



Timing Chain Installation On 2005-11 Ford 4.6L VIN H Engines

The AERA Technical Committee offers the following information regarding the timing chain installation on 2005-11 Ford 4.6L VIN H engines. Installing the timing chain and getting it aligned properly is different from the previous versions of the 4.6L engine.

Ford offers the following procedure to get the correct timing and if the alignment is no correct, engine damage may occur.

1. Rotate the crankshaft to position the crankshaft sprocket timing mark in the 6 o'clock position as shown in Figure 1.

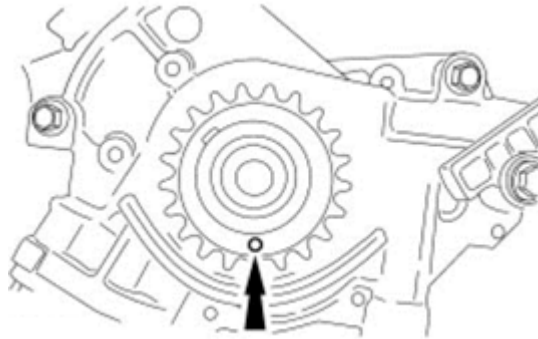


Figure 1 – Cranksahft Timing Mark at 6 o'clock position

2. Rotate the camshaft sprockets to position the Right Hand (RH) camshaft sprocket timing mark at the 11 o'clock position and the Left Hand (LH) camshaft sprocket timing mark in the 12 o'clock position as shown in Figure 2.

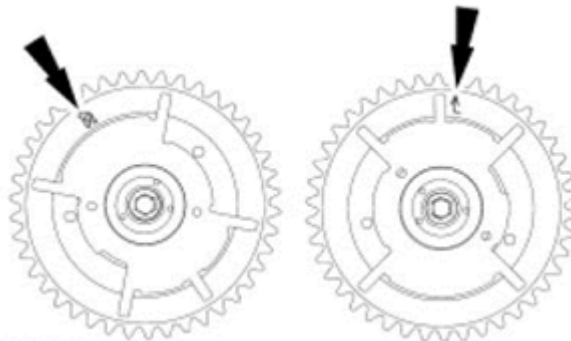


Figure 2 – RH & LH Camshaft Timing Mark Locations

3. Compress the tensioner plunger by using a vise and install a retaining clip on the tensioner to hold the plunger in place during installation, refer to Figure 3. Remove the tensioner from the vise.

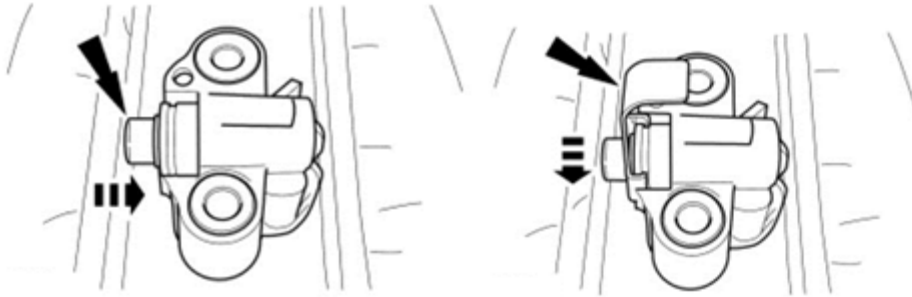


Figure 3 – Compressing Tensioner Plunger & Installing Retaining Clip

4. If there are no colored links visible on the chain, lay chain out and stretch it so you have two links on both ends and mark those for reference as shown in Figure 4.

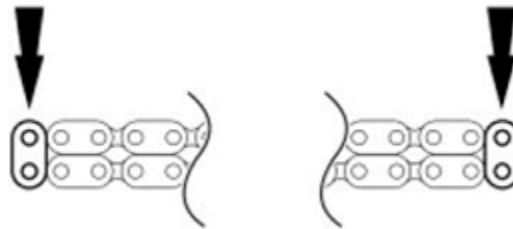


Figure 4 – Timing Chain Reference Marks For Installation

5. Install the RH & LH timing chain guides along with bolts, 2 on each one, and tighten to 89 in/lbs (10 Nm).
6. Position the LH Timing chain on the camshaft sprocket and make sure that the sprocket timing mark is aligned with the colored (marked) chain link as show in Figure 5.

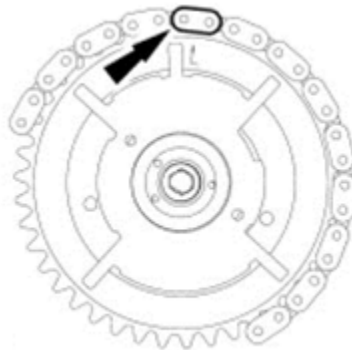


Figure 5 – LH Timing Chain Alignment On Sprocket

7. Position the LH timing chain tensioner arm on the dowel pin and install the LH timing chain tensioner. Tighten the 2 bolts to 18 ft/lbs (25 Nm). **NOTE:** LH timing chain tensioner arm has a bump near the dowel hole for identification. Remove the LH timing

chain retaining clip from the tensioner.

8. Position the lower end of the RH (outer) timing chain on the crankshaft sprocket, aligning the timing mark on the sprocket with the single colored (marked) chain link as shown in Figure 6.

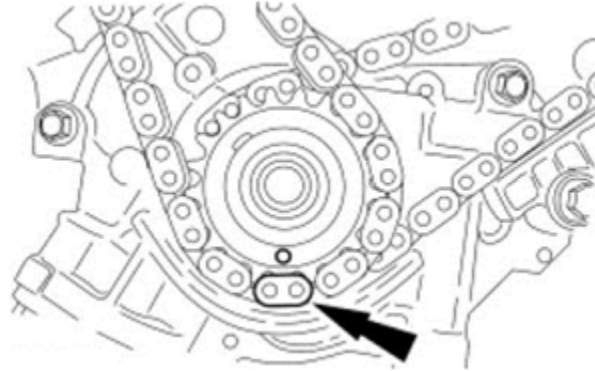


Figure 6 – RH Timing Chain Alignment With Crankshaft Sprocket

9. Position the RH timing chain on the camshaft sprocket making sure the camshaft sprocket timing mark is aligned with the colored (marked) chain link. NOTE: The camshaft phaser and sprocket will be stamped with one of the illustrated timing marks for the RH camshaft show in Figure 7.

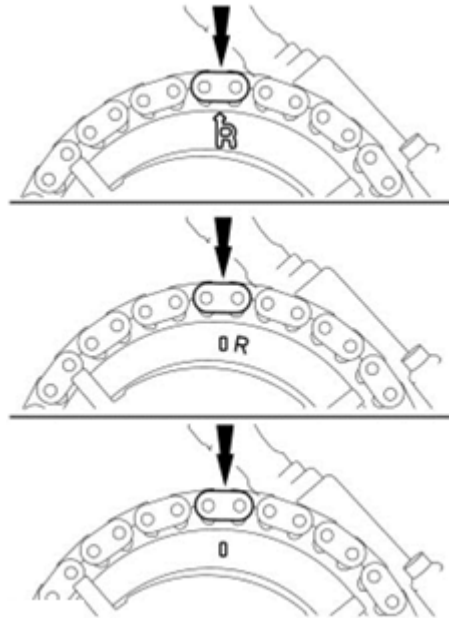


Figure 7 – Reference Identification Mark For RH Cam Phaser & Sprocket

10. Position the RH timing chain tensioner arm on the dowel pin and install the RH timing chain tensioner and tighten the 2 bolts to 18 ft/lbs (25 Nm) and remove the retaining clip from the RH timing chain tensioner.
11. As a post-check, verify correct alignment of all timing marks as seen in Figure 8. Also verify that the timing marks on the sprockets correspond with the following. The RH and LH camshaft phaser sprockets are similar. Refer to the single timing mark to identify the

RH camshaft phaser sprocket and the “L” timing mark to identify the LH camshaft phaser sprocket.

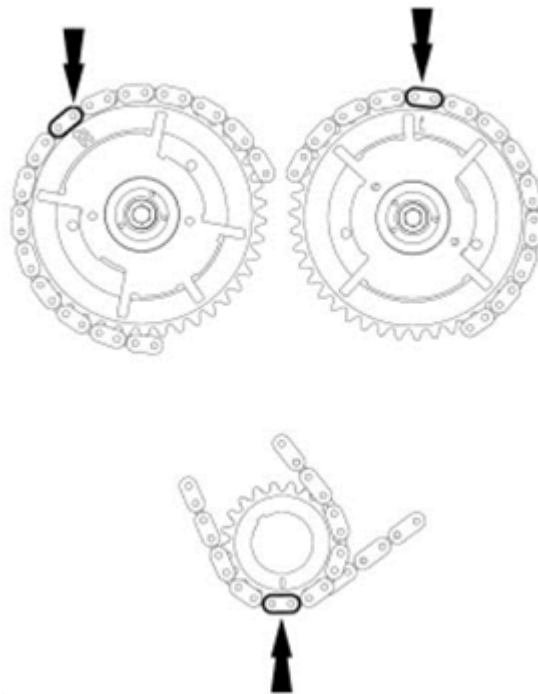


Figure 8 – Verify Timing Mark Alignment

The AERA Technical Committee

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