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Operation and Maintenance Manual

Petrol Generator

8.0 - 9.6 kW Air Cooled

for build numbers:

VRP80-TIN12-TL, VRP96D-TL, VRP96T-TL

Publication No: 498-1019

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Change Control

Date	Version	Author	Reason for change
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Jun 15	A	MC	Updated following review and released
Jan 17	B	MC	Upd Warranty Iss H
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Introduction

Thank you for purchasing a quality generator, carefully manufactured to the highest standards by one of the World's leading generator manufacturers, Harrington Generators International (HGI).

This range of Dual Voltage 110V/230V/400V are generally used for industrial use and are not CE marked for European Noise Directive.

Before operating the generator, read this manual and make sure that all personnel who operate the equipment have access to the manual (and any additional documentation supplied with it) and are fully aware with the operation and functionality of the generator prior to use.

Misuse of the instructions may invalidate the product warranty and lead to potential accidents.

This manual is an essential part of the generator and should be kept with the generator at all times. Make sure that the manual is available to all users throughout the generator's life-span.

If in doubt about the functionality of any of the equipment within this document please contact HGI or seek other expert advice.

Every effort has been made to ensure that the information given in this manual is correct at the time of publishing. However, it may be superseded due to our continuous improvement processes.

HGI Limited manufacture a wide range of generating sets and accessories, including generators approved for use in Telecoms, Railway and Military applications where quality and reliability are essential. These include:

- Petrol Generators
- Petrol Welders
- Gas & Water ECE3 (TIN12)
- Tractside
- Tractor PTO
- Super Silent Diesel Generators (3000rpm)
- Super Silent Diesel Generators (1500rpm)
- Automatic Mains Failure Control Systems
- Welf-Air Generators
- Compact Welf-Air Generators
- Super Compact Welf-Air Generators
- Super Silent Diesel Welders

For further information call us now on :

+44 (0)1629 824 284

our experienced and knowledgeable sales staff will be happy to advise you and provide a detailed quotation for all your generator requirements or visit our website www.HGIgenerators.com



VRP96

Certification

EC Declaration of Conformity

In accordance with ISO/IEC 17050-1:2004 Conformity Assessment - Suppliers' Declaration of Conformity

We:	Harrington Generators International Ltd. Ravenstor Road, Wirksworth, Derbyshire DE4 4FY		
Declare that Equipment	110V/230V Dual Voltage or 400V/230V Petrol Generators		
Model Name	VRP80-TIN12-T	VRP96D-TL	VRP96T-TL
Electrical Power P_{el}	8.0 kW e	9.6 kW e	9.6 kW e

Conforms to the protection requirements of the following EC Council Directives:

2006/42/EC	Machinery Directive
2006/95/EC	Low Voltage Directive
2014/30/EU	EMC Directive
2000/14/EC 97/68/EC	Noise Emission in the Environment by Equipment for use Outdoors Directive Annex V111 Measures against the emission of gaseous and particulate pollutants from internal combustion engines to be installed in non-road machinery. European level Stage 3A (for engines above the minimum kW power threshold).

And has been designed and manufactured to the following standards:

BS5000 Part 3	Rotating electrical machines of particular types or for particular applications. Generators to be driven by reciprocating internal combustion engines.
EN60204-1	Safety of machinery. Electrical equipment of machines. General requirements.
EN12601	Reciprocating internal combustion engine driven generating sets. Safety.
BS EN61000-6-1	EMC. Generic Standards. Immunity for residential, commercial and light-industrial environments.
BS EN61000-6-2	EMC. Generic Standards. Immunity for industrial environments.
BS EN61000-6-3	EMC. Generic Standards. Emission standard for residential, commercial and light-industrial environments.
BS EN61000-6-4	EMC. Generic Standards. Emission standard for industrial environments.
BS ISO 3744	Acoustics. Determination of sound power levels of noise sources using sound pressure.

Notified Body for 2000/14/EC Noise Emission in the Environment by Equipment for use Outdoors Directive
HORIBA MIRA UK
Watling Street
Nuneaton
Warwickshire CV10 0UT
Notified Body Number: 00888

I declare that as the authorised representative, the above information in relation the supply and manufacture of this product is in conformity with the stated standards and other related documents following the provision of the above EC Directives.

Signed
Jan 2017



C. Coulton
Quality Manager

Specification

Engine:	Nominal Power 12.5kW Vanguard 350000 Series 570cc OHV V Twin Cylinder Engine Speed 3000 rpm		
Frame:	Mild Steel, Polyester Powder Coat Finish Trolley Mounted		
Dimensions:	1055 x 675 x 755	l x w x h (mm)	
Fuel Tank Options:	Standard 8.5 litre capacity		
Performance Class:	ISO 8528 LTP G1 Limited Running hours for general purpose electrical supply		

Model Specification

VRP80-TIN12-T	
Output:	8.0 kW (10.0 kVA)
Output Voltage:	110V CTE
Alternator:	S20FS-160/A - 2-pole brushless, self exciting, capacitor controlled
Weight (kg) ¹	125
Hours Run ²	2.8
VRP96D-TL	
Output:	9.6 kW (12.0 kVA)
Output Voltage:	110 / 230V
Alternator:	S20FS-160/A - 2-pole brushless, self exciting, capacitor controlled
Weight (kg) ¹	130
Hours Run ²	2.5
VRP96T-TL	
Output:	9.6 kW (12.0 kVA)
Output Voltage	230 / 400V
Alternator:	T20F-200/A - transformer controlled with brushes
Weight (kg) ¹	138
Hours Run ²	2.5

¹ Dry Weight approx without fuel and oil

² Hours Run @ $\frac{3}{4}$ Load (approximate figures only)


Safety

A few words about safety





Your safety and the safety of others are very important and using this generator safely is an important responsibility.

HGI have designed this generator to give safe and dependable service if operated in accordance to these instructions. Please ensure that you read this owner's manual and understand the functionality of the generator before using your generator. You can help prevent accidents and harm to yourself and nearby personnel by being familiar with the controls, and by observing safe operating procedures.

The warnings and safety instructions appearing in this guide are not meant to cover every eventuality and hazards associated with operating or maintaining a generator. You must use your own good judgement, care and caution.

 This is the safety alert symbol. It is used to alert you to potential hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

There are four types of safety alert messages used in this manual:

 DANGER	Danger refers to immediate hazards which WILL result in severe personal injury or death.
 WARNING	Warning refers to a hazard or unsafe method or practice which CAN result in severe personal injury or possible death.
 CAUTION	Caution refers to a hazard or unsafe method or practice which CAN result in personal injury.
 NOTICE	Notice refers to a method or practice which can result in product damage, or to draw attention to additional information or explanations.

Operator Responsibility

- Know how to stop the generator quickly in case of emergency.
- Understand the use of all generator controls, output sockets, and connections.
- Be sure that anyone who operates the generator receives proper instruction.

If you have any doubts about the safe operation of this equipment, please contact HGI or a competent operator or qualified technician.

Precautions

The generator can constitute a hazard to users, nearby personnel and property unless the following precautions are observed during operation:

- Ensure that you know how to stop the engine in an emergency.
- Exhaust fumes are poisonous and can kill.
 - **Do not** operate the generator in a confined area.
 - **Ensure** that the area surrounding the machine has no restrictions that would prevent an adequate flow of clean, ambient air.
- The generator should be operated in an open space with free air flow on all sides, at least one metre from other equipment and buildings. The surrounding area should be clear of any combustible material.
- Fuel is highly flammable, when refuelling:
 - **Do not** run the engine.
 - **Do not** smoke.
 - **Avoid** overfilling the fuel tank.
 - **Wipe up** any fuel spilt on the machine and move the equipment away from the area where fuel has been spilt.
 - **Store** fuel in approved containers only and do not expose to direct sunlight.
- Parts of the engine, and particularly the exhaust system will get very hot during use, and will remain hot for some time after the generator has stopped.
- Do not use the equipment with loose or missing components or guards.
- Additional care should be applied if using the generator in damp or wet conditions.
- The throttle control lever is preset to the correct engine speed and must not be adjusted, otherwise damage to equipment or the generator may be caused and will invalidate the warranty.
- Regularly inspect the condition of trailing cables and integrity of connectors. Only use correctly rated cable and standard plugs of suitable capacity for the application.
- During servicing, follow HSE recommendations regarding the handling and disposal of contaminated oil products.

Earthing

The earth pins of the output socket(s) are electrically connected to the metalwork of the generator.

VRP80-TIN12-TL 110V CTE with centre tap to earth.

VRP96D-TL has the neutral connection floating and not tied to earth.

VRP96T-TL has a star neutral point which is floating and not tied to earth.

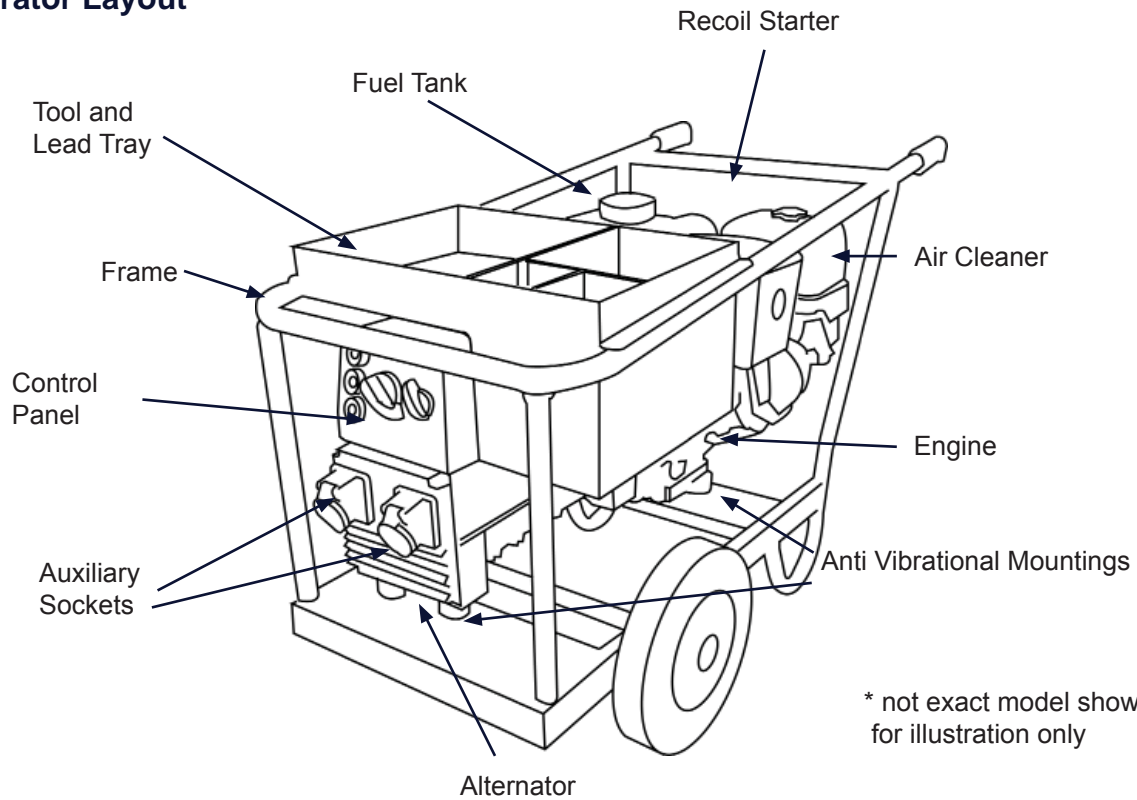
Further advice on earthing can be found in the following Health & Safety Executive publications (available from HMSO):

- GS27 Protection Against Electric Shock
- GS24 Electricity on Construction Site
- PM53 Emergency Private Generation

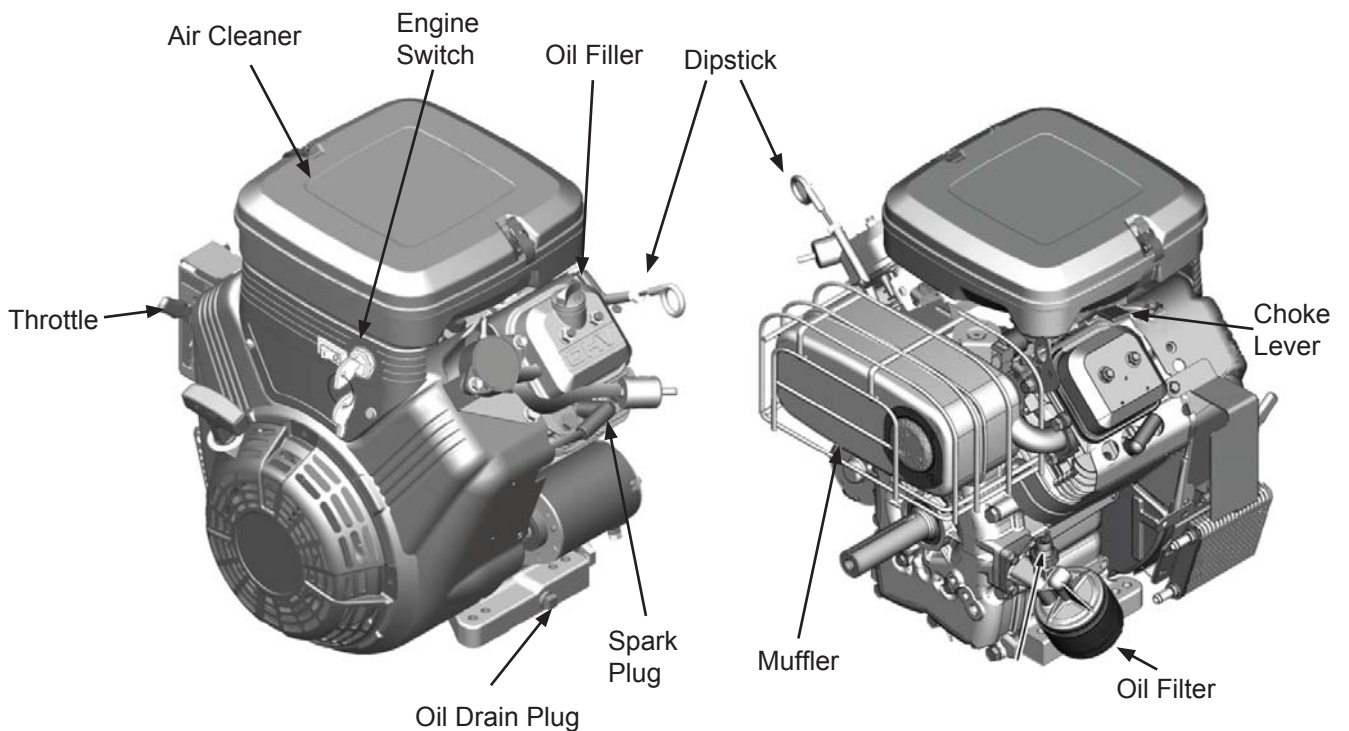
Operation

The guidelines for operating the generator outlined in the section refer to both the standard frame generators and the trolley mounted generators. However, diagrammatically the images refer to the standard frame.

Generator Layout



Engine Component Identification



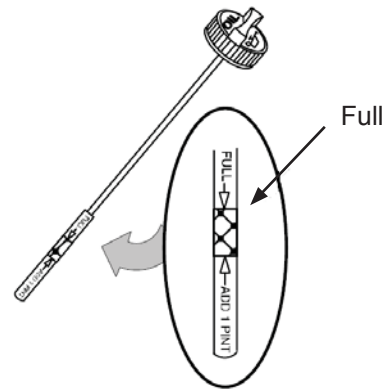
Pre-Operation Checks

Engine Oil

Check the oil level BEFORE EACH USE with the generator on a level surface and the engine stopped.

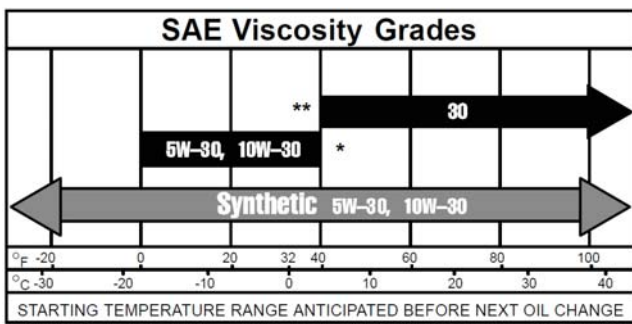
Use 4-stroke fully synthetic motor oil that meets or exceeds the requirements for API service classification SF, SG, SH, or SJ or later (or equivalent). Always check the API SERVICE label on the oil container to be sure it includes the letter SJ or later (or equivalent).

SAE 10W-30 is recommended for general, all temperature use. Other viscosities shown in the chart may be used when the average temperature in your area is within the indicated range.



Oil Capacity: 1.4 Litres

Fuel

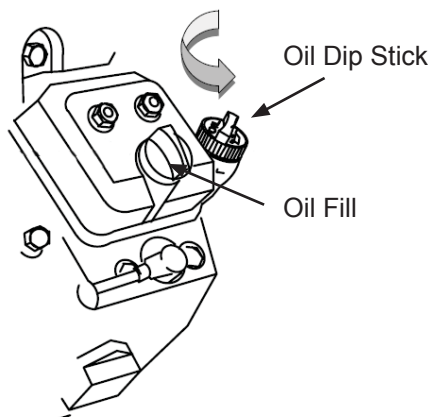


WARNING

Petrol is highly flammable and explosive. You can be burned or seriously injured when handling fuel. Stop the engine and keep heat, sparks, and flame away. Handle fuel only outdoors. Wipe up spills immediately.

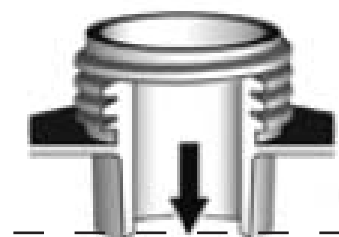
To check the oil level:

1. Remove the oil filler cap and wipe the dipstick clean.



With the engine stopped, remove the fuel tank cap and check the fuel level.

Refill the fuel tank if the fuel level is low. Refuel carefully to avoid spilling fuel.



Do not fill above the bottom of the fuel tank neck.

2. Insert the dipstick into the oil filler neck but do not screw it in.
3. If the level is low, fill to the full level mark on the dipstick

NOTICE

Fuel can damage paint and plastic. Be careful not to spill fuel when filling your fuel tank. Damage caused by spilled fuel is not covered under warranty.

After refuelling tighten the fuel cap securely.

NOTICE

If the fuel tank is empty and dry it will take up to 10 minutes for fresh fuel to prime the filters and carburettor.

Fully fill the tank to speed this up.

Fuel Capacity 8.5 Litres

Throttle

The throttle control lever is preset to the correct engine speed and must not be adjusted, otherwise damage to equipment or the generator may be caused and will invalidate any warranty.

General

Check that the generator is located on level ground and in an open space with free air flow on all sides, at least one metre from other equipment and buildings, and clear of any combustible material.

Starting

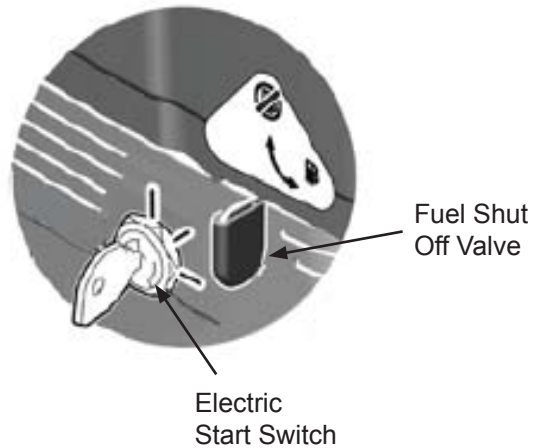
WARNING

Please check that all equipment is disconnected from the generator prior to starting.

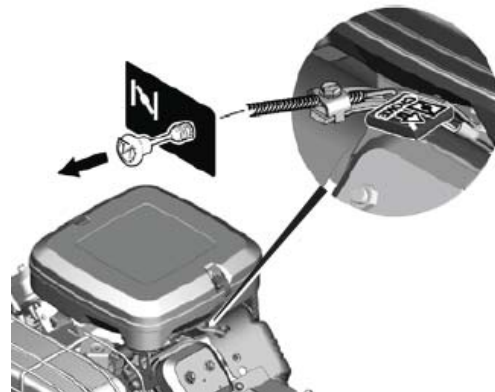
WARNING

Carbon monoxide gas is toxic. Breathing it can cause unconsciousness and even kill. Avoid any enclosed areas, partially enclosed areas or activities that may expose you to carbon monoxide.

1. Perform the Pre-Operation Checks.
2. Make sure that all appliances are disconnected from the output sockets.
3. Turn the fuel shut off valve (located next to the starter key) to the ON position.

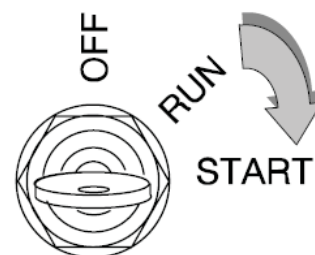


4. Move the choke control to the choke position



NB: The choke may not be required if the engine is warm or the air temperature is high.

5. Insert the Key and turn the electric start switch to the START position until the generator starts. Return the switch to the RUN position.



If the engine fails to start after three attempts start fault finding procedures.

6. If the choke lever was moved to the choke position to start the engine, gradually move it to the RUN position as the engine warms up.
7. Allow the engine to warm up for 1 minute before connecting any load to the generator output.

Output Sockets

The output sockets are located on the Top Box above the alternator.

The socket arrangement available for connecting load to is dependant upon the model:

Model	Top Box	Sockets
VRP80-TIN12-TL	TB005	110V CTE 2 x 16A, 1 x 32A, 1 x 63A 63A Main MCB
VRP96D-TL	TB-6DV9	110V 2 X 16A, 1 x 32A 230V 2 X 16A, 1 x 32A 32A Main MCB
VRP96T-TL	TB3TP	230V 2 x 16A 3Ph 1 x 32A 10A Main MCB

On VRP80-TIN12-T models earthing of the output is centre tapped to earth, protected by MCBs. 15A MCBs protecting 16A sockets and 30A MCBs protecting the 32A sockets.

On VRP96D-TL the neutral is floating. Select the voltage required using the voltage selector switch on the top box.



On VRP96T-TL the neutral/star point is floating.

Connect the equipment to be powered (load) into the socket receptacles on the generator top box.

NOTICE

Do not overload the generator as this will cause overheating, and shorten the life of the generator.

Check that the total load from all equipment connected does not exceed the generator rating. The output may be protected against severe overload by circuit breakers, when fitted.

There is an M8 brass stud on the frame which should be connected to an external earth point or to an earth spike. An earth spike can be supplied as an optional extra and should be driven at least 600 mm into soil.

High Altitude Operation

The generator is capable of operating up to 1000m without significant power reduction.

At higher altitudes, the standard carburettor air-fuel mixture will be excessively rich. Performance will decrease, and fuel consumption will increase. For high altitude operation install a smaller diameter main fuel jet in the carburettor and readjust the pilot screw. If you always operate the engine at high altitudes, have these carburettor modifications performed by a reputable service company or contact HGI.

Even with suitable carburettor jetting, engine horsepower will decrease approximately 3.5% for each 300m increase in altitude. The effect of altitude on horsepower will be greater than this if no carburettor modification is made.

NOTICE

Operation of the engine at an altitude lower than the carburettor is jetted for may result in reduced performance, overheating, and serious engine damage caused by an excessively lean air/fuel mixture.

Stopping

To stop the engine in an emergency, simply turn the engine key to the OFF position. Under normal conditions, use the following procedure:

1. Switch off and disconnect the load from the generator's output sockets.
2. Allow the generator to run off load for 2 minutes to cool down.
3. Turn the Key switch to the OFF position
4. Move the Fuel Shut Off Valve to the CLOSED position.

CAUTION

Leaving the fuel shut off valve in the ON position after stopping can cause the engine to flood and impair starting.

**NOTICE**

If the fuel shut off valve is left ON for transport the movement may bounce the carburettor float and allow fuel to flood the engine.

Always ensure that the fuel shut off valve is turned to CLOSED when not in use.

Fault Finding

IMPORTANT:

If the following checks and investigations can be completed without the use of tools then the User can safely undertake them. If tools are needed then ONLY trained technicians can undertake the work safely. Wiring diagrams can be obtained from HGI to help with electrical fault finding.

Symptom	Cause and Remedy
Engine will not start	<ul style="list-style-type: none"> • Check the Choke is in the correct position • Check that there is fuel in the tank • Blocked Fuel Filters • Engine Flooded • Is there enough oil in the engine • No Spark - incorrectly gapped spark plug • Blocked Air Filter • Incorrectly set engine speed. • Low Oil Level
Engine starts but stops on load	<ul style="list-style-type: none"> • Fuel starvation - check filters • Choke incorrectly set • Dirty Air Filter • Engine Speed incorrectly set • Low Oil Level
No electrical output	<ul style="list-style-type: none"> • Breakers have been switched off / tripped • Load is faulty • Diodes on alternator have failed • Alternator capacitor has failed • Alternator has lost magnetism • Faulty alternator windings



NOTICE FLOODED ENGINES

If the fuel valve is left ON whilst the machine is not in use the engine can flood. If this occurs the following procedure can alleviate starting problems :

- Turn the Fuel Valve OFF
- Drain the Carburettor bowl
- Remove the Spark Plug and inspect for flooded cylinder - correct if necessary
- Remove Oil Filler Cap (Dipstick) and inspect the oil. Drain oil and refill if necessary.

If in doubt contact HGI Service or consult with your dealer.

Maintenance

Good maintenance is essential for safe, economical, and trouble free operation. This not only ensures that your engine is at its optimum in fuel efficiency, but maintains the engine in order to minimize the risk of breakdowns. This will save you money in the long run, as worn items can be spotted sooner, saving further problems.

Maintenance Schedule

The maintenance schedule applies to normal operating conditions. If you operate your generator under severe conditions, such as sustained high-load or high-temperature operation, or use it in unusually dusty conditions, consult your servicing dealer for recommendations applicable to your individual needs and use.

Item	Service Period	Every 8 hrs or Daily	Every 25hrs or Every Season	50hrs or Every Season	100 hrs or Every Season	Yearly
Check fuel level		°				
Check oil level		°				
Change oil		° (1)		°		
Change oil filter (if equipped)					°	
Service air cleaner pre-cleaner			° (2)		°	
Service air cleaner cartridge					° (2)	
Clean cooling system					° (2)	
Clean/replace spark plugs						°
Clean/replace in-line fuel filter (if equipped)						°
Check valve clearance						°
Alternator						Every Year
Battery						Every Year
Electrical						Every Year
Frame						Every Year

1. Change Oil after first 5-8 hours of use and then every 50hrs or season. Change oil every 25hrs if using under heavy load or in high temperatures.
2. Service more frequently if used in dusty areas.
3. Only by trained personnel.

If you'd like to make an appointment for HGI to service your generator using our in house 26-point health checker guide then please contact the Service Department.

Safety Precautions

Some of the most important safety precautions follow. However, we cannot warn you of every conceivable hazard that can arise in performing maintenance. Only you can decide whether or not you should perform a given task.

WARNING

Failure to properly follow maintenance instructions and precautions can cause serious injury or death. Always follow the procedures and precautions in the operations manual. Where third party equipment is incorporated into the generator always refer to their guides for familiarisation

- Make sure the engine is off before you begin any maintenance or repairs. This will eliminate several potential hazards:
- Read the instructions before you begin, and make sure you have the tools and skills required.
- To reduce the possibility of fire or explosion, be careful when working around petrol. Use only a nonflammable solvent, not petrol, to clean parts. Keep cigarettes, sparks, and flames away from all fuel-related parts.

Maintenance Routine

The following procedures refer to the common maintenance items for servicing your generator.

Fuel Level Check

Refer to Pre-Start Checks.

Oil Level Check

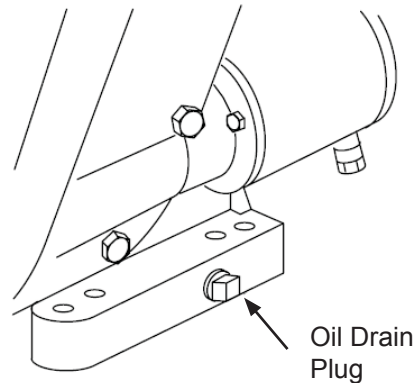
Refer to Pre-Start Checks.

Engine Oil Change

Change Oil after the first 5-8 hours of use and then every 50hrs or season. Change oil every 25hrs if using under heavy load or in high temperatures. Recommended oil of grade 10W30 or better.

Drain the oil in the engine while the engine is warm. Warm oil drains quickly and completely.

1. Place the generator on a level surface, and place a suitable container under the drain plug bolt.
2. Disconnect spark plug leads and keep away from spark plugs. Disconnect battery at the negative terminal.
3. Remove the oil filler cap, drain plug bolt, and drain plug washer to drain the oil into the suitable container.



4. Follow HSE recommendations regarding the handling and disposal of contaminated oil products.
5. Reinstall drain plug and tighten. Remove oil filler cap.
6. Fill with recommended oil to the top of the oil filler neck. Replace oil filler cap.

Change Oil Filter

Change oil filter after every 100 hours or every season.

1. Drain engine oil and remove oil filter.
2. Before installing new filter, lightly oil filter gasket with fresh, clean oil.
3. Screw filter on by hand until gasket contacts oil filter adapter. Tighten 1/2 to 3/4 turn more.
4. Add fresh oil. Fill to FULL line on dipstick.
5. Start and run engine at idle to check for leaks.
6. Stop engine. Re-check oil level. Add oil if required.

Service Air Filter Pre-Cleaner

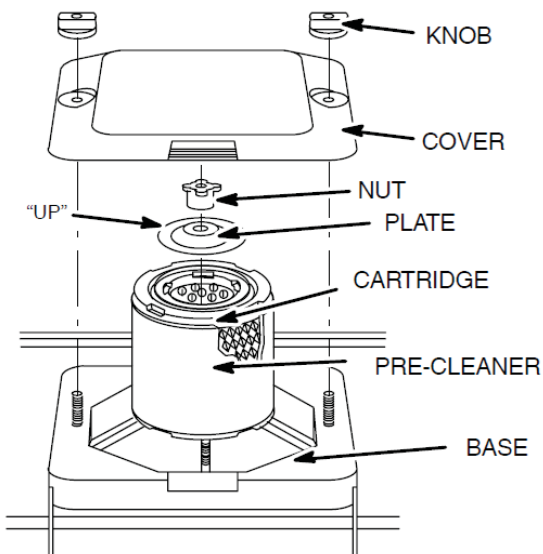
A dirty air filter will restrict air flow to the carburettor, reducing engine performance. If the engine is operated in dusty areas, clean the air cleaner more often than specified in the MAINTENANCE SCHEDULE.

⚠ NOTICE
 Operating the engine without the air filters or with the filter installed loosely will allow dirt to enter the engine, causing rapid engine wear. Install the air filters securely.

All engines have a round air cleaner cartridge. In addition, some engines have a pre-cleaner.

To clean pre-cleaner (if equipped), separate it from cartridge and wash in liquid detergent and water. Squeeze dry in a clean cloth.

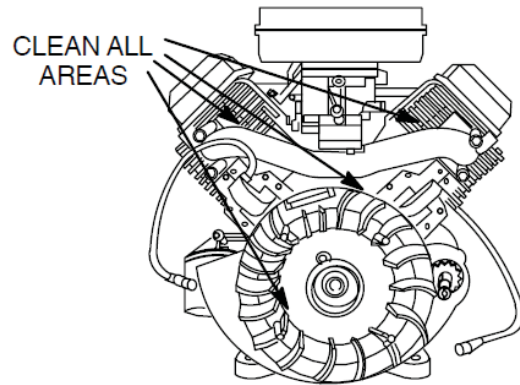
Service Air Cleaner Cartridge



1. Remove knobs and cover.
2. Remove nut, plate and carefully lift air cleaner assembly (pre-cleaner and cartridge) off stud.
3. Reinstall clean (or new) air cleaner assembly firmly in base. Reinstall plate (top side marked "UP") and nut.
4. Reinstall cover. Tighten knobs securely.

Clean Air Cooling System

Debris may clog the engine's air cooling system. Remove blower housing and clean area shown to prevent overheating and engine damage.



⚠ NOTICE
 Do not use water to clean engine parts. Water could contaminate fuel system. Use a brush or dry cloth.

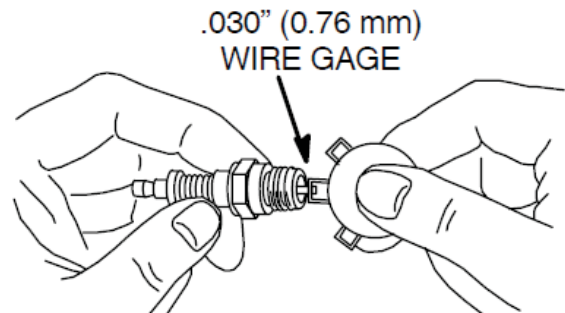
Clean / Replace Spark Plugs

⚠ CAUTION
 If the engine has been running, the engine will be very hot. Allow it to cool before proceeding.

Remove the spark plug lead, and then remove the spark plugs using a spark plug wrench.

Check the spark plug for damage and replace if necessary, or

Check the gap with a wire gauge. If necessary, reset the gap.




Re-Install and tighten the spark plug.

PLUG GAP: 0.76 mm (0.03 in)

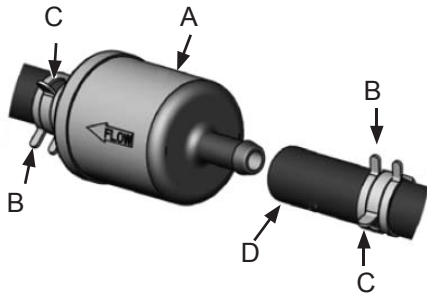
TORQUE SETTING: 180 lb-in (20 Nm)

Clean / Replace Inline Fuel Filter


WARNING

Petrol is highly flammable and explosive. You can be burned or seriously injured when handling fuel.

- Keep heat, sparks, and flame away.
- Handle fuel only outdoors.
- Wipe up spills immediately.



1. Before replacing the fuel filter, if equipped, drain the fuel tank or close the fuel shut-off valve. Otherwise, fuel can leak out and cause a fire or explosion.
2. Clamp hose (D) on either side of the filter.
3. Use pliers to squeeze tabs (B) on the clamps (C), then slide the clamps away from the fuel filter. Twist and pull the fuel lines (D) off the fuel filter.
4. Check the fuel lines for cracks or leaks. Replace if necessary.
5. Replace the fuel filter with an original equipment replacement filter.
6. Secure the fuel lines with the clamps as shown and remove the temporary clamps.

Valve Clearance

Valve Clearances should be checked every year. The clearance should be:

Intake Valve Clearance:
0.004 - 0.006 in (0.10 - 0.15 mm)

Exhaust Valve Clearance:
0.004 - 0.006 in (0.10 - 0.15 mm)

Refit the rocker cover with a new gasket.

Alternator

Ensure that the cooling air vents do not become blocked by dirt, debris etc.

Check the brushes and slip rings for wear every 12 months or 250/300 hours operation and replace if worn (brush – type alternators only).

Battery

Electric start models only. The battery is a maintenance free unit and should not require the electrolyte being topped up.

Check that the positive and negative terminals are tight and secure, and free from corrosion. Lightly coat them with petroleum jelly or similar to protect from corrosion.

Electrical

- Inspect sockets, and replace if damaged or contact pins are burnt.
- Check all wiring is secure and not damaged.
- Check the output voltage and frequency are correct.
- Check the earth continuity between the socket earth pins and the generator frame.

Frame

Check frame for rust and take necessary action if unsound.

Check security of fixings and fasteners on the machine.

Ensure earthing point is sound, clean any rust or oil deposits.

Generally inspect for fuel and oil leaks

Visually inspect anti vibration mounts for signs of failing or damage and check fixing bolts are secure.

Check wheels and axles for signs of failing.

Parts and Service

Contact Details

Parts Department

Tel: +44 (0) 1629 821 645
 Fax: +44 (0) 1629 821 606
 email: parts@hgigenerators.com
 Website: www.hgiparts.com

Technical Help Line

Staffed by friendly Technical Engineers who will advise on the correct generator for your power requirements, its application and safe use.

Tel: +44 (0) 1629 821 614 or 821 652

Service Department

Tel: +44 (0) 1629 821 647
 Email: service@hgigenerators.com

Warranty Statement


See HGI Website for latest warranty statement

<https://www.hgigenerators.com/warranty-statement-2.html>

Functional Spares

Engine			
Engine Complete	010-262	Oil Drain Plug	A1002-011
Key Switch Assembly	A1002-058	Oil Filter Short	A1002-014
Ignition Key (pair)	A1002-041	Oil Pressure Switch	A1002-010
Spark Plug	A1024-004	Fuel Filter	A1002-110
Spark Plug Tester	A1002-201	Fuel Cap	A1002-015
Air Filter	A1002-006	Silencer	call
Air Pre Filter	A1002-004		
Alternator			
Alternator Complete	call		
Capacitor	call		
Rotating Diode	call		
Other			
AV Mounts	070-383	MCB Pop Out 30 A	110-030
Socket, Straight 16A 110V IP44	090-001	MCB 20A 2 pole	110-220
Socket, Straight 16A 230V IP44	090-021	MCB10A 3 pole	110-310
Socket 32A 110V	090-002	MCB 32A 2 pole	110-232
Socket 32A 230V	090-022	MCB 63A 2 Pole	110-263
Socket 63A 110V	090-003	Black Handle Grip	070-811
Socket 63A 400V	090-032	Battery 12V	120-050-L
MCB Pop Out 15A	010-015		

Transportation

 NOTICE	Do not lay the generator on its side when moving, storing, or operating it. Oil may leak and damage the engine or your property
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If the generator has been used, allow it cool for at least 15 minutes before loading the generator on the transport vehicle. A hot engine and exhaust system can burn you and can ignite some material. To prevent fuel spillage when transporting, the generator should be secured upright in its normal operating position, with the engine switch OFF and the fuel valve turned fully “OFF”.

Take care not to drop or strike the generator when transporting. Do not place heavy objects on the generator.

Storage

Item	Description
Engine:	Turn the Fuel Valve to the “OFF” position. Short Term up to 3 months: Run the engine until it stops Long Term over 3 months: For long term storage each engine manufacturer will have their own recommendations typically: <ol style="list-style-type: none"> 1. Replace engine oil with a special inhibiting oil. 2. Drain the fuel from the system. 3. Remove the spark plug. Put a tablespoon of engine oil into the cylinder. Turn the engine slowly with the starter grip to distribute the oil. Reinstall the spark plug. 4. After removal from storage, fill with fresh fuel before starting. Please contact HGI for further details.
Alternator:	No special requirements other than store in a dry well ventilated place. If the generator has been stored for a considerable period of time e.g. several years the alternator insulation winding resistance should be checked as they can absorb moisture. The insulation resistance must be at least 1 MΩ (one mega ohms). If it is less than this then the alternator windings can be dried out by placing the alternator in an oven at 60-70°C for a few hours with plenty of air movement. Generally if this procedure is required consider replacing the alternator. Flashing the Alternator: if there is no electrical output after long term storage the alternator may have lost its residual magnetism. There is a procedure to re-magnetise the alternator. Please contact HGI for details.
Electrical :	No special requirements other than store in a dry well ventilated place.
General:	Store in dry, well ventilated and dust free place. If the generator is to be stored long term it would be beneficial to start and run the generator under electrical load for half an hour every three months and then store as above (but no need to change the oil).

Wiring

If you require details about the wiring of the generator then please contact HGI Sales or Technical Helpline

Sales: +44 (0)1629 824 284

Technical: +44 (0) 1629 821 614 or 821 652

Manufacturer's Service and User Guides Links

Every effort is made to ensure that the manufacturer's user and service guides contained in this manual are the latest available at the time of publication. If in doubt about the recency of the documents then please contact the manufacturer or visit their website for the latest information.

Vanguard 350000 Series Engine Operators Manual

- <http://www.vanguardengines.co.uk>

Mecc Alte S20FS/T20F User Manual

- <http://www.meccalte.com>

If you are still unsure then please contact HGI Technical Helpline: +44 (0) 1629 821 614 or 821 652