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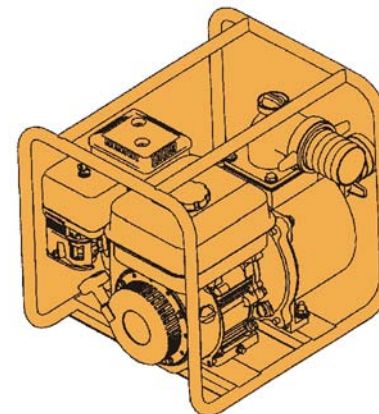
KIPOR POWER OPERATION MANUAL

PLEASE READ THIS MANUAL CAREFULLY.
IT CONTAINS IMPORTANT SAFETY INFORMATION.

KIPOR

KIPOR POWER CO., LTD.

11/F Suntime International Mansion, 450 Fushan Road,
Pudong, Shanghai, China
TEL: 86-21-58208881
FAX: 86-21-58208877
E-MAIL: kipor@wxkipor.com



GASOLINE PUMP

KGP20

KGP30

KGP40

Version 1, Printing date 10/06/2004

PREFACE

Thank you for purchasing a KIPOR water pump.

This manual covers the operation and maintenance of KIPOR water pump: KGP 20, KGP30, KGP40.

All information in this publication is based on the latest product information available at the time of approval for printing.

KIPOR reserves the right to make changes at any time without notice and without incurring any obligation.

No part of this publication may be reproduced without written permission.

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



Indicates a strong possibility of severe personal injury or death if instructions are not followed.

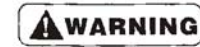


Indicates a possibility of equipment or property damage if instructions are not followed.



Gives helpful information.

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



KIPOR water pump is designed to give safe and dependable service if operated according to instructions.

Read and understand the Owner's Manual before operating the water pump. Failure to do so could result in personal injury or equipment damage

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11.SPECIFICATION

MODEL	KGP20	KGP30	KGP40
Inlet outlet diameter [(mm)in]	50(1.9)	80(3.1)	100(3.9)
Rated flow (m ³ /h)	22	30	40
Rated lift head [m(ft)]	15(49)	13(42)	16(52)
Max. lift head[m(ft)]	8(26)	8(26)	8(26)
Self-priming time[s(at 4m)]	80	120	180
Dry weight [kg (lbs)]	26(57.2)	30(66.0)	40(88.0)
Overall dimension (L × W × H)[mm(in)]	480 × 430 × 400 (18.9 × 16.9 × 15.7)	510 × 430 × 435 (20.1 × 16.9 × 17.1)	650 × 480 × 600 (25.6 × 18.9 × 23.6)
Model	KG160	KG200	KG270
Engine Type	Single cylinder, 4-stroke, OHV, gasoline engine		
Displacement[cm ³ (cu in)]	163(9.94)	196(11.96)	270(16.48)
Bore × Stroke [mm(in)]	68 × 45(2.7 × 1.8)	68 × 54(2.7 × 2.1)	77 × 58(3.0 × 2.3)
Max.output[kW(Hp)/rpm]	3.6(4.9)/3600	4.4(6.0)/3600	5.8(7.9)/3600
Cooling system	Forced air		
Ignition system	Transistorized magneto		
PTO shaft rotation direction	View from the PTO is counterclockwise		

1.SAFETY INSTRUCTION

To ensure safe operation-

WARNING



- KIPOR water pump is designed to give safe and dependable service if operated according to instructions.

Read and understand the Owner's Manual before operating the water pump. Failure to do so could result in personal injury or equipment damage.

WARNING



- 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 water pump indoors.

- The engine exhaust system will be heated during operation and remain hot immediately after stopping the engine.

To prevent scalding, pay attention to the warning marks attached to the water pump.

- Always make a pre-operation inspection before you start the engine. You may prevent an accident or equipment damage.
- For safety, never pump flammable or corrosive liquids such as gasoline or acid. Also, to avoid pump corrosion, never pump seawater, chemical solutions, or caustic liquids such as used oil, wine, or milk.
- Place the pump on a firm, level surface lest the pump overturn.
- To prevent fire hazards and to provide adequate ventilation, keep the pump at least 1 meter away from building walls and other equipment during operation. Do not place flammable objects close to the pump.
- Children and pets must be kept away from the area of operation to reduce a possibility of burns from the hot engine components.
- Know how to stop the pump quickly, and understand the operation of all the controls. Never permit anyone to operate the pump without the proper instructions.

WARNING

- To ensure safe operation —

Gasoline is extremely flammable and explosive under certain conditions.

Refuel in a well-ventilated area with the engine stopped. Do not smoke or allow flames or sparks in the refueling area or where gasoline is stored.

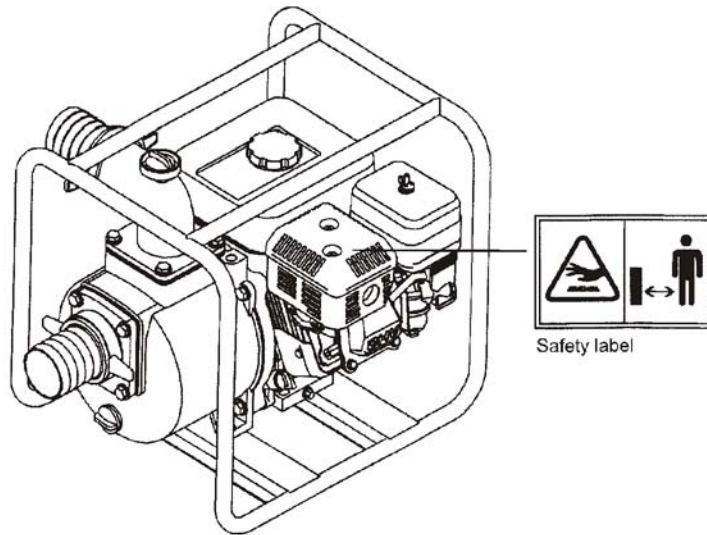
Do not overfill the tank (there should be no fuel above the upper limit mark). After refueling, make sure the tank cap is closed properly and securely.

- Be careful not to spill fuel when refueling. Spilled fuel and fuel vapor may ignite. If any fuel is spilled, make sure the area is dry before starting the engine.
- Never run the engine in an enclosed or confined area. Exhaust gas contains poisonous carbon monoxide gas; exposure can cause loss of consciousness and may lead to death.

2.SAFETY LABEL LOCATIONS

These labels warn you of potential hazards that can cause serious injury. Read the labels and safety notes and precautions described in this manual carefully.

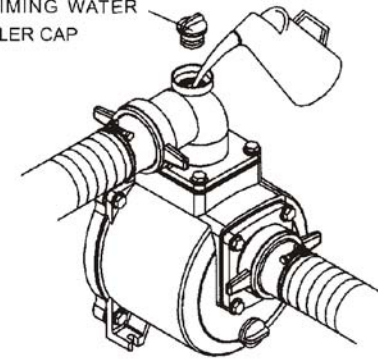
If a label comes off or becomes hard to read, contact your KIPOR dealer for a replacement.



When the pump cannot pump the water:

1.Is the pump fully primed?

PRIMING WATER
FILLER CAP



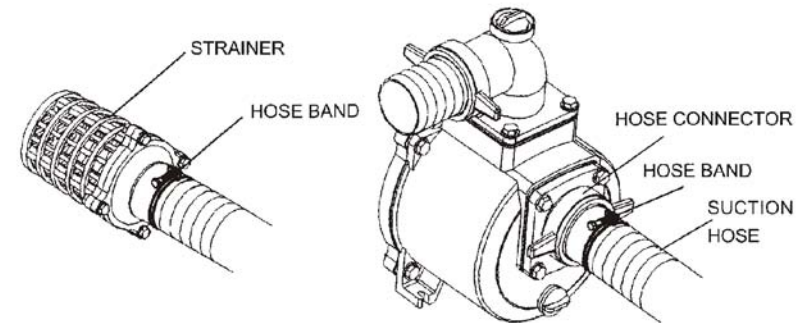
2.Is the strainer clogged?

3.Are the hose bands installed securely?

4.Are the hose damaged?

5.Is the suction head too high?

6.If the pump still does not operate, take the pump to an authorized KIPOR dealer.



10.TROUBLESHOOTING

When the engine will not start:

- 1.Is the engine switch in the ON position?
- 2.Is there enough oil in the engine?
- 3.Is the fuel valve ON?

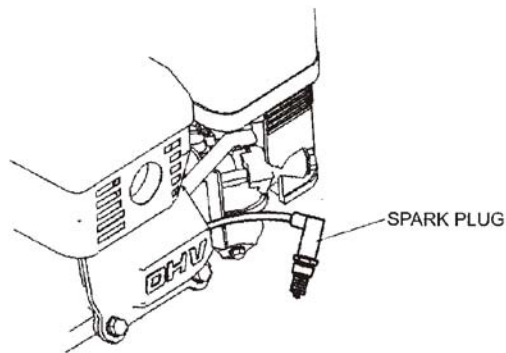
4.Is there fuel in the fuel tank?

5.Is gasoline reaching the carburetor?

To check ,loosen the drain screw with fuel valve ON.

6.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.Grounding the side electrode to any engine ground,pull the recoil starter to see if sparks jump across the gap.
 - e.If there is no spark.Replace the plug.
- If ok,reinstall the spark plug and try to start the engine again according to the instructions.



7.If the engine still does not start, take the pump to an authorized KIPOR dealer.



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

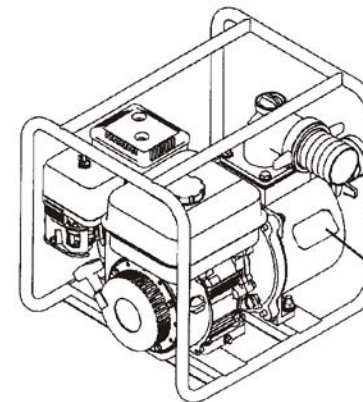
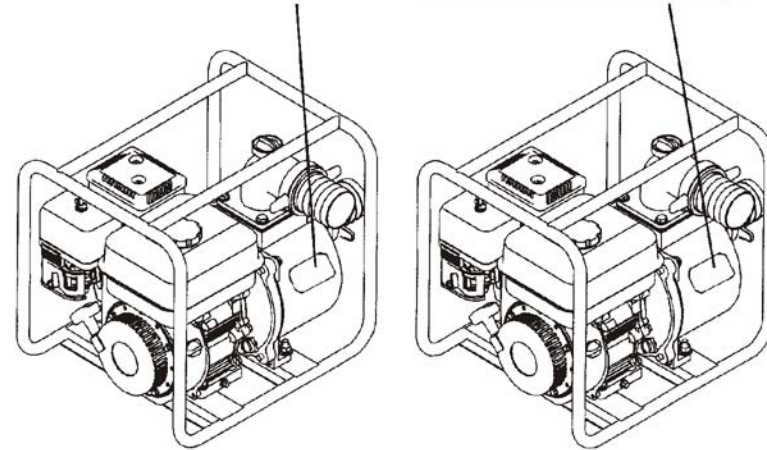
NAMEPLATE LOCATION

KIPOR		KGP20 DIESEL PUMP	
Type: Air-cooled,4-stroke,DIV,Single-cylinder gasoline pump			
Bore × Stroke	68 × 45	mm	
Inlet, Outlet Diameter	50	mm	
Rated Flow	22	m ³ /h	
Rated Lift Head	15	m	
Max Lift Head	8	m	
Ex.work Number			

KIPOR POWER CO., LTD.

KIPOR		KGP30 DIESEL PUMP	
Type: Air-cooled,4-stroke,DIV,Single-cylinder gasoline pump			
Bore × Stroke	68 × 54	mm	
Inlet, Outlet Diameter	80	mm	
Rated Flow	30	m ³ /h	
Rated Lift Head	15	m	
Max Lift Head	8	m	
Ex.work Number			

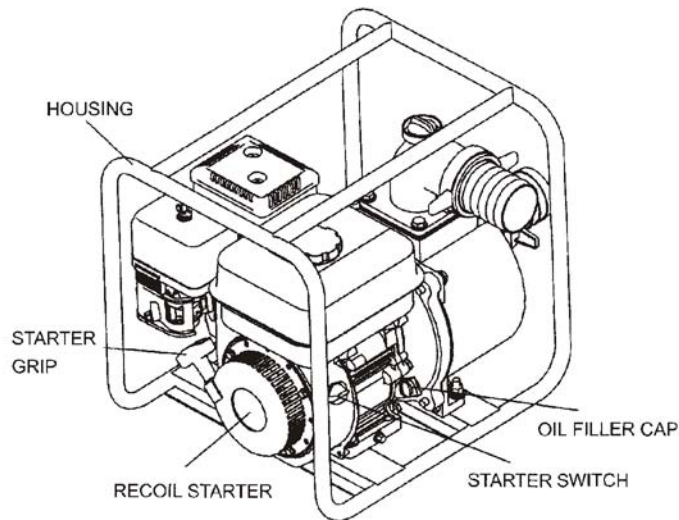
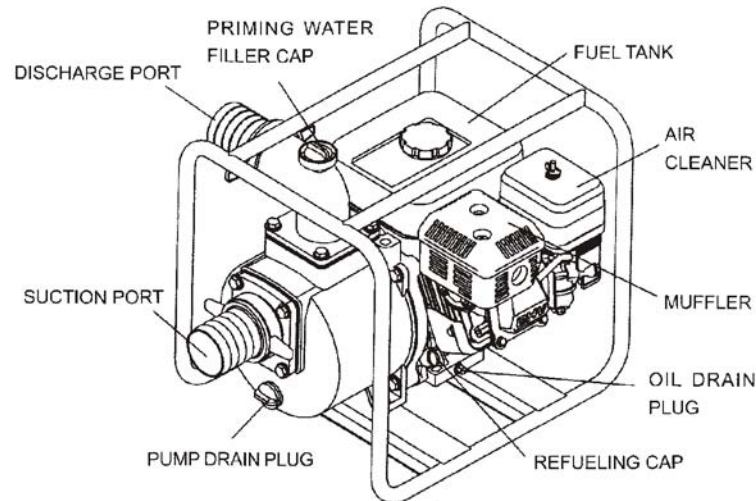
KIPOR POWER CO., LTD.



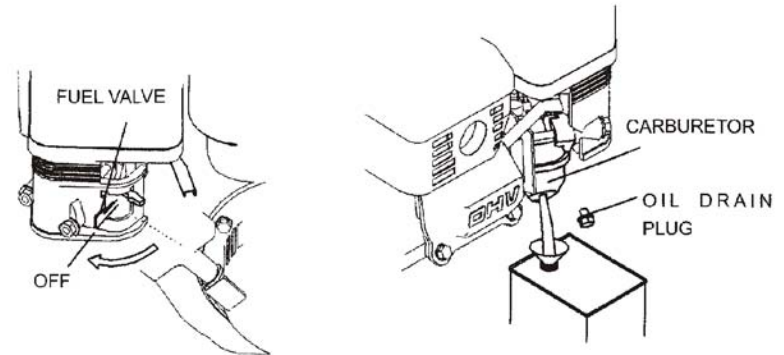
KIPOR		KGP40 DIESEL PUMP	
Type: Air-cooled,4-stroke,DIV,Single-cylinder gasoline pump			
Bore × Stroke	77 × 58	mm	
Inlet, Outlet Diameter	100	mm	
Rated Flow	40	m ³	
Rated Lift Head	16	m	
Max Lift Head	8	m	
Ex.work Number			

KIPOR POWER CO., LTD.

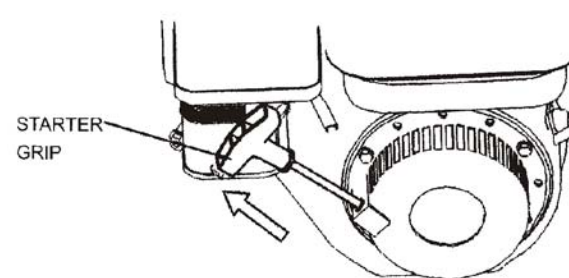
3.COMPONENT IDENTIFICATION



- b. Turn the fuel valve ON and drain the gasoline in the fuel tank into the suitable container tipping the pump slightly lest the control linkage should not catch the drained gasoline.
- c. Reinstall the carburetor drain screw



4. Change the engine oil.
5. Clean the air cleaner.
6. 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.
7. Pull the starter grip until resistance is felt. This closes the valves so moisture cannot enter the engine cylinder, and protect the engine from dust and corrosion. Return the starter rope gently.
8. Cover the pump to keep out dust.



9. TRANSPORTING/STORAGE

WARNING

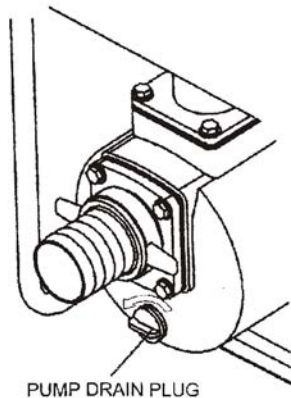
- To avoid severe burns or fire hazards, let the engine cool before transporting the pump or storing it indoors.
- When transporting the pump, turn the fuel valve to the OFF position, keep the pump level and make sure the tank cap is installed securely. Spilled fuel or fuel vapor may ignite.

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

Sediment will settle in the pump if it has been used in muddy, sandy water or water containing heavy debris.

Pump clean water through the pump 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 reinstall the plug.



PUMP DRAIN PLUG

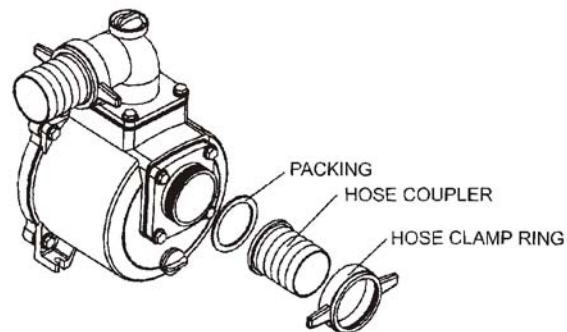
3. Drain the fuel

- a. With the fuel valve OFF, remove the drain screw from carburetor float bowl and drain the carburetor tipping the pump slightly lest the control linkage should not catch the drained gasoline. Drain the gasoline into a suitable container.

4. PRE-OPERATION FOR STARTING

1. Install the hose connector

Be sure to check that the packing is seated in its place and install the hose connector to the port on the pump.



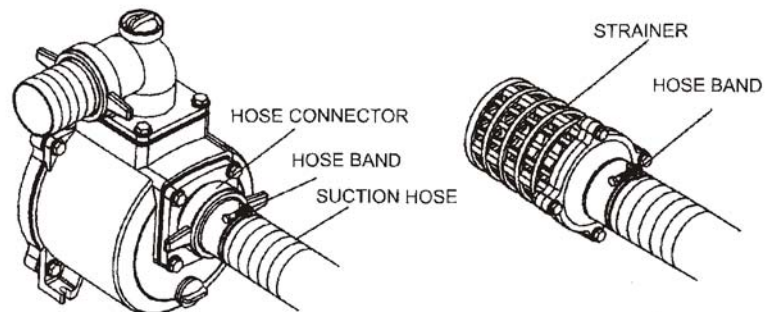
2. Connect the suction hose.

Use commercially available hose, hose connector and hose bands. The suction hose must be of reinforced, noncollapsible construction. Suction hose length should not be longer than necessary, as pump performance is best when the pump is not far above the water level. Self-priming time is also proportional to hose length.

The strainer that is provided with the pump should be attached to the end of the suction hose with a band, as shown.

CAUTION

Always install the strainer on the end of the suction hose before pumping. The strainer will exclude debris that can cause clogging or impeller damage.

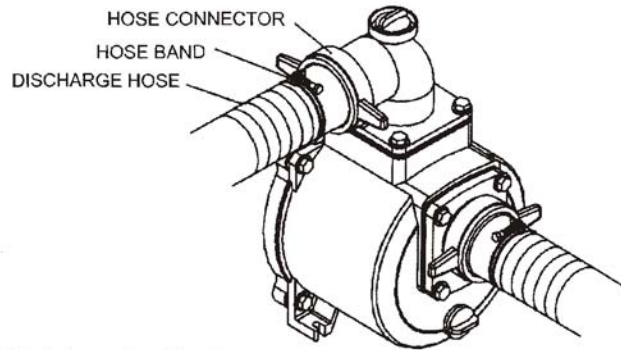


3. Connect the discharge hose

Use a commercially available hose, hose connector and hose band. A short, large-diameter hose is most efficient. Long or small-diameter hose increases fluid friction and reduces pump output.

NOTE

Tighten the hose band securely to prevent the hose from disconnecting under high pressure.



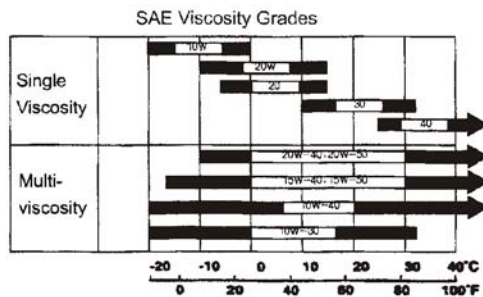
4. Check the engine oil level.

Every 10 hours, check the engine oil level and replenish oil up to the top of the oil filler neck if the pump is operated for more than 10 hours continuously.

CAUTION

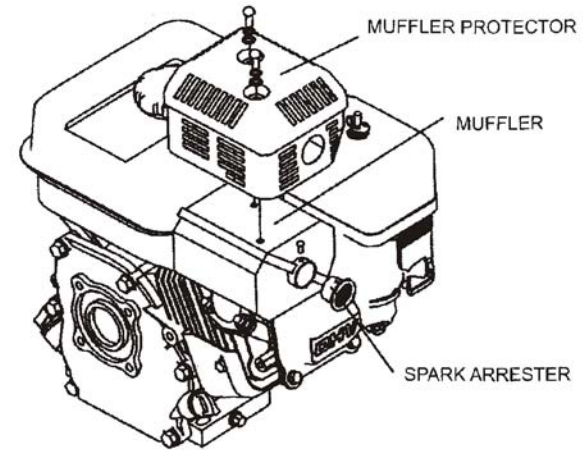
- Engine oil is a major factor affecting engine performance and service life. Nondetergent or vegetable oil is not recommended.
- Be sure to check the engine on a level surface with the engine stopped.

Use KIPOR 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 SG, SF. (motor oils classified SG, SF will show this designation on the container.) SAE 10W-30 is recommended for general, all temperature use. If single viscosity oil is used, select the appropriate viscosity for the average temperature in your area.



NOTE

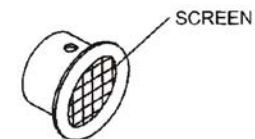
Check for carbon deposits around the exhaust port and the spark arrester, and clean if necessary.



(3). Use a brush to remove carbon deposits from the spark arrester screen.

CAUTION

Be careful not to damage the spark arrester screen.



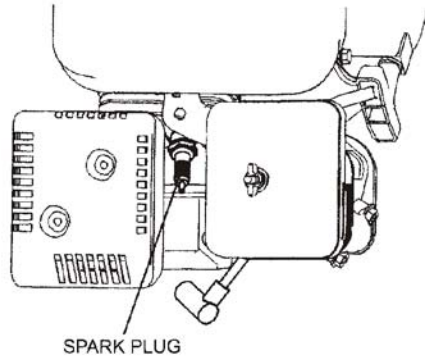
NOTE

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

(4). Install the spark arrester and the muffler in the reverse order of disassembly

(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 spark plug can become very hot and may cause engine damage.

4. Spark arrester maintenance (optional part)

WARNING

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

CAUTION

The spark arrester must be serviced every 100 hours to maintain its efficiency.

(1). Remove the muffler protector by removing the three 5mm bolts.

(2). Remove the spark arrester from the muffler by removing a screw.

(Taking care not to damage the wire mesh)

CAUTION

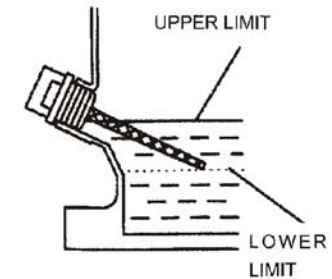
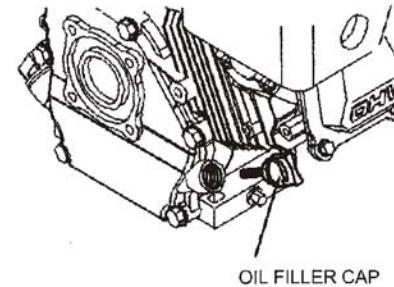
Using nondetergent oil or 2-stroke engine oil could shorten the engine's service life.

The recommended operating range of this engine is - 5°C to 40°C (23°F to 104°F)

1. Place the engine horizontally on a level surface.
2. Remove the oil filler cap and check the oil level.
3. If the level is low, fill to the edge of oil filler hole with the recommended oil.

CAUTION

Running the engine with insufficient oil can cause serious engine damage.



5. Check the fuel level

Remove the fuel tank cap and check the level. Refill the tank if the fuel level is low.

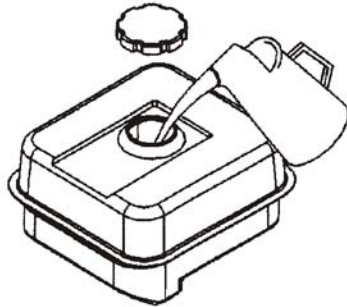
Use automotive gasoline (unleaded or lowleaded is preferred to minimize combustion chamber deposits).

Never use an oil /gasoline oil mixture or dirty gasoline. Avoid getting dirt, dust or water in the fuel tank.

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 refueling area or where gasoline is stored.
- Do not overfill the tank (there should be no fuel above the upper limit mark). 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.

Fuel tank capacity: KGP20: 3.6L KGP30: 3.6L KGP40: 6L



Gasoline containing alcohol

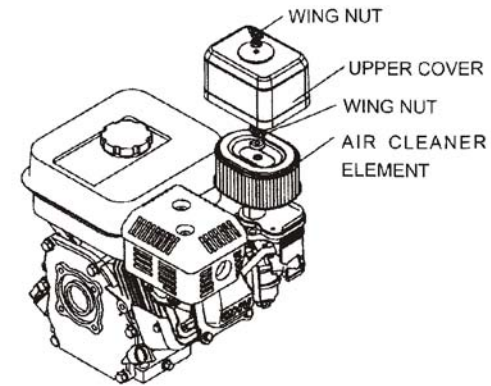
If you decide to use a gasoline containing alcohol (gasohol), be sure its octane rating is at least as high as that recommended by KIPOR. There are two types of gasohol: one containing ethanol, and the other containing methanol. Do not use gasohol that contains more than 10% ethanol. Do not use gasoline 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 problem resulting from the use of fuels that contain alcohol is not covered under the warranty. KIPOR 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 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.

6. Check the air cleaner element.

Remove the air cleaner cover by loosening the wing nut on the top of the air cleaner cover. Check the element to be sure it is clean and in good condition. If the element is dirty, clean it. Replace the element if it is damaged. Reinstall the element and air cleaner cover.



3. Spark plug service

Recommended spark plug: F6T(T4196J)

CAUTION

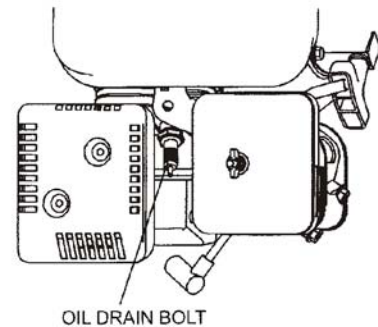
Never use a spark plug of incorrect heat range.

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

(1). Remove the spark plug cap and use the proper size spark plug wrench to 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 the spark plug if there is apparent wear, or 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. Correct as necessary by bending the side electrode.

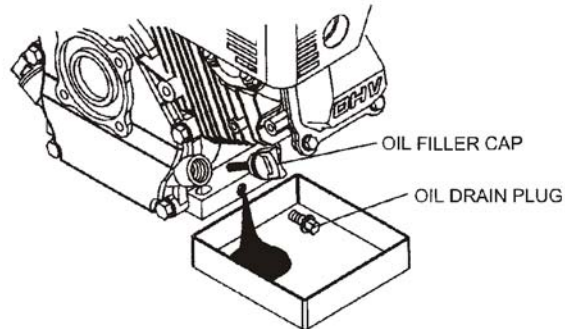
The gap should be: 0.70-0.80mm (0.028 in-0.032 in)

1. Change oil

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

- (1). Remove the oil filler cap and drain plug to drain the oil.
- (2). Install the drain plug, and tighten it securely.
- (3). Refill with the recommended oil and check the oil level.
- (4). Install the oil filler cap.

Engine oil capacity: KGP20: 0.6L KGP30: 0.6L KGP40: 1.1L



Wash your hands with soap and water 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 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 cleaner regularly. Service more frequently when operating the pump in extremely dusty areas.

WARNING

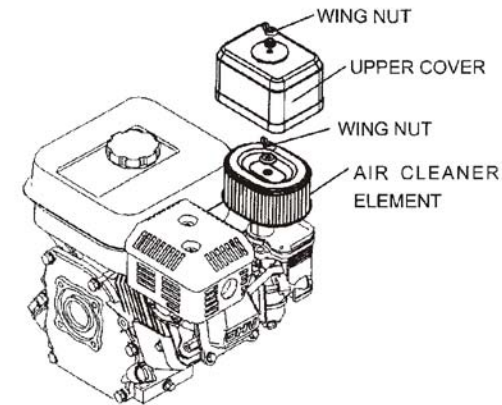
Do not use gasoline or low flash point solvents for cleaning. They are flammable and explosive under certain conditions.

CAUTION

Never run the pump without the air cleaner. Rapid engine wear will result from contaminants such as dust and dirt being drawn into the engine.

- (1). Remove the air cleaner cover by loosening the wing nut.
- (2). Loosen the wing nut that holds the air cleaner element.
- (3). Wash the element in a nonflammable or high flash point solvent and dry it thoroughly.
- (4). Soak the element in clean engine oil and squeeze out the excess oil.
- (5). Reinstall the air cleaner element.
- (6). Reinstall the air cleaner cover by tightening the wing nut on the top of the air cleaner cover.

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CAUTION

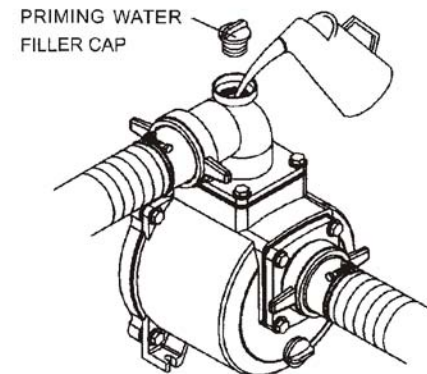
Never run the engine without the air cleaner. Rapid engine wear will result from contaminants, such as dust and dirt, being drawn through the carburetor, into the engine.

7. Check that all nuts, bolts, and screws are tightened. Tighten the bolts and nuts properly and securely, if necessary.
8. Check the priming water

The pump chamber should be primed with full of water before operating.

CAUTION

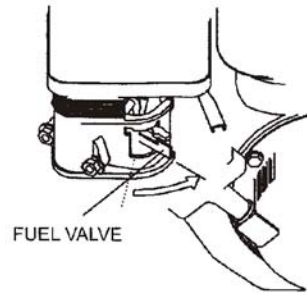
Never attempt to operate the pump without priming water, or the pump will overheat. Extended dry operation will destroy the pump seal. If the unit has been operated dry, stop the engine immediately and allow the pump to cool before adding priming water.



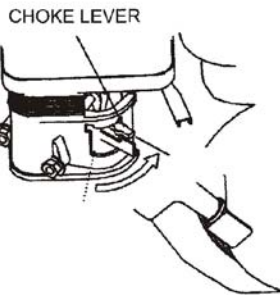
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5.STARTING THE ENGINE

1.Turn the fuel valve to the ON position.



2.To start a cold engine, move the choke lever to the CLOSED position.
To restart a warm engine, leave the choke lever in the OPEN position.



3.Move the throttle lever away from the SLOW position, about 1/2 of the way toward the FAST position.



Maintenance schedule

ITEM	INTERVALS (hours)	Before	First	First	First	First	First
		each use	month or 10hrs	year or 25hrs	year or 50hrs	year or 100hrs	year or 200hrs
Engine oil	Check	○					
	Change		○		○(2)		
Air cleaner	Check	○					
	Clean			○(1)			
All bolts and nuts	Cleck/tighten	○					
Spark plug	Clean/adjust				○		
Spark arrester	Clean						
Fuel tank	Clean					○(3)	
Fuel filter	Check					○(3)	
Valve clearance	Check/adjust						○(3)
Fuel line	Check/adjust	Every two years (3)					
Impeller	Check					○(3)	
Impeller clearance	Check					○(3)	
Inlet valve	Check					○(3)	

NOTE:

- (1) Service more frequently when used in dusty areas.
- (2) Change engine oil every 25 hours when used under heavy load or high ambient temperature.
- (3) Those items should e serviced by an authorized KIPOR dealer, unless the owner has the proper tools and is mechanically proficient. See the KIPOR Shop Manual.

8.MAINTENANCE

Periodic inspection and adjustment of the pump are essential if high level performance is to be maintained. Regular maintenance will also help to extend service life. The required service intervals and the kind of maintenance to be performed are described in the table below.

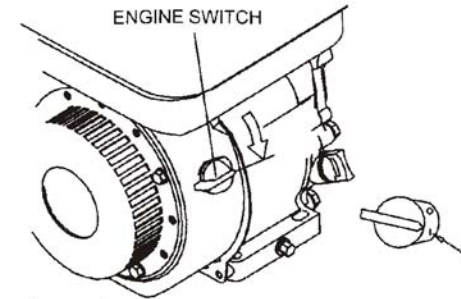
WARNING

- Shut off the engine before performing any maintenance.
- To prevent accidental start-up, turn off the engine switch and disconnect the spark plug cap.
- If the engine must be run, make sure the area is well-ventilated. The exhaust contains poisonous carbon monoxide gas; exposure can cause loss of consciousness and may lead to death.

CAUTION

- If the pump has been used with seawater, etc., pump clean, fresh water immediately afterward to reduce corrosion or remove sediment.
- Use genuine KIPOR parts or their equivalent for maintenance or repair. Replacement parts which are not equivalent quality may damage the pump.

4. Turn the engine switch to the ON position.



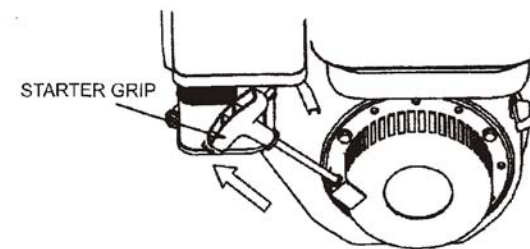
5. Hold the carrying handle securely and pull the starter grip lightly until you feel resistance, then pull briskly. Return the starter grip gently.

CAUTION

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

NOTE

Always pull the starter grip briskly. If not pulled briskly, sparks may fail to jump across the spark plug electrodes, resulting in failure to start the engine.



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 pump at altitudes higher than 1830m (6000feet) above the sea level, have your authorized KIPOR dealer perform these carburetor modifications.

Even with suitable carburetor jetting, engine horsepower will decrease approximately 3.5% for each 305m (1000feet) increase in altitude. The effect of altitude on horsepower will be greater than this if no carburetor modification is made.

CAUTION

Operation of the 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.

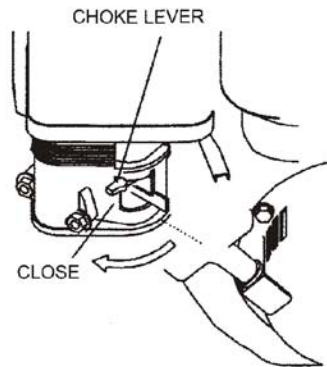
6. OPERATION



CAUTION

Never use the pump for muddy water, rejected oil, wine, etc. Do not pull the governor linkage to operate the engine forcibly outside its design parameters.

- 1.If the choke lever was moved to the CLOSED position to start the engine, gradually move it to the OPEN position as the engine warms up.



- 2.Position the throttle lever for the desired engine speed. Pump output is controlled by adjusting the engine speed. Moving the throttle lever in the FAST direction will increase pump output, and moving the throttle in SLOW direction will decrease pump output.



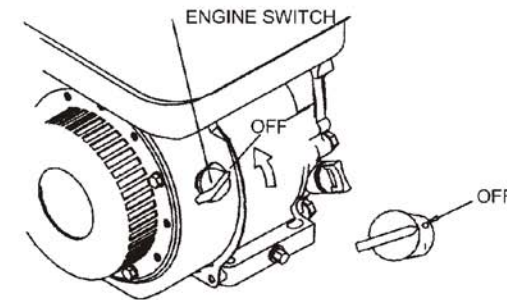
7. STOPPING THE ENGINE

To stop the engine in an emergency, simply turn the engine switch to the OFF position. Under normal conditions, use the following procedure.

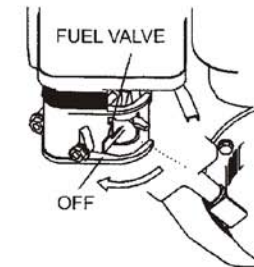
- 1.Move the throttle lever to the SLOW position.



- 2.Turn the engine switch to OFF position.



- 3.Turn the fuel valve to the OFF position.



After use, remove the pump drain plug, and drain the pump chamber. Remove the filler cap and flush the pump chamber with clean, fresh water. Allow the water to drain from the pump chamber, then reinstall the filler cap and drain plug.