

50mL

POWERMASTER DRENCHER



njphillips™
DATAMARS



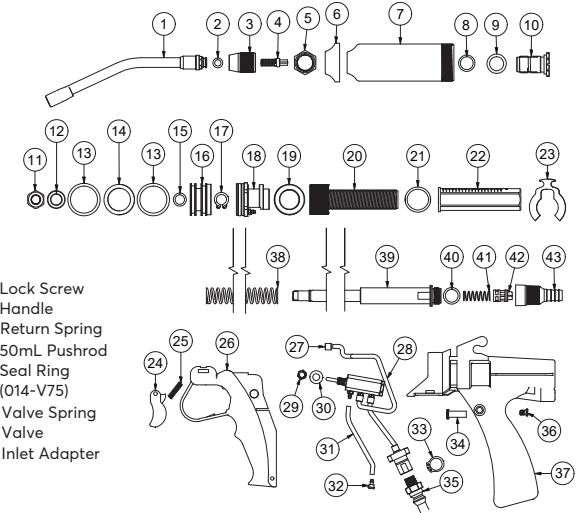
- Powered by compressed air.
- Quick refill action.
- Strong lightweight construction.
- Ergonomic; minimal hand strain.
- Inlet air fitting is a US style fitting.

50mL Powermaster Drencher Parts Breakdown

SPARE PARTS KITS AVAILABLE

| Product | Code | SAP Code | Part No. |
|-------------------|--------------|--------------|---|
| Major Service Kit | KIT-P50A-500 | 850 0000-148 | 2, 4, 7, 8, 13 (x2), 14, 41, 42 |
| Major Service Kit | WX1539 | 850 0001-226 | 11, 12, 13 (x2), 14, 15, 17, 18 (O-Rings only), 19, 21, 23, 25, 27 (x2), 31, 33, 34, 41, 42, 40 |

- | | | | |
|------------------------|--------------------------|----------------------------|-------------------------|
| 1. Cattle Nozzle | 13. O-Ring (121-F70) | 25. Spring | 36. Lock Screw |
| 2. Seal Ring (010-S70) | 14. Felt Washer | 26. Lever | 37. Handle |
| 3. Nozzle Nut | 15. Seal Ring (012-V75) | 27. Tube Retainer | 38. Return Spring |
| 4. Valve and Spring | 16. 25-50mL Piston | 28. Trigger Valve Assembly | 39. 50mL Pushrod |
| 5. Lock Nut | 17. Circlip | 29. Nut | 40. Seal Ring (014-V75) |
| 6. Barrel Shield Cap | 18. Handle Plug Assembly | 30. Brass Washer | 41. Valve Spring |
| 7. 50mL Barrel | 19. Spacer Bush | 31. Exhaust Tube | 42. Valve |
| 8. O-Ring (014-N70) | 20. Dose Adjuster | 32. Exhaust Adapter | 43. Inlet Adapter |
| 9. O-Ring (113-S70) | 21. Wave Washer | 33. Circlip | |
| 10. Delivery Cage | 22. Dose Adjuster | 34. Handle Lock Sleeve | |
| 11. Piston Nut | 23. Handle Clip | 35. Inlet Fitting | |
| 12. Spring Washer | 24. Trigger | | |



| Product | Dose Range | Increments | Material | Packaged Dimensions (WxHxD) | Packaging Type | Code | SAP Code | EAN Barcode | UPC Barcode |
|---------------------------|------------|------------|----------|-----------------------------|----------------|-----------|--------------|---------------------|---------------------|
| 50mL Powermaster Drencher | 5mL - 50mL | 2.5mL | Plastic | 220 x 530 x 45mm | Plastic bag | P50A-CAMX | 850 0000-598 | 9 323837 014707 | 8 12465 01329 3 |

For more information, email: ahdsinfo@datamars.com or phone toll free (Australia): 1800 247 175

www.njphillips.com



25ml, 50ml & 65ml Variable Dose Powermaster, Pour-On, Oral Drench & Forestry Applicator.



The Powermaster Applicator, operated by LP gas or compressed air, is designed for the administration of selected animal health pharmaceutical products for the external pour-on or oral drench treatment, within the applicator's dose range. **The applicator must not be used for the treatment of horses, as injury or danger to the health of the animal may occur.**

The applicator is product specific, and is **NOT** suitable for use with EVERY type of animal health or forestry product available. For further information about the product you wish to use with this applicator, please contact your stockist, local distributor.

All information contained in this handbook relating to the use of LP gas and compressed air fittings is applicable, and must be strictly adhered to.

No liability will be accepted by the manufacturer if the applicator is used for any purpose other than for the pour-on or oral drenching treatment of livestock or application of forestry chemicals.

Prior to setting up the applicator for the external pour-on or drenching treatment of livestock or application of forestry chemicals, for the protection of the applicator operator and livestock, please carefully read this handbook, along with the leaflet enclosed with the regulator supplied, the pharmaceutical/chemical manufacturer's product instructions for use, material safety data sheets, or safety instructions on the label of the chemical container.

To ensure continued high performance from the applicator, attention to cleanliness is essential. Cleaning and care instructions must be adhered to.

The **WARNING STATEMENTS** covering the use of the applicator and this leaflet supplied with the gas regulator, **MUST** be read and applied prior to use of the applicator by the operator.

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IMPORTANT SAFETY WARNING

The applicator, associated equipment, pour-on and oral drench chemicals, and horticultural chemicals each pose inherent risks to human health and safety if used incorrectly and without appropriate safety precautions.

All owners of the applicator, including employers and self-employed persons, are reminded of their strict obligations to ensure the health and safety of employees and all other persons in the place (ie workplace) in which the applicator, associated equipment, and chemicals are used and stored. In particular, employers and self-employed persons MUST make appropriate arrangements to ensure safety and the absence of risks to health in connection with the use, handling, storage, maintenance and transport of the applicator, associated equipment, and all chemicals.

Such arrangements include but are not limited to the provision of appropriate protective gloves, clothing, eye wear and respirators, ensuring the applicator, associated equipment and all chemicals are stored at all times safely out of the reach of unauthorised persons, and ensuring that the applicator and associated equipment is assembled, used, cleaned and maintained strictly in accordance with the directions in this Handbook.

In addition, employers and self-employed persons MUST provide such information, instruction, training and supervision in connection with the use, handling, storage and transport of the applicator, associated equipment and chemicals as is necessary to ensure the health and safety in the workplace of employees and all other persons.

Employers and self-employed persons MUST take particular care to ensure the appropriate instruction, training and supervision of employees and others who are under-age, inexperienced, unskilled and/or have difficulties reading or speaking the English language.

Employers and self-employed persons MUST ensure that this Handbook is kept with the applicator at all times, and that its warnings and instructions are referred to each time the applicator is used.

WARNING STATEMENT

- 1 As this applicator may be dangerous in the hands of children, it MUST be kept in a safe place, out of the reach of children and to stop use by unauthorised persons.
- 2 Do not place the applicator near any heat source.
- 3 Oil lubricants other than those indicated may damage rubber components in this applicator.
- 4 You MUST read the "WARNING STATEMENT" and "IMPORTANT SAFETY ISSUE" covered by the leaflet in the regulator package, this leaflet contains important instructions for connection of the gas regulator and LP gas cylinder.
- 5 The manufacturer will accept no responsibility or liability if a gas regulator and valve assembly, and or, gas cylinder other than the units supplied in this package are used to operate the applicator. If other equipment is used, this may result in creating an unsafe hazardous situation in the use of LP gas. These situations may be explosive through the build up of LP gas or poisonous by the inhaling of toxic LP gas. Both these situations can cause death or injury to the operator.
- 6 The manufacturer will accept no responsibility or liability if the applicator gas tube (diag. 2-13) or other components relating to the use of LP gas to operate the applicator are interfered with or modified in any way, as this may create an unsafe hazardous situation in the use of LP gas. These situations may be explosive through the build up of LP gas or poisonous by the inhaling of toxic LP gas. Both these situations can cause death or injury to the operator.
- 7 The regulator valve must be kept fully closed at all times when the applicator is not in use, to avoid possible unsafe or hazardous situations. These situations may be explosive through the build up of LP gas or poisonous by the inhaling of toxic LP gas. Both these situations can cause death or injury to the operator.
- 8 To avoid injury to livestock careful inspection of sheep/cattle nozzles before drenching as detailed under "CARE AND MAINTENANCE OF APPLICATOR" is important.
- 9 Setting of the applicator dose levels, and use of the animal health pour-on and drench products should be carried out in strict accordance with the pharmaceutical manufacturer's administration instructions, otherwise injury to livestock may occur, and the health of the applicator operator may be at risk.
- 10 Components in this applicator may be affected by some commonly used farm chemicals and pour-on products. No responsibility or liability will be accepted by the manufacturer, should the applicator be used with any product other than drenches, pour-on products or forestry chemicals recommended by your stockist/local distributor.
- 11 When the applicator is used for the pour-on treatment of livestock or application of forestry chemicals:
 - a Gloves must be worn at all times by the applicator operator.
 - b The operator MUST avoid body contact or inhalation of the pour-on product or chemicals. Otherwise injury to the health of the applicator operator may occur.
 - c Care must be taken to ensure the draw off cap, feed tube and spring are firmly secured to the backpack to prevent leakage of its contents. Otherwise injury to the health of the applicator operator may occur.
- 12 When the applicator is operated by compressed air:
 - a Care must be taken to ensure the air pressure supplied from the compressor does not exceed 690 Kpa (100 psi) otherwise damage to the regulator, and or applicator may occur.
 - b Unless an approved in line compressed air filter/lubricator is installed, moisture and or foreign matter will enter the trigger valve system of the applicator, which will cease to operate in a satisfactory manner.
- 13 Care must be taken to ensure the pharmaceutical/chemical manufacturer's instructions and material safety data sheets (MSDS) or any other product or health or safety information are followed in regard to safe use and storage of pour-on and oral drench products or forestry chemicals, otherwise injury to the health of personnel and/or livestock may occur.

WARRANTY & SERVICE

Scope of this warranty

This warranty entitles you to repairs or replacement (at no charge) of any parts of the Powermaster Applicator ("Product") found to be defective in materials or workmanship within 12 months from date of purchase (date validated by proof of purchase receipt). Repair or replacement is at the option of The manufacturer ("Company") or its authorised agent. This warranty is in addition to any rights and remedies extended to the owner under applicable laws, and is not intended to negate or restrict such rights and remedies except where it is competent to do so.

What is not covered by this warranty

Repair or replacement under this warranty is not available for faults or failure due to:

- ordinary wear and tear;
- accident, contamination, misuse, neglect, abuse or tampering;
- incorrect installation or maintenance;
- failure to follow the Company's warnings, instructions, and recommendations for safe and effective use;
- the fitting or use of faulty, poor quality or incompatible associated parts or components, and in particular the use of a gas regulator and valve assembly and/or gas cylinder other than those component parts supplied with the Product;
- use of the applicator other than for its designed purpose;
- use of the applicator with any product other than products specifically recommended by your stockist/local distributor or .
- repairs, alterations or modifications carried out other than by the Company or its authorised agent, and in particular interference with or modification in any way to the applicator gas tube (diag. 2-13) or other components relating to the use of LP gas to operate the Product; or
- any other cause occurring after the Product left the Company's, stockist's or local distributor's control.

Subject to the operation of any laws to the contrary, this warranty does not cover:

- the costs of travelling or transportation of the Product or parts to and/or from the Company or its authorised agent;
- loss of the applicator or parts while in transit to or from the Company or its authorised agent; or
- personal injury, property damage, or economic and consequential loss or damage, howsoever caused.

The Company and its authorised agents reserve the right to charge their reasonable costs in investigating and correcting faults and failure caused other than by defects in materials or workmanship.

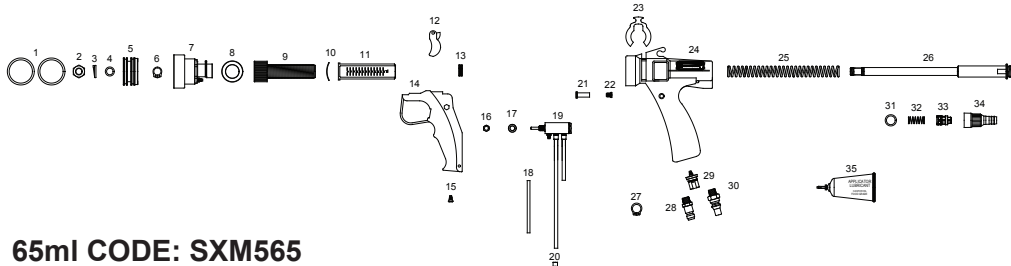
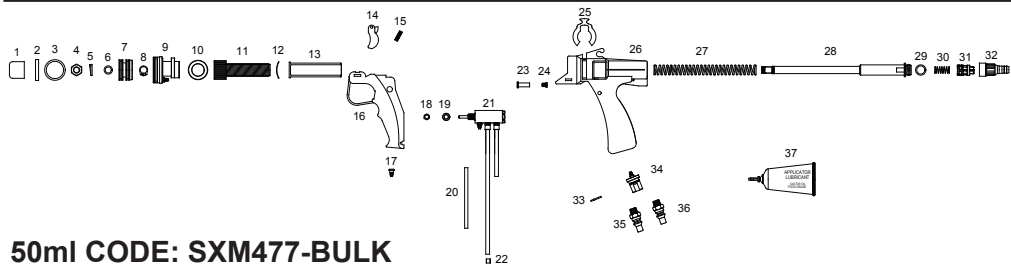
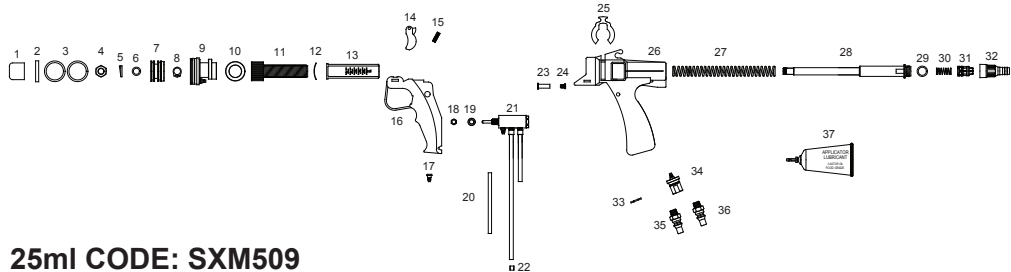
How to claim under this warranty

If service is necessary, contact the Company or an authorised agent, and provide details of the alphanumeric batch code number located on the handle of the Product, and the date of purchase.

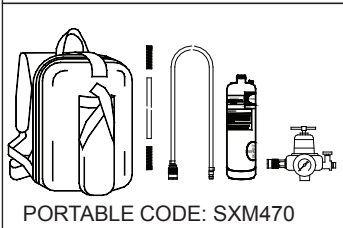
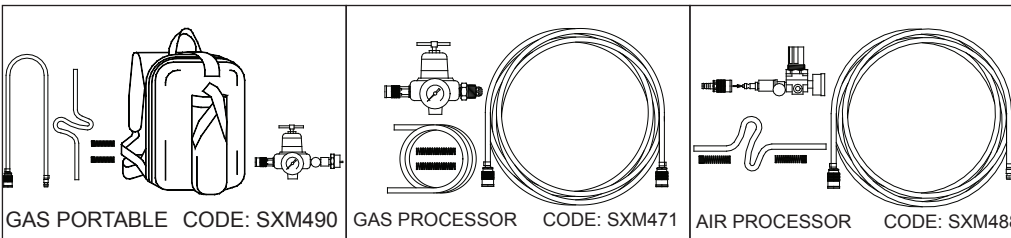
SECTION 1: APPLICATOR PARTS IDENTIFICATION AND SCHEMATIC DIAGRAMS

Schematic Diagram No 1: Powermaster Pour-On/Oral Drench/Forestry Applicator Range

HANDPIECE

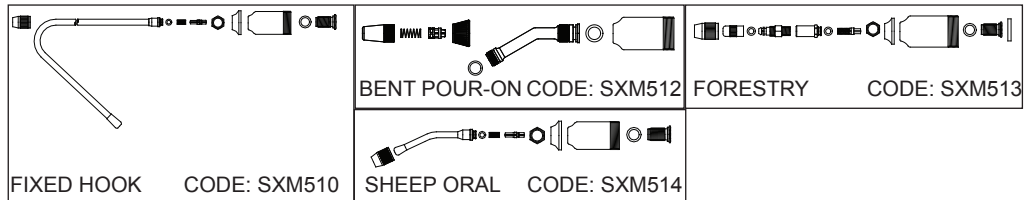


POWER SOURCE

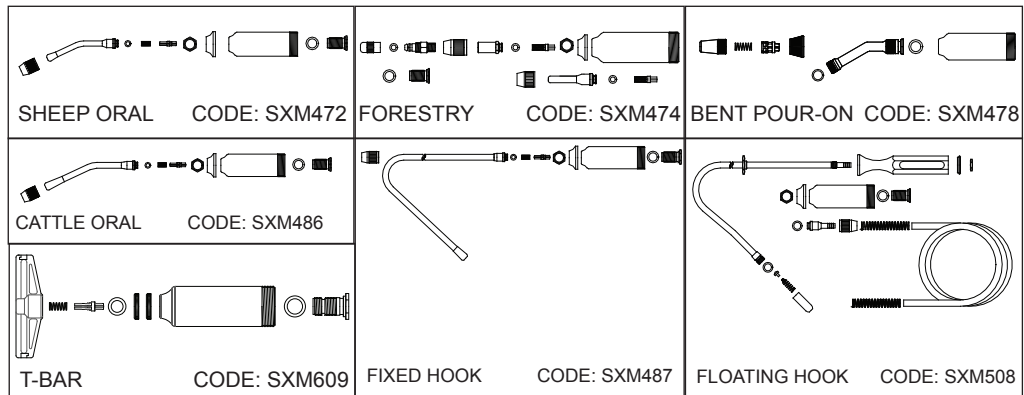


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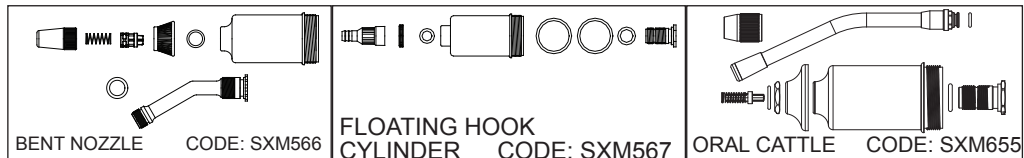
CYLINDER ASSEMBLY



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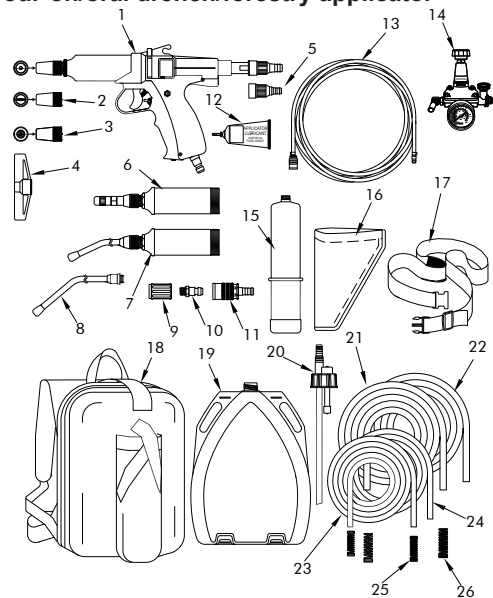


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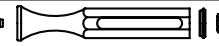

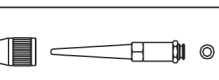
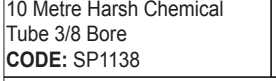
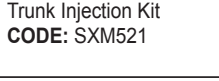


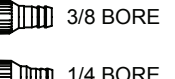
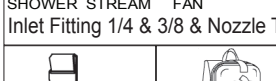





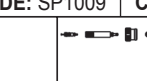

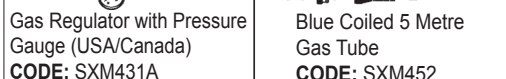
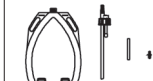
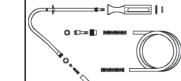

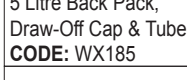
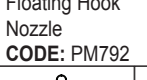
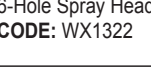


Schematic Diagram No 2: Powermaster pour-on/oral drench/forestry applicator

- Powermaster applicator - cylinder - stream tip nozzle - 9mm (3/8") inlet adaptor
- fan tip nozzle
- shower tip nozzle
- spray head (NOTE: not supplied - available as an accessory.)
- 6mm (1/4") inlet adaptor
- cylinder - cone spray nozzle
- cylinder - sheep nozzle
- cattle drench nozzle
- air fitting adaptor (when supplied)
- nipple for air fitting adaptor (when supplied)
- snap-in barb coupling (when supplied)
- 15ml castor oil lubricant (6 per)
- gas tube
- LP gas or compressed air regulator assembly
- LP gas cylinder (when supplied)
- holster (when supplied)
- belt (when supplied)
- backpack bag (when supplied)
- 2.5 or 5 Litre backpack (NOTE: not supplied - available as an accessory)
- air bleed draw off cap and feed tube
- (NOTE: not supplied - available as an accessory)
- 9mm (3/8") clear feed tube
- 9mm (3/8") black rubber feed tube
- 6mm (1/4") clear feed tube
- 6mm (1/4") black rubber feed tube
- feed tube springs (small)
- feed tube springs (large)

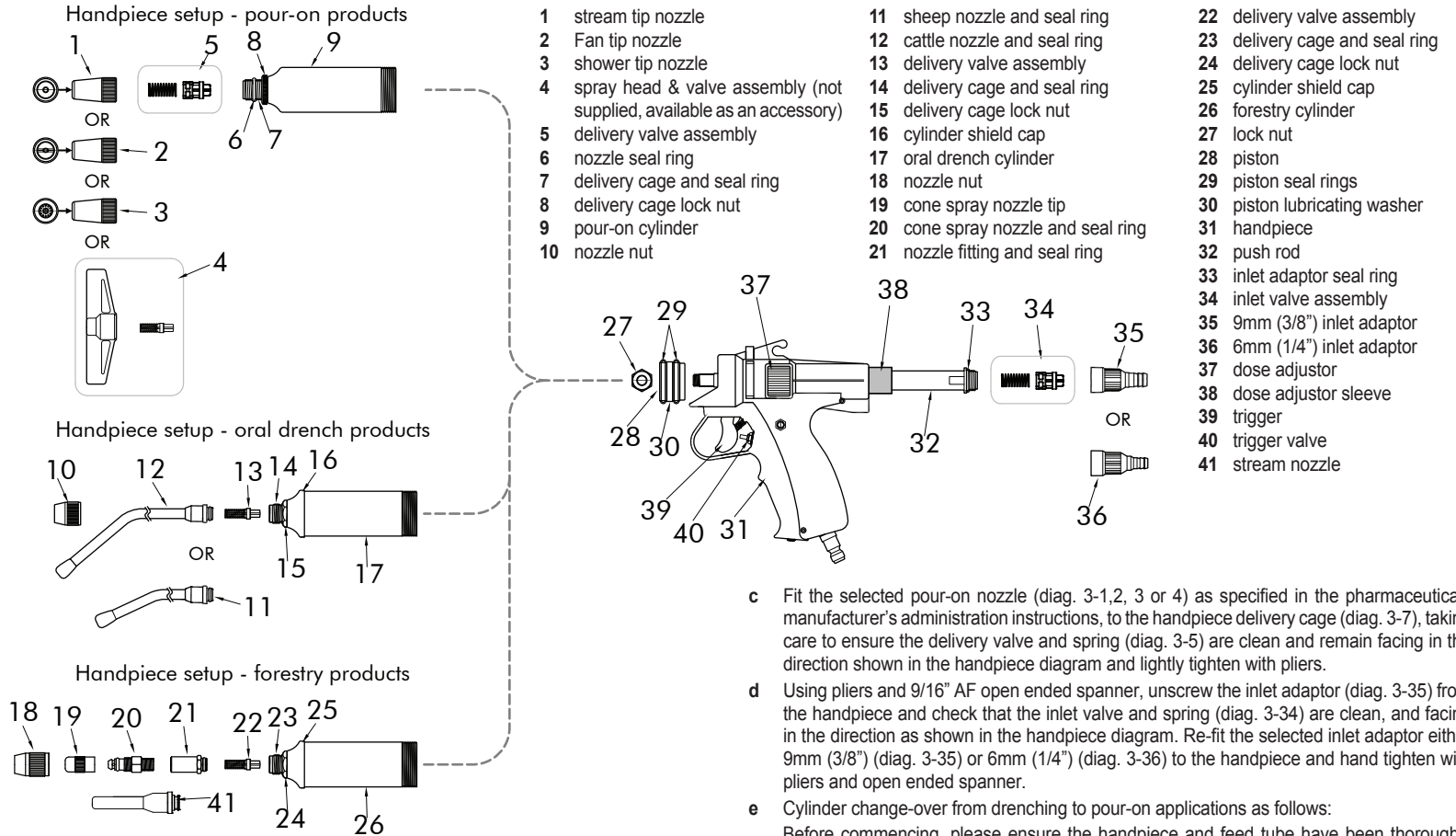


SECTION 2: ACCESSORIES

| | | |
|---|---|--|
|  Extension Wand CODE: SXM451 | |  Trunk Injection Kit CODE: SXM521 |
|  10 Metre Harsh Chemical Tube 3/8 Bore CODE: SP1138 | |  Trunk Injection Kit CODE: SXM521 |
|  SHOWER STREAM FAN Inlet Fitting 1/4 & 3/8 & Nozzle Tip Kit CODE: WX1374 |  3/8 BORE 1/4 BORE | |
|  0.34kg Gas Bottle Pouch CODE: SP687 |  Universal Back Pack CODE: SP1009 |  Gas Regulator with Pressure Gauge CODE: SXM423A |
|  Gas Regulator with Pressure Gauge (USA/Canada) CODE: SXM431A | |  Blue Coiled 5 Metre Gas Tube CODE: SXM452 |
|  5 Litre Back Pack, Draw-Off Cap & Tube CODE: WX185 |  Floating Hook Nozzle CODE: PM792 |  6-Hole Spray Head CODE: WX1322 |
|  (SM674, SP987, SP988) Air Fitting CODE: WX1735 |  Lubrication Oil 6 per CODE: WX1510 |  Holster & Belt CODE: WX1478 |
|  Spears CODE: WX1300 | | |
|  9kg Gas Bottle CODE: SP1140 |  10 Metre Gas Line CODE: SP1139 |  Carry Case CODE: SP985 |
|  Cattle Nozzle CODE: SXN43 |  Fixed Hook Nozzle CODE: SXN77 |  Sheep Nozzle CODE: SXN240 |

SECTION 3: SETTING UP THE APPLICATOR READY FOR USE

Schematic Diagram No 3: Handpiece setup for pour-on, oral drench and forestry products.



1. HANDPIECE POUR-ON PRODUCTS

Refer schematic diagram No 3 above.

Handpiece setup for pour-on or oral drench products.

Before commencing, attention must be given to following the chemical manufacturer's safety instructions at all times and gloves must be worn at all times to prevent chemicals contacting the hands. Please ensure the handpiece and feed tube have been thoroughly cleaned and flushed out as covered by Section 7 of this booklet, care and maintenance of applicator.

- a** The applicator has been supplied with the pour-on cylinder (diag. 3-9), stream tip nozzle (diag. 3-1) and 9mm (3/8") inlet adaptor (diag. 3-35) assembled to the handpiece (diag. 3-31). A fan tip nozzle (diag. 3-2) and a shower tip nozzle (diag. 3-3) are supplied with the pour-on assembly, a spray head (diag. 3-4) and 6mm (1/4") inlet adaptor (diag. 3-36) are available as accessories.

Please refer to the pharmaceutical manufacturer's administration instructions for selection of pour-on nozzle to be used.

- b** On the initial use of the applicator with pour-on products, ensure that the pour-on cylinder (diag. 3-9) has been hand tightened to the handpiece by grasping the cylinder and turning it in a clockwise direction.

- c** Fit the selected pour-on nozzle (diag. 3-1, 2, 3 or 4) as specified in the pharmaceuticals manufacturer's administration instructions, to the handpiece delivery cage (diag. 3-7), taking care to ensure the delivery valve and spring (diag. 3-5) are clean and remain facing in the direction shown in the handpiece diagram and lightly tighten with pliers.

- d** Using pliers and 9/16" AF open ended spanner, unscrew the inlet adaptor (diag. 3-35) from the handpiece and check that the inlet valve and spring (diag. 3-34) are clean, and facing in the direction as shown in the handpiece diagram. Re-fit the selected inlet adaptor either 9mm (3/8") (diag. 3-35) or 6mm (1/4") (diag. 3-36) to the handpiece and hand tighten with pliers and open ended spanner.

- e** Cylinder change-over from drenching to pour-on applications as follows:
 Before commencing, please ensure the handpiece and feed tube have been thoroughly cleaned and flushed out as covered by Section 7 of this handbook, care and maintenance of applicator.

- i** Remove the cylinder (diag. 3-17) from the handpiece by unscrewing the cylinder in an anticlockwise direction. Carefully remove the cylinder from the handle (diag. 3-31) taking care not to damage seal rings (diag. 3-29) on piston (diag. 3-28) and handle plug assembly and place cylinder aside.
- ii** Check that inside of cylinder (diag. 3-9), piston (diag. 3-28), push rod (diag. 3-32), and handle plug assembly are clean. Lubricate inside of cylinder with a small quantity of NJ Phillips Lubricant supplied in the toolbox. Carefully place the cylinder over the piston (diag. 3-28) and screw into handle (diag. 3-31) in a clockwise direction and hand tighten.
- iii** Fit the selected nozzle (diag. 3-1, 2, 3 or 4) as specified in the pharmaceutical manufacturer's administration instructions as covered by Section 3, part 1c.
- iv** Check for correct fitting of inlet adaptor (diag. 3-35 or 36) and inlet valve and spring (diag. 3-34) as covered in Section 3 part 1d.
- v** Wipe cylinder (diag. 3-17) clean both inside and outside of cylinder and place in toolbox for safe storage.
- f** The handpiece is now set up ready for connection to the draw off system for the pour-on treatment of livestock.

SECTION 3: SETTING UP THE APPLICATOR READY FOR USE *Cont.*

2. HANDPIECE - ORAL DRENCH PRODUCTS

Refer Schematic Diagram No 3 page 4.

Handpiece setup for pour-on or oral drench products.

Cylinder change-over from pour-on to drenching applications as follows:

Before commencing, attention must be given to following the chemical manufacturer's safety instructions at all times and gloves must be worn at all times to prevent chemicals contacting the hands. Please ensure the handpiece and feed tube have been thoroughly cleaned and flushed out as covered by Section 7 of this booklet, Care and Maintenance of Applicator.

a Remove the cylinder (diag. 3-9) from the handpiece by unscrewing the cylinder in an anticlockwise direction. Do not hold the push rod while unscrewing let it spin otherwise the piston may come off. Carefully remove the cylinder from the handle (diag. 3-31) taking care not to damage seal rings (diag. 3-29) on piston (diag. 3-28) and handle plug assembly, and place cylinder aside.

WARNING: Care should be taken to ensure any residue of pour-on solution in the cylinder is NOT inhaled or comes into contact with any part of the hands or body, otherwise injury and/or danger to health may occur.

b Check that inside of cylinder (diag. 3-17), push rod (diag. 3-32) and handle plug assembly are clean. Lubricate inside of cylinder with a small quantity of NJ Phillips Lubricant supplied in the toolbox. Carefully place cylinder over piston (diag. 3-28) and screw into handle (diag. 3-31) in a clockwise direction and hand tighten.

c Select the appropriate nozzle to be used, the small nozzle (diag. 3-11) to be used for sheep or small livestock, or the large nozzle (diag. 3-12) to be used for cattle or large livestock. Inspect the bulbous tip to ensure plating is not damaged or worn to a sharp edge. Should this occur remove with a file or emery paper or replace nozzle.

WARNING: Use of a damaged nozzle may result in injury and/or possible death to livestock.

Fit the selected nozzle and nozzle nut (diag. 3-10) to the handpiece delivery cage (diag. 3-14), taking care to ensure the delivery valve and spring are facing in the direction as shown in the handpiece diagram. Rotate nozzle on handpiece to achieve a convenient position for drenching purposes and lightly tighten nozzle nut (diag. 3-10) with pliers.

d Check for correct fitting of selected inlet adaptor (diag. 3-35 or 36) and inlet valve and spring (diag. 3-34) as covered in Section 3, part 1d.

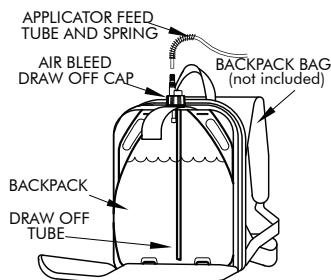
e Check to ensure that the flushing procedure has been completed on the pour-on cylinder, wipe the cylinder clean, both inside and outside, and place in toolbox for safe storage.

WARNING: Care should be taken to ensure any residue of pour-on solution in the cylinder is NOT inhaled or comes into contact with any part of the hands or body, otherwise injury and/or danger to health may occur.

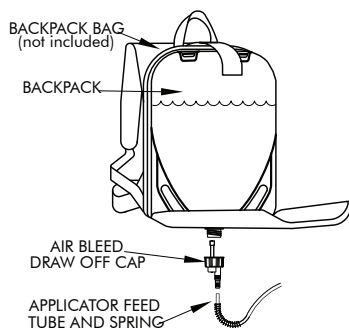
f The handpiece is now set up ready for connection to the draw off system for the oral drenching of livestock.

Schematic Diagram No 4: Backpack, bag and holster

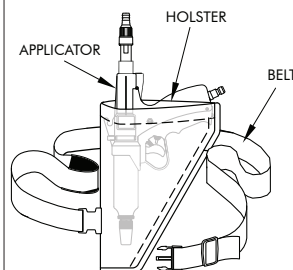
NOTE: This schematic diagram only covers the back-pack and air bleed draw off system.



1 Backpack used in the **UPRIGHT** position, with draw off tube pushed into air bleed draw off cap.



2 Backpack used in the **INVERTED** position, with draw off tube removed from air bleed draw off cap.



3 Holster and Belt. Holster suitable for use by either right or left hand operators.

3. BACKPACK, BAG AND HOLSTER

Refer Schematic Diagram No 4 page 5.

Backpack, bag and holster.

a **Backpack used for pour-on and oral drench treatments of livestock with the Powermaster applicator:**

i **Backpack**

2.5 or 5 Litre collapsible backpacks and air bleed draw off cap from the range of accessories are available for purchase from your stockist.

ii **Pharmaceutical/chemical manufacturer's backpacks**

2.5 or 5 Litre backpacks and draw off cap are supplied containing the pour-on or oral drench products. When using the pharmaceutical/chemical manufacturer's backpack and draw off cap, care **MUST** be taken in regard to the following:

- Attention given to the pharmaceutical/chemical manufacturer's instructions for use as shown on the backpack label, along with any reference to Material Safety Data Sheets (MSDS) or any other product or health or safety information.
- Ensure that the draw off cap has a barbed spigot, and is suitable for use with 9mm (3/8") and or 6mm (1/4") feed tubes, otherwise it will be necessary to carefully decant the product into an 2.5 or 5 Litre backpack and air bleed draw off system.
- If the pharmaceutical/chemical manufacturer's backpack does not have a venting system, or is not a collapsible backpack on withdrawal of it's contents, this situation will create a slow cylinder fill rate for the applicator. If so it is recommended that the product is carefully decanted into a 2.5 or 5 Litre backpack.

b **Pharmaceutical/chemical manufacturer's 20 Litre containers:**

When the pour-on or oral drench product is supplied in 20 Litre containers, please refer to the instructions for use on the container label, along with any reference to Material Safety Data Sheets (MSDS), and carefully decant the product for use into an 2.5 or 5 Litre backpack and air bleed draw off cap.

c **WARNING: When changing from pour-on to drenching or forestry products using the 2.5 or 5 Litre backpack and air bleed draw off system, before commencing, the backpack, air bleed draw off cap and feed tube must be thoroughly cleaned and flushed out, as covered by Section 7 of this handbook, (care and maintenance of applicator). Otherwise contamination from either product may occur, and affect the health of livestock or plant life being treated.**

d **Backpack and Bag:**

As the viscosity of pour-on, drench and chemical products varies from light to heavy, wherever possible, the backpack **MUST** be placed in the bag for use in the upright position. However, with the heavier viscous solutions, where the cylinder fill rate will be slower, the backpack can be placed in the bag for use in the inverted position.

By using the backpack in the upright position, this will minimise the possible leakage of its contents from the connection of

feed tube, air bleed draw off cap, and backpack.

As mentioned previously, this is important with the use of pour-on products, which can be injurious to the health of the operator.

e **Backpack Used in Upright Position:**

i When using the backpack and air bleed draw off system remove the air bleed draw off cap (diag. 4-1) from the backpack by screwing in an anticlockwise direction, check to ensure the draw off tube is securely pushed into the draw off cap, replace the draw off cap onto the backpack by screwing in a clockwise direction and hand tighten.

OR

ii When using the pharmaceutical manufacturer's backpack, check to ensure the backpack has a venting system, or is a collapsible backpack, otherwise the applicator fill rate will be slow and unsatisfactory. In this case it is recommended that the collapsible backpack and air bleed draw off system should be used.

iii Place the selected backpack into the bag as shown in diag. 4-1, with the draw off cap of the backpack positioned upright, and secure in place with the bag zipper.

f **Backpack used in Inverted Position:**

i When using the Backpack and air bleed draw off system, remove the air bleed draw off cap (diag. 4-2) from the backpack by screwing in an anticlockwise direction, remove the draw off tube from the draw off cap and place aside in the toolbox. Replace the draw off cap onto the backpack by screwing in a clockwise direction and hand tighten.

ii When using the pharmaceutical manufacturer's backpack, refer instructions as covered in Section 3, part 3,e,ii above.

iii Place the selected empty NJP backpack into the bag as shown in diag. 4-1, with the draw off cap of the backpack placed through the hole in the bottom of the bag, and secure in place with the bag zipper.

WARNING: When the pharmaceutical manufacturer's back pack is used in the upright or inverted position, the draw off cap, feed tube and spring, must be firmly secured to the backpack, to prevent leakage of it's contents, which can be injurious to the health of the applicator operator.

g **Holster and Belt (diag. 4-3)**

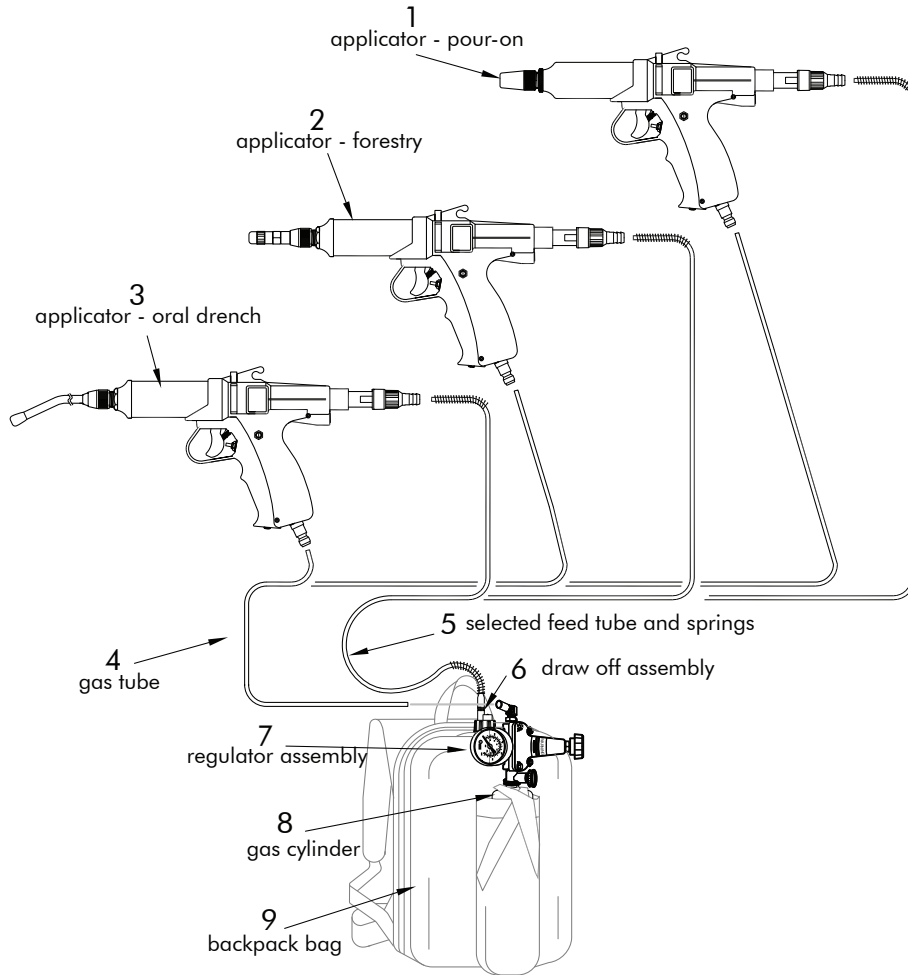
When the applicator is connected to the gas cylinder or compressed air hose and backpack, a holster and belt may be purchased as an accessory, so that when required by the operator, the applicator can be placed in the holster to enable the operator to attend to other duties.

The holster is suitable for use by either right hand or left hand operations.

h The backpack, bag and holster are now set up ready for connection to the applicator and LP gas or compressed air systems for the treatment of livestock.

Schematic Diagram No 5: Applicator setup for operation by LP gas

NOTE: Gas cylinder not supplied in all countries.



4. APPLICATOR OPERATED BY LP-GAS

Refer Schematic Diagram No 5 above.

Applicator setup for operation by LP gas.

WARNING: You must not fit or use faulty, poor quality or incompatible associated parts or components, and in particular the use of a gas regulator and valve assembly other than those components supplied with the product. You must not repair, alter or modify the product, other than those carried out by an authorised agent, and in particular interference with or modification in any way to the applicator gas tube (diag. 2-13) or other components relating to the use of LP gas to operate the product. Any occurrence of these issues will VOID the warranty. See warranty statement page 2.

a Remove the gas cylinder from the backpack bag and fill the gas cylinder with liquid propane gas (LPG).

WARNING: Gas cylinders must only be filled by

authorised filling agents.

NOTE: DO NOT OVERFILL GAS CYLINDER: It is important not to overfill the gas cylinder as liquid gas may enter the applicator and freeze the trigger valve (diag. 3-40). When filling, shut off the filling exhaust valve as soon as the first cloudy vapour is observed coming from the valve. Do not fill until liquid gas is pouring out and freezing up. If liquid gas enters the gas tube (diag. 5-4), release the regulator fitting on the gas tube, and the liquid will vaporise.

b Connect the gas regulator and valve assembly to the gas cylinder as covered by the instruction leaflet supplied with the regulator and valve assembly, and detailed in sections 1 to 5 of that procedure.

Place the gas cylinder into the pocket of the backpack bag, and secure the cylinder by placing velcro straps around the neck of the cylinder.

c Connect the gas tube (diag. 5-4) to both the applicator and the outlet port on the regulator, and hand tighten. Set the gas operating pressure at 414 to 550 Kpa (60-80 psi) on the pressure gauge as covered by sections 6 and 7 in the instruction leaflet supplied with the regulator and valve assembly.

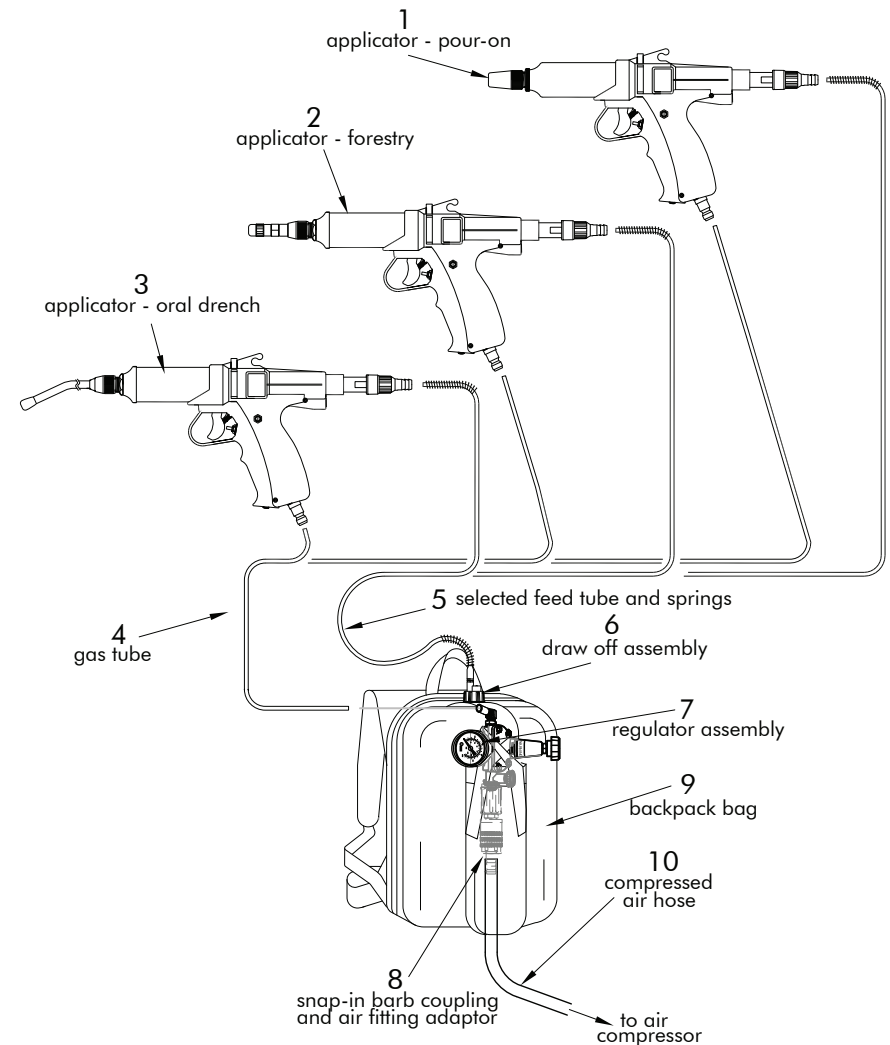
NOTE: The gas pressure may require adjustment by the regulator within the specified limits to achieve satisfactory delivery of pour-on and oral drench products, and may vary depending on climatic conditions, use of the backpack in the upright or inverted position, or the type of nozzle used.

d The applicator is now set up ready for the backpack to be filled with pour-on or drench product and connection of the appropriate feed tube to the applicator and backpack.

i **NOTE:** The applicator must only be used with the gas cylinder placed in the upright or vertical position, so that gas and NOT liquid LPG passes through the valve on the gas tube (diag. 5-4). Otherwise the liquid LPG will freeze up the valve and the applicator will cease to operate. In this case, release the regulator fitting on the gas tube (diag. 5-4) for the liquid LPG to vaporise, then re-tighten.

ii It is essential, to prevent injury to the user, that you refer to the WARNING STATEMENTS relating to the use of the applicator when operated by LP gas, as covered in the Powermaster handbook page 2, and the instruction leaflet supplied with the regulator and valve assembly, instructions for connection of gas regulator to LP gas cylinder.

Schematic Diagram No 6: Applicator setup for operation by compressed air



5. APPLICATOR OPERATED BY COMPRESSED AIR

Refer Schematic Diagram No 6 on page 6.

Applicator setup for operation by compressed air.

When compressed air is used to operate the applicator for the pour-on or drenching treatment of livestock, to prevent moisture and or other foreign matter entering the applicator and affecting the operation of the trigger valve system, the manufacturer strongly recommends that an approved filter/lubricator suitable for compressed air systems, **MUST** be installed in the compressed air line connected to the regulator and applicator. Otherwise, moisture and or foreign matter will enter the trigger valve system (diag. 3-40) of the applicator, which will cease to operate in a satisfactory manner. Warranty claims will not be accepted for damage caused by moisture or foreign matter entering the trigger valve system due to the installation of an unapproved filter/lubricator.

The manufacturer recommends 10mm inside diameter compressed air hose and suitable 10mm fittings should be used for connection of the applicator pressure regulator to the compressed air supply hose, and the compressor unit supplying the compressed air to the applicator be set to operate at a maximum of 690 Kpa (100 psi).

- a Disconnect the snap-in barb coupling (diag. 2-11) from the air fitting adaptor (diag. 2-10) and place the air fitting adaptor aside.
- b Connect the snap-in barb coupling (diag. 2-11) to one end of the compressed air hose by a suitable hose clamp, and connect an approved compressed air in line filter/lubricator to the other end of the compressed air hose at the outlet from the air compressor.
- c Remove the gas cylinder where applicable, and the regulator from the backpack bag, fully close the brass control valve on the regulator assembly by turning in a clockwise direction, and unscrew the gas cylinder from the regulator by turning in an anticlockwise direction. Locate and replace the plastic cap into the neck of the gas cylinder and place aside.

d Ensure the rubber seal ring and flat sealing washer are in position on the brass inlet valve before connecting to the air fitting adaptor (diag. 2-10) and hand tighten.

e Pass the snap-in barb coupling (diag. 6-8) with the compressed air hose attached through the bottom of the gas cylinder pocket on the backpack bag, and connect it to the air fitting adaptor (diag. 2-10).

Position the brass valve of the regulator at the top of the gas cylinder pocket on the backpack bag and secure in place by the velcro straps.

f Connect the gas tube (diag. 6-4) to both the applicator and the outlet port on the regulator and hand tighten.

g Turn on the air compressor, and when the air pressure has reached its operating level (max 690 Kpa - 100 psi), fully open the brass inlet valve on the regulator by turning in an anticlockwise direction.

h Set the air operating pressure of the applicator at 414 to 550 Kpa (60 - 80 psi) on the pressure gauge by turning the control knob on the regulator in a clockwise direction to increase pressure. If the pressure is too high, reduce by turning the control knob in an anticlockwise direction, operate the applicator a few times, and adjust for optimal pressure setting.

When the optimal air pressure is achieved, fasten the lock nut on the control knob screw against the regulator body with a 12mm open ended spanner.

NOTE: The air pressure may require adjustment by the regulator within the specified limits to achieve satisfactory delivery of pour-on, oral drench products or forestry chemicals, and may vary depending on climatic conditions, use of the backpack in the upright or inverted position, or the type of nozzle used.

i The applicator is now set up ready for the backpack to be filled with pour-on or oral drench product and connection of the appropriate feed tube to the applicator and backpack.

to gas cylinder, as covered in Section 3, (diag.5)

iv Selected feed tube and springs (diag. 2-26), small diameter feed tube (diag. 2-23), and 6mm (1/4") inlet adaptor (diag. 3-36) for light pour-on products or large diameter feed tube (diag. 2-21), and 9mm (3/8") inlet adaptor (diag. 3-35) for heavy viscosity pour-on products.

v Gas tube (diag. 2-13).

vi Holster and belt (diag. 2-16 and 2-17).

b Check connection of the gas tube (diag. 2-13) to the applicator and gas regulator and hand tighten. Set the gas pressure to 414 – 550 Kpa (60 – 80 psi) as covered in Section 3, part 4.

Check that the applicator operates freely by depressing the trigger (diag. 3-39) a number of times. If the applicator does not operate freely, please refer to Section 8, trouble shooting guide.

c Fill the selected backpack with the pour-on product to be administered to livestock, and securely replace the draw off cap onto the backpack by screwing in a clockwise direction and hand tighten. (diag 4)

WARNING: Ensure the backpack and bag are kept in the upright or vertical position whilst carrying out this process. Otherwise chemicals will spill and may cause injury to the health of the operator.

d Connect the selected inlet adaptor, feed tube and springs to the applicator and backpack draw off cap. Ensure the feed tube springs are securely screwed over the feed tube in an anticlockwise direction. This will prevent the feed tube kinking. (diag. 5)

e Place the backpack bag, containing the backpack with draw off system, LP gas cylinder and regulator onto the back of the applicator operator and fix the straps in place.

f To prime the applicator, set the dose at the maximum dose graduation on the push rod (diag. 3-32) by screwing the dose adjustor (diag. 3-37) in a clockwise direction, and with the instrument held **vertically, nozzle pointed upwards**, depress the trigger (diag. 3-39) a number of times until the pour-on product is expelled from the nozzle in an unbroken stream into a clean container, and all air bubbles have been eliminated from the cylinder. The pour-on product in the clean container can be returned to the backpack or supplier's container.

g Clip the belt and holster in place around the waist and insert the applicator into the holster. (diag. 4-3)

h **To Set Required Dose:**

i Dose levels and application of the pour-on product must be set in accordance with the pharmaceutical manufacturer's administration instructions.

ii Turn the dose adjustor (diag. 3-37) in an anticlockwise direction to decrease dose, and a clockwise direction to increase the dose, as indicated by graduations on the push rod (diag. 3-32).

iii To be sure of complete accuracy, the dose should be checked with a calibrated measuring cylinder.

iv Cylinder fill rate and delivery pressure can be varied with adjustment to the gas pressure on the regulator

between 414 to 550 Kpa (60 - 80 psi). (diag. 5-7)

The minimum gas pressure should be used to achieve acceptable filling rate and delivery speed.

i The applicator is now set up ready for the pour-on treatment of livestock.

WARNING: As pour-on products can be injurious to the health of the applicator operator when inhaled or contact made with the body, gloves must be worn at all times when handling pour-on products. Wherever possible the backpack must be used in the upright position. If it is necessary to use the backpack in the inverted position, care must be taken to ensure there is no leakage of pour-on product from the backpack draw off and feed tube system. Otherwise injury to the health of the applicator operator may occur, from chemical contacting the operators body.

j **WARNING: At the close of each days work, or on completion of the pour-on treatment of livestock, to avoid possible unsafe or hazardous situations, the regulator valve must be fully closed by turning in a clockwise direction, as indicated by arrow on the valve. Failure to do this may result in LP gas leaking and creating an explosive situation, which may cause injury or death to the operator(s).**

k **NEW ZEALAND – Due to the dryness of NZ gas, fine oil should be added to the gas cylinder when empty by removing the brass venting valve on the top of the cylinder, adding oil (5-10mls), replacing the brass valve and shaking the cylinder. This should be done as required to prevent valve sticking.**

I IMPORTANT NOTES

- 1 Delivery valve must be in position for the unit to work correctly.
- 2 Always make sure that the gas cylinder is upright when operating the gun so that gas and NOT liquid goes through the valve.
- 3 Do not tamper with the trigger valve, if you believe it is giving problems (after all trouble shooting points have been checked) contact us or your local agent.
- 4 If using an extension, delivery valve must be placed behind the nozzle tip on the end of the extension.

m CAUTION

DO NOT USE NEAR NAKED FLAME OR IN CONFINED SPACES. YOU SHOULD NOT SMOKE WHILE OPERATING OR CHANGING CYLINDERS, ETC.

SECTION 4: INSTRUCTION FOR USE OF HE APPLICATOR WITH POUR-ON PRODUCTS

As components in the applicator and draw off system may be affected by solvents in some pour-on formulations, the applicator is product specific, and not suitable for use with **every** type of pour-on product available, therefore, please consult your stockist/local distributor or for advice as to suitable pour-on products to be used in the applicator and draw off system.

WARNING: Careful attention MUST be given to the pharmaceutical manufacturer's instructions and material safety data sheets (MSDS) or any other product or health or safety information in regard to the safe use and storage of pour-on products. Otherwise injury to the health of the applicator operator and/or livestock may occur.

For the administration of selected pour-on products to livestock, and to protect the applicator operator, the backpack **MUST** preferably be used in the vertical or upright position. However, due to the heavy viscosity of some pour-on

products, to achieve satisfactory cylinder fill rates and delivery pressures, it may become necessary to use the backpack in the inverted position.

WARNING: Care must be taken to ensure there is NO leakage of pour-on product from the backpack, feed tube or the applicator, and gloves must be worn at all times when handling pour-on products.

1. APPLICATOR OPERATED BY LP GAS

a Equipment Required:

i Applicator handpiece with selected stream tip nozzle (diag. 3-1), fan tip nozzle (diag. 3-2), shower tip nozzle (diag. 3-3) or spray head (diag. 3-4) assembled to cylinder (diag. 3-9), as covered in Section 3, part 1a to f.

ii Selected backpack and draw off cap, if used, as covered in Section 3, part 3d to 3f. (diag. 4-1 or 4-2)

iii Backpack bag, if used, with gas regulator assembled

2. APPLICATOR OPERATED BY COMPRESSED AIR

a Equipment Required:

- i Applicator handpiece with selected stream tip nozzle (diag. 3-1), fan tip nozzle (diag. 3-2), shower tip nozzle (diag. 3-3) or spray head (diag. 3-4) assembled to cylinder (diag. 3-9), as covered in Section 3, part 1a to f.
 - ii Selected backpack and draw off cap, if used, as covered in Section 3, part 3e to 3f. (diag. 4-1 or 4-2)
 - iii Backpack bag, if used, with gas regulator assembled to compressed air hose, as covered in Section 3, part 5a to e. (diag 6)
 - iv Selected feed tube and springs (diag. 2-26), small diameter feed tube (diag. 2-23) and 6mm (1/4") inlet adaptor (diag. 3-36), for light pour-on products or large diameter feed tube (diag. 2-21), and 9mm (3/8") inlet adaptor (diag. 3-35) for heavy viscosity pour-on products.
 - v Gas tube (diag. 2-13).
 - vi Holster and belt (diag. 2-16 and 2-17).
 - vii Air compressor, in line filter/lubricator, 10mm inside diameter air hose and fittings. This equipment is **NOT** supplied by the applicator manufacturer.
- b Check connection of the gas tube (diag. 2-13) to the applicator and gas regulator and hand tighten. Turn on the air compressor, and when the air pressure has reached its operating level (max 690 Kpa - 100 psi), set the air pressure on the regulator to 414 - 550 Kpa (60 - 80 psi) as covered in Section 3, part 5g and h.
- Check that the handpiece operates freely by depressing the trigger (diag. 3-39) a number of times. If the handpiece does not operate freely, please refer to Section 8, trouble shooting guide.
- c Fill the selected backpack with the pour-on product to be administered to livestock, and securely replace the draw off cap onto the backpack by screwing in a clockwise direction and hand tighten. (diag 4)
- WARNING: Ensure the backpack and bag are kept in the upright or vertical position whilst carrying out this process. Otherwise chemicals will spill and may cause injury to the health of the operator.**
- d Connect the selected inlet adaptor, feed tube and springs to the applicator and backpack draw off cap. Ensure the feed tube springs are securely screwed over the feed tube in an anticlockwise direction. This will prevent the feed tube kinking. (diag 5)
- e Place the backpack bag, containing the backpack with draw off system, regulator with compressed air hose attached onto the back of the applicator operator and fix the straps in place.
- f To prime the applicator, set the dose at 50ml graduation

on the push rod (diag. 3-32) by screwing the dose adjuster (diag. 3-37) in a clockwise direction, and with the instrument held **vertically, nozzle pointed upwards**, depress the trigger (diag. 3-39) a number of times until the pour-on product is expelled from the nozzle in an unbroken stream into a clean container, and all air bubbles have been eliminated from the cylinder. The pour-on product in the clean container can be returned to the backpack or supplier's container.

- g Clip the belt and holster in place around the waist and insert the applicator into the holster. (diag 4-3)

h To Set Required Dose:

- i Dose levels and application of the pour-on product must be set in accordance with the pharmaceutical manufacturer's administration instructions.
- ii Turn the dose adjuster (diag. 3-37) in an anticlockwise direction to decrease dose, and a clockwise direction to increase the dose, as indicated by graduations on the push rod (diag. 3-32).
- iii To be sure of complete accuracy, the dose should be checked with a calibrated measuring cylinder.
- iv Cylinder fill rate and delivery pressure can be varied with adjustment to the compressed air pressure on the regulator between 414 to 550 Kpa (60 - 80 psi). (diag 6-7)

The minimum compressed air pressure should be used to achieve acceptable filling rate and delivery speed.

- i The applicator is now set up ready for the pour-on treatment of livestock.

WARNING: As pour-on products can be injurious to the health of the applicator operator when inhaled or contact made with the body, gloves must be worn at all times when handling pour-on products. Wherever possible the backpack must be used in the upright position.

If it is necessary to use the backpack in the inverted position, care must be taken to ensure there is no leakage of pour-on product from the backpack draw off and feed tube system. Otherwise injury to the health of the applicator operator may occur, from chemical contacting the operator's body.

- j **WARNING: At the close of each days work, or on completion of the pour-on treatment of livestock, to avoid possible unsafe or hazardous situations, the regulator valve must be fully closed by turning in a clockwise direction, as indicated by arrow on the valve, and turn off the air compressor. Failure to do this may result in excess pressure build up in the regulator causing it to fail which may injure the operator.**

SECTION 5: INSTRUCTION FOR USE OF HE APPLICATOR WITH ORAL DRENCH PRODUCTS

The applicator is suitable for use in the administration of most oral drench animal health products that are available for the treatment of livestock. The backpack should always be used in a vertical or upright position, as covered in Section 3, part 3e.

WARNING: Careful attention must be given to the pharmaceutical manufacturer's instructions and material safety data sheets (MSDS) or any other product or health or safety information in regard to the safe use of and storage of oral drench products.

Before drenching livestock, attention should be given to the following:

- a Ensure correct nozzle is selected, the small or unmarked is intended for small livestock, the large nozzle for large livestock.
- b Before each use inspect nozzle, in particular the bulbous tip to ensure plating is not damaged or worn to a sharp edge. Should this occur remove with a file or emery paper or replace nozzle.
- c **WARNING: Always exercise care when dosing livestock. Do not apply undue pressure and ensure nozzle is not forced against or through delicate mouth or throat tissues. Failure to comply may result in injury or death to the livestock being treated.**

1. APPLICATOR OPERATED BY LP GAS

a Equipment Required:

- i Applicator handpiece with selected small nozzle (diag. 3-11) or large nozzle (diag. 3-12), assembled to clear cylinder marked oral (diag. 3-17), as covered in Section 3, part 2a to f.
 - ii Selected backpack, if used, and draw off cap, as covered in Section 3, part 3e to 3f. (diag. 4-1 or 2)
 - iii Backpack bag, if used, with gas regulator assembled to gas cylinder, as covered in Section 3, part 4a and b. (diag.5)
 - iv Selected clear feed tube and springs (diag. 2-26), small diameter feed tube (diag. 2-23) and 6mm (1/4") inlet adaptor (diag. 3-36), for light oral drench products, or large diameter feed tube (diag. 2-21) and 9mm (3/8") inlet adaptor (diag. 3-35) for heavy viscosity oral drench products.
 - v Gas tube (diag. 2-13)
 - vi Holster and belt (diag. 2-16 and 2-17)
- b Check connection of the gas tube (diag. 2-13) to the applicator and gas regulator and hand tighten. Set the gas pressure to 414 - 550 Kpa (60 - 80 psi) as covered in Section 3, part 4.
- Check that the applicator operates freely by depressing the trigger (diag. 3-39) a number of times. If the applicator does not operate freely, please refer to Section 8, trouble shooting guide.
- c Fill the selected backpack with the oral drench product to be administered to livestock, and securely replace the draw off cap onto the backpack by screwing in a clockwise direction and hand tighten.
- WARNING: Ensure the backpack and bag are kept in the upright or vertical position whilst carrying out this process. Otherwise chemicals will spill and may cause injury to the health of the operator.**
- d Connect the selected inlet adaptor, feed tube and springs to the applicator and backpack draw off cap. Ensure the feed tube springs are securely screwed over the feed tube in an anticlockwise direction. This will prevent the feed tube kinking at these points. (diag. 5)

- e Place the backpack bag, containing the backpack with

draw off system, LP gas cylinder and regulator onto the back of the applicator operator and fix the straps in place.

- f To prime the applicator, set the dose at the maximum dose graduation on the push rod (diag. 3-32) by screwing the dose adjuster (diag. 3-37) in a clockwise direction, and with the instrument held **vertically, nozzle pointed upwards**, depress the trigger (diag. 3-39) a number of times until the oral drench product is expelled from the nozzle in an unbroken stream into a clean container, and all air bubbles have been eliminated from the cylinder. The oral drench product in the clean container can be returned to the backpack or supplier's container.

- g Clip the belt and holster in place around the waist, and insert the applicator into the holster. (diag. 4-3)

h To Set Required Dose:

- i Dose levels and application of the oral drench product must be set in accordance with the pharmaceutical manufacturer's administration instructions.
- ii Turn the dose adjuster (diag. 3-37) in an anticlockwise direction to decrease dose, and a clockwise direction to increase the dose, as indicated by graduations on the push rod (diag. 3-32).
- iii To be sure of complete accuracy, the dose should be checked with a calibrated measuring cylinder.
- iv Cylinder fill rate and delivery pressure can be varied with adjustment to the gas pressure on the regulator between 414 to 550 Kpa (60 - 80 psi). (Diag. 5-5)

The minimum gas pressure should be used to achieve acceptable filling rate and delivery speed.

- i The applicator is now set up ready for the oral drench treatment of livestock.

WARNING: If it is necessary to use the backpack in the inverted position, care must be taken to ensure there is no leakage of drench product from the backpack draw off and feed tube system. Otherwise injury to the health of the applicator operator may occur, from chemical contacting the operator's body.

- j **WARNING: At the close of each days work, or on completion of the oral drench treatment of livestock, to avoid possible unsafe or hazardous situations, the regulator valve must be fully closed by turning in a clockwise direction, as indicated by arrow on the valve. Failure to do this may result in LP gas leaking and creating an explosive situation, which may cause injury or death to the operator(s).**

- k **NEW ZEALAND - Due to the dryness of NZ gas, fine oil should be added to the gas cylinder when empty by removing the brass venting valve on the top of the cylinder, adding oil (5-10mls), replacing the brass valve and shaking the cylinder. This should be done as required to prevent valve sticking.**

I IMPORTANT NOTES

- 1 Delivery valve must be in position for the unit to work correctly.
 - 2 Always make sure that the gas cylinder is upright when operating the gun so that gas and NOT liquid goes through the valve.
 - 3 Do not tamper with the trigger valve, if you believe it is giving problems (after all trouble shooting points have been checked) contact us or your local agent.
 - 4 If using an extension, delivery valve must be placed behind the nozzle tip on the end of the extension.
- m CAUTION: DO NOT USE NEAR NAKED FLAME OR IN CONFINED SPACES. YOU SHOULD NOT SMOKE WHILE OPERATING OR CHANGING CYLINDERS, ETC.**

2. APPLICATOR OPERATED BY COMPRESSED AIR

a Equipment Required:

- i Applicator handpiece with selected small nozzle (diag. 3-11) or large nozzle (diag. 3-12), assembled to cylinder (diag. 3-17), as covered in Section 3, part 2a to f.
 - ii Selected backpack and draw off cap, as covered in Section 3, part 3e to 3f. (diag. 4-1 or 4-2)
 - iii Backpack bag with gas regulator assembled to compressed air hose, as covered in Section 3, part 5a to e. (diag. 6)
 - iv Selected clear feed tube and springs (diag. 2-26), small diameter feed tube (diag. 2-23) and 6mm (1/4") inlet adaptor (diag. 3-36) for light oral drench products or large diameter feed tube (diag. 2-21) and 9mm (3/8") inlet adaptor (diag. 3-35) for heavy viscosity oral drench products.
 - v Gas tube (diag. 2-13).
 - vi Holster and belt (diag. 2-16 and 2-17).
 - vii Air compressor, in line filter/lubricator, 10mm inside diameter air hose and fittings. This equipment is **NOT** supplied by the applicator manufacturer.
- b** Check connection of the gas tube (diag. 2-13) to the applicator and gas regulator and hand tighten. Turn on the air compressor, and when the air pressure has reached its operating level (max 690 Kpa - 100 psi), set the air pressure on the regulator to 414 - 550 Kpa (60 - 80 psi) as covered in Section 3, part 5g and h. Check that the applicator operates freely by depressing the trigger (diag. 3-39) a number of times. If the applicator does not operate freely, please refer to Section 8, trouble shooting guide.
- c** Fill the selected backpack with the oral drench product to be administered to livestock, and securely replace the draw off cap onto the backpack by screwing in a clockwise direction and hand tighten.
WARNING: Ensure the backpack and bag are kept in the upright or vertical position whilst carrying out this process. Otherwise chemicals will spill and may cause injury to the health of the operator.

- d** Connect the selected inlet adaptor, feed tube and springs to the applicator and backpack draw off cap. Ensure the feed tube springs are securely screwed over the feed tube in an anticlockwise direction. This will prevent the feed tube kinking at these points. (diag. 5)
- e** Place the backpack bag, containing the backpack with draw off system, regulator with compressed air hose attached, onto the back of the applicator operator and fix the straps in place.
- f** To prime the applicator, set the dose at 50ml graduation on the push rod (diag. 3-32) by screwing the dose adjuster (diag. 3-37) in a clockwise direction, and with the instrument held **vertically, nozzle pointed upwards**, depress the trigger (diag. 3-39) a number of times until the oral drench product is expelled from the nozzle in an unbroken stream into a clean container, and all air bubbles have been eliminated from the cylinder. The oral drench product in the clean container can be returned to the backpack or supplier's container.
- g** Clip the belt and holster in place around the waist and insert the applicator into the holster. (diag. 4-3)
- h To Set Required Dose:**
- i Dose levels and application of the oral drench product must be set in accordance with the pharmaceutical manufacturer's administration instructions.
 - ii Turn the dose adjuster (diag. 3-37) in an anticlockwise direction to decrease dose, and a clockwise direction to increase the dose, as indicated by graduations on the push rod (diag. 3-32).
 - iii To be sure of complete accuracy, the dose should be checked with a calibrated measuring cylinder.
 - iv Cylinder fill rate and delivery pressure can be varied with adjustment to the compressed air pressure on the regulator between 414 to 550 Kpa (60 - 80 psi). (diag. 6-7)
The minimum compressed air pressure should be used to achieve acceptable filling rate and delivery speed.
- i** The applicator is now set up ready for the oral drench treatment of livestock.
WARNING: If it is necessary to use the backpack in the inverted position, care must be taken to ensure there is no leakage of drench product from the backpack draw off and feed tube system. Otherwise injury to the health of the applicator operator may occur, from chemical contacting the operator's body.
- j** **WARNING: At the close of each days work, or on completion of the oral drench treatment of livestock, to avoid possible unsafe or hazardous situations, the regulator valve must be fully closed by turning in a clockwise direction, as indicated by arrow on the valve, and turn off the air compressor. Failure to do this may result in excess pressure build up in the regulator, causing it to fail which may injure the operator.**

SECTION 6: INSTRUCTION FOR USE OF THE APPLICATOR WITH FORESTRY PRODUCTS

As components in the applicator and draw off system may be affected by solvents in some forestry formulations, please consult your stockist/local distributor for advice as to suitable forestry products to be used in the applicator and draw off system.

WARNING: Careful attention MUST be given to the forestry horticultural manufacturer's instructions and material safety data sheets (MSDS) or any other product or health or safety information in regard to the safe use and storage of forestry products. Otherwise injury to the health of the applicator operator and/or plant life may occur.

For the administration of selected products, and to protect the applicator operator, the backpack **MUST** preferably be used in the vertical or upright position. However, due to the heavy viscosity of some products, to achieve satisfactory cylinder fill rates and delivery pressures, it may become necessary to use the backpack in the inverted position.

WARNING: Care must be taken to ensure there is NO leakage of forestry product from the backpack, feed tube or the applicator, and gloves must be worn at all times when handling forestry products.

1. APPLICATOR OPERATED BY LP GAS

a Equipment Required:

- i Applicator handpiece with the cone spray nozzle and cylinder marked (diag. 2-6).
 - ii Selected backpack and draw off cap, if used, as covered in Section 3, part 3e to 3f. (diag. 4-1 or 4-2)
 - iii Backpack bag, if used, with gas regulator assembled to gas cylinder, as covered in Section 3, part 4a and b. (diag. 5)
 - iv Selected feed tube and springs (diag. 2-26), small diameter feed tube (diag. 2-23), and 6mm (1/4") inlet adaptor (diag. 3-36) for light forestry products or large diameter feed tube (diag. 2-21), and 9mm (3/8") inlet adaptor (diag. 3-35) for heavy viscosity forestry products.
 - v Gas tube (diag. 2-13).
 - vi Holster and belt (diag. 2-16 and 2-17).
- b** Check connection of the gas tube (diag. 2-14) to the applicator and gas regulator and hand tighten. Set the gas pressure to 414 - 550 Kpa (60 - 80 psi) as covered in Section 3, part 4.
Check that the applicator operates freely by depressing the trigger (diag. 3-39) a number of times. If the applicator does not operate freely, please refer to Section 8, trouble shooting guide.
- c** Fill the selected backpack with the forestry product to be applied, and securely replace the draw off cap onto the backpack by screwing in a clockwise direction and hand tighten. (diag 4)
WARNING: Ensure the backpack and bag are kept in the upright or vertical position whilst carrying out this process. Otherwise chemicals will spill and may cause injury to the health of the operator.

- d** Connect the selected inlet adaptor, feed tube and springs to the applicator and backpack draw off cap. Ensure the feed tube springs are securely screwed over the feed tube in an anticlockwise direction. This will prevent the feed tube kinking. (diag. 5)
- e** Place the backpack bag, containing the backpack with draw off system, LP gas cylinder and regulator onto the back of the applicator operator and fix the straps in place.
- f** To prime the applicator, set the dose at the maximum dose graduation on the push rod (diag. 3-32) by screwing the dose adjuster (diag. 3-37) in a clockwise direction, and with the instrument held **vertically, nozzle pointed upwards**, depress the trigger (diag. 3-39) a number of times until the forestry product is expelled from the nozzle in an unbroken stream and all air bubbles have been eliminated from the cylinder.
- g** Clip the belt and holster in place around the waist and insert the applicator into the holster. (diag. 4-3)
- h To Set Required Dose:**
- i Dose levels and application of the forestry product must be set in accordance with the pharmaceutical manufacturer's administration instructions.
 - ii Turn the dose adjuster (diag. 3-37) in an anticlockwise direction to decrease dose, and a clockwise direction to increase the dose, as indicated by graduations on the push rod (diag. 3-32).
 - iii To be sure of complete accuracy, the dose should be checked with a calibrated measuring cylinder.
 - iv Cylinder fill rate and delivery pressure can be varied with adjustment to the gas pressure on the regulator between 414 to 550 Kpa (60 - 80 psi). (diag. 5-7)
The minimum gas pressure should be used to achieve acceptable filling rate and delivery speed.
- i** The applicator is now set up ready for the forestry product.
WARNING: As forestry products can be harmful to the health of the applicator operator when inhaled or contact made with the body, gloves must be worn at all times when handling forestry products. Wherever possible the backpack must be used in the upright position.
If it is necessary to use the backpack in the inverted position, care must be taken to ensure there is no leakage of forestry product from the backpack draw off and feed tube system. Otherwise injury to the health of the applicator operator may occur, from chemical contacting the operators body.
- j** **WARNING: At the close of each days work, or on completion of the forestry treatment, to avoid possible unsafe or hazardous situations, the regulator valve must be fully closed by turning in a clockwise direction, as indicated by arrow on the valve. Failure to do this may result in LP gas leaking and creating an explosive situation, which may cause injury or death to the operator(s).**
- k** NEW ZEALAND - Due to the dryness of NZ gas, fine

oil should be added to the gas cylinder when empty by removing the brass venting valve on the top of the cylinder, adding oil (5-10mls), replacing the brass valve and shaking the cylinder. This should be done as required to prevent valve sticking.

I IMPORTANT NOTES

- 1 Delivery valve must be in position for the unit to work correctly.
- 2 Always make sure that the gas cylinder is upright when operating the gun so that gas and NOT liquid goes through the valve.
- 3 Do not tamper with the trigger valve, if you believe it is giving problems (after all trouble shooting points have been checked) contact or your local agent.
- 4 If using an extension, delivery valve must be placed behind the nozzle tip on the end of the extension.

m CAUTION

DO NOT USE NEAR NAKED FLAME OR IN CONFINED SPACES. YOU MUST NOT SMOKE WHILE USING THE POWERMASTER OR CHANGING CYLINDERS, ETC.

- n Excessive crystal build-up may cause fluid to leak past the inlet check valve (whilst under pressure) which may alter the actual dose injected into the tree.

2. APPLICATOR OPERATED BY COMPRESSED AIR

a Equipment Required:

- i Applicator handpiece with the cone spray nozzle and cylinder (diag. 2-6).
- ii Selected backpack and draw off cap, if used, as covered in Section 3, part 3e to 3f. (diag. 4-1 or 4-2)
- iii Backpack bag, if used, with gas regulator assembled to compressed air hose, as covered in Section 3, part 5a to e. (diag 6)
- iv Selected feed tube and springs (diag. 2-26), small diameter feed tube (diag. 2-23) and 6mm (1/4") inlet adaptor (diag. 3-36), for light forestry products or large diameter feed tube (diag. 2-21), and 9mm (3/8") inlet adaptor (diag. 3-35) for heavy viscosity forestry products.
- v Gas tube (diag. 2-13).
- vi Holster and belt (diag. 2-16 and 2-17).
- vii Air compressor, in line filter/lubricator, 10mm inside diameter air hose and fittings. This equipment is NOT supplied by the applicator manufacturer.

- b Check connection of the gas tube (diag. 2-13) to the applicator and gas regulator and hand tighten. Turn on the air compressor, and when the air pressure has reached its operating level (max 690 Kpa - 100 psi), set the air pressure on the regulator to 414 - 550 Kpa (60 - 80 psi) as covered in Section 3, part 5g and h.

Check that the handpiece operates freely by depressing the trigger (diag. 3-39) a number of times. If the handpiece does not operate freely, please refer to Section 8, trouble shooting guide.

- c Fill the selected backpack with the forestry product, and securely replace the draw off cap onto the backpack by screwing in a clockwise direction and hand tighten. (diag 4)

WARNING: Ensure the backpack and bag are kept in the upright or vertical position whilst carrying out this process. Otherwise chemicals will spill and may cause injury to the health of the operator.

- d Connect the selected inlet adaptor, feed tube and springs to the applicator and backpack draw off cap. Ensure the feed tube springs are securely screwed over the feed tube in an anticlockwise direction. This will prevent the feed tube kinking. (diag 6)

- e Place the backpack bag, containing the backpack with draw off system, regulator with compressed air hose attached onto the back of the applicator operator and fix the straps in place.

- f To prime the applicator, set the dose at 50ml graduation on the push rod (diag. 3-32) by screwing the dose adjuster (diag. 3-37) in a clockwise direction, and with the instrument held vertically, nozzle pointed upwards, depress the trigger (diag. 3-39) a number of times until the forestry product is expelled from the nozzle in an unbroken stream into a clean container, and all air bubbles have been eliminated from the cylinder. The forestry product in the clean container can be returned to the backpack or supplier's container.

- g Clip the belt and holster in place around the waist and insert the applicator into the holster. (diag 4-3)

h To Set Required Dose:

- i Dose levels and application of the forestry product must be set in accordance with the chemical/ pharmaceutical manufacturer's administration instructions.

- ii Turn the dose adjuster (diag. 3-37) in an anticlockwise direction to decrease dose, and a clockwise direction to increase the dose, as indicated by graduations on the push rod (diag. 3-32).

- iii To be sure of complete accuracy, the dose should be checked with a calibrated measuring cylinder.

- iv Cylinder fill rate and delivery pressure can be varied with adjustment to the compressed air pressure on the regulator between 414 to 550 Kpa (60 - 80 psi). (diag 6-7)

The minimum compressed air pressure should be used to achieve acceptable filling rate and delivery speed.

- i The applicator is now set up ready for the forestry treatment.

WARNING: As forestry products can be harmful to the health of the applicator operator when inhaled or contact made with the body, gloves must be worn at all times when handling forestry products. Wherever possible the backpack must be used in the upright position.

If it is necessary to use the backpack in the inverted position, care must be taken to ensure there is no leakage of forestry product from the backpack draw

off and feed tube system. Otherwise injury to the health of the applicator operator may occur, from chemical contacting the operator's body.

- j **WARNING: At the close of each days work, or on completion of the forestry treatment, to avoid possible unsafe or hazardous situations, the**

SECTION 7: CARE AND MAINTENANCE OF THE APPLICATOR

To ensure continued high performance from the applicator, attention to cleanliness is essential, both for the protection of the user and livestock. On completion of each use of the applicator the applicator and feed tube **MUST** be thoroughly cleaned in accordance with the following procedure, which is applicable for the applicator operated by either LP gas or compressed air.

WARNING: For the protection of the operator, gloves must be worn at all times whilst carrying out this procedure. Also avoid skin, body contact or inhalation of chemicals, which may cause injury to the health of the operator.

1 Applicator used with pharmaceutical manufacturer's backpack:

- a Place the backpack bag containing backpack, gas cylinder or compressed air hose, with regulator and applicator onto a flat work bench.

- b Fully close the regulator valve by turning in a clockwise direction.

For the applicator operated by LP gas, release the velcro straps around neck of gas cylinder, remove gas cylinder and regulator from pocket in backpack bag and place aside onto work bench. (diag. 5)

OR

For the applicator operated by compressed air, release the velcro straps around regulator, disconnect the snap-in barb coupling (diag. 6-8) on the compressed air hose from the air fitting adaptor (diag. 6-8), remove both the compressed air hose and regulator from pocket in the backpack bag, and reconnect the snap-in barb coupling and air fitting adaptor, and place aside onto work bench. (diag. 6)

- c Place backpack bag containing backpack onto the work bench with the backpack placed in the upright or vertical position, and disconnect both the feed tube spring from the feed tube by turning in a clockwise direction and the feed tube from the draw off cap and place aside.

- d Seal backpack to prevent spillage of any remaining contents. Unzip the backpack bag and remove backpack.

WARNING: Storage of any remaining contents MUST be carried out as stated in the pharmaceutical manufacturer's instructions or material safety data sheets or any other product or health or safety information.

2 Applicator used with backpack:

- a Repeat part 1a, b and c above.

- b Unzip the backpack bag and remove backpack. If the backpack is empty, place flat onto work bench to avoid spillage of any remaining contents, or

regulator valve must be fully closed by turning in a clockwise direction, as indicated by arrow on the valve, and turn off the air compressor. Failure to do this may result in excess pressure build up in the regulator causing it to fail which may injure the operator.

if not empty, decant remaining contents into the pharmaceutical manufacturer's container, seal container and place into storage.

WARNING: Storage of any remaining contents MUST be carried out as stated in the pharmaceutical manufacturer's instructions or material safety data sheets or any other product or health or safety information.

- c Remove the air bleed draw off system from the backpack and thoroughly clean both parts by washing with a mixture of warm water and detergent. Rinse both parts with clean water, wipe dry, replace the air bleed draw off cap onto the backpack, and place backpack and backpack bag aside into storage.

WARNING: Particular care MUST be taken to ensure all residue of the product has been removed, otherwise injury to the health of the applicator operator and/or livestock may occur from residue contacting the body of the operator or being incorrectly administered to livestock.

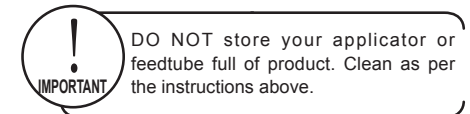
- 3 Fully open the regulator valve by turning in an anticlockwise direction, or if applicator operated by compressed air, turn on compressor and on reaching the operating pressure, fully open regulator valve.

- 4 Place the applicator feed tube into a clean container with approximately 1 litre of warm water and 0.5ml of non-corrosive detergent.

- 5 Set dose of applicator to 50ml and draw the solution through the applicator and feed tube by depressing trigger (diag. 3-39) a number of times until the applicator cylinder and feed tube are clean.

- 6 Hand wash exterior of applicator, feed tube and springs with a soft brush.

- 7 Flush the applicator and feed tube with clean water and pump dry by depressing trigger (diag. 3-39) a number of times.



- 8 Wipe applicator, feed tube and springs dry, disconnect the feed tube from applicator and place aside.

- 9 Immerse the applicator inlet fitting (diag. 3-35 or 36) into a small clean container of castor oil and draw a small quantity of castor oil into the cylinder by depressing the trigger (diag. 3-39) several times.

Fully close regulator valve by turning in a clockwise

direction, disconnect the gas tube (diag. 5-4) from both the regulator and applicator, and place aside.

- 10 For the applicator operated by LP gas, disconnect the regulator and valve assembly (diag. 5-7) from the gas cylinder (diag. 5-8), replace the red plastic cap into top of gas cylinder to prevent the entry of dirt and foreign matter, place the regulator and valve assembly and gas cylinder into toolbox.

OR

For the applicator operated by compressed air, switch off the air compressor and release air pressure in air hose. Disconnect the air fitting adaptor (diag. 6-8) from the snap-in barb coupling on the compressed air hose. Disconnect the air fitting adaptor from the regulator and valve assembly and place both parts into toolbox.

- a Remove the cylinder assembly from the applicator handpiece (diag. 3-31) by

unscrewing in an anticlockwise direction, taking care not to damage the seal rings (diag. 3-29) on piston (diag. 3-28) and place cylinder assembly aside.

- b Check seal rings (diag. 3-29) for any sign of wear or damage and replace if necessary.
- c Check the inside of the cylinder assembly is thoroughly clean, otherwise wash with warm water and detergent then rinse with clean water and wipe dry. Lubricate inside of the cylinder, piston rings, lubrication washer and push rod shaft behind the piston, with a small quantity of castor oil supplied. Carefully place the cylinder over the piston (diag. 3-28) and screw clockwise into handle (diag. 3-31) and hand tighten. Place the applicator with cylinder attached, into toolbox.

SECTION 8: TROUBLESHOOTING GUIDE

| PROBLEM | PROBABLE CAUSE | CORRECTIVE ACTION |
|---|--|---|
| 1 Applicator lacks power or not functioning. | Empty gas cylinder. | Refill gas cylinder, refer instructions Section 3, part 4, a. |
| | No compressed air supply. | Check: i air compressor switched on and operates to 690 Kpa (100 psi). ii No leaks in compressed air hose. |
| | Gas transfer tube kinked or not attached to gas regulator or applicator. | Check gas transfer tube for kinks and ensure it is firmly attached to the applicator and gas regulator outlet port. |
| | Inadequate gas or compressed air pressure. | Reset pressure on regulator. Wind black knob fully out and then wind in until pressure on gauge reaches 414 to 550 kpa (60-80 psi). (Refer instructions Section 3 part 4 and 5). |
| | Regulator outlet port and fittings not firmly attached to the regulator. | Ensure outlet port and brass fittings are firmly screwed into regulator. (Refer diagram enclosed with the regulator assembly). |
| Gas cylinder over filled or not kept upright and trigger valve frozen up by liquid gas. | Release regulator fitting on gas transfer tube and liquid will vaporize. | |
| 2 Applicator leaking (gas or compressed air). | Fault in tube connections from pressure regulator to trigger on applicator. | Fully close regulator valve, disconnect applicator from regulator outlet port by unscrewing regulator fitting on gas transfer tube and return applicator to stockist or local distributor for service. |
| | Applicator not primed or dose not set correctly. | Prime the applicator and set dose as covered by instructions in Section 4, part 1h. These instructions cover applicator operated by either LP gas or compressed air and for either pour-on or oral drench products. |
| | Inlet valve and seal ring not sealing, caused by foreign matter lodged under inlet valve. | Remove the inlet adaptor and inlet valve from applicator, clean with water and replace in applicator as covered by instructions in Section 3, part 1d. |
| 3 Applicator will not deliver full dose. | Foreign matter lodged in the delivery valve and spring assembly or a blockage in the nozzle. | Remove nozzle and delivery valve assembly from the applicator, clean the delivery valve assembly, nozzle fluid hole and re-assemble as covered by instructions in Section 3 part 1c or part 2c and schematic diagram 3. |
| | Incorrect pressure setting on regulator (diag 2-14). | Check and adjust regulator pressure to operate applicator between 414 to 550 kpa (60 – 80 psi). for LP gas operation of applicator refer Section 3, part 4c or for compressed air operation refer Section 3, part 5h. |
| 4 Slow applicator (fill and/or delivery rate of product). | Heavy viscosity of pour-on or oral drench product | Use large inlet adaptor (diag 3-35), feed tube (diag 2-22 or 23) and feed tube spring (diag 2-27) for connection of applicator to backpack. |

SECTION 8: TROUBLESHOOTING GUIDE *Cont.*

| PROBLEM | PROBABLE CAUSE | CORRECTIVE ACTION |
|---|--|---|
| 4 Slow applicator (fill and/or delivery rate of product). CONTINUED | Chemical backpack is not collapsing as the applicator draws fluid. | Vent the backpack by removing it from your back, ensure the backpack is in the upright position. Gloves MUST be worn. Unscrew the draw off cap to allow air into the container. Re-tighten draw off cap and return it to your back to continue use. WARNING: Ensure you do NOT inhale any fumes of the product or allow the product to contact the body in any way or injury to the health of the operator may occur. Or use collapsible backpack and air bleed draw off system, refer Section 3, part 3e and f. |
| | Kinking or restriction of the feed tube. | Remove the restriction or re-position the feed tube to avoid kinking. |
| | Piston seal rings (diag 3-29) and piston lubricating washer (diag 3-30) are dry or have not been lubricated. | Remove cylinder (diag 3-9, 17 or 26) from handpiece (diag 3-31). Lubricate the piston seal rings and lubricating washer with castor oil as instructed in Section 3, part 1f, ii, or part 2b. Lubricate the push rod shaft behind the piston. |
| 5 Spitting of product from nozzle or air being drawn into the cylinder from the nozzle end of applicator. | Foreign matter lodged in the delivery valve and spring assembly as in 3-3 above. | Remove nozzle and delivery valve assembly, clean valve seat of delivery cage (diag 3-7, 14 or 23) by rinsing and wiping with a soft cloth. Clean valve and spring and re-assemble as shown in schematic diagram 3-5, 13 or 22. |
| | Pour-on nozzle seal ring (diag 3-6) on delivery cage (diag 3-7) damaged or missing. | Check pour-on nozzle seal ring for wear or damage and replace if necessary as shown in schematic diagram 3. |
| | Nozzle seal ring on drench nozzles (diag 3-11 or 12) damaged or missing. | Check seal rings on drench nozzle for wear or damage and replace if necessary as shown on schematic diagram 3. |
| | Incorrect assembly and location of the delivery valve in the delivery cage (diag 3-5, 13 or 22). | Check that delivery valve and spring are clean and reassembled correctly as shown in schematic diagram 3. |
| 6 Spray pattern drooping at end of stroke or incorrect dose. | | Point gun up and operate to expel air. |
| 7 Slow on return stroke. | | Check and clean inlet valve and check delivery strainer, clean and refit. |
| 8 Jerky return stroke. | Caused by not cleaning properly. | Put plenty of clean water (preferably with soluble oil in it) through the gun. |
| 9 Very slow on return stroke and delivery stroke. | Trigger valve may be sticking. | Put a small amount of fine clean oil in gas fitting. |
| 10 Slow and incomplete delivery stroke. | | Check and clean delivery valve and nozzle tip. |
| 11 Checking pressure. | | A piece of fencing wire (12 gauge or larger) about 7mm long can be put into fitting and a normal tyre pressure gauge can be used to check the pressure if need be. |
| 12 Cleaning gun. | | Firstly, empty backpack and ensure it is clean, fill with clean soapy water and fire the gun off a number of times (set on full dose) to flush out product and clean. Secondly, fill container with clean water and repeat operation. When storing the applicator, undo nozzle nut and pour some oil into the cylinder and move round to get a good coverage of the cylinder. Clean the tip, delivery valve and inlet valve regularly and re-oil to ensure lubrication and movement. We recommend castor oil or vegetable oil. |

POWERED APPLICATOR PROPANE USAGE GUIDE

The following is a guide to the number of shots you will get when using 100% propane.

Please note; butane is not as efficient as Propane and should not be used.

Propane is generally not considered to be a greenhouse gas so its emission into the atmosphere is not damaging in that regard.

However propane is flammable. You must not smoke while using this equipment or work in the vicinity of fires or heat sources.

You should only use this equipment in very well ventilated areas if you are working indoors to ensure the concentration of propane in the air will not affect the operator. If you feel any effects such as nausea, shortness of breath or giddiness, cease operation immediately and move to a well ventilated area. Do not recommence work until better ventilation is achieved in the working area.

You generally need a pressure between 40 and 80 psi for the instrument to operate properly.

You should use the lowest pressure that will administer the required dose in the required time.

As the canister is emptied of gas the canister becomes colder – this can reduce the pressure. If you notice the applicator becoming slower it may be because the gas bottle is getting colder and the pressure is dropping. Let the gas bottle warm up and see if the pressure improves. This effect is more noticeable with smaller bottles.

With smaller gas bottles the instrument may stop operating while there is still 5-10% of the gas in the bottle. That is normal and is not a problem with the instrument.

Assuming operation at **20 C (68F)** and with the equipment set at **60 psi, per 100 g of liquid propane** in your bottle you should get the following number of doses:

| | |
|-------|--|
| 15 ml | 670-800 doses per 100 grams of propane |
| 25 ml | 400-480 doses per 100 grams of propane |
| 50 ml | 200-240 doses per 100 grams of propane |
| 65 m | 155-185 doses per 100 grams of propane |

So, if you are using a 400 g bottle of propane at 60 psi with a 50 ml dose you would expect to get somewhere in the range of 800 to 880 doses before the pressure drops too low.

If you are using a 2 kg bottle of gas again at 60 psi and a 50 ml dose you should expect to get somewhere in the range of 4000 to 4800 doses.

These figures are approximate and should be taken as a guide only.

By keeping the instrument well lubricated and clean you will get the greatest efficiency.

DO NOT ATTEMPT TO REFILL PROPANE BOTTLES UNLESS YOU ARE PROPERLY QUALIFIED.

SEEK THE ADVICE AND SERVICE OF A REGISTERED REFILLING SERVICE.

NEVER REFILL SINGLE USE DISPOSABLE CANISTERS.



NJ Phillips Powered 50ml Forestry Applicator

Tested with 0.34kg Primus Bottle

When this applicator is fitted with the **SN540** Stream Nozzle, the average shots per 0.34kg Primus Bottle when full (375g of Gas), is 820 x 50ml dose.

When this applicator is fitted with the **WX701** Adjustable Cone Nozzle, the average shots per 0.34kg Primus Bottle when full (375g of Gas), is 800 x 50ml dose.

When this applicator is fitted with the **SXN3** Drenching Nozzle, the average shots per 0.34kg Primus Bottle when full (375g of Gas), is 850 x 50ml dose.

| Dose (ml) | Average Shots |
|-----------|---------------|
| 50 | 821 |
| 45 | 912 |
| 40 | 1026 |
| 35 | 1172 |
| 30 | 1368 |
| 25 | 1641 |
| 20 | 2052 |
| 15 | 2736 |
| 10 | 4103 |
| 5 | 8207 |

Powered 50ml Forestry Gas Usage Test with Air Temperature 12 – 15 degrees.

* Tested with water at 12 – 16 degrees.

** Tested with water temperature around gas bottle at 20 – 35 degrees.

| Nozzle | Bottle | Bottle Capacity | Dose | PSI | Temp. | Av. Shots | Litres | Equiv. 5L Container | Fill Cost \$ | Cost/Shot \$ |
|--|------------------|-----------------|------|-------|---------------|-----------|--------|---------------------|--------------|--------------|
| Adjustable Cone Spray SN351/SN352-WX701 | 0.34kg Primus | 375g | 50ml | 50-60 | Cold* | 820 | 41 | 8.2 | 3.88 | 0.0047 |
| | | | | | Warm** | 850 | 42.5 | 8.5 | 3.88 | 0.0046 |
| Forestry Stream Nozzle SN540 | 0.34kg Primus | 375g | 50ml | 50-60 | Cold* | 840 | 42 | 8.4 | 3.88 | 0.0046 |
| | | | | | Warm** | 870 | 43.5 | 8.7 | 3.88 | 0.0045 |
| Drench Nozzle SXN3 | 0.34kg Primus | 375g | 50ml | 50-60 | Cold* | 840 | 42 | 8.4 | 3.88 | 0.0046 |
| | | | | | Warm** | 870 | 43.5 | 8.7 | 3.88 | 0.0045 |
| Adjustable Cone Spray SN351/SN352-WX701 | 9kg | 9.85kg | 50ml | 50-60 | 16 degrees | 21,500 | 1075 | 215 | 30.00 | 0.0014 |

Tested and performed onsite at NJ Phillips Pty Limited May 2009.

