



superior dairy technology

Numedic Ltd, 70 Riri Street, Rotorua 3015, New Zealand  
Telephone 07 3479974, Facsimile 07 3479975  
[www.numedic.co.nz](http://www.numedic.co.nz)    [numedic@xtra.co.nz](mailto:numedic@xtra.co.nz)

## **LEADING NZ MANUFACTURER OF EFFLUENT EQUIPMENT**

### **PTO PUMP 200E**

**WARNING: ALWAYS KEEP AWAY FROM ROTATING PARTS ESPECIALLY THE PTO SHAFT. TAKE CARE ALWAYS.**

### **PTO PUMP ASSEMBLY**

**Thank you for purchasing this Numedic PTO Effluent Pump**

With correct care and service these units give good reliable operation.

On receipt of this equipment please check the following:

1. Components are all present and undamaged – any claims must be made within 3 working days of receipt
2. Primer assembly should be mounted securely without the lever contacting the frame or pump during operation.
3. Ensure there is sufficient movement in the driveshaft. If not, then the driveshaft may need to be shortened.
4. Check that both the PTO shaft shield and anti rotation chains are secured correctly. One chain should be connected to the tractor and the other to the PTO pump.
5. Lower and tighten adjustable legs
6. Check pump gearbox oil level. This is usually filled at the factory however some restrictions are placed on carriage of equipment with lubricating oils in them. Recommended oil is 80/90 for usual service. In extreme conditions 85/140 may be needed.  
If an external oil bowl is fitted, this should be kept 2/3 full of ISO32 or 46. This is for lubrication of the mechanical seal. The gearbox oil is separate.
7. Fit intake and outlet flanged adapters. Tighten evenly and progressively so that the gaskets are evenly compressed. Failure to do this could result in pressure or vacuum leak. Connect primer hose to appropriate hoesetail on Primer Saver.

## **TO START PUMP OPERATION**

Connect Pump unit securely to tractor and attach driveshaft. Ensure tractor draw bar is clear of driveshaft during operation.

Correctly install intake pipe system (rubber section nearest pump). We recommend that the intake strainer be floated approximately 1 metre beneath the surface for effluent. Intake must be deep enough to prevent a vortex. Guy wires may be needed to secure suction line against forces of current or pond stirrer.

1. Close the main outlet gate valve, the secondary outlet valve and the hand primer drain valve
2. Open primer valve
3. Pump primer until liquid appears
4. Close primer valve. (if primer saver is fitted the drain can now be opened)
5. Start PTO shaft turning – tractor revs approx. 1200
6. Slowly open the main outlet valve until the mainline is filled and irrigation commences
7. Open gate valve fully and when pressure stabilises adjust tractor rpm to achieve desired pressure
8. Maximum PTO speed 540rpm

**NEVER RUN PUMP WITHOUT LIQUID FLOW!!!**

## **TO STOP PUMP (EXCEPT IN EMERGENCY)**

1. Decrease tractor rpms to fast idle
2. Close off outlet gate valve
3. Stop PTO shaft

This should keep pump primed temporarily for restart

## **TO STOP PUMP IN EMERGENCY**

**IN EMERGENCY STOP PTO OR TRACTOR ENGINE**

## **MAINTENANCE - PTO PUMPS**

Gearbox	Check oil level on sightglass. Refill with 80/90 if necessary. Change oil after first 40 hours of use and then every 200 hours or yearly whichever comes first
Mechanical Seal Reservoir	Check level is at least half full. Top up with ISO 32/46 as required.
PTO Drive Shaft	Check safety covers and anti rotation chains are fitted. Grease the PTO shaft
Hoses and Fittings	Check for splits in hose and/or fittings. Check nuts and bolts and tighten if required
Hand Primer	Regularly open the hand primer drain to flush out the solids
Storage	Drain the water from the pump housing if the pump is not going to be used for more than a month or if the temperature is likely to drop below 0 degrees. Remove the drain plug at the bottom of the housing to drain.

## **TROUBLESHOOTING**

### **PROBLEM**

### **CHECK!**

Pump fails to prime

Outlet valves open or fibre partially blocking closure  
Gate valve worn  
Primer ball valve closed or blocked  
Air leak in primer hose or fittings  
Air leak at intake or outlet flange gasket  
End of intake hose/strainer blocked  
Mechanical seal damaged  
Primer pump internal valves blocked

Low flow/low pressure at pump  
OR/Metallic rattle in pump (Cavitation)  
OR/Mechanical seal reservoir level changing or discolouring

End of intake partially blocked  
Mechanical seal damaged  
Air leak in intake line/flange gasket  
Effluent too thick  
Intake system too small for attempted volume

Pump OK but applicator performance poor

Heavy effluent/high fibre content  
Part blockage in delivery  
Pipelines too small or too long for attempted volume at pressure available

## **HANDY HINTS**

1. Remember, 2" ID alkathene has 3 times the friction loss of 3" ID pipe. Effluent pipe is quoted in OD sizes not ID like low density alkathene and galvanised steel
2. You cannot usually remove all the liquid from a pond. A vortex will indicate air entering the pump usually when 500mm depth is left in the pond.
3. If the PTO pump is likely to be subjected to below 0 Celcius temperature conditions or if it is to be stored for more than one month, drain the water from the pump housing. This can be achieved by removing the drain plug located at bottom of housing.

## **WARRANTY**

24 month warranty on pump component

12 month warranty on other components

Warranty is from the date of purchase to the original purchaser as per Numedic Ltd Warranty Terms and conditions. The faulty or defective part must be returned to Numedic Ltd freight paid.

The warranty does not cover the following:

- Damage in transit
- Misuse or carelessness in handling
- Non compliance with the assembly instructions
- Goods that have in the opinion of Numedic Ltd been subject to abnormal use, service or damage
- Unauthorised repairs & alterations
- Consequential damage a result of misuse or a defective part
- Consequential damage as a result of the use of non-genuine parts
- Goods where the terms of payment have not been complied with



superior dairy technology

## PTO PUMP & COMPONENTS



## PTO PUMP PERFORMANCE CHART

Flow (l/min)	Head (m)	Pressure (psi)	Minimum Engine (hp)
0	96	135	50-60
500	94	132	50-60
1000	90	126	55-65
1500	87	122	60-70
2000	85	120	65-75
2500	83	117	75-85

Numedic Ltd, 70 Riri Street, Rotorua 3015, New Zealand  
Telephone 07 3479974, Facsimile 07 3479975  
[www.numedic.co.nz](http://www.numedic.co.nz)    [numedic@xtra.co.nz](mailto:numedic@xtra.co.nz)