

INSTRUCTIONS FOR THE TORK TOOLS CVSC020 VALVE SPRING COMPRESSOR

READ ENTIRE INSTRUCTION SHEET BEFORE USING TOOL

- (1) Disconnect the battery negative cables. I suggest that you perform this procedure on a cold engine so you can adjust the valve lash, at the same time as the valve spring change. Using compressed air, blow off all debris on the valve covers, intake manifold cover and the high pressure injector lines. Wear safety glasses.
- (2) Remove the Dodge Cummins cylinder head cover with a 19MM wrench.
- (3) Remove the six cylinder head covers. Save the gaskets for reuse.
- (4) You can replace the valve springs on two cylinders at the same time. Number 1 and 6, 2 and 5, and cylinders 3 and 4. Using a 7/8" socket and ratchet, set in the reverse position, rotate the alternator nut in the reverse rotation. Watch for the #1 intake valve (short rocker arm) that is closing. Once the #1 intake valve is closed, the piston is near top dead center. As you **slowly** rotate the engine, watch **VERY closely** for movement of the exhaust valve (long rocker arm). Add soon as you see the slightest bit of movement- **STOP!** Verify that the push rods and rockers are loose on the #6 cylinder. This will confirm that the procedure was done correctly.
- (5) With a 13mm and 18mm socket, remove the two bolts on the #1 rocker arm pedestal. Hold the push rods and remove the pedestal. Place in a clean area. Save yourself some grief and wrap a clean shop rag around the push rods to prevent any parts from falling into the engine. This will prevent dropping a keeper onto the cam or into the oil pan.
- (6) Install the CVSC020 bridge where the pedestal was installed. Tighten the socket head cap screw with the 6mm Allen wrench (provided). Hand tight is OK. We have found that some of the locating holes, on some heads, are not deburred correctly. You may have to clean the locating hole in order for the bridge to fit. Lightly oil the threaded stud. Place the compressor plate over the threaded stud and align the tapered cone with the valve retainers. Grease the face of the flange nut. Tighten the nut with a 15mm wrench, to compress the valve springs. The piston **MUST** be at TDC or you can drop a valve into the cylinder when you remove the valve keepers. When you are compressing the valve springs, the piston top prevents the valves from falling into the cylinder. If you find that the valve springs will not compress, you are not at TDC. **FIND OUT WHY BEFORE PROCEEDING!**
- (7) The keepers can now be removed using a magnetic tipped pencil. Install the new valve springs and reinstall the retainers and keepers. Here's a TORK TIP that works great. Put a dab of sticky grease on the inside of the keepers. The grease holds the keepers in place while you retract the compressor tool. Retract the compressor tool and remove. **Do not rotate engine until the valve springs, retainers and keepers are installed.**
- (8) Assembly is in reverse order. When installing the pedestal, make certain that the push rods are seated correctly. Torque the head bolt to 29ft-lbs, a second time at 62 ft-lbs, and finally to 89 ft-lbs. Now, tighten the head bolt one quarter turn. Tighten the small bolt to 18 ft-lbs. I suggest that you do one cylinder at a time, so parts are not interchanged. At this point, you should have cylinders #1 and 6 done.
- (9) Now you can rotate the engine, and perform the exact same procedure on cylinders #5 and #2. And lastly, rotate engine for cylinders #3 and #4. When the valve springs are replaced, this would be a great time to adjust the valves.
- (10) Save the tool and instructions in the reclosable bag when the project is done.