

WHAT YOU WILL NEED...

Apart from the typical tools you will need (assorted wrenches, sockets, hammers, screw drivers, slide calipers, feeler gauges, and the like...), there are some specialized tools you will also require:



Also, it is a good idea to have some type of cleaning and/or degreasing solution on hand as well as lint-free rags. One of the most important aspects of engine assembly is, **KEEP IT CLEAN!**

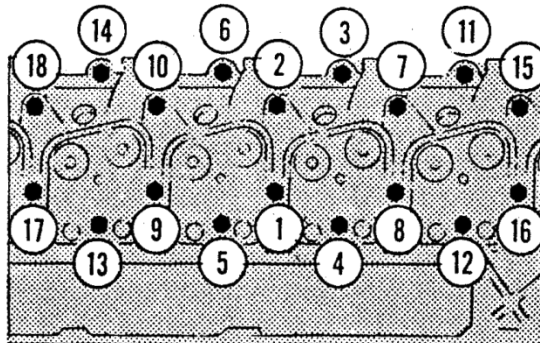
ENGINE BUILD SPECIFICATIONS – CUMMINS® 4B 3.9L 8-VALVE

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|---|--------------------------------|
| MAIN CAP BOLTS: | 37, 45, 66 ft/lbs + 90° |
| CONNECTING ROD BOLTS: | 22, 44 ft/lbs + 60° |
| INTAKE MANIFOLD BOLTS: | 18 ft/lbs |
| EXHAUST MANIFOLD BOLTS: | 32 ft/lbs |
| FLYWHEEL BOLTS: | 101 ft/lbs |
| VIBRATION DAMPER: | 92 ft/lbs |
| CYLINDER LINER PROTRUSION/RECESSION: | Sleeveless Engine |
| PISTON PROTRUSION: | .024" - .028" Above |
| CRANKSHAFT (TRUST) END PLAY: | .005" - .010" |
| ROCKER ARM SUPPORTS: | 18 ft/lbs |
| OIL PAN BOLTS: | 17.5 ft/lbs |
| VALVE CLEARANCE (Set Cold): | Intake: .010" Exhaust: .025" |
| FIRING ORDER: | 1 – 3 – 4 – 2 |
| OIL PRESSURE AT IDLE: | 30 PSI @ 1300 RPM |

CYLINDER HEAD TORQUE SEQUENCE:

This engine uses three (3) different length head bolts. Service manuals prior to 1993 list an incorrect torque value for the shorter bolts. The shorter bolts should be omitted from step "C" listed below, but **DO** include the additional ¼" turn in step "D".

- Step A Lubricate new (or cleaned) bolts and washers with clean engine oil.
- Step B In sequence, tighten all bolts to 66 ft/lbs. Wait 5-minutes and retighten all bolts, in sequence, to 66 ft/lbs.
- Step C In sequence, tighten only the longest bolts (4, 5, 12, 13) to 89 ft/lbs. Wait 5-minutes and retighten those bolts, in sequence, to 89 ft/lbs.
- Step D In sequence, tighten all bolts an additional ¼ turn or 90°.



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