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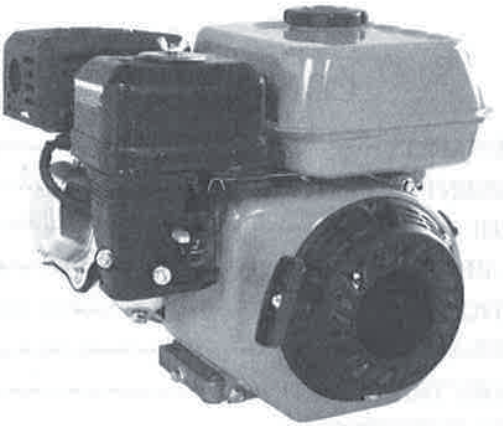
BRUGSANVISNING TIL BENZINMOTOR

Gasoline Engine

Owner's Manual

168F • 168F-1 • 170F
173F • 177F • 182F • 188F • 190F



Keep this owner's manual handy, so you can refer to it at any time.

This owner's manual is considered a permanent part of the engine and should remain with the engine if resold.

The information and specifications included in this publication were in effect at the time of approval for printing.

Only the Type with electric starter is equipped for both electric and manual starting.

READ THIS OWNER'S MANUAL CAREFULLY. Pay special attention to these symbols and any instructions that follow:

⚠DANGER **Indicates serious injury or death will result if instructions are not followed.**

⚠WARNING **Indicates a strong possibility that serious injury or death could result if instructions are not followed.**

⚠CAUTION **Indicates a possibility that minor injury or an result if instructions are not followed.**

NOTICE **Indicates that equipment or property damage can result if instructions are not followed.**

NOTE: Gives helpful information.

If a problem should arise, or if you have any questions about your engine, consult your engine dealer.

CONTENTS

1. ENGINE SAFETY

IMPORTANT SAFETY INFORMATION

Most accidents with engines can be prevented if you follow all instructions in this manual and on the engine. Some of the most common hazards are discussed below, along with the best way to protect yourself and others.

Owner Responsibilities

- The engines are designed to give safe and dependable service if operated according to instructions. Read and understand this owner's manual before operating the engine. Failure to do so could result in personal injury or equipment damage.
- Know how to stop the engine quickly, and understand the operation of all controls. Never permit anyone to operate the engine without proper instructions.
- Do not allow children to operate the engine. Keep children and pets away from the area of operation.

Refuel With Care

Gasoline is extremely flammable, and gasoline vapor can explode. Refuel outdoors, in a well-ventilated area, with the engine stopped. Never smoke near gasoline, and keep other flames and sparks away. Always store gasoline in an approved container. If any fuel is spilled, make sure the area is dry before starting the engine.

Hot Exhaust

- 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 it indoors.
- To prevent fire hazards and to provide adequate ventilation for stationary equipment applications, keep the engine at least 3 feet (1 meter) away from building walls and other equipment during operation. Do not place flammable objects close to the engine.

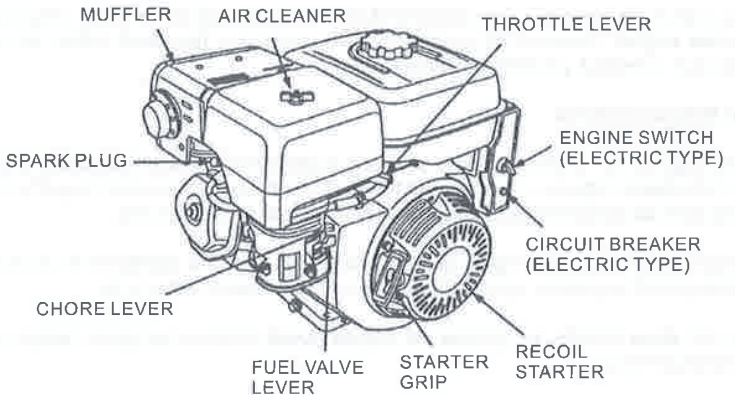
Carbon Monoxide Hazard

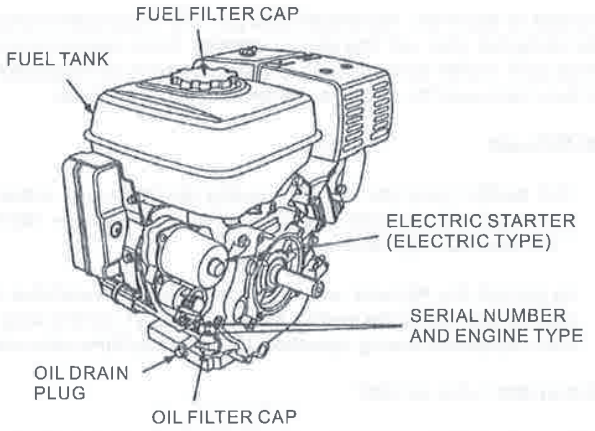
Exhaust gas contains poisonous carbon monoxide. Avoid inhalation of exhaust gas. Never run the engine in a closed garage or confined area.

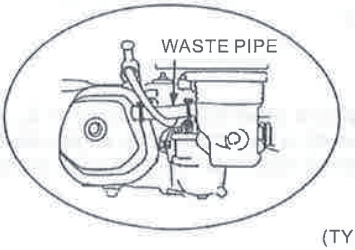
Other Equipment

Review the instructions provided with the equipment powered by this engine for any additional safety precautions that should be observed in conjunction with engine startup, shutdown, operation, or protective apparel that may be needed to operate the equipment.

2. COMPONENTS & CONTROL LOCATIONS





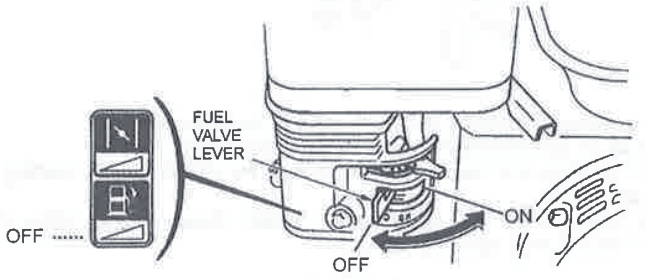


(TYPE WITH ELECTRIC STARTER)

3. CONTROLS

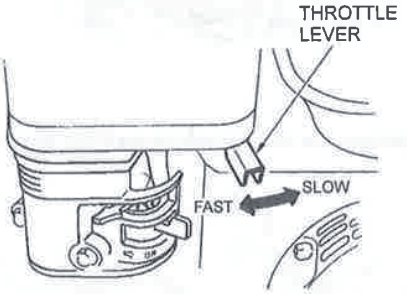
Fuel Valve Lever

The fuel valve opens and closes the passage between the fuel tank and the carburetor.
The fuel valve lever must be in the ON position for the engine to run.
When the engine is not in using, leave the fuel valve lever in the OFF position to prevent carburetor flooding and to reduce the possibility of fuel leakage.



Throttle Lever

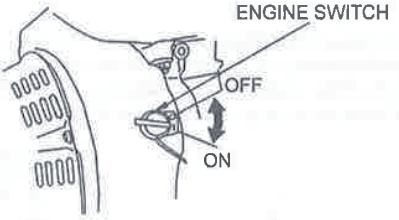
The throttle lever controls engine THROTTLE LEVER speed.
Moving the throttle lever in the directions shown makes the engine run faster or slower.



Engine Switch

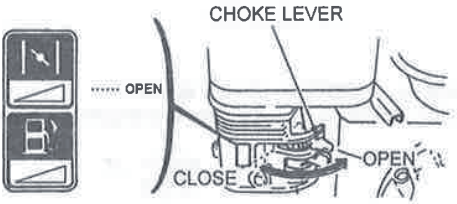
The engine switch enables and disables the ignition system.
The engine switch must be in the ON position for the engine to run.
Turning the engine switch to the OFF position stops the engine.

ALL ENGINE EXCEPT TYPE WITH ELECTRIC STARTER



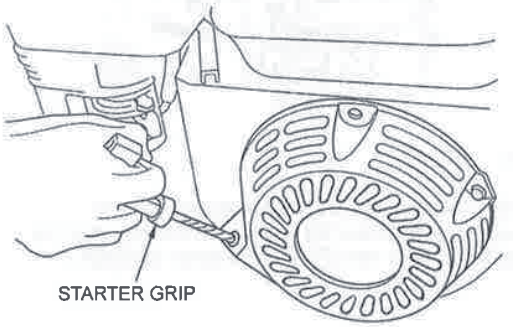
Choke Lever

The choke lever opens and closes the choke valve in the carburetor.
The CLOSE position enriches the fuel mixture for starting a cold engine.
The OPEN position provides the correct fuel mixture for operation after starting, and for restarting a warm engine.
Some engine applications use a remotely-mounted choke control rather than the engine-mounted choke lever shown here.



Recoil Starter Grip

Pulling the starter grip operates the recoil starter to crank the engine.



4. CHECK BEFORE OPERATION

IS YOUR ENGINE READY TO GO?

For your safety, and to maximize the service life of your equipment, it is very important to take a few moments before you operate the engine to check its condition. Be sure to take care of any problem you find, or have your servicing dealer correct it, before you operate the engine.

⚠WARNING **Improperly maintaining this engine, or failing to correct a problem before operation, could cause a malfunction in which you could be seriously injured.**

⚠WARNING **Always perform a preoperation inspection before each operation, and correct any problem.**

Before beginning your preoperation checks, be sure the engine is level and the engine switch is in the OFF position.

Check the General Condition of the Engine

- Look around and underneath the engine for signs of oil or gasoline leaks.
- Remove any excessive dirt or debris, especially around the muffler and recoil starter.
- Look for signs of damage.
- Check that all shields and covers are in place, and all nuts, bolts, and screws are tightened.

Check the Engine

Check the engine oil level. Running the engine with a low oil level can cause engine damage.
The Oil Alert system (applicable engine types) will automatically stop the engine before the oil level falls below safe limits. However, to avoid the inconvenience of an unexpected shutdown, always check the engine oil level before startup.
Check the air filter. A dirty air filter will restrict air flow to the carburetor, reducing engine performance.
Check the fuel level. Starting with a full tank will help to eliminate or reduce operating interruptions for refueling.

Check the Equipment Powered by This Engine

Review the instructions provided with the equipment powered by this engine for any precautions and procedures that should be followed before engine startup.

5. OPERATION

SAFE OPERATING PRECAUTIONS

Before operating the engine for the first time, please review the ***IMPORTANT SAFETY INFORMATION*** and the chapter titled ***BEFORE OPERATION***.

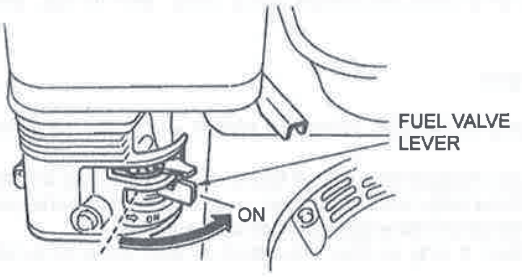
⚠WARNING **Carbon monoxide gas is toxic. Breathing it can cause unconsciousness and even kill you.**

⚠WARNING **Avoid any areas or actions that expose you to carbon monoxide.**

Review the instructions provided with the equipment powered by this engine for any safety precautions that should be observed in conjunction with engine startup, shutdown, or operation.

STARTING THE ENGINE

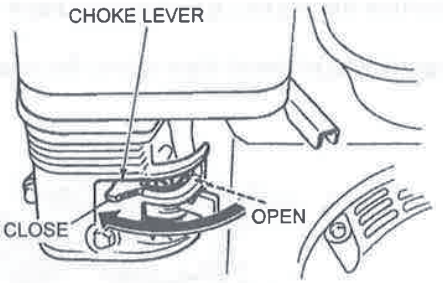
1. Move the fuel valve lever to the ON position.



2. To start a cold engine, move the choke lever to the CLOSE position.

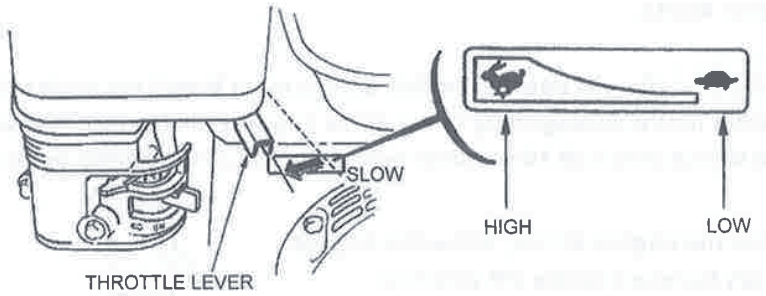
   To restart a warm engine, leave the choke lever in the OPEN position.

   Some engine applications use a remotely-mounted choke control rather than the engine-mounted choke lever shown here.

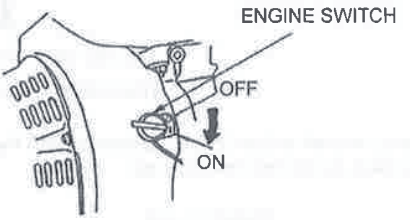


3. Move the throttle lever away from the SLOW position, about 1/3 of the way toward the FAST position.

   Some engine applications use a remotely-mounted throttle control rather than the engine-mounted throttle lever shown here.



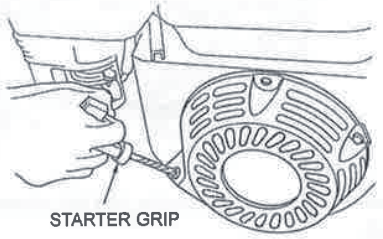
4. Turn the engine switch to the ON position.



5. Operate the starter.

- RECOIL STARTER (all engine types):
  Pull the starter grip lightly until you feel resistance, then pull briskly.

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



- **WITH ELECTRIC STARTER:**

Turn the engine switch to the START position and hold it there until the engine starts.

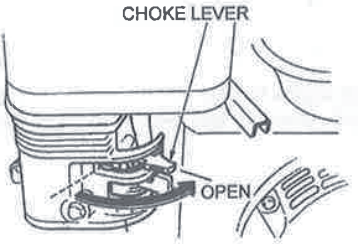
NOTICE **Do not use the electric starter more than 5 seconds otherwise starter motor damage may occur. If the engine fails to start, release the switch and wait 10 seconds before operating the starter again.**

When the engine starts, allow the engine switch to return to the ON position.

ENGINE SWITCH

(TYPE WITH ELECTRIC STARTER)

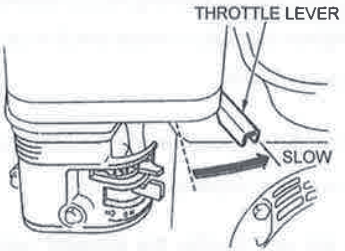
6. If the choke lever has been moved to the CLOSE position to start the engine, gradually move it to the OPEN position as the engine warms up.



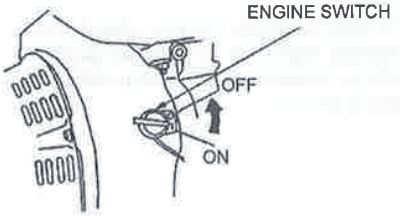
STOPPING THE ENGINE

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

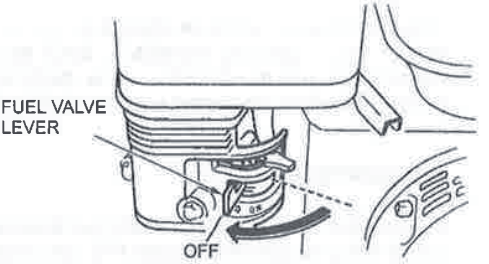
1. Move the throttle lever to the SLOW position.
   Some engine applications use a remotely-mounted throttle control rather than the engine-mounted throttle lever shown here.



2. Turn the engine switch to the OFF position.



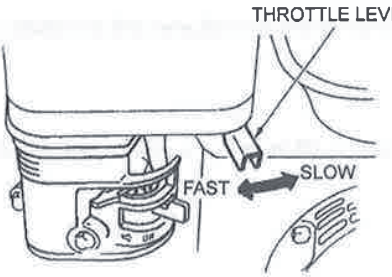
3. Turn the fuel valve lever to the OFF position.



SETTING ENGINE SPEED

Position the throttle lever for the desired engine speed.

For engine speed recommendations, refer to the instructions provided with the equipment powered by this engine.



6. MAINTENANCE

THE IMPORTANCE OF MAINTENANCE

Good maintenance is essential for safe, economical, and trouble-free operation. It will also help reduce air pollution.

⚠WARNING Improperly maintaining the engine, or failure to correct a problem before operation can cause a malfunction in which you can be seriously hurt or killed.

⚠WARNING Always follow the inspection and maintenance recommendations and schedules in this owner' s manual.

To help you properly care for your engine, the following pages include a maintenance schedule, routine inspection procedures, and simple maintenance procedures using basic hand tools. Other service tasks that are more difficult, or require special tools, are best handled by professionals and are normally performed by a technician or other qualified mechanic.

The maintenance schedule applies to normal operating conditions. If you operate your engine under unusual conditions, such as sustained high-load or high-temperature operation, or use in unusually wet or dusty conditions, consult your servicing dealer for recommendations applicable to your individual needs and use.

MAINTENANCE SAFETY

Some of the most important safety precautions are as follows: However, we cannot warn you of every conceivable hazard that can arise in performing maintenance. Only you can decide whether or not you should perform a given task.

⚠WARNING Failure to properly follow maintenance instructions and precautions can cause you to be seriously hurt or killed.

⚠WARNING Always follow the procedures and precautions in the owner's manual.

Safety Precautions

- Make sure the engine is off before you begin any maintenance or repairs. This will

eliminate several potential hazards:

- **Carbon monoxide poisoning from engine exhaust.**
  Be sure there is adequate ventilation whenever you operate the engine.
- **Burns from hot parts.**
  Let the engine and exhaust system cool before touching.
- **Injury from moving parts.**
  Do not run the engine unless instructed to do so.

- Read the instructions before you begin, and make sure you have the tools and skills required.

- To reduce the possibility of fire or explosion, be careful when working around gasoline. Use only a nonflammable solvent, not gasoline, to clean parts. Keep cigarettes, sparks and flames away from all fuel-related parts.

Remember that your servicing dealer knows your engine best and is fully equipped to maintain and repair it.

To ensure the best quality and reliability, use only new, genuine parts or their equivalents for repair and replacement.

MAINTENANCE SCHEDULE

REGULAR SERVICE PERIOD Performed at every indicated month or operating hour interval, whichever comes first. ITEM			Each use	First month or 20 Hrs.	Every 3 months or 50 Hrs.	Every 6 months or 100 Hrs.	Every year or 300 Hrs.
•	Engine oil	Check level	○				
		Change		○		○	
•	Air cleaner	Check	○				
		Clean			○(1)		
		Replace					○
•	Sediment Cup	Clean				○	
•	Spark plug	Check-Clean				○	
		Replace					○
	Spark arrester (optional parts)	Clean				○	
•	Idle speed	Check-Adjust					○(2)
•	Valve clearance	Check-Adjust					○(2)
•	Fuel tank and strainer	Clean					○(2)
•	Combustion chamber	Clean	After every 300 Hrs. (2)				
•	Fuel line	Check	Every 2 years (Replace if necessary) (2)				

- Emission-related items.

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

(2) These items should be serviced by your servicing dealer unless you have the proper tools and are mechanically proficient. Refer to manual for service procedures.

REFUELING

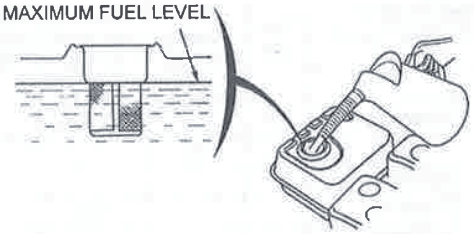
Fuel tank capacities

168F, 168F-1, 170F: 3.6L
173F, 177F, 182F, 188F, 190F: 6.0L

With the engine stopped, remove the fuel tank cap and check the fuel level. Refill the tank if the fuel level is low.

⚠WARNING **Gasoline is highly flammable and explosive. You can be burned or seriously injured when handling fuel.**

- **Stop the engine and keep heat, sparks, and flame away.**
- **Handle fuel only outdoors.**
- **Wipe up spills immediately.**



Refuel in a well-ventilated area before starting the engine. If the engine has been running, allow it to cool. Refuel carefully to avoid spilling fuel. Do not fill above the fuel strainer shoulder. After refueling, tighten the fuel tank cap securely.

Never refuel the engine inside a building where gasoline fumes may reach flames or sparks. Keep gasoline away from appliance pilot lights, barbecues, electric appliances, power tools, etc.

Spilled fuel is not only a fire hazard, it causes environmental damage. Wipe up spills immediately.

NOTICE ***Fuel can damage paint and plastic. Be careful not to spill fuel when filling your fuel tank. Damage caused by spilled fuel is not covered under warranty.***

FUEL RECOMMENDATIONS

Use unleaded gasoline with a pump octane rating of 86 or higher.

These engines are certified to operate on unleaded gasoline. Unleaded gasoline produces fewer engine and spark plug deposits and extends exhaust system life.

Never use stale or contaminated gasoline or an oil/gasoline mixture. Avoid getting dirt or water in the fuel tank.

Occasionally you may hear a light "spark knock" or "pinging" (metallic rapping noise) while operating under heavy loads. This is no cause for concern.

If spark knock or pinging occurs at a steady engine speed, under normal load, change brands of gasoline. If spark knock or pinging persists, see an authorized servicing dealer.

NOTICE

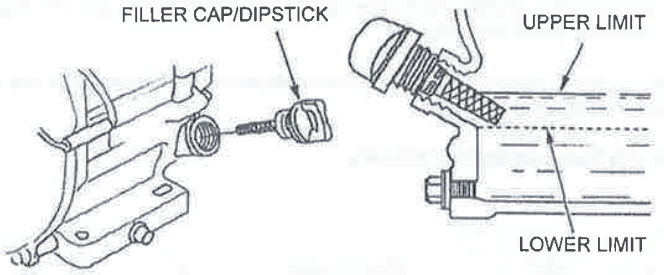
Running the engine with persistent spark knock or pinging can cause engine damage.

Running the engine with persistent spark knock or pinging is considered misuse, and the Distributor's Limited Warranty does not cover parts damaged by misuse.

ENGINE OIL LEVEL CHECK

Check the engine oil level with the engine stopped and in a level position.

1. Remove the filler cap/dipstick and wipe it clean.



2. Insert and remove the dipstick without screwing it into the filler neck. Check the oil level shown on the dipstick.

3. If the oil level is low, fill to the edge of the oil filler hole with the recommended oil.

4. Screw in the filler cap/dipstick securely.