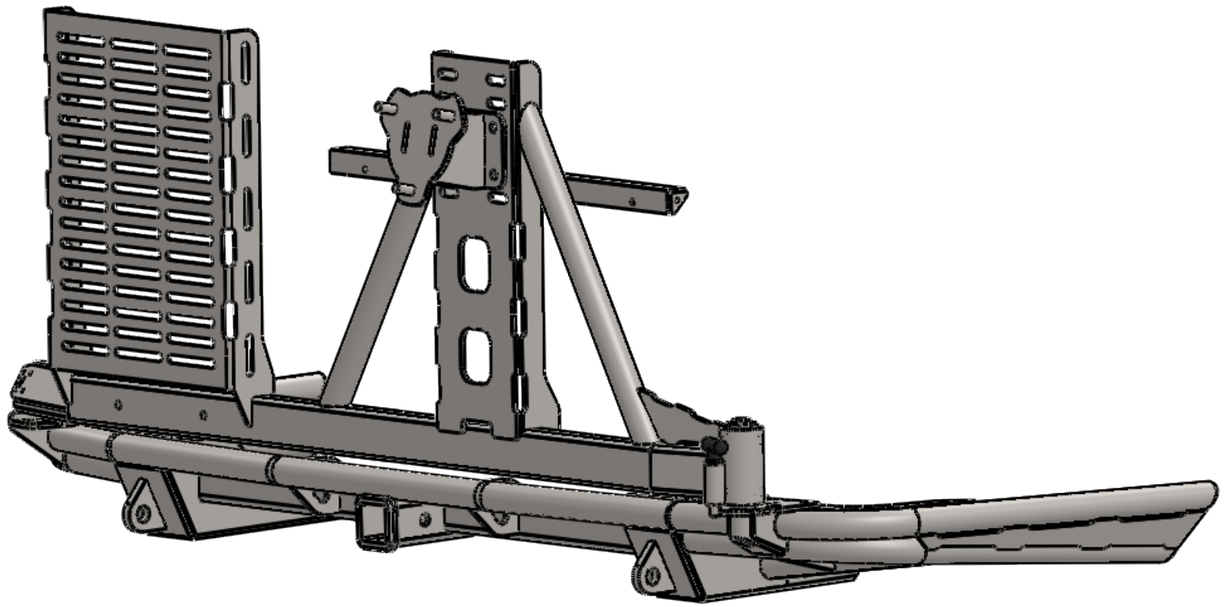
HIGH CLEARANCE REAR BUMPER
DIY KIT WELD INSTRUCTIONS



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DESCRIPTION:

HCR DIY ASSEMBLY

FULLY READ THE WELDING AND INSTALLATION INSTRUCTIONS PRIOR TO STARTING ON THE KIT!

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DESCRIPTION:

HCR DIY ASSEMBLY

DISCLAIMERS

- This is a DIY kit. You are responsible for following the instructions and welding it yourself. Failure to follow the instructions, using the incorrect tools, not welding on a flat surface, or not properly fixturing parts properly while welding may lead to the bumper not fitting correctly and/or not being as strong as it was designed to be.

- The parts are shipped as raw steel. There may be evidence of oils, areas with light surface rust, and shallow scratches caused during manufacturing and/or shipping.

- You are responsible for applying any finish (paint, powdercoat, ect) to the bumper once it is finished being fabricated. Failure to do so or improperly prepping before coating could lead to rust.

- Not welding on a flat surface or improper clamping/fixturing of parts while welding will lead to parts moving out of place and/or warping materials.

- Ascend Fabrications takes no liability in the event of damage, loss, or injury to the customer, their vehicle, or any other affected party during the fabrication, installation, or use (or misuse) of our products.

- By fabricating, installing our products, or by purchasing or driving a vehicle with our products already installed, you assume any and all risk and liability.

- This bumper, when welded correctly, will fit the following vehicles:
  - 03-09 4th gen 4runner
  - 10-22 5th gen 4runner
  - 03-09 Lexus GX470
  - 10-22 Lexus GX460

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DESCRIPTION:

HCR DIY ASSEMBLY

FABRICATION TOOLS NEEDED

- 220v+ welder (preferably MIG)
- Angle grinder with grinding/flap disks and cutoff wheels
- Flat surface to weld on (preferably a fixture table you can clamp to)
- Clamps
- Tape measure
- Angle finder
- 90 degree magnetic squares (various sizes)
- Proper safety and welding gear
- Basic mechanic/automotive tools (hammer, wrenches, ect)

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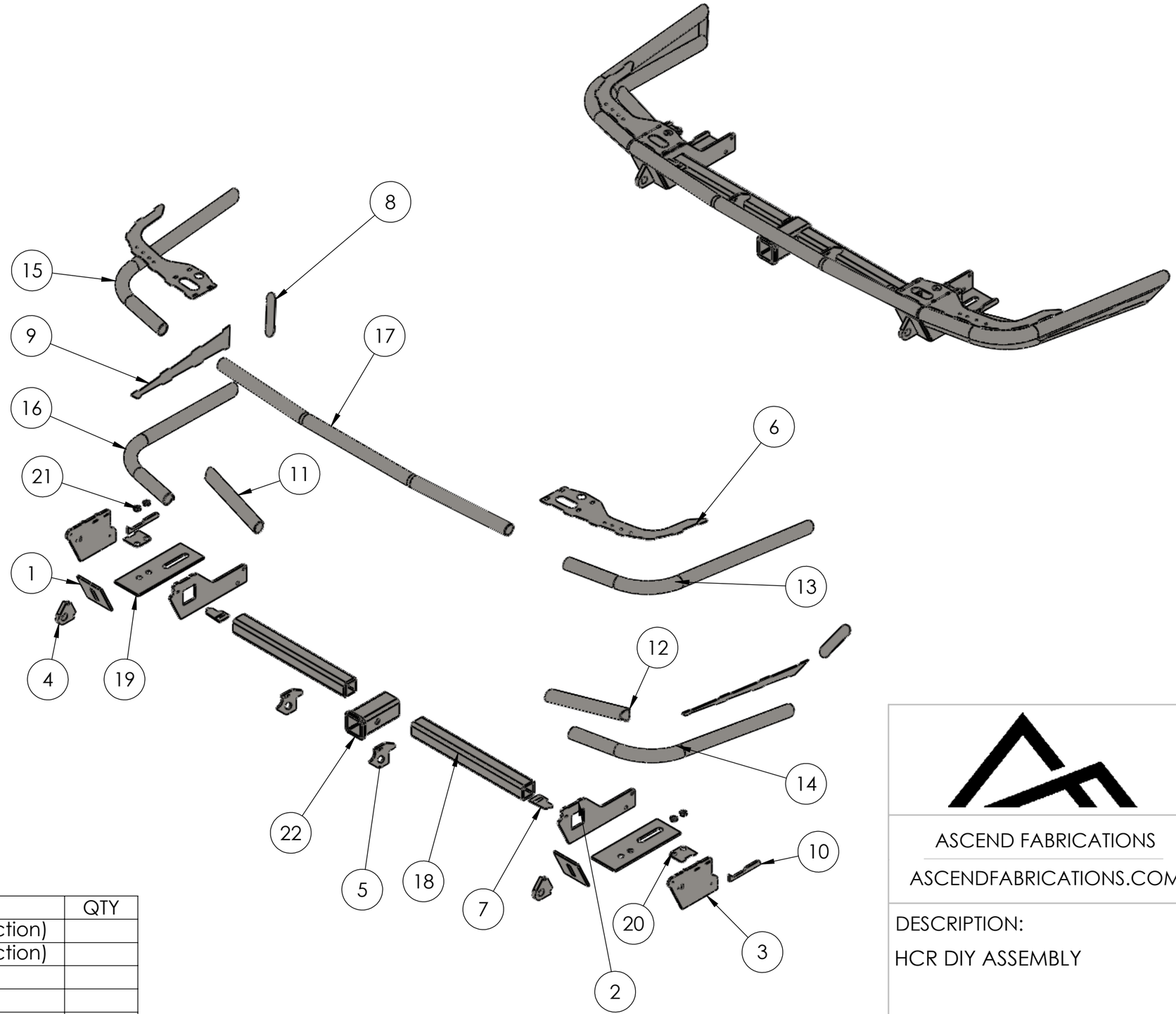
DESCRIPTION:

HCR DIY ASSEMBLY

WHATS INCLUDED - BASE BUMPER

COMPONENTS

ITEM NO.	DESCRIPTION	Default/ QTY.
1	RECOVERY POINT MOUNTING PLATE	2
2	INTERIOR FRAME SUPPORT PLATE	2
3	EXTERIOR FRAME SUPPORT PLATE	2
4	RECOVERY POINT	2
5	TOW HOOK POINT	2
6	TOP FILLER PLATE	2
7	LIGHTPOD MOUNTING PLATE	2
8	TUBE END FILLER PLATE	2
9	TUBE SIDE FILLER PLATE	2
10	EXTERIOR FRAME SUPPORT PLATE EXTENSION	2
11	DRIVER WING SUPPORT TUBE	1
12	PASSENGER WING SUPPORT TUBE	1
13	PASSENGER UPPER WING TUBE	1
14	PASSENGER LOWER WING TUBE	1
15	DRIVER UPPER WING TUBE	1
16	DRIVER LOWER WING TUBE	1
17	CENTER RECIEVER SUPPORT TUBE	1
18	RECEIVER SUPPORT TUBE	2
19	BOTTOM FRAME MOUNTING PLATE	2
20	TOP FRAME NUT PLATE	2
21	M12 WELD NUT	4
22	RECEIVER	1



INSTALL HARDWARE

DESCRIPTION	QTY
4GT4R/GX470 SPACER PLATE (dependent on vehicle selection)	
5GT4R/GX460 SPACER PLATE (dependent on vehicle selection)	
M12 x 130 mm Long Hex Head Bolt	
M12 x 40 mm Long Flanged Hex Head Bolt	
13 mm ID, 24 mm OD Washer	
14 mm ID, 37 mm OD Washer	
M8 x 16mm Button Head Bolt	

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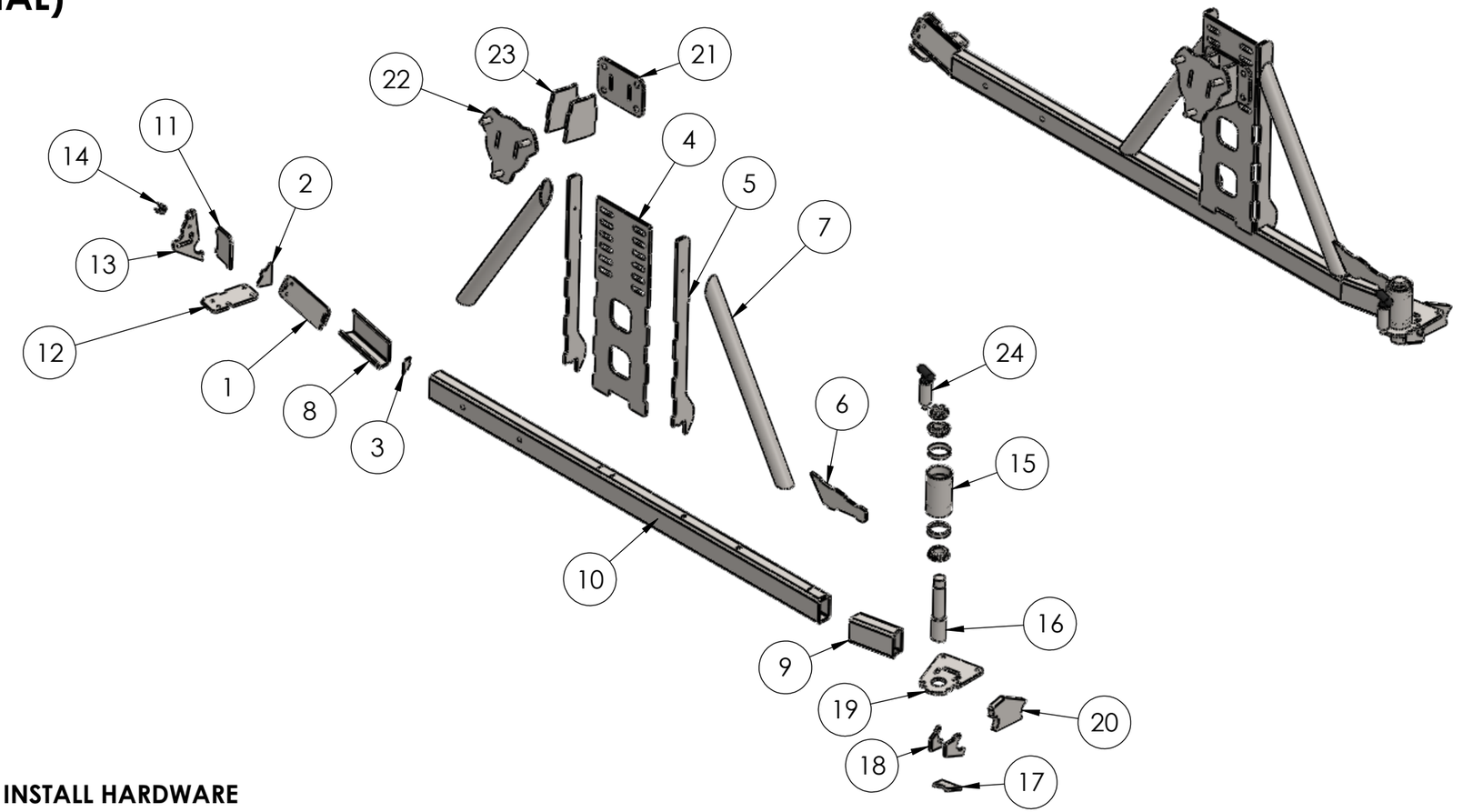
DESCRIPTION:

HCR DIY ASSEMBLY

WHATS INCLUDED - SWINGOUT (OPTIONAL)

COMPONENTS

ITEM NO.	DESCRIPTION	QTY.
1	SWINGOUT LATCH MOUNT PLATE	1
2	SWINGOUT LARGE TUBE END FILLER PLATE	1
3	SWINGOUT SMALL TUBE END FILLER PLATE	1
4	SWINGOUT TIRE CARRIER MOUNTING PLATE	1
5	SWINGOUT TIRE CARRIER SIDE SUPPORT PLATE	2
6	SWINGOUT SPINDLE GUSSET PLATE	1
7	SWINGOUT TIRE CARRIER SUPPORT TUBE	2
8	SWINGOUT LATCH MOUNT RECT TUBE	1
9	SWINGOUT SPINDLE RECT TUBE	1
10	SWINGOUT MAIN BEAM RECT TUBE	1
11	SWINGOUT STRIKER BACK PLATE	1
12	SWINGOUT STRIKER BASE PLATE	1
13	SWINGOUT STRIKER SIDE PLATE	1
14	LATCH HOOK	1
15	DOM SLEEVE	1
16	SPINDLE	1
17	SWINGOUT SPINDLE BOTTOM SUPPORT PLATE	1
18	SWINGOUT SPINDLE VERTICAL SUPPORT PLATE	2
19	SWINGOUT SPINDLE TOP MOUNT PLATE	1
20	BUMPER SPINDLE SUPPORT GUSSET	1
21	SWINGOUT WHEEL TO CARRIER MOUNT PLATE	1
22	SWINGOUT WHEEL HUB MOUNT PLATE	1
23	SWINGOUT WHEEL MOUNT SUPPORT PLATE	2
24	T-HANDLE SPRING PLUNGER	1



INSTALL HARDWARE

DESCRIPTION	QTY.
SWINGOUT STRIKE PAD	1
PLUNGER STRIKE PAD	1
TOGGLE CLAMP ASSEMBLY (WITH HARDWARE)	1
M6 x 10 mm Long Button Head Screw	4
M6 x 25 mm Long Flat Head Screw	2
M6 x 16 mm Long Button Head Screw	2
M6 Locknut	4
2" x 6" x 1/8" Thick Adhesive Rubber Strip	1
SPINDLE HARDWARE ASSEMBLY	1
13 mm ID, 24 mm OD Washer	4
M12 Locknut	4
M12 x 30 mm Long Hex Head Bolt	4
Wheel Lug Nut	3
M6 x 14mm Flanged Button Head Bolt	2

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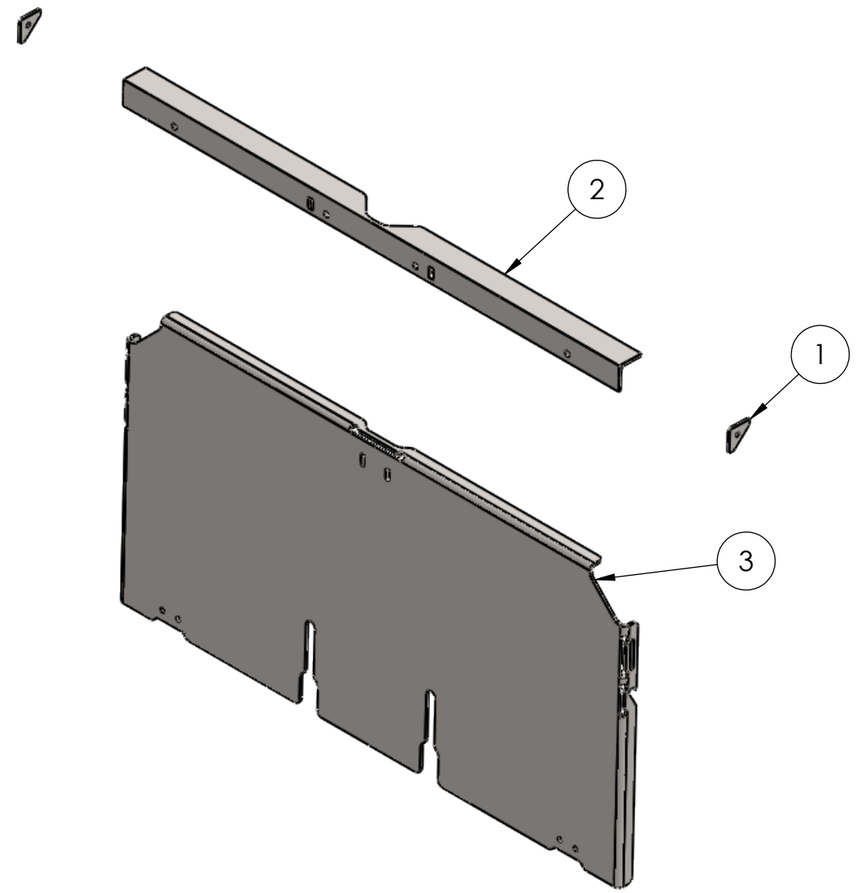
DESCRIPTION:

HCR DIY ASSEMBLY

WHATS INCLUDED - CAMP TABLE FOR SWINGOUT (OPTIONAL)

COMPONENTS

ITEM NO.	DESCRIPTION	QTY.
1	LANYARD MOUNT TAB	2
2	CAMP TABLE ANGLE BRACKET	1
3	CAMP TABLE	1



INSTALL HARDWARE

DESCRIPTION	QTY.
Rubber Push In Bumper	4
Latch	1
18" Eye-to-Eye Lanyard	2
M5 x 12mm Long, Button Head Screw	14
M5 Locknut	10
Offset Hinge	2

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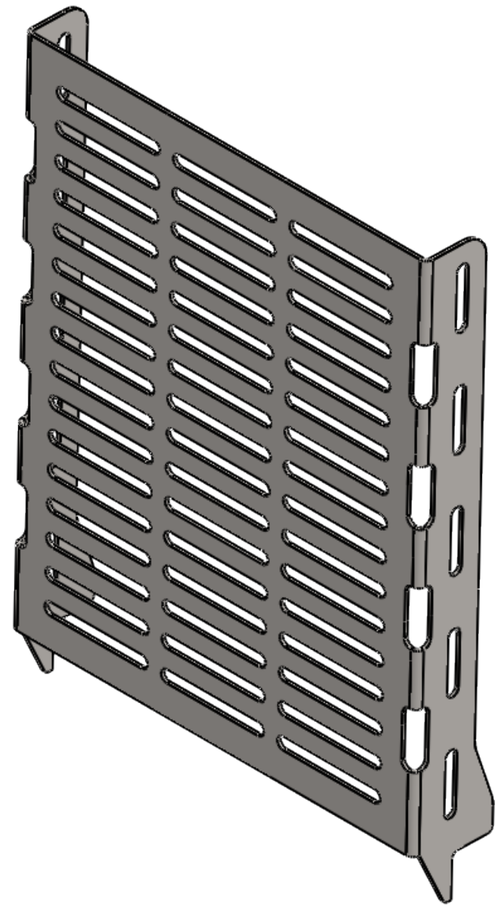
DESCRIPTION:

HCR DIY ASSEMBLY

WHATS INCLUDED - ACCESSORIES PANEL FOR SWINGOUT (OPTIONAL)

COMPONENTS

ITEM NO.	DESCRIPTION	QTY.
1	ACCESSORIES MOUNTING PANEL	1



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DESCRIPTION:

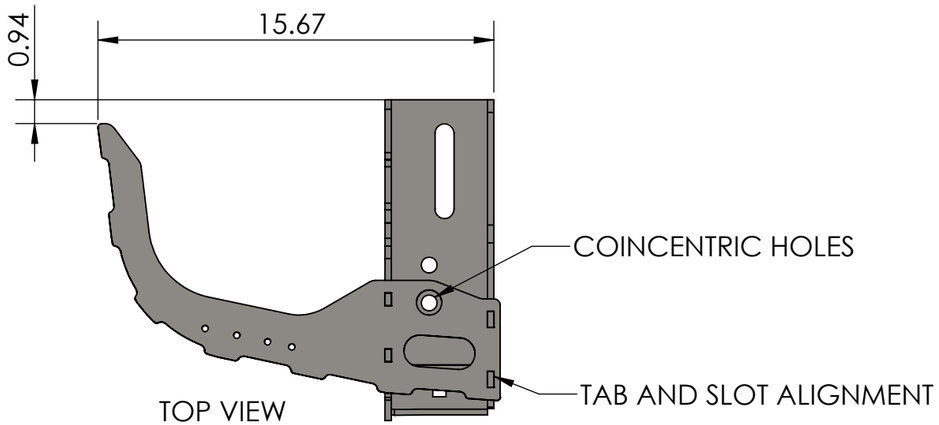
HCR DIY ASSEMBLY

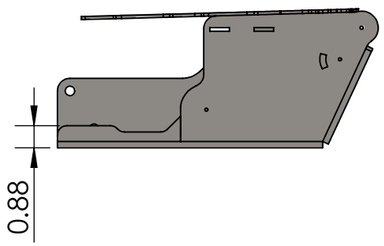
STEP 1 - BASE BUMPER

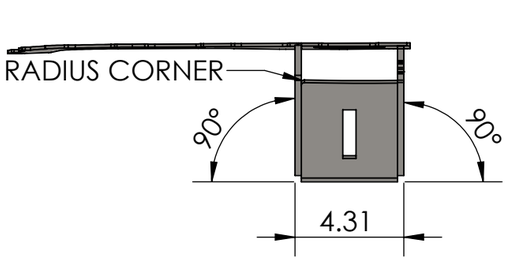
COMPONENTS NEEDED:

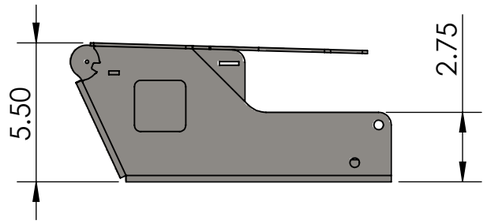
- BOTTOM FRAME MOUNTING PLATE
- RECOVERY POINT MOUNTING PLATE
- INTERIOR FRAME SUPPORT PLATE
- EXTERIOR FRAME SUPPORT PLATE
- TOP FILLER PLATE
- EXTERIOR FRAME SUPPORT PLATE EXTENSION

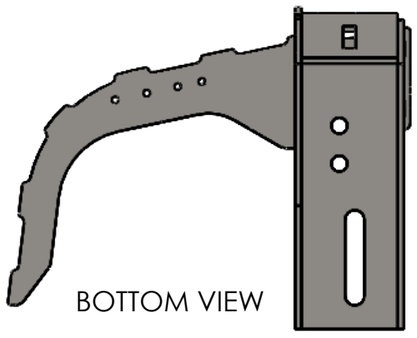
- Assemble the components as shown.
  - Align the tabs on the interior and exterior frame plates into the slots on the top filler plate.
  - Take the bottom frame mounting plate and align the edges to the edges of the frame support plates.
    - Make sure the holes and slots in the bottom frame plate are orientated correctly. The forward hole should be coincentric with the hole in the top filler plate.
  - Take the exterior plate extension piece and align it as shown. It should butt uo against the exterior support plate and it's edge should align with the edge of the bottom mounting plate.
  - Align the recovery point mounting plate onto the end of the sub assembly. There is one corner on the part that is rounded. Align that corner as shown so it is pointing up towards the unsupported section of the top filler plate.
- Once all components are aligned, tack them together.
- Check dimensions.

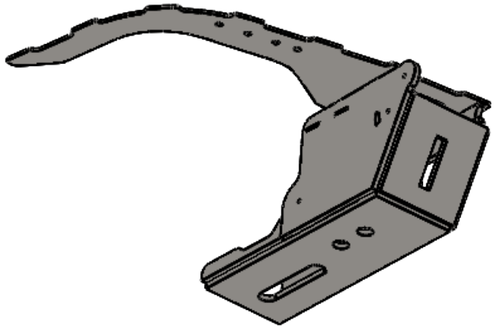


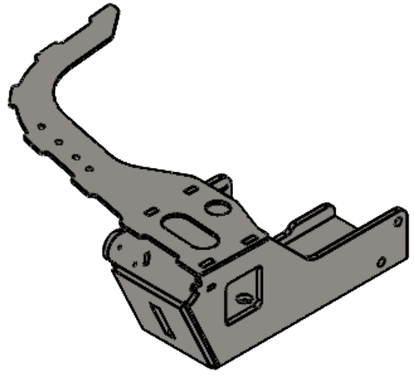












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DESCRIPTION:

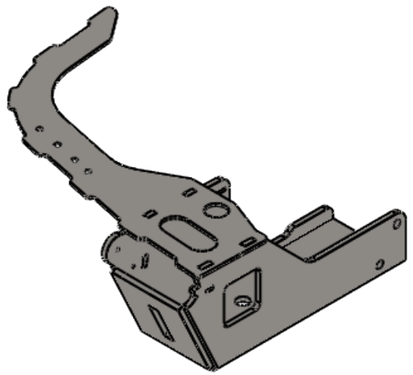
HCR DIY ASSEMBLY

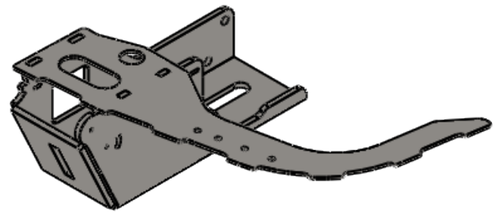
STEP 2 - BASE BUMPER

COMPONENTS NEEDED:

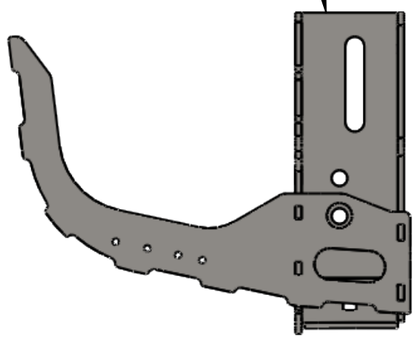
- BOTTOM FRAME MOUNTING PLATE
- RECOVERY POINT MOUNTING PLATE
- INTERIOR FRAME SUPPORT PLATE
- EXTERIOR FRAME SUPPORT PLATE
- TOP FILLER PLATE
- EXTERIOR FRAME SUPPORT PLATE EXTENSION

- Repeat the process of step 1 to make a mirrored sub assembly.

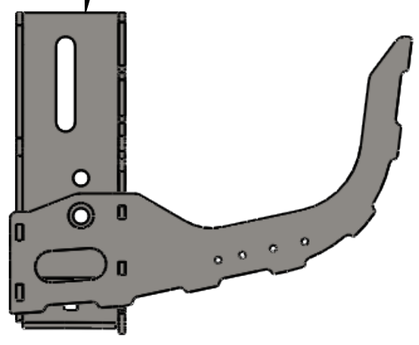




STEP 1 SUB ASSEMBLY



STEP 2 MIRRORED SUB ASSEMBLY



ASCEND FABRICATIONS

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DESCRIPTION:

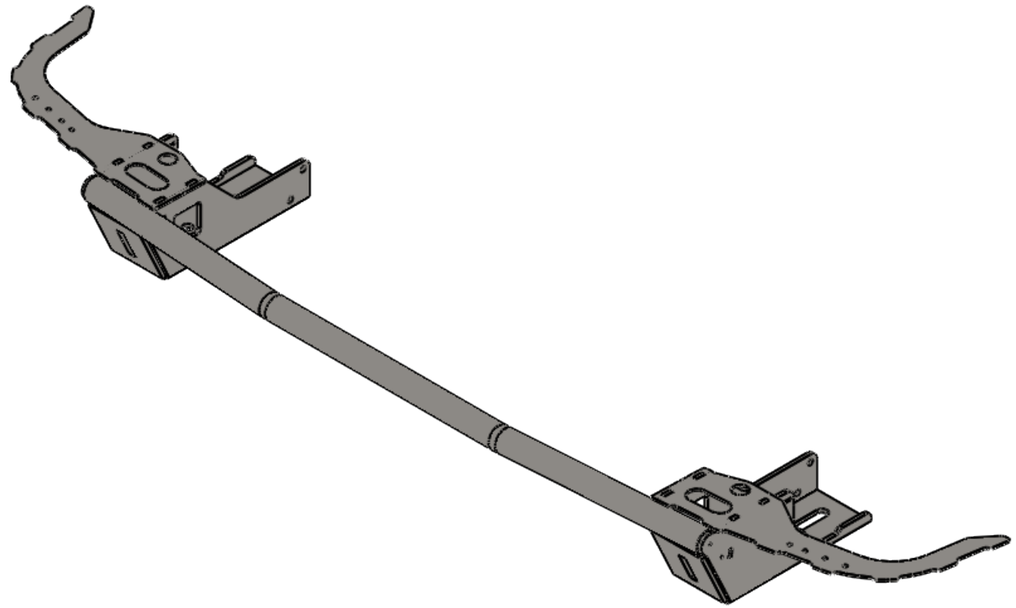
HCR DIY ASSEMBLY

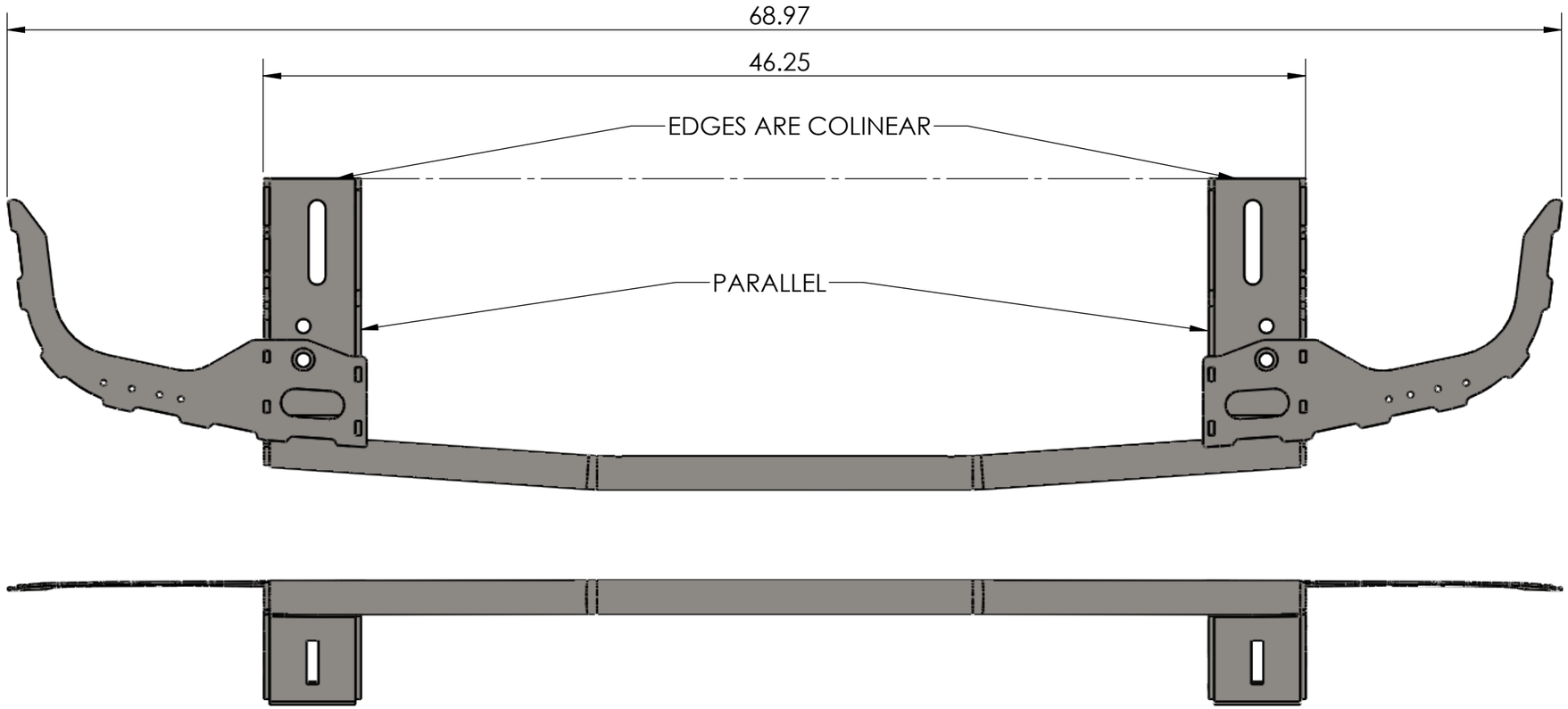
STEP 3 - BASE BUMPER

COMPONENTS NEEDED:

- SUB ASSEMBLIES FROM STEPS 1 AND 2
- CENTER RECEIVER SUPPORT TUBE

- Set up on flat surface (weld table).
- Flip the sub assemblies upside down so the top filler plates are now on the bottom.
- Slide the center tube into the openings on the fronts of either sub assembly.
  - There are slots on either end of the tube that align with tabs on the inner frame plates.
  - All sections of the tube should be touching the table.
- Check that the sub assemblies are parallel and the back edges are colinear to each other.
- Check dimensions and clamp components down.
- Tack weld everything in place.





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DESCRIPTION:

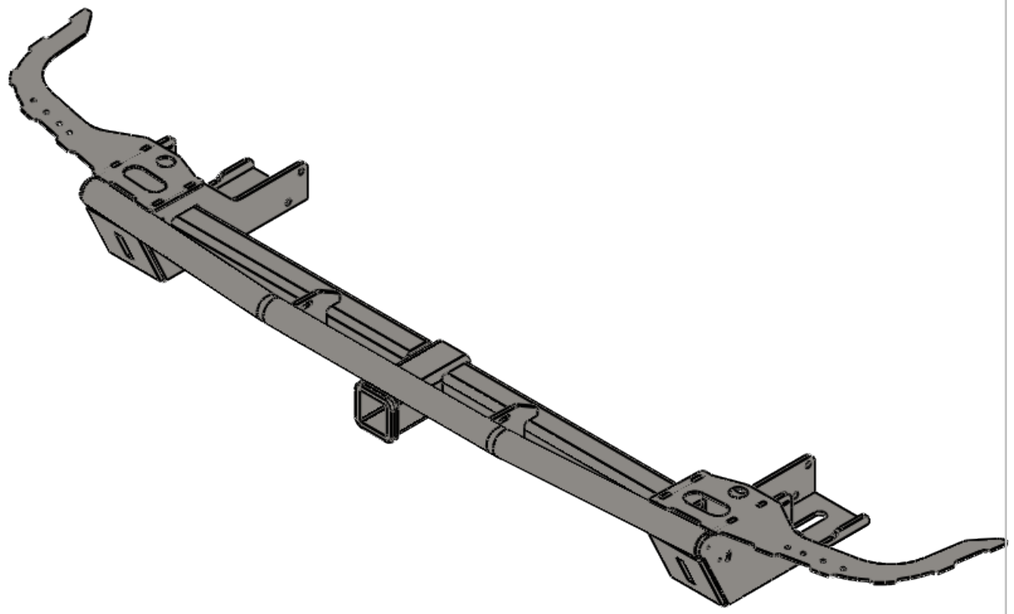
HCR DIY ASSEMBLY

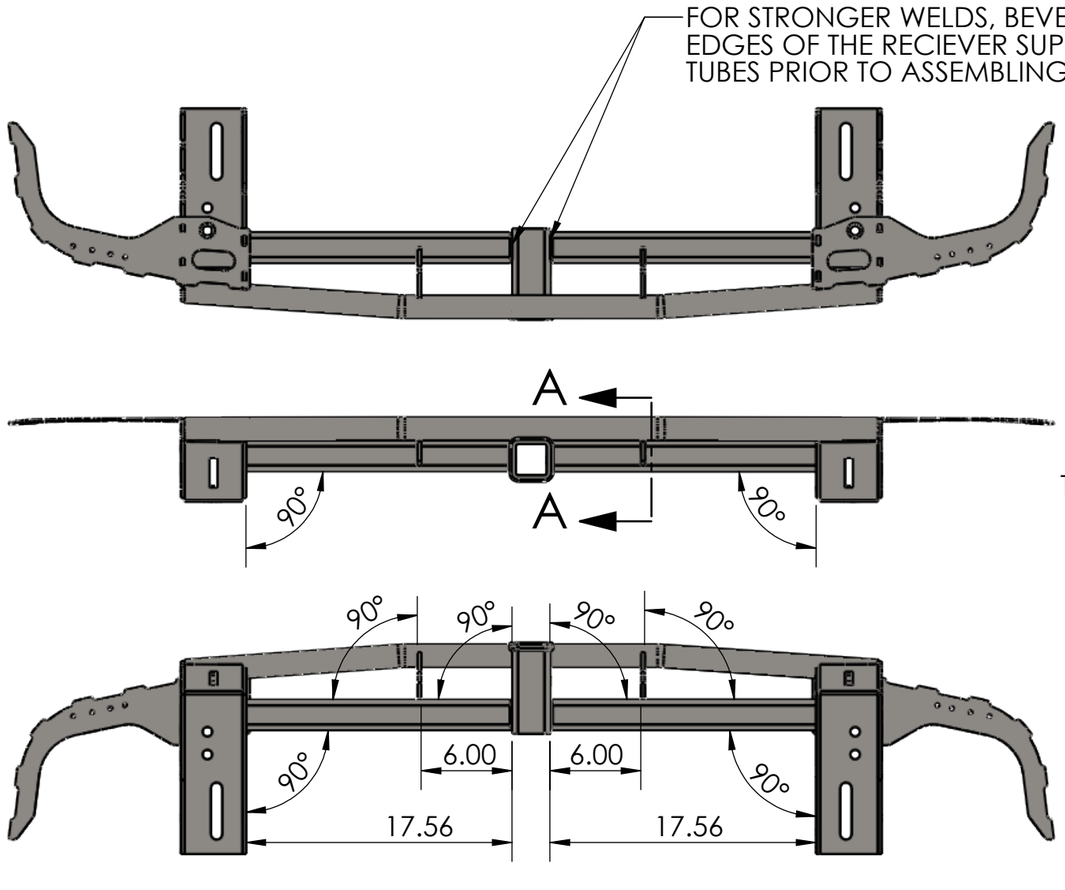
STEP 4 - BASE BUMPER

COMPONENTS NEEDED:

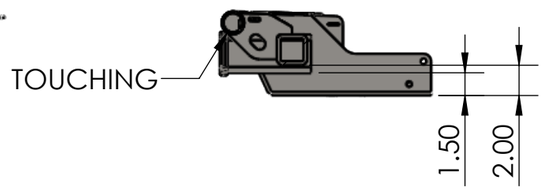
- SUB ASSEMBLY FROM PREVIOUS STEP
- RECEIVER SUPPORT TUBES
- RECIEVER
- TOW HOOK POINTS

- Flip assembly back upright so the frame mounting plates are now on the table.
- Align components as shown.
  - Put receiver under the center tube, the back of the flared edge should be touching the tube. Find something that is 1.5" to act as a spacer and place it under the reciever to hold it in place.
  - Put the reciever support tubes into the square holes on both of the inner frame plates.
  - Put the tow hook points in between the reciever support tubes and the center tube. There are etchings on the center tube for the tow hooks points to line up to.
  - Butt the ends of the reciever support tubes up to the sides of the reciever.
- Check dimensions and clamp components down.
- Tack weld everything in place.





SECTION A-A



ASCEND FABRICATIONS

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DESCRIPTION:

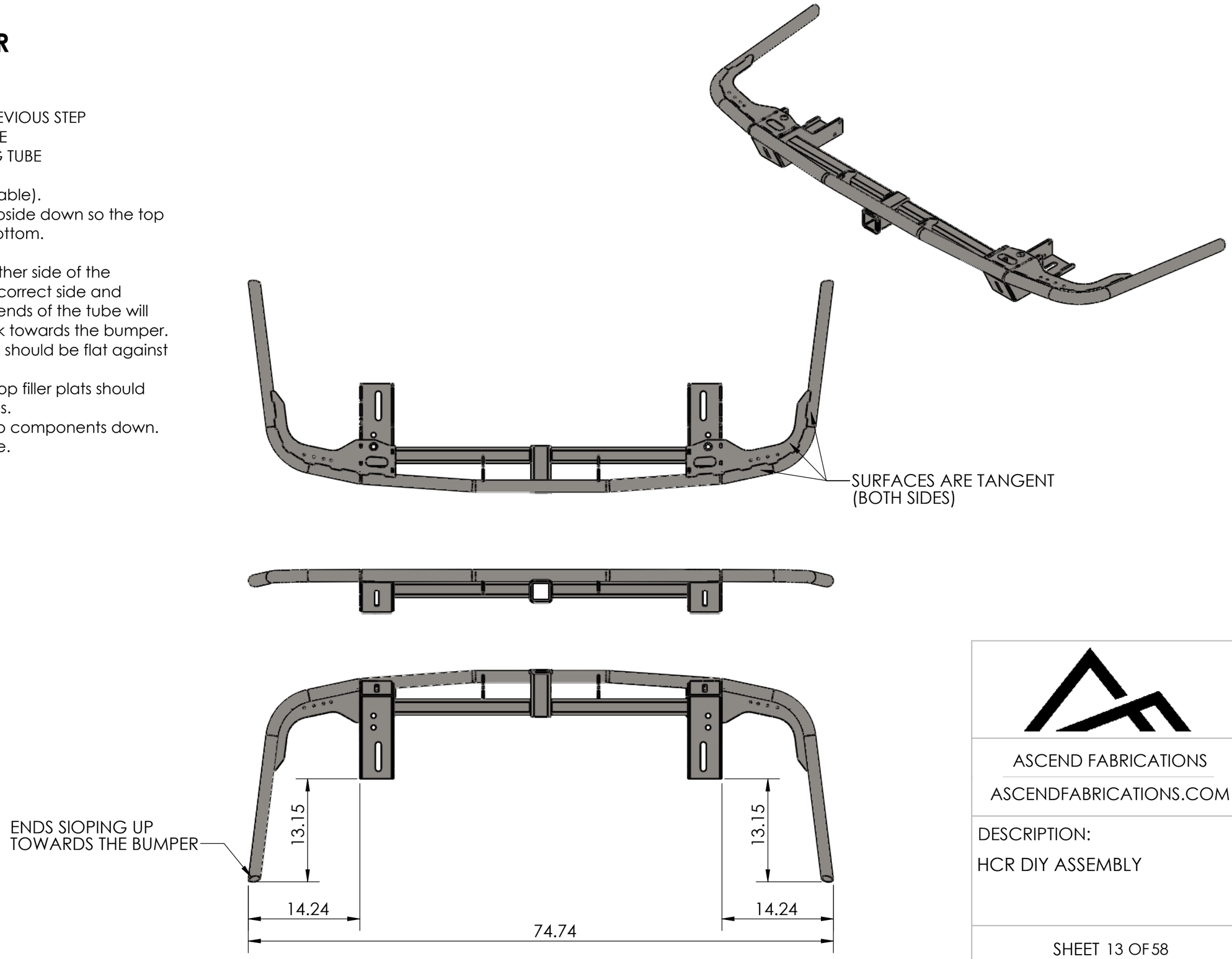
HCR DIY ASSEMBLY

STEP 5 - BASE BUMPER

COMPONENTS NEEDED:

- SUB ASSEMBLY FROM PREVIOUS STEP
- DRIVER UPPER WING TUBE
- PASSENGER UPPER WING TUBE

- Set up on flat surface (weld table).
- Flip the sub assembly back upside down so the top filler plates are now on the bottom.
- Align components as shown.
  - Put the wing tubes on either side of the assembly. When on the correct side and upside down, the outer ends of the tube will slope upwards and back towards the bumper.
  - All sections of the tubing should be flat against the weld table.
  - The outer edges of the top filler plats should butt up against the tubes.
- Check dimensions and clamp components down.
- Tack weld everything in place.



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DESCRIPTION:

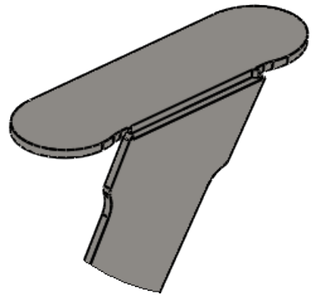
HCR DIY ASSEMBLY

STEP 6 - BASE BUMPER

COMPONENTS NEEDED:

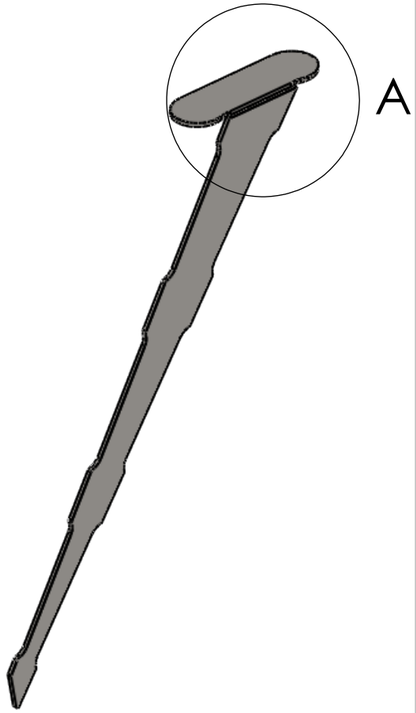
- TUBE END FILLER PLATE
- TUBE SIDE FILLER PLATE

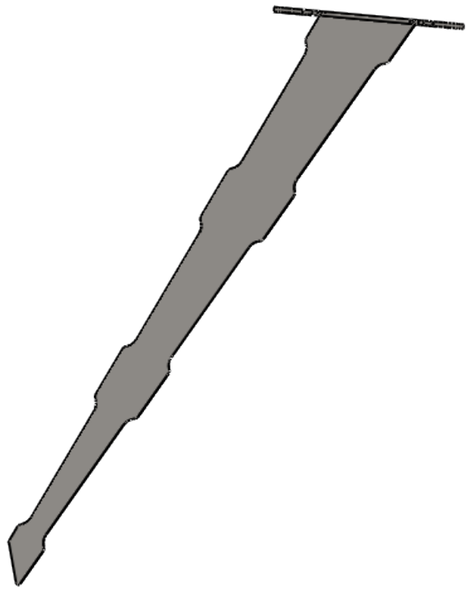
- Align components as shown.
  - Take one of the tube end filler plates and one of the tube side filler plates and align them so they are interlocking.
  - There are mini triangular tabs on the edges of either part that will make them self align.
- Check angle.
- Tack weld together.



DETAIL A

SCALE 1 : 2





ASCEND FABRICATIONS

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DESCRIPTION:

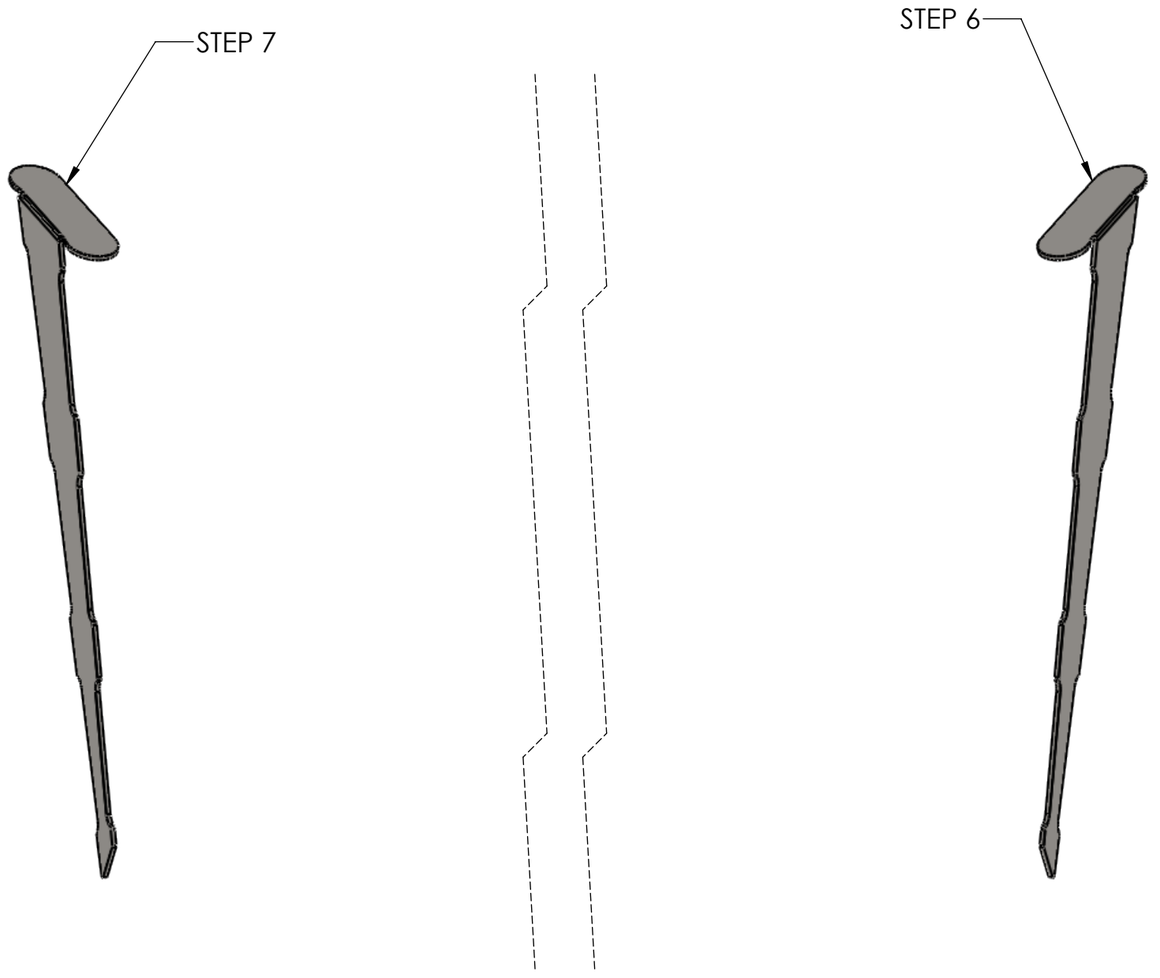
HCR DIY ASSEMBLY

STEP 7 - BASE BUMPER

COMPONENTS NEEDED:

- TUBE END FILLER PLATE
- TUBE SIDE FILLER PLATE

- Repeat process from last step to make a mirrored sub assembly.



ASCEND FABRICATIONS

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DESCRIPTION:

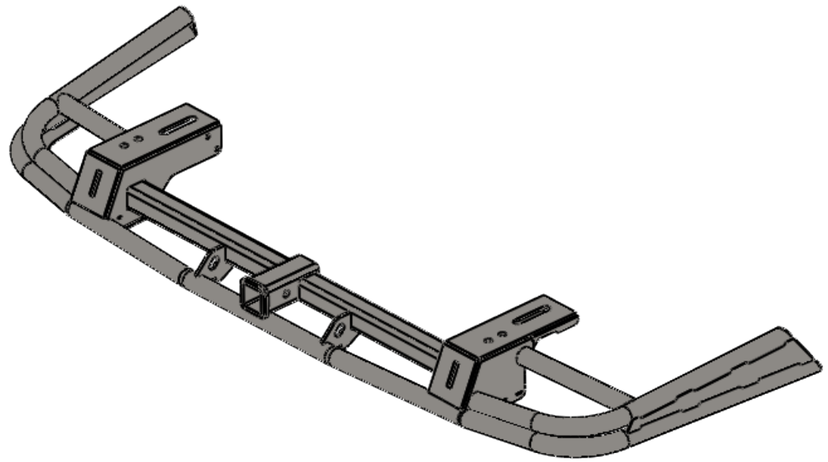
HCR DIY ASSEMBLY

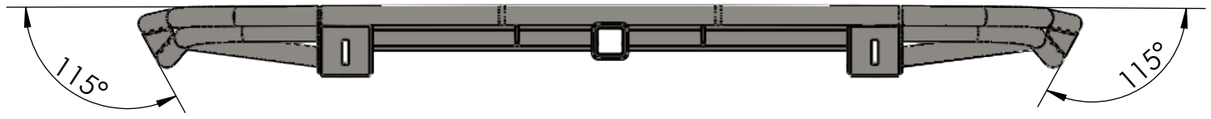
STEP 8 - BASE BUMPER

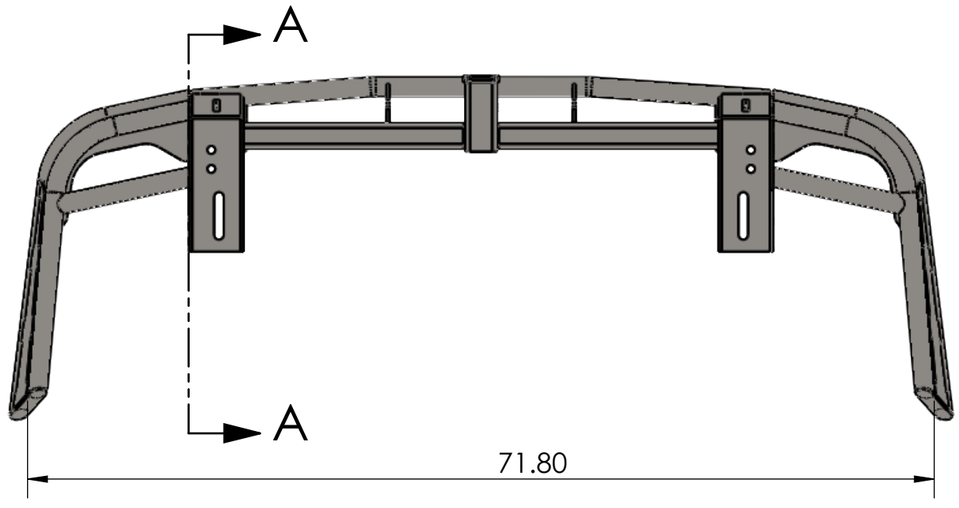
COMPONENTS NEEDED:

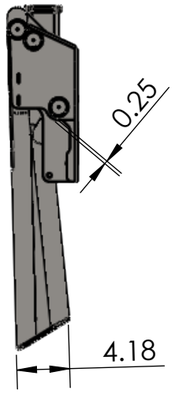
- SUB ASSEMBLIES FROM PREVIOUS STEP
- DRIVER LOWER WING TUBE
- PASSENGER LOWER WING TUBE
- DRIVER WING SUPPORT TUBE
- PASSENGER WING SUPPORT TUBE

- Set up on flat surface (weld table).
- Flip the sub assembly back upside down so the top filler plates are now on the bottom.
- Align components as shown.
  - Put the assemblies from the previous steps and the lower wing tubes on either side of the assembly. The outer edges of the tube end caps should align with the inner diameter of the tubes.
  - Add in the wing support tubes to help align everything correctly.
  - The end sections of the lower wing tubes towards the inside of the bumper should be tangent and parallel to the inner section of the upper wing tubes.
  - Insert the tabs on the ends of the lower wing tubes into the slots on the outer frame plates
- Check dimensions and clamp components down.
- Tack weld everything in place.









SECTION A-A

ASCEND FABRICATIONS

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DESCRIPTION:

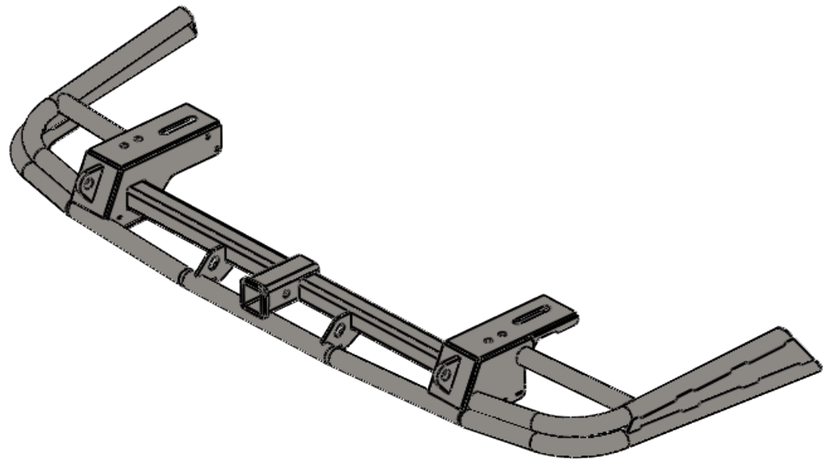
HCR DIY ASSEMBLY

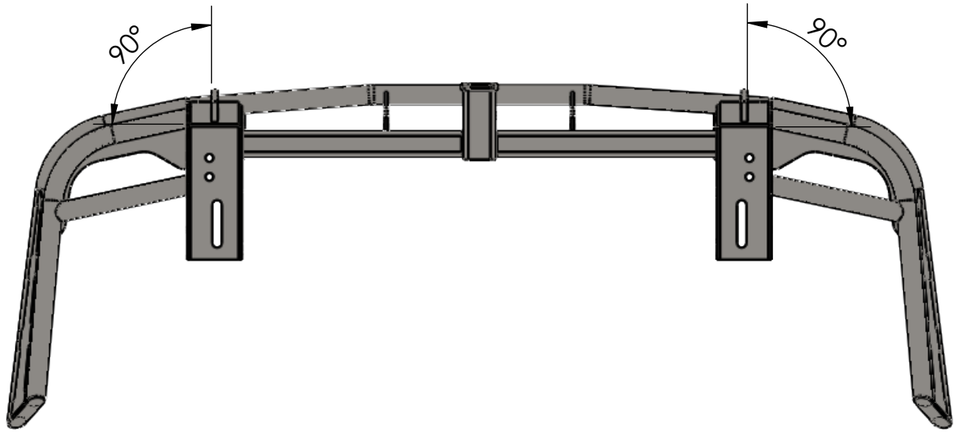
STEP 9 - BASE BUMPER

COMPONENTS NEEDED:

- ASSEMBLY FROM PREVIOUS STEP
- SHACKLE MOUNTS

- Insert the tab on the back of the shackle mounts into the openings on the front of the bumper.
- Tack weld everything in place.





ASCEND FABRICATIONS

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DESCRIPTION:

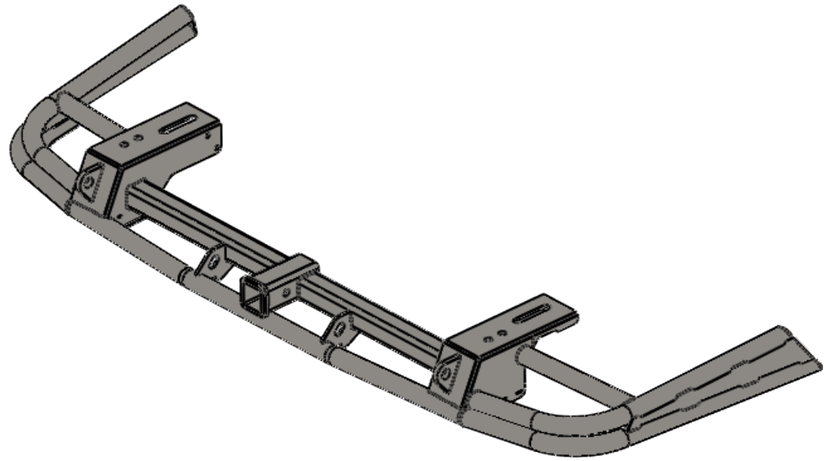
HCR DIY ASSEMBLY

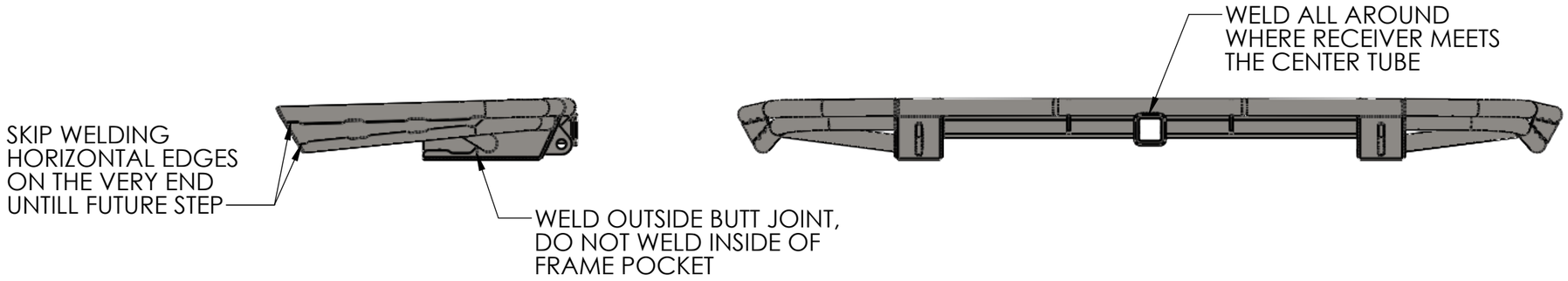
STEP 10 - BASE BUMPER

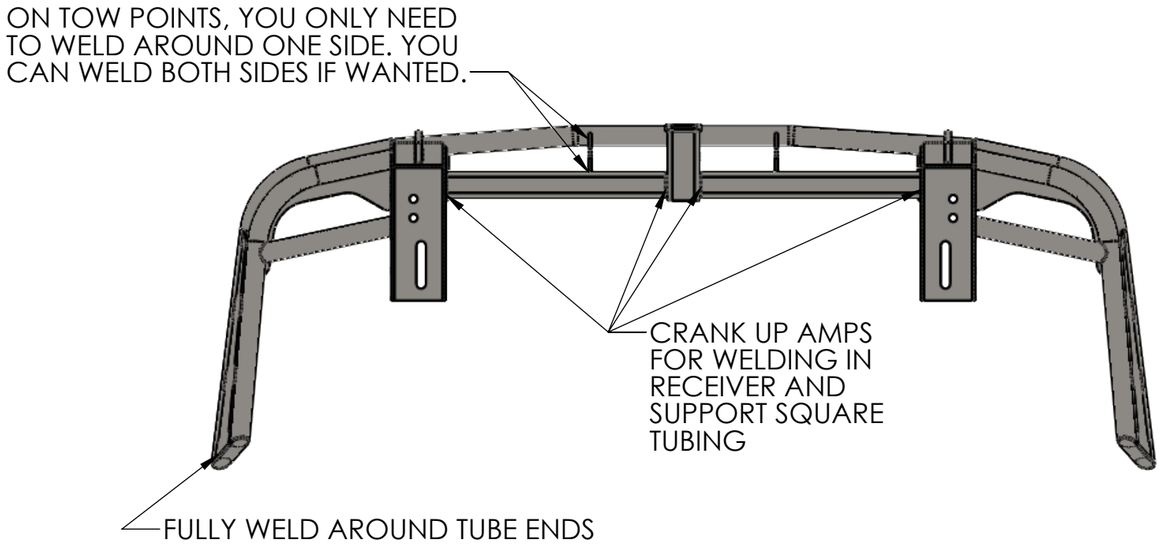
COMPONENTS NEEDED:

- ASSEMBLY FROM PREVIOUS STEP

- Set up on flat surface (weld table).
- Flip the sub assembly back upside down so the top filler plates are now on the bottom.
- Clamp assembly down so it doesn't shift while welding for the entirety of this step.
- Fully weld as many accessable seams as shown.







ASCEND FABRICATIONS

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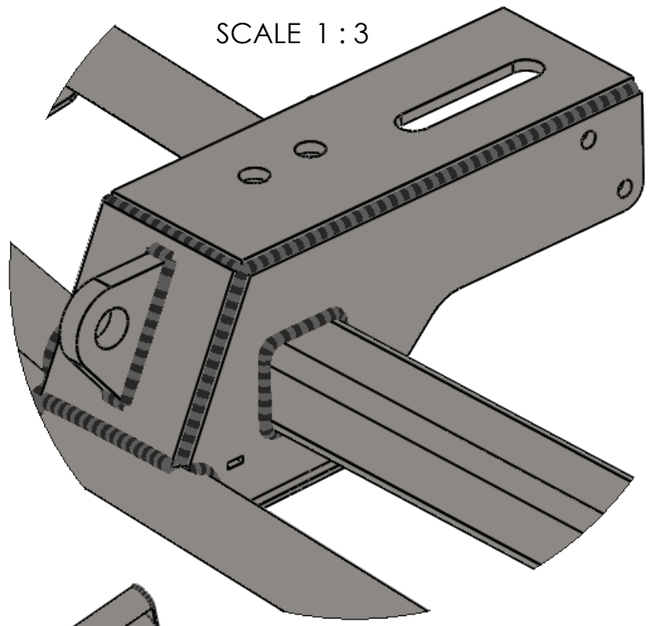
DESCRIPTION:

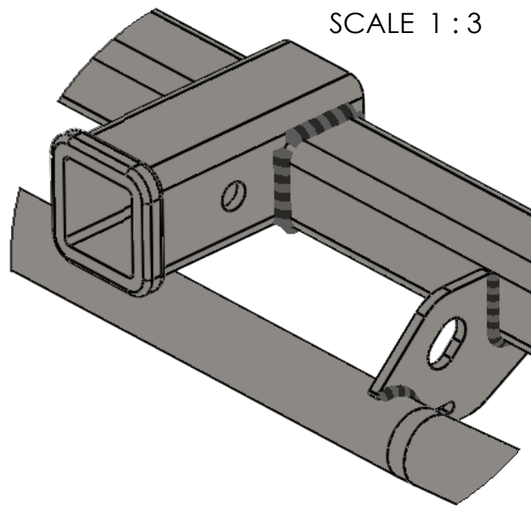
HCR DIY ASSEMBLY

STEP 10 - CONTINUED - BASE BUMPER

DETAIL A
SCALE 1 : 3



DETAIL B
SCALE 1 : 3



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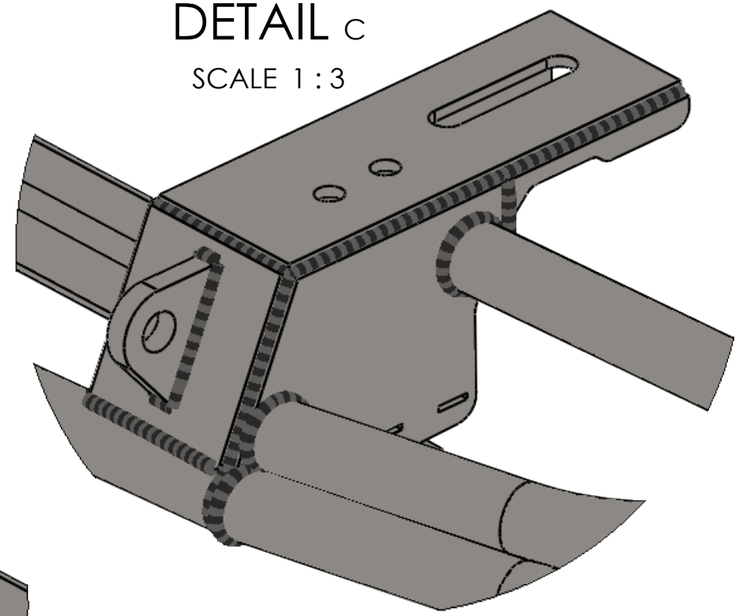

DETAIL D
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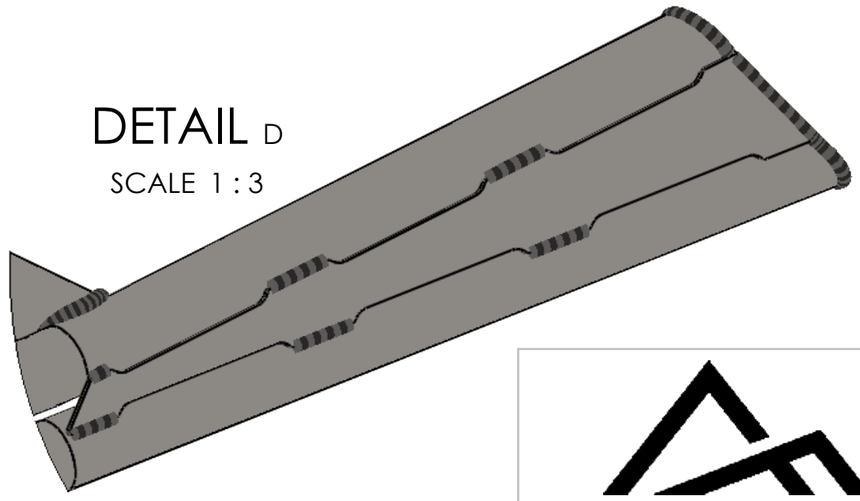
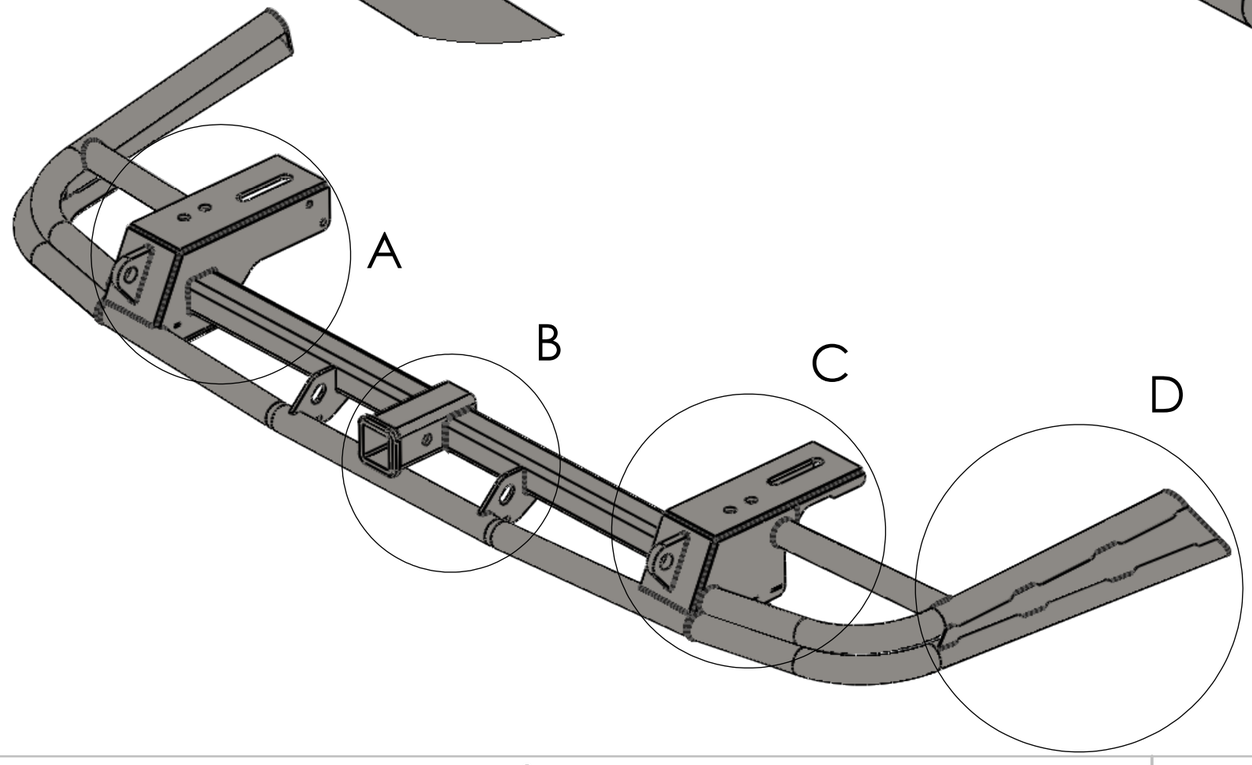




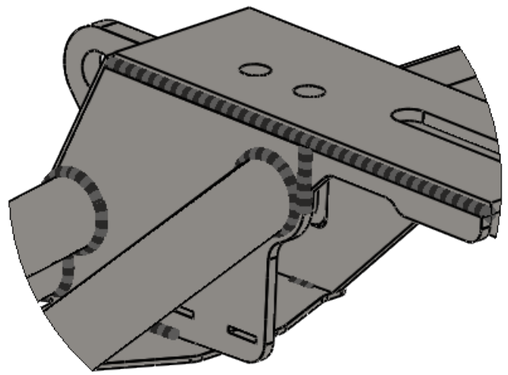
ASCEND FABRICATIONS

ASCENDFABRICATIONS.COM

DESCRIPTION:
HCR DIY ASSEMBLY

STEP 10 - CONTINUED - BASE BUMPER

DETAIL B
SCALE 1 : 3



DETAIL C
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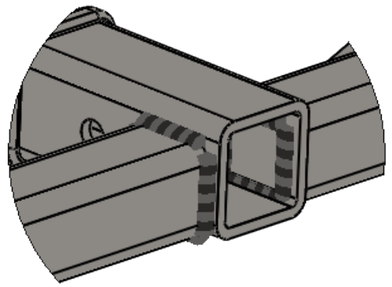
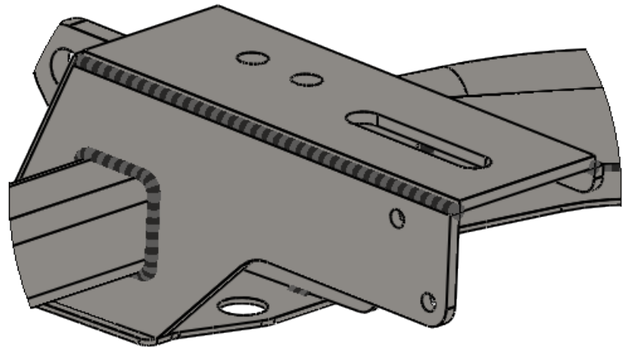


DETAIL D
SCALE 1 : 3



DETAIL A
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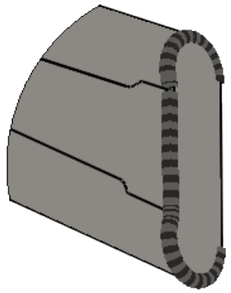
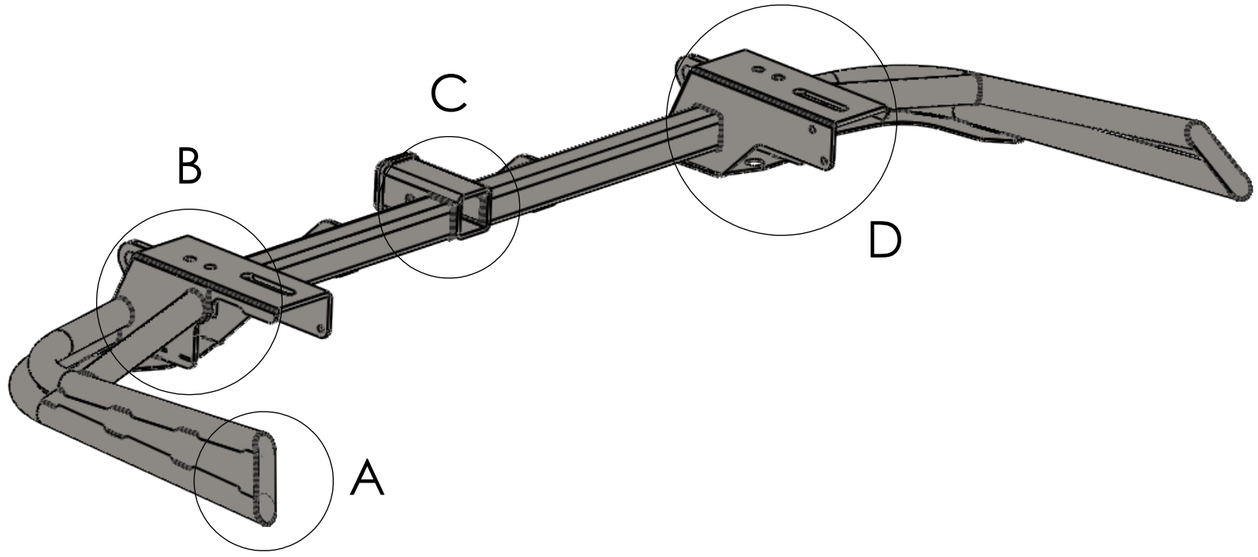




ASCEND FABRICATIONS

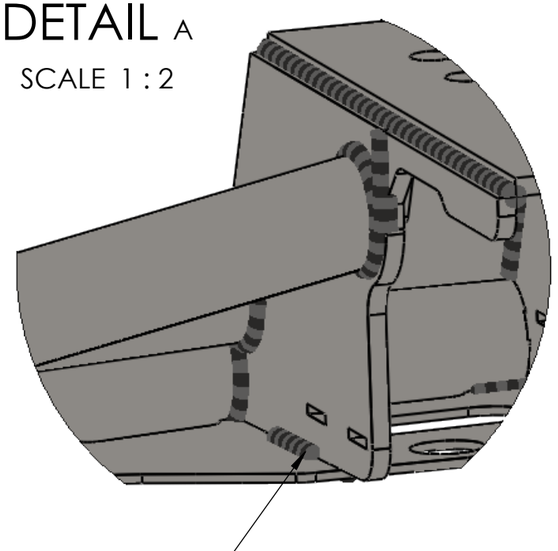
ASCENDFABRICATIONS.COM

DESCRIPTION:
HCR DIY ASSEMBLY

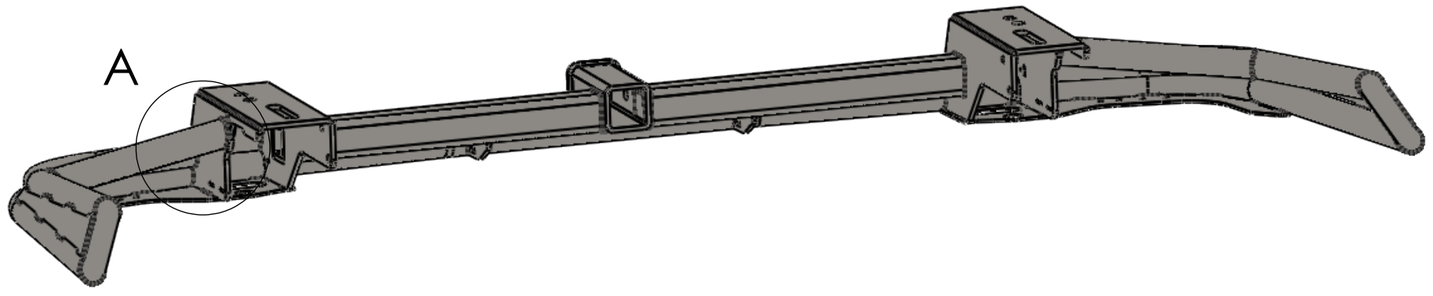
STEP 10 - CONTINUED - BASE BUMPER

DETAIL A

SCALE 1 : 2



STITCH/INTERMITENT WELD OUTER SEAM BETWEEN OUTER FRAME PLATE AND TOP FILLER PLATE



ASCEND FABRICATIONS

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DESCRIPTION:

HCR DIY ASSEMBLY

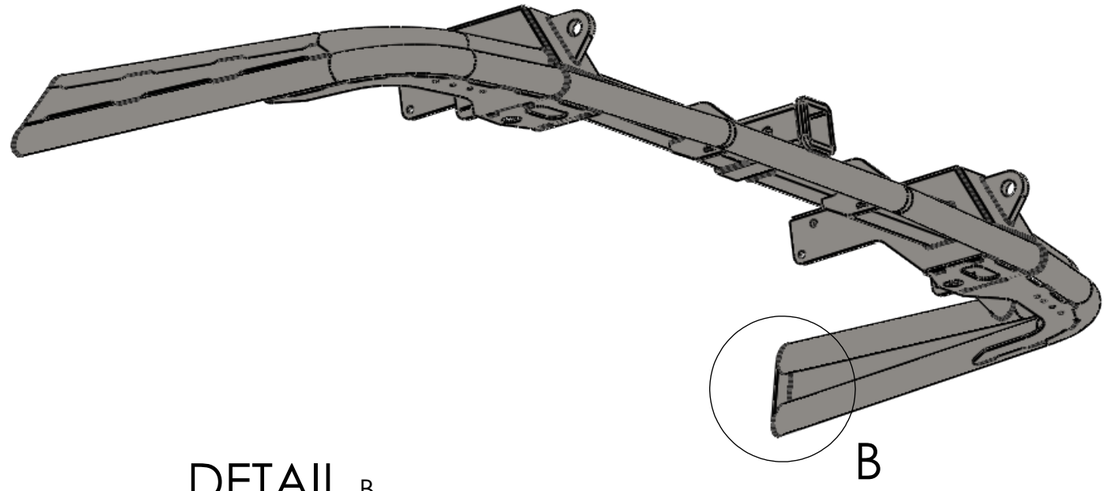
STEP 11 - BASE BUMPER

Welding:

- Unclamp bumper from weld table and reposition.
- Finish fully welding around tube ends.
- Wrap weld around and weld accessable seams inside of pocket.

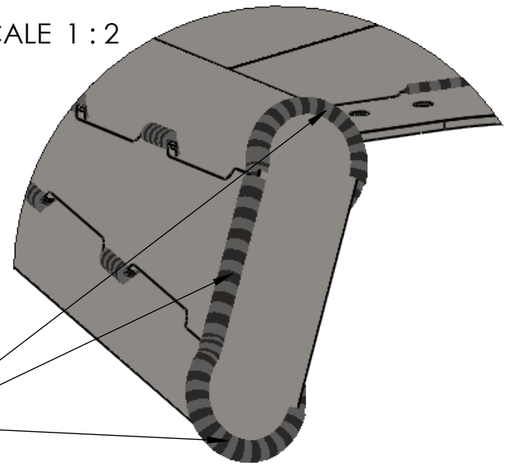
Grinding (Optional)

- After welding, grind the outside welds on the ends of the tubing smooth and to a radius.



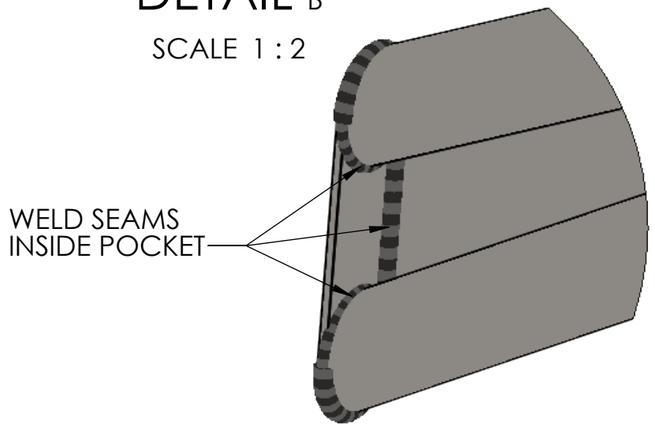
DETAIL A

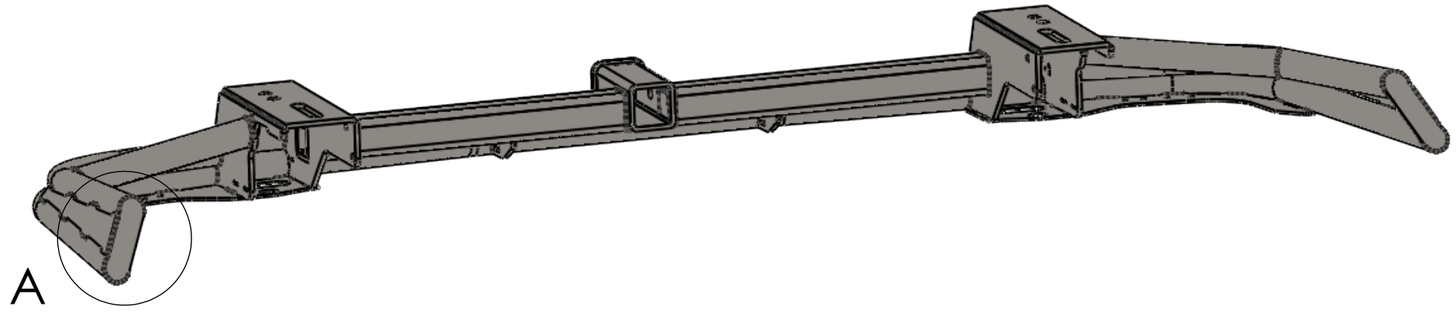
SCALE 1 : 2



DETAIL B

SCALE 1 : 2





ASCEND FABRICATIONS

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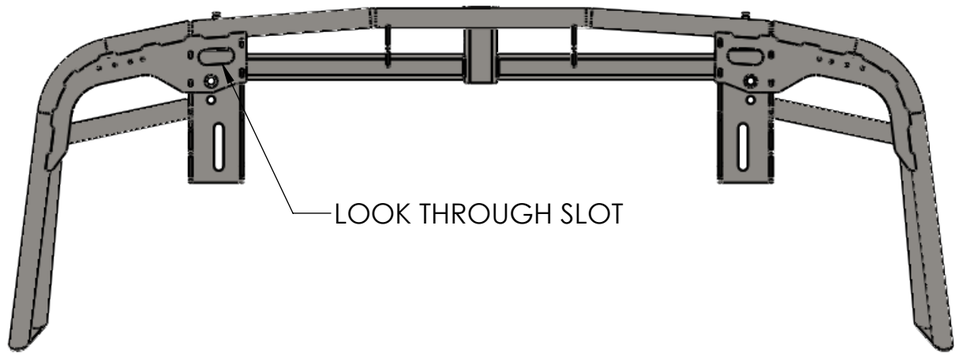
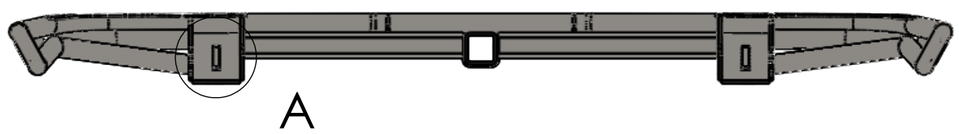
DESCRIPTION:

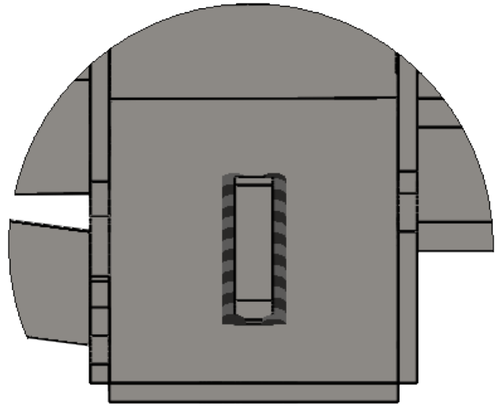
HCR DIY ASSEMBLY

STEP 12 - BASE BUMPER

- Weld the sides of the tab on the back of the shackle mounts on the inside of the frame rail pockets.
  - Easiest way is to have the bumper right side up and stick the mig gun into the pocket while looking through the large slot on the top filler plate to watch the weld.







DETAIL A

SCALE 1 : 2

ASCEND FABRICATIONS

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DESCRIPTION:

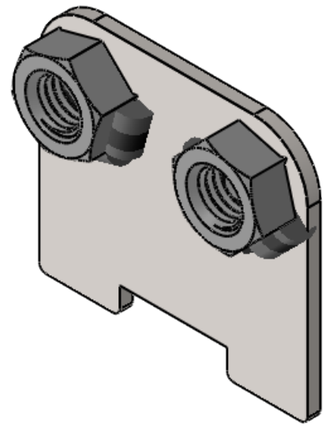
HCR DIY ASSEMBLY

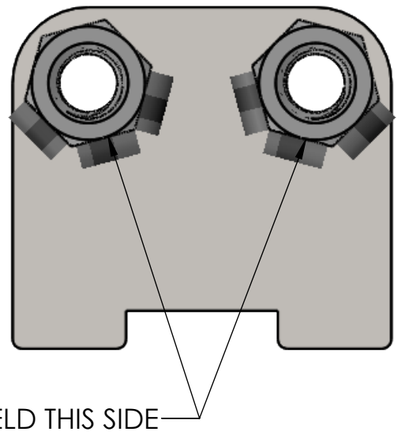
STEP 13 - BASE BUMPER

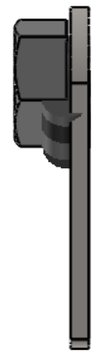
COMPONENTS NEEDED:

- M12 WELD NUTS
- TOP FRAME NUT PLATE

- Insert the cylinder on the bottom of the weld nuts into the holes on the nut plates.
- Clamp the nut to the plate.
- Weld the nuts to the plate.
  - Be careful not to get any weld splatter on the threads.
  - You don't need to weld all the way around. Welding 1/3 to 1/2 way around is more than enough. If you partially weld it, possition the weld so it is towards the tabbed edge of the nut plate.
- Make two of these sub assemblies.







ASCEND FABRICATIONS

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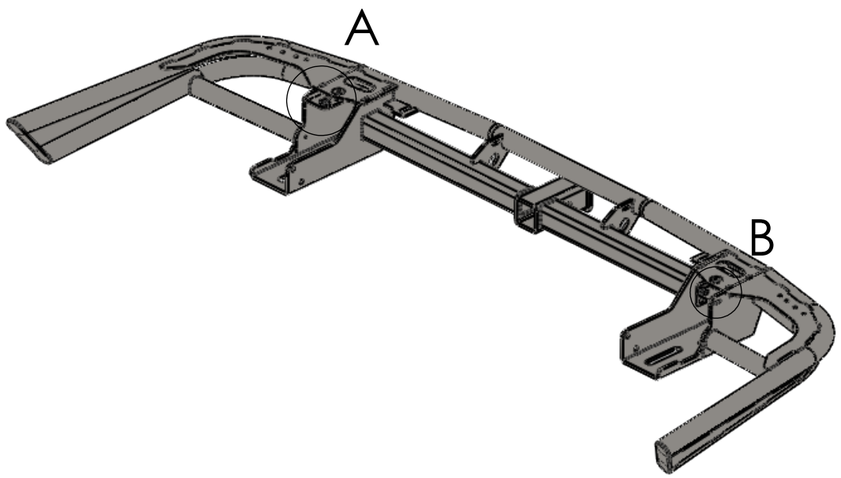
DESCRIPTION:

HCR DIY ASSEMBLY

STEP 14 - BASE BUMPER

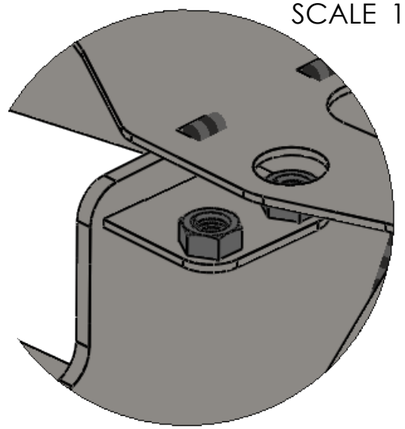
COMPONENTS NEEDED:
- ASSEMBLIES FROM PREVIOUS STEP

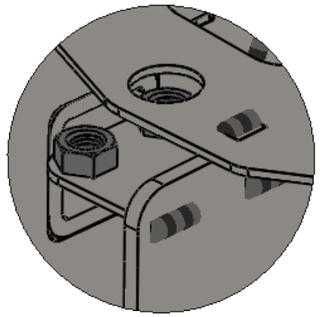
- Insert the nut plate assemblies into the frame pockets on the bumper.
- The tabs on the nut plates go into the slots on the outer frame plates.
- Make sure the nuts are facing upward towards the top filler plate.
- First tack, then completely weld over the tabs on the outside of the outer frame plates.
  - Do not weld any other part of the nut plate to the outer frame plates other than what is instructed. These plates are designed to flex and sandwich the frame rails when tightened.
  - Be careful to not get any weld splatter on the threads of the weldnuts.



DETAIL A

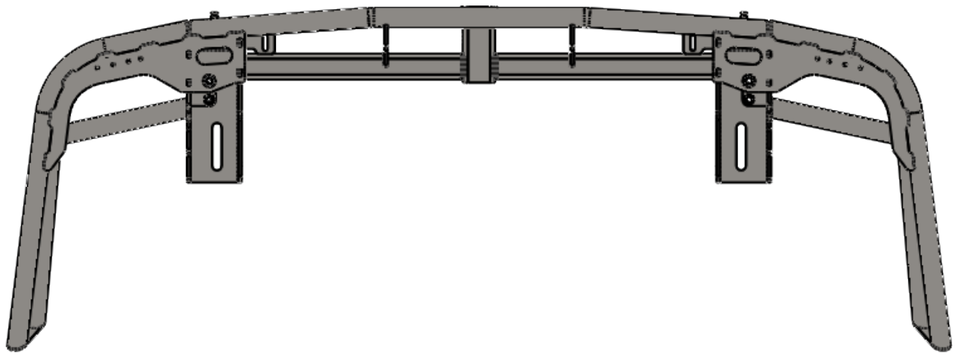
SCALE 1 : 2

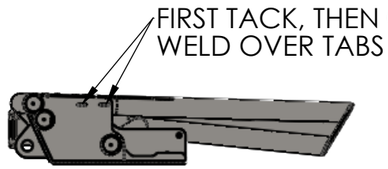




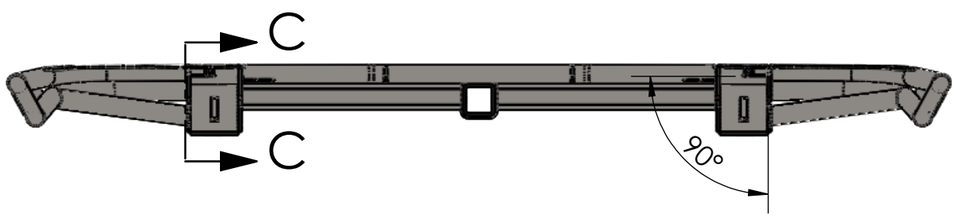
DETAIL B

SCALE 1 : 2





SECTION C-C



ASCEND FABRICATIONS

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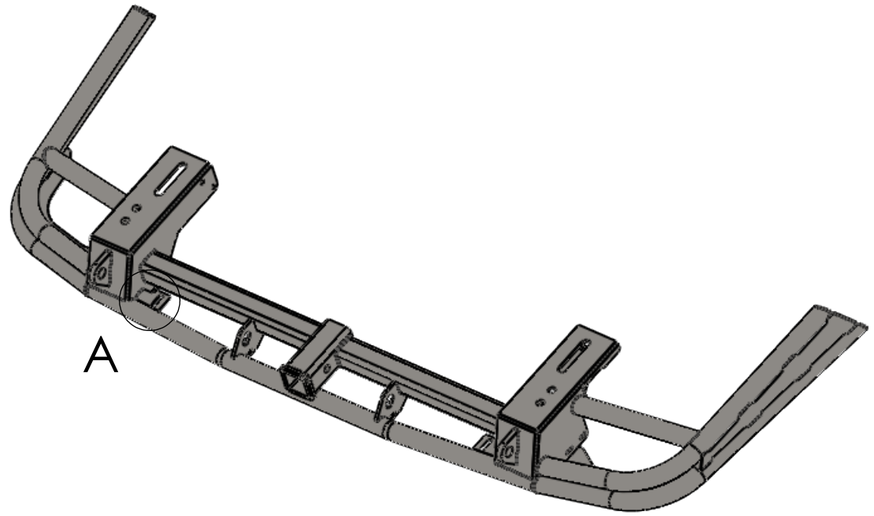
DESCRIPTION:

HCR DIY ASSEMBLY

STEP 15 - BASE BUMPER

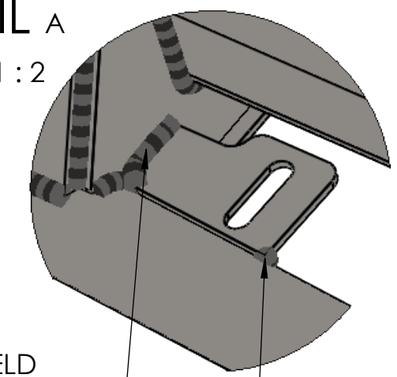
COMPONENTS NEEDED:
- LIGHTPOD MOUNTING PLATES

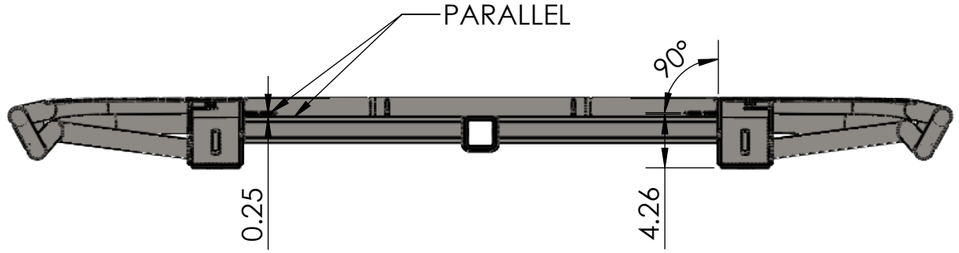
- Align the parts as shown.
  - The tabs on the ends of the lighpod plates fit into the slots on sides of the inner frame mount plates.
  - The front edge of the lightpod plates touches the center round tube.
  - Lightpod plates are parallel with receiver support square tubing.
  - Can use piece of 1/4" material as a spacer and set on top of square tubing and then set the lightpod plates ontop of spacer.
- Tack into place then weld.

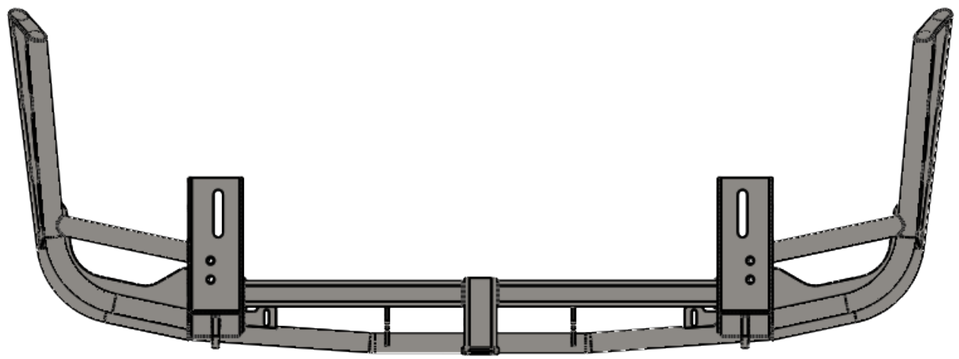


DETAIL A

SCALE 1 : 2







ASCEND FABRICATIONS

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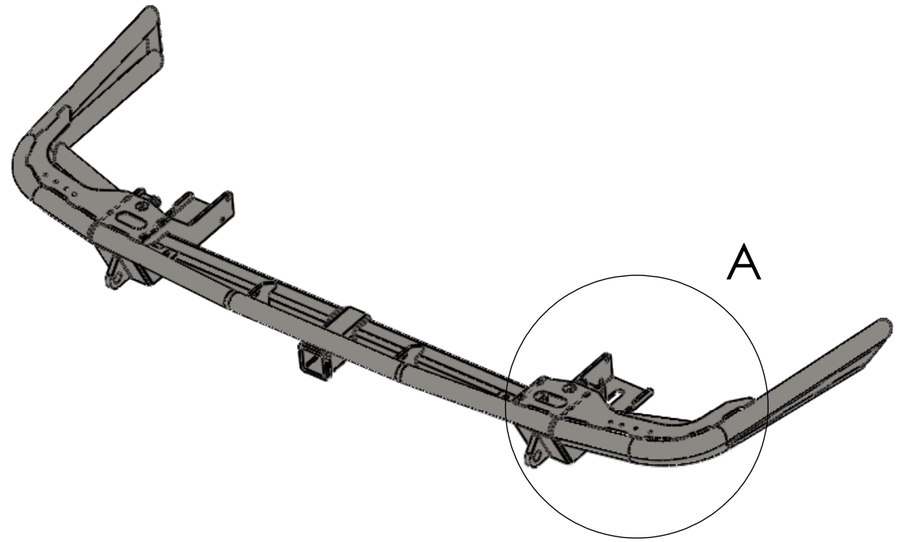
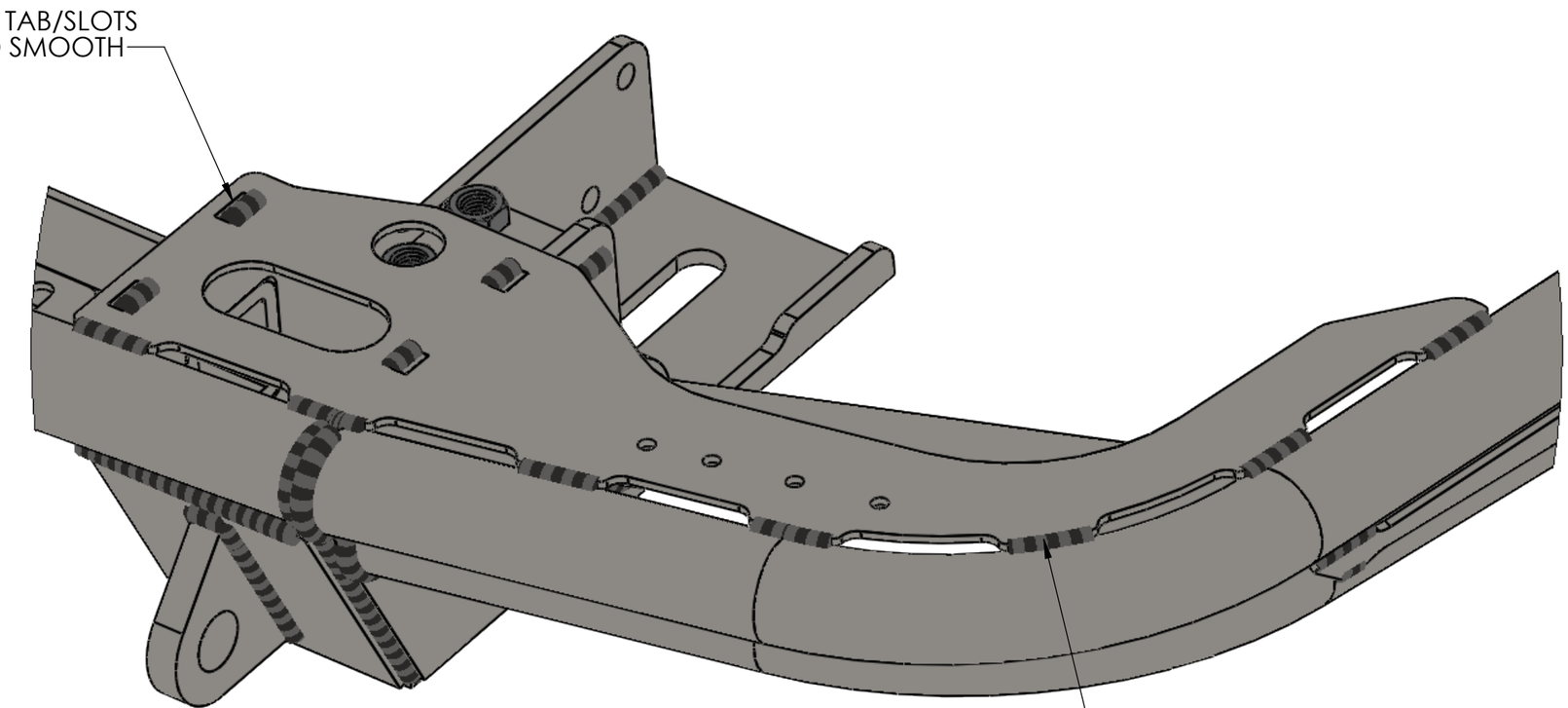
DESCRIPTION:

HCR DIY ASSEMBLY

STEP 16 - BASE BUMPER

- Weld over tab/slots on the surface of the top filler plates and then grind smooth.
- Weld all edges of the top filler plates where they meet the upper wing tubes.
    - Be careful to not get any weld splatter on the threads of the weldnuts.





DETAIL A

SCALE 1 : 2

ASCEND FABRICATIONS

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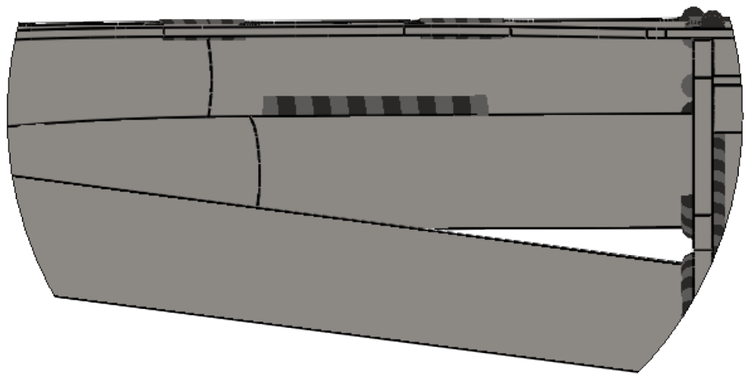
DESCRIPTION:

HCR DIY ASSEMBLY

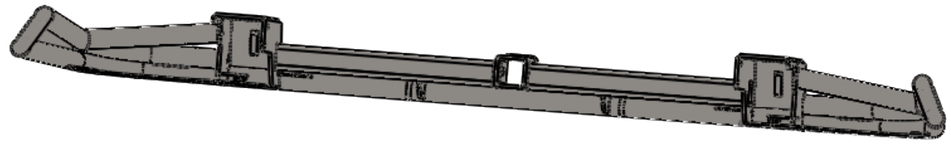
STEP 17 - BASE BUMPER

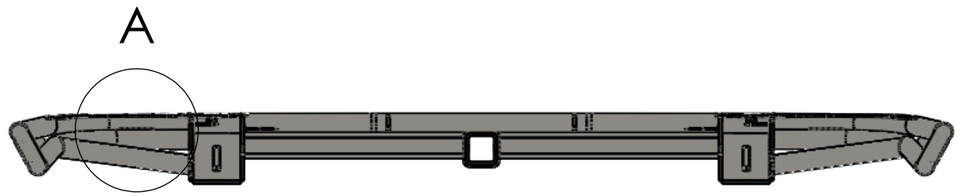
- Weld the valley where the tubes touch on the inside of the bumper wings.
  - This is easiest done by fliping the bumper up and balancing it on the front face of the reciever.
  - Start almost as far as you can towards the outter wing of the bumper before the tubes start to separate. This weld should be 3-4 inches long.



DETAIL A

SCALE 1 : 2





ASCEND FABRICATIONS

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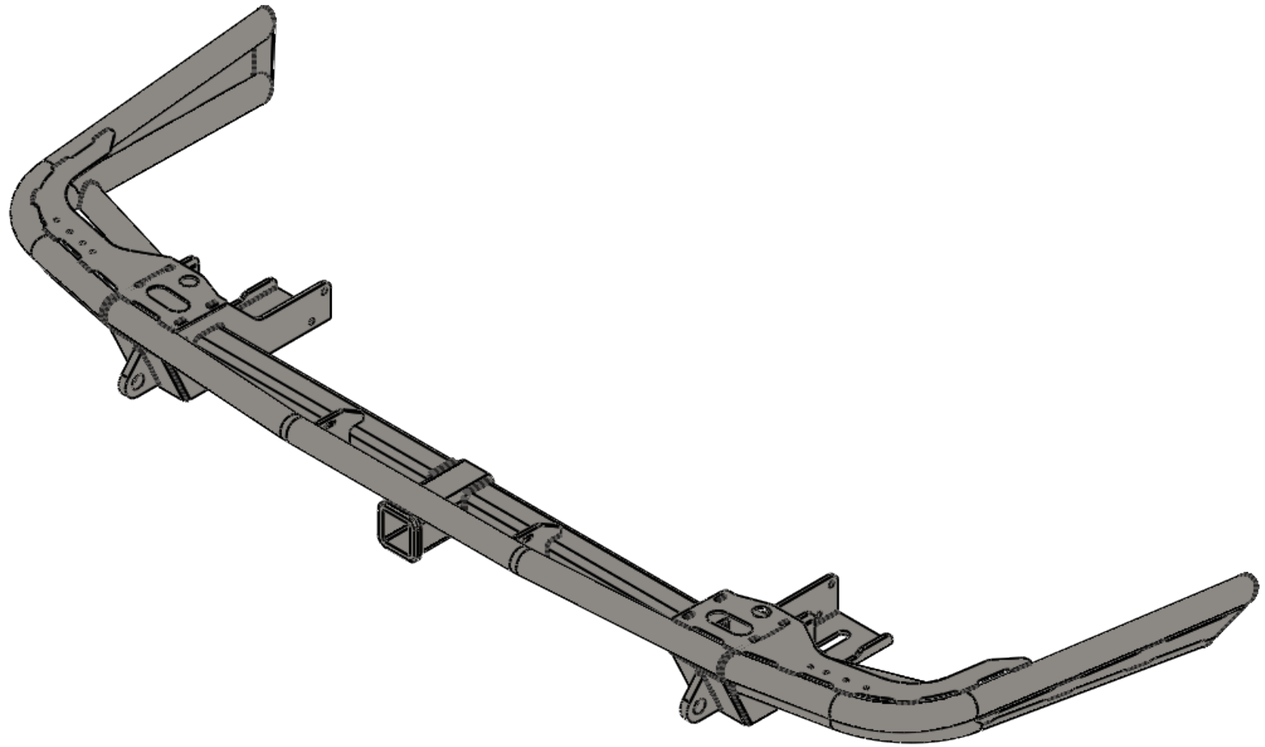
DESCRIPTION:

HCR DIY ASSEMBLY

- If running a swingout, continue to next step.
- If you ordered just the base bumper, you are done welding and can cleanup and prep for paint.



ASCEND FABRICATIONS

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DESCRIPTION:

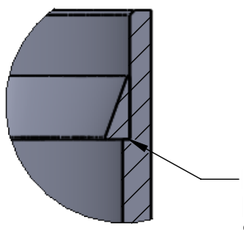
HCR DIY ASSEMBLY

STEP 18 - SWINGOUT

COMPONENTS NEEDED:

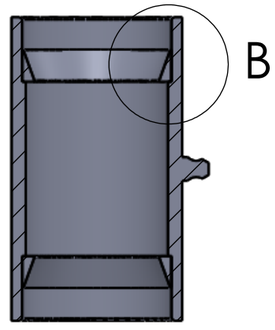
- SPINDLE ASSEMBLY AND HARDWARE
  - DOM SLEEVE
  - SPINDLE
  - RACES
  - BEARINGS

- DO NOT APPLY GREASE UNTIL YOU ARE DONE WELDING AT A LATER STEP.
- Press the races into the DOM sleeve as shown.
  - They should be tapered inward so the flat base on the races hits the step on the inner diameter of the sleeve.
  - Align the races over the sleeve and tap in with a rubber mallet.
  - Once the race is in the sleeve, take one of the bearings and set it in the race. Then take the spindle and flip it upside down and insert it into the bearing. Hit the bottom of the spindle with the mallet to fully seat the race.
  - Repeat on other side of sleeve.



DETAIL B

SCALE 1 : 1



SECTION A-A

ASCEND FABRICATIONS

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DESCRIPTION:

HCR DIY ASSEMBLY

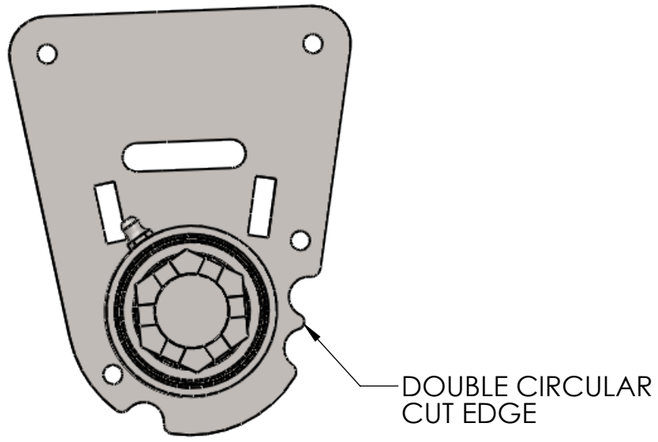
STEP 19 - SWINGOUT

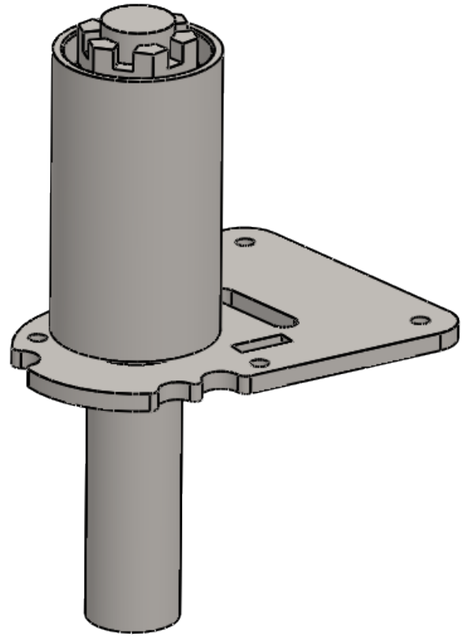
*****DETERMINE WHAT DIRECTION YOU WANT THE SWINOUT TO OPEN, TO THE LEFT/DRIVER SIDE OR TO THE RIGHT/PASSENGER SIDE. ALL FOLLOWING STEPS ARE BEING BUILT TO OPEN TO THE RIGHT/PASSENGER SIDE. IF YOU ARE BUILDING TO OPEN TO THE LEFT, ASSEMBLE THE PARTS SO THEY ARE MIRRORED/OPPOSITE TO WHATS SHOWN IN THE FOLLOWING STEPS.*****

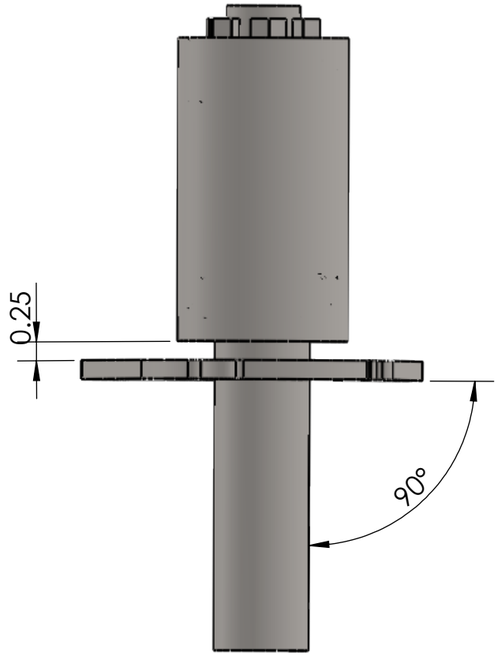
COMPONENTS NEEDED:

- SPINDLE ASSEMBLY AND HARDWARE
  - DOM SLEEVE WITH RACES
  - SPINDLE
  - BEARINGS
  - CASTLE NUT
- SPINDLE TOP MOUNT PLATE
- SPINDLE VERTICAL SUPPORT PLATES
- SPINDLE BOTTOM PLATE

- Assemble the spindle and sleeve with bearings and loosely tighten castle nut.
- Insert the spindle through the hole in the top mount plate.
  - Make sure plate is facing correct dirrection. With the spindle assembly in it and the larger part of the plate to the back/behind the spindle, the side of the plate with the two circular cuts on the edge should be to the right of the spindle.
    - This is built for right/passenger side swingout. For a swingout built to the left/driver side, flip the plate so the circular cuts are to the left of the spindle.
- Space the bottom of the sleeve off the top of the mount plate by 1/4".
  - You can use some 1/4" parts from a future step to termorarily act as a spacer.
- Check that the base of the spindle is perpendicular (90°) from the bottom surface of the mount plate







ASCEND FABRICATIONS

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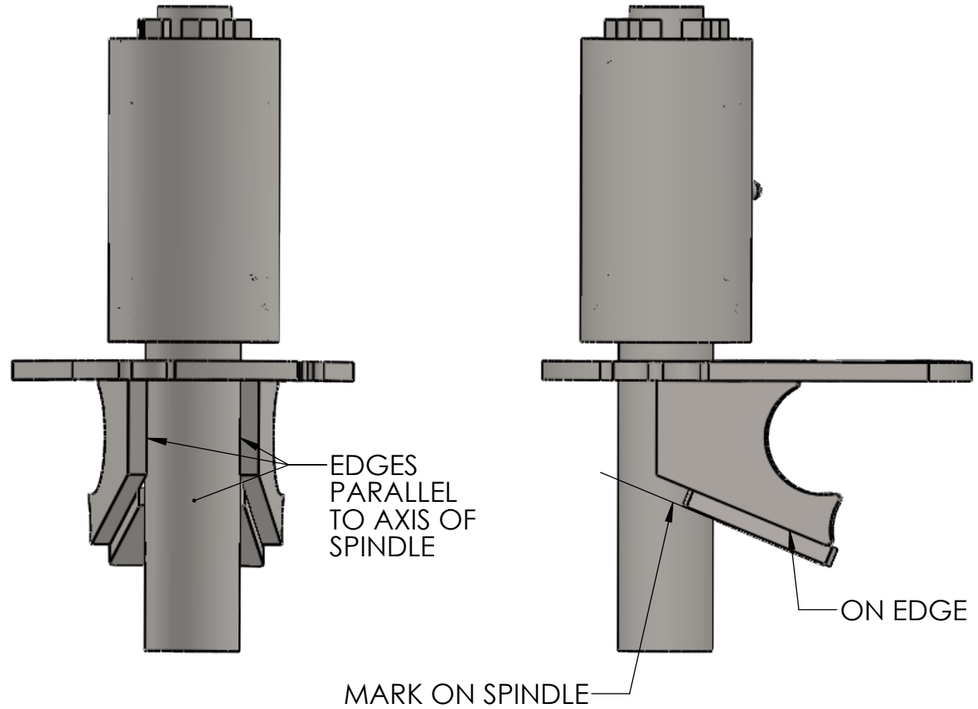
DESCRIPTION:

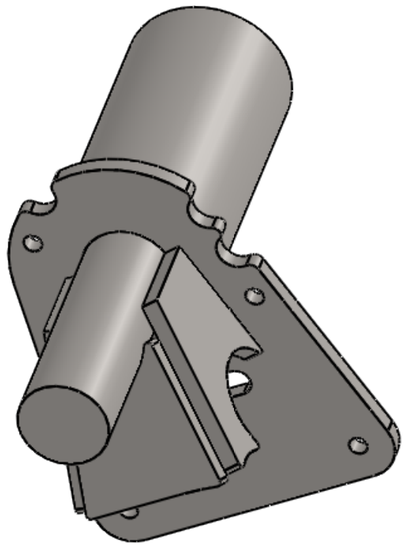
HCR DIY ASSEMBLY

STEP 19 - CONTINUED - SWINGOUT

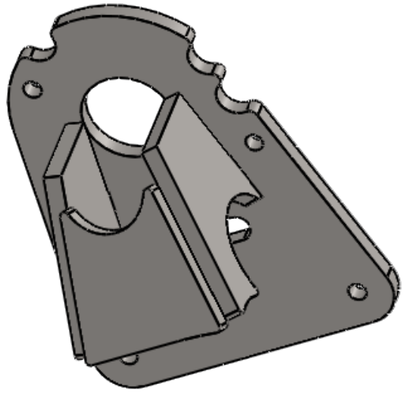
- Take the vertical support plates and insert the tabs on them into the slots on the top mount plate. The inner edges should be touching the spindle and colinear with its axis.
- Tack the verical supports to the top mount plate on the inside of the pocket. DO NOT tack to the spindle.
- Place the bottom support plate so the edges line up with the bottom edges of the vertical supports and the circular cut meets up to the spindle.
  - One of the back corners of the bottom support is dripped slightly. This corner should be on the same side of the assembly as the two circular cuts on the side of the top plate.
- Tack the bottom support to the vertical supports on the inside of the pocket. DO NOT tack to the spindle.
- Take a sharpie and trace all around the spindle where it meets the bottom support plate.
- Remove the spindle from the assembly.
- Using an angle grinder with cut-off wheel, cut the spindle on the marked line.
- Once cut, round over the edges on the bottom of the spindle.
- Reinstall the spindle in the assembly.



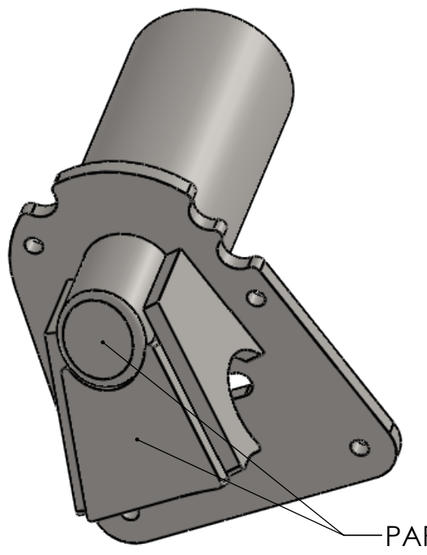
BEFORE SPINDLE GETS CUT

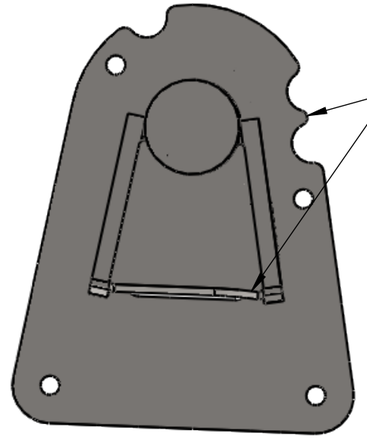


SPINDLE REMOVED



AFTER SPINDLE GETS CUT





ASCEND FABRICATIONS

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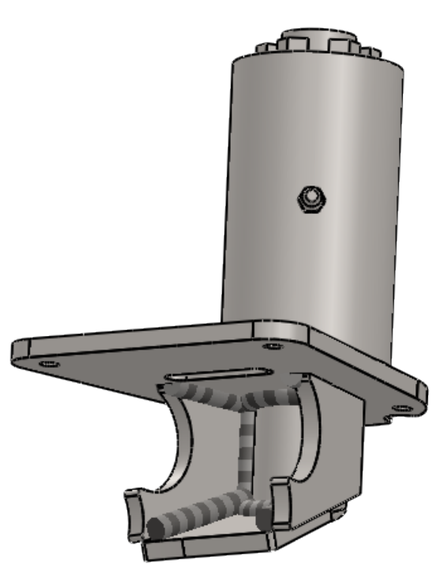
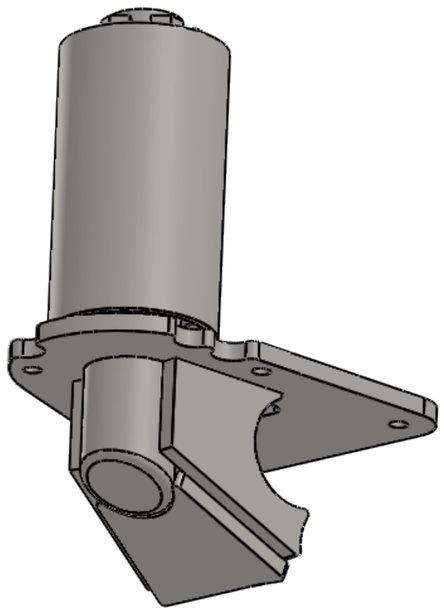
DESCRIPTION:

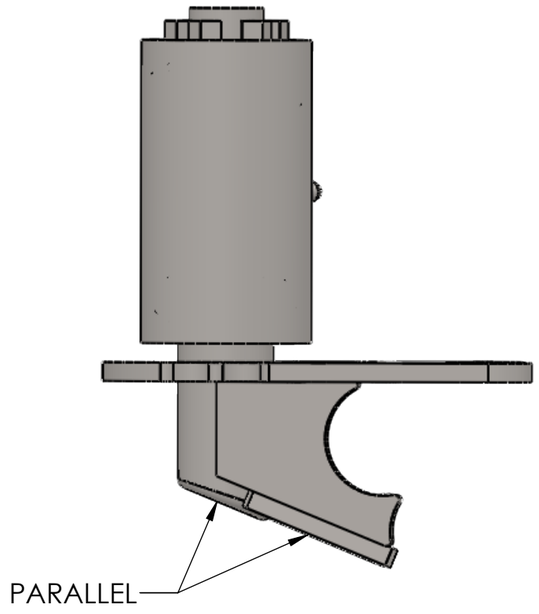
HCR DIY ASSEMBLY

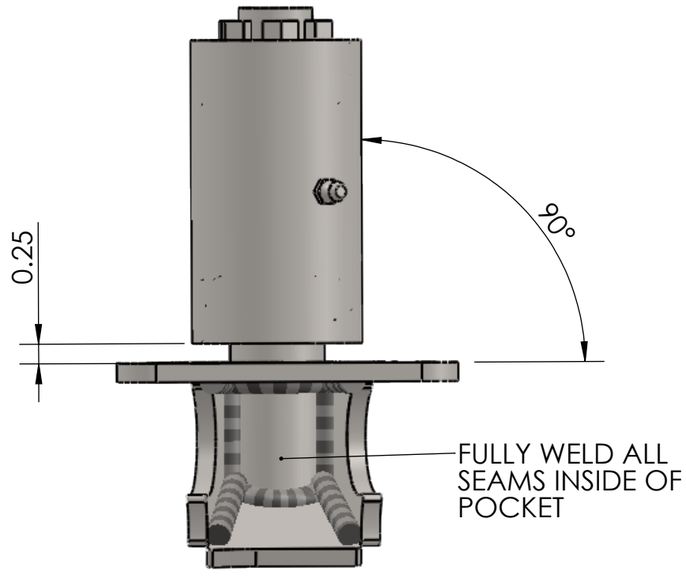
STEP 19 - CONTINUED - SWINGOUT

- Space the bottom of the sleeve off the top of the mount plate by 1/4".
  - You can use some 1/4" parts from a future step to termorarily act as a spacer.
- Rotate the spindle in the assembly so the cut face on the bottom is parallel to the bottom surface of the bottom support plate.
- Check that the sleeve is perpendicular (90˚) to the top surface of the mount plate.
- Tack weld all components together inside the pocket.
- Fully weld all seams inside of pocket as shown.









ASCEND FABRICATIONS

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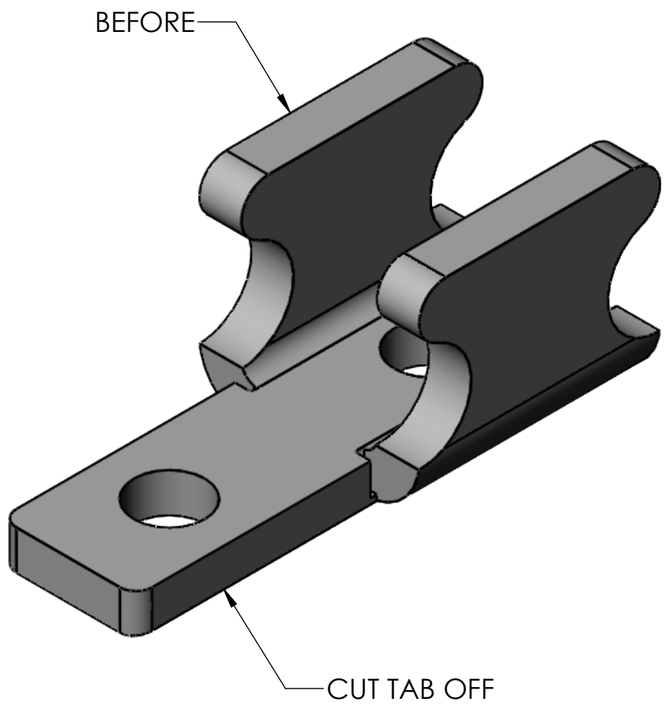
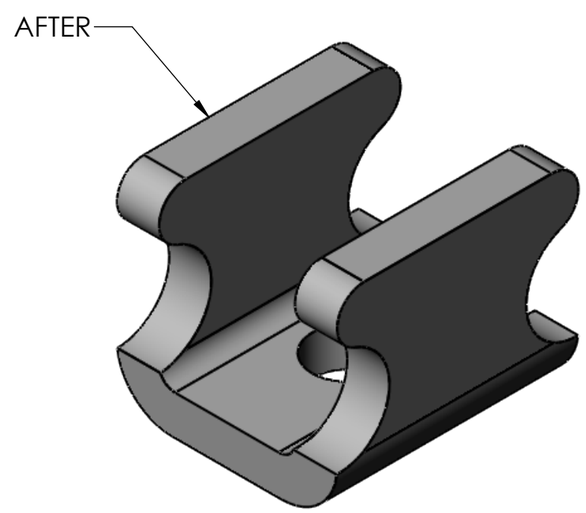
DESCRIPTION:

HCR DIY ASSEMBLY

STEP 20 - SWINGOUT

- Unpackage the latch hardware and remove the latch bracket.
- Cut the tab off the end of the bracket.





ASCEND FABRICATIONS

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DESCRIPTION:

HCR DIY ASSEMBLY

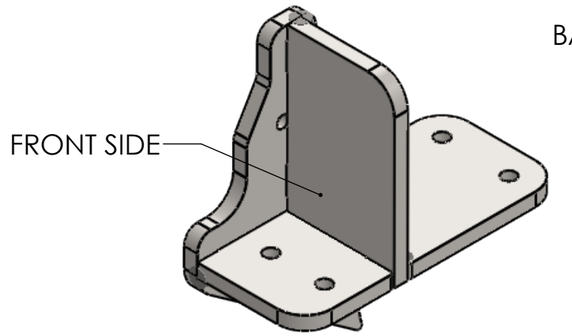
STEP 21 - SWINGOUT

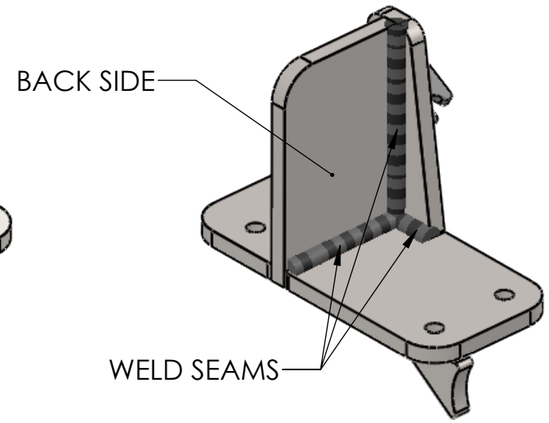
*****DETERMINE WHAT DIRECTION YOU WANT THE SWINOUT TO OPEN, TO THE LEFT/DRIVER SIDE OR TO THE RIGHT/PASSENGER SIDE. ALL FOLLOWING STEPS ARE BEING BUILT TO OPEN TO THE RIGHT/PASSENGER SIDE. IF YOU ARE BUILDING TO OPEN TO THE LEFT, ASSEMBLE THE PARTS SO THEY ARE MIRRORED/OPPOSITE TO WHATS SHOWN IN THE FOLLOWING STEPS.*****

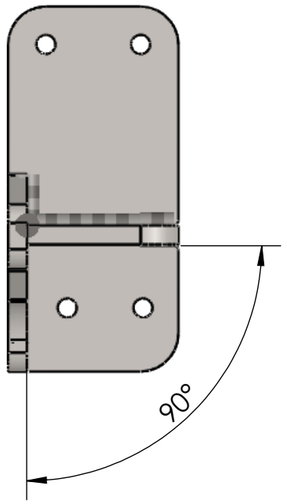
COMPONENTS NEEDED:

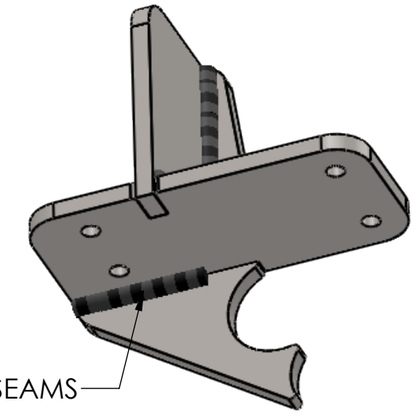
- STRIKER SIDE PLATE
- STRIKER BASE PLATE
- STRIKER BACK PLATE
- MODIFIED LATCH BRACKET FROM PREVIOUS STEP

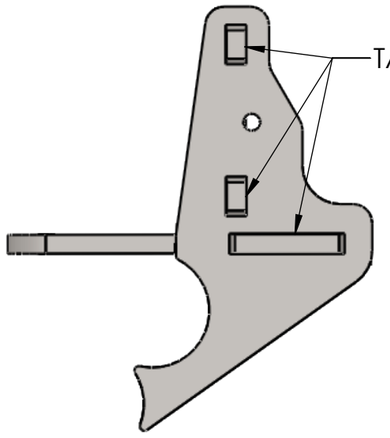
- Align parts as shown below.
  - Use the tabs and slots to fit together.
- Once aligned, clamp the assembly down and check angles.
- Tack weld assembly.
- Fully weld along seams as shown.
  - Only weld on the back side seams.
  - DO NOT weld on any of the front side seams.

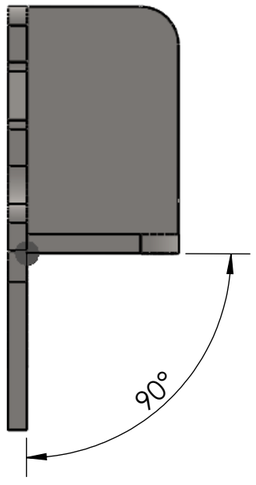


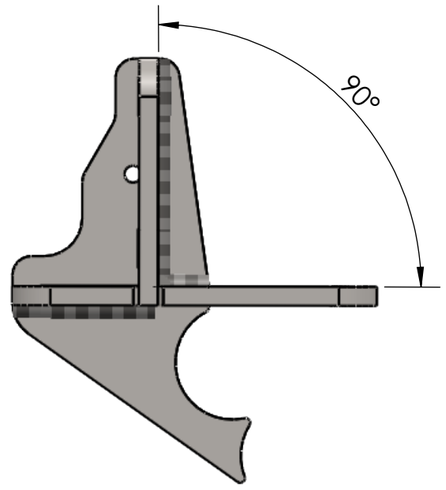












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DESCRIPTION:

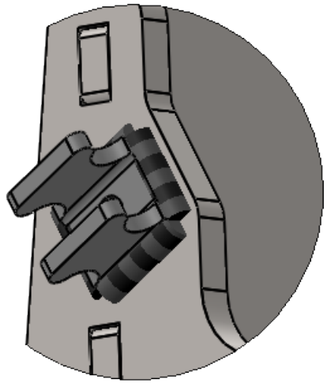
HCR DIY ASSEMBLY

STEP 22 - SWINGOUT

COMPONENTS NEEDED:

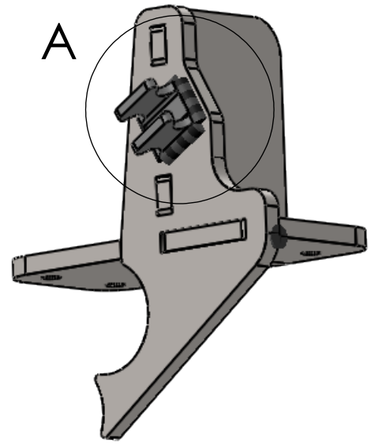
- ASSEMBLY FROM PREVIOUS STEP
- MODIFIED LATCH BRACKET FROM PREVIOUS STEP

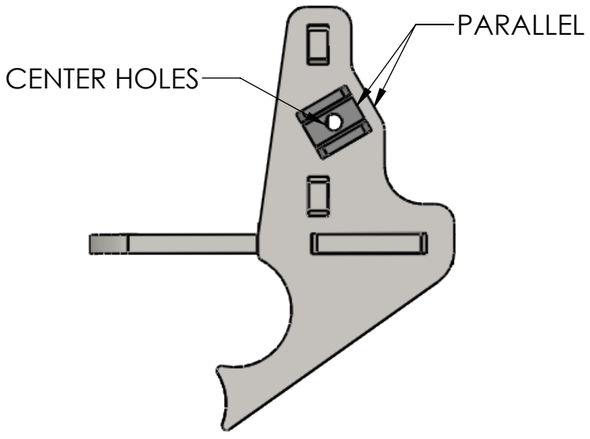
- Align parts as shown below.
  - The hole in the latch bracket should be centered over the hole on the side of the assembly.
  - Either the edge where you cut the tab off or the opposite edge should be parallel to the edge on the assembly.
- Once aligned, clamp the assembly down.
- Tack weld assembly.
- Fully weld along all edges of the latch bracket.

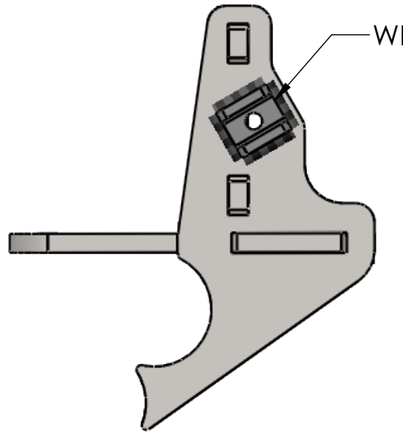


DETAIL A

SCALE 1 : 1







ASCEND FABRICATIONS

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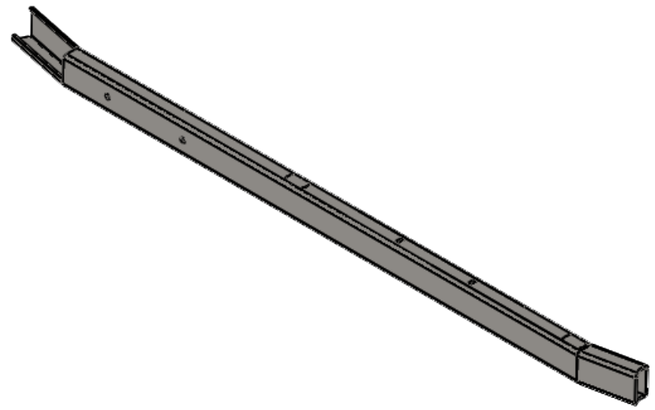
DESCRIPTION:

HCR DIY ASSEMBLY

STEP 23 - SWINGOUT

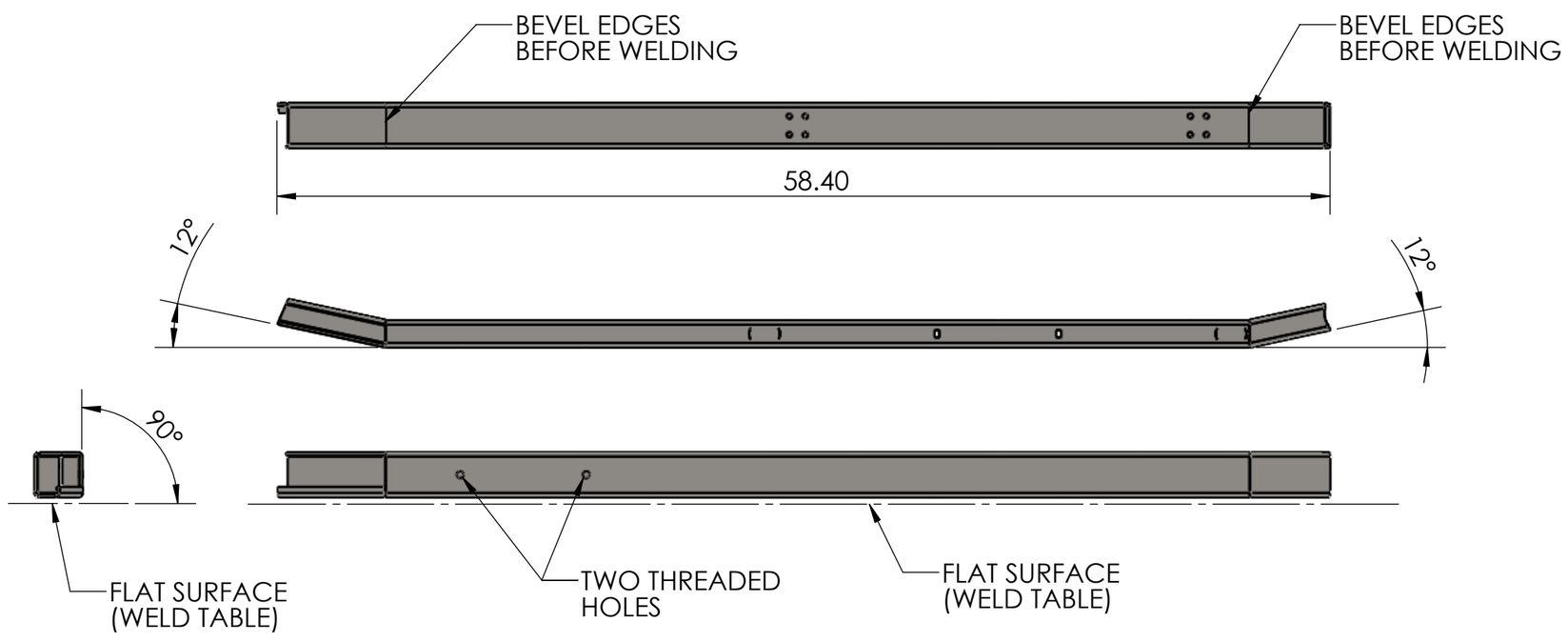


*****DETERMINE WHAT DIRECTION YOU WANT THE SWINOUT TO OPEN, TO THE LEFT/DRIVER SIDE OR TO THE RIGHT/PASSENGER SIDE. ALL FOLLOWING STEPS ARE BEING BUILT TO OPEN TO THE RIGHT/PASSENGER SIDE. IF YOU ARE BUILDING TO OPEN TO THE LEFT, ASSEMBLE THE PARTS SO THEY ARE MIRRORED/OPPOSITE TO WHATS SHOWN IN THE FOLLOWING STEPS.*****

COMPONENTS NEEDED:

- LATCH MOUNT RECT TUBE
- SPINDLE RECT TUBE
- MAIN BEAM RECT TUBE

- Bevel ends of rect tubing that meet up to each other. This will allow for better weld penetration at a later step.
- Align parts as shown below.
  - The latch mount rect tube should be to the left side of the main beam with the two threaded holes. The two holes on the main beam should be facing outward. The spindle rect tube should be on the right side of the main beam.
    - This is built for right/passenger side swingout. For a swingout built to the left/driver side, flip the all components so the latch rect tube and the two holes on the main beam are both on the right and the spindle rect tube is on the left.
- Once aligned, clamp the assembly down to a weld table so the 1-1/2" tube surfaces are parallel to the table. All vertical walls of the tubing should be perpendicular to the flat surface you are welding on.
- The 1-1/2" side of the latch rect tube should be facing downward to the table.
- Check angles and dimensions.
- Tack tubes together.



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DESCRIPTION:

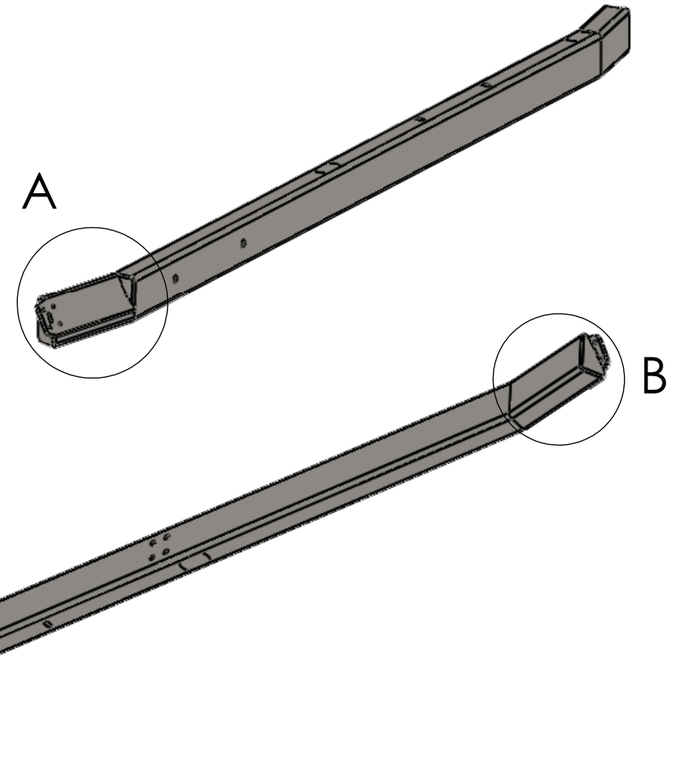
HCR DIY ASSEMBLY

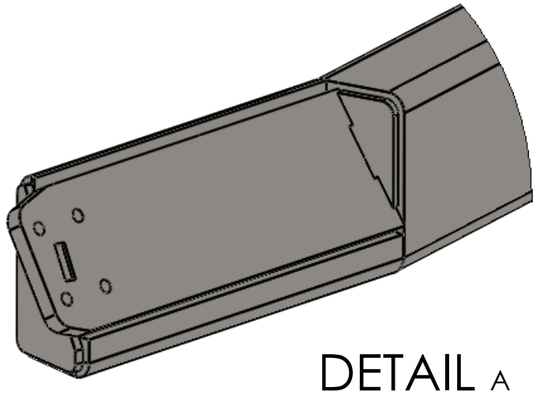
STEP 24 - SWINGOUT

COMPONENTS NEEDED:

- RECT TUBE ASSEMBLY FROM PREVIOUS STEP
- LATCH MOUNT PLATE
- LARGE TUBE END FILLER PLATE
- SMALL TUBE END FILLER PLATE

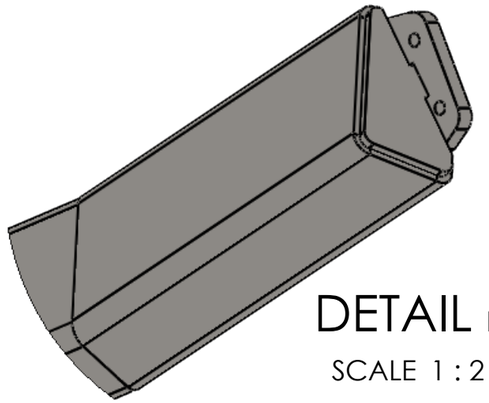
- Align parts as shown below.
  - The latch mount plate should sit into the opening on the latch rect tube and the edges should be colinear.
  - The slot in between the four holes on the latch plate should be parallel with the end of the rect tube.
  - The tab on the small tube end filler plate should fit into the slot on the end of the latch plate towards the main beam.
  - The tab on the large tube end filler plate should fit into the slot on the end of the latch plate towards the end with the threaded holes.
  - Edges on both filler plates should have equal gaps from the outside of the rect tubing.
- Tack everything together.
  - Be careful to not get any weld splatter on the threads of the holes.





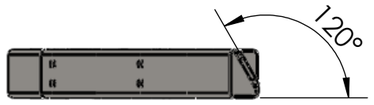
DETAIL A

SCALE 1 : 2



DETAIL B

SCALE 1 : 2



ASCEND FABRICATIONS

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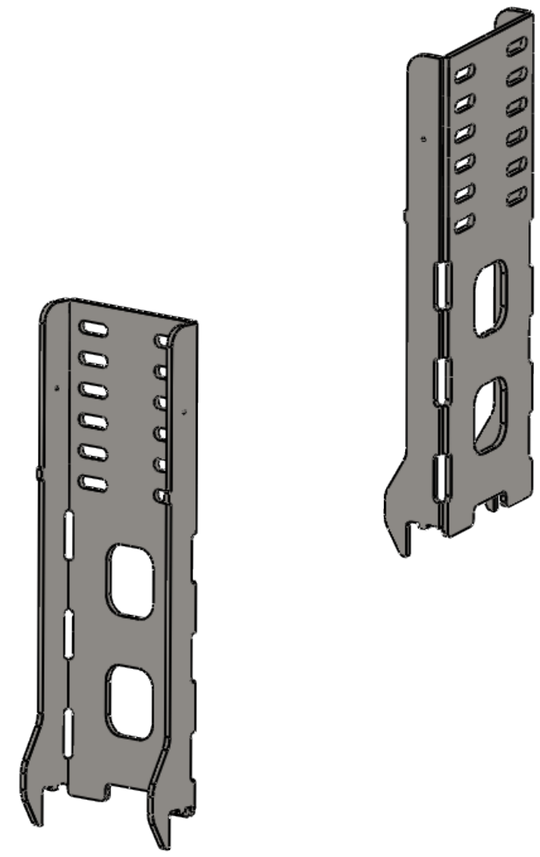
DESCRIPTION:

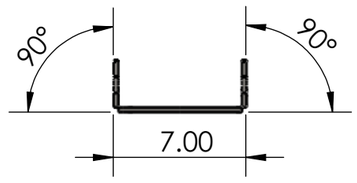
HCR DIY ASSEMBLY

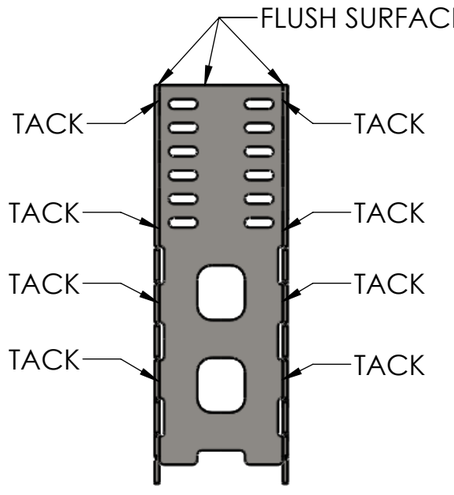
STEP 25 - SWINGOUT

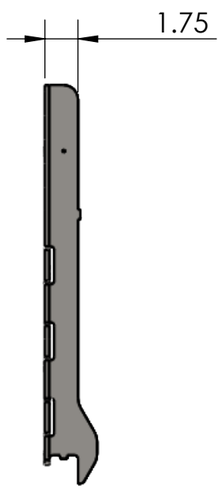
COMPONENTS NEEDED:
- TIRE CARRIER MOUNTING PLATE
- TIRE CARRIER SIDE SUPPORT PLATES

- Align parts as shown.
  - The inside edges of side plates should be colinear with the back edges for the mounting plate.
  - The skinny end of the side plates should be towards the end of the mounting plate with the slot pattern. Those ends should be flush.
  - Clamp the parts so they are perpendicular.
- Tack the edges in the locations shown below.
  - DO NOT tack on the bottom set of tabs.
  - DO NOT fully weld the parts yet.









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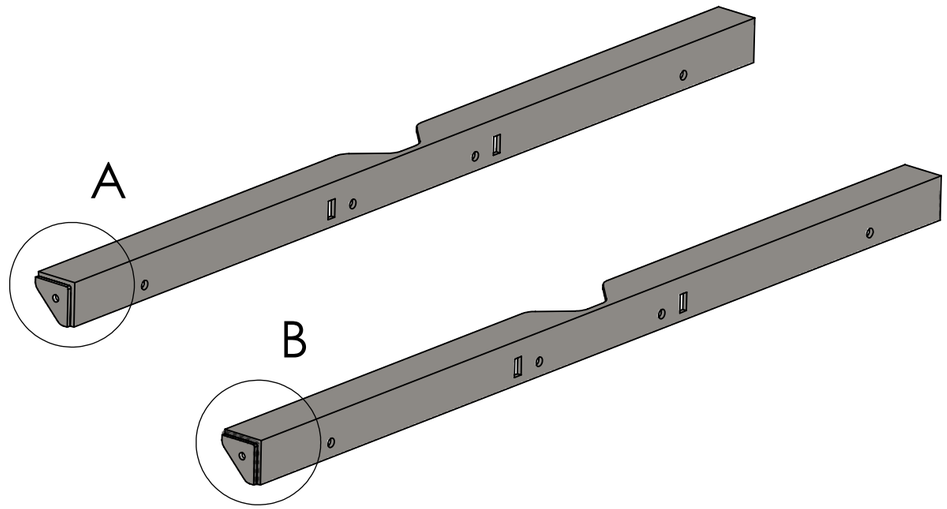
DESCRIPTION:
HCR DIY ASSEMBLY

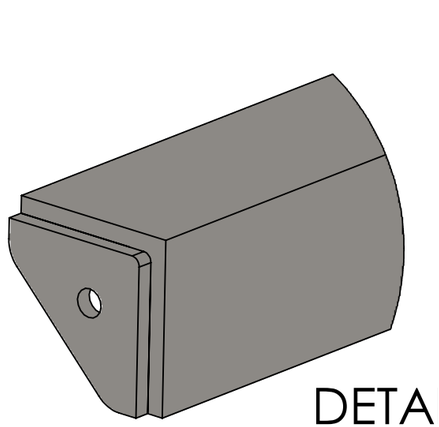
STEP 26 - SWINGOUT

ONLY FOLLOW THIS STEP IF YOU ARE RUNNING A CAMP TABLE ON THE SWINGOUT.
IF YOU ARE NOT, SKIP TO THE NEXT STEP.

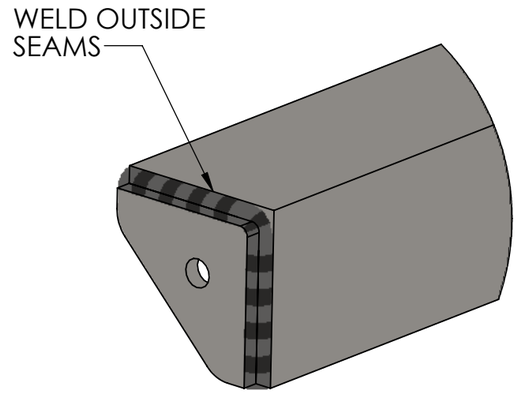
COMPONENTS NEEDED:
- CAMP TABLE ANGLE BRACKET
- LANYARD MOUNT PLATES

- Align parts as shown.
  - The lanyard mounting plates should line up to the ends of the angle bracket.
  - The edges of the plates should be colinear with the inside surfaces the angle bracket.
- Tack the mounting plates and then fully weld the outer seams.

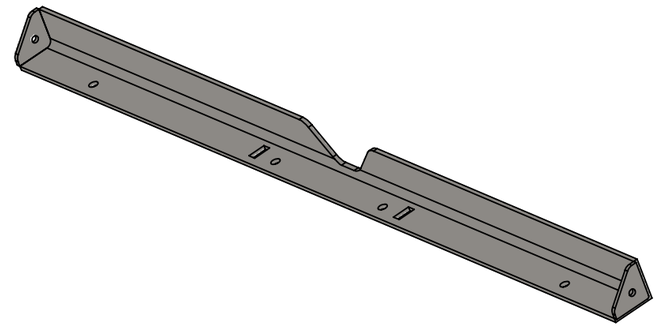


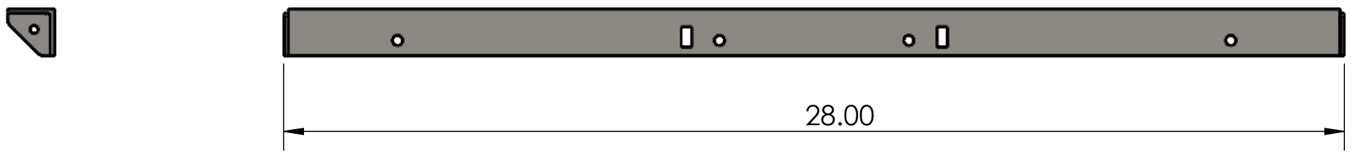


DETAIL A
SCALE 1 : 1



DETAIL B
SCALE 1 : 1





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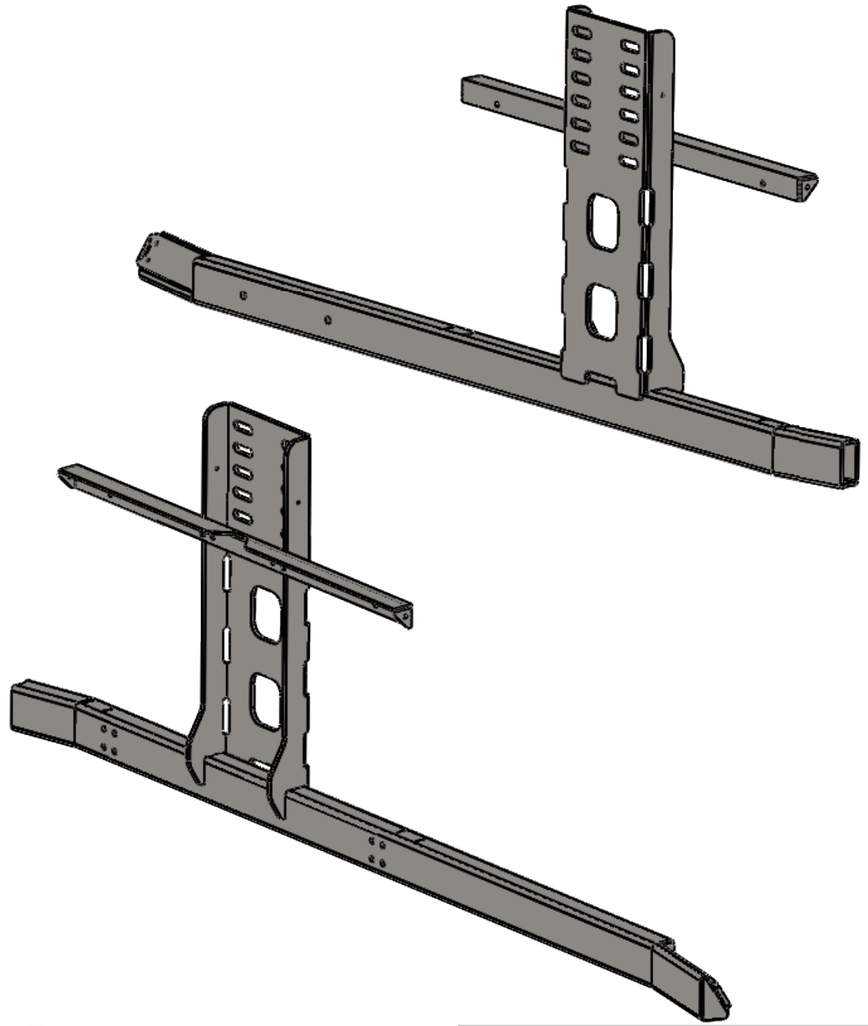
DESCRIPTION:
HCR DIY ASSEMBLY

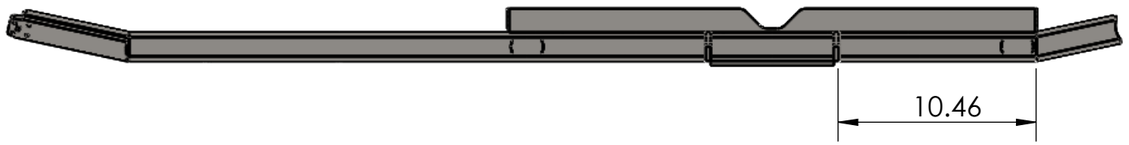
STEP 27 - SWINGOUT

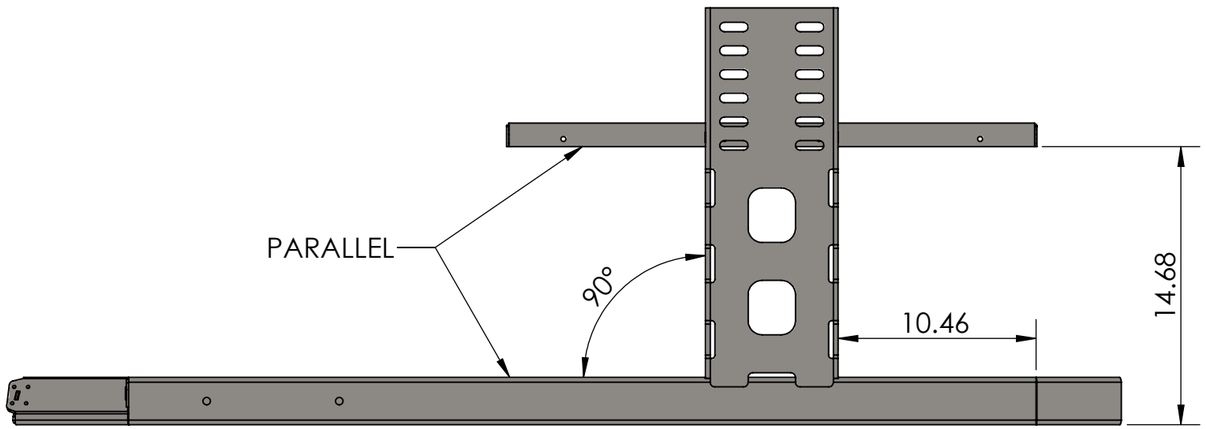
COMPONENTS NEEDED:

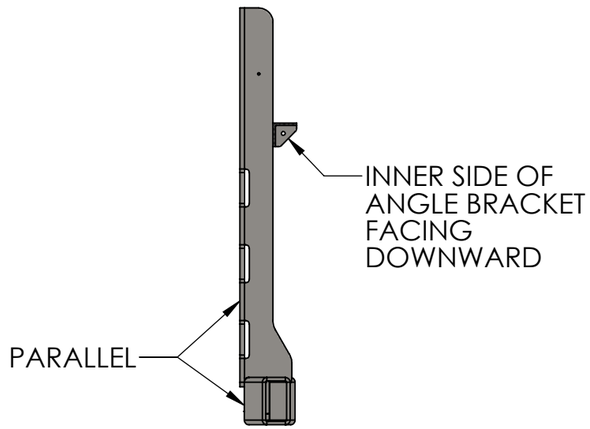
- SWINGOUT RECT TUBE ASSEMBLY FROM PREVIOUS STEP
- TIRE CARRIER MOUNT ASSEMBLY FROM PREVIOUS STEP
- CAMP TABLE BRACKET ASSEMBLY FROM RREVIOUS STEP (OPTIONAL)

- Align parts as shown.
  - The bottom of the tire carrier assembly should fit over the main beam on the rect tube assembly.
  - The near side of the carrier assembly should be roughly 10-15/16" from the end of the main beam tube where it meets the spindle rect tube.
  - Make sure the front face of the carrier mount is parallel to the front face of the rect tubing.
  - The front of the carrier mount should be facing outward, the same side of the main beam as the two threaded holes.
  - If running a camp table, take the bracket assembly and align the slots on it to the tabs on the back of the carrier mount assembly.
    - Make sure it is parallel to the main beam.
    - The inside of the angle bracket should be facing downward.
- Clamp assembly.
- Check dimensions and angles.
- Tack weld all parts together.









ASCEND FABRICATIONS

ASCENDFABRICATIONS.COM

DESCRIPTION:

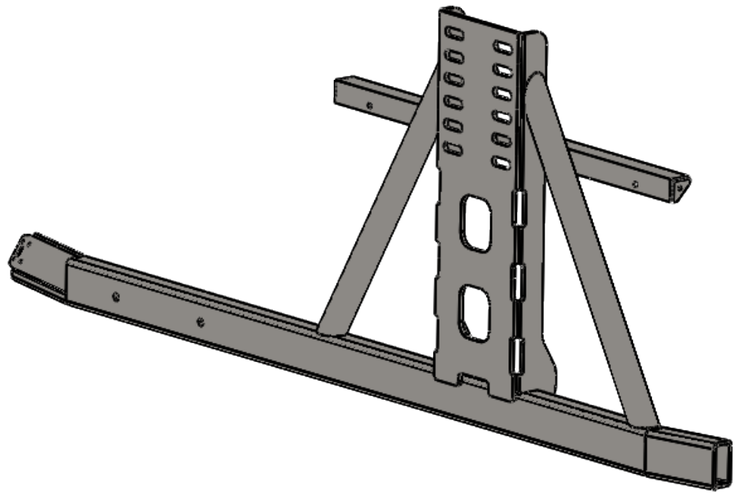
HCR DIY ASSEMBLY

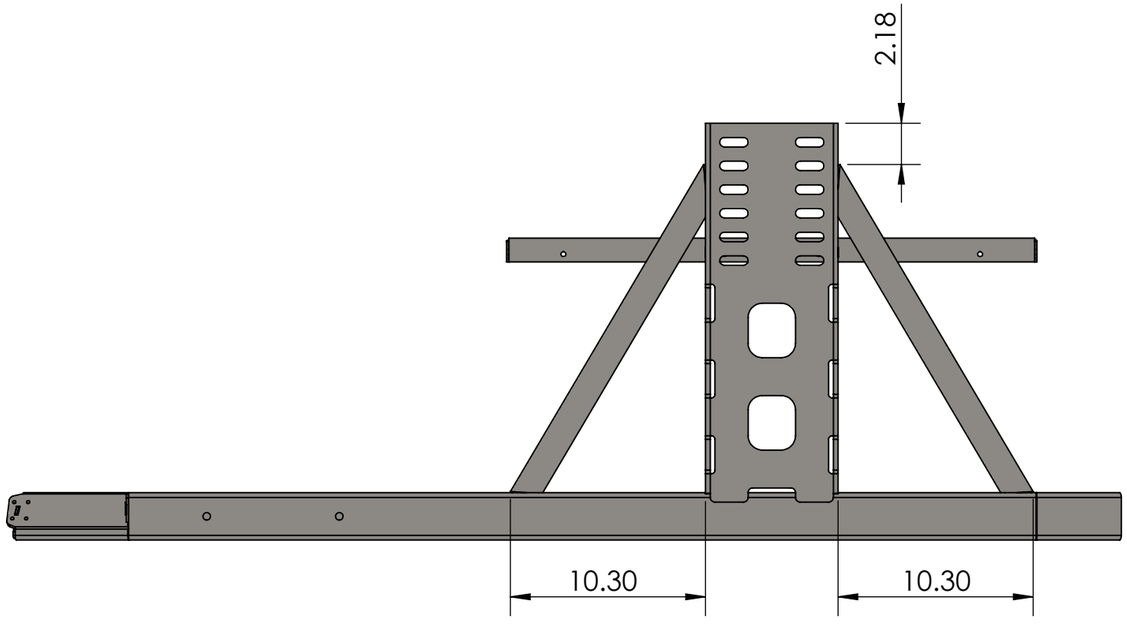
STEP 28 - SWINGOUT

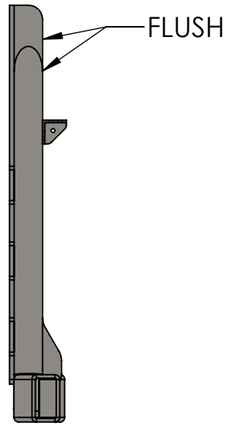
COMPONENTS NEEDED:

- SWINGOUT ASSEMBLY FROM PREVIOUS STEP
- TIRE CARRIER SUPPORT TUBES

- Align parts as shown.
  - The ends of the support tubes with the larger angle cut will go against the sides of the tire carrier mount towards the top. The back side of the tubes should be flush with the back edge of the sides of the carrier. If running a cample table, the tubes can rest against the angle bracket.
  - The ends of the support tubes with the smaller angle cut will go against the top of the main beam and should be centered over it.
- Check dimensions and angles.
- Tack weld all parts together.







ASCEND FABRICATIONS

ASCENDFABRICATIONS.COM

DESCRIPTION:

HCR DIY ASSEMBLY

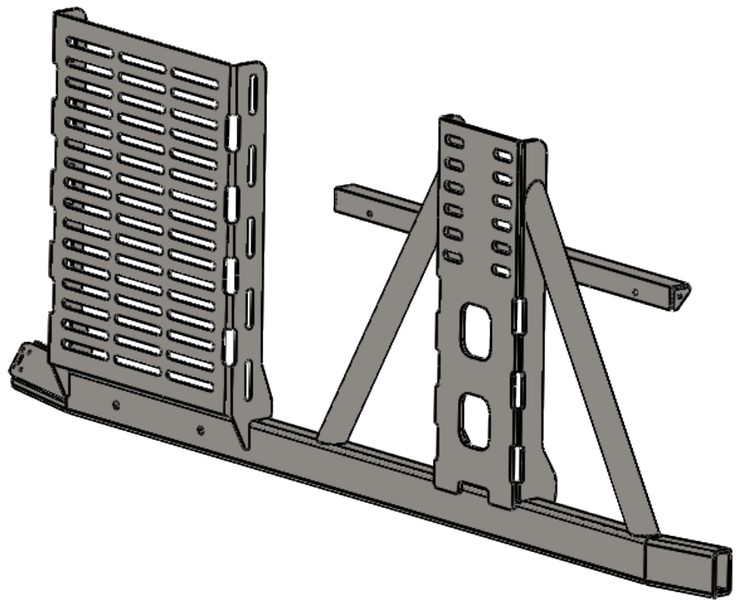
STEP 29 - SWINGOUT

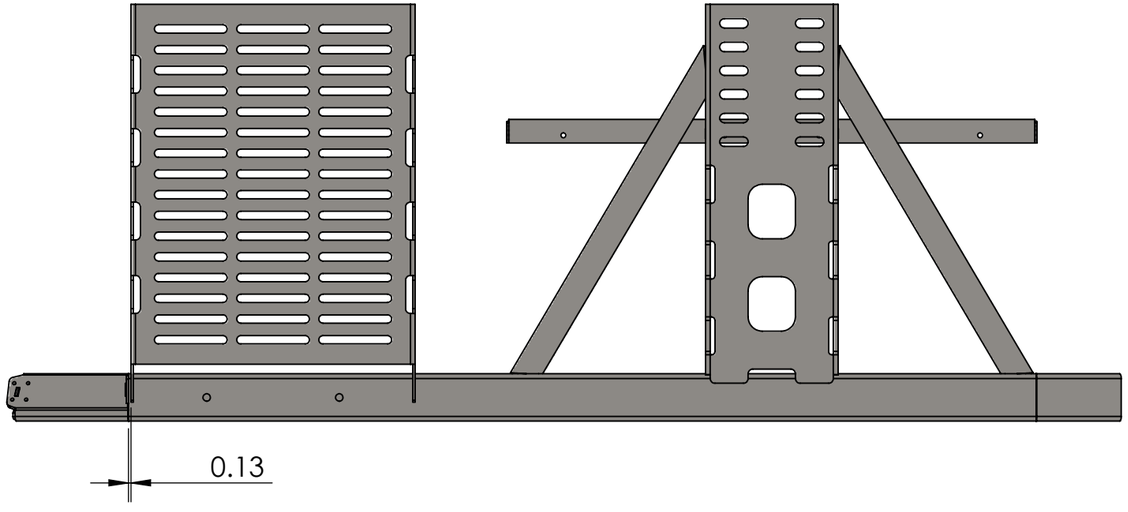
ONLY FOLLOW THIS STEP IF YOU ARE RUNNING AN ACCESSORIES PANEL ON THE SWINGOUT. IF YOU ARE NOT, SKIP TO THE NEXT STEP.

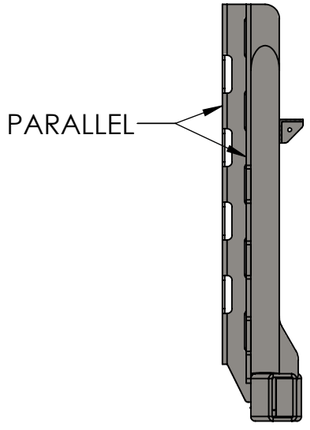
COMPONENTS NEEDED:

- SWINGOUT ASSEMBLY FROM PREVIOUS STEP
- ACCESSORIES MOUNTING PANEL

- Align parts as shown.
  - The front of the accesories panel should be on the same side of the beam as the front of the tire carrier assembly and they should be parallel.
  - The near side of the panel should be roughly 1/8" from the end of the main beam where it meets the latch rect tube.
- Check dimensions and angles.
- Tack weld all parts together.







ASCEND FABRICATIONS

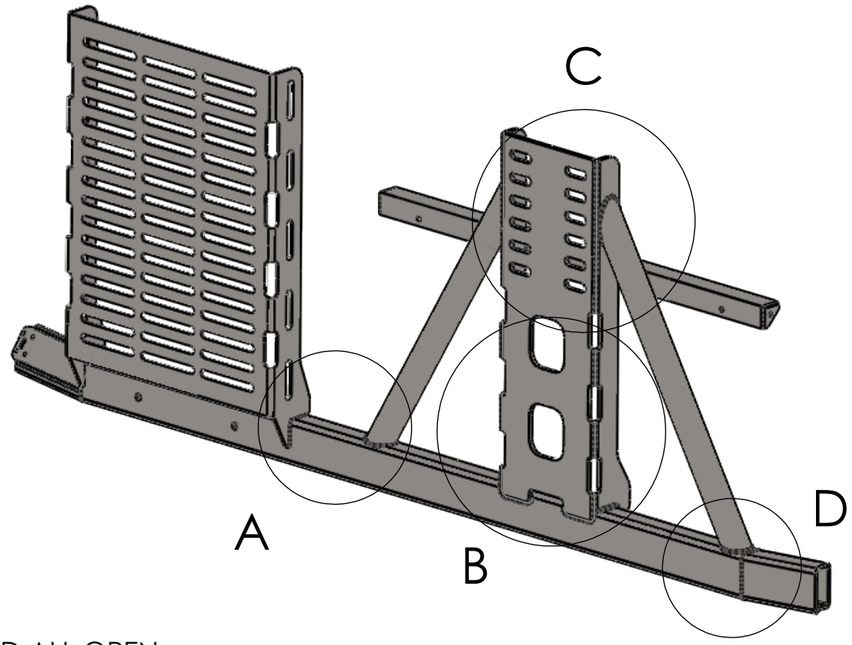
ASCENDFABRICATIONS.COM

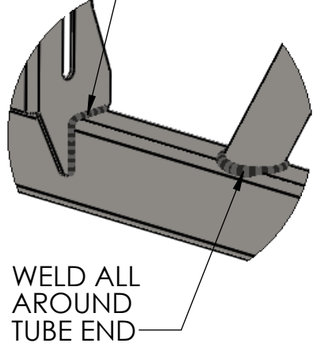
DESCRIPTION:

HCR DIY ASSEMBLY

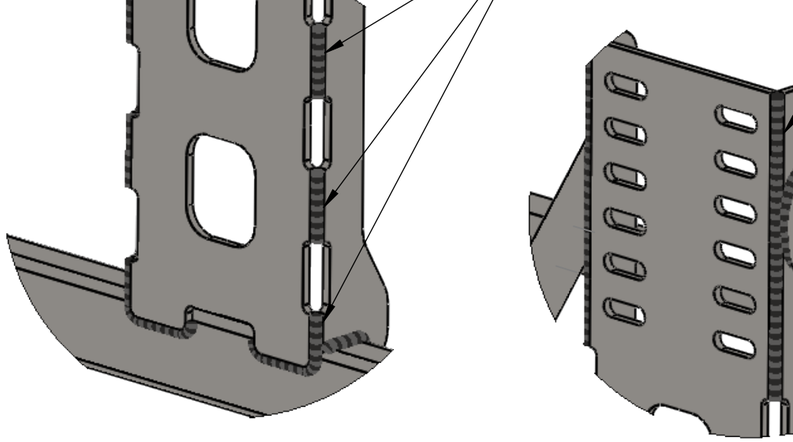
STEP 30 - SWINGOUT

- Set up on flat surface (weld table).
- Clamp assembly down so it doesn't shift or warp while welding.
- Fully weld as many accessable seams as shown.

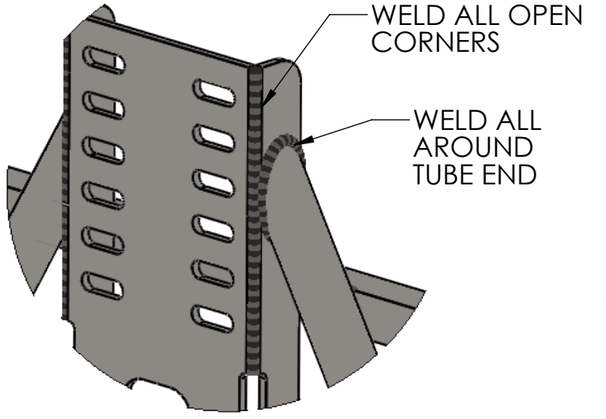




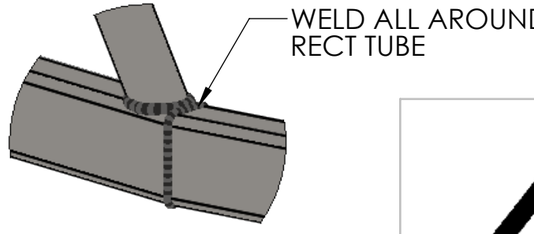
DETAIL A
SCALE 1 : 4



DETAIL B
SCALE 1 : 4



DETAIL C
SCALE 1 : 4



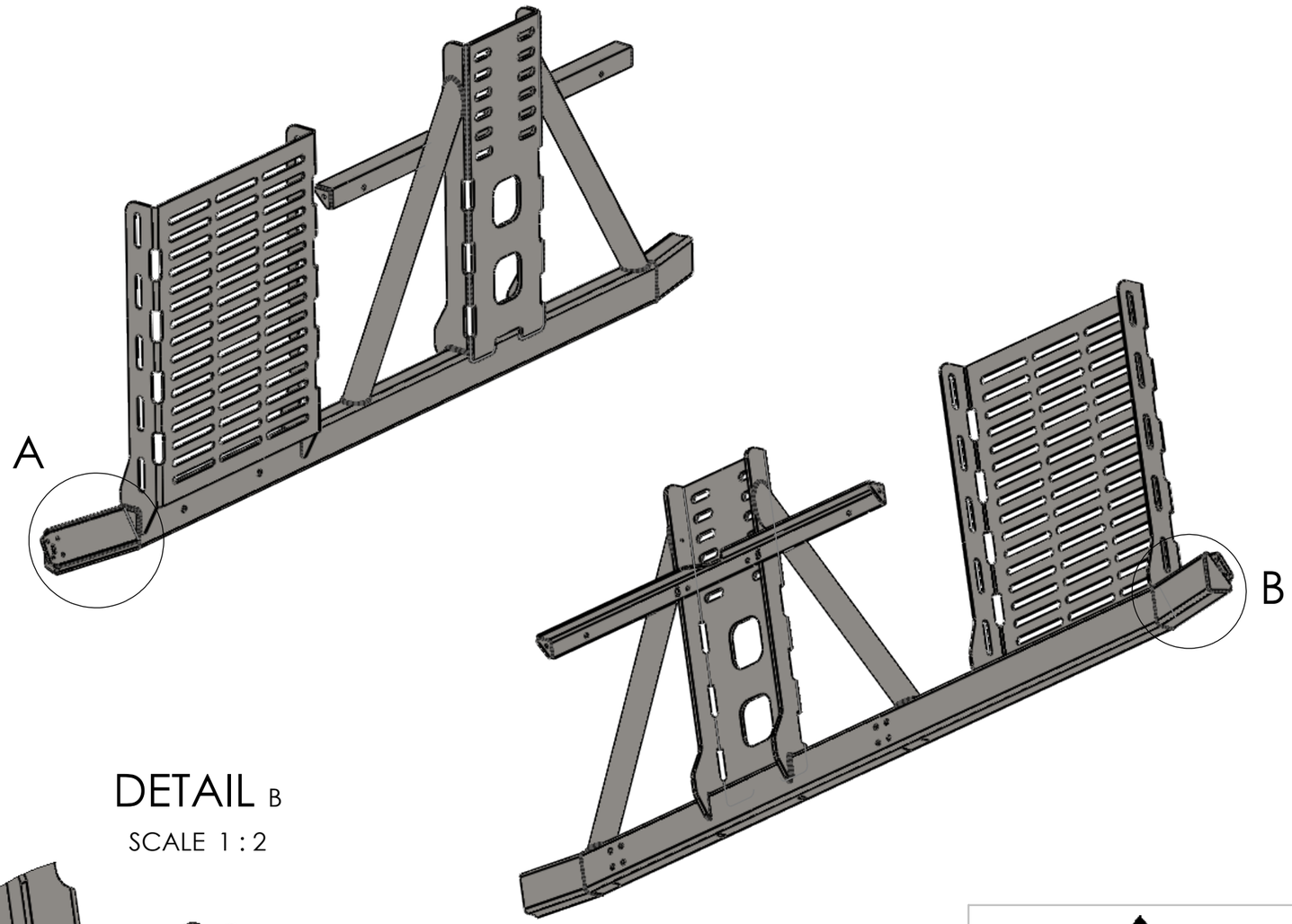
DETAIL D
SCALE 1 : 4

ASCEND FABRICATIONS

ASCENDFABRICATIONS.COM

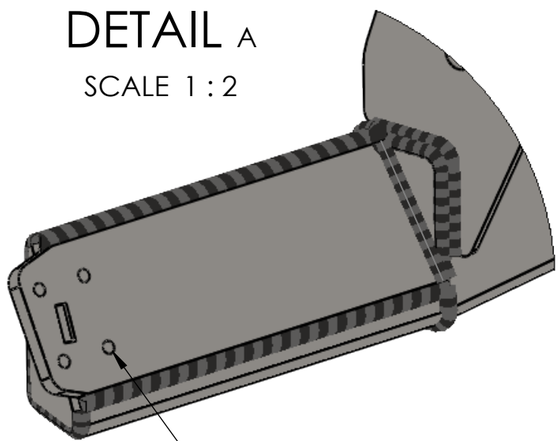
DESCRIPTION:
HCR DIY ASSEMBLY

STEP 30 - CONTINUED - SWINGOUT



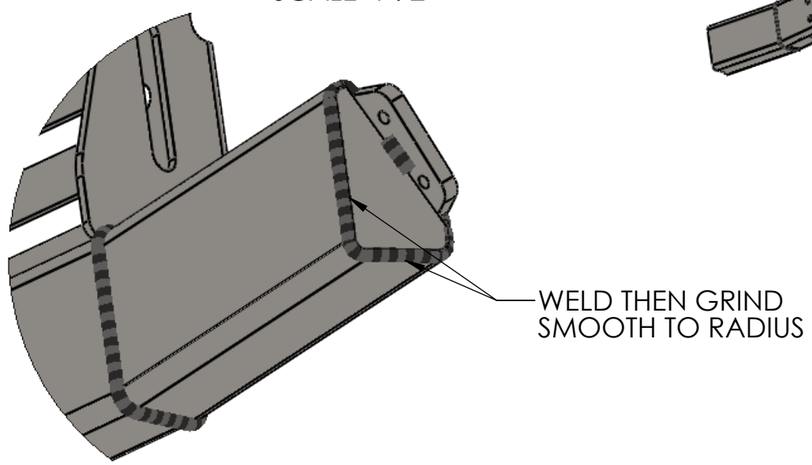
DETAIL A

SCALE 1 : 2



DETAIL B

SCALE 1 : 2



ASCEND FABRICATIONS

ASCENDFABRICATIONS.COM

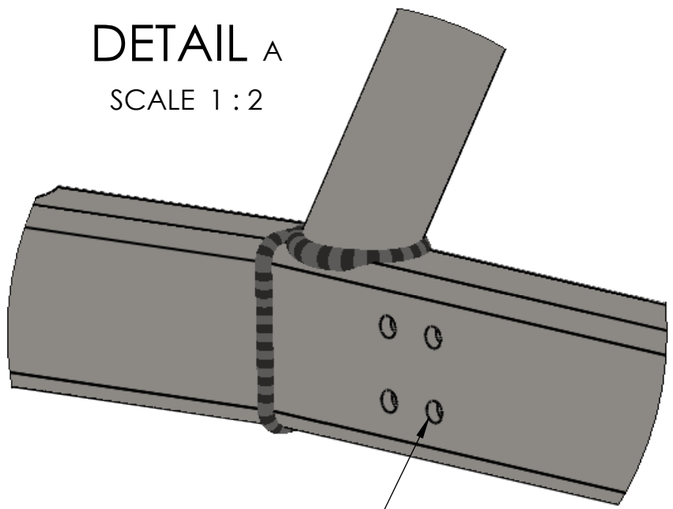
DESCRIPTION:

HCR DIY ASSEMBLY

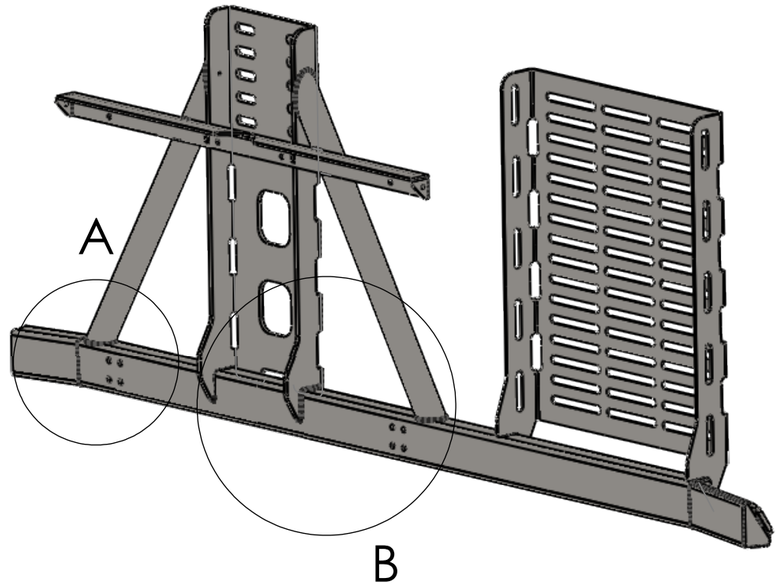
STEP 30 - CONTINUED - SWINGOUT

DETAIL A

SCALE 1 : 2

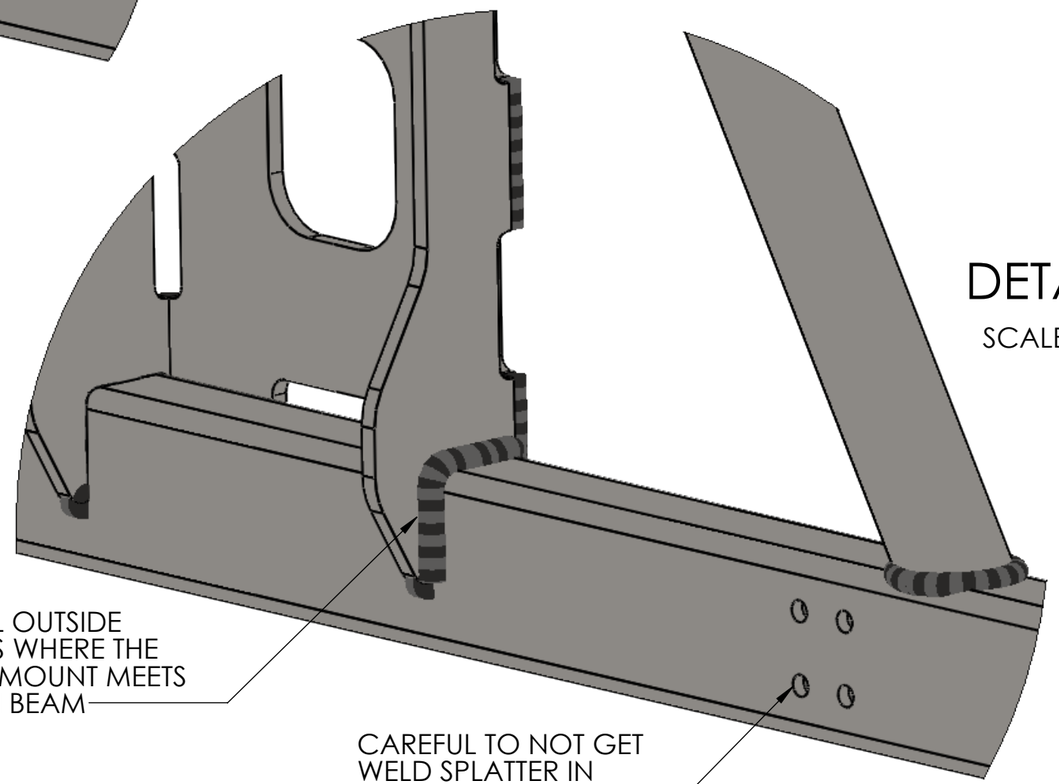


CAREFUL TO NOT GET WELD SPLATTER IN THREADED HOLES



DETAIL B

SCALE 1 : 2



WELD ALL OUTSIDE CORNERS WHERE THE CARRIER MOUNT MEETS THE MAIN BEAM

CAREFUL TO NOT GET WELD SPLATTER IN THREADED HOLES

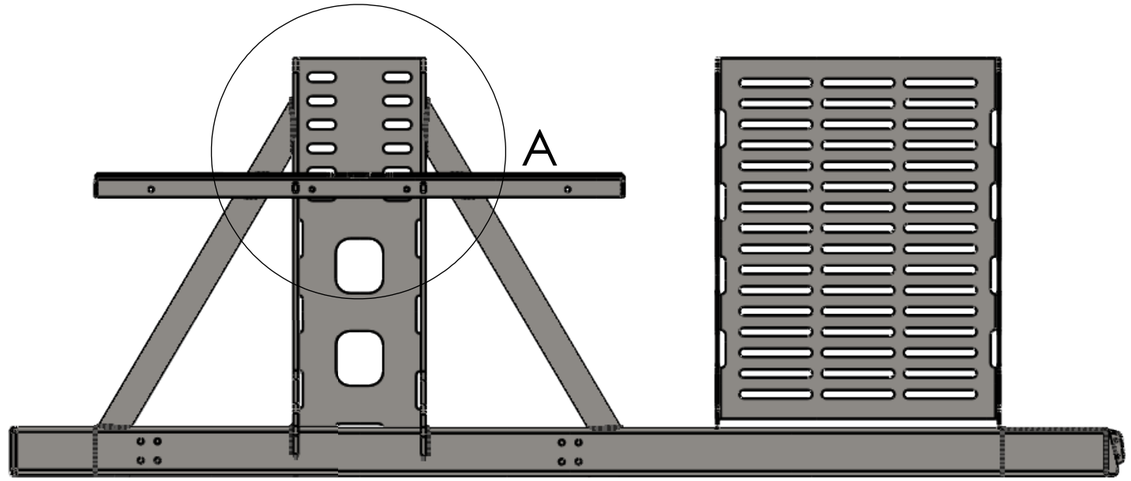
ASCEND FABRICATIONS

ASCENDFABRICATIONS.COM

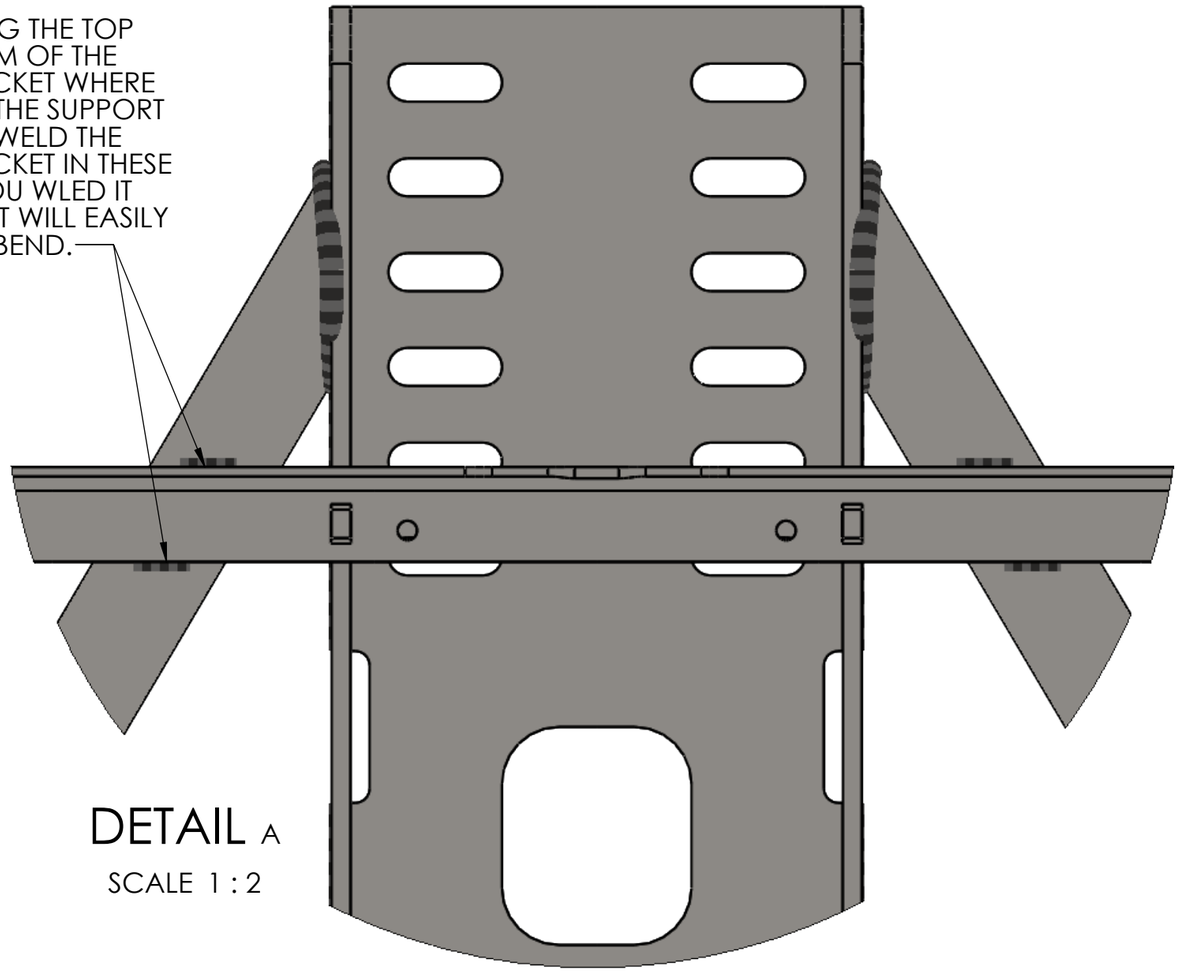
DESCRIPTION:

HCR DIY ASSEMBLY

STEP 30 - CONTINUED - SWINGOUT



WELD ALONG THE TOP AND BOTTOM OF THE ANGLE BRACKET WHERE IT TOUCHES THE SUPPORT TUBE. ONLY WELD THE ANGLE BRACKET IN THESE AREAS, IF YOU WLED IT ELSEWHERE IT WILL EASILY WARP AND BEND.



DETAIL A

SCALE 1 : 2

ASCEND FABRICATIONS

ASCENDFABRICATIONS.COM

DESCRIPTION:

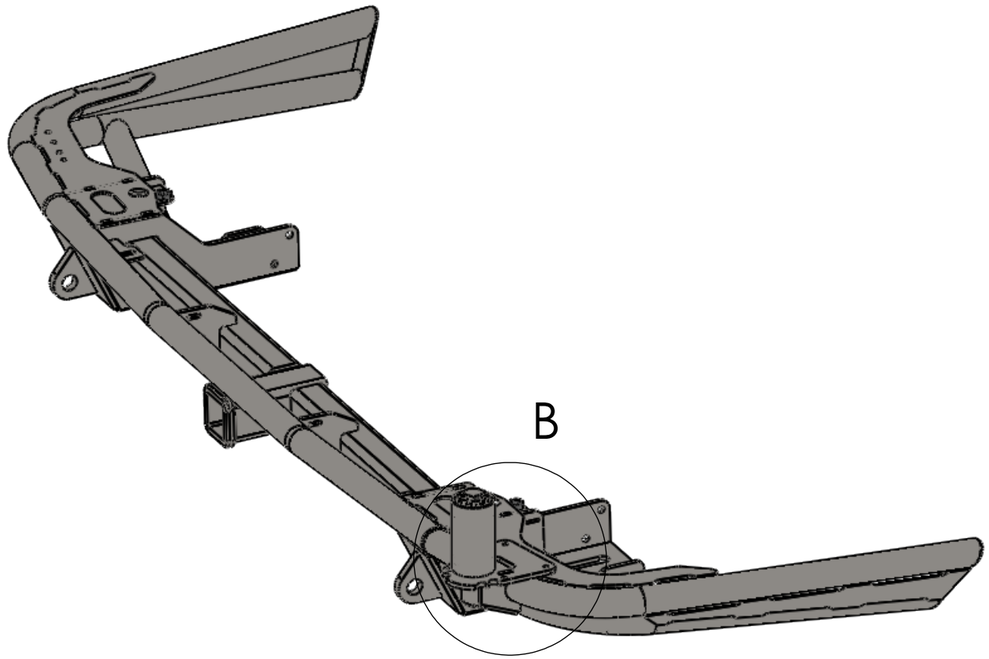
HCR DIY ASSEMBLY

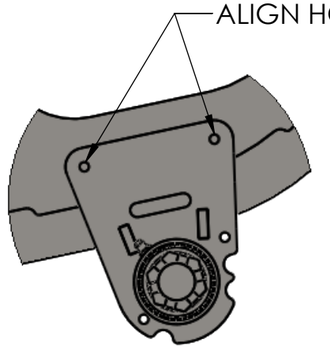
STEP 31 - SWINGOUT

COMPONENTS NEEDED:

- BASE BUMPER ASSEMBLY
- SPINDLE ASSEMBLY

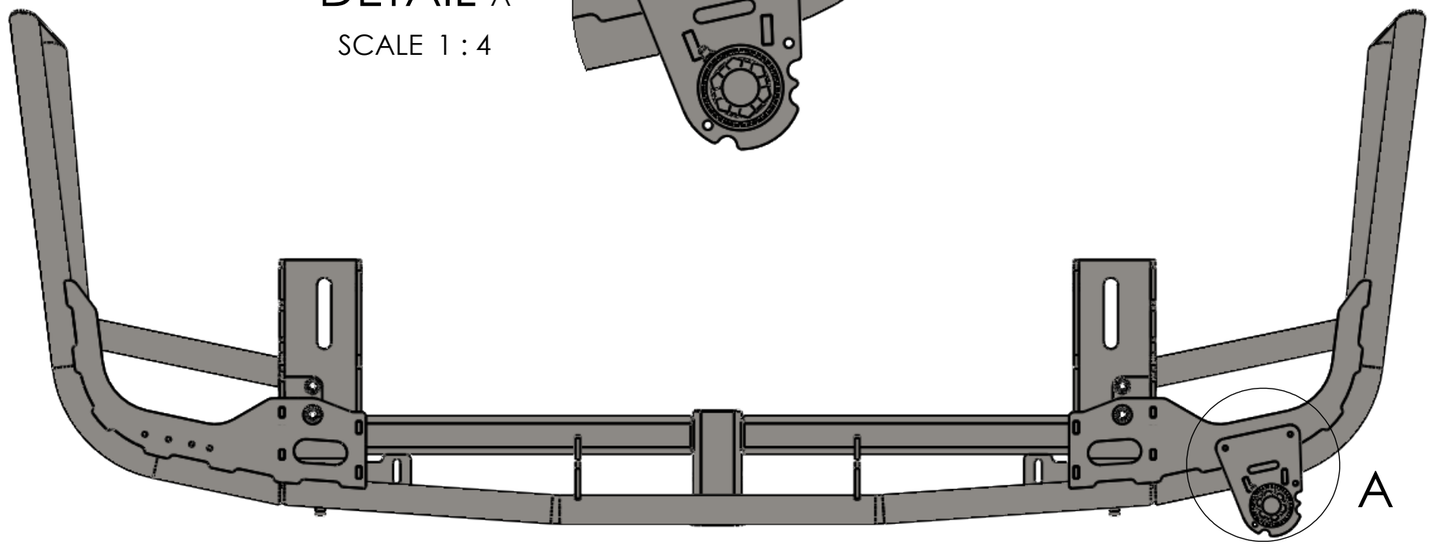
- Align parts as shown.
  - If building swingout to open to the right/passenger side, the spindle assembly will be to the right/passenger side of the bumper. If you are building swingout to open to the left/driver side, the spindle assembly will be to the left/driver side of the bumper.
  - There are four holes on the top filler plate on either side of the bumper. The two holes on the top plate of the spindle assembly line up with the two outer holes on either side of the bumper.
  - Grind any welds that would interfere with the spindle assembly fitting onto the bumper.
  - Slide the spindle assembly onto the bumper align the holes. You may need to hit with a mallet to get it on or use drift pins to get the holes to line up.
- Clamp the spindle top plate to the top filler plate on the bumper.
- Tack the spindle assembly to the bumper.

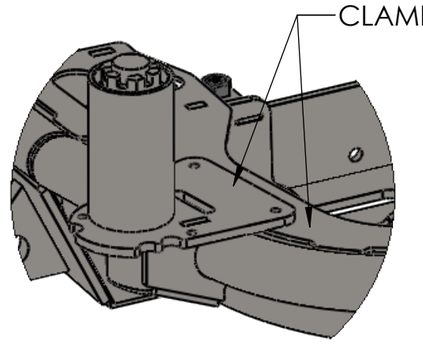




DETAIL A

SCALE 1 : 4





DETAIL B

SCALE 1 : 4

ASCEND FABRICATIONS

ASCENDFABRICATIONS.COM

DESCRIPTION:

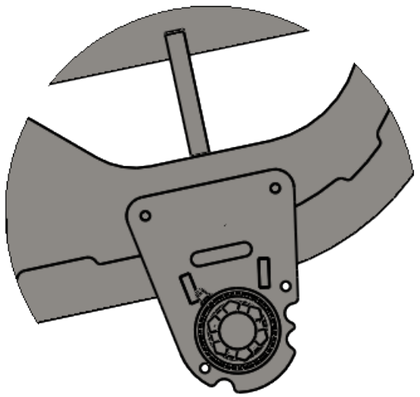
HCR DIY ASSEMBLY

STEP 32 - SWINGOUT

COMPONENTS NEEDED:

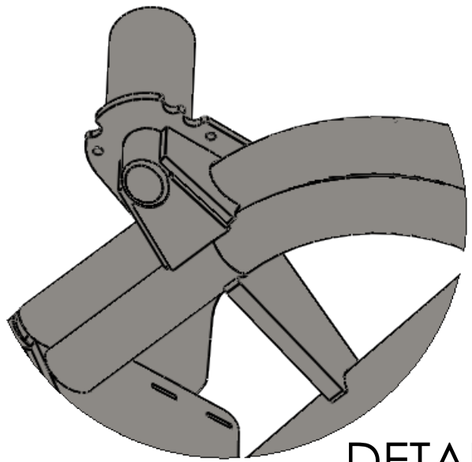
- BUMPER AND SPINDLE ASSEMBLY
- SPINDLE SUPPORT GUSSET

- Align parts as shown.
  - The spindle support gusset should fit under the top filler plate and tie all the tubes and spindle back to the wing support tube on the bumper.
  - The gusset should be centered on the spindle.
- Tack the gusset to the bumper.



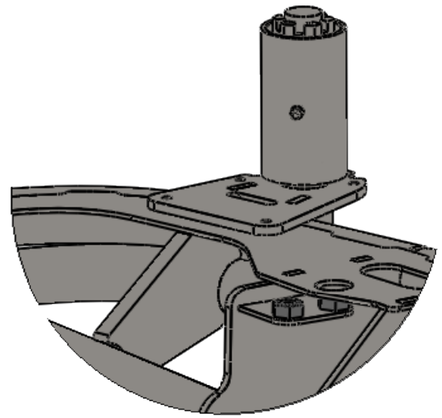
DETAIL A

SCALE 1 : 4



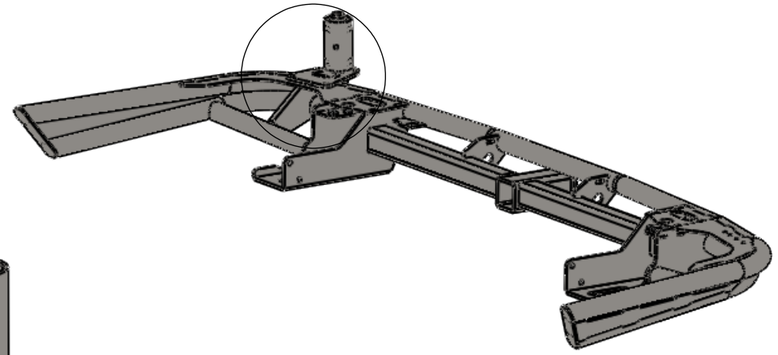
DETAIL B

SCALE 1 : 4

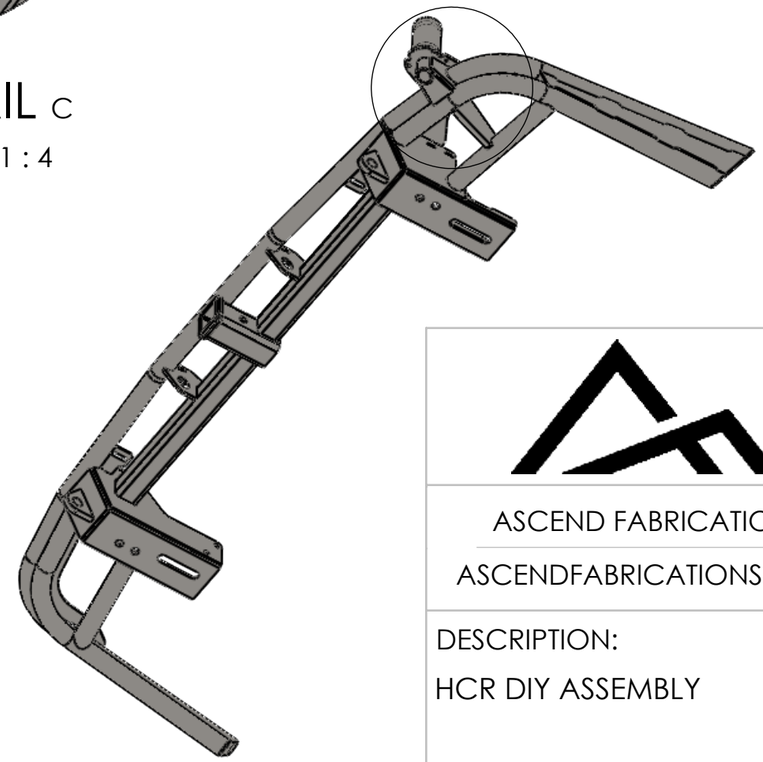


DETAIL C

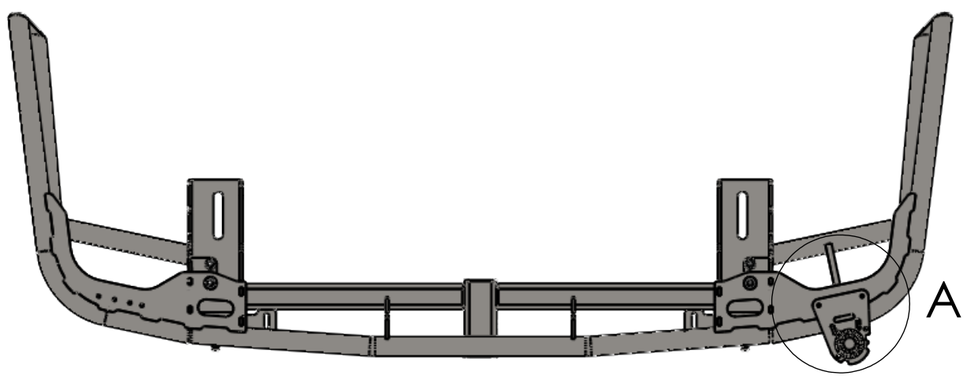
SCALE 1 : 4



C



B



A

ASCEND FABRICATIONS

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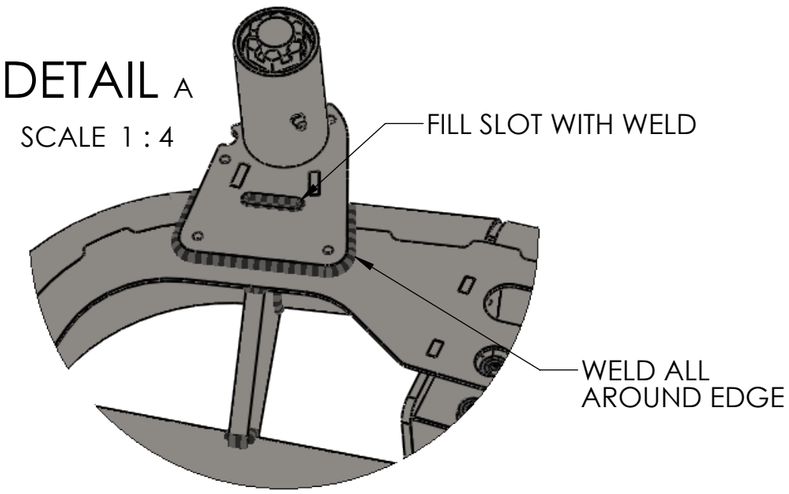
DESCRIPTION:

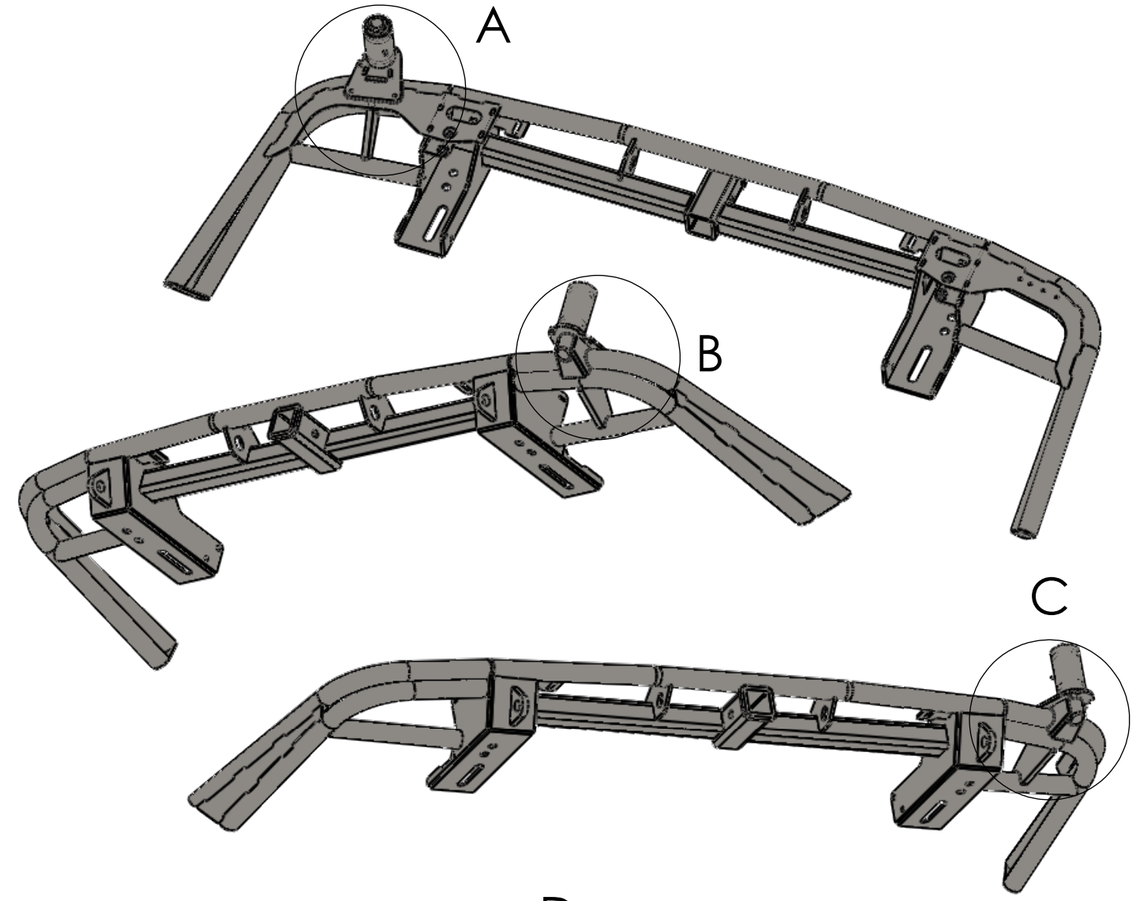
HCR DIY ASSEMBLY

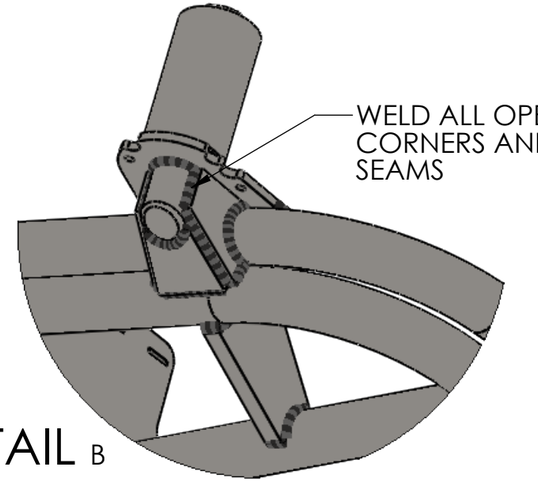
STEP 33 - SWINGOUT

- Fully weld as many accessable seams as shown.

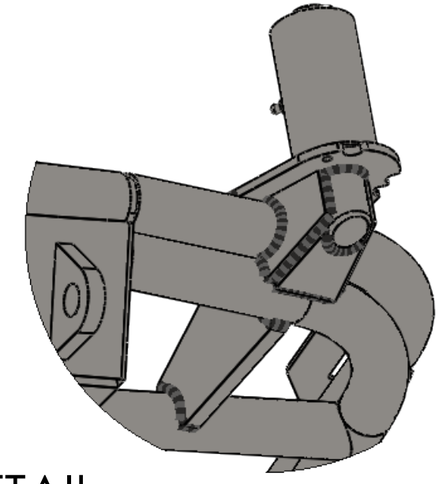


DETAIL A
SCALE 1 : 4

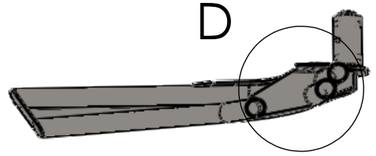


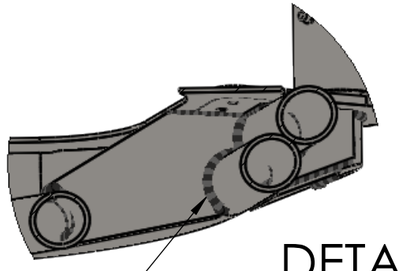


DETAIL B
SCALE 1 : 4



DETAIL C
SCALE 1 : 4





DETAIL D
SCALE 1 : 4

ASCEND FABRICATIONS

ASCENDFABRICATIONS.COM

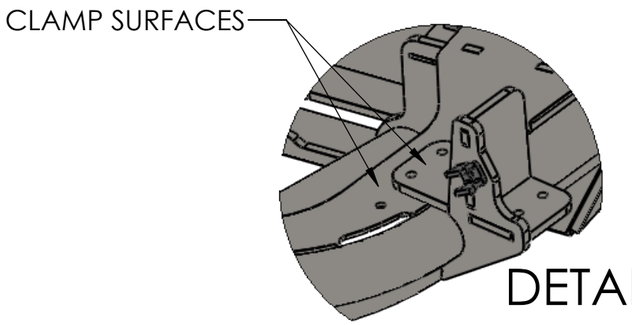
DESCRIPTION:
HCR DIY ASSEMBLY

STEP 34 - SWINGOUT

COMPONENTS NEEDED:

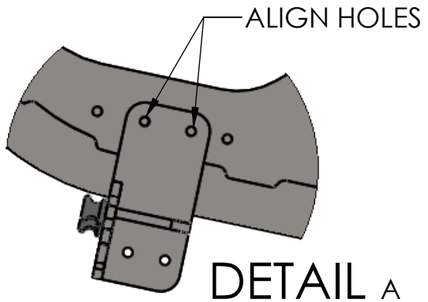
- BUMPER AND SPINDLE ASSEMBLY
- LATCH BRACKET ASSEMBLY

- Align parts as shown.
  - If building swingout to open to the right/passenger side, the latch assembly will be to the left/driver side of the bumper. If you are building swingout to open to the left/driver side, the latch assembly will be to the right/passenger side of the bumper.
  - There are four holes on the top filler plate on either side of the bumper. The two holes on the base plate of the latch assembly line up with the two center holes on either side of the bumper.
  - Grind any welds that would interfere with the latch assembly fitting onto the bumper.
  - Slide the latch assembly onto the bumper align the holes. You may need to hit with a mallet to get it on or use drift pins to get the holes to line up.
- Loosely clamp the latch base plate to the top filler plate on the bumper.
  - DO NOT tack or weld. You want it to be able to move slighlty for future steps.



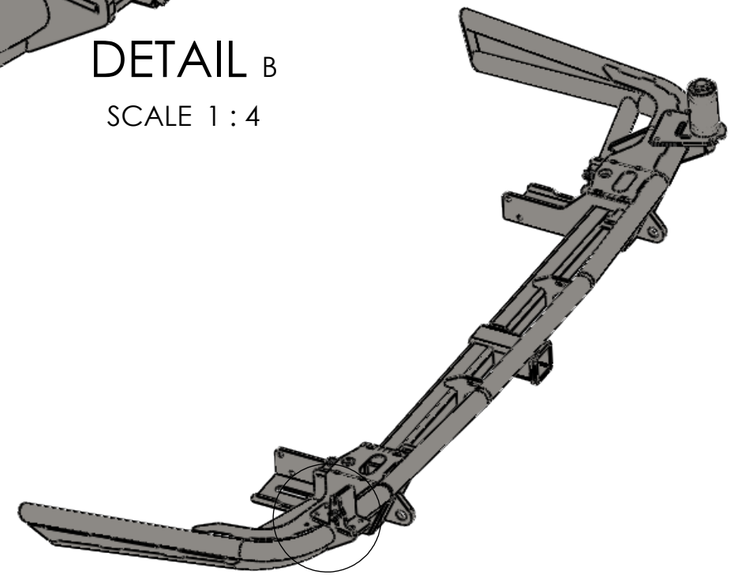
DETAIL B

SCALE 1 : 4

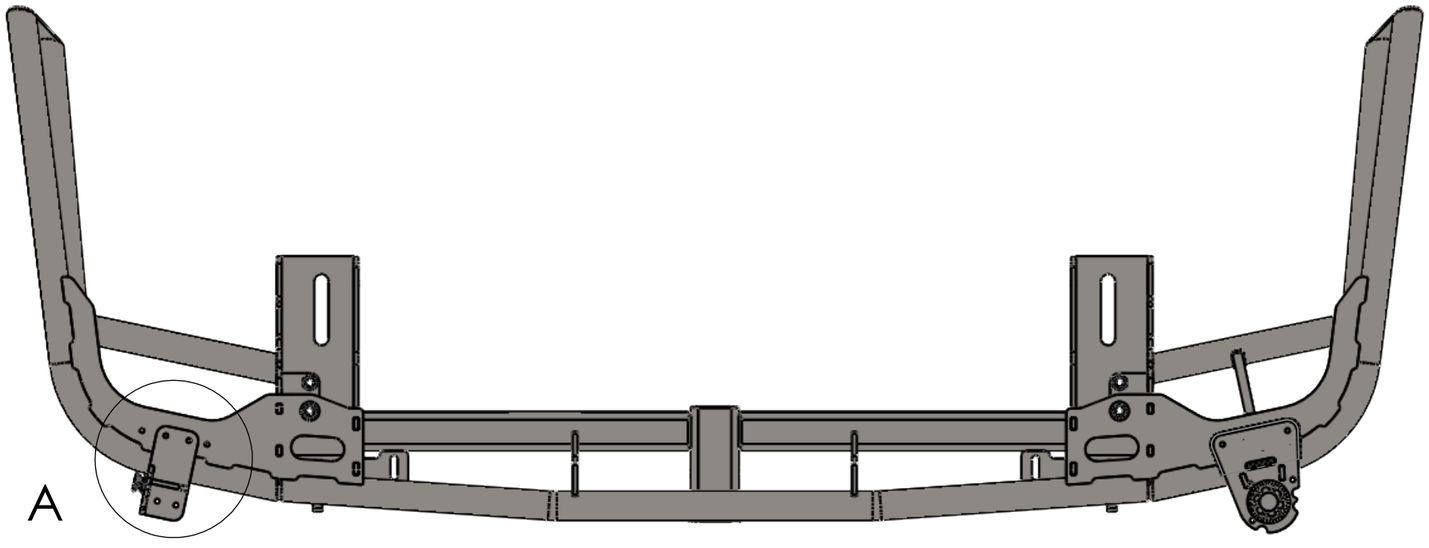


DETAIL A

SCALE 1 : 4



B



A

ASCEND FABRICATIONS

ASCENDFABRICATIONS.COM

DESCRIPTION:

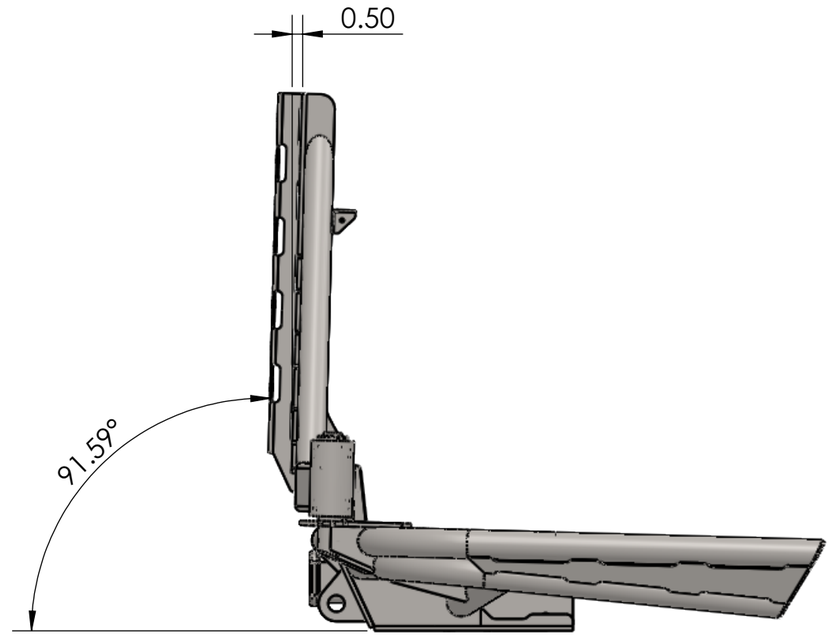
HCR DIY ASSEMBLY

STEP 35 - SWINGOUT

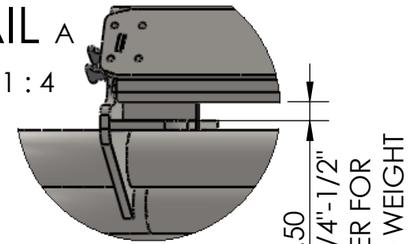
COMPONENTS NEEDED:

- BUMPER/SPINDLE/LATCH ASSEMBLY
- SWINGOUT ASSEMBLY

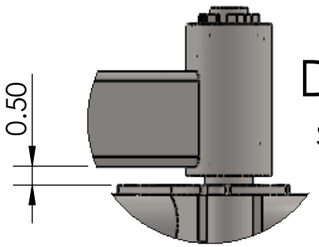
- Align parts as shown.
  - Add 1/2" spacer on the top plate of the spindle assembly to rest swinout beam on.
  - Add minimum 1/2" spacer on the latch base plate for the other end of the swingout beam to rest on. Highly recommened to add an additional 1/4"-1/2" spacer to counteract any weight added to the swingout.
  - Put swingout assembly on bumper.
  - Use a C-clamp to clamp the latch end of the swingout beam to the back plate of the latch assembly. Clamp tightly so the back surface of the rect tubing and the back plate of the latch assembly are drawn together and perfectly flush.
  - Rotate the spindle sleeve so the greese nipple is about 1/4"-1/2" from the edge of the rect tube on the back side. Just enough room to weld the back edge of the rect tube without welding the nipple.
  - The swingout assembly should be tilted inward slightly from the mounting plate surface on the base of the bumper. If you do not have a large enough angle guage, put a square up to the front of the tire carrier mounting plate. The square should be touching at the bottom of the plate and there should be a 1/2" gap at the top of the plate.
  - The end of the latch mounting plate on the swingout should stick past the outer side of the latch bracket assembly by about 1/16".
- Tack the rect tube to the spindle sleeve.
- Tack the latch bracket assembly to the bumper.



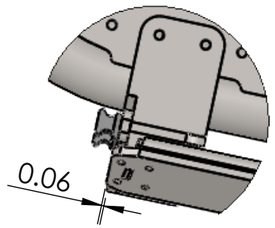
DETAIL A
SCALE 1 : 4



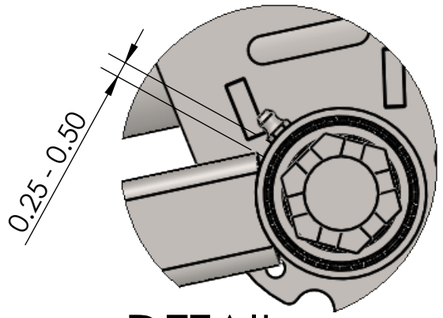
DETAIL B
SCALE 1 : 4

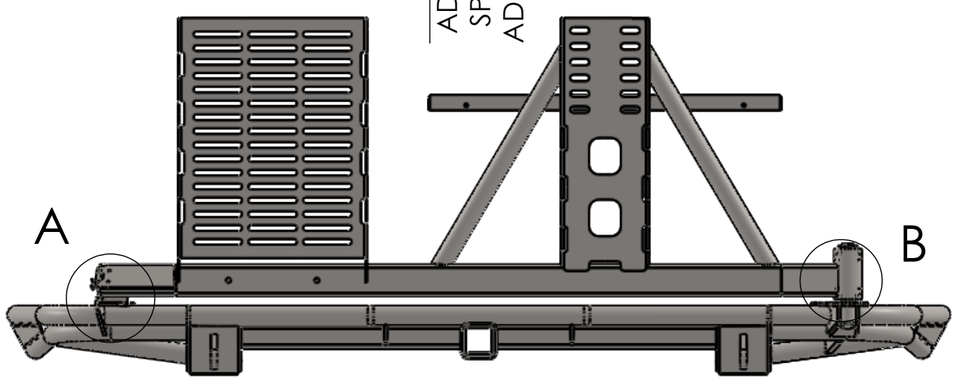


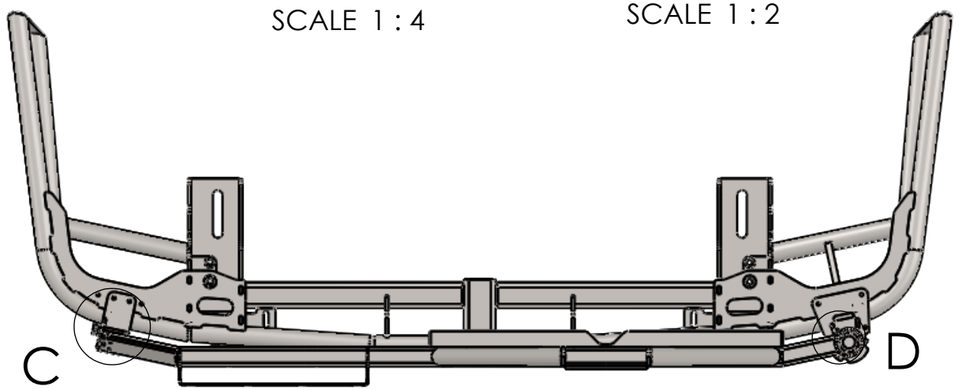
DETAIL C
SCALE 1 : 4



DETAIL D
SCALE 1 : 2







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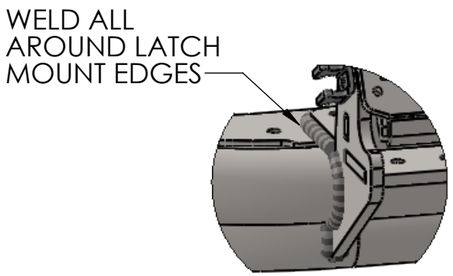
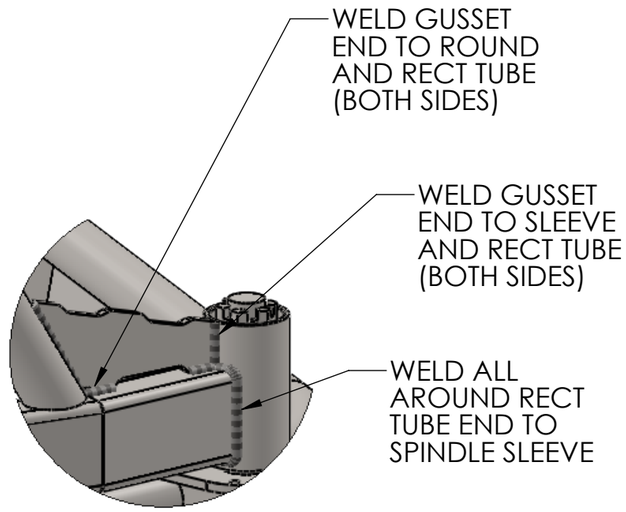
DESCRIPTION:
HCR DIY ASSEMBLY

STEP 36 - SWINGOUT

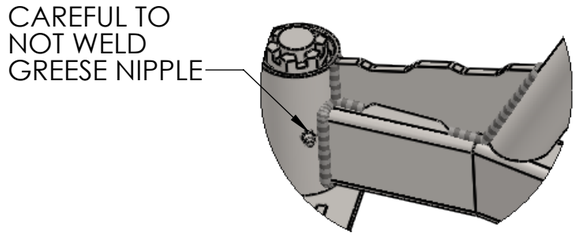
- Fully weld as many accessable seams as shown.
  - Be careful to not get any weld splatter inside of spindle sleeve or on any threads.



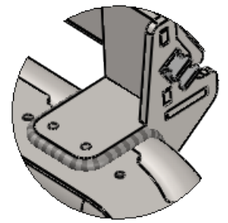
DETAIL A
SCALE 1 : 3



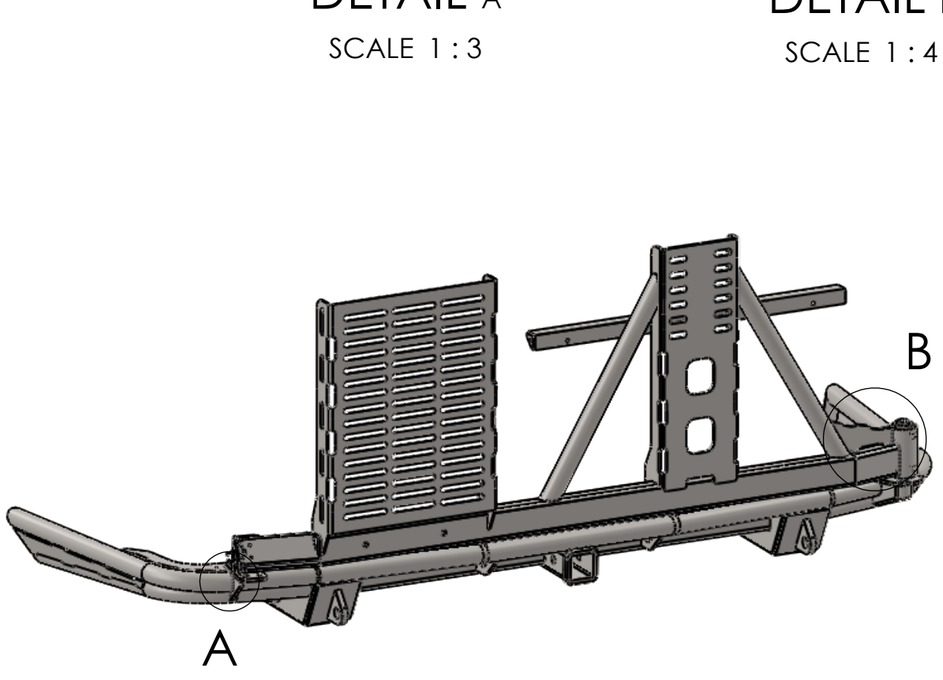
DETAIL B
SCALE 1 : 4



DETAIL C
SCALE 1 : 4



DETAIL D
SCALE 1 : 4



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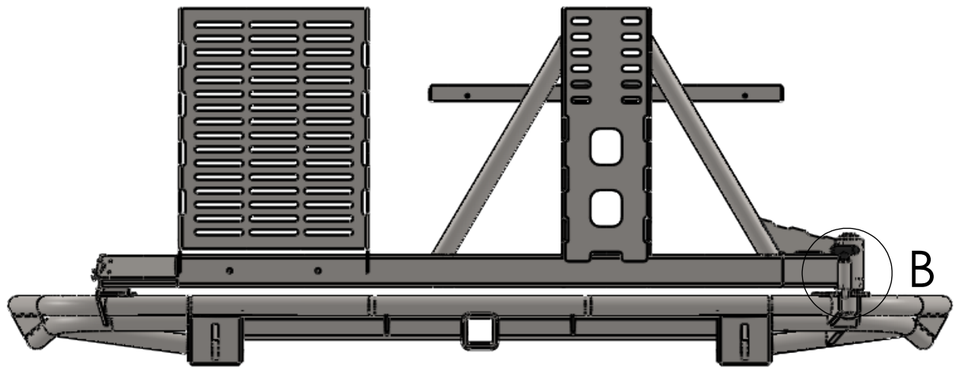
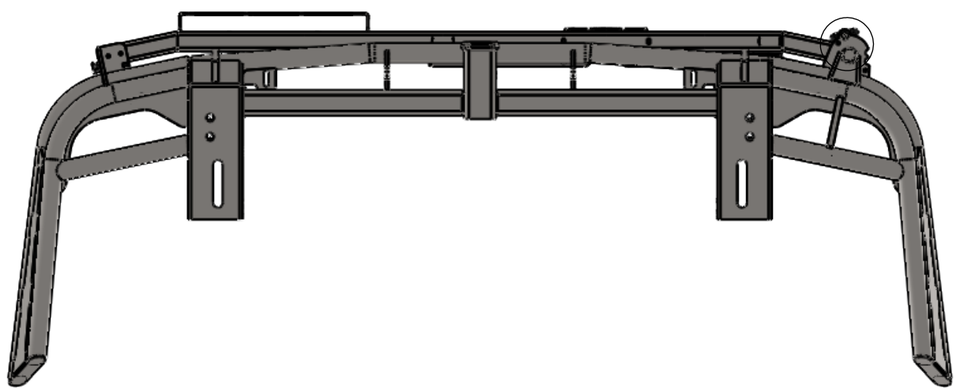
DESCRIPTION:
HCR DIY ASSEMBLY

STEP 37 - SWINGOUT

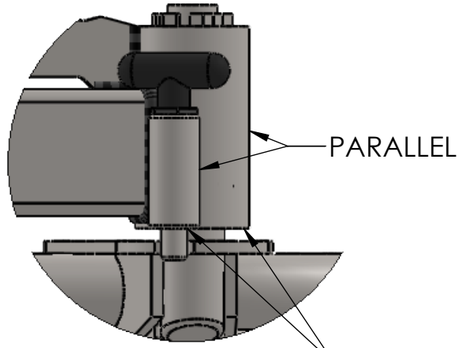
- COMPONENTS NEEDED:
  - BUMPER AND SWINGOUT ASSEMBLY
  - T-HANDLE PLUNGER ASSEMBLY
- Align parts as shown.
  - The plunger body should be flush against the spindle sleeve and the axis's should be parallel.
  - The bottom of the plunger body should be flush with the bottom of the spindle sleeve.
  - The plunger end should be centered in the catch slot on the edge of the spindle top plate.
- Clamp plunger into place.
- Tack weld plunger body to sleeve.

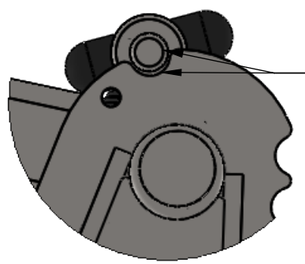




DETAIL B

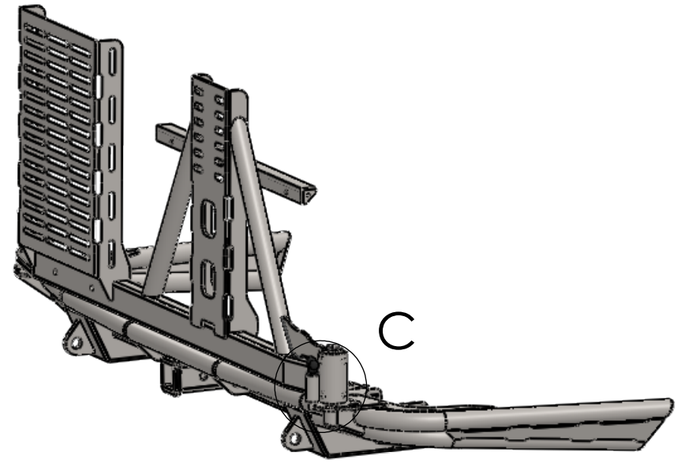
SCALE 1 : 3

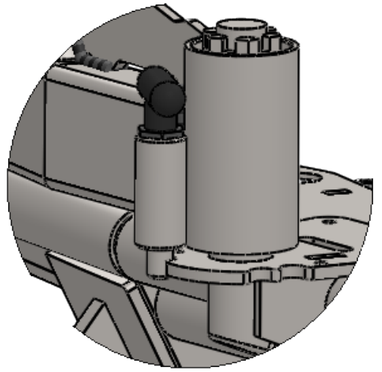




DETAIL A

SCALE 1 : 2





DETAIL C

SCALE 1 : 3

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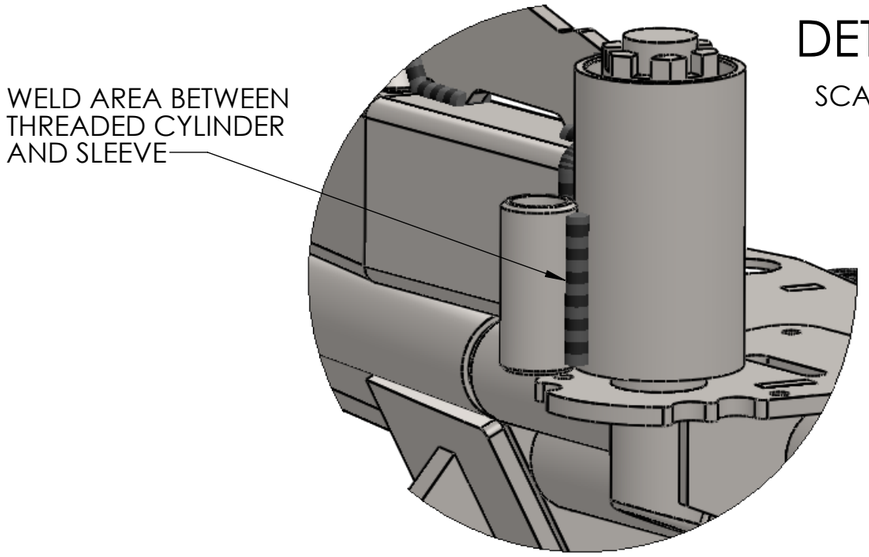
DESCRIPTION:

HCR DIY ASSEMBLY

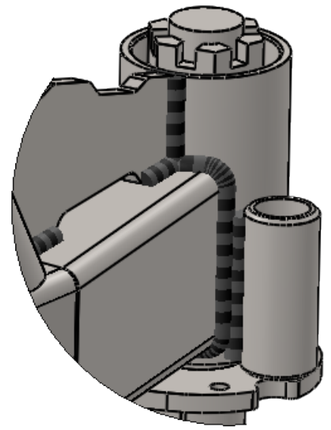
STEP 38 - SWINGOUT

- Remove plunger from the threaded cylinder (body).
- Weld along both sides of the body.
  - Be careful to not get any weld splatter inside the threaded cylinder or in the spindle sleeve.



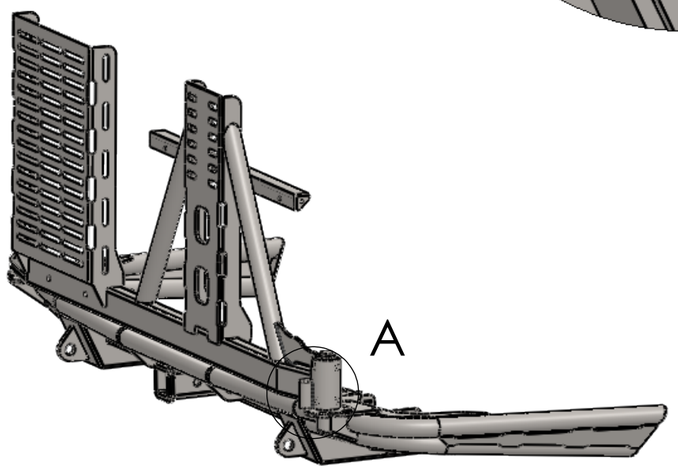
DETAIL A

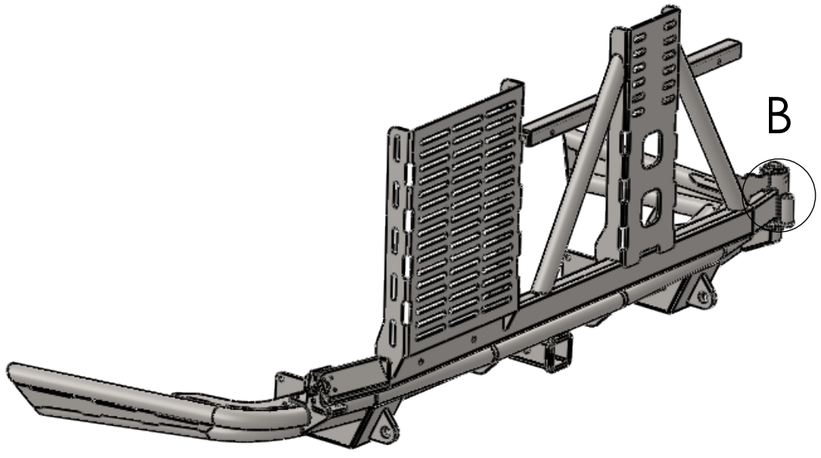
SCALE 1 : 2



DETAIL B

SCALE 1 : 2





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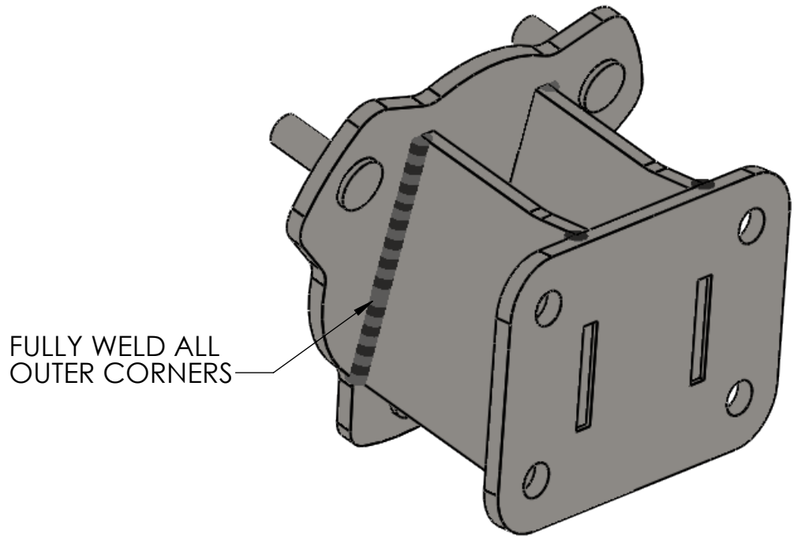
DESCRIPTION:

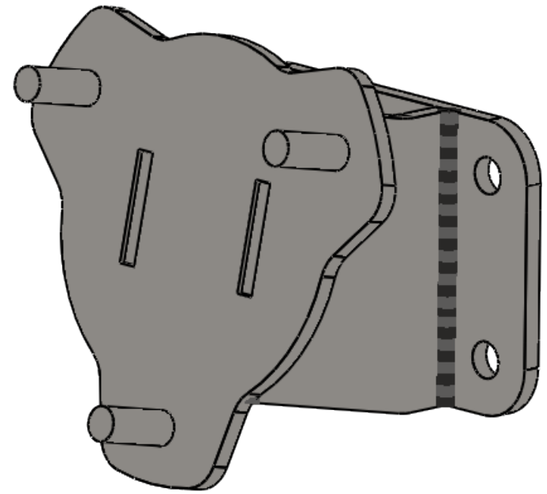
HCR DIY ASSEMBLY

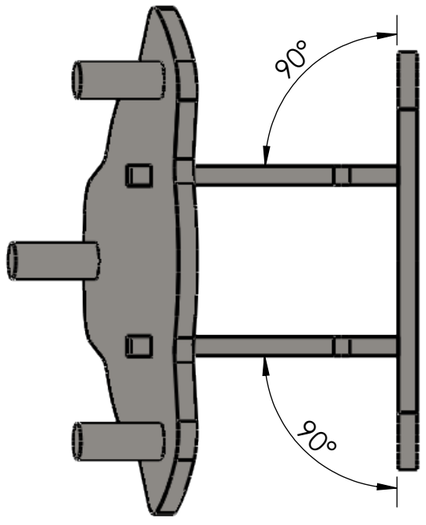
STEP 39 - SWINGOUT

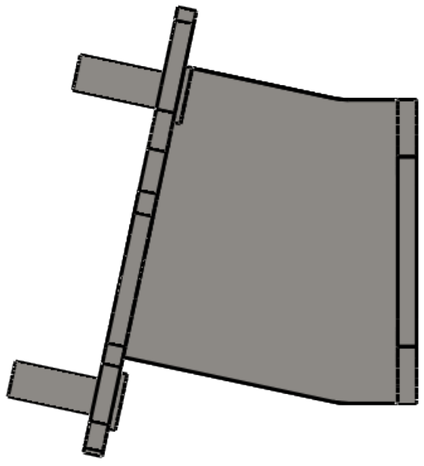
- COMPONENTS NEEDED:
  - WHEEL TO CARRIER MOUNT PLATE
  - WHEEL HUB MOUNT PLATE
  - WHEEL MOUNT SUPPORT PLATES

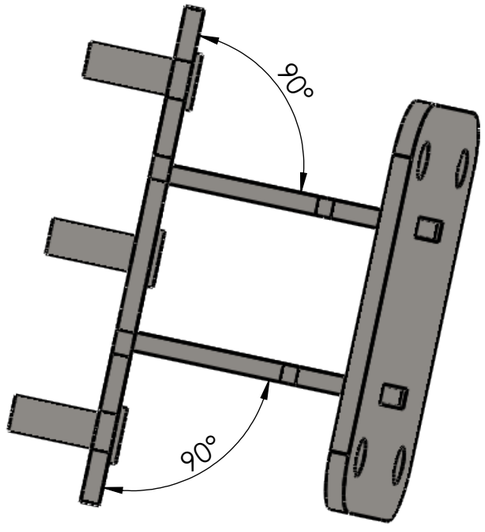
- Align parts as shown.
  - Use tabs/slots to fit parts together.
- Check angles.
- Clamp parts together.
- Tack weld all parts.
- Fully weld along all outside corners.
  - Carefull to not get any weld splatter on the stud threads.











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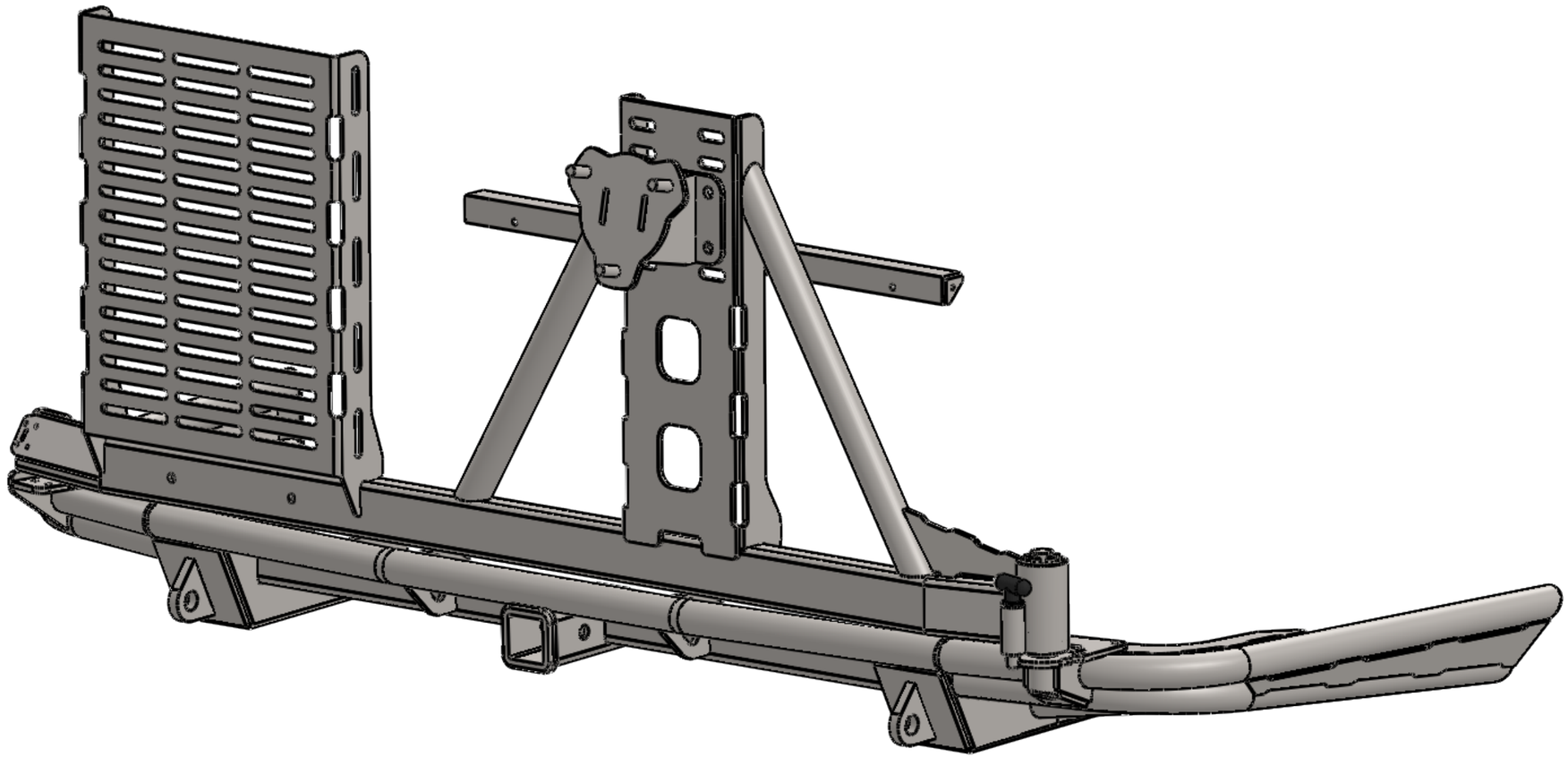
DESCRIPTION:

HCR DIY ASSEMBLY

STEP 40 - SWINGOUT

- Clean bumper and swingout of any weld splatter and prep for paint.



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DESCRIPTION:

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DESCRIPTION:

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