



FJ100D

4-Stroke air-cooled gasoline engine



OWNER'S MANUAL

Part No. 99976-2122-03

SAFETY AWARENESS

Whenever you see the symbols shown below, heed their instructions! Always follow safe operating and maintenance practices.

▲ DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

▲ WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

▲ CAUTION

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to personal injury.

NOTE

○ This note symbol indicates points of particular interest for more efficient and convenient operation.

FOREWORD

We wish to thank you for purchasing this Kawasaki engine.

Please read this Owner's manual carefully before starting your new engine so that you will be thoroughly familiar with the proper operation of your engine's control, its features, capabilities and limitations.

Also read the manual of the equipment to which this engine is attached.

To ensure a long, trouble-free life for your engine, give it the proper care and maintenance described in this manual.

Always keep this manual at your fingertip so that you can refer to it whenever you need information.

This manual should be considered a permanent part of the engine and should remain with the engine when it is sold.

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This publication includes the latest information available at the time of printing.

However, there may be minor differences between the actual product and illustrations and text in this manual. All products are subject to change without prior notice or obligation.

**Kawasaki Heavy Industries, Ltd.
Motorcycle & Engine Company**

TABLE OF CONTENTS

SAFETY AWARENESS.....	1
FOREWORD.....	1
READ THIS FIRST.....	2
GENERAL INFORMATION.....	3
FUEL AND OIL.....	5
RECOMMENDATIONS	
Fuel.....	5
Engine Oil.....	5
Tune-up Specifications.....	6
PREPARATION.....	7
Fuel.....	7
Engine Oil.....	7
STARTING – STOPPING.....	9
MAINTENANCE.....	10
Periodic Maintenance Chart.....	10
Oil Level Check.....	11
Oil Change.....	11
Fuel Tap Service.....	11
Air Cleaner Service.....	12
Spark Plug Service.....	13
STORAGE.....	14
TROUBLESHOOTING GUIDE.....	15
ENVIRONMENTAL PROTECTION.....	16
SPECIFICATIONS.....	17
WIRING DIAGRAM.....	18

READ THIS FIRST

For your safety, read this Owner's Manual and understand it thoroughly before operating this ENGINE.

⚠ DANGER

Exhaust gas contains carbon monoxide, a colorless, odorless poisonous gas. Inhaling carbon monoxide can cause serious brain injury or death.

DO NOT run the engine in enclosed areas. Operate only in a well-ventilated area.

Gasoline is extremely flammable and can be explosive under certain conditions, creating the potential for serious burns. When refueling, servicing fuel system, draining gasoline and/or adjusting the carburetor:

Stop engine and allow it to cool before refueling.

DO NOT smoke.

Make sure the area is well-ventilated and free from any source of flame or sparks, including the pilot light of any appliance.

DO NOT fill the tank so the fuel level rises into the filler neck or level surface of level gauge. If the tank is overfilled, heat may cause the fuel to expand and overflow through the vents in the tank cap.

Wipe off any spilled gasoline immediately.

Engines can become extremely hot during normal operation.

To prevent fire hazard:

Keep the engine at least 1 m (3.3 ft) away from buildings, obstructions and other burnable objects.

DO NOT place flammable objects close to the engine.

DO NOT expose combustible materials to the engine exhaust.

DO NOT use the engine on any forest covered, brush covered or grass covered unimproved land unless spark arrester is installed on the muffler.

To avoid getting an electric shock, **DO NOT** touch spark plugs, plug caps or spark plug leads during engine running.

To avoid a serious burn, **DO NOT** touch a hot engine or muffler. The engine becomes hot during operation. Before you service or remove parts, stop engine and allow the engine to cool.

DO NOT place hands or feet near moving or rotating parts. Place a protective cover over pulley, V belt or coupling.

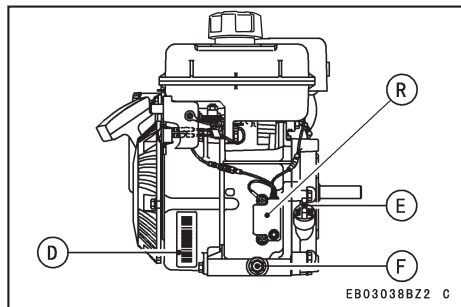
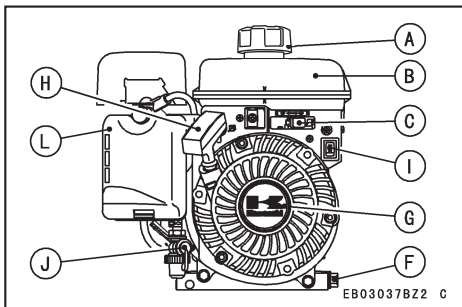
DO NOT run engine at excessive speeds. This may result in injury.

Always remove the spark plug caps from spark plugs when servicing the engine to prevent accidental starting.

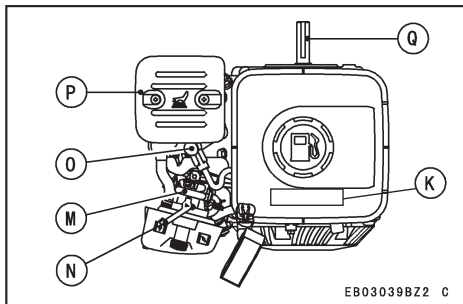
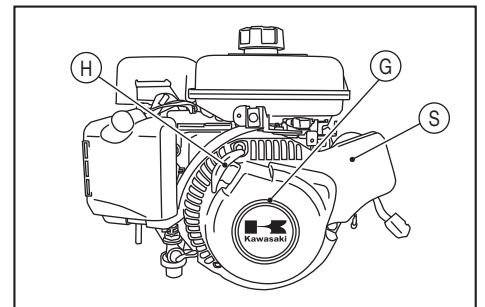
Read warning labels which are on the engine and understand them. If any label is missing, damaged, or worn get a replacement from your Kawasaki dealer and install it in the correct position.

GENERAL INFORMATION

Location of Parts

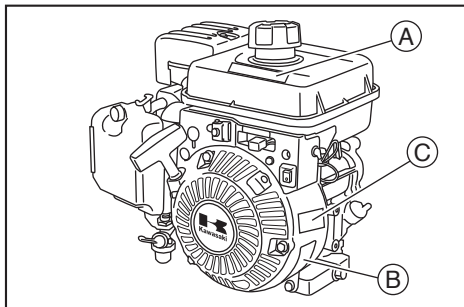


Integrated recoil / electric start model



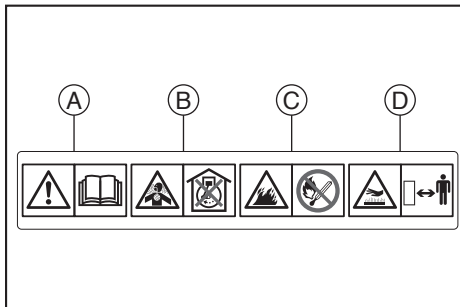
- A. Fuel Tank Cap
- B. Fuel Tank
- C. Speed Control Lever
- D. Engine Serial Number Label
- E. Oil Filler Cap / Oil Gauge
- F. Oil Drain Bolt
- G. Recoil Starter
- H. Recoil Starter Grip
- I. Engine Switch
- J. Fuel Tap
- K. Warning Label
- L. Air Cleaner
- M. Carburetor
- N. Choke Lever
- O. Spark Plug / Spark Plug Cap
- P. Muffler / Muffler Cover
- Q. P.T.O. Shaft
- R. Controller
- S. Electric Starter

Location of Labels



- A. Warning Label
- B. Engine Serial Number Label
- C. Emission Information Label

Warning Label



- A. The Owner's manual contains important information on safe operation. Read it before operating engine.
- B. Exhaust gas contains carbon monoxide, an odorless and deadly poison. Do not run Engine in an enclosed area.
- C. Gasoline is extremely flammable and explosive. No open flames or other source of ignition.
- D. Engines can become extremely hot during normal operation. Keep away from hot parts of the engine.

Engine Serial Number Label

The engine serial number is your only means of identifying your particular engine from others of the same model type.

This engine serial number shown on the label is needed by your dealer when ordering parts.

FUEL AND OIL RECOMMENDATIONS

Fuel

Use only clean, fresh, unleaded regular grade gasoline.

Fuel Type	Unleaded Gasoline
Ethanol Content	E10 or less
Minimum Octane Rating	Research Octane Number (RON) 91

NOTICE

Do not mix oil with gasoline.

Octane Rating

The octane rating of a gasoline is a measure of its resistance to "knocking". Using a minimum of 91 octane by the Research Octane Number (RON) is recommended.

NOTICE

If "knocking or pinking" occurs, use a different brand of gasoline or higher octane rating.

NOTICE

Do not use any fuel that contains more ethanol or other oxygenates than specified for E10 fuel* in this vehicle. Damage to the engine and fuel system, or engine starting and/or performance problems may result from the use of improper fuel.

*E10 means fuel containing up to 10% ethanol.

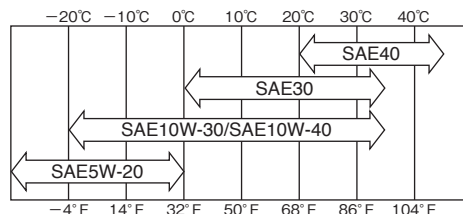
Engine Oil

The following engine oils are recommended.

API Service Classification : SF, SG, SH, or SJ.

Oil Viscosity

Choose the viscosity according to the temperature as follows:



NOTE

○ Using multi grade oils (5W-20, 10W-30, and 10W-40) will increase oil consumption. Check oil level more frequently when using them.

Tune-up Specifications

ITEM	Specifications
Ignition Timing	Unadjustable
Spark Plug Gap	NGK.....BR6HS 0.60 mm (0.024 in.) ~0.70 mm (0.028 in.)
Low Idle Speed	1600 r/min (rpm)
High Idle Speed	4000 r/min (rpm)
Valve Clearance	IN 0.12 mm (0.005 in.) EX 0.12 mm (0.005 in.)
Other Specifications	No other adjustment needed

NOTE

- High and Low idle speeds may vary depending on the equipment on which the engine is used. Refer to the equipment specification.

Fuel Tank Capacity

1.6 L (0.42 U.S.gal.)

Engine Oil Capacity

0.26 L (0.27 U.S.qt.)
~ 0.46 L (0.49 U.S.qt.)

Low Oil Level Sensor System

The low oil level sensor system, if equipped, automatically stops the engine when the oil level gets too low during operation or if the engine is tilted at certain angles during operation. Be aware whether or not your engine is equipped with the sensor system.

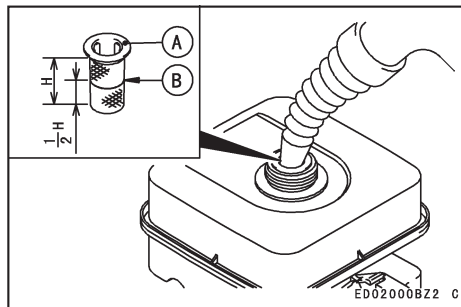
PREPARATION

Fuel

⚠ WARNING

Gasoline (fuel) is extremely flammable and can be explosive under certain conditions. Do not smoke. Make sure the area is well ventilated and free from any source of flame or sparks; this includes any appliance with a pilot light. Never fill the tank so that the fuel level rises into the filler neck. If the fuel tank is overfilled, heat may cause the fuel to expand and overflow through the vents in the tank cap. If gasoline is spilled on the fuel tank wipe it off immediately.

- Turn the engine switch to "O" (OFF) position.
- Level the engine (equipment) before fueling.
- Remove the fuel tank cap by turning it counterclockwise.
- Slowly pour gasoline up to the half position (B) of fuel strainer (A) in the fuel tank.
- Close the fuel tank cap securely by turning it clockwise as far as it will go.



A. Fuel Strainer B. Half Position

Engine Oil

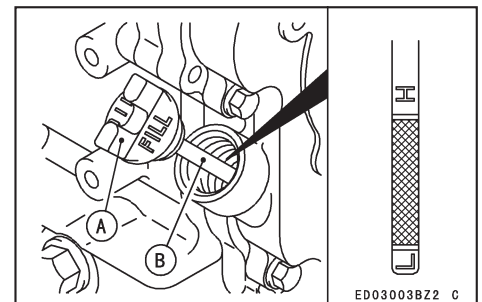
NOTICE

The engine (with the low oil level sensor system) may not start if oil is not filled properly.

Check the engine oil level before each time of operation otherwise shortage of the engine oil may cause serious damage to the engine such as seizure.

- Level the engine (equipment) to accurate inspection and to prevent overfilling.

- Clean area around the oil filler cap with oil gauge before removing it.
- Remove the oil filler cap by unscrewing it, and wipe the part of oil gauge with clean cloth.
- Insert the oil filler cap into the filler hole but DO NOT SCREW IT IN.
- The oil level should be between the "H" and "L" marks on the oil gauge. If the oil level is near or below the "L" mark, remove the oil filler cap and pour the engine oil slowly to bring the oil level to the "H" mark.



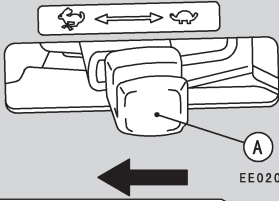
A. Oil Filler Cap B. Oil Gauge

- Tighten the oil filler cap firmly by screwing it.

STARTING

Speed Control Lever

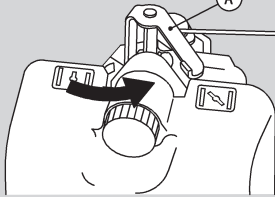
- Move the speed control lever (A) to its halfway position (between "↶" and "↷" position).



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Choke Lever

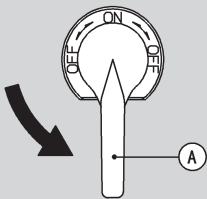
- Turn the choke lever (A) to "||↯||" (Close) position.



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Fuel Tap

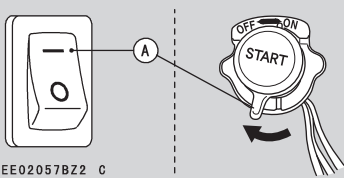
- Turn the fuel tap lever (A) to "ON" (Open) position.



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Engine Switch

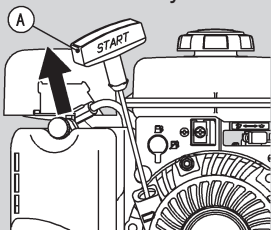
- Turn the engine switch (lever) (A) to "I" or "ON" position.



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Recoil Starter

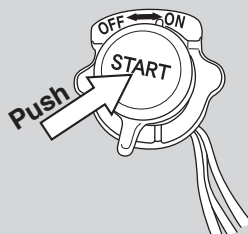
- Pull recoil starter grip (A) slowly until you feel compression, then pull fast and steady.



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Electric Starter

- Push start button to start engine.



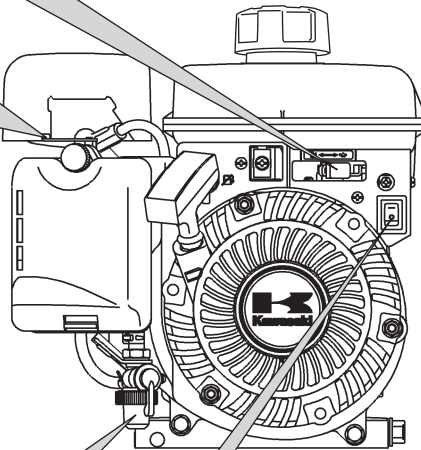
STARTING — STOPPING

⚠ DANGER

Exhaust gases contain carbon monoxide, a colorless, odorless, poisonous gas. Do not operate the engine in enclosed areas. Provide adequate ventilation at all time.

NOTICE

After the engine starts, let it run about one minute at low idle speed before putting the equipment under load. This will allow oil to reach the engine internal parts, and the engine is ready for loading.



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NOTE

- When the engine (with the low oil level sensor system) won't start, check the warning light at the controller. If red light flashes, fill oil as instructed in the "preparation" section of the owner's manual.

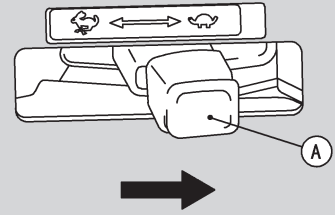
NOTICE

Do not operate this engine continuously at angles exceeding 25° in any direction. Engine damage could result from insufficient lubrication. Refer to the operating instructions of the equipment this engine powers.

STOPPING

Speed Control Lever

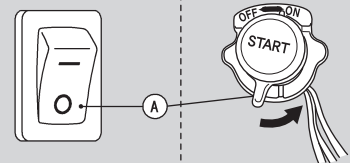
- Move the speed control lever (A) to "↶" position.
- Keep running at low idle speed for about one minute.



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Engine Switch

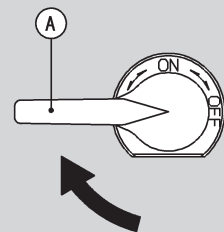
- Turn the engine switch (lever) (A) to "O" or "OFF" position. The engine stops.



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Fuel Tap

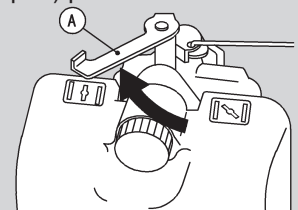
- Turn the fuel tap lever (A) to "OFF" (Close) position.



EG02014BZ2 C

Choke Lever

- After the engine starts, gradually turn the choke lever (A) to "||↷||" (Open) position.



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MAINTENANCE

Periodic Maintenance Chart

⚠ WARNING

Always remove the spark plug cap from spark plug when servicing the engine to prevent accidental starting.

MAINTENANCE	INTERVAL					
	Daily	First 8 hr.	Every 25 hr.	Every 50 hr.	Every 100 hr.	Every 250 hr.
Check oil level and add engine oil.	●					
Check for loose or lost nuts and screws.	●					
Check for fuel and oil leakage.	●					
Check for speed control lever function.	●					
Check or clean air intake screen.	●					
★ Clean air cleaner foam element.			●			
★ Clean air cleaner paper element.					●	
Change engine oil.		●		●		
Tighten nuts and screws.			● First		●	
Clean fuel tap.				●		
Clean and regap spark plug.					●	
★ Replace air cleaner paper element.						●
★ Clean cylinder and cylinder head fins.						●
K Clean combustion chamber.						●
K Check and adjust valve clearance.						●
K Check and lap valve seating surface.						●

Note: The service intervals indicated are to be used as a guide. Service should be performed more frequently as necessary by operating condition.

★: Service more frequently under dusty conditions.

K: Service to be performed by an authorized Kawasaki dealer.

10

Oil Level Check

Check oil level daily and before each time of operation. Be sure oil level is maintained. See PREPARATION chapter.

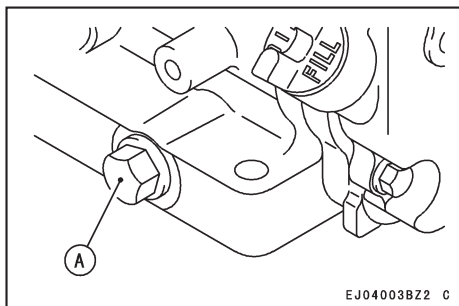
Oil Change

⚠ WARNING

Hot engine oil can cause severe burns. Allow engine temperature to drop from hot to warm level before draining and handling oil.

Change oil after first 8 hours of operation. Thereafter change oil every 50 hours.

- Run the engine to warm oil.
- Be sure the engine (equipment) is level.
- Stop the engine.
- Remove the oil drain plug and the gasket (A) on side of the engine to drain oil into suitable container while the engine is warm.
- Replace the gasket with a new one.



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- Reinstall the oil drain plug and gasket. Torque – Oil Drain Plug :
32 N·m (3.3 kgf·m, 283 in·lb)
- Remove oil filler cap and refill with new oil (See PREPARATION chapter).
- Check the oil level (See PREPARATION chapter).

⚠ WARNING

Engine oil is a toxic substance. Dispose of used oil properly. Contact your local authorities for approved disposal methods or possible recycling.

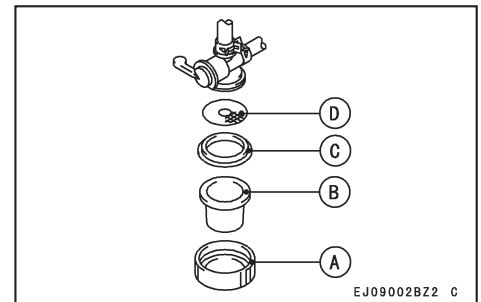
Fuel Tap Service

⚠ WARNING

Clean the fuel tap in a well ventilated area, and take care that there are no sparks or flame anywhere near the working area: this includes any appliance with a pilot light. DO NOT use gasoline or low flash-point solvents to clean the fuel tap. A fire or explosion could result.

Clean the fuel tap every 50 hours.

- Close the fuel tap lever to the "OFF" position.



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- A. Nut
- B. Cup
- C. Gasket
- D. Filter

- Loosen the nut (A) and remove the cup (B), gasket (C), filter (D).
- Remove any sediment, wipe clean, and reinstall the fuel tap.

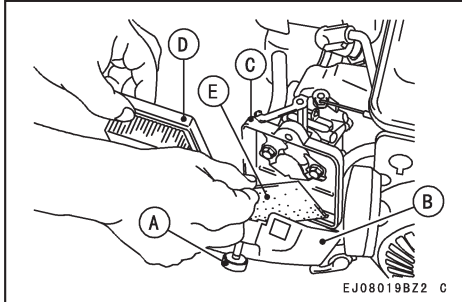
Air Cleaner Service

⚠ WARNING

Clean the element in a well ventilated area and take care that there are no sparks or flame anywhere near the working area, this includes any appliance with a pilot light.

Do not use gasoline or low flash-point solvents to clean the element. A fire or explosion could result.

- Unscrew the screw (A) and remove the air cleaner case (B), from the air cleaner body (C). Then take out the paper element (D) and the foam element (E) from the air cleaner case.



- A. Screw
- B. Air Cleaner Case
- C. Air Cleaner Body
- D. Paper Element
- E. Foam Element

Foam Element Cleaning

Clean the foam element every 25 hours.

- Wash the foam element in detergent and water, and dry it thoroughly. If very dirty, replace the foam element with a new one.

NOTICE

Do not oil foam element.

Paper Element Cleaning

Clean the paper element every 100 hours.

- Clean the element by tapping gently to remove dust. If very dirty, replace the element with a new one.
- Replace with a new paper-element yearly or 250 hours.

NOTICE

Do not wash paper-element.
Do not oil paper element.
Do not use pressurized air to clean or dry paper element.

NOTE

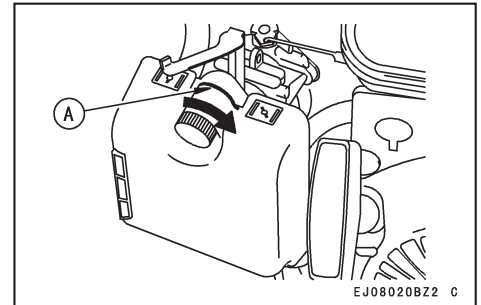
- *Operating in a dusty condition may require more frequent maintenance than above.*

Air Cleaner Assembling

NOTICE

After servicing the air cleaner, be sure all the removed parts are reinstalled properly in place. Failure to secure fastening of the air cleaner case with the air cleaner body may cause dirt or other foreign materials to enter the engine, while it is running, through the air cleaner, resulting in engine troubles or failures.

- Reinstall the foam element and the paper element into the air cleaner case. Then install the air cleaner case to air cleaner body, and tighten the screw firmly as shown in the illustration.



- A. Clinging of correct air cleaner case and air cleaner body is shown.

Spark Plug Service

⚠ WARNING

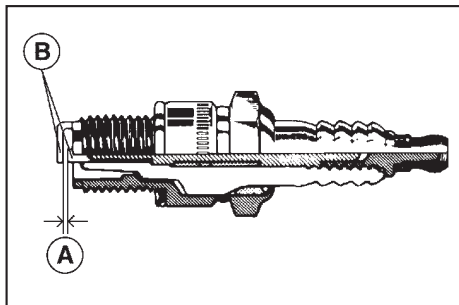
Hot engine components can cause severe burns. Stop engine and allow it to cool before checking spark plug.

Clean or replace the spark plug and reset gap (A) every 100 hours of operation.

- Disconnect the spark plug cap from spark plug and remove the spark plug.
- Clean the electrodes (B) by scraping or with a wire brush to remove carbon deposits.
- Inspect for cracked porcelain or other wear and damage. Replace the spark plug with a new one if necessary.
- Check the spark plug gap and reset it if necessary. The gap must be between 0.6 and 0.7 mm (0.024 and 0.028 in.). To change the gap, bend only the side-electrode, using a spark plug tool.
- Install and tighten the spark plug to 23 N·m (2.3 kgf·m, 17 ft·lb).
- Fit the spark plug cap on the spark plug securely.
- Pull up the spark plug cap lightly to make sure of the installation of the spark plug cap.

RECOMMENDED SPARK PLUG

NGK.....BR6HS



- A. Spark Plug Gap B. Electrodes

NOTICE

Be sure to use the same type of spark plug for change. Resistor spark plug is required in some area by local law.

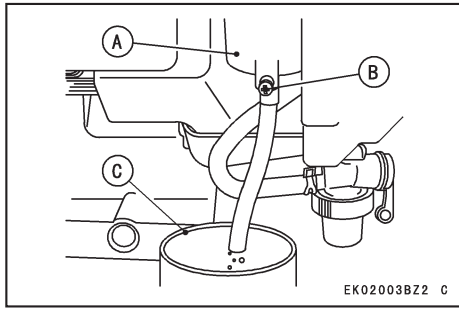
STORAGE

Engine to be stored over 30 days should be completely drained of fuel (gasoline) to prevent gum deposits forming on essential carburetor parts and the fuel system.

⚠ WARNING

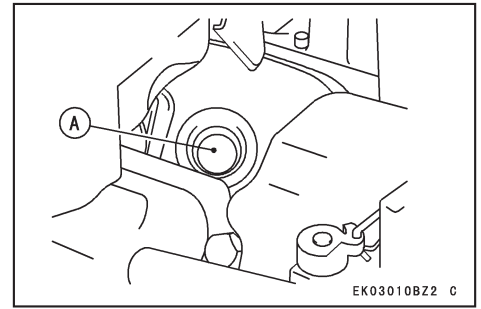
Gasoline is extremely flammable and can be explosive under certain conditions. Drain gasoline before storing the equipment for extended periods. Drain gasoline in a well-ventilated area away from any source of flame or sparks, including any appliances with a pilot light. Store gasoline in an approved container in safe location.

- Remove the spark plug cap from spark plug to prevent accidental starting the engine.
- Empty the fuel from the fuel tank with a pump or siphon.
- Put a suitable container (C) under the carburetor (A) and loosen the drain screw (B) of the carburetor to drain the fuel completely.



**A. Carburetor
B. Drain Screw
C. Container**

- After draining the fuel, tighten the drain screw firmly.
- Remove the spark plug and pour approx. 1~2 mL (0.06~0.1 cu.in) of new engine oil through the plug hole (A), slowly pull the recoil starter grip several times and reinstall the spark plug.



A. Plug Hole

- Slowly pull the recoil starter grip until you feel compression and leave it there.
- Fit the spark plug cap on the spark plug securely.
- After period of storage, change engine oil.
(Refer to "Oil Change" section in "MAINTENANCE" chapter).

⚠ WARNING

Gasoline is a toxic substance. Dispose of gasoline properly. Contact your local authorities for approved disposal methods.

TROUBLESHOOTING GUIDE

If the engine malfunctions, carefully examine the symptoms and the operating conditions, and use the table shown below as a guide to troubleshoot.

Symptom		Probable Cause	Remedy
Engine won't start or output is low	Insufficient compression	Faulty piston, cylinder, piston ring, and cylinder head gasket	K
		Faulty valves or A.C.R. system	
		Loose cylinder head bolts	
		Loose spark plug	
	No fuel to combustion chamber	No fuel in tank	Fill fuel tank
		Fuel tap lever not in "ON" (Open) position	Turn fuel tap lever to "ON" (Open) position
		Blocked fuel tap or tube	Clean
		Blocked air vent in tank cap	
		Faulty carburetor	K
	Spark plug fouled by fuel	Over-rich fuel/air mixture	Slowly pull the recoil starter grip with spark plug removed to discharge excess fuel. Clean spark plug.
		Clogged air cleaner	Clean
Incorrect grade/type of fuel		Change gasoline	
Water in fuel			
Faulty carburetor		K	
No spark or weak spark	Faulty spark plug	Replace spark plug	
	Engine switch left in "O" (Stop) position	Turn engine switch to "I" (Start) position	
	Faulty ignition coil	K	
Red warning light on the controller (the low oil level sensor system)	Low engine oil level	Fill oil to the level as specified in the owner's manual	
Low output	Engine overheats	Clogged air cleaner	Clean
		Recoil starter or cooling air path clogged with dirt	
		Insufficient engine oil	Replenish or change engine oil
		Carbon built-up in combustion chamber	K
	Poor ventilation around engine	Select a better location	
Engine speed won't increase	Faulty governor	K	

K: Service to be performed by an authorized Kawasaki dealer.

ENVIRONMENTAL PROTECTION

To protect our environment, properly discard used batteries, engine oil, gasoline, coolant, or other components that you might dispose of in the future.

Consult your authorized Kawasaki dealer or local environmental waste agency for their proper disposal procedure.

This also applies to disposal of the entire engine at the end of its life.

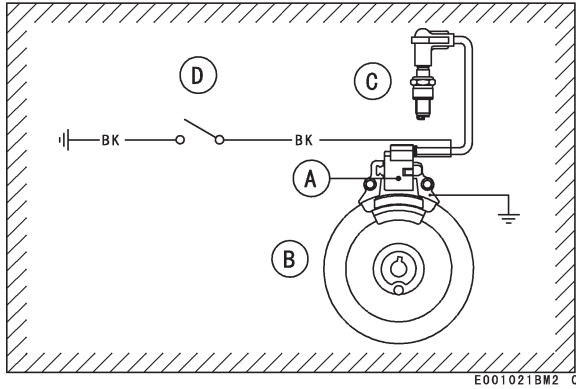
SPECIFICATIONS

Type of engine	Air-cooled, 4-stroke OHV, Single cylinder, gasoline engine
Bore × Stroke	56 × 40 mm (2.2 × 1.57 in.)
Displacement	99 mL (5.97 cu.in)
Ignition system	Solid-state ignition
Starting system	Recoil starter / Electric starter
Dry weight	10.5 kg (23 lb)

Specifications subject to change without notice

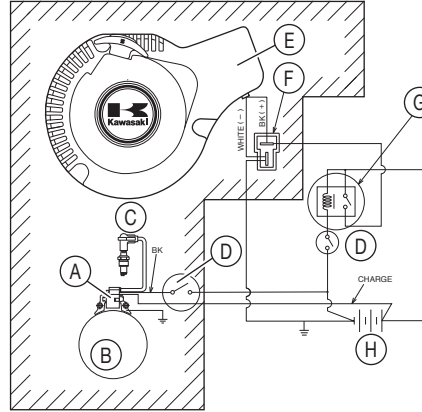
WIRING DIAGRAM

Recoil Starter model



- A. Ignition Coil with Igniter
- B. Fly-wheel
- C. Spark Plug
- D. Engine Switch

Integrated recoil / electric start model



- E. Electric Starter
- F. Coupler
- G. Relay
- H. Battery

NOTE: PORTION SURROUNDED BY (////) SHOWS KAWASAKI PROCUREMENT PARTS.