

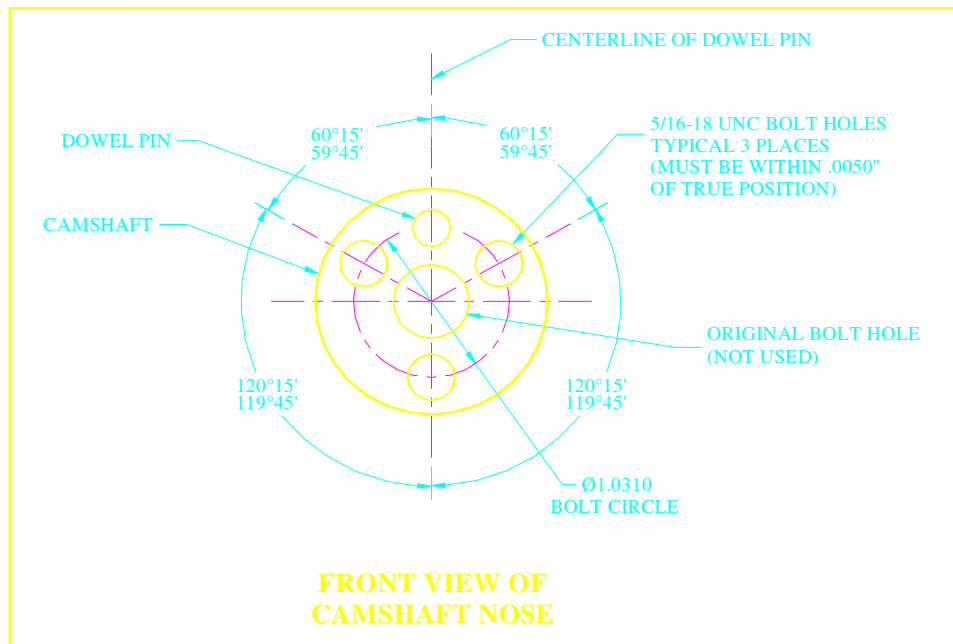
Installation Instructions

9-3152A Hex-A-Just® Roller Timing Set

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

Note: The 9-3152A Hex-A-Just® timing set is not a direct bolt-on application. Machining is required on the nose of the camshaft prior to installation. The following information explains the modifications that must be made to the camshaft prior to assembly.

Camshaft Modification. The Viper production engine cam sprocket (OEM P/N 5245124) is a single bolt installation design with a dowel pin for alignment. In order to apply the Cloyes Hex-A-Just® system to the Viper engine, a 3-bolt pattern was incorporated into the design of the high performance cam sprocket (S170DA). The camshaft modification requires three bolt holes to be drilled and tapped into the nose of the camshaft. Below is a diagram illustrating the dimensions and angular locations of the bolt holes.



As seen from the diagram, the position of the bolt holes is dependent upon the outer diameter of the camshaft and the center of the dowel pin. They are centered around a 1.0310" bolt circle diameter and are equally spaced 120° apart. The angular location of the bolt holes to the dowel pin is very important. Each bolt hole must be within .0050" of true position, and they should be threaded at least .750" deep.

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

YOU WILL NEED:

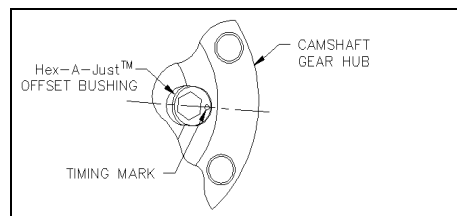
TOOLS:

- 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
- Thread Locking Compound (LockTite⁷ #271 or equiv.)

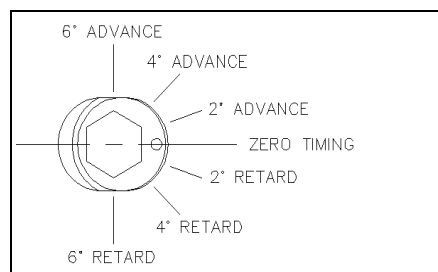
1. **Prepare the Engine.** Loosen all rocker arms so that the camshaft can rotate freely.
2. **Clean everything!** Make sure that the engine mounting surfaces and timing set components are as clean as possible. The life of the chain and sprockets depends on it.
3. **Mount the Crankshaft Sprocket.** Select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



**Inserting Offset Bushing
(Figure 1)**

with the crankshaft timing mark. Bolt it in place using the three (3) 5/16-18 x 3/4" Hex Socket Head Cap Screws supplied. Install these bolts slightly loose.

6. **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.



**Adjusting the Timing
(Figure 2)**

7. **Torque Loose Bolts.** Remove each of the three (3) Cam Sprocket mounting bolts, one at a time, and apply the **Thread Locking Compound**, then torque each bolt to 300 in-lb (25 ft-lb).
8. **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. Assembly lube will stay on the sprockets until the engine is started.
9. **Assemble the engine.** Install the timing cover, timing cover gasket and accessories.