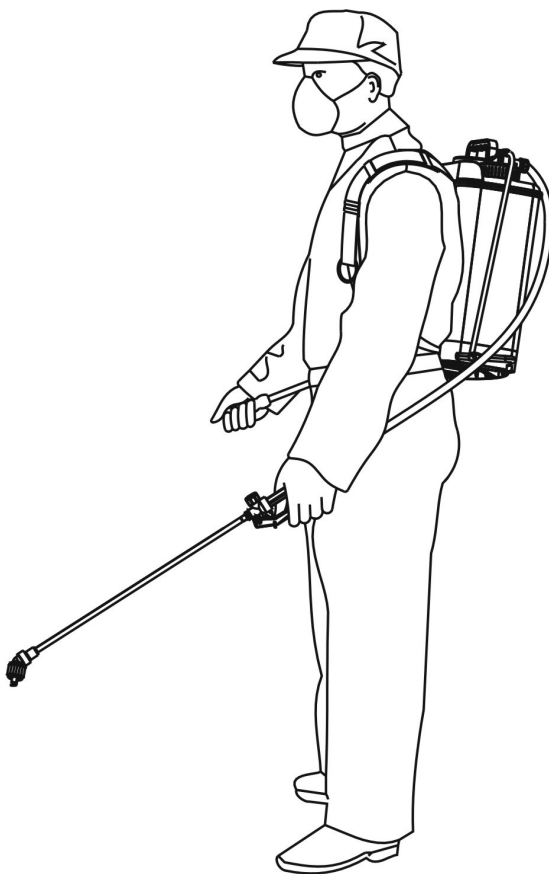


RB15

**PREMIER
VLV**

KNAPSACK SPRAYER



Instruction Manual

CONTENTS

Introduction	1	Maintenance	8
Assembly	2	Troubleshooting	8
Nozzle Selection	2	Inspection Check List	9
Strap adjustment	3	To replace the piston seal	10
Calibration	3	Trigger valve maintenance	11
Calibration Steps	3	Parts diagrams	12-13
Mixing and filling	5	Parts list	14
Spraying	6	Accessories	15
After spraying	7	Calibration working sheet	16

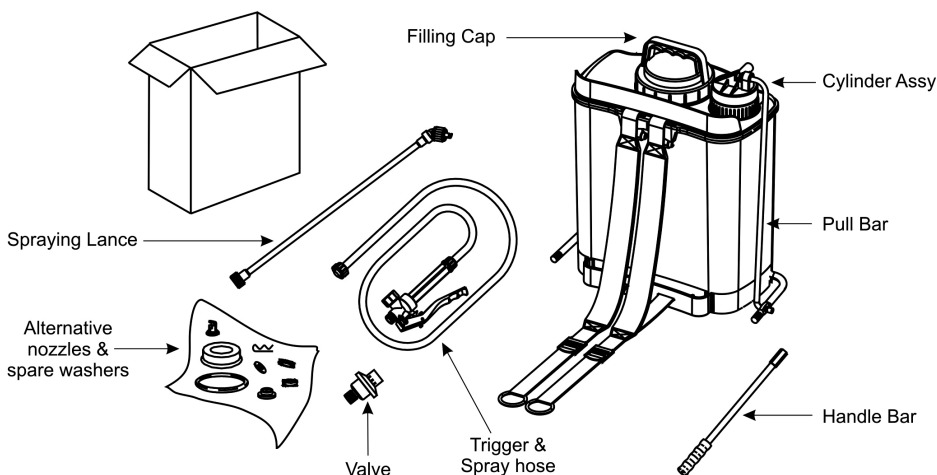
INTRODUCTION

The **RB15** is a quality knapsack sprayer suitable for a wide range of agricultural and horticultural uses. The sprayer is designed to be robust and easy to maintain and features an internal piston pump and pressure cylinder for maximum protection, comfortable shoulder straps, a waist strap for ease of extended use, a wide neck and filter for safety of filling operations and a 15 litre tank designed so that it is held away from the operator's back for both increased safety and comfort. The sprayer can be used with either right or left hand lever.

Designed for the application of herbicides, insecticides and fungicides the sprayer is supplied with a range of nozzles suitable for most spray operations.

This manual is designed to help you get the most from your **RB15** Sprayer and **MUST BE READ** before using the sprayer for the first time

When the **RB15** is new it needs to be unpacked and assembled for use. Check that you have all the components as shown below.



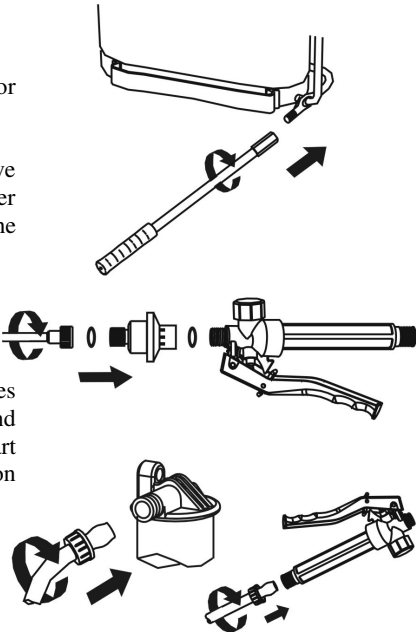
ASSEMBLY

Screw on the pump handle as shown to the left or right hand side to suit the operator.

Fit the bottom end of the spray lance to the CF valve and Female thread of the CF valve to the trigger valve, ensuring that the 100 mesh filter is fitted in the trigger valve and the connections are all secure.

Make sure that the hose connections at the top of the piston and trigger valve are tight.

Remove the bag containing the additional nozzles and spare seals and o-rings from the tank filter and keep in a safe place. Unscrew the cylinder cap (part no 8376R) and put some lubricant (vegetable oil) on the felt washer.






NOZZLESELECTION

It is important for any spraying operation that the correct nozzle is used to ensure that good coverage is obtained with the minimum amount of uncontrolled spray drift.

Different nozzles will give different spray patterns and droplet sizes. Before using the sprayer for the first time it is advisable to fill the tank half full with water and pump the system through with no nozzle fitted to remove any debris which could cause nozzle blockage.

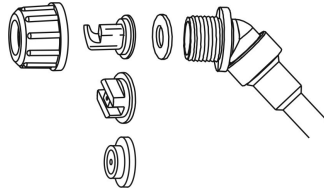
The **RB15** is supplied with a range of different nozzles. Using the table below as a guide select and fit the nozzle most appropriate to the spray application from those supplied. (Note that not all those listed are supplied with every sprayer).

Nozzle Type		Fungicides	Insecticides	Herbicides
Yellow deflector		X	X	√
Red Deflector		X	X	√
Yellow hollow cone		√	√	X

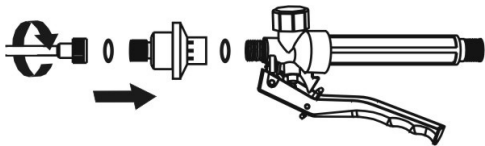
To ensure optimum benefits, check the nozzle for wear. Replace the nozzle if flow exceeds 10% of the Set nozzle flow rate or replace nozzle after every 3 months of usage.

Fitting the nozzle

Fit the nozzle through the nozzle cap and tighten as shown. Make sure that the seals are in good condition. If they are damaged they should be changed otherwise the nozzle may leak. If fitting the deflector nozzle or flat fan nozzle ensure that it is correctly orientated. The opening on the deflector should be pointing forwards and the flat fan at right angles to the direction of travel.

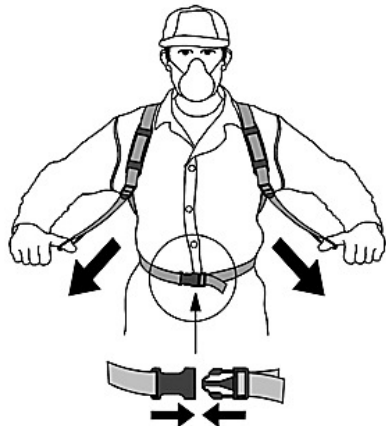


If the sprayer is supplied with a Constant Flow Valve (CFV) then this should be fitted at the trigger/lance as shown.



STRAP ADJUSTMENT

With the sprayer on your back and filled as if ready to spray adjust the length of the straps for comfort as shown. For maximum comfort use the waist strap as shown. If the straps are correctly adjusted the sprayer should fit comfortably on your back with the weight resting on your hips.



CALIBRATION

Before using the **RB15** the sprayer should be calibrated using water. This is important as accurate calibration ensures that the correct dose of product is applied. Poor calibration can result in either over-dosing or under-dosing both of which are wasteful.

The process of calibration involves measuring the three inter-related factors which determine the volume of spray applied by the sprayer; flow rate, band width and walking speed.

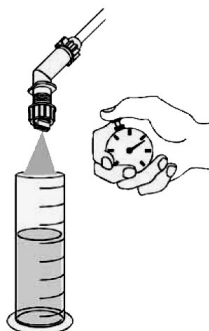
Calibration steps

1. Select nozzle

2. Measure **Flow Rate** in l per minute (l/min) by measuring sprayer output while pumping over one minute).



Flow Rate (l/min)



$$\text{Total Spray Volume (l/ha)} = \frac{10000 \times \text{Flow Rate (l/min)}}{\text{Walking Speed (m/min)} \times \text{Band Width (m)}}$$



Walking Speed (m/min)



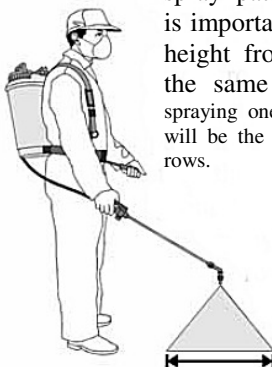
3. Measure your **Walking Speed** in meters per minutes (m/min) by measuring how many metres you walk in one minute. As a general rule one large pace is approximately one metre.



Band Width (m)



4. Measure **Band Width** in meters (m) by spraying on dry ground or concrete, and measuring the width of the spray pattern produced. It is important that the nozzle height from the ground is the same during spraying. If spraying one row at a time, this will be the distance between the rows.



You may find it helpful to use the working sheet on page 16 to help you make your calibration calculations.

MIXING AND FILLING

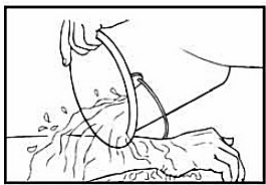
Mixing and filling is generally the most hazardous process in the spraying operation. **Always** read the label to ensure that you know the correct dose of pesticide to use and follow the instructions regarding usage. Make sure that you are wearing the correct protective clothing for the particular product.



Always wear gloves when handling agrochemicals and equipment.



Always use the correct equipment when mixing and measuring



Always wash off any skin contamination.



Always clean all equipment after use

When filling the tank always make sure that the filter is fitted. This is important to prevent nozzle blockage. Half fill the tank with water, then measure and add the chemical as directed on the product label. Then add more water as necessary. Take care not to splash when filling the sprayers.

If using powders (e.g. many fungicides) then it may be easier to mix these first in a bucket or other suitable container before transferring this mixture to the sprayer tank.

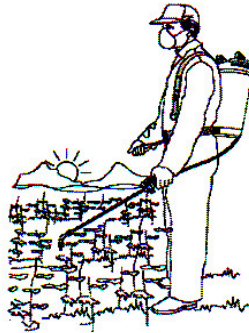


Only mix enough spray for the area to be treated thereby avoiding the need for disposal of unused spray mix.

SPRAYING



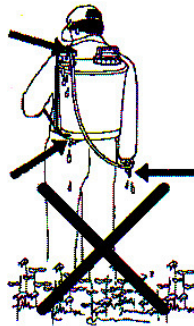
When spraying make sure that you always wear the best protective equipment available to you. Consult the label to find out what is advised for the product you are using. In general it is advised that long trousers, a long sleeved shirt, boots, gloves and eye protection are worn.



The best time to spray is early in the morning or late in the afternoon. The temperature and humidity are lower at these times of the day. Avoid spraying at mid-day as the weather is usually hot and dry at this time. Do not spray if rain is expected soon.



Ensure that there are no people or animals present when you are spraying. Warn people not to enter the field during spraying or after you have sprayed.

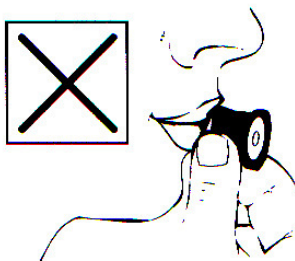


Do not use leaking equipment – fix if necessary before using.

Start spraying at the downwind edge of the field and try to avoid walking in the area that you have just sprayed.



Always hold the spray lance on the downwind side of you - do not spray into the wind.

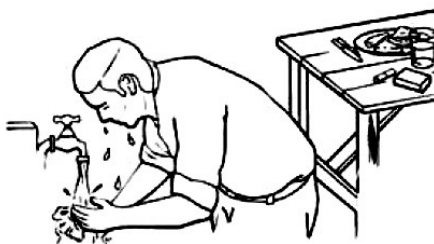


If the nozzle becomes blocked clear it with a piece of grass – **DO NOT** blow through it.

AFTER SPRAYING

After spraying ensure that you clean out the sprayer. Half fill with clean water and pump out, spraying for several minutes onto crop area. Empty the sprayer and repeat with more clean water. Never leave the sprayer with chemical in it as this will damage seals and washers.

Store the sprayer in a safe place out of direct sunlight and away from children and animals.



After spraying wash your hands, face and cloths especially prior to eating, drinking or smoking.

Store chemicals safely and out of the reach of children.



MAINTENANCE

Daily Ensure that the sprayer is cleaned daily after use. Check all hose connections for leakage and tighten if necessary. Check that the nozzle is not blocked and clean if necessary.

Weekly Remove and clean the filter fitted into the handle of the trigger valve (see 'TRIGGER VALVE MAINTENANCE'). This should be done more frequently (e.g. daily) if powder formulations are being used. Lubricate the flat washer with vegetable oil.

At the end of every season Check the straps and strap connections for signs of wear. Check the seals and o-rings in the trigger valve to ensure that they are in good condition and replace if necessary (see 'TRIGGER VALVE MAINTENANCE'). Check the seal in the filling cap and piston cover.

If the sprayer appears to be losing pressure (if it seems that you need more pump strokes to maintain a constant output) check the piston seal for signs of wear and replace if necessary (see 'TO REPLACE THE PISTON SEAL').

TROUBLESHOOTING

PROBLEM	CAUSE	REMEDY
No pressure or reduced or intermittent pressure	Piston seal worn or damaged	Replace piston seal (see " TO REPLACE THE PISTON SEAL ")
	Brass ball dirty or corroded	Replace or clean brass ball (see " TO REPLACE THE PISTON SEAL ")
Little or not spray from nozzle	Nozzle blocked	Remove and clean nozzle
	Filter in trigger valve blocked	Remove and clean filter (see " TRIGGER VALVE MAINTENANCE ")
Spray continues after trigger valve is closed	Dirt or particles in trigger valve	Disassemble and clean trigger valve (see " TRIGGER VALVE MAINTENANCE ")
	Spring in trigger valve weakened	Insert spring spacer (see " TRIGGER VALVE MAINTENANCE ")
	Seal in trigger valve damaged or worn	Replace seal (see " TRIGGER VALVE MAINTENANCE ")

RB15 VLV SPRAYER PARTS LISTING

<u>ITEM NO.</u>	<u>PARTS NO</u>	<u>DESCRIPTION</u>
1	81251	----- Union
2	81256	----- Piston Cap
3	81271-12	----- Cylinder Assy
4	81273	----- Piston Cylinder
5	81273A	----- Brass Ball Support
6	81275	----- Agitator
7	8251	----- Union
8	8253W	----- Washer
9	8301-RB15	----- 3G-Tank Body (<i>Yellow colour</i>)
10	8376R	----- Cover
11	8381B	----- Shoulder Strap
12	8381S	----- Straps Stopper
13	8381W	----- Waist Straps
14	8382R	----- O-Ring Washer
15	8391-TI	----- U-Shalf
16	8403D2	----- Tank Bush
17	8405CP	----- Stand Guard
18	8407L	----- Strainer 135mm
19	8408C-13-GN	----- Filling Cap (<i>Green Colour</i>)
20	8408E	----- Valve Cover
21	8408V	----- Valve Inner
22	8413B-17INC	----- Handle Bar
23	8417	----- Brass Ball
24	8428M	----- Pull Bar
25	8429S	----- Pin
26	8435C	----- Trigger Cover
27	8436W	----- Washer (<i>for trigger</i>)
28	8437S	----- Spring
29	8438	----- Valve
30	8439W	----- Rubber Disk
31	8440IM	----- Trigger O-Ring
32	8440BR	----- Brass Spindle
33	8441J	----- Trigger Body
34	8441J-113	----- Trigger complete with 100 mesh filter
35	8442B	----- Trigger Pin
36	8443B-12	----- Lever Assy
37	8445W1	----- Washer (<i>for Spray Lance</i>)
38	8445W2	----- Washer (<i>for nozzle</i>)
39	8446GR-GRP-14	----- GRP Spray Lance 50cm with Elbow & Washer
40	8447W	----- Washer (<i>for lance</i>)
41	8455SS-51INC	----- PVC Hose
42	8458M	----- 100 Mesh Filter
43	8459N	----- Chamber
44	8478	----- Nozzle Cover
45	8480B	----- Felt Washer
46	8486	----- Spray Lance Grip
47	DEF-02	----- Deflector Nozzle (<i>Yellow</i>)
48	DEF-04	----- Deflector Nozzle (<i>Red</i>)
49	HC-02	----- Hollow Cone nozzle (<i>Yellow</i>)
50	18MM - 3/8BSP	----- 18mm - 3/8 BSP CF Valve

TO REPLACE THE PISTON SEAL

Periodically the piston seal will need replacing. To do this first ensure that the sprayer has been thoroughly cleaned through with water and emptied. Hold the trigger valve open to release any pressure.

Remove the split pin and detach the pump connection rod from the top of the piston.

Withdraw the piston as shown and examine the seal for signs of wear and damage. If the seal needs replacing use a thin screwdriver or similar to unscrew the slotted nut which retains the seal as shown. Take great care that the brass ball does not drop out. Check the brass ball for signs of pitting and replace if necessary.

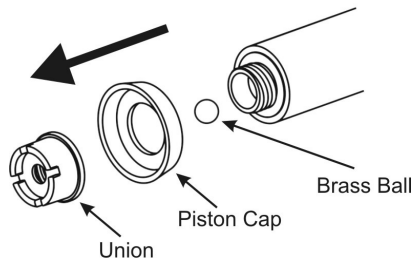
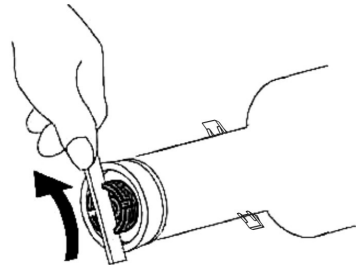
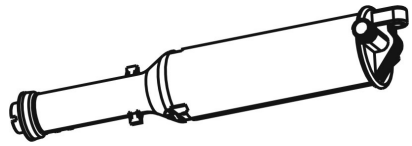
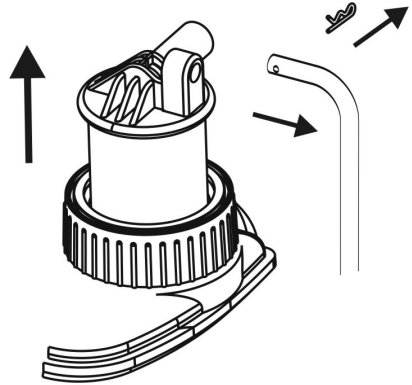
The old piston seal can be easily removed and replaced. Smear a small amount of grease or oil around the piston seal to aid re-assembly.

Replace the piston seal and tighten the slotted nut connection, ensuring the brass ball is correctly sealed as shown.

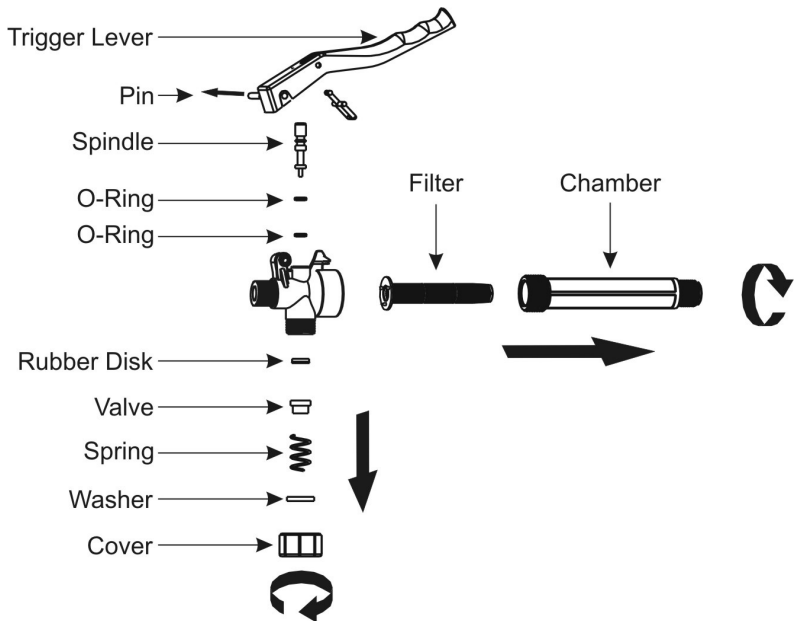
Replace the piston in the tank ensuring that it correctly locates and it slides into the piston chamber.

Reattach the pump connection rod and split pin.

Before using again test the sprayer with water.



TRIGGER VALVE MAINTENANCE



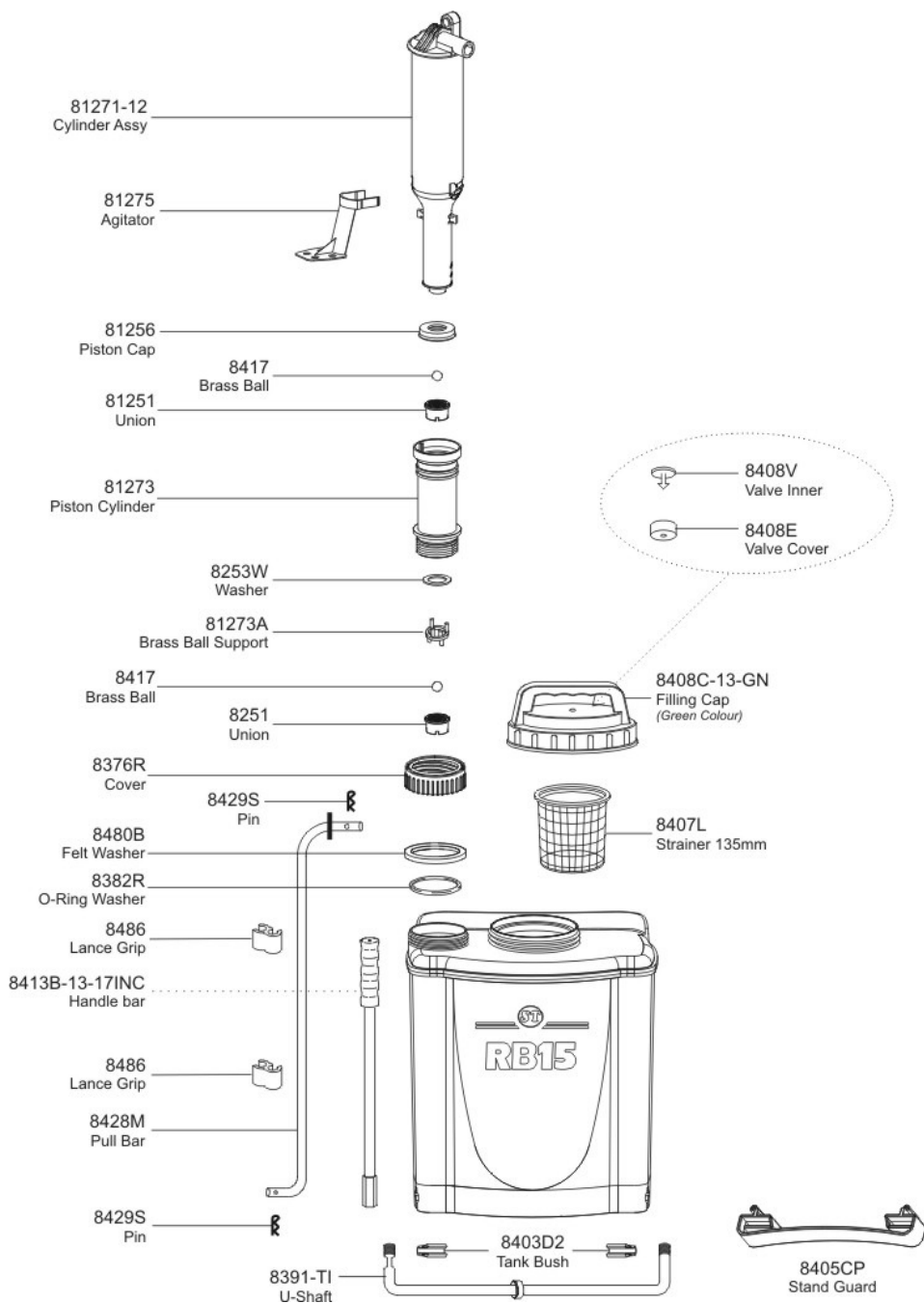
The filter in the trigger valve can be removed as shown and cleaned.

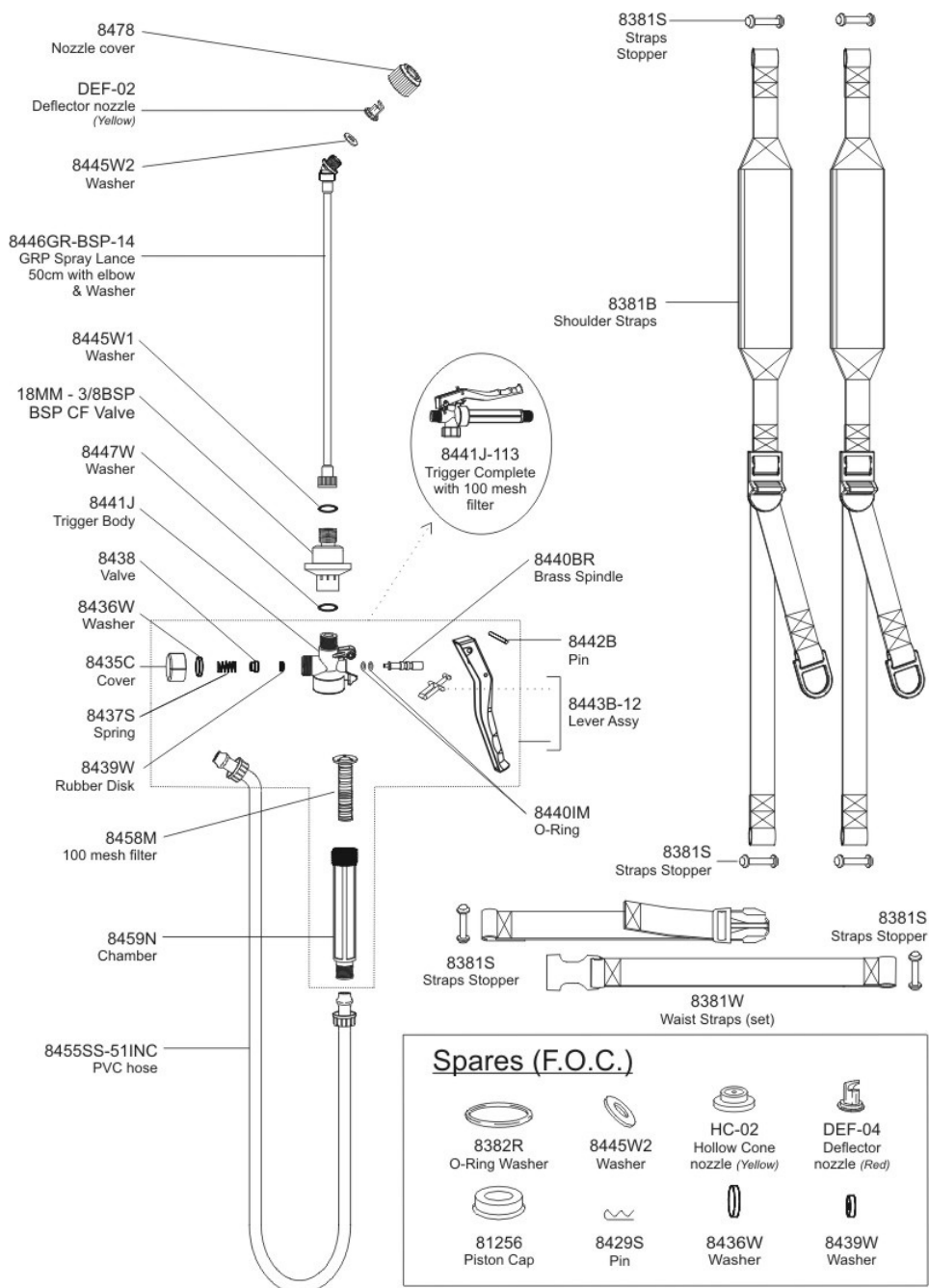
The seals in the trigger valve should be inspected and replaced if the valve is leaking or fails to shut off completely. Spare seals are provided with each sprayer. There are two seals which may need replacing.

To replace the o-ring seal on the plunger, first remove the trigger handle by removing the locking pin. Using a pair of pliers to grasp the top of the plunger remove it as shown and replace the o-ring.

To replace the shut off seal, remove the spring retention cover and withdraw the spring and seal. The seal can be easily replaced if necessary.

With time the spring tension on the trigger valve may become weakened. If this happens fit the additional spacer provided with each sprayer.





RB15 VLV SPRAYER PERIODIC INSPECTION CHECK LIST

Item No	Part No.	Description	Change Intervals			
			Month	3	6	12
1	81251	----- Union				
2	81256	----- Piston Cap		O		
3	81271-12	----- Cylinder Assy				
4	81273	----- Piston Cylinder				
5	81273A	----- Brass Ball Support				
6	81275	----- Agitator				
7	8251	----- Union				
8	8253W	----- Washer			O	
9	8301-RB15	----- 3G-Tank Body (<i>Yellow colour</i>)				
10	8376R	----- Cover				
11	8381B	----- Shoulder Strap				O
12	8381S	----- Straps Stopper				
13	8381W	----- Waist Straps				
14	8382R	----- O-Ring Washer		O		
15	8391-TI	----- U-Shalf				
16	8403D2	----- Tank Bush				
17	8405CP	----- Stand Guard				
18	8407L	----- Strainer 135mm				
19	8408C-13-GN	----- Filling Cap (<i>Green Colour</i>)				
20	8408E	----- Valve Cover				
21	8408V	----- Valve Inner				
22	8413B-17INC	----- Handle Bar				
23	8417	----- Brass Ball				
24	8428M	----- Pull Bar				
25	8429S	----- Pin				
26	8435C	----- Trigger Cover				
27	8436W	----- Washer (<i>for trigger</i>)			O	
28	8437S	----- Spring			O	
29	8438	----- Valve			O	
30	8439W	----- Rubber Disk			O	
31	8440IM	----- Trigger O-Ring			O	
32	8440BR	----- Brass Spindle			O	
33	8441J	----- Trigger Body				
34	8441J-113	----- Trigger complete with 100 mesh filter				
35	8442B	----- Trigger Pin			O	
36	8443B-12	----- Lever Assy				
37	8445W1	----- Washer (<i>for Spray Lance</i>)		O		
38	8445W2	----- Washer (<i>for nozzle</i>)		O		
39	8446GR-GRP-14	----- GRP Spray Lance 50cm with Elbow & Washer				
40	8447W	----- Washer (<i>for trigger</i>)		O		
41	8455SS-51INC	----- PVC Hose				
42	8458M	----- 100 Mesh Filter			O	
43	8459N	----- Chamber				
44	8478	----- Nozzle Cover			O	
45	8480B	----- Felt Washer		O		
46	8486	----- Spray Lance Grip				
47	DEF-02	----- Deflector Nozzle (<i>Yellow</i>)		O		
48	DEF-04	----- Deflector Nozzle (<i>Red</i>)		O		
49	HC-02	----- Hollow Cone nozzle (<i>Yellow</i>)		O		
50	18MM - 3/8BSP	----- 18mm - 3/8 BSP CF Valve				O

***O Compulsory change for continuous use at indicated intervals
(the rest change when necessary)***

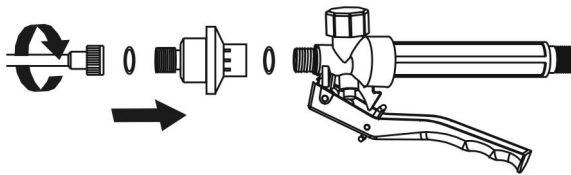
ACCESSORIES

The following accessories are available for use with the **SA15**.

Constant Flow Valve (CFV)

The CFV attachment provides constant pressure regulation by limiting the output pressure if pumping is excessive and shutting off the liquid flow if pressure is too low. This ensures a constant flow of spray solution and a predictable spray pattern and droplet spectrum. This helps prevent under and over doing and prevents the production of over small droplets which lead to off-target spray drift.

If the CFV is correctly installed (see '**Fitting The CFV**') pumping will be easier as fewer strokes will be needed to maintain pressure. Pump only two or three strokes before opening the trigger valve to commence spraying. One or two pump strokes every few steps will automatically maintain a constant flow at the correct pressure.



GRP Lance

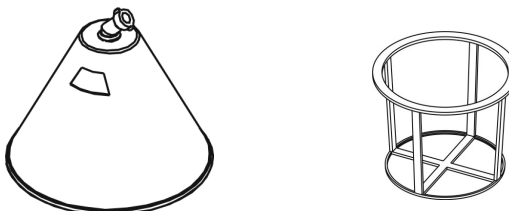
GRP Lance of 50 cm length is provided as the standard spray lance.

Spray shield (Optional accessories)

For use with the flat fan nozzle the spray shield helps minimize spray drift.

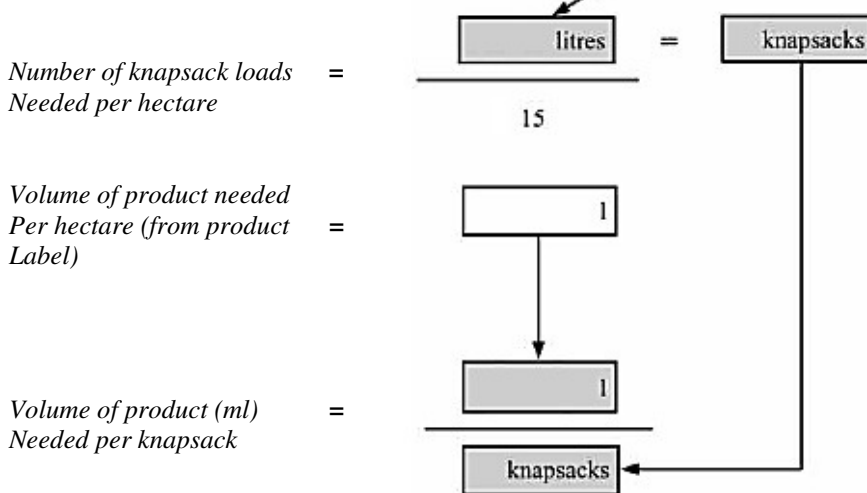
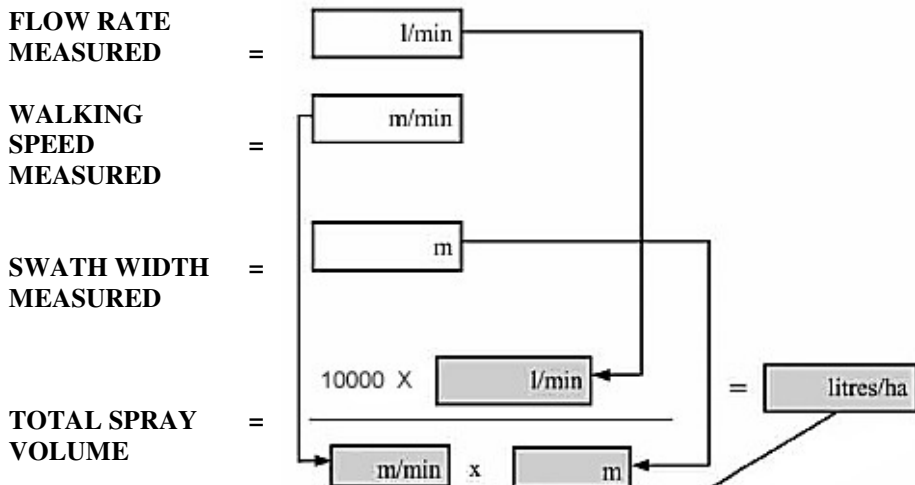
70 Mesh Filter 8407M (Optional accessories)

For use with the Strainer 135mm (8407L). Finer filtration 70 mesh to filter out fine dirt.



CALIBRATION WORKING SHEET

Use this sheet to help make the calibration calculations. Fill in the boxes and transfer this information as shown.



RB Spray Tech Sdn Bhd (627487-D)

No. 44, Lorong Sanggul 1E, Bandar Puteri Klang,

41200 Klang, Selangor D.E., Malaysia

Tel: +60-3-51625746, 51625745

Fax: +60-3-51615741

www.rbspraytech.com