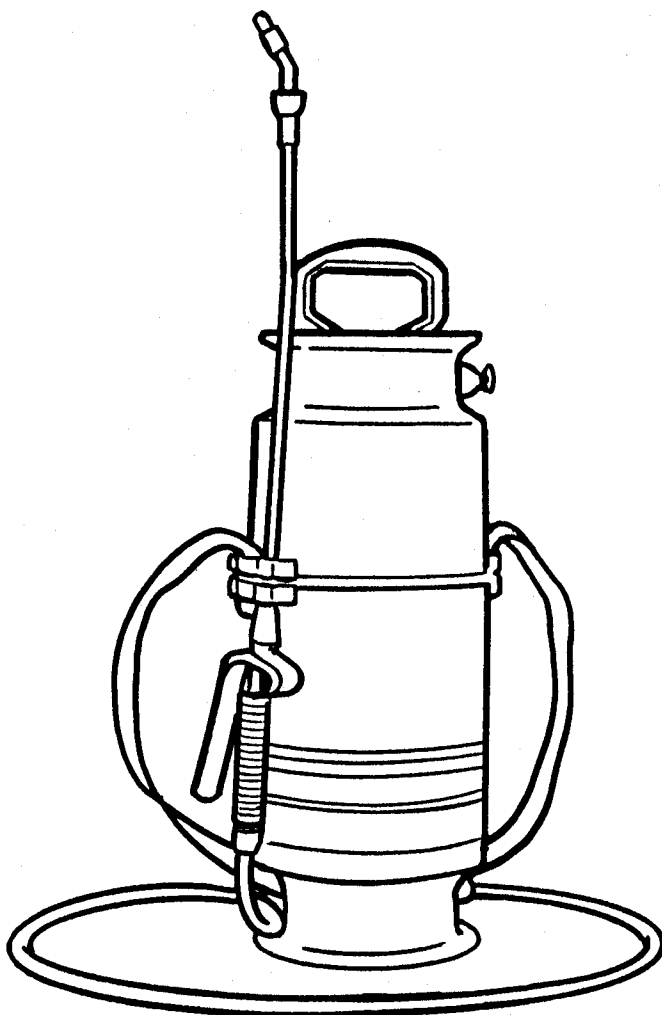




OPERATOR'S MANUAL

PORTABLE SPRAYER



MS-9
MS-12

<p> CAUTION READ RULES FOR SAFE OPERATION AND INSTRUCTIONS CAREFULLY</p>
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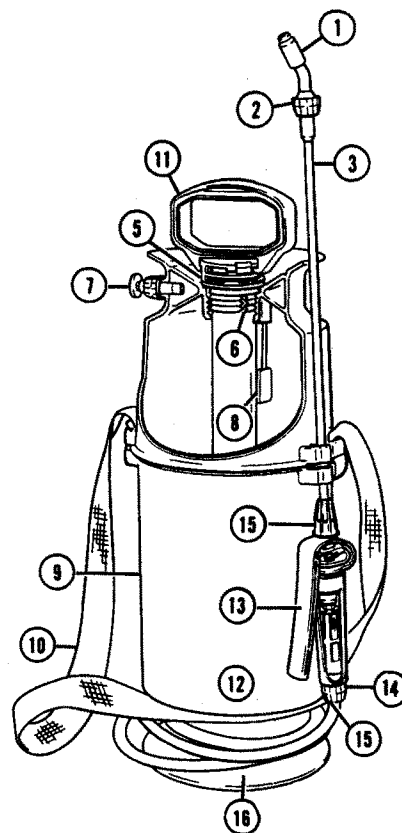
999222-01826

FOREWORD

THANK YOU for choosing an **ECHO PORTABLE SPRAYER**. These sprayers are powered by retained pressure and are made of materials highly resistant to corrosion and commonly used chemicals. The **ECHO PORTABLE SPRAYERS** are easy to maintain and repair. No special tools are required. All of these features and much more make these sprayers very functional, lightweight and economical.

1. FEATURES

1. Adjustable nozzle
2. Coupling for attaching accessories
3. Positionable wand
4. Operation and transport handle
5. Wide filling mouth
6. Decompression groove (Safety system)
7. Safety valve with pressure indicators
8. Interior level indicator
9. Exterior level indicator
10. Wide, resistant strap for transportation
11. Wand clip for use during transportation or storage
12. Illustrated instructions showing how to use sprayer
13. Control handle with "AUTOBLOCK" lock
14. Wide filter in wand grip
15. Screw-on connections between hose, wand and tank
16. Hose roller



2. EXPLANATION OF SAFETY WARNINGS

⚠ DANGER: This attention symbol and the signal word DANGER indicate an immediate and grave danger or peril, a hazard producing irreversible damage or injury. To avoid this danger, the operator must heed the recommendations printed in the box.

⚠ CAUTION: Signs headed CAUTION call attention to a potential danger or hazard capable of resulting in severe, but not irreversible, injury or damage – not a prohibitive warning, but one stressing certain precautions against a potential hazard.

NOTE: Indicates a situation that may cause damage to equipment.



3. RULES FOR SAFE OPERATION

DANGER

- Read and understand this entire manual before using the sprayer to avoid potentially serious dangers.
- Work only in areas planned to be treated.
- Use special care when spraying near electrical installations.
- Keep work area clear of people and animals.
- Never use the sprayer during windy conditions.
- Always wear splash goggles when filling, using, or cleaning the sprayer.
- Always wear a mask or respirator when filling, using, or cleaning the sprayer, if recommended by the spray material manufacturer.
- Wear protective gear and clothing when filling, using or cleaning the sprayer.
- Before opening a container of pesticide or other spray material, always understand and follow directions on the label.
- Do not use flammables in the sprayer. They can ignite or explode, causing serious injury.
- In case of contamination remove clothing, wrap up correctly, keep upright, do not consume liquids or cause vomiting, and get professional medical help immediately.
- Do not eat, drink, or smoke while spraying.
- Wash face and hands with soap and water after spraying.
- Wash all equipment and clothing used after spraying.
- Do not transfer spray materials to other containers, especially food and/or drink containers.
- Keep spray materials locked up and out of the reach of children and animals.
- Destroy empty containers, following all applicable laws.
- Use only original manufacturer's replacement parts.
- Always release pressure in pump prior to filling, cleaning, or servicing the sprayer.

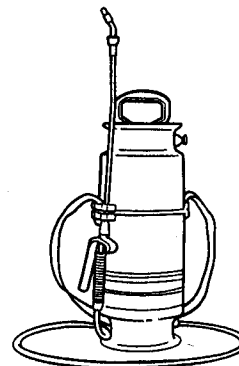
4. UNPACKING SPRAYER

CONTENTS

- A) Sprayer
- B) Hose with connectors
- C) Wand assembly

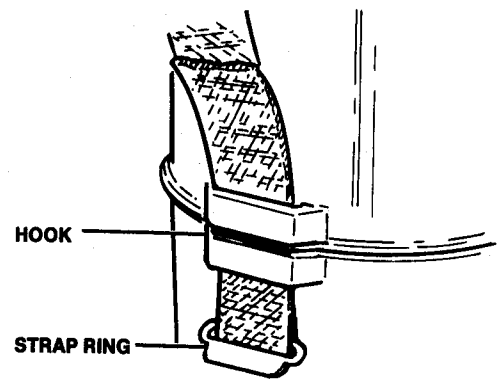
5. ASSEMBLING SPRAYER

1. Connect hose to wand and sprayer. (Hand tighten hose connections.)



6. ADJUSTING STRAPS

1. Remove strap ring from hook.
2. Pull strap through hook and ring until desired length is achieved.
3. Reinstall strap ring in hook.



7. FILLING THE SPRAYER

⚠ DANGER: BEFORE OPENING A CONTAINER OF PESTICIDE OR OTHER SPRAY MATERIAL, ALWAYS UNDERSTAND AND FOLLOW DIRECTIONS ON ITS LABEL.

DO NOT USE FLAMMABLES IN SPRAYER. THEY CAN IGNITE OR EXPLODE, CAUSING SERIOUS INJURY.

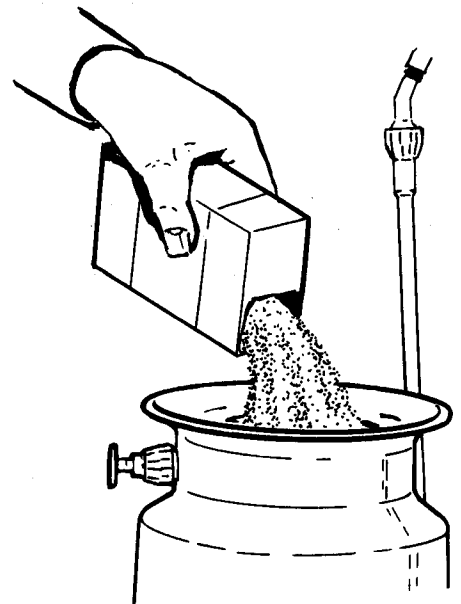
WEAR PROTECTIVE GEAR AND CLOTHING WHEN FILLING, USING, AND CLEANING THE SPRAYER.

NOTE: Do not use caustics (alkalines) or corrosives (acids) in sprayer.

NOTE: Do not use sprayer if parts are brittle, discolored or soft.

NOTE: Do not use sprayer to apply boiling or hot liquids.

1. Release pump pressure with wand control handle.
2. Remove pump assembly.
3. Pour liquid spray or wettable powder into tank.
4. Pour required amount of water into tank.
5. Install pump assembly.

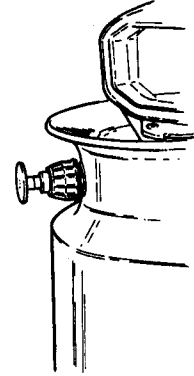




8. USING THE SPRAYER

1. Pump drive handle several times, until green ring appears on safety valve.

NOTE: If red ring appears, pump pressure is excessive and valve will automatically release it.



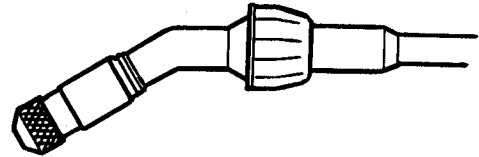
2. Adjust spray nozzle.

- Turn nozzle counterclockwise to narrow spray coverage.
- Turn nozzle clockwise to widen spray coverage.

⚠ DANGER: BEFORE SPRAYING, CAREFULLY READ AND FOLLOW SPRAY MANUFACTURER'S DIRECTIONS.

KEEP WORK AREA CLEAR OF PEOPLE AND ANIMALS. SPRAY ONLY IN THE AREA TO BE TREATED.

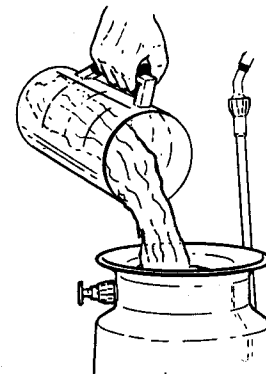
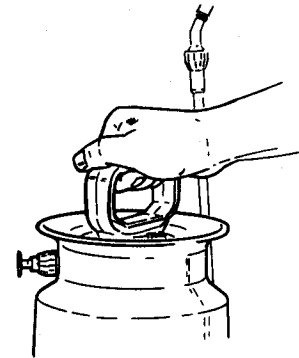
3. Spray area.



9. CLEANING THE SPRAYER

NOTE: Always empty, drain, and clean container and pump immediately after each use.

1. Release pump pressure with wand control handle.
2. Remove pump assembly and empty remaining spray from tank into suitable container.
3. Reinstall pump assembly.
4. Pressurize sprayer and spray until only air comes through wand.
5. Remove pump assembly and pour one gallon of clean warm (not hot) water into tank.
6. Reinstall pump assembly and pressurize sprayer.
7. Spray water through wand.
8. Repeat steps 5 through 7 until sprayer is clean.
9. Air dry sprayer and install pump.

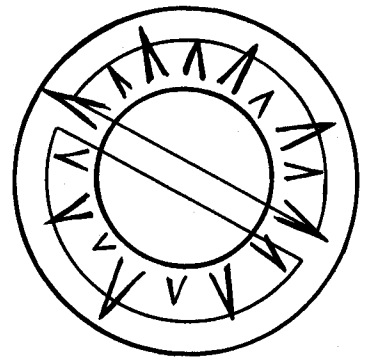


10. STORING THE SPRAYER

1. After cleaning the sprayer store it out of direct sunlight.

NOTE: Prolonged exposure to direct sunlight may weaken pump components.

⚠ DANGER: ALWAYS STORE SPRAYER AND SPRAY MATERIALS OUT OF THE REACH OF CHILDREN AND ANIMALS.

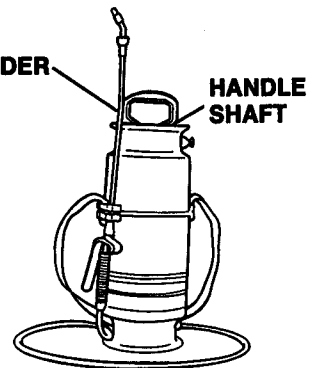


11. MAINTAINING THE SPRAYER

1. Lubricating points:
 - Apply a few drops of oil to areas indicated.
2. Cleaning filter:
 - Release pressure in pump.
 - Remove grip from wand.
 - Remove filter from wand.
 - Clean filter with warm (not hot) water.
 - Reinstall filter on wand.
 - Reattach grip to wand.

SEALING
WASHER
ON CYLINDER

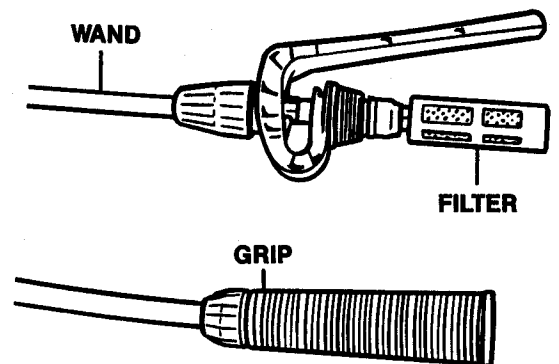
HANDLE
SHAFT

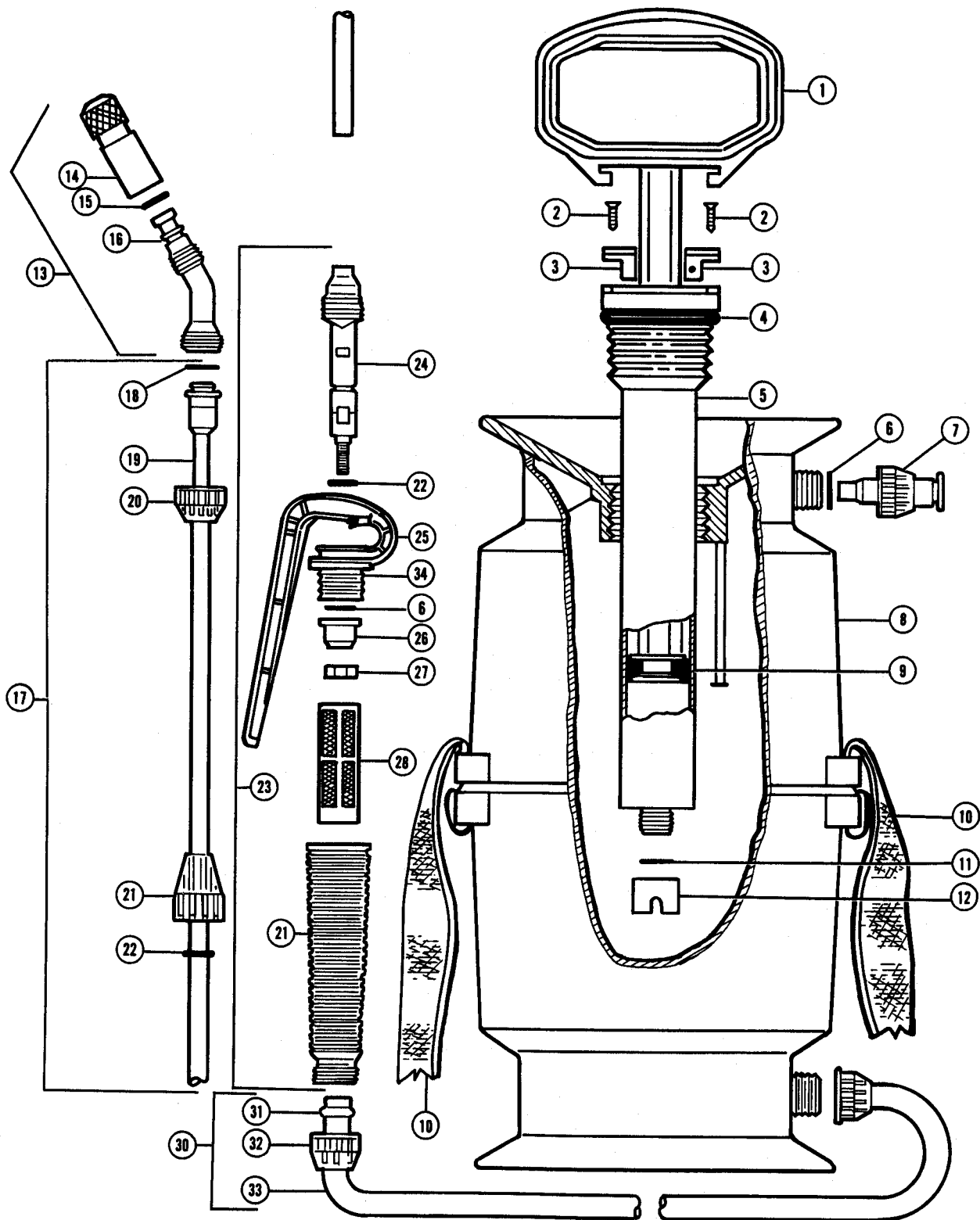


WAND

FILTER

GRIP







12. PARTS

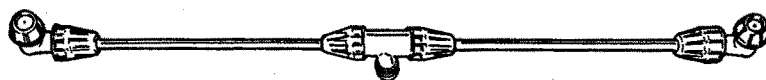
1	1	HANDLE MS-9, 12	283 812 308
2	2	FLATHEAD SCREW, 7 x 7/8"	225 127 901
3	2	CHAMBER COVER	283 805 309
4	1	O-RING AN-30	222 315 930
5	1	CHAMBER MS-9, 12	283 812 303
6	2	O-RING AN-8	222 315 908
6A	OPT	O-RING AN-8, VITON	222 316 908
7	1	PRESSURE RELEASE VALVE	283 805 806
8	1	TANK MS-9	283 808 301
8A	1	TANK MS-12	283 812 301
9	1	COLLAR SEAL	283 902 314
9A	OPT	COLLAR SEAL, VITON	283 911 314
10	1	STRAP	283 812 420
11	1	CLOSING VALVE	283 808 305
12	1	VALVE NUT	283 808 304
++	1	COMPLETE WAND	283 808 804
13	1	ELBOW W/NOZZLE	283 808 803
14	1	NOZZLE, 1 MM	283 902 323
14A	OPT	NOZZLE, .75 MM	283 907 323
14B	OPT	NOZZLE, 1.5 MM	283 901 323
15	1	O-RING AN-5	222 315 906
15A	1	O-RING AN-5, VITON	222 316 906
16	1	SPRAYER	283 901 322
17	1	COMPLETE TUB W/NUTS	283 808 828
18	1	FLAT WASHER	284 202 334
19	1	WAND TUBE	283 808 615
20	1	NUT	283 808 312
21	1	WAND NUT	283 805 304
22	2	O-RING AN-6	222 315 906
22A	OPT	O-RING AN-6, VITON	222 316 906
23	1	COMPLETE HANDLE	283 808 827
24	1	WAND SHAFT	283 805 307
25	1	BODY W/HANDLE	283 805 306
26	1	GUIDE	283 906 332
27	1	NUT M-6	226 200 006
28	1	WAND FILTER	283 808 327
29	1	GRIP	283 805 305
30	1	COMPLETE HOSE	283 805 805
31	1	HOSE CAP	283 808 308
32	1	NUT	283 812 312
33	1	HOSE 6 x 1.3M	211 009 209
34	1	O-RING 3587	222 315 914

* Included in Repair Kit, 283 805 892

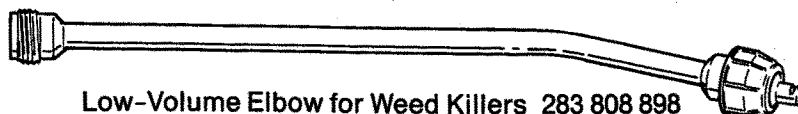
13. ACCESSORIES



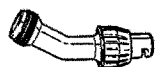
Front Quadruple Nozzle 283 808 894



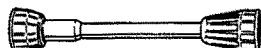
Double T-Shaped Nozzle 283 808 892



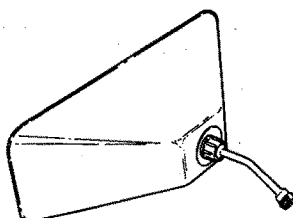
Low-Volume Elbow for Weed Killers 283 808 898



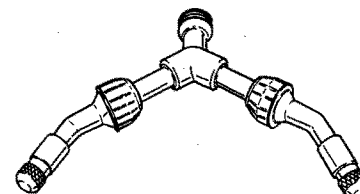
Elbow for Normal
Weed Killers
283 808 896



Extension for
Short Wand
283 808 891



Protective Hood 283 808 897



Double V-Shaped
Nozzle 283 808 895

14. SPECIFICATIONS

Tank capacity		MS-9	6 liter
		MS-12	8 liter
Working pressure	Herbicides	1 to 2 atm	
	Insecticides/Fungicides	1.5 to 3 atm	
Hose length		1.300 mm	
Wand length		670 mm	
Liters/minute at 2.5 atm with the standard nozzle		0.5/min. max.	
Width of filler hole diameter		120 mm	
Taper spray nozzle (outlet hole diameter)		1 mm	
Range-taper spray-horizontal		4 m	
Range-taper spray-vertical		3 m	
Range-jet spray-horizontal		7 m	
Range-jet spray-vertical		6 m	