NISSAN
FORKLIFT

SERVICE MANUAL & TECHNICAL BULLETIN

3.3 ltr DIESEL ENGINE

Model L01/L02 series

SERVICE

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Service Standard

1. Service standard table ..... 2 – 2

2. Tightening torque table ..... 2 – 6

2.1 Tightening torque of main bolt ..... 2 – 6

2.2 Tightening torque of general bolt ..... 2 – 7

2.3 Embedding torque of general stud ..... 2 – 7

2.4 Tightening torque of general plug ..... 2 – 7

3. Sealant applying table ..... 2 – 8

4. Maintenance ..... 2 – 9

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2. Specifications

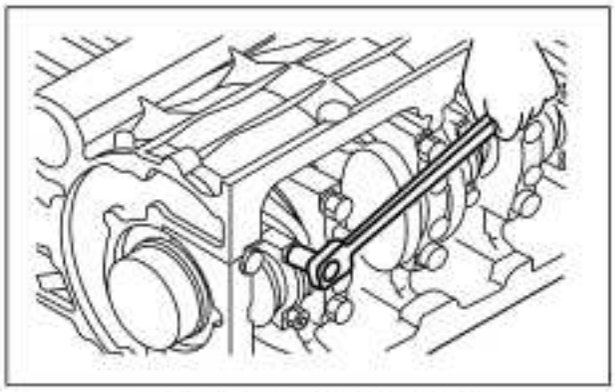
Engine type				3.3L-4C
Main specifications	Type			MITSUBISHI Diesel Engine
	Cooling type			Water cooling
	Cycle			4
	Number of cylinder – layout			4 – Series
	Combustion type			Swirl chamber type
	Valve mechanism			Overhead valve type
	Cylinder diameter × Bore diameter			94 × 120 mm (3.70 × 4.72 in)
	Total exhaust			3.331 ℓ (2-7/8 Imp qt)
	Compression ratio			22:1
	Fuel in use			Kerosene (JIS K2204 2 or equivalent)
	Injection sequence			1-3-4-2
	Rotating direction			Counterclockwise in view of the flywheel side
	Dimension (with fan)	Total length		753 mm (29.65 in)
		Total width		544 mm (21.42 in)
		Total height		753 mm (29.65 in)
	Mass (dry)			245 kg (540 lb)
Engine body	Cylinder sleeve	Type		Dry (integrated with block)
	Piston ring	Quantity		Compression ring: 2
				Oil ring: 1 (with expander)
	Valve timing	Intake valve	Open	30° (BTDC)
			Close	50° (BBCD)
		Exhaust valve	Open	74° (BBCD)
			Close	30° (BTDC)
	Starting type			Starter
	Starting auxiliary device			Glow plug
Fuel system	Fuel injection pump	Type		Distribution type (Bosch VE)
		Plunger diameter		10 mm (0.39 in) dia.
	Fuel feed pump	Type		Bosch, vane type
	Governor	System		Centrifugal
		Type		DENSO, all speed
	Fuel injection nozzle	Type		DENSO, throttle type
		Number of injection hole		1
		Nozzle diameter		1 mm (0.04 in) dia.
		Injection angle		0°
		Valve opening pressure		11.768 kPa (117.7 bar, 120 kg/cm², 1,706 psi)
	Fuel filter	Filtration type		Cartridge type paper element (with water separator)

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10. 1 Removal of connecting rod cap

(1) Remove connecting rod cap tightening nuts, tap the tightening bolt top with an iron hammer almost squarely, and then remove cap after removing cap side reamer.

(2) Identify the connecting rod bearing in a proper way so that it will not be mixed with the upper bearing and the bearings for the other cylinders.

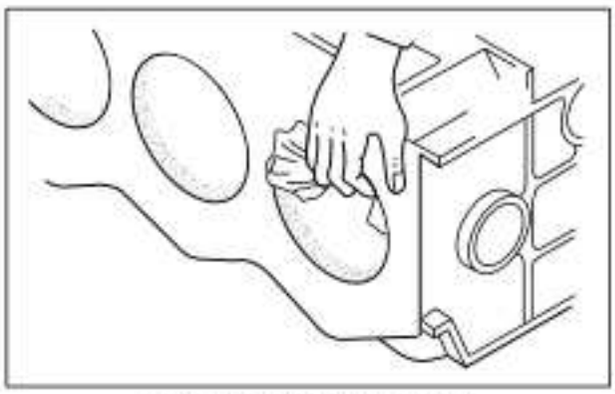


Removal of connecting rod cap

10. 2 Preparation for piston removal

(1) Turn crankshaft case laterally.

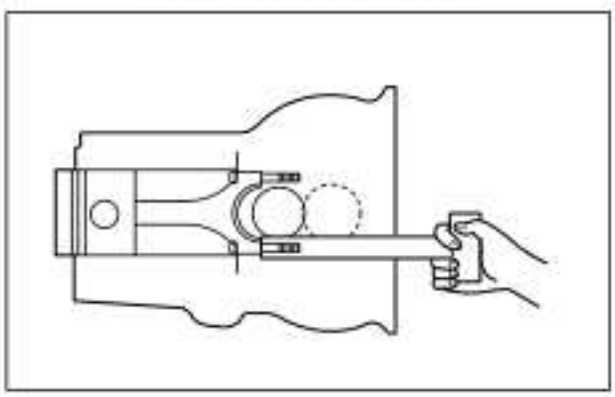
(2) If any carbon is attached on the upper portion of the cylinder, use sandpaper and a shop cloth to remove the carbon.



Preparation for piston removal

10. 3 Removal of piston

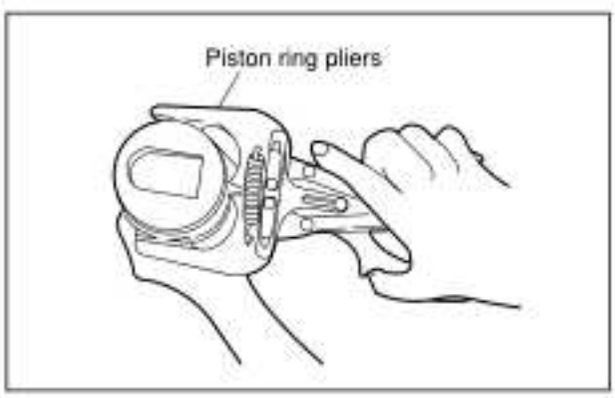
Turn connecting rod to top position and put a hammer into connecting rod large end, and then pull out toward the crankshaft case upper surface.



Removal of piston

10. 4 Removal of piston ring

Remove the piston ring using piston ring pliers (31391-12900).



Removal of piston ring

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(2) Inspection of adjusting voltage (with built-in IC regulator)

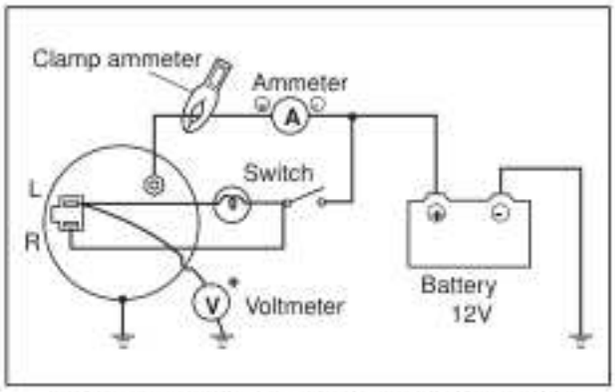
(a) Remove terminal and connect the ammeter between those. Or, clamp alternator terminal B harness if ammeter is clamp type.

(b) Connect the voltmeter between terminal L and ground.

(c) The indication of the voltmeter must be 0 when starter switch is at OFF.
Indicate the value whose indication of the voltmeter is considerably lower than the battery voltage when starter switch is ON (engine not started). (About 1 to 4 V)

(d) Short-circuit the ammeter terminal and start the engine.

(e) Measure voltmeter indication value (adjusting voltage) when ammeter indication value is 5 A or less and engine speed is 1800 min^{-1}, 2500 min^{-1}, and lamp switches are OFF.



Inspection of adjusting voltage (with built-in IC regulator)

	Standard	V-A
Adjustment voltage [20°C (68°F) time]	14.7±0.3 V	12-50

(3) Output inspection (with built-in IC regulator)

(a) Apply all loads such as lamps.

(b) Engine speed must increase, and measure the maximum output current at a prescribed alternator rotational speed by the voltmeter indication value 13.5 V.
If it is within the standard, it is normal.

NOTE: If load current, such as lamps, has not reached the value shown in the table on the right, measure again after battery is discharged.

Output performance

Items	Type name	Standard	
		Voltage of terminal/current	Rotational speed
(Hot) Output characteristic	A7TA0477A	13.5 V/33 A or more	2500 min^{-1}
		13.5 V/47 A or more	5000 min^{-1}

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