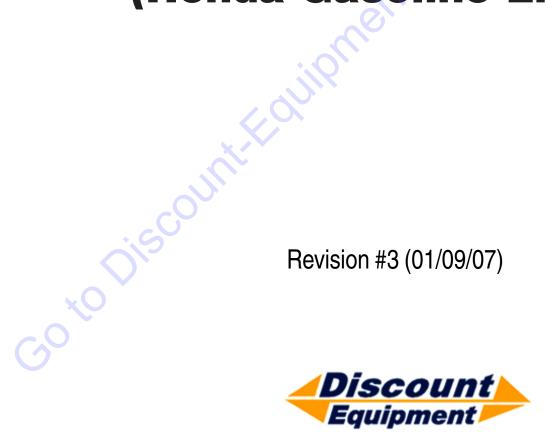
# **OPERATION AND PARTS MANUAL**



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# **MODEL MQ-D306HA DIAPHRAGM PUMP** (Honda Gasoline Engine)

Revision #3 (01/09/07)



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# **MQ-D306HA** — **PROPOSITION 65 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.

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# MQ-D306HA Gasoline Powered Diaphragm Pump

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As a continuing effort to update our parts book, contact Discountequipment for the latest revision of your "Operation and Parts Manual"

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NOTE

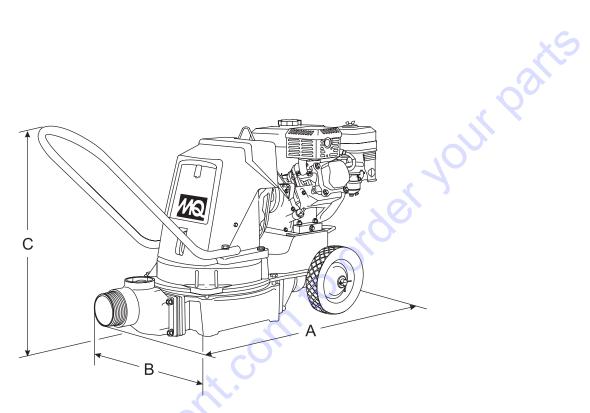
Specification and part number are subject to change without notice.

# MQ-D306HA— SPECIFICATIONS (PUMP/ENGINE)

	Туре	MQ-306H Diaphragm Pump	ats
	Suction & Discharge Size	3.00 in. (76 mm.)	e Qar
Pump	Maximum Pumping Capacity	5,100 gallons/hour (19,305 liters/hour)	,0111
	Max. Soilds Diameter	1.5 in. (38 mm) 🔍	7
	Max Lift	25 ft. (7.62 meters)	
	Max. Head	50 ft. (15.24 meters)	
Dry Net Weight		160 lbs. (72 Kg.)	

	Tak	ole 2. Specification	one (Engine)
	Tal.	_	
		Model Type	Air-cooled 4 stroke, Single Cylinder, OHV, Horizontal Shaft Gasoline Engine
		Bore X Stroke	2.4 in. x 1.7 in. (60 mm x 42 mm)
		Displacement	119 cc (7.2 cu-in)
	Engine	Max Output	4.0 H.P./3600 R.P.M.
		Fuel Tank Capacity	0.66 US gal. (2.5 liters)
- (		Fuel	Unleaded Automobile Gasoline
is		Lube Oil Capacity	0.63 qts. (60 liters)
		Speed Control Method	Centrifugal Fly-weight Type
		Starting Method	Recoil Start
30	Dimension (L x W x H)		11.7 x 13.4 x 12.5 in. (297 x 341 x 318 mm)
	Dry Net Weight		28.7 lbs (13 Kg.)

# MQ-D306HA— DIMENSIONS (PUMP)



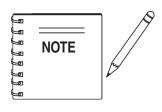
### Figure 1. MQ-D306HA Pump Dimensions

	Table 3. Dimensions				
J.C.	MODEL	A LENGTH	B WIDTH	C HEIGHT	
	1Q-306HA	36.0 in. (91 cm.)	19.0 in. (48 cm.)	27.0 in. (69 cm.)	
Goto					

# MQ-D306HA— 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 D306HA Diaphragm Pump.** Refer to the engine manufacturers instructions for data relative to its safe operation.

Before using these pumps, 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**, **WARNING**, or **CAUTION**.

# A DANGER

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

# 🏠 WARNING

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

# **CAUTION**

You CAN be INJURED if you DO NOT follow directions.

### HAZARD SYMBOLS

Potential hazards associated with the operation of the *MQ Model D-306H, B and R Diaphragm Pumps.* 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.

### DANGER - 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.



# MQ-D306HA— 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 - Accidental Starting Hazards**

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



### **CAUTION - Eye and Hearing Hazards**



ALWAYS wear approved eye and hearing protection.

### **CAUTION - Equipment Damage Hazards**

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

### **CAUTION - Read Manual**

Before attempting to operate the pump, and to avoid serious injury to personnel, always read and understand operation manual. Failure to read and understand operation manual could result in serious harm or even death!



To avoid injury, you MUST read and understand operator's manual before using this machine. This machine to be operated by qualified personnel only Ask for training as needed.

# MQ-D306HA — 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 *MQ Model D-306H Diaphragm Pump*.

### **GENERAL SAFETY**

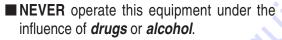
**DO NOT** operate or service this equipment before reading this entire manual.



- 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, liness or taking medicine.





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



- NEVER place hands inside the drum while the blades are rotating.
- Whenever necessary, replace nameplate, operation and safety decals when they become difficult read.
- Manufacture 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 mixer.
- High Temperatures Allow the engine to cool before adding fuel or performing service and maintenance



functions. Contact with *hot!* components can cause serious burns.

The engine section of this mixer requires an adequate free flow of cooling air. NEVER operate the mixer 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 mixer or engine and may cause injury to people. Remember the pump'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 <u>smoke</u> 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 pump in an explosive atmosphere or near combustible materials. An explosion or fire could result causing severe **bodily** harm or even death.





- Topping-off to filler port is dangerous, as it tends to spill fuel.
- Maintain this equipment in a safe operating condition at all times.
- 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.

# MQ-D306HA — RULES FOR SAFE OPERATION

- ALWAYS be sure the operator is familiar with proper safety precautions and operation techniques before using pump.
- **NEVER** leave the pump unattended, turn off engine when unattended.
- NEVER pump volatile, explosive, flammable or low flash point fluids. These fluids could ignite or explode.
- **NEVER** operate the pump in an *explosive* atmosphere.
- Keep all *inexperienced* and *unauthorized* people away from the equipment at all times.
- Before starting the pump, check that the clean-out cover is securely fasten.
- ALWAYS ensure pump is on level ground before use.
- Become familiar with the components of the pump before operating.
- ALWAYS replace any worn or damaged warning decals.
- NEVER pump corrosive chemicals or water containing toxic substances. These fluids could create serious health and environmental hazards. Contact local authorities for assistance.
- NEVER open the priming plug when pump is hot. Hot water inside could be pressurized much like the radiator of an automobile. Allow pump to cool to the touch before loosening plug.
- NEVER open the pump housing during operation or start the pump with the clean-out cover removed. The rotating impeller inside the pump can cut or sever objects caught in it.
- NEVER block or restrict flow from discharge hose. Remove kinks from discharge line before starting pump. Operation with a blocked discharge line can cause water inside pump to overheat.
- ALWAYS fill the pump casing with water before starting the engine. Failure to maintain water inside the pump housing will cause severe damage to the pump.
- In *winter* drain water from pump housing to prevent freezing.
- ALWAYS test the engine ON/OFF switch before operating. The purpose of this switch is to shut down the engine.
- Refer to the HONDA Engine Owner's Manual for engine technical questions or information recommended by Multiquip for this equipment. Damage to the equipment and/or injury to user may result.

### TRANSPORTING

- ALWAYS shutdown engine before transporting.
- Tighten fuel tank cap securely and close fuel cock to prevent fuel from spilling.
- Drain fuel when transporting pump over long distances or bad roads.

### MAINTENANCE

- NEVER lubricate components or attempt service on a running pump.
- ALWAYS allow the pump a proper amount of time to cool before servicing.
- Keep the pump in proper running condition.
- Fix damage to the pump 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.

### **EMERGENCIES**

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







### APPLICATION

The *MQ Model D305HA diaphragm* pump is designed to be used for de-watering applications. The suction and discharge ports on this pump use a 3-inch diameter opening, which allows the pump to pump at rate of approximately 5,100 gallons/hour (gph) or 19,305 liters/hour (lph).

Diaphragm pumps use a positive displacement design rather than centrifugal force to move water through the casing. This means the pump will deliver a specific amount of flow per stroke, revolution or cycle. These pumps are commonly referred to as mud hogs, mud hens and mud suckers. Their names reflect their popularity for use in applications where shallow depths and slurry water render centrifugal pumps ineffective

### **Power Plant**

This diaphragm pump is powered by a 5.5 horsepower air cooled, 4-stroke, single cylinder, HONDA GX-120 gasoline engine that incorporates a low "*Oil Alert Feature*". The drive shaft of the engine is coupled to an offset connecting rod that is coupled to a flexible diaphragm. The connecting rod alternately raises (expands) and lowers (contracts) the diaphragm at a rate between 40 and 65 strokes per minute depending on engine speed.

### **Oil Alert Feature**

In the event of *low oil* or *no oil*, the HONDA GX-120 engine has a built-in oil alarm engine shut-down feature. In the event the oil level is low the engine will automatically shut-down.

### Suction Lift

This pump is intended to be used for dewatering applications and is capable of suction lifts up to 25 feet at sea level. For optimal suction lift performance keep the suction hose or line as short as possible. In general always place the pump as close to the water as possible.

### Pump Support

The pump should always be placed on *solid stationary ground* in a level position.

**NEVER** place the pump on *soft soil*. The suction hose or pipe connection should always be checked for tightness and leaks. A small suction leak in the hose or fittings could prevent the pump from priming.

### Elevation

Higher elevations will effect the performance of the pump. Due to less atmospheric pressure at higher altitudes, pumps **DO NOT** have the priming ability that they have at sea level. This is due to the "thinner air" or lack of oxygen at higher altitudes.

A general rule of thumb is that for every 1,000 feet of elevation above sea level a pump will lose one foot of priming ability.

For example, in Flagstaff, Arizona where the elevation is approximately 7,000 feet, the pump would have a suction lift of only 18 feet rather than the 25 feet at sea level. Table 3 shows suction lift at various elevations.

Table 3. Suction Lift at Various Elevations					
Altitude Feet (Meters)		Suction Lift in Feet (Meters)			
Sea Level	10.0 (3.048)	15.0 (4.572)	20.0 (6.096)	25.0 (7.620)	
2,000 (610)	8.80 (2.680)	13.2 (4.023)	17.6 (5.364)	22.0 (6.705)	
4,000 (1,219)	7.80 (2.377)	11.7 (3.566)	15.6 (4.754)	19.5 (5.943)	
6,000 (1,829)	6.90 (2.103)	10.4 (3.169)	13.8 (4.206)	17.3 (5.273)	
8,000 (2,438)	6.20 (1.889)	9.30 (2.834)	12.4 (3.779)	15.5 (4.724)	
10,000 (3,048)	5.70 (1.737)	8.60 (2.621)	11.4 (3.474)	14.3 (4.358)	

Table 4 shows percentage drops in performance as elevation increases.

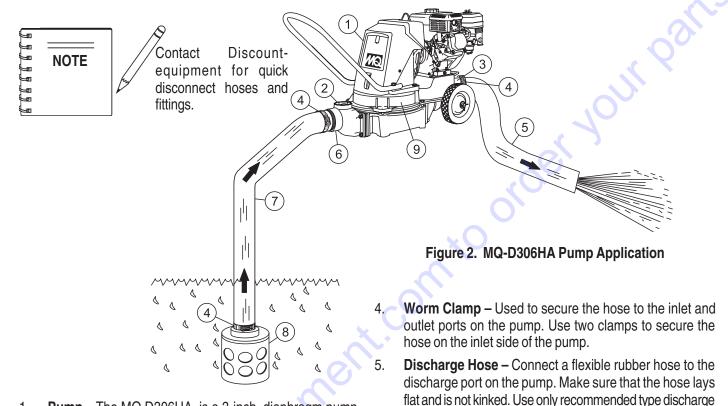
Table 4. Performance Loss at VariousElevations					
Altitude Feet (Meters	Discharge Flow	Discharge Head			
Sea Level	100%	100%			
2,000 (610)	97%	95%			
4,000 (1,219)	95%	91%			
6,000 (1,829)	93%	87%			
8,000 (2,438)	91%	83%			
10,000 (3,048)	88%	78%			



Please contact Discount-equipment for any accessories that your pump may require.

# MQ-D306HA — PUMP COMPONENTS

Figure 2 shows a typical application using the MQ D306HA series diaphragm pump. Please note that this pump is intended for the removal of clean water and water containing some debris and solids. Maximum size of solids should not exceed 1.5 inch (38 mm) in diameter. **DO NOT** set strainer on bottom of water bed. Placing the strainer above the water bed will prevent the pump from drawing in excessive amounts of sand and foreign debris.



- Pump The MQ D306HA is a 3-inch diaphragm pump that is used in general de-watering applications. Typical dewatering applications consist of cleaning out cesspools and septic tanks, draining slow seepage from small excavations, trenches and construction sites, or pumping out industrial waste.
- Fill Cap Prior to operation, the pump casing should be filled with water. Remove this cap to add water to the pump. After the initial prime, a sufficient amount of water will be retained in the casing so that the operator will not need to re-prime later.

If the casing is dry or has insufficient water, the pump will have difficulty in priming which could lead to premature mechanical seal wear thus causing damage to the pump.

3. **Discharge Port** – Connect a 3-inch discharge hose to this port. Use two worm clamps to secure the hose.

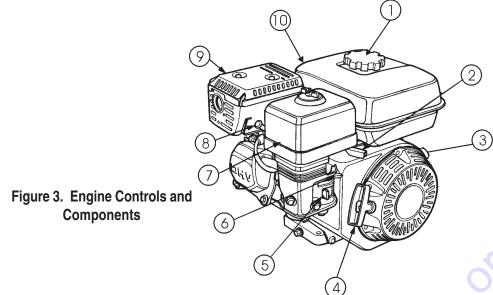
information.
Suction Port – Connect a 3-inch inlet hose to this port. Use two worm clamps to secure the hose.

hose. Contact Discount-equipment for ordering

- 7. **Suction Hose** Connect a flexible rubber hose to the suction port on the pump. Make sure that the hose lays flat and is not kinked. Use only recommended type suction hose. Contact Discount-equipment for ordering information
- Strainer Always attach a strainer to bottom side of the suction hose to prevent large objects and debris from entering the pump. Strainer should be positioned so that it will remain completely under water. Running the pump with the strainer above water for long periods can damage pump.
- 9. **Support Body** This unit is equipped with a hinged support assembly, that allows for easy access to the pump body.

# MQ-D306HA — BASIC ENGINE

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### **INITIAL SERVICING**

The engine (Figure 3) must be checked for proper lubrication and filled with fuel prior to operation. Refer to the Honda manufacturers engine manual for instructions and details for operation and servicing.

- Fuel Filler Cap Remove this cap to add unleaded gasoline to the fuel tank. Make sure cap is tightened securely. DO NOT over fill.
- 6. Choke Lever Used in the starting of a cold engine, or in cold weather conditions. The choke enriches the fuel mixture.
- 7. Air Cleaner Prevents dirt and other debris from entering the fuel system. Remove wing-nut on top of air filter cannister to gain access to filter element.



### **DANGER - Explosive Fuel**

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.



-12

NOTE

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- Throttle Lever Used to adjust engine RPM speed (lever advanced forward SLOW, lever back toward operator FAST).
- 3. Engine ON/OFF Switch ON position permits engine starting, OFF position stops engine operations.
- 4. Recoil Starter (pull rope) Manual-starting method. Pull the starter grip until resistance is felt, then pull briskly and smoothly.
- 5. Fuel Valve Lever OPEN to let fuel flow, CLOSE to stop the flow of fuel.

filter in need of replacement will allow dirt to enter the engine, causing rapid engine wear.

Operating the engine without an air

filter, with a damaged air filter, or a

- 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.
- 9. Muffler Used to reduce noise and emissions.

### CAUTION - Burn Hazard

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



10. **Fuel Tank** – Holds unleaded gasoline. For additional information refer to engine owner's manual.

# MQ-D306HA — PRE-INSPECTION (ENGINE)

### CAUTION - Read Manual

Please read the entire maintenance section in this manual before servicing the pump. In addition for operator safety, please read all safey messages at the begining of the manual



### Inspection

- 1. Clean the pump, removing dirt and dust, particularly the engine cooling air inlet, carburetor and air cleaner.
- 2. Check the air filter for dirt and dust. If air filter is dirty, replace air filter with a new one as required.
- 3. Check carburetor for external dirt and dust. Clean with dry compressed air.
- 4. Check fastening nuts and bolts for tightness.

### **Engine Oil Check**

- 1. To check the engine oil level, place the pump on secure level ground with the engine stopped.
- Remove the filler dipstick from the engine oil filler hole (Figure 4) and wipe clean.

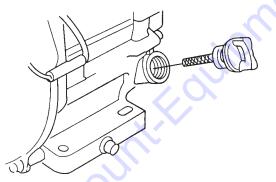


Figure 4. Engine Oil Dipstick (Removal)

- 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 5), fill to the edge of the oil filler hole with the recommended oil type (Table 5). Maximum oil capacity is .63 quarts (.60 liters)

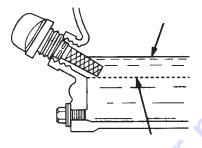


Figure 5. Engine Oil Dipstick (Oil Level)

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. Adding fuel to the tank should be done only when the engine is stopped and has had an opportunity to cool



down. **DO NOT** attempt to refuel the pump if the engine is *hot!* or *running* In the event of any spilled fuel, wipe up immediately. **DO NOT** attempt to start the engine until the fuel residue has been completely wiped up, and the area surrounding the engine is dry.

### **Fuel Check**

- 1. Remove the gasoline cap located on top of fuel tank.
- 2. Visually inspect to see if the fuel level is low. If fuel is low, replenish with unleaded fuel.
- 3. When refueling, be sure to use a strainer for filtration. **DO NOT** top-off fuel. Wipe up any spilled fuel *immediately!*

# MQ-D306HA — PRE-SETUP (PUMP)

### **Before Starting:**

### CAUTION - General Safety Precautions

**NEVER** operate the pump 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 compactor.

### **Before Starting**

1. Read safety instructions at the beginning of manual.



- 2. Place pump as near to water as possible, on a firm flat, level surface.
- 3. To prime pump, remove fill cap (Figure 2) and fill pump casing with water. If the pump casing is not filled with water before starting, it will not begin pumping.

### CAUTION - Pump Casing

Pump casing *must* be filled with water before using pump. Otherwise pump will not be able to begin pumping.

### WARNING - Fill Cap

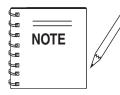
**DO NOT** open *fill cap* if pump is **hot!** Water inside may be under pressure.

4. Check for *leaks* between pump and engine. If water is leaking between the pump and engine housing, the seal inside the pump may be worn or damaged. Continued operation of the pump is not recommended. Further usage of the pump under these conditions may cause severe water damage to engine.

### **Hoses and Clamps**

- 1. Check that all hoses are *securely* attached to the pump. Make certain suction hose (Figure 2) does not have any air leakage. Tighten hose clamps and couplings as required.
- 2. It is recommended that 2 clamps be used when securing the suction hose to the inlet side (suction) of the pump.

- 3. Remember suction hoses must be *rigid* enough not to collapse when the pump is in operation.
- Check that the *discharge* hose (Figure 2) is not restricted. Place hose so that it lays as straight as it is possible on the ground. Remove any twists or sharp bends from hose which may block the flow of water.



Suction and discharge hoses are available. Contact Discountequipment for more information.

- The discharge hose is usually a *collapsible* (thin-walled) hose, however if a thin-walled discharge hose is not available, a rigid suction hose can be substituted in its place.
- Make sure the suction strainer (Figure 2) is clean and securely attached to the water end of the suction hose. The strainer is designed to protect the pump by preventing large objects from being pulled into the pump.

### CAUTION - Strainer

The strainer should be positioned so it will remain completely *under water*. Running the pump with the strainer above water for long periods can damage the pump.

### CAUTION - Flammable Fluids

**DO NOT** pump flammable fluids, corrosive chemicals or fluids containing toxic substances. These fluids can create potentially dangerous health and environmental hazards. Contact IDiscount-equipment for assistance.

### CAUTION - Mechanical Seal

This pump uses a water-cooled *mechanical seal* to prevent water from seeping into the engine. The passage of water through the pump casing lubricates the seal and prevents it from overheating. *NEVER!* operate the pump without water in the casing as this will cause damage to the mechanical seal.

# MQ-D306HA — PRE-SETUP (PUMP)

### Gear Reduction Oil (Transmission)

- 1. Remove the **transmission oil level plug** (Figure 6). If oil begins to seep out as the plug is being removed, then it can be assumed that the transmission oil is at the proper operating level.
- If oil does not seep out as the oil level plug is being removed, then remove the transmission oil fill plug and fill with SAE 80/90 EP gear oil to the proper operating level. Transmission oil capacity is capacity is 1-1/4 pints (590 ml.).

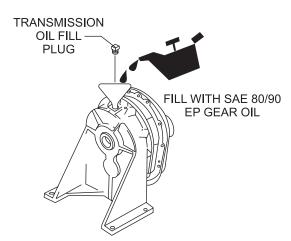
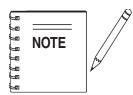


Figure 6. Transmission Oil Level



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Diaphragm pumps will handle fluids containing considerable solids (not to exceed 1.5 inch/28 mm), however, if the mixture is too heavy to be pumped, water must be added until the mixture becomes sufficiently fluid for pumping.

### **Connecting Rod Bearing Lubrication**

- 1. Grease **connecting rod bearing** thru the access hole (Figure 7) every 25 hours of operation.
- Use only *premium lithium based grease*, conforming to NLG1 Grade #2 consistency.

APPLY 2 OR 3 SHOTS OF PREMIUM LITHIUM BASE GREASE EVERY 25 HOURS OF OPERATION

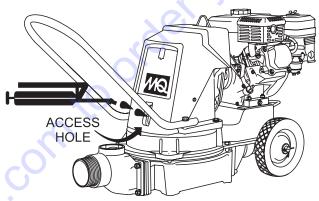


Figure 7. Connecting Rod Bearing Lubrication

# MQ-D306HA-INITIAL START-UP (ENGINE)

### CAUTION - Read Manual

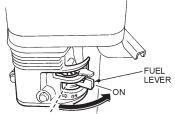
**DO NOT** attempt to operate the pump until the Safety, General Information and Inspection sections of this manual have been *read and thoroughly understood*.



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

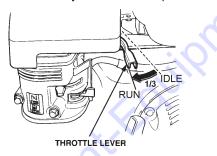
### Starting the Engine (HONDA engine)

1. Place the engine *fuel valve lever* (Figure 8) to the "**ON**" position.



### Figure 8. Engine Fuel Valve Lever (ON Position)

2. Move the *throttle lever* (Figure 9) away from the slow position, about 1/3 of the way toward the fast position.



### Figure 9. Throttle Lever (1/3 Start Position)

3. Place the *choke lever* (Figure 10) in the "**OPEN** " position if starting a *cold* engine.

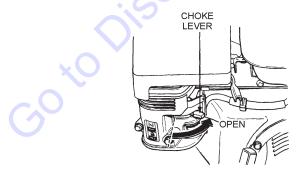


Figure 10. Engine Choke Lever (Open)

4. Place the *choke lever* (Figure 9) in the "CLOSED" position if starting a *warm engine* or the *temperature is warm.* 

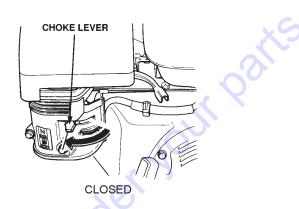
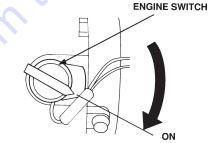


Figure 11. Engine Choke Lever (Closed)

5. Place the *engine ON/OFF switch* (Figure 12) in the "ON " position.



### Figure 12. Engine ON/OFF Switch (ON Position)

6. Grasp the starter grip (Figure 13) 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.

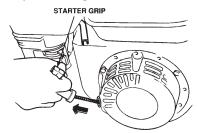


Figure 13. Starter Grip

PAGE 18 — MQ-D306HA DIAPHRAGM PUMP — OPERATION AND PARTS MANUAL — REV. #3 (01/09/07)

# MQ-D306HA-INITIAL START-UP (ENGINE)

7. If the engine has started, slowly return the choke lever (Figure 14) to the "**CLOSED**" position. If the engine has not started repeat steps 1 through 6.

# CHOKE LEVER

Figure 14. Choke Lever (Closed)

- 8. Before the pump is placed into operation, run the engine for several minutes. Check for fuel leaks, and noises that would associate with a lose component.
- 9. To begin pumping, place the throttle lever (Figure 15) in the "RUN" position.

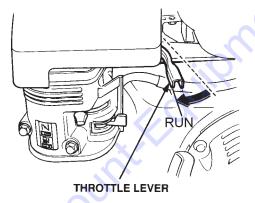
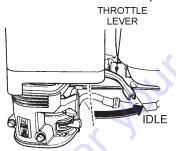


Figure 15. Throttle Lever (Run)

### **Stopping The Engine**

### Normal Shutdown

1. Move the throttle lever to the **IDLE** position (Figure 16) and run the engine for three minutes at low speed.



### Figure 16. Throttle Lever (Idle)

2. After the engine *cools*, turn the engine ON/OFF switch to the "OFF" position (Figure 17).

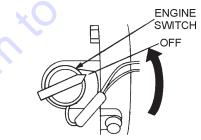


Figure 17. Engine ON/OFF Switch (OFF)

3. Place the *fuel shut-off lever* (Figure 18) in the "OFF" position.



Figure 18. Fuel Valve Lever (OFF)

### Emergency Showdown

1. Move the throttle lever quickly to the **"IDLE"** position, and place the engine ON/OFF switch in the "**OFF**" position.



Pump speed can be *regulated* with the engine throttle control from full volume, 65 strokes per minute, to about 40 strokes per minute for lesser volume. Smoothest operation

can be determined by trying to pump at several speeds. Limit maximum speed to 65 strokes per minute of the diaphragm (2,800 RPM engine speed).

# MQ-D306HA — MAINTENANCE (PUMP)

### Pump Vacuum Test

### CAUTION - Priming Pump

**DO NOT** attempt to start the engine unless the pump has previously been *primed* with water. Severe pump damage will occur if pump has not been primed.

To perform the pump vacuum test do the following:

- 1. Remove the pump fill cap (Figure 2), and fill the pump with water.
- 2. Start the engine as outlined in the initial start-up section, and wait for the pump to begin pumping.
- As shown in Figure 19 (next page), place a water hose inside the discharge opening of the pump, and turn on the water. This flow of water into the discharge opening will *prevent* the pump from running dry.
- Place the *Pump Vacuum Tester* (P/N 7000030) over the pump suction (inlet) opening (Figure 19) with the vacuum gauge facing upwards. It may be necessary to apply a small amount of water around the rubber seal of the vacuum tester to make a good suction fit.
- 5. Check and make sure that there are no air leaks between the vacuum tester and the inlet port on the pump. If air leaks are present reseat vacuum tester.
- Run the pump for a few minutes while monitoring the vacuum gauge. If the gauge indicates a reading between -25 and -20 in. Hg. (inches of mercury) then it can be assumed that the pump is working correctly.



25 in. Hg (inches of mercury) translates into 25 feet of lift at *sea level*.

- If the vacuum tester gauge indicates a reading below -20 in. Hg, it can then be assumed that the pump is not functioning correctly, and corrective action needs to be taken.
- 6. To test the *flapper valve*, shut down the engine. The vacuum tester should remain attached to the pump suction inlet port by vacuum. This indicates the pump's flapper valve is seating properly to hold water in the suction hose when the engine is stopped. This prevents backflow and allows for faster priming when the engine is restarted.

### Pump Cleaning

After pumping water containing large amounts of dirt and debris, perform the following:

- 1. Remove the drain plug from the pump housing (Figure 2) and drain any water left in the pump.
- Clean and remove dirt, debris from pump casing. Inspect impeller and volute for wear. Replace any damaged or worn parts.

### Gear Reduction Oil (Transmission)

1. Change transmission oil after the first **40 hours** of operation. Use **SAE 80/90** *EP gear oil*. Transmission oil capacity is 1-1/4 pints (590 ml.). Check oil level periodically and change oil after every **400 hours** of operation.

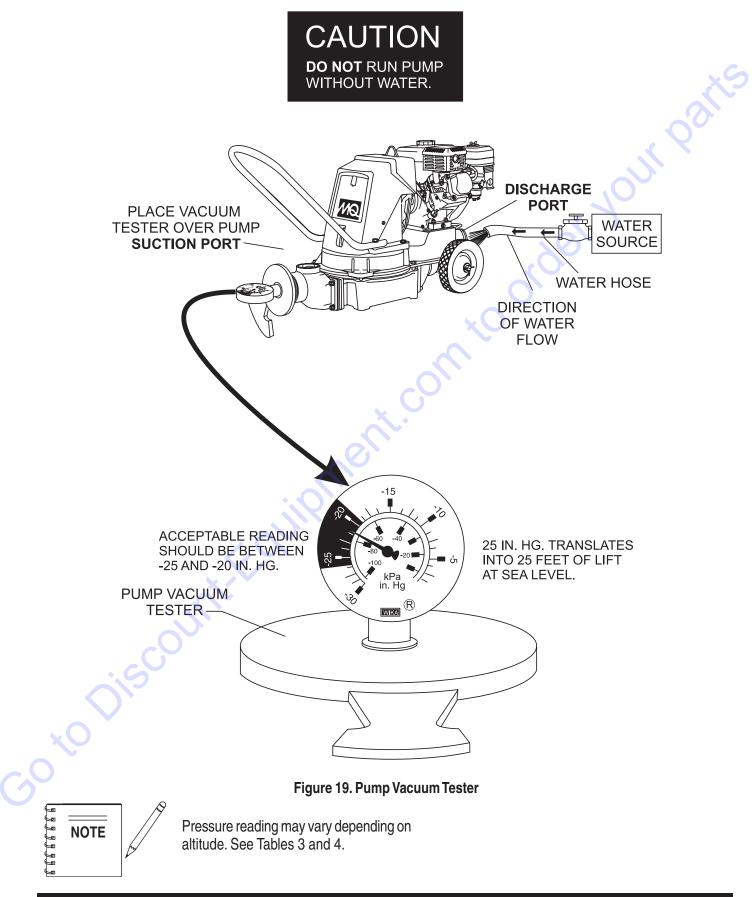
### **Connecting Rod Bearing Lubrication**

- 1. Grease **connecting rod bearing** thru the access hole (Figure 7) every 25 hours of operation.
- 2. Use only *premium lithium based grease*, conforming to NLG1 Grade #2 consistency.

### **Connecting Rod Bearing Lubrication**

- 1. Keep interior of pump and valves clean. Flush out pump with clear water after operation.
- 2. Remove connecting rod guard occasionally and wipe up excess grease from connecting rod bearing.

# MQ-D306HA — MAINTENANCE (PUMP)



MQ-D306HA DIAPHRAGM PUMP — OPERATION AND PARTS MANUAL— REV. #3 (01/09/07) — PAGE 21

K.

### **Engine Maintenance**

Perform engine maintenance procedures as referenced by Table 6 below:

	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	Х				1	
Engine Oil	CHANGE		Х			XO'	
Air Cleaner	CHECK	Х				2	
Air Cleaner	CHANGE			X (1)			
All Nuts & Bolts	Re-tighten If Necessary	Х			NU N		
Charle Diug	CHECK-CLEAN			-0	Х		
Spark Plug	REPLACE			×			Х
Cooling Fins	CHECK				Х		
Spark Arrester	CLEAN		~			Х	
Fuel Tank	CLEAN	•. (				Х	
Fuel Filter	CHECK					Х	
Idle Speed	CHECK-ADJUST	<u>O</u>				X (2)	
Valve Clearance	CHECK-ADJUST						X (2)
Fuel lines	CHECK		E	Every 2 years	(replace if nece	ssary) (2)	

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

(2) These items should be serviced by your servic 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.

NOTE

Reference manufacturer engine manual for specific servicing instructions.

# MQ-D306HA — MAINTENANCE (ENGINE)

### Maintenance

Perform the engine maintenance procedures as indicated 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 spring box and bellows 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 20), then adjust the spark gap to 0.028 ~0.031 inch (0.6~0.7 mm). This unit has electronic ignition, which requires no adjustments.

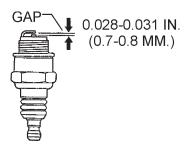


Figure 20. Spark Plug Gap

### **ENGINE OIL**

- 1. Drain the engine oil when the oil is *warm* as shown in Figure 21.
- 2. 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. Engine oil capacity is 1.16 quarts (1.1 liters). DO NOT overfill.
- 4. Install drain bolt with sealing washer and tighten securely.

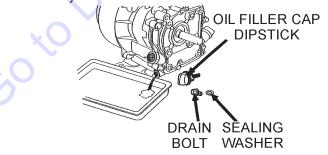


Figure 21. Engine Oil (Draining)

### DANGER - Combustion (Fire , Explosion)

**DO NOT** usegasoline as a cleaning solvent. The possibility exists of fire or explosion.

### **ENGINE AIR CLEANER**

- 1. Remove the air cleaner cover and foam filter element as shown in Figure 22.
- Tap the paper filter element (Figure 22) several times on a hard surface to remove dirt, or blow compressed air [not exceeding 30 psi (207 kPa, 2.1 kgf/cm<sup>2</sup>)] through the filter element from the air cleaner case side. *NEVER* brush off dirt. Brushing will force dirt into the fibers. Replace the paper filter element if it is excessively dirty.
- 3. 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.

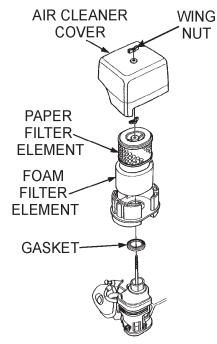


Figure 22. Engine Air Cleaner

MQ-D306HA DIAPHRAGM PUMP — OPERATION AND PARTS MANUAL— REV. #3 (01/09/07) — PAGE 23

# MQ-D306HA — PREPARATION FOR LONG -TERM STORAGE

conto order your parts

### **Pump Storage**

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

- Drain the fuel tank completely.
- Run the engine until the fuel is completely consumed.
- Completely drain used oil from the engine crankcase and fill with fresh clean oil, then follow the procedures described in the engine manual for engine storage.
- Remove the pump cover and clean inside of pump housing. Coat inside of pump housing with a light film of oil to reduce corrosion. A spray can of oil works well for this application.
- Cover suction and discharge ports with duct tape to prevent any foreign matter from falling into pump.
- Cover pump and engine with plastic covering or equivalent and store in a clean, dry place.
- To protect the water cooled-seals, place one-half pint of lubricating oil (new or used) through the discharge opening on the pump and crank the engine several times. This will prevent excessive corrosion and also keep the mechanical seal lubricated.

# MQ-D306HA — TROUBLESHOOTING (ENGINE)

		ROUBLESHOOTING					
SYMPTOM	SYMPTOM     POSSIBLE PROBLEM     SOLUTION						
Difficult to start							
	Ignition plug being bridge?	Check ignition system.					
Fuel is available but spark plug	Carbon deposit at ignition?	Clean or replace ignition.					
will not ignite. (Power available at high tension cable).	Short circuit due to defective insulators?	Replace insulators.					
	Improper spark gap?	Set spark plug gap to the correct gap.					
Fuel is available but spark plug will not ignite. (Power NOT	Short circuit at stop switch?	Check stop switch circuit. Replace stop switch if defective.					
available at high tension cable).	Ignition coil defective?	Replace ignition coil.					
	Muffler clogged with carbon deposits?	Clean or replace muffler.					
Fuel is available and spark plug ignites (compression normal).	Mixed fuel quality is inadequate?	Check fuel to oil mixture.					
ignites (compression <b>normar)</b> .	Fuel in use inadequate (water, dust)?	Flush fuel sytem and replace with fresh fuel.					
	Air Cleaner clogged?	Clean or replace air cleaner.					
	Defective cylinder head gasket?	Tighten cylinder head bolts or replace head gasket.					
Fuel is available and spark plug ignites (compression <b>low</b> ).	Cylinder worn?	Replace cylinder.					
	Spark plug loose?	Tighen spark plug.					
Operation not satisfactory							
	Air cleaner clogged?	Clean or replace air cleaner.					
Not enough power available	Air in fuel line?	Bleed (remove air) from fuel line.					
(compression normal, no miss- firing).	Fuel level in carbureator float chamber improper?	Adjust carbureator float					
	Carbon deposits in cylinder?	Clean or replace cylinder					
is	Ignition coil defective?	Flush fuel sytem and replace with fresh fuel.					
Not enough power available (compression normal, miss-	Ignition plug often shorts?	Replace ignition wires, clean ignition.					
firing).	Fuel in use inadequate (water, dust)?	Flush fuel sytem and replace with fresh fuel.					
	Excessive carbon depostion in combustion chamber?	Clean or replace crankcase.					
Engine overheats.	Exhaust or muffler clogged with carbon.	Clean or replace muffler.					
	Spark plug heat value incorrect?	Replace spark plug with correct type spark plug.					

# MQ-D306HA — TROUBLESHOOTING (ENGINE/PUMP)

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TABLE 7. ENGINE TROUBLESHOOTING (Continued)				
SYMPTOM	POSSIBLE PROBLEM	SOLUTION		
Operation not satisfactory	·		X	
Rotational speed fluctuates.	Governor adjustment improper?	Adjust governor to correct lever.		
	Governor spring defective?	Clean or replace ignition.		
	Fuel flow erratic?	Check fuel line.		
	Air taken in through suction line?	Check suction line.		
Recoil starter not working properly.	Dust in rotating part?	Clean recoil starter assembly.		
	Spring spring failure?	Replace sprial spring.		

	TABLE 8. PUMP TROUBLESHO	DOTING	
SYMPTOM		SOLUTION	
	Not enough priming water in the housing?	Add water.	
	Engine speed too low?	Increase throttle.	
	Strainner plugged?	Clean strainer.	
	Suction hose damaged?	Replace or repair hose, and clamps	
	Air leak at suction port?	Check that fittings are tight and properly sealed.	
Pump does not take on water.	Pump is located too high above water line?	Move pump closer to water.	
	Debris collecting in pump housing?	Clean pump housing.	
	Water leaking out weep hole between pump and engine?	Check condition of mechanical seal and gaskets, between pump end and engine housing.	
0	Valves not seated correctly?	Check that valves are seated correctly. Pour water in suction chamber to help seal valves.	
	Pump does not prime correctly?	Check diaphragm for breaks or leaks.	
Pump takes in water, little or no	Engine speed too low?	Increase throttle speed.	
discharge.	Suction strainer partially plugged?	Clean strainer.	
Suction hose leaks at inlet.	Fittings/clamps are not sealed properly?	Tighten, replace or add clamp. (Keep extra seals o pump)	
0	Hose diameter is too large?	Use smaller diameter hose or replace hose.	
Discharge hose does not stay	Pressure too high?	Check pressure, add additional clamp.	
on coupling.	Hose kinked or end blocked?	Check hose.	

# **MQ-D306HA** — EXPLANATION OF CODE IN REMARKS COLUMN

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

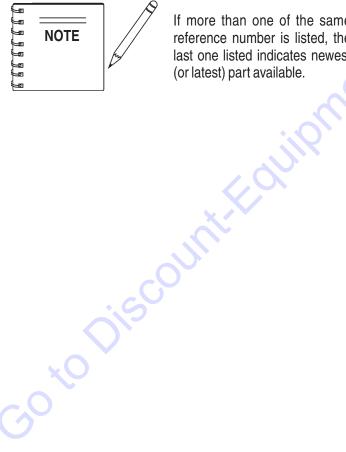
### Items Found In the "Remarks" Column

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

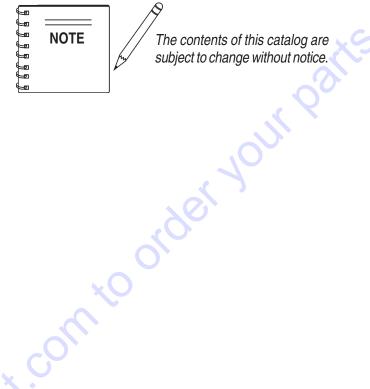
Model Number-Where indicated, this shows that the corresponding part is utilized only with this specific model number or model number variant.

### Items Found In the "Items Number" Column

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



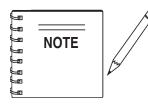
If more than one of the same reference number is listed, the last one listed indicates newest (or latest) part available.



# **MQ-D306HA**— SUGGESTED SPARE PARTS

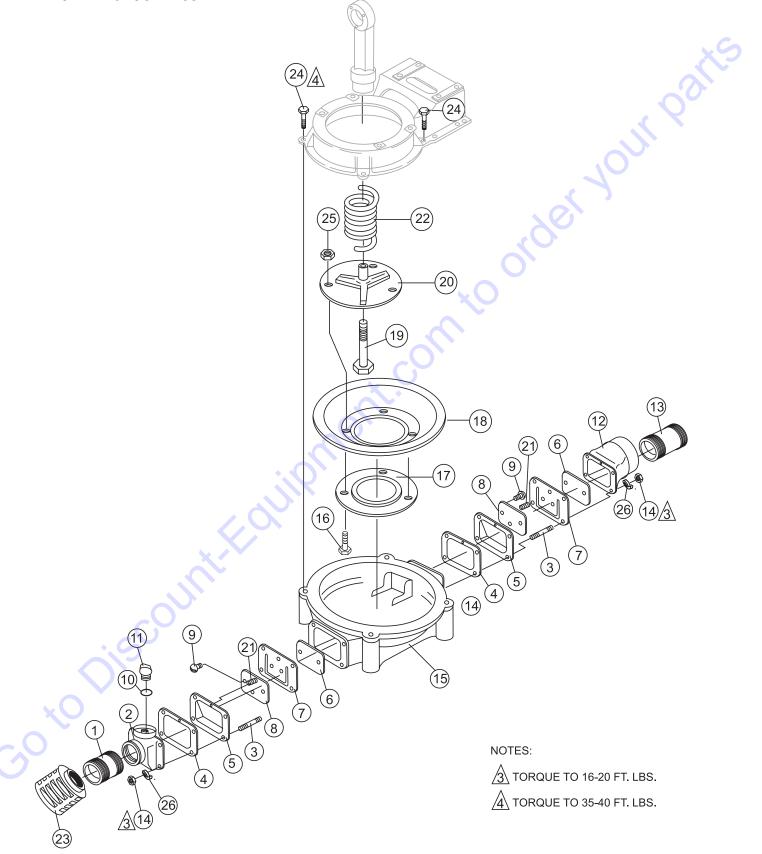
# **MQ-D306HA DIAPHRAGM PUMP**

MQ-D306HA DIAPHRAGM PUMP           1 TO 3 UNITS WITH           HONDA GX120K1QX2 ENGINE           Qty.         P/N         Description           3	der your parts
NOTE       Part number on this Suggested Spare Parts List may super cede/replace the P/N shown in the text pages of this book.	
io discountration	



# MQ-D306HA — WATERBOX AND GROOVE ASSY.

WATERBOX AND GROOVE ASSY.



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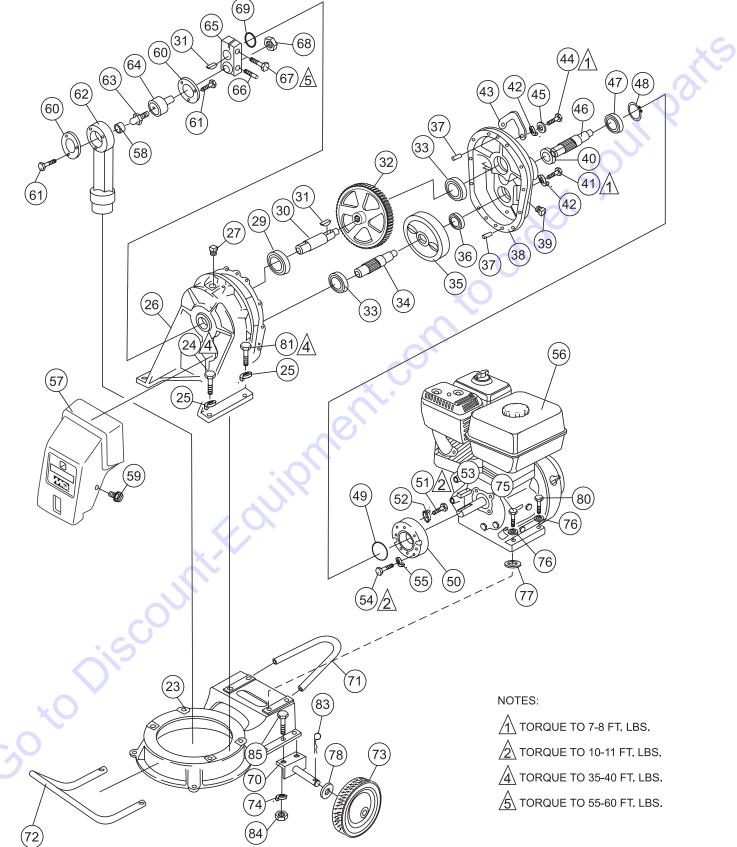
# MQ-D306HA — WATERBOX AND GROOVE ASSY.

### WATERBOX AND GROOVE ASSY.

NO. 1 2 3 4 5 6 7 8 9 10 11 12 14 15 16 17 18 19 20 21 22 23 24 25 26	PART NO. 3053041 3054932 3065985 3054935 3054936 3054937 3054937 3054939 2021032 1506064 1506060 3054933 306EC400037 3054929 306A0200500200ZC 3052724 3052726 3055026 3055026 3054992 3051812 3051812 3054944 0742304080 3051213 306EC400050 2023800	PART NAME NIPPLE, SUCTION AND DISCHARGE SUCTION CONNECTION STUD 3/8"-16 X 2-1/8", H.N., L.W. GASKET, SUCTION AND DISCHARGE FLAP VALVE SEAT WITH SPRING PIN VALVE WEIGHT FLAP VALVE VALVE BINDER SCREW MACHINE RND HEAD 10-32x1/2 O-RING FILL PLUG PLUG FILL PLASTIC DISCHARGE CONNECTION NUT, 3/8"-16 WATERBOX 1/2" -13 X2" CARRIAGE BOLT, H.N. DIAPHRAGM BOTTOM DIAPHRAGM CONNECTING ROD, CARRIAGE BOLD DIAPRHAGM TOP SPRING PIN (1/8" DIA.x1/2') SPRING COMPRESSION STRAINER SCREW HEX 1/2"x1-3/4" 13 UNCX NUT, HEX 1/2"-13 WASHER, LOCK 3/8"	QTY. 2 1 8 2 2 2 2 2 4 1 1 1 1 1 2 1 1 4 3 8	REMARKS
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# MQ-D306HA — PUMP ASSY.

PUMP ASSY.

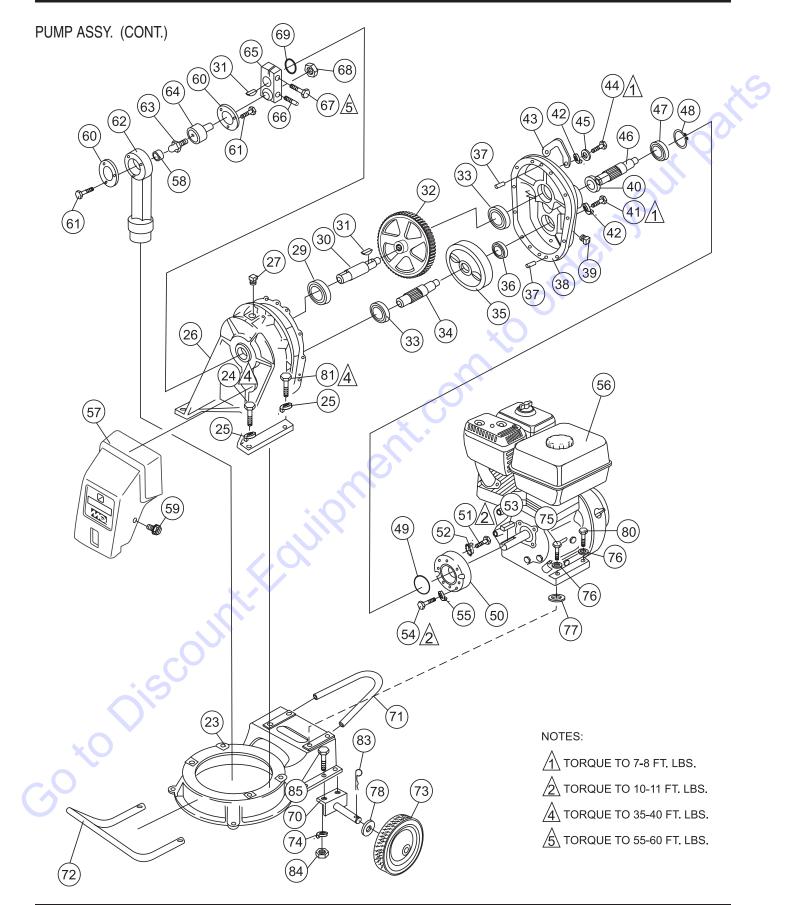


# MQ-D306HA — PUMP ASSY.

PUMP ASSY.

	<u>NO.</u>	<u>PART NO.</u>	PART NAME	<u>QTY.</u>	<u>REMARKS</u>
	23	3064771	PUMP FRAME	1	Co
	24	3051213	SCREW, HEX 1/2"x1-3/4" 13 UNCX	4	XS
	25	3051200	WASHER, WASHER 1/2"	4	
	26	3054850	GEAR CASE	1	
	27	2024540	PLUG PIPE VENTED 3/8" PLASTIC	1	
	28	3054858	GASKET, GEAR CASE	1	
	29	2063070	BEARING BALL	1	
	30	2024853	GEAR SHAFT	1	
	31	2020807	KEY WOODRUFF #807	2	
	32	2025058	GEAR 79T	1	< ) )
	33	2063040	BEARING BALL	2	05
	34	2024852	PINION 11T	1	
	35	2023417	GEAR INTERNAL 85T	1	
	36	2023020	BEARING BALL	Q'	
	37	2021434	PIN DOWEL 1/4 DIA.x3/4"	2	
	38	2064851	COVER, GEAR CASE	2 1	
	39	2021827	PIPE PLUG 1/8" NPT SQ.HD.	2	
	40	2061880	NEEDLE BEARING	2 1	
	41	3051421	SCREW, HEX 1/4"-20x1	9	
	42	2021421	WASHER, LOCK 1/4"	11	
	43	2024945	LIFTING HOOK	1	
	44	3051420	SCREW, HEX HEAD PLATED	2	
	45	2021402	WASHER, FLAT 1/4"	2	
	46	2024854	PINION 14T 3/4 BORE	1	
	47	2029106	BEARING BALL	1	
	48	2025100	RING RETAINING EXTERNAL	1	
	49	2024859	"O" RING	1	
	50	2024856	ENGINER ADAPTER	1	
	51	2025160	SCREW 8W HDCP 5/16" 18UNCx1"	4	
	52	2025165	WASHER, TOOTH LOCK	4	
	53	2025601	KEY 3/16" SQ.x1"	1	
	54	2025162	SCREW HEX 5/16" 24UNFx1"	4	
	55	2025167	WASHER, LOCK 5/16"	8	
	56	GX120K1QX2	ENGINE HONDA GX120K1 3/4" KEYED SHAFT	1	
	57	3054953A	GUARD	1	
	58	2024964	CAP, GREASE PLASTIC	1	
	59	3051012	WASHER, SLOTTED HEX 10 x1/2	2	
	00	0001012	TYPE "F" SELF TAPPING MACH. SCREWS	2	
	60	3053317	WASHER, RETAINING	2	
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# MQ-D306HA— PUMP ASSY. (CONT.)



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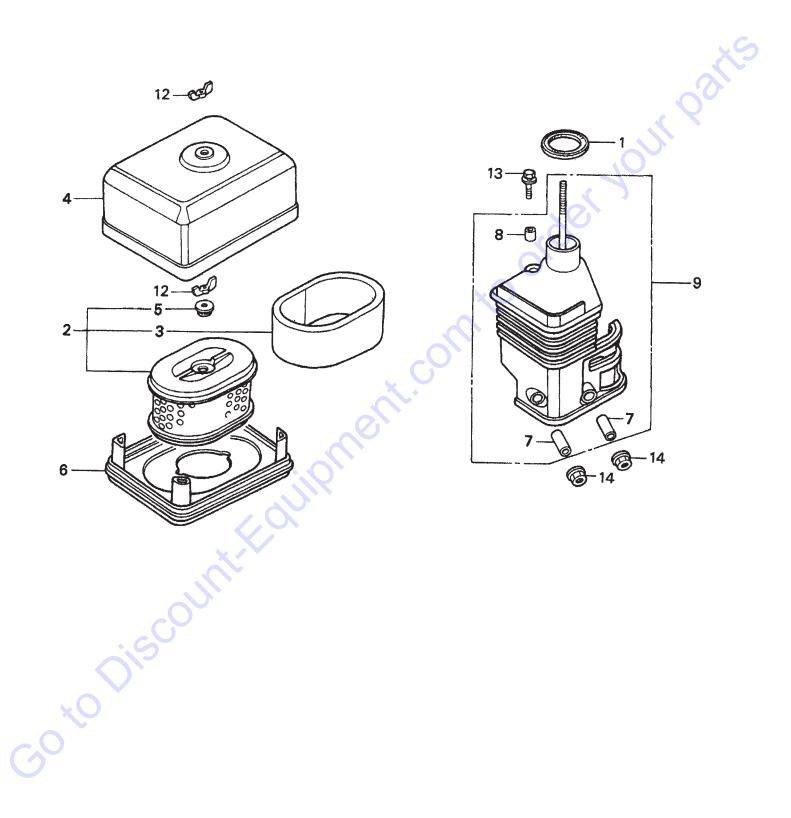
# MQ-D306HA — PUMP ASSY. (CONT.)

PUMP ASSY. (CONT.)

NO. 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 83 84 85	PART NO. 2023212 3054847B 2020316 3065581 3065583 2025656 2021211 3053416 2021232 3064779 3063327 3063327 3063320A 306W274A 2023800 306A0100310200 3055160 2022676C 306606075Y 2025111 306A0100310225 306A0100500250 306H7200180125Z 306EC400037 306A0100370125	PART NAME SCREW, MACHINE FLT HD 10-32x1/2 CONNECTING ROD TOP FITTING, GREASE 3/16 STR CONNECTING ROD BEARING CRANK ARM SCREW SOCKET SET 5/16"-18x5/16" L.G. SCREW HEX 1/2"x1-1/2" 13UNC NUT, HEX JAM LOCK NYLON 3/4-16"UNF OIL SEAL STUB AXLE BUMPER TOWING POLE WHEEL 8 X 1.75 SEMI-PNEUMATIC WASHER, LOCK SCREW, HEX 5/16"-18 x 2, HN, LW WASHER, FLAT 5/16" WASHER, FLAT 5/16" WASHER, FLAT 3/8 SAE NUT, HEX 5/16" 18 UNC 5/16-18 X 2-1/4, SCREW, HEX, HN, LW SCREW, HEX 1/2" 12 X 2-1/2", LW COTTER PIN 3/16" O.D. X 1-1/4" NUT, 3/8"-16 SCREW, HEX 3/8"-16 X 1-1/4"	QTY. 6 1 1 1 1 1 3 1 1 1 2 4 2 4 2 8 8 2 4 2 2 4 4 4	REMARKS	Ratis
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# HONDA GX120K1QX2 ENGINE — AIR CLEANER ASSY.

AIR CLEANER ASSY.



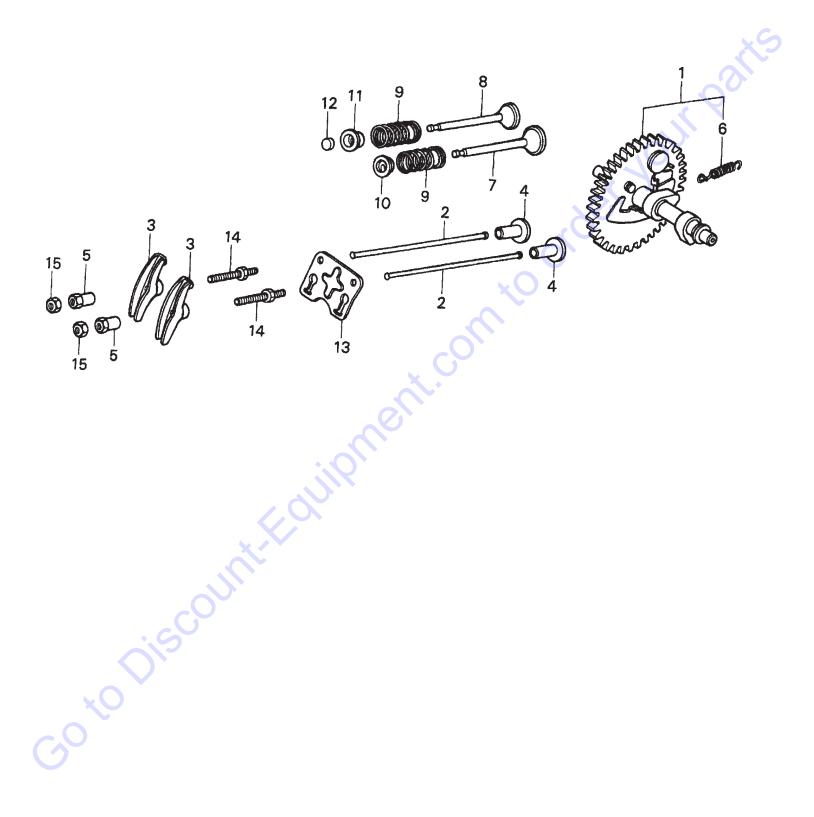
# HONDA GX120K1QX2 ENGINE — AIR CLEANER ASSY.

### AIR CLEANER ASSY.

NO. 1 2 3* 4 5* 7# 8# 9 12 13 14	PART NO. 16271ZE1000 17210ZE0505 17218ZE0505 17230ZE0820 17238ZE0010 17238ZE0010 17239ZE1000 17410ZE0030 90325044000 957010602000 9405006000	PART NAME GASKET, ELBOW ELEMENT, AIR CLEANER (DUAL) FILTER, OUTER COVER, AIR CLEANER (DUAL) GROMMET, AIR CLEANER COLLAR, AIR CLEANER ELBOW, AIR CLEANER ELBOW, AIR CLEANER ELBOW, AIR CLEANER MINGNUT, TOOL BOX SETTING BOLT, FLANGE 6X20 NUT, FLANGE 6MM	1 1 2 1	REMARKS
Got	MQ-D306HA DIAPHRA	AGM PUMP — OPERATION AND PARTS MAN	IUAL— RE'	V. #3 (01/09/07) — PAGE 37

# HONDA GX120K1QX2 ENGINE — CAMSHAFT ASSY.

CAMSHAFT ASSY.



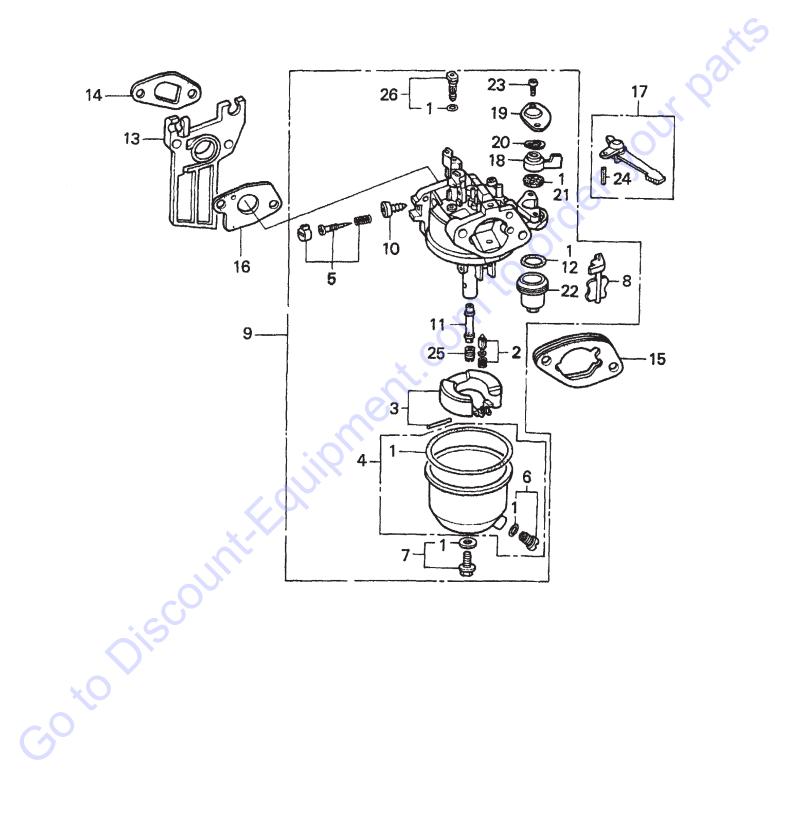
# HONDA GX120K1QX2 ENGINE — CAMSHAFT ASSY.

#### CAMSHAFT ASSY.

NO. 1 2 3 4 5 6* 7 8 9 10 11 12 13 14 15	PART NO. 14100ZE0812 14410ZE0010 14431ZE1000 14441ZE1010 14451ZE1013 14568ZE1000 14711ZF0010 14721ZF0000 14771ZE1000 14771ZE1000 14773ZE1000 14791ZE0010 90012ZE0010 90206ZE1000	PART NAME CAMSHAFT ASSEMBLY ROD, PUSH ARM, VALVE ROCKER LIFTER, VALVE PIVOT, ROCKER ARM SPRING, WEIGHT RETURN VALVE, IN. VALVE, IN. VALVE, EX. SPRING, VALVE RETAINER, IN. VALVE SPRING RETAINER, EX. VALVE SPRING ROTATOR, VALVE PLATE, PUSH ROD GUIDE BOLT, PIVOT 8MM NUT, PIVOT ADJ.	2 2 2 1 1 1 2 1 1 1 2 2 2	REMARKS	ats
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	MQ-D306HA DIAPH	RAGM PUMP — OPERATION AND PAF	rts Manual— Rev	/. #3 (01/09/07) — PAGE 39	

# HONDA GX120K1QX2 ENGINE — CARBURETOR ASSY.

CARBURETOR ASSY.



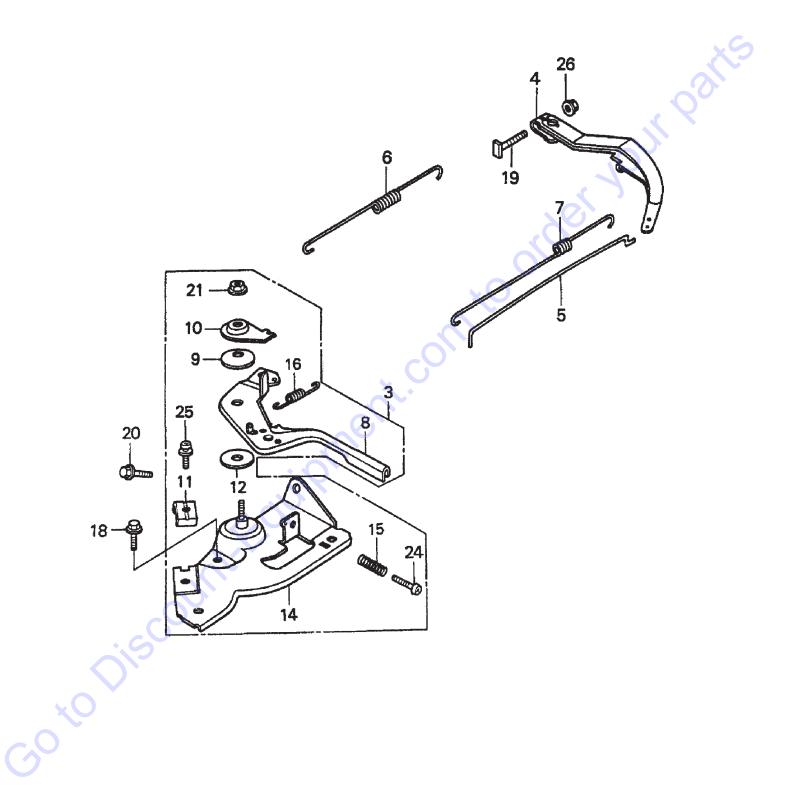
## HONDA GX120K1QX2 ENGINE — CARBURETOR ASSY.

#### CARBURETOR ASSY.

NO. 1* 2* 3* 4* 5* 6* 7* 8* 9 10* 11* 12* 13 14 15 16 17 18* 19* 20* 21* 22* 23* 24# 25 25* 26*	PART NO. 16010ZE1812 16011ZE0005 16013ZE0005 16015ZE1811 16024ZE1811 16024ZE1811 16028ZE0005 16044ZE0005 16100ZH7W51 16124ZE0005 16166ZH7W50 16173001004 16211ZE0000 16220ZE1020 16220ZE1020 16220ZE1020 16221ZH8801 16610ZE1000 16953ZE1812 16954ZE1811 16957ZE1812 16967ZE0811 93500030080G 9430520122 99101ZH80550 99101ZH80550 99101ZH80550 99101ZH80500 99204ZE00350	PART NAME GASKET SET VALVE SET, FLOAT FLOAT SET CHAMBER SET, FLOAT SCREW SET SCREW SET, DRAIN SCREW SET B CHOKE SET CARBURETOR ASSEMBLY, BEI SCREW, THROTTLE STOP NOZZLE, MAIN GASKET, FUEL STRAINER CUI INSULATOR, CARBURETOR GASKET, INSULATOR SPACER, CARBURETOR GASKET, CARBURETOR LEVER, CHOKE (STANDARD) LEVER, VALVE PLATE, LEVER SETTING SPRING, VALVE LEVER GASKET, VALVE CUP, FUEL STRAINER SCREW, PAN (3 X 6) PIN, SPRING (2 X 12) JET, MAIN (#55) (OPTIONAL) JET, MAIN (#58) (OPTIONAL) JET, MAIN (#60) JET, SET, PILOT (#35)	REMARKS
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# HONDA GX120K1QX2 ENGINE — CONTROL ASSY.

CONTROL ASSY.



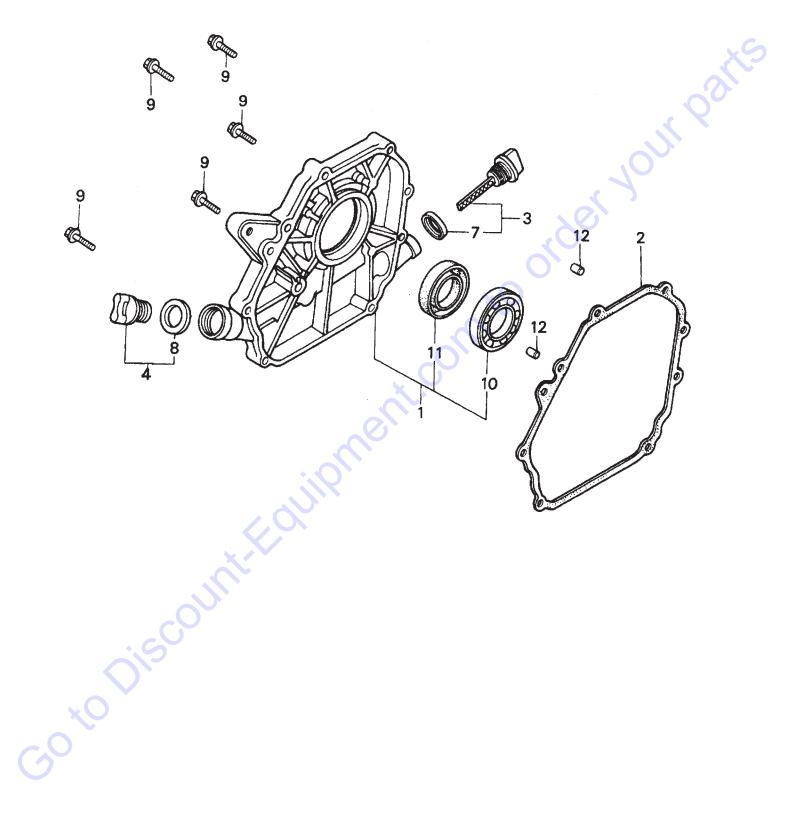
## HONDA GX120K1QX2 ENGINE — CONTROL ASSY.

#### CONTROL ASSY.

3 4 5 6 7 8# 9# 10# 11# 12# 14# 15# 16# 18 19 20 21# 24# 25# 26	16500ZH7820 16551ZE0010 16551ZE0020 16561ZE0020 16571ZH7000 16574ZE1000 16575ZH8000 16576891000 16578ZE1000 16580ZH7810 16584883300 90015ZE5010 90022888010 90114SA0000 93500050250H 93500050160A 9405006000	CONTROL ASSEMBLY (REMOTE) ARM, GOVERNOR ROD, GOVERNOR SPRING, GOVERNOR SPRING, THROTTLE RETURN LEVER, CONTROL SPRING, LEVER WASHER, CONTROL LEVER HOLDER, CABLE SPACER, CONTROL ADJUSTING SPRING, CONTROL ADJUSTING SPRING, CABLE RETURN BOLT, FLANGE 6X12 (CT200) BOLT, GOVERNOR ARM BOLT, FLANGE 6X20 (CT200) NUT, SELF- LOCK 6MM SCREW, PAN 5X25 SCREW, PAN NUT, FLANGE 6MM		Qarts.
Got		RAGM PUMP — OPERATION AND PART		

# HONDA GX120K1QX2 ENGINE — CRANKCASE COVER ASSY.

CRANKCASE COVER ASSY.



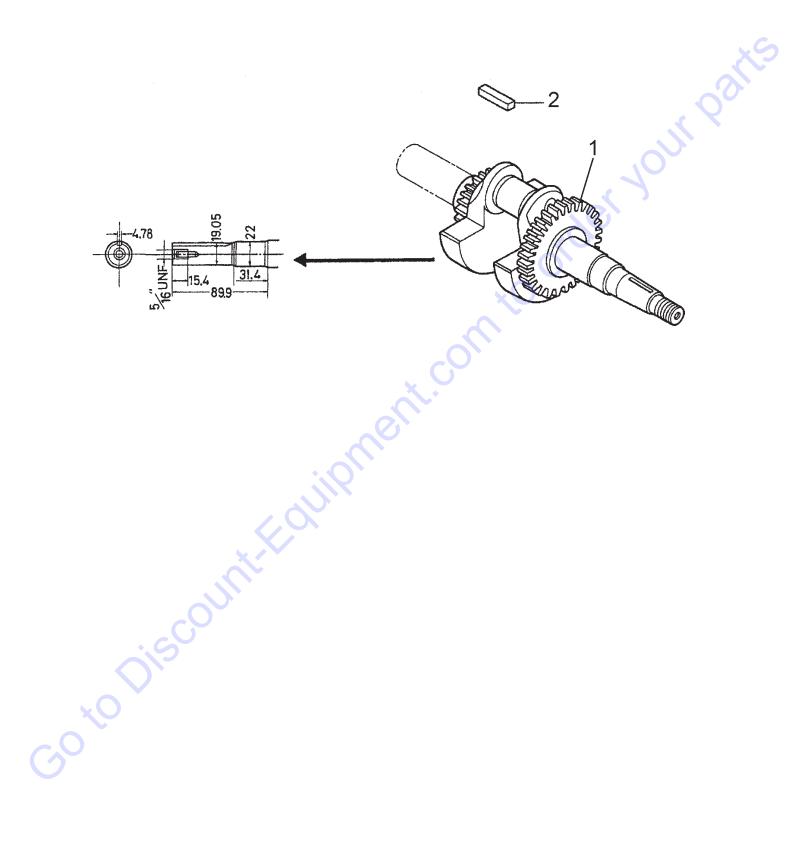
## HONDA GX120K1QX2 ENGINE — CRANKCASE COVER ASSY.

#### CRANKCASE COVER ASSY.

<u>NO.</u> 1 2 3 4 7# 8+ 9 10* 11* 12	PART NO. 11300ZE0640 11381ZH7800 15600ZE1003 15600ZG4003 15625ZE1003 90015883000 91001878003 91203ZE0003 9430108140	PART NAME COVER ASSEMBLY, CRANKCASE (W- TYPE) GASKET, CASE COVER CAP ASSEMBLY, OIL FILLER CAP ASSEMBLY, OIL FILLER GASKET, OIL FILLER CAP GASKET, OIL FILLER CAP BOLT, FLANGE 6X28 BEARING, RADIAL BALL OIL SEAL 22X41X6 PIN A, DOWEL 8X14	1 1  1 1 7 1 1 2	INCLUDES ITEMS W/#
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Go		AGM PUMP — OPERATION AND PARTS MANUAL-	— REV. #3	(01/09/07) — PAGE 45

# HONDA GX120K1QX2 ENGINE — CRANKSHAFT ASSY.

CRANKSHAFT ASSY.



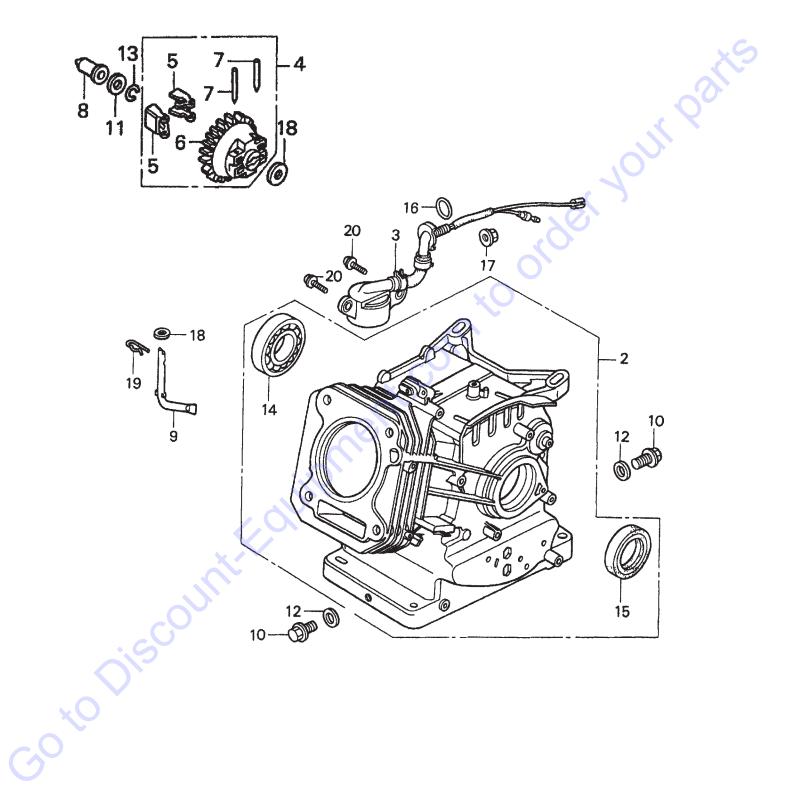
# HONDA GX120K1QX2 ENGINE — CRANKSHAFT ASSY.

#### CRANKSHAFT ASSY.

<u>NO.</u> 1 2	<u>PART NO.</u> 13310ZE0601 90745ZE1600	<u>PART NAME</u> CRANKSHAFT, H-TYPE KEY 4.78 X4.78X38	<u>QTY.</u> 1 1	REMARKS
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## HONDA GX120K1QX2 ENGINE — CYLINDER BARREL ASSY.

CYLINDER BARREL ASSY.



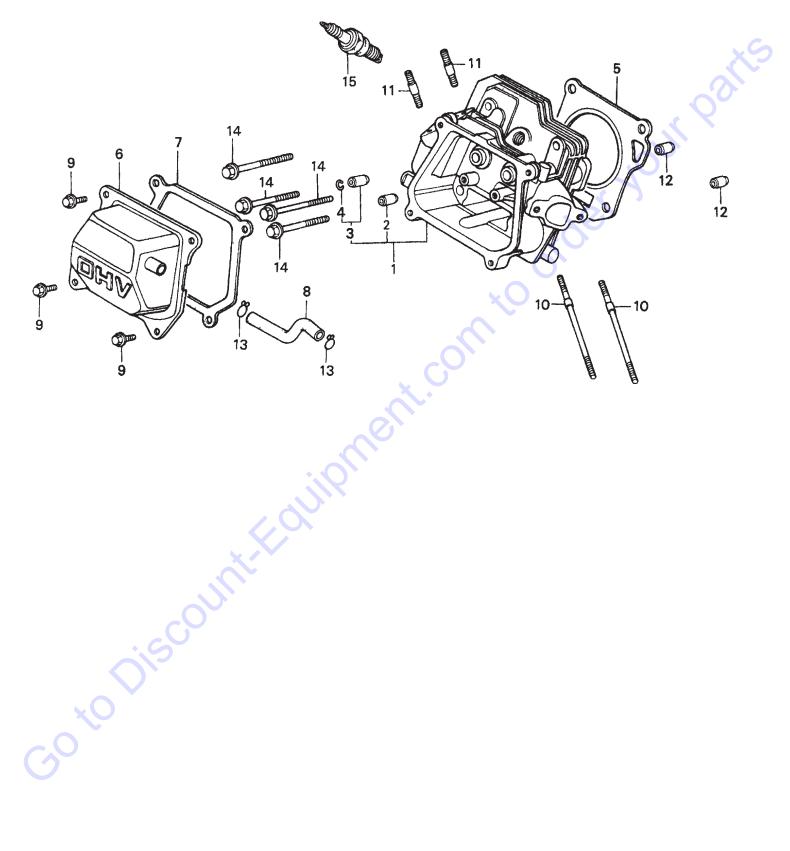
## HONDA GX120K1QX2 ENGINE — CYLINDER BARREL ASSY.

#### CYLINDER BARREL ASSY.

NO. 2 3 4 5# 6# 7# 8 9 10 11 12 13 14* 15* 16 17 18 19 20	PART NO. 120A0ZH7810 15510ZE1033 16510ZE1000 16511ZE1000 16513ZE1000 16531ZE1000 90451ZE1000 90602ZE1000 90602ZE1000 91001878003 91202ZE6003 91353671003 9405010000 9410106800 9425108000 957010601200	PART NAME CYLINDER ASSEMBLY (OIL ALERT) SWITCH ASSEMBLY, OIL LEVEL GOVERNOR ASSEMBLLY WEIGHT, GOVERNOR HOLDER, GOVERNOR WEIGHT SLIDER, GOVERNOR WEIGHT SLIDER, GOVERNOR ARM BOLT, DRAIN PLUG WASHER, THRUST 6mm WASHER, DRAIN PLUG 10.2mm CLIP, GOVERNOR HOLDER BEARING, RADIAL BALL 62/22 OIL SEAL 22X35X6 O- RING 13.5X1.5 (ARAI) NUT, FLANGE 10mm WASHER, PLAIN 6mm PIN, LOCK 8mm BOLT, FLANGE 6X12	1		Qarts
		AGM PUMP — OPERATION AND PARTS	MANUAL—	REV. #3 (01/09/07) — PAGE	E 49

# HONDA GX120K1QX2 ENGINE — CYLINDER HEAD ASSY.

CYLINDER HEAD ASSY.



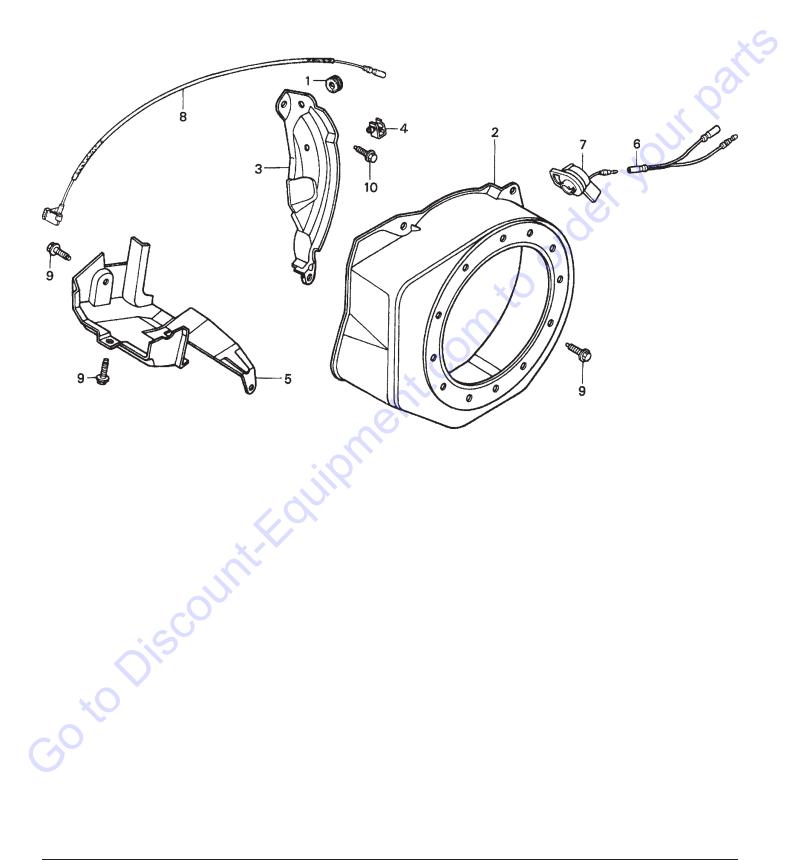
## HONDA GX120K1QX2 ENGINE — CYLINDER HEAD ASSY.

#### CYLINDER HEAD ASSY.

1 2: 3:	* * *+ 0 1 2 4	PART NO. 12210ZH7000 12204ZE1306 12205ZE1315 12216ZE5300 12251ZH7800 12310ZE1000 12310ZE1010 12391ZE1000 15721ZH8000 90043ZE1020 90043ZE1020 90047ZE1000 9430110160 957230805500 9807955846	PART NAME CYLINDER HEAD GUIDE, VALVE (OS) OPTIONAL GUIDE, EX. VALVE (OS) OPTIONAL CLIP, VALVE GUIDE GASKET, CYLINDER HEAD COVER, HEAD COVER, HEAD GASKET, CYLINDER HEAD COVER TUBE, BREATHER BOLT, FLANGE 6X12 (CT200) BOLT, STUD 6X109 BOLT, STUD 8X32 PIN, A, DOWEL 10X16 BOLT, FLANGE 8X55 SPARK PLUG BPR6ES (NGK)	1	
		iscoul	t-f-quipment.com		
G		IQ-D306HA DIAPHRA	GM PUMP — OPERATION AND PARTS MANUA	L— REV. #3	(01/09/07) — PAGE 51

# HONDA GX120K1QX2 ENGINE — FAN COVER ASSY.

FAN COVER ASSY.



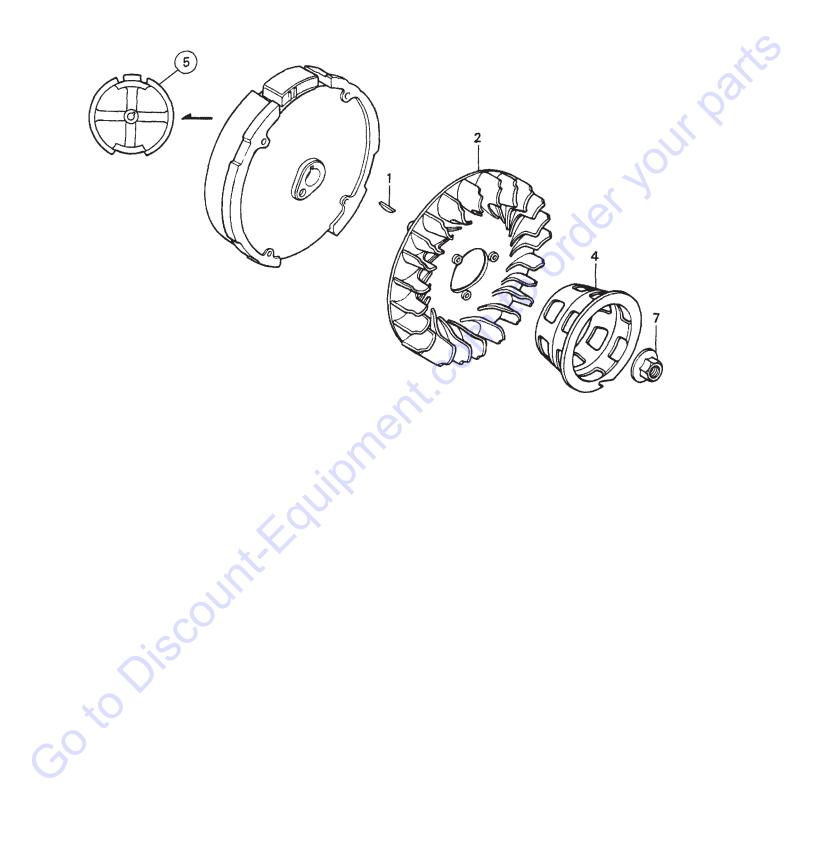
## HONDA GX120K1QX2 ENGINE — FAN COVER ASSY.

FAN COVER ASSY.

NO. 1 2 3 4 5 6 7 7 8 9 10 11 13	PART NO. 11347371300 19610ZE0000ZE 19611ZH7810 90601ZH7013 19630ZH7000 32197ZH8003 36100ZE1015 36100ZH7003 36101ZE1010 90013883000 90022888010 34150ZH7003 957010600800	PART NAME GROMMET, ADJUSTING COVER COVER, FAN *NH1* BLACK PLATE, SIDE (OIL ALERT) CLIP, HARNESS SHROUD SUB- HARNESS SWITCH ASSEMBLY, ENGINE STOP SWITCH ASSEMBLY, ENGINE STOP WIRE, STOP SWITCH 370MM BOLT, FLANGE 6X12 (CT200) BOLT, FLANGE 6X12 (CT200) ALERT UNIT, OIL BOLT, FLANGE 6X8	<b>QTY.</b> 1 1 1 1 1 1 1 6 1 1 1	REMARKS	our parts
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-		RAGM PUMP — OPERATION AND PARTS	MANUAL—	REV. #3 (01/09/07)	— PAGE 53

# HONDA GX120K1QX2 ENGINE — FLYWHEEL ASSY.

FLYWHEEL ASSY.



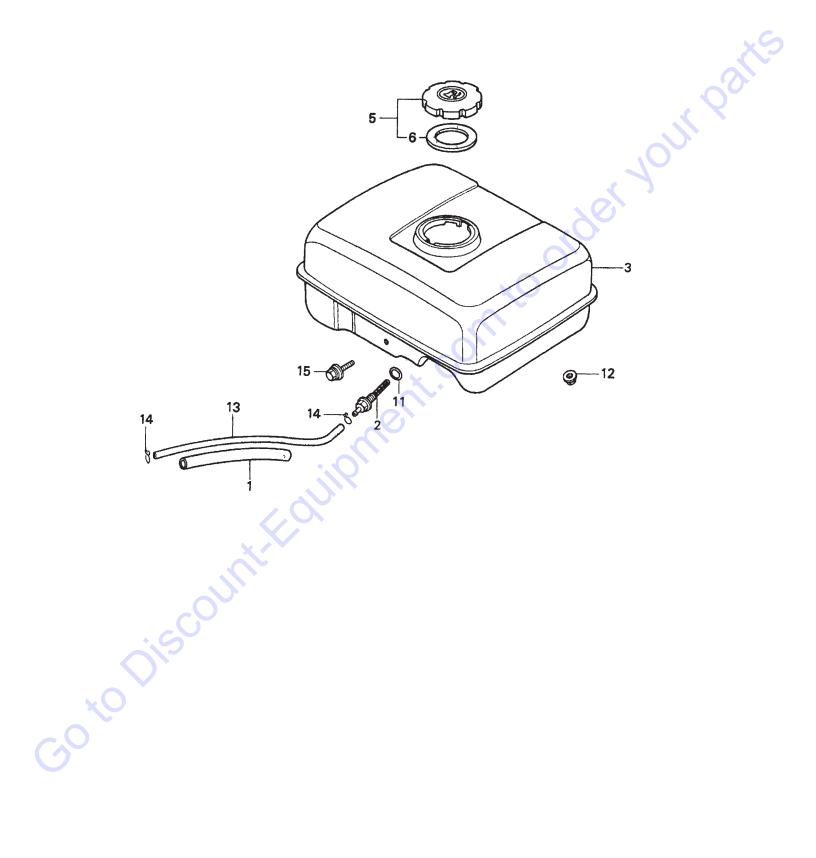
# HONDA GX120K1QX2 ENGINE — FLYWHEEL ASSY.

#### FLYWHEEL ASSY.

FLY	WHEEL ASSY.					
<u>NO</u> 1 2 4 5 7	<u>PART NO.</u> 13331357000 19511ZE0000 28451ZH8003 31100ZE0010 90201878003	) FAN, COOLING 9 PULLEY, STARTER		<u>QTY.</u> 1 1 1 1	<u>REMARKS</u>	oatis
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# HONDA GX120K1QX2 ENGINE — FUEL TANK ASSY.

FUEL TANK ASSY.



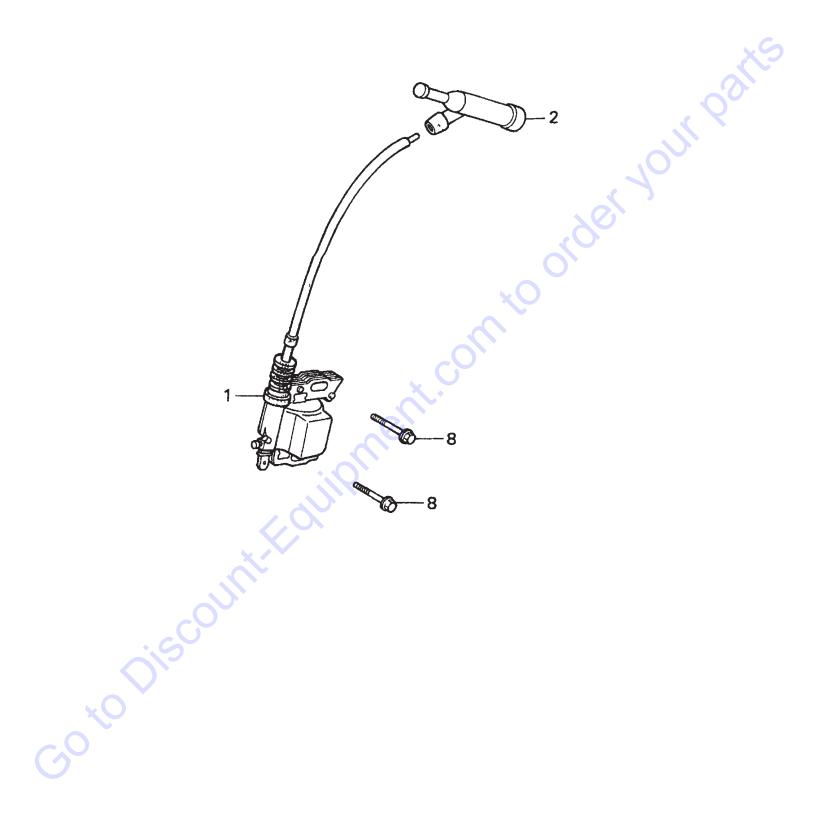
## HONDA GX120K1QX2 ENGINE — FUEL TANK ASSY.

#### FUEL TANK ASSY.

	1 2 3 5 6* 11 12 13 14	PART NO. 16854ZH8000 16955ZE1000 17510ZE0020ZD 17620ZH7023 17631ZH7003 91353671003 9405006000 950014500360M 9500202080 90004ZH7003	PART NAME RUBBER, SUPPORTER 107MM JOINT, FUEL TANK TANK, FUEL *NH1* (BLACK) CAP, FUEL FILLER GASKET, FUEL FILLER CAP O- RING 13.5X1.5 (ARAI) NUT, FLANGE 6MM BULK HOSE, FUEL (4.5X3000) (4.5X140) CLIP, TUBE (B8) BOLT, FLANGE 6X29	1 1 2 1 2 1	or your p
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G			GM PUMP — OPERATION AND PARTS M	ANUAL— F	REV. #3 (01/09/07) — PAGE 57

# HONDA GX120K1QX2 ENGINE — IGNITION COIL ASSY.

IGNITION COIL ASSY.



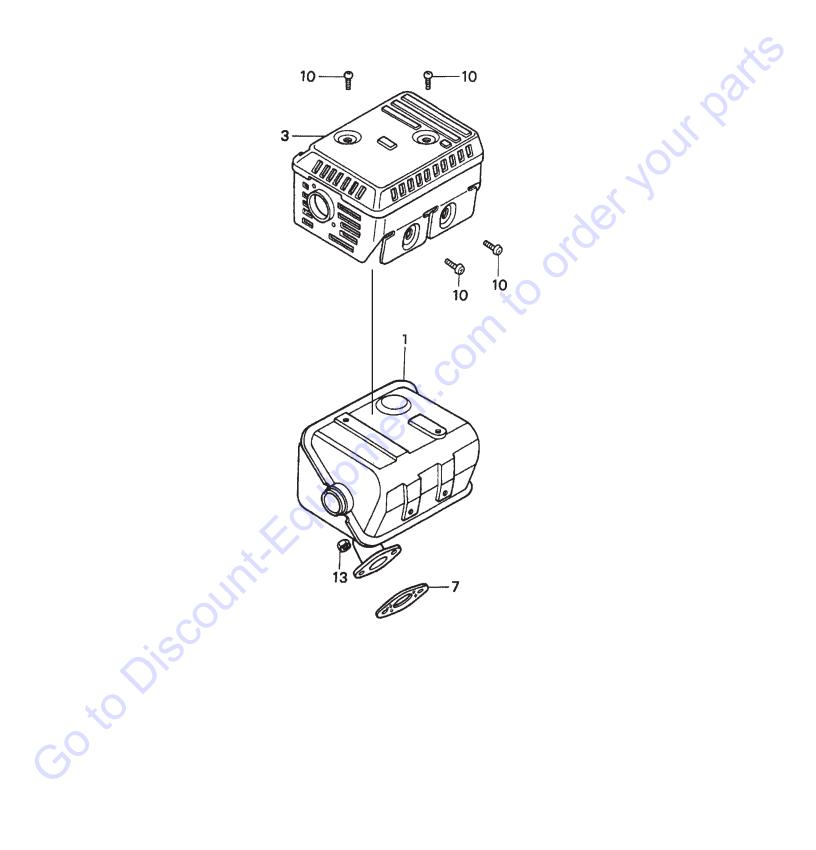
## HONDA GX120K1QX2 ENGINE — IGNITION COIL ASSY.

#### **IGNITION COIL ASSY.**

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# HONDA GX120K1QX2 ENGINE — MUFFLER ASSY.

MUFFLER ASSY.



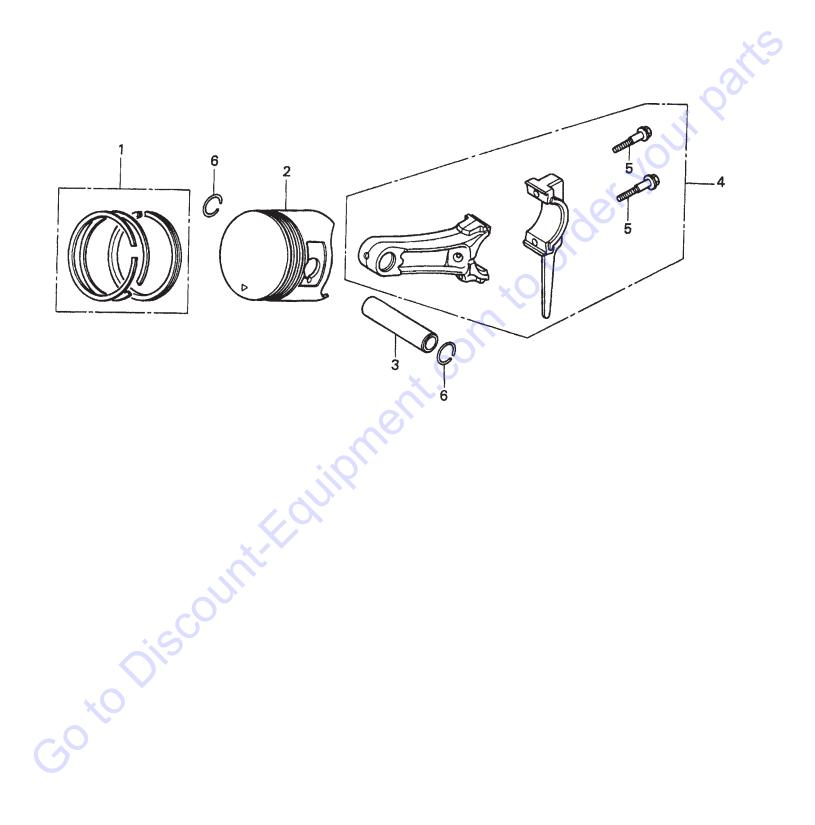
## HONDA GX120K1QX2 ENGINE — MUFFLER ASSY.

#### MUFFLER ASSY.

	NO. 1 1 3 7 10 13	PART NO. 18310ZF1000 18320ZF1H01 18381ZH8800 90050ZE1000 94001080000S	PART NAME MUFFLER PROTECTOR, MUFFLER GASKET, MUFFLER SCREW, TAPPING 5X8 JUT, HEX. 8MM	<b>QTY.</b> 1 1 1 4 2	<u>REMARKS</u>	parts
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# HONDA GX120K1QX2 ENGINE — PISTON ASSY.

PISTON ASSY.



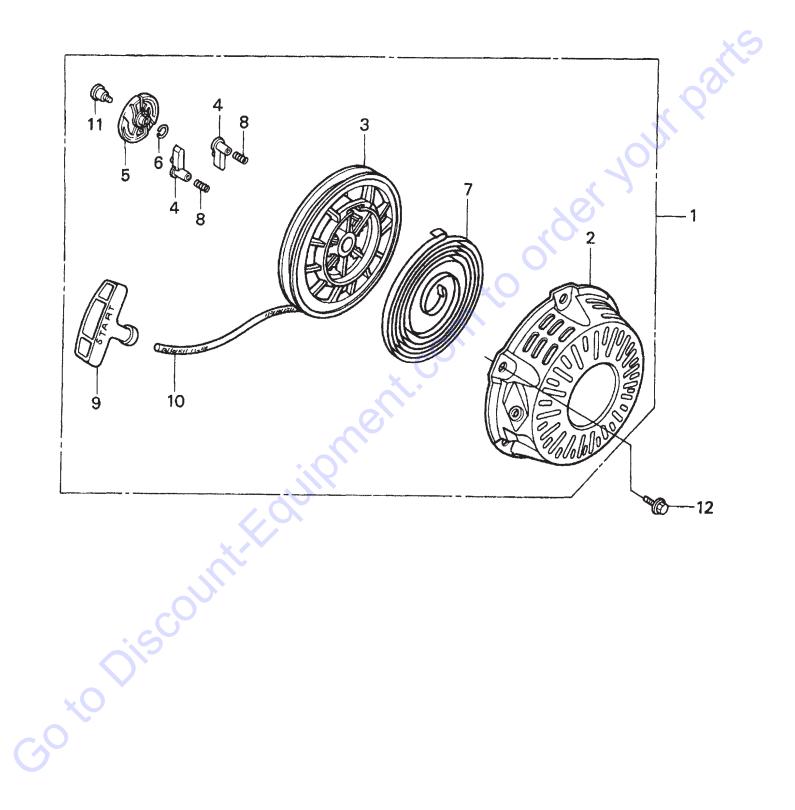
# HONDA GX120K1QX2 ENGINE - PISTON ASSY.

#### PISTON ASSY.

NO. 1 1 1 2 2 2 2 2 2 3 4 4 5* 6	PART NO. 13010ZK7V01 13011ZE6013 13012ZK7V01 13013ZK7V01 13101ZH7000 13102ZH7000 13103ZH7000 13104ZH7000 13111ZE0000 132A0ZE0000 90001ZE1000 90551ZE0000	PART NAME RING SET, PISTON (STANDARD) RING SET, PISTON (OS 0.25), OPTIONAL RING SET, PISTON (OS 0.50) , OPTIONAL RING SET, PISTON (OS 0.75), OPTIONAL PISTON, STANDARD PISTON, OS 0.25 PISTON, OS 0.25 PISTON, 0.75 PIN, PISTON ROD ASSY, CONNECTING (UNDER SIZE) ROD ASSEMBLY, CONNECTING BOLT, CONNECTING ROD CLIP, PISTON PIN 13MM	- 1 1 1 1 1 1 1	REMARKS	/* /*
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# HONDA GX120K1QX2 ENGINE — RECOIL STARTER ASSY.

RECOIL STARTER ASSY.



## HONDA GX120K1QX2 ENGINE — RECOIL STARTER ASSY.

#### **RECOIL STARTER ASSY.**

NO. 1 2* 3* 4* 5* 6* 7* 8* 9* 10* 11* 12	PART NO. 28400ZH8013ZB 28410ZH8003ZB 28420ZH8013 28422ZH8013 28433ZH8003 28441ZH8003 28442ZH8003 28443ZH8003 28461ZH8003 28462ZH8003 90003ZH8003 9008ZE2003	PART NAME STARTER ASSY., RECOIL *NH1* (BLACK) CASE, RECOIL STARTER *NH1* (BLACK) REEL, RECOIL STARTER RATCHET, STARTER GUIDE, RATCHET SPRING, FRICTION SPRING, RECOIL STARTER SPRING, RETURN KNOB, RECOIL STARTER ROPE, RECOIL STARTER SCREW, SETTING BOLT, FLANGE 6X10	1 2 1 1 2 1 1 1 3	REMARKS INCLUDES ITEMS W/*
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GO	MQ-D306HA DIAPHE	RAGM PUMP — OPERATION AND PARTS MANU	IAL— REV. #	ŧ3 (01/09/07) — PAGE 65

## HONDA GX120K1QX2 ENGINE — GASKET KIT ASSY.

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- REV. #3 **PAGE 66** MQ-D306HA DIAPHRAGM PUMP — OPERATION AND PARTS MANUAL – (01/09/07)

## HONDA GX120K1QX2 ENGINE — GASKET KIT ASSY.

#### GASKET KIT ASSY.

<u>NO.</u> 2 3* 4* 5* 6* 7* 8*	PART NO. 06111ZH7405 11381ZH7800 12251ZH7800 12391ZE1000 16212ZH7800 16221ZH8801 18381ZH8800	PART NAME GASKET KIT GASKET, CASE COVER GASKET, CYLINDER HEAD GASKET, CYLINDER HEAD COVER GASKET, INSULATOR GASKET, CARBURETOR GASKET, MUFFLER	<u>QTY.</u> 1 1 1 1 1 1	REMARKS
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		AGM PUMP — OPERATION AND PARTS MANU	IAL— REV. #3	3 (01/09/07) — PAGE 67

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