







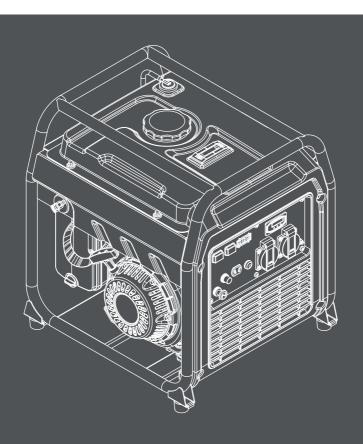




Inverter Generator

HY4000i

User's Manual





Thank you for purchasing your Inverter Generator

- HYUNDAI reserves the right of modification of product and revision of the manual without any notice.
- Take this manual as a part of the generator. If the generator is resold, it is required that the manual be transferred with it.
- This manual contains instruction on how to correctly operate this generator.
 Please read it carefully before using the generator. Correct and safe operation will guarantee your safety and extend the working life of your generator.
- HYUNDAI will continuously innovate and develop its products both in design and quality. However, details and specifications may change and differ slightly from the product supplied.
- Please contact your retailer if you have any questions or doubts.



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1.SAFETY INFORMATION

To ensure personal and property safety, please carefully read the following information

OPERATION ATTENTION

A WARNING

- Read and understand the user manual before using the generator.
- Children and pets should be far away from the operating area.
- Any major repair work should be carried out by specifically trained persons.

CARBON MONOXIDE HAZARDS

A WARNING

- The emission of the engine contains poisonous carbon monoxide. Never run the generator inside a home or garage, even if doors or windows are open.
- Only use the generator in a ventilated area.
- Do not touch the hot muffler, whilst the generator is running, or before cooling.
- Let the generator cool down before storing.

FIRE AND BURN HAZARDS

A WARNING

- Gasoline is explosive and flammable.
- Refuel in a ventilated area.
- Do not smoke or allow sparks or flames near the generator when refueling.
- Clean away spilt fuel before running the generator.

CONNECTION NOTES

A WARNING

- Do not connect the generator to the supply mains system or another generator, to avoid electric shocks and fires.
- If the generator provides AC parallel output function, ONLY parallel with the same model.



ELECTRIC SHOCK HAZARDS

A WARNING

- Check the generator before every start.
- Place the generator at least 1m away from buildings or another equipment during operation.
- Place the generator on a level surface, to avoid overturning or spilling fuel.
- Understand the function of the controls, and the shutting off process.
- Children and pets must be kept away from the operating area of the generator.
- Do not operate with wet hands.
- Do not operate the generator in wet (raining, snowing) conditions.
- Major repair work should be carried out after the generator has completely cooled and only by professionally trained people.

A WARNING

- Do not use the generator underground and in potentially explosive conditions.
- Use personal protective equipment such as gloves, mask, and earplugs, when you operate or maintain the generator.

You will be SERIOUSLY HURT if you do not follow these warnings. Please read and understand the safety labels. If the label wears out, contact your dealer for a replacement.

Safety label:



- Not to refuel when operating.
- Do not refuel when operating.
- Do not refuel while smoking or flames.



- Please clean the overflowing fuel.
- Let the generator cool before storing.
- Gasoline is explosive and flammable, please use the generator outdoor.





Exhaust gas is poisonous; do not operate in an unventilated area [Carbon monoxide (CO) danger]



Do not connect to a building's electrical system.



Do not expose the generator to rain, moisture or snow.

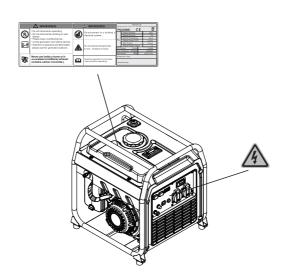


read the operator's instruction manual



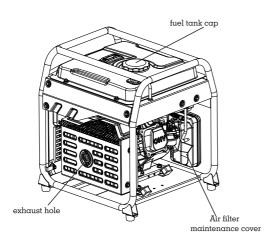
2. SAFETY LABEL LOCATION

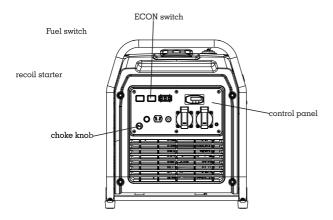






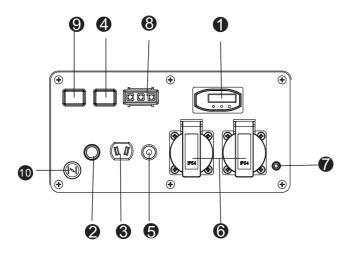
3.COMPONENTS IDENTIFICATION







3.1 Control panel



- 1 Hour meter
- 2 DC protector
- 3 DC receptacle
- 4 ECON Switch
- Reset
- 6 AC socket
- earthing rod
- Indicator
- Engine Switch
- thoke knob

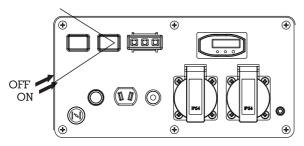


3.2) ECON. SW (Economy Control Switch):

"ON" (%_--)

- When the Economy Control Switch is turned to "ON" (♣—), the engine keeps running at idle automatically when the electrical appliance is disconnected, and will return to the proper speed when electrical load is applied.
- The "ON"(→) position is recommended to minimize fuel consumption.

ECON Switch



Note

- In order to minimize voltage fluctuation when a high load electrical appliance is connected, turn the Economy Control Switch to the "OFF" (♥) position
- In DC operation, turn the Economy control switch to the "OFF" (*) position.
- When connecting both AC load and DC load; turn the Economy control switch to the "OFF" (*) position.

3.3) Reset

- When the Overload Indicator Light (red) is on, the "RESET" button can be pressed to recover the output of the generator. It is unnecessary to stop and restart the engine.
- Press and hold the "RESET" button for 1 second, until the Overload Indicator Light (red) is off, and the Output Indicator Light (green) is on.

Note

- When the engine is tripped, the Output Indicator Light (green) is off, and the Overload Indicator Light (red) is on.
- The "RESET" button is available 5 times to reboot the engine. After this the enigine must be stopped before restarting.



3.4) Hour-meter

Press the "DISP" button to display the voltage/frequency of output, the engine speed and cumulative working time.

The backlight of the hour meter will come on when the "DISP" button is pressed. It will switch off after 10 seconds.

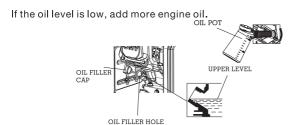
4.PRE-OPERATION CHECK

A WARNING

Be sure the generator is on a level surface and the generator is stopped.

4.1) Check Oil Level

Remove the oil filler cap, and clean it with cloth. Reinsert it into the crankcase, and take again out to check oil level:



A WARNING

- Using non-detergent or 2-stroke oil could shorten the engine's working life.
- Use high quality engine oil with strong detergents.
- Use 4-stroke engine oil, certified to meet or exceed API standards: SG, SF SAE stickiness rating:

Ambient temperature	Oil brand
-25℃-30℃	10W-30
-15℃-40℃	15W-40

Note

Carefully use and store the engine oil, avoid getting dirt or dust into it. Mixing different kinds of engine oil is prohibited.



Note

- Before the engine oil falls below the safety mark, the Low Oil Alert System will stop the engine automatically. The Oil Alert Indicator Light (yellow) will come on.
- To avoid the inconvenience caused by unexpected stopping, it is advisable to check the engine oil level regularly.

4.2) Check fuel level

- Use unleaded gasoline Octane 91 or higher.
- Never use stale or contaminated gasoline or an oil/gasoline mixture, Avoid getting dirt or water into the fuel tank.
- Do not use a mixture gasoline containing ethanol or methanol as this will seriously damage the engine.



Caution

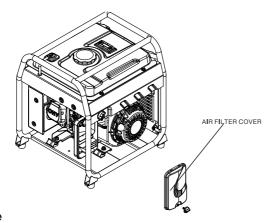
- Gasoline is extremely explosive and flammable.
- Smoking and fires are prohibited around the refueling area and fuel storage areas.
- Do not overfill the fuel tank (no fuel above the upper limit mark). After refueling, make sure the fuel cap is closed securely.
- Do not spill fuel from the fuel tank (no residual fuel around the neck of the tank) before starting engine.
- Avoid contact with skin or breathing fuel vapour.
- KEEP OUT OF REACH OF CHILDREN.

4.3 Check Air Cleaner

Check the air cleaner element to ensure it is clean and in good condition.

Loosen the air cleaner cover screw, and remove the cover. Check the element. Check, clean or replace as necessary.





Note

Do not run engine without the air cleaner element.

5. STARTING THE ENGINE

Note

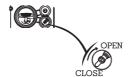
- Before starting the engine, disconnect any load from the AC receptacles.
- When fueling for the first time, refueling, or storing for a long time, the engine switch should be opened for ten or twenty seconds, to allow for enough fuel to enter into the carburetor.

A WARNING

• Do not use the generator indoors or in unventilated areas.

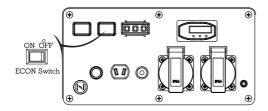
5.1) Recoil start

5.1.1) Turn the fuel switch to "OPEN" position.

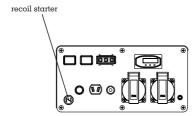




5.1.2) Turn engine switch to the "ON" position

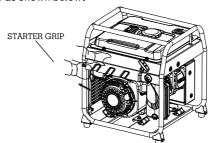


5.1.3) Pull the choke knob fully out



Note

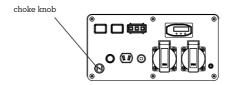
- Do not use the choke when the engine is hot and the ambient temperature is high.
- 5.1.4) Pull the starter grip lightly until you feel resistance, then pull quickly toward the arrow as shown below.



Note

- Return the Starter Grip slowly by hand. Do not let the Starter Grip spring back quickly.
- 5.1.5) After the engine starts, return the choke knob to the original position.





Note

- If the generator stops and will not restart, firstly check the fuel switch/choke knob.
 Then check the fuel level.
- If the oil indicator is on, add oil before restarting.

Carburetor Modification for High Altitude Operation

At high altitude, the standard carburetor air-fuel mixture will be too rich. Performance will decrease, and fuel consumption will increase. A very rich mixture will also foul the spark plug and cause hard starting.

If the generator operates at high altitude, change the main-nozzle or adjust the idling-screw of the carburetor.

If the generator always operates at altitude above 1,000 meters, contact an authorized Tooline service agent to modify the carburetor.

The generator set output power will be modified according to the altitude and ambient temperature. The correction factor is on figure 13-1.

Caution

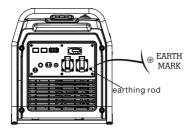
If the carburetor has been modified for high altitude operation, the air-fuel
mixture will be too lean for low altitude use. Operation at low altitude may cause
the engine to overheat and result in serious engine damage. The carburetor needs
to be returned to the original specifications.



6. GENERATOR USE

Caution

 Be sure to ground the generator when the connected electrical appliance is grounded. Do not connect to a building's electrical system, to avoid electric shocks and fires.



Note

- For continuous operation, do not exceed the rated output power of generator.
- Do not connect the generator to a household circuit. This could cause damage to the generator or to electrical appliances in the house.
- Do not make parallel connection with other generators.
- Do not connect an extension to the exhaust pipe.
- When an extension cable is required, be sure to use a tough rubber sheathed flexible cable (according to IEC245 or equivalent standards).
- Keep away from other electric cables or wires, such as commercial power supply lines.

Note

- The DC receptacle can be used while the AC power is in use.
- If both are in use at same time, be sure not to exceed the total power for AC and DC. (AC:3000W, DC:5A)
- Most appliances require more than their rated wattage when starting.

6.1) DC Application

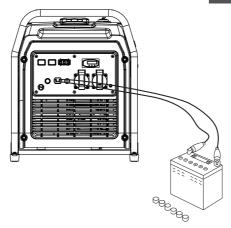
The DC receptacle, 15-30V under no-load condition, may be used for charging 12 volt automotive type batteries only.

Note

In DC operation, turn the ECON.SW to the "OFF" position.

6.1.1) Connect the DC receptacle to battery terminals by the charging cable.





Caution

- In order to avoid producing a spark at the terminals of the battery, connect the charging cable first to the battery terminals, and then to the generator. When removing, disconnect the generator first.
- Before connecting the charging cable to a battery that is installed in a vehicle, disconnect the grounded cable of the battery. Reconnect the grounded cable of battery after the charging cable is removed.
 This sequence will prevent sparks or short-circuit, if you accidentally contact a battery terminal with the vehicle's frame or body.

Note

- Do not start the vehicle engine when the generator is still connected to the battery. The generator could be damaged.
- Connect the positive battery terminal to the positive charging cable. Do not reverse the charging cable, the generator or battery could be seriously damaged.

Caution

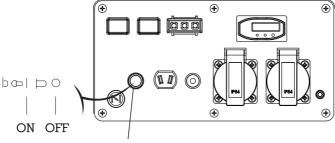
- The battery can release explosive gases. Keep the battery away from sparks or fire. Charge the battery in a ventilated area.
- Battery electrolyte contains sulfuric acid that could cause severe burns to the skin and eyes. Therefore
 it is necessary to wear protective clothing and a mask.
- If battery electrolyte gets into the eyes, flush thoroughly with warm water for at least 15min. Call a
 doctor immediately.
- If electrolyte is accidentally swallowed, flush your mouth thoroughly, and then drink large quantities
 of water or milk (with magnesia or vegetable oil). Call a doctor immediately.
- KEEP OUT OF REACH OF CHILDREN.

6.1.2) Start the generator

Note

- The DC receptacle can be used while the AC power is in use
- When DC circuit overload is tripped, remove the load, and then reset the protector after a few minutes

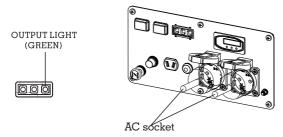




DC CIRCUIT PROTECTOR

6.2) AC applications

- 6.2.1) Confirm all electrical appliances are switched off, and connect the appliance plugs to the generator receptacle.
- 6.2.2) Start the engine and make sure the Output Indicator Light (green) is on.



6.2.3) To obtain the best working efficiency and longest working life of the generator, it is best to run the generator for the first 20 hours at 50% rated load.

NOTE

• If the generator provides AC parallel function, ONLY parallel with the same model.

Note

Confirm all electrical appliances are in good working condition before connecting them to the generator.
 If an electrical appliance is abnormal, sluggish, or stops suddenly, shut off the generator immediately, and disconnect the appliance.





6.3) Output and Overload Indicator

- In normal operation the output Indicator Light (green) will remain "ON".
- If the generator is overloaded (3.3 KVA), or the connected appliance is in short-circuit, the Output Indicator Light (green) will be OFF, and Overload Indicator Light (red) will be ON. The AC power will be switched off, but the engine will still run.
- If the Overload Indicator Light (red) is ON, disconnect the electrical appliances, then press and hold
 the reset button at least 5 seconds. If the Overload Indicator Light (red) is OFF and the Output
 Indicator Light (green) is ON, reconnect the electrical appliances. If the red light remains on, stop
 the engine and check the generator.



Note:

 When the engine is started, it is normal that both of the Overload Indicator Light (red) and Output Indicator Light (green) are ON simultaneously. The overload Indicator Light will turned OFF after 5 seconds.

6. 4) Oil Alert System

- The Oil Alert System is designed to prevent engine damage caused by an insufficient amount of oil in
 the crankcase. Before the oil level in the crankcase falls below a safe limit, the Oil Alert System will
 automatically shut down the engine (the Engine Switch remains in the "ON" position).
- If the Oil Alert System shuts down the engine, the Oil Alert Indicator Light (yellow) will be on. When
 you operate the recoil starter, the engine will not run.

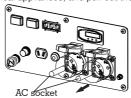




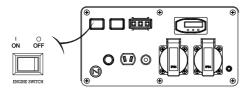
7. STOPPING THE ENGINE

In normal operation, it is advisable to disconnect electric appliances before stopping the engine.

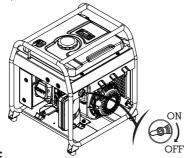
7.1.1) Switch off the connected electrical appliances, and pull out their plugs.



7.1.2) Turn the Engine Switch to the "OFF" position.



7.1.3) Turn fuel switch to "OFF" position.



8. MAINTENANCE

The purpose of the maintenance and adjustment schedule is to keep the generator in the best operating condition.



Stop the engine before performing any maintenance. If the engine must run, be sure the area is well ventilated. The exhaust contains poisonous carbon monoxide gas.



Caution

Use genuine HYUNDAI quality components to replace worn components.

Maintenance Schedule

Regular Service Period (3)			First	Every 3	Every 6	Every
Item			month	months	months	2 years
	\		or	or	or	or
	\		10 hrs.	50 hrs.	100 hrs.	300 hrs.
Engine oil	Check level					
	Change					
Air cleaner	Check					
	Clean			□ (1)		
Spark plug	Check-adjust					
	Replace					
Spark arrester	Clean					
Valve Clearance	Check-adjust					□(2)
Combustion Chamber	Clean	After every 300 hrs(2)				
Fuel tank& filter Clean		Every year(2)				
Fuel line Check			Every 2 years (Replace if necessary)(2)			

Note: (1) Service more frequently when used in dusty areas.

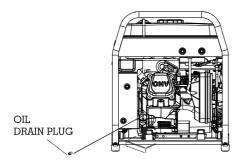
- (2) These items should be serviced by your servicing dealer, unless you have the proper tools and are mechanically proficient. Refer to user manual for service procedures.
- (3) For commercial use, log hours of operation to determine proper maintenance intervals.

8.1) Change Oil

Drain the oil rapidly and completely while the engine is still warm.

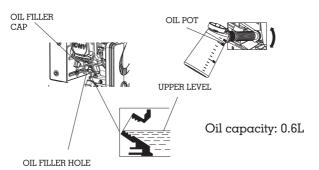
- 8.1.1) Remove the oil filler cap.
- 8.1.2) Unscrew the oil drainage bolt.
- 8.1.3) Drain all dirty oil into a container.





- 8.1.4) Replace the oil drainage bolt.
- 8.1.5) Refill with recommended oil and check the oil level.
- 8.1.6) Reinstall the oil filler cap

Oil capacity: 0.6L



After oil change, wash your hands with soap.

Note

 Used oil should be put into a sealed container and taken to a recycling depot. Do not throw it into the rubbish or pour it on the ground.



8.2) Air Cleaner Service

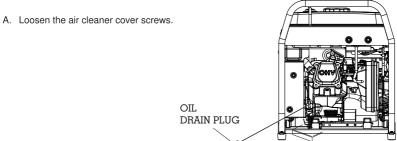
A dirty air cleaner will restrict air flow into the carburetor. Clean and maintain the air cleaner regularly, especially in extremely dusty conditions.

A WARNING

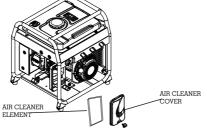
 Do not use gasoline or low ignition point solvents for cleaning. They are flammable and explosive under certain conditions.

Note

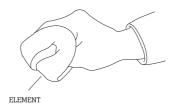
• Never run the generator without the air cleaner.



- B. Remove the cover.
- C. Take out the air cleaner element, and clean it with non-flammable or high flash point solvent, then dry it.



D. Soak the air cleaner element in clean engine oil, and squeeze out surplus oil.



E. Reinstall the air cleaner element and cover.

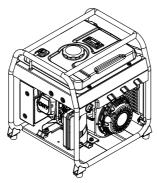


8.3) Spark Plug Service

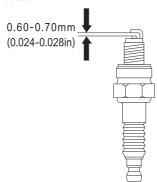
Recommendation Spark Plug: F7TC

Check the spark plug gap and clean any carbon deposit at the bottom of the spark plug.

8.3.1) Remove the spark plug maintenance cover



- 8.3.2) Take out the spark plug cap
- 8.3.3) Take out the spark plug with the spark plug spanner.
- 8.3.4) Clean the carbon deposition at the bottom of the spark plug.
- 8.3.5) Visually inspect the spark slug. Change it if the insulator is cracked or chipped. Clean it with a wire brush if the spark plug is to be reused.



- 8.3.6) Measure the spark plug gap with a feeler gauge. The normal gap is: 0.6-0.7mm (0.024-0.028in) . Adjust the gap by bending the electrode carefully.
- 8.3.7) Reinstall the spark plug carefully, by hand, to avoid cross-threading. A new spark plug should be tightened 1/2 turn with a spanner. A used spark plug should be tightened 1/8 to 1/4 turn with a spanner.
- 8.3.8) Reinstall the spark plug cap
- 8.3.9) Reinstall the spark plug maintenance cover.



Note

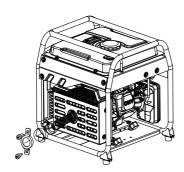
- The Spark Plug must be securely tightened. Incorrect tightening could cause the spark plug to heat up and even damage the engine.
- Never use a spark plug with an improper heat range.

8.4 Spark Arrester Maintenance

Warning

The spark arrester must be maintained every 100 hours

8.4.1) Take off the spark arrester from the muffler after the engine cools down



7.4.2) Use a brush to remove carbon deposits from the spark arrester. If the spark arrester is worn, replace it.



7.4.3) Reinstall the spark arrester and muffler guard.

7.6) Replace Battery and Fuse

Battery Specifications					
Voltage	Dimension				
L≤138mm					
12V	7Ah	W≤66mm			
H≤88mm					





9.TRANSPORTING/STORING

To avoid fuel spilling during transportation, the engine switch should be turned to the "OFF" position. The generator should be placed in the normal operating position.



Transporting Generator:

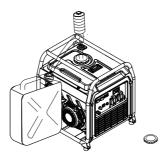
- Do not overfill the fuel tank. (No residual fuel on the neck of the tank)
- Do not use the generator on the transport vehicle. The generator should be used in a good ventilated area.
- Do not leave the generator in direct sunlight in the transport vehicle for extended periods.
 The high temperature inside the vehicle could cause fuel to vapourize and possibly explode.
- Drain off the fuel if the generator is to be transported on rough road.

Storage for a long period:

- (1) Make sure the storage area is dry and dust free.
- (2) Drain off the fuel.

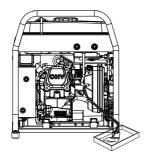
A WARNING

- Keep away from smokers, flames and sparks. Gasoline is explosive and flammable.
 - a. Drain off the gasoline from the fuel tank, storing it in a suitable container.

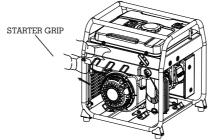


b. Turn the engine switch to the "ON" position, and loosen the carburetor drain screw to discharge gasoline from the carburetor.





c. Take off the spark plug cap, pull the starter grip three or four times, to discharge gasoline from the fuel pump.

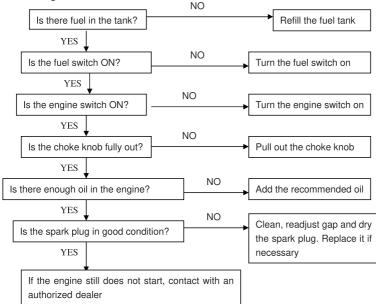


- d. Turn the engine switch to "OFF" position, and tighten the drain screw of the carburetor.
- e. Reinstall the spark plug cap.
- (3) Change the engine oil
- (4) Remove the spark plug, and pour a tablespoon of clean engine oil into the cylinder. Crank the engine several times to distribute the oil, and reinstall the spark plug.
- (5) Pull the starter grip slowly until resistance is felt. At this point, the piston is coming up on its compression stroke and both the intake and exhaust valves are closed. This position helps to protect the engine from internal corrosion.



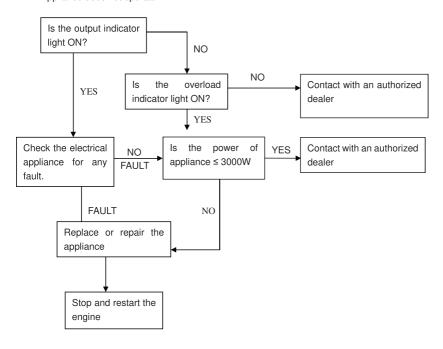
10 TROUBLESHOOTING

When the engine can not be started:

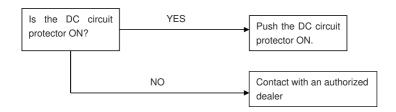




Appliance does not operate:



DC receptacle without any electricity:





11.TECHNICAL SPECIFICATIONS

	Specifications	Parameters		
	Model	HY170F-2		
	_	4-stroke, overhead valve, single		
	Туре	cylinder, forced-air cooling		
	Engine Displacement (cm ³)	212		
ш	Bore*Stroke (mm)	70*54		
ENGINE	Compression Ratio	8.5:1		
Z Z	Rated Power(kW/min ⁻¹)	4.0/3600		
	Ignition System	Full transistor		
	Start System	Recoil starter/Electrical starting		
	Fuel Type	Unleaded Gasoline		
	Oil Model	SE 15W-30		
	Model	HY4000i		
	Rated Frequency (Hz)	50		
OR	Rated Voltage (V)	230		
GENERATOR	Rated Current (A)	13		
当	Rated Speed (min-1)	3600		
Ξ	Rated Output Power (kVA)	3.5		
	Max. Output Power (kVA)	3.8		
	DC Output	12V, 5A		
π.	Dimensions (L*W*H) (mm)			
<u>D</u>	Net Weight(kg)	35		
ERA SET	Working Ambient Temperature (□)	-15~40		
GENERATOR SET	Max. Altitude(m)	1000		
$\overline{\Omega}$	* Noise (dB/4m) L _{wA}	74		

Noise level is measured when the ECON.SW is turned to "ON" (*)

The noise level may vary in different environments.

^{* :} LwA shows the guaranteed sound power tested by 2000/14/EC.

 $[\]star$: The noise level in "dB/7m" is the arithmetic mean value of sound pressure level (LpA) in four directions measured 7 meters away from the generator.



13. APPENDIX

1) Environmental Correction

The standard condition of rated power output:

Altitude: 0m Ambient temperature: 25°C Relative humidity: 30%

Factor of environment correction:

Altitude	Ambient temperature°C				
(m)	25	30	35	40	45
0	1	0.98	0.96	0.93	0.90
500	0.93	0.91	0.89	0.87	0.84
1000	0.87	0.85	0.82	0.80	0.78
2000	0.75	0.73	0.71	0.69	0.66
3000	0.64	0.62	0.60	0.58	0.56
4000	0.54	0.52	0.50	0.48	0.46



Note: Relative humidity 60% correction factor C-0.01;
Relative humidity 80% correction factor C-0.02;
Relative humidity 90% correction factor C-0.03;
Relative humidity 100% correction factor C-0.04;

Example:

Rated power (P_N) 3.2KW generator, Altitude: 1000m, Ambient temperature: 35°C, Relative humidity: 80%

 $P=P_N^*(C-0.02)=3.2^*(0.82-0.02)=2.56KW$

2) Noise and Access

Noise emission measure according to ISO 8528-10, EN ISO 3744, European Directive 2000/14/EC with

amendment 2005/88/EC

Model of generator set: HY4000i Sound Pressure Level: 73 dB(A) Sound Power Level: 95 dB(A)

Measurement Uncertainty K: 1.7 dB(A)

The quoted figures are emission levels and are not necessarily safe working levels. Whilst there is a correlation between the emission and exposure levels, this cannot be used reliably to determine whether or not further precautions are required. Factors that influence the actual level of exposure of work-force include the characteristics of the work room, the other sources of noise, etc, i.e. the number of machines and other adjacent processes, and the length of time for which an operator is exposed to the noise. This information, however, will enable the user of the machine to make a better evaluation of the hazard and risk.

14. CONSUMER INFORMATION

Consumer Service Information

Service dealers are trained professionally. They should be able to answer any questions you have.



15. WARRANTY: BACK-UP GENERATORS

This product is guaranteed for 1 year from the date of original retail purchase (proof of purchase required) or 200 hours whichever comes first, against defects in materials or workmanship subject to the following exclusions:

- Any part that has become inoperative due to abuse, misuse, lack of proper maintenance as outlined in the Owner's Manual, professional or commercial use, or accidental damage.
- b) Normal wear and tear of parts, such as (but not limited to) spark plugs, air filters, starter cords, carbon brushes, etc.
- Routine maintenance and consumable items, such as fuel, lubricants, vacuum bags, blades, belts, sandpaper, bits, fluids, etc., tune-ups or adjustments.
- d) Where damage is caused by repairs made or attempted by others (persons not authorized by the manufacturer [or retailer]).

Exclusively at our option we will repair or replace warrantable products at no charge to the original owner.

Additional Limitations

Neither the retailer nor the manufacturer shall be liable for any other expense, loss or damage, whether direct, incidental, consequential or exemplary, arising in connection with the sale or use or inability to use this product.

This guarantee applies only to the original owner, and may not be transferred.

Notice to Consumer

The provisions contained in this written warranty are not intended to limit, modify, take away from, disclaim or exclude any warranties set forth in, or the operation of, any applicable legislation.



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