SERVICE MANUAL

ENGINE

JCB T4F 444 (55kw) Engine (4 Cyl),
JCB T4i 444 Elec Engine (4 Cyl),
JCB T4i 448 Elec Engine (4 Cyl)

EN - 9806/4300 - ISSUE 5 - 09/2018

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.

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Technical Data

Table 4.

Description	SL Engine	SH Engine	SM Engine	DH Engine	DM Engine
Engine Variants	Turbocharged with intercooler	Turbocharged with Intercooler	Turbocharged with Intercooler	Turbocharged with Intercooler	Turbocharged with Intercooler
Emission compliance	US-EPA Tier 4 Final, EU Stage IV	US-EPA Tier 4i, EU Stage IIIB	MAR-1 (Brazil)	US-EPA Tier 4i, EU Stage IIIB	MAR-1 (Brazil)
Rated speed	2200 RPM (Revolutions Per Minute)	2200 RPM	2200 RPM	2200 RPM (108kW), 2050 RPM (129kW)	2200 RPM (108kW), 2050 RPM (129kW)
Weight (Dry)	(Dry weight-No cooling fan drive) 496kg	(Dry weight-No cooling fan drive) 496kg	(Dry weight-No cooling fan drive) 496kg	(Dry weight-No cooling fan drive) 496kg	(Dry weight-No cooling fan drive) 496kg
Number of cylinders	4	4	4	4	4
Nominal bore size	103mm	103mm	103mm	106mm	106mm
Stroke	132mm	132mm	132mm	135mm	135mm
Cylinder arrangement	In line	In line	In line	In line	In line
Combustion Cycle	4-stroke	4-stroke	4-stroke	4-stroke	4-stroke
Firing order	1-3-4-2	1-3-4-2	1-3-4-2	1-3-4-2	1-3-4-2
Displacement	4.399L	4.399L	4.399L	4.765L	4.765L
Compression ratio	16.7: 1	16.7: 1	16.7: 1	16.7: 1	16.7: 1
Engine Compression	Compression variance between each cylinder should be no greater than 3.5bar (50.7psi)	Compression variance between each cylinder should be no greater than 3.5bar (50.7psi)	Compression variance between each cylinder should be no greater than 3.5bar (50.7psi)	Compression variance between each cylinder should be no greater than 3.5bar (50.7psi)	Compression variance between each cylinder should be no greater than 3.5bar (50.7psi)
Direction of rotation (viewed from front {crankshaft pulley} end)	Clockwise	Clockwise	Clockwise	Clockwise	Clockwise
Valves	4 per cylinder	4 per cylinder	4 per cylinder	4 per cylinder	4 per cylinder
Valve clearances measured at the tappet end of the rockers (measured cold)					
- Inlet	0.15–0.21mm	0.15–0.21mm	0.15–0.21mm	0.15–0.21mm	0.15–0.21mm
- Exhaust	0.43–0.49mm	0.43–0.49mm	0.43–0.49mm	0.43–0.49mm	0.43–0.49mm
Lubricating oil pressure (Dependent on engine temperature and speed)	1.6–6.5bar (23.2–94.2psi)	1.6–6.5bar (23.2–94.2psi)	1.6–6.5bar (23.2–94.2psi)	1.6–6.5bar (23.2–94.2psi)	1.6–6.5bar (23.2–94.2psi)

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Table 79. TMAF (Temperature and Mass Air Flow) Sensor

Cause	Remedy
Sensor supply voltage or calibration fault	Disconnect the sensor, check sensor voltage supply at the harness connector (see relevant sensor help file for pin numbers or refer to engine electrical schematic). If voltage supply is faulty, disconnect all other sensor in turn until voltage supply returns. Replace the faulty sensor. If no sensor is faulty replace the ECM
	If sensor supply voltage is OK, proceed to 'Air inlet fault'.
Air inlet fault	Check all the hose connections for air leaks, repair as necessary.
	If no fault is found proceed to 'Sensor connection faulty'.
Sensor connection faulty	Check the condition of sensor to harness connection, make sure the seals are in place, check for signs of corrosion or contamination. Repair/replace as necessary.
	If no fault is found, proceed to 'Sensor failure'.
Sensor failure	If sensor is out of specification replace.
	If no faults is found, proceed to Step 5.
ECM connection fault	Disconnect the harness from engine ECM and inspect. Check seals are in place, check for signs of corrosion or contamination.
	If ECM pins are damaged, replace ECM and re-flash appropriate calibration (see Re-flashing an ECM.
	If harness is damaged, repair or replace as necessary.
	If no fault is found proceed to Step 6.
Wiring fault	Check the harness continuity and machine and engine earth contacts. Repair/ replace as necessary.
	If no fault found, raise Techweb Helpdesk call.

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J2012 Fault Codes		Lamps				
J2012 P Code (HM Byte)	J2012 FTB	Amber	Red	DTC Severity as per STD00236	Dash Display	Fault Description
U040D	98		Y	SERVICE	U040D-98-Please Contact JCB Dealer	CAN communication error: VGT overtemperature
U040D	54		Y	SERVICE	U040D-54-Please Contact JCB Dealer	CAN communication error: VGT spanlearn

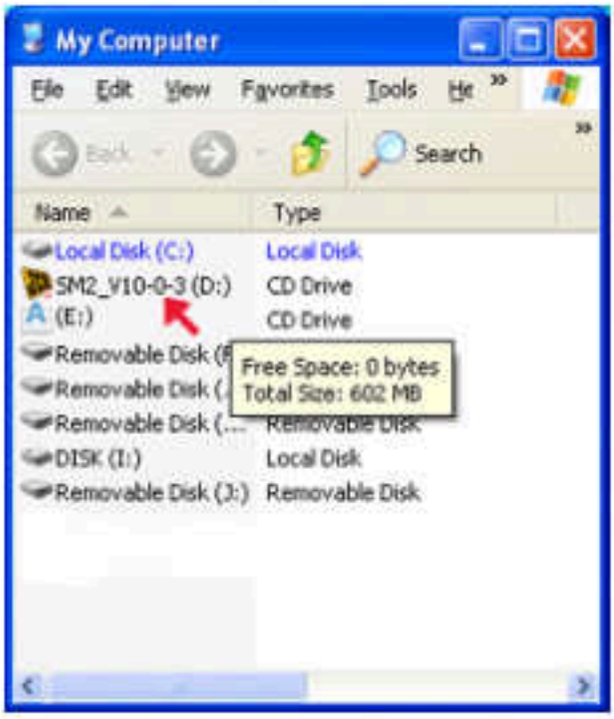
Machine Fault Codes

Table 148.

Fault Code	Cause	Remedy
C111	Short Circuit to positive connection at Fuel Sender	Check Fuel Sender
C114	Short Circuit to positive connection at Hydraulic Oil Temperature Sender	Check Hydraulic Oil Temperature Sender
C116	Short Circuit to positive connection at Fan Solenoid	Check Fan Solenoid
C117	Short Circuit to positive connection at High Flow Solenoid	Check High Flow Solenoid
C118	Short Circuit to positive connection at Charge Pump Transducer	Check Charge Pump Transducer
C119	Short Circuit to positive connection at Parallel Lift Solenoid	Check Parallel Lift Solenoid
C125	Short Circuit to positive connection at Implement Pilot Solenoid	Check Implement Pilot Solenoid
C126	Short Circuit to positive connection at Auxiliary A Solenoid	Check Auxiliary A Solenoid
C127	Short Circuit to positive connection at Auxiliary B Solenoid	Check Auxiliary B Solenoid
C130	Short Circuit to positive connection at Quick Hitch A	Check Quick Hitch A
C131	Short Circuit to positive connection at Quick Hitch B	Check Quick Hitch B
C134	Short Circuit to positive connection at SRS Solenoid 1	Check SRS Solenoid 1
C135	Short Circuit to positive connection at Two-Speed Solenoid	Check Two-Speed Solenoid
C136	Short Circuit to positive connection at LH Turn Signal	Check LH Turn Signal
C137	Short Circuit to positive connection at RH Turn Signal	Check RH Turn Signal
C140	Short Circuit to positive connection at Transmission Pilot Solenoid	Check Transmission Pilot Solenoid
C141	Short Circuit to positive connection at Crowd Solenoid	Check Crowd Solenoid
C142	Short Circuit to positive connection at Dump Solenoid	Check Dump Solenoid
C143	Short Circuit to positive connection at Float Transducer	Check Float Transducer
C144	Short Circuit to positive connection at Lower Solenoid	Check Lower Solenoid

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Figure 340.



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 341.

Figure 341.



6. A new window "Select Setup Language" will appear on the screen. Refer to Figure 342.
   6.1. Use the drop down option to select the suitable language.
   6.2. Click the "OK" option to confirm selected language.

Figure 342.



7. A warning message window will appear on the screen. Refer to Figure 343.
   7.1. Click the "OK" option.

Figure 343.



8. A new window "JCB Servicemaster Installation Wizard" will appear on the screen. Refer to Figure 344.
   8.1. Click the "Next" option to proceed.

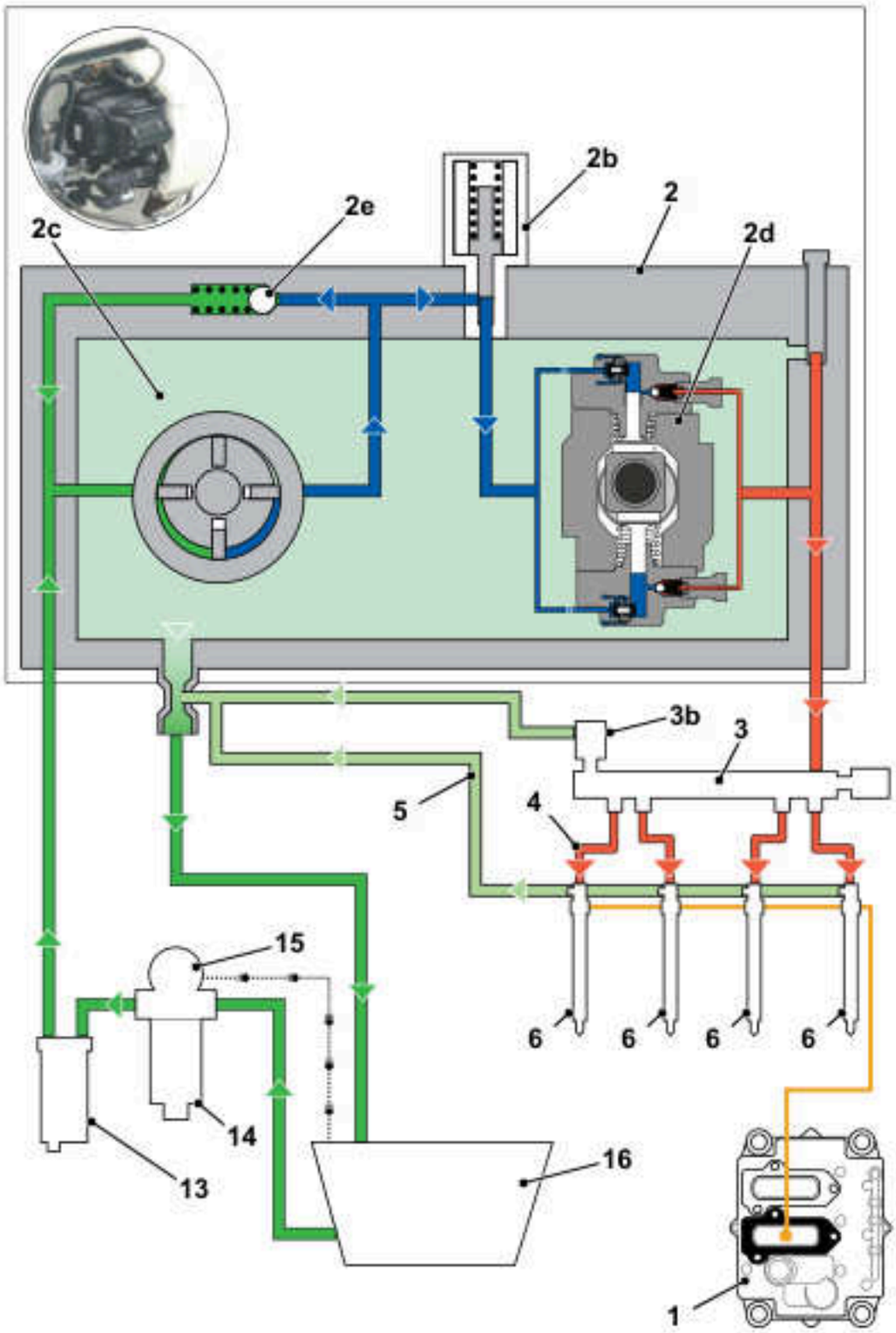
Figure 344.



9. Put "User Name" and "Organization" details into the "Customer Registration" screen. Refer to Figure 345.
   9.1. Click the "Next" option when you inserted details.

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Figure 165.



1 ECM
2b IMV
2 Fuel high pressure pump
2c Fuel high pressure pump (transfer section)

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