



Service Manual

S4S Diesel Engine

194618-up

DP20N	P4000
DP25N	P5000
DP30N	P6000
DP35N	P7000

For use with DP20N, DP25N, DP30N, DP35N,
P4000, P5000, P6000, P7000 Chassis Service Manual.

99729-88100

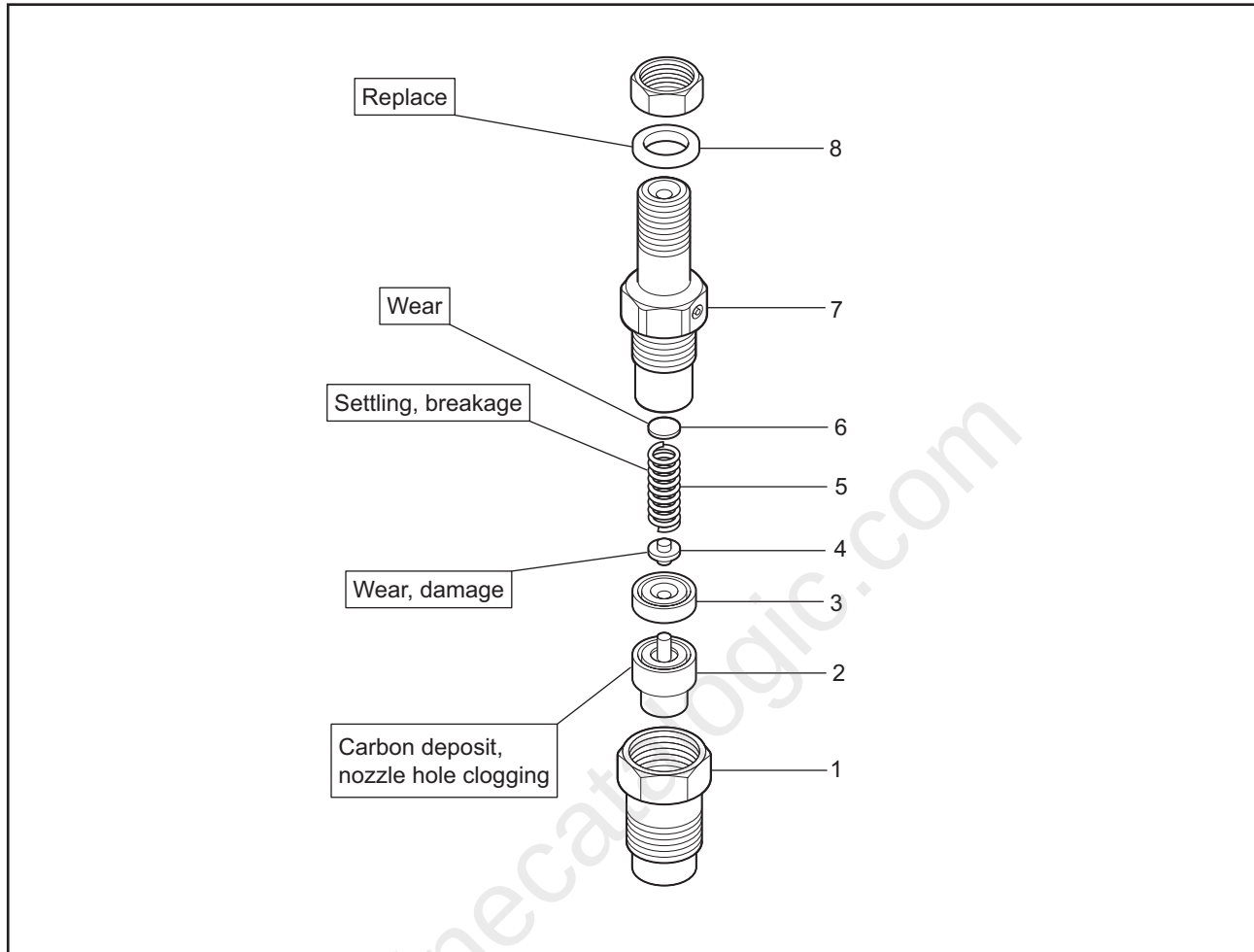
1. Determining overhaul timing

In most cases, the engine should be overhauled when the compression pressure of the engine becomes low. An increase in engine oil consumption and blow-by gas should be considered when evaluating engine condition. Symptoms like a decrease in output, increase in fuel consumption, decrease in oil pressure, difficulty of engine starting and increase in noise should be considered when evaluating overhaul timing. Decreased compression pressure shows a variety of symptoms and engine conditions, thus making it difficult to accurately determine when the engine needs an overhaul. The following shows typical problems caused by reduced compression pressure.

- (1) Decreased output power
- (2) Increased fuel consumption
- (3) Increased engine oil consumption
- (4) Increased blow-by gas through the breather due to worn cylinder liners and piston rings (Visually check the blow-by amount)
- (5) Increased gas leakage due to poor seating of inlet and exhaust valves
- (6) Difficulty in starting
- (7) Increased noise from engine parts
- (8) Abnormal exhaust color after warm-up operation

The engine can exhibit these conditions in various combinations. Some of these problems are directly caused by worn engine parts, while others are not. Phenomena described in items (2) and (6) will result from improper fuel injection volume, fuel injection timing, worn plunger, faulty nozzles and also faulty conditions of electrical devices such as battery and starter. The most valid reason to overhaul an engine is a decrease in compression pressure due to worn cylinder liners and pistons, as described in item (4). In addition to this item, it is reasonable to take other problems into consideration when making a total evaluation.

2.3 Disassembling and inspecting fuel injection nozzle

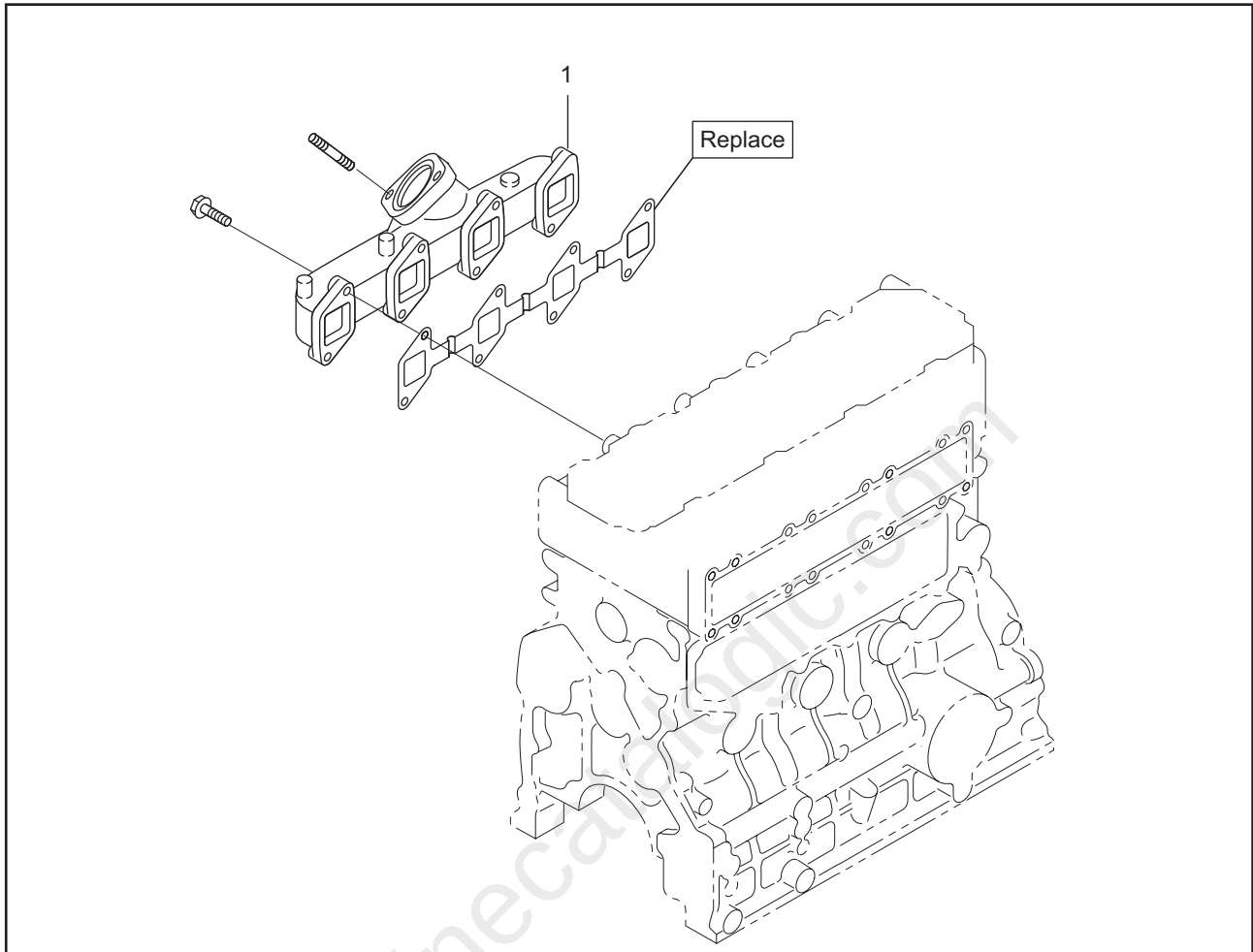


Disassembling and inspecting fuel injection nozzle

Disassembling sequence

- | | | |
|------------------------|-------------------|-----------------|
| 1 Nozzle retaining nut | 4 Pressure pin | 7 Nozzle holder |
| 2 Nozzle tip assembly | 5 Pressure spring | 8 Gasket |
| 3 Distance piece | 6 Washer | |

1.2 Removing exhaust manifold



Removing sequence

- 1 Exhaust manifold

Removing exhaust manifold

4. Inspecting and repairing piston, connecting rod, crankshaft and crankcase

4.1 Measuring crankcase top surface distortion

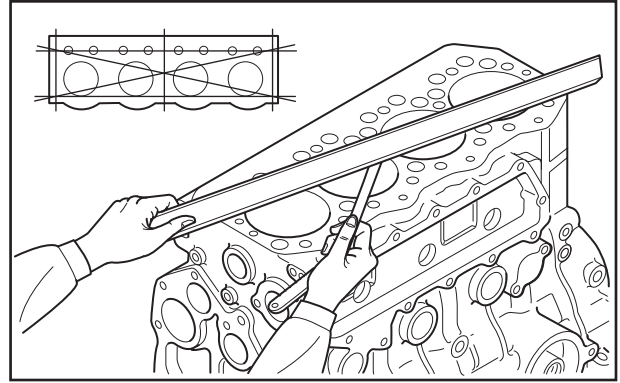
CAUTION

Refacing of cylinder head should be kept to an absolute minimum.

Excessive grinding of the cylinder head may result in defects such as defective combustion and stamping (contact between piston and valve).

Apply a straight edge to the top surface of the crankcase and measure its distortion using a thickness gauge. If the distortion exceeds the limit, grind the crankcase using a surface grinder.

Note: Do not overgrind the cylinder head, as the piston protrusion deviates from the standard value.



Measuring crankcase top surface distortion

Item	Standard	Limit
Flatness of top surface	0.05 mm [0.0020 in.] or less	0.20 mm [0.0079 in.]

Note: Do not grind the surfaces more than 0.2 mm [0.0079 in.] in total (cylinder head bottom surface plus crankcase top surface).

Full Version Available

Caterpillar 2PD5500 Forklift Engine Service Manual (99729-88100)

Caterpillar 2PD5500 forklift engine service manual, specs, testing, adjustment, and rebuild procedures in PDF. Instant PDF download.

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