April 27, 2009

Installation Instructions
9-3172A Hex-A-Just® True Roller Timing Set

BEFORE YOU BEGIN: *READ ALL OF THESE INSTRUCTIONS FIRST* !!!

Note: The installation procedures which follow assume that the engine has been disassembled and cleaned as it would be for a normal timing set change.

YOU WILL NEED:

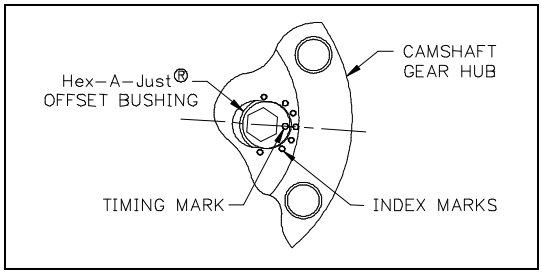
TOOLS:
- 1/4" Hex Bit Socket or Hex Wrench
- Torque Wrench
- Hammer
- Sleeve to fit over crankshaft for installing Crankshaft Sprocket
- Degree Wheel (Optional, but Recommended)

SUPPLIES:
- Assembly Lube or Camshaft Lube

1. **Prepare the Engine.** Loosen all rocker arms so that the camshaft can rotate freely.
2. **Clean everything!** Make sure that the engine mounting surfaces and timing set components are as clean as possible. The life of the chain and bearings depends on it.

3. **Mount the Crankshaft Sprocket.** Select the appropriate keyway for the camshaft timing baseline desired. We recommend the Standard Timing position, which used the round timing mark and round keyway mark. Carefully tap the sprocket onto the crankshaft using a sleeve to protect the sprocket. Make sure that the sprocket is fully seated on the crankshaft. Rotate the crankshaft until the appropriate crankshaft sprocket timing mark is in the 12:00 position. Make sure that the number one piston is at top dead center.

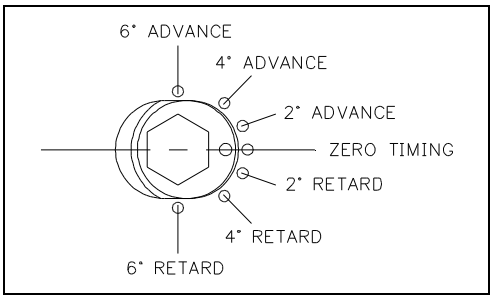
4. **Insert the Hex-A-Just® Timing Bushing.** Insert the offset bushing (with the Hex hole) into the slot in the camshaft sprocket hub. Rotate it with a 1/4" Hex Wrench so that the timing mark on the bushing points away from the center of the hub (Figure 1). The **Hex-A-Just®** Adjustable Timing Bushing is infinitely adjustable so you can fine adjust your engine's CAMSHAFT TIMING to ***EXACTLY WHERE YOU WANT IT***.



5. **Install the Camshaft Thrust Bearing.** Install the Thrust Needle Bearing on the back side of the camshaft gear hub with the **Black Side of the Bearing Toward the block. Failure to do so will cause a severe wear issue!**

6. **Mount the Camshaft Sprocket.** Loop the chain over the camshaft sprocket. Align the camshaft and crankshaft timing marks and loop the chain around the crankshaft sprocket. Lift the camshaft sprocket into place on the camshaft, with the **Hex-A-Just®** Bushing in place. Be sure that the timing mark aligns with the crankshaft timing mark. Start the camshaft bolts to hold the cam sprocket in place, but leave the bolts slightly loose.

7. **Adjust the Camshaft Timing.** Do NOT try to turn the camshaft with the bushing unless there is **NO LOAD** on the camshaft. There must be ***NO VALVE SPRING PRESSURE*** against the camshaft or the **Hex-A-Just®** bushing will **SPLIT**. Make sure that the three camshaft bolts are **LOOSE**. For a simple installation, adjust the **Hex-A-Just®** bushing to the desired timing setting (Figure 2). For a more accurate installation, use a degree wheel. The degree wheel method is strongly recommended.



8. **Torque Loose Bolts.** Torque the three (3) Cam Sprocket mounting bolts to 300 in-lb (25 ft-lb).

9. **Lubricate the Timing Set.** Make sure that the engine oil has a clear path to the timing set through the lifter valley oil drain-back holes, or through some other means. A timing set requires plenty of oil to survive. Before installing the timing cover gasket and timing cover, pour plenty of assembly lube over the sprockets and bearings. Assembly lube will stay on the sprockets until the engine is started.

10. **Install the Oil Pump Driver.** Using a sleeve**,** Carefully press the oil pump driver onto the nose of the crankshaft until the driver is in hard contact with the crankshaft sprocket.

11. **Timing Cover and Gasket.** Install the timing cover gasket using a small amount of gasket sealer if desired. Mount the timing cover and install the mounting bolts. Torque these bolts as specified by the manufacturer.