

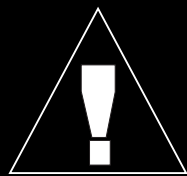
OPERATION AND PARTS MANUAL



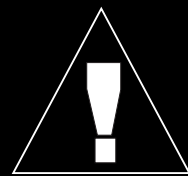
MODEL GA-6RE/GA-6REA **Portable Generators** **(ROBIN GASOLINE ENGINE)**

Revision #0 (06/06/05)

**THIS MANUAL MUST ACCOMPANY
THE EQUIPMENT AT ALL TIMES.**



WARNING



CALIFORNIA — Proposition 65 Warning

Engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects and other reproductive harm.

HERE'S HOW TO GET HELP

PLEASE HAVE THE MODEL AND SERIAL
NUMBER *ON-HAND* WHEN CALLING

MULTIQUIP CORPORATE OFFICE

18910 Wilmington Ave.

800-421-1244

Carson, CA 90746

FAX: 310-537-3927

Email: mq@multiquip.com

Internet: www.multiquip.com

PARTS DEPARTMENT

800-427-1244

FAX: 800-672-7877

310-537-3700

FAX: 310-637-3284

MAYCO PARTS

800-306-2926

FAX: 800-672-7877

310-537-3700

FAX: 310-637-3284

SERVICE DEPARTMENT

800-421-1244

FAX: 310-537-4259

310-537-3700

TECHNICAL ASSISTANCE

800-478-1244

FAX: 310-631-5032

WARRANTY DEPARTMENT

800-421-1244, EXT. 279

FAX: 310-537-1173

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This manual **MUST** accompany the equipment at all times. This manual is considered a permanent part of the equipment and should remain with the unit if resold.

The information and specifications included in this publication were in effect at the time of approval for printing. Illustrations are based on the *MQ GA-6RE/GA-6REA Portable Generators*. Illustrations, descriptions, references and technical data contained in this manual are for guidance only and may not be considered as binding. Multiquip Inc. reserves the right to discontinue or change specifications, design or the information published in this publication at any time without notice and without incurring any obligations.

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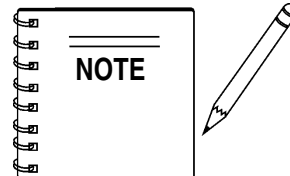


Multiquip GA-6RE/GA-6REA AC Portable Generators

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When ordering parts, please supply the following information:

- Dealer account number
- Dealer name and address
- Shipping address (if different than billing address)
- Return fax number
- Applicable model number
- Quantity, part number and description of each part
- Specify preferred method of shipment:
 - ✓ FedEx or UPS Ground
 - ✓ FedEx or UPS Second Day or Third Day
 - ✓ FedEx or UPS Next Day
 - ✓ Federal Express Priority One
 - ✓ DHL
 - ✓ Truck

Note: Unless otherwise indicated by customer, all orders are treated as "Standard Orders", and will ship within 24 hours. We will make every effort to ship "Air Shipments" the same day that the order is received, if prior to 2PM west coast time. "Stock Orders" must be so noted on fax or web forms.



Here's how to get help...

Please have the model and serial number on hand when calling.

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18910 Wilmington Ave. 800-421-1244
 Carson, CA 90746 FAX: 310-537-3927
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800-478-1244 FAX: 310-631-5032

WARRANTY DEPARTMENT

800-421-1244, EXT. 279 FAX: 310-537-1173
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Place Your Parts Order Via Web or Fax For Even More Savings!

(Domestic USA Dealers Only)

Extra Discounts!

All parts orders which include complete part numbers and are received by our automated web parts order system, or by fax qualify for the following extra discounts:

Ordered via	Standard orders	Stock orders (\$750 list and above)
Fax	3%	10%
Web	5%	10%

Special freight allowances when you order 10 or more line items via Web or Fax! **

FedEx Ground Service *at no charge for freight*

No other allowances on freight shipped by any other carrier.

***Common nuts, bolts and washers (all items under \$1.00 list price) do not count towards the 10+ line items.*

NOTE: DISCOUNTS ARE SUBJECT TO CHANGE



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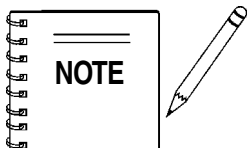
Direct TOLL-FREE access to our Parts Department:

Toll-free nationwide — 800-427-1244
 Toll-free FAX — 800-6-PARTS-7 (800/672-7877)

GA-6RE/GA-6REA — SAFETY MESSAGE ALERT SYMBOLS

FOR YOUR SAFETY AND THE SAFETY OF OTHERS!

Safety precautions should be followed at all times when operating this equipment. Failure to read and understand the Safety Messages and Operating Instructions could result in injury to yourself and others.



This Owner's Manual has been developed to provide complete instructions for the safe and efficient operation of the **MQ Model GA-6RE/GA-6REA Portable Generators**. Refer to the engine manufacturers instructions for data relative to its safe operation.

Before using this generator, ensure that the operating individual has read and understands all instructions in this manual.

SAFETY MESSAGE ALERT SYMBOLS

The three (3) Safety Messages shown below will inform you about potential hazards that could injure you or others. The Safety Messages specifically address the level of exposure to the operator, and are preceded by one of three words: **DANGER**,

DANGER

You **WILL** be **KILLED** or **SERIOUSLY INJURED** if you **DO NOT** follow these directions.

WARNING

You **CAN** be **KILLED** or **SERIOUSLY INJURED** if you **DO NOT** follow these directions.

CAUTION

You **CAN** be **INJURED** if you **DO NOT** follow these directions.

HAZARD SYMBOLS

Potential hazards associated with the operation of a **GA-6RE/GA-6REA Portable Generators** will be referenced with Hazard Symbols which appear throughout this manual, and will be referenced in conjunction with Safety Message Alert Symbols.

WARNING Lethal Exhaust Gas Hazards

Engine exhaust gases contain poisonous carbon monoxide. This gas is colorless and odorless, and can cause death if inhaled. **NEVER** operate this equipment in a confined area or enclosed structure that does not provide ample free flow air.



WARNING Explosive Fuel Hazards

Gasoline is extremely flammable, and its vapors can cause an explosion if ignited. **DO NOT** start the engine near spilled fuel or combustible fluids.



DO NOT fill the fuel tank while the engine is running or hot. **DO NOT** overfill tank, since spilled fuel could ignite if it comes into contact with hot engine parts or sparks from the ignition system. Store fuel in approved containers, in well-ventilated areas and away from sparks and flames.

WARNING Burn Hazards

Engine components can generate extreme heat. To prevent burns, **DO NOT** touch these areas while the engine is running or immediately after operations. Never operate the engine with heat shields or heat guards removed.



WARNING Respiratory Hazards

ALWAYS wear approved **respiratory** protection when required.



GA-6RE/GA-6REA — SAFETY MESSAGE ALERT SYMBOLS

CAUTION

Rotating Parts Hazards

NEVER operate equipment with covers, or guards removed. Keep fingers, hands, hair and clothing away from all moving parts to prevent injury.



CAUTION

Equipment Damage Hazards

Other important messages are provided throughout this manual to help prevent damage to your portable generator, other property, or the surrounding environment.

CAUTION

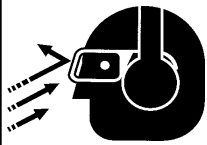
Accidental Starting Hazards

ALWAYS place the power source, circuit breakers or **ON/OFF** switch in the **OFF** position, when the generators is not in use, unless connected to transfer switch.



CAUTION

Eye and Hearing Hazards



ALWAYS wear approved eye and hearing protection.

GA-6RE/GA-6REA — RULES FOR SAFE OPERATION

DANGER

Read this manual!

Failure to follow instructions in this manual may lead to serious injury or even death! This equipment is to be operated by trained and qualified personnel only! This equipment is for industrial use only.

The following safety guidelines should always be used when operating the GA-6RE/GA-6REA Portable Generators:

GENERAL SAFETY

■ **DO NOT** operate or service this equipment before reading this entire manual.



■ This equipment should not be operated by persons under 18 years of age.

■ **NEVER** operate this equipment without proper protective clothing, shatterproof glasses, steel-toed boots and other protective devices required by the job.



■ **NEVER** operate this equipment when not feeling well due to fatigue, illness or taking medicine.



■ **NEVER** operate this equipment under the influence of **drugs** or **alcohol**.



■ **ALWAYS** wear proper respiratory (mask), hearing and eye protection equipment when operating the generators.



■ Whenever necessary, replace nameplate, operation and safety decals when they become difficult read.

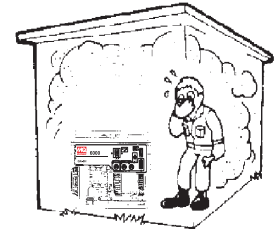
■ Manufacturer does not assume responsibility for any accident due to equipment modifications.

■ **NEVER** use accessories or attachments, which are not recommended by Multiquip for this equipment. Damage to the equipment and/or injury to user may result.

■ **NEVER** touch the hot exhaust manifold, muffler or cylinder. Allow these parts to cool before servicing engine or generators.



■ The engine section of this generators requires an adequate free flow of cooling air. **NEVER** operate the generators in any enclosed or narrow area where free flow of the air is restricted. If the air flow is restricted it will cause serious damage to the generators or engine and may cause injury to people. Remember the generator's engine gives off **DEADLY** carbon monoxide gas.

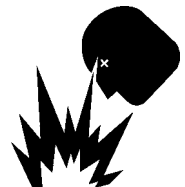


■ **ALWAYS** refuel in a well-ventilated area, away from sparks and open flames.

■ **ALWAYS** use extreme caution when working with **flammable** liquids. When refueling, **stop the engine** and allow it to cool. **DO NOT smoke** around or near the machine. Fire or explosion could result from fuel vapors, or if fuel is spilled on a hot engine.



■ **NEVER** operate the generators in an explosive atmosphere or near combustible materials. An explosion or fire could result causing severe **bodily harm or even death**.



■ **NEVER** disconnect any "**emergency or safety devices**". These devices are intended for operator safety. Disconnection of these devices can cause severe injury, bodily harm or even death! Disconnection of any of these devices will void all warranties.

GA-6RE/GA-6REA — RULES FOR SAFE OPERATION

- **ALWAYS** be sure the operator is familiar with proper safety precautions and operation techniques before using generator.
- **NEVER** leave the generators unattended, turn off engine when unattended.
- Unauthorized equipment modifications will void all warranties.
- **ALWAYS** ensure generators are on level ground before use.
- **DO NOT** place hands or fingers inside generators engine compartment when engine is running.
- **NEVER** run engine without air cleaner. Severe engine damage may occur.
- **NEVER** change or adjust the engine speed which has been set at the factory prior to shipping.



Power Cord Safety

- **NEVER** let power cables or cords *lay in water*.
- **NEVER stand in water** while AC power from the generators are being transfer to a load.
- **NEVER** use a defective or frayed power cable. Check the cable for cuts in the insulation.
- **NEVER** use a extension cord that is frayed or damaged where the insulation has been cut.
- **ALWAYS** make certain that proper power or extension cord has been selected for the job See Table 4.

Grounding Safety

- **ALWAYS** make sure that electrical circuits are properly **grounded** per the **National Electrical Code** (NEC) and local codes before operating generator. Severe **injury** or **death!** by electrocution can result from operating an ungrounded generator.
- **ALWAYS** make sure generators are properly grounded to a suitable earth ground (**GROUND ROD**). See installation in this manual.
- **NEVER** use **gas piping** as an electrical ground.

Maintenance Safety

- **NEVER** lubricate components or attempt service on a running machine.
- **High Temperatures** – Always stop engine and allow the engine to cool before adding fuel, oil or performing service and maintenance functions. Contact with **hot!** components can cause serious burns. 
- Keep the machinery in proper running condition.
- Fix damage to the machine immediately and replace any broken parts immediately.
- **ALWAYS** replace any worn or damaged warning decals.
- **ALWAYS** store equipment properly when it is not being used. Equipment should be stored in a clean, dry location out of the reach of children and un-authorized personnel.
- The electrical voltage required to operate the generators can cause severe injury or even death through physical contact with live circuits. Turn all circuit breakers **OFF** before performing maintenance on the generator.
- Dispose of hazardous waste properly. Examples of potentially hazardous waste are used motor oil, fuel and fuel filters.
- **DO NOT** use food or plastic containers to dispose of hazardous waste.
- **DO NOT** pour waste, oil or fuel directly onto the ground, down a drain or into any water source.
- Removing the engine oil drain plug while the engine is hot will result in hot oil to gush out of the oil drain plug, therefore causing severe scalding to any persons in the general area of the generator. 

GA-6RE/GA-6REA — RULES FOR SAFE OPERATION

DANGER-ELECTROCUTION HAZARDS

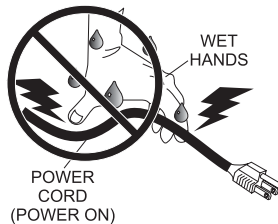
During operation of this generation, there exists the possibility of **electrocution, electrical shock or burn**, which can cause **severe bodily harm** or even **DEATH!**



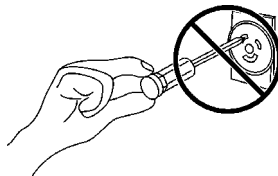
To avoid these hazards:

NEVER use **damaged** or **worn** cables when connecting equipment to the generator. Make sure power connecting cables are securely connected to the generator's output receptacles, incorrect connections may cause damage to the generators and electrical shock.

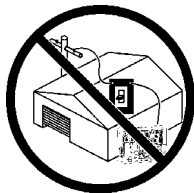
NEVER grab or touch a live power cord with wet hands, the possibility exist of electrical shock, electrocution, and even **death!**



NEVER insert any objects into the output receptacles during operation. This is extremely dangerous. **ALWAYS** turn-off the generators and place all circuit breakers in the "OFF" position when contact with the output receptacles is required. There exist the possibility of **electrocution, electrical shock or burn, which can cause severe bodily harm or even death!**

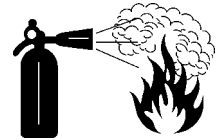


Backfeed to a utility system can cause **electrocution** and or property damage. **NEVER** connect the generators to a building's electrical system without a transfer switch or other approved device. All installations should be performed by a **licensed electrician** in accordance with all applicable laws and electrical codes. Failure to do so could result in electrical shock or burn causing serious injury or even death!



Emergencies

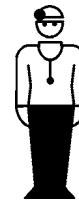
- **ALWAYS** know the location of the nearest **fire extinguisher**.



- **ALWAYS** know the location of the nearest **first aid kit**.



- In emergencies **always** know the location of the nearest phone or **keep a phone on the job site**. Also know the phone numbers of the nearest **ambulance, doctor** and **fire department**. This information will be invaluable in the case of an emergency.



GA-6RE/GA-6REA — OPERATION AND SAFETY DECALS

Machine Safety Decals

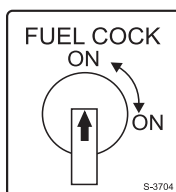
The GA-6RE/GA-6REA portable generators are equipped with a number of safety decals (Figure 1). These decals are provided for operator safety and maintenance information. The illustration below shows these decals as they appear on the machine. Should any of these decals become unreadable, replacements can be obtained from your dealer.

MQ MULTIQUIP 6000

P/N A5561000003



P/N 8700611804



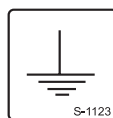
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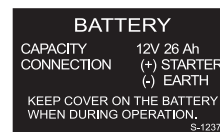
CONTACT
MQ PARTS DEPT.



P/N 8700611904



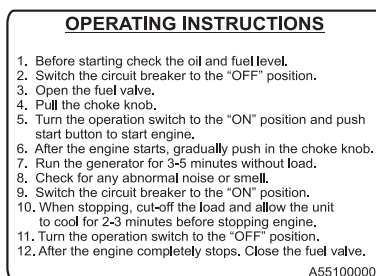
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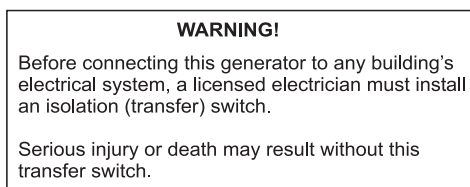
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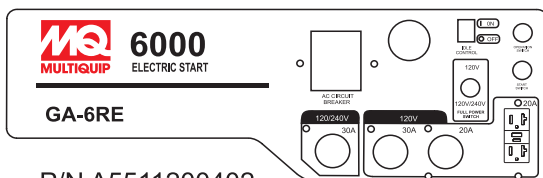
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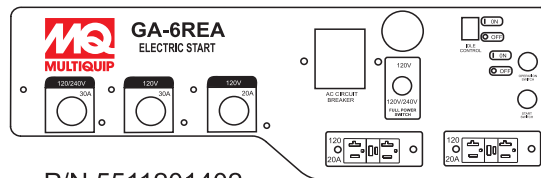
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P/N 5511201402

Figure 1. Operation and Safety Decals

GA-6RE/GA-6REA — SPECIFICATIONS (GENERATOR)

Table 1. Specifications (Generators)

AC Generator	Model	GA-6RE/ GA-6REA
	Type	Brushless Revolving Field Type
	Excitation	Solid State, Statically Excited System
	Speed	3,600 RPM
	Cooling System	Self-Ventilation
	Fuel Capacity	5 gallons (19 liters)
60 Cycle AC Power Source	Continuous Output	5.0 kW
	Stanby Output	6.0 kW
	Rated Voltage	120/240V
	Current Max/Continuous (120V)	50/41.6 amps
	Current Max/Continuous (240V)	25.0/20.8 amps
	Phase	Single Phase (4 wire)
	Frequency	60 Hz
	Power Factor	1
Generator Dimensions (L x W x H)		26.40 x 22.60 X 22.4 in. (670 X 574 X 541 mm)
Battery		12V-26Ah x 1 220 CCA, U1 Type
Battery Dimensions (L x W x H)		7.50 x 5.00 X 7.50 in. (191 X 127 X 191 mm)
Generator Dry Net Weight		216 lbs. (98 kg.)
Generator Weight (With Fuel)		249 lbs. (113 kg.)

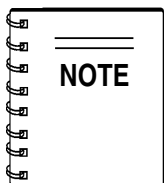
Effects of Altitude and Heat

The maximum output of the engines listed above are applicable to supplying electrical power for continuous service at ambient conditions in accordance with SAE Test cord J607. The above ambient conditions are at standard sea level, with a barometric reading of 29.92 inches and a temperature of 60 degrees fahrenheit.

Generally, the engine's output power will decrease 3-1/2% for each 1000 feet of altitude above sea level, and 1% for each 10° F Fahrenheit above the standard temperature of 60° F

Table 2. Specifications (Engine)

Engine	Model	ROBIN EH-360YS2420
	Type	Air-cooled 4 stroke, Single Cylinder, OHV, Horizontal Shaft Gasoline Engine
	Bore X Stroke	3.50 in. X 2.56 in. (89 mm x 65 mm.)
	Displacement	24.67 cu-in (404 cm ³)
	Max Output	11.5 H.P./3600 R.P.M.
	Fuel	Unleaded Automobile Gasoline
	Lube Oil Capacity	1.27 quarts (1.20 liters)
	Oil Alert System	Yes
	Speed Control Method	Centrifugal Fly-weight Type
	Starting Method	Recoil/Electric Start
Dimension (L x W x H)	15.3 x 17.9 X 17.4 in. (389 X 431 X 443 mm.)	
Dry Net Weight	68.4 lbs (31 Kg.)	



In keeping with Multiquip's policy of constantly improving its products, the specifications quoted herein are subject to change without prior notice.

GA-6RE/GA-6REA — DIMENSIONS

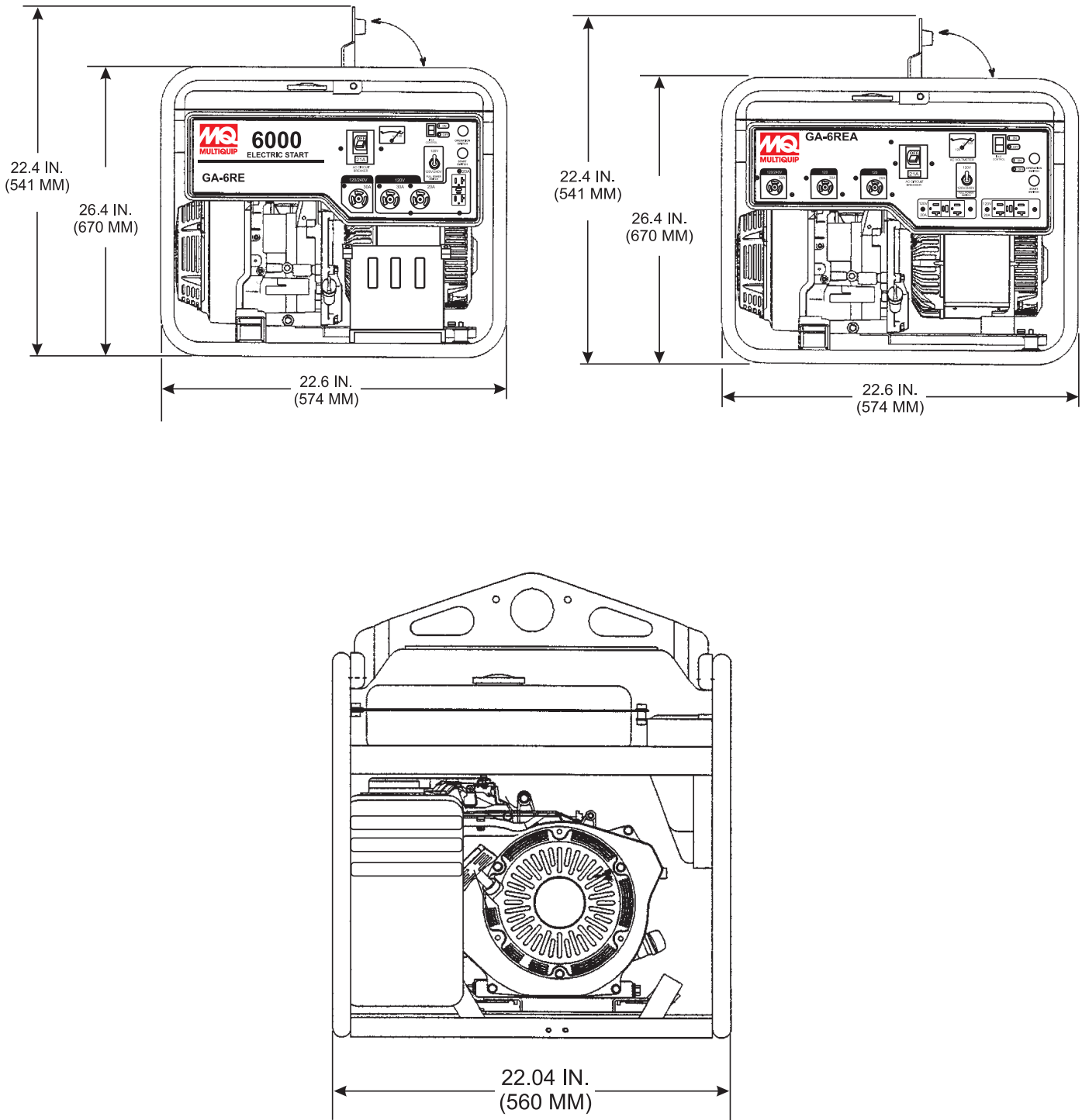


Figure 2. Dimensions

WARNING

Before connecting this generators to any building's electrical system, a licensed electrician must install an isolation (transfer) switch.

Serious injury or death may result without this transfer switch.

GA-6RE/GA-6REA FAMILIARIZATION

Generator

The Multiquip GA-6RE/GA-6REA generators have been designed as a portable dual purpose power source for 60 Hz (single phase) lighting facilities, power tools, submersible pumps and other industrial and construction machinery.

These generators are mounted on rubber vibration isolators that have a steel base backplate which is attached to the protective steel pipe carrying frame. The protective carrying frame is made of steel tubing and fully wraps around the generators to protect against damage. See Figures 3A through 3E for the basic controls and indicators for the GA-6RE/GA-6REA generators.

These portable generators are supplied with a electrical **control box**. To reduce vibration caused by the engine, the control box is also placed on rubber isolators.

Control Box

The control box is provided with the following:

- 120/240V twist-lock output receptacle (single phase).
- 120V twist-lock receptacle (2) (single phase).
- 120V GFCI single phase duplex output receptacles (GA-6REA has two).
- 21 amp main circuit breaker.
- AC Voltmeter
- Ground Terminal
- Full Power Switch
- Idle Control Switch
- Operation Switch

Excitation System

The GA-6RE/GA-6REA-series generators use a magnet attached to a flywheel to produce AC voltage from a lamp coil beneath the flywheel. As the magnetic passes the coil it produces approximately 19-22 AC volts.

This voltage (19-22 VAC) is then sent to the control box that contains three rectifying diodes:

- Excitation (diode 1)
- Battery (diode 2)
- Slow Down (diode 3)

The AC voltage will pass through the excitation diode that converts the voltage to DC power.

This DC power is then sent to the excitation windings housed within the main windings commonly called the "stator".

This voltage is then transferred into the rotor through induction. The rotor contains two diodes within it which rectify the DC voltage and send it out through the main windings, as AC voltage.

Alternator

The alternator, a brushless revolving-field type, is permanently aligned to the engine through rigid coupling.

Engine

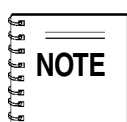
These generators are powered by a 11.5 HP, air-cooled, 4-stroke **ROBIN** gasoline engine. Reference Table 2, for engine specifications.

GA-6RE/GA-6REA — LOAD APPLICATION

Single Phase Load — 60 Hz

Always be sure to check the nameplate on the generators and equipment to insure the wattage, amperage and frequency requirements are satisfactorily supplied by the generators for operating the equipment.

Generally, the wattage listed on the nameplate of the equipment is its rated output. Equipment may require 130—150% more wattage than the rating on the nameplate, as the wattage is influenced by the efficiency, power factor and starting system of the equipment.



If wattage is not given on the equipment's name plate, approximate wattage may be determined by multiplying nameplate voltage by the nameplate amperage.

WATTS = VOLTAGE x AMPERAGE

The power factor of this generators is 1.0 See Table 3 below when connecting loads.

Table 3. Power Factor By Load

Type Of Load	Power Factor
Single-phase induction motors	0.4 - 0.75
Electric heaters, incandescent lamps	1.0
Fluorescent lamps, mercury lamps	0.4 - 0.9
Electronic devices, communication equipment	1.0
Common power tools	0.8



When using a combination of dual receptacles, total load **should not exceed** the rated capacity of the generator.

To determine the running wattage for your load, multiply the running wattage as indicated by steps 1, 2, and 3 below:

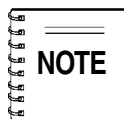
- INCANDESCENT LOADS**
 Lights, heaters and similar appliances.
 Total the running wattage and multiply by 1.
 Example:
 29 light bulbs @ 100W each = 2.9 KW
 use a 3 KW generator.
- SMALL MOTORS**
 Drills and other small power tools.
 Total the running wattage and multiply by 2.
 Example:
 A 1 inch drill runs at 1 KW
 use a 2 KW generator.
- LARGE MOTORS**
 Submersible pumps, table saws etc.
 Total the running wattage and multiply by 3.
 Example:
 A conveyor belt runs at 8 KW
 use a 24 KW generator.

CAUTION

Motors and motor-driven equipment draw much greater current for starting than during operation. **Always** use an adequate size **extension cable** which can carry the required load.

Extension Cables

When electric power is to be provided to various tools or loads at some **distance** from the generator, extension cords are normally used. **Cables should be sized to allow for distance in length and amperage so that the voltage drop between the generators and point of use (load) is held to a minimum.** Use the cable selection chart (Tables 4 and 5) as a guide for selecting proper cable size.



The idle control device is operated at a minimum load capacity of 100W. If the load capacity is less than 100W, place the idle control switch in the **OFF** position.

GA-6RE/GA-6REA — CONTROLS AND INDICATORS

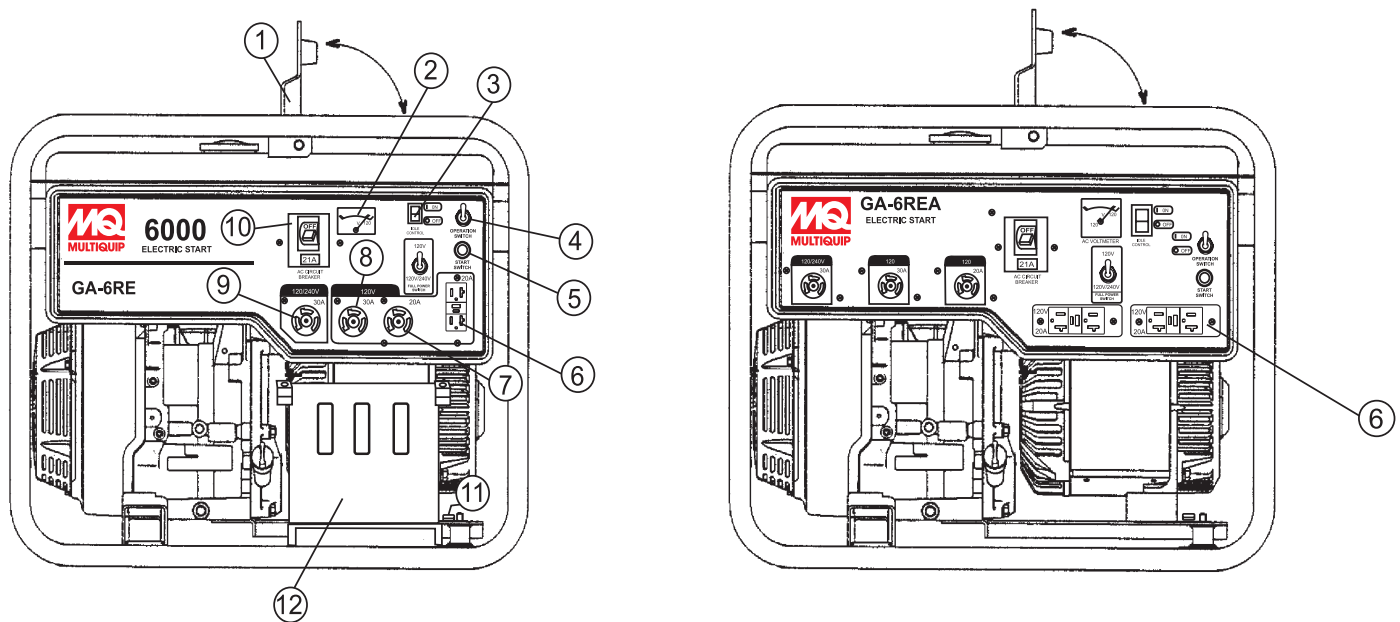


Figure 3A. Generator Components

1. **Lifting Bail Eye** – Attach a rope or chain to this lifting eye when lifting of the generator is required. Never stand underneath the generator while it is being lifted. Place lifting eye in down position when not in use.
2. **AC-Voltmeter** – This voltmeter indicates (with a mark) the rated 60 Hz (single-phase) output voltage. In addition the voltmeter can also be used as a diagnostic tool. If the voltmeter indicator (needle) is below the rated voltage, engine problems may exist (low/high RPM's). To prevent damage to the generator or power tools turn the generator **OFF** and consult your authorized Multiquip service dealer.
3. **Idle Control Switch** – These generators are provided with an automatic idle control device for noise suppression and reduced fuel consumption. The automatic idle control automatically engages under a no-load condition. With the automatic idle control switched "**ON**", the engine revolutions will automatically drop to about 2600 rpm (low-speed operation) within 3 seconds after the load stops. When the operation is resumed, the engine speed is automatically increased to about 3600 rpm (high-speed operation) as soon as the load is connected.
4. **Operation Switch** – Place this **toggle** switch in the "**ON**" position (up) for normal operation. To turn-off the generators, place the operation switch in the "**OFF**" position (down).
5. **Start Switch** – Press this **pushbutton** switch to start the generators.
6. **GFCI Duplex Receptacle** – NEMA 5-20R, GFCI receptacle will provide 120V, 20 amps. (There are only on the GA-6REA.)
7. **120V Output Receptacle** – NEMA L5-20R twist-lock receptacle will provide 120V, 20 amps, 60 Hz.
8. **120V Output Receptacle** – NEMA L5-30R twist-lock receptacle will provide (120V, 30 amps, 60 Hz.)
9. **120V/240V Output Receptacle** – This NEMA L14-30R twist-lock receptacle will provide (120V, 50 amps, or 240V, 25 amps, 60 Hz.)
10. **Main Breaker** – This 2-pole circuit breaker (240V/25 amps or 120V/41.6 amps) protects the generator from short circuiting or overloading. When starting the generator **always** have the circuit breaker placed in the "**OFF**" position.
11. **Ground** – This ground connection point should be connected to a good earth ground (ground rod)
12. **Battery** – This unit is equipped with a 12 VDC battery. Replace with only recommended type battery.

GA-6RE/GA-6REA — CONTROLS AND INDICATORS

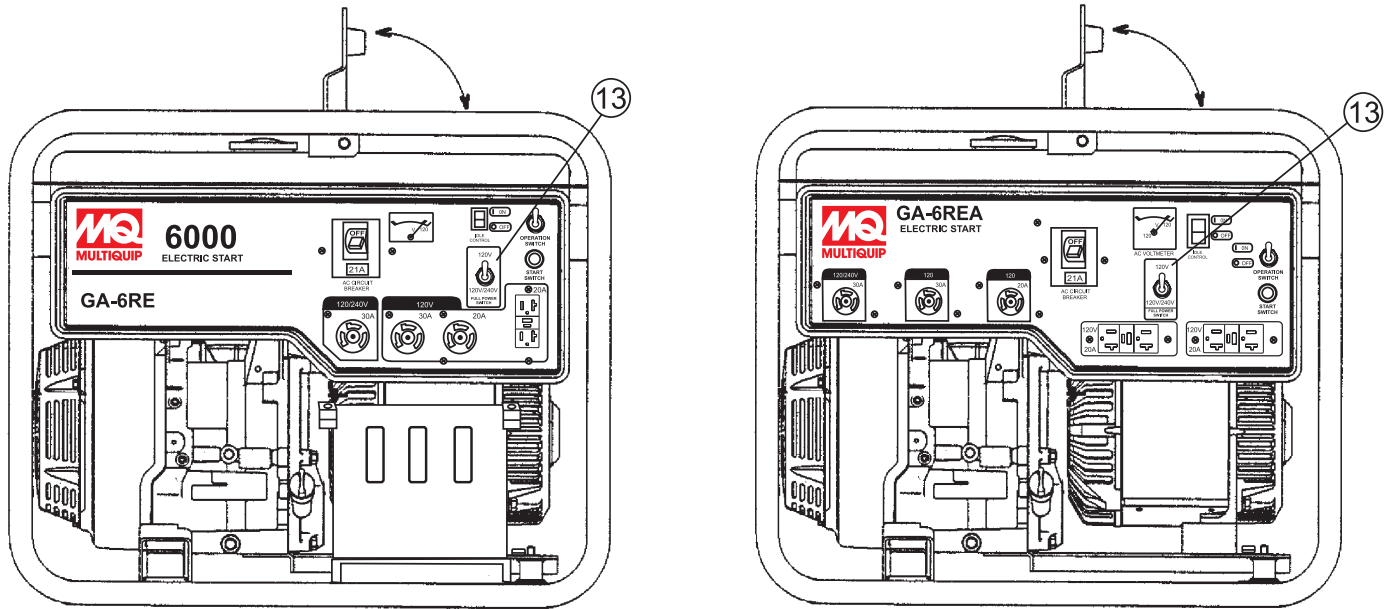


Figure 3B. Generator Components

13. **Full Power Switch** – The generators are provided with a full power switch. Figures 3C and 3D show simplified wiring diagrams of the dual voltage system.

When the full power switch is in the 120 volt (up) position, you can access the **full rated power** of the generator at 120 volts from the GFCI duplex receptacle and the 120V twist-lock receptacle, or a combination of both receptacles as long as the total load does not exceed the generating set capacity.

When the switch is in the 240 volt (down) position, you can access **half of the rated power** of the generating set at 120 volts from the GFCI duplex receptacle and up to half of the rated power of the set at 120 volts from 120V twist-lock receptacle; or full rated power of the set at 240 volts from the 240V twist-lock receptacle.

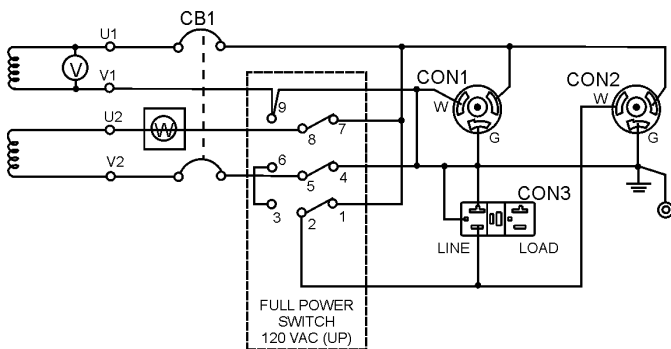


Figure 3C. 120V Full Power Switch Simplified Diagram (Up Position)

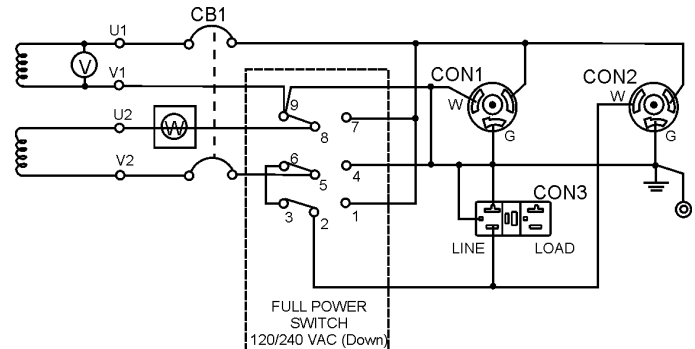
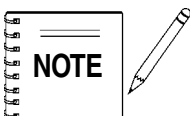


Figure 3D. 120/240V Full Power Switch Simplified Diagram (Down Position)



When the **full power switch** is in the 120V position, the 240V twist-lock receptacle **cannot be used**.

GA-6RE/GA-6REA — CONTROLS AND INDICATORS

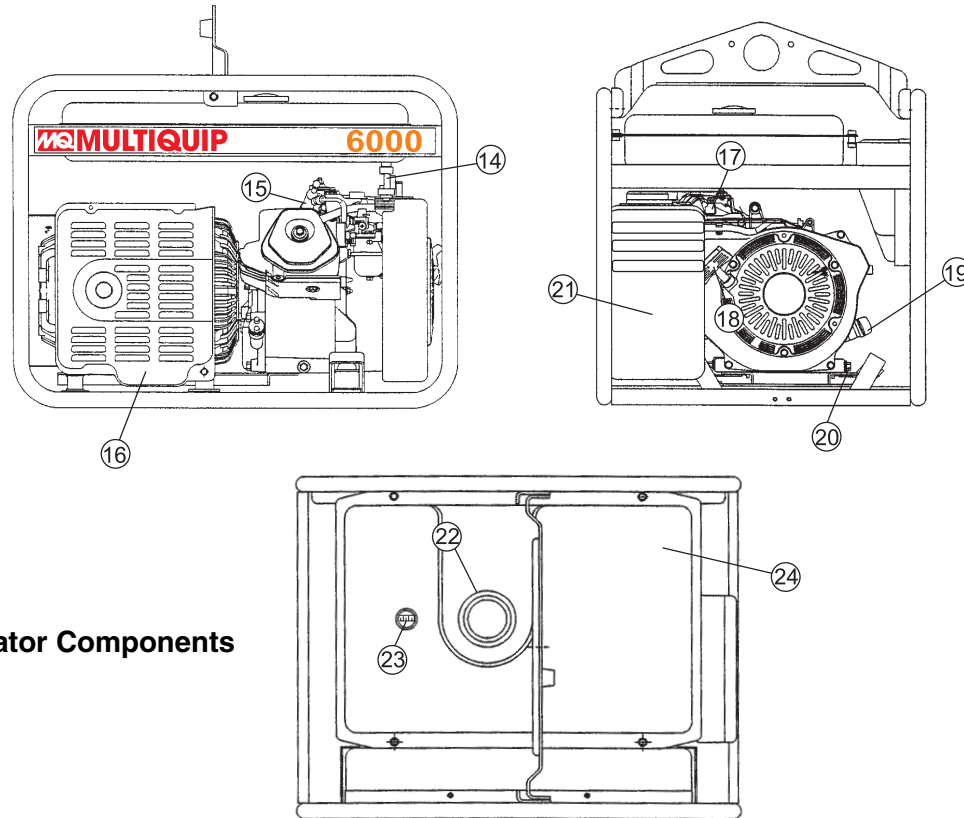
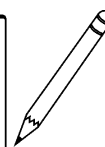
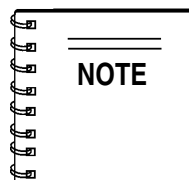


Figure 3E. Generator Components

14. **Fuel Cock Lever** – Turn this lever **downward** to **start** (down) the flow of fuel into the carburetor. Turn **upward** to **stop** (up) the flow of fuel.
15. **Spark Plug** – Provides spark to the ignition system. Set spark plug gap to 0.6 - 0.7 mm (0.028 - 0.031 inch) Clean spark plug once a week.
16. **Muffler/Heat Shield** – Used to reduce noise and emissions. **NEVER** touch this **heat shield** when the generator/welder is in use. Always allow time for the generators to cool down before performing maintenance.
17. **Choke Lever** – Used for starting the engine. **Close** the choke lever when starting a cold engine or in cold weather conditions. The choke enriches the fuel mixture. **Open** the choke lever if starting a warm engine or in warm weather conditions.
18. **Recoil Starter (pull rope)** – Manual-starting method. Pull the starter grip until resistance is felt, then pull briskly and smoothly.
19. **Engine Oil Filler Cap** – Remove this cap/dipstick when the adding of engine oil is required. See Table 5 for recommended type engine oil.
20. **Engine Oil Drain Plug** – Remove this drain plug when draining of the oil from the engine crankcase is required. Fill with recommended type oil as listed in Table 6.
21. **Air Cleaner** – Prevents dirt and other debris from entering the fuel system. Remove wing-nut on top of air filter canister to gain access to filter element. **NEVER** run the engine without an air cleaner.
22. **Fuel Tank Cap** – Remove this cap to add unleaded gasoline to the fuel tank. **Replenish** with **clean unleaded** gasoline. Make sure cap is tightened securely. **DO NOT** over fill.
23. **Fuel Gauge** – This gauge is located on top of the fuel tank. Read this gauge to determine when fuel is **low**.
24. **Fuel Tank** – Fuel tank capacity is 5 gallons (19 liters).



This **ROBIN** engine is equipped with a low oil shutdown capability. A built in sensor will automatically turn off the engine should the oil level fall below a safe operating condition. Make sure the generators is placed on level ground. Placing the generators on level ground will ensure that the low oil sensor will function properly.

GA-6RE/GA-6REA — GENERATOR REFUELING

DANGER

Adding fuel to the tank should be done only when the engine is stopped and has had an opportunity to cool down. In the event of a fuel spill, **DO NOT** attempt to start the engine until the fuel residue has been completely wiped up, and the area surrounding the engine is dry. If generator is placed in a truck bed with a plastic liner, **REMOVE** generator from truck bed and place on ground (Figure 4) to refuel. This possibility exist of **fire** or **explosion** due to static electricity.

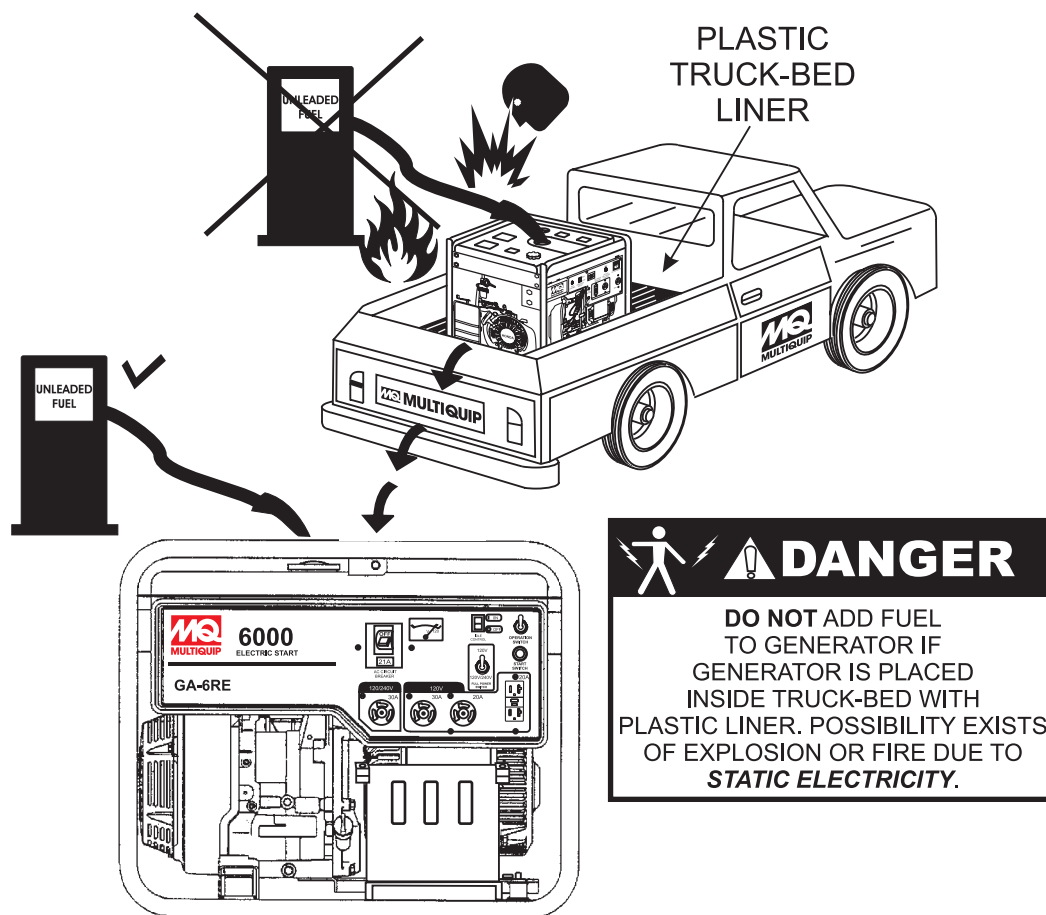


Figure 4. Generator Refueling

Outdoor Installation

Install the generator/welder in a area that is free of **debris**, **bystanders**, and **overhead obstructions**. Make sure the generators are on secure level ground so that it cannot slide or shift around. Also install the generators in a manner so that the exhaust will not be discharged in the direction of nearby homes.

The installation site must be relatively free from moisture and dust. All electrical equipment should be protected from excessive moisture. Failure to do will result in deterioration of the insulation and will result in short circuits and grounding.

Foreign materials such as dust, sand, lint and abrasive materials have a tendency to cause excessive wear to engine and alternator parts.

CAUTION

Pay close attention to ventilation when operating the generators inside tunnels and caves. The engine exhaust contains noxious elements.

Mounting

The generators should always be mounted on a flat level surface to isolate vibration of the generators when it is running. **DO NOT** place the generators on slopes, the possibility exists that the generators could slide.

CAUTION

An electric shock is apt to happen when vibrators are used. Pay close attention to handling when operating vibrators and always use rubber boots and gloves to insulate the body from a short circuit.

Indoor Installation

Exhaust gases from gasoline engines are extremely poisonous. Whenever an engine is installed indoors the exhaust fumes must be vented to the outside. The engine should be installed at least two feet from any outside wall. Using an exhaust pipe which is too long or too small can cause excessive back pressure which will cause the engine to heat excessively and possibly burn the valves.

Eliminate the danger of deadly carbon monoxide gas. Remember that exhaust fumes from any gasoline engine are very poisonous if discharged in a closed room, but harmless if allowed to mix with the outside air. If the generators is installed indoors, you must make provisions for venting the engine exhaust to the outside of the building.

Generator Grounding

To guard against electrical shock and possible damage to the equipment, it is important to provide a good **EARTH** ground. Always use the ground terminal on the generators to ground the generators. Ground the generators from its ground connector so that the resistance to ground is 500 ohms or less.

Article 250 (Grounding) of the National Electrical Code (NEC) provides guide lines for proper grounding and specifies that the cable ground shall be connected to the grounding system of the building as close to the point of cable entry as practical.

NEC articles 250-64(b) and 250-66 set the following grounding requirements:

1. Use one of the following wire types to connect the generators to earth ground.
 - a. Copper - 10 AWG (5.3 mm²) or larger.
 - b. Aluminum - 8 AWG (8.4 mm²) or larger.
2. When grounding the generators (Figure 3) connect the ground cable between the lock washer and the nut on the generators and tighten the nut fully. Connect the other end of the ground cable to earth ground.
3. NEC article 250-52(c) specifies that the earth ground rod should be buried a minimum of 8 ft. into the ground.

Connecting the Ground

The nut and ground terminal on the generators should always be used to connect the generators to a suitable ground. The ground cable should be #8 size wire minimum.

At the generator, connect the terminal of the ground cable between the lock washer and the nut (Figure 5) and tighten the nut fully. Connect the other end of the ground cable to a suitable earth ground (ground rod).

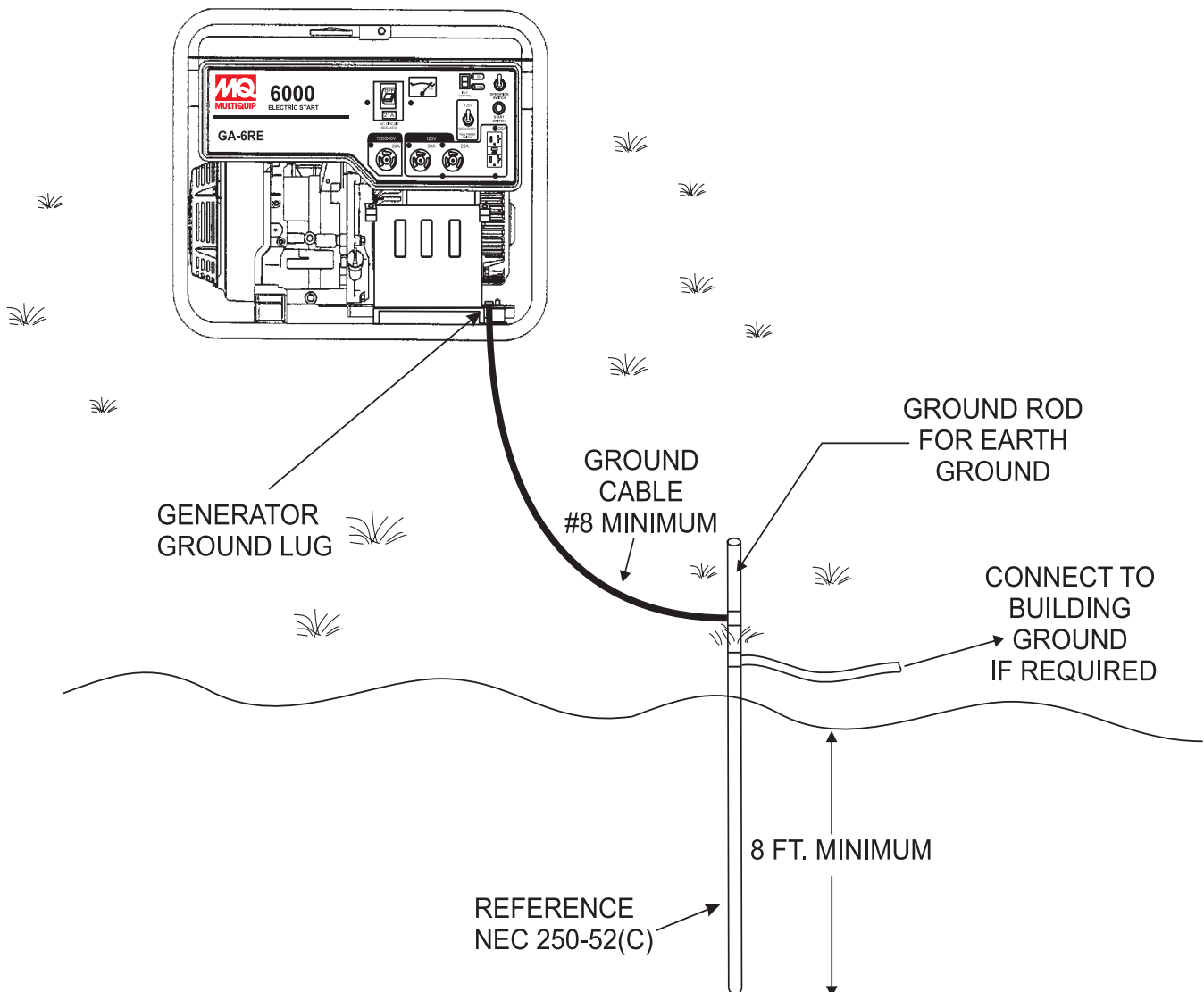


Figure 5. Generator Grounding

General Inspection Prior to Operation

Ground Power Tools

When using power tools or electrical equipment requiring AC power from the generators, make sure connecting (power tool) cable (Figure 6) has a ground as shown in Figure.

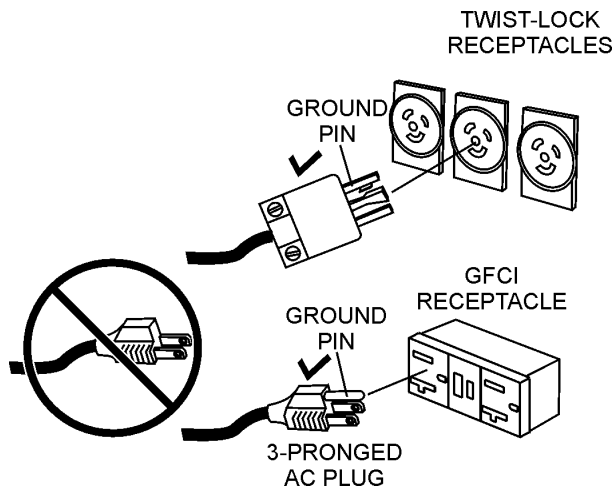
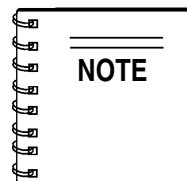


Figure 6. Ground Cables/Plugs

Extension Cable

When electric power is to be provided to various tools or loads at some distance from the generators, extension cords are normally used. Cables should be sized to allow for distance in length and amperage so that the voltage drop between the generators and point of use (load) is held to a minimum. Use the cable selection chart (Table 4) as a guide for selecting proper cable size.



Never! use power tools or equipment that do not have a ground capability, the possibility exists of **electrocution, electrical shock or burn**, which can cause **severe bodily harm** or even **DEATH!**

Main Circuit Breaker

To protect the generators from an overload always place the main circuit breaker in the "OFF" position prior to starting the engine.

Table 4. Cable Selection (60 Hz, Single Phase Operation)

Current In Amperes	Load In Watts		Maximum Allowable Cable Length			
	120 Volts	240 Volts	#10 Wire	#12 Wire	#14 Wire	#16 Wire
2.5	300	600	1000 ft.	600 ft.	375 ft.	250 ft.
5	600	1200	500 ft.	300 ft.	200 ft.	125 ft.
7.5	900	1800	350 ft.	200 ft.	125 ft.	100 ft.
10	1200	2400	250 ft.	150 ft.	100 ft.	
15	1800	3600	150 ft.	100 ft.	65 ft.	
20	2400	4800	125 ft.	75 ft.	50 ft.	

CAUTION: Equipment damage can result from low voltage.

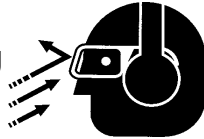
GA-6RE/GA-6REA — PRE-INSPECTION (ENGINE)

CAUTION

NEVER operate the generators in a confined area or enclosed area structure that does not provide ample *free flow of air*.



ALWAYS wear approved eye and hearing protection before operating the generator.



Before Starting

1. Read safety instructions at the beginning of manual.
2. Clean the generator, removing dirt and dust, particularly the engine cooling air inlet, carburetor and air cleaner.
3. Check the air filter for dirt and dust. If air filter is dirty, replace air filter with a new one as required.
4. Check carburetor for external dirt and dust. Clean with dry compressed air.
5. Check fastening nuts and bolts for tightness.



Engine Oil Check

1. To check the engine oil level, place the generators on secure level ground with the engine stopped.
2. Remove the filler dipstick from the engine oil filler hole (Figure 7) and wipe clean.

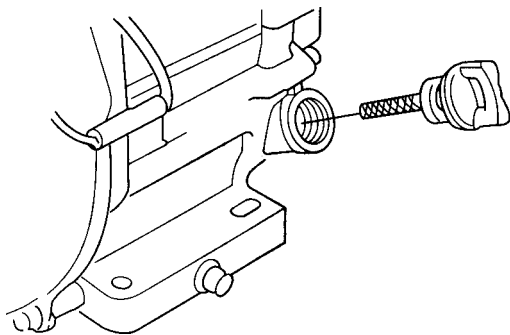


Figure 7. Engine Oil Dipstick (Removal)

3. Insert and remove the dipstick without screwing it into the filler neck. Check the oil level shown on the dipstick.
4. If the oil level is low (Figure 8), fill to the edge of the oil filler hole with the recommended oil type (Table 5). Maximum oil capacity is 1.16 quarts (1.1 liters)

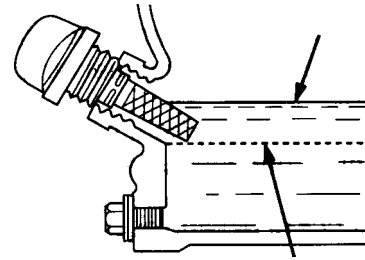


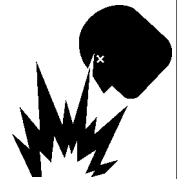
Figure 8. Engine Oil Dipstick (Oil Level)

Table 5. Oil Type

Season	Temperature	Oil Type
Summer	25°C or Higher	SAE 10W-30
Spring/Fall	25°C~10°C	SAE 10W-30/20
Winter	0°C or Lower	SAE 10W-10

DANGER EXPLOSIVE FUEL

Motor fuels are highly flammable and can be dangerous if mishandled. **DO NOT** smoke while refueling. **DO NOT** attempt to refuel the generators if the engine is *hot!*, *running or in the dark*.



Fuel Check

1. Close the fuel cock before filling the fuel tank.
2. Remove the fuel cap located on top of fuel tank.
3. Read the fuel gauge located on top of the fuel tank (Figure 9) to determine if the fuel level is low. If fuel is low, replenish with *clean unleaded fuel*.

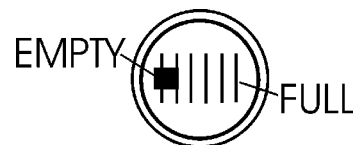


Figure 9. Fuel Gauge

4. When refueling, be sure to use a strainer for filtration. **DO NOT** top-off fuel. **DO NOT** fill the tank beyond capacity. Wipe up any spilled fuel *immediately!*

GA-6RE/GA-6REA — INITIAL START-UP (ENGINE)

CAUTION

DO NOT attempt to operate this generator until the Safety, General Information and Inspection sections of this manual have been **read and thoroughly understood**.



This section is intended to assist the operator with the **initial start-up** of the portable generator. It is extremely important that this section be read carefully before attempting to use the generator in the field.

Before Starting the Engine

1. Be sure to **disconnect all electrical loads** from the Generators prior to starting the engine.
2. **NEVER** start the engine with the main circuit breaker in the "ON" position. Always place this circuit breaker (Figure 10) in the **OFF** position before starting.

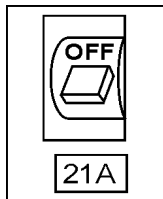


Figure 10. Main Circuit Breaker (OFF Position)

Starting the Engine

1. Place the engine **fuel valve lever** (Figure 11) in the "ON" position."

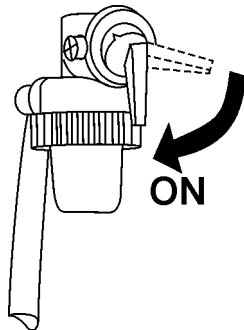


Figure 11. Engine Fuel Valve Lever (ON Position)

2. Place the **choke lever** (Figure 12) in the "CLOSED" position if starting a **cold** engine.

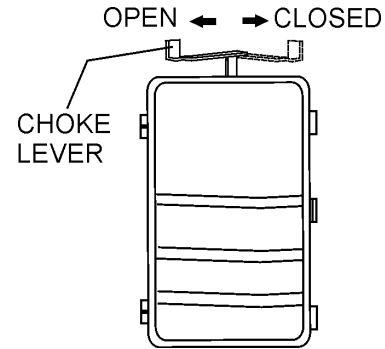


Figure 12. Choke Lever

3. Place the **choke lever** (Figure 12) in the "OPEN" position if starting a **warm engine** or the **temperature is warm**.
4. Place the generator's **operation switch** (Figure 13) in the "ON" position.

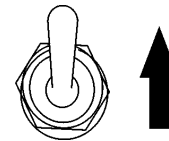


Figure 13. Operation Switch (ON Position)

5. Press the **Generators start switch** (Figure 14) and listen for the engine to start. If the battery is not installed proceed to step 6.

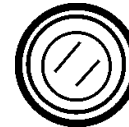


Figure 14. Start Pushbutton Switch

6. Grasp the **starter grip** (Figure 15) and slowly pull it out. The resistance becomes the hardest at a certain position, corresponding to the compression point. Pull the starter grip briskly and smoothly for starting.

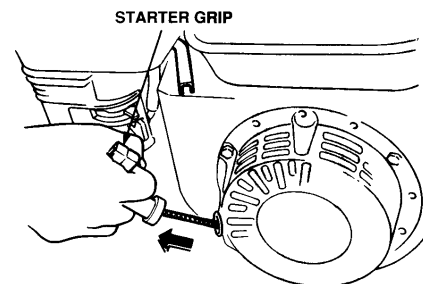


Figure 15. Starter Grip

CAUTION

DO NOT pull the starter rope all the way to the end.
DO NOT release the starter rope after pulling. Allow it to rewind as soon as possible.

GA-6RE/GA-6REA — INITIAL START-UP/GENERATOR OPERATION

- If the engine has started, slowly return the choke lever (Figure 12) to the **"OPEN"** position. If the engine has not started repeat steps 1 through 5.
- Before the generators is placed into operation, run the engine for 3-5 minutes. Check for abnormal smells, fuel leaks, and noises that would associate with lose components.
- Place** the **idle control switch** (Figure 16) in the **"OFF"** (down) position. This will allow the engine speed to run at speed about 3600 RPM's

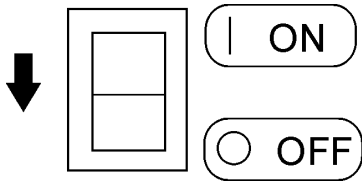
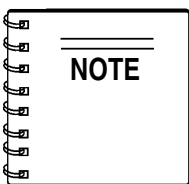


Figure 16. Idle Control Switch (Off)



Placing the **idle control switch** in the **OFF** position (Figure 16) allows the engine to operate at a maximum speed of about 3600 RPM's. When the idle control switch is placed in the up position (**ON**) (Figure 17), the generators will run at idle speed (2200 RPM's) until a load is applied, at that time the engine speed will increase to 3600 RPM's as long as the load is being applied. When the load is not in use, the engine speed will drop back to the idle mode after about 3 seconds.

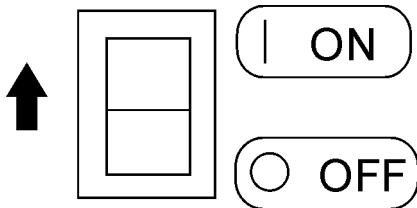


Figure 17. Idle Control Switch (On)

60 Hz Operation

- Place main circuit breaker (Figure 18) in the **ON** position.

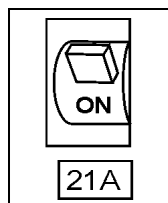


Figure 18. Main Circuit Breaker (ON)

- Place the full power switch (Figure 19) in the 120V position (up).

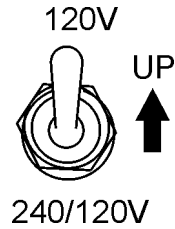
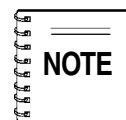


Figure 19. Full Power Switch 120 V Position (Up)



When the **full power switch** is in the 120 V position, the 240V twist-lock receptacle cannot be used.

- Read the **voltmeter** on the front panel of the generators (Figure 20) and verify that 120 VAC is present at the 120V twist-lock and GFCI duplex receptacles. For additional verification of voltage, an external voltmeter can be used to measure the output voltage as shown in Figure 20.

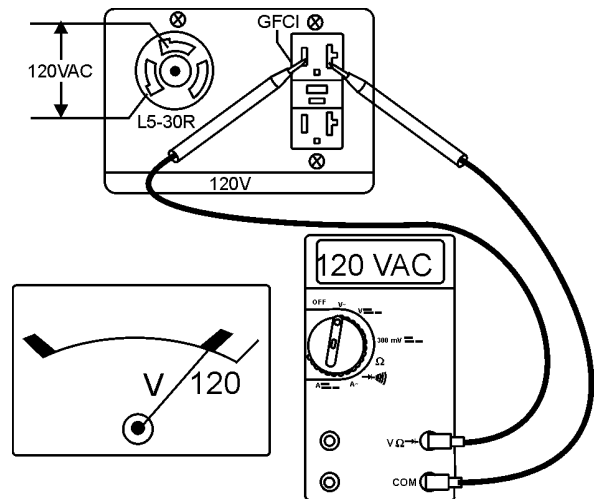


Figure 20. 120 V and GFCI Receptacles

- Place the full power switch (Figure 21) in the 240V position (down).

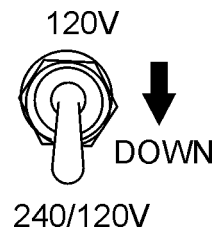


Figure 21. Full Power Switch 240/120 V Position (Down)

GA-6RE/GA-6REA — GENERATOR OPERATION/SHUTDOWN

- Read the **voltmeter** on the front panel of the generators (Figure 22) and verify that 240 VAC is present at the 240V twist-lock receptacle. Using an external voltmeter verify that 120V is present at the 120V twist-lock and GFCI duplex receptacles.

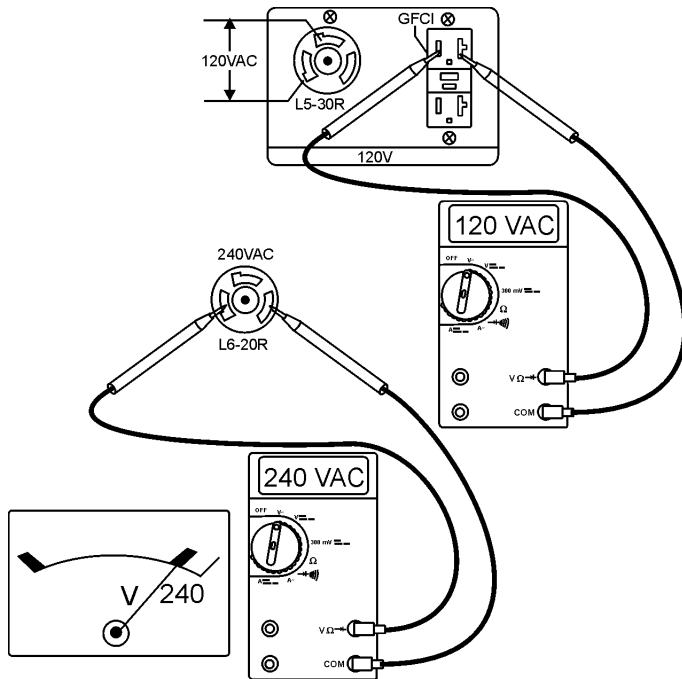


Figure 22. 60 Hz Output Receptacles

NOTE When the full power switch is in the 240 volt (down) position, you can take up to **half of the rated power** of the generating set at 120 volts from the GFCI duplex receptacle and up to half of the rated power of the set at 120 volts from the 120V twist-lock receptacle; or full rated power of the genset at 240 volts from the 240V twist-lock receptacle.

NOTE When using a combination of dual receptacles, total load should not exceed the rated capacity of the generator.

Connecting the Load

- If small wattage power tools are required, connect them to the 60 Hz output receptacles at this time.

Stopping the Engine

- Place the main circuit breaker (Figure 23) in the **OFF** position.

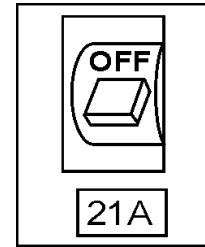


Figure 23. Main Circuit Breakers (Off)

- Place the **idle control switch** (Figure 24) in the **OFF** position.

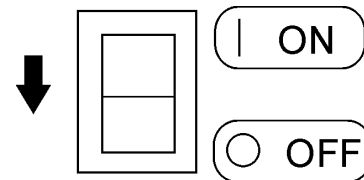


Figure 24. Idle Control Switch (Off)

- Let the engine run at idle with no load for 2-3 minutes.
- To shut-down the engine, place the generator's **operation switch** (Figure 25) in the **OFF** position.

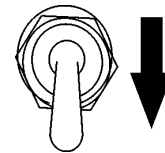


Figure 25. Generator On/Off Switch (Off)

- Place the engine **fuel valve lever** (Figure 26) to the "OFF" position."

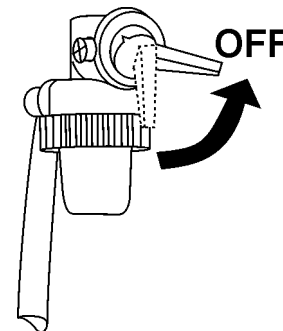


Figure 26. Engine Fuel Valve Lever (OFF Position)

- Remove the all **loads** from the generator.

GA-6RE/GA-6REA — PREPARATION FOR LONG TERM STORAGE

Generator Storage

For storage of the generating set for over 30 days, the following is required:

- Drain the fuel tank completely, or add STA-BIL to the fuel.
- Run the engine until the gasoline in the carburetor is completely consumed.
- Completely drain the oil from the crankcase and refill with fresh oil.
- Remove the spark plug, pour 2 or 3 cc of SAE 30 oil into the cylinder and crank slowly to distribute the oil.
- Slowly rotate the engine a few times with the starter Rope and install a new plug.
- Pull out the starter rope slowly and stop at the compression point.
- Clean all external parts of the generating set with a cloth.
- Cover the generating set and store in a clean, dry place.

GA-6RE/GA-6REA — MAINTENANCE (ENGINE)

Use Table 6 as a general maintenance guideline when servicing your engine. For more detail engine maintenance information, refer to the engine owner's manual supplied with your engine.

Table 6. Engine Maintenance Schedule							
DESCRIPTION (3)	OPERATION	BEFORE	FIRST MONTH OR 10 HRS.	EVERY 3 MONTHS OR 25 HRS.	EVERY 6 MONTHS OR 50 HRS.	EVERY YEAR OR 100 HRS.	EVERY 2 YEARS OR 200 HRS.
Engine Oil	CHECK	X					
	CHANGE		X				
Air Cleaner	CHECK	X					
	CHANGE			X (1)			
All Nuts & Bolts	Re-tighten If Necessary	X					
Spark Plug	CHECK-CLEAN				X		
	REPLACE						X
Cooling Fins	CHECK				X		
Spark Arrester	CLEAN					X	
Fuel Tank	CLEAN					X	
Fuel Filter	CHECK					X	
Idle Speed	CHECK-ADJUST					X (2)	
Valve Clearance	CHECK-ADJUST						X (2)
Fuel lines	CHECK	Every 2 years (replace if necessary) (2)					

(1) Service more frequently when used in **DUSTY** areas.

(2) These items should be serviced by your service dealer, unless you have the proper tools and are mechanically proficient. Refer to the HONDA Shop Manual for service procedures.

(3) For commercial use, log hours of operation to determine proper maintenance intervals.

GA-6RE/GA-6REA — MAINTENANCE (ENGINE)

Maintenance

Perform the scheduled maintenance procedures as defined by Table 6 and below:

DAILY

- Thoroughly remove dirt and oil from the engine and control area. Clean or replace the air cleaner elements as necessary. Check and retighten all fasteners as necessary. Check the gearbox for oil leaks. Repair or replace as needed.

WEEKLY

- Remove the fuel filter cap and clean the inside of the fuel tank.
- Remove or clean the filter at the bottom of the tank.
- Remove and clean the spark plug (Figure 27), then adjust the spark gap to 0.024 ~0.028 inch (0.6~0.7 mm). This unit has electronic ignition, which requires no adjustments.

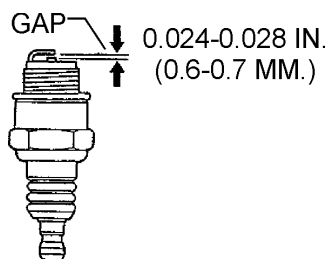


Figure 27. Spark Plug Gap

ENGINE OIL

- Drain the engine oil when the oil is **warm** as shown in Figure 28.
- Remove the oil drain bolt and sealing washer and allow the oil to drain into a suitable container.
- Replace engine oil with recommended type oil as listed in Table 5. For engine oil capacity, see Table 2 (engine specifications). **DO NOT** overfill.
- Install drain bolt with sealing washer and tighten securely.

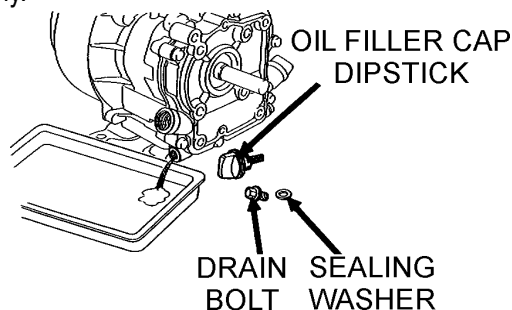


Figure 28. Engine Oil (Draining)

! DANGER

DO NOT use gasoline as a cleaning solvent, because that would create a risk of fire or explosion.



ENGINE AIR CLEANER

- Remove the air cleaner cover and foam filter element as shown in Figure 29.
- Clean foam element in warm, soapy water or nonflammable solvent. Rinse and dry thoroughly. Dip the element in clean engine oil and completely squeeze out the excess oil from the element before installing.

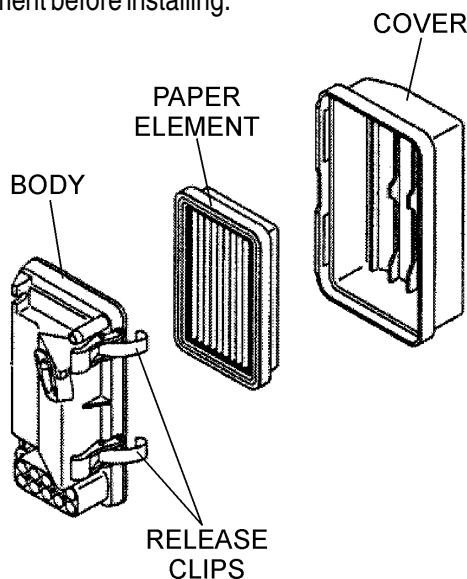


Figure 29. Engine Air Cleaner

Battery

This unit is of negative ground **DO NOT** connect in reverse. Always maintain battery fluid level between the specified marks. Battery life will be shortened, if the fluid level are not properly maintained. Add only distilled water when replenishment is necessary.

DO NOT over fill. Check to see whether the battery cables are loose. Poor contact may result in poor starting or malfunctions. **Always** keep the terminals firmly tightened. Coating the terminals with an approved battery terminal treatment compound. Replace battery with only recommended type battery.

The battery is sufficiently charged if the specific gravity of the battery fluid is 1.28 (at 68° F). If the specific gravity should fall to 1.245 or lower, it indicates that the battery is dead and needs to be recharged or replaced.

Before charging the battery with an external electric source, be sure to disconnect the battery cables.

Battery Cable Installation

ALWAYS be sure the battery cables (Figure 30) are properly connected to the battery terminals as shown below. The **red** cable is connected to the positive terminal of the battery, and the **black** cable is connected to the negative terminal of the battery.

! CAUTION - BATTERY SERVICING SAFETY

ALWAYS disconnect the negative terminal **FIRST** and reconnect negative terminal **LAST**.

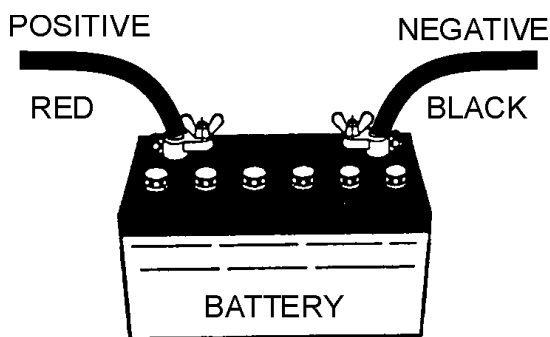
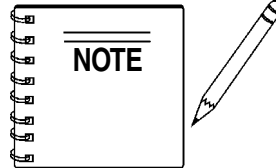


Figure 30. Battery Connections

When connecting battery do the following:

1. **NEVER** use worn or damaged battery cables. Replace defective battery cables immediately.
2. Place a small amount of battery terminal treatment compound around both battery terminals. This will ensure a good connection and will help prevent corrosion around the battery terminals.



If the battery cable is connected incorrectly, electrical damage to the generator will occur. Pay close attention to the polarity of the battery when connecting the battery.

! CAUTION - BATTERY SERVICING SAFETY

Inadequate battery connections may cause poor starting of the generator, and create other malfunctions.

Polarity

The polarity of the battery is extremely important. When an inverted circuit connection takes place, the circuit will be in short circuit instantaneously resulting in possible damage to the control box electronics and starter.

When connecting the battery cables to the battery terminals be sure to check the polarity.

Wiring

Inspect the entire generator for bad or worn electrical wiring or connections. If any wiring or connections are exposed (insulation missing) replace wiring immediately.

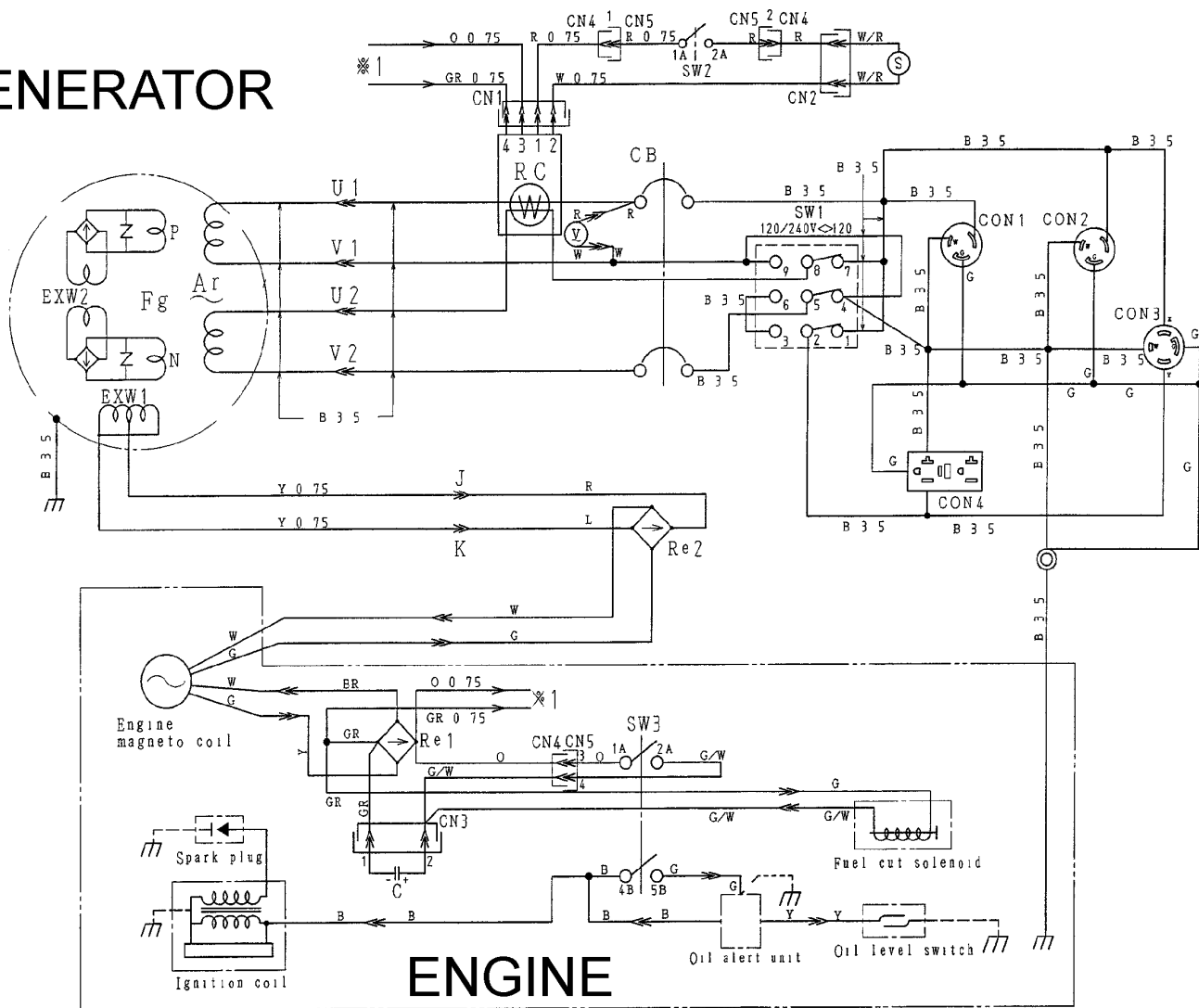
Piping and Hose Connection

Inspect all piping, oil hose, and fuel hose connections for wear and tightness. Tighten all hose clamps and check hoses for leaks.

If any hose (**fuel** or **oil**) lines are defective replace them immediately.

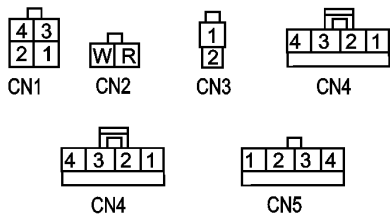
GA-6RE — WIRING DIAGRAM (GENERATOR)

GENERATOR



ENGINE

COLOR CODE			
	WIRE COLOR		WIRE COLOR
B	BLACK	R	RED
L	BLUE	W	WHITE
BR	BROWN	Y	YELLOW
G	GREEN	LB	LIGHT BLUE
GR	GRAY	LG	LIGHT GREEN
V	VIOLET	O	ORANGE
P	PINK		



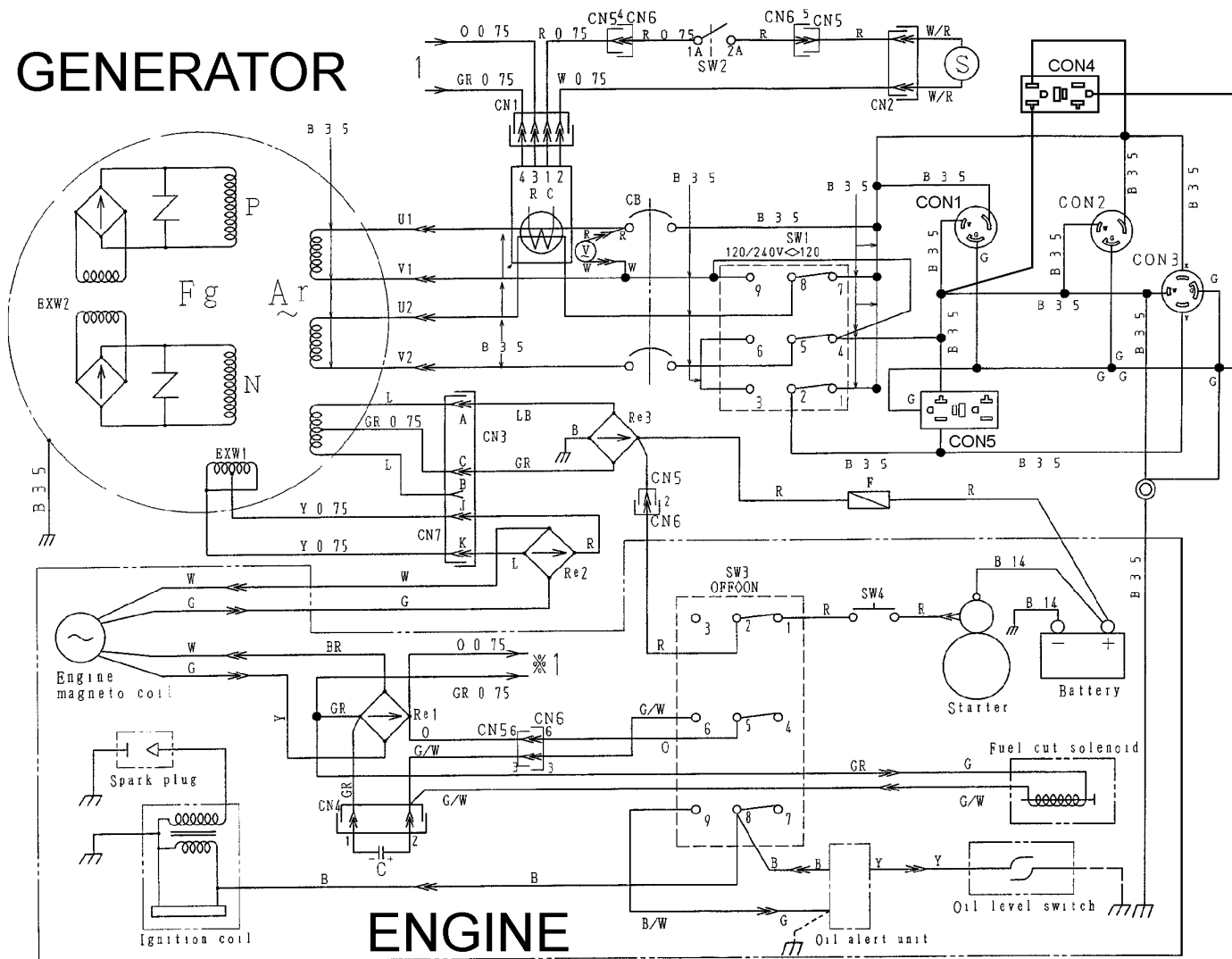
CONNECTOR ARRANGEMENT
(VIEW FROM INSERTING WIRE SIDE)

SYMBOL	DESIGNATION
Ar	ARMATURE WINDING
Fg-P, N	ROTOR ASSEMBLY
Ex W1	EXCITATION WINDING
Ex W2	EXCITATION WINDING
V	AC VOLTMETER 120/240V
RE 1, 2	RECTIFIER
CB	CIRCUIT BREAKER 25A @ 240, 37.5A @ 120
CON 1	RECEPTACLE L5-20R 20A, 125V
CON 2	RECEPTACLE L5-30R 30A 125V
CON 3	RECEPTACLE L14-30R 30A, 125/250V
CON 4	RECEPTACLE 520R GFCI 20A, 125V
SW1	FULL POWER SWITCH
SW2	IDLE CONTROL SWITCH
SW3	OPERATION SWITCH
RC	IDLE CONTROL DEVICE
S	IDLE CONTROL SOLENOID
C	CAPACITOR

Figure 31. GA-6RE Generator Wiring Diagram

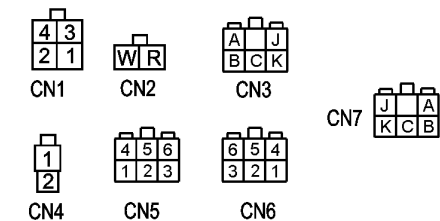
GA-6REA — WIRING DIAGRAM (GENERATOR)

GENERATOR



ENGINE

COLOR CODE	
WIRE COLOR	WIRE COLOR
B BLACK	R RED
L BLUE	W WHITE
BR BROWN	Y YELLOW
G GREEN	LB LIGHT BLUE
GR GRAY	LG LIGHT GREEN
V VIOLET	O ORANGE
P PINK	



CONNECTOR ARRANGEMENT
(VIEW FROM INSERTING WIRE SIDE)

SYMBOL	DESIGNATION
Ar	ARMATURE WINDING
Fg-P, N	ROTOR ASSEMBLY
Ex W1	EXCITATION WINDING
Ex W2	EXCITATION WINDING
V	AC VOLTMETER 120/240V
RE 1-3	RECTIFIER
CB	CIRCUIT BREAKER 25A @ 240, 37.5A @ 120
CON 1	RECEPTACLE L5-20R 20A, 125V
CON 2	RECEPTACLE L5-30R 30A 125V
CON 3	RECEPTACLE L14-30R 30A, 125/250V
CON 4,5	RECEPTACLE 520R GFCI 20A, 125V
SW1	FULL POWER SWITCH
SW2	IDLE CONTROL SWITCH
SW3	OPERATION SWITCH
SW4	STARTER SWITCH
RC	IDLE CONTROL DEVICE
S	IDLE CONTROL SOLENOID
C	CAPACITOR

Figure 32. GA-6REA Generator Wiring Diagram

GA-6RE/GA-6REA — TROUBLESHOOTING (ENGINE)

Practically all breakdowns can be prevented by proper handling and maintenance inspections, but in the event of a breakdown, please take a remedial action following the diagnosis based on the Engine Troubleshooting (Table 7) and

Generator Troubleshooting (Table 8) information shown below and on the proceeding pages. If the problem cannot be remedied, please leave the unit just as it is and consult our company's business office or service plant.

TABLE 7. ENGINE TROUBLESHOOTING

SYMPTOM	POSSIBLE PROBLEM	SOLUTION
Poor starting	Inspect carburetor to see if fuel is reaching it?	Check fuel line
	No Fuel?	Add Fuel
	Water in fuel tank?	Flush or replace fuel tank.
	Fuel filter clogged?	Replace fuel filter
	Stuck carburetor?	Check float mechanism.
	Spark plug is red?	Spark plug is fouled. Check transistor ignition unit.
	Spark plug is blue-white?	Insufficient compression, injected air leaking. Carburetor jets are clogged (overflow).
	No spark present at tip of spark plug?	Transistor ignition unit broken, high voltage cord cracked or broken. Start/Stop switch broken. Replace spark plug if fouled.
	No oil?	Add oil as required.
	Oil pressure alarm lamp blinks upon starting?	Check Automatic shutdown circuit "oil sensor".
Insufficient power output "no compression"	Engine will not turn over?	Replace cylinder and piston and if necessary axel joint.
	Cylinder head connecting bolts loose?	Tighten cylinder head connecting bolts.
	Cylinder head gasket damaged?	Replace cylinder head gasket.
	Malfunction of valve seat?	Re-seat valves.
	Spark plug is loose?	Replace spark plug.
	Worn piston rings?	Replace piston rings.
Insufficient power output "compression"	Malfunction in air-cleaner system, air filter clogged?	Clean or replace air filter.
	Air leaking in from interface between carburetor and cylinder head?	Tighten bolts between carburetor and cylinder head. Replace cylinder head gasket.
	Malfunction in fuel system?	Clean or replace fuel filter. Clean or replace carburetor. Check carburetor float.

GA-6RE/GA-6REA — TROUBLESHOOTING (ENGINE)

TABLE 7. ENGINE TROUBLESHOOTING (CONTINUED)

SYMPTOM	POSSIBLE PROBLEM	SOLUTION
Insufficient power output "compression" and overheats	Malfunction in cooling fan?	Check or replace cooling fan.
	Air in-take filter clogged?	Clean or replace air in-take filter.
Burns to much fuel	Over accumulation of exhaust products?	Clean and check valves. Check muffler, replace if necessary.
	Wrong spark plug?	Replace spark plug with manufactures suggested type spark plug.
Exhaust color is continously "WHITE"	Lubricating oil is wrong viscosity?	Replace lubricating oil with correct viscosity.
	Worn rings?	Replace rings
Exhaust color is continously "BLACK"	Air cleanner clogged?	Clean or replace air cleaner.
	Choke valve has not been set to the correct position?	Adjust choke valve to the correct position.
	Carburetor defective, seal on carburetor broken?	Replace carburetor or seal.
	Poor carburetor adjustment "engine runs too rich?"	Adjust carburetor.

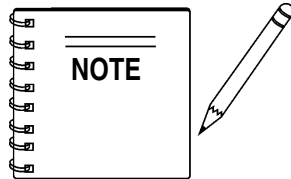
GA-6RE/GA-6REA — TROUBLESHOOTING (GENERATOR)

TABLE 8. GENERATOR TROUBLESHOOTING

SYMPTOM	POSSIBLE PROBLEM	SOLUTION
Low voltage	Engine speed too low?	Raise engine speed to rated RPM.
Low voltage. Engine speed normal 3650 RPM (unloaded), 2500 RPM (idle)	AC voltmeter not working?	Replace Ac voltmeter.
	Control box internal wiring malfunction?	Check control box wiring.
	Defective ignition coil?	Check red and green ignition wires. Replace ignition wires if necessary.
	Rotor winding malfunction?	Check or replace rotor.
	Stator winding malfunction?	Check or replace stator.
	Leakage breaker malfunction?	Check or replace CB1.
	Full power switch malfunction?	Check full power switch and full power switch circuit.
Voltage output too high.	Engine speed too high?	Lower engine speed to rated RPM.
Voltage output too high. Engine speed normal 3650 RPM (unloaded), 2500 RPM (idle)	Control box internal wiring malfunction	Check control box wiring.
Circuit breaker will not turn on "NO LOAD"	Defective circuit breaker?	Replace circuit breaker.
Circuit breaker will turn on "LOADED" but trips immediately.	Overload Condition?	Reduce load or replace breaker.
	Load circuit is shorted?	Check load circuit for short.
Does not accelerate from low to high "NO LOAD"	Stuck solenoid?	Check solenoid.
	Bad Idle control switch?	Check or replace idle control switch.
Does not accelerate from low to high "LOAD ACTIVE"	Idle control switch malfunction?	Check or replace idle control switch.
	Idle control device malfunction?	Check or replace idle control device.
	Control box internal wiring defective?	Check control box wiring.
Does not decelerate no "VOLTAGE OUTPUT".	Defective rotor windings?	Check or replace rotor.
	Defective solenoid?	Check or replace solenoid.
	Defective idle control device?	Check or replace idle control device.
	Defective solenoid?	Check or replace idle control device.
Does not decelerate but has "VOLTAGE OUTPUT".	Control box wiring malfunction?	Check control box wiring, replace any defective components.
	Defective solenoid?	Check or replace solenoid.
	Idle control device malfunction?	Check or replace idle control device.

GA-6RE/GA-6REA — EXPLANATION OF CODE IN REMARKS COLUMN

How to read the marks and remarks used in this parts book.



The contents of this catalog are subject to change without notice.

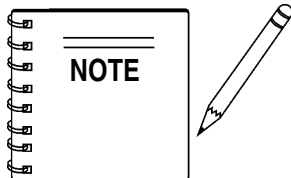
Items Found In the “Remarks” Column

Serial Numbers-Where indicated, this indicates a serial number range (inclusive) where a particular part is used.

Model Number-Where indicated, this shows that the corresponding part is utilized only with this specific model number or model number variant.

Items Found In the “Items Number” Column

All parts with same symbol in the number column, *, #, +, %, or ■, belong to the same assembly or kit.



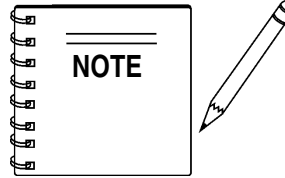
If more than one of the same reference number is listed, the last one listed indicates newest (or latest) part available.

GA-6RE/GA-6REA — SUGGESTED SPARE PARTS

GA-6RE/GA-6REA 1 TO 3 UNITS WITH ROBIN EH-360YS2420 ENGINE

1 to 3 Units

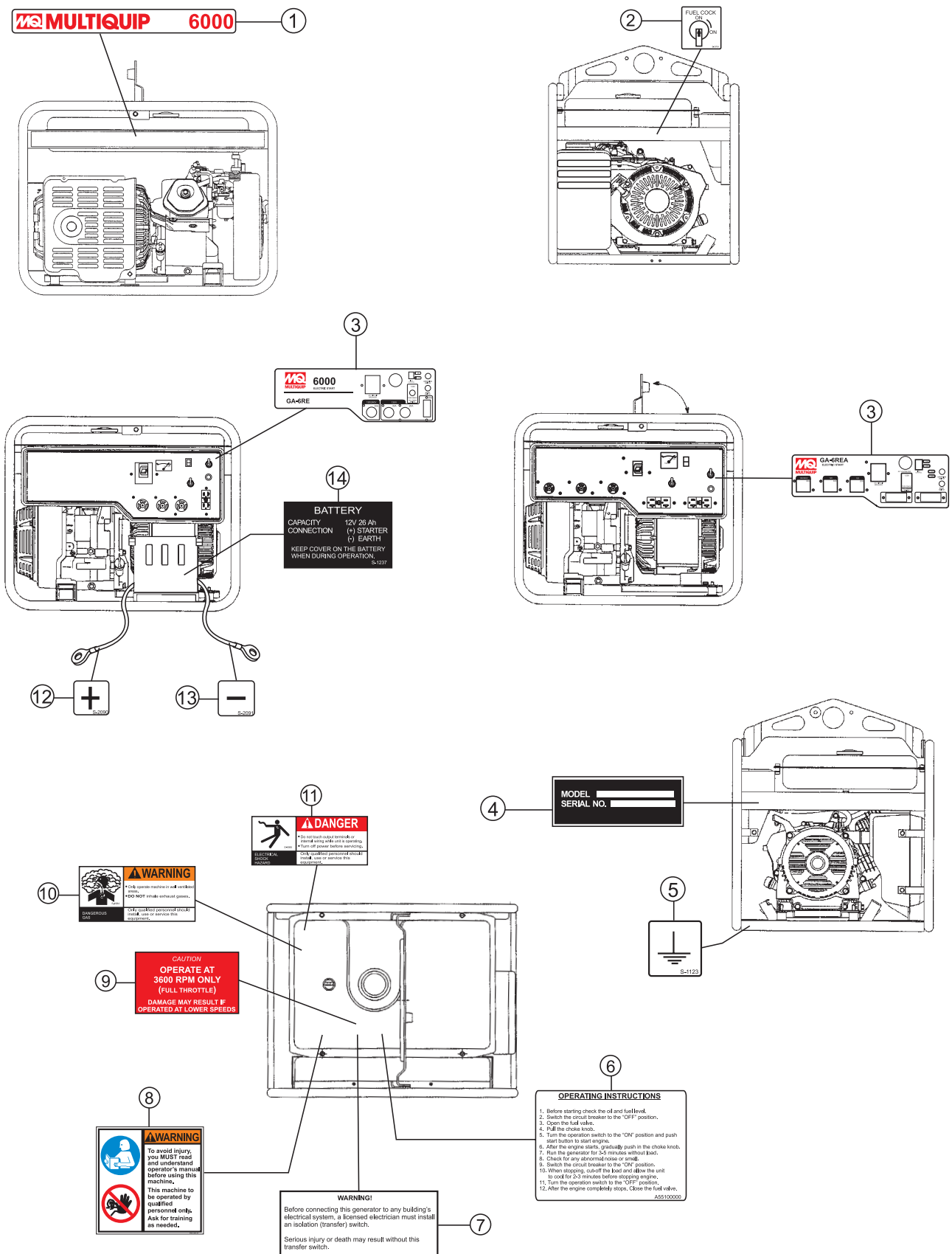
<u>Qty.</u>	<u>P/N</u>	<u>Description</u>
1	A9924800014	CAP FUEL TANK
1	A9924800004	FILTER FUEL
2	3015419604	RUBBER SUSPENSION
2	D9312600204	RUBBER SUSPENSION
3	0650140150	SPARK PLUG
2	2265011308	ROPE, RECOIL
3	2673266118	ELEMENT AIR CLEANER
3	0642000220	FILTER, FUEL STRAINER
3	0601802137	FUSE, 10 AMP



Part numbers on this Suggested Spare Parts List may supercede/replace the P/N shown in the text pages of this book.

GA-6RE/GA-6REA — NAMEPLATE AND DECALS.

NAME PLATE ASSY.



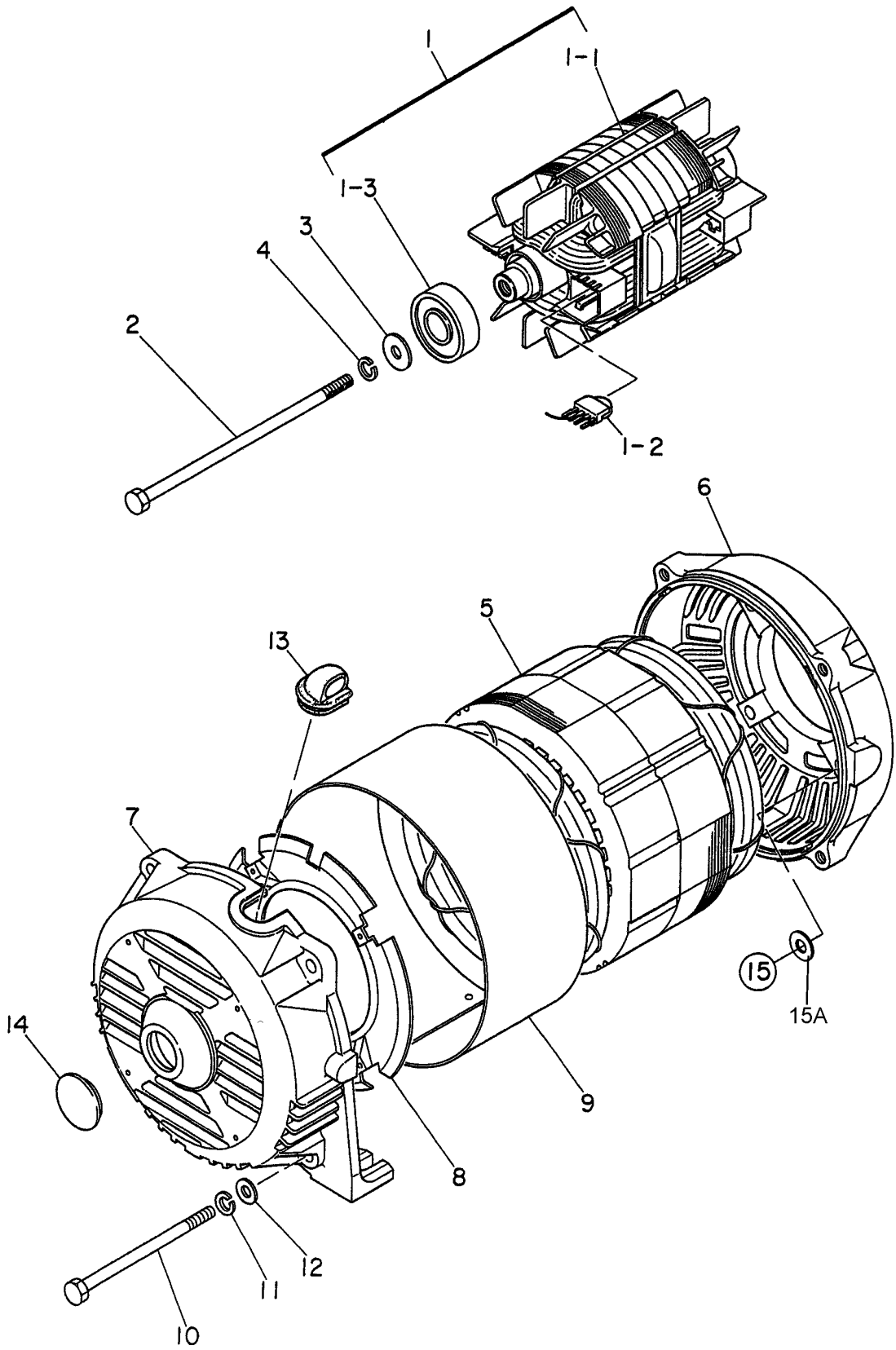
GA-6RE/GA-6REA — NAMEPLATE AND DECALS.

NAME PLATE ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	A5561000003	DECAL; MQ MULTIQUIP 6000	1	
2	1630680104	DECAL; FUEL COCK	1	S-1407
3	A5511200402	DECAL; CONTROL PANEL	1	GA-6RE, A51120040
3	A5511201402	DECAL; CONTROL PANEL	1	GA-6REA, A51120140
4		NAMEPLATE	1	CONTACT MQ PARTS DEPT.
5	0800628504	DECAL; GROUND	1	S-1123
6	A5551000004	DECAL; OPERATING INSTRUCTIONS	1	A55100000
7	0820610404	DECAL; WARNING	1	S-3627
8	35137	DECAL; WARNING	1	
9	7900636004	DECAL; CAUTION OPER. AT 3600 RPM ONLY	1	S-4461
10	8700611804	DECAL; WARNING DANGEROUS GAS	1	S-4984
11	8700611904	DECAL; DANGER ELECTRICAL SHOCK HAZ.	1	S-4985
12	0800689404	DECAL; POSITIVE (+)	1	S-2090
13	0800689504	DECAL; NEGATIVE (-)	1	S-2091
14	0800696604	DECAL; BATTERY	1	S-1237

GA-6RE/GA-6REA — GENERATOR ASSY.

GENERATOR ASSY.



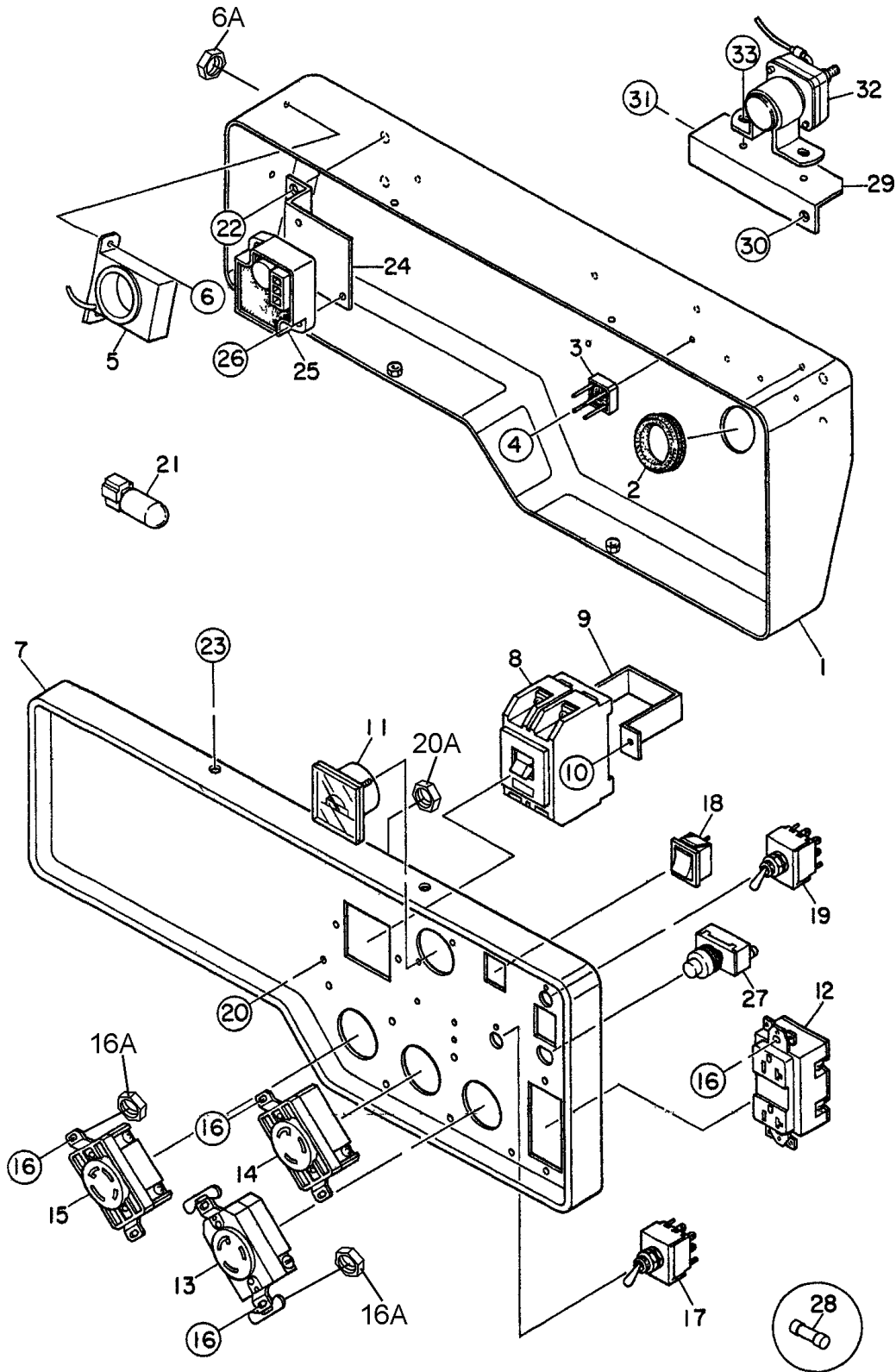
GA-6RE/GA-6REA — GENERATOR ASSY.

GENERATOR ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	7901002503	ROTOR ASSY.....	1	INCLUDES ITEMS W/*
1-1*		FIELD ASSY.....	1	NOT SOLD SEPERATELY
1-2*	0601823213	RECTIFIER, D3SB80	2	
	0601822638	SURGE ABSORBER,.....	2	TNR15G431K
1-3*	0071706304	BEARING, 6304 2RU NYCM	1	
2	7901017004	SET BOLT, ROTOR	1	
3	0801086104	SET WASHER, BEARING	1	
4	0040010000	SPRING WASHER	1	
5	A5135000003	ARMATURE ASSY.	1	
6	7901315502	END BRACKET	1	
7	7871315022	END BRACKET	1	
8	7875021523	GUIDE PANEL, AIR	1	
9	7871331003	COVER	1	
10	7901316004	SET BOLT, STATOR	4	
11	0040008000	SPRING WASHER	4	
12	0041208000	PLAIN WASHER	4	
13	7871329514	GROMMET	1	
14	0601851760	CAP, 0B-13	1	
15	0012808020	HEX, HEAD BOLT	4	
15A	0040008000	SPRING WASHER	4	

GA-6RE — CONTROL BOX ASSY.

CONTROL BOX ASSY. (GA-6RE)



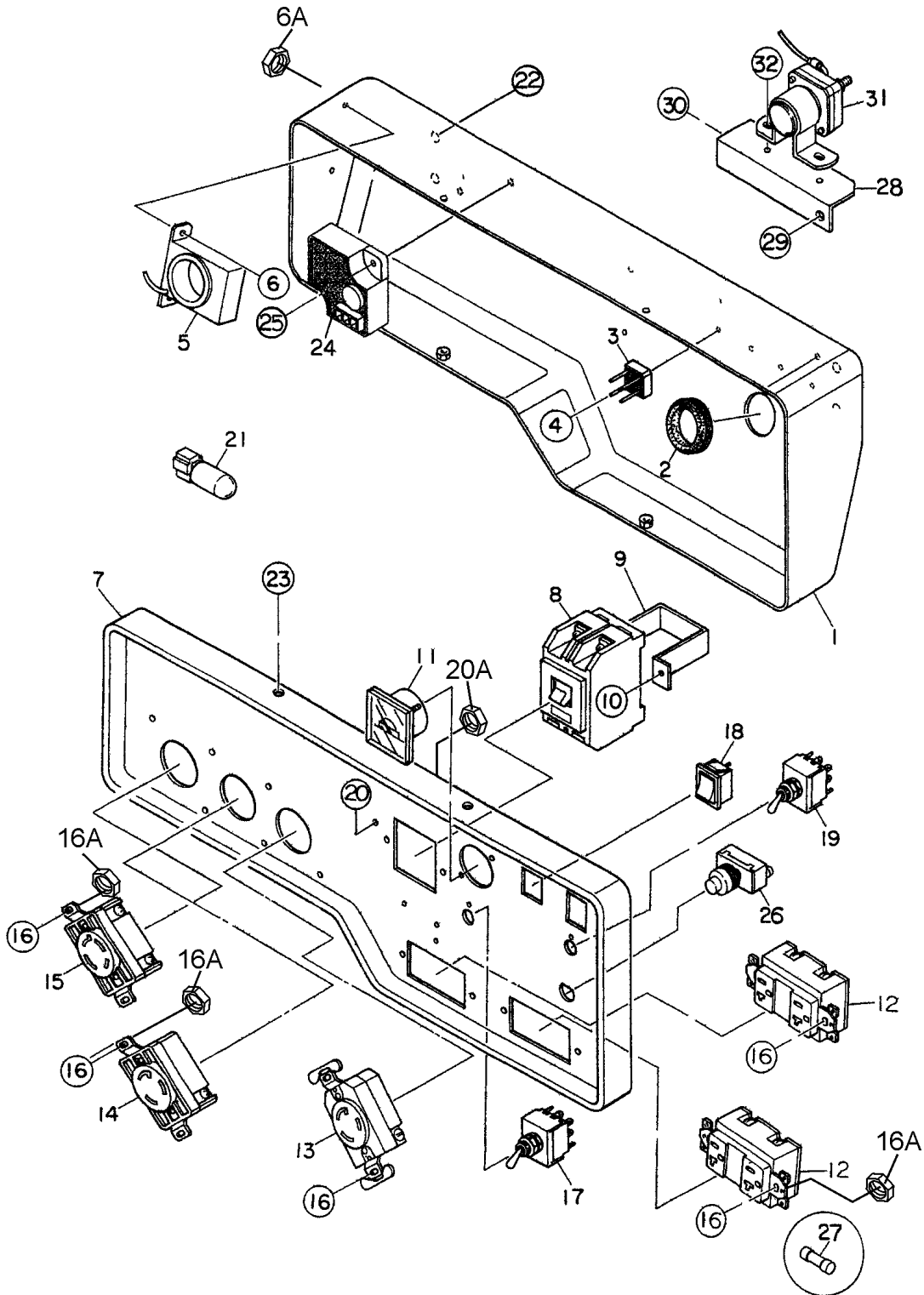
GA-6RE — CONTROL BOX ASSY.

CONTROL BOX ASSY. (GA-6RE)

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	A3214000003	CONTROL BOX	1	
2	0601850102	GROMMET, G-3	1	
3	0601823204	RECTIFIER, S5VB60	2	
4	0027103012	MACHINE SCREW	2	
5	0601823853	SLOW DOWN UNIT, ND-80	1	
6	0027104010	MACHINE SCREW	2	
6A	0207004000	HEX, NUT	2	
7	A3224000003	CONTROL PANEL	1	
8	0601804819	CIRCUIT BREAKER, KM-2 21A	1	
9	4341817004	BRACKET, CIRCUIT BREAKER	1	
10	0021004010	MACHINE SCREW	2	
11	0601806819	AC VOLTMETER, DE450-011 0~120/240V	1	
12	0601812598	RECEPTACLE, 5-20R	1	
13	0601812592	RECEPTACLE, L5-20R	1	
14	0601811035	RECEPTACLE, L5-30R	1	
15	0601812529	RECEPTACLE, L14-30R	1	
16	0021004010	MACHINE SCREW	8	
16A	0207004000	HEX, NUT	8	
17	0601830737	FULL POWER SWITCH, ET-330D12	1	
18	0601831620	IDLE CONTROL SWITCH, C1550WA	1	
19	0601830737	OPERATION SWITCH, ET-330D12	1	
20	0021004015	MACHINE SCREW	1	
20A	0207004000	HEX, NUT	1	
21	A3262800004	CAPACITOR ASSY., VR1H102MHA, 50V 1000 μ F	1	
22	0017106016	HEX, HEAD BOLT	4	
23	0017105010	HEX, HEAD BOLT	4	
24	A5352600004	BRACKET	1	
25	0602210870	FUEL CONTROL UNIT	1	
26	0027105020	MACHINE SCREW	2	
27	0602100102	START SWITCH	2	
28	0601802137	FUSE, 10 AMP	1	
29	A5352600104	BRACKET	1	
30	0017106016	HEX HEAD BOLT	1	
31	0017108020	HEX HEAD BOLT	1	
32	0602201460	RELAY	1	
33	0017105016	HEX.HEAD BOLT	2	

GA-6REA — CONTROL BOX ASSY.

CONTROL BOX ASSY. (GA-6REA)



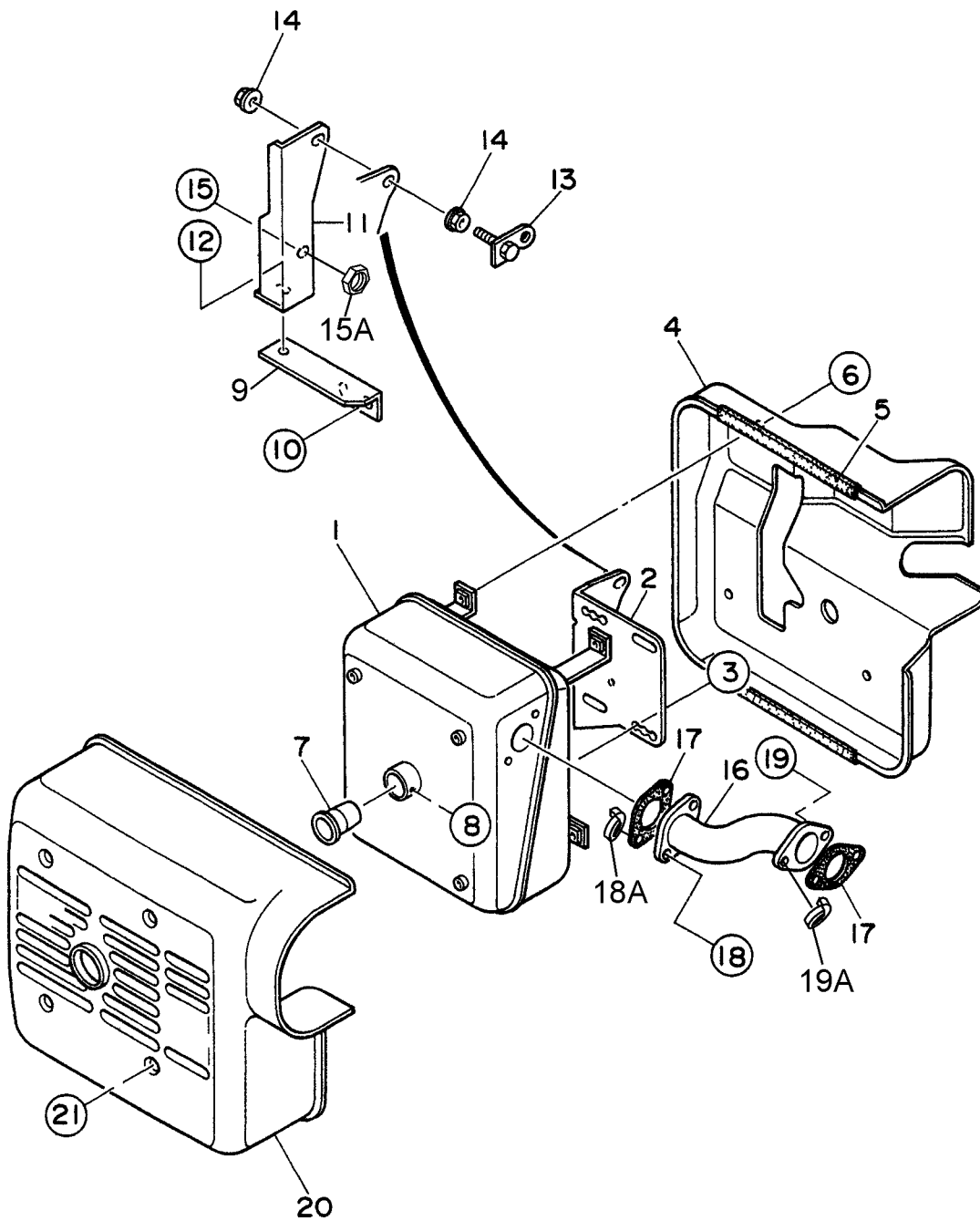
GA-6REA — CONTROL BOX ASSY.

CONTROL BOX ASSY. (GA-6REA)

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	A3214000103	CONTROL BOX	1	
2	0601850102	GROMMET, G-3	1	
3	0601823204	RECTIFIER, S5VB60	2	
4	0027103012	MACHINE SCREW	2	
5	0601823853	SLOW DOWN UNIT, ND-80	1	
6	0027104010	MACHINE SCREW	2	
6A	0207004000	HEX, NUT	2	
7	A3224000103	CONTROL PANEL	1	
8	0601804819	CIRCUIT BREAKER, KM-2 21A	1	
9	4341817004	BRACKET, CIRCUIT BREAKER	1	
10	0021004010	MACHINE SCREW	2	
11	0601806819	AC VOLTMETER, DE450-011 0~120/240V	1	
12	0601812598	RECEPTACLE, 5-20R	2	
13	0601812592	RECEPTACLE, L5-20R	1	
14	0601811035	RECEPTACLE, L5-30R	1	
15	0601812529	RECEPTACLE, L14-30R	1	
16	0021004010	MACHINE SCREW	8	
16A	0207004000	HEX, NUT	8	
17	0601830737	FULL POWER SWITCH, ET-330D12	1	
18	0601831620	IDLE CONTROL SWITCH, C1550WA	1	
19	0601830737	OPERATION SWITCH, ET-330D12	1	
20	0021004015	MACHINE SCREW	1	
20A	0207004000	HEX, NUT	1	
21	A3262800004	CAPACITOR ASSY., VR1H102MHA, 50V 1000 μ F	1	
22	0017106016	HEX, HEAD BOLT	4	
23	0017105010	HEX, HEAD BOLT	4	
24	0602210870	FUEL CONTROL UNIT	1	
25	0027105020	MACHINE SCREW	2	
26	0602100102	START SWITCH	2	
27	0601802137	FUSE, 10 AMP	1	
28	A5352600104	BRACKET	1	
29	0017106016	HEX HEAD BOLT	1	
30	0017108020	HEX HEAD BOLT	1	
31	0602201460	RELAY	1	
32	0017105016	HEX.HEAD BOLT	2	

GA-6RE/GA-6REA — MUFFLER ASSY.

MUFFLER ASSY.



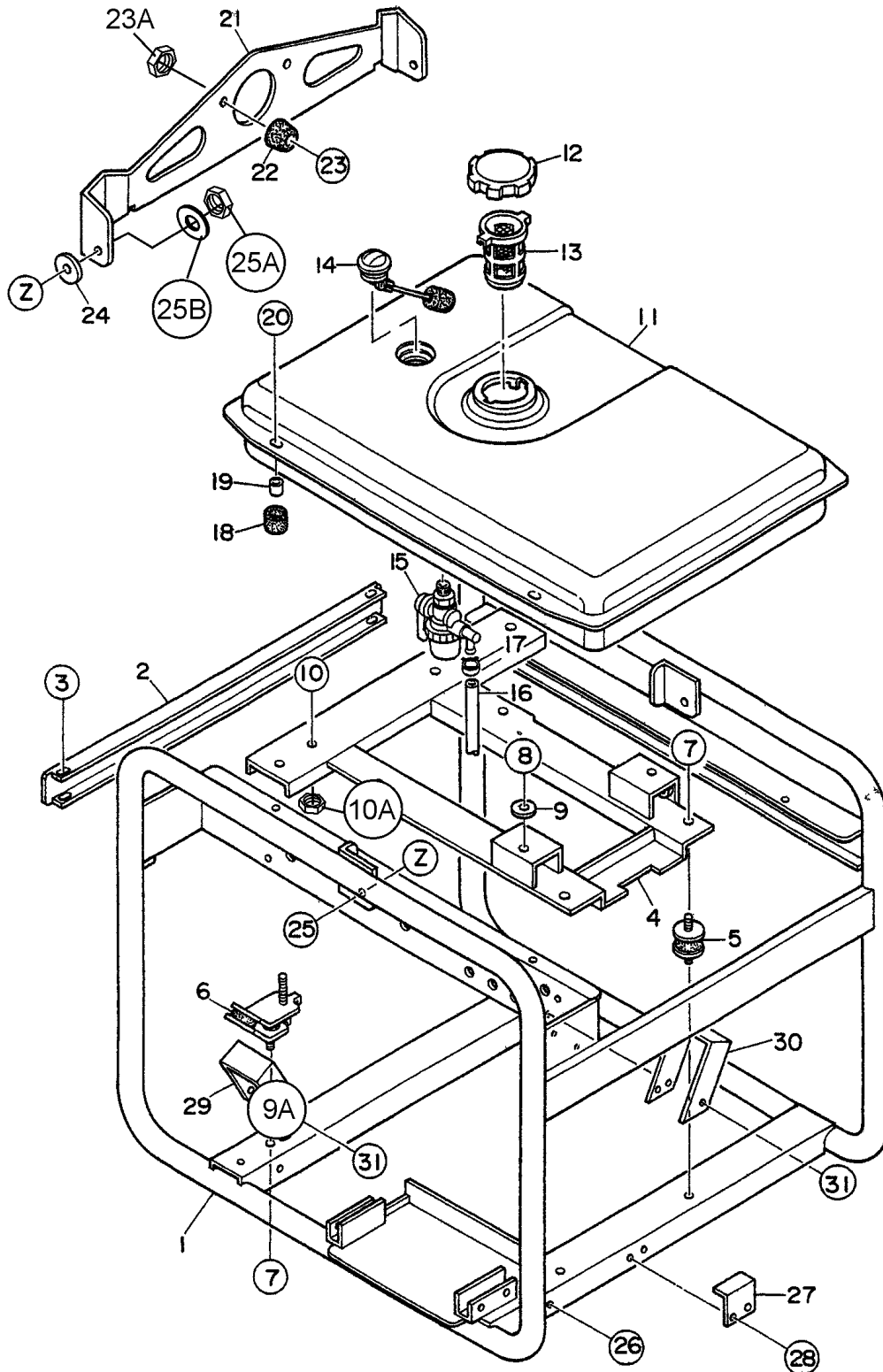
GA-6RE/GA-6REA — MUFFLER ASSY.

MUFFLER ASSY.

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	0602300360	MUFFLER	1	
2	0602302021	BRACKET	1	
3	0602323061	HEX NUT	4	
4	0602302023	COVER	1	
5	0602302022	SEAL RUBBER	2	
6	0602322071	HEX HEAD BOLT	4	
7	0602300411	ARRESTER, SPARK	1	
8	0602322070	TAPPING SCREW	1	
9	A5331400104	BRACKET	1	
10	0017108020	HEX HEAD BOLT	2	
11	A5331400004	BRACKET	1	
12	0017108020	HEX HEAD BOLT	1	
13	A5331400304	BRACKET	1	
14	0207008000	HEX NUT	2	
15	0017108025	HEX HEAD BOLT	1	
15A	0207008000	HEX NUT	1	
16	0602312050	EXHAUST PIPE	1	
17	0602320172	GASKET	2	
18	0602322072	HEX HEAD BOLT	2	
18A	0602323161	WASHER, LOCK	2	
19	0602323062	HEX NUT	2	
19A	0602323160	WASHER, LOCK	2	
20	0602302020	COVER	1	
21	0602322071	HEX HEAD BOLT	4	

GA-6RE/GA-6REA — PIPE FRAME ASSY.

PIPE FRAME ASSY.



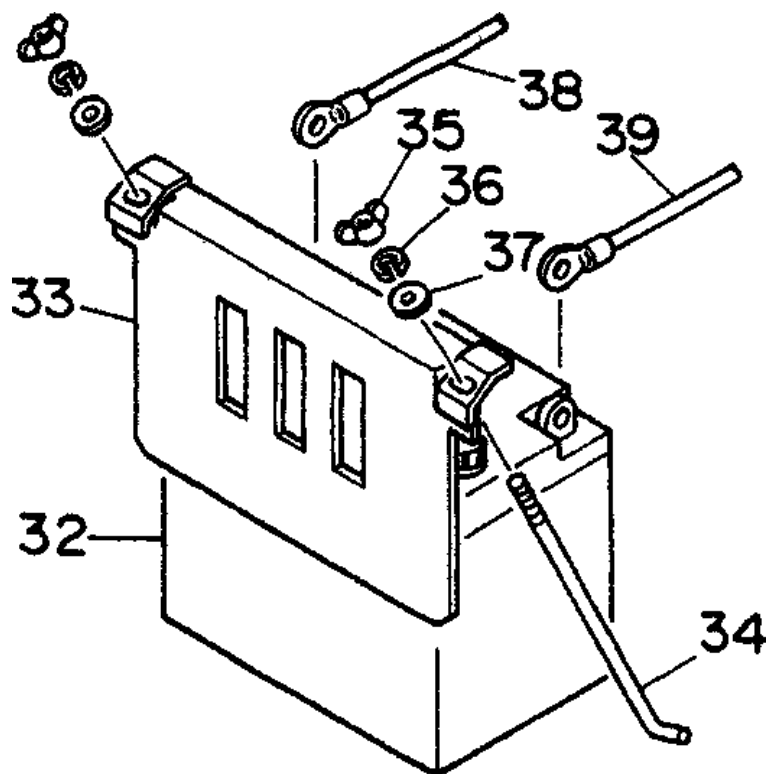
GA-6RE/GA-6REA — PIPE FRAME ASSY.

PIPE FRAME ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	A5417000202	PIPE FRAME	1	GA-6RE
1	A5417000602	PIPE FRAME	1	GA-6REA
2	A3417100006	BRACKET	1	
3	0017106016	HEX, HEAD BOLT	4	
4	A5417700203	BASE	1	
5	3015419604	RUBBER SUSPENSION	2	
6	D9312600204	RUBBER SUSPENSION	2	
7	0207008000	HEX, NUT	8	
8	0017108030	HEX, HEAD BOLT	2	
9	0801086004	SET WASHER	2	
10	0017108040	HEX, HEAD BOLT	2	
10A	0207008000	HEX, NUT	2	
11	A4364000002	FUEL TANK	1	
12	A9924800014	CAP, FUEL TANK	1	
13	A9924800004	FUEL FILTER	1	
14	0602125034	FUEL GAUGE	1	
15	06424008900	FUEL STRAINER	1	REPLACES P/N 065510024
16	0605513028	HOSE	1	
17	0605515062	HOSE BAND	1	
18	7855525514	RUBBER CUSHION	4	
19	7855525604	COLLAR	4	
20	0017108030	BOLT HEX HEAD	4	
21	A9117200103	HANGER	1	
22	0601850097	STOPPER, 30029	1	
23	0021008025	MACHINE SCREW	1	
23A	0038408000	HEX, NUT	1	
24	0601851116	PLASTIC WASHER	2	
25	0011308025	HEX, HEAD BOLT	2	
25A	0037908000	HEX, NUT	2	
25B	0042108000	PLAIN WASHER	2	
26	0017106016	HEX, HEAD BOLT	1	
27	7915456004	STOPPER	1	
28	0017106016	HEX, HEAD BOLT	2	
29	7915455103	COVER	1	
30	A5417400003	COVER	1	
31	0017106016	HEX, HEAD BOLT	6	

GA-6RE/GA-6REA — BATTERY ASSY.

BATTERY ASSY.

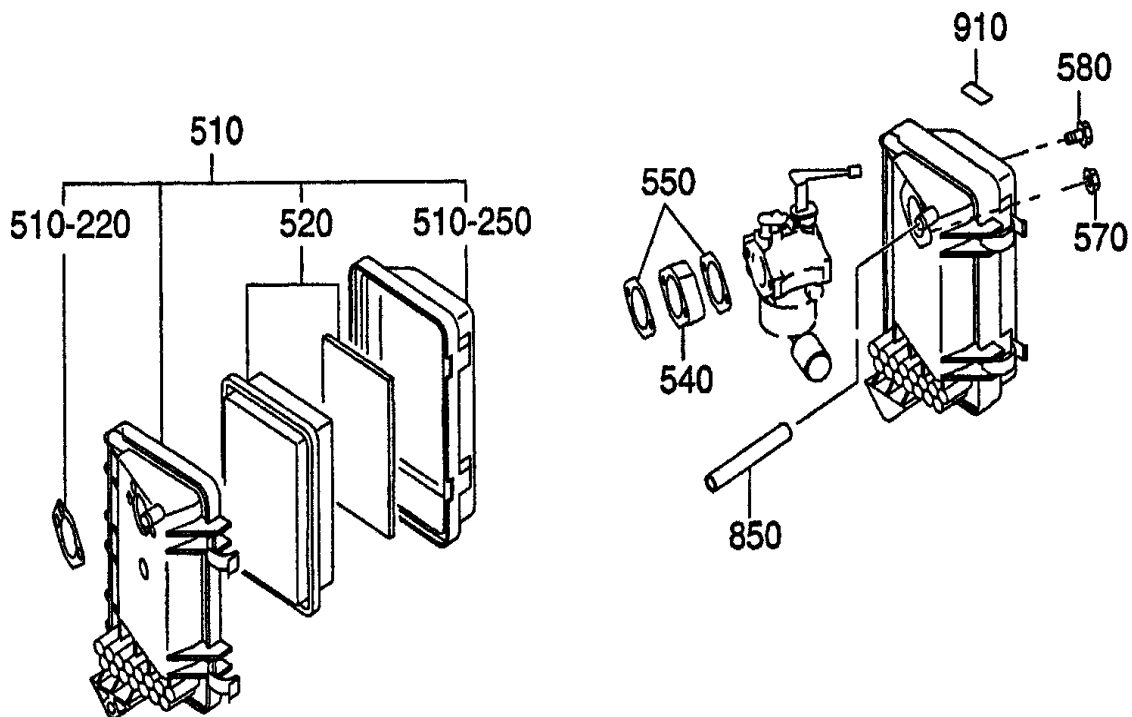


GA-6RE/GA-6REA — BATTERY ASSY.

BATTERY ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
32		BATTERY	1	PURCHASE LOCALLY
33	7905458103	BATTERY BAND	1	
34	A5344200004	BATTER BOLT	2	
35	0037806000	WING NUT	2	
36	0040006000	SPRING NUT	2	
37	0041206000	WASHER, FLAT	2	
38	A5347000104	BATTERY CABLE	1	
39	A5347000004	BATTERY CABLE	1	

ROBIN EH-360YS2420 ENGINE — AIR CLEANER ASSY.



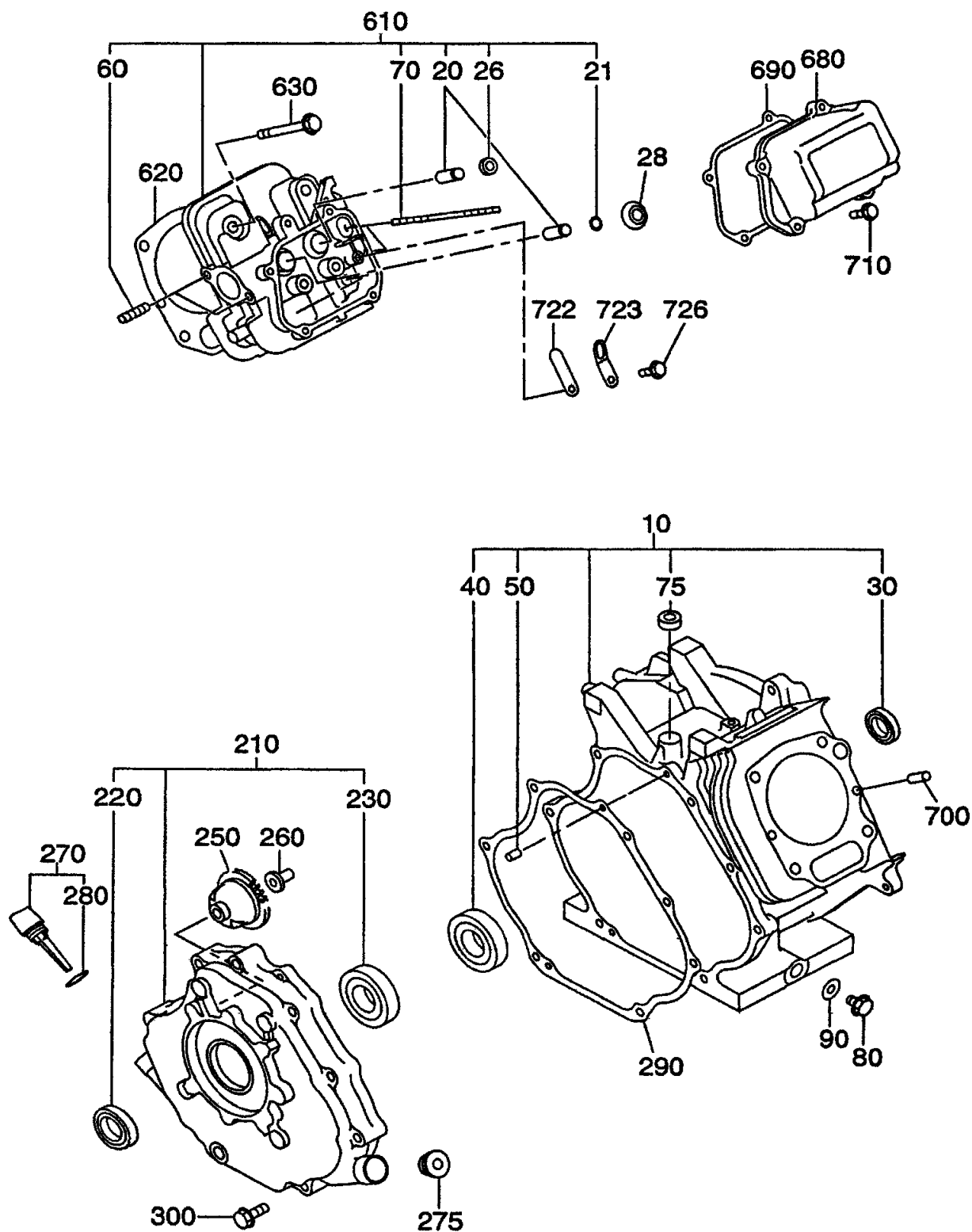
ROBIN EH-360YS2420 ENGINE — AIR CLEANER ASSY.

AIR CLEANER ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
510	2673260820	AIR CLEANER ASSY.	1	INCLUDES ITEMS W/*
510-220*	2673272108	GASKET	1	
510-250*	2673264008	CLEANER COVER CP	1	
510-520*	2673266118	AIR CLEANER ASSY.	1	
540	2673290103	INSULATOR	1	T=15 26.5D 6.5DX46P
550	26735901A3	GASKET (INSULATOR)	2	T=0.4 26.5D 6.5DX46P
570	0023806000	FLANGE NUT	2	
580	0010406160	FLANGE BOLT	2	
850	2671700103	RUBBER PIPE	1	
910	0732004430	LABEL (CHOKE)	1	

ROBIN EH-360YS2420 ENGINE — CRANKCASE ASSY.

CRANKCASE ASSY.



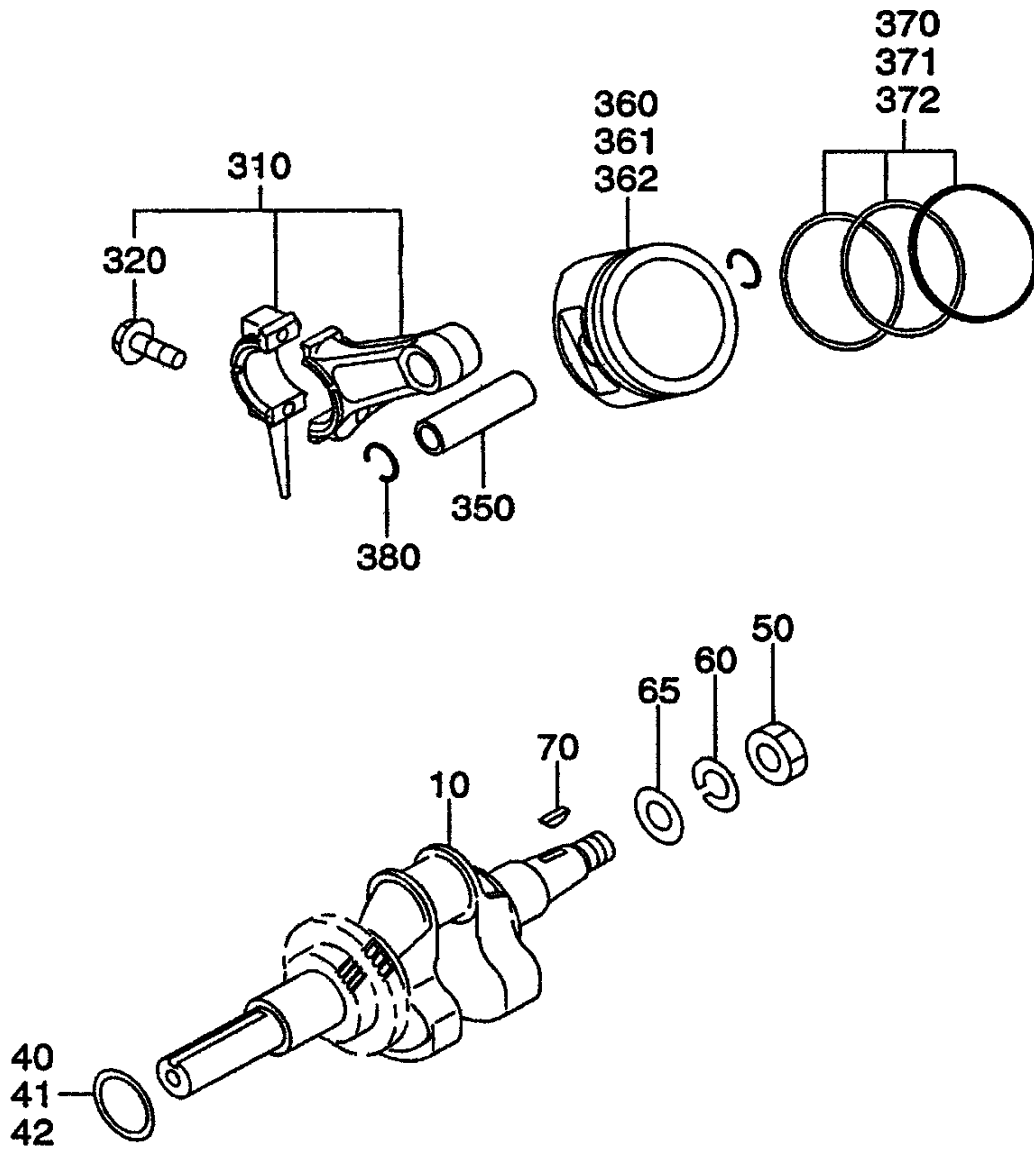
ROBIN EH-360YS2420 ENGINE — CRANKCASE ASSY.

CRANKCASE ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
10	2671010411	CRANKCASE CP	1	INCLUDES ITEMS W/%
	2671010511	EH360YS2420	1	
20*	2631421103	VALVE GUIDE	2	
21*	0565100050	CLIP	1	
26*	13207AA050	SEAL-INT VALVE	1	
28	2633534103	RETAINER PLATE	1	
30%	0440350090	OIL SEAL	1	
40%	0600350010	BALL BEARING	1	
50%	0310060020	DOWEL PIN	2	
60	0105080290	STUD, M8X1.25X30L	2	
70*	0105060251	STUD, M6X1.0X98L	2	
75	0440080010	OIL SEAL	1	
80	0401140030	PLUG, M14X1.5X20DX12L	2	
90	0211140020	GASKET	2	
210	2671100301	MAIN BEARING COVER C	1	INCLUDES ITEMS W/#
220#	0440350090	OIL SEAL	1	
230#	0600350010	BALL BEARING	1	
250	2674500101	GOVERNOR GEAR CP	1	
260	2054190103	GOVERNOR SLEEVE	1	
270	2246360101	OIL GAUGE CP	1	INCLUDES ITEMS W/ +
275	0420220010	PLUG (RUBBER)	1	
280 +	0213200050	GASKET	1	
290	2671510113	GASKET (BEARING COVER)	1	
300	2671999903	FLANGE BOLT, M8X1.25X17DX40L	7	
610	2671300331	CYLINDER HEAD CP	1	INCLUDES ITEMS W/*
620	2671500113	GASKET (HEAD)	1	
630	0110100030	FLANGE BOLT, M10X1.25X19DX65L	4	
680	2671550111	ROCKER COVER CP	1	
690	2671520113	GASKET (ROCKER COVER)	1	
700	0310060020	DOWEL PIN	2	
710	0110060130	FLANGE BOLT, M6X1.0X14DX25L	4	
722	26716001A3	LEAF VALVE	1	
723	26716101A3	RETAINER PLATE	1	
726	0110060010	FLANGE BOLT, M6X1.0X14DX8L	1	

ROBIN EH-360YS2420 ENGINE — CRANKSHAFT AND PISTON ASSY.

CRANKSHAFT AND PISTON ASSY.



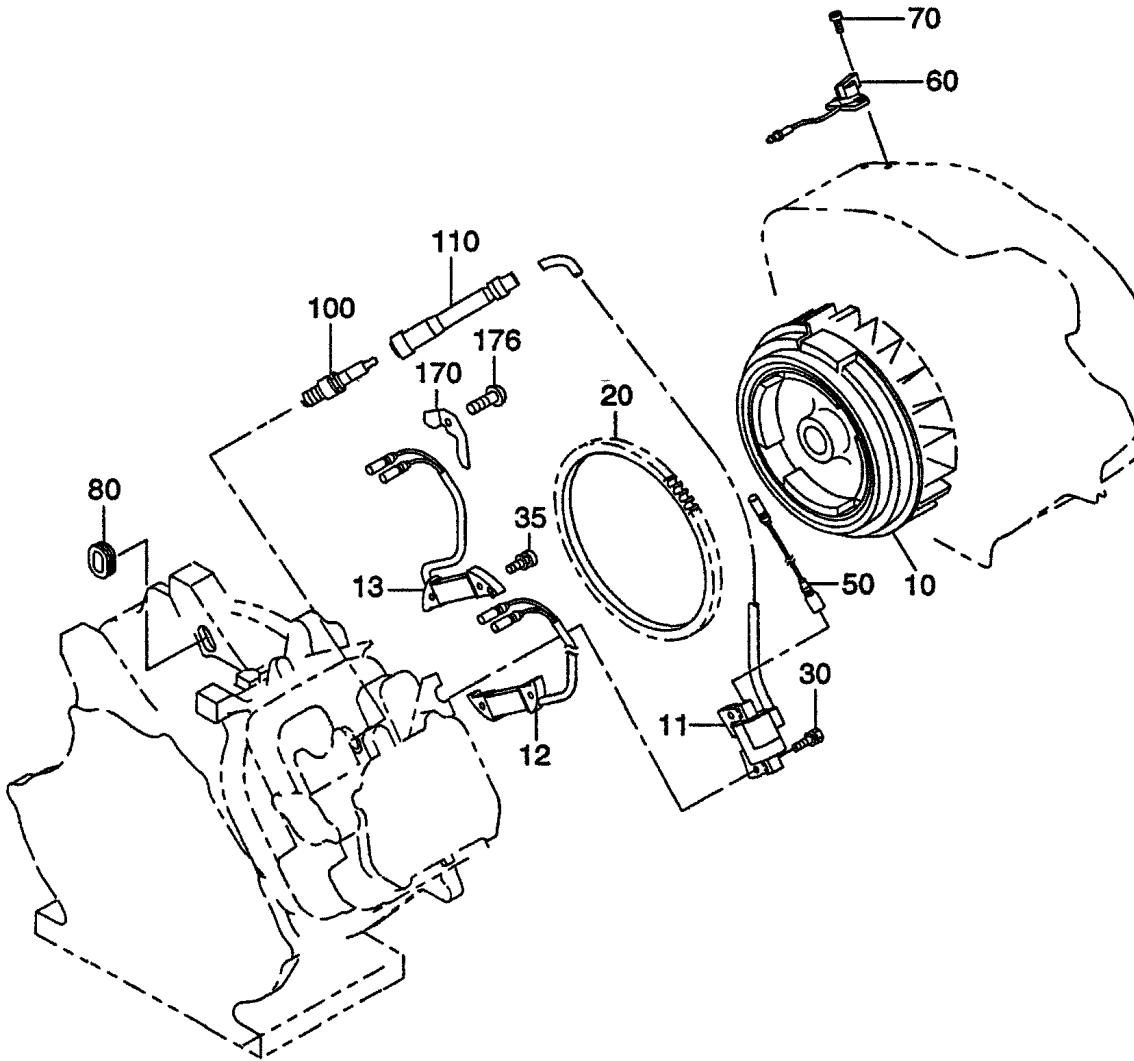
ROBIN EH-360YS2420 ENGINE — CRANKSHAFT AND PISTON ASSY.

CRANKSHAFT AND PISTON ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
10	2672070201	CRANKSHAFT CP	1	
40	0230350160	SPACER, 35.3DX45DX0.6T	1	
41	0230350170	SPACER, 35.3DX45DX0.8T	1	
42	0230350180	SPACER, 35.3DX45DX1.0T	1	
50	0021818000	NUT	1	
60	0032018000	SPRING WASHER	1	
65	0031018000	WASHER	1	
70	0053205401	WOODRUFF KEY	1	
310	2672250110	CONNECTING ROD ASSY.....	1	INCLUDES ITEMS W/*
320*	0010508400	FLANGE BOLT	2	
350	2632330103	PISTON PIN	1	
360	2672340103	PISTON, STD.	1	
361	2672340203	PISTON, 0.25 O.S.	1	
362	2672340303	PISTON, 0.50 O.S.	1	
370	2672350107	PISTON RING SET, STD.	1	
371	2672350207	PISTON RING SET, 0.25 O.S.	1	
372	2672350307	PISTON RING SET, 0.50 O.S.	1	
380	0565210020	CLIP	2	

ROBIN EH-360YS2420 ENGINE — FLYWHEEL ASSY.

FLYWHEEL ASSY.



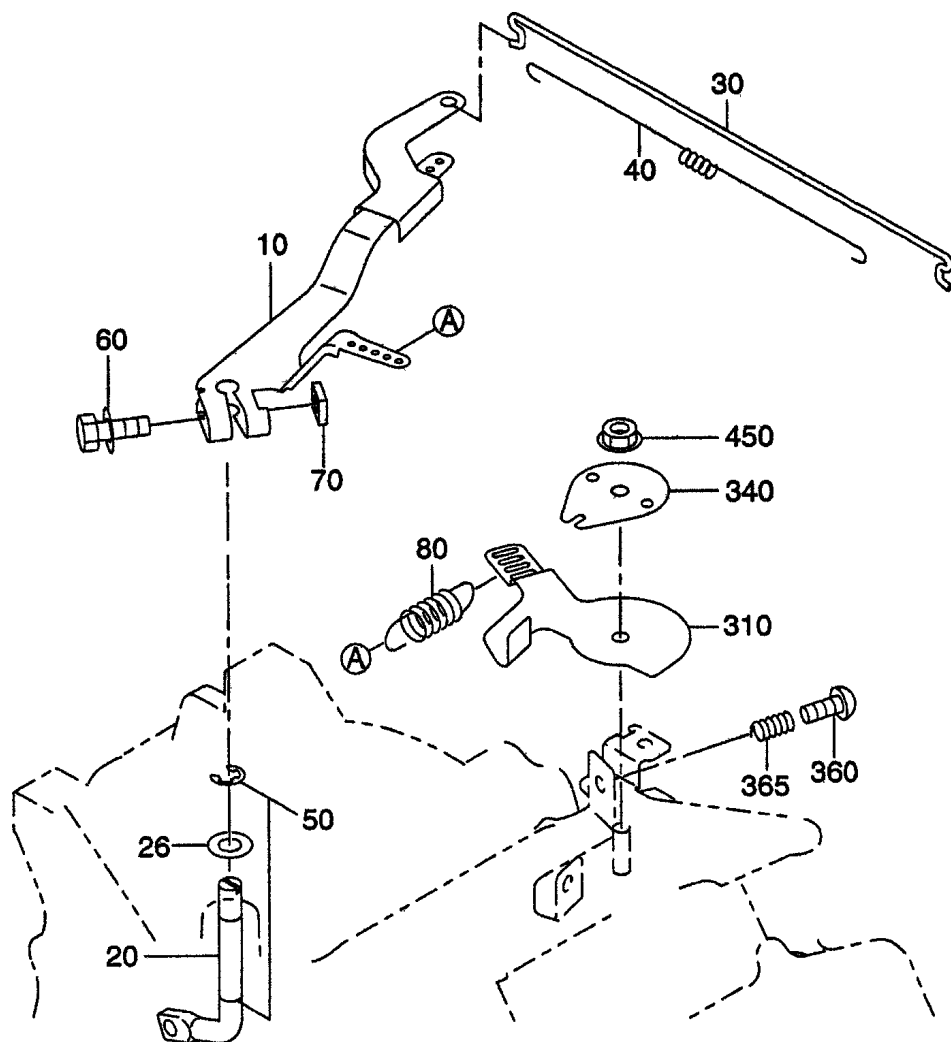
ROBIN EH-360YS2420 ENGINE — FLYWHEEL ASSY.

FLYWHEEL ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
10	2677920211	FLYWHEEL CP	1	
11	2677940121	IGNITION COIL CP	1	
12	2677960501	EXCITER COIL CP	1	
13	2677960301	EXCITER COIL CP	1	
20	2677100203	RING GEAR, D 180DX217DX7B N=85	1	
30	0011406250	BOLT & WASHER AY	2	
35	0043506200	SCREW & WASHER AY	4	
50	2677310101	WIRE 1 CP, L=330 BLACK	1	
60	0660000361	SWITCH AY	1	
70	0150040090	TAPPING SCREW, M4X12L	2	
80	2267550103	GROMMET, 8DX12DX7.5H	1	
100	0650140480	SPARK PLUG, NGK BPR6ES	1	
110	0655000131	SPARK PLUG CAP	1	
170	2467550201	CLAMP	1	
176	0043106080	SCREW, PAN HEAD	1	

ROBIN EH-360YS2420 ENGINE — GOVERNOR ASSY.

GOVERNOR ASSY.



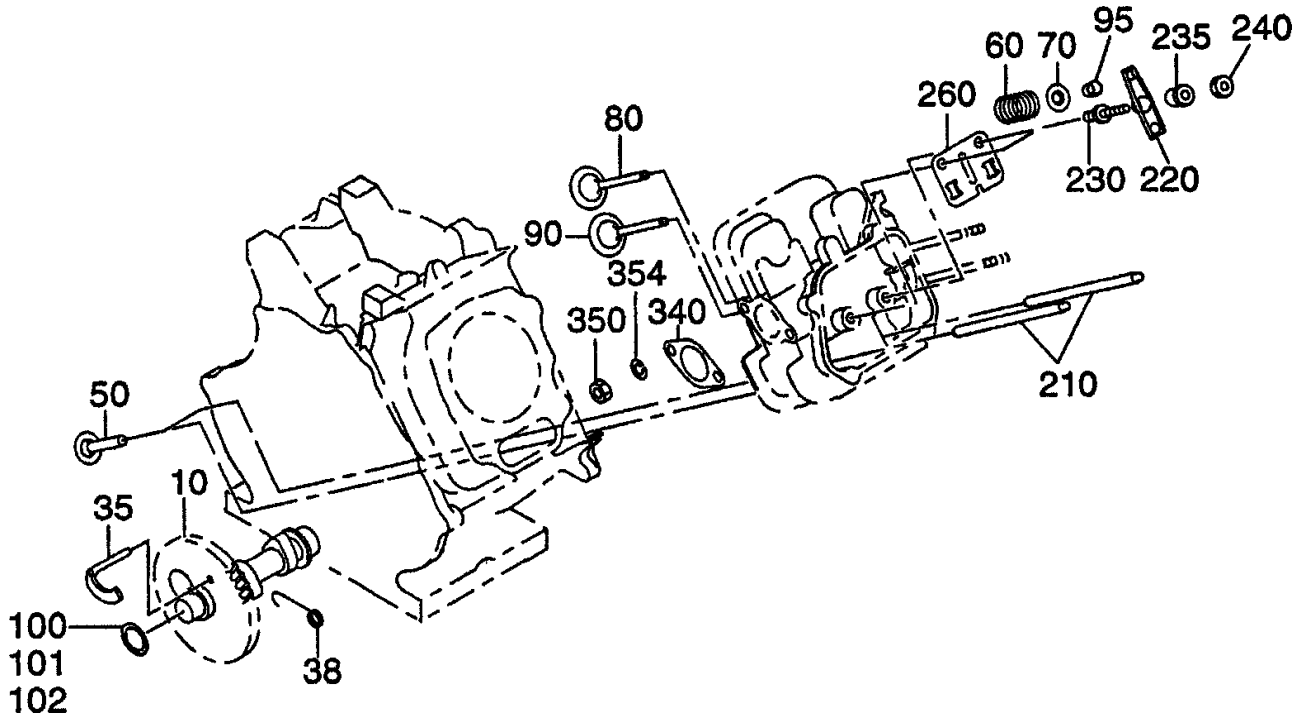
ROBIN EH-360YS2420 ENGINE — GOVERNOR ASSY.

GOVERNOR OPERATION ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
10	2674230311	GOVERNOR LEVER CP	1	
20	2674220103	GOVERNOR SHAFT	1	
26	0031108000	WASHER	1	
30	2674270101	GOVERNOR ROD CP	1	
40	2674280113	ROD SPRING, 5.7DX0.4DX148L N=30	1	
50	0031306000	CLIP	2	
60	0011406300	BOLT AND WASHER AY	1	
70	0186060020	NUT, M6X1.0X4.9H SQUARE	1	
80	2674250201	GOVERNOR SPRING CP, 12.5DX1.4DX40L N=13	1	
310	2674331003	SPEED CONTROL LEVER	1	
340	2274350113	STOP PLATE	1	
360	0043104250	SCREW	2	
365	2304900313	SPRING (ADJUSTER), 60X0.6DX17L N=7	1	
450	0176060020	SELF LOCK NUT, M6X1.0X13DX6.9H	1	

ROBIN EH-360YS2420 ENGINE — INTAKE AND EXHAUST ASSY.

INTAKE AND EXHAUST ASSY.



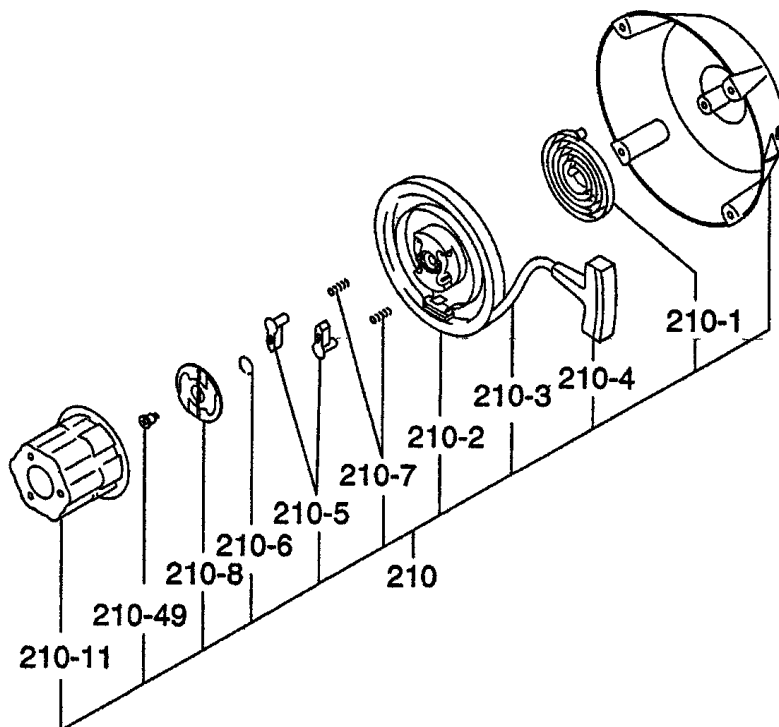
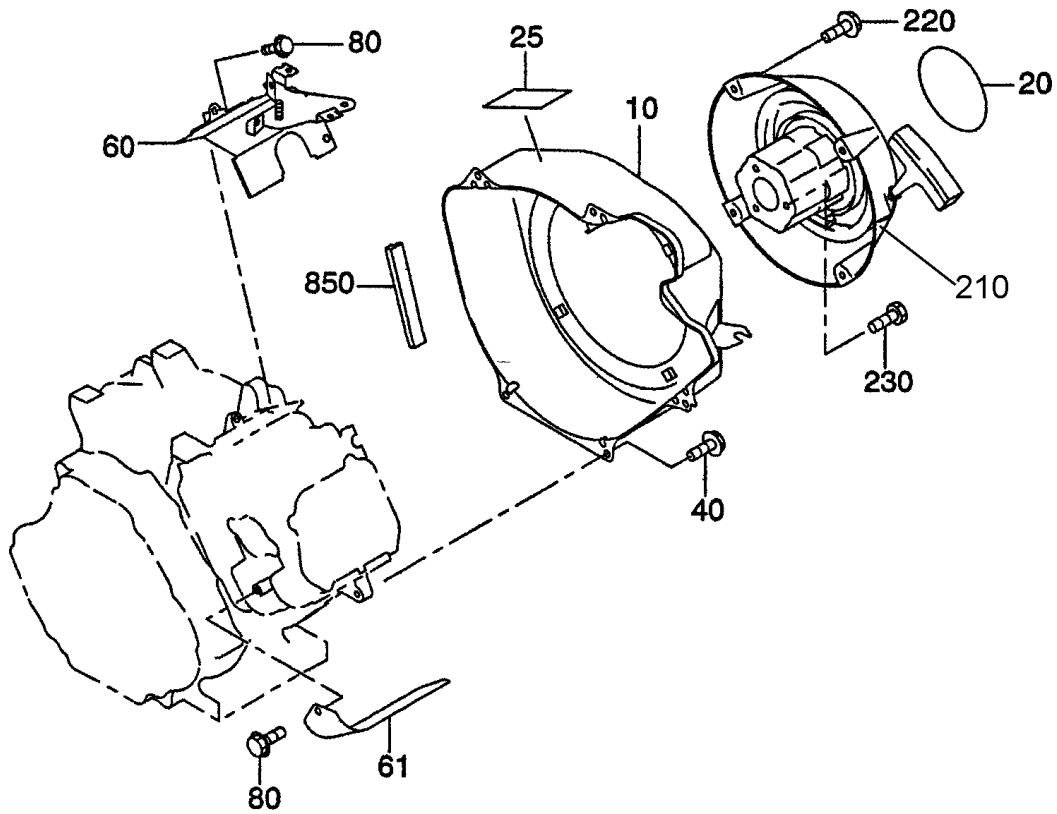
ROBIN EH-360YS2420 ENGINE — INTAKE AND EXHAUST ASSY.

INTAKE AND EXHAUST ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
10	2673170101	CAMSHAFT CP	1	
35	2463620111	RELEASE LEVER CP	1	
38	2463670103	RETURN SPRING	1	
50	2393330113	TAPPET	2	
60	2463361103	VALVE SPRING	2	
70	2463371113	SPRING RETAINER	2	
80	2633340103	INTAKE VALVE	1	
90	2633350213	EXHAUST VALVE	1	
95	2463550103	COLLET-VALVE	4	
100	0230220050	SPACER, 22.2DX32.5DX0.6T	1	
101	0230220060	SPACER, 22.2DX32.5DX0.7T	1	
102	0230220070	SPACER, 22.2DX32.5DX0.8T	1	
210	26735301C1	PUSH ROD CP	2	
220	2673610113	ROCKER ARM	2	
230	2613580113	BOLT (PIVOT)	2	
235	2673570103	PIVOT	2	
240	0170060110	NUT, M6X0.75X3.6H	2	
260	26736501A3	GUIDE PLATE	1	
310	31H1100101	MUFFLER CP	1	
315	2673760101	SPARK ARRESTER CP	1	
317	0150040060	TAPPING SCREW, M4X6L	1	
320	31H1200101	MUFF COVER (FRONT) CP	1	
321	2673421101	MUFF COVER (REAR) CP	1	
330	31H1500203	MUFFLER BRACKET	1	
340	2703520101	GASKET CP (MUFFLER)	1	
350	0170080030	NUT, M8X1.25X6.5H	2	
354	0032008000	SPRING WASHER		

ROBIN EH-360YS2420 ENGINE — COOLING STARTING ASSY.

COOLING STARTING ASSY.



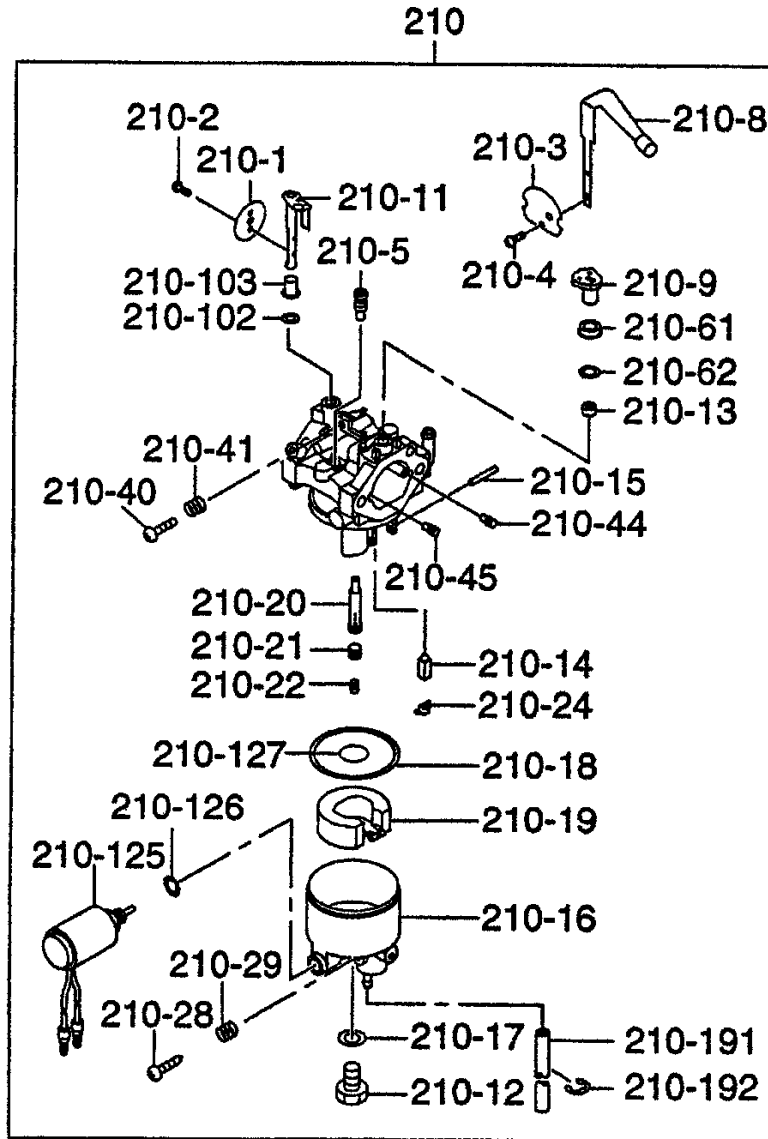
ROBIN EH-360YS2420 ENGINE — COOLING STARTING ASSY.

COOLING STARTING ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
10	2675126301	BLOWER HOUSING CP (D BLACK)	1	
20	2669170303	LABEL (TRADE MARK)	1	
25	0732003900	LABEL (WARNING)	1	
40	0110060020	FLANGE BOLT, M6X1.0X14DX12L	5	
60	2675260112	CYLINDER BAFFLE 1 UN	1	
61	2675270103	CYLINDER BAFFLE 2	1	
80	0110060010	FLANGE BOLT, M6X1.0X14DX8L	4	
210	2675020110	RECOIL STARTER AY	1	INCLUDES ITEMS W/*
210-1*	2615011508	SPIRAL SPRING	1	
210-2*	2465012008	REEL	1	
210-3*	2265011308	STARTER ROPE	1	
210-4*	2615010008	STARTER KNOB	1	
210-5*	2465012508	RATCHET	2	
210-6*	2465013008	FRICTION SPRING	1	
210-7*	2275013508	RETURN SPRING	2	
210-8*	2465016008	RATCHET GUIDE	1	
210-11*	2245015008	STARTER PULLEY	1	
210-49*	2275015208	SET SCREW	1	
220	0110060010	FLANGE BOLT, M6X1.0X14X8L	4	
230	0016508120	BOLT	3	
850	2675965203	SEAL RUBBER	1	

ROBIN EH-360YS2420 ENGINE — CARBURETOR ASSY.

CARBURETOR ASSY.



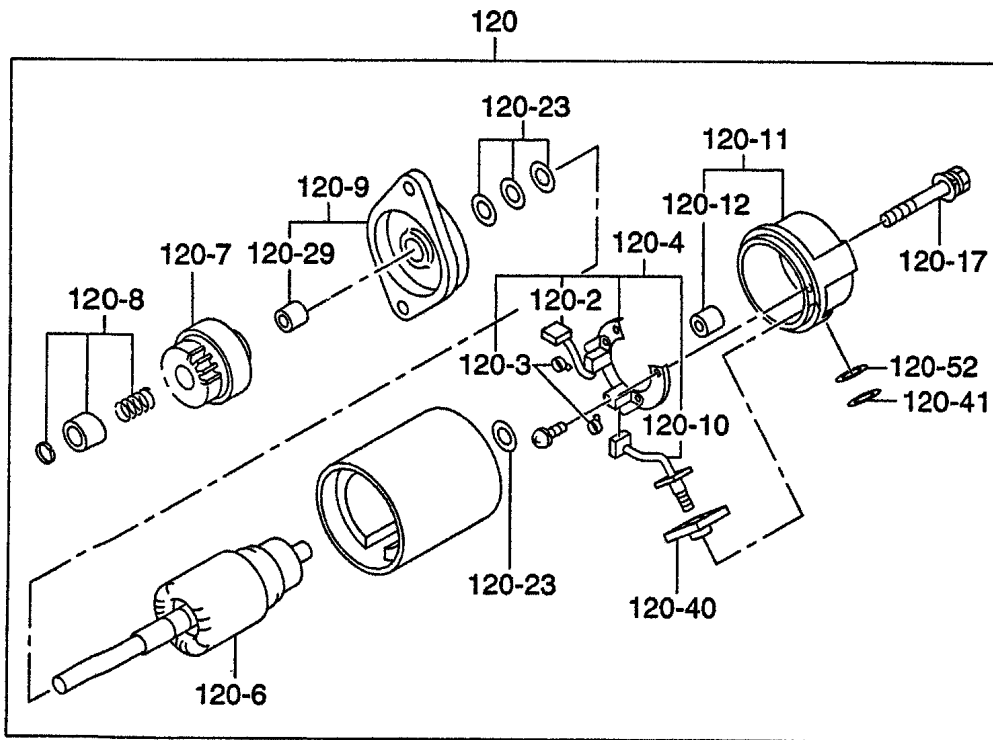
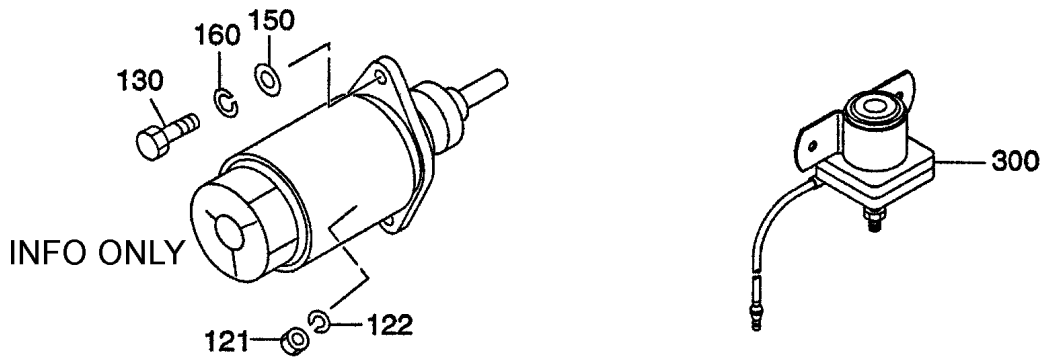
ROBIN EH-360YS2420 ENGINE — CARBURETOR ASSY.

CARBURETOR ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
210	2666231100	CARBURETOR ASSY.	1	INCLUDES ITEMS W/*
210-1*	2666253608	THROTTLE VALVE	1	
210-2*	2096235108	SCREW	2	
210-3*	2676252608	CHOKE VALVE	1	
210-4*	2376245108	SCREW	2	
210-5*	2536242008	PILOT JET	1	
210-8*	2676252108	CHOKE LEVER AY	1	
210-9*	2396256008	RING	1	
210-11*	2666253108	THROTTLESHAFT-A	1	
210-12*	2546242508	JET HOLDER	1	
210-13*	2266255008	RING	1	
210-14*	2246231218	NEEDLE VALVE-A	1	
210-15*	2146251508	PIN	1	
210-16*	2676255108	FLOAT BODY-A	1	
210-17*	2486245108	WASHER	1	
210-18*	2066254008	CHAMBER PACKING	1	
210-19*	2346250608	FLOT AY	1	
210-20*	2676244008	MAIN NOZZLE	1	
210-21*	2466242508	GUIDE HOLDER	1	
210-22*	2546240108	MAIN JET	1	
210-24*	2246256918	CLIP	1	
210-28*	2146245408	SCREW	1	
210-29*	2056244708	SPRING	1	
210-40*	2246245208	SCREW	1	
210-41*	2066244608	SPRING	1	
210-44*	2666241008	AIR JET	1	
210-45*	2466241008	AIR JET	1	
210-61*	2476255008	CAP (CHOKE)	1	
210-62*	2366268008	SEAL	1	
210-102*	1066239208	SEAL	1	
210-103*	2676245008	RING	1	
210-125*	2476256208	SOLENOID-A	1	
210-126*	2476256508	WASHER	1	
210-127*	2426231308	O-RING	1	
210-191*	2676257108	HOSE	1	
210-192*	1386235408	CLIP	1	

ROBIN EH-360YS2420 ENGINE — STARTER ASSY.

STARTER ASSY.



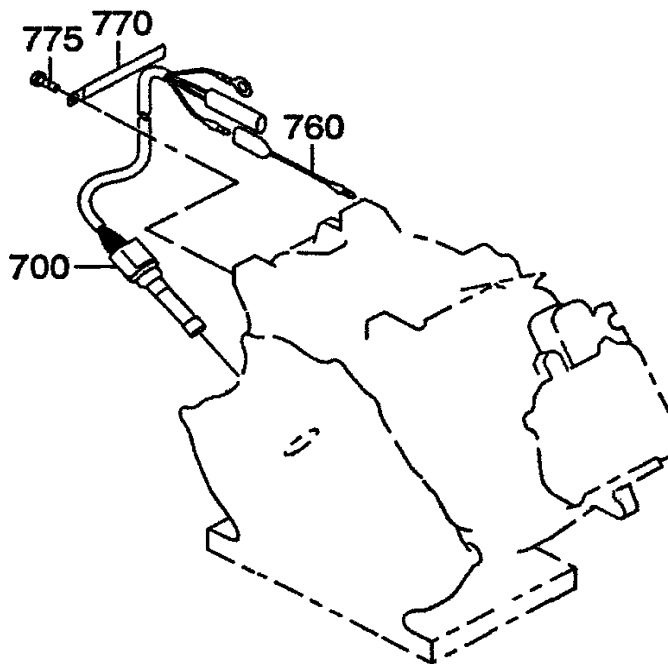
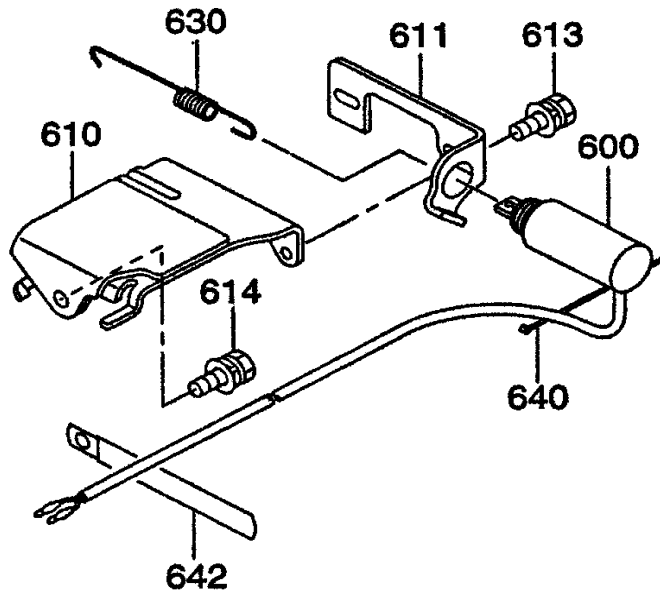
ROBIN EH-360YS2420 ENGINE — STARTER ASSY.

STARTER ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
120	2247050200	STARTING MOTOR ASSY.	1	NCLUDES ITEMS W/*
120-2	2357053508	BRUSH (+)	1	
120-3	2357054508	SPRING (BRUSH)	2	
120-4	2357053008	HOLDER AY (BRUSH)	1	
120-6	2357055008	ARMATURE AY	1	
120-7	2247055108	PINION ASSY.	1	
120-8	2247055308	STOPPER SET PINION	1	
120-9	2467050008	COVER ASSY FRONT	1	
120-10	2357054008	BRUSH (-),	1	
120-11	2467050508	COVER ASSY. REAR	1	
120-12	1137051008	CASE METAL	1	
120-17	2357057508	THROUGH BOLT	2	
120-23	2357055508	WASHER KIT	2	
120-29	2147056008	FRONT METAL	1	
120-40	2357056508	M BUSH (1)	1	
120-41	2357056608	M BUSH (2)	1	
120-52	2467058008	O-RING	1	
121	0022706000	NUT	1	
122	0032006000	SPRING WASHER	1	
130	2147900701	BOLT CP, STARTER, M8X1.25X30L	2	
150	0031008000	WASHER	2	
160	0032008000	SPRING WASHER	2	
170	2467550201	CLAMP CP	1	
176	0043106080	SCREW, PANHEAD	1	
300	2147700210	MAGNETIC SWITCH	1	

ROBIN EH-360YS2420 ENGINE — SOLENOID ASSY.

SOLENOID ASSY.



ROBIN EH-360YS2420 ENGINE — SOLENOID ASSY.

SOLENOID ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
600	2537501000	SOLENOID AY	1	
610	2677600101	BRACKET (SOLENOID) 1CP	1	
611	2677600211	BRACKET (SOLENOID) 2CP	1	
613	0130060220	BOLT & WASHER ASSY., M6X1.0X12LW/W,SW	2	
614	0011308200	BOLT & WASHER ASSY.	1	
630	2677820113	SPRING (SOLENOID), 8DX1.2DX103L N=20	1	
640	0563000040	WIRE BAND, 3.6BX1.2TX146L	1	
642	0566000250	CLAMP, 6.5DX10BX95LX0.6T	1	
700	KS31102001	OIL SENSOR CP 11	1	
760	2147312201	WIRE 22 CP, L=85 BLACK	1	
770	0566000250	CLAMP, 6.5DX10BX95LX0.6T	2	
775	0110060010	FLANGE BOLT, M6X1.0X14DX8L	2	

PAYMENT TERMS

Terms of payment for parts are net 10 days.

FREIGHT POLICY

All parts orders will be shipped collect or prepaid with the charges added to the invoice. All shipments are F.O.B. point of origin. Multiquip's responsibility ceases when a signed manifest has been obtained from the carrier, and any claim for shortage or damage must be settled between the consignee and the carrier.

MINIMUM ORDER

The minimum charge for orders from Multiquip is \$15.00 net. Customers will be asked for instructions regarding handling of orders not meeting this requirement.

RETURNED GOODS POLICY

Return shipments will be accepted and credit will be allowed, subject to the following provisions:

1. A Returned Material Authorization must be approved by Multiquip prior to shipment.
2. To obtain a Return Material Authorization, a list must be provided to Multiquip Parts Sales that defines item numbers, quantities, and descriptions of the items to be returned.
 - a. The parts numbers and descriptions must match the current parts price list.
 - b. The list must be typed or computer generated.
 - c. The list must state the reason(s) for the return.
 - d. The list must reference the sales order(s) or invoice(s) under which the items were originally purchased.
 - e. The list must include the name and phone number of the person requesting the RMA.
3. A copy of the Return Material Authorization must accompany the return shipment.
4. Freight is at the sender's expense. All parts must be returned freight prepaid to Multiquip's designated receiving point.

5. Parts must be in new and resalable condition, in the original Multiquip package (if any), and with Multiquip part numbers clearly marked.
6. The following items are not returnable:
 - a. Obsolete parts. (If an item is in the price book and shows as being replaced by another item, it is obsolete.)
 - b. Any parts with a limited shelf life (such as gaskets, seals, "O" rings, and other rubber parts) that were purchased more than six months prior to the return date.
 - c. Any line item with an extended dealer net price of less than \$5.00.
 - d. Special order items.
 - e. Electrical components.
 - f. Paint, chemicals, and lubricants.
 - g. Decals and paper products.
 - h. Items purchased in kits.
7. The sender will be notified of any material received that is not acceptable.
8. Such material will be held for five working days from notification, pending instructions. If a reply is not received within five days, the material will be returned to the sender at his expense.
9. Credit on returned parts will be issued at dealer net price at time of the original purchase, less a 15% restocking charge.
10. In cases where an item is accepted, for which the original purchase document can not be determined, the price will be based on the list price that was effective twelve months prior to the RMA date.
11. Credit issued will be applied to future purchases only.

PRICING AND REBATES

Prices are subject to change without prior notice. Price changes are effective on a specific date and all orders received on or after that date will be billed at the revised price. Rebates for price declines and added charges for price increases will not be made for stock on hand at the time of any price change.

Multiquip reserves the right to quote and sell direct to Government agencies, and to Original Equipment Manufacturer accounts who use our products as integral parts of their own products.

SPECIAL EXPEDITING SERVICE

A \$35.00 surcharge will be added to the invoice for special handling including bus shipments, insured parcel post or in cases where Multiquip must personally deliver the parts to the carrier.

LIMITATIONS OF SELLER'S LIABILITY

Multiquip shall not be liable hereunder for damages in excess of the purchase price of the item with respect to which damages are claimed, and in no event shall Multiquip be liable for loss of profit or good will or for any other special, consequential or incidental damages.

LIMITATION OF WARRANTIES

No warranties, express or implied, are made in connection with the sale of parts or trade accessories nor as to any engine not manufactured by Multiquip. Such warranties made in connection with the sale of new, complete units are made exclusively by a statement of warranty packaged with such units, and Multiquip neither assumes nor authorizes any person to assume for it any other obligation or liability whatever in connection with the sale of its products. Apart from such written statement of warranty, there are no warranties, express, implied or statutory, which extend beyond the description of the products on the face hereof.

OPERATION AND PARTS MANUAL

HERE'S HOW TO GET HELP

PLEASE HAVE THE MODEL AND SERIAL
NUMBER *ON-HAND* WHEN CALLING

MULTIQUIP CORPORATE OFFICE

18910 Wilmington Ave.

Carson, CA 90746

Email: mq@multiquip.com

Internet: www.multiquip.com

800-421-1244

FAX: 310-537-3927

PARTS DEPARTMENT

800-427-1244

310-537-3700

FAX: 800-672-7877

FAX: 310-637-3284

MAYCO PARTS

800-306-2926

310-537-3700

FAX: 800-672-7877

FAX: 310-637-3284

SERVICE DEPARTMENT

800-421-1244

310-537-3700

FAX: 310-537-4259

TECHNICAL ASSISTANCE

800-478-1244

FAX: 310-631-5032

WARRANTY DEPARTMENT

800-421-1244, EXT. 279

310-537-3700, EXT. 279

FAX: 310-537-1173

Your Local Dealer is:



MULTIQUIP INC.

18910 WILMINGTON AVE.

CARSON, CALIFORNIA 90746

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FAX: 310-537-3927

E-mail: mq@multiquip.com

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