



# Service Repair Manual

## **Models**

D400E II ARTICULATED  
TRUCK

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Product: EJECTOR TRUCK

Model: D400E II EJECTOR TRUCK APF

Configuration: D400E Series II Ejector Truck APF00001-UP (MACHINE) POWERED BY 3406E Engine

## Disassembly and Assembly 3406E and 3456 Engines for Caterpillar Built Machines

Media Number -REN1364-06

Publication Date -01/05/2008

Date Updated -20/05/2008

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# 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
B	8S-2263	Spring Tester	1

### Start By:

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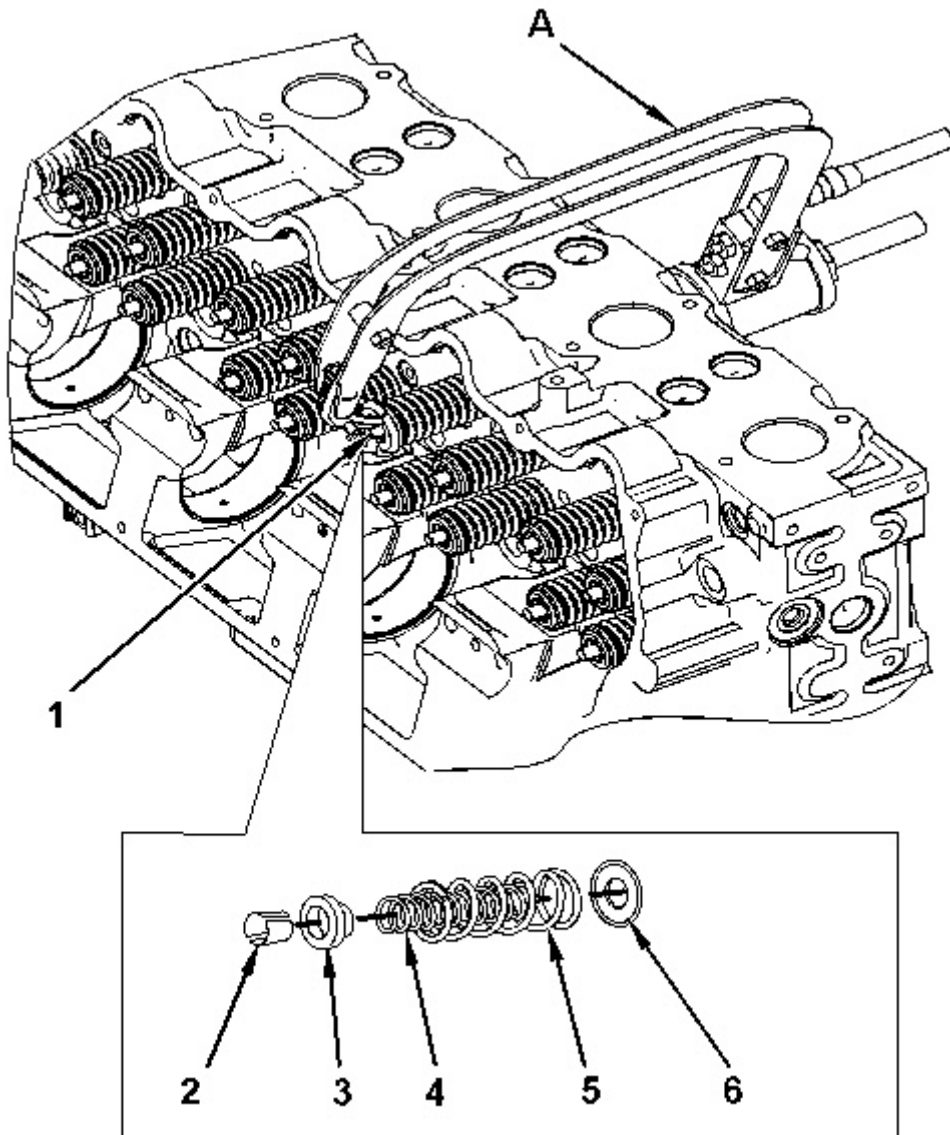


Illustration 1

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**! WARNING**

**Personal injury can result from being struck by parts propelled by a released spring force.**

**Make sure to wear all necessary protective equipment.**

**Follow the recommended procedure and use all recommended tooling to release the spring force.**

1. Install Tooling (A) and compress the valve springs. Remove valve spring retainers (2) from valve (1) .

2. Carefully remove Tooling (A) from valve (1) .
3. Remove valve rotator (3) .
4. Remove outer valve spring (5) and inner valve spring (4) from valve (1) .
5. Remove washer (6) and the valve from the valve guide.
6. Use Tooling (B) to check the valve springs (spring force). Refer to Specifications, "Cylinder Head Valves".
7. Inspect the inlet valves and the exhaust valves. Refer to Specifications, "Cylinder Head Valves".

## Installation Procedure

Table 2

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

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1. Lubricate the inlet valves and the exhaust valves with clean engine oil. Install the inlet valves and the exhaust valves in the cylinder head.
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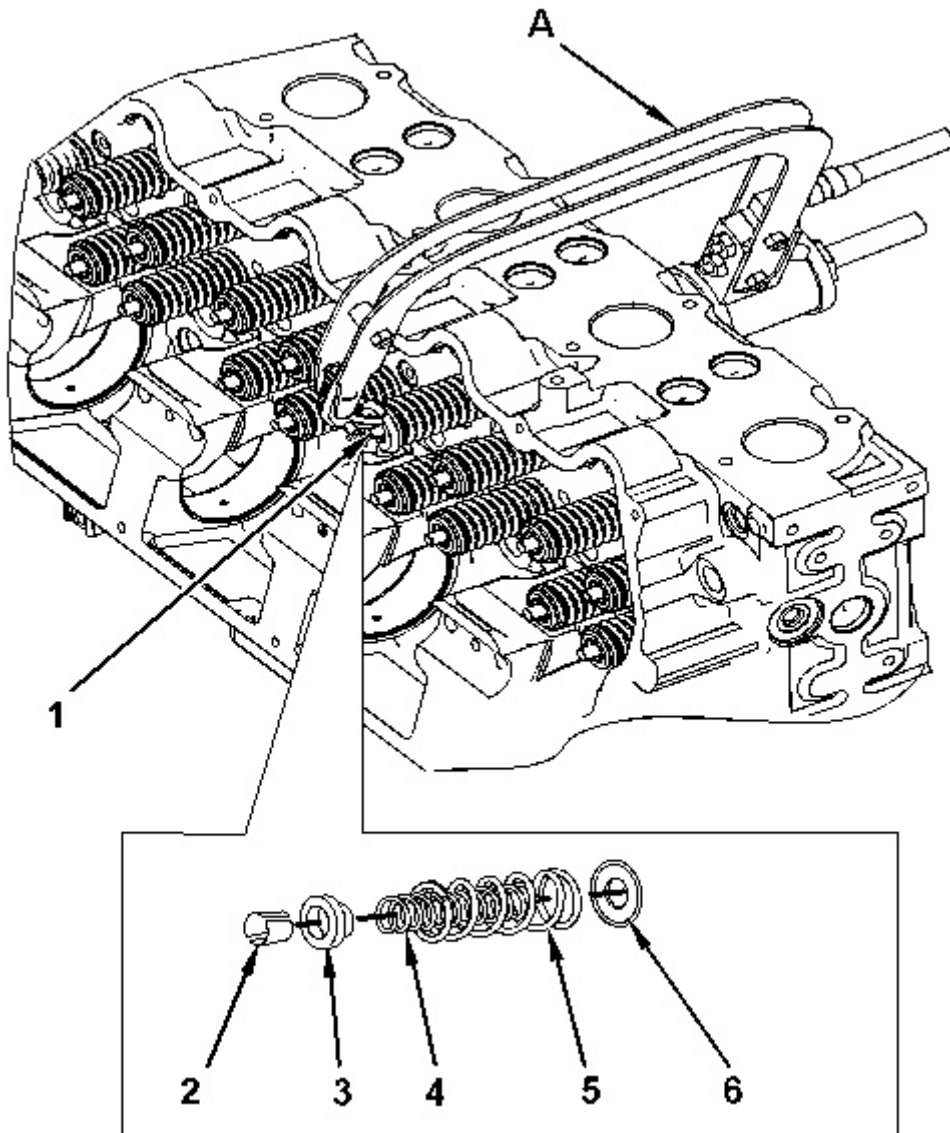


Illustration 2

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**⚠ WARNING**

**Improper assembly of parts that are spring loaded can cause bodily injury.**

**To prevent possible injury, follow the established assembly procedure and wear protective equipment.**

2. Ensure that washer (6) is installed on the valve guide.
3. Install inner valve spring (4) and outer valve spring (5) on valve (1) .
4. Install valve rotator (3) on valve (1) .

5. Use Tooling (A) to compress inner valve spring (4) and outer valve spring (5) . Install valve spring retainers (2) on valve (1) .



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

6. Carefully remove Tooling (A) . Strike the top of the valve with a soft faced hammer in order to ensure that valve spring retainers (2) are properly installed.

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

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Media Number -REN1364-06

Publication Date -01/05/2008

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# Inlet and Exhaust Valve Guides - Remove and Install

SMCS - 1104-010

## Removal Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A <sup>(1)</sup>	9U-6895	Valve Guide Driver	1

<sup>(1)</sup> Part of 9U-7530 Engine Tool Group

### Start By:

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

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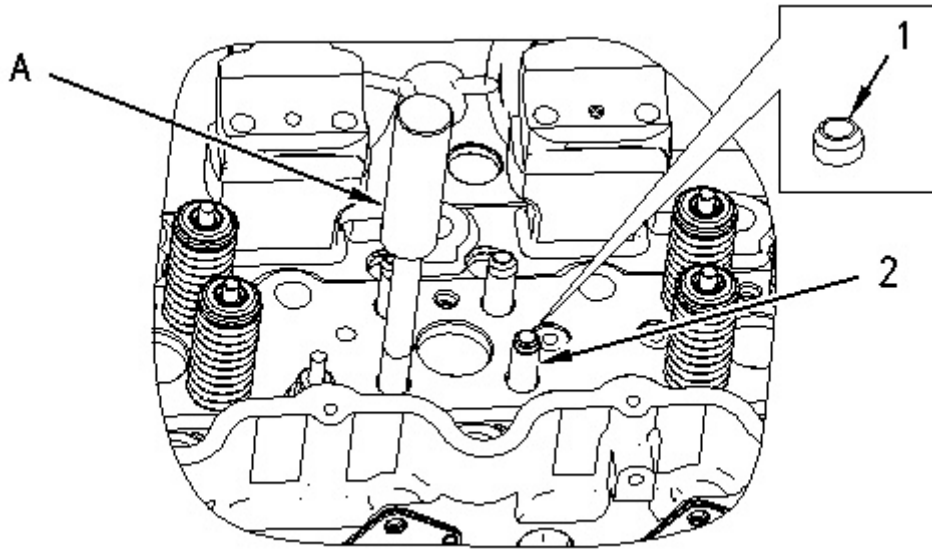


Illustration 1

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1. Remove valve stem seal (1) from valve guide (2) .
2. Use Tooling (A) and a hammer to remove the valve guide from the cylinder head.

## Installation Procedure

Table 2

Required Tools			
Tool	Part Number	Part Description	Qty
A <sup>(1)</sup>	9U-6895	Valve Guide Driver	1
B <sup>(1)</sup>	9U-6894	Guide Collar	1

<sup>(1)</sup> Part of 9U-7530 Engine Tool Group

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