

# E-Racer Installation Guide

Project should be performed on solid, level ground by a qualified parts installer.

Always use safety equipment:

- Wheel Chocks
- Jack Stands
- Safety Glasses
- Gloves
- Wheelin' Buddies

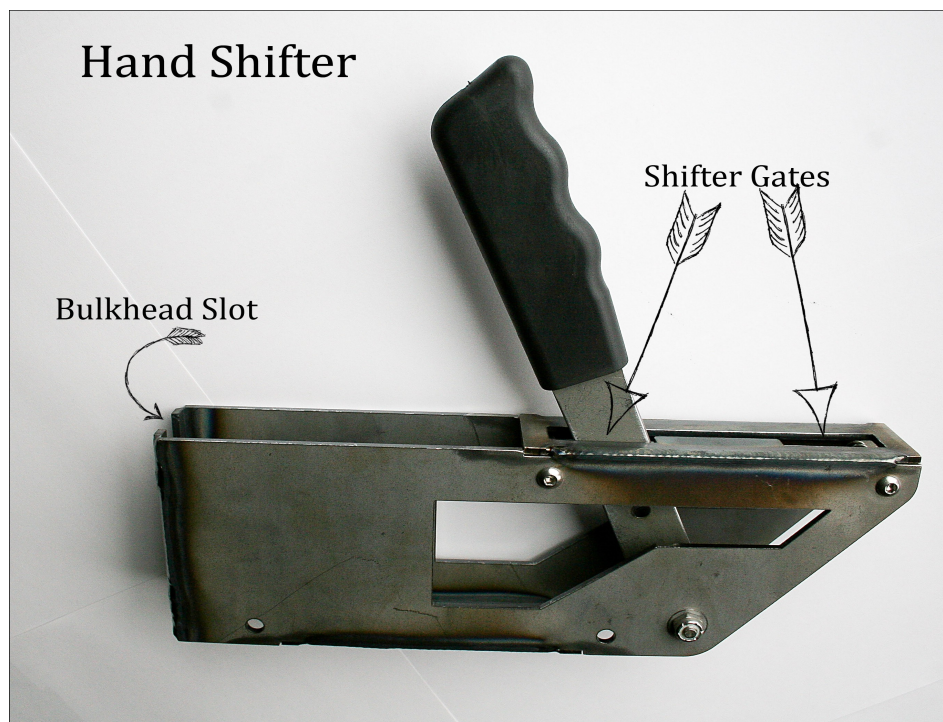
**#1-** Start the cable adjustment at the **Hand Shifter**.

This step can be performed on a bench.

Tools needed for adjusting the **Hand Shifter**:

- 7/16" Open End Wrench
- 3/16" Allen Key
- 7/16" Socket
- Ratchet Wrench
- Extension Might Be Handy
- 15/16" Open End Wrench or Adjustable Wrench

The **Hand Shifter** needs to be able to fully engage in both the "Open" and "Lock" **Shifter Gates**, without over extending or over compressing the cable. Tighten the **Bulkhead** once the Cable's center of throw has been found. (Use the **2" Throw Cable** supplied in the kit)



## #2- Route the cable.

Pick a path away from sharp objects and heat.

Bends/corners should NOT be tighter than a **6" Center Line Radius**. (may cause premature failure)

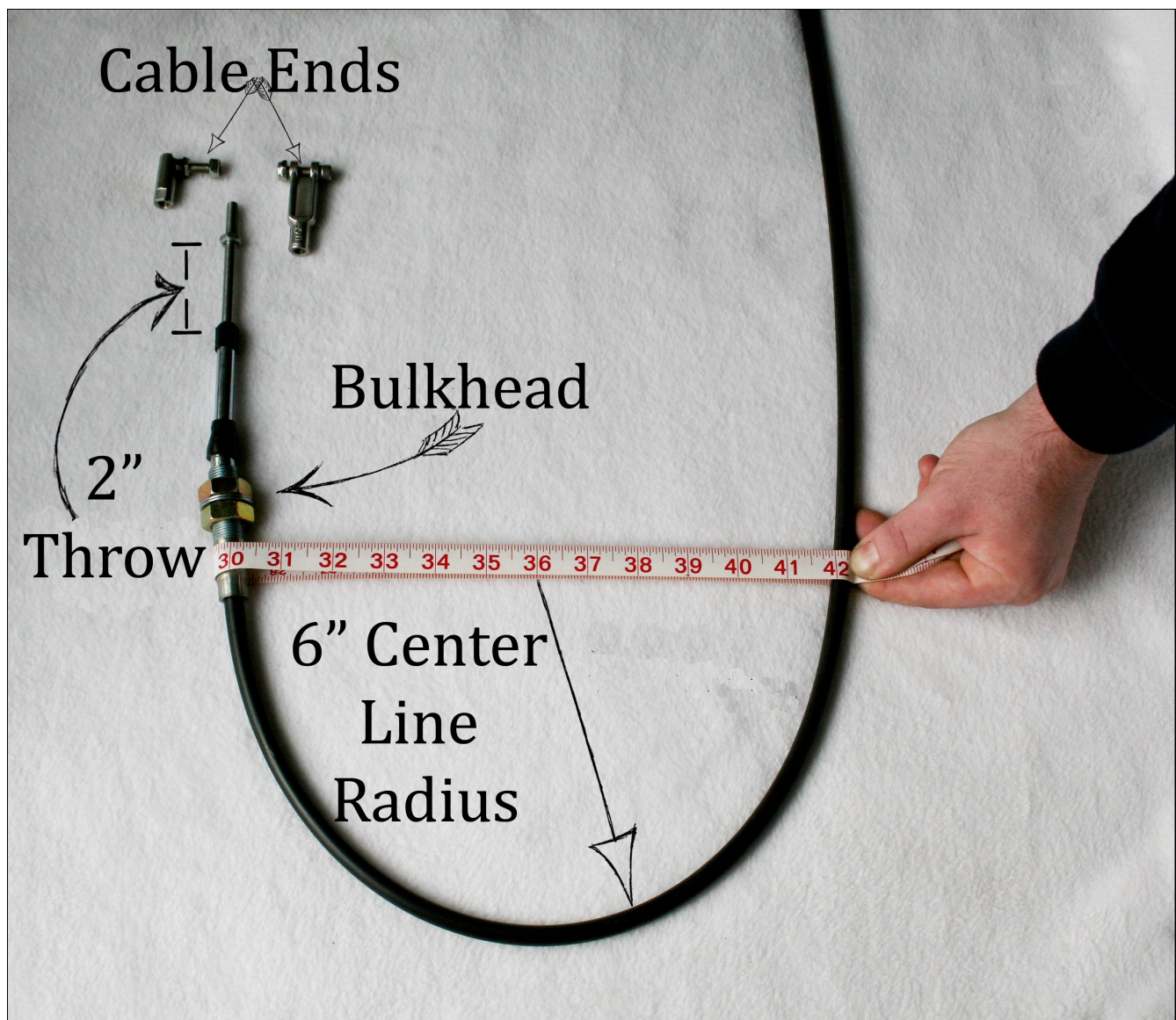
Tools for installing **Differential Cable Bracket**:

- 10mm Socket
- 12mm Socket
- Ratchet Wrench
- Extensions

Install the **Differential Cable Bracket**. (longer studs may be necessary)

Use a couple zip ties to mock the cable in its location.

Do NOT Install the **Bulkhead** thru the **Differential Cable Bracket** at this time. (installs in section #4)



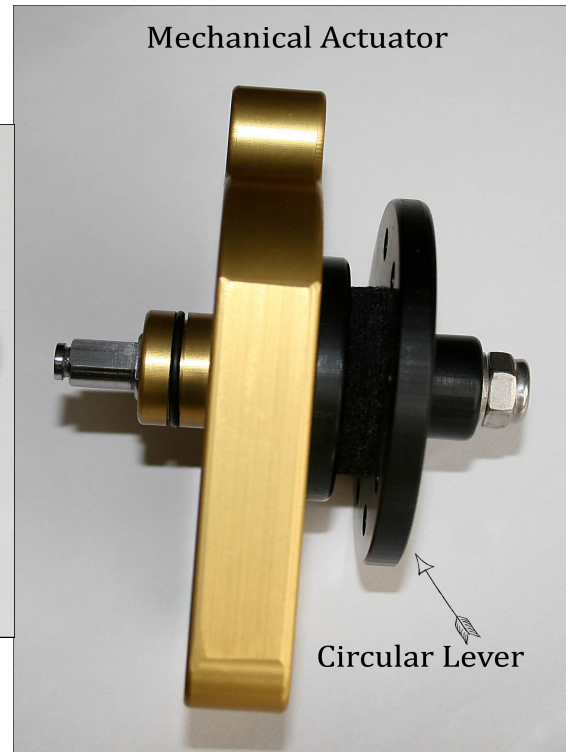


**#3-** Install the **Spur Gear** and **E-Clip** on the **Mechanical Actuator**.

**Spur Gear** sourced from the OEM Electric Actuator.

**E-Clip** supplied in the E-Racer kit.

Do NOT install the **O-Ring** at this time. (unnecessary damage may occur during section #5)



**#4-** Cable adjustment at the differential and **Mechanical Actuator**.

If the differential is out of the vehicle, this too can be done on the bench. If not, well you know where your heading next.

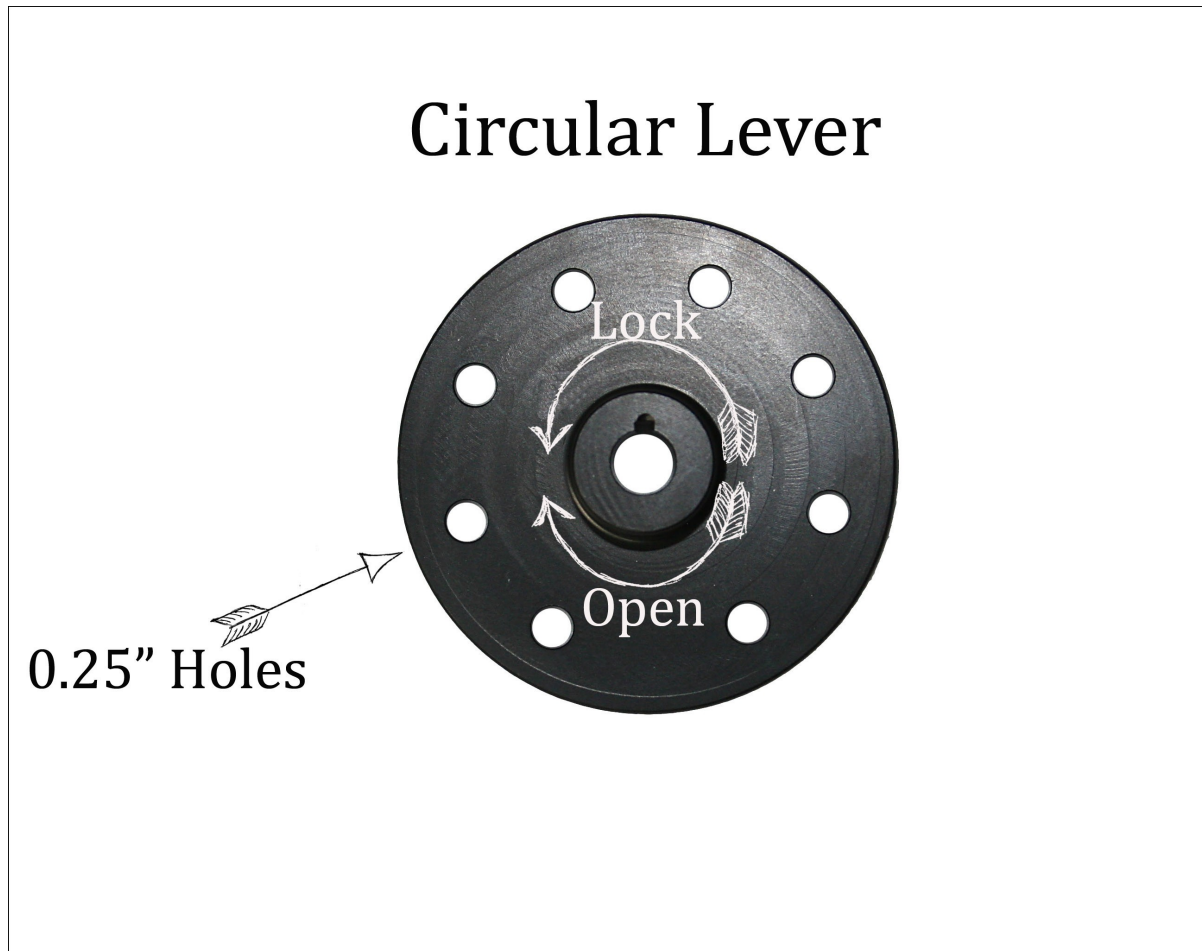
Tools needed for adjusting the **Mechanical Actuator**:

- 12mm Socket
- 13mm Socket
- Ratchet Wrench
- Extensions
- 15/16" Open End Wrench X2 or Adjustable Wrench
- 7/16" Open End Wrench
- 3/8" Open End Wrench

Set the **Mechanical Actuator** in the differential. Do NOT bolt it in yet. Hold off on installing the **O-Ring** too. The **Mechanical Actuator** will be in and out of the differential a few times during the upcoming process. (Having an axle/tire free to spin allows for easy, accurate cable tuning)

Install the **Bulkhead** thru the **Differential Cable Bracket**.

Rotate the **Circular Lever** counter clockwise to “full lock”. You will feel/hear the detent when the locker fully engages. Now cycle the **Hand Shifter** into the “lock” **Gate**.



**#5-** Locating the **.25" Hole** for the **Cable End** that best splits the 103° sweep evenly.

There is a lot of adjustment built into the **Circular Lever**. The eight, **.25" Holes** move in increments of  $\pm 2.5^\circ$  in relation to the **Spur Gear Teeth**. There are 18 teeth on the **Spur Gear**, making each tooth  $20^\circ$  apart.

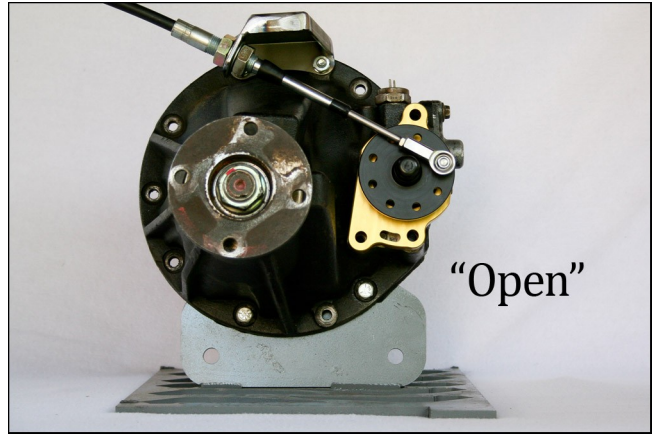
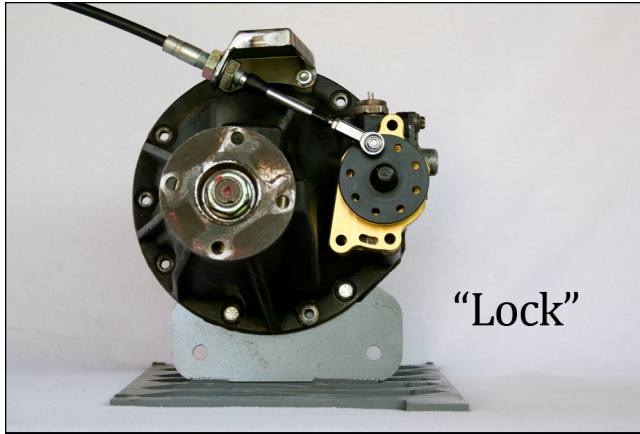
The “Firing Order” of the eight, **.25" Holes** goes as follows:

- 1 this is  $0^\circ$  reference in relation to a Spur Gear Tooth
- 2 =  $\pm 5^\circ$
- 3 =  $\pm 10^\circ$
- 4 =  $\pm 15^\circ$
- 5 =  $\pm 2.5^\circ$
- 6 =  $\pm 7.5^\circ$
- 7 =  $\pm 12.5^\circ$
- 8 =  $\pm 17.5^\circ$

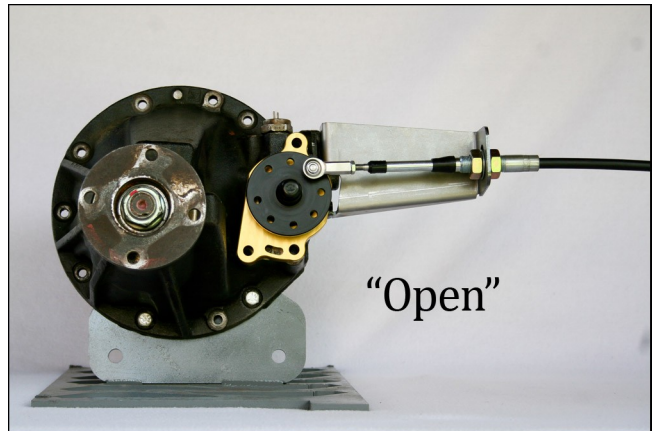
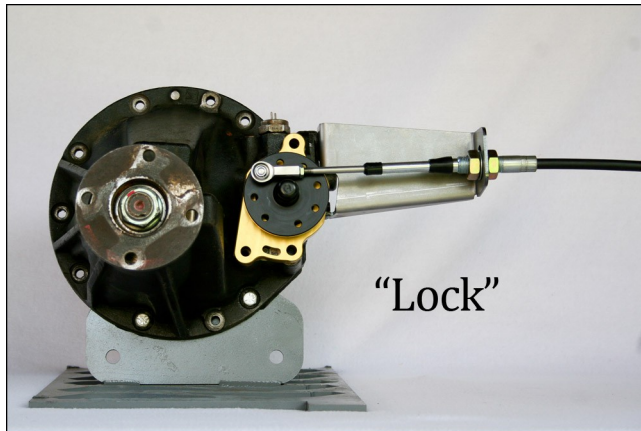
This sequence was applied to keep the holes from crowding.

With the **Mechanical Actuator** and **Hand Shifter** both in the “lock” positions, begin test fitting the cable to the **Circular Lever**.

Do this same step/process for the “open” positions before bolting the **Cable End** to the **Circular Lever**.



The cable needs to rotate the **Circular Lever** 103° in order to go from open to lock.



The cable should never bind or buckle when being cycled via the **Hand Shifter**. The key to this adjustment is to get the cable linkage to come close to the center of the lever without making contact.

## #6- Fine tuning.

Final cable tuning takes place at the **Bulkheads** and **Cable Ends**.

Double check the cable's center of throw.

Tighten all hardware when satisfied.

Install and lubricate the o-ring.

Bolt on the **Mechanical Actuator**.

Use the remainder of the zip ties to secure the cable in its final location.

## **#7- Check your work!**

Test, check, and double check. Make certain that everything works correctly.

With the vehicle turned off, and the newly cable locked axle elevated off the ground, the E-Racer Cable Conversion can be ran through its paces.

Confirmation of the locker completely engaging and disengaging is a must before hitting the trail.