



FC180V

(182 cc; 11.1 cu.in)

4-stroke air-cooled gasoline engine

OWNER'S MANUAL

Part No. 99920-2090-01

Learn Engine Safety

▲WARNING

Improper use or maintenance by the operator can result in injury. Read this manual carefully and follow these important safety messages. Unauthorized modifications to the engine or improper engine applications may impair the function and/or safety and affect machine life. Use only approved service parts or accessories on the engine. Do not let anyone operate the engine without proper instruction.

Protect People

▲WARNING

Keep people and pets out of the area where you are using the engine or equipment. Never allow children to operate the engine or equipment.

▲WARNING

Handle gasoline with care: it is highly flammable. Fill the fuel tank outdoors. Do not overfill. Use approved gasoline container. Never remove the cap of the fuel tank or add gasoline if the engine is hot or running. Do not smoke or allow flames or sparks including the pilot light of any appliance while refueling, servicing fuel system, draining gasoline and/or adjusting carburetor. Wipe off any spilled gasoline before starting the engine. Do not operate the engine when or where an odor of gasoline is present or other explosive condition may exist. Do not place flammable objects close to the engine. Keep the engine free of grass, leaves, or combustible material. Keep the engine at least 3.3 ft (1 m) away from buildings, obstructions and other burnable objects. Do not aim engine exhaust at materials that could catch fire.

▲WARNING

Do not operate the engine without a muffler. Except for adjustment, do not operate the engine if the air cleaner or the cover directly over the carburetor air intake is removed. Disconnect the battery ground cable before servicing engine. Never store the engine or equipment with gasoline in the tank inside a building where fumes may reach an open flame or spark. Allow the engine to cool before storing in any enclosure. Drain gasoline before transporting the engine or equipment. If this engine is not equipped with a spark arrester and is to be used on any forest covered, bush covered, or grass covered unimproved land, a spark arrester must be added to the muffler in the areas where such a device is required by law.

Whenever you see the symbols show 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

○ Indicates points of particular interest for more efficient and convenient operation.

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We wish to thank you for choosing this Kawasaki Engine. Please read this Owner's Manual carefully, as it contains information which will be of value in obtaining maximum service from your Kawasaki Engine.

All information, illustrations and specifications in this manual are based on the latest production information available at the time of publication.

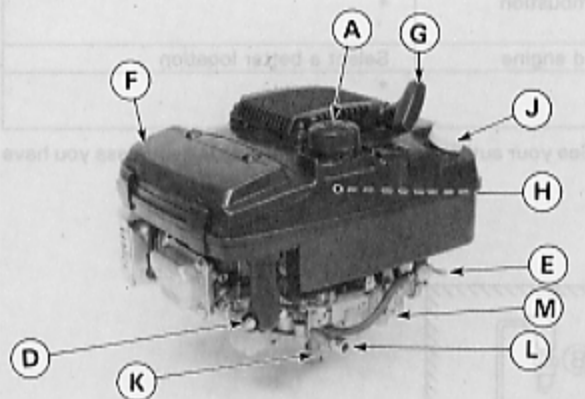
The right reserved to make changes at any time without notice.

KAWASAKI HEAVY INDUSTRIES, LTD.
CONSUMER PRODUCTS & COMPONENTS GROUP

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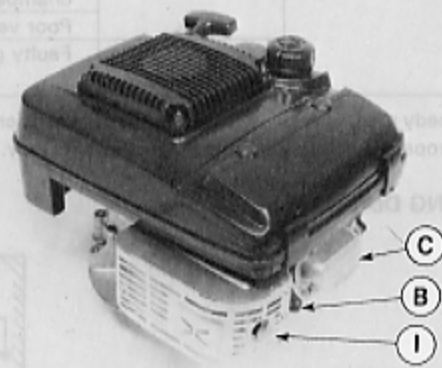
First Edition (1): Sept. 1992 (M)

ENGINE PROFILE



- A. Engine Cover (Fuel Tank)
- B. Spark Plug
- C. Valve-Rocker Cover
- D. Carburetor
- E. Fuel Valve

- F. Air Cleaner Housing
- G. Recoil Starter
- H. Fuel Tank
- I. Muffler
- J. Oil Filler Cap



- K. P. T. O. Shaft
- L. Side Oil-Drain-Screw
- M. Governor Arm

GENERAL SPECIFICATIONS

ITEM	FC180V
Engine Type	Forced Air-cooled, Vertical Shaft, OHV, 4-Stroke Gasoline Engine
Number of Cylinder	1
Piston Displacement	182cc (11.1 cu. in.)
Bore x Stroke	68 x 50 mm (2.68 in. x 1.97 in.)
Direction of Rotation	Counterclockwise facing the PTO Shaft
Fast Idle Speed	3200~3350 rpm cf. Note 3
Slow Idle Speed	1450~1650 rpm
ACR	Mechanical Flyweight Type
Lubricating Method	Splash
Oil Pan Capacity	0.65 L (1.37 US pt)
Fuel Tank Capacity	2.4 L (2.54 US qt.)
Carburetor	Float Type Fixed Main Jet
Choke Control	Automatic (with Throttle Control)
Air Cleaner	Semi-cyclone Type with Dual Element
Ignition	Transistorized Flywheel Magneto
Spark Plug	NGK BP5ES
Cooling Air Inlet	Recoil Starter and Rotating Screen
Governor	Mechanical Flyweight Type

1. Specifications are subject to change without notice.
2. ACR—Automatic Compression Release.
3. Fast idle speed may vary depending on each equipment on which engine is used. Refer to the equipment specification.

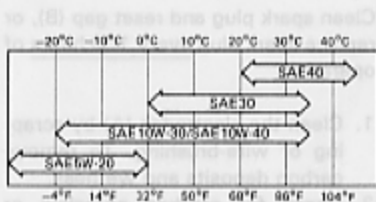
BEFORE STARTING

FILL OIL SUMP

CAUTION

DO NOT run engine without oil even for short period. Use high quality detergent engine oil classified "API Service SF, SE or SD".

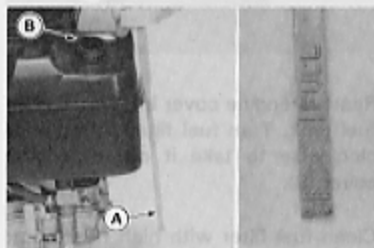
Detergent engine oils keep engine cleaner and delay formation of gum and varnish deposits. Nothing should be added to recommended oil. Select oil viscosity as shown on temperature chart on which expected environmental temperature while operation is indicated in 'C and' F.



1. Place engine on level surface.

CAUTION

DO NOT allow dust or foreign things entering into oil filler while pouring oil. Clean area around oil gauge before removing it.



2. Remove oil gauge (A).
3. Pour oil slowly to "FULL" mark on oil gauge.
4. Insert oil gauge into oil filler (B) WITHOUT SCREWING IT IN.
5. Remove oil gauge (A) to check oil level. Level should be between "ADD" and "FULL" marks. DO NOT overfill.
6. Install and tighten oil gauge (A).
7. Sump capacity is 0.65 L (1.37 US pt).

FILL FUEL TANK

Use clean, fresh, regular grade gasoline. Lead-free gasoline is recommended.

CAUTION

DO NOT mix oil with gasoline. DO NOT use additives. DO NOT use gasoline-alcohol mixtures.

WARNING

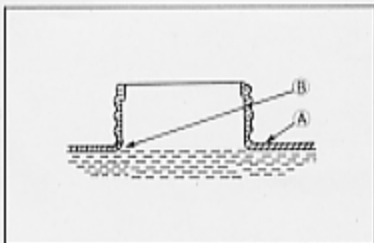
Handle gasoline with care. Avoid fire accidents due to smoking or careless practices. (See "SAFETY" section for additional warning.)

WARNING

Do not overfill fuel tank, fill only to bottom of filler.

WARNING

DO NOT allow dust or foreign things entering into fuel tank while fueling. Clean area around fuel tank cap before removing it.



1. Place engine on stable and level surface.
2. Slowly pour fuel into fuel tank (A) to bottom of filler (B).
3. Securely install fuel tank cap.
4. Tank capacity is 2.4L (2.54 US qt).

STARTING ENGINE

START ENGINE

NOTE

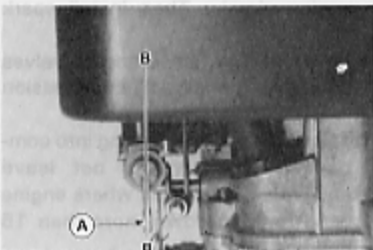
Be aware of followings in order to start engine easily in cold weather.

- Use proper oil for temperature expected.
- Use fresh gasoline.
- Protect engine (equipment) from direct exposure to weather when not in operation.

CAUTION

DO NOT start engine when cutting blade is in contact with long, uncut grass; it may cause difficulties in starting and damage to recoil starter.

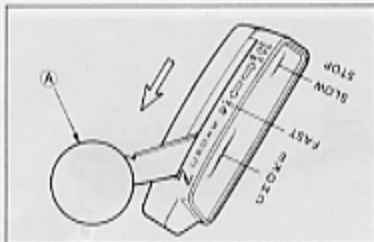
1. Open fuel valve by turning lever (A) to open position (B-B).



2. Move throttle lever (A) on equipment to "CHOKE" position to start cold engine except under hot weather.

NOTE

Warm engine requires less choking than cold engine.



WARNING

Always keep hands and feet clear of moving parts.

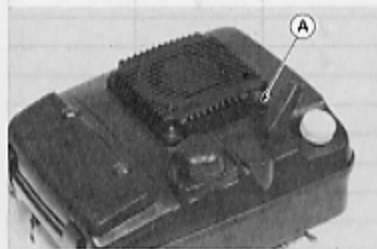
WARNING

Keep people and pets at safe distance from work area. Never allow children to operate unit.

Pull recoil starter rope (A) slowly until you feel compression, then pull fast and steady. If reasonable strokes cannot start engine, repeat with choke opened slightly.

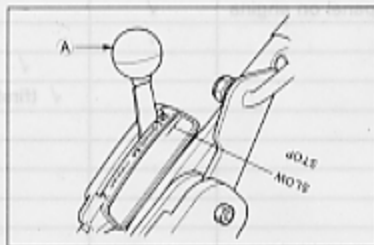
CAUTION

DO NOT pull recoil starter rope (A) out of the end. DO NOT let recoil starter rope snap back by itself. This may damage rope or recoil starter assembly.



WARM UP ENGINE

After engine starts, move throttle lever (A) on equipment to between "FAST" and "SLOW", TO WARM UP engine, run it for a few minutes with throttle lever in the same (halfway) position before putting equipment under load. Then, move throttle lever (A) on equipment to "FAST" position.



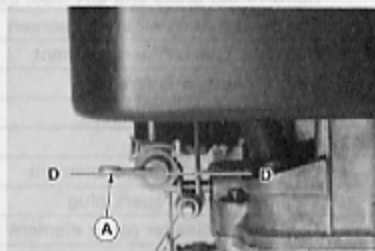
STOP ENGINE

1. Move throttle lever (A) on equipment to "SLOW" position, and run engine for a few minutes.

CAUTION

DO NOT choke carburetor to stop engine.

2. Move throttle lever (A) on equipment to "STOP" position, or turn ENGINE KEY to "OFF" position.
3. Close fuel valve by turning lever (A) to close position (D-D).



WARNING

Always remove ENGINE KEY from switch when leaving equipment unattended or when equipment is not in use.

MAINTENANCE AND ADJUSTMENT

CHANGE OIL

After first 5 hours of operation, and thereafter every 50 hours; change oil.

⚠ WARNING

Stop engine. Be careful with hot oil drained.

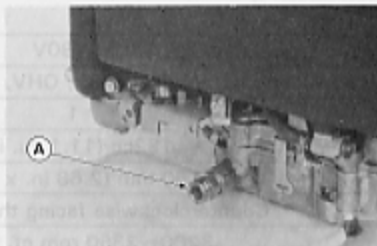
⚠ WARNING

Empty fuel tank, carburetor, and fuel line before tipping engine or equipment.

CAUTION

DO NOT over-tighten side oil drain plug. It may cause damage to crankcase cover. Specified torque is 23 N. m (16.5 ft-lb).

Remove side drain plug (A) and drain oil into suitable container while engine is still warm. See "BEFORE STARTING" section for recommended oil and oil-change procedures.



SERVICE AIR CLEANER

Remove bolt (A) and lift off air cleaner assembly.

FOAM-ELEMENT (B): Clean every 25 hours. Wash in detergent and water, and dry thoroughly. Soak in new engine oil and squeeze to remove excess oil.

PAPER-ELEMENT (C) : Clean every 100 hours. Tap it gently to remove dust.

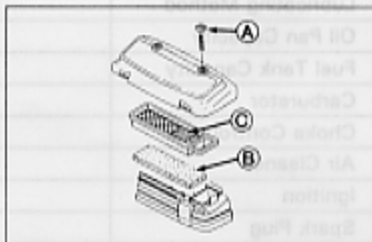
If excessively dirty, wash in detergent and water, and dry thoroughly. Replace with new paper-element yearly or every 300 hours.

NOTE

Operations in dusty conditions may require more frequent maintenance than above description.

CAUTION

DO NOT use petroleum solvent to clean paper-element. DO NOT oil paper-element. DO NOT use pressurized air to clean dry paper-element.



CLEAN FUEL FILTER

At least every 50 hours of operation, make sure that fuel filter to be free from dust and foreign things.

Close fuel valve by turning lever to close position.



⚠ WARNING

Handle gasoline with care. Avoid fire accidents due to smoking or careless practices. (See "SAFETY" section for additional warning.)

Remove fuel tube (B) by loosening tube clamp (C) at carburetor. Open fuel valve by turning lever (A) to open position (G-G). Then drain gasoline completely from tank and fuel line into approved gasoline container.

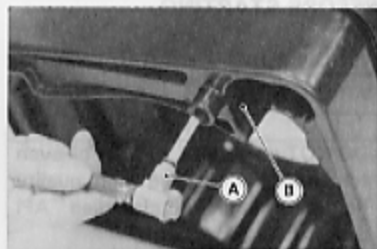


Remove engine cover integrated with fuel tank. Turn fuel filter (A) counter clockwise to take it out of engine cover (B).

Clean fuel filter with high flash-point solvent. Firmly install fuel filter, tubes, and tube clamps.

NOTE

Regarding engine cover removal/installation, see your authorized Kawasaki engine dealer.



SERVICE SPARK PLUG

⚠ WARNING

Before checking spark plug, make sure that all surrounding parts are cooled down.

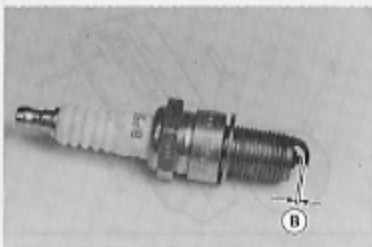
Clean spark plug and reset gap (B), or replace spark plug every 100 hours of operation.

1. Clean the electrodes (A) by scraping or wire-brushing. To remove carbon deposits and wetness.
2. Check for cracked porcelain or other wear and damage. Replace spark plug if necessary.

3. Check spark plug gap (B) and reset gap, if necessary, to 0.7-0.8 mm (0.028- 0.032 in.) bending side-electrode.

RECOMMENDED SPARK PLUG

NGK.....BP5ES



STORAGE INSTRUCTION

Follow procedures described below if engine is to be stored for over 30 days.

⚠WARNING

Handle gasoline with care. Avoid fire accidents due to smoking or careless practice. (See "SAFETY" section for additional warning.)

- To avoid gum deposits, drain gasoline completely from tank and fuel line, and disconnect fuel tube at carburetor and drain gasoline from carburetor float bowl by loosening drain screw, into approved gasoline container.
- Change engine oil.
- Remove spark plug and pour approximately 5 cc (0.17 oz) of fresh engine oil into cylinder, and crank engine slowly. Then install spark plug.
- To avoid rust, close engine valves by cranking engine till compression is felt.
- To avoid engine oil coming into combustion chamber, do not leave equipment in position where engine head is tilted down more than 15 degrees off.
- Store engine in clean and dry area.



PERIODIC MAINTENANCE

To ensure satisfactory operations over extended period of time, engine requires normal maintenance at regular intervals. Chart below shows periodic maintenance. Suitable intervals are indicated with (✓).

MAINTENANCE	INTERVALS				
	Daily	Every 25hrs	Every 50hrs	Every 100hrs	Every 300hrs
Check and add engine oil	✓				
Check for loose or lost nuts and screws	✓				
Check for fuel and oil leaks	✓				
Remove cut grass and dirt from control panel on engine	✓				
Check and clean air intake screen	✓				
★★ Clean air cleaner foam element		✓			
Tighten nuts and screws		✓ (first)		✓	
★ Change engine oil			✓		
★★★★ Clean fuel filter			✓		
★★ Clean air cleaner paper element				✓	
Clean and regap spark plug				✓	
★★ Replace air cleaner paper element					✓
★★★ Clean dust and dirt from cylinder and cylinder head fins					✓
★★★ Clean combustion chamber				✓	
★★★ Check and adjust valve clearance				✓	
★★★ Clean and lap valve seating surface				✓	

★ Perform above series of maintenance after first 5 hours of use, then at recommended intervals.

★★ Service more frequently under dusty conditions.

★★★ These items must be performed with the proper tools. See your authorized Kawasaki Engine Dealer for service, unless you have the proper equipment and mechanical proficiency.

★★★★ Regarding engine cover removal and installation, see your authorized Kawasaki engine dealer.

ADJUSTMENT

To ensure proper functions of the engine and equipment, follow all adjustments in this section relative to **THROTTLE CABLE, AND ENGINE SPEED/CHOKE**.

WARNING

DO NOT try to perform these adjustments unless you have proper tools, thorough knowledge of engine repair procedures and proper training.

THROTTLE CABLE INSTALLATION/ADJUSTMENT

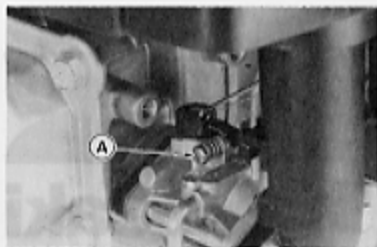
1. Link throttle cable (G) to speed control lever (C) and clamp throttle cable outer housing (F) temporarily.
2. With throttle lever on dash in "FAST" position, align tang (B) of speed control lever (C) with hole (D) of control plate (E) and insert 6 mm (0.24 in.) dia, pin or 6 mm bolt through hole.
3. Pull out throttle cable outer housing (F) to remove any slack and tighten cable clamp bolt (A).

4. Remove 6 mm pin and set throttle lever on dash in "CHOKE" position. Make sure carb. choke valve is completely closed. (See CHOKE ADJUSTMENT)



SLOW IDLE SPEED ADJUSTMENT

1. Start engine and allow it to warm up without load.
2. Move throttle lever on dash to "SLOW" position.
3. Adjust slow idle speed to specified rpm (see GENERAL SPECIFICATIONS) by moving throttle stop screw (A).



FAST IDLE SPEED ADJUSTMENT

NOTE

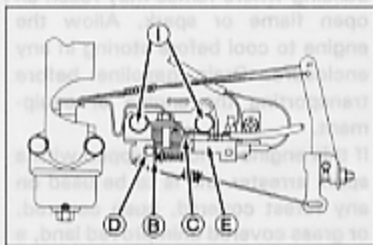
Air cleaner must be installed to engine before starting.

1. Start engine and allow it to warm up without load.
2. Loosen two control plate bolts (I).
3. Align tang (B) of speed control lever (C) with hole (D) of control plate (E) and insert 6 mm (0.24 in.) dia, pin or 6 mm bolt through hole.

NOTE

Make sure choke valve is fully opened.

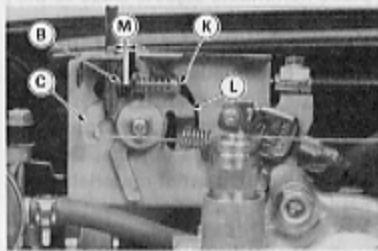
- Adjust fast idle speed for specified rpm (see GENERAL SPECIFICATIONS) by moving control plate (E).
- Tighten two bolts (I) securely in a manner to avoid chaging specified speed.
- Remove 6 mm pin, stop engine, and set throttle lever on dash in "CHOKE" position. Make sure carb. choke valve is closed completely.



CHOKE ADJUSTMENT

- Align tang (B) of speed control lever (C) with hole (D) of control plate (E) and insert 6 mm (0.24 in.) dia. pin or 6 mm bolt through hole.

- Turn choke setting screw (K) counterclockwise until it is clear of lever (L) and then turn choke setting screw (K) in or outo to adjust clearance (M) to 0.5 mm (0.02 in.).
- Remove 6mm pin and set throttle lever on dash in "CHOKE" position. Make sure carb. choke valve is closed completely.



Improper use or maintenance by the operator can result in injury. Read this manual carefully and follow these important safety messages. Unauthorized modifications to the engine or improper engine application may impair the function and safety and affect machine life. Use only approved service parts or accessories on the engine. Do not let anyone operate the engine without proper instruction.

Keep people and pets out of the area where you are using the engine or equipment. Never allow children to operate the engine or equipment.

TROUBLESHOOTING GUIDE

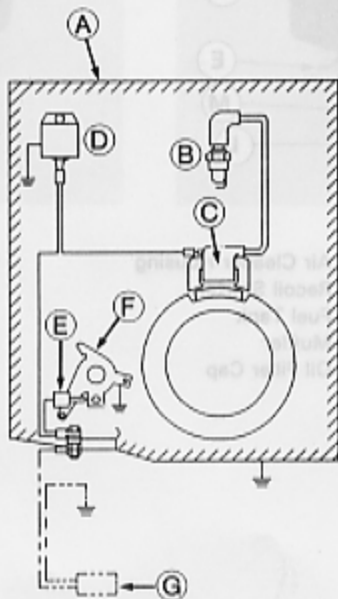
If the engine malfunctions, carefully examine the symptoms and the operating conditions, and use the table shown below as a guide to troubleshoot.

Symptom		Probable Cause	Remedy
Engine won't start or output is low	Insufficient compression	Faulty piston, cylinder, piston ring, and head gasket	+
		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 valve not in "OPEN" position	Open fuel valve
		Blocked fuel valve or tube	Clean
		Blocked air vent in tank cap	
	Spark plug fouled by fuel	Faulty carburetor	+
		Over-rich fuel/air mixture	Turn choke lever to "OPEN". Rotate engine with spark plug removed to discharge excess fuel. Clean spark plug.
		Clogged air cleaner	Clean
		Faulty carburetor	+
		Incorrect grade/type of fuel	Replace gasoline
		Water in fuel	
	No spark or weak spark	Faulty spark plug	Replace spark plug
Faulty ignition coil and/or igniter		*	
Engine switch left in "OFF" position		Turn engine switch to "ON" position	
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 build-up in combustion chamber	*
		Poor ventilation around engine	Select a better location
	Engine speed won't increase	Faulty governor	*

A remedy marked with "*" requires special proficiency and tools. See your authorized Kawasaki Engine Dealer unless you have the proper equipment and mechanical proficiency.

WIRING DIAGRAM



- A: Engine
- B: Spark plug
- C: Ignition coil
- D: Igniter
- E: Stop switch
- F: Control lever
- G: Interlock switch

Portion surrounded by hatching shows
KAWASAKI procurement parts.