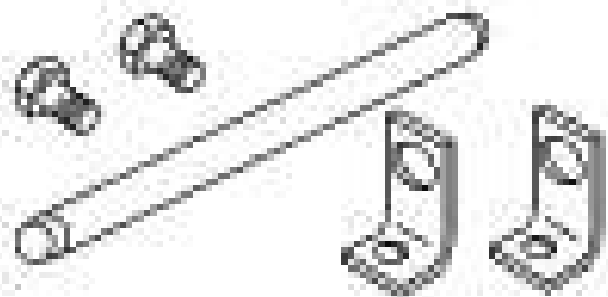


DISASSEMBLY AND ASSEMBLY OF SUBASSEMBLIES

CYLINDER HEAD

Special Tool(s)

SPECIAL TOOL SPECIFICATION



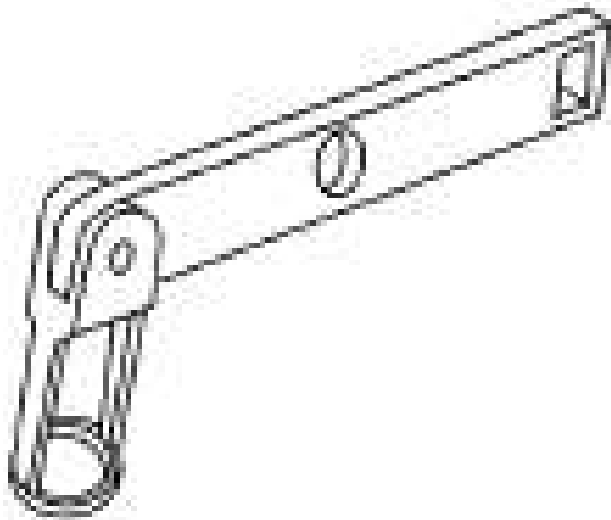
ST1981-A

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



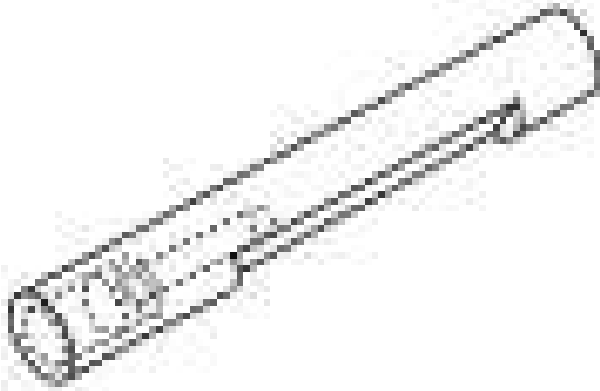
ST1907-A

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



ST1902-A

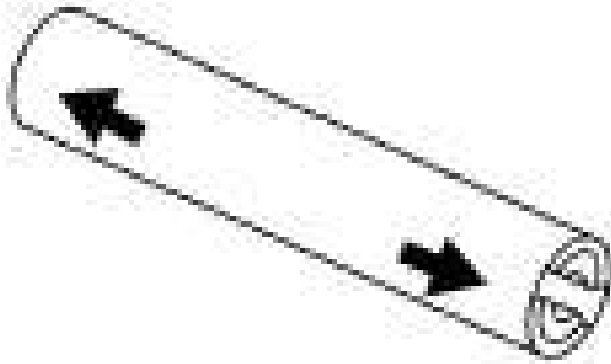
Compressor, Valve Spring
303-472 (T94P-6565-AH)



ST1906-A

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

Remover, Valve Stem Oil Seal
303-468 (T94P-6510-AH)



ST1904-A



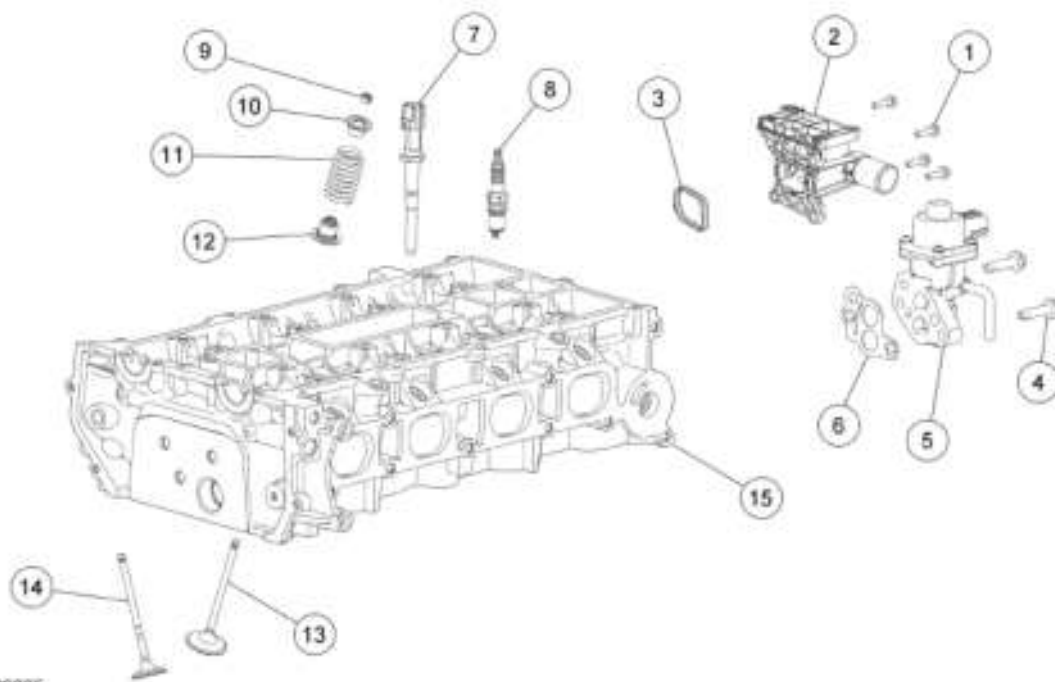
ST1187-A

Slide Hammer
307-005 (T59L-100-B)

Material

MATERIAL SPECIFICATION

Item	Specification
Motorcraft® SAE 5W-20 Premium Synthetic Blend Motor Oil XO-5W20-QSP (US); Motorcraft® SAE 5W-20 Super Premium Motor Oil CXO-5W20-LSP12 (Canada); or equivalent	WSS-M2C930-A
Multi-Purpose Grease XG-4 and/or XL-5	ESB-M1C93-B



NO100885

Fig. 362: Identifying Cylinder Head Components
 Courtesy of FORD MOTOR CO.

PART NUMBER REFERENCE

Item	Part Number	Description
1	W500015	Coolant outlet bolt (4 required)
2	8K556	Coolant outlet
3	-	Coolant outlet gasket (part of 8K556)
4	W500225	EGR valve bolt (2 required)
5	9D475	EGR valve
6	9D476	EGR valve gasket
7	6G004	Cylinder Head Temperature (CHT) sensor
8	12405	Spark plug (4 required)
9	6518	Valve collet (16 required)
10	6514	Valve spring retainer (16 required)
11	6513	Valve spring (16 required)
12	6517	Valve seal (16 required)
13	6505	Intake valve (8 required)
14	6507	Exhaust valve (8 required)
15	6049	Cylinder head

Disassembly

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

1. Remove the 4 bolts and the coolant outlet.
 - Discard the gasket.

2. Remove the 2 bolts and the EGR valve.
 - Discard the gasket.
3. Remove the Cylinder Head Temperature (CHT) sensor.

NOTE: Only use hand tools when removing or installing the spark plugs or damage can occur to the cylinder head or spark plug.

4. Remove the spark plugs.

NOTE: Use a small screwdriver and multi-purpose grease to remove the valve collets.

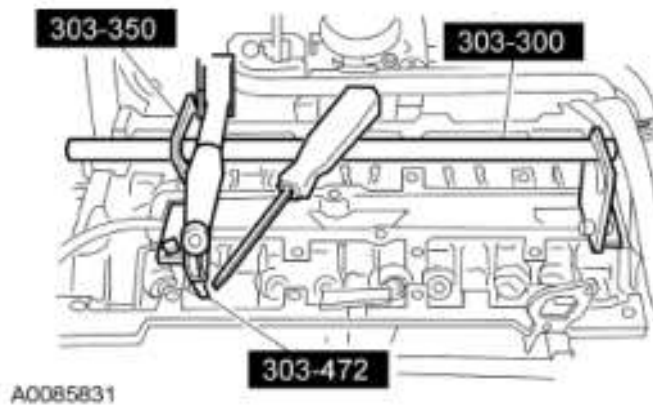


Fig. 363: Identifying Valve Spring And Valve Spring Retainer Special Tools
 Courtesy of FORD MOTOR CO.

5. Using the Valve Spring Compressors, compress the valve springs and remove the valve collets, valve spring retainers and the valve springs.
6. Inspect the components, if necessary. For additional information, refer to **ENGINE SYSTEM - GENERAL INFORMATION** .
7. Remove the valves.
8. Using the Valve Stem Oil Seal Remover and Slide Hammer, remove and discard the valve seals.

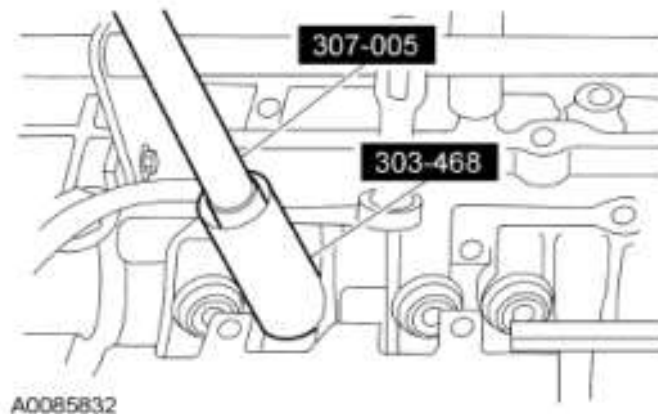


Fig. 364: Removing Valve Seal
 Courtesy of FORD MOTOR CO.

9. Inspect the valves. For additional information, refer to **ENGINE SYSTEM - GENERAL INFORMATION** . Install new parts, as necessary.

Assembly

NOTE: Coat the valve stems with clean engine oil.

1. Install the valves.

NOTE: Use the protector provided with the replacement kit to prevent damage to the valve seals. Lubricate the valve stems and guides with clean engine oil.

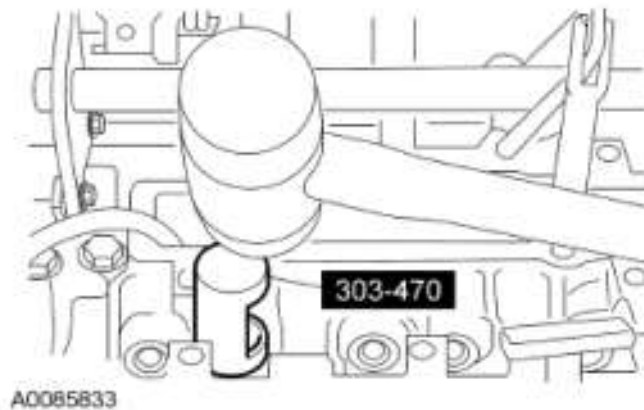


Fig. 365: Installing Valve Seal
Courtesy of FORD MOTOR CO.

2. Using the Valve Stem Oil Seal Installer, install the valve seals.

NOTE: Check the seating of the valve collets.

3. Using the Valve Spring Compressors, install the valve springs.
 - Insert the valve springs and the valve spring retainers.
 - Compress the valve springs and install the valve collets, using multi-purpose grease and a small screwdriver.

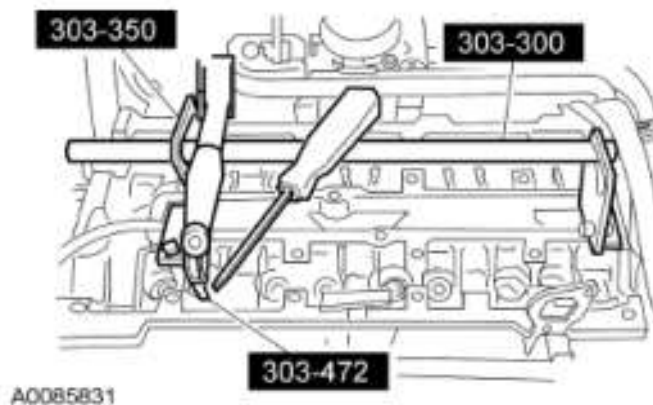


Fig. 366: Identifying Valve Spring And Valve Spring Retainer Special Tools
 Courtesy of FORD MOTOR CO.

NOTE: Only use hand tools when removing or installing the spark plugs or damage can occur to the cylinder head or spark plug.

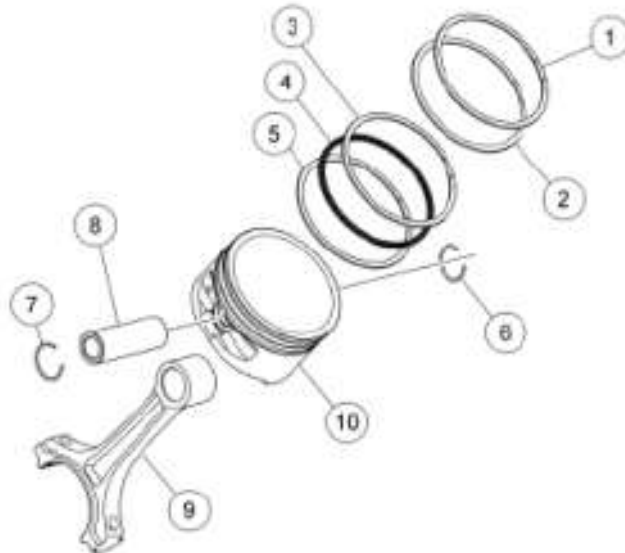
4. Install the spark plugs.
 - Tighten to 12 Nm (106 lb-in).
5. Install the CHT sensor.
 - Tighten to 12 Nm (106 lb-in).
6. Using a new gasket, install the EGR valve and 2 bolts
 - Tighten to 20 Nm (177 lb-in).
7. Using a new gasket, install the coolant outlet and 4 bolts.
 - Tighten to 10 Nm (89 lb-in).

PISTON

Material

MATERIAL SPECIFICATION

Item	Specification
Motorcraft® SAE 5W-20 Premium Synthetic Blend Motor Oil XO-5W20-QSP (US); Motorcraft® SAE 5W-20 Super Premium Motor Oil CXO-5W20-LSP12 (Canada); or equivalent	WSS-M2C930-A



N0010114

Fig. 367: Exploded View Of Piston
 Courtesy of FORD MOTOR CO.

PART NUMBER REFERENCE

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Item	Part Number	Description
1	6150	Piston compression upper ring
2	6152	Piston compression lower ring
3	6159	Piston oil control upper segment ring
4	6161	Piston oil control spacer
5	6159	Piston oil control lower segment ring
6	6140	Piston pin retainer
7	6140	Piston pin retainer
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.

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.
4. Clean and inspect the piston and connecting rod. For additional information, refer to ENGINE SYSTEM - GENERAL INFORMATION.

Assembly

NOTE: The arrow on the top of the piston points towards the front of the engine.

1. Align the piston-to-connecting rod orientation marks, and position the connecting rod in the piston.
2. Lubricate the piston pin and pin bore with clean engine oil.
3. Install the piston pin in the piston and connecting rod assembly.
4. Install the piston pin retaining clips in the piston.
5. Lubricate the piston and the new piston rings with clean engine oil.

NOTE: The piston compression upper and lower ring should be installed with the paint mark on the outside diameter circumference of the ring to be positioned on the right side of the ring gap. The lower compression ring can also be installed with the undercut side downward.

NOTE: The upper and lower compression ring gaps are not controlled for installation.

6. Install the piston rings onto the piston as shown.

1. Piston pin
2. Upper oil control ring gap location
3. Lower oil control ring gap location
4. Center line of the piston pin bore and the expander gap

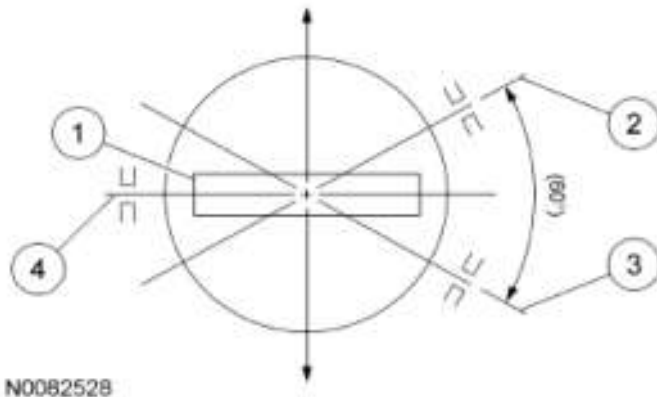


Fig. 368: Identifying Piston Ring Gap Location
Courtesy of FORD MOTOR CO.