



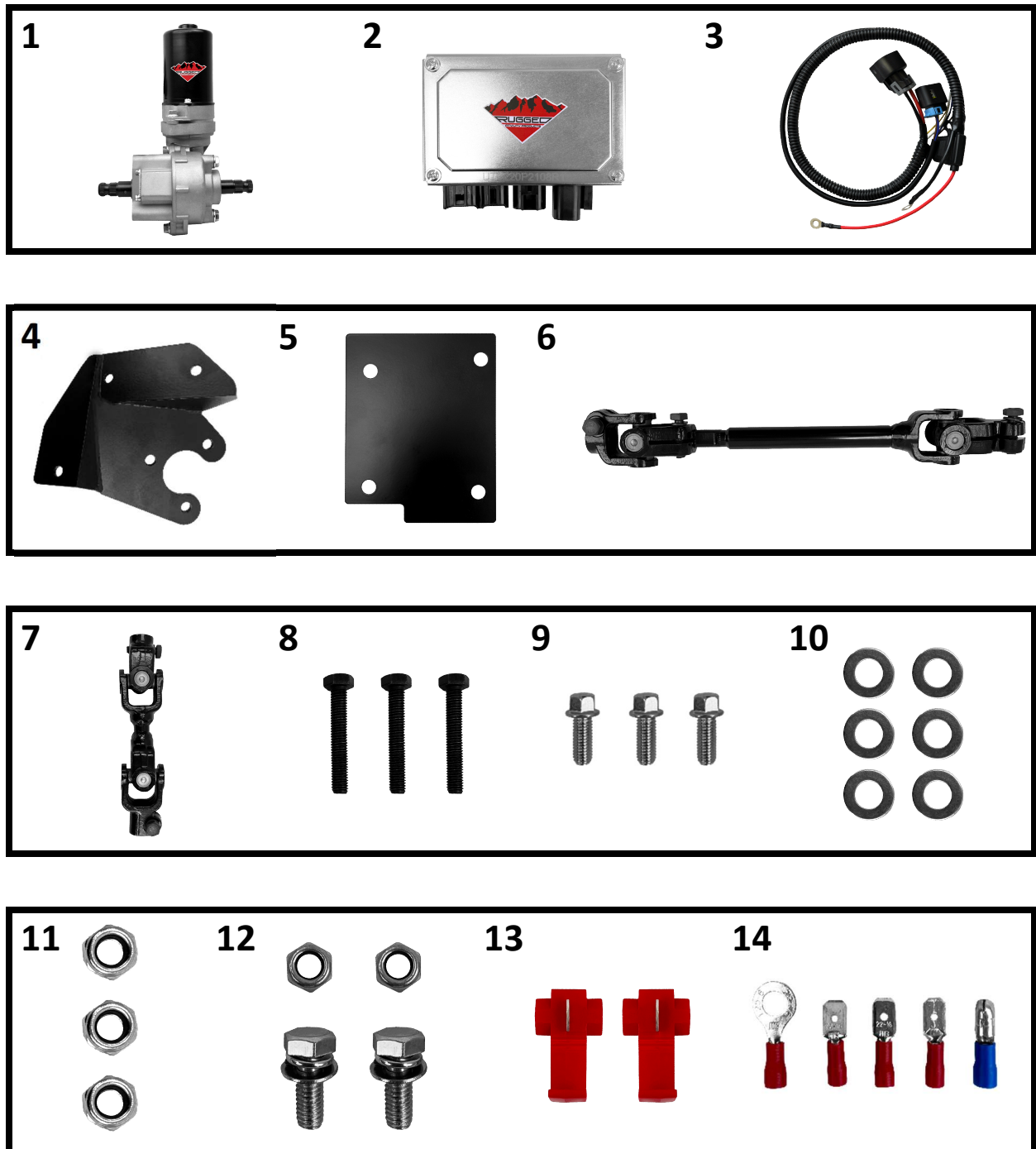
# ELECTRONIC POWER STEERING INSTALLATION MANUAL

PEPS -4012

POLARIS RZR 170: 2014+



## Included Components & BOM



<b>PART #</b>	<b>DESCRIPTION</b>	<b>QTY.</b>
1	Motor	1
2	ECU	1
3	Wiring Harness	1
4	Motor Mount Plate	1
5	ECU Mount Plate	1
6	Short Shaft	1
7	Long Shaft	1
8	Bolt M8-1.25 x 50	3
9	Bolt M8-1.25 x 20mm	3
10	Washer M8	6
11	Nut M8	3
12	Bolt M6 x 16mm + M6 nut	Bolt QTY 2 + Nut QTY 2
13	Connector plug	2
14	Connector ends	5

***Estimated Installation Time: 1.5 – 2hrs***

**To watch a video installation for this EPS Kit by Demon Powersports** for the  
Polaris RZR 170 - PEPS-4012

**Scan the QR CODE**





## Preparation:

- 1) To begin installation, remove the front wheels to access the rack and pinion. Once the wheels are removed, **Ensure the ATV is stable and safe to operate on before proceeding with the installation**
- 2) Next remove the hood



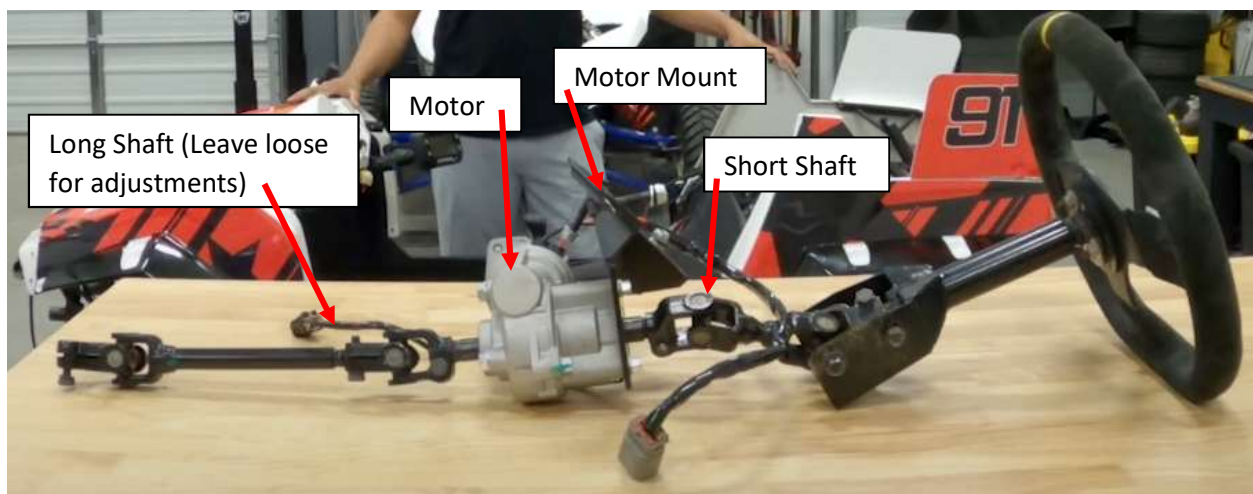
- 3) Start by removing the stock steering shaft from the rack and pinion. **NOTE: Mark or ensure your steering rack is in the center position before proceeding**

## Installation:

- 4) For ease of install, it's recommended to (loosely) put together the steering assembly beforehand outside of the vehicle as seen in the reference picture below. Unlike the picture, exclude the motor bracket and steering wheel for this part. Motor mounts to bracket using bolt #9

**NOTE: Keep the long shaft adjustment bolt loose in case adjustments are needed during installation. Ensure that it gets tightened after you finalize the installation**

Reference of steering kit assembly assembled outside of the vehicle



- 5) Before proceeding with the EPS assembly, install the motor mount loosely to the frame
- 6) Next, you will need to drill the holes in the firewall for the long shaft. For hole reference, line up EPS assembly (motor + shafts) by aligning it with the motor bracket and test fit it inside the vehicle to see where the holes need to be drilled. Note that the hole diameter will need to be a big larger



Pre-assembled with short shaft, long shaft and motor

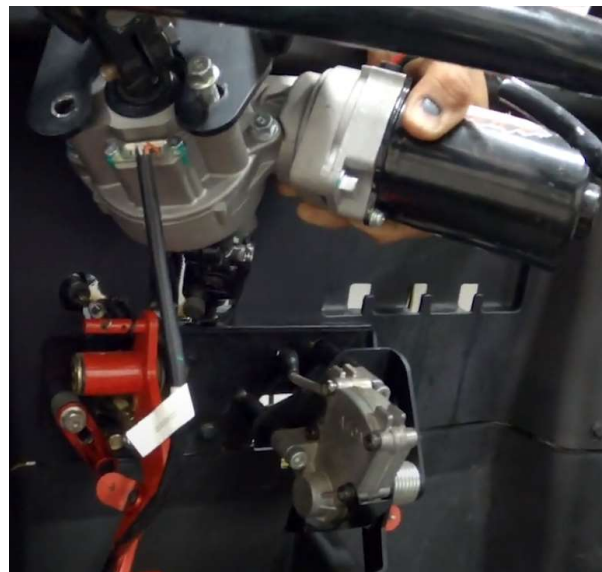


Test fit unit inside vehicle to see shaft position against firewall, this will need to be cut

Connect the motor bracket to the frame using part #s 8, 10, 11, using 2 washers per bolt



Loosely fasten assembly to motor mount



After test fitting, mark holes in firewall to be cut



Here is a where the hole is cut in the firewall so the long shaft will not have any interference. The hole will need to be a bit larger

- 7) After the holes are drilled, proceed with the above steps again but fully tighten all components to begin the permanent installation of the EPS unit onto the vehicle
- 8) Once the EPS assembly is mounted, connect the shaft to the steering rack



- 9) Ensure that the adjustment bolt for the long shaft that was left loose as mentioned in step 4 is now fully tightened



- 10) Before proceeding with ECU installation, ensure all components are fastened and tightened
- 11) Begin by now installing the ECU either by mounting it to the firewall or using the supplied bracket using part #12. Ensure that its mounted close enough to the EPS kit so the wire harness can still reach, and mount it in a location that is out of the way from excessive debris, water, moisture, etc.



## Electronics and ECU:

**Step 1:** Connect the red wire to the positive (+) terminal of battery.

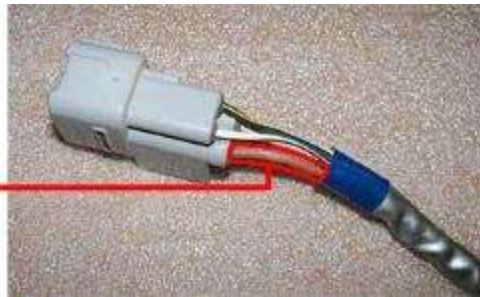
**Step 2:** Connect the black wire to the (-) terminal of the battery.



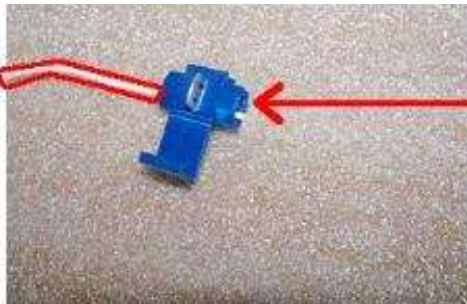
**Step 3:**

- Locate the ignition switch near driver side frame and find the brown wire.
- Connect white wire from harness (3) to stock brown wire with line card (12)

**Brown  
Wire**



**From  
Harness**



**Brown  
wire  
go through  
from here**



**Step 4:** Use the connector to make the connections without cutting the power source wire.

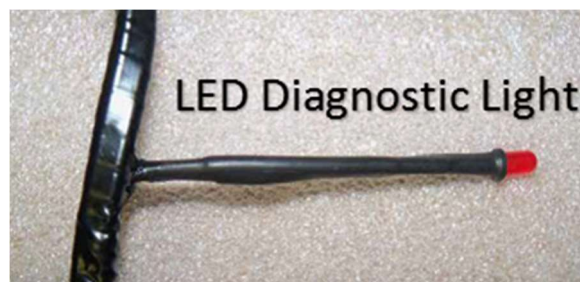


#### ECU Reference

<i>Plug</i>	<i>Function</i>
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.

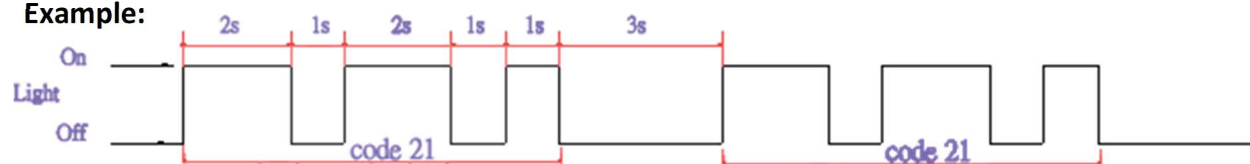


If there is a malfunction with an electronic part, the system will create a code to identify the problem. Each fault codes displays by a series of flashes with a fault light. Fault codes show with a light.

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		Re-insert wire of the motor
32	Motor disconnected		
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

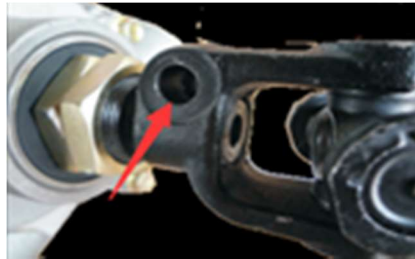
No.	Failure Encountered	Probable Reason	Troubleshooting
1	Steering without assistance	1、connectors of wire have bad contact 2、The fuse is burnt out 3、Relay damage 4、The controller、motor or sensor is damaged	1、Check whether wire connectors are fully inserted 2、Replace the fuse (30A) 3、Replace the relay 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 $1.65V \pm 0.05V$ 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.