RUGGED
ATV/UTV PRODUCTS

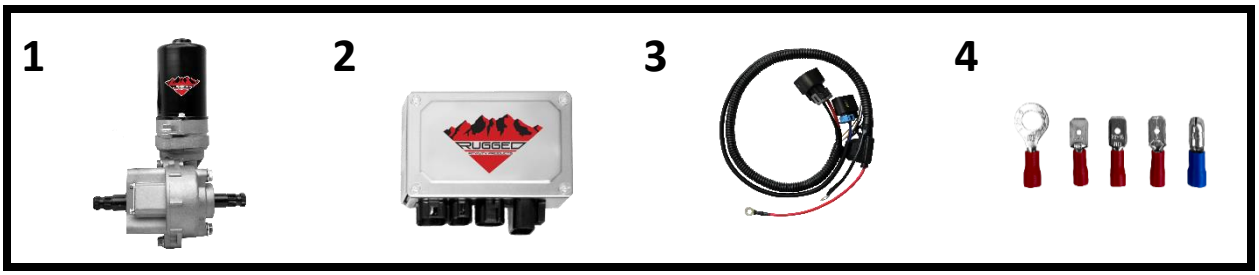
ELECTRONIC POWER STEERING
INSTALLATION MANUAL

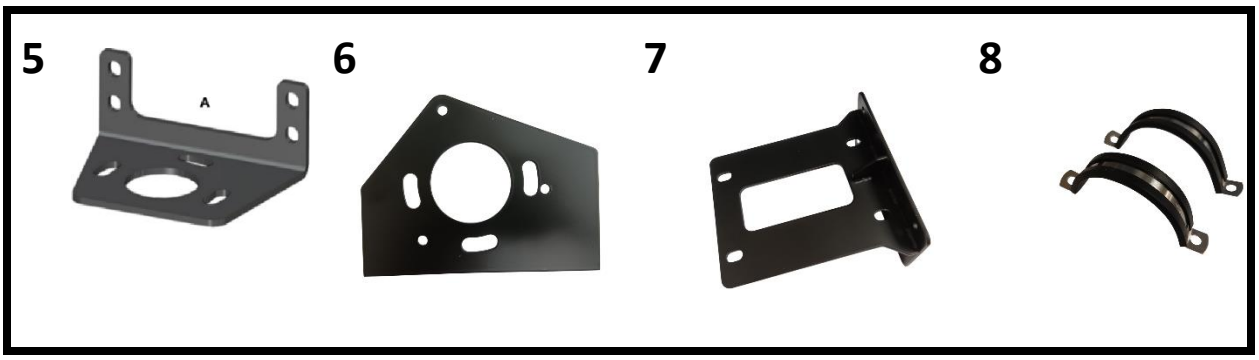
PEPS-3005

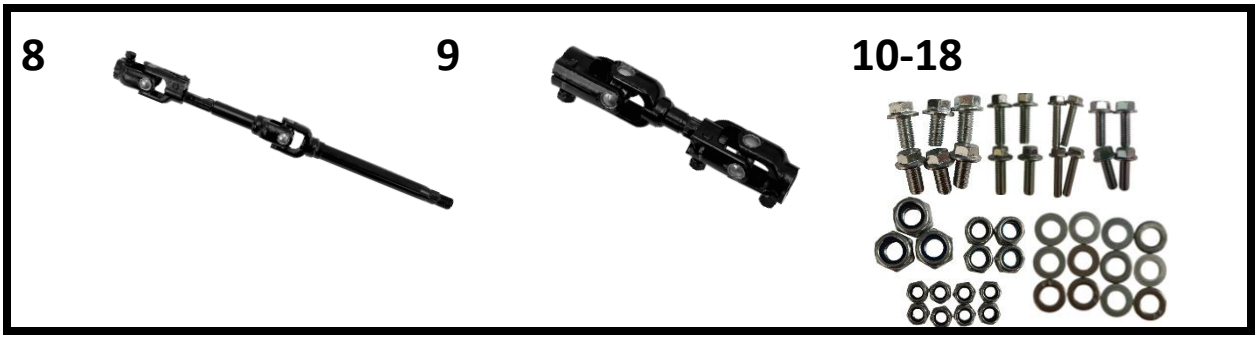
Can-Am Maverick X3

ELECTRA-ASSIST

INCLUDED COMPONENTS:







PART #	DESCRIPTION	QTY.
1	MOTOR	1
2	MOTOR ECU	1
3	WIRE HARNESS	1
4	ELECTRICAL CONENCTORS	1
5	BRACKET 1	1
6	BRACKET 2	1
7	BRACKET 3	1
8	SEMICIRCLE CLAMP (2)	
9	UPPER SHAFT	1
10	LOWER SHAFT	1

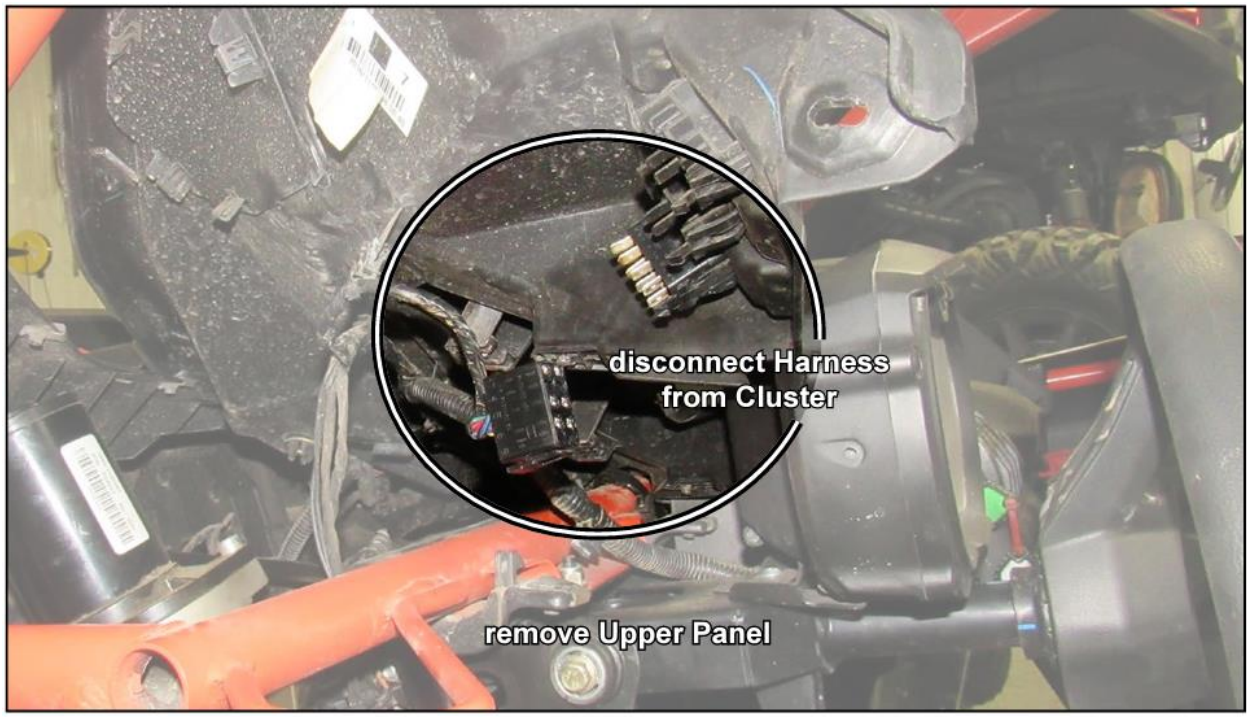
PART #	DESCRIPTION	QTY.
11	M10x20MM FLANGE BOLT	6
12	M8X25MM FLANGE BOLT	4
13	M6X30MM FLANGE BOLT	4
14	M6X20MM FLANGE BOLT	4
15	M10 NUT	3
16	M8 NUT	4
17	M6 NUT	8
18	M6 WASHER	12

REMOVAL PROCEDURE

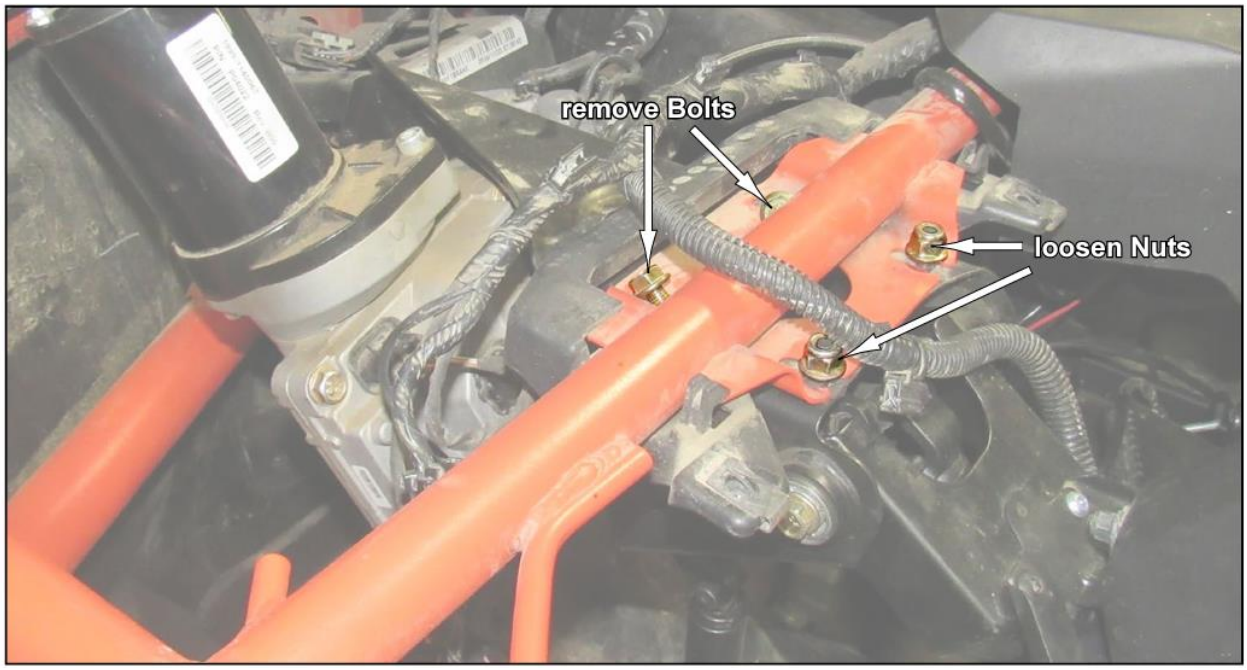
Note: **Ensure to keep all components that are removed during removal procedure.**

Step 1: Remove the seat and the panels as shown in the picture.

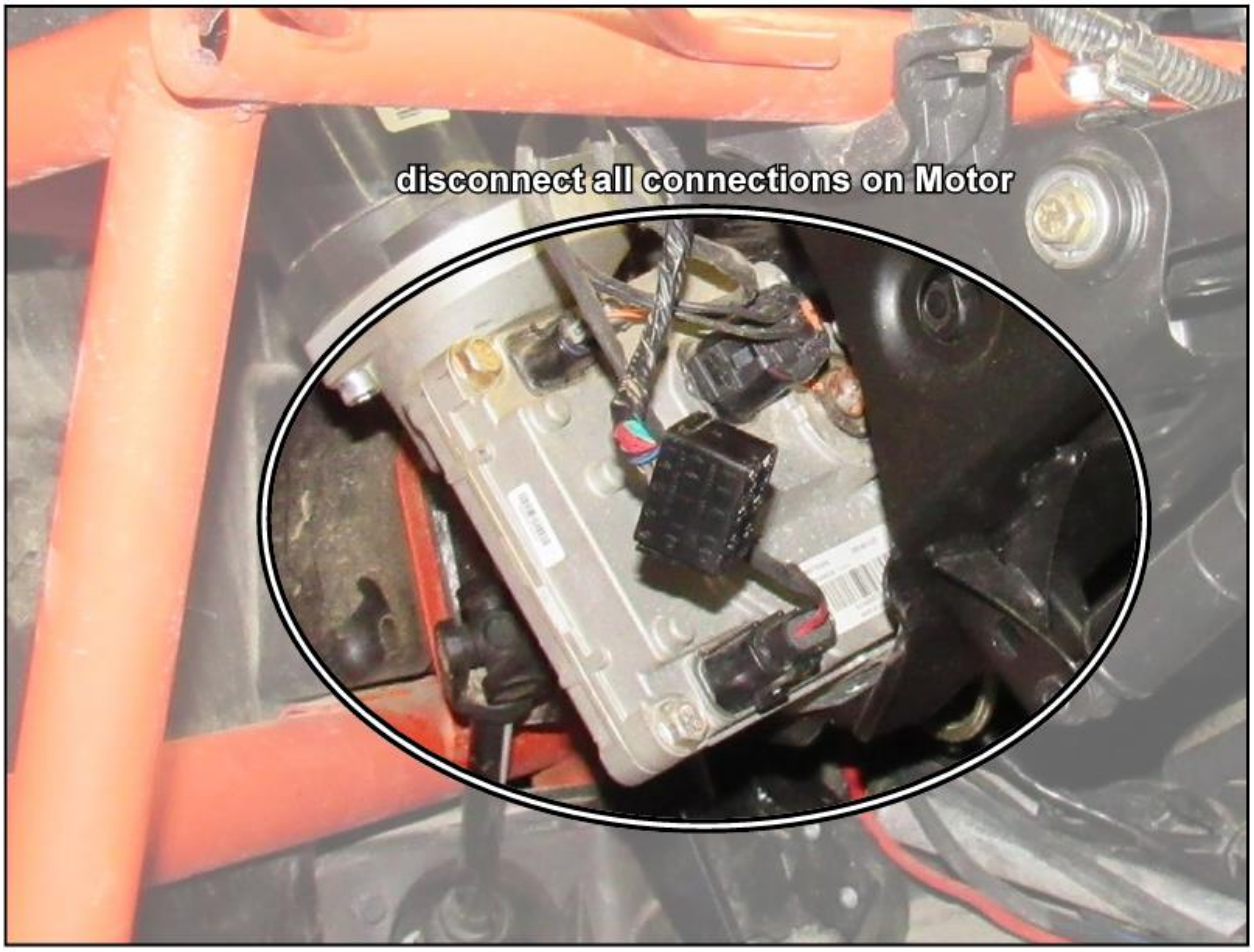
Step 2: Loosen the upper panel and disconnect the harness from cluster. Then remove the upper panel.



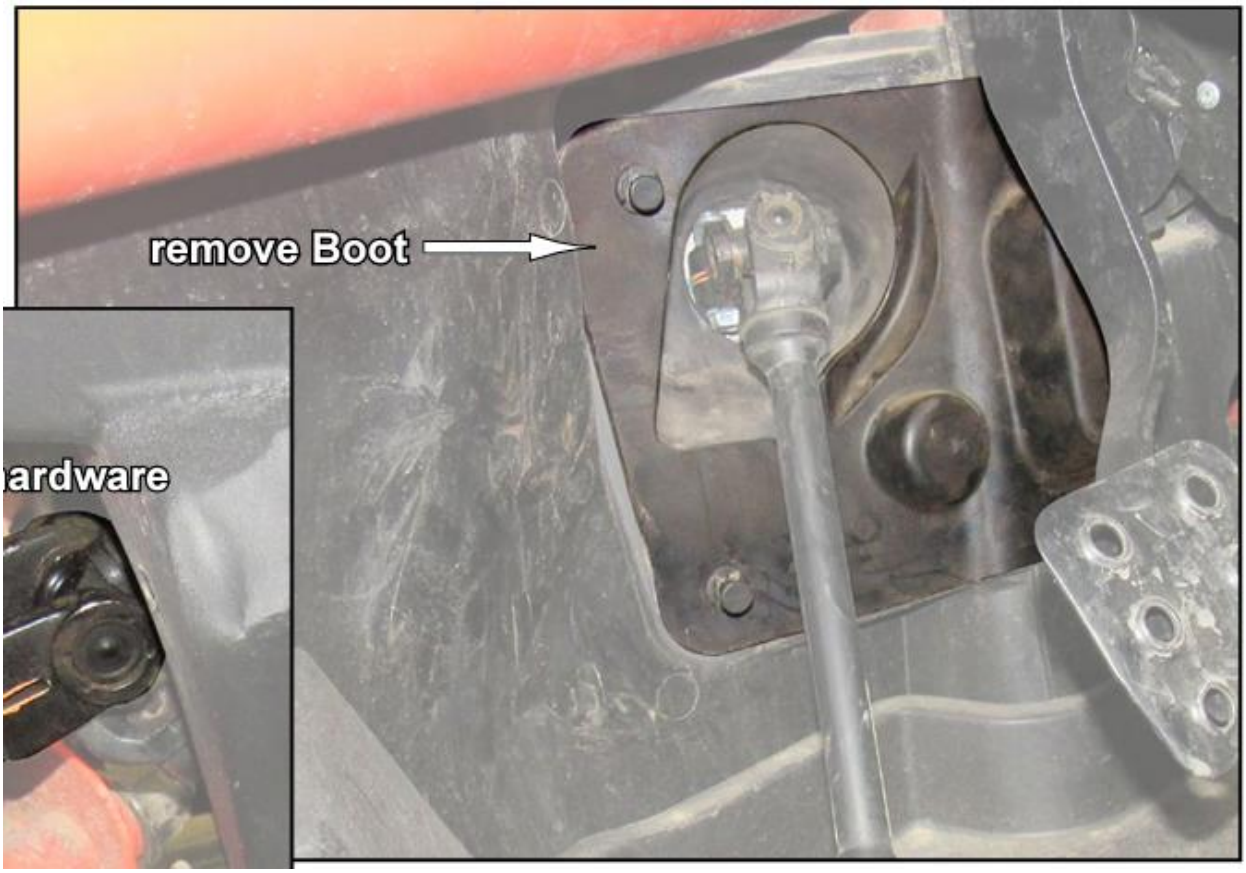
Step 3: Remove the bolts and nuts as shown on the pictures. Make sure to make a note and keep them in the same order you removed them so they can be installed in the correct orientation.



Step 4: Unplug all the connections on the motor. Protect the connections with tape to keep the water out.

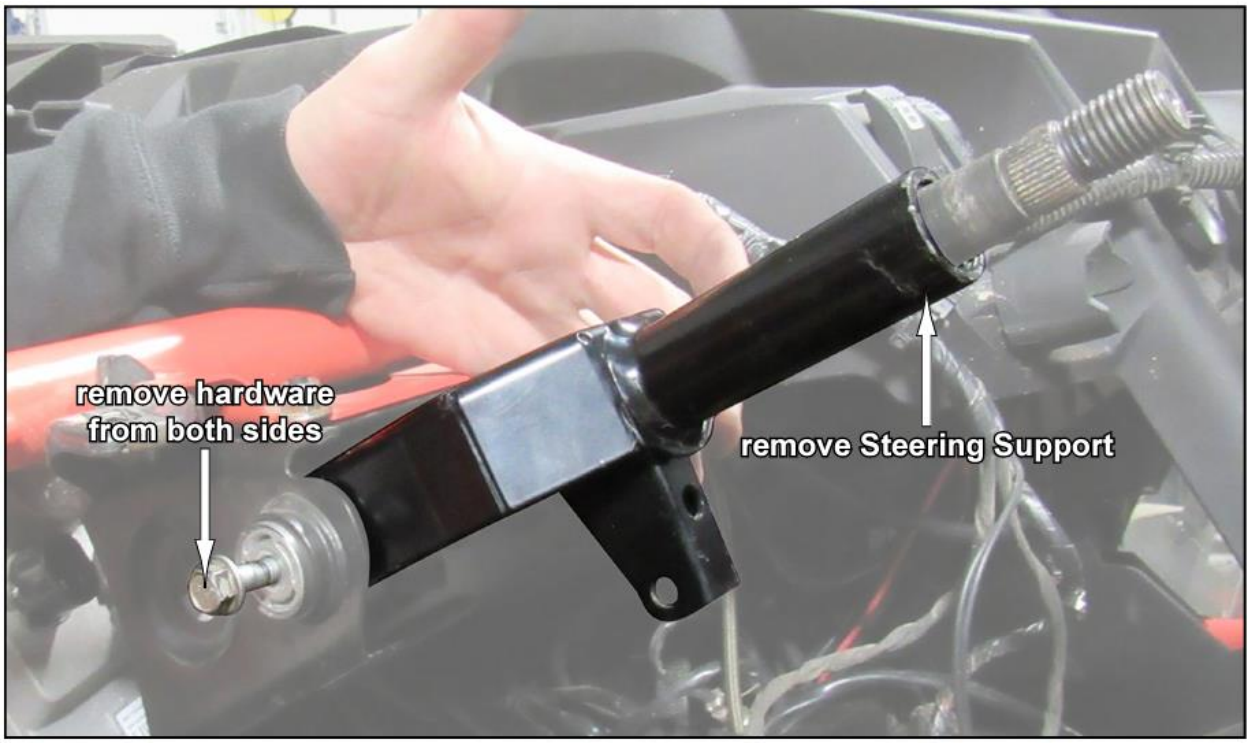


Step 5: Remove the boot and loosen the lower shaft

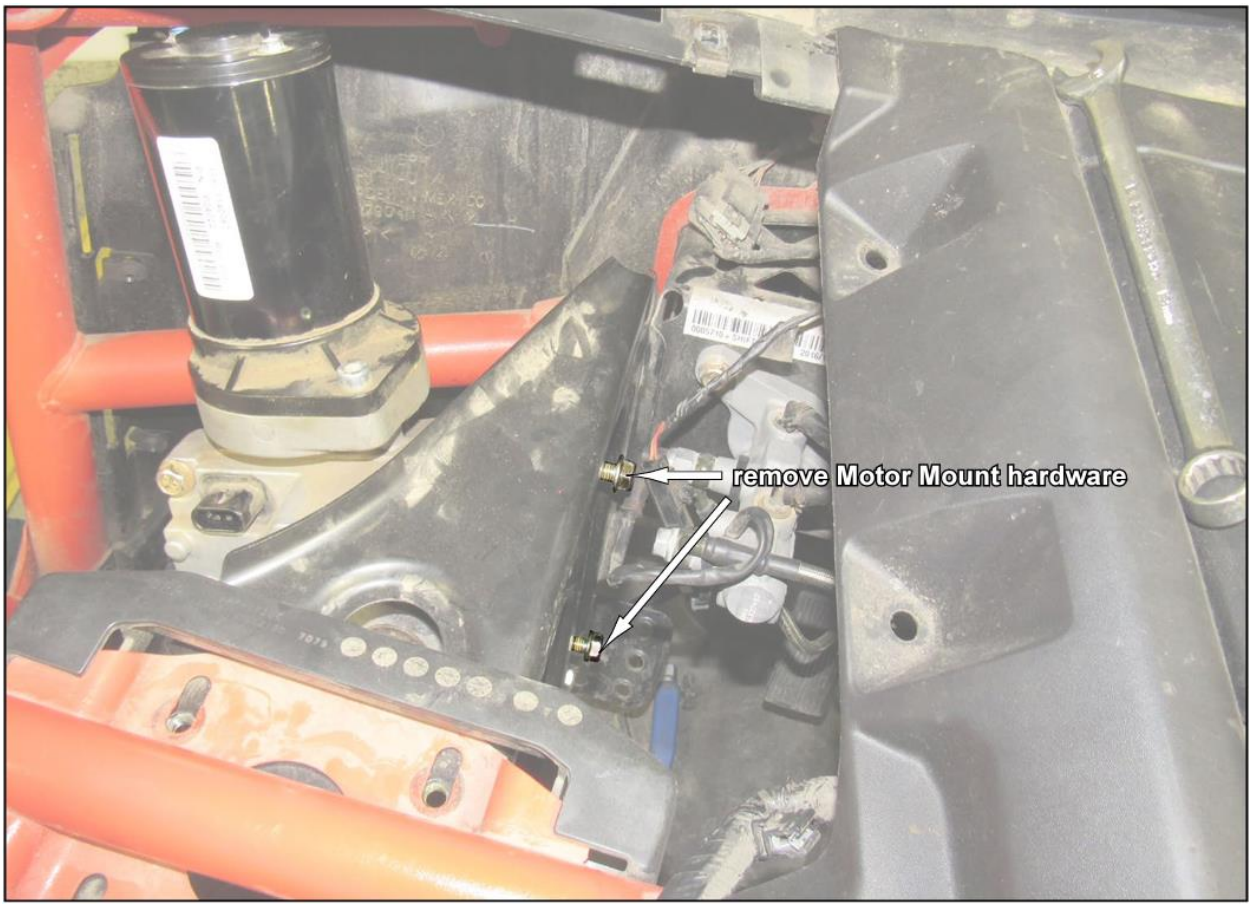

remove Boot
ardware

Step 6: Remove the nut and the steering wheel.

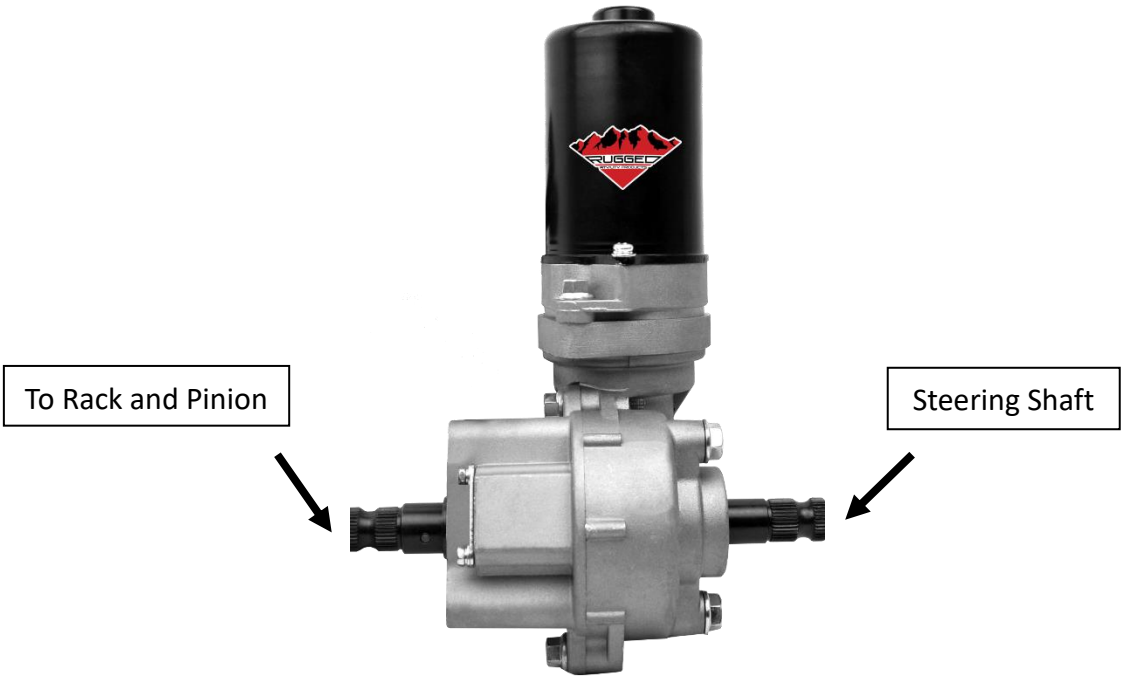
Step 7: Remove the steering support by removing bolts and nuts.



Step 8: Remove the bolts from motor mount.



220W Motor Configuration:

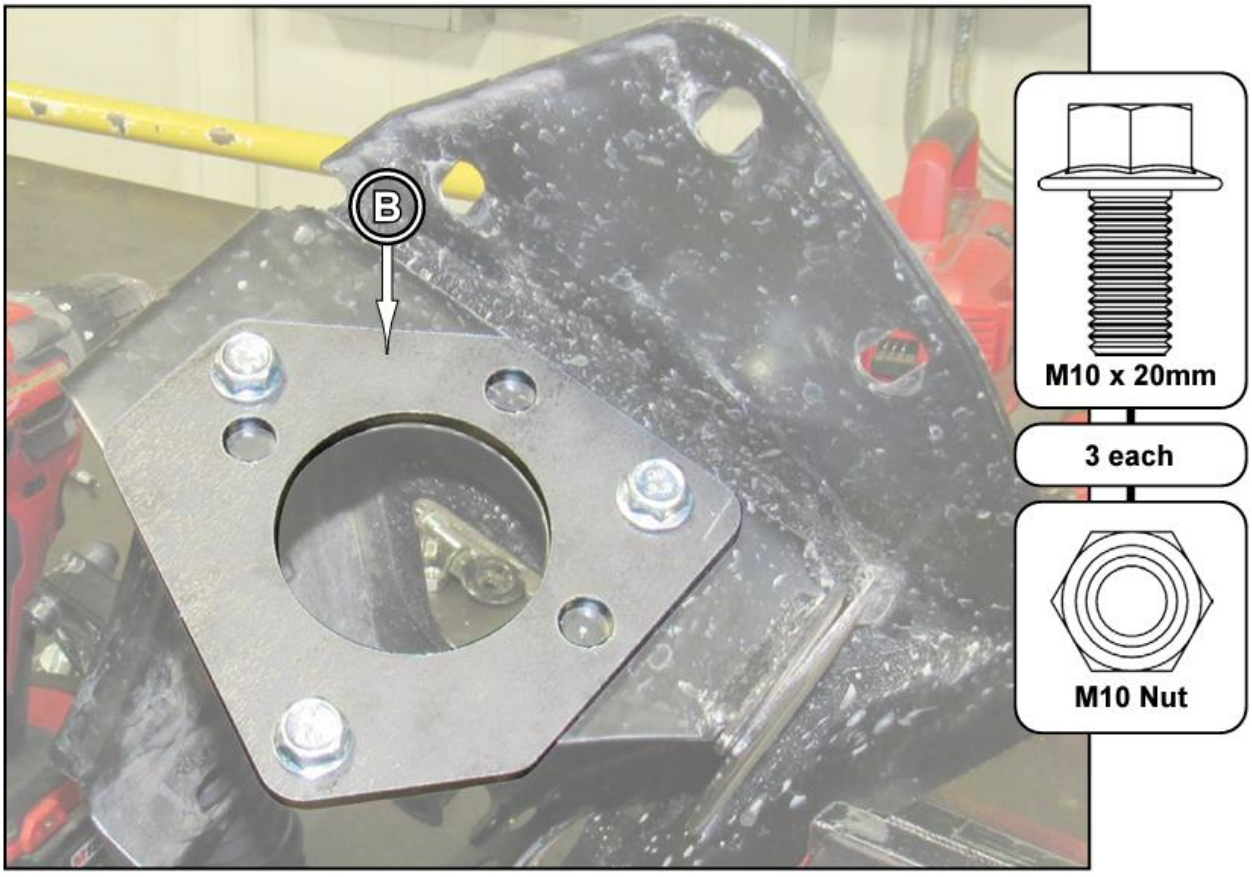


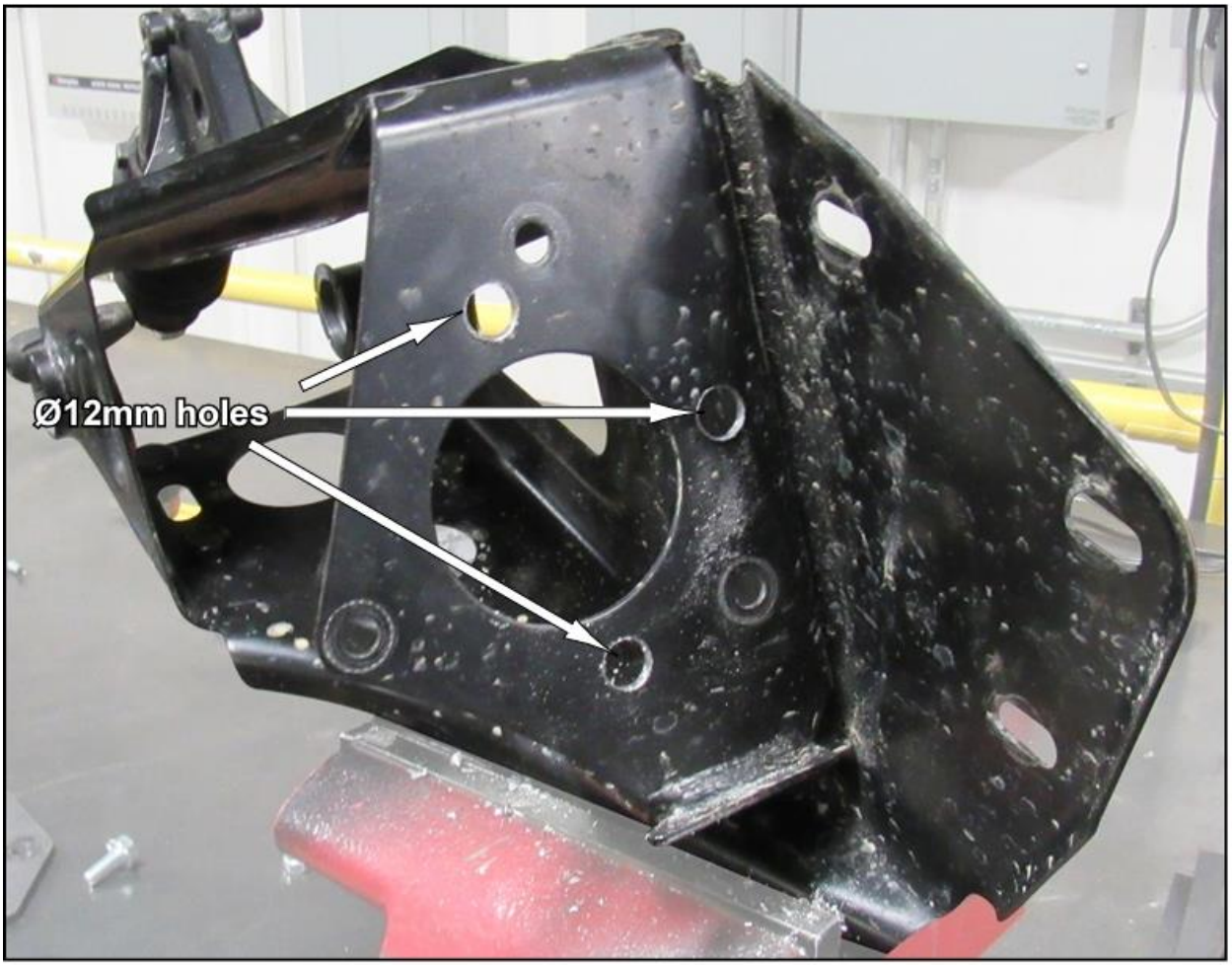
INSTALLATION PROCEDURE

Note: **Only tighten hardware at the end of installation**

Step 9: There are two methods to install the motor mounting bracket for models from different years.

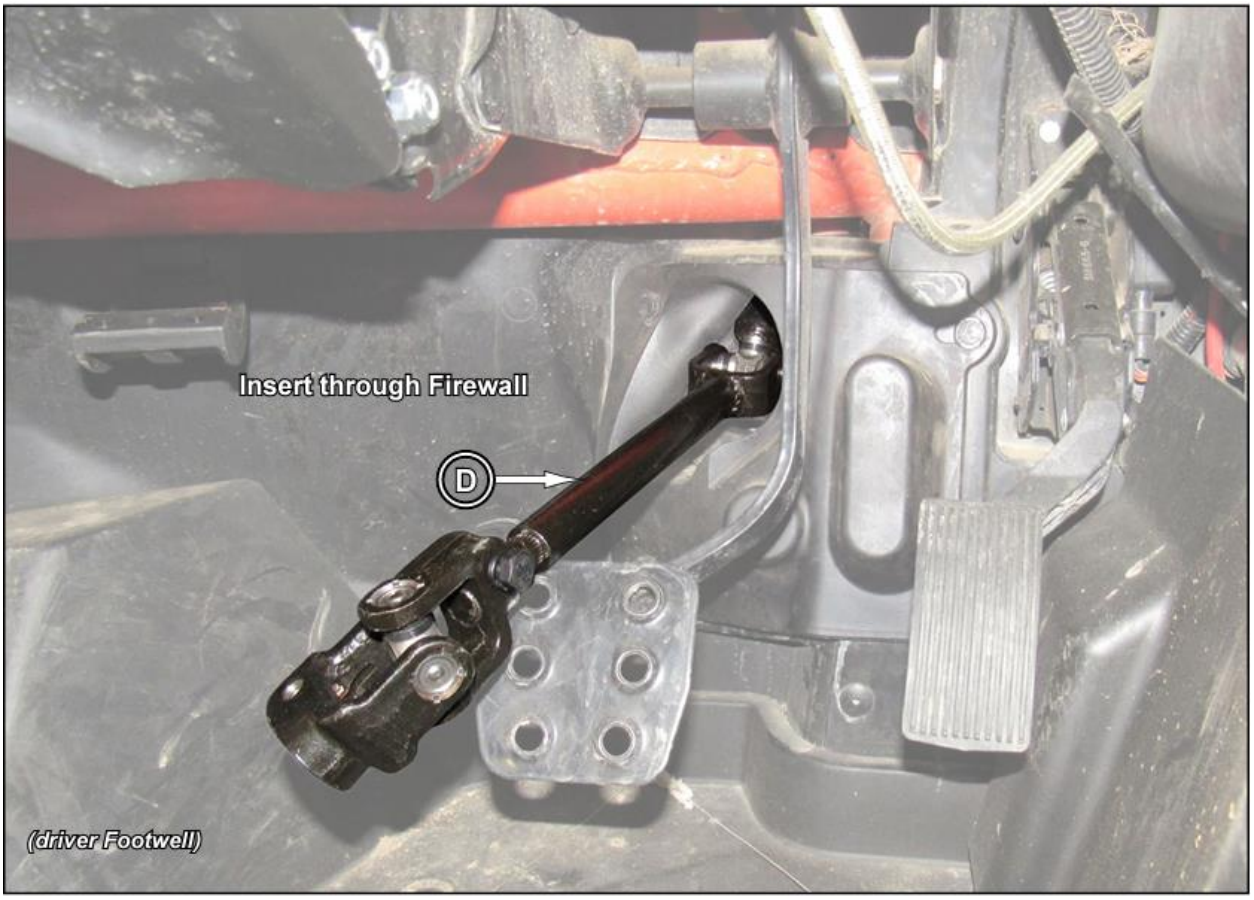
Method A (2017-early 2018): Fixate bracket 2 to the existing motor mount bracket by M10x20mm flange bolts and M10 nuts to create new mounting holes. Drill the three M12 holes and remove bracket 2 afterward.





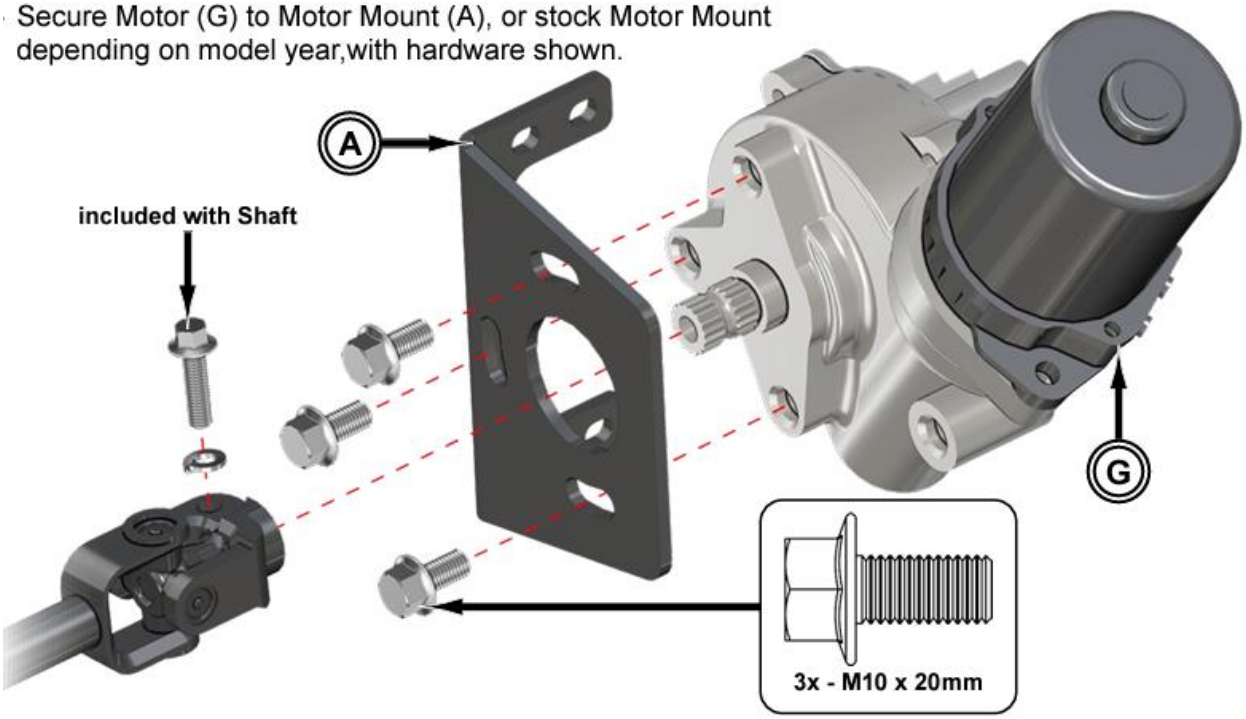
Method B (2018+): mount bracket 1 directly onto the frame with the M8x25mm flange bolts and M8 nuts.

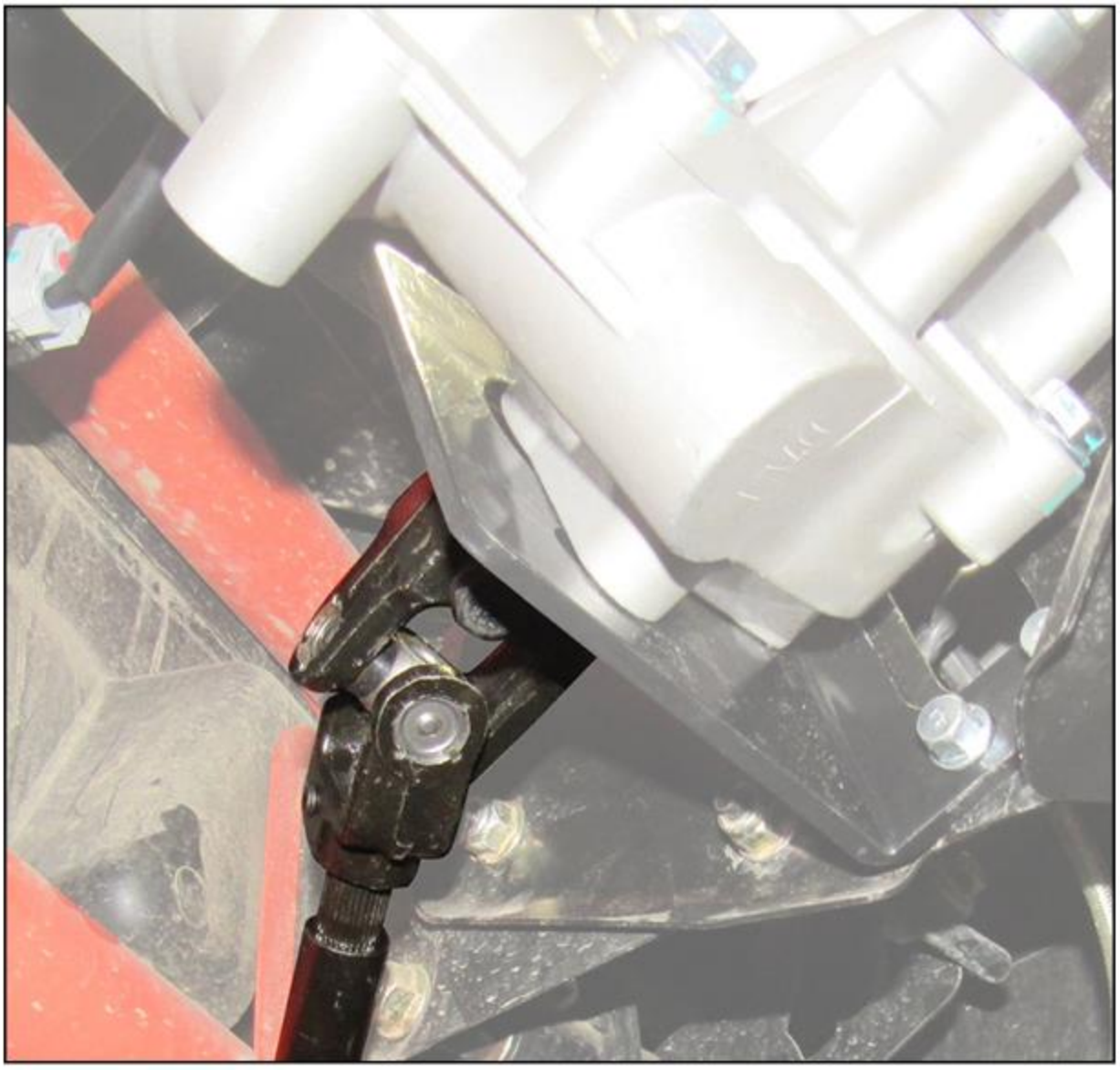
Step 10: Install the lower shaft through the firewall and secure it to the rack and pinion.



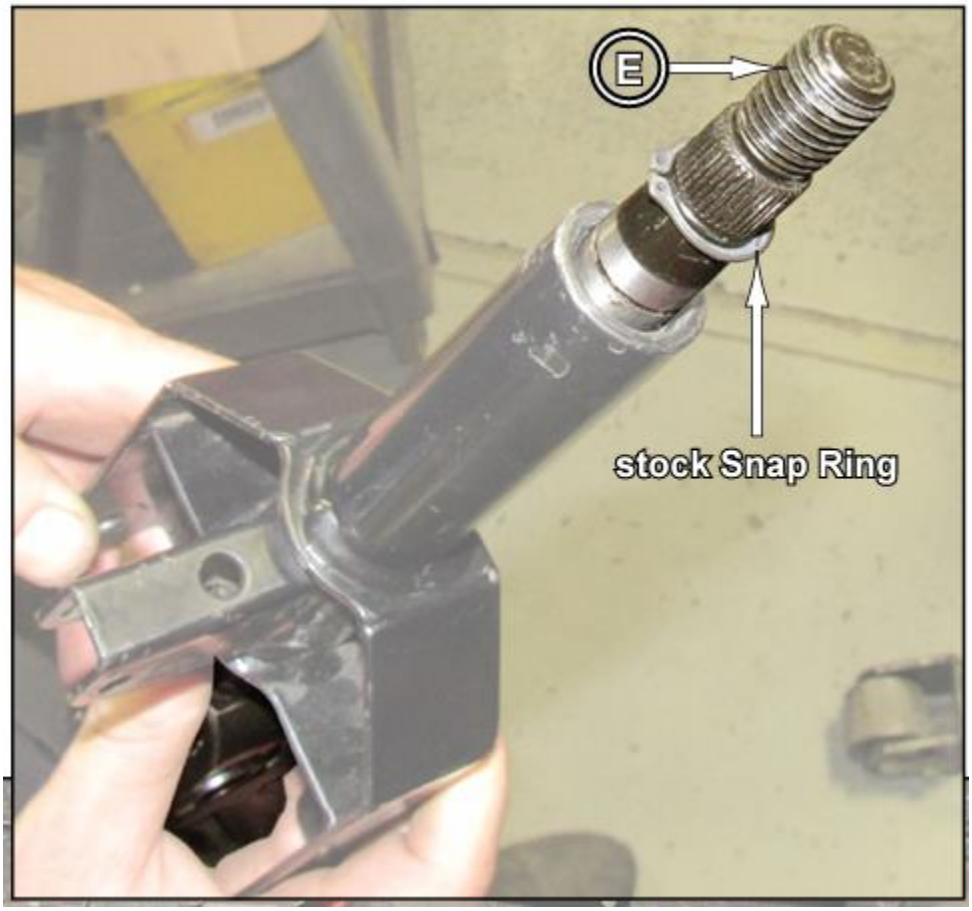
Step 11: Install and secure the lower shaft and bracket 1 onto the motor with the M10x20mm flange bolts as the picture shown.

Secure Motor (G) to Motor Mount (A), or stock Motor Mount depending on model year,with hardware shown.

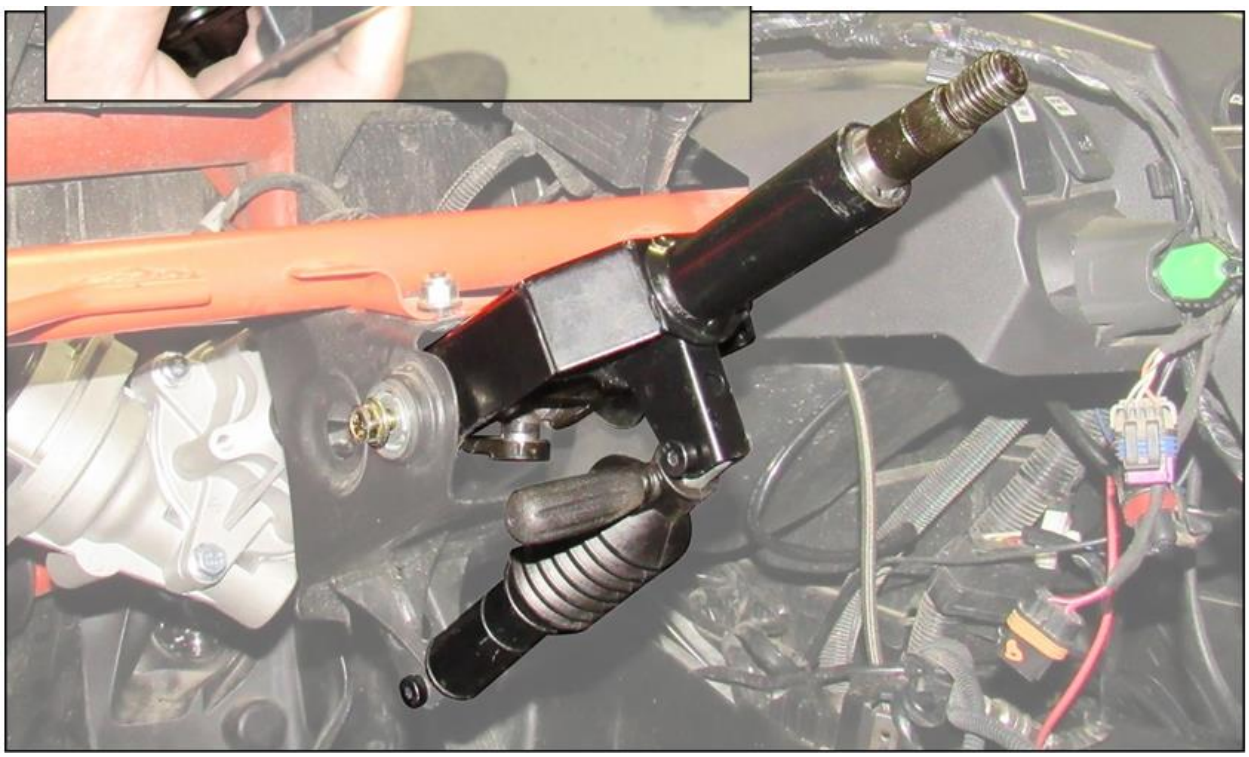




Step 12: Install the upper shaft into the steering support and secure with snap ring.

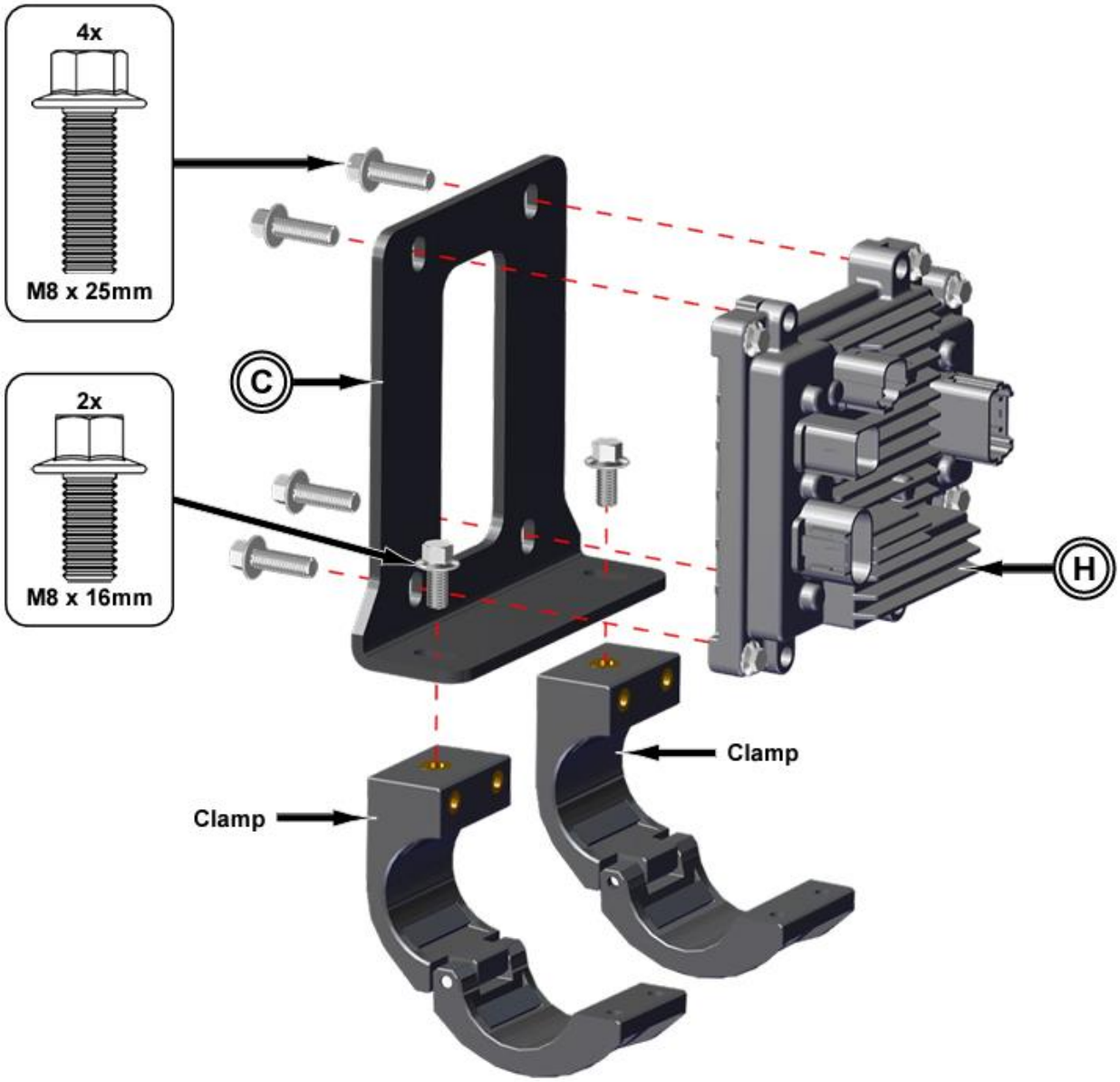


Step 13: Secure the upper shaft to the motor.



Step 14: Secure the steering support and the tilt adjustor and reinstall the steering wheel.

Step 15: Install the ECU to bracket 3 with M8x25mm flange bolts, and install clamps onto the bracket 3 with M8x16mm flange bolts.



Step 16: Secure the bracket 3 assembly onto the cage.

Step 17: Connect the wiring harness to ECU following wiring procedures.

Step 18: Tighten the assembly completely.

WIRING PROCEDURE

NOTE: Except for the accessory lead, the terminal block on the vehicle does not come wired from factory. Therefore if any accessory is factory installed (lights, winch, etc.) then the terminal block may be wired. **Connect black (-) and red (+) wires from wire harness to the terminal block.**

***Given the electrical connectors in the kit (BOM #4) use them accordingly for your application as needed**

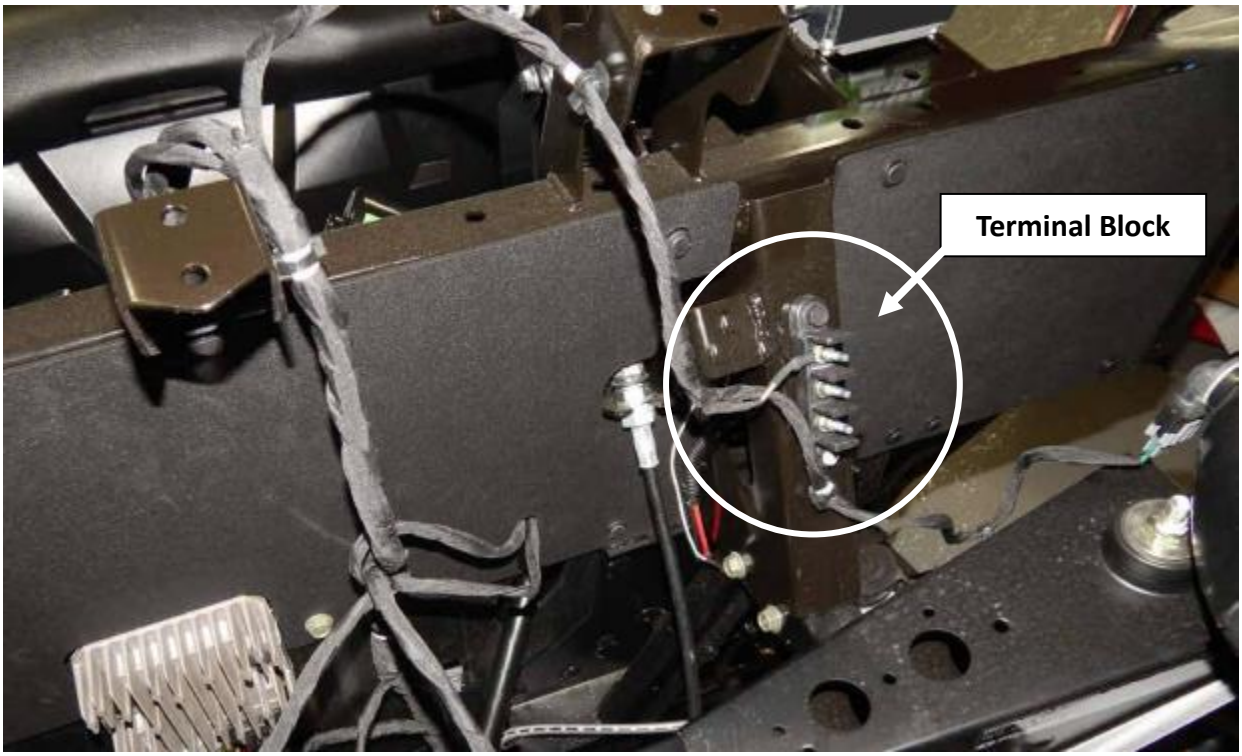
***White wire in harness is the 12V switched wire** (to be connected to accessory source – this tells the unit that the vehicle is now switched on and to power up the motor)

OPTION 1:

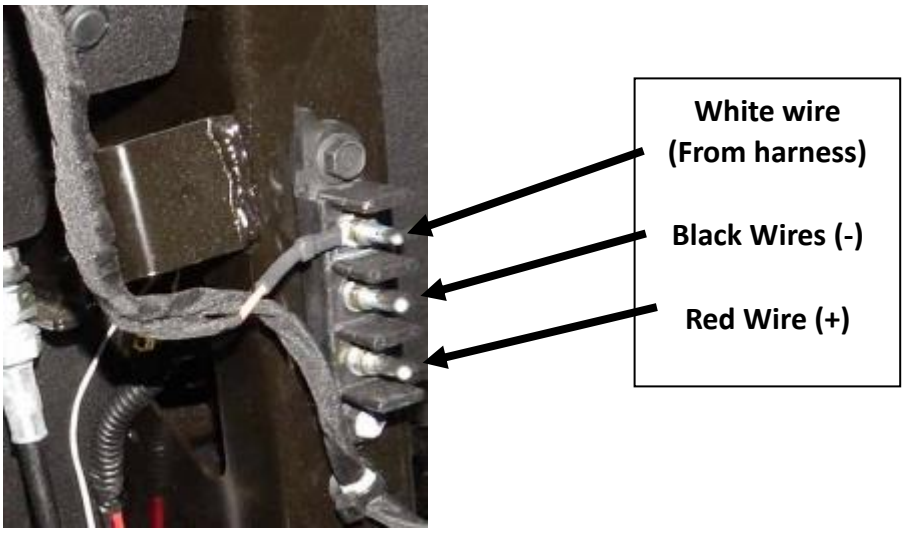
- End user can run a #8 or larger negative and positive wires from battery to terminal block and connect
- Connect black (-) and red (+) wires from wire harness to terminal block

OPTION 2:

- Connect black (-) and red (+) wires from wire harness to battery and connect.



TERMINAL BLOCK:



ECU and HARNESS REFERENCE:

Plug	*Function*
A	Motor
B	Power
C	Switched 12V Source
D	Torque Sensor

Electronic Fault Diagnosis Table:

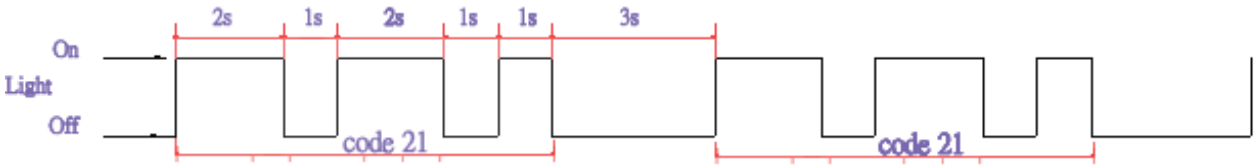
Start the vehicle and view the LED Diagnostic Light, the light should turn on for one second then turn off, if the light remains on you have an incorrect connection in the system, please consult Electronic Fault Diagnosis Table.

If there is a malfunction with an electronic part, the system will create a code to identify the problem. Each fault codes displays by a series of flashes with a fault light. Fault codes show with a light.

Every fault code is composed of double digits, each double digits is indicated by a series of long and short flashes of light. Each long flash represents a tens digit and is 2 seconds in length and each short flash represents a single digit and is 1 seconds in length .There will be a 3 seconds space between the long flashes and the short flashes.

For example: long flash\long flash \space\short flash represents the code number 21.

Example:



Code	Diagnosis content	fault code wave	Suggestion
21	Main torque sensor disconnection		1.Check sensor wiring harness 2.Replace ECU
22	Main torque sensor output error(voltage is too high or low)		
23	Vice torque sensor disconnected		
24	Vice torque sensor output error(voltage is too high or low)		
25	Main and vice torque difference is too large		
26	Main torque sensor inner fault		Replace ECU
35	Current sensor zero offset is too large		
32	Motor disconnected		Re-insert wire of the motor
33	Current of ECU is over the limit		Replace ECU
34	One side of motor has no assistance		
36	Motor voltage abnormal		1.Check motor wire 2.Check motor plug

System Trouble Shooting:

No.	Failure Encountered	Probable Reason	Troubleshooting
1	Steering without assistance	1、connectors of wire have bad contact 2、The fuse is burnt out 3、Relay damage 4、Thecontroller、motor or sensor is damaged	1、Check whether wire connectors are fully inserted 2、Replace the fuse（30A） 3、Replace the relay 4、Reback the motor or the sensor
2	Power is not the same for left and right	1、The median output voltage has deviation 2、 controller、motor or sensor is damaged	1、Disconnect motor connectors, loosen the sensor adjustment screw, adjust the sensor position to keep the voltage in 1.65V ± 0.05V 2、Contact with suppliers and replace it
3	when system is on, the steering wheel swings on both sides	1、Motor is mounted backwards 2、controller or sensor is damaged	1、Exchange the position of（thick line） red line and black line at the motor terminal 2、Contact with suppliers and replace it
4.	Steering becomes heavy	1.Battery power loss 2.Motor damage (power reduction) 3. Air pressure of the tires (front) is insufficient.	1、Charge battery 2、Contact with suppliers and replace it 3、Inflate tires
5	System has noise	1、Motor damaged 2、Gap of lower steering shaft assembly or mechanical steering assembly is too large 3、Installation of lower steering shaft assembly or mechanical steering assembly loose	1、Replace motor 2、Replace Assembly 3、Check whether the installation screw is tight, adjust.

System Cautions:

Electric power steering is a system which highly precision, sensitive and energy-saving, environmental protection and high-performance. In order to ensure the performance of the steering system, and improve the life of the steering system, we must insist on strict compliance with the following rules:

1. Do not dismantle the control box because you may change the parameters of the sensors and create an imbalance between the power to the right and left steering.
2. Maintain a good battery, loss of battery power will result in heavy steering.
3. Pack all electrical connections with dielectric grease where possible to help against corrosion especially in damp humid conditions.
4. Do not tap into the EPS electrical harness for any other aftermarket components. This will affect the power supply to the system and create problems.
5. Connector of the system must be in good contact: avoid laying connectors in damp, high temperature environment to ensure its good conductive.
6. The controller must not be near high temperatures and protected from moisture.

7. When steering your machine and reaching maximum turn angle, do not hold that maximum position for longer than 3 seconds to ensure you do not overheat the electric motor and controller.
8. When motor is working, you must not insert or extract the connector of controller, motor and sensor to protect them from its shocks of the current.
9. During installation, front wheels have to touch the ground as if there is no load, EPS will not function.
10. When installing shafts, please install the bolt as below direction shows and then screw the bolt tightly.

11. When installing the shaft, please adjust the bracket to make sure u-joint is not at large angle otherwise there may be interference issues.
12. When installing the motor, please make sure input and output are connected correctly.
13. Before installing EPS, please check vehicle voltage and current to make sure voltage is sufficient and connection is correct.