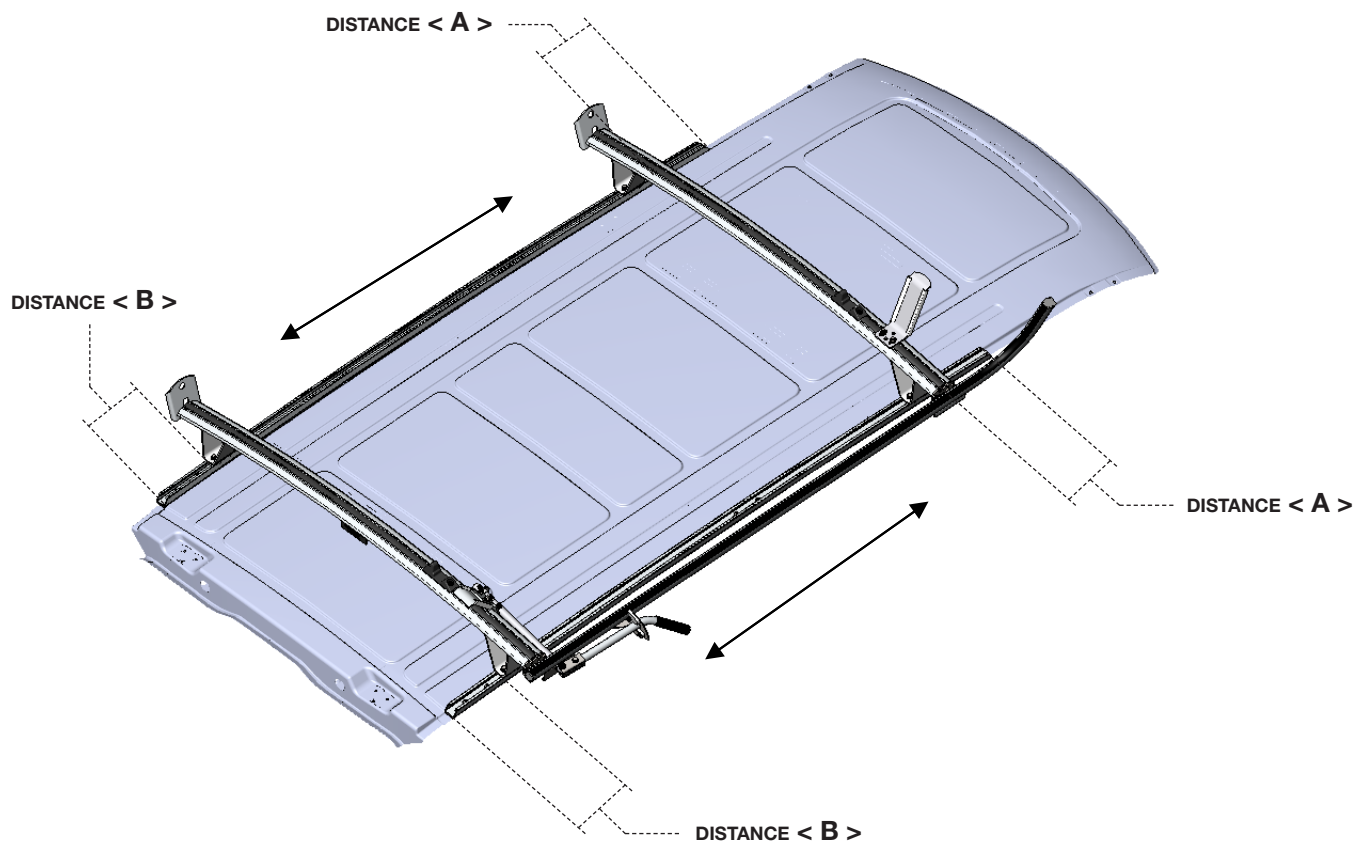
NOTE: If you do not have a hoist, lift the ladder rack onto the roof manually.

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 “V” feet to the mounting tracks.

DISTANCE < FOOT TO END OF TRACK >







TOOLS

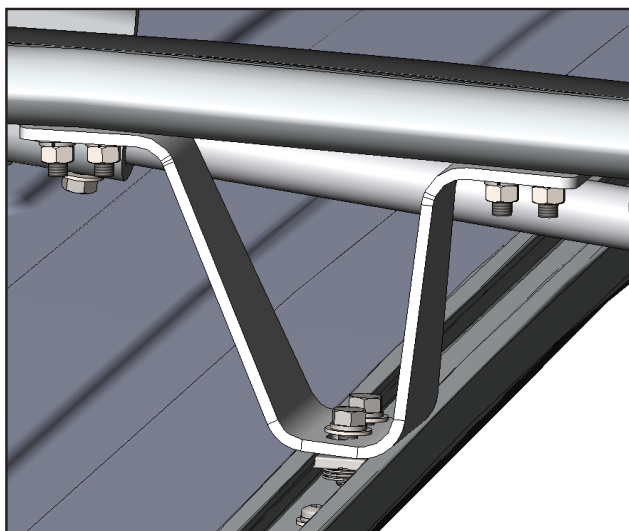
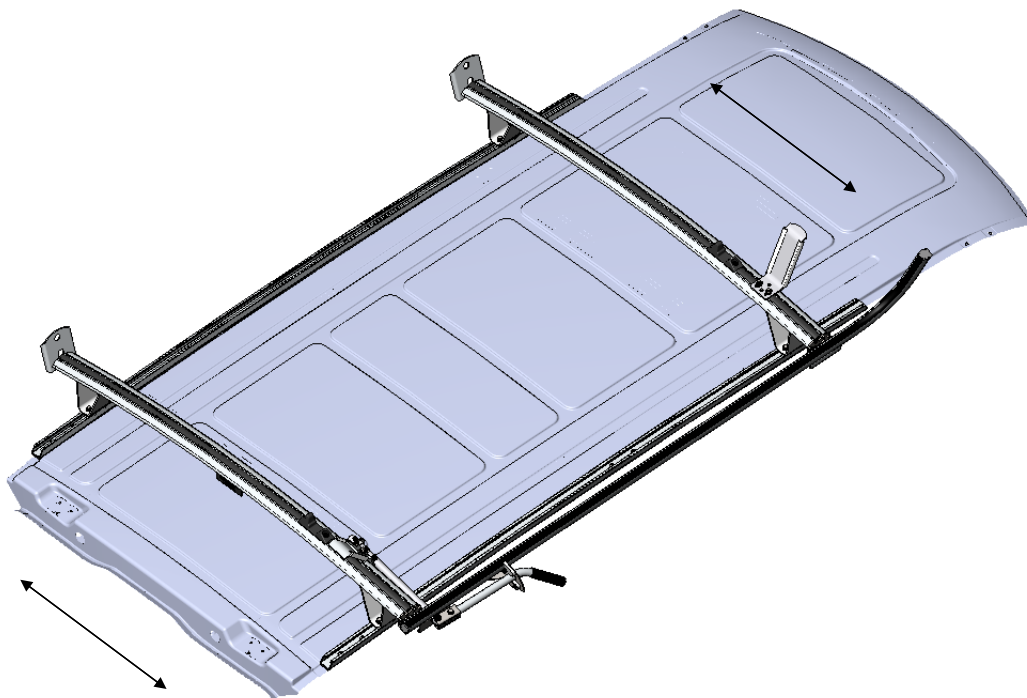
- ☐ Ratchet
- ☐ 1/2" Socket
- ☐ Tape Measure

HARDWARE 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 “V” feet to the crossbows.



TOOLS

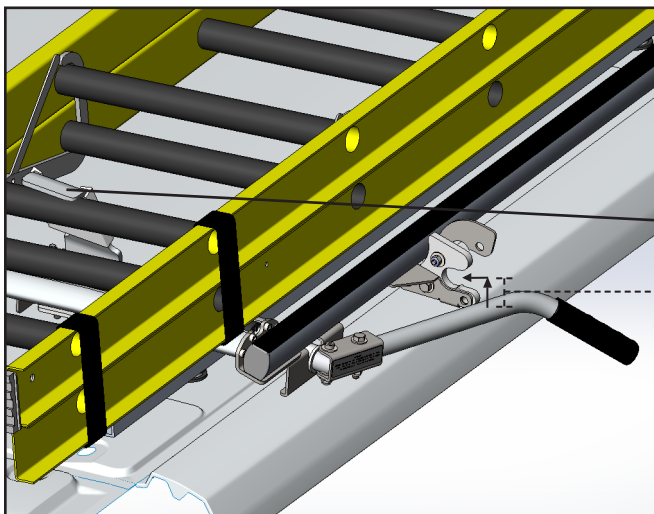
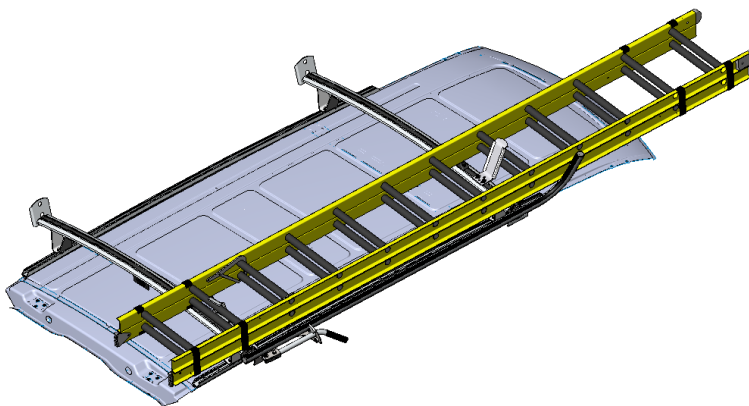
- ☐ Ratchet
- ☐ 1/2" Socket

2.2.4 Ladder Rack adjustment.

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

IMPORTANT:

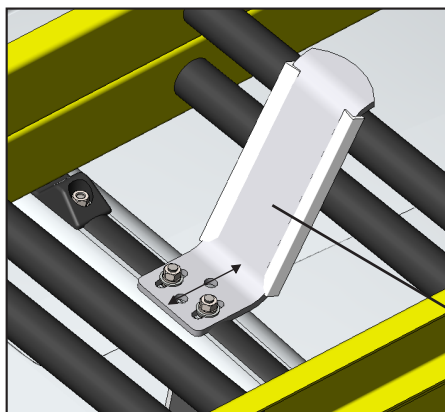
- After installation is complete, cut the track plug underneath the front crossbow to fill all the unused space.
- Place the ladder rack warning label on a visible area, recommended on a partition.



When the rear hook touches the ladder, the handle should be 1" below the ladder clamp hasp.

REAR HOOK

1"



Now adjust the front hook to be snug against the ladder rung and tighten the bolts on the front crossbow.

TOOLS

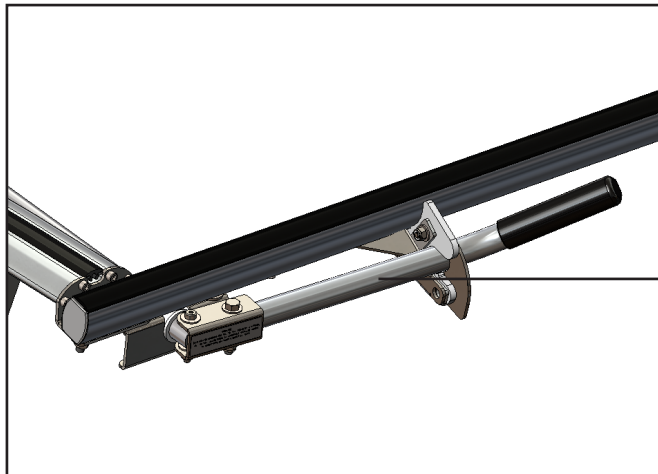
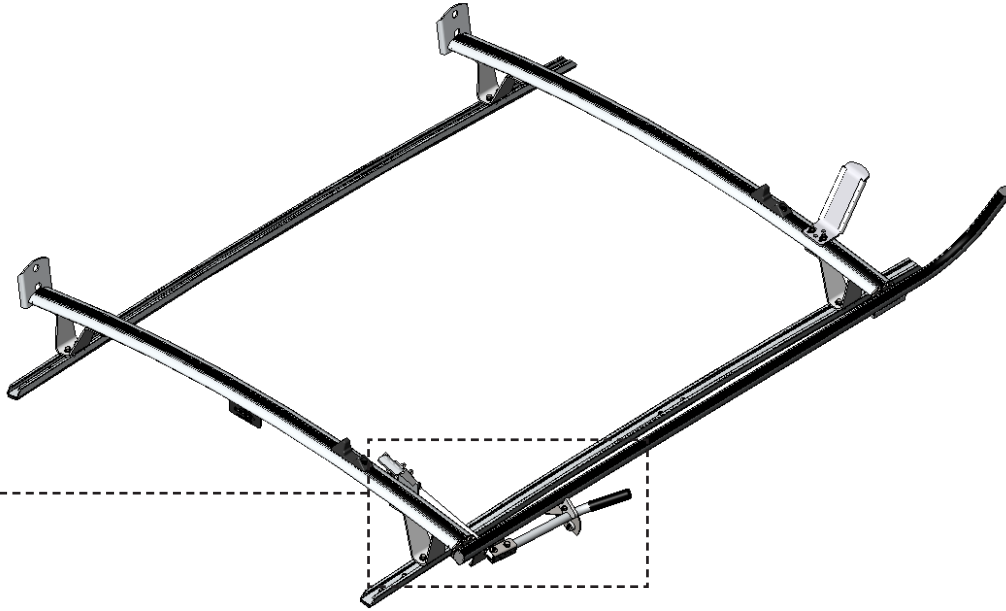
- Cordless Impact
- 1/2" Socket

FRONT HOOK

PHASE 2 – INSTALLATION

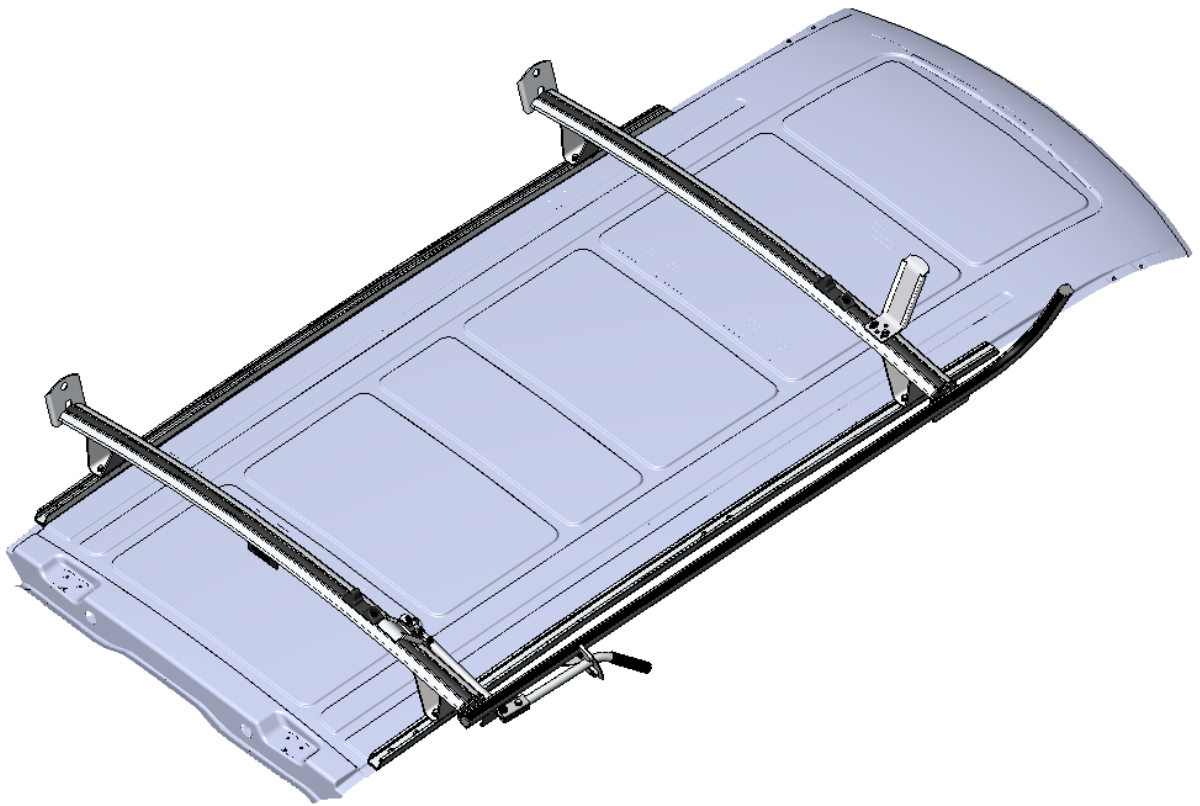
2.3 NOTE

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-MM Ladder Rack**

Thank you for doing business with us.”

For any feedback or suggestions you may have, please contact: [**cs@rangerdesign.com**](mailto:cs@rangerdesign.com)

