**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 or NJ Phillips customer service.

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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Thank you for purchasing this NJ Phillips Pty Limited precision instrument. Norman Phillips founded the Phillips reputation on reliability, accuracy and innovation in 1931. It is by not deviating from these original ethics that NJ Phillips Pty Limited is able to guarantee this instrument is not only the best you can buy today, but that tomorrow’s NJ Phillips instrument will be even better.
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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 workplace (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 transportation 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 the applicator operator each time the applicator is used.

WARRANTY & SERVICE

Scope of this warranty

This warranty entitles you to repairs or replacement (at no charge) of any parts of the NJ Phillips 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 NJ Phillips Pty Limited ("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.

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 NJ Phillips Pty Limited;
- 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 passage (diagram 2-13) or other components relating to the use of LP gas or poisonous by the inhaling of toxic LP gas. Both these situations can cause death or injury to the operator.

How to claim under this warranty

To avoid injury to livestock careful inspection of sheep/cattle nozzles before drenching as detailed under “CARE AND MAINTENANCE OF APPLICATOR” is important.

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

HANDPIECE

25ml CODE: SXM509

50ml CODE: SXM477-BULK

65ml CODE: SXM565

POWER SOURCE

GAS PORTABLE CODE: SXM490
GAS PROCESSOR CODE: SXM471
AIR PROCESSOR CODE: SXM488

PORTABLE CODE: SXM470

25ml

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

1 Powermaster applicator - cylinder - stream tip nozzle - 9mm (3/8") inlet adaptor
2 fan tip nozzle
3 shower tip nozzle
4 spray head (NOTE: not supplied - available as an NJ Phillips accessory)
5 6mm (1/4") inlet adaptor
6 cylinder - cone spray nozzle
7 cylinder - sheep nozzle
8 cattle drench nozzle
9 air fitting adaptor (when supplied)
10 nipple for air fitting adaptor (when supplied)
11 snap-in barb coupling (when supplied)
12 15ml castor oil lubricant (6 per)
13 gas tube
14 LP gas or compressed air regulator assembly
15 LP gas cylinder (when supplied)
16 holster (when supplied)
17 belt (when supplied)
18 backpack bag (when supplied)
19 2.5 or 5 Litre backpack (NOTE: not supplied - available as an NJ Phillips accessory)
20 air bleed draw off cap and feed tube
21 9mm (3/8") clear feed tube
22 9mm (3/8") black rubber feed tube
23 6mm (1/4") clear feed tube
24 6mm (1/4") black rubber feed tube
25 feed tube springs (small)
26 feed tube springs (large)
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 handbook, 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.

   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 pharmaceutical manufacturer’s administration instructions as covered by Section 3, part 1c.

   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 and lightly tighten with pliers.

   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 to ensure the delivery valve and spring (diag. 3-35) are clean and facing in the direction shown in the handpiece diagram and lightly tighten with pliers.

   ii. Check that inside of cylinder (diag. 3-9), piston (diag. 3-28) and push rod (diag. 3-32), and handle plug assembly and place cylinder aside.

   iii. 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.

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

   v. 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.

   vi. 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.

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

   viii. 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.

   ix. The handpiece is now set up ready for connection to the draw off system for the pour-on treatment of livestock.
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.

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

### Schematic Diagram No 4: Backpack, bag and holster

**APPLICATOR FEED TUBE AND SPRING**
**BACKPACK BAG (not included)**
**BACKPACK**
**AIR BLEED DRAW OFF CAP**
**APPLICATOR**
**HOLSTER**
**BELT**

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. **NJ Phillips Backpack**
      2.5 or 5 Litre collapsible backpaacks and air bleed draw off cap from the NJ Phillips 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”) or 6mm (1/4”) feed tubes, otherwise it will be necessary to carefully decant the product into an NJ Phillips 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 NJ Phillips 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 NJ Phillips 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 NJ Phillips 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.
   e. **Backpack Used in Upright Position:**
      i. When using the NJ Phillips 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 NJ Phillips collapsible backpack and air bleed draw off system should be used.
   f. **Backpack used in Inverted Position:**
      i. When using the NJ Phillips 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.
      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 NJ Phillips 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.
   g. **Backpack used in Inverted Position:**
      i. When using the NJ Phillips 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.
   h. 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.
   i. The holster is suitable for use by either right hand or left hand operators.
   j. 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.
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 NJ Phillips Pty Limited 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. 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).

NOTE: Gas cylinders must only be filled by authorised filling agents.

b. 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.

c. 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.

d. 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 retighten.

i. 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

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 retighten.
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 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 until 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 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. Place the backpack bag, containing the backpack with gas regulator, assembled to LP gas cylinder, and regulator on the applicator and backpack assembly turning in a clockwise direction, and unscrew the gas cylinder from the regulator by turning in an anticlockwise direction.

SECTION 4: INSTRUCTION FOR USE OF 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 NJ Phillips for advice on 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 sheet for 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 and 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 handlepiece 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.

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 valve (diag. 2-13).
   vi. Holder 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.
   c. 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.
   d. 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)
   e. Place the backpack bag, containing the backpack with drawn off product, to 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) to 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 supplied to the livestock operator.
   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)
   v. The minimum gas pressure should be used to achieve acceptable filling rate and delivery speed.

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.

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).

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, 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 whole of the day.
   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 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 f. (diag. 4-1 and 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. 3-31) for 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 tight. 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.

c 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.

d Fill the selected backpack with the pour-on product to be administered to livestock, and securely replace the draw off cap on the backpack by screwing in a clockwise direction and hand tight. (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.

e 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)

f 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.

to prime the applicator, set the dose at 50ml 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 compressed air pressure on the regulator between 414 to 550 Kpa (60 - 80 psi). (diag 5-7)

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

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 that 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.

j Check connection of the gas connection (diag. 2-13) to the applicator and gas regulator and hand tight. Set the gas pressure to 414 - 550 Kpa (60 - 80 psi) as covered in Section 6.

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.

k Connect the selected inlet adaptor, feed tube and springs to the operator 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)

l 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.

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 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.

m 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 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).

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.

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 poisoning of the operator’s body.

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 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.
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 or NJ Phillips for advice as to suitable forestry products to be used in the applicator and draw off system.

WARNING: Extreme caution MUST be given to the forestry agricultural 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 applicator 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:
   - Applicator handpiece with the cone spray nozzle and cylinder marked (diag. 2-6).
   - Selected backpack and draw off cap, if used, as covered in Section 3, part 3e to 3f. (diag.4-1 or 4-2) 
   - Backpack bag with gas regulator assembled to compressed air hose, as covered in Section 3, part 5a to e. (diag. 6)
   - Selected clear feed tube and springs (diag. 2-26), small diameter feed tube (diag. 2-23) and 6mm (1/4") inlet adapter (diag. 3-36) for light oral drench products or large diameter feed tube (diag. 2-21) and 9mm (3/8") inlet adapter (diag. 3-35) for heavy viscosity oral drench products.
   - Gas tube (diag. 2-13).
   - Holster and belt (diag. 2-16 and 2-17).
   - Air compressor, in line filter/lubricator, 10mm inside diameter air hose and fittings. This equipment is NOT supplied by the applicator manufacturer.
   - 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 680 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.
   - 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.

b. Equipment Required:
   - Applicator handpiece with the cone spray nozzle and cylinder marked (diag. 2-6).
   - Selected backpack and draw off cap, if used, as covered in Section 3, part 3e to 3f. (diag. 4-1 or 4-2)
   - Backpack bag with gas regulator assembled to compressed air hose, as covered in Section 3, part 5a to e. (diag. 6)
   - Selected clear feed tube and springs (diag. 2-26), small diameter feed tube (diag. 2-23), and 6mm (1/4") inlet adapter (diag. 3-36) for light oral drench products or large diameter feed tube (diag. 2-21) and 9mm (3/8") inlet adapter (diag. 3-35) for heavy viscosity oral drench products.
   - Gas tube (diag. 2-13).
   - Holster and belt (diag. 2-16 and 2-17).
   - 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.
   - 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.

k. NEW ZEALAND – Due to the dryness of NZ gas, fine
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

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, 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 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

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For the applicator operated by LP gas, disconnect the regulator and valve assembly 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 coupling on the compressed air hose. Disconnect the air fitting adaptor from the regulator and valve assembly and place both parts into toolbox.

- 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.
- Check seal rings (diag. 3-29) for any sign of wear or damage and replace if necessary.
- 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

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<td>2</td>
<td>Applicator leaking (gas or compressed air).</td>
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<td>Spitting of product from nozzle or air being drawn into the cylinder from the nozzle end of applicator.</td>
<td>Foreign matter lodged in the delivery valve and spring assembly as in 3-3 above.</td>
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