

Product: COMPACT WHEEL LOADER

Model: 910 COMPACT WHEEL LOADER 80U

Configuration: 910 WHEEL LOADER 80U06735-UP (MACHINE) POWERED BY 3204 ENGINE

## Disassembly and Assembly

### 3204 VEHICULAR ENGINE FOR D3 TRACTOR, 931 TRACK-TYPE LOADER

Media Number -REG01219-02

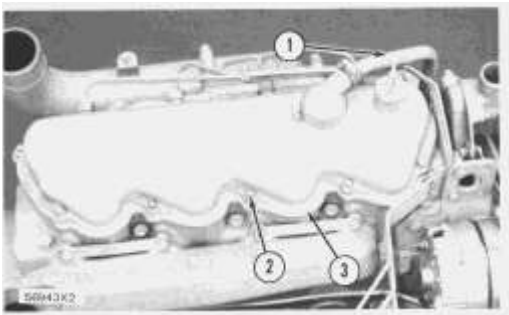
Publication Date -01/08/1978

Date Updated -10/10/2001

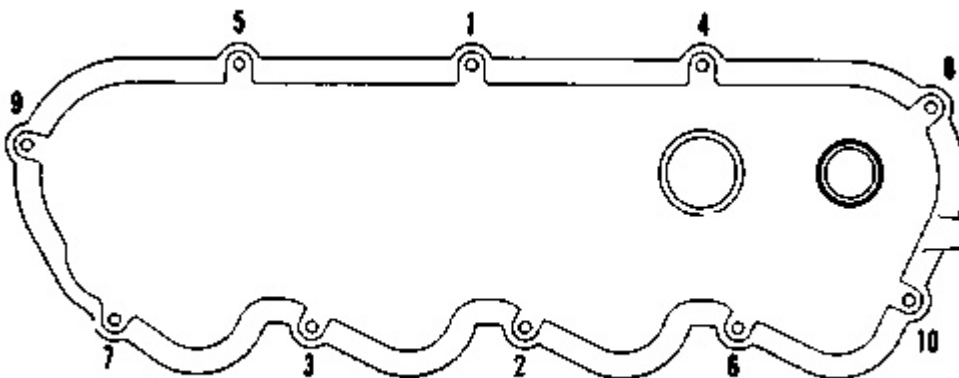
## Valve Cover (Precombustion Chamber)

SMCS - 1107-10

### Remove And Install Valve Cover (Precombustion Chamber)



1. Remove breather tube (1).
2. Remove bolts (3) that hold the valve cover in place on the cylinder head.
3. Remove valve cover (2).
4. Install a new gasket for the valve cover if needed. Put valve cover (2) in position on the engine.



Ae535eX1

**5.** Install bolts (3) that hold the valve cover in place. Tighten the bolts in number sequence to a torque of  $10 \pm 2$  lb.ft. ( $14 \pm 3$  N·m).

**6.** Install breather tube (1).

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## Glow Plugs

SMCS - 1412-11; 1412-12

### Remove Glow Plugs

Tools Needed		A
5P127	Socket	1

start by:

a) remove valve cover

1. Remove wire from glow plug.

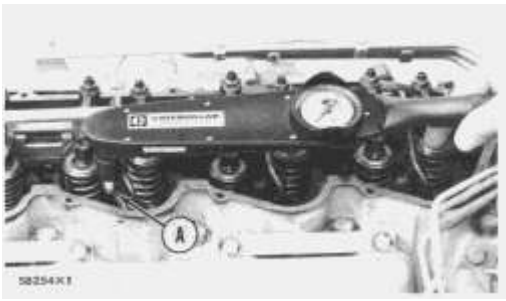


2. Remove glow plug with tool (A).

### Install Glow Plugs

Tools Needed		A
5P127	Socket	1

1. Put 5P3931 Anti-Seize Compound on the threads of glow plug.



**2.** Install glow plug in precombustion chamber and tighten to a torque of  $120 \pm 24$  lb.in. ( $13.6 \pm 2.8$  N·m) with tool (A).

**3.** Install wire on glow plug.

end by:

**a)** install valve cover

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## Fuel Injection Valves

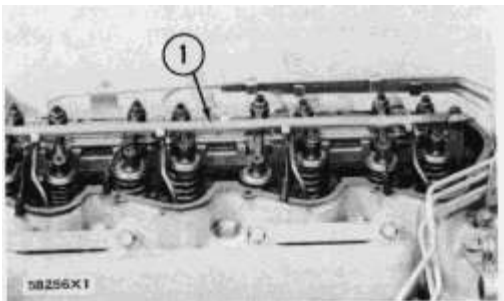
SMCS - 1254-12

### Remove Fuel Injection Valves

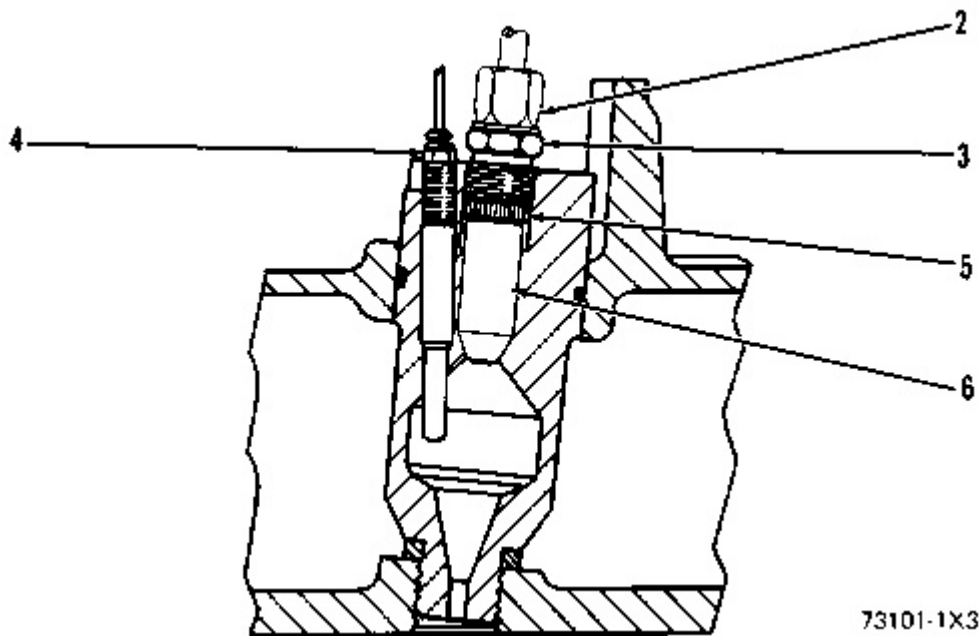
Tools Needed		A	B
5P166	Wrench, Crowfoot	1	
5P144	Socket		1

start by:

a) remove valve cover

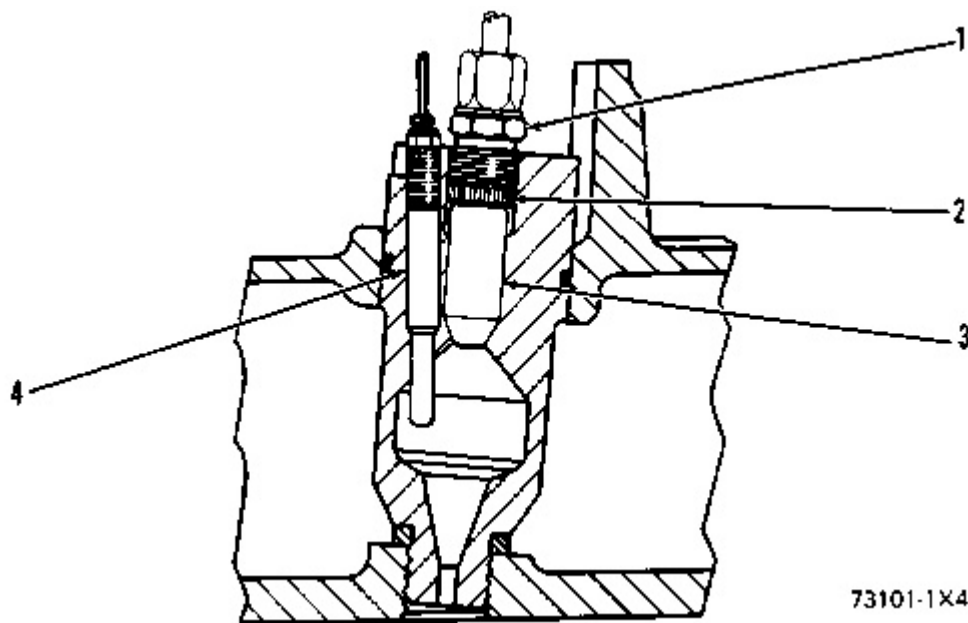


1. Remove glow plug wiring harness (1).



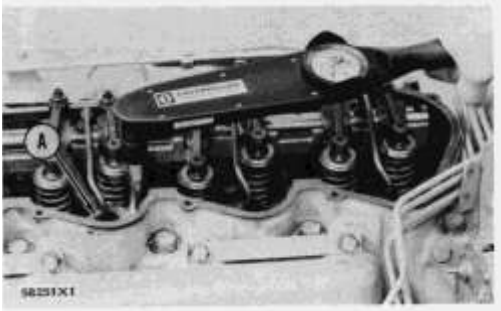
2. Remove the glow plugs (4). See REMOVE GLOW PLUGS.
3. Remove fuel injection lines (2) with tooling (A) and (B).
4. Remove fuel injection valve nut (3).
5. Remove valve body (5) and nozzle from the precombustion chamber.
6. Remove nozzle (6) from body (5).

## Install Fuel Injection Valves



1. Install nozzle (3) finger tight on body (2).
2. Install the valve body and nozzle in the precombustion chamber.

**3.** Install fuel injection valve nut (1) in the precombustion chamber. Tighten the nut to a torque of  $55 \pm 5$  lb.ft. ( $75 \pm 7$  N·m).



**4.** Install the fuel injection lines. Tighten the nuts to a torque of  $30 \pm 5$  lb.ft. ( $40 \pm 7$  N·m) with tooling (A) and (B).

**5.** Install glow plugs (4). See INSTALL GLOW PLUGS.

**6.** Install the glow plug wiring harness.

end by:

**a)** install valve cover

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## Precombustion Chambers

SMCS - 1106-11; 1106-12

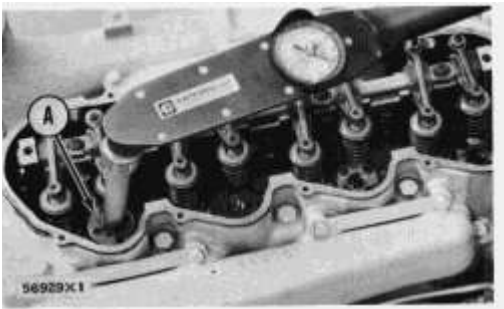
### Remove Precombustion Chambers

Tools Needed		A
5P125	Tool Assembly	1

start by:

a) remove fuel injection valves

1. Remove coolant from cooling system.



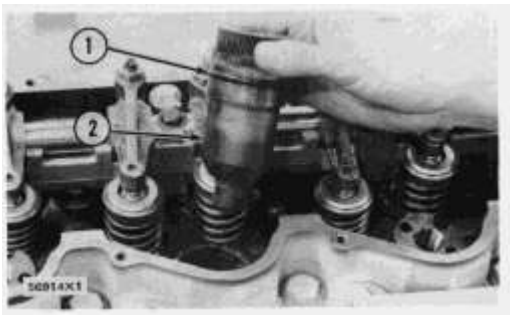
2. Remove precombustion chamber with tool (A).

3. Remove the precombustion chamber and gasket. Remove the O-ring seal from chamber.

### Install Precombustion Chambers

Tools Needed		A
5P125	Tool Assembly	1





1. Install new O-ring seal (1) on precombustion chamber (2).
2. Put 5P3931 Anti-Seize Compound on the threads of the chamber.
3. Install gasket on chamber.
4. Put liquid soap on O-ring seal (1) and in the bore in the cylinder head.
5. Install chamber in head with tool (A). Tighten chamber to  $150 \pm 10$  lb.ft. ( $205 \pm 14$  N·m).

end by:

- a) install fuel injection valves
-

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## **Disassembly and Assembly**

### **3204 VEHICULAR ENGINE FOR D3 TRACTOR, 931 TRACK-TYPE LOADER**

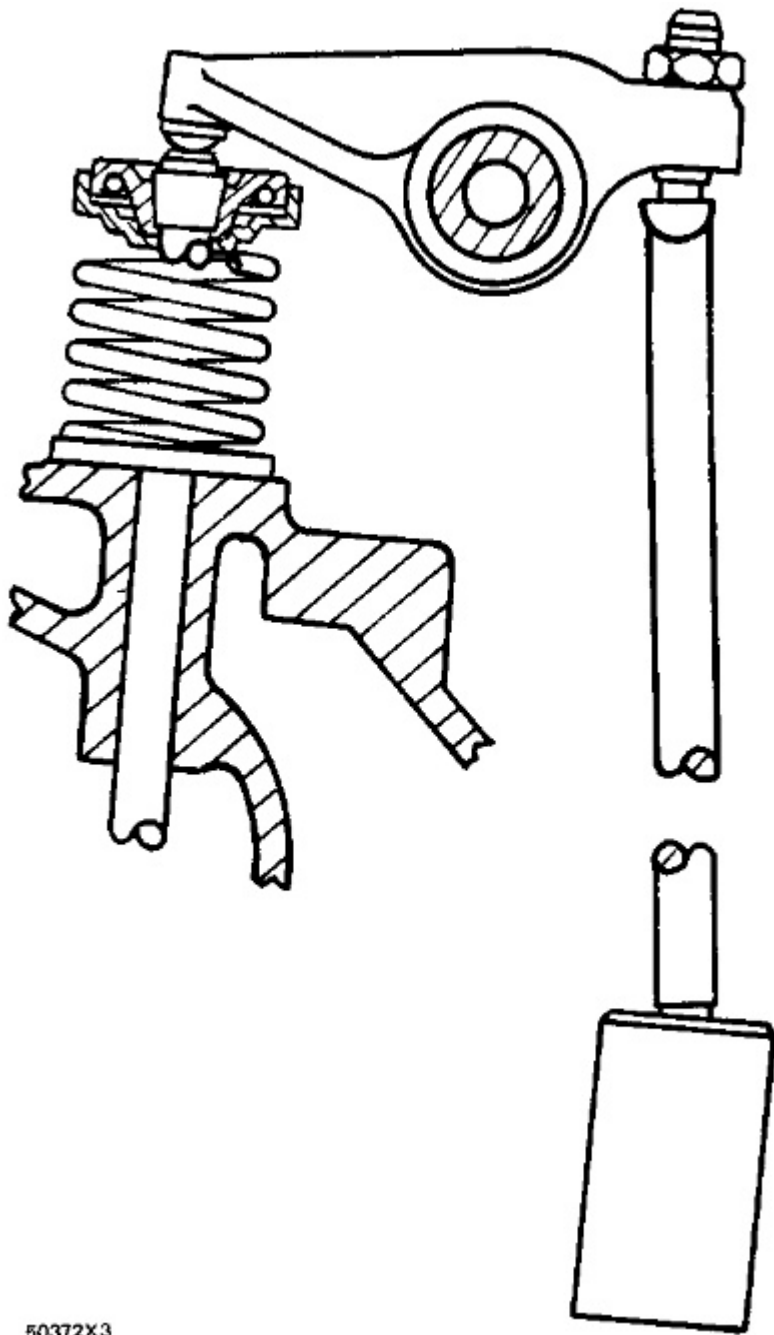
Media Number -REG01219-02

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## **Rocker Shaft and Push Rods (Precombustion Chambers)**

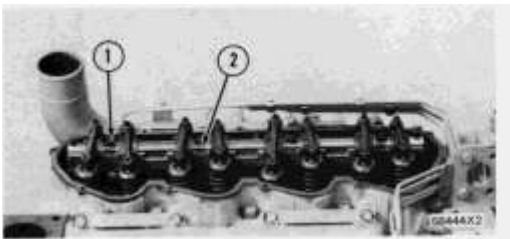
SMCS - 1102; 1108-11; 1208-12



50372X3

## Rocker Shaft And Push Rods (Precombustion Chamber)

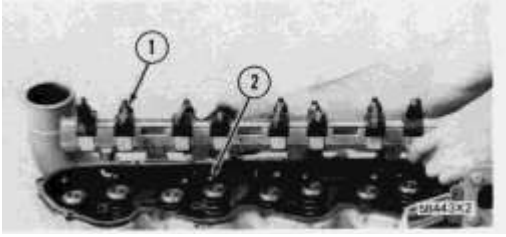
1. Remove glow plug wire harness and the inner fuel lines. See REMOVE FUEL INJECTION VALVES.



2. Remove four bolts (1) and locks (2). Remove rocker shaft.

3. Remove the push rods.

## Install Rocker Shaft And Push Rods (Precombustion Chamber)



1. Install push rods (2).

2. Put the rocker shaft in position on the engine. Install the four bolts that hold the rocker shaft in position. Tighten the bolts to a torque of  $18 \pm 5$  lb.ft. ( $24 \pm 7$  N·m).

3. Make adjustment until the intake valve clearance is .015 in. (0.38 mm) and the exhaust valve clearance is .025 in. (0.64 mm). Tighten nuts (1) to a torque of  $24 \pm 5$  lb.ft. ( $30 \pm 7$  N·m).

4. Install the inner fuel lines and the glow plug wiring harness. See INSTALL FUEL INJECTION VALVES.

end by:

a) install valve cover

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## Disassembly and Assembly

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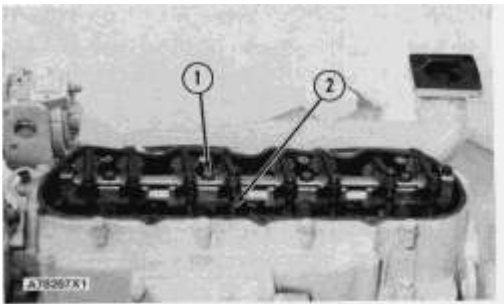
## Rocker Shaft And Push Rods (Direct Injection)

SMCS - 1102; 1208-11; 1208-12

### Remove Rocker Shaft And Push Rods (Direct Injection)

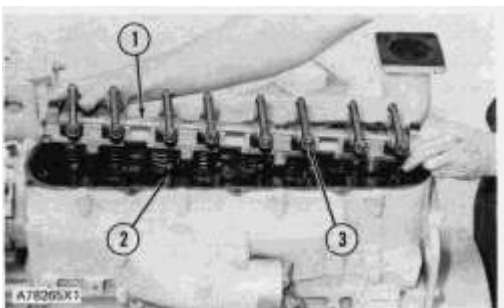
start by:

a) remove valve cover



1. Remove bolts (1) from rocker shaft and remove rocker shaft. Remove push rods (2).

### Install Rocker Shaft And Push Rods (Direct Injection)



1. Install push rods (2). Put rocker shaft (1) in position on the engine. Install the bolts that hold the rocker shaft in position. Tighten the bolts to a torque of  $18 \pm 5$  lb.ft. ( $24 \pm 7$  N·m).

2. Make adjustment until the intake valve clearance is .015 in. (0.38 mm) and the exhaust valve clearance is .025 in. (0.64 mm). Tighten nuts (3) to a torque of  $24 \pm 5$  lb.ft. ( $30 \pm 7$  N·m).

end by:

**a)** install valve cover

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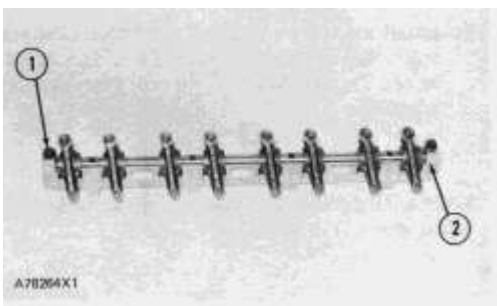
### Rocker Shaft

SMCS - 1102-16; 1102-15

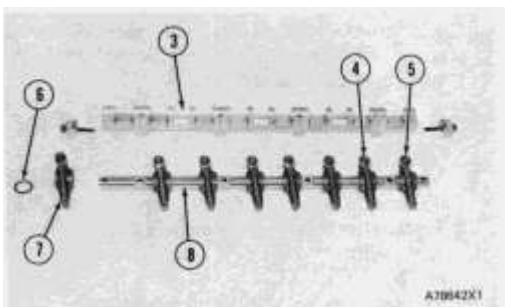
### Disassemble Rocker Shaft

start by:

a) remove rocker shaft and push rods



1. Remove bolts (1) and locks (2) from the bracket.



2. Remove shaft (8) from bracket (3).

3. Remove washers (6) and rocker shaft assemblies (7) from shaft (8).

4. Remove adjustment screws (4) and nuts (5) from rocker arm assemblies.

5. Inspect the ball end of the adjusting screw and valve contact surface of rocker arm for wear and make a replacement if needed.

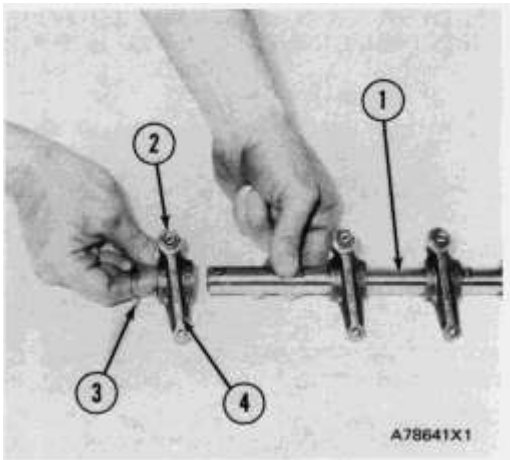
# Assemble Rocker Shaft

1. Make sure the oil holes in the rocker arm assemblies, rocker shaft and bracket are clean and free of all dirt and foreign material.

2. Measure the bore of the bushing in each of the rocker arms. The bore must be  $.8603 \pm .0008$  in. ( $21.852 \pm 0.020$  mm). The maximum permissible bore is .8630 in. (21.920 mm).

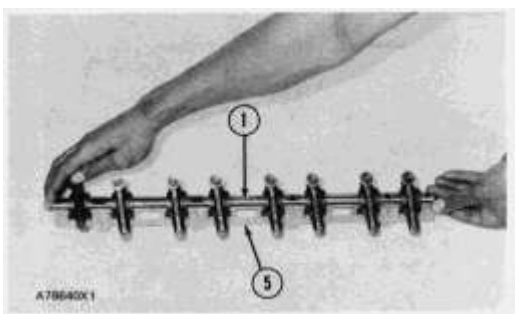
**NOTE:** Make a replacement of the arm and bushing as a unit if the bore is not correct. The arms and bushings can not be ordered separately.

3. Measure the diameter of the shaft at each of the rocker arm locations. The diameter must be .8580 to .8588 in. (21.793 to 21.814 mm). The minimum permissible diameter is .8570 in. (21.768 mm).



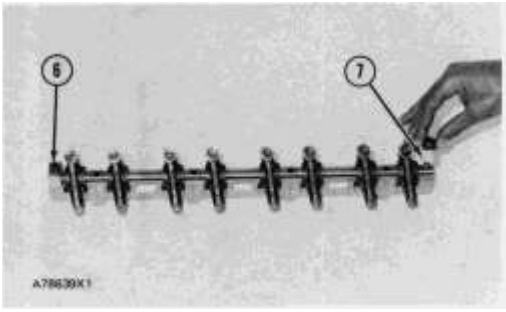
4. Install the screws and nuts (2) into rocker arm assemblies (4). Turn the screws until they are .44 in. (11.2 mm) below the bottom of the rocker arm assemblies.

5. Install the rocker arm assemblies and washers (3) on shaft (1) as shown.



6. Put shaft (1) and the rocker arm assemblies in position on bracket (5) with the adjustment screws on the opposite side as the oil hole on the bottom of the bracket.





7. Make sure the flat surfaces on shaft (1) are turned up. Install locks (7), the washers and bolts (6). Tighten the bolts to a torque of  $18 \pm 5$  lb.ft. ( $24 \pm 7$  N·m).

end by:

a) install rocker shafts and push rods

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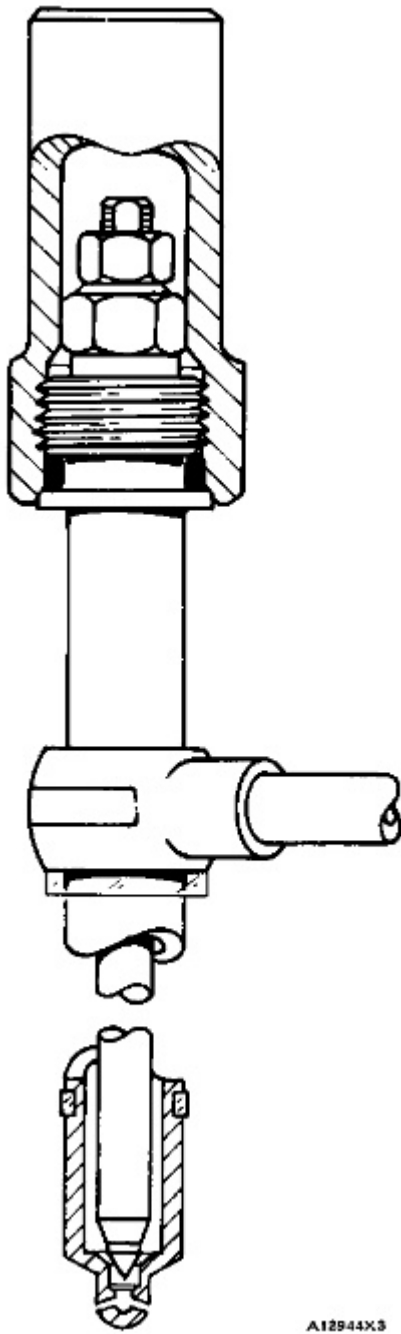
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## **Fuel Injection Nozzles**

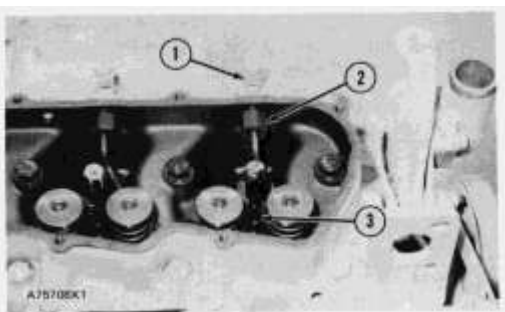
SMCS - 1254-12; 1254-15; 1254-16; 1254-11



## Remove Fuel Injection Nozzles

start by:

a) remove rocker shaft and push rods



1. Disconnect fuel injection nozzle (2) from adapter (1).
2. Remove bolt (3), spacers and clamp that holds the fuel injection nozzle in place.

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### NOTICE

**Never use force to remove the fuel injection nozzles. If necessary, turn and pull the fuel injection nozzle out of the cylinder head.**

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3. Pull adapter (1) out until fuel injection nozzle can be removed. Remove fuel injection nozzle (2).

## Install Fuel Injection Nozzles

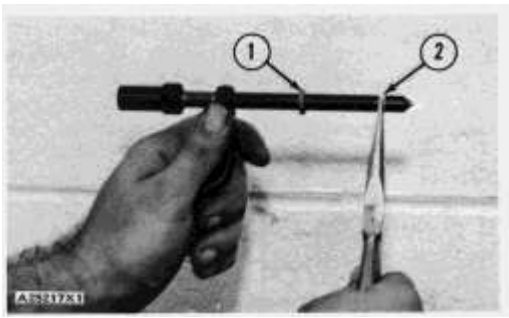
	Tools Needed	A	B	C
8S2242	Nozzle Test Group	1		
8S2252	Carbon Seal Installation Tool		1	
5P166	Wrench			1

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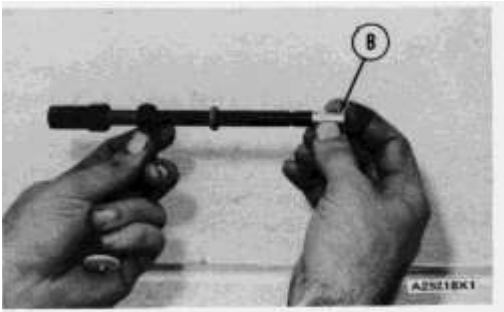
### NOTICE

**Before the fuel injection nozzles are installed check for fuel leakage, the pressure at which the injection nozzle opens, and the amount of fuel (spray pattern) that comes out of the nozzle with tool (A). See TESTING FUEL INJECTION NOZZLES in TESTING AND ADJUSTING.**

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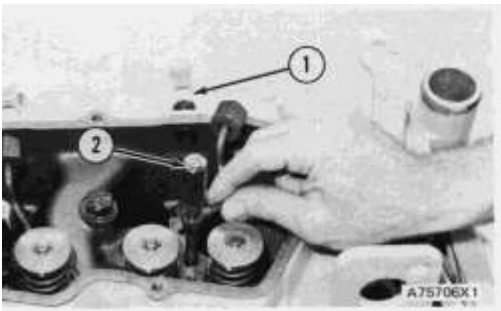


1. Remove carbon seal dam (2) with pliers. Remove compression seal (1).

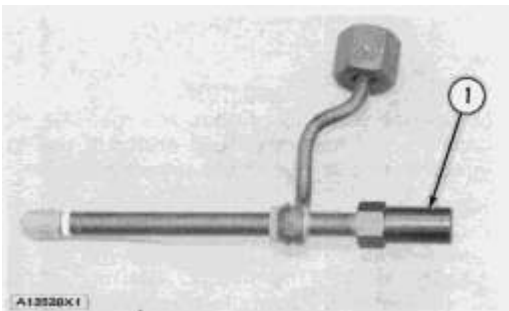


2. Install a new compression seal on the nozzle. Install a new carbon seal dam with tool (B).

3. Make sure the bore in the cylinder head and the fuel inlet fittings are clean.



4. Install fuel injection nozzle (2) in the head. Push and turn to install the nozzle into its correct position.



5. Put engine oil on the bore in the head for adapter (1). Push adapter (1) in position and connect fuel injection nozzle to the adapter. Tighten the nut to a torque of  $30 \pm 5$  lb.ft. ( $40 \pm 7$  N·m) with tool (C).

**NOTE:** While the nut is tightened, hold the adapter with a wrench  $90^\circ \pm 2^\circ$  with the centerline of the fuel injection nozzle.

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