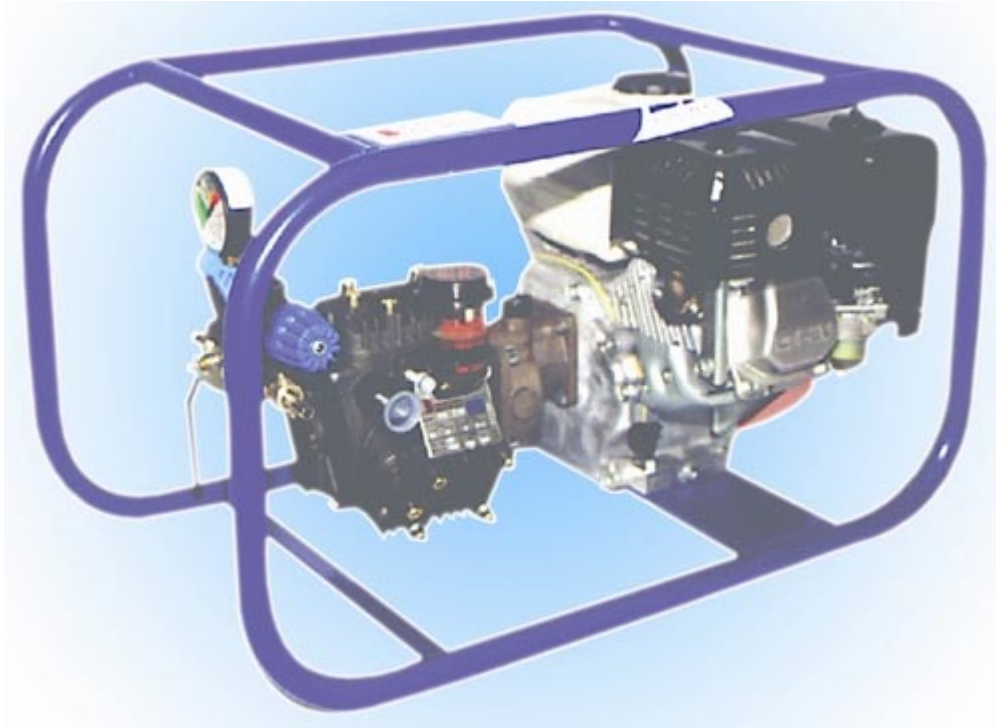


Bertolini Motorised Pump Operator's Manual

To ensure safe and efficient use of your new Bertolini Pump
Please read manufacturer's operator's manual BEFORE operating Pump. Failure to do so will void warranty



**Bertolini staff wishes to thank you for purchasing another quality
New Zealand made product.**

Bertolini Australasia Warranty Policy

Bertolini Australasia warrants the owner that it will repair or replace without charge parts found defective or malfunctioning in accordance with the warranty limitation and adjustment schedule below.

<u>All products</u>	
Private Domestic Use	12 months
Private and Commercial Agriculture	12 months
Agricultural Contractors	6 months
All Non-Agricultural Applications	3 months
This warranty period will begin on the date the product is delivered to the first retail purchaser.	

This Warranty covers

- Only conditions resulting from defects in workmanship or material under normal use and service.

This warranty does not cover

- Conditions resulting from misuse, negligence, alteration, accidental damage or failure to perform normal maintenance services.
- Any product which has been repaired by an unauthorised Bertolini Australasia service outlet which adversely affects its performance and reliability in any way is the sole and absolute judgment of Bertolini Australasia.
- The replacement of lubricating oil, filters and belts made in connection with normal maintenance services.
- Lost time, inconvenience, loss of use of the product or other consequential damages.

The repair of defective products qualifying under this warranty will be performed by any authorised Bertolini Australasia service outlet within a reasonable time following the delivery of the product at the cost of the owner, to the service outlets place of business. The product will be repaired or replaced using new parts sold by Bertolini Australasia.

The owner is responsible for the performance of regular maintenance services as specified in the owner's operator manual applicable to the product.

- **This warranty is the only warranty applicable to Bertolini Australasia's new products and, to the maximum extent permitted by law, is expressly in lieu of any other warranties expressed or implied, including any implied warranty of merchantability or fitness for a particular purpose.**
- **Bertolini Australasia does not authorise any person to create for it any other obligation or liability in connection with these products.**
- **Bertolini Australasia shall not be liable for incidental or consequential damages resulting from a product performing in breach of the written warranty.**
- **Given continuous product development, Bertolini Australasia reserves the right to change specifications and design without notice.**

Installation Procedure:

Before operating pump motor unit do the following

- Place pump motor unit on a flat level surface.
- If unit is to be used on a vehicle please ensure it is tied down or bolted to deck
- Fit suction hose to inlet of pump, place filter into spray tank. Tie hose to tank to avoid hose from falling out of tank or filter from floating to water surface.

NOTE: It is important to ensure that suction filter is always at bottom of the tank that the pump is drawing from, if filter is at liquid surface level the pump may suck air and cause cavitation which will severely damage your new pump. Cavitation damage is not covered by warranty

- Fit bypass hose to side of control unit, place opposite end into spray tank. Tie hose in place as bypass hose is under some pressure and may fly out if not tied in
- Connect boom or spray gun to outlet tap on control unit.
- Always ensure a suitable filter is fitted to the suction hose
- Check all pipes, hoses hose clamps and connections for leaks or damage. **Loose connections on suction lines will suck air causing poor pump performance and pump damage.**
- Ensure oil level is between minimum and maximum on sight glass. **Over filling will over pressurise the pump causing damage.**

Please note the following:

- Don't operate the pump on an uneven surface.
- Don't pump flammable or explosive liquids.
- Don't operate the sprayer without driveshaft cover.
- Don't service without releasing all pressure.
- Don't operate above 62 °C.
- Don't operate pump with greater than 3 metre suction. eg out of a stream.
- Don't operate where spray drift may cause damage to other crops or animals.
- Do always wear appropriate safety clothing.
- Do always use clean fill water.
- Do always follow chemical manufacturer's label rates.

Operating Instructions

Remember follow all safety guidelines for chemicals, pump and motor use:

- Fill Tank with clean water.
- Check suction filter for dirt or damage - clean when necessary.
- Check pump oil level and colour - if discoloured check with Bertolini authorised Service Agent before continuing. Top up oil level when necessary.
- Check engine oil level, oil level should reach full mark on engine dipstick.
- Check gearbox oil level. Oil level should reach red dot on sight glass.
- Check petrol; fill with unleaded 91 octane if necessary.
- Ensure lever on pressure regulator is in 'by-pass' mode.
- Ensure that adjusting knob on pressure regulator is wound out.
- Turn engine on/off switch to on, adjust choke and pull start. Allow engine to idle for 1 minute.
- Move engine throttle to full

- Allow pump to operate for 30 seconds in by-pass mode at zero pressure to allow pump to prime and all air to be evacuated out of pump lines.
- Shift lever on pressure regulator to 'pressure' mode.
- Wind in pressure adjusting knob until the required pressure is achieved.
- Check oil level while operating pump at pressure.
- Start spraying.

After use and storage:

- Check the chemical manufacturer's labels for correct disposal of chemical. Drain the excess material from tank. Select an appropriate place that will not endanger animals or the environment for cleaning and flushing the system.
- Flush pump with clean water for several minutes at working pressure, or until water flows clear. (This prevents build up of residues in pump and hoses.) Then empty tank and run pump dry for 2 minutes. (This is especially needed where frosts may occur as freezing water in pump or lines will cause damage.) Shut down.
- Please note: if the oil is discoloured at end of season do not leave until next season before servicing - service now.
- If possible store under cover.

General Maintenance-Service intervals:

- First oil change at 10 hours
- Thereafter, change oil at end of spraying season.
- If oil discolours or goes milky, service pump a.s.a.p - do not continue operating.
- Diaphragms, O Rings, valve assemblies are normal wearing parts and should be replaced routinely at the end of the season.
- If pump starts making unusual noises, or pressure drops, or pressure surges/fluctuates, or water leaks from pump please consult a Bertolini Authorised Service Agent a.s.a.p. Do not continue operating.

Gun spraying:

- The key is to get the spray to penetrate the plant/bush.
- Small spot spraying jobs are usually sprayed around 80-120PSI
- Large brush weeds (Gorse) are usually sprayed around 1500-400PSI

Boom Spraying:

- To ***apply chemical accurately*** is the key to getting the job done correctly without under or over applying, and thus saves you money.
- Step one is ***knowing your real tractor speed***. To measure your exact tractor speed do the following.
 - ⇒ Measure a distance of 50 metres using a tape measure
 - ⇒ Mark these points so they can be clearly seen when driving past on the tractor. The starting point should be far enough so that you are at spraying speed as you pass the start point.
 - ⇒ Time how long it takes in seconds to travel between the start and finish points.
 - ⇒ Divide 180 by the number of seconds it took to pass between the start and finish points, this last figure is your speed. e.g. $180 \div 30 \text{ seconds} = 6$ your spraying speed is 6 kmp/h.

- Once you know your correct spraying speed you can ***look at the nozzle chart.***
 - ⇒ To read the chart look first along the top to select your vehicle speed. e.g. 6kmp/h.
 - ⇒ Then come straight down the column below the selected speed to the volume in litres per hectare you wish to apply. e.g. 322 l/ha.
 - ⇒ Look to the left of this figure (e.g. 322) till you are below the column marked “⊕ bar”, you will see that you need to spray at 2 bar pressure (30psi).
 - ⇒ Look left again and you are looking at a box with nozzle types (DG, TP, XR etc). For this example it works out that any of these nozzles in size ...05 is the correct nozzle to use at this required rate per hectare at 6kmp/h.
 - ⇒ For normal pasture spraying the nozzles should be 500mm (1/2 metre) off the ground.
 - ⇒ The lower pressure the better as you will get less spray drift - 2 bar (30 psi) is standard practice.
 - ⇒ Remember that 10 % difference in speed means either under or over applying chemical.
 - ⇒ Nozzles should be replaced as routine maintenance at the end of the spraying season.
 - ⇒ For information on spray drift, droplet size, or specialist spray information please ask your Bertolini dealer for current *Teejet Spray Products Catalogue*. Assistance on how to read the chart will be given if required. If you don't have a Bertolini dealer close by please call Bertolini on **(07) 847 7950** and ask for a catalogue to be sent out.

Accessories:

Bertolini offer a complete range of spray accessories to use with your Spray Equipment. These include the following.

- *Teejet* Electronic controls for the ultimate in spray control, giving the best cost saving features available.
- *Teejet* electric ball valves, solenoids, regulating valves for precision control.
- Hose reels to mount to the side or back of your Bertolini sprayer.
- Foam markers, single or double sided.
- Chemical filler/mixers to safely mix chemical without having to handle the chemical directly or climb on the sprayer to pour in chemical.
- *Quikspray* remote control reels for the ultimate in hose control. At the press of a button the hose rewinds, pulling you and the hose back up the hill to the sprayer.
- Spray booms, manual or hydraulic with self leveling, hydraulic lift, individual fold.
- *Teejet* guns, boom components, nozzles, fertilizer nozzles, field jet nozzles, off centre nozzles, banding nozzles, teat spray guns, hose and a plethora of other associated products.

Warning!

- Prior to sprayer usage, all users and operators must read and fully understand the contents of this operator's manual. Failure to comply with these warnings may result in serious injury or death.
- This sprayer is designed and manufactured solely for the purpose of applying agricultural chemicals to crops. Under no circumstances may it be used for any other purpose.
- Refer to the chemical manufacturer's labels for correct use and safe handling instruction of chemicals before use.
- Refer to the vehicle's operators manual for correct use and safe handling practice before operating the vehicle. This includes specific safe load carrying and towing capabilities.
- Never allow inadequately trained personnel to attach or operate the sprayer.
- Before carrying out maintenance work on any part of the sprayer wash it thoroughly to remove all toxic chemicals that may contaminate the sprayer.
- Do not point the spray gun at a human body as high pressure spray may cause serious bodily harm.