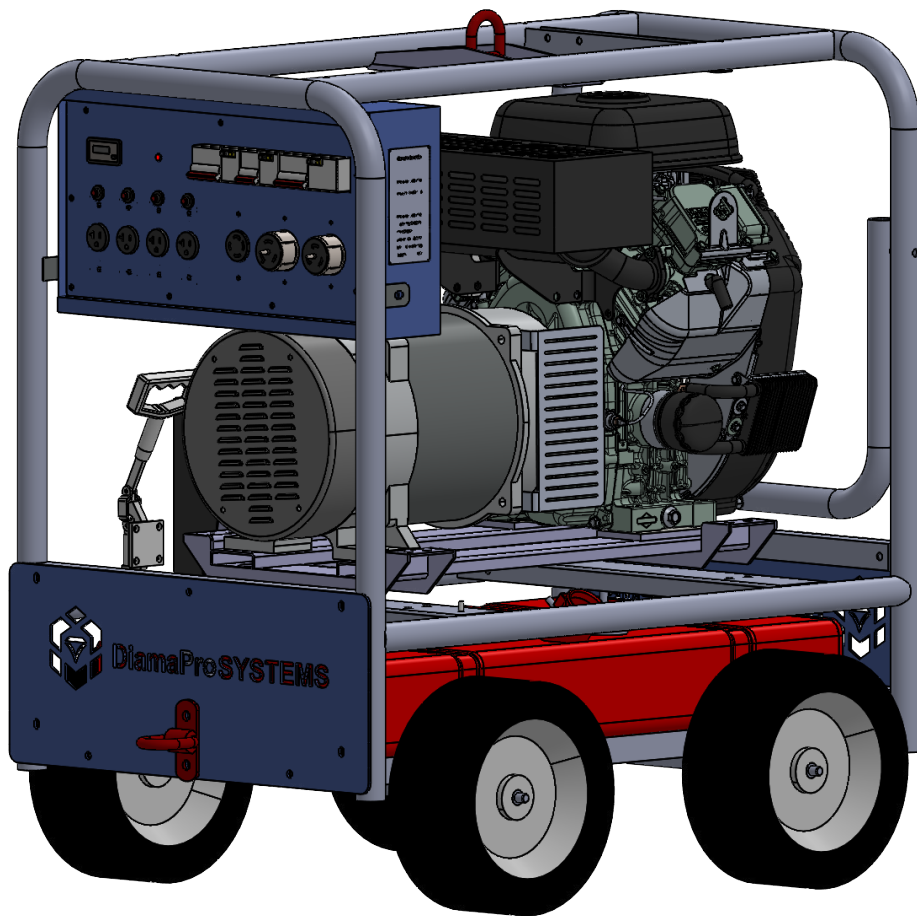




## OWNER'S MANUAL

# DP-GEN-22KW-GAS

## PORTABLE GAS GENERATOR



## OPERATION & MAINTENANCE MANUAL

SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE



**WARNING**  
Cancer and Reproductive Harm  
[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

# IMPORTANT WARNINGS AND SAFETY INSTRUCTIONS

## **WARNING**

### **CALIFORNIA PROP 65 WARNING**

Use of this product can cause exposure to materials known to the State of California to cause cancer and/or birth defects or other reproductive harm.  
[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

## **WARNING**

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

## **WARNING**

This product contains one or more chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

## **WARNING**

### **CARBON MONOXIDE WARNING**

This machine contains a fossil fuel burning engine.  
Use of this product can cause exposure to Carbon Monoxide.

## **DANGER**



Carbon Monoxide (CO) is a colorless, odorless, invisible gas. Exposure to high levels will cause headaches, dizziness, and/or death. Obey all PPE requirements including, but not limited to Personal CO Monitoring Device(s) at all times and if high levels of CO are present, vacate the area immediately.

## **DANGER**



All internal combustion engines produce CO.  
Only use this machine in work areas that are adequately ventilated.  
Failure to do so will result in injury or death.



# WARRANTY REGISTRATION CARD

Form must be completed and submitted within 30 days from the date of purchase.

## Customer Information

First and Last Name

Company Name

Address

City

State

Zip Code

Phone Number

Email

## Machine Information

Machine Type

Machine Model

Serial #

Purchase Date (dd/mm/yy)

Diamapro® Systems  
3343 Peachtree Road NE  
Suite 145 #24  
Atlanta, GA 30326

# INTRODUCTION

Thank you for purchasing a DIAMAPRO® SYSTEMS product. This manual provides information and procedures to safely operate and maintain the DiamaPro® 22kW Gas Generator. For your own safety and protection from injury, carefully read, understand, and observe the safety instructions described in this manual. Keep this manual or a copy of it with the machine. If you lose this manual or need an additional copy, please contact DiamaPro® Systems. This machine is designed and built with user safety in mind; however, it can present hazards if improperly operated and serviced. Please follow the operating instructions carefully. If there are any questions regarding operating or servicing of this machine, please contact DiamaPro® Systems.

**Disclaimer:** DiamaPro® Systems and its affiliates take no responsibility for any damage, injury or death resulting from the incorrect or unsafe use of this product. Use of this product should be undertaken by competent persons only. It is the operator's responsibility to ensure that the following safety procedures are followed. If you are unsure, do not operate this product.

## 1. GENERAL INFORMATION

### 1.1 SAFETY CLASSIFICATIONS & RULES

These classifications are here to inform and alert you to potential hazards or situations to you, job site bystanders, or your equipment. Take the time to understand these classifications and pay close attention when you see these words and icons in the book or on the machine. Always carefully read and follow all instructions. **YOUR SAFETY IS AT STAKE.**

The manufacturer cannot anticipate every possible circumstance that might involve a hazard. The alerts in this manual, and on tags and decals affixed to the unit, are not all inclusive. If using a procedure, work method, or operating technique that the manufacturer does not specifically recommend, verify that it is safe for others and does not render the equipment unsafe. Throughout this publication, and on tags and decals affixed to the unit, DANGER, WARNING, CAUTION, and NOTE blocks are used to alert personnel to special instructions about a particular operation that may be hazardous if performed incorrectly or carelessly. Observe them carefully. Alert definitions are as follows:

#### 1.1.1 Dangers

**! DANGER**

A DANGER indicates a hazardous situation that, if not avoided, will result in death or serious injury.

#### 1.1.2 Warnings

**! WARNING**

A WARNING indicates a hazardous situation in which serious injury or death could result if the warning is ignored.

#### 1.1.3 Cautions

**! CAUTION**

A CAUTION indicates a hazardous situation in which injury, damage to your machine, or both could result if the caution is ignored.

#### 1.1.4 Notices

**NOTICE**

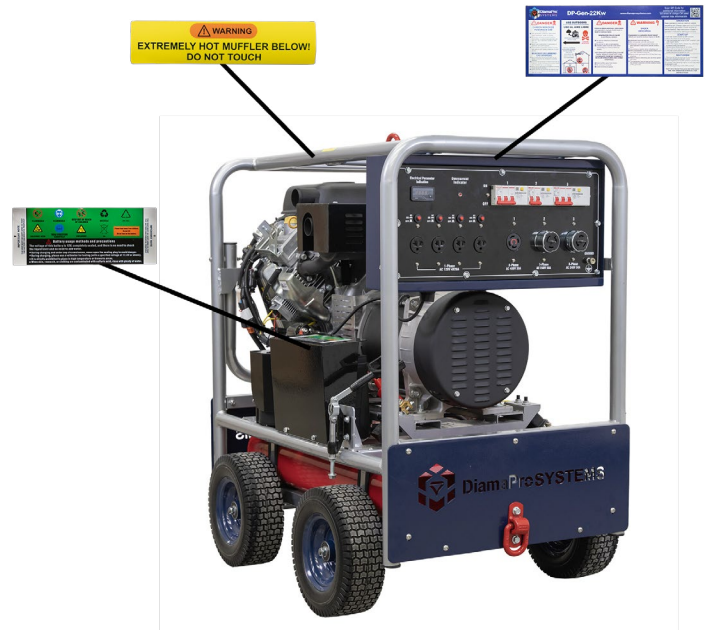
A NOTICE indicates information that is important but not hazard related.

#### 1.1.5 Helpful Tips

**Helpful Tip!**

A Helpful Tip indicates items that may be helpful to the operator during use of this machine.

### 1.2 SAFETY SIGNS



WARNING DECAL  
"Warning: Extremely Hot Muffler Below!  
Do Not Touch"



GENERATOR SAFETY DECAL



BATTERY SAFETY DECAL



## 1.3 SPARE PART ORDERS

The order of replacement parts must clearly state the data necessary for their identification and the data shown on the machine identification plate. Ex.:

- Machine model
- Type
- Serial number
- Year of construction
- Description
- Requested quantity
- Shipping method
- Address, telephone number and name

For any additional information please contact the manufacturer.

## 2. OPERATING ENVIRONMENT SAFETY

### 2.1 OPERATING ENVIRONMENT

The DiamoPro® Systems Generator can be operated within the temperature range of 41°F to 86°F (5°C to 30°C). It's crucial to avoid using the machine during rainy or snowy weather conditions. Only use this machine outdoors.

### 2.2 PROTECTION DEVICES

The DiamoPro® Systems Generator is equipped with multiple safety mechanisms, including circuit breakers to protect the electrical system and an overcurrent indicator to safeguard both the generator and any connected equipment.

### 2.3 USAGE SAFETY

The DiamoPro® Systems Generator is intended to minimize associated hazards related to its operation. Nonetheless, it is not entirely feasible to eliminate the possibility of accidents with the machine. Inexperienced or untrained operators may cause residual risks associated with but not limited to:

- Positional hazards due to improper operator posture.
- Entanglement hazards arising from the use of unsuitable work attire.
- Training hazards caused by insufficient operational training.

### 2.4 SAFETY MEASURES FOR GASOLINE


Gasoline is a flammable gas with vapors that are denser than air. Improper handling of gasoline can lead to explosions. When working with gasoline, it is essential to be aware and take necessary safety precautions. Lack of awareness could result in needless hazards. The two most significant dangers associated with gasoline-powered generators are: When working with propane, it is essential to be aware and take necessary safety precautions. Lack of awareness could result in needless hazards. The two most significant dangers associated with propane-powered floor care machines are:

- Carbon Monoxide Poisoning:
  - Carbon monoxide poisoning is the most reported incident associated with gasoline-powered generators, caused by excessive exhaust emissions. The symptoms include headaches, dizziness, and nausea. Engines with inadequate preventive maintenance practices, particularly those with unclean air filters and machines operated in enclosed spaces without sufficient ventilation, are a significant cause.
  - The use of substandard, inexpensive machines without emissions control technology and improperly adjusted carburetion could also contribute to the problem.
- Overfilled Fuel Cylinders:
  - Overfilling a gasoline tank can increase risks such as (but not limited to) ruptures or leaks which can cause accidents, environmental hazards, and damage to property. This practice is hazardous, imprudent, and avoidable.
- Fire Precautions
  - Be mindful of the potential risks of fire when working with propane and take standard fire-safety measures.
  - There is a likelihood of fire resulting from leakage or venting of gasoline vapor from fuel cylinders or carburetion equipment.



- Explosion Precautions
  - Be mindful of the potential risks of explosion when working with gasoline and take standard fire-safety measures.
  - Concentration or confinement of gasoline vapor in a restricted or small space may cause ignition or explosion.

# CAUTION



Respirable crystalline silica causes damage to lungs and may cause cancer. Always wear respiratory protection during exposure. Always use appropriate dust control equipment to keep dust within OSHA and local regulation limits.

### 2.5 SAFETY MEASURES FOR DUST

Cutting, especially when DRY cutting, generates dust that comes from the material being cut, which frequently contains silica. When dry-cutting, be sure to use an appropriate sized HEPA filtered dust collector. Silica is a basic component of sand, quartz, concrete, brick clay, granite and numerous other minerals and rocks. Exposure to excessive amounts of such dust can cause the following symptoms according to NTP\* and IARC\*:

- Respiratory diseases (affecting your ability to breath), including chronic bronchitis, silicosis, and pulmonary fibrosis from exposure to silica. These diseases may be fatal.

- Cancer
- Skin irritation and rash


\*National Toxicology Program, International Agency for Research on Cancer

Take precautionary steps:

- Avoid inhalation of and skin contact with dust, mist, and fumes.
- Wet cut when feasible, to minimize dust.
- Wear and ensure that all bystanders wear appropriate respiratory protection such as dust masks designed to filter out microscopic particles (See OSHA 29 CFR Part 1910.1200).


### 2.6 SAFETY MEASURES FOR CARBON MONOXIDE

# DANGER



Carbon Monoxide (CO) is a colorless, odorless, invisible gas. Exposure to high levels will cause headaches, dizziness, and/or death. Obey all PPE requirements including, but not limited to Personal CO Monitoring Device(s) at all times and if high levels of CO are present, vacate the area immediately.

# DANGER



All internal combustion engines produce CO. Only use this machine in work areas that are adequately ventilated. Failure to do so will result in injury or death.

Carbon Monoxide (CO) is a colorless, odorless, invisible gas formed during the incomplete combustion of carbon containing fuels such as (but not limited to) gasoline or propane. Exposure to high levels of Carbon Monoxide can cause the following symptoms:

- Nausea
- Headaches
- Fatigue
- Dizziness
- Drowsiness
- Unconsciousness
- Death

The Occupational Health & Safety Administration (OSHA) has implemented an 8-hour time-weighted average (TWA) limit of 50 Parts per Million (PPM) of Carbon Monoxide in ambient air. All occupants must leave the enclosed area if the CO concentration in said space exceeds a ceiling of 100 PPM (OSHA 1917.24(a)).

This machine is equipped with a safety device to aid in the safety of the operator. This device is NOT a substitute for a certified personal CO Monitoring device, proper area ventilation, and all other required safety devices and procedures.

## 2.7 ELECTRICAL HAZARDS

The National Electric Code (NEC) requires the frame and external electrically conductive parts of the generator be properly connected to an approved earth ground. Local electrical codes may also require proper grounding of the generator. Consult with a local electrician for grounding requirements in the area.

- Use a ground fault circuit interrupter in any damp or highly conductive area (such as metal decking or steel work).
- Only use heavy duty, outdoor-rated extension cords with a sufficient wattage rating.
- Do not use damaged or frayed extension cords.
- Ensure all electrical plugs are securely installed and safety features, such as grounding and covers, are properly in place to prevent hazards.
- Do not touch the generator with wet hands, operate in wet or snowy environments, and/or operate in standing water.
- Always properly ground the machine before use.
- Do not connect this generator to a home power system.

### DANGER



Electrocution. Contact with bare wires, terminals, and connections while generator is running will result in death or serious injury.

### DANGER



Electrocution. Water contact with a power source, if not avoided, will result in death or serious injury.

### DANGER



Electrocution. In the event of electrical accident, immediately shut power OFF. Use non-conductive implements to free victim from live conductor. Apply first aid and get medical help. Failure to do so will result in death or serious injury.

### DANGER



Opening the Electrical Control Panel exposes high-voltage components that can cause severe injury or death. Only qualified and trained personnel should access this panel. Always disconnect power and follow proper lockout/tagout procedures before servicing. Failure to do so may result in fatal electrocution.

### WARNING

Accidental Start-up. Disconnect the negative battery cable, then the positive battery cable when working on unit. Failure to do so could result in death or serious injury.

## 2.8 FIRE HAZARDS

### DANGER



Explosion and Fire. Fuel and vapors are extremely flammable and explosive. Add fuel in a well-ventilated area. Keep fire and spark away. Failure to do so will result in death or serious injury.

### DANGER



Explosion and Fire. Do not overfill fuel tank. Fill to 1/2 inch from top of tank to allow for fuel expansion. Overfilling may cause fuel to spill onto engine causing fire or explosion, which will result in death or serious injury.

### DANGER



Risk of fire. Allow fuel spills to completely dry before starting engine. Failure to do so will result in death or serious injury.

### WARNING

Fire risk. Fuel and vapors are extremely flammable. Do not operate indoors. Doing so could result in death, serious injury, or property or equipment damage.

### WARNING

Explosion and fire risk. Do not smoke near unit. Keep fire and spark away. Failure to do so could result in death, serious injury, or property or equipment damage.

### WARNING

Explosion and fire. Do not smoke while refueling unit. Failure to do so could result in death, serious injury, or property or equipment damage.

### WARNING

Risk of fire. Hot engine exhaust can ignite combustible materials. Maintain at least 5 ft (1.5 m) clearance on all sides of unit, including overhead. Failure to do so could cause serious injury or property damage.

- Wipe up any fuel or oil spills immediately. Verify that no combustible materials are left on or near the generator. Keep the area surrounding the generator clean and free from debris and keep a clearance of five (5) feet on all sides to allow for proper ventilation of the generator and to reduce the risk of fire. Do not use in an enclosed or partially enclosed structure.
- Do not operate the generator if connected electrical devices overheat, if electrical output is lost, if engine or generator sparks or if flames or smoke are observed while unit is running.
- Keep a fire extinguisher near the generator at all times.



## 2.9 EMISSIONS

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All Gasoline powered generators generate emissions. While most are innocuous, some can be hazardous, even fatal. Carbon monoxide (CO) presents the most significant danger. See the Safety Measures for Carbon Monoxide section in the Operating Environment Safety section of the manual.

The United States Environmental Protection Agency (US EPA) (and California Air Resources Board (CARB), for engines/equipment certified to California standards) requires this engine/equipment to comply with exhaust and evaporative emissions standards. Locate the emissions compliance decal on the engine to determine applicable standards. See the included emissions warranty for emissions warranty information. Follow the maintenance specifications in this manual to ensure the engine complies with applicable emissions standards for the duration of the product's life.

## 2.10 AGENCIES AND REGULATIONS

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All gasoline powered machines generate emissions. While most are innocuous, some can be hazardous, even fatal. Carbon monoxide (CO) presents the most significant danger. See the Safety Measures for Carbon Monoxide section in the Operating Environment Safety section of the manual.

- National Fire Protection Agency (NFPA):
  - To operate a gasoline-powered generator safely, it is necessary to adhere to specific safety regulations. The NFPA is responsible for ensuring safe jobsite procedures are followed regarding fire prevention, electrical safety, and hazardous material safety. If there are any questions, the NFPA can be consulted for guidance. Copies of this publication can be obtained by contacting the NFPA in Quincy, MA at 1-800-334-3555.
  - Two important codes for reference are:
    - NFPA 70: National Electrical Code®
    - NFPA 5000: Building Construction and Safety Code®These codes are available at [www.nfpa.org](http://www.nfpa.org)
- Occupational Health and Safety Administration (OSHA):
  - Ensure that all Occupational Safety and Health Administration (OSHA) regulations, both State & Federal as well as all local codes, or ordinances are reviewed before operations.
- Local Agencies:
  - Before granting approval for the use of certain equipment, local law enforcement agencies such as the Fire Marshall may rely on independent testing laboratories like UL and CGA. These labs conduct extensive testing of equipment and only issue their approval after a rigorous evaluation process. While not mandatory for all law enforcement agencies, the stamp of approval from these organizations serves as an additional assurance for operators that they are working with and around safe equipment.
  - Additional rules & regulations may differ based on location. Always check with the appropriate governing body before operating machinery.

**IMPORTANT: The following is not a comprehensive list of safety codes and regulations. It is up to the operator to know the codes and safety regulations of the local jurisdiction.**

## 2.11 PERSONAL PROTECTIVE EQUIPMENT

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When operating this machine, it is important to:

- Wear safety shoes always.
- Wear certified hearing protection to safeguard your hearing.
- Wear a certified respirator for the environment.
- Ensure that all personnel in the work area wear safety glasses with side shields.
- Wear safety gloves when changing tools.
- Dress appropriately for the work environment.
- Use certified personal Carbon Monoxide monitors.

## 2.12 TESTING

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Numerous tools are available in the market for detecting toxic gases. However, only the ones specifically designed for detecting carbon monoxide resulting from combustion engines are deemed suitable for testing exhaust emissions from gasoline generators. Certain instruments are meant for detecting "ambient air" and may get damaged if utilized for taking readings in the muffler or tailpipe. Hence, it is crucial to select the appropriate instrument to fulfill the testing requirements. In general, instruments that can detect readings in ppm (parts per million) ranging from 0 to 1000 are sufficient for examining ambient air, i.e., the air in the breathing zone of the operator. On the other hand, devices capable of testing carbon monoxide in the exhaust should be certified by the manufacturer for that purpose and should be able to read from 0 to at least 2000 ppm.

Some examples of instruments and systems for these purposes may include:

- Ambient Air Monitors
- Engine Exhaust Analyzers
- Gas Data Loggers

All instruments used for testing must be calibrated at the intervals recommended by the manufacturer. The test results must include the monitor's model number and date of calibration.

## 3. MACHINE OPERATION

### 3.1 SAFETY INSTRUCTIONS

#### 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.

#### DANGER



Asphyxiation. Running engines produce  
carbon monoxide, a colorless, odorless, poisonous gas.  
Carbon monoxide, if not avoided, will result in  
death or serious injury.

#### DANGER



Asphyxiation. The exhaust system must be properly  
maintained. Do not alter or modify the exhaust system as to  
render it unsafe or make it noncompliant with local codes and/or  
standards. Failure to do so will result in death or serious injury.

- If you start to feel sick, dizzy, or weak after the generator has been running, move to fresh air IMMEDIATELY. See a doctor, as you could have carbon monoxide poisoning.
- NEVER run a generator indoors or in a partly enclosed area such as garages.
- ONLY use outdoors and far away from windows, doors, vents, crawl-spaces and in an area where adequate ventilation is available and will not accumulate deadly exhaust gas.
- Point muffler exhaust away from people and occupied buildings.
- Using a fan or opening a door will not provide sufficient ventilation.

#### 3.1.1 KNOW THE RULES OF YOUR ENVIRONMENT AND EQUIPMENT

Most job sites have rules governing equipment use & maintenance. Before starting at a new work location, check with the supervisor or safety coordinator. Ask about any rules or regulations you need to abide by. OSHA enforces federal laws within the United States that apply to the safe operation, application, & maintenance of equipment on job sites. It is the employer's responsibility to comply with these laws. Do not operate this machine unless you carefully read the operations and maintenance manual.

#### 3.1.2 RECEIVE PROPER TRAINING

Do not operate this machine unless you have received operational and maintenance training from a DiamaPro® Systems representative or from an authorized distributor for DiamaPro® Systems.

#### 3.1.3 WEAR A PERSONAL MONITORING DEVICE FOR CARBON MONOXIDE

The operator and those in the area must ALWAYS use an approved personal carbon monoxide device

#### DANGER



Carbon Monoxide (CO) is a colorless, odorless, invisible gas. Exposure to high levels will cause headaches, dizziness, and/or death. Obey all PPE requirements including, but not limited to, Personal CO Monitoring Device(s) at all times and if high levels of CO are present, vacate the area immediately.

#### DANGER



All internal combustion engines produce CO.  
Only use this machine in work areas that are adequately ventilated. Failure to do so can result in injury or death.

#### 3.1.4 PROTECT YOUR FEET

Observe all applicable local, state, and federal safety regulations. Wear OSHA approved foot protection.

#### 3.1.5 PROTECT YOUR EYES

Observe all applicable local, state, and federal safety regulations. Wear OSHA approved safety glasses.

#### 3.1.6 PROTECT YOUR LUNGS

#### CAUTION



Respirable crystalline silica causes damage to lungs and may cause cancer. Always wear respiratory protection during exposure. Always use appropriate dust control equipment to keep dust within OSHA and local regulation limits.

Breathable silica may be generated by use of this product. Silica can cause severe and permanent lung damage, cancer, and other serious diseases. Do not breathe the dust. Do not rely on your sight or smell to determine if dust is in the air. Silica may be in the air without a visible dust cloud. If air monitoring equipment for silica is not provided by your employer at your work site, you MUST wear appropriate respiratory protection when using or servicing the machine. Consult your employer and OSHA regarding the appropriate respiratory protection.

#### 3.1.7 PROTECT YOUR EARS

Observe all applicable local, state, and federal safety regulations. Wear OSHA approved hearing protection.

#### 3.1.8 DRESS PROPERLY

Do not wear loose clothing or jewelry that can be caught in moving parts. Wear protective hair covering to contain long hair. Keep hair away from motor air vent. Rubber gloves and non-skid footwear are recommended when working outdoors.

#### 3.1.9 AVOID A DANGEROUS ENVIRONMENT

Do not expose the machine to rain. Do not use the machine in wet conditions. Keep the work area well lit. When working at an elevated location, pay attention to articles and people below.

#### 3.1.10 KEEP CHILDREN AND VISITORS AWAY

Do not allow anyone to stand in line with the grinding path. Do not let children or visitors in contact with machine or extension cord. Keep children and visitors away from the work area.



### 3.1.11 AVOID FLAMMABLE LIQUIDS OR GASES

## WARNING

Never use machines in areas containing flammable, combustible, or explosive materials such as but not limited to lacquer, paint, benzene, thinner, gasoline, gases, and adhesive agents. Failure to do so may result in fire or explosion that could cause serious injury or death.

Never use machines in dangerous sites containing flammable, combustible, or explosive materials such as lacquer, paint, benzene, thinner, gasoline, gases, and adhesive agents.

### 3.1.12 USE EQUIPMENT AND ACCESSORIES PROPERLY

Do not force the generator to power more than its capable of supplying. Read the specifications of this generator and understand the specifications of the equipment used with this generator. Do not use in cases it is not designed for.

### 3.1.13 STORE EQUIPMENT AFTER USE

The machine should be stored in a dry and secure location when not in use. Keep equipment out of reach of children.

### 3.1.14 DO NOT FORCE

This Generator will do the job better and safer at the parameters for which it was designed.

### 3.1.15 OBTAIN MATERIAL SAFETY DATA SHEET (MSDS) FOR ALL WORK SURFACE MATERIAL

This includes primers, all coatings, adhesives, tile, and crack filling materials, etc. Do not attempt to cut, clean out or remove material without MSDS information. Consult MSDS sheet for hazards information. Be aware that some materials are explosive such as dust.

### 3.1.16 DO NOT OVERREACH

Always keep proper footing and balance

### 3.1.17 MAINTAIN MACHINE WITH CARE

Keep the machine clean and follow maintenance procedures for better and safer performance. Keep switches and electronics dry, clean, and free from oil and grease.

### 3.1.18 REMOVE ADJUSTING TOOLS

ALWAYS check to see tools (such as adjustment wrenches) are removed from the machine and are properly stored before use of the machine.

### 3.1.19 STAY ALERT

Watch what you are doing. Use common sense. Do not operate this machine when you are tired or fatigued.

### 3.1.20 DO NOT USE DRUGS, ALCOHOL, MEDICATION

Do not operate machine while under the influence of drugs, alcohol, or any medication.

### 3.1.21 KEEP ALL PARTS IN CORRECT POSITION

Do not operate the machine with missing or improperly mounted parts. Ensure all electrical plugs are securely installed and safety features, such as grounding and covers, are properly in place to prevent hazards.

### 3.1.22 CHECK FOR DAMAGED PARTS

Upon delivery of the machine, the staff responsible should check for its completeness and any transportation damage. Any faults must be reported immediately to the supplying company. Verify all machine guards are in good condition and will function properly before using the machine. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect machine operation. A guard, power switch or other part that is damaged should be properly repaired or replaced by an authorized service center.

### 3.1.23 NEVER TOUCH MOVING PARTS

Never touch moving parts such as blades, belts, and others.

### 3.1.24 STOP OPERATION IMMEDIATELY IF ANY ABNORMALITY IS DETECTED

Stop using machine immediately if any abnormalities are observed during operation. Examples of abnormalities include unusual noise and vibration.

### 3.1.25 WHEN REPLACING A PART, USE THE SAME TYPE AND QUALITY

## CAUTION

Never do maintenance on any part of the gearbox, engine, or fuels system while the machine is running. Failure to do so may cause injury or damage to the machine.

When replacing a component part with a new one, use only parts supplied by the manufacturer. Never attempt to repair a machine if you are unfamiliar with proper procedures and techniques required. Refer to this operations and maintenance manual as well as any additional instructions included from other manufacturers.

### 3.1.26 SAVE THESE INSTRUCTIONS

Refer to this operations and maintenance manual as well as any additional instructions included from other manufacturers.

## 3.2 LIFTING AND TRANSPORT

Parts of loading, handling, transport, unloading and lifting must only be carried out by qualified personnel with extensive experience of the DiamaPro® Generator along with the relevant safety rules and regulations. The means used for handling, lifting and transport must be intact and capable of performing the required operations safely, considering the size, weight, projections, delicate parts, and the center of gravity of the machine. Avoid improper uses and maneuvers, avoid all maneuvers outside the respective field of competence and responsibility. Perform handling and lifting using only the recommended means where indicated. Always use the proper PPE. Do not place hands or other body parts under raised components.

## CAUTION

Slings / transport gear must consider the shape and volume and the mass indicated on the machine (crane or forklift truck) with a capacity greater than that to be lifted. Failure to do so may cause injury or damage to the machine.

## DANGER

NEVER stand underneath the DiamaPro® Systems Generator when lifted. Failure to do so will cause serious injury or death in the event the machine falls.

### 3.2.1 LIFTING

The total weight of the machine is about 610 lbs. The lifting must be performed from the top. To lift the DiamaPro® Systems Generator with a crane or forklift follow the steps below:

1. The machine is equipped with 4 frame cutouts. The lifting is done by being anchored to these elements in only a single central point as shown in the figure above.
2. Use a lifting device (crane or forklift)
3. The lifting gear must be approved for lifting, without imbalance, and with a load capacity exceeding the total weight of the machine.
4. Lift the machine and keep it as close to the ground as possible.
5. Avoid the machine tilting at an angle.
6. Move and lift the DiamaPro® Systems Generator with the help of one person on the ground, away from the suspended load, to give signals to the lift operator to help navigate the load when lifted

## CAUTION

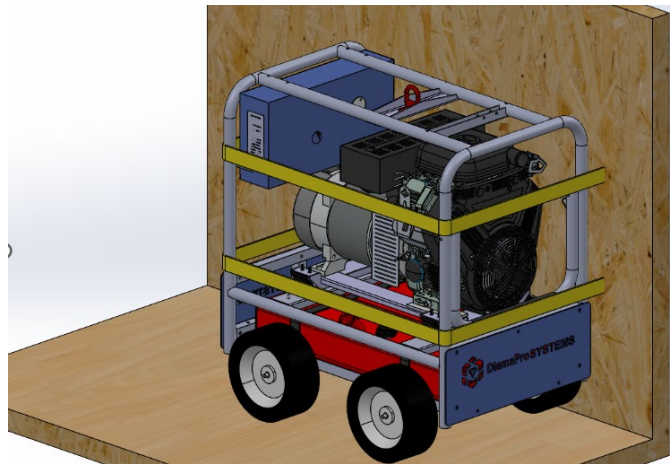
Crush Hazard! Always secure wheels before changing tooling or working under the machine. Failure to do so may cause injury or damage to the machine. NEVER change tooling with a forklift.

### 3.2.2 TRANSPORT

## CAUTION

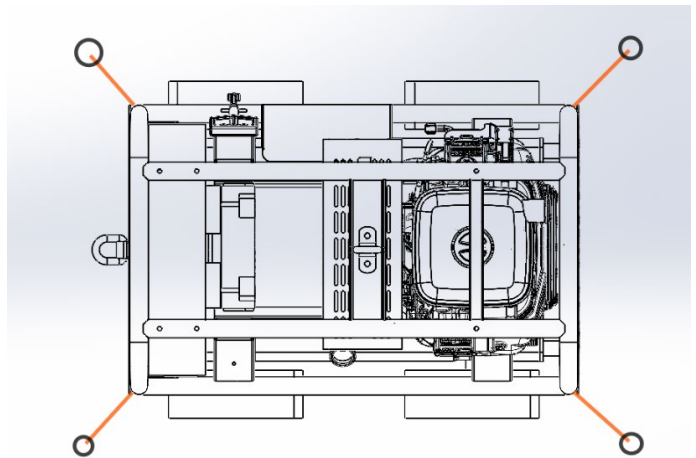
Use extra care when loading and unloading the machine onto a trailer or truck. Make sure the personnel responsible for loading and unloading are familiar with the machine and the loading and unloading process. Failure to do so may cause injury or damage to the machine.

The DiamaPro® Generator is equipped with a tie down point (circled in the figure below).



NOTE: Example of strapping in an enclosed trailer.

Attach the appropriate straps to secure the generator on all 4 corners as shown in the figure below.



Be sure machine is fully secure utilizing straps that are properly specified for the machine's weight.

Engage the Wheel Brake to help resist movement.

Machines should not be able to move Forward/Backward and Left/Right while in transit.

## 3.3 STORAGE

### 3.3.1 STORAGE

In case the machine is not to be used immediately, please adhere to the guidelines below:

- Always place the machine indoors away from areas exposed to moisture or inclement weather for storage.
- Protect unpainted parts with grease to prevent corrosion.
- Disconnect the battery.

If you plan to not use the machine for a period longer than one month:

- Remove battery if long term machine storage area average temperature drops below 40°F (4°C) or above 86°F (30°C)
- Add a fuel stabilizer to the gasoline tank or empty the tank.

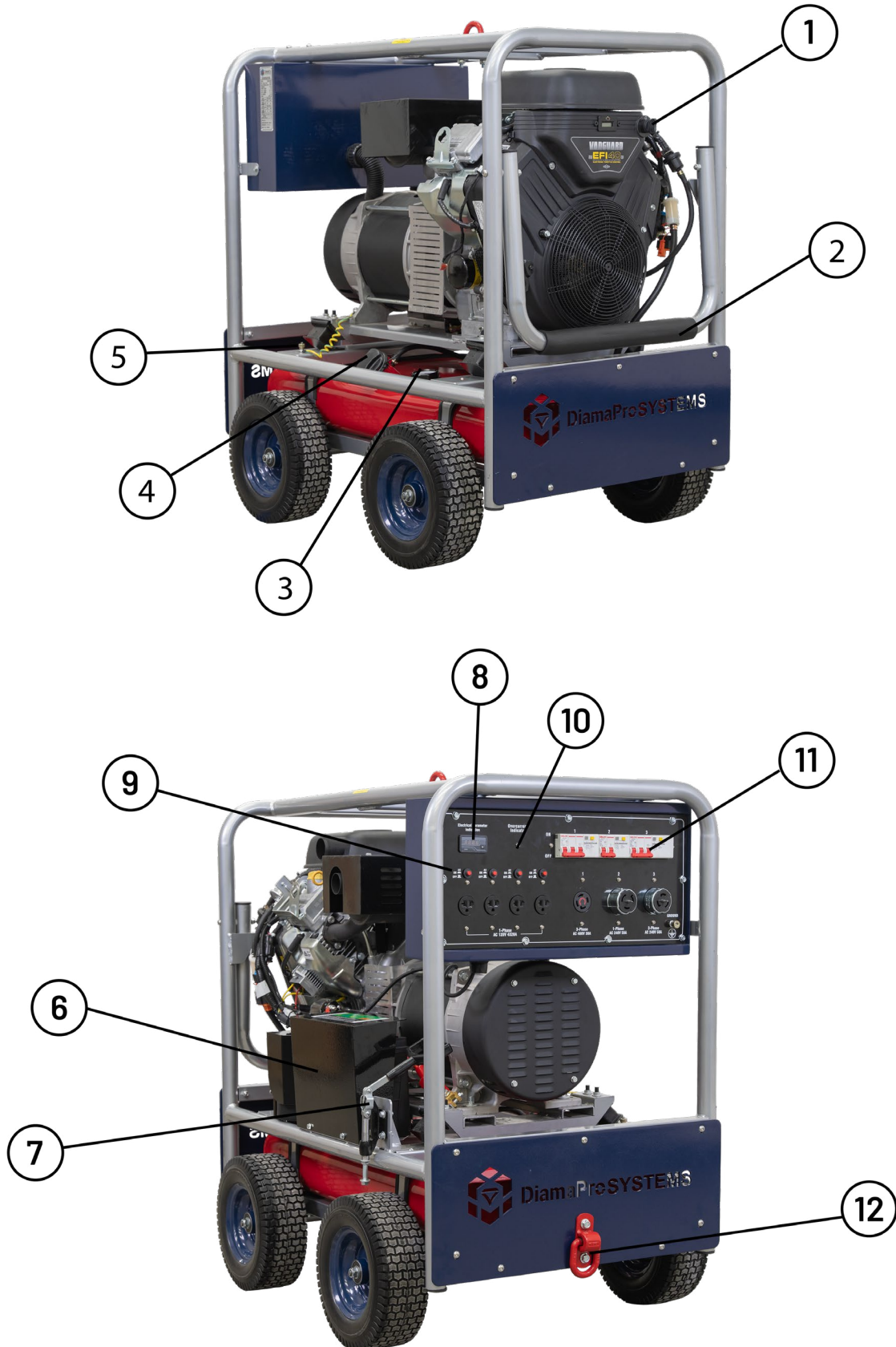
It is recommended to start and run the generator for 30 minutes, every 30 days. If this is not possible, refer to the following list to prepare unit for storage.

- DO NOT place a storage cover on a hot generator. Allow unit to cool to room temperature before storage.
- DO NOT store fuel from one season to another unless properly treated.
- Replace fuel container if rust is present. Rust in fuel will cause fuel system problems.
- Cover unit with a suitable protective, moisture resistant cover.
- Store unit in a clean and dry area.
- Always store generator and fuel away from heat and ignition sources.

Fuel stored over 30 days can go bad and damage fuel system components. Keep fuel fresh, use fuel stabilizer. If fuel stabilizer is added to fuel system, prepare and run engine for long term storage. Run engine for 10-15 minutes to circulate stabilizer throughout fuel system. Adequately prepared fuel can be stored up to 24 months.

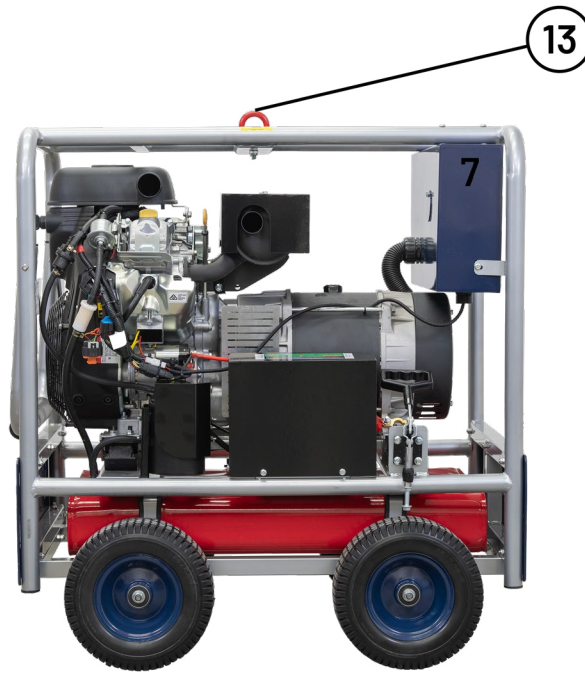
### 3.4 MACHINE CONTROLS

The DiamoPro® Generator is designed and manufactured to perform within the specifications listed in this manual. To operate effectively, do not overload the generator. The engine is equipped with an electronic start system operated with a key. The folding handle is attached to the frame. This machine is designed to be operated away from users, with the wheels locked.



### 3.4 MACHINE CONTROLS (cont.)

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ITEM NO.	DESCRIPTION
1	STARTER KEY SWITCH
2	MOVING HANDLE
3	FUEL GAUGE
4	FUEL FILL PORT
5	GROUNDING LUG
6	BATTERY COVER
7	WHEEL BRAKE
8	ELECTRICAL PARAMETER INDICATOR
9	RESET BUTTONS
10	OVERCURRENT INDICATOR
11	CIRCUIT BRAKERS
12	TIE DOWN HOOK
13	LIFTING HOOK



## 3.5 MACHINE USE

### 3.5.1 WORK ENVIRONMENT

The DiamoPro® Generator can be operated within the temperature range of 41°F to 86°F (5°C to 30°C). It's crucial to avoid using the machine during rainy or snowy weather conditions. Only use this machine in work areas that are adequately ventilated.

## CAUTION

For stability reasons it is important to use the machine on stable, relatively flat, and horizontal surface. Do not use the machine on slopes greater than 3%-4%. Failure to do so may cause injury or damage to the machine.

### 3.5.2 STARTING PROCEDURES

1. Engage the wheel brake.
2. Properly Ground the Generator.
3. Ensure the battery is connected.
4. Unplug all electrical loads from the unit's receptacles before starting the engine.
5. Place generator on a level surface.
6. Turn key to the START position.
7. Release the key to the RUN position.
8. **IMPORTANT NOTE:** Do not overload the generator. Also, do not overload individual panel receptacles. These outlets are protected against overload with push-to-reset type circuit breakers. If amperage rating of any circuit breaker is exceeded, that breaker opens and electrical output to that receptacle is lost. Read Know Generator Limits carefully

### Helpful Tip!

If the engine does not start, return key to ON position for 5-10 seconds and retry.

## 3.6 OPERATION

### 3.6.1 SHUT DOWN PROCEDURE

To stop the Generator, following the steps below:

- Turn off and unplug all loads from the generator
- Turn off all breakers on the control Panel
- Allow the generator to run on no load for 2 minutes at low idle
- Turn the key switch to the off position
- Allow the Generator to cool before storing.
- If storing the machine, follow section 4.3.1 in this manual for proper procedures.

## 4. MAINTENANCE & REPAIR

## CAUTION

During the execution of maintenance tasks, you must wear the following P.P.E.: CUT RESISTANT GLOVES, SAFETY GLASSES AND SAFETY SHOES. For certain types of activities (lubricant filling-up) make use of airway protection equipment as indicated in the residual risks.

## CAUTION

Never do maintenance on any part of the engine, electrical systems, or fuels system while the machine is running. Failure to do so may cause injury or damage to the machine.

## CAUTION

Before carrying out the maintenance of DiamoPro® Systems Generators, make sure you understand the contents of this manual. Please contact the manufacturer for further explanations and information. Failure to do so may cause injury or damage to the machine.

Before carrying out the maintenance of the machine make sure you understand the contents of this manual. Please contact the manufacturer for further explanations and information. Maintenance workers must possess the skills required by this manual, as well as the mental and physical requirements necessary and sufficient to maintain and operate the machine. To ensure the functionality and durability of the machine daily maintenance must be performed, carrying out operations in compliance with the safety requirements. Only the authorized dealer can adjust and perform operations that are not assigned to the operator. It is forbidden to make adjustments and interventions during machine operation. Before performing any maintenance operation disconnect the machine from the power sources and wait for the cooling of the hot parts (engine, spark-plug area, air filter area, etc.) Follow the safety steps below before performing any maintenance or repairs:

- Follow all safety decals and placards.
- Ensure all fuel sources are turned off and / or removed.
- Ensure the key switch is turned to the off position.
- Disconnect the battery quick connection.
- Wear all the necessary PPE.
- Secure all wheel locks to prevent unwanted movement during service or storage.
- If machine operation is required for troubleshooting task ensure appendages are clear of any rotational parts, pinch points, and crush zones.
- Allow machine to properly cool for engine related tasks.

It is also recommended for proper maintenance to:

- Thoroughly clean the DiamoPro® Generator. If in doubt about how to perform occasional repairs, contact our Technical Support or an authorized dealer.
- Perform a thorough cleaning from processing residues upon finishing the job.

## NOTICE

Avoid splashing water on engine and all electronics during cleaning. Cover when possible. ALWAYS ensure the engine is cooled before covering.



## 4.1 SCHEDULED MAINTENANCE

Good maintenance requires constant and methodical control of all parts of the machine and adaptation of tests to its actual usage. Periodic inspections are crucial to keep the machine efficient and reduce repairs and any resulting dangers.

We recommend that you have your DiamaPro® Generator serviced by an authorized dealer or a DiamaPro® Systems technician every 500 hours.










Note: frequency is taken over considering a working day of 8 hours.

# CAUTION

Some operations of maintenance / replacement of worn components may only be carried out by the authorized dealer or the manufacturer's technician.

They are reported later in this publication. Please note that failure to comply with the requirements of maintenance represents a possible MISUSE or PROHIBITED USE and relieves the manufacturer from any liability for damage to persons and property.

OPERATION	HOUR INTERVAL																			
	8-50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
Clean machine (Dusty Environments)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Clean Machine		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Inspect Oil Level	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Oil + Oil Filter Changes	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Air Filter Inspect and/or Change	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Spark Plug Change		X		X		X		X		X		X		X		X		X		X
Check Battery					X					X					X					X

OPERATION	FREQUENCY	PERSON IN CHARGE	OPERATING INSTRUCTIONS	STATE OF MACHINE
<b>MECHANICAL PARTS</b>				
<b>General Cleaning</b>	At each start		Wash the dirty parts with a brush and water. Lubricate the parts exposed to dust; Do not lubricate the rubber parts subjected to motion (belts, etc).	Machine stopped /Power sources disconnected
<b>Engine Air Filter</b>	At each start		Check and Clean engine air filter if necessary, especially if you are working in dusty conditions or replace it; follow the instructions given in the engine	Machine stopped /Power sources disconnected
<b>Engine Oil Level</b>	At each start		Add oil if low or replace oil & oil filter if needed	Machine stopped /Power sources disconnected
<b>Wheels &amp; Wheel Bearing</b>	At each start		Inspect wheels & wheel bearings for damage or excessive wear. Replace if needed.	Machine stopped /Power sources disconnected
<b>Battery</b>	Weekly Or every 40 hours		The DiamaPro® Generator is equipped with a maintenance-free battery. <b>DO NOT TRY TO FILL.</b> Clean the two battery poles to remove oxidation. It is recommended to turn off the battery via the circuit breaker on the side of the grinder when storing or transporting the machine	Machine stopped /Power sources disconnected
<b>Oil Cooler</b>	Weekly Or every 40 hours		Check & clean any dust or debris, especially if you are working in dusty conditions	Machine stopped /Power sources disconnected
<b>Spark Plugs</b>	Weekly Or every 40 hours		Inspect Spark Plugs. If you need a replacement, refer to the engine manual. Be careful when removing the spark plug: <ul style="list-style-type: none"> <li>• wait for the engine to cool down;</li> <li>• remove the cap;</li> <li>• remove the spark plug down away from the spark plug holder (because spark may be triggered).</li> </ul>	Machine stopped /Power sources disconnected
<b>SAFETY SYSTEMS</b>				
<b>Safety Systems</b>	Daily		Please note the requirement to perform the checking and recording of verifications of safety components every 6 months	
<b>Integrity of Pictograms</b>	Weekly Or every 40 hours			

## **4.2 ROUTINE & ADDITIONAL MAINTENANCE**

### **⚠ WARNING**

- Always check both battery terminals are securely connected with terminals boots. Loose or exposed battery terminals can result in a spark which could lead to fire or explosion that could cause serious injury or death.
- Always check battery cables and wires for damage. Damaged cables can cause fire which could cause serious injury or death.
- Do not short-circuit the positive and negative terminals of the battery. Doing so may result in fire or explosion that could cause serious injury or death.

1. Battery Replacement & Maintenance
2. Oil Change
3. Air Filter Change

## **4.3 NOTES ON DISMANTLING**

Regarding dismantling activities, there are no security-related or environmental problems. In case you wish to proceed with the dismantling of the various machine parts, it is necessary to pay attention to their movement, considering the respective masses to be handled. In the case of machines used in working environments it is necessary to dispose of the electrical and electronic products, if any, contained in them in accordance with the current legislation.

### **NOTICE**



Do not dispose into the environment products which are not biodegradable, lubricant oils and relevant filters as well as non-ferrous parts (rubber, PVC, etc.). Perform their disposal in accordance with the laws in force and before taking care of this disposal, consult your authorized dealer in order to check whether there are specific programs of withdrawal.

### **NOTICE**

At the time of dismantling, the user shall be required to recover the identification plate of the equipment to prevent the machine from being put back into service without its guards because the **MANUFACTURER IS NO LONGER HELD RESPONSIBLE.**

## 4.4 TROUBLESHOOTING

PROBLEMS	CAUSES	CORRECTIONS
Engine is running, but AC output is not available.	Circuit breaker OPEN.	Reset circuit breaker.
	Poor connection or defective cord set.	Check and repair.
	Connected device is bad.	Connect another device that is in good condition.
	Fault in generator.	Contact a DiamaPro® Systems Technician.
	GFCI receptacle is OPEN (if equipped).	Correct ground fault and press reset button on GFCI receptacle (if equipped).
Engine runs well at no-load, but bogs when load is applied.	Short circuit in a connected load.	Turn off the machines and disconnect electrical loads.
	Generator is overloaded.	See "Know Generator Limits."
	Engine speed is too slow.	Contact a DiamaPro® Systems Technician.
	Shorted generator circuit.	Contact a DiamaPro® Systems Technician.
Engine will not crank.	Battery weak or dead.	Change or replace battery.
Engine will not start; or starts and runs rough.	Dirty air filter.	Clean or replace air filter.
	Out of Fuel.	Fill fuel tank.
	Stale fuel.	Drain fuel tank and fill with fresh fuel.
	Spark plug wire not connected to spark plug.	Connect spark plug.
	Bad spark plug	Replace spark plug.
	Water in fuel.	Drain fuel tank; fill with fresh fuel.
	Low oil level.	Fill crankcase to correct level.
	Fuel Filter is clogged.	Replace and/or clean the fuel filter.
	Excessive rich fuel mixture.	Contact a DiamaPro® Systems Technician.
	Intake valve stuck open or closed.	Contact a DiamaPro® Systems Technician.
	Engine lost compression.	Contact a DiamaPro® Systems Technician.
	Engine fault code present.	Contact a DiamaPro® Systems Technician.
Engine shuts down during operation.	Out of fuel.	Fill fuel tank.
	Low oil level.	Fill crankcase to correct level.
Engine lacks power.	Load is too high.	Reduce load (see "Know Generator Limits).
	Dirty air filter.	Clean or replace air filter.
	Engine needs to be serviced.	Contact a DiamaPro® Systems Technician.
No battery charge DC output.	Battery posts corroded.	Clean battery posts.
	Bad battery cable.	Replace cable.
	Defective battery.	Check battery condition. Replace if defective.
	Bad voltage regulator.	Contact a DiamaPro® Systems Technician.

## 5. KNOW YOUR GENERATOR LIMITS

**INFORMATION ALSO LOCATED ON SERIAL PLATE**

### 22KW LIMIT QUICK REFERENCE TABLE

ENGINE SPECIFICATIONS	
Engine power (HP)	40 hp
Engine fuel system	Electronic Fuel Injection
Engine starter system	Electric Start
Engine Oil Type	Synthetic 5w-30
Engine Oil Capacity (qt).	2.5 qt.
Engine Max RPM	3600 rpm

VOLTAGES & AMPERAGE LIMITS				
Rated Voltage (V)	480V 3-Phase	240V 3-Phase	240V 1-Phase	120V 1-Phase
Rated Current (A)	26A	50A	50A	4x20A
Rated Frequency (Hz)	60Hz	60Hz	60Hz	60Hz
Maximum (Surge) Power (kVA)	23kVA			
Rated (Continuous) Power (kVA)	23kVA			

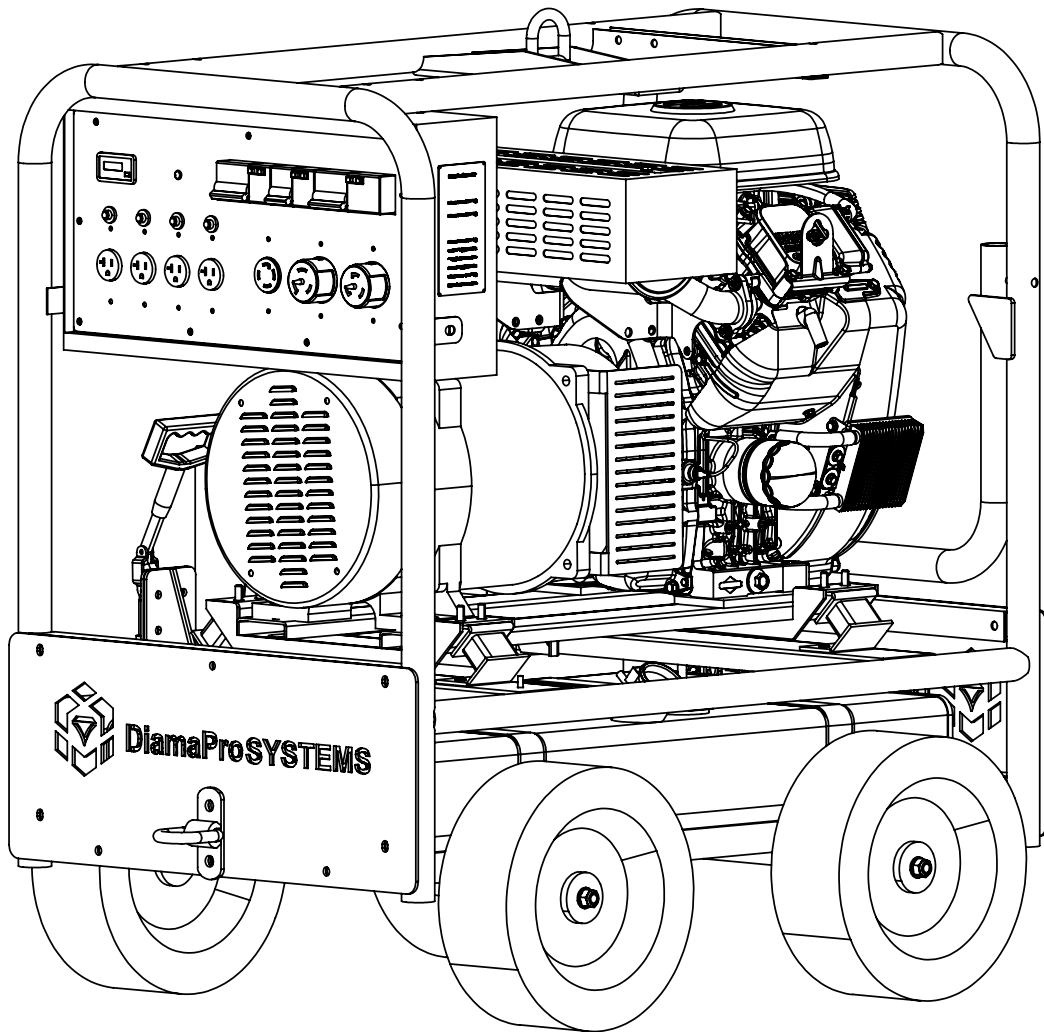
RUNTIME			
Workload (%)	100%	75%	50%
Sustained Working Time (hr)	5hr	7hr	10hr
Fuel Capacity (Gal)	13.2 Gal		

MISCELLANEOUS			
Weight (lbs)	610 lbs		
Dimensions (LxWxH)	3.5 ft	2.5 ft	3.6 ft

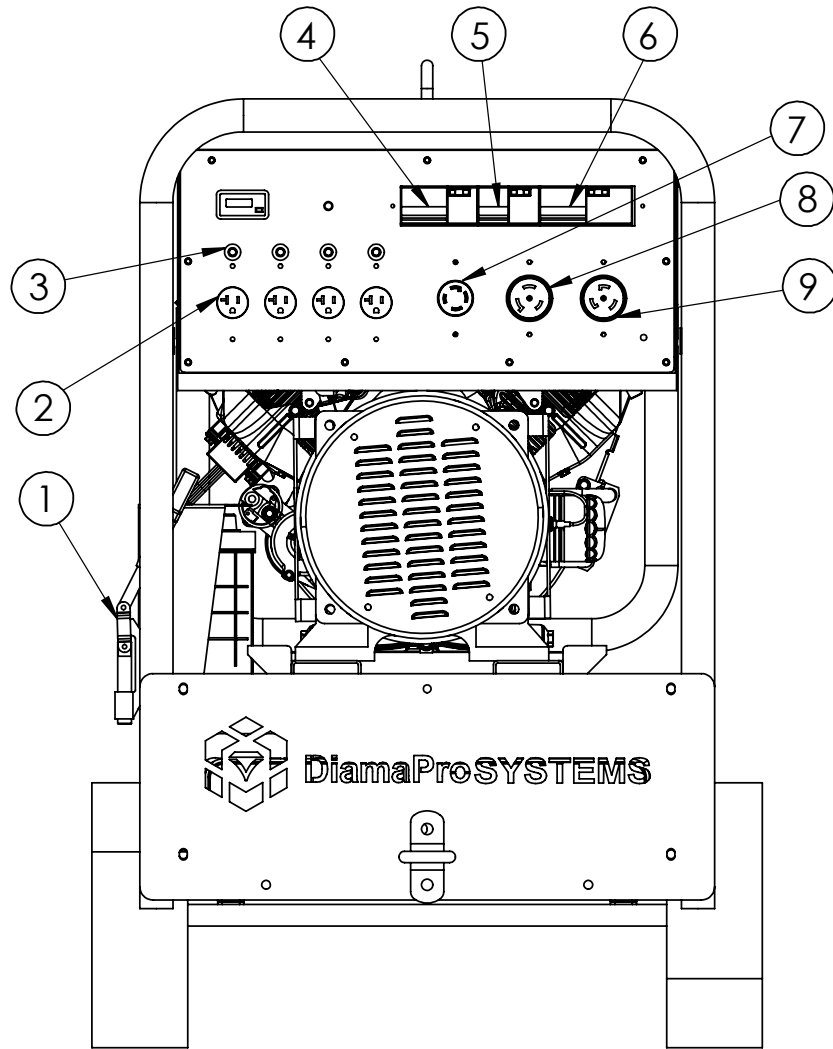




# DP-GEN-22KW-GAS PARTS LIST

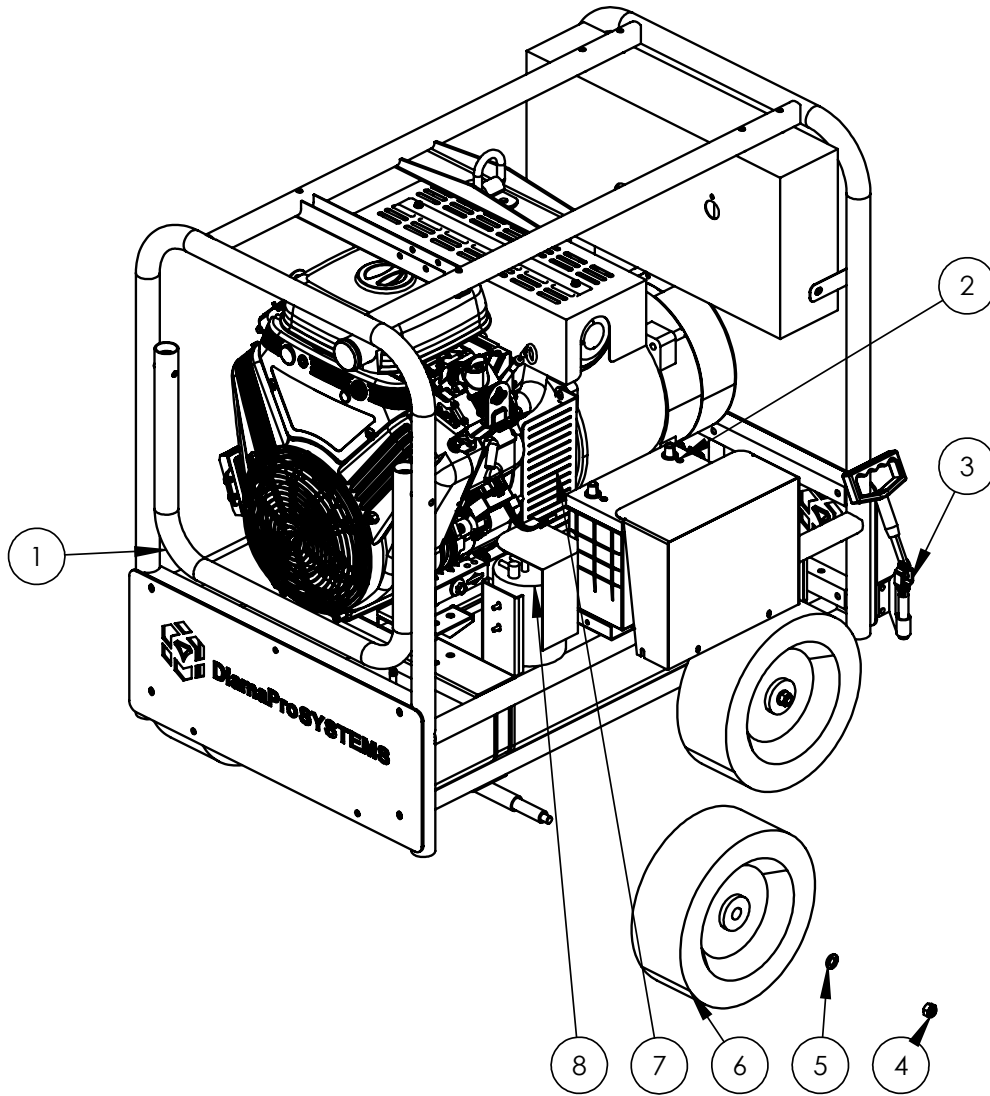


# ELECTRICAL PANEL



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	DP-GEN-WHBR	DIAMAPRO GENERATOR WHEEL BRAKE	1
2	DP-GEN-PLUG120201	120V 20A 1-PHASE PLUG	4
3	DP-GEN-20ACB	120V 20A PUSH BUTTON BREAKER	4
4	DP-GEN-30A3CB	480V 30A 3-PHASE BREAKER	1
5	DP-GEN-50A1CB	240V 50A 1-PHASE BREAKER	1
6	DP-GEN-50A3CB	240V 50A 3-PHASE BREAKER	1
7	DP-GEN-PLUG480303	480V 30A 3-PHASE PLUG	1
8	DP-GEN-PLUG240501	240V 50A 1-PHASE PLUG	1
9	DP-GEN-PLUG240503	240V 50A 3-PHASE PLUG	1

## GENERAL PARTS



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	DP-GEN-22KWMH	GENERATOR MOVEMENT HANDLE	1
2	DP-GEN-BATTERY	GENERATOR BATTERY	1
3	DP-GEN-WHBR	GENERATOR WHEEL BRAKE	1
4	DP-GEN-WHNUT	GENERATOR WHEEL NUT	4
5	DP-GEN-WHWSH	GENERATOR WHEEL WASHER	4
6	DP-GEN-22KWWHEEL	22KW GENERATOR NON-FLAT WHEEL	4
7	DP-GEN-22KWFG	22KW GENERATOR FAN GUARD	2
8	DP-GEN-OCC	GENERATOR OIL CATCH CAN	1
NP	DP-GEN-22KWEAF	22KW ENGINE AIR FILTER	1
NP	DP-GEN-22KWEOF	22KW OIL FILTER	1
NP	DP-GEN-22KWSP	22KW SPARK PLUGS	2
NP	DP-GEN-22KWFF	22KW FUEL FILTER	1
NP	DP-GEN-22KWBRUSH	22KW BRUSHES	2

## **Customer Acknowledgment and Assumption of Responsibility for Modification to any Product.**

Customer expressly acknowledges that modification of any equipment, machines, or other products purchased from Niagara Machine, Inc. ("Niagara"), including but not limited to DiamaPro Systems Products (collectively, "Products") through the attempted or actual use or misuse, adjustment, alteration, application of additional components, removal of provided components, repairs or attempted repairs by Customer (collectively, "Modifications") can lead to Product malfunction causing serious risks. Such risks include, but are not limited to, Product damage, bodily injury, death, or loss of or damage to property. Customer agrees that Customer is solely responsible for any Modifications Customer performs on any Product purchased from Niagara, and that Niagara is not responsible and will not be held liable for any claims, damages, or injury arising from Modifications by Customer, including Customer's employees, subcontractors, agents, representatives, affiliates, and assigns, to any Product purchased from Niagara. Customer further acknowledges and agrees that any Modification(s) to a Product may, at DiamaPro Systems' and/or Niagara's election, void any warranty applicable to the Product.

Customer agrees that, to the greatest extent permitted by law, Customer shall indemnify, hold harmless and, at Niagara's request, defend (with counsel reasonably approved by Niagara), Niagara, Niagara's parent, subsidiaries, affiliates and the officers, directors, employees and agents of Niagara (individually and collectively "Niagara Indemnitees") from and against, and pay or reimburse them for any and all third-party claims, losses, damages, liabilities, lawsuits and expenses (including reasonable attorneys' fees) relating to bodily injury, death, or loss of or damage to property caused by or arising from any Modification to a Product by Customer, its employees, subcontractors, agents, representatives, affiliates, and assigns (individually and collectively, "Customer Group"), with respect to the Products Customer purchases from Niagara.

Customer acknowledges that Customer has read and understands these terms, and voluntarily assumes full and sole responsibility for any and all effects arising from any Modification to a Product by Customer Group.



**DiamaPro**®  

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**S Y S T E M S**

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