



# OPERATION MANUAL

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DIESEL POWERED GENERATORS

## ***YDG series***

YDG3700N-6BYI2      YDG3700N-6EBYI2

YDG3700V-5BYI2      YDG3700V-5EBYI2

YDG5500N-6BYI2      YDG5500N-6EBYI2

YDG5500V-5BYI2      YDG5500V-5EBYI2

# **YANMAR**

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OPERATION MANUAL	MODEL	YDG3700V-5EBY12, YDG3700V-5BY12, YDG5500V-5EBY12, YDG5500V-5BY12 YDG3700N-6EBY12, YDG3700N-6BY12, YDG5500N-6EBY12, YDG5500N-6 BY12
	CODE	YIYDG-EN0000

# YANMAR WARRANTIES

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## YANMAR LIMITED WARRANTY

### What is Covered by this Warranty?

YANMAR warrants to the original retail purchaser that a new YANMAR YDG diesel generator will be free from defects in material and/or workmanship for the duration of the warranty period.

This warranty is provided in lieu of all other warranties, express or implied. YANMAR specifically disclaims any implied warranties of merchantability or fitness for a particular purpose, except where such disclaimer is prohibited by law. If such disclaimer is prohibited by law, then implied warranties shall be limited in duration to the life of the express warranty.

### How Long is the Warranty Period?

The YANMAR standard limited warranty period begins on the date of the delivery of the new YANMAR YDG diesel generator to the first retail purchaser and extends for a period of **twenty-four (24) months or two-thousand (2000) engine operation hours**, whichever occurs first. The warranty period (by duration or operation hours) begins on the date of delivery to the original retail purchaser and is valid only until the applicable warranted duration has passed or the operation hours are exceeded, whichever comes first.

# YANMAR WARRANTIES

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## *YANMAR limited warranty - continued*

### **What the Generator Owner must Do:**

If you believe your YANMAR generator has experienced a failure due to a defect in material and/or workmanship, you must contact an authorized YANMAR industrial engine dealer or distributor within thirty (30) days of discovering the failure. You must provide proof of ownership of the generator, proof of the date of the generator purchase and delivery, and documentation of the generator operation hours. Acceptable forms of proof of delivery date include, but are not limited to: the original warranty registration or sales receipts or other documents maintained in the ordinary course of business by YANMAR dealers and/or distributors, indicating the date of delivery of the YANMAR product to the original retail purchaser. This information is necessary to establish whether the YANMAR product is still within the warranty period. Thus, YANMAR strongly recommends you register your generator as soon as possible after purchase in order to facilitate any future warranty matters.

You are responsible for the transportation of the generator to and from the repair location as designated by YANMAR.

### **To Locate an Authorized YANMAR Industrial Engine Dealer or Distributor:**

You can locate your nearest authorized YANMAR industrial engine dealer or distributor by visiting the YANMAR CO., LTD. website at:

<http://www.yanmar.co.jp> (The Japanese language page will be displayed.) For English language “click” on “Global” icon.

- “Click” on “Dealer Locator” in the website heading to view the “Dealer Locator” menu.
- Choose the Country from the pull down menu.
- Choose the Product Category from the pull down menu.
- “Click” on “Search” to browse YANMAR dealer or distributor.
- You may also contact YANMAR by clicking on “Contact” icon in the website heading and typing in your question or comment.

### **What YANMAR will Do:**

YANMAR warrants to the original retail purchaser of a new YANMAR generator that YANMAR will make such repairs and/or replacements at YANMAR’s option, of any part(s) of the YANMAR product covered by this warranty found to be defective in material and/or workmanship. Such repairs and/or replacements will be made at a location designated by YANMAR at no cost to the purchaser for parts or labor.

## *YANMAR limited warranty - continued*

### **What is not Covered by this Warranty?**

This warranty does not cover parts affected by or damaged by any reason other than defective materials or workmanship including, but not limited to, accident, misuse, abuse, "Acts of God," neglect, improper installation, improper maintenance, improper storage, the use of unsuitable attachments or parts, the use of contaminated fuels, the use of fuels, oils, lubricants, or fluids other than those recommended in your YANMAR Operation Manual, unauthorized alterations or modifications, ordinary wear and tear, and rust or corrosion. This warranty does not cover the cost of parts and/or labor required to perform normal/scheduled maintenance on your YANMAR generator. This warranty does not cover consumable parts such as, but not limited to filters, fuel injector nozzle, lubricants and cleaning fluids. This warranty does not cover the cost of shipping the product to or from the warranty repair facility.

### **Warranty Limitations:**

**The foregoing is YANMAR's only obligation to you and your exclusive remedy for breach of warranty.** Failure to follow the requirements for submitting a claim under this warranty may result in a waiver of all claims for damages and other relief. **In no event shall YANMAR or any authorized industrial engine dealer or distributor be liable for incidental, special or consequential damages.** Such consequential damages may include, but not be limited to, loss of revenue, loan payments, cost of rental of substitute equipment, insurance coverage, storage, lodging, transportation, fuel, mileage and telephone costs. The limitations in this warranty apply regardless of whether your claims are based on breach of contract, tort (including negligence and strict liability) or any other theory. Any action arising hereunder must be brought within one (1) year after the cause of action accrues or it shall be barred. Some states and countries do not allow certain limitations on warranties or for breach of warranties. **This warranty gives you specific legal rights, and you may also have other rights which vary from state to state and country to country.** Limitations set forth in this paragraph shall not apply to the extent that they are prohibited by law.

### **Warranty Modifications:**

Except as modified in writing and signed by the parties, this warranty is and shall remain the complete and exclusive agreement between the parties with respect to warranties, superseding all prior agreements, written and oral, and all other communications between the parties relating to warranties. **No person or entity is authorized to give any other warranty or to assume any other obligation on behalf of YANMAR, either orally or in writing.**

### **Questions:**

If you have any questions or concerns regarding this warranty, please call or write to the nearest authorized YANMAR industrial engine dealer or distributor or other authorized facility.

## **Retail Purchaser Registration**

**It is very important for the original retail purchaser to register the YANMAR product. Registration enables YANMAR to provide the best support for your YANMAR YDG diesel generator.**

At the time of purchase, YANMAR highly recommends registering the retail purchaser's information through website <http://www.yanmar.co.jp> as soon as possible.

*If it is not possible to access the website, please contact the nearest authorized YANMAR industrial engine dealer or distributor.*

# INTRODUCTION

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Welcome to the world of YANMAR!

YANMAR has been the leader in industrial diesel engines for over 90 years. We developed the world's first practical small-sized diesel engine in 1933. Our engineers are continuously developing new technology to keep YANMAR on the leading-edge of the industry. The diesel-powered generator is only one example of the new technology we have developed. We are committed to maintaining our environment, and are proud of our history of innovation, quality and respect for operator safety.

To help you enjoy your YANMAR diesel generator (YDG) for many years to come, please follow these recommendations:

- Read and understand this *Operation Manual* before you operate the machine to ensure that you follow safe operating practices and maintenance procedures.
  - Keep this *Operation Manual* in a convenient place for easy access.
  - If this *Operation Manual* is lost or damaged, order a new one from your authorized YANMAR industrial engine dealer or distributor.
  - Make sure this manual is transferred to subsequent owners. This manual should be considered a permanent part of the generator and remain with it.
- Constant efforts are made to improve the quality and performance of YANMAR products, so some details included in this *Operation Manual* may differ slightly from your generator. If you have any questions about these differences, please contact your authorized YANMAR industrial engine dealer or distributor.
  - When exporting or providing this product and manual to non-residents, please comply with the security trade control laws and regulations of Japan and other relevant countries.

## INTRODUCTION

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### RECORD OF OWNERSHIP

Take a few moments to record the information you need when you contact YANMAR for service, parts or literature.

YDG model: \_\_\_\_\_

YDG serial No.: \_\_\_\_\_

Date purchased: \_\_\_\_\_

Dealer: \_\_\_\_\_

Dealer phone: \_\_\_\_\_



# EC DECLARATION OF CONFORMITY

According with Machinery Directive 2006/42/CE, Annex II.1.A



Manufacturer: **YANMAR ITALY s.p.a.**

Address: **Via Camperio, 9 - 20123 Milano (MI)**

## We DECLARE hereby, under our sole responsibility

That the machine named: **YANMAR DIESEL GENERATOR**

Model:	
Serial Number:	
Year of construction:	

## IS IN CONFORMITY

With the provisions of the following European Directives:

- **Machinery Directive 2006/42/CE**
- **Low Voltage Directive 2014/35/UE**
- **Electromagnetic Compatibility (EMC) Directive 2014/30/UE**
- **RoHS 2011/65/UE**

And with the following harmonised standards:

**Machinery: EN 12100, UNI EN ISO 8528-1, UNI EN ISO 8528-13**

**Low Voltage: EN 60204-1**

**Electromagnetic Compatibility: EN 55012:2007, EN 61000-6-1:2019**

The manufacturer of the machinery, take the responsibility to transmit, in response to a motivated request of the National Authorities, informations regarding the machinery related to this declaration.

Name and address of the person authorized to compile and keep the technical documentation :

Pearson empowered to draw up the declaration

Ing. Carlo Cavallero  
 \_\_\_\_\_  
 President (---*Carlo Cavallero*---)

Ing. Carlo Cavallero  
 \_\_\_\_\_  
 President (---*Carlo Cavallero*---)

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# SAFETY

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YANMAR considers safety of great importance and recommends that anyone that comes into close contact with its products, such as those that install, operate, maintain or service YANMAR products, exercise care, common sense and comply with the safety information in this manual and on the machine's safety decals. Keep the decals from becoming dirty or torn and replace them if they are lost or damaged. Also, if you need to replace a part that has a decal attached to it, make sure you order the new part and decal at the same time.



This safety alert symbol appears with most safety statements. It means attention, become alert, your safety is involved! Please read and abide by the message that follows the safety alert symbol.

## DANGER

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

## WARNING

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

## CAUTION

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

## NOTICE

Indicates a situation which can cause damage to the machine, personal property and/or the environment or cause the equipment to operate improperly.

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## SAFETY PRECAUTIONS

There is no substitute for common sense and careful practices. Improper practices or carelessness can cause burns, cuts, mutilation, asphyxiation, other bodily injury or death. This information contains general safety precautions and guidelines that must be followed to reduce risk to personal safety. Special safety precautions are listed in specific procedures. Read and understand all of the safety precautions before operation or performing repairs or maintenance.

### DANGER

Be assured no children or animals are in the surrounding zone of generator set during operation and handling.

### DANGER



- Never permit anyone to install or operate the generator set without proper training.

- Read and understand this Operation Manual before you operate or service the generator set to ensure that you follow safe operating practices and maintenance procedures.
- Safety signs and decals are additional reminders for safe operating and maintenance techniques.
- See your authorized YANMAR dealer or distributor for additional training.

### **Exhaust Hazard**



- Never operate the generator in an enclosed area. Operating a generator indoors can kill you in minutes. Generator exhaust contains carbon monoxide. This is a poison you cannot see or smell. Only operate the generator outside and far away from windows, doors and vents.

### DANGER

#### **Explosion Hazard**



- Always place the diesel fuel container on the ground when transferring the diesel fuel from the pump to the container. Hold the hose nozzle firmly against the side of the container while filling it. This prevents static electricity buildup which could cause sparks and ignite fuel vapors.
- Diesel fuel is flammable and explosive under certain conditions. Always store any containers containing fuel in a well-ventilated area, away from any combustibles or sources of ignition. Wipe up all spills immediately and never use a shop rag to catch spilled fuel.
- Before you operate the engine, check for fuel leaks.
- Avoid serious personal injury. Never jump-start the engine. Sparks caused by shorting the battery to the starter terminals may cause a fire or explosion. Only use the key switch to start the engine.
- Avoid serious personal injury or equipment damage. While the engine is running or the battery is charging, hydrogen gas is being produced and can be easily ignited. Always keep the area around the battery well-ventilated and keep sparks, open flames and any other form of ignition out of the area.
- Never place diesel fuel, flammable material such as oil, hay or dried grass or chemical gases or fumes close to the engine during engine operation or shortly after shut down.
- Never use metal pipe that carries combustible materials or gases to ground the generator.
- Never operate the generator in explosion risk ambients



**⚠ DANGER****Electric Shock Hazard**

- Always have a licensed electrician connect the generator to the utility circuit. The generator must not be connected to other power sources. Improper installation can cause the generator to back-feed into the utility power line. This may electrocute a power company line repair person.
- Never use if the generator is wet or damp.
- Never use the generator in a location exposed to rain, snow, water spray or standing water. If the generator must be used outside, protect it from the weather. Moisture or ice can cause a malfunction or short circuit in the electrical components which could result in electrocution.
- Never operate the generator in rain or a floodplain unless proper precautions are taken to avoid being subject to rain or a flood.
- Never use any worn or damaged electrical cords. Electric shock or damage to the generator may result.
- Never touch the generator with wet hands or when the generator is wet.
- Never use the generator in highly conductive areas. These areas include metal decking and steelwork.
- Never handle live terminals or bare wires.
- Protection against indirect contact with live circuit parts is assured by **ELECTRICAL SEPARATION**. The exposed conductive parts and conductive structural parts need to be equipotential bonded. The coils of the alternator of the generating sets are not bonded to the frame of the machine, therefore the generating set **MUST NOT** be connected to an earthing system. Cables length must be under 200 m in order to properly ensure safety for the end user. The appliances connected to the sockets of the gen-set, unless double insulated ones (class II), must be equipped with PE conductor in order to ensure equipotential bonding between the conductive structural parts of gen-set and the appliances.
- If using electrical separation protection method for indirect contact, the GENSET must be physically disconnected from the ground (refer to page 66 scheme).
- It is therefore **IMPORTANT** that you **ONLY** use the generator to supply equipment in the following combinations.
  - One or more of “CLASS II” equipment
  - Only **ONE** item of “CLASS I” equipment
  - One or more of “CLASS II” equipment and only **ONE** item of “CLASS I” equipment.
- At page 66 are shown different cases of load connections. All not mentioned connection schemes are **NOT** allowed.
- Protection by means of **ELECTRICAL SEPARATION** is not suitable for complex circuits or for those ones placed in dangerous environments that could easily lead to an electric shock. In these cases, the end user must comply with local safety standards and laws. I.E. It is possible to install an RCD (30 mA) and bond neutral to the frame of the gen-set (refer to page 67). This operation must be carried out by qualified electricians only. Now the connection to an earthing system become mandatory (see page 30), in order to ensure protection against indirect contacts with live circuits by means of RCD, use the earth terminal placed on the control panel of the gen-set and a high efficiency cable.

## DANGER

### Fire Hazard



- Never use metal pipe that carries combustible materials or gases to ground the generator.
- Do not put the generator indoors while the engine is still hot.
- Never jump-start the engine. Sparks caused by shorting the battery to the starter terminals may cause a fire or explosion.
- Never operate the generator if powered items overheat, electrical output drops, there is sparking, flames or smoke coming from the generator or if the receptacles are damaged.
- Never operate the generator closer than 3.3 ft (1 m) away from buildings and other equipment or sources of combustion during operation.

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### Falling Hazard

Avoid injury or equipment damage due to the generator set falling. Always secure the generator set to prevent the generator set from falling during maintenance.

## WARNING

### Explosion Hazard



- Avoid serious personal injury or equipment damage. While the engine is running or the battery is charging, hydrogen gas is being produced and can be easily ignited. Keep the area around the battery well-ventilated and keep sparks, open flame and any other form of ignition out of the area.
- Avoid serious personal injury or equipment damage. Always turn off the battery switch (if equipped) or disconnect the negative battery cable before servicing the equipment.

---

### Fire Hazard



- Avoid personal injury or equipment damage. Have appropriate safety equipment available.
- Keep fire extinguishers handy in case of fire. Clearly indicate the location of the fire extinguishers with a safety sign.
- Ensure that the type of fire extinguishers are appropriate for material that might catch fire. Check with local authorities.
- Have all fire extinguishers checked periodically for proper operation and/or readiness.
- Post evacuation routes prominently. Periodically conduct fire drills.

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Avoid personal injury. Always read and follow safety-related precautions found on containers of hazardous substances like parts cleaners, primers, sealants and sealant removers.

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Always wipe up all spills immediately.

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The user must comply with safety regulation applicable in the place where the genset has been sold.

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**⚠ WARNING****Entanglement Hazard**

- Rotating parts can cause severe injury or death. Never wear jewelry, unbuttoned cuffs, ties or loose fitting clothing and always tie long hair back when working near moving/rotating parts such as the flywheel or PTO shaft. Keep hands, feet and tools away from all moving parts.
- Avoid personal injury. Never leave the key in the key switch when servicing the generator set. Someone may accidentally start the engine and not realize you are servicing it. Attach a "Do Not Operate" tag near the key switch while performing maintenance on the equipment.

**Severe Hazard**

- Avoid personal injury. Rotating parts can cause severe injury or death.
- Never operate the generator without the guards in place.

**Lifting Hazard**

- Avoid serious personal injury. Additional equipment is necessary to lift the generator set. Always use lifting equipment with sufficient capacity to lift the generator.
- When you need to transport a generator set for repair, have a helper assist you when attaching it to a hoist and loading it on a truck.
- During transportation, the generator must be switched off, the cables must be disconnected and the tank must be empty.
- When you need to transport a generator set for repair, have a helper assist you when attaching it to a hoist and loading it on a truck.

**⚠ WARNING****Electrical Hazard**

- Make welding repairs safely.
- Always turn off the battery switch (if equipped) or disconnect the negative battery cable and the leads to the alternator when welding on the equipment.
- Connect the weld clamp to the component to be welded and as close as possible to the welding point.
- Never connect the weld clamp to the generator set or in a manner which would allow current to pass through a mounting bracket.
- When welding is completed, reconnect the leads to the engine charging system prior to reconnecting the battery.

**Shock Hazard**

- Check the electrical harnesses for cracks, abrasions and damaged or corroded connectors. Always keep the connectors and terminals clean.
- Avoid serious personal injury or equipment damage. Always turn off the battery switch (if equipped) or disconnect the negative battery cable before servicing the equipment.
- Avoid personal injury or equipment damage. Always keep the electrical connectors and terminals clean. Check the electrical harnesses for cracks, abrasions, and damaged or corroded connectors.

## ⚠ WARNING

### Alcohol and Drug Hazard



Never operate the generator set while you are under the influence of alcohol or drugs or are feeling ill.

### Exposure Hazard



To avoid injury, always wear personal protective equipment including appropriate clothing, gloves, work shoes, eye and hearing protection as required by the task at hand.

### Slip and Trip Hazard

Keep the generator free of oil, mud and other foreign matter.

Remove anything that creates slippery areas around the generator.

### Sudden Movement Hazard

- Never attach tools or appliances to the generator before it is started. Starting the generator may cause sudden movement of the equipment. Disconnect any tools and appliances from the generator before starting.
- Before you start the engine make sure that all bystanders are clear of the area.
- Check before starting the engine that any tools or shop rags used during maintenance have been removed from the area.
- Always remove anything that creates slippery areas around the generator.
- Avoid personal injury. Always stop the engine before beginning service.

## ⚠ WARNING

### Burn Hazard



- Avoid serious injury. Some of the generator set surfaces become very hot during operation and shortly after shut down. Always keep hands and other body parts away from hot generator set surfaces.
- Always handle hot components with heat-resistant gloves.
- Never remove shields present on generator set. Ordinary maintenance activities can be safely carried out with shields assembled.
- Before starting any maintenance activity, let the generator set components (such as muffler) cool down for at least 20 minutes

### Tool Hazard

Avoid personal injury or equipment damage. Always remove any tools or shop rags used during maintenance from the area before operation.

### Exhaust Hazard



Avoid serious injury or death. Always ensure that all connections are tightened to specifications after repair is made to the exhaust system. All internal combustion engines create carbon monoxide gas during operation and special precautions are required to avoid carbon monoxide poisoning.

**CAUTION****Flying Object Hazard**

- **Avoid personal injury. Always wear eye protection when servicing the generator set or when using compressed air or high-pressure water. Dust, flying debris, compressed air, pressurized water or steam may injure your eyes.**
- **Avoid personal injury. Always wear eye protection when servicing the engine or when using compressed air or high-pressure water. Dust, flying debris, compressed air, pressurized water or steam may injure your eyes.**

**Poor Lighting Hazard**

**Avoid personal injury or equipment damage. Ensure that the work area is adequately illuminated. Always install wire cages on portable safety lamps.**

**Tool Hazard**

**Avoid personal injury or equipment damage. Always use tools appropriate for the task at hand and use the correct size tool for loosening or tightening machine parts.**

**Before starting the engine, always turn the switches on the working appliances (lighting apparatus, motor, etc.) to their OFF position. If the switches are not OFF, the sudden application of load when the engine is started could be very dangerous.**

**NOTICE**

Never attempt to modify the generator set design or safety features such as defeating the engine speed limit control or the diesel fuel injection quantity control.

Modifications may impair the generator set's safety and performance characteristics and shorten the generator set's life. Any alterations to this generator set may void its warranty. Always use YANMAR genuine replacement parts.



Always be environmentally responsible.

Follow the guidelines of the governmental agencies for the proper disposal of hazardous materials such as engine oil, and diesel fuel. Consult the local authorities or reclamation facility.

Contact your authorized YANMAR industrial engine dealer or distributor if you need to operate the engine at high altitudes. At high altitudes the engine will lose power, run rough, and produce exhaust gases that exceed the design specifications.

- Always use correct polarity when you connect battery cables to the battery. This generator uses a negative ground, 12 VDC starting system.
- Make sure battery terminals are clean.
- Make sure cable connections are tight.
- Always shut down engine before removing or attaching battery cables.

## NOTICE

If you remove battery from generator, insulate the terminal on the end of the red, positive (+) battery cable. If the terminal is not insulated, it may spark when generator runs. Sparks may cause damage to the generator's electronic circuits

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Never operate the generator if it vibrates at high levels, if engine speed changes greatly or if the engine misfires often.

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Never use an engine starting aid such as ether. Engine damage will result.

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Always make sure the generator is operated on a level surface. If operated at an angle greater than 20° (in any direction) the battery could leak fluid. The generator must be on a flat level surface when checking the battery fluid level. If an engine runs for short periods of time (less than three minutes) at an angle greater than 25° in any direction, engine oil may enter the combustion chamber causing excessive engine speed and generate white smoke. This may cause serious engine damage.

---

Always run the engine at full speed. Never run engine at lower speeds. At full speed, the engine runs at 3000 (or 3600) min<sup>-1</sup> (rpm) under load. The engine must maintain 3000 (or 3600) min<sup>-1</sup> (rpm) for generator to create correct voltage. Running engine at lower speeds will damage generator and powered items.

---

Never attach tools or appliances to the generator before it is started. Always disconnect tools and appliances from the generator before starting.

---

## NOTICE

Observe the following environmental operating conditions to maintain engine performance and avoid premature engine wear:

- The standard range of ambient temperatures for the normal operation of YANMAR engines is from +5 °F (-15 °C) to +113 °F (+35 °C).
- If the ambient temperature exceeds +113 °F (+35 °C) the engine may overheat and cause the engine oil to break down.
- If the ambient temperature is below +5 °F (-15 °C) the engine will be hard to start and the engine oil may not flow easily.

Contact your authorized YANMAR industrial engine dealer or distributor if the engine will be operated outside of this standard temperature range.

---

Observe the following environmental operating conditions to maintain generator set performance and avoid premature engine wear:

- Avoid operating in extremely dusty conditions.
  - Avoid operating in the presence of chemical gases or fumes.
  - Avoid operating in a corrosive atmosphere such as salt water spray.
- 

Any part which is found defective as a result of inspection or any part whose measured value does not satisfy the standard or limit must be replaced.

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Always tighten components to the specified torque. Loose parts can cause equipment damage or cause it to operate improperly.

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Only use replacement parts specified. Other replacement parts may affect warranty coverage.

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**NOTICE**

If any indicator illuminates during engine operation, stop the engine immediately. Determine the cause and repair the problem before you continue to operate the engine.

Never operate the generator if:

- Engine speed changes greatly
- Engine misfires often
- Powered items overheat
- Electrical output drops
- It is sparking
- It produces smoke or flames
- It vibrates at high levels
- It has a damaged receptacle

---

Always protect the air cleaner and electric components from damage when you use steam or high pressure water to clean the generator.

---

Always turn battery switch OFF (if equipped) or disconnect the negative battery cable before servicing the electrical system.

---

Never operate the generator set while wearing a headset to listen to music or radio because it will be difficult to hear warning signals.

---

When the engine is operated in dusty conditions, clean the air cleaner element more frequently. Never operate the engine with the air cleaner element(s) removed. This may cause foreign material to enter the engine and damage it.



### **FORESEEABLE MISUSE**

Foreseeable misuse and improper applications include, but are not limited to, the following:

- Operation not in compliance with the instructions given into this manual.
- Operation not in compliance with safety related instructions.
- Operation with the machine when it is not working in perfect conditions, either functionally or in terms of safety.
- Operation without following the inspection/maintenance schedule.
- Any unauthorized modification of or removal of safety equipment.
- Use of spare parts and accessories that are unsuitable or have not been approved by Yanmar.
- Operation in flammable or hazardous environments.
- Operation in closed-off or poorly ventilated rooms.



# PRODUCT OVERVIEW

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## YANMAR YDG DIESEL GENERATOR FEATURES AND APPLICATIONS

To achieve the highest performing miniaturized and light-weight diesel engines, YANMAR CO., LTD. developed the LV series single cylinder, air-cooled, diesel engine for applications such as YANMAR YDG generators.

YANMAR's series of LV engines use one of the most advanced single cylinder technologies available.

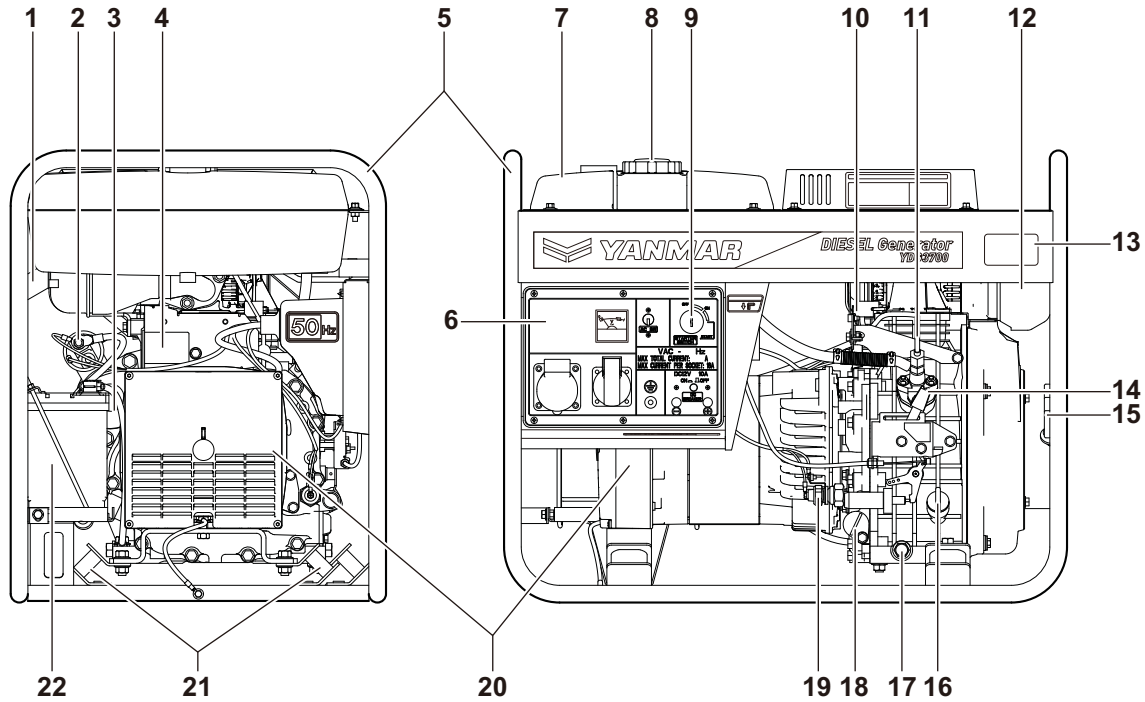
Yanmar YDG generators are designed to supply power to a wide variety of applications including:

- Construction
- Agriculture
- Household

We are sure that you will agree these features provide excellent value in an industrial diesel generator.

## COMPONENT IDENTIFICATION

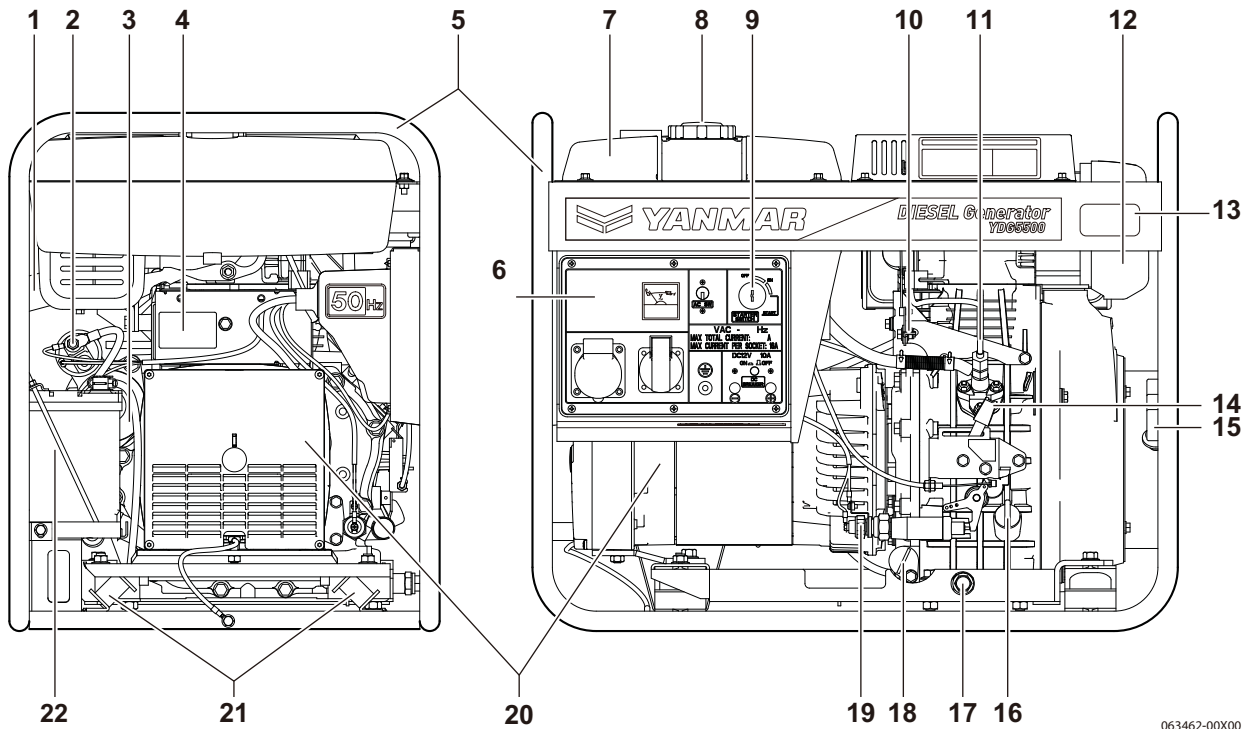
### □ YDG3700V-5(E)BYI2 and YDG3700N-6(E)BYI2 (Typical model)



- |  |  |
|--|--|
| 1 – Muffler                                      | 13 – Generator set model and serial number decal |
| 2 – Starter solenoid (only for electric version) | 14 – Engine control lever                        |
| 3 – Starter motor (only for electric version)    | 15 – Recoil starter                              |
| 4 – Engine nameplate decal                       | 16 – Oil filler cap/dipstick                     |
| 5 – Frame  | 17 – Oil drain plug                              |
| 6 – Control panel                                | 18 – Oil filter                                  |
| 7 – Fuel tank                                    | 19 – Oil pressure switch                         |
| 8 – Fuel filler cap                              | 20 – Generator unit                              |
| 9 – Starter switch (only for electric version)   | 21 – Generator/engine damper mounts              |
| 10 – Compression release lever                   | 22 – Battery (only for electric version)         |
| 11 – Fuel injection pump                         |  |
| 12 – Air cleaner                                 |  |

**Figure 1**

□ YDG5500V-5(E)BYI2 and YDG5500N-6(E)BYI2 (Typical model)



063462-00X00

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>1 – Muffler</li> <li>2 – Starter solenoid (only for electric version)</li> <li>3 – Starter motor (only for electric version)</li> <li>4 – Engine nameplate decal</li> <li>5 – Frame</li> <li>6 – Control panel</li> <li>7 – Fuel tank</li> <li>8 – Fuel filler cap</li> <li>9 – Starter switch (only for electric version)</li> <li>10 – Compression release lever</li> <li>11 – Fuel injection pump</li> <li>12 – Air cleaner</li> </ul> | <ul style="list-style-type: none"> <li>13 – Generator set model and serial number decal</li> <li>14 – Engine control lever</li> <li>15 – Recoil starter</li> <li>16 – Oil filler cap/dipstick</li> <li>17 – Oil drain plug</li> <li>18 – Oil filter</li> <li>19 – Oil pressure switch</li> <li>20 – Generator unit</li> <li>21 – Generator/engine damper mounts</li> <li>22 – Battery (only for electric version)</li> </ul> |
|--|--|

**Figure 2**

# PRODUCT OVERVIEW

## LOCATION OF LABELS

### Safety Decals

- YDG3700V-5(E)BYI2, YDG5500V-5(E)BYI2, YDG3700N-6(E)BYI2, YDG5500N-6(E)BYI2

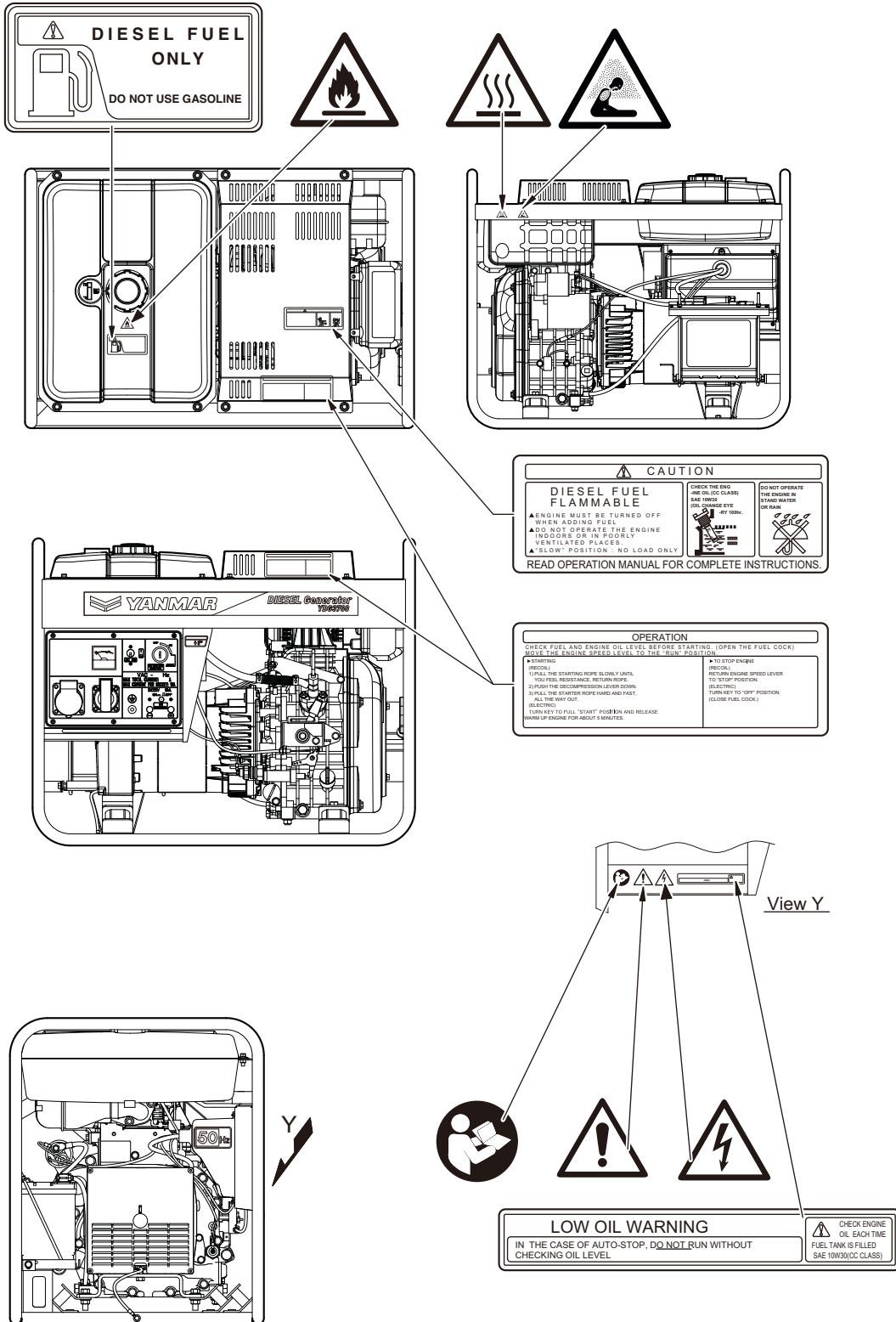


Figure 3

### Generator Set Decal

The YDG generator set model and serial number information decal is located inside the top front frame rail.

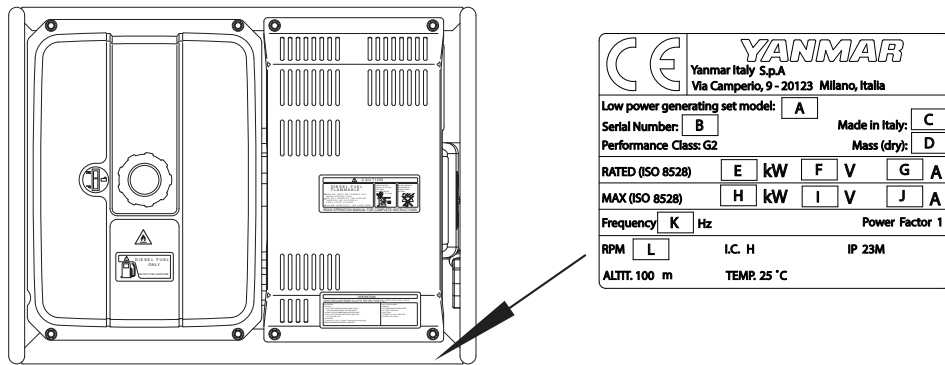
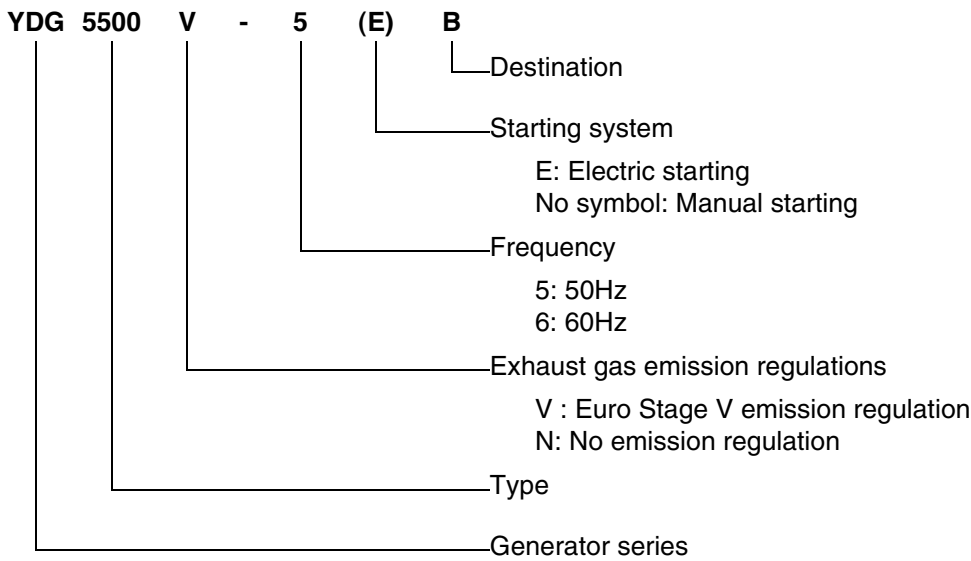


Figure 4

### Description of Generator Set Model Number



# PRODUCT OVERVIEW

## Generator Decal

The generator decal is located on the left side of the generator body.

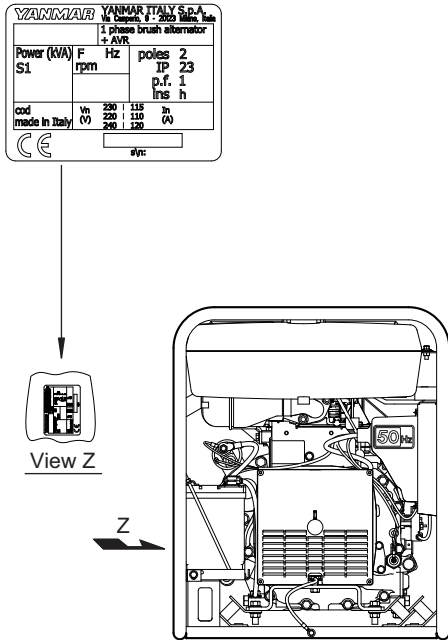


Figure 5

## Engine Nameplate (Typical)

The engine nameplate (**Figure 7**) is located on the cooling shroud on the PTO side of engine above the starter (1, **Figure 6**).

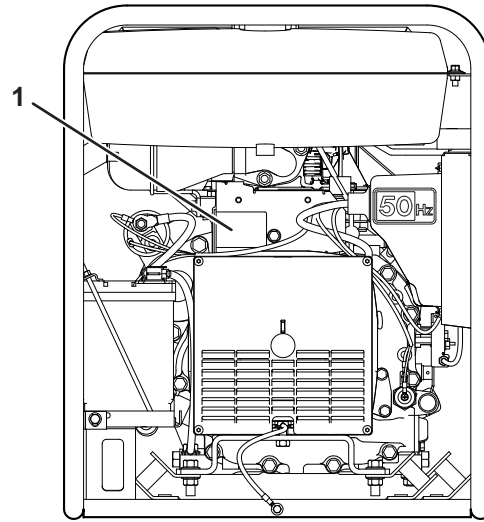


Figure 6

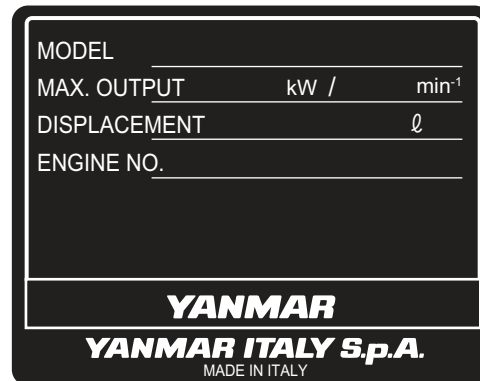


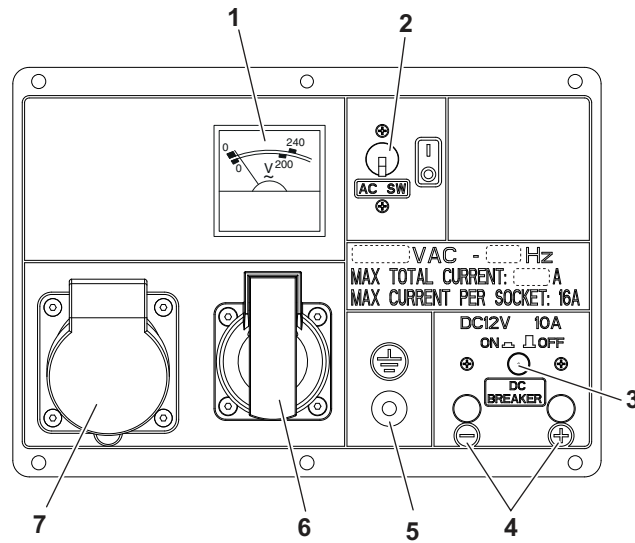
Figure 7

**FUNCTION OF MAJOR COMPONENTS**

Components	Functions
Air cleaner	The air cleaner prevents airborne contaminants from entering the engine. Periodic replacement of the air cleaner filter element is necessary. <i>See Periodic Maintenance Schedule on page 47</i> for the replacement frequency.
Dynamo	If the engine is equipped with electric start, a charging dynamo is located under the engine flywheel. The dynamo supplies regulated electricity to the engine systems and charges the battery while the engine is running.
Low engine oil shutdown	The generator is equipped with a low oil shutdown feature. If the engine is run when it is low on oil, the oil pressure will drop. The oil pressure switch will sense the drop in pressure and activate the stop solenoid, which will shut the engine down. Once the oil level is corrected, and pressure is normal, the engine can be run again.
Engine oil filter	The engine oil filter removes contaminants and sediment from the engine oil. Periodic cleaning of the oil filter is necessary. <i>See Periodic Maintenance Schedule on page 47</i> for the frequency of cleaning.
Side filler ports (engine oil)	You can fill the crankcase with engine oil from either side of the engine depending upon which filler port is most convenient.
Fuel filters	Inlet and outlet fuel filters are provided to remove contaminants and sediment from the diesel fuel. Periodic cleaning/replacement is required. <i>See Periodic Maintenance Schedule on page 47.</i>
Fuel tank	The fuel tank is a reservoir that holds diesel fuel. Fuel is gravity-fed to the fuel injection pump. Since fuel is used to keep fuel system components cool and lubricated, more fuel than is necessary for combustion enters the fuel system. Any fuel that is not used for combustion is returned to the fuel tank.
Oil cap/dipstick (engine oil)	The engine oil cap/dipstick combines the oil cap and dipstick in one assembly. The dipstick part of the assembly is used to determine the amount of engine oil in the crankcase.
Starter motor	The starter motor is powered by the battery. When you turn the key switch to the START position, the starter motor engages with the ring gear installed on the flywheel and starts the flywheel in motion.
Control panel	The control panel houses all the controls, switches, terminals, outlets and meters for the generator. All electrical power created by the generator is directed to the control panel and output is sent through various outlets and terminals located on the control panel.
Generator	The generator is coupled to the engine to produce electrical power to operate various loads and or machines. The generator is constructed as a self-exciting single phase A/C, and is comprised of a stator, rotor, automatic voltage regulator, rectifier and housing components.

## GENERATOR CONTROL PANEL

- YDG3700V-5BYI2, YDG5500V-5BYI2, YDG3700N-6BYI2, YDG5500N-6BYI2

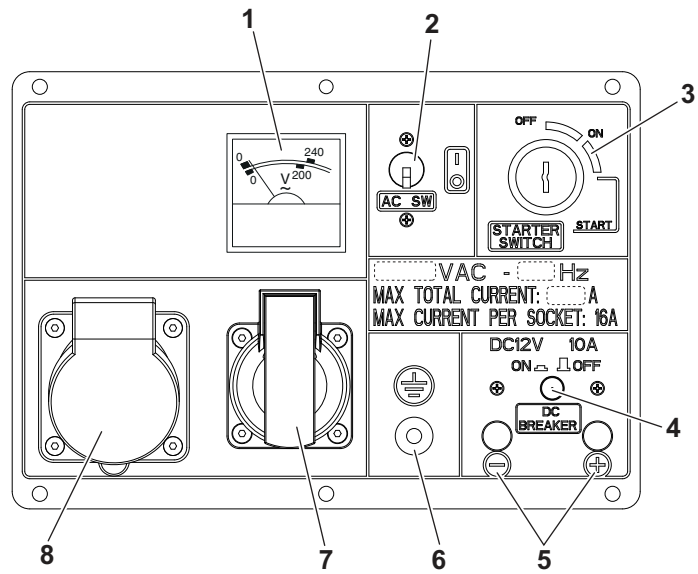


- 1 – Voltage meter
- 2 – AC circuit breaker  
(Generator main switch-circuit breaker)
- 3 – DC circuit breaker (12 VDC output)
- 4 – 12 VDC output receptacle  
(For 12 VDC battery charging only)
- 5 – Grounding terminal
- 6 – Schuko socket (230V)
- 7 – CEE socket (230V)

**Figure 8**



- YDG3700V-5EBYI2, YDG5500V-5EBYI2, YDG3700N-6EBYI2, YDG5500N-6EBYI2



- |   |  |
|---|--|
| 1 – Voltage meter   | 5 – 12 VDC output receptacle<br>(For 12 VDC battery charging only) |
| 2 – AC circuit breaker<br>(Generator main switch-circuit breaker) | 6 – Grounding terminal   |
| 3 – Engine start key switch                                       | 7 – Schuko socket (230V)   |
| 4 – DC circuit breaker (12 VDC output)                            | 8 – CEE socket (230V)  |

**Figure 9**

## PRODUCT OVERVIEW

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### AIR COOLED ENGINE

The engine is air-cooled by a cooling fan. The cooling system consists of a fan attached to the flywheel. The fan blows air past the cooling fins on the cylinder head and cylinder, which are enclosed by shrouds that direct the air flow.

### ENGINE CONTROLS - RECOIL STARTER

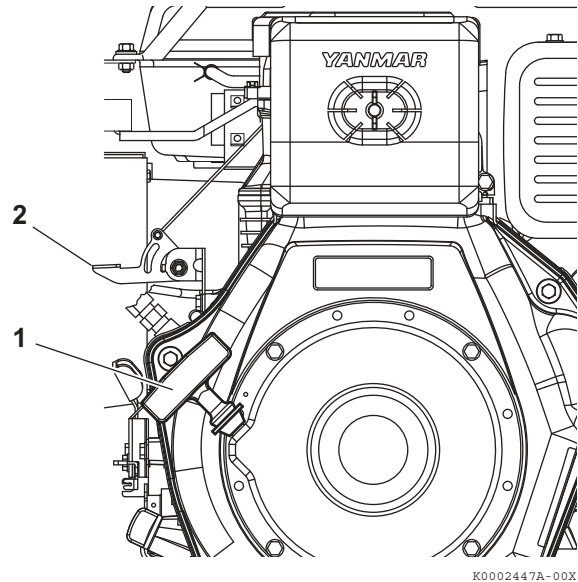
The engines are equipped with a recoil and an electric starter. This section explains the controls available with the recoil starter.

#### Recoil Starter

A recoil starter allows you to manually start an engine by pulling on the recoil starter handle (1, **Figure 10**). When you pull on the handle you set the flywheel and crankshaft in motion. The recoil starter is spring-loaded so the handle and attached rope automatically return to the recoil starter assembly.

#### Decompression Lever

Pressing the decompression lever (2, **Figure 10**) helps you start the engine by reducing the effort needed to pull the recoil starter handle. The decompression lever will automatically return to the original position when the engine starts.

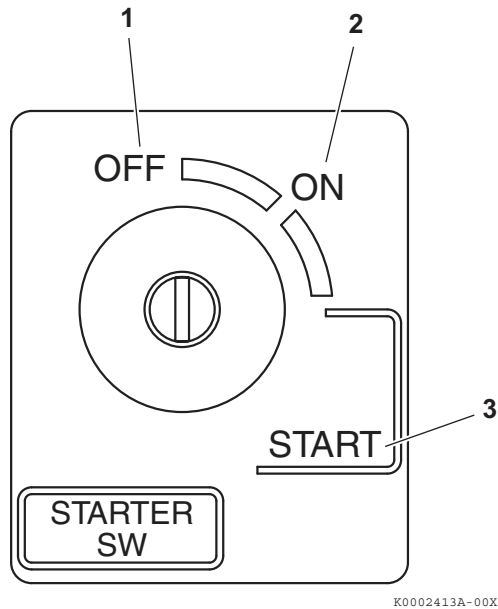


**Figure 10**

## ENGINE CONTROLS - ELECTRIC STARTER

### Key Switch

The generator is equipped with a three position key switch - OFF, ON, and START.



**Figure 11**

OFF (key straight up and down) (1, **Figure 11**) - When you turn the key to this position the engine shuts down. Electric current to the battery, low engine oil shutdown device and other electric devices is shut off. The key can be inserted and removed from this position.

ON (2, **Figure 11**) - This is the position the key will be in when the engine is running. After starting engine, key switch will automatically return to this position.

START (3, **Figure 11**) - Turn the key to this position to start the engine. As soon as the engine starts, release the key and it will automatically return to the ON position.

### NOTICE

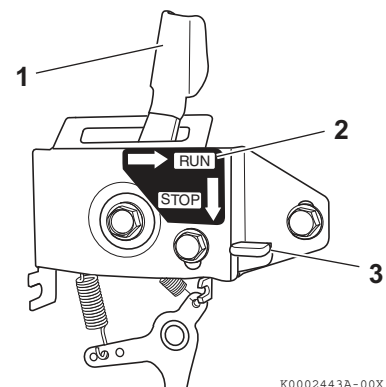
Never hold the key in the START position for longer than 15 seconds or the starter motor will overheat.

### Engine Speed Control Lever

### NOTICE

If using the stop lever to shut-down the engine, be sure to return the key switch to the OFF position to prevent discharging of the battery.

The engine speed control lever (1, **Figure 12**) is moved to the run position (2, **Figure 12**) for generator operation. To stop the generator, turn the key switch to the OFF position, or push down on the stop lever (3, **Figure 12**) and the speed control lever (1, **Figure 12**), which is spring-loaded, will move back to the stop position.



**Figure 12**

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# BEFORE YOU OPERATE

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## INTRODUCTION

This section of the *Operation Manual* describes activating a new battery, diesel fuel and engine oil specifications and how to replenish them. It also describes the proper way to connect the electrical loads to the generator and the daily engine checkout.

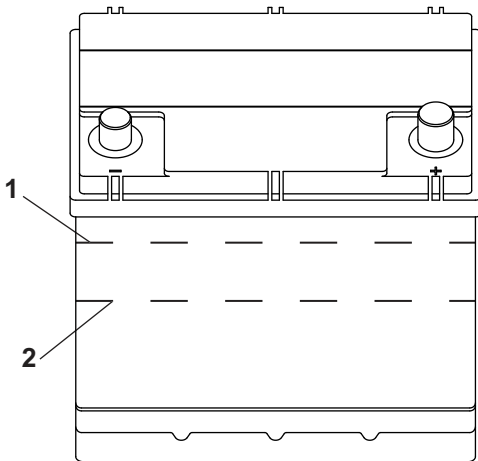
Before performing any storage procedures within this section, *review the Safety section on page 1.*

### BATTERY

#### Checking Battery Electrolyte Level

#### **⚠ DANGER**

Never check the remaining battery charge by shorting out the terminals. This will result in a spark and may cause an explosion or fire. Use a hydrometer to check the remaining battery charge.



**Figure 1**

- When the amount of fluid nears the lower limit line (2, **Figure 1**), remove caps and fill with distilled water so it is at the upper limit line (1, **Figure 1**). If operation continues with insufficient battery fluid, the battery life is shortened, and the battery may overheat and explode. During the summer, check the fluid level more often than specified.

#### **⚠ WARNING**

Batteries contain sulfuric acid. Never allow battery fluid to come in contact with clothing, skin or eyes. Severe burns could result. Always wear safety goggles and protective clothing when servicing the battery. If battery fluid contacts the eyes and/or skin, immediately flush the affected area with a large amount of clean water and obtain prompt medical treatment.

- If the engine cranking speed is so slow that the engine does not start, recharge the battery.
- If the engine still will not start after charging, have your authorized YANMAR industrial engine dealer or distributor check the battery and the engine's starting system.
- If operating the machine where the ambient temperature could drop to 14 °F (-10 °C) or less, remove the battery from the machine at the end of the day. Store the battery in a warm place until the next use. This will help start the engine easily at low ambient temperatures.

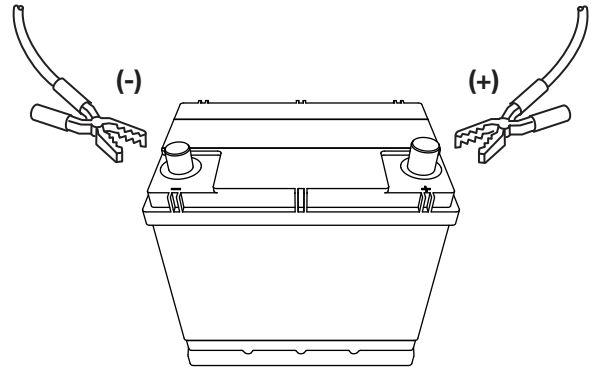
## Charging the Battery

1. Disconnect the battery cables from the battery. See *Disconnecting and Connecting Battery Cables* on page 25.
2. Clean terminals on the battery and clamps on the end of the cables.
3. Connect the positive (+) clamp from the charger to the positive (+) terminal on the battery.

### **⚠ DANGER**

- If the electrolyte is frozen, slowly warm the battery before you recharge it.
- **Avoid serious personal injury or equipment damage. Before charging, remove the cap from each cell of the battery and always make sure there is plenty of ventilation when charging battery. Discontinue charging if the electrolyte temperature exceeds 117 °F (45 °C). While the engine is running or the battery is charging, hydrogen gas is being produced and can be easily ignited. Always keep the area around the battery well-ventilated and keep sparks, open flames and any other form of ignition out of the area.**
- **Never charge the battery while connected. The diodes will be damaged by the high voltage. Connect the (+) lead of the charger to the (+) terminal of the battery, and the (-) lead to the (-) terminal. Reversed polarity will damage the charger rectifier or the battery. After charging is completed, connect the battery cables correctly to the battery. Reversed polarity wiring will damage the diodes. Quick-charging should only be done in an emergency; slow charging is recommended.**

4. Connect the negative (-) clamp from the charger to the negative (-) terminal on the battery.



**Figure 2**

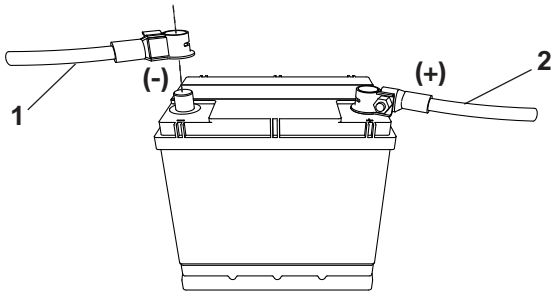
5. When finished charging the battery, unplug the charger before disconnecting clamps from the battery. See *Disconnecting and Connecting Battery Cables* on page 25.

## Disconnecting and Connecting Battery Cables

### **⚠ CAUTION**

**This generator uses a negative ground 12 VDC starting system. Always shut down the engine before removing or attaching battery cables. Always remove the negative (-) cable first. Always attach the negative (-) cable last**

1. When disconnecting cables, loosen and disconnect negative (-) cable (1, **Figure 3**) first from battery.
2. Disconnect positive (+) cable (2, **Figure 3**) from battery last.



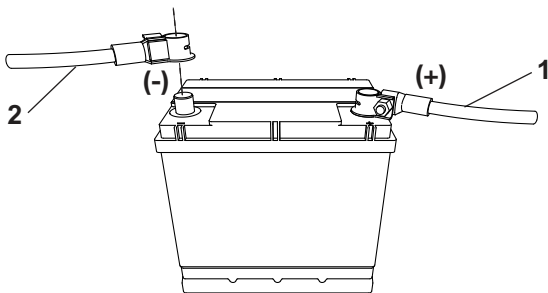
**Figure 3**

- When connecting cables to battery connect the positive (+) cable (1, **Figure 4**) first.

## ⚠ CAUTION

**When you install a battery, always use correct polarity when you connect battery cables to the battery. Always make sure the battery terminals are clean and tight.**

- Connect the negative (-) cable (2, **Figure 4**) to the battery last.



**Figure 4**

## DIESEL FUEL

### Diesel Fuel Specifications

Diesel fuel should comply with the following specifications. The table lists several worldwide specifications for diesel fuels.

### NOTICE

Always use diesel fuels recommended by YANMAR for the best engine performance, to prevent engine damage. Only use clean diesel fuel.

Diesel fuel specification	Location
EN590:96	European Union
ISO 8217 DMX	International
BS 2869-A1 or A2	United Kingdom
JIS K2204 grade No.2	Japan
KSM-2610	Korea
GB252	China

#### □ Additional technical fuel requirements

- The fuel cetane number should be equal to 45 or higher.
- The sulfur content must not exceed 0.5 % by volume. Less than 0.05 % is preferred.
- Bio-diesel fuels. *See Bio-diesel fuels on page 27.*
- Never mix kerosene, used engine oil, or residual fuels with the diesel fuel.
- Water and sediment in the fuel should not exceed 0.05 % by volume.
- Keep the fuel tank and fuel-handling equipment clean at all times.
- Poor quality fuel can reduce engine performance and/or cause engine damage.
- Fuel additives are not recommended. Some fuel additives may cause poor engine performance. Consult your YANMAR industrial engine dealer or distributor for more information.



- Ash content not to exceed 0.01 % by volume.
- Carbon residue content not to exceed 0.35 % by volume. Less than 0.1 % is preferred.
- Total aromatics content should not exceed 35 % by volume. Less than 30 % is preferred.
- PAH (Polycyclic Aromatic Hydrocarbons) content should be below 10 % by volume.
- Metal content of Na, Mg, Si, and Al should be equal to or lower than 1 mass ppm. (Test analysis method JPI-5S-44-95)
- Lubricity: Wear mark of WS1.4 should be Max. 0.018 in. (460 µm) at HFRR test.

## □ Bio-diesel fuels

In Europe and in the United States, as well as some other countries, non-mineral oil based fuel resources such as RME (Rapeseed Methyl Ester) and SOME (Soybean Methyl Ester), collectively known as FAME (Fatty Acid Methyl Esters), are being used as extenders for mineral oil derived diesel fuels.

YANMAR approves the use of bio-diesel fuels that do not exceed a blend of 7 % (by volume) of FAME with 93 % (by volume) of approved mineral oil derived diesel fuel. Such bio-diesel fuels are known in the marketplace as B7 diesel fuels.

### These B7 diesel fuels must meet certain requirements

1. The bio-fuels must meet the minimum specifications for the country in which they are used.
  - In Europe, bio-diesel fuels must comply with the European Standard EN14214 and EN590 (for Oxidation stability).
  - In the United States, bio-diesel fuels must comply with the American Standard ASTM D-6751 and ASTM D-7467 (for Oxidation stability).
2. Bio-fuels should be purchased only from recognized and authorized diesel fuel suppliers.

In North America, bio-diesel and bio-diesel blends must be purchased from the BQ-9000 accredited producers and BQ-9000 certified distributors.

### Precautions and concerns regarding the use of bio-fuels:

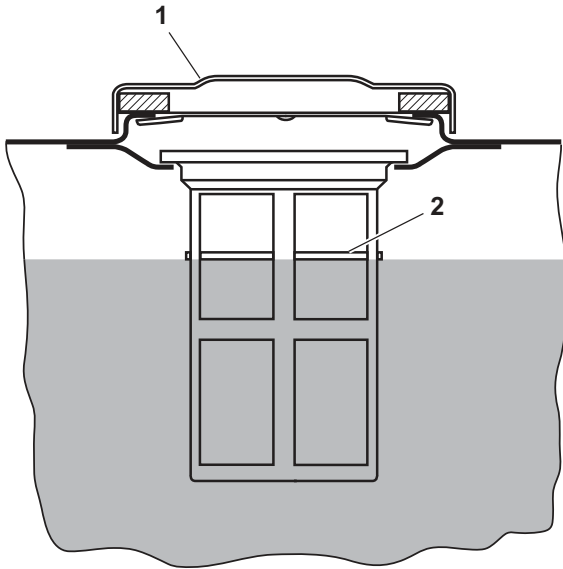
1. Free methanol in FAME may result in corrosion of aluminum and zinc FIE components.
2. Free water in FAME may result in plugging of fuel filters and increased bacterial growth.
3. High viscosity at low temperatures may result in fuel delivery problems, injection pump seizures, and poor injection nozzle spray atomization.
4. FAME may have adverse effects on some elastomers (seal materials) and may result in fuel leakage and dilution of the engine lubricating oil.
5. Even bio-diesel fuels that comply with a suitable standard as delivered, will require additional care and attention to maintain the quality of the fuel in the equipment or other fuel tanks. It is important to maintain a supply of clean, fresh fuel. Regular flushing of the fuel system, and/or fuel storage containers, may be necessary.
6. The use of bio-diesel fuels that do not comply with the standards as agreed to by the diesel engine manufacturers and the diesel fuel injection equipment manufacturers, or bio-diesel fuels that have degraded as per the precautions and concerns above, may affect the warranty coverage of your engine. See *YANMAR Limited Warranty on page i*.

# BEFORE YOU OPERATE

## Filling the Fuel Tank

### **⚠ DANGER**

Only fill the fuel tank with diesel fuel. Filling the fuel tank with gasoline may result in a fire and will damage the engine, never refuel with the engine running.



K0002459A-00X

**Figure 5**

1. Clean the area around the fuel cap.
2. Remove the fuel cap (1, **Figure 5**) from the fuel tank.

### **⚠ CAUTION**

Never remove inlet fuel screen from the filler port when filling the fuel tank. If removed, dirt and debris could get into the fuel system causing it to clog.

3. Stop fueling when the fuel is at the same level as the red ring (2, **Figure 5**) at the bottom of the inlet fuel screen.

### **⚠ DANGER**

Never overfill the fuel tank.

4. Replace the fuel cap and hand-tighten. Over-tightening the fuel cap will damage it.

## ENGINE OIL

The YANMAR YDG generators are equipped with a low oil pressure stop device. This device stops the engine automatically when the oil pressure falls below the specified level and prevents engine seizure when engine oil is low.

## Engine Oil Specifications

### **NOTICE**

Never mix different types of engine oil. This may adversely affect the lubricating properties of the engine oil. Only use the engine oil specified. Other engine oils may affect warranty coverage, cause internal engine components to seize, and/or shorten engine life.

Use an engine oil that meets or exceeds the following guidelines and classifications:

#### □ **Service categories**

- API service categories CD or higher
- ACEA service categories E-3, E-4, and E-5
- JASO service category DH-1

#### □ **Definitions**

- API classification (American Petroleum Institute)
- ACEA classification (Association des Constructeurs Européens d'Automobiles)
- JASO (Japanese Automobile Standards Organization)

*Note:*

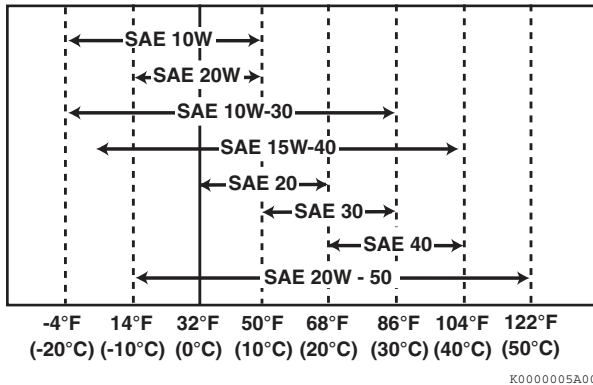
- *Be sure the engine oil, engine oil storage containers, and engine oil filling equipment are free of sediments and water.*
- *Change the engine oil after the first 50 hours of operation and then every 200 hours thereafter.*
- *Select the oil viscosity based on the ambient temperature where the engine is being operated. See the SAE service grade viscosity chart (**Figure 6**).*
- *YANMAR does not recommend the use of engine oil "additives".*

□ **Additional technical engine oil requirements:**

The engine oil must be changed when the Total Base Number (TBN) has been reduced to 2.0. TBN (mgKOH/g) test method; JIS K-201-5.2-2 (HCl), ASTM D4739 (HCl).

**Engine Oil Viscosity**

Select the appropriate engine oil viscosity based on the ambient temperature using the SAE service grade viscosity chart in (Figure 6).



**Figure 6**

**Checking Engine Oil**

1. Make sure engine is level.
2. Remove oil cap/dipstick (1, Figure 7) from either location and wipe with clean cloth.

**NOTICE**

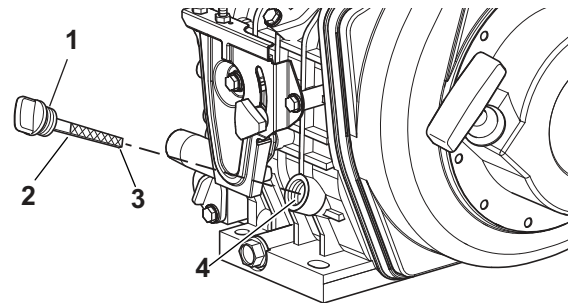
Prevent dirt and debris from contaminating the engine oil. Always clean the oil cap/dipstick and the surrounding area before you remove the cap.

3. Reinsert oil cap/dipstick into crankcase and turn clockwise for one-half revolution to engage the first thread in the crankcase opening.
4. Remove oil cap/dipstick. The oil level should be between upper (2, Figure 7) and lower (3, Figure 7) lines on the oil cap/dipstick.

**NOTICE**

Always keep the oil level between the upper and lower lines on the oil cap/dipstick.

5. Fully reinsert oil cap/dipstick (1, Figure 7) and hand-tighten. Over-tightening the oil cap/dipstick will damage it.



**Figure 7**

# BEFORE YOU OPERATE

## Adding Engine Oil

1. Make sure engine is level.
2. Remove oil cap/dipstick (1, **Figure 7**).
3. Add indicated amount of engine oil at either one of the engine oil filler ports (4, **Figure 7**).
4. Wait one minute and check oil level.
5. Add engine oil as needed until the level is between the upper (2, **Figure 7**) and lower (3, **Figure 7**) lines on the oil cap/dipstick.

### NOTICE

Never overfill. Overfilling may result in white exhaust smoke, engine overspeed or internal damage.

6. Fully reinsert oil cap/dipstick and hand-tighten. Over-tightening the oil cap/dipstick will damage it.

## Engine Oil Capacity

The following table shows engine oil capacities for YANMAR YDG generators.

Engine/generator model	Dipstick upper limit/lower limit
Engine L70V(N) generator YDG3700V(N)	1.11/0.69 qt (1.05/0.65 L)
Engine L100V(N) generator YDG5500V(N)	1.7/1.06 qt (1.6/1.0 L)

## GENERATOR CHECK

### ⚠ WARNING

**Always have a licensed electrician connect the generator to the utility circuit. The generator must not be connected to other power sources. Improper installation can cause the generator to back-feed into the utility power line. This may electrocute a power company line repair person. Also, if the generator is powering electrical circuits, the chance of an electrical fire exists.**

1. Only use grounded extension cords. Be sure to use an extension cord with the proper wire gauge size. See the following table.

### Recommended minimum wire gauges (AWG) for extension cords

Ampere load	AWG for length of cord ft (m)		
	50 (15)	100 (30)	150 (46)
2	18	18	18
3	18	18	18
4	16	16	16
5	16	16	16
6	16	16	14
8	16	14	12
10	16	14	12
12	14	14	12
14	14	12	10
16	12	12	10
20	10	10	8

2. If electrical separation cannot be adopted for indirect contact protection (see page 3), properly ground the unit:
  - Attach a #10 stranded-copper ground wire to the ground lug.
  - Drive a grounding point into the ground. The grounding point can be a stake, grounding rod or pipe. The grounding point should be copper or brass.

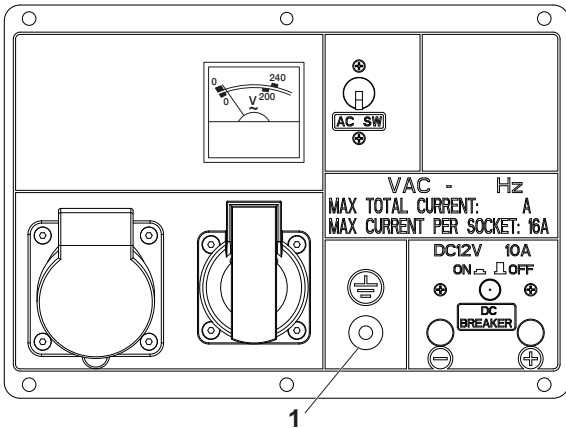
### ⚠ CAUTION

**Never use metal pipe that carries combustible materials or gases to ground the generator. Always ground the generator. Connect a length of heavy wire between the generator ground terminal and an external ground.**

- Attach the ground wire to the grounding point (1, **Figure 8**). You must supply the ground wire and grounding point. These are not supplied with the generator. Follow the local safety standards. Consult your power company or a licensed electrician.

**YDG3700V-5B, YDG5500V-5B**

**YDG3700N-6B, YDG5500N-6B**



**Figure 8**

3. Select the proper load for use with the generator set. See *Selecting the Proper Load* on page 32.
4. Before starting, always turn OFF the main AC switch of the generator (1, **Figure 9**) or (1, **Figure 10**) and any other loads. Make sure nothing is plugged into or connected to the generator.

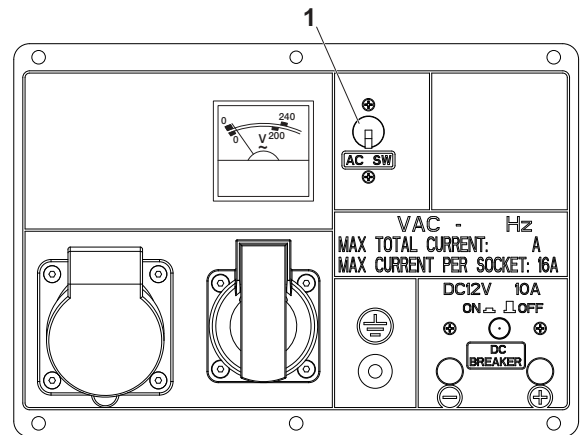
## **CAUTION**

**Do not start two or more appliances simultaneously and always start them one at a time. Never use floodlights with other appliances. Connection with utilities must be done only with sockets located on generator control panel.**

- (1, **Figure 9**) shows the main AC switch on the YDG3700V-5B generator.

**YDG3700V-5B, YDG5500V-5B**

**YDG3700N-6B, YDG5500N-6B**

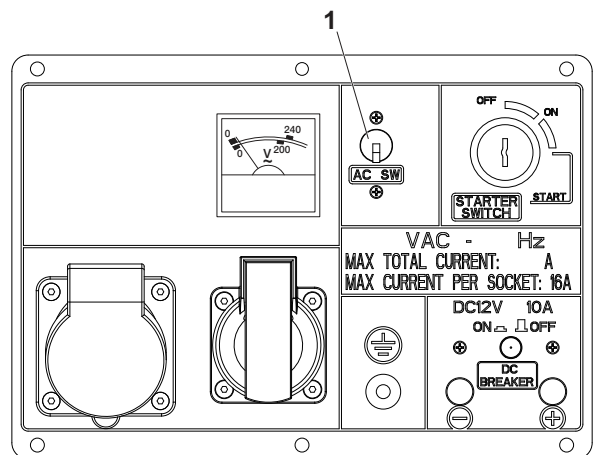


**Figure 9**

- (1, **Figure 10**) shows the main AC switch on the YDG5500V-5EB generators.

**YDG3700V-5EB, YDG5500V-5EB**

**YDG3700N-6EB, YDG5500N-6EB**



**Figure 10**

## BEFORE YOU OPERATE

### Selecting the Proper Load

#### CAUTION

- Never exceed the specified current limit for any one electrical terminal.
- Most home utility electric service is more than 60 amps. This generator will not power your entire home. This will exceed generator output. Only power items needed during a power outage. Always ensure total wattage of electrical load does not exceed rated wattage of generator.

#### NOTICE

Most electric appliances require more than their rated wattage for start-up.

The following appliance wattage table shows wattage of some common household appliances. This should be used as a generic guide only. Different manufacturers of certain products may require more wattage. See your authorized YANMAR industrial engine dealer or distributor with any questions.

Decide what electrical load your generator can power. Do this before using the generator. Use the following four step method. It will help to select a load that is not too large. Make sure total wattage of all electrical loads does not exceed the rated output capacity of your generator.

1. Make two lists of items you want powered by the generator. List all motors and motor powered appliances in one. List all lights and small appliances in the other. For standby service to home or building, only include items you must power.

#### CAUTION

Do not start two or more appliances simultaneously and always start them one at a time. Never use floodlights with other appliances.

2. Enter running watts of each item except electric motors. The light bulb or appliance nameplate lists its wattage. Remember, 1 kW = 1000 watts.

*Note: The nameplate may not list wattage. It may only list volts and amps.*

- The formula for finding wattage is:  
volts × amps = watts.
  - For example, an appliance nameplate states 3 amps at 220 volts: 3 amps × 220 volts = 660 watts.
3. Electric motors present a special problem when figuring load as they require up to three times their rated wattage to start.
- For example, an electric motor nameplate states 5 amps at 220 volts.

5 amps × 220 volts = 1100 watts: **Running Watts**

Multiply this by 3. This will show the starting watts needed.

1100 watts × 3 = 3300 watts: **Starting Watts**

#### NOTICE

When figuring the generator load for motors, you must use the **Starting Watts** and not the **Running Watts**.

*Note: Some motors require nearly the same wattage to run as to start. These items include saws, drills, hair dryers and food mixers.*

4. Add running watts and starting watts of all items. This total must not exceed the rated output capacity of your generator. It is a good idea to have up to 25 % extra capacity for future needs or extra equipment.

□ **Typical electrical appliance wattages**

<b>Application/equipment</b>	<b>Running/rated watts</b>	<b>Starting/surge watts</b>
Light bulb (100 W)	100	100
AM/FM radio	50 - 200	50 - 200
CB radio	50	50
Fan	200	600
Television	300 - 400	300 - 400
Microwave oven	700	1000
Air conditioner (12,000 BTU)	3250	5000
Furnace fan (1/3 hp blower motor)	600	1800
Vacuum cleaner	600	750
Sump pump (1/3 hp)	700	2100
Refrigerator/freezer	800	2400
Deep freezer	500	1500
Circular saw	1000 - 2500	2300 - 4600
Circular saw 6 in.	800	1000
Floodlight	1000	1000
Drill 1/2 in. electric	1000	1250
Toaster	1200	1200
Coffee maker	1200	1200
Skillet	1200	1200
Chain saw 14 in. electric	1200	1500
Water well pump (1/2 hp)	1000	3000
Hot plate/range (per burner)	1500	1500
Table saw 10 in.	2000	6000
Water heater (storage type)	5000	5000
12 VDC battery charger	120	120



# BEFORE YOU OPERATE

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## INITIAL ENGINE START UP

### NOTICE

On the initial engine start-up, allow the engine to run without a load for approximately 15 minutes while you check for abnormal noises or vibration, diesel fuel leaks, engine oil leaks, and for proper operation.

---

Avoid continuous operation at maximum load for the remainder of the first hour of operation.

During the first 10 hours of operation, check the engine oil level frequently. See *Checking Engine Oil* on page 29.

## DAILY CHECKS

Before you operate, make sure the YANMAR YDG generator is in good operating condition. Make sure you check the following items before you start your generator and have any repairs completed before starting the generator.

### CAUTION

**It is important to perform daily checks as periodic maintenance prevents unexpected downtime, reduces the number of accidents due to poor engine performance and helps extend the life of the engine.**

---

- Visual checks
- Check battery electrolyte level
- Check diesel fuel and engine oil levels

## Visual Checks

### CAUTION

**If any problem is noted during the visual check, the necessary corrective action should be taken before you operate the generator set.**

---

1. Check for engine oil leaks.
2. Check for fuel leaks.

### WARNING

**Always wear eye protection when servicing the generator set. Never check for a fuel leak with your hands. Always use a piece of wood or cardboard. Have your authorized YANMAR dealer or distributor repair the damage.**

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3. Check for damaged or missing parts.
4. Check for loose, missing or damaged fasteners.
5. Check the electrical harnesses for cracks, abrasions and damaged or corroded connectors.
6. Check hoses for cracks, abrasions and damaged, loose or corroded clamps.

## Check Battery Electrolyte Level

Follow the procedures in *Checking Battery Electrolyte Level* on page 24 to check the battery levels.

## Check Diesel Fuel and Engine Oil Levels

Follow the procedures in *Filling the Fuel Tank* on page 28 and *Checking Engine Oil* on page 29 to check these levels.



# GENERATOR OPERATION

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## INTRODUCTION

This section of the *Operation Manual* describes the procedures for starting the generator, checking generator performance during operation and shutting the generator down.

Before performing any storage procedures within this section, *review the Safety section on page 1.*

# GENERATOR OPERATION

## STARTING THE GENERATOR

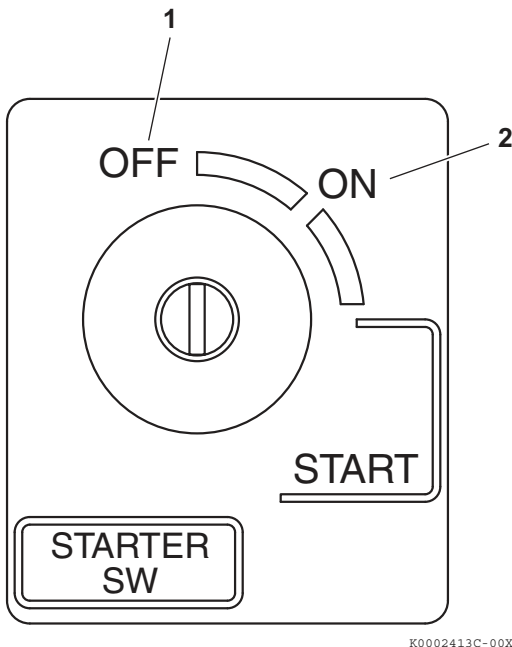
### ⚠ CAUTION

During manual starting operation, a knockback from recoil could happen, with risk of serious injuries, if proper starting procedure is not carried on. Be assured to read and understand starting manual procedure.

### Recoil Start

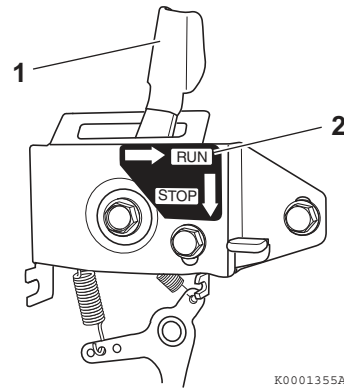
Use the following procedure to start the engine using the recoil starter.

1. Make sure you follow the procedures stated in *Daily Checks on page 34*.
2. Fill fuel tank with clean, fresh fuel. See *Filling the Fuel Tank on page 28*.
3. Before starting, always turn OFF the main AC switch of the generator and any other loads. Make sure nothing is plugged into or connected to the generator. See *Generator Check on page 30*.
4. Turn the key clockwise from the OFF position (1, **Figure 23**) to the ON position (2, **Figure 23**).



**Figure 23**

5. Move the engine control lever (1, **Figure 24**) to the RUN position (2, **Figure 24**).



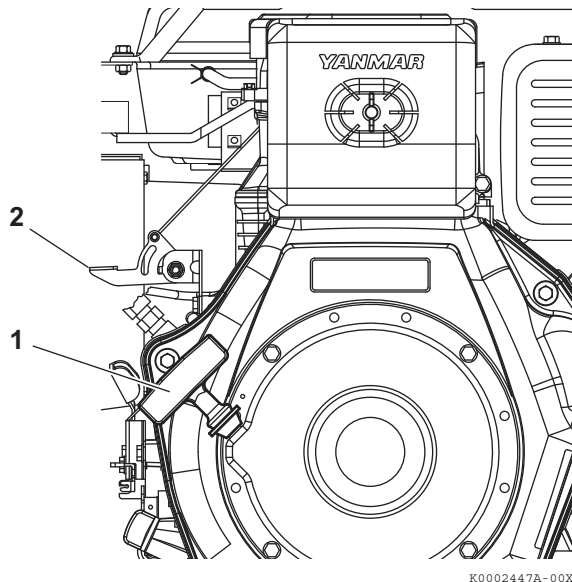
**Figure 24**

6. Grasp the recoil starter handle (1, **Figure 25**).
7. Pull the handle out slowly until you feel strong resistance.
8. Slowly return the recoil starter handle to the initial position.
9. Push the decompression lever (2, **Figure 25**) down until it locks in place and then release it.

### ⚠ CAUTION

**Always depress the decompression lever to allow the engine to start more quickly and prevent damage to the recoil starter.**

The decompression lever will automatically return to the original position when the engine starts.



**Figure 25**

10. Grasp the recoil starter handle (1, **Figure 25**).
11. Pull the handle all the way out with a strong and even motion. Use two hands if necessary.

## NOTICE

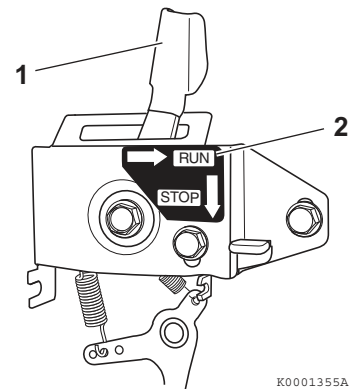
Always pull recoil starter handle all the way out or the engine will not start. Pulling out the recoil starter handle too hard or fast will damage the equipment. Never allow the recoil starter handle to snap back against the engine. Return the handle to the starting position gently to prevent damage to the recoil starter.

12. Slowly return the recoil starter handle to the initial position.
13. If the engine does not start, repeat this procedure from Step 5.

## Electric Start

Use the following procedure to start the engine using the electric starter.

1. Make sure you follow the procedures stated in *Daily Checks* on page 34.
2. Fill fuel tank with clean, fresh fuel. See *Filling the Fuel Tank* on page 28.
3. Before starting, always turn OFF the main AC switch of the generator and any other loads. Make sure nothing is plugged into or connected to the generator. See *Generator Check* on page 30.
4. Move the engine speed control lever (1, **Figure 26**) to the RUN position (2, **Figure 26**).

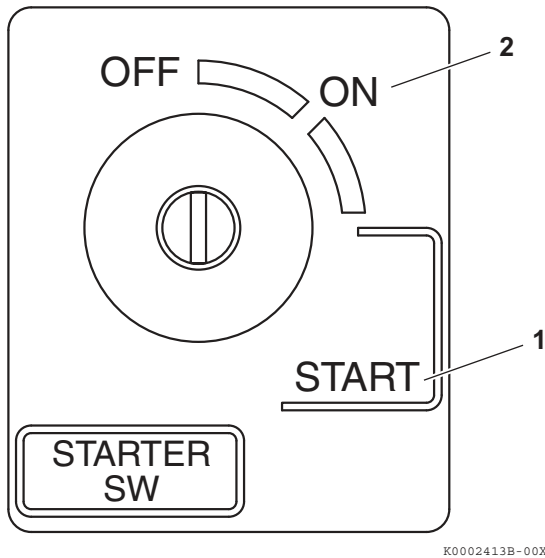


**Figure 26**

5. Insert the key into the key switch.
6. Turn the key clockwise to the START position (1, **Figure 27**). Release the key as soon as the engine starts. It will return to the ON position (2, **Figure 27**).

## NOTICE

Never hold the key in the START position for longer than 15 seconds or the starter motor will overheat.



**Figure 27**

7. If the engine fails to start:

- Wait until the engine comes to a complete stop before you attempt to start it again.

### NOTICE

Engaging the starter while the engine is still rotating will result in damage to the starter motor and flywheel.

- Wait at least 30 seconds before you attempt to start the engine again.

### NOTICE

Waiting 30 seconds will allow the battery voltage to recover to prevent damage to the starter motor due to the low battery voltage.

## CHECKING THE GENERATOR SET DURING OPERATION

1. Check for fuel or engine oil leaks. If any leaks are found, shut down the engine and have the necessary repairs performed.
2. Check for abnormal sounds or vibration. If the abnormal sounds or vibration cannot be resolved, shut down the engine and have the necessary repairs performed. Contact your authorized YANMAR industrial engine dealer or distributor.
3. Check for white or black smoke from the exhaust system. A small amount of white exhaust smoke is normal on start-up of a cold engine. Black exhaust smoke could mean the engine is overloaded or is being over-fueled. If either of these conditions persists, contact your authorized YANMAR industrial engine dealer or distributor.
4. Check the fuel level during operation. If the fuel level runs low, stop the engine and refuel. See *Filling the Fuel Tank on page 28*.
5. If the oil pressure falls below the specified minimum, the low oil pressure shutdown will automatically stop the engine. Check the oil level and refill. See *Checking Engine Oil on page 29*.
6. If the engine suddenly stops, See *Troubleshooting on page 62*, then re-make the starting procedure. If the failure remains, contact your authorized YANMAR industrial engine dealer or distributor.

## Low Load Operation

Avoid low load operation as much as possible. Always operate at 1/4 load or greater when possible.

### NOTICE

Always run the engine at full speed. Never run engine at lower speeds. At full speed, the engine runs at 3000 (3600) min<sup>-1</sup> under load. The engine must maintain 3000 (3600) min<sup>-1</sup> for generator to create correct voltage. Running engine at lower speeds will damage generator and powered items.

Operating at 1/4 load or less for extended periods will cause carbon to mix with unburned fuel, clogging the head of the injection nozzle and piston head and fouling the muffler. Carbon buildup can be recognized by bluish white smoke being emitted from the engine. To avoid this, run the engine at 3/4 load or greater for 30 minutes or longer every 50 hours operation.

## SHUTTING DOWN THE GENERATOR

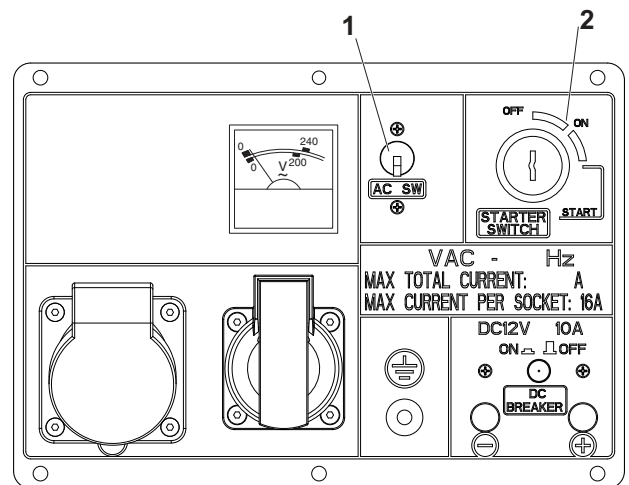
### NOTICE

For maximum engine life, YANMAR recommends that when shutting the engine down, you allow the engine to run, without load, for five minutes. This will allow the engine components that operate at high temperatures, such as the exhaust system, to cool slightly before the engine itself is shut down.

Follow these steps to shut down the engine:

1. Turn the generator main AC switch (1, **Figure 28**) OFF.
2. With the engine speed lever in the RUN position, operate the engine without load for about five minutes.
3. Turn the generator key switch (2, **Figure 28**) to OFF.

**YDG3700V-5EB, YDG5500V-5EB,  
YDG3700N-6EB, YDG5500N-6EB**



**Figure 28**

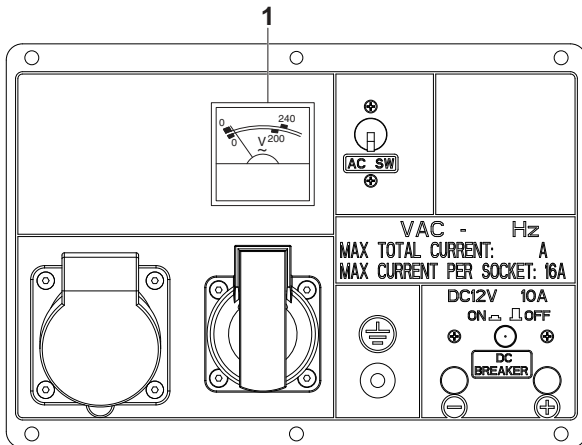
4. If the engine will not be used for six months or longer, follow the additional instructions in *Long-Term Storage* on page 69.

# GENERATOR OPERATION

## AC APPLICATION

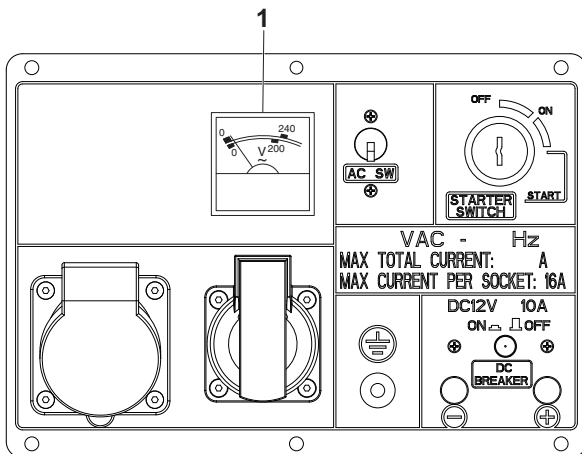
1. Start the engine. See *Starting the Generator on page 36*. Once the engine is started, make sure the voltage meter (1, **Figure 29**) or (1, **Figure 30**) indicates the voltage. If it does not, STOP the generator as the generator or voltage meter may be damaged.

YDG3700V-5B, YDG5500V-5B, YDG3700N-6B,  
YDG5500N-6B



**Figure 29**

YDG3700V-5EB, YDG5500V-5EB  
YDG3700N-6EB, YDG5500N-6EB



**Figure 30**

2. Plug in the appliance.

### CAUTION

Always ensure that all appliances are in good working order before connecting them to the generator. If an appliance begins to operate abnormally, becomes sluggish or stops suddenly, turn off the generator main AC switch immediately. Then disconnect the appliance and examine it for malfunction.

Due to high mechanical stresses, only tough rubber-sheathed flexible cables are permitted.

When using extension lines or mobile distribution networks the resistance value shall not exceed 1,5 Ohm.

3. Turn the main AC switch to the ON position.

### NOTICE

If an overload trips the AC circuit protector, reduce the electrical load on the circuit and wait a few minutes before resuming operation.

## DC APPLICATION

### NOTICE

DC terminals should be used for charging 12 VDC batteries only. Using the DC terminals for any other type of 12 VDC appliance may cause damage to generator and appliance.

The DC terminal (1, **Figure 31**) may be used for charging 12 volt automotive-type batteries only. (Other loads may not be used.)

### NOTICE

Never use the 12 VDC terminals at the same time as the AC terminals.

1. Always disconnect the negative (-) battery cable (if connected) from the battery to be charged before charging.

### ⚠ WARNING

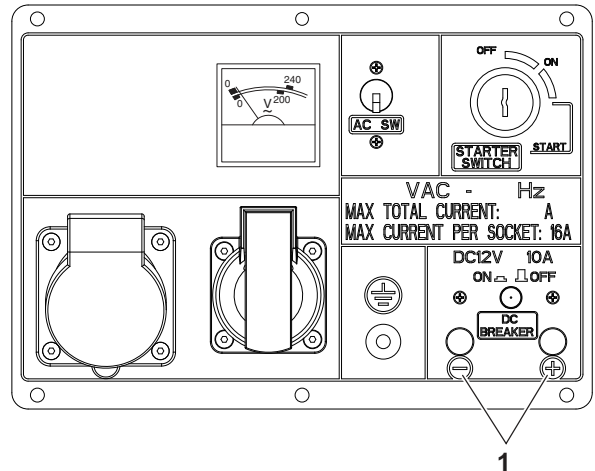
**Never allow the free ends of the cables to touch each other. If this occurs the battery will short circuit.**

2. Start the generator set.
3. Connect the charging cable to the battery terminals and to the DC output terminals of the generator.

### NOTICE

Always connect the positive battery terminal to the positive DC terminal on the generator. Never reverse the charging cables or serious damage to the generator and or battery may occur. Do not attempt to start an automobile engine while the generator is still connected to the battery as the generator may be damaged.

YDG3700V-5EB, YDG5500V-5EB  
YDG3700N-6EB, YDG5500N-6EB



1 – 12 VDC output terminal  
(for 12 VDC battery charging only)

**Figure 31**

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# PERIODIC MAINTENANCE

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## INTRODUCTION

This section of the *Operation Manual* describes the procedures for proper care and maintenance of the generator set.

Before performing any storage procedures within this section, *review the Safety section on page 1.*

### PRECAUTIONS

#### The Importance of Periodic Maintenance

Engine deterioration and wear occurs in proportion to length of time the generator has been in service and the conditions the generator is subject to during operation. Periodic maintenance prevents unexpected downtime, reduces the number of accidents due to poor machine performance and helps extend the life of the engine.

#### CAUTION

**Establish a periodic maintenance plan according to the engine application and make sure you perform the required periodic maintenance at intervals indicated. Failure to follow these guidelines will impair the engine's safety and performance characteristics, shorten the engine's life and may affect the warranty coverage on your engine. See *YANMAR Limited Warranty on page i*. Consult your authorized YANMAR industrial engine dealer or distributor for assistance when checking items marked with a ●.**

#### Performing Periodic Maintenance

Perform periodic maintenance procedures in an open, level area free from traffic. If possible, perform the procedures indoors to prevent environmental conditions, such as rain, wind, or snow, from damaging the machine.

#### The Importance of Daily Checks

Periodic maintenance schedules assume that the daily checks are performed on a regular basis. Make it a habit of performing daily checks before the start of each shift. See *Daily Checks on page 34*.

#### CAUTION

**It is important to perform daily checks. Periodic maintenance prevents unexpected downtime, reduces the number of accidents due to poor engine performance and helps extend the life of the engine.**

#### Keep a Log of Generator Hours and Daily Checks

Keep a log of the number of hours the generator is run each day and a log of the daily checks performed. Also note the date, type of repair, and parts needed for any service needed between the periodic maintenance intervals. Periodic maintenance intervals are every 50, 200, 400, 1000, 1500 and 2000 hours of generator operation. Failure to perform periodic maintenance will shorten the life of the generator.

#### YANMAR Replacement Parts

Yanmar recommends that you use genuine YANMAR parts when replacement parts are needed. Genuine replacement parts help ensure long generator life. Replace circuit breakers only with components that have the same ratings and performance.

#### Tools Required

Before you start any periodic maintenance procedure make sure you have the tools you need to perform all of the required tasks.

#### Ask Your Authorized YANMAR Industrial Engine Dealer or Distributor for Help

YANMAR professional service technicians have the expertise and skills to help you with any maintenance or service related procedures.

### CAUTION

**Before starting any maintenance procedure, ensure that the engine is cold and the speed control lever is set on STOP position.**

**Before starting any maintenance procedure, disconnect negative battery cable.**

**Attach a “Do Not Operate” tag near the key switch while performing maintenance procedure on the equipment.**

### **Tightening Fasteners**

Use the correct amount of torque when you tighten fasteners on the machine. Applying excessive torque may damage the fastener or component and not enough torque may cause a leak or component failure.

## PERIODIC MAINTENANCE

### TIGHTENING TORQUES FOR STANDARD BOLTS AND NUTS

Use the correct amount of torque when you tighten fasteners on the machine. Applying excessive torque may damage the fastener or component and not enough torque may cause a leak or component failure.

#### NOTICE

The tightening torque in the following chart should be applied only to the bolts with a “7” head. (JIS strength classification: 7T) Apply 60 % torque to bolts that are not listed. Apply 80 % torque when tightened to aluminum alloy.

Item	Nominal thread diameter × pitch	Tightening torque	Remarks
Hexagon bolt (7T) and nut	M6 × 1.0 mm	7 - 9 lb-ft (87 - 104 lb-in., 9.8 - 11.8 N·m, 1.0 - 1.2 kgf·m)	Use 80 % of the value at left when the tightening part is aluminum. Use 60 % of the value at left for 4T bolts and locknuts.
	M8 × 1.25 mm	17 - 21 lb-ft (200 - 251 lb-in., 22.6 - 28.4 N·m, 2.3 - 2.9 kgf·m)	
	M10 × 1.5 mm	33 - 40 lb-ft (44.1 - 53.9 N·m, 4.5 - 5.5 kgf·m)	
	M12 × 1.75 mm	58 - 72 lb-ft (78.4 - 98.0 N·m, 8.0 - 10 kgf·m)	
	M14 × 1.5 mm	94 - 108 lb-ft (127.5 - 147.1 N·m, 13 - 15 kgf·m)	
	M16 × 1.5 mm	159 - 174 lb-ft (215.7 - 235.4 N·m, 22 - 24 kgf·m)	
PT plug	1/8	7 lb-ft (87 lb-in., 9.8 N·m, 1.0 kgf·m)	-
	1/4	14 lb-ft (173 lb-in., 19.6 N·m, 2.0 kgf·m)	
	3/8	22 lb-ft (29.4 N·m, 3.0 kgf·m)	
	1/2	43 lb-ft (58.8 N·m, 6.0 kgf·m)	
Pipe joint bolt	M8	9 - 12 lb-ft (112 - 148 lb-in., 12.7 - 16.7 N·m, 1.3 - 1.7 kgf·m)	-
	M10	14 - 19 lb-ft (173 - 225 lb-in., 19.6 - 25.4 N·m, 2.0 - 2.5 kgf·m)	
	M12	18 - 25 lb-ft (24.5 - 34.3 N·m, 2.5 - 3.5 kgf·m)	
	M14	29 - 36 lb-ft (39.2 - 49.0 N·m, 4.0 - 5.0 kgf·m)	
	M16	36 - 43 lb-ft (49.0 - 58.8 N·m, 5.0 - 6.0 kgf·m)	

*Note: Torque values shown in this manual are for clean, non-lubricated fasteners unless otherwise specified.*

## PERIODIC MAINTENANCE SCHEDULE

Daily and periodic maintenance is important to keep the engine in good operating condition. The following is a summary of maintenance items by periodic maintenance intervals. Periodic maintenance intervals vary depending on engine application, loads, diesel fuel and engine oil used and are hard to establish definitively. The following should be treated only as a general guideline.

○: Check    ◇: Replace    ●: Contact your authorized YANMAR industrial engine dealer or distributor for these maintenance services

System	Check item	Daily	Periodic maintenance interval					
			Every 50 hours	Every 200 hours	Every 400 hours	Every 1000 hours	Every 1500 hours	Every 2000 hours
Air intake	Clean or replace air cleaner element - (may need more frequent service in dusty conditions)			○				
Cylinder head	Adjust intake/exhaust valve clearance				●			
	Check compression					●		
Electrical equipment	Check battery (if equipped) and add water as necessary	○ Before operation						
	Check battery indicator (if equipped) and other driven machine indicators (if equipped)	○ When engine is started						
	Wiring harness				●			
	Voltmeter				●			
Emission control warranty	Inspect, clean and test fuel injection nozzle, if necessary						●	
Engine oil	Check engine oil level and add engine oil as necessary	○ Before operation						
	Drain and refill engine oil		◇ 1st time	◇ 2nd and after				
	Clean engine oil filter - replace if damaged				◇ 2nd and after			
	Check for engine oil leakage	○ Before and after operation						
Engine speed control	Check for proper operation Verify adjustment	○ 1st time		○ 2nd and after				

# PERIODIC MAINTENANCE

○: Check    ◇: Replace    ●: Contact your authorized YANMAR industrial engine dealer or distributor for these maintenance services

System	Check item	Daily	Periodic maintenance interval					
			Every 50 hours	Every 200 hours	Every 400 hours	Every 1000 hours	Every 1500 hours	Every 2000 hours
Exhaust system	Check spark arrester for clogging (if equipped)	○ Before operation						
Fuel	Check fuel tank level and add fuel as necessary	○ Before operation						
	Drain and clean fuel tank			○				
	Clean inlet fuel screen		○					
	Replace outlet fuel filter			○	◇			
	Check for fuel leakage	○ Before and after operation						
Hoses	Replace fuel system hose(s)							● or every 2 years whichever comes first
Generator	Check brushes for wear or damage				●			
	Check slip rings for wear or damage				●			
	Check coils and Automatic Voltage Regulator (AVR) for correct operation				●			
Frame	Check main and sub frames for damage				●			
	Check engine/frame dampers for wear, damage and tightness					●		
	Check all fasteners for damage and tightness				●			

Note: These procedures are considered normal maintenance and are performed at the owners expense.

## PERIODIC MAINTENANCE PROCEDURES

### Daily, Before Operation

Before performing periodic maintenance procedures, read the complete procedure including safety information.

Perform the following maintenance daily before operation.

- **Check battery**
- **Check battery indicator**
- **Check engine oil level**
- **Check for engine oil leakage**
- **Check engine speed control (first time only)**
- **Check spark arrester**
- **Check fuel level**
- **Check for fuel leakage**

□ **Check battery**

Check the battery electrolyte level. *See Checking Battery Electrolyte Level on page 24.*

□ **Check battery indicator**

Visually check the battery indicator (if equipped) and any other indicator provided by the driven machine manufacturer.

□ **Check engine oil level**

Before you operate the engine check the engine oil level. *See Checking Engine Oil on page 29.*

□ **Check for engine oil leakage**

Before you operate the engine check for any engine oil leaks. If you discover any engine oil leaks, contact your authorized YANMAR industrial engine dealer or distributor for service.

□ **Check engine speed control**

Before you operate the driven machine check the engine speed control. *See Check and adjust engine speed control on page 55.*

## PERIODIC MAINTENANCE

---

### □ Check fuel level

Before you operate the engine, check the fuel level. See *Filling the Fuel Tank on page 28*.

### Check for fuel leakage

Before you operate the engine, check for any fuel leaks.

### DANGER

**Avoid personal injury. Always wear eye protection when checking for fuel leaks and never check for a fuel leak with your hands. Always use a piece of wood or cardboard. Have your authorized YANMAR dealer or distributor repair the damage.**

---

## Daily, After Operation

### • Check for engine oil leakage

### • Check for fuel leakage

### □ Check for engine oil leakage

After you shut down the engine check for any engine oil leaks.

### WARNING

**Avoid being burned by contact with hot engine oil.**

---

### □ Check for fuel leakage

After you shut down the engine check for any fuel leaks.

### DANGER

**Avoid personal injury. Always wear eye protection when checking for fuel leaks and never check for a fuel leak with your hands. Always use a piece of wood or cardboard. Have your authorized YANMAR dealer or distributor repair the damage.**

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## After Initial 50 Hours of Operation

Perform the following maintenance after the initial 50 hours of operation.

- **Replace engine oil**
- **Clean/inspect engine oil filter**

### □ **Replace engine oil**

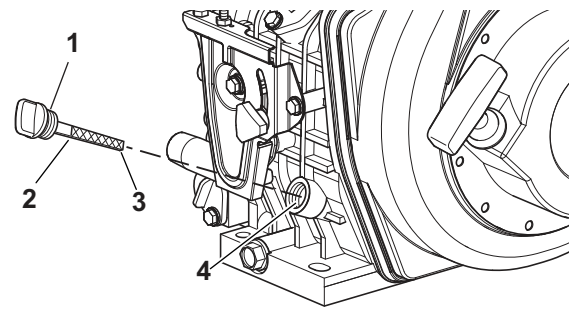
The engine oil on a new engine becomes contaminated from the initial break-in of internal parts. The initial 50 hour oil change and filter cleaning is very important.

Drain the engine oil as follows:

1. Make sure the engine is level.
2. Start the engine and bring it up to operating temperature.
3. Stop the engine.
4. Position a container under the engine to collect waste oil.
5. Remove one of the drain plugs located on the bottom of the cylinder block (2, **Figure 32**). Allow oil to drain.

### **WARNING**

**The engine oil will be hot after engine operation, stay clear of the hot engine oil to avoid being burned. Always wear eye protection.**



**Figure 32**

6. Remove the oil cap/dipstick (1, **Figure 32**) to allow the engine oil to drain more easily.

### **NOTICE**

Prevent dirt and debris from contaminating the engine oil. Carefully clean the oil cap/dipstick and the surrounding area before you remove the cap.

7. After all oil has been drained from the engine, reinstall the drain plug (2, **Figure 32**) and tighten to 173 - 208 lb-in. (19.6 - 23.5 N·m, 2.0 - 2.4 kgf·m).

## PERIODIC MAINTENANCE

8. Dispose of used oil properly.

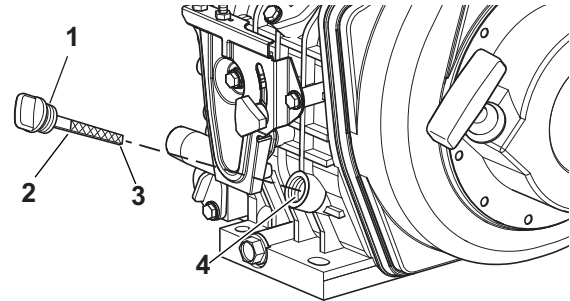
### NOTICE

Always be environmentally responsible. Follow the guidelines of the governmental agencies for the proper disposal of hazardous materials such as engine oil, diesel fuel and engine coolant. Consult the local authorities or reclamation facility. Never dispose of hazardous materials by dumping them into a sewer, on the ground or into ground water or waterways.

9. Inspect engine oil filter. See *Clean/inspect engine oil filter on page 53*.
10. Add engine oil until the level is between the upper (2, **Figure 33**) and lower (3, **Figure 33**) lines on the oil cap/dipstick (1, **Figure 33**). See *Adding Engine Oil on page 30*.

### NOTICE

Never overfill. Overfilling may result in white exhaust smoke, engine overspeed or internal damage.



**Figure 33**

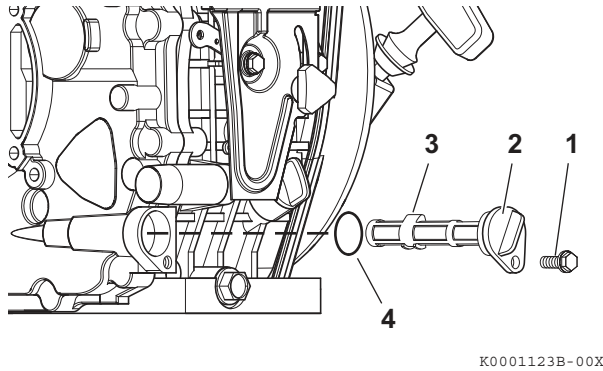
11. Warm up the engine by running it for five minutes and check for any engine oil leaks.
12. After engine is warm, shut it off and let it sit for 10 minutes.
13. Recheck the engine oil level by reinserting the oil cap/dipstick into the crankcase and turn clockwise for one-half revolution to engage the first thread in the crankcase opening. See *Checking Engine Oil on page 29*.
14. Add oil if necessary.

### NOTICE

Always keep the oil level between the upper and lower lines on the oil cap/dipstick.

15. Replace the oil cap/dipstick and tighten by hand. Over-tightening may damage the cap. If any engine oil is spilled, wipe it away with a clean cloth.

□ **Clean/inspect engine oil filter**



**Figure 34**

It is recommended that this procedure be performed at the same time as the *Replace engine oil procedure on page 51*.

1. Remove the oil filter retaining bolt (1, **Figure 34**).
2. Drain engine oil. See *Replace engine oil on page 51*.
3. Pull the oil filter cap (2, **Figure 34**) out and remove the oil filter (3, **Figure 34**).
4. Clean the oil filter in suitable parts cleaner or replace if damaged.
5. Lubricate the O-ring (4, **Figure 34**) with oil and reinstall the oil filter (3, **Figure 34**).

Applicable engine oil filter Part No.	
L70V and L100V	114250-35070

6. Make sure the oil filter cap (2, **Figure 34**) is fully seated.
7. Reinstall and tighten the oil filter retaining bolt (1, **Figure 34**).
8. Add new engine oil to the engine as specified in *Adding Engine Oil on page 30*.

**NOTICE**

Never overfill. Overfilling may result in white exhaust smoke, engine overspeed, or internal damage.

9. Warm up the engine by running it for five minutes and check for any engine oil leaks.
10. After engine is warm, shut it off and let it sit for 10 minutes.
11. Recheck the engine oil level by reinserting the oil cap/dipstick into the crankcase and turn clockwise for one-half revolution to engage the first thread in the crankcase opening. See *Checking Engine Oil on page 29*.
12. Add oil if necessary.

**NOTICE**

Always keep the oil level between the upper and lower lines on the oil cap/dipstick.

13. Replace the oil cap/dipstick (1, **Figure 33**) and tighten by hand. Over-tightening may damage the cap. If any engine oil is spilled, wipe it away with a clean cloth.

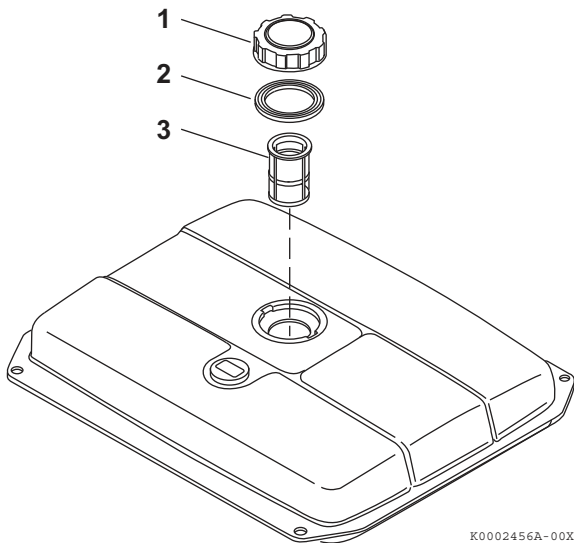
## Every 50 Hours of Operation

Perform the following maintenance every 50 hours of operation.

- Clean inlet fuel screen
- Test GFCI outlet

### □ Clean inlet fuel screen

1. Clean the area around the fuel cap (1, **Figure 35**).
2. Remove the fuel cap from the fuel tank.



**Figure 35**

3. Lift out the inlet fuel screen (3, **Figure 35**).

### **⚠ CAUTION**

**Wipe up all spills immediately.**

4. Clean the inlet fuel screen using suitable parts cleaner or replace it if damaged.
5. Inspect fuel cap gasket (2, **Figure 35**) and replace if damaged.
6. Reinstall the inlet fuel screen.
7. Reinstall the fuel cap and hand-tighten. Over-tightening the fuel cap will damage it.

## Every 200 Hours of Operation

Perform the following maintenance every 200 hours of operation.

- Clean air cleaner element
- Replace engine oil and clean/inspect engine oil filter
- Check engine speed control
- Drain the fuel tank and replace outlet fuel filter

### □ Clean air cleaner element

Engine performance is adversely affected when the air cleaner element is clogged with dust. Be sure to clean or replace the air cleaner element periodically.

Avoid operating in extremely dusty conditions. When the engine is operated in dusty conditions, clean the air cleaner element more frequently. Never operate the engine with the air cleaner element(s) removed. This may cause foreign material to enter the engine and damage it.

Clean or replace the air cleaner element if the air intake restriction exceeds the following specifications:

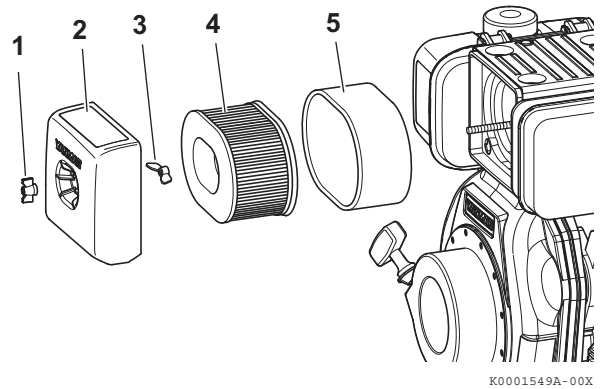
(L100V: 0.21 psi (1.47 kPa; 150 mmAq) or less),  
(L70V: 0.20 psi (1.37 kPa; 140 mmAq) or less).

**L70V and 100V models**

The L70V and 100V model engines use a “dry” type air filter element. The air filter element is an open paper type element. This type of air filter element should be cleaned or replaced every 200 hours or earlier if found excessively dirty.

**CAUTION**

**Avoid personal injury. Always wear eye protection when servicing the engine or when using compressed air or high pressure water. Dust, flying debris, compressed air, pressurized water or steam may injure your eyes.**



**Figure 36**

1. Remove the wing nut (1, **Figure 36**).
2. Remove the air cleaner cover (2, **Figure 36**).
3. Remove the wing nut (3, **Figure 36**).
4. Remove the air cleaner element (4, **Figure 36**) and outer foam element (5, **Figure 36**).
5. Blow air through both elements using 42 - 71 psi (0.29 - 0.49 MPa, 3.0 - 5.0 kgf/cm<sup>2</sup>) compressed air to remove any debris. Blow air from the inside to the outside of the filter element using the lowest possible air pressure to remove dust without damaging the elements.
6. Check the condition of the air filter element by shining a flashlight from the back of the air filter element. If light is not visible on the outside of the air filter element, replace the air filter element.

Air cleaner element Part No.	
L70V and L100V	114210-12590

7. If either element is damaged replace both of them. (They are not sold individually.)
8. Clean the inside of the air cleaner cover (2, **Figure 36**).

9. Reinstall the air cleaner element (4, **Figure 36**) into the air cleaner housing.
10. Slide the outer foam element (5, **Figure 36**) over the air cleaner element (4, **Figure 36**).
11. Reinstall the wing nut (3, **Figure 36**) and hand-tighten. Over-tightening the wing nut will damage the air cleaner assembly.
12. Reinstall the air cleaner cover (2, **Figure 36**).
13. Reinstall the wing nut (1, **Figure 36**) and hand-tighten. Over-tightening the wing nut will damage the air cleaner assembly.

**Replace engine oil and clean/inspect engine oil filter**

Change the engine oil every 200 hours of operation after the initial change at 50 hours. Clean and inspect the engine oil filter at the same time. See *Replace engine oil on page 51* and *Clean/inspect engine oil filter on page 53*.

**Check and adjust engine speed control**

After you operate the engine for 200 hours, check the engine speed control.

Never attempt to adjust the low or high idle speed limit screw. This may impair the safety and performance of the machine and shorten its life. If adjustment is ever required, contact your authorized YANMAR industrial engine dealer or distributor.

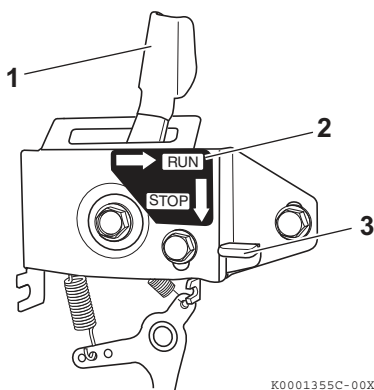
## PERIODIC MAINTENANCE

A constant speed control device is used on YDG generator sets, to govern the engine speed to a pre-set constant engine speed under various loads. When moved to the full throttle position, the speed control lever “locks” at full throttle.

Never force the throttle lever to move. This may deform the governor lever and cause irregular operation of the engine speed control.

Always run the engine at full speed. Never run engine at lower speeds. At full speed, the engine runs at 3000 (3600) min<sup>-1</sup> under load. The engine must maintain 3000 (3600) min<sup>-1</sup> for generator to create correct voltage. Running engine at lower speeds will damage generator and powered items.

1. Check that the speed control lever (1, **Figure 37**) operates smoothly and locks into the full speed RUN position (2, **Figure 37**) when advanced and returns to the stop position when the stop lever (3, **Figure 37**) is actuated. If the speed control lever does not operate as indicated or adjustment is needed, see your authorized YANMAR industrial engine dealer or distributor for service.



- 1 – Speed control lever
- 2 – RUN position
- 3 – Stop lever

**Figure 37**

### □ Drain the fuel tank and replace outlet fuel filter

1. Position an approved container under the fuel tank to collect the fuel.

### **⚠ DANGER**

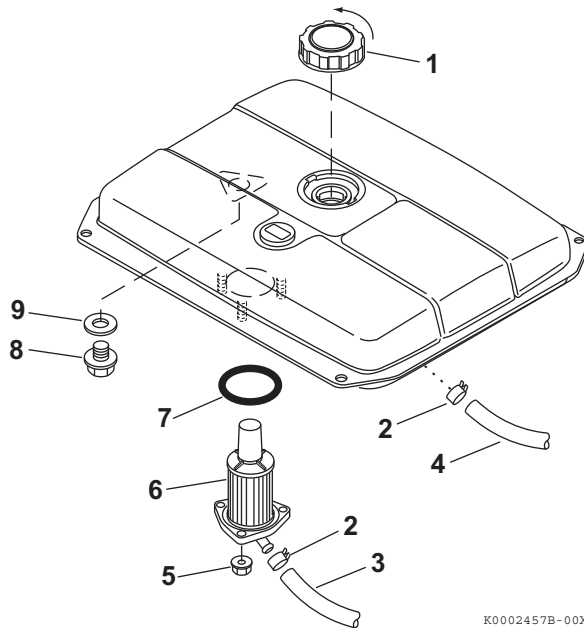
**Always wipe up all spills immediately. Diesel fuel is flammable and explosive under certain conditions. Store any containers containing fuel in a well-ventilated area, away from any combustibles or sources of ignition. Wipe up all spills immediately and never use a shop rag to catch spilled fuel.**

2. Remove the fuel cap (1, **Figure 38**).
3. Remove the fuel tank drain plug (8, **Figure 38**) and gasket (9, **Figure 38**) to drain the fuel. Inspect the gasket and replace if damaged.

### **NOTICE**

Always be environmentally responsible. Follow the guidelines of the governmental agencies for the proper disposal of hazardous materials such as engine oil, diesel fuel and engine coolant. Consult the local authorities or reclamation facility.

4. Remove clamps (2, **Figure 38**) and disconnect fuel supply (3, **Figure 38**) and return lines (4, **Figure 38**).
5. Remove the fuel tank mounting bolts and remove the fuel tank from the generator frame.
6. Remove the three fuel filter nuts (5, **Figure 38**) and pull the fuel filter (6, **Figure 38**) out through bottom of the tank.



K0002457B-00X

**Figure 38**

7. Install a new filter into the tank using a new O-ring (7, **Figure 38**).
8. Reinstall the three fuel filter nuts and tighten securely.
9. Reinstall the drain plug and gasket.
10. Reinstall the fuel tank into the generator frame and secure with mounting bolts.
11. Reconnect the fuel supply and return lines to the tank with clamps.
12. Fill the fuel tank with fuel and inspect for leaks. Repair or replace components as necessary.

### Every 400 Hours of Operation

Perform the following maintenance every 400 hours of operation.

- **Adjust intake and exhaust valve clearance**
- **Check brushes for wear or damage**
- **Check slip rings for wear or damage**
- **Check coils and Automatic Voltage Regulator (AVR) for correct operation**
- **Check main and sub-frames for damage**
- **Check all fasteners for damage and tightness**

□ **Adjust intake and exhaust valve clearance**

Proper adjustment is necessary to maintain the correct timing for opening and closing the valves. Improper adjustment will cause the engine to run noisily, resulting in poor engine performance and engine damage. See your authorized YANMAR industrial engine dealer or distributor for this service.

□ **Check brushes for wear or damage**

Check the generator brushes for wear and damage. Generator brushes wear with normal use of the generator over time. It is important to check the condition of the brushes to ensure generator performance is maintained at an optimum. See your authorized YANMAR industrial engine dealer or distributor for this service.

□ **Check slip rings for wear or damage**

Check the generator slip rings for wear and damage. Generator slip rings wear with normal use of the generator over time. It is important to check the condition of the slip rings to ensure generator performance is maintained at an optimum. See your authorized YANMAR industrial engine dealer or distributor for this service.



## PERIODIC MAINTENANCE

### □ Check coils and Automatic Voltage Regulator (AVR) for correct operation

Check the generator coils and AVR for correct operation and output. It is important to check the condition of the generator coils and AVR to ensure generator performance is maintained at an optimum. See your authorized YANMAR industrial engine dealer or distributor for this service.

### □ Check main and sub-frames for damage

Check the main frame and sub-frames for damage. The main and sub-frames are the structural support for the engine, generator, fuel tank and all other generator controls and components. Any damage to the frames, including corrosion may compromise the structural integrity of the frame and should be repaired or replaced to avoid costly repairs and/or personal injury. See your authorized YANMAR industrial engine dealer or distributor for service and replacement parts.

### □ Check all fasteners for damage and tightness

Check all fasteners used on the generator set. All fasteners should be properly installed and tightened to the specified value given in the *YDG Service Manual*. See your authorized YANMAR industrial engine dealer or distributor for service and replacement parts.

## Every 1000 Hours of Operation

Perform the following maintenance every 1000 hours of operation.

- Check compression
- Check engine/frame dampers for wear, damage and tightness

### □ Check compression

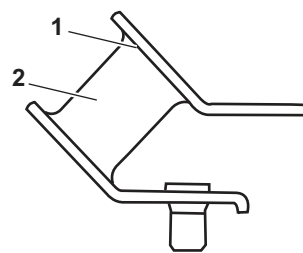
An engine compression check is required every 1000 hours to obtain optimum engine performance. See your authorized YANMAR industrial engine dealer or distributor for this service.

### □ Check engine/frame dampers for wear, damage and tightness

Inspect all frame components for damage and repair or replace as required.

The damper mount butyl rubber has excellent shock absorption performance. Prevent contamination of the damper with diesel oil or gasoline as much as possible during operation, to prevent deterioration of the rubber damper. See your authorized YANMAR industrial engine dealer or distributor for service and replacement parts.

1. Check for separation at rubber baked portion (1, **Figure 39**).
2. Check the damper rubber material (2, **Figure 39**) for cracks and deformation. Replace the damper if cracked or deformed.



K0002858-00X

**Figure 39**



### Every 1500 Hours of Operation

Perform the following maintenance every 1500 hours of operation.

- **Inspect, clean and test fuel injection nozzle**
- **Inspect, clean and test fuel injection nozzle, if necessary**

Proper operation of the fuel injectors is required to obtain the optimum injection pattern for full engine performance. See your authorized YANMAR industrial engine dealer or distributor for this service.

### Every 2000 Hours of Operation

Perform the following maintenance every 2000 hours of operation.

- **Check and replace fuel hoses**

- **Check and replace fuel hoses**

Regularly check the fuel system hoses. If they are cracked or degraded, replace them. Replace rubberized fuel hoses every two years or every 2000 hours of engine operation, whichever comes first, even if the engine has been out of service. Rubberized fuel lines tend to dry out and become brittle after two years or 2000 hours of engine operation, whichever comes first.

# PERIODIC MAINTENANCE PROCEDURES

### Dismantling

The user is in charge of all the operations that must be done when the generator's life is over and must follow laws and local regulation. Dismantling operations must be done by qualified technicians.

# TROUBLESHOOTING

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## TROUBLESHOOTING INFORMATION

If your generator does not operate properly, refer to the *Troubleshooting Chart on page 62* or see your authorized YANMAR industrial engine dealer or distributor. You can refer to *Troubleshooting Chart on page 62* even if your generator suddenly stops.

Provide the authorized YANMAR industrial engine dealer or distributor with the following information:

1. Model name and serial number of your generator.  
The YDG generator set model and serial number information label is located inside the top front frame rail. *See Generator Set Decal on page 15.*
2. Model name and serial number of your engine.  
The engine nameplate is located on the cooling shroud on the PTO side of engine above the starter. *See Engine Nameplate (Typical) on page 16.*
3. How long the generator has been in service (the number of generator hours or the number of calendar months).
4. Operating conditions when problem occurs:
  - Load on engine
  - Color of exhaust smoke
  - Type of diesel fuel
  - Type of engine oil
  - Any abnormal noises or vibration
  - Operating environment such as high altitude or extreme ambient temperatures
5. Maintenance history and previous problems.
6. Other factors that contribute to the problem.

# TROUBLESHOOTING

## TROUBLESHOOTING CHART

If a problem occurs, stop the engine immediately. Refer to the symptom column in the chart below to identify the problem.

Symptom	Probable cause	Action	Refer to
Engine does not start			
Starter motor operates but engine does not start	No diesel fuel	Refuel fuel system	<i>Filling the Fuel Tank on page 28</i>
	Engine control lever not in the RUN position	Move engine control lever to the RUN position	–
	Engine oil level low	Check and fill oil to proper level	–
	Improper diesel fuel	Replace with recommended diesel fuel	<i>Diesel Fuel Specifications on page 26</i>
	Clogged engine oil filter	Replace engine oil filter	–
	Clogged fuel filter	Replace fuel filter	<i>Drain the fuel tank and replace outlet fuel filter on page 56</i>
	Poor fuel injection	See authorized YANMAR industrial engine dealer or distributor	–
	Compressed air leakage from intake/exhaust valves		–
	Faulty engine stop solenoid		–
Engine starts with recoil starter but then stops	Key switch not in the ON position	Turn key to the ON position	–
Starter motor does not operate or rotates too slowly (engine can be turned manually)	Battery needs charging	Check electrolyte, recharge	–
	Faulty cable connection at battery terminals	Clean terminals, retighten	<i>Disconnecting and Connecting Battery Cables on page 25</i>
	Faulty starter switch	See authorized YANMAR industrial engine dealer or distributor	–
	Faulty starter motor		–
Engine cannot be turned manually	Inner parts seized or damaged		–
White or black exhaust smoke			
Black exhaust smoke	Engine overloaded	Reduce load	–
	Clogged air cleaner element	Clean element or replace	<i>Clean air cleaner element on page 54</i>
	Improper diesel fuel	Replace with recommended diesel fuel	<i>Diesel Fuel Specifications on page 26</i>
	Faulty spraying of fuel injection	See authorized YANMAR industrial engine dealer or distributor	–
	Excessive intake/exhaust valve clearance		–
White exhaust smoke	Improper diesel fuel	Replace with recommended diesel fuel	<i>Diesel Fuel Specifications on page 26</i>
	Faulty spray pattern of fuel injection	See authorized YANMAR industrial engine dealer or distributor	–
	Fuel injection timing delay		–
	Engine burning oil		–

Symptom	Probable cause	Action	Refer to
<b>Generator</b>			
No electricity generated	Main switch is off	Turn main switch on	<i>Generator Check on page 30</i>
	Equipment incorrectly connected to generator	Connect the equipment correctly	–
	Defective AVR	See authorized YANMAR industrial engine dealer or distributor	–
	Winding short circuited or loose connections		–
	Electrical load too high	Reduce electrical load	–
	Loss of residual magnetism	See authorized YANMAR industrial engine dealer or distributor	–
	Engine speed too low		–
	Defective rotor diode	See authorized YANMAR industrial engine dealer or distributor	–
	Defective stator		–
	Defective rotor		–
	Engine not running properly		–
Lack of no-load voltage	Demagnetized machine	See authorized YANMAR industrial engine dealer or distributor	–
	AVR fuse interrupted		–
	Faulty AVR		–
	Winding failure		–
	Insulation failure		–
	Wrong or incorrectly carried out connections		–
Too low or too high no-load voltage	Faulty AVR		–
	Winding failure		–
	Faulty slip-ring		–
Too low load voltage	Faulty AVR	See authorized YANMAR industrial engine dealer or distributor	–
	Possible overload	Check load current value	–
Too high load voltage	Faulty AVR	See authorized YANMAR industrial engine dealer or distributor	–
Unstable voltage	Faulty AVR	See authorized YANMAR industrial engine dealer or distributor	–
	Protections activated	Turn off and restart the equipment	–
Overheating	Possible overload	Check load current value	–
	Alternator inlet or outlet openings are clogged	See authorized YANMAR industrial engine dealer or distributor	–
Noisy alternator	Bearing broken	See authorized YANMAR industrial engine dealer or distributor	–

# TROUBLESHOOTING

## ELECTRICAL WIRING DIAGRAM

□ YDG3700V-5B, YDG5500V-5B, YDG3700N-6B, YDG5500N-6B

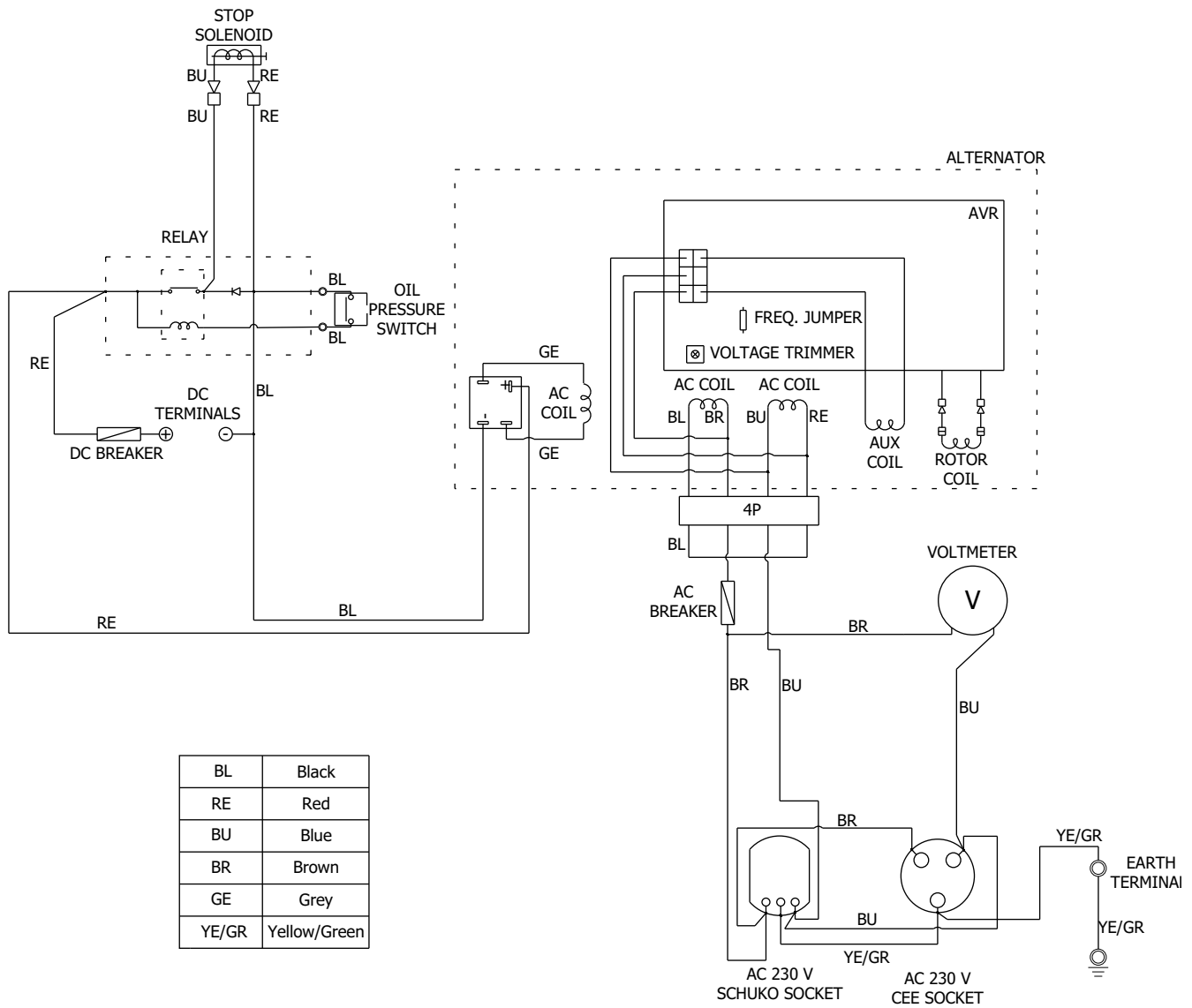
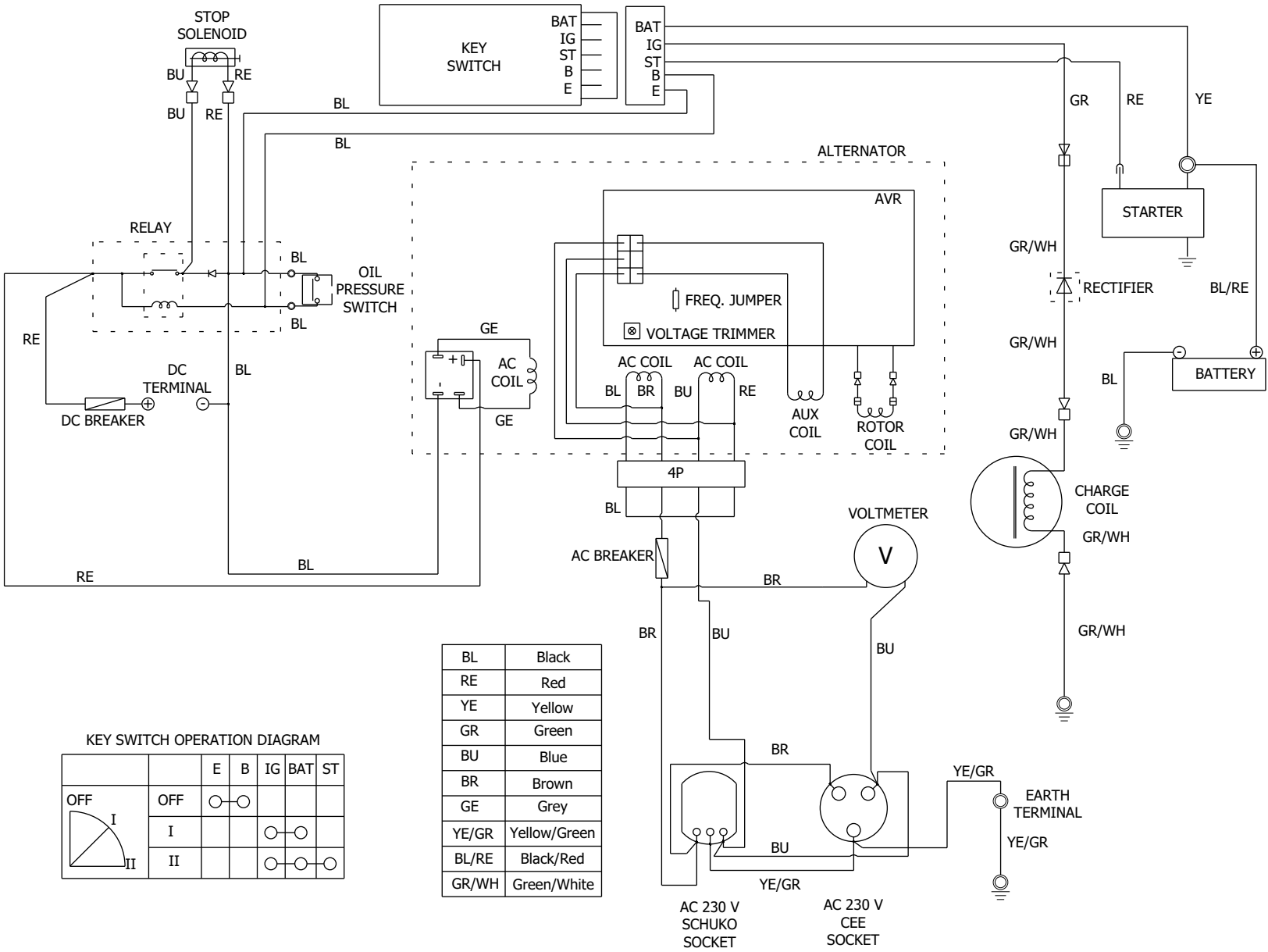


Figure 40

**Figure 41**



**KEY SWITCH OPERATION DIAGRAM**

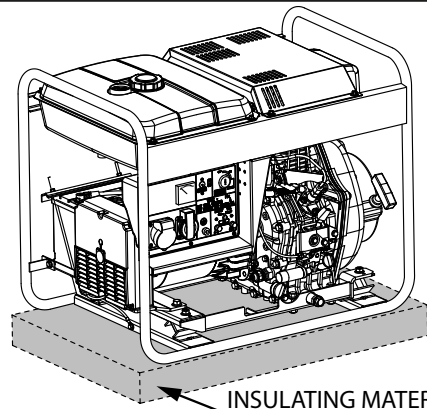
		E	B	IG	BAT	ST
OFF	OFF	○	○			
I	I			○	○	
	II			○	○	○

BL	Black
RE	Red
YE	Yellow
GR	Green
BU	Blue
BR	Brown
GE	Grey
YE/GR	Yellow/Green
BL/RE	Black/Red
GR/WH	Green/White

## ELECTRICAL EQUIPMENTS' CONNECTIONS

(under "Electrical Separation" condition)

THE GENSET MUST BE PLACED ON A NON CONDUCTIVE SURFACE  
(SEE ASIDE FIGURE)

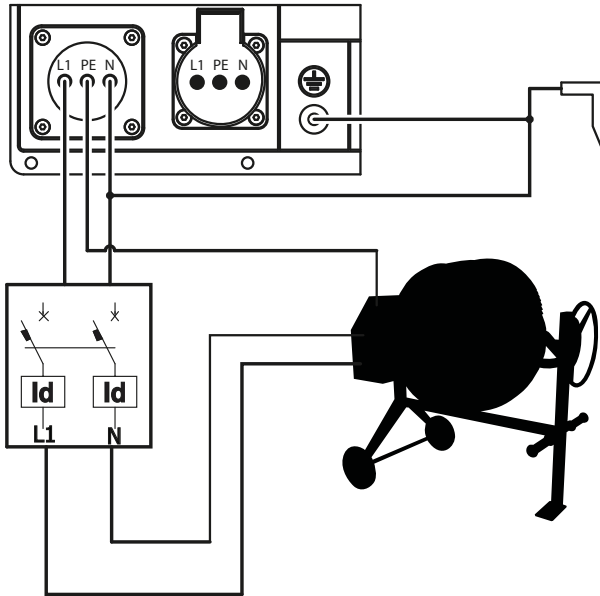


INSULATING MATERIAL  
(I.E. WOOD, RUBBER, ETC.)

	<ul style="list-style-type: none"> <li>- x2 CLASS II EQUIPMENT;</li> <li>- NO GROUNDING;</li> </ul>
	<ul style="list-style-type: none"> <li>- x1 CLASS I EQUIPMENT;</li> <li>- NO GROUNDING;</li> </ul>
	<ul style="list-style-type: none"> <li>- x1 CLASS I EQUIPMENT;</li> <li>- x1 CLASS II EQUIPMENT;</li> <li>- NO GROUNDING;</li> </ul>
	<p><u>NOT PERMISSIBLE</u></p> <ul style="list-style-type: none"> <li>- x2 CLASS I EQUIPMENT;</li> </ul>



## ELECTRICAL EQUIPMENTS' CONNECTIONS (TN system, with RCD)



WIRING DIAGRAM  
FOR RCD (NOT INC-  
LUDED IN SCOPE OF  
SUPPLY)

Legend:

	CLASS II EQUIPMENT
	CLASS I EQUIPMENT
	EARTH NUT & EARTH ROD

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# LONG-TERM STORAGE

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## INTRODUCTION

This section of the *Operation Manual* describes the procedures necessary to place the generator into long-term storage (three months or longer) and how to prepare it for operation.

## LONG-TERM STORAGE

---

### BEFORE YOU PLACE THE GENERATOR IN LONG-TERM STORAGE

1. Perform the next periodic maintenance procedure. For example, if there are 10 hours remaining before the 200 hour maintenance, you should do the maintenance before you place the engine in storage. *See Periodic Maintenance Schedule on page 47.*
2. Start the engine. Allow the engine to run without load for approximately five minutes and then stop the engine.
3. Drain the engine oil while the engine is still warm and fill with new oil. *See Replace engine oil on page 51.*
4. Push the decompression lever down and hold it while slowly pulling the recoil starter two or three times. Do not start the engine.
5. Pull the decompression lever up. Pull the recoil starter slowly and stop when there is resistance. This procedure closes the intake and exhaust valves in the compression position and helps prevent rust.
6. Allow the engine to completely cool then drain the fuel tank or fill it completely.
7. Protect the air cleaner, muffler and electrical components (dynamo, starter motor, switches) from water and dust.
8. Disconnect the negative (-) battery cable to prevent the battery from discharging.
9. Check the battery fluid and add distilled water as required. *See Check Battery Electrolyte Level on page 34.*
10. Charge the battery once a month during storage. *See Charging the Battery on page 25.*
11. Clean the generator and store it in a dry place.

#### NOTICE

Always protect the air cleaner and electric components from damage when you use steam or high pressure water to clean the generator.

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12. Rotate the engine without starting, every four to six months.

### RETURNING THE ENGINE TO SERVICE

1. Perform the *Daily Checks on page 34.*
2. Start the engine. Allow the engine to run without load for approximately 5 to 10 minutes while you check for:
  - abnormal noises or vibration
  - fuel and engine oil leaks

#### DANGER

**Avoid personal injury. Always wear eye protection when checking for fuel leaks and never check for a fuel leak with your hands. Always use a piece of wood or cardboard. Have your authorized YANMAR dealer or distributor repair the damage.**

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3. Avoid prolonged operation at maximum load for the remainder of the first hour of operation.

# SPECIFICATIONS

## PRINCIPAL SPECIFICATIONS

### □ Generator

Model		YDG3700N-6(E)BY12	YDG5500N-6(E)BY12	
Generator	Type	Revolving field-type AC generator (with brush)		
	Excitation	Self-excited		
	Voltage regulation	Automatic Voltage Regulator (AVR)		
	Frequency	60 Hz $\pm 1\%$ ( $\pm 2\%$ on transient)		
	Rated output	3.4 kVA		5.2 kVA
		DC12 V - 10 A		
	Rated voltage	240 V $\pm 2\%$		
	Rated current	14.2 A	21.7 A	
	Power factor	1.0		
	Phase	Single-phase		
	No. of poles	2		
	Type of insulation	H-class		
	Bearing system	Ball bearing (grease-enclosed)		
	Output terminal	AC	AC240 V/16 A	
		DC	Terminal (-: Black, +: Red)	
	Breaker	AC	14 A (NFB)	22 A (NFB)
		DC	12 A (thermal breaker)	
Voltmeter	AC300 V			
Emergency stop system	Engine stop device by low level oil sensor			
Generator unit	Dimension	L	650 mm	720 mm
		W	496 mm	480 mm
		H	530 mm	578 mm
	Protection	IP23M		
	Performance Class (ISO8528-8)	G2		
	Quality Class (ISO8528-8)	B		
	Vibration Level	Amp [Avg]1mm - Acc [RMS] 52.4m/s <sup>2</sup>	Amp [Avg]1mm - Acc [RMS] 55.5 m/s <sup>2</sup>	
Dry weight	71 kg (81 kg)		96 kg (106 kg)	

# SPECIFICATIONS

Model		YDG3700V-5(E)BYI2	YDG5500V-5(E)BYI2	
Generator	Type	Revolving field-type AC generator (with brush)		
	Excitation	Self-excited		
	Voltage regulation	Automatic Voltage Regulator (AVR)		
	Frequency	50 Hz $\pm 1\%$ ( $\pm 2\%$ on transient)		
	Rated output	3.0 kVA		4.5 kVA
		DC12 V - 10 A		
	Rated voltage	230 V $\pm 2\%$		
	Rated current	13 A	19.6 A	
	Power factor	1.0		
	Phase	Single-phase		
	No. of poles	2		
	Type of insulation	H-class		
	Bearing system	Ball bearing (grease-enclosed)		
	Output terminal	AC	AC230 V/16 A	
		DC	Terminal (-: Black, +: Red)	
Breaker	AC	13 A (NFB)	20 A (NFB)	
	DC	12 A (thermal breaker)		
Voltmeter	AC300 V			
Emergency stop system	Engine stop device by low level oil sensor			
Generator unit	Dimension	L	650 mm	720 mm
		W	496 mm	480 mm
		H	530 mm	578 mm
	Protection	IP23M		
	Performance Class (ISO8528-8)	G2		
	Quality Class (ISO8528-8)	B		
	Vibration Level	Amp [Avg]1mm - Acc [RMS] 51.7m/s <sup>2</sup>	Amp [Avg]1mm - Acc [RMS] 54.7 m/s <sup>2</sup>	
Dry weight	71 kg (81 kg)		96 kg (106 kg)	

□ **Engine**

Engine model		L70N6-G(E)YDG2	L100N6-G(E)YDG2
(Generator)		YDG3700N-6(E)B	YDG5500N-6(E)B
Type		4-stroke, vertical cylinder, air-cooled diesel engine	
Combustion system		Direct injection	
No. of cylinders		1	
Bore × stroke		78 × 67 mm	86 × 75 mm
Displacement		0.320 L	0.435 L
Compression ratio		20	20
Continuous rated output	RPM (min <sup>-1</sup> )	3600	3600
	hp SAE	5.9	8.9
	kW	4.4	6.6
	PS	6.0	9.0
Max. rated output (net)	RPM (min <sup>-1</sup> )	3000	3000
	hp SAE	6.6	9.9
	kW	4.9	7.4
	PS	6.0	10
High idling	RPM (min <sup>-1</sup> )	3800	3800
Fuel injection timing	bTDC by FIC	20°	20°
Valve clearance		0.15 ± 0.05 mm	
PTO position		Crankshaft	
Direction of rotation		Counterclockwise viewed from PTO side	
Fuel injection pump		-	
Fuel injection nozzle		-	
Valve opening pressure		200 kgf/cm <sup>2</sup>	
Fuel selection		<i>See Diesel Fuel on page 26</i>	
Fuel filter		5 μm	
Governor		All speed type, mechanical	
Balancer shaft		Single shaft	
Engine weight (dry)	with electric start	41.0 kg	53.5 kg
	without electric start	36.0 kg	48.5 kg
Cooling system		Forced air by flywheel fan	
Lubricating system		Forced lubrication with trochoid pump	
Oil selection		<i>See Engine Oil on page 28.</i>	
Oil filter		Resin, 60 mesh	
Permissible angle of inclination		20° (momentary 30°)	
Air cleaner		Dry-type paper element filter	
Muffler		Expansion silencer with cover	

## SPECIFICATIONS

Engine model		L70N6-G(E)YDG2	L100N6-G(E)YDG2
(Generator)		YDG3700N-6(E)B	YDG5500N-6(E)B
Starting system		Electric start/recoil start	
Dimensions	L	354 mm	367 mm
	W	436 mm	459 mm
	H	453 mm	492 mm
Oil capacity	Upper limit	1.05 L	1.6 L
	Lower limit	0.65 L	1.0 L
Fuel tank capacity		13.0 L	
Battery capacity		35 Ah	

**Note:**

1. Engine rating conditions are as follows (SAE J1349, ISO 3046/1):

- Atmospheric condition: Room temperature 77 °F (25 °C), atmospheric pressure 29.53 in. Hg (100 kPa, 750 mm Hg), relative humidity 30 %
- Fuel temperature at fuel injector pump inlet: 104 °F (40 °C)
- With cooling fan, air cleaner, muffler: YANMAR standard
- After engine break-in period. Output allowable deviation: ±3 %
- 1 PS = 0.7355 kW
- 1 hp SAE (Society of Automotive Engineers) = 0.7457 kW



Engine model		L70V5-G(E)YDG2	L100V5-G(E)YDG2
(Generator)		YDG3700V-5(E)B	YDG5500V-5(E)B
Type		4-stroke, vertical cylinder, air-cooled diesel engine	
Combustion system		Direct injection	
No. of cylinders		1	
Bore x stroke		78 x 67 mm	86 x 75 mm
Displacement		0.320 L	0.435 L
Compression ratio		21.1	21.2
Continuous rated output	RPM (min <sup>-1</sup> )	3000	3000
	hp SAE	5.4	7.6
	kW	4.0	5.7
	PS	5.4	7.7
Max. rated output (net)	RPM (min <sup>-1</sup> )	3000	3000
	hp SAE	5.9	8.4
	kW	4.4	6.3
	PS	6.0	8.6
High idling	RPM (min <sup>-1</sup> )	3175	3175
Fuel injection timing	bTDC by FIC	13.5°	13.0°
Valve clearance		0.15 ± 0.05 mm	
PTO position		Crankshaft	
Direction of rotation		Counterclockwise viewed from PTO side	
Fuel injection pump		-	
Fuel injection nozzle		-	
Valve opening pressure		200 kgf/cm <sup>2</sup>	
Fuel selection		<i>See Diesel Fuel on page 26</i>	
Fuel filter		5 μm	
Governor		All speed type, mechanical	
Balancer shaft		Single shaft	
Engine weight (dry)	with electric start	41.0 kg	53.5 kg
	without electric start	36.0 kg	48.5 kg
Cooling system		Forced air by flywheel fan	
Lubricating system		Forced lubrication with trochoid pump	
Oil selection		<i>See Engine Oil on page 28.</i>	
Oil filter		Resin, 60 mesh	
Permissible angle of inclination		20° (momentary 30°)	
Air cleaner		Dry-type paper element filter	
Muffler		Expansion silencer with cover	

# SPECIFICATIONS

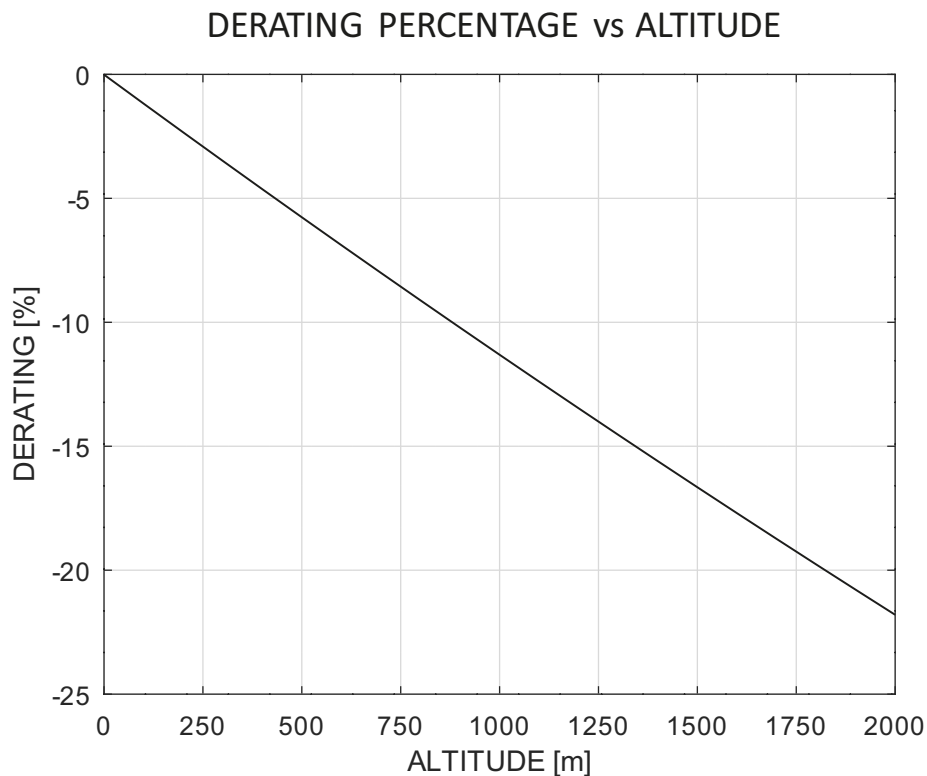
Engine model		L70V5-G(E)YDG2	L100V5-G(E)YDG2
(Generator)		YDG3700V-5(E)B	YDG5500V-5(E)B
Starting system		Electric start/recoil start	
Dimensions	L	354 mm	367 mm
	W	436 mm	459 mm
	H	453 mm	492 mm
Oil capacity	Upper limit	1.05 L	1.6 L
	Lower limit	0.65 L	1.0 L
Fuel tank capacity		13.0 L	
Battery capacity		35 Ah	

Note:

2. Engine rating conditions are as follows (SAE J1349, ISO 3046/1):

- Atmospheric condition: Room temperature 77 °F (25 °C), atmospheric pressure 29.53 in. Hg (100 kPa, 750 mm Hg), relative humidity 30 %
- Fuel temperature at fuel injector pump inlet: 104 °F (40 °C)
- With cooling fan, air cleaner, muffler: YANMAR standard
- After engine break-in period. Output allowable deviation:  $\pm 3$  %
- 1 PS = 0.7355 kW
- 1 hp SAE (Society of Automotive Engineers) = 0.7457 kW

Basing on altitude working conditions a derating factor for available genset output power must be applied, according to the following graph:



# **YANMAR**

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## **Yanmar Energy System Co., Ltd.**

Umeda Gate Tower  
1-9, Tsurunocho, Kita-ku, Osaka, Japan

## **Yanmar America Corporation**

101 International Parkway  
Adairsville, GA 30103, U.S.A.  
TEL: +1-770-877-9894 FAX: +1-770-877-9009  
<https://www.yanmar.com/us/>

## **Yanmar Europe B.V.**

Brugplein11, 1332 BS Almere -de Vaart  
The Netherlands.  
TEL: +31-36-5493200 FAX: +31-36-5493209  
<https://www.yanmar.com/eu/>

## **Yanmar Asia (Singapore) Corporation Pte Ltd.**

4 Tuas Lane, Singapore 638613  
TEL: +65-6861-3855 FAX: +65-6862-5189  
<https://www.yanmar.com/sg/>

## **Yanmar Engine (Shanghai) Corporation Ltd.**

1101-1106 Gopher Center Building, No.757  
Meng Zi Road Shanghai, China P.R.C. 200023  
TEL: +86-21-2312-0688 FAX: +86-21-6880-8682  
<http://www.yanmar-china.com/cn/>

## **Yanmar South America Industria De Maquinas Ltda.**

Av. Presidente Vargas 1400, Indaiatuba, S.P., Brazil, CEP: 13338-901  
TEL: +55-19-3801-9224 FAX: +55-19-3875-3899, 2241  
<https://www.yanmar.com/br/>

As of December 31, 2020

## **OPERATION MANUAL**

### **ORIGINAL INSTRUCTIONS**

YDG3700V-5BYI2, YDG3700V-5EBYI2,  
YDG5500V-5BYI2, YDG5500V-5EBYI2  
YDG3700N-6BYI2, YDG3700N-6EBYI2,  
YDG5500N-6BYI2, YDG5500N-6EBYI2

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