

Product: EXCAVATOR

Model: 325-A EXCAVATOR 9ZK

Configuration: 325, 325 L AND 325 LN EXCAVATORS 9ZK00001-UP (MACHINE) POWERED BY 3116 ENGINE

Disassembly and Assembly

446 and 446B Backhoe Loaders, Lexion 450 Combine, 3114 and 3116 Engines, IT18F Integrated Toolcarrier, D6M Track-Type Tractor and 928F, 950F and 950G Wheel Loaders

Media Number -SEN3611-18

Publication Date -01/05/2009

Date Updated -27/05/2009

i01414226

Inlet Manifold - Install

SMCS - 1058-012

Installation Procedure

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

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, "Dealer Service Tool Catalog" for tools and supplies suitable to collect and contain fluids on Cat products.

Dispose of all fluids according to local regulations and mandates.



Illustration 1

g00675794

1. Install a new gasket (6) on the cylinder head.

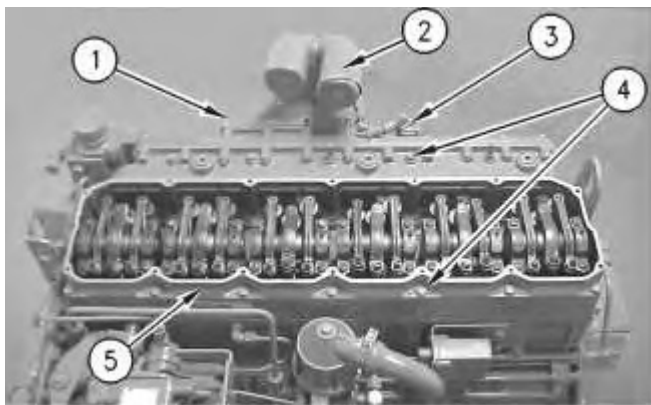


Illustration 2

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2. Position the air inlet manifold (5) on the engine.
3. Install bolts (4). Tighten the bolts to a torque of 28 ± 7 N·m (21 ± 5 lb ft).
4. Install air inlet elbows (2) on air inlet manifold (5).
5. Install bolts (1) and connect air inlet heater solenoid (3).

End By:

- a. Install the valve mechanism cover. Refer to Disassembly and Assembly, "Valve Mechanism Cover - Remove and Install".
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i01943334

Inlet and Exhaust Valves - Remove and Install

SMCS - 1105-010

Removal Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	5S-1330	Valve Spring Compressor	1

Start By:

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

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

Note: For information on the reusability of the inlet valves, the exhaust valves and the springs, refer to Guideline For Reusable Parts And Salvage Operations, SEBF8002, "Valves, Valve Springs, Valve Rotators, and Locks", Guideline For Reusable Parts And Salvage Operations, SEBF8034, "Valve and Valve Spring Specifications", and Guideline For Reusable Parts And Salvage Operations, SEBF8162, "Specifications to Measure and Salvage Cylinder Head Assemblies and Related Components".

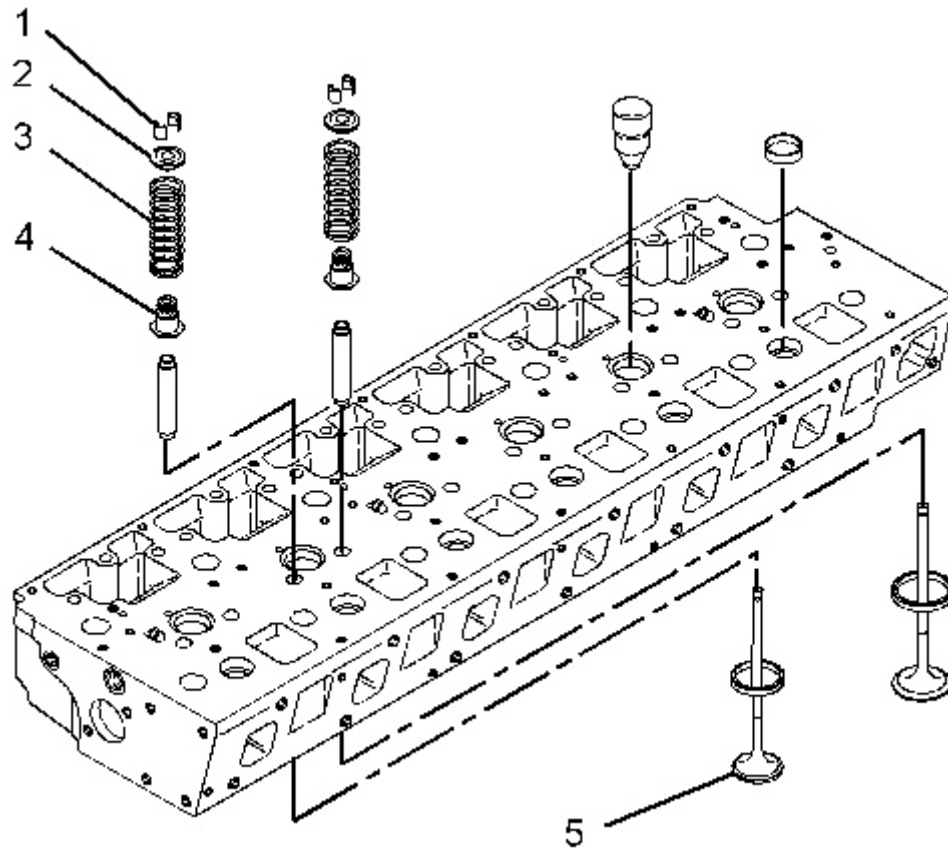


Illustration 1

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Note: The following components of the exhaust valves are different from the components of the inlet valves: spring retainer (2), valve spring (3) and valve (5).

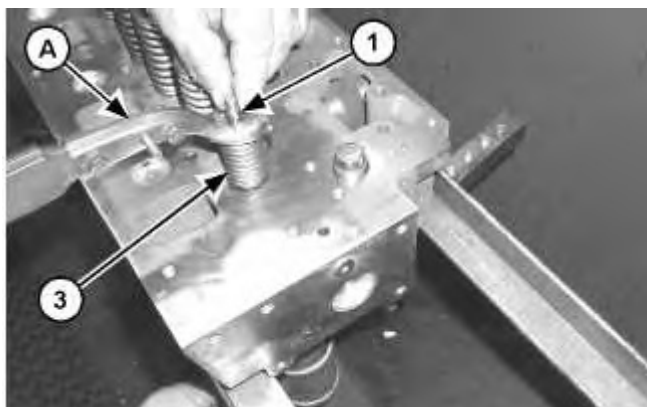


Illustration 2

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1. Use Tooling (A) to compress valve spring (3). Remove retainer lock (1).
2. Remove Tooling (A).
3. Remove spring retainer (2). Remove valve spring (3).

4. Remove valve seal (4) and valve (5).
5. Repeat Steps 1 through 4 in order to remove the remaining inlet valves and exhaust valves.

Installation Procedure

Table 2

Required Tools			
Tool	Part Number	Part Description	Qty
A	5S-1330	Valve Spring Compressor	1

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

Note: For information on the reusability of the inlet valves, the exhaust valves and the springs, refer to Guideline For Reusable Parts And Salvage Operations, SEBF8002, "Valves, Valve Springs, Valve Rotators, and Locks", Guideline For Reusable Parts And Salvage Operations, SEBF8034, "Valve and Valve Spring Specifications", and Guideline For Reusable Parts And Salvage Operations, SEBF8162, "Specifications to Measure and Salvage Cylinder Head Assemblies and Related Components".

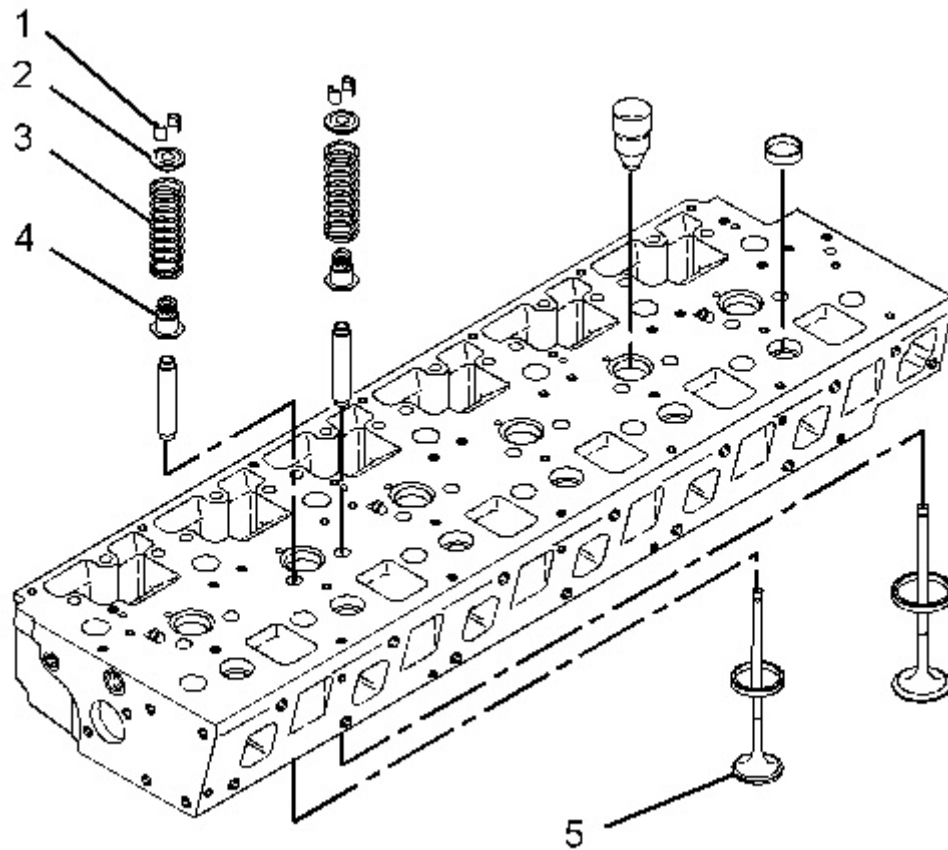


Illustration 3

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1. Lubricate valve (5) with clean engine oil. Install valve (5) in the cylinder head assembly. Install new valve seal (4) against the valve guide.
2. Place the following items on the valve stem: valve spring (3) and spring retainer (2).

! 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.

Note: A small amount of grease can be used to hold retainer locks (1) in position during installation.

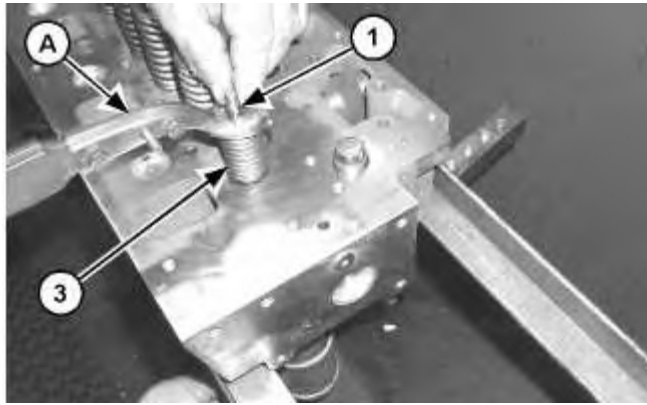


Illustration 4

g01011269

3. Use Tooling (A) to compress valve spring (3). Install retainer lock (1).
4. Repeat Steps 1 through 3 in order to install the remaining inlet valves and exhaust valves.

End By:

- a. Install the cylinder head assembly. Refer to Disassembly and Assembly, "Cylinder Head - Install".
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i01961680

Inlet and Exhaust Valve Guides - Remove and Install

SMCS - 1104-010

Removal Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	1U-7793	Valve Guide Driver ⁽¹⁾	1

⁽¹⁾ Part of 1U-6685 Valve Guide Tool Kit

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.

Note: For information on the reusability of the valve guides, refer to Guideline For Reusable Parts And Salvage Operations, SEBF8218, "Specifications for Cylinder Head Assemblies 3114, 3116, and 3126 Engines" and Guideline For Reusable Parts And Salvage Operations, SEBF8162, "Procedure to Measure and Salvage Cylinder Head Assemblies and Related Components".

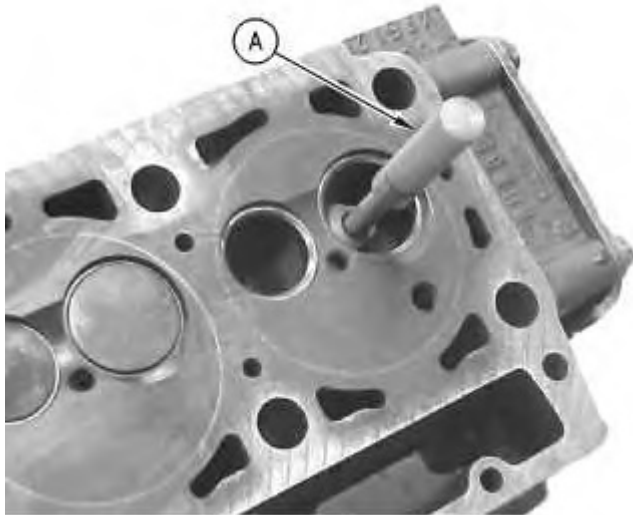


Illustration 1

g00745735

Typical example

1. Use Tooling (A) to remove the inlet valve guides from the cylinder head assembly. Use Tooling (A) to remove the exhaust valve guides from the cylinder head assembly.

Installation Procedure

Table 2

Required Tools			
Tool	Part Number	Part Description	Qty
A	1U-7793	Valve Guide Driver ⁽¹⁾	1
B	1U-7792	Guide Collar ⁽¹⁾	1
C	9U-6895	Valve Guide Driver	1
D	149-4008	Guide Collar	1

⁽¹⁾ Part of **1U-6685** Valve Guide Tool Kit

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

Note: For information on the reusability of the valve guides, refer to Guideline For Reusable Parts And Salvage Operations, SEBF8218, "Specifications for Cylinder Head Assemblies 3114, 3116, and 3126 Engines" and Guideline For Reusable Parts And Salvage Operations, SEBF8162, "Procedure to Measure and Salvage Cylinder Head Assemblies and Related Components".

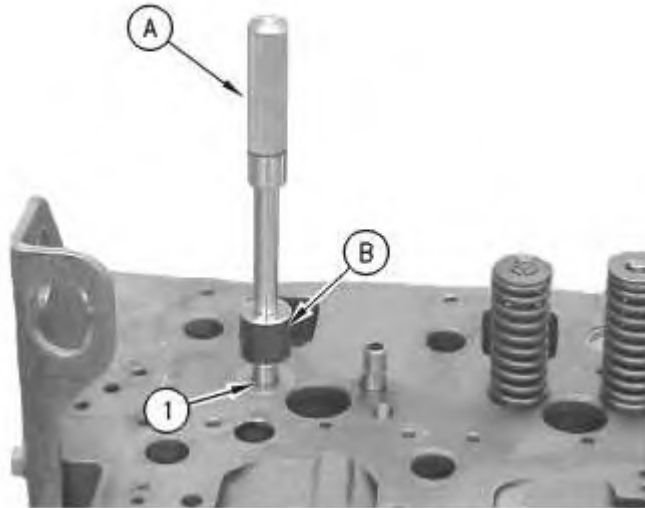


Illustration 2

g00745782

Typical example

1. Position inlet valve guide (1) and tap on the top of inlet valve guide (1). This is done in order to start inlet valve guide (1) into the cylinder head assembly.
 2. Use Tooling (A) and Tooling (B) to install inlet valve guide (1). Install inlet valve guides (1) until tooling (B) contacts the cylinder head.
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