KMG series

OPERATION MANUAL

KMG65E-S3
KMG65E-S6
KMG65E-K3
KMG65E-K6

P/N: 0AKMG-G00100

YANMAR®

MARINE GENERATOR

Disclaimers:

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INTRODUCTION

Welcome to the world of Yanmar Marine! Yanmar Marine offers systems and accessories for all types of boats, from runabouts to sailboats, and from cruisers to mega yachts. In marine leisure boating, the worldwide reputation of Yanmar Marine is second to none.

To help you enjoy your Yanmar Marine products for many years to come, please follow these recommendations:

- Read and understand this *Operation Manual* before you install / operate your boat to ensure that you follow safe installing / 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 marine dealer or distributor.
- Make sure this manual is transferred to subsequent owners. This manual should be considered a permanent part of the boat 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 marine generating system. If you have any questions about these differences, please contact your authorized Yanmar marine dealer or distributor.

RECORD OF OWNERSHIP

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

Marine Generating System Model: _____

Marine Generating System Serial No.: _____

Date Purchased: _____

Dealer: _____

Dealer Phone: _____

SAFETY

Yanmar considers safety of great importance and recommends that anyone that comes into close contact with its products, such as those who 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.

SAFETY PRECAUTIONS

⚠ 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.

General Information

⚠ DANGER

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.

Before You Operate

⚠ DANGER

The safety message that follows has a DANGER level hazard.

NEVER permit anyone to install or operate the marine generator without proper training.

- Read and understand this *Operation Manual* before you operate or service the marine generator 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 marine dealer or distributor for additional training.

During Operation and Maintenance

⚠ DANGER

The safety messages that follow have DANGER level hazards.

NEVER connect medical appliances such as a life-support system. This system is not rated to power medical devices of that type.

NEVER connect a welding machine to the marine generator. This marine generator system is not rated for a welding machine.

Fire Hazard

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.

Ensure that appropriate fire detection and extinguishing equipment are installed and checked periodically for proper operation. Check with local authorities.

Electrical Hazard

NEVER start the engine before the wiring is completely installed.

ALWAYS disconnect the external power line from the boat and shut all power box breakers OFF before you begin to service the marine generator.

ALWAYS check the electrical harnesses for cracks, abrasions and damaged or corroded connectors. ALWAYS keeps the connectors and terminals clean.

ALWAYS have a licensed electrician connect this system to the utility circuit. Improper installation can cause electrocution or fire.

NEVER operate this system if:

- The engine misfires often
- Powered tools or appliances overheat
- Electrical output drops
- The generator is sparking
- Engine vibration is high
- Any of the electrical receptacles are damaged
- Any of the cables or wires are damaged

NEVER handle live terminals or bare wires. Power the unit down and contact a licensed electrician.

NEVER operate the power box near standing water or snow.

NEVER use this system in highly conductive areas such as on metal decking or near steel work.

ALWAYS use grounded extension cords. NEVER use damaged or frayed extension cords.

NEVER ground the marine generator system to a pipe that carries combustible materials or gases.

NEVER touch the marine generator system if it is wet or touch it with wet hands.

ALWAYS ground the power box. Ensure a length of heavy wire exists between the power box ground terminal and an external ground.

⚠ DANGER

NEVER connect the marine generator output to external power (shore power). A three-way switch must be installed by a licensed electrician to use shore power.

NEVER connect tools or appliances that exceed 230V / 50 Hz to the marine generator system.

If equipped with two power boxes, never connect the two boxes together.

⚠ WARNING

The safety messages that follow have WARNING level hazards.

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.

Diesel fuel is flammable and explosive under certain conditions.

Wipe up all spills immediately.

Fire Hazard

Avoid injury or equipment damage from fire. Undersized wiring systems can cause an electrical fire.

Sever Hazard

ALWAYS ensure all bystanders are clear of the area before starting the engine. Keep children and pets away while the engine is operating.

Alcohol and Drug Hazard

NEVER operate the engine while under the influence of alcohol or drugs or when feeling ill.

⚠ WARNING

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.

Entanglement Hazard

NEVER leave the key in the key switch when you are servicing the marine generator. Someone may accidentally start the engine and not realize you are servicing it.

Avoid personal injury. NEVER operate the engine while wearing a headset to listen to music or radio because it will be difficult to hear the warning signals.

Burn Hazard

Avoid serious injury. Some of the engine and marine gear surfaces become very hot during operation and shortly after shut-down. Keep hands and other body parts away from hot surfaces.

Sudden Movement Hazard

Avoid personal injury. ALWAYS stop the engine before beginning service. ALWAYS ensure tools or appliances are disconnected from the system before the engine is started.

Exhaust Hazard

Avoid serious injury or death. NEVER block windows, vents, or other means of ventilation if the engine is operating in an enclosed area. All internal combustion engines create carbon monoxide gas during operation and special precautions are required to avoid carbon monoxide poisoning.

ALWAYS drain the bilge before operating the marine generator. NEVER allow the marine generator to get wet.

⚠ CAUTION

The safety messages that follow have CAUTION level hazards.

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.

Flying Object Hazard

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.

NEVER open the power box. There are no user serviceable components. Contact your authorized Yanmar marine dealer or distributor.

NOTICE

The safety messages that follow have NOTICE level hazards.

It is important to perform daily checks as listed in this *Operation Manual*. Periodic maintenance prevents unexpected downtime, reduces the number of accidents due to poor engine or marine gear performance and can help extend the life of the engine and marine gear.

ALWAYS be environmentally responsible.

Follow the guidelines of the EPA or other governmental agencies for the proper disposal of hazardous materials such as lubrication 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.

NOTICE

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

- NEVER run the marine generator if the engine room or power box room temperature is above +50˚C (+122˚F).
- If the temperature exceeds +50˚C (+122˚F), the generator or power box may overheat and cause the marine generator to shut down for protection.
- Contact your authorized Yanmar marine dealer or distributor if the marine generator will be operated in temperature extremes.

NEVER attempt to modify the marine generator's design or safety features.

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

- Avoid operating in extremely dusty conditions.
- Avoid operating in the presence of chemical gases or fumes.
- Avoid getting the marine generator wet.
- Air temperature affects the generator output. Output drops 1% for each 10°C temperature rise above 15.6°C.

Most electrical appliances require more than their rated wattage for start-up. Make sure total wattage of electrical load does not exceed rated wattage of the system.
This system is not rated to power an entire home. Most home electrical service requires more than 60A.

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PRODUCT OVERVIEW

PRODUCT OVERVIEW

This marine generator system outputs alternating current (230V / 50Hz) through one or two power boxes. The current flows from the generator that is installed between the main engine and the transmission. This system can output current only when the main engine is running and all the control panels are turned ON. 12V DC are required for each power box.

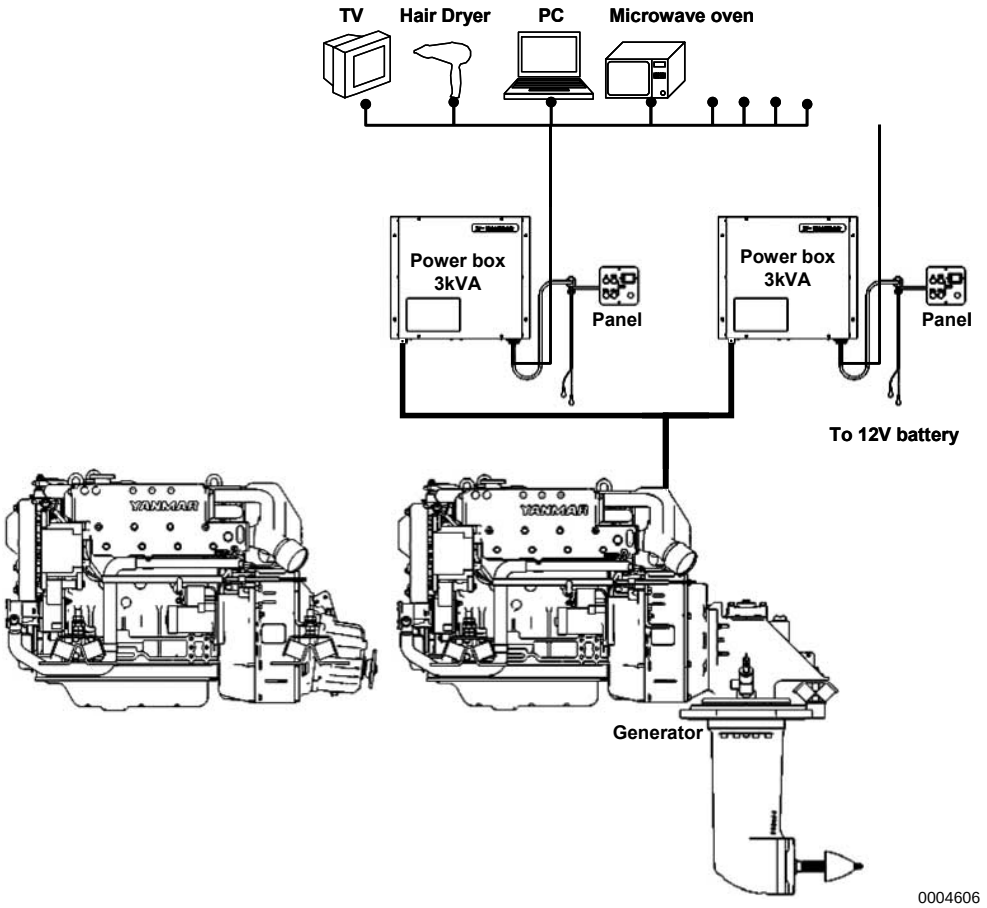
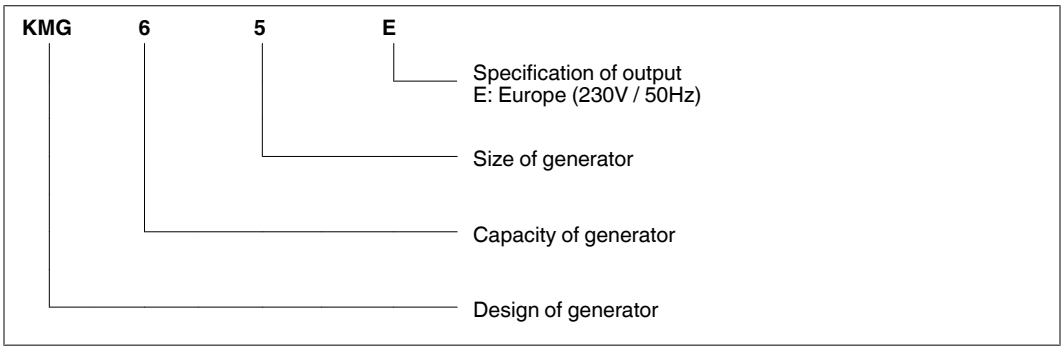


Figure 1

Note: Equipment such as the television (TV), hair dryer, microwave oven and personal computer (PC) are not included in this system.

Marine Generator Designation



KMG65E Models

Model Name KMG65E-	Applicable Engine	Applicable Transmission	Total System Output
S3	3JH4E 4JH4E	SD50	3kVA
S6			6kVA
K3		KM35P, KM35A(2)	3kVA
K6			6kVA

Note: The KMG65E is only available for the engines and transmission listed above. See your authorized Yanmar marine dealer or distributor for more information.

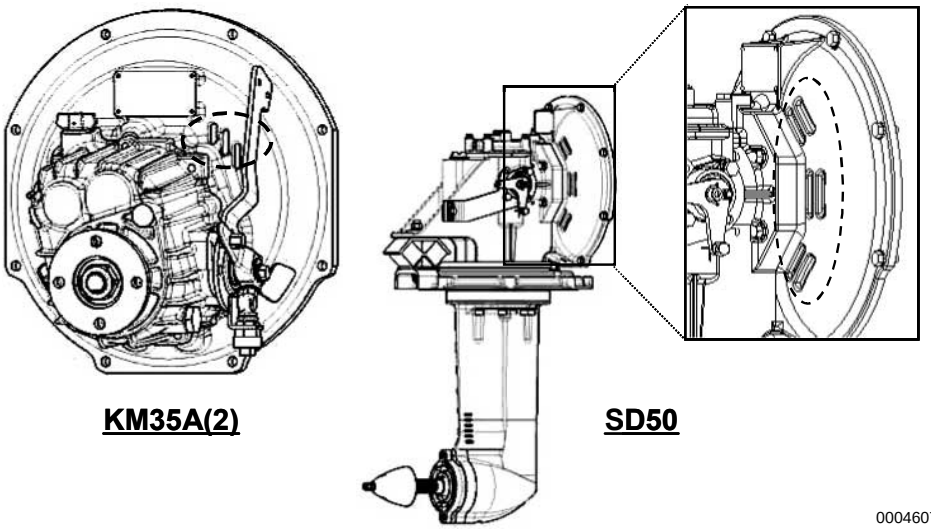


Figure 2

Applicable Marine Gears and Sail Drives

The KMG65E is available for the following marine gears and sail drives:

- KM35P: All models
- KM35A(2): Only models which have holes in the mounting flange **(Figure 2)**.
- SD50: Only models which have holes in the mounting flange **(Figure 2)**.

COMPONENT IDENTIFICATION

Main Components

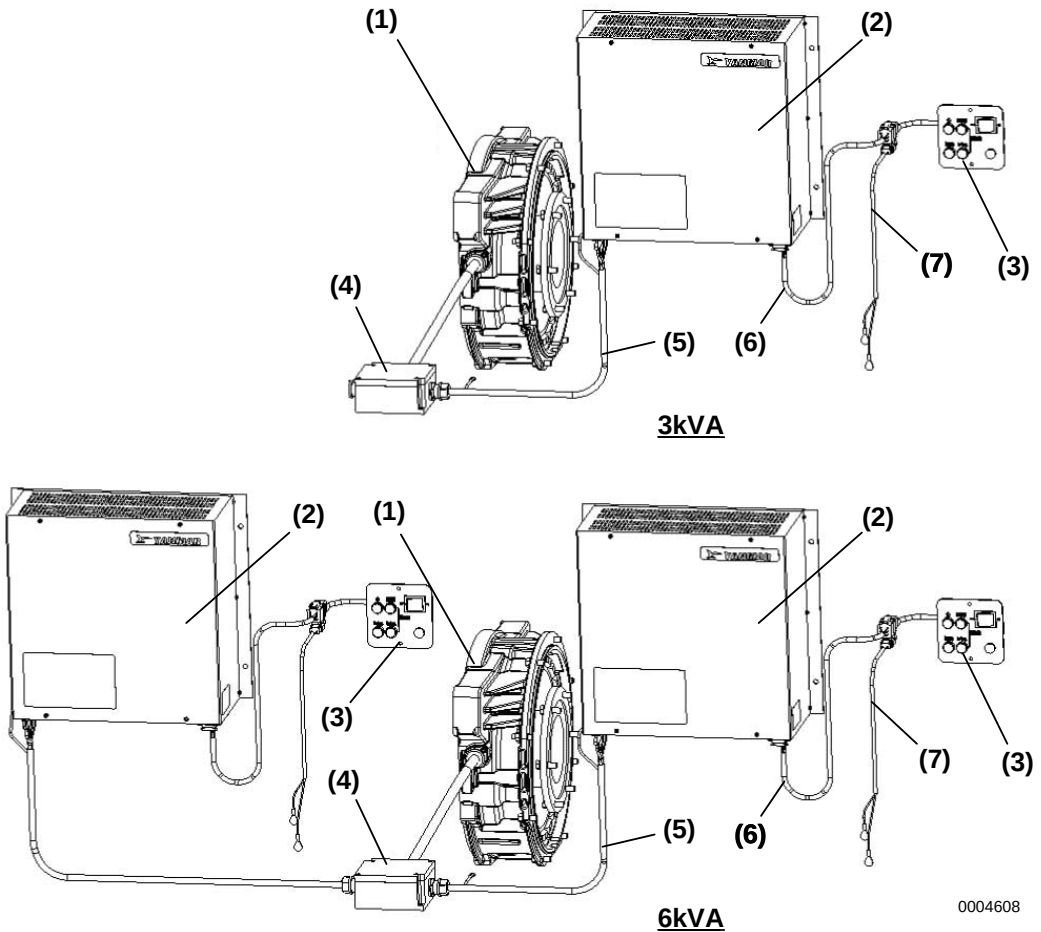


Figure 3

1 – Generator
2 – Power Box
3 – Control Panel
4 – Terminal Box
5 – Generator Harness
6 – Control Panel Power Harness
7 – Battery Harness

Generator

KMG65E-S3 and KMG65E-S6

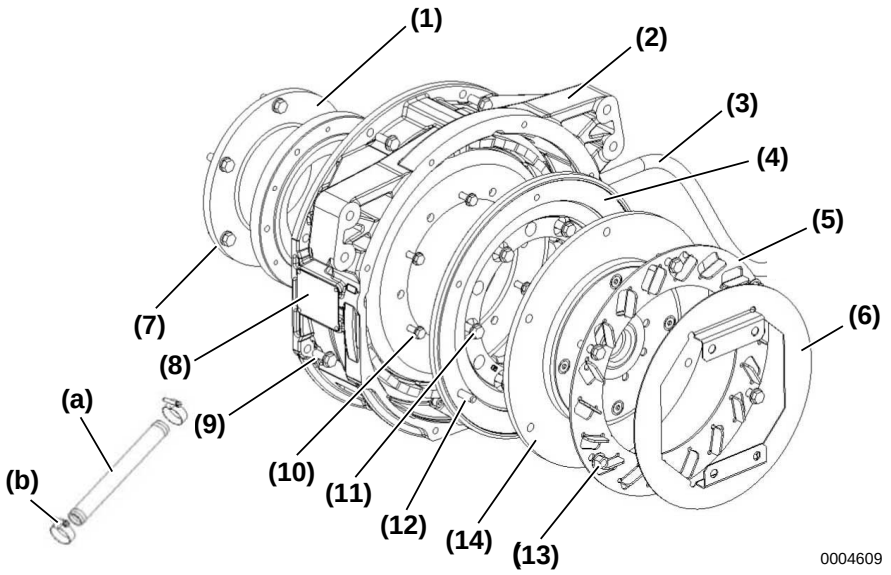


Figure 4

KMG65E-K3 and KMG65E-K6

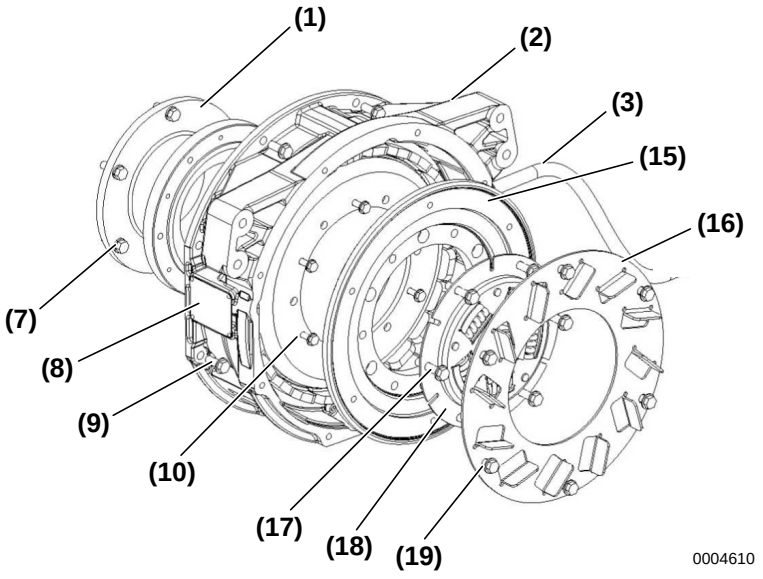


Figure 5

1 – Coupling
2 – Generator Assembly
3 – Generator Output Cable
4 – Flange (Sail Drive)
5 – Fan (Sail Drive)
6 – Plate (Sail Drive)
7 – Bolts (M8x25mm) and Washers (6 used)
8 – Nameplate
9 – Bolts (M8x20mm) (6 used)
Stud Bolts (M8x22mm) and Nuts (M8) (2 used)
10 – Bolts (M6x16mm) (6 used)
11 – Bolts (M8x25mm) (6 used)
12 – Stud Bolts (M8) (2 used)
13 – Nuts (2 used)
Bolts (M8x25mm) (4 used)
14 – Flexible Coupling (Vulkan Torflex - Boatbuilder Supplied)
a. Sail Drive Cooling Pipe
b. Hose Clamp (35 mm) (2 used)
15 – Marine Gear Flange
16 – Fan (Boatbuilder Supplied)
17 – Bolts (M8 x 35mm) (6 used)
18 – Damper Disk (Boatbuilder Supplied)
19 – Bolts (M8x12mm) (6 used)

Note: No. 14, 16 and 18 are included with the engine and marine gear or sail drive assemblies.

Power Box

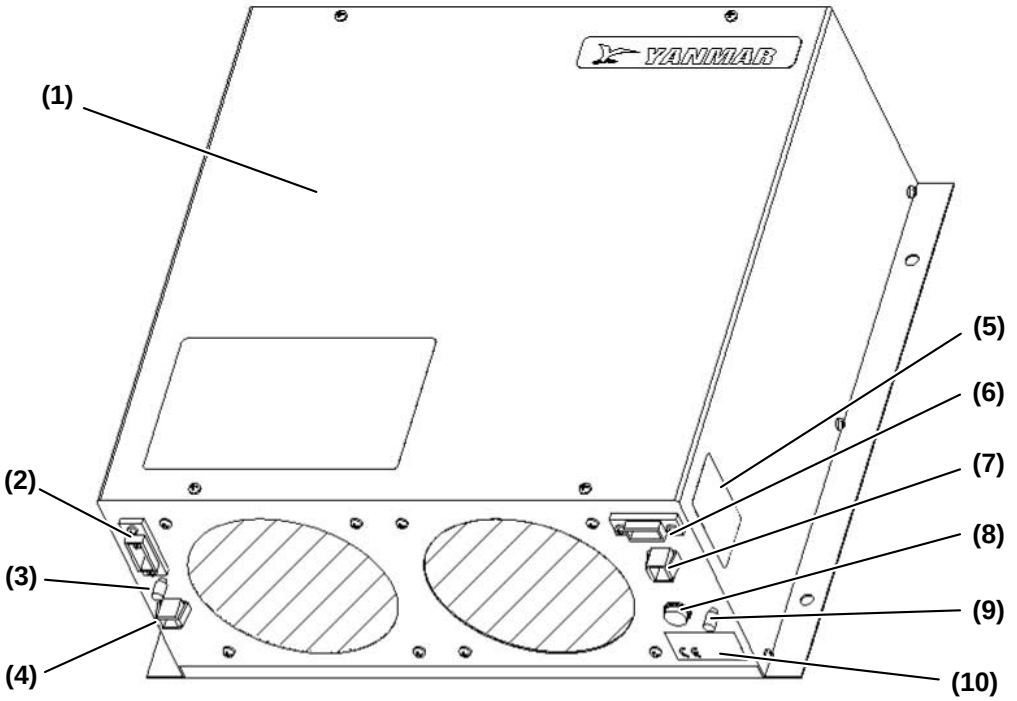


Figure 6

1 – Power Box
2 – Input Port from Generator (3-pin)
3 – Earth (Ground) Terminal for Input
4 – Input Port of Generator Thermal Switch
5 – Nameplate
6 – 230V Output Port (2-pin)
7 – Control Signal Port from Panel (6-pin)
8 – Fuse Holder
9 – Ground (Earth) Terminal
10 – Specification Decal

NAMEPLATE

Generator

The generator nameplate is installed on the generator housing.

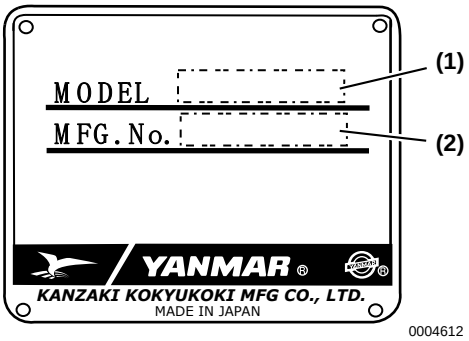


Figure 7

1 – Generator Model
2 – Generator Serial Number

Power Box

The power box nameplate is installed on the side of the power box.

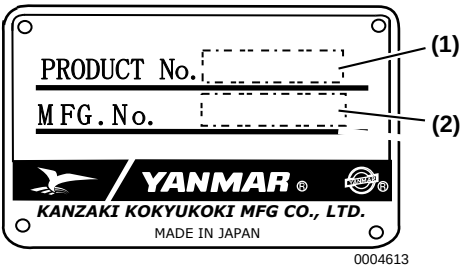


Figure 8

1 – Power Box Model Number
2 – Power Box Serial Number

Control Panel

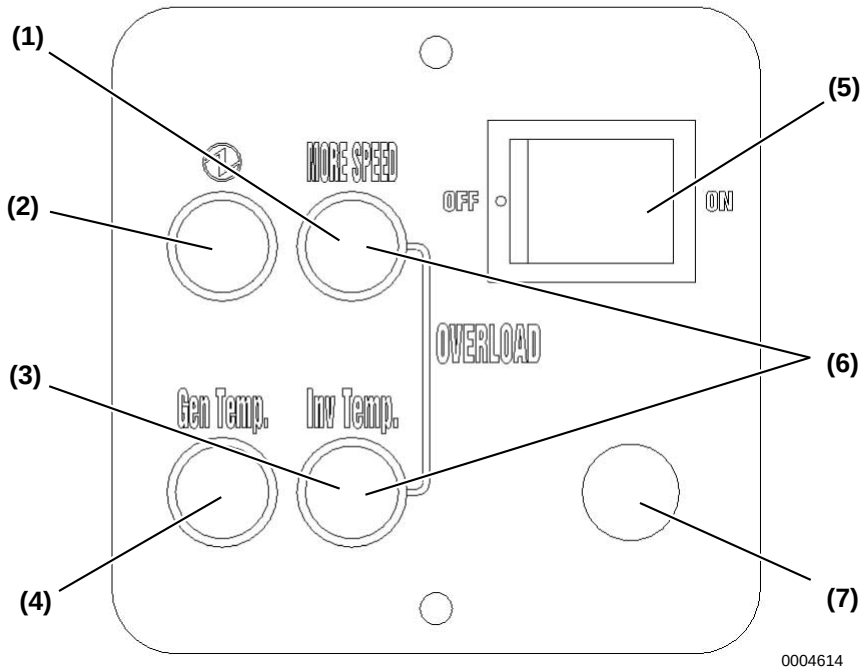


Figure 9

1 – Insufficient Engine Speed Warning Indicator
2 – Power Box is Running Indicator
3 – Power Box Temperature Warning Indicator
4 – Generator Temperature Warning Indicator
5 – Power Box ON / OFF Switch
6 – Overload Warning Indicator
7 – Fuse

- Insufficient Engine Speed Warning Indicator **(Figure 9, (1))**: A red LED that illuminates when engine speed is too low for the load.
- Power Box is Running Indicator **(Figure 9, (2))**: A green LED that illuminates when the power box main switch is ON.
- Power Box Temperature Warning Indicator **(Figure 9, (3))**: A red LED that illuminates when the power box (inverter) temperature is too high.
- Generator Temperature Warning Indicator **(Figure 9, (4))**: A red LED that illuminates when the generator temperature is too high.
- Power Box ON / OFF Switch **(Figure 9, (5))**: ON / OFF switch for the power box.
- Overload Warning Indicator **(Figure 9, (6))**: Two red LEDs illuminate when the Insufficient Engine Speed Warning and the Power Box Temperature Warning Indicators are lit.
- Fuse **(Figure 9, (7))**: For 12V DC Line

See Checks During Operation on page 26 for operation information.

TECHNICAL DATA

Installation should be done only by a qualified technician. See your authorized Yanmar marine dealer or distributor.
NOTICE: *The marine generator must be aligned and installed to the engine and transmission correctly or equipment damage will result.*

Output Voltage	230V
Output Frequency	50Hz
Maximum Input Speed	3500 min^{-1} (rpm)

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OPERATION

MARINE GENERATOR OPERATION

This section describes the procedure for performing daily checks and the operating procedures.

⚠ WARNING

Sever 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 continuous use of engine under heavy load. When electrical load and propeller load are both operated at engine rating speed, the engine may become overloaded. Yanmar recommends operating it at less than 2500 rpm.

Shift the marine gear into NEUTRAL any time the engine is at idle.

⚠ CAUTION

Periodic maintenance prevents unexpected downtime, reduces the number of accidents due to poor machine performance and helps extend the life of the marine generator.
If any problem is noted during the visual check, the necessary corrective action should be taken before you operate the marine generator.

DAILY CHECKS

Before operating the marine generating system, make sure it is in good operating condition.

Make sure you check the following items and have any repairs completed before you operate the marine generating system:

- Before operating, check all wiring connections. Ensure the connections are tight and there is no wear or damage to the wiring harnesses or connectors.
- Ensure no warning LEDs are illuminated when the marine generator is running.
- Ensure no abnormal noise is heard while the marine generator is running.

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

Starting the System

1. Ensure the power box switch on the control panel is OFF.
2. Start the engine and set the engine speed according to the electric equipment you will use.

Note: See Engine Speed Versus Power Output on page 40 for relationship between engine speed and power output.

When tools or appliances that draw heavy loads, such as a pump or air conditioner, are started, the necessary starting current required is greater than the rated load. Set the engine speed at 2200 to 2500 rpm to handle the larger draw.

3. Turn the power box ON / OFF switch to ON. Ensure the Power Box is Running indicator illuminates **(Figure 1)**. When lit, 230V are available and the system is ready for use.

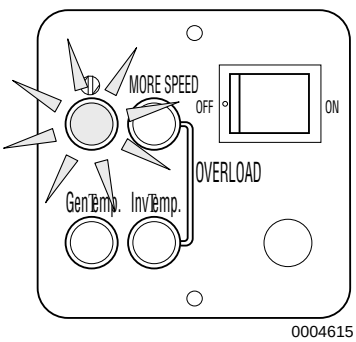
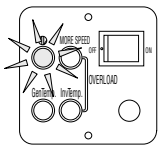
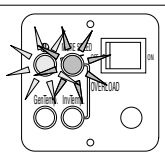
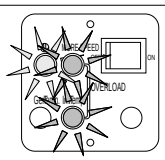
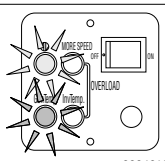
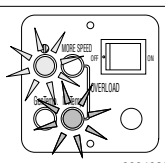


Figure 1

Note: When restarting tools or appliances that have a heavy draw, such as an air conditioner, ensure the engine rpm is sufficient to handle the additional load. See General Specifications on page 39.

Checks During Operation

- Check the indicators on control panel(s) from time to time during operation.
- Check that Power Box is Running indicator is illuminated and that no warning indicators are lit. NOTICE: *NEVER allow the system to run when a warning indicator is illuminated. Damage to equipment may result.*

Indicator		State	Remarks
 0004616	Power Box is Running Indicator	System is running normally	
 0004617	Insufficient Engine Speed Warning Indicator	Insufficient engine speed	Increase engine speed or decrease load.
 0004618	Insufficient Engine Speed Warning Indicator and Generator Temperature Warning Indicator	Overload	The timer starts and the system will stop automatically according to the load level.
 0004619	Generator Temperature Warning Indicator	Generator temperature is too high	The system stops automatically. Correct the problem and reset the system.
 0004620	Power Box Temperature Warning Indicator	Power box temperature is too high	The system stops automatically. Correct the problem and reset the system.

See Troubleshooting Chart on page 35 to troubleshooting warning LEDs. If the system stops automatically due to overload or temperature protection function, correct the problem and reset the system by turning the switch OFF and restarting.

Stopping the System

NOTICE: *NEVER turn the power box OFF and stop the engine immediately after a long period of operation at heavy load. Decrease the electrical load and allow system to cool down before shutting off the power box switch ON / OFF switch and stopping the engine.*

1. Turn all tool or appliances OFF before shutting down the marine generator. **WARNING!** ***NEVER restart the engine without turning all tools or appliances to OFF. Restarting the system with tools or appliances ON may cause unexpected movement of the tools or appliances.***
2. Before shutting down the marine generator, let the system run at low speed for approximately 5 minutes to allow the system to cool down.

Note: Failure to properly cool down the system may cause a warning indicator to light when you restart the system.

3. Turn the power box ON / OFF switch on the control panel(s) to OFF.
4. Ensure that Power Box is Running indicator is OFF.
5. Turn the engine OFF.

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MAINTENANCE

This section of the *Operation Manual* describes the procedures for proper care and maintenance of this system.

⚠ DANGER

Explosion Hazard

NEVER check the remaining battery charge by shorting out the terminals. ALWAYS use a hydrometer to check the remaining battery charge.

If the battery electrolyte is frozen, slowly warm the battery before you recharge it.

ALWAYS disconnect the external power line from the boat and shut off all the power box output breakers before servicing the system.

Crush Hazard

ALWAYS use lifting equipment with sufficient capacity to lift marine generator.

NEVER support marine generator with equipment not designed to support the weight of the marine generator such as wooden pieces, blocks or by only using a jack.

⚠ WARNING

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

Stop the engine before you begin to service the marine generator and secure the propeller so it will not turn.

Entanglement Hazard

NEVER leave the key in the key switch when you are servicing the engine or marine generator. Someone may accidentally start the engine and not realize you are servicing it.

Avoid unexpected equipment movement. Shift the marine gear into the NEUTRAL position any time the engine is at idle.

Electrical Shock Hazard

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.

⚠ CAUTION

Slipping and Tripping Hazard

Ensure that adequate floor space is set aside for servicing marine generator. The floor space must be flat and free of holes.

Keep floor free of dust, mud, spilled liquids and parts to help prevent slipping and tripping.

NOTICE

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

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

NEVER attempt to modify the marine generator's design or safety features. Failure to comply may impair the marine generator's safety and performance characteristics and shorten the marine generator's life. Any alterations to this marine generator may affect the warranty coverage of your marine generator.

If you remove the battery from the marine generator system, insulate the terminal on the end of the red positive (+) battery cable. Sparks may cause damage of the electronic circuits.

When you install a battery:

- ALWAYS use correct polarity when you connect the battery cables to the battery. This system uses a negative (-) ground, 12V DC starting system.
- ALWAYS ensure battery terminals are clean.
- ALWAYS ensure battery cable connections are tight.
- ALWAYS shut down the engine before removing or attaching the battery cables.
- ALWAYS disconnect the negative (-) battery cable first. Connect the negative (-) battery cable last.

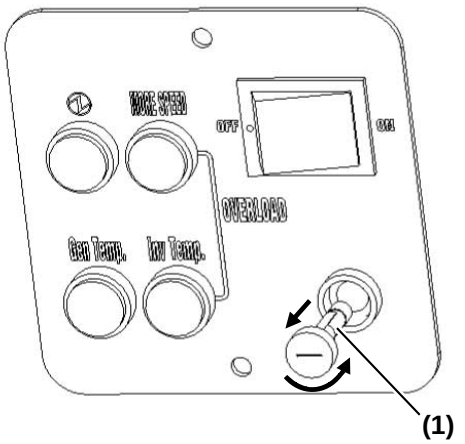
TORQUE CHARTS

Standard Torque Chart (Generator)

Thread Size x Pitch mm			M6x1.0	M8x1.25	M10x1.5	M12x1.75
Tightening Torque	Aluminum	N·m	8.8 ± 1.0	20.6 ± 2.0	39.2 ± 2.0	70.6 ± 4.9
		kgf·m	0.9 ± 0.1	2.1 ± 0.2	4.0 ± 0.2	7.2 ± 0.5
	Cast Iron or Steel	N·m	10.8 ± 1.0	25.5 ± 2.0	49.1 ± 4.5	88.3 ± 10.0
		kgf·m	1.1 ± 0.1	2.6 ± 0.2	5.0 ± 1.0	9.0 ± 1.0

CHANGING FUSES

There are two or four fuses in the marine generator system, depending on the number of power boxes installed. One is located on each control panel and one on each power box. All fuses are rated the same.



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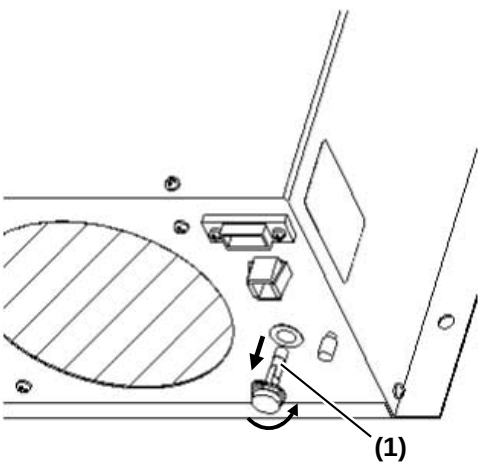

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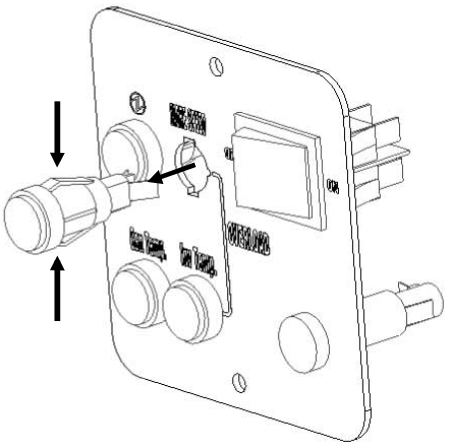
1. Disconnect battery cables, beginning with negative (-) cable first, or turn battery master switch (if equipped) to OFF.
2. Turn the cap of the fuse holder with a screwdriver.
3. Remove the fuse.
4. Replace with a new fuse of the specified rating.

Fuse Specification
250V-5A : 5mm x 20 mm

5. Install cap and tighten with a screwdriver. Do not over-tighten.

CHANGING INDICATOR LEDS

1. Disconnect battery cables, beginning with negative (-) cable first, or turn battery master switch (if equipped) to OFF.
2. Disconnect the appropriate control panel harness from the LED.



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3. Pull the LED while pushing the upper and lower tabs.
4. Align the tabs of the new LED and install.
5. Connect the panel harness.
6. Connect the battery cables, beginning with negative (-) cable first, or turn the battery master switch (if equipped) to ON.

TROUBLESHOOTING

TROUBLESHOOTING CHART

No.	Problem	Symptom	Possible Cause	Corrective Action
1	System does not start	Power Box is Running indicator does NOT light	12V DC wiring is disconnected or incorrect	Check the cables and cable connections.
2			Battery is too weak	Check the battery voltage. This system needs approximately 10 to 12V DC. The system can be started if there is enough battery capacity to start the engine.
3			Thermal switch	If you are restarting immediately after running with heavy load, allow the system to cool. Check the thermal switch cables. If these cables are disconnected or the thermal switch is damaged, the system will not run. If the thermal switch is damaged, see your authorized Yanmar marine dealer or distributor.
4			Faulty switch	Check the switch. If the switch is faulty, replace the switch. See your authorized Yanmar marine dealer or distributor.
5			Fuse blows out	Check the fuse on the panel. Replace if necessary. If the fuse continues to blow, see your authorized Yanmar marine dealer or distributor.
6			The Power Box is Running indicator LED blows out	Check the power box fans. If the fan is running and the indicator blows out, the LED must be replaced. See your authorized Yanmar marine dealer or distributor.
7			Power box	See your authorized Yanmar marine dealer or distributor.

No.	Problem	Symptom	Possible Cause	Corrective Action
8	Starting the system	Power Box is Running indicator lights, but power box has no output	Wiring of power lines is disconnected or incorrect	Check the cables and generator output and power box output cable connections.
9			Tools or appliances do not work	Check the tools or appliances.
10	During system starting or during operation	Insufficient Engine Speed indicator is illuminated	Engine speed is too low	Increase the engine speed until the indicator turns off.
11		Two red warning indicators are illuminated and the system has stopped running	Overload	Remove the load from the system until these LEDs turn off.
12		Generator Temperature Warning indicator is illuminated and system has stopped running	Temperature of generator is too high	Investigate and repair the cause. When the generator cools, the system can be restarted.
13		Power Box Temperature Warning indicator is illuminated and the system has stopped running	Temperature of power box is too high	Investigate and repair the cause. When the power box cools, the system can be restarted.
14		Power Box is Running indicator does not light and the power box does NOT output.	Numbers 11 - 13	If able to check which warning indicators light, troubleshoot with Numbers 11 - 13. If the warning indicators cannot be checked, remove the load and restart the system. NOTICE: *NEVER allow the system to run when a warning indicator is illuminated. Damage to equipment may result.*
15	Others			See your authorized Yanmar marine dealer or distributor.

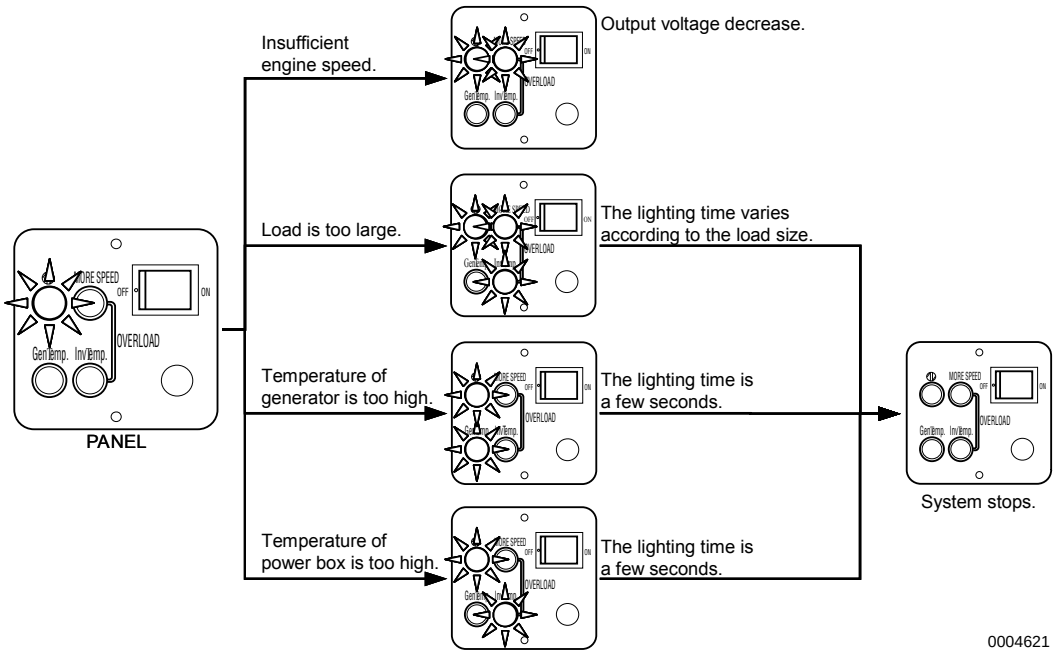
Insufficient
engine speed.
Output voltage decrease.
Load is too large.
The lighting time varies
according to the load size.
Temperature of
generator is too high.
The lighting time is
a few seconds.
Temperature of
power box is too high.
The lighting time is
a few seconds.
MORE SPEED
OFF
ON
OVERLOAD
Gen Temp.
Inv Temp.
PANEL
System stops.
0004621

Figure 1

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SPECIFICATIONS

GENERAL SPECIFICATIONS

Marine Generator Specifications				
Items		**Model Number**		**Remarks**
		KMG65E-S3 KMG65E-S6	**KMG65E-K3 KMG65E-K6**	
System Output	Voltage	230V AC		
	Frequency	50 Hz		
	Form and Phase	Sine wave, Single		The distortion <5%
Weight	Generator	21 kg (with fan) (46 lb with fan)	20.5 kg (without fan) (45.2 lb without fan)	
	Power Box	13 kg (28.6 lb)		
Dimension of Main Components	Generator	SAE #5 x 105 mm		
	Power Box	320 x 360 x 145 mm (12.6 x 14.2 x 5.7 in.)		
Power Consumption of the Power Box		< 3A (12V DC)		
Applicable Marine Gear or Sail Drive Model		SD50	KM35A(2), KM35P	
Applicable Engine Model		3JH4E, 4JH4E		Not applicable to other Yanmar engines
Permissible Input Speed of Generator		3500 rpm		
Applicable Standard (EMC)		EC Council Directive 89/336/EEC as Last Amended By EC Directive 93/68/EEC		

System Specifications				
Items		**Model Number**		**Remarks**
		KMG65E-S3 KMG65E-K3	**KMG65E-S6 KMG65E-K6**	
Quantity of Connected Power Box(es)	—	1	2	
Continuous Output	kVA	3.0	6.0 (3.0 and 3.0)	
	kW	3.0	6.0 (3.0 and 3.0)	
Power Factor	—	1.0		
Maximum Output	kVA	3.2	6.4 (3.2 and 3.2)	
Output for Engine Speed		See **Figure 1**		
Start / Stop	—	ON / OFF Switch on Control Panel		
Warning Signal	LED Light ON	Generator Temperature (Stator)		
		Power Box Temperature		
		Overload		See **Figure 1**
		Insufficient Engine Speed		
Self Protection Function		Auto Stop for Overheat and Overload		

Engine Speed Versus Power Output

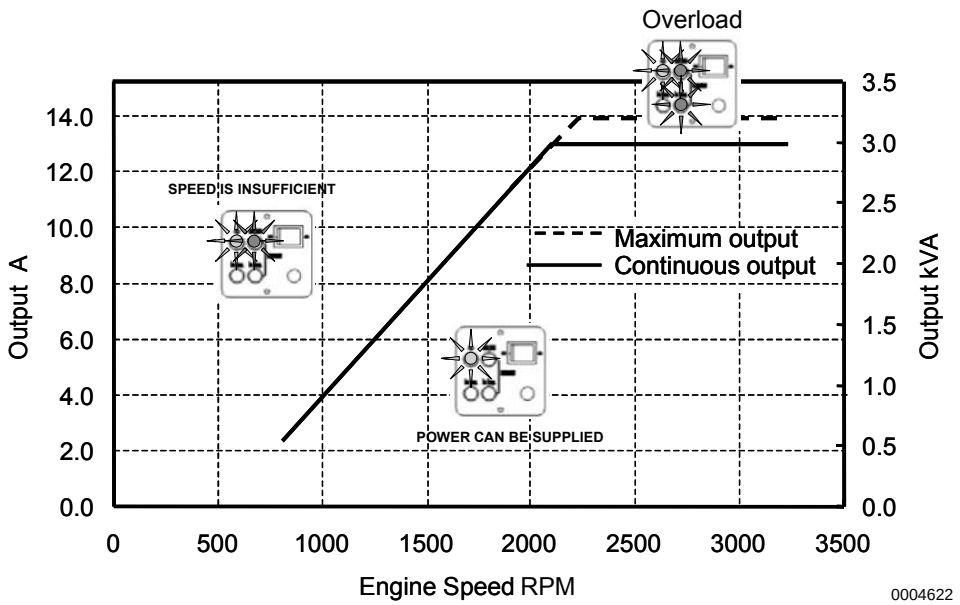


Figure 1

SYSTEM DIAGRAMS

Power Box and Control Panel

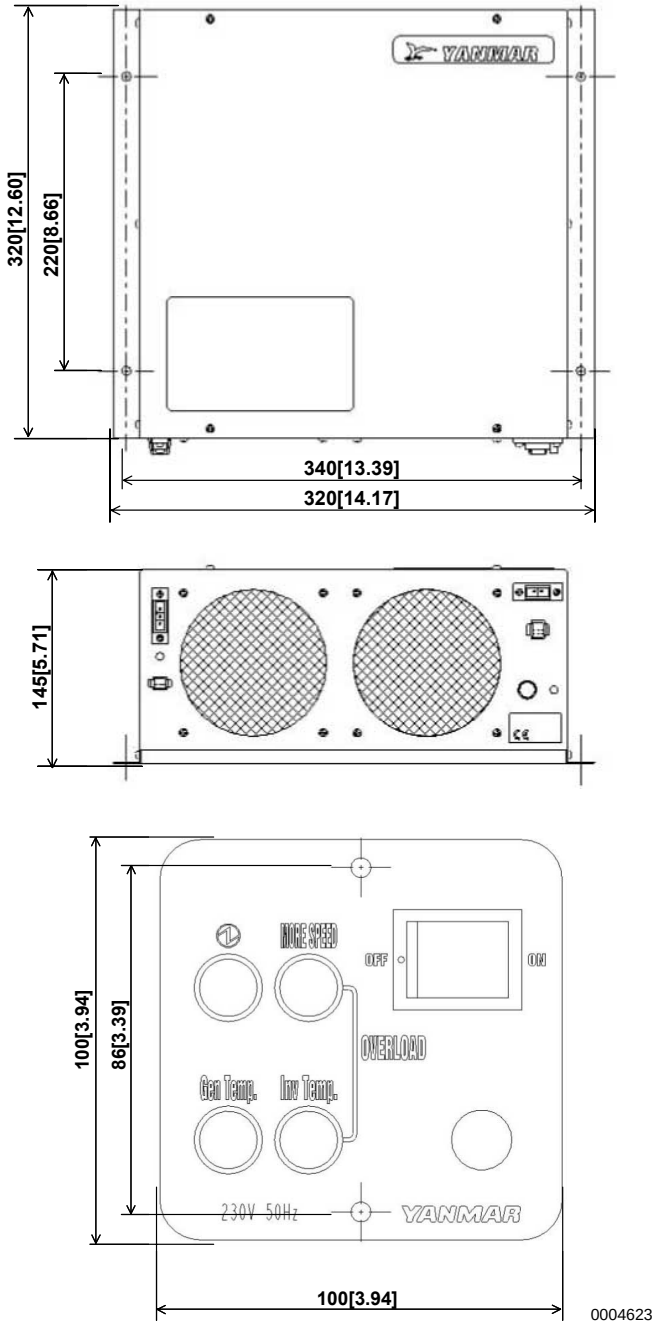
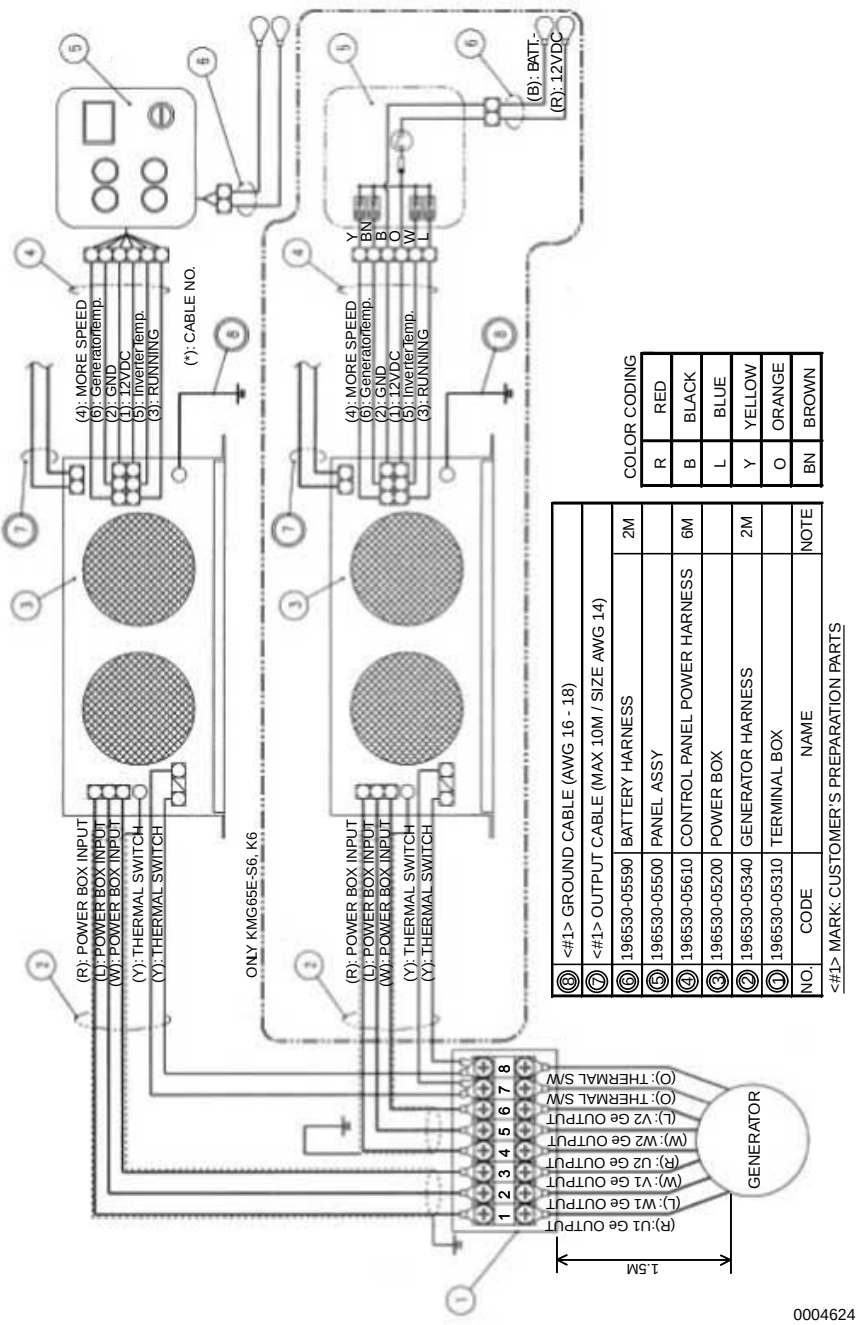


Figure 2

Unit: mm (inch)

Wiring Diagram



NO.	CODE	NAME	NOTE
⑫		<#1> GROUND CABLE (AWG 16 - 18)	
⑪		<#1> OUTPUT CABLE (MAX 10M / SIZE AWG 14)	
⑩	196530-05590	BATTERY HARNESS	2M
⑨	196530-05500	PANEL ASSY	
⑧	196530-05610	CONTROL PANEL POWER HARNESS	6M
⑦	196530-05200	POWER BOX	
②	196530-05340	GENERATOR HARNESS	2M
①	196530-05310	TERMINAL BOX	

<#1> MARK: CUSTOMER'S PREPARATION PARTS

COLOR CODING	
R	RED
B	BLACK
L	BLUE
Y	YELLOW
O	ORANGE
BN	BROWN

Figure 3