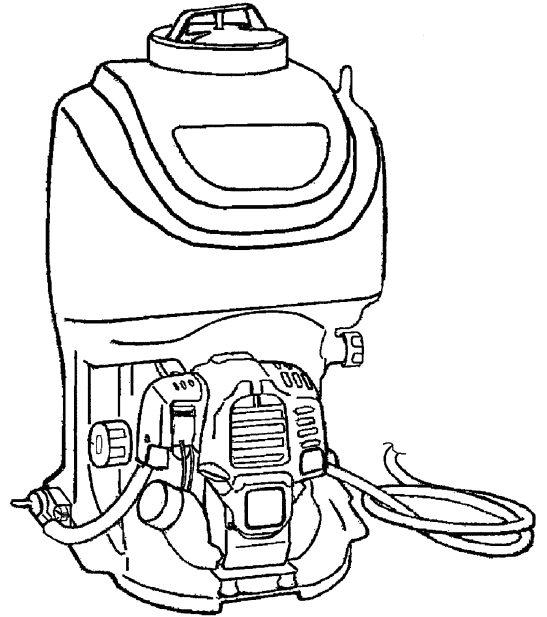




Power Sprayer



EVH2000

ORIGINAL 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 a MAKITA POWER SPRAYER. We are pleased to offer you a product that is the result of an extensive development program and many years of knowledge and experience.

To safely obtain the best possible results from your MAKITA POWER SPRAYER, please read this manual thoroughly before using the machine, and follow all instructions given herein to ensure proper operation.

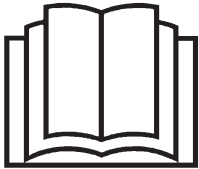


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SYMBOLS

It is very important to understand the following symbols when reading this instruction manual.

	Read, Understand and Follow Instruction Manual		Fuel (Gasoline)
	WARNING/DANGER		Engine-manual Start
	Forbidden		Emergency Stop
	No smoking		First Aid
	No Open Flame		ON/START
	Wear protective gloves		OFF/STOP
	Keep the area of Operation clear of all persons and pets		Recycling
	Wear eye protection, protective mask and ear protection		

SAFETY INSTRUCTIONS

General Instructions

- To ensure correct and safe operation, the user must read, understand and follow this instruction manual to assure familiarity 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 loan the power sprayer to people who have proven to be experienced with power sprayers.
- Always hand over the instruction manual.
- First-time users should ask the dealer for basic instructions to familiarize oneself with the handling of a 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 tool for the purpose of being trained only while under the direct supervision of a qualified trainer.
- Use power sprayer with the utmost care and attention.
- Operate the power sprayer only if you are in good physical condition.
- Perform all work conscientiously and carefully. The user has to accept responsibility for others.
- Never use the power sprayer while under the influence of alcohol or drugs.
- Do not use the unit when you are tired.
- Save these instructions for future referral.

Personal protective equipment

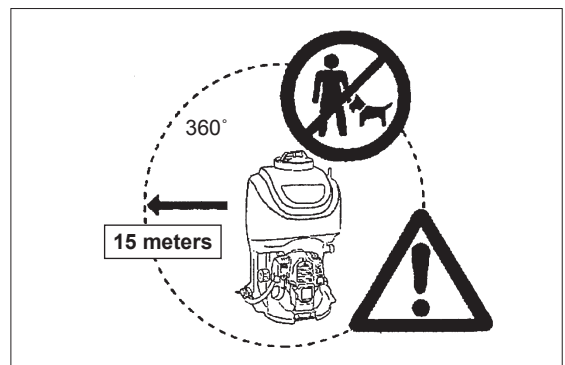
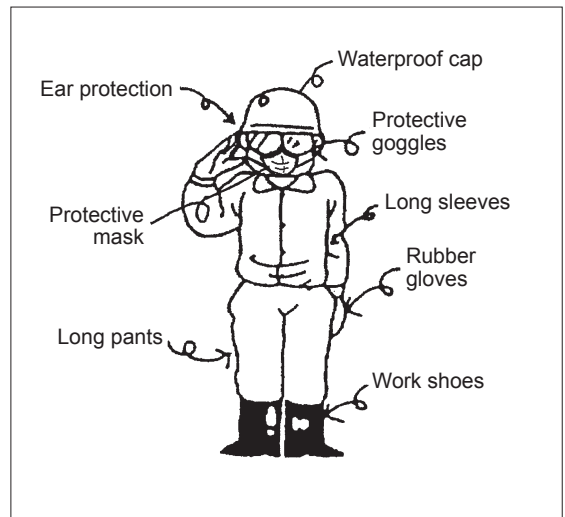
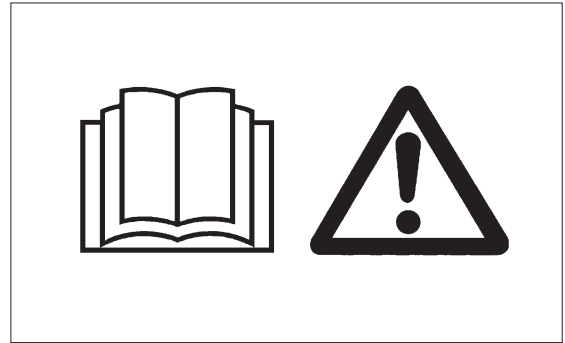
- The clothing worn should be functional and appropriate, i. e. It should be tight-fitting but not cause a hindrance. Do not wear jewelry, clothing or long hair which could be drawn into the air intake.
- In order to avoid head-, eye-, hand- or foot injuries as well as to protect you hearing the following protective equipment and protective clothing must be used during operation of the power sprayer.

Pay particular attention to the following regulations

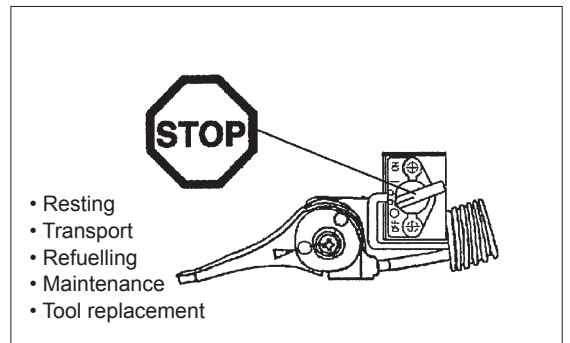
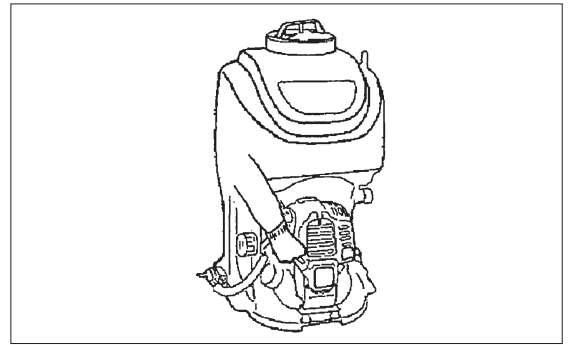
- Please wear clothing that is functional and tight-fitting, without restricting movement when operating the power sprayer. Do not wear clothing or jewelry that could get tangled with foliage or the machine.
- For adequate protection against head, eye, feet, hand, and hearing injuries, the following 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, also pay attention to any animals in the working vicinity. Never use the power sprayer in urban areas.
- Before operating, always check that the power sprayer is safe for operation: Check the security of the throttle lever. The throttle lever should be checked for smooth and easy action. Check for clean and dry throttle lever and test the function of the I-O switch.

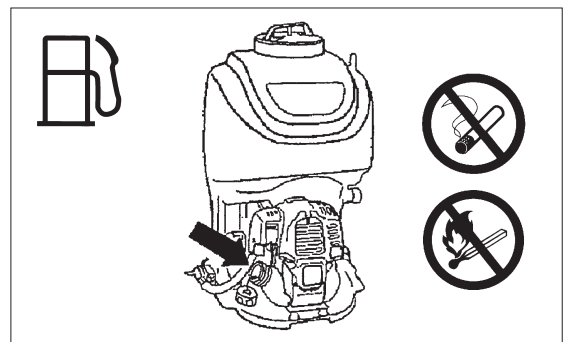


- Before starting the power sprayer, always make sure that the machine is in safe operational condition and check whether the throttle lever is functioning properly.
- Always check for and remove tools used during assembly of the machine. Attached tools may be flung from the engine when it is started, causing serious injury.
- Make sure that the power sprayer is clean and dry and test the STOP switch to ensure that it is functioning properly.
- Stop the engine immediately if experiencing engine problems.
- When operating the power sprayer, take extra care not to inhale exhaust fumes.
- Exhaust fumes are poisonous. Never operate the machine in an enclosed room or an area with insufficient ventilation (risk of suffocation and gas poisoning).
- Do not operate the power sprayer continuously for longer than one hour, and observe a rest time of at least 30 minutes between each working hour.
- Stop the engine when resting or when the power sprayer is left unattended. To protect other people and the power sprayer from damage, place the machine in a safe location and make sure that no combustible material is nearby. Never place a hot power sprayer onto dry grass or combustible material. Placing the machine on dry grass or near combustible material is extremely dangerous and may result in a fire.
- Never operate the engine if the muffler is malfunctioning.
- Always turn off the engine before moving the power sprayer to a new location.
- Wait until the engine has cooled down, empty the fuel tank, and securely attach the power sprayer before transporting the machine in a vehicle.
- Make sure that the fuel tank is completely empty and dry before shipping the power sprayer.



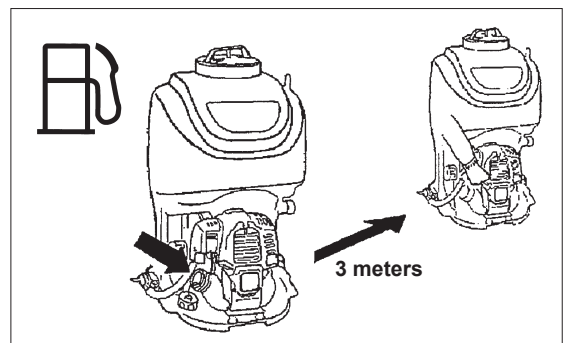
Refueling

- Shut off the engine during refuelling, keep well away from open flame and do not smoke.
- Avoid skin contact with petroleum 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 spilled. Allow wet cloths to dry before disposing in proper, covered container to prevent spontaneous combustion.
- Avoid any fuel contact with your clothing. Change your clothing immediately if fuel has been spilled on it (danger hazard).
- Inspect the fuel cap at regular intervals making sure that it stays securely fastened.
- Carefully tighten the locking screw of the fuel tank. Change locations to start the engine (at least 3 meters away from the place of refuelling).
- Never refuels in closed rooms. Fuel vapors accumulate at ground level (risk of explosions).
- Only transport and store fuel in approved containers. Make sure stored fuel is not accessible to children.
- Do not attempt to refuel a hot or a running engine.



Method of operation

- 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.

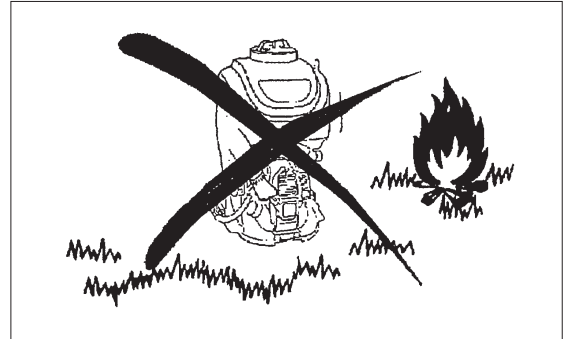
Maintenance instructions

- 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.

Observe and follow all relevant accident prevention instructions issued by the trade associations and by insurance companies. Do not perform any modifications to the power sprayer as this will risk your safety.

The performance of maintenance or repair work by the user is limited to those activities as described in this instruction manual. All other work is to be done by Authorized Service Agents.

Use only genuine spare parts and accessories supplied by MAKITA. Use of non-approved accessories and tools means increased risk of accidents and injuries. MAKITA will not accept any liability for accidents or damage caused by the use of any non-approved attachment or accessories.

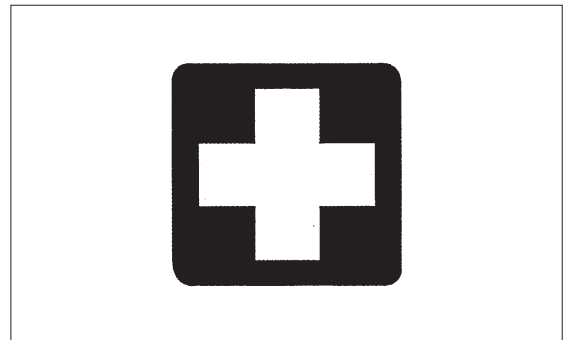


First aid

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

When asking for help, please give the following information:

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



Packaging

- The MAKITA power sprayer is delivered in a protective cardboard box to prevent shipping damage. Cardboard is a basic raw material and is therefore consequently reusable or suitable for recycling (waste paper recycling).



TECHNICAL DATA

Model		EVH2000
Dimensions: (length x width x height)	mm	380 x 420 x 635
Dry weight	kg	9.1
Chemical tank capacity	L	20

Pump

Type		Horizontal opposed twin pistons
Max. Pressure	MPa	2.5
Suction	L	7.1

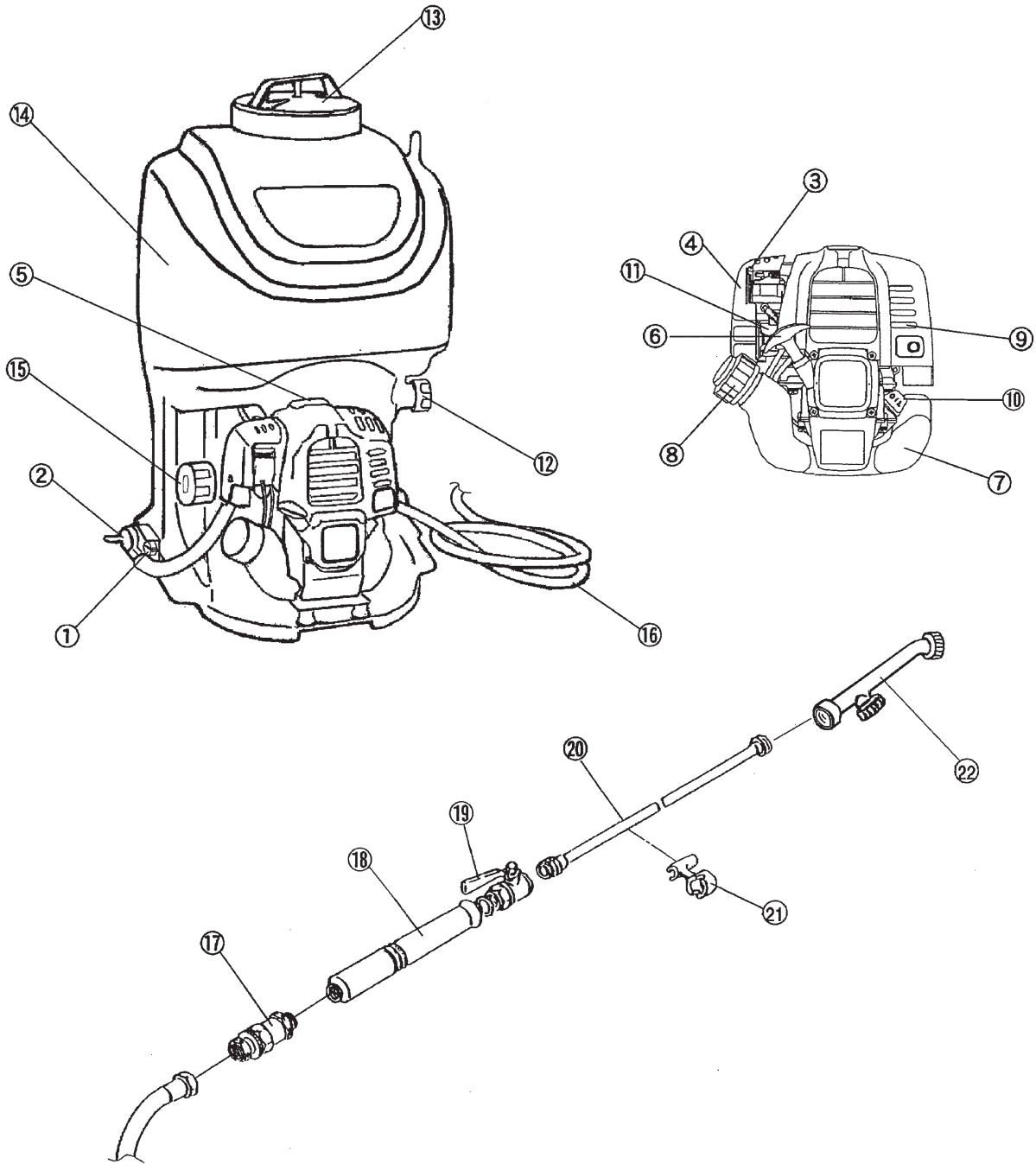
Engine

Model		EH025A
Displacement	cm ³	24.5
Fuel		Automobile gasoline
Fuel tank capacity	L	0.5
Engine oil		SAE 10-W-30 oil API SF or later (4-stroke automobile engine oil)
Engine oil capacity	L	0.08
Carburetor	type	WALBRO WYL
Ignition system	type	Solid state ignition
Spark plug	type	NGK CMR6A (C type)
Electrode gap	mm	0.7 - 0.8

Note: 1. Use the oil and spark plug specified by MAKITA.

2. This specification is subject to change without prior notice.

DESIGNATION OF PARTS



No.	DESIGNATION OF PARTS	No.	DESIGNATION OF PARTS	No.	DESIGNATION OF PARTS
1	I-O Switch	9	Muffler	17	Quick connector
2	Throttle lever	10	Oil gauge	18	Handgrip
3	Choke lever	11	Primer Pump	19	Nozzle lever
4	Air cleaner cover	12	Chemical tank drain cap	20	Nozzle pipe
5	Plug cover	13	Chemical tank cap	21	Nozzle pipe holder
6	Starter knob	14	Chemical tank	22	Nozzle (wide angle twin head)
7	Fuel tank	15	Pressure dial	23	
8	Fuel tank cap	16	Sprayer hose	24	

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.

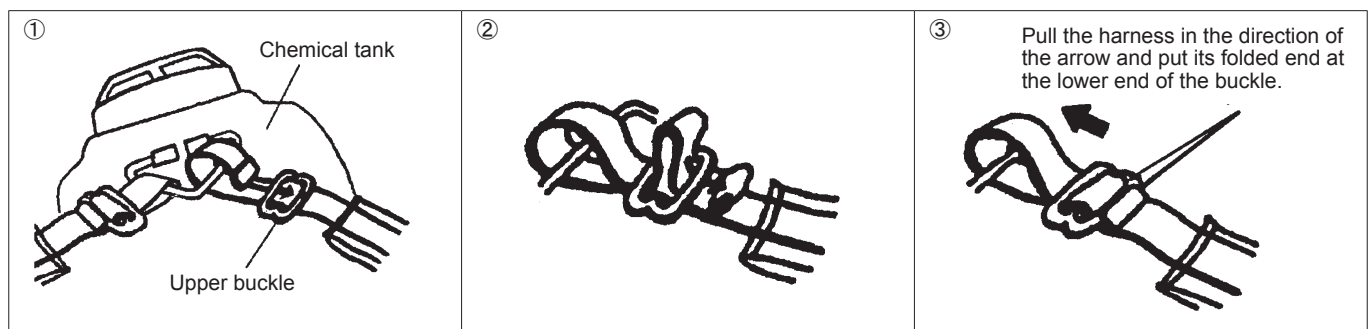
1. ASSEMBLY OF NOZZLE

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.

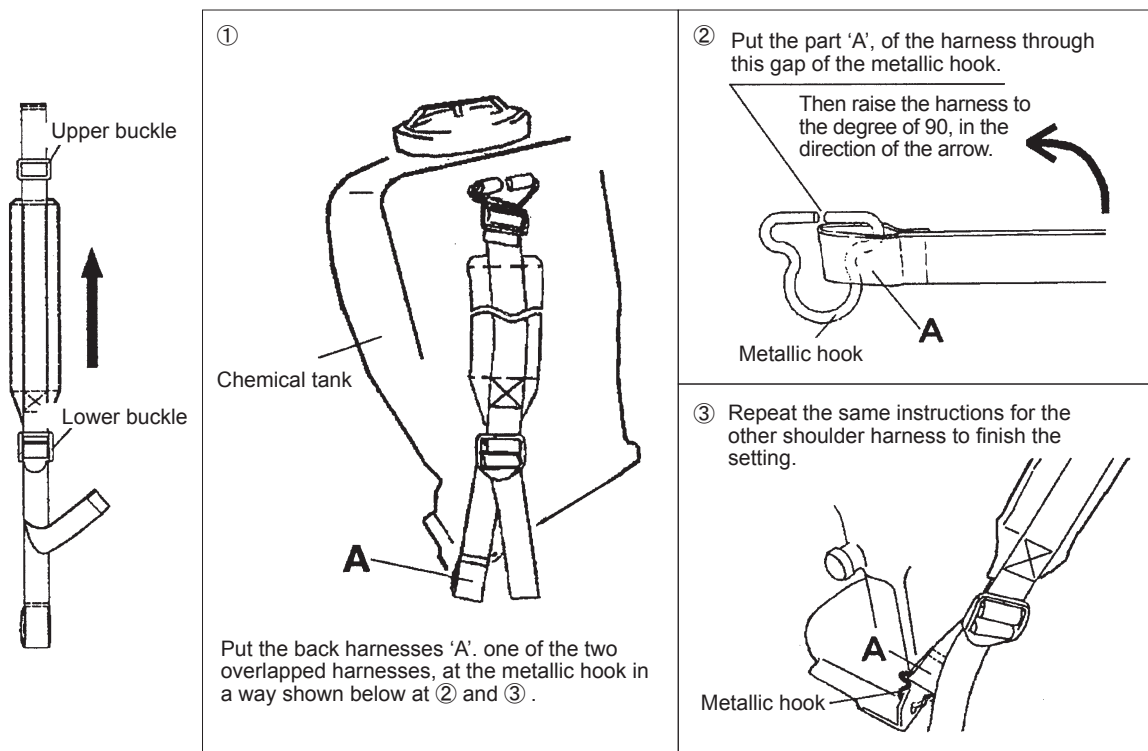
2. SETTING OF SHOULDER HARNESS

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.
- While keeping the engine level, remove the oil gauge, and confirm that the oil is filled within the upper and lower limit marks. When the oil is in short in such a way that the oil gauge touches the oil only by its tip, in particular with the oil gauge remaining inserted in the crankcase without screwing-in (Fig. 1), refill new oil near the port (Fig. 2).
- 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. 0.08 L

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.

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.
- As an example to keep the oil gauge clean, it is recommended to insert the oil gauge on its knob side into the engine cover, as shown in Fig. 3.

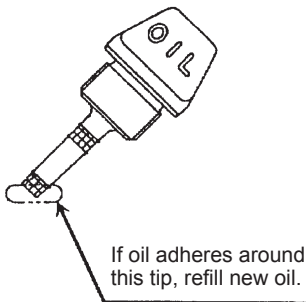


Fig. 1

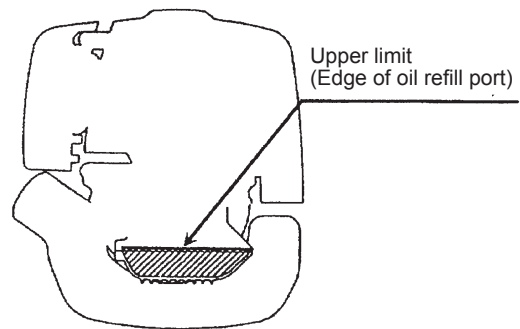


Fig. 2

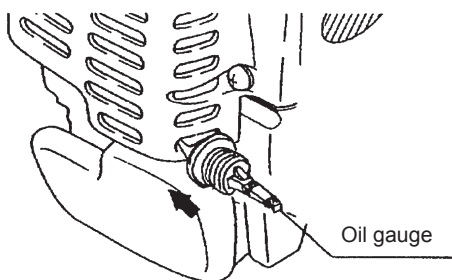
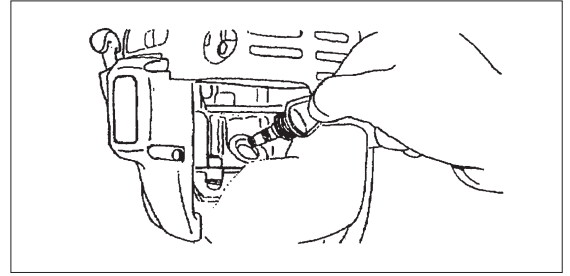
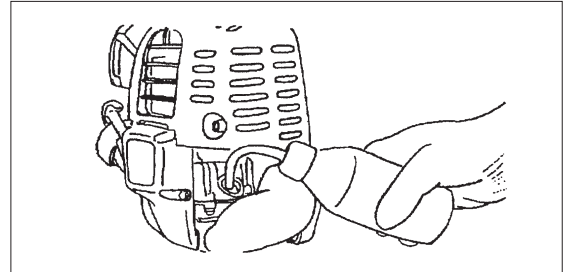


Fig. 3

1) Keep the engine level, and detach the oil gauge.



2) Fill oil up to the edge of the oil refill port. (Refer to Fig.2 of the preceding page).
Feed oil with the lubricant refill container.



3) Securely tighten the oil gauge. 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

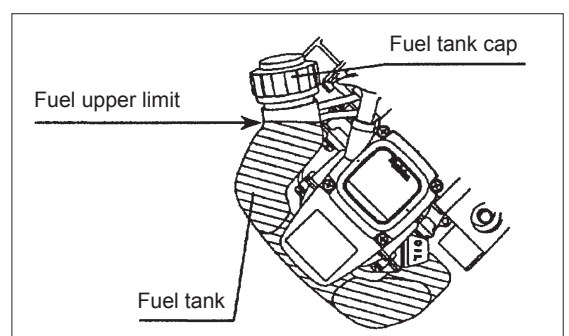
- Never use a gasoline mixture which contains engine oil. Otherwise, it will cause excessive carbon accumulation or mechanical troubles.
- Use of deteriorated oil will cause irregular startup.

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 refuel 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.

⚠ CAUTION:

- Never spray chemicals undiluted.
- See the following chart for ratio information that is useful when diluting chemicals.

Water \ Chemical	Dilution ratio		
	500	1,000	2,000
4L	8mL	4mL	2mL
6L	12mL	6mL	3mL
8L	16mL	8mL	4mL
10L	20mL	10mL	5mL
12L	24mL	12mL	6mL
15L	30mL	15mL	7.5mL
20L	40mL	20mL	10mL

STARTING THE ENGINE

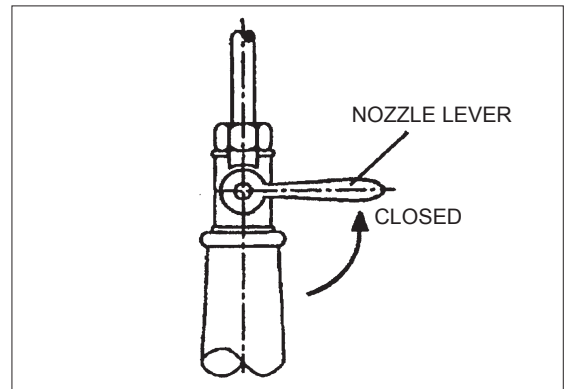


⚠ WARNING

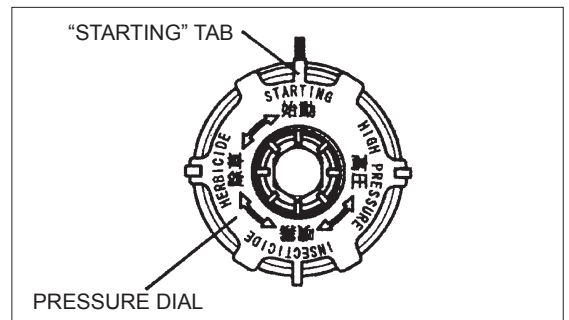
- Never attempt engine start in a place where the fuel has been supplied. When starting the engine, keep a distance of at least 3m.
 - Otherwise, it will may cause ignition or fire.
- Exhaust gas from the engine has toxic consequences. Do not operate the engine in a poorly-ventilated place. Such as in a tunnel, building, etc.
 - Operating the engine in the poorly-ventilated place may cause poisoning by exhaust gas.
- In case of direction of any abnormality sound, odor, vibration after start, stop the engine immediately and carry out inspection.
 - If the engine is operated without attending such abnormality, an accident may occur.
- Confirm that the engine stops when the stop switch is set to "O" position.

1) Before starting the engine, always confirm that the chemical tank contains fluid.

2) Turn the nozzle lever to the CLOSED position.

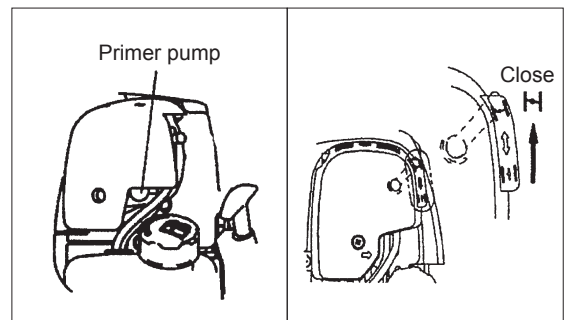
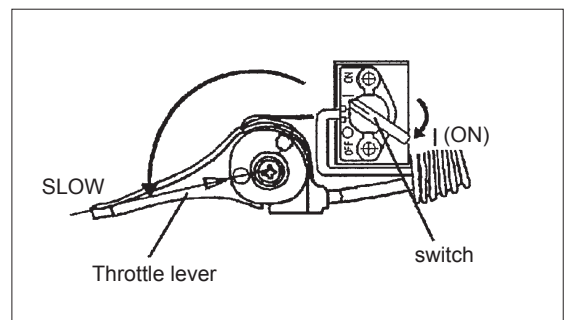


3) Rotate the pressure dial and align the STARTING tab with the mark.

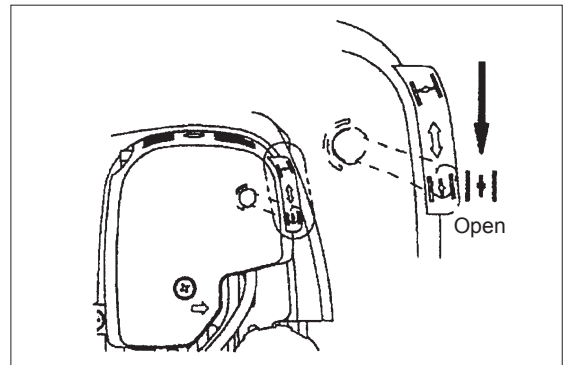
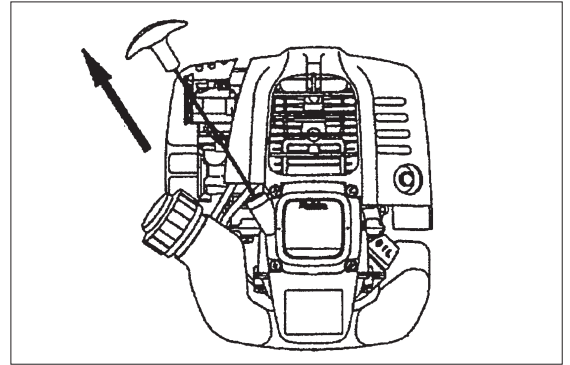


1) When the engine is cold, or when the fuel it refueled

- (1) Set this machine on a flat space.
- (2) Set the I-O switch to "I" position.
- (3) Make sure that the throttle lever is the SLOW position.
- (4) Continue to push the primer pump until fuel enters into the primer pump.
 - In general, fuel enters into the carburetor by 7 to 10 Pushes.
 - If the primer pump is pushed excessively, an excess of gasoline returns to the fuel tank.
- (5) Lifting the choke lever of the air cleaner right side, close the choke lever.



- (6) Hold the element cover with a left hand to prevent the engine from moving, settle down to take the stable position.
- (7) Pull out slowly the starter handle till a certain resistance is felt. Return the starter handle backward once from this position, then pull it out with force.
 - 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.
- (8) When the engine starts, open the choke lever.
 - Open the choke lever progressively while checking the engine operation. Be sure to open the choke lever to the full in the end.
 - In cold or when the engine is cooled down, never open the choke lever suddenly. Otherwise, the engine may stop.
- (9) Continue warm-up operation for 2 to 3 minutes.
- (10) Rotation of the engine speed stabilizes and when from low speed making at high speed rotation, if reaches the point where it accelerates smoothly, it is completion of warming-up.

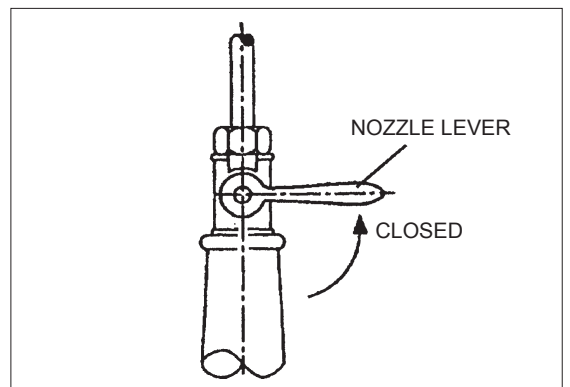


2) When the engine is warm

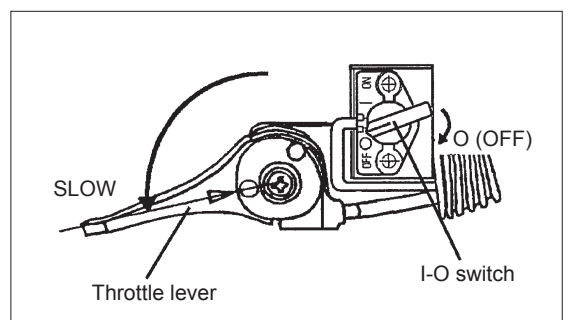
- (1) Place the engine on a flat ground.
- (2) Press the primary pump several times.
- (3) Confirm that the choke lever is open.
- (4) Hold the element cover with a left hand to prevent the engine from moving, settle down to take the stable position.
- (5) Pull out slowly the starter handle till a certain resistance is felt. Return the starter handle backward once from this position, then pull it out with force.
- (6) When the engine is difficult to start, open the throttle valve by about 1/3.

STOPPING THE ENGINE

- 1) Turn the nozzle lever to the CLOSE position.



- 2) Turn the I-O switch to "O" Position.
- 3) Move the throttle lever to the SLOW position.



OPERATION

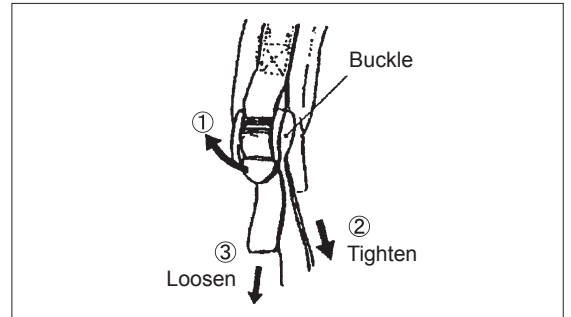


1. Start the engine (see page 11)
2. After starting the engine, mount the power sprayer on your back and adjust the shoulder straps so as to keep the unit as close to your body as possible. Put the engine in idle and take care not to tilt the power sprayer unit too much.

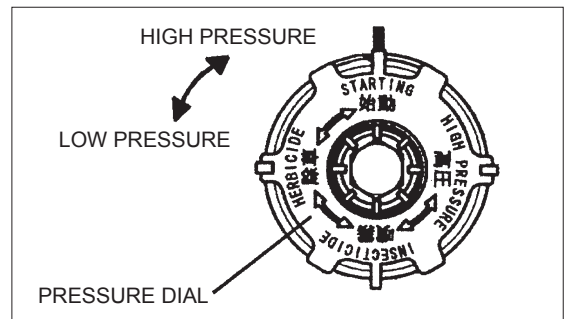
Adjust straps as follows.

- 1) Loosening straps:
 - ① Raise buckle.
 - ② Pull on the end of the strap attached to the power sprayer.
- 2) Tightening straps:
 - ③ Pull on the free end of the strap.

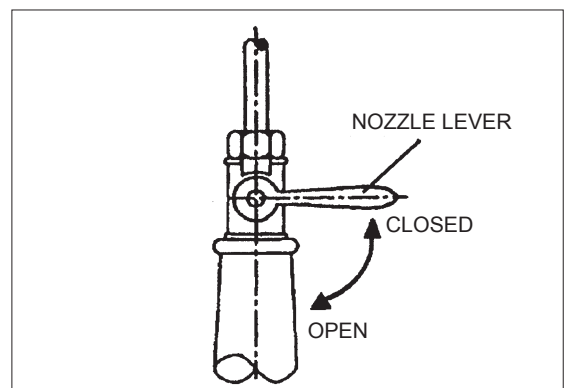
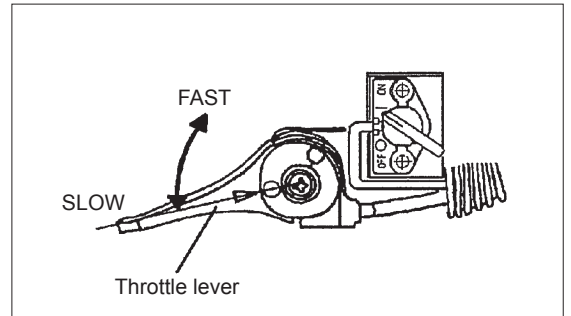
Note: If straps do not carry any weight, they can be tightened with relative ease.



3. Select the desired operating position the pressure dial.



4. Move the throttle lever at the desired position with the nozzle lever moved while observing the spray.



CAUTION

When using the power sprayer always spray downwind. Take special care to avoid situations where sprayed chemicals are blown back towards you.

INSPECTION AND MAINTENANCE



DANGER

- Before inspection and maintenance, stop the engine and allow it to cool. Remove also the spark plug and plug cap.
- If inspection or maintenance is attempted immediately after engine stop or with the plug cap left attached, the operator may suffer burn or an accident due to careless startup.
- After inspection and maintenance, be sure to confirm that all parts are assembled. Then, proceed to operation.

1. 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.

DANGER

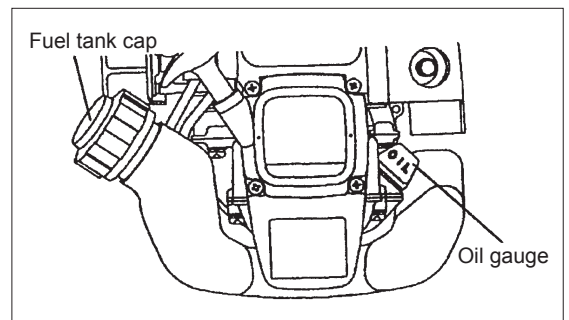
- In general, the engine main unit and engine oil still remain hot just after the engine is stopped. In replacement of oil, confirm that the engine main unit and engine oil are sufficiently cooled down. Otherwise, there may remain a risk of scald. In addition just after of the engine stopping because oil does not finish to return in the oil case, becomes cause of the oil inserting too much.
- 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

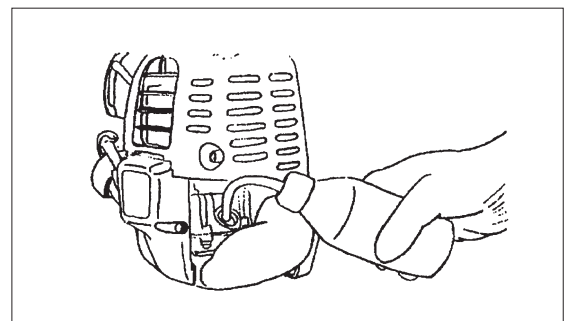
Recommended oil: SAE10W-30 oil of API Classification SF Class or higher (4-stroke engine oil for automobile)

In replacement, perform the following procedure.

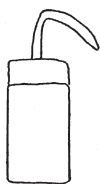
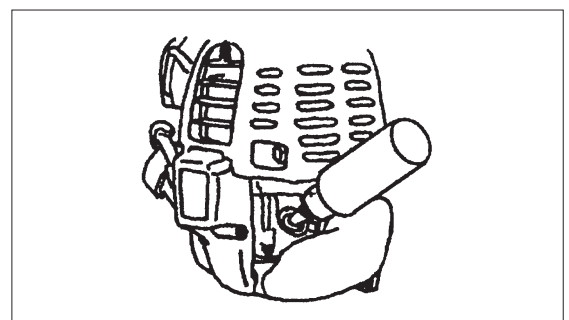
- 1) Confirm that the tank cap is tightened securely.
- 2) Detach the oil gauge.
 - Keep the oil gauge free from dust or dirt.



- 3) Use the provided oil extraction bottle to remove the old oil from the oil reservoir.
 - Squeeze the body of the bottle to and insert the nozzle into the oil. Release pressure on the bottle to draw the old oil from the oil reservoir.
 - When the oil reservoir is almost empty, tilt the power sprayer unit slightly in order to facilitate removal of the remaining engine oil.



- 4) Return the engine to level. Using the lubricant refill bottle, fill with new oil up to the top of the oil reservoir.
- 5) Replace and securely tighten the dip stick. Insufficient tightening will lead to oil leaks.
 - Use the provided oil extraction bottle and lubricant refill bottle for their intended purposes.



Oil extraction bottle



Lubricant refill bottle

Points in replacement of engine 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).

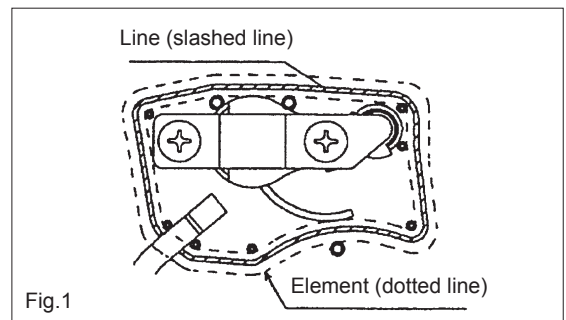
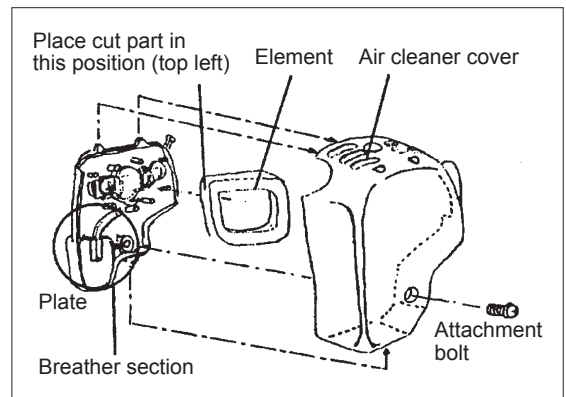
2. Cleaning of air cleaner



WARNING: INFLAMMABLES STRICTLY PROHIBITED

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

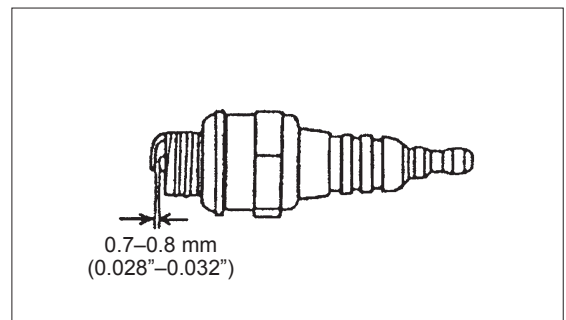
- Remove the air cleaner cover-fixing bolts.
- Pull the lower side of the cover and detach the air cleaner cover.
- Fully close the choke, and ensure that the carburetor is free from dust or dirt.
- Remove the air cleaner element, wash element with neutral detergent diluted with tepid water, and let element dry. Replace the element in the position indicated by the dotted line in Fig. 1.
- Use a piece of paper to wipe off any oil adhering to the air cleaner cover and plate breather.
- Immediately after cleaning, attach the cleaner cover and use the attachment bolt for fixing. (When remounting, position the upper part of the cover first and then the lower.)



3. 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 with carbon or fouled, clean it thoroughly or replace it.

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



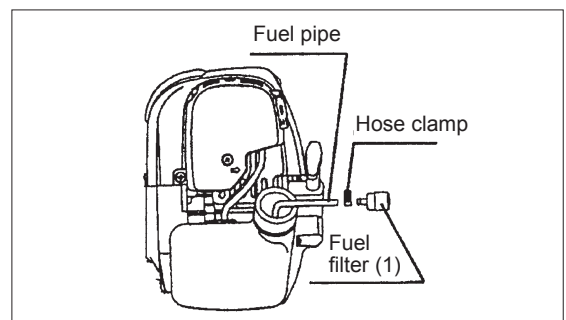
4. Cleaning of fuel filter

WARNING: INFLAMMABLES STRICTLY PROHIBITED

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

Suction head in the fuel tank

- The fuel filler (1) of the suction head is used to fill 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.



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	Incorrect choke position, 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
Engine oil	Inspect/clean	○						
	Replace					○ ^{*1}		
Tightening parts (bolt, nut)	Inspect	○						
Fuel tank	Clean/inspect	○						
	Drain fuel							○ ^{*3}
Throttle lever	Check function		○					
Stop switch	Check function		○					
Low-speed rotation	Inspect/adjust			○				
Air cleaner	Clean			○				
Ignition plug	Inspect			○				
Cooling air duct	Clean/inspect			○				
Fuel pipe	Inspect			○				
	Replace						◎ ^{*2}	
Fuel filter	Clean/replace					○		
Clearance between air intake valve and air discharge valve	Adjust						◎ ^{*2}	
Oil tube	Inspect						◎ ^{*2}	
Engine overhaul							◎ ^{*2}	
Carburetor	Drain fuel							○ ^{*3}

*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
	Choke lever is set to "CLOSE" although engine is warmed up	Set to "OPEN"
	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.
	Detached throttle wire	Attach securely
Engine does not stop. ↓ Run engine at idling, and set choke lever to CLOSE.	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.

Makita Corporation