INSTALLATION MANUAL:

COR-4809010

JEEP WRANGLER OVERLAND+ REAR LONG ARM UPGRADE KIT (2018+, JL)

CLAYTON OFF ROAD

DISCLAIMER

WARNING:

Suspension systems and their components are designed to enhance your vehicle's off-road performance. This may cause your vehicle to handle differently, on and off-road. Always wear your seatbelt and take extra care when driving a modified vehicle. Failure to do so can result in loss of control which may result in a rollover causing serious injury, or even death to the driver and/or passengers of the vehicle. Regular maintenance and consistent inspections are required to keep your modified vehicle safe and functioning properly. These suspension systems and any components should be installed by certified technicians only. Attempts to install these products without proper knowledge can lead to poor performance, or possible failure, which may jeopardize the safety of the vehicle and its passengers. The installer is responsible for proper installation ensuring a safe and properly functioning vehicle. Take extra care when operating a modified vehicle and thoroughly inspect your vehicle before and after every off-road use.

Read the instruction set in its entirety before attempting the installation.

NOTE:

This product may require general welding, fabrication, and automotive mechanic skills. Welding should only be done by a competent welder. Clayton Off Road implies no guarantees or warranties and is not liable for improper installation. Some grinding and fitment may be required when installing this product. Every vehicle varies slightly, and some fabrication and/or modification may be required.

ATTENTION:

It is the customer's responsibility to thoroughly inspect all received parts to ensure they are assembled correctly and fully welded. Please carefully examine all weld seams and verify that bolt-through holes are properly aligned. Some Clayton Off Road products are permanent, non-removable, weld-on solutions. **If a defect or issue is found after installation, especially with permanent weld-on components, it may be difficult or impossible to correct.** Inspecting the part(s) received beforehand helps prevent unnecessary and avoidable complications.

INCLUDED ITEMS

4809010 Jeep Wrangler REAR Overland + 3.6 V6 Long Arm Upgrade Kit (2018+, JL)				
QTY	Part Number	Description	Class/Grade	ID Number
1	2209200	Jeep Rear Left/Right Long Arm Frame Brackets	N/A	1
1	1909020	Jeep Overland+ Long Rear Lower Control Arms	N/A	2
1	1909030	Jeep Overland+ Long Rear Upper Control Arms	N/A	3
4	18951	9/16"-18 x 4" Zinc Finish Hex Cap Screw	Grade 8	4
8	33818	9/16" Zinc Finish SAE Thru-Hardened Flat Washer	Thru-Hardened	5
4	37310	9/16"-18 Zinc Finish Top Lock Nut	Grade C	6

Product Notes and Features:

- Weld-on frame brackets made of ¼" thick steel construction
- Utilizes the factory axle mounting points, no axle modification required
- Reduced suspension angles for a smoother, more controlled ride
- Longer arms to deliver greater articulation and climbing ability
    - **Lower arm dimensions: MIN = 35 $\frac{1}{4}$ ", MAX = 37 ", INSTALL = 35 $\frac{1}{2}$ "**
    - **Upper arm dimensions: MIN = 31 $\frac{7}{8}$ ", MAX = 33 $\frac{1}{4}$ ", INSTALL = 32 $\frac{7}{16}$ "**
- GIIRO Joint bushings on the axle and adjusters for smoother on-road handling, superior off-road articulation, and long-lasting reliability
- No exhaust modification necessary for 3.6 V6 JL
- Currently tested and confirmed on a JL with 3.6 V6 4 Door Only!

CONTROL ARM OVERVIEW

Please review the following information so you can become familiar with our purchasable options

OVERLAND PLUS

Designed for the daily driver/weekend warrior. Features dual-durometer, maintenance-free bushings for comfort on-road and capability on the trails. One of our two available rear suspension systems that utilize a unique long arm design for perfecting suspension geometry. Fully adjustable, 100% bolt on, and Made-In-The-USA with a Lifetime Warranty.

PREMIUM SERIES

Designed for the off-road enthusiast. Features both maintenance-free bushings and forged Johnny Joint adjusters for maximum versatility and flex. One of our two available rear suspension systems that utilize a unique long arm design for perfecting suspension geometry. Fully adjustable, 100% bolt on, and Made-In-The-USA with a Lifetime Warranty.

Arms, frame brackets, and hardware are identical, meaning you can swap to a different series at any point

INSTALLATION INSTRUCTIONS

TOOLS REQUIRED FOR INSTALLATION

- *Basic hand tools*
- *Metric wrench/socket set (10mm - 24mm)*
- *Standard wrench/socket set (13/16", 7/8")*
- *Large box wrenches (1 - 7/16", 1 - 7/8")*
- *Jack stands and/or vehicle lift*
- *MIG welder*
- *Cut-off wheel or plasma cutter*

*****Take this product to a licensed professional if you are hesitant about the installation process!*****

1. Position the vehicle either on the ground or on a lift. For this installation, it is recommended that the vehicle be supported by the frame. Support the rear axle with an additional jack stand. Remove the rear tires and disconnect the battery before welding.

*****Photos of control arm adjusters in the following photos may not match your selected series, but the installation remains the same!*****

Figure 1: Installation photo

INSTALLATION INSTRUCTIONS

2. Follow the pre-installation checklist below to ensure a smooth installation process. These steps are designed to simplify the later stages of the installation and create proper clearance for welding the frame brackets during the long-arm upgrade.

PRE-INSTALLATION CHECKLIST

- ❑ Remove the plastic fuel-line shield on the passenger side (Figure 2). If you have already installed the COR 4809001/4809201 Front Long Arm Upgrade Kit, this shield will not be present. It will not be reused once the upgrade kit is installed
- ❑ Remove the rear exhaust section at the clamps near the muffler and the cross member (Figure 3) and fully remove the section

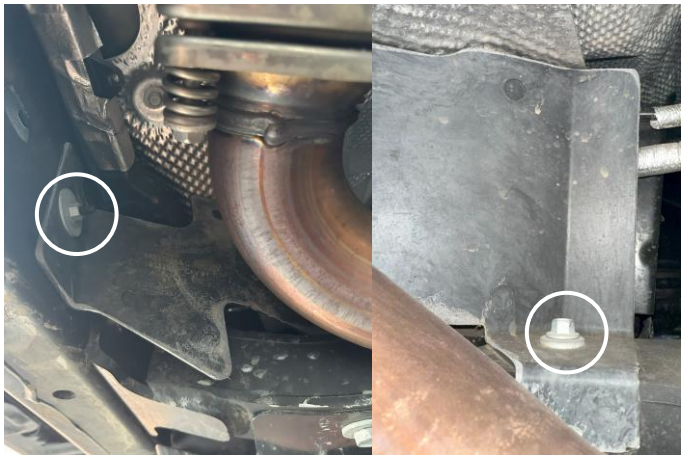

Figure 2: Fuel-line shield bolts (passenger side)

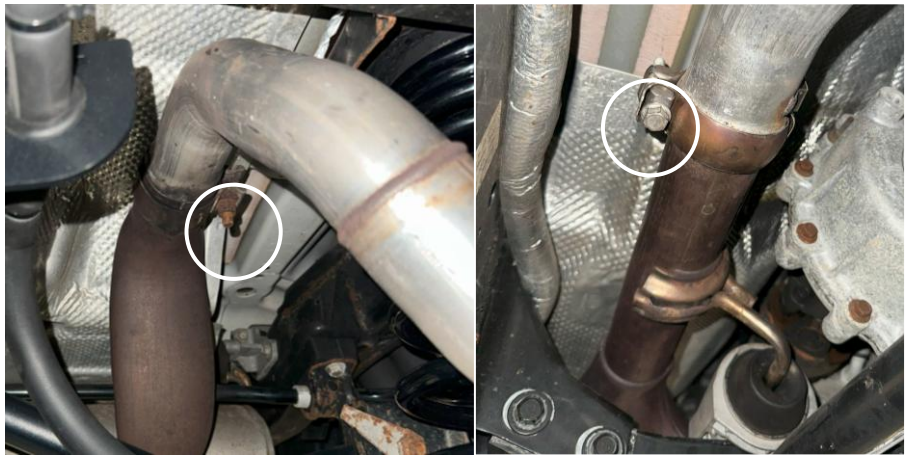

Figure 3: Rear exhaust section clamps to be removed

INSTALLATION INSTRUCTIONS

3. If adjustable control arms are currently installed, loosen the jam nuts while the arms are still installed. The gas tank will need to be removed to install the driver's side control arm bracket. We recommend draining the gas tank to less than ¼ empty before removing it. **Support the gas tank with two additional jack stands** before continuing in this installation.

GAS TANK REMOVAL

- ❑ Remove the transfer case skid plate using the socket sizes noted (Figure 4)
- ❑ Remove the (6) bolts holding the gas tank in place and **slowly lower the tank 3-4 inches using the supporting jack stands**. You'll find 3 bolts on the frame rail, 1 on the front cross member, and 2 on the side closest to the driveshaft (Figure 5)

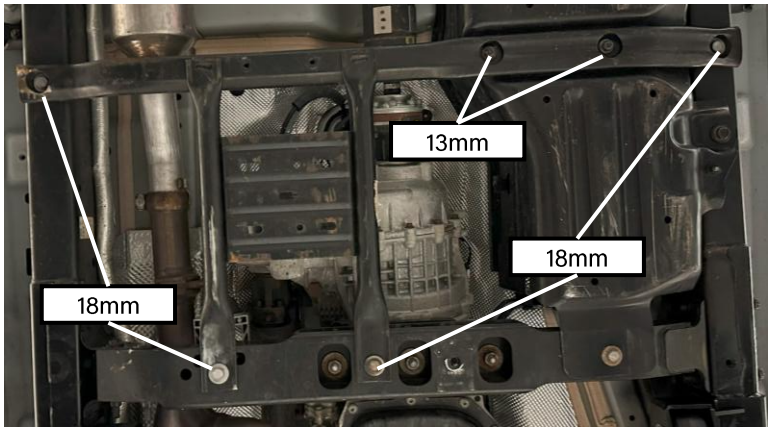

Figure 4: Transfer case skid plate bolts to remove

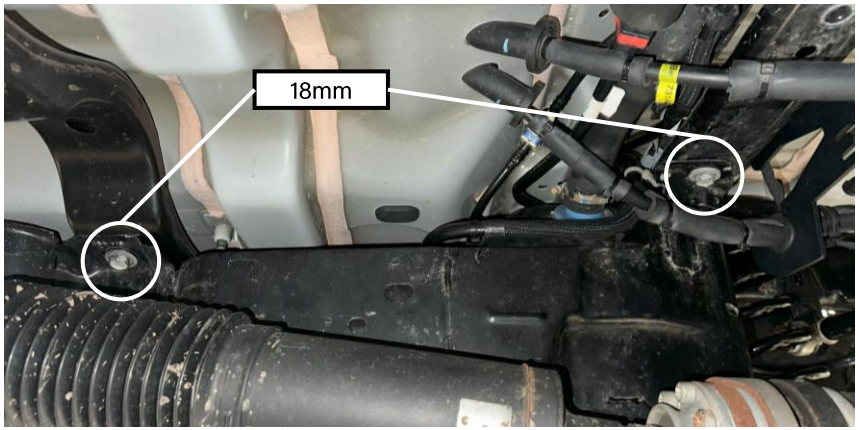

Figure 5: (2 of 6) gas tank bolts

INSTALLATION INSTRUCTIONS

4. With the gas tank bolts removed, support the tank and lower it by 3-4 inches. The following checklist needs to be completed to fully drop the tank out from under the vehicle. The tank has many lines that all need to be disconnected before the tank is fully dropped. **Take care in disconnecting these lines at the clips, because they are very fragile. KEEP ALL CLIPS.**

GAS TANK REMOVAL – REAR FUEL CONNECTIONS

- ❑ Loosen the filler neck clamp and slip it off the tube (Figure 6) using a 7mm socket or wrench
- ❑ Remove the filler breather by removing the blue, plastic retaining clip and gently pushing down on the spring clip on the opposite side (Figure 7)
- ❑ Remove the vapor system hose clip by removing the red, plastic retaining clip and gently pushing down on the spring clip on the opposite side (Figure 8)

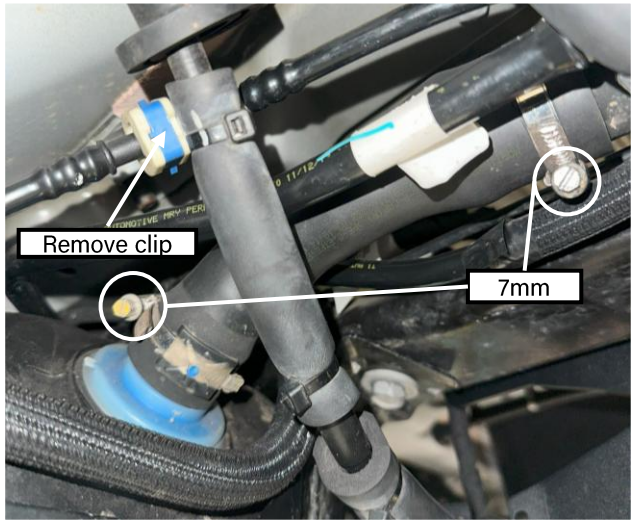

Figure 6: Gas filler neck to be loosened

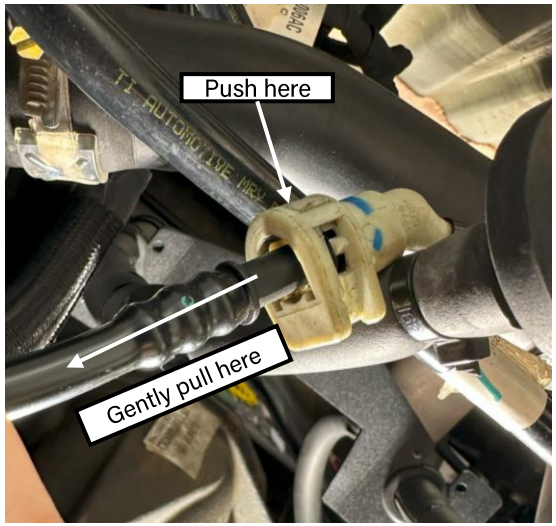

Figure 7: Filler breather clip disconnect

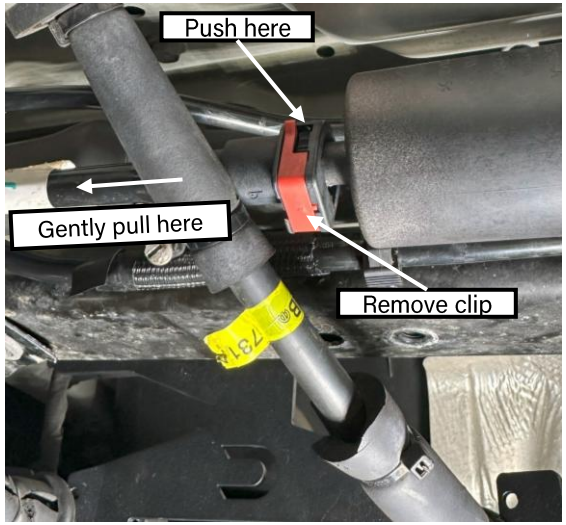

Figure 8: Vapor system hose clip

INSTALLATION INSTRUCTIONS

5. With the rear fuel lines disconnected, look at the top of the tank. The following list will outline what additional lines/cables need to be removed to safely drop the fuel tank out from under the vehicle. **KEEP ALL CLIPS.**

GAS TANK REMOVAL – TOP TANK CONNECTIONS

- ❑ Remove the evap canister hose by removing the green plastic clip, pressing in on the back of the spring clip, and gently pulling the line out (same as rear fuel connection clips) as seen in Figure 9
- ❑ Remove the electronic wiring harness located directly behind the evap canister hose clip. This may require the tank to be lowered further to gain additional clearance. **Be mindful of any existing hose retaining clips, remove them with a trim tool**

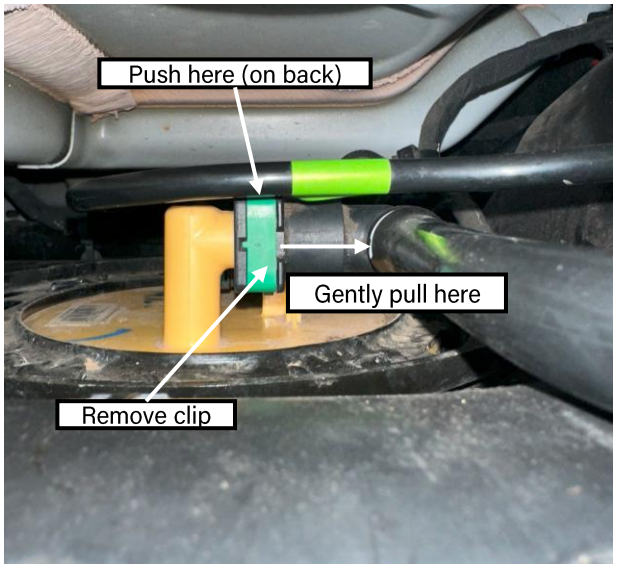

Figure 9: Evap canister hose clip

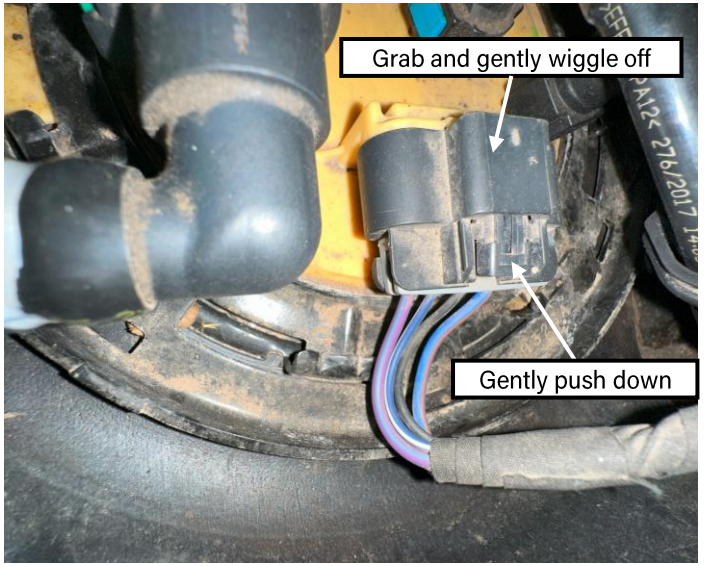

Figure 10: Tank wiring harness to be disconnected

INSTALLATION INSTRUCTIONS

6. With the rear and top fuel lines/cables disconnected, move to the front of the gas tank to complete the following steps. These lines may be under pressure and still contain fuel. We recommend using a rag to soak up any fuel that's leaking from these lines, or a cup to contain any mess.

GAS TANK REMOVAL – FRONT TANK CONNECTIONS

- ❑ Remove the two plastic red retaining clips from both lines pictured below (Figure 11)
- ❑ Push down on the opposite sides and pull the line out, gently (same process as previous clip removal)

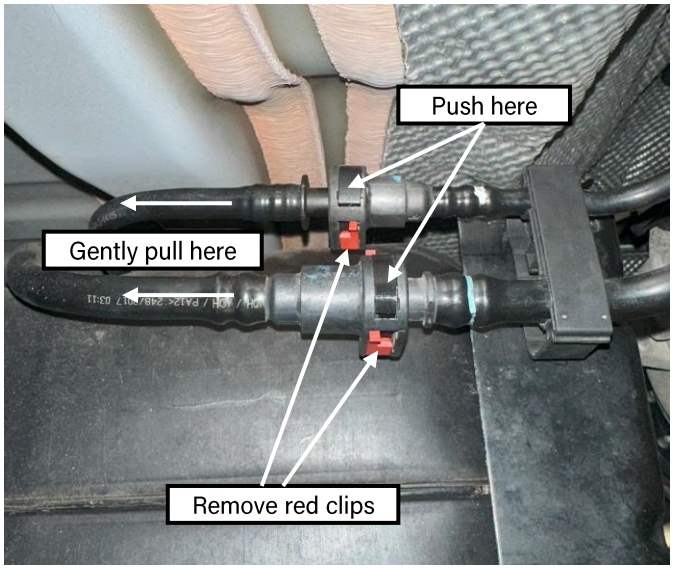

Figure 11: Front of tank connections

*****PUT ASIDE ALL PLASTIC RETAINING CLIPS, AS THEY WILL BE REUSED*****

INSTALLATION INSTRUCTIONS

7. Before fully dropping the tank, make sure that the tank is completely free of any remaining connections. Slowly drop the tank to gain visible clearance and ensure no hoses, plastic clips, or wires in the way. When the tank is fully dropped, please move it far away from the vehicle, as the installer will be grinding/welding.

GAS TANK REMOVAL – COMPLETE

- ❑ Move the tank far away from the vehicle (at least 20 feet)
- ❑ Put something over the front fuel connections and the filler tube to prevent leaks/fumes

Figure 12: Front, top and rear fuel tank connections

*****PUT ASIDE ALL PLASTIC RETAINING CLIPS, AS THEY WILL BE REUSED*****

INSTALLATION INSTRUCTIONS

8. Remove both rear lower control arms and begin cutting off the lower control arm brackets from the frame. It is recommended to cut the bracket just below the weld and then grind the weld flat. Complete this set for both sides. See Figure 13 for the rear lower control arm bracket on the passenger side of the vehicle (highlighted in red).

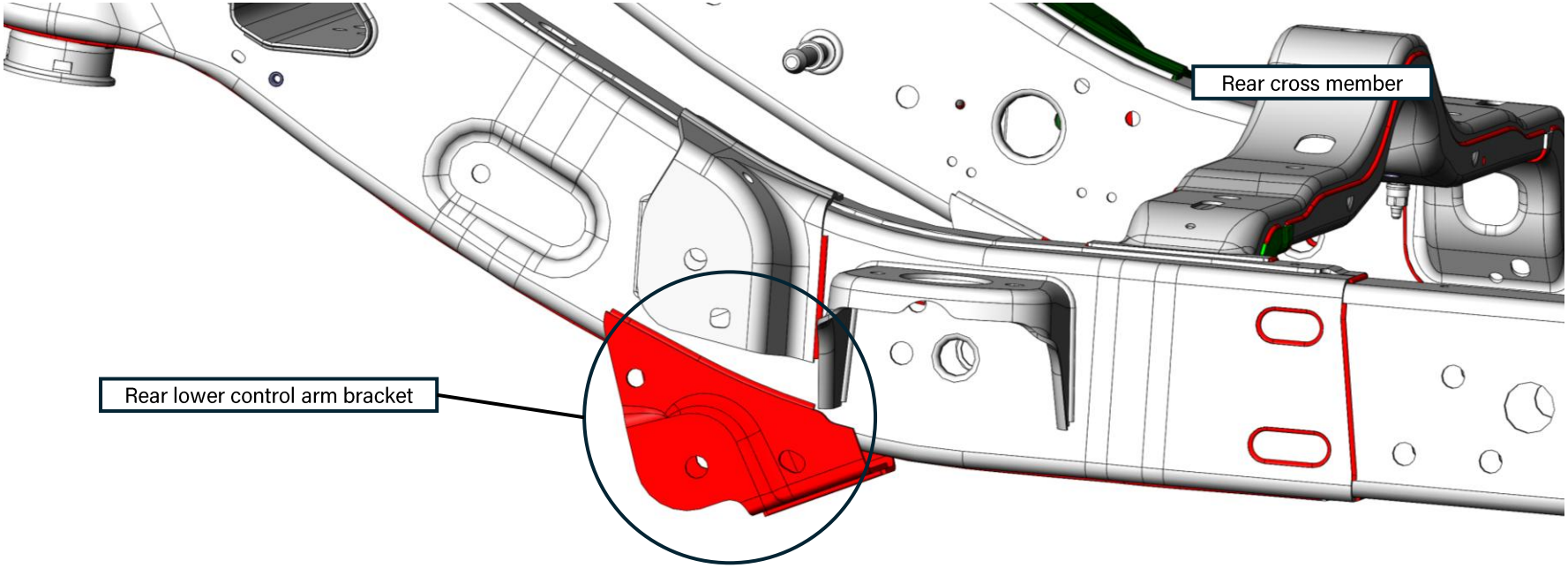

Figure 13: CAD model of original rear lower control arm bracket (passenger side)

INSTALLATION INSTRUCTIONS

9. Remove both rear upper control arms and begin cutting off the upper control arm brackets from the frame. It is recommended to cut the bracket just below the weld and then grind the weld flat. Using a plasma torch may be easiest. Complete this step for both sides. See Figure 14 for the rear upper control arm bracket on the passenger side of the vehicle (highlighted in blue).

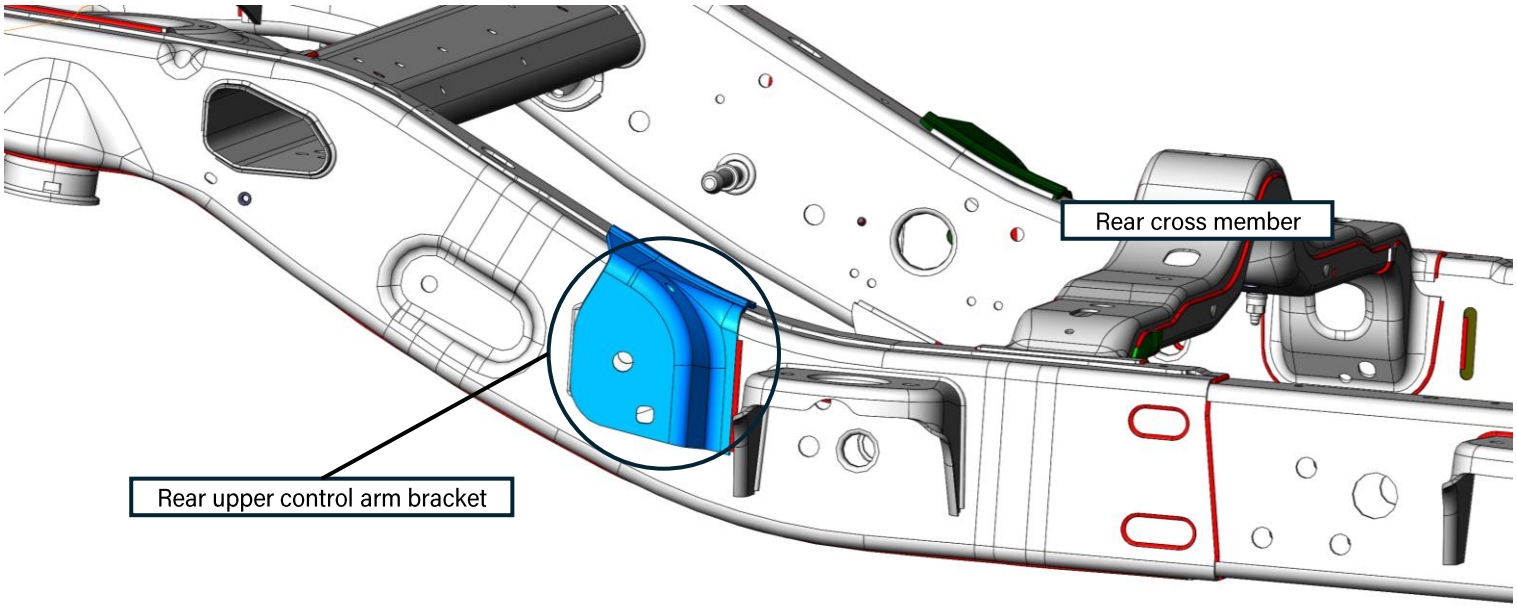

Figure 14: CAD model of original rear upper control arm bracket location (rear lower bracket already removed)

INSTALLATION INSTRUCTIONS

10. After cutting off the control arm brackets and grinding the welds flat, prepare the area for welding by removing any paint and thoroughly cleaning the bare metal surface.

Position the new control arm brackets on the frame rail, ensuring they align with the sheet metal step on the frame. Verify that the gas tank bolt hole is perfectly concentric with the corresponding hole in the new bracket.

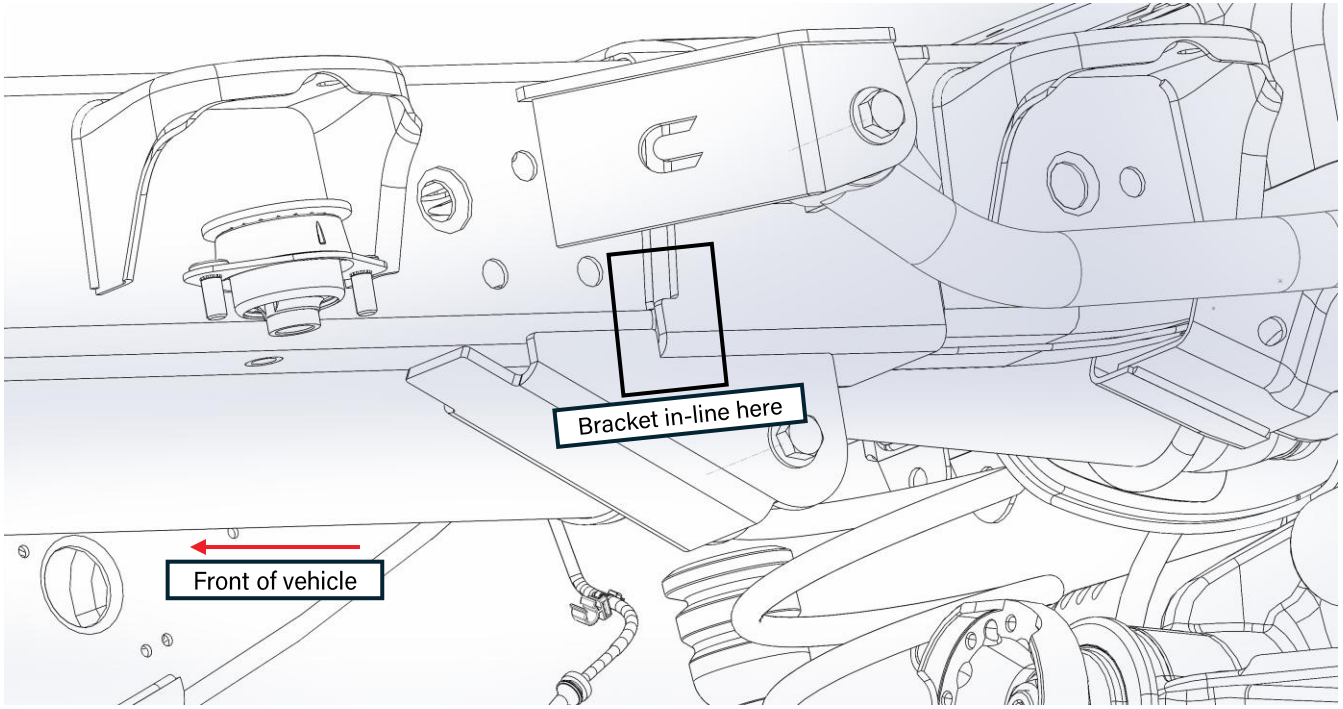

Figure 15: CAD model of bracket installed over frame rail (driver side)

INSTALLATION INSTRUCTIONS

11. Secure the brackets to sit flush on the frame rail using a mallet or dead-blow hammer. You may also temporarily install one of the gas tank bolts to hold the bracket in place for welding.

Weld completely around the entire outside edge of the frame rail bracket. Be mindful of the coolant and brake lines when welding on the brackets. Unclip and move them out of the way or shield them using a piece of scrap metal. Weld inside and outside of the frame rail.

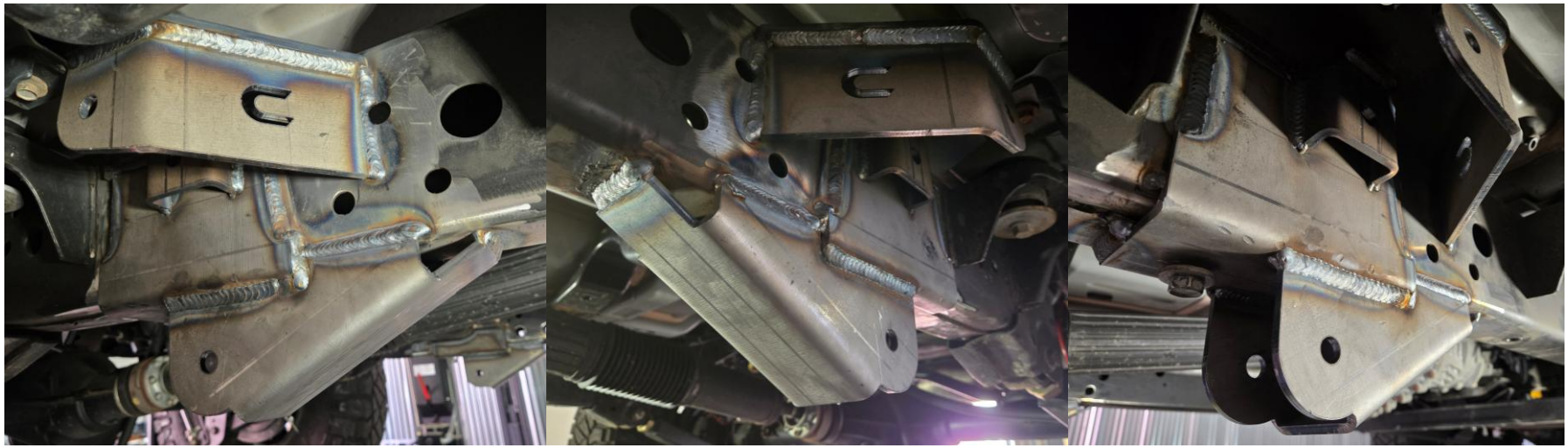

Figure 16: Bracket welded along the contact edge points to frame rail

INSTALLATION INSTRUCTIONS

23. Install the lower control arm on the **passenger side**. The lower arms set the wheelbase of the axle. Set their length to the install length found at the beginning of this document. Ensure they are both the **same length.** Put the arms side by side and run a bolt through both ends to ensure they are equal in length. This starting length will get your wheelbase close, but cycling the suspension and checking your axle range will be needed to dial in the rear axle position.

Reuse the original hardware from the previous lower control arms on the axle. Use the supplied 9/16"-18 x 4" bolt along with washers and top lock nut for the frame bolt.

Next, loosely install the upper control arm using the supplied 9/16"-18 x 4" bolt, washers, and top lock nut at the frame bracket. Set their length to the install length found at the beginning of this document. Reuse the original hardware for the upper control arm mount to the axle.

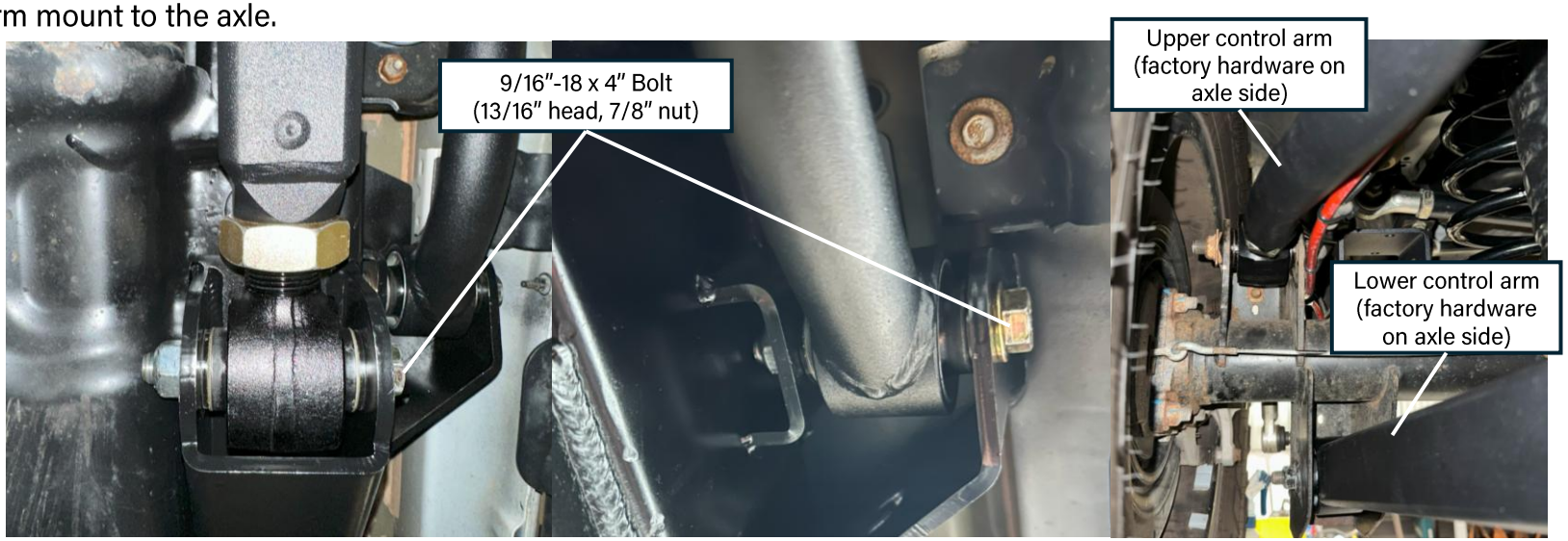

Figure 17: Frame bracket with lower and upper arm (adjuster end) installed using supplied hardware

NOTE: Make sure that the adjuster of the lower arm is on the frame side, and the upper arm's adjuster is located on the axle side.

INSTALLATION INSTRUCTIONS

13. To accommodate the new frame brackets on the passenger side, one of the gas tank mounts must be trimmed. Please see Figure 18 for a template on where to cut the rear-most frame rail mount on the tank. Use a cut-off wheel to make the cut. **REMOVE THE GAS TANK OUT OF THE SKID BEFORE CUTTING.**

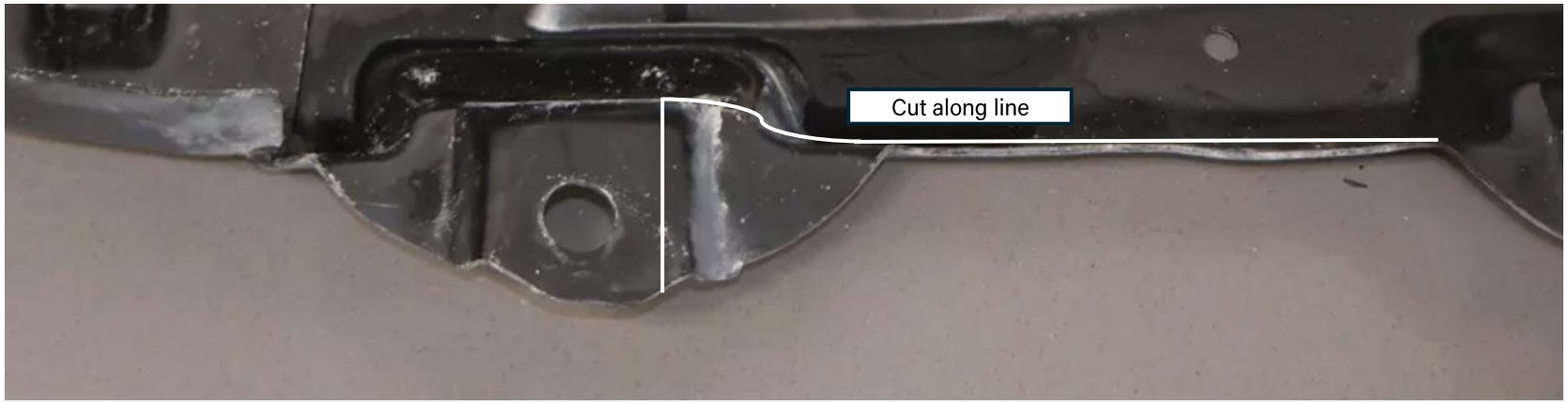

Figure 18: Rear-most gas tank skid plate mount before clearance cut

NOTE: Trim/notch at the mount, then continue the cut on the edge (white line) of the tank skid until you reach the middle mount. Stop the cut, sand the edge smooth, and paint the area.

INSTALLATION INSTRUCTIONS

14. Install the other lower control arm (same length as the first side) using supplied and original hardware. **Leave this side's upper control arm out for now.** Visually check the wheelbase positioning by comparing the axle and frame coil buckets and shock positioning. Adjust the wheelbase length as needed by threading in/out **both lower control arm adjusters equally.**

Next, set the vehicle at ride height. Reinstall this side's tire and use a jack stand to support the other end. To set the pinion angle:

- Support the pinion with a car jack
- Remove the upper control arm bolt at the frame bracket
- Use the jack to set the desired pinion angle (use a digital angle finder). We recommend 5.5°-6°
- Lengthen or shorten the upper control arm adjuster to achieve the desired angle and tighten
- Installing the other upper control arm on the other side to fit, without touching the jack. **The upper control arms do not need to be the same length and can vary slightly!**

Figure 19: Driver side lower and upper control arms installed

INSTALLATION INSTRUCTIONS

15. Depending on various vehicle factors such as lift height, tire size, bump stops, and axle positioning, additional trimming near the rear body mount may be necessary to prevent interference at full suspension flex. It is essential to fully cycle the suspension and visually check for any potential contact points before finalizing the installation.

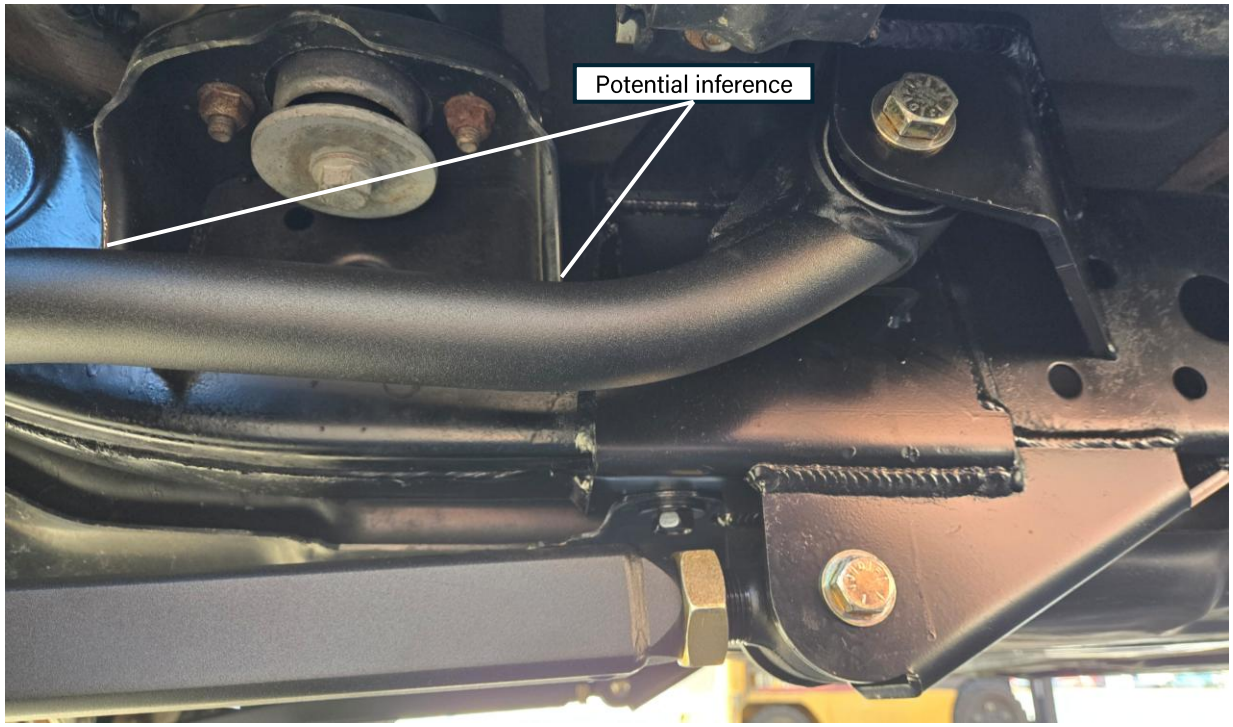

Figure 20: Potential interference point (rear-upper control arm and rear body mount)

INSTALLATION INSTRUCTIONS

16. Reinstall the gas tank into the tank skid and prepare to fit it back into place. It is easier to balance the tank on two jack stands and slowly lift the tank back into its position. Once the tank sits 3-4 inches below its mounting location, reinstall the fuel lines at the front, top and rear of the tank. Use the original plastic clips to lock each connection. Reinstall any removed trim clips and reconnect the filler tube.

Make sure no connections are missing or loose. After all the lines are reconnected, bolt the tank back into place using an 18mm socket.

Figure 21: Gas tank ready to be installed back into mounting position

INSTALLATION INSTRUCTIONS

17. Torque all hardware. Refer to the table below for helpful torque specifications. It is recommended to retorque all bolts after the first 500 miles of driving.

Table 1: COR Long Arm Torque Specifications

Bolt Location	Wrench Size	Torque (ft-lbs)
Upper Control Arm Frame Bolt (9/16”-18 x 4”)	13/16” and 7/8”	170
Upper Control Arm Axle Bolt (Factory Size)	21mm	125
Lower Control Arm Frame Bolt (9/16”-18 x 4”)	13/16” and 7/8”	170
Lower Control Arm Axle Bolt (Factory Size)	21mm	125

INSTALLATION INSTRUCTIONS

18. Tighten down the jam nuts on the upper and lower control arms. Use a 1–7/8" wrench for the lower control arm jam nuts, and a 1-7/16" wrench for the upper control arm jam nuts. Use a breaker bar to gain additional leverage. Tighten all jam nuts down as tight as humanly possible.

Please note that not all wrenches are created with the same tolerances. If your wrenches are too loose around the jam nut, Clayton Off Road offers tight, wrap-around wrenches for purchase. Please search for the wrenches using the SKU's below.

Figure 22: COR Wrench-ends for control arm jam nuts (COR-2500125, COR-2500100)

INSTALLATION INSTRUCTIONS

19. Once the frame and brackets are painted and the control arms are torqued to specification, follow the post-installation checklist to complete the installation. As always, feel free to contact us with any questions you may have about the installation.

POST-INSTALLATION CHECKLIST:

- ❑ Frame brackets are properly welded entirely to the frame
- ❑ The work area is fully painted
- ❑ Exhaust is reinstalled at the muffler and cross member flange
- ❑ Coolant/brake lines are put back into place and are not damaged
- ❑ All hardware is torqued to specification (see Step 17)
- ❑ Control arm jam nuts are as tight as possible
- ❑ Lug nuts are torqued to the manufacturer's specification
- ❑ A licensed shop has professionally aligned the vehicle
- ❑ Retorque all hardware after 500 miles of driving

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