

## Quick Start Guide



## RS T4F Diesel Generator

G70RS – G125RS



## 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. Nor 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.

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## Dimensions and volumes

Model	G70RS	G125RS
3 Phase – 480v – kW (prime power)	56	100
3 Phase – 480v – A	84	151
3 Phase – 208v – kW	56	100
Single phase – 240v – kW	37	66
Dimensions – inches (LxWxH)	126 x 43 x 83	126 x 43 x 83
Weight (operating) – lbs	5739	6615
Dimensions (with trailer) – inches (LxWxH)	182 x 73 x 105	182 x 73 x 105
Weight (operating) with trailer – lbs	7239	8115
Aftertreatment	SCR	SCR
Fuel tank capacity – US gallon	132	132
Fuel consumption @ 75% PRP – US gallon	3.65	5.42
Fuel autonomy – hours	36	24
DEF tank capacity – US gallon	4.5	4.5
DEF consumption @75% PRP – US gallon	0.12	0.16
DEF autonomy– hours	37.5	28
Noise level (23ft @ 75% load)	66	66

Fuel – EN590 Diesel fuel types - Auto/C0/C1/C2/C3/C4 BS2869 Class A2

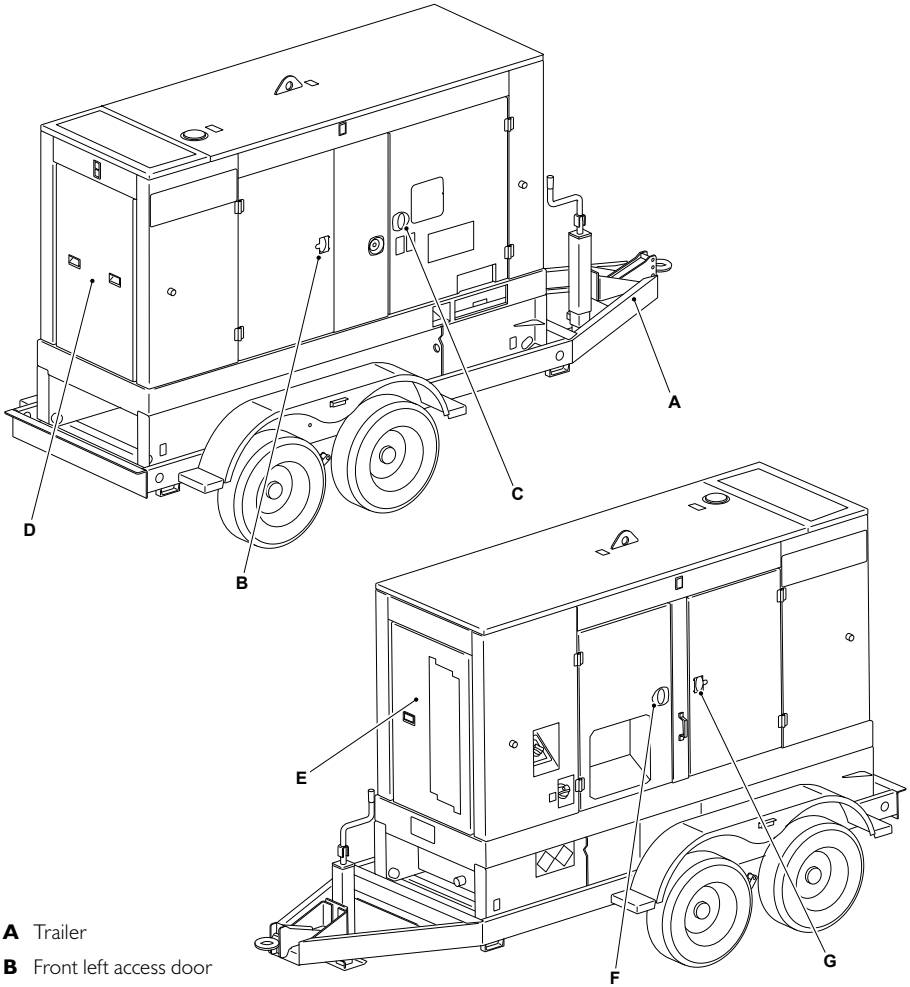
Lube Oil – API CH4-SAE 10W40

Coolant – ASTM D6210

\* Wet weight with fuel

## Key components – enclosure

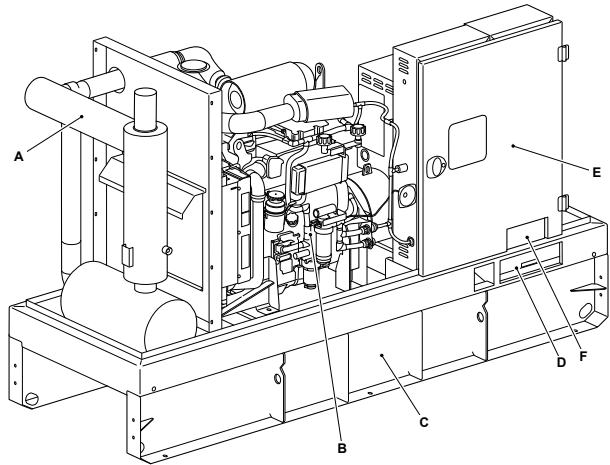
Fig 1



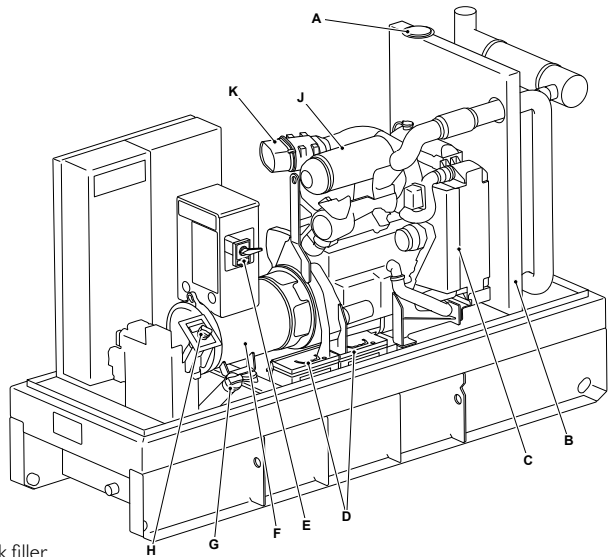
- A** Trailer
- B** Front left access door
- C** Rear left access door
- D** Front – exhaust system panel
- E** Rear – air inlet panel
- F** Rear right access door
- G** Front right access door

## Key components – generator

Fig 2



- A** Exhaust system
- B** Engine
- C** Skid
- D** Camlock connections
- E** Control panel
- F** Power cable exit

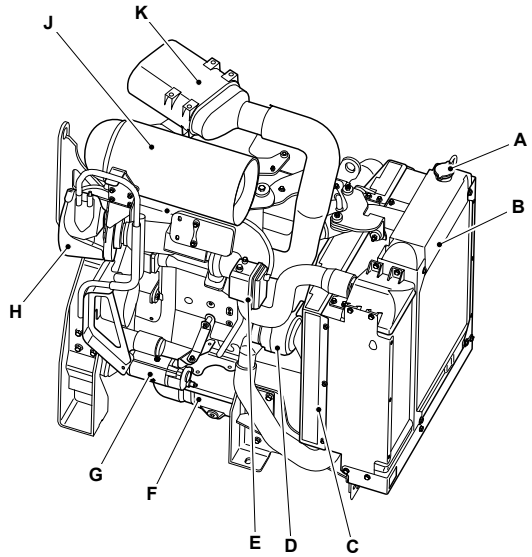


- A** Cooling filler access point
- B** Bulkhead
- C** Radiator
- D** Battery
- E** Voltage control rotary switch
- F** Alternator
- G** Fuel tank filler
- H** DEF (Diesel Exhaust Fluid) tank filler
- J** SCR (Selective Catalytic Reduction)
- K** Air filter

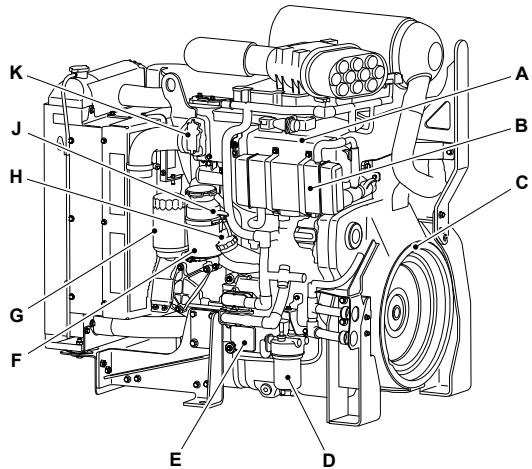
## Key components – engine

Fig 3

- A** Coolant filler
- B** Expansion tank
- C** Radiator
- D** Charge alternator
- E** Turbocharger
- F** Oil sump
- G** Starter motor
- H** DEF injector
- J** SCR
- K** Air filter

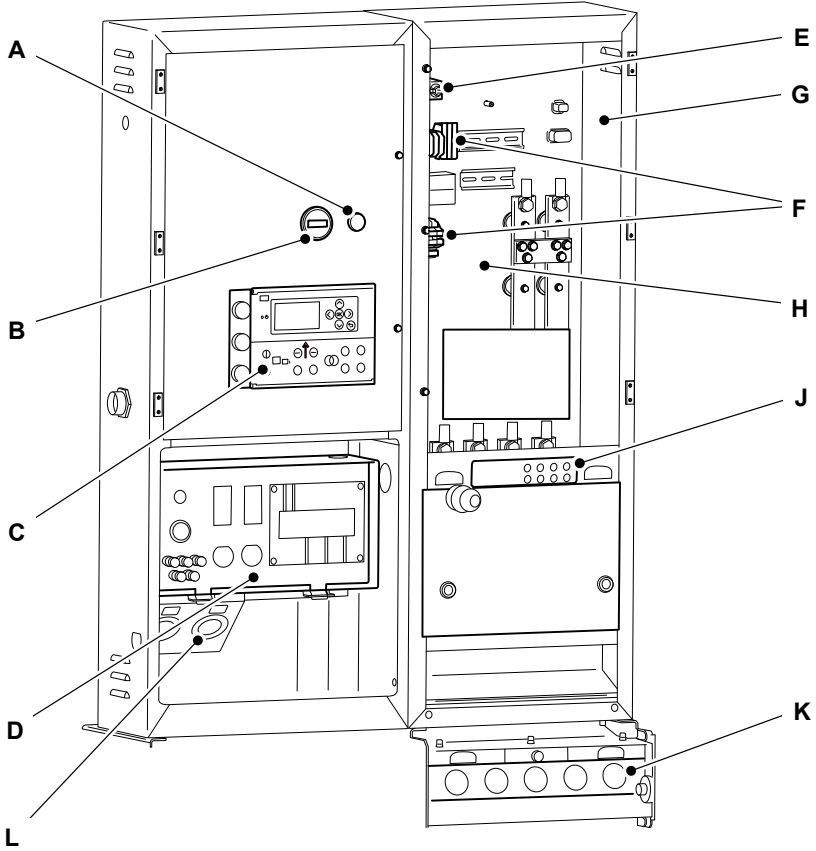


- A** Inlet manifold
- B** EGR (Exhaust Gas Recirculation) cooler
- C** Flywheel housing
- D** Fuel filters – primary & secondary
- E** ECU (Electronic Control Unit)
- F** CCV (Crankcase Ventilation) filter
- G** Engine oil filter
- H** Engine oil filler
- J** Engine dipstick
- K** Throttle



## Key components – control panel

Fig 4



- |                                |   |
|--------------------------------|---|
| <b>A</b> Panel mount buzzer    | <b>G</b> Automatic Voltage Regulator (AVR)          |
| <b>B</b> Analogue hour counter | <b>H</b> Breaker                                    |
| <b>C</b> Digital controller    | <b>J</b> Test point                                 |
| <b>D</b> Connection box        | <b>K</b> Camlock connections 400A                   |
| <b>E</b> Limit switch          | <b>L</b> Coolant heater and battery charger sockets |
| <b>F</b> Din rail terminal     |   |

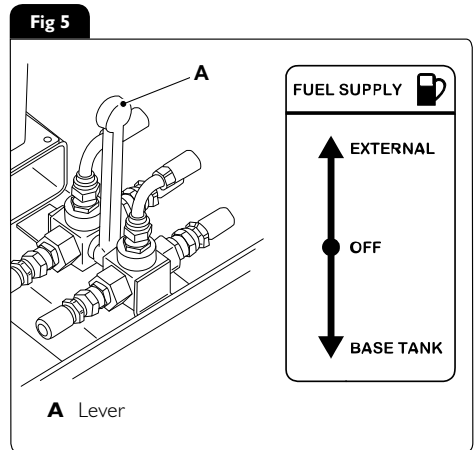


## General checks

### Before starting the engine

Once you have installed your generator, we recommend making some important checks before starting your machine. Points to check include:

- > Make sure 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 the battery connections are secure and polarity of connections are correct.
  - > Ensure there is fuel in the fuel 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.
  - > Always ensure the machine intake and outlet air vents and grills are not obstructed or blocked in any way to allow good airflow through the machine.
  - > Check the engine intake air filter is correctly fitted, and that there are no obstructions to the incoming air.
  - > Make sure the alternator windings and assembly are not damp, or dirty. Failure to do so could result in damage to the alternator windings.



## General checks

If the windings are damp/dirty contact your JCB Dealer to schedule a service.

- > Make sure 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

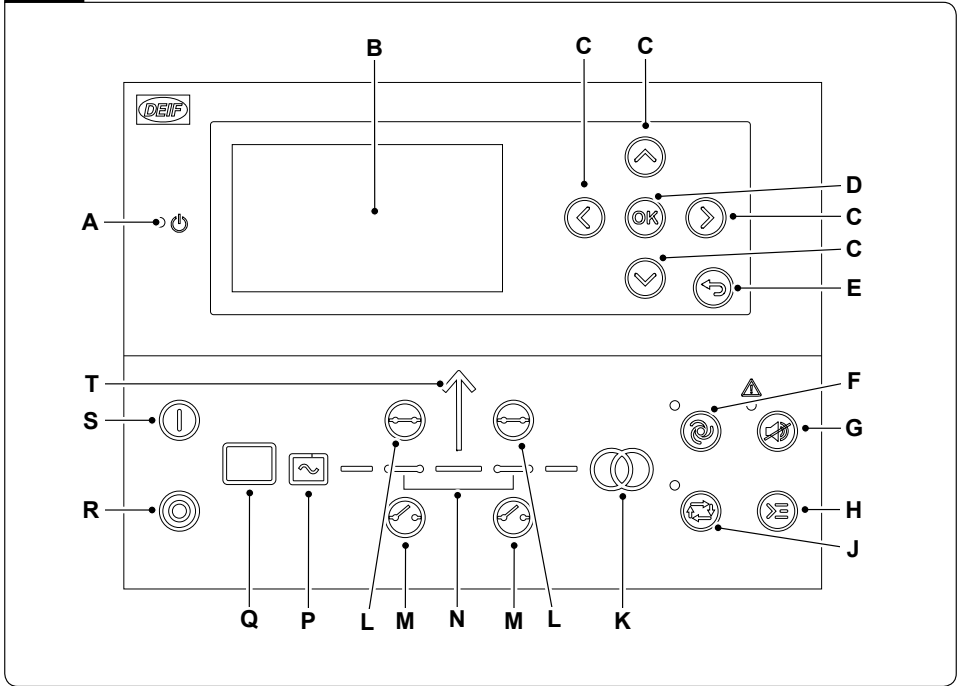
Ensure the electrical load is switched OFF before stopping the engine.

- > Check the battery isolator is at the 'off' position.
- > Fill the fuel tank. Make sure the filler cap and the area round the filler opening are clean to avoid contamination of the fuel.
- > Make sure 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 enough time is allowed for the engine/coolant to cool before the radiator cap is removed.

## Control panel – DEIF AGC 150

Fig 6



Item	Function
A	Power On Green – The controller power is On. Off – The controller power is Off.
B	Display Screen Viewing area 88.5 x 51.4mm. 6 lines, each with 25 characters.
C	Navigation Move the selector on the screen.
D	OK Enter the menu system. Confirm the selection on the screen.
E	Back Go to the previous page.
F	Auto Mode The controller automatically starts and stops the generator according to the system settings. No operator actions are needed.

## Control panel – DEIF AGC 150

	Item	Function
G	Silence Horn	Turns off an alarm horn (if configured) and enters the alarm menu.
H	Shortcut Menu	Gives access to: Jump menu, mode selection, test and lamp test .
J	Semi-Auto Mode	The controller cannot automatically start, stop, connect or disconnect the generator.
		The operator can start, stop, connect or disconnect the generator.
		The controller automatically synchronises before closing a breaker, and automatically de-loads before opening a breaker.
K	Mains Symbol	Green: The mains voltage and frequency are ok, and the controller can synchronise and close the breaker.
		Red: Mains failure.
L	Close Breaker	Press to close the breaker.
M	Open Breaker	Press to open the breaker.
N	Breaker Symbols	Green: Breaker is On.
		Green flashing: Synchronising or de-loading.
		Red: Breaker failure.
P	Generator	Green: The generator voltage and frequency are OK, and the controller can synchronise and close the breaker.
		Green flashing: The generator voltage and frequency are OK, but the Voltage and Hertz OK timer is still running. The controller cannot close the breaker.
		Red: The generator voltage is too low to measure.
Q	Engine	Green: There is running feedback.
		Green flashing: The engine is getting ready.
		Red: The engine is not running or there is no running feedback.
R	Stop	Stops the generator if semi-auto or manual is selected.
S	Start	Starts the generator if semi-auto or manual is selected.
T	Load Symbol	Off: Power management application.
		Green: The supply voltage and frequency are OK.
		Red: Supply voltage/frequency failure.

## Control panel – DEIF

### Stand Alone Manual Operation

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

### Starting Procedure

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

1. Set the MCCB to 'off' position.
2. Check all cabling connection and make sure that all safety devices are functional.
3. Turn the battery isolator to 'on' position.
4. Controller will start the initialling process.
5. Press the 'stop/reset' button to clear any alarms.
6. Press the 'semi auto mode' button.
7. Press the start button. The generator controller displays the start-up sequence.
8. After a short delay the engine will crank for up to ten seconds followed by another ten second pause. This cycle will repeat up to three times until the engine runs smoothly. If the engine does not start within this cycle the generator controller will display 'fail to start'.
9. Check the voltage displayed on the genset controller.
10. Close the main circuit breaker. The generator breaker LED will illuminate.
11. The power available indicator lamp will illuminate.

**REMEMBER: Before stopping the generator set, remove all electrical load ensuring all consumers are aware of the loss of power prior to shutdown.**

### Stopping Procedure

Perform the procedure below to stop the generator:

1. Turn off all loads to the generator.
2. Open the main circuit breaker. The power available lamp will go off.
3. Press the 'stop/reset' button once. The generator will stop after the specified cooling time. Duration: 5min.
4. If 'stop/reset' button is pressed again the generator will stop immediately.
5. The ready to load and generator available LED indicators will go off.
6. Turn the battery isolator to 'off' position after the engine has stopped.

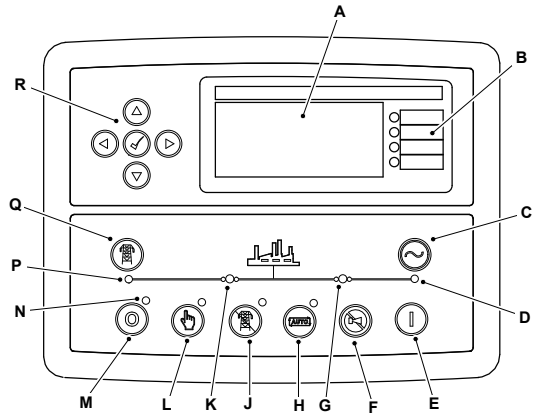
### Auto and Load Sharing Operation

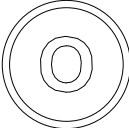

Remote start and synchronizing multiple sets must only be set up by a suitably trained and competent person. Please refer to the operator manual for more detailed instructions.


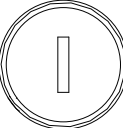
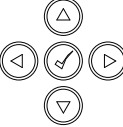

## Control panel – DSE 7310

Fig 7

- 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



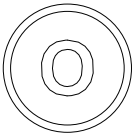
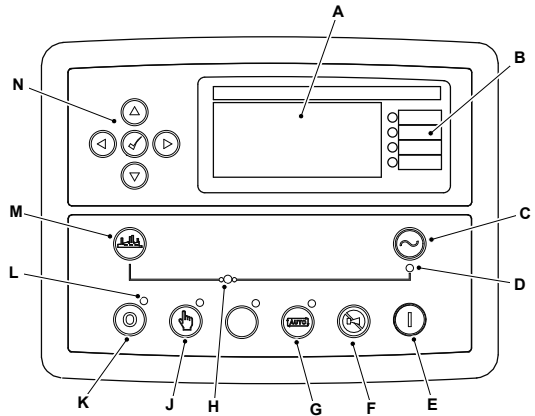
	<p>This button places the module into its STOP/RESET mode. This will clear any alarm conditions for which the triggering criteria have been removed. If the engine is running and the module is put into STOP/RESET mode, the module will automatically instruct the generator to unload ('Close Generator output' 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 need 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 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>
	<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 silences 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

Fig 8

- 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


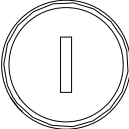
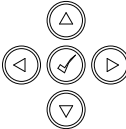





This button places the module into its STOP/RESET mode. This will clear any alarm conditions for which the triggering criteria have been removed. If the engine is running and the module is put into STOP/RESET mode, the module will automatically instruct the generator to unload ('Close Generator output' becomes inactive). In STOP/RESET mode the generator remains at rest.



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>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>
	<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 silences 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 be 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

### Stand Alone Manual Operation

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

### Starting Procedure

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

1. Turn on the digital controller switch.
2. Wait for a few seconds, to allow the controller to power up and the display to stabilise.
3. Make sure the LED (Light Emitting Diode) is illuminated on the earth leakage trip and there is no trip active where required.
4. Make sure the main power supply MCCB is switched off.
5. Check the emergency stop button is fully out, if necessary twist to reset the button.
6. Complete all pre-start, system and engine checks.
7. Press the start button and the machine will start in manual.
8. The engine will run up to speed and stabilise.
9. Check that the machine operation is correct using the screen information.
10. Make sure the 'power on' LED is illuminated on the earth leakage trip and there is no trip active.
11. Turn on the main power supply MCCB.
12. The generator can now be loaded.
13. If the earth leakage relay trips at this point consult the site electrical installation engineer.

**REMEMBER: Before stopping the generator set, remove all electrical load ensuring all consumers are aware of the loss of power prior to shutdown.**

### **Auto and Load Sharing Operation**

Remote start and synchronizing multiple sets must only be set up by a suitably trained and competent person. Please refer to the operator manual for more detailed instructions.

### **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 the off position.
3. Press the 'stop/reset' button once. The generator will stop after the specified cooling time. Duration: 5min.
4. If the 'stop/reset' button is pressed again then generator will stop immediately.
5. The Ready to load and generator available LED indicators will go off.
6. Turn the battery isolator to 'off' position after the engine has stopped.

## 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.

The Battery must be isolated at the end of a working cycle or if the machine is being left unattended and the lights are not required.

### 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.

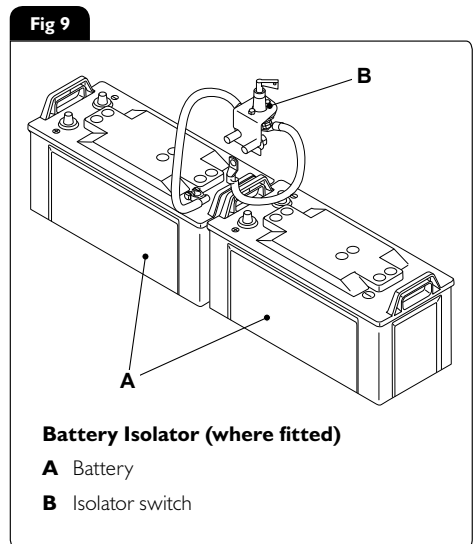
1. Wait for the specified duration after the engine is turned off before you isolate the battery (30 s).
2. Make the machine safe.
3. Turn the ignition key to the off position.
4. Wait for the engine ECM to shutdown correctly (if installed).

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.



## Multi voltage selection (where fitted)

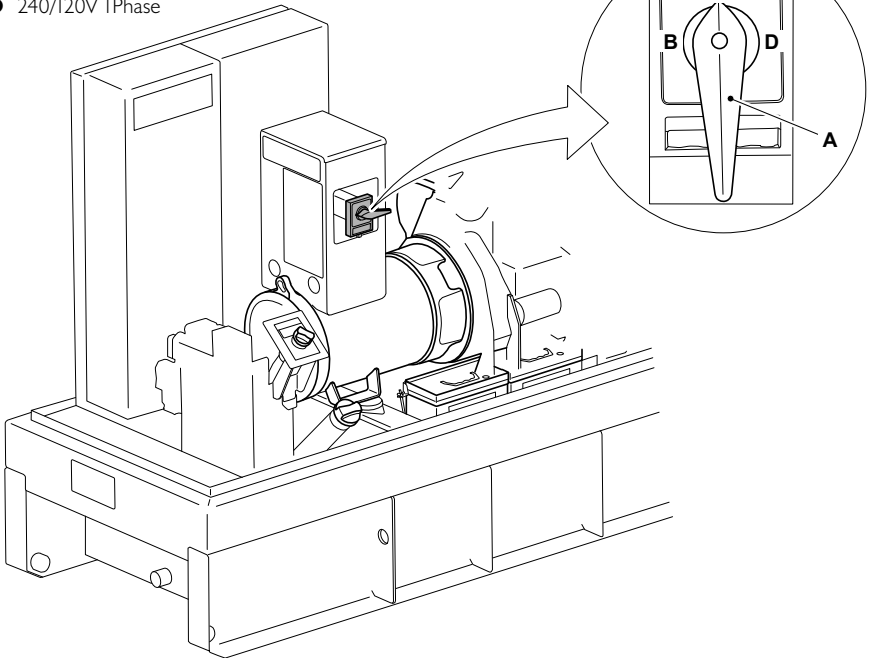
### Rotary Switch

3-position voltage selector switch for safe and quick break and make operation. Lockable with up to 4 separate padlocks.

**IMPORTANT NOTE:** Operation of the rotary switch must only be carried out with the generator in stop mode and electrically isolated to prevent personal injury and damage to the equipment. Changes to the alternator voltage must be completed by a suitably trained and competent person. Please refer to the operator manual for detailed instructions including breaker protection settings.

Fig 10

- A Voltage control rotary switch
- B 480/277V 3Phase
- C 208/120V 3phase
- D 240/120V 1Phase

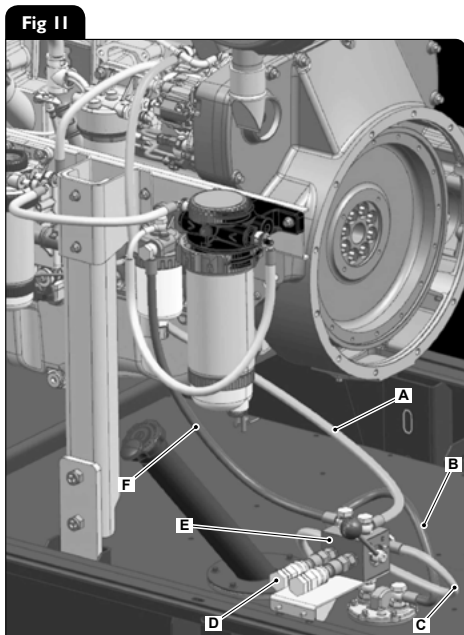


## Fuel connections (where fitted)

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.

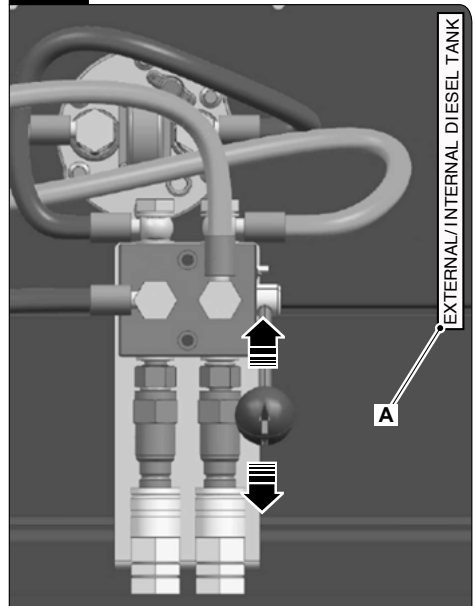
Please consult the manual for details of maximum distances and acceptable elevation of bulk fuel tanks.



- A** Engine to 3WFV return hose
- B** Forward hose
- C** Return hose
- D** Quick Release coupling (QRC)
- E** 3 way fuel valve (3WFV)
- F** 3WFV to water separator forward hose

**NOTE: Always check the position of the valve is correct before starting the machine to ensure the engine is not starved of fuel.**

**Fig 12**



**A** Direction selection

## Positioning

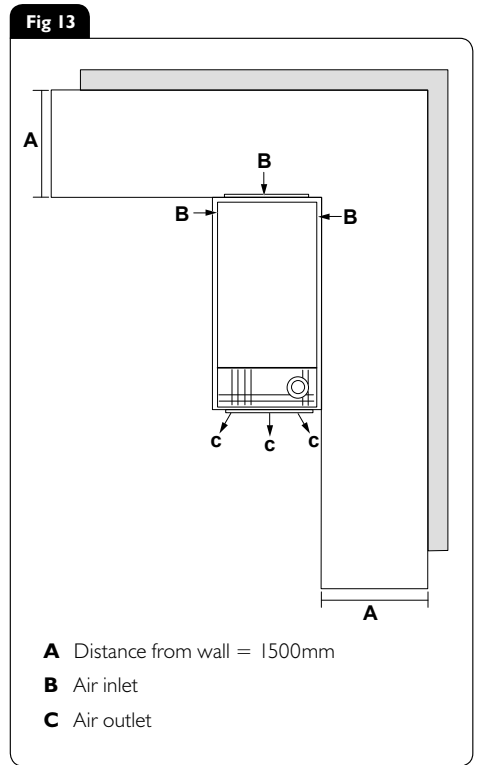
### Site Installation

The generating set should be located on suitable foundations. A level concrete surface designed to carry the weight of the generating set is ideal (if unsure contact a structural engineer). All electrical and fuel ducting to and from the machine should be professionally installed. All wiring to the terminal box, and through other panels should be installed using the appropriate cable glands.

The generating set should be located to provide suitable access for regular maintenance, servicing and repair work.

Generator sets which are installed outdoors, must be located in a place which is protected against weather conditions, dust, etc. as much as possible.

For temporary installations, the generator set can rest on a well-levelled surface. For long-term installations, it is advisable to build a concrete base.



## Lifting

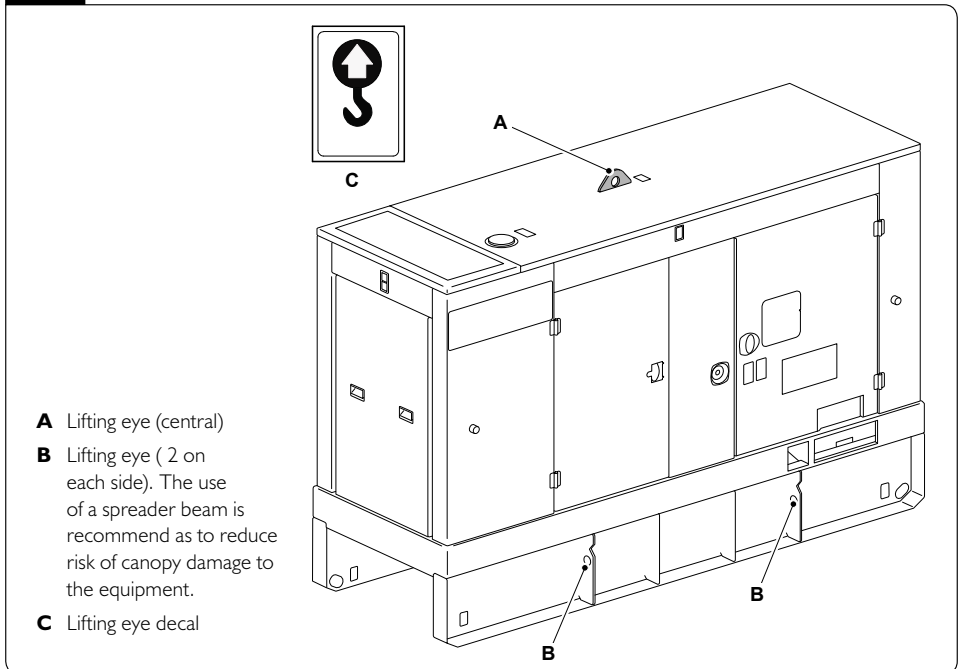
The generating set should only be lifted using the designated lifting points or the fork pockets where provided.

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 a forklift or telescopic handler. The fork pockets are sized and spaced to allow lifting by equipment with a stand fork carriage.

**NOTE: Always ensure that lifting equipment is rated to lift the total load. While the weight of the generator is provided on the rating plate it will not include the optional trailer weight.**

**Fig 14**





## Emergency stops

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

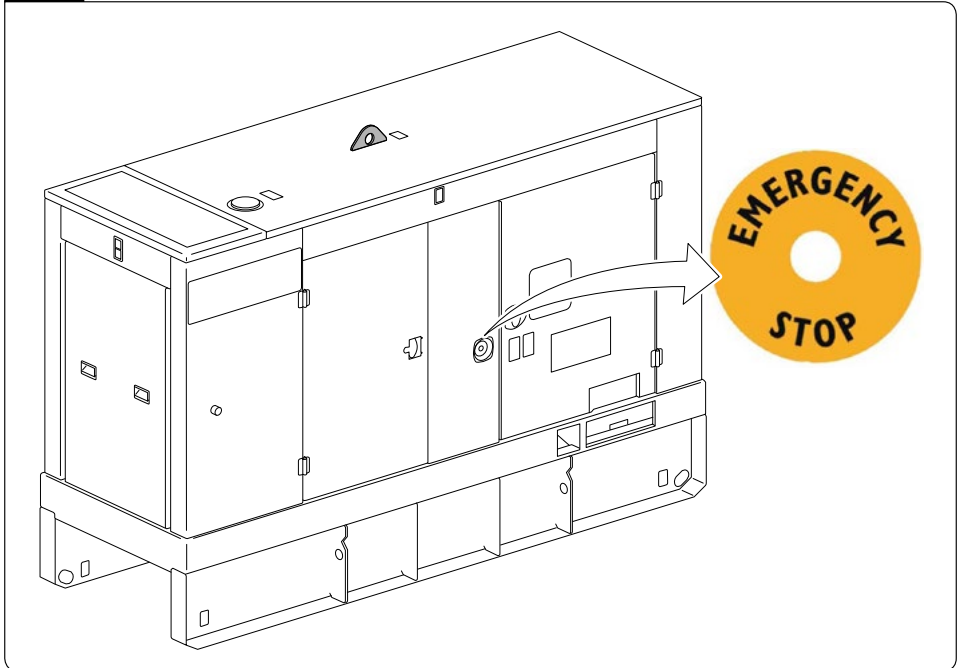
Use the emergency stop button in the case of an emergency or if the machine becomes unsafe and does not shutdown automatically.

**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.**

Fig 15



## Maintenance schedule

Interval (h)	Calendar equivalent
10	Daily
50	Weekly
500	Six months
1000	Yearly
<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

	Operation	Interval (Hours)			
		10	50	500	1000
Visual inspection	Overall visual check	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>	<input type="checkbox"/>
Control panel	Check operation	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety decals	Check condition		<input type="radio"/>	<input type="checkbox"/>	<input type="checkbox"/>
Emergency stop switches	Check operation		<input type="radio"/>	<input type="checkbox"/>	<input type="checkbox"/>
Earth leakage RCD & MCB	Check operation		<input type="radio"/>	<input type="checkbox"/>	<input type="checkbox"/>
External power socket box	Check condition		<input type="radio"/>	<input type="checkbox"/>	<input type="checkbox"/>
Battery terminals and voltage	Check			<input type="checkbox"/>	<input type="checkbox"/>
Control panel events history	Check			<input type="checkbox"/>	<input type="checkbox"/>
Bus bar cover safety switch	Check operation			<input type="checkbox"/>	<input type="checkbox"/>
Alternator and engine mounting bolts	Check tightness			<input type="checkbox"/>	<input type="checkbox"/>
Bus bar terminals	Check tightness			<input type="checkbox"/>	<input type="checkbox"/>
Machine earth connection	Check condition			<input type="checkbox"/>	<input type="checkbox"/>
Engine and controller harness	Check condition & connection			<input type="checkbox"/>	<input type="checkbox"/>
Coolant quality and level	Check	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oil level	Check	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>	<input type="checkbox"/>
Water separator & fuel filter	Drain		<input type="radio"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oil & filter	Change			<input type="checkbox"/>	<input type="checkbox"/>
DEF filter	Change			<input type="checkbox"/>	
Air cleaner outer element	Change				<input type="checkbox"/>
Water separator & fuel filter	Change			<input type="checkbox"/>	<input type="checkbox"/>
Engine fuel filter	Change			<input type="checkbox"/>	<input type="checkbox"/>
Front End Accessory Drive (FEAD) belt condition	Check			<input type="checkbox"/>	<input type="checkbox"/>
Engine mounting bolts for tightness	Check			<input type="checkbox"/>	<input type="checkbox"/>
All Hoses – Condition	Check			<input type="checkbox"/>	<input type="checkbox"/>
Radiator	Check			<input type="checkbox"/>	<input type="checkbox"/>
Battery terminals and voltage	Check			<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"/>

## Service checks

### Oil – Check (Level)

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

**NOTE:** 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)

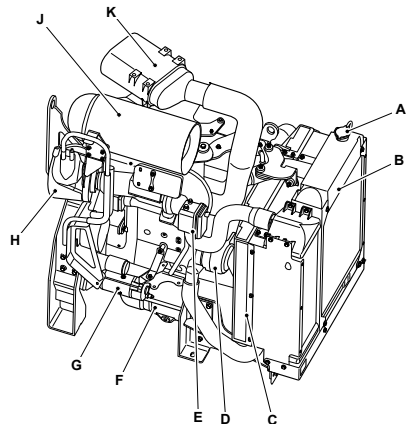
**CAUTION! The cooling system is pressurised when the coolant is hot. When you remove the cap, hot coolant can spray out and burn you. Make sure that the engine is cool before you work on the cooling system.**

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 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 any 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, check for leaks and re-check the fluid level.

Fig 16

- A Coolant filler
- B Expansion tank
- C Radiator
- D Charge alternator
- E Turbo charger
- F Oil sump
- G Starter motor
- H DEF injector
- J SCR
- K Air Filter
- L Fuel Filter – primary



### **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.

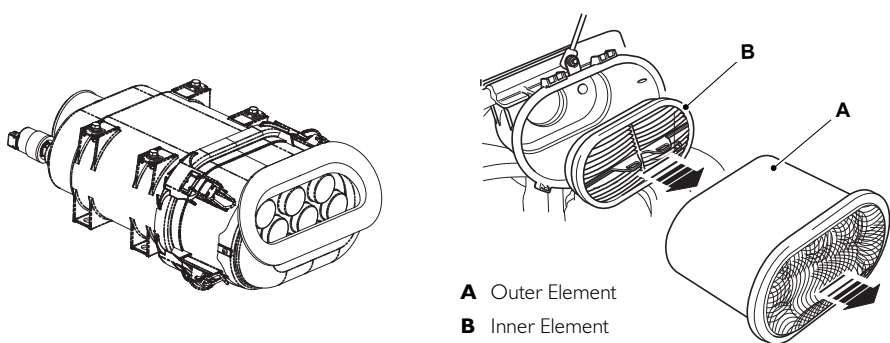
Inspect hoses and fittings for splits and poor clamping which may allow unfiltered air to enter the engine.

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 the dust valve is securely attached to the air filter housing.

**Fig 17**









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