



## Golden Eagle Mfg. Cam Gear Install

Thank you for your purchase of Golden Eagle Mfg. products for your high performance needs. You now own one of the best products on the market, all 100% made in the USA! We are very confident you will be more than pleased with your purchase. If you ever experience any problems, have any concerns or just want to give some advice, we would love to hear from you.

(909) 592 – 4311 or e-mail sales@goldeneaglelmg.com

### Cam Gear Bolts Are NOT Tight!!!!

Be sure to tighten the bolts before engine start-up.

**! WARNING !** We strongly suggest having a trained technician perform the cam gear install. Do not attempt to perform this installation procedure if you are not very familiar with how the timing belt system works. Incorrect disassembly or re-assembly of the timing belt system could lead to extensive engine damage! Always have a shop manual on hand for reference when performing the cam gear install.

Items needed for installation:

- 12 point 5/16" socket for the cam gear bolts
- 10 – 12 – 14 – 17 – 19 mm socket set w/ ratchet and extension
- 10 – 12 – 14 mm open end wrenches
- Flat head screw driver

Some of our cam gears come with a key and some do not. If you need to find out which gears require a key, if not supplied, please give us a call at (909) 592 – 4311 or e-mail at sales@goldeneaglelmg.com

1. First, take off the spark plug wire cover, the spark plug wires and the valve cover. Before you remove the valve cover, be sure to gather up all the nuts and washers to prevent them from falling into the engine. Carefully remove the valve cover and set in a clean place up-side down.
2. You will need to remove all of the spark plugs so that the engine can be rotated easily by hand.
3. Once the valve cover is removed, the upper timing belt cover can be removed.
4. Next, use a 19 mm (sometimes a 17mm) socket and ratchet to rotate the engine so that the number one cylinder is at Top Dead Center (TDC) in the intake stroke. Simply turn the crank counter clockwise until the white mark on the crank pulley lines up with the timing mark on the lower timing belt cover.
5. Mark the timing belt at TDC. Take the stock gears off using a 14 mm socket and an impact wrench. Loosen the belt tensioner (14 mm) and slip the belt off of the stock gears. Carefully remove the stock gears taking caution not to lose the key (s).
6. Install the new cam gears along with the keys and replace the cam shaft bolts using a 14 mm socket and a torque wrench to 27 ft-lbs. (38 N-m) Be sure to tighten the 12 point bolts that fix the cam gear timing, as they do not come tightened from the factory. To tighten the belt, rotate the engine over twice counter clockwise then tighten the belt tensioner bolt 14 mm to 33 ft-lbs (45 N-m) Make sure that when the crank is at TDC, the cam gears line up with the inscribed alignment marks (dotted lines on the gear outers ) Tighten the cam gear bolts to a torque of 18 ft-lbs to prevent the gears from slipping during vehicle operation ( recheck the bolts periodically. Use Loctite® whenever possible)
7. Replace the valve cover and spark plug wires accordingly.
8. Rotate the motor by hand using a wrench on the crank pulley bolt, rotating it counter clockwise at least two full rotations to be sure there are no interference issues with the valves and pistons.
9. Once everything check out, start the motor and check for leaks and make sure everything is in order. Remember, we always suggest having a shop manual on hand for reference on removal and replacement of the cam gears.

Optional: cut the valve cover and belt cover to allow easy access to make gear adjustments.

Again, we thank you for your purchase and we are always here for your input.

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# Golden Eagle Mfg.

## Reading the Amplified Scale

### Timing Marks on ADJUSTRU Cam Gear

This is one of the easiest ways to line up the correct degree on any cam gear. It is as easy as 1 – 2 – 3. No more squinting and trying to get the lines that you “think” are the correct degrees to line up.

The following will help you get your bearings on how to use this scale.

First, you need to set the gear at 0° ( degrees ) by lining up the “ 0 ” line on the outer with the “ 0 ” line on the inner. This is easily done by centering the bolts in the slots. ( see photo below )



Notice how the “ 0 ” line on the outer lines up with the “ 0 ” line on the inner and the bolts are centered in the slots. Also note that the further most lines on the inner are both under the 9° mark in both the Advanced and Retard section. This helps in finding true 0°.

Next, the “ A ” and the “ R ” indicate the Advanced and Retard section of the cam gear. If you rotate the inner to the right ( clockwise ) you will be in the Retard section and if you rotate the inner to the left ( counter-clockwise ) you will be in the advanced section. There is also an arrow that shows the rotation of the gear while the motor is running.

Lets say you want to set the gear at 4° Advanced. All you will need to do is rotate the inner to the left ( counter-clockwise ) until a line matches up with the “ 4° ” mark on the outer. ( see photo below )



This rule applies to any degree adjustment you will need to make when using these cam gears.

Rule of thumb, 0° is always when a line on the inner lines up with the “ 0 ” line on the outer and the bolts are centered in the slots. When adjusting to a certain degree, focus your eye on the degree you desire, either in Advance or Retard, and rotate the inner until a line matches up with your desired outer degree mark.

**Always remember to tighten up the cam gear bolts after you get them set to your desired degrees!**

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