Service Manual

JS 130 Tracked Excavators

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Section 2 - Operator's Manual

Section B - Body and Framework

Section C - Electrical

Section E - Hydraulics

Section F - Transmission

Section J - Track and Running Gear

Section K - Engine



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Additives

The additives listed below are advertised as being suitable for bringing the lubricity levels of kerosene/low sulphur fuels up to those of diesel fuels.

These products are given as examples only. The information is derived from the manufacturers data. The products are not recommended or endorsed by JCB. Contact your JCB dealer for further advice.

- Elf 2S 1750. Dosage 1000-1500 ppm (0.1% to 0.15%), specifically for Indian Superior Kerosene (SKO) but may be applicable to other fuels.
- Lubrizol 539N. Dosage (on Swedish low sulphur fuel) 250 ppm.
- Paradyne 7505 (from Infineum). Dosage 500 ppm (0.05%).

These products are given as examples only. The information is derived from the manufacturers data. The products are not recommended or endorsed by JCB.

Service Requirements for use of B20 Biodiesel

- The engine oil must be a grade CH4 as minimum specification.
- Do not leave unused B20 biodiesel in the fuel tank for extended periods (top up each day).
- Make sure that 1 in 5 fuel tank fills use standard diesel to EN590 specification, this will help to prevent 'gumming'.
- Make sure regular oil sampling is completed (look for excessive unburnt fuel content, water or wear particles.
- Change the engine oil and filter more frequently (as a minimum half the recommended intervals), or as indicated by oil sampling.
- Change the fuel filters more frequently (as a minimum half the recommended intervals), or if there are engine performance related issues..
- Make sure the fuel is stored correctly, care must be taken to make sure no water enters the machine fuel tank (or the storage tank). Water will encourage micobacterial growth.
- Make sure that the fuel pre-filter is drained daily (not every week as currently advised).
- Use heater kits in low ambient temperature territories.
- The biodiesel must meet the following standards: ASTM D6751, DIN 51606, ISO 14214.

If necessary use a test kit to confirm the fuel specification. Testing kits are available (not from JCB currently), use the internet as a source for the kits.

If performance related issues are to be reported to JCB Service, and the engine has been run on biodiesel, then the fuel system must be filled with standard diesel (at least 2 x tank fills) to EN590 specification and relevant stall speeds recorded prior to making the report.

Warranty

JCB have shown a commitment to support the environment by approving the use of biodiesel blended fuels.

Using a B5 blend of biodiesel requires caution and additional servicing of the engine is required.

Failure to follow the additional recommended service requirements may lead to a warranty claim being declined.

Failures resulting by the incorrect use of biodiesels or other fuel additives are not defects of the engine workmanship and therefore will not be supported by JCB Warranty.

Usage and Effects of Fuels

The information that follows does not indicate types of fuel that are acceptable or unacceptable.

Acceptable Fuels

Ultra Low Sulphur Diesel (EN590)

Available throughout the UK, Europe and North America since March 1999. This fuel has a maximum sulphur content of 0.001% (0.0015% in North America) by weight and a further reduction in the natural lubricity and

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Component Keys

Connector Code	Device	Harness Location	Sheet
C001	ECU: JCB Engine	Revolver Harness	2
C002	Resistor: CAN Termination	Revolver Harness	13
C003	Module: JCB Engine Fuse & Relay	Revolver Harness	2
C004	Converter: Voltage 24/12V	Revolver Harness	2
C006	Pump: Fuel Lift	Revolver Harness	2
C007	Sensor: Water In Fuel	Revolver Harness	2
C008	Sensor: Engine Oil Level	Revolver Harness	6
C009	Solenoid: Engine Starter Motor	Revolver Harness	2
C010	Motor: Starter+	Revolver Harness	2
C012	Switch: Battery Isolator	Revolver Harness	2
C015	ECU: Machine Control (J1)	Cab Harness	5
C016	ECU: Machine Control (J2)	Cab Harness	6
C018	Light: Working - Revolver RH	Revolver Harness	8
C019	Pump: Re-fuelling	Revolver Harness	4
C020	Switch: Re-Fuelling Pump	Revolver Harness	3
C021	Sensor: Fuel Level	Revolver Harness	5
C022	Alarm Horn	Revolver Harness	4
C023	Sensor: Boom Overload	Revolver Harness	3
C024	Diode: Alternator Suppression	Revolver Harness	2
C025	Socket: Beacon - Main	Revolver Harness	8
C026	Motor: Screenwash Pump	Revolver Harness	7
C027	Sensor: Air Filter Restriction	Revolver Harness	5
C028	Sensor: Coolant Level	Revolver Harness	6
C030	Fusebox: Primary	Revolver Harness	2
C033	Relay: Ignition	Revolver Harness	3
C036	Sensor: Pressure - Upper Pilot	Revolver Harness	5
C037	Sensor: Pressure Travel Pilot	Revolver Harness	6
C038	Solenoid: Cooling Fan Control	Revolver Harness	5
C039	Sensor: Pressure - AC	Revolver Harness	16
C040	Solenoid: AC Compressor Clutch	Revolver Harness	16
C041	Alarm Travel	Revolver Harness	6
C042	Alternator: 24V 55A	Revolver Harness	2
C045	Solenoid: Pump Control	Revolver Harness	6
C046	Sensor: Hydraulic Oil Temperature	Revolver Harness	5
C047	Solenoid: Max Flow	Revolver Harness	6
C048	Solenoid: Travel Speed	Revolver Harness	5
C049	Solenoid: Swing Lock	Revolver Harness	6
C050	Solenoid: Swing Isolate	Revolver Harness	6
C051	Solenoid: Controls Enable	Revolver Harness	6
C052	Solenoid: MRV Boost	Revolver Harness	6
C053	Solenoid: Swing Brake	Revolver Harness	5

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Counterbalance Valve

Symptom	Possible Cause	Remedy
a Motor does not run or rotation speed is slow.	**1** Plunger not switching.	
	i External pilot pressure not present.	Inspect the piping for damage.
	ii Foreign matter between plunger and body.	Completely remove foreign matter, repair any damage and reassemble after cleaning. Renew if damage or leakage is excessive.
	iii Orifice clogged.	Completely remove foreign matter, repair any damage and reassemble after cleaning. Renew if damage or leakage is excessive.
	iv Foreign matter caught between dumper piston and cap.	Renew spring. Completely remove foreign matter, repair any damage and reassemble after cleaning. Renew if damage or leakage is excessive.
b Motor does not stop or stops slowly.	**1** Plunger does not return.	
	i Foreign matter between plunger and body.	Completely remove foreign matter, repair the damaged part and reassemble after cleaning. Renew if damage or leakage is excessive.
	ii Spring broken.	Renew spring. Completely remove foreign matter, repair any damage and reassemble after cleaning. Renew if damage or leakage is excessive.
	iii Spring not fitted.	Fit spring in specified position.
	iv Orifice clogged.	Reassemble after cleaning.
c Rotation varies.	**1** Plunger does not move smoothly.	
	i Foreign matter between plunger and body.	Completely remove foreign matter, repair any damage and reassemble after cleaning. Renew if damage or leakage is excessive.
	ii Orifice clogged.	Reassemble after cleaning.
d Abnormal noise is heard.	**1** Plunger does not return.	
	i Foreign matter between plunger and body.	Completely remove foreign matter, repair any damage and reassemble after cleaning. Renew if damage or leakage is excessive.
	ii Spring broken.	Renew spring. Completely remove foreign matter, repair any damage and reassemble after cleaning. Renew if damage or leakage is excessive.
	iii Orifice clogged.	Reassemble after cleaning.
e Travel not linear.	**1** Dumper piston or cap is excessively worn.	Renew dumper piston and cap. Completely remove foreign matter, repair any damage and reassemble after cleaning.

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Disassembly Of The Relief Valve Assembly

8 Unscrew the relief valve (45) from the base plate (60).

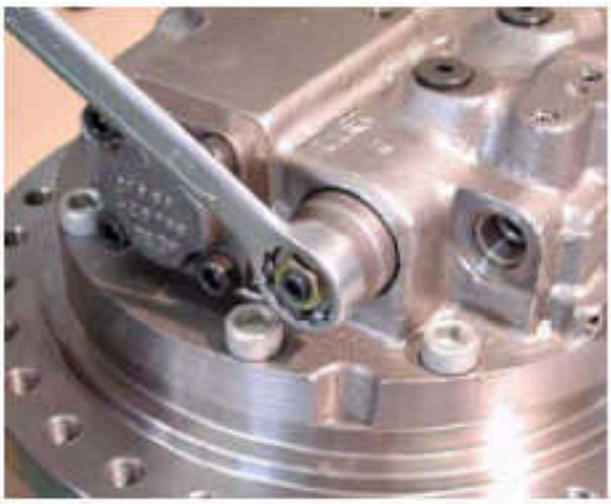


Fig 104.

9 Take out the free piston from the relief valve (45)



Fig 105.

10 Remove the O-ring seal (42) and the backup rings (41) from their seats in the free piston.



Fig 106.

11 Remove the O-ring seal (44) from relief valve (45) Repeat the same steps for the 2nd relief valve disassembly (45).



Fig 107.

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Critical Fault

Critical Fault : The display is Red, the buzzer will sound, an Icon representing area of machine affected and a fault code will display to indicate faults that may result in serious damage to the machine or make the machine dangerous to operate. This is known as a 'Critical' fault. The operator must stop the machine. Critical faults remain active until the critical fault is no longer there, otherwise it cannot be cancelled or acknowledged.

The active fault screen is shown at **A.** After 2 seconds screen **B** is displayed. Screens **A** and **B** will display alternately every 2 seconds. Press the control wheel to display the fault code log screen **C**.

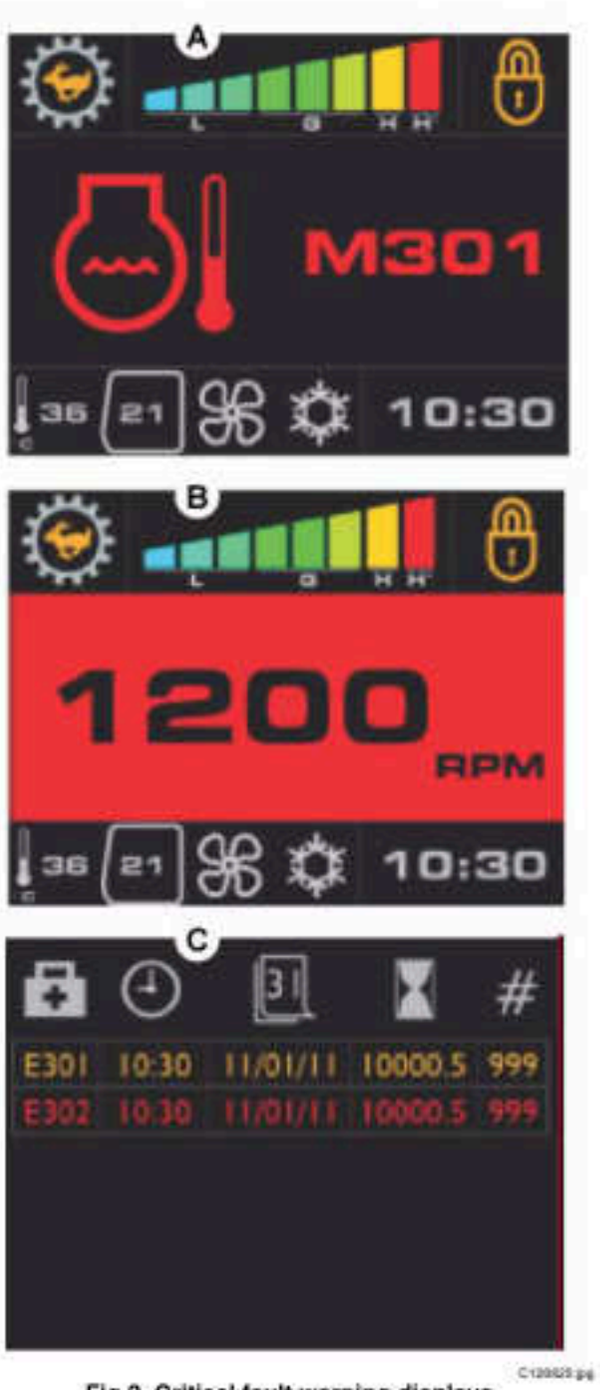


Fig 2. Critical fault warning displays

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