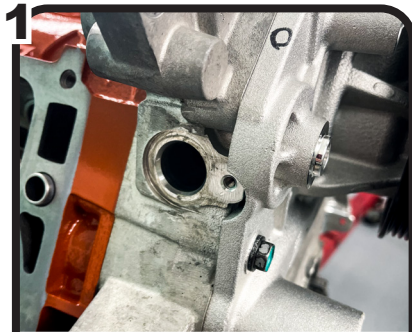


# Camshaft Timing Tool Instructions

**\*\*DO NOT USE THIS TOOL ON A HOT ENGINE!\*\***



**1** Remove the camshaft position sensor. It is located at the top passenger side of the timing cover and is held in place by one 10MM Headed Bolt. Remove this bolt and remove the camshaft sensor.

**2** Remove the harmonic balancer (dampener). It is **ABSOLUTELY CRITICAL THAT THE HARMONIC BALANCER BE REMOVED BEFORE PROCEEDING**. Failure to remove the balancer first can break the tool and cause a part of the tool to fall into the oil pan. **MMX IS NOT RESPONSIBLE FOR BROKEN CAM TIMING VERIFICATION TOOLS, OR OTHER DAMAGES CAUSED BY IMPROPER USE OF THE TOOL**. The accuracy of the tool depends on the engine **NOT ROTATING** while doing the cam swap.

**3** Rotate the engine clockwise until #1 cylinder TDC compression stroke is found.

**4** Insert the tool into the timing cover in place of the camshaft sensor.



**4a** The tool will likely stop when the end of the tool hits the side of the camshaft phaser



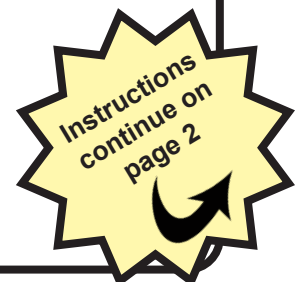
**4b** If this happens and the tool does not fully seat, you may need to very slightly rotate the engine clockwise or counterclockwise just a few degrees until the tool fully seats down and snaps into the "window" on the upper cam gear. Press down **VERY slightly** on the tool while very slowly rotating the engine should allow the tool to seat. **DO NOT FORCE THE TOOL. IT IS PLASTIC AND CAN BREAK!**

**5** After your MMX Camshaft Timing Verification tool has fully seated, **DO NOT ROTATE THE ENGINE**. Remove the tool from the timing gear. The top of the tool is threaded to accept the cam sensor retaining bolt in the instance that the tool is difficult to remove by hand.

**6** Remove the timing cover from the engine.

**7** Proceed with installing your new MMX camshaft!

**Pro-Tip:** Use an electric or air impact to remove the cam bolt to prevent the crankshaft from rotating.



8

After installing your new VVT camshaft, set the camshaft timing per the MMX YouTube video and torque your VVT cam bolt to 90 FT/LBS.



9

Install the timing cover. Insert the MMX camshaft Timing Tool Back into the timing cover, and as long as you set the cam timing correctly, the MMX cam timing tool should fully seat back down (see Step 4b).

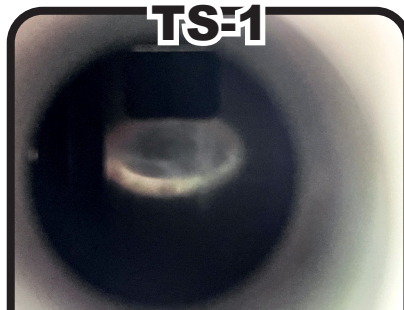
10

If your MMX timing verification tool fully seats, your engine is properly timed and you are ready to finish your cam install!

### Troubleshoot

- If your tool fails to seat, but the target wheel position is **VERY SIMILAR** to the photo in TS-1, it is possible the engine was rotated and your timing could still be correct.
- If your cam gear target wheel position looks identical to TS-2, or if it is unlike both TS-1 and TS-2, you need to remove your timing cover, and fix your camshaft timing.

TS-1



This is an example of the cam target wheel position when properly timed.

TS-2



Above is an example of an improperly timed camshaft that is off one full tooth (retarded).