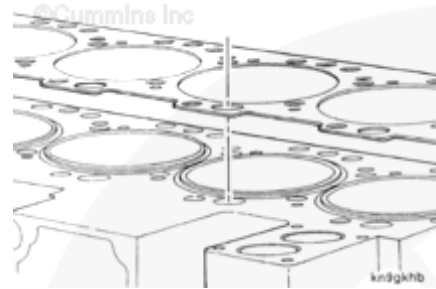


Install



Make sure the cylinder head gasket is correctly aligned with holes in the cylinder block. If not aligned properly, it can cause engine damage.

Position the new cylinder head gasket over the dowels.



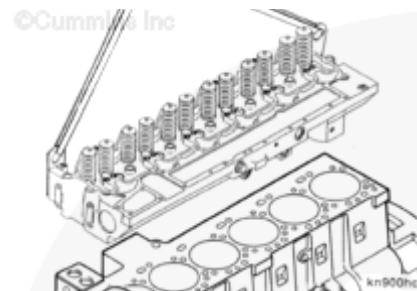
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This component weighs 23 kg [50 lb] or more. To reduce the possibility of personal injury, use a hoist or get assistance to lift this component.

Carefully put the cylinder head straight down onto the cylinder block, and seat it onto the dowels.

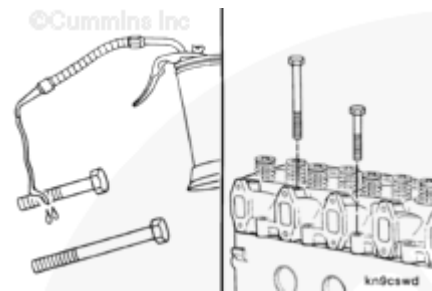


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Lubricate the threads and under the heads of the remaining cylinder head capscrews with engine oil.

Install the capscrews hand-tight.



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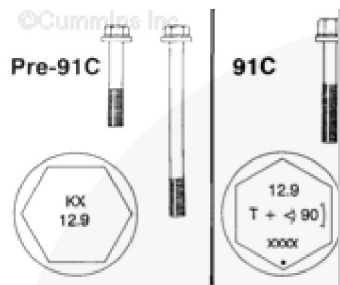


Do not use pre-1991 certification capscrews in a 1991 or later certification level engine because of differences in capscrew length and thread engagement. Damage to the engine will result if the wrong capscrews are used.

Post 1991 - New Cylinder Block or New Capscrews

Always use the following procedure when you are using new capscrews or a new cylinder block.

NOTE: Each 1991 and later certification capscrew has been marked with symbols and an angle specification. The capscrew part numbers can be identified by inspecting the marks on the capscrew head.



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Cylinder Head Capscrew Part Numbers

Pre-91 Capscrew Part Number	Length	1991 Capscrew Number
3907234	Short	3917729
3907233	Long	3917728

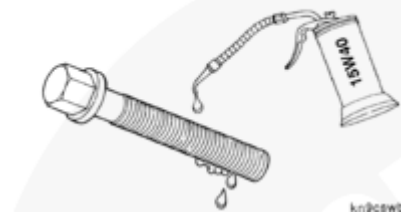


This procedure is to be used only with the use of a new cylinder block or new cylinder head capscrews.

1. Apply a thin film of clean engine lubricating oil to the capscrew threads and underside of the capscrew head flange.



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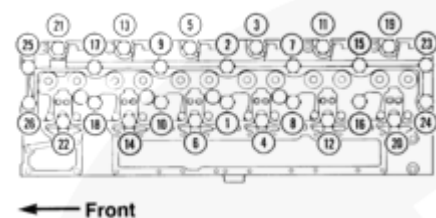
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1. Follow the numbered torque sequence; tighten all capscrews.
2. Follow the numbered torque sequence; check the torque on all capscrews a second time.

Torque Value: 95 n.m [70 ft-lb]



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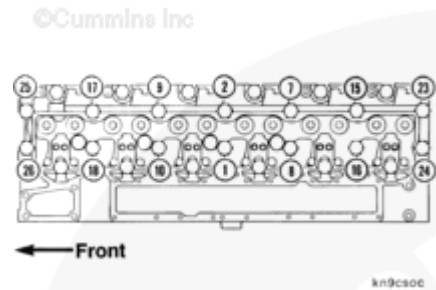


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1. Follow the numbered sequence; tighten the 14 long capscrews (two center rows)**only**.
2. Follow the numbered sequence; check the torque on all 14 long capscrews a second time.

Torque Value: 145 n.m [107 ft-lb]

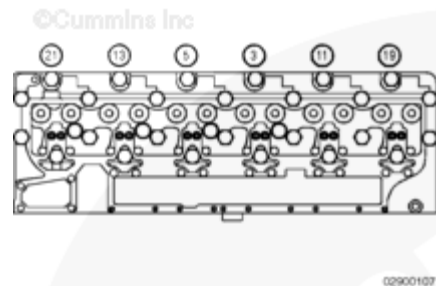


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1. Follow the numbered sequence; tighten the six short capscrews (exhaust side)**only**.
2. Follow the numbered sequence; check the torque on all six short capscrews a second time.

Torque Value: 105 n.m [77 ft-lb]



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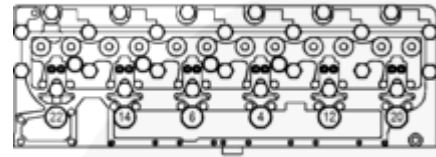
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1. Follow the numbered sequence; tighten the six short capscrews (intake side)**only**.
2. Follow the numbered sequence; check the torque on all six short capscrews a second time.

Torque Value: 95 n.m [70 ft-lb]



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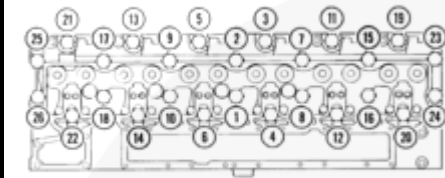
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1. Recheck the torque on all capscrews.
2. Follow the numbered sequence; check the 14 long capscrews from step 4.
3. Follow the numbered sequence; check the 6 short capscrews (exhaust side) from step 6.
4. Follow the numbered sequence; check the 6 short capscrews (intake side) from step 8.



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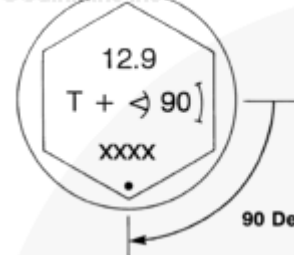
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1. Follow the numbered sequence; from step 2, turn the capscrews 90 degrees as indicated on the capscrew head.



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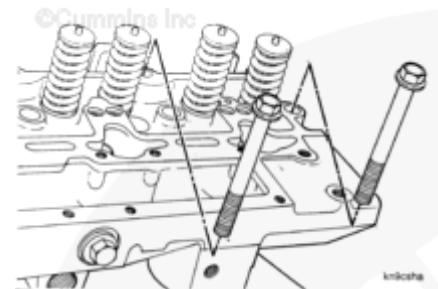
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Post 1991 - Used Cylinder Block and Used Capscrews

NOTE: If using a new cylinder block or new capscrews, do not use this procedure. Reference the new cylinder block or new capscrews in this section.



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The top of the cylinder head capscrew is identified with an angle marking. The cylinder head capscrews **must** be tightened by the five-step “torque plus angle” method, as described here.

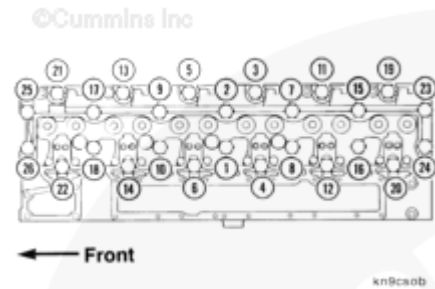


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1. Follow the numbered sequence and tighten all 26 capscrews.

Torque Value: 70 n.m [52 ft-lb]

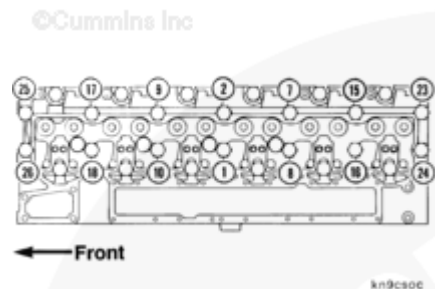


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2. Follow the numbered sequence and tighten **only** the 14 long capscrews. (Number 1, 2, 7, 8, 9, 10, 15, 16, 17, 18, 23, 24, 25, and 26.)

Torque Value: 145 n.m [107 ft-lb]

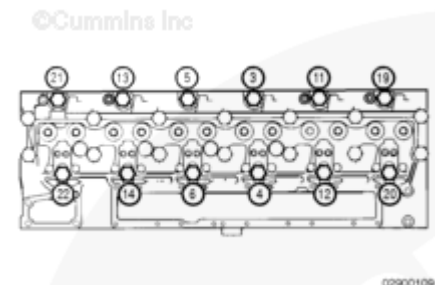


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3. Retighten the short capscrews: Number 3, 4, 5, 6, 11, 12, 13, 14, 19, 20, 21, and 22 because of cylinder head relaxation and to obtain proper cylinder head torque requirements.

Torque Value: 70 n.m [52 ft-lb]

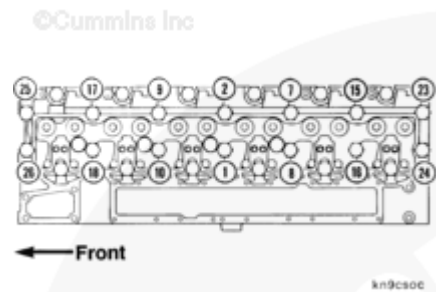


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4. Follow the numbered sequence and retighten **only** the 14 long capscrews. (Number 1, 2, 7, 8, 9, 10, 15, 16, 17, 18, 23, 24, 25, and 26.)

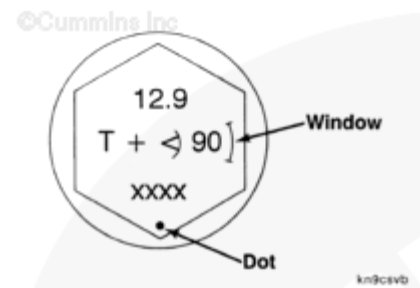
Torque Value: 145 n.m [107 ft-lb]



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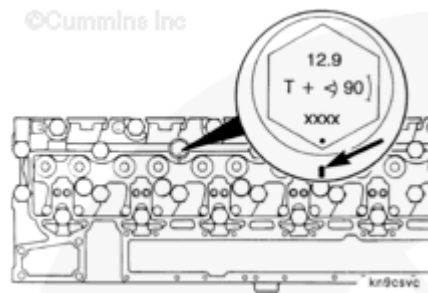
NOTE: To turn the capscrew accurately to the desired angle, orientate according to the small “dot” and “window” marked on the capscrew head, or use the torque angle gauge for ½-inch drive, Part Number 3823878, or torque angle gauge for ¾-inch drive, Part Number 3823879.



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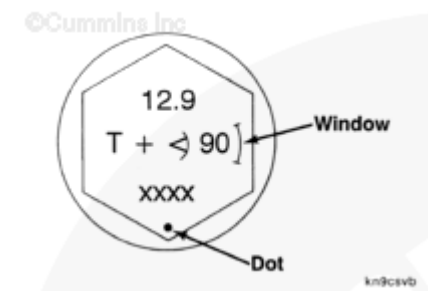
Mark the cylinder head adjacent to the dot on the capscrew head. This mark will serve as an indexing aid.



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5. Rotate the capscrew until the mark that has been made on the cylinder head falls into the window on the capscrew head.



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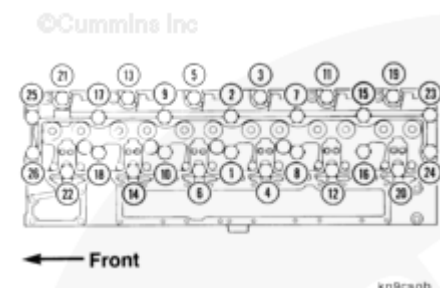
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Pre - 1991 Certifications

1. Follow the numbered sequence and tighten all capscrews:

Torque Value:



1. 40 n.m [30 ft-lb]



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2. 150 n.m [111 ft-lb]

3. 220 n.m [162 ft-lb]

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