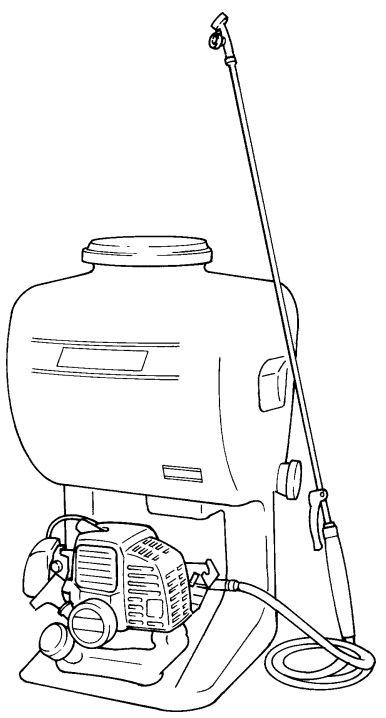


OPERATOR'S MANUAL

ECHO

POWER SPRAYER

SHR-2100
TYPE 1

WARNING ⚠ DANGER

READ INSTRUCTIONS CAREFULLY AND FOLLOW RULES FOR SAFE OPERATION. FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY.

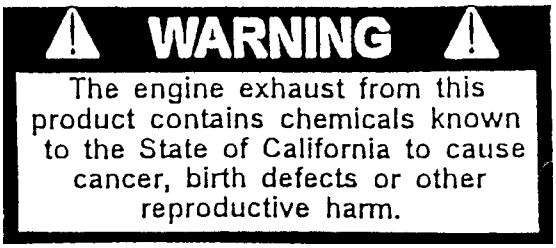
ECHO, INCORPORATED
400 Oakwood Road, Lake Zurich, Illinois 60047
Phone : 708-540-8400

1
898611-13210
X750604-2301

IMPORTANT

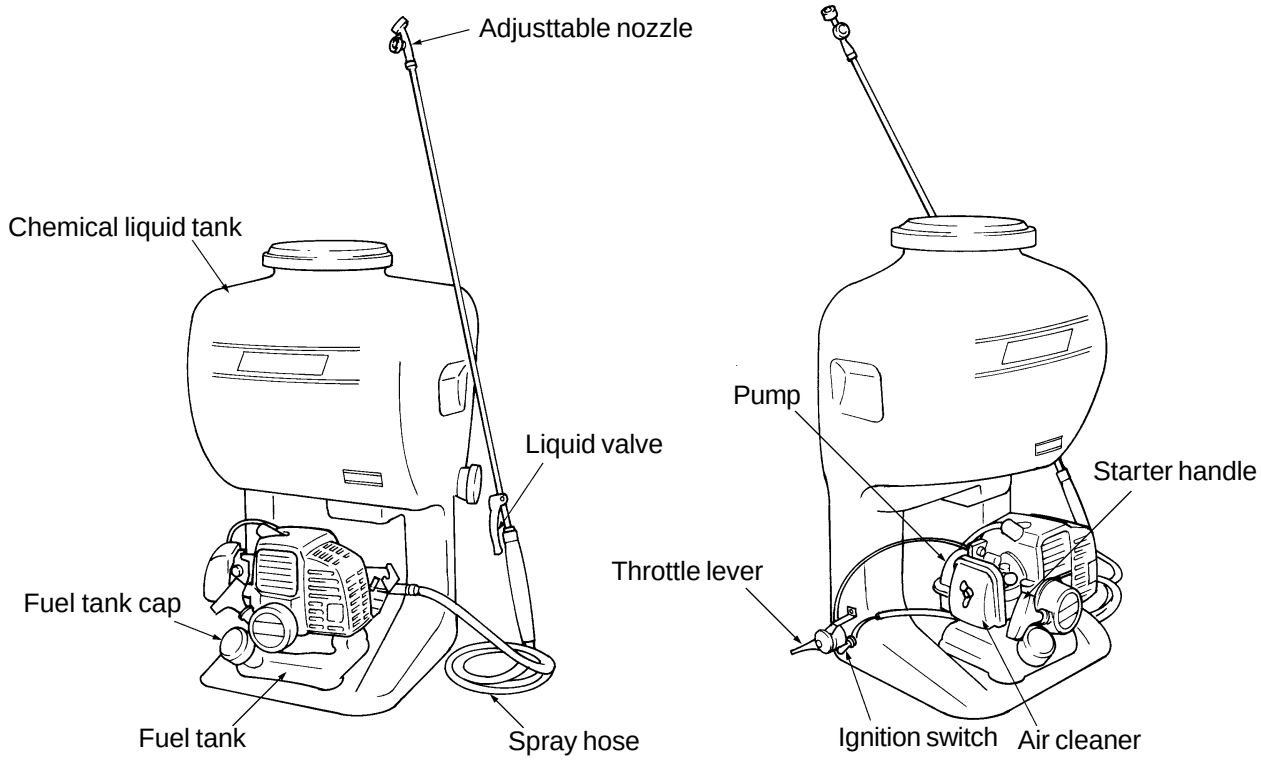
RULES FOR SAFE OPERATION

1. Handle gasoline with care. It is highly inflammable.
   - Refuel before starting work.
   - Do not smoke while handling fuel.
   - Do not refuel a hot engine.
   - Avoid spilling fuel or oil. Always wipe unit dry before using.
   - Move at least 3 meters (10 feet) away from the fueling point before starting engine.
   - Always store gasoline in an approved container.
2. Do not operate in unventilated area.
3. Do not allow bystanders in work area.
4. Do not point the nozzle in the direction of people.
5. Always wear safety glasses and gloves.
6. Avoid wearing loose clothing or loose scarf.
7. Always use a face filter mask to avoid breathing chemicals.
8. Handle agricultural chemicals with care. It is poisonous.
   - Always remove chemicals from the tank when not in use.
   - Store chemicals in a safety container.



CONTENTS

NOMENCLATURE



TECHNICAL DATA

Dimension	L × W × H	mm (in.)	330 × 405 × 590 (13.0 × 15.9 × 23.2)
Weight		kg (lb)	7.4 (16.3) (w/o Spraying hose and nozzle)
Chemical (liquid) tank capacity		liter (gal.US)	19.0 (5.0)
Engine	Type		Air cooled, two stroke single cylinder
	Displacement	cc (cu.in.)	21.2 (1.3)
	Rated speed	rpm	6,500
	Carburetor		ZAMA diaphragm type
	Ignition		Flywheel magneto : CDI (Capacitor discharge ignition) system
	Spark plug		NGK BPM-6Y
	Starter		Recoil starter
Fuel	Mixing ratio		Mixture of gasoline (unleaded, 89 octane minimum) and specially blended 50 : 1 ECHO two cycle engine oil.
	Tank capacity	liter (fl.oz.US)	0.5 (16.9)
Pump	Type		Regenerative pump
	Discharge volume (Nozzle)	liter (fl.oz.US/min)	0.8 ~ 7.0 (27 ~ 236.7)
	Pressure	kgf/cm^2 (psi.)	6 ~ 10 (85.3 ~ 142.2)
Nozzle			2-head nozzle*
Spraying hose			8.5 m/mϕ (Inner diameter)

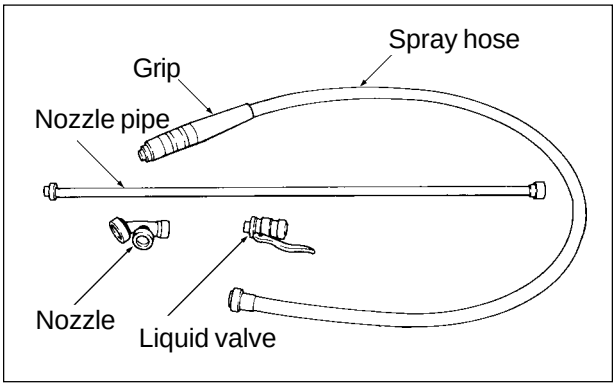
* Technical data may be changed without adnance notice.

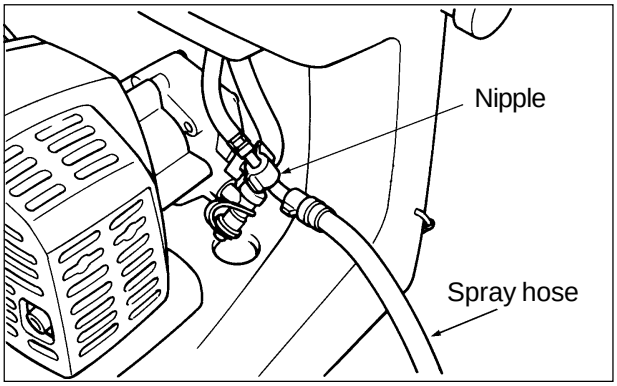
* Other nozzles are available as optional supply.

ASSEMBLING

SPRAY HOSE AND NOZZLE

- Install hose, grip, liquid valve, nozzle pipe and nozzle to the machine.





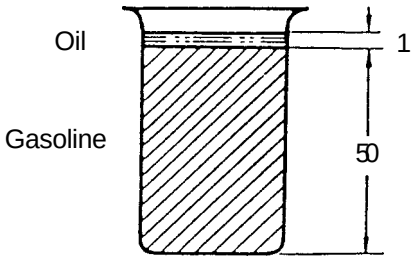
SHOULDER STRAPS

- Shoulder straps are adjustable to fit any operator.
- Adjust straps so that pads rest comfortably on the operator's shoulders.

OPERATION

GENERAL CHECK

- Ensure that all nuts, screws and bolts installed are properely tightened.



FUEL STATEMENT

GASOLINE - Use 89 Octane [$\frac{R+M}{2}$] gasoline or gasohol known to be good quality. Gasohol may contain maximum 10% ethyl (grain) alcohol or 15% MTBE (methyl teritary-butyl ether). Gasohol containing methyl (wood) alcohol is not approved.

OIL - ECHO brand premium two-stroke 50 : 1 oil is preferred. Mix oil and gasoline / gasohol according to instructions on the oil container label.

MIXING - Follow directions on the oil container.

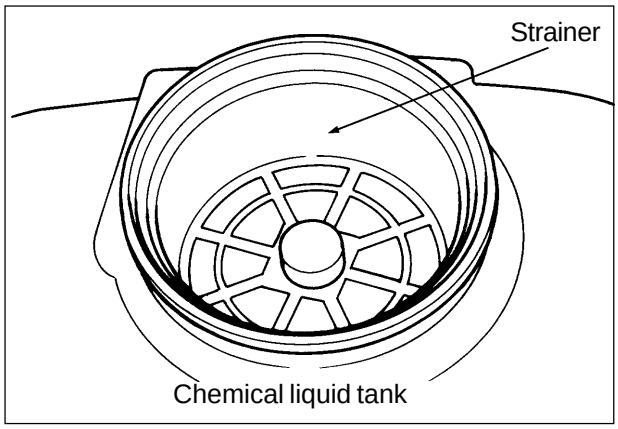
Fuel mix chart

(50 : 1)

US		METRIC	
GAS	OIL	GAS	OIL
GAL.	FL.OZ.	LITERS	CC
1	2.6	4	80
2	5.1	8	160
5	12.8	20	400

IMPORTANT

Stored fuel ages. Do not mix more fuel than you expect to use in thirty (30) days, ninety (90) days when a fuel stabilizer is added. Stored two-stroke fuel may separate. ALWAYS shake fuel container thoroughly before each use.



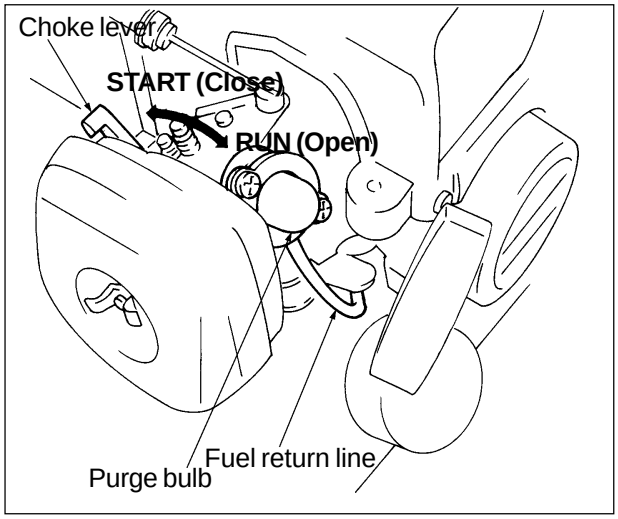
CHEMICAL (Liquid) TANK

- Fill the tank with liquid chemical through the strainer. Do not fill without strainer .
  (Dust in the tank may cause clogging of the liquid line or pump.)
- The tank contains 17 liters (4.5 gal. US) of liquid.

(NOTE)

Each mark on the side of the tank indicates the 5, 10, and 15 liter levels.

- Ensure that tank cap is on tightly to avoid chemical leak.
- **It is not necessary to apply grease / oil to pump.**



STARTING ENGINE

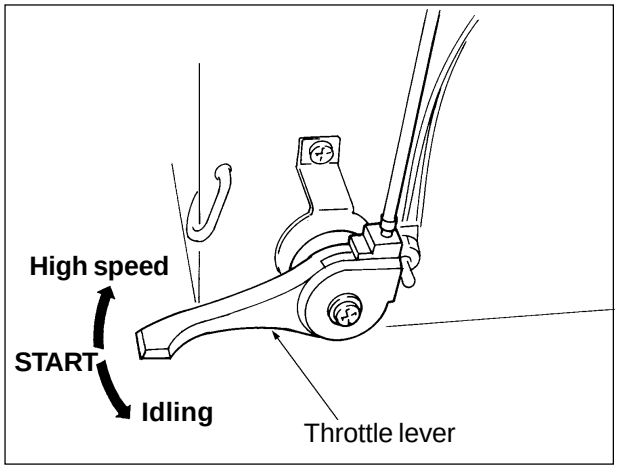
Never start and operate engine before filling chemical tank to avoid damage to pump.

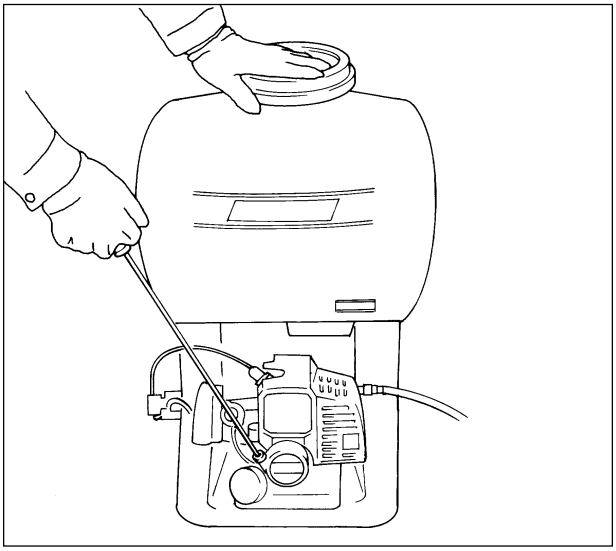
- Fill fuel tank with fuel.
- Place ignition switch in START/RUN position.
- Turn choke lever to CLOSE (START) position.
- Keep throttle lever at idle position (in the middle of scale).
- Operate the carburetor's purge bulb several times with your finger (press← →release) to make sure that fuel flows from the fuel return line.
- Pull starter handle until engine starts.

(NOTE)

- Recoil starter : Use short pulls -
Do not pull starter rope all the way out, and rewind it back gradually.

- Pull back choke lever (OPEN position) slowly after engine starts, and keep at idle speed for a while to warm it up.
- If temperature is high or engine is warm, keep choke lever half opened or totally opened.





HOLD THE MACHINE FIRMLY

SPRAYING

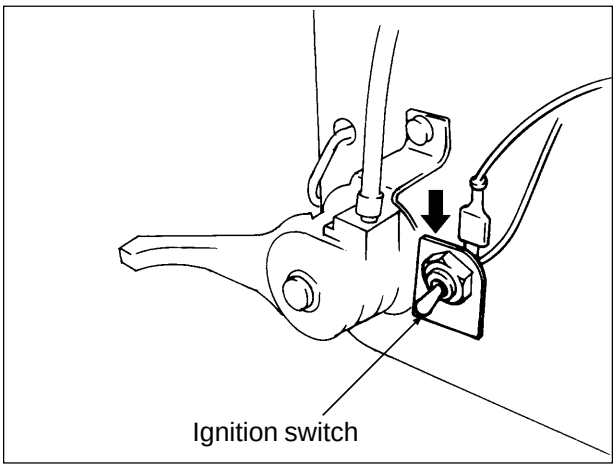
- **Ensure that chemical liquid valve is closed before starting engine.**
- **After engine is warmed up, turn throttle lever to the high speed position (Upper position) and open liquid valve.**

NOTE :

Since this unit is eqipped with a centrifugal clutch, sprinkling is not possible when the engine is runnnig at low speeds (idling).

- FOR SAFE OPERATION -

1. **Secure the chemical tank cap.**
2. **Check all connections to avoid chemical leak. (Nozzle, Nozzle pipe, hose etc.)**
3. **Avoid wearing loose clothing and always wear safety glasses and gloves.**
4. **Use a face filter mask to avoid breathing chemical.**
5. **Check wind direction before spraying.**
6. **Do not point nozzle in the direction of people.**
7. **Stop the engine when refueling and / or replacing parts.**
8. **Close fuel chemical liquid valve when not in use.**
9. **Avoid using at engine speeds where the clutch slips.**

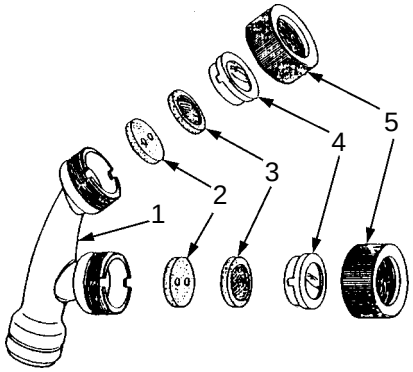


STOPPING ENGINE

- Turn throttle lever to the lowest position and the ignition switch to STOP position.

(CAUTION)

When misting liquid is over, stop the engine. Do not keep engine running, when chemical tank has been emptied.



1. Nozzle
2. Guide
3. Strainer
4. Nozzle
5. Cap

NOZZLE

- 2-head nozzle (Standard type) is provided with this power sprayer.
- Standard nozzle discharge volume and pressure are as follows.
  Chemical liquid Discharge :

2.4 ℓ/min	81.2 Fl.oz US/min
(10kgf/cm^2)	(142.2 psi)

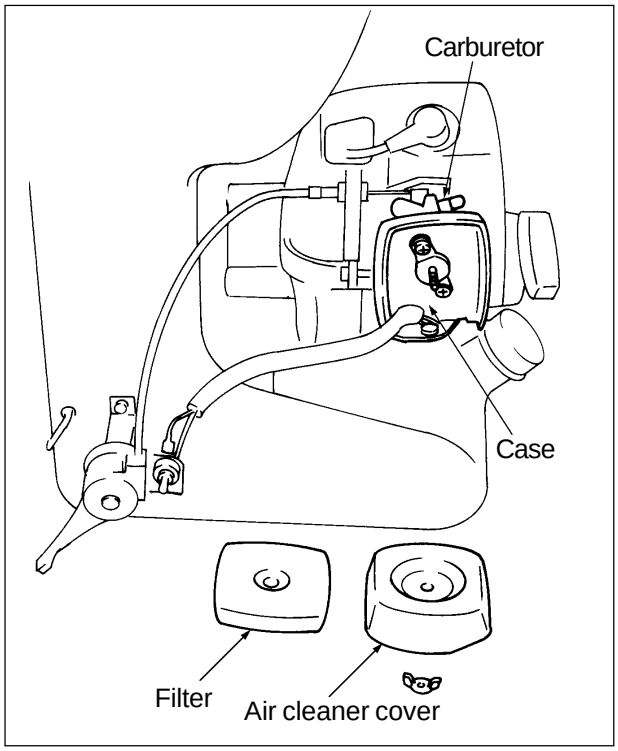
(NOTE)

- You can use a nozzle other than standard nozzle discharges liquid under 7.0 liters at nozzle pressure : 10 kgf/cm^2 as required.
- Long hose (approx. 100 meters) is available as required.
- In this case, use standard nozzle indicated above or less discharge volume nozzle.

- As for variety of optional nozzles, please refer to reverse side of front cover.

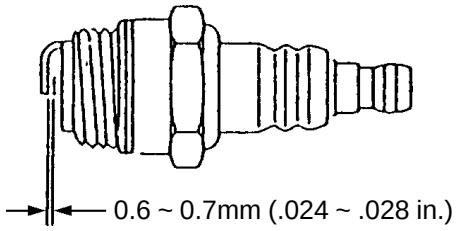
MAINTENANCE AND CARE

- ALWAYS KEEP THE MACHINE CLEAN -



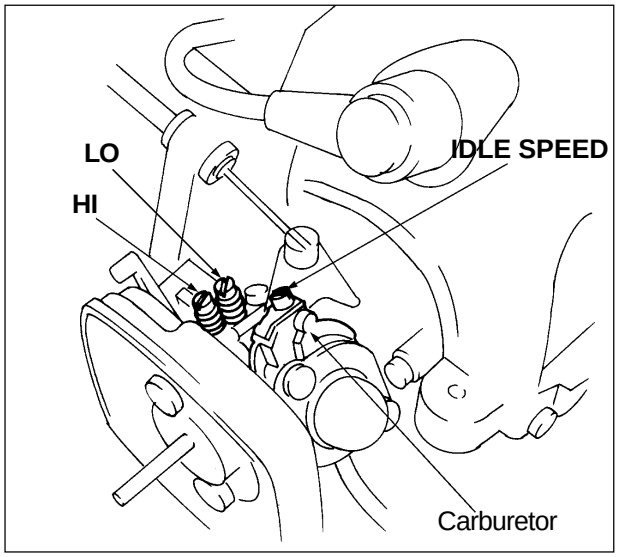
AIR FILTER

- Check before every use.
- Remove filter cover.
  - Remove both screws.
- Brush off dust lightly or wash in a non-inflammable solvent if necessary. Dry well before reinstalling.



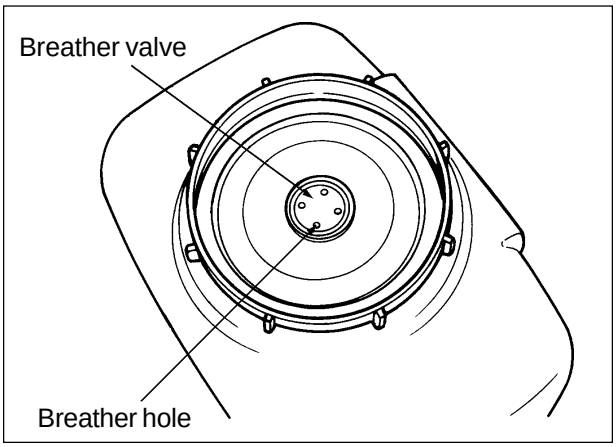
SPARK PLUG

- Clean or replace the plug if fouled with heavy or oily deposits. Replace the plug if the center electrode is worn or rounded at the end.
  - The standard spark gap is 0.6 ~ 0.7 mm (.024 ~ .028 in.).
  - Correct the spark gap if it is wider or narrower than the standard gap.
- Fastening torque = 145 ~ 155 kgf·cm (125 ~ 135 in·lb.)



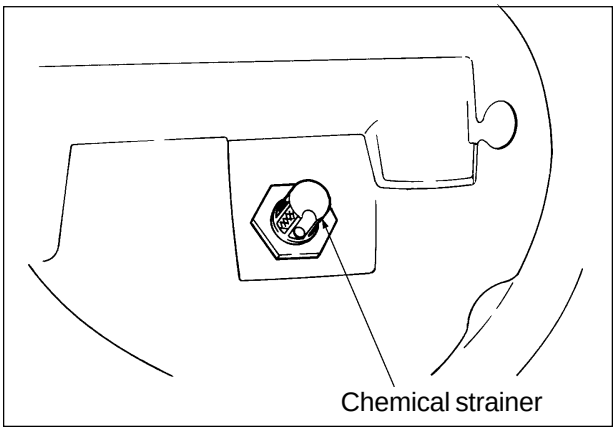
CARBURETOR

- Do not adjust the carburetor unless necessary.
- To adjust carburetor, proceed as follows :
  - Low speed needle : (L) 1-1/4
  - High speed needle : (H) 1
  - Screw in the needles until lightly seated and return indicated turn above.
- Turn idle adjust screw clockwise until the clutch just begins to engage, then back screw 1/2 turn.



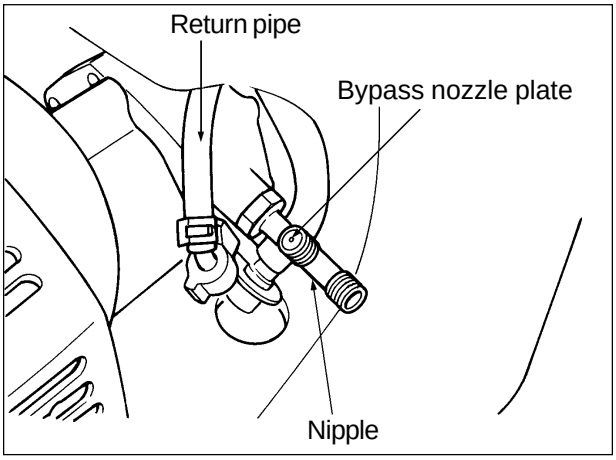
CHEMICAL TANK BREATHER

- Clean breather valve and breather hole periodically.
- Bad sealing of the breather valve may cause a leakage of the chemical.
  Clogging of the breather hole may cause a "dent" or a breakage of the chemical tank.



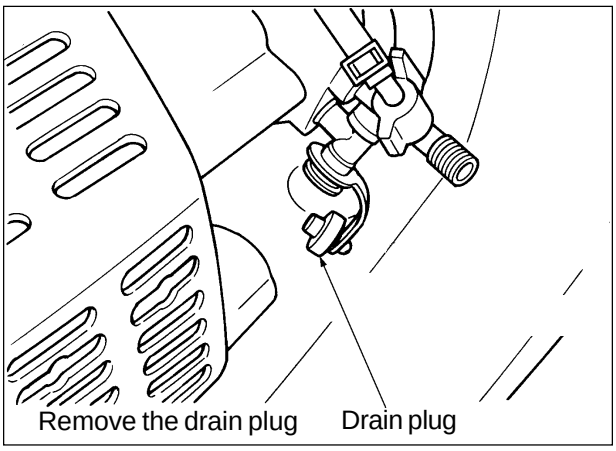
CHEMICAL STRAINER

- Clean chemical strainer periodically.
- Clogging of the chemical strainer may cause insufficient discharge of the chemical.



BYPASS NOZZLE PLATE

- Clean bypass nozzle plate, if liquid chemical is not well stired-up in the tank.



WHEN SPRAYING IS FINISHED

- Fill chemical tank with water and spray through nozzle for 2 ~ 3 minutes for cleaning.
- Drain water from the machine through misting nozzle and remove pump drain plug.
- Wipe off the liquid chemical on the machine after use.

TROUBLE SHOOTING

Poor performance of the engine and/or spraying mechanism can normally be prevented by carefully following the above instructions.

Poor performances can easily be corrected even by a beginner.

When the engine does not function properly check the following three (3) points first.

- Is engine compression adequate?
- Is fuel system in good condition and is enough fuel being supplied?
- Is electrical system in good condition and is spark plug operating normally?

When there is serious trouble with the unit, do not try to repair it yourself but have your distributor or dealer do it for you. For detailed **TROUBLE SHOOTING** refer to tables 1 and 2. Locate the problem on the following charts and repair as necessary.

Table 1

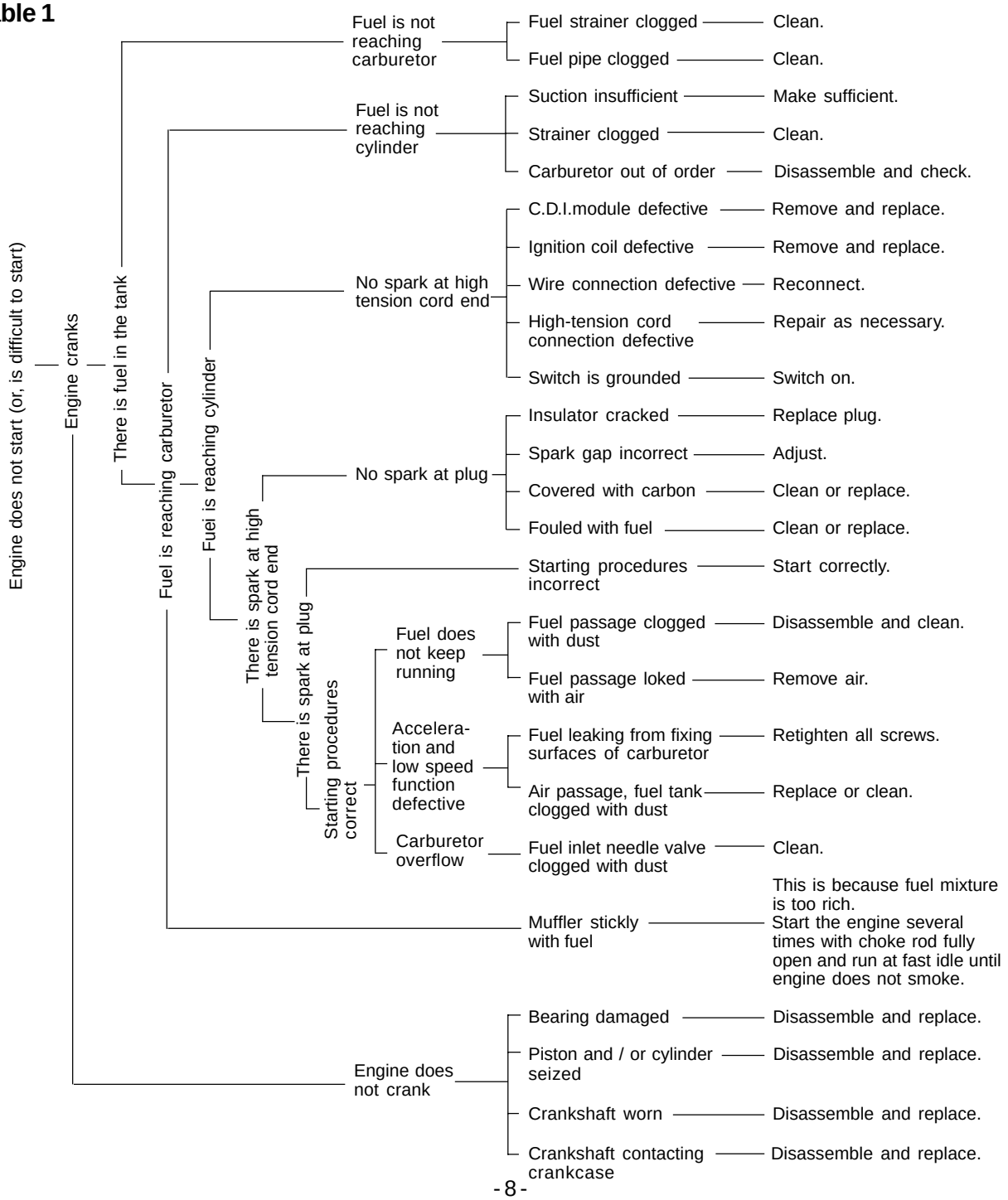
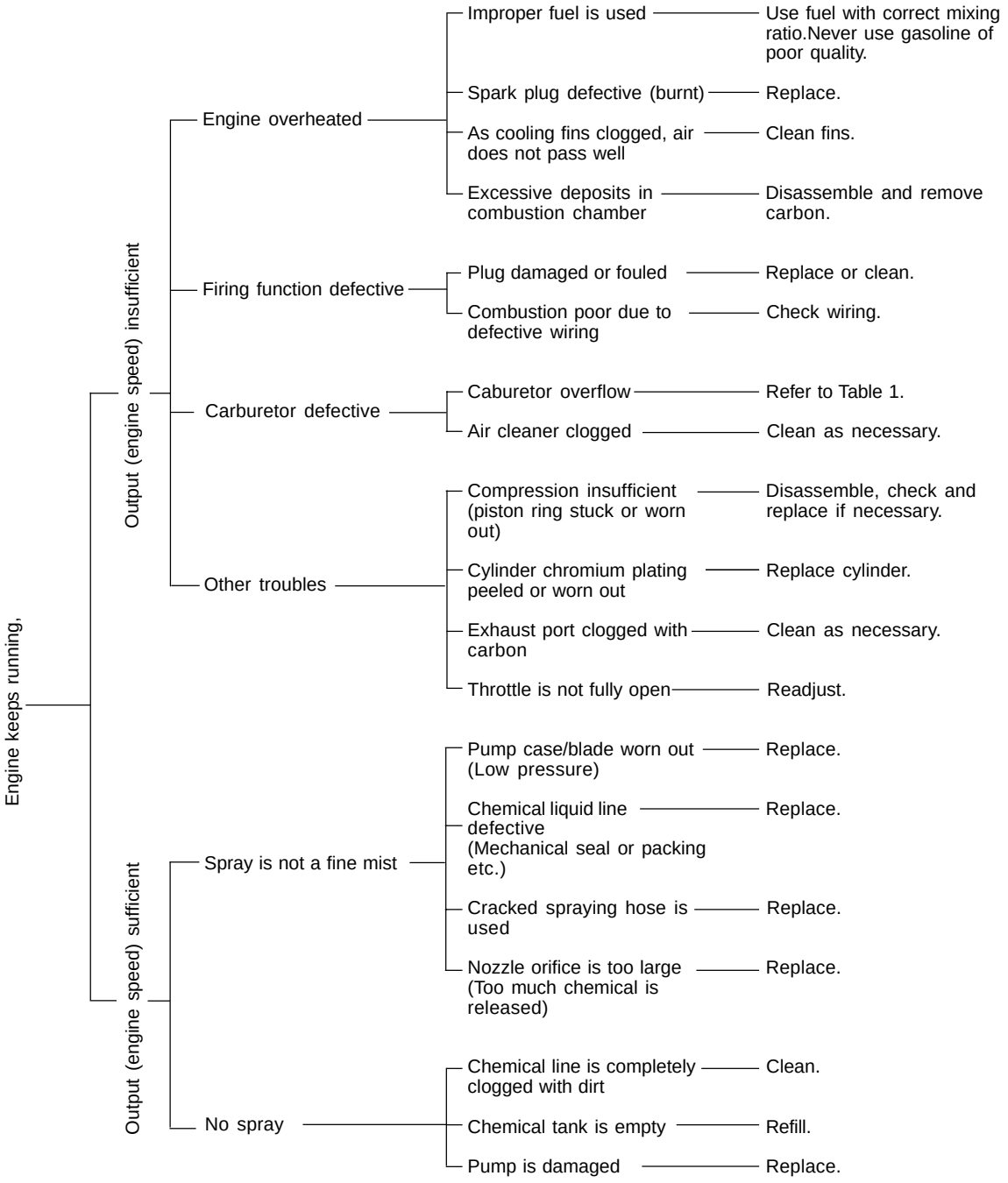


Table 2



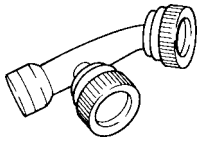
STORAGE AFTER USE

- Drain remaining liquid out of the chemical tank.
- Inspect and adjust every part of the sprayer.
  - Completely clean evry part, and repair, if necessary.
  - Apply thin coating of oil on metal parts to prevent rust.
  - Remove spraying hose and pipe.
- Drain fuel tank, pull starter slowly a few times to drain fuel from carburetor.
- Pour a small amount of clean motor oil into spark plug hole, pull starter and crank the engine until the TOP DEAD CENTER.
- Store in a dry area, free from dust.

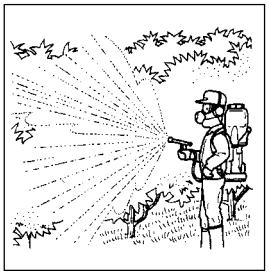
VARIETY OF NOZZLE FOR ECHO POWER SPRAYER SHR-2100 TYPE1

Convenient to use and reliable, the go anywhere SHR-2100 TYPE1 power sprayer is highly versatile with a large variety of optional nozzles which adapts it to a wide range of applications. The use of this power sprayer at home, on the farm or in a commercial environment are limitless. Most importantly, what used to take hours takes only minutes with the SHR-2100 TYPE1, making it an unequaled value for the homeowner and professional alike.

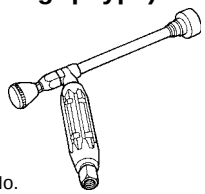
2-head nozzle (Standard line type)



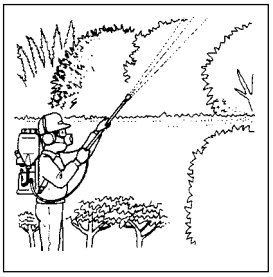
Part No. 224 203-1061 0 **Standard**



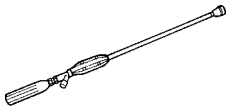
Adjustable jet nozzle (Pistol grip type)



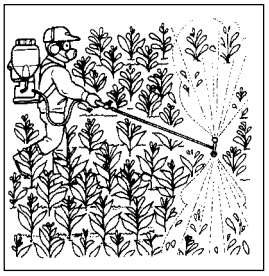
Part No. 224 000-1061 0 **Optional**



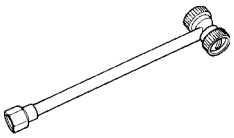
Adjustable jet nozzle (Long distance type)



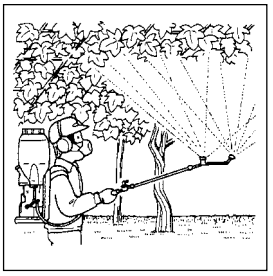
Part No. 224 100-1061 0 **Optional**



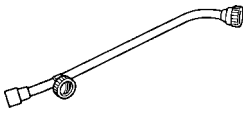
2-head nozzle (T-type)



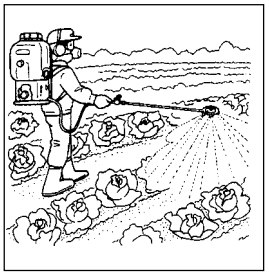
Part No. 224 201-1061 0 **Optional**



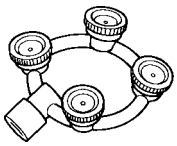
2-head nozzle (Line type)



Part No. 224 202-1061 0 **Optional**

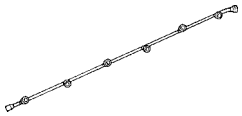


4-head nozzle (Ring type)



Part No. 224 101-1061 0 **Optional**

7-head nozzle (Line type)



Part No. 224 104-1061 0 **Optional**

* Optional nozzles are available at extra cost

Nozzle specifications (At 10kgf/cm² : 142.2 psi)

- **For some country, a optional nozzle is supplied as standard part.**

Nozzle	Discharge volume		Spraying distance	
	ℓ/min.	Fl oz US/min.	m	ft
2-head nozzle (Standard line type)	2.4	81.2		
Adjustable jet nozzle (Pistol grip type)	Mist: 2.4 Spray: 5.0	81.2 169	3 5	10 16.7
Adjustable jet nozzle (Long distance type)	Mist: 2.4 Spray: 5.0	81.2 169	3 5	10 16.7

Nozzle	Discharge volume	
	ℓ/min.	Fl oz US/min.
2-head nozzle (T-type)	2.4	81.2
2-head nozzle (Line type)	4.2	142
4-head nozzle (Ring type)	1.5	50.8
7-head nozzle (Line type)	2.0	67.6