



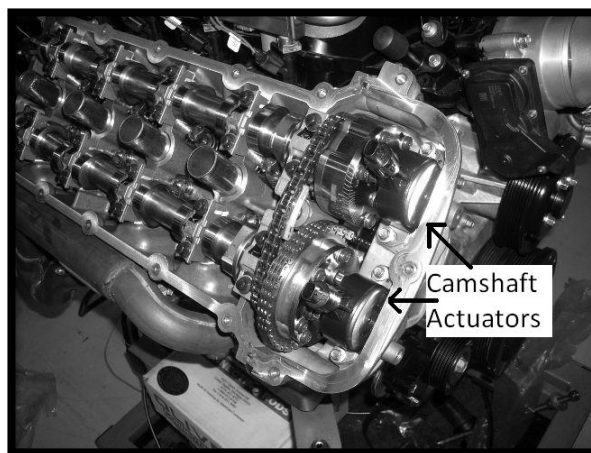
## INSTRUCTIONS

### Part #5493 5.0L Ford “Coyote” Camshaft Phaser Limiters (2011+)

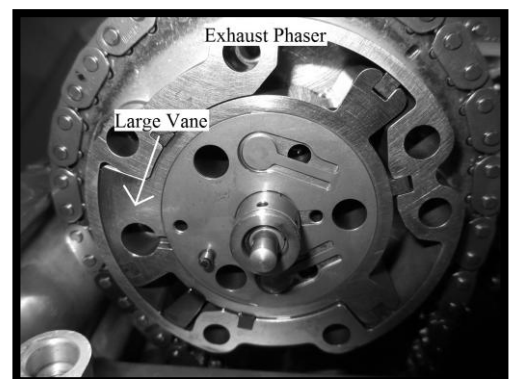
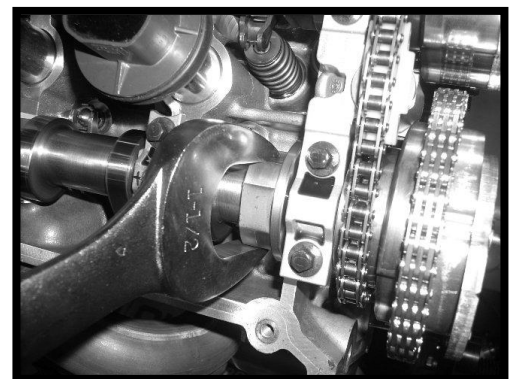
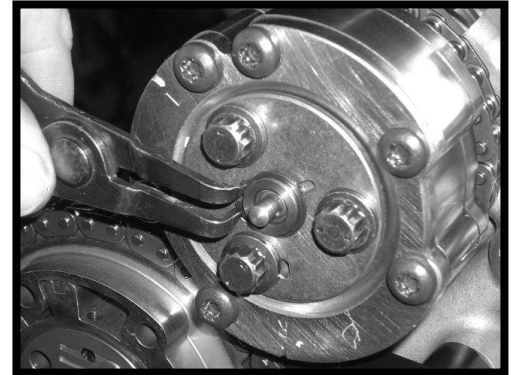
Thank you for choosing COMP Cams® products; we are proud to be your manufacturer of choice. Please read this instruction sheet carefully before beginning installation, and also take a moment to review the included limited warranty information.



- 1) Disconnect the negative post of your battery.
- 2) Remove any beauty/coil covers from the engine.
- 3) Remove the coil and phaser actuator electrical connectors from both banks of the engine.
- 4) Remove the coils and valve covers from both sides of the engine.
- 5) Remove spark plugs as this will ease rotation of the engine later on.
- 6) Remove camshaft actuators. These are the tall pieces that stick up through the valve cover and sit just in front of the cam phaser. They are each mounted to the front cover with two 8mm bolts.



- 7) **Note:** You will not be removing any phasers during the installation of your COMP Cams® Phaser Limiters.
- 8) Using 90° snap ring pliers remove the small snap ring from in front of phaser.
- 9) Using a 10mm (12 point socket) loosen and remove the three center camshaft bolts. You will have to rotate the engine to gain access.
- 10) Using a Torx T-30 loosen five of the six perimeter phaser bolts. You will have to rotate the engine to gain access. Leave one bolt still tightened.
- 11) Rotate the engine to allow a 1 ½" open ended wrench to be placed on the camshaft to hold it in place before loosening the final perimeter phaser bolt. This will help keep the camshaft and phaser aligned.
- 12) While holding the 1 ½" wrench in place, remove the final phaser bolt from the cover of the phaser.
- 13) Remove the OEM front phaser plate. There are two pieces that will come off. A smaller center plate that has the three camshaft bolts and a larger outer plate that has the six perimeter bolts.
- 14) Notice that when you remove the front cover there will be a small spring and plastic star shaped spring seat that will be visible. These parts must be in place during reinstallation to ensure the phasers work as intended.
- 15) Make sure the small round metal gasket is still in place on the phaser, and not still on the back of your OEM Phaser plate. Reinstall the gasket if it comes off the phaser.
- 16) You will notice under the cover that there are three internal chambers. Two chambers have a smaller vanes and one has a much larger vane. The limiter **MUST** be installed in the chamber with the large vane!



17) The phaser limiters **MUST** be installed with the small cutout towards the middle of the cam phaser as pictured to allow oil flow.

18) When working with an exhaust phaser, which is recognizable by its larger outer ring gear, the COMP Cams® Phaser Limiter **MUST** be installed counterclockwise of the large vane. This will limit the amount of camshaft retard that is available.

19) When working with an intake phaser, which is recognizable by the lack of a large outer ring gear, the COMP Cams® Phaser Limiter **MUST** be installed clockwise of the large vane. This will limit the amount of camshaft advance that is available.

20) Reinstall the three camshaft bolts and torque to 12-15 lb./ft. using medium strength thread locker. At the time of writing these instructions the Ford torque spec had not yet been released, it was also not if these bolts are torque to yield. Torque spec given is based on thread and pitch of the bolt. Check with the dealership for up to date information.

21) Torque the six perimeter bolts in a star pattern to 70-89 lb/in using medium strength thread locker.

22) Reinstall the small center snap rings on the front of the phaser using 90° snap ring pliers.

23) Repeat 8 through 22 on the three remaining phasers until all four camshafts limiters have been completely installed.

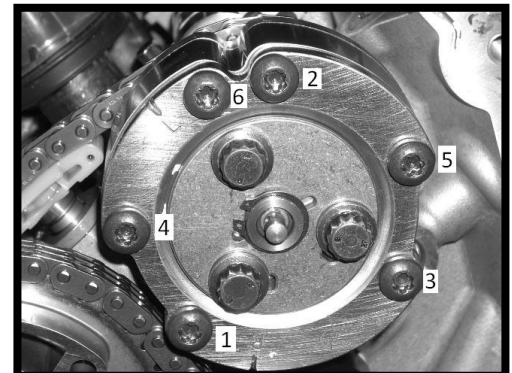
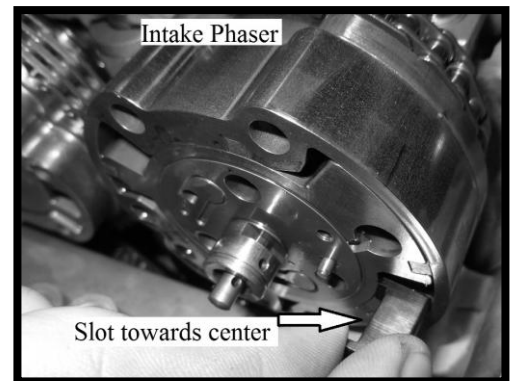
24) Reinstall camshaft actuators.

25) Reinstall valve covers, spark plugs, and coils.

26) Reconnect coils and phaser actuators.

27) Reinstall beauty/coil covers.

28) Reconnect negative battery post.



## **Limited Warranty**

Competition Cams, Inc. warrants that all of its products are free from defects in material and workmanship, and against excessive wear for a period of (1) one year from the date of purchase. This **limited warranty** shall cover the original purchaser.

**Competition Cams, Inc.'s obligation under this warranty is limited to the repair or replacement of its product.** To make a warranty claim, the part must be returned within (1) one year of purchase to the address listed below, freight prepaid. Items covered under warranty will be returned to you freight collect.

**It is the responsibility of the installer to ensure that all of the components are correct before installation. We assume no liability for any errors made in tolerances, component selection, or installation.**

**There is absolutely no warranty on the following:**

- A) Any parts used in racing applications;**
- B) Any product that has been physically altered, improperly installed or maintained;**
- C) Any product used in improper applications, abused, or not used in conjunction with the proper parts.**

**There are no implied warranties of merchantability or fitness for a particular purpose.** There are no warranties, which extend beyond the description of the face hereof. Competition Cams, Inc. will not be responsible for incidental and consequential damages, property damage or personal injury damages to the extent permitted by law. Where required by law, implied warranties or merchantability and fitness are limited for a term of (1) one year from the date of original purchase.

This warranty gives you specific legal rights and you may also have other legal rights, which vary from state to state.



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