Motor installation

Attach a joint to the front of the electric steering unit.
Mount the electric steer unit on the frame mount below the engine mount. It is mounted on the front face of this bracket with the M8 screws provided.

Attach an FFR #33977 splined to ¾”DD u-joint to the front of the motor so the end of the motor shaft is flush to the inside of the joint.
Attach the rack joint onto the steering rack so the screw is on the flat side and the end of the rack is flush to the inside of the joint.

Measure the length of shaft needed to connect the to joints measuring to the inside of the joints. Cut the lower 33440 steering shaft to fit.

Insert the ¾” DD shaft into the steering rack and motor joints.
Tighten the locking screws and nuts for the front shaft u-joints using a 4mm hex key and ½” wrench.

Hold the middle shaft up to the joint that is mounted on the firewall and mark where the shaft needs to be cut so that the end is flush with the inside of the joint.

Remove the shaft and cut the end of the shaft with a hack saw or similar and grind the end of the shaft so that it will slide into the joint a little easier.
Insert the shaft into the joint on the firewall.

Tighten all of the set screws, jam nuts and flange bearing fasteners. Don’t forget to Loctite the small set screw on the firewall joint.
Attach the mounting bracket to the motor controller using the M6 screws.

Attach the controller harness to the motor.
Attach the power wire harness to the motor.

Run the harnesses up behind the dash area.
Attach the harnesses to the appropriate plug on the controller.

Attach the controller behind the dash area using the self-tapping #10 screws so that the harnesses will reach.

Wiring

Return to this section and do the wiring after the chassis harness is installed.
Wire the large red wire to constant +12 volts.

The heavy black wire should get grounded.

Connect the white wire to a switched +12 volts. This can be done by either running a wire directly to the key or, if running an EFI car or Carb without electric choke, the tan “electric choke” wire can be used. Remove it from the Sending unit plug and connect the wires together.

If an existing circuit is used such as the “electric choke” for something other than the original purpose, make sure to note the new function on the fuse panel and also make sure the correct fuse size is used.

Troubleshooting

If there is a malfunction with the system, it will flash a code to identify the problem. Each fault code is shown by a series of flashes with the inline light. Every fault code is a double digit shown by a series of long and short flashes of light. Each long flash represents a tens digit and is 2 seconds long and each short flash represents a single digit and is 1 second long. 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.

Light Codes
1. Main torque sensor disconnection
   2. Check sensor wiring harness
   3. Replace ECU

2. Main torque sensor output error
   (voltage is too high or low)
   2. Replace ECU

3. Vice torque sensor disconnected

4. Vice torque sensor output error
   (voltage is too high or low)

5. Main and vice torque difference is too large

6. Main torque sensor inner fault
   Replace ECU

7. Current sensor zero offset is too large

8. Motor disconnected
   Re-insert wire of the motor

9. Motor voltage abnormal
   Check motor wire, check motor plug

If you encounter a specific issue with the system check the chart below to see if you can find your issue and repair instructions.

<table>
<thead>
<tr>
<th>Failure</th>
<th>Reason</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steering without assistance</td>
<td>1. Wiring harness connectors have a bad contact</td>
<td>1. Check whether wiring harness connectors are fully inserted</td>
</tr>
<tr>
<td></td>
<td>2. The fuse blew</td>
<td>2. Replace the fuse (40A)</td>
</tr>
<tr>
<td></td>
<td>3. Relay damage</td>
<td>3. Replace the relay</td>
</tr>
<tr>
<td></td>
<td>4. Controller, motor or sensor is damaged</td>
<td>4. Replace damaged item</td>
</tr>
<tr>
<td></td>
<td>1. The output voltage has deviation</td>
<td>1. Disconnect motor connectors, adjust sensor data to keep the voltage in 2.5V ± 0.1V</td>
</tr>
<tr>
<td></td>
<td>2. Controller, motor or sensor is damaged</td>
<td>2. Replace damaged item</td>
</tr>
<tr>
<td>Power is not the same for left and right</td>
<td>1. Motor is mounted backwards</td>
<td>1. Swap the position of the red and black power wires at the motor</td>
</tr>
<tr>
<td></td>
<td>2. Controller or sensor is damaged</td>
<td>2. Replace damaged item</td>
</tr>
<tr>
<td>When system is on, the steering wheel swings on both sides</td>
<td>1. Battery power loss</td>
<td>1. Charge battery</td>
</tr>
<tr>
<td></td>
<td>2. Motor damage (power reduction)</td>
<td>2. Replace damaged item</td>
</tr>
<tr>
<td></td>
<td>3. Low air pressure in front tires</td>
<td>3. Inflate tires</td>
</tr>
<tr>
<td>Steering becomes heavy</td>
<td>1. Motor damage</td>
<td>1. Replace damaged motor</td>
</tr>
<tr>
<td></td>
<td>2. Steering u-joint to ¾”DD fitment is loose</td>
<td>2. Tighten the u-joint screws.</td>
</tr>
<tr>
<td>System has noise</td>
<td>1. Motor damage</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Steering u-joint to ¾”DD fitment is loose</td>
<td></td>
</tr>
</tbody>
</table>