

There are 3 different cylinder head torque procedures for the Cummins 6C 8.3 12 valve engine. Please verify the data below and use the corresponding torque procedure for your engine. Failure to utilize the proper torque procedure can lead to cylinder head damage or premature head gasket failure.

FOR ALL ENGINES

- Check block and head surfaces for straightness. Resurface accordingly. ***Do not clean surfaces with a die grinder buffing wheel. This will chamfer the edges of the coolant passages which makes it difficult for the head gasket to seal.
- Cylinder liner protrusion must be verified and corrected if found to be out of spec.
- Thoroughly clean and thread-chase all head bolt threads in block.
- Inspect all head bolts for signs of corrosion or rust pitting, damaged threads, or reduced diameter. A bolt with evidence of reduced diameter has been stretched and must be replaced. ***Replace head bolts in complete sets only.

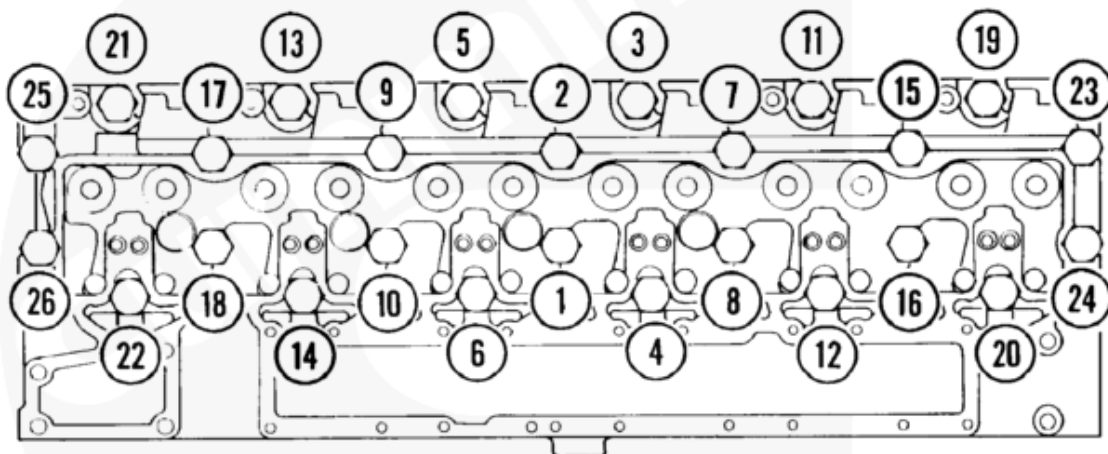
ENGINES BUILT PRIOR TO 1991

Engines built prior to 1991 use head bolts 3907233 and 3907234. The bolts are “torque only” style.

1. Apply a thin coating of clean engine oil to each bolt and follow the numbered sequence below and tighten all bolts to the following values in a 3 step process:

Torque Value:

1. 30 ft-lb
2. 111 ft-lb
3. 162 ft-lb

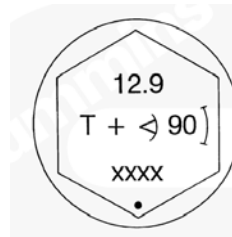


← **Front**

ENGINES BUILT 1991 AND LATER

Engines built 1991 and after use head bolts 3917728 and 3917729. These bolts are “torque + turn” or “torque + angle” style.

The top of the cylinder head bolt is identified with an angle marking. The cylinder head bolts must be tightened by the “torque + angle” method, as described below:

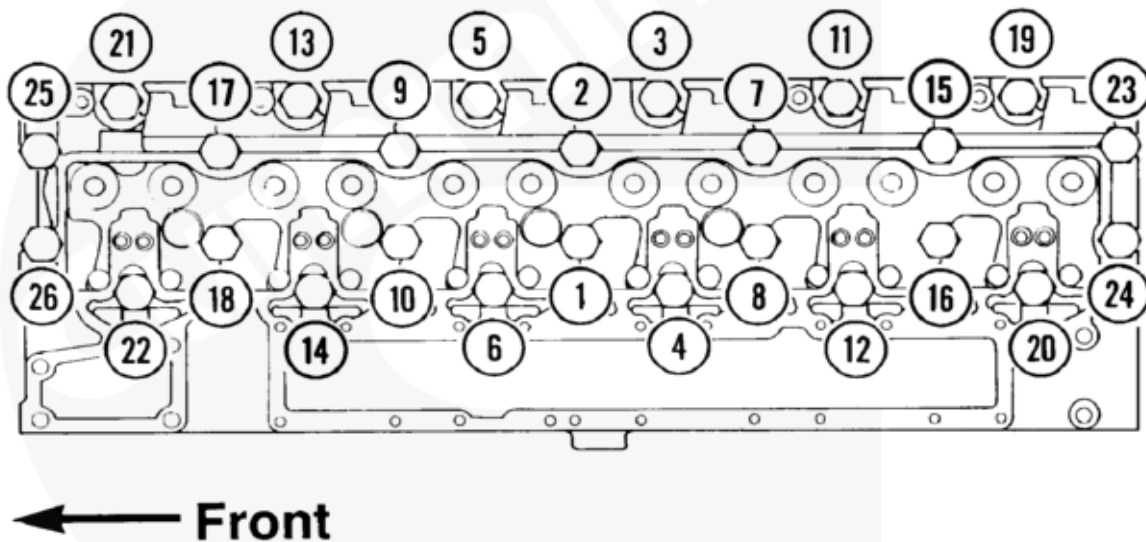


*****THERE ARE 2 DIFFERENT HEAD TORQUE PROCEDURES FOR ENGINES BUILT IN 1991 OR LATER*****

USE THIS PROCEDURE IF ORIGINAL HEAD BOLTS ARE RE-USED

1. Apply a thin coating of clean engine oil to each bolt and follow the numbered sequence below and tighten all 26 bolts.

Torque Value: 52 ft-lb



2. Follow the numbered sequence and tighten only the 14 long bolts, number 1, 2, 7, 8, 9, 10, 15, 16, 17, 18, 23, 24, 25, and 26.

Torque Value: 107 ft-lb

3. Retighten the 12 short bolts, number 3, 4, 5, 6, 11, 12, 13, 14, 19, 20, 21, and 22 because of cylinder head relaxation and to obtain proper cylinder head torque requirements.

Torque Value: 52 ft-lb

4. Follow the numbered sequence and retighten only the 14 long bolts, number 1, 2, 7, 8, 9, 10, 15, 16, 17, 18, 23, 24, 25, and 26.

Torque Value: 107 ft-lb

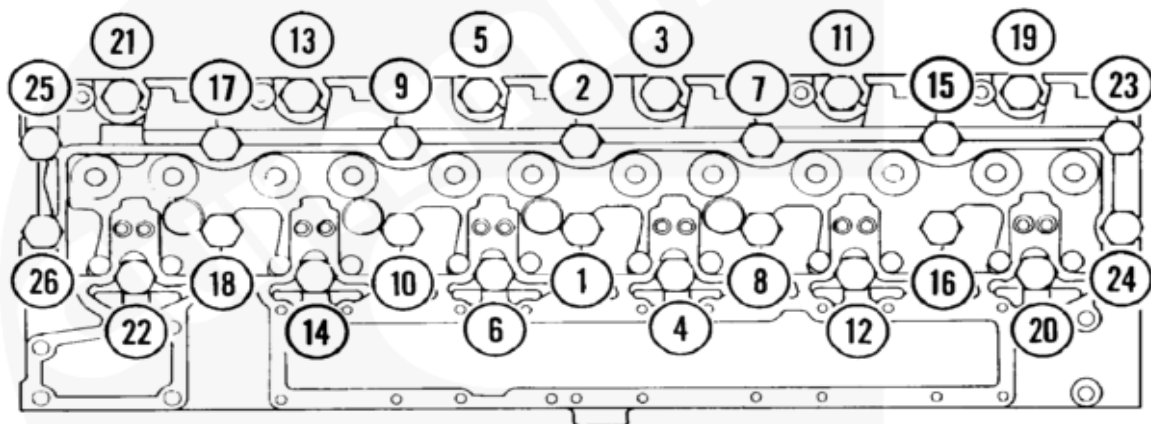
5. Tighten each bolt an additional 90° to achieve final torque.

USE THIS PROCEDURE IF NEW HEAD BOLTS ARE INSTALLED

1. Apply a thin coating of clean engine oil to each bolt and follow the numbered sequence below and tighten all 26 bolts.

Torque Value: 70 ft-lb

2. Follow the numbered sequence and confirm initial torque on all bolts.



← **Front**



3. Follow the numbered sequence and retighten only the 14 long bolts, number 1, 2, 7, 8, 9, 10, 15, 16, 17, 18, 23, 24, 25, and 26.

Torque Value: 107 ft-lb

4. Follow the numbered sequence and confirm torque on the 14 long bolts, number 1, 2, 7, 8, 9, 10, 15, 16, 17, 18, 23, 24, 25, and 26.

5. Follow the numbered sequence and tighten the 6 short bolts on exhaust side only.

Torque Value: 77 ft-lb

6. Follow the numbered sequence and confirm torque on the 6 short bolts on exhaust side.

7. Follow the numbered sequence and tighten the 6 short bolts on intake side only.

Torque Value: 70 ft-lb

8. Follow the numbered sequence and confirm torque on the 6 short bolts on intake side.

9. Recheck torque on all bolts. Follow the numbered sequence. The 14 long bolts should be 107 ft-lb. The 6 short bolts on the exhaust side should be 77 ft-lb. The 6 short bolts on the intake side should be 70 ft-lb.

10. Tighten each bolt an additional 90° to achieve final torque.