Service Manual

Ground Care FM25

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Fluids, Lubricants and Capacities

Table 9.

Item	Capacity Litres	Fluid / Lubricant	International Specification
Fuel Tanks	18 litres (3.9 gal)	Diesel Oil	⇨ *Types of Fuel (🗋 3-38)*
Engine (Oil)	2.4 litres (0.5 gal)	JCB Super Multigrade Engine Oil 15W40 (4001/1500)	SAE15W/40, API CD-SF or MIL-L-2104D
Hydraulic (Oil)	15 litres (3.3 gal)	JCB Gear Oil HP Plus (4000/2200)	SAE 80W, API GL-4
Engine Coolant	7 litres (1.5 gal)	JCB Universal Antifreeze/water ⇨ *Coolant Mixtures (🗋 3-17)*	ASTM D3306-74
All Other Grease		JCB EP MPL Moly Grease (4003/1312)	

Coolant Mixtures

T3-009_3

Check the strength of the coolant mixture at least once a year, preferably at the start of the cold period.

Replace the coolant mixture according to the intervals shown in the machine's Service Schedule.

⚠ WARNING

Antifreeze can be harmful. Obey the manufacturer's instructions when handling full strength or diluted antifreeze.

7-3-4-4_1

You must dilute full strength antifreeze with clean water before use. Use clean water of no more than a moderate hardness (pH value 8.5). If this cannot be obtained, use de-ionized water. For further information advice on water hardness, contact your local water authority.

The correct concentration of antifreeze protects the engine against frost damage in winter and provides year round protection against corrosion.

The protection provided by JCB High Performance Antifreeze and Inhibitor is shown below.

50% Concentration (Standard)

Protects against damage down to -40 °C (-39 °F)

60% Concentration (Extreme Conditions Only)

Protects against damage down to -56 °C (-68 °F)

Important: *Do not exceed a 60% concentration, as the freezing protection provided reduces beyond this point.*

If you use any other brand of antifreeze:

- Ensure that the antifreeze complies with International Specification ASTM D6210.
- Always read and understand the manufacturer's instructions.
- Ensure that a corrosion inhibitor is included. Serious damage to the cooling system can occur if corrosion inhibitors are not used.
- Ensure that the antifreeze is ethylene glycol based and does not use Organic Acid Technology (OAT).

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Mower Troubleshooting

The following troubleshooting guide is for the mower deck and its drive. This assumes the engine is running to prescribed specifications. Consult the mower repair reference for all system checks.

Before attempting repair or test, observe the general condition of the mower. Make certain the machine is operating properly and the mower is setup correctly. The following information may give you some hints in what to look for when attempting to solve a problem with the mower. If the problem cannot be easily solved, contact your JCB dealer.

Symptom	Problem	Correction
Excessive Vibration.	Loose spindle/blade fasteners.	Torque or replace as necessary.
	Blade interference with grass buildup in deck.	Clean the underside of the deck.
	Blade(s) broken or worn badly.	Replace mowing blade(s).
	Engine mounting bolts are loose.	Tighten the engine mounting bolts.
Uneven Cutting Height.	Blades blunt.	Sharpen or replace blades.
	Cutting blade(s) is/are bent.	Install new cutting blades.
	Deck is not level.	Level deck.
	Grass buildup under deck.	Clean underside of deck. Clean suction channel for grass collection.
	Incorrect tyre pressure.	Adjust the pressures ⇨ *Tyre and Wheel Maintenance (🗋 3-45)*
	Blade spindle bent.	Contact JCB Dealer.
	Ground speed too fast	Cut at slower speed.
Blades Wear Too Fast.	Cutting in sandy conditions.	Increase deck mowing height.
	Cutting in rocky conditions.	Increase deck mowing height.
	Heat treat has been removed by sharpening with grinder.	Replace mowing blade(s).
Not Cutting Clean.	Blades dull.	Sharpen or replace blades.
	Blades installed upside down.	Install blades correctly.
	Blade RPM too low.	Use full throttle position.
	Mower deck not level.	See cutting heights or Tyres under inflated. ⇨ *Tyre and Wheel Maintenance (🗋 3-45)*
	Mower tyres mashing grass.	Too wet or lush to mow. Reverse direction and re-mow the area.
	Ground speed too fast.	Reduce ground speed.
	Excessive grass buildup under mower deck.	Clean underside of deck. Clean suction channel for grass collection.

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Example of Schematic Circuit

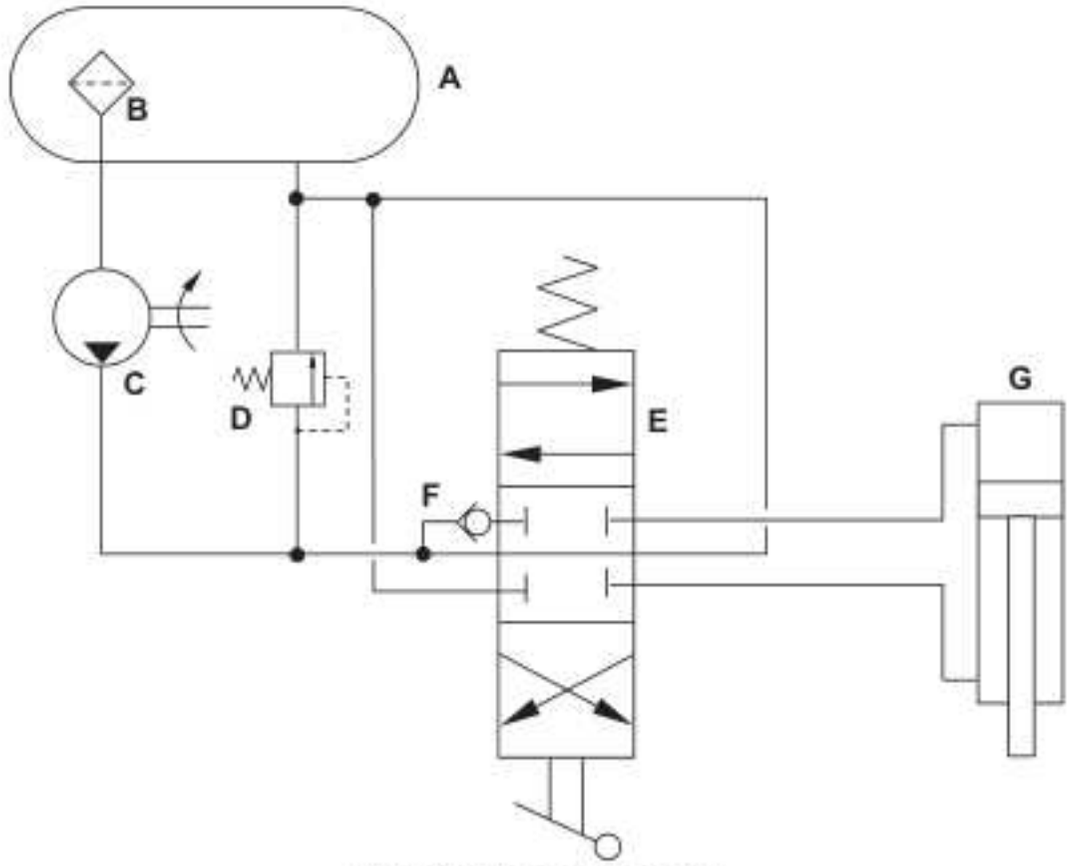


Fig 7. Simple Schematic Circuit

Some of the symbols described on the preceding pages have been arranged into a simple schematic circuit. ⇨ *Fig 7. (🗋 E-9)*.

Hydraulic tank **7-A** is a pressurised tank with an internally mounted strainer **7-B** on the suction line to the fixed displacement pump **7-C**. System pressure is limited to the setting of relief valve **7-D**.

Valve spool **7-E** is an open-centre spool that is in neutral position; flow from the pump passes through the spool and returns to the hydraulic tank.

If the lever operated spool is moved away from neutral position hydraulic fluid is directed to either head side or rod side of hydraulic ram **7-G**. Notice that the fluid must first open one way valve **7-F** before flowing to the ram.

Example Circuit Key

7-A	Hydraulic Tank
7-B	Strainer
7-C	Fixed Displacement Pump
7-D	Relief Valve
7-E	Spool
7-F	One Way Valve
7-G	Double Acting Hydraulic Ram

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Fault Finding

Hydraulic System

Note: *Tables 1 to 5 apply to the front lift, the tipping cylinder for the grass collection bin, and the raising cylinder for the grass collection bin.*

Fault:

⇨ *Table 1. Lift will not rise (E-11)*
⇨ *Table 2. Lifting speed too slow (E-11)*
⇨ *Table 3. Lift lowers when adjusting valve is fully closed (E-12)*
⇨ *Table 4. Lift will not lower (E-12)*
⇨ *Table 5. Lowering speed too slow (E-12)*
⇨ *Table 6. Overheating fluid (E-13)*
⇨ *Table 7. Pump noisy (E-13)*
⇨ *Table 8. Excessive wear, deflection or damage to pump (E-13)*
⇨ *Table 9. Oil leaks from pump (E-13)*
⇨ *Table 10. Oil leaks from piping or joints (E-13)*
⇨ *Table 11. Oil leaks around lift arm (E-13)*

Table 1. Lift will not rise

Possible Cause	Action
Insufficient engine speed.	Increase engine speed slightly.
Insufficient transmission oil.	Replenish.
Suction line taking in air.	Tighten securely or replace broken parts.
Clogged suction filter.	Clean filter
Damaged or worn hydraulic pump.	Repair or replace pump.
Incorrect adjustment or worn link.	Adjust or replace link.
Excessive load on lift.	Reduce load.
Broken cylinder.	Replace.
Viscosity of transmission oil too low.	Replace oil with correct grade.
Incorrectly adjusted valve.	Adjust valve to correct setting.
Internal leaks.	Inspect cylinder and valves. Replace damaged seals.
Sticking valve spool.	Disassemble and wash spool clean. Replace/repair if necessary.

Table 2. Lifting speed too slow

Possible Cause	Action
All possible causes given in ⇨ *Table 1. Lift will not rise (E-11)*	Repair as given in ⇨ *Table 1. Lift will not rise (E-11)*

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Charging System

Fault:

⇨ *Table 17. Battery is low in charge or discharge (C-13)*
⇨ *Table 18. Battery is charging at a high rate (battery over heating) (C-13)*
⇨ *Table 19. No output from alternator (C-13)*
⇨ *Table 20. Intermittent or low alternator output (C-13)*
⇨ *Table 21. Warning light dim (C-14)*
⇨ *Table 22. Warning light is normal but battery is discharged (C-14)*
⇨ *Table 23. Warning light is lit during operation (C-14)*
⇨ *Table 24. Warning light flashes intermittently (C-14)*

Table 17. Battery is low in charge or discharge

Possible Cause	Action
Loose or worn alternator drive belt.	Check, adjust tension or replace.
Defective battery: It will not accept or hold a charge. Electrolyte level Low.	Check condition of battery and replace if necessary.
Excessive resistance due to loose charging system connections.	Check, clean and tighten circuit connections.
Faulty alternator.	Check, and repair or replace.
15A fuse blown.	Check and replace.

Table 18. Battery is charging at a high rate (battery over heating)

Possible Cause	Action
Defective battery.	Check condition of battery and replace if necessary.
Faulty alternator.	Check, and repair or replace.

Table 19. No output from alternator

Possible Cause	Action
Alternator drive belt is broken.	Replace and tension correctly.
Loose connection or broken cable in charge system.	Inspect system, tighten connections and repair or replace faulty wiring.
Faulty voltage regulator.	Check and replace.
Faulty alternator.	Check, and repair or replace.

Table 20. Intermittent or low alternator output

Possible Cause	Action
Faulty external charging circuit connections.	Inspect system, clean and tighten connections.
Faulty rotor slip rings or brushes in alternator.	Inspect, repair or replace.
Defective monitor and warning light.	Check and replace.
Faulty rectifier or rectifying diodes in alternator.	Check and replace.

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