



# M165930V.1

ITEM NUMBER: 165930

SERIAL NUMBER: \_\_\_\_\_

## Owner's Manual

### Instructions for Installation/Set-up, Operation, Servicing, & Storage Portable, Outdoor Use-Only, Industrial Diesel Generator 6,120 Watt Continuous (6,500 Watt Surge) Capacity

Can be used to power individual appliances plugged directly into the generator's outlets, or as a back-up connection to a building's power supply (via a professionally installed UL-approved transfer switch).

#### **▲ WARNING**

**READ and UNDERSTAND this manual completely before using the generator!** Failure to properly set up, operate, and maintain this generator could result in *serious injury or death* from *carbon monoxide poisoning, electric shock, fire/explosion, or burns*. In particular, be aware of the following hazards:

##### CO Poisoning

Generators give off carbon monoxide, a poisonous gas that can kill you. You CANNOT smell it, see it, or taste it.

- ONLY run generator OUTDOORS and AWAY from building air intakes. NEVER run generator inside any enclosed or semi-enclosed spaces, including homes, basements, garages, sheds, boxes, RVs, boats or pick-up truck beds. These spaces can trap poisonous gases, EVEN if you run a fan or open windows.
- Install carbon monoxide alarms inside nearby structures/buildings (battery-operated, or plug-in with battery backup).

##### Electric shock / Electrocution

- High voltage electricity from generator can kill. DO NOT operate in wet locations. Be sure generator is properly grounded. Use only UL-listed, outdoor-rated grounded extension cords of proper size.
- NEVER plug the generator directly into a wall outlet. ANY connection to a building's electrical system MUST ISOLATE THE GENERATOR FROM UTILITY POWER via a UL-approved transfer switch installed by a licensed electrician. Otherwise, back feed from the generator into the power grid could kill utility workers.

##### Fire / Explosion

- DO NOT overload generator (per rated capacity), and OPERATE ONLY in an area with adequate cooling ventilation so engine does not overheat. Exhaust can be extremely hot. Keep muffler at least 7' from all combustible objects.
- All fuels are flammable. Never fuel a running or hot engine. Never pump fuel directly into generator at gas station – use approved container to transfer fuel. Ensure there are no fuel leaks, and keep sources of sparks and flames away.
- ALWAYS keep a fire extinguisher rated "ABC" nearby.

#### **STOP!**

**CHOOSE THE RIGHT GENERATOR FOR YOUR NEEDS.** See the "Power load Planning & Management" section of this manual to determine your power load requirements and then compare to the generator's rated capacity.

**INSPECT COMPONENTS:** Closely inspect to make sure no components are missing or damaged. See the "Unpacking & Delivery Inspection" section for instructions on whom to contact to report missing or damaged parts.

**ARRANGE FOR PROFESSIONAL INSTALLATION of a transfer switch if you will be connecting the generator to your building's electrical system.** See the "Installation/Initial Set-Up" section for more information about this requirement.

**Any Questions, Comments, Problems, or Parts Orders**  
**Call NorthStar Product Support 1-800-270-0810**

## Hazard Signal Word Definitions






	<p>This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.</p>
	<p>DANGER (red) indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.</p>
	<p>WARNING (orange) indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.</p>
	<p>CAUTION (yellow) indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.</p>
	<p>CAUTION (yellow) used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.</p>

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# About Your Generator

Thank you for purchasing your NorthStar portable generator!

## About Your Generator

**This engine-driven, portable generator is designed to provide up to 6500 Watts of electrical power** (6120 watts continuous, 6500 watts surge).

It can supply power:

1. As a portable power source. You can plug appliances directly into the generator's electrical outlets.
2. As a back-up, standby power source for a building. A licensed electrician can connect the generator to your building's electrical system via the installation of an **UL-approved transfer switch**. (See the "Installation & Initial Set-up" section of this manual to learn more about specific requirements and precautions relating to wiring the generator to your building's electrical system.)

**You must select a generator adequately sized for your power needs.** You need to determine the power needs of all the appliances/tools you wish to power at the same time and choose a generator rated to provide at least that power level. See the "Power Load Planning & Management" section of this manual to determine your specific power load requirements and then compare them to this generator's rated capacity. You must not overload the generator. Overloading will cause damage to the generator and attached electrical devices, and may also result in fire.

**Be sure to read about site selection and grounding requirements for running this generator.** More detailed information can be found in the "Installation & Initial Set-up, Steps 5 & 6" of this manual.

**This generator is too heavy for one person to lift without mechanical assistance.** An optional wheel kit is available from NorthStar and is recommended if you will be moving the generator unassisted. Other optional accessories available from NorthStar include a vinyl cover for storage, UL-approved transfer switches, and extension cords.

**Contact NorthStar Product Support at 1-800-270-0810 with questions about optional accessories or to order.**

## Read this Manual

### **WARNING**

Improper use or maintenance of this generator can result in *serious injury or death* from *carbon monoxide poisoning, electric shock/electrocution, fire/explosion, or burns*.

**Read this manual completely** before using the generator and follow all instructions and safety rules.

You must follow all instructions and safety precautions presented throughout this manual. A summary of important safety information can be found at the end of the manual. Keep this manual for reference and review.

## About Your Generator (cont'd)

Proper preparation, operation, and maintenance will result in operator safety, as well as best performance and long life of the generator. For detailed engine operation and maintenance information, always refer to the engine Owner's Manual furnished with the generator.

NorthStar is constantly improving its products. The specifications outlined herein are subject to change without prior notice or obligation. The purchaser and/or user shall assume liability for any modification and/or alterations of this equipment from original design and manufacture.

Before using, the user shall determine the suitability of this product for its intended use and assumes liability therein.

**Contact NorthStar Product Support at 1-800-270-0810 for any questions about the appropriate use of this generator.**

### Warranty Registration

Please fill out and submit the warranty registration card so that we have your contact information for any future product literature or replacement parts you may need.

#### **ATTENTION:**

**All Rental Companies and Private Owners who loan this equipment to others!**

*All persons to whom you rent/loan this generator must have access to and read this manual. Keep this owner's manual with the generator at all times and advise all persons who will operate the machine to read it. You must also provide personal instruction on how to safely operate the generator and remain available to answer any questions a renter/borrower might have.*

## Specifications – Item #165930

<b><i>SPECIFICATIONS</i></b>	
Item Number	165930
Maximum Output	6500 Watts (W)
Continuous Output	6120 Watts (W)
Voltage	120 / 240 Volt (V)
Phase	Single phase (4-wire)
Frequency	56.5 - 63.3 Hertz (Hz)
Power Factor	1.0 p.f.
Engine	10 HP Yanmar L100
Engine Speed	3390 - 3798 RPM
Fuel Type	Diesel
Fuel Capacity	6.5 gallons (24.6 L)
Oil Capacity	1.76 US quarts (1.65 L)
Starting Method	Electric / Recoil
120V Receptacle	20 Amp (A) Duplex GFCI (NEMA 5-20R) 30 Amp (A) Locking device (NEMA L5-30R)
120/240V Receptacle	30 Amp (A) Locking device (NEMA L14-30R)
Circuit Breakers	30 Amp (A) Magnetic, Qty. 1 20 Amp (A), Thermal type, Qty. 2
Grounding Screw	Receives 10 Ga. Fork Terminal
Battery (not included)	12 Volt, 36 Amp-Hour minimum, Group size U1
Dimensions	
Length	34.00" (86.4 cm)
Width	23.25" (59.1 cm)
Height	22.25" (56.5 cm)
Dry Weight	295 lb. (134 kg)
Gross Weight	310 lb. (141 kg)

# Safety Label Locations – Item #165930

**NORTH STAR**  
Proven Performance

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**6500 DPG**  
**DIESEL SERIES**  
**GENERATOR**

- Commercial-grade electric start engine
- Extended run 6.5 gallon fuel tank
- Maintenance-free brushless alternator design
- Smooth running focus mount isolation system

**OPERATING INSTRUCTIONS**

• Check level of fuel in the generator.

• Turn the fuel line valve to the ON position.

**Using Electric Start**

- Turn the engine key to the START position.
- Release the key when the engine starts or after 10 seconds.
- If engine does not start after 10 seconds, wait 10 seconds before attempting to start again.

**Using Recoil Start**

- Turn the engine starting key to the RUN position.
- Pull the starter grip lightly until a strong resistance is felt. Then draw the starter cord to return to the initial position.
- Push down the decompression lever.
- Pull out the starter cord briskly and rapidly with both hands.

Check engine oil each time you refuel.

**⚠ DANGER**

Using a generator indoors **CAN KILL YOU IN MINUTES**.  
Generator exhaust contains carbon monoxide. This is a poison you cannot see or smell.

**NEVER** use inside a home or garage. **EVEN IF** doors and windows are open.

Only use **OUTSIDE** and far away from windows, doors, and vents.

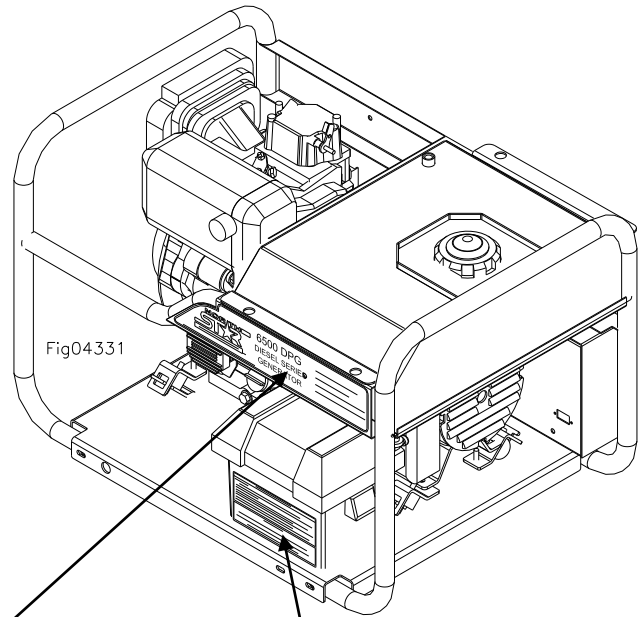
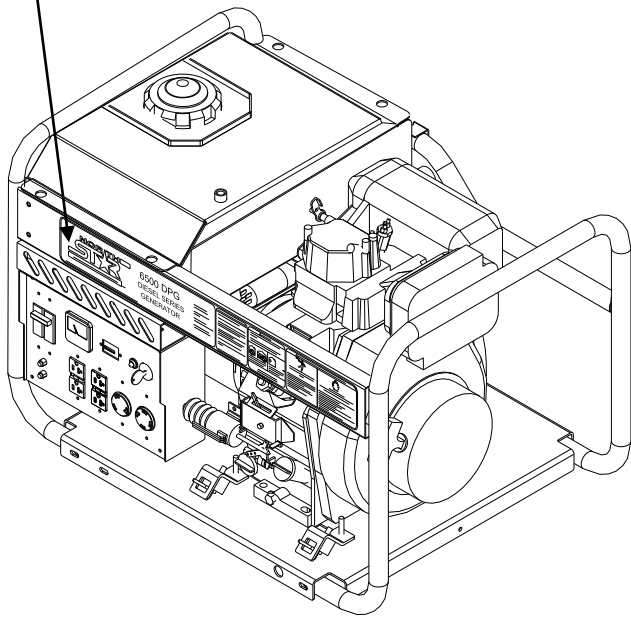
Avoid other generator hazards. **READ MANUAL, BEFORE USE**.

**⚠ WARNING**

**Electric Shock/Electrocution Hazard**  
High voltage electricity from generator can kill.

- NEVER plug generator directly into a wall outlet.
- ANY connection to a building electrical system **MUST ISOLATE GENERATOR FROM UTILITY POWER** via a transfer switch.
- Do not generator is properly grounded.
- Use only outdoor-rated, grounded extension cords of proper size.
- DO NOT operate in wet locations.

Never Connect Manual completely before using. Serious injury or death can result if safety instructions are not followed.



**NORTH STAR**  
Proven Performance

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**6500 DPG**  
**DIESEL SERIES**  
**GENERATOR**

- Commercial-grade engine starts easily
- Extended run 6.5 gallon fuel tank
- Maintenance-free brushless alternator design
- Smooth running focus mount isolation system

**⚠ WARNING - BATTERY HAZARDS**

**BATTERIES:**

- 1) contain caustic acid, 2) emit explosive gases, 3) can cause electric shock
- ALWAYS use eye protection. Caustic acid and explosive gases can cause blindness or severe burns.
- NO smoking, sparks, or flames.
- NEVER touch both battery terminals at the same time with your hand or any non-insulated tools.
- FLUSH immediately with water if battery acid contacts eyes, skin, or clothing.
- CONNECT cables in correct sequence: **FIRST RED TO POSITIVE** terminal, then **BLACK TO NEGATIVE** terminal. When disconnecting, **DISCONNECT BLACK** cable first, then **RED**.
- NEVER charge a visibly damaged or frozen battery. ALWAYS read and follow charger instructions.

**ATTENTION**

IF GENERATOR IS TO BE STORED LONGER THAN 2 MONTHS, charge battery with a trickle charger that is rated for 3 amps maximum. A charged battery ensures reliable engine starting.

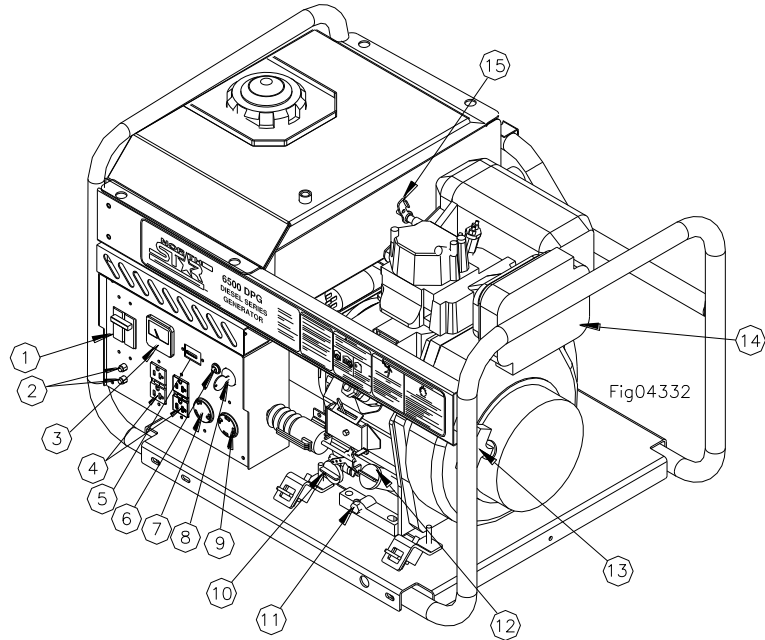
80007 1/1/14 1-800-270-0810 PH 7/13/14

Always make sure safety labels are in place and in good condition. If a safety label is missing or not legible, order new labels or unsafe operation could result.

To order replacement safety labels, call NorthStar Product Support at **1-800-270-0810**.

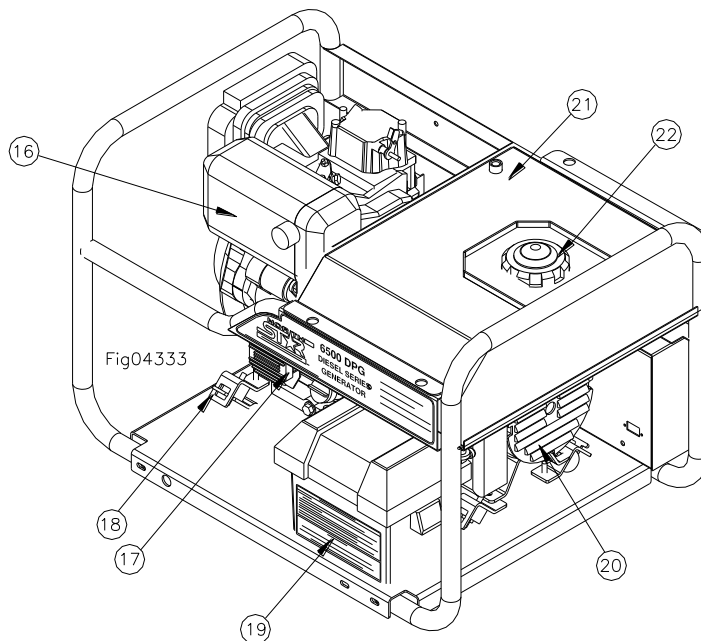
On-Product Warning Labels	
Part numbers	Description
779396	Battery Warning
38217	NorthStar
779425	Warning

# Machine Component Identification - Item #165930V.1



**Figure 1 (Ref. 1-15)**

Ref.	Description	Ref.	Description
1	Main Line Breaker	12	Oil Fill and Dip Stick
2	Thermal Circuit Breakers	13	Recoil Handle
3	Voltmeter	14	Air Cleaner Housing
4	120 Volt-20 Amp GFCI Duplex Receptacles	15	Decompression Lever
5	Hour Meter	16	Muffler
6	Charging Lamp	17	Ignition Fuse
7	120 Volt-30 Amp Locking Receptacle	18	Isolation Mounts
8	Engine Starting Key	19	Battery Box
9	120/240 Volt-30 Amp Locking Receptacle	20	Generator Head
10	Oil Filter Access Cover	21	6.5 Gallon Fuel Tank
11	Oil Drain Plug	22	Fuel Cap with Gauge



**Figure 2 (Ref. 16-22)**

# Machine Component Identification - Item #165930V.1

<b>REFERENCE GUIDE</b>	
<b>Reference 1 – Main Line Breaker</b>	The main line breaker is a two-pole thermo-magnetic circuit breaker. The circuit breaker will protect the generator from overload and short circuit conditions. To reset the circuit breaker move the toggle to the OFF position, then back to the ON position. When this circuit breaker is in the OFF position, all receptacles will be off.
<b>Reference 2 – Thermal Circuit Breakers</b>	The control panel has two thermal circuit breakers. If the circuit breaker trips, a black post will extend from the circuit breaker, push the black post to reset the circuit breaker. If the circuit breaker will not reset, wait two minutes and try again.
<b>Reference 3 – Voltmeter</b>	The voltmeter allows for monitoring of the generator. The needle should be in the green area for all load conditions.
<b>Reference 4 – 120 Volt-20 Amp GFCI Duplex Receptacles</b>	The control panel is equipped with four 120 Volt-20 Amp ground fault circuit interrupt (GFCI) receptacles (NEMA 5-20R). The receptacles will accept either NEMA 5-15P or NEMA 5-20P plugs. In the center of each duplex receptacle there is both a test/reset button and indicator lamp. If there is a fault condition with a load connected to a duplex receptacle, the indicator lamp will glow and the reset button will extend. To test the GFCI press the test button and the reset button should extend. The reset button must be pushed to reset the receptacle.
<b>Reference 5 – Hour Meter</b>	The hour meter allows for monitoring of engine maintenance schedules.
<b>Reference 6 – Charging Lamp</b>	The charging lamp will glow when the engine charging system is not functioning correctly. The lamp will glow when the ignition key is in the run position and the engine is not running.
<b>Reference 7 – 120 Volt-30 Amp Locking Receptacle</b>	The control panel is equipped with one NEMA L5-30R receptacle. This receptacle accepts only NEMA L5-30P plugs.
<b>Reference 8 – Engine Starting Key</b>	To start the engine, turn the key to the START position. To stop the engine, turn the key to the OFF position.
<b>Reference 9 – 120/240 Volt-30 Amp Locking Receptacle</b>	The control panel is equipped with one NEMA L14-30R receptacle. This receptacle accepts only NEMA L14-30P plugs. This receptacle is popular for connection to a transfer switch for home standby power.
<b>Reference 10 – Oil Filter Access Cover</b>	Your Yanmar engine is equipped with a reusable oil filter. Access to the oil filter is achieved by loosening the fixing bolt and then rotating the cover plate. The filter should be inspected during each oil change. Consult your Yanmar engine manual for further details.
<b>Reference 11 – Oil Drain Plug</b>	Removal of plug allows drainage of oil from the engine. Consult your Yanmar engine manual for further details.
<b>Reference 12 – Oil Fill and Dip Stick</b>	Consult your Yanmar engine owner's manual for details concerning oil change intervals.
<b>Reference 13 – Recoil Handle</b>	Consult your Yanmar owner's manual for engine starting instructions.
<b>Reference 14 – Air Cleaner Housing</b>	Refer to the Yanmar engine manual for air cleaner care.
<b>Reference 15 – Decompression Lever</b>	Reduces the force required to recoil start the engine.
<b>Reference 16 – Muffler</b>	<b>Never</b> operate the generator with a muffler deflector.
<b>Reference 17 – Ignition Fuse</b>	Your engine is equipped with a 15 Amp slow blow automotive style fuse located inside the white protective case.
<b>Reference 18 – Isolation Mounts</b>	The engine and generator are mounted on rubber mounts that absorb most of the engine vibration. This feature eliminates the tendency of the machine to "walk" which is common with engine powered equipment.
<b>Reference 19 – Battery Box</b>	The battery box provides protection for the battery and will accept a standard lawn tractor size battery (Group U1-7). The engine requires a 12 volt battery, with a minimum rating of 36 Ah (Amp-hour). See battery section for sizing.
<b>Reference 20 – Generator Head</b>	Your NorthStar product is equipped with a high quality brushless generator. The generator is maintenance free and will provide years of dependable service.
<b>Reference 21 – 6.5 Gallon Fuel Tank</b>	Large tank allows for extended run capabilities. <b>Always</b> allow room for fuel expansion by not filling the tank completely full.
<b>Reference 22 – Fuel Cap with Gauge</b>	The fuel cap is extra large, creating a large hole for refilling and a comfortable grip. You can always monitor the fuel level without removing the cap by using the fuel level indicator built into the fuel cap.

# Power Load Planning & Management

## ⚠ WARNING

NEVER exceed the rated wattage capacity of your generator. OVERLOADING may cause SERIOUS DAMAGE to the generator and attached electrical devices, and may result in fire.

Your generator **MUST BE SIZED PROPERLY** to provide both the running and starting (surge) wattage of the devices you will be powering. Before using your generator, determine the running and starting wattage requirements of all the electrical devices you will be powering simultaneously. The sum of the running and starting wattages of the devices being powered must not exceed the continuous output rating of your generator. (The continuous output rating of your generator is listed in the “Specifications” section of this manual.) Note that:

- Devices without electric motors such as light bulbs, radios, and televisions have the same running and starting wattage.
- Devices with electric motors such as refrigerators, compressors, and hand tools typically require a starting wattage that is 3 to 5 times greater than the running wattage.

The running and starting wattage requirements are often listed on a device’s nameplate. If wattage is not given on the device’s nameplate, the wattage may be calculated by multiplying the nameplate voltage by nameplate amperage,  $\text{Watts} = \text{Volts} \times \text{Amps}$ .

### Example conversion to watts:

$$120 \text{ Volts} \times 5 \text{ Amps} = 600 \text{ Watts}$$

If only the running voltage is given on the nameplate for a device with an electric motor, the starting wattage can be approximated to be three to five times the running wattage.

Estimates for the running wattage requirements for common devices are listed in **Table 1** below. Guidance for starting wattages is provided in the table’s footnotes.

**Table 1**

Device	Running Watts	Device	Running Watts
Air conditioner (12,000 BTU)	1700 (a,b)	Jet pump	800 (a)
Battery charger (20 Amp)	500	Lawn mower	1200
Belt sander (3")	1000	Light bulb (100 Watt)	100
Chain saw	1200	Microwave oven	700
Circular saw (6½")	2000 (a,b)	Milk cooler	1100 (a)
Coffee maker	1800 (a,b)	Oil burner on furnace	300
Compressor (1 HP)	1400 (a,b)	Oil-fired space heater (140,000 Btu)	400
Compressor (¾ HP)	1800 (a)	Oil-fired space heater (85,000 Btu)	225
Compressor (½ HP)	1400 (a)	Oil-fired space heater (30,000 Btu)	150
Curling iron	700	Oven	4500
Dishwasher	1200	Paint sprayer, Airless (1/3 HP)	600 (a)
Edge trimmer	500	Paint sprayer, Airless (handheld)	150
Electric nail gun	1200	Radio	200
Electric range (1 element)	1500	Refrigerator	600 (b)
Electric skillet	1250	Slow cooker	200

## Power Load Planning & Management (cont'd)

Device	Running Watts	Device	Running Watts
Furnace fan (1/3 HP)	1200 (a)	Submersible pump (1-1/2 HP)	2800 (a)
Freezer	800 (b)	Submersible pump (1 HP)	2000 (a)
Hair dryer	1200	Submersible pump (1/2 HP)	1500 (a)
Hand drill (1")	1100	Sump pump	600 (a)
Hand drill (1/2")	875	Table saw	2000 (a)
Hand drill (3/8")	500	Television	500
Hand drill (1/4")	250	Toaster	1000
Hedge trimmer	450	Vacuum cleaner	250
Home computer	150	VCR	70
Impact wrench	500	Water Heater	3000
		Weed trimmer	500

(a) Hard-starting motors require 3-5 times the rated running watts

(b) For extremely hard to start loads such as air conditioners and air compressors, consult the equipment dealer to determine maximum wattage

**To calculate the running and starting wattage requirements for the devices you will be powering, follow these steps:**

1. Make a list of all electrical devices you will be powering at the same time with the generator.
2. List the greater of the running or starting wattage next to each device as obtained from the devices' nameplate or **Table 1**. If only the running wattage for a device with an electric motor is known, the starting wattage can be estimated to be at least 3 times the running wattage.
3. Add the wattages for all devices on your list. This total must be lower than the continuous output rating of your generator.

**Example:**

Device to be Powered	Greater of Starting/Running Wattage
Light Bulb	75 W
Refrigerator – 18 Cu. Ft.	1600 W
Microwave	700 W
Window AC	1800 W
Sump pump (1/3 hp)	2100 W
<b>Total</b>	<b>6275W</b>

In this example, the generator must have a continuous output of at least 6275 W in order to power all of the devices simultaneously.

### STAGGERING LOADS

You can increase the number of devices your generator can power by staggering the load on the generator. For example, you could alternately power your refrigerator and air conditioner for limited periods of time -- powering only one of the devices at a time and never powering both at the same time.

## Installation / Initial Set-Up

There are a number of important steps required to set up your generator for initial use. These steps are:

### **Steps for Installation / Initial Set-Up**

- 1. Unpacking & delivery inspection.**
- 2. Planning the power load to stay within the generator's rated capacity.**
- 3. Setting up generator for the type of power generation you need:**
  - a. portable power source, or**
  - b. connected to a building as a back-up power source.**
- 4. Selecting a site for using the generator.**
- 5. Grounding.**
- 6. Battery installation (electric start models only).**

Each of these steps is discussed in detail below:

### **1. Unpacking & Delivery Inspection**

You should inspect the generator immediately after you receive delivery.

*See the "Machine Component Identification" section of this manual for a diagram of the generator and its components.*

- If you have missing or damaged components, contact Product Support at 1-800-270-0810.

### **2. Planning the Power Load**

Plan your power load so that you do not exceed the generator's rated capacity.

See the "Power Load Planning & Management" section of this manual to review how to plan and manage power loads for the generator.

## Installation / Initial Set-Up

### 3. Set-up either as a BUILDING BACK-UP or PORTABLE Power Source

This generator is designed to provide up to 6500W of electrical power. It can supply electricity in two ways:

1. **As a back up, standby power source for a building.** For this application, you must arrange for a licensed electrician to connect the generator to your building's electrical system via the installation of an UL-approved transfer switch. The transfer switch must be installed in accordance with building electrical code and guidelines supplied by your power company.
2. **As a portable power source.** You can plug appliances or tools directly into the generator's electrical outlets.

Specific requirements for each are given below.

Note: Regardless of whether you use your generator as a back-up power source connected to a building or as a portable power source, you must not overload the generator. Overloading may cause serious damage to the generator and attached electrical devices.

#### Using as a Back-up Power Source for a Building

**Contact a licensed electrician to install a UL-approved transfer switch** if you want to use your generator as a back-up power source for a building.

What does a transfer switch do? It:

- a) Safely connects the generator to your building's electrical system by isolating your generator from your utility company's power lines, AND
- b) Connects your generator to a critical subset of your building's circuits that are needed for emergency power needs.

If your generator will be connected to your building's electrical system, it **MUST ALWAYS** be isolated from the utility power grid with a *UL-approved transfer switch installed by a licensed electrician* in compliance with all applicable building and electrical codes, and in accordance with guidelines supplied by your power company.

#### **DANGER:**

A transfer switch must be installed in order to isolate your generator from the utility power grid. If your generator is NOT properly isolated from the utility system, serious hazards will arise:

- ◆ When your generator is running, it's output will back feed into the utility power line and transformer that are normally used to provide you with power. The transformer will step up the current to the normal line voltage. An unsuspecting utility line worker working on what he thinks is a deactivated line could be electrocuted.
- ◆ If your generator is connected (running or not) when utility power is restored, your generator will be destroyed. It could also explode or cause fire.

In addition to isolating your generator from the utility system, the transfer switch connects your generator to a limited set of circuits in your building that have been chosen as critical to operate during a power outage.

## Installation / Initial Set-Up

The generator cannot power your entire home -- you must work with the installing electrician to determine which devices/appliances you wish to power during an outage. The electrician can help you determine which circuits and devices can be powered simultaneously without overloading the generator.

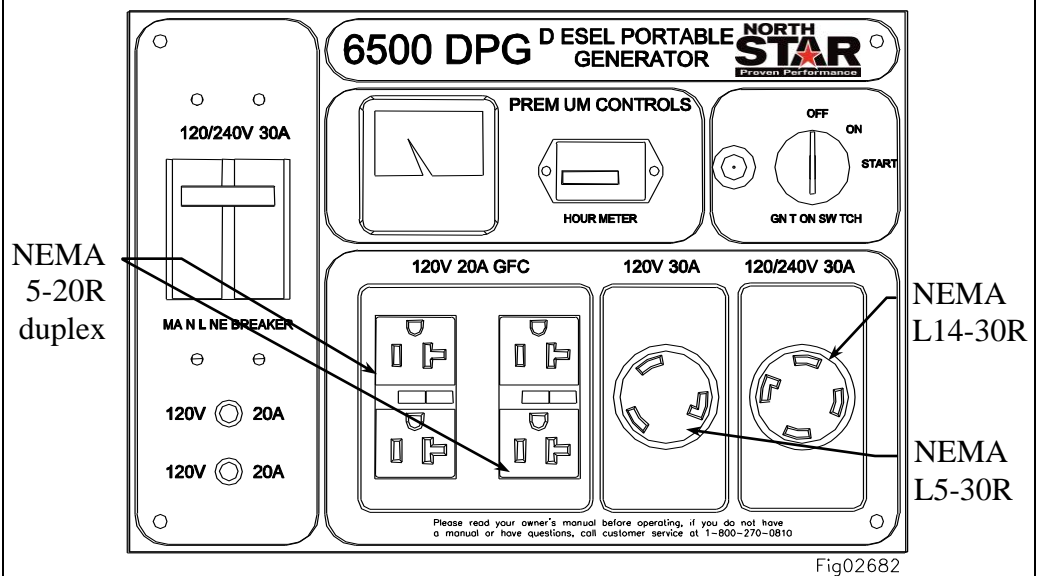
(See the previous section of this manual entitled “**Power Load Planning & Management**” for more information on load application and selection.)

### 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 three different kinds of electrical outlets on the generator:

1. One 120/240 Volt, 30 Amp locking receptacle (NEMA L14-30R locking receptacle compatible with L14-30P mating plug)
2. One 120 Volt, 30 Amp locking receptacle (NEMA L5-30R receptacle compatible with NEMA L5-30P mating plug)
3. Two 120 Volt, 20 Amp duplex GFCI straight-blade receptacles (NEMA 5-20R duplex receptacles compatible with NEMA 5-20P or 5-15P mating plugs).



(See more technical detail about these receptacles and their associated circuit breakers in the “Machine Component Identification” section of this manual.)

- ◆ Make sure you plug each electrical device/appliance into the correct generator outlet based on the device’s plug configuration and voltage/ampere rating. Never exceed the ampere rating of an outlet.

## Installation / Initial Set-Up

- ◆ 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. Use Table 2 below to choose an adequately sized extension cord according to the amperage of the device being used and the length of the cord.

**Table 2**

Current/Power		Maximum Extension Cord Length			
Amps at 240V	Load (watts)	#10 Ga. Cord	#12 Ga. Cord	#14 Ga. Cord	#16 Ga. Cord
10	2400	250'	150'	100'	75'
20	4800	125'	75'	50'	25'
30	7200	60'	35'	25'	10'
40	9600	30'	15'	10'	*
50	12000	15'	*	*	*

** WARNING:**

Use of under sized extension cords can cause electric shock, fire, or damage to connected devices.

- ◆ All extension and appliance cords must be in good condition and not worn, bare, frayed, or otherwise damaged.

** WARNING:**

Use of damaged electric cords can cause electric shock or fire.

Note: If an extension cord becomes hot to the touch, it is overloaded or damaged and must be replaced.

*Northern Tool is NOT responsible for damage or injury resulting from customer use of inadequate extension cords.*

# Installation / Initial Set-Up

## 4. Select a Suitable Site

Before using the generator, you must select a suitable **OUTDOOR** location for installation and operation. This location should meet all of the criteria listed below.

**⚠️ WARNING:**

You must choose a suitable site for operating your generator to avoid equipment damage and/or injury and possible death from carbon monoxide poisoning, electric shock, or fire. Choose a site that meets all of the criteria specified.

**Dry, level surface**

**The generator should be positioned on a dry, firm, level surface.**

Ensure that the generator sits level and will not slide or shift during operation. If applicable, block the generator's wheels to prevent sliding and shifting.

**Outdoors only – dangerous carbon monoxide exhaust**

**⚠️ WARNING: Carbon monoxide poisoning hazard**

The exhaust from your generator contains carbon monoxide (CO), a poisonous gas that can kill. You cannot smell it, see it, or taste it. *Carbon monoxide exhaust is given off whether you are using gasoline, natural gas, or propane as the fuel source to power the generator.* Follow the directions below for choosing a location to operate your generator in order to avoid carbon monoxide poisoning.

**The location you choose to operate the generator must be OUTDOORS and away from all air intakes:**

- Never run the generator inside any closed or semi-enclosed spaces (even if outdoors), including homes, garages, basements, sheds, or boxes. *These spaces can trap poisonous gases, even if you run a fan or open windows.*
- Place the generator so that the exhaust fumes will not be directed towards people or building air intakes.
- Ensure that working, battery-operated or battery back-up carbon monoxide alarms are used in any dwelling/structure that is in close proximity to the running generator.
- Note that this generator is NOT designed or approved for use in vehicles or marine applications. Never run the generator inside RVs or other vehicles, on boats, or on pick-up truck beds.

**⚠️ WARNING:**

Never attempt to attach ductwork to the muffler system to allow for installation inside an enclosure. This could cause hot air deflection, heat build-up, and increased exhaust back-pressure, resulting in possible exhaust leakage or damage to the generator.

**Adequate cooling ventilation**

**The generator needs adequate, unobstructed flow of air to allow for proper cooling of engine and generator head.**

**⚠️ WARNING:**

Heat build-up from inadequate ventilation can result in fire, posing a serious risk to nearby persons and structures.

- Situate so there is adequate clearance around generator to allow for cooling airflow so that heat does not build up.
- Never place the generator immediately adjacent to a building or other structure – allow at least a 7' clearance.

## Installation / Initial Set-Up

	<ul style="list-style-type: none"> <li>• Do not run the generator in close proximity to other heat-generating equipment, such as another generator. The combined heat that is generated may raise air temperature in the immediate area and there will not be adequate cooling ventilation.</li> <li>• Do not allow debris to accumulate and block airflow.</li> <li>• Do not operate with a tarp, blanket, or cover surrounding the generator.</li> </ul>
<b>No wet conditions</b>	<p><b>Choose a location where the generator will NOT be exposed to rain, snow, or direct sunlight.</b> Exposure to water can cause electric shock.</p> <p>You <i>may</i> operate the generator under an outdoor, canopy-like structure of heat-resistant material that is open on all sides. Make sure that all parts of canopy are at least 7' from exhaust, and allow for adequate clearance above generator so that heat does not build up.</p>
<b>Hot exhaust clearance</b>	<p><b>The exhaust gas from your generator is extremely hot and can cause combustible materials to catch on fire.</b></p> <ul style="list-style-type: none"> <li>• Make sure your generator's exhaust system is at least 7 feet from all combustible materials and buildings/structures.</li> <li>• Equip the engine with a spark arrestor if the generator will be used near any ignitable forest, brush, or grassy land. (See the "Specifications" section of this manual to determine if your generator is already equipped.) Make sure you comply with applicable local, state, and federal codes.</li> <li>• Keep a fire extinguisher rated "ABC" nearby. Keep it properly charged and be familiar with its use.</li> </ul>
<b>Away from dust/dirt</b>	<p><b>Do not use the generator in extremely dusty or dirty conditions.</b> Excessive dust and dirt can cause premature failure of the machine.</p>
<b>Hearing protection</b>	<p><b>Generators can produce noise levels of up to 95 dB in close proximity, which can be dangerous to human hearing with prolonged exposure.</b></p> <p>Hearing protection may be required for persons working within 15-20 feet of the running generator for an extended period of time.</p> <p><b>⚠ WARNING:</b> Never attempt to attach ductwork to the muffler system to lower noise levels. This could cause hot air deflection, heat build-up, and increased exhaust backpressure, resulting in possible exhaust leakage or damage to the generator.</p>

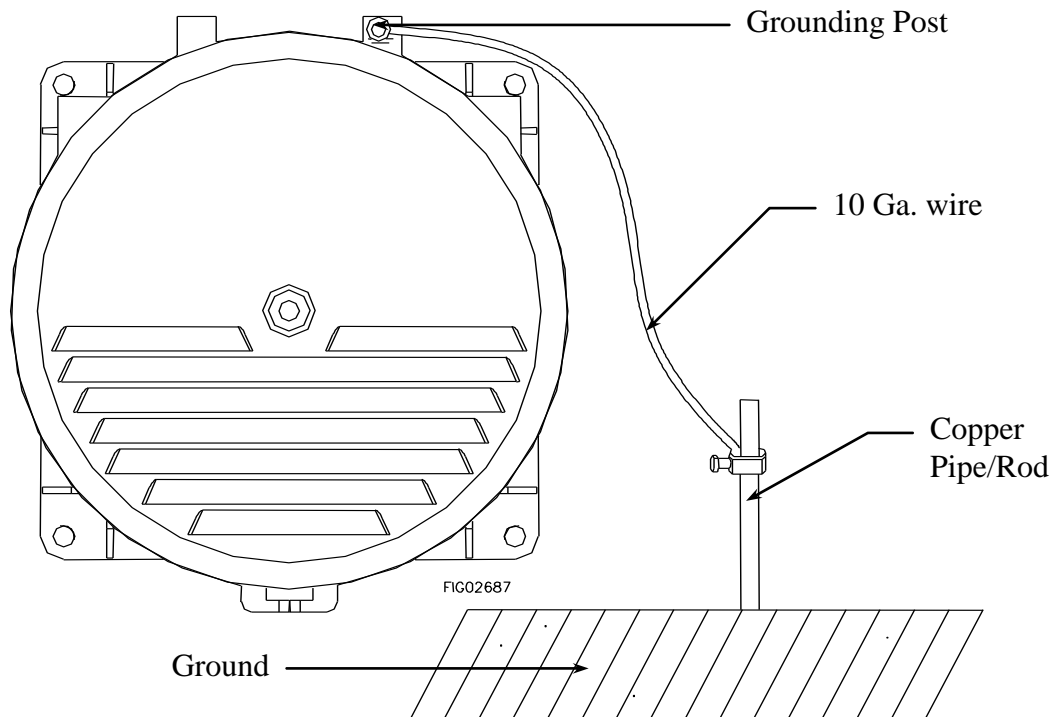
## Installation / Initial Set-Up

### 5. Grounding the generator

**Always ensure the generator is properly grounded to prevent electrical shock.**

You must always ground the generator by the following method when using the generator as a portable electrical source:

- 1) Drive a  $\frac{3}{4}$ " or 1" copper pipe or rod into the ground close to the generator. The pipe/rod must penetrate moist earth – the depth required will be dictated by local soil conditions. Consult with an electrician.
- 2) Connect an approved ground clamp to the pipe.
- 3) Run a 10 gauge wire from the clamp to the generator grounding post located on the rear of the generator head.
- 4) Do not connect the generator grounding post to a water pipe or a ground used by a radio system.



If a licensed electrician installs the generator with a connection to your building's electrical circuit for use as a back-up power system, grounding may alternatively be completed through the building's grounding system. Ask your electrician. If the generator is not grounded through your building's electrical system, follow the procedure above.



#### **WARNING:**

Operating the generator when it is not properly grounded can result in electrical shock.


# Installation / Initial Set-Up

## 6. Battery Installation

Your generator's engine is equipped with an electric starter, which requires the installation of a 12-volt lawn tractor size battery (Group U1). See the "Specifications" section of this manual for more specific battery requirements for this generator model, such as minimum amperage or CCA rating.

The battery is to be supplied by the customer and should be installed in the protective battery box located near the engine. Follow the instructions detailed below for connecting and disconnecting the battery.

**WARNING: Battery hazards**

 Batteries are hazardous because they contain caustic acid, can emit explosive gases, and can cause electric shock. Caution must be exercised when making connections to a battery to avoid shock and contact with the acid, and to prevent any sparking that could lead to an explosion.

ALWAYS follow the general battery safety rules and instructions listed below.

**General Battery Safety Rules**

- ALWAYS use eye protection when handling batteries.
- NEVER smoke or work near sparks or other sources of ignition.
- NEVER touch both battery terminals at the same time with your hand or any non-insulated tools.
- If battery acid contacts skin or clothing, flush immediately with water and neutralize with baking soda.

**Connecting the battery**

- Always connect the cables in the following sequence to avoid possible shock:
1. Find the battery cables located inside the battery box.
  2. Connect the **red** cable to the **positive(+)** terminal of the battery.
  3. Then connect the **black** cable to the **negative(-)** terminal of the battery.

**Disconnecting the battery**

- Always disconnect cables in the following sequence to avoid possible shock.
1. First, disconnect the **black** cable from the **negative(-)** terminal of the battery.
  2. Next, disconnect the **red** cable from the **positive(+)** terminal of the battery.

# Operation

Once you have set up your generator for use, it is time to start your generator. The following are the procedures necessary for safe, successful operation of your generator.

## Operation Procedures

1. **General Safety Rules for Operation**
2. **Preparing for Operation**
3. **Starting the Engine**
4. **Checking Generator Output**
5. **Connecting Electrical Loads (Portable Power Generation)**
6. **Stopping**
7. **Storage & Exercise of Generator**

Each of these procedures is discussed in detail below:

## 1. General safety rules for operation

**Before starting the generator, review the following general safety rules for operation:**

 **WARNING:**

Failure to follow safety rules may result in serious injury or death to the operator or bystanders.

**Know proper use/how to stop.** Be thoroughly familiar with proper use of the equipment and all generator controls, output receptacles, and connections. Know how to stop the generator quickly if needed (see “Operation, Step 6 - Stopping the Engine”).

- **Instruct operators.** The generator owner must instruct all operators in safe generator set-up and operation. Only trained adults should set up and operate the generator – Do not let children operate.
- **Intended use.** Carefully read about and understand the intended use of this generator. Do not use for other purposes, as unforeseen hazards or equipment damage may result.
- **Under the influence.** Never operate, or let anyone else operate, the generator while under the influence of alcohol, drugs, or medication.
- **Safety equipment / controls.** Do not operate the generator unless all safety covers, guards, and barriers are in place and in good working order, and all controls are properly adjusted for safe operation.
- **Damaged.** Do not operate the generator with damaged, missing, or broken parts.
- **Modifications.** Do not modify the generator in any way. Modifications can create serious safety hazards and will also void the warranty.
- **Engine speed.** Never attempt to modify the engine speed setting. The engine speed is preset at 3600 RPM for safe and optimal performance of the generator. If speed needs adjusting, it must be done by factory-authorized personnel.
- **External fuel sources.** Never attempt to connect external gasoline/diesel sources in order to increase engine run time. Larger tank at pressure or higher elevation will cause gasoline to leak from carburetor during operation. Fire or explosion could result.

## Operation (cont'd)

- **Malfunction during operation.** Immediately turn off the generator if any of the following conditions arise during operation:
  - Excessive change in engine speed, slow or fast
  - Overheating in load connecting devices
  - Sparking or arcs from generator
  - Loss of electrical output
  - Receptacle damage
  - Engine misfire
  - Excessive vibration
  - Flame or smoke
  - Abnormal noise
- **Adjusting / repairing.** Always turn off generator and remove spark plug(s) or spark plug wire(s) before working on the generator to prevent accidental starting. Always discharge the capacitor before working on the generator head to prevent electrical shock. (See Maintenance & Repair section of this manual for instructions on how to do this.)
- **Carbon monoxide poisoning.** The running engine gives off carbon monoxide, a poisonous gas that can kill you. You CANNOT smell it, see it, or taste it. Follow all instructions for site selection and positioning the generator, and avoid inhaling the exhaust. If you start to feel sick, dizzy, or weak while using the generator, shut off the engine and get to fresh air RIGHT AWAY. See a doctor. You may have carbon monoxide poisoning.
- **Other exhaust dangers.** This product contains or emits chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. Avoid inhalation of exhaust.
- **Wet conditions.** Do not operate the generator or handle any electrical equipment while standing in water, while barefoot, while hands are wet or while in the rain or snow. Electric shock may result.
- **Ground fault circuit interrupter.** Always use a ground fault circuit interrupter (GFCI) protected extension cord (or outlet, if generator is equipped) in damp or highly electrical conductive areas and on construction jobsites to prevent electrical shock.
- **Avoid contact.** Avoid contact with bare wires, terminals, connections, etc. while the unit is running.
- **Electric shock accident.** If an electric shock accident occurs, immediately shut down the source of electrical power. If this is not possible, attempt to free the victim from the live conductor. Avoid direct contact with victim. Use a nonconducting implement, such as a dry rope or board, to free the victim from the live conductor. Apply first aid and get immediate medical help.
- **Smoking/sparks.** Never smoke near the running generator, and never operate near sources of sparks or flames.
- **Hot muffler.** Never touch hot muffler, hot exhaust manifold, or engine cooling fins. Exhaust and engine parts can be very hot and will burn you.
- **Moving parts.** Keep hands, feet, and apparel away from drive belts, fans, and other moving parts. Never remove any drive belt or fan guard while the unit is operating.

## Operation (cont'd)

### **Static electricity and filling the fuel tank:**

**Static electricity can initiate from ungrounded fuel tanks or containers, from flowing fuel, and from persons carrying a static electric charge**

Under certain conditions, static electricity can ignite fuel vapors that are present during the fueling process, which may result in serious burns to nearby persons. To avoid static electricity while fueling, certain steps must be followed before and during the fueling process in order to minimize and safely dissipate static charge build-up:

***Touch a grounded metal object before starting.*** Always dissipate static charge from your body before beginning the fueling process by touching a grounded metal object at a safe distance away from fuel sources.

***Use a portable container to fill tank.*** Never fill the generator's fuel tank directly from the pump – the generator's tank is not grounded and the high velocity flow from a fuel pump can cause static electric build-up. Use an approved portable container to transfer fuel to the generator's tank.

***Fill container on the ground.*** Never fill the portable fuel container while it is sitting inside a vehicle, trailer, trunk, or pick-up truck bed. ALWAYS place container on the ground to be filled.

***Keep nozzle in contact with container.*** Keep nozzle in contact with the portable container at all times while filling. Manually control the flow of fuel; do NOT use the nozzle's lock-open device.

***Use a portable container made of metal or conductive plastic.*** It will dissipate charge to ground more readily.

### **About static electricity and fueling**

Many common objects can accumulate and retain a static electric charge. Objects made of non-conductive materials (e.g. plastics) easily accumulate and retain static electric charge, as can objects made of conductive material (e.g. metal, water) if they are not electrically grounded. The static electric charge on an object, such as a human body or plastic fuel tank/container, can reach as high as several thousand volts!

A static electric spark can be generated if the static electric charge stored on an object "jumps" to another, less charged object. Such a spark can ignite invisible fuel vapors that are present during fueling situations.

### **Typical sources of static electric hazards during fueling**

The following objects can accumulate a static electric charge and cause an ignition spark in typical fueling situations:

**Ungrounded tanks/containers.** Any ungrounded fuel tank or container can accumulate a static electric charge as a result of contact with other objects or friction during transportation. This static electricity can discharge as a spark to the grounded fuel dispenser nozzle, as the nozzle is first brought close to the tank/container at the beginning of the fueling process.

**Flowing fuel.** Most people are not aware that fuel accumulates static electric charge while flowing through a hose or pipe. This charge then transfers to and accumulates in the fuel tank or container that is being filled. The total amount of charge accumulation depends on the amount of fuel pumped into the container, the speed with which it is pumped, and whether or not the tank/container is grounded. If sufficient static electric charge accumulates in the fuel tank or container during the fueling process, the tank/container may discharge a spark to the grounded fuel dispenser nozzle.

**Persons.** A person dispensing the fuel can carry a static electric charge on their body, typically resulting from contact with their car seat or electronics. The static electricity can discharge as a spark between that person's hand and either the grounded dispenser nozzle or the fuel tank opening.

## Operation (cont'd)

<b>2. Preparing for Operation</b>	
<b>Position generator</b>	<p><b>Position generator in accordance with the instructions given in “Installation &amp; Initial Set-up, Step 4: Select a Suitable Site” of this manual.</b></p> <p>Operate outside only, on dry, level ground with adequate clearance and ventilation.</p> <p><b>⚠ WARNING: Carbon monoxide poisoning hazard</b> Generators give off carbon monoxide exhaust, a poisonous gas that can kill. You CANNOT smell it, see it, or taste it. ONLY run generator OUTDOORS and away from air intakes. NEVER run generator inside any enclosed or semi-enclosed spaces, including homes, garages, basements, sheds, boxes, pick-up truck beds, RVs, or boats. These spaces can trap poisonous gases, EVEN if you run a fan or open windows. <i>Carbon monoxide exhaust is given off whether you are using gasoline, natural gas, or propane to power the generator.</i></p>
<b>Ground generator</b>	<p><b>Make sure the generator is grounded in accordance with instruction given in “Installation &amp; Initial Set-up, Step 5: Grounding the Generator” of this manual.</b></p> <p><b>⚠ WARNING: Electric shock hazard</b> Always ensure generator is properly grounded to prevent electrical shock.</p>
<b>Perform scheduled maintenance as needed</b>	<p><b>Make sure that any regular maintenance has been performed as prescribed in this manual in the “Maintenance &amp; Repair” section.</b></p> <ol style="list-style-type: none"> <li>1. Refer to the engine owner’s manual for engine maintenance instructions.</li> <li>2. Make sure battery is charged. Charge as needed according to your battery manufacturer’s instructions.</li> </ol>
<b>Check/add oil</b>	<p><b>Check the oil level using the dipstick and add oil as needed.</b></p> <p>Using a funnel, add oil up to the FULL mark on the dip stick with the recommended oil type for your engine and expected ambient conditions. (See engine Owner’s Manual for oil type and capacity, and more detailed oil check/fill instructions.)</p> <p><b>⚠ WARNING: Burn hazard</b> Never open oil port while engine is running. Hot oil can spray over face and body.</p> <p><i>Notes:</i></p> <ul style="list-style-type: none"> <li>○ <i>Low oil shutdown feature prevents the generator from starting without sufficient oil.</i></li> <li>○ <i>Engine is shipped <u>without</u> oil. You must add oil before first use.</i></li> </ul> <p><b>IMPORTANT:</b> Under long, continuous-run operating conditions, be prepared to:</p> <ul style="list-style-type: none"> <li>• Check engine oil level every time you refuel the engine.</li> <li>• Change oil after the first 20 operating hours, and at least every 100 operating hours thereafter, or as directed in engine owner’s manual.</li> </ul>
<b>Check/fill fuel tank</b>	<p><b>Check the fuel level in the generator’s tank. If needed, fill tank with fresh diesel fuel from a portable container, after first reading the warnings and instructions below.</b></p>

## Operation (cont'd)

### **WARNING: Diesel fuel fire hazard**

Standard diesel fuel is a combustible liquid. High heat, sparks, and flames can ignite diesel fuel vapors. A fire could result and cause serious injury or death. Use extreme care when handling diesel fuel, especially ethanol-diesel (e-diesel) blends, which are more flammable than standard diesel and nearly as flammable as gasoline. Carefully follow all the instructions in this section to avoid the following conditions which could result in fuel vapor ignition:

- gas vapor collection inside enclosures
- static electric sparks
- sparks from electric wiring, batteries, or running engines
- sources of high heat (such as a hot engine or exhaust)
- open flames, including pilot lights

1) Before starting, review the following general safety precautions for fueling:

- a) Never pump fuel directly into the generator's tank at a gas station – high velocity flow from the pump could result in a static electric build-up in the generator's tank. Always use a portable container to fill the tank. *See warning box about static electric spark hazards below.*
- b) Fill fuel tank OUTDOORS – never indoors.
- c) Stay away from all sources of heat, sparks, and flames. Do not smoke.

2) Turn generator engine off and allow to cool for at least two minutes before removing gas cap.

Note: A running or still-hot engine is hot enough to ignite fuel.

3) Remove generator fuel cap.

4) Add fuel through the fill opening:

- Use only a UL-approved portable fuel container to transfer the diesel fuel to the generator's tank. Follow the safety warning and instructions below for avoiding static electric sparking.
- Do NOT overfill the fuel tank. Allow at least 1/2" of empty space below the fill neck to allow for fuel expansion.


### **WARNING: Static electric spark hazard**

A static electric spark can ignite fuel vapor, resulting in a flash fire that could cause serious injury or death.

To avoid static electric sparking while filling the fuel tank, **the following steps must be followed to minimize and safely dissipate static electric charge build-up before and during the fueling process:**

- Always dissipate static charge from your body before beginning the fueling process by touching a grounded metal object at a safe distance from fuel sources.
- Never fill the generator's fuel tank directly from the pump – the generator's tank is not grounded and high velocity flow from the pump can cause static electricity build-up. Use an approved portable container to transfer gas to the generator's tank.
- Never fill the portable gas container while it is sitting inside a vehicle, trailer, trunk, or pick-up truck bed. ALWAYS place container on the

## Operation (cont'd)

	<p>ground to be filled.</p> <ul style="list-style-type: none"> <li>• Keep nozzle in contact with portable container while filling. Manually control the flow of fuel; do NOT use nozzle's lock-open device.</li> <li>• A portable container made of metal or conductive plastic is preferred because it dissipates charge to ground more readily.</li> </ul> <p>5) Clean up fuel spills /splashes immediately.</p> <ul style="list-style-type: none"> <li>• If possible, move the generator away from spilled fuel on the ground.</li> <li>• Wipe up spilled fuel, and wait 5 minutes for excess fuel to evaporate before starting engine.</li> <li>• Fuel soaked rags are flammable and should be disposed of properly.</li> <li>• If fuel is spilled on your skin or clothes, change clothes and wash skin immediately.</li> </ul> <p>6) Replace fuel cap securely before starting engine.</p> <p>7) Store extra fuel in a cool, dry place in an UL-approved, tightly sealed container.</p> <p><b>IMPORTANT:</b>  <b>For continuous operation, be prepared to check and refuel the engine on a regular basis. A tank of fuel should last about 4 hours under 100% load, and about 8 hours under 50% load.</b></p>
<p><b>Inspect Fuel System / Check for Leaks</b></p>	<p><b>Inspect fuel system &amp; check for leaks BEFORE starting generator.</b>          Do not start generator until all needed repairs have been completed.</p> <p> <b>WARNING:</b> Fuel leak hazard</p> <p>Standard diesel fuel is combustible (with ethanol-diesel blends being nearly as flammable as gasoline). Fuel leaks can result in fire. You can be burned and seriously injured if the fuel system is not properly hooked up or there is a fuel leak when you start the engine.</p> <p>Inspect the entire fuel system. <i>Look for:</i></p> <ul style="list-style-type: none"> <li>• signs of leaks or deterioration,</li> <li>• chafed or spongy fuel hose,</li> <li>• loose connections,</li> <li>• loose or missing fuel hose clamps,</li> <li>• a damaged fuel, or</li> <li>• a defective fuel shut-off valve.</li> </ul>
<p><b>Personal Protection</b></p>	<p>1) Hearing can be damaged from prolonged, close-range exposure to the type of noise produced by this generator. <b>The use of ear plugs or other hearing protection device is recommended</b> for persons working within 15-20 feet of the running generator for an extended period of time.</p> <p>2) Loose or dangling apparel can become entangled in moving parts. Metal jewelry can conduct electricity. <b>Never wear jewelry or loose-fitting clothing when starting or operating the generator.</b></p>

## Operation (cont'd)

### 3. Starting the Engine

**After you have completed the pre-start checklist procedures, you are ready to start the engine.**

**To start the engine:**

- 1) Disconnect all loads to the generator.
- 2) Turn the fuel line valve to the ON position. The fuel valve is located underneath the fuel tank.
- 3) Start the engine:
  - a) Using electric start -
    - i) Turn the engine starting key to the START position and hold it there until the engine starts.
    - ii) Release the key when the engine starts or after 10 seconds.
    - iii) If the engine does not start after 10 seconds, wait 15 seconds before attempting to start again.
    - iv) If the engine will not start, consult the “Troubleshooting” section of this manual.
  - b) Using recoil start -
    - i) Turn the engine starting key to the RUN position.
    - ii) Pull the starter grip lightly until you feel a strong resistance, then allow starter cord to return to the initial position.
    - iii) Push down the decompression lever. The lever is located on top of the engine and is colored RED.
    - iv) Now pull out the starter cord briskly and rapidly with both hands.
    - v) Allow starter cord to return slowly.
    - vi) If the engine will not start, consult the “Troubleshooting” section of this manual.
- 4) Under long, continuous-run operating conditions, be prepared to:
  - a) Check and refuel the engine on a regular basis. A tank of gas should last about 4 hours under 100% load, and about 8 hours under 50% load. See engine owner’s manual for more detail.

** WARNING:**

A running engine is hot enough to ignite fuel. Never add fuel or remove fuel tank cap if engine is running or still hot. Let cool at least 2 minutes.

- b) Check engine oil level each time you refuel.
- c) Change oil after the first 20 operating hours, and at least every 100 operating hours thereafter, as directed in the engine owner’s manual.

** WARNING:**

Never open oil port while engine is running. Hot oil can spray over face and body.

## Operation (cont'd)

### 4. Checking Generator Output

Although the speed of the engine was carefully adjusted at the factory so that the generator produces the proper voltage and frequency, **output voltage should be checked periodically to ensure the generator is working properly before connecting loads to the generator.**



**WARNING:**

The generator must be run at the correct speed in order to produce the proper electrical voltage and frequency. Failure to do so could result in damage to equipment powered by the generator and possible injury to the individual.

Output voltage should be checked with a portable voltage meter:

1. Start engine and allow to warm up for five minutes. Do not connect any loads.
2. Use the generator's voltage meter to check output voltage.
3. The voltmeter's needle should be within the green area initially and during all load conditions.
4. If measured voltage is not within the specified range, have generator adjusted by factory authorized personnel. Do not attempt to adjust the engine speed yourself.

**NOTE:**

**Slight variation in voltage/speed with changing electrical loads**

All engines have a tendency to slow down when a load is applied. When electrical loads are connected to the generator, the engine is more heavily loaded and as a result the speed drops slightly.

This slight decrease in speed, together with the voltage drop within the generator itself, results in a slightly lower voltage when the generator is loaded to its full capacity than when it is running with no load. Additionally, there may be small brief surges and drops in voltage as motors connected to the generator cycle on or off.

The slight variation has no appreciable effect in the operation of motors, lights, and most appliances.

## Operation (cont'd)

### 5. Connecting Loads

You will want to be careful when connecting loads so as not to overload the generator, especially if you are powering devices with motors that require a higher starting power load.

Instructions are provided below for connecting loads when you are using the generator:

- As a portable power source
- Connected to a building as a back-up power source



**WARNING:**

Do not overload generator. Make sure that combined starting and running loads do not exceed rated capacity of generator. Overloading the generator can cause damage to the generator and attached electrical devices, and may result in fire.

#### Using as a Portable Power Source

**Connect electrical loads one at a time according to the following instructions:**

1. Allow engine to reach operating speed by allowing it to warm up for approximately 5 minutes before connecting electrical devices.
2. After engine is warmed up, begin by connecting the items that require the highest wattage first. The recommended sequence is as follows:
  - a. Connect items with motors such as refrigerators, freezers, air conditioners, or small hand tools, one at a time. Let each motor stabilize before connecting the next device.
  - b. Connect any lights you are planning on powering.
  - c. Connect voltage sensitive equipment such as electronics via surge protectors. Plug devices such as TV's, computers, and microwaves into a UL listed voltage surge protector, then plug the surge protector into the generator.

#### Using as a Back-up Power Source for a Building

Each transfer switch installation will be unique.

Proper instructions for how to safely bring the generator online with the building's electrical system should be provided by the installing electrician, who should also provide personal instruction to the owner/operator.

Failure to follow the proper procedure as provided by the electrician could expose persons to the hazards noted above.

### 6. Stopping

**Stop the engine using the following steps:**

1. Disconnect all loads to the generator.
2. Turn engine starting key to OFF position.
3. Turn fuel line shut-off valve to OFF position.
4. Remove key from starter or remove spark plug to prevent accidental starting of engine.

## Operation (cont'd)

### 7. Storage & Exercise

**When you are finished using the generator, you must:**

- Disconnect all loads
- Shut off fuel supply
- Store the generator properly
- Plan on exercising the engine regularly unless the generator is prepared for long-term storage.

Detailed instructions are provided below.

#### **Disconnect loads & turn off fuel supply**

**When you are finished using the generator, disconnect all loads and turn off fuel supply:**

1. Make sure all devices that were connected to the generator's outlets are disconnected.
2. Check to be sure fuel line shut-off valve is in OFF position.

#### **Cool engine before storing**

**Let engine cool for at least five minutes before storing.** A hot engine can be a fire hazard.

#### **Choose a storage location**

**Store the generator in a location that is:**

- Clean and dry
- Away from sources of heat, open flames, sparks, or pilot lights, even if the generator's fuel tank is empty. Residual fuel in the tank could ignite.
- Away from extreme high or low temperatures.

Note: Do not store with battery charger always connected. Batteries that are over-charged can boil themselves dry and produce excessive amounts of hydrogen, an explosive gas.

#### **Prevent accidental starting**

**Remove key from starter (for electric start engines) and secure key in a safe location, or remove spark plug(s)** in order to ensure the generator cannot be started accidentally in a storage location or by untrained persons.

#### **Exercise generator every 4 weeks**

**The generator should be exercised regularly.**

At least every four weeks, start the engine and let it run for 10 to 15 minutes with a small load plugged in, such as a lamp or fan.

Monthly exercising of the generator will:

- Dry out any moisture that has accumulated in the windings. If left, this moisture can cause corrosion in the winding.
- Ensure that the unit is operating properly should it be needed in an emergency.

#### **Perform regular maintenance**

**Perform periodic maintenance** as directed in this manual to keep the generator in safe working condition.

## Operation (cont'd)

<b>Prepare engine for long term storage if needed</b>	<p><b>If you will not be able to exercise the generator regularly, you must prepare the engine for long term storage</b> to prevent gum deposits from forming and causing malfunction of the engine.</p> <p>Prepare engine for long term storage by:</p> <ul style="list-style-type: none"><li>○ <b>Removing all fuel</b> from the tank and carburetor</li></ul> <p><u>OR</u></p> <ul style="list-style-type: none"><li>○ <b>Adding diesel fuel stabilizer</b> to the fuel (following manufacturer's instructions)</li></ul> <p><u>Fuel stabilizer steps:</u></p> <ol style="list-style-type: none"><li>1. Ensure fuel tank is full.</li><li>2. Add fuel stabilizer to fuel tank.</li><li>3. Run engine at least 10 minutes after adding stabilizer to allow it to enter the fuel system.</li><li>4. Shut off engine</li><li>5. Disconnect spark plug wire and remove spark plug</li></ol>
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## Maintenance & Repair

Inspect and maintain your generator as specified below in order to keep it in safe and optimal working order. Follow all safety rules and recommended maintenance steps.

### **WARNING**

ALWAYS shut off the engine, disconnect the spark plug(s) and discharge the capacitor before cleaning, adjusting, or servicing the generator. Make sure all guards and shields are replaced before using.

Note: The generator head is brushless and maintenance free. The bearing is a heavy-duty sealed ball bearing which requires no maintenance or lubrication.

<b>Maintenance &amp; Repair</b>	
<b>Follow safety rules</b>	<p><b>Read and follow these safety rules whenever you will be servicing the generator:</b></p> <ul style="list-style-type: none"> <li>• <b>Turn off generator.</b> Always turn off generator and remove spark plug(s) or spark plug wire(s) before working on the engine or generator to prevent accidental starting.</li> <li>• <b>Discharge capacitor.</b> When the generator is shut down, the capacitor may maintain a charge. Always discharge the capacitor before working on the generator head to prevent electrical shock. Discharge using a screwdriver with an insulated handle. While wearing safety glasses, touch opposite terminals of the capacitor together with the tip of the screwdriver. If there is stored charge in the capacitor, a spark will be generated thereby discharging the capacitor.</li> <li>• <b>Replace guards.</b> Make sure all guards and shields are replaced after servicing the generator.</li> <li>• <b>Repair.</b> Major service, including the installation or replacement of parts, should be performed only by a qualified electrical service technician. Obtain factory approved parts from NorthStar Product Support at 1-800-270-0810.</li> <li>• <b>Replacement parts.</b> If a part needs replacement, only use factory approved repair parts. Replacement parts that do not meet specifications may result in a safety hazard or poor operation of the generator and will void the warranty.</li> </ul>
<b>Perform engine maintenance</b>	<p><b>Perform engine maintenance as specified in the engine owner's manual.</b> Engine maintenance items include:</p> <ol style="list-style-type: none"> <li>1. Changing oil and oil filter</li> <li>2. Air filter check/replacement</li> <li>3. Fuel filter check/replacement</li> <li>4. Fuel tank cleaning.</li> </ol>
<b>Check receptacles</b>	<p><b>Check receptacles before each use to make sure they are not cracked or broken.</b> If a receptacle is cracked or otherwise damaged, do not use until replaced with an authorized factory part. Using cracked or damaged receptacles can be both dangerous to the operator and destructive to the equipment.</p>
<b>Inspect fuel system / check for leaks</b>	<p><b>Inspect the fuel system and check for leaks on a regular basis.</b></p> <ol style="list-style-type: none"> <li>1) Inspect the entire fuel system. Look for: signs of leaks or deterioration, chafed or spongy fuel hose, loose connections, loose or missing fuel hose clamps, damaged fuel tank, or defective fuel shut-off valve.</li> </ol>

## Maintenance & Repair (cont'd)

<b>Check GFCI (if equipped)</b>	<p><b>Once a month, test the Ground Fault Circuit Interrupter (GFCI) to protect against electrical shock due to failure of the GFCI.</b> (Only for those models equipped with GFCI – See the “Specifications” section.)</p> <p><u>To test the GFCI:</u></p> <ol style="list-style-type: none"> <li>1. Depress the TEST button. The RESET button should extend from the receptacle. If the RESET button does not extend, contact NorthStar for replacement parts.</li> <li>2. Restore power to the GFCI by firmly pressing the RESET button back into the receptacle until an audible click is heard.</li> </ol>
<b>Clean &amp; inspect spark arrester (if equipped)</b>	<p><b>Clean and inspect the spark arrester muffler.</b> (Only for those models equipped with a spark arrester – See the “Specifications” section.)</p> <p>If the engine is equipped with a spark arrester muffler, clean and inspect it regularly (follow manufacturer’s service instructions). Replace if damaged.</p>
<b>Keep generator clean</b>	<p><b>Keep generator clean.</b></p> <p>If dust or debris accumulates on the generator, clean the generator with a damp cloth or soft bristle brush. Do not allow air intakes to become blocked.</p> <p><u>Note:</u> Do not spray generator with a garden hose or pressure washer. Water may enter the generator and cause damage to the rotor, stator, or internal windings.</p>
<b>Recharge and maintain battery (if electric start)</b>	<p><b>Inspect, recharge, and maintain your battery according to your battery manufacturer’s instructions.</b> (Only for those models equipped with electric start.)</p> <p>Do not store with battery charger always connected. Batteries that are over-charged can boil themselves dry and produce excessive amounts of hydrogen, an explosive gas.</p>

**IMPORTANT:**

If a part needs replacement, only use parts that meet the manufacturer’s specifications. Replacement parts that do not meet specifications may result in a safety hazard or poor operation of the generator.

**Contact NorthStar Product Support at 1-800-270-0810 for any questions, problems, or parts orders.**

# Troubleshooting

<b><i>TROUBLESHOOTING</i></b>		
<b><u>Problem</u></b>	<b><u>Possible Causes</u></b>	<b><u>Possible Remedies</u></b>
Engine will not start.	<ul style="list-style-type: none"> <li>a) Low oil level.</li> <li>b) Air in the line.</li> <li>c) Out of fuel.</li> <li>d) Battery is defective.</li> <li>e) Fuel Filter clogged.</li> <li>f) Fuel shut off valve is in the OFF position.</li> <li>g) Engine fuse is blown.</li> </ul>	<ul style="list-style-type: none"> <li>a) Fill crankcase to proper oil level.</li> <li>b) Bleed the air from the fuel line.</li> <li>c) Fill fuel tank.</li> <li>d) Charge or replace battery.</li> <li>e) Replace fuel filter.</li> <li>f) Turn the valve to the ON position.</li> <li>g) Replace fuse.</li> </ul>
Voltage too low.	<ul style="list-style-type: none"> <li>a) Engine speed too slow.</li> <li>b) Generator is overloaded.</li> </ul>	<ul style="list-style-type: none"> <li>a) Bring generator to a qualified technician for adjustment.</li> <li>b) Reduce the load. (See Power Load Planning &amp; Mgt. section of this manual.)</li> </ul>
Circuit breaker trips.	<ul style="list-style-type: none"> <li>a) Defective load connected to generator.</li> <li>b) Defective receptacle.</li> <li>c) Generator overloaded.</li> </ul>	<ul style="list-style-type: none"> <li>a) Disconnect load.</li> <li>b) Replace receptacle.</li> <li>c) Reduce the load. (See Power Load Planning &amp; Mgt. section of this manual.)</li> </ul>
Voltage too high.	<ul style="list-style-type: none"> <li>a) Engine speed too high.</li> </ul>	<ul style="list-style-type: none"> <li>a) Bring generator to a qualified technician for adjustment.</li> </ul>
Generator overheating.	<ul style="list-style-type: none"> <li>a) Generator is overloaded.</li> <li>b) Insufficient ventilation.</li> </ul>	<ul style="list-style-type: none"> <li>a) Reduce the load. (See Power Load Planning &amp; Mgt. section of this manual.)</li> <li>b) Make sure there is at least 3 feet of clearance on all sides of generator.</li> </ul>
No output voltage.	<ul style="list-style-type: none"> <li>a) Defective load connected to generator.</li> <li>b) Broken or loose wire.</li> <li>c) Defective receptacle.</li> <li>d) Defective stator.</li> <li>e) Defective rotor.</li> <li>f) Defective capacitor.</li> <li>g) Circuit breaker tripped.</li> </ul>	<ul style="list-style-type: none"> <li>a) Disconnect load.</li> <li>b) Bring generator to a qualified technician for repair.</li> <li>c) Replace receptacle.</li> <li>d) Bring generator to a qualified technician for repair.</li> <li>e) Bring generator to a qualified technician for repair.</li> <li>f) Bring generator to a qualified technician for repair.</li> <li>g) Reset circuit breaker and reduce loads connected to the generator.</li> </ul>
Engine lacks power.	<ul style="list-style-type: none"> <li>a) Generator is overloaded.</li> <li>b) Dirty air filter.</li> </ul>	<ul style="list-style-type: none"> <li>a) Reduce the load. (See Power Load Planning &amp; Mgt. section of this manual.)</li> <li>b) Clean or replace air filter.</li> </ul>
Engine shuts down during operation.	<ul style="list-style-type: none"> <li>a) Out of fuel.</li> <li>b) Low oil level.</li> </ul>	<ul style="list-style-type: none"> <li>a) Fill fuel tank.</li> <li>b) Fill crankcase to proper oil level.</li> </ul>

# Summary of Important Safety Information for Operation

This section provides a summary of the various safety procedures and measures that have been presented throughout the manual. Keep this summary handy and refer to it to refresh your memory about how to safely use your generator.

## WARNING

Carefully read and make sure you understand the following safety information before using the generator. Improper use or maintenance of the generator can result in *serious injury or death* from *carbon monoxide poisoning, electric shock, fire/explosion, or burns*.

## General

- **Read manual.** Read this Owner's Manual and the engine Owner's Manual completely before attempting to set-up and use the generator. Serious injury or death can result if safety instructions are not followed.
- **Instruct operators.** The generator owner must instruct all operators in safe generator set-up and operation. Do not allow anyone to operate the generator who has not read the Owner's Manual and been instructed on its safe use.
- **Adults only.** Only trained adults should set up and operate the generator. Do not let children operate.
- **Under the influence.** Never operate, or let anyone else operate, the generator while under the influence of alcohol, drugs, or medication.
- **Intended use.** Carefully read about and understand the intended use of this generator. Do not use for other purposes, as unforeseen hazards or equipment damage may result.

## Prohibition Against Modifications

Never modify or alter the generator in any way. Modifications can create serious safety hazards and will also void the warranty.

- **Engine speed.** Never attempt to modify the engine speed setting. The engine speed is preset at 3600 RPM for safe and optimal performance of the generator. If speed needs adjusting, it must be done by factory-authorized personnel.
- **Fuel/exhaust system.** Never modify the exhaust system, fuel tanks, or fuel lines. Carbon monoxide poisoning, fire, or explosion could result.
- **Guards.** Do not operate generator unless all guards and cover shields, which prevent access to moving parts and pinch points, are in place. Failure to guard the power transmission mechanisms *may result in serious injury or death*.

## Safety – Installation & Set-up

### Battery Safety

Batteries are hazardous because they contain caustic acid, can emit explosive gases, and can cause electric shock. *Caution must be exercised when making connections to a battery to avoid shock and contact with the acid, and to prevent any sparking that could lead to an explosion.* Follow safety rules carefully when connecting battery to generator:

- **Eye/skin protection.** Always wear eye protection and protective clothing when connecting or disconnecting battery.
- **Sparks/Smoking.** Never smoke or work near sparks or other sources of ignition.
- **Electric shock.** Never touch both battery terminals at the same time with your hand or any non-insulated tools.
- **Connection/disconnection sequence.** ALWAYS connect and disconnect cables to the correct battery terminals in the proper sequence:
  - When CONNECTING the battery, connect the RED cable to the POSITIVE terminal FIRST.
  - When DISCONNECTING the battery, disconnect the BLACK cable from the NEGATIVE terminal FIRST
- **Acid/skin contact.** If battery acid contacts skin or clothing, flush immediately with water and neutralize with baking soda.

# Summary of Important Safety Information for Operation (cont'd)

## Installation / Initial Set-up Safety

- **Dry, level surface.** Situate generator on a dry, firm, level surface. Ensure generator sits level and will not slide or shift during operation. Block wheels if applicable.
- **Operate OUTSIDE only – dangerous carbon monoxide exhaust!** Generators give off carbon monoxide exhaust, a poisonous gas that can kill. You CANNOT smell it, see it, or taste it. ONLY run generator OUTDOORS and away from building 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 windows. Carbon monoxide is given off whether you are using gasoline, natural gas, or propane to power the generator.
- **No vehicle/marine use.** This generator is NOT designed or approved for use in vehicles or marine applications. Never run the generator inside RVs or other vehicles, on boats, or on pick-up truck beds.
- **Cooling ventilation.** The generator needs adequate, unobstructed flow of air to allow for proper cooling of engine and generator head. Situate so there is adequate clearance around generator to allow for cooling airflow. Do not allow debris to accumulate and block airflow.
- **Grounding.** Always ensure generator is properly grounded to prevent electrical shock. This generator is equipped with a grounding post. Always complete the grounding path from the generator to a copper pipe/rod driven into moist earth to a sufficient depth. Check with an electrician for local grounding requirements. If a licensed electrician installs the generator with a connection to your building's electrical circuit for use as a standby power system, grounding will be complete through the building's grounding system.
- **Isolate connection to building's electrical circuit.** Never plug the generator directly into a wall outlet. ANY connection to a building's electrical system MUST ISOLATE THE GENERATOR FROM UTILITY POWER via an UL-approved transfer switch installed by a licensed electrician in compliance with all applicable local building and electrical codes. If the generator is not isolated from the utility power system by such means, generator output will back feed into the utility power grid. This may result in injury or death to utility power workers or others who contact the lines during a power outage. It may also cause the generator to explode or cause fires when utility power is restored.
- **Wet conditions.** Water conducts electricity. Do not operate generator where it is wet. Operate on a dry surface under an open, canopy-like structure.
- **CO alarms.** Ensure that working, battery-operated or battery back-up carbon monoxide alarms are used in any dwelling/structure that is in close proximity to the running generator.
- **Hot exhaust - fires.** Exhaust from engine can be extremely hot and cause fire. Position muffler at least 7' from combustible objects during operation.
- **Spark arrestor.** Equip engine with a spark arrestor if generator will be used near any ignitable forest, brush, or grassy land. See the "Specifications" section of this manual to determine if your generator is already equipped. Make sure you comply with applicable local, state and federal codes.
- **Fire extinguisher.** Keep a fire extinguisher rated "ABC" by the National Fire Protection Association nearby. Keep it properly charged and be familiar with its use.

## Safety – Before Use

### Know how to operate

- **Review safety rules.** Before each use of this generator, review the "Rules for Safe Operation." Failure to follow these rules may result in serious injury or death.
- **Know how to operate.** Be thoroughly familiar with all controls and with the proper use of the equipment. Know how to stop the generator quickly if needed.

### Personal protective equipment

- **Hearing protection.** The use of ear plugs or other hearing protection device is recommended for those in close proximity to the generator while it is operating.
- **Loose / dangling.** Loose or dangling apparel can become entangled in moving parts. Metal jewelry can conduct electricity. Never wear jewelry or loose-fitting clothing when operating the generator.

# Summary of Important Safety Information for Operation (cont'd)

## **Diesel Fuel Safety**

Standard diesel fuel is combustible (with ethanol-diesel blends being nearly as flammable as gasoline). You can be burned or seriously injured when handling diesel fuel. Use extreme care when handling:

- **Fuel outdoors.** Fill fuel tank outdoors – never indoors. Fuel vapors can ignite if they collect inside an enclosure. Explosion can result.
- **Use approved container.** Never pump fuel directly into engine at gas station. Static charge can build and ignite fuel. Use an UL approved fuel container to transfer gas to the engine.
- **Running / hot engine.** A running engine is hot enough to ignite fuel. Never add fuel or remove gas cap if engine is running or still hot. Stop the engine and allow to cool at least two minutes before adding fuel.
- **Heat / flames / sparks.** Stay away from sources of heat, flame, or sparks while adding fuel.
- **Don't overfill.** DO NOT overfill the fuel tank. Allow at least 1/2" of empty space below the fill neck to allow for fuel expansion.
- **Replace cap.** Replace gas cap securely before starting engine.
- **Spills.** Clean up fuel spills immediately. Move generator away from spilled fuel on the ground. Wipe fuel off engine and wait 5 minutes for excess fuel to evaporate before starting engine. Fuel soaked rags should be disposed of properly.
- **On skin / clothes.** If diesel fuel is spilled on your skin or clothes, change clothes and wash skin immediately.
- **Inspect fuel system.** Check fuel system on a regular basis. Look for signs of leaks, deterioration, chafed or spongy fuel hose, loose or missing fuel hose clamps, damaged fuel tank, or a defective fuel shut-off valve. Do not start generator until needed repairs have been completed.
- **Diesel fuel storage.** Store diesel fuel in a cool, dry place in an UL-approved, tightly sealed container.

## **Safety – During Use**

- **Safety equipment / controls.** Always operate the generator with all safety covers, guards, and barriers in place and in good working order, and all controls properly adjusted for safe operation.
- **Know how to stop.** Be thoroughly familiar with proper use of the equipment and all generator controls, output receptacles, and connections. Know how to stop the generator quickly if needed.
- **Damaged.** Do not operate the generator with damaged, missing, or broken parts.
- **Carbon monoxide exhaust.** The running engine gives off carbon monoxide, a poisonous gas that can kill you. You CANNOT smell it, see it, or taste it. If you start to feel sick, dizzy, or weak while using the generator, shut off the engine and get to fresh air RIGHT AWAY. See a doctor. You may have carbon monoxide poisoning.
- **Other exhaust dangers.** This product contains or emits chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. Avoid inhalation of exhaust.
- **Smoking/sparks.** Never smoke near the running generator, and never operate near sources of sparks or flames.
- **Check output voltage.** Check output voltage to ensure the generator is working properly before connecting loads to the generator. Failure to do so could result in damage to equipment powered by the generator and possible injury to the individual. Do not adjust output speed of engine to change voltage. If voltage is not within specified range, have generator repaired by factory authorized personnel.
- **Stabilize before connecting loads.** Start generator and let engine stabilize before connecting electrical loads.
- **Do not overload.** Do not overload the generator. Make sure that combined starting and running loads do not exceed rated capacity of generator or damage will result.
- **Protect sensitive electronics.** Some electronic equipment, such as computers and audio/video equipment, can be damaged by small fluctuations in the flow of power. Use a surge suppressor for any voltage-sensitive electronic equipment you will be powering with the generator.
- **Wet conditions.** Do not operate the generator or handle any electrical equipment while standing in water, while barefoot, while hands are wet or while in the rain or snow. Electric shock may result.
- **Ground fault circuit interrupter.** Always use a ground fault circuit interrupter (GFCI) protected extension cord (or outlet, if generator is equipped) in damp or highly electrical conductive areas and on construction jobsites to prevent electrical shock.

## Summary of Important Safety Information for Operation (cont'd)

- **Electrical cords.** Use only UL-listed, outdoor-rated, three prong extension cords of the proper size. All extension and appliance cords must be in good condition and not worn, bare, frayed, or otherwise damaged. Use of inadequate or damaged electric cords can cause electric shock or fire.
- **Avoid contact.** Avoid contact with bare wires, terminals, connections, etc. while the unit is running.
- **Electric shock accident.** If an electric shock accident occurs, immediately shut down the source of electrical power. If this is not possible, attempt to free the victim from the live conductor. Avoid direct contact with victim. Use a nonconducting implement, such as a dry rope or board, to free the victim from the live conductor. Apply first aid and get immediate medical help.
- **Hot muffler.** Never touch hot muffler, hot exhaust manifold, or engine cooling fins. Exhaust and engine parts can be very hot and will burn you.
- **Moving parts.** Keep hands, feet, and apparel away from drive belts, fans, and other moving parts. Never remove any drive belt or fan guard while the unit is operating.
- **Refueling.** DO NOT refuel the engine until it has cooled at least two minutes.
- **Malfunction during operation.** Immediately turn off the generator if any of the following conditions arise during operation:
  - Excessive change in engine speed, slow or fast
  - Overheating in load connecting devices
  - Sparking or arcs from generator
  - Loss of electrical output
  - Receptacle damage
  - Engine misfire
  - Excessive vibration
  - Flame or smoke
  - Abnormal noise
- **Adjusting / repairing.** Always turn off generator and remove spark plug(s) or spark plug wire(s) before working on the generator to prevent accidental starting.

### Safety – After use

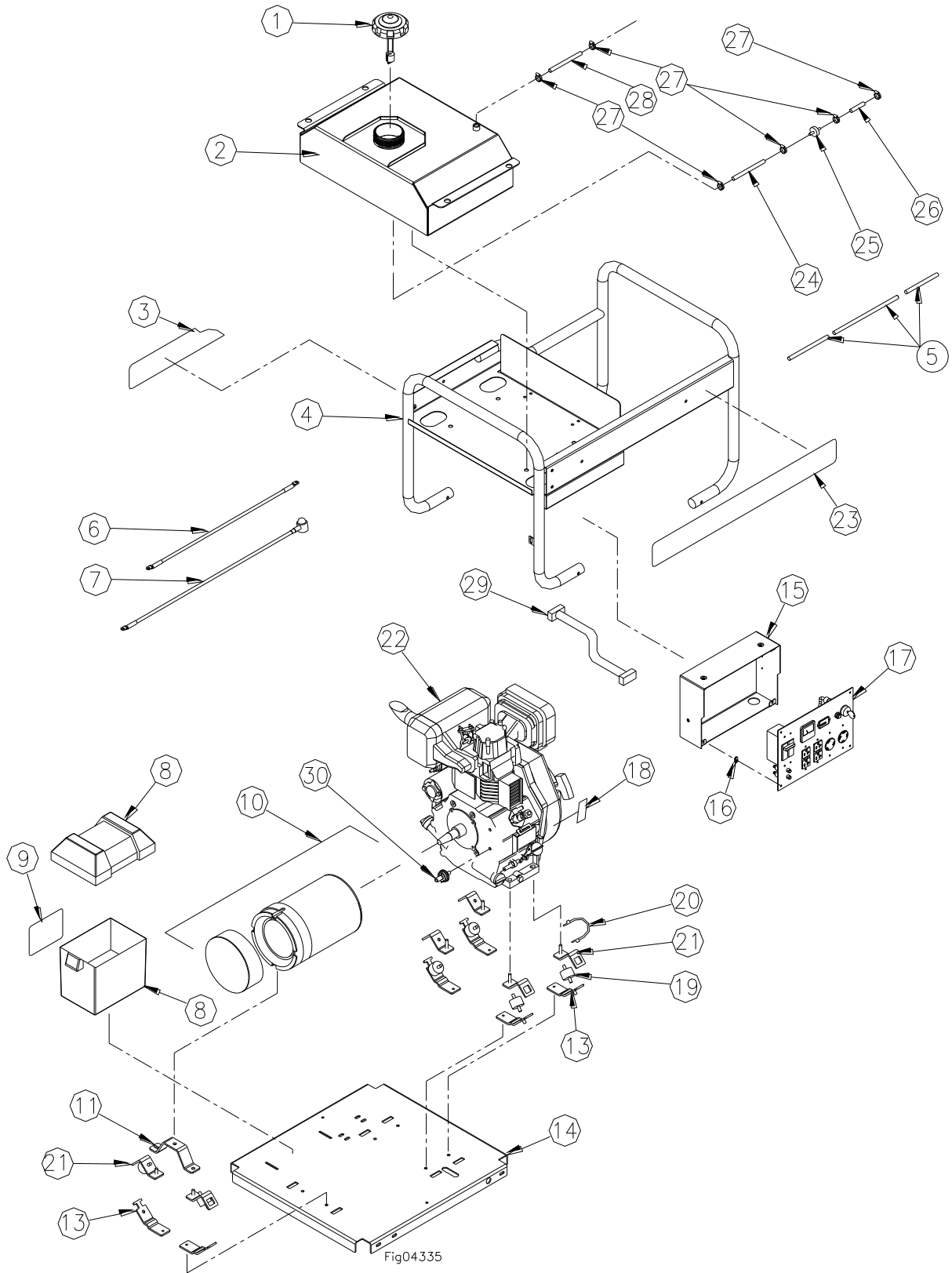
- **Cool engine before storing.** Let engine cool for at least five minutes before storing. A hot engine can be a fire hazard.
- **Shut off fuel supply.** Make sure fuel shut-off valve is in the OFF position.
- **Prevent accidental starting.** When generator is not in use, remove key from starter (key start engines) and secure in a safe location, or remove spark plug(s) in order to ensure that generator cannot be started in a storage location or by untrained persons.
- **Storage location.** Store the generator in a dry location away from sources of heat, open flames, sparks or pilot lights – such as water heaters, space heaters, furnaces, clothes dryers, or other gas appliances – EVEN IF the generator's gas tank is empty. Residual gasoline could ignite.
- **Exercise regularly.** Exercise generator every four weeks to dry out moisture that accumulates in the windings. If generator cannot be exercised on a regular basis, prepare generator for long term storage.
- **Periodic maintenance.** Perform periodic maintenance as directed in this manual to keep the generator in safe working condition.

### Safety - Inspection/Maintenance

Inspect and maintain your generator on a regular basis and repair as needed to keep it in safe working condition:

- **Turn off generator.** Always turn off generator and remove spark plug(s) or spark plug wire(s) before working on the engine or generator to prevent accidental starting.
- **Discharge capacitor.** When the generator is shut down, the capacitor may maintain a charge. Always discharge the capacitor before working on the generator head to prevent electrical shock.
- **Replace guards / shields.** Make sure all guards and shields are replaced after servicing the generator.
- **Replacement parts.** If a part needs replacement, only use parts that meet the manufacturer's specifications. Replacement parts that do not meet specifications may result in a safety hazard or poor operation of the generator and will void the warranty.

# Generator Exploded View Rev – V.1



## Generator Exploded View Rev – V.1

Diag #	Part #	Description	Qty
1	33321	Fuel Cap	1
2	788319	Fuel Tank Assembly	1
3	38217	Decal	1
4	787825	Cradle	1
5	31881	Heat Protective Wrap	4 ft
6	777108	Battery Cable, Black	1
7	32839	Battery Cable, Red	1
8	777352	Battery Box with Hold Down Strap	1
9	779396	Battery Warning Decal	1
10	780120	Generator Assembly	1
11	38462	Generator Mount	1
13	32844	Lower Bracket	6
14	777306	Base	1
15	38770	Control Panel Weldment	1
16	82067	Clip Nut, 10-32	4
17	38771	Control Panel Assembly	1
18	32769	Nameplate, 6500 DPG	1
19	34172	Isomount	6
20	306459	Engine Ground Wire	1
21	32848	Upper Bracket	6
22	781451	Diesel Engine	1
23	779425	Decal	1
24	777345	Fuel Line	27"
25	30755	Fuel Filter	1
26	777345	Fuel Line	9"
27	777834	Clamp	6
28	777345	Fuel Line	10"
29	305564	Wire Harness	1
30	778167	Oil Pressure Switch	1

# Wiring Diagram Rev – V.1

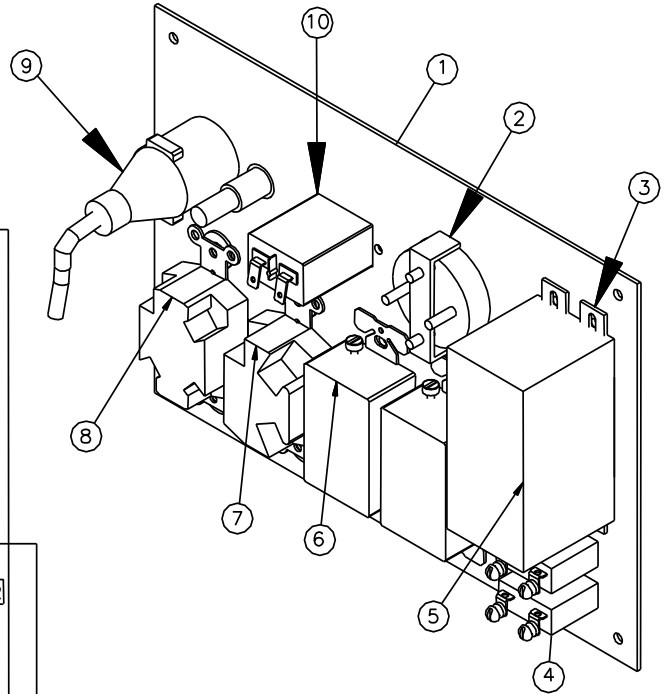
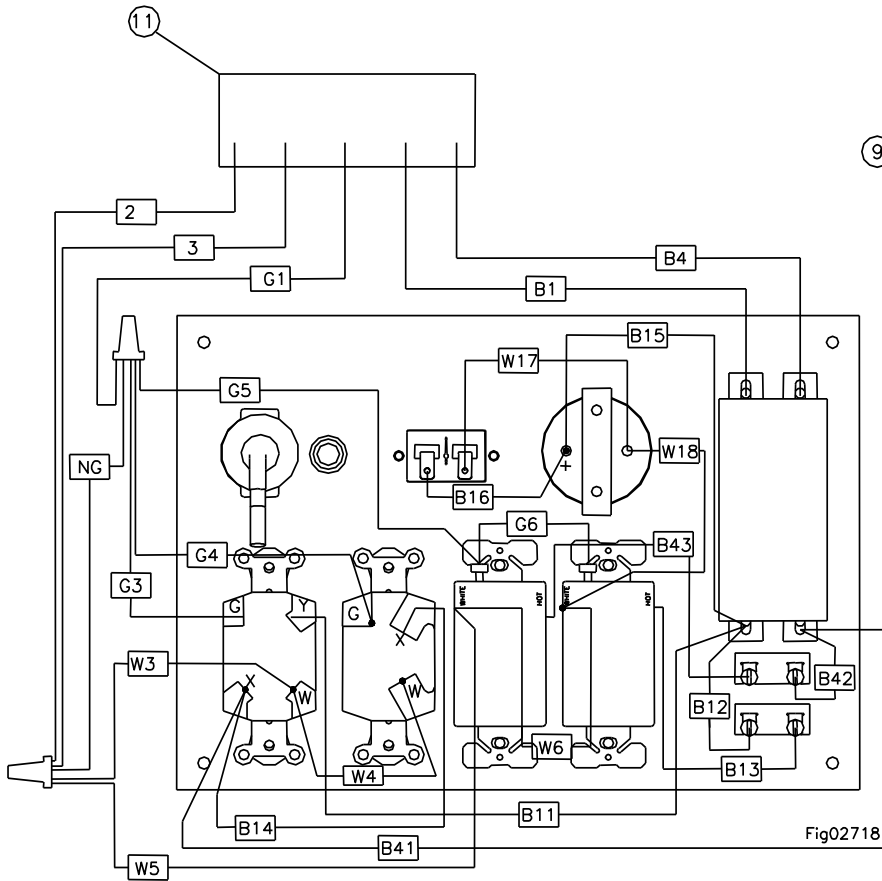
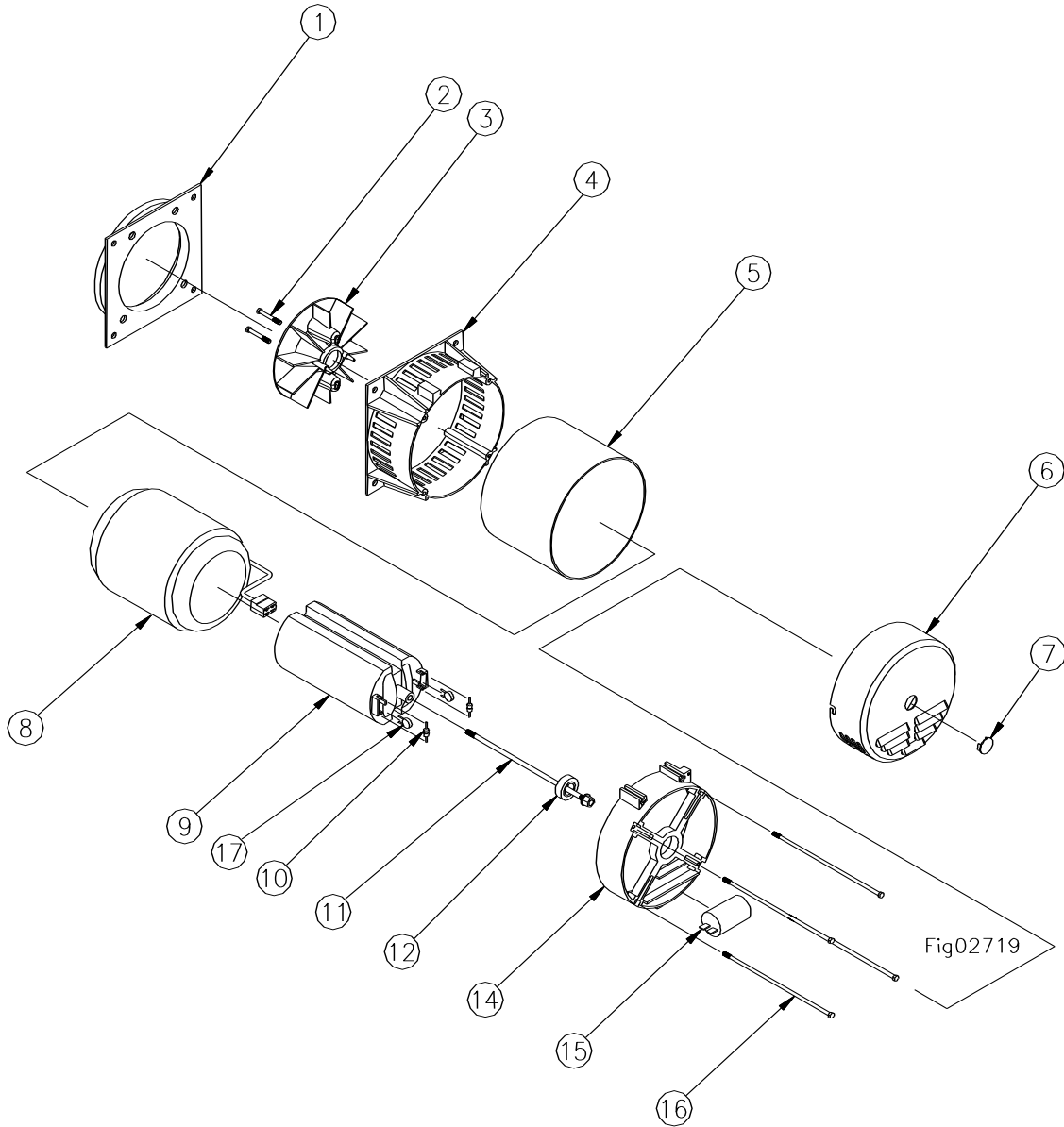


Fig02718

Diag #	Part #	Description	Qty
1	789623	Control Panel Graphics	1
2	30644	Voltmeter	1
3	31211	Circuit Breaker Mounting Clip	4
4	31085	Thermal Circuit Breaker, 20 Amp	2
5	31005	Thermal Magnetic Circuit Breaker, 30 Amp	1
6	31344	Ground Fault Current Interrupt (GFCI) Receptacle	2
7	306423	Locking device Receptacle, 30 Amp-120 Volt	1
8	306422	Locking device Receptacle, 30 Amp-120/240 Volt	1
9	31575	Engine Ignition Stop/Run/Start Switch	1
10	30646	Hour Meter	1
11	38763	Lead Wire Assembly (2,3,G1,G3,G4,G5,G6,W3,W4,W5,W6,W18,NG,B1,B4,)	1
B11	31956	Lead Wire Assembly, (B11)	1
B14,B41	38772	Lead Wire Assembly, (B14,B41)	1
B12	31958	Lead Wire Assembly, (B12)	1
B42	31959	Lead Wire Assembly, (B42)	1
B13	31962	Lead Wire Assembly, (B13)	1
B43	31963	Lead Wire Assembly, (B43)	1
B16	31973	Lead Wire Assembly, (B16)	1
W17	31974	Lead Wire Assembly, (W17)	1

# Generator Head Exploded View Rev – V.1



Item #	Part #	Description	Qty
1	780228	Mount Plate (J609B)	1
2	779556	Fan Bolts	2
3	779557	Fan	1
4	781479	Drive End Bracket	1
5	38270	Enclosing Band	1
6	777304	End Cover	1
7	38271	End Cover Plug	1
8	780142	Stator	1
9	780229	Rotor	1
10	307479	Diode	2
11	780143	Securing Stud + Nut	1
12	38276	Bearing	1
14	38278	Non Drive End Bracket	1
15	779562	Capacitor	1
16	38280	Bracket Securing Stud	4
17	307481	Varistor	2

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# Limited Warranty

Dear Valued Customer:

The NorthStar Product you just purchased is built with the finest material and craftsmanship. Use this product properly and enjoy the benefits from its high performance. By purchasing a NorthStar product, you show a desire for quality and durability. Like all mechanical equipment this unit requires a due amount of care. Treat this unit like the high quality piece of machinery it is. Neglect and improper handling may impair its performance. Please thoroughly read the instructions and understand the operation before using your product. Always contact NorthStar Product Support at 1-800-270-0810 prior to having any service or warranty work performed, as some services performed by parties other than NorthStar approved service centers may void this warranty. This warranty is in lieu of any other warranty expressed or implied and NorthStar assumes no other responsibility or liability outside that expressed within this warranty.

## Limited Warranty

NorthStar shall warranty any piece of equipment manufactured, or parts of equipment manufactured, to be free from defects in material or workmanship for a period of:

NorthStar Warranty		
Item #	Consumer Warranty Period	Commercial Warranty Period
165930	4 years from date of purchase by user	2 years from date of purchase by user

Engine Warranty		
Item #	Consumer Warranty Period	Commercial Warranty Period
165930	2 years from date of purchase by user	2 years from date of purchase by user

“Consumer use” means personal residential household use by a consumer. “Commercial use” means all other uses, including use for commercial, income producing or rental purposes or when purchased by a business.

This warranty applies to the original purchaser of the equipment (verification of purchase, in the form of a receipt, is the responsibility of the buyer), is non-transferable, and covers parts and labor. Parts will be replaced or repaired at no charge, except when the equipment has failed due to lack of proper maintenance. If a part is no longer available, the part may be replaced with a similar part of equal function. Any misuse, abuse, alteration or improper installation or operations will void warranty. Determining whether a part is to be replaced or repaired is the sole decision of NorthStar. NorthStar will not provide for replacement of complete products due to defective parts. Any costs incurred due to replacement or repair of items outside of a NorthStar approved facility is the responsibility of the buyer and not covered under warranty. Transportation costs to and from service center is the responsibility of the customer.

In addition to the normal warranty, NorthStar shall warrant any normal wear item from defects in material or workmanship for a period of 90 days from the date of purchase by user. **Normal wear items include, but are not limited to, filter elements.**

This warranty specifically excludes the following; failure of parts due to damage caused by accident, fire, flood, windstorm, acts of God, applications not approved by NorthStar in writing, corrosion caused by chemicals, use of replacement parts which do not conform to manufacturer’s specifications, **damage related to use of biodiesel fuel, damage to accessory parts such as starting batteries**, damage related to rodent and/or insect infestation and damage caused by vandalism. Additional exclusions: loss of running time, inconvenience, loss of income, or loss of use, including any implied warranty of merchantability of fitness for a specific use. Also, Outdoor Power Equipment needs periodic parts and service to perform well, and this warranty does not cover instances when normal use has exhausted the life of a component or the engine.

This warranty does not cover any personal injury or damage to surrounding property caused by failure of any part. Repair or replacement of parts does not extend the warranty period.

The engine warranty is covered under the terms and conditions as outlined by the engine manufactures warranty contained herein and is the sole responsibility of the engine manufacture. Normal engine maintenance such as spark plugs, air filters, adjustments, fuel system cleaning and obstruction due to build up is not covered by this NorthStar warranty.

Please fill in the following information and have it on hand when you call in on a warranty claim.

Customer Number: \_\_\_\_\_

Date of Purchase: \_\_\_\_\_

NorthStar Serial Number: \_\_\_\_\_

Item Number: \_\_\_\_\_



Manufactured by  
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