CAT® Lift Trucks

Service Manual

S6S Diesel Engine

For use with DP40N/NF - DP55N/NF Chassis Service Manuals.

99739-32110

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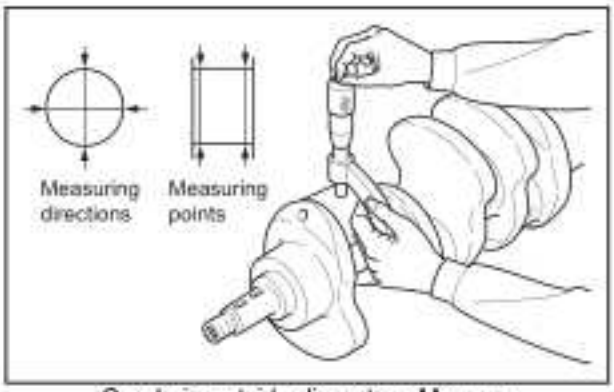
5.3 Crankpin and Crank journal outside diameters - Measure

(1) Measure the outside diameter of the crankpins and crank journals. If the limit is exceeded, grind the pin or journal to fit the diameter of the next undersize bearing.

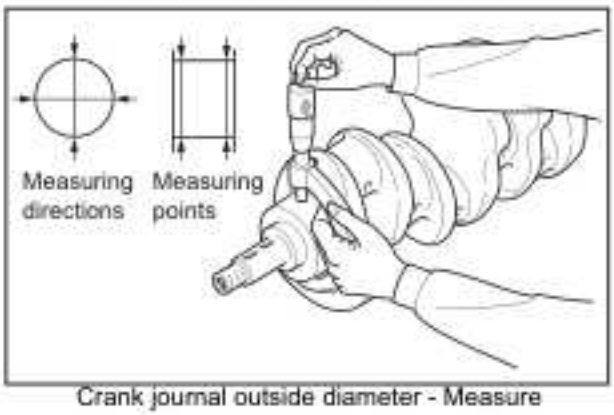
(2) Determine the out-of-roundness, the out-of-cylindricity (taper) and clearance between bearing based on the outside diameters that have been measured.

(3) If the measured value is less than the repair limit, grind it to the specified undersize. If the measured value is less than the service limit, replace it with a new one.

Item		Nominal	Standard	Limit
Crankpin outside diameter		ø58 mm [2.28 in.]	57.955 to 57.970 mm [2.2817 to 2.2823 in.]	Service limit: 57.800 mm [2.2756 in.]
Crank journal outside diameter		ø78 mm [3.07 in.]	77.955 to 77.970 mm [3.0691 to 3.0697 in.]	Repair limit: 77.850 mm [3.0650 in.] Service limit: 77.100 mm [3.0354 in.]
Pin and journal	Roundness	-	0.01 mm [0.0004 in.] or less	0.03 mm [0.0012 in.]
	Cylindricity	-	0.01 mm [0.0004 in.] or less	0.03 mm [0.0012 in.]
	Parallelism	-	Pin maximum defection: 0.01 mm [0.0004 in.] or less.	-



Crankpin outside diameter - Measure



Crank journal outside diameter - Measure

5.4 Crankpin and journal width - Measure

(1) Inspect the either end of crankpin and crank journal width for harmful scratch and wear.

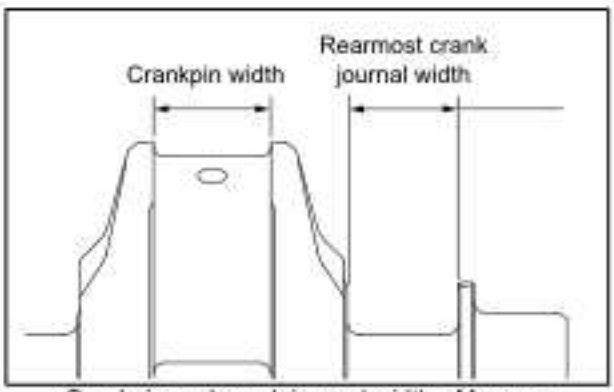
(2) Measure the crankpin and crank journal width.

Item	Nominal	Standard
Crankpin width	33 mm [1.299 in.]	33 to 33.1 mm [1.299 to 1.303 in.]
Rearmost crank journal width	31 mm [1.2205 in.]	31 to 31.039 mm [1.2205 to 1.2220 in.]

Note:(a) The purpose of measuring the crankpin and crank journal width is to make sure the end play of the big end of the connecting rod and crankshaft are appropriate.

(b) Width of rearmost crank journal is important to select the thickness of thrust plate.

(c) Always inspect the width of the crankpin and crank journal when regrinding the shaft.



Crankpin and crank journal width - Measure

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2.1.2 Test at no load

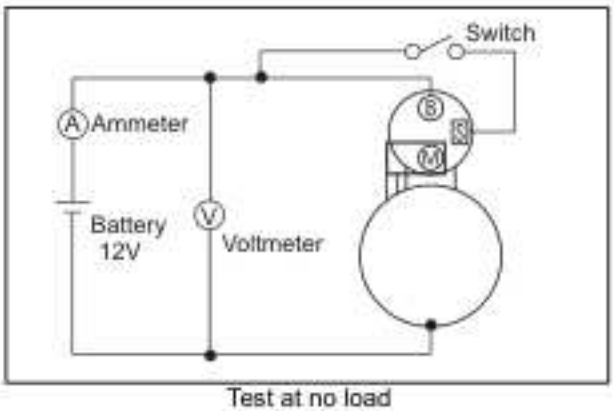
CAUTION

(a) Use a thick wire as possible and firmly tighten each terminal.

(b) Be careful that the pinion pops out during operation when measuring the rotation speed at the tip of the pinion.

(1) Connect the starter to the circuit as shown in the illustration.

(2) In normal condition, the pinion pops out when the switch is turned ON, and the starter rotates at more than the specified rotation speed. If the terminal voltage, current or rotation speed does not meet the standard, disassemble, inspect and repair the starter.



Test at no load

Item		Standard
Starter model number		M008T55472
Nominal output		12 V, 3.0 kW
Nonload characteristics	Terminal voltage	11 V
	Current	180 A or less
	Rotational speed	3800 min^{-1} or more

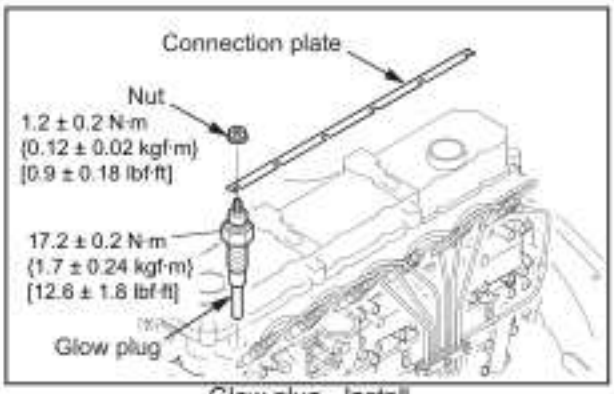
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3. Electrical system - Install

3.1 Glow plug - Install

(1) Install the glow plug, and tighten it to the specified torque.

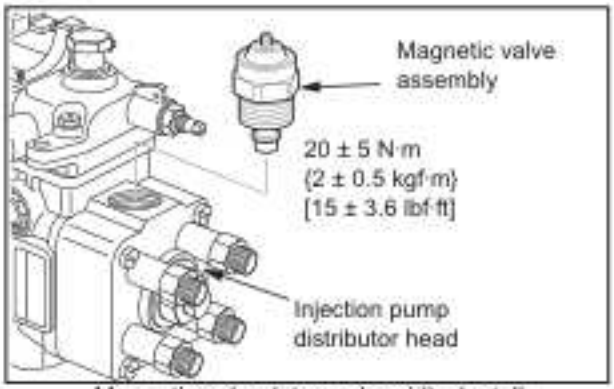
(2) Install the connection plate and tighten the fixing nuts to the specified torque.



Glow plug - Install

3.2 Magnetic valve (stop solenoid) - Install

Install the magnetic valve assembly to the injection pump distributor head with the specified torque.

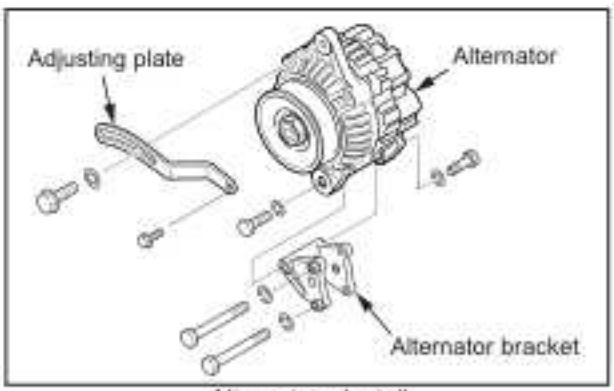


Magnetic valve (stop solenoid) - Install

3.3 Alternator - Install

(1) Install the adjusting plate.

(2) Install the alternator.

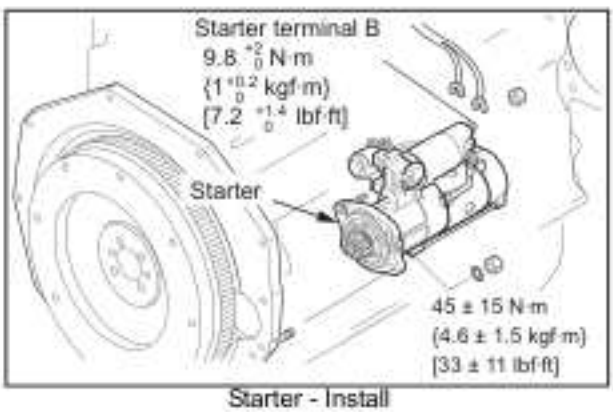


Alternator - Install

3.4 Starter - Install

(1) Install the starter.

(2) Connect the harness, and tighten the fixing nut to the specified torque.



Starter - Install

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About warning labels

CAUTION

Maintenance of warning labels

Make sure all warning/caution labels are legible. Clean or replace the warning/caution labels when the description and/or illustration are not clear to read. For cleaning the warning/caution labels, use a cloth, water and soap. Do not use cleaning solvents, gasoline or other chemicals to prevent the letters from getting blurred or the adhesion from being weakened. Replace damaged or fractured labels with new ones. If any engine part on which a warning label is attached is replaced with a new one, attach a new identical warning label to the new part. To obtain new warning labels, contact your authorized Cat® lift truck dealer.



Warning labels

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2.6 Gauze filter of distribute type fuel injection pump - Inspect and Clean

⚠ WARNING

Keep away from flame when handling diesel oil. Wipe off any spilled fuel. This can cause fire.

CAUTION

Cover the injection pump openings to prevent the injection pump from contamination of dust, water and etc. If foreign material, water and etc. enter the inside of injection pump, faulty sliding, seizure and rusting of inner parts could occur.

When output shortage and/or hunting of the engine occurred, the gauze filter may be dirty. Clean the gauze filter accordingly.

(1) Clean around the injection pump.

(2) Drain the fuel in the injection pump, and remove the fuel hose and fuel pipe.

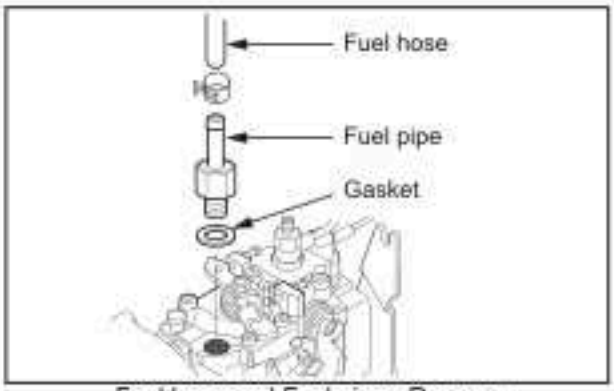
(3) Remove the spring with a tweezer.

(4) Remove the gauze filter with a tweezer.

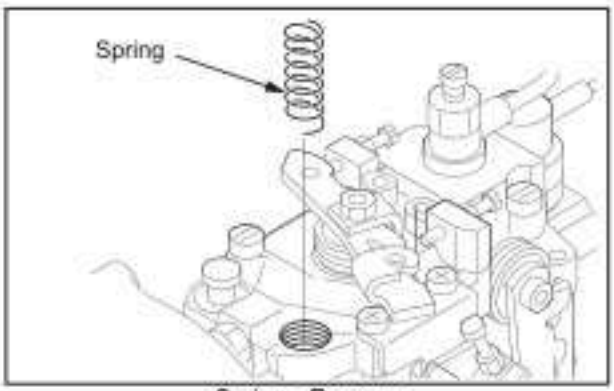
Note: Do not damage the metal mesh when removing the gauze filter.

(5) Remove the dirt and dust from the gauze filter cleaning with compressed air or diesel fuel. When damage is found, or when the gauze filter is still dirty after cleaning, replace the gauze filter with a new one.

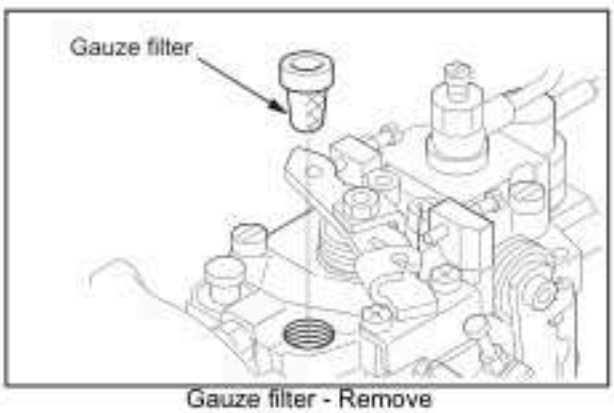
(6) Install the cleaned gauze filter and new gasket, and in reverse order of disassembly, install the fuel pipe and fuel hose.



Fuel hose and Fuel pipe - Remove



Spring - Remove



Gauze filter - Remove

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