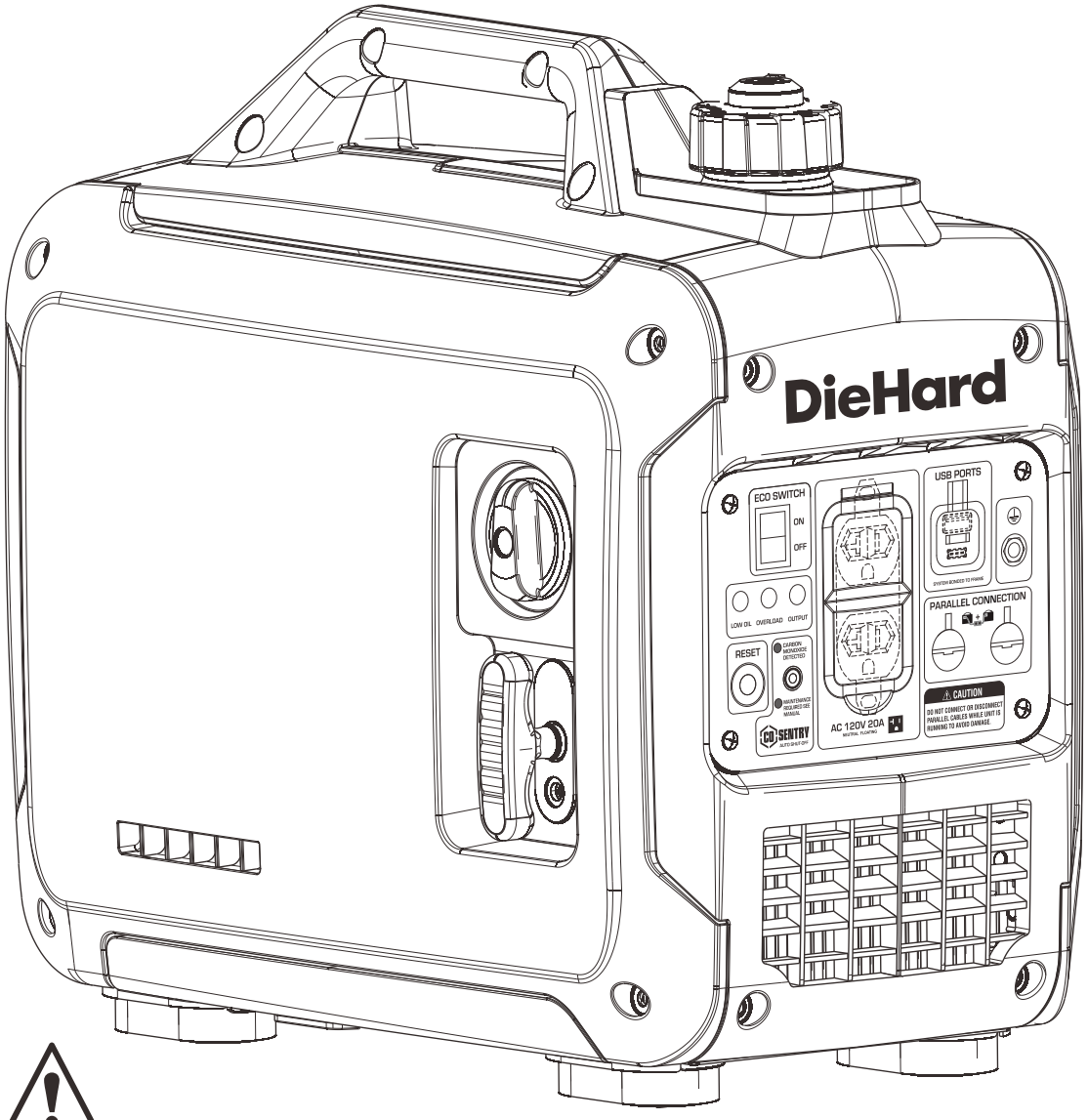
DieHard®

Model No. DHD2400iSCO

2400 WATT INVERTER GENERATOR OPERATOR'S MANUAL



Warning: The Engine Exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

STOP

DO NOT RETURN TO STORE!

HAVE QUESTIONS OR NEED SERVICE?

866-591-8921

Table of Contents

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Introduction

Thank you for choosing DieHard!
This manual provides instruction on how to operate and use your generator safely and correctly; be sure to read and understand this manual before using your generator.

If you have ANY questions, please call 866.591.8921 M-F BEFORE using your generator. All details and images in this manual are believed to be accurate at the time of publication.

If the generator is resold, kindly include this manual with the generator.

Safety Warnings and Notices

⚠ DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION

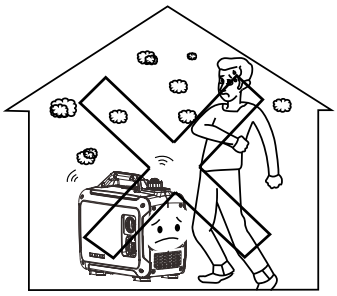
CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

NOTICE

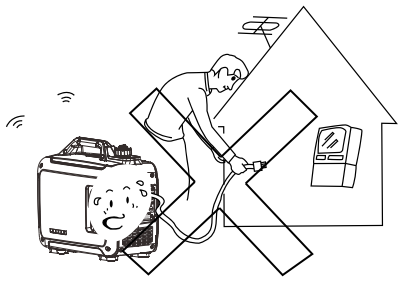
Failure to follow the instruction may result in the damage to your generator and other property.

Safety Instructions

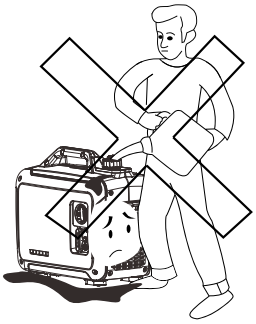
Before operating your generator, you must read and understand the Operator's Manual and familiarize yourself with the safe operation practices.



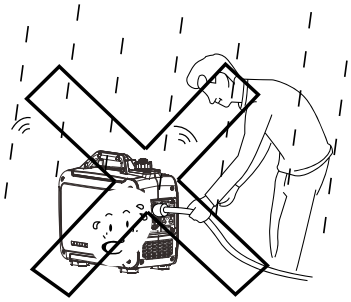
NEVER use a generator indoors! Exhaust and Carbon Monoxide can KILL YOU in minutes.



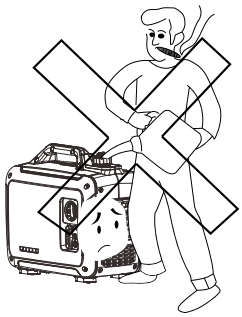
This is a portable generator, DO NOT attempt to connect it to any mains panel.



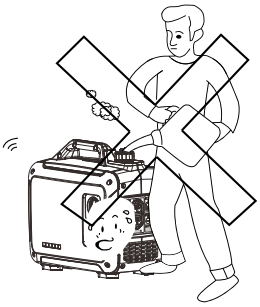
Take care not to spill any gasoline and wipe up any accidental spills at once.



Avoid running the generator in the rain or very high, condensing humidity.



Never smoke or allow any heat source near the generator while refueling it.



Always shut down the generator and allow it to cool before refueling!

Safety Instructions

NOTE

Improper treatment of the generator could damage it and shorten its life.

- Use generator only for intended applications.
- Operate generator only on solid, level surfaces.
- DO NOT expose the generator to excessive moisture, dust, dirt, or corrosive vapors.
- DO NOT insert any objects through cooling slots.
- If connected devices overheat, turn them off and disconnect them from the generator.

Shut off the generator if:
- Electrical output is lost.
- Equipment sparks, smokes, or emits flames.
- Unit vibrates excessively.

Parallel Kit Precautions

⚠ WARNING

To prevent serious injury, death, and generator and/or equipment damage from electric shock and fire:

1. Follow Parallel Kit instructions provided with it for connection and use of a Parallel Kit.
2. Only connect two identical Inverter Generators together using a Parallel Kit.
3. Connect Parallel Kit only to terminals marked “Parallel” on the front of the Generator.
4. Do not remove or connect a Parallel Kit while the Generator is running.
5. Do not use a Parallel Kit that is attached to only one Generator.

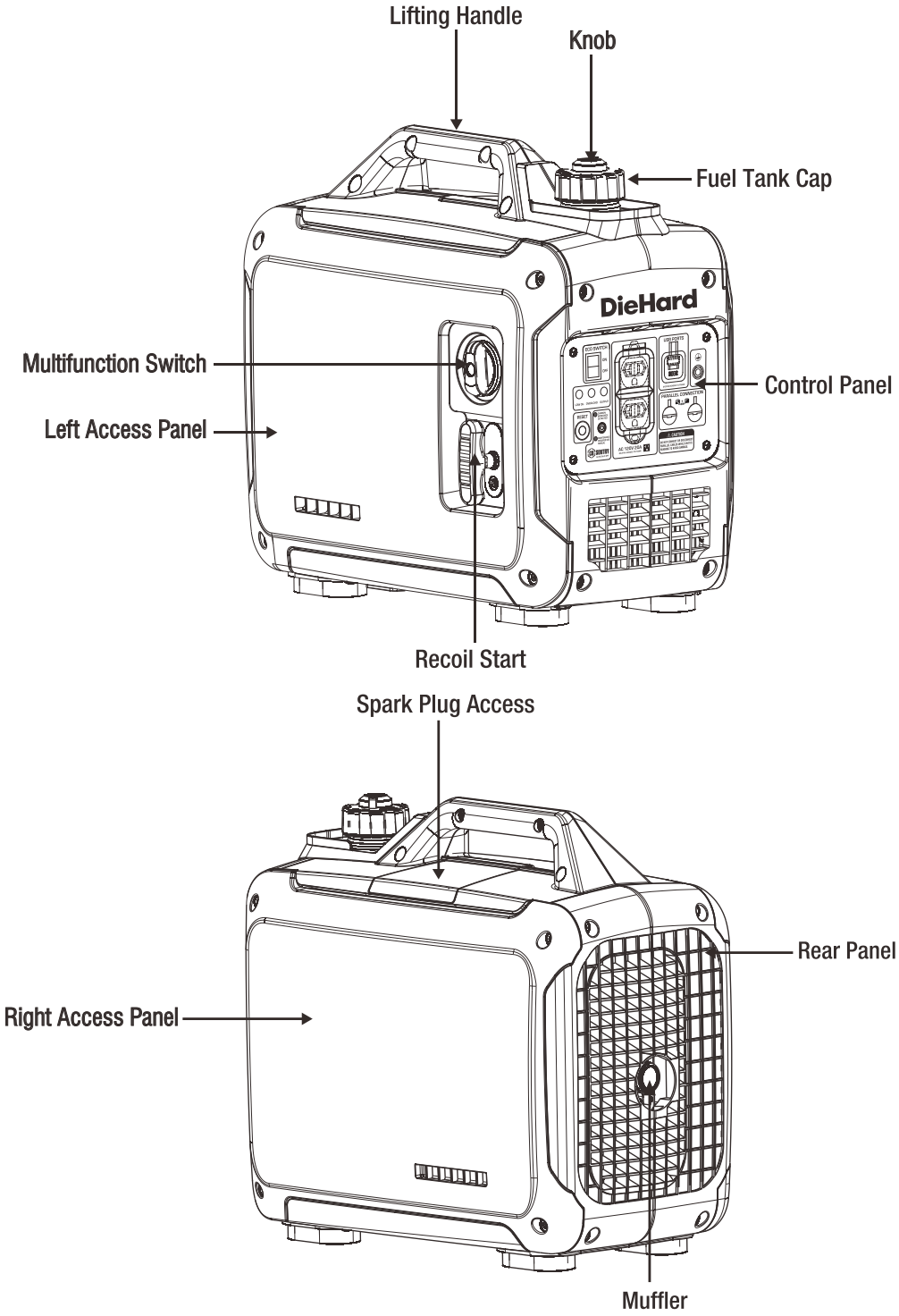
Carbon Monoxide Safety

Carbon Monoxide

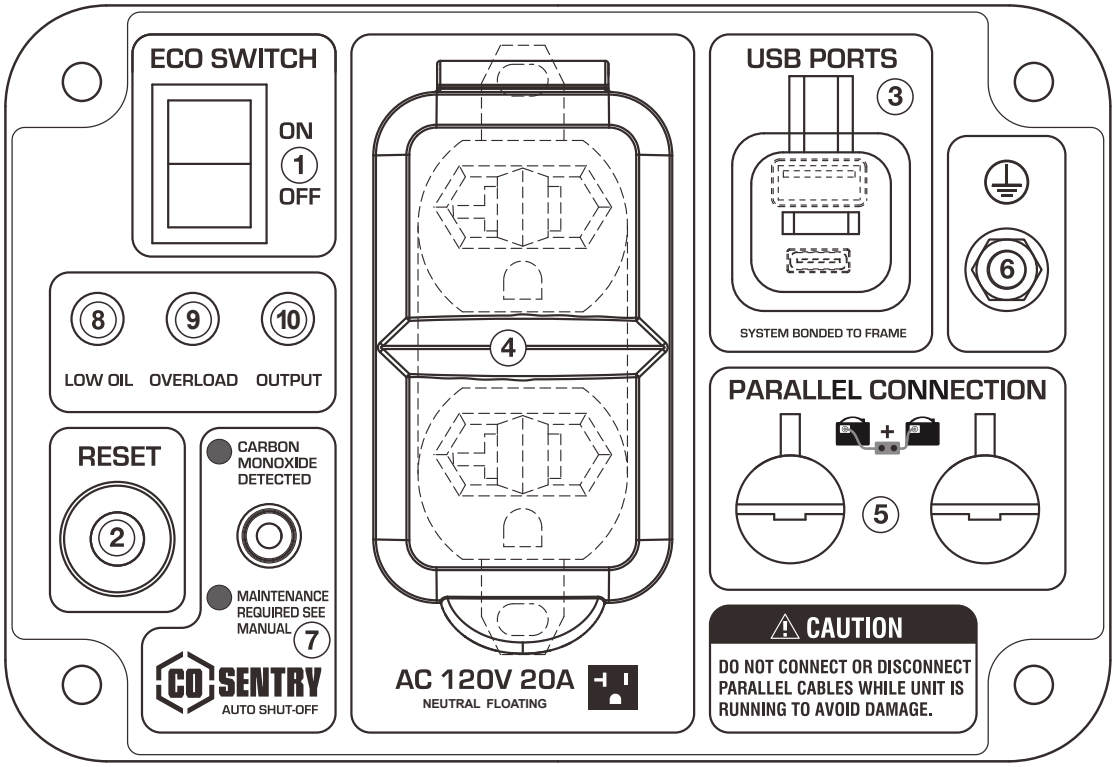
Generators are very convenient, but they can also be very dangerous. All fuel-burning appliances and equipment release a poisonous gas called carbon monoxide. Carbon monoxide (also known as CO) can be dangerous for humans and pets, even in small amounts, because it blocks oxygen from getting into your body. Carbon monoxide poisoning can lead to death in a very short time. It is odorless, tasteless and invisible, so you may be exposed without knowing it. That is why carbon monoxide is sometimes called “the silent killer.”

Names of Components

Before operating your generator, you must read and understand the Operator's Manual and familiarize yourself with the safe operation practices.



Control Panel



CONTROL PANEL FEATURES

① **Low Idle Switch:** When turned to the ON position, the engine will sense the load needed and run at a slower RPM to save fuel.

② **Reset:** If the inverter is overloaded, the reset breaker will trip. The engine will continue to run, but there will be no output from the inverter. Unplug the devices and reduce the load. Push in the reset breaker to reset it.

③ **USB Duplex:** 5V DC, type-A and type-C connectors.

④ **120V AC 20A 5-20R Outlet:** The outlet is capable ofcarrying a maximum of 20 amps.

⑤ **Parallel capability:** Two inverter generators are connected together to provide dual power to meet higher power requirements.

⑥ **Ground Terminal:** The ground terminal is used to externally ground the inverter.

⑦ **CO Alarm:** Flashing red light: dangerous levels of carbon monoxide gas have built up leave immediately until area has aired out. Move generator to well-ventilated area before operation. Flashing yellow light: carbon monoxide sensor malfunction. Sensor needs service.

⑧ **Low Oil Alarm:** Indicates low oil level.

⑨ **Overload Alarm:** Indicates that the inverter is overloaded.

⑩ **Output Indicator:** Indicates the inverter is ready to be used.

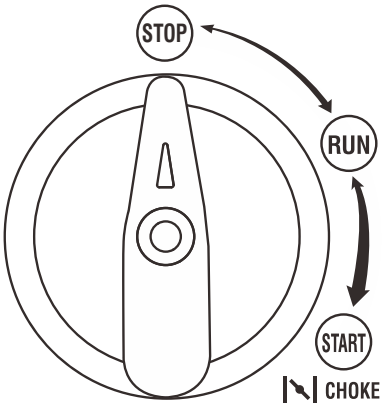
Control Functions

Multi-Switch

STOP - Ignition circuit is off, the fuel valve is closed, the engine will not run.

RUN – Ignition circuit is on, the fuel valve is open, the choke is open, and the engine runs normally.

START (CHOKE) – (only used for cold starting) Ignition circuit is on, fuel valve is open, choke is closed.

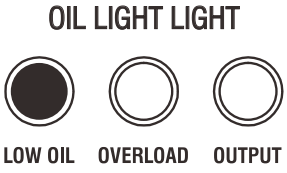


Multi-Switch

NOTICE

Tip: When the engine is warm, choke is not necessary.

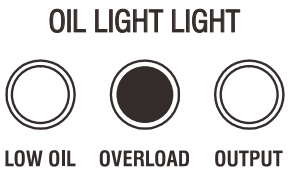
Oil Indicator (Yellow)



When the engine oil level drops too low the engine will automatically shut down and the oil light illuminates.
The engine can be restarted up only after the engine oil is filled correctly.

Tip: If the engine does not start, turn the Multi-Switch to the "RUN" position and pull the recoil handle. If the oil light flashes for a few seconds, it indicates that the oil is insufficient. Please fill the oil to the high level of the dipstick and restart it.

Overload Oil Light (Red)



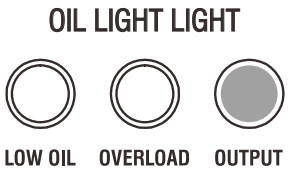
When the overload oil light illuminates, the generator has detected excess electrical load and the circuit breaker may open (trip).

If the overload oil light illuminates and the generator has no electrical output, perform the following:

① Disconnect all electrical loads then and shut down the generator.
② Reduce total draw of electrical loads connected, less than rated output.
③ Confirm there is no debris blocking the air inlet, correct as necessary.
④ Next, restart the engine and add electrical load in gradual steps.

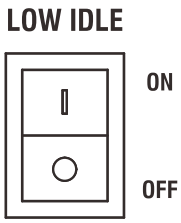
Tip: When using electrical equipment with high starting current (such as compressors, saws, pumps, etc.), the overload indicator may illuminate for a few seconds, this is normal.

AC Oil Light (Green)



The AC oil light illuminates when electrical output is stable.

Energy Saving (Idle) Switch

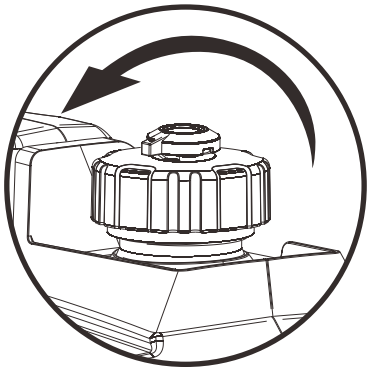


1) "ON"
When energy saving switch is switched to "ON" position engine speed is reduced when the generator is under light load. This feature will reduce fuel consumption and noise.

2) "OFF"
When the energy saving switch is set to the "OFF" position, the engine will run at rated speed, regardless of connected load.

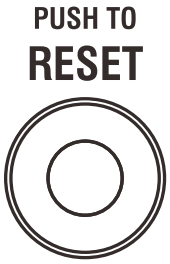
Fuel Tank Cap

Remove fuel tank cap by unscrewing it counterclockwise.



Reset

If the inverter is overloaded, the reset breaker will trip. The engine will continue to run, but there will be no output from the inverter. Unplug the devices and reduce the load. Push in the reset breaker to reset it.



Grounding Terminal

If grounding is required by code or application, follow the guidelines on page 9.



Fuel

⚠ DANGER

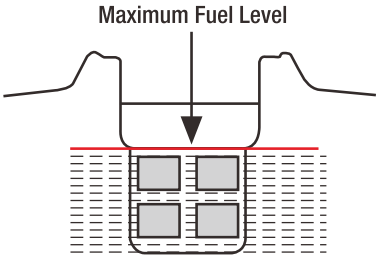
Gasoline is highly flammable and toxic. You must read and understand ALL safety instructions before fueling your generator.

Do not overfill the fuel tank! Heat and vibration can cause fuel to leak from an over-filled fuel tank.

After refueling, confirm that the fuel tank cap has been tightened.

NOTICE

Remove fuel tank cap and add gasoline to the red horizontal line.



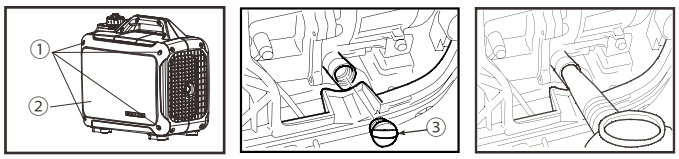
After fueling, wipe up any gasoline residue with a soft cloth to prevent damage to the plastic enclosures.

Fuel tank capacity: 0.63 US gallon (2.4L)

Engine Oil

Your generator ships without engine oil. Do not attempt to start the generator without sufficient engine oil in the crankcase.

1) Place your generator on a flat, stable surface.
2) Unscrew the fasteners ① on the right access panel counterclockwise and remove the right access panel ②.
3) Unscrew oil dipstick ③.



Preparing Your Generator

4) Use a funnel to add 11 fluid ounces (0.33 L) of 10W-30 engine oil to the crankcase, verify oil level with the dipstick.
5) Reassemble the right access panel and tighten the right access panel fasteners.

Pre-use Inspections

NOTICE

Even when not in use the generator is potentially hazardous. Follow the checklist below before starting the generator. If any problems are found, do not use the generator until it has been repaired by an authorized DieHard service center.

Fuel

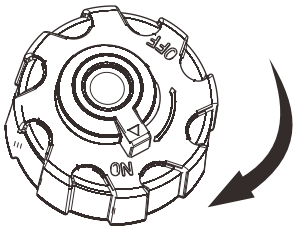
Check fuel level; add if necessary.

Oil

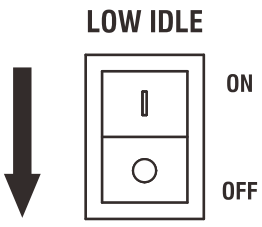
Check oil level; add if necessary.
Check for any oil leaks.

Starting The Generator

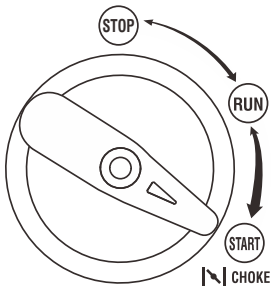
1) Disconnect all electrical loads.
2) Turn ventilation knob of fuel tank cap to "ON".



3) Move Energy Saving (Low Idle) switch to "OFF".



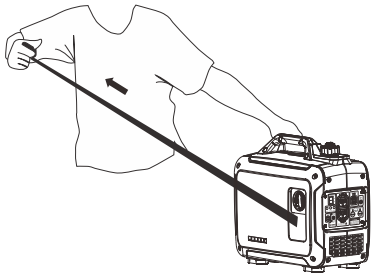
4) Turn the Multi-Switch to "START".



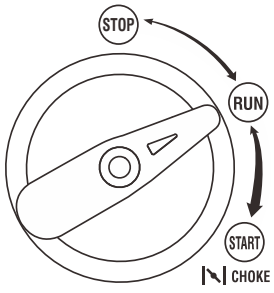
Multi-Switch

Tip: When the engine is warm, choke is not necessary.

5) When starting the generator, grasp the handle firmly with your free hand to stabilize the generator.
6) First gently pull the recoil rope until resistance is felt, then let it retract, then pull it swiftly at once.



7) After the generator starts, turn the Multi-Switch to "RUN".



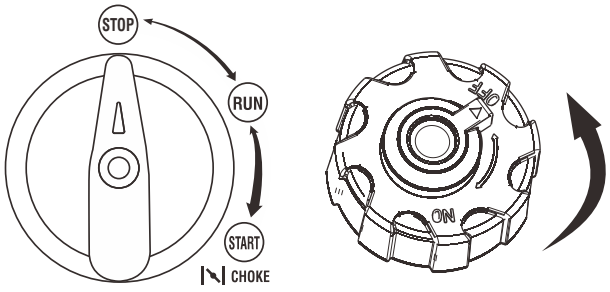
Multi-Switch

Shutting Down The Generator

1) Remove any connected loads from the control panel receptacles.
2) Turn the Multi-Switch to "STOP".

Shutting Down The Generator

3) After the generator has completely cooled down, turn ventilation knob of fuel tank cap to "OFF".



Multi-Switch

Using The Generator

Operating Range of the Generator

- Ambient air temperature: 23F–104F (-5 ~ 40°C)
- Relative humidity <95%
- Recommended elevation <5,000 feet (1,500m) reduced power at >3,300 feet (1,000 m)

Ideal Atmospheric Conditions

- Ambient air temperature: 77F (25°C)
- Relative humidity: 30%
- Atmospheric pressure: 1,000 millibars

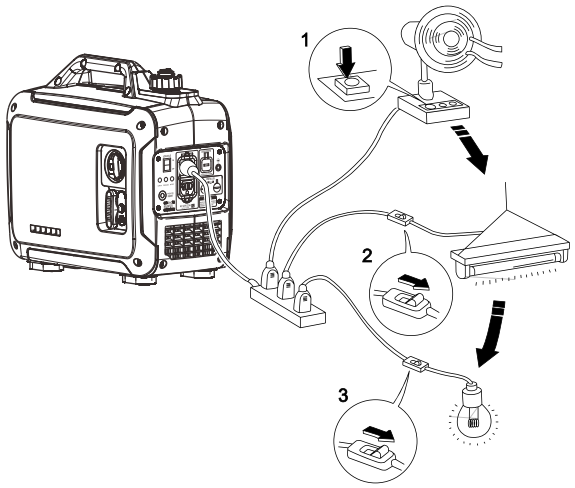
Standard Deration

- Every 9°F (5°C) increase in ambient air temperature will reduce generator output by about 2%
- Every 30% of increase in relative humidity of air will reduce generator output by about 1.5%
- Every 1,000 feet, (300m) elevation increase will reduce generator output by about 3.5%

Connecting Loads to the Generator

① Start the engine
② Move Energy Saving switch to "OFF"
③ Insert the plug(s) into AC outlet(s)
④ Make sure that AC indicator is illuminated
⑤ Switch on electrical equipment

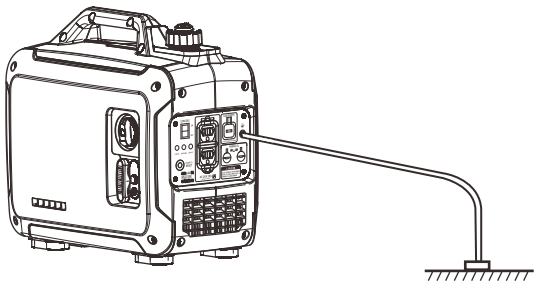
Tip: If total load is less than half rated capacity, move the Energy Saving Switch to 'ON'. If the generator supplies power to multiple devices plug-in those devices in from large to small according to rated electrical load.



Generator Grounding

If grounding is required by code or application, follow the guidelines below. If you have ANY doubt, contact a licensed electrician.

① Use grounding wire of minimum 12 gauge
② Connect one end of grounding wire to the grounding bolt on the control panel.
③ Connect the other end of the grounding wire to a suitable ground point.



Range of Application

Before using the generator, please make sure that total load is within rated load range of the generator, otherwise the generator may be damaged.

Service and Maintenance

Good maintenance is essential for safe, economical operation and long service life. The maintenance schedule is below:

Maintenance Cycle Item		Each Week	Break-In Maintenance at 1 Month or 20 Hours Use	Quarterly Maintenance is every 90 Days or 50 Hours Use	Annual Maintenance or 100 Hours Use
Engine oil	Check - Fill	√			
	Replace		√	√	√
Air Cleaner Element	Inspection	√			
	Clean		√		
	Replace			√	√
Carburetor Float Bowl	Clean				√
Spark Plug	Clean - Adjust				√*
Spark Arrester	Clean			√	
Idle Speed	Check - Adjust				√
Valve Clearance **	Check - Adjust				√
Fuel Tank and Fuel Filter **	Clean				√
Fuel Hose	Inspection	Every Two Years			
Cylinder Head, Piston	Remove Carbon Deposit **	Displacement <225cc, every 125 hours; displacement ≥225cc, every 250 hours.			
** These tasks should be completed by an authorized DieHard service center.					

NOTICE

If the generator is used in high temperature or under high load, change the oil every 25 hours.

If the generator is used in a dusty or abrasive environment, service the air filter element every 10 hours; replace it every 25 hours.

If you miss a maintenance cycle, perform the maintenance as soon as possible per the table above.

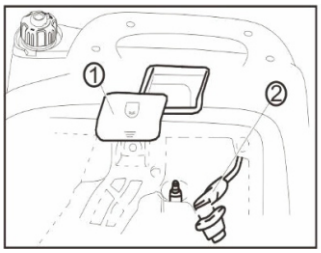
⚠ DANGER

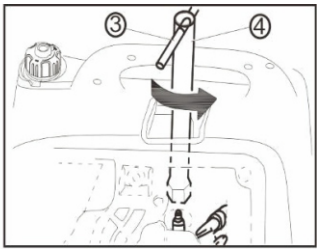
Shut down the engine and allow it to cool before performing any service. Place the generator on a flat, stable surface. Remove the spark plug boot to prevent accidental engine start.

NEVER USE ANY GENERATOR INDOORS or in any poorly ventilated area. Engine exhaust contains carbon monoxide which can KILL you and others in the area.

Spark Plug

① Remove access cover and spark plug boot.
② Use the (included) thin-wall T-socket wrench to remove the spark plug by turning it counter-clockwise.





③ Inspect spark plug for discoloration and remove carbon deposits; replace if necessary.
④ Adjust the gap 0.7~0.8mm.

Spark Plug # **A5RTC**
Gap: 0.7-0.8mm



⑤ Install new or serviced spark plug in reverse order.

Spark Plug torque: 13~15 Nm; 115~133 in lbs.

Tip: If no torque wrench is available turn the spark plug ¼ - ½ turn after the gasket contacts the cylinder head.

Adjustment of the Carburetor

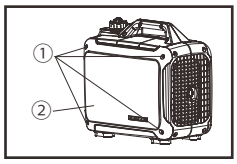
This carburetor is not adjustable, only maintenance and cleaning are possible. We strongly recommend leaving this work to an authorized DieHard Service center.

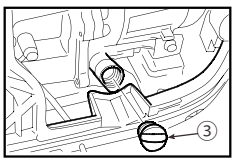
Oil Change

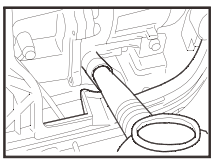
⚠ WARNING

Do not drain the oil immediately after turning off the generator; allow it to cool completely before servicing it.

1) Raise the generator up on support blocks on a flat, stable surface
2) Unscrew the fasteners ① on the right access panel counterclockwise and remove the right access panel ②.
3) Unscrew oil dipstick ③
4) Place an oil pan under the engine, tilt the generator toward the oil pan until all oil has drained; wipe up any spills.







5) Refill crankcase with 11 fluid ounces (0.33L) 10w-30 engine oil; check with dipstick.
6) Screw oil dipstick, replace oil access cover, and tighten the fasteners.

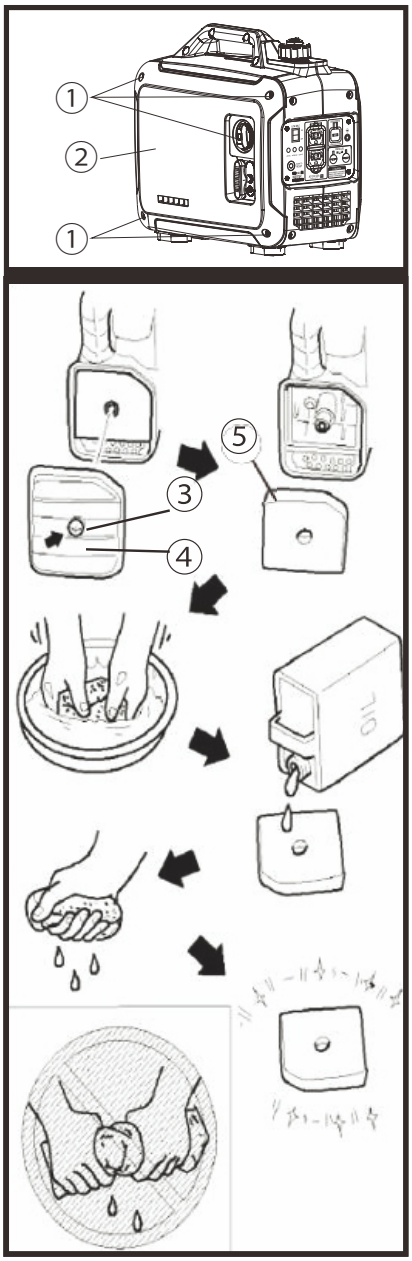
Air Filter

A dirty air filter can cause poor performance and engine damage. Perform inspection and cleaning per the maintenance schedule on page 10.

Service and Maintenance

Air Filter

1). Remove the left service access panel bolts ①, multifunction switch bolts ①, remove the left service access panel ②.
2). Remove screws ③, to remove air filter housing ④;
3). Remove foam filter element ⑤;
4). Clean the foam filter with detergent and hot water, rinse well and let it dry.
5). Place a few drops of engine oil on the foam filter element and squeeze gently to distribute the oil film evenly.
6). Reinstall the air filter element in reverse order.



Fuel Filter Screen

Remove the tank filter and clean the tank filter with detergent and hot water. When the tank filter is dry, put it back into the tank and close the oil cap tightly.

Storage and Transport

Generator Long Term Storage

1). Turn off the generator and allow it to cool completely.
2). Remove the spark plug boot to prevent accidental engine start.
3). Remove bolts and right service access panel
4). Using a Phillips screwdriver, open fuel drain valve on the carburetor, and drain remaining fuel into an approved gasoline container.
5). Tighten fuel drain valve.
6). Change engine oil per page 10.
7). Remove spark plug and instill one teaspoon (5ml) new engine oil into combustion chamber. Pull the recoil a few times, to distribute oil, then reinstall the spark plug.
8). Replace right service access panel.
9). Gently pull recoil handle until you feel resistance, indicating the intake and exhaust valves are closed.
10). Store the generator in a clean and dry area.

Generator Transport

Generator should be empty of fuel when transported unless the generator is secured in an open truck bed and secured from tipping. In this case, follow the guidelines below:

- Do not completely fill the fuel tank, leave some expansion space.
- Do not run the generator while transporting.
- Protect from direct sunlight.
- Do not transport the generator across rough terrain.

Troubleshooting

Engine No-Start

Fuel System
1) There is no fuel
2) Fuel doesn't reach combustion chamber.
3) Contaminated or old fuel.
4) There is debris in the fuel valve.
5) Carburetor is fouled, service carburetor.

Insufficient Engine Oil

Oil level is too low.

Ignition System

1) Make sure the generator is off (Refer to "Shutting Down the Generator" on page 8 to page 9).
2) No spark from ignition coil failure.
3) Spark plug is fouled, service it per page 11.

Low Compression

1) Worn out engine.
2) Cylinder head bolts have loosened, have an authorized DieHard service Center re-torque them properly.
3) Head gasket leak.

Engine Runs, No Power Output

1) Ensure all circuit breakers are pushed in.
2) If generator was exposed to moisture or rain, move it to a dry location for several hours.
3) Vibration may have caused one or more connectors to loosen over time, check with Diehard Technical Support for guidance.
4) Check electrical receptacles for damage.
5) Generator may be overloaded. Remove load, shut down, then restart the engine.

Technical Parameters

Item		Parameter
Engine	Engine Model	**148F/P-3**
	Engine Type	Single-cylinder, four-stroke, air-cooled, overhead valve
	Bore size × Stroke (mm)	**48.6×43**
	Displacement (cc)	**79.7**
	Compression Ratio	8.7± 0.2
	Cylinder Head	OHV
	Cooling Mode	Forced Air
	Output Power (kW/r/min)	**2.2/5000**
	Starting Method	Recoil
	Fuel Tank Volume	**0.63 Gallon (2.4L)**
	Fuel Type	Gasoline
	Engine Oil Capacity	**11 fluid Ounces (0.33L)**
	Oil Type	SAE 10w-30
	Lubrication Mode	Splash Lubrication
	Noise dB (@ 7m)(1/4 load)	**57**
Generator	Rated Power (kW)	**2.0**
	Max. Power (kW)	**2.4**
	Rated Voltage (V)	120
	Rated Frequency (Hz)	60
	Rated Power Factor	1
	Phase Number	Single Phase
Configuration	Motor	Brushless (Permanent Magnet)
	Voltage Regulation	Inverter Regulation
	Frequency Regulation	Inverter Regulation
Overall Dimension (in)		**17.3”x9.8”x15.9”**
Net Weight		**33lbs.(15kg)**

Electrical Schematic

60Hz, 120V Electrical Schematic Diagram

