

HONDA WATER PUMP **WD20X·WD30X**

OWNER'S MANUAL


Thank you for purchasing a Honda water pump.

This manual covers the operation and maintenance of WD20X and WD30X water pumps. All information in this publication is based on the latest product information available at the time of printing. The illustrations in this manual are based on the WD30X water pump unless otherwise noted. Honda Motor Co., Ltd. reserves the right to make changes at any time without notice and without incurring any obligation.

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This manual should be considered a permanent part of the pump and should remain with the pump if it is resold.


Pay special attention to statements preceded by the following words:

 **WARNING** Indicates a strong possibility of severe personal injury or loss of life if instructions are not followed.

CAUTION: Indicates a possibility of personal injury or equipment damage if instructions are not followed.

NOTE: Gives helpful information.

If a problem should arise, or if you have any questions about your pump, consult an authorized Honda dealer.

 **WARNING** Honda water pumps are designed to give safe and dependable service if operated according to instructions. Read and understand the Owner's Manual before operating the pump. Failure to do so could result in personal injury or equipment damage.

CONTENTS

1. WATER PUMP SAFETY	3
2. COMPONENT IDENTIFICATION	5
3. PRE-OPERATION CHECK	6
4. STARTING THE ENGINE	11
5. OPERATION	13
• High altitude operation	14
6. STOPPING THE ENGINE	15
7. MAINTENANCE	16
8. TRANSPORTING/STORAGE	22
9. TROUBLESHOOTING	24
10. SPECIFICATIONS	26
11. WARRANTY SERVICE	27

1. WATER PUMP SAFETY

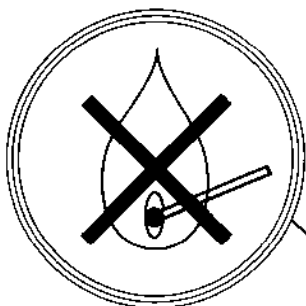
WARNING

To ensure safe operation —

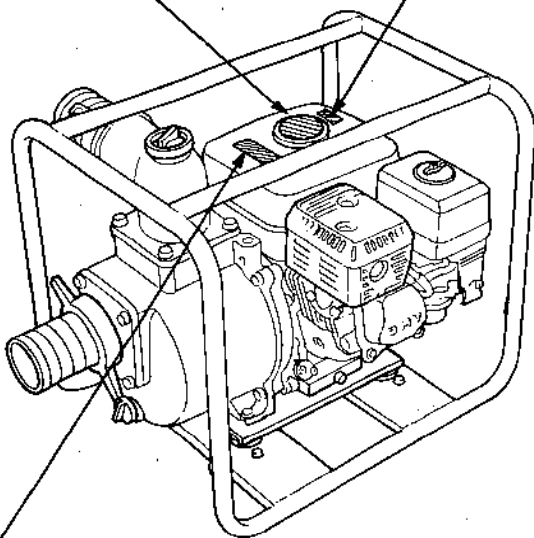
- For safety, never pump flammable or corrosive liquids such as gasoline or acid. Also, to avoid pump corrosion, never pump sea water, muddy water, chemical solutions, or caustic liquids such as used oil, wine, or milk.
- Place the pump on a firm, level surface. If the pump is tilted or overturned, fuel spillage may result.
- To prevent fire hazards and to provide adequate ventilation, keep the pump at least 1 meter (3 feet) away from buildings and other equipment during operation. Do not place flammable objects close to the pump.
- A spark arrester is available as an optional part for this pump. It is illegal in some areas to operate an engine without a spark arrester. Check local laws and regulations before operating.
- Know how to stop the pump quickly, and understand the operation of all controls. Never permit anyone to operate the pump without proper instructions.
- Do not allow children to operate the pump. Keep children and pets away from the area of operation.
- Gasoline is extremely flammable and is explosive under certain conditions. Do not smoke or allow flames or sparks where the pump is refueled or where gasoline is stored. Refuel in a well-ventilated area with the engine stopped. Do not overfill the tank. Make sure that the filler cap is closed securely.
- Exhaust gas contains poisonous carbon monoxide. Avoid inhalation of exhaust gasses. Never run the pump in a closed garage or confined area.
- The muffler becomes very hot during operation and remains hot for a while after stopping the engine. Be careful not to touch the muffler while it is hot. Let the engine cool before storing the pump indoors.

Read these labels before you operate the water pump.

GASOLINE WARNING LABEL



WARNING
DO NOT PUMP FLAMMABLE
OR CORROSIVE MATERIALS.
AN EXPLOSION OR FIRE
COULD RESULT, CAUSING
SEVERE PERSONAL INJURY.



PUMP CAUTION LABEL

CAUTION! DO NOT RUN WITHOUT
PRIMING WATER. DRY OPERATION
WILL BURN THE SEAL.

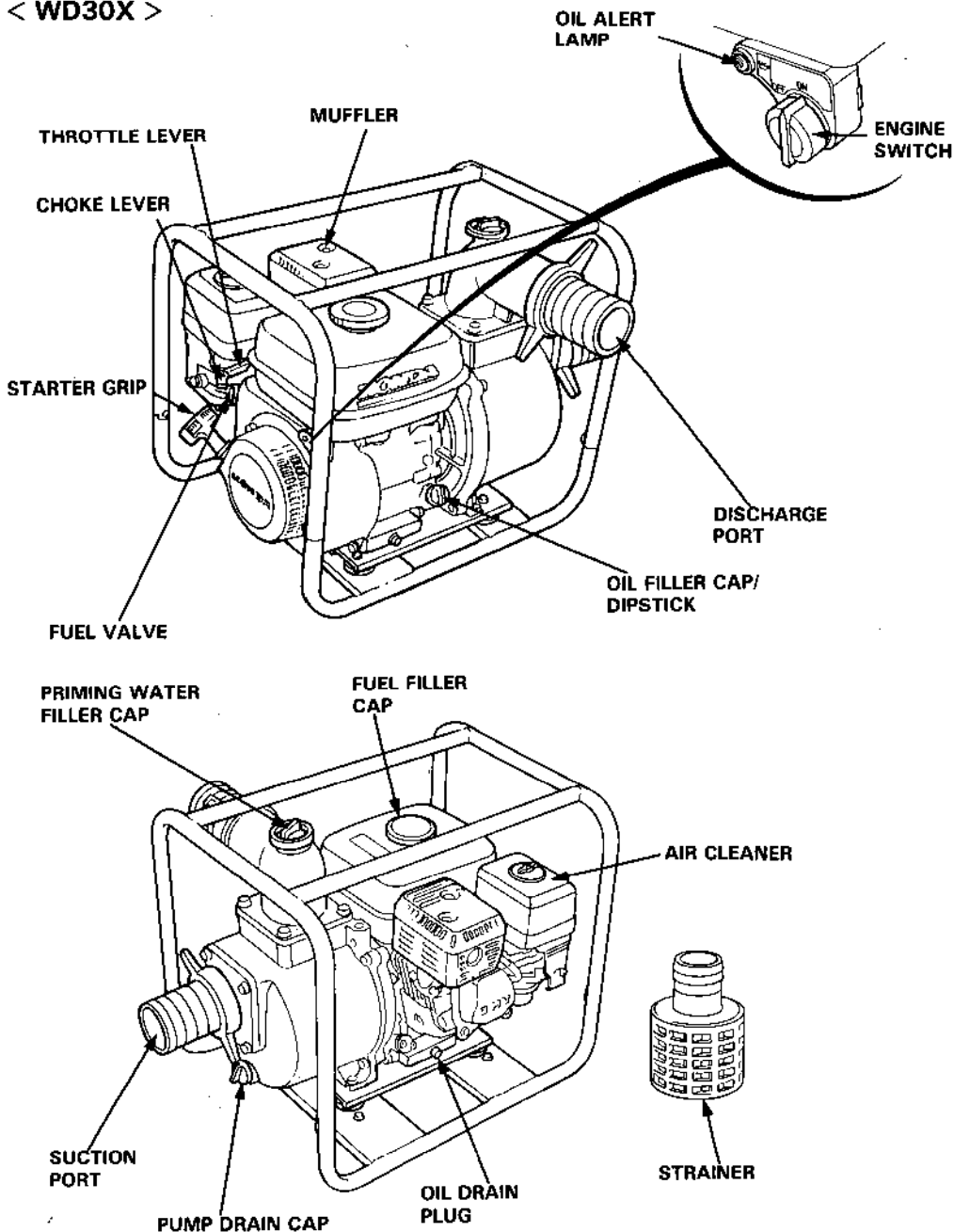
VORSICHT! VOR DEM ANLAUFEN
BEI TESTUND LEERLAUF GEHÄUSE
MIT WASSER BEFÜLLEN. TROCKEN-
AUF ZERSTÖRT DIE DICHTUNGEN.

PRECAUCION! NO HAGA FUNCIONAR
SIN CEBADO FUNCIONAMIENTO
SECO QUEMA EL SELLO.

PRÉCAUTION! NE FAITE PAS FON-
CTIONNER SANS AMORSAGE.
FANCTIONNEMENT AU SEC
BRÛLE LE JOINT D'ANCHÈTE.

2. COMPONENT IDENTIFICATION

< WD20X >
< WD30X >



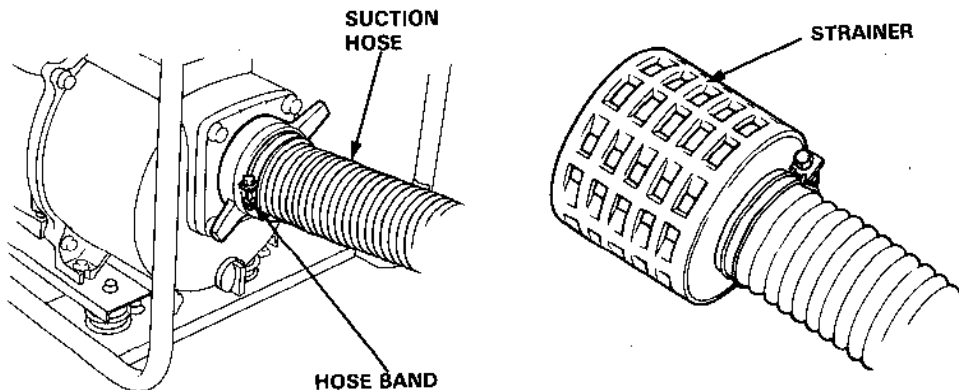
3. PRE-OPERATION CHECK

1. Suction hose

Use a reinforced-wall or wire braided hose to prevent suction collapse. Since the pump's self-priming time is directly proportional to hose length, a short hose is recommended.

Secure the hose with the hose band.

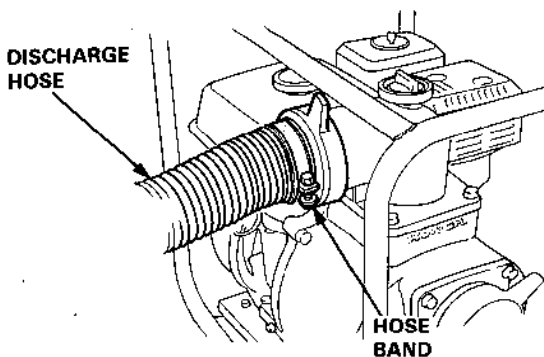
CAUTION: Always install the strainer on the end of the suction hose before pumping. Gravel or debris sucked into the pump will cause serious impeller damage.



2. Discharge hose

When using a fabric hose, always use a hose band to prevent the hose from disconnecting under high pressure.

NOTE: A short, large-diameter hose will provide lower fluid friction and improve efficiency.



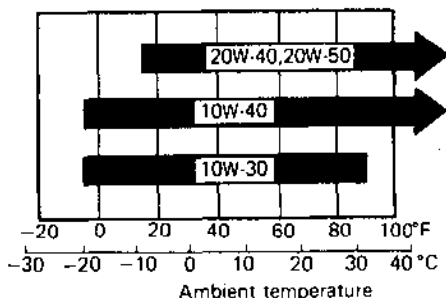
3. Engine Oil

CAUTION:

- Engine oil is a major factor affecting engine performance and service life. Non-detergent and 2-stroke engine oils are not recommended.
- Be sure to check the engine on a level surface with the engine stopped.

Use Honda 4-stroke oil, or an equivalent high detergent, premium quality motor oil certified to meet or exceed U.S. automobile manufacturer's requirements for Service Classification SE or SF, (Motor oils classified SE or SF will show this designation on the container.)

SAE 10W-40 is recommended for general, all-temperature use.

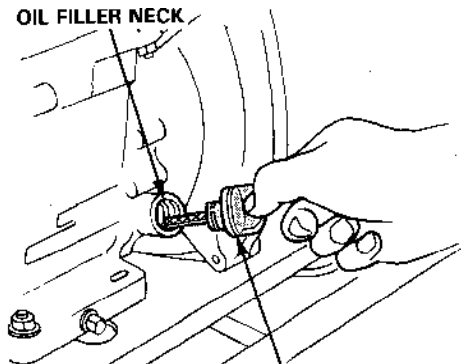


1. Remove the oil filler cap/dipstick and wipe it clean.
2. Check the oil level by inserting the dipstick in the filler neck without screwing it in.
3. If the level is low, fill to the top of the oil filler neck with the recommended oil.

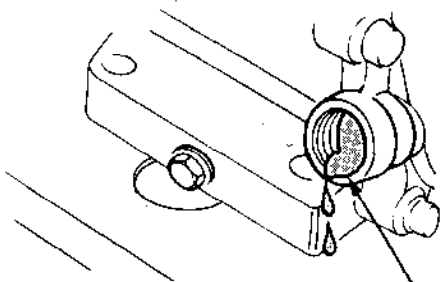
NOTE:

The Oil Alert System will automatically stop the engine before the oil level falls below the safe limit. However, to avoid the inconvenience of an unexpected shutdown, it is advisable to visually inspect the oil level regularly.

OIL FILLER NECK



OIL FILLER CAP



UPPER LEVEL

4. Fuel

Unscrew the fuel cap. Check the fuel level.

Your engine is designed to use any gasoline that has a pump octane number ($\frac{R+M}{2}$) of 86 or higher, or that has a research octane number of 91 or higher. Gasoline pumps at service station normally display the pump octane number.

We recommend that you use unleaded fuel because it produces fewer engine and spark plug deposits and extends the life of exhaust system components.

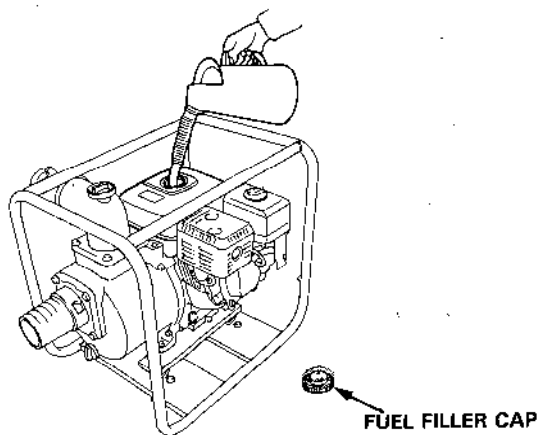
Never use stale or contaminated gasoline or an oil/gasoline mixture. Avoid getting dirt, dust or water in the fuel tank. Use of a lower octane gasoline can cause persistent "pinging" or heavy "spark knock" (a metallic rapping noise) which, if severe, can lead to engine damage.

CAUTION: If "spark knock" or "pinging" occurs at a steady engine speed under normal load, change brands of gasoline. If spark knock or pinging persists, consult your authorized Honda dealer. Failure to do so is considered misuse, and damage caused by misuse is not covered by Honda's Limited Warranty.

Occasionally you may experience light spark knock while operating under heavy loads. This is no cause for concern, it simply means your engine is operating efficiently.

After refueling, be sure to tighten the fuel tank cap firmly.

FUEL TANK CAPACITY: WD20X ... 2.5l (0.66 US gal, 0.55 Imp gal)
WD30X ... 3.6l (0.95 US gal, 0.79 Imp gal)



WARNING

- Gasoline is extremely flammable and is explosive under certain conditions.
- Refuel in a well-ventilated area with the engine stopped. Do not smoke or allow flames or sparks in the area where the engine is refueled or where gasoline is stored.
- Do not overfill the fuel tank (there should be no fuel in the filler neck). After refueling, make sure the tank cap is closed properly and securely.
- Be careful not to spill fuel when refueling. Spilled fuel or fuel vapor may ignite. If any fuel is spilled, make sure the area is dry before starting the engine.
- Avoid repeated or prolonged contact with skin or breathing of vapor.
KEEP OUT OF REACH OF CHILDREN.

GASOLINES CONTAINING ALCOHOL

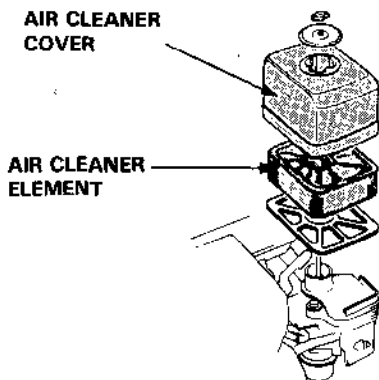
If you decide to use a gasoline containing alcohol (gasohol), be sure it's octane rating is at least as high as that recommended by Honda. There are two types of "gasohol": one containing ethanol, and the other containing methanol. Do not use gasohol that contains more than 10% ethanol. Do not use gasoline containing methanol (methyl or wood alcohol) that does not also contain cosolvents and corrosion inhibitors for methanol. Never use gasoline containing more than 5% methanol, even if it has cosolvents and corrosion inhibitors.

NOTE:

- Fuel system damage or engine performance problems resulting from the use of fuels that contain alcohol is not covered under the warranty. Honda cannot endorse the use of fuels containing methanol since evidence of their suitability is as yet incomplete.
- Before buying fuel from an unfamiliar station, try to find out if the fuel contains alcohol, if it does, confirm the type and percentage of alcohol used. If you notice any undesirable operating symptoms while using a gasoline that contains alcohol, or one that you think contains alcohol, switch to a gasoline that you know does not contain alcohol.

5. Air cleaner

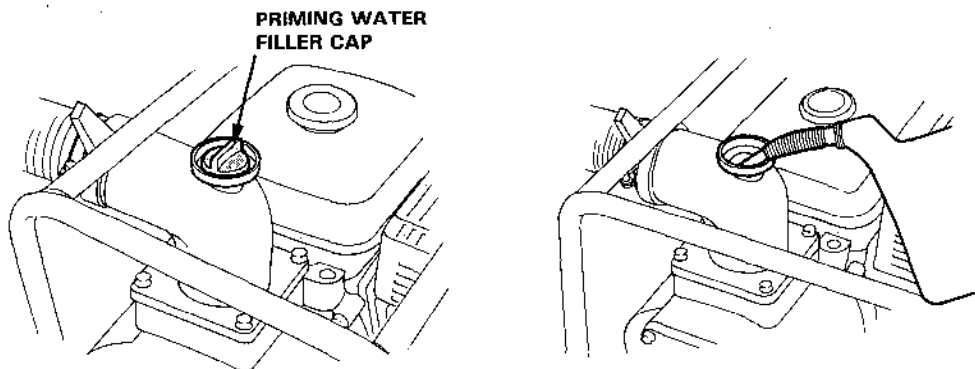
Remove the wing nut, washer and air cleaner cover.
Check the element for dirt or obstruction.
Clean the element if necessary (see page 18).



6. Priming water

The pump chamber should be completely filled before operating.

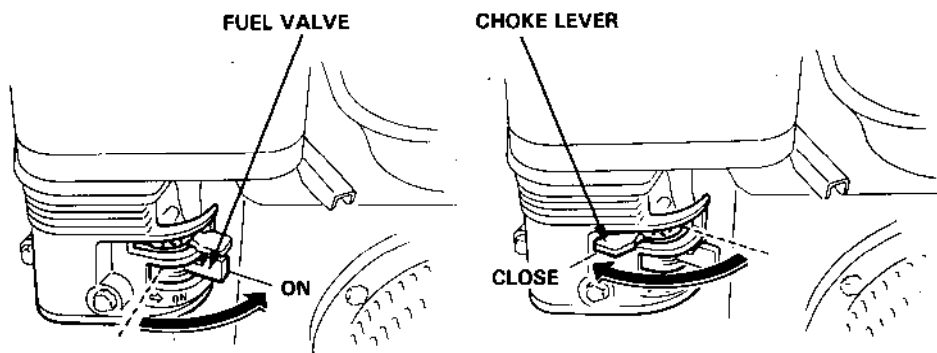
CAUTION: Never attempt to operate the pump without priming water or the pump will overheat. Extended dry operation will destroy the pump seal. If the unit has been operated dry, stop the engine immediately and allow the pump to cool before adding priming water.



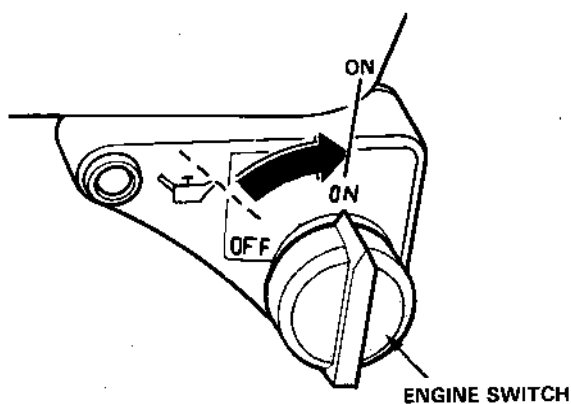
4. STARTING THE ENGINE

1. Turn the fuel valve ON.
2. Close the choke lever.

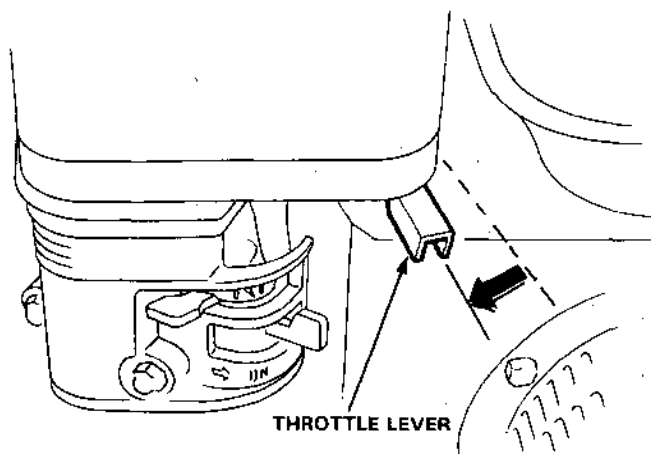
NOTE: Do not use the choke if the engine is warm or the ambient temperature is high.



3. Turn the engine switch to the ON position.

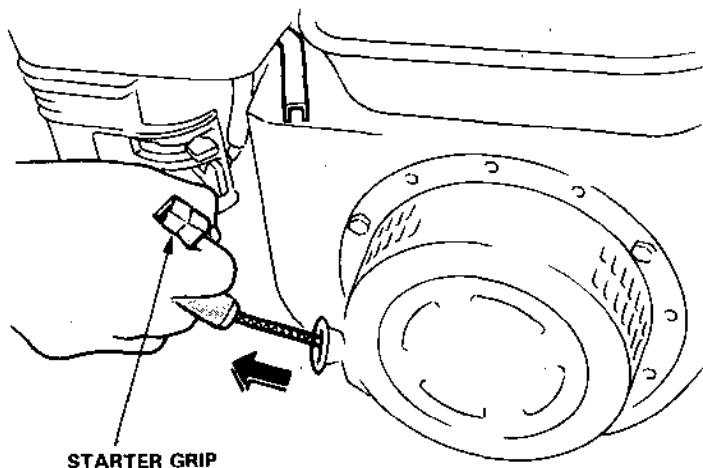


4. Move the throttle lever slightly to the left.



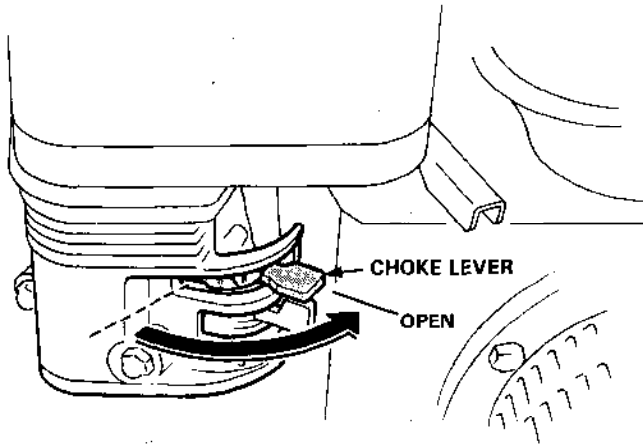
5. Pull the starter grip lightly until resistance is felt, then pull it briskly.

CAUTION: Do not allow the starter grip to snap back against the engine. Return it gently to prevent damage to the starter.

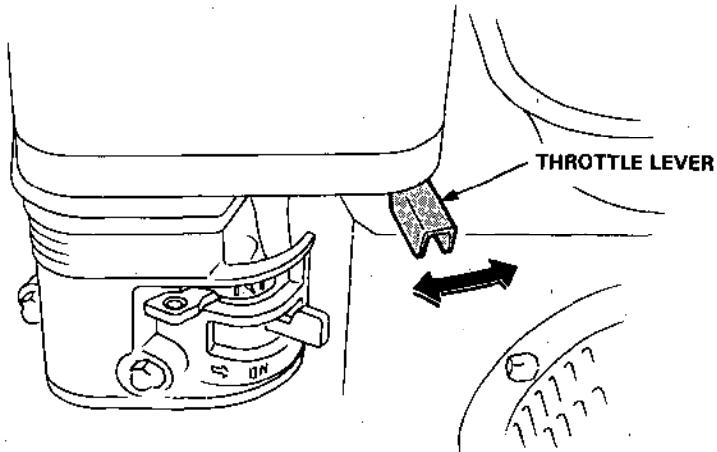


5. OPERATION

1. As the engine warms up, gradually open the choke.



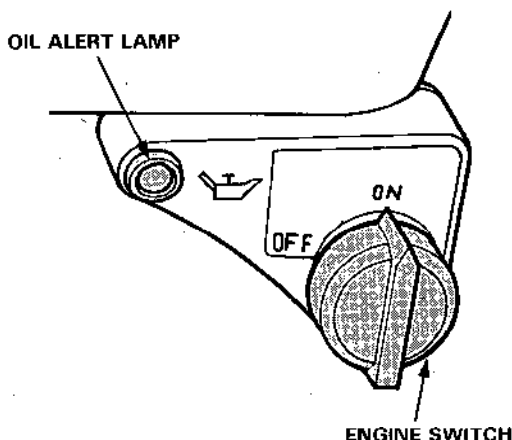
2. Set the throttle at the desired speed.



Oil Alert System

The Oil Alert system is designed to prevent engine damage caused by an insufficient amount of oil in the crankcase. Before the oil level in the crankcase can fall below a safe limit, the Oil Alert system will automatically shut down the engine (the engine switch will remain in the ON position).

If the Oil Alert system shuts down the engine, the Oil Alert lamp will flash when you operate the starter, and the engine will not run. If this occurs, add engine oil (page 7).



High altitude operation

At high altitude, the standard carburetor air-fuel mixture will be excessively rich. Performance will decrease, and fuel consumption will increase.

High altitude performance can be improved by installing a smaller diameter main fuel jet in the carburetor and readjusting the pilot screw. If you always operate the water pump at altitudes higher than 6,000 feet above sea level, have your authorized Honda Water Pump dealer perform these carburetor modifications.

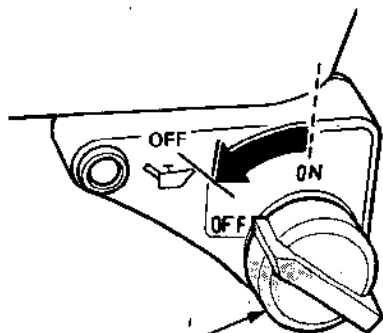
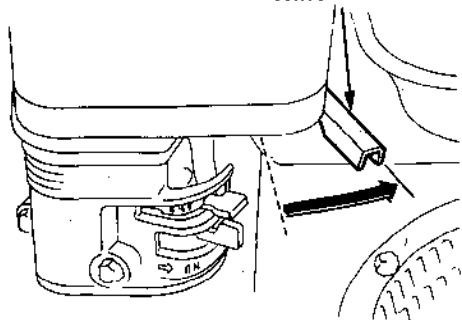
Even with suitable carburetor jetting, engine horsepower will decrease approximately 3.5% for each 1,000 foot increase in altitude. The affect of altitude on horsepower will be greater than this if no carburetor modification is made.

CAUTION: Operation of the Water Pump at an altitude lower than the carburetor is jetted for may result in reduced performance, overheating, and serious engine damage caused by an excessively lean air/fuel mixture.

6. STOPPING THE ENGINE

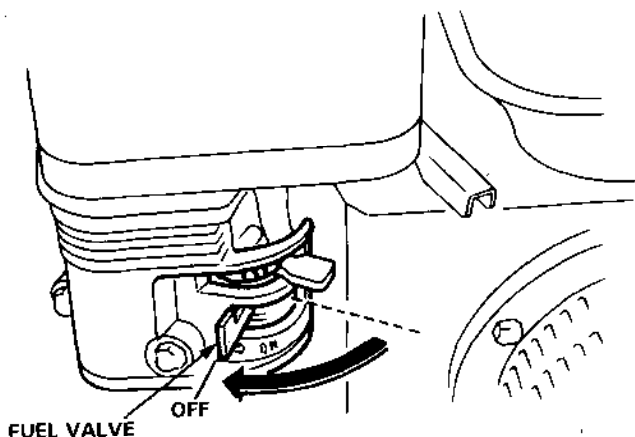
1. Move the throttle lever fully to the right.
2. Turn the engine switch to the OFF position.

THROTTLE LEVER



ENGINE SWITCH

3. Turn the fuel valve OFF.



FUEL VALVE

NOTE: To stop the engine in an emergency, turn the engine switch to the OFF position.

7. MAINTENANCE

The purpose of the maintenance and adjustment schedule is to keep the pump in the best operating condition. Inspect or service as scheduled in the table below.

WARNING Shut off the engine before performing any maintenance. If the engine must be run, make sure the area is well ventilated. The exhaust contains poisonous carbon monoxide gas.

CAUTION: Use only genuine HONDA parts or their equivalent. The use of replacement parts which are not of equivalent quality may damage the pump.

Maintenance Schedule

REGULAR SERVICE PERIOD Perform at every indicated month or operating hour interval, whichever occurs first.		Each use	First month or 20 Hrs.	Every 3 months or 50 Hrs.	Every 6 months or 100 Hrs.	Every year or 300 Hrs.
ITEM						
Engine oil	Check level	○				
	Change		○		○	
Air cleaner	Check	○				
	Clean			○(1)		
Spark plug	Clean-Readjust				○	
Valve clearance	Check-Readjust					○(2)
Fuel tank and strainer	Clean					○(2)
Impeller	Check					○(2)
Impeller clearance	Check					○(2)
Pump inlet valve	Check					○(2)
Fuel line	Check (Replace if necessary)	Every 3 years (2)				
Spark arrester (Optional part)	Clean				○	

NOTE: (1) Service more frequently when used in dusty areas.

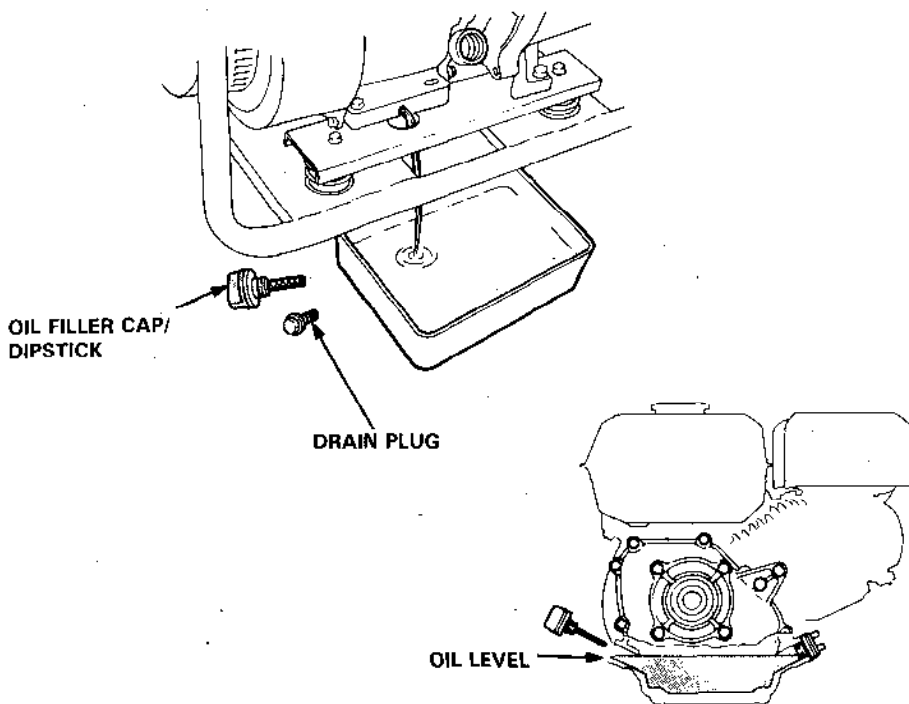
(2) These items should be serviced by an authorized Honda dealer, unless the owner has the proper tools and is mechanically proficient. See the Honda Shop Manual.

1. Oil change

Drain the oil while the engine is still warm to assure rapid and complete draining.

1. Remove the oil filler cap and the drain plug, then drain the oil.
2. Reinstall the drain plug and tighten securely.
3. Refill with the recommended oil (see page 7) to the specified level.

OIL CAPACITY: 0.6ℓ (0.63 US qt)



CAUTION: Used motor oil may cause skin cancer if repeatedly left in contact with the skin for prolonged periods. Although this is unlikely unless you handle used oil on a daily basis, it is still advisable to thoroughly wash your hands with soap and water as soon as possible after handling used oil.

NOTE: Please dispose of used motor oil in a manner that is compatible with the environment. We suggest you take it in a sealed container to your local service station for reclamation. Do not throw it in the trash or pour it on the ground.

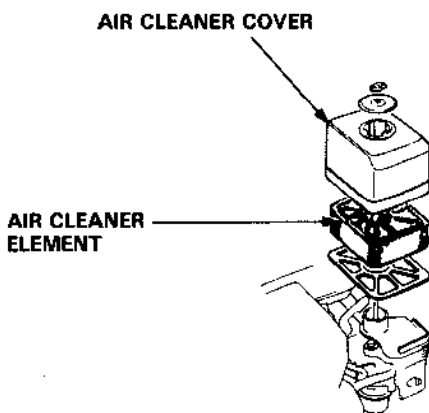
2. Air cleaner service

A dirty air cleaner will restrict air flow to the carburetor. To prevent carburetor malfunction, service the air cleaner regularly. Service more frequently when operating the pump in extremely dusty areas.

WARNING Never use gasoline or low flash point solvents for cleaning the air cleaner element. A fire or explosion could result.

CAUTION: Never run the pump without the air cleaner. Rapid engine wear will result.

1. Unscrew the wing nut, remove the air cleaner cover and remove the air cleaner element.
2. Wash the air cleaner element in a solution of household detergent and warm water, then rinse thoroughly, or wash in nonflammable or high flashpoint solvent. Allow the element to dry thoroughly.
3. Soak the element in clean engine oil, and squeeze out the excess oil. The engine will smoke during initial start-up if too much oil is left in the foam.
4. Reinstall the air cleaner element and the cover.



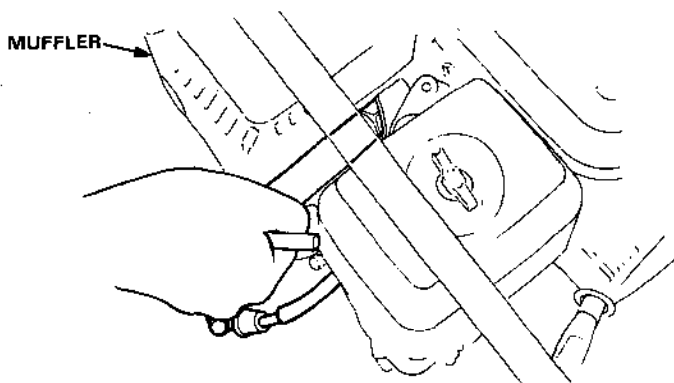
3. Spark plug service

Recommended spark plug: BPR6ES (NGK)
W20EPR-U (ND)

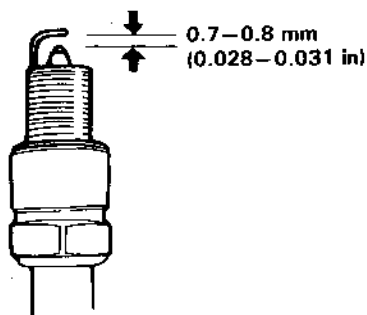
To ensure proper engine operation, the spark plug must be properly gapped and free of deposits.

1. Remove the spark plug.

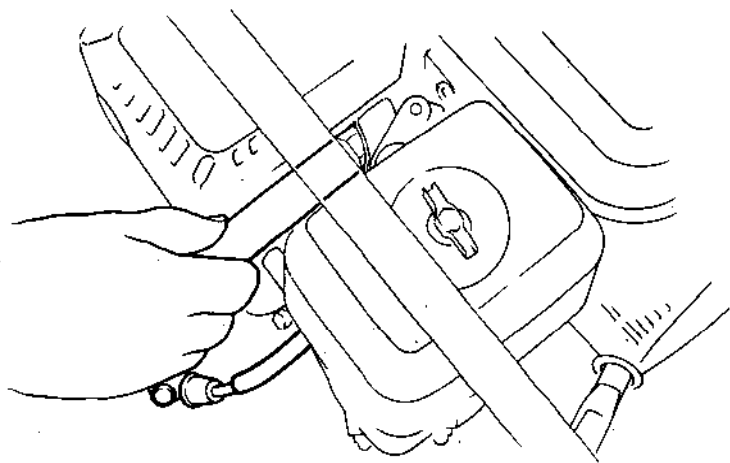
WARNING If the engine has been running, the muffler will be very hot. Be careful not to touch the muffler.



2. Visually inspect the spark plug. Discard it if the insulator is cracked or chipped. Clean the spark plug with a wire brush if it is to be reused.
3. Measure the plug gap with a feeler gauge. The gap should be 0.7–0.8 mm (0.028–0.031 in). Correct as necessary by bending the side electrode.



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4. Check that the spark plug washer is in good condition, and thread the spark plug in by hand to prevent cross-threading.



5. After the spark plug is seated, tighten with a spark plug wrench to compress the washer.

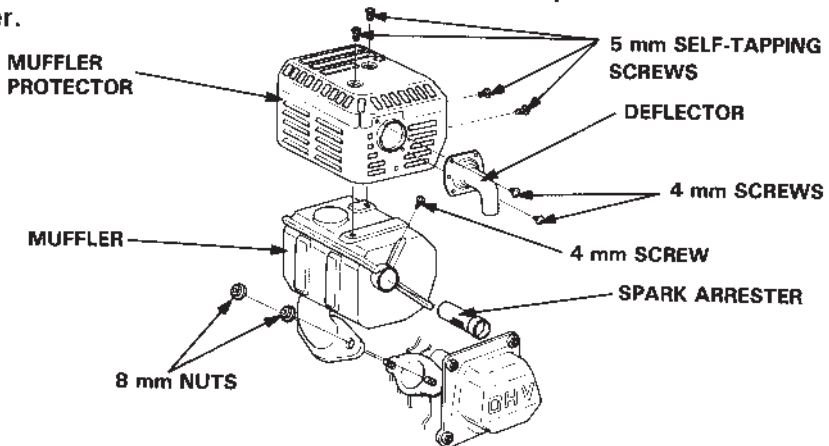
NOTE: If installing a new spark plug, tighten $1/2$ turn after the spark plug seats to compress the washer. If reinstalling a used spark plug, tighten $1/8 - 1/4$ turn after the spark plug seats to compress the washer.

CAUTION: The spark plug must be securely tightened. An improperly tightened plug can become very hot and damage the engine. Never use a spark plug with an improper heat range.

6. Spark arrester maintenance (optional part)

WARNING If the engine has been running, the muffler will be very hot. Allow it to cool before proceeding.

1. Remove the two 8 mm nuts, and remove the muffler.
2. Remove the two 4 mm screws, and remove the deflector from the muffler protector.
3. Remove the four 5 mm self-tapping screws, and remove the muffler protector from the muffler.
4. Remove the 4 mm screw, and remove the spark arrester from the muffler.



CAUTION: Be careful not to damage the spark arrester screen.



5. Use a brush to clean carbon deposits from the spark arrester screen.

NOTE: The spark arrester must be free of breaks and holes. Replace, if necessary.

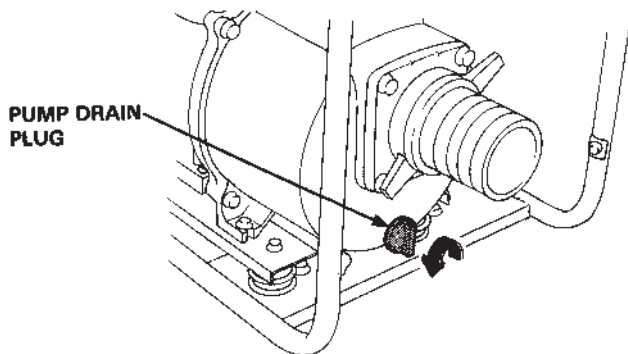
6. Install the spark arrester and muffler in the reverse order of disassembly.

8. TRANSPORTING/STORAGE

WARNING When transporting the pump, turn the fuel valve OFF and keep the pump level to prevent fuel spillage. Fuel vapor or spilled fuel may ignite.

Before storing the pump for an extended period;

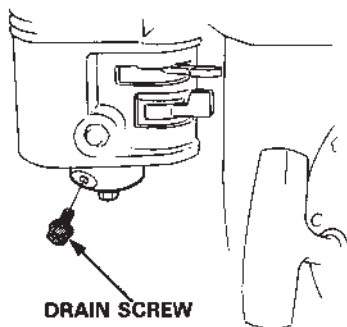
1. Be sure the storage area is free of excessive humidity and dust.
2. Clean the pump interior before shutting down or impeller may be damaged when restarting. After flushing, remove the pump drain plug, drain as much water as possible from the pump housing and replace the plug.



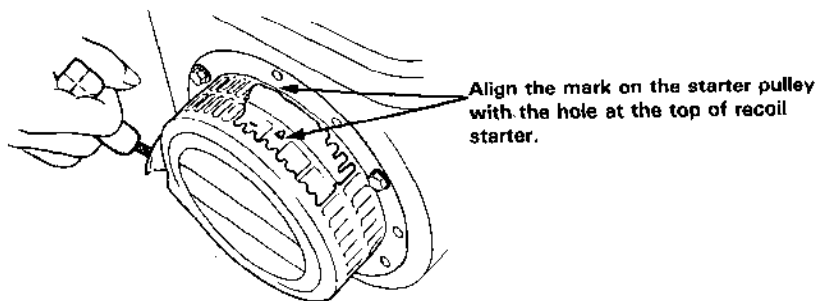
3. Drain the fuel.....

- a. With the fuel valve in the ON position, remove the carburetor drain screw, and drain all the gasoline from the fuel tank into a suitable container.
- b. Reinstall the carburetor drain screw.

WARNING Gasoline is extremely flammable and is explosive under certain conditions. Perform this task in a well ventilated area. Do not smoke or allow flames or sparks in the area during this procedure.



-
4. Change the engine oil.
 5. Remove the spark plug and pour about a tablespoon of clean engine oil into the cylinder. Crank the engine several revolutions to distribute the oil, then reinstall the spark plug.
 6. Pull the starter rope slowly until resistance is felt. Continue pulling until the notch on the starter pulley aligns with the hole at the top of recoil starter (see illustration below). At this point, the intake and exhaust valves are closed, and this will help to protect the engine from internal corrosion.



7. Cover the engine and pump to keep out dust.

9. TROUBLESHOOTING

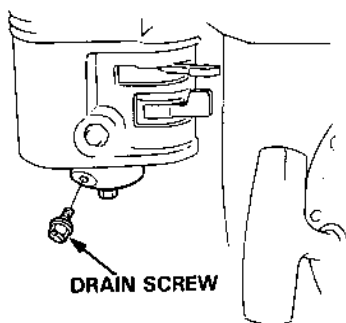
When the engine will not start:

1. Is the engine switch ON?
2. Is there enough fuel?
3. Is the fuel valve on?
4. Is gasoline reaching the carburetor?

To check, remove the drain screw and turn the fuel valve on.

Fuel should flow out free.

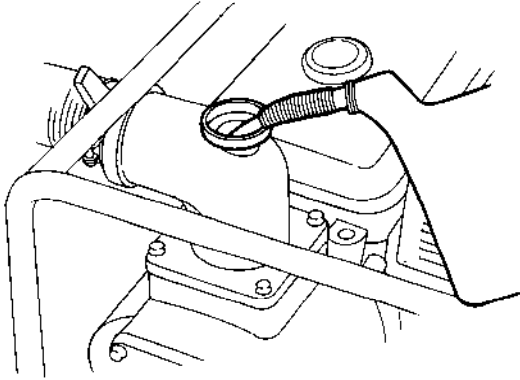
WARNING If any fuel is spilled, make sure the area is dry before testing the spark plug or starting the engine. Fuel vapor or spilled fuel may ignite.



5. Is there a spark at the spark plug?
 - a. Remove the spark plug cap. Clean any dirt from around the spark plug base, then remove the spark plug.
 - b. Install the spark plug in the plug cap.
 - c. Turn the engine switch on.
 - d. Ground the side electrode to any engine ground, pull the recoil starter to see if sparks jump across the gap.
 - e. If there are no sparks, replace the plug.
If OK, install the new plug and try to start the engine according to the instructions.
6. If the engine still does not start, take the pump to an authorized Honda water pump dealer.

When the pump does not pump water:

1. Is the pump fully primed?



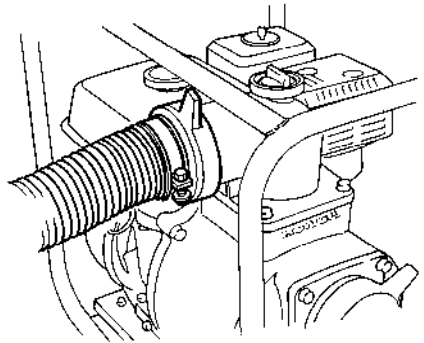
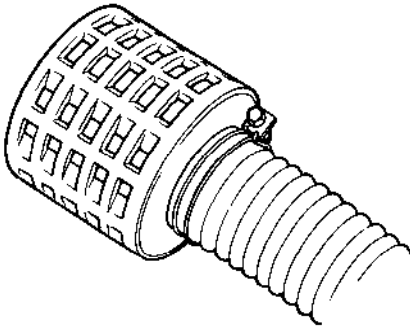
2. Is the strainer clogged?

3. Are the hose bands installed securely?

4. Are the hoses damaged?

5. Is the suction head too high?

6. If the pump still does not pump the water, take the pump to an authorized Honda water pump dealer.



10. SPECIFICATIONS

Model	WD20X	WD30X
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Dimensions and Weight

Length x Width x Height	520 x 400 x 450 mm (20.5 x 15.7 x 17.7 in)	520 x 400 x 490 mm (20.5 x 15.7 x 19.3 in)
Dry weight (mass)	25 kg (55.1 lb)	30 kg (66.1 lb)

Engine

Model	GX110	GX140
Engine type	4-stroke, overhead valve, 1 cylinder	
Displacement [Bore x Stroke]	107 cc (6.6 cu in) [57 x 42 mm (2.2 x 1.7 in)]	144 cc (8.8 cu in) [64 x 45 mm (2.5 x 1.8 in)]
Max. output	3.5 PS/3,600 rpm	5.0 PS/3,600 rpm
Max. torque	0.7 kg-m (5.2 ft-lb)/ 2,500 rpm	1.0 kg-m (7.7 ft-lb)/ 2,500 rpm
Cooling system	Forced air	
Ignition system	Transistorized magneto	
PTO shaft rotation	Counterclockwise	

Pump

Suction port diameter	50 mm (2 in)	80 mm (3 in)
Discharge port diameter	50 mm (2 in)	80 mm (3 in)
Rated revolutions	3,550 rpm	3,550 rpm
Total head	32 m (105 ft)	28 m (92 ft)
Suction head	8 m (27.9 ft)	8 m (27.9 ft)
Capacity	600 ^l (159 US gal)/min	1,100 ^l (291 US gal)/min
Self-priming time	110 sec at 5 m (16.5 ft)	150 sec at 5 m (16.5 ft)

NOTE: Specifications are subject to change without notice.

Owner Satisfaction

Your satisfaction and goodwill are important to your dealer and to us. All Honda warranty details are explained in the Distributor's Limited Warranty. Normally, any problems concerning the product will be handled by your dealer's service department. If you have a warranty problem that has not been handled to your satisfaction, we suggest you take the following action:

- Discuss your problem with a member of dealership management. Often complaints can be quickly resolved at that level. If the problem has already been reviewed with the Service Manager, contact the owner of the dealership or the General Manager.
- If your problem still has not been resolved to your satisfaction, contact:

American Honda Motor Co., Inc.
P.O. Box 50
Gardena, California 90247-0805
Telephone: (213) 604-2400

We will need the following information in order to assist you:

- Your name, address, and telephone number
- Product model and serial number
- Date of purchase
- Dealer name and address
- Nature of the problem

After reviewing all the facts involved, you will be advised of what action can be taken. Please bear in mind that your problem will likely be resolved at the dealership, using the dealer's facilities, equipment, and personnel, so it is very important that your initial contact be with the dealer.

Your purchase of a Honda product is greatly appreciated by both your dealer and American Honda Motor Co., Inc. We want to assist you in every way possible to assure your complete satisfaction with your purchase.

Current customer service contact information:

United States, Puerto Rico, and U.S. Virgin Islands:

Honda Power Equipment dealership personnel are trained professionals. They should be able to answer any question you may have. If you encounter a problem that your dealer does not solve to your satisfaction, please discuss it with the dealership's management. The Service Manager or General Manager can help. Almost all problems are solved in this way.

If you are dissatisfied with the decision made by the dealership's management, contact the Honda Power Equipment Customer Relations Office. You can write:

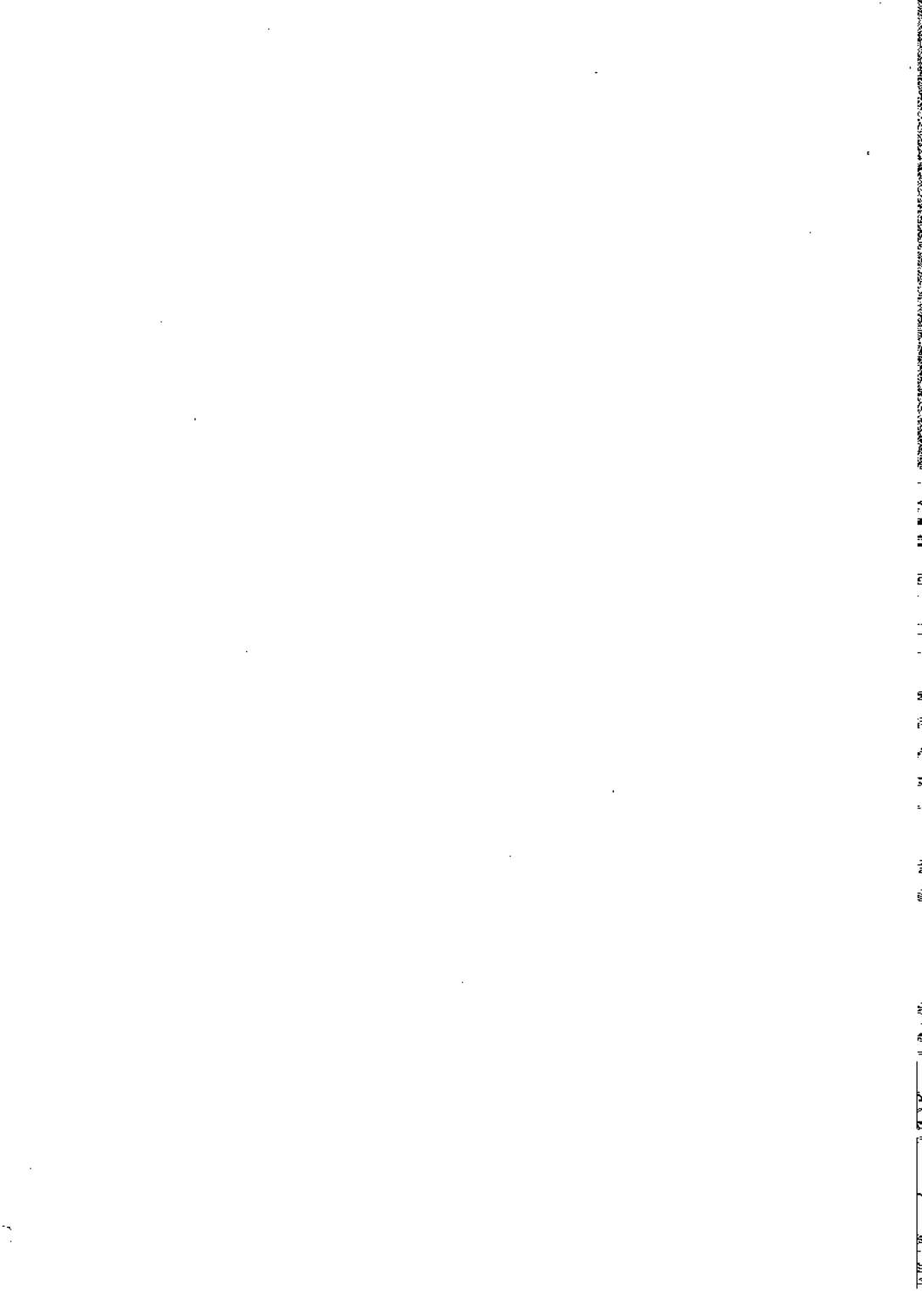
American Honda Motor Co., Inc.
Power Equipment Division
Customer Relations Office
4900 Marconi Drive
Alpharetta, GA 30005-8847

Or telephone: (770) 497-6400 M-F, 8:30 am - 7:00 pm EST

When you write or call, please provide the following information:

- Model and serial numbers
- Name of the dealer who sold the Honda power equipment to you
- Name and address of the dealer who services your equipment
- Date of purchase
- Your name, address, and telephone number
- A detailed description of the problem

MEMO



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