



## Talon 1000 Hydraulic Steering Installation Instructions

We have tried to cover every detail of this installation as thoroughly as possible, but in the event that we missed something, please let us know. We really appreciate your business, and we hold customer satisfaction with high regard. Do not hesitate to give me a call if you need clarification or assistance with anything at all throughout your installation process.

-Jared Doster  
936-581-2948

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This Hydraulic Steering system is an extreme upgrade to the conventional rack and pinion setup on the Talon. The new Electric PS Pump requires a lot of power to supply the system with the pressure and fluid volume it needs and therefore it is **MANDATORY THAT YOU RUN A DUAL BATTERY SETUP WITH THIS SYSTEM that does NOT utilize a "smart isolator."**

### **Uninstall Stock Steering Rack:**

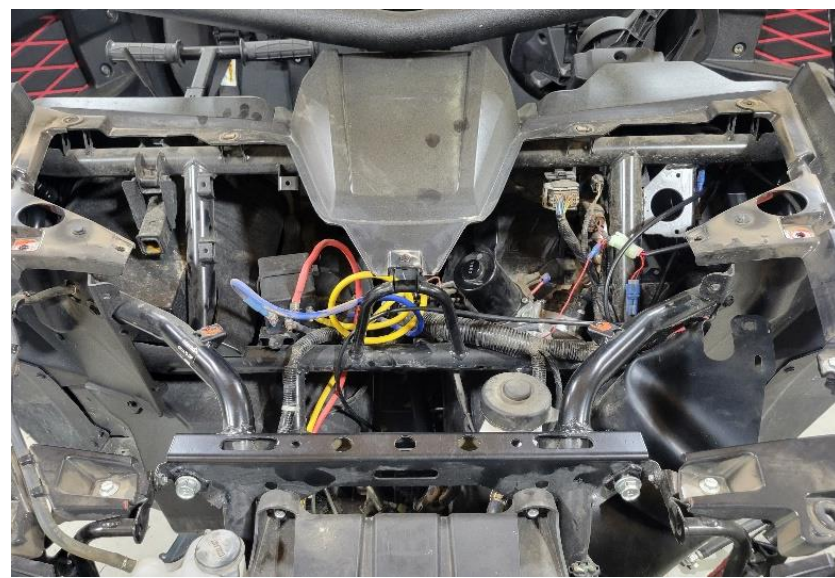
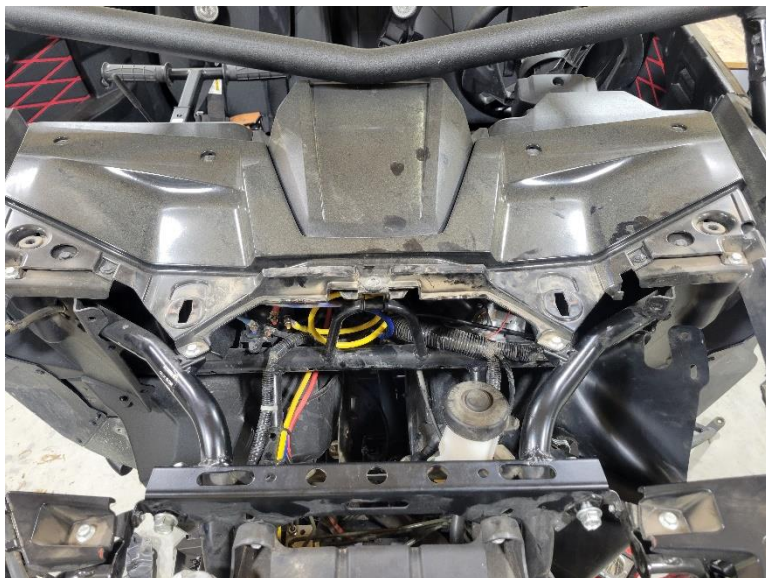
**Step 1.** You will need to remove the front diff in order to remove the stock steering rack. Use this video for tips on removing the front diff and drive shaft. (<https://youtu.be/mI7BZpAOTT8?si=Eyg-HAdMmjNRiKUq>)

**Step 2.** Once the front diff is removed, remove stock steering rack from the vehicle, and reinstall the front diff.



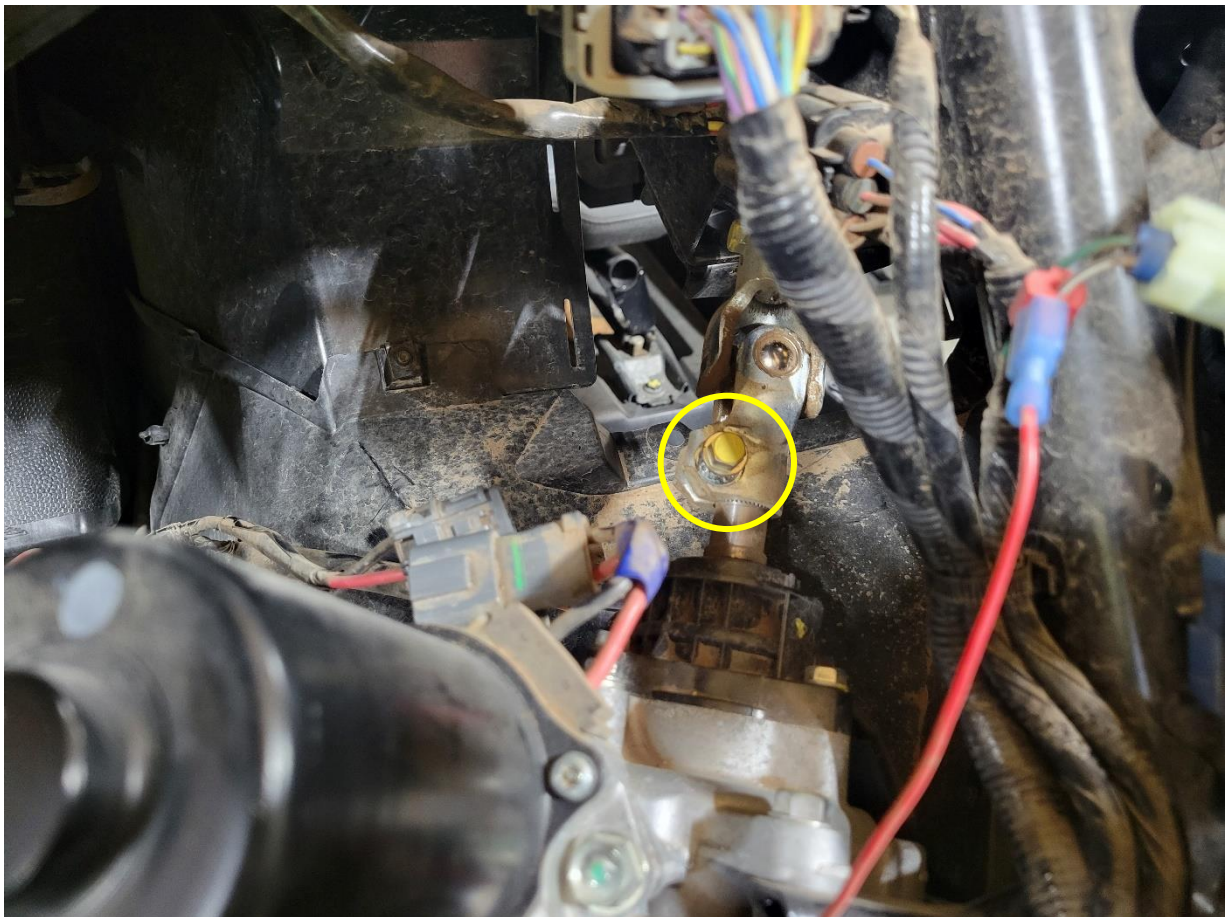
### **Remove EPS Unit:**

**Step 1.** After removing the hood, remove all the pop rivets and allen head bolts that secure the rear hood section to the frame and other body panels, and remove the rear hood section.



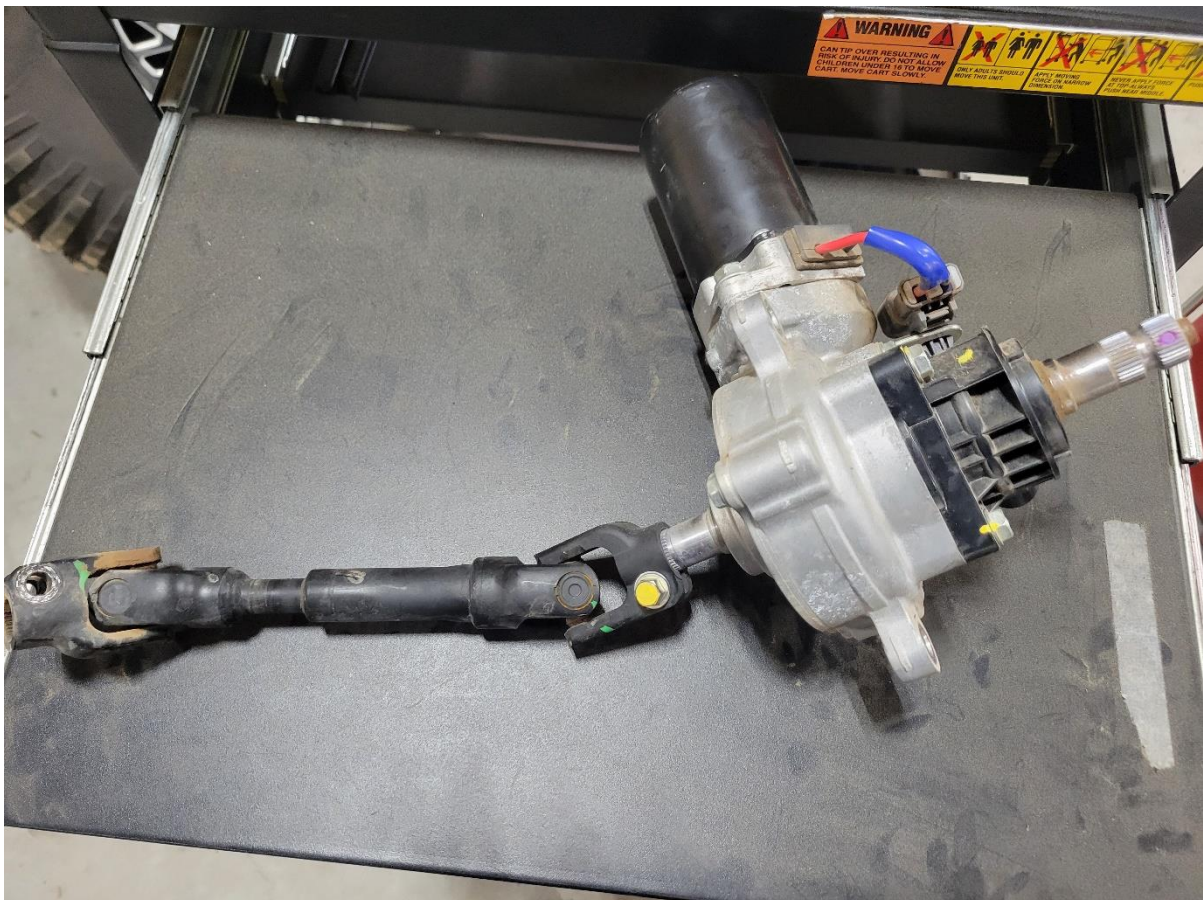


**Step 2.** Now that you have access to the EPS unit, remove the bolt that secures the steering yolk to EPS unit and the bolt that holds the yolk to the upper steering shaft. This will make it easier to remove the EPS Unit.





**Step 3.** Once you have removed the steering shaft bolts, disconnect the 2 electrical connectors from the EPS unit. Next remove the 3 bolts that mount the EPS unit to the frame, and remove the EPS unit from the machine along with the steering yolk.





## Install Orbital Valve:

**Step 1.** Now that you have the EPS unit removed, remove the steering linkage that connected the old EPS unit to the steering wheel. We will reuse this linkage on the new Orbital valve steering column.

**Step 2.** The yoke that was removed from the EPS unit needs to be slightly modified to work with the new shaft on the Orbital valve. Using a hammer and a pry bar or wedge, spread open the ears on the yoke so that it will slide on to the new Orbital shaft. Then install the yoke onto the orbital valve shaft as shown. It will be a tight fit and you may need to use a rubber mallet to help it onto the shaft. Install the 10mm retaining bolt on to the yolk and tighten.

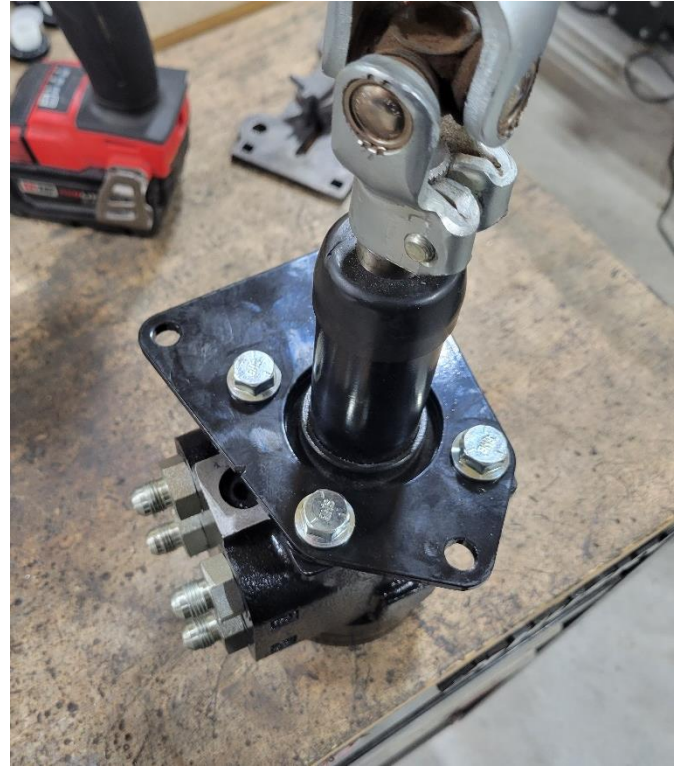
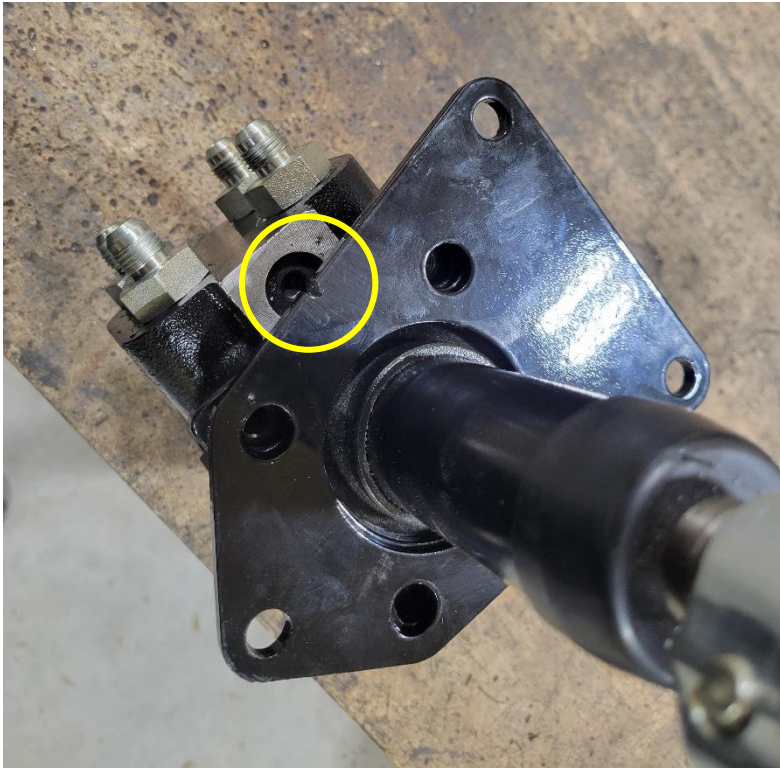


**Step 3.** Now assemble the Orbital valve in this order, steering column, bracket spacer, frame bracket. For now, leave the bolts hand tight. Install and tighten the 4 fittings into the Orbital valve at this time.





Make sure the notch in the mounting bracket is in the same direction as the orbital valve ports.



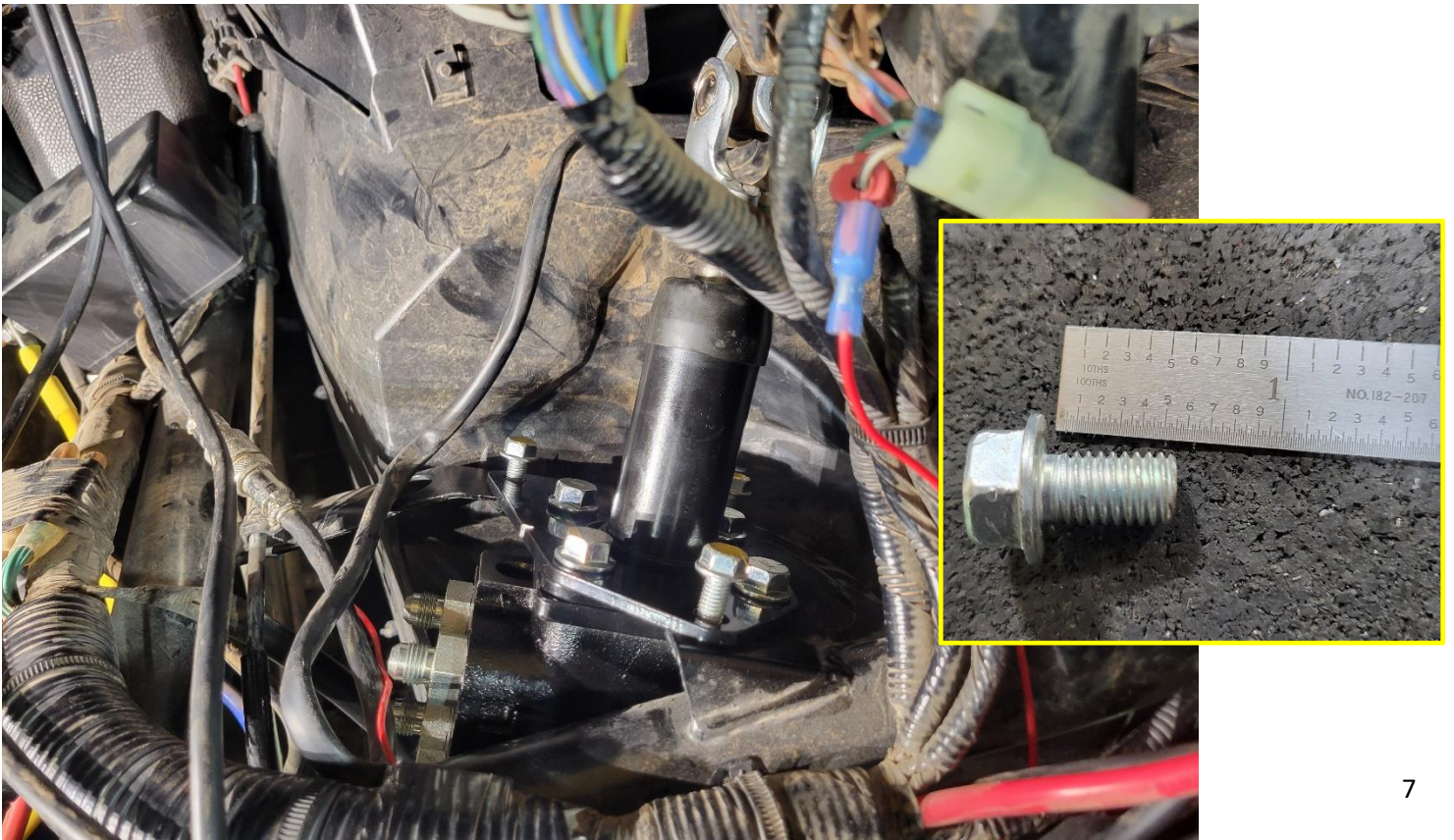
**Step 4.** Now install the Orbital valve assembly into the machine. Once you get the Orbital valve assembly in place, connect the yoke to the steering column before you start any of the frame bolts. Make sure to line up the yolk with the flat spot on the steering shaft so that the 10mm retaining bolt will install properly.







**Step 5.** Once you get the shaft in place, install the bottom 2 frame bolts. The top bolt will need to be trimmed down so that it is 1/2" long. (See pic below)

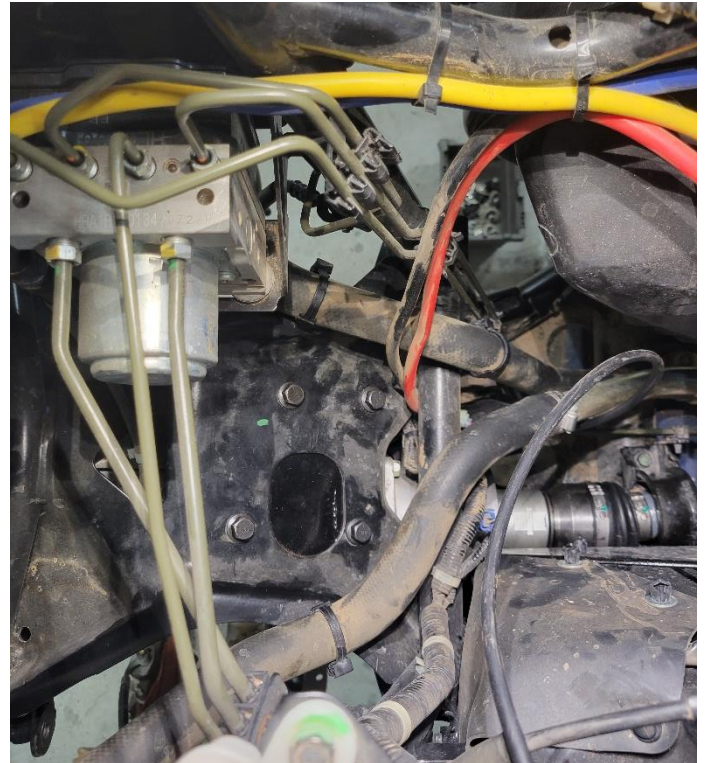
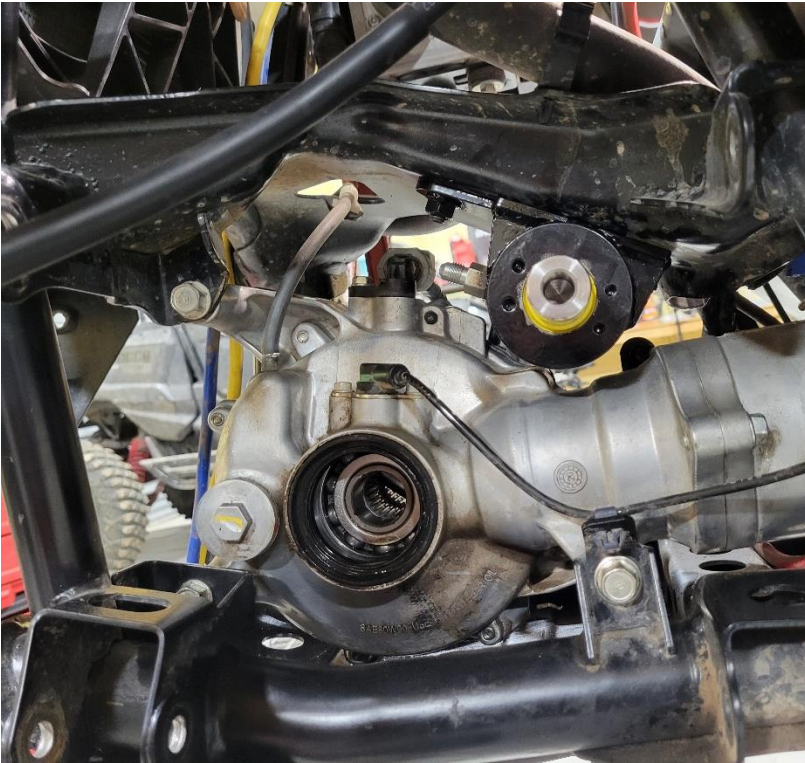




**Step 6.** Once everything is in place, tighten down the 3 bolts that secure the orbital valve bracket to the frame. Then tighten down the 4 bolts that hold the bracket and steering column to the orbital valve. **(Don't worry about whether your steering wheel is straight or not at this time)**

### **Hydraulic Ram Installation:**

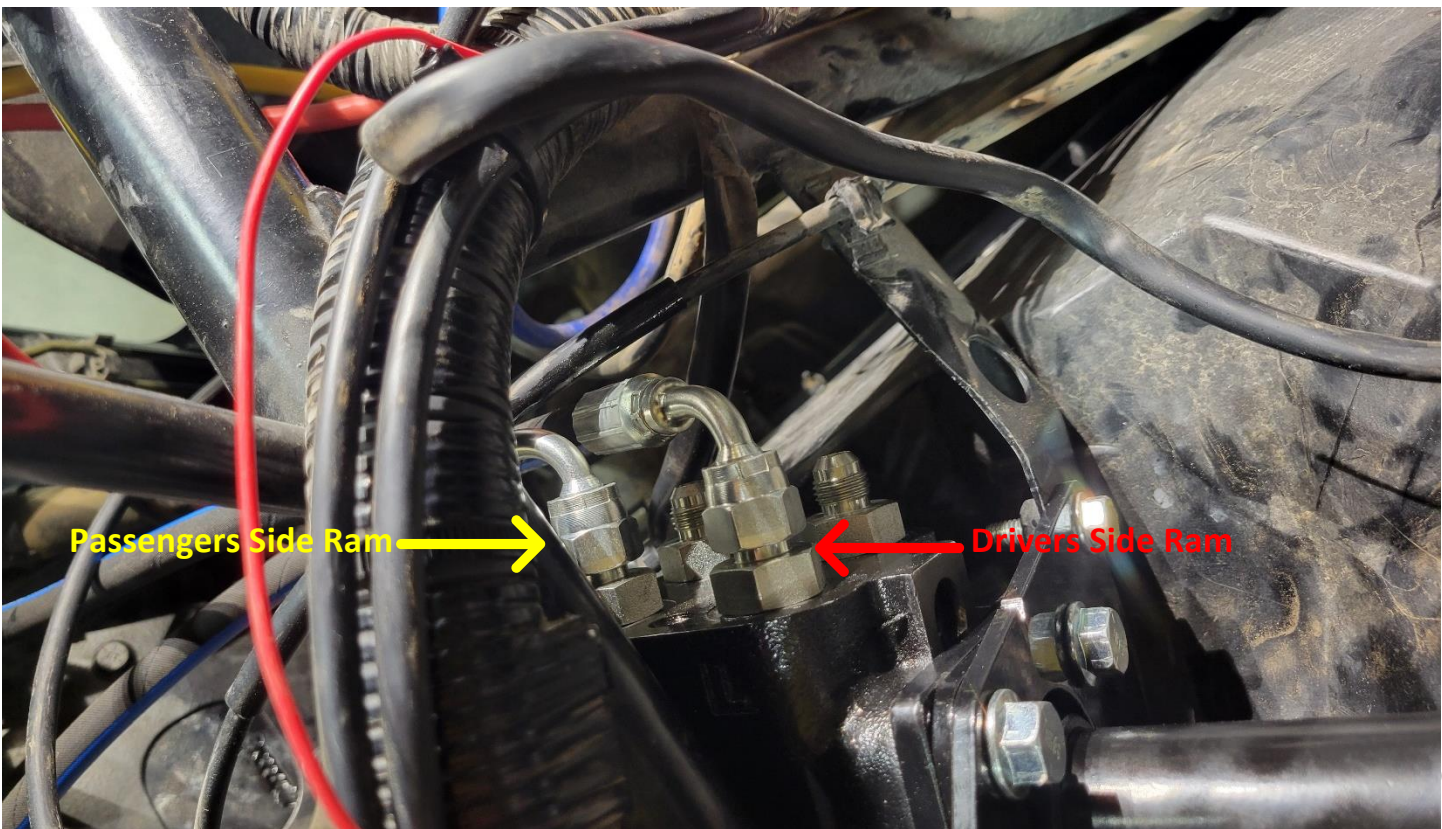
**Step 1.** Slide the ram into place from the driver's side. Once in place, use the supplied bolts to secure the ram to the frame where the stock steering rack once was. Use Thread locker and tighten the bolts down.



**Step 2.** Locate the 2 hydraulic lines that go from the ram to the orbital valve and install them. One end will have a 1/4" fitting for the ram side, and the other will have a 3/8" fitting for the orbital side.







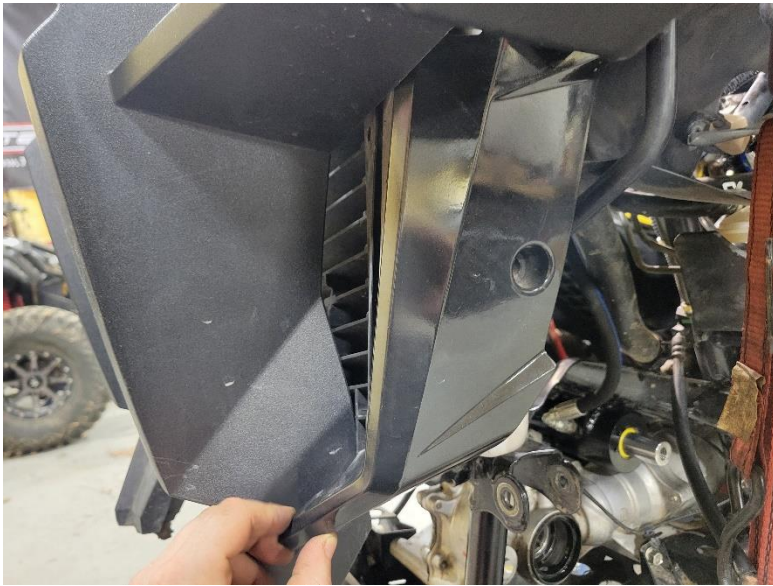


**Step 3.** Once each line is routed, tighten fittings down with a wrench on both the ram side and the orbital side.

### **Fluid Cooler Installation:**

**(Some Models may need to remove the grille for installation of the cooler)**

**Step 1.** Start by removing the driver's side radiator side shroud plastic shown below.

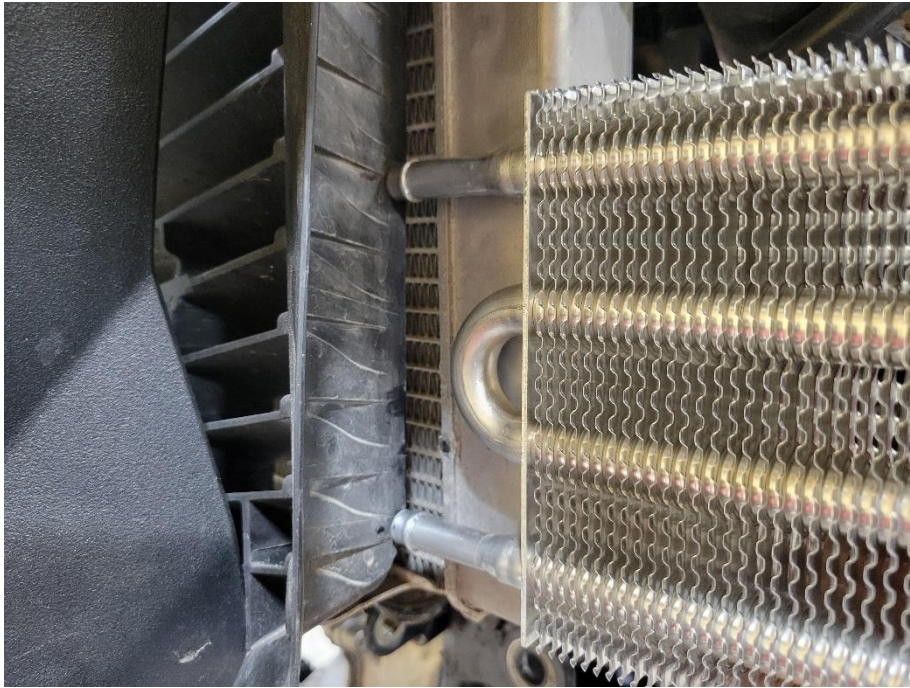


**Step 2.** Next push the lower grill pegs out of the radiator mounting holes on both sides as shown below.

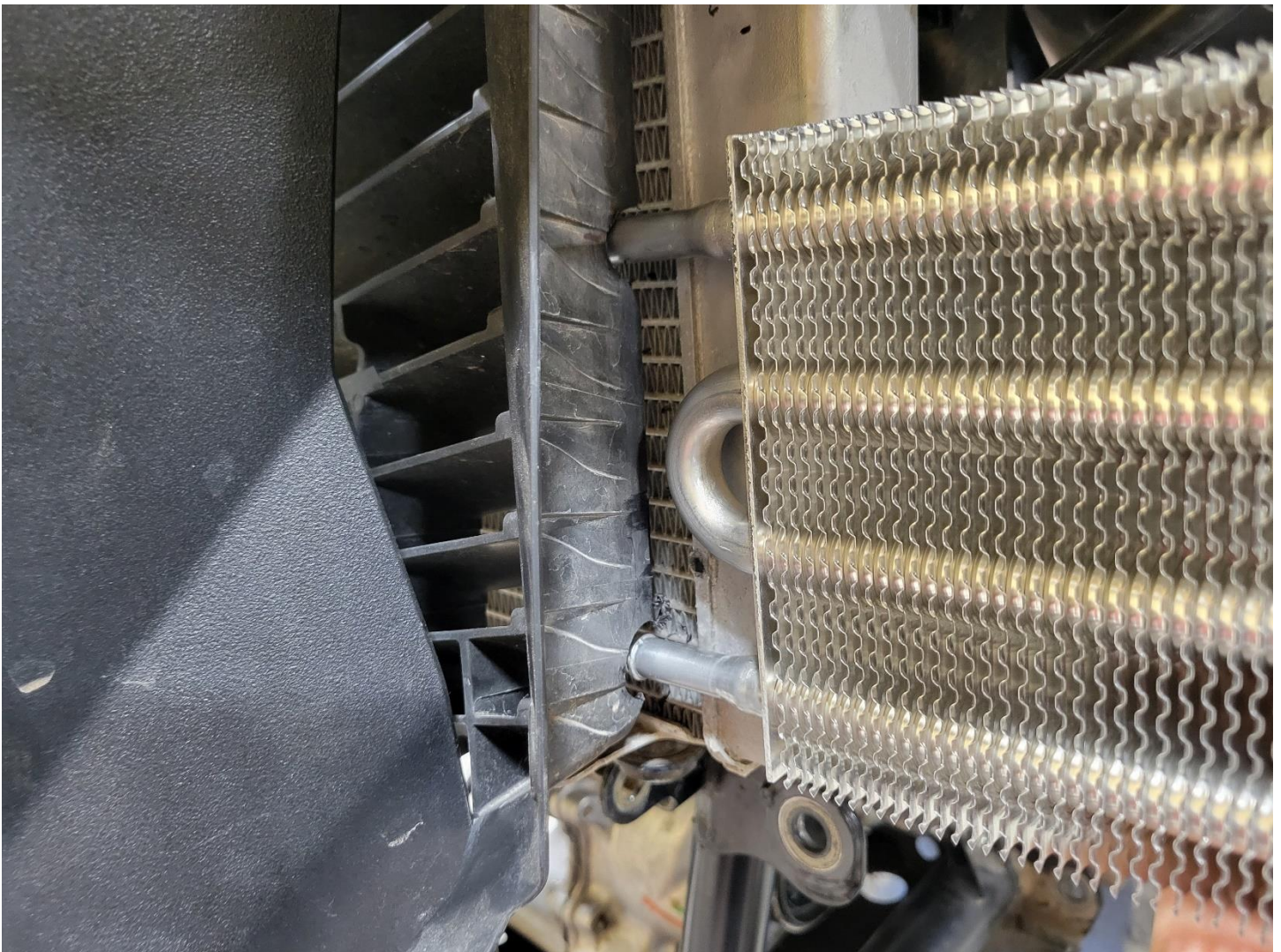




**Step 3.** Now locate the fluid cooler and use it to mark the radiator grill for trimming.



**Step 4.** Using a step bit or drimmel tool, trim out 2 holes in the radiator grill for the fluid cooler hoses to have clearance. You will need to trim more than you think to clear the 3/8" hoses.





**Step 5.** Once the holes are trimmed, install the supplied hoses to the fluid cooler and put cooler into place for a test fit.



**Step 6.** Locate the “EZ Tie Mounting Rods” that come with the inline cooler. Begin by pushing these through the radiator from the fan side.

**Step 7.** Once the mounting rods are pushed through the radiator, slide the provided foam pads onto the rods.





**Step 8.** Slide the cooler into place and feed the “EZ mount rods” through the cooler. Once in place, slide on the flat plastic holding washers, followed by the tiny locking cones that lock the washers into place and hold everything together. (See pic below) Trim the excess rods.



**Step 9.** Once the fluid cooler is secured and in place, put the radiator grill pins back into place, route the lines up to the orbital valve area, and reinstall the radiator side shroud.





**Step 10.** The upper hose on the fluid cooler goes to the orbital valve and needs to be pushed on to the supplied hose barb and tightened down with supplied hose clamp. The lower hose goes up to the hydraulic pump return barb. This will be connected in a later step. (The pic below shows a 45° fitting, but your kit may vary)



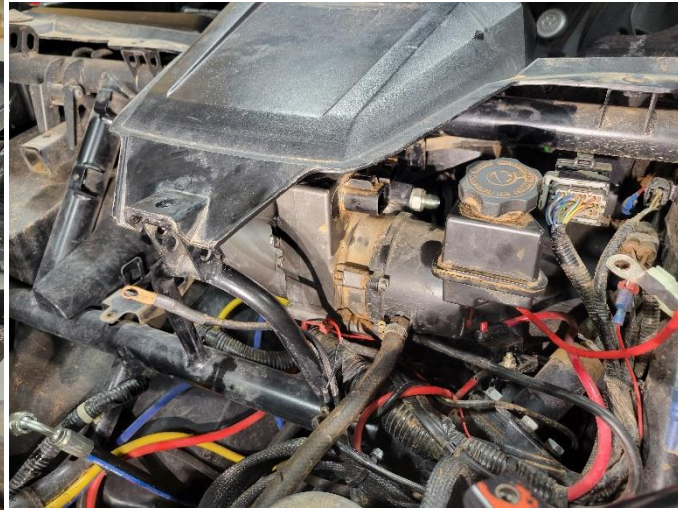
### **Electric Power Steering Pump Installation:**

**Step 1.** Locate the new electric power steering pump, pump wiring harness, and pump hose fitting, and install the pump hose fitting as shown below. Go ahead and tighten these down at this time.

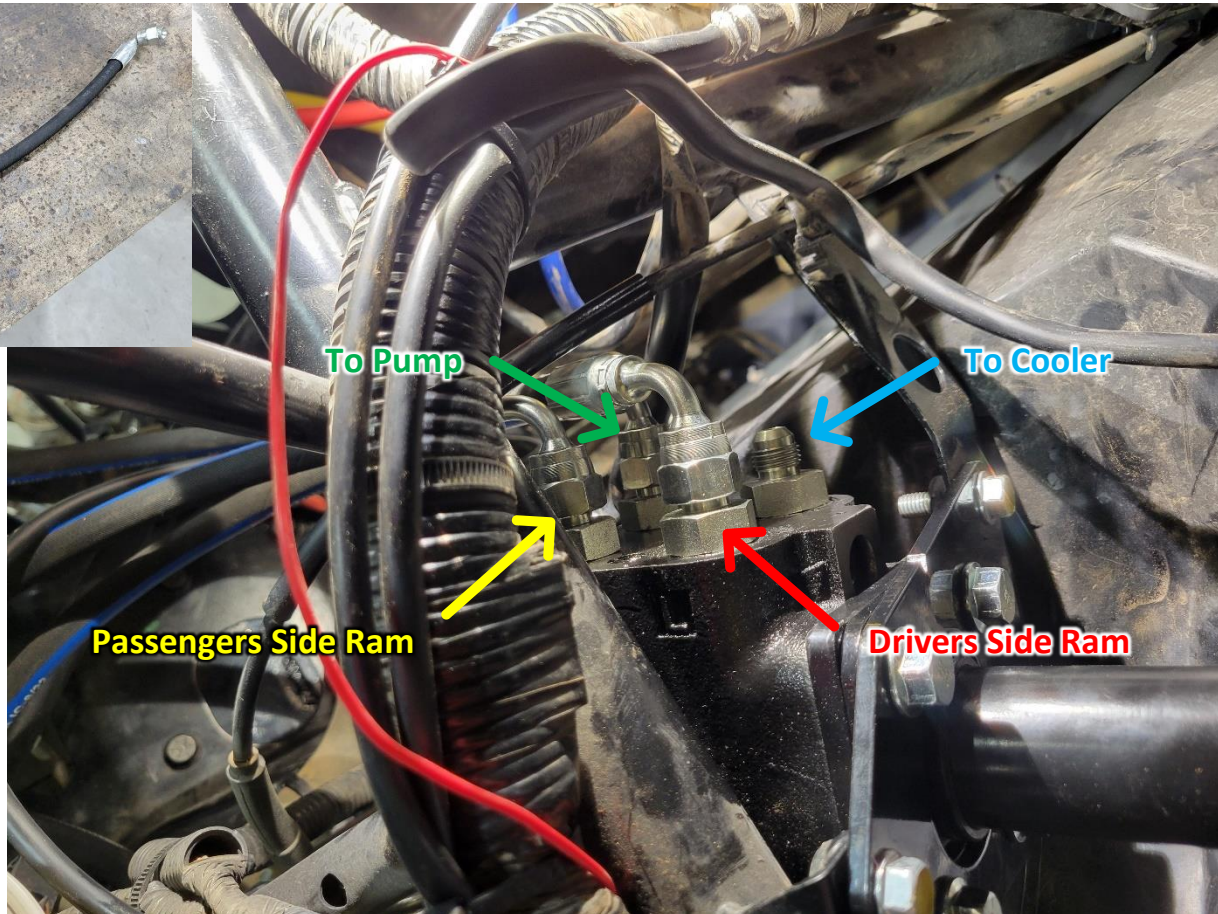




**Step 2.** Now install the TTC pump bracket to the frame as shown below, then bolt the pump to the Bracket.

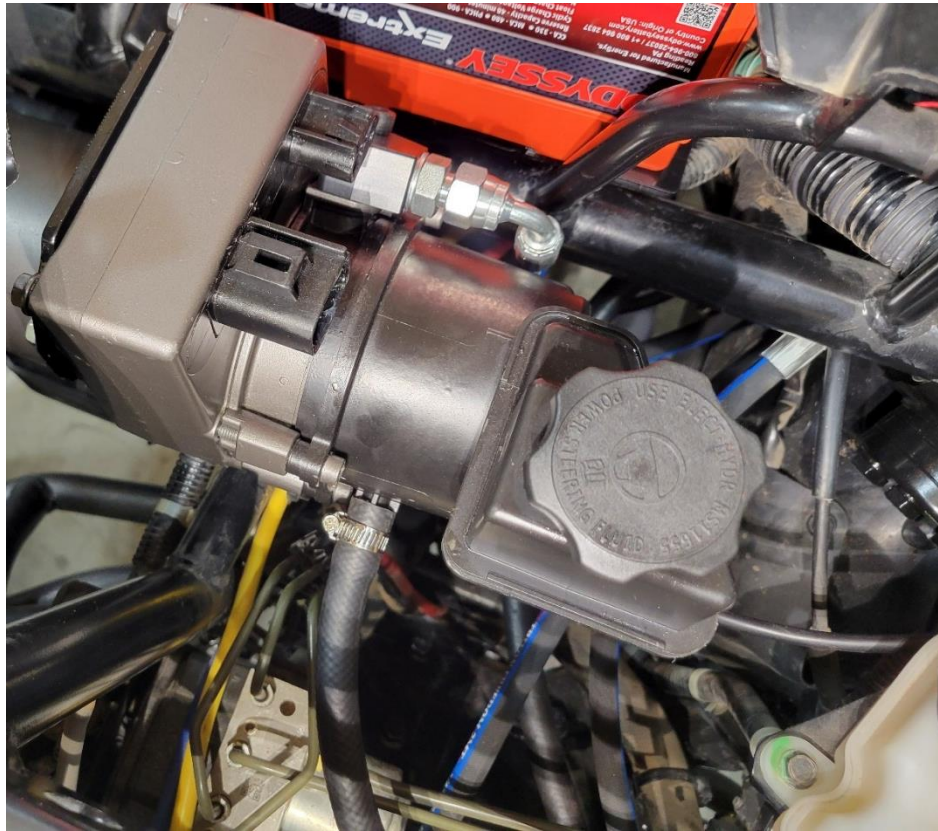


**Step 3.** Next, locate the pump to orbital valve hose shown below. First connect one end to the orbital valve and tighten down. Route the other end up to pump area. At this time go ahead and connect the hose barb from the Upper Fluid cooler hose to the last spot on the orbital valve and tighten down.





**Step 4.** Now, connect the lower low-pressure hose from the cooler to the return barb on the pump and secure with the supplied hose clamp. Also connect the high-pressure hose from the orbital to the pump and tighten.



### **Run Electrical:**

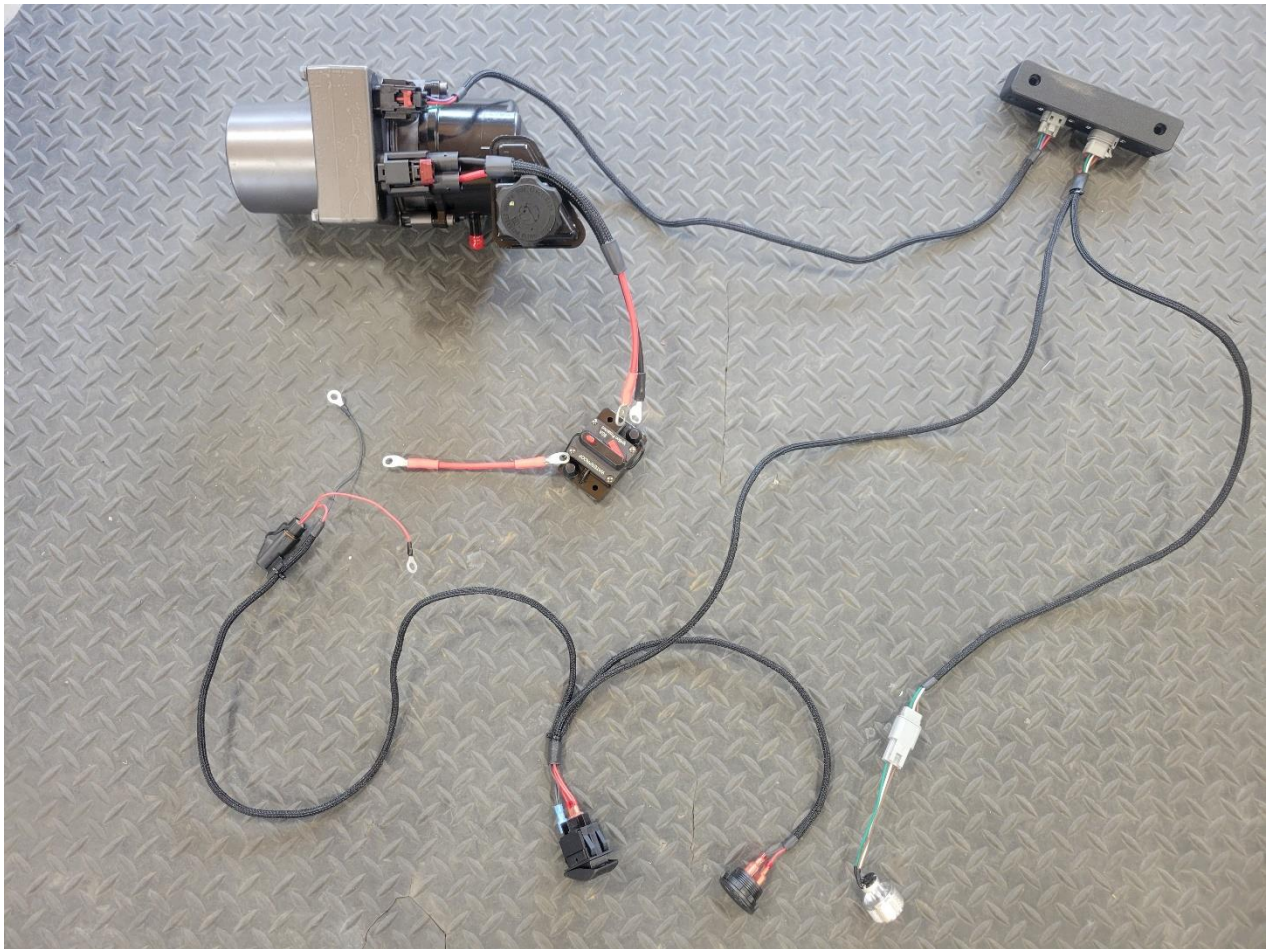
**Step 1.** Connect all of the wiring harnesses per the wiring diagram below.

**Step 2.** Connect all the power wires for the control unit, Electric PS Pump, and volt meter, and install the power switch and potentiometer (rotating dial) where desired. The potentiometer controls the rpm of the pump. The higher the rpm the more voltage it consumes and the more psi it puts out. **Usually between 1/4 and halfway is the best setting.**

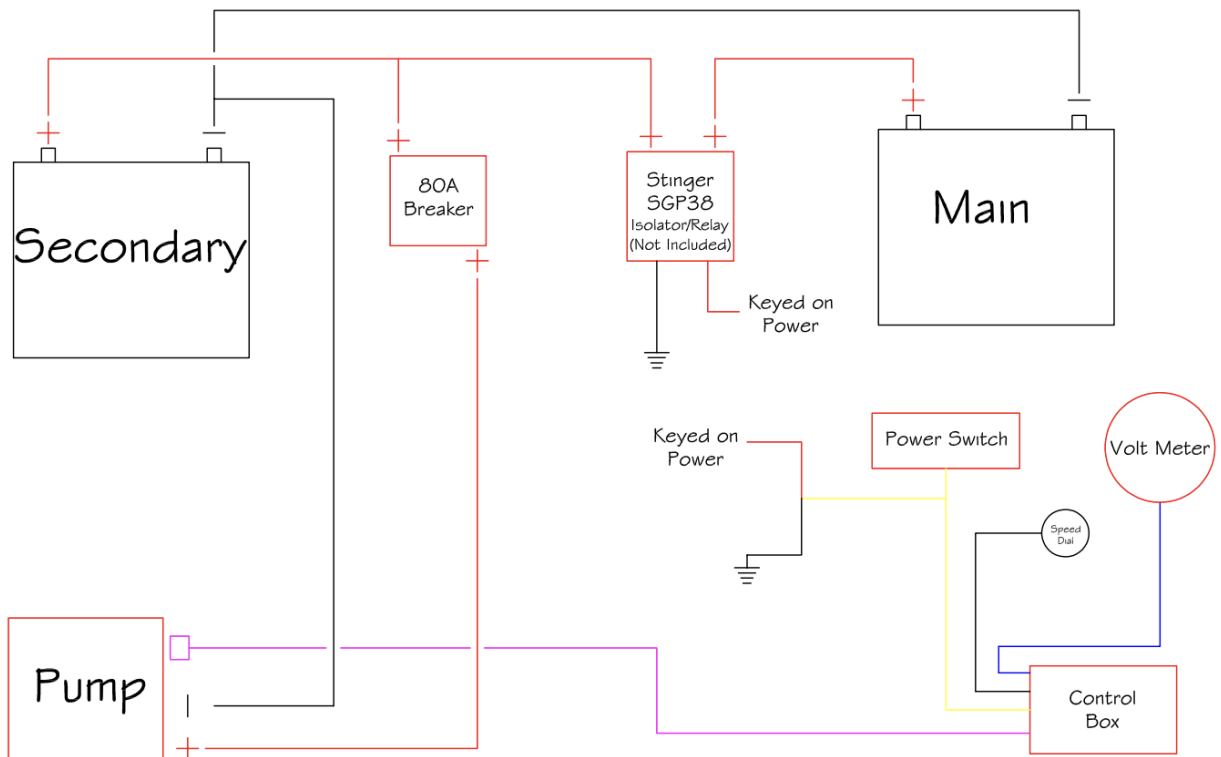
Shown with (Modified) AJK Switch Panel Installed:







**Dual Battery Wiring Diagram:**





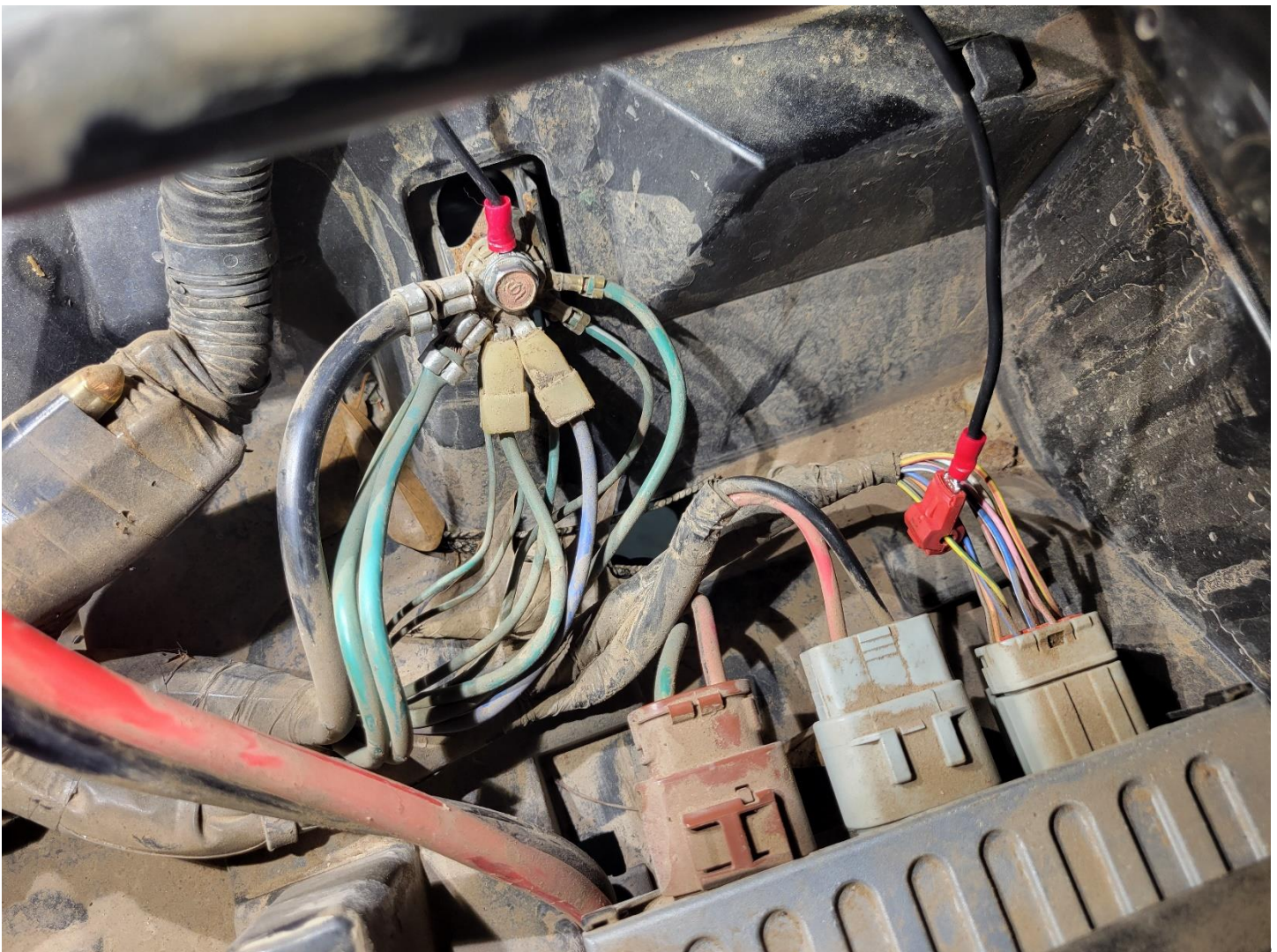
If you are not already running a dual battery setup, we recommend running the Odyssey PC925 as a secondary battery.

**It is important that your two batteries are hooked in parallel with an uninterrupted connection** while the key is on. Running a “smart” isolator like the “True Isolator” is not recommended with this hydro steer system. Smart isolators disconnect the two batteries when it senses the primary battery drop below a certain voltage. This results in the “Smart Isolator” connecting and disconnecting the 2 batteries constantly while under load, creating a situation where only one battery at a time is supporting the power steering pump and only one battery at a time is charging. This is problematic for the power steering pump because it requires more power than one battery can support alone and will result in frequent voltage drops. If you want to run an isolator so that your batteries are not connected when the system is not charging, we recommend running the Stinger SGP38 isolator or similar, (although it is not necessary to run an isolator). This isolator connects the two batteries and provides an uninterrupted connection whenever the key is on. This will ensure that both batteries charge at the same time and allows you to take advantage of the extra amp hours that a dual battery system provides.

### **Disabling the Power Steering Warning Light:**

Once everything is wired up you will need to locate the factory power steering control box located under the driver’s seat (PCM that has 3 plugs, 2 with 2 thick awg wires). Splice into the **Yellow Wire with the Green Stripe** and run it directly to a ground. This will disable the power steering warning light that pops up on the instrument panel since the factory power steering unit is no longer connected.

Use this video for reference <https://youtu.be/xYZ3i2iMYxc?si=lrGPepk2Vnqq8-vX&t=871>





## **Fill, Bleed, and Test:**

**Double check that everything is installed properly and tightened all fittings before proceeding.**

**Step 1.** Fill the Pump reservoir with power steering fluid, CHF11S, or hydraulic fluid.

**Step 2.** With the system off, turn the wheel side to side to help the fluid enter the system. Keep an eye on the reservoir and add fluid as needed. Once the system stops taking fluid, turn the power switch on. (Feel free to start the engine to maintain battery power) **After a few second delay**, the pump will turn on and start to pressurize the system. Turn the steering wheel side to side to allow the system to fill up the lines and bleed any air bubbles. Add fluid as necessary and check for any leaks.

Here is an informational video from the manufacturer on how to bleed the system.

<https://www.youtube.com/watch?v=ts6vX8csaTA>

**Step 3.** If you have trouble getting all of the bubbles out of the system, it is recommended to bleed the system under a vacuum as the above video suggests. To make a custom bleeder cap we used a 1-1/8" in x 15/16" in rubber stopper and a 1/4" in hose barb from Home Depot. This works perfectly to bleed the system of any extra air bubbles.





Apply 15-18 inches of vacuum to the system. With the pump on, turn the wheel lock to lock, holding at full lock for no more than 2 seconds before turning back the other way. Do this until no more bubbles are occurring.



**Step 4.** If everything seems to be operating normally, turn the system off and reinstall all body panels.

### **Reassemble:**

**Step 1.** Reinstall all body panels.

**Step 2.** Reinstall the inner tie rod clevises into the new steering rack. **(MAKE SURE TO PROPERLY CLOCK THE CLEVISES AND USE RED LOCKTITE)** No boots are needed with this Hydraulic setup.

If you are installing our “Stage 2” heim style tie rods, make sure to “clock” the inner heim clevis slightly towards the back of the machine (@ 1 o'clock on the driver's side, and @ 11 o'clock on the passenger's side). We do this so that the heim maintains full range of movement throughout the full stroke of the ram and doesn't bind up in the clevis. See the picture below or watch the video link below.

**(Use red Loctite and torque steering rack bolt to 60ftlb)( It maybe necessary to hold opposite Clevis to tighten so that the ram does not twist in the cylinder.**

[https://youtu.be/\\_fl-srRFd\\_M](https://youtu.be/_fl-srRFd_M)







Ideally you want to line the clevis “ears” up with the hole in the hub assembly where the outer tie rod will attach. See pic below.



**Step 3.** Once everything is put back together, re-check your toe and adjust if needed.

**Step 4.** Take it for a spin and center steering wheel if necessary.

**Step 5.** To center the steering wheel, remove the center cap with a flathead screwdriver, then remove the nut securing the wheel to the column. Drive the machine until it is tracking straight, then remove the steering wheel and adjust as necessary. Reinstall the retaining nut and cover, and enjoy.





## **Troubleshooting:**

**“Steering Wheel Drift”** is normal with any hydraulic steering system. If you notice that your steering wheel does not stay centered while on the trails, don’t be alarmed, this is normal, although you may still have air bubbles in the system that make it worse. Try to vacuum bleed again.

**Voltage Drops:** If your voltage drops below 12v regularly and does not recover back above 12v under normal riding conditions, you need to double check that your dual battery setup is wired as suggested previously. It is also possible that one of your batteries is getting weak or not charging properly. It could be that your new battery was not fully charged before installation or one of your batteries could be bad or have a bad cell. Try charging both batteries overnight and ensure that both batteries are fully charged and working properly.

Don’t hesitate to give us a call if you have any questions during your installation. 936-581-2948