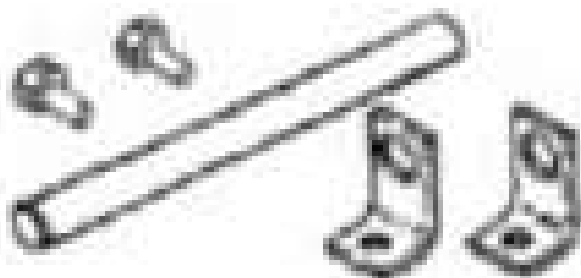


DISASSEMBLY AND ASSEMBLY OF SUBASSEMBLIES

CYLINDER HEAD

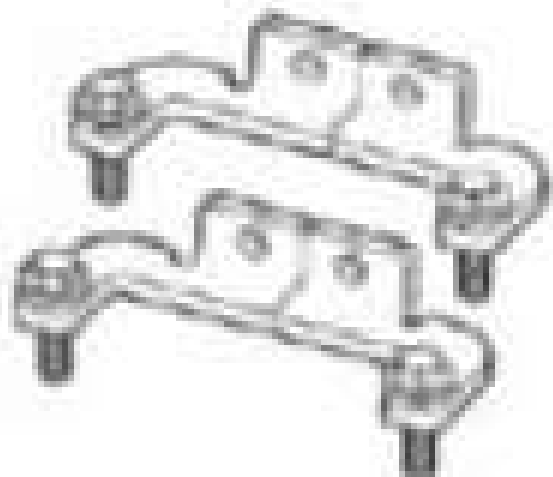
SPECIAL TOOL(S) DESCRIPTION



Compressor, Valve Spring
303-300T87C-6565-A



Compressor, Valve Spring
303-350T89P-6565-A



Valve Spring Compressor
303-1249

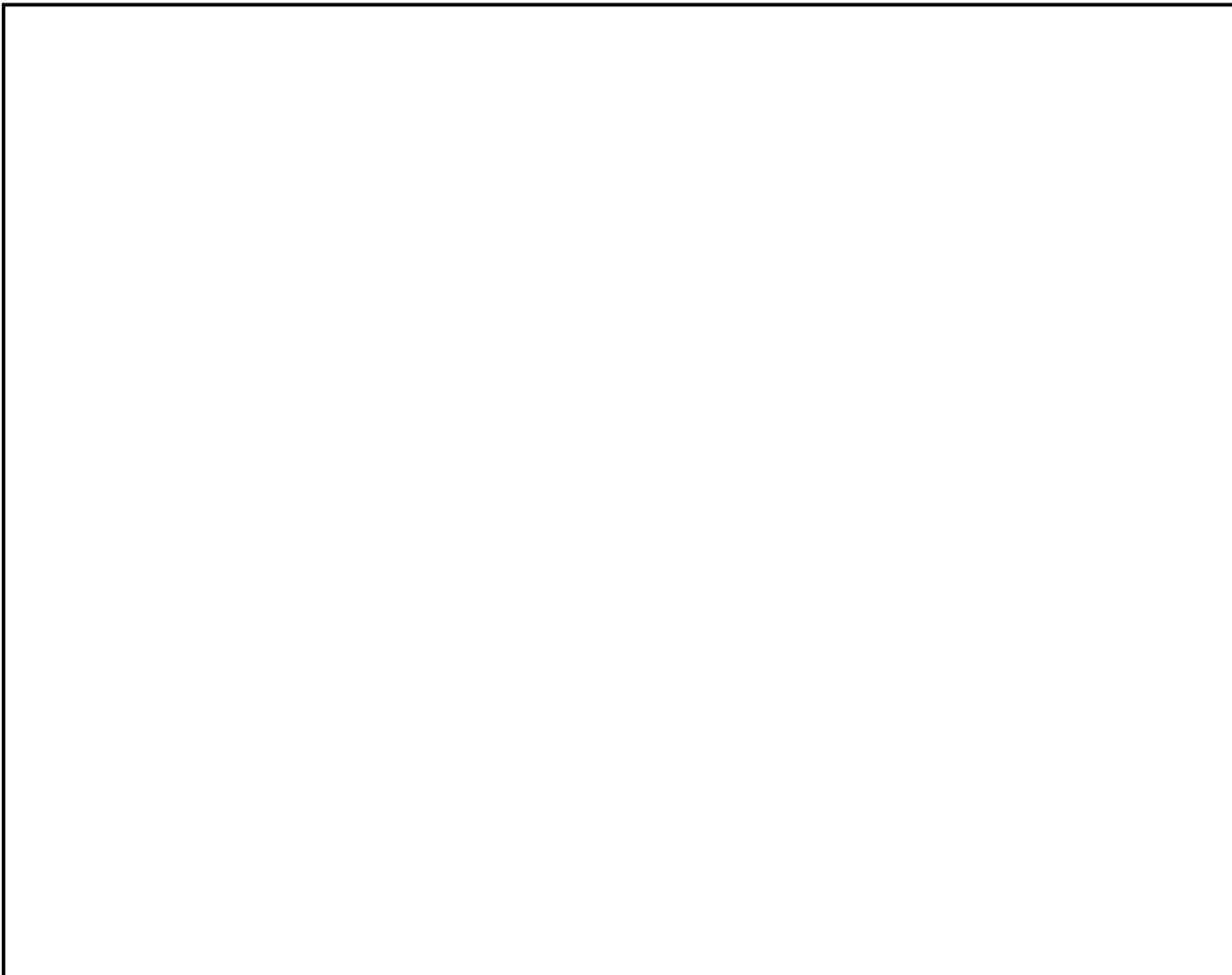


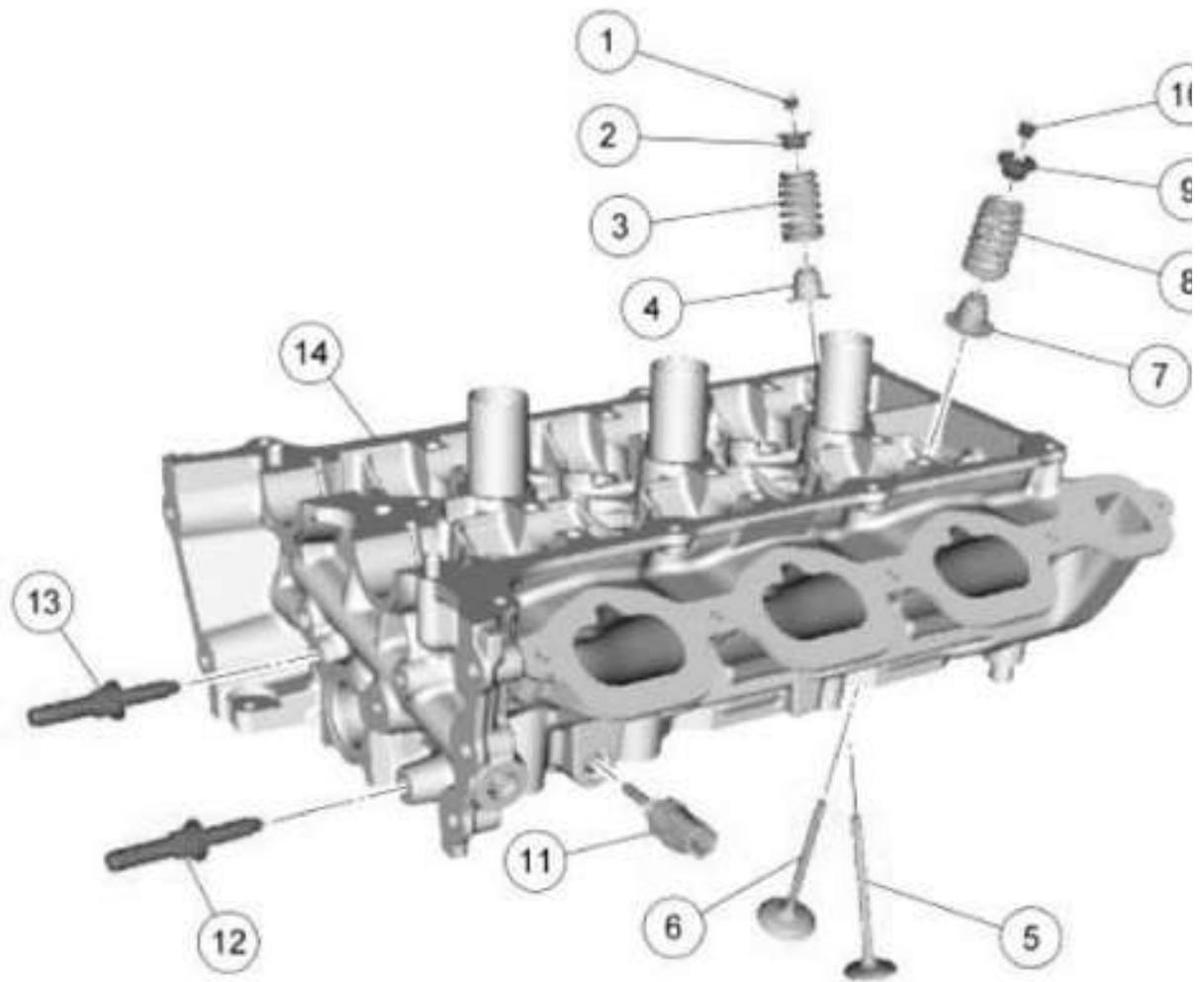
Installer, Valve Stem Oil Seal
303-470T94P-6510-CH

MATERIAL SPECIFICATIONS

Item	Specification
Motorcraft® SAE 5W-20 Premium Synthetic Blend Motor Oil (US); Motorcraft® SAE 5W-20 Super Premium Motor Oil (Canada) XO-5W20-QSP (US); CXO-5W20-LSP12 (Canada)	WSS-M2C945- A

Exploded View





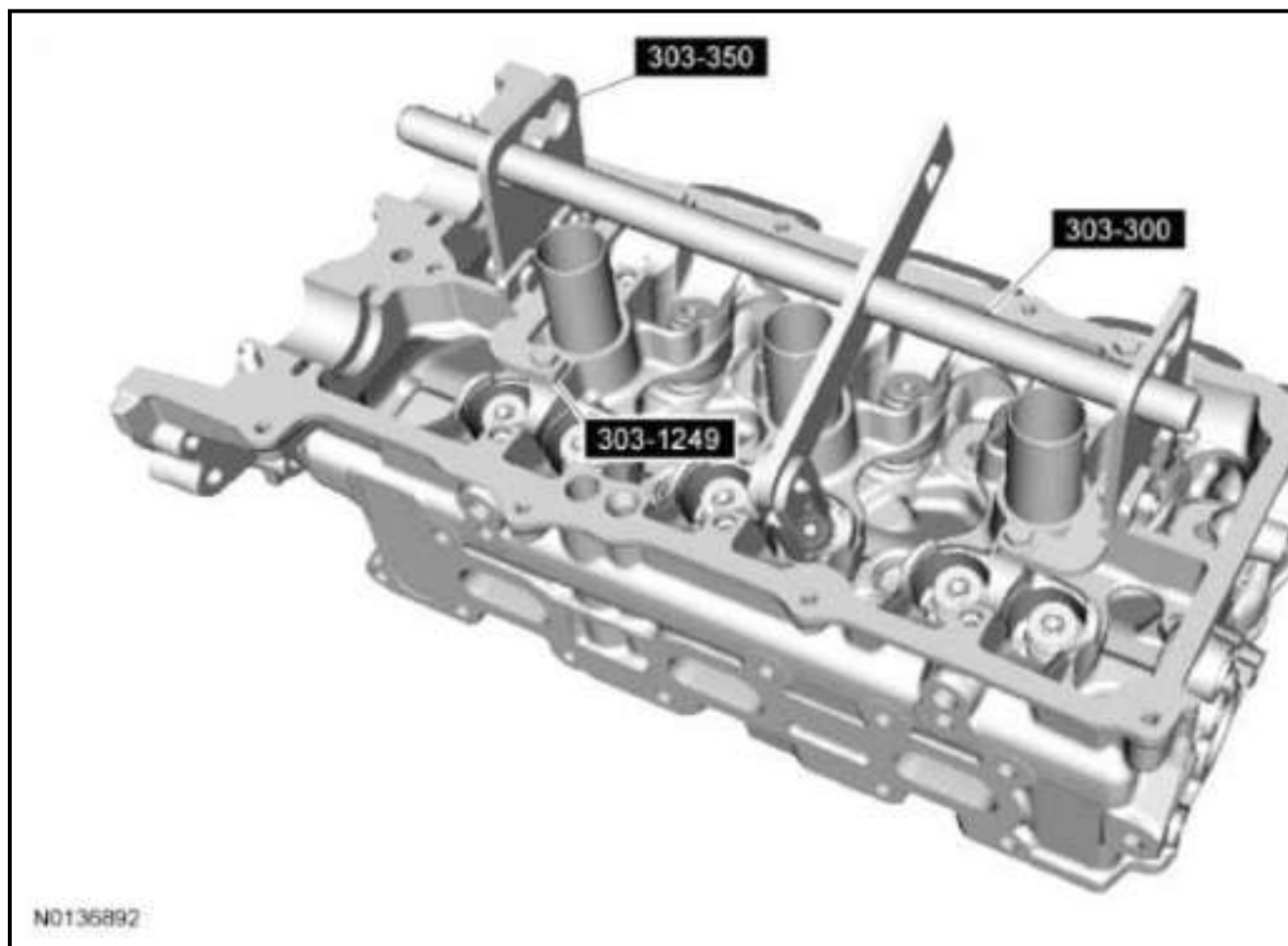
N0134453

Item	Part Number	Description
1	6518	Intake valve spring retainer key (12 required)
2	6514	Intake valve spring retainer (6 required)
3	6513	Intake valve spring (6 required)
4	6571	Intake valve stem seal (6 required)
5	6507	Intake valve (6 required)
6	6505	Exhaust valve (6 required)
7	6571	Exhaust valve stem seal (6 required)
8	6513	Exhaust valve spring (6 required)
9	6514	Exhaust valve spring retainer (6 required)
10	6518	Exhaust valve spring retainer key (12 required)
11	6G004	CHT sensor (RH cylinder head only)
12	W714090	Timing chain guide pin (RH cylinder head only)
13	W714090	Timing chain tensioner arm pin (RH cylinder head only)
14	6049	Cylinder head

Disassembly

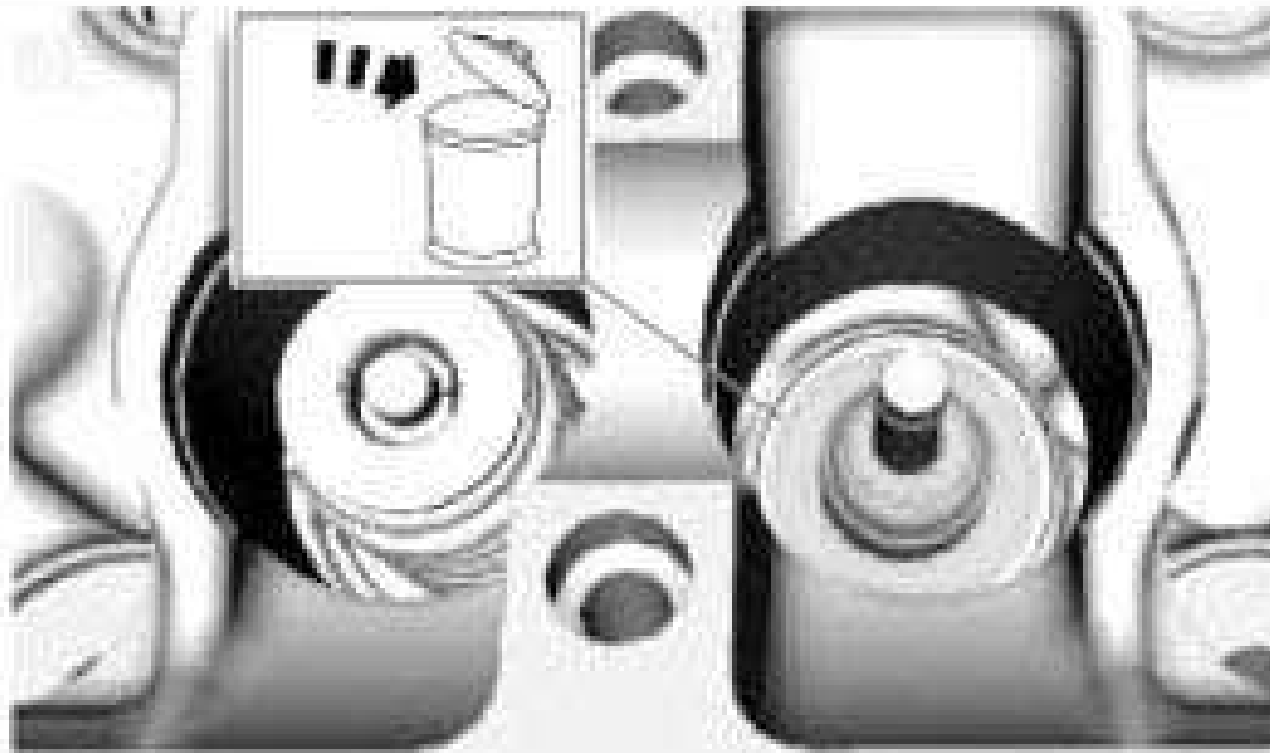
NOTE: If the components are to be reinstalled, they must be installed in the same positions. Mark the components for installation into their original locations.

1. Using the 303-300 T87C-6565-A, 303-350 T89P-6565-A and 303-1249, remove the keys, retainer and spring.



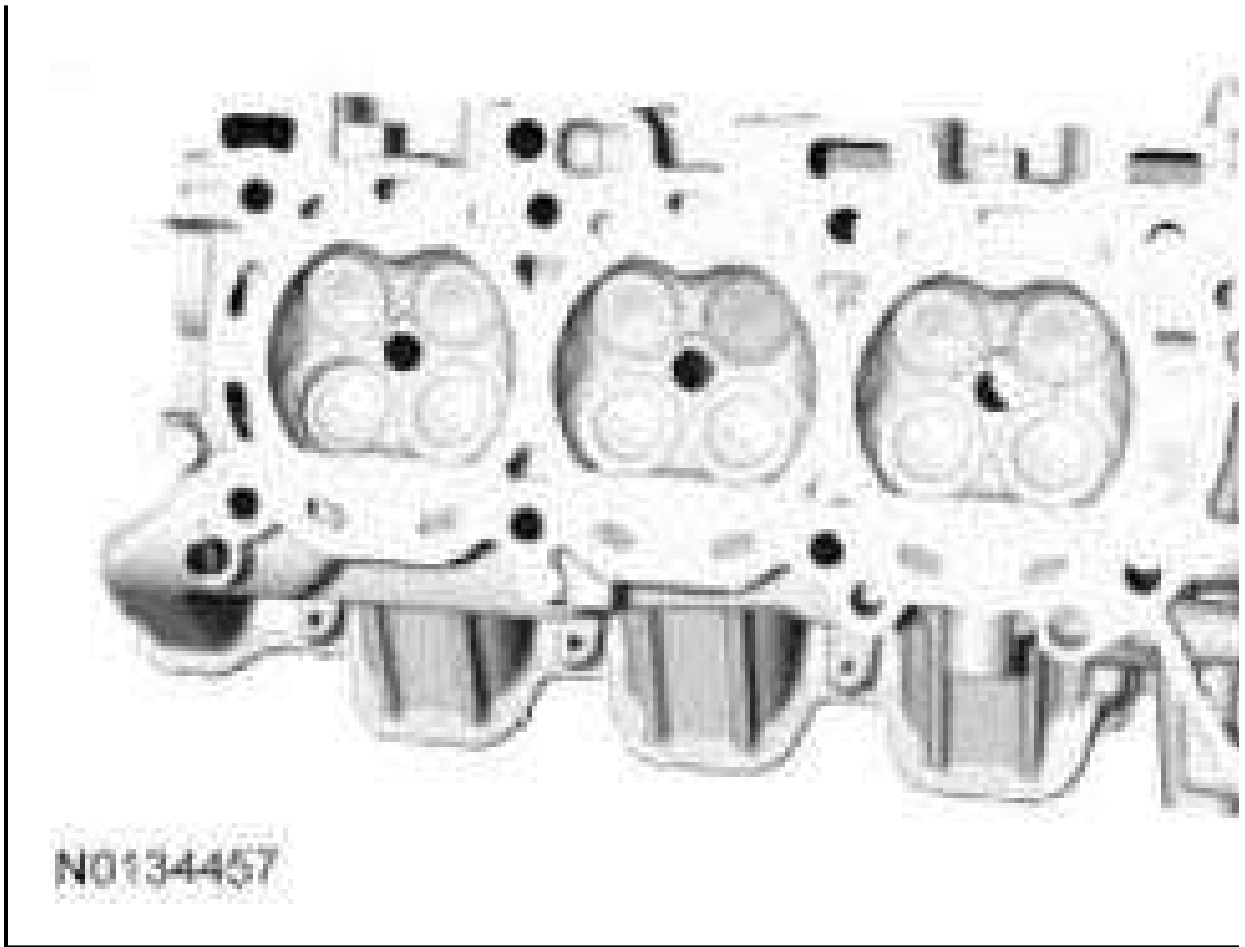
2. Remove and discard the valve stem seal.



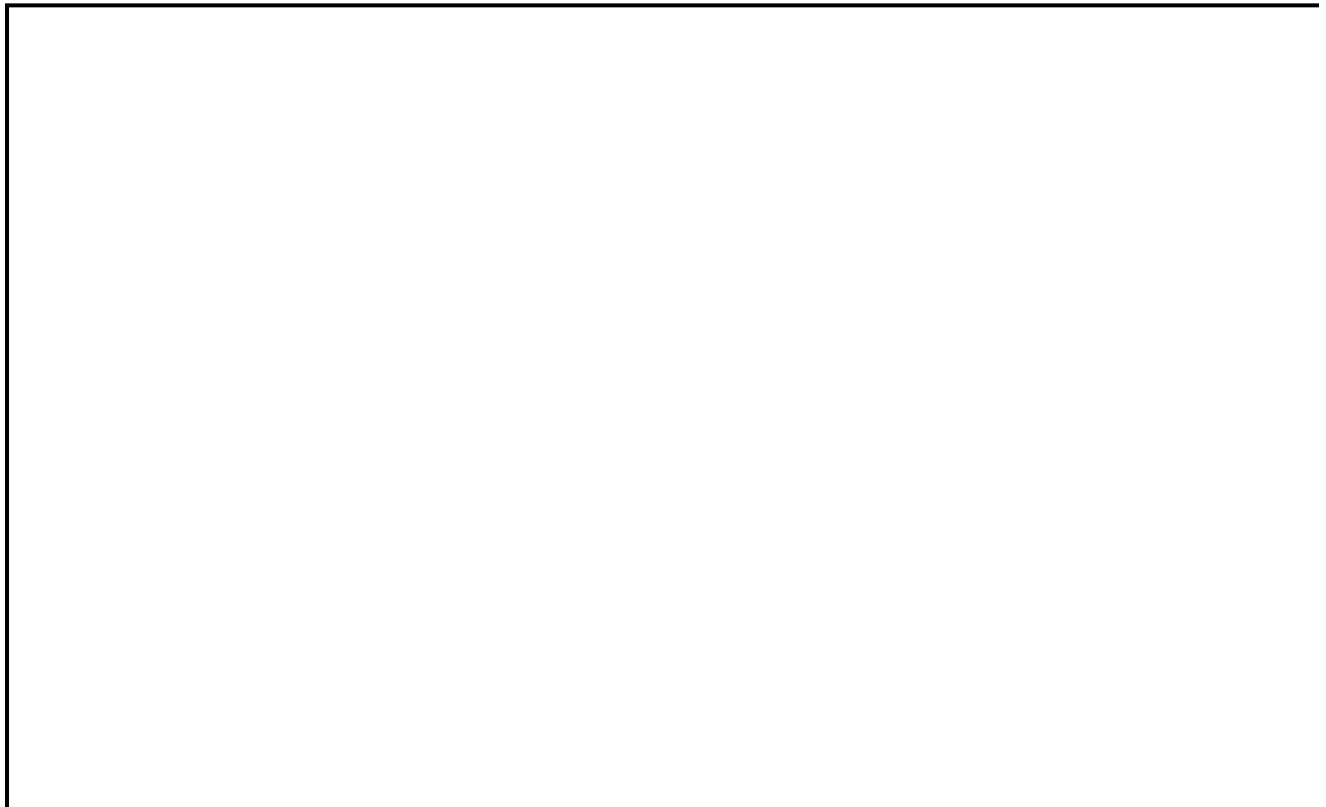


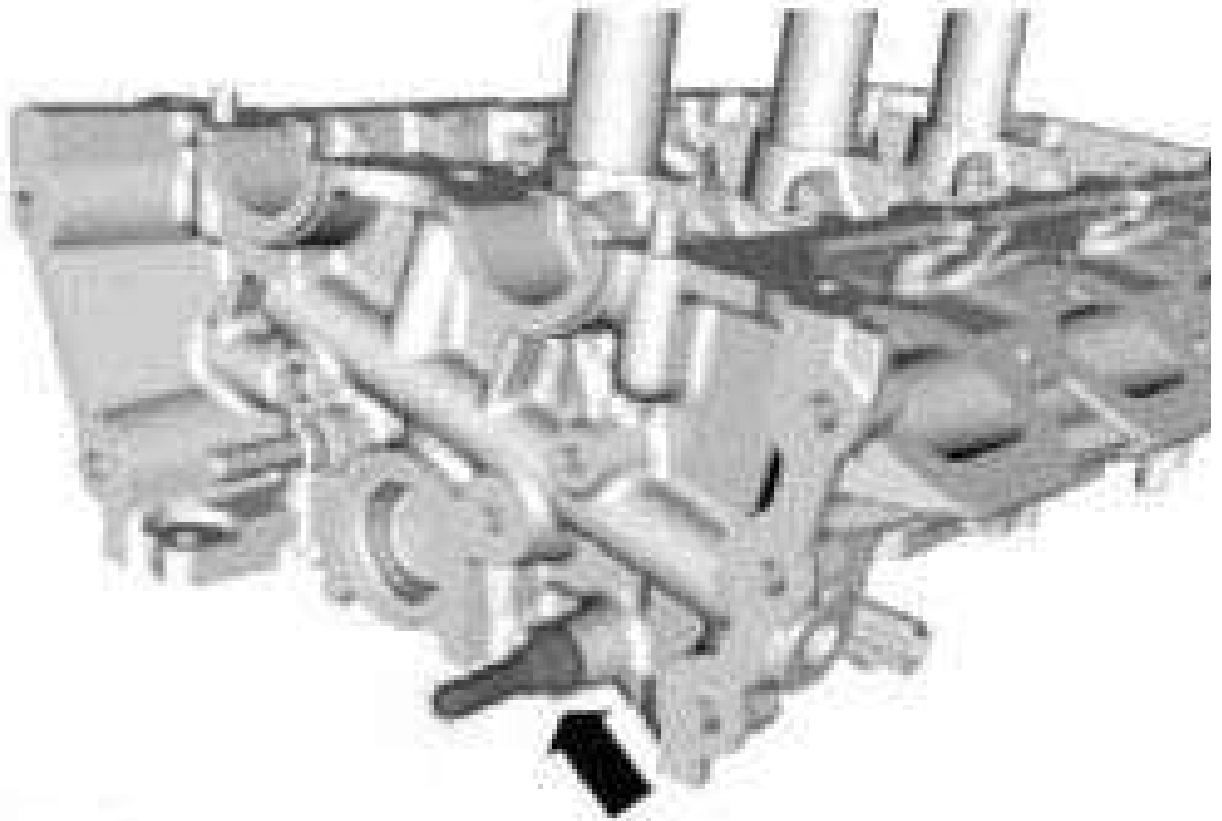
N013445B

3. Remove the valve from the cylinder head.
 - Repeat the above steps for each valve.



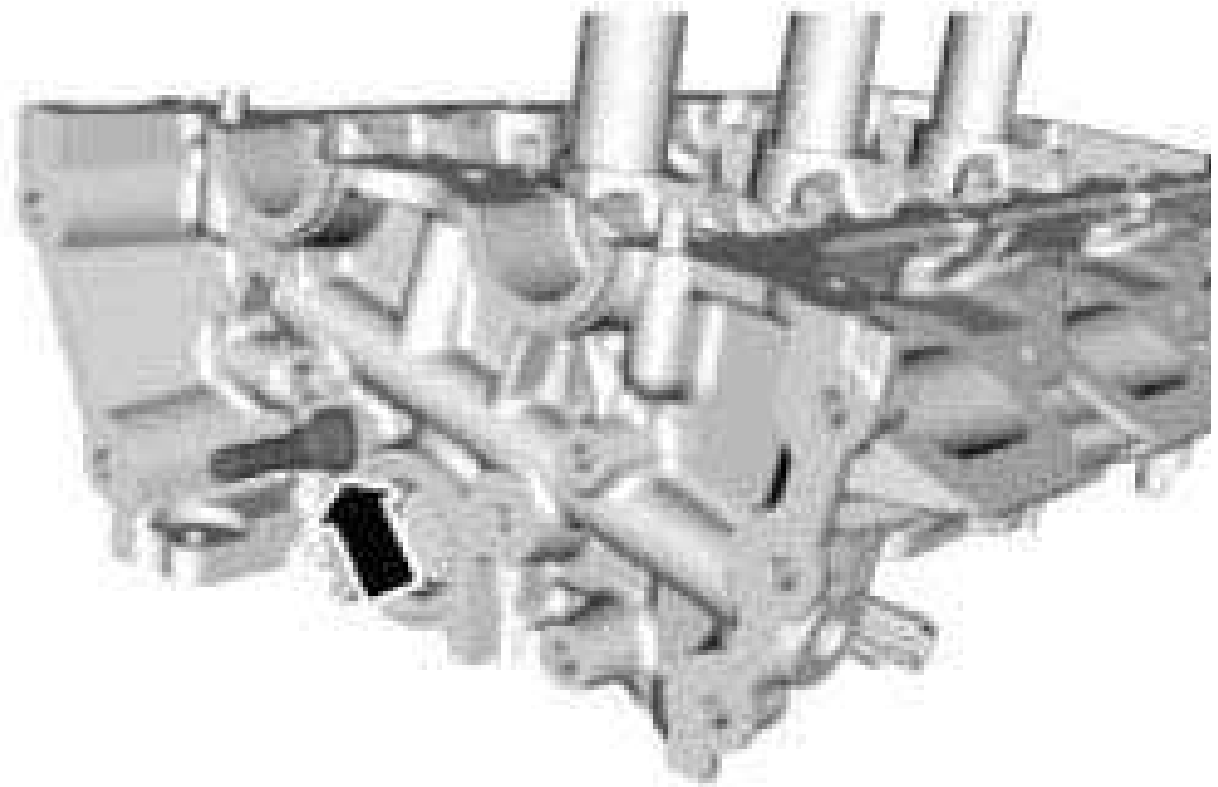
4. Remove the timing chain guide pin.





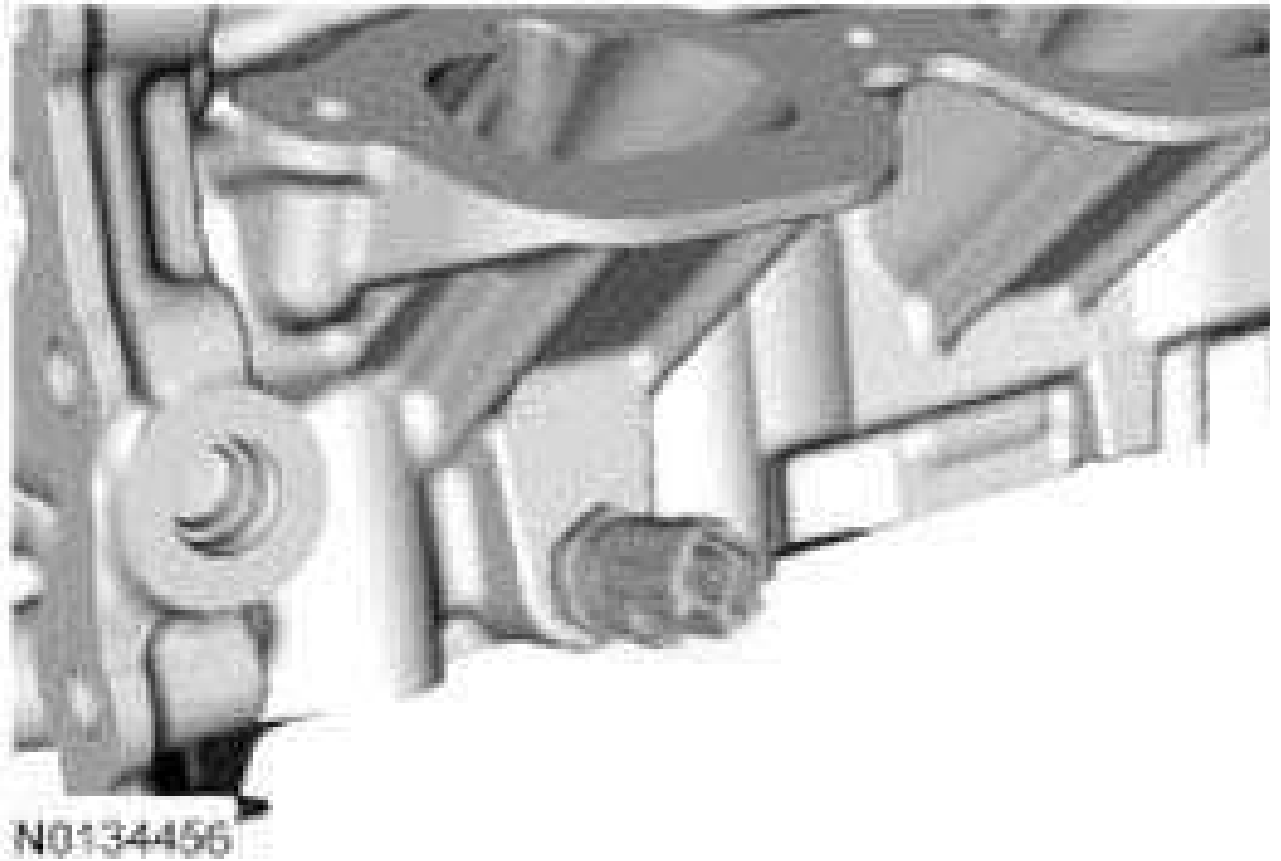
N0134454

5. Remove the timing chain tensioner arm pin from the RH cylinder head.



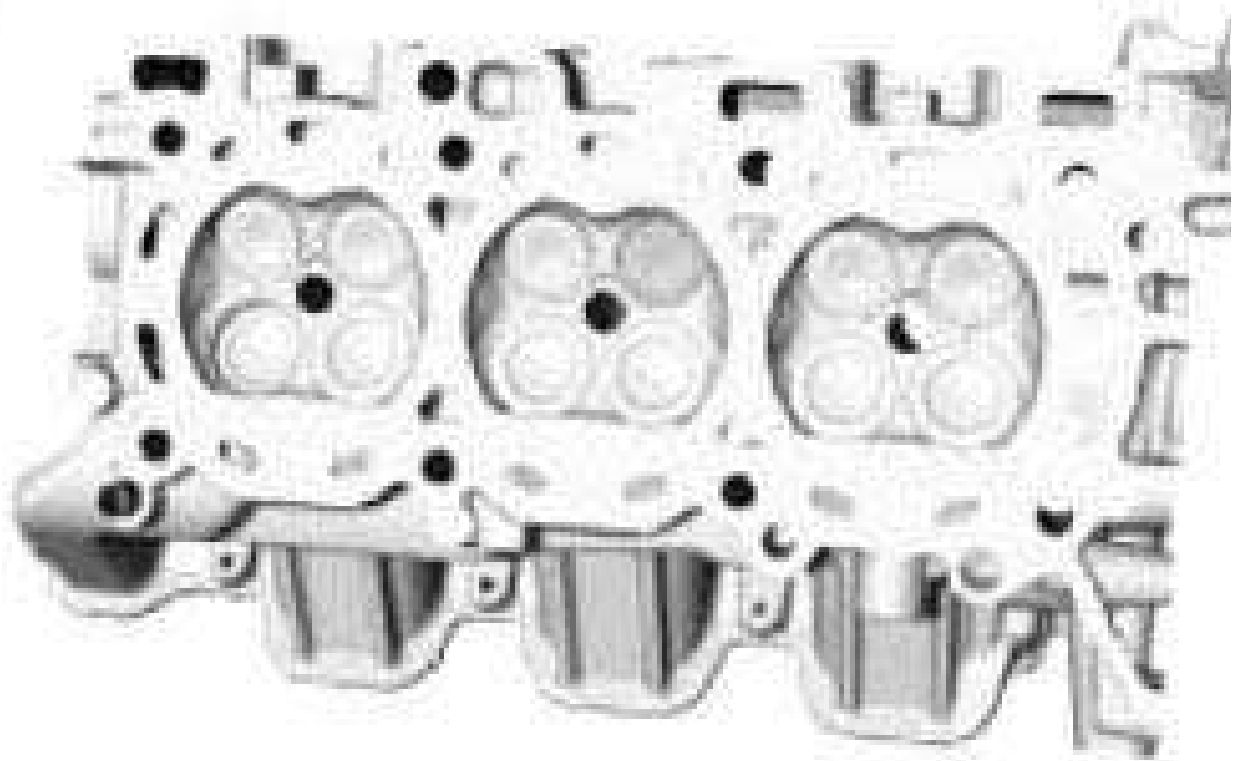
N0134455

6. Remove and discard the CHT sensor from the RH cylinder head.



Assembly

1. Install the valve.

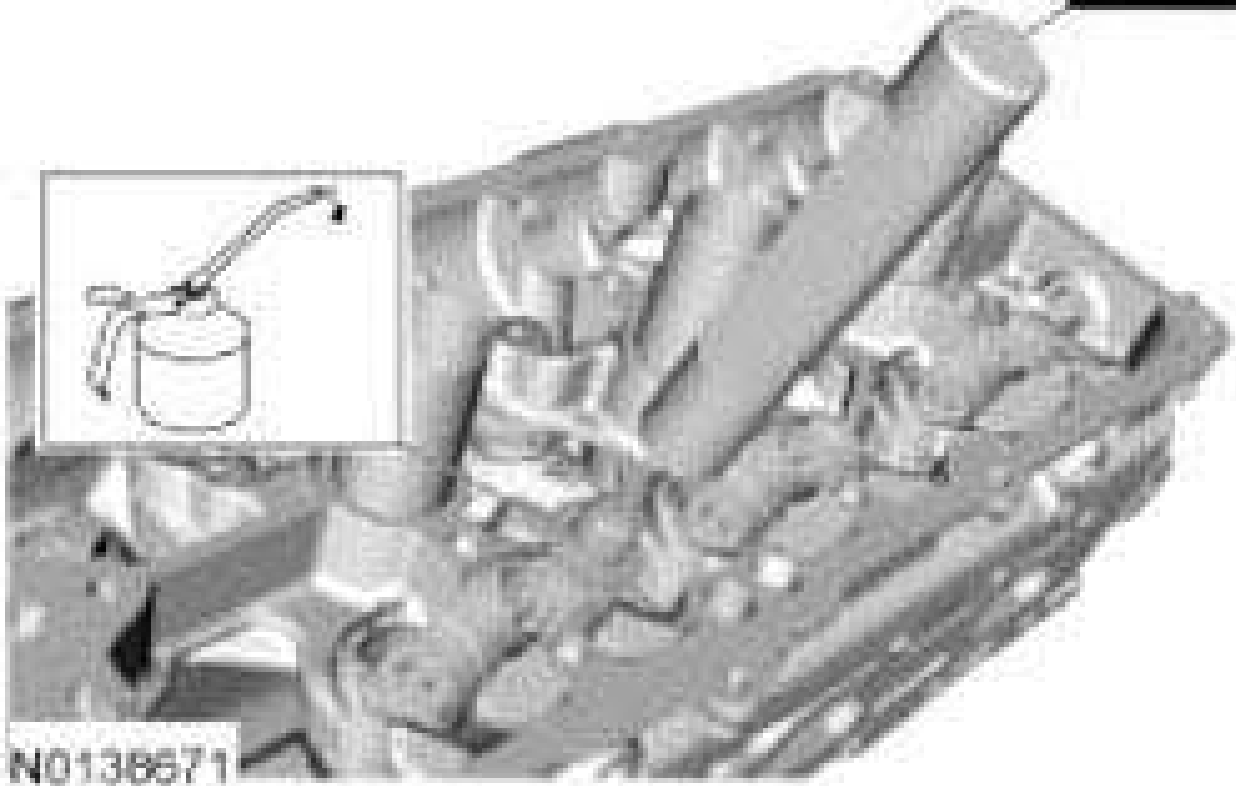


NO134457

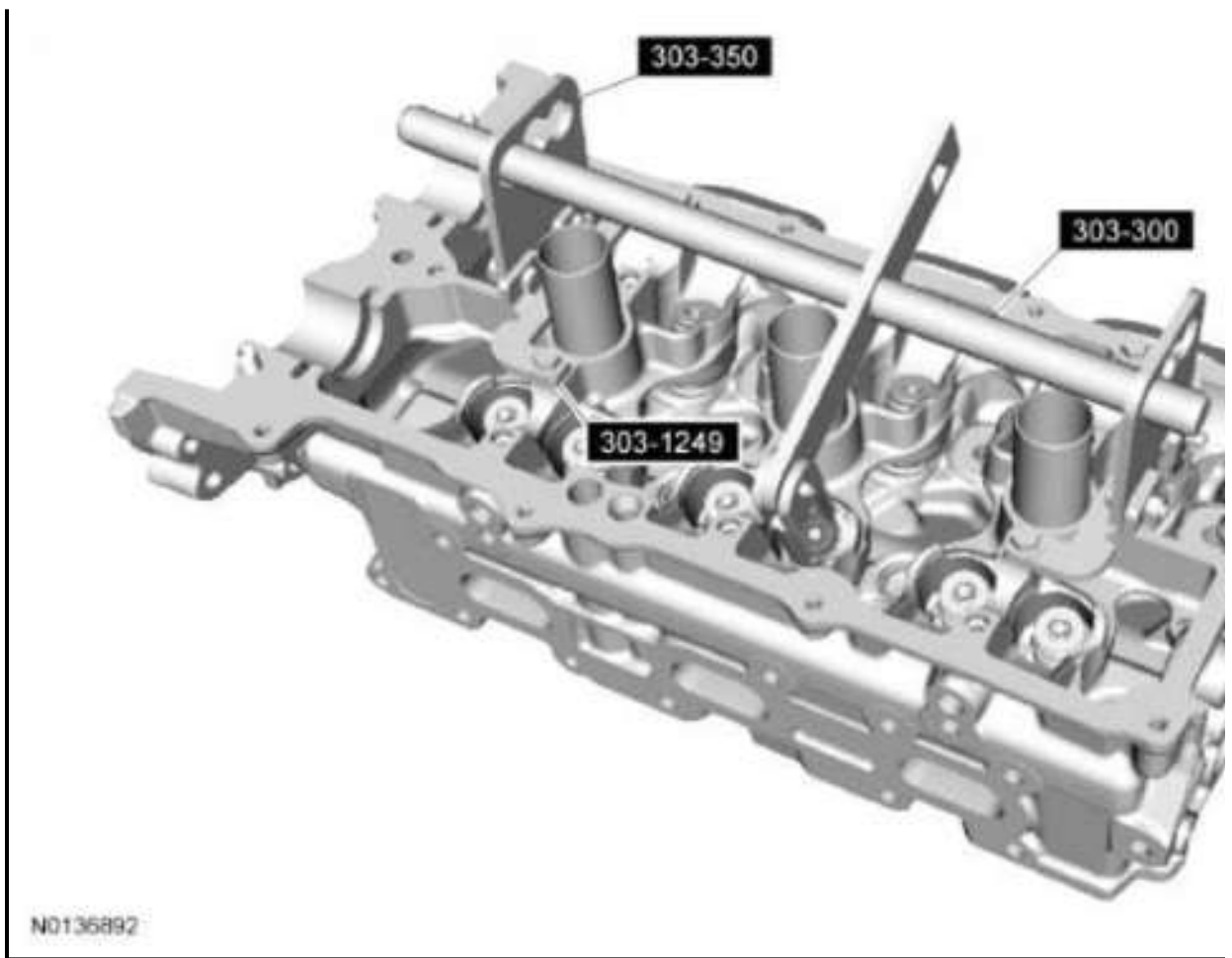
- NOTE:** Lubricate the valve stem seal with clean engine oil prior to installation.

Using the 303-470 T94P-6510-CH, install a new valve stem seal.

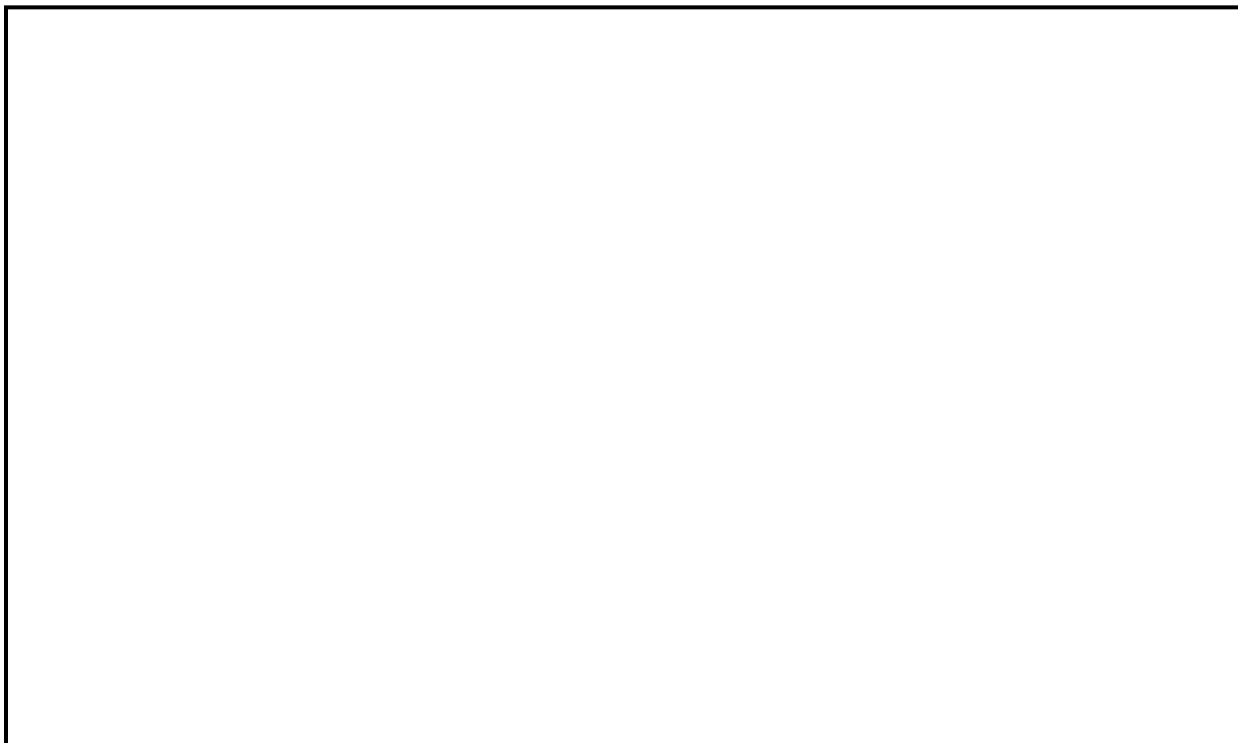
303-47

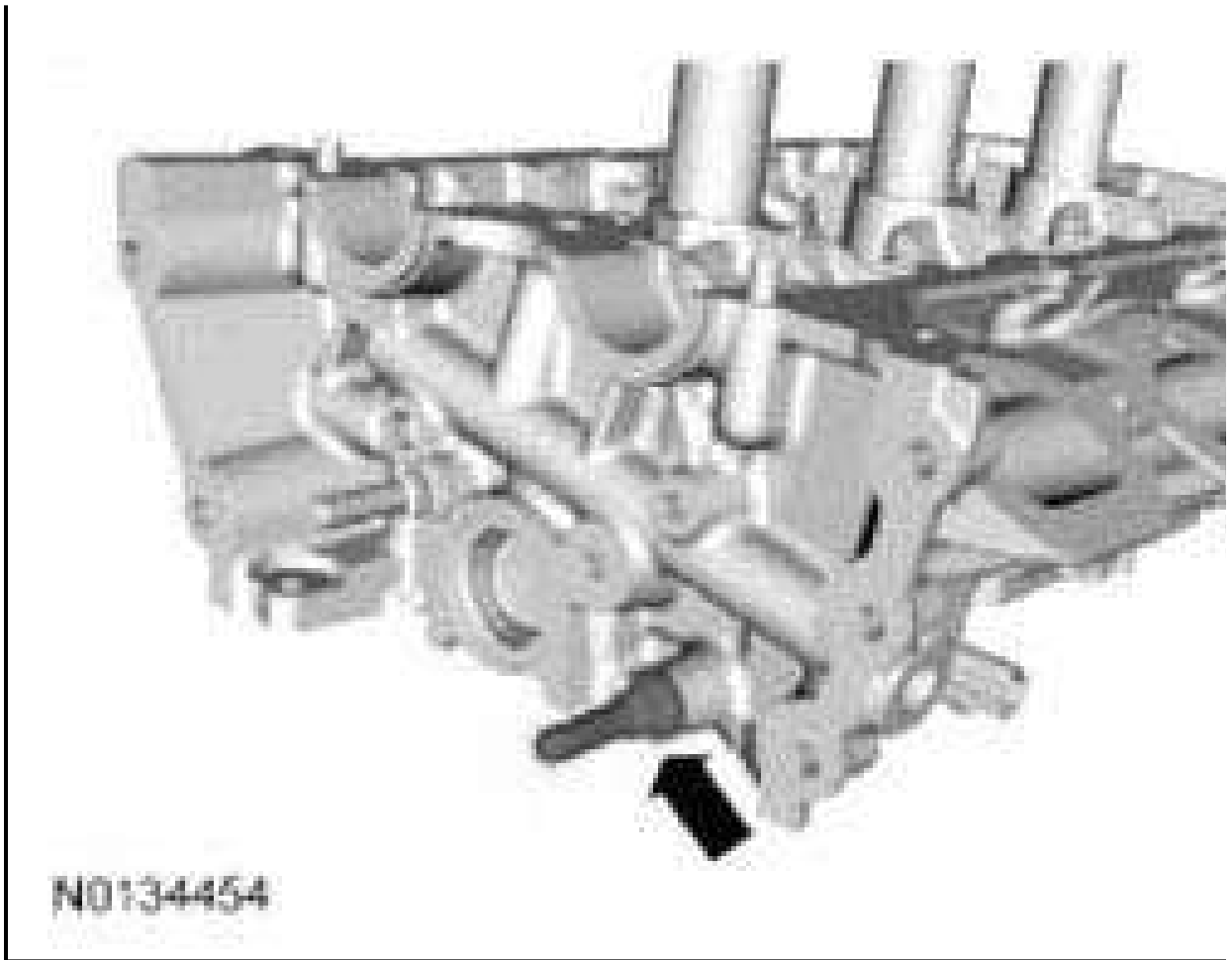


3. Using the 303-300 T87C-6565-A, 303-350 T89P-6565-A and 303-1249, install the valve spring, retainer and key.
 - Repeat the above steps for each valve.

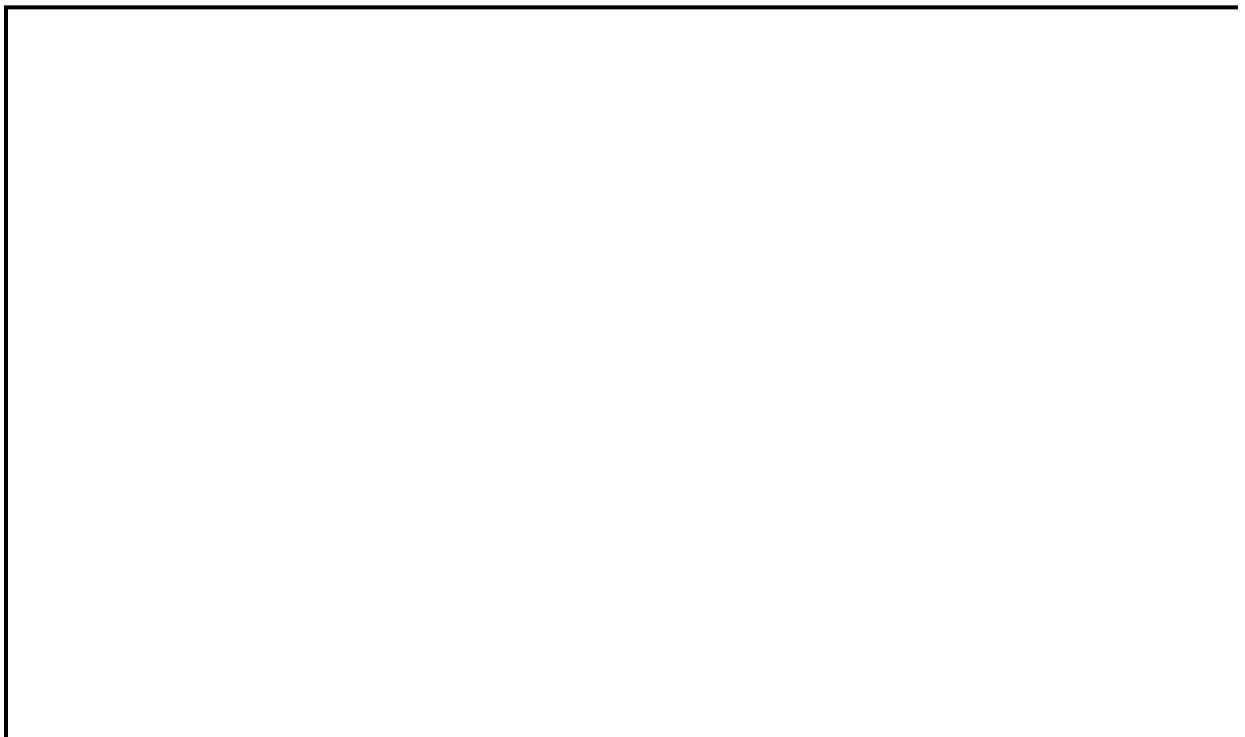


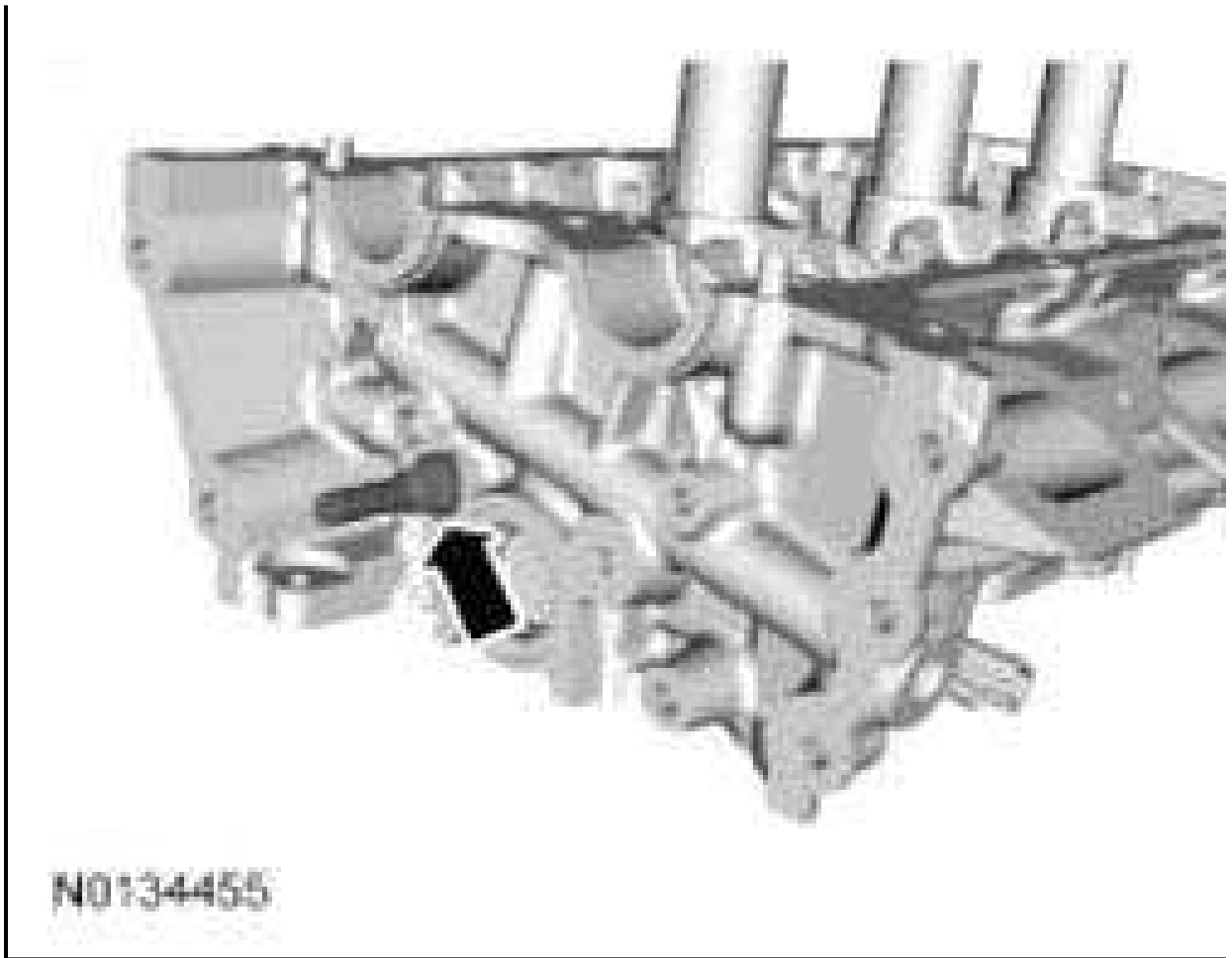
4. Install the timing chain guide pin.
 - Tighten to 10 Nm (89 lb-in).



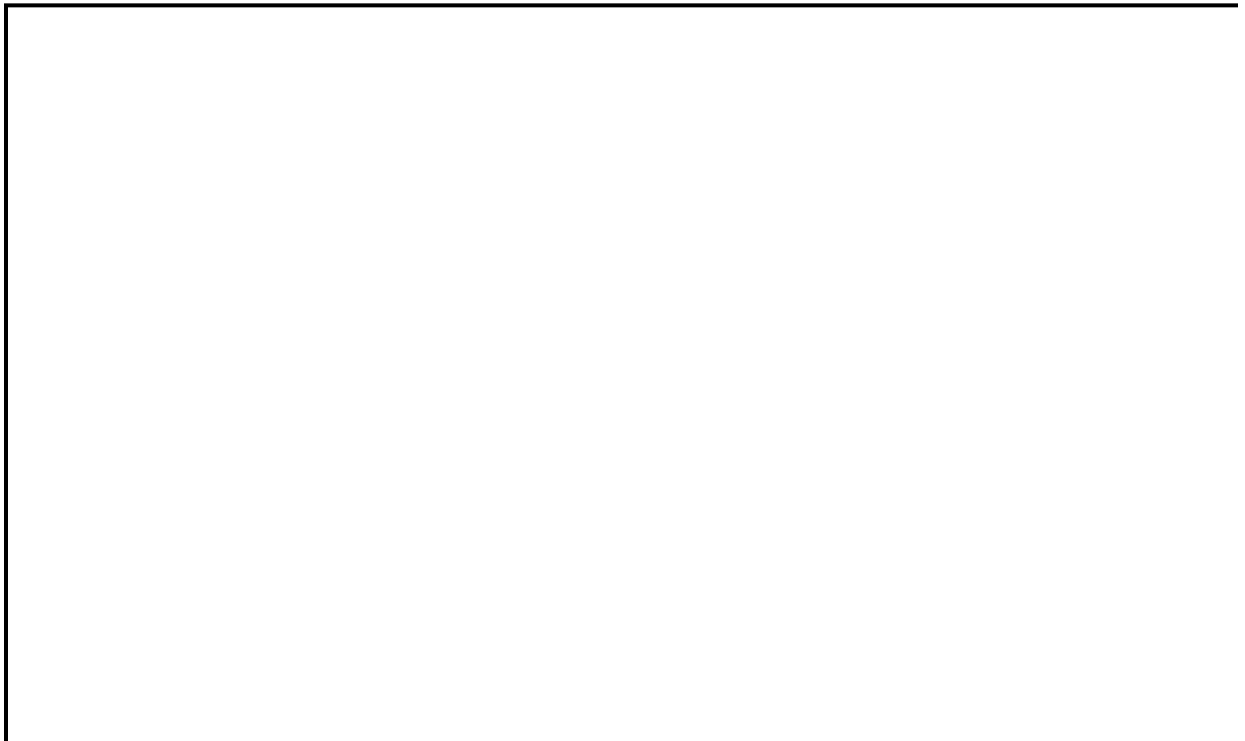


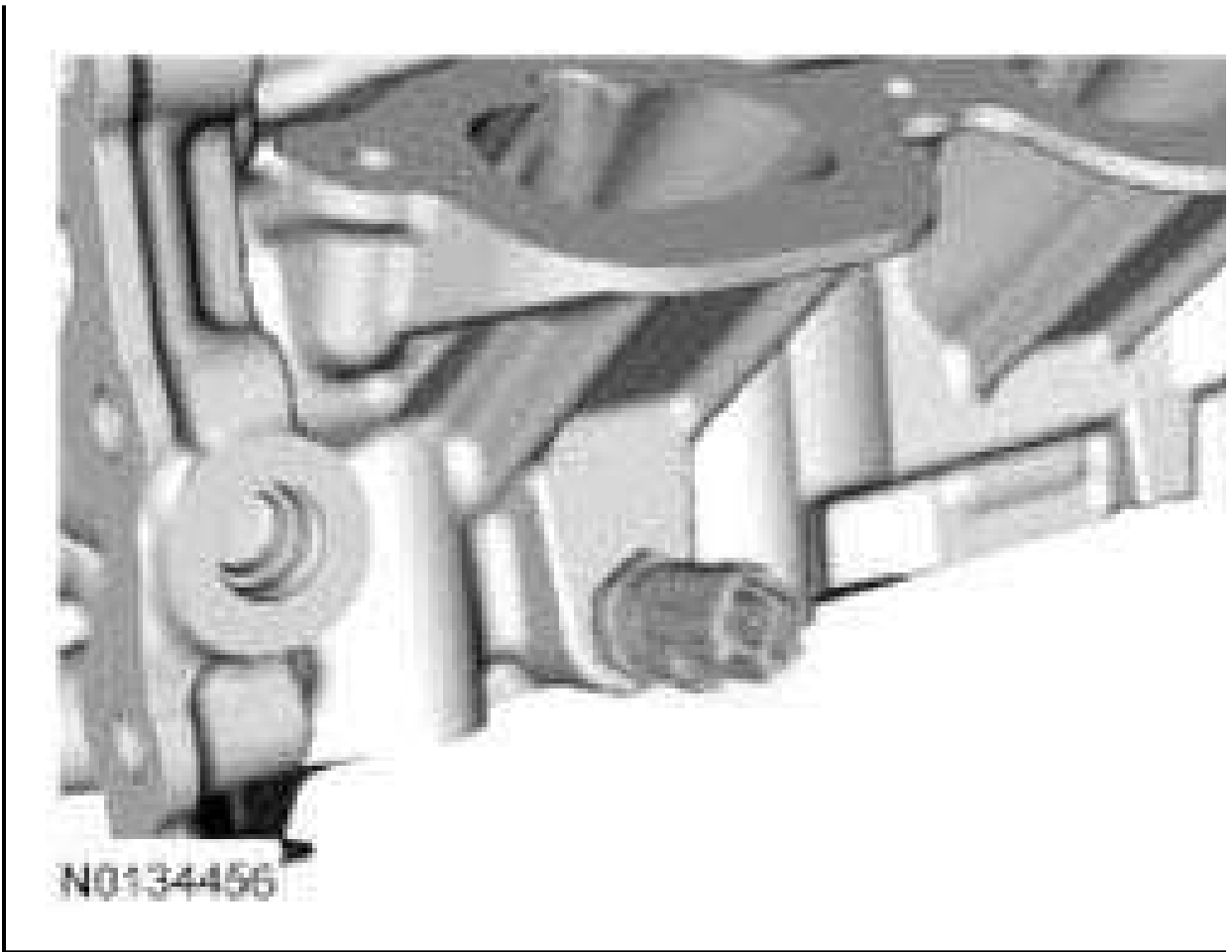
5. Install the timing chain tensioner arm pin on the RH cylinder head.
 - Tighten to 10 Nm (89 lb-in).





6. Install a new **CHT** sensor in the RH cylinder head.
 - Tighten to 10 Nm (89 lb-in).





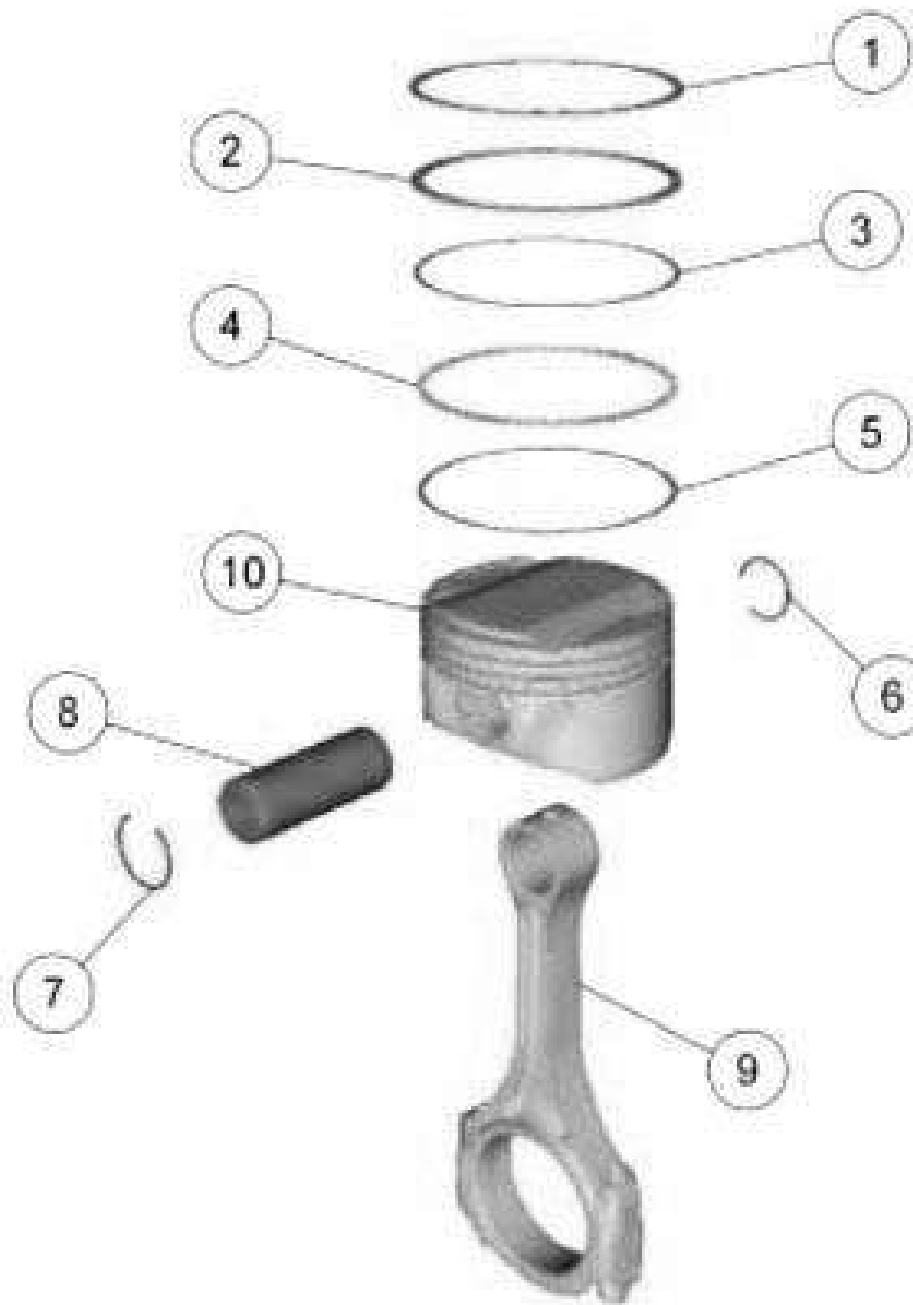
PISTON

MATERIAL SPECIFICATIONS

Item	Specification
Motorcraft® SAE 5W-20 Premium Synthetic Blend Motor Oil (US); Motorcraft® SAE 5W-20 Super Premium Motor Oil (Canada) XO-5W20-QSP (US); CXO-5W20-LSP12 (Canada)	WSS-M2C945- A

Exploded View





N0134547

Item	Part Number	Description
1	-	Piston compression upper ring (part of 6148)
2	-	Piston compression lower ring (part of 6148)
3	-	Piston oil control upper segment ring (part of 6148)
4	-	Piston oil control spacer (part of 6148)
5	-	Piston oil control lower segment ring (part of 6148)
6	6140	Piston pin retainer clip
7	6140	Piston pin retainer clip
8	6135	Piston pin

9	6200	Connecting rod
10	6110	Piston

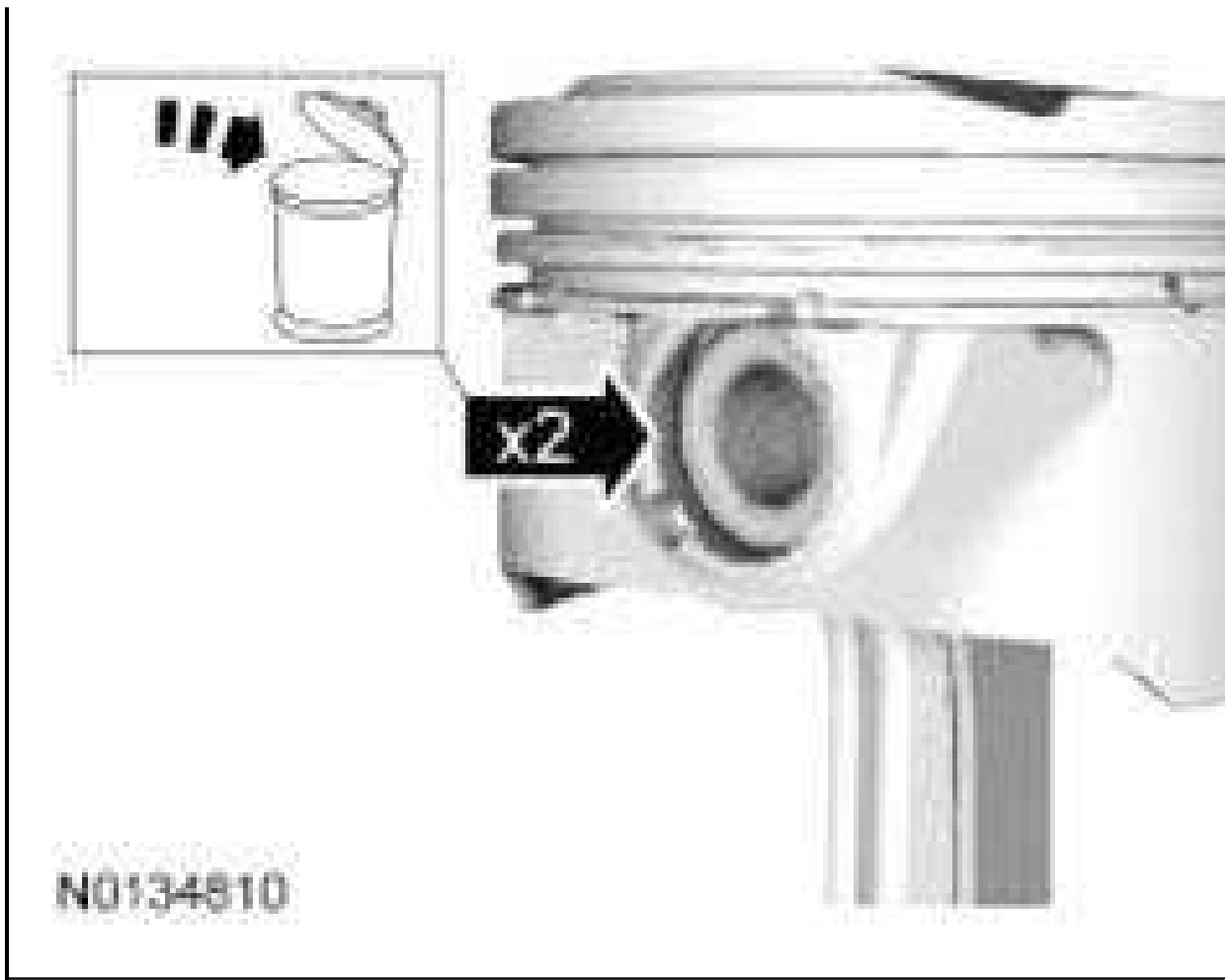
Disassembly

1. Remove the piston rings from the piston.
 - Discard the piston rings.



2. Remove the 2 piston pin retainers and the piston pin.
 - Discard the 2 piston pin retainer clips.





NOTE: If the piston and connecting rod are to be reinstalled, they must be assembled in the same orientation. Mark the piston orientation to the connecting rod for reassembly.

3.

Separate the piston from the connecting rod.

- Clean and inspect the piston and connecting rod. REFER to the appropriate procedures in **ENGINE SYSTEM - GENERAL INFORMATION**



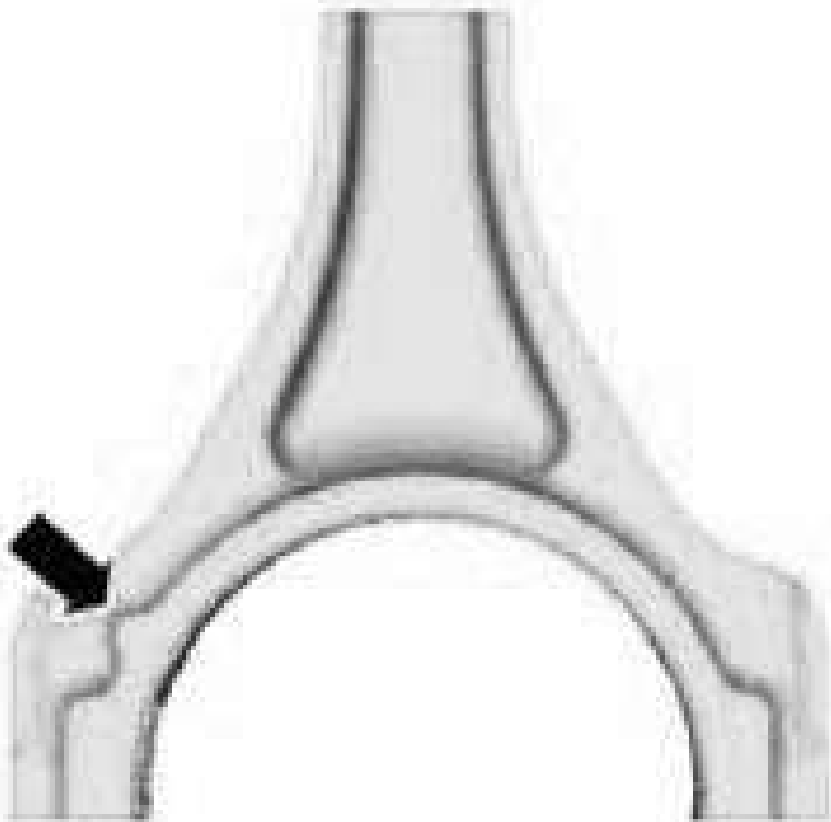
Assembly

NOTE: If the piston and/or connecting rod are being installed new, the piston rod orientation marks and the arrow on the top of the dome of the piston should be facing toward the front of the engine block.

1.

Align the piston-to-connecting rod orientation marks and position the connecting rod in the piston.

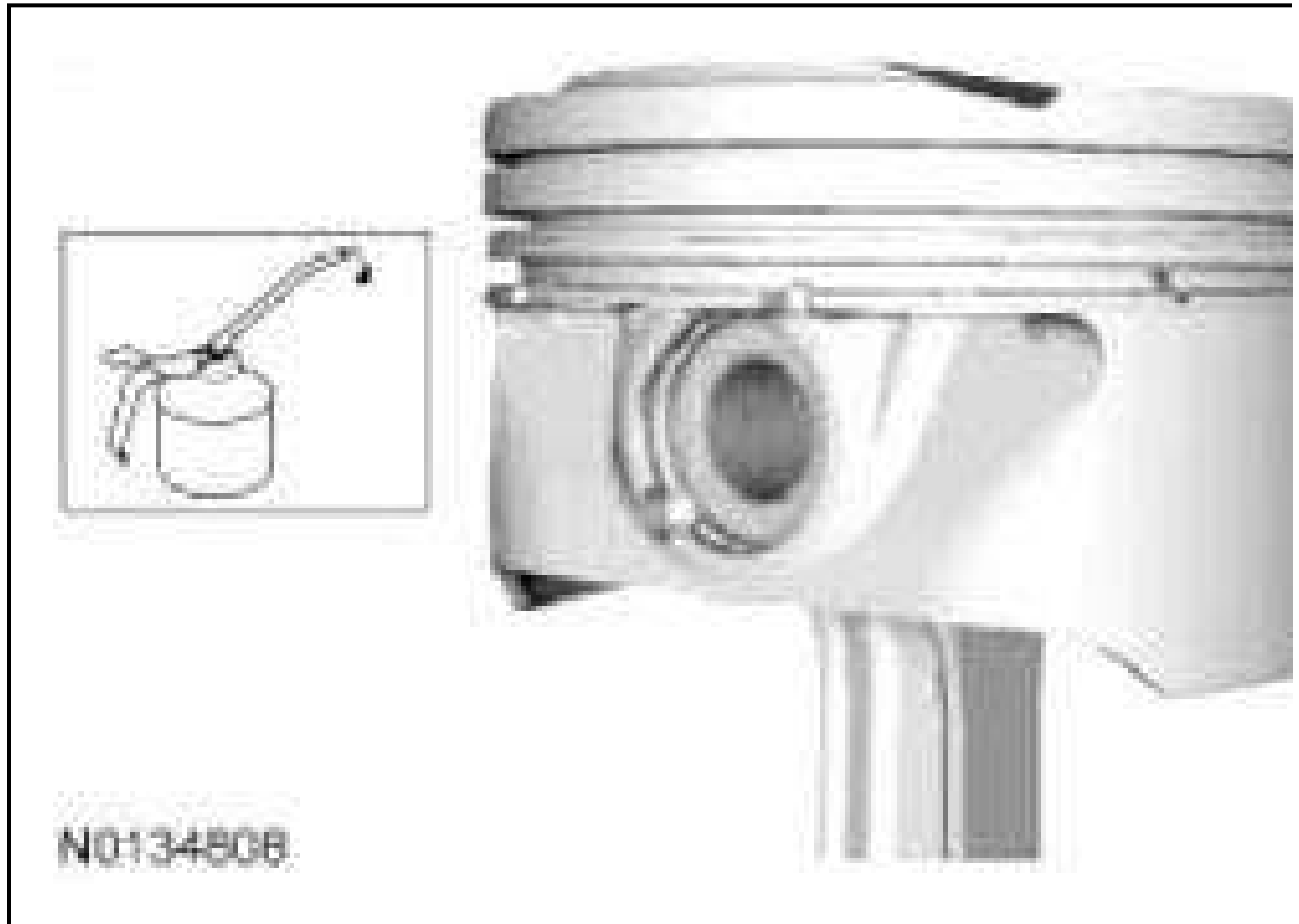




N0134799

2. **NOTE:** Lubricate the piston pin and pin bore with clean engine oil.

Install the piston pin in the piston and connecting rod assembly.



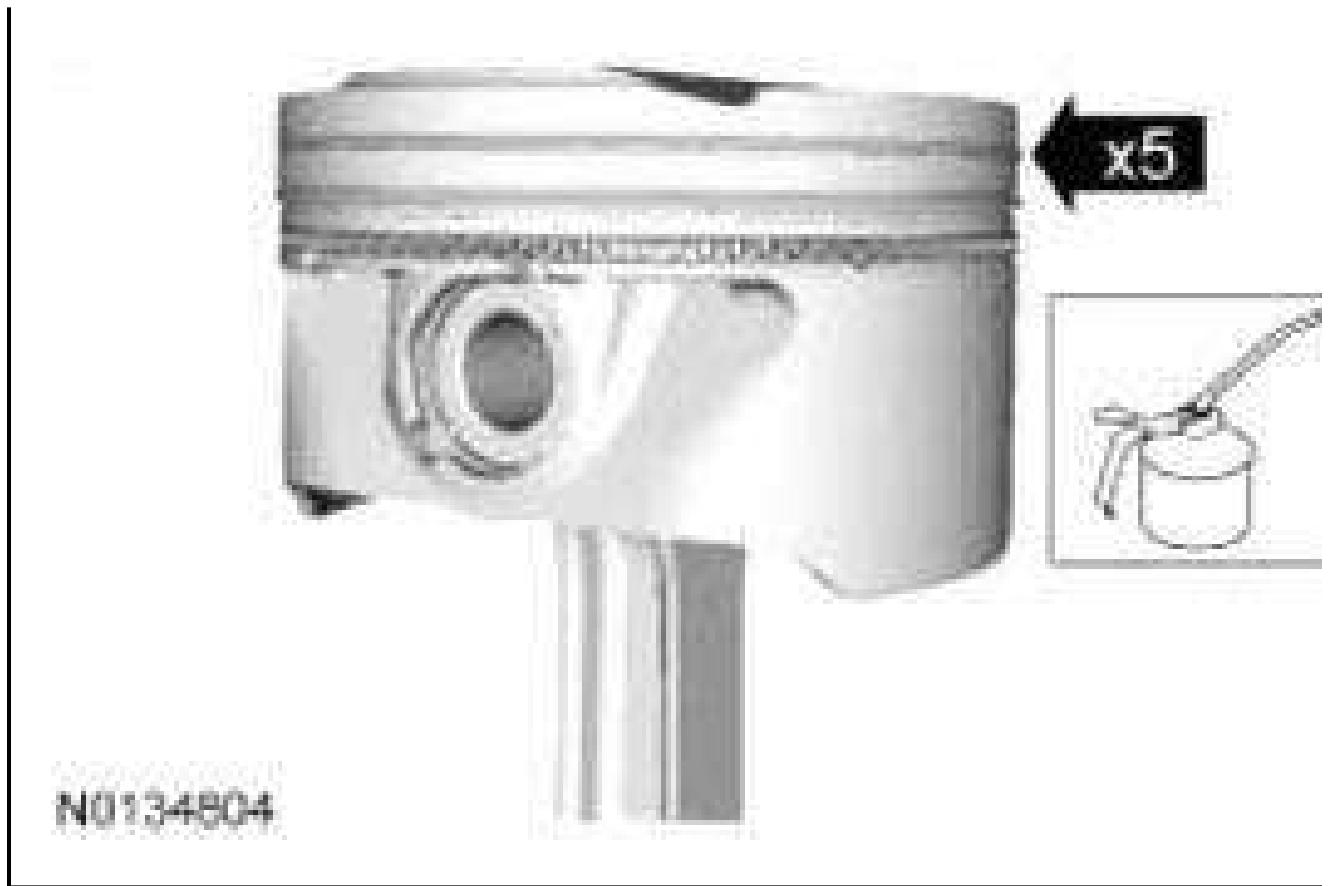
3. Install the new piston pin retaining clips in the piston.
- The piston pin retaining clip gap orientation must be toward the top or dome of piston.





4. **NOTE:** **Lubricate the piston and the new piston rings with clean engine oil.**

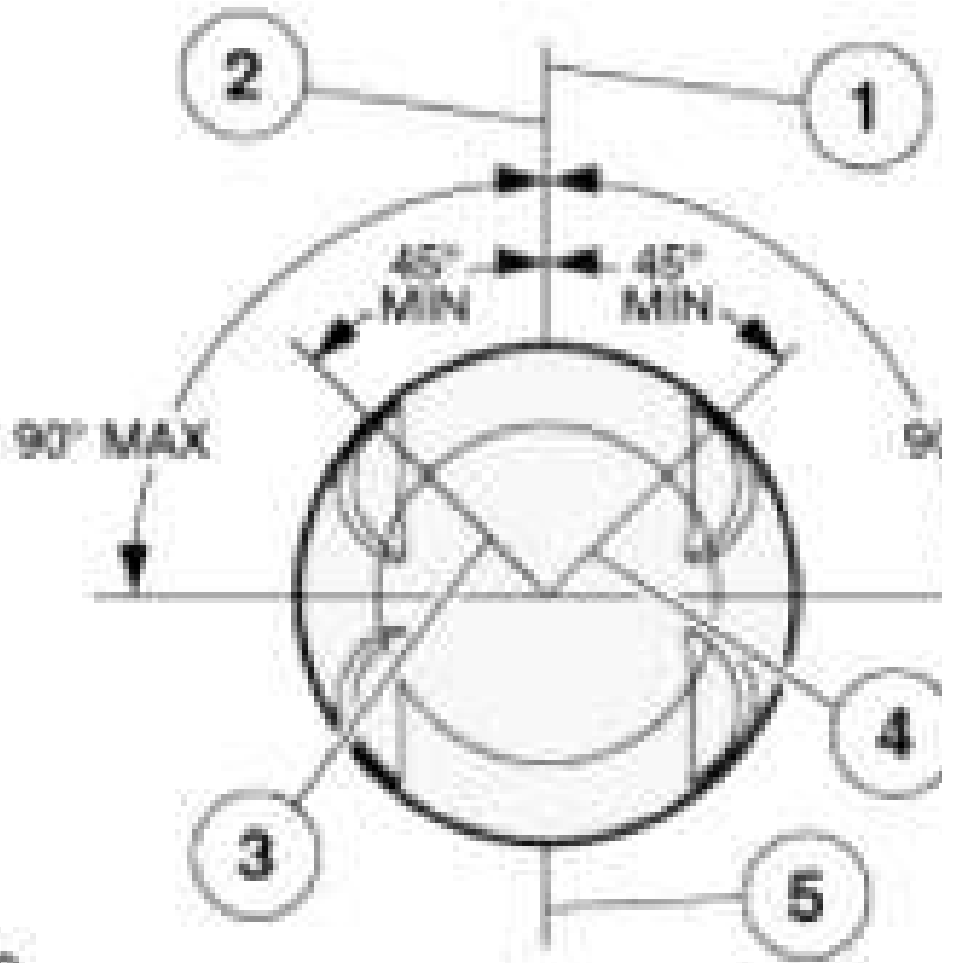
Install the piston rings on the piston.



5. **NOTE:** The piston compression upper and lower ring should be installed with the "O" mark on the ring face pointing up toward the top of the piston.

Install the piston rings onto the piston as shown in illustration.

1. Center line of the piston parallel to the wrist pin bore
2. Upper compression ring gap location
3. Upper oil control segment ring gap location
4. Lower oil control segment ring gap location
5. Expander ring and lower compression ring gap location



N0134800