Please read and save these instructions. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage! Retain instructions for future reference.

The Motorhead® Plus Dual Fuel Generator

Unpacking

When unpacking the unit, carefully inspect for signs of obvious or concealed freight damage. If damage does exist, file a claim with the transportation company immediately. Be sure that all damaged parts are replaced and that the mechanical and electrical problems are corrected prior to operation of the unit..

Specifications

Engine……Honda GX690HVXC2
Watts (AC) Rated…….13 kW (LP)
12 kW (NG)
Watts (AC) Max……..23 kW (LP)
18 kW (NG)
Rated Voltage (AC).....120V/240V
Cont. Amperage.....108/54 A (LP)
100/50 A (NG)
Max. Amperage.....192/95.8 A (LP)
150/75 A (NG)
Frequency.....60 Hz
Weight……..……...420 pounds
Dimensions (in)
31.5" x 24" (30" with wheels) x 37.5"

General Safety Information

READ OPERATING INSTRUCTIONS

Always become familiar with all the instructions and warnings before operating any generator

IMPORTANT SAFETY INSTRUCTIONS

To reduce the risk of injury, read this operator's manual completely before using. When using this product, the following basic precautions should always be followed:

1. Read all the instructions before using the product.
2. Do not allow children or untrained persons to operate the generator.
3. Do not operate the generator when fatigued or under the influence of drugs or chemicals. Stay alert. Watch what you are doing.
4. Follow the maintenance instructions specified in this manual.
5. Be sure the switch on electric power tools is in the "OFF" position before plugging them into the generator.
6. Keep the immediate area free of all bystanders.
7. Be sure each person who operates this generator is properly instructed in its safe operation.
8. Do not operate the generator or any electrical tool in any area where water or similar materials constitute an electrical hazard to the operator. Do not operate on wet surfaces, in rain or in snow.
9. Always be sure that the generator is on secure footing so that it cannot slide or shift around, endangering workers.
10. Avoid contacting the hot exhaust manifold, muffler or cylinder(s). Keep clear of all rotating parts.
11. Unless the tool or appliance is double insulated, it must be grounded through a properly grounded receptacle. (See Preparing the Generator, Grounding Instructions). Tools and appliances which have 3 prong plugs must be plugged into extension cords and electrical receptacles with 3 holes. Before operating any electrical item, be sure it is in good repair.
12. Beware of using this equipment in confined spaces. Confined spaces, without sufficient fresh air ventilation,can contain dangerous gases.
13. If your generator comes equipped with a transport dolly, make sure this unit is secure during operation and when transporting to prevent unexpected movement or rolling.
14. Use extreme caution when lifting

this generator. Use only designated lifting hook to lift
this generator. This generator is heavy so proper lifting techniques should be used.

SAVE THESE INSTRUCTIONS

CARBON MONOXIDE-POISONOUS GAS Use generator outdoors, away from open windows, vents, or doors. Generator exhaust contains carbon monoxide - a poisonous gas that can kill you. You CAN NOT smell or see this gas. Never use a generator in enclosed or partially-enclosed spaces. Generators can produce high levels of carbon monoxide very quickly.
When you use a portable generator, remember that you cannot smell or see carbon monoxide.
Even if you can't smell exhaust fumes, you may still be exposed to carbon monoxide. If you start to feel sick, dizzy, or weak while using a generator, get to fresh air RIGHT AWAY. DO NOT DELAY. The carbon monoxide from generators can rapidly lead to full incapacitation and death.
If you experience serious symptoms, get medical attention immediately. Inform medical staff that carbon monoxide poisoning is suspected. If you experienced symptoms while indoors, have someone call the fire department to determine when it is safe to re-enter the building.
Never operate the generator in an explosive atmosphere, near combustible materials or where ventilation is not sufficient to carry away exhaust fumes.
Exhaust fumes can cause serious injury or death.
NEVER use a generator indoors, including in homes, garages, basements, crawl spaces, and other enclosed or partially-enclosed areas, even with ventilation. Opening doors and windows or using fans will not prevent carbon monoxide build-up in the home.
Follow the instructions that come with your generator. Locate the unit outdoors and away from doors, windows, and vents that could allow the carbon monoxide gas to come indoors.
ONLY run generator outdoors and away from air intakes.
NEVER run generator inside homes, garages, sheds, or other semi-enclosed spaces. These spaces can trap poisonous gases EVEN IF you run a fan or open doors and windows.
If you start to feel sick, dizzy, or weak while using the generator, shut if off and get fresh air RIGHT AWAY. See a doctor. You may have carbon monoxide poisoning.
Install battery-operated carbon monoxide alarms or plug-in carbon monoxide alarms with battery back-up in your home, according to the manufacturer's installation instructions.
The carbon monoxide alarms should be certified to the requirements of the latest safety standards for carbon monoxide alarms. (UL 2034, IAS 6-96, or CSA 6.19.01).
Test your carbon monoxide alarm frequently and replace dead batteries.

SAFETY WARNING WHEN REFUELING

Natural Gas/LP is extremely flammable and its vapors can explode if ignited.
Observe all safety regulations for the safe handling of fuel.
NEVER store fuel for your generator in the home. Gasoline, propane, kerosene, and other flammable liquids should be stored outside of living areas in properly-labeled, non-glass safety containers. Do not store them near a fuel-burning appliance, such as a natural gas water heater in a garage. If the container is not sealed properly, invisible vapors from the fuel can travel along the ground and can be ignited by the appliance pilot light or by arcs from electric switches in the appliance.

ELECTRICAL HAZARDS. This product must be grounded. If it should malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. ***Improper connection of the equipment-grounding conductor can result in a risk of electrocution. Check with a qualified electrician or service person if you are IN doubt as to whether the unit is properly grounded.***
This generator is equipped with a grounding terminal for your protection. Always complete the ground path from the generator to an external ground source as instructed in the section labeled "Grounding Instructions" in the Preparation section of this manual.
The generator is a potential source of electrical shock if not kept dry. Keep the generator dry and do not use in rain or wet conditions. To protect from moisture, operate it on a dry surface under an open, canopy-like structure. Dry your hands if wet before touching the generator.
Plug appliances directly into the generator. Or, use a heavy duty, outdoor- rated extension cord that is rated (in watts or amps) at least equal to the sum of the connected appliance loads. Check that the entire cord is free of cuts or tears and that the plug has all three prongs, especially a grounding pin.
NEVER try to power the house wiring by plugging the generator into a wall outlet, a practice known as "back

feeding". This is an extremely dangerous practice that presents an electrocution risk to utility workers and neighbors served by the same utility transformer. It also bypasses some of the built-in household circuit protection devices.
If you must connect the generator to the house wiring to power appliances, have a qualified electrician install the appropriate equipment in accordance with local electrical codes. Or, check with your utility company to see if it can install an appropriate power transfer switch.
For power outages, permanently installed stationary generators are better suited for providing backup power to the home. Even a properly connected portable generator can become overloaded. This may result in overheating or stressing the generator components, possibly leading to a generator failure.

GROUNDING INSTRUCTIONS
This product must be grounded. If it should malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock.
Improper connection of the equipment-grounding conductor can result in a risk of electrocution. Check with a qualified electrician or service person if you are in doubt as to whether the unit is properly grounded.
The ground terminal on the frame must always be used to connect the generator to a suitable ground source. The ground path should be made with #8 size wire. Connect the terminal of the ground wire between two star washers and nut then tighten the nut fully. Connect the other end of the wire securely to a suitable ground source.
The National Electric Code contains several practical ways in which to establish a good ground source. Examples given below illustrate a few of the ways in which a good ground source may be established.
A metal underground water pipe in direct contact with the earth for at least 10 feet can be used as a grounding source. If an pipe is unavailable, an 8 foot length of pipe or rod may be used as the ground source.
The pipe should be 3/4 inch trade size or larger and the outer surface must be non corrosive. If a steel or iron rod is used it should be at least 5/8 inch diameter and if a nonferrous rod is used it should be at least 1/2 inch diameter and be listed as material for grounding. Drive the rod or pipe to a depth of 8 feet. If a rock bottom is encountered less than 4 feet down, bury the rod or pipe in a trench. All electrical tools and appliances operated from this generator, must be properly grounded by use of a third wire or be
"Double Insulated".
It is recommended to:
1. Use electrical devices with 3 prong power cords.
2. Use an extension cord with a 3 hole receptacle and a 3 prong plug at the opposite ends to ensure continuity of the ground protection from the generator to appliance.
We strongly recommend that all applicable federal, state and local regulations relating to grounding specifications be checked and followed.

LINE TRANSFER SWITCH
If this generator is used for standby service, it must have a transfer switch between the utility power service and the generator. The transfer switch not only prevents the utility power from feeding into the generator, but is also prevents the generator form feeding out into the utility company's lines. This is intended to protect the serviceman who may be working on a damaged line.

THIS INSTALLATION MUST BE DONE BY A LICENSED ELECTRICIAN AND ALL LOCAL CODES MUST BE FOLLOWED.

ENGINE OIL
Oil is a major factor affecting performance and service life. Use 4-stroke automotive detergent oil.
Recommended Oil: Use 4-stroke motor oil that meets or exceeds the requirements for API service classification SJ, SL, or equivalent. Always check the API service label on the oil container to be sure it includes the letters SJ, SL, or equivalent.
SAE 10W-30 is recommended for general use. Other viscosities shown in the chart may be used when the average temperature in your area is within the indicated range.

Pre-Operation

To fill with oil:
1. Level the engine to ensure accurate inspection and to prevent overfilling.
2. Remove the dipstick and wipe it clean.
3. Fully insert the dipstick then remove it to check the oil level.
NOTE: When checking the oil be sure the engine is level.
4. If the oil level is low, remove the filler cap, and fill to the upper limit mark on the dipstick with the recommended oil.
5. Reinstall the filler cap.
NOTE: Running the engine with a low oil level can cause engine damage.
The Oil Alert system (applicable types) will automatically stop the engine before the oil level falls below the safe limit. However, to avoid the inconvenience of an unexpected

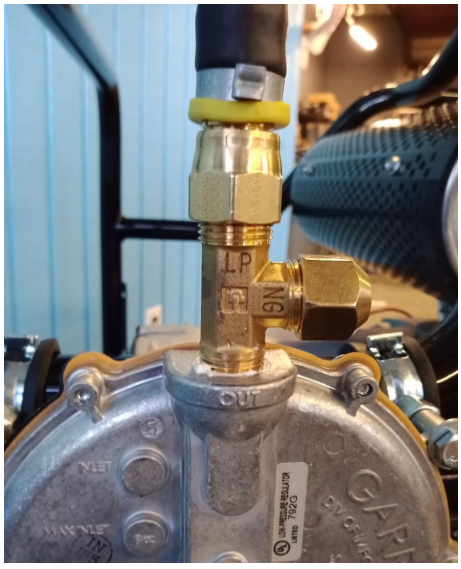
shutdown, always check the engine oil level before startup.

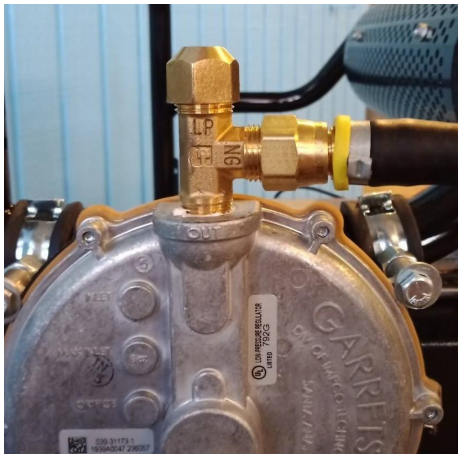
Operation

ELECTRIC START

NOTE: Read Operator's Manual carefully before operating this unit. Always make sure the unit is level and properly grounded. Check engine oil before starting.

1. Fuel selection is performed at the T-joint. Set up the T-joint for its intended gas usage (LP or NG). (The first picture shows the regulator setup for LP and the second picture shows the regulator setup for NG.)



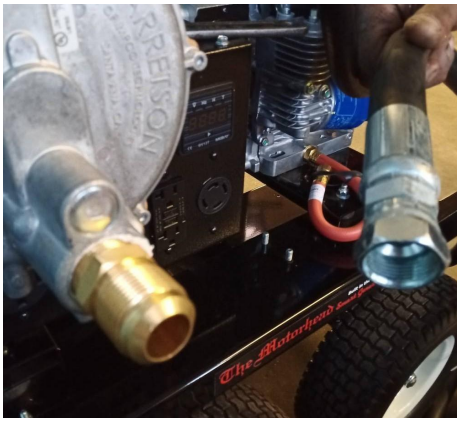


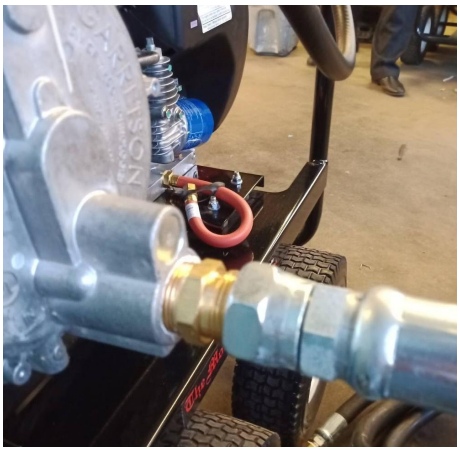
2. Connect and tighten the fuel hose fitting to the proper outlet.

3. Install the cap to plug the T-joint outlet that is not used.

4. **Attaching the Propane (LP) or Natural Gas (NG) hose to the generator.** Attach the propane or natural gas hose to the male flare fitting on the front of the low pressure regulator using a wrench. Do not over tighten.

Note: The LP and NG hoses use different sized adapters.





5. **Attaching the Propane (LP) or Natural Gas (NG) hose to the fuel source.** The other end of the hose must be connected to

(1) the LP tank by inserting the reverse thread POL (located on the regulator end of the hose) into a propane tank using a wrench. Make sure the hose is secure. Or

(2) the Natural Gas outlet. The NG hose comes equipped with a quick connect male located at the end of the hose and female quick connect coupler. (The female quick connect coupler must be connected to your Natural Gas outlet prior to use. Use a wrench and pipe dope to promote a safe seal.) Insert the male end of the quick connect into the female coupler by pulling back on the outside ring on the female end of the quick connect, inserting the quick connect male end of the hose into it and releasing the ring. (The NG hose does not have an additional regulator on it)

7. Open the valve on the propane tank or natural gas outlet.

8. The priming button is located on the backside of the low pressure regulator. Purge the fuel line of air by gently pressing the primer button for a few seconds.

9. The starter key hole is located on the control box located on the front right side of the engine. Insert the key and turn it to the START position and hold until engine starts. (clockwise)

10. When the engine starts, release key, allowing it to return to the ON position, which is the middle position.

NOTE: Do not crank the engine continuously for more than 30 seconds at a time. If the engine does not start, allow for a 3 minute cool down period between starting attempts. Failure to follow these guidelines can damage the starter motor.
If the starter does not turn the engine over, shut off the starter immediately. Do not make further attempts to start the engine until the condition is corrected. Do not jump start using another battery.

10. Allow unit to run two (2) minutes to warm-up before plugging a cord into the electrical outlets.

Using as a Portable Power Source

When using the generator as a portable power source, you can plug electric devices and appliances directly into the generator's electrical outlets.

There are different kinds of electrical outlets on your generator:

1. 120/240 Volt, 30 Amp locking receptacle (NEMA L14-30R locking receptacle compatible with L14-30P mating plug).
2. Two 120 Volt, 20 Amp, duplex GFCI-protected straight-blade receptacles (NEMA 5-20R duplex receptacles compatible with NEMA 5-20P or 5-15P mating plugs)
3. 120/240 Volt, 50 Amp straight-blade receptacle (NEMA 14-50R receptacle compatible with NEMA 14-50P mating plug)
4. Make sure you plug each electrical device/appliance into the correct generator outlet based on the device's plug configuration and voltage/amperage rating. Never exceed the amperage rating of an outlet.
5. Extension cords may be used to power devices that are located at a distance from the generator. However, use only UL-listed, outdoor rated, grounded extension cords of the proper size.

NOTE: This engine is equipped with a "Low Oil" shutdown system for engine protection. The engine stops when the oil level gets too low. The engine will not restart without adding oil. Refer to Preparing the Generator; Engine Fuel Capacity for instructions on adding oil. NOTE: While the engine is idling, the generator voltage is automatically reduced to reduce generator temperatures. The voltage will return to normal levels immediately upon the application of load.

SHUTDOWN

1. Remove all load by turning off electrical appliances and unplugging electric cords.
2. Allow engine to run at idle speed to cool for two (2) minutes.

NOTE: Failure to allow the engine to cool at idle for two (2) minutes may result in damage to the generator.

3. Turn the starter key to the OFF position. (counter clockwise)
4. Close the valve on the propane tank or natural gas outlet.

GENERATOR MAINTENANCE

Keep all air vents clear.

Keep the generator clean. DO NOT spray with water.

Periodically check all fasteners and tighten, see the periodic maintenance chart.

LIMITED WARRANTY

SMART GENERATORS THREE-YEAR LIMITED WARRANTY. SMART GENERATORS MODELS COVERED IN THIS MANUAL, ARE WARRANTED BY SMART GENERATORS LLC. TO THE ORIGINAL USER AGAINST DEFECTS IN WORKMANSHIP OR MATERIALS UNDER NORMAL USE FOR THREE YEARS AFTER DATE OF PURCHASE. ANY PART WHICH IS DETERMINED TO BE DEFECTIVE IN MATERIAL OR WORKMANSHIP AND RETURNED TO AN AUTHORIZED SERVICE LOCATION, AS SMART GENERATORS DESIGNATES, SHIPPING COSTS PREPAID, WILL BE, AS THE EXCLUSIVE REMEDY, REPAIRED OR REPLACED AT SMART GENERATORS OPTION. FOR LIMITED WARRANTY CLAIM PROCEDURES, SEE “PROMPT DISPOSITION” BELOW. THIS LIMITED WARRANTY GIVES PURCHASERS SPECIFIC LEGAL RIGHTS WHICH VARY FROM JURISDICTION TO JURISDICTION.

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Prompt Disposition. A good faith effort will be made for prompt correction or other adjustment with respect to any product which proves to be defective within limited warranty. For any product believed to be defective within limited warranty, first write or call dealer from whom the product was purchased. Dealer will give additional directions. If unable to resolve satisfactorily, write to Dayton at address below, giving dealer’s name, address, date, and number of dealer’s invoice, and describing the nature of the defect. Title and risk of loss pass to buyer on delivery to common carrier. If product was damaged in transit to you, file claim with carrier.

Manufactured by Smart Generators, LLC, 1010 Central Ave, Woodmere NY 11598 U.S.A.
Toll Free: 844-TRI-FUEL Local: 516-224-3363