

i01458210

## Inlet and Exhaust Valve Springs - Remove and Install

SMCS - 1108-010

### Removal Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	9U-6195	Valve Spring Compressor	1

#### Start By:

- A. Remove the rocker shaft. Refer to Disassembly and Assembly, "Rocker Shaft and Pushrod - Remove".

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#### NOTICE

**Keep all parts clean from contaminants.**

**Contaminants may cause rapid wear and shortened component life.**

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**Note:** Before you begin the removal of the valve springs, refer to the Specifications Module, "Cylinder Head Valves" topic for appropriate information on the valve springs.

1. Ensure that the piston is at the top center position.

**Note:** If the rocker arm assembly has not been removed, rotate the crankshaft in the normal direction of rotation until the inlet valve of the appropriate cylinder has just opened and the

exhaust valve has not fully closed. If the rocker arm assembly has been removed, go to Step 2.

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### NOTICE

**Do not turn the crankshaft while the valve springs are removed.**

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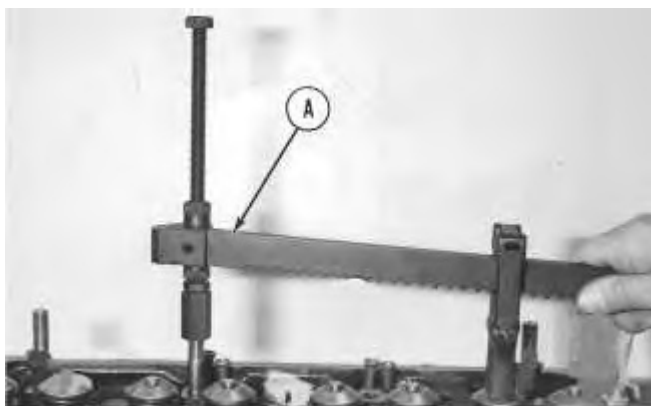


Illustration 1

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- a. Install Tool (A) .
- b. Compress the valve springs in order to open the valve.
- c. Turn the crankshaft until the piston touches the valve.
- d. Continue to turn the crankshaft and release the pressure of Tool (A) until the piston is at the top center position.

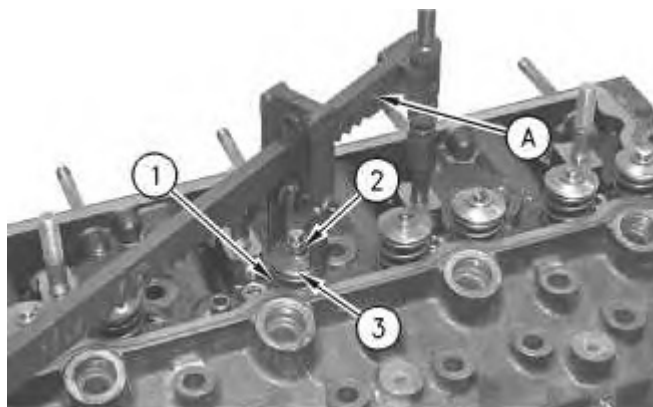


Illustration 2

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2. Install Tool (A) .

3. Compress valve springs (1). Remove two valve keepers (2) .

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**NOTICE**

**Ensure that the valve spring is compressed squarely or damage to the valve stem may occur.**

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4. Release the pressure on Tool (A). Remove valve spring retainer (3) and valve springs (1) .

**Note:** If you are replacing all of the valve springs, the procedure can be done on two cylinders at the same time. The procedure can be done on cylinder 1 and cylinder 4, or on cylinder 2 and cylinder 3.

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**NOTICE**

**Do not turn the crankshaft while the valve springs are removed.**

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## Installation Procedure

Table 2

<b>Required Tools</b>			
<b>Tool</b>	<b>Part Number</b>	<b>Part Description</b>	<b>Qty</b>
<b>A</b>	9U-6195	Valve Spring Compressor	1

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**NOTICE**

**Keep all parts clean from contaminants.**

**Contaminants may cause rapid wear and shortened component life.**

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1. Place the new valve springs into position.

**Note:** Ensure that the closed damper coils are toward the cylinder head if double valve springs are used.

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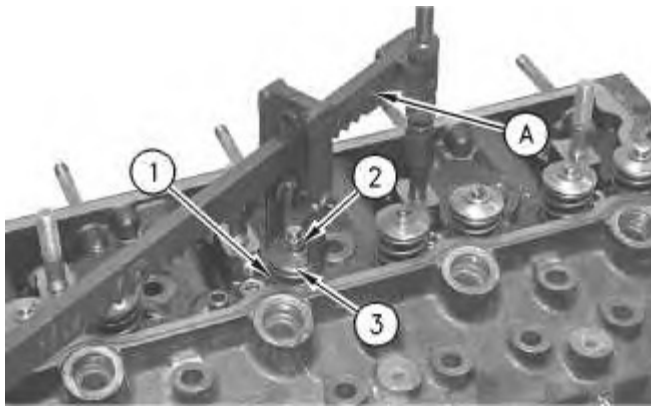


Illustration 3

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2. Install valve spring retainer (3) .
3. Install Tool (A). Compress valve springs (1) .

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### NOTICE

**Ensure that the valve spring is compressed squarely or damage to the valve stem may occur.**

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4. Install two valve keepers (2) .
5. Release the pressure slowly on Tool (A). Remove Tool (A). Strike the top of the valves with a soft faced hammer in order to ensure that the valve keepers are properly installed.

**Note:** If you are replacing all of the valve springs the procedure can be done on two cylinders at the same time. The procedure can be done on cylinder 1 and cylinder 4, or on cylinder 2 and cylinder 3.

**End By:** Install the rocker shaft. Refer to Disassembly and Assembly, "Rocker Shaft and Pushrod - Install".

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