SERVICE MANUAL

ENGINE

JCB T4F 3.0 Elec Engine 4 Cyl

EN - 9806/6950 - ISSUE 2 - 01/2018

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

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Foreword

The Operator's Manual

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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.

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Table 14. Engine - Reduced Power Output

Cause	Remedy
No fuel in supply tank.	Check the level in the fuel tank, use sight gauge or dipstick. Replenish as required.
Oil level incorrect.	Check oil level.
Engine overload.	Check for added loading from malfunctioning accessories or driven units, brakes dragging and other changes in vehicle loading. Disengage the hydraulic controls.
Throttle position sensor (TPS) system defective.	Check the throttle assembly. Check the electronic fault codes.
Fuel is contaminated or incorrect grade diesel fuel used.	Stop the engine. Replace the fuel filters. Operate the engine with a temporary supply of the correct grade of clean fuel. Monitor the engine performance. Dirty fuel will cause damage to the high pressure fuel pump and injectors.
Turbocharger boost control pipe leaking or damaged, or wastegate diaphragm ruptured.	Check boost control pressure. Inspect and tighten fittings, repair pipes, replace wastegate assembly.
Fuel injection lines leaking.	Replace defective high pressure fuel lines. Do not repair defective fuel lines. If there is a fuel leak remove and discard the necessary components and install new ones.
Fuel filter(s) blocked, fuel supply restricted.	Check/replace the fuel filter(s). Check fuel lines for restriction.
Fuel is aerated.	Check the fuel system for loose connections and possible air ingress points. Rectify and bleed the fuel system.
Fuel lift pump not operating correctly (fuel supply inadequate).	Check that the lift pump is operating and delivering fuel to the injection pump. Check fuses.
Air intake or exhaust system blocked.	Visually check the air intake and exhaust system for blockage or obstruction - remove as required. Check the air filter elements for signs of blocking - replace as required.
One or more fuel injectors worn or malfunctioning.	Check the electronic fault codes. Check the electrical connections at the injectors.
Exhaust leak at the manifold or turbocharger.	Check/repair leaks in the manifold or turbocharger gaskets. Look for a cracked manifold.
Extra injector sealing washer installed under injector.	Remove extra injector sealing washer.
Worn or malfunctioning high pressure fuel pump.	Check the electronic fault codes. Do all the necessary fault finding checks before removal of the high pressure fuel pump
Engine compression low in one or more cylinders.	Check the engine compression.
Engine in reduced torque or limp home mode.	Check the electronic fault codes.
ECM or electrical sensor fault.	Check the electronic fault codes. Check the electrical connections at the ECM and sensors.

Table 15. Engine - Will Not Reach Maximum RPM

Cause	Remedy
Tachometer faulty.	Verify engine speed with hand tachometer. Repair as required.
Engine overloaded.	Verify high idle speed without load. Investigate operation to be sure correct gear is being used.
Pedal/ Hand Throttle position sensor (TPS) system defective.	Check the throttle assembly. Check the electronic fault codes.

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Introduction

A schematic wiring diagram is a simplified pictorial representation of the machines electrical circuit. It shows the components of the circuit as simplified electrical symbols, and the power and signal connections between the devices. The wiring diagram is used to troubleshoot problems and to make sure that all the connections have been made and that everything is present.

Use the schematics together with the correct electrical harness drawings to reference the connector pin details.

This section may contain more than one set of electrical schematics for different machine variants.

Understanding Electrical Schematics

Use the applicable schematic set to trace wires and connections between electrical devices. In most cases it will be necessary to trace wires across more than one schematic sheet.

The example identifies the information contained on the diagrams. It also shows how to follow wires from one diagram sheet to another.

The harness inter-connector codes and device harness connector codes are the same as used on the applicable harness drawings.

Splices are not normally accessible. Splices are inside the harness sheath and not visible on the outside. Wires are welded together at a splice, there are no individual connector components.

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Technical Data

Table 151.

Engine Code	Oil API Specification	Viscosity	Minimum Temperature°C (°F)	Maximum Temperature°C (°F)
SA, SB, SC, SK, SG, SD, SE, SF, DA, DB, DC, DE, DG, DD, DK, DF, EC, EE, EF, EK	CF/ CH-4	SAE 5W30	-30°C (-22.0°F)	30°C (86.0°F)
	CH-4	SAE 15W40	-5°C (23.0°F)	50°C (121.9°F)
	CH-4	SAE 10W40	-15°C (5.0°F)	46°C (114.7°F)
	CH-4	SAE 5W40	-30°C (-22.0°F)	46°C (114.7°F)

Table 152.

Engine Code	Oil API Specification	Viscosity	Minimum Temperature°C (°F)	Maximum Temperature°C (°F)
SL, SH, DH, DM	CH-4	SAE 5W40	-30°C (-22.0°F)	46°C (114.7°F)
	CJ-4	SAE 5W40	-30°C (-22.0°F)	46°C (114.7°F)
	CH-4	SAE 15W40	-5°C (23.0°F)	50°C (121.9°F)

Table 153.

Engine Code	Oil API Specification	Viscosity	Minimum Temperature°C (°F)	Maximum Temperature°C (°F)
SJ, DJ, FL	CJ-4	SAE 5W40	-30°C (-22.0°F)	46°C (114.7°F)
	CJ-4	SAE 5W30	-30°C (-22.0°F)	30°C (86.0°F)
	CJ-4	SAE 10W30	-15°C (5.0°F)	46°C (114.7°F)

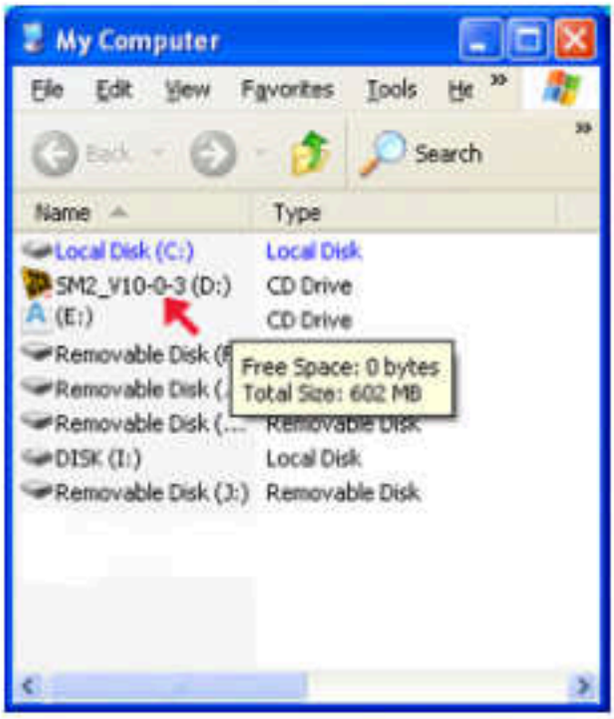
Table 154. Capacity

Engine Code	Minimum	Maximum
SA, SB, SC, SK, SG, SD, SE, SF, DA, DB, DC, DE, DG, DD, DK, DF, SL, SH, DH, SJ, DJ, DM	11.5L	14L
EC, EE, EF, EK	20L	24L
FL	12.3L	14.5L

For information on how to identify the correct engine code. Refer to Operator Station, Identification Label, Engine (PIL 06-63-06).

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Figure 322.



4. Select and open the "Setup.exe" application.
5. A new window "JCB Servicemaster Setup" will appear on the screen.
   5.1. Click the "Install V10.0.3" option to start the setup application. Refer to Figure 323.

Figure 323.



6. A new window "Select Setup Language" will appear on the screen. Refer to Figure 324.
   6.1. Use the drop down option to select the suitable language.
   6.2. Click the "OK" option to confirm selected language.

Figure 324.



7. A warning message window will appear on the screen. Refer to Figure 325.
   7.1. Click the "OK" option.

Figure 325.



8. A new window "JCB Servicemaster Installation Wizard" will appear on the screen. Refer to Figure 326.
   8.1. Click the "Next" option to proceed.

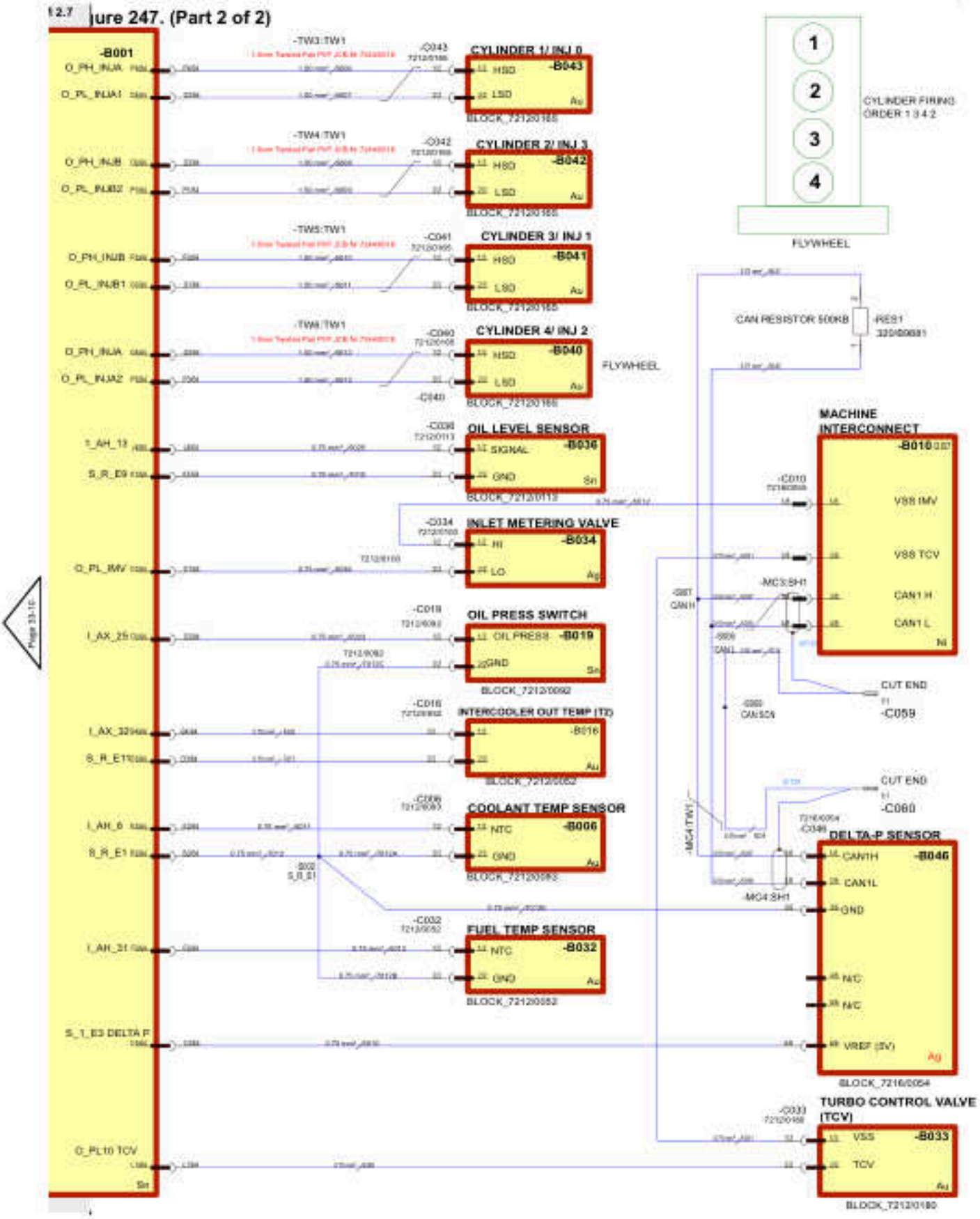
Figure 326.



9. Put "User Name" and "Organization" details into the "Customer Registration" screen. Refer to Figure 327.
   9.1. Click the "Next" option when you inserted details.

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