



RENTAL SERIES
STAGE V DIESEL GENERATOR
G250RS V – G300RS V



INDEX

Disclaimer	3
Dimensions & Volumes	4
Key Components	5
General Checks	9
Control Panel	11
Battery Isolator	22
Multi Voltage Selection	23
Fuel Connections	24
Positioning	25
Lifting	26
Emergency Stops	27
Maintenance Schedule	28
Service Checks	29

DISCLAIMER

> This Quick Reference Guide is to provide quick and simple information to the Operator and does not include any health and safety aspects. In addition, because of our continual development of machines, features described in this Quick Reference Guide may differ from those on your machine. No errors and emissions be entirely ruled out.

> This Quick Reference Guide **DOES NOT** replace the Operators Manual. You **MUST** read **ALL** the disclaimers and safety and other instructions in the Operators Manual before initially operating this product. Accordingly, no legal claims can be entertained on the basis of the data, illustrations or descriptions in this Quick Reference Guide.

This machine should not be operated by any person who isn't appropriately qualified or had the appropriate training.

Operation of this machine without periodic maintenance could cause it to malfunction.

For more information please contact your JCB Dealer.

DIMENSIONS & VOLUMES

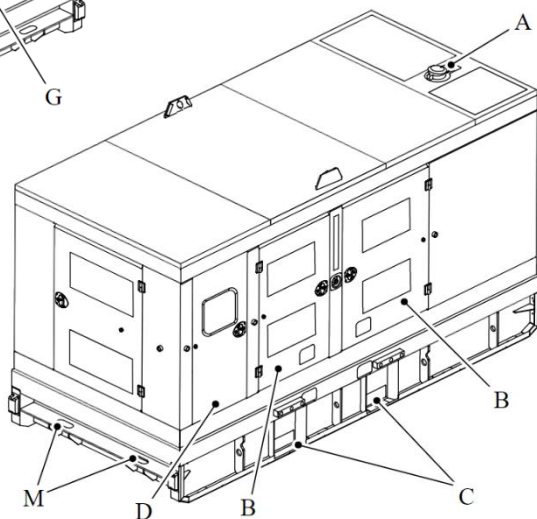
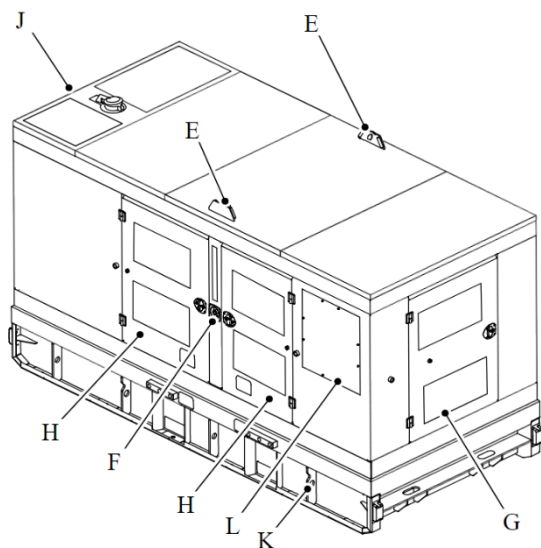
MODEL	G250RS V	G300RS V
3 PHASE – 400V – kW/kVA (Prime Power)	250	300
3 PHASE – 400V – A	361	434
DIMENSIONS – mm	L3900mm x W1800mm x H2200mm	L3900mm x W1800mm x H2200mm
WEIGHT (OPERATING) – kg	4681	4808
AFTERTREATMENT	DOC/SCR/CUC	DOC/SCR/CUC
FUEL TANK CAPACITY – L	800	800
FUEL CONSUMPTION @ 75% PRP – L/h	39.5	51.0
FUEL AUTONOMY - hrs	20	15
DEF TANK CAPACITY – L	81	81
DEF CONSUMPTION @75% PRP – L/h	3.75	4.85
DEF AUTONOMY- hrs	22	17
NOISE LEVEL (7m @ 75% LOAD)	68	68

Fuel – EN590 & EN15940

Lube Oil – API CK4

* - wet weight without fuel

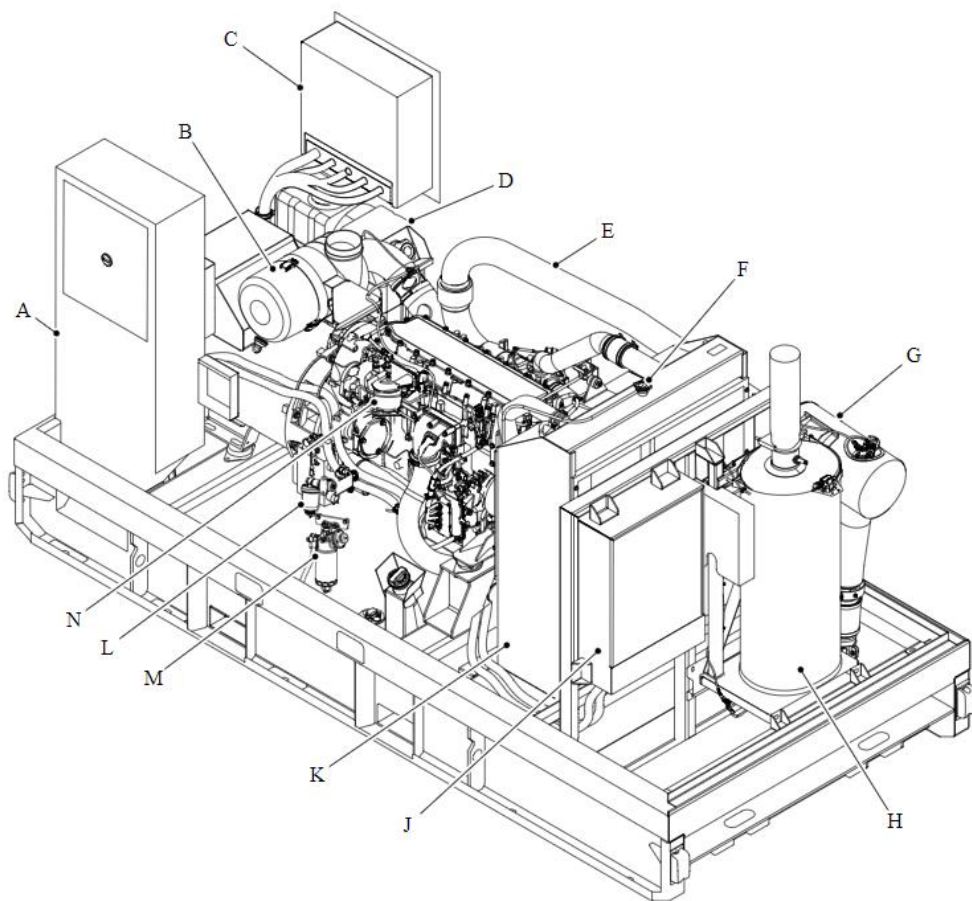
KEY COMPONENTS - ENCLOSURE



- A** Exhaust
- B** Right side door
- C** Forklift pockets (x2)
- D** Control panel door
- E** Lifting eye (x2)
- F** Emergency stop button

- G** Rear door
- H** Left side door
- J** Front door
- K** Lifting points (x4)
- L** Socket box
- M** Drag bar

KEY COMPONENTS - GENERATOR



A Control panel

B Air filter

C Socket box

D DEF (Diesel Exhaust Fluid) tank

E Exhaust pipe

F Radiator cap

G DOC (Diesel Oxidation Catalyst)

H SCR0F (Selective Catalytic Reduction on Filter)

J Resistive load elements

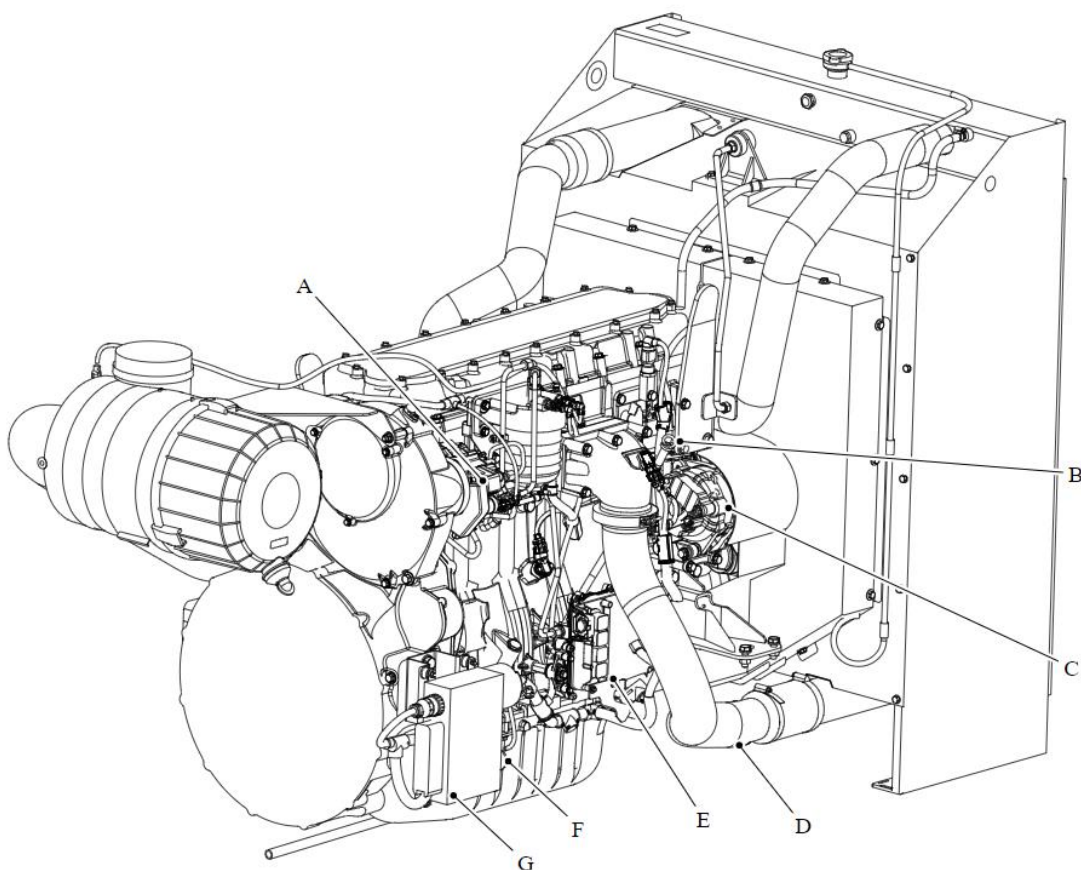
K Cooling pack

L Strainer

M Fuel pre-filter

N Fuel filter

KEY COMPONENTS - ENGINE



A Fuel pump

B Dipstick

C Alternator

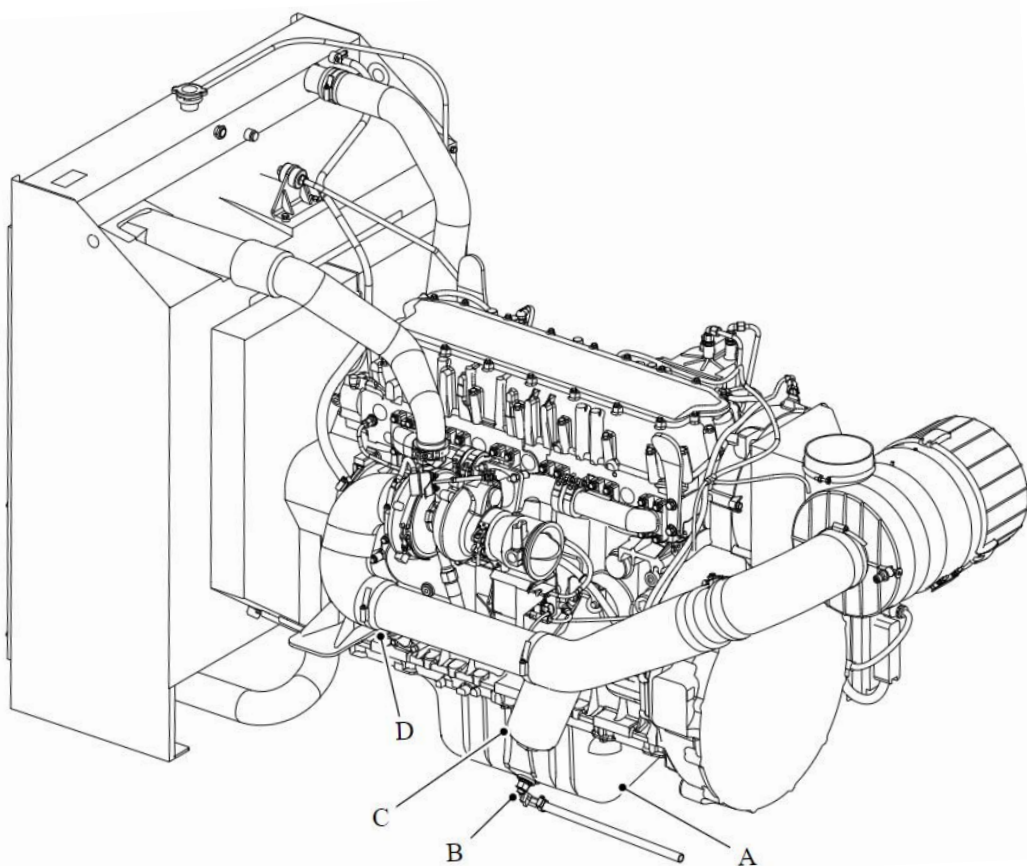
D Intercooler outlet hose

E Engine control module

F Starter motor

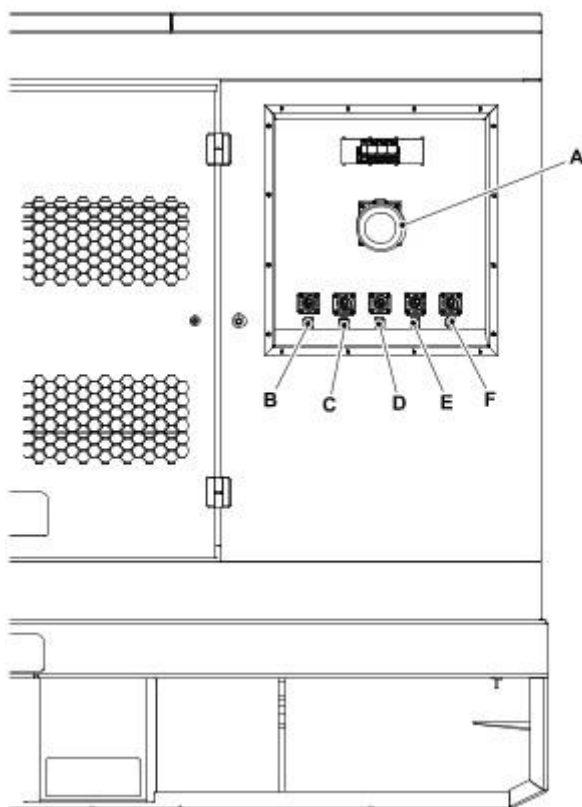
G Interface box

KEY COMPONENTS - ENGINE



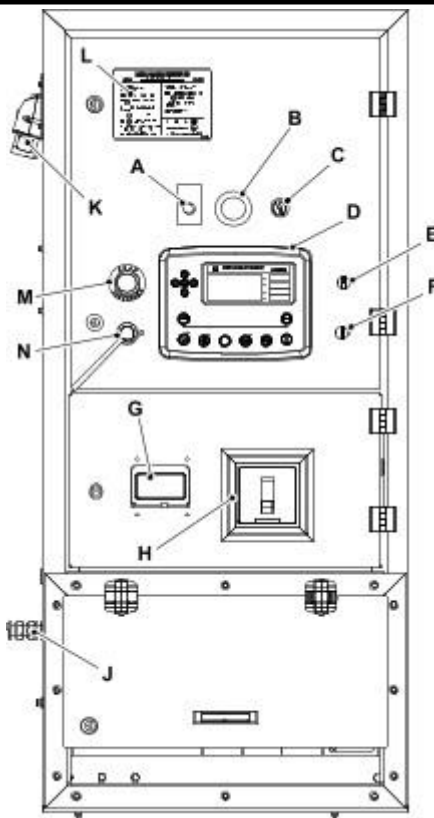
- A** Oil sump
- B** Engine oil drain valve
- C** Engine oil filter
- D** Engine oil filling neck

KEY COMPONENTS - SOCKETS



- A** 125A socket
- B** Power lock E
- C** Power lock N
- D** Power lock L3
- E** Power lock L2
- F** Power lock L1

KEY COMPONENTS - CONTROL PANEL



- | | |
|---|--|
| A Power available LED (Light Emitting Diode) indicator | G Earth leakage relay |
| B Analog hour meter | H MCCB (Moulded Case Circuit Breaker) |
| C Digital controller On/Off switch | J Earth stud |
| D Digital controller | K Auxiliary socket |
| E Synchronising switch | L Basic operating instruction label |
| F Resistor switch | M Emergency stop switch |
| | N USB (Universal Serial Bus) |

GENERAL CHECKS

Before Starting the Engine

After correct installation of the unit and the wiring, the generating set must be fully checked over before first starting can be attempted. Points to check include:

- Make sure that the battery isolator is at 'off' position before carrying out any checks.
- Check all belts, guards and panel covers are firmly secured.
- Check the installed wiring to ensure all connections are firmly installed in the correct position, and that wires are in good condition.
- Make sure that the battery connections are secure and polarity of connections are correct.
- Ensure that there is fuel in the fuel tank.
- Ensure that there is DEF in the DEF tank
- If the machine has not been run previously, if it has run out of fuel or if the fuel supply has been reconnected then the fuel system must be primed prior to starting. Check for fuel leaks during this process.
- Check level of coolant in machine radiator, and top-up if low.
- Check hoses for damage or loose clamps.
- Check level of engine oil using dipstick.
- Check fuel filter/water separator for presence of water or contaminants.
- Check the position of the 3-way valve to correct fuel source. Do not run the generator with the 3-way valve set to the 'off' position (if applicable).
- Visually inspect the engine and alternator for any signs of damage, water, oil or fuel leaks.
- Make sure that all supplied documents are kept in the document holder case.
- Ensure that machine intake and outlet air vents and grills are not obstructed or blocked in any way to allow good airflow through the machine.
- Check that the engine intake air filter is correctly fitted, and that there are no obstructions to the incoming air.
- Make sure that the alternator windings and assembly are not damp, or dirty. Failure to do so could result in damage to the alternator windings. If windings are observed to be damp/dirty contact your JCB dealer.
- Make sure that all the engine access doors are closed and secured.
- With the exception of emergency power generators, the engine should be warmed up with a reduced load before applying the full load.

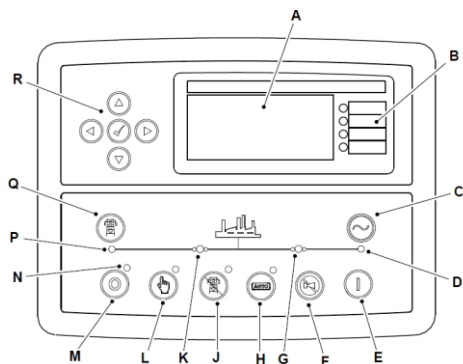
Checks After Running

Ensure that the electrical load is switched OFF before stopping the engine.

- Check that battery isolator is at 'off' position.
- Fill the fuel tank. Make sure that the filler cap and the area around the filler opening are clean to avoid contamination of the fuel.
- Make sure that all the engine access doors are closed and secured.
- If there is a risk of freezing, the cooling system must contain the correct antifreeze.
- At temperatures below 0°C: Prepare for the next start by connecting the engine heater.

Coolant should be topped up when the engine is stopped. Make sure that enough time is allowed for the engine/coolant to cool before the radiator cap is removed

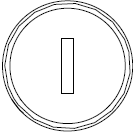
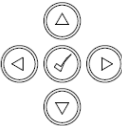
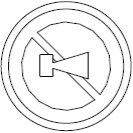
CONTROL PANEL – DSE 7310



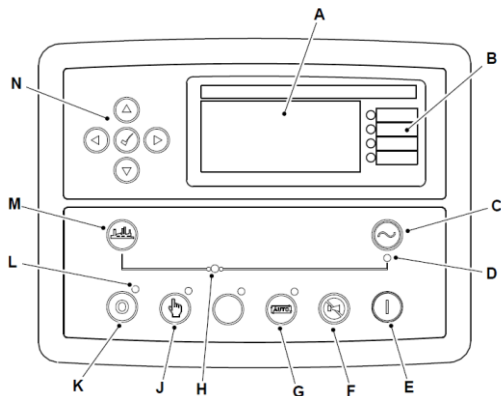
- A Module display
- B Four configurable status LED (Light Emitting Diode)
- C Transfer to generator - manual mode only (not used)
- D Generator available LED
- E Start button
- F Alarm mute and lamp test
- G Generator breaker LED (not used)
- H Auto mode
- J Test mode (not used)
- K Mains breaker LED (not used)
- L Manual mode
- M Stop/reset button
- N Selected mode indication LED
- P Mains available LED (not used)
- Q Transfer to mains - manual mode only (not used)
- R Module display navigation button

	<p>This button places the module into its STOP/RESET mode. This will clear any alarm conditions for which the triggering criteria have been removed. If the engine is running and the module is put into STOP/RESET mode, the module will automatically instruct the generator to unload ('Close Generator output' becomes inactive. In STOP/RESET mode the generator remains at rest.</p>
	<p>This button places the module into its MANUAL mode. Once in MANUAL mode, the module responds to the start button to start the generator and run it off load. The MCCB needs to be closed manually.</p>
	<p>This button places the module into its AUTO MODE. This mode allows the module to control the function of the generator automatically. The module monitors numerous start requests via digital input, PLC and MSC link and when one has been made, the set is automatically started. Once the generator is available, the module automatically instructs the generator to synchronise and once in sync, to place the generator on load ('Close Generator Output' becomes active). Upon removal of the starting signal, the module starts the Return Delay Timer and once expired, the load is automatically ramped off the generator and then it is taken off load ('Close Generator Output' becomes inactive). The generator then continues to run for the duration of the Cooling Timer until it stops. The module then waits for the next start event.</p>

CONTROL PANEL – DSE 7310

	<p>This button is only active in the STOP/RESET mode, MANUAL mode. Pressing the Start button in Stop/Reset Mode powers up the engine's ECU but does not start the engine. This can be used to check the status of the CAN communication and to prime the fuel system</p>
	<p>Used for navigating the instrumentation, event log and configuration screens.</p>
	<p>Used to silence the audible alarm in the controller, de-activates the audible alarm output (if configured) and illuminates all of the LED on the module's fascia as a lamp test function.</p>

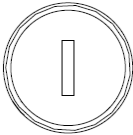
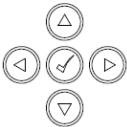
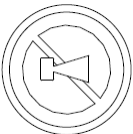


CONTROL PANEL – DSE 8610



- A Module display
- B Four configurable status LED
- C Close generator
- D Generator available LED
- E Start button
- F Alarm mute and lamp test
- G Auto mode
- H Generator breaker LED
- J Manual mode
- K Stop/reset button
- L Selected mode indication LED
- M Open generator (manual mode only)
- N Module display Menu navigation buttons

	<p>This button places the module into its STOP/RESET mode. This will clear any alarm conditions for which the triggering criteria have been removed. If the engine is running and the module is put into STOP/RESET mode, the module will automatically instruct the generator to unload ('Close Generator output' becomes inactive. In STOP/RESET mode the generator remains at rest.</p>
	<p>This button places the module into its MANUAL mode. Once in MANUAL mode, the module responds to the start button to start the generator and run it off load. To place the generator on load, use the 'Transfer to Generator' button. The module automatically instructs the generator to synchronise and once in sync, to be place the generator on load ('Close Generator Output' becomes active). To place the generator off load, use the 'Open Generator' button. The module automatically ramps the load off the generator and then takes it off load ('Close Generator Output' becomes inactive). Additional digital inputs are available to perform these functions. If the generator is running off-load in MANUAL mode and on load signal becomes active, the module automatically instructs the generator to synchronise and once in sync, to be place the generator on load ('Close Generator Output' becomes active). Upon removal of the on load signal, the generator remains on load until either selection of the 'STOP/RESET' mode or 'AUTO' mode.</p>
	<p>This button places the module into its AUTO MODE. This mode allows the module to control the function of the generator automatically. The module monitors numerous start requests via digital input, PLC and MSC link and when one has been made, the set is automatically started. Once the generator is available, the module automatically instructs the generator to synchronise and once in sync, to be place the generator on load ('Close Generator Output' becomes active). Upon removal of the starting signal, the module starts the Return Delay Timer and once expired, the load is automatically ramped off the generator and then it is taken off load ('Close Generator Output' becomes inactive). The generator then continues to run for the duration of the Cooling Timer until it stops. The module then waits for the next start event.</p>

CONTROL PANEL – DSE 8610

	<p>This button is only active in the STOP/RESET mode, MANUAL mode. Pressing the Start button in Stop/Reset Mode powers up the engine's ECU but does not start the engine. This can be used to check the status of the CAN communication and to prime the fuel system</p>
	<p>Used for navigating the instrumentation, event log and configuration screens.</p>
	<p>Used to silence the audible alarm in the controller, de-activates the audible alarm output (if configured) and illuminates all of the LED on the module's fascia as a lamp test function.</p>
	<p>Close Generator- The Close Generator button controls the operation of the generator load switch and is only active in the Manual Mode once the generator is available. Pressing the Close Generator button when the generator is available and off load automatically instructs the generator to synchronise and once in sync, to place the generator on load ('Close Generator Output' becomes active). If the generator bus is dead (has not supply on it) the generator is placed on load immediately. Further presses of the Close Generator button have no effect.</p>
	<p>Open Generator- The Open Generator button is only active in the Manual Mode and allows the operator to open the generator load switch. Pressing the Open Generator button when the Generator is on load, automatically ramps the load off the generator and then takes it off load ('Close Generator Output' becomes inactive). Further presses of the Open Generator button have no effect.</p>

CONTROL PANEL - DSE

Operation

Single generator, controlled manually through its genset controller. Load is monitored by the operator.

Starting Procedure

Perform all the pre-start checks before starting the generator.

Turn ON battery isolator

1. Make sure ALL power output supply MCCB's are switched off.
2. Check that the emergency stop button is fully out, if necessary twist to reset the button.
3. Complete all pre-start, system and engine checks.
4. Turn on the Digital Controller (DC) switch to power the DSE Controller.
5. Wait for few seconds, to allow the controller to power up and display to stabilise.
6. Make sure that the power on LED (Light Emitting Diode) is illuminated on earth leakage trip and there is no trip active where required.
7. Press the stop/reset button on DSE to clear any elapsed alarms
8. When ready "Press the Manual mode button" on DSE controller.
9. When ready "Press Start button" and the machine will start
10. The generator will attempt three start cycles before registering a fault / alarm
11. The engine will run up to speed and stabilise.
12. Check that the machine operation is correct using the screen information.
13. Make sure the power on LED is illuminated on earth leakage trip and there is no trip active.
14. Manually turn on the main power supply MCCB.
15. Turn on any socket MCCB's that may be fitted and required .
16. The generator can now be loaded.
17. If the earth leakage relay trips at this point consult the site electrical installation engineer.

For synchronising instructions using the DSE8610 controller, please consult the operators manual or contact your local dealer.

CONTROL PANEL - DSE

Operation

Single generator, controlled manually through its genset controller. Load is monitored by the operator.

Stopping Procedure

Perform the procedure below to stop the generator:

1. To stop the generator, remove any electrical loads.
2. Turn the main power supply MCCB to off position.
3. Press the stop button the generator will now stop after a cool down period .
4. Turn Off the Digital Controller (DC) switch
5. Turn Off battery isolator after a short time period
6. Ensure generator is secured and all doors are locked

IMPORTANT

Before Stopping

1. Check with other personnel on the job site and let them know that power is being turned off.
2. Make sure that the power shutdown will not create any hazards by turning off site critical or life safety devices that may need to be kept on.

BATTERY ISOLATOR

The battery isolator switch is used to disconnect the battery from the machine electrics. The switch must be turned to the off position if any maintenance work is to be performed on the machine. Some machine systems perform shut down cycles after the engine stops. Wait until shut down cycles are complete before setting the battery isolator switch to the off position. At the end of a working cycle or if the machine is being left unattended and the lights are not required, the battery must be isolated.

Disconnect

If the machine has an electronically controlled engine, you must wait a period of time before you isolate the battery. This is to allow the ECM (Engine Control Module) to shutdown correctly. The time period starts when you turn the ignition off. Check the isolator switch label and the operators manual for the correct time period.

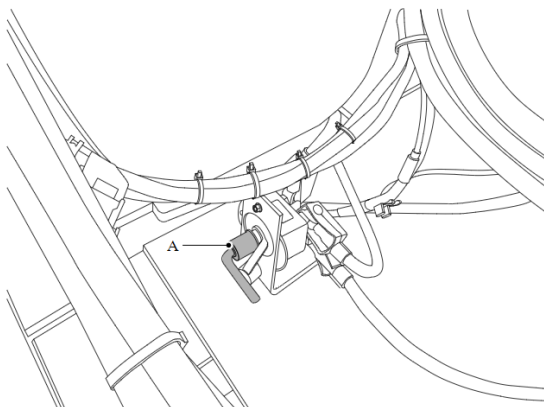
In the event of an emergency, remove the isolator key without waiting.

1. Wait for the specified duration after the engine is turned off before you isolate the battery (30 s).
2. Make the machine safe.
3. Turn the ignition to the off position.
4. Wait for the engine ECM to shutdown correctly (if installed).
5. Get access to the isolator key.
6. Turn the battery isolator key in the indicated direction and remove.

Connect

Before you start the engine or use the machine electrics, the battery isolator key must be installed and switched on.

1. Make sure the ignition is set to off.
2. Insert the battery isolator key and turn in the indicated direction.



Battery Isolator (where fitted)

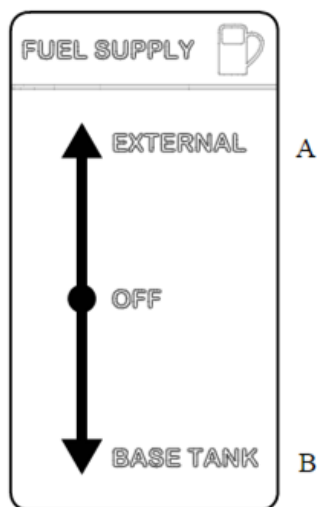
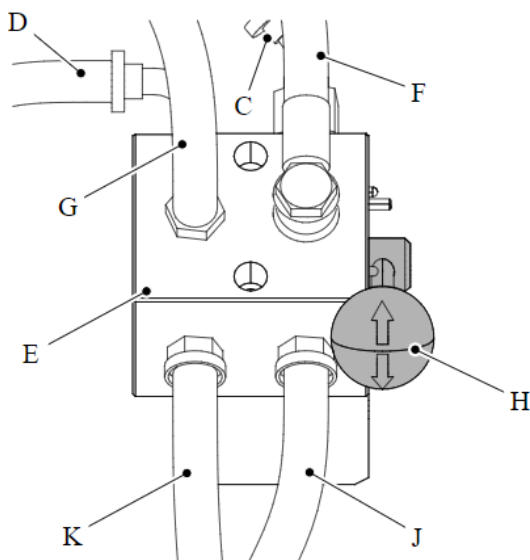
A. Isolator switch

FUEL CONNECTIONS (WHERE FITTED)

The optional 3-Way Fuel Valve allows the generator to be connected to feed and return to a remote bulk tank.

The selection lever dictates if the engine will feed from either the base tank or bulk tank. This selection lever should be fully engaged in the chosen position.

Please consult the manual for details of maximum distances and acceptable elevation of bulk fuel tanks.



A External tank

B Base tank

C Forward line (fuel tank suction to 3 way valve)

D Return line (3 way valve outlet to fuel tank)

E 3 way fuel valve

F Forward line (3 way valve to lift pump inlet)

G Return line (engine return to 3 way valve)

H direction lever

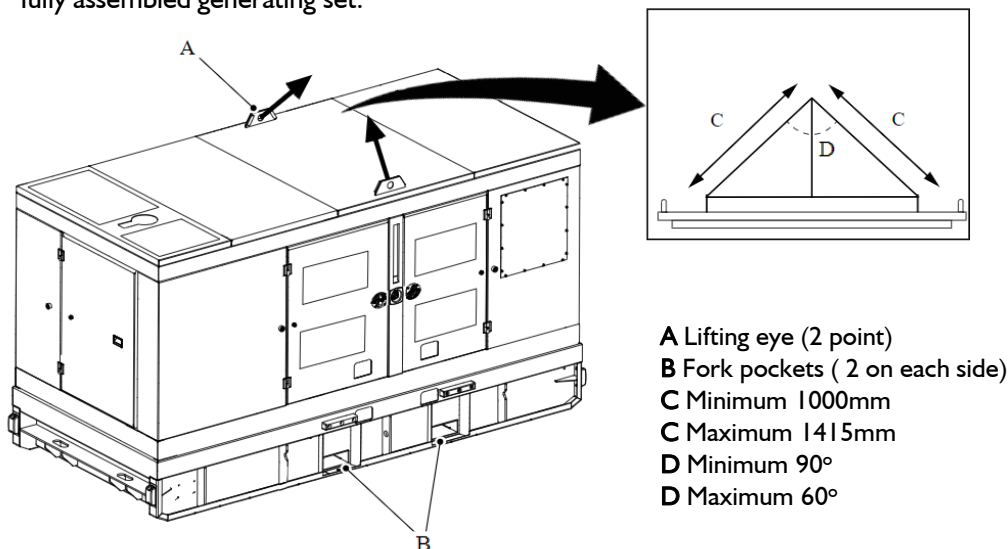
J Forward line (External fuel tank suction to 3 way valve)

K Return line (3 way valve outlet to external fuel tank)

LIFTING

The generating set should only be lifted using the designated lifting points or the fork pockets where provided.

Do not lift the unit by the alternator or engine lifting eyes. These are designed only to carry the weight of the specific unit (engine or alternator) and not for the weight of the fully assembled generating set.



For movement on site the optional fork pockets enable the generating set to be lifted and shifted by forklift or telescopic handler. The fork pockets are sized and spaced to allow lifting by equipment with a standard fork carriage.

IMPORTANT

Always ensure that lifting equipment is rated to lift the load. Weights are shown on the generator rating plate on the side of the control panel. These weights exclude fuel, and while both the fork pockets and lifting frame are rated to allow lifting including fuel, the operator needs to ensure that they have adequate lifting capacity.

REFUELLING

WARNING Fuel is flammable, keep naked flames away from the fuel system. Stop the engine immediately if a fuel leak is suspected. Do not smoke while refuelling or working on the fuel system. Do not refuel with the engine running. Completely wipe off any spilt fuel which could cause a fire. There could be a fire and injury if you do not follow these precautions.

WARNING Switch off your mobile phone before entering an area with a potentially explosive atmosphere. Sparks in such an area could cause an explosion or fire resulting in death or serious injury.

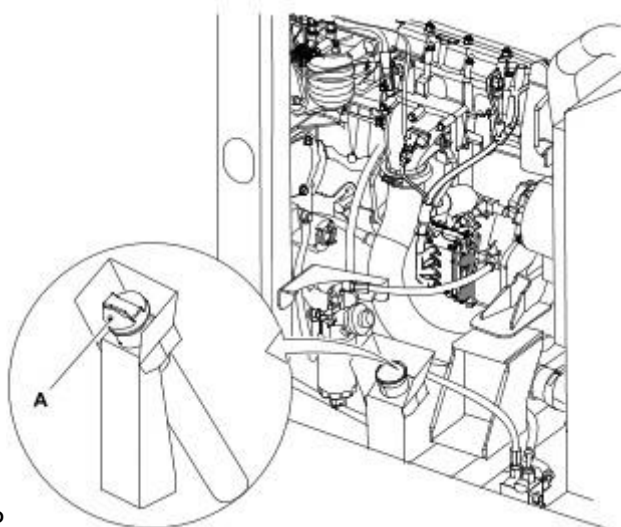
Switch off and do not use your mobile phone when refuelling the machine.

CAUTION Spilt fuel may cause skidding and therefore accidents. Clean any spilt fuel immediately.

When filling with fuel, choose a well aired and ventilated area.

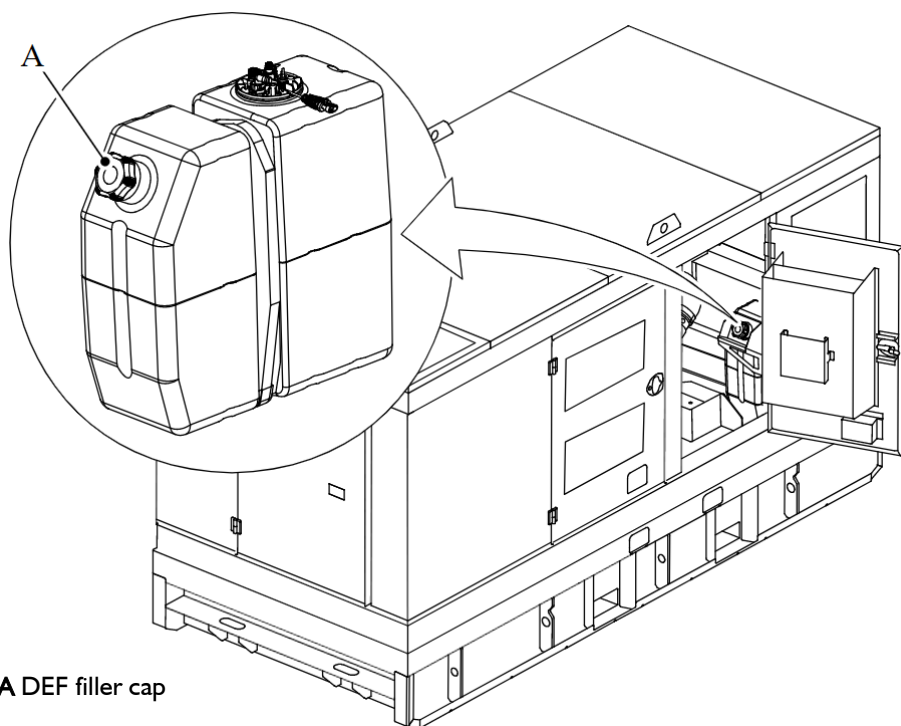
Important: Consult your fuel supplier or JCB dealer about the suitability of any fuel you are unsure of.

1. Open the rear right door to get access to the fuel tank filler cap.
2. Remove all unwanted material around the fuel cap.
3. Remove the fuel cap.
4. Add the fuel through the filler neck as necessary.
5. Fuel level can be seen on the gauge installed on the top of the fuel tank.
6. Install the fuel cap.



A Fuel filler cap

DEF FILLING



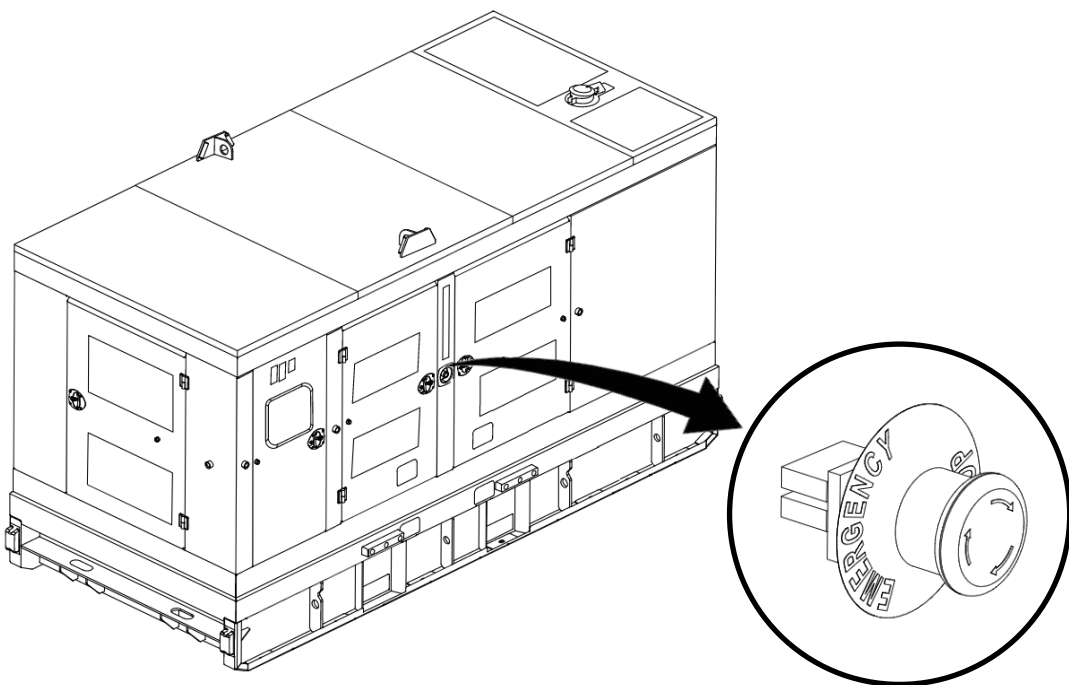
A DEF filler cap

1. Open the rear left door to get access to the DEF (Diesel Exhaust Fluid) tank filler cap.
2. Remove all unwanted material around the DEF cap.
3. Remove the DEF cap.
4. Add the DEF through the filler neck as necessary.
5. DEF level can be checked on the gauge installed on the top of the DEF tank.
6. Install the DEF cap.

EMERGENCY STOPS

A machine isolation button/emergency stop button is mounted externally on the canopy. If pressed, all machine systems will stop completely.

Use the emergency stop button in the case of an emergency or if the machine becomes unsafe and does not shutdown automatically.



NOTE: Activation of either of the emergency stop buttons will put the generator into a fault mode.

As well as manually resetting the depressed emergency stop button you will need to clear the fault from the controller.

This is normally achieved by pressing the STOP/RESET button. This can be clarified in the Control Panel section of your Operators Manual

MAINTENANCE SCHEDULE - OPERATOR

Interval (h)		Calendar Equivalent
10		Daily
50		Weekly
150		Three months
300		Six months
600		Yearly
1200		Eighteen months
<input type="radio"/>	Service task can be completed by a competent operator. Details of how to complete the task are given in the operators manual	
<input type="checkbox"/>	We recommend that a Service Engineer completes the service task. Details of how to complete the service task are given in the Service Manual	

Component	Task	10h	50h	150h
Visual inspection	Overall visual check	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Control panel	Check operation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Safety decals	Check condition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Engine oil level	Check	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Coolant level	Check	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Radiator	Check	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
External fuel connection/condition(1)	Check	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Air filter outer element(2)	Check/Clean			<input type="radio"/>
Air filter housing(2)	Clean			<input type="radio"/>
Fuel Strainer	Check for contamination and Drain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fuel pre-filter ⁽³⁾	Check for contamination and Drain			<input type="radio"/>
Fuel filter ⁽³⁾	Check for contamination and Drain			<input type="radio"/>
Fuel tank ⁽³⁾	Check for contamination and Drain			<input type="radio"/>

MAINTENANCE SCHEDULE - ENGINEER

Component	Task	300	600	1200
Emergency stop switches	Check (operation)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Earth leakage RCD (Residual Current Device) ⁽¹⁾	Check (operation)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
External power socket box ⁽²⁾	Check (condition)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Battery terminals and voltage	Check (condition)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Battery clamps security and cleanness	Check (condition)			<input type="checkbox"/>
Control panel events history	Check	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bus bar cover safety switch	Check (operation)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bus bar terminals	Check tightness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Machine earth connections	Check (condition)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Engine and controller harness	Check condition and connections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generator alternator cables	Check (condition)		<input type="checkbox"/>	<input type="checkbox"/>
Generator alternator terminals	Check tightness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alternator and engine mounting bolts	Check tightness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CCV (Crankcase Ventilation) filter	Clean	<input type="checkbox"/>	<input type="checkbox"/>	
CCV filter ⁽²⁾	Change			<input type="checkbox"/>
Exhaust ducts	Check (condition)		<input type="checkbox"/>	<input type="checkbox"/>
All hoses	Check (condition)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Engine oil ^(2, 3)	Change		<input type="checkbox"/>	<input type="checkbox"/>
Engine oil filter ^(2, 7)	Change		<input type="checkbox"/>	<input type="checkbox"/>
Fuel pre-filter ^(2, 4, 7)	Change		<input type="checkbox"/>	<input type="checkbox"/>
Fuel filter ^(2, 4, 7)	Change		<input type="checkbox"/>	<input type="checkbox"/>
Fuel tank breather ⁽⁸⁾	Clean		<input type="checkbox"/>	
Fuel tank breather ⁽²⁾	Change			<input type="checkbox"/>
Air filter outer element ⁽⁵⁾	Change			<input type="checkbox"/>
Coolant (inorganic) ^(6, 10)	Drain and Fill			<input type="checkbox"/>
Radiator	Clean		<input type="checkbox"/>	<input type="checkbox"/>
Turbo charger	Check (condition)			<input type="checkbox"/>
FEAD(Front End Accessory Drive) belt condition/tension	Check (condition)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FEAD belt	Change			<input type="checkbox"/>
After treatment system ⁽⁹⁾	Forced regeneration		<input type="checkbox"/>	<input type="checkbox"/>
Exhaust gas after treatment system visual inspection	Check (condition)		<input type="checkbox"/>	<input type="checkbox"/>

(1) In any case, every time the indicator is red.

(2) In case of low use: 12 months.

(3) For the oil specifications, refer to the table of the oils (Technical Data> Fluid, Lubricants and Capacities> General).

(4) If the clogged filter warning signal activates, the filter must be replaced. If the water in pre-filter signal does not deactivate after draining, the filter must be replaced.

(5) Interval to be halved for environmental conditions characterised by a high concentration of dust.

(6) Every 1200 hours or 2 years whichever is sooner. Coolant compliant with specifications ASTM D 6210; mixed 50% with water in the case of a concentrated product.

(7) Use only JCB specified filters.

(8) Or every 6 months.

(9) To be performed prior to engine oil change.

(10) Check which coolant type is installed in the machine before topping up the coolant. Mixing of different coolant types is not recommended and may result in invalidation of the warranty offered by JCB. In the event of mixing or if the coolant type is to be changed, the coolant circuit should be completely drained and flushed twice with clean water before re-filling with fresh coolant.

SERVICE CHECKS

Oil - Check (Level)

Oil is toxic. If you swallow any oil, do not induce vomiting, seek medical advice. Used engine oil contains harmful contaminants which can cause skin cancer. Do not handle used engine oil more than necessary. Always use barrier cream or wear gloves to prevent skin contact. Wash skin contaminated with oil thoroughly in warm soapy water. Do not use petrol, diesel fuel or paraffin to clean your skin.

WARNING! *Never check the oil level or add oil with the engine running. Be careful of hot lubricating oil. Danger of scalding.*

Notice: Do not exceed the correct level of engine oil in the sump. If there is too much engine oil, the excess must be drained to the correct level. An excess of engine oil could cause the engine speed to increase rapidly without control.

Engine oil and oil filter change must be completed in accordance with the service schedules. Failure to change the oil and filter at the recommended interval could cause serious engine failure.

1. Stop the engine and allow it to cool.
2. Make the machine safe.
3. Wait for the oil to drain back into the engine sump before you take a reading. If not, a false low reading may be recorded which can cause the engine to be overfilled.
4. Get access to the engine.
5. Remove and clean the dipstick.
6. Replace the dipstick.
7. Remove the dipstick.
8. Check the oil level. The oil should be between the two marks on the dipstick.
9. If necessary, add more oil:
 - 9.1. Remove the filler cap.
 - 9.2. Add the recommended oil slowly through the filler point
 - 9.3. Replace the dipstick.
 - 9.4. Remove the dipstick.
 - 9.5. Check the oil level, if necessary add more oil.
 - 9.6. Replace the dipstick
 - 9.7. Replace the filler cap.

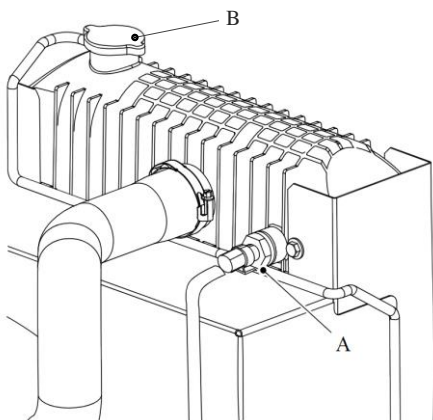
SERVICE CHECKS

Coolant - Check (Level)

CAUTION! The cooling system is pressurised when the coolant is hot. When you remove the cap, hot coolant can spray out and burn you. Make sure that the engine is cool before you work on the cooling system.

In most cases the generating set is supplied pre-filled with radiator coolant. Before starting and also as part of a regular maintenance schedule it is important to check the level of coolant in the radiator, and replenish as necessary.

1. Make the machine safe.
2. Allow the machine to cool fully before adding coolant.
3. Carefully loosen the radiator cap. Let any pressure escape before removing the cap.
4. Remove the radiator cap.
5. Check that the coolant level is flush with the top of the filler neck.
6. Fill with 50% antifreeze and 50% decalcified water until it reaches the correct level and replace the cap. *Make sure that cold coolant is not added to a radiator that is warm.*
7. Top liquid up until the pipes inside the radiator are covered approximately by the amount specified. Do not overfill the radiator, but leave room for the coolant to expand.
8. Run the engine to raise the coolant to working temperature and pressure.
9. Stop the engine, checks for leaks and re-check the fluid level.



A Coolant level switch (not available on all engines)

B Coolant filler cap

SERVICE CHECKS

Air Filter - Check (Condition)

Engine performance and durability will be severely affected if the quality of the air intake is poor.

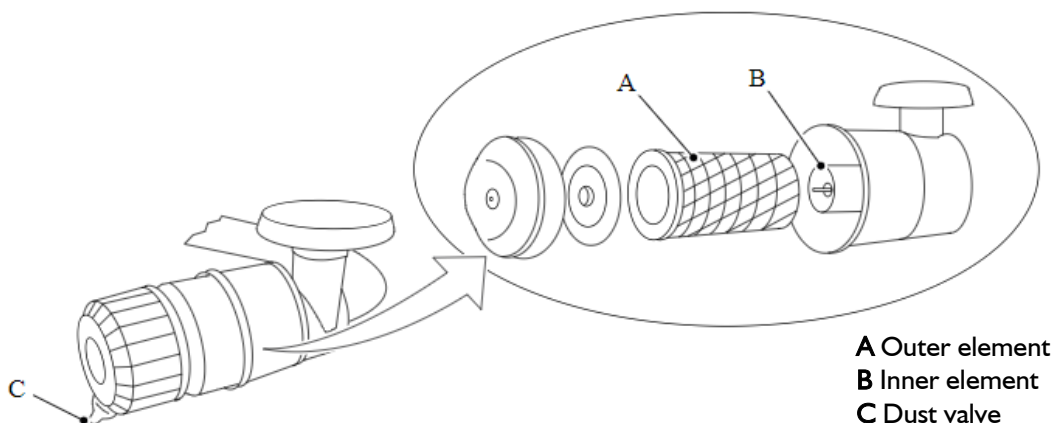
A dirty and blocked air cleaner element will reduce the amount of air entering the combustion chamber which can cause engine mis-firing, black smoke and low output power.

A dirty and blocked air filter can also lead to abrasion of the cylinder bores and valves (referred to as 'dusting'). This will cause excessive oil consumption, black smoke, low output power and a reduced engine life.

Refer to the machine's operator handbook for the air filter element removal and replacement procedures.

Inspect hoses and fittings for splits and poor clamping which may allow unfiltered air to enter the engine.

In hostile environments, change the air filter elements more frequently.



Dust Valve

Check (Condition)

- Check the dust valve for rips/tears.
- Check there are no obstructions.
- Check that the dust valve is free of dirt and dust.
- Check that the dust valve is securely attached to the air filter housing.



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JCB Sales Limited, Rocester, Staffordshire, United Kingdom ST14 5JP

Tel: +44 1889 590312 Email: salesinfo@jcb.com

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