

Please read and save these instructions. Read through this owner's manual carefully before using product. Protect yourself and others by observing all safety information, warnings, and cautions. Failure to comply with instructions could result in personal injury and/or damage to product or property. Please retain instructions for future reference.



## CAM PHASER KIT

### FOR CUSTOMER SERVICE

Technical Question?

**CALL 1-866-458-2472**

**customerservice@oem-tools.com**

### UNPACKING

After unpacking unit, inspect carefully for any damage that may have occurred during transit. Check for loose, missing, or damaged parts. If any damage is observed, a shipping damage claim must be filed with carrier. Do not use the OEMTOOLS Cam Phaser Kit if broken, bent, cracked or damaged parts (including labels) are noted. Any Cam Phaser Kit that appears damaged in any way, operates abnormally or is missing parts should be removed from service immediately. If you suspect that the Cam Phaser Kit was subjected to shock load (a load that was dropped suddenly, unexpectedly, etc.) immediately discontinue use until it has been checked by a factory authorized service center.



### ⚠ WARNING

The following safety information is provided as a guideline to help you operate your Cam Phaser under the safest possible conditions. Any tool or piece of equipment can be potentially dangerous to use when safety or safe handling instructions are not known or not followed. The following safety instructions are to provide the user with the information necessary for safe use and operation. Please read and retain these instructions for the continued safe use of your service system. Failure to follow instructions listed below may result in serious injury. In addition, make certain that anyone that uses the equipment understands and follows these safety instructions as well.

### Explanation of Safety Signal Words

**⚠ WARNING** : Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

**⚠ CAUTION** : Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

**CAUTION** : Used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

**NOTES** : Provide clarity and helpful information.

Thank you very much for choosing an OEMTOOLS Product!

For future reference, please complete the owner's record below:

**Model:** \_\_\_\_\_ **Purchase Date:** \_\_\_\_\_

Save the receipt, warranty and these instructions. It is important that you read the entire manual to become familiar with this product before you begin using it. This product is designed for certain applications only. OEMTOOLS cannot be responsible for issues arising from modification. We strongly recommend this product is not modified and/or used for any application other than that for which it was designed. If you have any questions relative to a product until you have first contacted OEMTOOLS to determine if it can or should be performed on the product.



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### IMPORTANT INSTRUCTIONS AND SAFETY RULES

1. Know your tool. Read this manual carefully. Learn the tool's applications and limitations, as well as, potential hazards specific to it.
2. Keep work area clean and well lit. Cluttered or dark work areas invite accidents.
3. Keep children away. All children should be kept away from the work area. Never let a child handle a tool without strict adult supervision.
4. Do not operate this tool if under the influence of alcohol or drugs. Read warning labels on prescriptions to determine if your judgment or reflexes are impaired while taking drugs. If there is any doubt, do not attempt to operate.
5. Use safety equipment. Eye protection should be worn at all times when operating this tool. Use ANSI approved safety glasses. Everyday eyeglasses are NOT safety glasses. Dust mask, non-skid safety shoes, hard hat or hearing protection should be used in appropriate conditions.
6. Wear proper apparel. Loose clothing, gloves, neck-ties, rings, bracelets or other jewelry may present a potential hazard when operating this tool. Keep all apparel clear of the tool.
7. Don't overreach. Keep proper footing and balance at all times when operating this tool.
8. Check for damage. Check your tool regularly. If part of the tool is damaged it should be carefully inspected to make sure that it can perform its intended function correctly. If in doubt, the part should be repaired. Refer all servicing to a qualified technician. Consult your dealer for advice.
9. Store idle tools out of the reach of children and untrained persons. Tools may be dangerous in the hands of untrained users.
10. Maintain tools with care.
11. Keep tools dry and clean.
12. Do not use a damaged tool. Tag damaged tools "Do not use" until repaired.
13. Use only accessories that are recommended by the manufacturer for your model. Accessories that may be suitable for one tool may become hazardous when used on another tool.
14. Tool service must be performed only by qualified repair personnel. Service or maintenance performed by unqualified personnel could result in a risk of injury.
15. When servicing a tool, use only identical replacement parts. Use of unauthorized parts or failure to follow maintenance instructions may create a risk of injury.
16. Maintain a safe working environment. Keep the work area well lit. Make sure there is adequate surrounding workspace. Keep the work area free of obstructions, grease, oil, trash, and other debris. Do not use this product in a damp or wet location.
17. Maintain labels and nameplates on this product. These carry important information. If unreadable or missing, contact OEMTOOLS for a replacement.

### IMPORTANT SAFETY INSTRUCTIONS

The warnings, precautions, and instructions discussed in this manual cannot cover all possible conditions and situations that may occur. The

operator must understand that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

### DISPOSAL

At the end of the useful life of the OEMTOOLS Cam Phaser dispose of the components according to all state, federal and local regulations.

### PURPOSE

A common problem for Ford vehicles with the 4.6 or 5.4 3V engine is a metallic knocking noise as a result of cam phaser failure. Installing the OEMTools Cam Phaser Noise Repair Kit will prevent or eliminate any noise related to cam phaser failure. The kit includes 2 solid aluminum wedges precisely machined to lock the internal mechanisms of the cam phaser so that there are no moving parts to make noise or fail. Locking the cam phaser will make the camshaft and camshaft gear act as one, with no adjustment. This is the same as the earlier 2 valve engines. To prevent any drivability issues or a check engine light, a programmer is included that removes the variable timing adjustment and monitoring from the vehicles on board computer. The kit is simple and easy to install with no special tools required. We have included a factory style Timing Chain Wedge Tool to allow installation simply by removing the valve cover with no need to remove the front timing cover.

### INSTALLATION INSTRUCTIONS:

**NOTE:** This kit only fits OEM Factory Cam Phasers, it does not fit aftermarket Phasers such as Dorman.

1. Make sure the battery is fully charged.
2. Connect programmer to the vehicles OBDII connector making sure it is firmly connected and does not become disconnected during reprogramming.
3. Make sure all accessories are off.
4. Turn the key to the on position without starting the engine.
5. Do not turn key to the off or start position until the process is complete.
6. Follow onscreen prompts until the reprogram is completed.
7. Once the programming is complete, unplug the tuner and start the engine.

**NOTE:** On the rare occasion that the tuner screen displays the error message "update programmer", contact us for a firmware update.

### WARNING

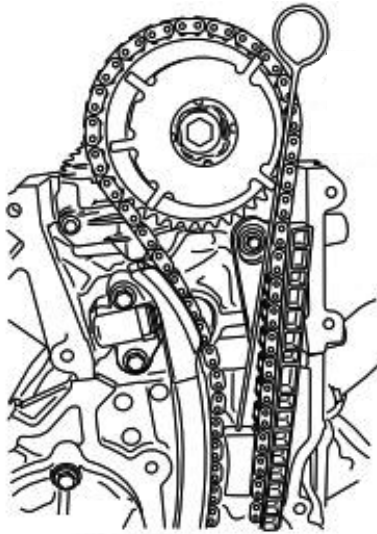
Make sure battery ground cable is disconnected from the battery before starting the procedure.

**NOTE:** Only remove 1 Cam Phaser at the time so you will have a visual reference for reassembly. It is best to start on the driver's side to become familiar with the process as this side has easier access.

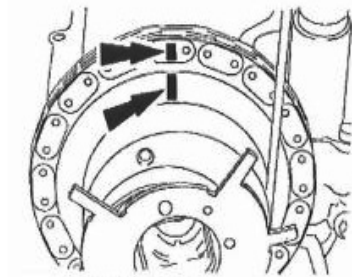
8. Follow manufacturer's procedure to remove the valve cover.
9. Insert the wedge tool between the two paths of the timing chain. The flat portion should be facing the center of the truck. This tool must be installed square to the timing chain and the engine block. Make sure it is snug; it should not be easily removed.



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10. Scribe a location on the timing chain and cam phaser. A silver/metallic marker works well for this.



**NOTE:** It is important that you do not remove the Wedge Tool at any time during the procedure. If the Wedge Tool is removed, the timing chain will move out of time and the front cover will have to be removed to re-time the engine.

11. Remove the cam phaser according to manufacturer's instructions being careful to keep the wedge in place.

**NOTICE:** Only use hand tools to remove the cam phaser and sprocket assembly or damage may occur to the camshaft or cam phaser and sprocket.

12. Place the cam phaser in a vise to hold it while removing the cover plate bolts. There are 5 bolts holding the cam phaser cover in place. 1 of the bolts is longer than the others and protrudes out the back side of the phaser and holds the end of the spring in place. Loosen the long bolt but don't remove it. Remove the remaining 4 bolts.

**NOTE:** On some models there may be 2 long bolts. If this is the case remove the long bolt that **DOES NOT** hold the end of the spring, leaving the other in place marking the position of the one you removed.



13. Rotate the cover plate on the long bolt. Do this slowly as there is a spring loaded check valve that will protrude once the cover plate is no longer holding it in place. Use a thumb or finger to keep it from launching out of the phaser. Set the check valve (spring, valve, valve seat) aside as you will need to reinstall it later.



14. Once you have rotated the cover out of the way, you can see the vanes that control the cam phaser movement. The voids next to these vanes is where the Lockout will be installed. Because there are 5 locations and only one Lockout, you will need to determine which location the Lockout is to be installed. Try each location; the correct location is the one that requires a bit of pressure to install the lockout, is the tightest fit and prevents any movement between the inner and out sections.

15. Reinstall the check valve, spring and valve seat, then rotate the cover back into place and reinstall the bolts using blue thread locker and torque to 145 In/Lbs.

16. Make sure the long bolt is still holding the spring in place.

**NOTE:** On some models there may be 2 long bolts. If this is the case, you will need to reposition the spring over the long bolt you removed by prying on it slightly with a screwdriver. You can use the intact cam phaser on the other side as a visual reference for the spring position.





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17. Reinstall the cam phaser according to manufacturer's instructions aligning the marks previously made on the cam phaser and the timing chain using the included new bolts. Be careful to keep the wedge in place. At this time only hand tighten the bolts.

**NOTE:** If the camshaft has moved after taking off the cam phaser, you will need to reposition it before you can reinstall the cam phaser. A ratchet and extension are an easy way to move it back in place using the 3/8" female square in the back of the camshaft.

18. Once the Phaser is installed, you can remove the wedge and tighten the new cam phaser bolt following factory specs or torque to 30 Ft/Lbs. plus an additional 90 degrees.
19. Reinstall the valve cover.
20. Repeat the procedure on the other side.
21. Reinstall the battery cable.

**CONTENTS:**

DESCRIPTION	QTY
Lockout Wedge	2
Timing Chain Wedge Tool	1
Cam Phaser Torque to Yield Bolt	2
Programmer with OBDII Cable	1
CD for Software Update	1

## OEMTOOLS® 90 DAYS WARRANTY

From 90 days from the original purchase of this product, OEMTOOLS will warranty this item. If you find any defect in material or workmanship, through normal usage, return it to the place of purchase or to OEMTOOLS for repair or replacement at our discretion. In order to obtain this service send your tool and proof of purchase, transportation pre-paid, to OEMTOOLS Q.A. Dept., 3580 E. Raines Road #3, Memphis, TN 38118. We will not be responsible for lost or damaged goods during transportation, please insure your package. If our inspection verifies the defect, we will either repair or replace the product at our election, or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

OEMTOOLS does not provide warranty for products labeled other than OEM or OEMTOOLS. OEMTOOLS will not provide any warranty for products subjected to abnormal use. Abnormal use includes, but is not limited to, abuse, accident, alteration, neglect, and unauthorized or unreasonable use or repairs. This warranty does not cover bits, blades, files, batteries, or calibration. We recommend that you maintain your tools and sharpen or replace blades, bits, files, and batteries as necessary. OEMTOOLS reserves the right to makes any changes in construction or design at any time without any obligation in incorporating such changes to tools or equipment previously sold.

OEMTOOLS makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that this product is free from defects in materials and workmanship for the period of 90 days from the date of purchase. This warranty does not apply to damage due directly or indirectly to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, criminal activity, improper installation, normal wear and tear or to lack of maintenance.

We shall in no event be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.

Warranty is to the original purchaser for as long as he or she owns the vehicle on which the product is originally installed. Re-sold units purchased from an unauthorized re-seller and/or auction are NOT covered under this warranty.

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