



## 6.2 Raptor Cam Phaser Lockouts

These cam phaser lockouts are designed to allow the use of aftermarket springs and camshafts while still retaining the stock phaser. The lockouts are single piece anodized billet aluminum and designed to fit within the stock phaser.

They eliminate the durability issues associated with the phasers and allow the use of larger aftermarket camshafts and springs. The following instructions will help to guide you through the installation. These instructions are based on having the camshaft phaser previously removed from the car.

1. Remove the 6 Torx headed bolts holding the phaser together.
2. Remove the front plate slowly as there is a small spring that will force a small check valve out. Do not disassemble any further.
3. When you remove the plate you will see three voids in the outer gear section and 3 vanes in the inner gear section that fit into these spaces. The empty space in the 3 voids next to where the vanes sit are the free space that allows the outer gear to move in relation to the inner gear.
4. There are 2 vane/pocket sections that are identical and smaller, and one vane/pocket section that is larger. The lockout should be installed into one of the smaller sections. At this point you are all done and can reinstall the small piston, spring and check seat. Then you can install the front plate back on the gear and reinstall the other bolts.
5. When reassembling the phaser it's important to keep the sections lined up. The bolts hold the entire unit together like a sandwich. After installing all the bolts just lightly tighten them, enough to where the sections of the phaser are still moveable. It's suggested to install the sections back together, and torque the bolts up with the phaser attached to the end of a camshaft, this helps in aligning everything.

6. The torque for the bolts is 135 in lbs. We recommend using a small dab of blue thread locker on each bolt.

You should now have a fully assembled locked out gear. You can now install the gear back into the engine and proceed with the rest of the reassembly.

If you have any questions at all please feel free to contact Livernois at 313-561-5500. We will be glad to assist you.

