



Maintenance Manual

diesel engine

6D1 (for industrial use)

■ Fuel Used

Use only diesel fuel oil, without any compound, for the diesel engine.

Diesel-oil properties

The following recommendations concerning diesel fuel used with Mitsubishi diesel engines are given for economy in operation and greater performance.

Operation condition	Recommended oil
Normal operation at temperatures over -12°C (10°F)	ASTM D-975 Grade 2-D *
Operation at temperatures below -12°C (10°F), or prolonged no-load operation	ASTM D-975 Grade 1-D *

- ASTM is an acronym for the American Society for Testing Materials which recommends fuel containing 0.5% or less sulfur content.
Note that a sulfur content exceeding 0.5% reduces time between engine oil changes by 50%.

To meet exact fuel requirements, it is necessary to obtain cooperation from a reputable fuel oil supplier. Both fuel suppliers and users are responsible for keeping fuel clean.

There is danger of fire or explosion by using compound fuel.

Never use diesel fuel mixed with gasoline, gasohol, or alcohol. Fuel containing 5% gasoline has a flash point as low as approximately 0°C (32°F), which can lead to a fire or explosion while the vehicle is running.



Never mix diesel fuel with gasoline, gasohol, or alcohol. Use of fuel mixed with one or more of these could lead to a fire or explosion involving serious injury, death, or property damage.

Adverse effects of compound fuel on engine

Using diesel fuel mixed with gasoline, alcohol, both has the following adverse effects on the engine:

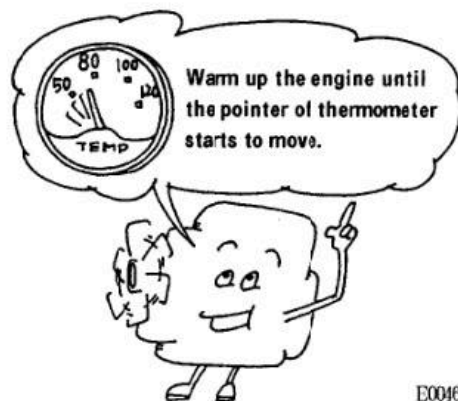
- Fuel viscosity becomes lower, resulting in excessive wear, damage, and failure of fuel system parts.
- Difficulty in starting the engine will result due to reduced cetane number.



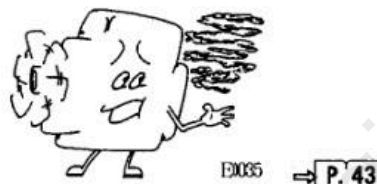
The lower the cetane number, the more likely inside engine damage will occur.

ENGINE STARTING AND STOPPING

■ Warm Up Operation



⚠ Avoid racing the engine, as this could cause engine malfunctions.



Check for abnormal exhaust emission color.



Check the engine for abnormal noise, vibration and smell.

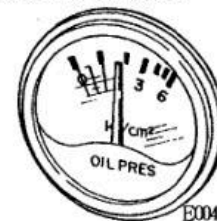
Check for oil, water or fuel leaks from the engine.

AMMETER OR CHARGE LAMP



After starting, confirm that the pointer of the ammeter is on + side or that the charge lamp is off.

OIL PRESSURE GAUGE



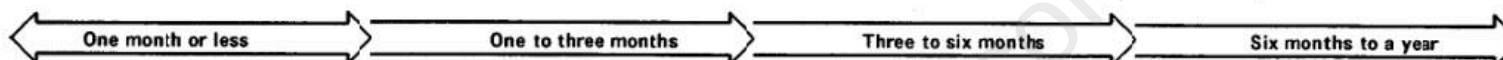
Confirm that the pointer indicates 150 kPa (21 lbf/in², 1.5 kgf/cm²) or is within the green zone.



Confirm that the warning lamp goes out.

INSTRUCTION FOR A LONG PERIOD OF STORAGE

Storage period



Storage procedures

- After cleaning the air cleaner, spray antirust oil MIL-L-644B and seal off open ports with a waterproof tape.
- Clean the inside of alternator, starter and relays with dry compressed air and cover them with a polyethylene sheet or polyethylene coated paper.



Do not use a vinyl sheet.

- Loosen the V-belt tension.
- Add distilled water until the electrolyte level of the battery comes up higher than normal. Charge the battery fully, clean the terminals, and store the battery in a cool and dry place. Recharge the battery once a month.

- Touch up unpainted portions and apply a thin coat of antrust oil MIL-L-21260 to the machined surface, aluminum parts and plated parts.

- Remove the air cleaner and crank engine three times with the starter at intervals of approx. 30 seconds without injection of fuel. When the engine is cranked, spray an antirust oil MIL-L-644B into the intake pipe (or into the turbocharger air inlet on engines with turbocharger) with a spray gun.
- After draining the cooling system, remove the thermostat and blow air into the coolant inlet and outlet to remove the remaining water as much as possible. After sprinkling about 2g (0.07oz) of vaporizing type antirust MIL-P-3420 in the water inlet and outlet, install the thermostat and close the drain cock.

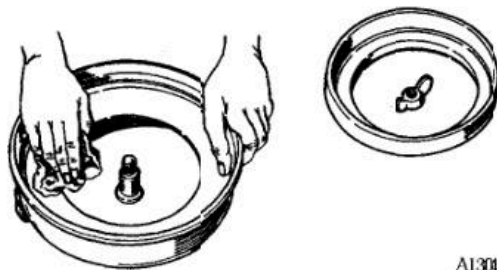
- Remove the lubricant from the oil pan, oil filter, injection pump cam housing and governor housing, fill with antirust oil MIL-L-21260 to the prescribed level, and run the engine at 800 to 1,000 rpm at no load for 10 minutes. Use the antirust fuel described in the following paragraph for operation. After operation, remove the antirust oil.
- Prior to the above-mentioned operation, replace the fuel with an antirust fuel (consisting of 50% gas oil and 50% antirust oil MIL-L-644B) and distribute the antirust fuel throughout the fuel lines. After operation remove the antirust fuel.

SIMPLE INSPECTION AND MAINTENANCE

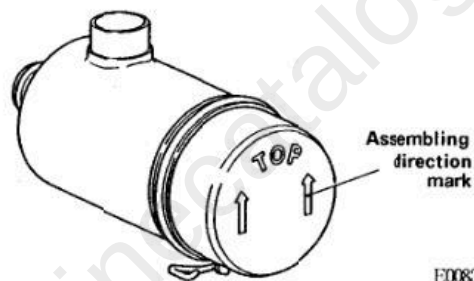
When oil, etc. is excessively dirty:

Replace with new element regardless of replacement time.

3. Loosen the wing nut to remove the baffle.
Clean both the dust cup and baffle.

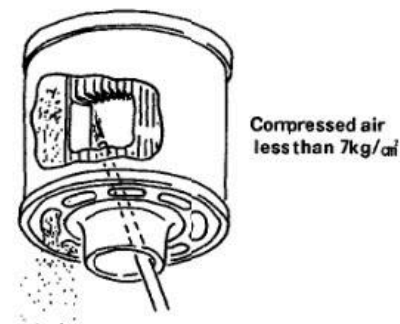


4. After finishing cleaning, assemble the air cleaner in the reverse order.



- If the air cleaner is placed in a horizontal position, install the dust cup so that the assembling direction indicating mark of the cup points upward.
(ONLY THOSE WITH MARKS)

Cartridge type



To clean element, pass clean compressed air from the inside surface of the paper filter following the ridges of paper filter.

- Make certain that the duct, etc. do not remain on the inside.
- Do not clean by hitting objects against the filter or by tapping it.

OIL REPLACEMENT AND MAINTENANCE INTERVAL

■ Recommended Grade of Lubricant

Lubrication point	Category	Classification	Remarks
• Engine (without turbocharger)	Engine oil	API CC	MIL-L-2104B
• Engine	Engine oil	API CD	MIL-L-2104C
• Transmission • Power plant clutch bearing case (belt drive type)	Gear oil	API GL-3 (general) API GL-4 (tropical region)	MIL-L-2105
• Water pump • Power plant clutch bearing case (direct drive type)	Multipurpose-type grease	NLGI No.2 (Lithium soap)	Consistency 250 to 280 (at 25°C, 77° F) Dropping point 185°C (365° F) or higher
• Clutch fork shaft	Heat-resisting grease	NLGI No.3 (Lithium soap) MIL-G-3545C	Consistency 220 to 250 (at 25°C, 77° F) Dropping point 300°C (572° F) or higher (Except for water resisting quality)

Full Version Available

Mitsubishi 6D1 Engine Maintenance Manual

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