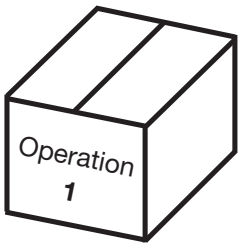
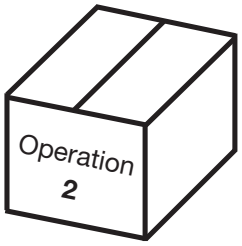
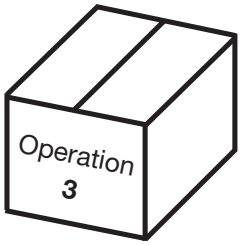
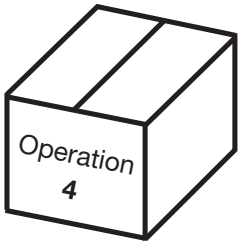
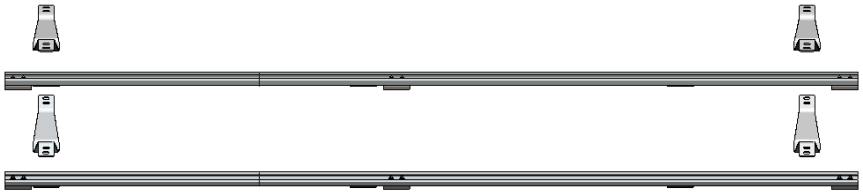
INSTALLATION GUIDE

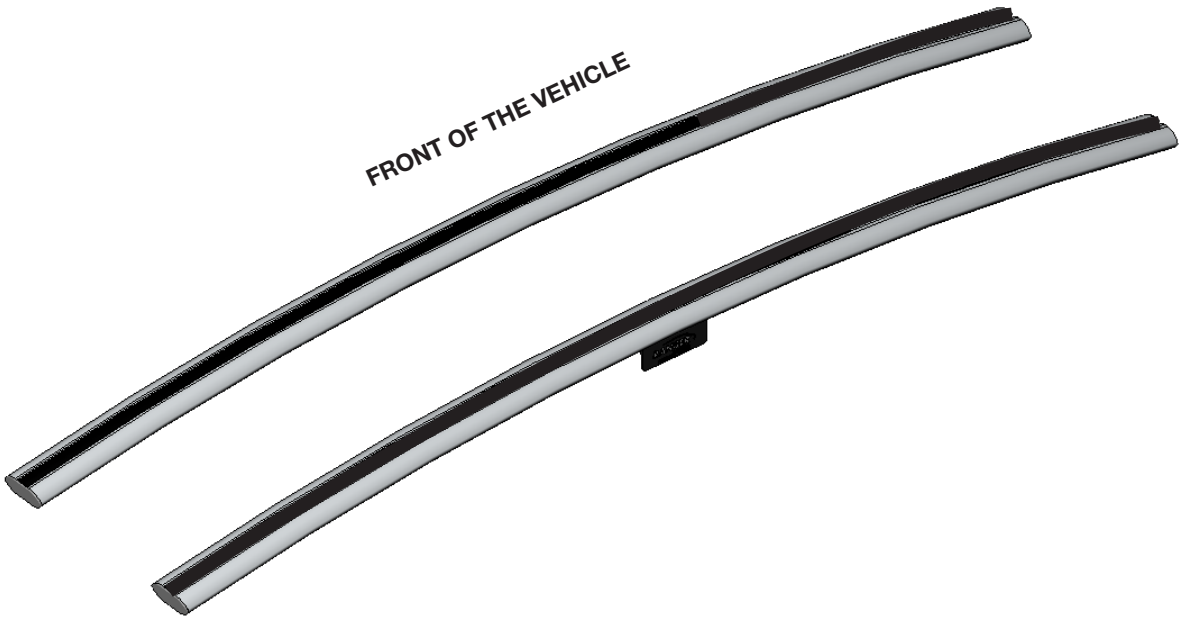
1830-PHX MAX RACK DOUBLE SIDE

Ram Promaster 159" Extended Wheelbase (High Roof)

RANGER DESIGN

ORDER OF OPERATION	BILL OF MATERIALS
	**Crossbows (15-1806)**
	**Passenger Side Mechanism (15-1810)**
	**Driver Side Mechanism (15-1815)**
	**Mounting Track (15-0034)** 

INSTALLATION GUIDE



15-1806 Max Rack Crossbow

(Max Rack)

RANGER DESIGN

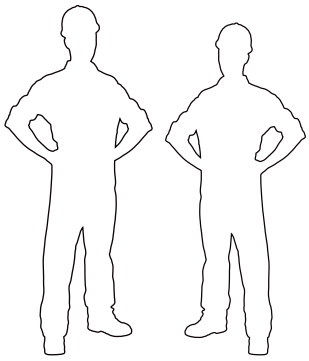
QUICK START GUIDE

Phase 1 - Assembly

❑ 1.1 Setup..... 3
❑ 1.1.1 Unpack components; compare with the bill of materials..... 3
❑ 1.1.2 Verify all parts are present..... 3
❑ 1.1.3 Fastener Kits..... 3
❑ 1.2 Max Rack preparation for single side..... 4
❑ 1.2.1 Pull out 25" of the top plug extrusion from the right end of the rear and front crossbows, then pull out 10" of the bottom extrusion on both ends of the front crossbow..... 4
❑ 1.3 Max Rack preparation for double side..... 5
❑ 1.3.1 Pull out 25" of the top plug extrusion on both ends of the rear and front crossbows, then pull out 10" of the bottom extrusion of both ends of the front crossbow..... 5

REQUIRED ITEMS FOR COMPLETE MAX RACK

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



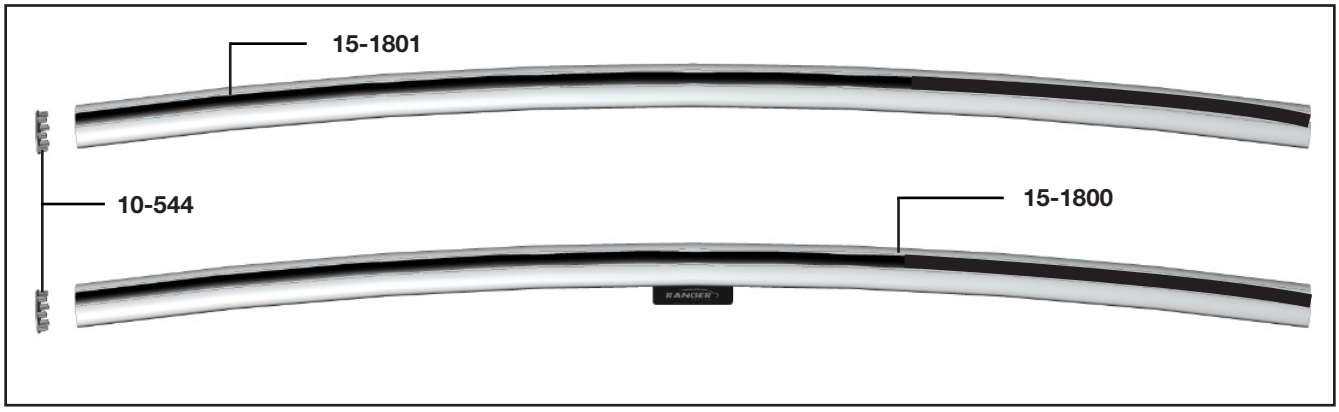
2 PERSONS

- ❑ Cordless Impact
- ❑ Ratchet
- ❑ Tape Measure
- ❑ Marker
- ❑ Ladder
- ❑ 3/16" Impact Bit
- ❑ 9/16" Wrench
- ❑ 7/16" Socket
- ❑ 1/2" Socket
- ❑ Sawhorse (Optional)
- ❑ Box

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.
10-544	End Plastic Plug	2
15-1800	Max Rack Rear Crossbow	1
15-1801	Max Rack Front Crossbow	1
15-1806-IFK	Install Fastener Kit for 15-1806	1

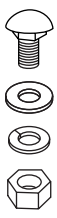
1.1.3 Fastener kits.

NOTE: These fasteners are used in the next operation.

Install Fastener kit for 15-1806 → **Fastener Assembly**

16×		**# 90-487**	Carriage Bolt 5/16"-18 × 3/4" SS304
16×		**# 94-105**	Hex Nut 5/16"-18 SS3316wax
16×		**# 98-117**	Flat Washer 5/16", 3/4" OD SS18-8
16×		**# 98-123**	Lock Washer Regular 5/16" SS304

16×



#90-487 Carriage Bolt 5/16" × 3/4"

#98-117 Flat Washer

#98-123 Lock Washer

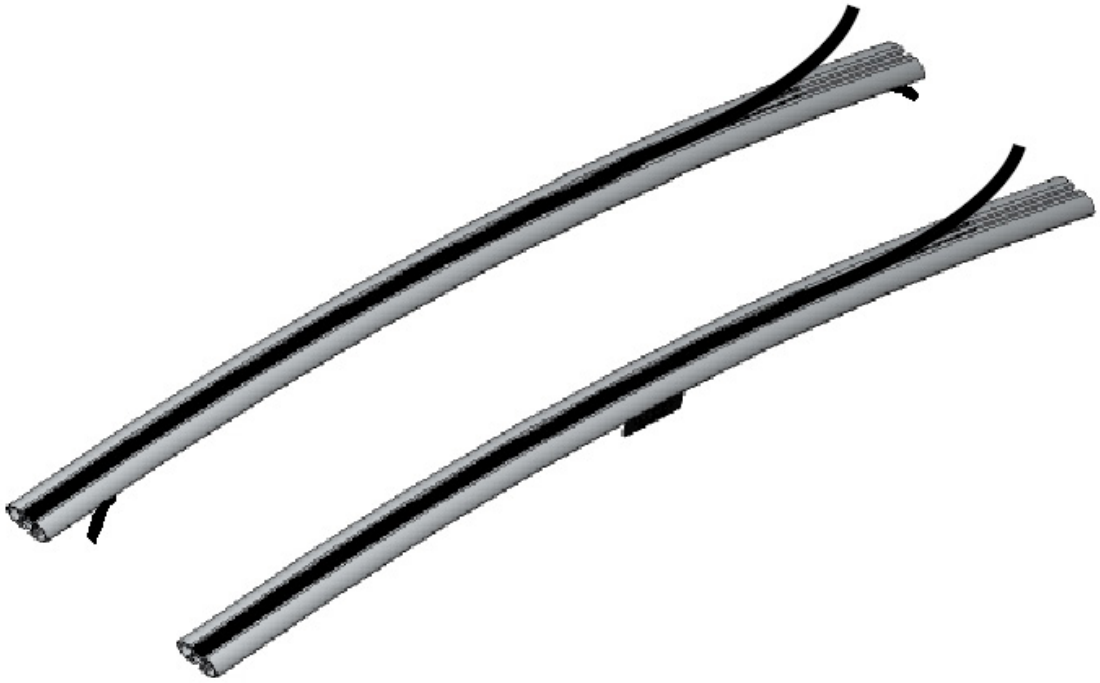
#94-105 Hex Nut

PHASE 1 – ASSEMBLY

1.2 MAX RACK PREPARATION FOR SINGLE SIDE

1.2.1 Pull out 25" of the top plug extrusion from the right end of the rear and front crossbows, then pull out 10" of the bottom extrusion on both ends of the front crossbow.

NOTE: Plug extrusions must be cut at the right length after adjustment.



PHASE 1 – ASSEMBLY

1.3 MAX RACK PREPARATION FOR DOUBLE SIDE

1.3.1 Pull out 25" of the top plug extrusion on both ends of the rear and front crossbows, then pull out 10" of the bottom extrusion of both ends of the front crossbow.

NOTE: Plug extrusions must be cut at the right length after adjustment.

NOTE: Do not pull this end of the plug extrusion if you have a third crossbow.

MAX RACK SINGLE SIDE

MAX RACK DOUBLE SIDE

“You have successfully completed Operation 1
Max Rack Crossbow!
Open the passenger side mechanism (15-1810) box to continue assembling the Max Rack

Thank you for doing business with us.”

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

INSTALLATION GUIDE

15-1810 Max Rack Passenger Side

(Max Rack Single Side)

RANGER DESIGN

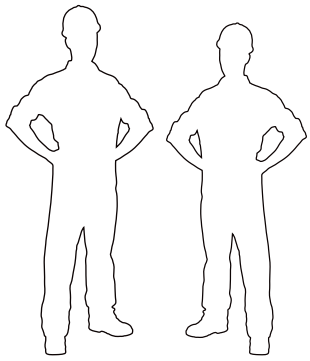
QUICK START GUIDE

Phase 1 - Assembly

❑ 1.1 Setup..... 3 TO 5
❑ 1.2 Rear crossbow assembly..... 6 TO 13
❑ 1.3 Front crossbow assembly..... 14 TO 19
❑ 1.4 For overhead lifter assembly..... 20

REQUIRED ITEMS FOR <u>COMPLETE MAX RACK</u>

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



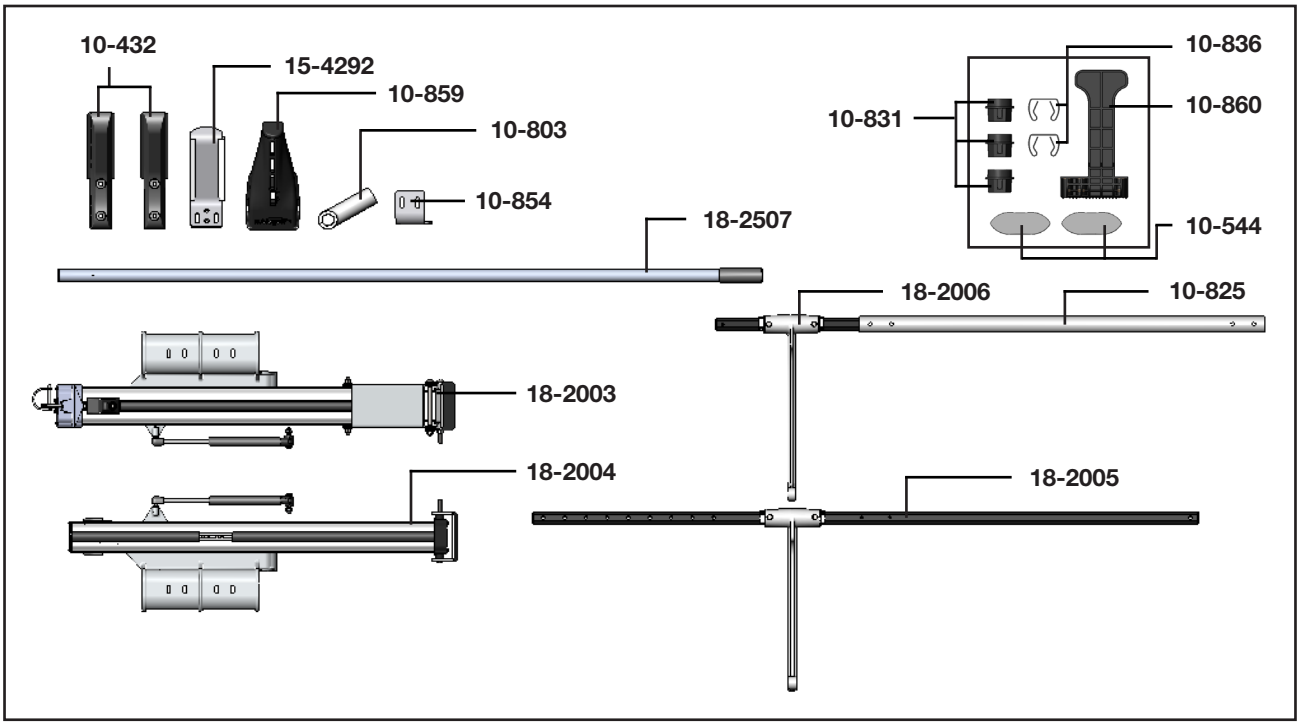
2 PERSONS

- ❑ Cordless Impact
- ❑ Ratchet
- ❑ Tape Measure
- ❑ Marker
- ❑ Ladder
- ❑ 3/16" Impact Bit
- ❑ 9/16" Wrench
- ❑ 7/16" Socket
- ❑ 1/2" Socket
- ❑ Sawhorse (Optional)
- ❑ Box

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.

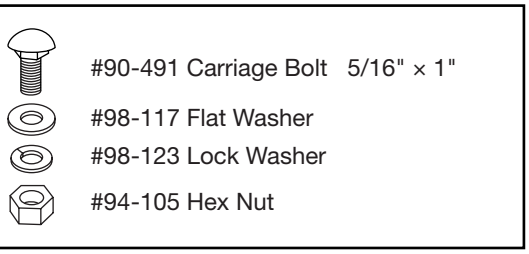
Item No.	Description	Qty.
10-432	Interlocking Hook	2
10-544	End Crossbow Plastic Plug	2
10-803	Arm Socket Passenger Side	1
10-825	Pivot Center Tube	1
10-831	Shoulder Retaining Wedge	3
10-836	Pivot Bar Holder	2
10-854	Pivot Bracket, Right	1
10-859	Ladder Lock Hinge	1
10-860	Ladder Lock Hook	1
15-4292	Front Hook	1
18-2003	Lock Frame - Passenger Side	1
18-2004	Hook Frame - Passenger Side	1
18-2005	Rear Bar - Passenger Side	1
18-2006	Front Bar - Passenger Side	1
18-2507	Max Rack Handle	1
15-1810-IFK1	Install Fastener First Kit for 15-1810	1
15-1810-IFK2	Install Fastener Second Kit for 15-1810	1
15-1810-IFK3	Install Fastener Third Kit for 15-1810	1

1.1.3 Fastener kits.

Install Fastener Kit for 15-1810-IFK1 → Fastener Assembly

14×		**# 90-491**	Carriage Bolt 5/16"-18 × 1" SS304
14×		**# 94-105**	Hex Nut 5/16"-18 SS316wax
14×		**# 98-117**	Flat Washer 5/16" OD, 3/4" SS18-8
14×		**# 98-123**	Lock Washer 5/16" SS304

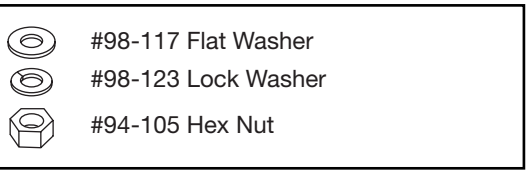
14×



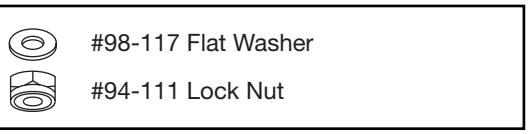
Install Fastener Kit for 15-1810-IFK2 → Fastener Assembly

2×		**# 90-495**	Carriage Bolt 5/16"-18 × 1-1/4" SS304
2×		**# 90-507**	Carriage Bolt 5/16"-18 × 2" SS304
1×		**# 90-563**	Carriage Bolt 5/16"-18 × 5-1/2" SS304
4x		**# 94-105**	Hex Nut 5/16"-18 SS316wax
5×		**# 94-111**	Lock Nut 5/16" SS304wax
9×		**# 98-117**	Flat Washer 5/16" OD, 3/4" SS18-8
4×		**# 98-123**	Lock Washer 5/16" SS304

2×



2×



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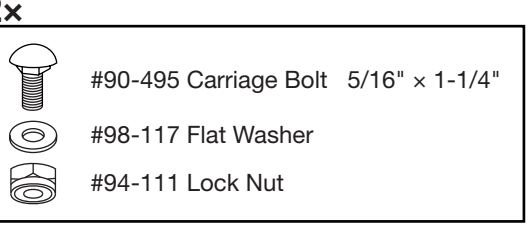
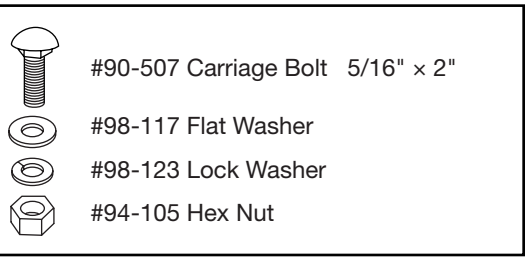
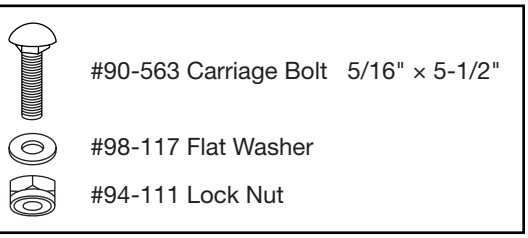


2×



1×



3×		**# 90-115**	Hex Bolt 1/4"-20 × 1" SS304
2×		**# 90-933**	SHSSCREW 3/8" × 1" SS303
2×		**# 94-123**	Acorn Nut 5/16"-18 SS316wax
3×		**# 98-113**	Flat Washer 1/4" OD, 5/8" SS18-8
3×		**# 98-119**	Lock Washer 1/4" SS304

3×

#90-115 Hex Bolt 1/4" × 1"

#98-119 Lock Washer

#98-113 Flat Washer

2×

#90-933 SHSSCREW 3/8" × 1"

#94-123 Acorn Nut

Install Fastener Kit for 15-1810-IFK3 → **Fastener Assembly**

4×		**# 90-229**	Hex Bolt 5/16"-18 × 2-1/4" SS304
4x		**# 94-105**	Hex Nut 5/16"-18 SS316wax
8×		**# 98-117**	Flat Washer 5/16" OD, 3/4" SS18-8
4×		**# 98-123**	Lock Washer 5/16" SS304

4×

#90-229 Hex Bolt 5/16" × 2-1/4"

#98-117 Flat Washer

#98-117 Flat Washer

#98-123 Lock Washer

#94-105 Hex Nut

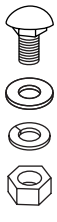
NOTE: These Fastener kits are from Max Rack Crossbow.

Install Fastener kit for 15-1806-IFK → **Fastener Assembly**

16×		**# 90-487**	Carriage Bolt 5/16"-18 × 3/4" SS304
16×		**# 94-105**	Hex Nut 5/16"-18 SS304
16×		**# 98-117**	Flat Washer 5/16" OD, 3/4" SS18-8
16×		**# 98-123**	Lock Washer 5/16" SS304

NOTE: The carriage bolts should be installed.

16×



#90-487 Carriage Bolt 5/16" × 3/4"

#98-117 Flat Washer

#98-123 Lock Washer

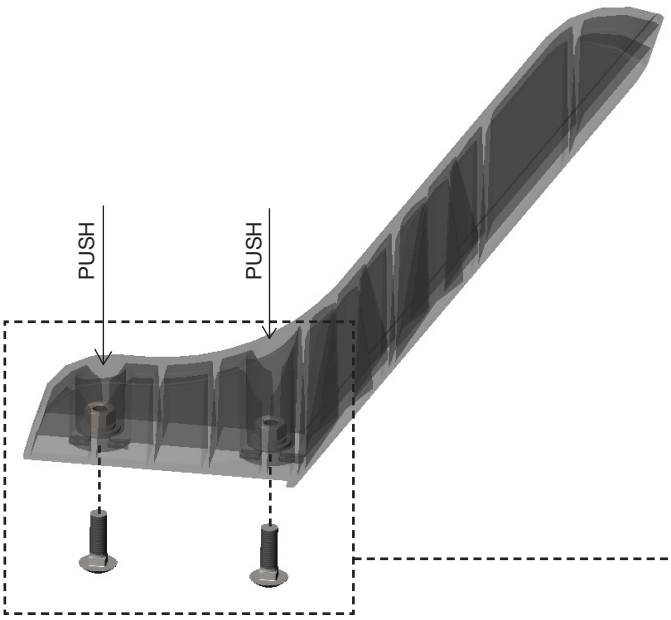
#94-105 Hex Nut

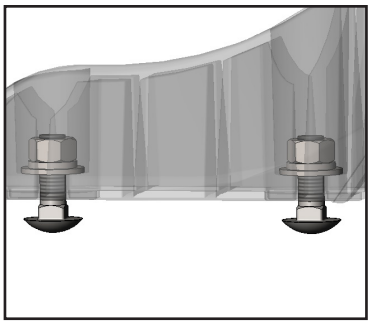
PHASE 1 – ASSEMBLY

1.2 REAR CROSSBOW ASSEMBLY

1.2.1 Put flat washers, lock washers and hex nuts in the holes of the Interlocking Hook, then push the hex nut using one finger while attaching the carriage bolt to the hex nut.

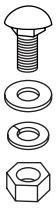
NOTE: Leave the bolts loose.





FASTENERS USED (15-1810-IFK1)

2×



#90-491 Carriage Bolt 5/16" × 1"

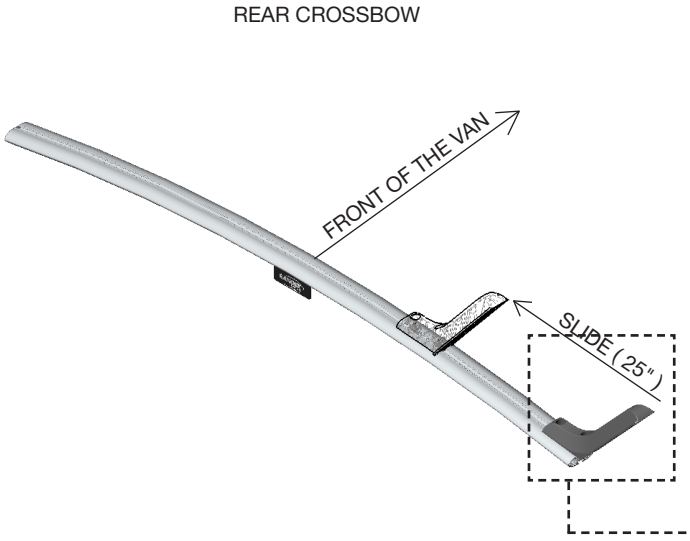
#98-117 Flat Washer

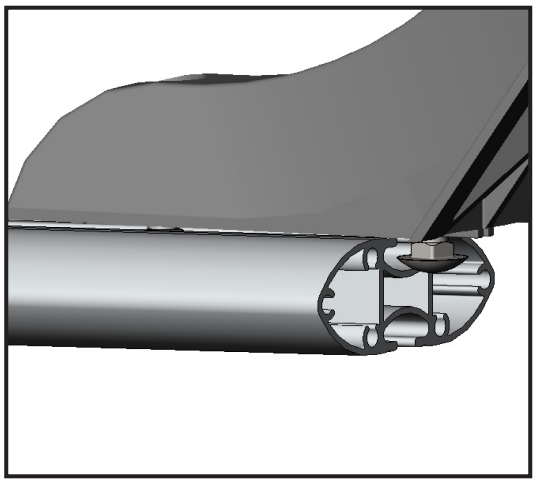
#98-123 Lock Washer

#94-105 Hex Nut

1.2.2 Slide the Interlocking Hook with the bolts to the passenger end of the rear crossbow.

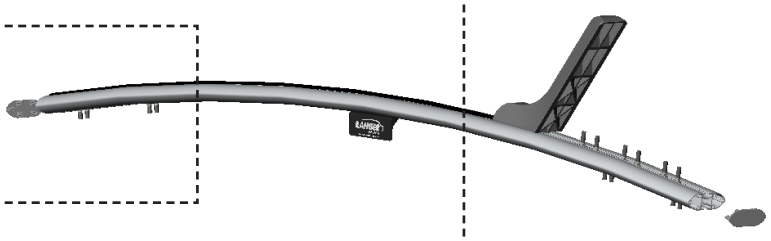
NOTE: **Leave the bolts loose** to allow for adjustment.

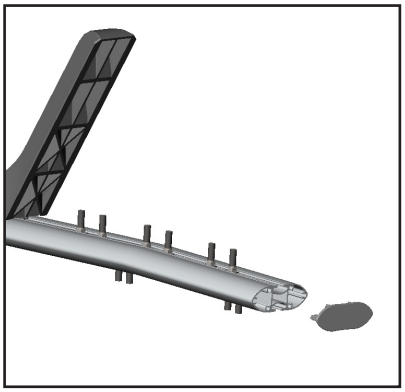




NOTE: Do not put any bolts and end plug on the driver end of the rear crossbow if you have a Max Rack, double side.

1.2.3 • Slide 6 bolts on top of the passenger end of the rear crossbow.
• Slide 4 bolts under the rear crossbow on both ends.
• Attach end crossbow plastic plugs on both ends of the rear crossbow.





FASTENERS USED (15-1810-IFK1)

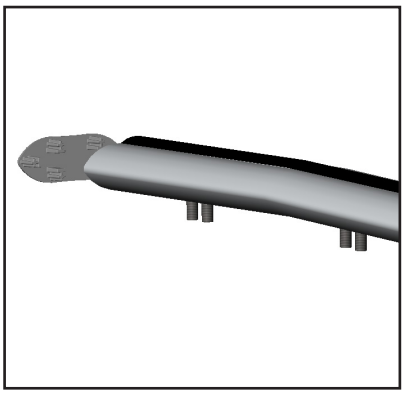
6× / TOP

#90-491 Carriage Bolt 5/16" × 1"

FASTENERS USED (15-1806-IFK)

4× / UNDER

#90-487 Carriage Bolt 5/16" × 3/4"



NOTE: Do not do this part of the step if you are installing a Max Rack double side.

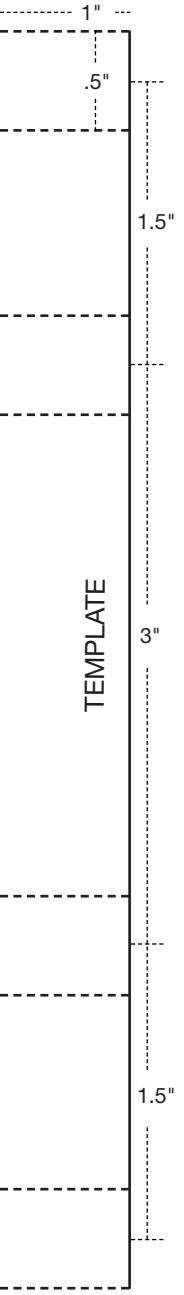
FASTENERS USED (15-1806-IFK)

4× / UNDER

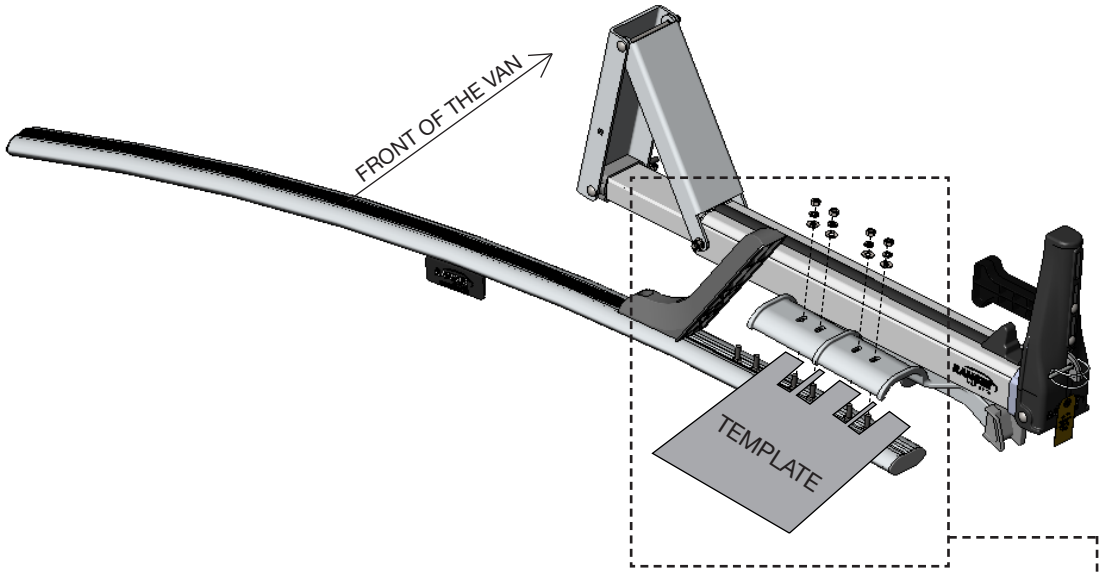
#90-487 Carriage Bolt 5/16" × 3/4"

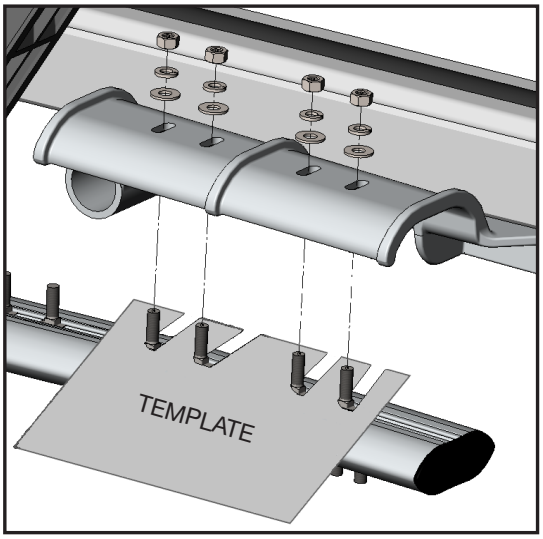
1.2.4 Place the lock frame (passenger side) on top of the rear crossbow using the 4 last bolts and template, then complete the attachment using the flat washer, lock washer and hex nut.

NOTE: • If there is no template on the hardware box, use the dimensions on this page to create one.
• Hand-tighten the nuts.



REAR CROSSBOW



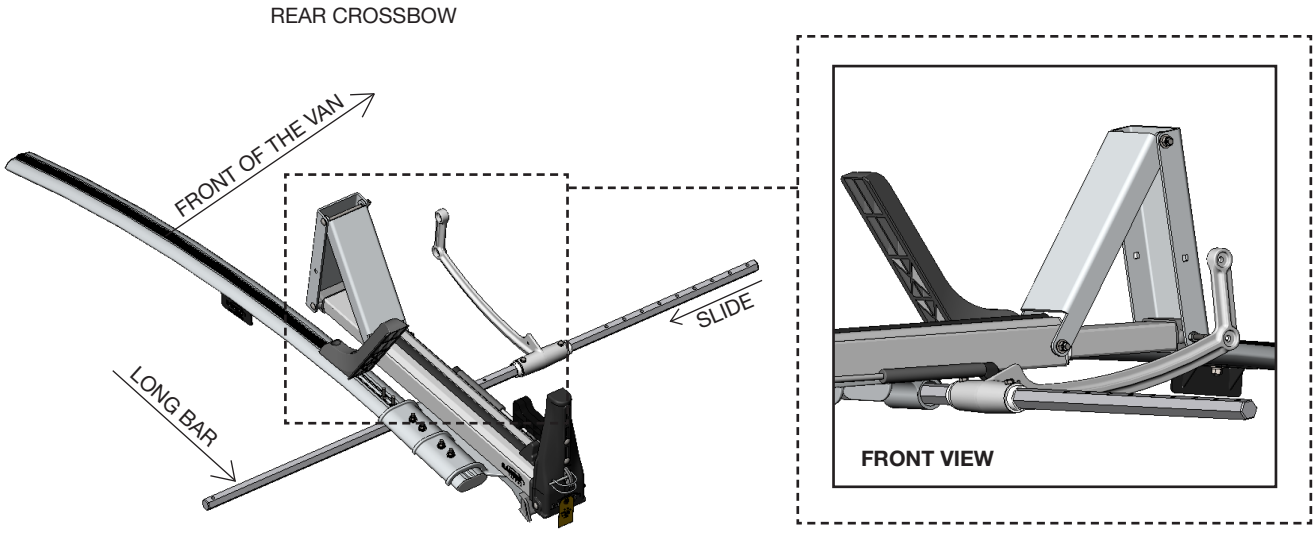


FASTENERS USED (15-1810-IFK1)

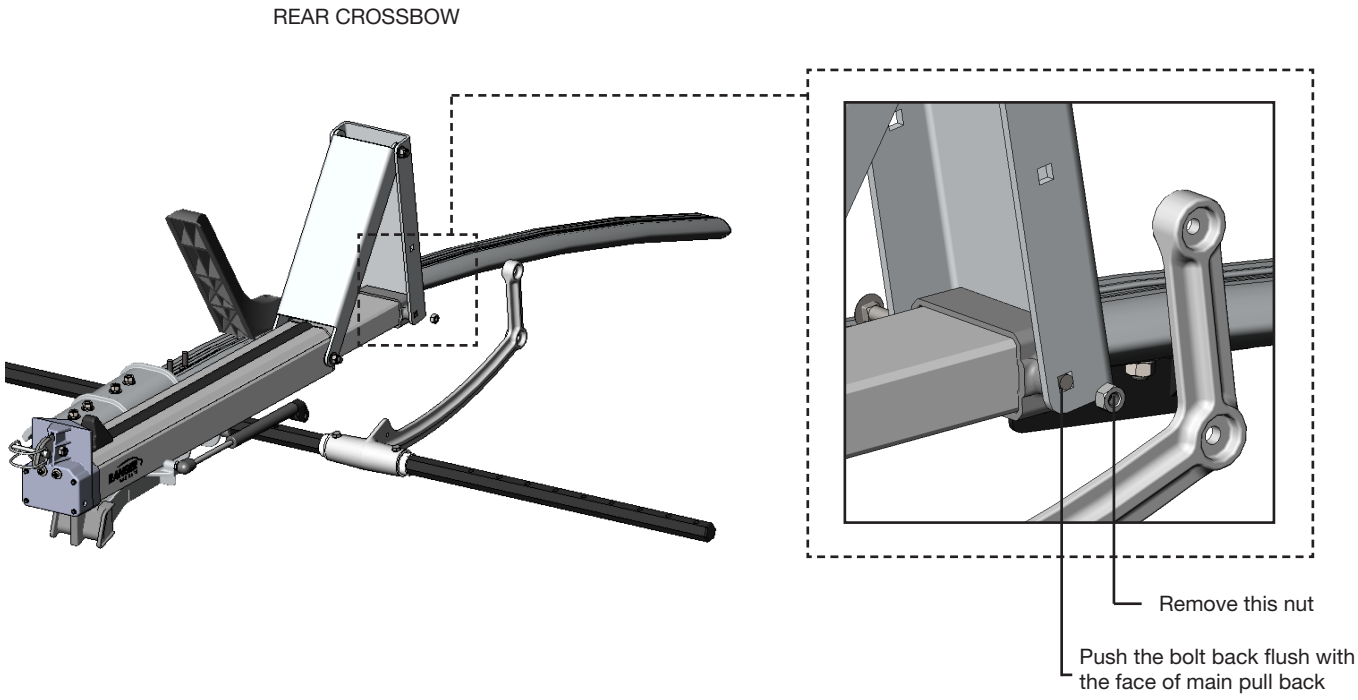
4×

- #94-105 Hex Nut
- #98-123 Lock Washer
- #98-117 Flat Washer

1.2.5 Slide the rear bar (passenger side) through the tube under the lock frame (passenger side).

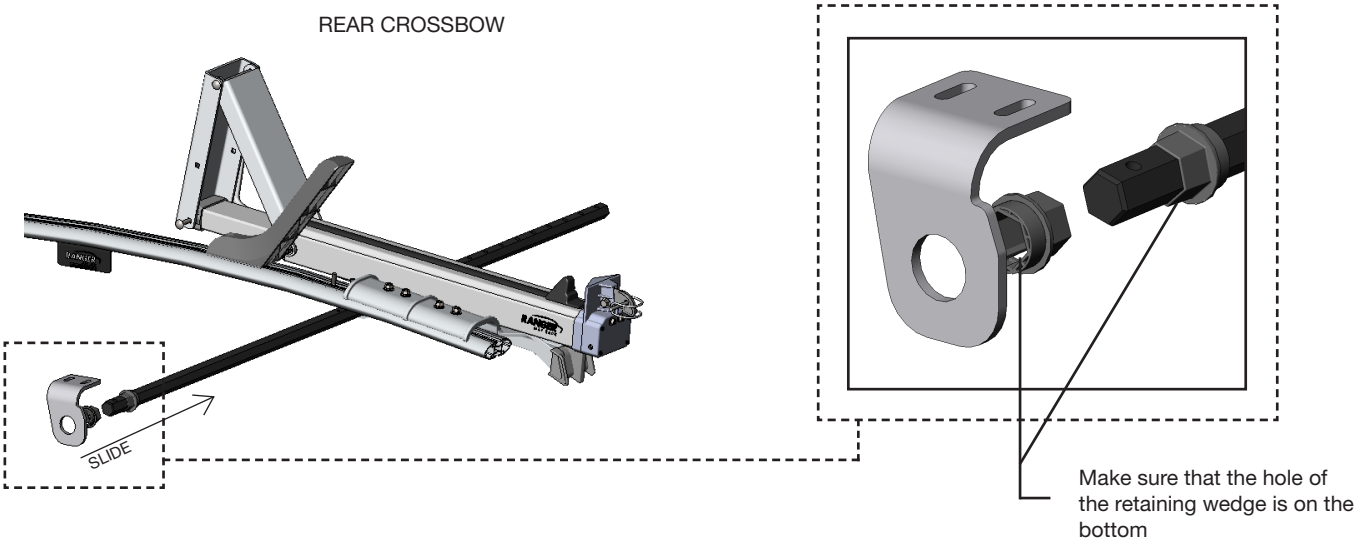


1.2.6 Remove the nut shown in the picture (shipping purposes only), then pull the bolt back flush with the face of the main pull back.



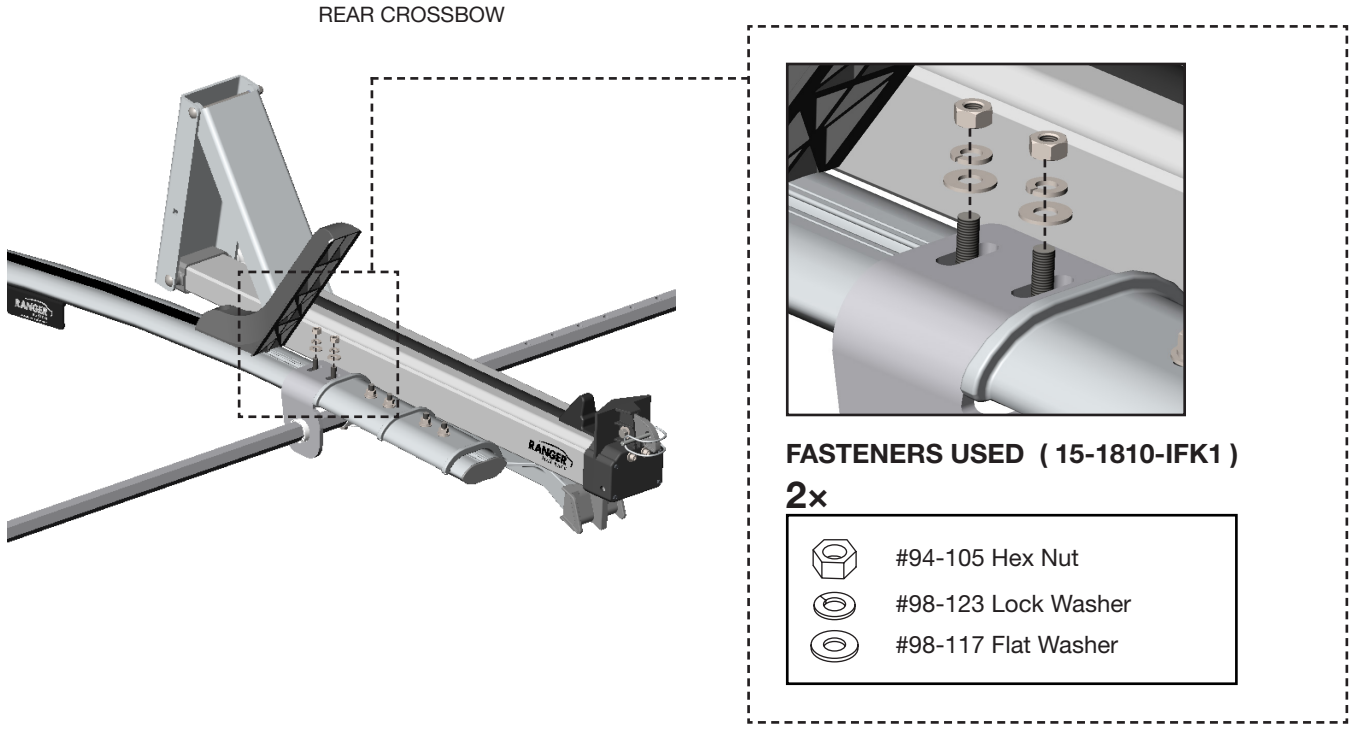
1.2.7 Slide 2 shoulder retaining wedges and the pivot bracket on the rear end of the rear bar.

NOTE: Pay attention to the position of the retaining wedges and pivot bracket.



1.2.8 Attach the pivot bracket to the crossbow using the 2 bolts, then lock it with a flat washer, lock washer and hex nut.

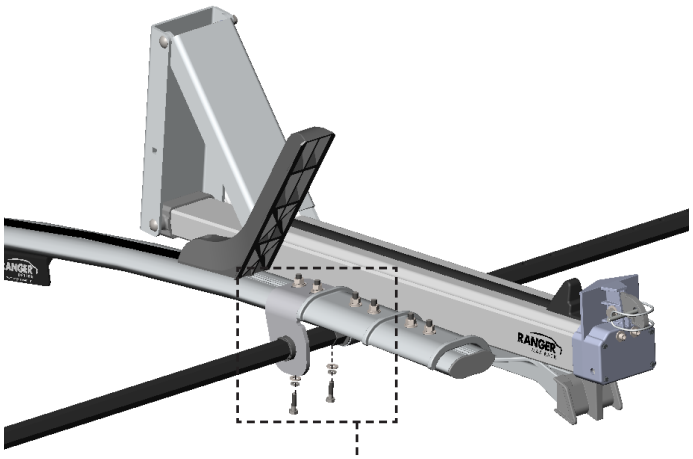
NOTE: Hand-tighten the nuts

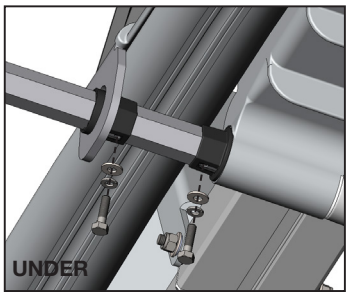


1.2.9 Bolt the 2 retaining wedges to the rear bar.

NOTE: Be careful not to overtighten.

REAR CROSSBOW





TOOLS

- ❑ Ratchet
- ❑ 7/16" Socket

FASTENERS USED (15-1810-IFK2)

2×

#90-115 Hex Bolt 1/4" × 1"

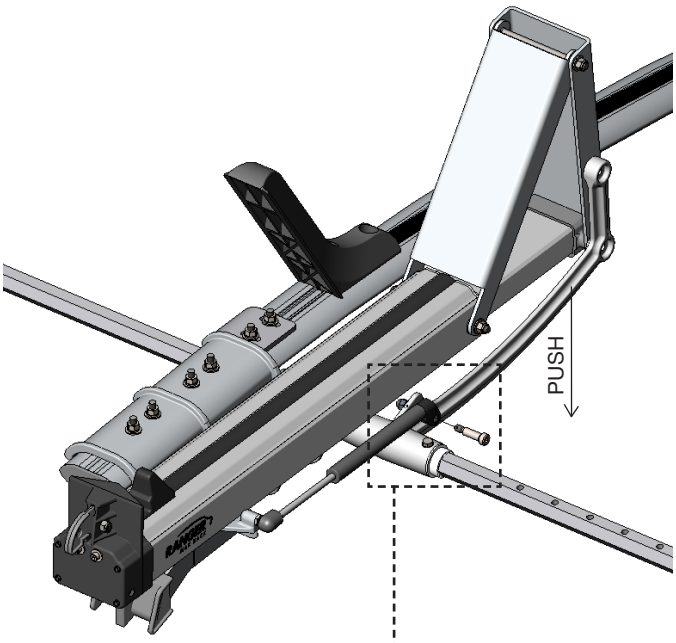
#98-119 Lock Washer

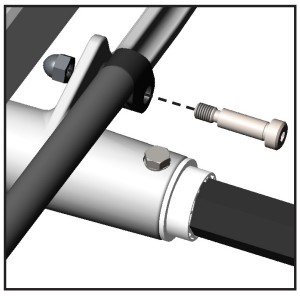
#98-113 Flat Washer

1.2.10 Bolt the loose end of the gas spring to the pivot arm.

NOTE: Push the pivot arm **DOWN** to align the hole to the gas spring.

REAR CROSSBOW





TOOLS

- ❑ Cordless Impact
- ❑ 3/16" Impact Bit
- ❑ 9/16" Wrench

FASTENERS USED (15-1810-IFK2)

1×

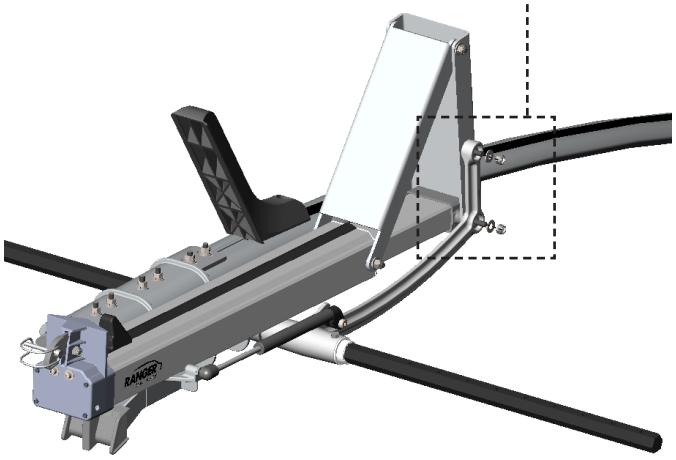
#90-933 SHSSCREW 3/8" × 1"

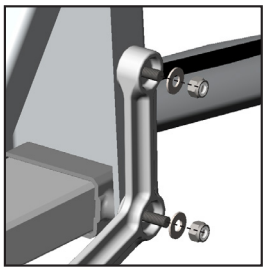
#94-123 Acorn Nut

1.2.11 Bolt the pivot arm to the main pull back.

NOTE: Be careful not to overtighten.

REAR CROSSBOW





TOOLS
- ❑ Ratchet
- ❑ 1/2" Socket

FASTENERS USED (15-1810-IFK2)

1× / TOP

#90-495 Carriage Bolt 5/16" × 1-1/4"

#98-117 Flat Washer

#94-111 Lock Nut

1× / BOTTOM

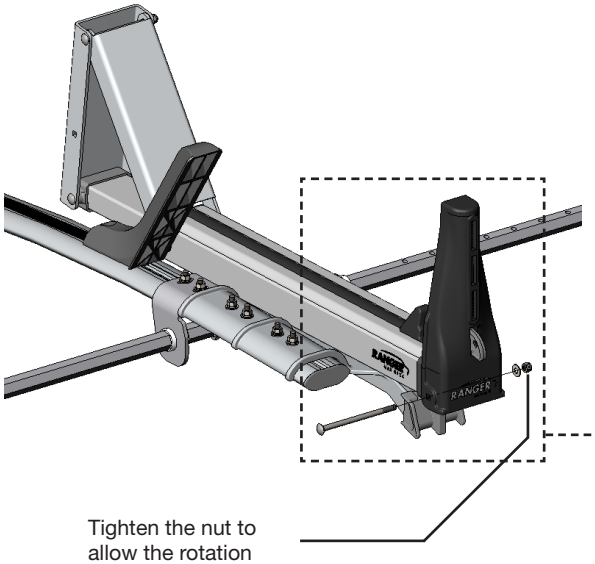
#98-117 Flat Washer

#94-111 Lock Nut

1.2.12 Remove the pin and attach the lock hinge to the lock frame.

NOTE: Tighten the nut to allow the rotation.
Do not overtighten.

REAR CROSSBOW

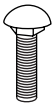


Tighten the nut to allow the rotation

TOOLS
- ❑ Cordless Impact
- ❑ 1/2" Socket

FASTENERS USED (15-1810-IFK2)

1×



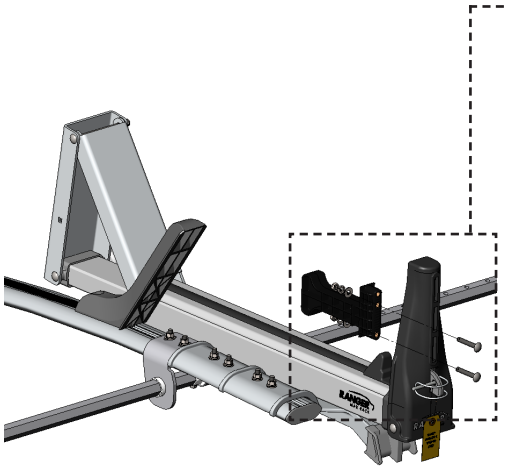
#90-563 Carriage Bolt 5/16" × 5-1/2"

#98-117 Flat Washer

#94-111 Lock Nut

1.2.13 Bolt the lock hook to the lock hinge.

NOTE: Lock hook can be assembled upside down to accommodate different ladder rail size.



TOOLS
- ❑ Cordless Impact
- ❑ 1/2" Socket

FASTENERS USED (15-1810-IFK2)

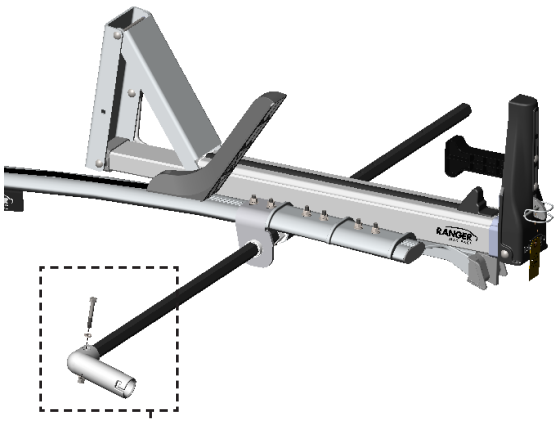
2×

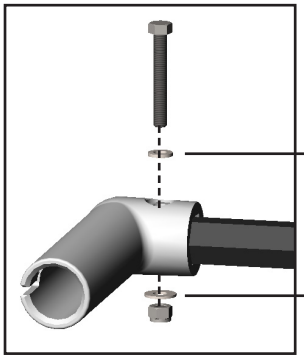
#90-507 Carriage Bolt 5/16" × 2"
#98-117 Flat Washer
#98-123 Lock Washer
#94-105 Hex Nut

1.2.14 Attach the arm socket to the rear end of the rear bar.

WARNING: For a secure and proper installation, it is important for the lock washer and lock nut to be placed in the assigned slot as shown.

REAR CROSSBOW

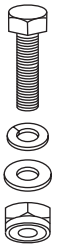




TOOLS
- ❑ Cordless Impact
- ❑ 1/2" Socket

HARDWARE USED

1×



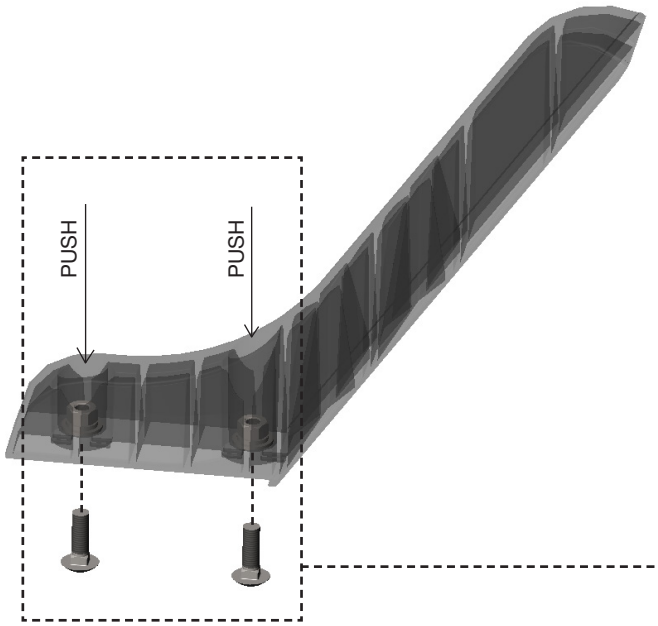
#90-229 Hex Bolt 5/16" × 2-1/4"
#98-123 Lock Washer
#98-117 Flat Washer
#94-105 Lock Nut

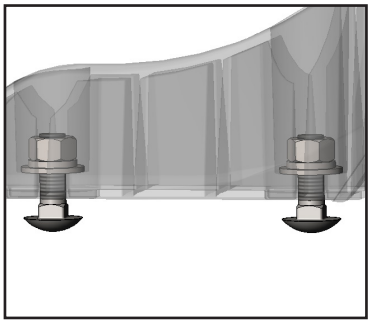
PHASE 1 – ASSEMBLY

1.3 FRONT CROSSBOW ASSEMBLY

1.3.1 Put flat washers, lock washers and hex nuts in the holes of the Interlocking Hook, then push the hex nut using one finger while attaching the carriage bolt to the hex nut.

NOTE: Leave the bolts loose.





FASTENERS USED (15-1810-IFK1)

2×

#90-491 Carriage Bolt 5/16" × 1"

#98-117 Flat Washer

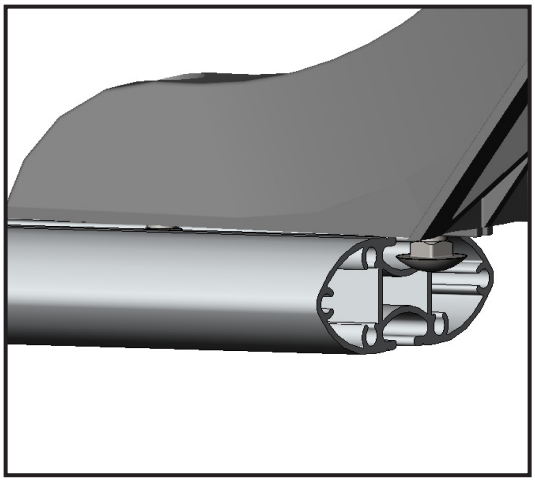
#98-123 Lock Washer

#94-105 Hex Nut

1.3.2 Slide the interlocking hook with the bolts to the front crossbow.

NOTE: **<u>Leave the bolts loose</u>** to allow for adjustment.

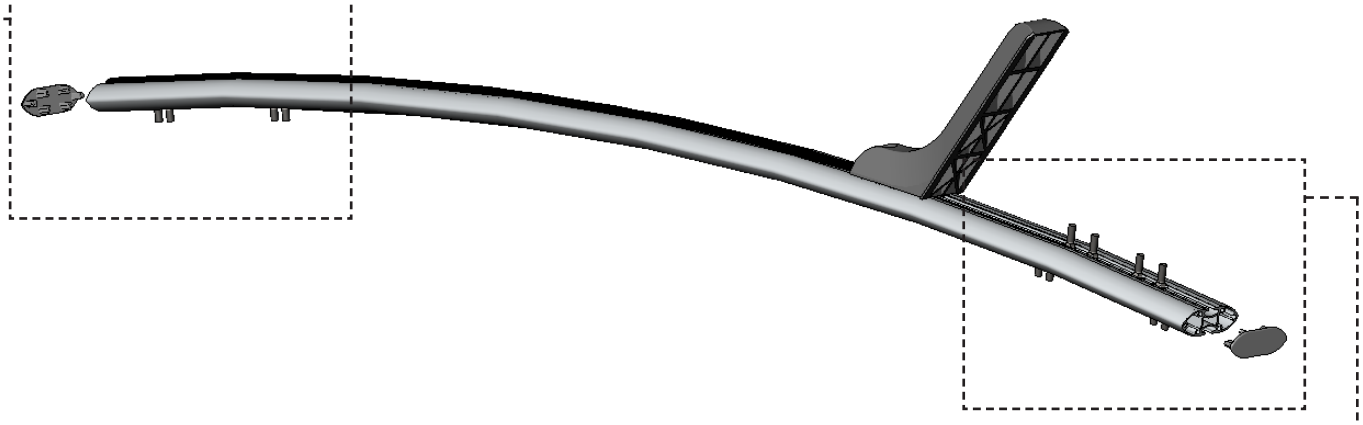
FRONT CROSSBOW

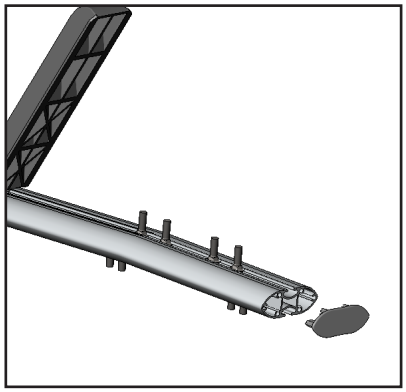


NOTE: Do not put any bolts and end plug on the driver end of the front crossbow if you have a Max Rack double side.

1.3.3 • Slide 4 bolts on top of the passenger end of the front crossbow.
• Slide 4 bolts under the front crossbow on both ends.
• Attach end crossbow plastic plugs on both ends of the front crossbow.

FRONT CROSSBOW





FASTENERS USED (15-1810-IFK1)

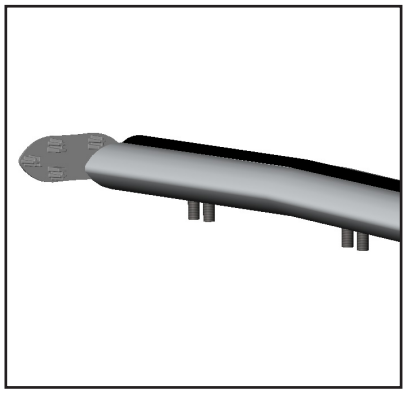
4× / TOP

#90-491 Carriage Bolt 5/16" × 1"

FASTENERS USED (15-1806-IFK)

4× / UNDER

#90-487 Carriage Bolt 5/16" × 3/4"



NOTE: Do not do this part of the step if you are installing a Max Rack double side, except if you have third bar crossbow.

FASTENERS USED (15-1806-IFK)

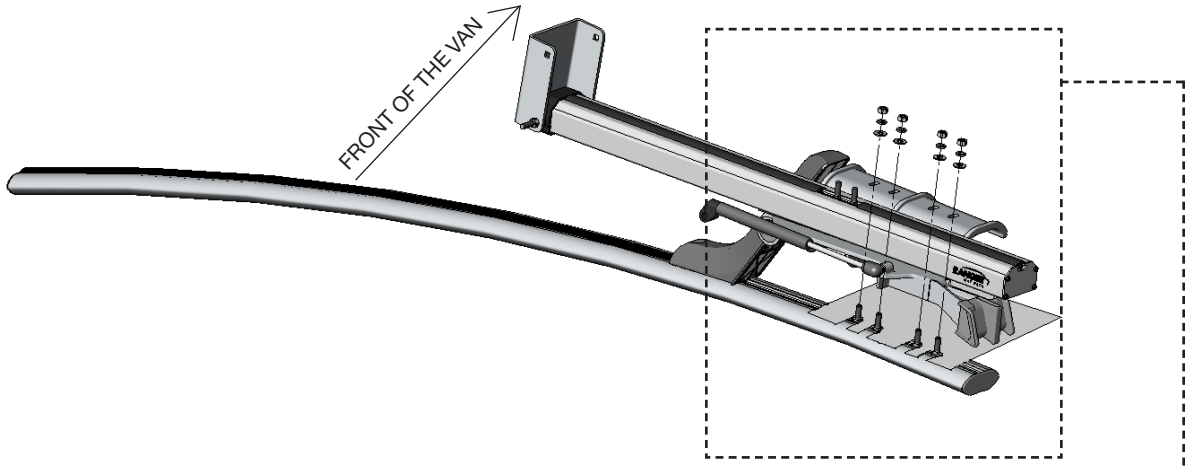
4× / UNDER

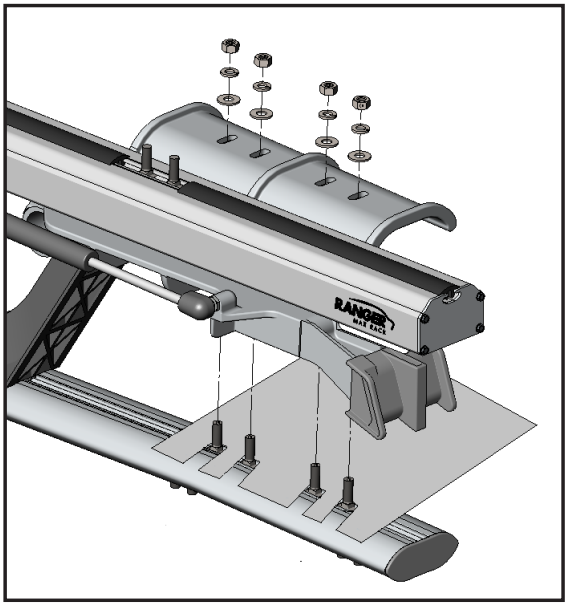
#90-487 Carriage Bolt 5/16" × 3/4"

1.3.4 Place the hook frame (passenger side) on top of the front crossbow using the 4 bolts and template, then complete the attachment using the flat washer, lock washer and hex nut.

NOTE: Hand-tighten the nuts

FRONT CROSSBOW



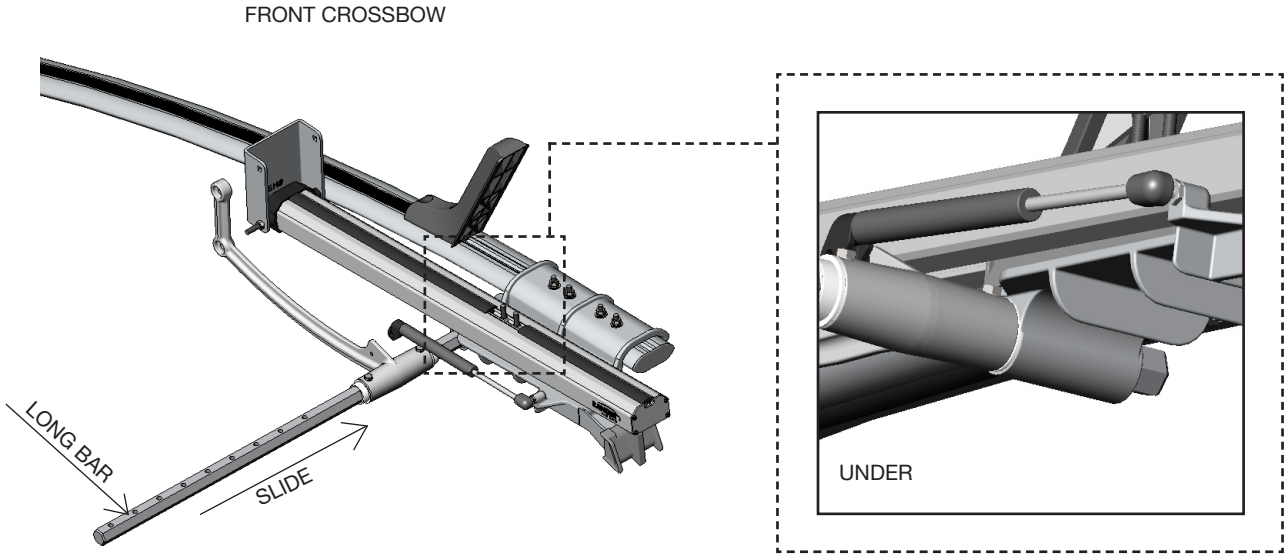


FASTENERS USED (15-1810-IFK1)

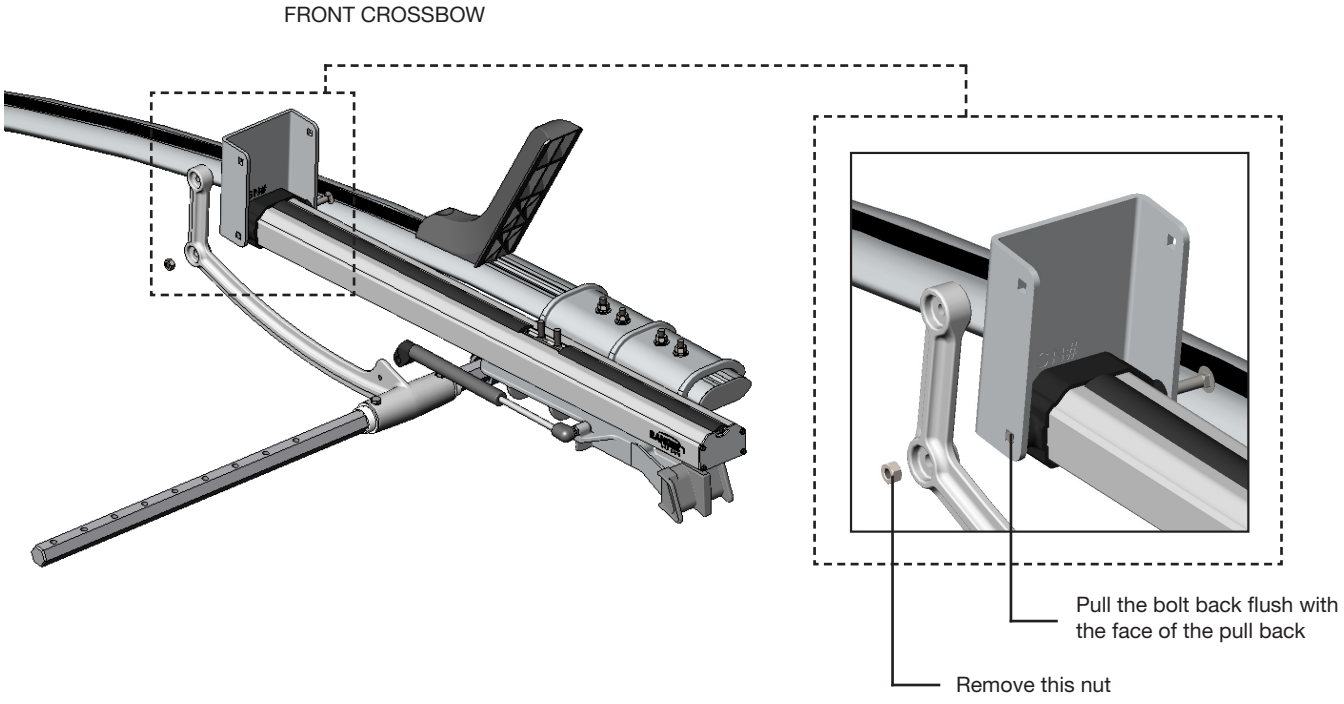
4×

- #94-105 Hex Nut
- #98-123 Lock Washer
- #98-117 Flat Washer

1.3.5 Slide the front bar (passenger side) through the tube under the hook frame (passenger side).

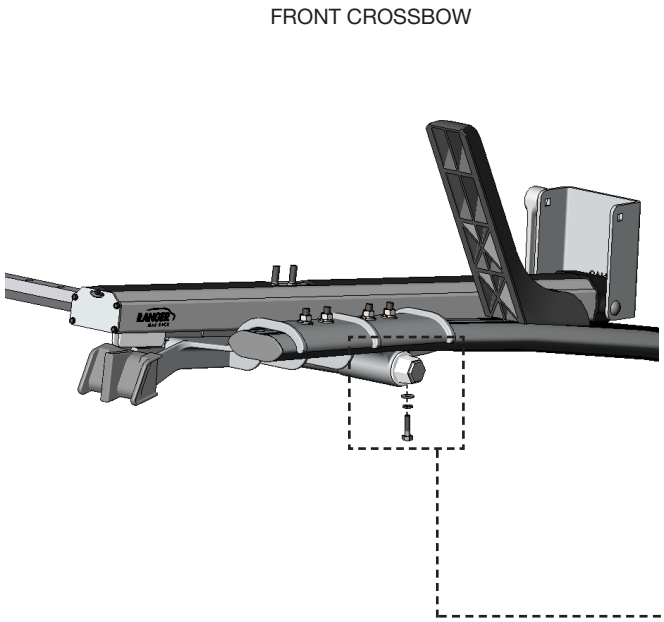


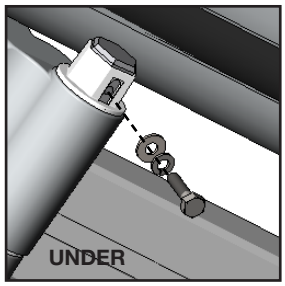
1.3.6 Remove the nut shown in the picture (shipping purposes only), then pull the bolt back flush with the face of the pull back



1.3.7 Attach 1 retaining wedge on the front end of the front bar.
(Be careful not to overtighten)

NOTE: Pay attention to the position of the retaining wedge.





TOOLS
- ❑ Ratchet
- ❑ 7/16" Socket

FASTENERS USED (15-1810-IFK2)

1×

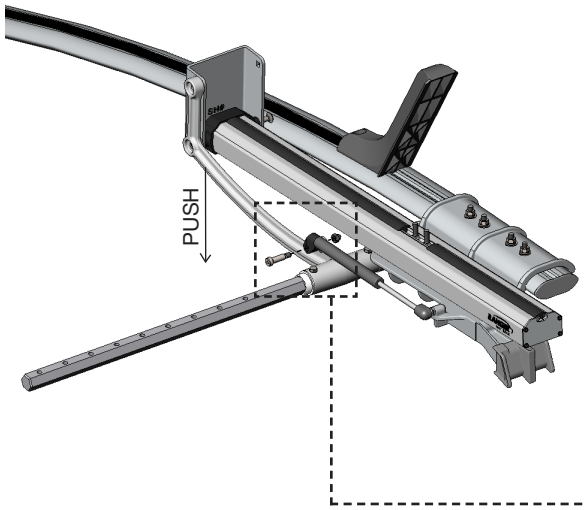
#90-115 Hex Bolt 1/4" × 1"

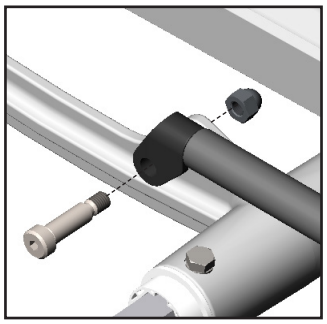
#98-119 Lock Washer

#98-113 Flat Washer

1.3.8 Bolt the loose end of the gas spring to the pivot arm.

NOTE: Push the pivot arm **DOWN** to align the hole to the gas spring.

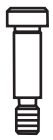




TOOLS
- ❑ Cordless Impact
- ❑ 3/16" Impact Bit
- ❑ 9/16" Wrench

FASTENERS USED (15-1810-IFK2)

1×



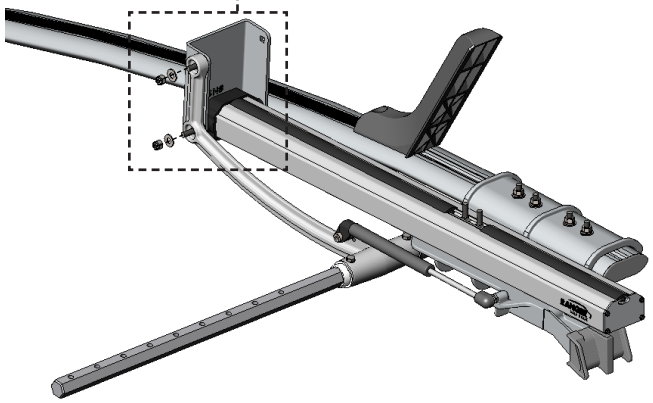
#90-933 SHSSCREW 3/8" × 1"

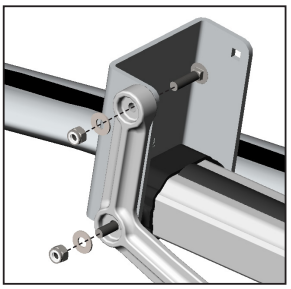
#94-123 Acorn Nut

1.3.9 Bolt the pivot arm to the hook frame.

NOTE: Be careful not to overtighten.

FRONT CROSSBOW





TOOLS
- ❑ Ratchet
- ❑ 1/2" Socket

FASTENERS USED (15-1810-IFK2)

1× / TOP

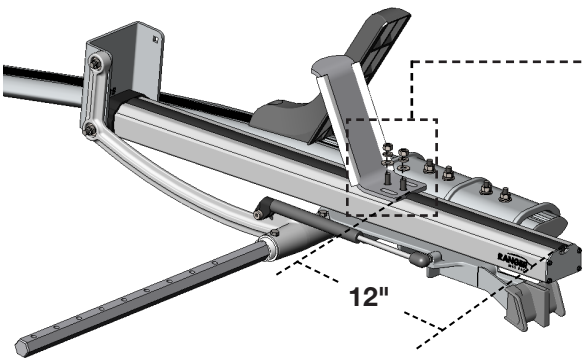
- #90-495 Carriage Bolt 5/16" × 1-1/4"
- #98-117 Flat Washer
- #94-111 Lock Nut

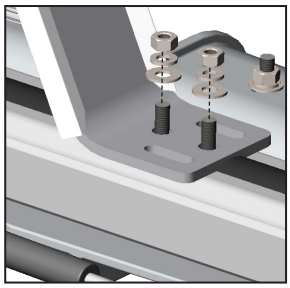
1× / BOTTOM

- #98-117 Flat Washer
- #94-111 Lock Nut

1.3.10 Attach the front hook to the 2 carriage bolts on top of the hook frame.

FRONT CROSSBOW





TOOLS
- ❑ Cordless Impact
- ❑ 1/2" Impact Bit

FASTENERS USED (15-1810-IFK2)

2×

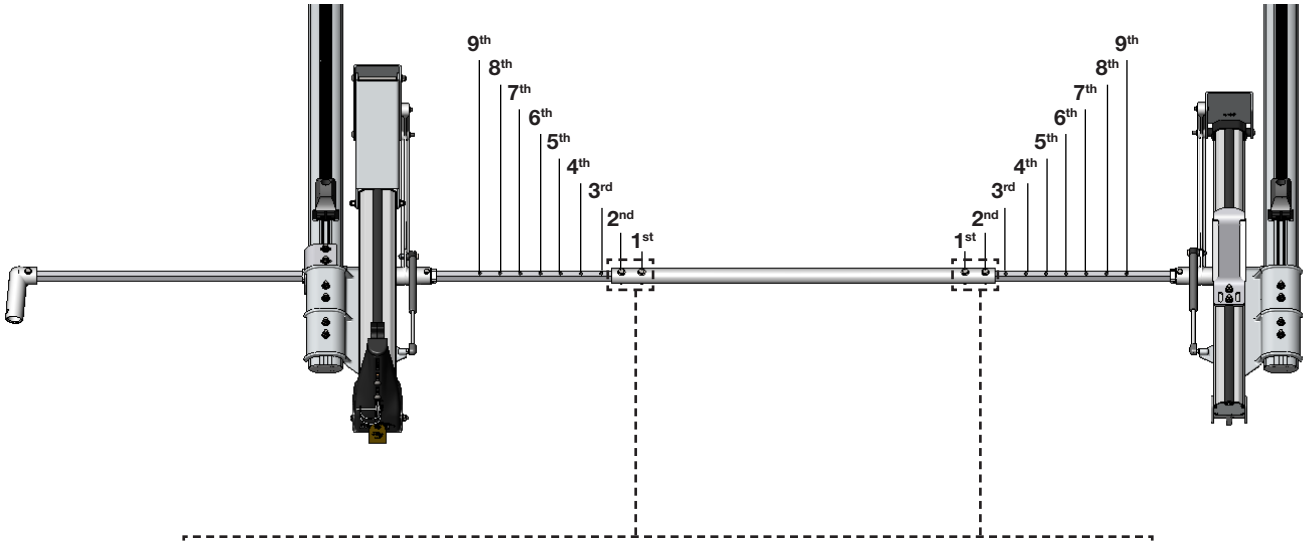
- #94-105 Hex Nut
- #98-123 Lock Washer
- #98-117 Flat Washer

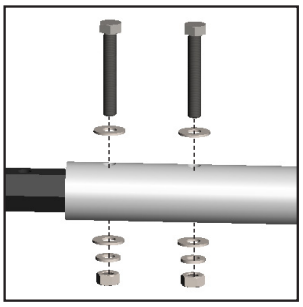
PHASE 1 – ASSEMBLY

1.4 FOR OVERHEAD LIFTER ASSEMBLY

1.4.1 Attach the ends of the front and rear bars to the center tube.

NOTE: Do not do this step if you don't have a lifter and/or if you have a Max Rack double side.





FASTENERS USED (15-1810-IFK3)

4×

#90-229 Hex Bolt 5/16" × 2-1/4"

#98-117 Flat Washer

#98-117 Flat Washer

#98-123 Lock Washer

#94-105 Hex Nut

VEHICLE	MAX LADDER SIZE	CROSSBOW CENTER TO CENTER DISTANCE
ALL VEHICLE EXCEPT NISSAN NV , RAM PROMASTER 118" WHEELBASE & FORD TRANSIT REGULAR WHEELBASE	20' TO 32' EXTENSION LADDER	94 - 1/2" (1st & 2nd HOLES)
	LESS THAN 20' EXTESION LADDER (INCL. STEP LADDER)	66 - 1/2" (8th & 9th HOLES)
NISSAN NV	20' & 24' EXTENSION LADDER	70 - 1/2" (7th & 8th HOLES)
	LESS THAN 20' EXTENSION LADDER (INCL. STEP LADDER)	66 - 1/2" (8th & 9th HOLES)
RAM PROMASTER 118" WHEELBASE	20' TO 28' EXTENSION LADDER	82 - 1/2" (4th & 5th HOLES)
	LESS THAN 20' EXTENSION LADDER (INCL. STEP LADDER)	66 - 1/2" (8th & 9th HOLES)
FORD TRANSIT REGULAR WHEELBASE	20' & 24' EXTENSION LADDER	70 - 1/2" (7th & 8th HOLES)
	LESS THAN 20' EXTENSION LADDER (INCL. STEP LADDER)	66 - 1/2" (8th & 9th HOLES)

“You have successfully completed Operation 2
Max Rack Passenger Side Mechanism!
Open the driver side mechanism (15-1815) box or the mounting track box to install the Max Rack on your vehicle.

Thank you for doing business with us.”

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

RANGER DESIGN

INSTALLATION GUIDE

15-1815 Max Rack Driver Side

(For Double Drop Down Max Rack)

RANGER DESIGN

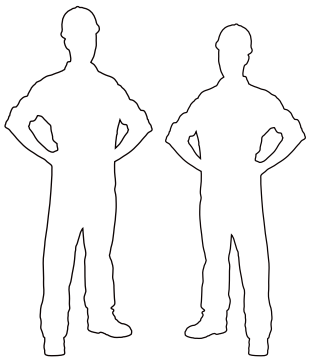
QUICK START GUIDE

Phase 1 - Assembly

❑ 1.1 Setup..... 3 TO 5
❑ 1.2 Rear crossbow assembly..... 6 TO 14
❑ 1.3 Front crossbow assembly..... 15 TO 20
❑ 1.4 For overhead lifter assembly..... 21

REQUIRED ITEMS FOR COMPLETE MAX RACK

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



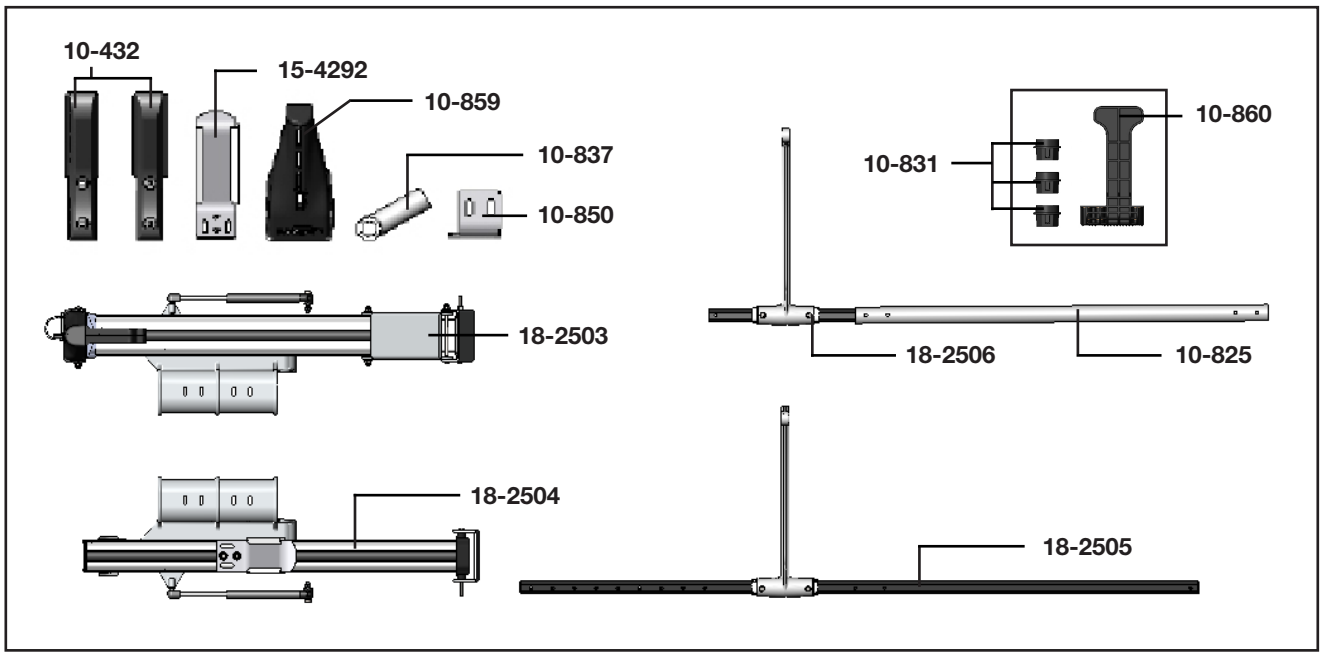
2 PERSONS

- ❑ Cordless Impact
- ❑ Ratchet
- ❑ Tape Measure
- ❑ Marker
- ❑ Ladder
- ❑ 3/16" Impact Bit
- ❑ 9/16" Wrench
- ❑ 7/16" Socket
- ❑ 1/2" Socket
- ❑ Sawhorse (Optional)
- ❑ Box

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.

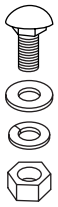
Item No.	Description	Qty.
10-432	Interlocking Hook	2
10-837	Arm Socket Driver Side	1
10-825	Pivot Center Tube	1
10-831	Shoulder Retaining Wedge	3
10-850	Pivot Bracket, Left	1
10-859	Ladder Lock Hinge	1
10-860	Ladder Lock Hook	1
15-4292	Front Hook	1
18-2503	Lock Frame - Driver Side	1
18-2504	Hook Frame - Driver Side	1
18-2505	Rear Bar - Driver Side	1
18-2506	Front Bar - Driver Side	1
15-1810-IFK1	Install Fastener First Kit for 15-1810	1
15-1810-IFK2	Install Fastener Second Kit for 15-1810	1
15-1810-IFK3	Install Fastener Third Kit for 15-1810	1

1.1.3 Fastener kits.

Install Fastener Kit for 15-1810-IFK1 → Fastener Assembly

14×		**# 90-491**	Carriage Bolt 5/16"-18 × 1" SS304
14×		**# 94-105**	Hex Nut 5/16"-18 SS316wax
14×		**# 98-117**	Flat Washer 5/16" OD, 3/4" SS18-8
14×		**# 98-123**	Lock Washer 5/16" SS304

14×



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

Install Fastener Kit for 15-1810-IKF2 → Fastener Assembly

2×		**# 90-495**	Carriage Bolt 5/16"-18 × 1-1/4" SS304
2×		**# 90-507**	Carriage Bolt 5/16"-18 × 2" SS304
1×		**# 90-563**	Carriage Bolt 5/16"-18 × 5-1/2" SS304
4x		**# 94-105**	Hex Nut 5/16"-18 SS316wax
5×		**# 94-111**	Lock Nut 5/16" SS304wax
9×		**# 98-117**	Flat Washer 5/16" OD, 3/4" SS18-8
4×		**# 98-123**	Lock Washer 5/16" SS304

2×

#98-117 Flat Washer
#98-123 Lock Washer
#94-105 Hex Nut

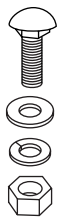
2×

#98-117 Flat Washer
#94-111 Lock Nut

2×

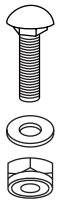
#90-495 Carriage Bolt 5/16" × 1-1/4"
#98-117 Flat Washer
#94-111 Lock Nut

2×



#90-507 Carriage Bolt 5/16" × 2"
#98-117 Flat Washer
#98-123 Lock Washer
#94-105 Hex Nut

1×



#90-563 Carriage Bolt 5/16" × 5-1/2"
#98-117 Flat Washer
#94-111 Lock Nut

3×		**# 90-115**	Hex Bolt 1/4"-20 × 1" SS304
2×		**# 90-933**	SHSSCREW 3/8" × 1" SS303
2×		**# 94-123**	Acorn Nut 5/16"-18 SS316wax
3×		**# 98-113**	Flat Washer 1/4" OD, 5/8" SS18-8
3×		**# 98-119**	Lock Washer 1/4" SS304

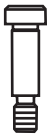
3×

#90-115 Hex Bolt 1/4" × 1"

#98-119 Lock Washer

#98-113 Flat Washer

2×



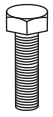
#90-933 SHSSCREW 3/8" × 1"

#94-123 Acorn Nut

Install Fastener Kit for 15-1810-IFK3 → **Fastener Assembly**

4×		**# 90-229**	Hex Bolt 5/16"-18 × 2-1/4" SS304
4x		**# 94-105**	Hex Nut 5/16"-18 SS316wax
8×		**# 98-117**	Flat Washer 5/16" OD, 3/4" SS18-8
4×		**# 98-123**	Lock Washer 5/16" SS304

4×



#90-229 Hex Bolt 5/16" × 2-1/4"

#98-117 Flat Washer

#98-117 Flat Washer

#98-123 Lock Washer

#94-105 Hex Nut

NOTE: These Fastener kits are from Max Rack Crossbow.

Install Fastener kit for 15-1806-IFK → **Fastener Assembly**

16×		**# 90-487**	Carriage Bolt 5/16"-18 × 3/4" SS304
16×		**# 94-105**	Hex Nut 5/16"-18 SS304
16×		**# 98-117**	Flat Washer 5/16" OD, 3/4" SS18-8
16×		**# 98-123**	Lock Washer 5/16" SS304

NOTE: The carriage bolts should be installed.

16×

#90-487 Carriage Bolt 5/16" × 3/4"

#98-117 Flat Washer

#98-123 Lock Washer

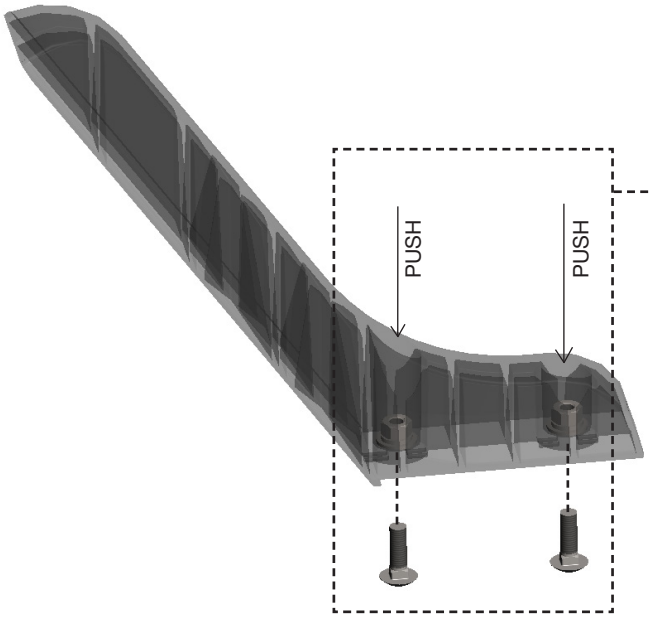
#94-105 Hex Nut

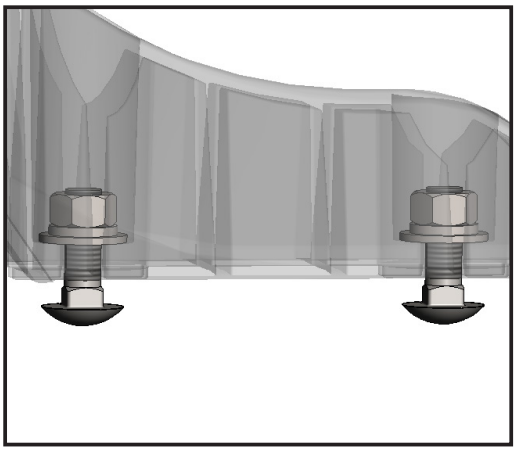
PHASE 1 – ASSEMBLY

1.2 REAR CROSSBOW ASSEMBLY

1.2.1 Put flat washers, lock washers and hex nuts in the holes of the Interlocking Hook, then push the hex nut using one finger while attaching the carriage bolt to the hex nut.

NOTE: Leave the bolts loose.





FASTENERS USED (15-1810-IFK1)

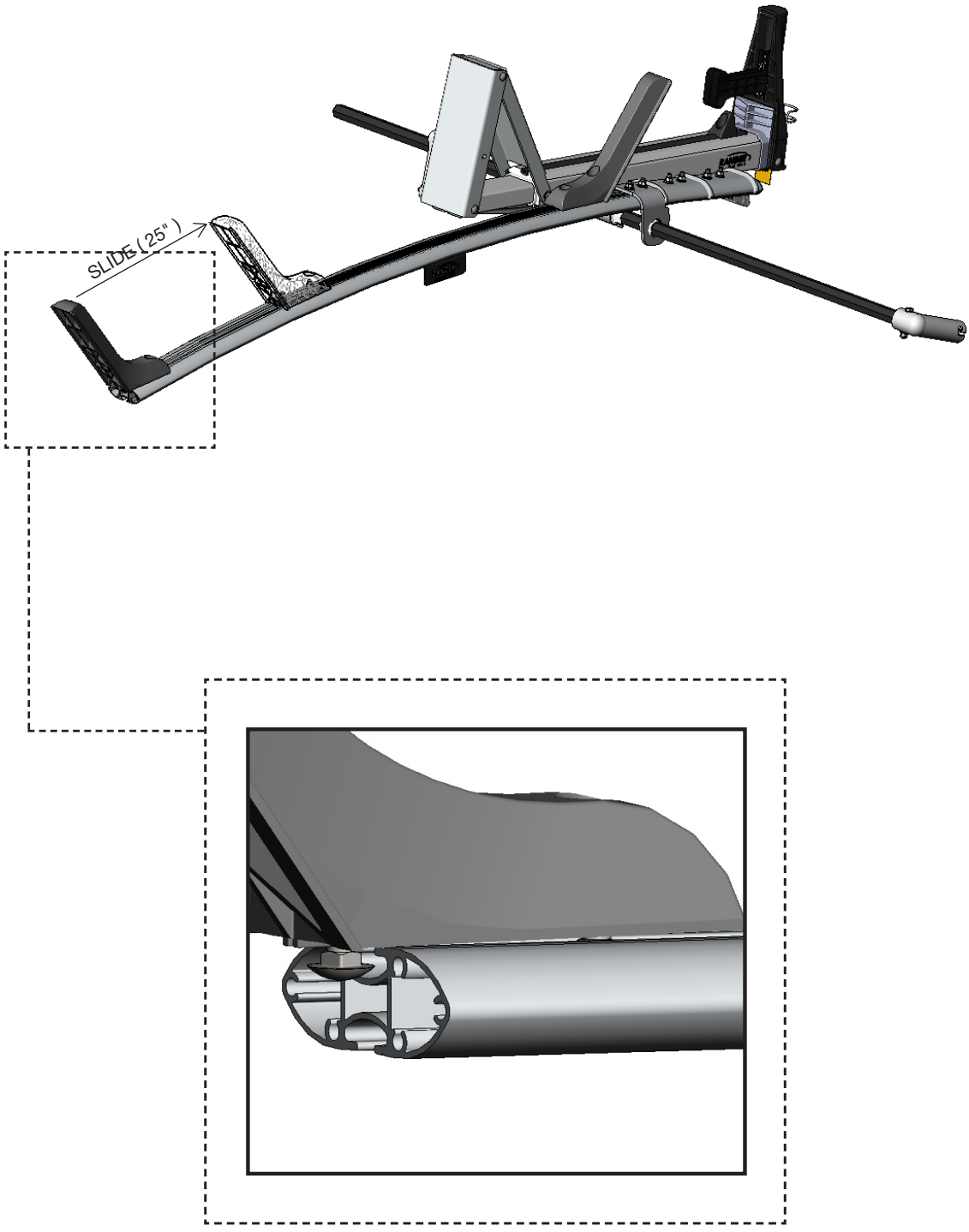
2×

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

1.2.2 Slide the Interlocking Hook with the bolts to the driver end of the rear crossbow.

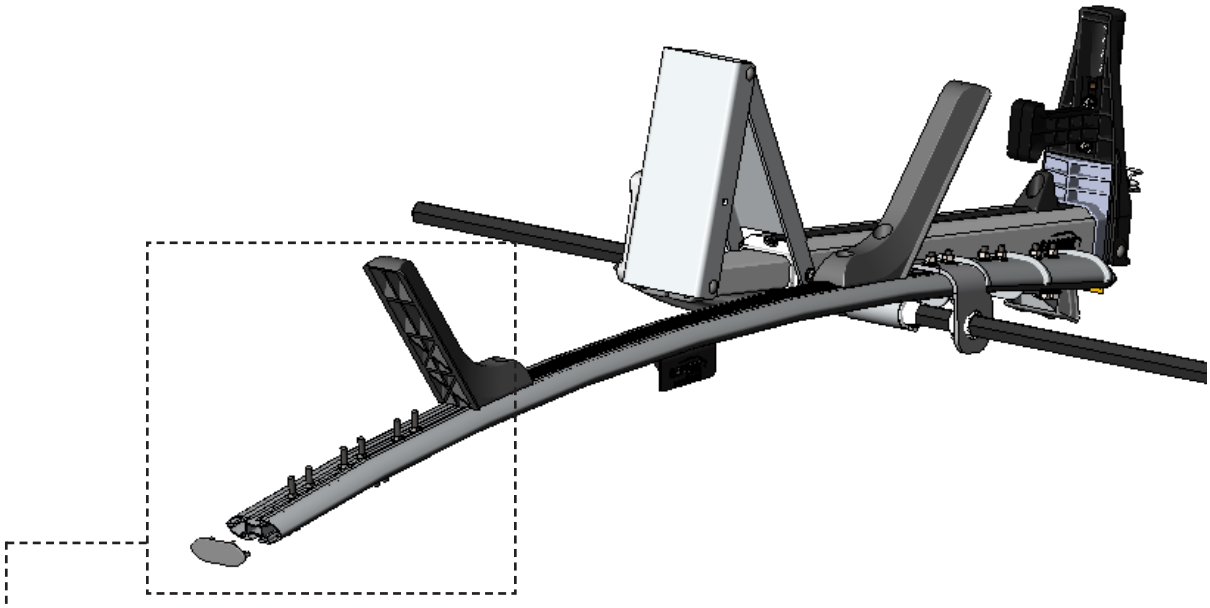
NOTE: **<u>Leave the bolts loose</u>** to allow for adjustment.

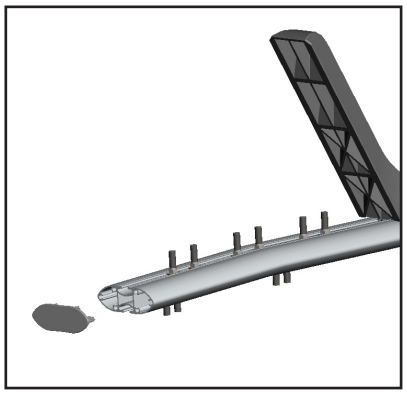
REAR CROSSBOW



1.2.3 • Slide 6 bolts on top of the driver end of the rear crossbow.
• Slide 4 bolts under the rear crossbow on driver end.
• Attach end crossbow plastic plug on driver end of the rear crossbow.

REAR CROSSBOW





FASTENERS USED (15-1810-IFK1)

6× / TOP

#90-491 Carriage Bolt 5/16" × 1"

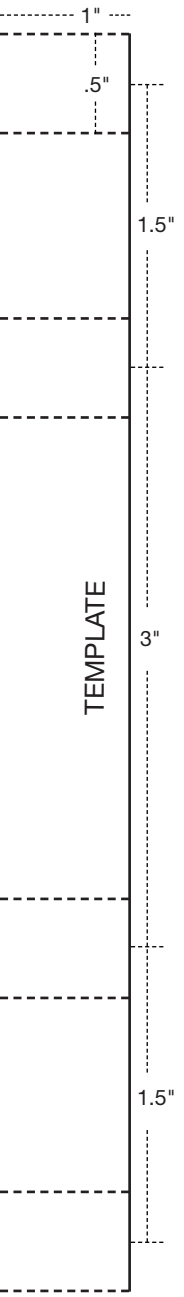
FASTENERS USED (15-1806-IFK)

4× / UNDER

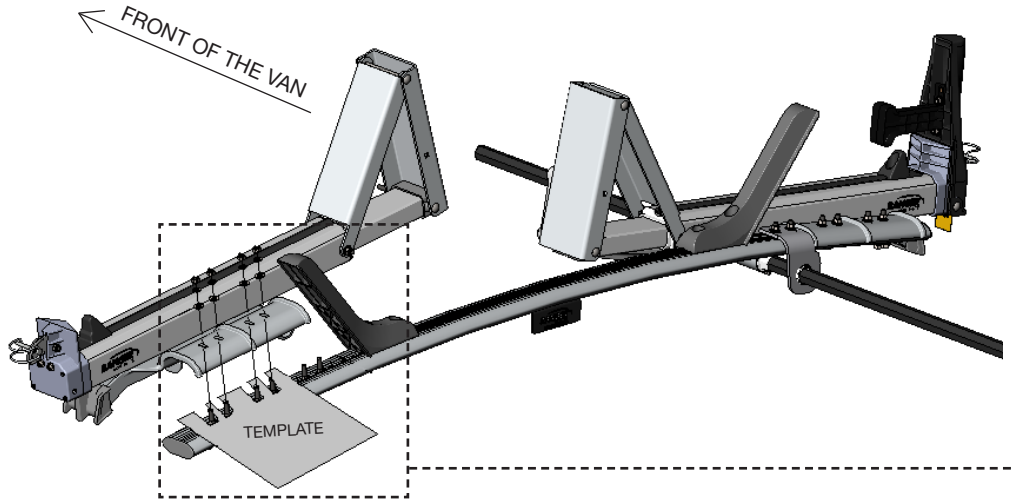
#90-487 Carriage Bolt 5/16" × 3/4"

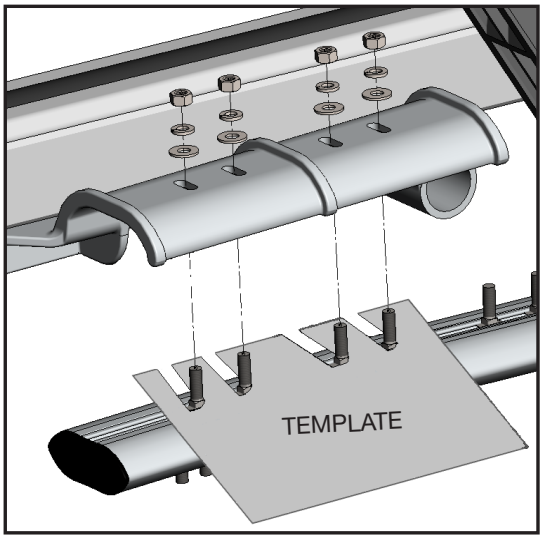
1.2.4 Place the lock frame (driver side) on top of the rear crossbow using the 4 last bolts and template, then complete the attachment using the flat washer, lock washer and hex nut.

NOTE: • If there is no template on the hardware box, use the dimensions on this page to create one.
• Hand-tighten the nuts.



REAR CROSSBOW



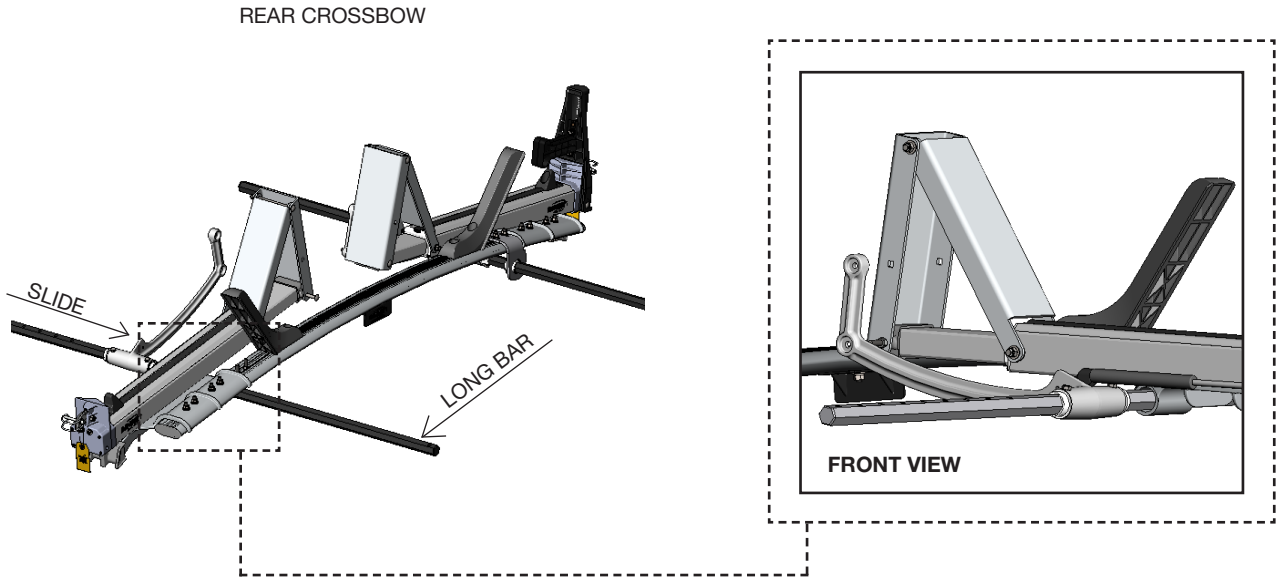


FASTENERS USED (15-1810-IFK1)

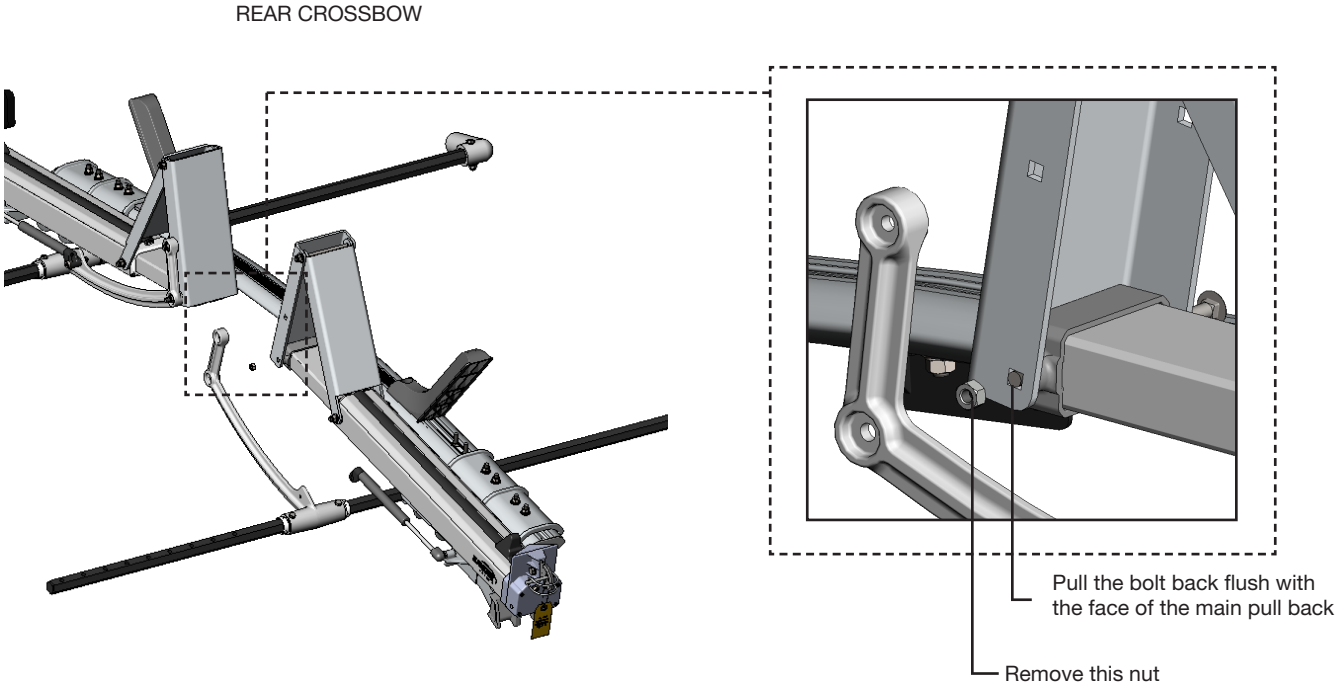
4×

- #94-105 Hex Nut
- #98-123 Lock Washer
- #98-117 Flat Washer

1.2.5 Slide the rear bar (driver side) through the tube under the lock frame (driver side).

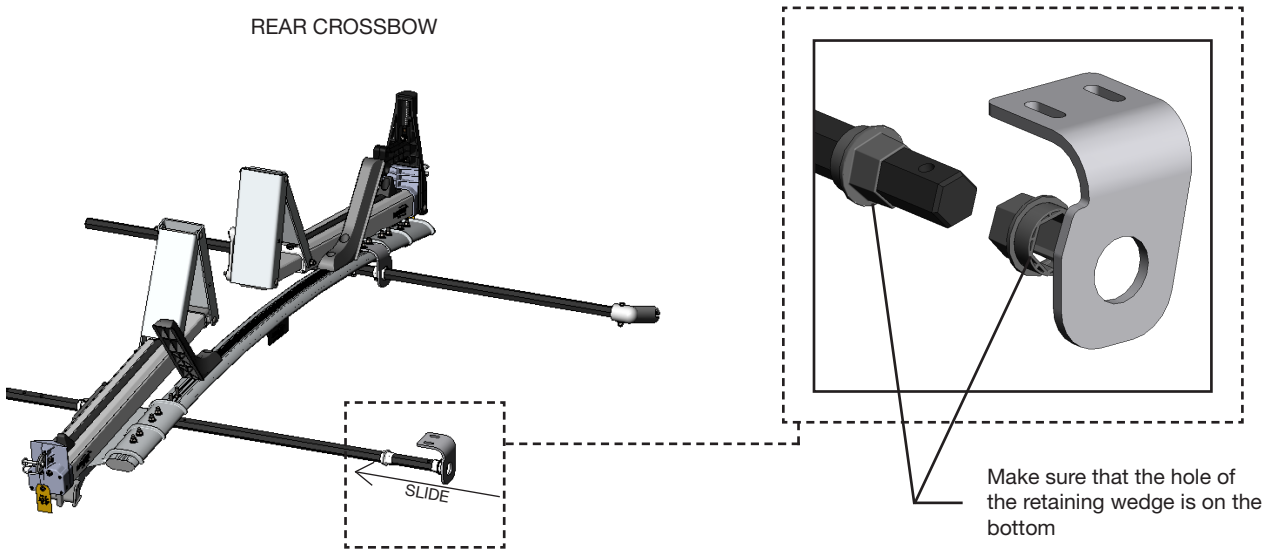


1.2.6 Remove the nut shown in the picture (shipping purposes only), then pull the bolt back flush with the face of the main pull back.



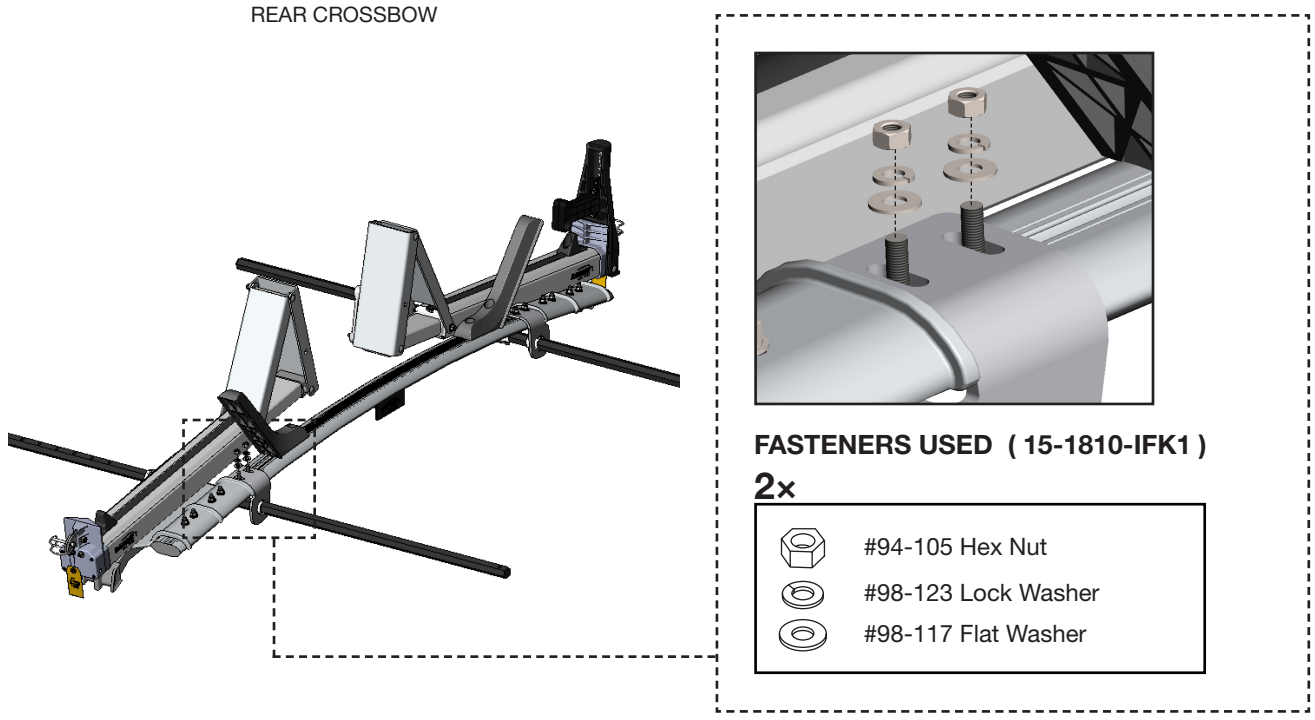
1.2.7 Slide 2 shoulder retaining wedges and the pivot bracket on the rear end of the rear bar.

NOTE: Pay attention to the position of the retaining wedges and pivot bracket.



1.2.8 Attach the pivot bracket to the crossbow using the 2 bolts, then lock it with a flat washer, lock washer and hex nut.

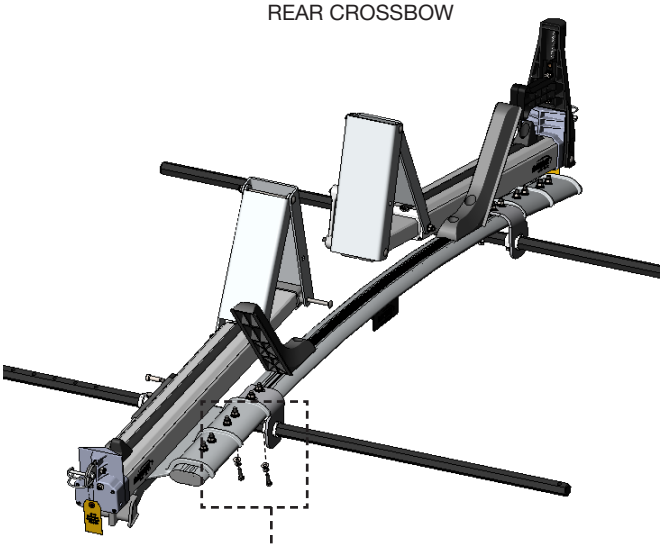
NOTE: Hand-tighten the nuts

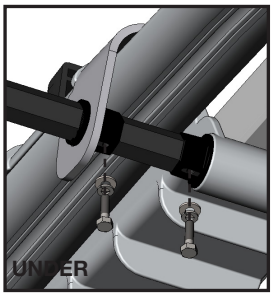


1.2.9 Bolt the 2 retaining wedges to the rear bar.

NOTE: Be careful not to overtighten.

REAR CROSSBOW





TOOLS

- ❑ Ratchet
- ❑ 7/16" Socket

FASTENERS USED (15-1810-IFK2)

2×

#90-115 Hex Bolt 1/4" × 1"

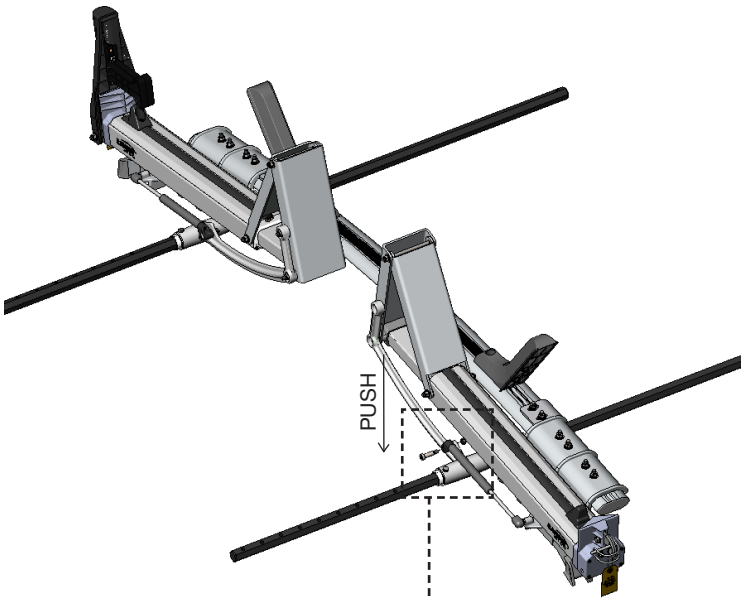
#98-119 Lock Washer

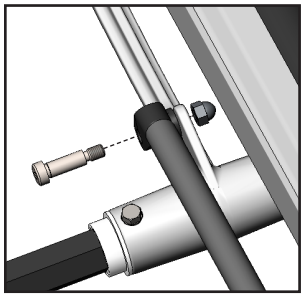
#98-113 Flat Washer

1.2.10 Bolt the loose end of the gas spring to the pivot arm.

NOTE: Move the pivot arm **DOWN** to align the hole to the gas spring.

REAR CROSSBOW





TOOLS

- ❑ Cordless Impact
- ❑ 3/16" Impact Bit
- ❑ 9/16" Wrench

FASTENERS USED (15-1810-IFK2)

1×

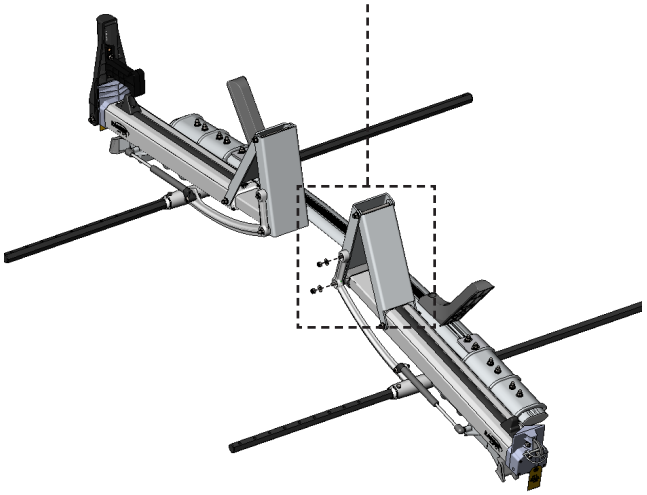
#90-933 SHSSCREW 3/8" × 1"

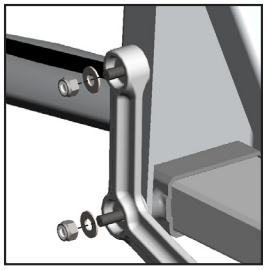
#94-123 Nut Acorn

1.2.11 Bolt the pivot arm to the main pull back.

NOTE: Be careful not to overtighten.

REAR CROSSBOW





TOOLS
- ❑ Ratchet
- ❑ 1/2" Socket

FASTENERS USED (15-1810-IFK2)

1× / TOP

#90-495 Carriage Bolt 5/16" × 1-1/4"

#98-117 Flat Washer

#94-111 Lock Nut

1× / BOTTOM

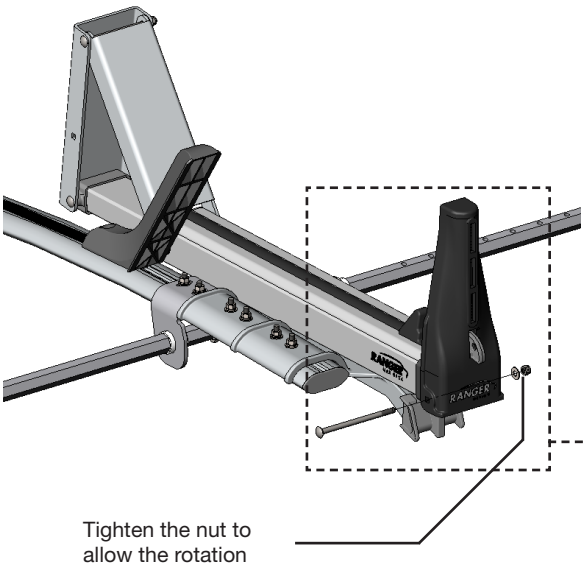
#98-117 Flat Washer

#94-111 Lock Nut

1.2.12 Remove the pin and attach the lock hinge to the lock frame.

NOTE: Tighten the nut to allow the rotation.

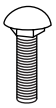
REAR CROSSBOW



TOOLS
- ❑ Cordless Impact
- ❑ 1/2" Socket

FASTENERS USED (15-1810-IFK2)

1×



#90-563 Carriage Bolt 5/16" × 5-1/2"

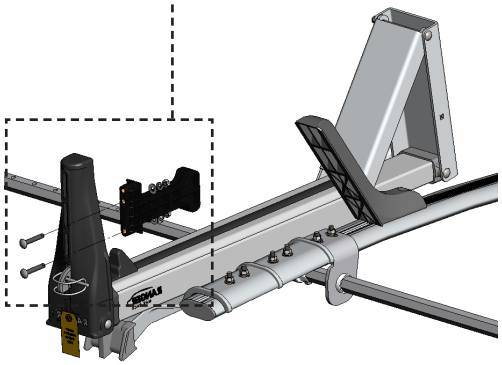
#98-117 Flat Washer

#94-111 Lock Nut

1.2.13 Bolt the lock hook to the lock hinge.

NOTE: Lock hook can be assembled upside down to accommodate different ladder rail size.

REAR CROSSBOW



TOOLS
- ❑ Cordless Impact
- ❑ 1/2" Socket

FASTENERS USED (15-1810-IFK2)

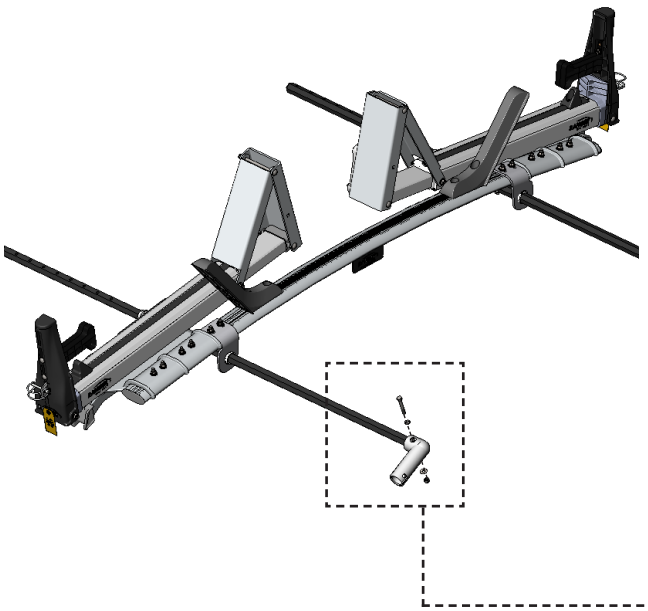
2×

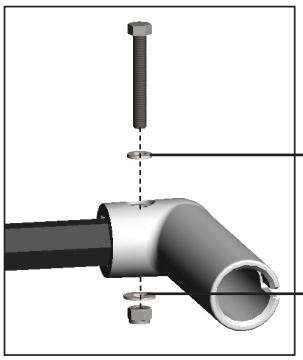
#90-507 Carriage Bolt 5/16" × 2"
#98-117 Flat Washer
#98-123 Lock Washer
#94-105 Hex Nut

1.2.14 Attach the arm socket to the rear end of the rear bar.

WARNING: For a secure and proper installation, it is important for the lock washer and lock nut to be placed in the assigned slot as shown.

REAR CROSSBOW

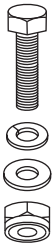




TOOLS
- ❑ Cordless Impact
- ❑ 1/2" Socket

HARDWARE USED

1×



#90-229 Hex Bolt 5/16" × 2-1/4"
#98-123 Lock Washer
#98-117 Flat Washer
#94-105 Lock Nut

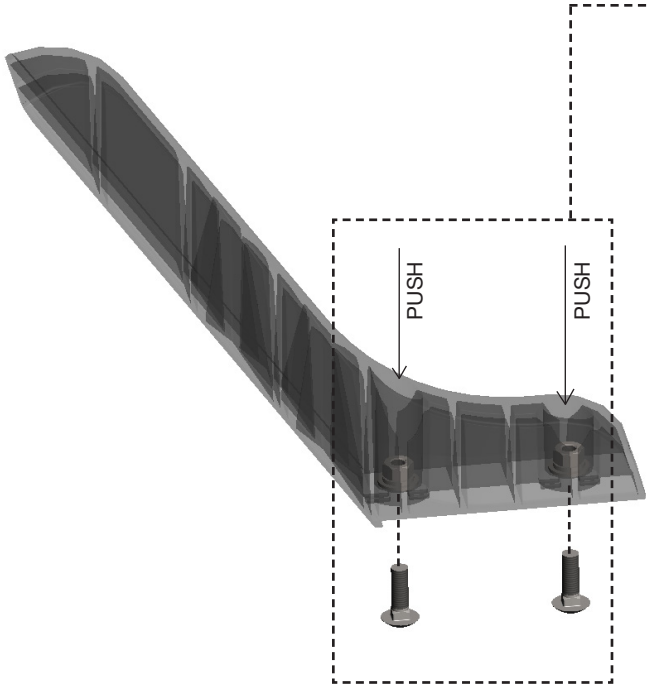
PHASE 1 – ASSEMBLY

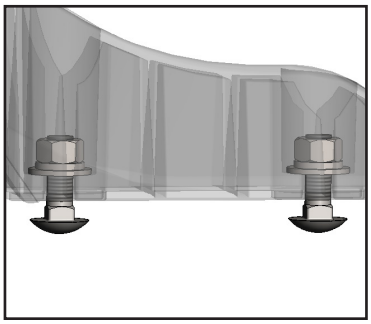
1.3 FRONT CROSSBOW ASSEMBLY

NOTE: If you have a third bar crossbow stop here and don't do all the next step.
Open the third bar crossbow box and follow the installation guide to coplete your Max Rack.

1.3.1 Put flat washers, lock washers and hex nuts in the holes of the Interlocking Hook, then push the hex nut using one finger while attaching the carriage bolt to the hex nut.

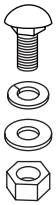
NOTE: Leave the bolts loose.





FASTENERS USED (15-1810-IFK1)

2×



#90-491 Carriage Bolt 5/16" × 1"

#98-123 Lock Washer

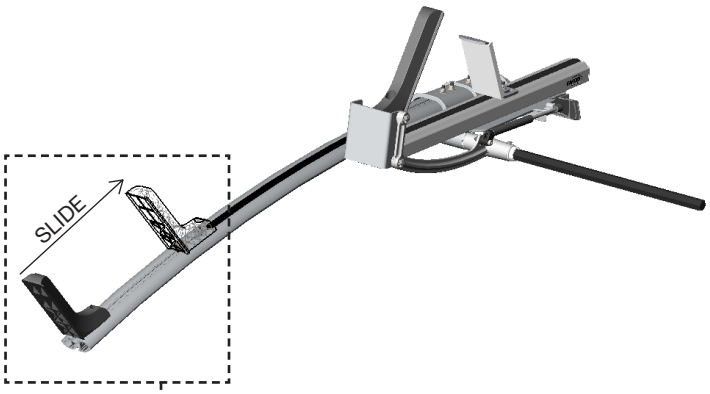
#98-117 Flat Washer

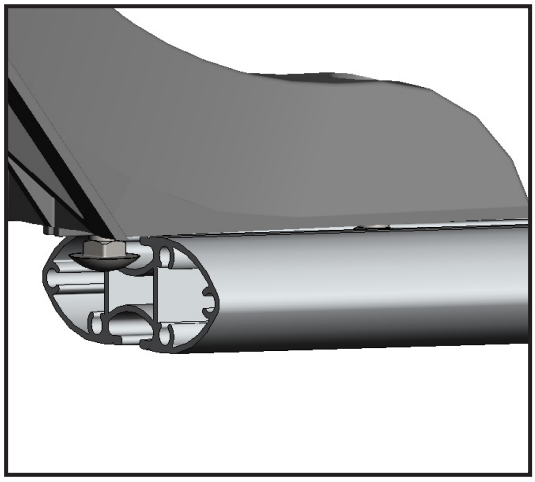
#94-105 Hex Nut

1.3.2 Slide the interlocking hook with the bolts to the front crossbow.

NOTE: **<u>Leave the bolts loose</u>** to allow for adjustment.

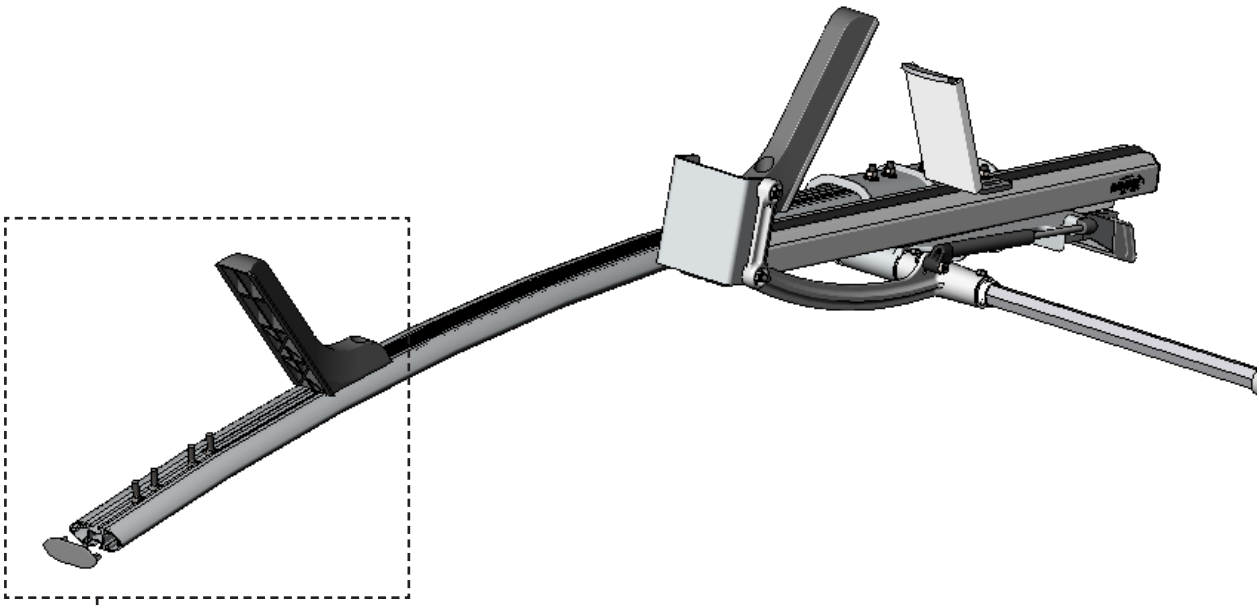
FRONT CROSSBOW

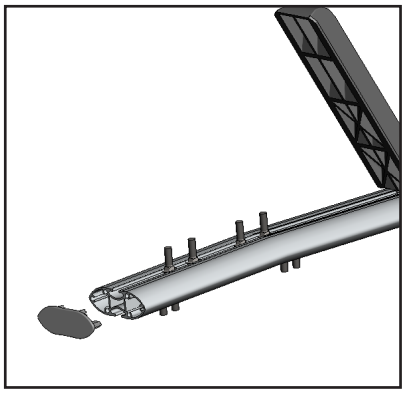




1.3.3 • Slide 4 bolts on top of the driver end of the front crossbow.
• Slide 4 bolts under the front crossbow on driver ends.
• Attach end crossbow plastic plug on both end of the front crossbow.

FRONT CROSSBOW





FASTENERS USED (15-1810-IFK1)

4× / TOP

#90-491 Carriage Bolt 5/16" × 1"

FASTENERS USED (15-1806-IFK)

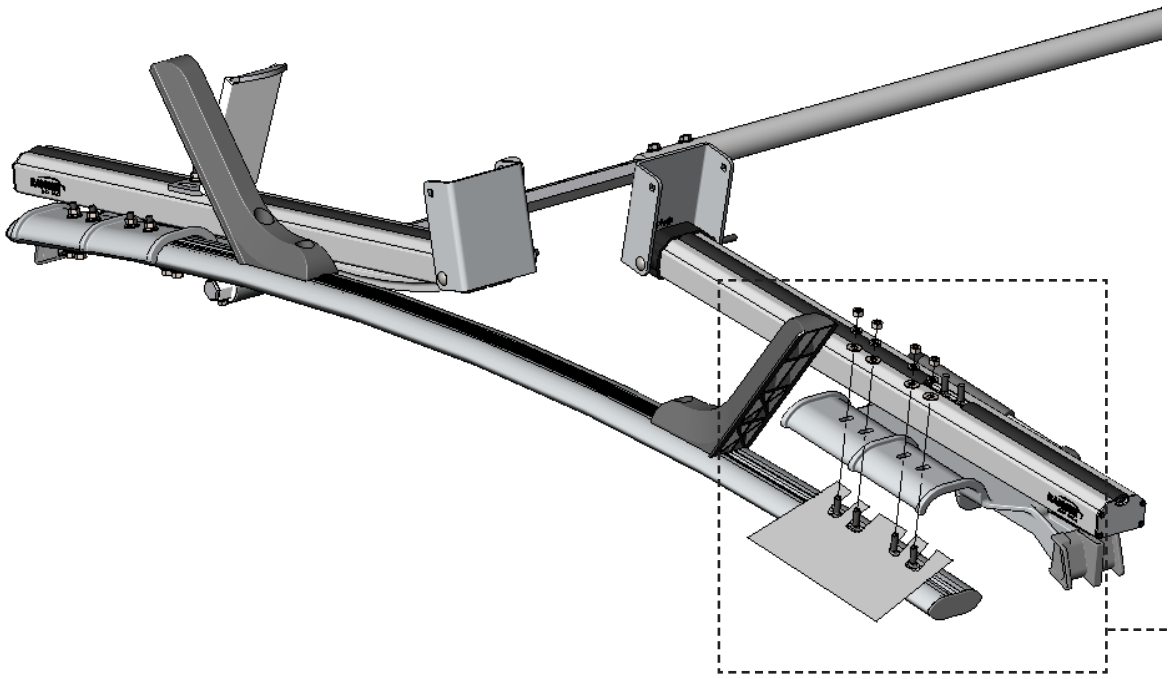
4× / UNDER

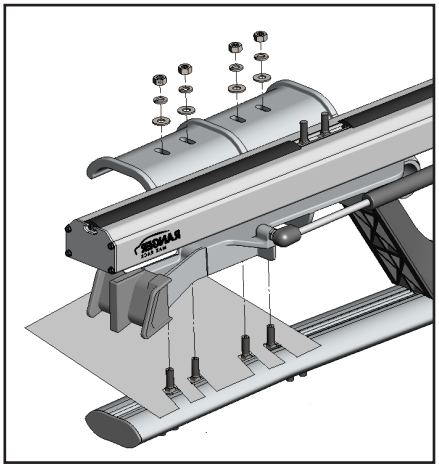
#90-487 Carriage Bolt 5/16" × 3/4"

1.3.4 Place the hook frame (driver side) on top of the front crossbow using the 4 bolts and template, then complete the attachment using the flat washer, lock washer and hex nut.

NOTE: Hand-tighten the nuts

FRONT CROSSBOW





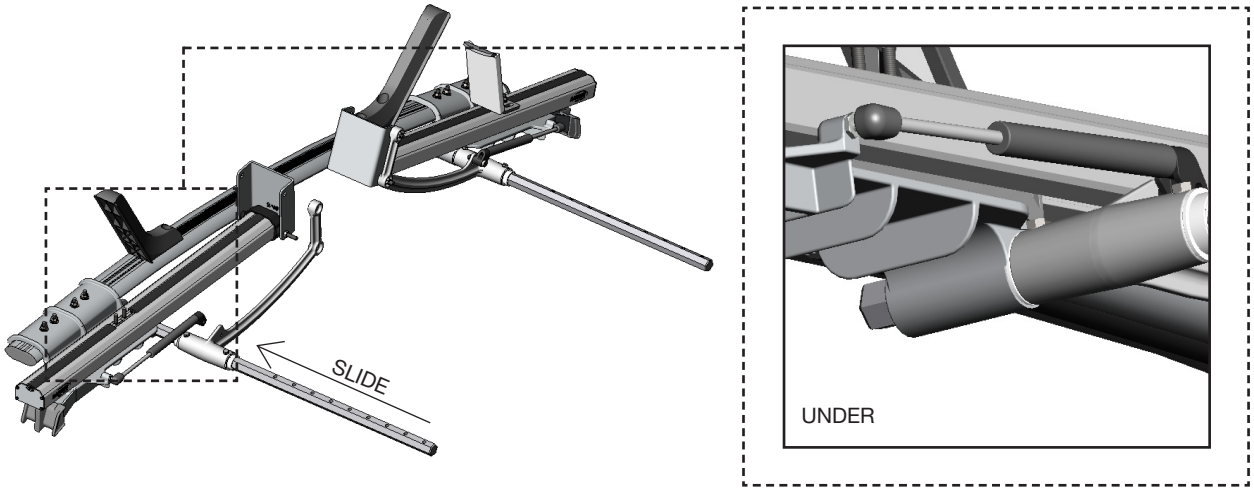
FASTENERS USED (15-1810-IFK1)

4×

- #94-105 Hex Nut
- #98-123 Lock Washer
- #98-117 Flat Washer

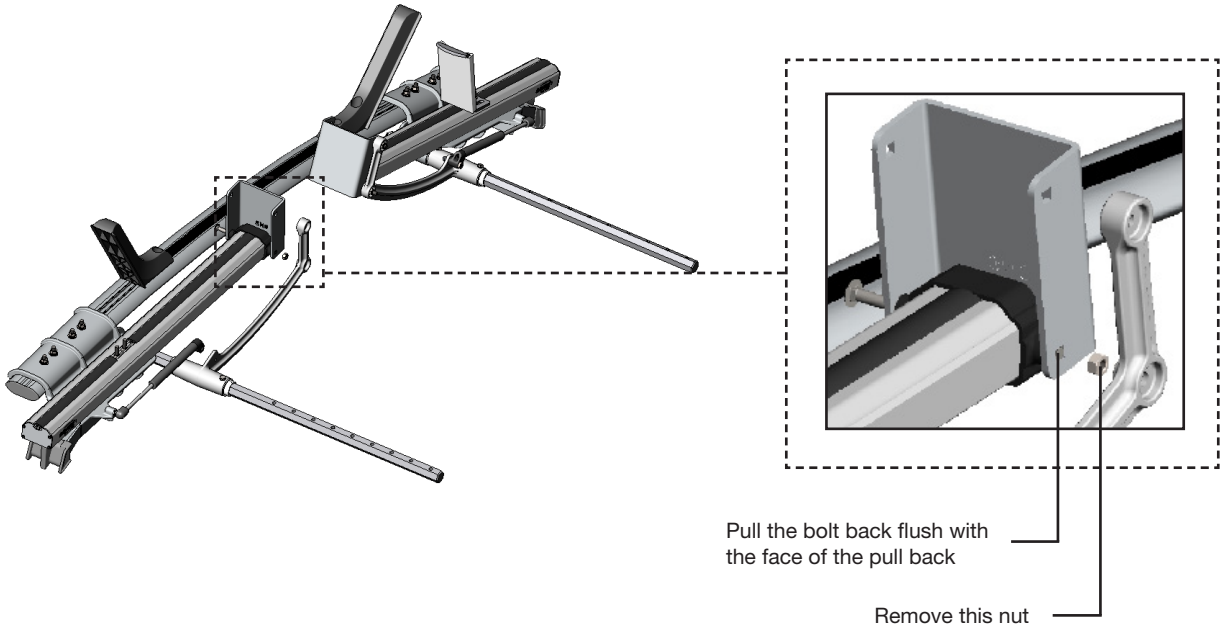
1.3.5 Slide the front bar (driver side) through the tube under the hook frame (driver side).

FRONT CROSSBOW



1.3.6 Remove the nut shown in the picture (shipping purposes only), then pull the bolt back flush with the face of the pull back

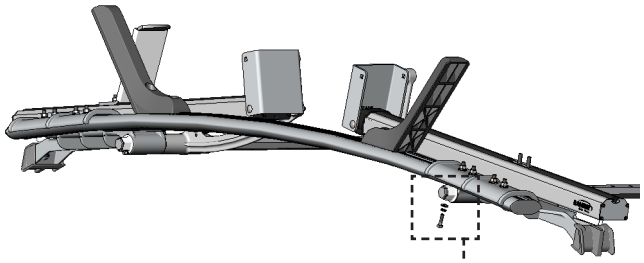
FRONT CROSSBOW

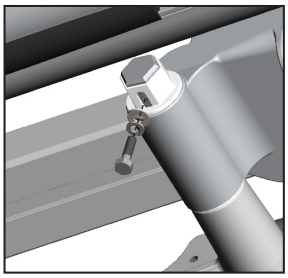


1.3.7 Attach 1 retaining wedge on the front end of the front bar.
(Be careful not to overtighten)

NOTE: Pay attention to the position of the retaining wedge.

FRONT CROSSBOW





TOOLS

- ❑ Ratchet
- ❑ 7/16" Socket

FASTENERS USED (15-1810-IFK2)

1×

#90-115 Hex Bolt 1/4" × 1"

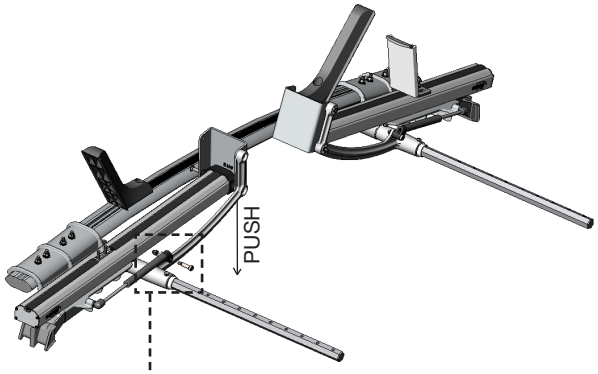
#98-119 Lock Washer

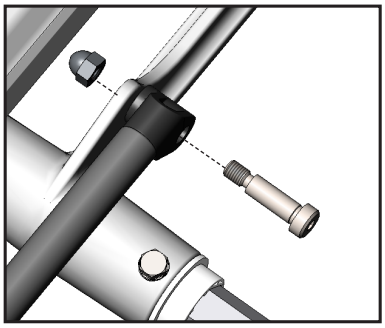
#98-113 Flat Washer

1.3.8 Bolt the loose end of the gas spring to the pivot

NOTE: Move the pivot arm **DOWN** to align the hole to the gas spring.

FRONT CROSSBOW





FASTENERS USED (15-1810-IFK2)

1×

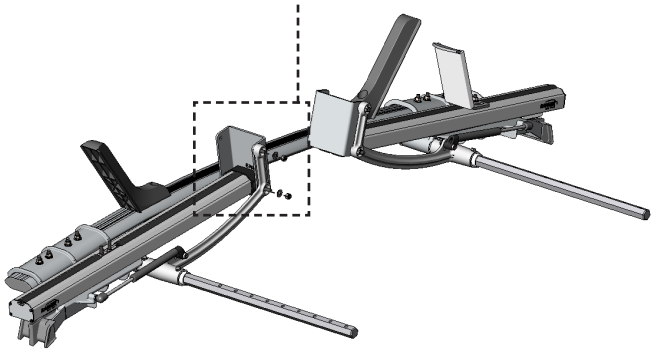
#90-933 SHSSCREW 3/8" × 1"

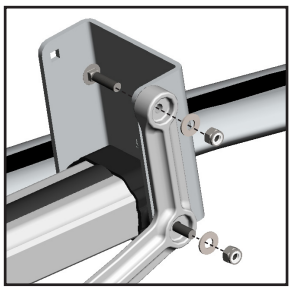
#94-123 Nut Acorn

1.3.9 Bolt the pivot arm to the hook frame.

NOTE: Be careful not to overtighten.

FRONT CROSSBOW





TOOLS
- ❑ Ratchet
- ❑ 1/2" Socket

FASTENERS USED (15-1810-IFK2)

1× / TOP

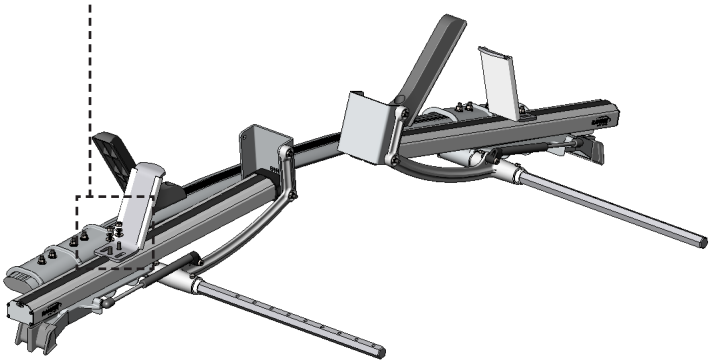
	#90-495 Carriage Bolt 5/16" × 1-1/4"
	#98-117 Flat Washer
	#94-111 Lock Nut

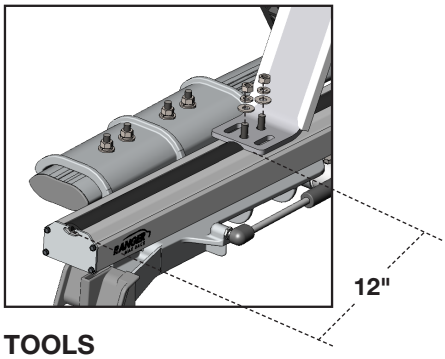
1× / BOTTOM

	#98-117 Flat Washer
	#94-111 Lock Nut

1.3.10 Attach the front hook to the 2 carriage bolts on top of the hook frame.

FRONT CROSSBOW





TOOLS
- ❑ Cordless Impact
- ❑ 1/2" Impact Bit

FASTENERS USED (15-1810-IFK2)

2×

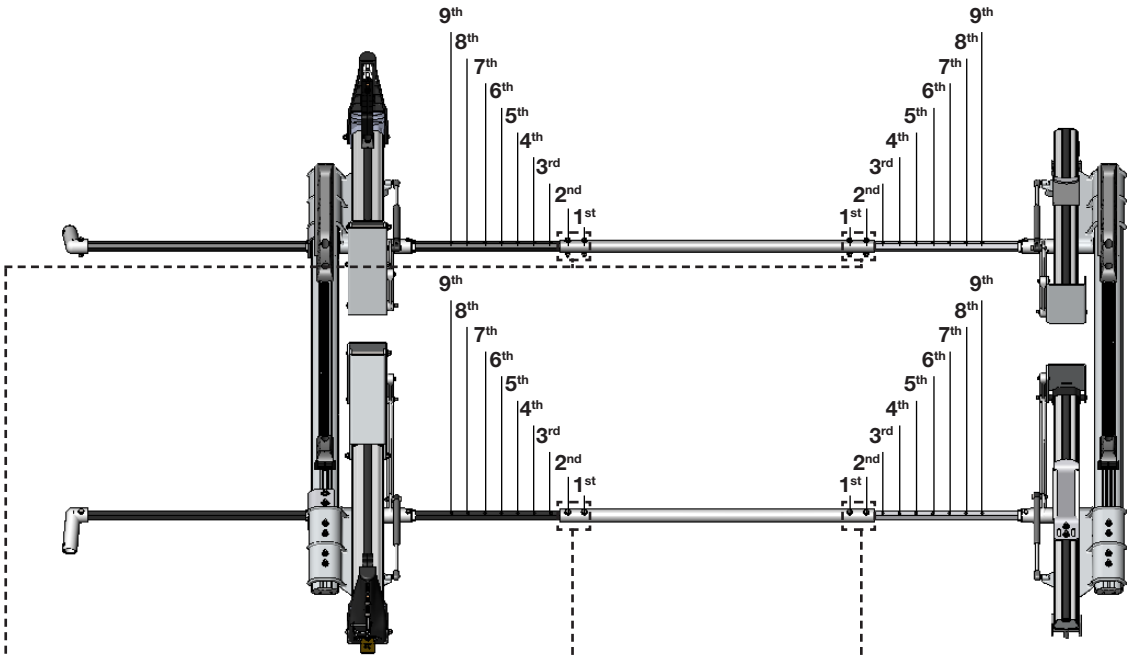
	#94-105 Hex Nut
	#98-123 Lock Washer
	#98-117 Flat Washer

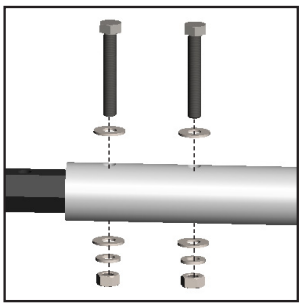
PHASE 1 – ASSEMBLY

1.4 FOR OVERHEAD LIFTER ASSEMBLY

1.4.1 Attach the ends of the front and rear bars to the center tube.

NOTE: Do this step if you have a lifter.

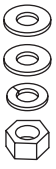




FASTENERS USED (15-1810-IFK3)

8×

#90-229 Hex Bolt 5/16" × 2-1/4"



#98-117 Flat Washer

#98-117 Flat Washer

#98-123 Lock Washer

#94-105 Hex Nut

VEHICLE	MAX LADDER SIZE	CROSSBOW CENTER TO CENTER DISTANCE
ALL VEHICLE EXCEPT NISSAN NV , RAM PROMASTER 118" WHEELBASE & FORD TRANSIT REGULAR WHEELBASE	20' TO 32' EXTENSION LADDER	94 - 1/2" (1st & 2nd HOLES)
	LESS THAN 20' EXTESION LADDER (INCL. STEP LADDER)	66 - 1/2" (8th & 9th HOLES)
NISSAN NV	20' & 24' EXTENSION LADDER	70 - 1/2" (7th & 8th HOLES)
	LESS THAN 20' EXTENSION LADDER (INCL. STEP LADDER)	66 - 1/2" (8th & 9th HOLES)
RAM PROMASTER 118" WHEELBASE	20' TO 28' EXTENSION LADDER	82 - 1/2" (4th & 5th HOLES)
	LESS THAN 20' EXTENSION LADDER (INCL. STEP LADDER)	66 - 1/2" (8th & 9th HOLES)
FORD TRANSIT REGULAR WHEELBASE	20' & 24' EXTENSION LADDER	70 - 1/2" (7th & 8th HOLES)
	LESS THAN 20' EXTENSION LADDER (INCL. STEP LADDER)	66 - 1/2" (8th & 9th HOLES)

“You have successfully completed Operation 2
Max Rack Passenger Side Mechanism!
Open the mounting track box to install the Max Rack on your vehicle.

Thank you for doing business with us.”

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

RANGER DESIGN

INSTALLATION GUIDE

15-0034 MOUNTING TRACKS

Ram ProMaster (159" Extended Wheelbase, High Roof)

RANGER DESIGN

QUICK START GUIDE

Phase 1 - Assembly

❑ 1.1 Setup..... 3 TO 4
❑ 1.2 Crossbow assembly..... 5

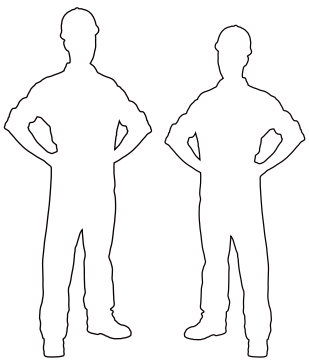
Phase 2 - Installation

❑ 2.1 Mounting Tracks installation..... 6
❑ 2.2 Max Rack installation..... 7 TO 11

Phase 3 - Adjustment

❑ 3.1 Adjustment for Max Rack..... 12 TO 14

REQUIRED ITEMS FOR COMPLETE MAX RACK & LADDER RACK



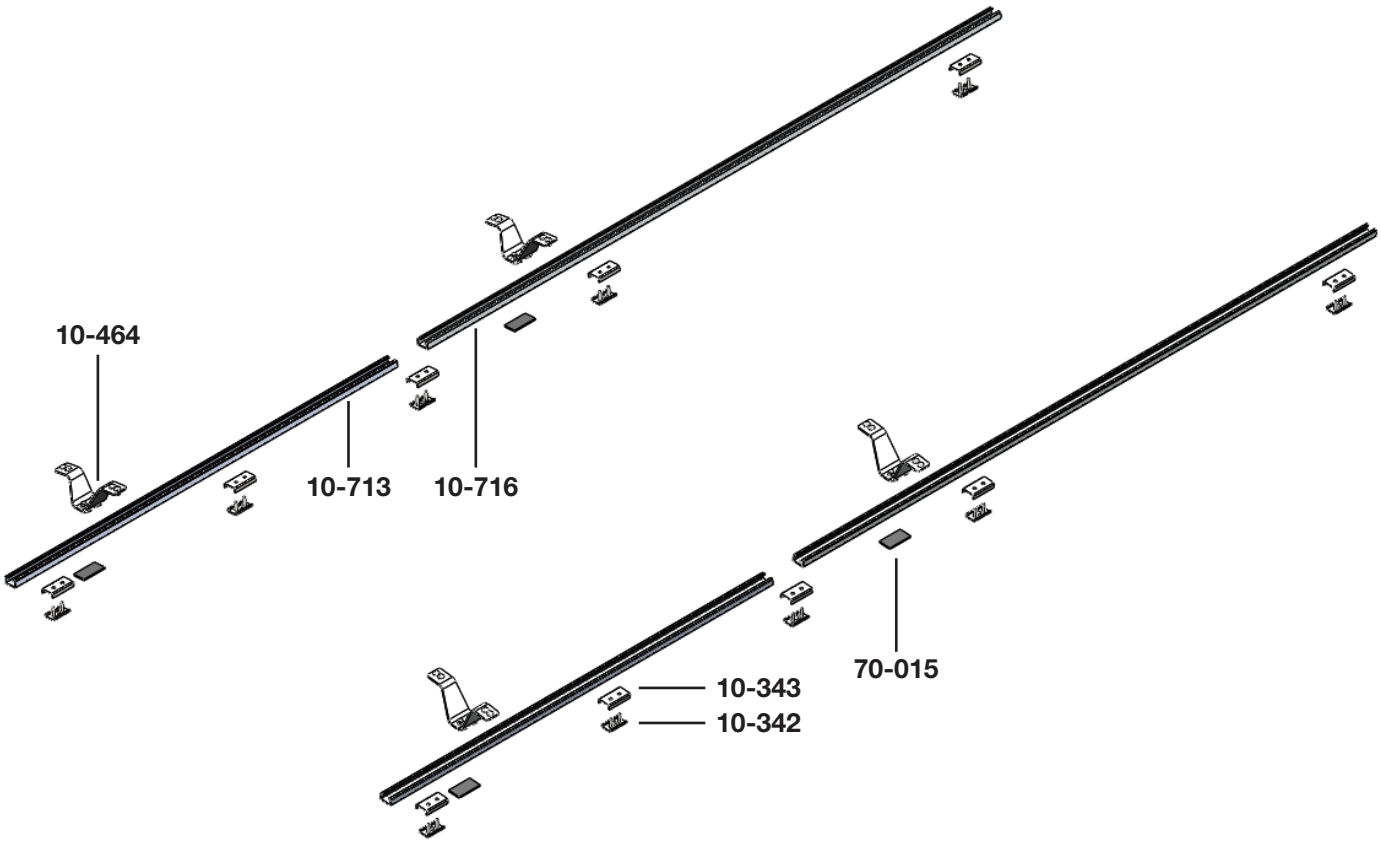
2 PERSONS

- ❑ Cordless Impact
- ❑ Ratchet
- ❑ Tape Measure
- ❑ Marker
- ❑ Ladder
- ❑ 9/16" Wrench
- ❑ 1/2" Wrench
- ❑ 7/16" Socket
- ❑ 1/2" Socket
- ❑ Sawhorse (Optional)
- ❑ Box
- ❑ Cutter

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.

Item No.	Description	Qty.
10-342	Roof Clamp	10
10-343	Top Roof Clamp	10
10-464	V Bracket	4
10-716	Mounting Track 88.5" Long	2
10-713	Mounting Track 59" Long	2
70-015	Foam Sheet	4
96-1006	Installation Fastener Bag	1

1.1.3 Identify the **Assembly** and **Installation** fastener bags.

Fastener Bag From Crossbows → Fastener Assembly

16×		**# 90-487**	Carriage Bolt 5/16"-18 × 3/4" SS304
16×		**# 94-105**	Hex Nut 5/16"-18 SS316wax
16×		**# 98-117**	Flat Washer 5/16" OD, 3/4" SS18-8
16×		**# 98-123**	Lock Washer 5/16" SS304

NOTE: The carriage bolts should already be installed.

16×

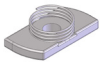
#90-487 Hex Bolt 5/16" × 3/4"

#98-117 Flat Washer

#98-123 Lock Washer

#94-105 Hex Nut

Installation Fastener Bag → Fastener Assembly

8×		**# 90-209**	Hex Bolt 5/16"-18 × 1" SS304
20×		**# 94-105**	Hex Nut 5/16"-18 SS316wax
8×		**# 94-150**	Channel Nut 5/16"
28×		**# 98-117**	Flat Washer 5/16" OD, 3/4" SS18-8
28×		**# 98-123**	Lock Washer 5/16" SS304

8×

#90-209 Hex Bolt 5/16" × 1"

#98-123 Lock Washer

#98-117 Flat Washer

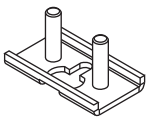
#94-150 Channel Nut

20×

#94-105 Hex Nut

#98-123 Lock Washer

#98-117 Flat Washer

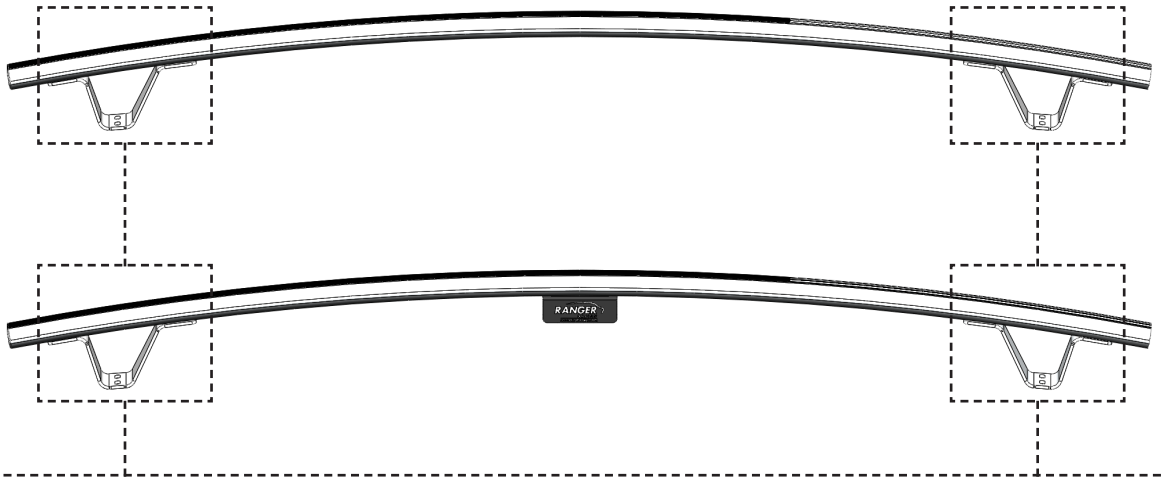

Roof Clamp (10)

PHASE 1 – ASSEMBLY

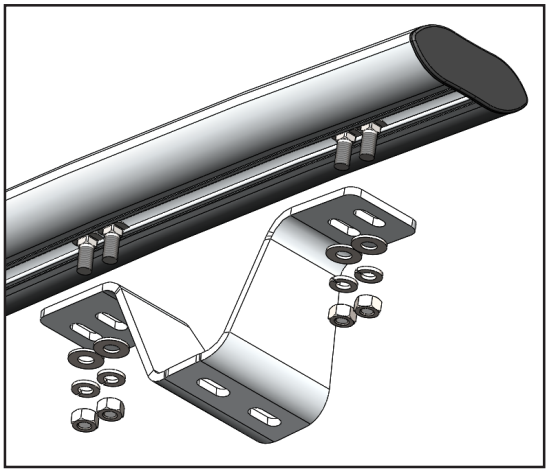
1.2 CROSSBOW ASSEMBLY

1.2.1 Attach the V bracket.

NOTE: Leave the bolts loose to allow for adjustment.



NOTE: The more slanted side of the V brackets should be closer to the center of the crossbows.



NOTE: The carriage bolts should already be installed in the crossbows.

FASTENERS USED

16×

#90-487 Hex Bolt 5/16" × 3/4"

#98-117 Flat Washer

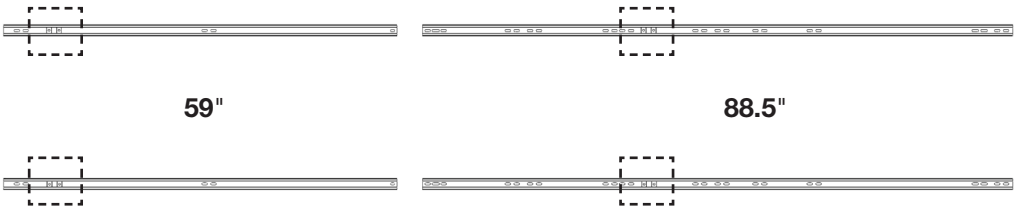
#98-123 Lock Washer

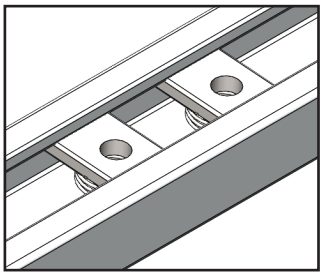
#94-105 Hex Nut

PHASE 2 – INSTALLATION

2.1 MOUNTING TRACKS INSTALLATION

2.1.1 Install the channel nuts in the mounting tracks.





FASTENERS USED

8×

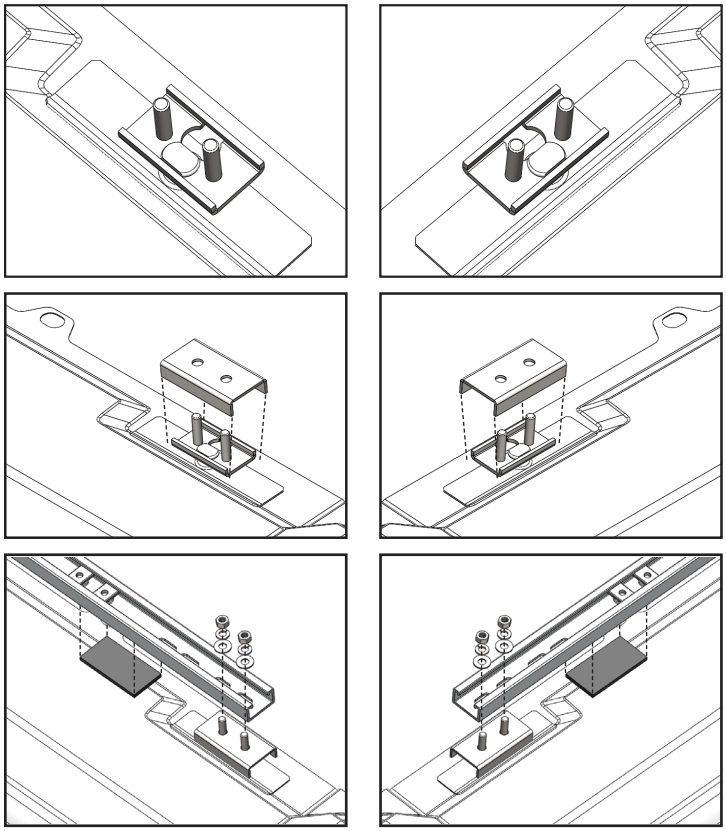
#94-150 Channel Nut

2.1.2 Install the mounting tracks onto the roof of the van.

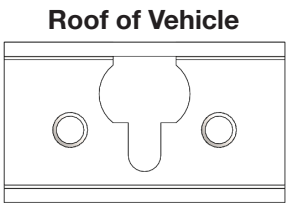
NOTE: Notice the orientations of the roof clamps, top roof clamps and the mounting tracks. The top roof clamp should lay flat on the roof clamp and not slant.

Rear View

Driver Side | **Passenger Side**



Roof Clamp Orientation

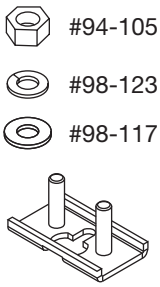


TOOLS

- ❑ Cordless Impact
- ❑ 1/2" Socket

FASTENERS USED

20×



#94-105 Hex Nut

#98-123 Lock Washer

#98-117 Flat Washer

Roof Clamp (10)

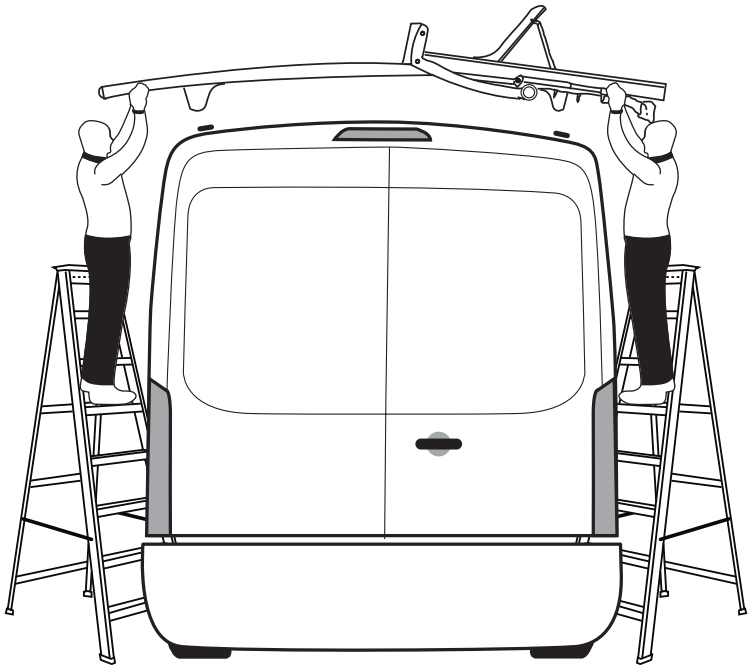
PHASE 2 – INSTALLATION

2.2 MAX RACK INSTALLATION

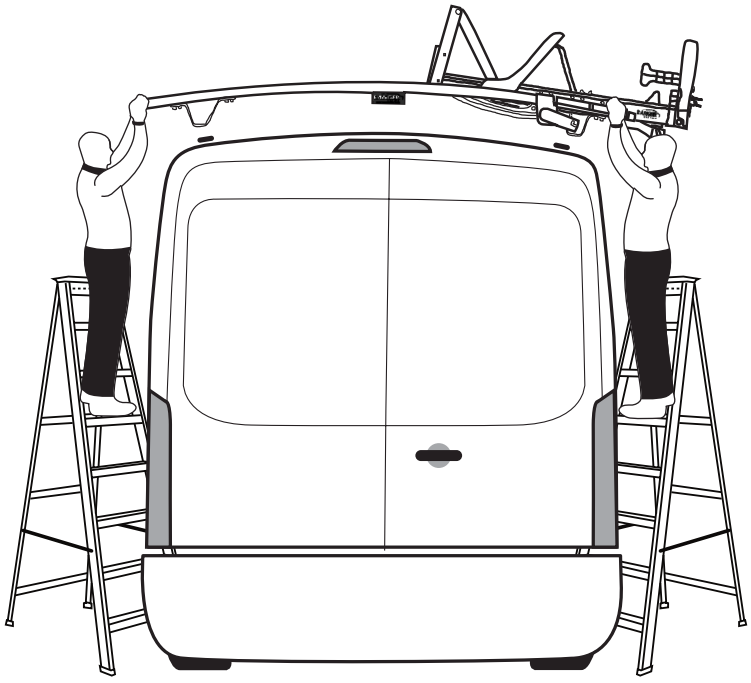
2.2.1 Position the Max Rack **(minimum two persons)** on the vehicle so that the feet are on the tracks.

NOTE: If you do not have a lifter, lift the front crossbow onto the roof first then the rear crossbow.

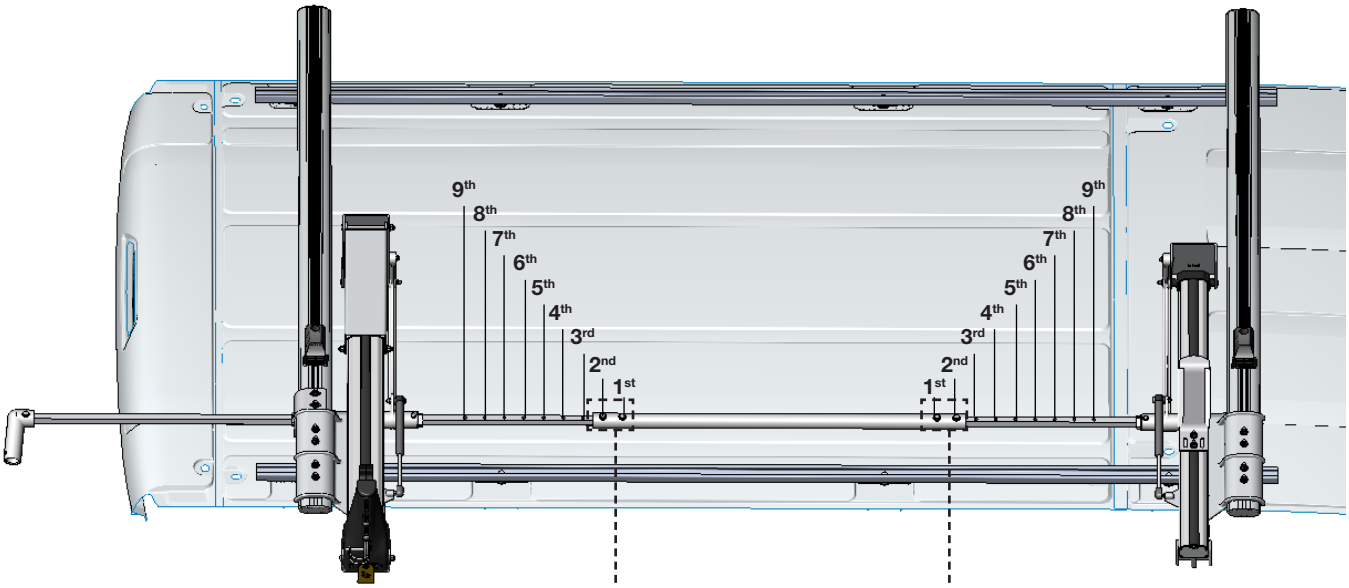
FRONT CROSSBOW

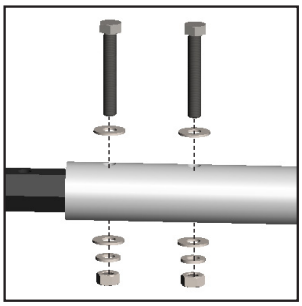


REAR CROSSBOW



2.2.2 Attach the ends of the front and rear bars to the center tube.





TOOLS

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

FASTENERS USED (IFK 3rd for 15-1810)

4×

#90-229 Hex Bolt 5/16" × 2-1/4"

#98-117 Flat Washer

#98-117 Flat Washer

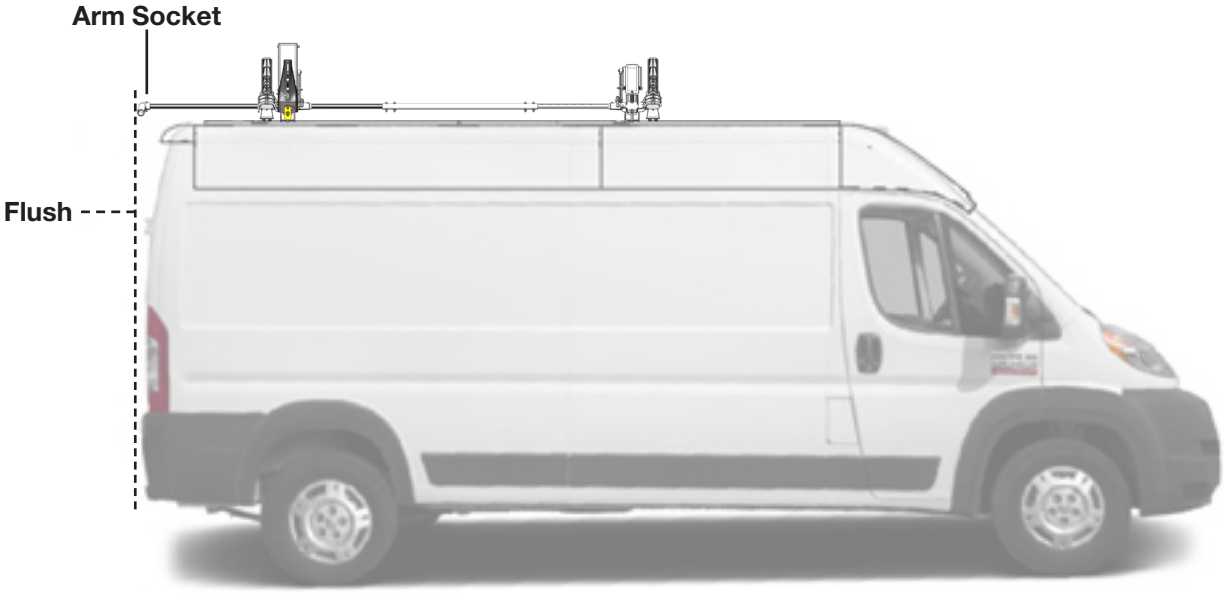
#98-123 Lock Washer

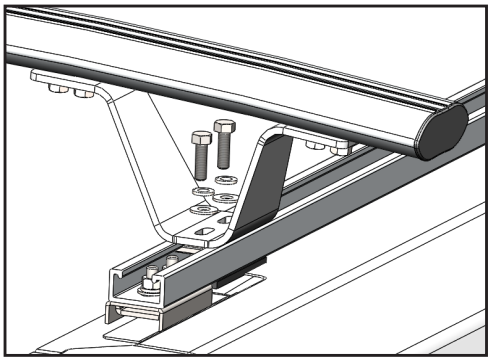
#94-105 Hex Nut

VEHICLE	MAX LADDER SIZE	CROSSBOW CENTER TO CENTER DISTANCE
ALL VEHICLES EXCEPT NISSAN NV , RAM PROMASTER 118" WHEELBASE & FORD TRANSIT REGULAR WHEELBASE	20' TO 32' EXTENSION LADDER	94 - 1/2" (1st & 2nd HOLES)
	LESS THAN 20' EXTENSION LADDER (INCL. STEP LADDER)	66 - 1/2" (8th & 9th HOLES)
NISSAN NV	20' & 24' EXTENSION LADDER	70 - 1/2" (7th & 8th HOLES)
	LESS THAN 20' EXTENSION LADDER (INCL. STEP LADDER)	66 - 1/2" (8th & 9th HOLES)
RAM PROMASTER 118" WHEELBASE	20' TO 28' EXTENSION LADDER	82 - 1/2" (4th & 5th HOLES)
	LESS THAN 20' EXTENSION LADDER (INCL. STEP LADDER)	66 - 1/2" (8th & 9th HOLES)
FORD TRANSIT REGULAR WHEELBASE	20' & 24' EXTENSION LADDER	70 - 1/2" (7th & 8th HOLES)
	LESS THAN 20' EXTENSION LADDER (INCL. STEP LADDER)	66 - 1/2" (8th & 9th HOLES)

2.2.3 • Align the arm socket to the rear bumper of the vehicle.
• Attach all the V brackets to the mounting tracks.

NOTE: These conditions must be respected:
• The arm socket and the ladder cannot extend beyond the rear bumper of the vehicle.
• The center of the ladder must be behind the Front Hook when the ladder is loaded.





TOOLS
- ❑ Ratchet
- ❑ 1/2" Socket

FASTENERS USED

8×

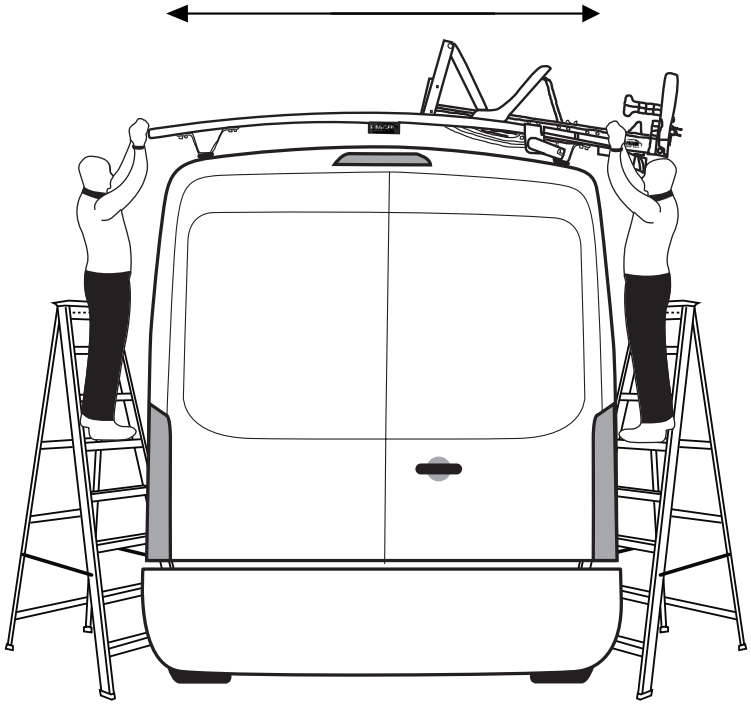
#90-209 Hex Bolt 5/16" × 1"

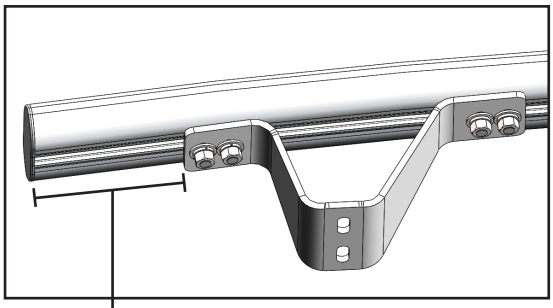
#98-123 Lock Washer

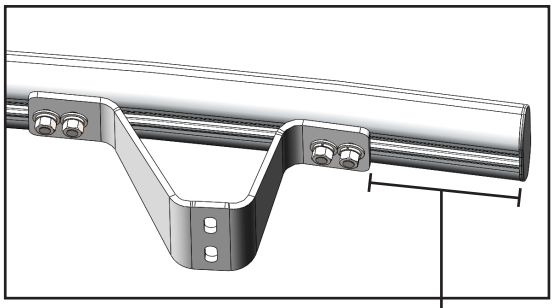
#98-117 Flat Washer

#94-150 Channel Nut

2.2.4 • Center the crossbows on the vehicle.
• Tighten all the V brackets to the crossbows.



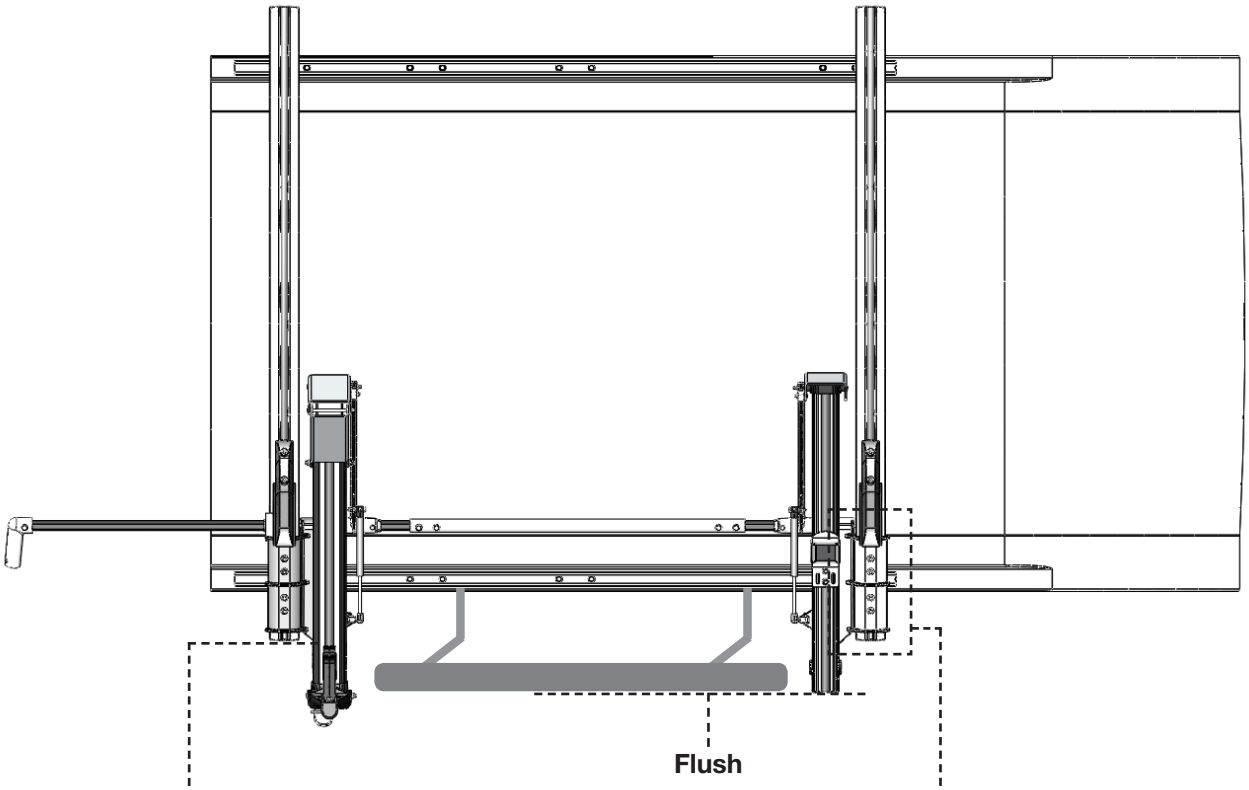


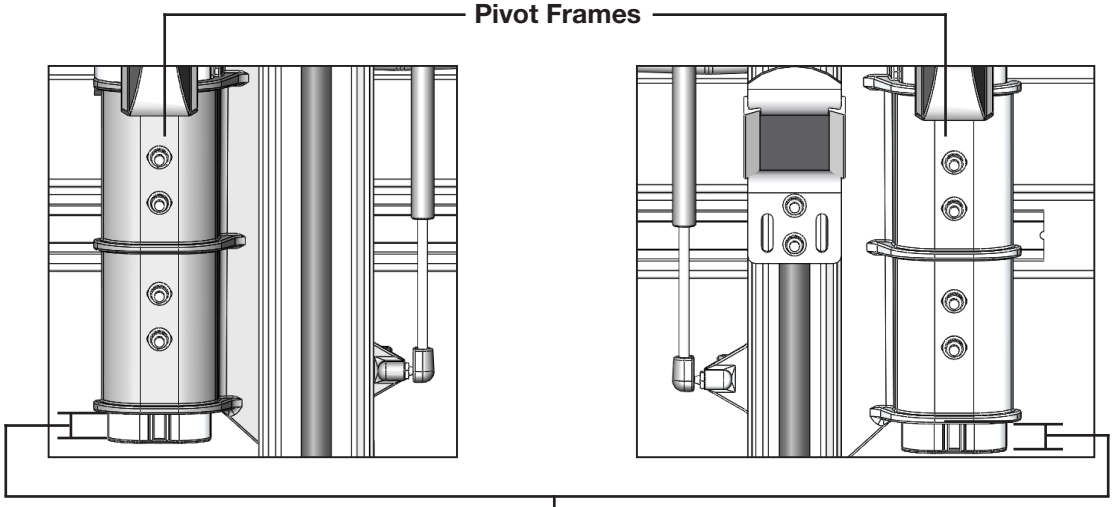


Same Lengths

TOOLS
- ❑ Ratchet
- ❑ 1/2" Socket
- ❑ Tape Measure

2.2.5 • Align the side of the Max Rack with the opened sliding door
• Tighten both Pivot Frames.



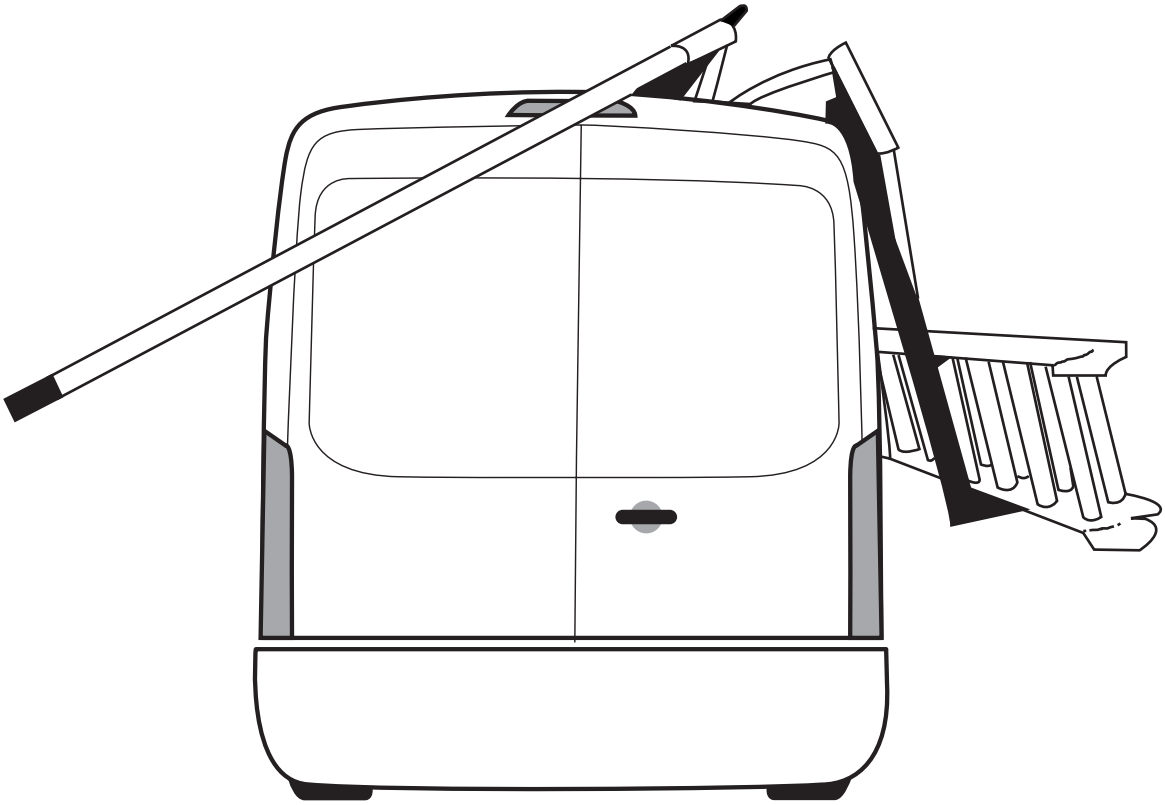


TOOLS
- ❑ Cordless Impact
- ❑ 1/2" Socket

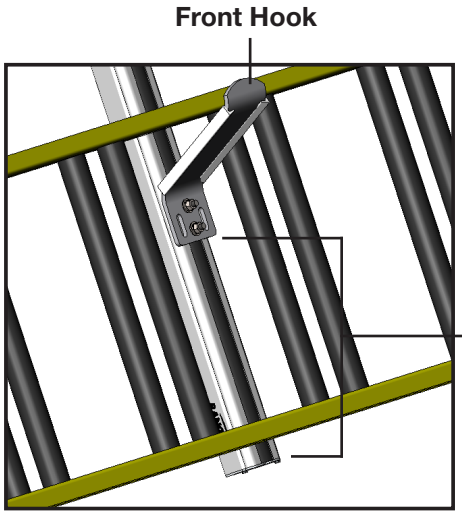
PHASE 3 – ADJUSTMENT

3.1 ADJUSTMENT FOR MAX RACK

3.1.1 • Place the Max Rack in the down position.
- Load the ladder onto the Max Rack.
- Tighten the Lock Hook and the Front Hook.

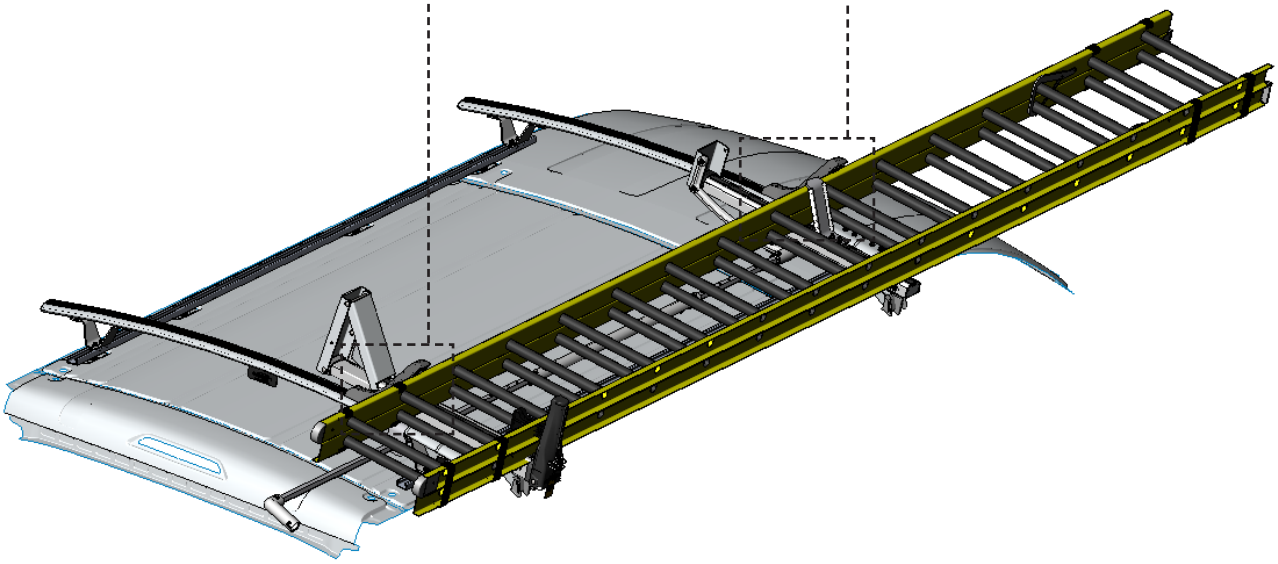


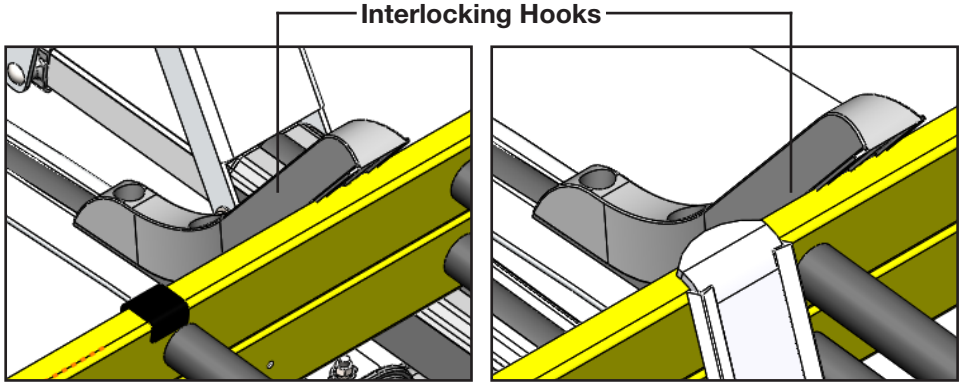
The lock hook can be installed upside down to accomodate different ladders.



TOOLS
- ❑ Cordless Impact
- ❑ 1/2" Socket

3.1.2 • Place the Max Rack in the up position.
• Slide the 2 Interlocking Hooks until they touch the ladder, then tighten them.

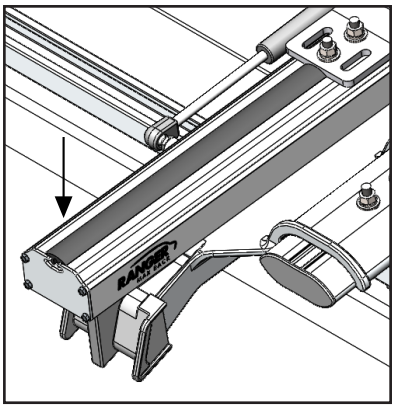




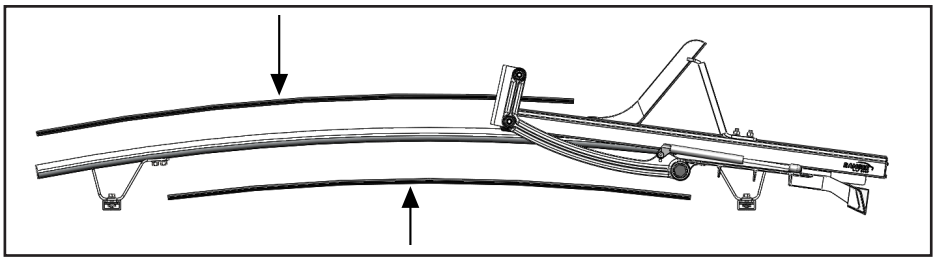
TOOLS
- ❑ Cordless Impact
- ❑ 1/2" Socket

3.1.3 Cut plug extrusions to fit the following 4 locations and install them.

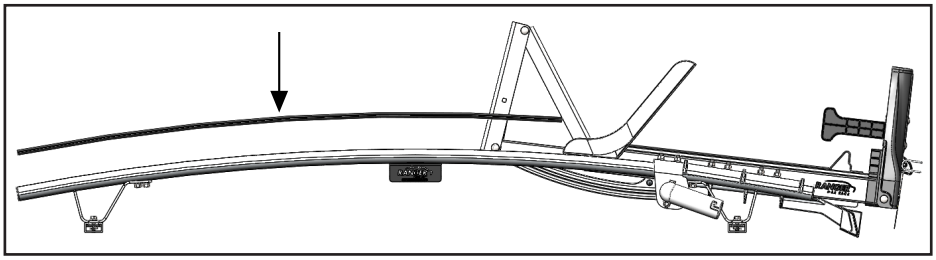
Hook Frame



Front Crossbow Assembly



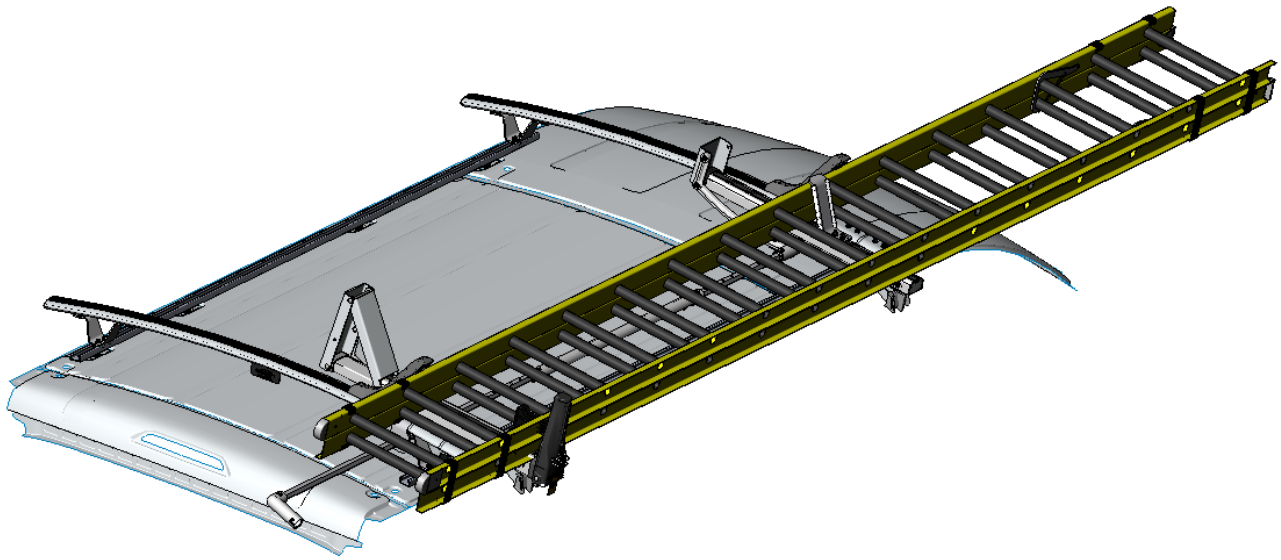
Rear Crossbow Assembly



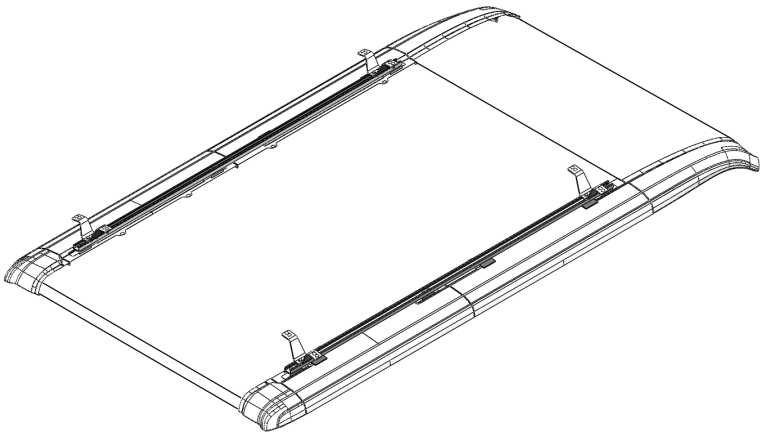
TOOLS

❑ Cutter

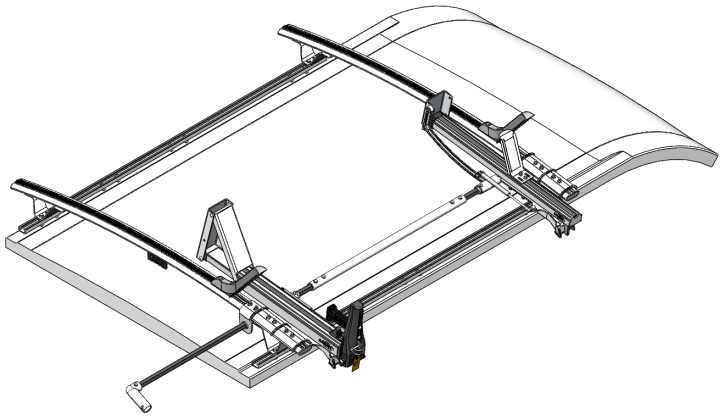
3.1.4 • Ensure that everything is safely assembled and fastened.
• With the ladder locked, operate your Max Rack a few times, while carefully observing the moving parts.



Mounting Tracks



Max Rack



“Congratulations, you have successfully installed your Mounting Tracks and your completed Rack on your vehicle!

Thank you for doing business with us.”

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

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