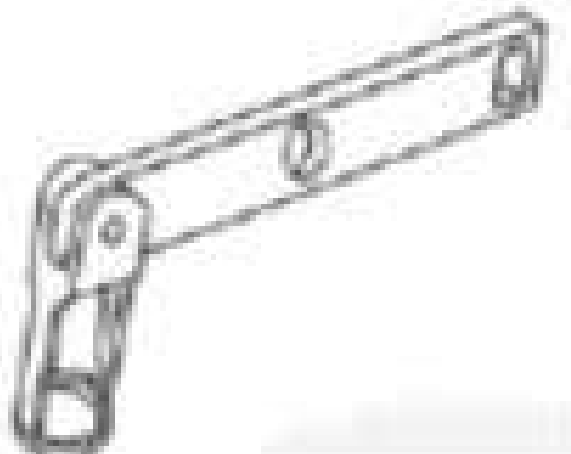


# DISASSEMBLY AND ASSEMBLY OF SUBASSEMBLIES

## CYLINDER HEAD

### SPECIAL TOOL/GENERAL EQUIPMENT DESCRIPTION



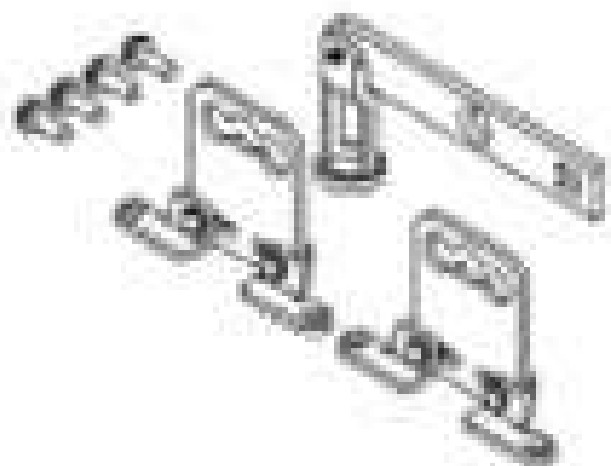
**303-1418**  
Compressor, Valve Spring  
TKIT-2008ET-FLM  
TKIT-2008ET-ROW



**E134677**

**303-300 (T87C-6565-A)**  
Set, Valve Spring Compressor  
TKIT-2009TC-F  
T88C-1000-ST  
TKIT-1988-FESTIVA  
TKIT-1988-TRACER

**303-350 (T89P-6565-A)**  
Compressor, Valve Spring  
TKIT-1989-F  
TKIT-1989-FM  
TKIT-1989-FLM  
TKIT-1990-LMH



E134678

#### MATERIALS SPECIFICATION

Name	Specification
Motorcraft® Multi-Purpose Grease Spray XL-5	ESB-M1C93-B
Motorcraft® SAE 5W-20 Premium Synthetic Blend Motor Oil (U.S.) XO-5W20-QSP (U.S.)	WSS-M2C945-A

#### DISASSEMBLY

**NOTE:** During engine repair procedures, cleanliness is extremely important. Any foreign material, including any material created while cleaning gasket surfaces, that enters the oil passages, coolant passages or the oil pan can cause engine failure.

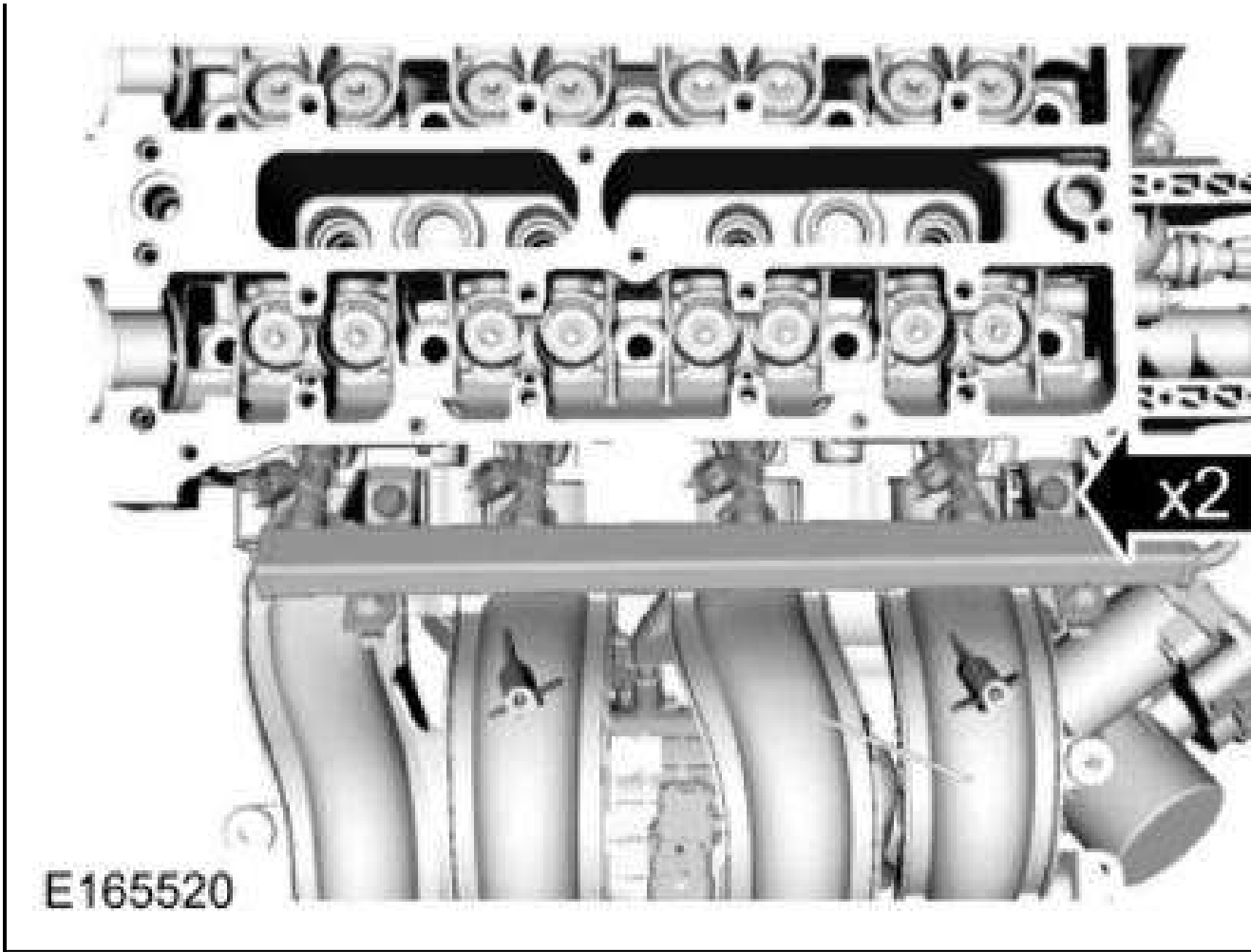
**NOTE:** If the components are to be reinstalled, mark the location of the components removed, they must be installed in the same location.

**WARNING:** Before beginning any service procedure in this service information, refer to health and safety warnings in GENERAL INFORMATION . Failure to follow this instruction may result in serious personal injury.

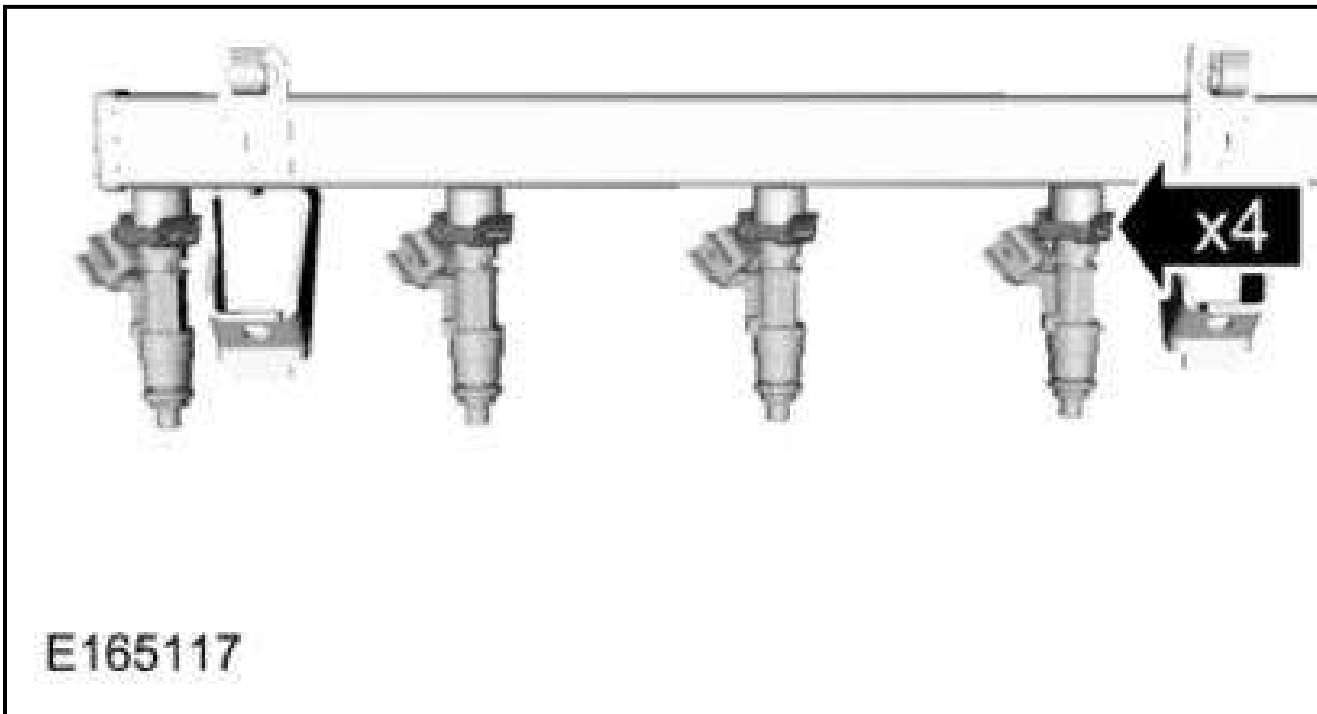
1.

Refer to: HEALTH AND SAFETY PRECAUTIONS .

2.

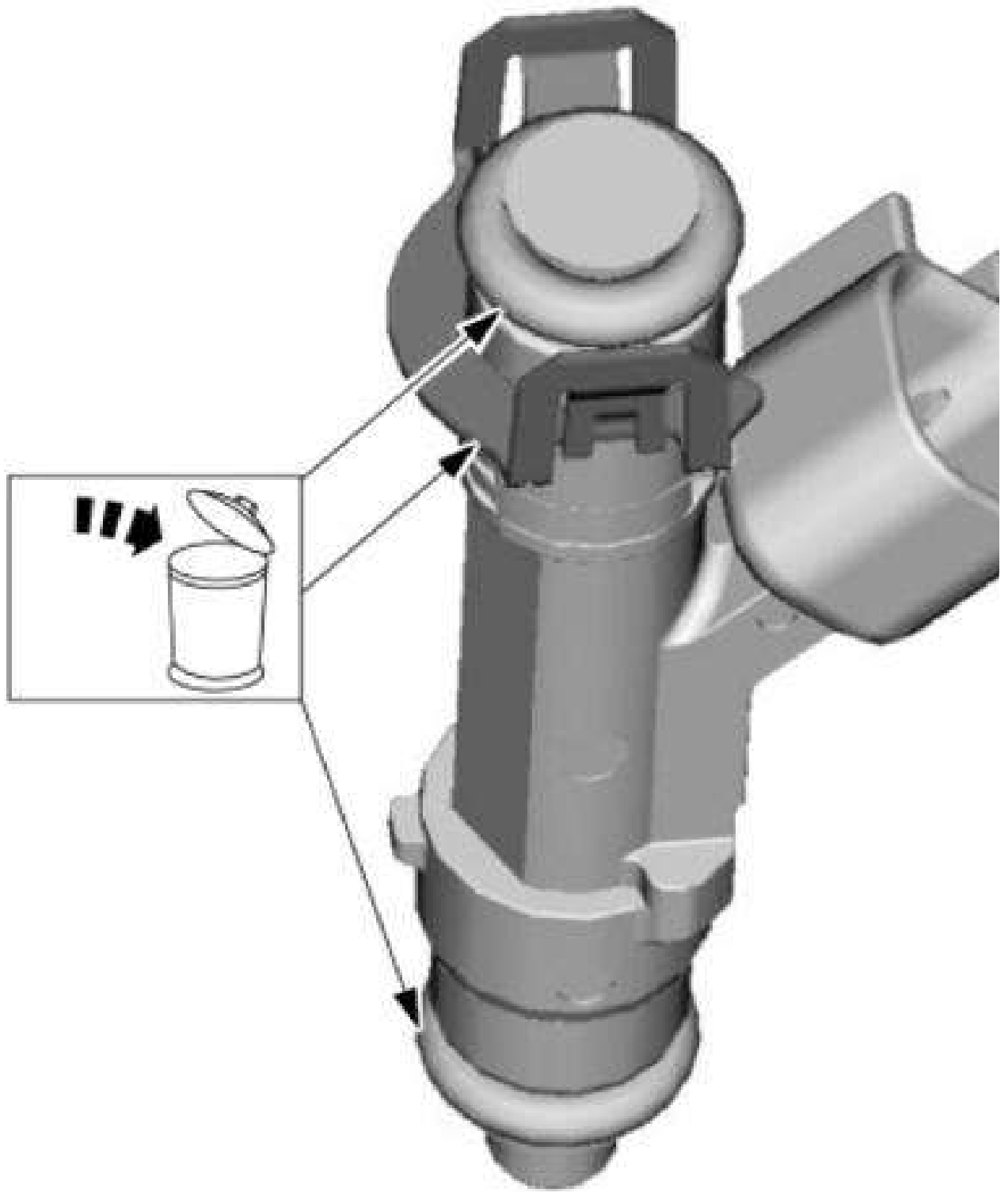


2.

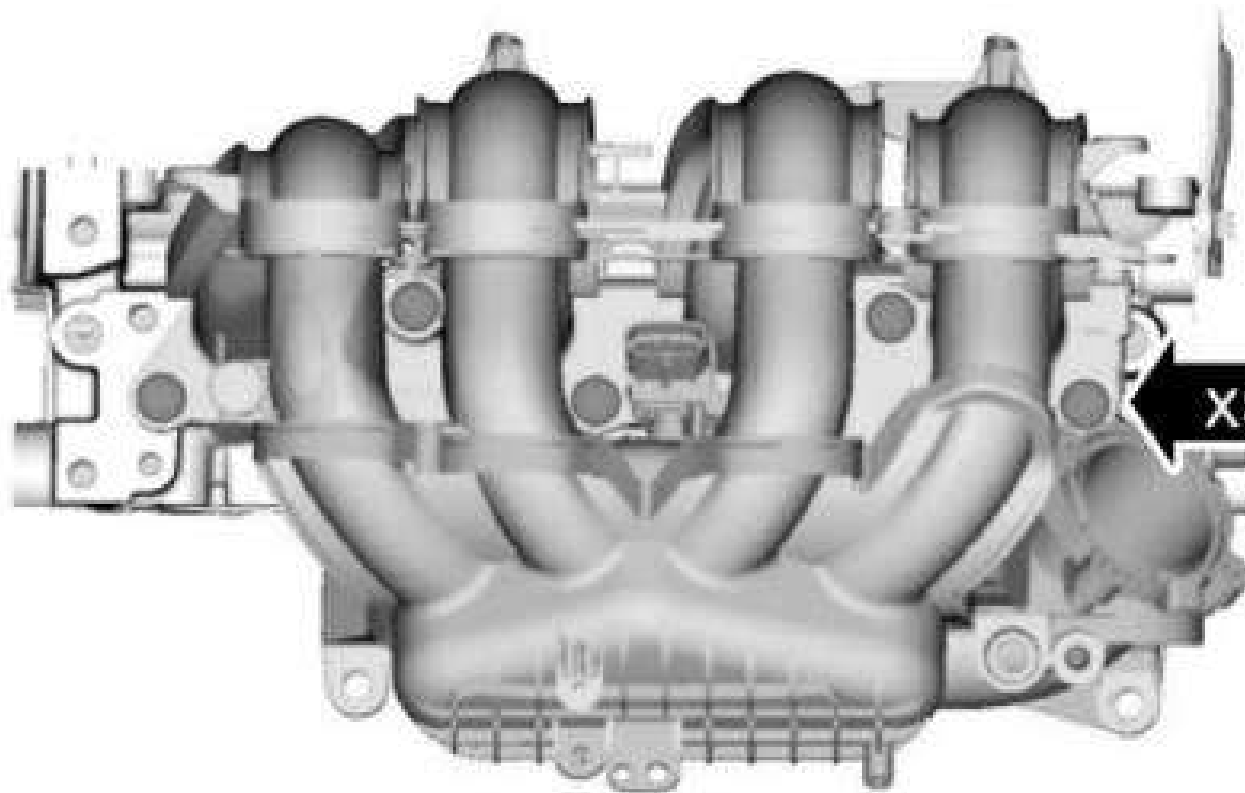


3.

4.



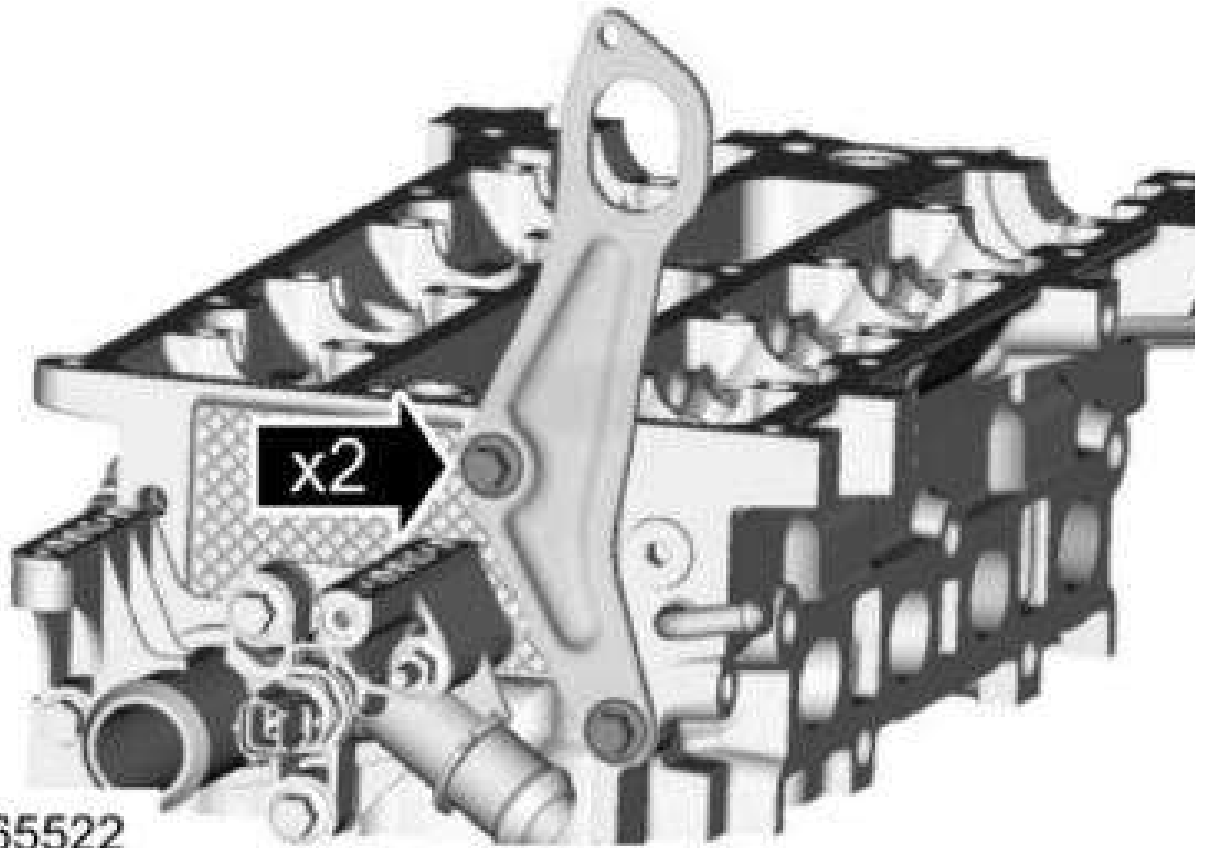
E148378



E165521

5.

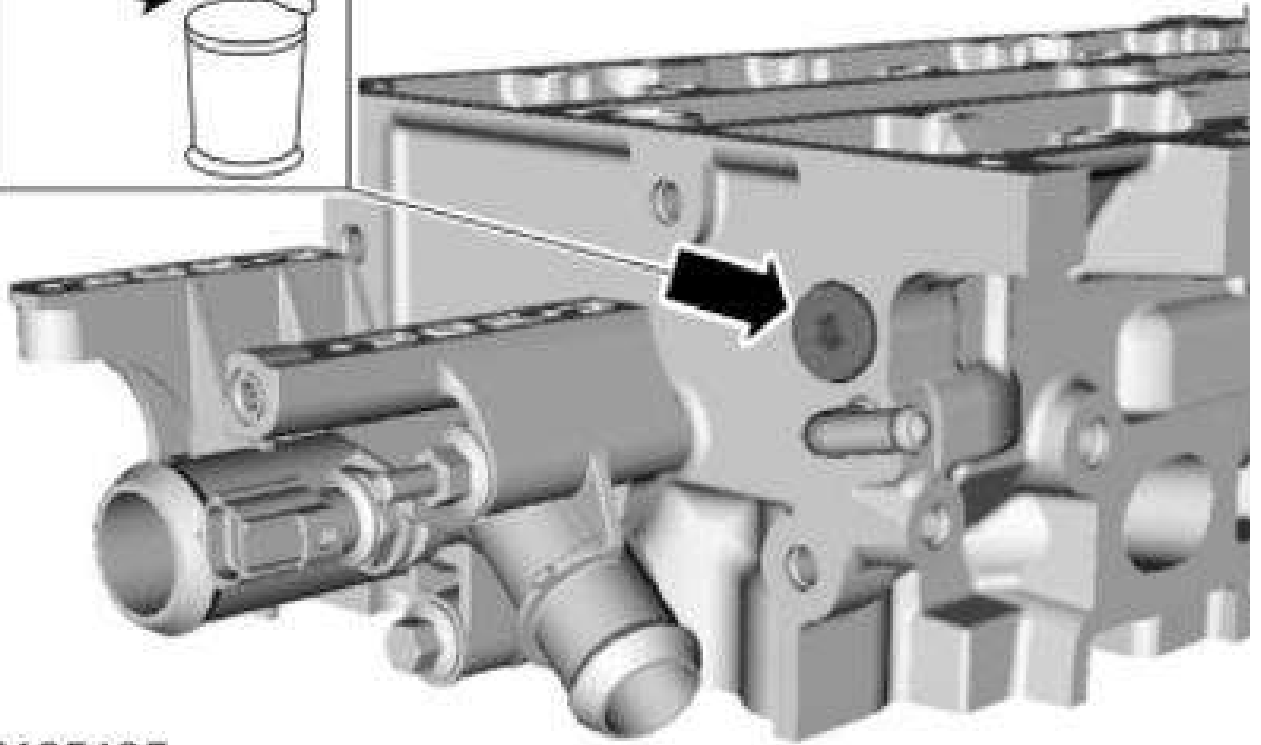
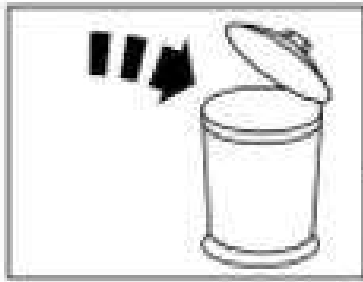
6.



E165522

6.

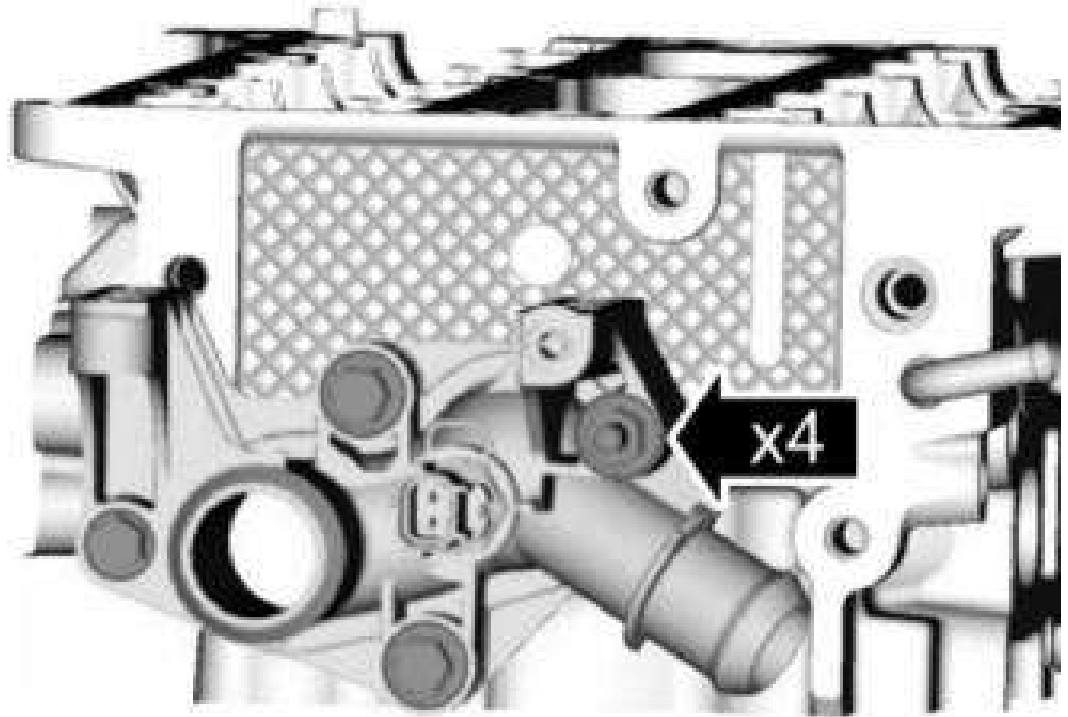
7.



E165135

7.

8.



E165523

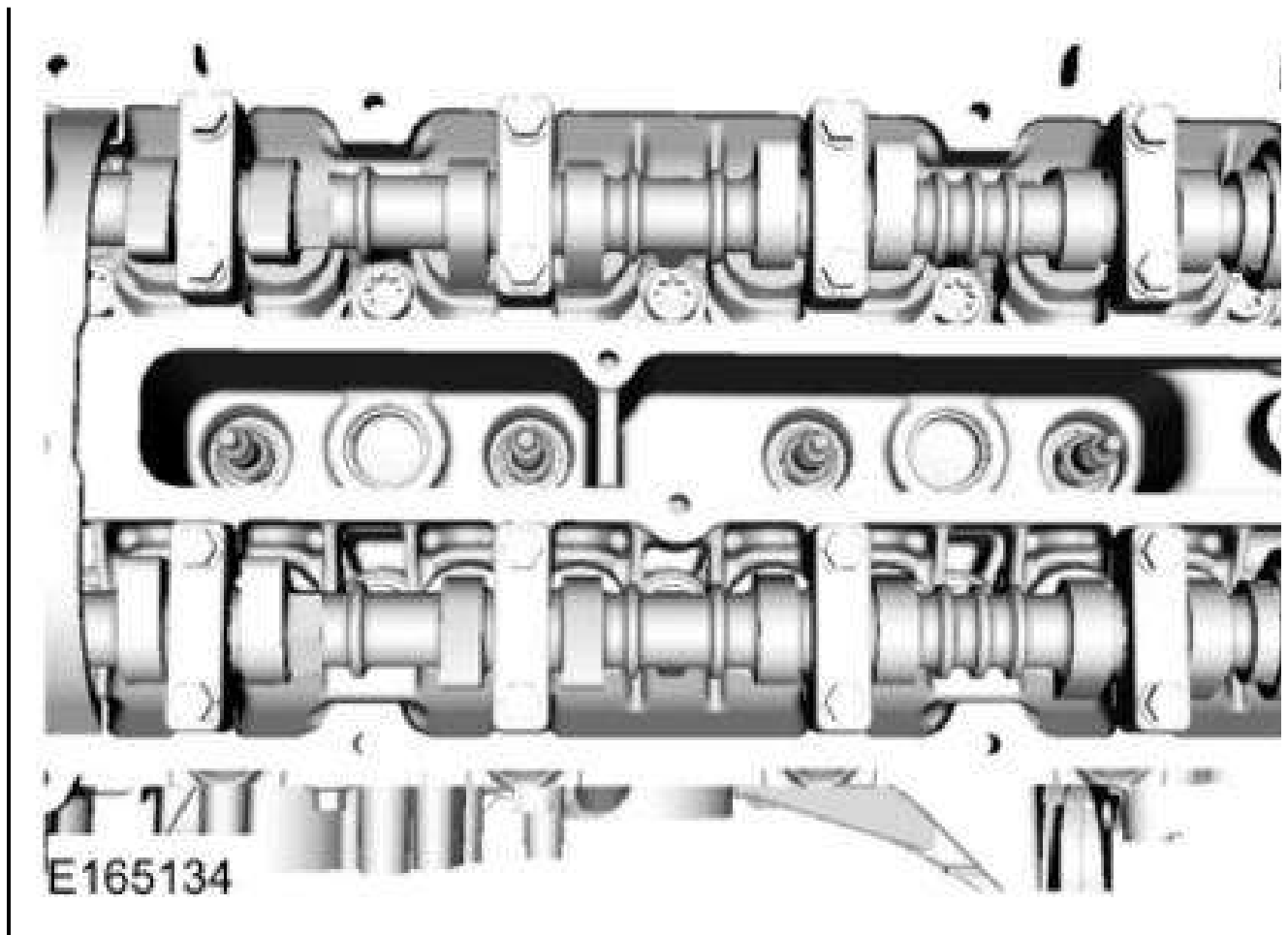
8.

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

9.

**NOTE:** Use compressed air to remove any foreign material in the spark plug well before removing the spark plugs.

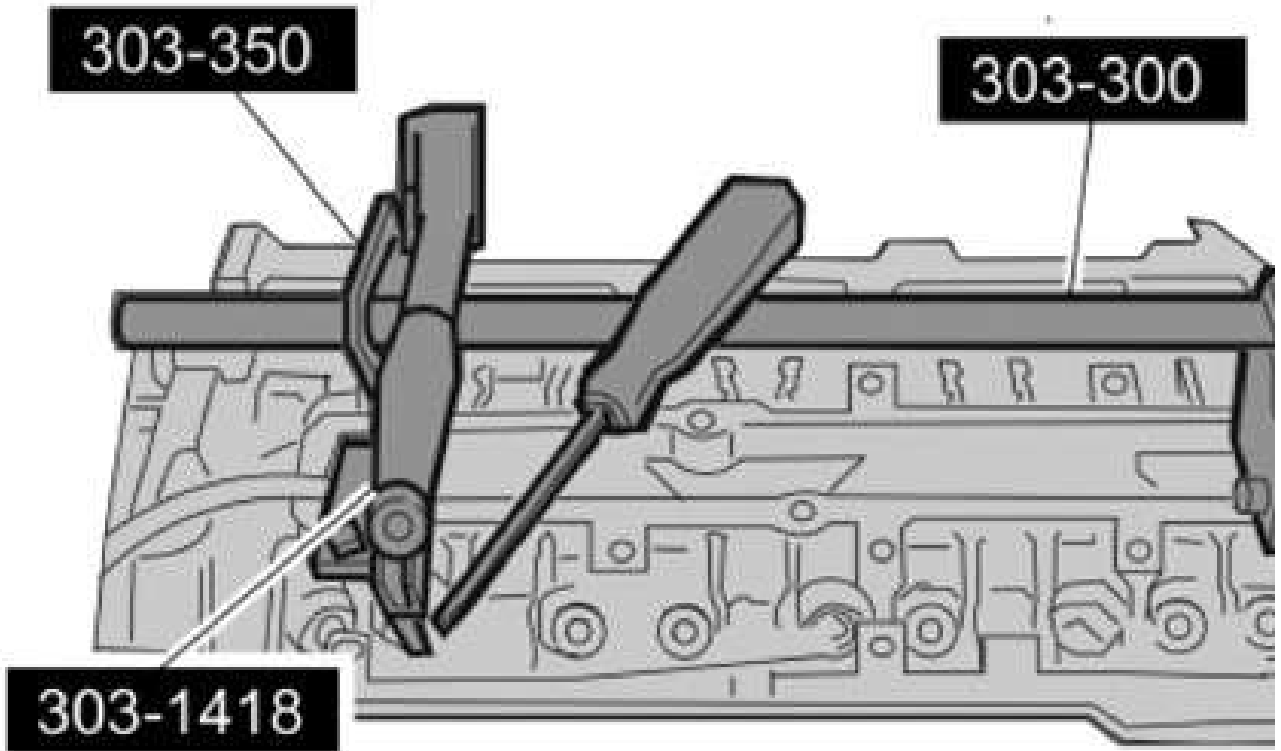




10. **NOTE:** Use a small screwdriver and multi-purpose grease to remove the valve collets.

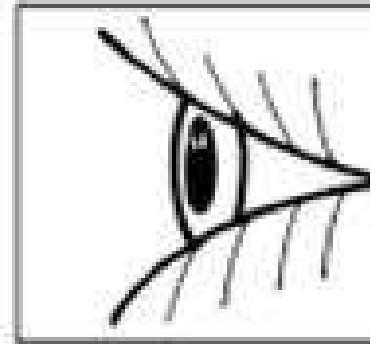
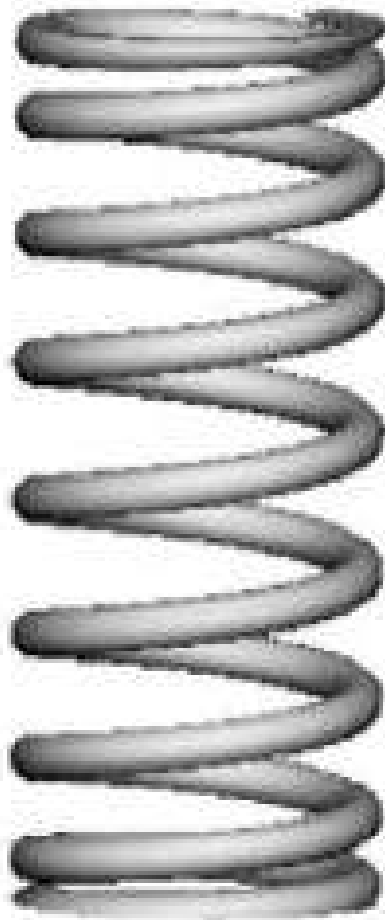
Use Special Service Tool: 303-300 (T87C-6565-A) Set, Valve Spring Compressor ., 303-350 (T89P-6565-A) Compressor, Valve Spring ., 303-1418 Compressor, Valve Spring .

*Material:* Motorcraft® Multi-Purpose Grease Spray/XL-5 (ESB-M1C93-B)



E165335

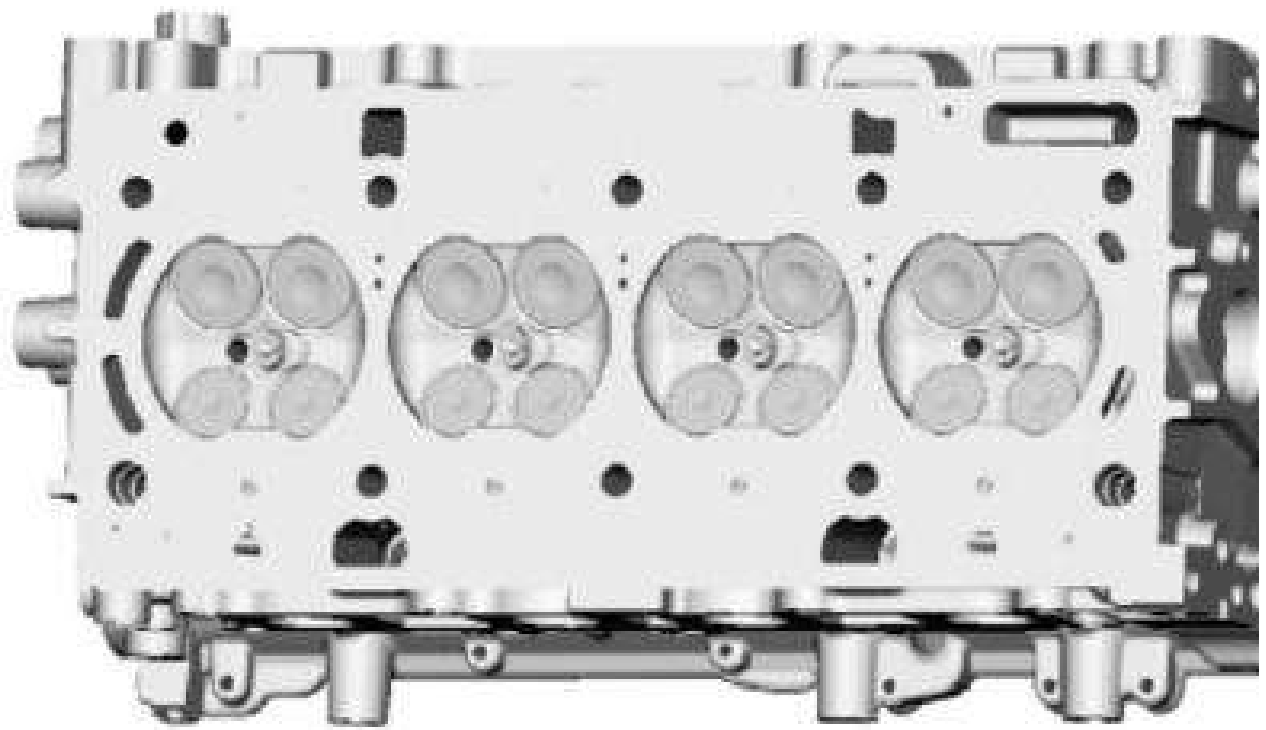
11. Install new parts, as necessary.



**E147616**

12. **NOTE:** Note the location of the valves if they are to be reused.

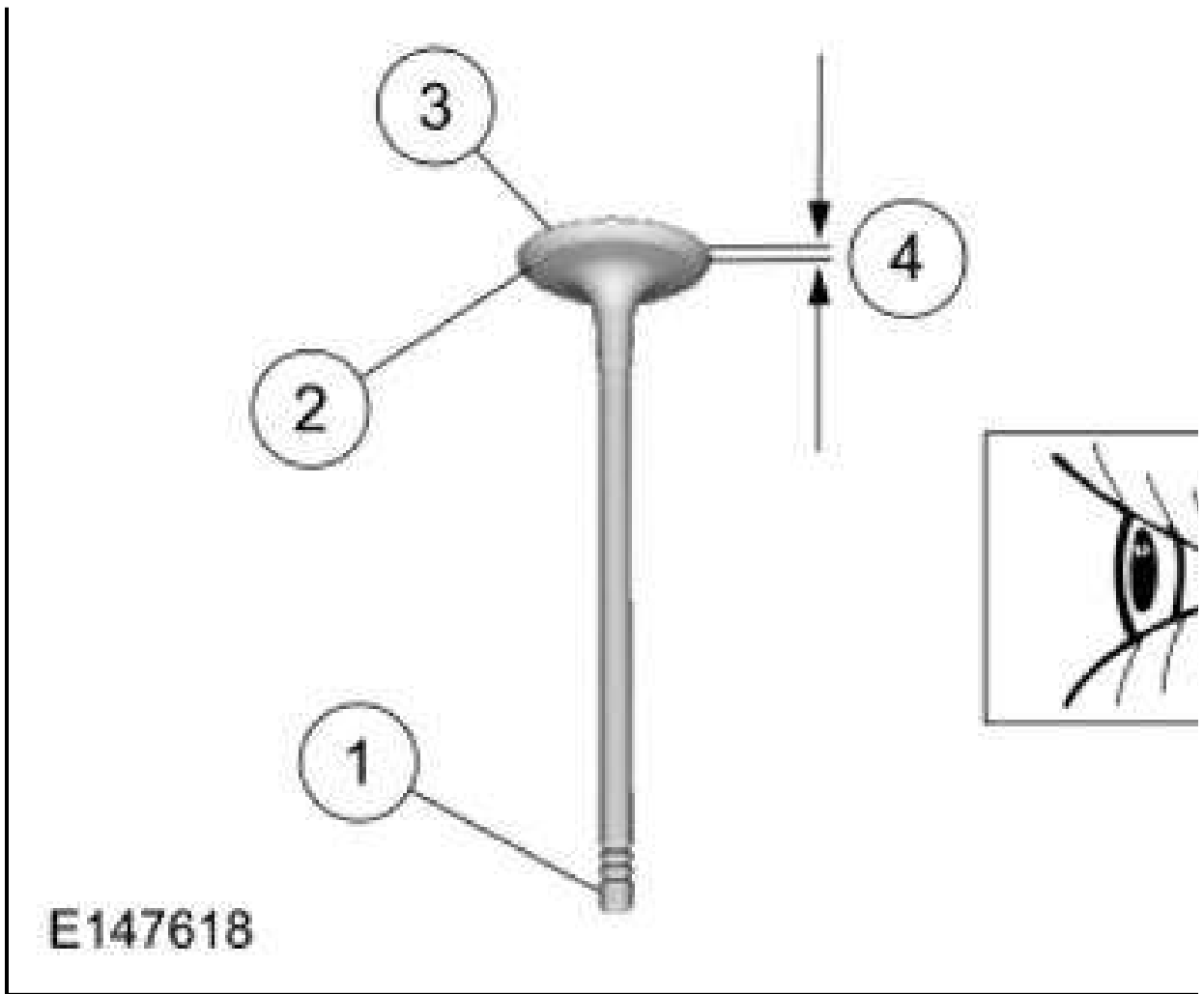
**NOTE:** Use commercially available valve stem seal pliers to remove the valve stem seals.



E147617

13. **NOTE:**        **Install new parts, as necessary.**

1. The end of the stem for grooves or scoring.
2. The valve face and the edge for pits, grooves or scores.
3. The valve head for signs of burning, erosion, warpage and cracking.
4. The valve margin for wear.

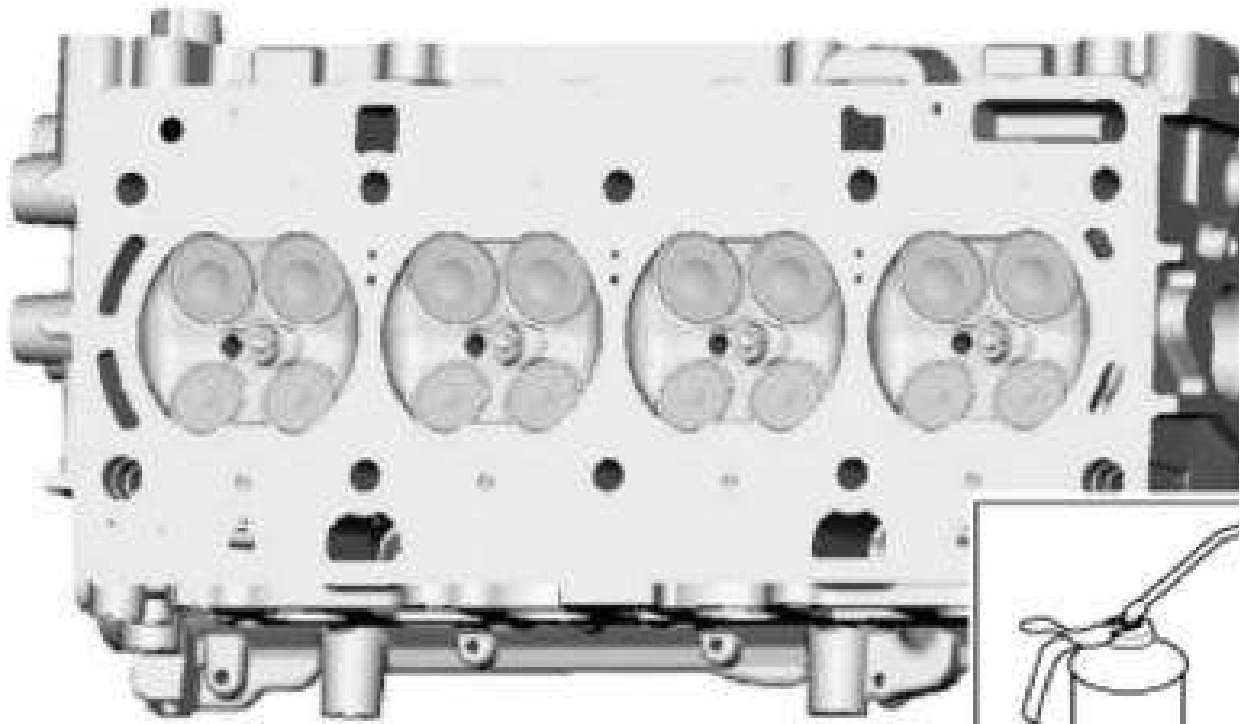


## ASSEMBLY

- NOTE:** If installing the original valves, make sure the valves are installed in the same position from which they were removed. Coat the valve stems with clean engine oil.
- 1.

**NOTE:** Use commercially available valve stem seal pliers to install the valve stem seals.

*Material:* Motorcraft® SAE 5W-20 Premium Synthetic Blend Motor Oil (U.S.)/XO-5W20-QSP (U.S.) (WSS-M2C945-A)



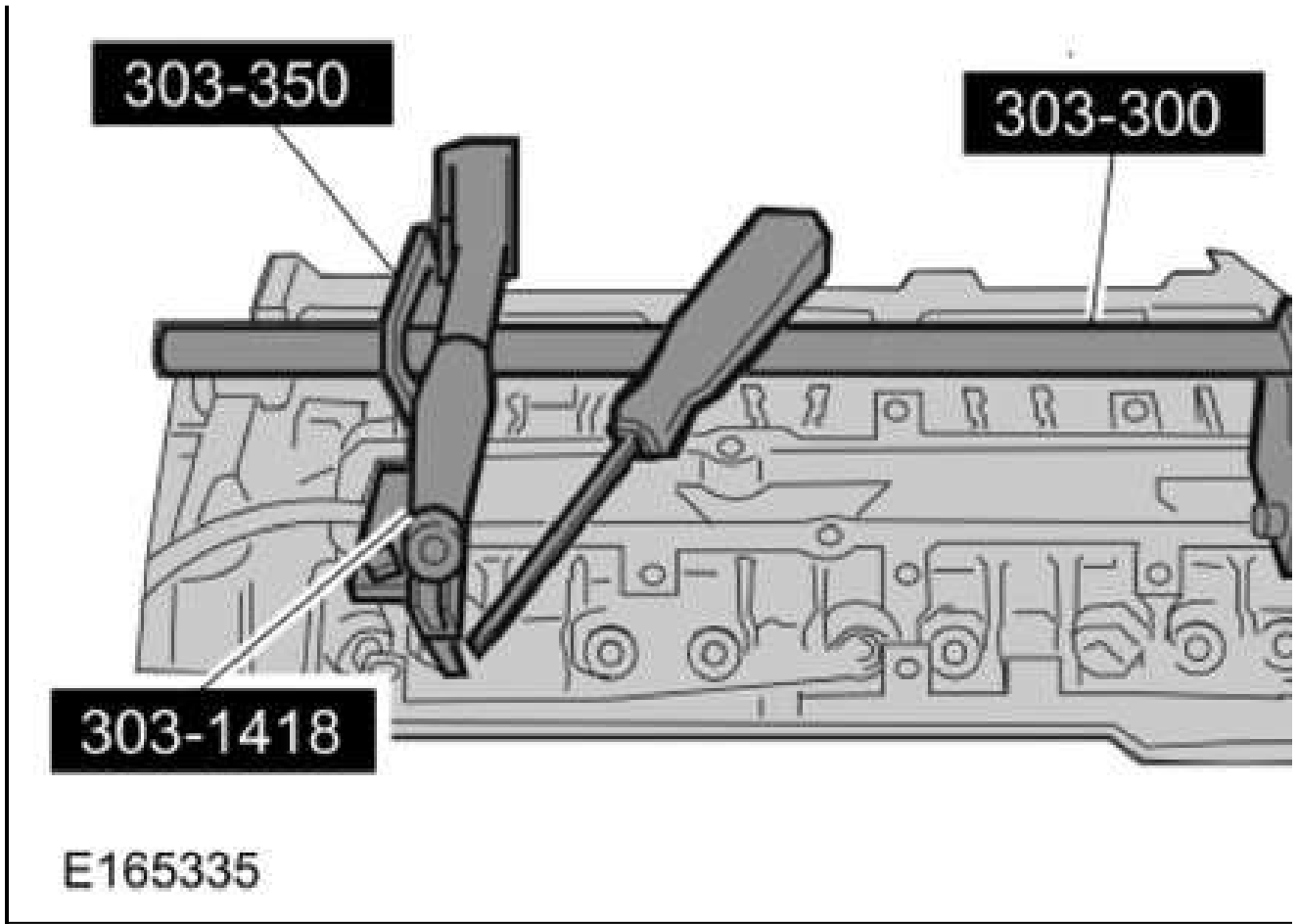
E147619

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

Check the seating of the valve collet.

Use Special Service Tool: **303-300 (T87C-6565-A) Set, Valve Spring Compressor** , **303-350 (T89P-6565-A) Compressor, Valve Spring** , **303-1418 Compressor, Valve Spring** .

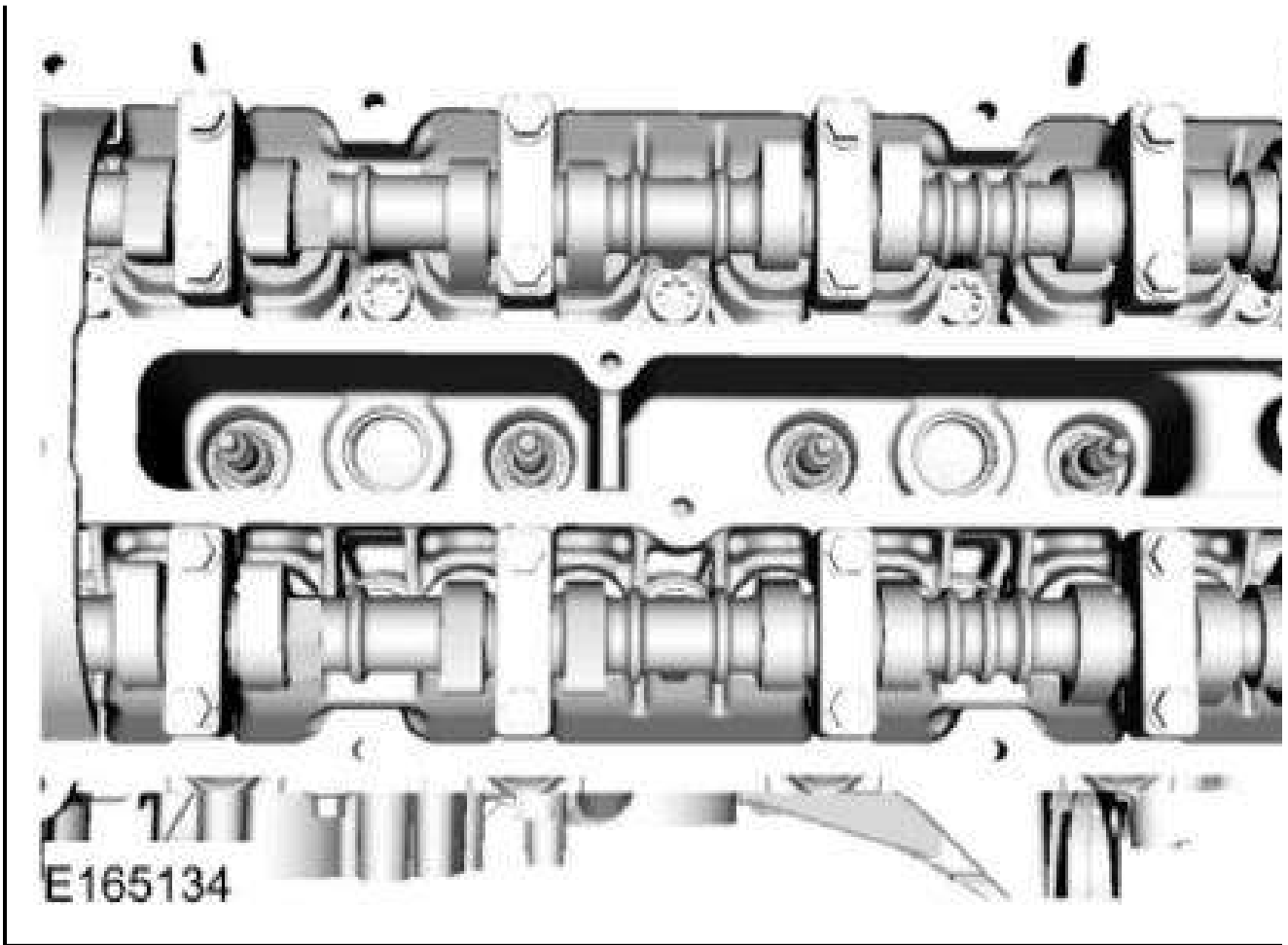
*Material:* Motorcraft® Multi-Purpose Grease Spray/XL-5 (ESB-M1C93-B)



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

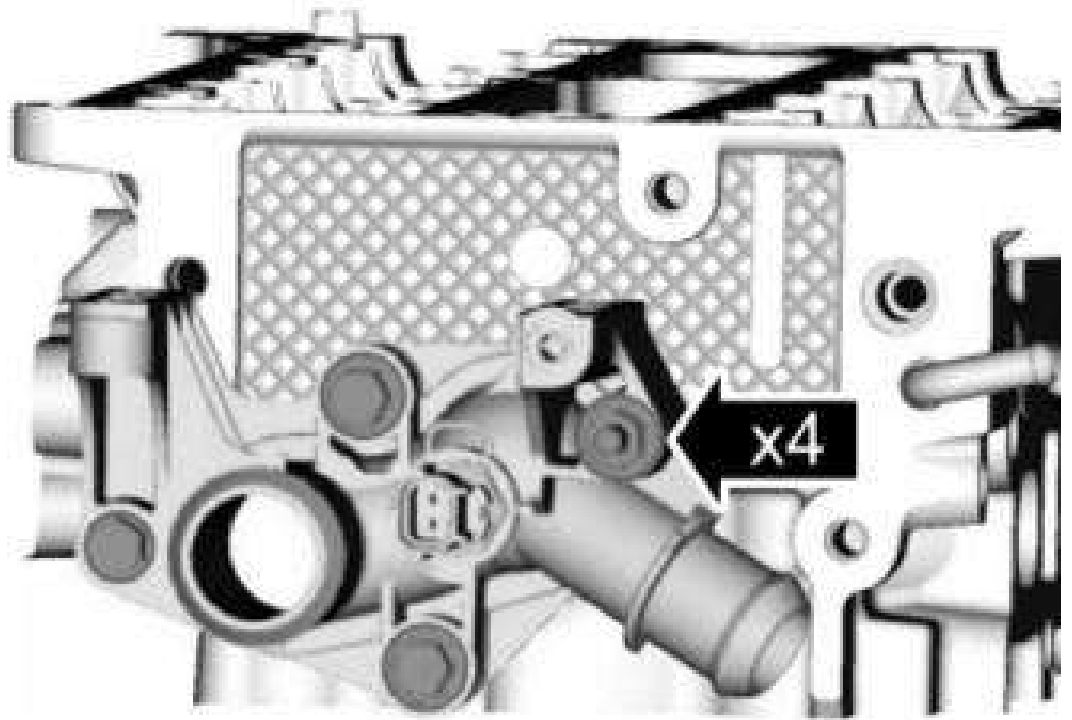
3.

*Torque:* 133 lb.in (15 Nm)



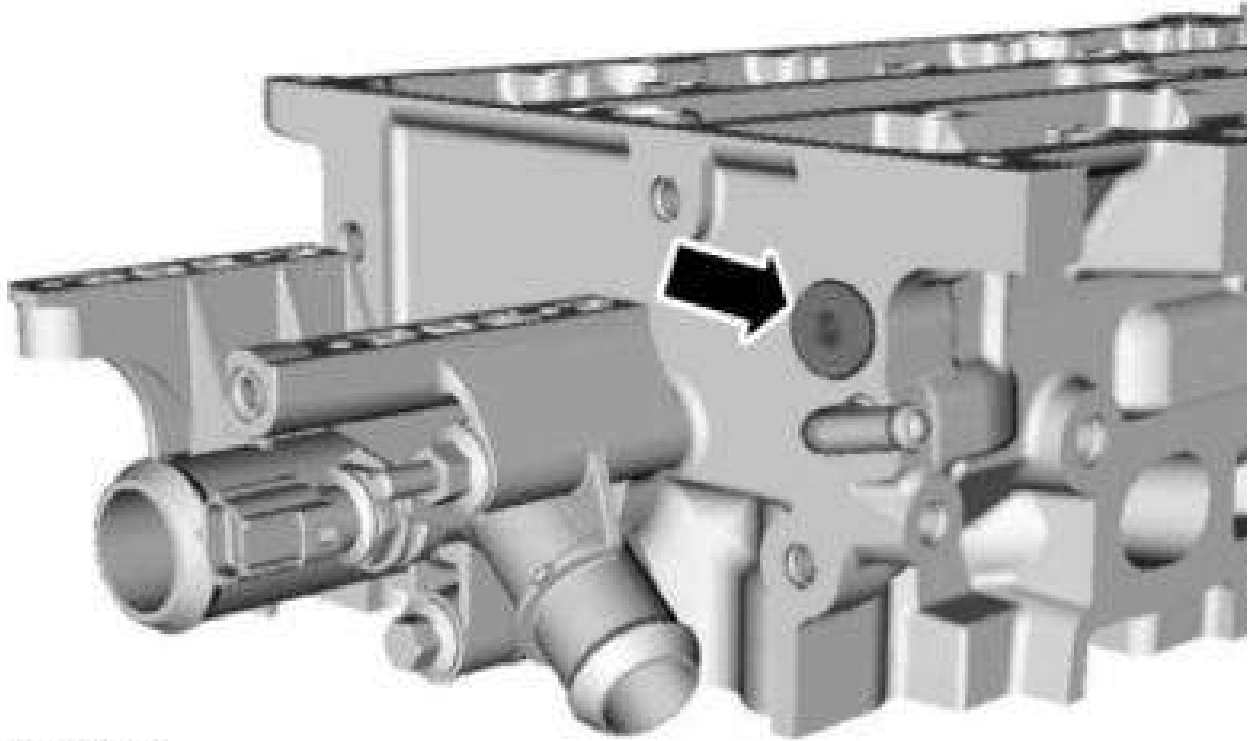
4. *Torque:* 168 lb.in (19 Nm)





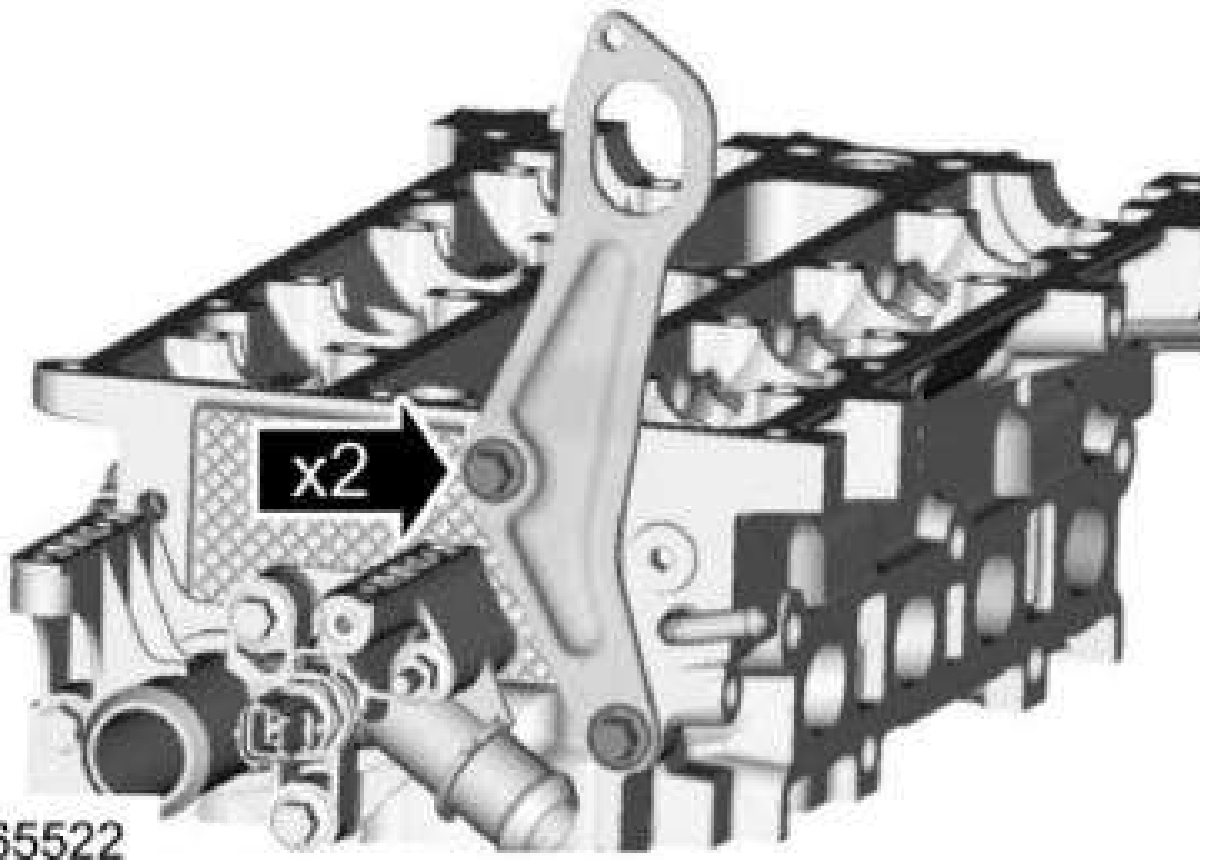
E165523

5. *Torque:* 21 lb.ft (29 Nm)



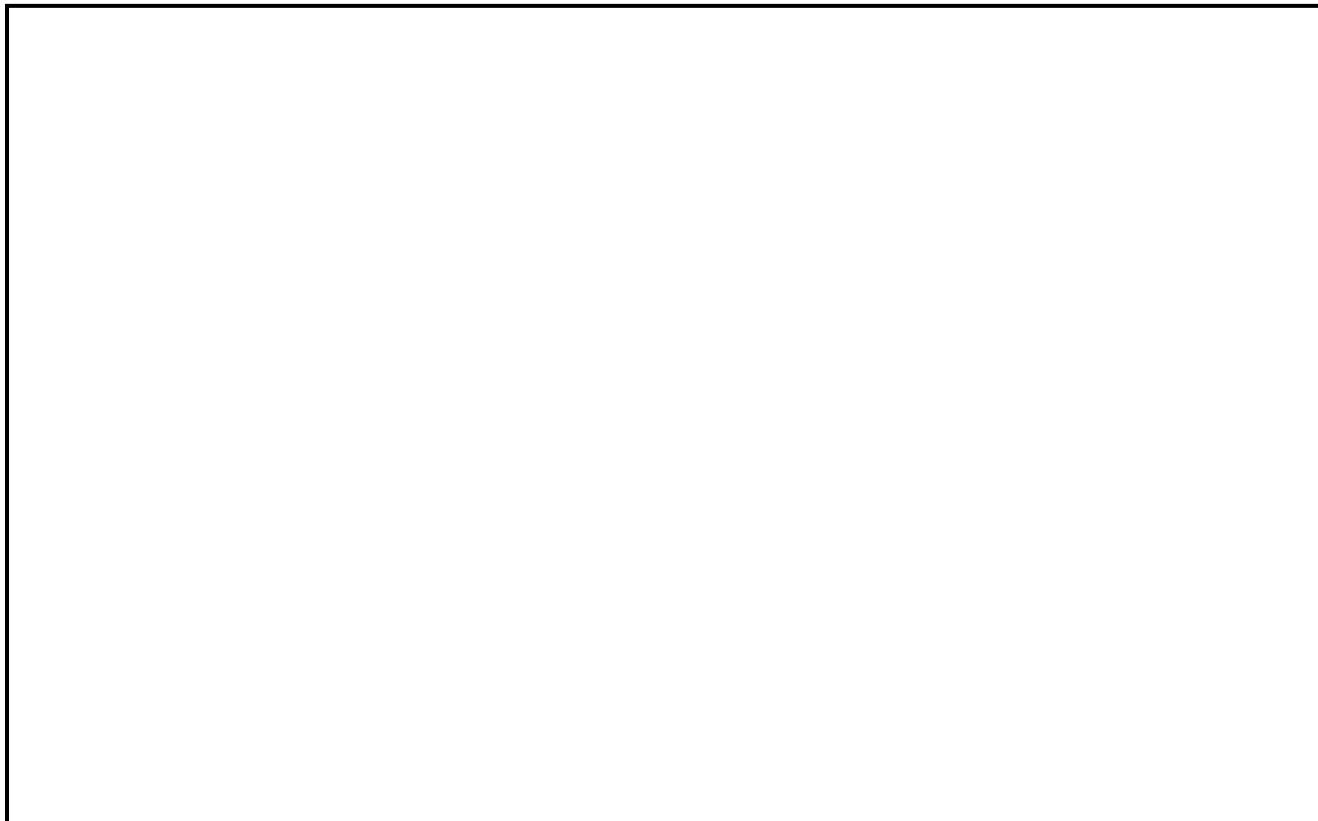
E165136

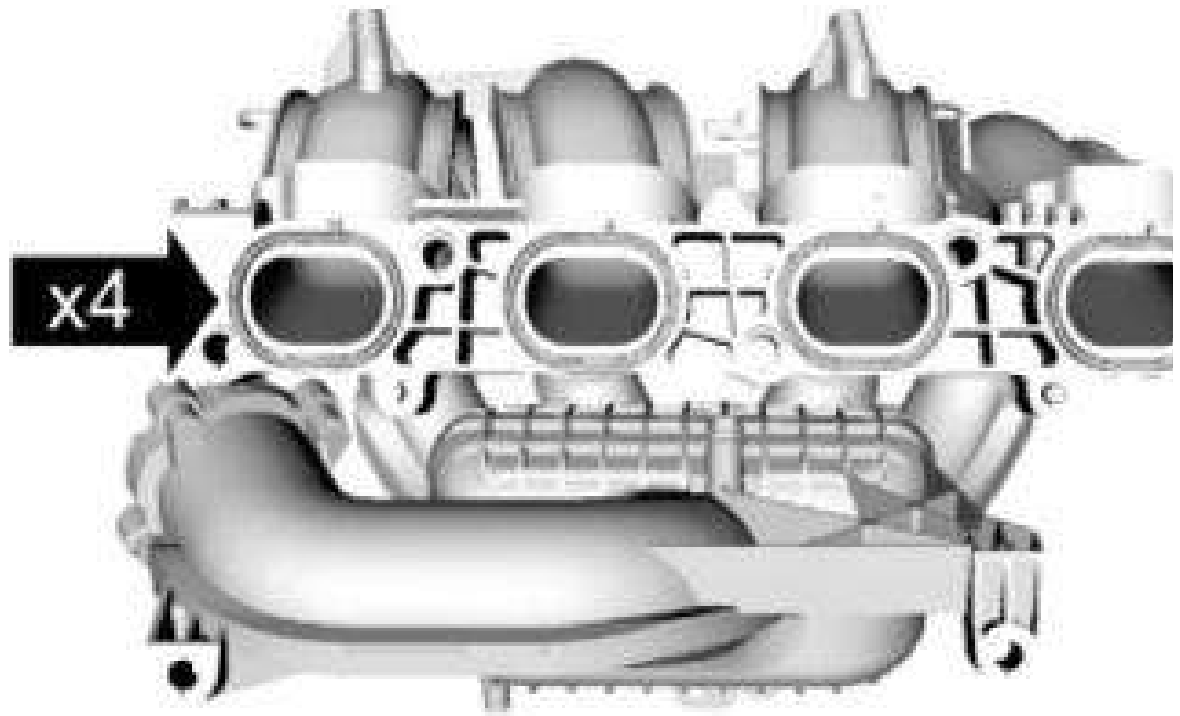
6. *Torque:* 168 lb.in (19 Nm)



E165522

7. Inspect and install new intake manifold gaskets if necessary.



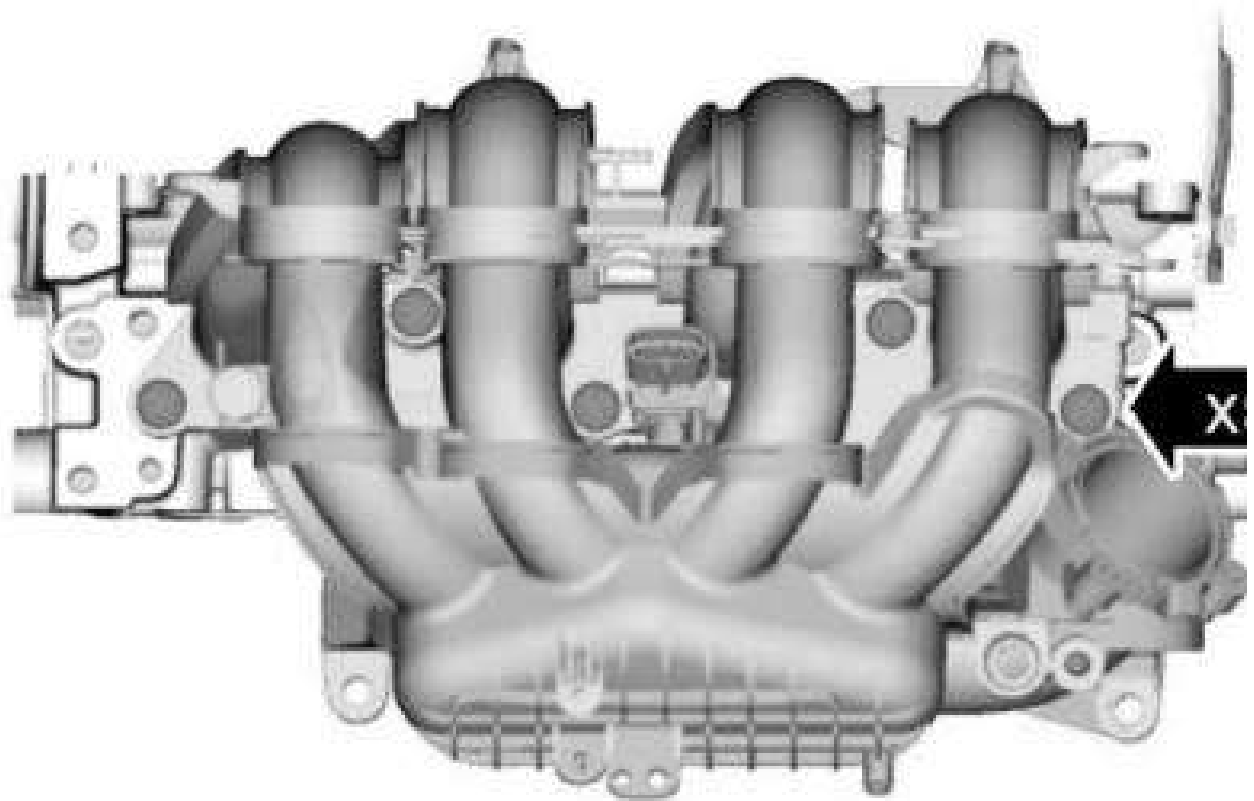


E165084

8. *Torque :*

Stage 1: 53 lb.in (6 Nm)

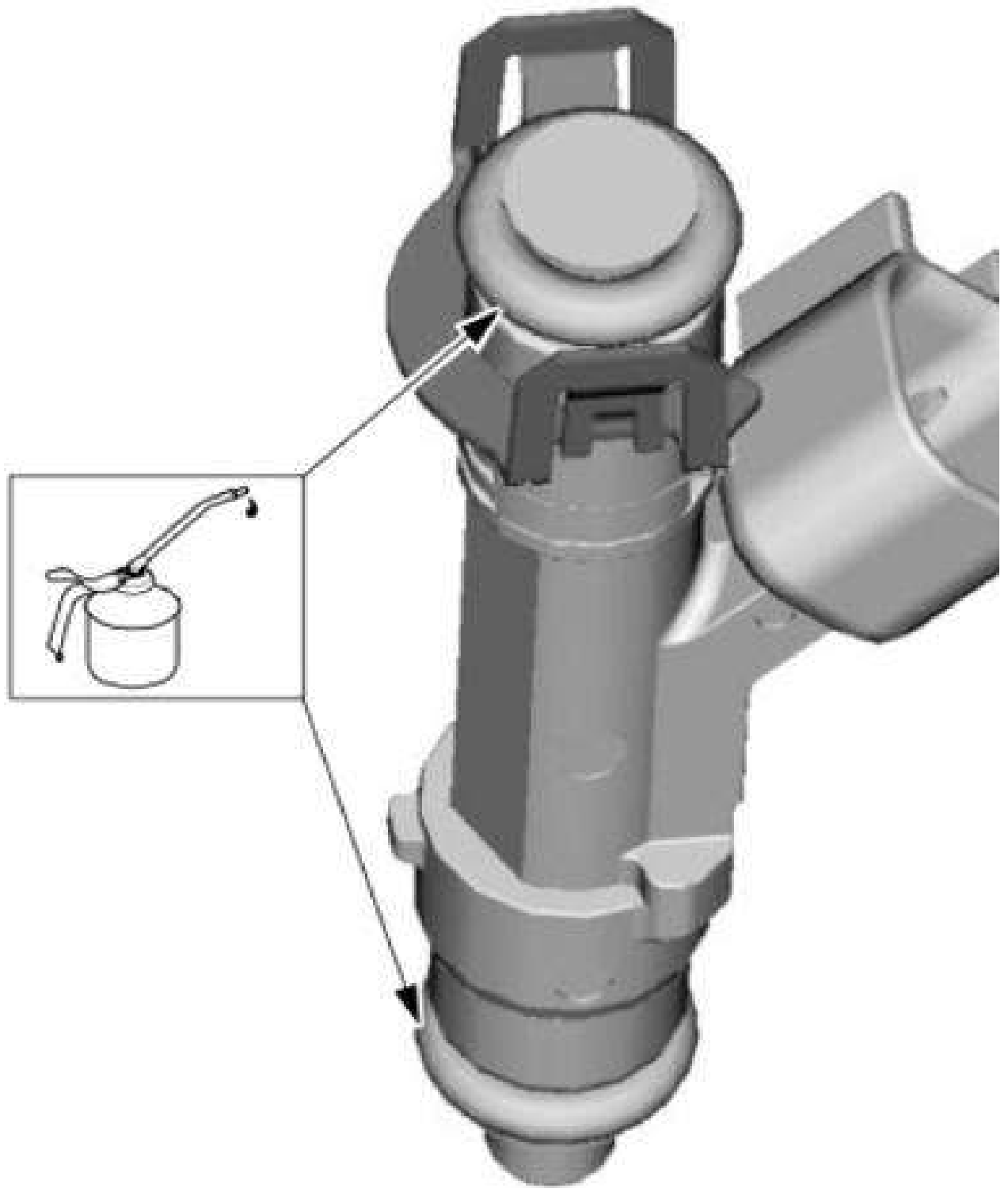
Stage 2: 159 lb.in (18 Nm)



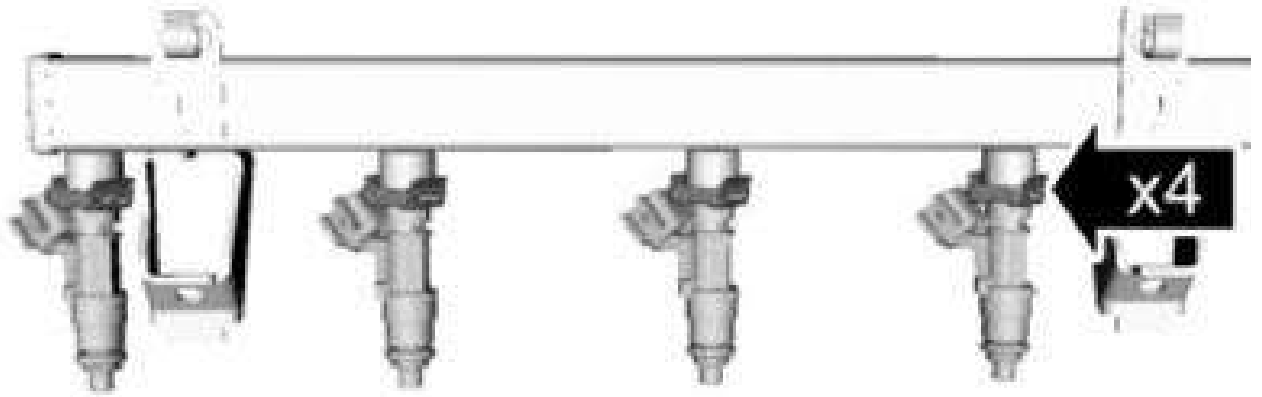
E165521

**NOTE:** Use O-ring seals that are made of special fuel resistant material. The use of ordinary O-rings may cause the fuel system to leak. Do not reuse the O-ring seals.

9.



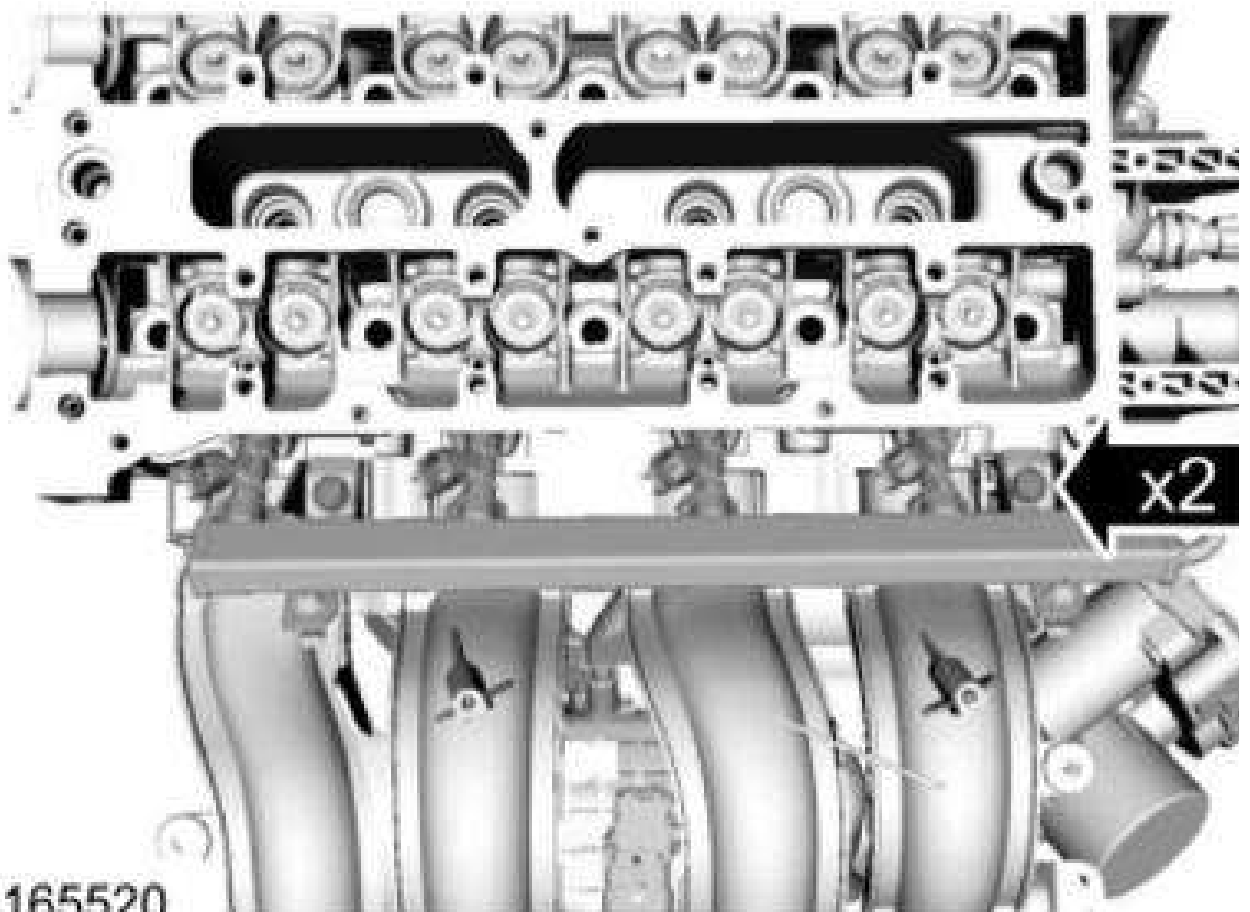
E148379



E165117

10.

11. *Torque: 97 lb.in (11 Nm)*



E165520

## PISTON

### MATERIALS SPECIFICATION

Name	Specification
Motorcraft® SAE 5W-20 Premium Synthetic Blend Motor Oil (U.S.) XO-5W20-QSP (U.S.)	WSS-M2C945-A

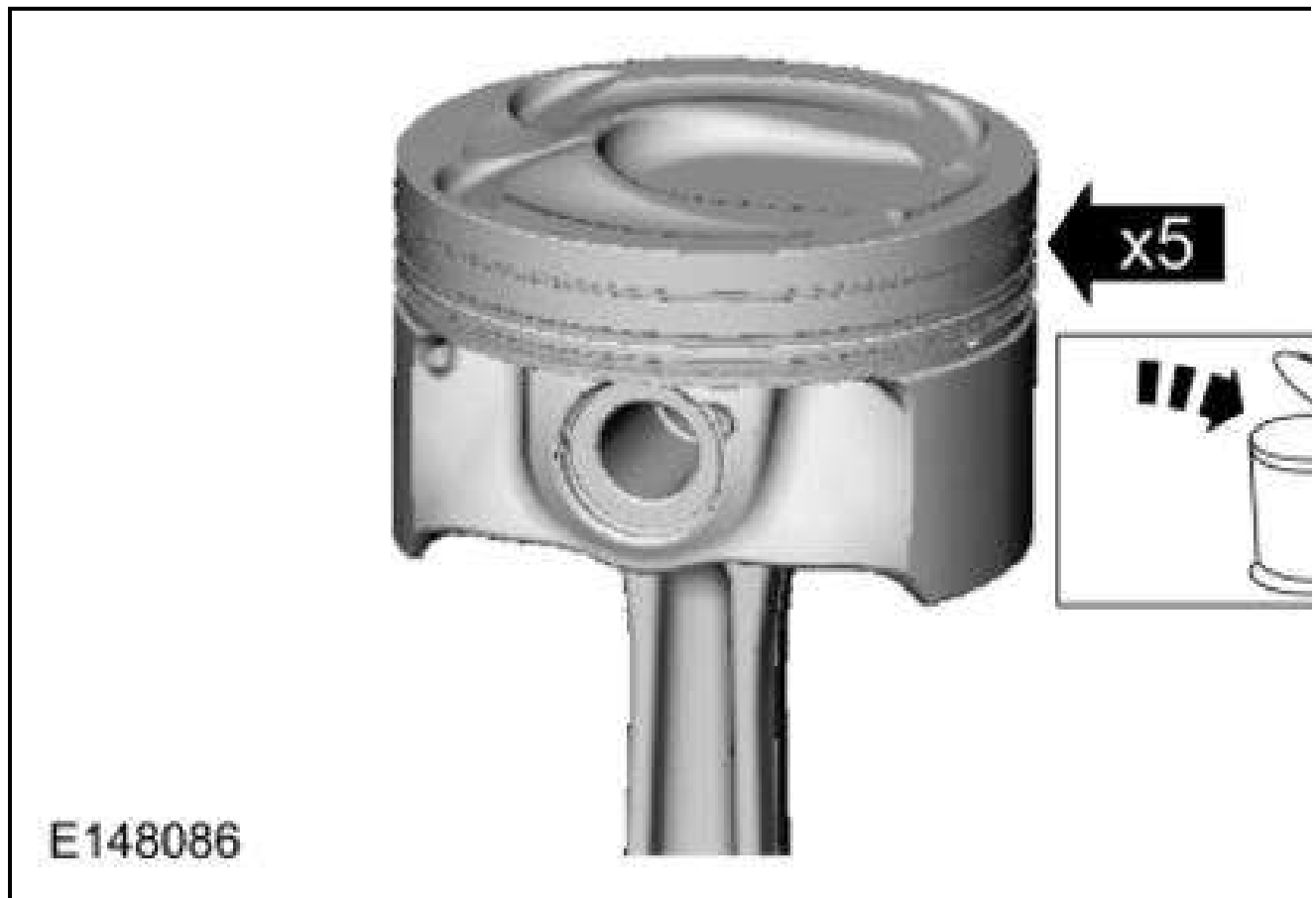
### DISASSEMBLY

**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 reassembly.

**WARNING:** Before beginning any service procedure in this service information, refer to **Safety Warnings** in **GENERAL INFORMATION** . Failure to follow this instruction may result in serious personal injury.

1.

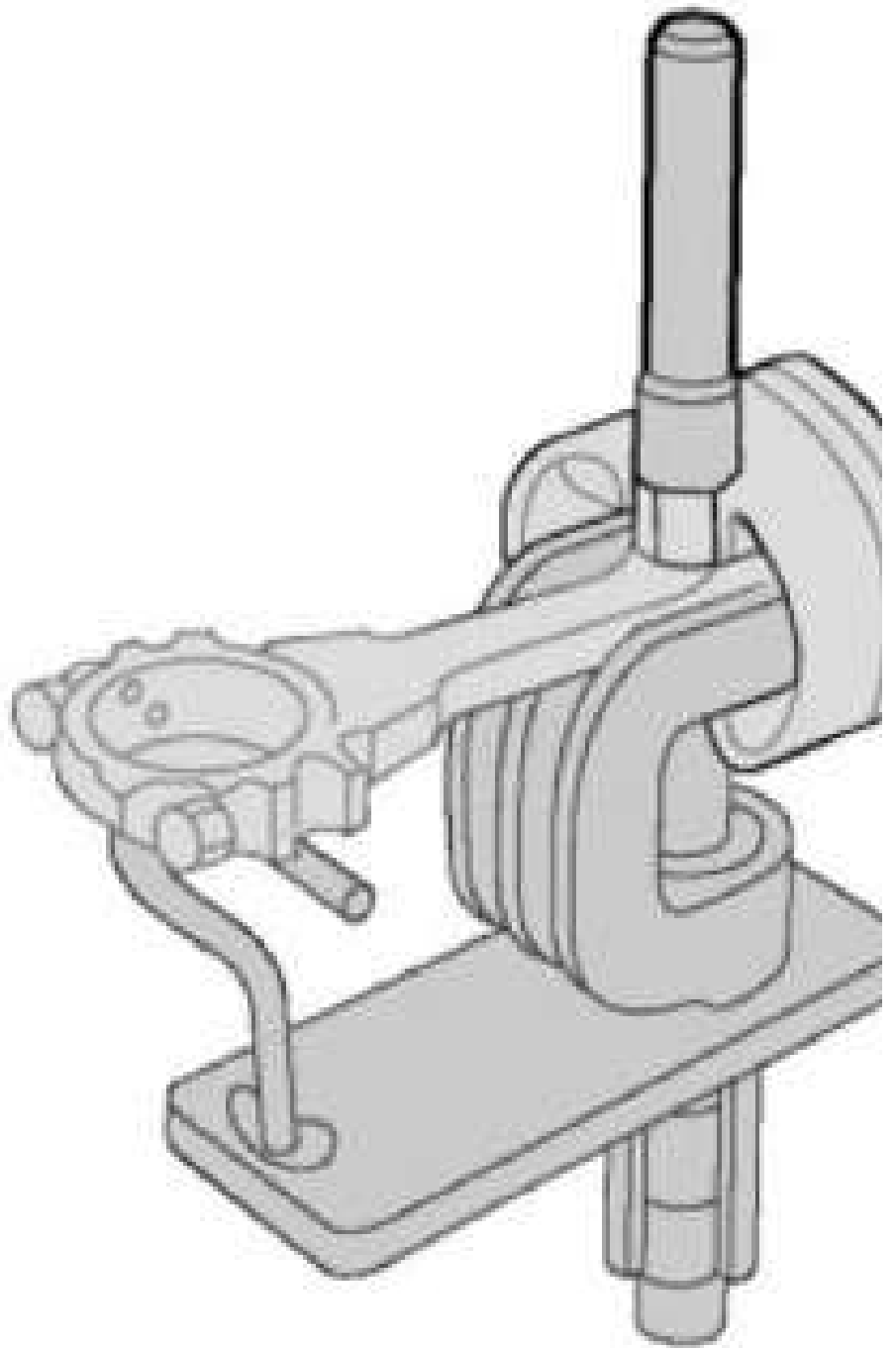
Refer to: **HEALTH AND SAFETY PRECAUTIONS** .



2.

3. Using a suitable fixture and press, remove the piston pin.





E156305



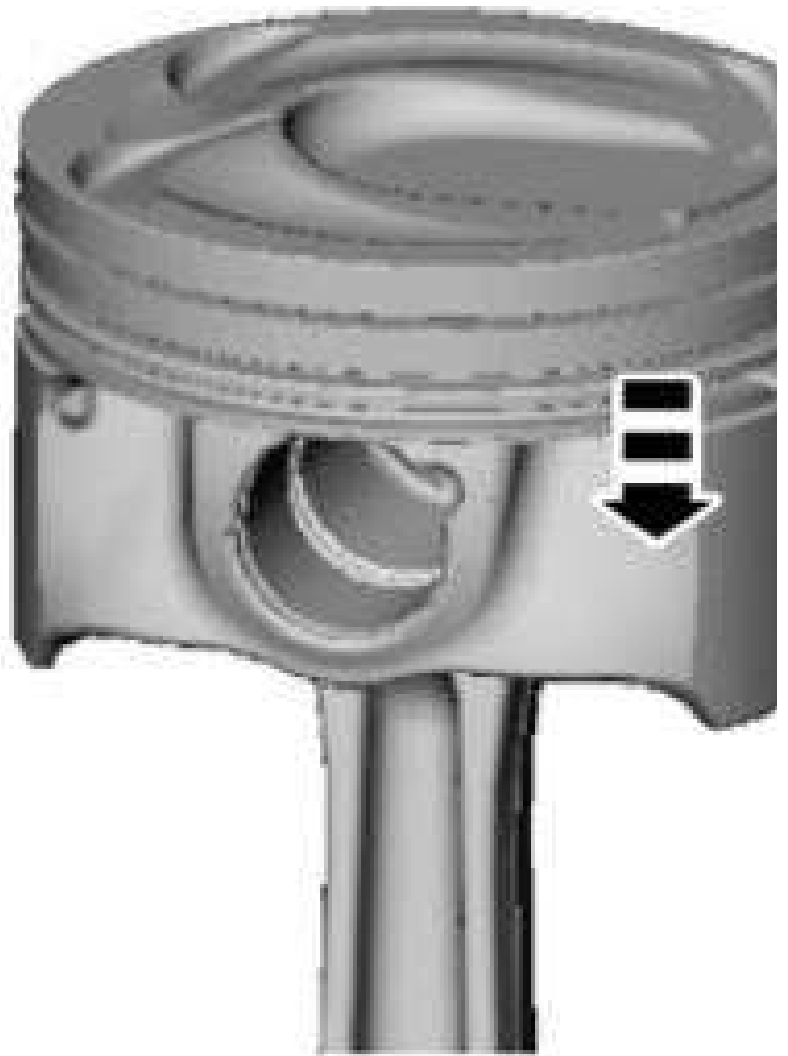
E148088

4.

5. Refer to: PISTON INSPECTION .

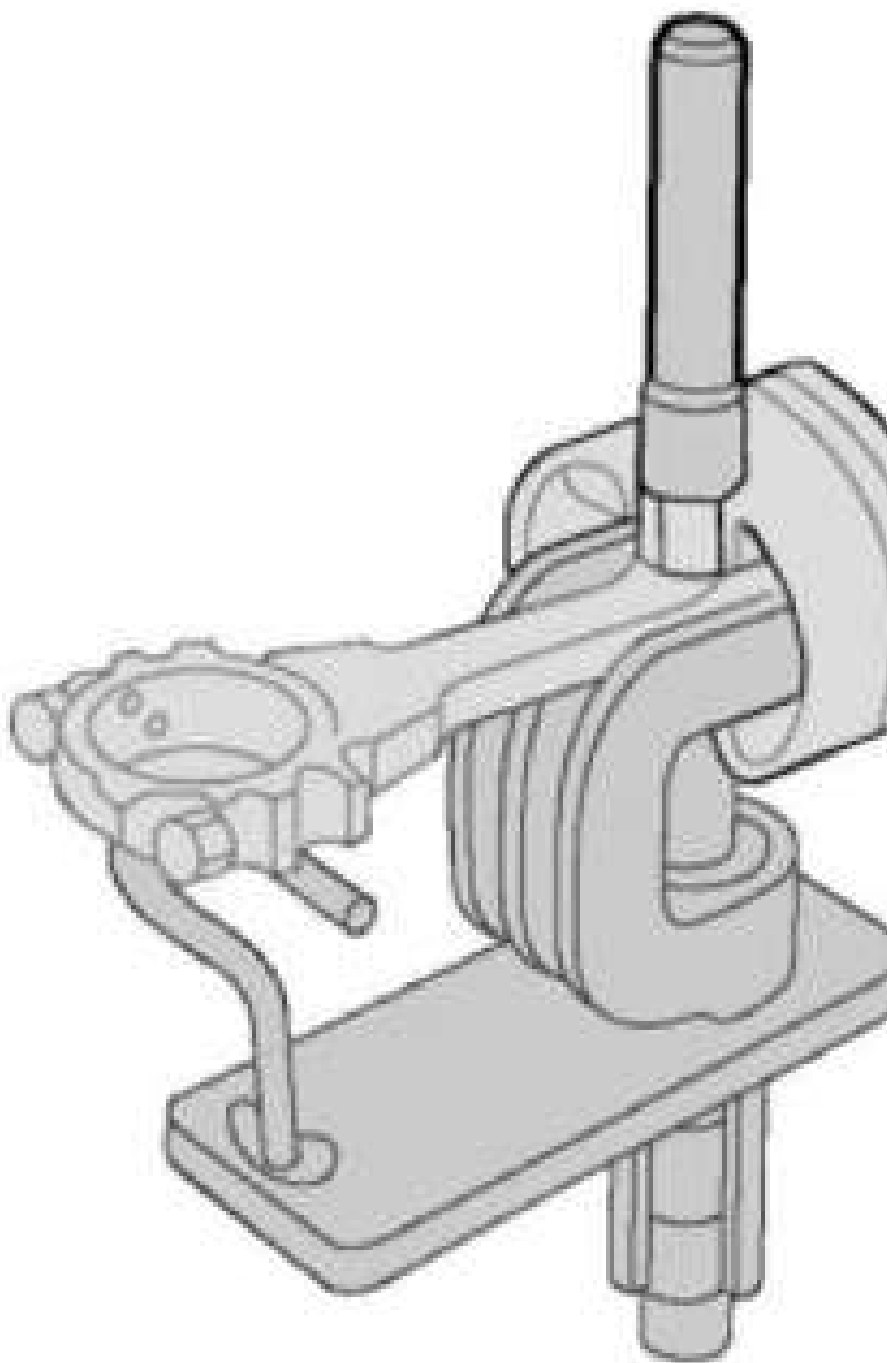
#### ASSEMBLY

1. **NOTE:**      **Align the piston-to-connecting rod orientation marks made during disassembly.**



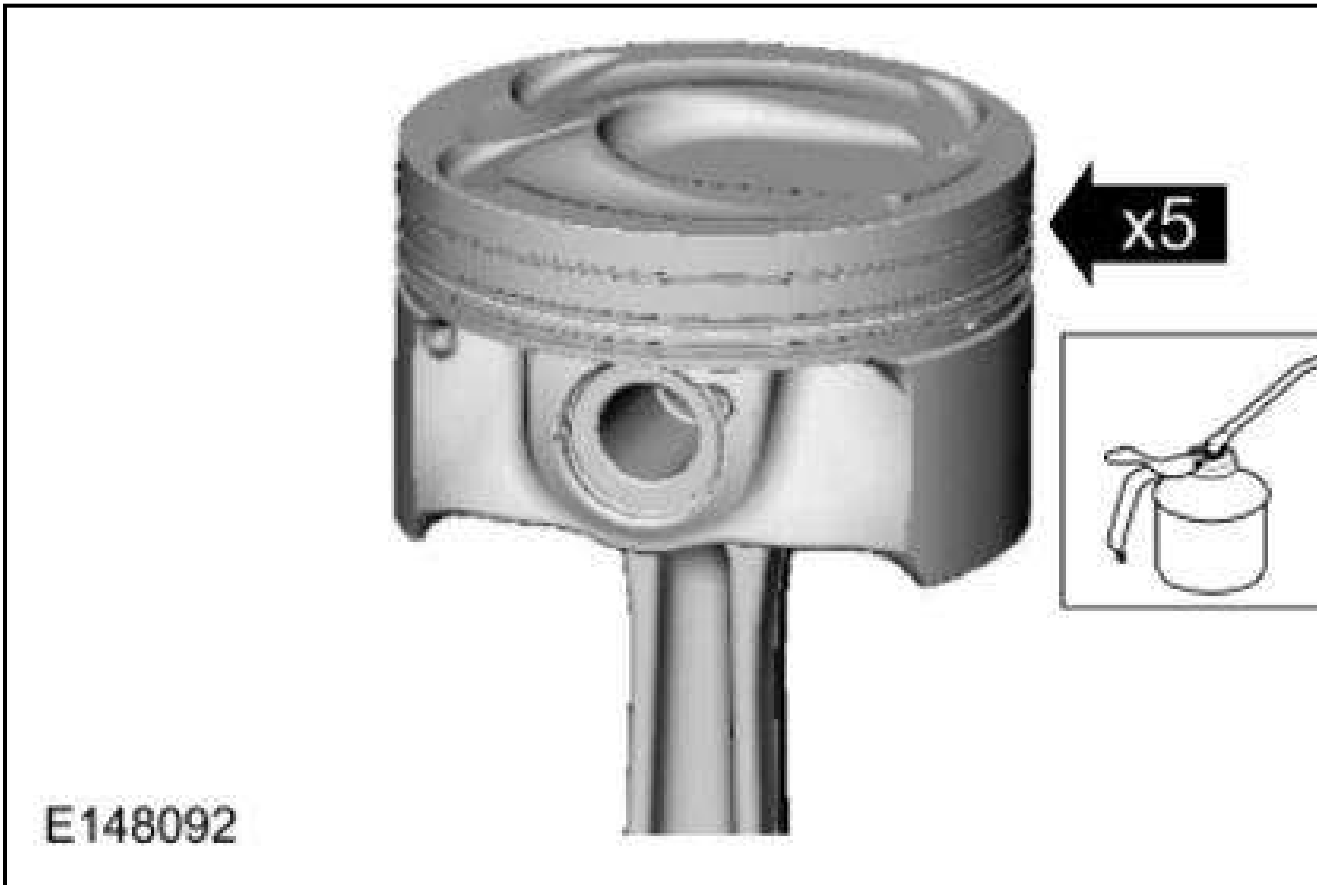
E148089

2. Gradually heat the pin bore side of the connecting rod to approximately 250°C-300°C (482°F-572°F) and immediately install the piston pin.



**E156305**

3. *Material:* Motorcraft® SAE 5W-20 Premium Synthetic Blend Motor Oil (U.S.)/XO-5W20-QSP (U.S.) (WSS-M2C945-A)



4. **NOTE:**      **Align the piston rings on the piston.**
1. Upper oil control segment ring gap location.
  2. Oil control spacer gap location.
  3. Lower oil control segment ring gap location.

