



# SERVICE MANUAL

DUMPER  
1T-1 High Tip

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This manual contains original instructions, verified by the manufacturer (or their authorized representative).

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## Foreword

### The Operator's Manual

  
You and others can be killed or seriously injured if you operate or maintain the machine without first studying the Operator's Manual. You must understand and follow the instructions in the Operator's Manual. If you do not understand anything, ask your employer or JCB dealer to explain it.

Do not operate the machine without an Operator's Manual, or if there is anything on the machine you do not understand.

Treat the Operator's Manual as part of the machine. Keep it clean and in good condition. Replace the Operator's Manual immediately if it is lost, damaged or becomes unreadable.

### Contents

- 01 - Machine**
- 06 - Body and Framework**
- 09 - Operator Station**
- 15 - Engine**
- 18 - Fuel and Exhaust System**
- 21 - Cooling System**
- 24 - Brake System**
- 25 - Steering System**
- 27 - Driveline**
- 30 - Hydraulic System**
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- 75 - Consumable Products**
- 78 - After Sales**

## Drain and Fill

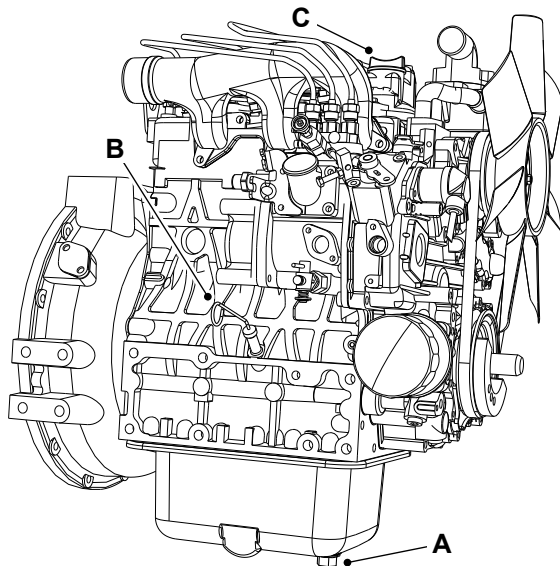
**▲ CAUTION** Oil will gush from the hole when the drain plug is removed. Keep to one side when you remove the plug.

Drain the oil when the engine is warm as contaminants held in suspension will then be drained with the oil.

### Drain

1. Make the machine safe.  
[Refer to: PIL 01-03-27.](#)
2. Run the engine for the specified duration.  
Duration: 5 min
3. Stop the engine.
4. Place a container of suitable size beneath the drain plug.
5. Remove the drain plug.
6. Allow the oil to drain completely.
7. Remove and discard the gasket.
8. Install the drain plug.

**Figure 45.**



- A** Drain plug
- B** Dipstick
- C** Filler cap

### Fill

1. Tighten the drain plug to the correct torque value.
2. Add recommended oil to the engine through the engine filler.

[Refer to: PIL 75-03-03.](#)

3. Check the engine oil level.

**Table 26. Torque Values**

Item	Description	Nm
A	Drain plug (with Copper gasket)	33–37
A	Drain plug (with Rubber gasket)	45–53

## Clean

**▲ Notice:** Clean the engine before you start engine maintenance. Obey the correct procedures. Contamination of the fuel system will cause damage and possible failure of the engine.

**Notice:** The engine and other components could be damaged by high pressure washing systems. Special precautions must be taken if the machine is to be washed using a high pressure system.

Make sure that the alternator, starter motor and any other electrical components are shielded and not directly cleaned by the high pressure cleaning system. Do not aim the water jet directly at bearings, oil seals or the engine air induction system.

Before carrying out any service procedures that require components to be removed, the engine must be properly cleaned.

Cleaning must be carried out either in the area of components to be removed or, in the case of major work, or work on the fuel system, the whole engine and surrounding machine must be cleaned.

Stop the engine and allow it to cool for at least one hour. DO NOT attempt to clean any part of the engine while it is running.

1. Make sure that the electrical system is isolated.
2. Make sure that all electrical connectors are correctly coupled. If connectors are open fit the correct caps or seal with water proof tape.
3. Cover the alternator with a plastic bag to prevent water ingress.
4. Seal the engine air intake, exhaust and breather system.
5. Make sure that the oil filler caps and dipstick are correctly installed.
6. Use a low pressure water jet and soft bristle brush to soak off caked mud or dirt.
7. Apply an approved cleaning and degreasing agent with a brush. Obey the manufacturers instructions.
8. Use a pressure washer to remove the soft dirt and oil. Important: DO NOT aim the water jet directly at oil seals or electrical connectors and electronic components such as ECU (Electronic Control Unit)'s, alternator or fuel injectors. DO NOT place the jet nozzle closer than the specified distance to any part of the engine or exhaust system.

Length/Dimension/Distance: 600 mm

9. When the pressure washing is complete move the machine away from the wash area, or alternatively, clean away the material washed from the machine.

10. Before working on specific areas of the engine use a compressed air jet to dry off any moisture. When the area is dry use a soft clean brush to remove any sand or grit particles that remain.

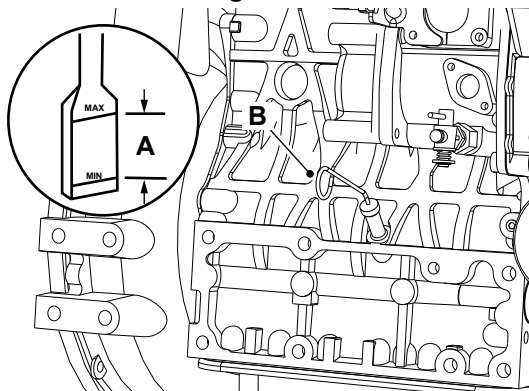
11. When removing components be aware of any dirt or debris that may be exposed. Cover any open ports and clean away the deposits before proceeding.

Additional cleaning must be carried out prior to working on the high pressure fuel system. Refer to: [PIL 18-00-00](#).

## Check (Level)

1. Make the machine safe.  
[Refer to: PIL 01-03-27.](#)
2. Make sure that the machine is in a straight and level condition.
3. Open the engine compartment cover.  
[Refer to: PIL 06-06-06.](#)
4. Make sure that the engine is safe to work on. If the engine has been running, let it cool before you start the service work.
5. Remove the dipstick.
6. Clean the dipstick.
7. Install the dipstick.
8. Remove the dipstick again.
9. Check that the oil level is between the two marks on the dipstick.
10. If necessary, add recommended oil through one of the filler points.

**Figure 46.**



- A** Oil level  
**B** Dipstick

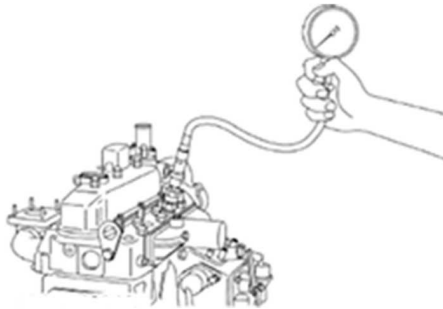
## Check (Pressure)

### Compression Pressure

This test is used to diagnose suspected poor compression in one or more of the engine cylinders. Use a dummy injector to do the test.

1. Make the machine safe.  
[Refer to: PIL 01-03-27.](#)
2. Run the engine until it is warmed up to its operating temperature.
3. Stop the engine.
4. Set a compression tester with the adaptor to the suitable plug hole.  
[Refer to: PIL 78-94-14.](#)
5. After making sure that the stop lever is set at the stop position (non-injection), run the engine with the starter and measure the compressor pressure.
6. Repeat the above steps for each cylinder.
7. If the measurement is below the allowable limit, apply a small amount of oil to the cylinder wall through the suitable plug hole and measure the compression pressure again.
8. If the compression pressure is still less than the allowable limit, check the top clearance, valve clearance and cylinder head.
9. If the compression pressure increases after applying oil, check the cylinder wall and piston rings.
10. Check the compression pressure with the specified valve clearance.
11. Always use a fully charged battery for performing this test.
12. Variances in cylinder compression values should be under the specified value.

Percentage: 10 %

**Figure 47.**


### Engine Oil Pressure

1. Make the machine safe.  
Refer to: [PIL 01-03-27](#).
2. Remove the engine oil pressure switch, and set an oil pressure tester.
3. Start the engine. After warming up, measure the oil pressure at idle and rated speed.
4. If the oil pressure is less than the allowable limit, check the following:
  - Engine oil insufficient.
  - Oil pump defective.
  - Oil strainer clogged.
  - Oil filter cartridge clogged.
  - Oil gallery clogged.
  - Excessive oil clearance.
  - Foreign matter in the relief valve.

**Figure 48.**


After checking the engine oil pressure, tighten the engine oil pressure switch to the specified torque value.

**Table 27. Torque Values**

Item	Description	Nm
1	Oil Pressure switch	17.53

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