

# PARTS AND OPERATION MANUAL

## **MULTIQUIP** **Model GLW-180H** **D.C. WELDER** **A.C. GENERATOR**

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Revision #5 (03/14/05)



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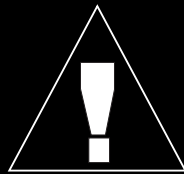
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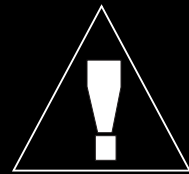
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# WARNING



## **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.



## WARNING



### **CALIFORNIA**

#### **Proposition 65 Warning**

This product contains or produces chemicals known to the State of California to cause cancer and birth defects (or other reproductive harm).

DCL160

## **HERE'S HOW TO GET HELP**

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

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### **NOTE**

***Specification and part number  
are subject to change without  
notice.***

## PARTS ORDERING PROCEDURES

- 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:
  - UPS Ground
  - UPS Second Day or Third Day\*
  - UPS Next Day\*
  - Federal Express Priority One (please provide us with your Federal Express account number)\*
  - Airborne Express\*
  - Truck or parcel post

*\*Normally shipped the same day the order is received, if prior to 2PM west coast time.*

## Earn Extra Discounts when you order by FAX!

All parts orders which include complete part numbers and are received by fax qualify for the following extra discounts:

<u>Number of line items ordered</u>	<u>Additional Discount</u>
1-9 items	3%
10+ items**	5%

### Get special freight allowances when you order 10 or more line items via FAX! \*\*

- UPS Ground Service at no charge for freight
- PS Third Day Service at one-half of actual freight cost

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.

\*DISCOUNTS ARE SUBJECT TO CHANGE\*

Fax order discount and UPS special programs revised June 1, 1995

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## CAUTION:



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 GLW-180H Generator/Welder:

### 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.
- This generator is a source of potentially **LETHAL** high voltage. Never permit unqualified personnel-especially children to operate the generator.
- 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.
- This generator is equipped with a **ground terminal** for your protection. Always complete the grounding path from the generator to an external grounding source.
- **NEVER** operate this generator, or handle any electrical equipment while standing in **water, while bare foot, while hands are wet, or in the rain**. *Electrical shock could occur causing severe bodily harm or even death.*
- Keep electrical cords in good condition. Worn, bare or frayed wiring can cause electrical shock, leading to *bodily harm or even death*.
- This generator requires an adequate free flow of cooling air. Never operate the generator 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 generator and may cause injury to people.
- **NEVER** touch the hot exhaust manifold, muffler or cylinder. Allow these parts to cool before servicing generator.

- Provide adequate ventilation when operating the generator. **DO NOT** operate the generator in any enclosed or narrow space. The generator's GLWsoline engine gives off **DEADLY carbon monoxide GLWs**.
- **NEVER** operate the generator in an explosive atmosphere or near combustible materials. An explosion or fire could result causing severe *bodily harm or even death*.
- Always make sure that the generator is secure on level ground so that it cannot slide or shift around, endangering workers. Also keep the immediate area free of bystanders.
- When using a concrete vibrator or a similar device that is immersed in a water based solution, make sure the device is equipped with short circuit protection.
- Always use rubber boots and gloves when operating a concrete vibrator or similar device.
- Use adequate size connecting cable for extension.
- Maintain electrical cords in good condition and frequently replace the entire cable of the concrete vibrator with a new one.
- **High Temperatures** – Allow the machine and engine to cool before adding fuel or performing service and maintenance functions. Contact with *hot* components can cause serious burns.

### Emergencies

- Always know the location of the nearest **fire extinguisher** and **first aid kit**. Know the location of the nearest telephone. Also know the phone numbers of the nearest **ambulance, doctor** and **fire department**. This information will be invaluable in the case of an emergency.

### Maintenance Safety

- **NEVER** lubricate components or attempt service on a running machine.
- Always allow the machine a proper amount of time to cool before servicing.
- Keep the machinery in proper running condition.
- Fix damage to the machine immediately and always replace broken parts.
- 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

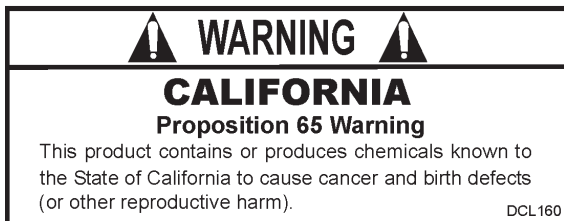
# OPERATION AND SAFETY DECALS

## Machine Safety Decals

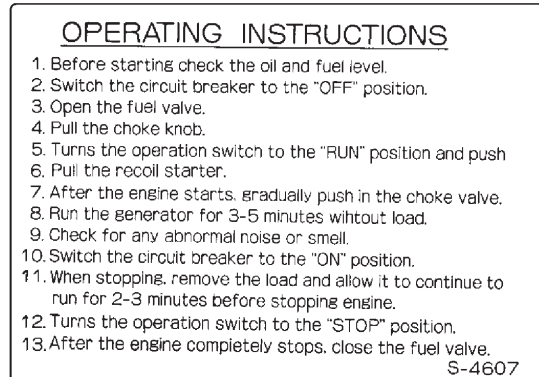
The GLW-180H portable generator is equipped with a number of safety decals. These decals are provided for operator safety and maintenance information. The illustration below shows these decals as they appear on the machine. Should any of these decals become unreadable, replacements can be obtained from your dealer.



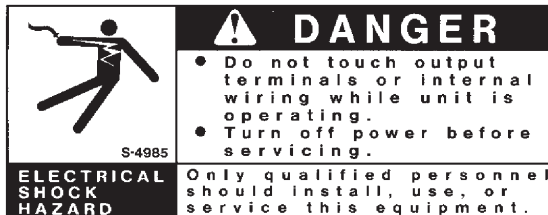
P/N TBD



P/N DCL160



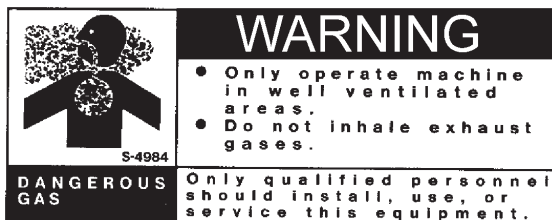
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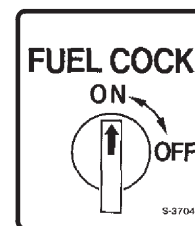
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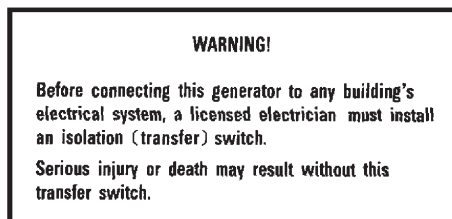
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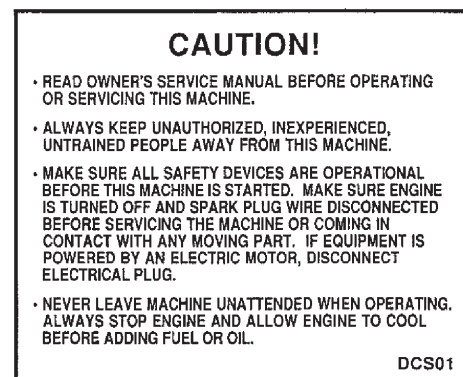
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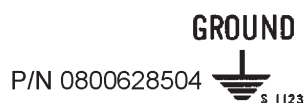
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# GLW-180H — SPECIFICATIONS

**Table 1. Specifications GLW-180H**

<b>Welder</b>	Max. Current	180 Amps
	Rated Voltage	26.4 Volts
	Duty Cycle	50%
	Adjustable Current Range	50-180 Amps
	Rated Current	160 Amps
	Applicable Electrode Size	5/64" - 5/32"
<b>60 Cycle Generator</b>	Type Alternator	2-pole, Brushless Type Revolving Field
	Max. Output	4500 Watts
	Rated Output (continuous)	4000 Watts
	Rated Voltage	120 VAC
	Rated Current	33.3 Amps
	Phase	Single Phase (3-wire)
	Frequency	60 Hz
	Rated Speed	3600 RPM
	Power Factor	100%
<b>Engine</b>	Model	Honda GX340K1VD
	Type	Air-cooled 4 stroke OVH 25° inclined cylinder
	Bore X Stroke	3.23 in. X 2.52 in. (82 mm X 64 mm)
	Displacement	20.63 cc
	Max Output	8.0 H.P./3600 R.P.M.
	Fuel Tank Capacity	Approx. 3-3/4 U.S. Gallons
	Fuel	Unleaded Automobile Gasoline
	Lube Oil Capacity	1-3/4 pints
	Speed Control Method	Centrifugal Fly-weight Type
	Starting Method	Recoil Start
<b>Dimension (LXWXH)</b>	31.5 x 22 x 22 in. (800 x 560 x 560 mm.)	
<b>Dry Net Weight</b>	297 lbs. (135 Kg.)	

## Effects of Altitude and Heat

The maximum output of the engine listed above is 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 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 .



## WARNING:



Before connecting this generator 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.

## GLW-180H FAMILIARIZATION

### Generator/Welder

The Multiquip Model GLW-180H generator has been designed as a portable lightweight power source for 60 Hz (single-phase) vibrators, lighting facilities, power tools, submersible pumps and other industrial and construction machinery.

This generator is powered by a **HONDA** GLWsoline engine. The alternator, a brushless revolving-field type, is permanently aligned to the engine through rigid coupling.

The generator is 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 generator to protect aGLWinst damage.

This portable generator is 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 has the following: (all outputs are 60 Hz, single phase)

- One 120V output receptacle.
- One 120V output receptacle (GFCI protected).
- One main 40 amp circuit breaker.
- AC Voltmeter
- Idle Control Switch
- Operation Switch
- Output Terminals (Welding)

### Excitation System

All GLW-series generators use a magnet attached to a flywheel to produce AC voltage from a lamp coil beneath the flywheel. As the magnet 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.

### Engine

The four-cycle air-cooled **HONDA** GLWsoline engine is designed to meet every performance requirement of this generator. Reference Table 1, page 8 for engine specifications.

Figure 1 (page 10) shows the basic controls and indicators for the GLW-180H generator.

### Idle Control Switch

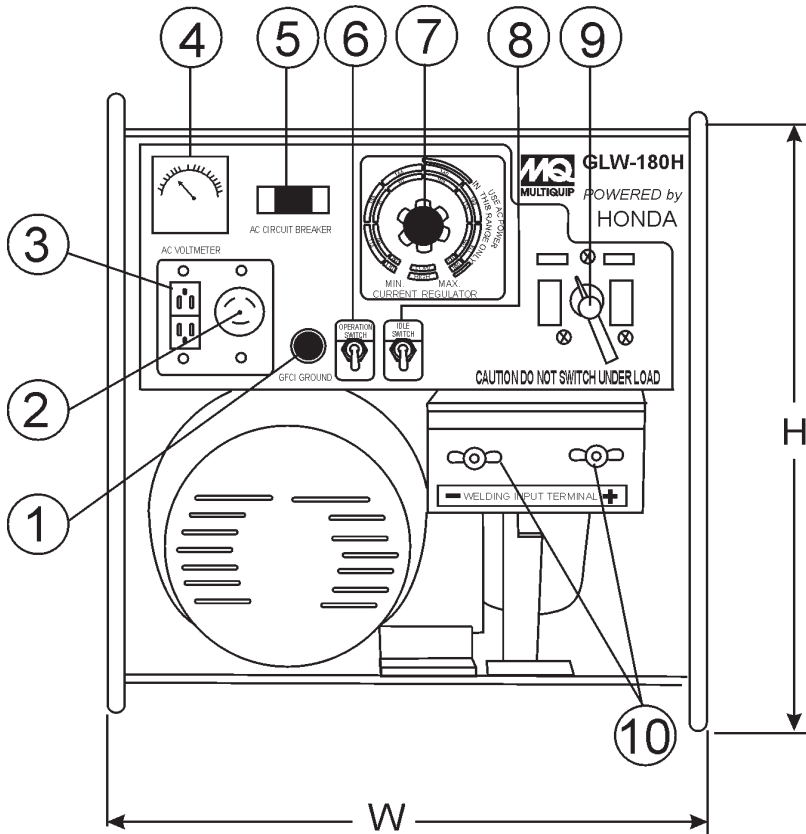
**DO NOT** use the idle control switch in conjunction with AC electro-magnetic switches relays etc. Using the idle control switch with these devices will cause the idle control device not to actuate. If any of these devices are being used, leave the idle control switch in the **OFF** position.

When running capacitor start motors such as submersible pumps, the idle control switch should **NOT BE USED**. Disconnect the pump or tool from the power source by switching **OFF** the main circuit breaker.

### NOTE

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

# GLW-180H — CONTROLS AND INDICATORS



NO.	PARTS NAME
1	GROUND TERMINAL
2	RECEPTACLE (250 VAC)
3	RECEPTACLE GFI (125 VAC)
4	AC VOLTMETER
5	CIRCUIT BREAKER
6	OPERATION SWITCH
7	CURRENT REGULATOR
8	IDLE CONTROL SWITCH
9	CURRENT RANGE SEL. SW.
10	DC OUTPUT TERMINALS
11	FUEL TANK
12	CHASSIS GROUND

L	W	H
31.5 IN. 800 MM	22.0 IN. 560 MM	22.0 IN. 560 MM

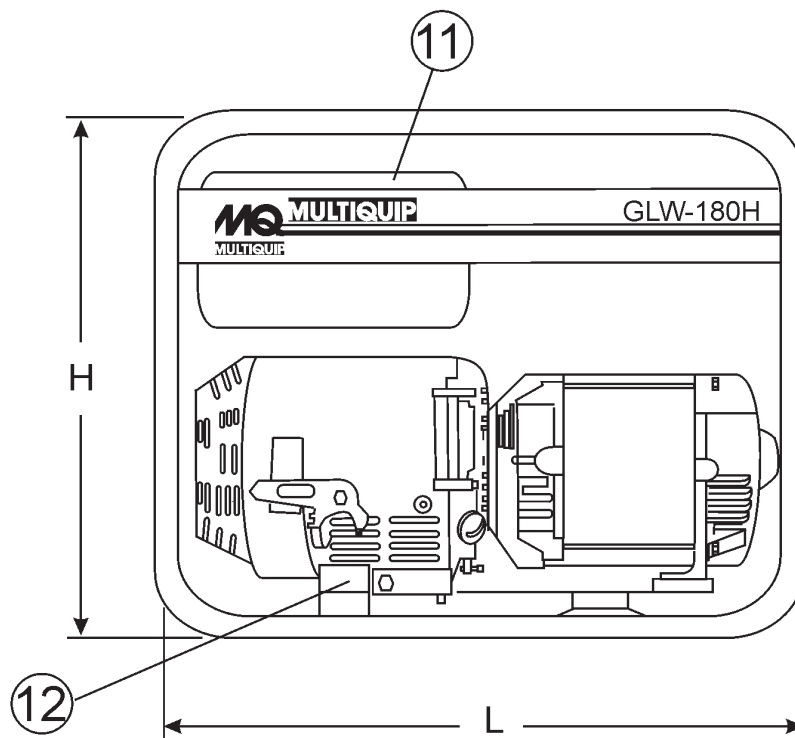


Figure 1. Controls and Indicators

## CAUTION :



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

The definitions below describe the controls and functions of the of the GLW-180 H Generator/Welder.

1. **Ground Terminal Equipment** – If required ground equipment (power tools etc.) to this ground terminal. This ground is not **EARTH** ground.
2. **120 VAC Twist Lock Receptacle** – This unit is supplied with one **Twist Lock** NEMA L5-30R (120V, 30 Amp) output receptacle.
3. **120 VAC GFCI Receptacle** – This unit is supplied with one **Duplex** NEMA (GFCI) 5-20R (120V, 20 Amp) output receptacle.
4. **AC Voltmeter** – This voltmeter indicates (with a mark) the rated 60 Hz, 120 VAC **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.
5. **Circuit Breaker** – This single-pole, 40 amp breaker is provided to protect both 120 VAC output receptacles from overload.
6. **Operation Switch** – Must be in the up position (**ON**) for normal operation. To turn-off generator place this switch in the down position (**OFF**).

## CAUTION :



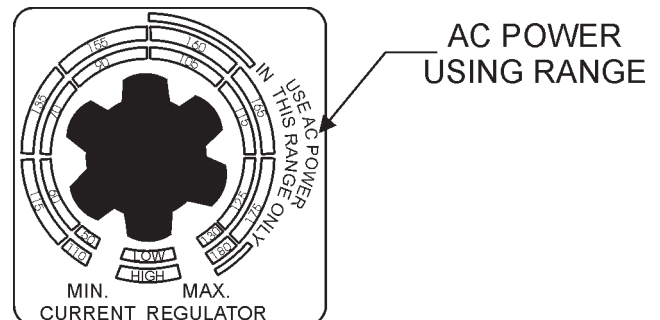
**NEVER** turn the load **ON** or **OFF** by connecting and disconnecting the load power cord from the generator's AC output receptacle. **ALWAYS** turn the circuit breaker OFF to remove power from the 120 AC receptacles (load).

7. **Current Regulator** – Use this dial to adjust the welder's output to the desired setting.
8. **Idle Control Switch** – This unit is provided with an automatic idle control for noise suppression and reduced fuel consumption. The automatic idle control automatically enGLWges under a no-load condition.  
  
With the automatic idle control switched "ON", the engine revolutions will automatically drop to about 2500 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.
9. **Current Regulator Selector Switch** – Two position switch, **left** position selects minimum current output (min.-130 amps), **right** position selects maximum current output (max.-180).
10. **DC Output Terminals** – Connect the welder's (+) and (-) welding cables to these terminals.
11. **Fuel Tank** – The fuel GLWuge is located on the fuel tank and allows easy monitoring of the fuel level.
12. **Chassis Ground** – Connect earth ground (**ground rod**) to this lug. See Figure 3.

## CAUTION :



When AC power is required, **ALWAYS** place the current regulator dial in the **AC power using range**.



**Figure 2. Current Regulator Switch AC Power Range**

## Outdoor Installation

Install the generator in a location where it will not be exposed to rain or sunshine. Make sure that the generator is on secure level ground so that it cannot slide or shift around. Also install the generator 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, not only to the engine parts, but also to the alternator parts.

## CAUTION :



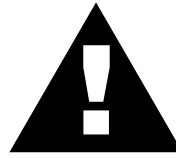
Pay close attention to ventilation when operating the generator inside confined areas. The engine exhaust contains noxious elements.

## Indoor Installation

Exhaust GLWses from GLWsoline 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 GLWs. Remember that exhaust fumes from any GLWsoline engine are very poisonous if discharged in a closed room, but harmless if allowed to mix with the outside air. If the generator is installed indoors, you must make provisions for venting the engine exhaust to the outside of the building.

## 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.

## Generator Grounding

To guard aGLWnist electrical shock and possible damage to the equipment, it is important to provide a good **EARTH** ground.

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 (Figure 3) as close to the point of cable entry as practical.

NEC articles 250-91a and 250-95 set the following grounding requirements:

1. Use one of the following wire types to connect the generator to earth ground.
  - a. Copper - 10 AWG (5.3 mm<sup>2</sup>) or larger.
  - b. Aluminum - 8 AWG (8.4 mm<sup>2</sup>) or larger.
2. When grounding the generator (Figure 3) connect the ground cable between the lock washer and the nut on the generator and tighten the nut fully. Connect the other end of the ground cable to earth ground.
3. NEC article 250-83c specifies that the earth ground rod should be buried a minimum of 8 ft. into the ground.

## NOTE

When connecting the generator to any buildings electrical system **ALWAYS** consult with a licensed electrician.

## Grounding

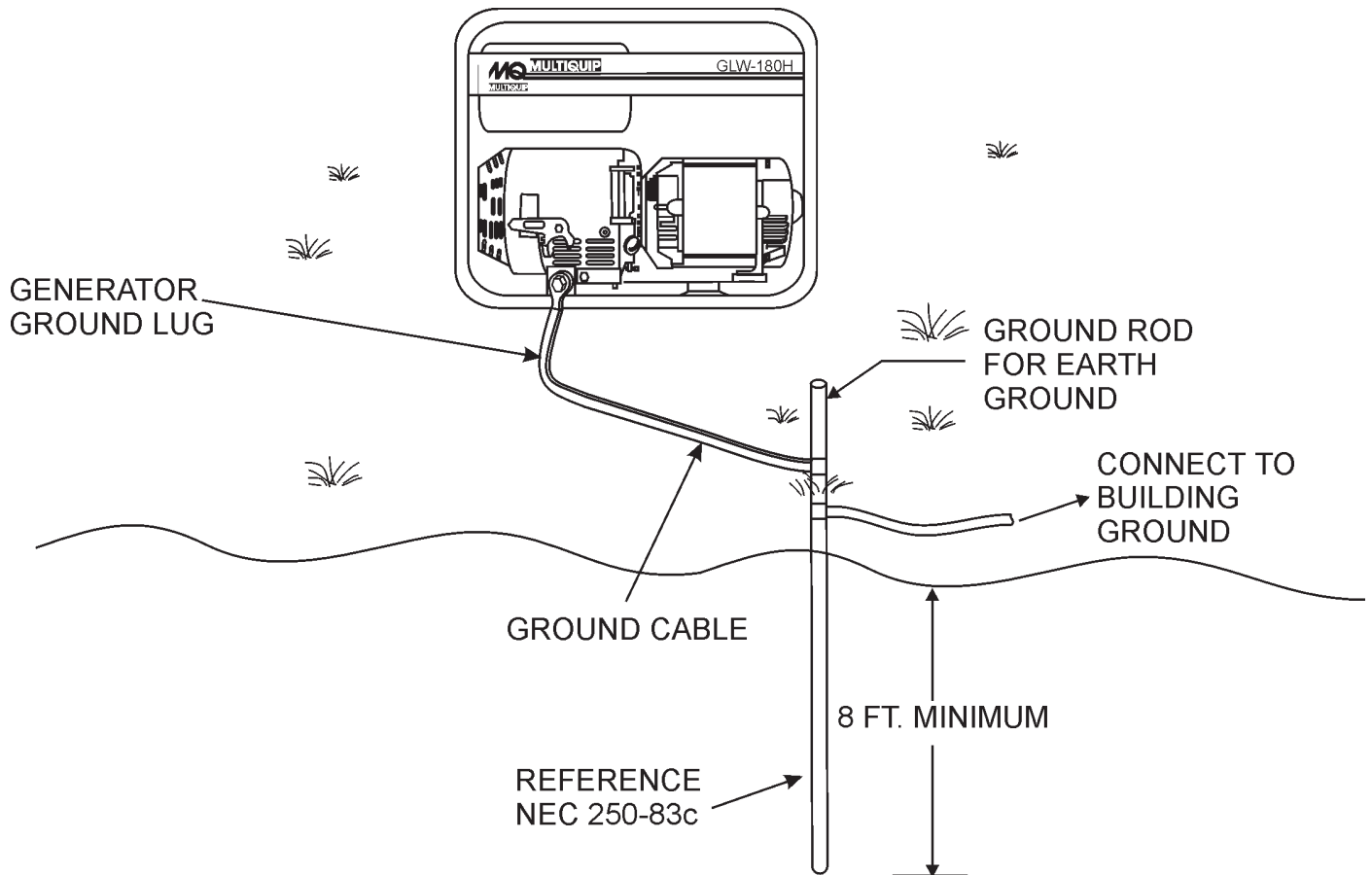


Figure 3. Generator Ground Rod Application

## General Inspection Prior to Operation

This generator has been thoroughly inspected and accepted prior to shipment from the factory. However, be sure to check for damaged parts or components, or loose nuts and bolts, which could have occurred in transit.

## Ground

The nut and ground terminal on the generator should always be used to connect the generator to a suitable ground. The ground path should be of #8 size wire.

Connect the terminal of the ground wire between the lock washer and the nut at the base of the generator and tighten the nut fully. Connect the other end of the ground wire to a **grounding rod** as shown in Figure 3.

## Circuit Breaker

To protect the generator from an overload, a single-pole 40 amp circuit breaker is provided on the control box. Make sure to switch this circuit breaker to the "OFF" position prior to starting the engine.

## Extension Cable

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 generator and point of use (load) is held to a minimum. Use the cable selection chart (Table 2 ) as a guide for selecting the proper extension cable size.

**Table 2. Extension Cable Selection (60 Hz, Single Phase Operation)**

Current in Amperes	Load In Watts	Maximum Allowable Cable Length			
	At 120 Volts	#10 Wire	#12 Wire	#14 Wire	#16 Wire
2.5	300	1000 ft.	600 ft.	375 ft.	250 ft.
5	600	500 ft.	300 ft.	200 ft.	125 ft.
7.5	900	350 ft.	200 ft.	125 ft.	100 ft.
10	1200	250 ft.	150 ft.	100 ft.	
15	1800	150 ft.	100 ft.	65 ft.	
20	2400	125 ft.	75 ft.	50 ft.	
CAUTION: Equipment damage can result from low voltage.					

## Lubrication Oil

Fill the engine crankcase with lubricating oil through the filler hole, but do not overfill. Make sure the generator is level. With the dipstick inserted all the way, but without being screw into the filler hole, verify that the oil level is maintained between the two notches on the dipstick.

The oil listed in Table 3 is recommended to ensure better engine performance. Use class SC or higher grade motor oil.

**Table 3. Recommended Motor Oil**

Temperature Range	Type Oil
104° F ~ 23° F (40° C ~ -5°C)	SAE 30
23° F ~ 5° F (-5° C ~ -15°C)	SAE 20 or sae 10W-30
Below 5° C (-15°)	SAE 10W or SAE 10W-30

## Fuel

Close the fuel cock before filling the tank. Fill the fuel tank with clean and fresh unleaded GLWsoline. **DO NOT** fill the tank beyond capacity.

Pay attention to the fuel tank capacity when replenishing fuel. Refer to the fuel tank capacity listed on page 8 Specification Table 1.

The fuel tank cap must be closed tightly after filling.

Handle fuel in a safety container. If the container does not have a spout, use a funnel.

## CAUTION :



Never fill the **fuel tank** while the engine is running or in the dark. GLWsoline spillage on a hot engine can cause a fire or explosion. If GLWsoline spillage occurs, wipe up the spilled GLWsoline completely to prevent fire hazards.



## Single Phase Load

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

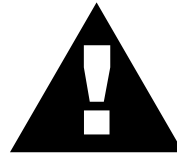
Generally, the wattage listed on the nameplate of the equipment is its rated output. Equipment may require 130—150% more wattage than the rating on the nameplate, as the wattage is influenced by the efficiency, power factor and starting system of the equipment.

### NOTE

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

## CAUTION:



Motors and motor-driven equipment draw much greater current for starting than during operation.

An inadequate size connecting cable which cannot carry the required load can cause a voltage drop which can burn out the appliance or tool and overheat the cable.

The idle control is operated at minimum load capacity of 100W. If the load capacity is less than 100W, throw the idle control switch to the **OFF** position.

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

### 1. 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.

### 2. 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.

### 3. 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.



# GLW-180H — GENERATOR OPERATING INSTRUCTIONS

## Before Starting

1. Be sure to disconnect the electrical load and switch the main circuit breaker to the "OFF" position prior to starting the engine.
2. Never start the engine with the main circuit breaker "ON".
3. Check the lubricating oil level prior to starting the engine. Make sure the generator is level. The oil level must be maintained between two notches on the dipstick.
4. When there is not enough lubricating oil, fill the crankcase with high grade motor oil. Use a high quality detergent oil classified SC, SD or SE. (See Table 3 on page 15)

## CAUTION:



- NEVER start the engine when the oil level is below the lower mark on the dipstick.
- Check the fuel level on the fuel GLWuge. When fuel is low, fill the fuel tank with clean fresh unleaded automotive GLWsoline.
- If GLWsoline spillage occurs, completely wipe up the spilled GLWsoline.

## Starting

1. Place the idle control switch in the "ON" (up) position.
2. Close the choke. Adjust the opening of the choke valve according to operating conditions. When the engine is warm or the air temperature is high, close the choke valve halfway or open it all the way.
3. Confirm that the main circuit breaker on the generator control box is "OFF".
4. Set the operation switch to the "ON" position and grasp the starting rope and slowly pull it out. The resistance becomes hardest at a certain position, corresponding to the compression point. Rewind the rope a little from that point and pull out sharply.
5. If the engine fails to start, repeat the procedure.

## CAUTION:

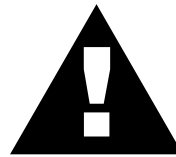


- DO NOT pull the starter rope all the way to the end.
- DO NOT release the starter rope after pulling. Allow it to rewind as soon as possible.

## Warm up

1. When the engine starts, open the choke slowly.
2. Run the engine at low speed for 3 minutes without load until the engine warms up.
3. Turn the idle control switch to the "OFF" (down) position and check the voltage by referring to the voltmeter on the control box.

## CAUTION:



**DO NOT** change the engine speed control lever which has been set at the factory prior to shipping.

1. Check the generator for abnormal noise and smells. Then connect the load to the receptacles of the generator.
2. Switch the main circuit breaker to the "ON" position and turn the idle control switch to the "ON" (down) position for normal (load) engine operation.

## Operation

Check the voltage by referring to the voltmeter on the control box. When the voltmeter indicates 120 volts, 120 volts from the 120V receptacles and 240 volts from the 240V receptacle can be obtained at the same time. Refer to Figure 1, Controls and Indicators, item 4 on page 10.

## Stopping the Engine

## CAUTION:



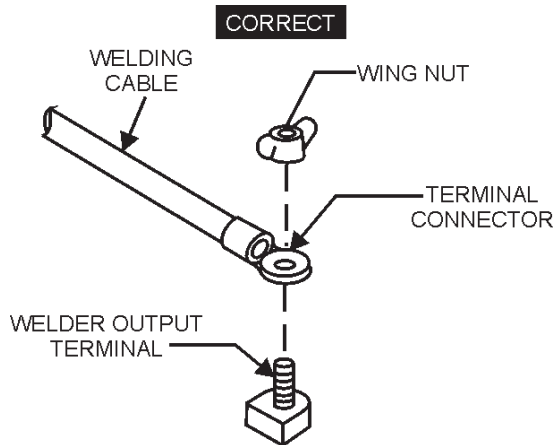
**NEVER** stop the engine suddenly while running at high speeds.

1. Remove the load from the generator. Place the circuit breaker in the "OFF" position. Refer to Figure 1, item 5 on page 10. Run the engine (no-load) with the idle control switch set to the ON position for three to five minutes, then stop the engine.
2. Turn the START/STOP switch to the "STOP" position.
3. Never stop the engine suddenly while running at high speed.
4. Close the fuel cock.

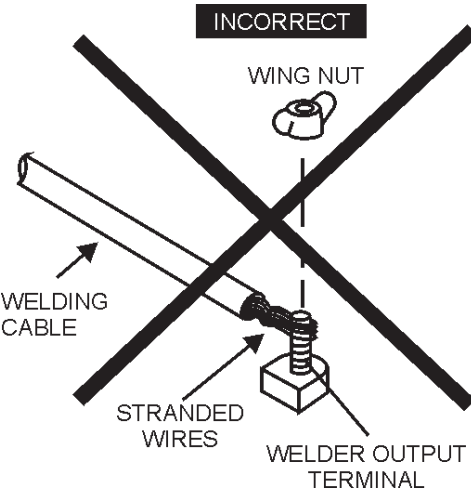
# GLW-180H — WELDER OPERATING INSTRUCTIONS

## Welding Cables and Polarities

Connect the welding cables (Figure 4) to the welder's output terminals located on the control panel. The output terminals have (+) and (-) polarities. Select the appropriate polarities according to the application (See Welding Application, Table 5).



**Figure 4. Welding Cable Connection (Correct)**



**Figure 5. Welding Cable Connection (Incorrect)**

### NOTE

Attach terminal connectors at the end of each cable. **NEVER** connect exposed wires (Figure 5) directly to the terminal. Exposed wiring may cause shocks or di-electric breakdown from poor contact.

**Table 4. Welding Applications**

POLARITY	WELDING METHOD	TYPICAL APPLICATIONS
Straight Polarity	(+) ... Grounding (Base Metal)	Welding steel materials for general structures, and thickness plates.
	(-) ... Welder Holder	Arc welding for copper alloy
Reverse Polarity	(+) ... Welder Holder	Build-up welding, ARC welding of thin plates
	(+) ... Grounding (Base Metal)	Arc welding of stainless steel

Note: Regarding the selection of the polarity in the CV characteristics, follow the instructions from the wire maker.

# GLW-180H — WELDER OPERATING INSTRUCTIONS

## Welding Cables

The required cable welding size is governed by this simple rule: The longer the welding cable, or the greater the welding current, the thicker (copper strands) the cable must be.

Select a welding cable with adequate thickness according to the cable length and welding amperage (current) as listed in Table 5.

Welder Output Current	Cable Length	Cable Size
100	50	No. 3
	100	No. 3
	125	No. 3
	150	No. 3
	200	No. 3
	250	No. 3
	300	No. 3
150	50	No. 3
	100	No. 3
	125	No. 3
	150	No. 3
	200	No. 2
	250	No. 1
	300	No. 1
200	50	No. 3
	100	No. 3
	125	No. 3
	150	No. 2
	200	No. 1
	250	No. 1/0
	300	No. 1/0

## CAUTION:



To prevent serious accidents, **ALWAYS** turn off the generator/welder ( operation switch) and set the main circuit breaker to the **OFF** position.

## Duty Cycle

The duty cycle for the generator/welder is based on 10 minute intervals. See Table 6 below.

Welding Current	110 or Less	125	145	160	180
Duty Cycle%	100	80	60	50	40

## CAUTION:



**NEVER** switch the **current range selector switch** during any welding operation.

1. Connect the welding cables (electrodes) to the generator's output terminals (Figure 4). For **minimum** welding current (min-130 amps), use an eyelet terminal connector with a 5/64" to 1/8" diameter, for **maximum** welding current (110 - max amps), use an eyelet terminal connector with a 3/32" to 5/32" diameter
2. Set the current **regulator control switch** on the control panel (Figure X) to the desired setting. The **inner** scale is for **low** current, the **outer** scale is **high** current output.

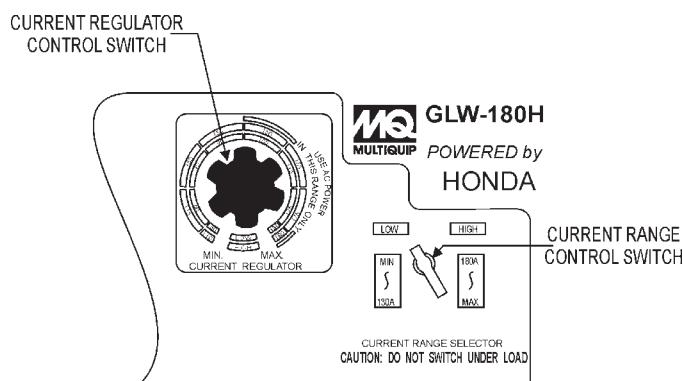


Figure 6. Current Regulator/Range Switches

3. Set the current **range control switch** (Figure 7) to either **low** or **high**. **DO NOT** change the position of this switch while welding.

## General Inspection

At least daily or prior to each use, the generating set should be cleaned and inspected for deficiencies. Check for loose, missing or damaged nuts, bolts or other fasteners. Also check for fuel or oil leaks.

## Engine Side (Refer to the Engine Instruction Manual)

### Check Oil Level

Check the crankcase oil level prior to each use, or when the fuel tank is filled. Make sure the generating set is level. The oil level must be between the two notches on the dipstick.

### Changing Oil

Change oil after the first 20 hours of operation. Drain and refill the engine crankcase every 50 operating hours or once a week thereafter. Drain crankcase oil into a suitable container while engine is still warm. Replace the drain plug tightly. Add oil through the filler hole.

### Air Cleaner

Every 50 hours: Remove air cleaner element (std. or heavy duty types), and wash in kerosene or liquid detergent and hot water. Wrap foam element in a cloth and squeeze dry. Wipe heavy duty paper element dry with toweling. Saturate element with kerosene; squeeze excess from foam element. Wipe excess from heavy duty paper element.

## Service Daily

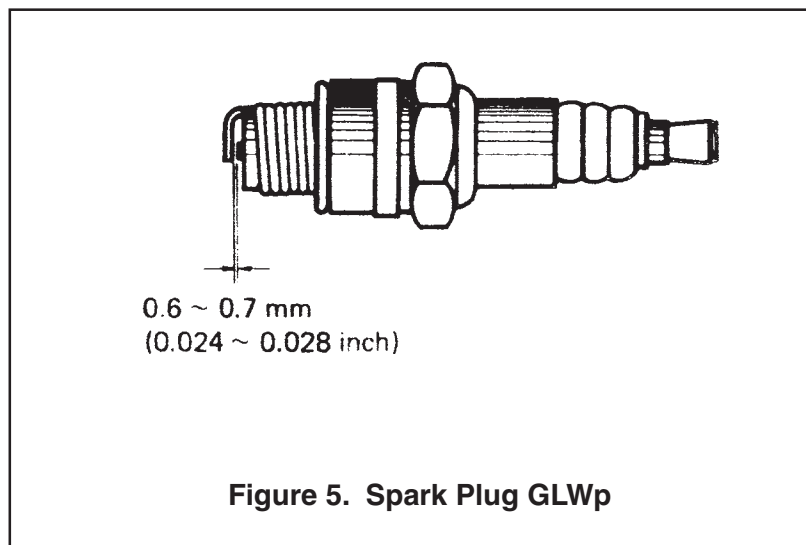
If engine is operating in very dusty and dry grass conditions. A clogged air cleaner will result in high fuel consumption, loss of power and excessive carbon buildup in the combustion chamber.

### Cleaning the Fuel Strainer

Clean the fuel strainer if it contains dust or water. Remove dust or water in the strainer cap and wash it in GLWsoline. Securely fasten the fuel strainer cap so that fuel will not leak. Check the fuel strainer every 200 hours of operation or once a month.

### Spark Plug

Remove carbon build-up on the spark plug (Figure 5) with a wire brush. Set the spark plug GLWp to 0.6—0.7mm (0.024-0.028 inch). Tighten with a spark plug socket wrench. Clean the spark plug every 50 operating hours or once a week.



# GLW-180H — PREPARATION FOR LONG -TERM STORAGE

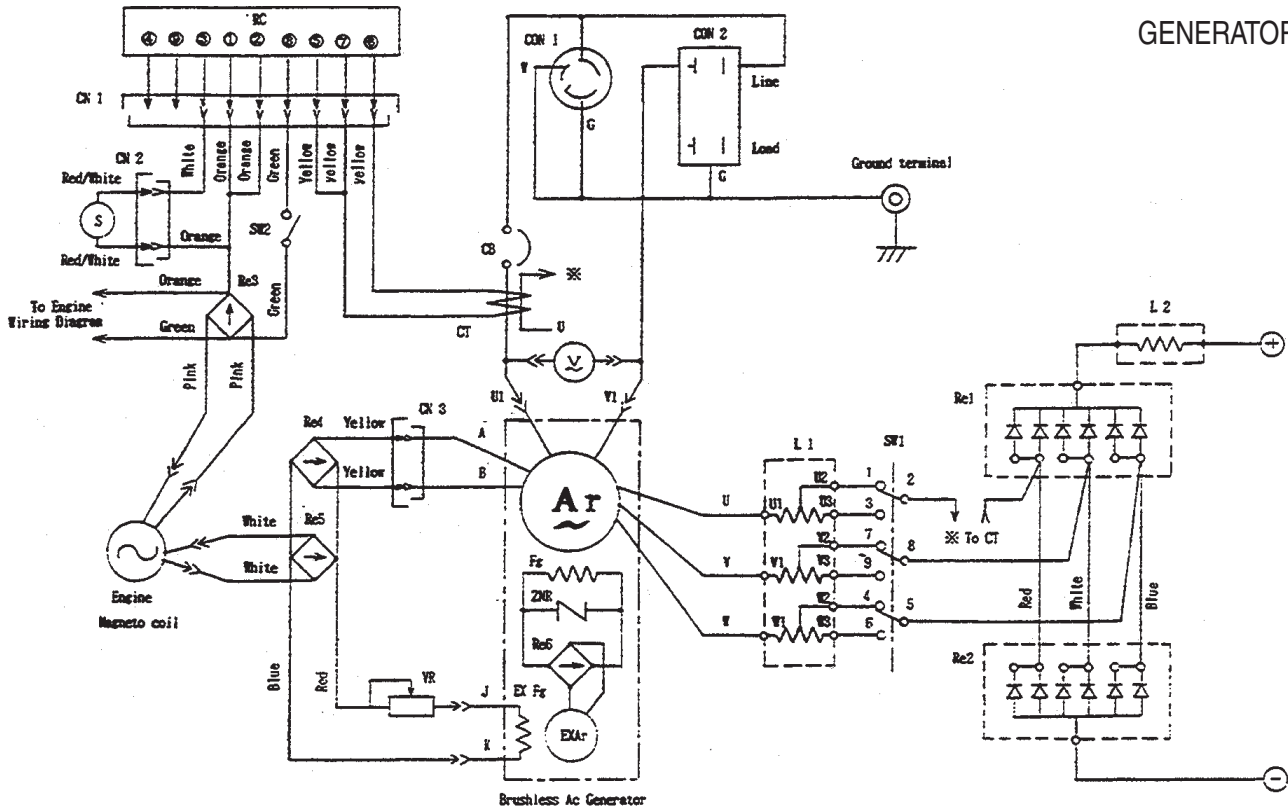
## Generator Storage

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

- Drain the fuel tank completely.
- Run the engine until the GLWsoline 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.

# GLW-180H — WIRING DIAGRAM GENERATOR/ENGINE

## GENERATOR



SYMBOL	PARTS NAME
Ar	Armature Winding
EX Fg	Excitation Winding
Fg	Field Winding
V	Ac Voltmeter
Con 1,2	Receptacle for 120V
Re 1,2	Rectifier
Re 3~6	Rectifier
CB	Circuit Breaker

SYMBOL	PARTS NAME
SW 1	Current Range Selector
SW 2	Idle Control Switch
RC	Idle Control Device
S	Idle Control Solenoid
CT	Current Transformer
VR	Voltage Adjuster
L 1,2	Reactor
+,-	Welding Output Terminal

Receptacle(CN)



CN1



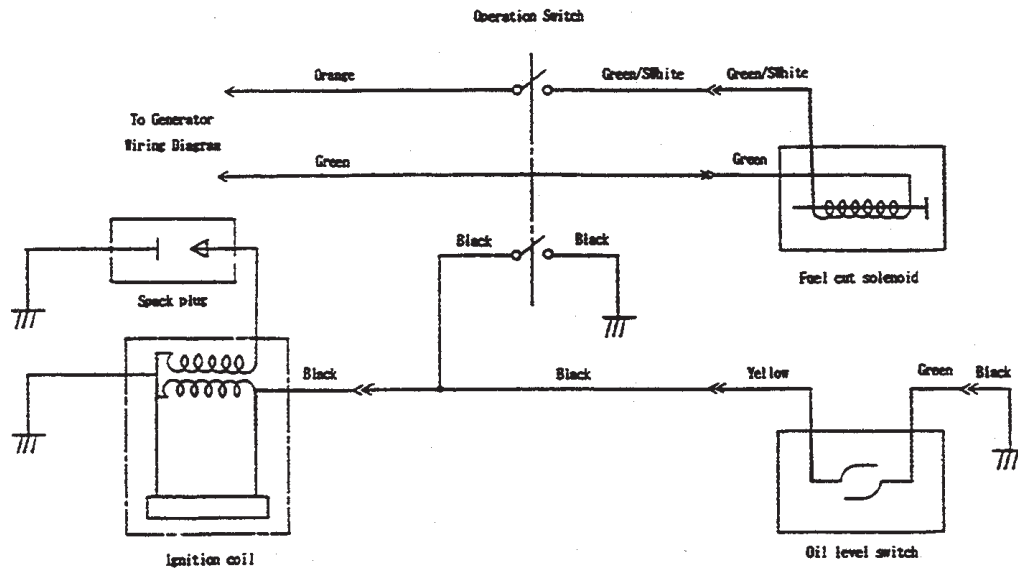
CN2



CN3

Viewed at winding side

## ENGINE



# GLW-180H — 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) information shown below and on the preceding page. 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.
	Malfuction of valve seat?	Re-seat valves.
	Spark plug is loose?	Replace spark plug.
	Worn piston rings?	Replace piston rings.
Insufficient power output "compression"	Malfuction 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.
	Malfuction in fuel system?	Clean or replace fuel filter. Clean or replace carburetor. Check carburetor float.

# GLW-180H — TROUBLESHOOTING (ENGINE)

**TABLE 7. ENGINE TROUBLESHOOTING (CONTINUED)**

<b>SYMPTOM</b>	<b>POSSIBLE PROBLEM</b>	<b>SOLUTION</b>
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.



# GLW-180H — TROUBLESHOOTING (GENERATOR)

Practically all generator 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 Generator Troubleshooting (Table 8) information shown below and on the preceding page. 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 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.
	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?	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.

# GLW-180H — TROUBLESHOOTING (GENERATOR)

**TABLE 8. GENERATOR TROUBLESHOOTING (CONTINUED)**

SYMPTOM	POSSIBLE PROBLEM	SOLUTION
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.

Practically most welder 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 Welder Troubleshooting (Table 9) information shown below . 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 9. WELDER TROUBLESHOOTING**

SYMPTOM	POSSIBLE PROBLEM	SOLUTION
No "ARCING"	Loose or disconnected wires?	Visually check wires, replace if necessary.
	Defective generator?	Check generator, replace if necessary.
	Poor contactor contact?	Pull the lead wire and check for connection.
	Defective rectifier Re4 or Re5?	Replace rectifier.
	Defective exciter Field Assy?	Replace Field Assy.
	Defective rectifier Re1 or Re2?	Replace rectifier.
Weak "ARCHING" and low output voltage.	Improper engine speed?	Adjust engine speed.
	Improper welding cable?	Use welding cables with sufficient current capacity and length.
	Improper current control?	Readjust to 50-180 amps.



# GLW-180H — EXPLANATION OF CODE IN REMARKS COLUMN

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

## 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.

### NOTE

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

### NOTE

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

## GLW-180H 1 TO 5 UNITS WITH HONDA GX340K1EDN2 ENGINE

### *1 to 5 Units*

Qty.	P/N	Description
5	9807955846	SPARK PLUG
1	15510ZE2W01	OIL LEVEL SWITCH
1	15600735700	DIPSTICK
1	28400ZEZW01ZB	RECOIL STARTER
5	17211899000	ELEMENT AIR
1	16100ZEF00	CARBURETOR ASSY.
1	16950ZB4015	FUEL COCK ASSY.
2	0810107103	FUEL FILTER
2	0810106004	CAP, FUEL TANK
1	0601805327	CIRCUIT BREAKER
1	0601823204	RECTIFIER
1	0601812597	RECEPTACLE
1	0601811031	RECEPTACLE, 125V, 30A

#### NOTE

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



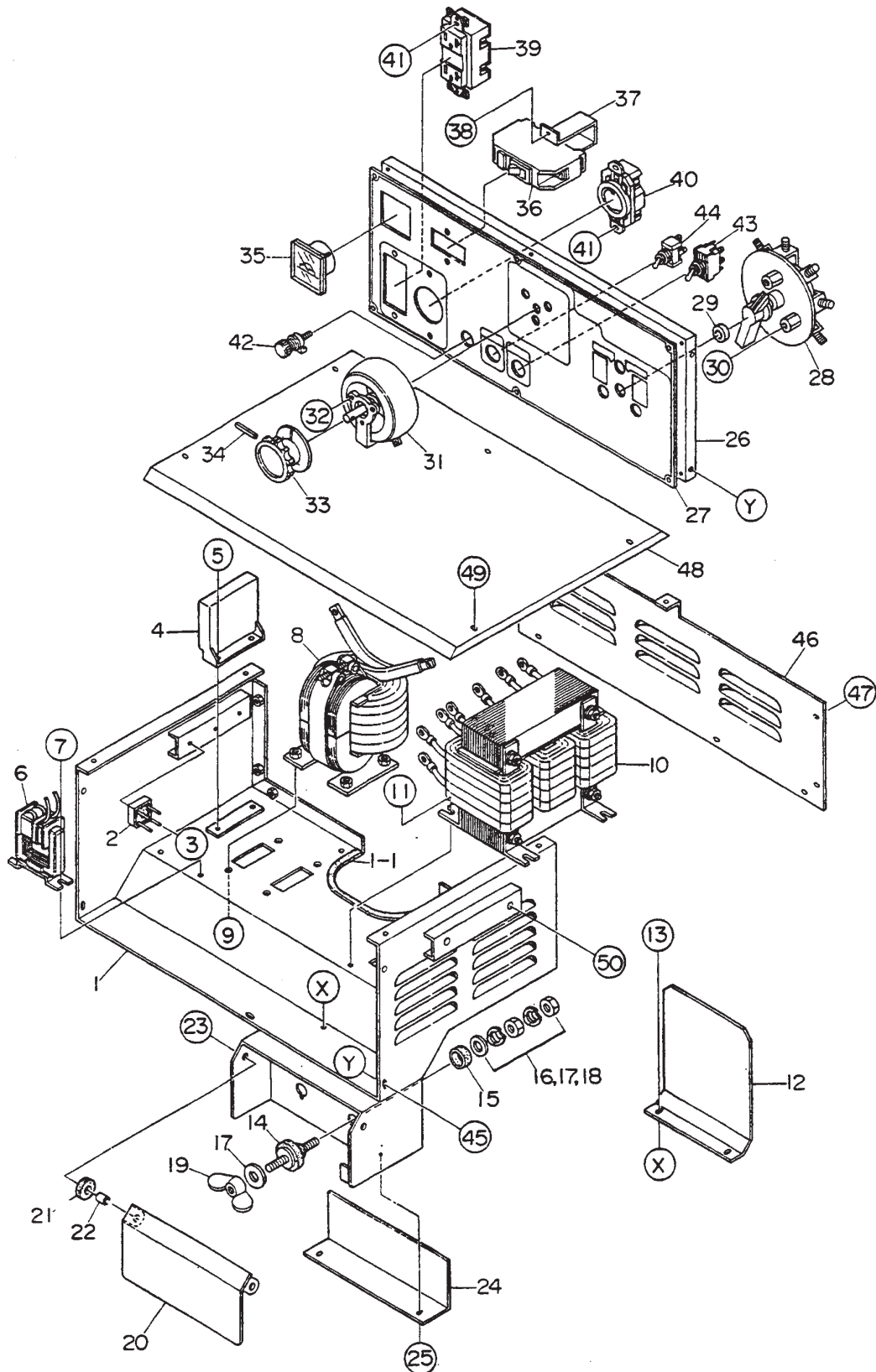
# GLW-180H — GENERATOR ASSY.

## GENERATOR ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	1971005003	ROTOR ASSY.	1	
*1-1		FIELD ASSY.	1	
*1-2		ARMATURE ASSY., EXCITER	1	
1-3	0601820037	RECTIFIER .....	1	S10VB60
1-4	0601822640	SURGE ABSORBER .....	1	TNR15G471K
1-5	0071206304	BEARING .....	1	6304DDU
1-6	3051070003	FAN	1	
2	1971018004	SET BOLT ROTOR	1	
3	0801086104	SET WASHER BEARING	1	
4	0040010000	SPRING WASHER	1	
5	1971345003	ARMATURE ASSY.	1	
6	1971315502	END BRACKET	1	
7	0012308025	HEX HEAD BOLT	4	
8	7851315402	END BRACKET	1	
9	D2137000103	FIELD ASSY. EXCITER	1	
10	0017106025	HEX HEAD BOLT	4	
11	1961324003	GROMMET	1	
12	1971336004	COVER	1	
13	7911316004	SET BOLT STATOR	4	
14	0040008000	SPRING WASHER	4	
15	0041208000	PLAIN WASHER	4	
16	1961844513	FIN	2	
17	0601820012	RECTIFIER .....	1	SR30MA- 6S
18	0601820013	RECTIFIER .....	1	SR30MA- 6R
19	0017105016	HEX HEAD BOLT	8	
20	1031890004	INSULATOR WASHER	8	
21	0017108035	HEX HEAD BOLT	4	
22	0019008016	HEX HEAD BOLT	2	
23	0207208000	HEX NUT	2	
24	1001843504	CONNECTION PLATE	6	
25	D1153500114	COVER	2	
26	0017105010	HEX HEAD BOLT	4	
27	D1153500603	COVER	2	
28	D1153500503	COVER	2	
29	1971331003	COVER	1	
30	1031863104	GROMMET	1	
31	0027105010	MACHINE SCREW	4	

# GLW-180H — CONTROL BOX

## CONTROL BOX ASSY.



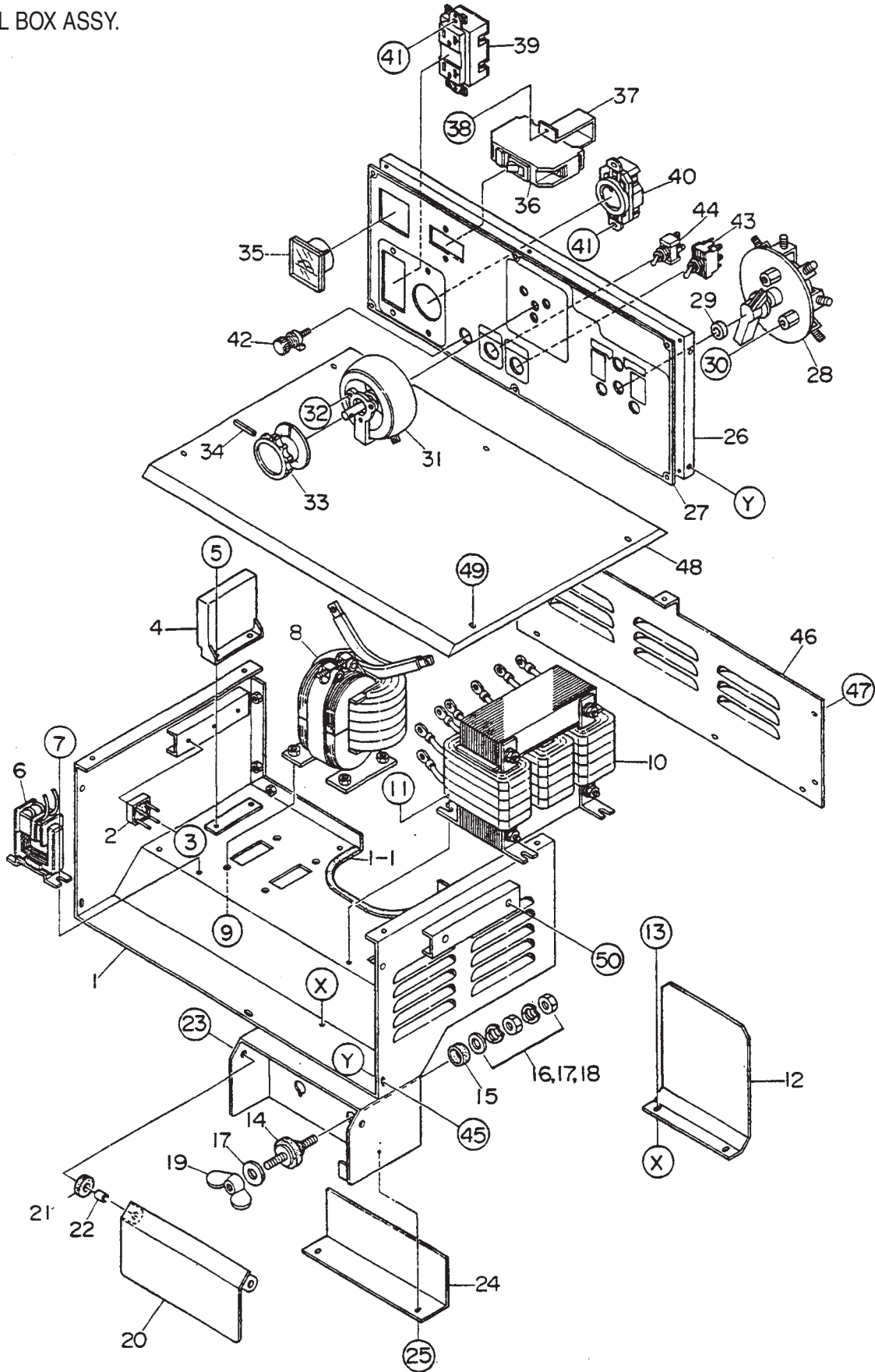


CONTROL BOX ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	1971811002	CONTROL BOX	1	
1-1	0226900215	EDGE COVER	1	
2	0601823204	RECTIFIER .....	3 .....	S5VB60
3	0027103016	MACHINE SCREW	3	
4	0800235101	SLOW DOWN UNIT .....	1 .....	NC- 54
5	0027104020	MACHINE SCREW	2	
6	0601804211	CURRENT TRANSFORMER .....	1 .....	MCT-100Y
7	0027104010	MACHINE SCREW	2	
8	1971885003	DC REACTOR .....	1 .....	L2
9	0017106016	HEX HEAD BOLT	4	
10	1971880003	AC REACTOR .....	1 .....	L1
11	0017106016	HEX HEAD BOLT	4	
12	1971811404	HEAT INSULATOR PANEL	1	
13	0017105016	HEX HEAD BOLT	2	
14	0801831204A	OUT PUT TERMINAL	2	
15	0801880004	INSULATOR WASHER	2	
16	0039510000	HEX NUT	4	
17	0042710000	PLAIN WASHER	4	
18	0045110000	WAVE WASHER	4	
19	0037810000	WING NUT	2	
20	1971865103	OUTPUT TERMINAL COVER	1	
	1971866004	RUBBER SHEET	1	
21	0805088004	RUBBER WASHER	2	
22	0805088304	COLLAR	2	
23	0017106020	HEX HEAD BOLT	2	
	0207006000	HEX NUT	2	
24	1971805204	COVER	1	
25	0017105016	HEX HEAD BOLT	2	
26	1971811103	CONTROL PANEL	1	
27	1970501002	NAME PLATE .....	1 .....	N-5646
28	0601803021	CURRENT RANGE SELECTOR .....	1 .....	SW1

# GLW-180H — CONTROL BOX ASSY.

CONTROL BOX ASSY.



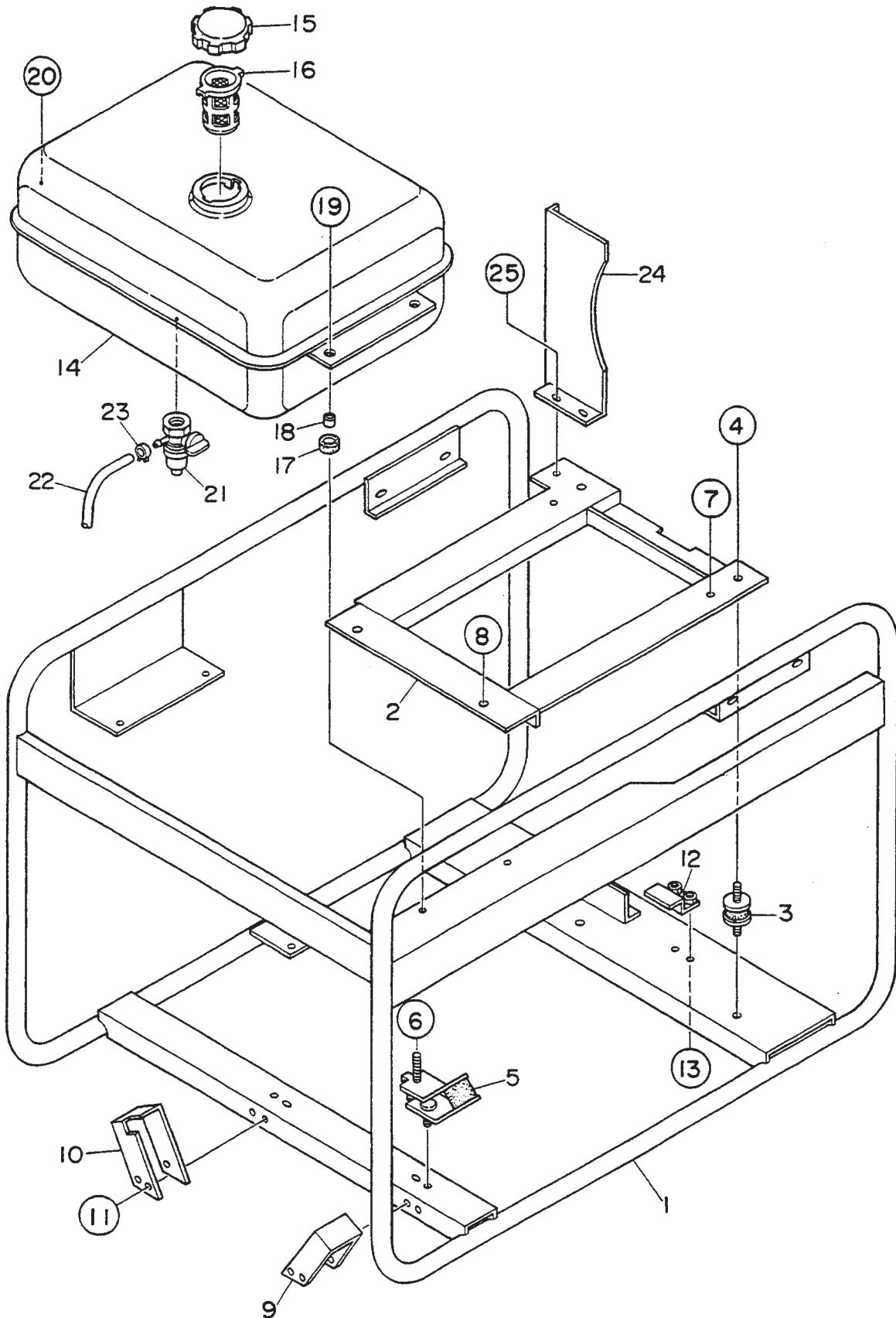
# GLW-180H — CONTROL BOX ASSY.

## CONTROL BOX ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
29	8705945004	SEAL	1	
30	0027106016	MACHINE SCREW	3	
31	1971835004	RHEOSTAT .....	1	VR 100W 48 OHM
32	0021104010	MACHINE SCREW	3	
33	0801800202	KNOB	1	
34	0050402525	SPRING PIN	1	
35	0601800258	AC VOLTMETER .....	1	8283 0 ~120V, 240V
36	0601805306	CIRCUIT BREAKER .....	1	CB KM51 40A
37	3011816004	CIRCUIT BREAKER BRACKET	1	
38	0027104010	MACHINE SCREW	2	
39	0601812597	RECEPTACLE .....	1	CON2 5- 20R
40	0601811031	RECEPTACLE .....	1	CON1 L5- 30R REPL. 0601811035
41	0027104010	MACHINE SCREW	4	
	0207004000	HEX NUT	4	
42	0601815109	GROUND TERMINAL .....	1	T- 381
43	0601830727	IDLE CONTROL SWITCH .....	1	SW2 ET115A12
44	0601830738	OPERATION SWITCH .....	1	ET210K12
45	0017105016	HEX HEAD BOLT	4	
46	1971811303	CONTROL BOX PANEL	1	
47	0017105016	HEX HEAD BOLT	7	
48	1971811203	CONTROL BOX COVER	1	
49	0017105016	HEX HEAD BOLT	5	
50	0017108020	HEX HEAD BOLT	4	

# GLW-180H — PIPE FRAME ASSY.

## PIPE FRAME ASSY.



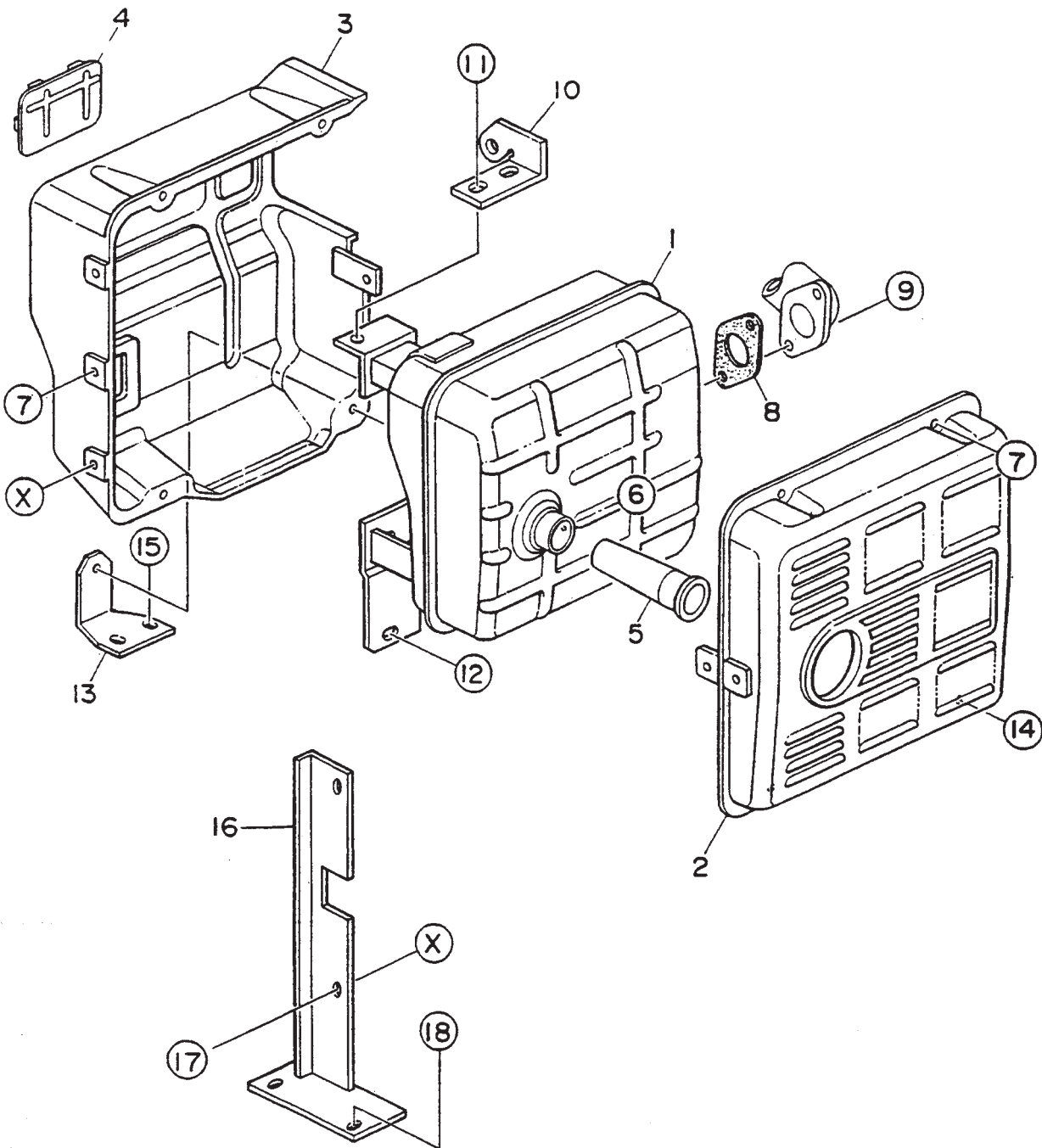
# GLW-180H — PIPE FRAME ASSY.

## PIPE FRAME ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	1975401012	PIPE FRAME	1	
2	1975401103	BASE	1	
3	3015419604	RUBBER SUSPENSION	2	
4	0207008000	HEX NUT	4	
5	1725419214	RUBBER SUSPENSION	2	
6	0207008000	HEX NUT	4	
7	0017108030	HEX HEAD BOLT	2	
	0207008000	HEX NUT	2	
8	0017108045	HEX HEAD BOLT	2	
	0207008000	HEX NUT	2	
9	7915455103	COVER	1	
10	7855455003	COVER	1	
11	0017106016	HEX HEAD BOLT	6	
12	1975401304	STOPPER	1	
13	0017106016	HEX HEAD BOLT	2	
14	1975511002	TEAL/MINT GREEN FUEL TANK	1	
14	1975511002MQ0	ORANGE/RED FUEL TANK	1	
15	0810106004	CAP, FUEL TANK	1	
16	0810107103	FUEL FILTER	1	
17	7855525514	RUBBER CUSHION	2	
18	7855525604	COLLAR	2	
19	0017108030	HEX HEAD BOLT	2	
20	0017108020	HEX HEAD BOLT	2	
21	16950ZB4015	FUEL COCK .....	1	REPLACES 0605511087
22	9500014519040	HOSE .....	1	REPLACES 0605513140
23	0605515096	HOSE BAND 8	2	
24	1975401203	HEAT INSULATOR PANEL	1	
25	0017108020	HEX HEAD BOLT	1	

# GLW-180H — MUFFLER ASSY.

MUFFLER ASSY.

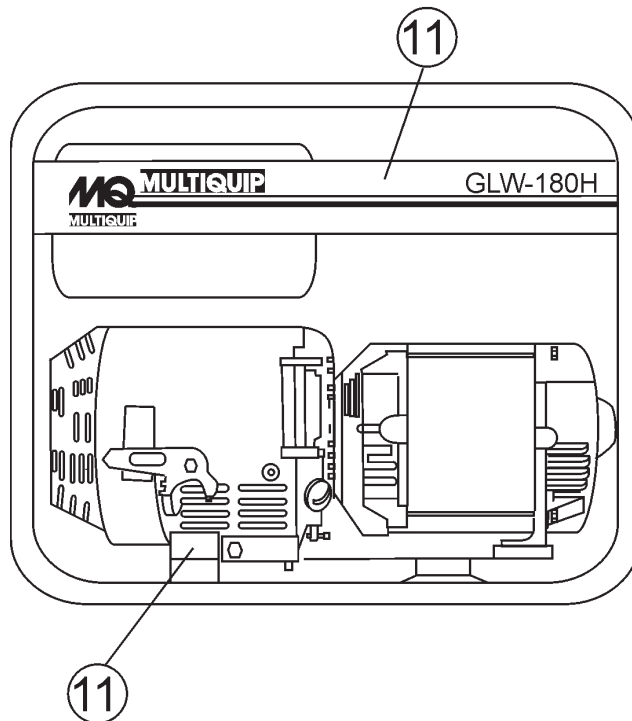
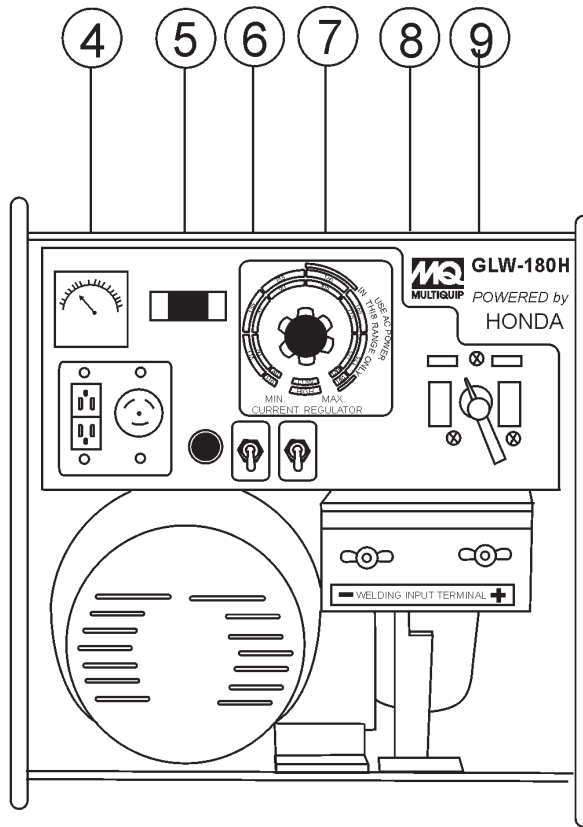


MUFFLER ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	7852310003	MUFFLER	1	
2	18320ZC2000	MUFFLER PROTECTOR .....	1	0602302001
3	18325ZB4000	MUFFLER PROTECTOR .....	1	0602302002
4	18329ZB4000	SEAL .....	2	0602302003
5	18355ZB4630	SPARK ARRESTOR .....	1	0602313060
6	90183671003	TAPPING SCREW .....	1	0602322060
7	0017106012	HEX HEAD BOLT	5	
8	18333ZB4800	GLWSKET .....	1	0602320175
9	957000802000	HEX HEAD BOLT .....	2	0602322061
10	7855469004	BRACKET	1	
11	0017108020	HEX HEAD BOLT	1	
12	0017108020	HEX HEAD BOLT	1	
13	7905469004	BRACKET	1	
14	0017106020	HEX HEAD BOLT	1	
15	0017106016	HEX HEAD BOLT	2	
16	7905468004	BRACKET .....	1	UP TO S/N. 4734153
	7905468014	BRACKET .....	1	FROM S/N.4734154
17	0017106012	HEX HEAD BOLT	2	
18	0017106016	HEX HEAD BOLT	2	

# GLW-180H — NAMEPLATE ASSY.

NAMEPLATE ASSY.



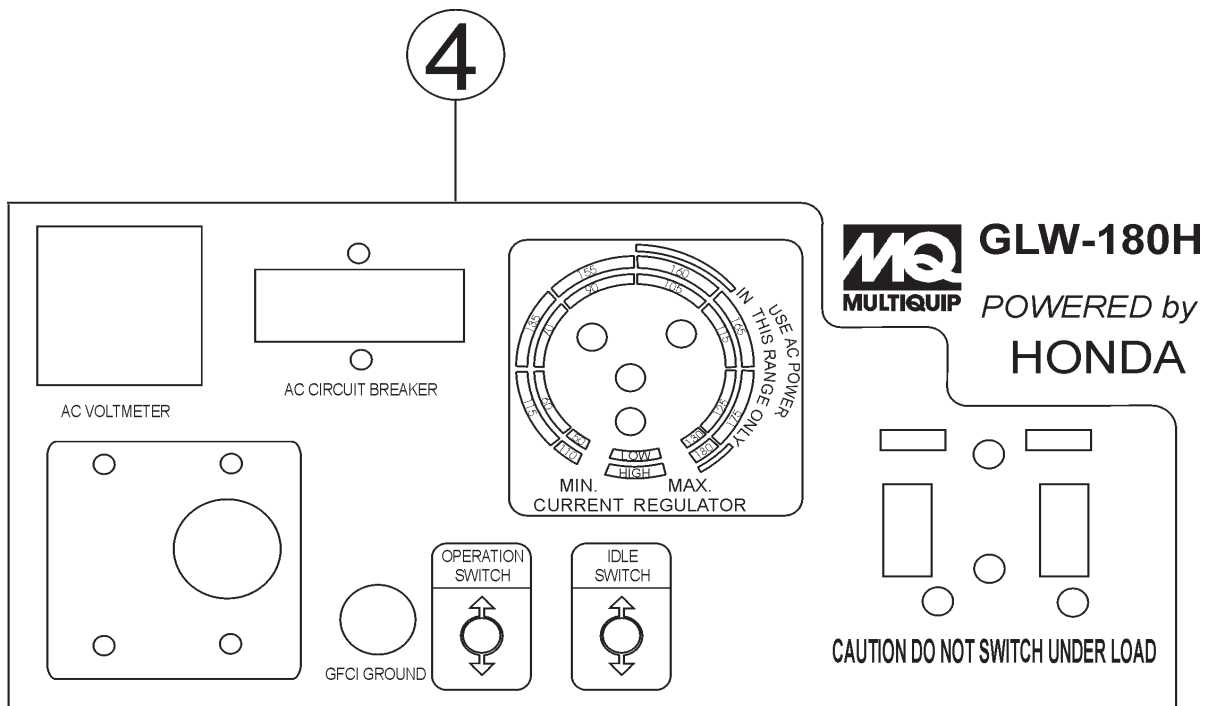


# GLW-180H — NAMEPLATE ASSY.

## NAMEPLATE ASSY.

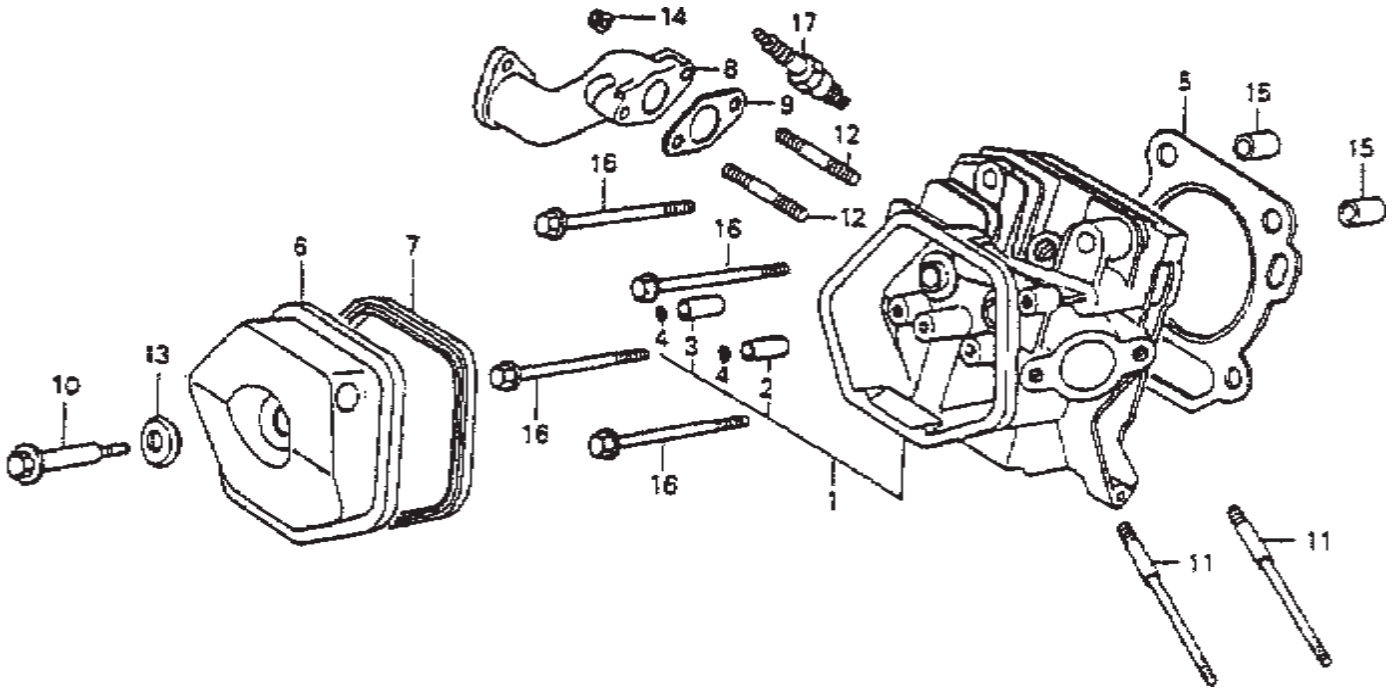
NO	PART NO	PART NAME	QTY.	REMARKS
1	0800628504	DECAL : GROUND	1	S-1123
2	1980680004	DECAL : FUEL COCK	1	S-3704
3	7900638204	DECAL : OPERATING INSTRUCTIONS	1	S-4607
4	TBD	DECAL : CURRENT RANGE CONTROL	1	
5	TBD	DECAL : MQ GLW-180	1	
6	0820610804	DECAL : CAUTION	1	DSC01
7	0820610404	DECAL : WARNING	1	
8	7900636004	DECAL : OPERATE AT 3600 RPM ONLY	1	
9	8700611804	DECAL : WARNING	1	S-4984
10	8700611904	DECAL : DANGER	1	S-4985

SEE DECAL ILLUSTRATIONS ON PAGE 7.



# HONDA GX340K1 ENGINE — CYLINDER HEAD

CYLINDER HEAD ASSY.



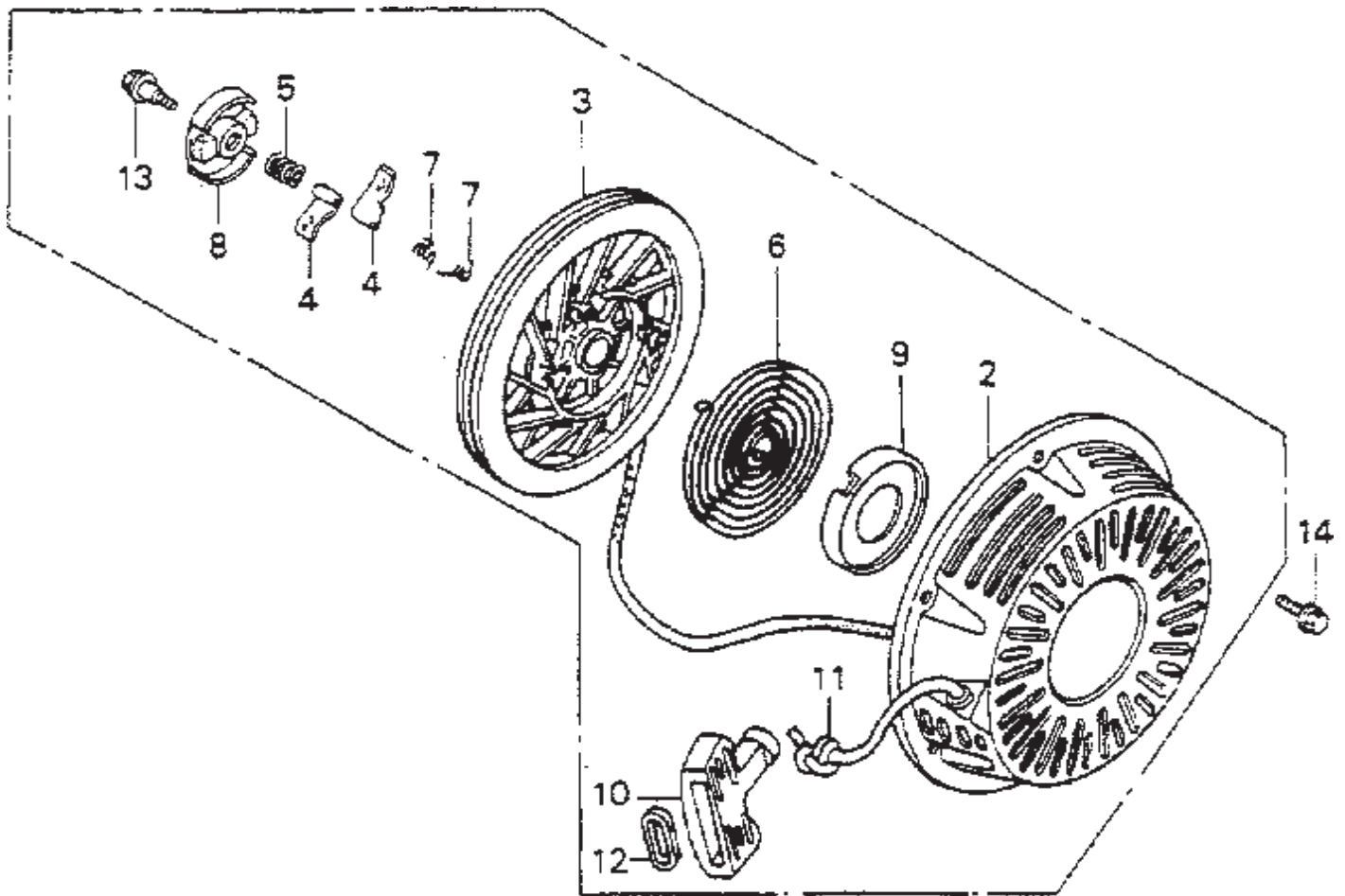
# HONDA GX340K1 ENGINE — CYLINDER HEAD

## CYLINDER HEAD ASSY.

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	122AOZF6W00	HEAD COMP., CYLINDER .....	1 .....	INCLUDES ITEM W/*
2*	12204ZE2325	GUIDE, IN. VALVE (OVER SIZE)	1	
3*	12205ZE2315	GUIDE, EX. VALVE (OVER SIZE)	1	
4*	12216ZE2300	CLIP, VALVE GUIDE	2	
5	12251ZE3W00	GLWSKET, CYLINDER HEAD	1	
6	12310ZE2010	COVER COMP., HEAD	1	
7	12391ZE2010	PACKING, HEAD COVER	1	
8	18330ZE3700	PIPE, EX.	1	
9	18333ZE3800	GLWSKET, EX. PIPE	1	
10	90014ZE2000	BOLT, HEAD COVER	1	
11	90042ZE3700	BOLT, STUD, 8X98	2	
12	90047ZE2000	BOLT, STUD, 8X47	2	
13	90441ZE2010	WASHER COMP., HEAD COVER	1	
14	9405008000	NUT, FLANGE, 8MM	2	
15	9430112200	PIN, DOWEL, 12X20	2	
16	957251008000	BOLT, FLANGE, 10X80	4	
17	9807955846	PLUG, SPARK (BPR5ES NGK)	1	
	9807955855	PLUG, SPARK (W16EPRU ND)	1	

# HONDA GX340K1 ENGINE — RECOIL STARTER

RECOIL STARTER ASSY.



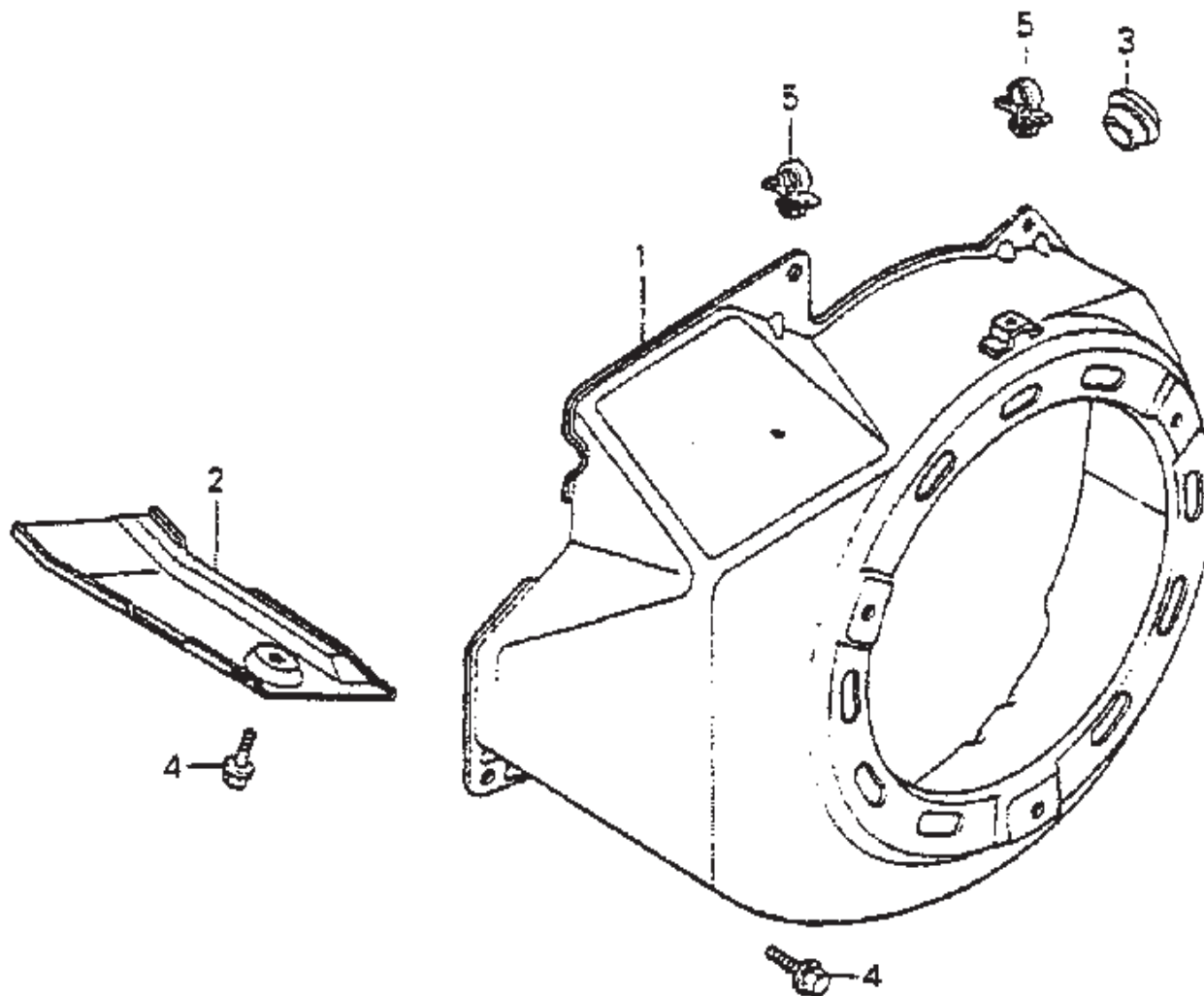
# HONDA GX340K1 ENGINE — RECOIL STARTER

## RECOIL STARTER ASSY.

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	28400ZE3W01ZB	STARTER ASSY, RECOIL	1	INCLUDES ITEMS W/*
2*	28410ZE3W01ZB	CASE COMP., RECOIL STARTER	1	
3*	28421ZE3W01	PULLEY, RECOIL STARTER	1	
4*	28422ZE2W01	RATCHET, STARTER	2	
5*	28441ZE2W01	SPRING, FRICTION	1	
6*	28442ZE2W01	SPRING, STARTER RETURN	1	
7*	28443ZE2W01	SPRING, RATCHET	2	
8*	28444ZE2W01	RETAINER, SPRING	1	
9*	28445ZE2W01	HOLDER, SPRING	1	
10*	28461ZE2W01	GRIP, STARTER	1	
11*	28462ZE3W01	ROPE, RECOIL STARTER	1	
12*	28469ZE2W01	GRID REINFORCEMENT	1	
13*	90004ZE2W01	SCREW, CENTER	1	
14	957010600800	BOLT, FLANGE, 6X8	3	

# HONDA GX340K1 ENGINE — FAN COVER

FAN COVER ASSY.



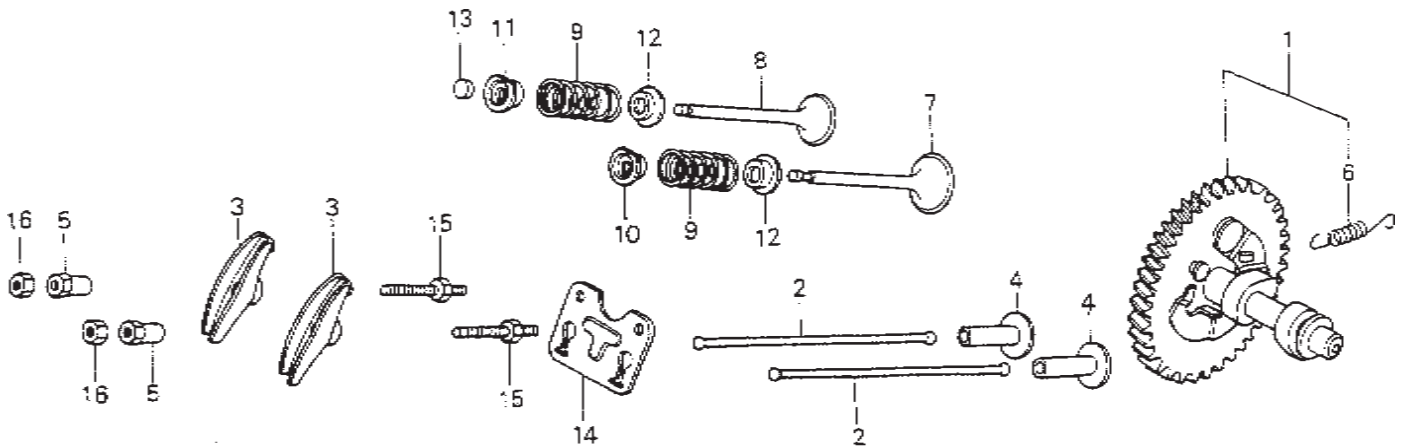
# HONDA GX340K1 ENGINE — FAN COVER

## FAN COVER ASSY.

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	19610ZE3700ZB	COVER COMP., FAN	1	
2	19631ZE3W00	SHROUD	1	
3	81329567020	GROMMET, DRAIN HOLE	1	
4	90013883000	BOLT, FLANGE, 6X12	6	
5	90654SA4003	CLIP	2	

# HONDA GX340K1 ENGINE — CAMSHAFT/VALVES

## CAMSHAFT/VALVES ASSY.





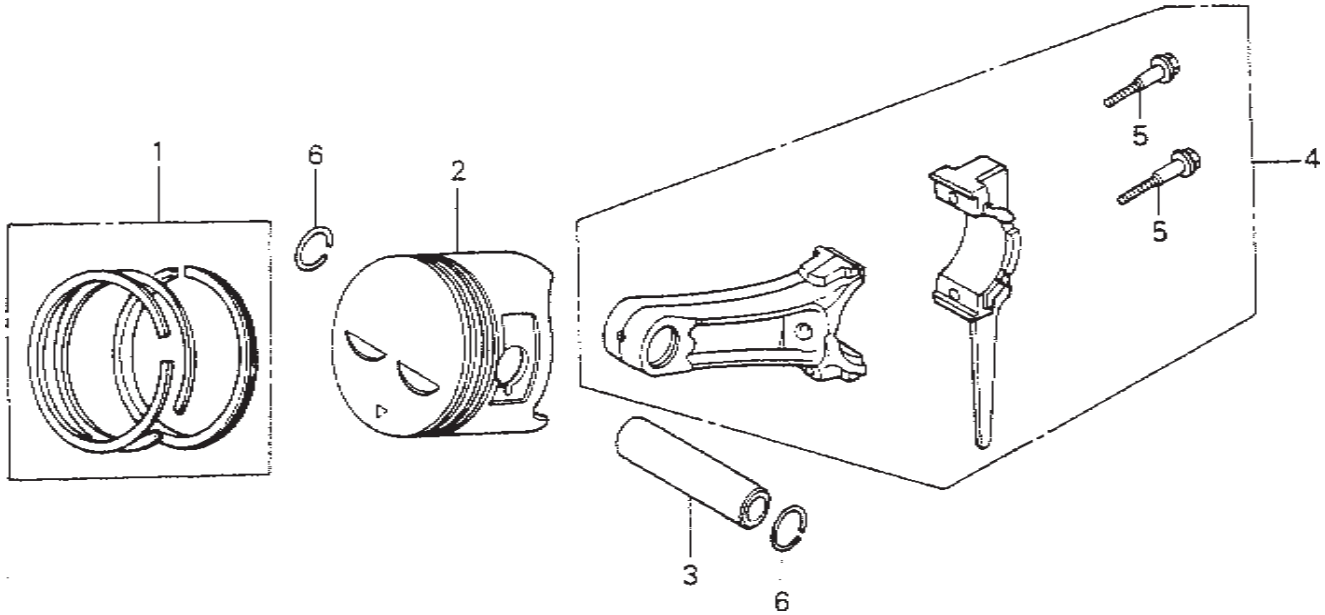
# HONDA GX340K1 ENGINE — CAMSHAFT/VALVES

## CAMSHAFT/VALVES ASSY.

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	14100ZE3010	CAMSHAFT ASSY. ....	1	INCLUDES ITEMS/W*
2	14410ZE3013	ROD, PUSH	2	
3	14431ZE2000	ARM, VALVE ROCKER	2	
4	14441ZE2000	LIFTER, VALVE	2	
5	14451ZE1003	PIVOT, ROCKER ARM	2	
6*	14568ZE1000	SPRING, WEIGHT RETURN	1	
7	14711ZE3000	VALVE, IN	1	
8	14721ZE3000	VALVE, EX.	1	
9	14751ZE2003	SPRING, VALVE	2	
10	14771ZE2000	RETAINER, IN. VALVE SPRING	1	
11	14773ZE2000	RETAINER, EX. VALVE SPRING	1	
12	14775ZE2010	SEAT, VALVE SPRING	2	
13	14781ZE2000	ROTATOR, VALVE	1	
14	14791ZE2010	PLATE, PUSH ROD GUIDE	1	
15	90012ZE0010	BOLT, PIVOT	2	
16	90206ZE1000	NUT, PIVOT ADJUSTING	2	

# HONDA GX340K1 ENGINE — PISTON/RINGS

PISTON/RINGS ASSY.



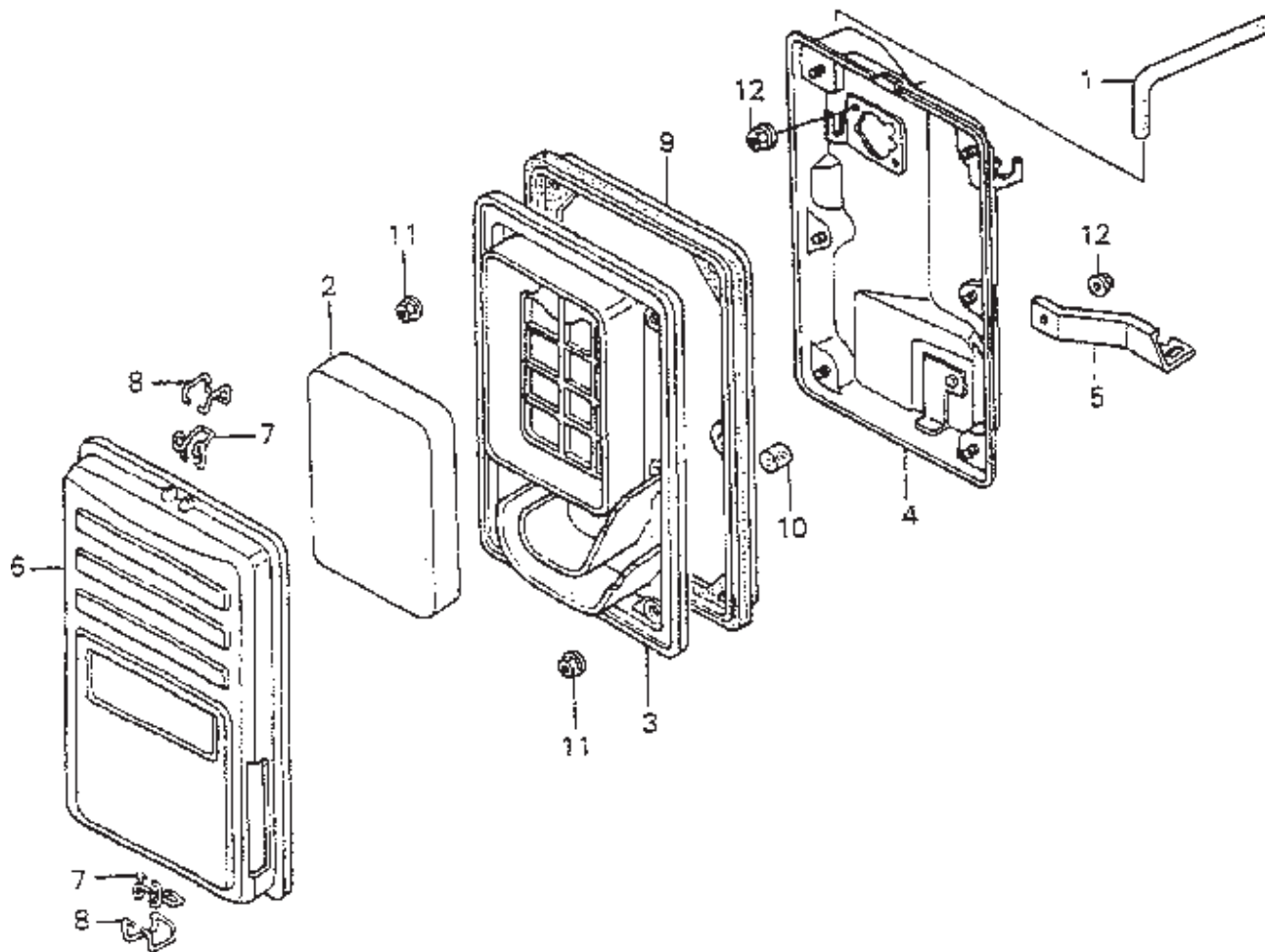
# HONDA GX340K1 ENGINE — PISTON/RINGS

## PISTON/RINGS ASSY.

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	13010ZE3003	RING SET, PISTON (STD)	1	
	13011ZE3003	RING SET, PISTON (0.25)	1	
	13012ZE3003	RING SET, PISTON (0.50)	1	
	13013ZE3003	RING SET, PISTON (0.75)	1	
2	13101ZE3W00	PISTON (STD)	1	
	13102ZE3W00	PISTON (0.25)	1	
	13103ZE3W00	PISTON (0.50)	1	
	13104ZE3W00	PISTON (0.75)	1	
3	13111ZF6000	PIN, PISTON	1	
4	13200ZE3010	ROD ASSY., CONNECTING .....	1	INCLUDES ITEM W/*
5*	90001ZE8000	BOLT, CONNECTING ROD	2	
6	90601ZE3000	CLIP, PISTON PIN, 18MM	2	

# HONDA GX340K1 ENGINE — AIR CLEANER

AIR CLEANER ASSY.



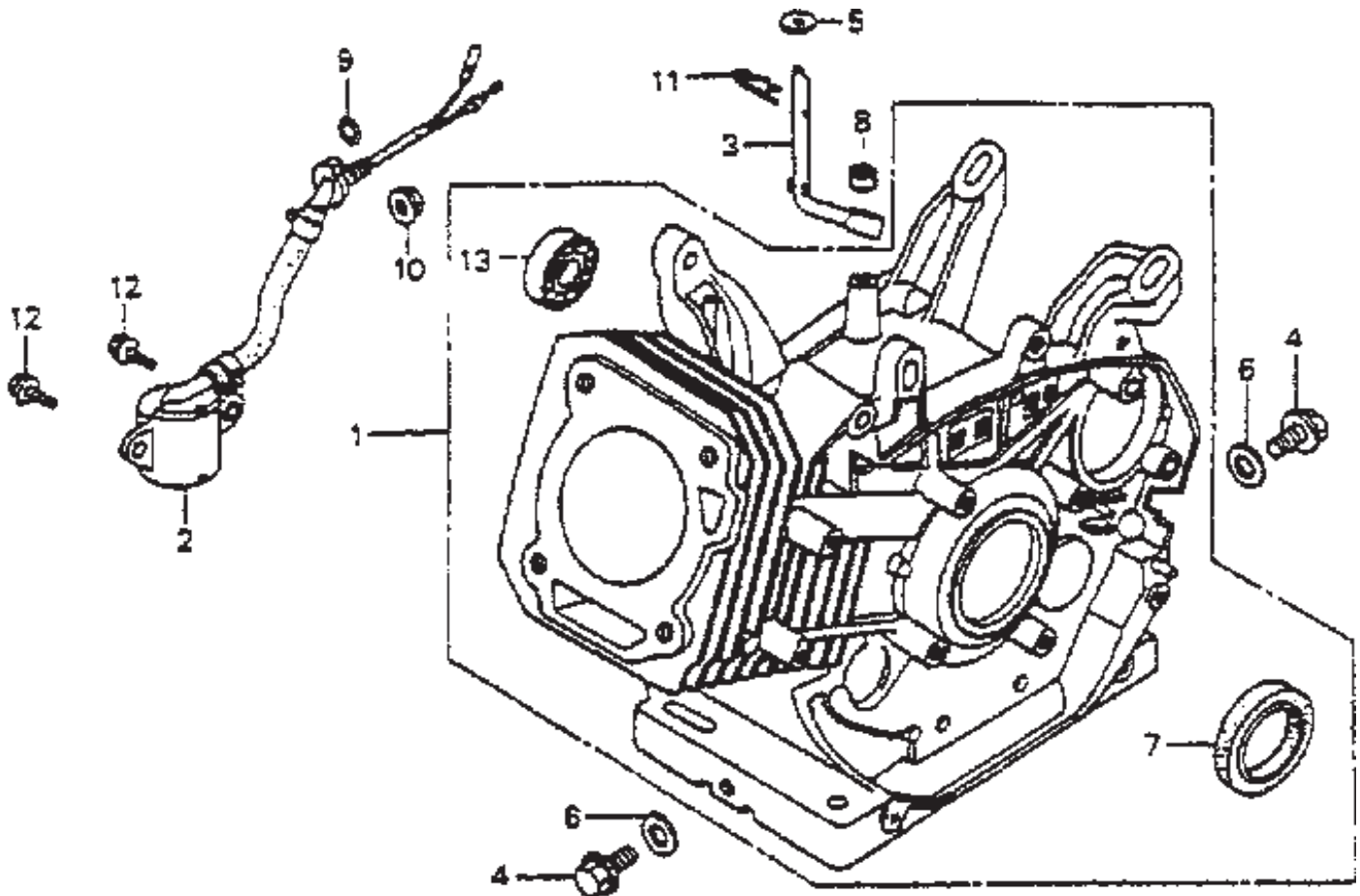
# HONDA GX340K1 ENGINE — AIR CLEANER

## AIR CLEANER ASSY.

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	15721ZB4000	TUBE BREATHER	1	
2	17211899000	ELEMENT, AIR CLEANER	1	
3	17212ZB4003	SEPARATOR, AIR CLEANER	1	
4	17220ZB4003	CASE COMP., AIR CLEANER	1	
5	17222ZC2000	STAY, AIR CLEANER	1	
6	17231899000	COVER COMP., AIR CLEANER	1	
7	17235899000	CLIP A, AIR CLEANER WIRE	2	
8	17236899000	CLIP B, AIR CLEANER WIRE	2	
9	17252899000	SEAL, AIR CLEANER	1	
10	17367413690	FILTER, DRAIN TUBE	1	
11	9405005000	NUT, FLANGE, 5 MM	6	
12	9405006000	NUT, FLANGE, 6 MM	3	

# HONDA GX340K1 ENGINE — CYLINDER BARREL

CYLINDER BARREL ASSY. (RECOIL STARTER)



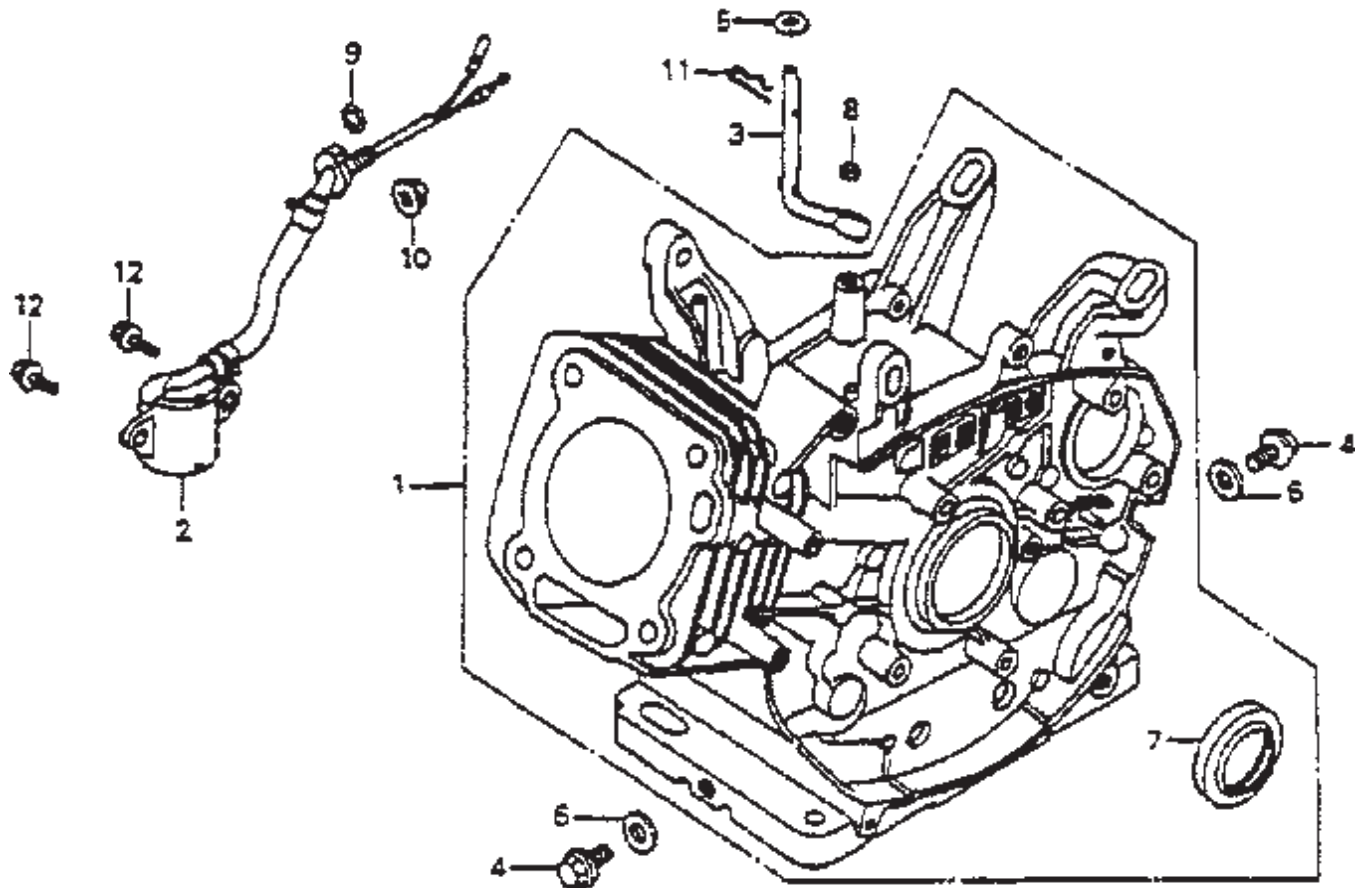
# HONDA GX340K1 ENGINE — CYLINDER BARREL

## CYLINDER BARREL ASSY. (RECOIL STARTER)

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	12000ZE3816	BARREL ASSY., CYLINDER	1	
2	15510ZE2043	SWITCH ASSY., OIL LEVEL	1	
3	16541ZE3000	SHAFT, GOVERNOR ARM	1	
4	90131883000	BOLT, DRAIN PLUG	2	
5	90446KE1000	WASHER, 8.2X17X0.8	1	
6	9410912000	WASHER, DRAIN PLUG	2	
7	91201ZE3004	OIL SEAL	1	
8	91203952771	OIL SEAL	1	
9	91353671004	ORING, 14 MM	1	
10	9405010000	NUT, FLANGE, 10 MM	1	
11	9425108000	PIN, LOCK, 8 MM	1	
12	957010601200	BOLT, FLANGE, 6X12	2	
13	961006202000	BEARING, RADIAL BALL 6202	1	

# HONDA GX340K1 ENGINE — CYLINDER BARREL ASSY.

CYLINDER BARREL ASSY. (ELECTRIC START)





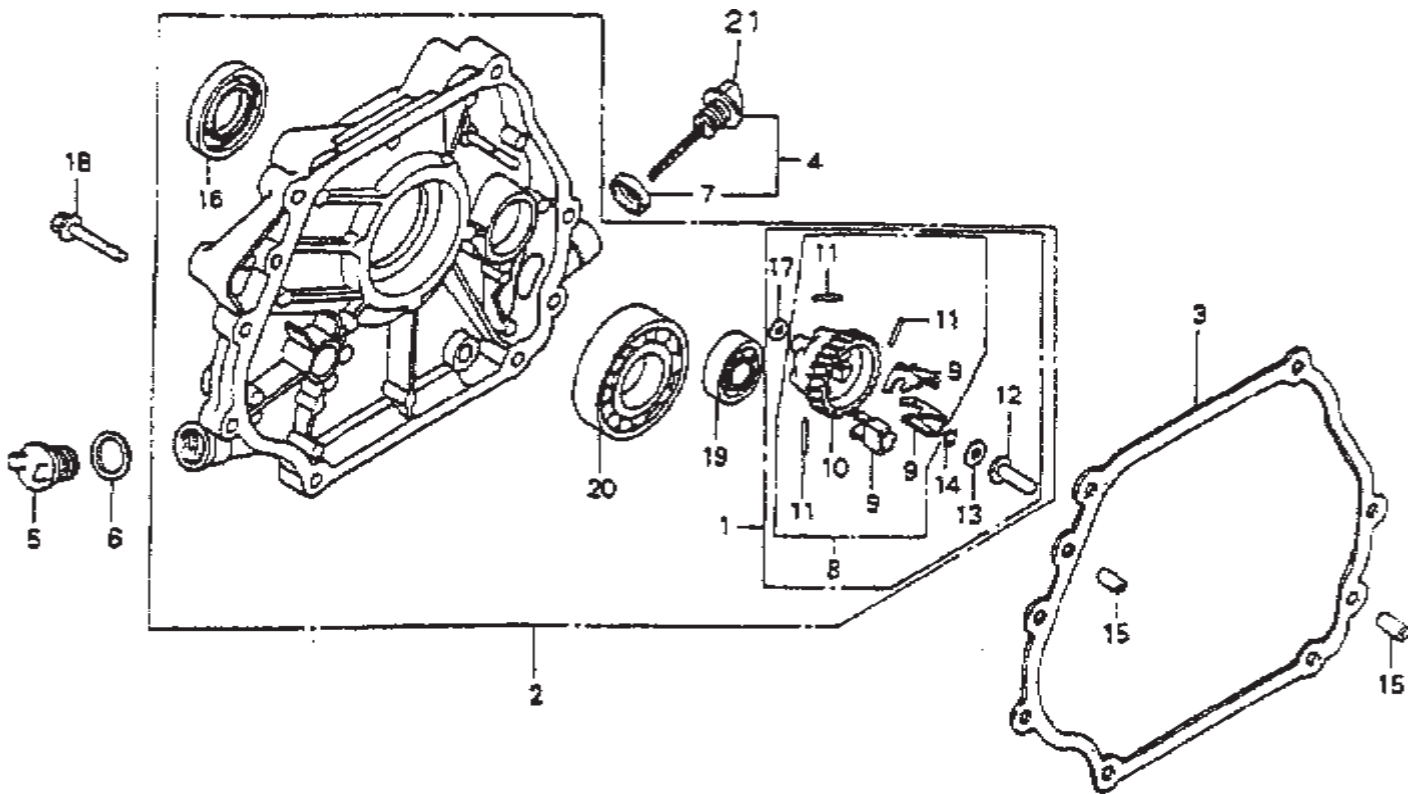
## HONDA GX340K1 ENGINE — CYLINDER BARREL ASSY.

CYLINDER BARREL ASSY. (ELECTRIC START)

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	12000ZE3826	BARREL ASSY., CYLINDER	1	
2	15510ZE2043	SWITCH ASSY., OIL LEVEL	1	
3	16541ZE3000	SHAFT, GOVERNOR ARM	1	
4	90131883000	BOLT, DRAIN PLUG	2	
5	90446KE1000	WASHER, 8.2X17X0.8	1	
6	9410912000	WASHER, DRAIN PLUG	2	
7	91201ZE300	OIL SEAL	1	
8	91203952771	OIL SEAL	1	
9	91353671004	ORING, 14 MM	1	
10	9405010000	NUT, FLANGE, 10 MM	1	
11	9425108000	PIN, LOCK, 8 MM	1	
12	957010601200	BOLT, FLANGE, 6X12	2	
13	961006202000	BEARING, RADIAL BALL 6202	1	

# HONDA GX340K1 ENGINE — CRANKCASE COVER/GOVERNOR ASSY.

CRANKCASE COVER/GOVERNOR ASSY.



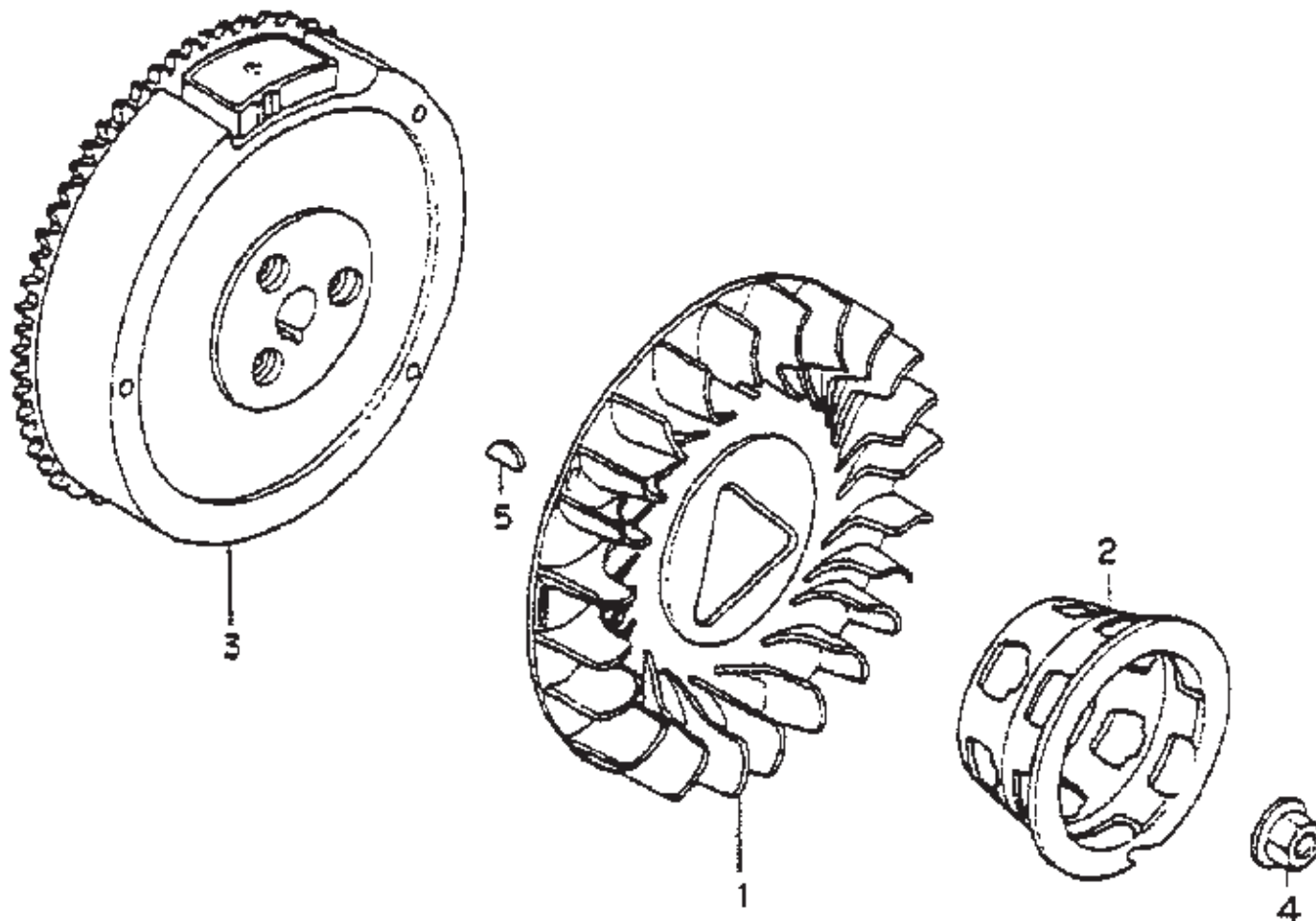
# HONDA GX340K1 ENGINE — CRANKCASE COVER/GOVERNOR ASSY.

## CRANKCASE COVER/GOVERNOR ASSY.

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1+	06165ZE3000	GOVERNOR KIT .....	1	INCLUDES ITEM W/*
2	11300ZE3020	COVER ASSY., CRANKCASE .....	1	INCLUDES ITEM W/+
3	11381ZE3800	PACKING, CASE COVER	1	
4	15600735700	CAP ASSY., OIL FILLER .....	1	INCLUDES ITEM W/#
5	15621896010	PACKING, OIL FILLER CAP	1	
6	15625ZE1000	PACKING, OIL FILLER CAP	1	
7#	16510ZE3000	GOVERNOR ASSY.	1	
8*+	16511ZE8000	WEIGHT, GOVERNOR	3	
9*+	16512ZE3000	HOLDER, GOVERNOR WEIGHT	1	
10*+	16513ZE2000	PIN, GOVERNOR WEIGHT	3	
11*+	16531ZE2000	SLIDER, GOVERNOR	1	
12*+	16520ZG4910	CAP, OIL FILLER	1	
13*+	90473147000	WASHER, 6X16	1	
14*+	90602ZE1000	CLIP, GOVERNOR HOLDER	1	
15	91201ZE3004	OIL SEAL, 35X52X8	1	
16+	9410106800	WASHER, PLAIN, 6 MM	1	
17*	90701HC4000	PIN, DOWEL, 8X12	2	
18	959000804000	BOLT, FLANGE, 8X40	7	
19+	961006202000	BEARING, RADIAL BALL 6202	1	
20+	961006207000	BEARING, RADIAL BALL 6207	1	
21#	15620735700	CAP, OIL FILLER	1	

# HONDA GX340K1 ENGINE — FLYWHEEL/FAN ASSY.

FLYWHEEL/FAN ASSY.



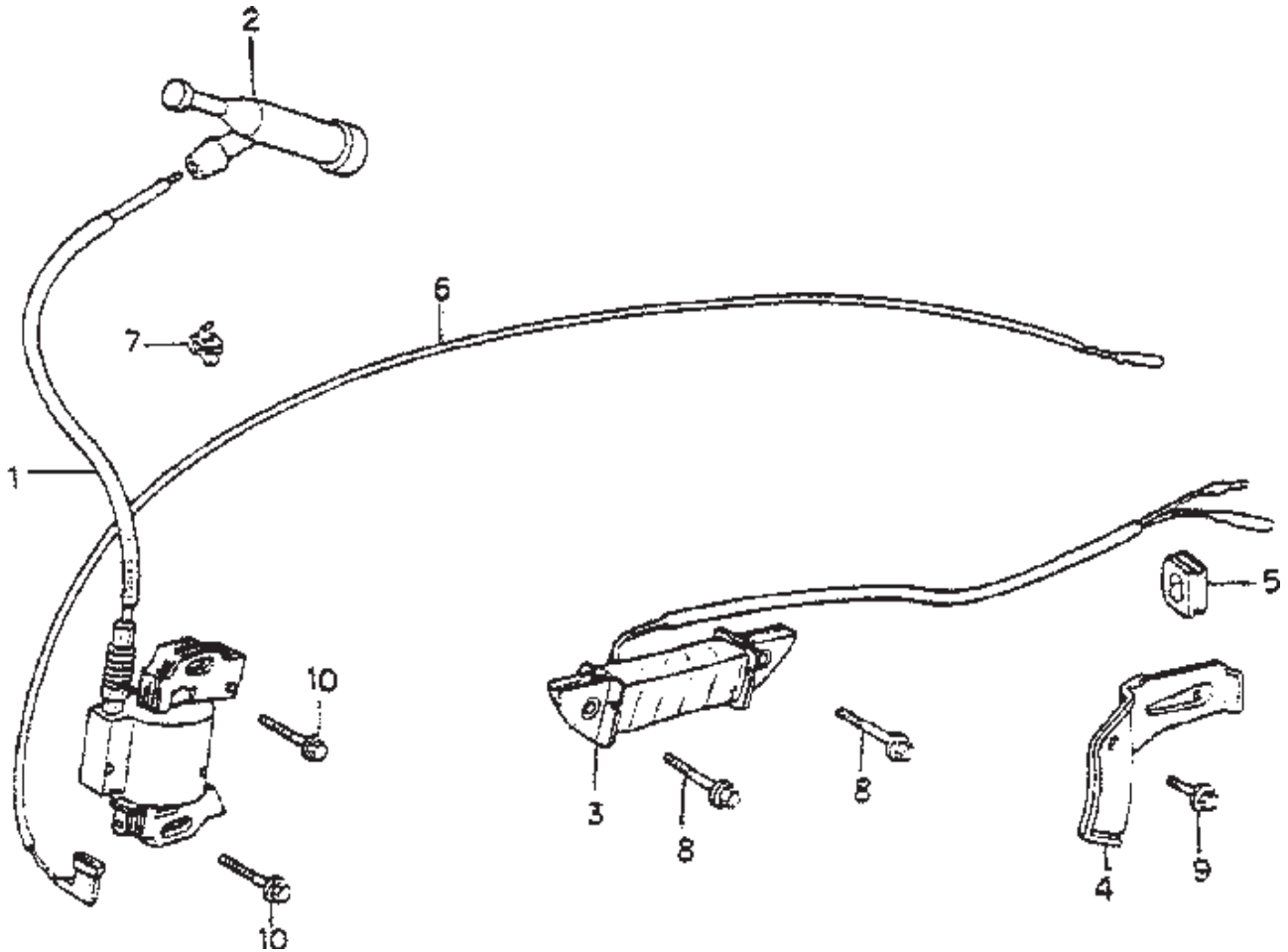
# HONDA GX340K1 ENGINE — FLYWHEEL/FAN ASSY.

## FLYWHEEL/FAN ASSY.

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	19511ZE3000	FAN, COOLING	1	
2	28451ZE3W01	PULLEY, STARTER	1	
3	31100ZE3721	FLYWHEEL COMP.	1	
4	90201ZE3790	NUT, SPECIAL, 16 MM	1	
5	90741ZE2000	KEY, SPECIAL WOODRUFF	1	

# HONDA GX340K1 ENGINE — COIL ASSY.

COIL ASSY.



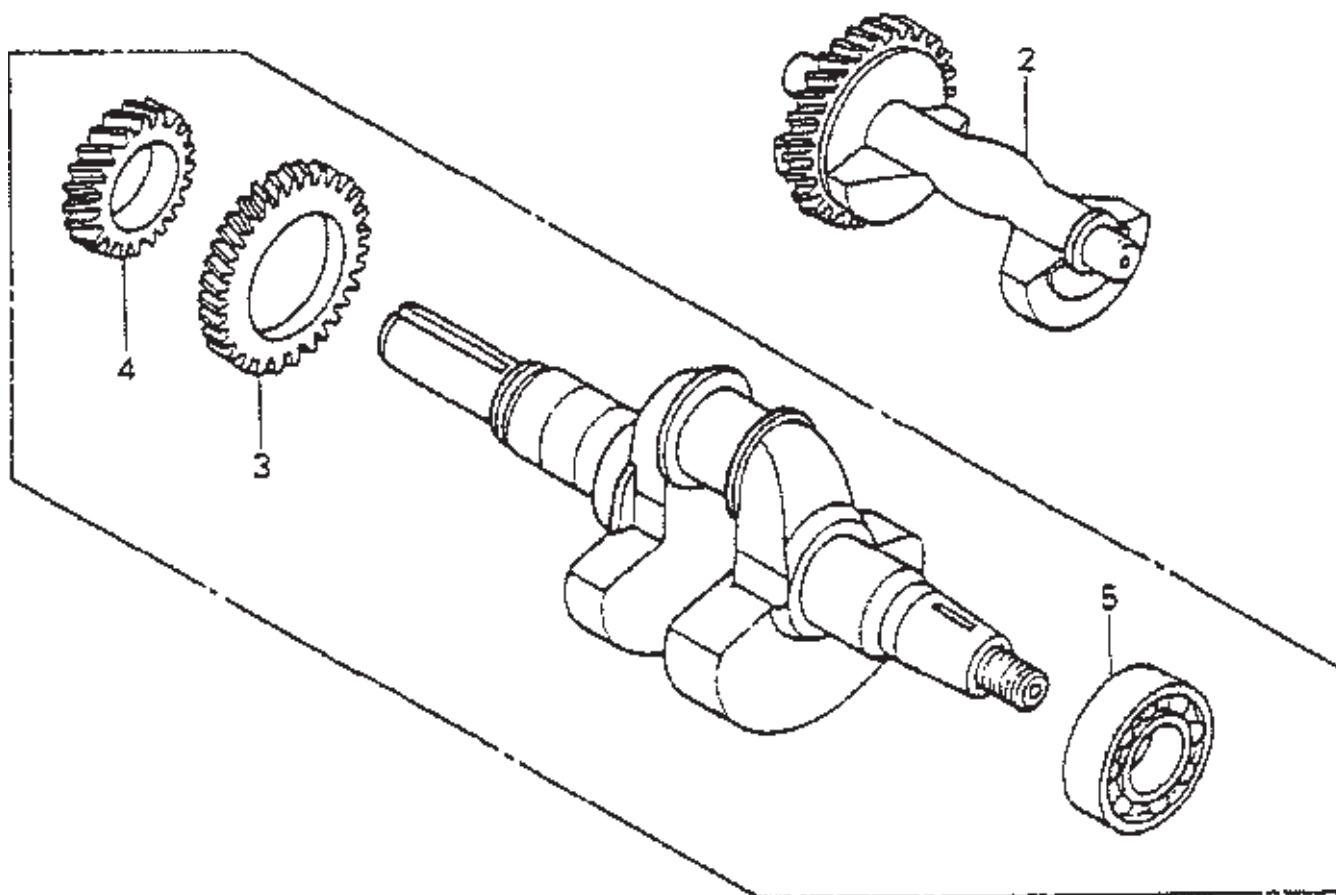
# HONDA GX340K1 ENGINE — COIL ASSY.

## COIL ASSY.

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	30500ZE2013	COIL ASSY., IGNITION	1	
2	30700ZE1013	CAP ASSY., NOISE SUPPRESSO	1	
3	31510ZE1811	COIL ASSY., LAMP 12V/25W	1	
4	31511ZE3000	CLAMP, WIRE	1	
5	31512ZE2000	GROMMET, CORD	1	
6	36101ZE3800	CORD, STOP SWITCH	1	
7	36103ZE1000	HOLDER, STOP SWITCH CORD	1	
8	90012888000	BOLT, FLANGE, 6X40	4	
9	90013883000	BOLT, FLANGE, 6X12	1	
10	90015883000	BOLT, FLANGE, 6X28	2	

# HONDA GX340K1 ENGINE — CRANKSHAFT ASSY.

CRANKSHAFT ASSY.





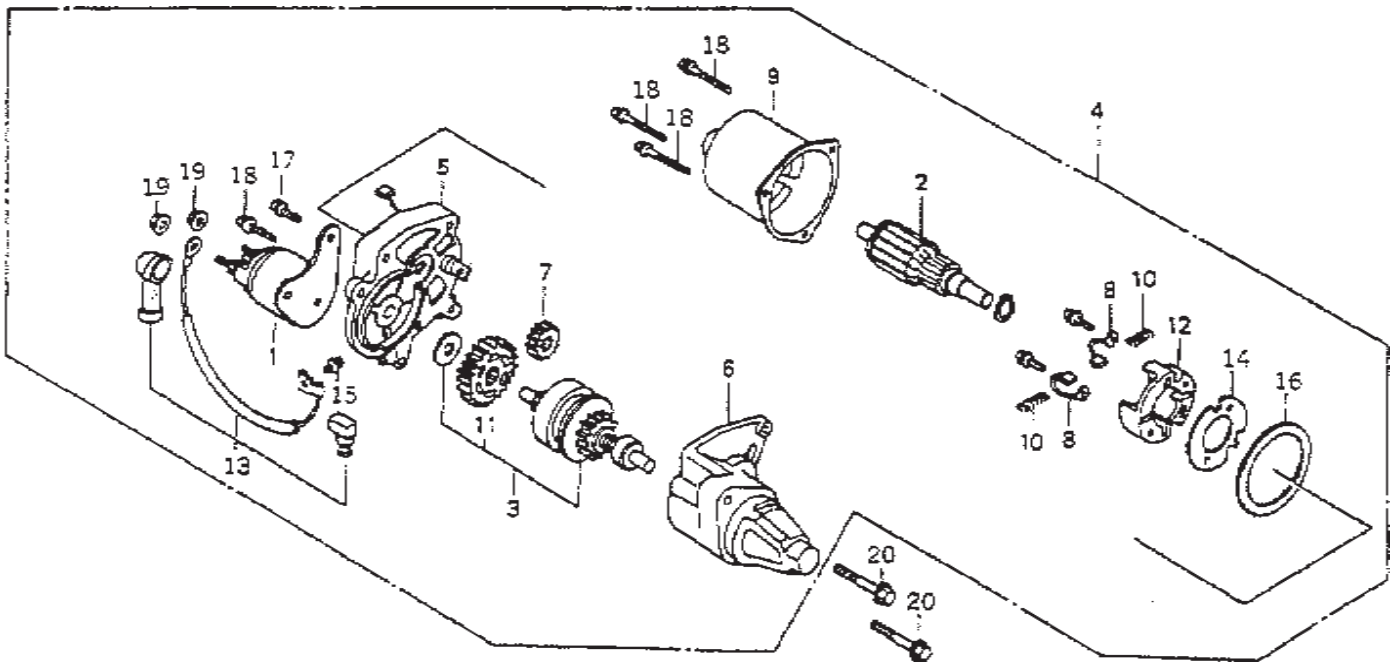
# HONDA GX340K1 ENGINE — CRANKSHAFT ASSY.

## CRANKSHAFT ASSY.

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	13310ZE3701	CRANKSHAFT COMP. ....	1	INCLUDES ITEMS W/★
2	13351ZE3010	WEIGHT, BALANCER	1	
3★	13352ZE3310	GEAR, BALANCER DRIVE	1	
4★	14311ZE3310	GEAR, TIMING	1	
5★	961006207000	BEARING, RADIAL BALL, 6207	1	

# HONDA GX340K1 ENGINE — ELECTRIC STARTER ASSY.

ELECTRIC STARTER ASSY.



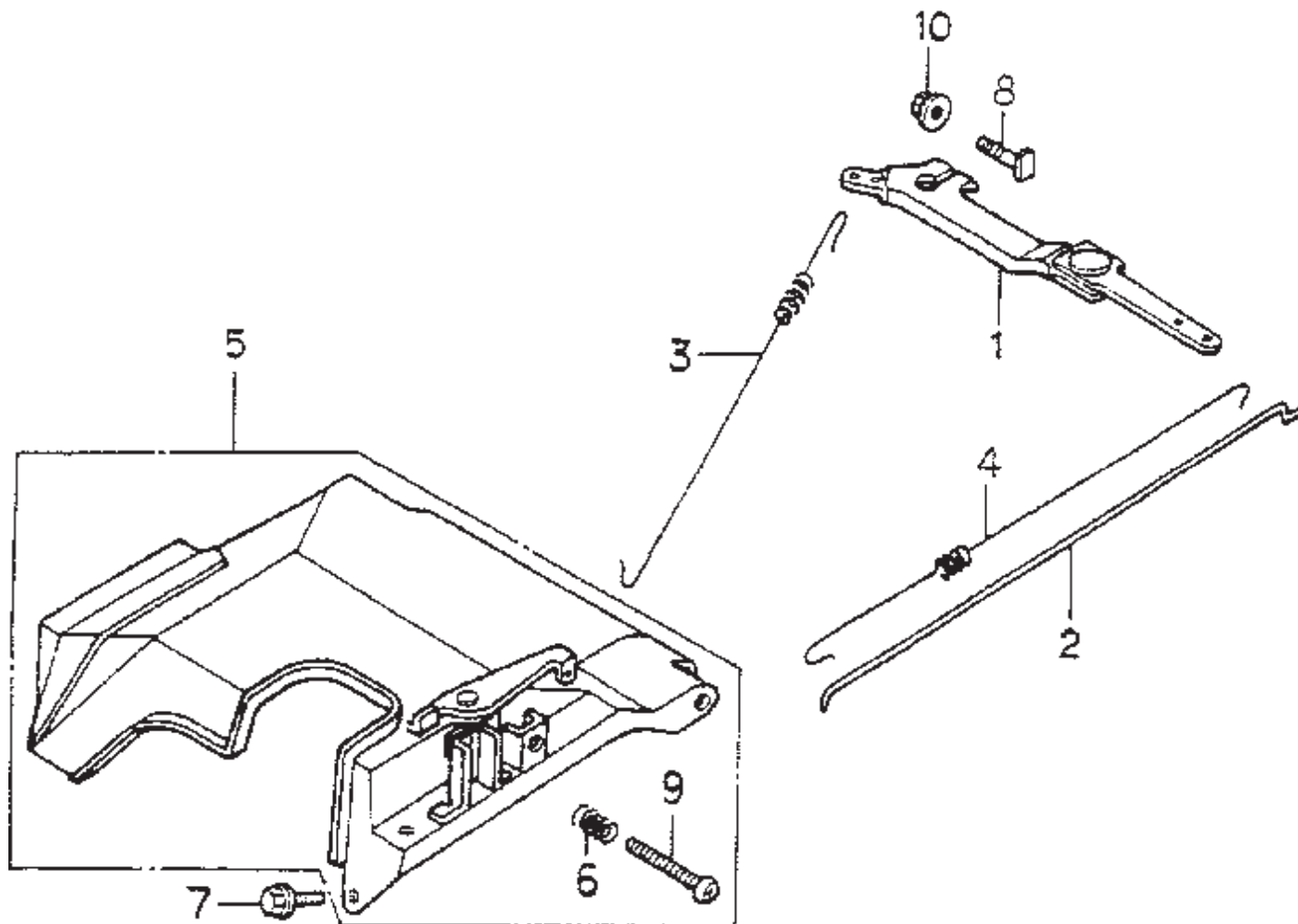
# HONDA GX340K1 ENGINE — ELECTRIC STARTER ASSY.

## ELECTRIC STARTER ASSY.

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1*	31204ZA0003	CONTACTOR ASSY,	1	
2*	31206ZE3003	ARMATURE COMP	1	
3*	31207ZE3013	CLUTCH COMP, OVER RUNNING	1	.... INCLUDES ITEMS W/#
4	31201ZE3013	MOTOR UNIT, STARTER .....	1	.... INCLUDES ITEMS W/*
5*	31211ZE2003	BRACKET, CENTER	1	
6*	31212ZE3003	BRACKET, FR	1	
7*	31213ZE2003	GEAR, DRIVE DINION	1	
8*	31215ZE2003	BRUSH	2	
9*	31218ZE3003	YOKE COMP	1	
10*	31219ZE2003	SPRING, BRUSH RETURN	4	
11*#	31222ZE3791	GEAR, REDUCTION	1	
12*	31231ZE2003	HOLDER, BRUSH	1	
13*	31232ZE3003	WIRE, WATER COVER	1	
14*	31233ZE2003	INSULATOR	1	
15*	90110ZE2003	SCREW-WASHER, 4X6	1	
16*	91601ZE2003	PACKING	1	
17*	938920501418	SCREW-WASHER, 5X14	1	
18*	938920503218	SCREW-WASHER, 5X32	4	
19*	9407206080	NUT-WASHER, 6MM	2	
20	957010803508	BOLT, FLANGE, 8X35	2	

# HONDA GX340K1 ENGINE — GOVERNOR CONTROLS ASSY.

GOVERNOR CONTROLS ASSY.



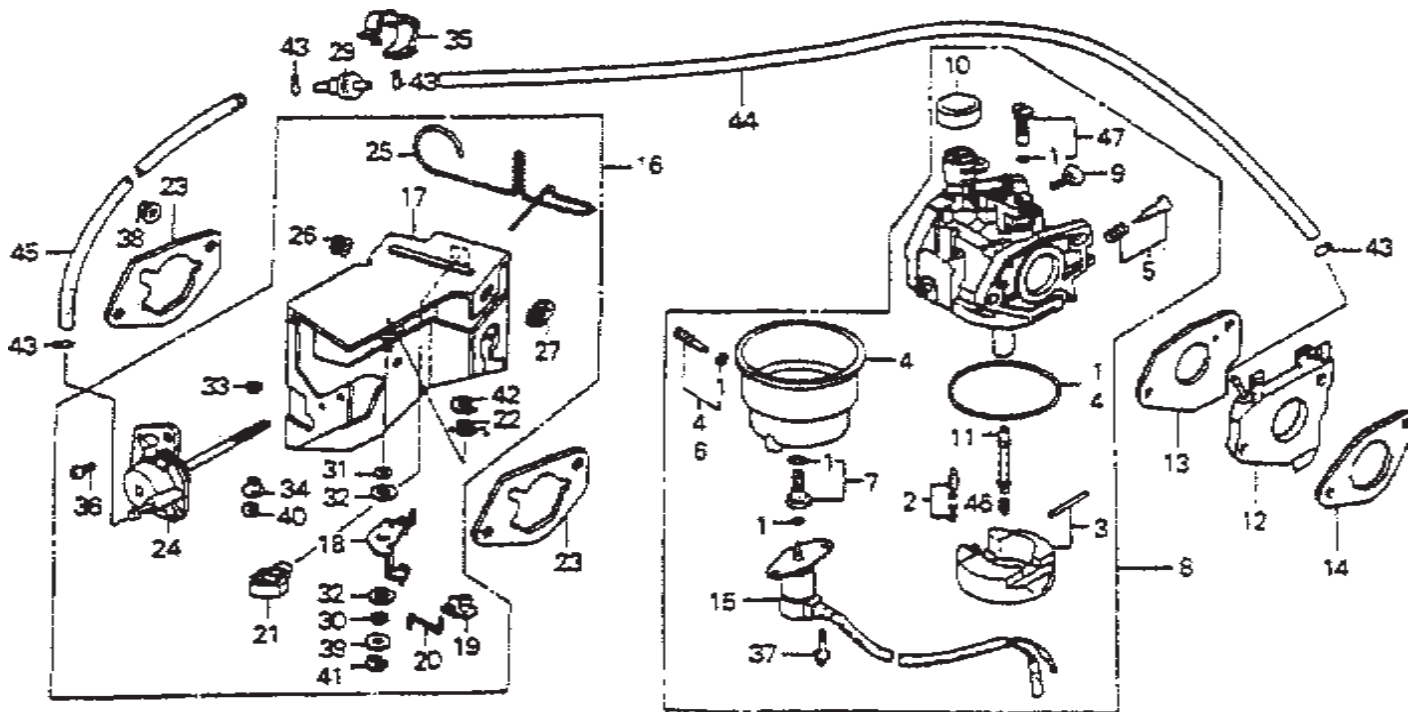
# HONDA GX340K1 ENGINE — GOVERNOR CONTROLS ASSY.

## GOVERNOR CONTROLS ASSY.

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	16550ZE3700	ARM, GOVERNOR	1	
2	16555ZE3000	ROD, GOVERNOR	1	
3	16561ZE3000	SPRING, GOVERNOR	1	
4	16562ZE3700	SPRING, THROTTLE RETURN	1	
5	16570ZE3700	CONTROL ASSY. ....	1	.... INCLUDES ITEMS W/*
6*	16584883300	SPRING, CONTROL ADJUSTING	1	
7	90013883000	BOLT, FLANGE, 6X12	1	
8	90015ZE5010	BOLT, GOVERNOR ARM	1	
9*	93500050350A	SCREW, PAN, 5X35	1	
10	9405006000	NUT, FLANGE, 6MM	1	

# HONDA GX340K1 ENGINE — CARBURETOR ASSY.

CARBURETOR ASSY.



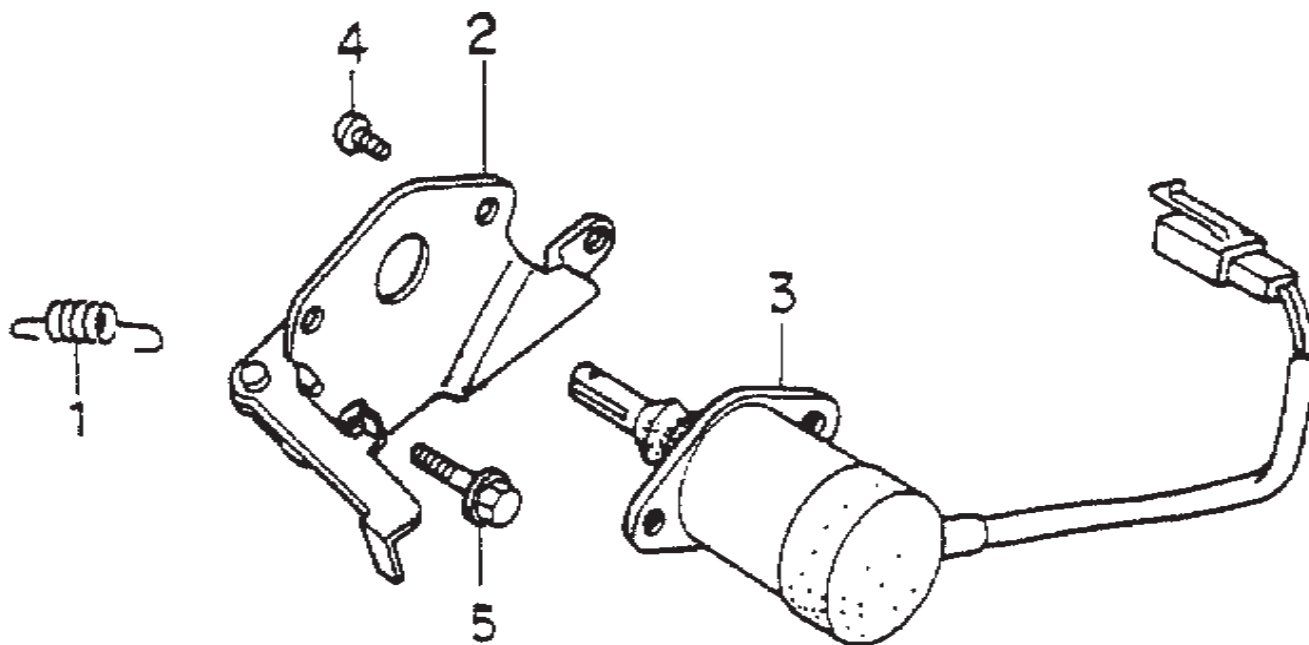
# HONDA GX340K1 ENGINE — CARBURETOR ASSY.

## CARBURETOR ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
1*	16010ZE3701	GLWSKET SET	1	
2*	16011ZA0931	VALVE SET, FLOAT	1	
3*	16013ZA0931	FLOAT SET	1	
4*	16015ZA0931	CHAMBER SET, FLOAT	1	
5	16016ZH7W01	SCREW SET	1	
6*	16024124761	SCREW SET, DRAIN	1	
7*	16028ZA0931	SCREW SET	1	
8	16100ZE3F10	CARBURETOR ASSY. ....	1	INCLUDES ITEMS W/*
9*	16124ZE0005	SCREW, THROTTLE STOP	1	
10*	16148141881	CAP, CHOKE DUST	1	
11	16166ZE3701	NOZZLE, MAIN	1	
12	16211ZE3700	INSULATOR, CARBURETOR	1	
13	16221ZE3800	PACKING, CARBURETOR	1	
14	16223ZE3800	PACKING, INSULATOR	1	
15*	16230ZE3701	VALVE ASSY., SOLENOID	1	
16	16260ZE2722	STAY, MANUAL CHOKE .....	1	INCLUDES ITEMS W/#
17#	16261ZE2702	STAY, COMP., SOLENIOD	1	
18#	16262ZE2711	LEVER, CHOKE	1	
19#	16263ZA0000	JOINT, ROD	1	
20#	16264ZE2701	ROD, CHOKE	1	
21#	16265ZE2721	STOPER, CHOKE ROD	1	
22#	16268ZE2721	SPRING, MANUAL CHOKE	1	
23	16269ZA0800	PACKING, AIR CLEANER	2	
24#	16400ZE2703	DIAPHRAGM ASSY.	1	
25#	16611ZE2711	ROD, CHOKE CONTROL	1	
26#	16613893000	GROMMET, CHOKE ROD	1	
27#	16615893000	GUIDE, CHOKE ROD	1	
29	36135ZV1003	VALVE, DASHPOT CHECK	1	
30#	53149964003	BUSH, ARM PIVOT	1	
31#	90431ZE2700	WASHER, CHOKE LEVER	1	
32#	90432ZE2700	SEAL, CHOKE LEVER	2	
33#	90433ZE2700	WASHER, THRUST	1	
34#	90434ZE2700	COLLAR, LOVER	1	
35	90650SD9003	CLIP, WIRE HARNESS	1	
36#	93500050120A	SCREW, PAN, 5X12	2	
37*	938920501208	SCREW, WASHER 5X12	2	
38	9405006000	NUT, FLANGE, 6MM	2	
39#	9410305000	WASHER, PLAIN 5MM	1	
40#	9454002010	E-RING 2MM	1	
41#	9454004010	E-RING 4MM	1	
42#	9454007010	E-RING 7MM	1	
43	9500202070	CLIP B7, TUBE	4	
44	950053507510	TUBE, 3.5X75	1	
45	950053513010	TUBE, 3.5X130	1	
46*	99101ZF50920	JET, MAIN, #92	1	
	99101ZF50950	JET, MAIN, #95	1	

# HONDA GX340K1 ENGINE — SOLENOID ASSY.

SOLENOID ASSY.





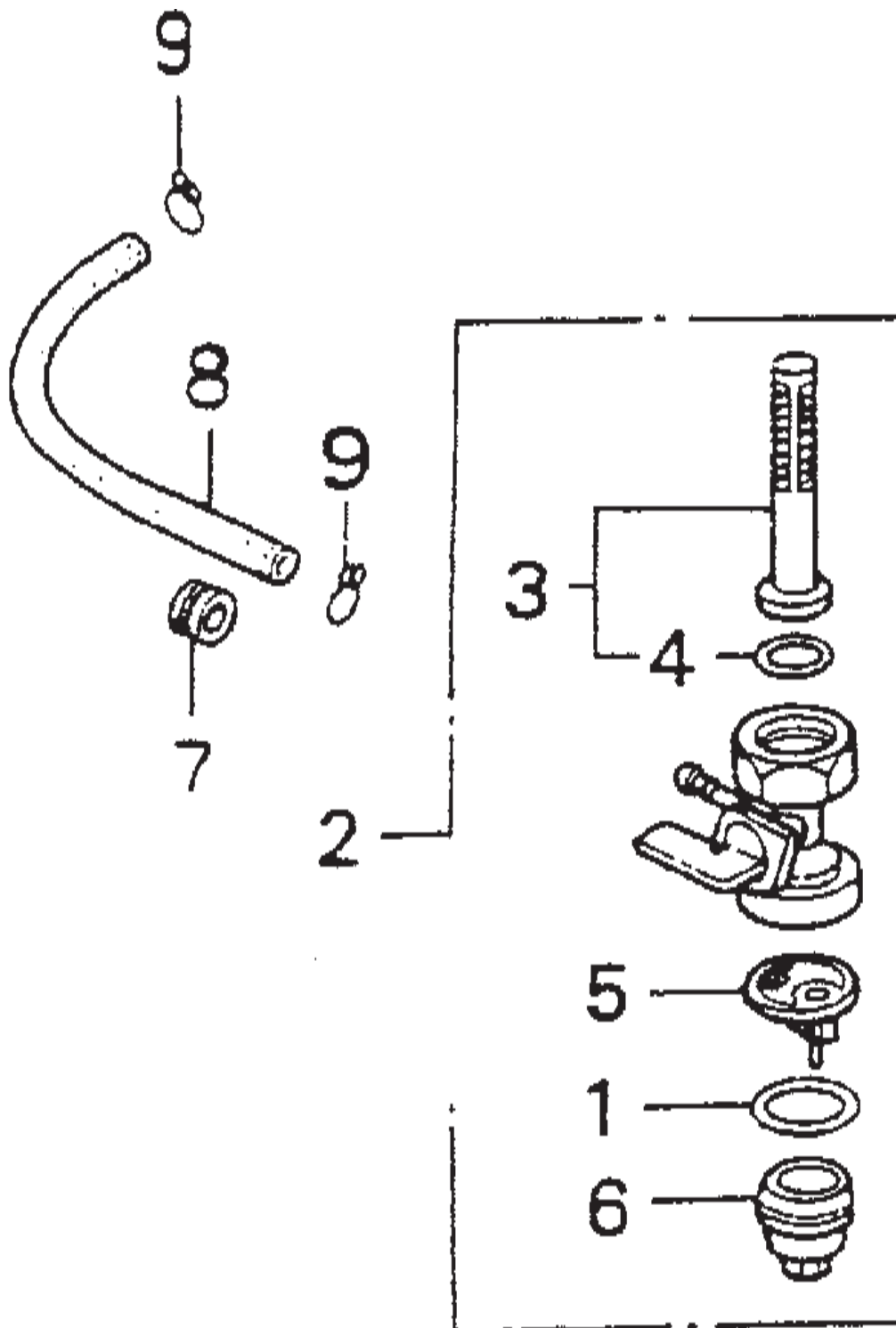
## HONDA GX340K1 ENGINE — SOLENOID ASSY.

### SOLENOID ASSY.

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	16268893000	SPRING, CHOKE RETURN	1	
2	17850ZD1E30	LEVER COMP., THROTTLE	1	
3	36160ZB4003	SOLENOID ASSY.	1	
4	93500050080A	SCREW, PAN	2	
5	90013883000	BOLT, FLANGE, 6X2	1	

# HONDA GX340K1 ENGINE — FUEL COCK ASSY.

FUEL COCK ASSY.



# HONDA GX340K1 ENGINE — FUEL COCK ASSY.

## FUEL COCK ASSY.

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1*	16173001004	PACKING, FUEL STRAINER CUP	1	
2	16950ZB4015	COCK ASSY., FUEL .....	1	..... INCLUDES ITEMS W/*
3*	16952ZB4005	SCREEN, FUEL STRAINER	1	
4*	16958397771	O-RING	1	
5*	16959471831	FILTER CUP	1	
6*	16967GLW6671	CUP, FUEL STRAINER	1	
7	90854ZB2000	RUBBER, FUEL TUBE	1	
8	950014521040	TUBE, FUEL, 4.5X210	1	
9	9500202080	CLIP B8, TUBE	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 listed in the parts price book as being replaced by another item, it is obsolete.)
  - b. Any parts with a limited shelf life (such as GLWskets, 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 5 working days from notification, pending instructions. If a reply is not received within 5 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 \$20.00 to \$50.00 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 here under 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. A part 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.



# PARTS AND OPERATION MANUAL

## **HERE'S HOW TO GET HELP**

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

### **PARTS DEPARTMENT**

*800-427-1244 or 310-537-3700*

*FAX: 800-672-7877 or 310-637-3284*

### **SERVICE DEPARTMENT/TECHNICAL ASSISTANCE**

*800-478-1244 or 310-537-3700*

*FAX: 310- 537-4259*

### **WARRANTY DEPARTMENT**

*888-661-4279, or 310-661-4279*

*FAX: 310- 537-1173*

### **MAIN**

*800-421-1244 or 310-537-3700*

*FAX: 310-537-3927*

Manufactured for MULTIQUIP INC.  
by  
DENYO MANUFACTURING CO., JAPAN



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