

Is Your Product Registered?

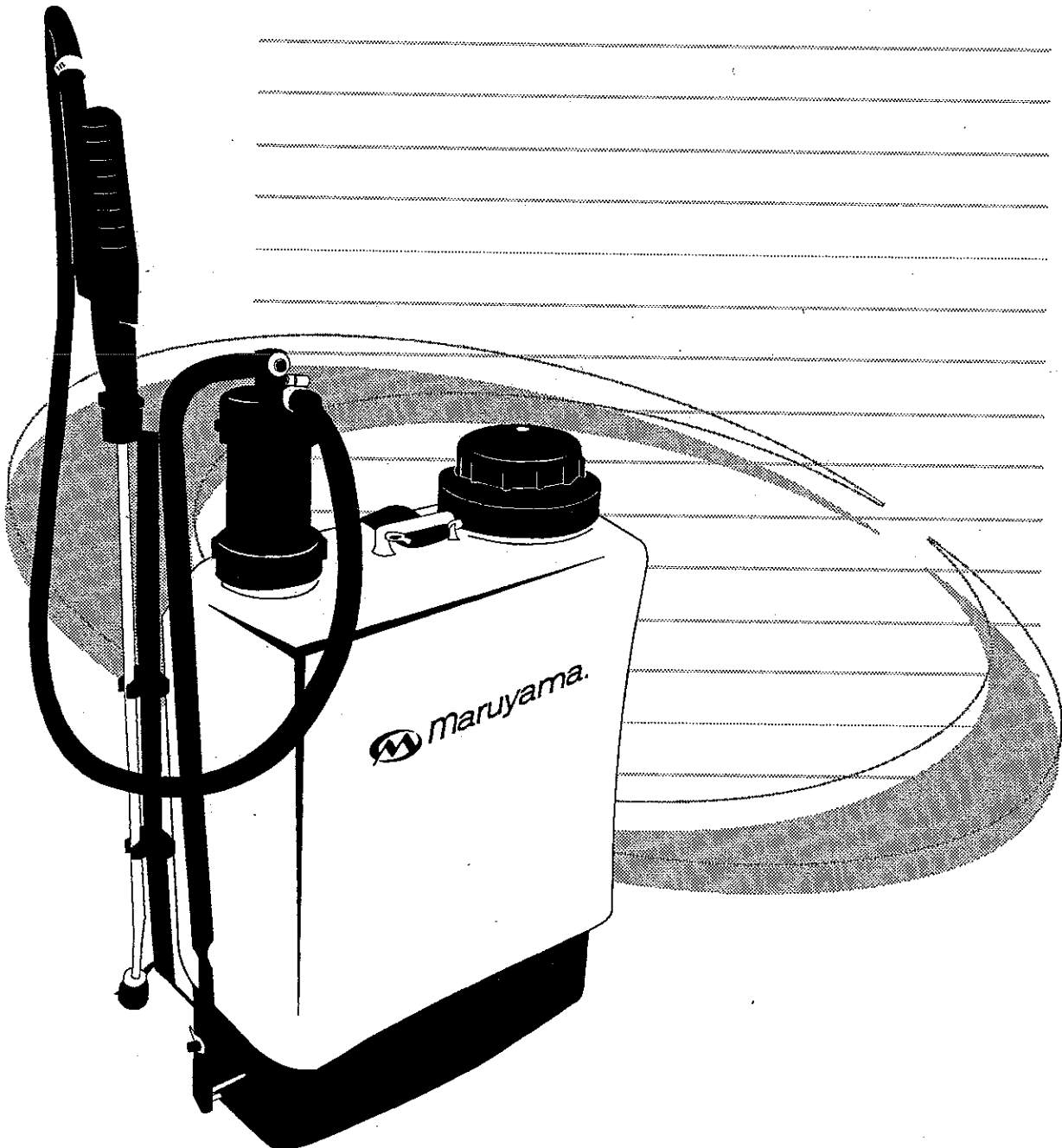
Contact your Dealer to verify.

Warranties are based on Registrations and reduced to 1 year without
Registration.

MARUYAMA

OPERATOR'S MANUAL

**BACKPACK SPRAYER
M409**



Maruyama is grateful to you for purchasing this product. Prior to operating the sprayer, please read this owner's manual to obtain the best results.

GENERAL INDEX

Technical specifications.	1
Assembly Instructions.	2
Back pack sprayer calibration.	3
Chemical mixing procedure.	3
Maintenance	3
Troubleshooting guide.	4
Pressure chamber components.	5
Brass cylinder components.	5
Back pack Sprayer components	6
Trigger valve components.	8

OPERATING INSTRUCTIONS

In this manual you will find all the instructions you need to operate your sprayer properly.

TECHNICAL SPECIFICATIONS

Model M409

Net weight.8.75 Lbs.
Tank capacity.4.2 Gallons
Tank material.	Polyethylene
Working pressure.	30 to 90 psi
Standard lance length.	1.64 feet
Standard hose length.	3.77 feet
Provided nozzle.	Flat fan nozzle Adjustable brass nozzle

ASSEMBLY INSTRUCTIONS

You will find your Sprayer assembled and ready to be operated, less the hose, which is separate from the lance and the sprayer pump. Connect the hose to the outlet pump connector and to the lance, and adjust both ends with the two hose clamps you will find inside the strainer in the sprayer cap.

The straps are padded and provided with adjusting buckles.

To assemble the spraying lance, press the trigger lever (#6) and tighten the plastic tip nut (#10) to the bronze lance pipe. Lastly, release the lever. (**Important:** never tighten tip nut without pressing the trigger lever)

The correct operating position is when the top of the tank is on the same level as the operator neck.

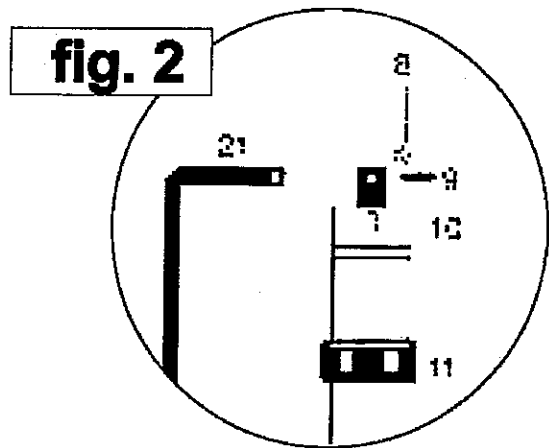
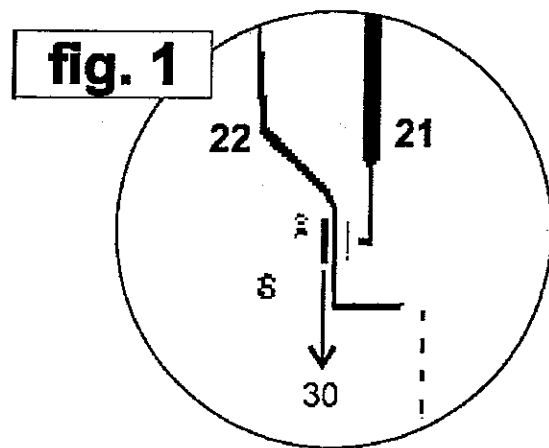
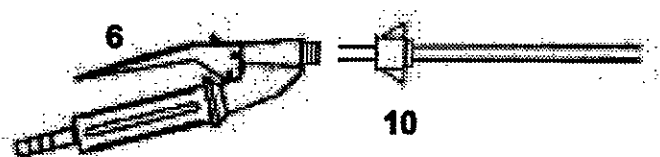


fig. 3



SPRAYER CALIBRATION

a) Mark a field area of 328 ft² (square of 32.8 x 32.8 sq ft or 328 sq ft x 3.28 ft)

b) Fill the tank with clear water and apply over the marked area keeping a constant pumping and walking rhythm.

c) Calculate the flow rate in gallons by hectare using the following formula:

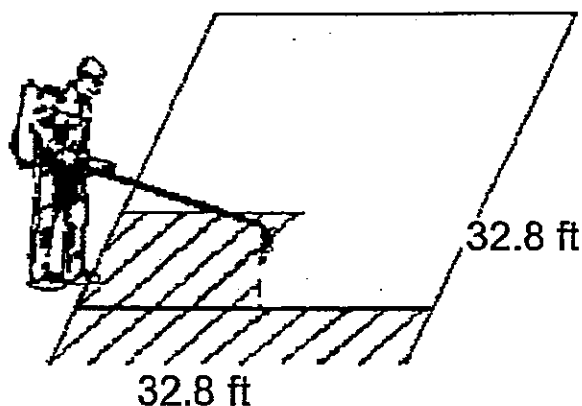
Q=flow rate in gallons

32800=ft² correspond with 1 hectare

A=applied area (328 ft²)

$$Q = \frac{\text{Vol} \times 32800 \text{ ft}^2}{A = 328 \text{ ft}^2}$$

d) If the flow rate is not in accordance with your needs, change to a larger or smaller nozzle according to the results.



CHEMICAL MIXING PROCEDURE

a) Fill bucket with 1.3 gallons of clear water and add the chemical.

b) Shake well until the mixture looks homogeneous.

c) Place this liquid inside the spray tank and fill desired amount of water.

d) Spray mixture immediately after you have filled the tank.

MAINTENANCE

When you have finished using the sprayer, wash the tank well with clear water and some detergent if possible. Operate the sprayer with water to wash the pump and the trigger valve. Store the sprayer in a dry place away from excessive heat and cold.

IMPORTANT



Never store the sprayer with chemical remains. It can temporarily or permanently damage your equipment.

TROUBLESHOOTING GUIDE

Place approximately .5 gallons of water in the tank. Operate the pump, and watch inside the tank to identify the problem according to the following table:

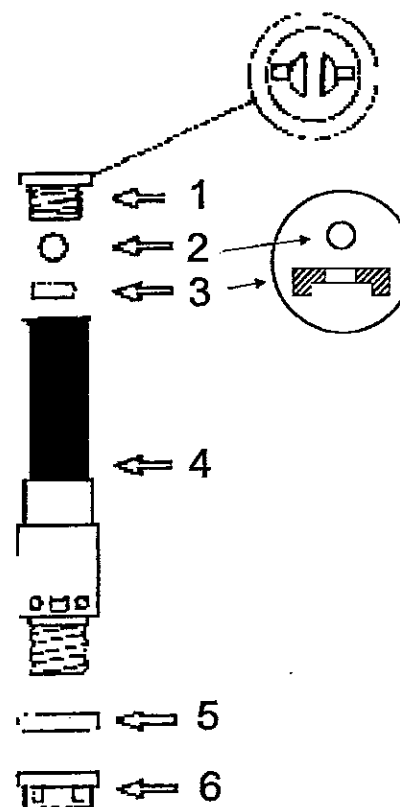
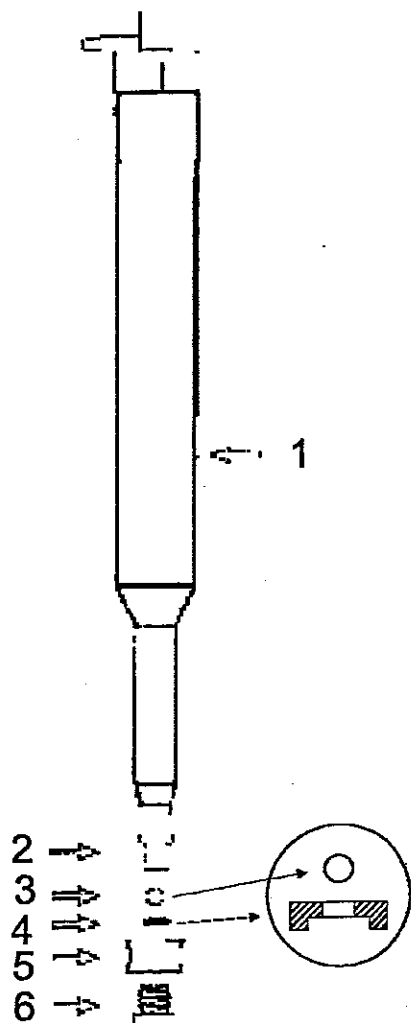
Problem	Cause	Solution
The liquid is coming out from the upside of the brass cylinder.	The piston seal is worn out.	Change the piston seal.
When pumping and filling the chamber the liquid returns back through the admission and the chamber falls down quickly.	Brass cylinder valve with trouble to shut by wear or dirt.	Clean or change the cylinder valve.
When pumping and filling the chamber when release the action lever; the chamber ascends.	Chamber valve wear	Clean or change the chamber valve.

PRESSURE CHAMBER COMPONENTS

BRASS CYLINDER COMPONENTS

#	Code	Description
1	840680	Pressure Chamber (no valve box or seal)
2	840681	Chamber valve cap
3	840682	Valve
4	840683	Valve seal (viton)
5	840739	Double piston seal
6	840685	Valve box

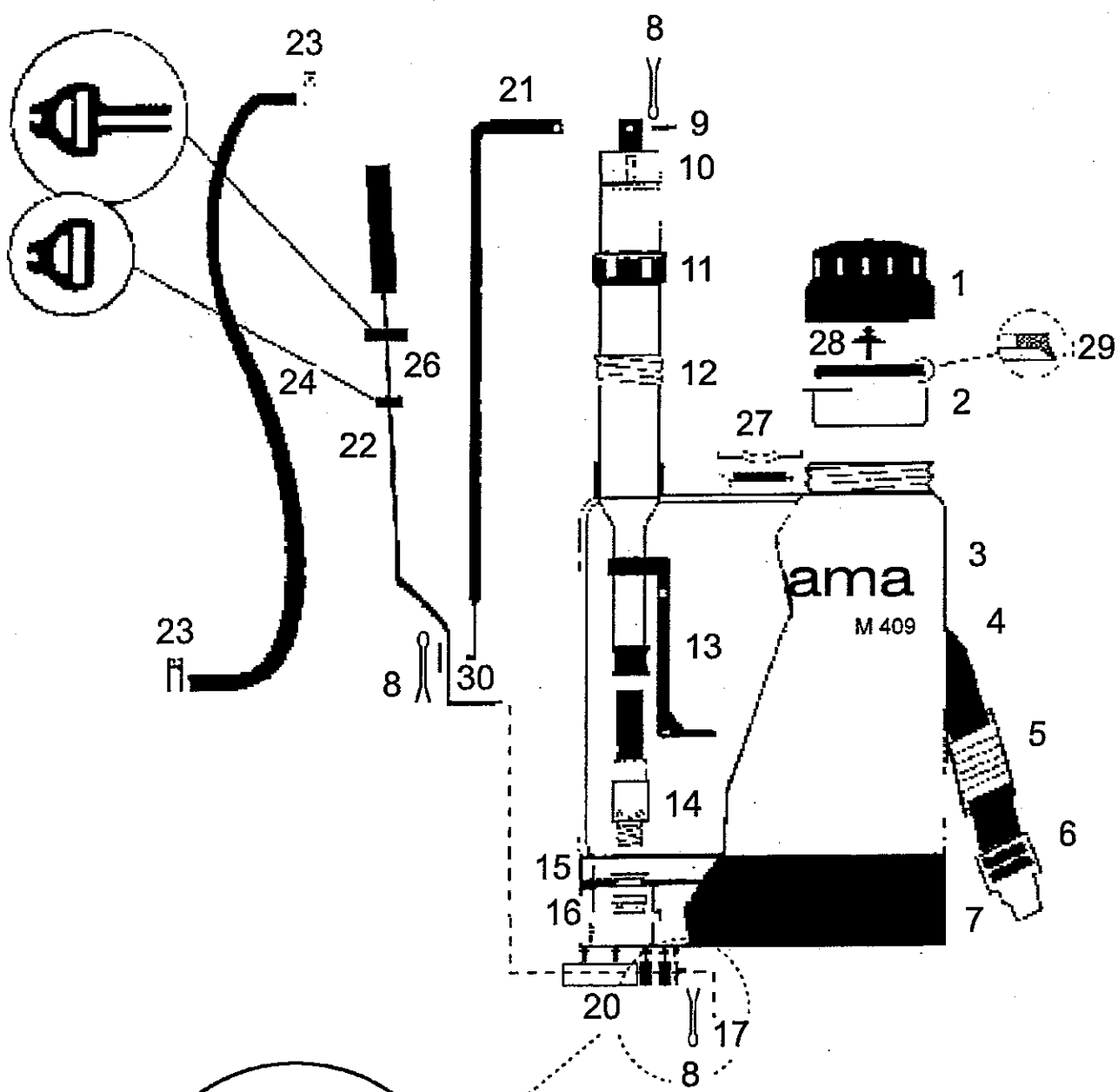
#	Code	Description
1	840686	Brass cylinder Valve cap
2	840682	Valve
3	840683	Valve seal (viton)
4	840689	Cylinder only
5	840592	Brass cylinder seal
6	840593	Brass cylinder nut



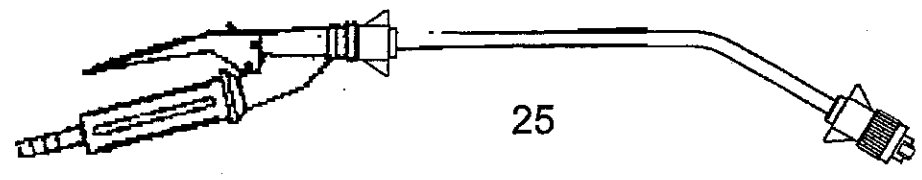
BACK PACK SPRAYER COMPONENTS

#	Code	Description
1	840727	Fill cap
2	840579	Strainer
3	840580	Tank (4.2 gallons)
4	840581	Strap
5	840582	Strap padding kit (2 units)
6	840583	Buckle kit (2 units)
7	840584	Plastic base
8	840585	Pin (3 units)
9	840586	Joining bolt to the chamber
10	840587	Pressure chamber (assembly)
11	840588	Chamber guide nut
12	840589	Pressure chamber seal
13	840590	Agitator assembly
14	840591	Brass cylinder (assembly)
15	840592	Brass cylinder gasket seal
16	840593	Brass cylinder nut
17	840594	Lever guide ring
18	840595	Lever guide brass nut (2 units)
19	840660	Lever
20	840596	Lever guide pipe
21	840597	Lever arm
22	840598	Lever
23	840599	Hole clamp
24	840619	Hose
25	840620	Trigger valve lance (flat fan tip)
26	840621	Lance and lever arm support kit
27	840622	Strap fastener
28	840623	Backpack cap valve
29	840624	Backpack cap seal
30	840625	Lever arm ring

BACK PACK SPRAYER COMPONENTS



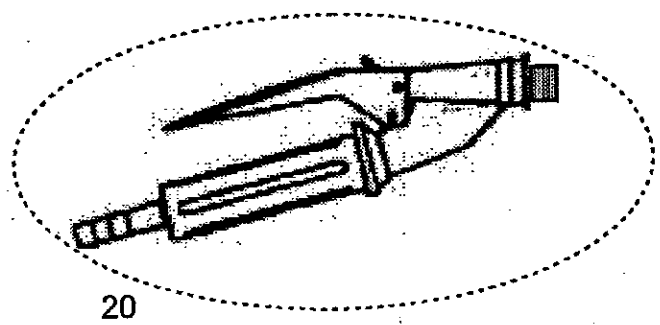
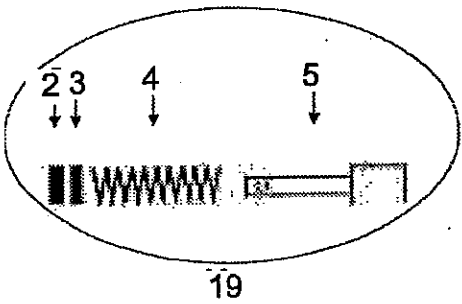
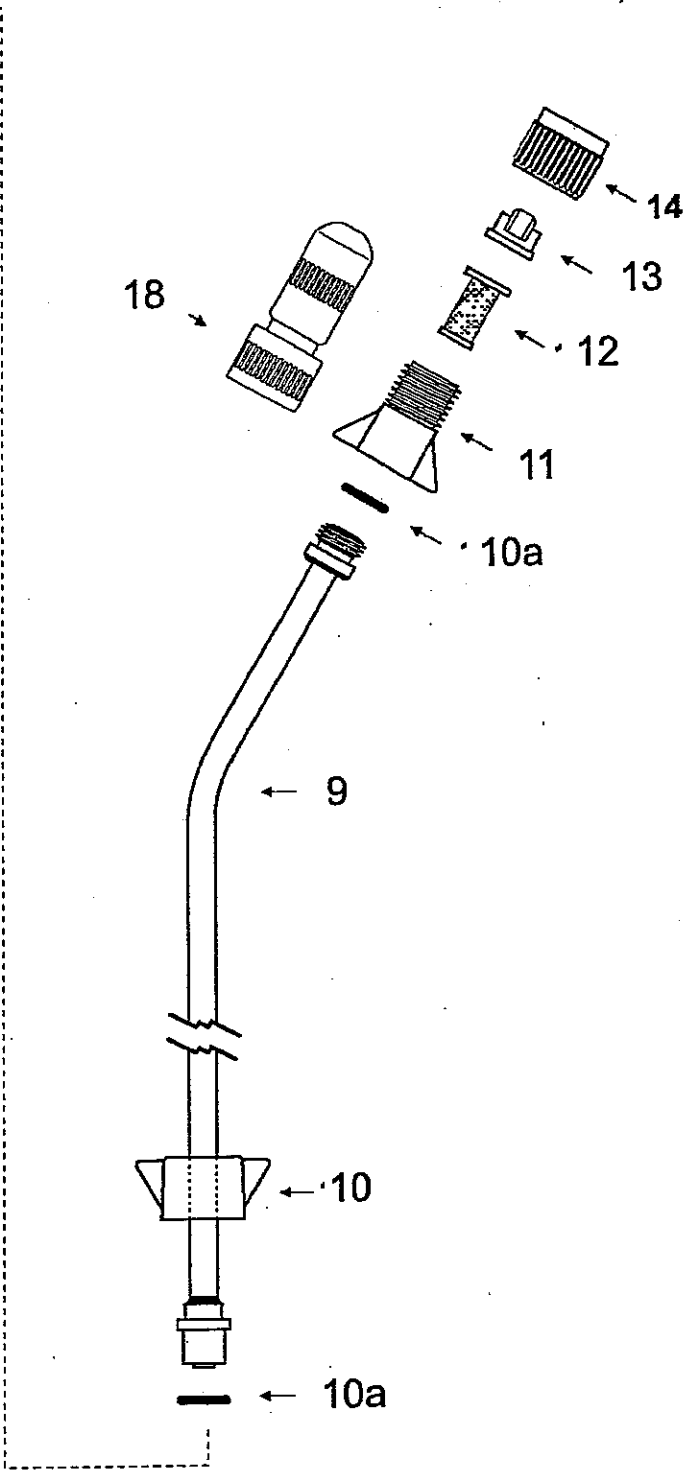
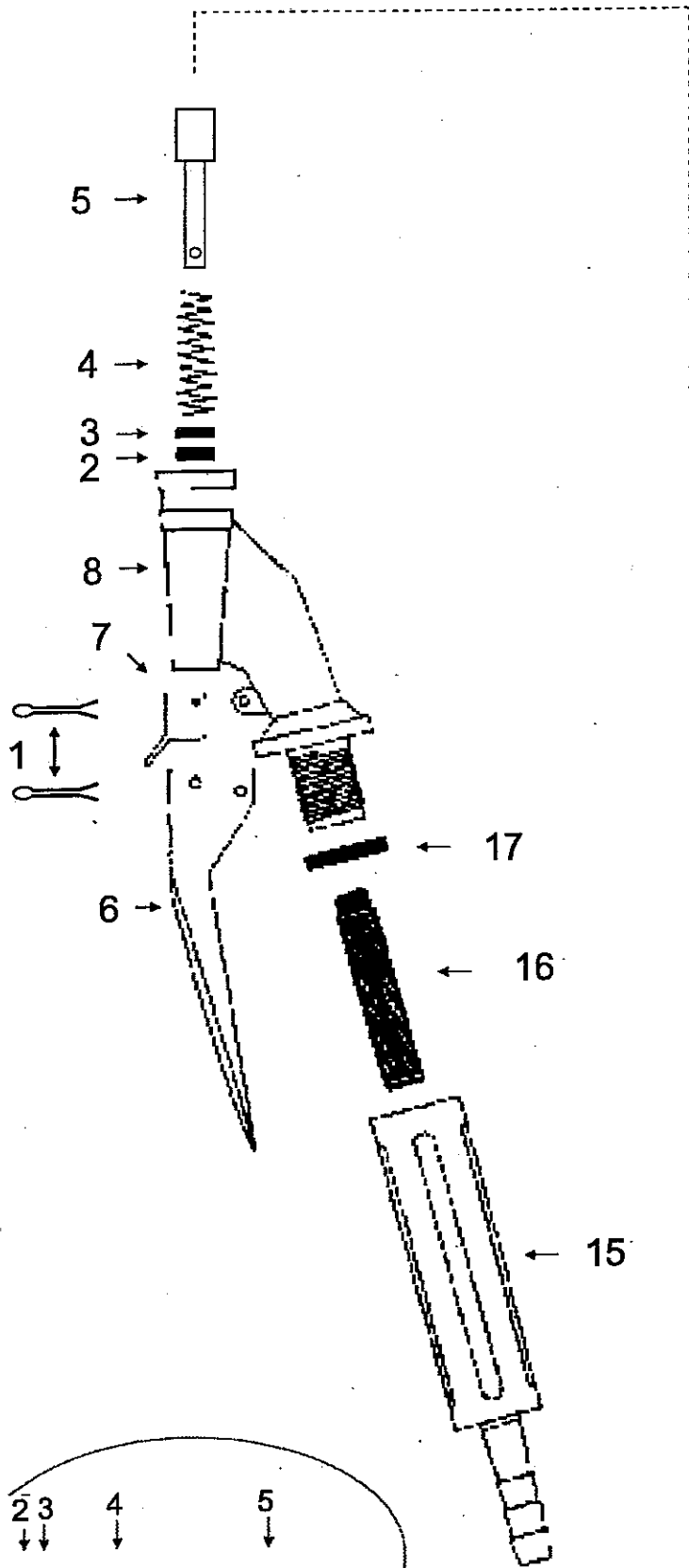
Lance Assembly



TRIGGER VALVE COMPONENTS

#	Code	Description
1	840661	Clamps (2 units)
2	840662	Viton O-ring
3	840663	Brass circle stopped seal
4	840664	Piston trigger lance spring
5	840665	Piston trigger lance
6	840666	Trigger - lever
7	840667	Fastener hook
8	840668	Body valve
9	840669	Spare pipe for lance (20in) no nozzle
10	840670	Tip nut
10a	840602	O-ring 5081 (2 units)
11	840671	Body tip
12	840672	Tip filter
13	840673	Flat fan tip VP 02 F110
14	840674	Tip cap
15	840675	Lance handle
16	840676	Lance filter
17	840677	Lance handle seal (viton)
18	840692	Adjustable brass nozzle
19	840697	Piston lance assy (#2 - 5)
20	840698	Lance body assy (#2 - 17)

TRIGGER VALVE COMPONENTS





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