

# FJ180V

4-Stroke air-cooled gasoline engine



## OWNER'S MANUAL

Part No. 99920-2183-03

### SAFETY AWARENESS

Whenever you see the symbols shown below, heed their instructions!

Always follow safe operating and maintenance practices.

#### WARNING

This warning symbol identifies special instructions or procedures which, if not correctly followed, could result in personal injury, or loss of life.

#### CAUTION

This caution symbol identifies special instructions or procedures which, if not strictly observed, could result in damage to, or destruction of equipment.

#### NOTE

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

### FOREWORD

Congratulations on your purchase of a new 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.  
Consumer Products & Machinery Company

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## READ THIS FIRST

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

### ⚠ WARNING

- Never allow children to operate the engine or equipment.
- Keep people and pets out of area where you are using the engine or equipment.
- Never wear loose, torn, or bulky clothing. It may catch on moving parts or controls, leading to the risk of accident.
- Never consume alcohol or drug before or while operating this engine.
- Do not run the engine in a closed area. Exhaust gas contains carbon monoxide, an odorless and deadly poison.
- Gasoline is extremely flammable and can be explosive under certain condition.
  - Stop engine and allow the engine to cool before refueling.
  - Do not smoke. Make sure area is well ventilated and free from any source of flame or sparks including the pilot light of any appliance while refueling, servicing fuel system, draining gasoline and/or adjusting carburetor.
  - Do not fill the tank so the fuel level rises into the filler neck. 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.
- 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, bush covered or grass covered unimproved land unless spark arrester is installed on the muffler.
- To avoid getting an electric shock, do not touch spark plug, plug cap or spark plug lead 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.
- Do not run engine at excessive speeds. This may result in injury.
- Always remove the spark plug lead from spark plug when servicing the engine to prevent accidental starting.

## EMISSION CONTROL INFORMATION

### Fuel Information

THIS ENGINE IS CERTIFIED TO OPERATE ON UNLEADED REGULAR GRADE GASOLINE ONLY. A minimum of 87 octane of the antiknock index is recommended. The antiknock index is posted on service station pumps in the U.S.A.

### Emission Control Information

To protect the environment in which we all live, Kawasaki has incorporated an exhaust emission control system in compliance with applicable regulations of the United States Environmental Protection Agency and the California Air Resources Board. Also, depending on when your engine was produced, it may have an assigned emissions durability period. \* See below for the engine emissions durability period that may apply to your engine.

### Exhaust Emission Control System

The exhaust emission control system applied to this engine consists of a fuel system and an ignition system having optimum ignition timing characteristics. The fuel system has been calibrated to provide lean air/fuel mixture characteristics and optimum fuel economy with a suitable air cleaner and exhaust system.

A sealed-type crankcase emission control system is also used to eliminate blow-by gasses. The blow-by gasses are led to a breather chamber through the crankcase and from there to the air cleaner.

### Engine Emissions Compliance Period

#### California

Model Year - 2006 and later Vertical Crankshaft  
Durability Period - 500 hours

#### All Other States

Model Year - 2003 and later (new)  
2007 and later (carry over)  
Durability Period - 500 hours (Category A)

If your engine has an assigned emissions durability period it will be located on the certification label attached to the engine (IMPORTANT ENGINE INFORMATION).

### High Altitude Performance Adjustment Information

To improve the EMISSIONS CONTROL PERFORMANCE of engines operated above 1,000 meters (3,300 feet), Kawasaki recommends the following Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) approved modifications.

## NOTE

- When properly performed, these specified modifications only are not considered to be emissions system "tampering" and engine performance is generally unchanged as a result.

### Installation Instructions:

High altitude adjustment requires replacement of carburetor main jet. Installation of these optional parts may be performed by an authorized Kawasaki dealer, or the consumer, following repair recommendations specified in the appropriate Kawasaki Service Bulletin.

### Maintenance and Warranty

Proper maintenance is necessary to ensure that your engine will continue to have low emission levels. This Owner's Manual contains those maintenance recommendations for your engine. Those items identified by the Periodic Maintenance Chart are necessary to ensure compliance with the applicable standards.

As the owner of the engine, you have the responsibility to make sure that the recommended maintenance is carried out according to the instructions in this Owner's Manual at your own expense.

The Kawasaki Limited Emission Control System Warranty requires that you return your engine to an authorized Kawasaki dealer for remedy under warranty. Please read the warranty carefully, and keep it valid by complying with the owner's obligations it contains.

### Tampering with Emission Control System Prohibited

Federal law and California State law prohibit the following acts or the causing thereof: (1) the removal or rendering inoperative by any person other than for purposes of maintenance, repair, or replacement, of any device or element of design incorporated into any new engine for the purposes of emission control prior to its sale or delivery to the ultimate purchaser or while it is in use, or (2) the use of the engine after such device or element of design has been removed or rendered inoperative by any person.

Among those acts presumed to constitute tampering are the acts listed below:

Do not tamper with the original emission related parts:

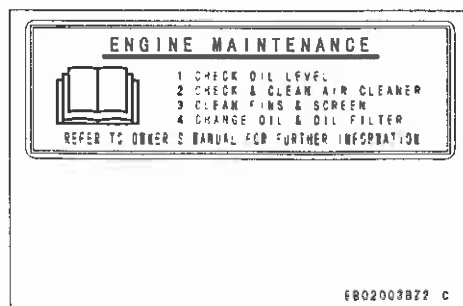
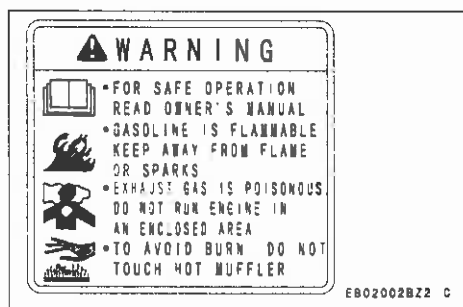
- Carburetor and internal parts
- Spark Plug
- Magneto or electronic ignition system
- Fuel filter element
- Air cleaner elements
- Crankcase
- Cylinder head
- Breather chamber and internal parts
- Intake pipe and tube

## GENERAL INFORMATION

### Location of Safety Related Labels



- A. Warning Label  
B. Engine Maintenance Label



### Engine Serial Number

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

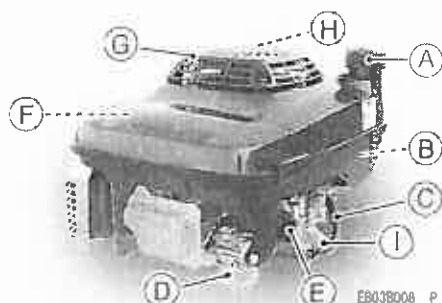
This engine serial number shown on the label is needed by your dealer when ordering parts.



- A. Engine Serial Number Label

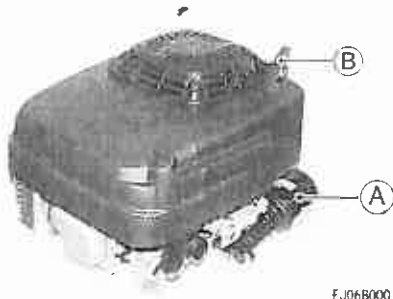
## Location of Parts

Engine without oil filter.



- A. Fuel Tank Cap
- B. Fuel Tank
- C. Fuel Tube
- D. Carburetor
- E. Priming Pump
- F. Air Cleaner
- G. Recoil Starter
- H. Recoil Starter Grip
- I. Oil Drain Plugs

Engine with oil filter.



- A. Oil Filter
- B. Recoil Starter Grip

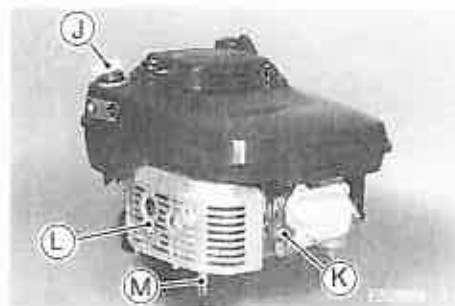
## Fuel Tank Capacity

2.0 L (0.528 U.S. gal)

## Engine Oil Capacity

Oil Pan	0.65 L (0.69 U.S. qt)
Oil Filter *	0.2 L (0.20 U.S. qt)

Equipment marked with \* is optional parts (factory installation).



- J. Oil Gauge / Filler Cap
- K. Spark Plug Cap / Spark Plug
- L. Muffler
- M. P.T.O. Shaft

## Tune-up Specifications

Item	Specification
Valve Clearance	IN 0.12 mm (0.005 in.) EX 0.12 mm (0.005 in.)
Ignition Timing	Unadjustable
High Idle Speed	3200 r/min (rpm)
Spark Plug Gap	0.7 ~ 0.8 mm (0.028 ~ 0.032 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 AND OIL RECOMMENDATIONS

## Fuel

Use only clean, fresh, unleaded regular grade gasoline.

## Octane Rating

The octane rating of a gasoline is a measure of its resistance to "knocking". Use a minimum of 87 octane of the antiknock index is recommended. The antiknock index is posted on service station pumps in the U.S.A..

## NOTE

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

## CAUTION

Do not mix oil with gasoline.

## Oxygenated Fuel

Oxygenates (either ethanol or MTBE) are added to the gasoline. If you use the oxygenated fuel, be sure it is unleaded and meets the minimum octane rating requirement.

The following are the EPA approved percentages of fuel oxygenates.

## ETHANOL: (Ethyl or Grain Alcohol)

You may use gasoline containing up to 10% ethanol by volume.

## MTBE: (Methyl Tertiary Butyl Ether)

You may use gasoline containing up to 15% MTBE by volume.

## METHANOL: (Methyl or Wood Alcohol)

5% by volume

You may use gasoline containing up to 5% methanol by volume, as long as it also contains cosolvents and corrosion inhibitors to protect the fuel system. Gasoline containing more than 5% methanol by volume may cause starting and/or performance problems. It may also damage metal, rubber, and plastic parts of your fuel system.

## 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 the fuel level rises into the filler neck. If the tank is overfilled, heat may cause the fuel to expand and overflow through the vents in the tank cap.

## WARNING

After refueling, make sure the tank cap is closed securely. If gasoline is spilled on the fuel tank, wipe it off immediately.

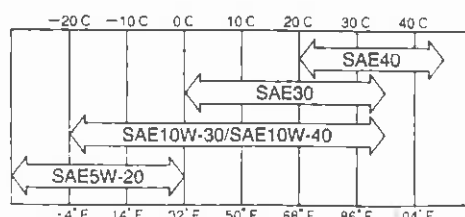
## Engine Oil

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:



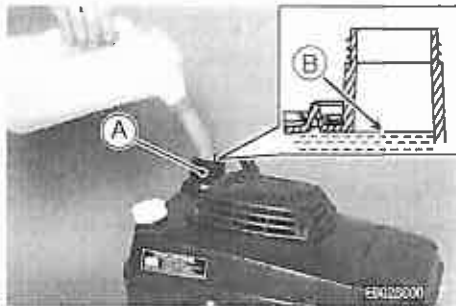
## NOTE

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

## PREPARATION

### Fuel

- Turn the engine switch to "O" (stop) position.
- Level the engine (equipment) before fueling.
- Remove the fuel tank cap by turning it counterclockwise.
- Slowly pour fuel into the fuel tank to bottom (B) of the filler (A).



#### ⚠ WARNING

Do not over fill the fuel tank, fill only to bottom (B) of the filler (A) to prevent spill out of the fuel from the tank cap.

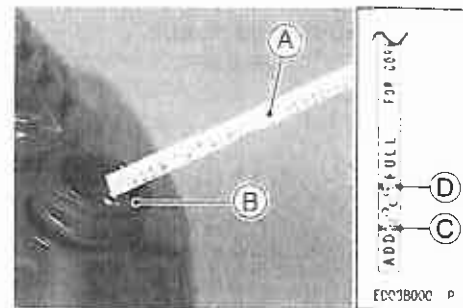
**Fuel Tank Capacity**  
2.0 L (0.528 u.s.gal)

- Close the tank cap securely by turning it clockwise as far as it will go.

### Engine Oil

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

- Place the engine (equipment) on level surface. Clean area around the oil gauge before removing it.
- Remove the oil gauge (A) and wipe it with a clean cloth.
- Insert the oil gauge into the oil filler (B) WITHOUT SCREWING IT IN.
- Remove the oil gauge to check the oil level. Level should be between "ADD" line (C) and "FULL" line (D). Do not overfill.
- If the oil level is too high, drain the excess oil.
- If the oil level is too low, add oil to reach the correct level.
- Install and tighten the oil gauge.



### Engine Oil Capacity

Without oil filter	0.65 L (0.69 U.S. qt)
With oil filter	When changing oil filter
	0.85 L (0.90 U.S. qt)
	New engine and without changing oil filter
	0.65 L (0.69 U.S. qt)

#### CAUTION

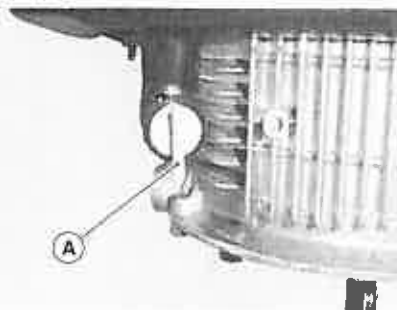
The engine is shipped without engine oil.

## STARTING

### Starting Engine

#### For Brade brake clutch Engine

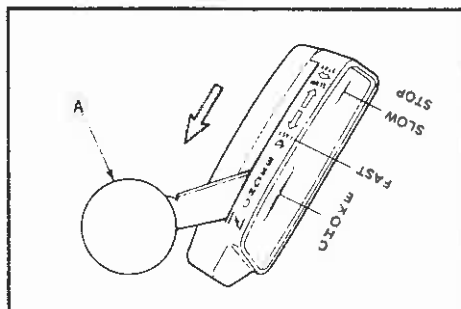
- Turn the fuel tap lever (A) to "ON" (Open) position.



- Move the throttle lever (A) on the equipment to "choke mark" (CHOKE) position.

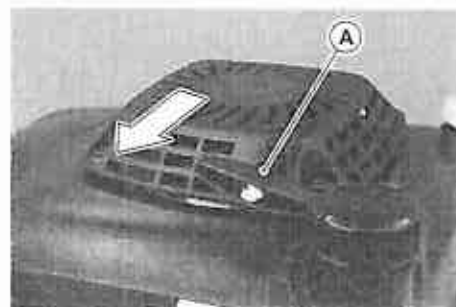
#### NOTE

- When the engine is already warm or on hot days, the throttle lever position is halfway (between "Rabbit mark" (FAST) and "turtle mark" (SLOW) position).



A. Throttle Lever

- Pull the recoil starter grip (A) slowly until you feel compression, then pull the recoil starter grip all the way.



A. Recoil Starter Grip

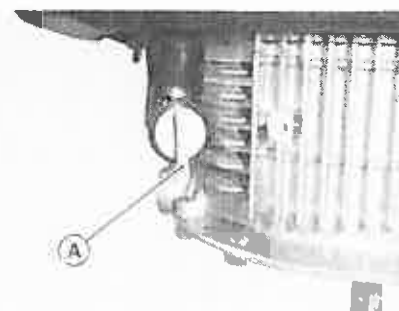
#### CAUTION

DO NOT pull the recoil starter grip out of the end. DO NOT let the recoil starter grip snap back itself. This may cause damage to the recoil starter assembly.

#### For Brake pad system Engine

Upon releasing the brake control lever on the equipment, the cutting blade and the engine will stop automatically. Therefore, the brake control lever must be held against the handle while the engine is started and running.

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



A. Fuel Tap Lever

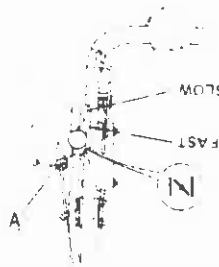
## WARMING UP

### Warming up

#### CAUTION

Allow engine to warm up before loading. This will allow oil to reach all the engine parts, and the piston clearance to reach design specification, before the engine is ready for loading.

- After engine starts, move the throttle lever on the equipment to between "Rabbit mark" (FAST) and "turtle mark" (SLOW) position. To warm up the engine, run it for a few minutes.



A. Recoil Starter Grip

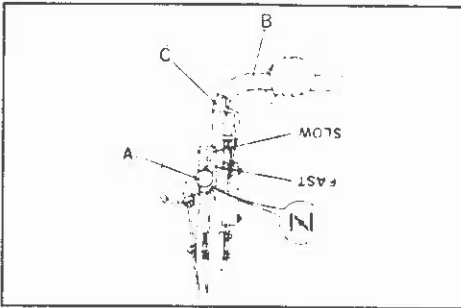
#### CAUTION

DO NOT pull the recoil starter grip out of the end. DO NOT let the recoil starter grip snap back itself. This may cause damage to the recoil starter assembly.

- Move the throttle lever (A) on the equipment to "choke mark" (CHOKE) position

#### NOTE

- When the engine is already warm or on hot days, the throttle lever is halfway position (between "Rabbit mark" and "turtle mark" position).
- Hold the brake control lever (B) on the equipment against the handle (C) on the equipment.



A. Throttle Lever  
B. Brake Control Lever  
C. Handle

## OPERATING

### Anti-engine inclination

This engine will operate continuously at angles up to 30° in any direction.

Refer to the operating instructions of the equipment this engine powers. Because of equipment design or application, there may be more stringent restrictions regarding the angle of operation.

#### CAUTION

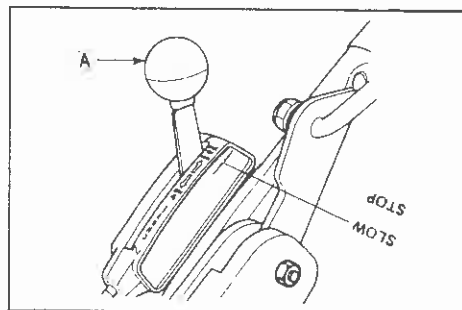
Do not operate this engine continuously at angles exceeding 30° in any direction. Engine damage could result from insufficient lubrication.

## STOPPING

### Stopping Engine

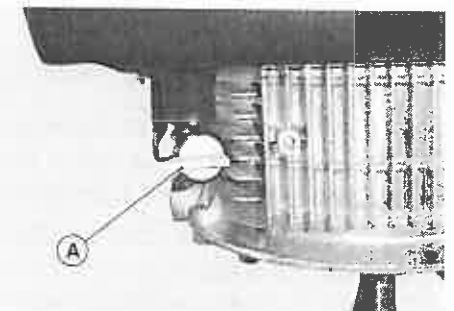
#### For Brake clutch Engine

- Move the throttle lever (A) on the equipment to "turtle mark" (SLOW) position. Keep on running at idling speed for about one minute.



A. Throttle Lever

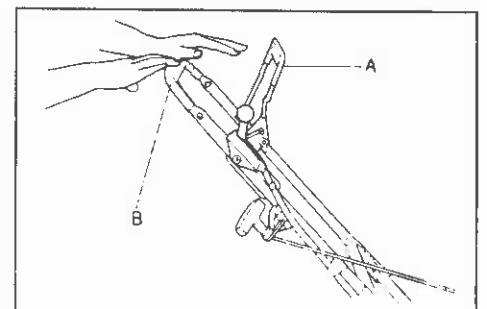
- Move the throttle lever to "STOP" position to turn ignition off.
- Turn the fuel tap lever (A) to "OFF" (Close) position.



A. Fuel Tap Lever

#### For Brake pad system Engine

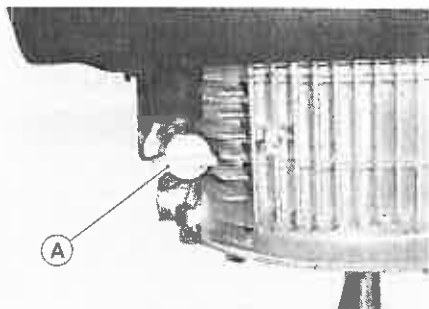
- Release the brake control lever (A) on the equipment from the handle (B) on the equipment to stop the engine and the blade.



A. Brake Control Lever  
B. Handle

## ADJUSTMENT

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



A. Fuel Tap Lever

### Engine Speed Adjustment

#### NOTE

- Do not tamper with the governor setting or the carburetor setting to increase the engine speed. Each carburetor is adjusted at the factory with either a cap or stop plate installed on the mixture screw. Any adjustments must be performed by an authorized Kawasaki dealer.

## 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 200 hr.	Every 300 hr.
Check oil level and add engine oil	●						
Check for loose or lost nuts and screws	●						
Check for fuel and oil leakage	●						
Check for brake control lever function	●						
Check or clean recoil starter and air intake screen	●						
Tighten nuts and screws			● First		●		
★ Clean air cleaner foam element			●				
★ Clean air cleaner paper element					●		
Change engine oil (without oil filter)		●		●			
Change engine oil (with oil filter)		●			●		
Clean and regap spark plug					●		
Change oil filter						●	
★ Replace air cleaner paper element							●
★ Clean cylinder and cylinder head fins							●
K Clean combustion chamber							●
K Check and adjust valve clearance							●
K Clean and lap valve seating surface							●

Note: The service intervals can 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.

## TROUBLESHOOTING GUIDE

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

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	
		Loose spark plug	Tighten properly
		Loose cylinder head bolts	
	No fuel to combustion chamber	No fuel in fuel tank	Fill fuel tank
		Fuel filter not in "ON" position	Open fuel filter lever.
		Blocked fuel filter or tube	Clean
		Blocked air vent in tank cap	
		Faulty carburetor	K
	Spark plug fouled by fuel	Over-rich fuel/air mixture	Turn choke lever to "OPEN" position. Rotate engine with spark plug removed to discharge excess fuel. Clean spark plug.
		Clogged air cleaner	Clean
		Faulty carburetor	K
		Incorrect grade/type of fuel	Change gasoline
		Water in fuel	
	No spark or weak spark	Faulty spark plug	Replace spark plug
		Faulty ignition coil	K
		Engine switch left in "OFF" position	Turn engine switch on (See M)
Low output	Engine overheats	Clogged air cleaner	Clean
		Recoil starter or cooling air path clogged with dirt	
		Insufficient engine oil	Replenish or change 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.

**M:** For Interlocking Switch Type, move the throttle lever on the equipment away from its low speed end to turn the engine switch to "ON".

## 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.



## SPECIFICATIONS

Type of engine	Air-cooled, 4-stroke OHV, Single cylinder, gasoline engine
Bore × Stroke	65 × 54 mm(2.6 × 2.1 in.)
Displacement	179 mL (10.9 cu.in)
Ignition system	Solid-state ignition
Starting system	Recoil starter
Dry weight	16.0 kg (35.3 lb)

Specifications are subject to change without notice.

### **WARNING:**

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.



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Consumer Products & Machinery Company