

## STATEMENT OF LIMITED WARRANTY

MÁQUINAS AGRÍCOLAS JACTO S.A. shall warrant the equipment described in this manual and shall repair or replace parts and components which, under normal operation and wear, in accordance with technical recommendations, show DEFECTS IN MATERIAL OR WORKMANSHIP, based on the following conditions.

### WARRANTY PERIOD

- 01 (one) year from the date of sale to the original purchaser.

### WARRANTY APPLICATION

- JACTO shall honor this warranty, free of charge, if any part or component shows defect in MATERIAL OR WORKMANSHIP, after final analysis at the factory.

### THIS WARRANTY SHALL BE NULL & VOID IN CASE OF:

- Misuse of the equipment against specifications in the OPERATOR'S MANUAL, overwork or accidents.

- Preventive/remedial maintenance performed by unauthorized people.

- Use of parts and components not supplied by JACTO.

- Modification of the equipment or any characteristic of the original design.

### THIS WARRANTY SHALL EXCLUDE:

- Parts which show wear and tear due to use, UNLESS THEY SHOW DEFECTS IN WORKMANSHIP, ASSEMBLY OR MATERIAL.

- Damages resulting from accidents.

- Transportation or freight of the equipment, parts and components in case such warranty is not approved.

- Transportation and mobilization of technicians.

### GENERAL INFORMATION:

- Parts replaced within the warranty period shall be property of JACTO.

- The warranty on replaced parts and components shall expire together with the equipment warranty period.

- Eventual delays in performing services shall not give the owner right either to indemnity or to extension of the warranty period.

- JACTO reserves the right to modify its products or to interrupt the manufacture without prior notice.



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## OPERATOR'S MANUAL HD-400

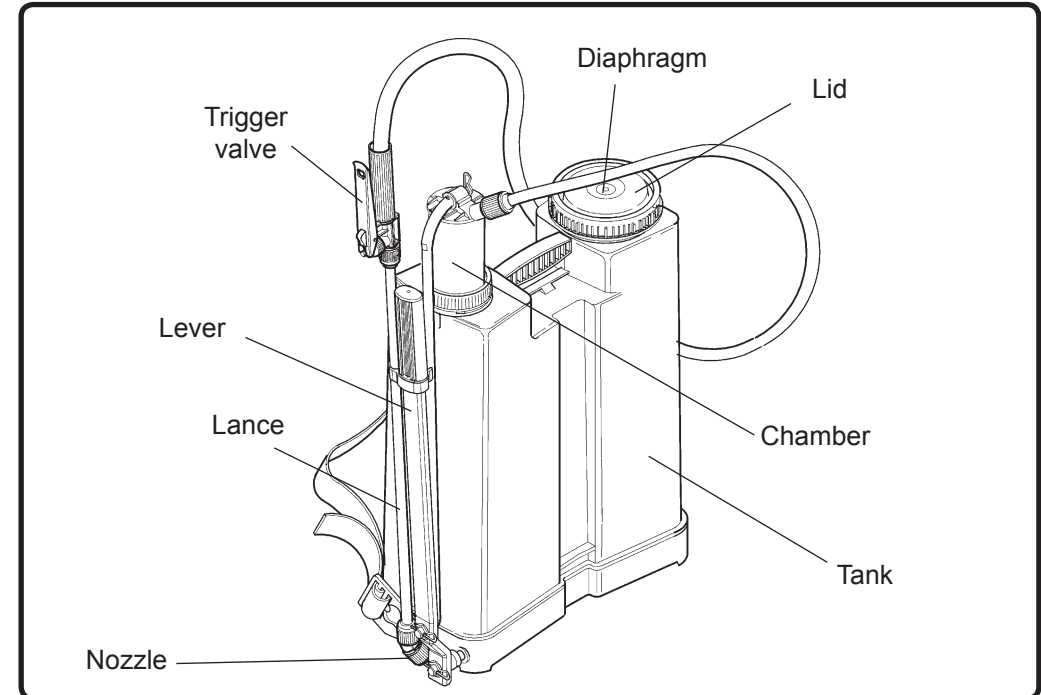


### 1- INTRODUCTION

This manual contains information for the proper assembly, operation and care of your HD400 sprayer.

Carefully read and follow the instructions contained in this manual before using your sprayer.

### 2- SPRAYER VIEW



### 3- SPECIFICATIONS

Model..... HD400

Net weight..... 8.16 lbs

Tank

- Capacity ..... 4 gallons

- Material..... Polypropylene

- Fill opening diameter 4.5 in.

Pump

- Type..... Piston

- Material..... Polypropylene

- Working pressure (max.) . 65 psi

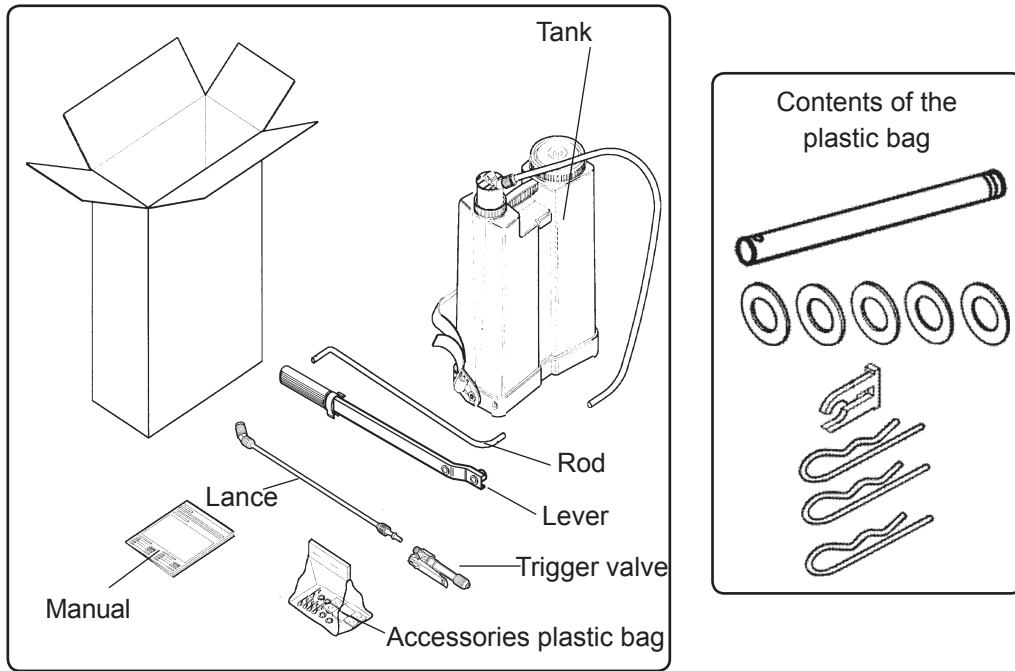
Lance length..... 18 in.

Hose length ..... 53 in.

Nozzle fitted..... JD 12 P

#### 4- ASSEMBLY PROCEDURES

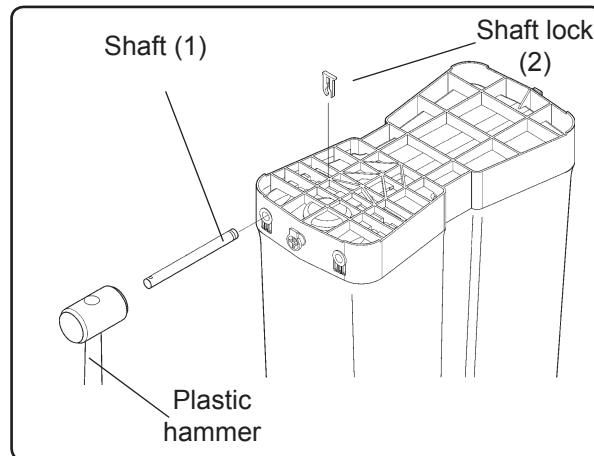
Remove from the sprayer carton the following parts:



ATTENTION: Be careful when taking the sprayer out of the carton as the lever is shipped loose and can cause damage.

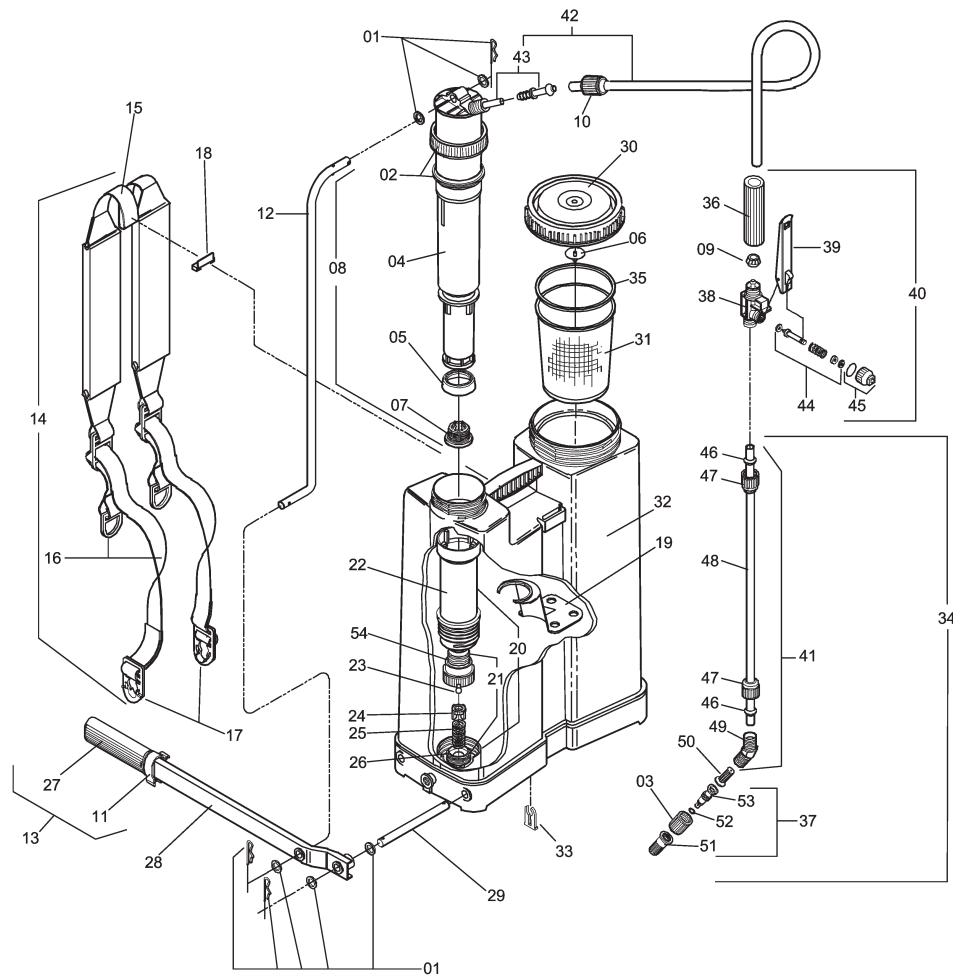
#### 5- INSTALLING THE SHAFT

- Insert the shaft (1) in the free opening on the tank base (on the same side of the chamber).
- Tap the shaft with a plastic hammer as shown, until it is possible to fit the shaft lock (2).
- Lock the shaft with the shaft lock (2).



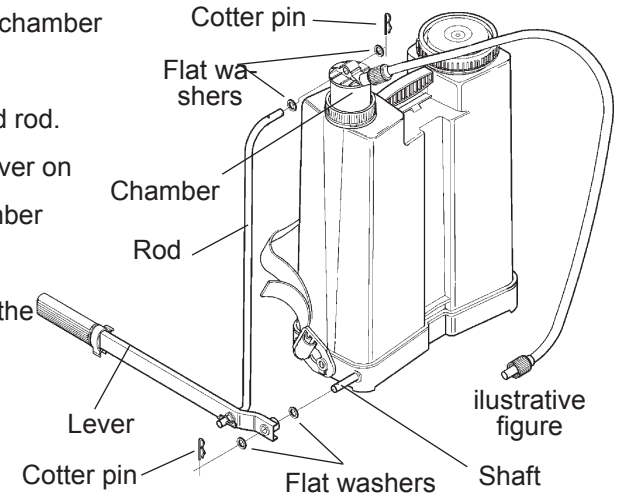
Item	Part no	Description	Qty	Item	Part no	Description	Qty
00	-	HD400	01	32	586321	Tank	01
01	942102	Washers and cotter pins set (repair)	01	33	277350	Shaft lock	01
02	907113	Gasket holder and gasket	01	34	635854	Spray lance	01
03	229724	Nozzle cap	01	35	837922	Tank lid seal	01
04	188250	Chamber (0.23 gallons)	01	36	909192	Trigger valve handle	01
05	214585	Piston cup	01	37	225787	Blue adjustable cone nozzle	01
06	560573	Diaphragm	01	38	909283	Trigger valve body	01
07	1173630	Sphere valve	01	39	105247	Trigger	01
08	635813	Chamber assembly (includes items 4, 5, 7 and 42)	01	40	908889	Trigger valve assembly	01
09	920470	Pin lock	01	41	121532	Poly extension	01
10	942193	Screw cap S-20 x 1.5	01	42	048116	Dip tube with hose	01
11	495648	Leve and lance holder	01	43	071308	Dip tube assembly	01
12	964387	Rod	01	44	105239	Trigger valve needle assembly	01
13	495812	Handgrip assembly	01	45	996058	Trigger valve cap with packing	01
14	838029	Strap assembly (includes 15 to 18)	01	46	909309	Cone packing	02
15	573014	Shouder strap and pad	01	47	915744	Screw cap	02
16	229971	Strap and handle	02	48	336263	Poly tube	01
17	635672	Buckle	02	49	635276	Elbow with cone packing	01
18	635664	Strap catch	01	50	592139	Nozzle filter (40 mesh)	01
19	214619	Agitator	01	51	166645	Nozzle cap	01
20	654939	Cylinder (includes items 54 and 22 to 27)	01	52	940106	O-ring OR - 09	01
21	838011	Cylinder valve assembly (repair) 54, 23 to 27)	01	53	166611	Nozzle body	01
22	635599	Cylinder body	01	54	635607	Piston cup fastener	01
23	715474	Ball	01				
24	570945	Ball seat	01				
25	336412	Compression spring 12 x 28	01				
26	635615	Valve base	01				
27	002683	Handgrip	01				
28	661363	Lever	01				
29	293324	Lever shaft	01				
30	878132	Lid with diaphragm	01				
31	942920	Fill basket strainer	01				

LLM-358



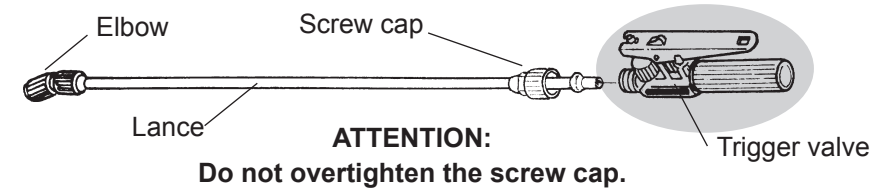
**6- INSTALLING THE LEVER ON THE SHAFT AND THE ROD ON THE CHAMBER TOP**

- Lightly grease the orifice on the chamber top.
- Fit a flat washer on the shaft and rod.
- For easy assembly, install the lever on the shaft and the rod on the chamber top at the same time.
- Install the other flat washers on the shaft and rod and lock with the cotter pin.



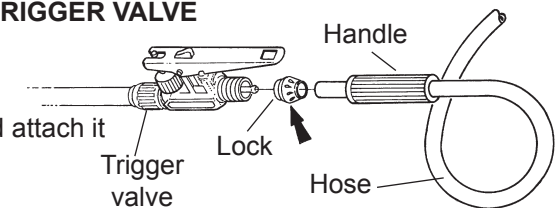
**7- ATTACHING THE LANCE TO THE TRIGGER VALVE**

- Push the lance into the trigger valve and secure it with the screw cap.



**8- ATTACHING THE HOSE TO THE TRIGGER VALVE**

- Unscrew the trigger valve handle.
- Remove the lock.
- Pass the hose through the handle and attach it to the trigger valve as shown.
- Screw the handle on the trigger valve.

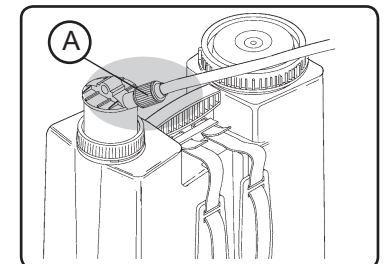


**ATTENTION: Do not overtighten the handle.**

**9- TIGHTENING THE FASTENING NUT.**

- Before using the equipment, tighten the fastening nut (A).

**Important:** This operation must be carried out by hand. Never use any type of tool.

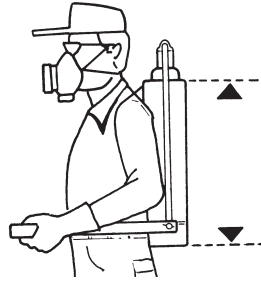


## 10- ADJUSTING THE SHOULDER STRAP

The tank is contoured for the operator comfort.

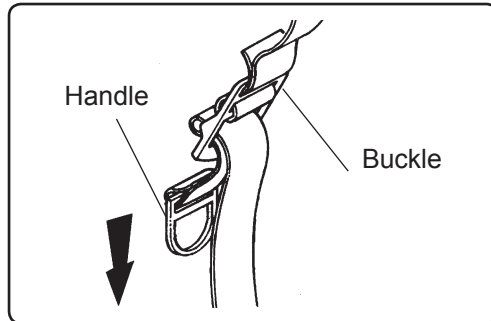
The shoulder straps can be quickly adjusted to properly position the sprayer on the operator's back.

See below.



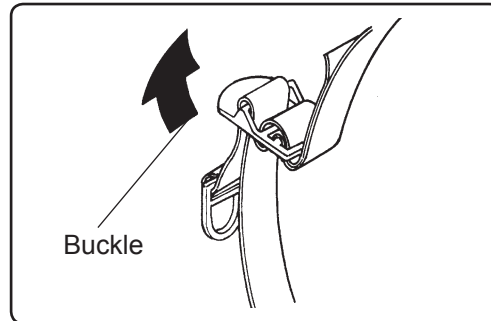
### TIGHTENING

- Hold the strap buckle firmly with one hand, and pull the handle downward with the other hand.



### LOOSENING

- Hold the buckle firmly with one hand, and pull the strap upward with the other hand.



## 11- ATTENTION

After assembling the sprayer, fill the tank with clean water and pressure-check the tank lid, diaphragm, tank bottom, lance and trigger valve for leakage. Most leaks can be stopped by retightening the appropriate connections and fittings. Any leakage must be repaired before returning to service.

## 12- INVERTING THE LEVER POSITION

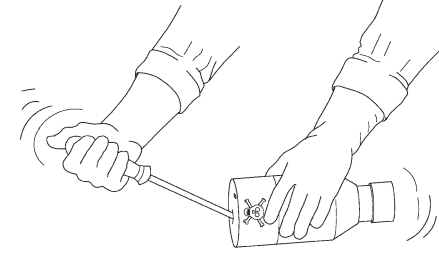
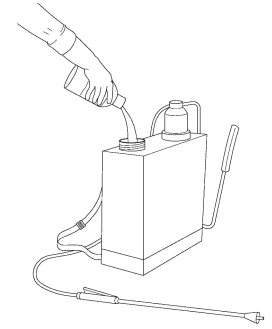
This sprayer is assembled to mount the lever for left hand operation. In case you wish to change its position, proceed as follows.

- Remove the cotter pin (1) and washers (A) and the rod (2) of the chamber top.
- Turn the chamber top 180°.
- Reinstall the rod (2) on the chamber top, fit the washers (A) and secure the rod with the cotter pin (1) again.
- Then, remove the cotter pins (4 and 5) and the washers (B).
- Remove the lever (6) and the shaft (7).
- Unfasten the strap assembly (8) and mount it on the other side of the sprayer as shown in the detail below.

- Take the container cap off and carefully pour the rinse water into the spray tank.

- Continue holding the container over the spray tank opening for approximately 30 seconds to the last drop.

- REPEAT this operation twice more. This way, you complete the TRIPLE WASH.



- Next, make the plastic and metallic containers useless by piercing with a pointed instrument the containers bottom. This way, their labels are not damaged for identification purposes.

- The useless containers can be placed temporarily in an appropriate place, until final destination.

- In the case of mid and large size container (13.2, 26.4 and 52.8 gallons), after washing with the appropriate volume (1/4 of the total) and fitting the cap, roll it on the ground for approximately 30 seconds.

- In the upright position complete the agitation by moving back and forth for approximately 30 seconds.

- Empty the container by pouring the rinse water into the spray tank.

- REPEAT this operation twice more. Finally, totally empty the container by pouring rinse water in the spray tank.

- The least amount of rinse water that remains in the container, from one wash to the next, the better the decontamination will be.

- For the performance of the TRIPLE WASH, do not use a water volume either much lower or much higher than 1/4 of the container capacity.

-The TRIPLE WASH must be done IMMEDIATELY AFTER emptying the container, during the preparation of the solution

SOURCE - ANDEF (NATIONAL ASSOCIATION OF VEGETAL DEFENSE)

## TRIPLE WASH OF EMPTY AGROCHEMICALS CONTAINERS

Even the containers considered empty contain chemical residues.

Some publications show that approximately 0.3% of the chemicals remains in the container after being used.

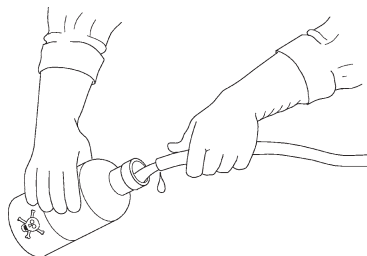
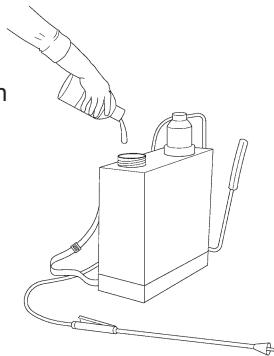
Therefore, discarding the containers without washing out the residues is extremely dangerous to man, animals and environment.

In the case of metal, plastic and glass chemical containers, each container must be rinsed three times to ensure the residues are completely removed.

This manual describes how to make the TRIPLE WASH in a correct, safe and effective way.

-During the TRIPLE WASH, you must use appropriate protective clothing, such as: gloves, apron, boots, goggles and protective masks with appropriate filters.

- IMMEDIATELY AFTER emptying the container, you must keep it with the opening upside down over the sprayer tank opening or over the bucket that you are using to prepare the chemical mixture for at least 30 seconds, until no residue is left in the container.



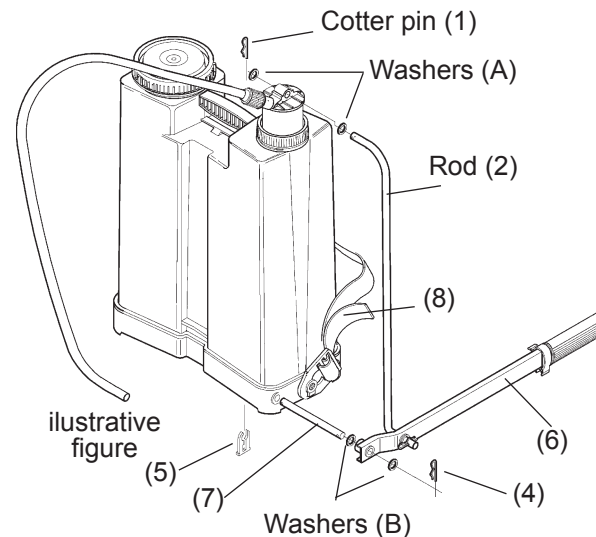
- Next, hold the container in the upright position and fill it with water up to 1/4. For example: in a 5.2 gallons container, put 1.3 gallons of water.

- Fit the container cap and tighten enough to avoid leakage during the agitation.

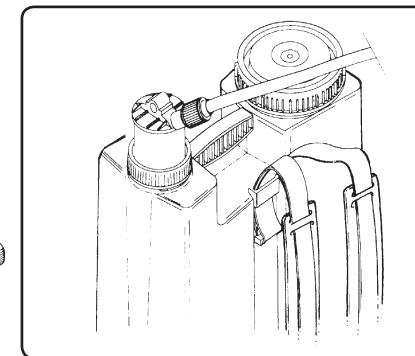
- Agitate the container vigorously in all directions (horizontal and vertical), for approximately 30 seconds to remove the residues that cling to the container internal walls.



- Install the shaft on the other opening on the tank base; proceed as instructed in the item 05. - Fit the washers (B) and mount the lever (6) on the rod oriented to be operated with the right hand.



### FASTENING THE STRAP

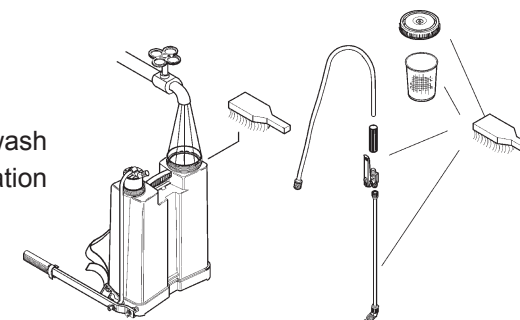


## 13- MAINTENANCE

### CLEANING THE SPRAYER

-After finishing the application, clean and wash all equipment in an approved decontamination area.

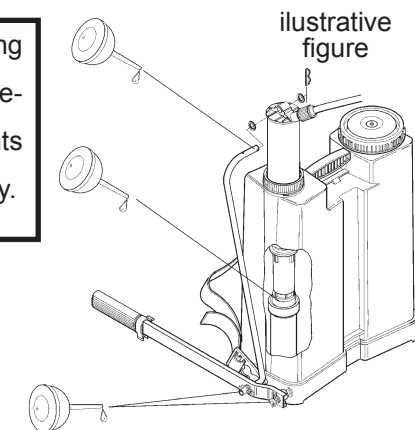
**Pump the lever until the discharge runs clear.**



**ATTENTION:** Remove all chemicals before storing the sprayer. Chemical products have different reactions and can damage the sprayer components and environment as well as cause personal injury.

- Periodically, clean the chamber and lubricate the components as shown. With oil.

- Remove the chamber and lubricate the piston cups. With oil.





## 14- CYLINDER MAINTENANCE

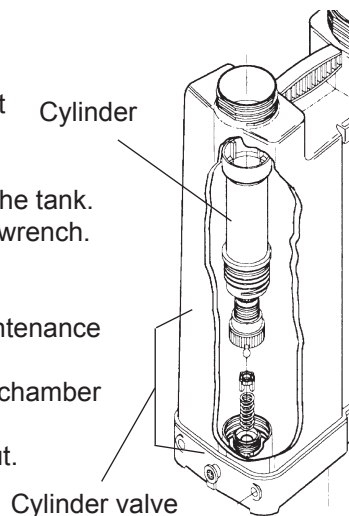
### DISASSEMBLING

- Remove the rod from the chamber top.
- Loosen the nut that fastens the chamber onto the tank.
- Push the chamber into the cylinder all the way.
- Turn the chamber 360° counter-clockwise and pull it out of the tank.

- Remove the tank lid and the strainer.
- Inside the tank, unscrew the cylinder and take it out of the tank.
- Disassemble the cylinder valve using the maintenance wrench.
- Clean or replace the parts.

### REASSEMBLING

- Install the valve in the cylinder and install it using the maintenance wrench.
- Mount the cylinder on the sprayer and install it using the chamber assembly as a wrench.
- Mount the chamber on the cylinder and retighten the nut.
- Install the rod in the chamber top.

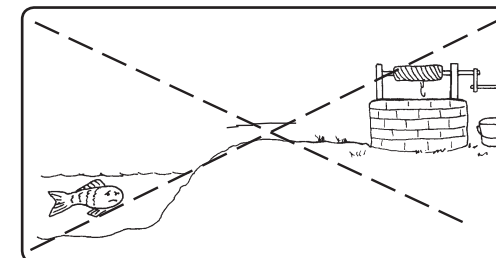
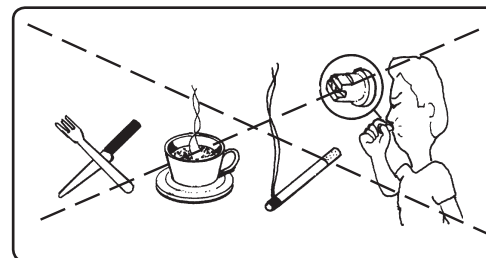


## 15- TROUBLESHOOTING

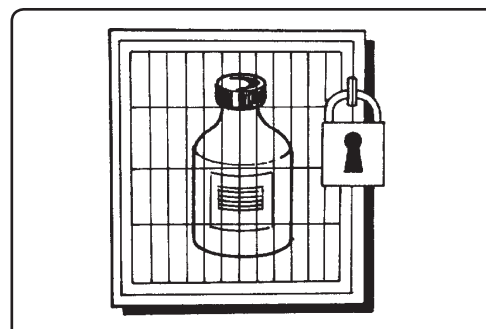
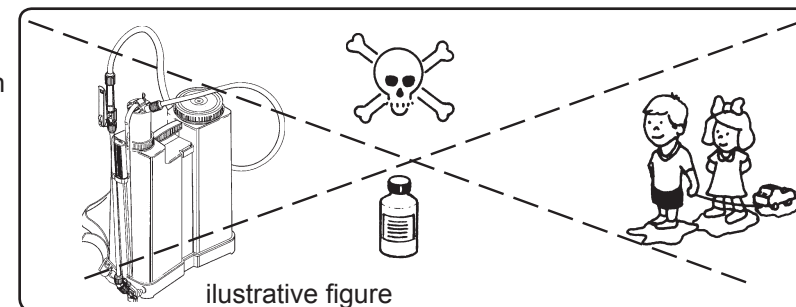
- Put about 0.5 gallons of water in the tank.
- While operating the pumping lever, look into the tank to investigate the problem.
- Refer to the table and diagram below.

PROBLEM	CAUSES	CORRECTIONS
Leakage through the cylinder upper part (1).	Worn or dried out piston cup.	Replace or lubricate the piston cup.
After pumping and pressurizing the chamber, the lever it drops.	Cylinder valve (2) not sealing properly due to wear or impurities.	Clean or replace the valve.
After pumping and pressurizing the chamber, the lever rises slowly when released.	Chamber valve (3) not sealing properly due to wear or impurities.	Clean or replace the valve.
The lever is hard to pump and the spray stops rapidly.	Air leakage through the nut that fastens the hose to the chamber.	Drain all the liquid from the chamber. Tighten the nut.

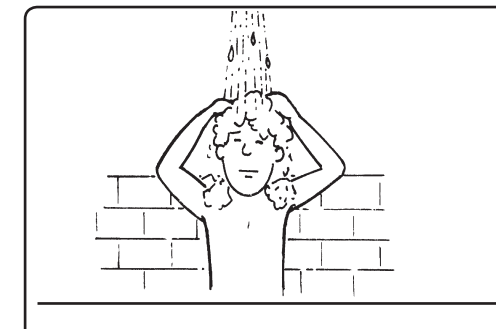
- Do not eat, drink or smoke while spraying.
- Do not pollute the environment.



- Keep the products out of reach of children and animals.



- Lock up the chemical products to prevent untrained persons to handle them.



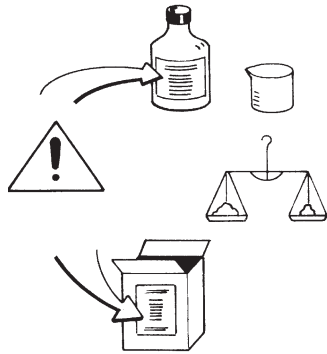
- After finishing the spray application, take a shower with plenty of water and soap.
- Put on clean clothes.

**ATTENTION: The clothing used during the application must be washed separate from other clothes of ordinary use.**

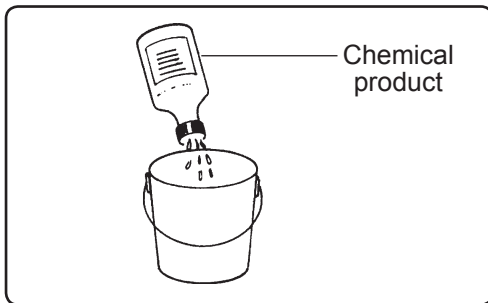
**ATTENTION: In case of intoxication, see a doctor immediately and show him the chemicals manufacturer's label.**

## SAFETY PRECAUTIONS

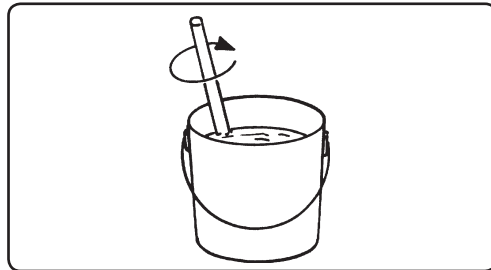
**ATTENTION!**  
**READ CAREFULLY**  
**THE CHEMICALS**  
**MANUFACTURER'S LABELS**



- Put 1.3 gallons of water in a bucket and add the chemical product.



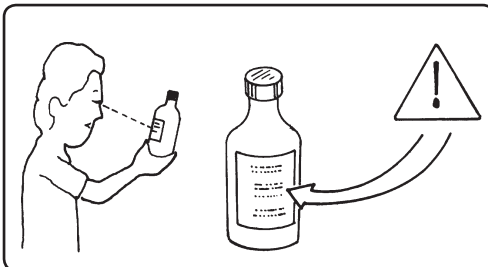
- Stir until it becomes an homogeneous mixture.  
 - Pour the solution into the tank while filling with water.



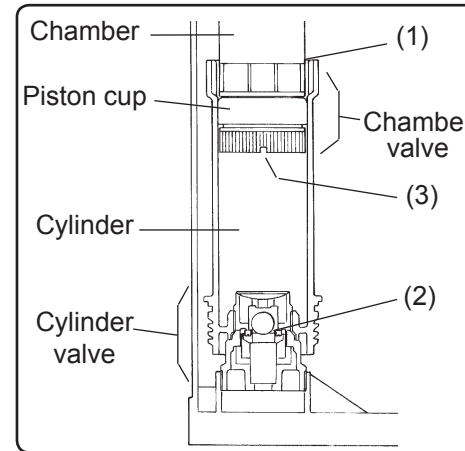
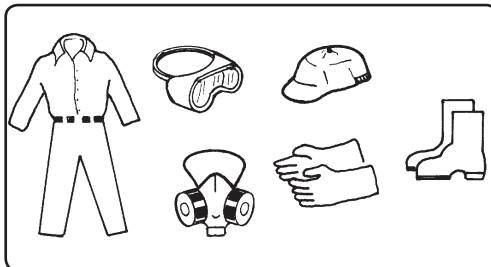
### ATTENTION

- Wash hands and other parts of the body that have touched chemicals before starting to spray.

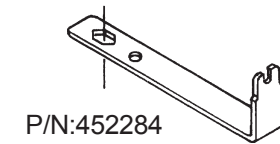
- Read carefully the chemicals manufacturer's label.



- Use of individual protective clothing and safety equipment is required.



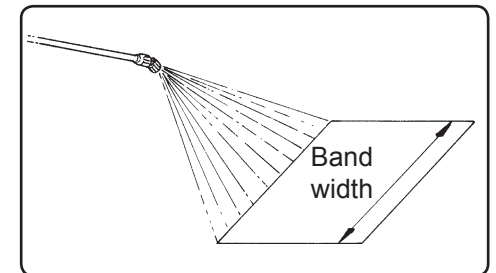
Wrench for maintenance of chamber and cylinder valves (OPTIONAL).



### PROCEDURE

#### USING CALIBRATOR BOTTLE (OPTIONAL)

- Hold the lance at the working height and spray to measure the application band width.
- Based on the band width, calculate the total walking distance required to spray the desired area. Use the chart below.



Band width (feet)	1.6	2.2	3.2	3.9	4.9
Distance to walk (feet)	164	117.1	82	68.2	54.7

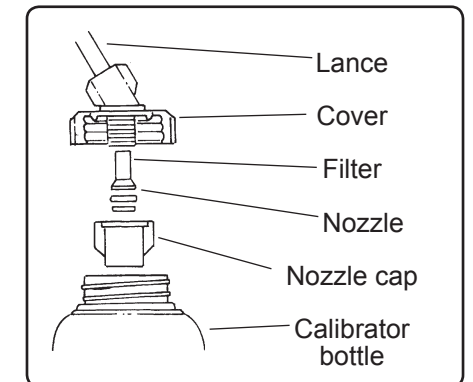
- Attach the calibrator bottle to the lance as shown:.

A - Remove the cap, nozzle and filter.

B - Mount the calibrator cover to the lance.

C - Reinstall the filter, nozzle and cap.

D - Screw the calibrator onto the cover.


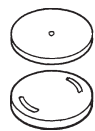
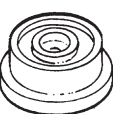
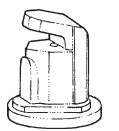
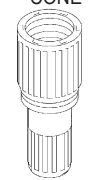


- Hold the lance at the normal working height and spray into the bottle while walking the distance required to spray an area corresponding to 269.1 ft<sup>2</sup>.

- Place the bottle on a level surface and observe the liquid level visible through the side of the bottle. Match the liquid level to the corresponding scale on the calibrator bottle.

- Empty the bottle and repeat this operation to determine the average of two or more readings.

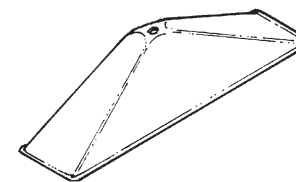
## SPRAY NOZZLES

NOZZLE TYPE	IDENTIFICATION (PART NO.-DESCRIPTION)	APPLICATION	PRESSURE (psi)	FLOW RATE (gallons/min)
	454215 - 80EF015 KEMATAL (GREEN)	Herbicides	45	0.16
	454223 - 80EF02 KEMATAL (YELLOW)		45	0.21
	454231 - 80EF03 KEMATAL (BLUE)		45	0.33
	717942 - JD-10A (STAINLESS STEEL)	Agrochemicals and foliar fertilizers	45	0.07
	217174 - JD-12P (*) (STAINLESS STEEL)		45	0.16
	457317 - HC-02 (KEMATAL)	Agrochemicals and foliar fertilizers	45	0.21
	457325 - HC-04 (KEMATAL)		45	0.44
	457333 - HC-05 (KEMATAL)		45	0.54
	457390 - DEF-04	Agrochemicals and foliar fertilizers	15	0.25
	457408 - DEF-05		15	0.31
	457416 - DEF-06		15	0.40
	323725 (YELLOW)	Agrochemicals and foliar fertilizers. 90° cone and concentrated jet	45	0.08
	015024 (RED)		45	0.16
	325787 (BLUE)		45	0.18

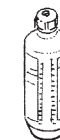
\* **ATTENTION:** This sprayer is packaged with the JD-12 P nozzle fitted in the lance. Other nozzles mentioned in this manual are optional and can be purchased separately.

## OPTIONAL ACCESSORIES FOR MANUAL KNAPSACK SPRAYERS

Item	Part no.	Use
01	761882	Spray guard: prevents nonselective herbicides from drifting.
02	902296	Boom 500: improves the coverage and increases the productivity.
03	907873	Flexible boom: holds the required shape for better coverage.
04	728139	Extension 600: increases the application reach.
05	100016	Extension 160 - 2 nozzles: increases the coverage and penetration.
06	834309	Flow calibrator bottle: is used to calibrate the sprayer, thus reducing the waste
07	336115	Nozzle Y: improves the coverage.
08	590513	ECOVALVE -Constant Pressure Valve (14.2; 21.3 and 28.4 PSI) - ensures constant pressure without waste.



Spray guard

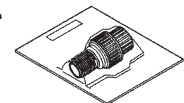


Flow calibrator bottle

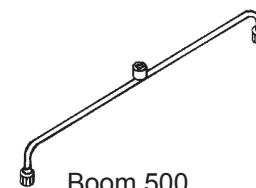


Nozzle Y

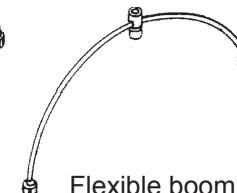
Extension 160



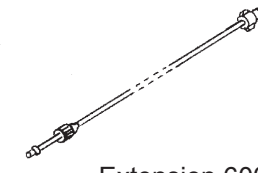
Ecovalve



Boom 500



Flexible boom



Extension 600