Ford 4.0L SOHC Timing Component Timing Identification Can Be Tough

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For those of you that have not come across or had the privilege of working on the Ford 4.0L SOHC cam engine you are about to get a baptism in its proliferation in the timing components used. Now before you go off and wonder why I am even trying to tell you about these, know this there are none available in the aftermarket (or at least not that I was able to find). You can buy tensioners, guides and chains but gears are not available from the aftermarket and as you see the proliferation you will understand why. So you will either have to purchase them new from Ford or you are going to reclaim those that are not worn or damaged.

The 4.0L SOHC engine come on the scene in 1997 and is still used in current production. There are some variations of this engine between the 2WD and 4WD engines in that the 4WD uses a balance shaft assembly where the 2WD does not. This engine has been used in the Ranger/Mazda B Series, Explorer, Mountaineer, Mustang and Land Rover.

The SOHC engine has a unique variation to the manner in which it drives the camshafts. Since this engine is part of the original Cologne, Germany design it actually started out as a V-4, OHV engine back in the 60's that evolved into a V-6 OHV configuration of the 2.8L and 2.9L that many of you should remember probably not very fondly based on the amount of cylinder heads that seemed to always crack. By the time it got to the 4.0L SOHC the camshaft area of the block now houses a jack shaft. The jackshaft is used in place of a camshaft to drive a timing chain to each cylinder head. Three timing chains are used, one from the crank to the jackshaft, one in the front of the engine to drive the cam for the left bank, and one on the back of the engine to drive the cam for the right bank. Not what most of us are accustomed to seeing, and better yet there are no keyed or doweled indexing points on any of the camshafts. There are fixtures/tooling available to hold the camshafts in place at which time you install the gears and torque them into position.

If all that has not made you feel as though you are not interested in working on this engine lets jump into the timing gears and their differences so that when you do cross over into the dark side you will have enough ammunition to survive. Let's start with the 1997 through 2001 engines and show you the differences between them.

The 2WD engine will have a crankshaft gear that has approximately .068" raised area on the gear face, and will carry a number stamping of 97, 98, 99, 00 or 01 on it (Fig1). The two wheel drive timing application does not use any type gear spacer/sprocket for driving the balance shaft assembly since it is not used.

The gear used with the front cam gear has the same numbers stamped on to it as the crank gear (97 thru 01) as seen in (Fig 2).

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The 1997 to 2001 4WD application uses a crankshaft gear that is completely flat and has no raised edge on it and has the same numbers stamped into it as did the 2WD gear 97-01 (Fig 3). Since the 4WD application utilizes a balance shaft assembly at the bottom of the engine it also uses spacer/sprocket off the crank snout to drive its chain. (Fig 4) The 4WD engine implements the same Cam gear as the 2WD as seen in Fig 2

Now we enter the 2002 thru current production timing gears and going in the same order as above we will start with the 2WD engine applications. The crank gear on these 2WD applications has a .138" ledge on it and carries the number 2L2E-6306-BA (FIG 5). This gear employees the use of the Cam gear that has the numbers 02 or 03 stamped on it as shown in (Fig 6) it is also the same cam gear that is used for the 4WD applications.

Lastly there is the crank gear that is used for the 4WD application from 2002 to current and it has a .078" raised edge upon it and carries the number 2L2E-6306-AA (FIG 7). Take note that the only difference in the markings of the 2WD and 4WD 02 and up gears are the suffix numbers AA and AB do not get caught looking at only the prefix numbers or you will use the wrong gear in the wrong combination. The cam gear is the same as the 2WD (FIG 6) and the same balance shaft drive gear in (FIG4).

So this is how it all lays out and I guess you can see why the aftermarket has chosen not to deal with the proliferation. Use the wrong ones in the wrong place and you will have chain and guide issues in an engine that has its share of problems along those lines already. I have to give credit where credit is due and this information would not have been possible without the help and input of Chris Roberts, my co-worker at PROFormance Powertrain Products.

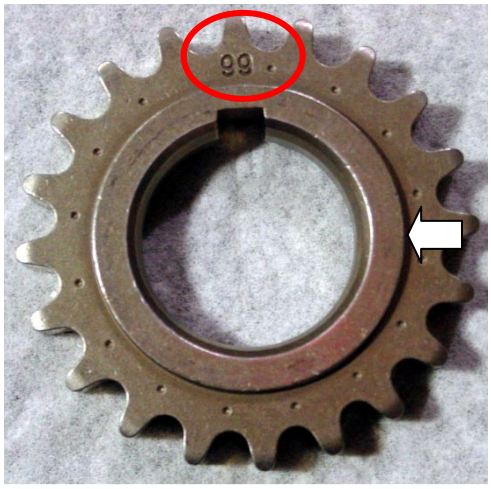


Fig 1 1997-2001 2WD Crank gear with .068 raised shoulder (arrow) and # 97, 98, 99, 00 or 01 stamped onto the gear (red circle)

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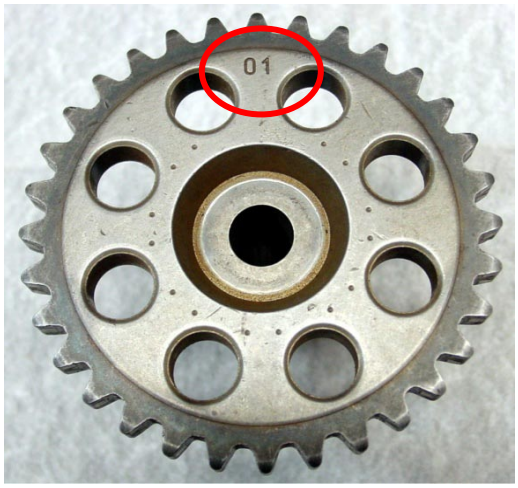


Fig 2 1997-2001 2WD and 4WD Cam gear with # 97, 98, 99, 00 or 01 stamped onto the gear (red circle)

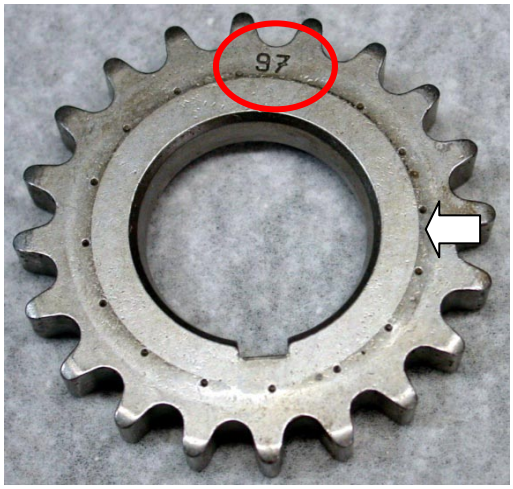


Fig 3 1997-2001 4WD Crank gear with no raised shoulder (arrow) and # 97, 98, 99, 00 or 01 stamped onto the gear (red circle)

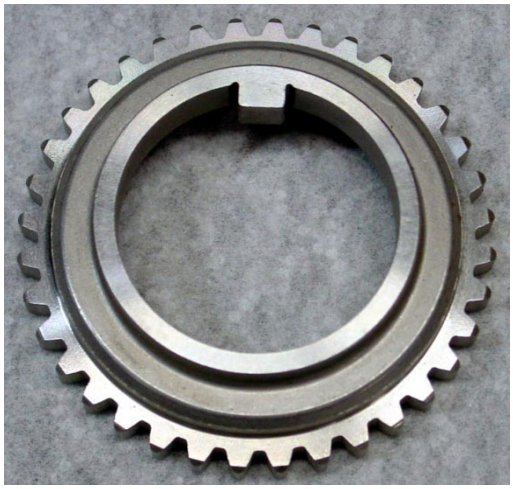


Fig 4 1997 thru current production balance shaft drive sprocket/spacer used with flat crank gear (97-01)that has no raised edge or the .078" raised edge gear (02 thru current)

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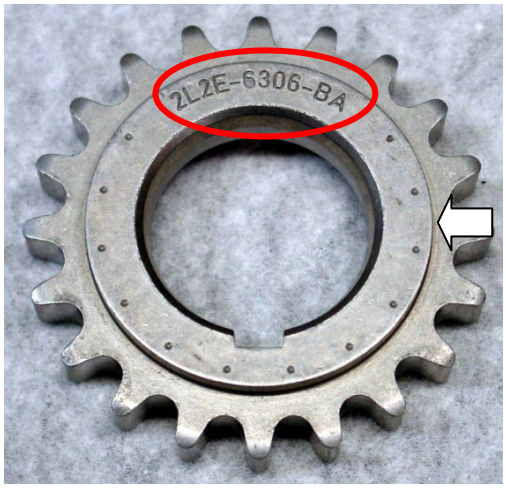


Fig 5 2002 to current 2WD Crank gear with .138" raised shoulder (arrow) and 2L2E-6306-BA stamped onto the gear (red circle)

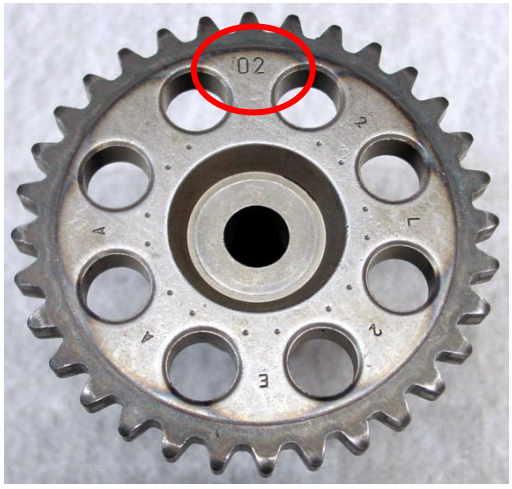


Fig 6 2001 to current 2WD and 4WD Cam gear with # 02 or 03 stamped onto the gear (red circle)

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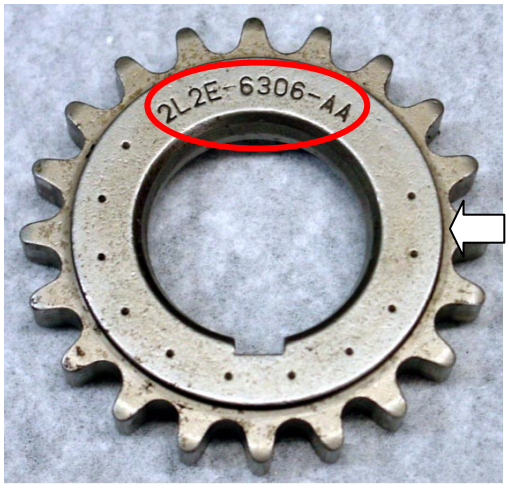


Fig 7 2002 to current 4WD Crank gear with .078" raised shoulder (arrow) and 2L2E-6306-AA stamped onto the gear (red circle)