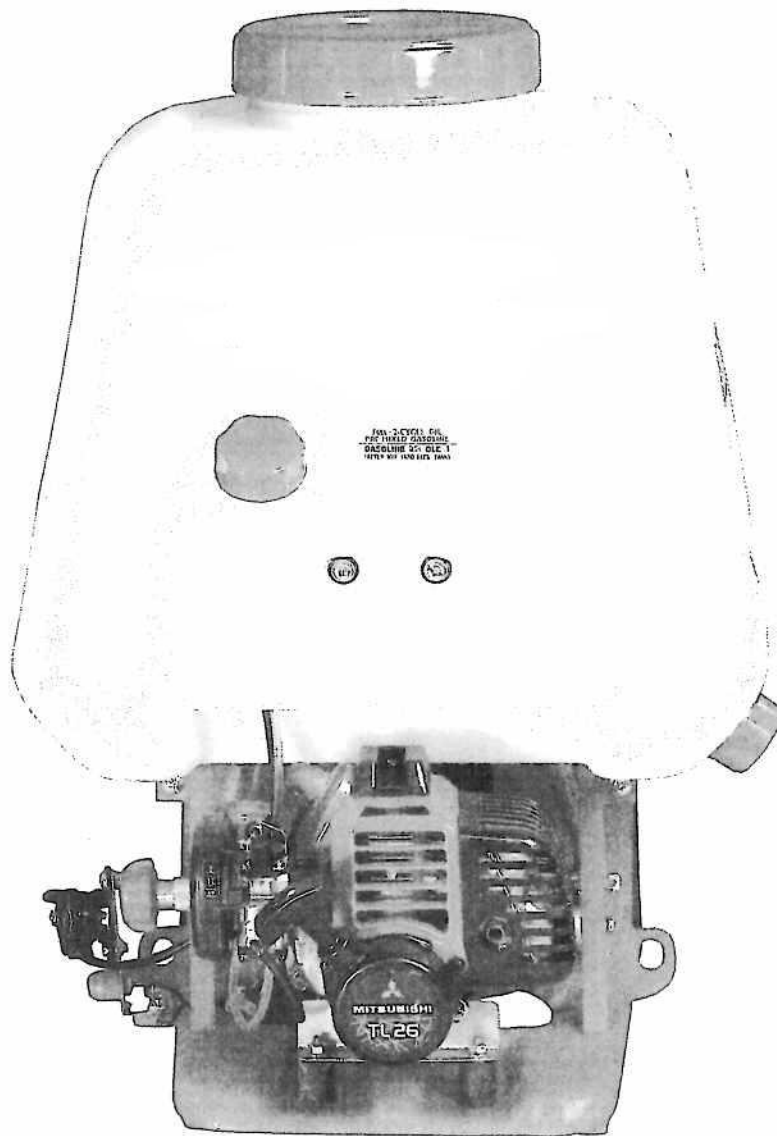


COD. 40007

# POWER SPRAYER

## Operator's Manual



### WARNING DANGER

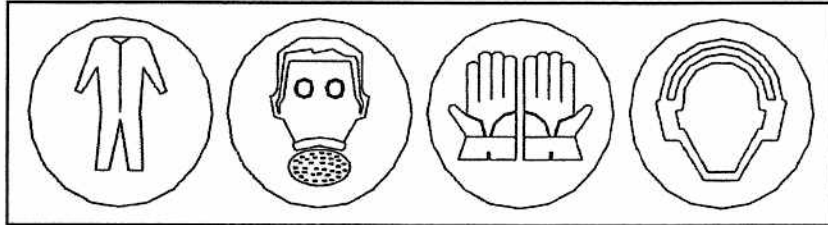
Read rules for safe operation and all instructions carefully.  
We provides this Operator's  
Manual which must be read and understood for proper and safe operation.

Specifications, descriptions and illustrative material in this literature are as accurate as known at the time of publication, but are subject to change without notice. Illustrations may include optional equipment and accessories, and may not include all standard equipment.

**SAFETY DECALS**

Locate these safety decals on your unit. The complete unit illustration, found in the "DESCRIPTION" section, will help you locate them. Make sure that decals are legible and that you understand and follow the instructions on them. If a decal cannot be read, a new one can be ordered from your ECHO dealer. See PARTS ORDERING instructions for specific information.

**GENERAL WARNING DECAL (located at the tank)**



**FIRE WARNING DECAL**  
(located at the fuel tank)



**DANGER WARNING DECAL**  
(located at the volute case)



**HOT DECAL**  
(near muffler)



**SAFETY INSTRUCTIONS**  
**PERSONAL CONDITION AND SAFETY EQUIPMENT**

**WARNING** **DANGER**

Power Knapsack Sprayer-Duster users risk injury to themselves and others if the machine is used improperly and or safety precautions are not followed. Proper clothing and safety gear must be worn when operating a Sprayer-Duster.

**Physical Condition--**

Your judgment and physical dexterity may not be good;  
if you are tired or sick,  
if you are taking medication,  
if you have taken alcohol or drugs.  
Operate unit only if you are physically and mentally well.

**Eye Protection--**

Wear eye protection that meets ANSIZ87.1 or CEE requirements whenever you operate the machine .

**Hand Protection --**

Wear no-slip, heavy duty work gloves to improve your gripe on the sprayer handle.  
Gloves also reduce the transmission of machine vibration to your hands.

**Breathing Protection --**

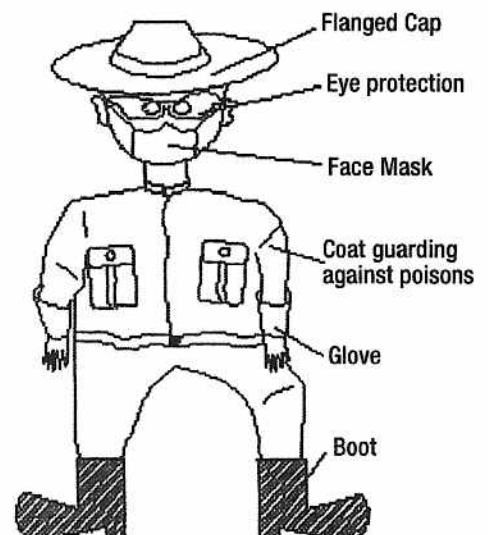
Wear a face mask to protect against dust.

**Hearing Protection --**

We recommend wearing hearing protection whenever unit is used.

**Proper Clothing—**

Wear coat guarding against poisons, durable clothing;  
Pants should have long legs, shirts with longs sleeves.  
**DO NOT WEAR SHORTS.**  
**DO NOT WEAR TIES, SCARVES, JEWELRY.**  
Wear sturdy work shoes with nonskid soles;  
**DO NOT OPERATE UNIT BARE FOOTED**  
Keep long air away from engine and sprayer intake.  
Retain hair with a cap or net.





**EQUIPMENT**

Before operation a complete check of the unit must be performed:  
 Check unit for loose/missing nuts, bolts and screws. Tighten and/or replace as needed.  
 Inspect fuel lines, tank and area around carburetor for fuel leaks.  
**DO NOT OPERATE UNIT IF LEAKS ARE FOUND.**  
 Keep exhaust area clear of flammable debris. Avoid contact during and immediately after operation.

**SAFE OPERATION**

Determine Operation Area –

Review area to be cleared. Look for potential hazards such as stones or metal objects.  
 Spectators and fellow workers must be warned, and children and animals prevented from coming nearer than 15m while the blower is in use.  
 Take wind conditions into account: avoid open doors and windows.

Provide all operators of this equipment with the Operator’s Manual and instructions for safe operation.  
 Do not point the lance at people or animals.  
 Start unit or ground with throttle at idle. Check that lance pipe is not blocked by the ground or by any objects.

<p><b>WARNING</b> <b>DANGER</b></p> <p>Do not operate this product indoors or in inadequately ventilated areas. Engine exhaust contains poisonous emissions and cause serious injury or death.</p>
--

**Keep a firm Grip**

Hold handle with fingers together encircling the handle.

**Keep a solid stance**

Maintain footing and balance at all times. Do not stand on slippery, uneven or unstable surfaces. Do not work in odd positions or on ladders. Do not perform Maintenance or Assembly procedures with engine running.

**Noise Control**

Follow local noise regulations on sound levels and hours of operations. Use only during appropriate hours.  
 Never use a higher speed setting than necessary to perform a task.  
 The higher the engine speed the louder the blower noise.  
 Be a good neighbor.

**Avoid Hot Surfaces**

During operation, the muffler or catalytic muffler and surrounding cover may become extremely hot. Avoid contact during and immediately after operation. Always keep exhaust area clear of flammable debris. Allow the engine and muffler to completely cool before performing any maintenance activity.

<p><b>WARNING</b> <b>DANGER</b></p> <p>Never perform maintenance or assembly procedures with engine running or serious personal injury may result.</p>
--

**HANDLING FUEL**

**WARNING** **DANGER**

Fuel is VERY flammable. Use extreme care when mixing, storing or handling or serious personal injury may result.  
 Use an approved fuel container.  
 DO NOT smoke near fuel.  
 DO NOT allow flames or sparks near fuel.  
 Fuel tanks/cans may be under pressure. Always loosen fuel caps slowly allowing pressure to equalize.  
 NEVER refuel a unit when the engine is HOT.  
 NEVER refuel a unit with the engine is running.  
 DO NOT fill fuel tanks indoors. ALWAYS fill fuel tanks outdoors over bare ground.  
 Securely tighten fuel cap after refueling.  
 Inspect for fuel leakage. If fuel leakage is found, do not start or operate unit until leakage is repaired.

<p><b>IMPORTANT</b></p> <p>Spilled fuel is a leading cause of hydrocarbon emissions. Some states may require the use of automatic fuel shelf-off containers to reduce fuel spillage. Contact your ECHO dealer for ordering information.</p>
---

**AFTER REFUELING--**

Wipe any spilled fuel from the unit. Move at least 3m from refueling location before starting.

**AFTER USE--**

DO NOT store a unit with fuel in its tank. Leaks can occur. Return unused fuel to an approved fuel storage container.

**STORAGE --**

Fuel storage laws vary by locality. Contact your local government for the laws effecting your area. As a precaution, store fuel in an approved, air tight container. Store in a well ventilated, unoccupied building, away from sparks and flames.  
 DO NOT store fuel longer than 30 days.

**IMPORTANT**

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

**OPERATION**

Recoil starter: Use short pulls-only 1/2 - 2/3 of rope length for starting. Don't allow the rope to snap back it. Always hold the unit firmly.

**TROUBLESHOOTING**

**WARNING DANGER**

Fuel vapors are extremely flammable and/or explosion. Never test for ignition spark near an open spark plug opening, otherwise serious personal injury may result.

PROBLEM			CAUSE	REMEDY
<b>ENGINE-STARTS HARD ENGINE-DOES NOT START</b>				
<b>Engine Cranks</b>	<b>Fuel at carburetor</b>	<b>No fuel at carburetor</b>	<b>Fuel strainer clogged Fuel line clogged Carburetor</b>	<b>Clean Clean See your dealer</b>
	<b>Fuel at cylinder</b>	<b>No fuel at cylinder</b>	<b>Carburetor</b>	<b>See your dealer</b>
		<b>Muffler wet with fuel</b>	<b>Fuel mixture is too rich</b>	<b>Open choke Clean/replace air filter Adjust carburetor See your dealer</b>
	<b>Spark at end of plug wire</b>	<b>No spark at end of plug wire</b>	<b>Stop switch off Electrical problem Interlock switch</b>	<b>Turn switch on See your dealer See your dealer</b>
	<b>Spark at plug</b>	<b>No spark at plug</b>	<b>Spark gap incorrect Covered with carbon Fouled with fuel Spark plug defective</b>	<b>Adjust 0.65 mm Clean or replace Clean or replace Replace plug</b>
<b>Engine does not crank</b>			<b>Internal engine problem</b>	<b>See your dealer</b>
<b>Engine Runs</b>	<b>Dies or accelerates poorly</b>		<b>Air filter dirty Fuel filter dirty Fuel vent plugged Spark plug Carburetor Cooling system plugged Exhaust port/spark arrestor screen plugged</b>	<b>Clean or replace Replace Replace Clean and adjust/replace Adjust Clean Clean</b>

**STORAGE**

**WARNING DANGER**

During operation the muffler or catalytic muffler and surrounding cover become hot. Always keep exhaust area clear of flammable debris during transportation or when storing, otherwise serious property damage or personal injury may result.

**LONG TERM STORAGE ( OVER 30 DAYS)**

Do not store your unit for a prolonged period of time ( 30 days or longer) without performing protective storage maintenance which includes the following:

- 1- Remove the chemical tank, clean the dust gate and inside the chemical inside and outside.
- 2- Store unit in a dry, dust free place, out of the reach of children.

**WARNING DANGER**

Do not store in enclosure where fuel fumes may accumulate or reach an open flame or spark.

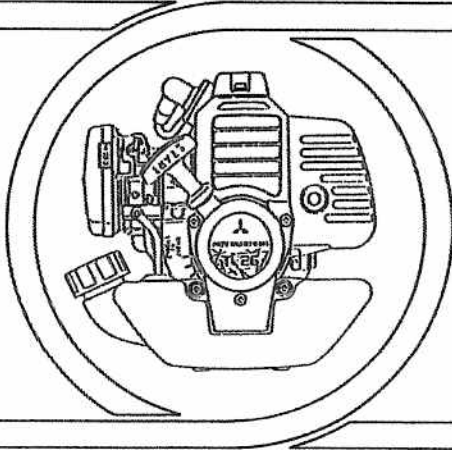
- 3- Remove accumulation of grease, oil dirt and debris from exterior of unit.
- 4- Perform all periodic lubrication and services that are required.
- 5- Tighten all screws and nuts.
- 6- Drain the fuel tank completely and pull the recoil starter handle several times to remove fuel from the carburetor.
- 7- Remove the spark plugs and pour 7cc ( \_ oz, \_ tablespoon) of fresh, clean 2-stroke engine oil into the cylinder through the spark plug hole.
  - A. Place a clean cloth over the spark plug hole.
  - B. Pull the recoil starter handle 2-3 times to distribute the oil inside the machine.
  - C. Observe the piston location through the spark plug hole. Pull the recoil handle slowly until the piston reaches the top of its travel and leave it there.
- 8- Install the spark plug ( do not connect ignition cable).
- 9- Remove blowy pipe assembly from unit.

KN51005AA

# MITSUBISHI MEIKI ENGINE

## OPERATION MANUAL

Read this manual completely before operating the engine, and use it correctly.



### TLseries (PFD, PSD)

**MITSUBISHI HEAVY INDUSTRIES, LTD.**

The description in this booklet is subject to change without previous notice.

### PREPARATION BEFORE ENGINE STARTING

1. Fill the fuel tank with the correct mixture of regular automobile gasoline and 2 stroke engine oil.

Mixture ratio (by volume)

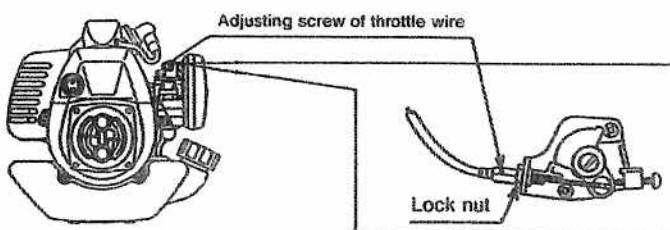
Gasoline : oil
25 : 1

#### CAUTION

- 1) Using the fuel with incorrect mixture ratio may cause insufficient output power or malfunction of the engine.
- 2) Wipe up completely spilled gasoline. It may soil clothes or cause a fire.

#### 2. Adjustment of the throttle wire

Adjust the play of throttle wire to 0.5 to 1.0 mm.  
Excessive play will cause a starting failure.

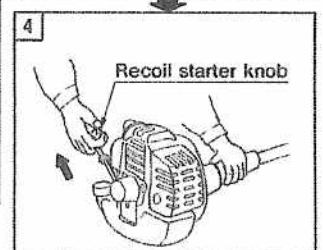
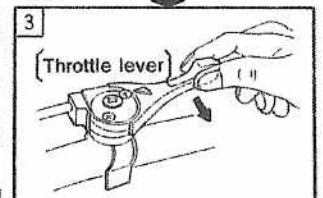
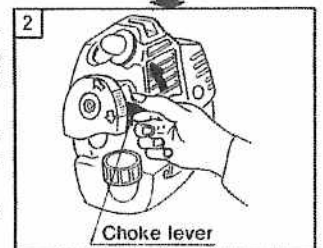
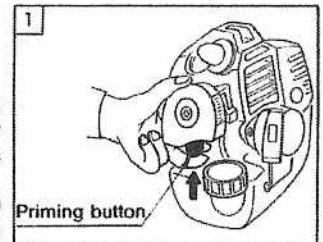


### PRECAUTIONS FOR SAFE OPERATION

- ▷ Do not allow young children or untrained persons to operate the engine.
- ▷ When starting the engine, confirm that no person, or no tank filled with fuel, or no fuel supply equipment exists within a circle of 3 m radius. The heat or spark could cause ignition and results in a fire.
- ▷ Since the exhaust gas is harmful, be careful not to inhale it. Do not use the engine in ill-ventilated places such as the interior of room, tunnel or pit, etc.
- ▷ Avoid touching an ignition plug cap and a high tension cord during engine operation. It may cause an electric shock and a physical injury.
- ▷ Always stop the engine when interrupting the work or moving the engine to another place. The working machine may restart by the turn over or the unexpected attitude change of engine and may injure your body.
- ▷ When filling the fuel tank with gasoline, always stop the engine and pay attention to the surrounding fire source such as cigarettes. It will ignite fuel and may cause a fire.
- ▷ If fuel or gas leakage is found from the carburetor, fuel tank, crankcase, cylinder or the mating surface of components, do not use as it is but repair them immediately. The fuel leakage may cause an engine fire or engine damage that will result in physical injury.
- ▷ Check the engine for loose or missing screws. When a loose or missing one is found, do not use the engine as it is but always maintain the defects.

### STARTING

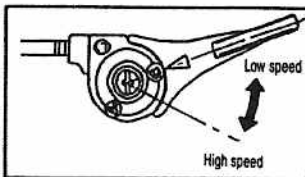
1. Press the priming button repeatedly with a finger till it touches the top in order to pump up the fuel and ensure a smooth start.  
(Press more than 10 times)
2. Move the choke lever to the fully closed position ( mark side).  
When fuel is remaining and the engine is warm, move the choke lever to the fully open position ( mark side).
3. Move the throttle lever to the position near the center between the low speed and high speed position.
4. Grasp the recoil starter knob and pull it rapidly.
5. After starting, watch the engine condition and move the choke lever slowly to the full open position ( mark side).  
When the explosion sound is heard, but the engine does not start, move the choke lever to the full open position and again pull the starter knob rapidly.



This engine is of the construction that the fuel returns to the fuel tank when the priming pump is operated. Even if the pump is operated a little too much, the fuel will not be pumped up excessively. It should be operated sufficiently. Because, when it is insufficient, a starting trouble may be raised.

## OPERATION

- After engine starts, move the throttle lever to low speed position and warm up the engine for about one minute. As the engine becomes warm, smooth acceleration will be obtained.
- Perform the work by setting the throttle lever to the required RPM.

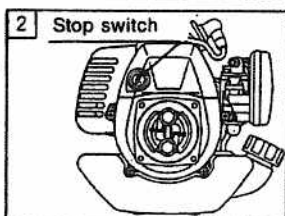
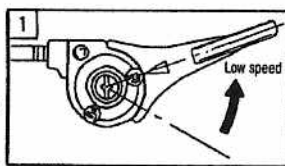


### CAUTION

- Since every part of the engine is not well lubricated just after the starting, avoid increasing the engine revolution rapidly.
- When the throttle is in full open position, the engine revolution becomes considerably high, and that not only gives a bad effect on the engine life but also causes the engine failure. Do not race the engine (high revolution running without load), and avoid unnecessary high revolution running as well.

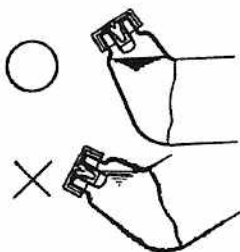
## STOPPAGE

- Move the throttle lever to low speed position.
- Press and hold the stop switch until the engine stops.  
In case of lever type switch, turn it to the "OFF" position.  
Replenish fuel before it is fully consumed. It will help to make the next starting easier.  
(Note) When the succeeding operation is not scheduled, empty the fuel tank and restart the engine to use up the fuel in the carburetor.



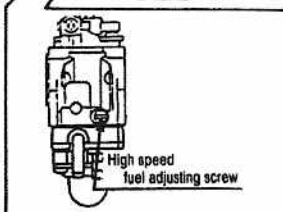
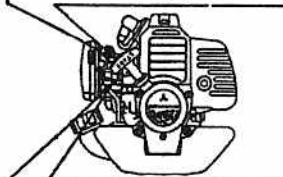
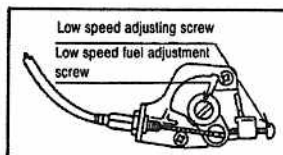
### CAUTION

- During summer when the engine is stopped for rest, be careful that the inner packing of tank cap is not submerged in the fuel as shown on the right illustration. If the air hole is submerged in the fuel, the fuel may leak due to the increased inner pressure in the fuel tank.
- During operation and just after stopping, do not touch the engine unit, especially the muffler.



## ADJUSTMENT OF CARBURETOR

- Low speed fuel adjustment screw**  
It is standard to revert a turn after full close (right turns).  
• Right turns: Fuel becomes lean.  
• Left turns : Fuel becomes rich.
- Adjust the low RPM with the low speed adjusting screw.**  
• Right turns: RPM increases.  
• Left turns : RPM decreases.
- In case that the engine is equipped with a high speed fuel adjusting screw:**  
• Right turns: Fuel-air mixture becomes lean.  
• Left turns : Fuel-air mixture becomes rich.

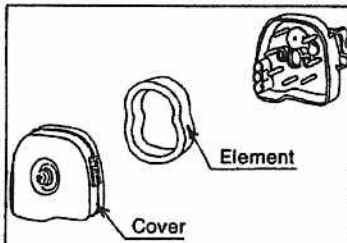


(Note) The adjustment of the carburetor is usually not necessary, since it is adjusted at the optimum position when delivered from the factory. If the fuel mixture is adjusted extremely lean, it may cause the seizure of engine.

## DAILY MAINTENANCE

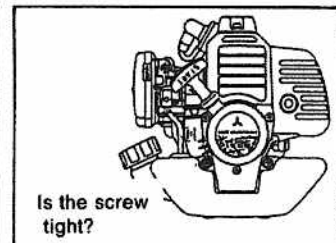
### Cleaning of air cleaner

After cleaning the air cleaner element with gasoline, soak it with engine oil and squeeze it tightly by hand.



### Checking for the tightness of screws

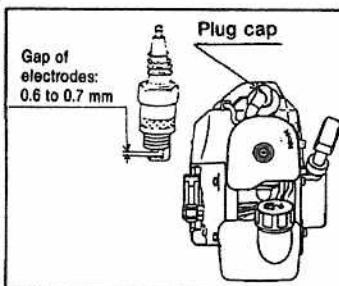
Check the screws periodically for tightness, and if any are loose, tighten it again.



## MAINTENANCE FOR EVERY 50 HOURS OPERATION

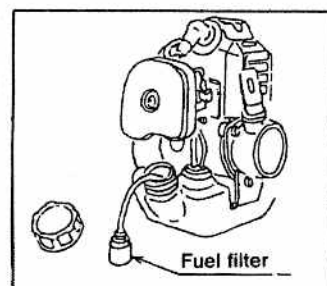
### Cleaning and adjusting of ignition plug

Remove the carbon deposit on the electrode and insulator, and adjust the gap of electrodes to 0.6 to 0.7 mm. When installing, push on the plug cap securely.



### Cleaning of fuel filter

Pull out the filter with a steel wire, etc. from the fuel filler port, and clean it well with gasoline. If the dirt is extreme, replace the fuel filter and clean inner of the fuel tank as well.



### Removal of carbon deposit

Remove the carbon deposit from the muffler inlet and outlet, cylinder and piston.

The engine maintenance technic and maintenance tools are necessary for this work. Please consult the dealer or the nearest service center.

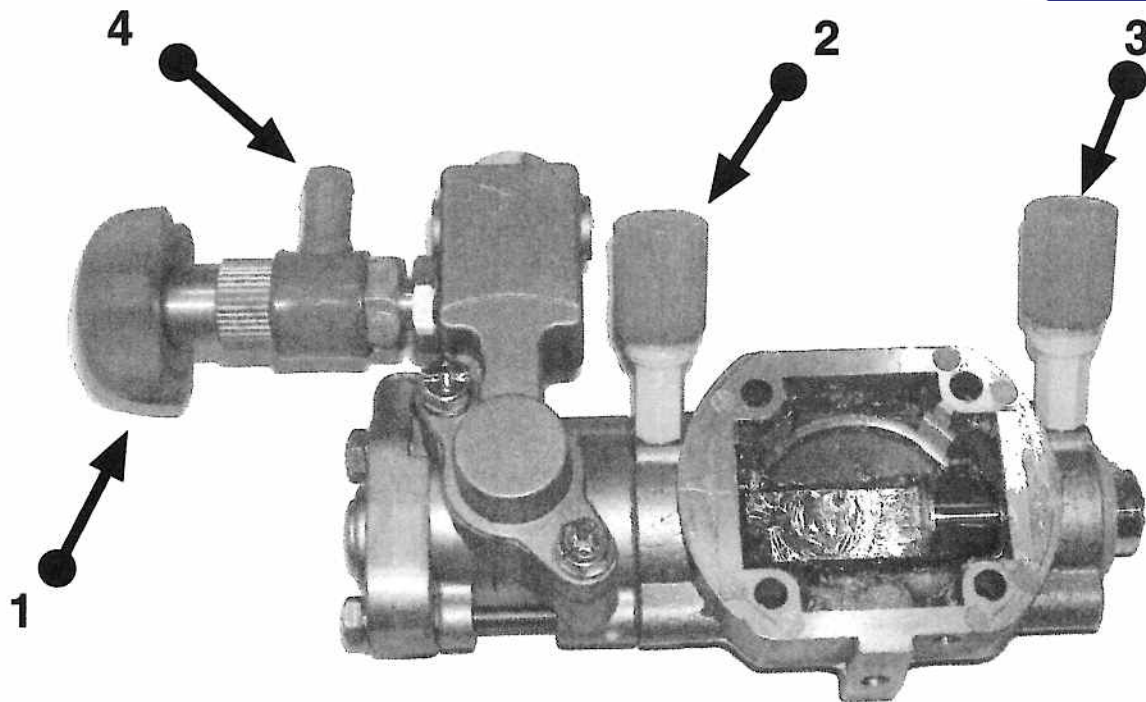
## LONG TIME STORAGE

When the engine is not used for more than a month, maintain and store it according to the following procedure so that starting failure or malfunction does not occur.

- Empty the fuel in the fuel tank. Then start the engine and continue operation until it stops by shortage of fuel.
- Clean the inside of fuel tank and the fuel filter with new gasoline.
- Remove the ignition plug and pour a small quantity of new engine oil into the plug hole. After pulling the recoil starter two or three times, install the ignition plug, and then pull the recoil starter slowly again. When a heavy draw is felt, stop pulling it in order to put a piston at the right position.
- Clean the exterior of the engine with a cloth soaked with oil, and store the engine at a place where it is dry and away from heat or fire.

### CAUTION

If the engine is kept for a long time with fuel contained in it, the impurities in the fuel will clog the fuel passages of the carburetor or fuel filter and result in unsatisfactory operation. Empty the fuel without fail when the engine is stored for a long time.



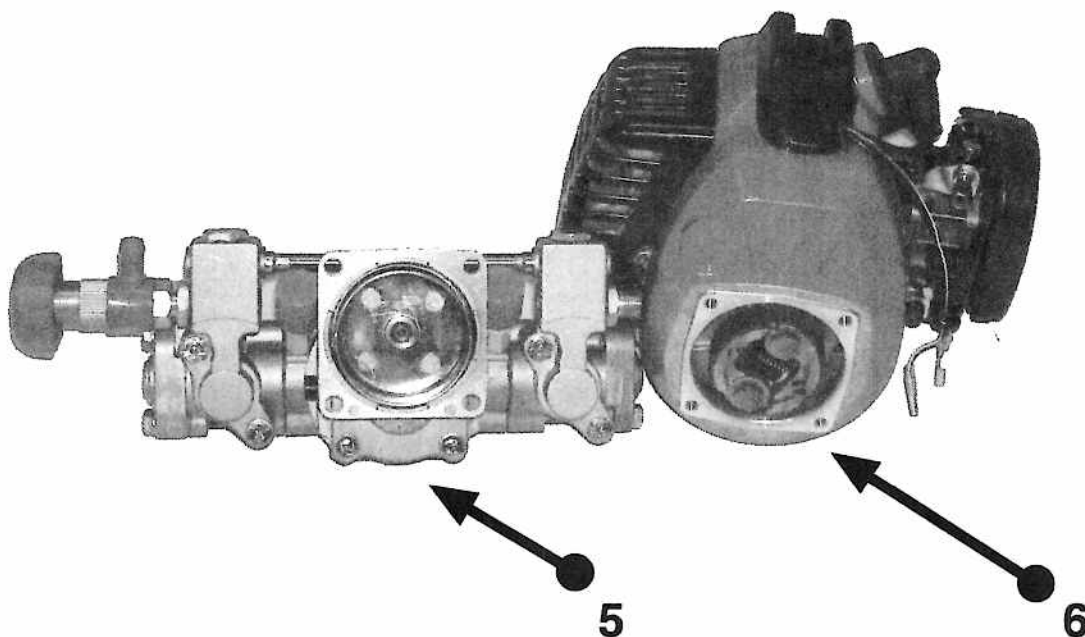
The knob picture Nr. 1 is used for regulating the pressure. Turning the knob clockwise we can increase the pressure from 0 to 27 atmosphere.

The caps pictures 2 and 3 are used for the pump lubrication ( grease lubrication, not oil lubrication).

Each 2/3 working hours is necessary to crew the caps one turn to push the grease on the pistons. This operation is necessary for the right lubrication of the pump. When the caps will be completely crewed it needs put a new grease.

Each sprayer CPC25 has a grease tune in equipment.

The outlet-return pipe union picture Nr. 4 serve also like agitator ( mixer) into the tank.



Picture 5 clutch engine

Picture 6 clutch bell pump

Increasing the speed, the pump deliver a bigger quantity of a water in proportion from 4,6 to 6,3 L/1' (see accelerator lever).

# PROPER APPLICATION & PRECAUTIONS

## • OPERATION PROCEDURE:

- 1) Check the power source.
- 2) Fasten a high pressure outlet pipe.
- 3) Turn on the power of motor and switch on a sprayer immediately to release the residual air from the pump, make sure that the water fluid from an outlet is normal (if it is abnormal, then remove the high pressure outlet pipe so as to accelerate the air releasing from the pump).
- 4) Adjust the pressure by turning a pressure releasing valve clockwise to obtain a normal pressure.

## • THE LUBRICATION OF THE PUMP :

- 1) Originally change the oil after the machine running about 30-50 hours and subsequently, in an interval of about 70-100 hours (made sure whether or not the oil is deteriorated).
- 2) Unfasten an outlet screw and release the discarded oil.
- 3) Fasten the outlet screw and unfasten an inlet cover then replenish 30/ - 40/ clean oil. The right amount of the oil indicates at a two third portion in an oil glass.
- 4) Always fill the grease cups with grease. Screw on the grease cups 2-3 cycles every 2 hours of spraying.
- 5) Be sure to clear the interior of pump by pouring clear water into the tank and restarting the motor immediately after finishing the application of chemical.

## • THE PRECAUTION DURING PUMP APPLICATION:

### A) REGARD TO THE VALVE:

- 1) Disassemble the valve plug from the valve and clean it if they are stuck up.
- 2) Clean the residues accumulated over the valve plug.
- 3) Change the valve spring if it is broken or worn out.

### B) REGARD TO AN UNLOADED VALVE:

- 1) Change a new one if the pressure gate or the valve seat is found worn out.
- 2) Clean the residues on the valve seat.
- 3) Change new ones if the oil ring is worn out.

### C) REGARD TO THE CRANK CASE:

- 1) If the oil inside the crankcase is insufficient, the connecting rod, the crank and the bearings will be worn out, then remove the back cover from the crank case and change the components.
- 2) If the oil inside the crankcase is deteriorated. Make sure the reason why it is deteriorated and then change the oil or the piston oil seal.
- 3) If the plunger can not operate, make sure that the bearing is broken in crank case and change the bearing.

### D) REGARD TO THE PISTON:

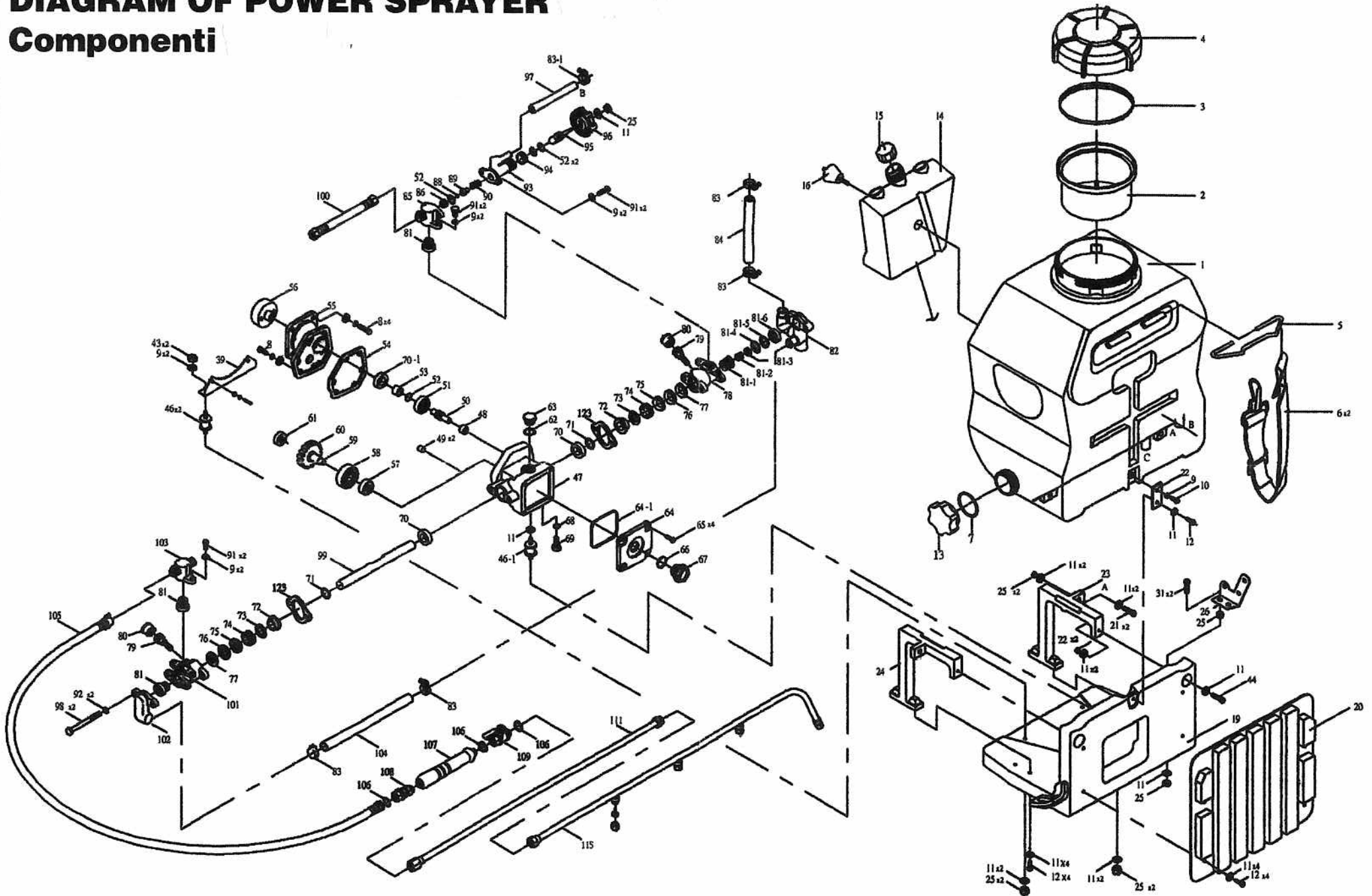
- 1) Change a new one if the V-packing is worn out.
- 2) Change a new piston if it is worn out ( a crack occurred along the axis of the piston is the one of the consequences causing a pressure decreasing or a water leakage).

### E) OTHER:

- 1) Change a new nozzle if it is broken causing a pressure decreasing.
- 2) Change a new high pressure pipe or a new connecting packing if they are found broken.



# DIAGRAM OF POWER SPRAYER Componenti



## SPARE PARTS

1	CHEMICAL CONTAINER	64	CRANK CASE COVER
2	FILTER	64-1	O-RING
3	GASKET	65	SCREW
4	CONTAINER COVER	66	O-RING
5	CHAIN HOLDER	67	OIL GLASS
6	STRAP	68	O-RING
7	GASKET	69	DRAIN PLUG
8	SCREW	70	OIL SEAL
9	SPRING WASHER	70-1	OIL SEAL
10	SCREW	71	O-RING
11	WASHER	72	ADJUSTING RING
12	SCREW	73	GREASE RING
13	DRAIN CUP	74	V-PACKING UPPER SEAL
19	FRAME	75	V-PACKING
20	PAD	76	V-PACKING
21	SCREW	77	PACKING SEAT
23	RIGHT STAND	78	CYLINDER
24	LEFT STAND	79+80	GREASE CUP
25	NYLON NUT	81	VALVE ASS'Y
26	FIXED PLATE	82	SUCTION CHAMBER
31	SCREW	83	CLIP-L
32	CORD COMP	83-1	CLIP-S
33	WASHER	84	SUCTION HOSE
34	CABLE COMP	85	OUTLET CHAMBER
34-1	FLEX ACCELERATOR	86	VALVE SEAT
35	NYLON NUT	88	PRESSURE VALVE
37	SCREW	89	PRESSURE VALVE ROD
39	ENGINE STAND	90	SPRING
40	WASHER	91	SCREW
41	SPRING WASHER	93	RELIEF VALVE ASS'Y
42	SCREW	94	NUT
43	NUT	95	PRESSURE VALVE SCREW
46	JOINT-S	96	PRESSURE ADJUSTING
46-1	JOINT-L	97	OVERFLOW HOSE
47	CRANK CASE	98	SCREW
48	BEARING	99	PLUNGER
49	STEEL PIN	100	HIGH PRESSURE HOSE
50	SHAFT	101	CYLINDER
51	BEARING	102	SUCTION CHAMBER
52	O-RING	103	OUTLET CHAMBER
53	STEEL PIPE	104	SUCTION HOSE
54	GASKET	105	HIGH PRESSURE HOSE
55	DRUM CASE	106	PACKING
56	DRUM CLUTCH	107	HOSE PIPE HANDLE
57	BEARING	108	ROLLER
58	BEARING	109	BALL COCK
59+60	GEAR SHAFT AND GEAR	110	PACKING
61	BEARING	111	SPRAY ROD
62	O-RING	123	FIXED PLANE
63	OIL INLET CUP		

**Postadress:**

TRÄDGÅRDSTEKNIK AB  
Helsingborgsvägen 578, Varalöv  
262 96 ÄNGELHOLM

Telefon : 0431-222 90  
Bg.nr : 5743-7980  
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