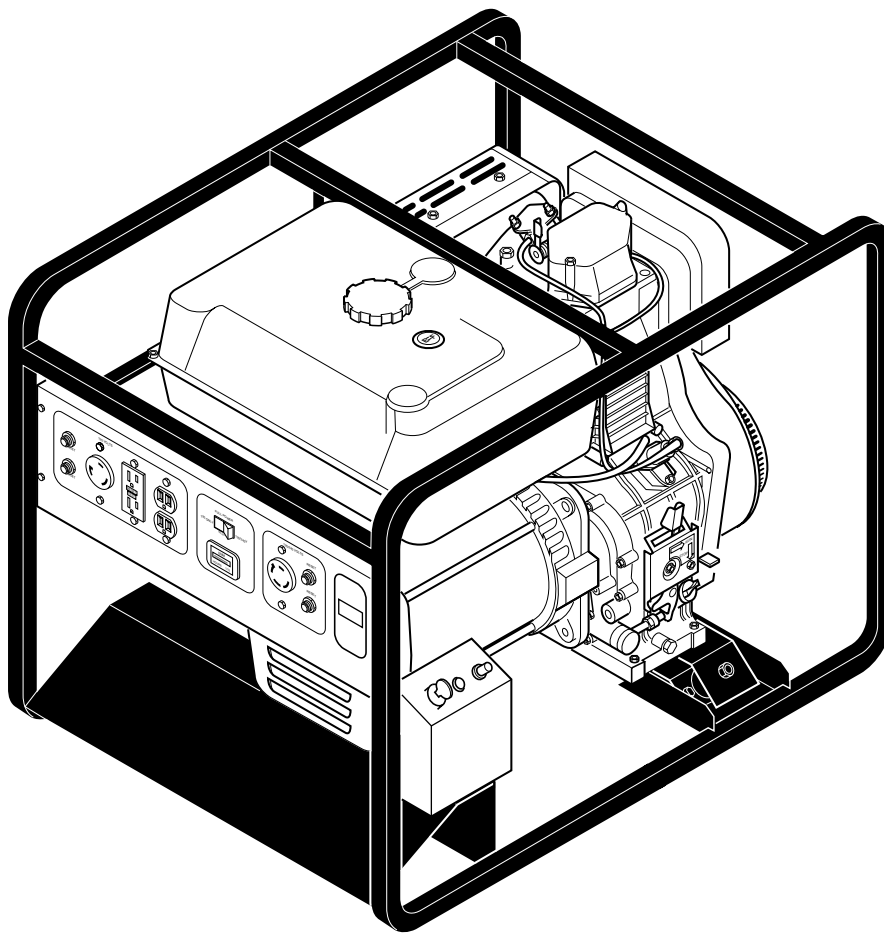


MASTER[®]

PORTABLE DIESEL GENERATOR

OWNER'S OPERATION AND INSTALLATION MANUAL



Generator Model: MGY5000C

IMPORTANT: Read and understand this manual before operating or servicing generator. Improper use of generator can cause serious injury. Keep this manual for future reference.

SAFETY INFORMATION

WARNINGS

IMPORTANT: Read this owner's manual and the engine owner's manual carefully. Become familiar with this generator before trying to operate or service it. Know its uses, limitations, and any hazards involved. Improper use of generator can cause severe injury or death from explosion, fire, burns, electrical shock, or carbon monoxide poisoning.

 DANGER: Carbon monoxide poisoning may lead to death!

Engine exhaust contains poisonous carbon monoxide gas. Overexposure will cause loss of consciousness and will lead to death. Use only in well-vented areas. Make sure area has plenty of free-moving, fresh, outside air. Never run generator in an enclosed or confined area. Never run generator inside occupied building.

Carbon Monoxide Poisoning: Early signs of carbon monoxide poisoning resemble the flu, with headaches, dizziness, and nausea. **If you have these signs, get fresh air at once!** Some people are more affected by carbon monoxide than others. These include pregnant women, persons with heart or lung disease or anemia, those under the influence of alcohol, and those at high altitudes. Make certain you read and understand all warnings. Keep this manual for reference. It is your guide to safe and proper operation of this generator.

Safety information appears throughout these instructions. Pay close attention to them. Below are definitions for the safety information listed throughout this manual.

DANGER: indicates a hazard which will cause severe personal injury, death, or substantial property damage if you ignore warning.

WARNING: indicates a hazard which can cause severe personal injury, death, or substantial property damage if you ignore warning.

CAUTION: indicates a hazard which will or can cause minor personal injury or property damage if you ignore warning.

1. Diesel fuel presents a hazard of fire. Diesel fuel is flammable.
 - Keep fuel out of children's reach.
 - Refuel generator in a well-vented area. Do not fill fuel tank in the dark. Do not refuel while engine is running. Unhook all electrical loads and shut off engine before refueling.
 - Do not overfill fuel tank. Always allow room for fuel to expand. If you overfill tank, fuel can overflow onto hot generator. This can cause fire. After refueling, tightly close fuel tank cap.
 - Do not spill fuel. If fuel spills, make sure area is dry before starting engine.
 - Never smoke in refueling area. Never allow open flames or sparks in area.
 - Store fuel in approved container. Store fuel in a well-vented area free of open flames or sparks.
2. Guard against fire hazard. Keep operation area well-vented. Keep generator at least three feet away from any object. Do not place flammable objects near generator.
 - Do not use generator where flammable vapors are present. Some vapors are heavier than air. These vapors settle in low-lying places.
 - Do not use generator in enclosed spaces. This includes motor home or RV generator compartments.
3. Guard against electric shock. Generator produces high voltage. This high voltage can cause severe electric shock. Only responsible adults should use generator.
 - Properly ground generator before starting.
 - Never let anyone operate or service generator without proper instructions.
 - Avoid contact with live terminals or bare wires.
 - Do not use generator outdoors in rain or snow.
 - Do not use generator near standing water or snow.
 - Do not use if generator is wet or damp.
 - Do not use generator in highly conductive areas. These areas include metal decking and steelwork.
 - Only use grounded extension cords.
 - Do not use any worn or damaged electric cords. Electric shock or damage to generator may result.
4. Guard against burns. Hot engine parts can cause severe injury. Use caution and remain alert when using generator.
 - Keep children and animals away from generator while it is running or hot.
 - Keep all covers and shields in place. Keep them tightly secured.
 - The muffler becomes very hot during operation. The muffler remains hot for a while after shutdown. Do not touch muffler while it is hot. Do not let muffler touch anything flammable. Let engine cool before transporting or storing.
5. Have standby installation to home or building performed by a licensed electrician. Do not let anyone else wire into a utility circuit. Personal injury, equipment damage, or damage to home could occur.
6. Never connect generator to any existing electrical circuits. The generator output will back-feed into the utility power line. This may electrocute a power company line repair person. Also, if generator is powering electrical circuits, the chance of an electrical fire exists.
7. Battery gives off explosive gases. Keep sparks, flames, and cigarettes away. Do not remove or install battery cables when engine is cranking or running. Only service or use battery in a well-vented area.
8. Battery contains sulfuric acid. Battery acid is poisonous if swallowed. Contact with skin or eyes may cause severe burns. Do not tilt generator with battery installed. Tilting could cause battery acid to spill. Wear protective clothing and face shield when servicing. Keep out of children's reach.

SAFETY INFORMATION

Continued

9. Only a qualified electrical service person should service and repair generator.
 - Generator produces high voltage. Use extreme caution when working on electrical parts.
 - When working on generator, avoid hot muffler, exhaust manifold, and engine parts. Severe burns may occur.
 - Do not work on generator when tired.
 - Use only factory approved replacement parts.
10. Store generator in a well-vented area. Make sure fuel tank is empty. Never store with fuel in tank.
11. Never operate generator
 - if engine speed changes greatly
 - if engine misfires often
 - if powered items overheat
 - if electrical output drops
 - if it is sparking
 - if it produces smoke or flames
 - if it vibrates at high levels
 - if it has a damaged receptacle
12. Keep generator and nearby areas clean.
 - Keep generator free of oil, mud, and other foreign matter.
 - Remove anything that creates slippery areas around generator.
 - Remove oily rags and other items that create fire hazards.
 - Keep a fire extinguisher nearby. Make sure it is rated ABC by the NFPA. They are good for all uses. Consult your local fire department.
 - Keep fire extinguisher well maintained. Be familiar with its use.
13. Know how to stop engine quickly. Know how to use all controls.
14. Prolonged exposure to loud noise can cause hearing loss.
 - When working around generator, wear approved hearing protection.
 - Remember neighbors when using generator.

PRODUCT IDENTIFICATION

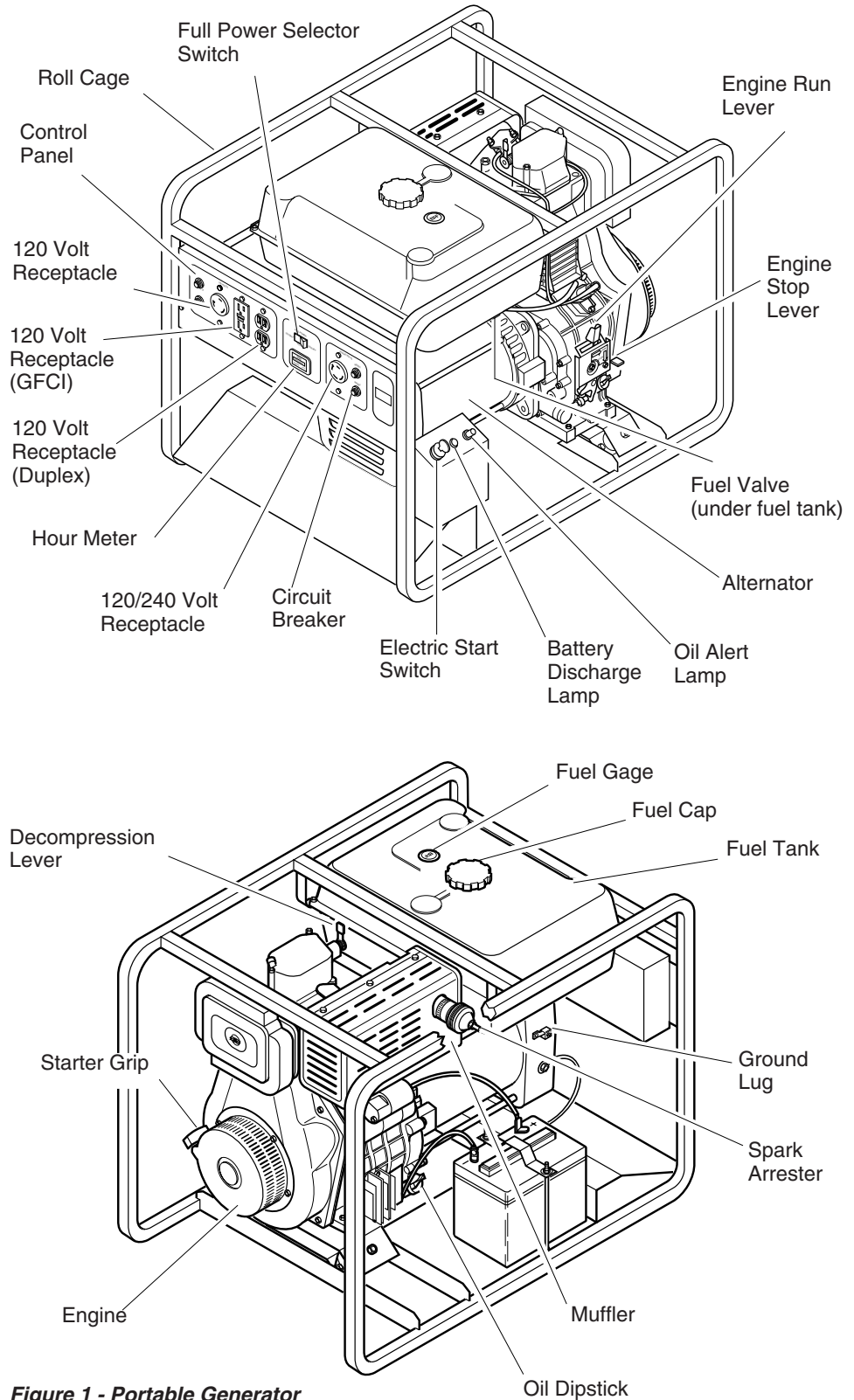


Figure 1 - Portable Generator

MASTER

PORTABLE DIESEL GENERATOR

GENERAL INFORMATION

This portable generator is rugged and compact. It provides dependable, trouble-free service. The alternator is brushless with revolving fields. Yanmar diesel engine provides long life under heavy use. This engine is governed to maintain engine speed of 3600 RPM under load. 3600 RPM engine speed provides 120/240V, 60 Hz power.

Additional Features

- Circuit breaker protection
- Spark-arresting muffler
- Large fuel tank
- Oil alert system
- Electric starter
- Pressurized lubrication system
- 15-Amp ground fault circuit interrupter (GFCI) receptacle

SPECIFICATIONS

MODEL MGY5000C

Electrical

Rated Wattage*	5000
Rated Amperage	
120 V	41.7
240 V	20.8

Receptacle

120-V, 15-A Duplex	Yes
120-V, 15-A GFCI	Yes
120-V, 30-A Twist-Lock	Yes
120/240-V, 20-A Twist-Lock	Yes
120-V Full-Power Switch	Yes

General

Yanmar Engine H.P.	10
Yanmar Engine Model	L100
Fuel Type	Diesel
Fuel Tank Capacity	4.2 Gallons
Oil Alert System	Yes
Electric Start	Yes
Weight (pounds)	241

* Single-phase, 1.0 power factor

UNPACKING

1. Remove generator from carton.
2. Remove any protective packaging applied to generator for shipment.
3. Check for loose or missing parts. Check for shipping damage. If any parts are missing or damaged, promptly inform dealer where you bought generator.
4. Battery cables are in a separate bag inside generator carton. You must install these cables to engine. See *Battery*, page 6, for installation instructions.

VENTILATION

⚠ DANGER: Use only in well-ventilated areas. Make sure area has plenty of free-moving, fresh, outside air. Never run generator in an enclosed or confined area. Never run generator inside occupied building. Engine exhaust contains poisonous carbon monoxide gas. Overexposure will cause loss of consciousness and will lead to death.

This generator needs cooling air to run properly. Never block free-flowing, cooling air to generator. Overheating will occur without cooling air. This will damage the generator. Keep generator at least three feet away from any object.

DUST, DIRT, RAIN, AND SNOW

⚠ WARNING: Do not use generator outdoors in rain or snow. Do not use generator near standing water or snow. Do not use if generator is wet or damp. Operating generator in these conditions increases the risk of electrocution. Severe injury or death can occur.

Do not use generator in extremely dusty or dirty conditions. This will severely affect its life. Keep generator clean. Do not allow dust, dirt, rain, or snow to collect on it. Protect generator from outdoor elements.

HIGH AND LOW TEMPERATURE OPERATION

Air temperature affects generator output. Output drops 1% for each 10° temperature rise above 60° F. Very low temperatures may make the engine hard to start. See engine owner's manual for more information.

GENERATOR FEATURES

OIL ALERT SYSTEM

The oil alert system protects the engine from low oil damage. This system automatically shuts down the engine and prevents engine restarting if the oil level falls too low.

If this system shuts down the engine, the engine will not start until you add oil. Add oil to engine (see *Engine Oil*, page 6).

See engine owner's manual for more information.

BATTERY DISCHARGE LAMP

The battery discharge lamp (see Figure 2) will light if battery charger is not operating while engine is running. If this happens, the battery will not charge and will eventually run down. Have battery charging circuit repaired by authorized service person.

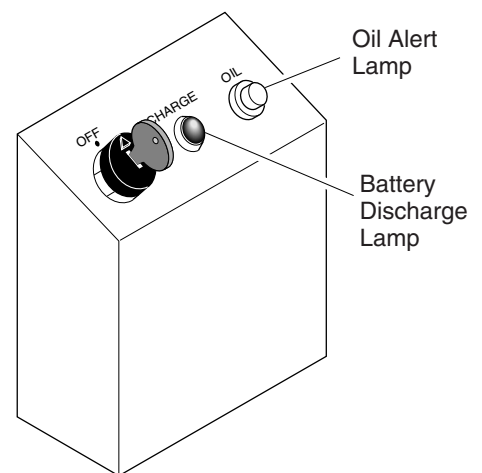


Figure 2- Battery Discharge Lamp and Oil Alert Lamp Location

GENERATOR FEATURES

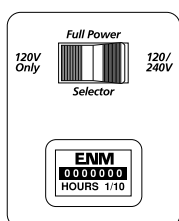
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FULL POWER SELECTOR SWITCH

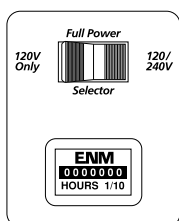
The full power selector switch is on the control panel. The switch has two positions: 120 VOLT ONLY, and 120/240 VOLT.

120 VOLT ONLY: This position sends full power to the 120V receptacles only. 240V power is not available. Use this position when powering 120V items only.

120/240 VOLT: This position sends full power to the 120/240V receptacle. It also powers the 120V receptacles at reduced wattage capacity.



120 VOLT ONLY Position



120/240 VOLT Position

Figure 3 - Full Power Selector Switch
IMPORTANT: Do not move the full power selector switch while powering electrical items. Unplug all items before moving switch. Failure to do so can damage switch.

GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLE

This generator has a 120-volt ground fault circuit interrupter (GFCI) receptacle. The GFCI receptacle is on the control panel. The GFCI protects you against hazardous electrical shock caused when your body becomes a path through which electricity travels to reach ground. This could happen when you touch an appliance or cord that is 'live' through faulty mechanism, damp or worn insulation, etc.

When protected by the GFCI, you may still feel a shock, but the GFCI should cut it off quickly. A person in normal health should not receive serious injury. **Note:** Infants and very small children may still be affected.

Test Procedure

Check the GFCI receptacle every month. This insures it is working right.

1. Push black TEST button. Red RESET button should pop out. This should trip GFCI, resulting in no electrical power at receptacle. Verify this by plugging test lamp with good bulb into receptacle. If lamp does not work, GFCI receptacle is good.

⚠ WARNING: If RESET button does not pop out, do not use the GFCI receptacle. Contact a qualified electrician for repairs.

2. If the GFCI receptacle tests okay, restore power by pushing the RESET button back in. The test lamp should work at this time. **IMPORTANT:** You must press the RESET button firmly and fully. It should lock into place. If the GFCI does not lock into place, do not use receptacle. Contact a qualified electrician for repairs.

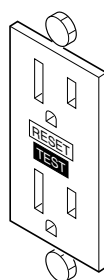


Figure 4 - GFCI Receptacle

ELECTRIC START

This model has an electric starter. A battery is not supplied with generator. You must provide a 12-volt, 45-amp-hour battery. For more battery information, see *Battery*, page 6.

RECEPTACLE CIRCUIT BREAKER

The circuit breakers protect the receptacles and alternator. Overloading generator will trip circuit breaker. A short circuit in item being powered will also trip breaker. If this occurs, unplug electrical load from receptacle. Let circuit breaker cool down. Push circuit breaker button to reset.

Electric motors need higher starting current. They require up to three-times their rated wattage to start. The starting current needed may be too high. This can cause nuisance circuit breaker tripping. To help prevent this, start electric motors first. Connect additional items to generator after starting motors. If this continues to happen, reduce the total generator load.

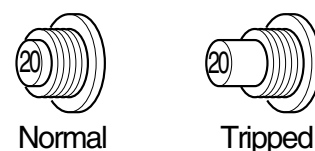


Figure 5 - Receptacle Circuit Breaker Button

SPARK ARRESTER

We ship a spark arrester with this generator. You must install spark arrester to muffler (see figure 6).

A spark arrester is required if using generator in a national forest and other designated state and local areas. Check local codes.

The spark arrester needs periodic cleaning. A dirty spark arrester reduces engine output and increases fuel consumption. It also makes starting difficult. See engine owner's manual for cleaning instructions.

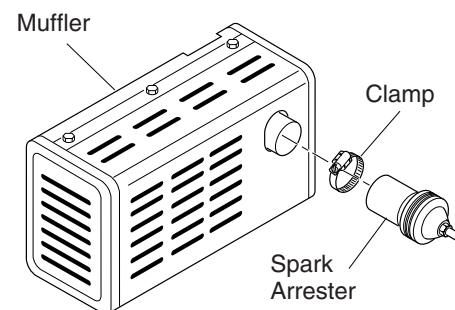


Figure 6 - Installing Spark Arrester

PORTABLE DIESEL GENERATOR

ENGINE OIL

We ship the generator without oil in the engine crankcase. You must add oil before starting engine. See engine owner's manual for specific oil type.

CHECKING OIL LEVEL AND ADDING OIL

Follow steps below to check oil level. Make sure engine is level and stopped.

1. Remove dipstick (see Figure 7). Wipe dipstick clean.
2. Insert dipstick into oil filler neck. Do not screw it in. Oil level should be at top of filler neck. Oil should cover most of dipstick.
3. If level is low, fill to top of oil filler neck (see Figure 7). Only use oil recommended in engine owner's manual.

Note: If oil level is too low, oil alert system will shutdown engine and prevent engine from restarting.

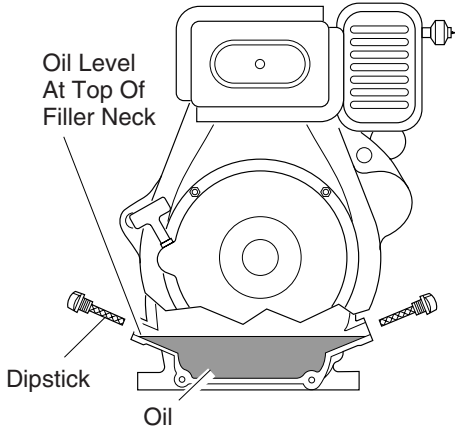


Figure 7 - Checking Oil Level

FUEL

⚠ WARNING: Diesel fuel presents a hazard of fire. Diesel fuel is flammable.

- Keep fuel out of children's reach.
- Refuel generator in a well-vented area. Do not fill fuel tank in the dark. Do not refuel while engine is running. Unhook all electrical loads and shut off engine before refueling.
- Do not overfill fuel tank. Always allow room for fuel to expand. If you overfill tank, fuel can overflow onto hot engine. This can cause fire. After refueling, tightly close fuel tank cap.
- Do not spill fuel. If fuel spills, make sure area is dry before starting engine.
- Never smoke in refueling area. Never allow open flames or sparks in area.
- Store fuel in approved container. Store fuel in a well-vented area free of open flames or sparks.

Use clean, fresh, diesel fuel. Use diesel fuel with cetane rating of 45 or higher. Avoid getting dirt, dust, or water in fuel tank.

See engine owner's manual for more information.

BATTERY

⚠ WARNING: Battery gives off explosive gases. Keep sparks, flames, and cigarettes away. Do not remove or install battery cables when engine is cranking or running. Only service or use battery in a well-vented area.

⚠ WARNING: Battery contains sulfuric acid. Contact with skin or eyes may cause severe burns. Do not tilt generator with battery installed. Tilting could cause battery acid to spill. Wear protective clothing and face shield when servicing. Keep out of children's reach.

- If battery acid gets on your skin, wash with water.
- If battery acid gets in your eyes, flush with water at least 15 minutes. Call a doctor at once.

Battery acid is poisonous.

- If swallowed, drink large amounts of water or milk. Follow with milk of magnesia or vegetable oil. Call a doctor at once.

⚠ CAUTION: If you remove battery, insulate the red, positive (+) battery cable terminal. Insulate with electrical tape. Exposed terminal may spark when generator runs.

IMPORTANT: Make sure battery connections are the correct polarity. This generator uses negative ground, 12-volt DC starting system.

This generator has an electric starter. A battery is not supplied with generator. You must provide a 12-volt, 32-amp-hour battery. The positive and negative battery cables are supplied with generator. You must install these cables before mounting battery.

Always wear safety glasses when working with battery. Make sure battery terminals are clean. Make sure cable connections are tight.

Always shut down engine before removing or attaching battery cables. Always remove the negative (-) cable first. Always attach negative (-) cable last.

BATTERY

Continued

INSTALLING BATTERY CABLES TO ENGINE

1. Attach the red, positive (+) battery cable to the starter solenoid on engine (see Figure 8).
2. Attach the black, negative (-) battery cable to the engine block. Use the bolt, nut, and two washers provided with the battery cables. Attach cable as shown in Figure 9.

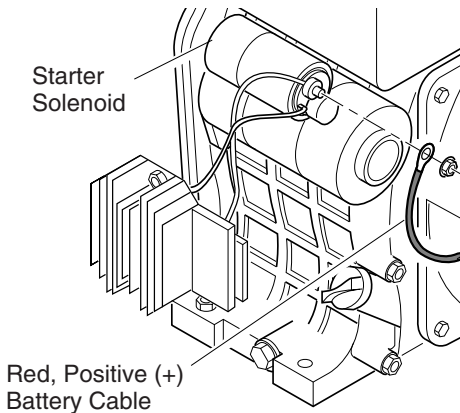


Figure 8 - Connecting Red, Positive (+) Battery Cable to Starter Solenoid on Engine

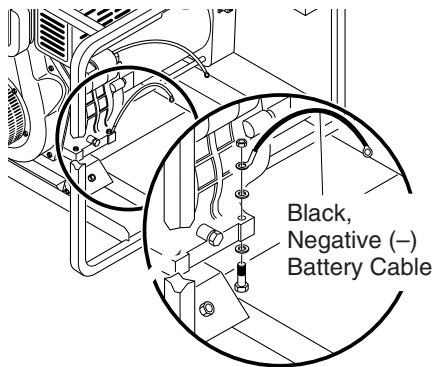


Figure 9 - Connecting Black, Negative (-) Battery Cable to Engine Block

MOUNTING BATTERY TO GENERATOR

1. Secure battery to generator by battery hold-down system. This system consists of the battery mounting bracket, hook bolts, and nuts (see Figure 10).
2. Locate the red, positive (+) battery cable from starter solenoid. Connect it to the positive (+) battery terminal (see Figure 11).
3. Locate the black, negative (-) battery cable attached to engine block. Connect it to the negative (-) battery terminal (see Figure 11).
4. Check battery before starting engine. Make sure fluid levels are full. Make sure battery is charged.

See engine owner's manual for more information.

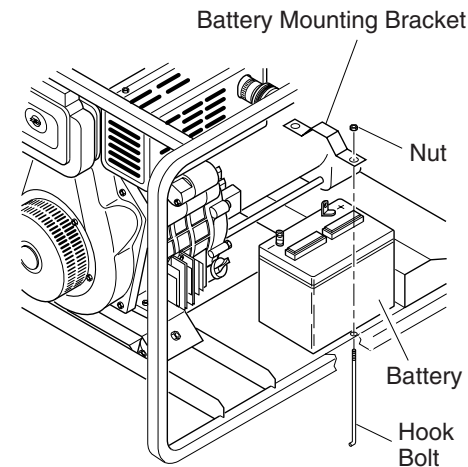


Figure 10 - Battery Hold-Down System

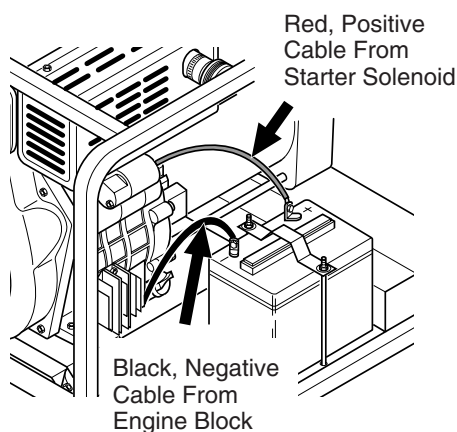


Figure 11 - Connecting Positive and Negative Cables to Battery

GENERATOR GROUNDING

⚠ WARNING: You must properly earth-ground generator before starting. This will help guard against deadly electric shock. Only use grounded plugs with generator. Only use grounded extension cords. Only use three-wire or double-insulated power tools.

Grounding generator helps prevent electric shock from a ground fault condition. Locate ground lug on end of generator housing (see Figure 12). Attach a #10 stranded-copper ground wire to ground lug. Drive grounding point into ground. Grounding point can be a stake, grounding rod, or pipe. Grounding point should be copper or brass. Attach ground wire to grounding point. You must supply the ground wire and grounding point. These do not come with generator. Follow the *National Electrical Code* and all state and local codes. Consult your power company or a licensed electrician.

⚠ WARNING: For a grounding point, do not use metal pipe being used to carry combustible materials or gases.

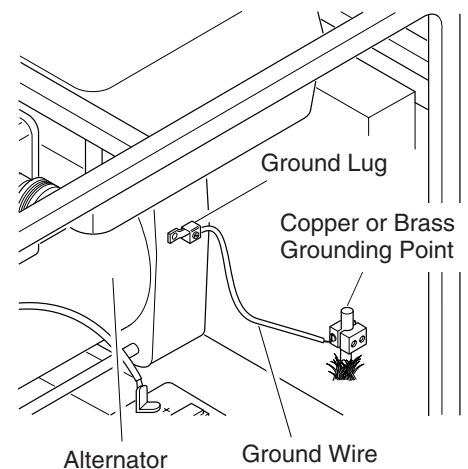


Figure 12 - Grounding Generator

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PORTABLE DIESEL GENERATOR

EXTENSION CORDS

Only use grounded extension cords. Be sure to use extension cord with proper wire gauge size. See chart below.

Recommended Minimum Wire Gauges (AWG) for Extension Cords

Ampere Load	AWG for Length of Cord in Feet		
	50'	100'	150'
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

STANDBY INSTALLATION TO HOME OR BUILDING

⚠ WARNING: Have standby installation performed by a skilled, licensed electrician. Do not let anyone else wire into a utility circuit. Personal injury, equipment damage, or damage to home could occur.

IMPORTANT: This generator will not power your entire home. Most home utility electric service is more than 60 amps. This will exceed generator output. Only power needed items during a power outage. Make sure total wattage of electrical load does not exceed rated wattage of generator.

You may need to use this generator as a standby power source. During a power outage, the generator will power selected items in a building. Have generator and additional wiring installed by a skilled, licensed electrician. This is not a do-it-yourself job. Follow all local codes.

⚠ WARNING: The electrician must install a double-throw transfer switch. This isolates existing electrical circuits from the utility power line. If not isolated, generator output will back-feed into utility power line. This may electrocute a power company line repair person.

DETERMINING ELECTRICAL LOAD FOR GENERATOR

You must decide what electrical load your generator can power. Do this before using generator. Use the following four-step method. It will help you select a load that is not too large. Make sure total wattage of all electrical loads does not 5,000 watts. Electric motors present a special problem when figuring load. Read step 3 carefully.

1. Make two lists of items you want powered by generator. List all motors and motor powered appliances in one. List all lights, small appliances, etc. in the other. For standby service to home or building, only include items you must power.
2. Enter running watts of each item except motors. The light bulb or appliance nameplate lists its wattage. Remember, 1KW = 1000 watts. *Note:* The nameplate may not list wattage. It may only list volts and amps. The formula for finding wattage is: Volts x Amps = Watts. For example: An appliance nameplate states 3 amps at 120 volts. 3 amps x 120 volts = 360 watts.
3. Electric motors present a special

problem. They require up to three-times their rated wattage to start. Chart 2, page 9, shows starting watts for different size motors. For example: an electric motor nameplate states 5 amps at 120 volts. 5 amps x 120 volts = 600 watts running. Multiply this figure by 3. This will show the starting watts needed. 600 watts x 3 = 1800 watts to start. When figuring the generator load for motors, you must use the starting watts figure. Do not use the running watts figure. *Note:* Some motors require nearly the same wattage to run as to start. These items include saws, drills, hair dryers, and food mixers. See Chart 1, page 9, for typical appliance wattage examples.

4. Add watts and starting watts of all items. This total must not be larger than 5,000 watts. It is a good idea to have up to 25% extra capacity for future needs or extra equipment.

OWNER'S MANUAL

DETERMINING ELECTRICAL LOAD FOR GENERATOR

Continued

Chart 1 - Typical Electric Appliance Wattages

Chart to be used as reference. Data may vary with size, make, and/or model.

Equipment	Running Watts	Starting Watts	Equipment	Running Watts	Starting Watts
Light bulb (100W)	100	100	1/2" Drill	1000	1250
Radio	150	150	Toaster	1200	1200
Fan	200	600	Coffee maker	1200	1200
Television	400	400	Skillet	1200	1200
Furnace fan (1/3 hp)	600	1800	14" Chain saw	1200	1500
Vacuum cleaner	600	750	Water well pump (1/2 hp)	1000	3000
Sump pump (1/3 hp)	700	2100	Hot plate/range (per burner)	1500	1500
Refrigerator/freezer	800	2400	10" Table saw	2000	6000
6" Circular saw	800	1000	Water heater	5000	5000
Floodlight	1000	1000			

Chart 2

Motor HP Rating	Approximate Running Watts	Approximate Starting Watts*			
		Universal Motors (small appliance)	Repulsion Induction Motors	Capacitor Motors	Split Phase Motors
1/8	500	625	1100	1500	2250
1/4	700	875	1550	2100	3150
1/3	800	1000	1750	2400	3600
1/2	1100	1375	2400	3300	4950
3/4	1400	1750	3100	4200	x
1	1700	2125	3750	5100	x
1 1/2	2100	2625	4620	6300	x
2	2450	3075	5400	x	x

* – Always use starting watts, not running watts, when figuring correct electrical load.

x – Motors of higher horsepower are not generally used.

OPERATION

GENERAL INFORMATION

This generator is not large enough to power your entire home. Do not connect generator to any existing electrical circuits. Plug items directly into generator receptacles. Do not exceed amperage rating of receptacles. Only use grounded cords.

⚠ DANGER: Use only in well-ventilated areas. Make sure area has plenty of free-moving, fresh, outside air. Never run generator in an enclosed or confined area. Never run generator inside occupied building. Engine exhaust contains poisonous carbon monoxide gas. Overexposure will cause loss of consciousness and will lead to death.

⚠ WARNING: Never connect generator to any existing electrical circuits. The generator output will back-feed into the utility power line. This may electrocute a power company line repair person. Also, if generator is powering electrical circuits, the chance of an electrical fire exists.

Note: We supply the engine owner's manual with generator. Refer to that manual for questions concerning engine operation.

USING RECEPTACLE

Note: Do not exceed amperage rating of receptacles. Exceeding rating will trip receptacle circuit breaker.

Use receptacles properly. Improper use could damage generator. Use only grounded extension cords. Power only grounded or double-insulated items. Do not overload receptacles. This generator has the following receptacles (see Figure 13):

- 120V, 15-amp duplex receptacle
- 120V, 15-amp GFCI duplex receptacle
- 120V, 30-amp twist-lock receptacle
- 120/240V, 20-amp twist-lock receptacle

Continued

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PORTABLE DIESEL GENERATOR

OPERATION

Continued

120V, 15-Amp GFCI Duplex

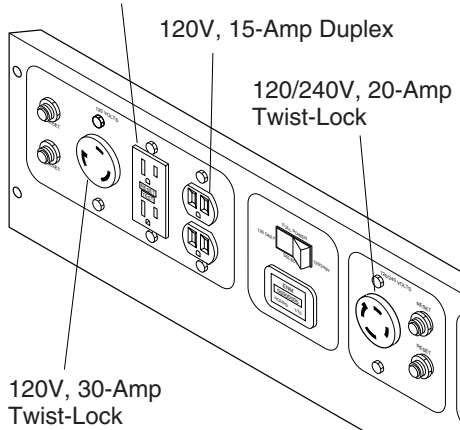


Figure 13 - Receptacle Locations

POWER CORD AND PLUG REQUIREMENTS

120V, 30-amp twist-lock receptacle

- NEMA L5-30P plug
- Three-wire, 30-amp cord

120/240V, 20-amp twist-lock receptacle

- NEMA L14-20P (20-amp) plug
- Four-wire, 20-amp cord

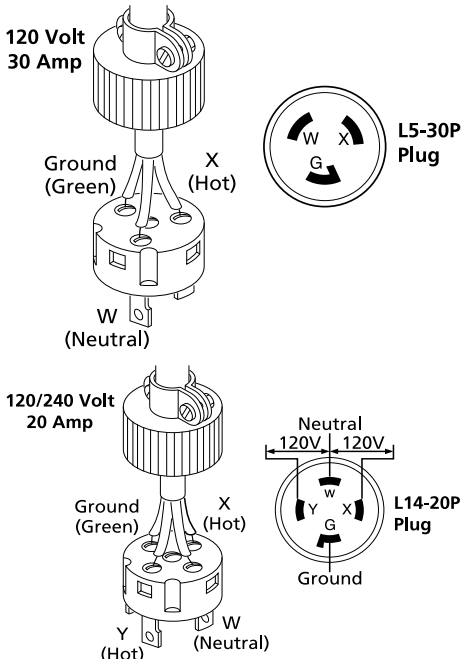


Figure 14 - Cord and Plug Configurations

PRESTART

Operate generator on a firm, dry, and clean surface. The surface must be level. Protect generator from heavy dust, sand, dirt, rain, or snow. Do not locate generator near standing water and snow. Make sure area is well-vented.

WARNING: Only responsible adults should use generator. Never let anyone operate generator without proper instructions.

Note: If oil level is too low, oil alert system will keep engine from starting (see *Oil Alert System*, page 4). Make sure oil level is full before starting. See *Engine Oil*, page 6.

Before starting the engine, disconnect all electric loads from generator.

You may need to bleed fuel line to remove trapped air

- if starting engine for first time
- if starting engine after allowing generator to run out of fuel

Follow the directions below to bleed fuel line.

BLEEDING FUEL LINE

1. Loosen fuel line clamp and remove fuel line from engine. Place open end of fuel line over a clean container to catch any fuel spilled in step 3, below.
2. Move fuel valve lever to the "O" (open) position (see Figure 15).
3. Allow air to bleed from line. When fuel exits fuel line in a steady stream, reattach fuel line to engine.
4. Add spilled fuel back into fuel tank.

STARTING

CAUTION: You must always run the engine at full speed. Do not run engine at lower speeds. At full speed, the engine runs at 3600 RPM under load. The engine must maintain 3600 RPM for generator to create correct voltage. Running engine at lower speeds will damage generator and powered items.

WARNING: Never use gasoline, paint thinner, or any other flammable liquid as a starting aid. An explosion may occur.

IMPORTANT: Never start generator with electrical loads connected. Start engine before adding electrical loads.

1. Make sure fuel tank is full. See *Fuel*, page 6, for fuel information.
2. Move fuel valve lever to the "O" (open) position. (see Figure 15).
3. Move engine run lever to RUN position (see Figure 16).

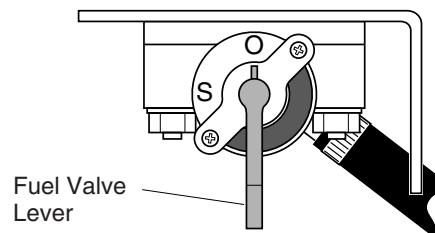


Figure 15 - Fuel Valve Lever in "O" (open) Position

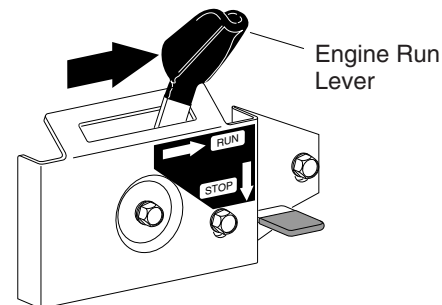


Figure 16 - Engine Run Lever in RUN Position

4. Start the engine.

A. Electric Starter

- I. Push decompression lever all the way down (see Figure 17, page 11). Decompression lever will stay in this position until you turn starting key.
- II. Turn the starting key clockwise to START position (see Figure 18, page 11). Hold it there until engine starts.
- III. When engine starts, release key.

IMPORTANT: Do not use electric starter more than ten seconds. Starter motor damage may occur. If engine fails to start, release the key and wait 15 seconds. After 15 seconds, try starting again.

OPERATION

Continued

B. Recoil Starter

- I. Slowly pull starter rope until you feel strong resistance. Gently return starter rope to engine.
- II. Push decompression lever all the way down (see Figure 17). Decompression lever will stay in this position until you pull starter rope.
- III. Firmly grasp starter grip with both hands. Remove slack from starter rope by lightly pulling starter grip.
- IV. To start engine, pull starter rope briskly. You must pull the starter rope all the way out. If not, the engine will not start.

IMPORTANT: Do not let starter grip snap back against engine. Return it gently. This will prevent damage to starter.

⚠ WARNING: Never use gasoline, paint thinner, or any other flammable liquid as a starting aid. An explosion may occur.

If engine does not start, repeat steps under B. Recoil Starter.

Decompression Lever

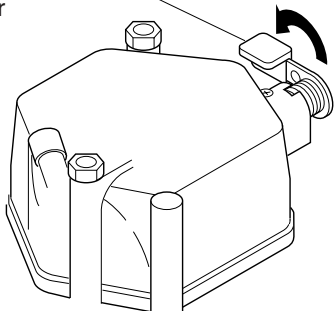


Figure 17 - Decompression Lever

Starting Key

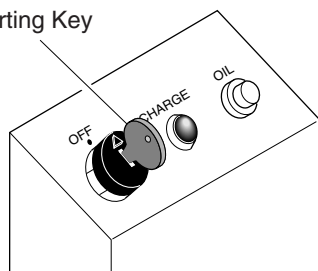


Figure 18 - Starting Key

HIGH ALTITUDE OPERATION

This generator will not perform well at high altitudes without proper adjustment. Contact a Yanmar dealer for adjustment information.

ADDING ELECTRICAL LOADS

IMPORTANT: Do not overload generator. Make sure total wattage of all electrical loads does not exceed rated wattage of generator. Overloading may shorten generator life. It could also cause internal damage to generator. Overloading will trip circuit breaker.

IMPORTANT: Keep full power selector switch in the 120 VOLT ONLY position if only powering 120V items. Only move switch to 120/240 VOLT position if powering 240V items.

1. Check items to be powered. Their nameplate lists their wattage ratings.

Note: The wattage ratings for some electrical motors are misleading. They may require up to 3-times their rated wattage to start. You must figure total electrical load wattage. Make sure total wattage of all electrical loads does not exceed rated wattage of generator. See *Determining Electrical Load For Generator*, pages 8 and 9.

2. Start engine. Let engine reach full speed.
3. Connect electrical loads one at a time. If the load consists of electric motors, start them first. Always start the largest first. Start each motor individually.

DISCONNECTING ELECTRICAL LOADS

Remove electrical loads one at a time. Remove voltage sensitive items first. Voltage sensitive items include TVs, VCRs, and other home electronic items.

STOPPING ENGINE

Follow the steps below to stop engine.

1. Remove all electrical loads from generator (see *Disconnecting Electrical Loads*, above). Remove electrical loads one at a time.
2. Let engine run for two or three minutes after removing electrical loads. This lets engine cool slightly.

3. Push down engine stop lever (see Figure 19). This releases engine run lever and stops engine. Do not stop engine with the decompression lever.
4. Turn the starter key to the OFF position.
5. Turn fuel valve lever off. Do this by moving valve lever to the "S" position (see Figure 20).
6. Slowly pull starter rope until you feel strong resistance. Gently return starter rope to engine. This action closes the intake and exhaust valves. This prevents rust from forming while not using engine.

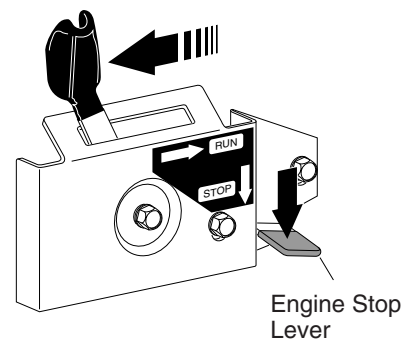


Figure 19 - Pushing Down Engine Stop Lever

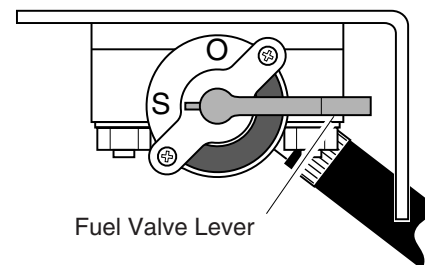


Figure 20 - Fuel Valve Lever In "S" Position

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PORTABLE DIESEL GENERATOR

MAINTENANCE AND REPAIRS

⚠ WARNING: Only a qualified electrical service person should service and repair the alternator on this generator. Use only factory approved replacement parts.

⚠ CAUTION: You must always run the engine at full speed. Do not run engine at lower speeds. At full speed, the engine runs at 3600 RPM under load. The engine must maintain 3600 RPM for generator to create correct voltage. Running engine at lower speeds will damage generator and powered items.

⚠ CAUTION: Shut off generator before performing maintenance.

IMPORTANT: Keep generator level when servicing. Never turn generator upside down or stand it on end to service.

Note: We supply the engine owner's manual with generator. Refer to that manual for questions concerning engine maintenance and repairs.

Non-engine parts require little maintenance. Keep generator clean. Use a damp cloth to clean outside surfaces. Never use water to clean generator. Water can cause damage to internal parts. Use vacuum to clean air inlet and outlet louvers of alternator.

STORAGE

⚠ WARNING: Remove all fuel from fuel tank before storing generator. Store fuel in approved container. Store fuel in a well-vented area free of open flames or sparks.

⚠ WARNING: The muffler becomes very hot during operation. The muffler remains hot for a while after shutdown. Let engine cool before storing.

IMPORTANT: Keep generator level while in storage. Never store generator upside down or standing on end.

Note: We supply the engine owner's manual with generator. Refer to that manual for questions concerning engine storage.

Cover and store generator in a clean, dry place. Do not expose generator to extreme high or low temperatures during storage.

TROUBLESHOOTING

Note: For additional help, visit DESA International's technical service web site at www.desatech.com.

Note: See engine owner's manual for engine troubleshooting.

⚠ WARNING: Only a qualified electrical service person should service and repair generator. Use only factory approved replacement parts.

OBSERVED PROBLEM

POSSIBLE CAUSE

REMEDY

No voltage when starting generator with no electrical load

1. Defective capacitor
2. Winding short circuit or loose connections
3. Defective rotor diode
4. Loss of residual magnetism

1. Replace capacitor
2. Check resistance of coils (see *Electrical Component Specifications*, page 13)
3. Replace both diodes on rotor
4. Apply 12-volt battery to capacitor terminals for 2-3 seconds

Voltage is less than normal voltage with no electrical load

1. Engine speed too low
2. Clogged spark arrester
3. Defective rotor diode
4. Partial short circuit in winding
5. Defective capacitor

1. Set engine speed to 3720 RPM (62 Hz) with no load
2. Clean arrester. See engine owner's manual
3. Replace both diodes on rotor
4. Check resistance of coils (see *Electrical Component Specifications*, page 13)
5. Replace capacitor

Voltmeter reading more than 10% high with no electrical load

1. Engine speed too high

1. Set engine speed to 3720 RPM (62 Hz) with no load

Voltmeter reading correct with no electrical load, but more than 10% low when electrical load is added

1. Defective rotor diode
2. Electrical load too high
3. Engine not running properly

1. Replace both diodes on rotor
2. Do not overload generator
3. Contact an authorized engine service center

www.desatech.com

ELECTRICAL COMPONENT SPECIFICATIONS

Model	Resistance in Ohms				Capacitor, MFD 450 Volt	Diodes (2) 800 Volt
	Stator Main Winding *	Stator Auxiliary Winding Δ	Rotor Primary Winding \dagger	Rotor Secondary Winding \dagger		
MGY5000C	0.54	1.38	0.61	2.29	50	70 Amp

- * Connect T2 (green) and T3 (black). Measure resistance between T1 (red) and T4 (yellow).
- Δ Resistance between brown and white leads.
- \dagger Remove diodes to check resistance.

WIRING DIAGRAMS

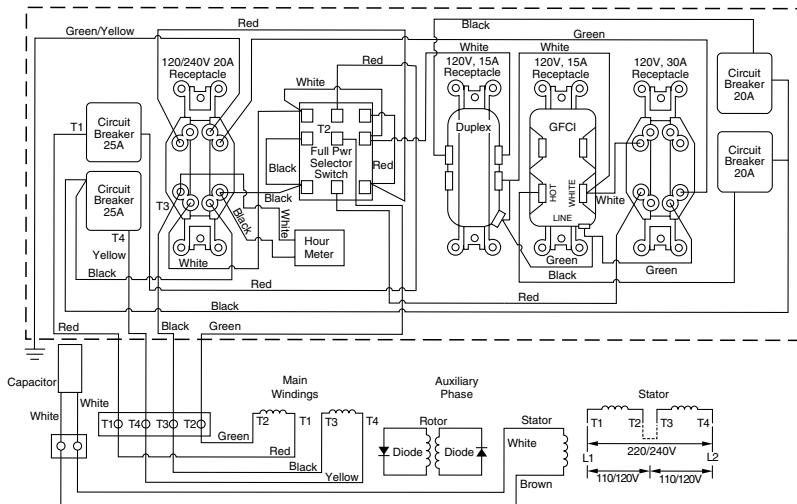


Figure 21 - Alternator Wiring Diagram

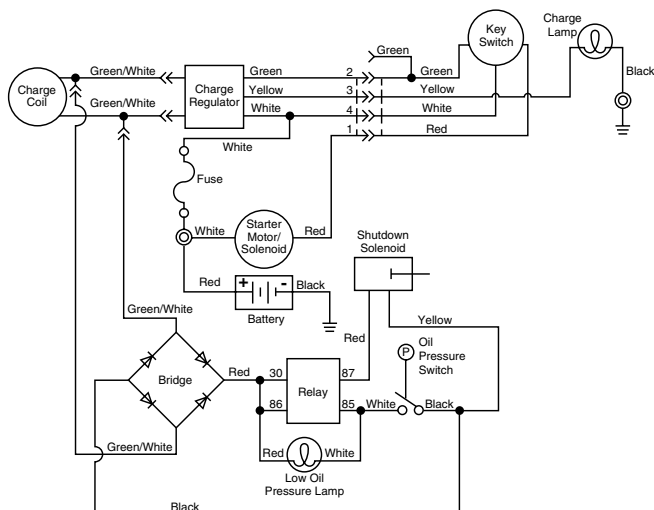


Figure 22 - Engine Wiring Diagram

Continued

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TECHNICAL SERVICE

You may have further questions about assembling, operating, or maintaining this product. If so, you can visit our Technical Service web site at www.desatech.com or contact our Technical Service Department at 1-800-858-8501 (English Only). You may also write to:

DESA Power Tools™
P.O. Box 90004
Bowling Green, KY 42102-9004
ATTN: Technical Service Power Tools

When contacting DESA Power Tools™, have ready

- Your Name
- Your Address
- Your Phone Number
- Model Number of Product
- Date of Purchase (Include copy of receipt for written requests).

SERVICING THE ENGINE

For Yanmar engine replacement parts, contact Parts Company of America at 1-800-323-0620. Yanmar engine servicing should be handled by your nearest authorized Yanmar engine service firm. Contact Yanmar at 1-714-630-9415 for nearest authorized Yanmar engine service firm.

REPLACEMENT PARTS AND ACCESSORIES

For original replacement parts and accessories, contact your nearest Authorized Dealer or Authorized Service Center for this product. If they can not supply the part or accessory, contact your nearest Parts Central listed on pages 14 and 15. Each Authorized Dealer, Authorized Service Center, and Parts Central is independently owned and operated. See pages 15 through 18 for an Illustrated Parts List.

If you need additional referral information, contact our Technical Service Department (see *Technical Service*, page 14).

In Canada call 1-800-561-3372 for parts information.

Heavy-Duty Wheel Kit – PA2000

Wheelbarrow-style wheel kit. Makes generator easy for one person to move.

This kit includes:

- Large 12-inch wheels for easy rolling
- Plated tubing and hardware for long life
- Long handles with thick grips for greater comfort and control

Complete installation instructions included.

REPAIR SERVICE

Note: Only use original replacement parts. This will protect your warranty coverage for parts replaced under warranty.

Each Authorized Service Center is independently owned and operated.

WARRANTY SERVICE

If product requires warranty service, return it to nearest Authorized Service Center. You must show proof of purchase. If faulty materials or workmanship caused damage, we will repair or replace product without charge. *Note:* Normal wear, misuse, abuse, neglect, or accidental damage is not covered under warranty.

NON-WARRANTY SERVICE

If product requires service, return it to nearest Authorized Service Center. Repairs will be billed to you at regular repair list prices.

For additional Service Center or warranty information, call 1-800-858-8501 or visit our Technical Service web site at www.desatech.com.

PARTS CENTRALS

These Parts Centrals are privately owned businesses. They have agreed to support our customer's needs by providing original replacement parts and accessories.

Tool & Equipment
5 Manila Drive
Hamden, CT 06514-0322
203-248-7553
1-800-397-7553

Grainger Parts Operations
1657 Shermer Road
Northbrook, IL 60062-5362
708-498-5900
1-800-323-0620
www.grainger.com

Portable Heater Parts

342 North County Road 400 East
Valparaiso, IN 46383-9704
219-462-7441
1-800-362-6951
www.portableheaterparts.com
sales@portableheaterparts.com
techservice@portableheaterparts.com

FBD

1349 Adams Street
Bowling Green, KY 42103-3414
270-846-1199
1-800-654-8534
franktalk@aol.com

Master Part Distributors

1251 Mound Avenue NW
Grand Rapids, MI 49504-2672
616-791-0505
1-800-446-1446
www.masterparts.net

Bowden Electric Motor Service

1681 S. Wesleyan Blvd.
Rocky Mount, NC 27803
252-446-4203

East Coast Energy

10 East Route 36
West Long Branch, NJ 07764-1501
1-800-755-8809

Laportes

2444 N 5th Street
Hartsville, SC 29550-7704
843-332-0191

MTA Distributors

555 Hickory Hills Blvd.
Nashville, TN 37189-9244
615-299-8777
1-800-264-0225

Industrial Hardware

4109 Bainbridge Blvd.
Chesapeake, VA 23324-1403
804-543-2232
1-800-788-0008

catatem@erols.com

Mills Lawn and Garden

928 Commonwealth Place
Virginia Beach, VA 23464
757-361-9293

www.mills-parts.com

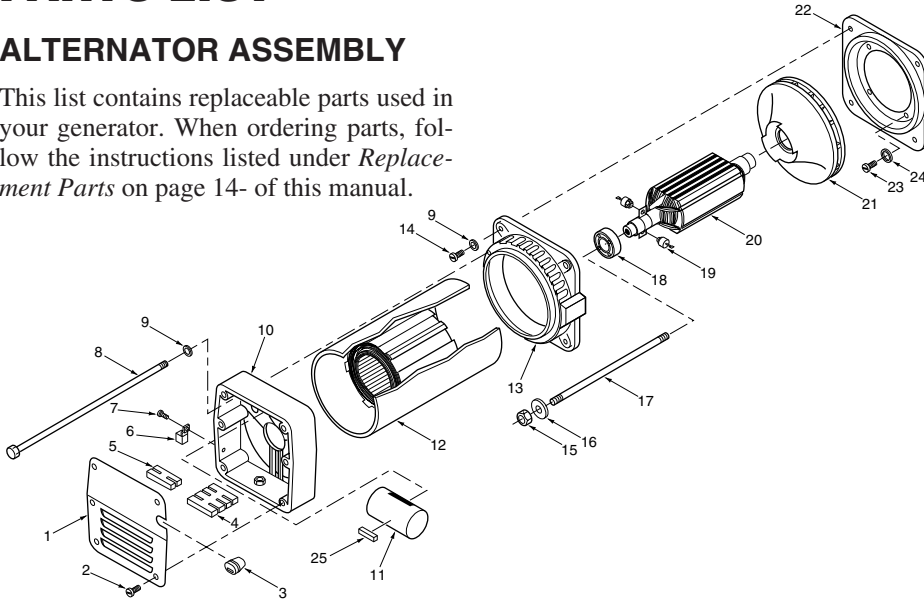
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Suite 4A-1
Lynnwood, WA 98037-4506
425-743-9533
1-800-735-1268
www.tucoheat.com

ILLUSTRATED PARTS LIST

ALTERNATOR ASSEMBLY

This list contains replaceable parts used in your generator. When ordering parts, follow the instructions listed under *Replacement Parts* on page 14- of this manual.



KEY NO.	PART NUMBER	DESCRIPTION	QTY.
	099723-02	Alternator Assembly	1
1	099844-01	End Cover	1
2	099701-01	Screw, M5 x 10mm	6
3	099760-01	Bushing	1
4	099863-01	Terminal Block (4-block)	1
5	099863-02	Terminal Block (2-block)	1
6	17587000	Ground Lug	1
7	M11084-26	Screw, #10-16 x 3/8"	1
8	099847-02	Stator Bolt	4
9	WLE-5	Lock Washer, 5/16"	4
10	099843-01	Bearing Housing	1
11	27005003S	Capacitor	1
12	*	Stator	1
13	27003002	Fan Bracket	1
14	27003015S	Screw, M8 x 20	4
15	27001010S	Rotor Nut	1
16	27003013S	Washer	1
17	099842-02	Draw Bolt	1
18	27003003	Bearing	1
19	27003012S	Diode	2
20	*	Rotor	1
21	27003008	Fan	1
22	101839-01	Engine Flange	1
23	26322004	Bolt, 3/8-16 x 5/8"	4
24	WLE-6	Lock Washer, 3/8"	4
25	099892-01	Foam Pad	1

* Part not available by itself. Must purchase Alternator Assembly.

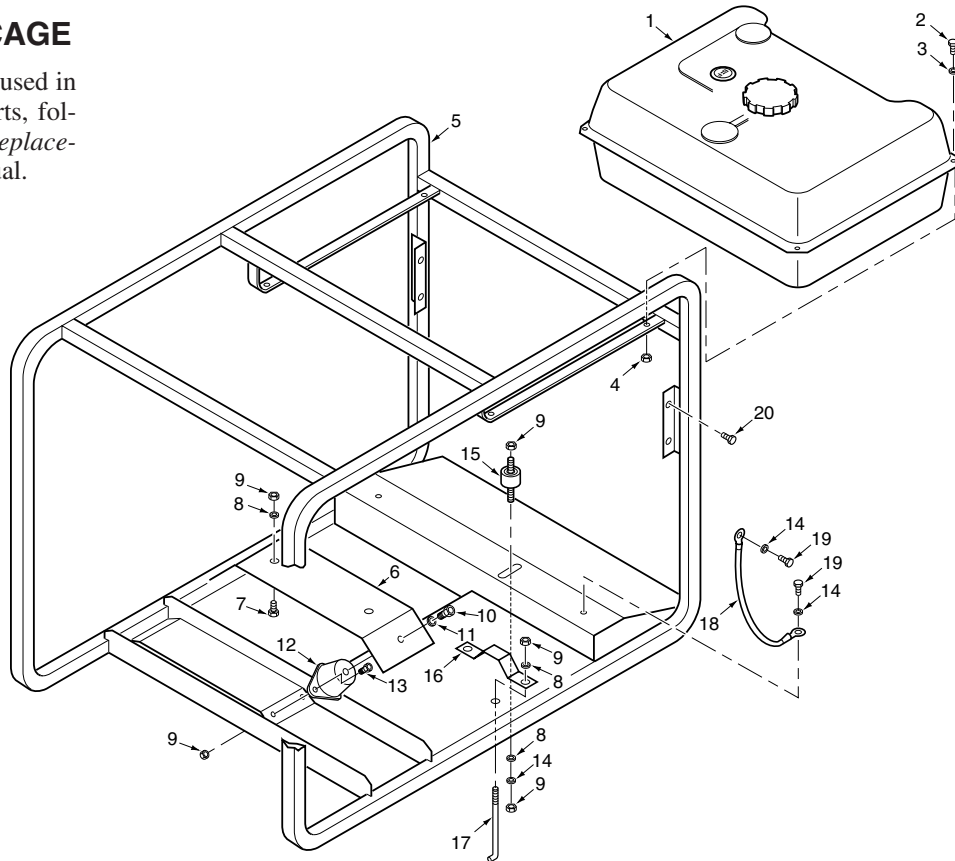
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PORTABLE DIESEL GENERATOR

ILLUSTRATED PARTS LIST

FUEL TANK AND ROLL CAGE

This list contains replaceable parts used in your generator. When ordering parts, follow the instructions listed under *Replacement Parts* on page 14 of this manual.

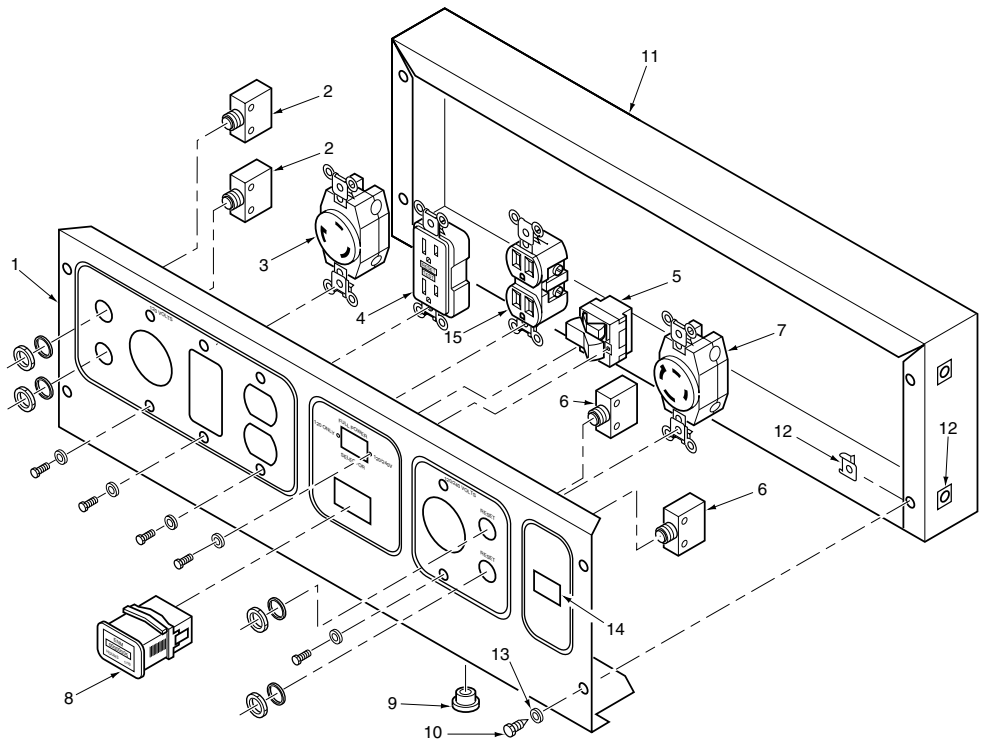


KEY NO.	PART NUMBER	DESCRIPTION	QTY.	KEY NO.	PART NUMBER	DESCRIPTION	QTY.
1	099935-01	Fuel Tank Assembly	1	16	099749-01	Battery Bracket	1
2	HC4-6C	Screw, 1/4-20 x 3/4"	4	17	099750-01	Hook Bolt	2
3	WP-4C	Washer, 1/4"	4	18	14138000	Ground Strap	1
4	103880-01	Nut, 1/4-20	4	19	M10908-74	Screw, 1/4-20 x 1/2"	2
5	099943-01	Roll Cage	1	20	100410-01	Screw, #8-10 x 1/2"	4
6	099945-01	Spreader	1	PARTS AVAILABLE - NOT SHOWN			
7	04110002	Bolt, 5/16-18 x 1 1/2"	2		099947-01	Safety Information Decal	1
8	WP-5C	Washer, 5/16"	5		099948-01	Operation Decal	1
9	NEC-5C	Nut, 5/16-18	10		099873-01	Battery Cable (Positive)	1
10	26302006	Screw, 1/2-20 x 1"	2		099873-02	Battery Cable (Negative)	1
11	WLI-8	Lockwasher, 1/2"	2		099954-01	Spark Arrestor	1
12	17529000	Shock Mounts	2				
13	26007004	Bolt, 5/16-18 x 3/4"	4				
14	WLE-5	Washer, 5/16"	3				
15	103289-01	Shock Mount	1				

ILLUSTRATED PARTS LIST

CONTROL PANEL

This list contains replaceable parts used in your generator. When ordering parts, follow the instructions listed under *Replacement Parts* on page 14 of this manual.



KEY NO.	PART NUMBER	DESCRIPTION	QTY.
1	103349-02	Control Panel	1
2	22616009	Circuit Breaker, 20 Amp *	2
3	099833-01	120V, 30A Twist-Lock Receptacle *	1
4	100445-01	120V, 15A Duplex (GFCI) Receptacle *	1
5	099956-01	Full Power Selector Switch *	1
6	22616011	Circuit Breaker, 25 Amp *	2
7	099834-01	120/240V, 20A Twist-Lock Receptacle *	1
8	101350-01	Hour Meter	1
9	099760-01	Bushing	1
10	24306006	Screw, #8-18 x 1/2"	4
11	100149-01	Control Box	1
12	22261000	Speed Nut, #8	8
13	WLI-2BL	Lock Washer, #8	4
14	099997-01	Switch Plug	1
15	099836-01	120V, 15A Duplex Receptacle *	1
†	103348-02	Control Panel Assembly	1
PARTS AVAILABLE - NOT SHOWN			
	100177-07	Panel Schematic Decal	1

* Includes fastening hardware

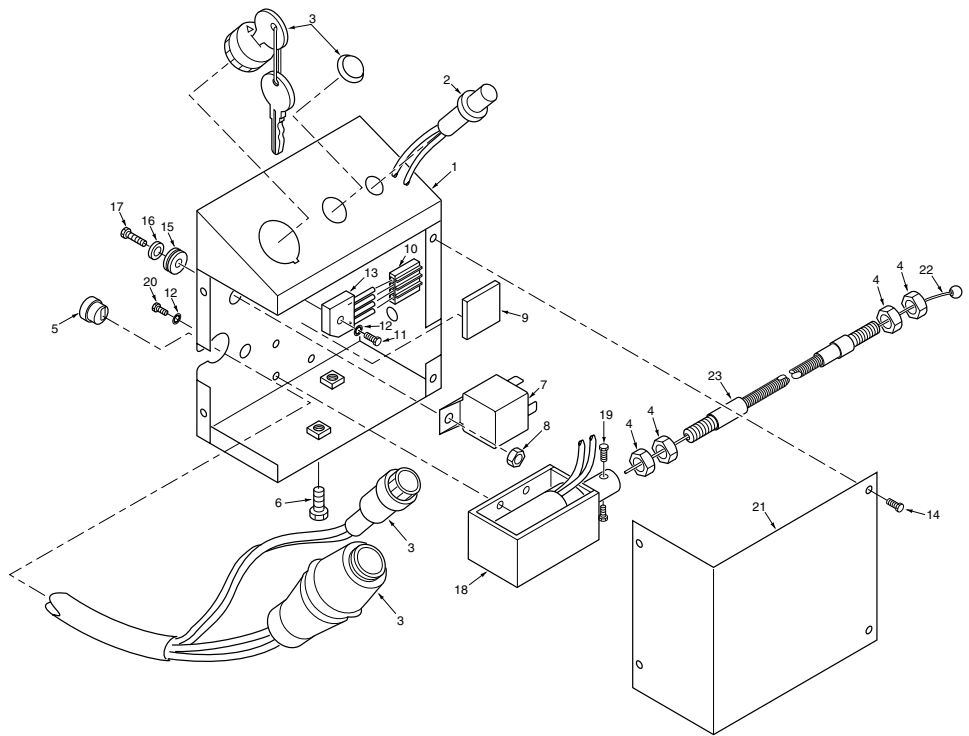
† Includes reference numbers 1 through 15

PORTABLE DIESEL GENERATOR

ILLUSTRATED PARTS LIST

SWITCH CONTROL BOX

This list contains replaceable parts used in your generator. When ordering parts, follow the instructions listed under *Replacement Parts* on page 14 of this manual.



KEY NO.	PART NUMBER	DESCRIPTION	QTY.	KEY NO.	PART NUMBER	DESCRIPTION	QTY.
1	101037-01	Switch control box	1	13	26509000	Full bridge	1
2	22721000	Low oil light	1	14	26002006	#8-32 x 3/8" Screw	4
3	099936-01	Key switch, lamp, and harness assembly	1	15	15020000	Grommet	1
4	101039-01	1/4-28 Keps Nut	4	16	WP-3C	#10 Flat washer	1
5	099760-01	Strain relief bushing	1	17	26499000	#10-32 x 3/4" Hex-head screw	1
6	101040-01	1/4-20 x 5/8" Hex Head Sems	2	18	26490000	Solenoid	1
7	26498000	Relay	1	19	26494000	M4 x 8 Hex-head screw	2
8	NTF-3C	#10-32 Hex locknut	1	20	26492000	M3 x 8 Hex-head screw	4
9	RN12000100	Adhesive-backed PVC foam	1	21	101038-01	Control Box Cover	1
10	*	Connector	1	22	101036-01	Cable	1
11	*	#6-32 x 1/2" Hex tapping screw	1	23	101035-01	Conduit	1
12	*	#6 Internal-tooth lockwasher	5	†	101103-01	Switch Control Box Assembly	1
PARTS AVAILABLE - NOT SHOWN							
	101042-01	Wire Nut	1				

* Available from your local hardware store

† Includes reference numbers 1 through 23

WARRANTY INFORMATION

KEEP THIS WARRANTY

Model _____

Serial No. _____

Date Purchased _____

Always specify model and serial numbers when communicating with the factory.

We reserve the right to amend these specifications at any time without notice. The only warranty applicable is our standard written warranty. We make no other warranty, expressed or implied.

Note: The five-year limited warranty below covers all non-engine parts of this generator including the alternator. Honda warrants the engine. See engine owner's manual for engine warranty information.

FIVE-YEAR LIMITED WARRANTY PORTABLE GENERATORS

DESA Power Tools™ warrants each alternator, generator, or electric product of its manufacture, to be free from defects in material and workmanship for five years from the date of first purchase from an authorized dealer, provided that the product has been properly installed, maintained, and operated in accordance with all applicable instructions. The bill of sale or proof of purchase must be presented at the time a claim is made under this warranty.

This warranty is extended only to the original retail purchaser. This warranty covers only the parts and labor required to restore this unit to its proper operating condition. Warranty parts must be obtained through factory authorized dealers and service centers for this product. These dealers and service centers will provide original factory replacement parts. Failure to use original factory replacement parts voids this warranty.

This warranty does not apply to parts that are not in original condition because of normal wear and tear, or parts that fail or become damaged as a result of misuse, abuse, negligence, accident, lack of proper maintenance, alteration, modification, tampering, contaminated fuels, repair using improper parts, or repair by anyone other than an authorized dealer or service center. Routine maintenance is the responsibility of the owner. Travel, handling, transportation, and incidental costs associated with warranty repairs are not reimbursable under this warranty and are the responsibility of the owner.

DESA Power Tools™ makes no warranty with respect to the engine™ and engine components not of its manufacture. They are subject to warranties of their manufacturers.

To the full extent allowed by the law of the jurisdiction that governs the sale of the product, this express warranty excludes any and all other expressed warranties and limits the duration of any and all implied warranties, including warranties of merchantability and fitness for a particular purpose to five years from the date of first purchase, and DESA Power Tools™ liability is hereby limited to the purchase price of the product and DESA Power Tools™ shall not be liable for any other damages whatsoever including indirect, incidental, or consequential damages.

Some states do not allow limitation of how long an implied warranty lasts or an exclusion or limitation of incidental or consequential damages, so the above limitation of damages may not apply to you.

This warranty provides the original purchaser with specific rights. For information regarding those rights, please consult the applicable state laws.



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