

Product: WHEEL LOADER

Model: 926 WHEEL LOADER 8NB

Configuration: 926E WHEEL LOADER 8NB02452-UP (MACHINE) POWERED BY 3204 ENGINE

Disassembly and Assembly 3204 VEHICULAR ENGINES

Media Number -SEN3230-00

Publication Date -01/10/1985

Date Updated -30/11/2001

Cylinder Head Assembly

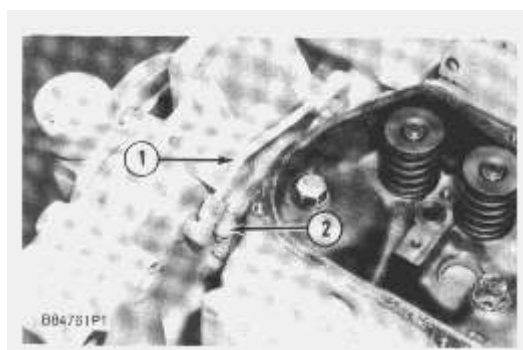
SMCS - 1100-011; 1100-012; 1100-015; 1100-016

Remove Cylinder Head Assembly

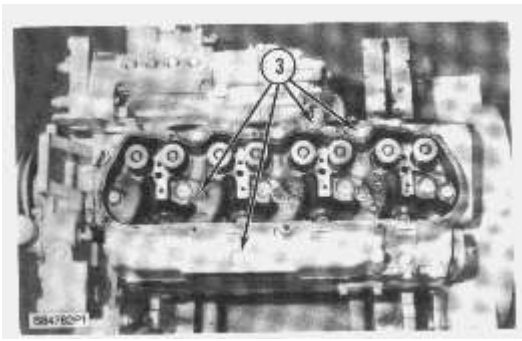
Tools Needed		A
5P9736	Link Bracket	2

START BY:

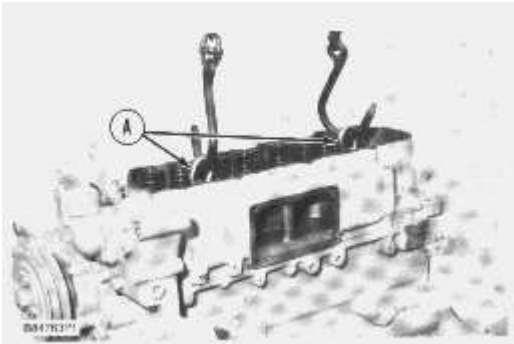
- a. remove exhaust manifold
- b. remove rocker shaft assembly and push rods
- c. remove fuel injection nozzles *



1. Loosen hose clamp (2), and remove tube assembly (1) between the cylinder head assembly and the timing gear cover.



2. Remove 22 bolts (3) that hold the cylinder head assembly to the cylinder block.



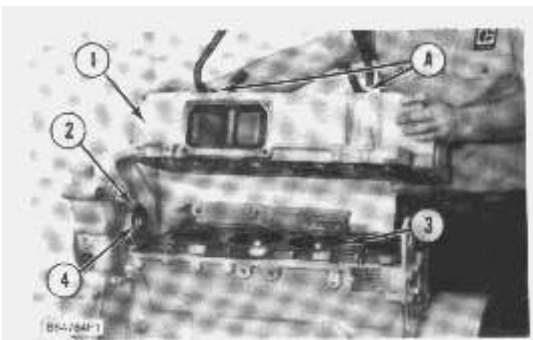
3. Fasten tool (A) and a hoist to the cylinder head assembly. Remove the cylinder head assembly from the cylinder block. Weight of the cylinder head assembly is 57 kg (125 lb.).

4. Remove the cylinder head gasket, water ferrule and seal from the cylinder block.

*The fuel injection nozzles do not have to be removed from the cylinder head assembly when the cylinder head assembly is removed from the cylinder block. If the fuel injection nozzles are not removed, do not put the cylinder head assembly down on a flat surface. This can cause damage to the fuel injection nozzles.

Install Cylinder Head Assembly

Tools Needed		A
5P9736	Link Bracket	2



NOTE: Check the cylinder head and block for top deck flatness. The flatness of the cylinder head and block should be within 0.15 mm (.006") total, and a maximum of 0.08 mm (.003") for any 152.4 mm (6.00") span.

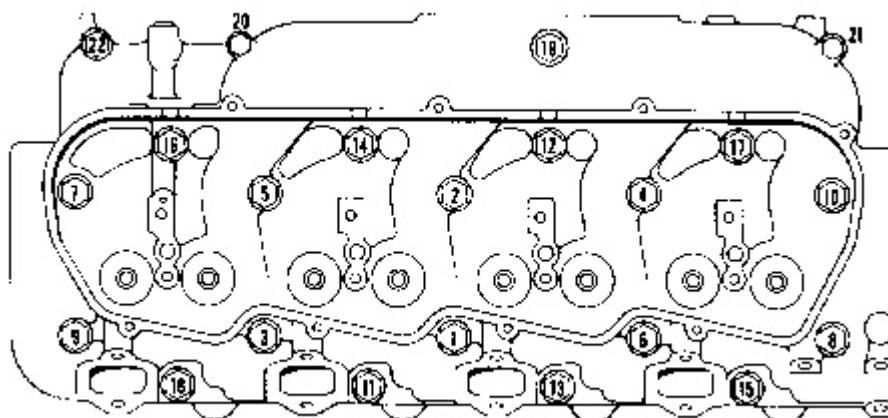
1. Check the condition of the water ferrule and seal (4). Make a replacement if needed. Put the water ferrule and seal (4) in position with the adjusting screw of hose clamp (2) toward the top and approximately 45° to the right of vertical line as seen from the front of the engine. Make sure the seal is installed all the way into the counterbore.

2. Clean the surfaces of the cylinder head assembly and the cylinder block that make contact with each other. Make sure the surfaces are clean and dry. Install a new, dry cylinder head gasket (3) on the cylinder block.

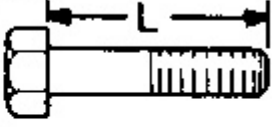
NOTE: If the plugs in the oil passages in the cylinder head were removed, put 5P3413 Pipe Sealant with Teflon on the threads, and install the plugs in the head.

3. Fasten tool (A) and a hoist to the cylinder head assembly. Put cylinder head assembly (1) in position on the cylinder block.

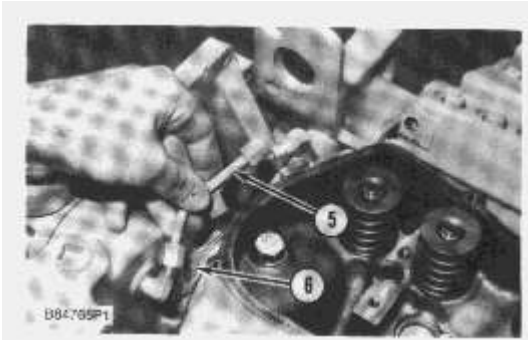
4. Put 5P960 Multipurpose Type Grease on the threads of all the cylinder head bolts.



B96103P1

A77829P1 HEAD BOLT LOCATION CHART				
Dia.	Part No.	Location (Bolt No.)	Bolt Length "L"	
			in.	mm
1/2"	1D4572	5, 2, 4, 10	5.50	139.7
	2H6488	7, 9, 3, 1, 6, 8	5.00	127.0
	L1329	16, 14, 12, 17	3.00	76.2
	2B947	18, 11, 13, 15	2.25	57.2
3/8"	5B9603	20, 21	5.00	127.0
	1A5964	19	4.50	114.3
	S1571	22	1.75	44.5

5. Install the cylinder head bolts, and tighten them as follows:
 - a. Tighten bolts 1 through 18 in the number sequence shown to a torque of $81.5 \pm 13 \text{ N}\cdot\text{m}$ ($60 \pm 10 \text{ lb}\cdot\text{ft.}$).
 - b. Tighten bolts 1 through 18 in number sequence to a torque of $149 \pm 6.5 \text{ N}\cdot\text{m}$ ($110 \pm 5 \text{ lb}\cdot\text{ft.}$).
 - c. Tighten bolts 1 through 18 again in number sequence to a torque of $149 \pm 6.5 \text{ N}\cdot\text{m}$ ($110 \pm 5 \text{ lb}\cdot\text{ft.}$).
 - d. Tighten bolts 19 through 22 in number sequence to a torque of $43.5 \pm 6.5 \text{ N}\cdot\text{m}$ ($32 \pm 5 \text{ lb}\cdot\text{ft.}$).



6. Install tube assembly (5) between the cylinder head assembly and the timing gear cover. Tighten hose clamp (6).

END BY:

- a. install fuel injection nozzles
- b. install rocker shaft assembly and push rods
- c. install exhaust manifold

Disassemble Cylinder Head Assembly

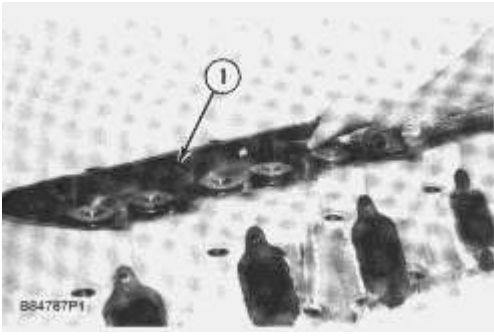
Tools Needed		A	B	C	D
FT806	Cylinder Head Repair Bench	1			
	Adapter Plate*	2			
8S2263	Valve Spring Tester		1		
5S1330	Pneumatic Valve Spring Compressor			1	
8S7170	Valve Seat Extractor Tool Group**				1

*Part of FT1670 Cylinder Head Bench.

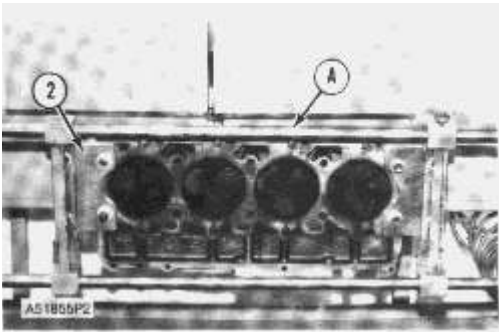
**Special Instruction Form SMHS7935. Use of 6V4805 Valve Seat Insert Puller Group is included with the Tool Group.

START BY:

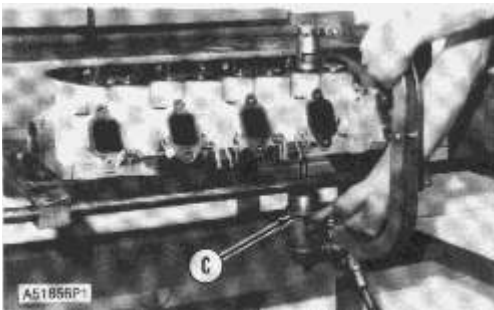
a. remove cylinder head assembly



1. If necessary, remove plugs (1) with a punch and hammer.



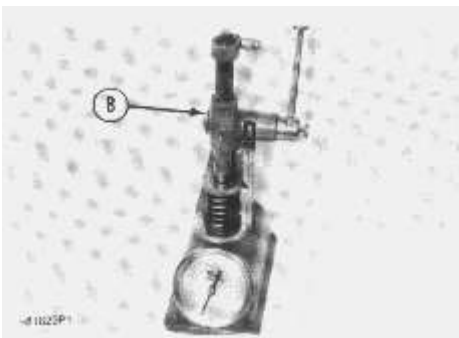
2. Fasten a hoist to the cylinder head, and put it in position on tooling (A). Use adapter plates (2) from tooling (A) to hold the head in place.



3. Put the valve springs under compression with tool (C).

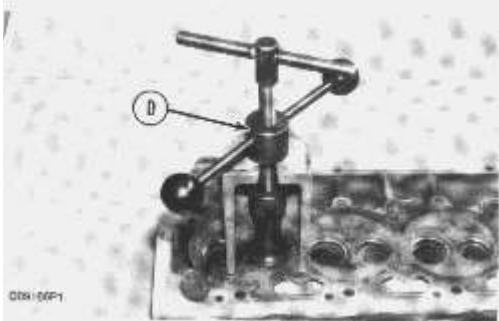
4. Remove the locks from the valves.

5. Remove tool (C), the retainer, spring, washer and valve from the cylinder head. Put identification marks on the valve as to its location in the cylinder head.



6. Check the valve spring force with tool (B). The spring force must be 222 ± 22 N (50 ± 5 lb.) when the length of the spring is 42.04 mm (1.655 in.). For additional information, see Guidelines For Reusable Parts - Valve And Valve Springs Form Nos. SEBF8034 and SEBF8002.

7. Do Steps 2 through 5 for the remainder of the valves.



8. Remove the valve seat inserts with tooling (D).

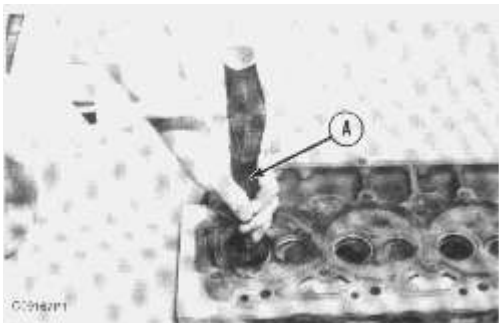
9. Clean and remove any burrs from the valve seat bores.

NOTE: The valve guides are part of the cylinder head. Measure the bore diameter of the guides at a location which is 19.0 mm (.75 in.) in from both ends of each valve guide. The bore must be a diameter of 9.512 ± 0.013 mm ($.3745 \pm .0005$ in.). The maximum permissible bore diameter must not be more than 9.550 mm (.3760 in.). Valve guides worn more than the maximum specification can be made to the original size by knurling. Use the 4.5" Bore V8 DI Engine Reconditioning Procedures, Form No. SENR2031 as guide for knurling valve guides. For reconditioning information of the cylinder head, see Service Training Meeting Guide, Form No. SESV1202.

Assemble Cylinder Head Assembly

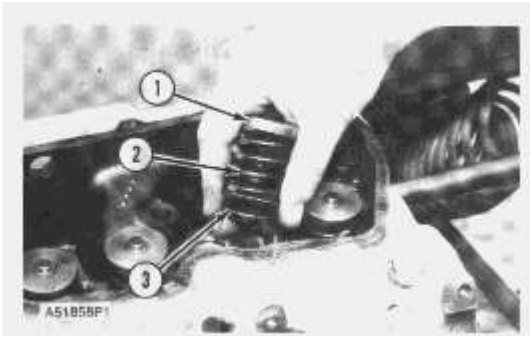
Tools Needed		A	B	C
1P510	Driver Group	1		
5S1322	Valve Keeper Inserter		1	
5P1330	Pneumatic Valve Spring Compressor			1

1. Clean and remove burrs and all foreign material from the valve seat bores.

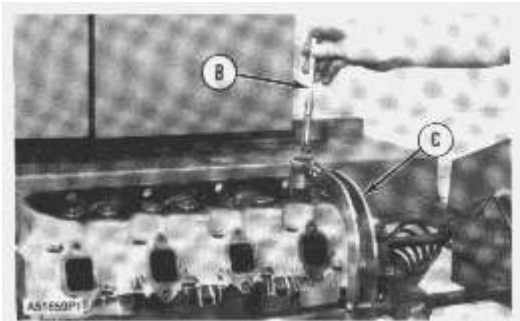


2. Lower the temperature of the valve seat inserts, and install them with tooling (A).

3. Grind the valve inserts according to specifications given in Specifications.

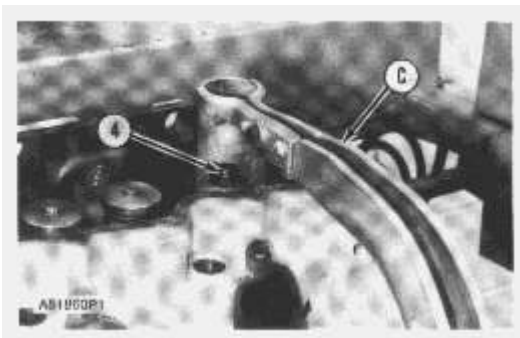


4. Put clean engine oil on the valve stem. Install the valve, washer (3), spring (2) and retainer (1) in the cylinder head.



5. Put the valve spring under compression with tool (C).

6. Install the locks on the valve stem with tool (B).

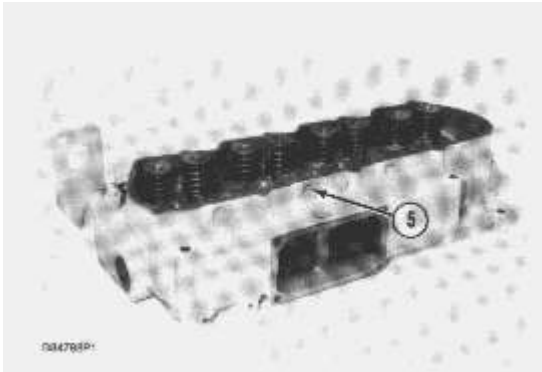


WARNING

The locks can be thrown from the valve when the spring compressor is released if they are not in their correct position on the valve stem. To prevent possible personal injury, be sure to stay away from in front of the valve retainer and springs.

7. Remove tool (C), and hit the valve with a rubber hammer to be sure the locks are in their correct position.

8. Do Steps 4 through 7 for the remainder of the valves.



9. If plugs (5) were removed from the cylinder head assembly, install them with tool (A) until they are 1.0 ± 0.5 mm (0.04 ± 0.02) from the bottom of the chamfer.

END BY:

a. install cylinder head assembly

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