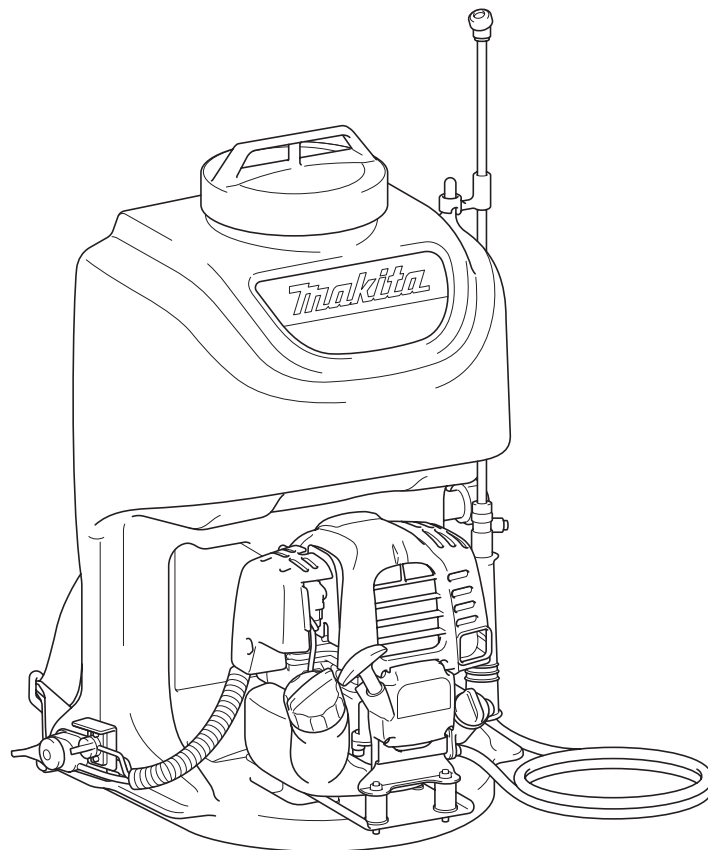




## Power Sprayer

### EF1550RH

#### INSTRUCTION MANUAL



**Important:**

Read this instruction manual carefully before putting the Power Sprayer into operation and strictly observe the safety regulations!

Preserve instruction manual carefully!

Thank you very much for purchasing the MAKITA Power Sprayer. We are pleased to recommend to you the MAKITA Power Sprayer which is the result of a long development programme and many years of knowledge and experience. Please read this booklet which refers in detail to the various points that will demonstrate its outstanding performance. This will assist you to obtain the best possible result from your MAKITA Power Sprayer.



















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## SYMBOLS

You will note the following symbols when reading the instructions manual.

	Read instruction manual and follow the warnings and safety precautions!		Wear protective helmet, eye and ear protection!
	Take Particular care and attention!		Fuel (Gasoline)
	Forbidden!		Engine-manual start
	No smoking!		Emergency stop
	No open flame!		First Aid
	Protective gloves must be worn!		Recycling
	Wear sturdy boots with nonslip soles. Steeltod safety boots are recommended!		ON/START
	Keep the area of operation clear of all persons and pets!		OFF/STOP

# SAFETY INSTRUCTIONS

## General Instructions

- To ensure correct operation, user has to read this instruction manual to make himself familiar with the handling of the Power Sprayer. Users insufficiently informed will risk danger to themselves as well as others due to improper handling.
- It is recommended only to lend the Power Sprayer to people who have proven to be experienced with Power Sprayers. Always hand over the instruction manual.
- First users should ask the dealer for basic instructions to familiarize oneself with the handling of an Power Sprayer.
- Children and young persons aged under 18 years must not be allowed to operate the Power Sprayer. Persons over the age of 16 years may however use the device for the purpose of being trained only whilst under supervision of a qualified trainer.
- Use Power Sprayers with the utmost care and attention.
- Operate the Power Sprayer only if you are in good physical condition. Perform all work calmly and carefully. The user has to accept liability for others.
- Never use the Power Sprayer after consumption of alcohol or drugs, or if feeling tired or ill.

## Intended use of the machine

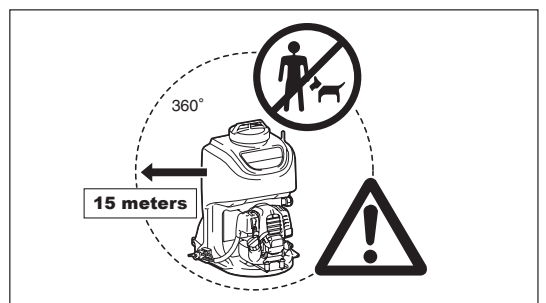
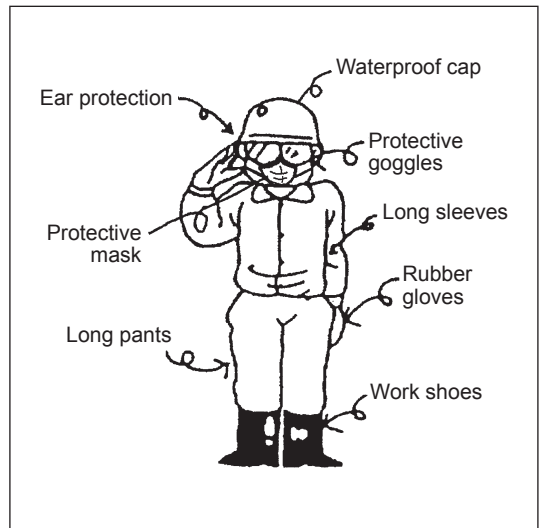
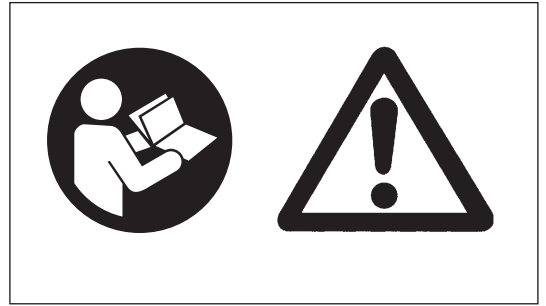
- The Power Sprayer is designed for use in controlling vegetation and eradication of insects. Do not use this sprayer for any other purpose.

## Personal protective equipment

- Please wear clothing that is functional and tight-fitting, without restricting movement when operating the Power Sprayer. Do not wear clothing or jewelry that could get tangled with foliage or the machine.
- For adequate protection against head, eye, feet, hand, and hearing injuries, the following protective equipment and clothing must be used when working with the Power Sprayer.
  1. Always wear adequate face protection (mask, protective goggles, etc.) to protect the face, eyes and lungs from dust and chemicals.
  2. To avoid hearing damage, wear adequate hearing protection at all times.
  3. To protect skin from dust and chemicals, wear work clothes with long sleeves and long pants at all times.
  4. Always wear rubber gloves when operating or servicing the Power Sprayer.
  5. When using the Power Sprayer, always wear sturdy shoes with non-slip soles. Special work shoes are available to ensure good footing and protect against injury.
- Always secure loose clothing, hair, and accessories such as towels etc. Loose objects may become tangled in moving parts of the machine and cause serious injury.

## Starting up the Power Sprayer

- Please make sure that there are no children or other people within a working range of 15 meters (50 ft), also pay attention to any animals in the working vicinity.
- Before use always check that the Power Sprayer is safe for operation: Check to make sure the control lever operates smoothly.
- Check for clean and dry handles and test the function of the start/stop switch.

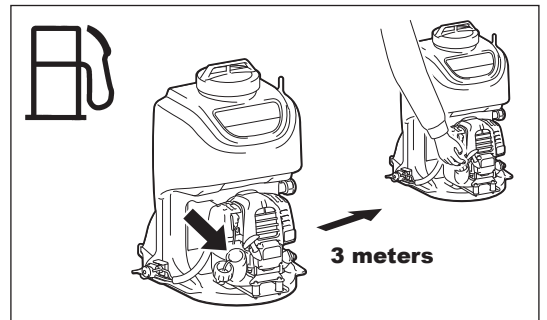
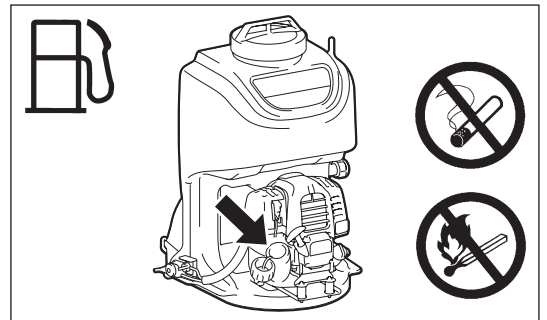
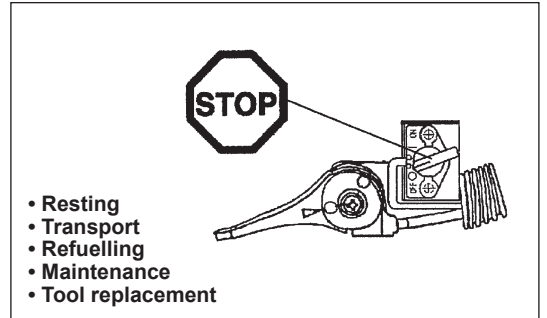
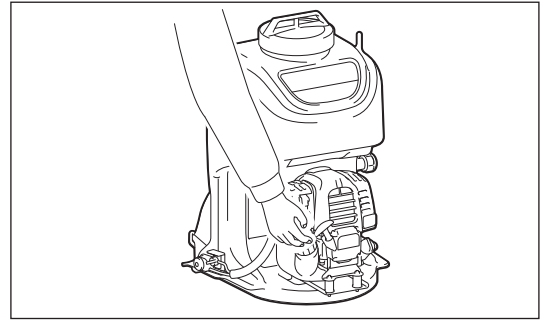


Start the Power Sprayer only in accordance with the instructions.

- Do not use any other methods for starting the engine!
- Use the Power Sprayer and the tools only for such applications as specified.
- Only start the Power Sprayer engine, after the entire assembly is done. Operation of the device is only permitted after all the appropriate accessories are attached!
- The engine is to be switched off immediately in case of any engine problems.
- During operation always hold the grip with both hands. Always ensure a safe footing.
- Operate the Power Sprayer in such a manner as to avoid inhalation of the exhaust gases. Never run the engine in enclosed rooms (risk of gas poisoning). Carbon monoxide is an odorless gas.
- Switch off the engine when resting and when leaving the Power Sprayer unattended, and place it in a safe location to prevent danger to others or damage to the machine.
- Never put the hot Power Sprayer onto dry grass or onto any combustible materials.
- Never operate the engine with faulty exhaust muffler.
- Shut off the engine during transport.
- During transport over long distances the tool protection included with the equipment must always be used.
- Ensure safe position of the Power Sprayer during car transportation to avoid fuel leakage.
- When transporting the Power Sprayer, ensure that the fuel tank is completely empty.
- When unloading the Power Sprayer from the truck, never drop the Engine to the ground or this may severely damage the fuel tank.
- Except in case of emergency, never drop or cast the Power Sprayer to the ground or this may severely damage the Power Sprayer.
- Remember to lift the entire equipment from the ground when moving the equipment. Dragging the fuel tank is highly dangerous and will cause damage and leakage of fuel, possibly causing fire.

### Refuelling

- Shut off the engine during refuelling, keep away from open flames and do not smoke.
- Avoid skin contact with mineral oil products. Do not inhale fuel vapor. Always wear protective gloves during refuelling. Change and clean protective clothing at regular intervals.
- Take care not to spill either fuel or oil in order to prevent soil contamination (environmental protection). Clean the Power Sprayer immediately after fuel has been spilt.
- Avoid any fuel contact with your clothing. Change your clothing instantly if fuel has been spilt on it (to prevent clothing catching fire).
- Inspect the fuel cap at regular intervals making sure that it can be securely fastened and does not leak.
- Carefully tighten the fuel tank cap. Change location to start the engine (at least 3 meters away from the place of refuelling).
- Never refuel in closed rooms. Fuel vapors accumulate at ground level (risk of explosions).
- Only transport and store fuel in approved containers. Make sure the fuel stored is not accessible to children.



Observe the relevant accident prevention instructions issued by the relevant trade associations and by the insurance companies.  
Do not perform any modifications on the Power Sprayer as this will endanger your safety.

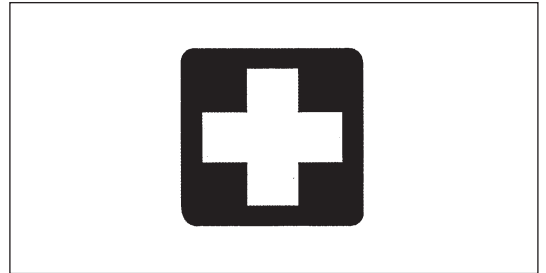
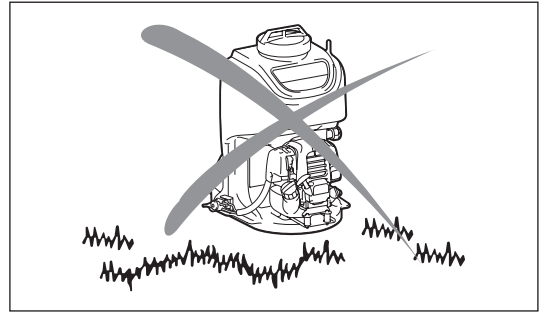
The performance of maintenance or repair work by the user is limited to those activities as described in the instruction manual. All other work is to be done by an Authorized Service Agent. Use only genuine spare parts and accessories released and supplied by MAKITA.  
Use of non-approved accessories and tools means increased risk of accidents. MAKITA will not accept any liability for accidents or damage caused by the use of non-approved Power Sprayer, or accessories.

### First Aid

In case of accident make sure that a first-aid box is available in the vicinity of the spraying operations. Immediately replace any item taken from the first aid box.

### When asking for help, please give the following information:

- Place of accident
- What happened
- Number of injured persons
- Kind of injuries
- Your name



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### Packaging

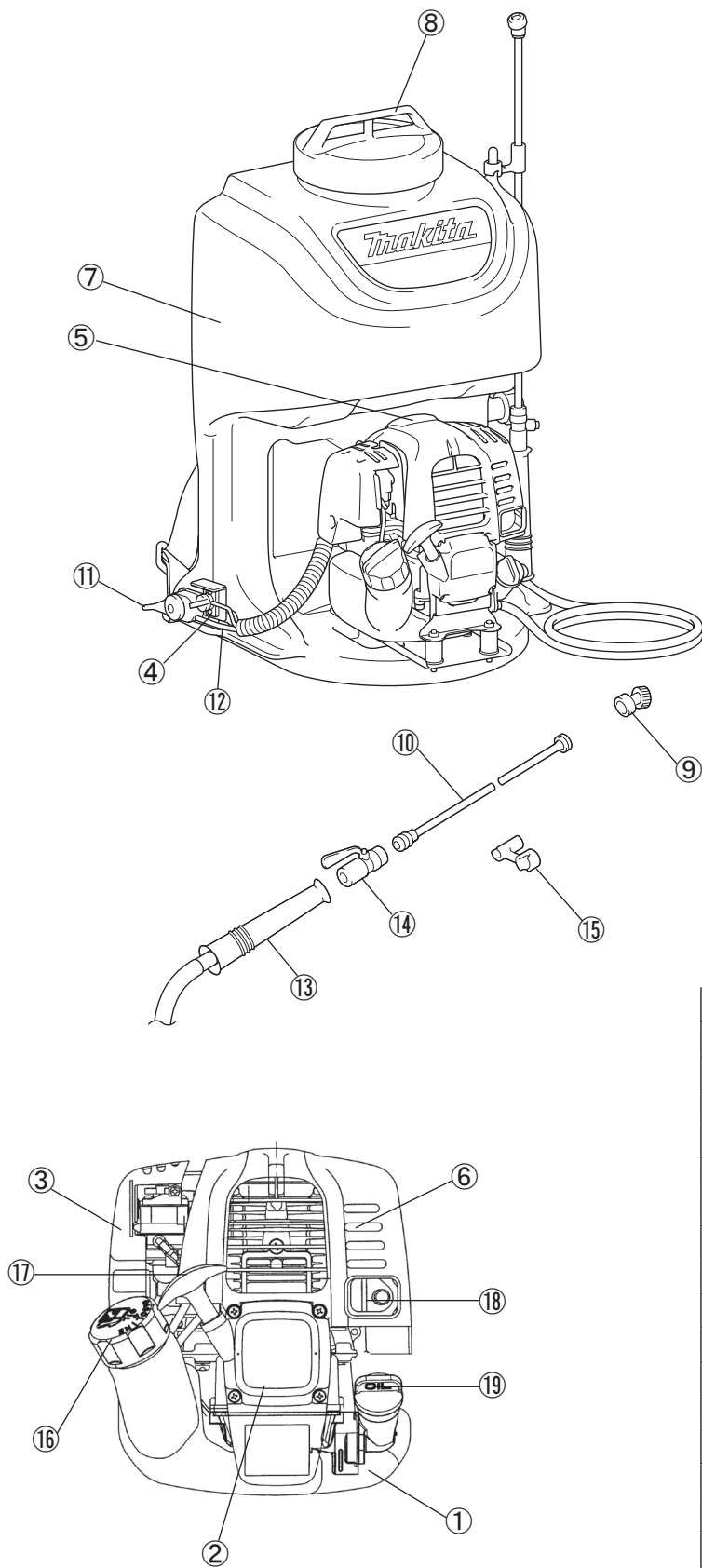
The MAKITA Power Sprayer will be delivered in two protective cardboard boxes to prevent transport damage. Cardboard is a basic raw material and is therefore consequently reusable or suitable for recycling (waste paper recycling).



## TECHNICAL DATA EF1550RH

Model		EF1550RH
Dimensions: length x width x height	mm	345 x 395 x 570
Mass	kg	7.4
Volume (fuel tank)	L	0.6
Volume (oil tank)	L	0.08
Engine displacement	cm <sup>3</sup>	24.5
Maximum fuel consumption	kg/h	0.33
Maximum specific fuel consumption	g/kwh	408
Idling speed	min <sup>-1</sup>	3,400
Carburetor	type	WALBRO WYL
Ignition system	type	Solid state ignition
Spark plug	type	NGK CMR4A
Electrode gap	mm	0.7 - 0.8
Fuel		Automobile gasoline
Engine Oil		SAE 10W-30 oil of API Classification, Class SF or higher (4-stroke engine for automobile)
Pump type		Rotary type
Maximum pressure	MPa	1.2
Tank capacity (chemical)	L	15

## DESIGNATION OF PARTS



GB	DESIGNATION OF PARTS
1	Fuel tank
2	Rewind starter
3	Air cleaner
4	I-O switch (on/off)
5	Spark plug
6	Exhaust muffler
7	Chemical tank
8	Chemical tank cap
9	Nozzle
10	Nozzle pipe
11	Control lever
12	Control cable
13	Spray hose
14	Nozzle lever
15	Nozzle pipe holder
16	Fuel filler cap
17	Starter knob
18	Exhaust pipe
19	Oil cap

# ASSEMBLY INSTRUCTIONS

CAUTION: Before performing any work on the Power Sprayer, always switch off the motor and pull the spark plug connectors off the spark plug.  
Always wear protective gloves!

CAUTION: Start the Power Sprayer only after having assembled it completely.



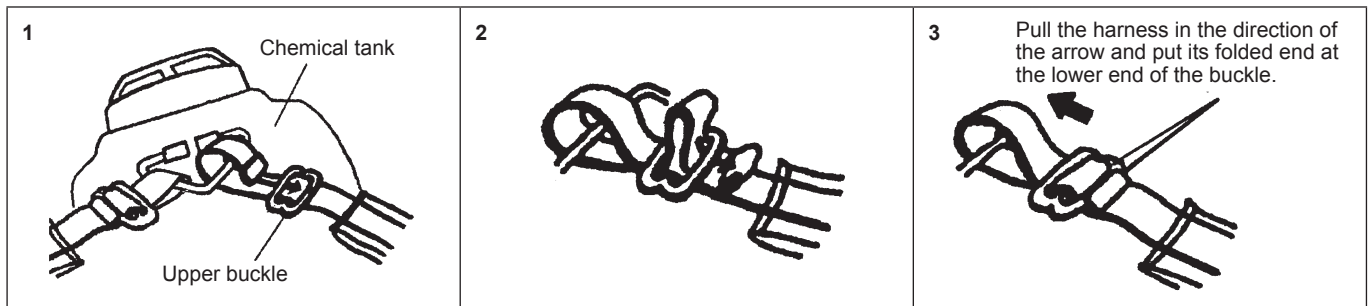
## 1. ASSEMBLY OF NOZZLE

Refer to the figure on the previous page (DESIGNATION OF PARTS) to assemble handgrip, nozzle lever, nozzle pipe and nozzle. Be careful to put parts together properly to prevent leaks.

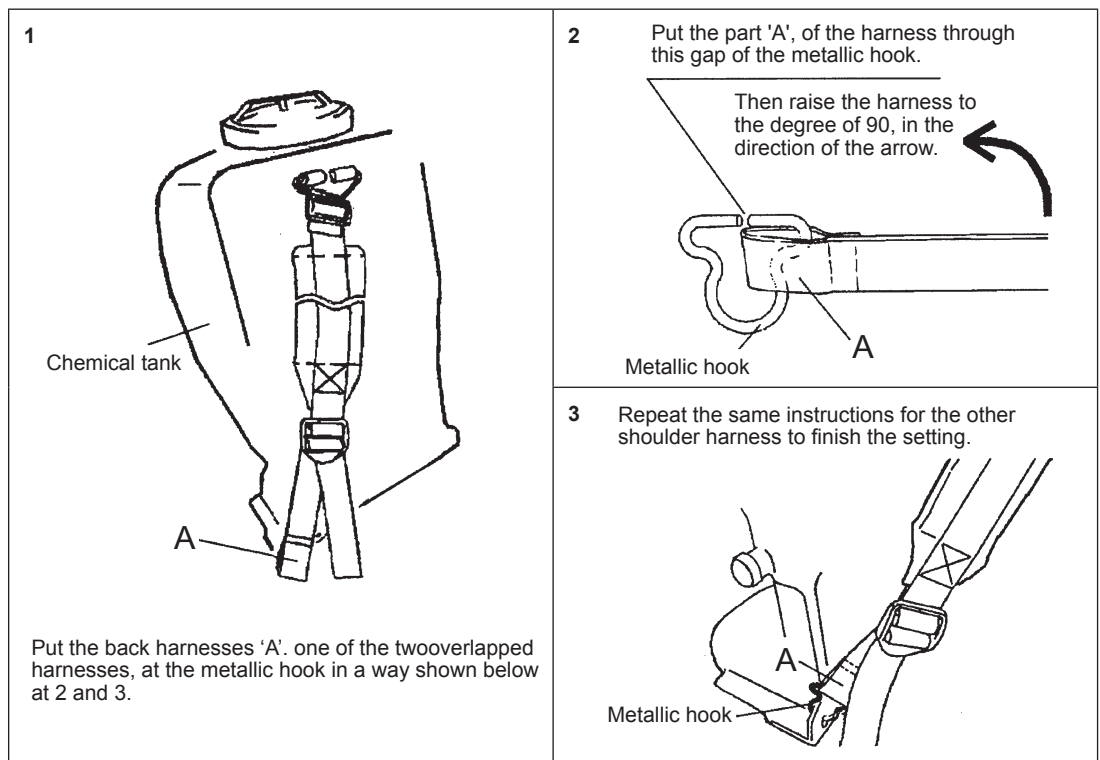
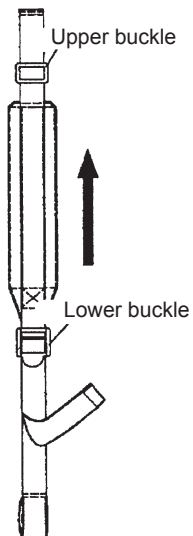
## 2. SETTING OF SHOULDER HARNESS

Set the two shoulder harnesses on a chemical tank in a way shown below without any twists of the shoulder harnesses. Instructions are given about the ones for one of the shoulder harnesses.

### Setting upper part of shoulder harness



### Setting lower part of shoulder harness





## BEFORE START OF OPERATION

### Inspection and refill of engine oil

- Perform the following procedure, with the engine cooled down.
- Set the engine level, remove oil cap (Fig. 1), and check to see whether or not there is oil in the range between the upper limit and lower limit marks of the oil pipe (Fig. 2).
- Top up with oil to upper limit mark if oil is insufficient (oil level is close to lower limit mark) (Fig. 3).
- The area surrounding the external marks is transparent, so the amount of oil inside can be checked without having to remove the oil cap. However, if oil pipe becomes extremely dirty, visibility may be lost, and oil level will have to be checked against stepped section on inside of oil pipe.
- For reference, the oil refill time is about 10h (10 times or 10 tanks of oil refill).  
If the oil changes in color or mixes with dirt, replace it with new one. (For the interval and method of replacement, refer to P 15)

**Recommended oil:** SAE 10W-30 oil of API Classification, Class SF or higher (4-stroke engine for automobile)

**Oil volume:** Approx. 0.08L

Note: If the engine is not kept upright, oil may go into around the engine, and may be refilled excessively.

If the oil is filled above the limit, the oil may be contaminated or may catch fire with white smoke.

#### Point 1 in Replacement of oil: "Oil gauge"

- Remove dust or dirt near the oil refill port, and detach the oil gauge.
- Keep the detached oil gauge free of sand or dust. Otherwise, any sand or dust adhering to the oil gauge may cause irregular oil circulation or wear on the engine parts, which will result in troubles.

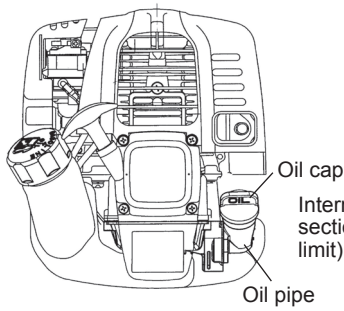


Fig. 1

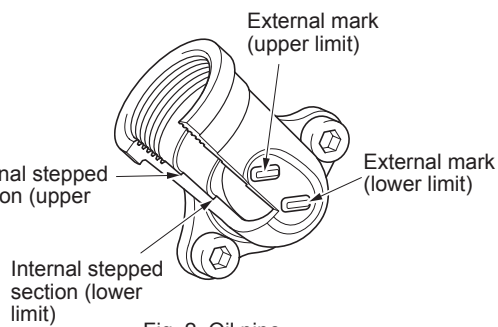


Fig. 2 Oil pipe

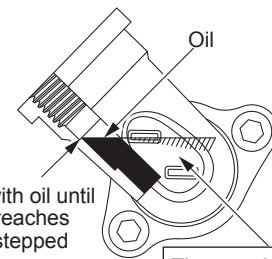
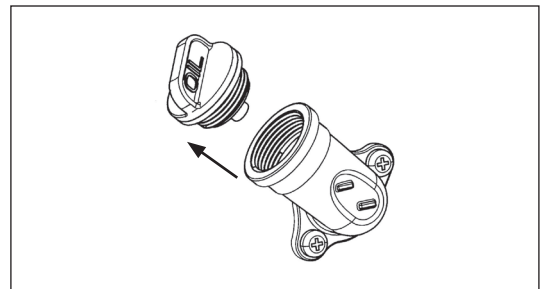


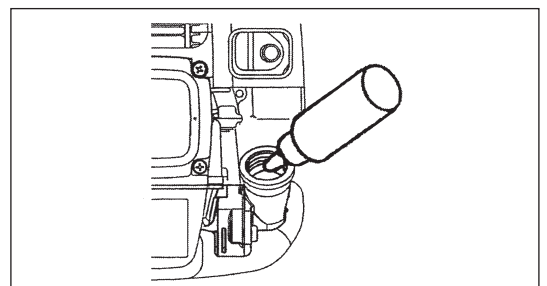
Fig. 3

The area between the external upper and lower limits is transparent, so oil level can be checked externally against these marks.

- (1) Keep the engine level, and detach the oil cap.



- (2) Fill with oil to upper limit mark. (see Fig. 3)  
Use oil bottle when filling.



- (3) Securely tighten the oil cap. Insufficient tightening may cause oil leakage.

### Point 2 in Replacement of oil: "If oil spills out"

- If oil spills out between the fuel tank and engine main unit, the oil is sucked into through the cooling air intake port, which will contaminate the engine. Be sure to wipe out spilled oil before start of operation.

## REFUELING

### Handling of fuel

It is necessary to handle fuel with utmost care. Fuel may contain substances similar to solvents. Refueling must be performed in a sufficiently ventilated room or in the open air. Never inhale fuel vapor, and keep fuel away from you. If you touch fuel repeatedly or for a long time, the skin becomes dry, which may cause skin disease or allergy. If fuel enters into the eye, clean the eye with fresh water. If your eye remains still irritated, consult your doctor.

### Storage period of fuel

Fuel should be used up within a period of 4 weeks, even if it is kept in a special container in a well-ventilated shade. If a special container is not used or if the container is not covered, fuel may deteriorate in one day.

### STORAGE OF MACHINE AND REFILL TANK

- Keep the machine and tank at a cool place free from direct sunshine.
- Never keep the fuel in the cabin or trunk.

## Fuel

The engine is a four-stroke engine. Be sure to use an automobile gasoline (regular gasoline or premium gasoline).

### Points for fuel

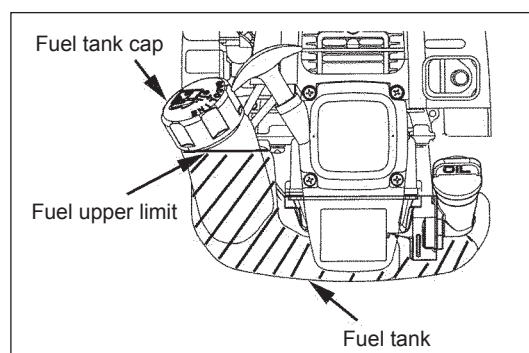
- Never use a gasoline mixture which contains engine oil. Otherwise, it will cause excessive carbon accumulation or mechanical troubles.
- Use of deteriorated oil will cause irregular startup.

## Refueling

### WARNING: INFLAMMABLES STRICTLY PROHIBITED

**Gasoline used:** Automobile gasoline (unleaded gasoline)

- Loosen the tank cap a little so that there will be no difference in atmospheric pressure.
  - Detach the tank cap, and refuel, discharging air by tilting the fuel tank so that the refill port will be oriented upward. (Never refill fuel full to the oil refill port.)
  - Wipe well the periphery of the tank cap to prevent foreign matter from entering into the fuel tank.
  - After refueling, securely tighten the tank cap.
- If there is any flaw or damage on the tank cap, replace it.
  - The tank cap is consumable, and therefore should be renewed every two to three years.



## MIXING AGRICULTURAL CHEMICALS

### 1) Mixing agricultural chemicals

1. Agricultural chemicals are toxic. When working with agricultural chemicals, strictly follow the instructions provided by the manufacturer at all times.
2. Always use the provided strainer when pouring agricultural chemicals into the chemical tank.
3. Firmly tighten the chemical tank cap to prevent leaks.
4. If chemicals are to be mixed inside the chemical tank, always add water before other agricultural chemicals.



### CAUTION:

- Always handle agricultural chemicals with the utmost care. Should your skin come into contact with agricultural chemicals by accident, immediately rinse the affected area with large amounts of water.

### 2) Using a different type of chemical agent

1. Take extra care to thoroughly rinse the sprayer tank, pump and nozzle before adding different chemical agents to the sprayer tank. Mixing the residues of previously used agricultural chemicals with other chemical agents may cause toxin-induced diseases.

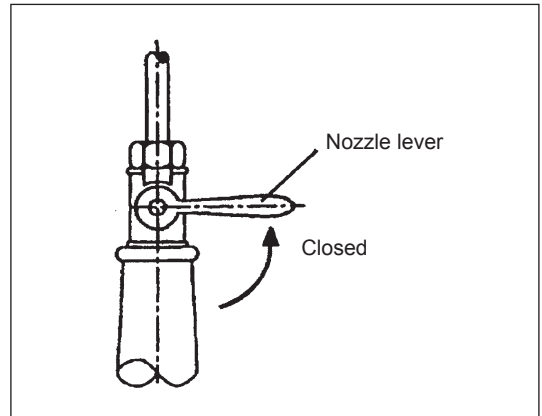
## POINTS IN OPERATION AND HOW TO STOP

Observe the applicable accident prevention regulations!



### WARNING:

- Do not start the engine at the fueling site. Always move at least three meters away from fueling site and then start engine.
  - Failure to do so may cause a fire outbreak.
- Engine exhaust emissions are poisonous. Do not use the sprayer in poorly ventilated locations, such as indoors or in tunnels, etc.
  - If the sprayer is used in a poorly ventilated location, exhaust gas poisoning may occur.
- After starting the engine, if an abnormal noise, smell and/or vibration is noticed, switch off engine immediately, and investigate the cause.
  - If the sprayer is used while such an abnormality is occurring, an accident may occur.
- When operating the switch to stop engine, be sure to check that engine has stopped.

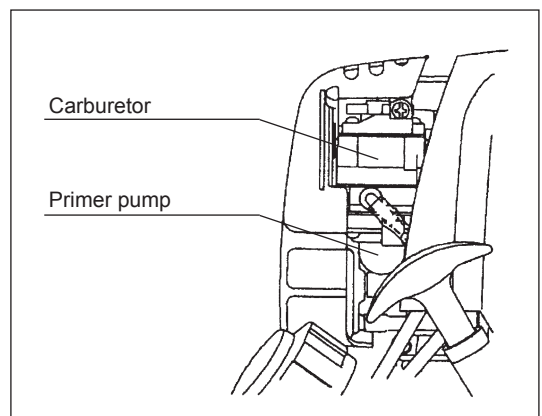
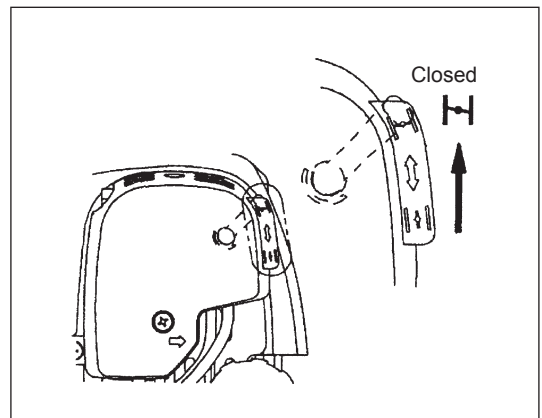
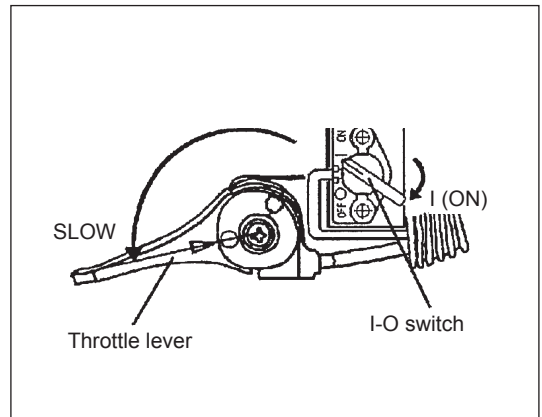


### CAUTION:

- Always put chemical in chemical tank before starting engine for use (to prevent no-load running). At this time, also check that the spray valve is closed.

### A: Cold start

- 1) Set this machine on a flat space.
- 2) Set the I-O switch to OPERATION.
- 3) Make sure that the throttle lever is the SLOW position.
- 4) Choke lever
  - Close choke lever.
  - Choke opening
    - During cold spells or when engine is cold, open the choke fully.
    - When restarting engine directly after use, open choke halfway or fully.
- 5) Primer pump
  - Continue to push the primer pump until fuel enters into the primer pump. (In general, fuel enters into the primer pump by 7 to 10 pushes.)
  - If the primer pump is pushed excessively, an excess of gasoline returns to the fuel tank.



6) Recoil starter

Pull the start knob gently until it is hard to pull (compression point). Then, return the start knob, and pull it strongly.

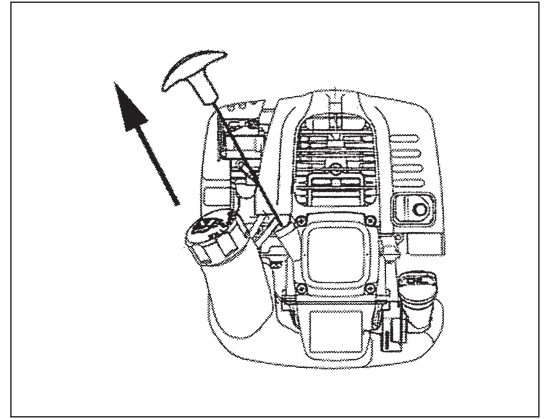
Never pull the rope to the full. Once the start knob is pulled, never release your hand immediately. Hold the start knob until it returns to its original point.

7) Choke lever

Open the choke lever if engine begins to startup.

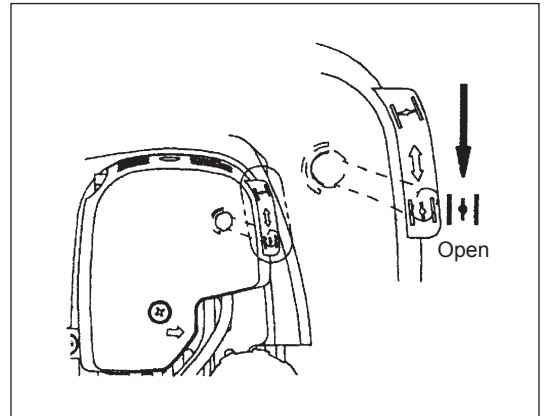
- Gradually open the choke lever according to the state of the engine, but always open fully in the end.
- Suddenly pulling the choke lever open during a cold spell or when the engine is cold may stop the engine.

Please use the choke lever with care.



8) Warm-up operation

Continue warm-up operation for 2 to 3 minutes.



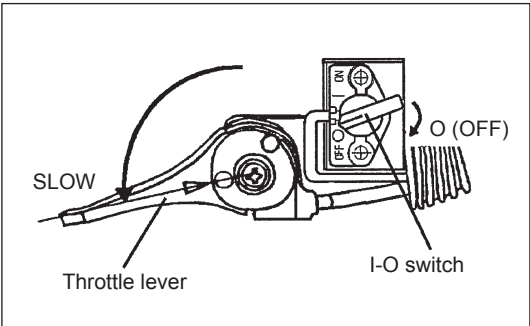
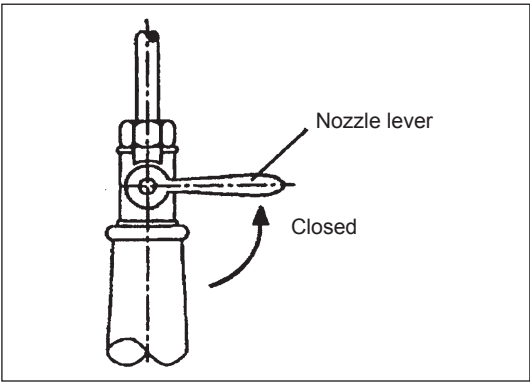
Note: In case of excessive fuel intake, remove the spark plug and pull the starter handle slowly to remove excess fuel. Also, dry the electrode section of the spark plug.

**B: Startup after warm-up operation**

- 1) Push the primer pump repeatedly.
- 2) Keep the throttle lever at the idling position.
- 3) Pull the recoil starter strongly.
- 4) If it is difficult to start the engine, open the throttle by about 1/3.

**STOPPING**

- 1) Close spray valve.
- 2) Set throttle lever to low speed (idling position).
- 3) Set stop switch to stop position.

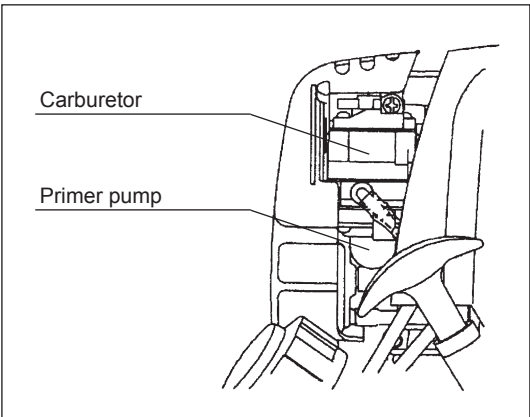


**ADJUSTMENT OF LOW-SPEED ROTATION (IDLING)**

When it is necessary to adjust the low-speed rotation (idling), perform it by the carburetor adjusting screw.

**CHECKUP OF LOW-SPEED ROTATION**

- Set the low-speed rotation to 3,400 min<sup>-1</sup>.  
If it is necessary to change the rotation speed, regulate the adjusting screw (illustrated on the right), with Phillips screwdriver.
- Turn the adjusting screw to the right, and the engine rotation will increase. Turn the adjusting screw to the left, and the engine rotation will drop.
- The carburetor is generally adjusted before shipment. If it is necessary to readjust it, please contact Authorized Service Agent.



**OPERATION**

- 1) Once the engine starts, adjust the length of the shoulder straps so that the sprayer will be as near to your body as possible, and then set the sprayer on your back.



**Using one-touch shoulder straps**

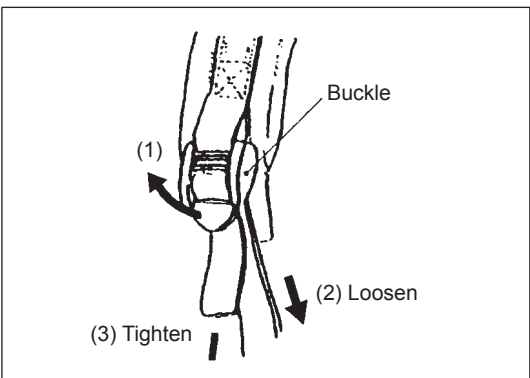
Strap length is adjusted in the following ways.

- Loosening strap
  - (1) Raise buckle.
  - (2) Pull the side of the strap that is attached to the sprayer.
- Tightening strap
  - (3) Pull the unattached end of the strap.

Note: When tightening strap, the strap will move comparatively smoothly if there is no load (weight) on the strap.

- 2) Use the throttle lever to adjust the amount of spray according to the spray work involved.

\* The amount of spray also can be adjusted by using the spray valve.



**CAUTION:**

- If possible, spray downwind, and take full care not to get chemical liquid on your body.

- Only use the Power Sprayer in good light and visibility conditions. Never use the Power Sprayer at night. Do not use the Power Sprayer during rainfall or immediately after rain (danger of injury through slipping and falling in wet conditions).
- Beware of slippery and wet areas (ice and snow) as there is a danger of slipping, and always ensure secure footing.
- Never use the Power Sprayer while standing on a ladder.
- Never climb a tree to use the Power Sprayer from the tree.
- Never use the Power Sprayer while standing on an unstable surface.
- Do not point the nozzle of the Power Sprayer towards people or animals. Flying debris may cause serious injury.
- Do not touch the spark plug connector while the engine is running.
- Do not touch moving parts of the Power Sprayer while the engine is running.
- Do not touch the muffler or other engine parts during operation or for a period after the engine has stopped. These engine parts are extremely hot and may cause serious burns.
- Ensure that the toxicity of the pesticides or herbicides to be used is known before use, and carefully read related use instructions to familiarize yourself with the proper procedures for using the chemicals in question. If pesticides/herbicides come in contact with your skin, immediately rinse the affected area and thoroughly wash with soap. Firmly tighten the cap of the sprayer tank in order to avoid chemical leaks.



If spray is interrupted, or force weakens, and/or engine suddenly starts to rev high, the chemical tank is empty. Close spray valve, reduce engine revs, stop engine, and then replenish chemical.



## SERVICING INSTRUCTIONS

**CAUTION:** Before doing any work on the Power Sprayer, always stop the engine and pull the plug cap off the spark plug (see “checking the spark plug”).  
Always wear protective gloves!

To ensure a long service life and to avoid any damage to the equipment, the following servicing operations should be performed at regular intervals.

### Daily checkup and maintenance

- Before operation, check the machine for loose screws or missing parts.
- Before operation, always check for clogging of the cooling air passage and the cylinder fins. Clean them if necessary.
- Perform the following work daily after use:
  - Clean the Power Sprayer externally and inspect for damage.
  - Clean the air filter. When working under extremely dusty conditions, clean the filter the several times a day.
- Check the functioning of the I-O switch, the lock-off lever, the control lever, and the lock button.

## REPLACEMENT OF ENGINE OIL

Deteriorated engine oil will shorten the life of the sliding and rotating parts to a great extent. Be sure to check the period and quantity of replacement.

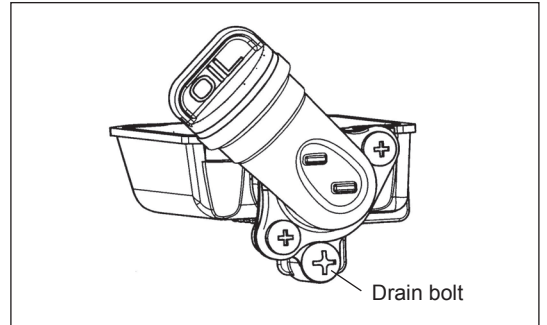


**ATTENTION:** In general, the engine main unit and engine oil still remain hot just after the engine is stopped. In replacement of oil, confirm that the engine main unit and engine oil are sufficiently cooled down. Otherwise, there may remain a risk of scald.

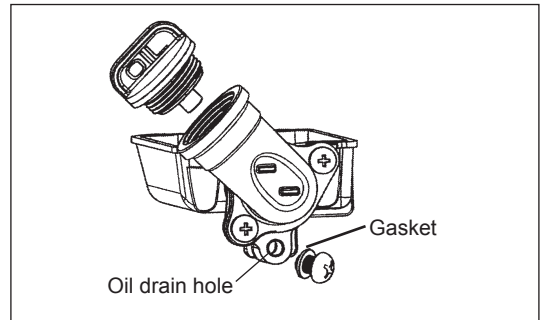
**Note:** If the oil filled above the limit, it may be contaminated or may catch fire with white smoke.

**Interval of replacement:** Initially, every 20 operating hours, and subsequently every 50 operating hours  
**Recommended oil:** SAE10W-30 oil of API Classification SF Class or higher (4-stroke engine oil for automobile)

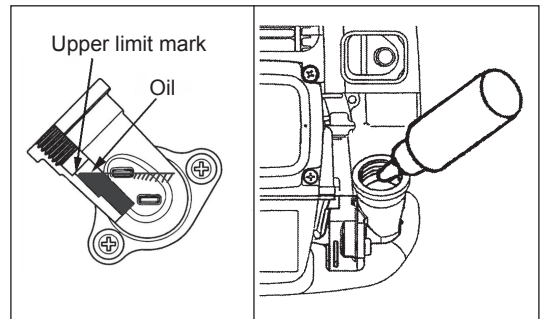
- 1) Remove drain bolt. At this time, be sure not to mislay drain bolt's gasket. Also, be sure to place both items in a clean location where they will not become dirty.



- 2) Remove drain bolt and then remove oil cap to drain out oil from drain hole.
- 3) Once the oil has been drained, combine gasket and drain bolt, and tightly secure drain bolt, so that it will not loosen and cause leaks.  
\* Use cloth to fully wipe off any oil attached to bolt and equipment.



- 4) Set the engine level, and gradually fill up to upper limit mark with new oil.
- 5) After filling, tightly secure oil cap, making sure that it does not become loose. If oil cap becomes loose, oil may leak out.



### POINTS ON OIL

- Never discard replaced engine oil in garbage, earth or sewage ditch. Disposal of oil is regulated by law. In disposal, always follow the relevant laws and regulations. For any points remaining unknown, contact Authorized Service Agent.
- Oil will deteriorate even when it is kept unused. Perform inspection and replacement at regular intervals (replace with new oil every 6 months).

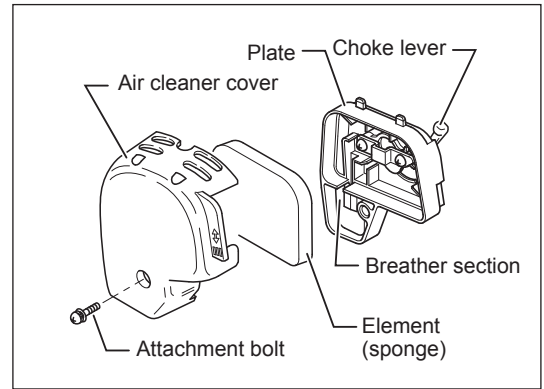
## CLEANING OF AIR CLEANER



**DANGER: INFLAMMABLES STRICTLY PROHIBITED**

**Interval of Cleaning and Inspection: Daily (every 10 operating hours)**

- Remove the air cleaner cover attachment bolt.
- Pull the bottom of the cover to remove the air cleaner cover.
- Fully close choke lever to prevent dust and dirt getting into carburetor. When element (sponge) becomes dirty with oil, squeeze it with full force.
- When the element (sponge) is extremely dirty, remove it, and wash in neutral detergent diluted with warm or cold water, and dry thoroughly.
- Reassemble the element after thorough drying. Insufficiently dried element may cause poor engine starting.
- Use rag to wipe off oil from around area of air cleaner cover and plate's breather section.
- As soon as cleaning is finished, replace air cleaner cover, and tightly secure bolt. (For mounting, clip on upper hook edge and then clip on lower hook edge.)



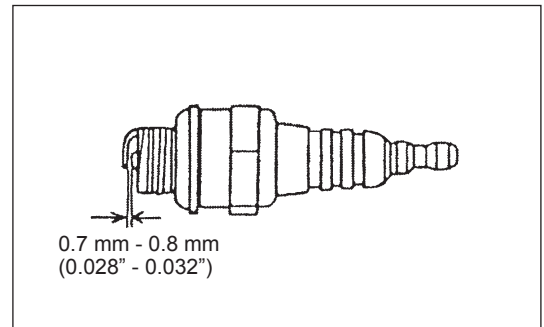
### Points in Handling Air Cleaner Element

- Clean the element several times a day, if excessive dust adheres to it.
- If operation continues with the element remaining not cleared of oil, oil in the air cleaner may fall outside, resulting in oil contamination.

## CHECKING THE SPARK PLUG

- Only use the supplied universal wrench to remove or to install the spark plug.
- The gap between the two electrodes of the spark plug should be 0.7 - 0.8 mm (0.028" - 0.032"). If the gap is too wide or too narrow, adjust it. If the spark plug is clogged or contaminated, clean it thoroughly or replace it.

**CAUTION:** Never touch the spark plug connector while the engine is running (danger of high voltage electric shock).



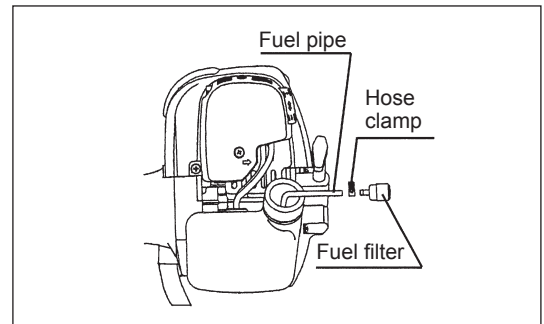
## CLEANING OF FUEL FILTER

**WARNING: INFLAMMABLES STRICTLY PROHIBITED**

**Interval of Cleaning and Inspection: Monthly (every 50 operating hours)**

### Suction head in the fuel tank

- The fuel filter (1) of the suction head is used to filter the fuel required by the carburetor.
- A periodical visual inspection of the fuel filter is to be conducted. For that purpose open the tank cap, use a wire hook and pull out the suction head through the tank opening. Filters found to have hardened, been polluted or clogged up are to be replaced.
- Insufficient fuel supply can result in the admissible maximum speed being exceeded. It is therefore important to replace the fuel filter at least quarterly to ensure satisfactory fuel supply to the carburetor.





## REPLACEMENT OF FUEL PIPE

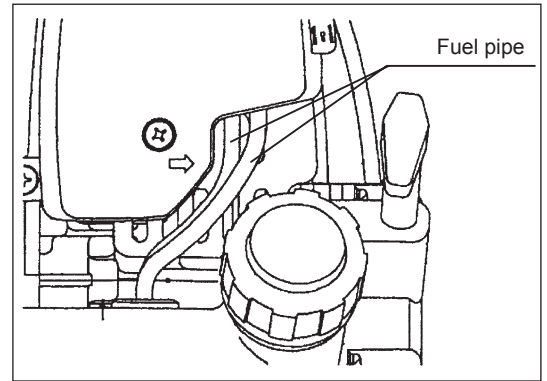
### CAUTION: INFLAMMABLES STRICTLY PROHIBITED

Interval of Cleaning and Inspection: Daily (every 10 operating hours)

Replacement: Annually (every 200 operating hours)

Replace the fuel pipe every year, regardless of operating frequency. Fuel leakage may lead to fire.

If any leakage is detected during inspection, replace the oil pipe immediately.



## INSPECTION OF BOLTS, NUTS AND SCREWS

- Retighten loose bolts, nuts, etc.
- Check for fuel and oil leakage.
- Replace damaged parts with new ones for safety operation.

## CLEANING OF PARTS

- Keep the engine always clean.
- Keep the cylinder fins free of dust or dirt. Dust or dirt adhering to the fins will cause piston seizure.

## REPLACEMENT OF GASKETS AND PACKINGS

In reassembling after the engine is dismantled, be sure to replace the gaskets and packings with new ones.

Any maintenance of adjustment work that is not included and described in this manual is only to be performed by Authorized Service Agents.

- Be kind to the environment. Operate the Power Sprayer with as little noise and pollution as possible. In particular check the correct adjustment of the carburetor.
- Clean the Power Sprayer at regular intervals and check that all screws and nuts are securely tightened.
- Never service or store the Power Sprayer in the vicinity of open flames, sparks, etc.
- Always store the Power Sprayer in a well-ventilated locked room and with an emptied fuel tank.

## STORAGE



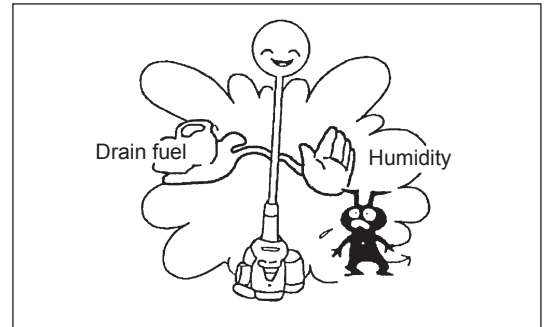
**WARNING:** When draining the fuel, be sure to stop the engine and confirm that the engine cools down.

Just after stopping the engine, it may still hot with possibility of burns, inflammability and fire.



**ATTENTION:** When the machine is kept out of operation for a long time, drain up all fuel from the fuel tank and carburetor, and keep it at a dry and clean place.

- Drain up fuel from the fuel tank and carburetor according to the following procedure:
  - 1) Remove the fuel tank cap, and drain fuel completely.  
If there is any foreign matter remaining in the fuel tank, remove it completely.
  - 2) Pull out the fuel filter from the refill port using a wire.
  - 3) Push the primer pump until fuel is drained from there, and drain fuel coming into the fuel tank.
  - 4) Reset the filter to the fuel tank, and securely tighten the fuel tank cap.
  - 5) Then, continue to operate the engine until it stops.
- Remove the spark plug, and drip several drops of engine oil through the spark plug hole.
- Gently pull the starter handle so that engine oil will spread over the engine, and attach the spark plug.
- During storage, keep the rod horizontal or keep the machine upright with the branch edge oriented upward. (In this case, pay full attention to prevent the machine from falling.)
- Keep the drained fuel in a special container in a well-ventilated shade.



### Attention after long-time storage

- Before startup after long-time shutdown, be sure to replace oil (refer to P 15). Oil will deteriorate while the machine is kept out of operation.

### Fault location

Fault	System	Observation	Cause
Engine not starting or with difficulty	Ignition system	Ignition spark O.K.	Fault in fuel supply or compression system, mechanical defect
		No ignition spark	STOP-switch operated, wiring fault or short circuit, spark plug or connector defective, ignition module faulty
	Fuel supply	Fuel tank filled	Carburetor defective, fuel supply line bent or blocked, fuel dirty
	Compression	No compression when pulled over	Cylinder bottom gasket defective, crankshaft seals damaged, cylinder or piston rings defective or improper sealing of spark plug
Warm start problems	Mechanical fault	Starter not engaging	Broken starter spring, broken parts inside of the engine
		Tank filled ignition spark existing	Carburetor contaminated, have it cleaned
Engine starts but dies	Fuel supply	Tank filled	Incorrect idling adjustment, carburetor contaminated Fuel tank vent defective, fuel supply line interrupted, cable or STOP-switch faulty
Insufficient performance	Several systems may simultaneously be affected	Engine idling poor	Air filter contaminated, carburetor contaminated, muffler clogged, exhaust duct in the cylinder clogged

Item	Operating time	Before operation	After lubrication	Daily (10h)	30h	50h	200h	Shutdown/rest	Corresponding P
Engine oil	Inspect/clean	○							9
	Replace					○*1			15
Tightening parts (bolt, nut)	Inspect	○							17
Fuel tank	Clean/inspect	○							—
	Drain fuel							○*3	18
Throttle lever	Check function		○						—
Stop switch	Check function		○						13
Low-speed rotation	Inspect/adjust			○					13
Air cleaner	Clean			○					16
Ignition plug	Inspect			○					16
Cooling air duct	Clean/inspect			○					16
Fuel pipe	Inspect			○					16
	Replace						◎*2		—
Fuel filter	Clean/replace					○			16
Clearance between air intake valve and air discharge valve	Adjust						◎*2		—
Engine overhaul							◎*2		—
Carburetor	Drain fuel							○*3	18

\*1 Perform initial replacement after 20h operation.

\*2 For the 200 operating hour inspection, request Authorized Service Agent or a machine shop.

\*3 After emptying the fuel tank, continue to run the engine and drain fuel in the carburetor.

## TROUBLESHOOTING

Before making a request for repairs, check a trouble for yourself. If any abnormality is found, control your machine according to the description of this manual. Never tamper or dismount any part contrary to the description. For repairs, contact Authorized Service Agent or local dealership.

State of abnormality	Probable cause (malfunction)	Remedy
Engine does not start	Failure to operate primer pump	Push 7 to 10 times
	Low pulling speed of starter rope	Pull strongly
	Lack of fuel	Feed fuel
	Clogged fuel filter	Clean
	Broken fuel tube	Straighten fuel tube
	Deteriorated fuel	Deteriorated fuel makes starting more difficult. Replace with new one. (Recommended replacement: 1 month)
	Excessive suction of fuel	Set throttle lever from medium speed to high speed, and pull starter handle until engine starts. If engine will not start still, remove spark plug, make electrode dry, and reassemble them as they originally are. Then, start as specified.
	Detached plug cap	Attach securely
	Contaminated spark plug	Clean
	Abnormal clearance of spark plug	Adjust clearance
	Other abnormality of spark plug	Replace
	Abnormal carburetor	Make request for inspection and maintenance.
	Starter rope cannot be pulled	Make request for inspection and maintenance.
	Abnormal drive system	Make request for inspection and maintenance.
Engine stops soon Engine speed does not increase	Insufficient warm-up	Perform warm-up operation
	Clogged fuel filter	Clean
	Contaminated or clogged air cleaner	Clean
	Abnormal carburetor	Make request for inspection and maintenance.
	Abnormal drive system	Make request for inspection and maintenance.
Engine does not stop ↓ Run engine at idling	Detached connector	Attach securely
	Abnormal electric system	Make request for inspection and maintenance.

When the engine does not start after warm-up operation:

If there is no abnormality found for the check items, open the throttle by about 1/3 and start the engine.

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