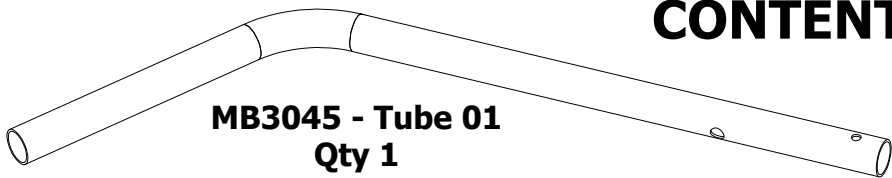


MB3045 JLU CAGE ASSEMBLY**JEEP JLU 4 DOOR CAGE****FITS 2018 - PRESENT****ASSEMBLY INSTRUCTIONS**

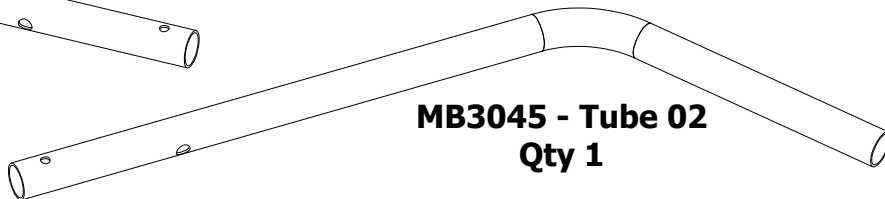
MB3045 JLU CAGE ASSEMBLY

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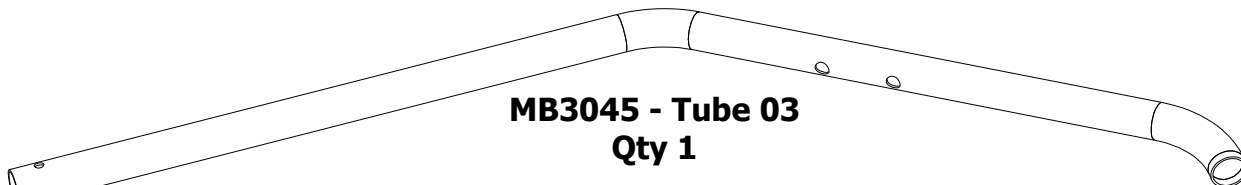
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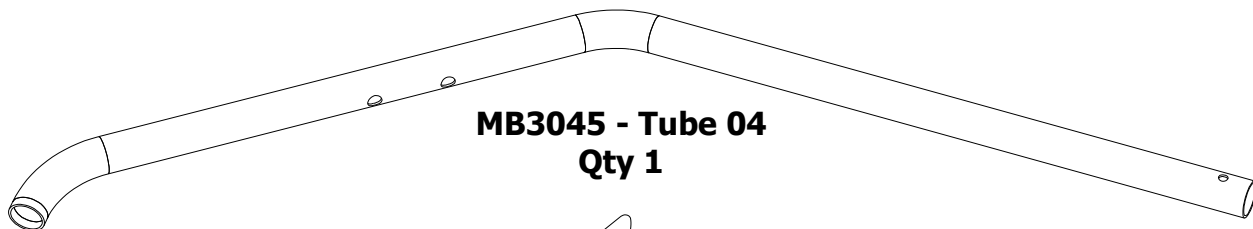
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Qty 1



MB3045 - Tube 03
Qty 1



MB3045 - Tube 04
Qty 1



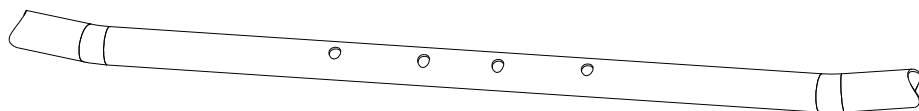
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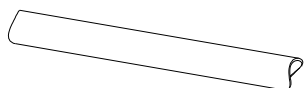
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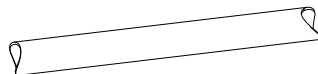
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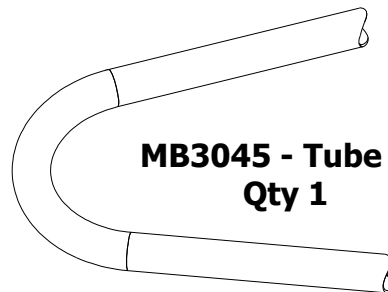
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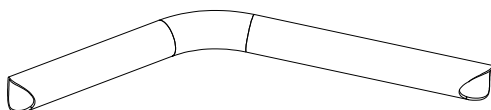
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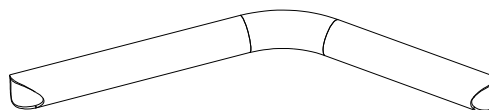
MB3045 - Tube 08
Qty 1



MB3045 - Tube 10
Qty 1

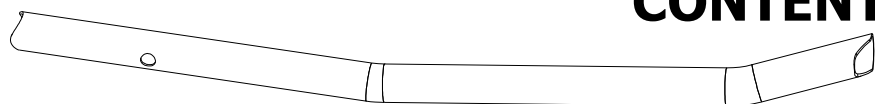


MB3045 - Tube 11
Qty 1



MB3045 JLU CAGE ASSEMBLY

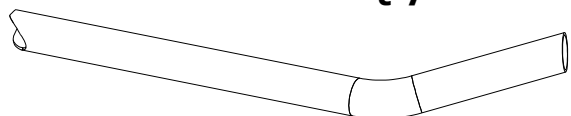
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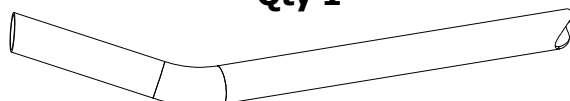
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Qty 1



MB3045 - Tube 13
Qty 1



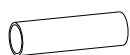
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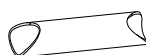
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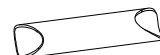
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MB3045 - Tube 17
Qty 1



MB3045 - Tube 18
Qty 1



MB3045 - Tube 19
Qty 1



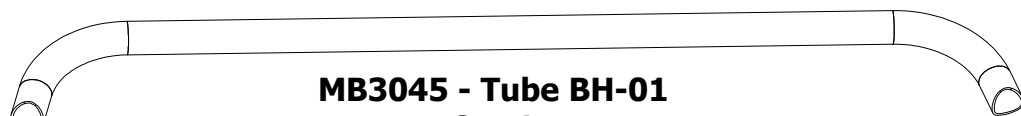
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Qty 1



MB3045 - Tube 21
Qty 1



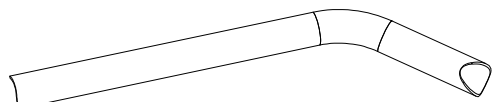
MB3045 - Tube 22
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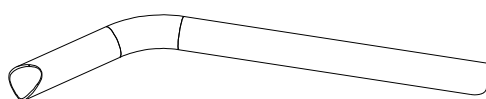
MB3045 - Tube BH-01
Qty 1



MB3045 - Tube CH-01
Qty 1



MB3045 - Tube CX-01
Qty 1



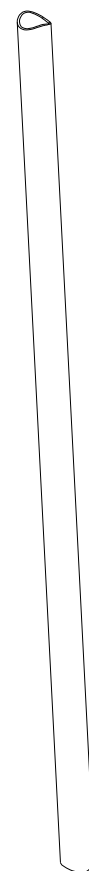
MB3045 - Tube CX-02
Qty 1



MB3045 - Tube CX-03A
Qty 1



MB3045 - Tube CX-03B
Qty 1



MB3045 - Tube 23
Qty 1



MB3045 - Tube 24
Qty 2



MB3045 - Sleeve Tube 02
Qty 2



MB3045 - Tube GH-01
Qty 1



MB3045 - Tube GH-02
Qty 1



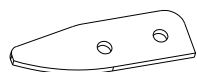
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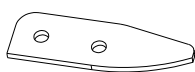
MB3045 - Tube GH-04
Qty 1

MB3045 JLU CAGE ASSEMBLY

CONTENTS



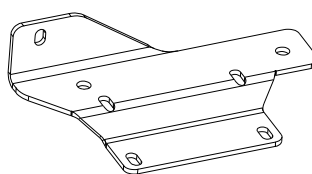
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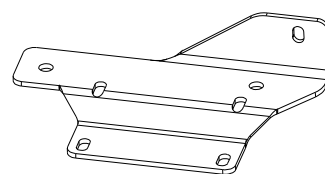
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Qty 1



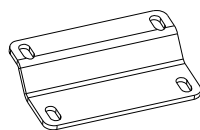
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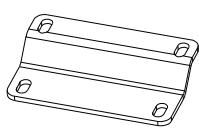
MB3045 - Plate 04
Qty 1



MB3045-04_MIR
Qty 1



MB3045-05
Qty 1



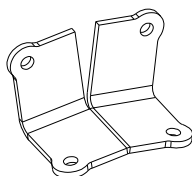
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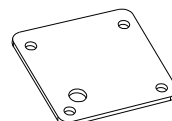
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Qty 1



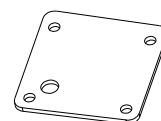
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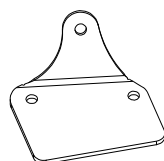
MB3045-07
Qty 2



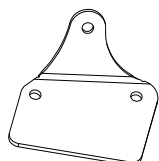
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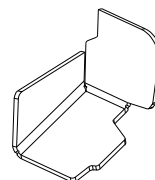
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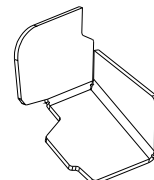
MB3045-09
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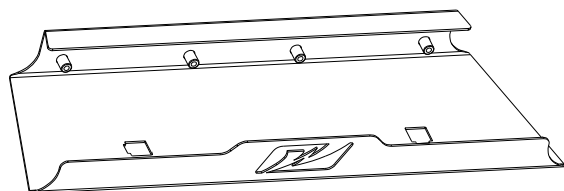
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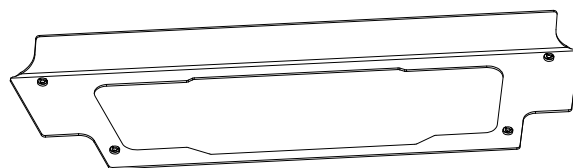
MB3045-10
Qty 1



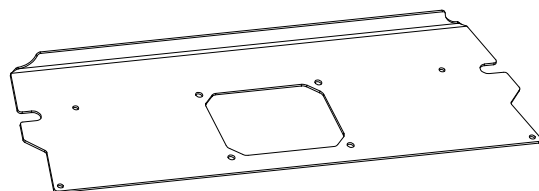
MB3045-10_MIR
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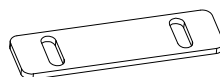
MB3045-13
with $\frac{5}{16}$ " Rivnuts
Qty 1



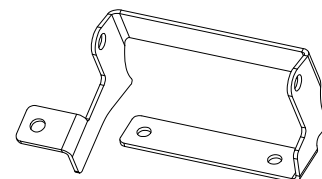
MB3045-14
with #10-24 Pemnuts
Qty 1



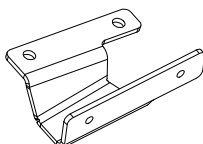
MB3045-15
Qty 1



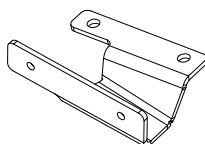
MB3045-17
Qty 2



MB3045-26
Qty 1



MB3045-27
Qty 1



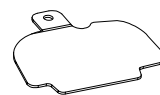
MB3045-27_MIR
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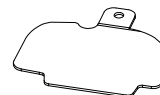
MB3045-28
Qty 2



MB3045-29
Qty 2



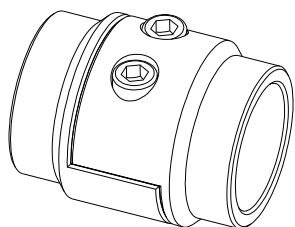
MB3045-31
Qty 1



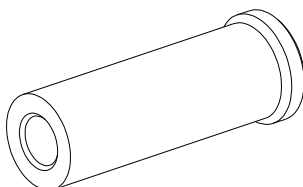
MB3045-31_MIR
Qty 1

MB3045 JLU CAGE ASSEMBLY

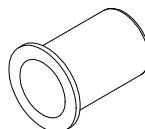
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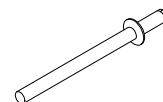
Tube Joiner
fits 2.0" OD x 0.120" wall
Qty 2



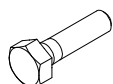
MB5514
Threaded Bung
Qty 8



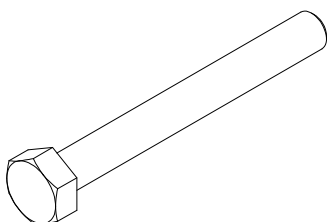
RIVNUT
1/4"-20
QTY 2



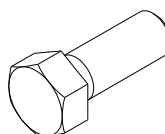
RIVET
1/8" x 3/16" GRIP RANGE
QTY 2



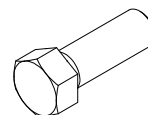
HEX BOLT
1/4"-20 x 1" LONG
QTY 20



HEX BOLT
M8 x 1.25 x 70mm LONG
QTY 2



HEX BOLT
3/8"-16 x 1" LONG
QTY 60



HEX BOLT
7/16"-20 UNF x 1-1/4" LONG
QTY 8



FLAT WASHER
1/4"
QTY 40



FLAT WASHER
5/16"
QTY 2



FLAT WASHER
3/8"
QTY 120



FLAT WASHER
7/16"
QTY 8



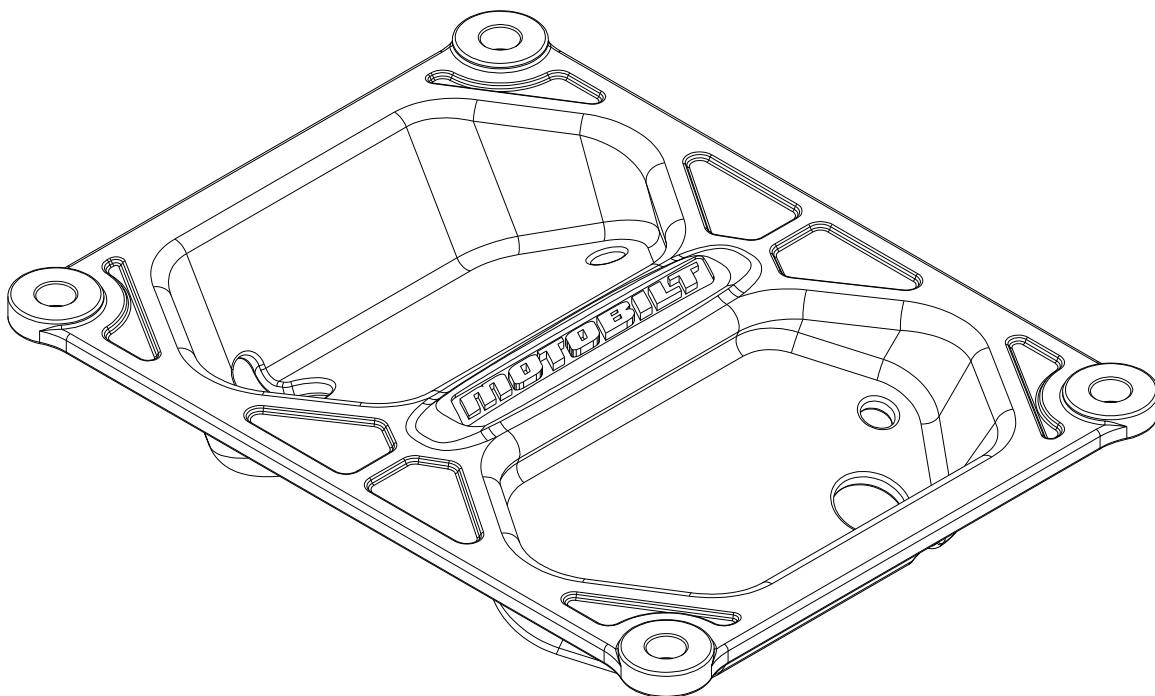
NYLOCK NUT
1/4"-20
QTY 20



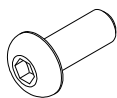
NYLOCK NUT
3/8"-16
QTY 60

NOTE:

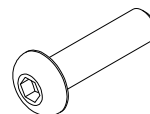
WE INCLUDE A FEW SPARES OF SOME FASTENERS, THUS, IF YOU HAVE SOME HARDWARE LEFT OVER, THIS IS NORMAL.

MB3045 JLU CAGE ASSEMBLY**CONTENTS**

MB8005-01
Universal Dual Dome Light Mount
Qty 1



#10-24 x 1/2"
Button Head Screw
Qty 4



#10-24 x 3/4" Button Head Socket Screw
Qty 4



#10 Flat Washer
Qty 12



#10-24 Nylon Insert Locknut
Qty 4

MB3045 JLU CAGE ASSEMBLY**PREFACE**

These assembly instructions show how to prepare & install your new Motobilt Jeep JLU Cage using a factory hardtop.

If your vehicle is equipped with a soft top only, we highly recommend to borrow & set up this cage to be compatible with a factory hardtop.

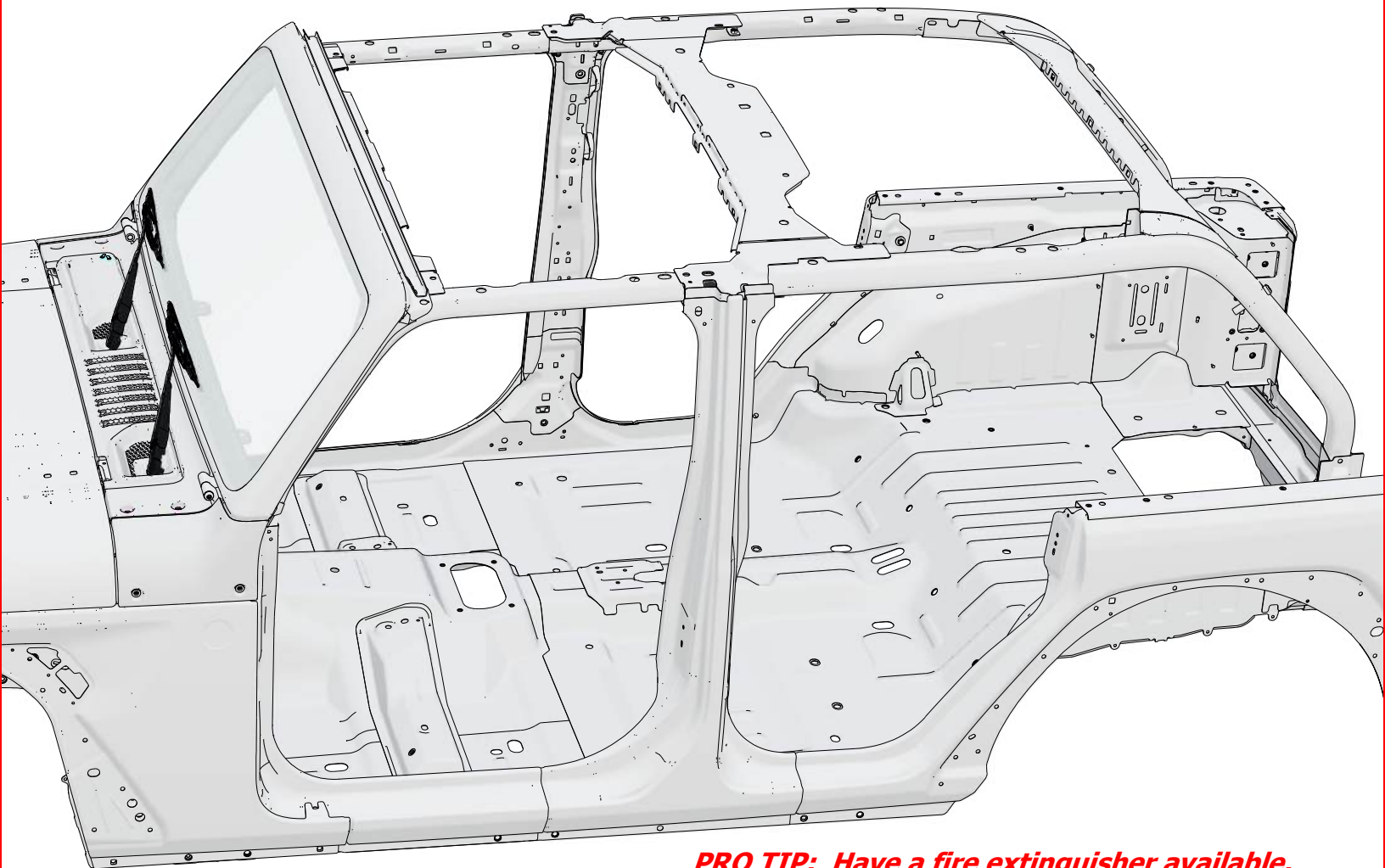
Your resell value & future functionality to add an optional hardtop is a great investment during this installation

MB3045 JLU CAGE ASSEMBLY

STEP 1

DISASSEMBLY & PREPARATION

1. Disconnect all batteries.
2. Remove hard or soft top.
3. Remove all doors.
4. Place jacks under the frame & level the vehicle from front to back & side to side. Use the top of the factory roll cage as a level reference.
5. Remove all seats & seat belts.
6. Remove all floor mats & carpeting.
7. Remove all interior plastic trim including rear sub-woofers (if equipped).
8. Remove console between seats.
9. Cover & mask the entire dash. Dash can remain in place.
10. Protect all exterior painted areas. Wheels, tires & fenders can remain on the vehicle, but should be protected. Fireproof blankets are recommended during welding.
11. Mask all door sills with masking tape.
12. Mask & protect all factory wiring.
13. Mask tail lights. Tailgate can remain in place.



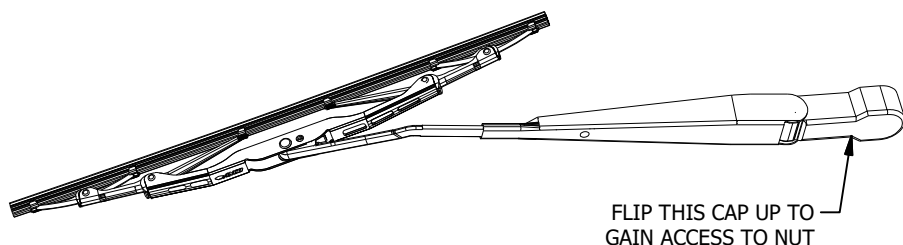
PRO TIP: Have a fire extinguisher available.

MB3045 JLU CAGE ASSEMBLY

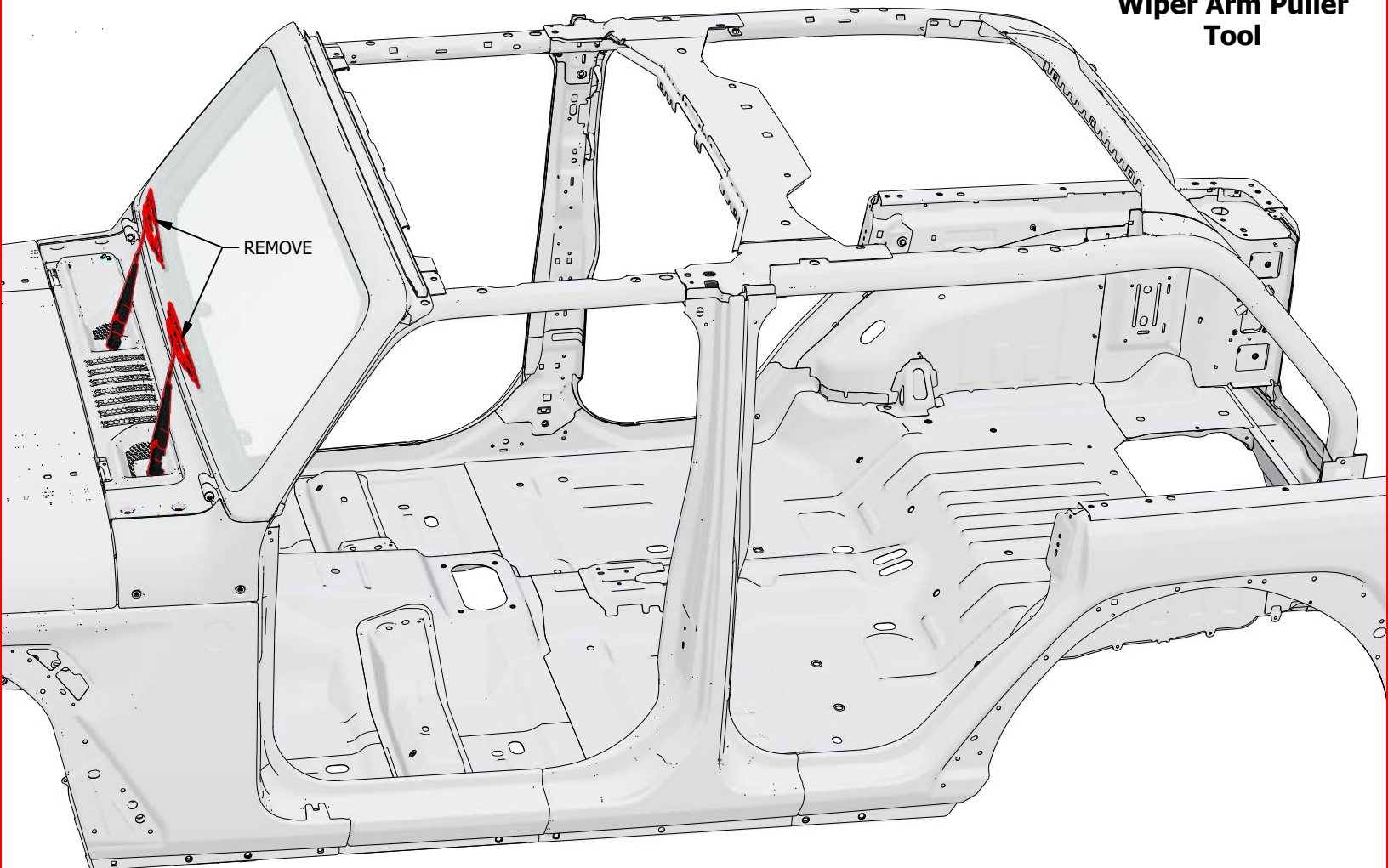
STEP 2 REMOVE WIPER ARMS

Your Jeep JL includes a tool kit with a ratchet & socket. Flip the cover at the base of the wiper arm & loosen the nut that fastens the wiper arm to the vehicle. Remove both wiper arms.

PRO TIP: *If your wiper arm is stuck & will not easily detach from the vehicle, use a wiper arm puller tool. Loosen the nut a few turns but leave the nut on the wiper arm. Use the wiper arm puller tool to break the bond, then fully remove the nut, then the wiper arm.*

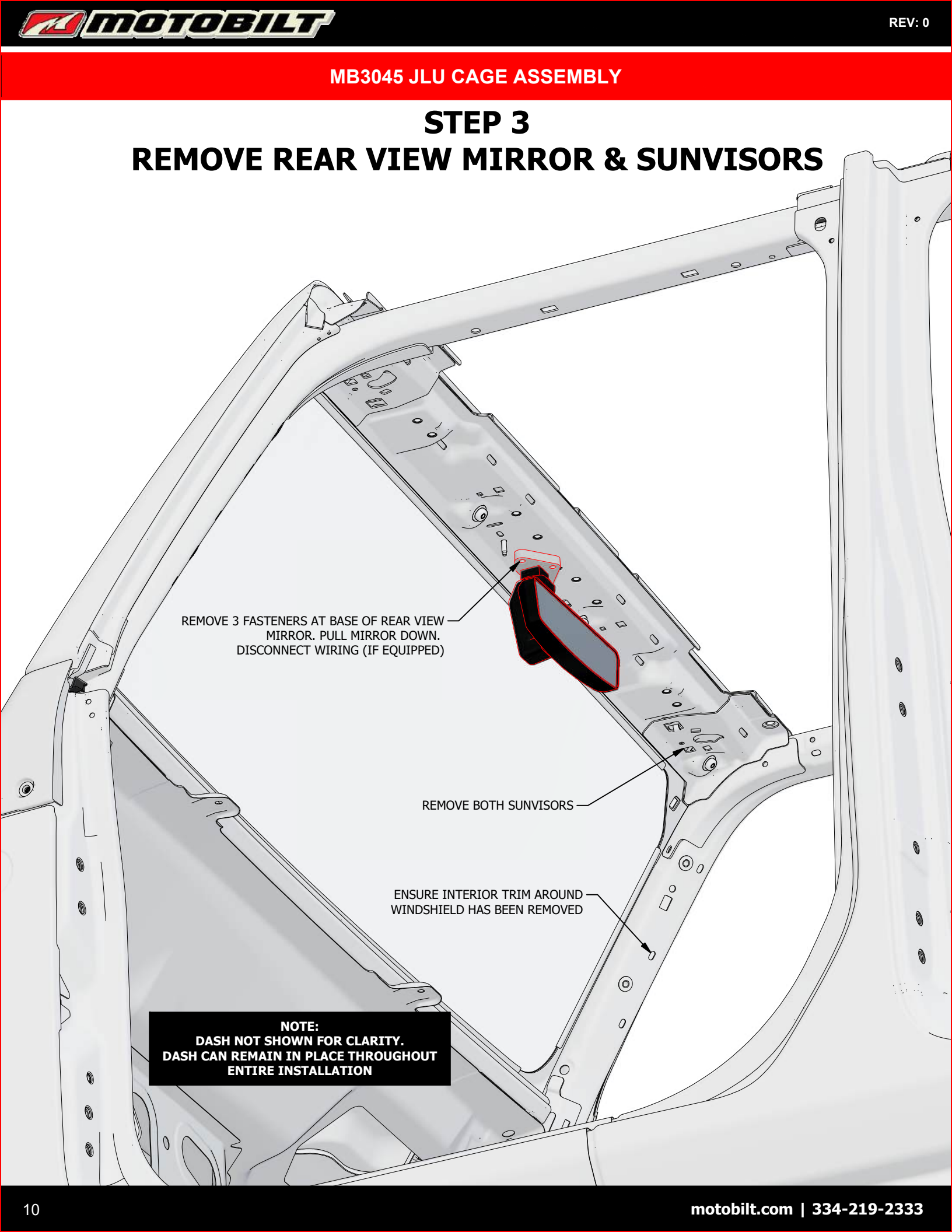


**Wiper Arm Puller
Tool**



MB3045 JLU CAGE ASSEMBLY

STEP 3 REMOVE REAR VIEW MIRROR & SUNVISORS



REMOVE 3 FASTENERS AT BASE OF REAR VIEW MIRROR. PULL MIRROR DOWN. DISCONNECT WIRING (IF EQUIPPED)

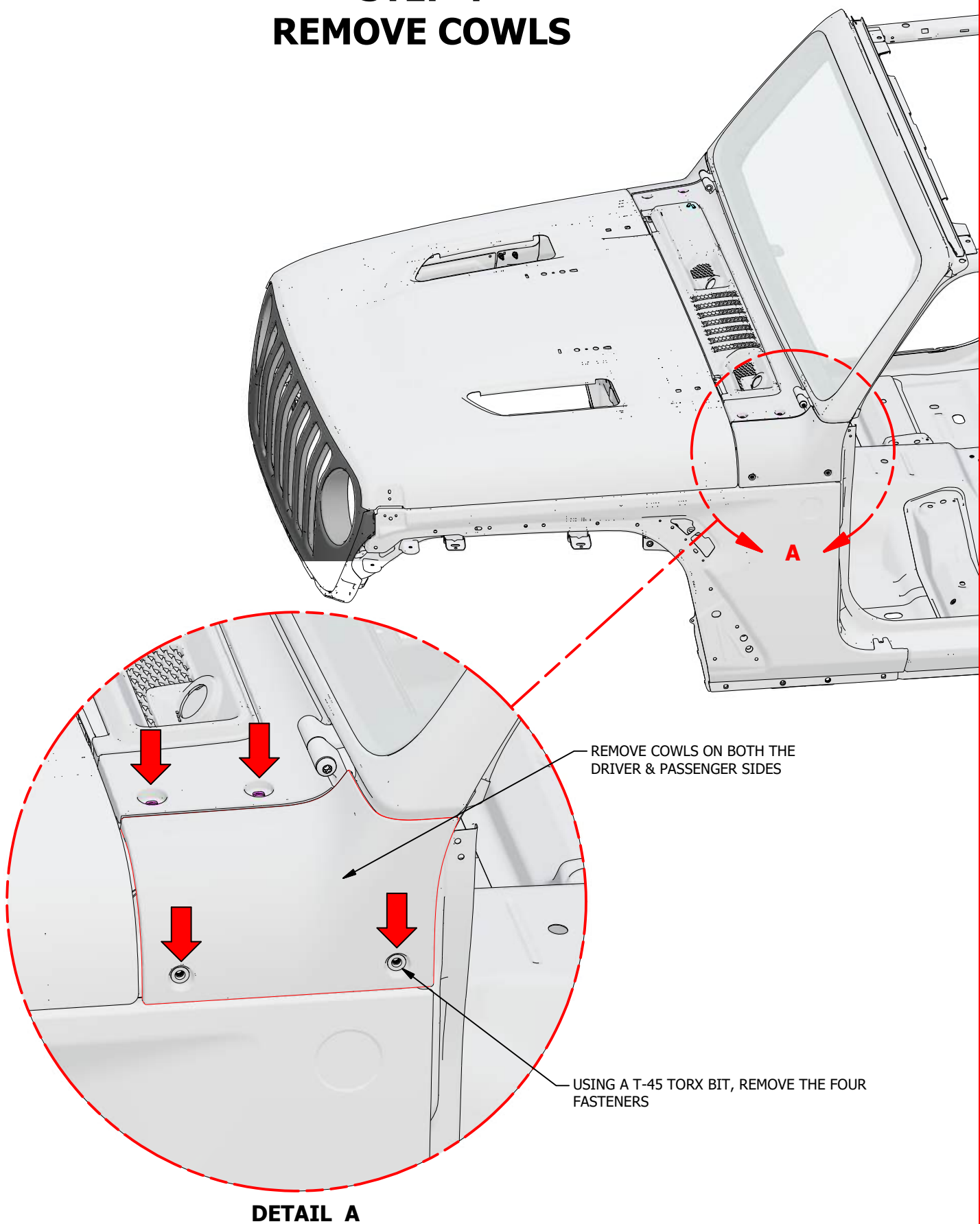
REMOVE BOTH SUNVISORS

ENSURE INTERIOR TRIM AROUND WINDSHIELD HAS BEEN REMOVED

NOTE:
DASH NOT SHOWN FOR CLARITY.
DASH CAN REMAIN IN PLACE THROUGHOUT
ENTIRE INSTALLATION

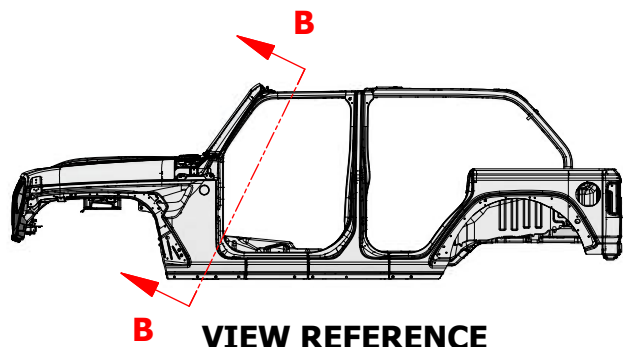
MB3045 JLU CAGE ASSEMBLY

STEP 4 REMOVE COWLS

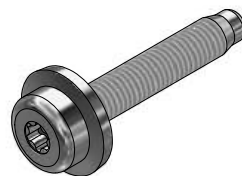


MB3045 JLU CAGE ASSEMBLY

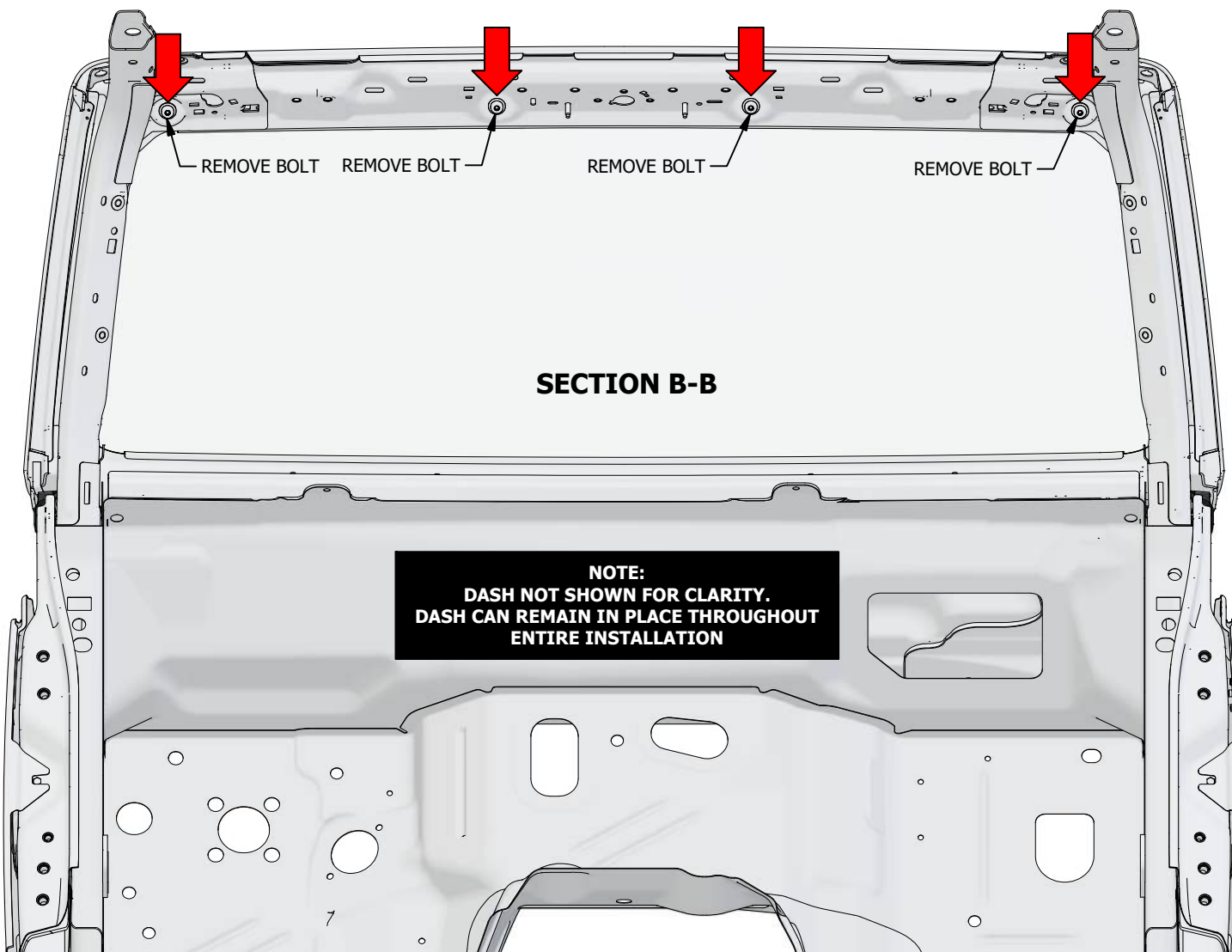
STEP 5 REMOVE UPPER WINDSHIELD BOLTS

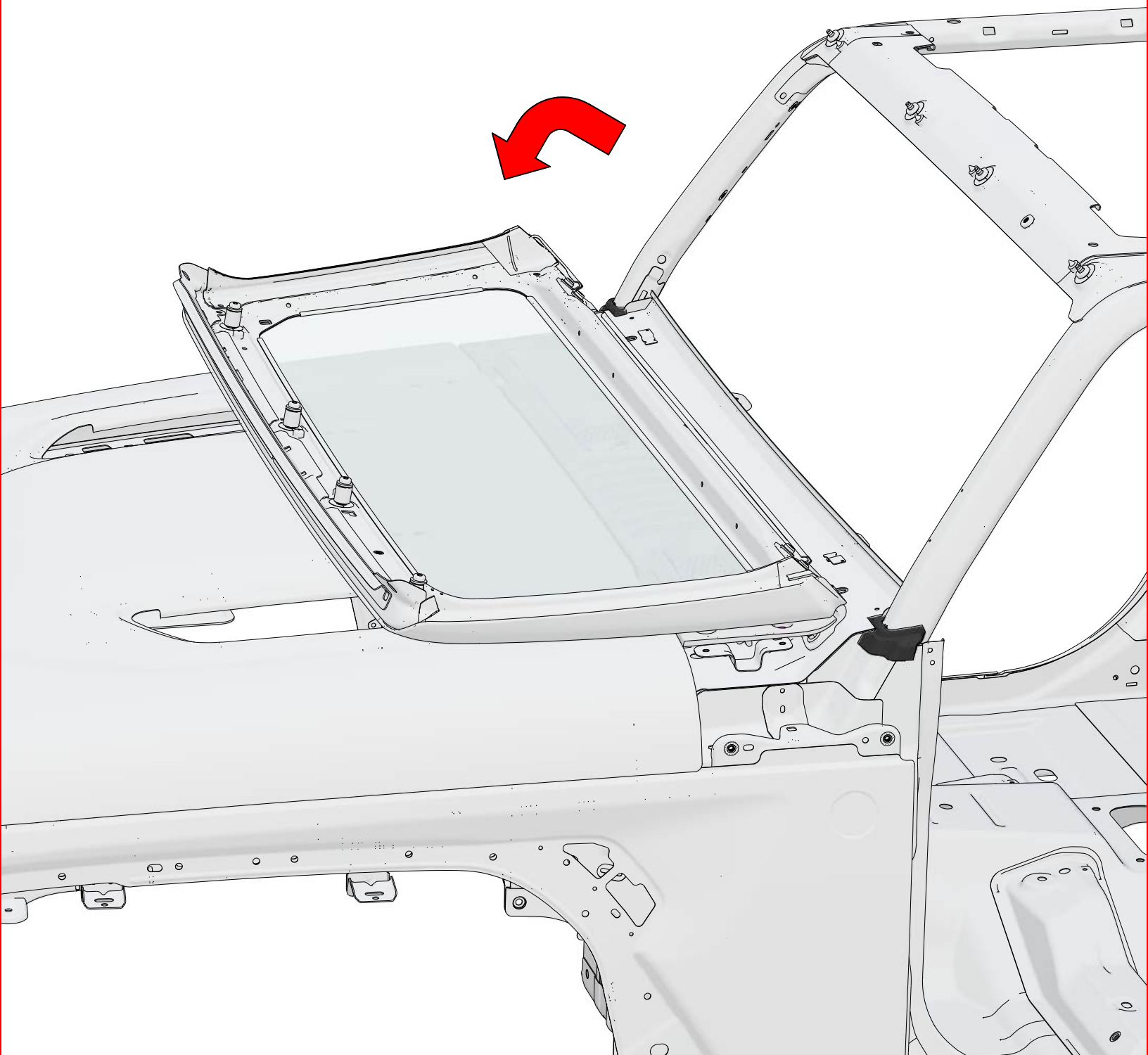


Using the tool kit supplied with your Jeep JL, use the T-40 torx bit & ratchet to remove the four bolts that secure the upper windshield to the factory cage.



**FACTORY BOLTS TO WINDSHIELD
WILL NOT BE REUSED**



MB3045 JLU CAGE ASSEMBLY**STEP 6
FOLD DOWN THE WINDSHIELD**

MB3045 JLU CAGE ASSEMBLY

STEP 7

COVER & PROTECT

Now is a good time to cover all exposed painted areas including all exposed glass, mirrors, trim & wiring.

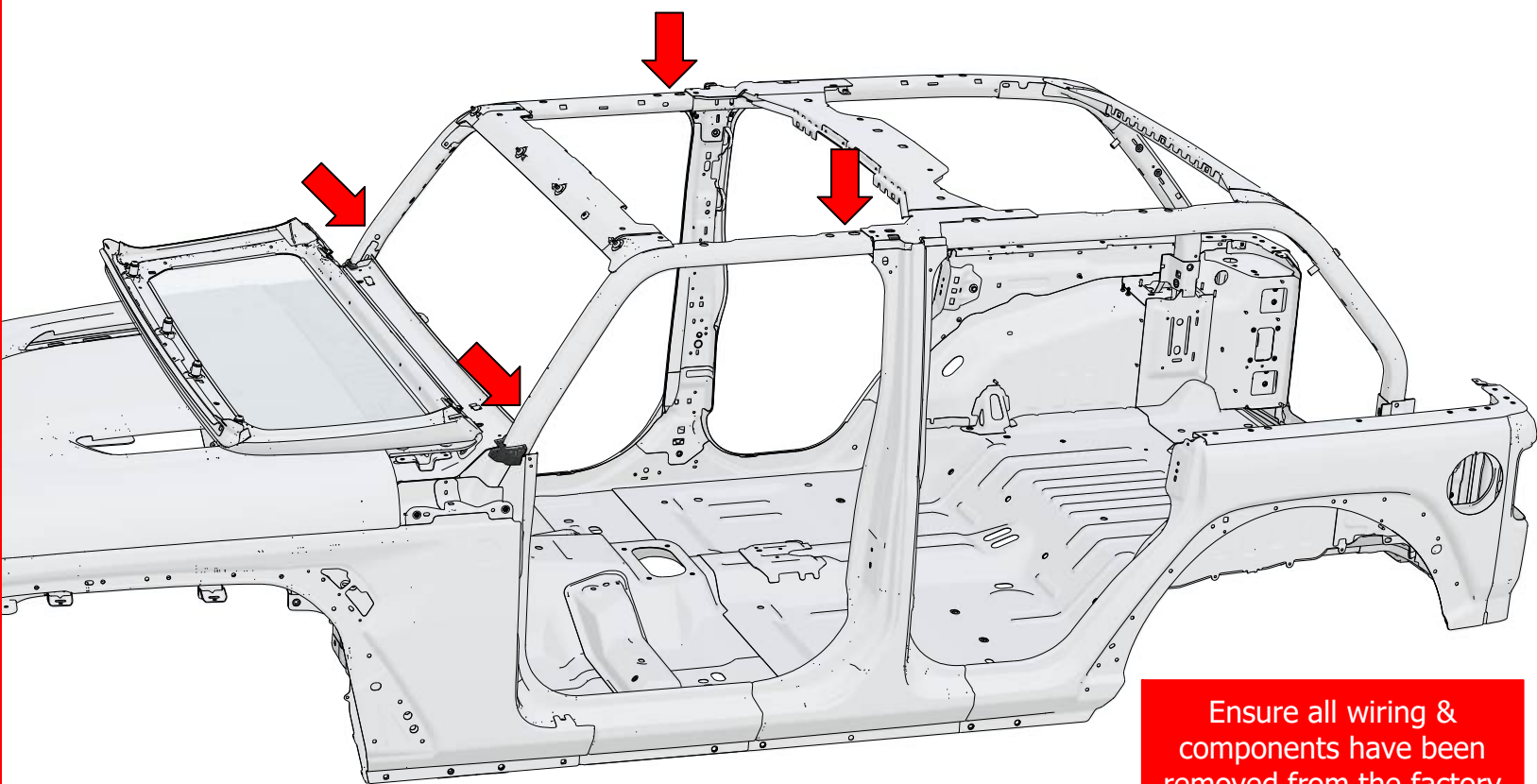
Sparks created during the grinding & welding processes which follow MAY DAMAGE YOUR PAINT, GLASS, MIRRORS, TRIM or WIRING unless properly covered & protected.

We recommend using a fire proof welding blanket or similar. Masking tape can also help but will provide limited protection from welding slag.

Have a fire extinguisher charged & readily available.

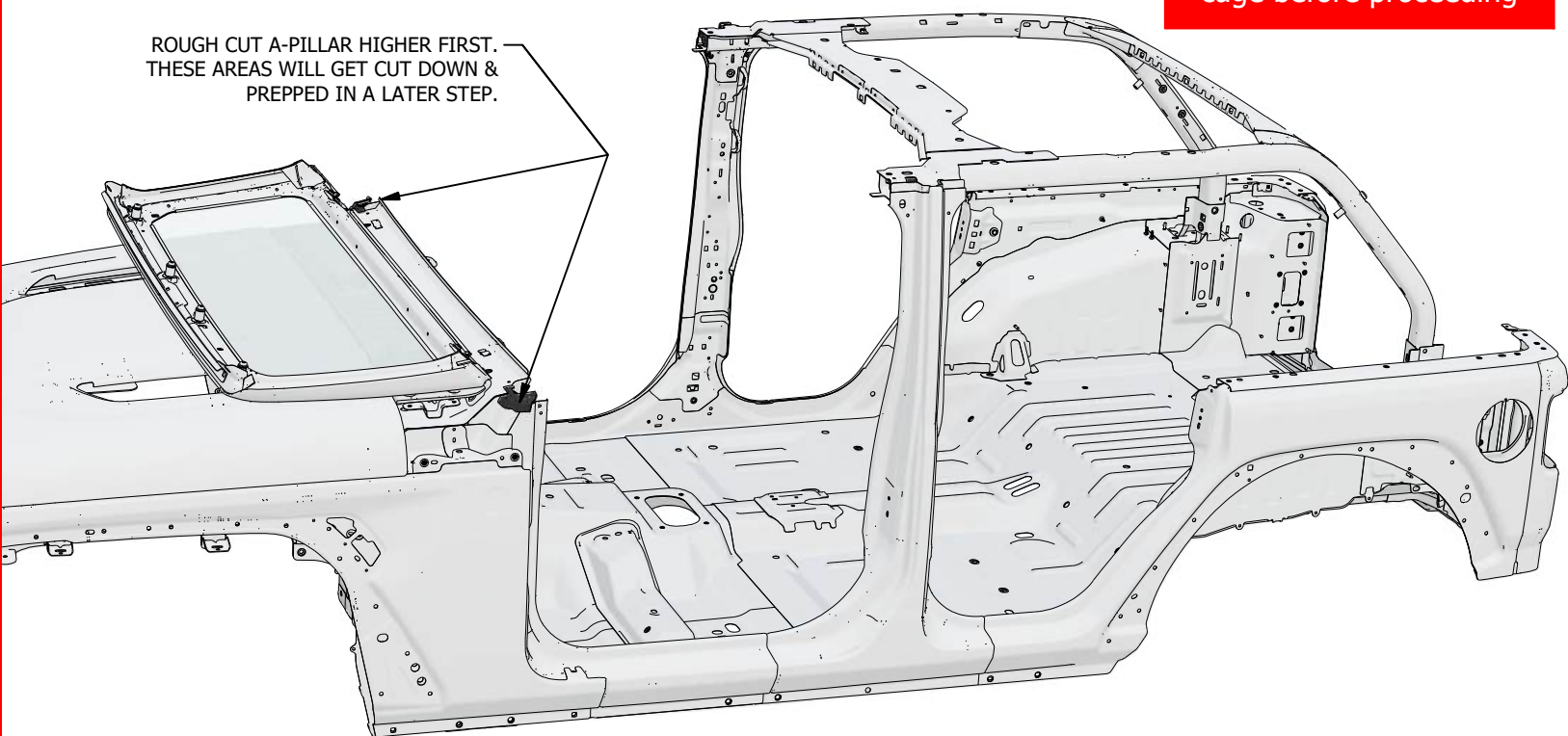
MB3045 JLU CAGE ASSEMBLY

STEP 8 CUT & REMOVE FRONT SECTION OF CAGE



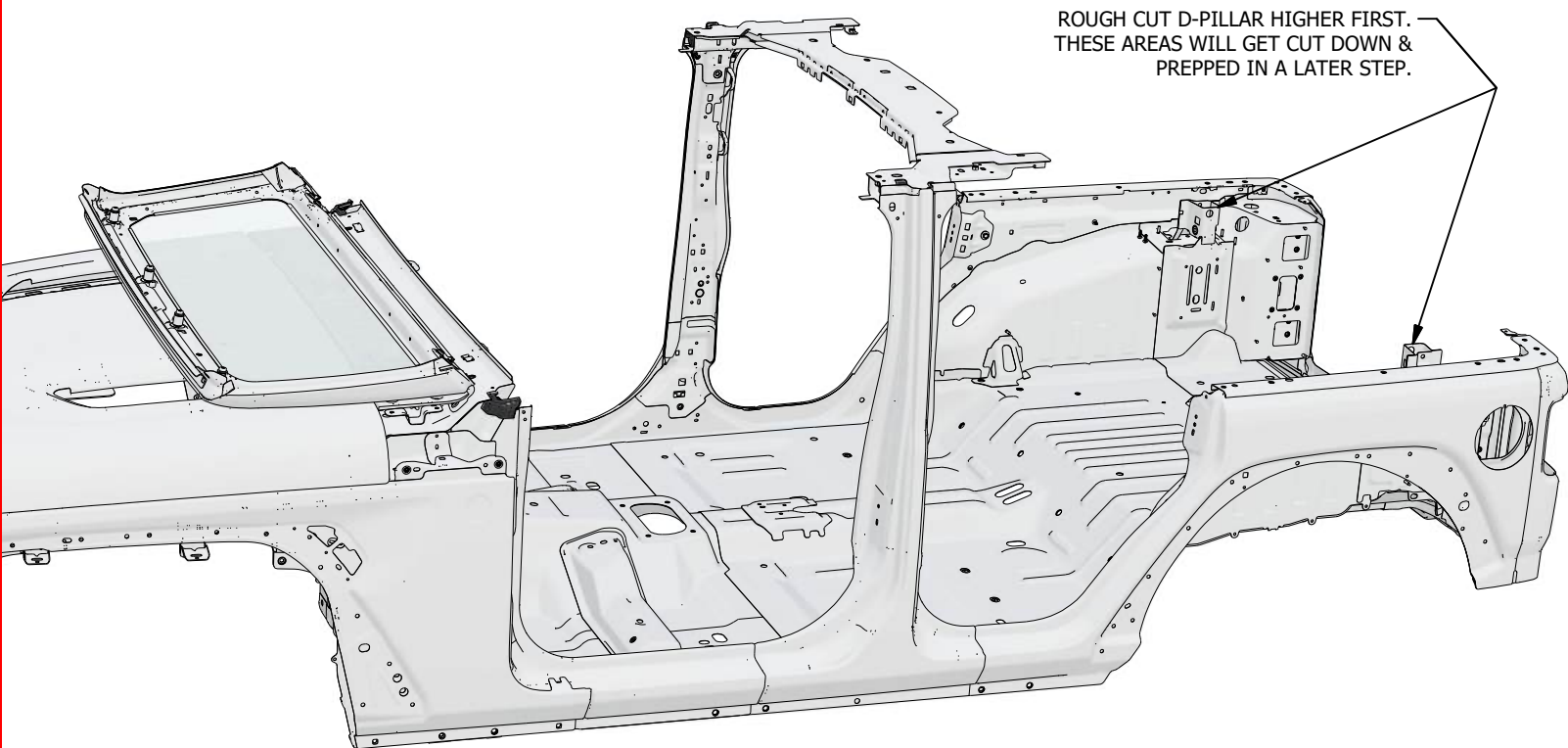
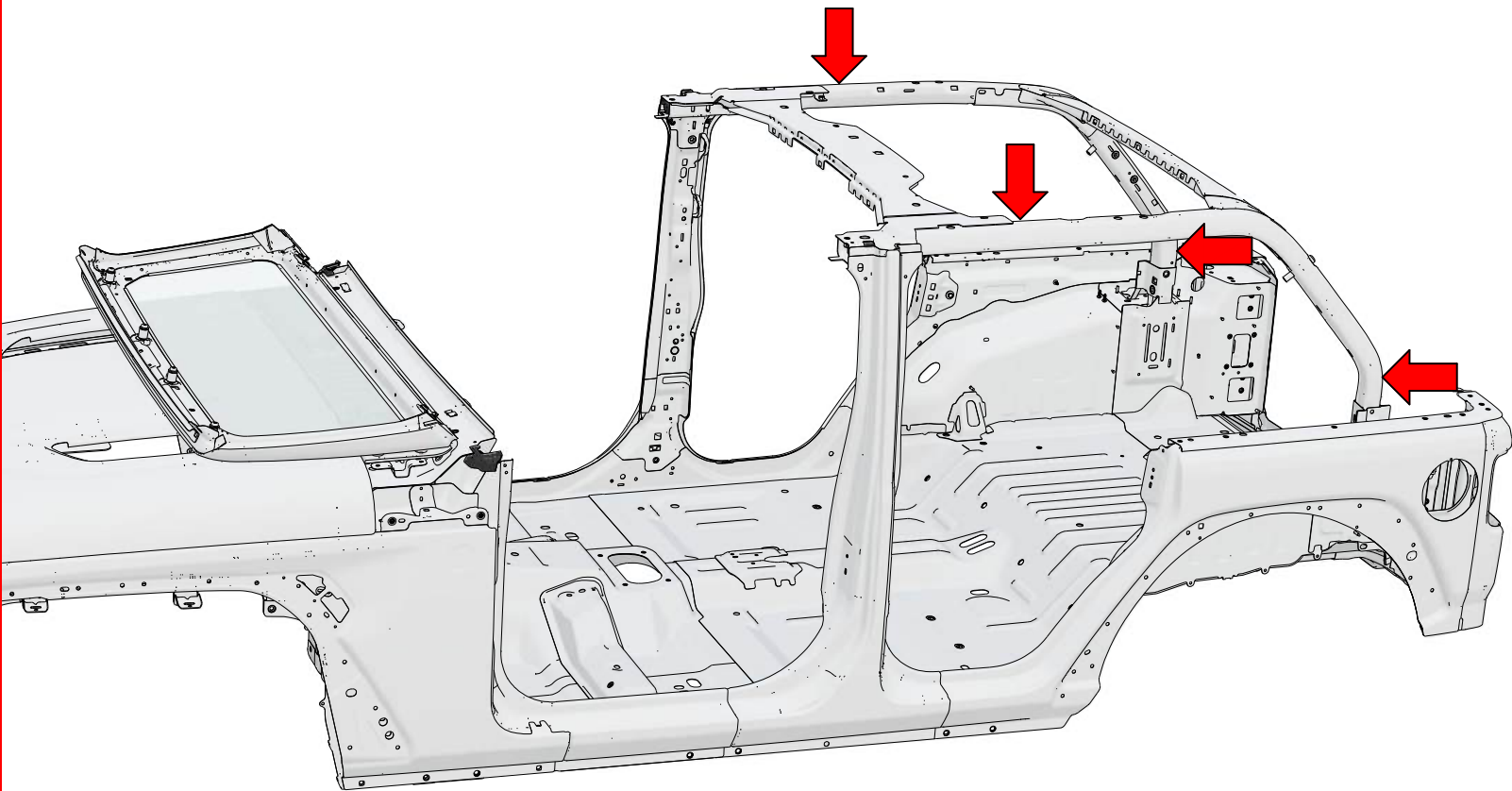
Ensure all wiring & components have been removed from the factory cage before proceeding

ROUGH CUT A-PILLAR HIGHER FIRST. THESE AREAS WILL GET CUT DOWN & PREPPED IN A LATER STEP.



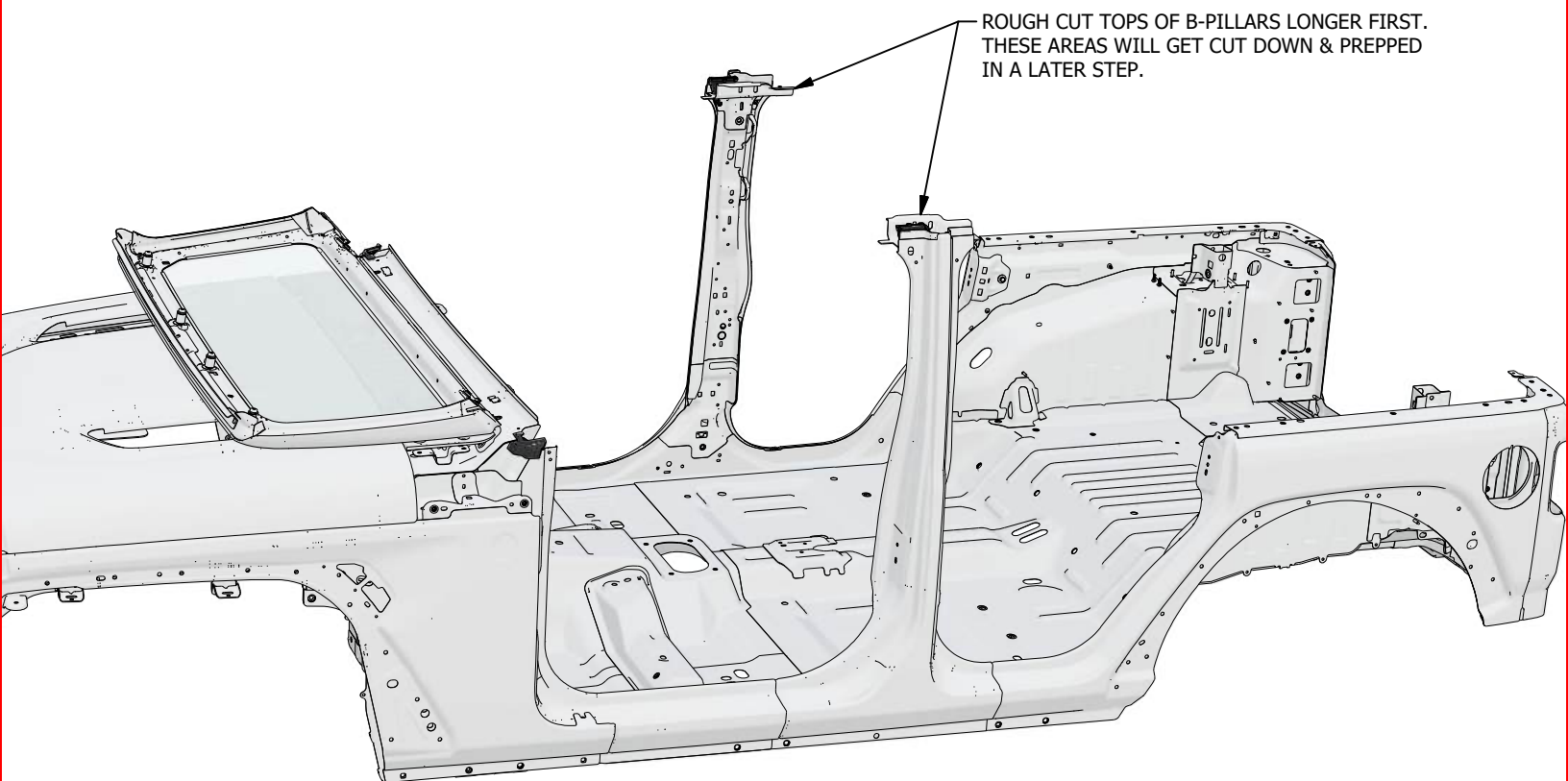
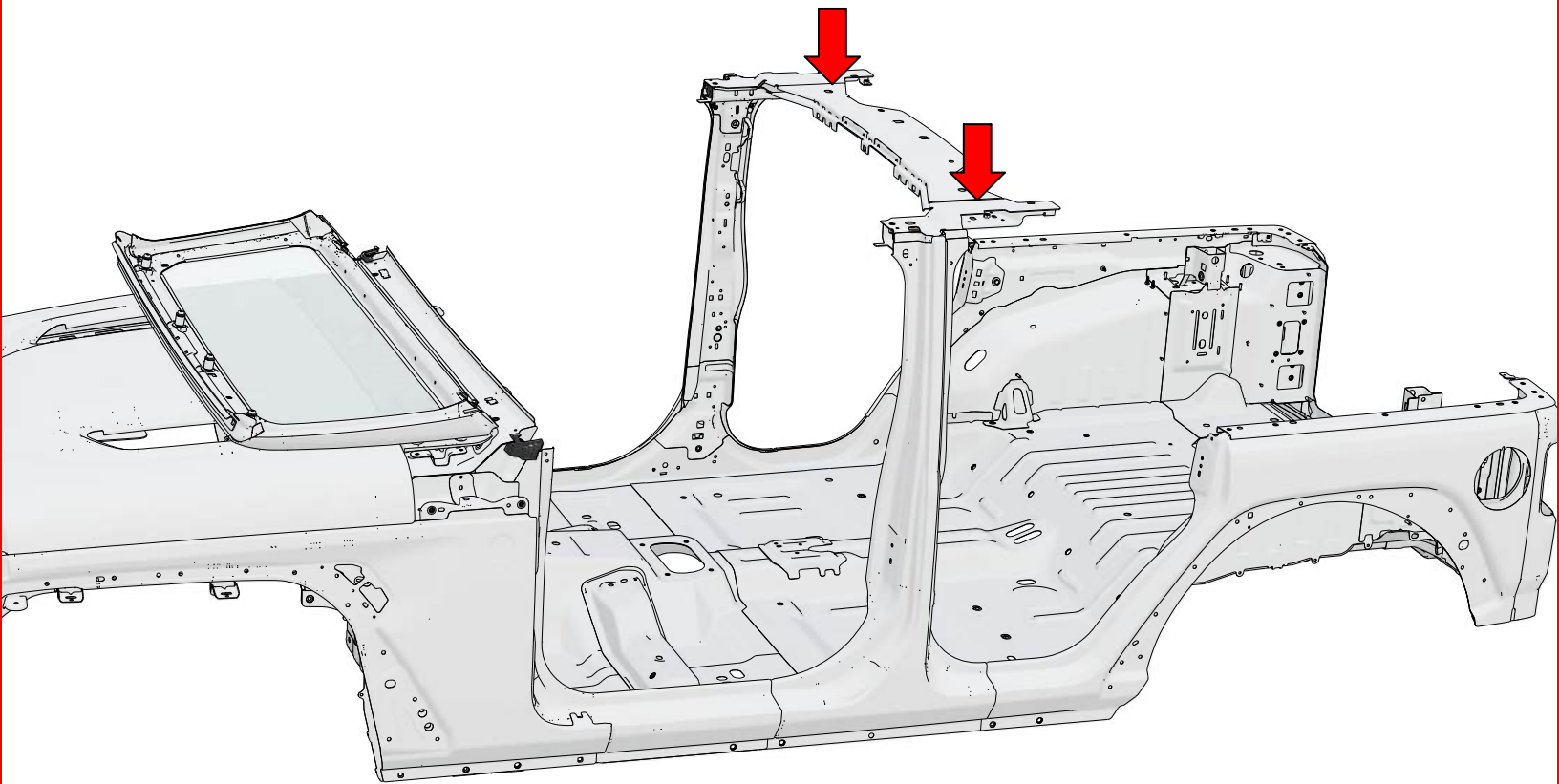
MB3045 JLU CAGE ASSEMBLY

STEP 9 CUT & REMOVE REAR SECTION OF CAGE



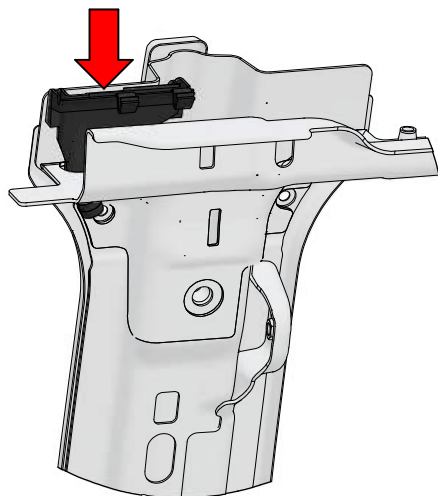
MB3045 JLU CAGE ASSEMBLY

STEP 10 CUT & REMOVE CENTER SECTION OF CAGE



MB3045 JLU CAGE ASSEMBLY

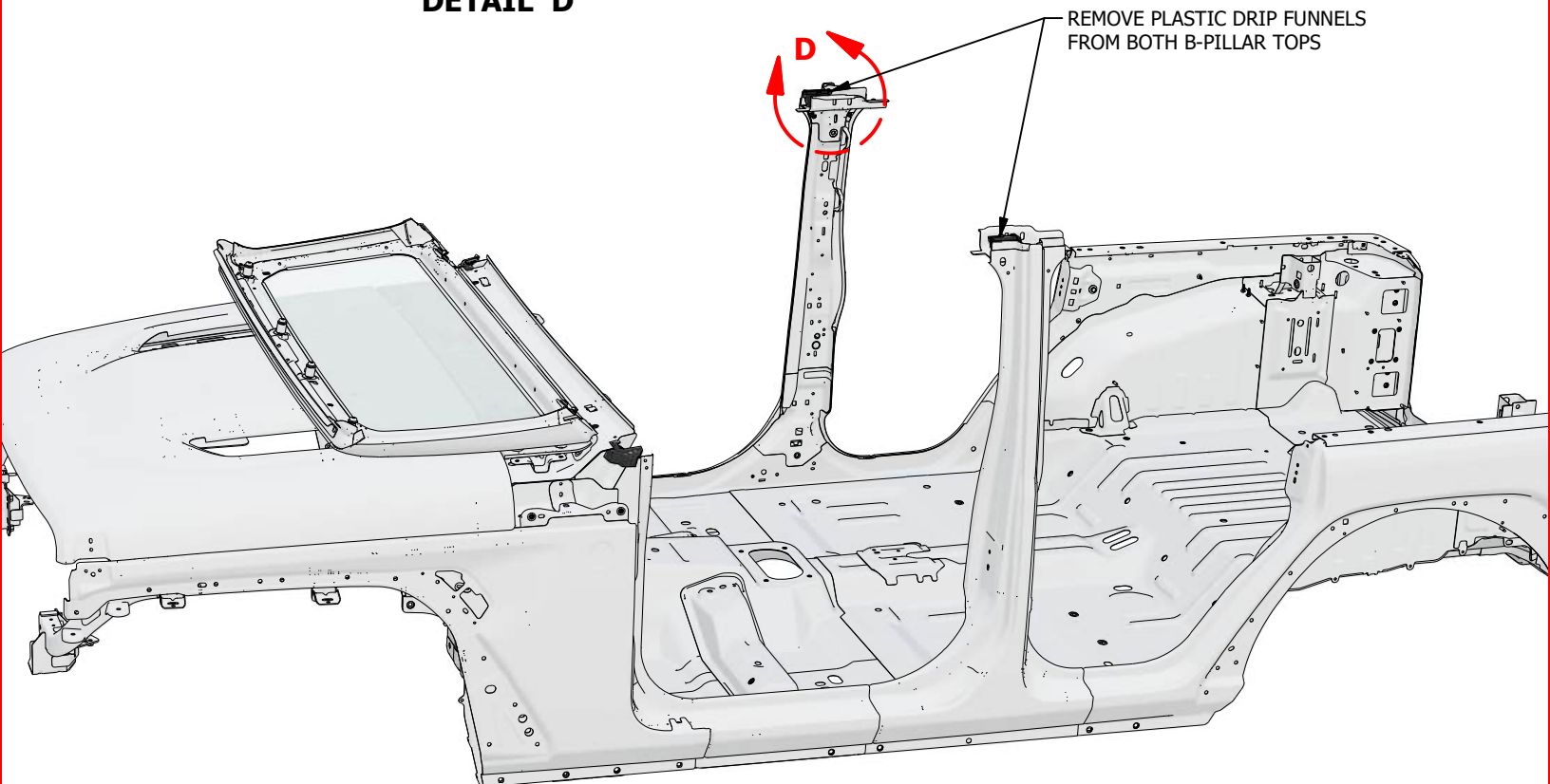
STEP 11 REMOVE DRIP FUNNELS FROM B-PILLAR TOPS



DETAIL D



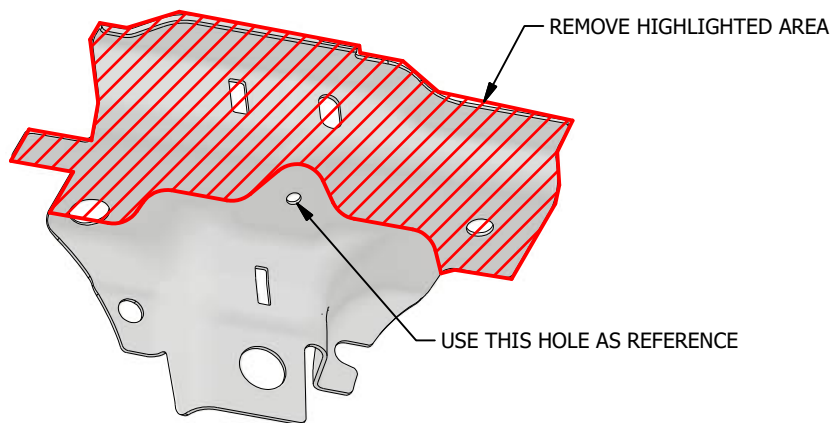
DRIP FUNNEL
Remove & discard



REMOVE PLASTIC DRIP FUNNELS
FROM BOTH B-PILLAR TOPS

MB3045 JLU CAGE ASSEMBLY

STEP 12 RESHAPE B-PILLAR TOPS

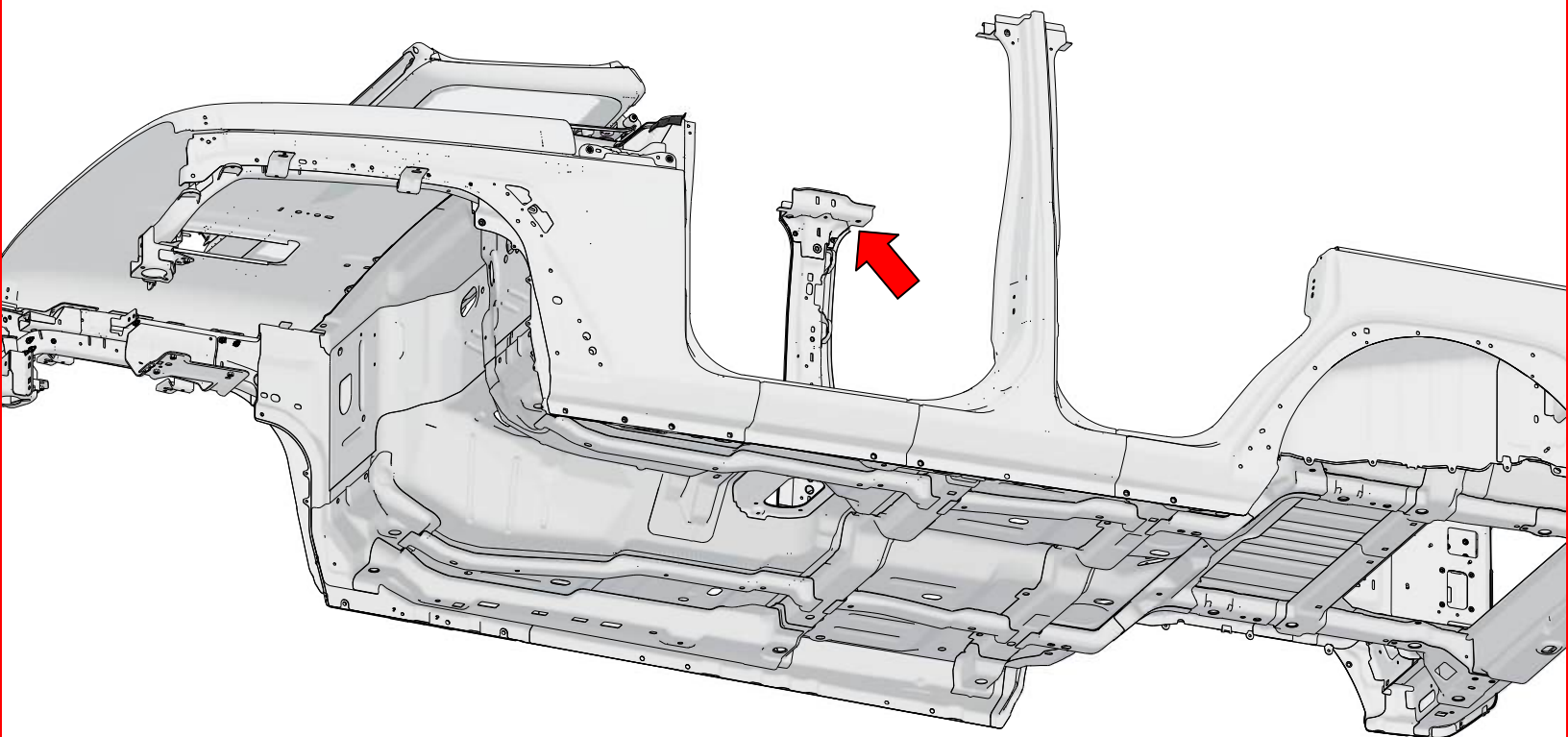


LOOKING UP AT UNDERSIDE
OF PASSENGER B-PILLAR



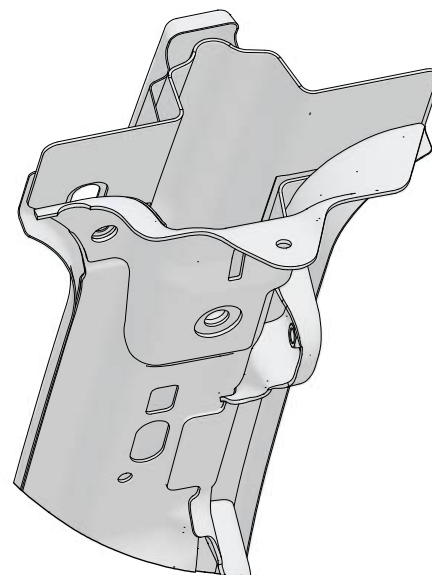
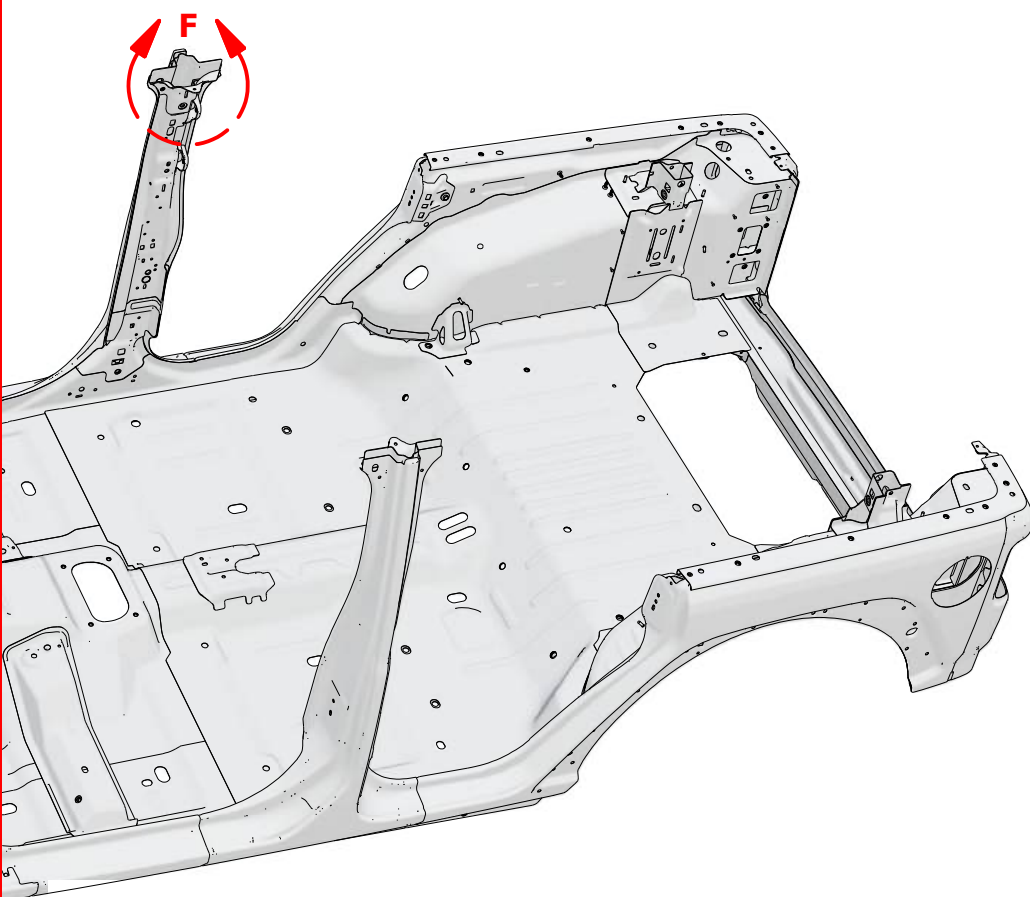
AFTER TRIMMING

REPEAT SIMILAR STEP FOR UNDERSIDE OF DRIVER B-PILLAR

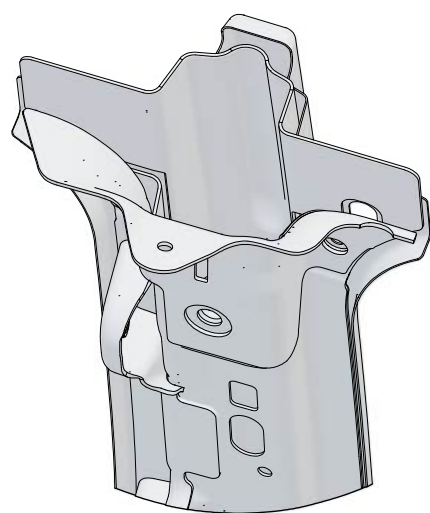


MB3045 JLU CAGE ASSEMBLY

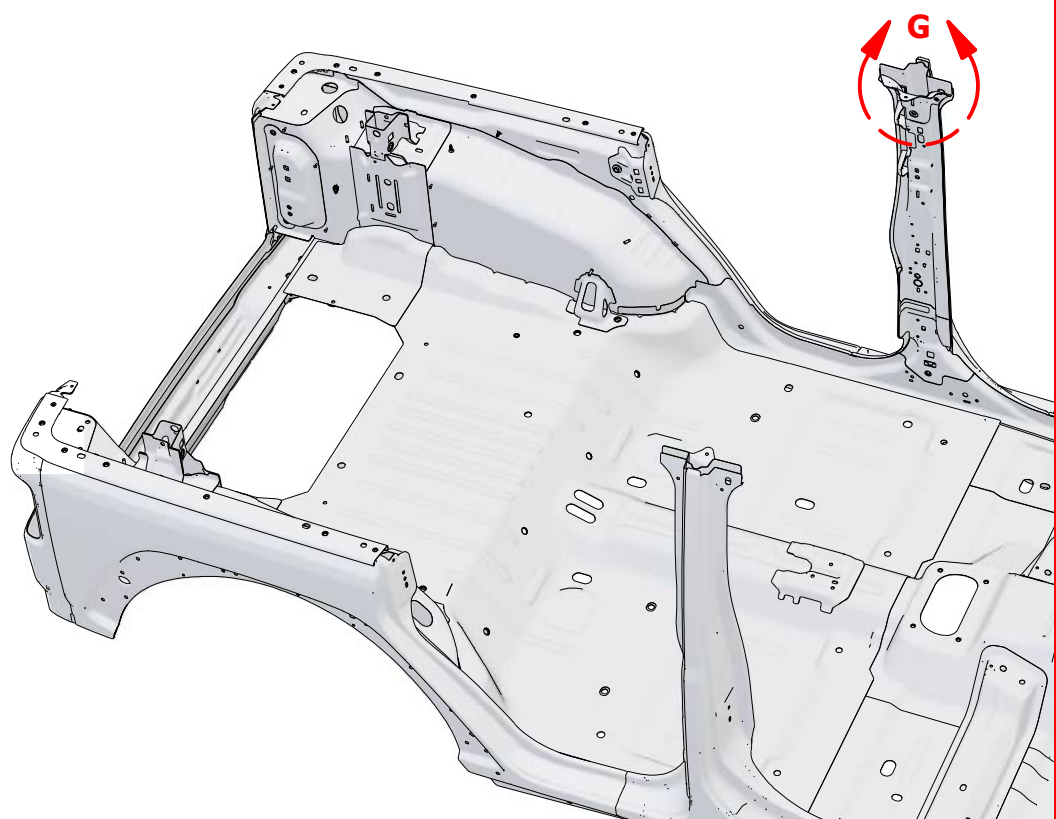
STEP 13 B-PILLAR TOPS AFTER RESHAPING



DETAIL F

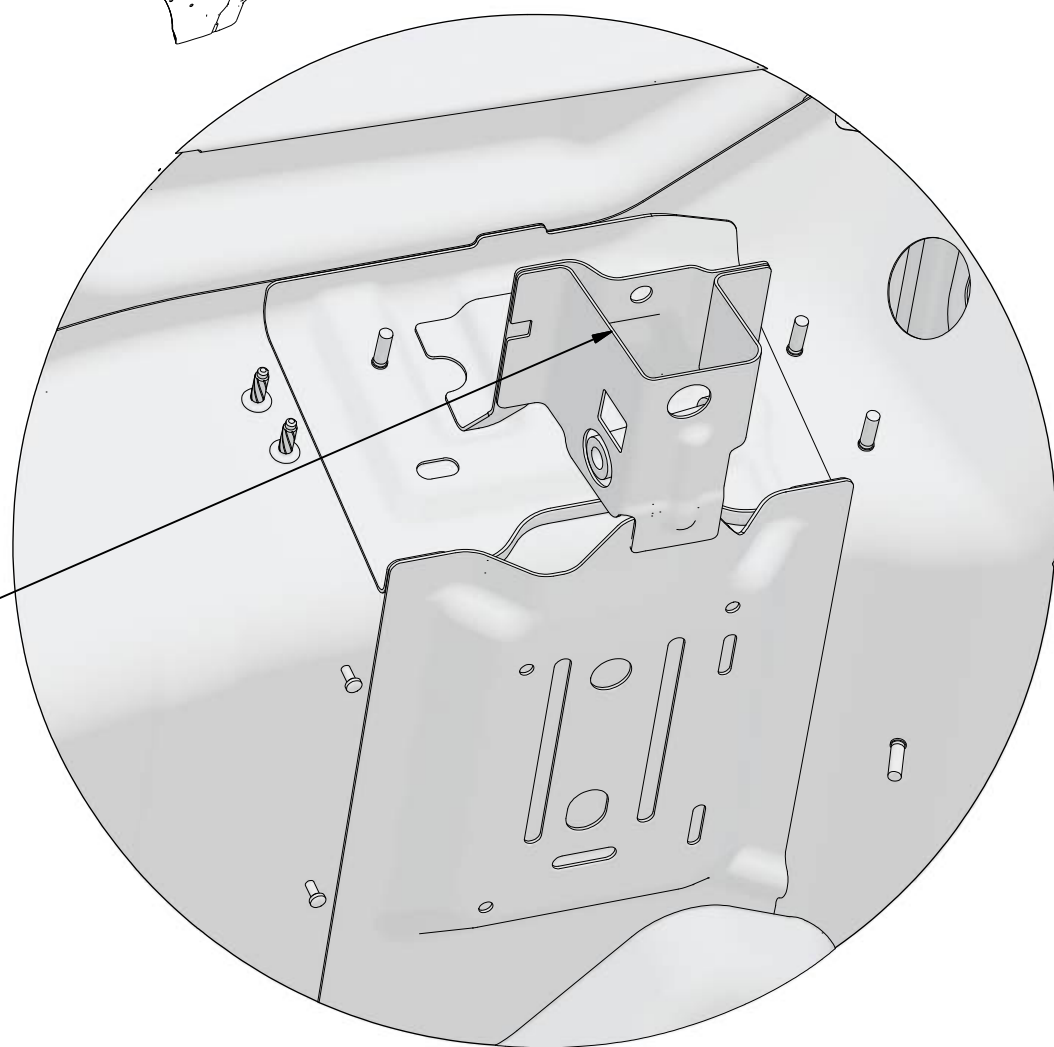
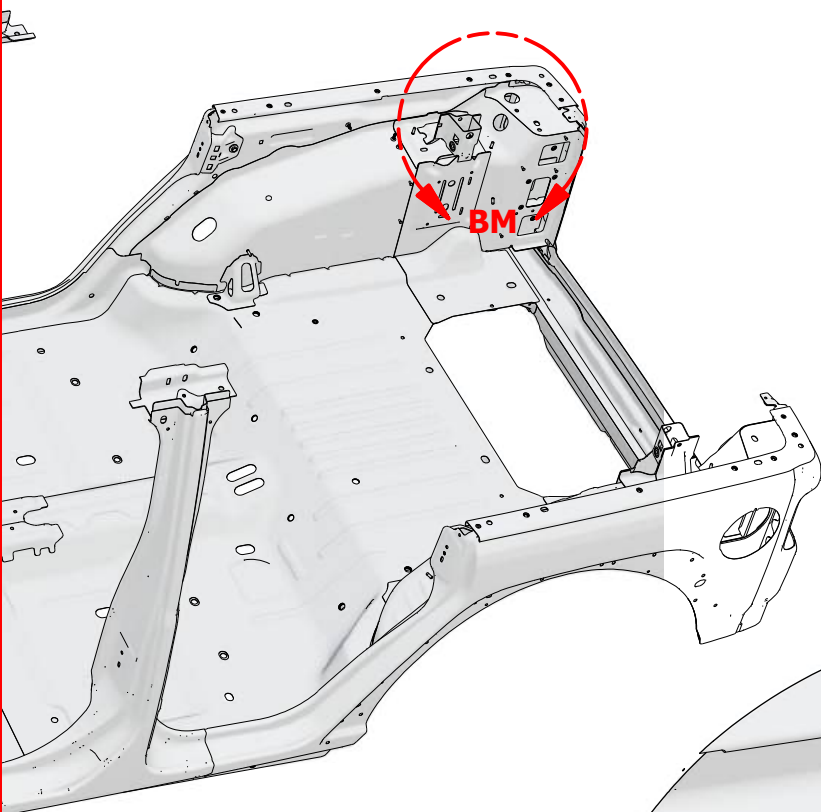


DETAIL G



MB3045 JLU CAGE ASSEMBLY

STEP 14 CUT FACTORY D-PILLARS



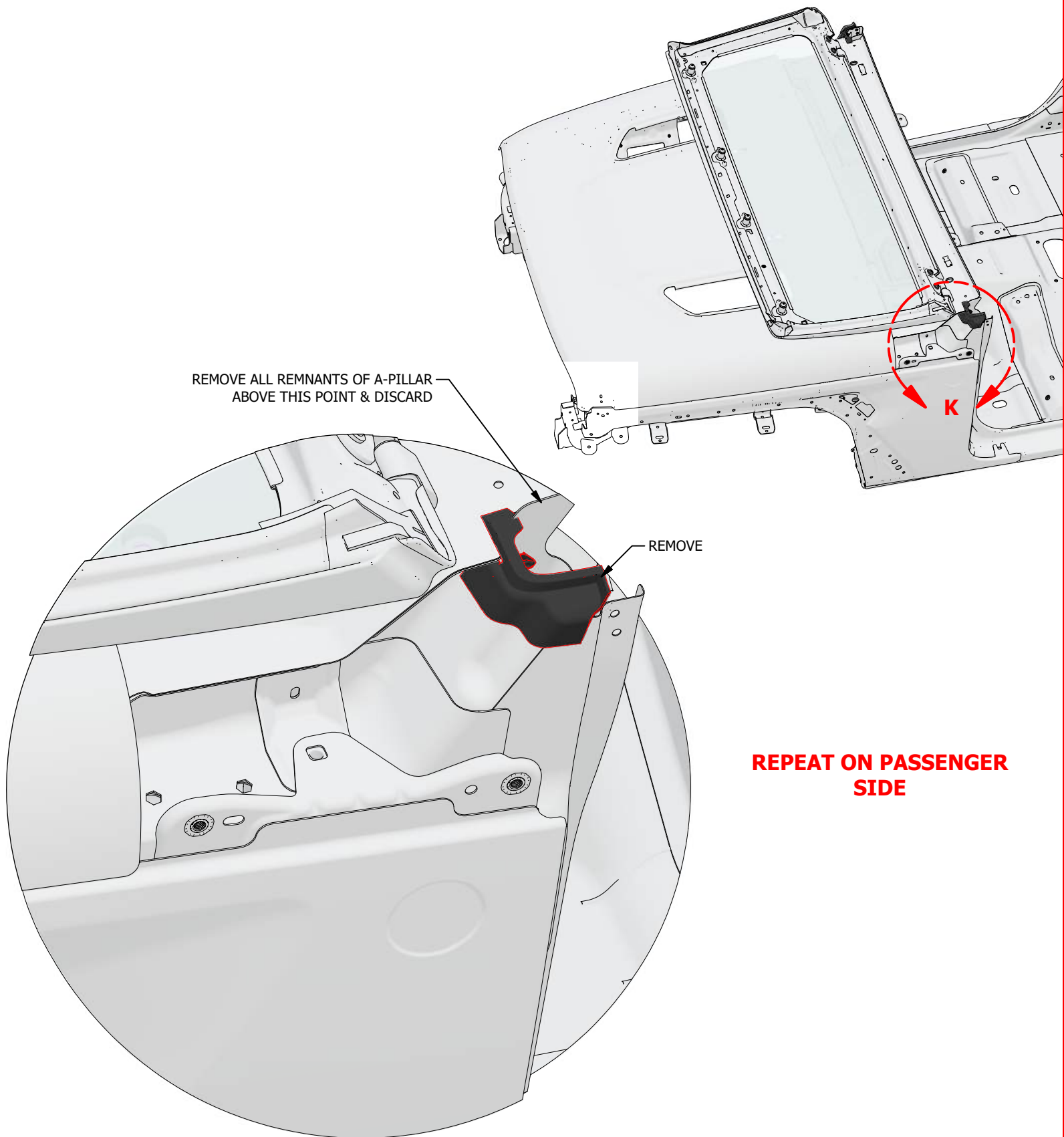
REMOVE REMNANTS OF FACTORY D-PILLAR
DOWN TO THE TOP OF THIS POINT

REPEAT ON DRIVER SIDE

DETAIL BM

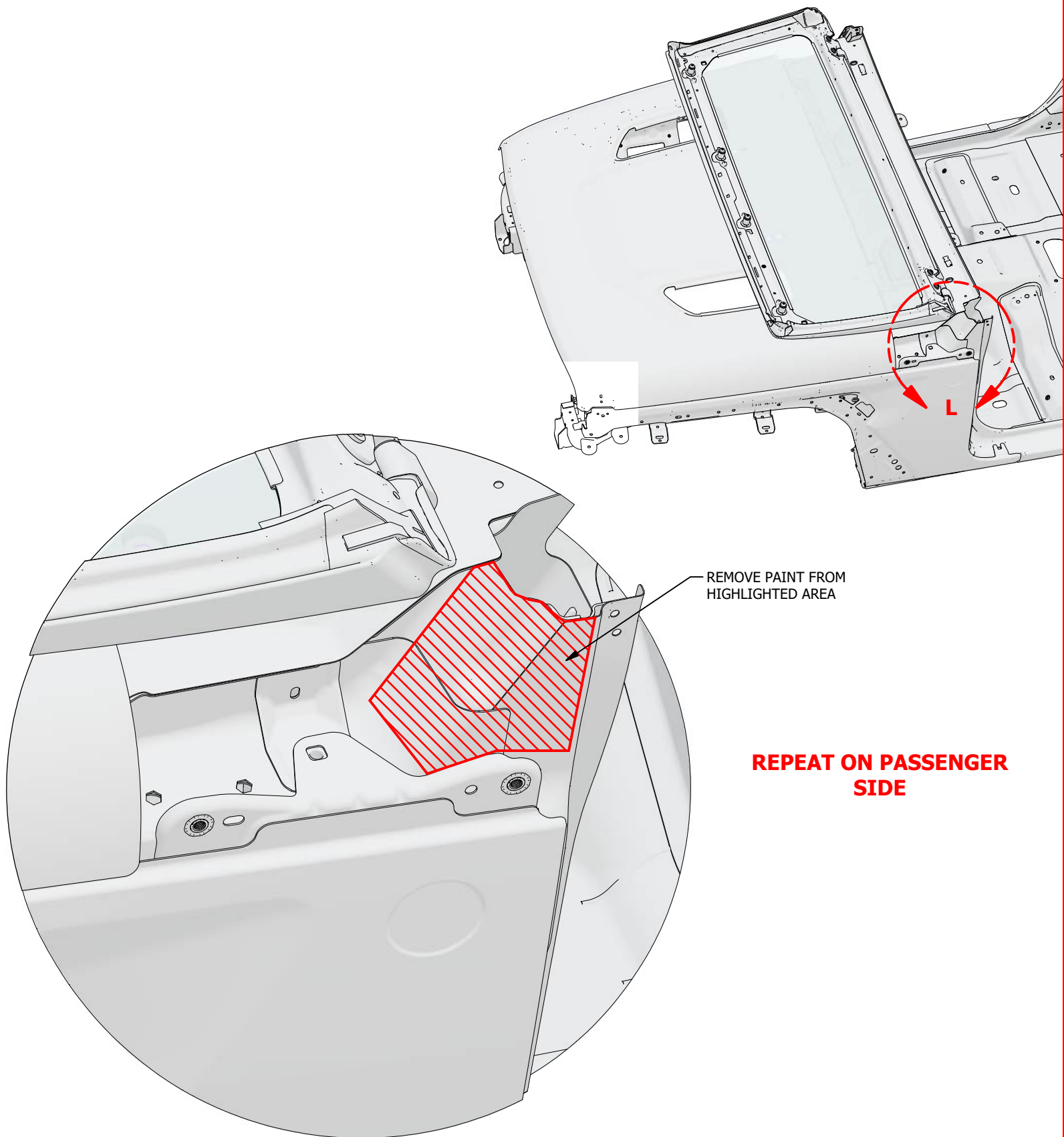
MB3045 JLU CAGE ASSEMBLY

STEP 15 PREP A-PILLARS



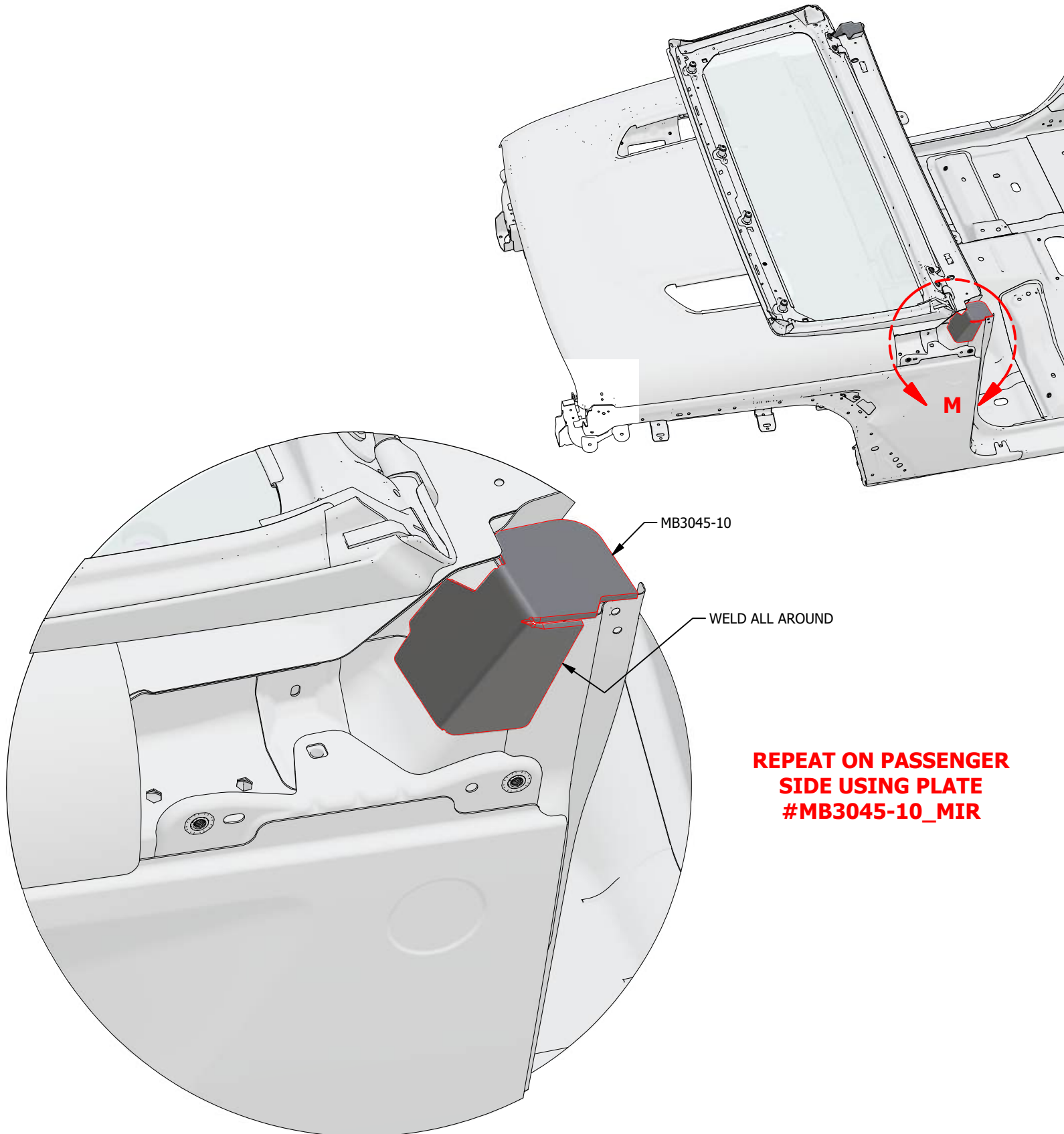
MB3045 JLU CAGE ASSEMBLY

STEP 16 PREP A-PILLARS



MB3045 JLU CAGE ASSEMBLY

STEP 17 PREP A-PILLARS



MB3045 JLU CAGE ASSEMBLY

STEP 18 PREP A-PILLARS

FASTENERS INCLUDED
WITH TUBE JOINERS

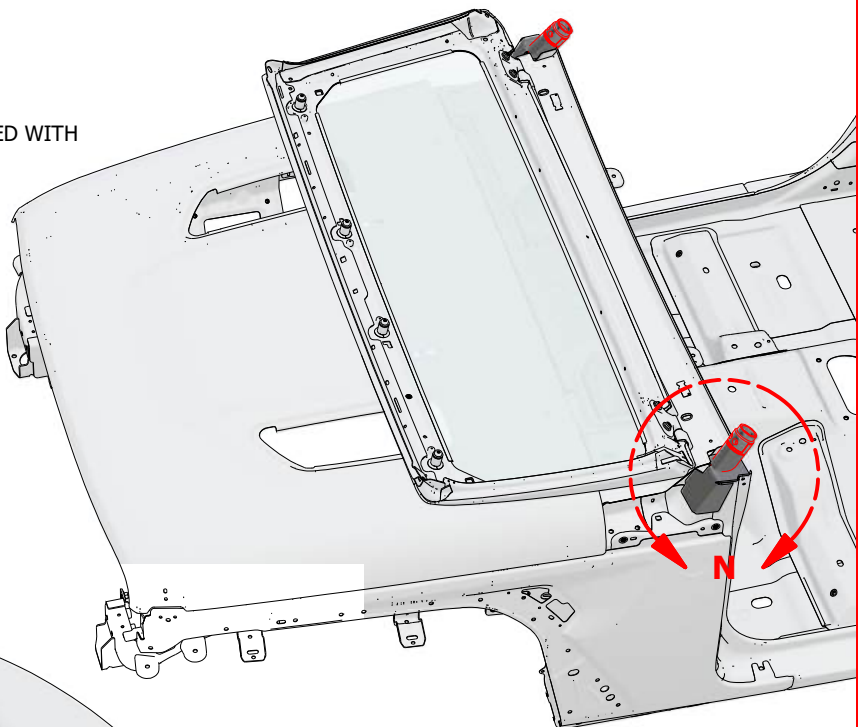
UPPER TUBE JOINER

NUTS INCLUDED WITH
TUBE JOINERS

MB3045 - TUBE 22

LOWER TUBE JOINER

MB3045-10



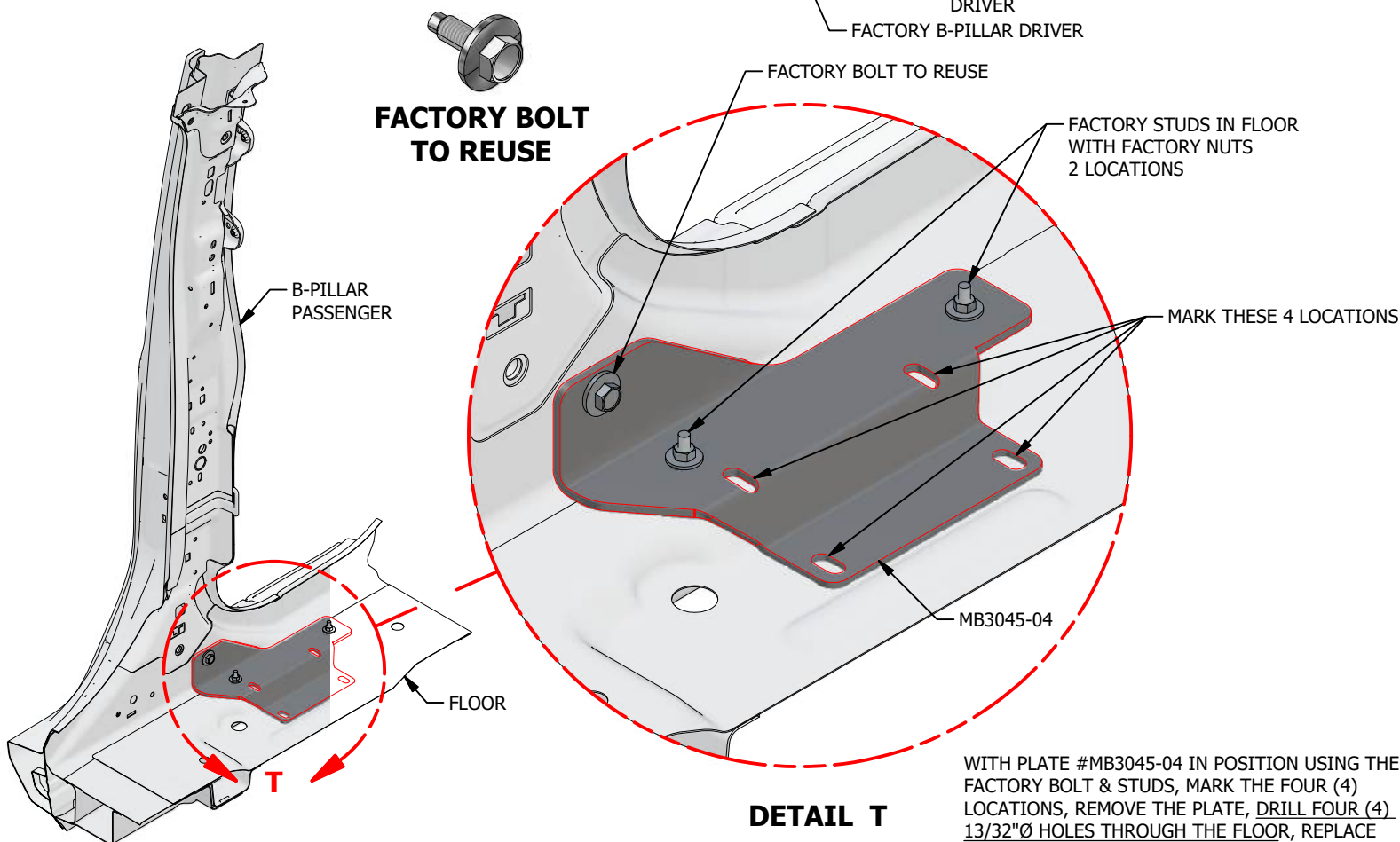
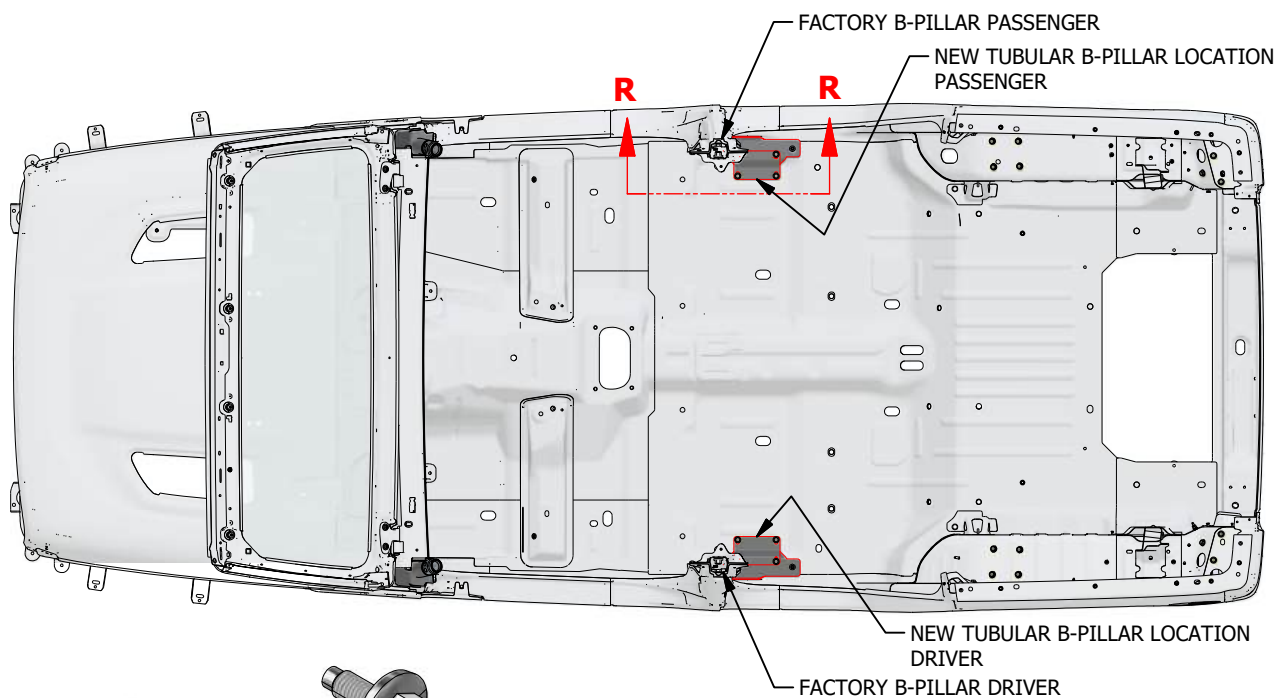
THIS UPPER TUBE JOINER WILL GET WELDED
TO A NEW A-PILLAR TUBE IN A LATER STEP

POSITION LOOSELY IN PLACE
DO NOT WELD YET

REPEAT ON PASSENGER SIDE

MB3045 JLU CAGE ASSEMBLY

STEP 19 PREP B-PILLAR BASE PLATES



SECTION R-R

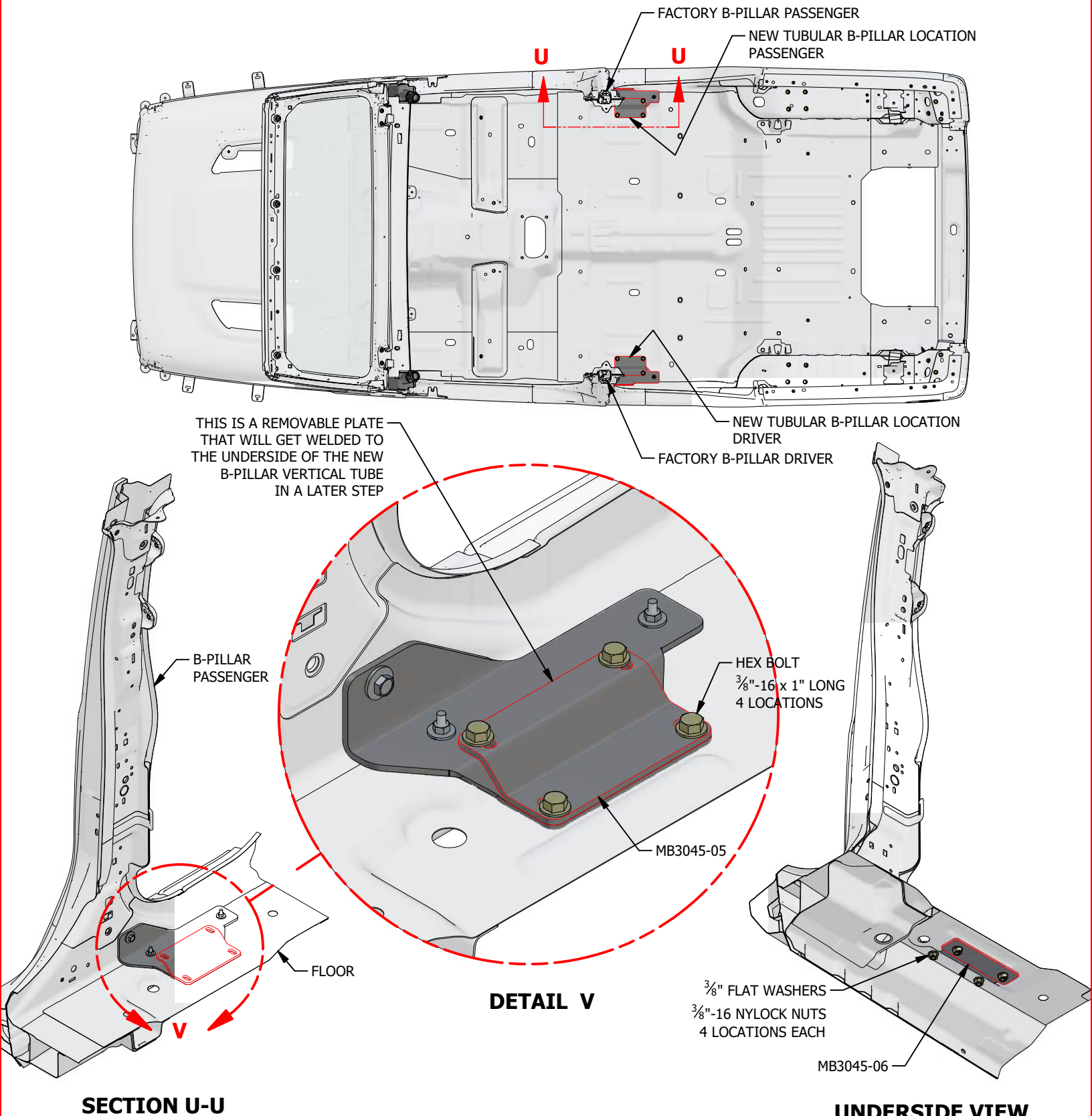
DETAIL T

WITH PLATE #MB3045-04 IN POSITION USING THE FACTORY BOLT & STUDS, MARK THE FOUR (4) LOCATIONS, REMOVE THE PLATE, DRILL FOUR (4) 13/32"Ø HOLES THROUGH THE FLOOR, REPLACE THE PLATE, FACTORY BOLT & FACTORY NUTS OVER THE 2 STUDS

REPEAT ON DRIVER SIDE

MB3045 JLU CAGE ASSEMBLY

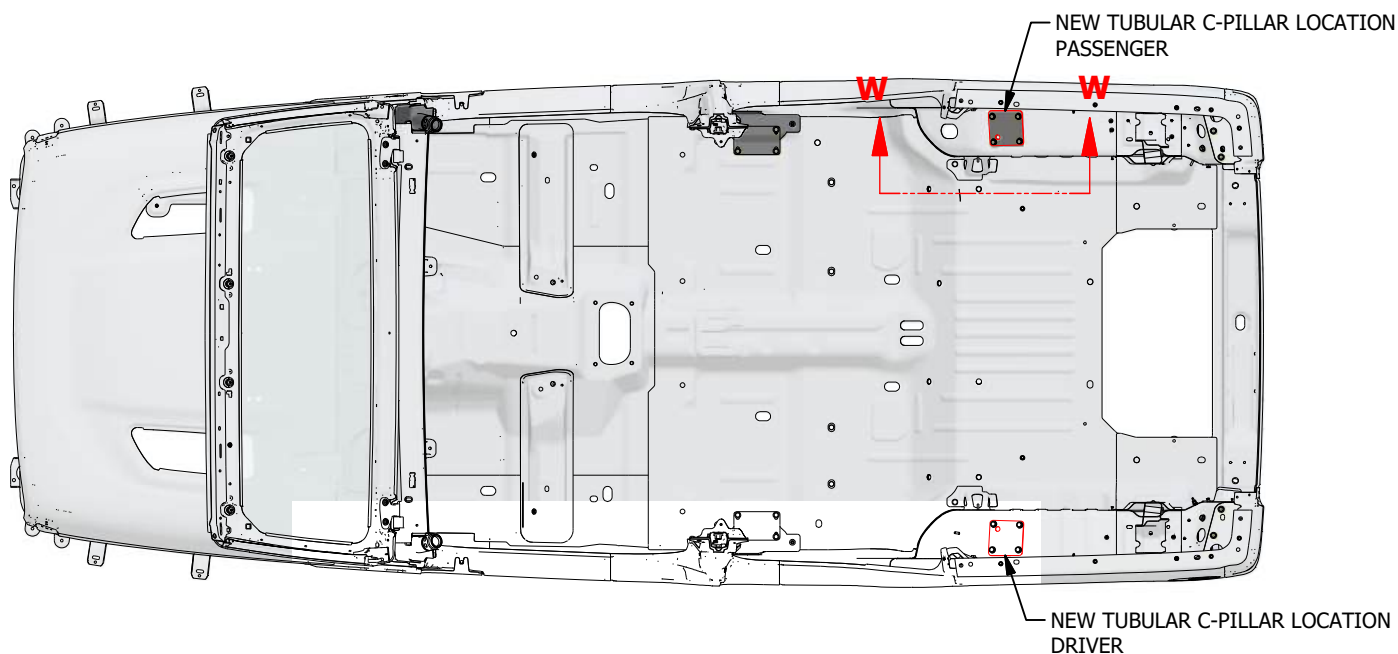
STEP 20 PREP B-PILLAR BASE PLATES



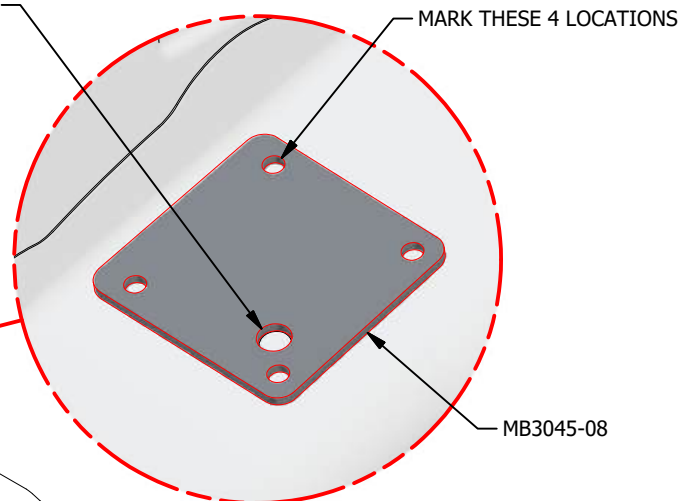
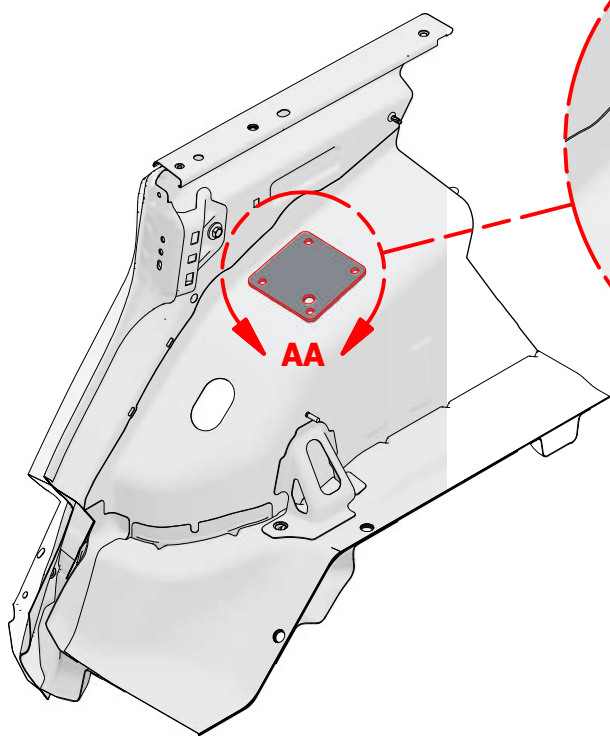
REPEAT ON DRIVER SIDE

MB3045 JLU CAGE ASSEMBLY

STEP 21 PREP C-PILLAR BASE PLATES



USE THE RAISED CIRCULAR SHAPE IN THE FACTORY WHEEL WELL TO LOCATE THIS PLATE. NO BOLTS WILL BE USED FOR THIS HOLE. THIS IS A LOCATOR HOLE ONLY.



DETAIL AA

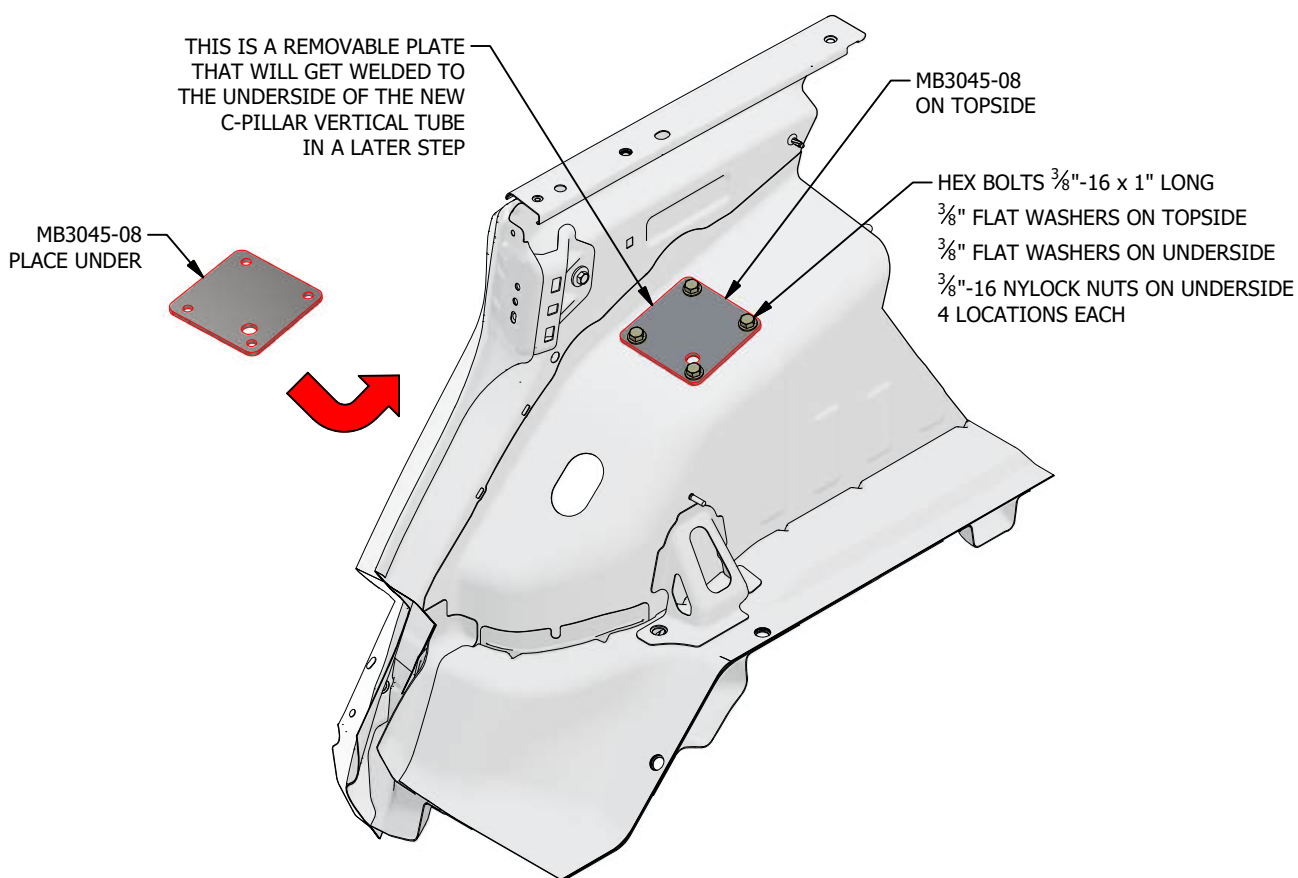
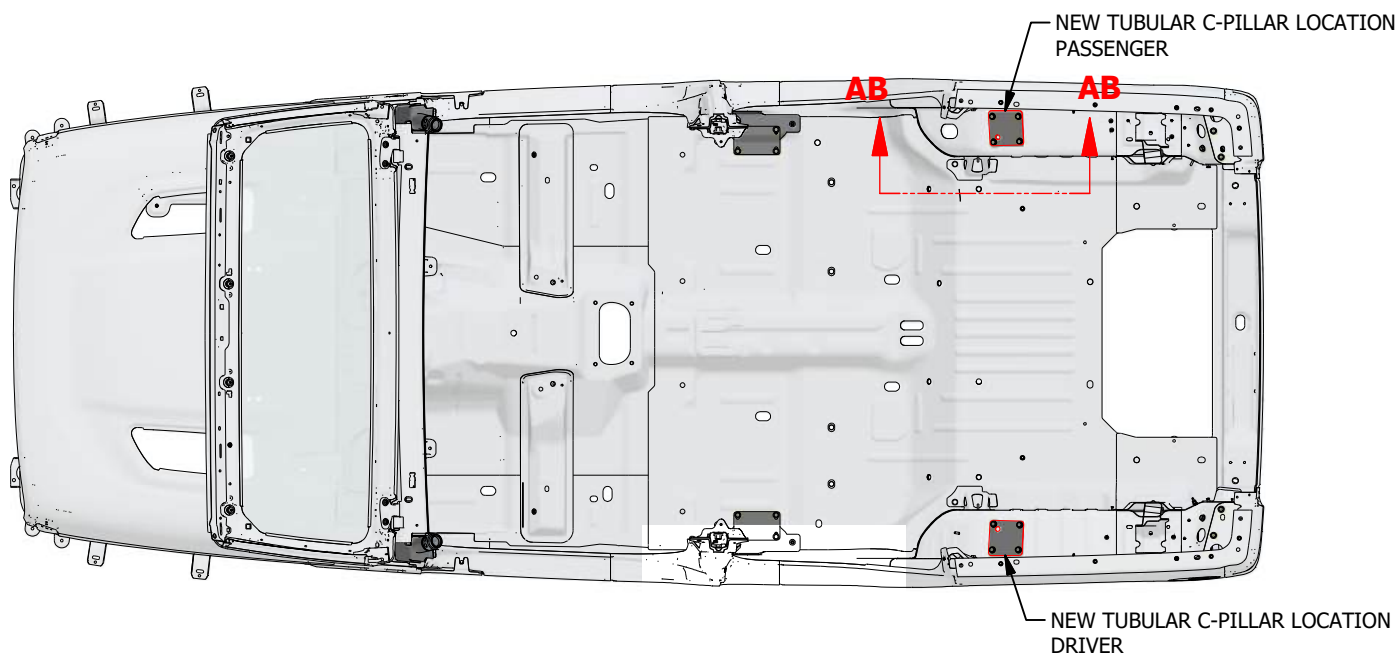
WITH PLATE #MB3045-08 IN POSITION USING THE RAISED SHEET METAL AS A LOCATING GUIDE, MARK THE FOUR (4) LOCATIONS, REMOVE THE PLATE, DRILL FOUR (4) 13/32"Ø HOLES THROUGH THE FLOOR, REPLACE THE TOP PLATE.

SECTION W-W

REPEAT ON DRIVER SIDE

MB3045 JLU CAGE ASSEMBLY

STEP 22 PREP C-PILLAR BASE PLATES

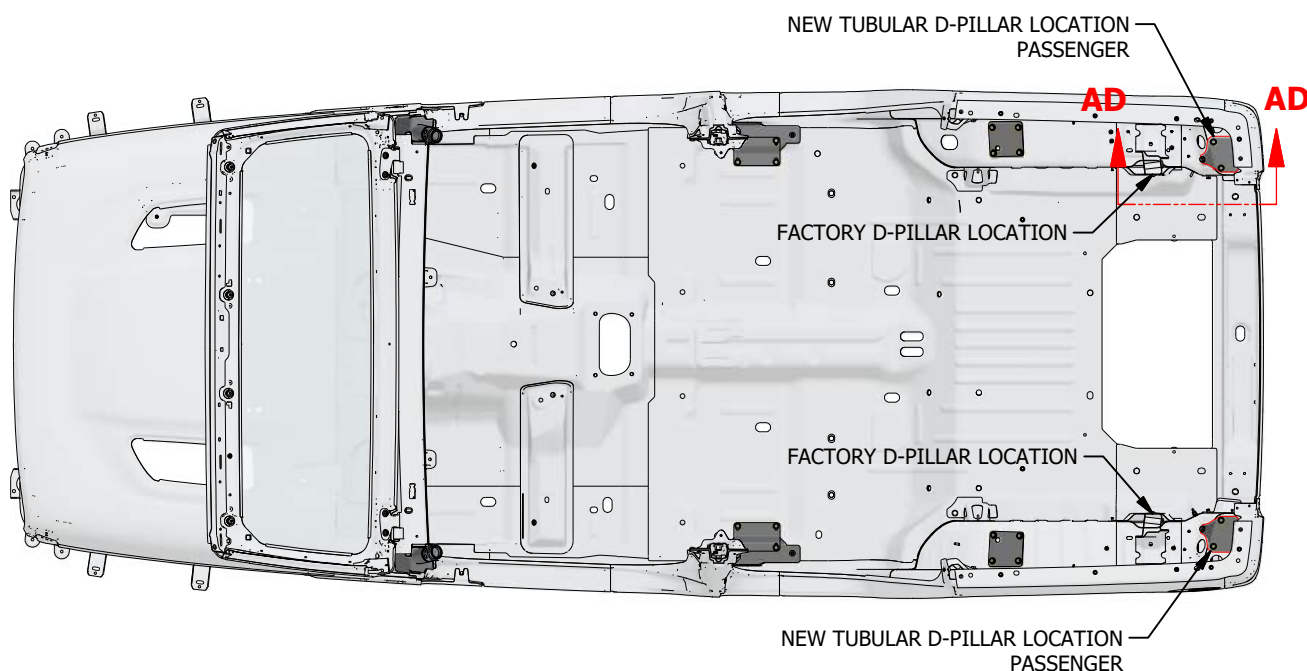


SECTION AB-AB

REPEAT ON DRIVER SIDE

MB3045 JLU CAGE ASSEMBLY

STEP 23 PREP D-PILLAR BASE PLATES

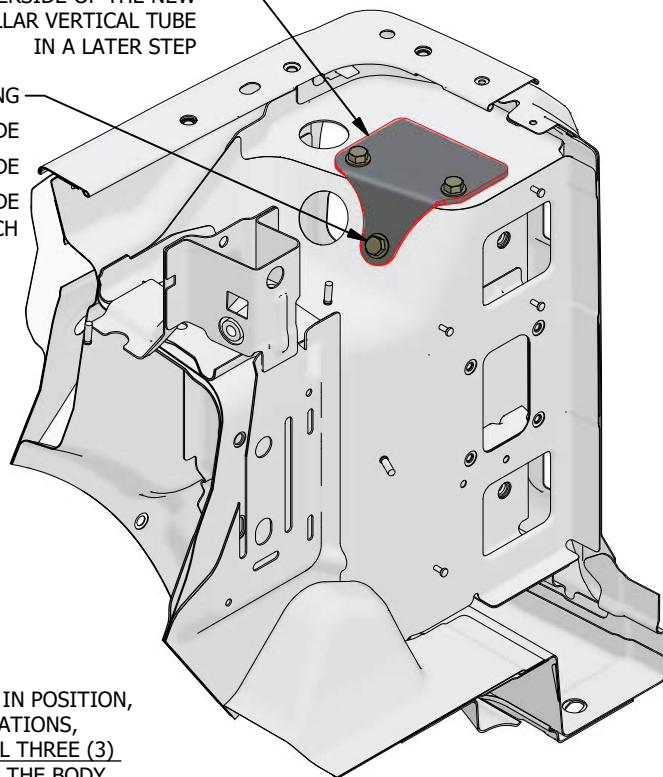
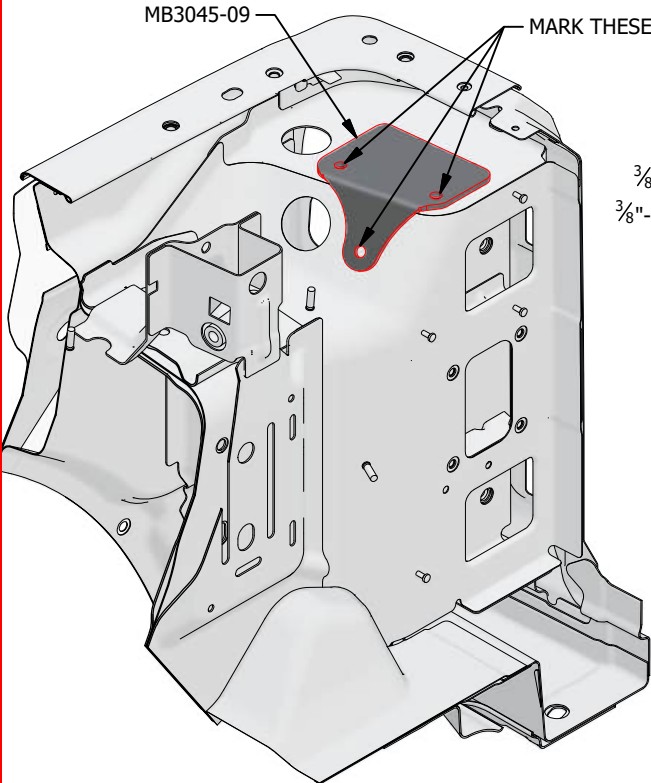


MB3045-09

MARK THESE 3 LOCATIONS

THIS IS A REMOVABLE PLATE THAT WILL GET WELDED TO THE UNDERSIDE OF THE NEW D-PILLAR VERTICAL TUBE IN A LATER STEP

HEX BOLTS $\frac{3}{8}$ "-16 x 1" LONG
 $\frac{3}{8}$ " FLAT WASHERS ON TOPSIDE
 $\frac{3}{8}$ " FLAT WASHERS ON UNDERSIDE
 $\frac{3}{8}$ "-16 NYLOCK NUTS ON UNDERSIDE
 3 LOCATIONS EACH



WITH PLATE #MB3045-09 IN POSITION, MARK THE THREE (2) LOCATIONS, REMOVE THE PLATE, DRILL THREE (3) $\frac{13}{32}$ "Ø HOLES THROUGH THE BODY REPLACE THE TOP PLATE.

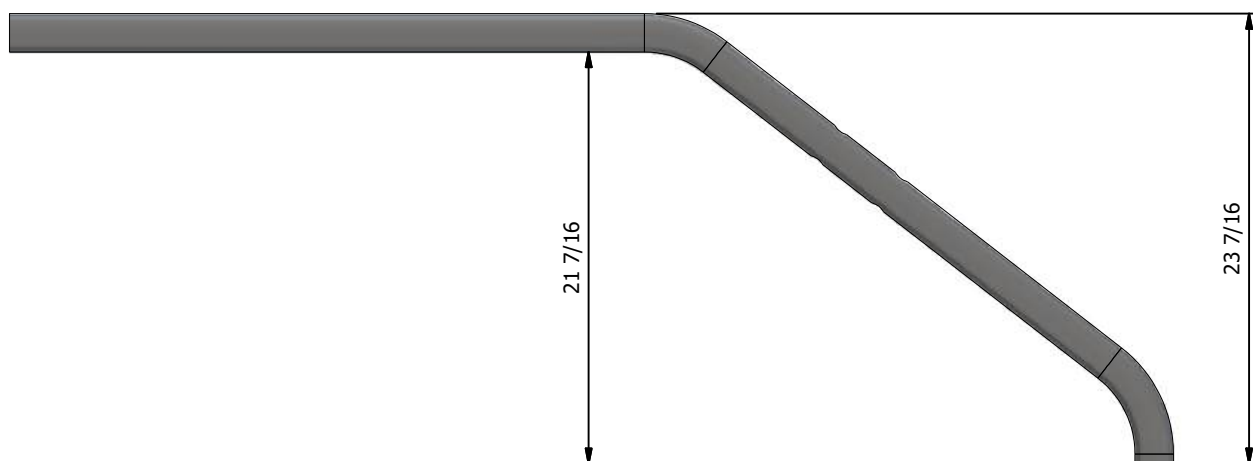
SECTION AD-AD

REPEAT ON DRIVER SIDE

MB3045 JLU CAGE ASSEMBLY

STEP 24 CUT TUBES 03 & 04

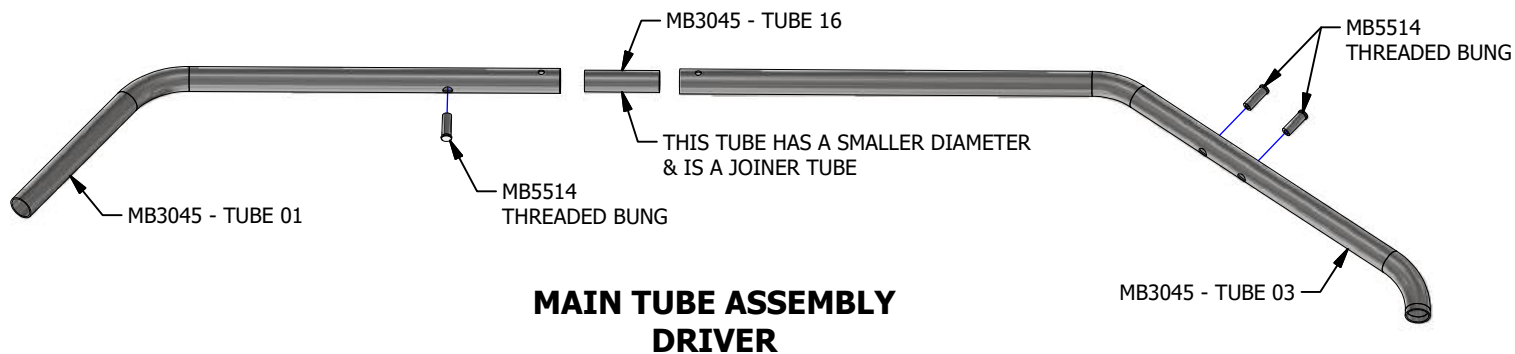
TUBES 03 & 04 ARE SHIPPED WITH EXTRA LENGTH ADDED TO THE LOWER BENDS AT THE D-PILLARS. USING THE LASER ETCHED CUT LINE, CUT 3" OF LENGTH OFF.



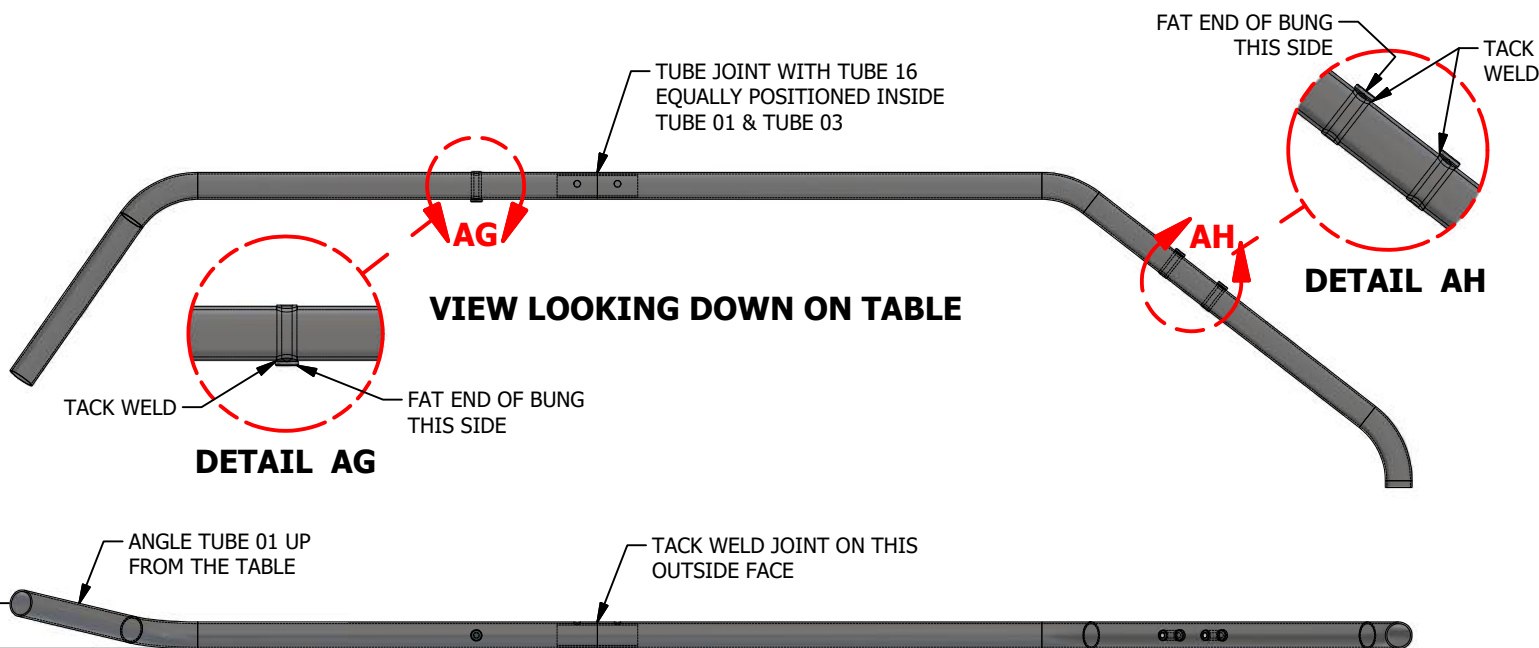
TUBES 03 & 04 AFTER CUTTING

MB3045 JLU CAGE ASSEMBLY

STEP 25 PREP MAIN TUBES



CONNECT THE THREE TUBES USING "TUBE 16" AS A JOINER. PLACE THE ASSEMBLED TUBES ON A FLAT TABLE. POSITION "TUBE 01" SO IT ANGLES UP OFF THE TABLE SURFACE TO THE DIMENSIONS SHOWN.



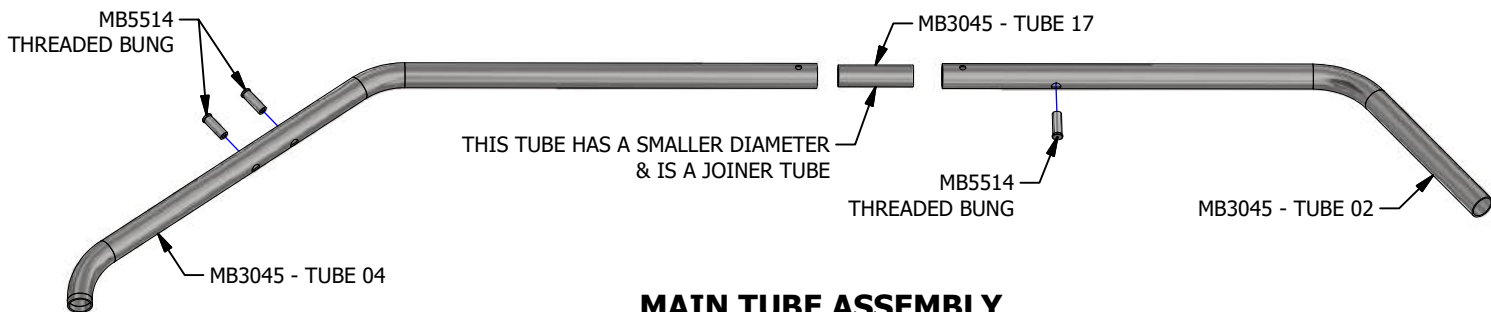
SIDE VIEW



DO NOT FULLY WELD YET

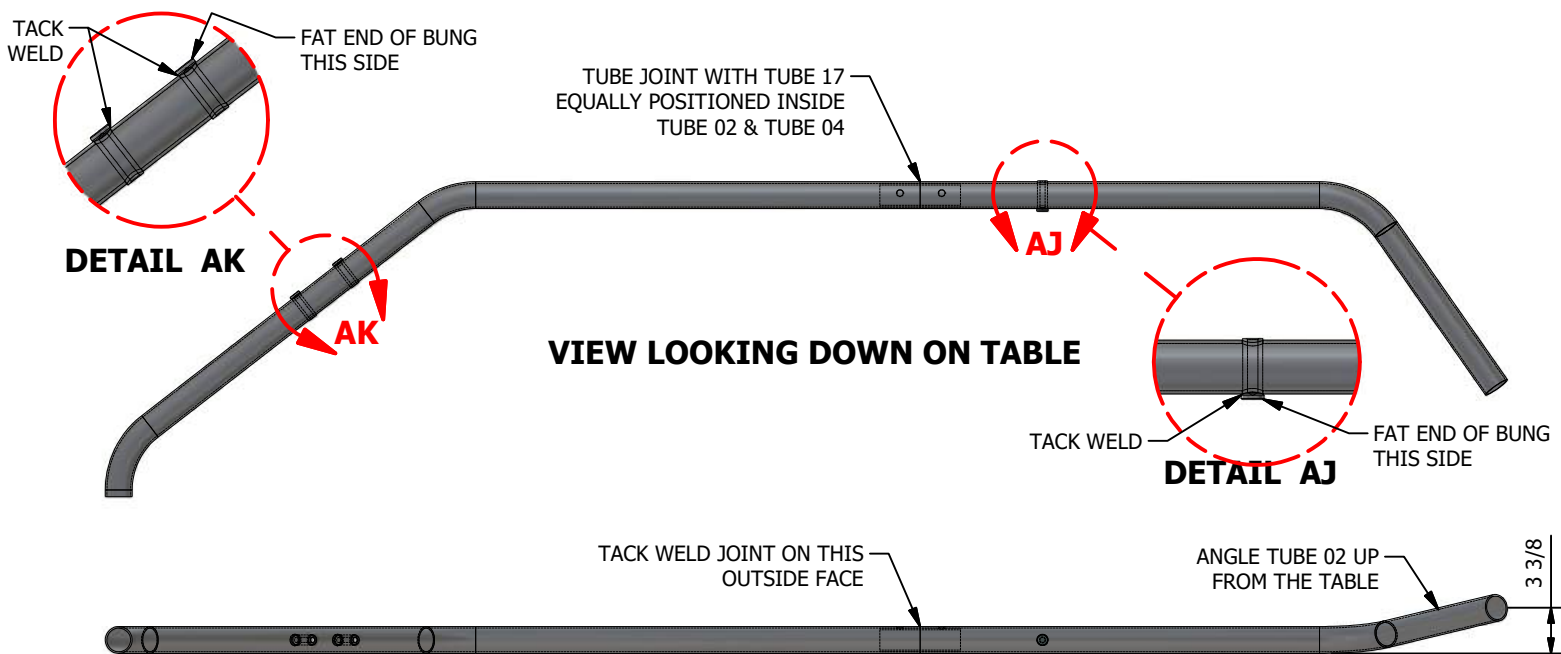
MB3045 JLU CAGE ASSEMBLY

STEP 26 PREP MAIN TUBES



MAIN TUBE ASSEMBLY PASSENGER

CONNECT THE THREE TUBES USING "TUBE 17" AS A JOINER. PLACE THE ASSEMBLED TUBES ON A FLAT TABLE. POSITION "TUBE 02" SO IT ANGLES UP OFF THE TABLE SURFACE TO THE DIMENSIONS SHOWN.



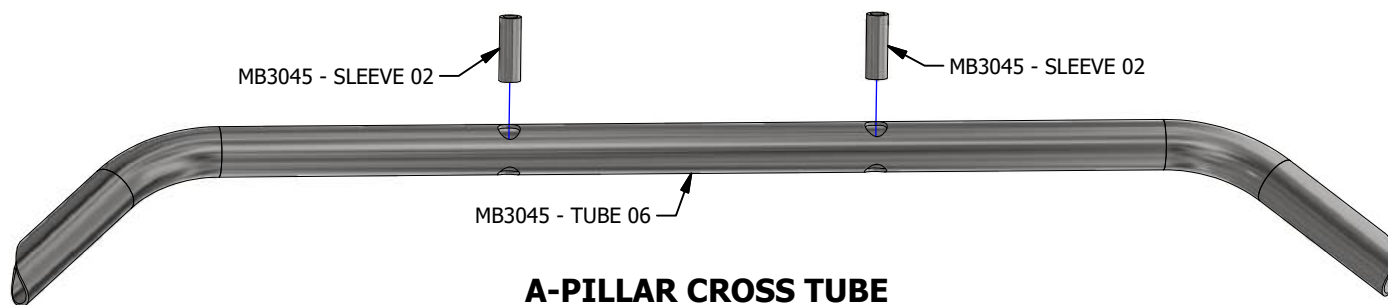
SIDE VIEW



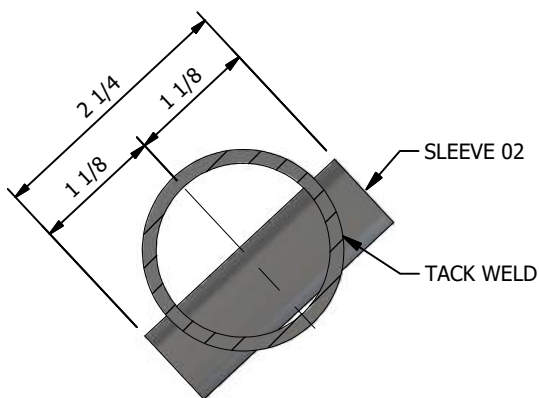
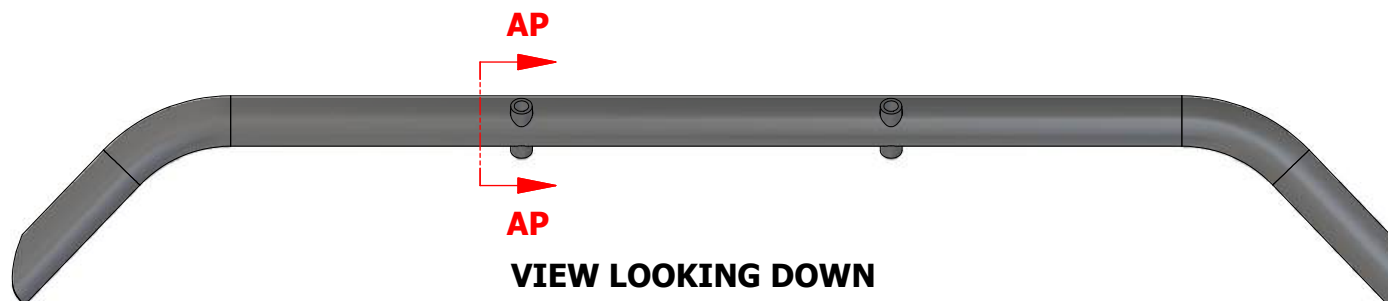
DO NOT FULLY WELD YET

MB3045 JLU CAGE ASSEMBLY

STEP 27 PREP A-PILLAR CROSS TUBE



POSITION "SLEEVE 02" INTO THE PRECUT HOLES IN "TUBE 06". TACK WELD "SLEEVE 02" TO "TUBE 06".



SECTION AP-AP



DO NOT FULLY WELD YET

MB3045 JLU CAGE ASSEMBLY

STEP 28 USING LASER ETCHED LINES FOR TUBE ASSEMBLY

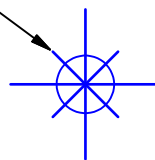
THIS KIT INCLUDES LASER ETCHED LINES IN CERTAIN TUBES TO HELP THE CORRECT POSITIONING OF TUBES DURING ASSEMBLY.



THE IMAGE ABOVE SHOWS THE LASER ETCHED LINES IN "MB3045-TUBE 04", AS AN EXAMPLE.

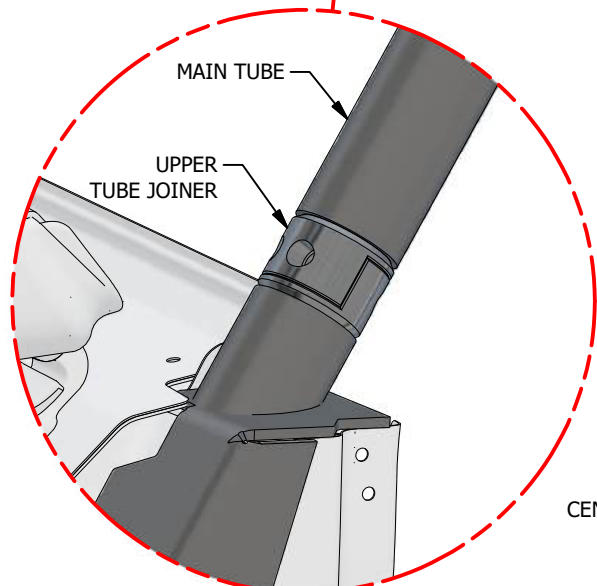
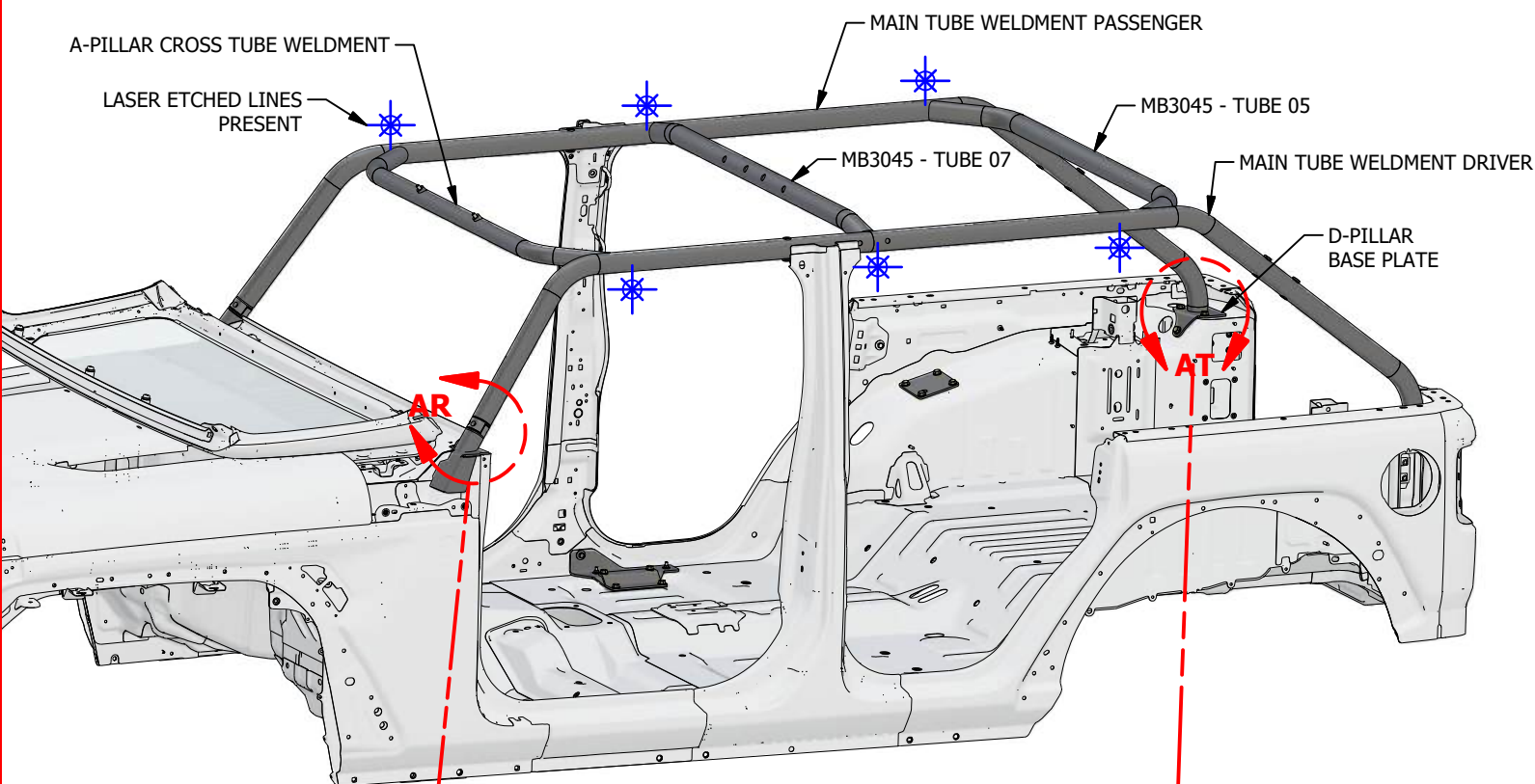
IN THE FOLLOWING STEPS, WE WILL REFERENCE YOU TO POSITION CERTAIN TUBES WITH LASER ETCHING POSITIONING POINTS.

THIS SYMBOL INDICATES THERE IS LASER ETCHED LINES
PRESENT TO POSITION & ALIGN YOUR PARTS

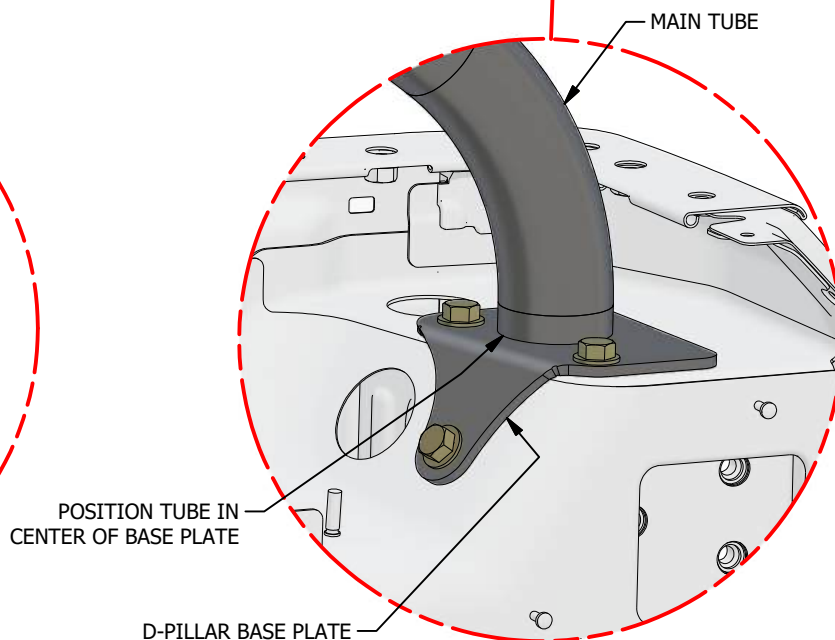


MB3045 JLU CAGE ASSEMBLY

STEP 29 CAGE ASSEMBLY



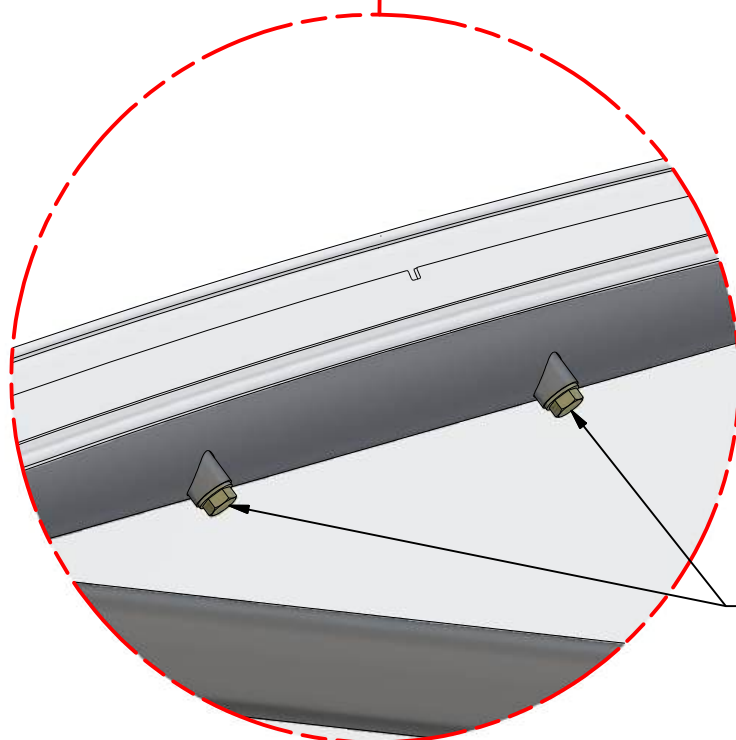
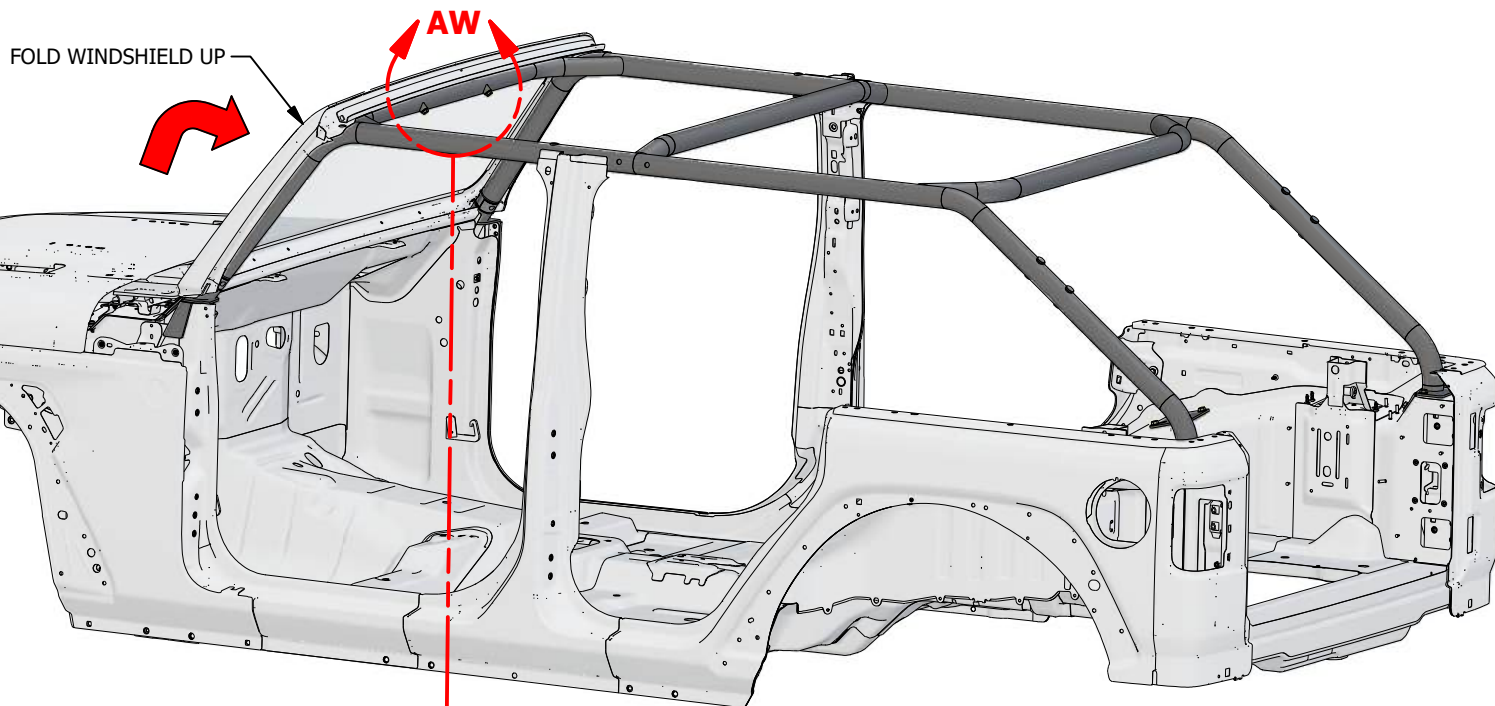
DETAIL AR



DETAIL AT

MB3045 JLU CAGE ASSEMBLY

STEP 30 CAGE ASSEMBLY



DETAIL AW



FLAT WASHER 5/16"



**HEX BOLT
M8 x 1.25 x 70mm LONG**

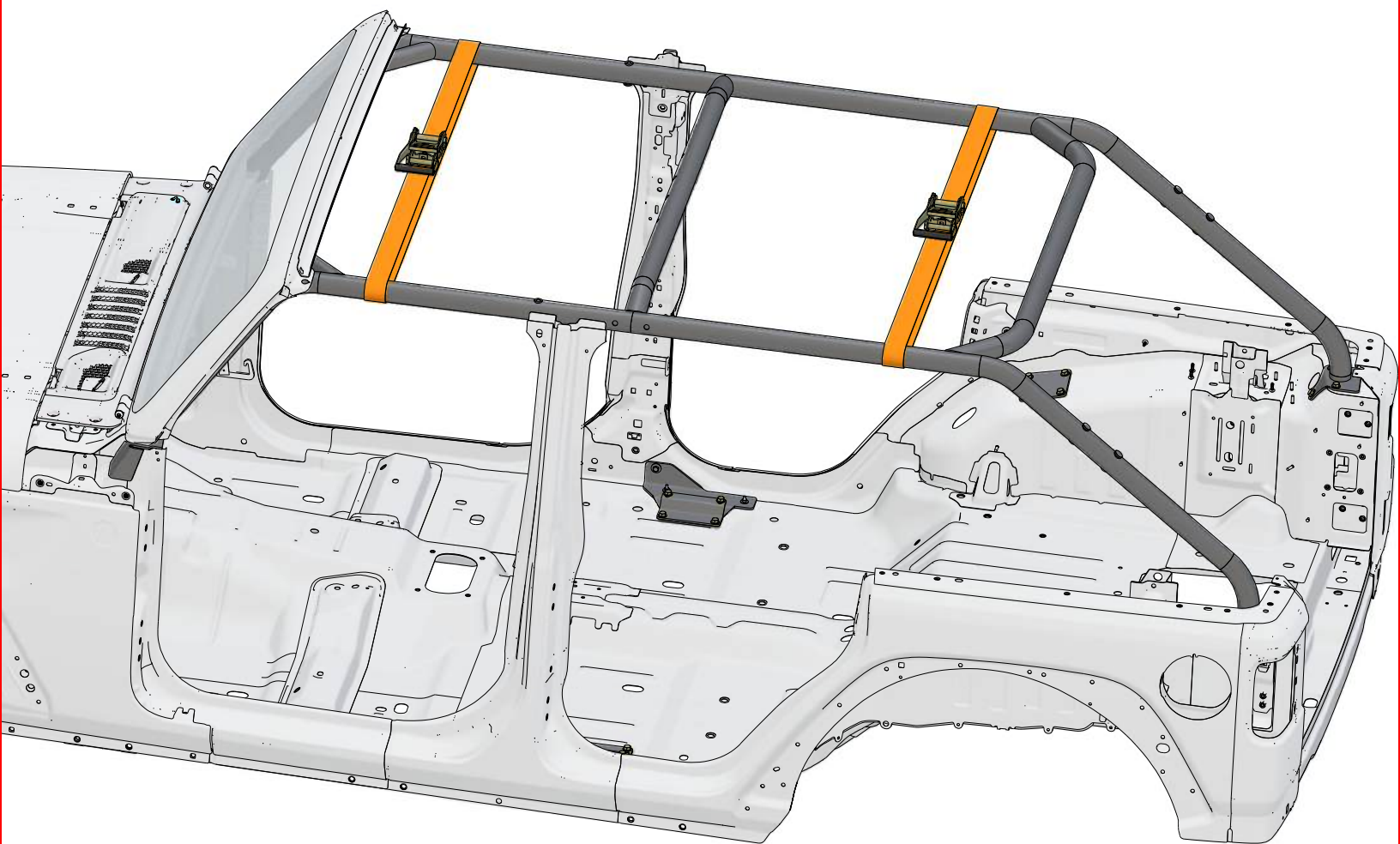
FASTEN TUBE TO WINDSHIELD
USING WASHERS & BOLTS
2 LOCATIONS

MB3045 JLU CAGE ASSEMBLY

STEP 31

PLACE RATCHET STRAPS

PLACE TWO RATCHET STRAPS LATERALLY ACROSS THE MAIN TUBES TO TEMPORARILY HOLD THE CAGE FRAMEWORK DURING THE NEXT FEW STEPS



MB3045 JLU CAGE ASSEMBLY

STEP 32

INSTALL FRONT DOORS

TEMPORARILY INSTALL BOTH FRONT DOORS & PROCEED TO NEXT STEP.



NOTE: THESE IMAGES SHOW THE B-PILLAR CHOPPED & REMOVED. YOU DO NOT NEED TO REMOVE THE FACTORY B-PILLARS. THIS IS AN OPTION & A SEPARATE PRODUCT KIT AVAILABLE THROUGH MOTOBILT.

MB3045 JLU CAGE ASSEMBLY

STEP 33

CHECK A-PILLAR TUBE CLEARANCES

CHECK THE REVEAL GAP (RED ARROW BELOW) BETWEEN THE DOOR & WINDSHIELD TO ENSURE IT IS EVEN. YOU CAN REPOSITION THE MAIN TUBES SLIGHTLY IF THE WINDSHIELD IS NOT SITTING EVENLY WITH THE DOOR.

WITH THE FRONT DOORS CLOSED, CHECK THAT THE A-PILLAR TUBES DO NOT CONTACT THE INSIDE OF THE FRONT DOORS & THAT THE FRONT DOORS WILL EASILY CLOSE WITHOUT BINDING WITH THE A-PILLAR TUBES.

IF THE TUBES DO CONTACT THE DOORS, THEN MOVE THE LOWER A-PILLAR TUBES WITH THE TUBE JOINERS SLIGHTLY FARTHER INWARD EQUALLY & CHECK DOOR CLEARANCES AGAIN.

ONCE YOU ARE SATISFIED WITH THE FRONT DOOR & A-PILLAR TUBE CLEARANCES, TACK WELD THE A-PILLAR TUBES BELOW THE TUBE JOINERS TO THE A-PILLAR BASE PLATES.



REMOVE FRONT DOORS

MB3045 JLU CAGE ASSEMBLY

STEP 34 INSTALL HARDTOP



NOTE: THESE IMAGES SHOW THE B-PILLAR CHOPPED & REMOVED. YOU DO NOT NEED TO REMOVE THE FACTORY B-PILLARS. THIS IS AN OPTION & A SEPARATE PRODUCT KIT AVAILABLE THROUGH MOTOBILT.



MB3045 JLU CAGE ASSEMBLY**STEP 35
INSTALL HARDTOP**

ALIGN MOUNTING HOLES IN HARDTOP WITH THREADED BUNGS IN MAIN TUBES. FASTEN THE HARDTOP TO BOTH MAIN TUBES.



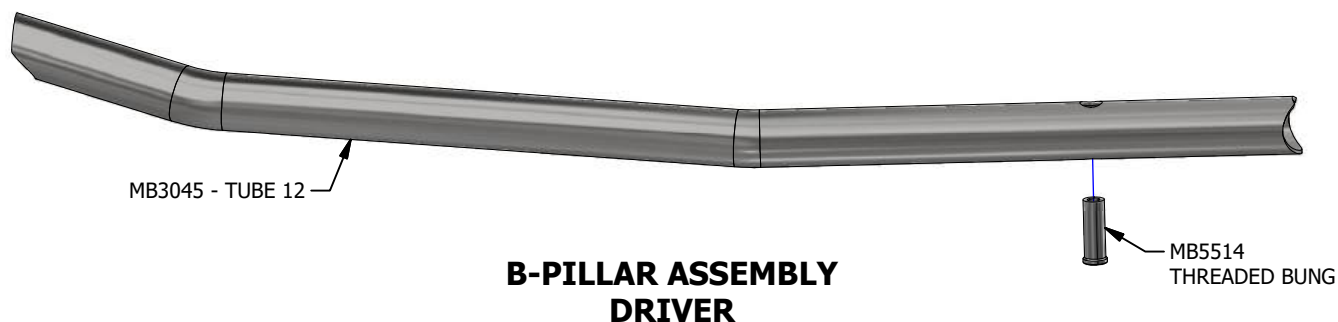
FLAT WASHER 7/16"



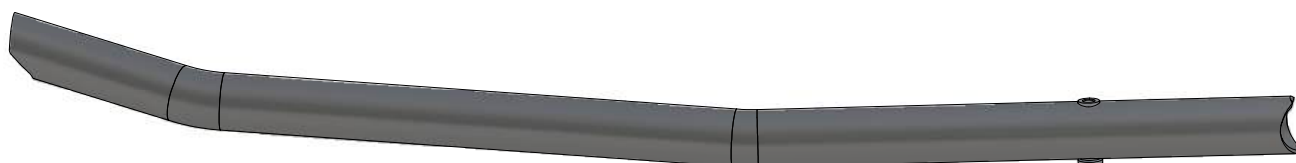
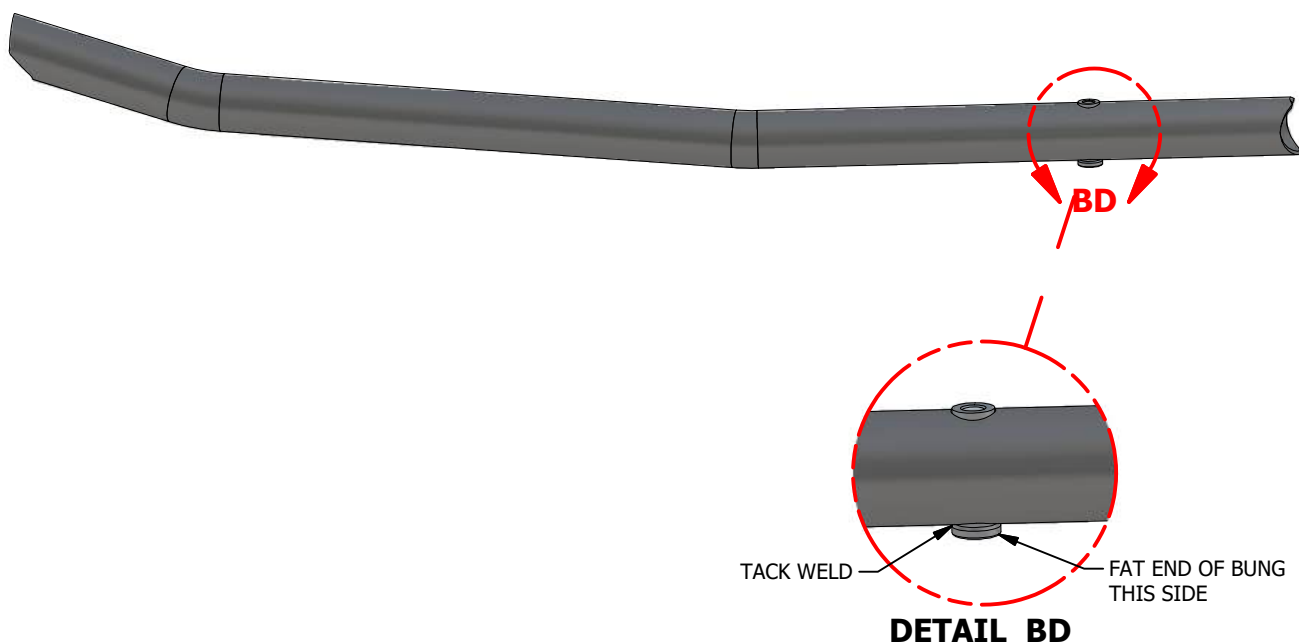
**HEX BOLT
7/16"-20 x 1-1/4" LONG**

MB3045 JLU CAGE ASSEMBLY

STEP 36 PREP B-PILLARS



POSITION "MB5514 THREADED BUNG" INTO THE PRECUT HOLE IN "TUBE 12". TACK WELD "MB5514" TO "TUBE 12".

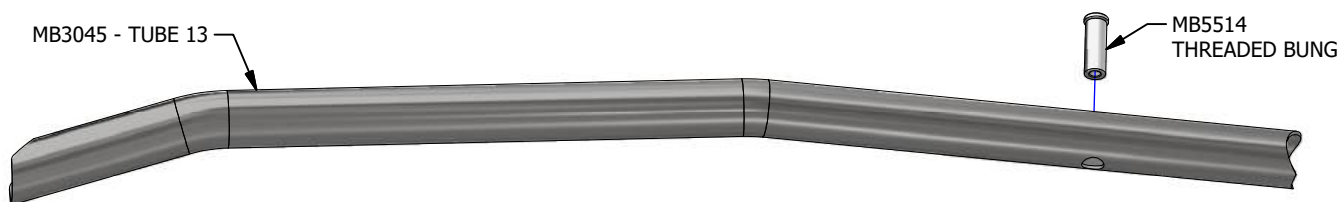


**B-PILLAR WELDMENT
DRIVER**

DO NOT FULLY WELD YET

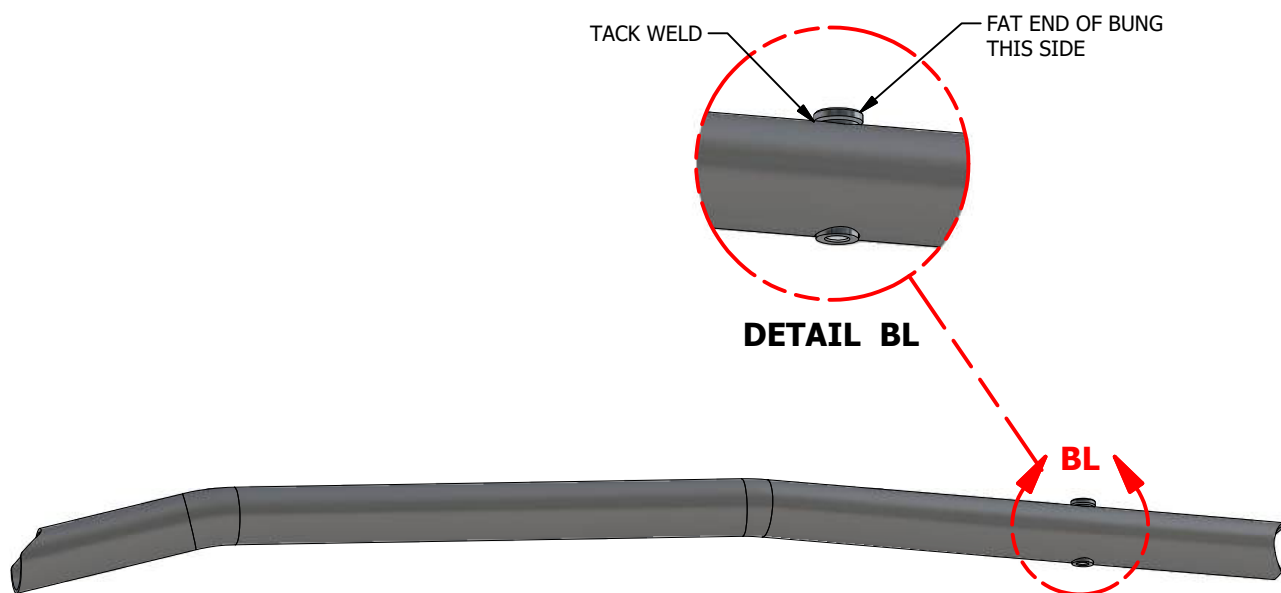
MB3045 JLU CAGE ASSEMBLY

STEP 37 PREP B-PILLARS



B-PILLAR ASSEMBLY PASSENGER

POSITION "MB5514 THREADED BUNG" INTO THE PRECUT HOLE IN "TUBE 13". TACK WELD "MB5514" TO "TUBE 13".

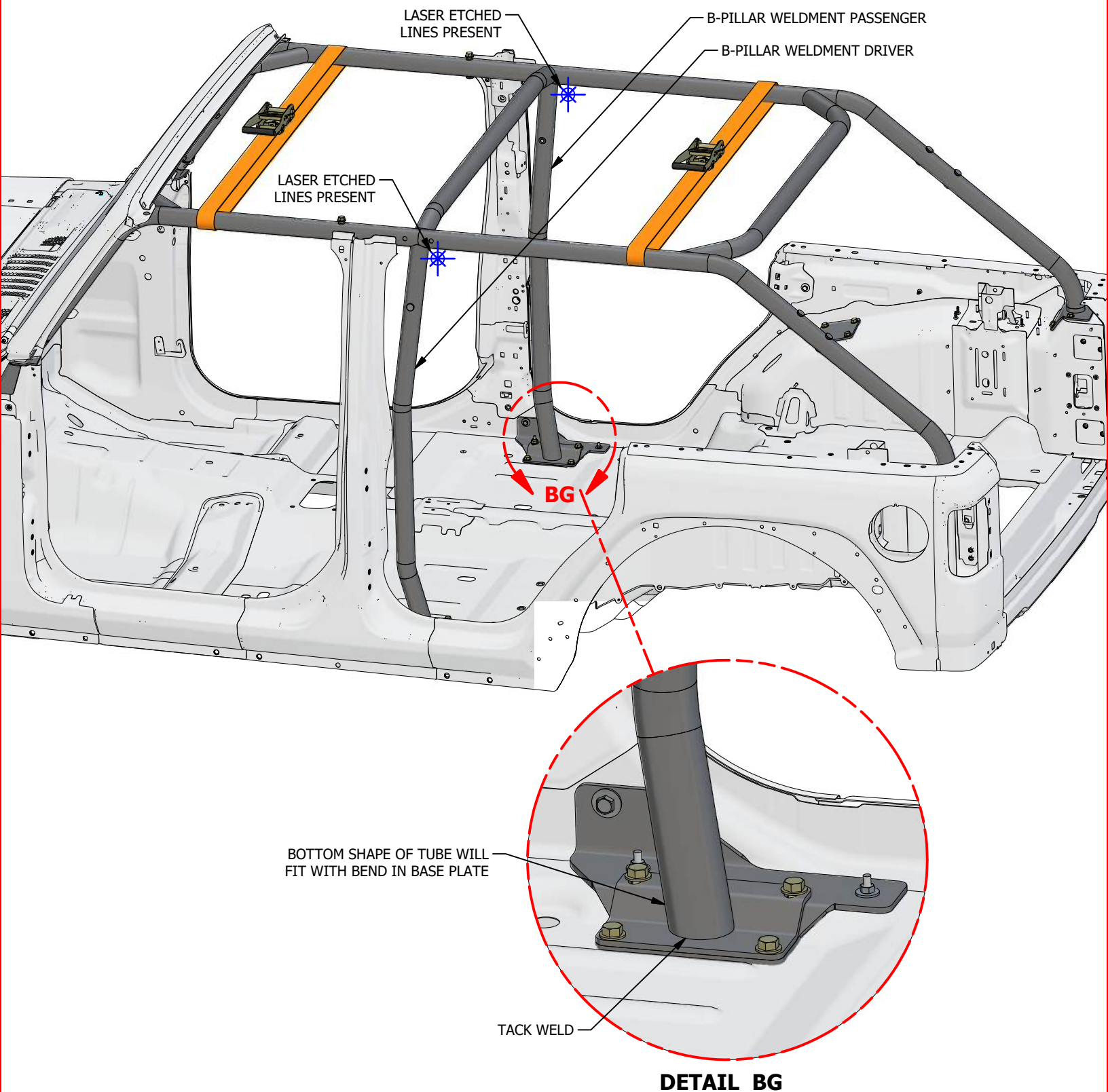


B-PILLAR WELDMENT PASSENGER

DO NOT FULLY WELD YET

MB3045 JLU CAGE ASSEMBLY

STEP 38 INSTALL B-PILLAR TUBES

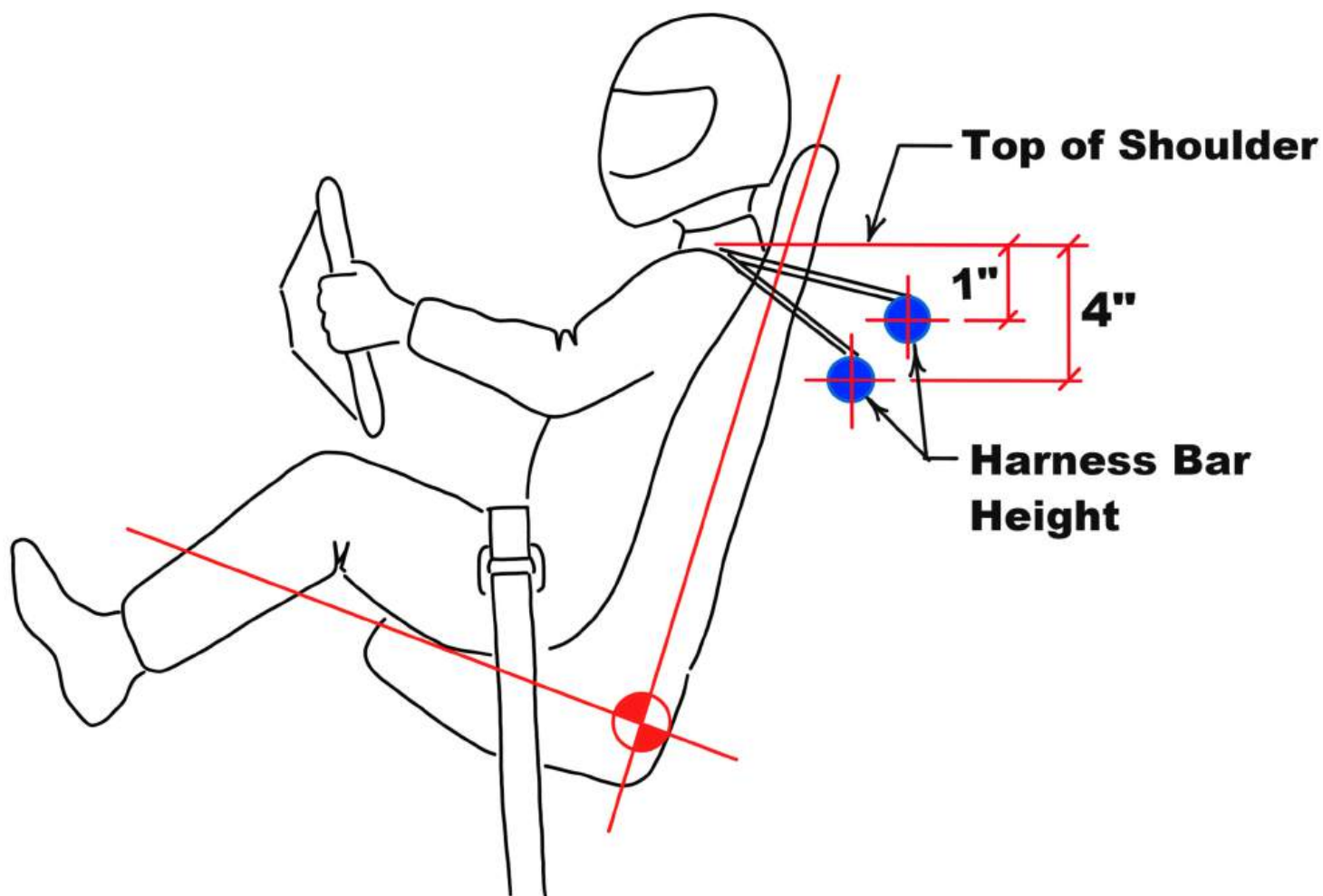


NOTE: THE HARDTOP CAN REMAIN ON FOR THIS STEP

MB3045 JLU CAGE ASSEMBLY

STEP 39 DETERMINE FRONT HARNESS BAR HEIGHT

With the driver sitting in the seat, the harness bar should be located between 1" to 4" lower vertically than the shoulder height, as shown in the diagram below.



NOTE: THE HARDTOP CAN REMAIN ON FOR THIS STEP

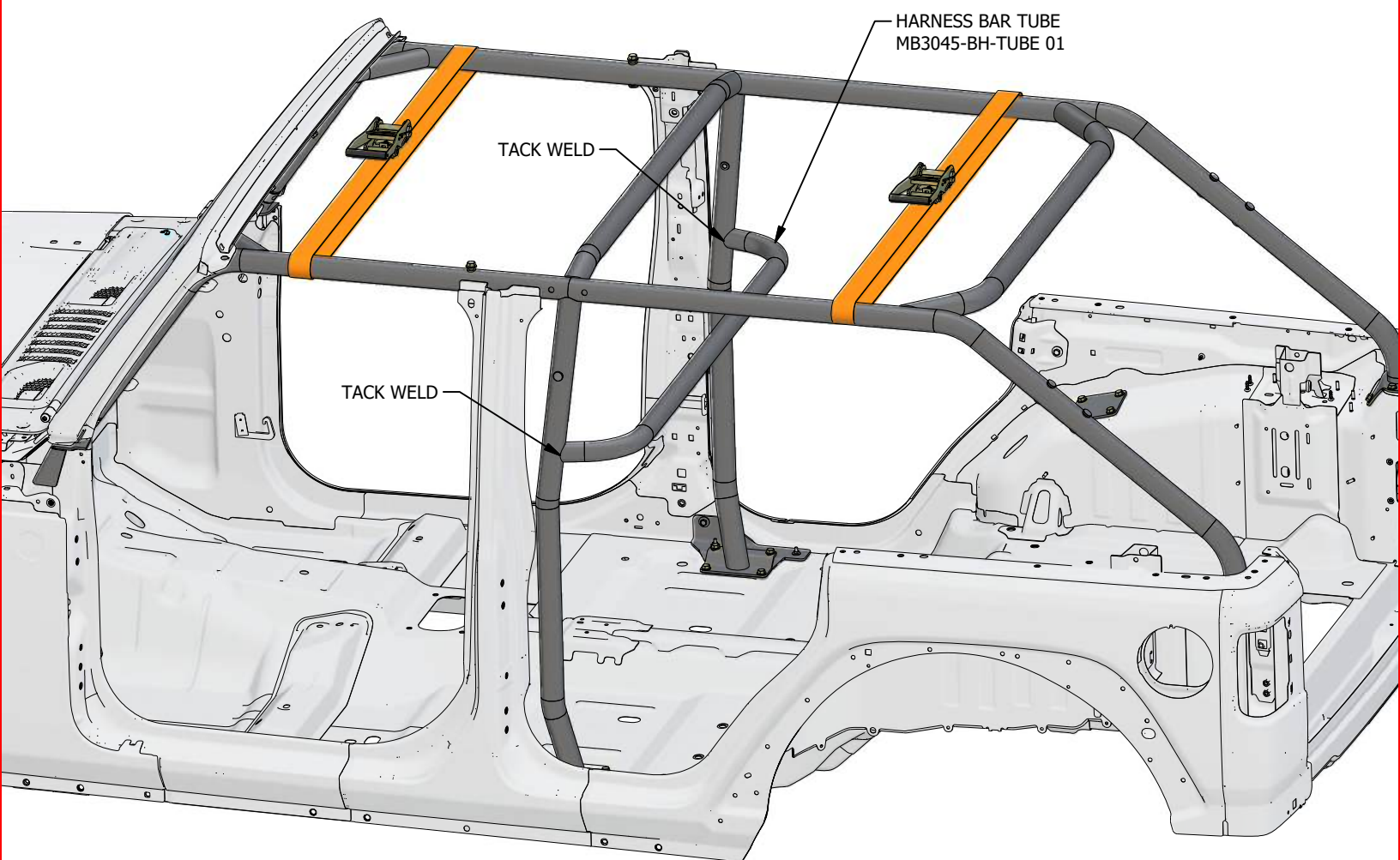
MB3045 JLU CAGE ASSEMBLY

STEP 40 INSTALL FRONT HARNESS BAR

With your harness bar height determined, mark the harness bar height on both B-pillar tubes.

Fit tube "MB3045-BH-Tube 01" horizontally between both B-pillar tubes. You may need to cope the ends of the harness bar tube for an exact fit for your actual harness bar height.

Check the harness bar is level. Tack weld into place.



NOTE: THE HARDTOP CAN REMAIN ON FOR THIS STEP

MB3045 JLU CAGE ASSEMBLY

STEP 41 SQUARING THE CAGE

PLACE TWO RATCHET STRAPS IN AN "X" PATTERN DIAGONALLY ACROSS THE MAIN TUBES AS SHOWN



MEASURE FROM COMMON POINTS ON EACH DIAGONAL. SQUARE THE CAGE. TIGHTEN THE RATCHET STRAPS AFTER SQUARING.

NOTE:
YOU MAY HAVE TO BREAK SOME TEMPORARY TACK WELDS IN ORDER TO SQUARE UP THE CAGE.



NOTE: THE HARDTOP CAN REMAIN ON FOR THIS STEP

MB3045 JLU CAGE ASSEMBLY

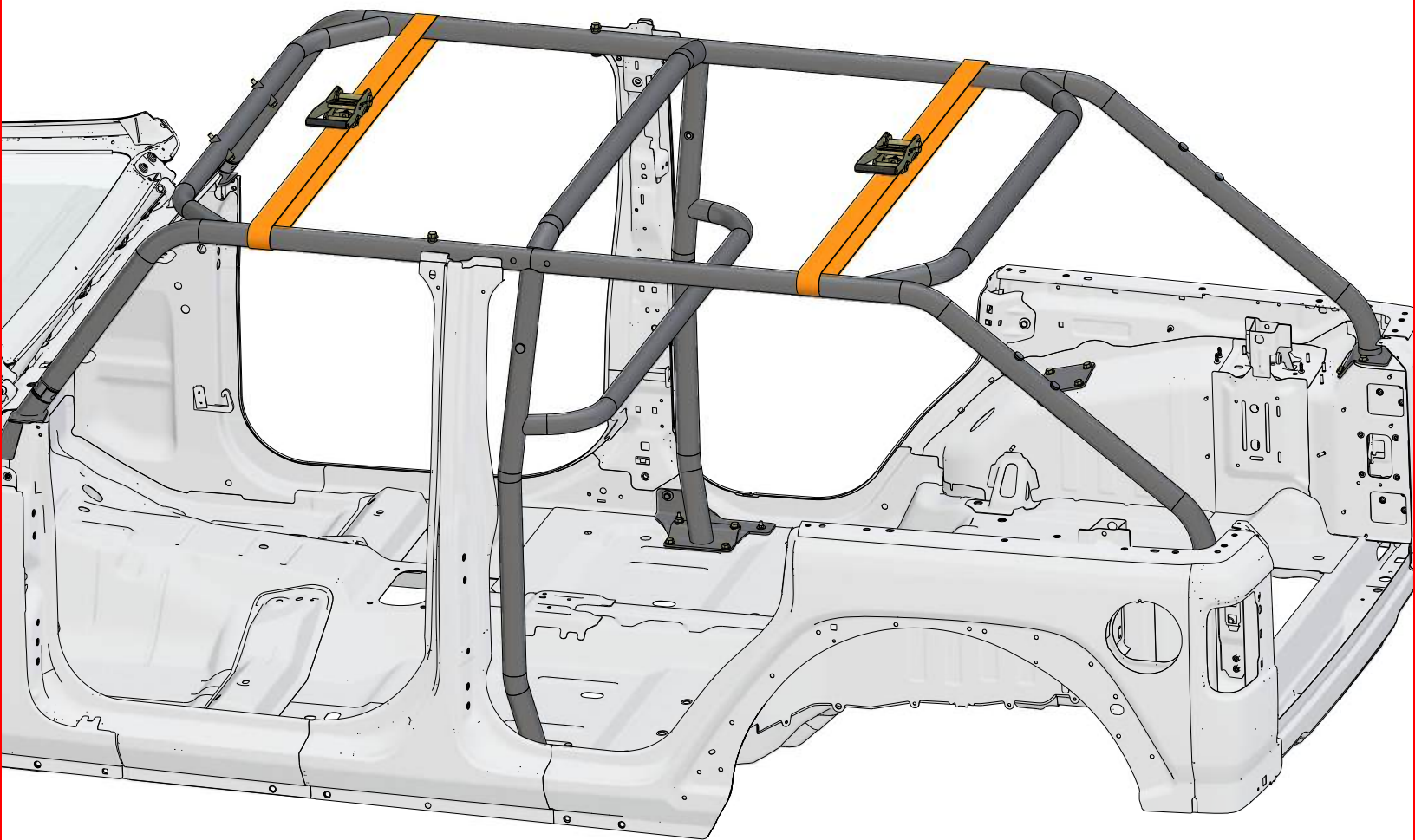
STEP 42

TACK WELD CAGE

Remove the hardtop. Lower the windshield. Keep all ratchet straps in place.

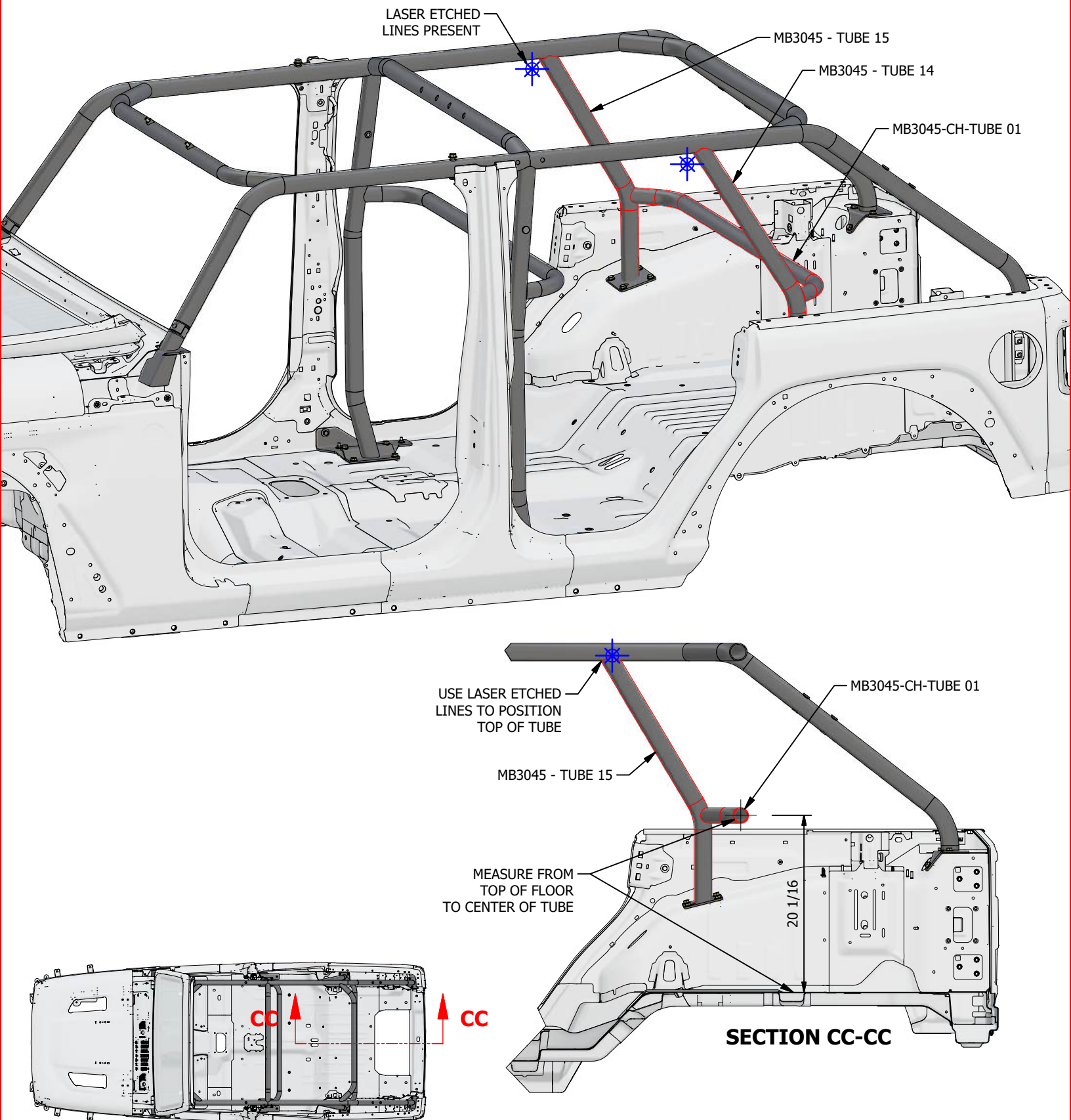
Tack weld all tube joints up to this point.

You should now have a tubular framework that is fully tacked, squared & functional with many of the major components needed to fit with the vehicle. Next, we will start adding the remaining tubing & features.



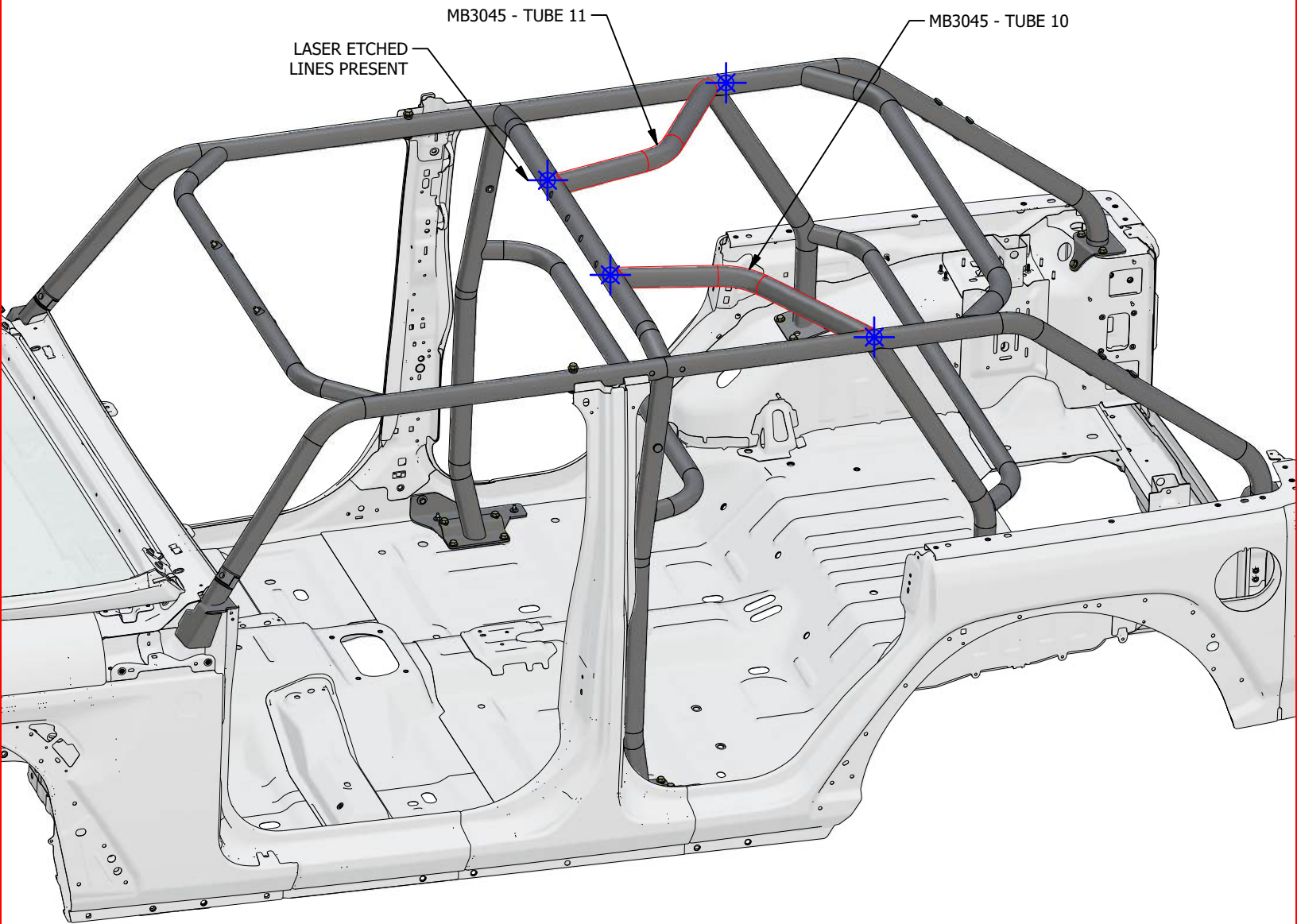
MB3045 JLU CAGE ASSEMBLY

STEP 43 INSTALL C-PILLARS & REAR CROSS TUBE



MB3045 JLU CAGE ASSEMBLY

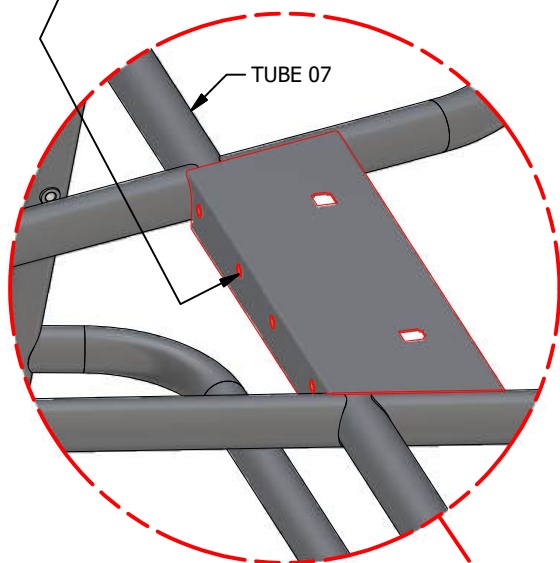
STEP 44 INSTALL TOP TUBES



MB3045 JLU CAGE ASSEMBLY

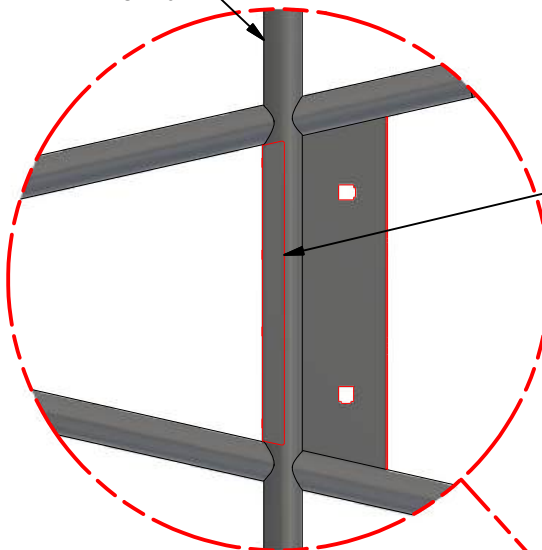
STEP 45 INSTALL TOP TUBE & DOME LIGHT HOUSING PLATE

THERE ARE CLEARANCE HOLES IN TUBE 07.
POSITION THE RIVNUTS IN PLATE MB3045-13
INSIDE THE HOLES IN TUBE 07



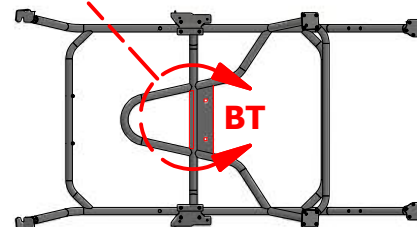
DETAIL BR
LOOKING FROM TOP SIDE

TUBE 07



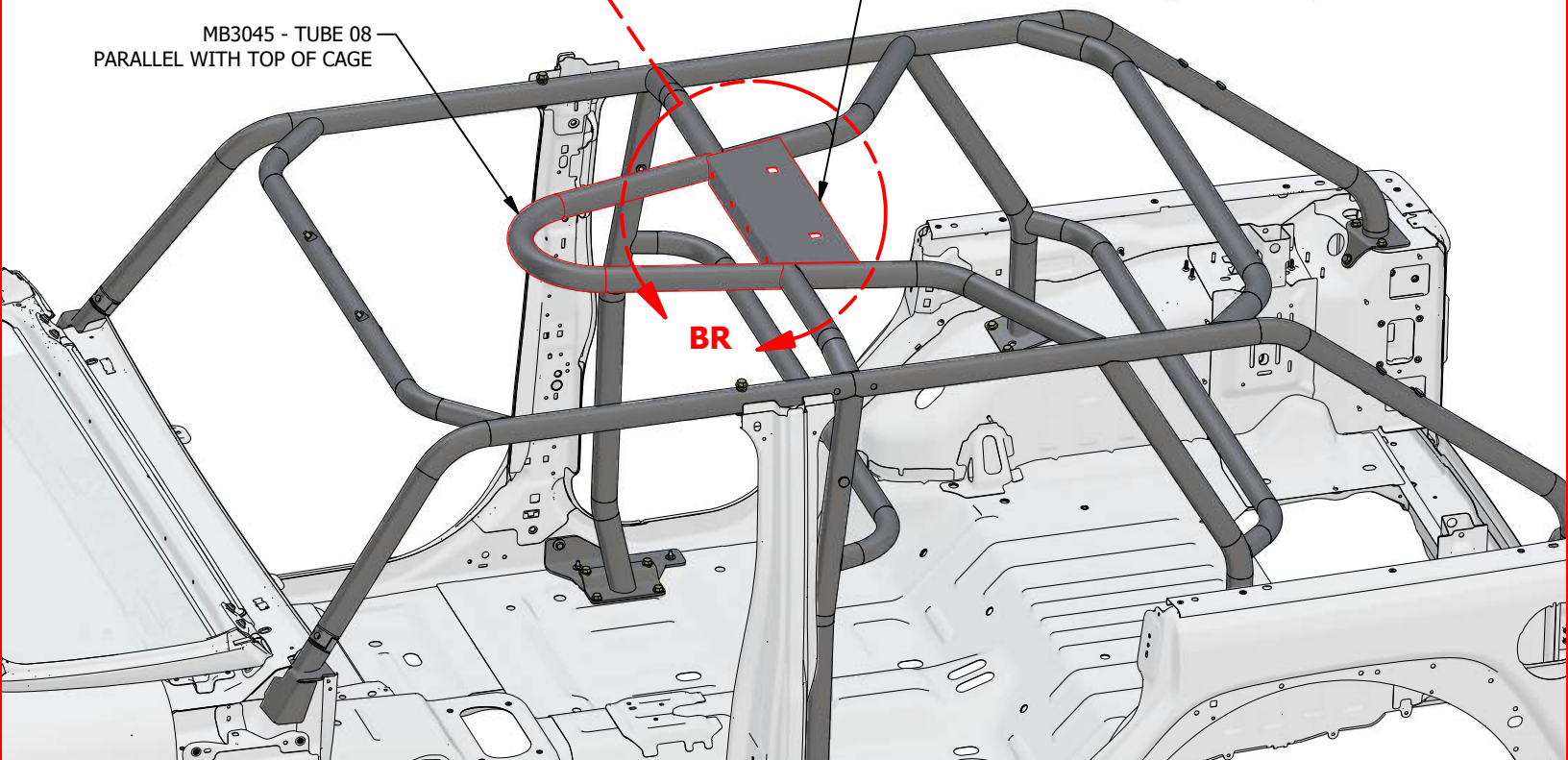
POSITION EDGE OF MB3045-13
ON CENTER OF TUBE 07 ON
THE UNDERSIDE

DETAIL BT
LOOKING FROM UNDERSIDE



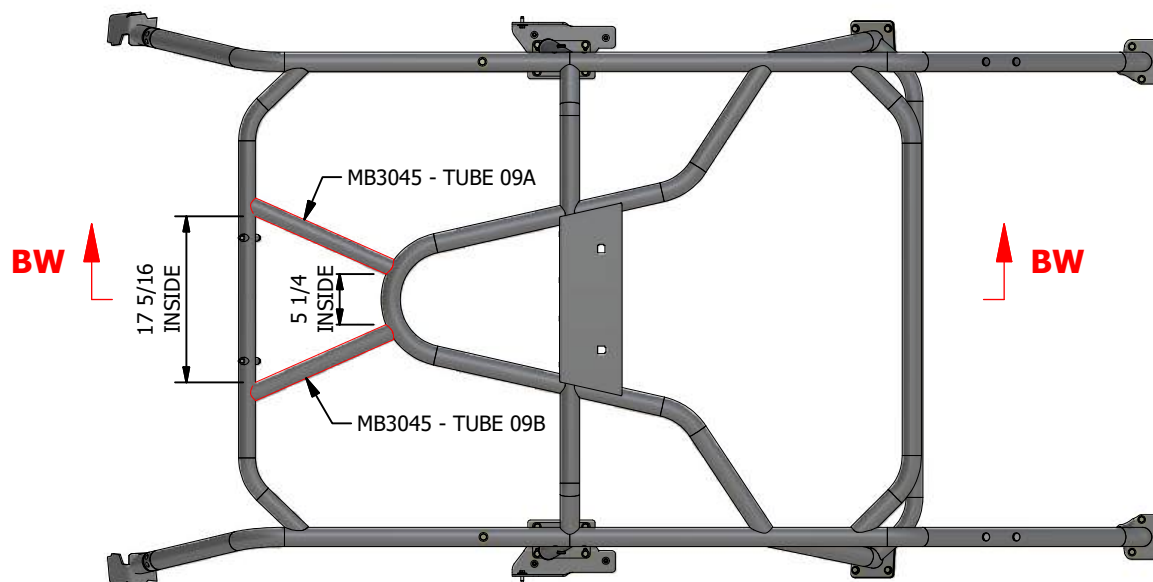
"MB3045-13 with Rivnuts"
LOGO FACING REAR

MB3045 - TUBE 08
PARALLEL WITH TOP OF CAGE

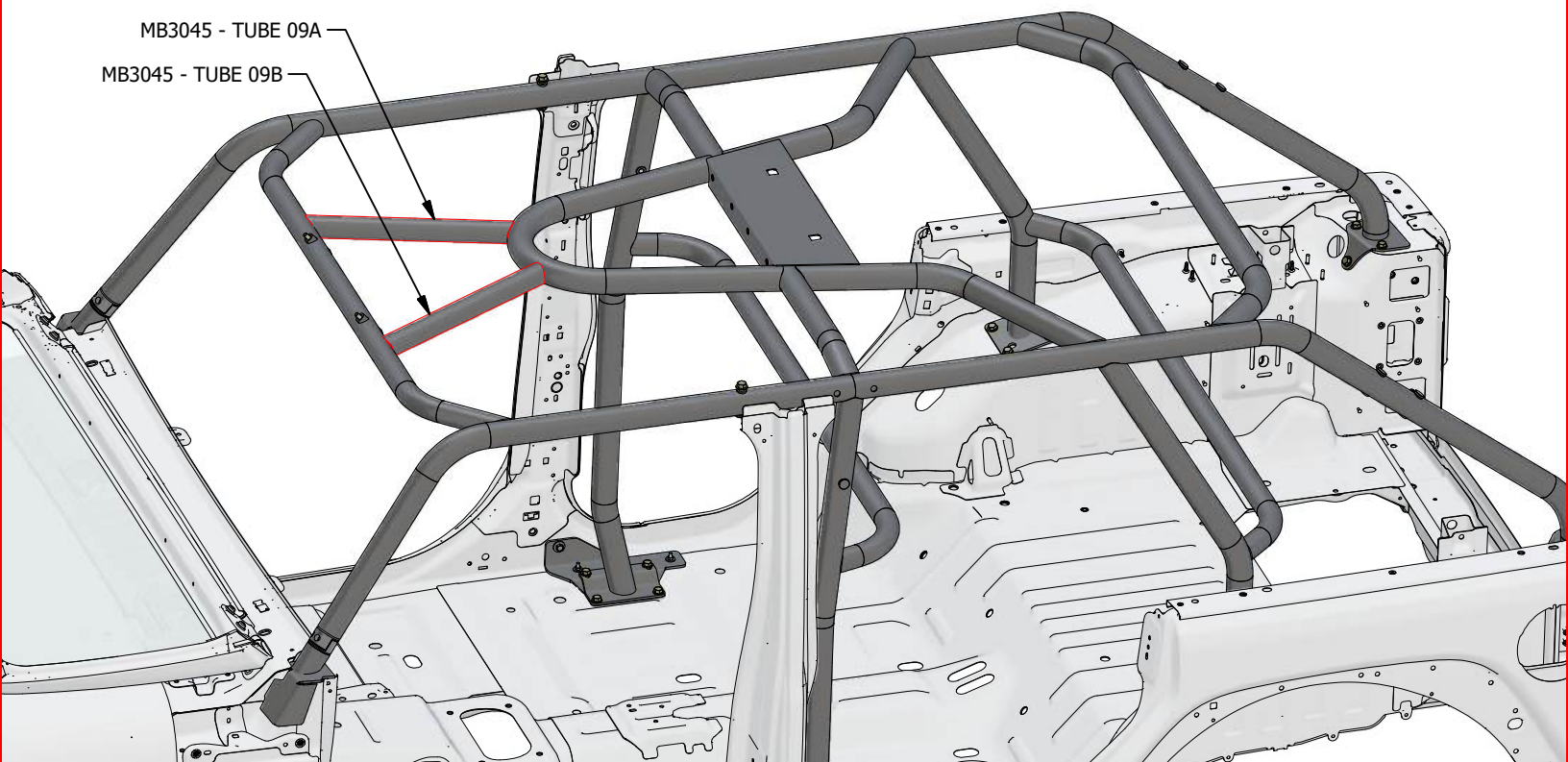


MB3045 JLU CAGE ASSEMBLY

STEP 46 INSTALL TOP TUBES



SECTION BW-BW



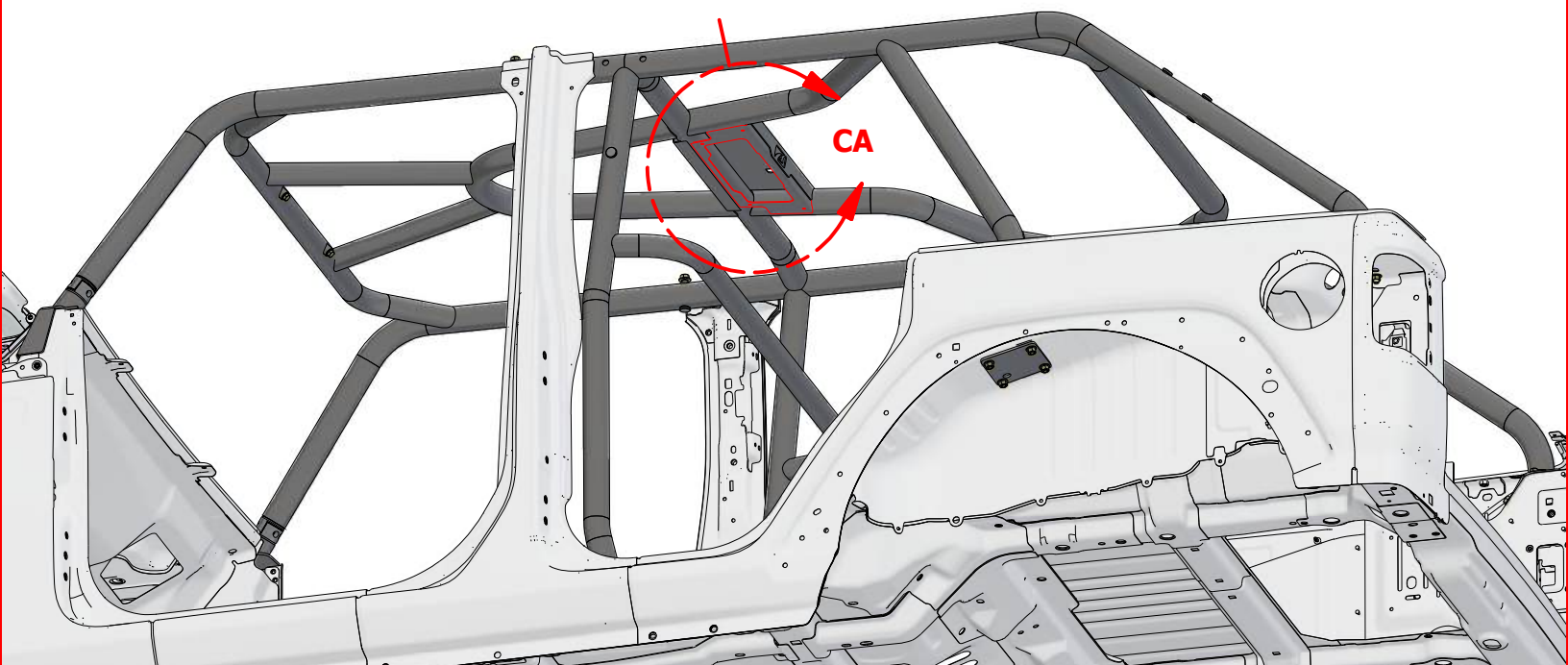
MB3045 JLU CAGE ASSEMBLY

STEP 47 INSTALL PLATE MB3045-14



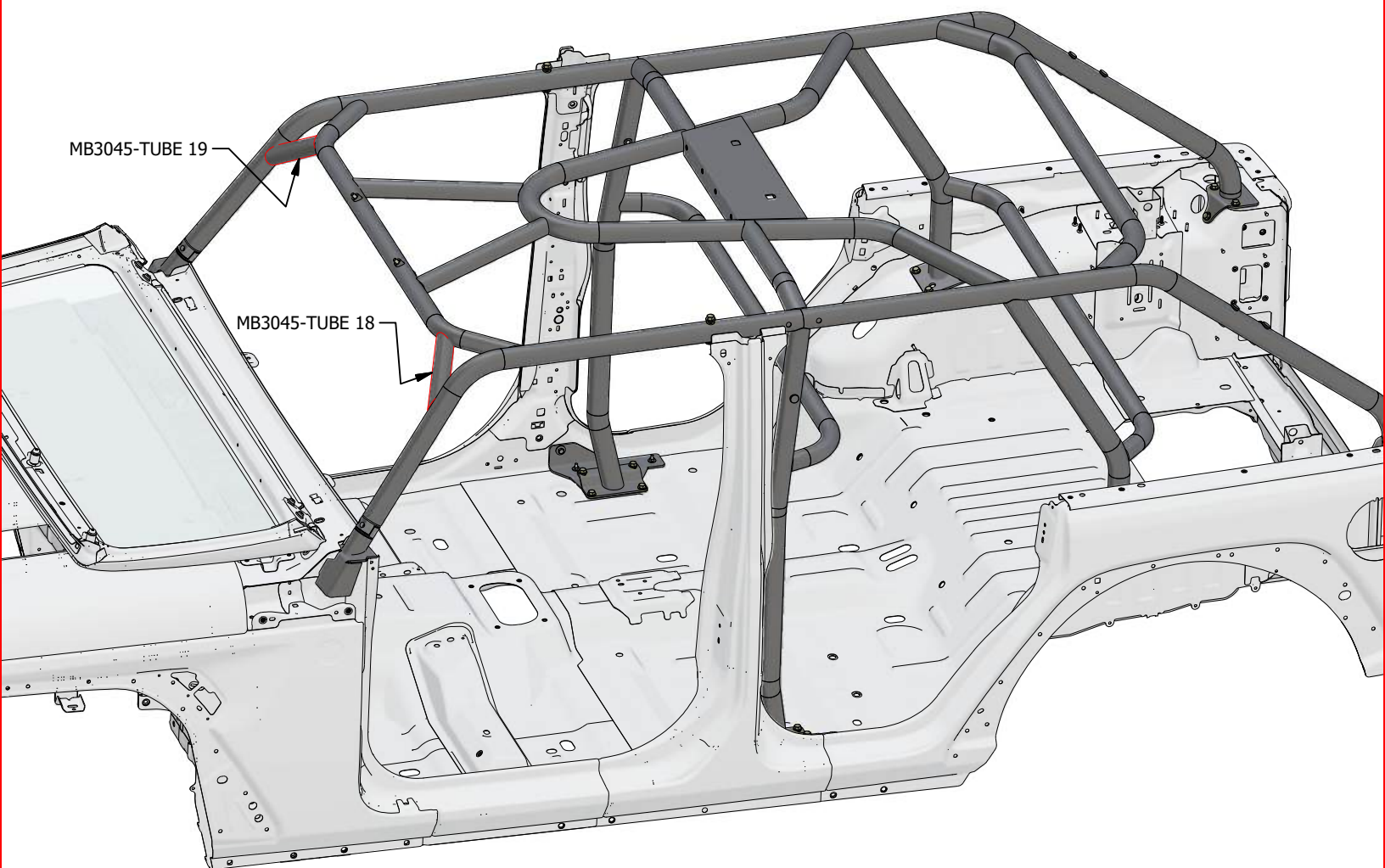
INSTALL "MB3045-14 with Pennuts"
TO THE UNDERSIDE OF MB3045-15
WITH THE FLANGE ON THE INSIDE
OF THE LOGO. TACK WELD.

DETAIL CA

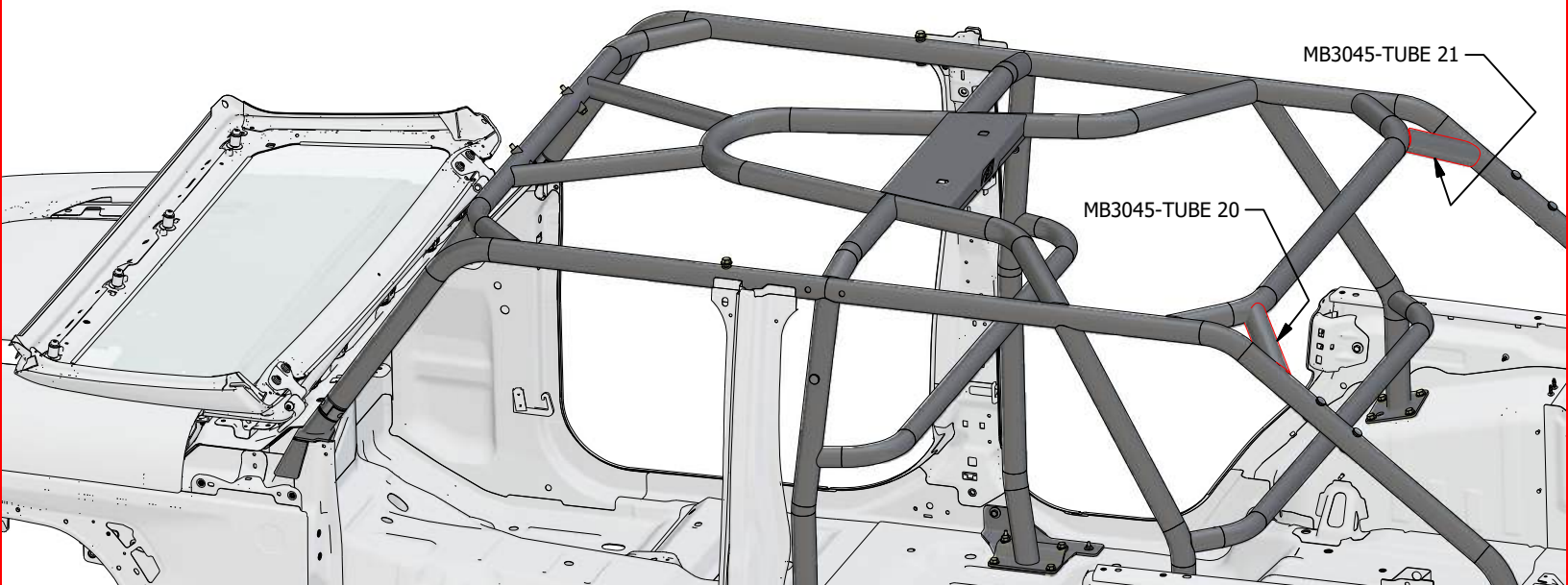


MB3045 JLU CAGE ASSEMBLY

STEP 48 INSTALL FRONT GUSSET TUBES

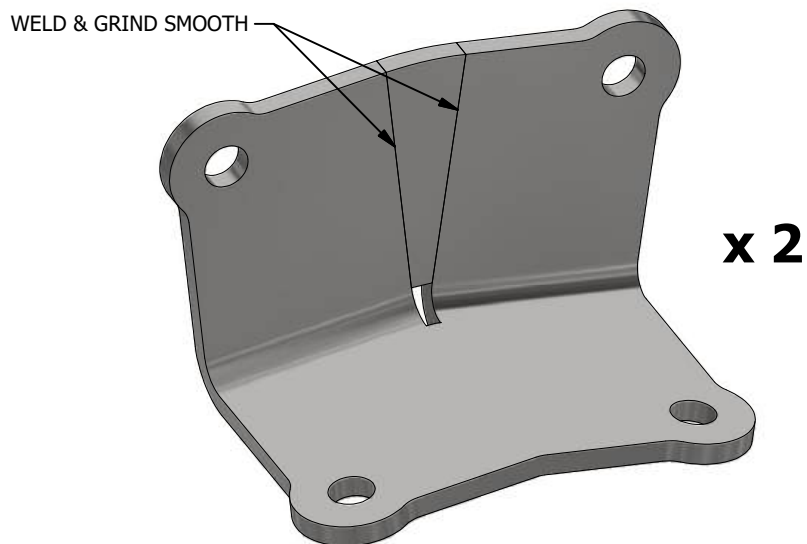
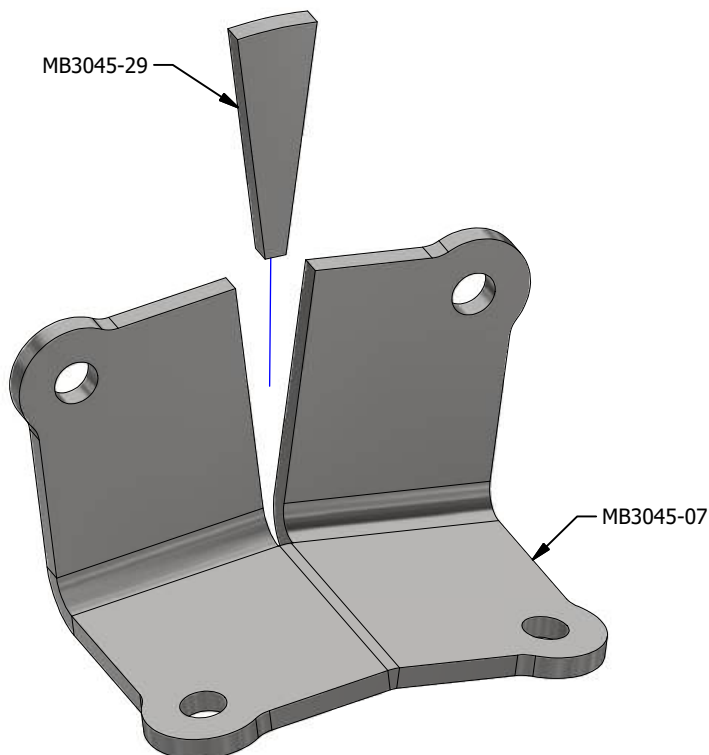


INSTALL REAR GUSSET TUBES



MB3045 JLU CAGE ASSEMBLY

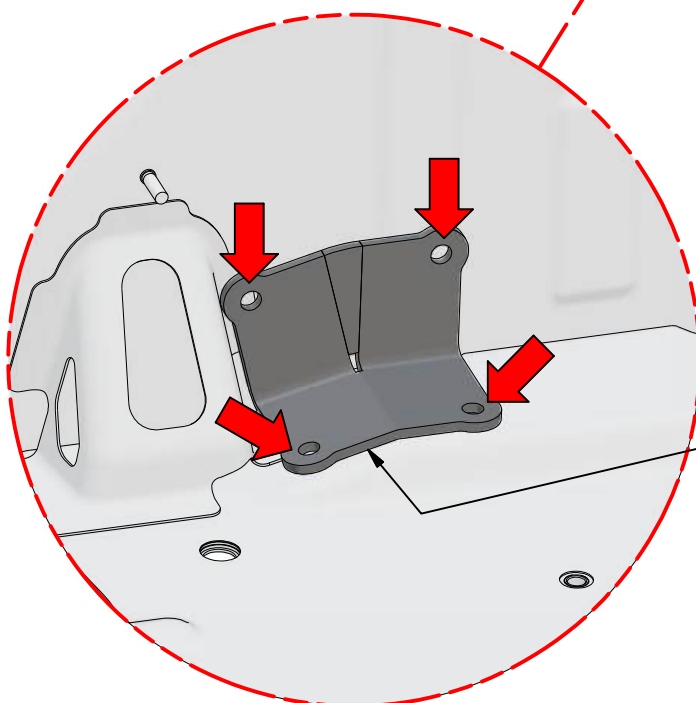
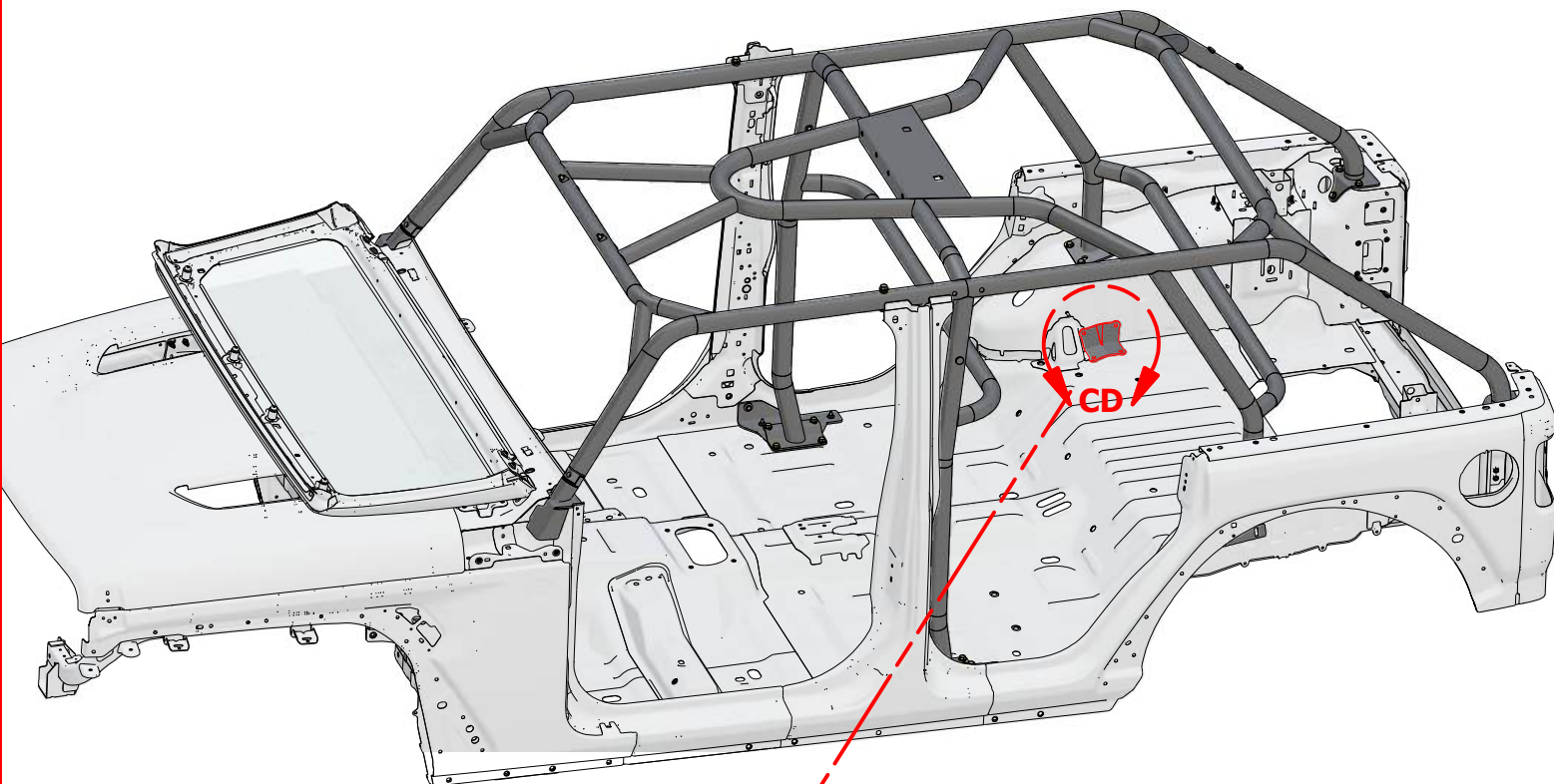
STEP 49 WELD PLATES



BASE PLATES FOR LOWER X-BRACING

MB3045 JLU CAGE ASSEMBLY

STEP 50 POSITION, MARK & DRILL BASE PLATES FOR LOWER X-BRACING



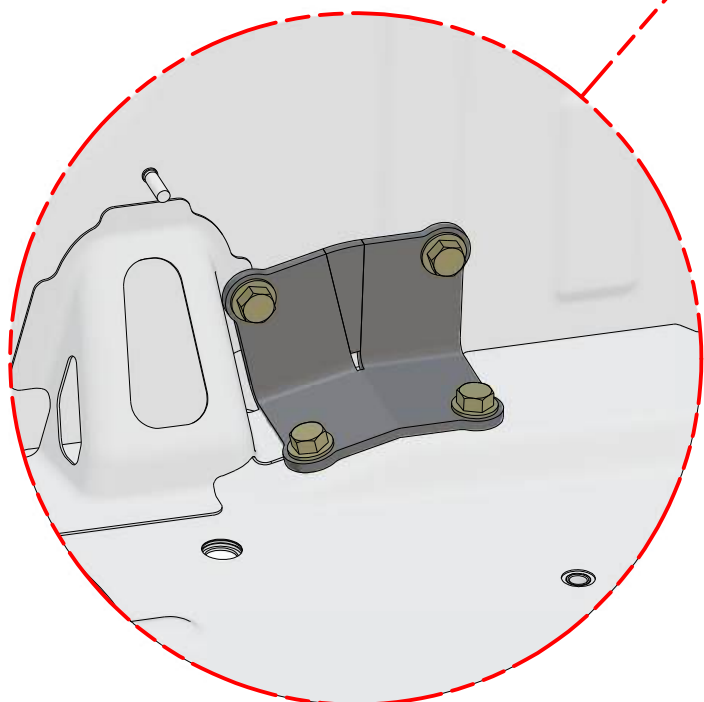
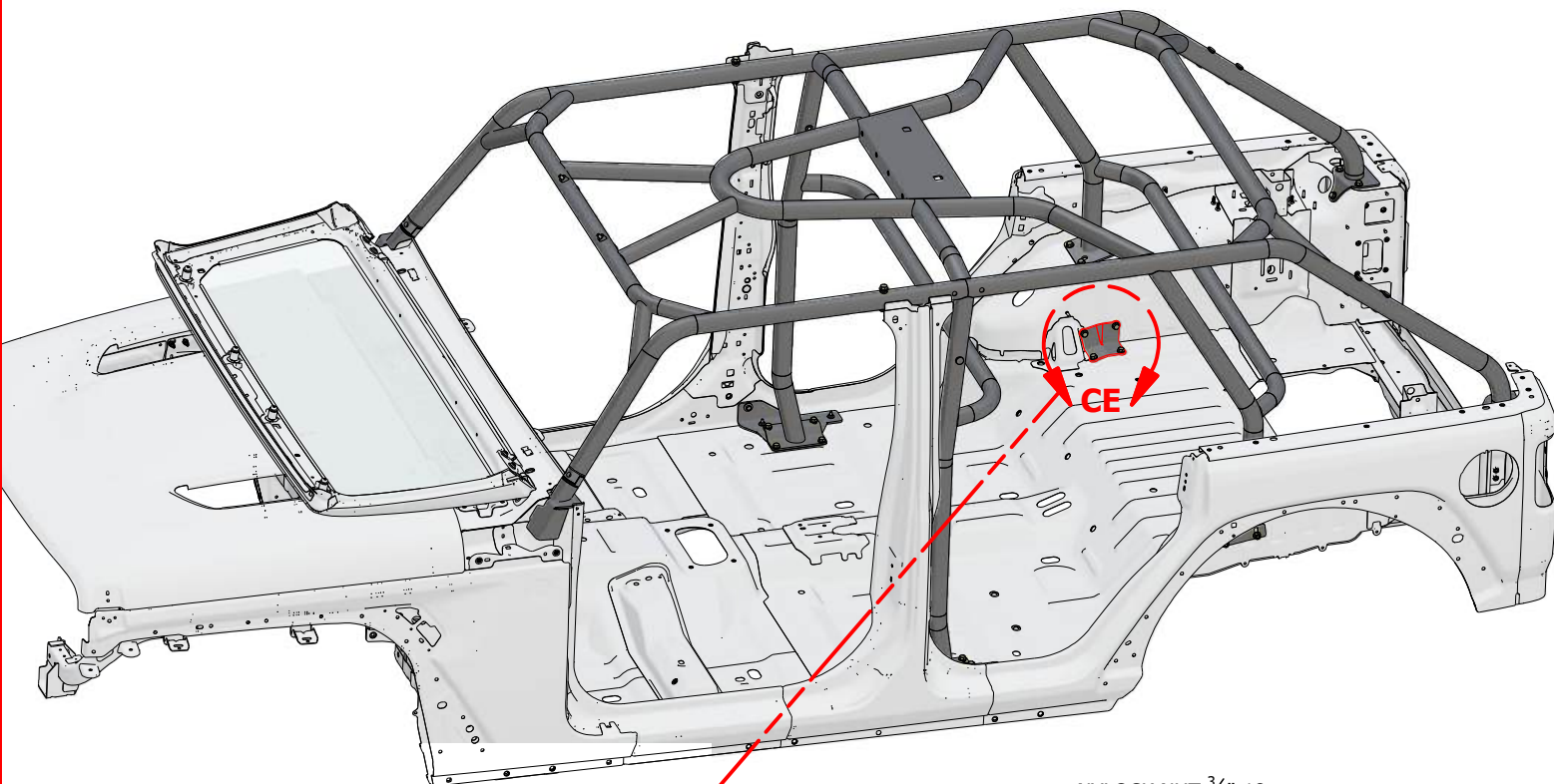
THE UNDERSIDE OF THIS PLATE HAS A BEND WHICH CONFORMS TO THE SHAPE OF THE FLOOR. POSITION THIS PLATE AS SHOWN, MARK THE FOUR HOLES, REMOVE THE PLATE & DRILL FOUR (4) $\frac{13}{32}$ "Ø HOLES.

DETAIL CD

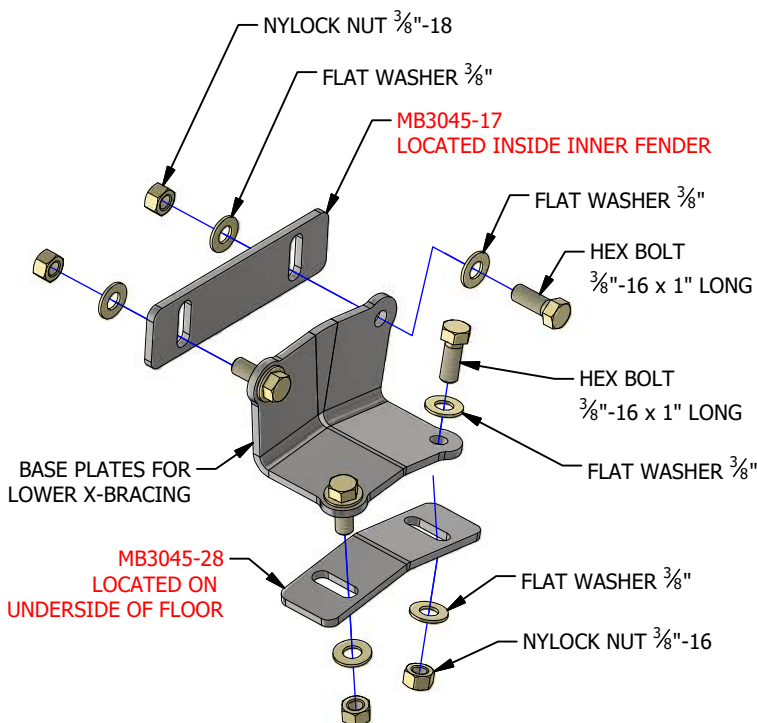
REPEAT ON DRIVER SIDE

MB3045 JLU CAGE ASSEMBLY

STEP 51 ASSEMBLE LOWER X-BRACING PLATES WITH BACKING PLATES



DETAIL CE

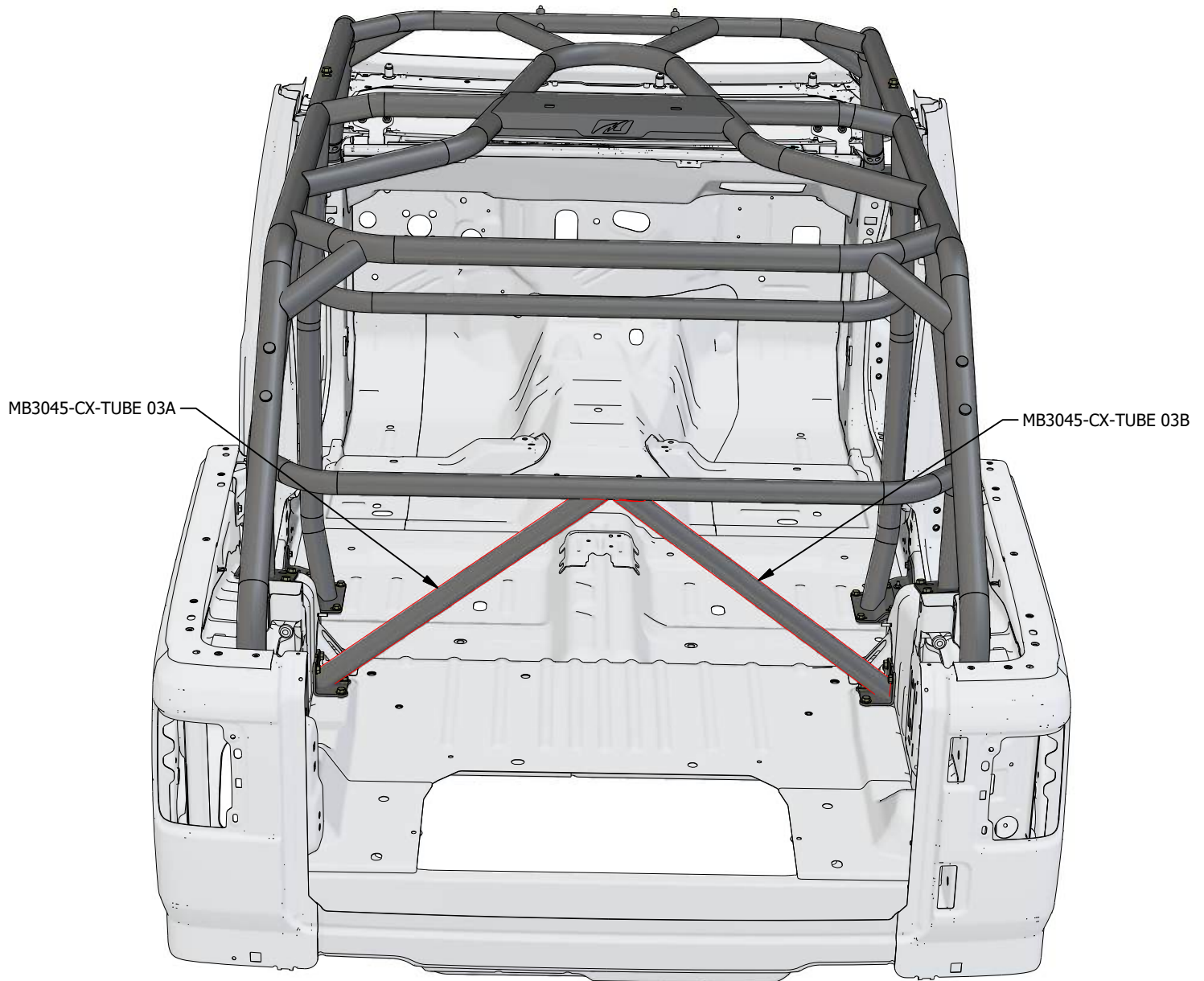


REPEAT ON DRIVER SIDE

MB3045 JLU CAGE ASSEMBLY

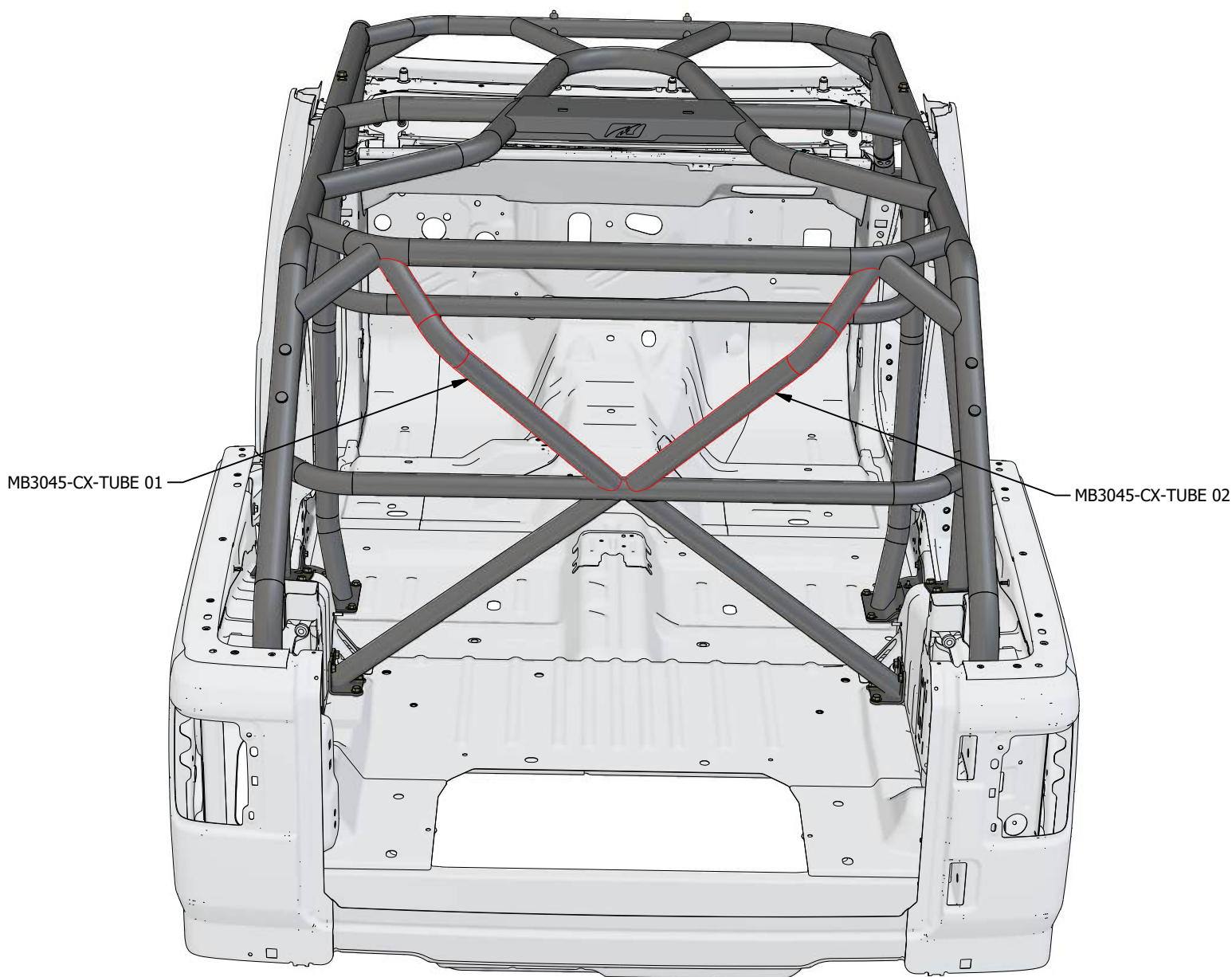
STEP 52

INSTALL LOWER X-BRACING TUBES



MB3045 JLU CAGE ASSEMBLY

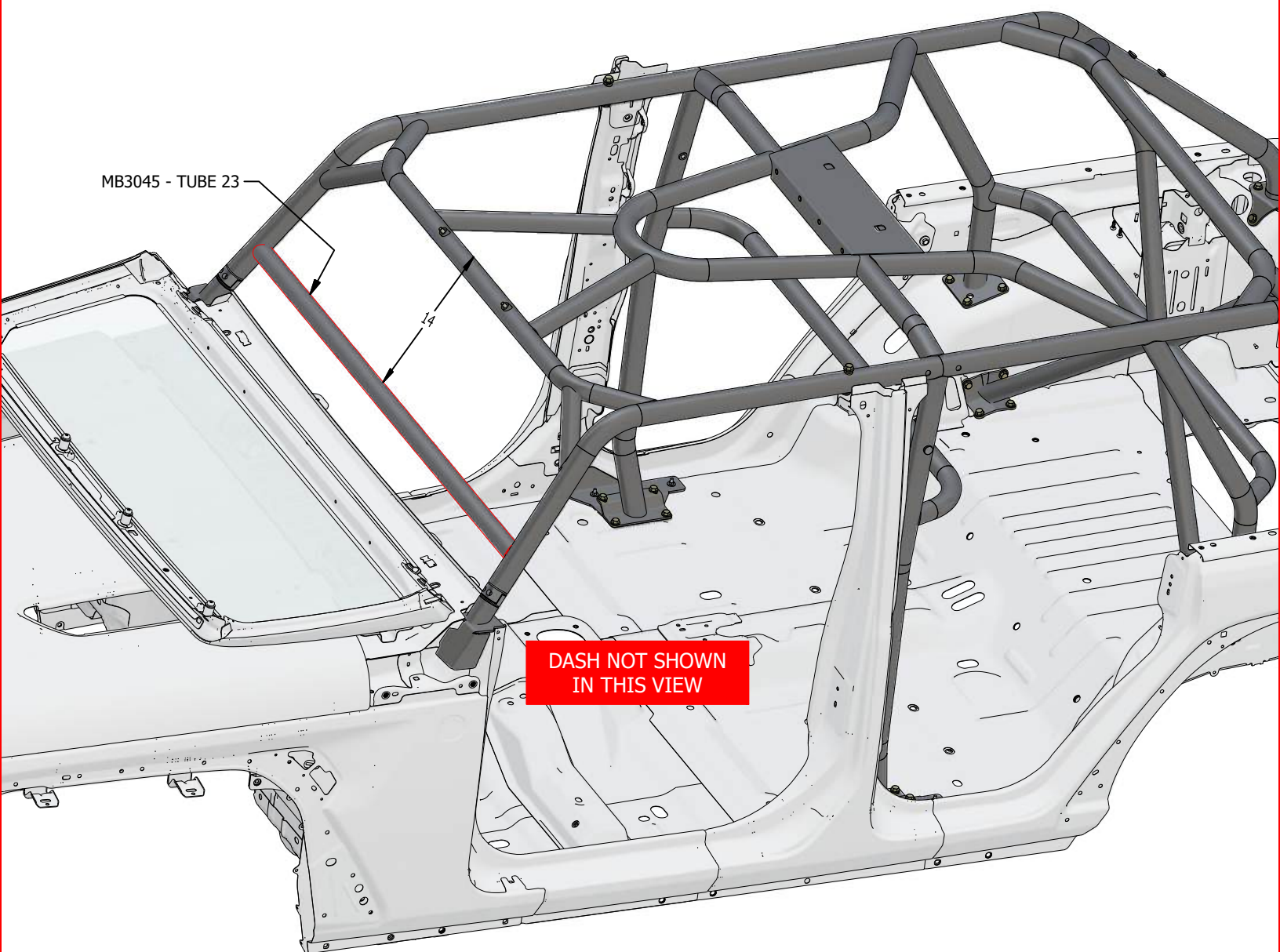
STEP 53 INSTALL UPPER X-BRACING TUBES



MB3045 JLU CAGE ASSEMBLY

STEP 54 INSTALL HORIZONTAL DASH TUBE

CHECK THE CLEARANCE BETWEEN THIS TUBE & THE TOP OF THE DASH. THE 14" MEASUREMENT SHOWN IS A GUIDE. YOU CAN LOCATE THIS TUBE WHERE IT PROVIDES ADEQUATE CLEARANCE WITH THE DASH.



MB3045 JLU CAGE ASSEMBLY

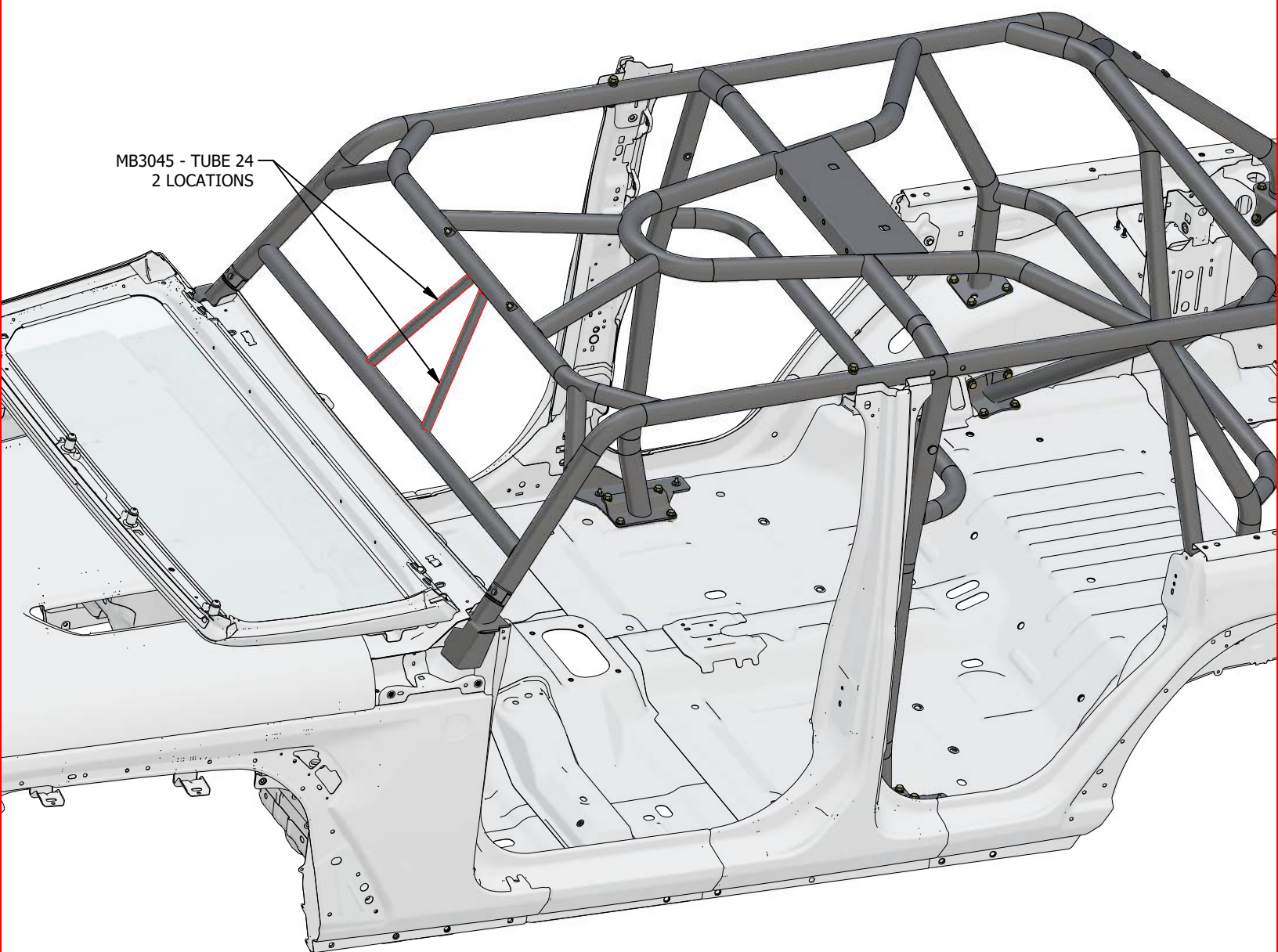
STEP 55 INSTALL VERTICAL DASH TUBES

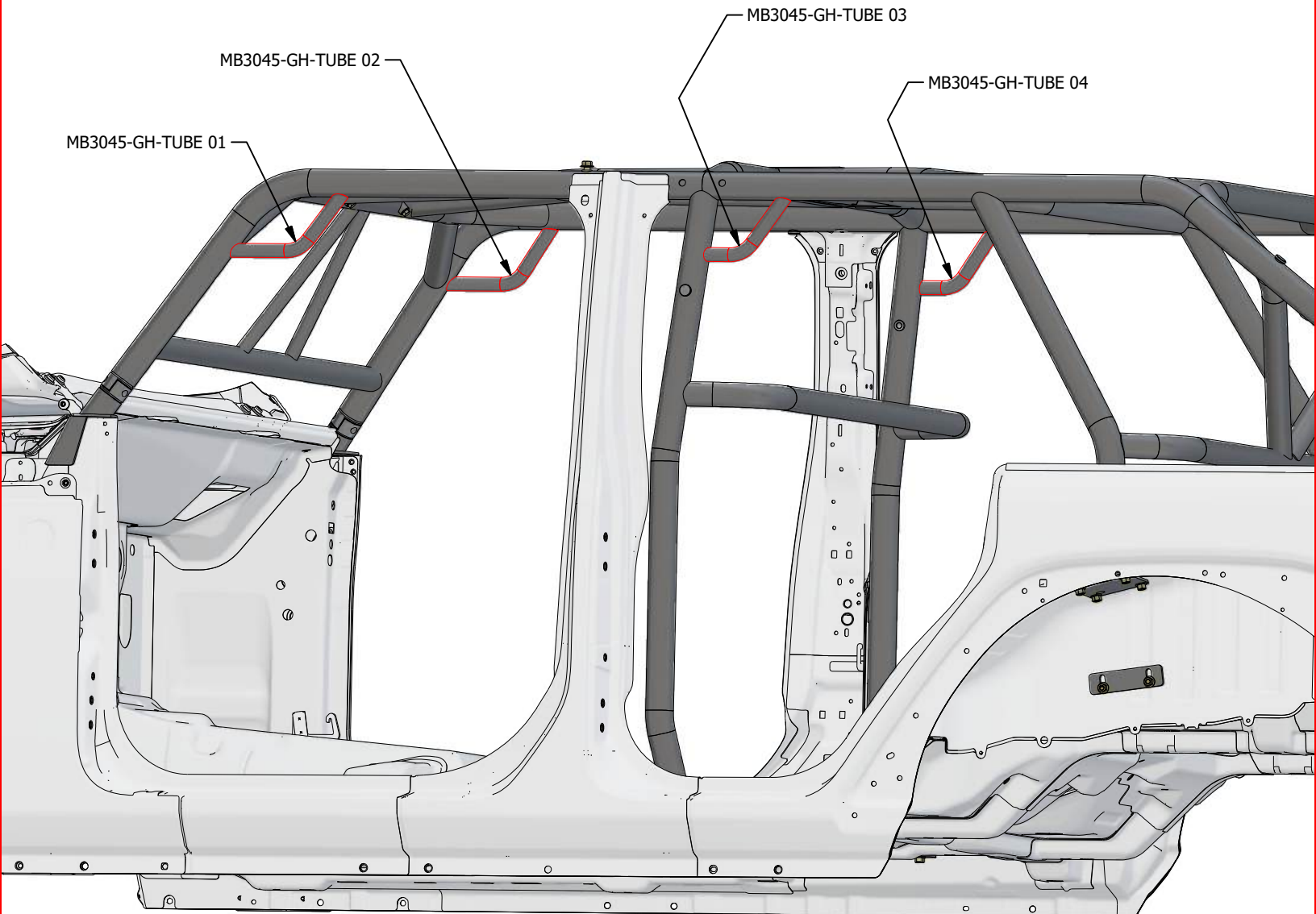
NOTE:

IF YOUR VEHICLE IS EQUIPPED WITH A FORWARD FACING LANE CHANGE CAMERA, THESE TUBES MAY NOT BE COMPATIBLE. YOU MAY BE ABLE TO REVERSE THE DIRECTION OF THE TUBES BY PLACING THEM CLOSER TOGETHER AT THE BOTTOM & FARTHER APART AT THE TOP.

SEE STEP 68 FOR INFORMATION ON INSTALLING THE OPTIONAL LANE CHANGE CAMERA & SUPPLIED BRACKET.

ALSO CHECK FOR INTERFERENCE WITH YOUR REAR VIEW MIRROR. SEE STEP 61 ON INSTALLING THE REAR VIEW MIRROR & SUPPLIED BRACKET.



MB3045 JLU CAGE ASSEMBLY**STEP 56
INSTALL GRAB HANDLES**

MB3045 JLU CAGE ASSEMBLY

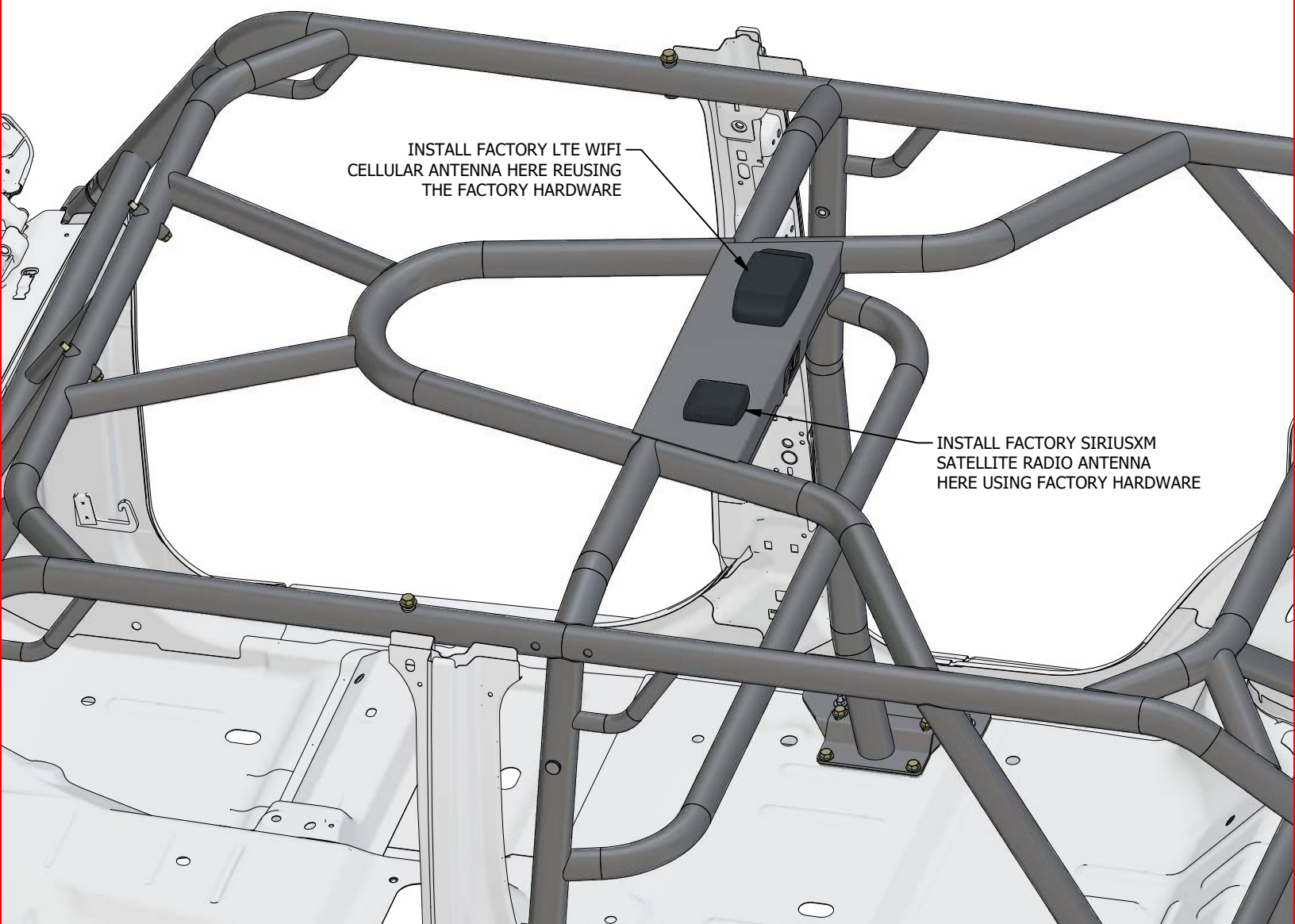
STEP 57 INSTALL FACTORY ANTENNAS



FACTORY LTE WIFI CELLULAR ANTENNA
MOPAR PART #68293962AA

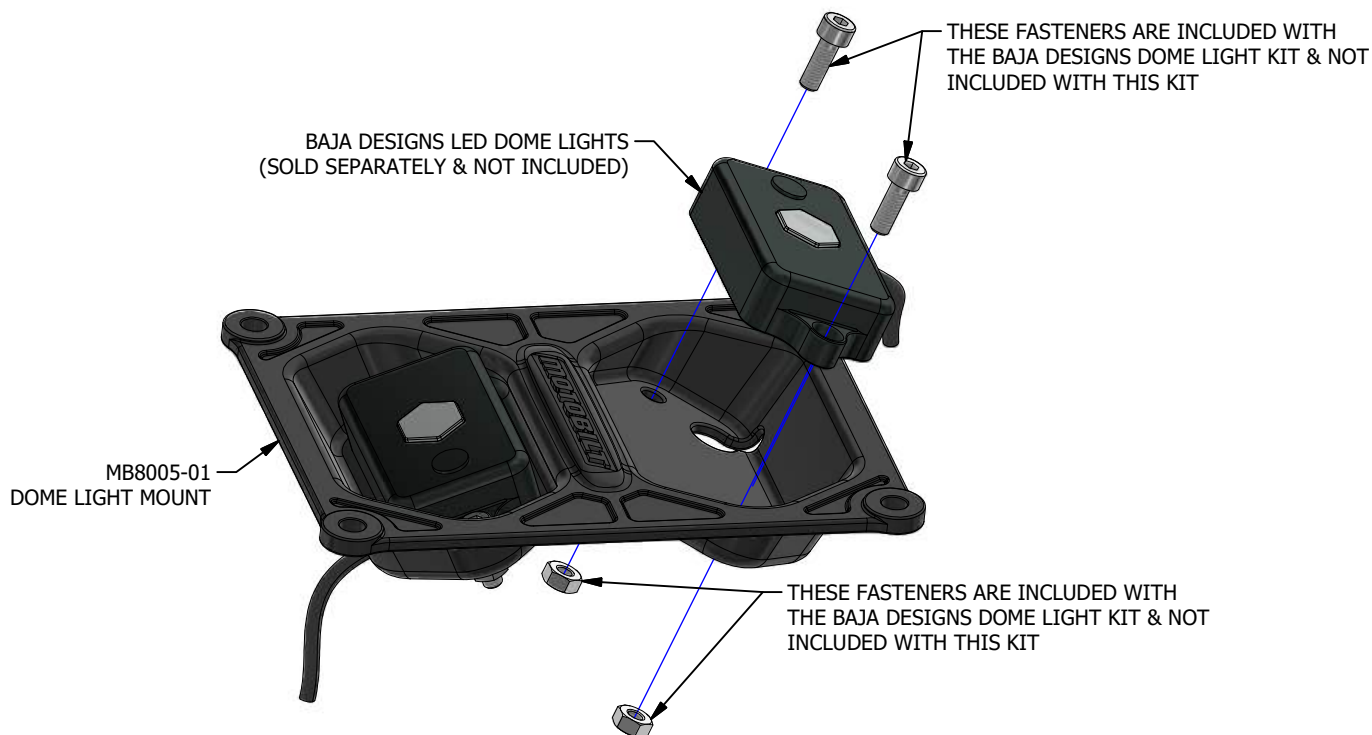


FACTORY SIRIUSXM SATELLITE ANTENNA
MOPAR PART #68293949AA

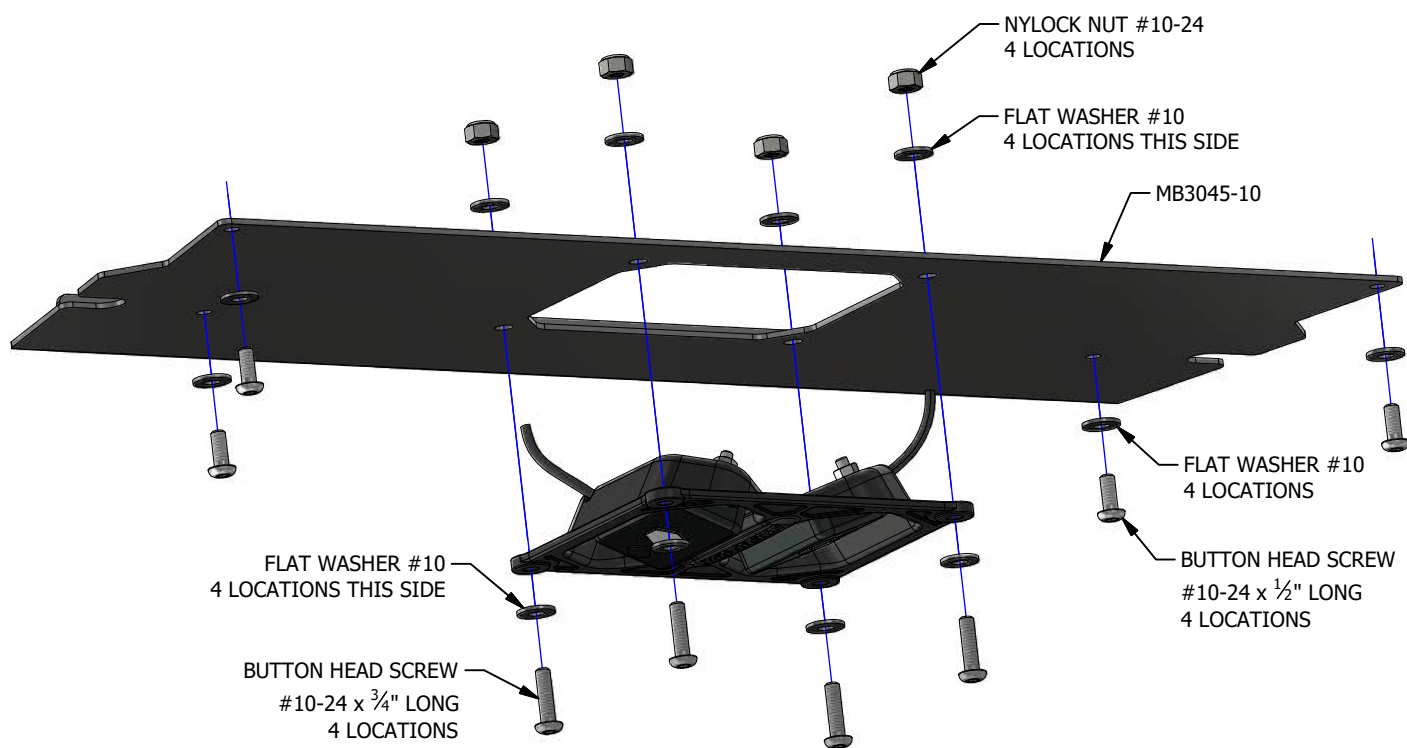


MB3045 JLU CAGE ASSEMBLY

STEP 58 PRE-ASSEMBLE DOME LIGHT



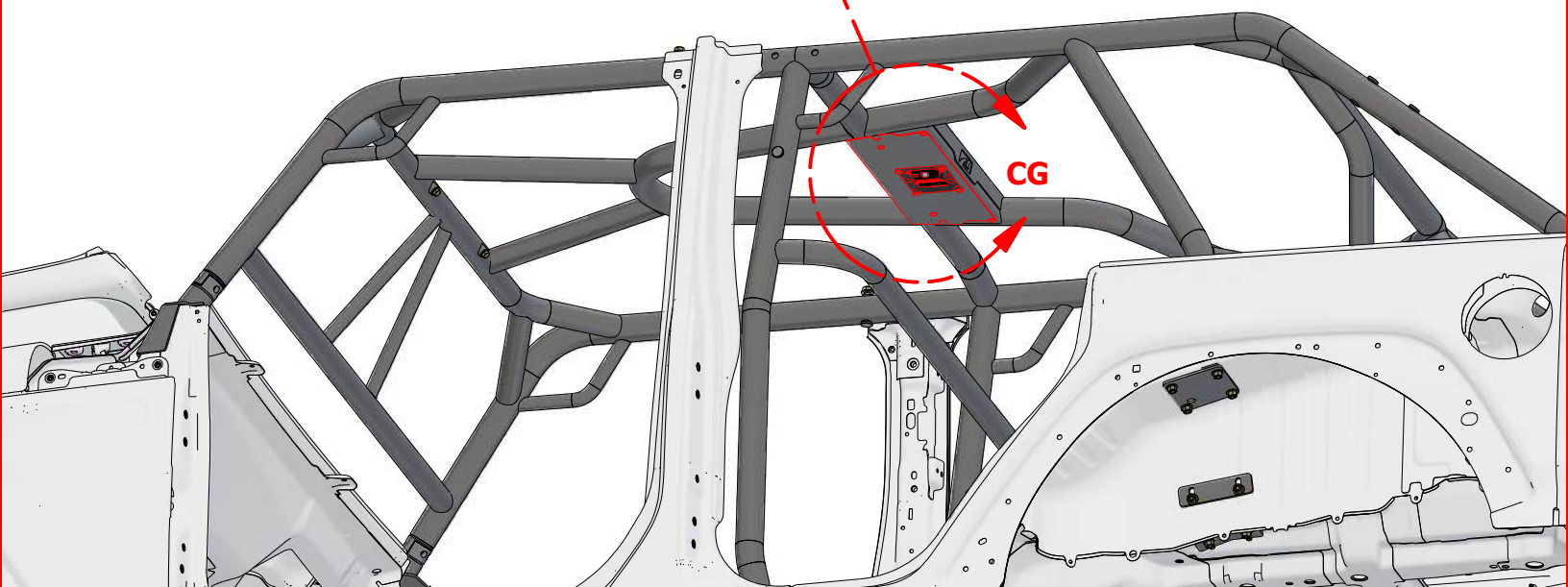
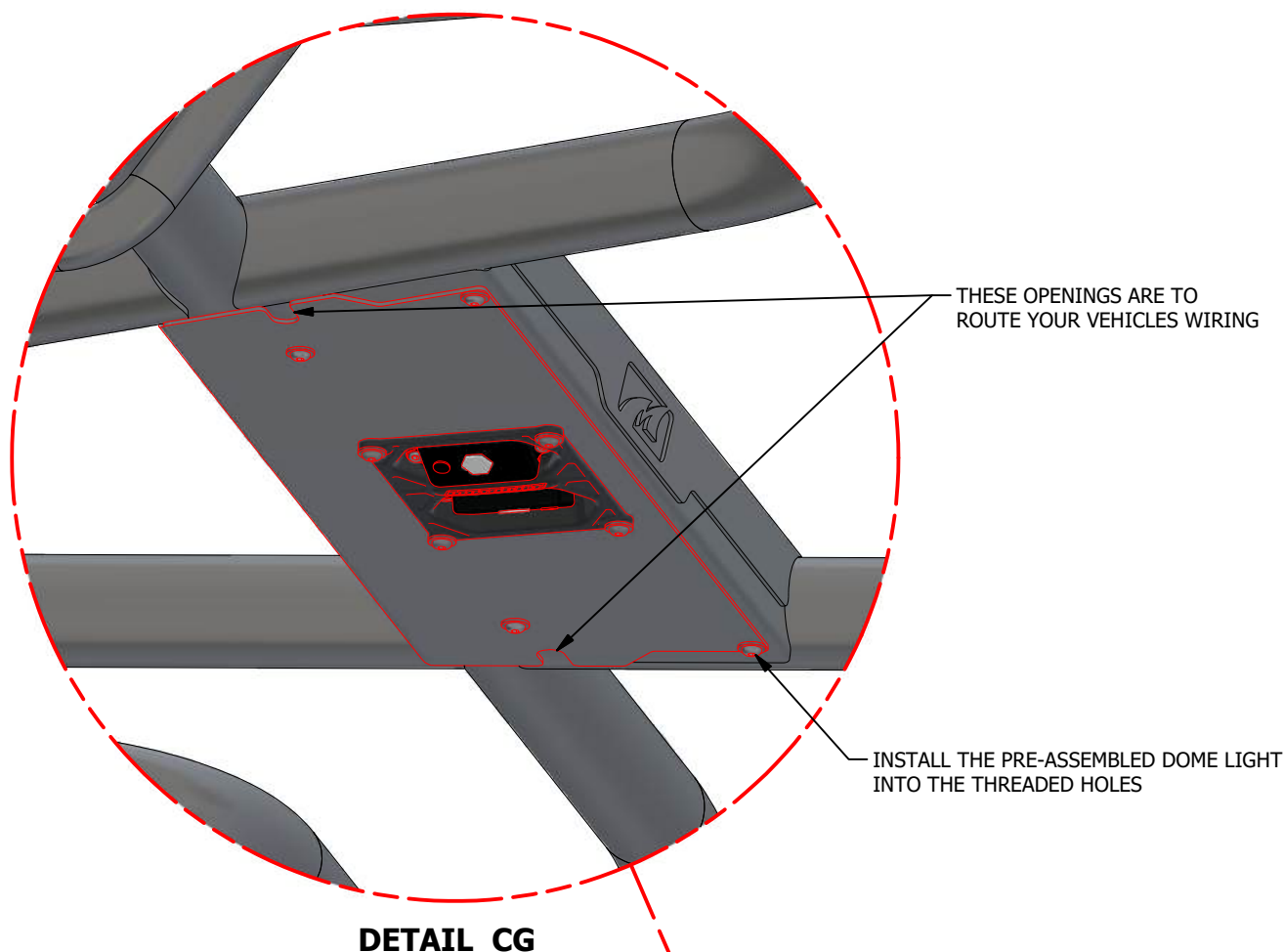
ASSEMBLE LED DOME LIGHTS INTO MB8005 HOUSING



ASSEMBLE DOME LIGHT HOUSING WITH MOUNTING PLATE

MB3045 JLU CAGE ASSEMBLY

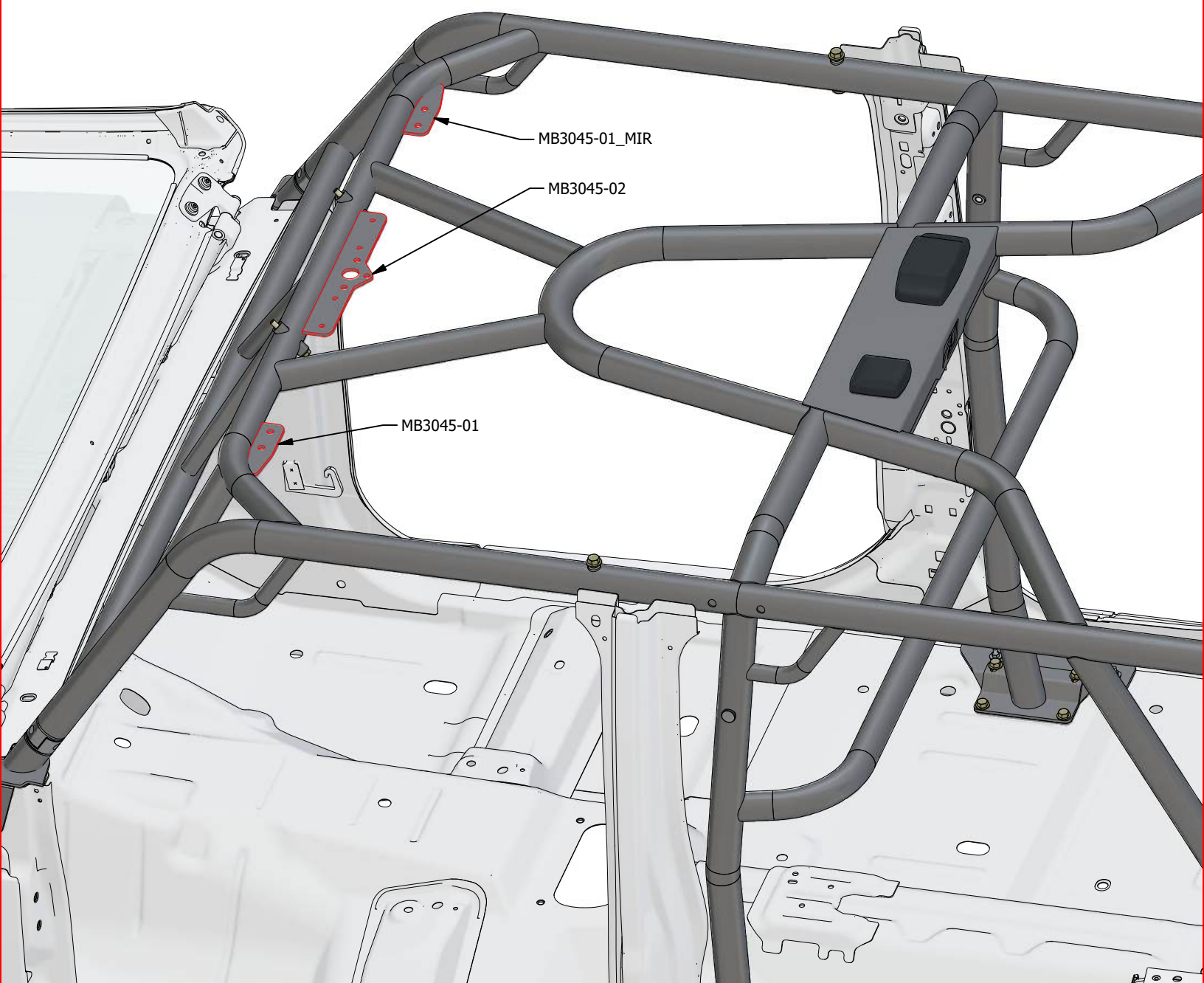
STEP 59 INSTALL DOME LIGHT ASSEMBLY



MB3045 JLU CAGE ASSEMBLY

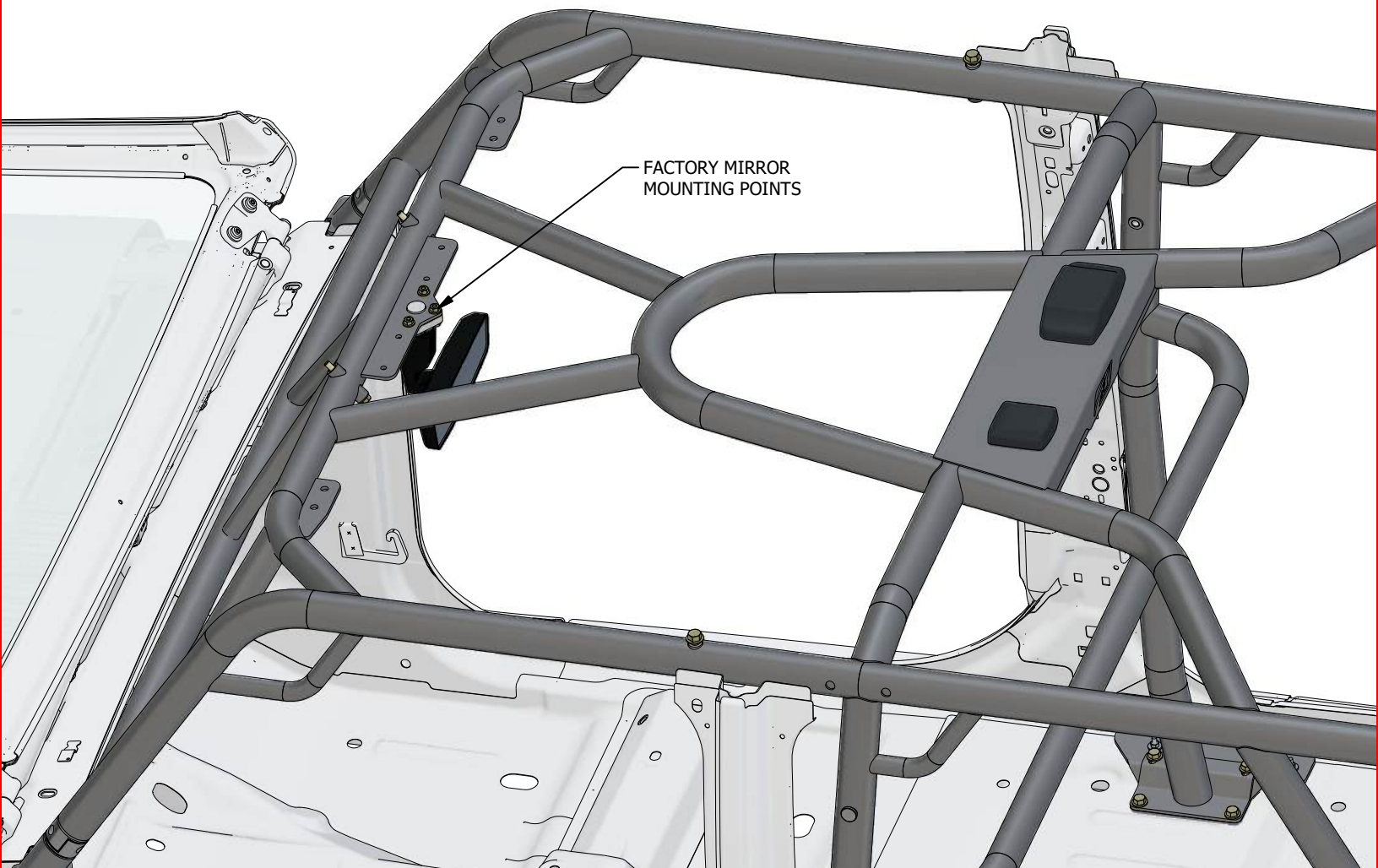
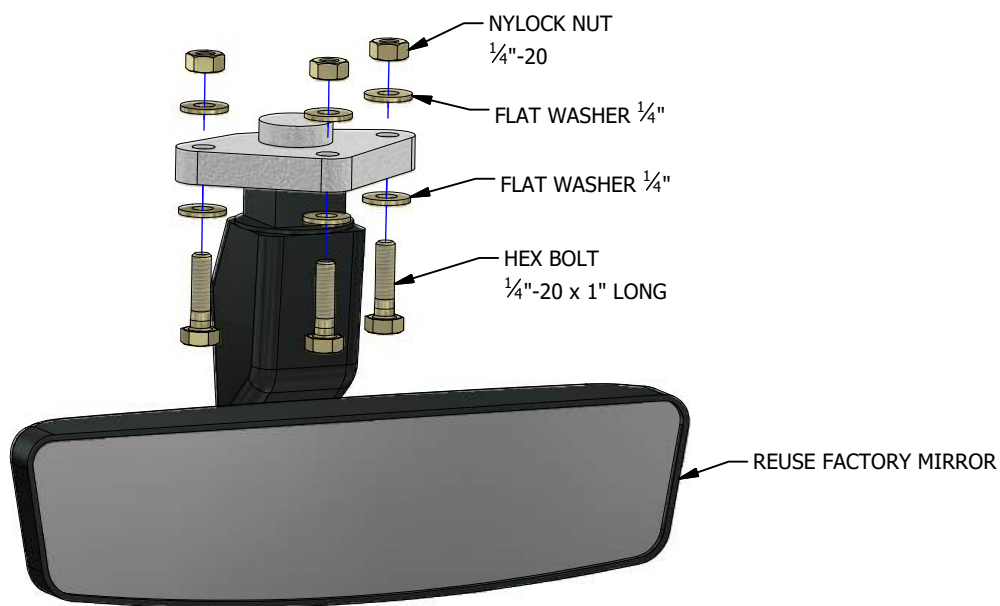
STEP 60 INSTALL PLATES FOR MOUNTING REAR VIEW MIRROR & FREEDOM PANEL BRACKETS

POSITION ALL THREE PLATES ON THE CENTER OF THE TUBE, PARALLEL WITH THE TOP OF THE CAGE.



MB3045 JLU CAGE ASSEMBLY

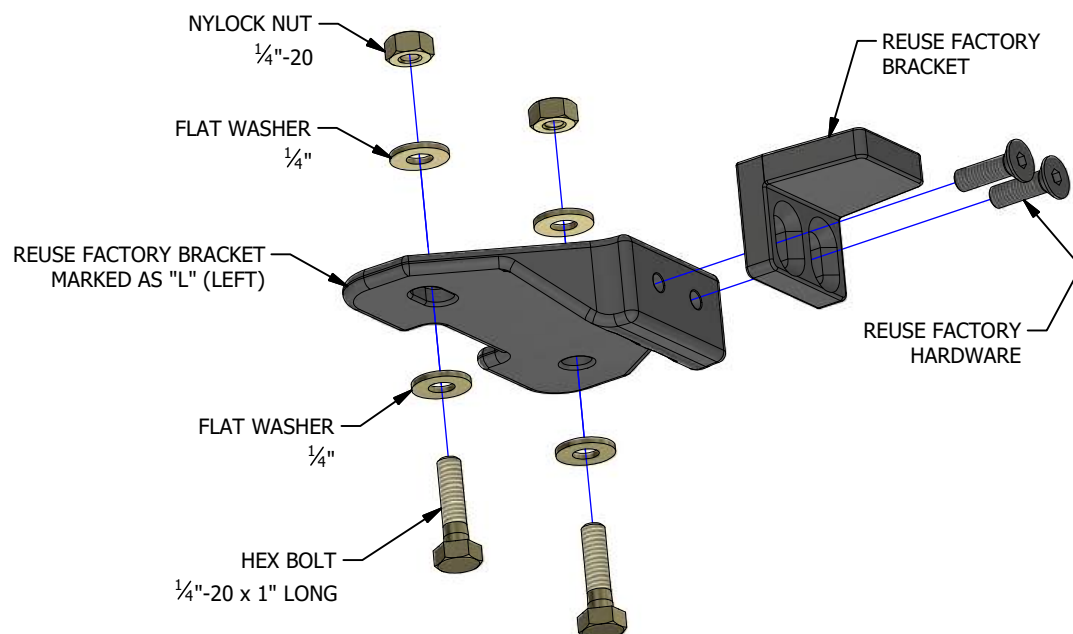
STEP 61 INSTALL REAR VIEW MIRROR



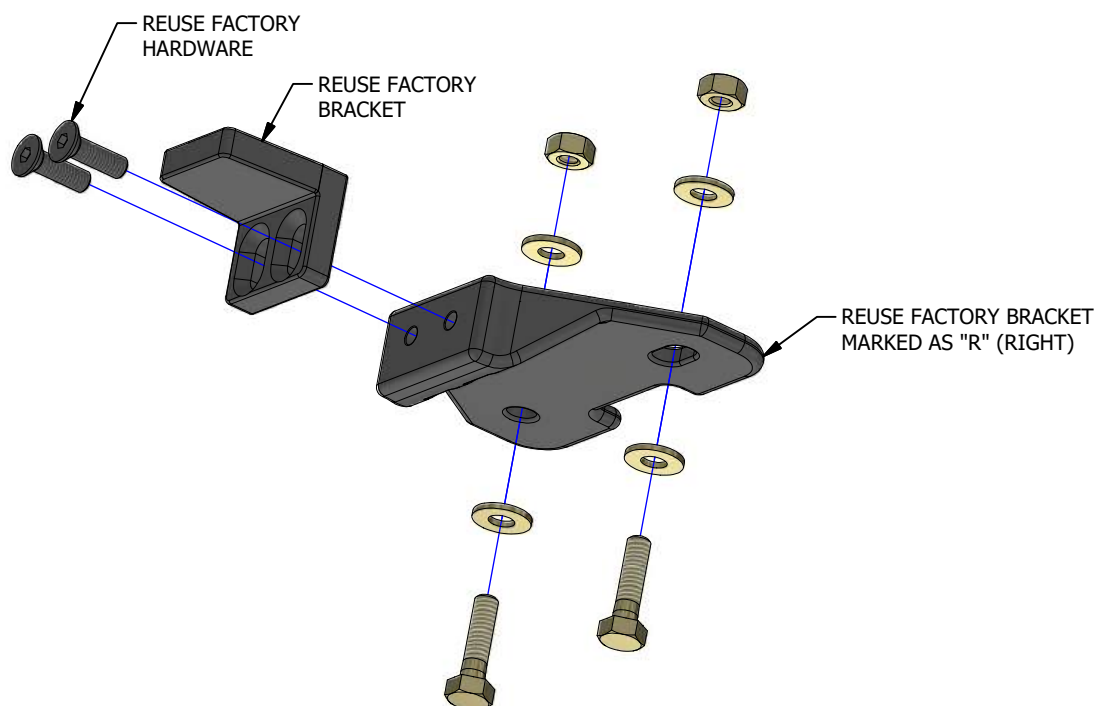
MB3045 JLU CAGE ASSEMBLY

STEP 62

PRE-ASSEMBLE INNER FREEDOM PANEL BRACKETS



INNER BRACKETS FRONT DRIVER



INNER BRACKETS FRONT PASSENGER

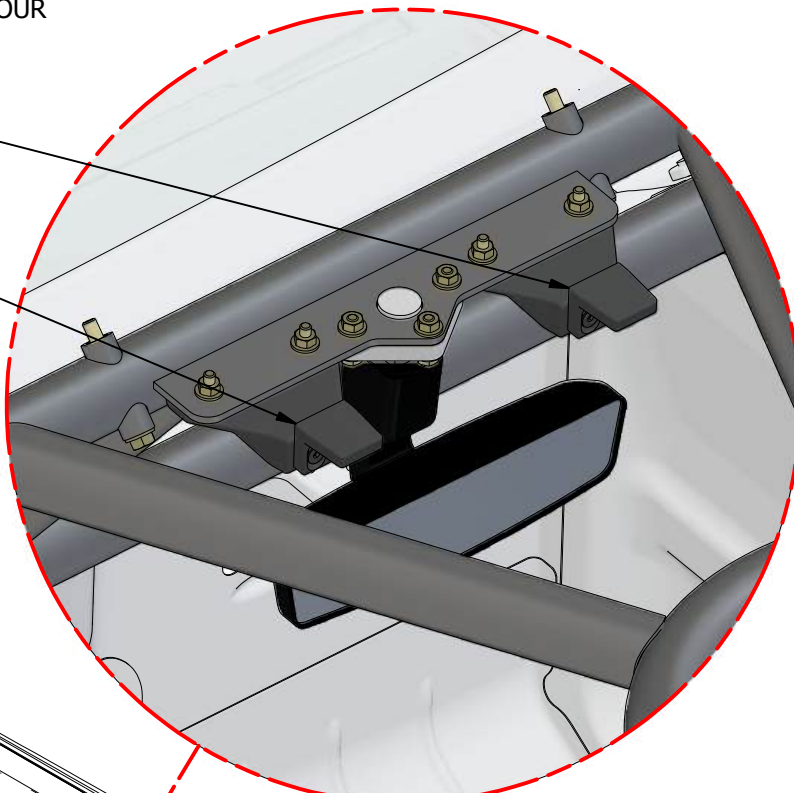
MB3045 JLU CAGE ASSEMBLY

STEP 63 INSTALL INNER FRONT BRACKETS

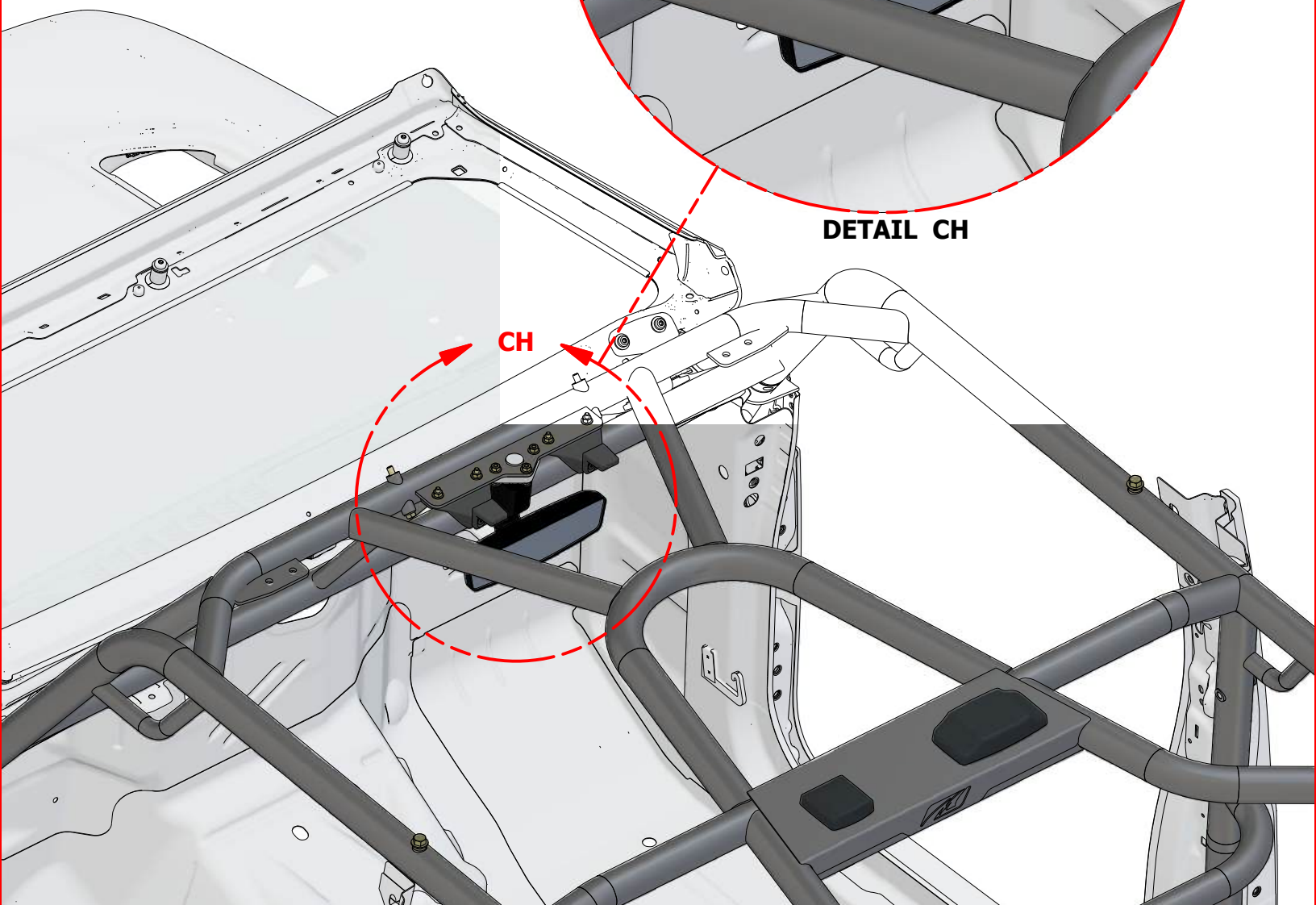
NOTE:
THESE FACTORY BRACKETS ARE FOR LATCHING YOUR
REMOVABLE FREEDOM PANELS

PRE-ASSEMBLED BRACKETS FROM STEP 62
MARKED AS "R" (RIGHT)

PRE-ASSEMBLED BRACKETS FROM STEP 62
MARKED AS "L" (LEFT)

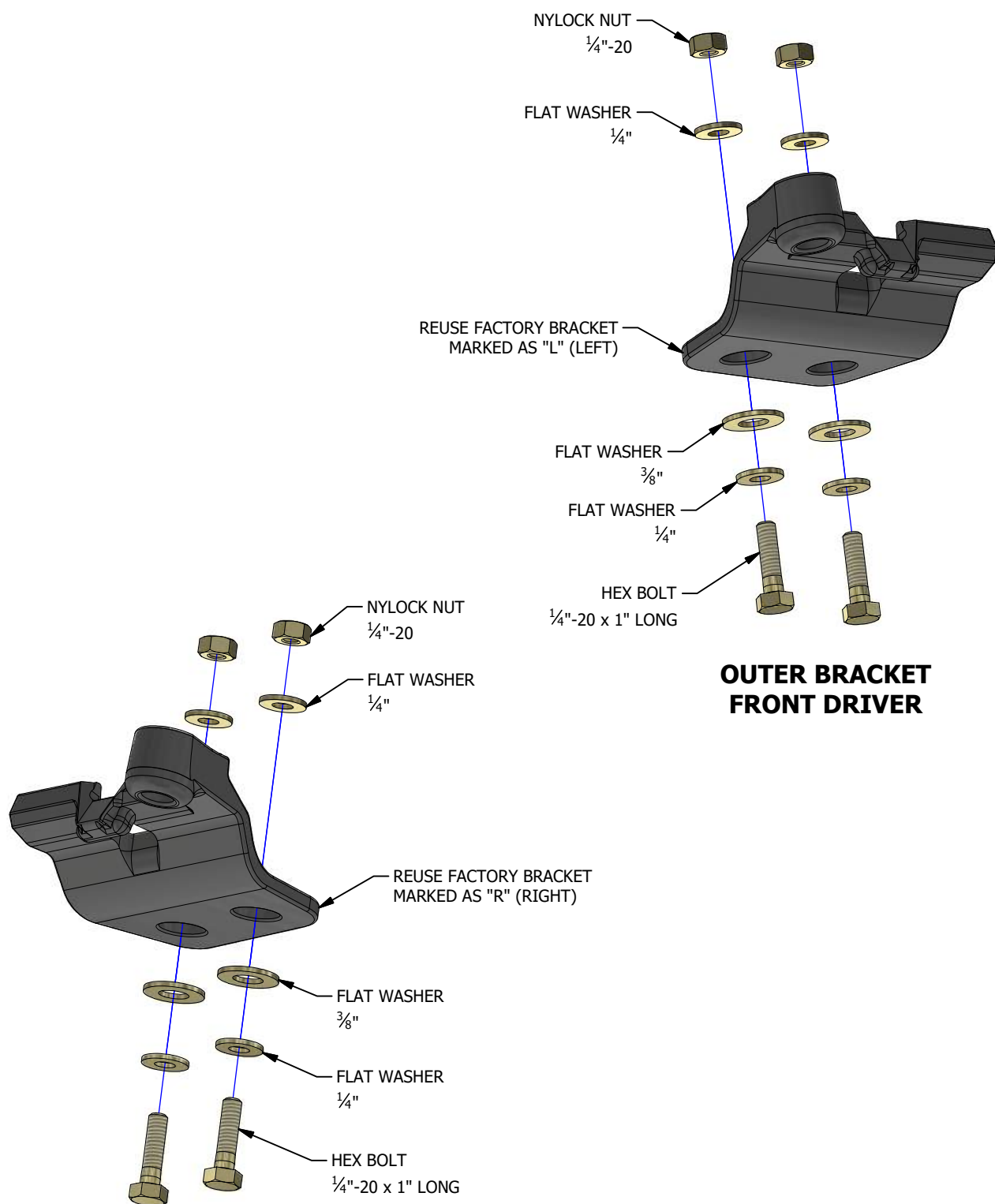


DETAIL CH



MB3045 JLU CAGE ASSEMBLY

STEP 64 PRE-ASSEMBLE OUTER FREEDOM PANEL BRACKETS



**OUTER BRACKET
FRONT DRIVER**

**OUTER BRACKET
FRONT PASSENGER**

MB3045 JLU CAGE ASSEMBLY

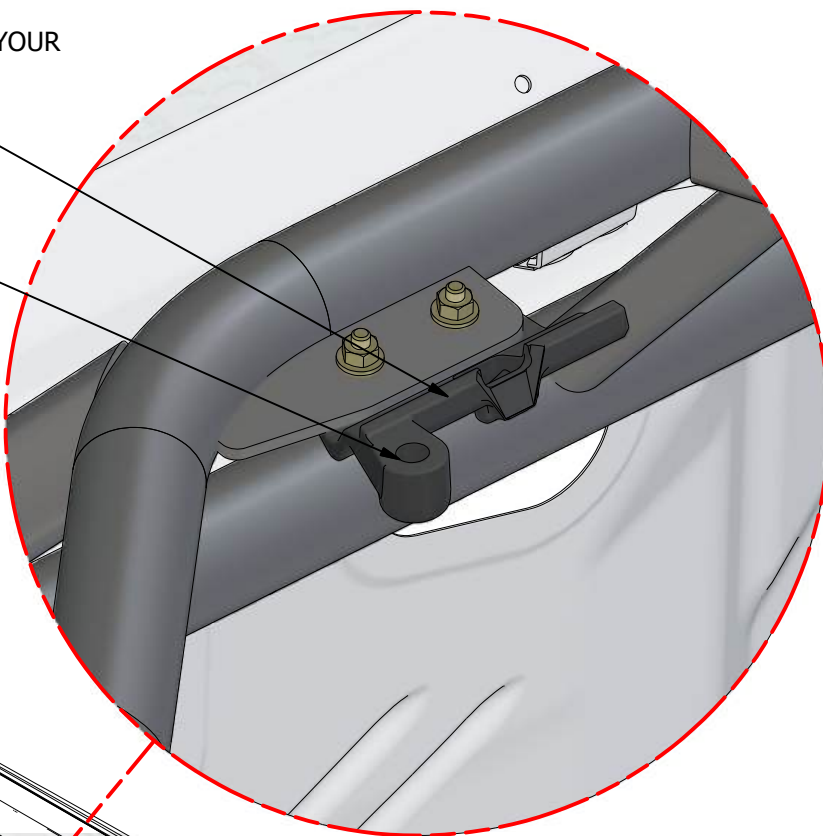
STEP 65

INSTALL OUTER FACTORY FREEDOM PANEL BRACKETS

NOTE:
THESE FACTORY BRACKETS ARE FOR ALIGNING YOUR
REMOVABLE FREEDOM PANELS

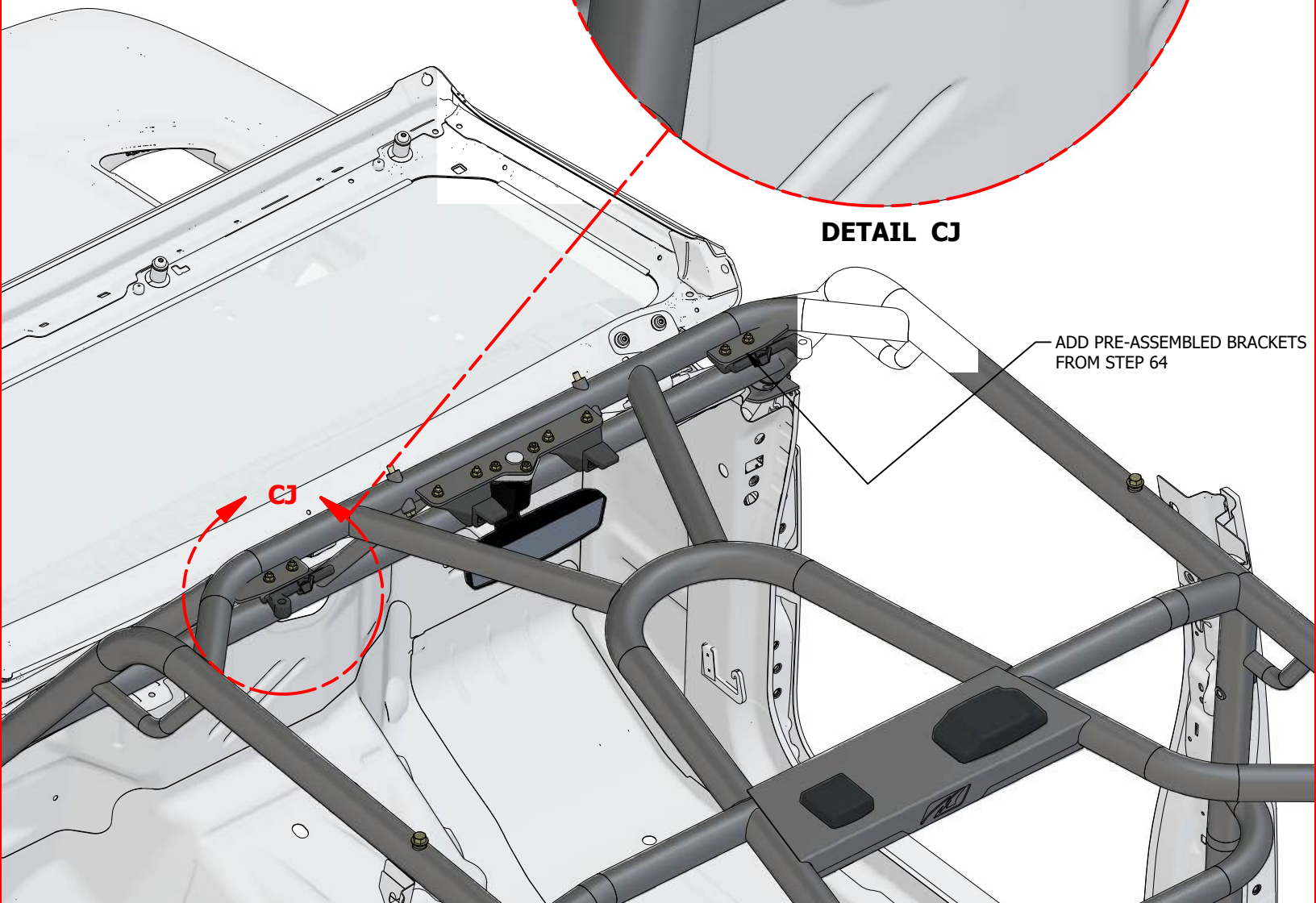
ADD PRE-ASSEMBLED BRACKETS
FROM STEP 64

NOTE: THIS HOLE IS USED FOR THE
ALIGNMENT PIN ON THE FACTORY
FREEDOM PANEL



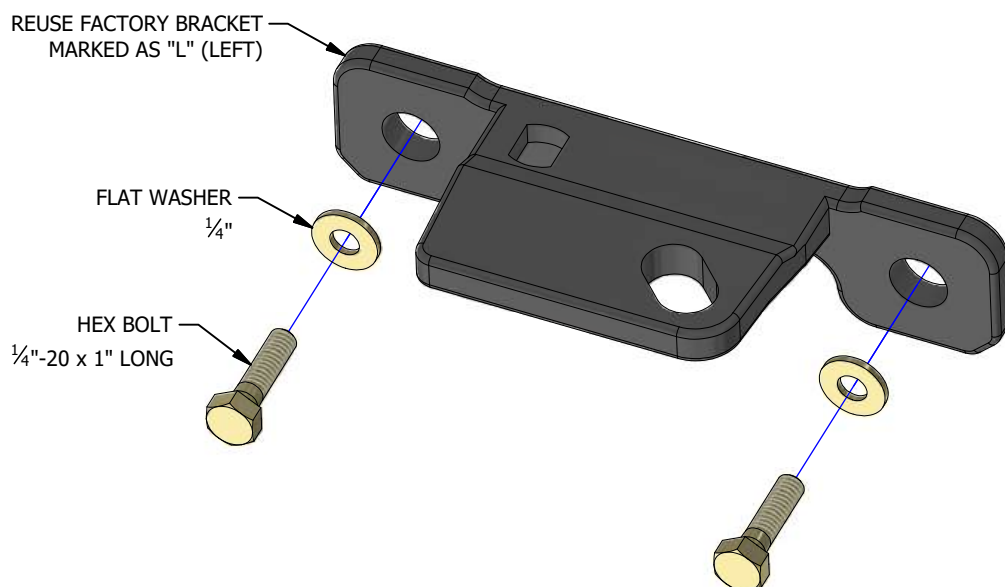
DETAIL CJ

ADD PRE-ASSEMBLED BRACKETS
FROM STEP 64

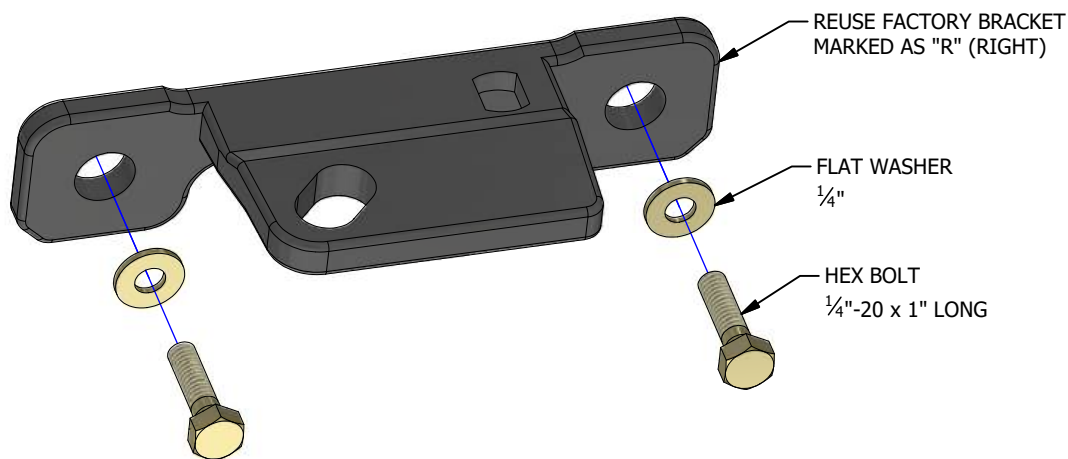


MB3045 JLU CAGE ASSEMBLY

STEP 66 PREPARE REAR FREEDOM PANEL BRACKETS



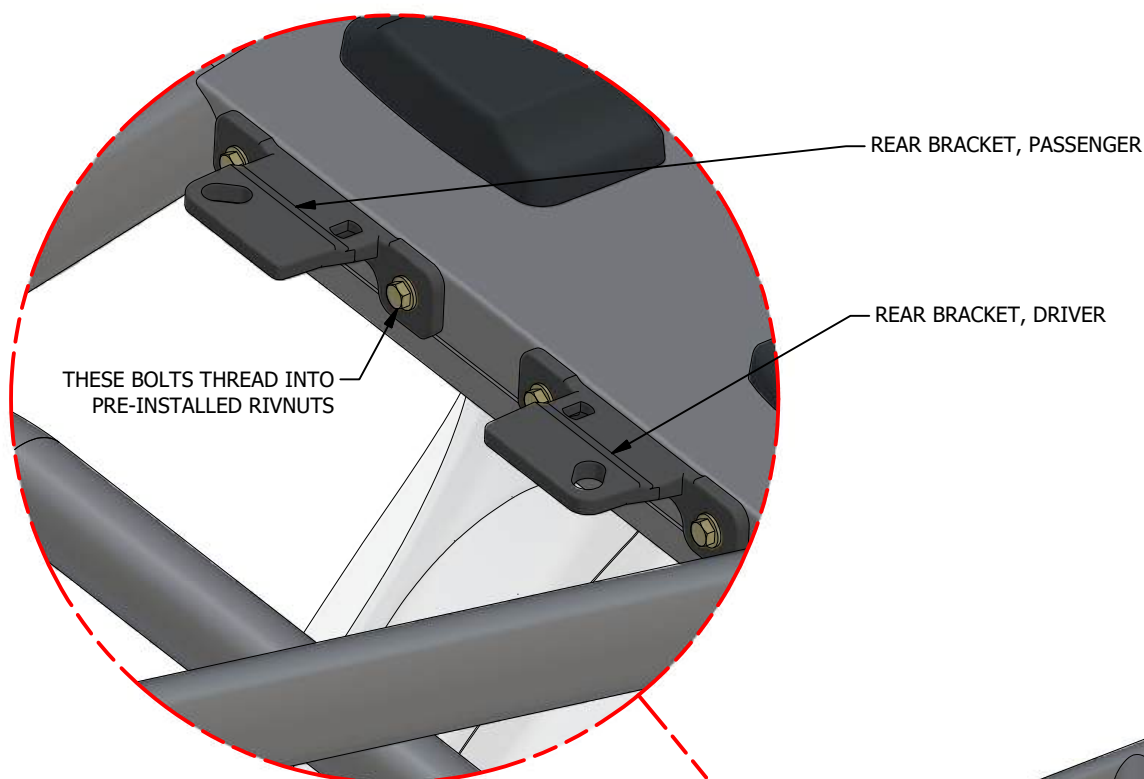
REAR BRACKET DRIVER



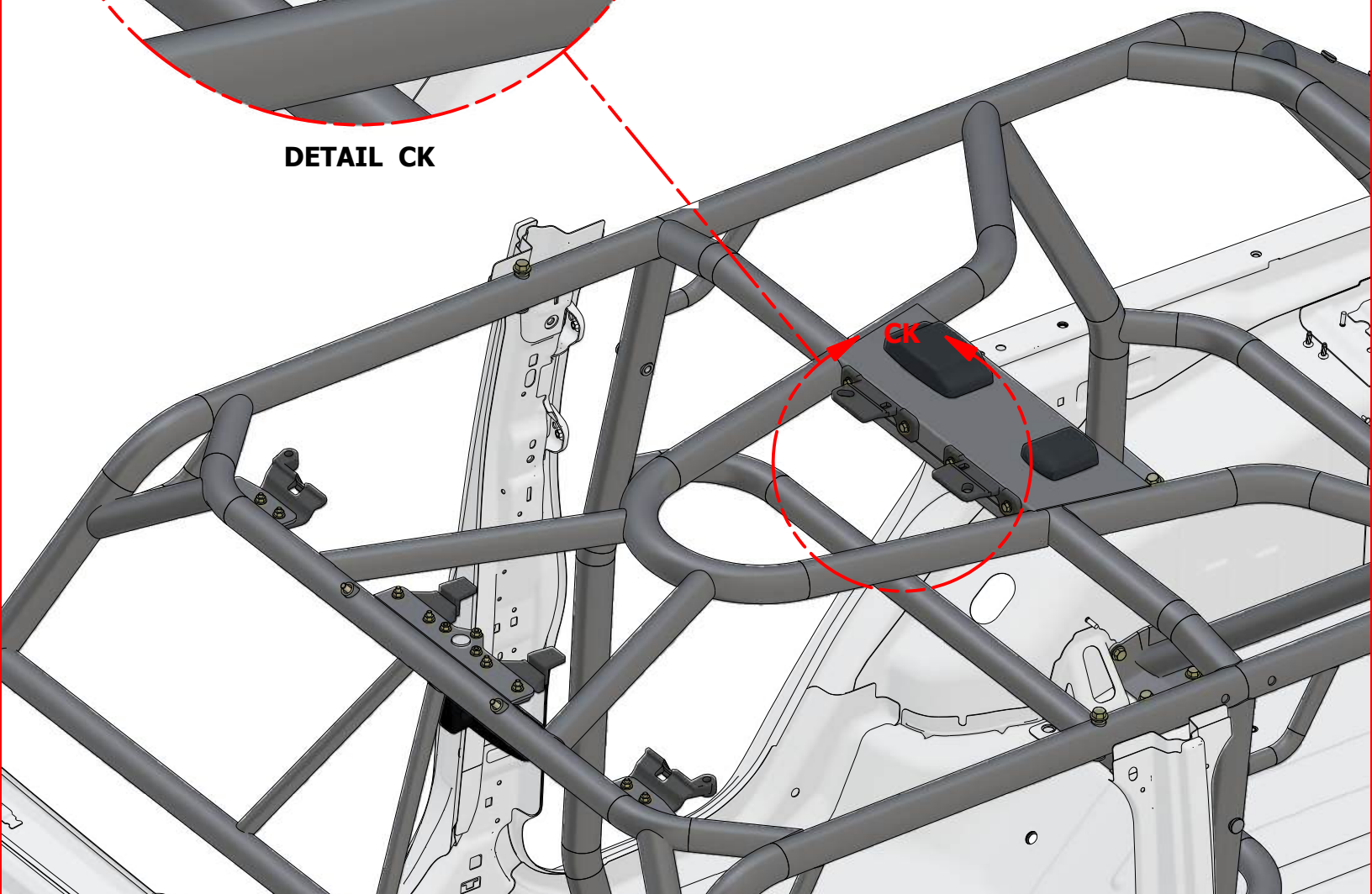
REAR BRACKET PASSENGER

MB3045 JLU CAGE ASSEMBLY

STEP 67 INSTALL REAR FACTORY FREEDOM PANEL BRACKETS

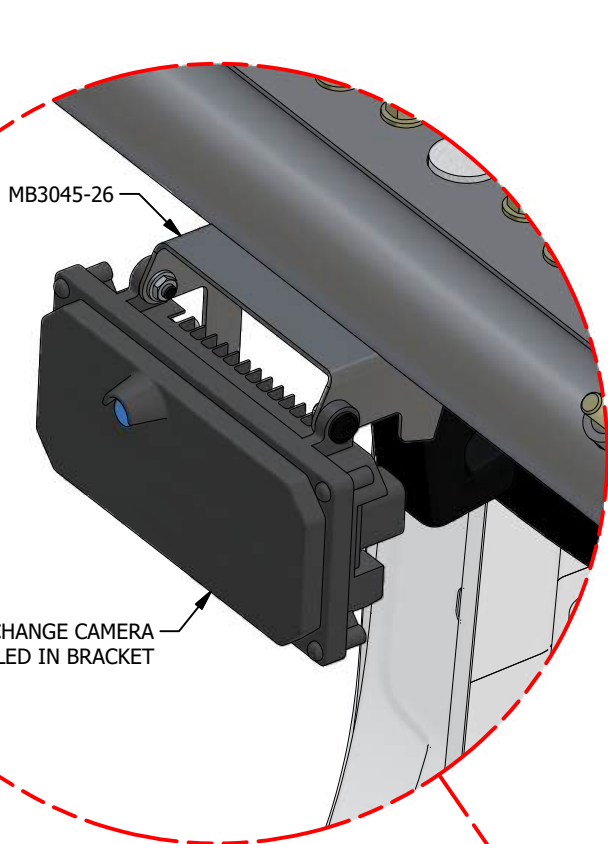


DETAIL CK

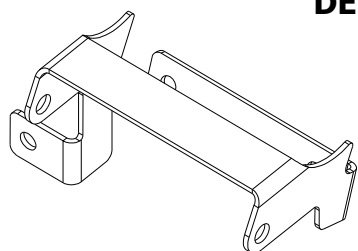


MB3045 JLU CAGE ASSEMBLY

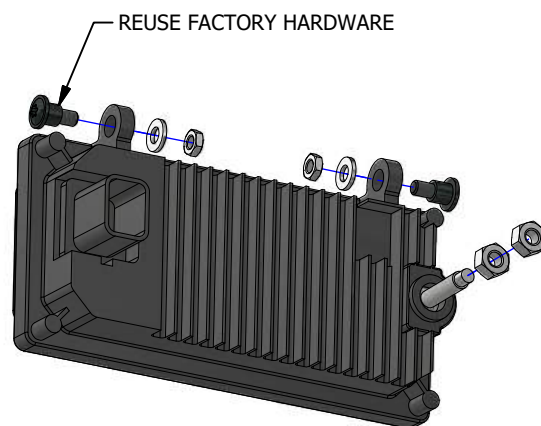
STEP 67 OPTIONAL LANE CHANGE CAMERA BRACKET



DETAIL CL

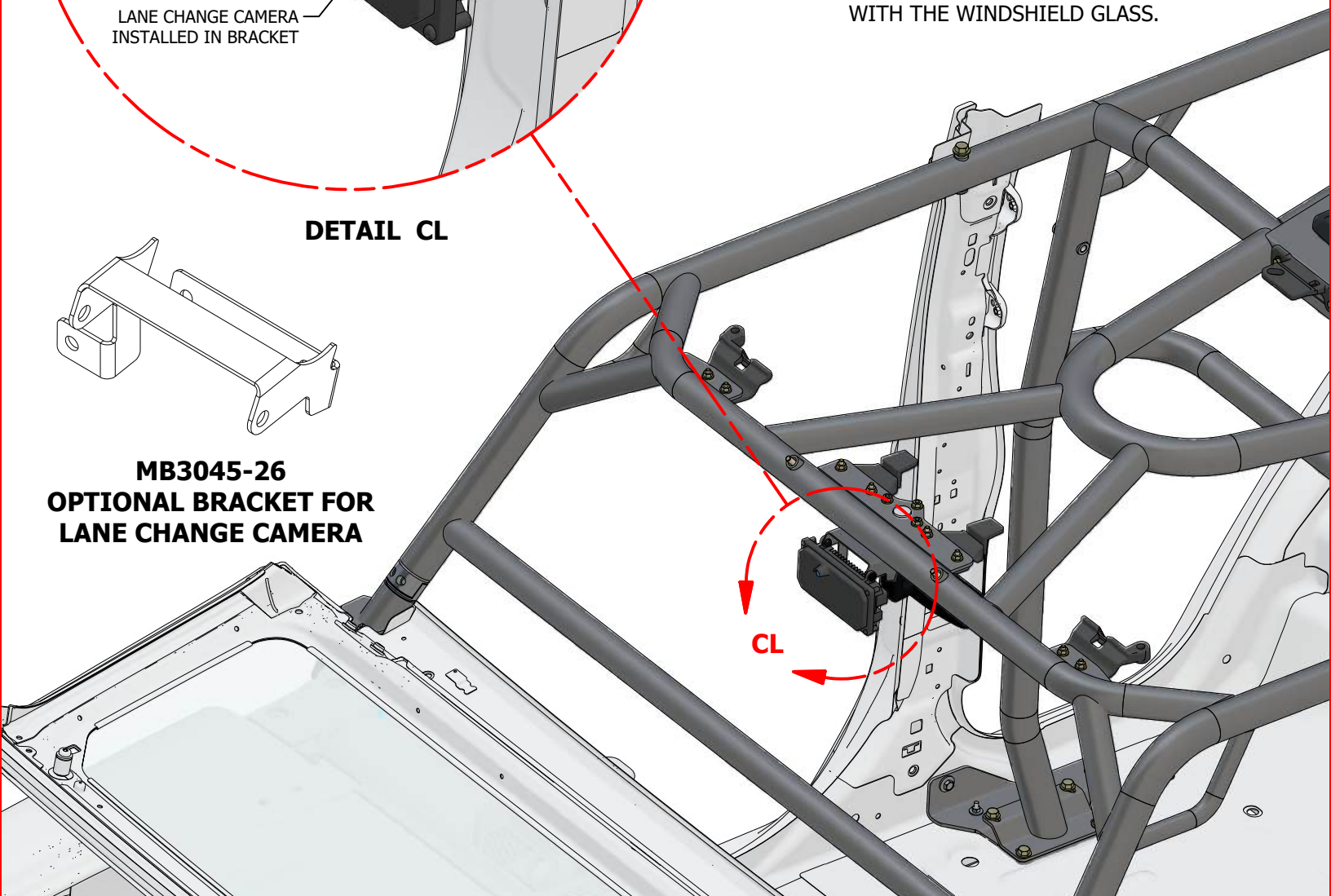


**MB3045-26
OPTIONAL BRACKET FOR
LANE CHANGE CAMERA**



FACTORY LANE CHANGE CAMERA

IF YOUR JEEP JL CAME WITH THE OPTIONAL FACTORY LANE CHANGE CAMERA, YOU CAN WELD ON MOUNTING BRACKET #MB3045-26 TO THE CAGE. ENSURE ADEQUATE CLEARANCE WITH THE WINDSHIELD GLASS.



MB3045 JLU CAGE ASSEMBLY

STEP 69 OPTIONAL SOFT TOP BRACKETS

INSTALL USING
HEX BOLT, $\frac{7}{16}$ "-20 UNF x 1-1/4" LONG
& FLAT WASHER $\frac{7}{16}$ "
2 LOCATIONS

MB3045-27

DETAIL CN

FACTORY SEAT BELT
MOUNTING POINTS
2 LOCATIONS

HEX BOLT, $\frac{7}{16}$ "-20 UNF x 1-1/4" LONG
& FLAT WASHER $\frac{7}{16}$ "
BOTH B-PILLARS

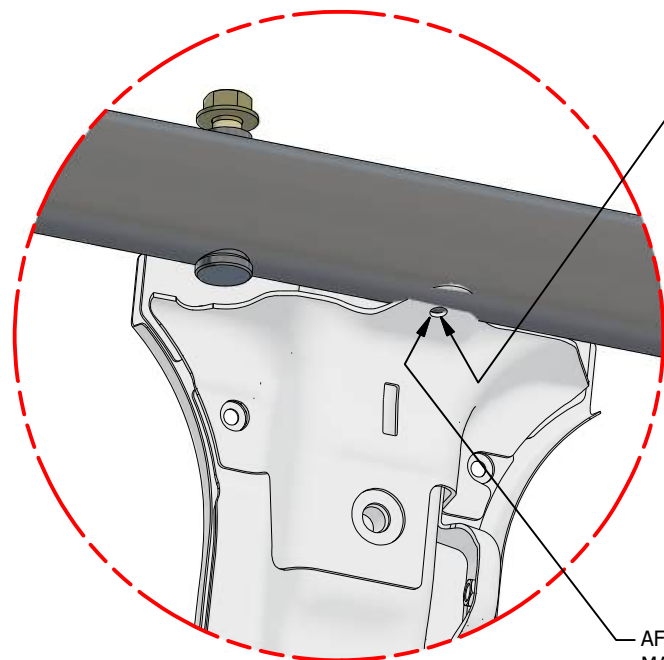
MB3045-27_MIR

MB3045-27

CN

MB3045 JLU CAGE ASSEMBLY

STEP 70 UPPER B-PILLAR FASTENING



DETAIL CR

PRIOR TO REMOVING THE CAGE FOR FULL WELDING, MARK THIS HOLE LOCATION ON THE UNDERSIDE OF THE CAGE TUBES (BOTH DRIVER & PASSENGER SIDES).

ENSURE ALL JOINTS & PLATES ARE ADEQUATELY TACK WELDED THROUGHOUT THE WHOLE CAGE.

YOU CAN NOW UNBOLT THE BASE PLATES FROM THE BODY & REMOVE THE TACK WELDED CAGE FROM THE VEHICLE.

FULLY WELD ALL JOINTS & PLATES. PAINT OR POWDER COAT. INSTALL CAGE FOR FINAL TIME.

AFTER THE CAGE IS REMOVED, DRILL 13/32"Ø HOLES IN THE MARKED LOCATIONS & INSTALL THE RIVNUTS. DURING FINAL INSTALLATION, USE THE HEX BOLTS & WASHERS SHOWN. THIS WILL ENSURE THE B-PILLARS ARE SECURED TO THE BODY OF THE VEHICLE & PROVIDE PROPER SEALING OF THE FACTORY FULL DOORS.



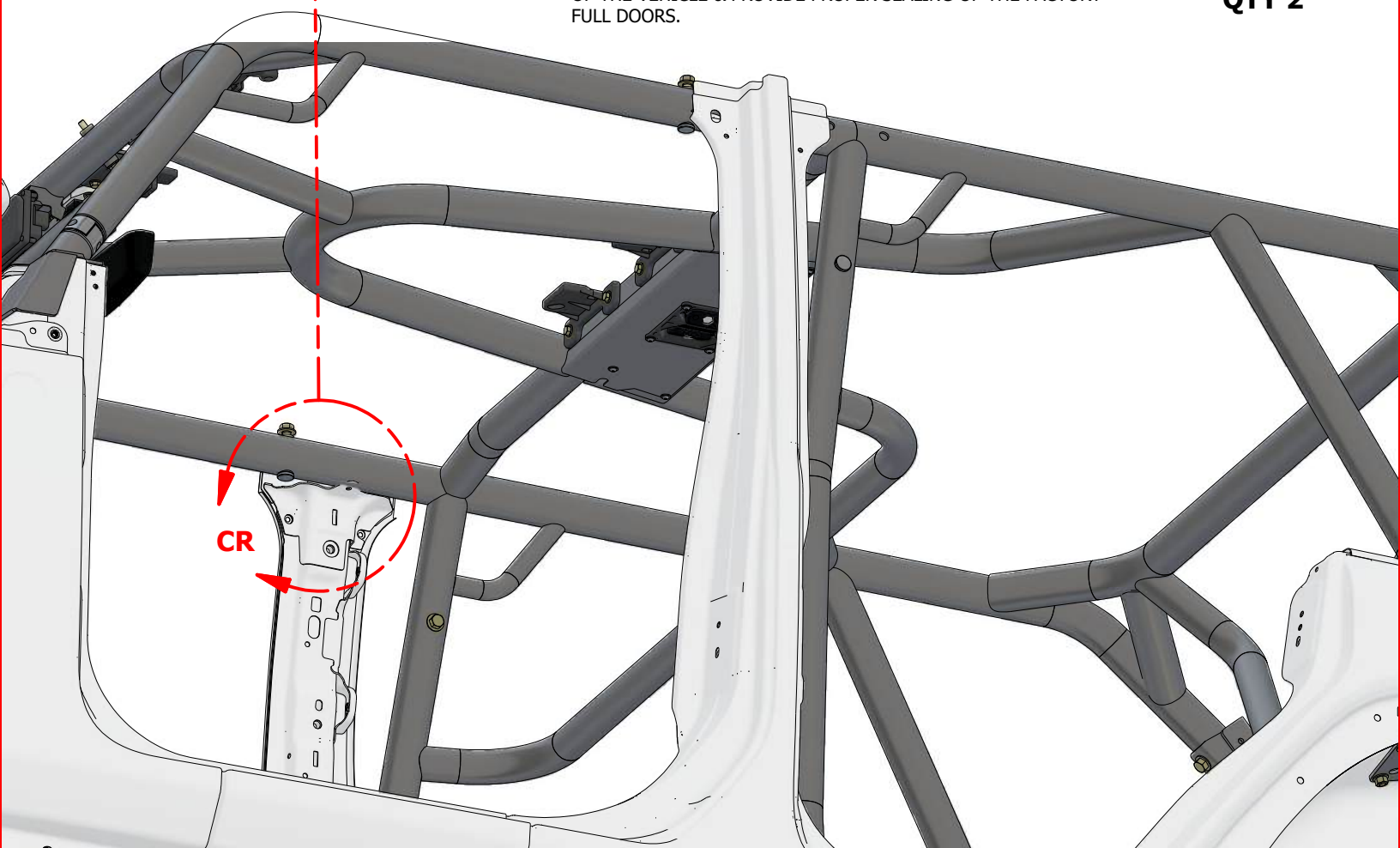
RIVNUT, 1/4"-20
QTY 2



HEX BOLT
1/4"-20 x 1" LONG
QTY 2



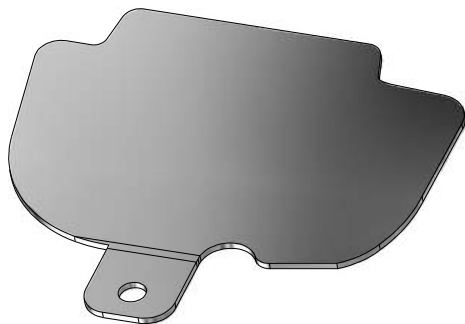
FLAT WASHER
1/4"
QTY 2



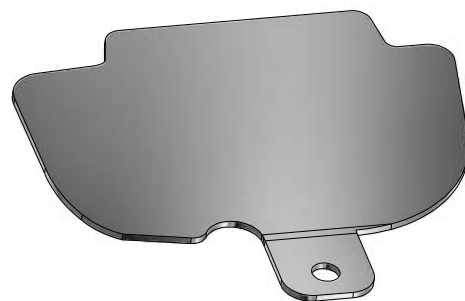
CR

MB3045 JLU CAGE ASSEMBLY

STEP 71 COVERS FOR FACTORY D-PILLAR TRIM



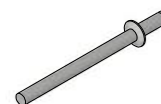
MB3045-31



**MB3045-31_MIR
FOR PASSENGER SIDE**



DRIVER SIDE SHOWN



**RIVET
1/8" x 3/16" GRIP RANGE
QTY 2**

AFTER YOUR PAINTED CAGE HAS BEEN INSTALLED FOR THE FINAL TIME & DURING THE RE-INSTALLATION OF THE FACTORY INTERIOR, USE THE SUPPLIED ALUMINUM TRIM PLATES TO COVER THE OPENINGS LEFT WHERE THE FACTORY D-PILLARS WERE LOCATED.

THESE PLATES ARE POSITIONED UNDER THE FACTORY INTERIOR TRIM & SECURED WITH A RIVET, AS SHOWN.

YOU MAY OPT TO PAINT THESE SUPPLIED PLATES PRIOR TO INSTALLATION.