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Connection and Wiring Diagrams

AC Wiring

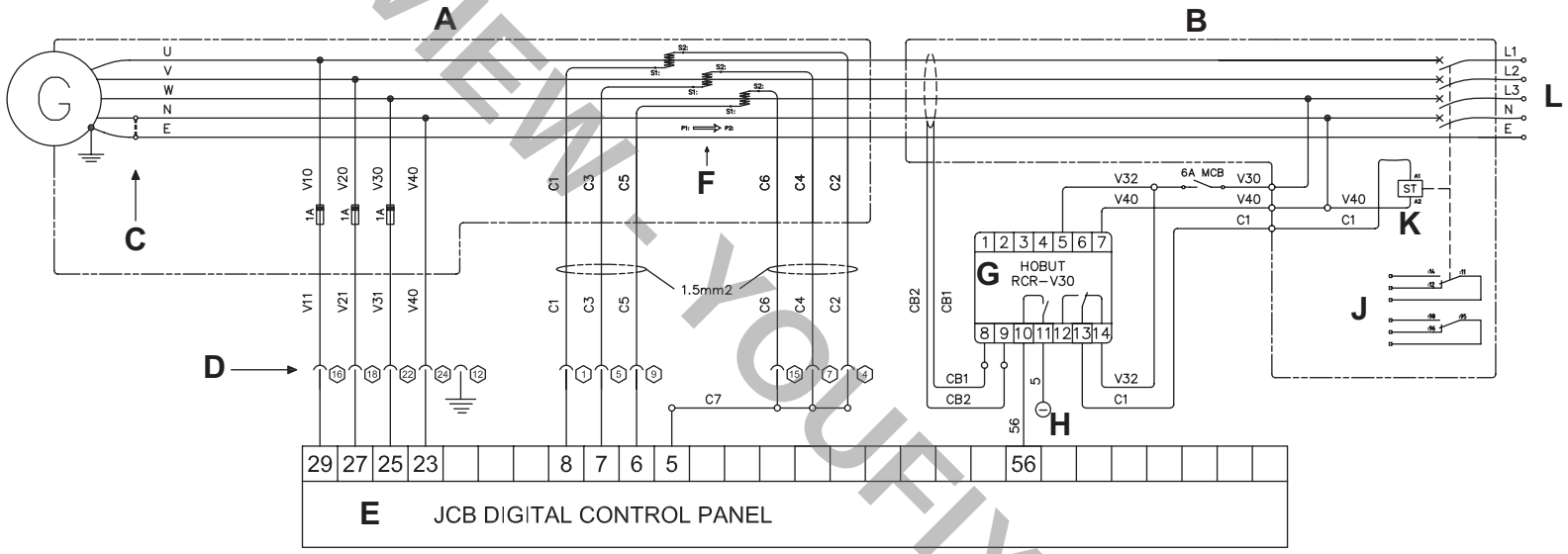


Fig 105. Standard AC Wiring

Table 9. Component Identification

⇒ Fig 105. (🗋 103)

A	Alternator Terminal Box
B	Breaker Box
C	Earth - Neutral Link (if fitted)
D	CPC connector pin numbers
E	JCB Digital Control Panel
F	Current Transformer
G	Hobut RCR-V30
H	Battery Negative
J	Breaker Auxiliaries
K	Shunt Trip (option)
L	Genset Output (to load or ATP)

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Engine Description

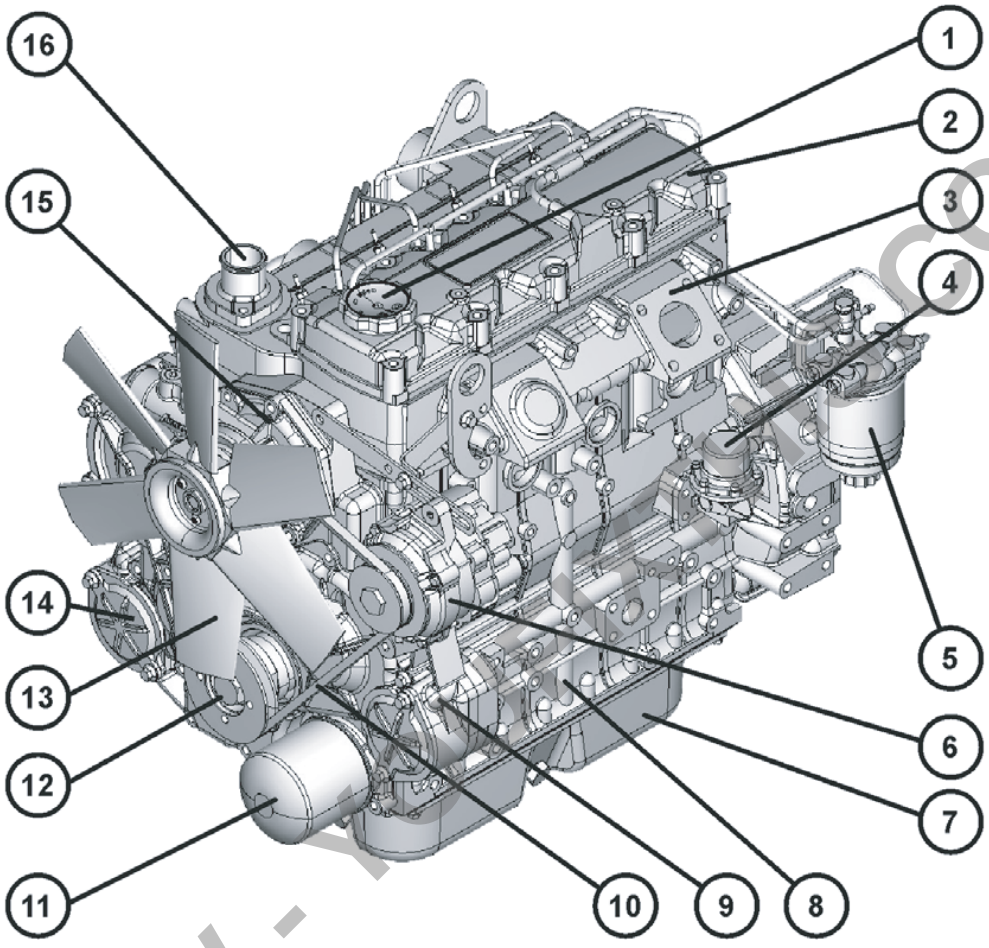


Fig 72. D 2009 L04 Operation Side

1	Oil Filler Neck (valve cover)	11	Exchangeable Lube Oil Filter
2	Valve Cover	12	Crankshaft Drive Flange
3	Exhaust Manifold	13	Fan
4	Fuel Supply Pump	14	Auxiliary Drive Possibility (e.g.Hydraulic Pump)
5	Exchangeable Fuel Filter with Water Separator	15	Coolant Pump, Coolant Inlet from Cooler
6	Generator	16	Coolant Outlet from Engine to Cooler
7	Oil Tray		
8	Crankcase		
9	Auxiliary Drive Possibility (e.g. Hydraulic Pump)		
10	Narrow V-Belt		

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Mains Value Details

All Mains parameters measured are displayed on this screen.

Mains voltages line-line and line-neutral; mains current; mains frequency; mains real/reactive power and power factor.

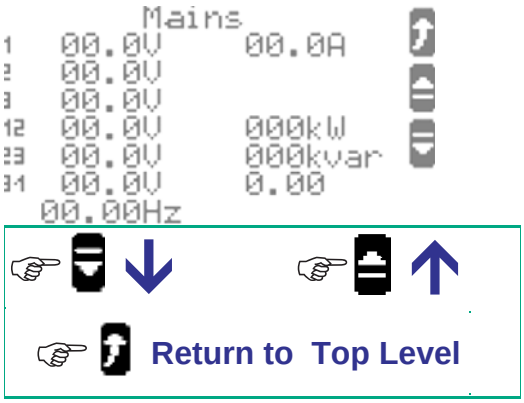


Fig 32.

Generator Peak Currents

Displays the peak (maximum), generator and mains currents per phase.

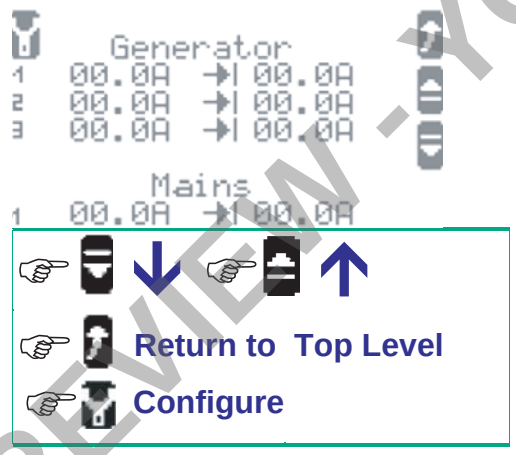


Fig 33.

Analogue Inputs

This screen displays the information from the analogue inputs. Feedback is provided about the status of battery voltage, oil pressure and coolant temp.

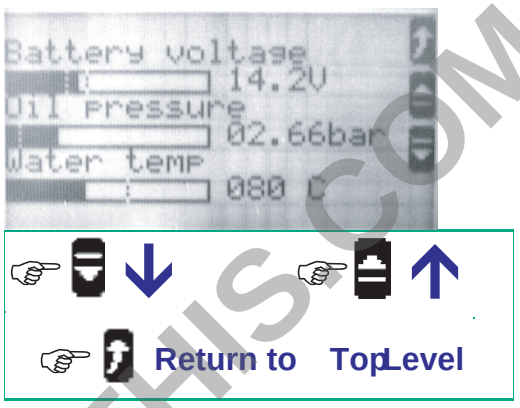


Fig 34.

Digital Inputs and Outputs

Information is provided about the digital inputs and outputs. An input / output is set if the corresponding block is seen as shaded.

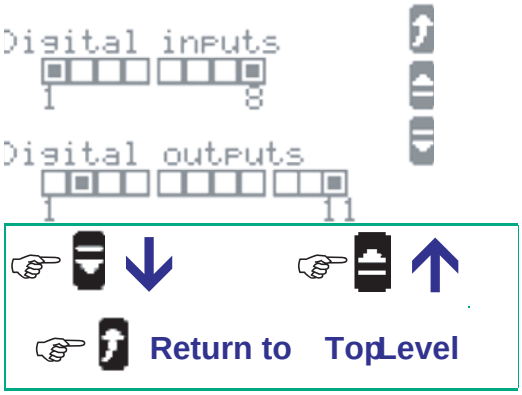


Fig 35.

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Engine - Operation

Initial Commissioning

Engine Oil Filling

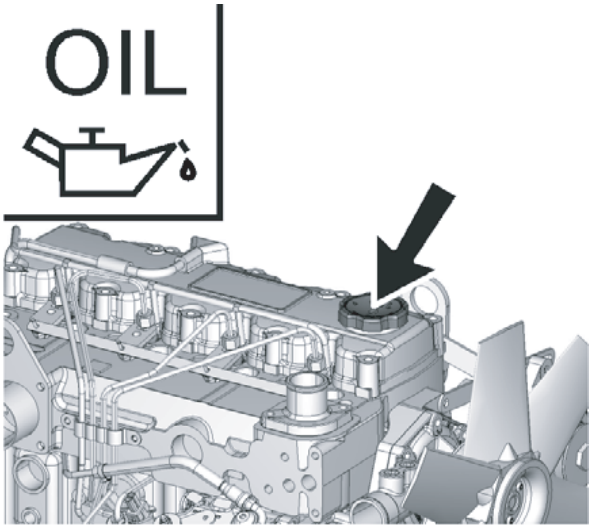


Fig 78.

Fill the engine with lube oil via the oil filler neck.

Initial Engine Oil Filling

1 Fill the oil tray with oil up to the marking "Max" on the oil dipstick.

2 Start the engine and run at a low idling speed for approx. 2 minutes.

3 Switch off the engine.

4 Check the oil level. If necessary, fill with oil up to upper "Max" line marking.

Initial Coolant Filling With Cooler

1 Fill honeycomb cooler with coolant up to the marking " Max ".

2 Also fill the supply hoses and the external honeycomb cooler to coolant capacity (per manufacturer specifications).

3 Allow the engine to warm up until the thermostat has opened (at approx. 86-90°C).

4 Leave the engine running for approx. 2 minutes.

5 Switch off the engine

6 Check the oil level. If necessary, fill with coolant up to upper " Max " line marking.

Note: *If the engine is not warmed up following the initial filling, the oil level will be above the "Max" marking on the oil dipstick. Therefore, it is only possible to assess the oil level after the warm up.*

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Service Schedule Checklist

Table 2. Service Schedules

		Interval (hrs)								At Least Annually
	Operation	**10**	**50**	**250**	**500**	**1000**	**2000**	**3000**	**6000**	
Oil Level	- Check	☐	☐	☐	☐	☐	☐	☐	☐	
Oil and Filter(1)	- Change				☐	☐	☐	☐	☐	☐
Fuel Diaphragm Pump	- Check				☐	☐	☐	☐	☐	
Fuel Diaphragm Pump	- Change						☐		☐	☐
Engine Fuel Filter	- Change				☐	☐	☐	☐	☐	☐
Injector Nozzle	- Change							☐	☐	☐
Radiator	- Check		☐	☐	☐	☐	☐	☐	☐	☐
Coolant Quality and Level	- Check	☐	☐	☐	☐	☐	☐	☐	☐	☐
Cooling System	- Drain and Refill					☐	☐	☐	☐	☐
Air Cleaner Outer(2)	- Change				☐	☐	☐	☐	☐	☐
Air Cleaner Inner Element	- Change						☐		☐	
Water Separator and Engine Fuel Filter(3)	- Drain		☐	☐	☐	☐	☐	☐	☐	
Water Separator and Engine Fuel Filter(3)	- Change				☐	☐	☐	☐	☐	☐
Fan Belt Condition	- Check		☐	☐	☐	☐	☐	☐	☐	
Fan Belt	- Change						☐		☐	☐
Engine Mounting Bolts for Tightness	- Check			☐	☐	☐	☐	☐	☐	☐
All Hoses - Condition	- Check			☐	☐	☐	☐	☐	☐	☐
Door Hinge Pins	- Grease									☐
Alternator Terminal and Cable Inspection	- Check					☐	☐	☐	☐	

(1) The oil service interval will be affected if there is a high sulphur content in the fuel.
(2) More frequently if operating in dusty working environments.
(3) If the engine is difficult to start or the engine has poor performance, fit new filters.

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Engine Oil

⚠ WARNING

You can be killed or injured by moving machinery. Wait for all movement to stop before servicing machinery.

13-3-2-3

The generating set engine oil is pre-filled in factory. However it is important to check the level of oil in the engine before any starting can take place, and also as part of a regular maintenance schedule. The engine oil should be replenished as necessary. JCB Extreme Performance Engine Oil 15W40 is recommended for use in JCB generating sets. For more climate specific lubrication information consult the supplied engine manual.

To check the level of engine oil, ensure that the set is sufficiently cool and the set is not running, preferably before startup. Remove the dipstick usually located at either side of the engine (refer to engine manufacturers handbook for specific location information) and wipe off excess oil with a clean non-abrasive cloth. Return the dipstick fully to its normal position, remove again and visually inspect oil level against markings on the dipstick itself. If oil level is low, remove the oil cap from the top/side of the engine and add some oil, allow to settle and then check oil level on dipstick again. Repeat exercise until oil level on dipstick has reached the recommended level. Replace oil cap on top of engine when complete.

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Health and Safety

T3-001_3

Lubricants

Introduction

It is most important that you read and understand this information and the publications referred to. Make sure all your colleagues who are concerned with lubricants read it too.

Hygiene

JCB lubricants are not a health risk when used properly for their intended purposes.

However, excessive or prolonged skin contact can remove the natural fats from your skin, causing dryness and irritation.

Low viscosity oils are more likely to do this, so take special care when handling used oils, which might be diluted with fuel contamination.

Whenever you are handling oil products you should maintain good standards of care and personal and plant hygiene. For details of these precautions we advise you to read the relevant publications issued by your local health authority, plus the following.

Storage

Always keep lubricants out of the reach of children.

Never store lubricants in open or unlabelled containers.

Waste Disposal

⚠ CAUTION

It is illegal to pollute drains, sewers or the ground. Clean up all spilt fluids and/or lubricants.

Used fluids and/or lubricants, filters and contaminated materials must be disposed of in accordance with local regulations. Use authorised waste disposal sites.

INT-3-2-14

All waste products should be disposed of in accordance with all the relevant regulations.

The collection and disposal of used oil should be in accordance with any local regulations. Never pour used engine oil into sewers, drains or on the ground.

Handling

New Oil

There are no special precautions needed for the handling or use of new oil, beside the normal care and hygiene practices.

Used Oil

Used engine crankcase lubricants contain harmful contaminants.

Here are precautions to protect your health when handling used engine oil:

1 Avoid prolonged, excessive or repeated skin contact with used oil.

2 Apply a barrier cream to the skin before handling used oil. Note the following when removing engine oil from skin:

- **a** Wash your skin thoroughly with soap and water.
- **b** Using a nail brush will help.
- **c** Use special hand cleansers to help clean dirty hands.
- **d** Never use petrol, diesel fuel, or paraffin for washing.

3 Avoid skin contact with oil soaked clothing.

4 Don't keep oily rags in pockets.

5 Wash dirty clothing before re-use.

6 Throw away oil-soaked shoes.

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Changing Method of Voltage Calculations

The JCB Digital Control Panel has the ability to monitor the voltage of the Genset/mains in a number of different ways according to the alternator configuration. For single phase generating sets the voltage display cannot be changed. For three phase sets however the JCB Digital Control Panel can display both line and phase voltage quantities. Using the soft key **26-A** from the top level screen the voltage measurement can be scrolled through. The modes of measurement are displayed beside the voltage measurement itself and comprise as follows:

Phase 1 - N	Phase 2 - N	Phase 3 - N
Phase 1 - 2	Phase 2 - 3	Phase 1 - 3



Fig 26. Change Three Phase Calculations

Mains Voltages can also be read from the JCB Digital Control Panel using the same scroll through method as above but by starting off in the `Mains' Screen. To access the `Mains' screen from the Top Level screen press the downward navigation soft key once.



Fig 27. Mains Screen



Fig 28. Access Mains Overview Screen

Note: *The Mains overview screen can only be accessed when the Genset is connected to an ATP7, GCB/MCB mode is enabled or mains monitoring is switched on.*

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Safety, Yours and Others

All machinery, whether mobile or static can be hazardous. When equipment is correctly operated and properly maintained it can be safe to work with. But when it is carelessly operated or poorly maintained it can become a danger.

Do not work with any equipment until you are sure that it is serviceable, that you know how to control it and be aware of all relevant safety requirements.

If the equipment covered by this manual forms part of a larger product (e.g a vehicle) be sure to observe the safety requirements which relate to the product as a whole, as well as those given in this manual.

On this and the following pages and throughout this manual, you will find safety messages. Please read and understand these safety messages before using and working on the equipment covered in this manual.

Make sure you also read and understand all other safety messages contained in operator handbooks and service manuals concerned with the product of which this equipment form part.

Remember

BE CAREFUL

BE ALERT

BE SAFE

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Fuel System

Changing the Fuel Filter

⚠ WARNING

Diesel fuel is flammable. Keep flames away from the machine. Do not smoke while fueling the machine or working on the engine. Do not fuel with the engine running.

At the end of every working day, fill the tank with the correct type of fuel. This will prevent overnight condensation from developing in the fuel.

The fuel cap is lockable, the key cannot be removed in the unlocked position.

7-3-5-2

OLLY - DOES THE FUEL CAP LOCK?

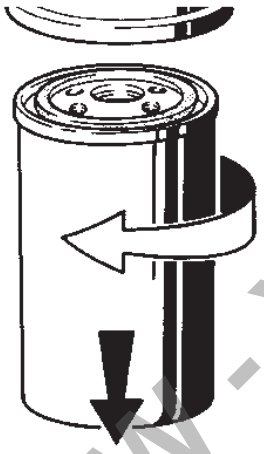


Fig 91.

1 Close the fuel stopcock.

2 Loosen the fuel filter cartridge with a standard tool and unscrew.

3 Collect any fuel which runs out.

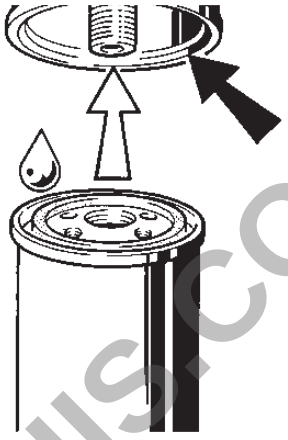


Fig 92.

4 Clean the sealing surface of the filter support.

5 Lightly oil the rubber surface of the new fuel filter cartridge or wet with diesel fuel.

6 Screw on the cartridge by hand until the seal makes contact.

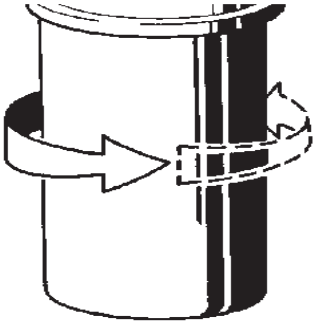


Fig 93.

7 Tighten the fuel filter cartridge with one more half turn.

8 Open the fuel stopcock.

9 Check for tightness.

Note: *It is not necessary to bleed the fuel system.*

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