



Kwazar® Neptune Super Knapsack Sprayer From Dairy Spares

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Kwazar® Neptune Super Knapsack Sprayer (SP150)

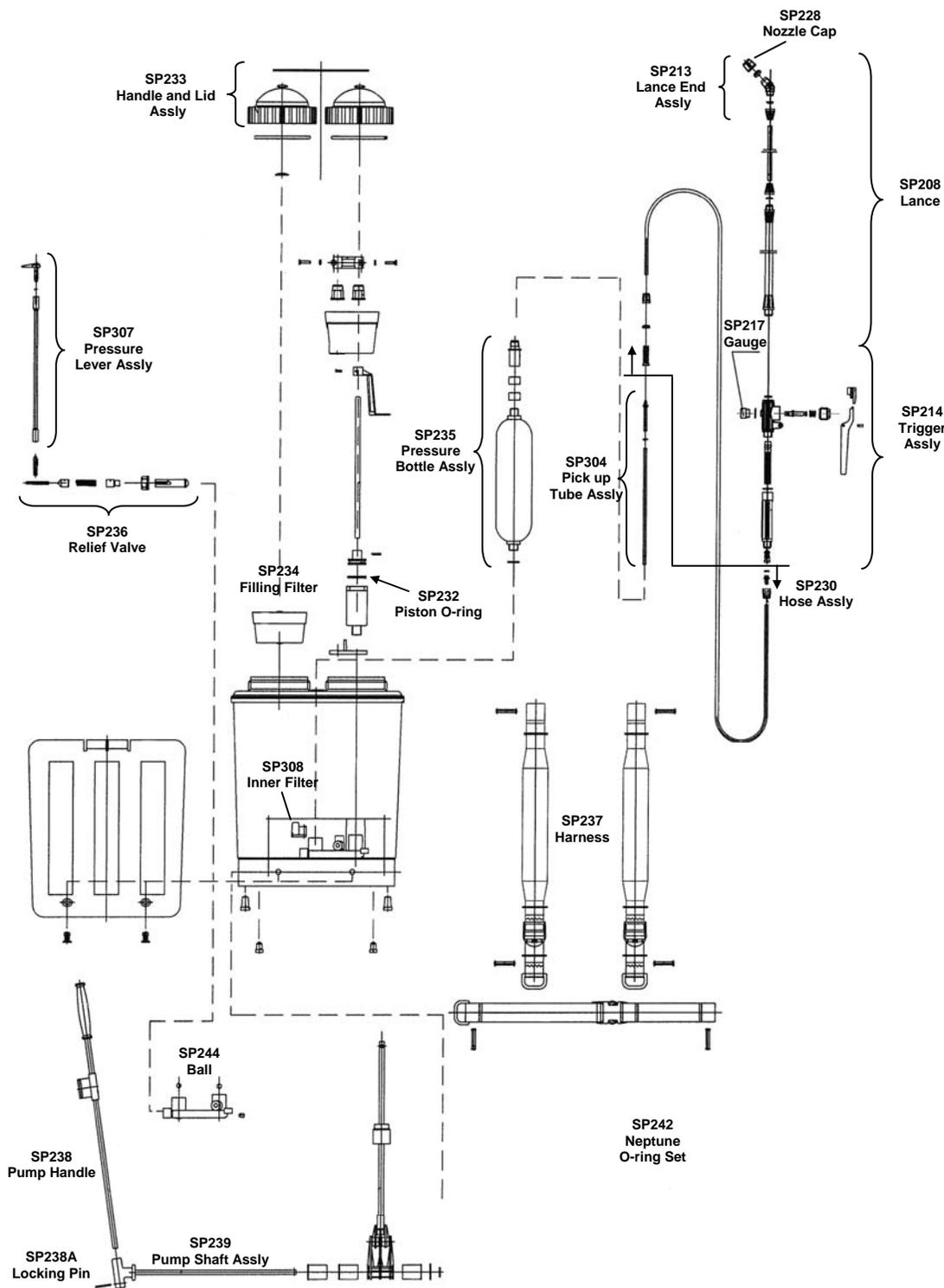
Designed for the toughest of jobs!

The Neptune Super knapsack sprayer is a professional device for the application of liquid agents that provide plants with protection from disease, weeds or pests in orchards and plant nurseries, forest plantations and in all large scale gardening and agricultural situations.

The Neptune Super offers the operator:

- 15 litre capacity tank that is 100% leak-proof with no openings below the level of the liquid
- Main tank is not pressurised, improving safety and reducing labour in pumping
- Unique internally housed pump and mechanism, promotes operator safety and reliability
- Provides a constant lance pressure for a precise spraying stream
- Easily viewed pressure gauge for optimum performance and minimum pumping
- All components are manufactured from highly durable and chemical resistant materials
- Has a triple filtration system to help prevent blockages and prevent down time
- Viton O-rings for optimum life
- Selectable pressure limit for correct spraying performance
- Comes complete with a 1.2m long telescopic lance
- Variety of spray tips to suit specific applications and promote efficient use of chemicals
- Comes complete spare lance seals
- Easy to service
- Ergonomic and convenient to use
- Possible to operate and pump either right or left handed
- Adjustable harness for operator safety and comfort
- Tank is thermally insulated from the back
- Stores conveniently and safely away for handling, transport and storage





THE IMPORTANCE OF SPRAY NOZZLES

The Spray nozzle governs the flow rate, spray pattern and droplet size. Choosing and using the correct spray nozzle and operating at the correct pressure is an essential factor in any treatment to try and ensure the correct application rate and optimise the chemical usage; promoting efficiency and reducing cost.

As a general rule, herbicides should be applied at a low pressure (1Bar) using a nozzle that gives large droplets. Remember low pressure = Less drift

When fine coverage is required use a nozzle giving small/medium droplets and apply at a higher pressure (3 Bar) such as some insecticides, fungicides and disinfectants.

Selecting the required pressure on top of your Neptune Super sprayer and using your pressure gauge will help you maintain the correct pressure.

It is strongly recommended that you experiment in nozzle selection, using clean water, before you commence application of any chemicals.



SPRAYER NOZZLE TIPS

The following tips come supplied with your Neptune Super/Orion sprayer:

DS Code	Colour	Type	BCPC Code	Spray Width 0.5m height	Flow Rate ltr/min	Droplet Size	Uses
SP222	Blue	Flat Fan	110SF03	N/A	1.2 @ 3Bar	Medium	Disinfectant, Timber Treatments
SP223	Yellow	Hollow Cone	HC02	N/A	0.6 @ 3 Bar	Fine/Mist	Insecticide, Fungicide
SP226	Green/Brown*	Polijet	DEF05	1m	1.18 @ 1 Bar	Coarse	Weedkillers esp.in rows
SP362	White	Adjustable	N/A	N/A	N/A	N/A	

These nozzle tips are also available from your stockist:

SP227	Yellow/Lilac*	Polijet	DEF025	0.5m	0.58 @ 1 Bar	Coarse	Weedkillers esp.in rows
SP225	Blue/White*	Polijet	DEF08	1.5m	1.85 @ 1 Bar	Coarse	Weedkillers esp.in rows
SP224	Red/Brown*	Polijet	DEF105	2.0m	2.43 @ 1 Bar	Coarse	Weedkillers esp.in rows

The exact same polijet nozzle may be of either colour

Polijet nozzle tips are also known as Deflector, Floodjet or Anvil

CAUTION!

Any information contained within these instructions is intended as a guide only, to what is a complicated subject and does not constitute a contractual offer. More detailed technical information is available on request.

All of our sprayers have been designed to withstand most of the chemicals with which they might be used in compliance with the manufacturers recommendations. If in doubt over compatibility please contact us for advice. Always read the chemical label and use the appropriate personal protective equipment. We reserve the right to alter specifications without prior notice.

GENERAL SAFETY RULES

HEALTH AND SAFETY REGULATIONS AND PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS FOR WORKING WITH CHEMICALS MUST BE ADHERED TO.

1. Read the user instructions prior to filling, operating, cleaning or maintaining the sprayer.
2. The user must wear the appropriate Personal Protective Equipment (PPE) as advised by the chemical manufacturer when preparing, using, cleaning and maintaining the sprayer.
3. Ensure the sprayer is properly prepared and calibrated for use with the correct nozzle and pressure.
4. It is not advisable that pregnant women and children are allowed to work with the sprayer.
5. Avoid eating, drinking and smoking while working with chemical substances.
6. Chemical substances used for spraying must be prepared and applied in accordance with manufacturers instructions and regulations.
7. Working solution should be prepared in a separate container clearly labelled for this purpose and fill the sprayer via the filter provided.
8. Do not mix more chemical than can be used during the work period.
9. Pay attention that the working solution does not penetrate into water sources: rivers, lakes, ponds, etc (also when disposing of the residues).
10. Use of explosive, corrosive, caustic and flammable substances is forbidden.
11. Do not fill the sprayer with hot liquids.
12. Work using of chemicals in cultivations under covers and in enclosed spaces should not be done alone.
13. The sprayer should be depressurized when work is completed, prior to cleaning, transportation and storage.
14. It is not permitted to leave chemical agents and spray residues in the sprayer when work is completed.
15. When work with chemical substances is completed, one should wash oneself thoroughly.
16. After each use the residues of the working solution in the tank should be diluted with water and sprayed out on the previously sprayed area. The sprayer should be washed using clean water and water disposed of in accordance with local guidelines.
17. Any worn or damaged parts should be replaced with genuine parts.
18. The sprayer filters including the handle filter should also be cleaned of any particles.
19. The sprayer, its accessories and chemical substances should be stored in a banded place, out of direct sunlight that is inaccessible to children or persons not qualified to use it.
20. Worn out sprayer should be washed before dismantling and handing over to a chemical waste recycling facility.
21. When lending the sprayer, always provide the user's manual.
22. Safely dispose of all unwanted packaging. It is not for children to play with.

RESIDUAL RISK

Although KWAZAR takes responsibility for the sprayer's design and construction which aim at elimination of any hazard, some elements of risk during sprayer operation are unavoidable. The residual risk results from incorrect actions of the user.

The greatest danger occurs when the following forbidden activities are performed:

- Safety rules described in the user's manual are not observed;
- Sprayer is used for purposes other than those described in the user's manual;
- The sprayer is subject to wilful (unauthorized) modifications.

For the purpose of residual risk description the sprayer is deemed to be a device, which was designed and manufactured in accordance with the state-of-the-art technology in the year of its manufacture.

APPLICATION

A Neptune Super sprayer is used for protective and nurturing activities in vegetable gardening, fruit farming, floriculture & forestry. They are used for spraying with pesticides, herbicides, liquid chemical fertilizers and clean water.

STANDARD EQUIPMENT

Tank with pump and safety valve; 1.2 m lance; suction tube; hose-and-handle kit; carrying strap kit (including bolts and nuts); set of spare parts; conical filling strainer; user's manual.

WARNING SIGNS

Warning signs placed on the sprayer must be legible and clean. If a sign is damaged, it should be replaced (by the user).

STORAGE AND MAINTENANCE

When the work is finished; the sprayer along with its lance and hose should be the roughly rinsed with clean water.

The filter located in the lance handle (see the drawing below) and the spraying tip should be cleaned periodically. The O-ring in the pump and in the safety valve should be lubricated periodically.

The sprayer should be stored at a temperature not lower than 0°C (ranging from 0°C up to +40°C), out of direct sunlight and away from heat sources, **UNPRESSURIZED**.



PREPARING THE NEPTUNE SUPER SPRAYER FOR OPERATION

Remove the sprayer elements from the packaging.



- 1 Put the suction pipe into the hose connector (until you feel a resistance).
- 2 Assemble the hose kit as shown insuring you tighten up until you get a leak proof connection. Fig 2 & 3
- 3 Check that the O-ring is present in the trigger handle. If present, screw in the lance. If not, look for the O-ring inside the box, put in place and screw in the lance. Fig 4 & 5
- 4 The Neptune is adapted for spraying right handed and pumping with the left hand. It is possible to alter the Neptune for pumping right handed; remove the shaft cotter pin and washers from the shaft end. Taking hold of the black handle locator withdraw the shaft ensuring the guide bushes retain in place push the handle back in from the opposite end, through the guide bushes and replace the washer and pin. 6&7



5. In order to start pumping it is necessary at first connect the handle to the shaft in the forward facing position. Remove the locking clip from the handle insert the handle into the shaft end bracket and reinsert the locking clip through the bracket and pumping handle. The pumping handle should be put back into the upright position for transport and storage. Fig 8 & 9
6. Prior to filling the tank the user should adjust the length of the harness by putting the sprayer on his/her shoulder. The length of the straps should be adjusted to make carrying the sprayer on the user's back comfortable and convenient.



7. Prior to filling the Neptune the inner filter should be removed and cleaned. Unscrew the top cap that is NOT marked 'For Service Only', the filling filter should be removed and rinsed in clean water. This allows access to the tank, at the base of the pressure bottle is the inner filter which can be removed by pulling on the holder, this should then be removed and rinsed in clean water; reinsert the filters. Figs 10 to 12

NEPTUNE SUPER SPRAYER OPERATING INSTRUCTIONS

The sprayer should be carried to the workplace depressurized. When the sprayer is in the workplace, the sprayer should then be pressurized (see the section relating to pump operation). The Neptune Super sprayer does not pressurize the main container, only the inner pressure vessel, into which liquid is drawn and stored under pressure.

1. The inner vessel has a pressure relief valve which vents to the main tank which can be externally selected to either 1 or 3 bar to maintain the correct pressure for the relevant spray tip for efficient spraying.
2. In order to fill the tank remove the lid and pour the working solution into tank via the conical filling filter.
3. Pump Operation: Pumping can be started by moving the handle upwards and downwards.
4. The pressurized sprayer should be put on the back with the spraying nozzle directed to the working area. In this position the user should depress the lance trigger and spraying should commence. When the sprayer pressure drops on the lance gauge, it should be increased by using the handle to pump it again.
5. Depending on sprayer application, standardized spraying nozzles of different output can be used (it results in either a faster or a slower pressure drop).

The lance can be lengthened. Ease the nut (A), pull out the inner tube, tighten up the nut (A).

NOTES:

It is forbidden to block the safety valve!!!

It is forbidden to use other compressors for pumping air into the sprayer!!!

It is recommended to renew the sprayer after 5 years from the date of its purchase. (Material fatigue)



Trouble-shooting

Sprayer pressurising but losing pressure above 1 bar.

Check that the pressure limiting switch between the tank lids is set to 3 (see fig 12)

Sprayer will not pressurise

Check that the piston rod O ring (SP232) is attached (see figures 19 to 23)
 Check that the relief valve (SP236) is clear, clean and not sticking (see figures 10 to 16)
 Check that the ball valve (SP244) beneath the pressure bottle is clean and seating properly (See figures 17 & 18)

Sprayer pressurises but nothing comes out from the nozzle.

Check that the nozzle is not blocked (see figure 27)
 Check that the inline trigger filter inside the trigger assembly is clean. (shown in figures 24 to 26)
 Check that the white plastic safety valve at the bottom of the trigger barrel is not stuck.
 Check that the pick-up tube has not become detached from the end of the hose, inside the pressure bottle. (see figure 2 previous page)

REMEMBER: - AFTER EACH USE HALF FILL TANK AND PUMP THROUGH WITH CLEAN WATER.
 IF NECESSARY PURCHASE A TANK CLEANER FROM YOUR SUPPLIER AND CLEAN THOROUGHLY.



Fig 27



Fig 1



Fig 2



Fig 3



Fig 4



Fig 5



Fig 6

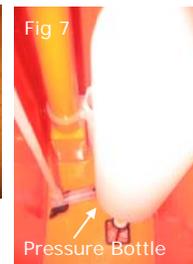


Fig 7

Pressure Bottle



Fig 8



Fig 9



Fig 10

Wear the appropriate Personal Protective Equipment when handling your pump for service. The photos shown for service demonstration purposes were taken while servicing a new unused pump.

To check the Pressure Relief Valve is clean and not sticking.

1. Remove both lids (SP233) by unscrewing them anticlockwise
2. Unscrew the hose retaining nut anticlockwise.
3. Remove the Pick up tube assembly (SP304)
4. Unscrew the pressure bottle (SP235) retention collar using a spanner
5. Remove the retention collar taking care not to loose the 2 inner spacers.
6. The lower inner spacer has to be lifted off the pressure bottle neck to remove.
7. The white pressure bottle can then be unscrewed anticlockwise.
8. Take care not to loose the pressure bottle O-ring located on the bottom thread.
9. The complete Pressure Bottle Assembly (SP235) is shown
10. The inner filter can now be lifted from its seat by pulling it out by the holder.
11. The inner filter can then be removed
12. Set the pressure selection lever to 1 bar and gently pull it up and off.
13. Inside the tank the relief valve connection rod can be lifted off. Be aware which way is top and bottom as the ends differ.
14. This shows the rodless pressure relief valve set in the 1 bar position
15. By using a spanner the pressure relief valve can be removed
16. Clean and check that the pressure relief valve so it does not stick in any way.



Fig 11

To check the ball valve is clean and seating properly.

Follow steps 1 to 9

17. This shows the removed inner filter, indicating the removal holder and the ball
18. The ball can be removed from its seating, clean the ball and seat with water to remove any build up or foreign matter, to ensure a good seating seal.



Fig 12

Replacing the piston O ring

Follow steps 1 to 9

19. Using a screwdriver loosen the screw from the housed nut to allow the piston connection rod to be loosened from the top of the metal shaft.

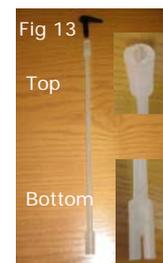


Fig 13

Top

Bottom



Fig 14



Fig 15



Fig 16

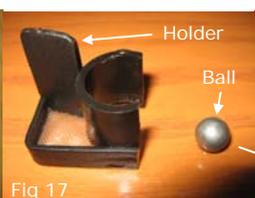


Fig 17

Holder

Ball



Fig 18



Fig 19



Fig 20



Fig 21



Fig 22

20. The connection rod can now be lifted vertically along with the plastic shaft.
21. As you lift the connection rod and plastic shaft the piston will raise and come out of the cylinder along with the agitator, exposing the Piston O-ring.
22. The Piston O-ring (SP232) can then be removed from the piston groove and replaced.
23. Before reinserting the piston apply a light coating of silicon grease to the O-ring.

To clean the inline trigger filter.

Unscrew the lance from the end of the trigger and unscrew the hose from the other end of the trigger.

24. Unscrew the trigger body in an anticlockwise direction and remove the trigger body. This reveals the inline trigger filter.
25. The inline trigger filter can be pulled out from the trigger and cleaned.
26. When reattaching the lance to the trigger ensure that the O-ring is in place inside the trigger lance housing. This must be present before the sprayer is used again.



Fig 24



Fig 25

To clean a blockage from the spray nozzle.

27. The lance end assembly (SP213) can be removed from the lance end by taking hold of the lance end nut and turning the 45° nozzle body in an anticlockwise direction until it can be pulled off the end of the lance, taking care not to loose the square section O-ring which locates in a groove in the end of the lance between the 45° nozzle body and the lance nut. The spray nozzle cap (SP228) is also removed in a anticlockwise direction, the sprayer nozzle can then be clean, changed or replaced before reassembling.



Fig 26

O ring

Pick up tube detached (Figures 1 to 3 on previous page)

- i. If the Neptune Super pressurises but does not spray, remove the pick up tube assembly by unscrewing the hose retention nut and lift out from the bottle. Ensure that the pick up tube is securely pushed into the white sealed housing.



Fig 23