

Product: TRACK-TYPE TRACTOR

Model: D5G TRACK-TYPE TRACTOR RKG

Configuration: D5G XL & D5G LGP Track-Type Tractors RKG00001-UP (MACHINE) POWERED BY 3046 Engine

Disassembly and Assembly 3046 Engine For Caterpillar Built Machines

Media Number -SEN6458-05

Publication Date -01/04/2004

Date Updated -22/04/2004

i01020755

Air Inlet Manifold - Install

SMCS - 1058-012

Installation Procedure

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

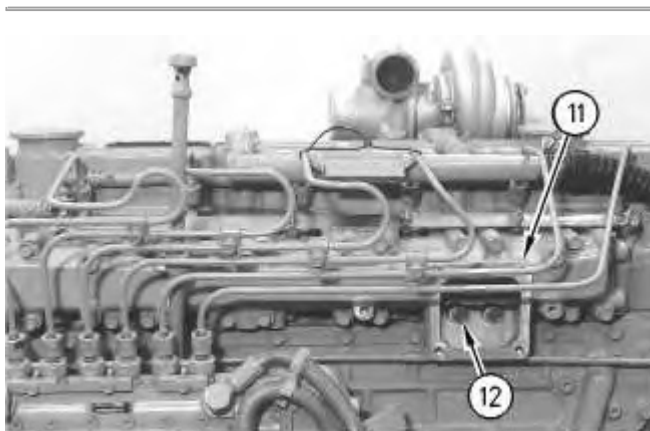


Illustration 1

g00523540

Note: Check condition of the inlet manifold gasket. If the gasket is damaged, use a new part for replacement.

1. Install the gasket and air inlet manifold (11) .
2. Install washers and twenty-four bolts (12) onto air inlet manifold (11) .

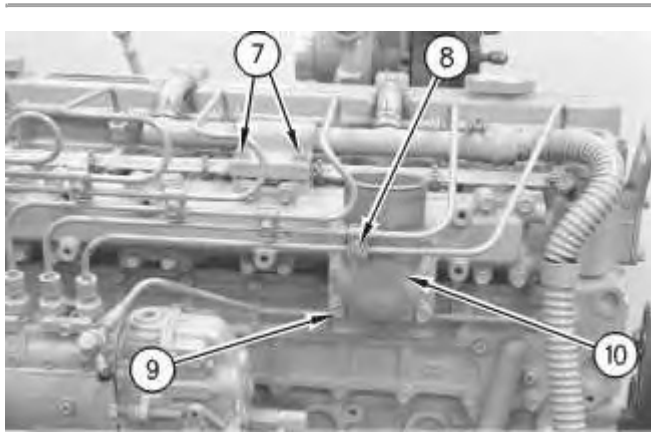


Illustration 2

g00557896

Note: Check condition of the elbow gasket. If the gasket is damaged, use a new part for replacement.

3. Install the gasket and elbow (10) onto air inlet manifold (11) .
4. Install washers and four bolts (9) onto air inlet manifold (11) .
5. Install bolt (8) and the washer onto fuel injection lines.
6. Install two bolts (7) onto air inlet manifold (11) .

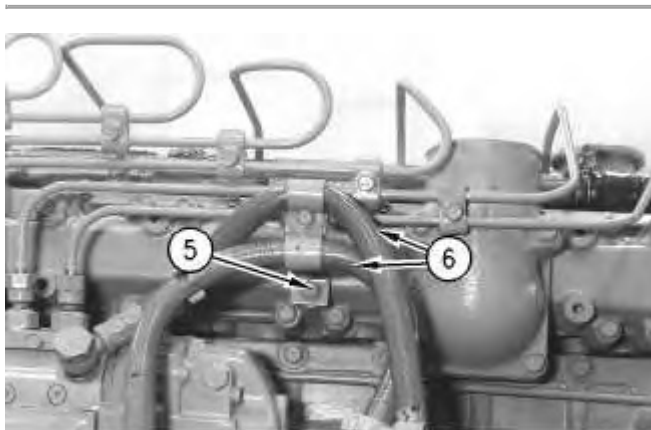


Illustration 3

g00523535

7. If necessary, reposition two hoses (6) onto air inlet manifold (11) .
8. Install the washer and bolt (5) onto air inlet manifold (11) .

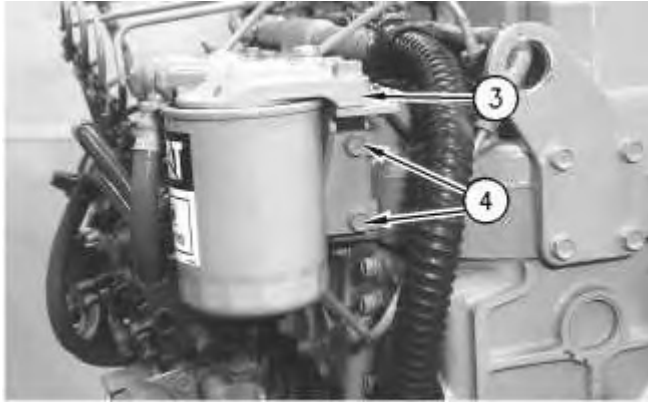


Illustration 4

g00523533

9. Reposition the fuel filter and fuel filter base (3) onto the mounting bracket of air inlet manifold (11) .
10. Install washers and bolts (4) onto the mounting bracket of air inlet manifold (11) .

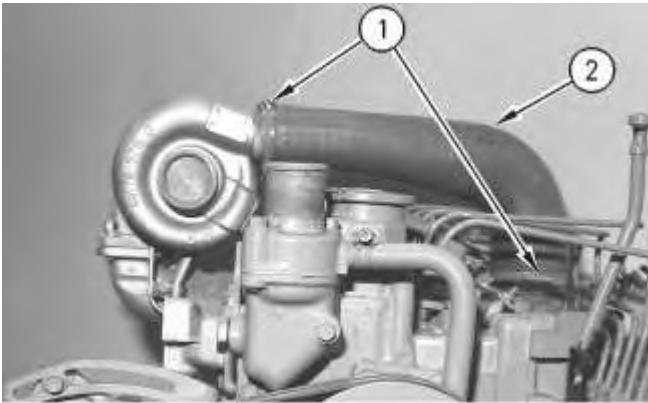


Illustration 5

g00523531

11. Install hose (2) onto air inlet manifold (11) and the turbocharger.
 12. Tighten two hose clamps (1) on hose (2) .
-

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i01646184

Inlet and Exhaust Valve Springs - Remove and Install

SMCS - 1108-010

Removal Procedure

Table 1

| Required Tools | | | |
|----------------|-------------|------------------------------|-----|
| Tool | Part Number | Part Description | Qty |
| A | 5S-1322 | Valve Keeper Installer | 1 |
| B | 9U-6145 | Air Connector ⁽¹⁾ | 1 |
| C | 9U-6144 | Adapter | 1 |
| | 7F-4292 | Valve Spring Compressor | 1 |
| | 6V-5223 | Bolt | 1 |
| | 8T-4121 | Washer | 1 |
| | 6V-5218 | Bolt | 1 |
| D | 8S-2263 | Spring Tester | 1 |

⁽¹⁾ The 9U-6145 Air Connector is part of the 9U-6274 Compression Test Kit. The 9U-6145 Air Connector can be ordered separately.

Start By:

- A. Remove the rocker shaft assembly and the pushrods. Refer to Disassembly and Assembly, "Rocker Shaft and Pushrod - Remove".
 - B. Remove the fuel injection nozzles. Refer to Disassembly and Assembly, "Fuel Injection Nozzles - Remove".
-

NOTICE

Care must be taken to ensure that fluids are contained during performance of inspection, maintenance, testing, adjusting and repair of the product. Be prepared to collect the fluid with suitable containers before opening any compartment or disassembling any component containing fluids.

Refer to Special Publication, NENG2500, "Caterpillar Tools and Shop Products Guide" for tools and supplies suitable to collect and contain fluids on Caterpillar products.

Dispose of all fluids according to local regulations and mandates.

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

Note: The following procedure is for the removal of the inlet valve springs and the exhaust valve springs without removing the cylinder head.

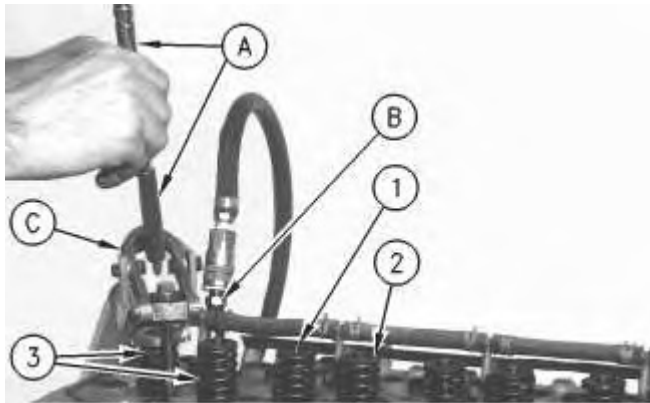


Illustration 1

g00539579

1. Install Tool (B). Attach an air hose to Tool (B) in order to force air pressure into the cylinder. This will hold the valves in position while the inlet and exhaust valve springs are removed and installed.

Note: Maintain air pressure in each cylinder until both of the valve springs are removed and installed.

2. Use Tool (C) to compress the valve spring (3) .

Note: Compress the valve spring evenly in order to avoid damage to the valve stem.

3. Use the magnetic end of Tool (A) to remove cap (1) and the valve keepers.
4. Slowly release the tension on Tool (C) .
5. Remove retainer (2), and spring (3) .

Note: Repeat Steps 1 through 5 in order to remove the remaining valve spring of the same cylinder.



Illustration 2

g00525271

6. Check the valve spring force with Tool (D). Refer to Specifications, "Cylinder Head Valves" for information on the valve springs.
7. Perform Steps 1 through 6 for the removal and installation of the remaining inlet and exhaust valve springs.

Installation Procedure

Table 2

| Required Tools | | | |
|----------------|-------------|-------------------------|-----|
| Tool | Part Number | Part Description | Qty |
| A | 5S-1322 | Valve Keeper Installer | 1 |
| B | 9U-6145 | Air Connector | 1 |
| C | 9U-6144 | Adapter | 1 |
| | 7F-4292 | Valve Spring Compressor | 1 |
| | 6V-5223 | Bolt | 1 |
| | 8T-4121 | Washer | 1 |
| | 6V-5218 | Bolt | 1 |

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

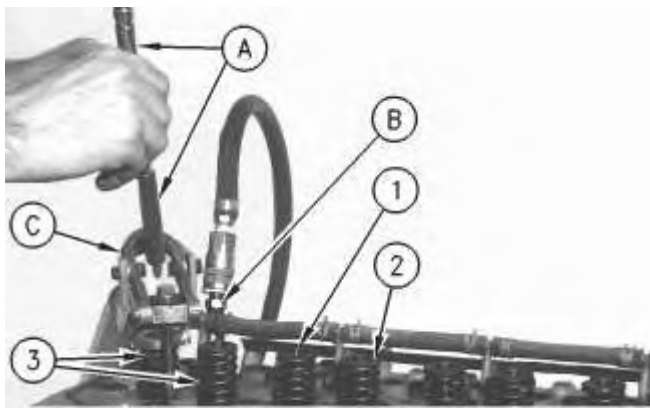


Illustration 3

g00539579

1. Keep an air hose connected to Tool (B) in order to force air pressure into the cylinder. This will hold the valves in position while the inlet and exhaust valve springs are removed and installed.
2. Position valve spring (3) and retainer (2) over the valve stem.
3. Use Tool (C) to compress valve spring (2) .

Note: Compress the valve spring evenly in order to avoid damage to the valve stem.

4. Install the valve keepers.

Note: Tool (A) may be used to install valve keepers.

WARNING

The valve keepers can be thrown from the valve when the valve spring compressor is released. Ensure that the valve keepers are properly installed on the valve stem. To help prevent personal injury, keep away from the front of the valve keepers and valve springs during the installation of the valves.

5. Install cap (1) and slowly release the tension on Tool (C). Tap the top of valve with a soft faced hammer in order to ensure that the valve keepers are properly installed.

Note: Repeat Steps 1 through 5 in order to install the remaining valve spring of the same cylinder.

6. Remove air hose and Tool (B) .
7. Perform Steps 1 through 6 for the installation of the remaining inlet and exhaust valve springs.

End By:

- a. Install the fuel injection nozzles. Refer to Disassembly and Assembly, "Fuel Injection Nozzles - Remove".
 - b. Install the rocker shaft assembly and the pushrods. Refer to Disassembly and Assembly, "Rocker Shaft and Pushrod - Remove".
-

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Media Number -SEN6458-05

Publication Date -01/04/2004

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i01019546

Inlet and Exhaust Valves - Remove and Install

SMCS - 1105-010

Removal Procedure

Table 1

| Required Tools | | | |
|----------------|-------------|----------------------------|-----|
| Tool | Part Number | Part Description | Qty |
| A | 8S-6691 | Cylinder Head Repair Stand | 1 |
| B | 1P-3527 | Valve Spring Compressor | 1 |
| C | 5S-1322 | Valve Keeper Installer | 1 |
| D | 8S-2263 | Spring Tester | 1 |

Start By:

- A. Remove the cylinder head. Refer to Disassembly and Assembly, "Cylinder Head - Remove".

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

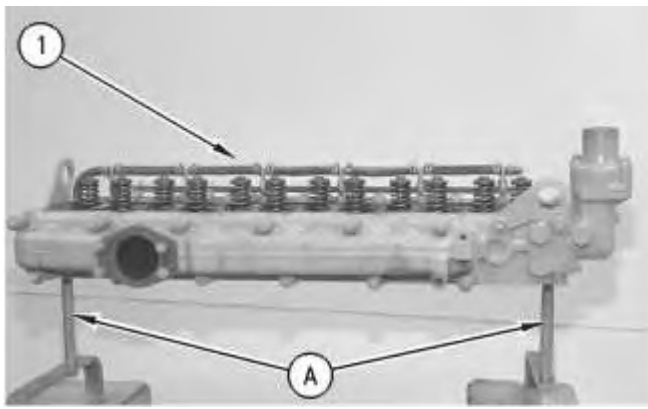


Illustration 1

g00558252

1. Support cylinder head assembly (1) on Tool (A) .

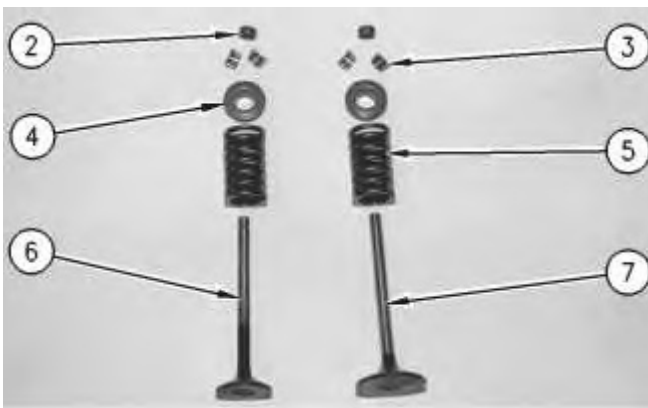


Illustration 2

g00558255

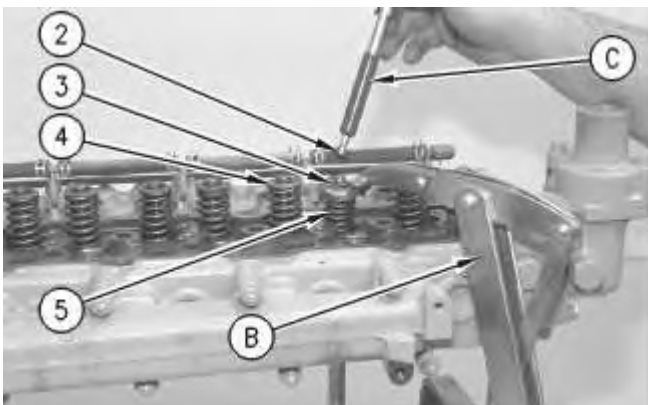


Illustration 3

g00558260

2. Use tool (B) to compress valve spring (5) .

3. Use the magnetic end of tool (C) to remove cap (2) and valve keepers (3). Slowly release the pressure on tool (B) and remove tool (B) .
4. Remove retainer (4) and remove spring (5) .



Illustration 4

g00525271

5. Check the valve spring force with Tool (D). Refer to the Specifications Module, "Cylinder Head Valves" for information on the valve springs.
6. Remove exhaust valve (6) and inlet valve (7) through the bottom of the cylinder head assembly. Put identification marks on the valves for installation purposes.
7. Perform Steps 2 through 6 for the removal of the remaining inlet and exhaust valves from the cylinder head assembly.

Installation Procedure

Table 2

| Required Tools | | | |
|----------------|-------------|----------------------------|-----|
| Tool | Part Number | Part Description | Qty |
| A | 8S-6691 | Cylinder Head Repair Stand | 1 |
| B | 1P-3527 | Valve Spring Compressor | 1 |
| C | 5S-1322 | Valve Keeper Installer | 1 |

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

1. Support cylinder head assembly on Tool (A). Lubricate the inlet and exhaust valves with clean engine oil. Install the inlet and exhaust valves in the original location in the cylinder head.

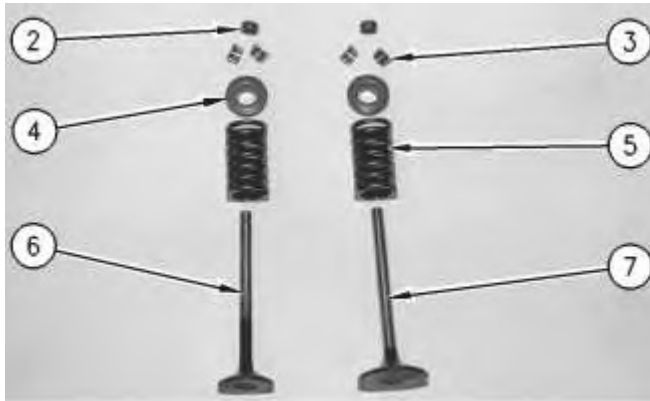


Illustration 5

g00558255

2. Install spring (5) and retainer (4) .
3. Use Tool (B) to compress spring (5). Install valve keepers (3) and cap (2) on the valve stem with Tool (C) .

WARNING

The valve keepers can be thrown from the valve when the valve spring compressor is released. Ensure that the valve keepers are properly installed on the valve stem. To help prevent personal injury, keep away from the front of the valve keepers and valve springs during the installation of the valves.

4. Carefully remove Tool (B). Tap the top of exhaust valve (6) or inlet valve (7) with a soft faced hammer in order to ensure that the valve keepers are properly installed.
5. Repeat Steps 2 through 4 for the installation of the remaining inlet and exhaust valves.

End By: Install the cylinder head. Refer to Disassembly and Assembly, "Cylinder Head - Remove and Install".

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i01573613

Inlet and Exhaust Valve Guides - Remove and Install

SMCS - 1104-010

Removal Procedure

Table 1

| Required Tools | | | |
|----------------|-------------|--------------------|-----|
| Tool | Part Number | Part Description | Qty |
| A | 4C-6366 | Valve Guide Driver | 1 |

Start By:

- A. Remove the inlet and exhaust valves. Refer to Disassembly and Assembly, "Inlet and Exhaust Valves - Remove and Install".

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

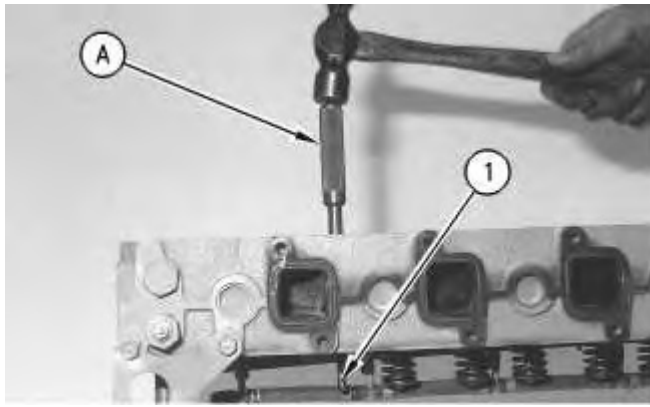


Illustration 1

g00523738

1. Use Tool (A) to remove the inlet and exhaust valve guides (1) from the cylinder head.
2. Repeat Step 1 in order to remove the remaining inlet and exhaust valve guides.

Installation Procedure

Table 2

| Required Tools | | | |
|----------------|-------------|--------------------|-----|
| Tool | Part Number | Part Description | Qty |
| A | 4C-6366 | Valve Guide Driver | 1 |
| B | 4C-6370 | Valve Guide Collar | 1 |

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

1. Put clean engine oil on the outside diameter of the valve guide. Install the valve guide with Tool (A) and Tool (B). The valve guide is driven from the top of the cylinder head.
-

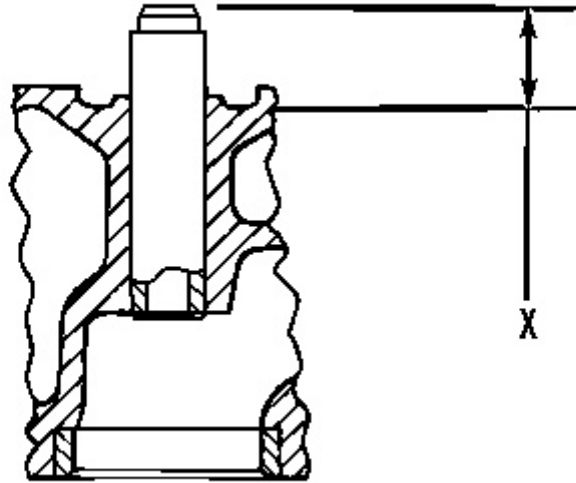


Illustration 2

g00508601

Typical Example

2. The counterbore in Tool (B) installs the valve guide to the correct height. Height (X) from the top of the valve guide to the cylinder head must be 14.00 ± 0.10 mm (0.551 ± 0.004 inch). For more information on the inlet and exhaust valve guides, refer to the Specifications Module, "Cylinder Head Valves".

Note: In order to help prevent damage to the valve guides, Tool (B) must be used during installation.

3. Repeat Steps 1 and 2 for the remaining inlet and exhaust valve guides.

End By: Install the inlet and exhaust valves. Refer to Disassembly and Assembly, "Inlet and Exhaust Valves - Remove and Install".

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i02063397

Inlet and Exhaust Valve Seat Inserts - Remove and Install

SMCS - 1103-010

Removal Procedure

Table 1

| Required Tools | | | |
|----------------|-------------|---------------------------|-----|
| Tool | Part Number | Part Description | Qty |
| A | 166-7441 | Valve Seat Extractor Tool | 1 |

Start By:

- A. Remove the inlet and exhaust valves. Refer to Disassembly and Assembly, "Inlet and Exhaust Valves - Remove and Install".

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.



Illustration 1

g00524540

Typical Example

1. Use the valve seat grinder of Tool (A) in order to notch the valve seat.

Note: For more information on the use of Tool (A), refer to Special Instruction, SMHS7935.



Illustration 2

g00524545

Typical Example

2. Use the valve seat extractor of Tool (A) to remove the inlet and exhaust valve seats.
3. Clean the valve seat in the cylinder head. Remove any rough areas from the valve seat in the cylinder head.
4. Repeat Steps 1 through 3 for the remaining inlet valve seat inserts and exhaust valve seat inserts.

Installation Procedure

Required Tools

| Tool | Part Number | Part Description | Qty |
|------|-------------|---------------------------|-----|
| B | 4C-6371 | Inlet Valve Seat Driver | 1 |
| C | 4C-6372 | Exhaust Valve Seat Driver | 1 |

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.



Illustration 3

g00524547

1. Lower the temperature of the new inlet valve seat inserts. Use Tool (B) to install the new inlet valve seat insert in the cylinder head.



Illustration 4

g00524548

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