Pre 2018 Reporoa Herdflow Crowd Gate

Operations & Maintenance Manual

September 2017



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Introduction

Thankyou for purchasing a Herdflow Crowd Gate. Your gate has been designed to safely automate the managment of your herd along with the cleaning (if this option is chosen) &/or wetting of the collecting yard before, during &/or after milking.

This manual is designed to: ensure you operate your Herdflow Crowd Gate efficiently and effectively; to maximise the life of the gate and to minimise the stress on your herd and your operators. It provides operational guidelines, maintenance requirements, fault finding and emergency procedures if you lose electricty.

WARNINGS!!!

↯ Electrical ↯

Do not open any control boxes. Call your Herdflow Crowd Gate Electrician.

⚙ Mechanical ⚙

Keep hands a clothing well away from all rollers and wheels where they contact the "I" beam

Check the Gate Lifting Ropes at Least Monthly

General Operation Guidelines

These guidleines are designed to help your – The Operator – training so that you are then in a position to train the the herd.

In order to train the cows take small "bites" of cows (< 100 cows) at the beginning so that the cows learn to respect the gate and then respond to the noise prompt. This may be slower at the start but will reward in the long run with better cow flow. There is no point in trying to push 500 cows at once as the ones at the front will have no idea what is going on unless they have been trained to the sound prompt first.

Your new Herdflow Crowd Gate is **NOT** for "Bulldozing" cows in to the cow shed. If you use it as a battering ram you will injure the cows and eventually damage or destroy the backing gate. Protection in the form of a breech sensor, cow detector and pluse forward is installed in to the gate to protect the animals from injury (lameness, crushing)or as an insurance policy in case the gate is inadvertantly left on. The Breech sensor is the emergency stop only.

Most the time when using the gate for encouraging cows to move forward use the Pulse Forward button.

How to Operate the Reporoa Herdflow Crowd Gate

Depending on the options you have chosen there are up to 3 sets of buttons and a touch screen to control your gate:

- The control panel on the gate – buttons and touch screen









- The "cups on" position or pit in the case of a herringbone



To raise gate: push up button, gate will rise to up position if no stop is pushed.

To lower gate : If the gate is at top limit the gate will lower to set point, pause then lower while reversing slowly to bottom limit. If gate is not at top limit, the gate will travel with out stopping to bottom limit. If cow detector is fitted gate lowering will be interrupted if beam is broken.

Forward: Push forward button, gate will ramp up to low speed. If you hold the forward button for 2 seconds the gate will ramp up to high speed, if repeated the speed will ramp down. The gate will stop via breech switch, stop buttons, pull switch and forward limit. The gate will not travel forward while gate is lowering but can if the gate is rising.

Pulse Forward: Push the Pulse button, the gate will ramp up to low speed and travel for set time then stop until button is pressed again. Gate will stop via breech switch, stop buttons and front limit.

Pull switch: Pull the pull switch, gate will lower if not at bottom limit then proceed forward until pull switch has been activated again. Gate will stop via breech switch and stop buttons.

Synchronize: (For rotary cow sheds). Push Synchronize button, gate will lower if not at bottom limit. Function will count passing bails until set point has been reached then proceed forward for timed amount then stop. Breech switch will stop current timed motion but not function. Synchronize is reset by stop buttons.

Reverse: Push reverse button, gate will ramp up to low speed. If you hold the reverse button for 2 seconds the gate will ramp up to high speed, if repeated the speed will ramp down. The gate will stop via stop buttons, pull switch and reverse limit. If the gate is down the gate will only reverse for 5 seconds. The gate will travel in reverse while the gate is lowering or rising.

Wash: Push Wash button, gate will proceed with wash function automatically pre determined in set up and will stop automatically. If the stop button is pushed during wash the wash will pause, pushing the Wash button again continues wash. If another button is pressed while wash paused, the gate will raise booms first. If no Gull wing setting (washes the yard in 2 directions) has been set, you can push and hold the wash button for 4 seconds and the gate will wash from where it is. Pushing wash button twice will allow the gate to wash the yard a second time.

Sprinkle Mode in Gate Up Position: If the gate is travelling forward or reverse and the gate is at the up limit, press and hold the up button for 4 seconds and the water solenoid will open allowing you to wet yard or cows.

Sprinkle Mode in Gate Down Position: While gate is being used to herd the cows forward (wash booms in up position) push and hold wash button for 4 seconds and the gate will wet the yard each time (pulse forward) and/or as it moves forward or in reverse to keep the yard wet as it does its job.

Maintenance Requirements

- **Lubrication: Grease Nipples - Monthly**
  - Bearings which support drive axles on drive units.
  - Outside drive unit pivot points (accessed through hole in front of drive unit.
  - If fitted – dung buster support slider pipes.
  - If fitted – lift pipe support bushes.

- **Catenary Wire – Monthly**

  - Rub a little grease over the wire to ensure orange Ezi-rollers run freely
  - Grease first 10 rollers

- **Main Gate Lifting Ropes**

CHECK MONTHLY REPLACE EVERY 24 MONTHS

The ropes do wear out. Check for fraying over whole length of rope including where it attaches to the winch drum. This rope does also wear internally so should be replaced at least every 2 years.

Wash-boom Lifting Ropes

Check for fraying. Replace as necessary.

Electrical

Ensure cable hangs in consistent loops. If broken off nylon rollers replace roller immediately to prevent cable catching on anything.

Check all cables for damage and ensure all electrical glands are tight

Servicing

Arrange for your Reporoa Herdflow Agent to carry out an **ANNUAL SERVICE.**

Fault Finding

1. Gate Stops

Gate will not move forwards or backwards. There could be a mechanical reason or an electrical reason for this.

a. Mechanical

i. Frost Slippage – despite having the ability to tension the drive on each side in sever frosty conditions there may still be slippage – particularly during the first run along the length of the yard. We suggest that if frosty conditions are expected park the Herdflow Crowd Gate at the highest point of the yard the night before and in the morning run the gate downhill for its first run. We have available an anti skid paint which has ground up glass particles impregnated in to the paint and is quick drying. Apply this paint on to the drive side of the "I" beam. If the problem persists your gate can be fitted with an additional2 drives making the gate 4 wheel drive. This is recommended for 14 metre wide gates.

ii. Gate Out of Alignment - while your Herdflow Crowd Gate is expected to get out of alignment and self correct, occasionally it may stay out of alignment and bind up on the "I" beam because the drive beam housing is catching on the "I" beam preventing the gate from moving – in which case the electric motors may go out on overload. The following are reasons why it may go out of alignment: Catenary Wire jumped off Wire Pusher pulley and jamming between pulley and the housing (put catenary back on to pulley wheel); uneven tensioning of Drive Wheel Tension Springs(ensure both Tension Springs are the same tension – ideally 125 - 130mm); too great a gap between rear Guide Wheels allowing gate to screw around(loosen bolts then close wheels together on to "I" beam – approx. 1.5mm gap on 1 side when other side is touching) ; bearing on Idler Wheel opposite Drive Wheel collapsed(replace)or delaminated; object jammed under front or rear Support Wheels(remove object). Ensure that the electric drive motors and gearboxes are operating. Also ensure you check the collar is a snug fit against the gearbox (no gap) on the drive system

b. Electrical

The most common cause of the gate stopping is a "Dungbuster VSD Fault" as described on the touch screen. This usually means that the sensor that reads the Dungbuster slider (the sliders raise and lower the Dunbuster wash booms) located on the control side of the gate is too far away from the slider. The sensor needs to be within 5mm of the top of the slider when it is in the raised position.

Touch Screen: Check the touch screen to see if it identifies a fault. If so call Tailored Controls on the cell phone number on the control box. They will talk you through the problem.

i. Power Cut – If the gate is inoperable because of a power cut and it is in the down position and cows are trapped in front of it either: use front end loader to lift the gate or take fan covers off the back of the Lift motors. Wind fans until gate is in up position. Alternatively take fan off with screw driver and attach battery drill to motor shaft. Slowly wind with low gear ratio on drill.
ii. Gate Stops or Confused – gate may be confused as to where it is located or the direction it should be going in. Go to the manual position on the touch screen and if necessary move the gate at least 1 metre inside the proximity sensor plates. Then push the Fault Reset button on "Drive Status 2" page of the touch screen.
iii. Water in Buttons – contact your electrical service provider.
iv. Sensors Faulty – (breech sensor may be faulty or not reading gate dropper when in down position – gate will not run forward) no light on sensor or fault showing on touch screen. Contact your electrical provider.
v. Gate Up/Down Limit Faulty – Contact your electrical provider to check TER switch.
vi. Fault Message on Touch Screen – reset as per instructions in electrical manual.

2. Yard Wash

c. **Washbooms not resting evenly on concrete** – ensure there is approximately 100mm of slack lifting rope when booms in down position. Check this over the whole length of yard. Adjust on lifting collars (Allen Key).
d. **Washbooms not sitting evenly in up position** – if boom/s hanging down unevenly when in up position they may be damaged by cows.

3. Trailer Cable Faults

a. Orange Ezi-rollers catching – Ezi-rollers should travel smoothly along catanary wire. Apply a little grease each month to ensure they run freely.

b. **Orange Ezi-rollers Broken** – Ensure cable loops are hanging evenly and not twisted. Replace any broken Ezi-rollers.
c. **Wire Pusher Arm bent** – straighten - can be caused by:
    i. **Ezi Rollers not running freely** (see above)
    ii. **Gate over runs either end Proximity Sensor** – this will cause Wire Pusher arm to come in to contact with the Catenary Wire Carrier. Ensure Proximity Sensor and Sensor Plate are still in correct position. Check that light is on in sensor &/or no fault showing on touch screen. Replace sensor if necessary. See service electrician.
    iii. **Catanary Wire Jammed Against Pully** - Catanary Wire jumped off wire pusher pulley and jamming between pulley and the housing. Put back on pulley.
d. **Broken Trailer Cable – check cause:**
    i. Cable caught on gate or some other obstacle.
    ii. Ezi-roller jammed causing cable to stretch and break or tear away from termination.

4. Breech Switch Too Sensitive/Not Sensitive Enough

a. Adjust sensor position on slider arm.

5. Gate Not Lifting Evenly - check lifting ropes

a. For fraying or broken rope
b. Knots failed (use bowline knot only)
c. CHECK ROPES MONTHLY – REPLACE EVERY 2 YEARS

6. Gate Will Not Lower

a. If Cow Detector fitted then the beam between each side of the gate may not be lined up correctly. Adjust the grub screws on each side of the gate to line up the beam so that each side of the gate is reading the other side. If you scroll to the I/o page on the touch screen and tweak the grub screws so that it reads io.6. This means that it is lined up and working. The gate should lower down correctly.

b. The TER switch (the box with the yellow lid) located on the drive side next to the lift motor may be faulty. This will be shown as a "time out " fault on the touch screen. The TER switch will likely need to be replaced. Contact your electrical provider.

c. One or both of the lift motors may be burnt out or faulty. Replace.

7. Gate not Hanging Vertically when Down or Horizontal when in Up Position

a. Contact your service electrician to check and adjust TER switch.

Pre 2018 Herdflow Crowd Gate Works Service Schedule - 12 Monthly

Company Name: Date: Ref No:
Location:

Permit to work requirement: **Yes** **No**

Job Number: Approved By:
Task Name:

PRE 2018 Herdflow Crowd Gate Service Schedule - 12 Monthly

Notes

Grease all greasing points; (a small amount - 1 to 2 pumps each month) Dung buster top drive shaft - Dungbuster sliders - Main pivot points - Support wheels if they have grease points.

Pass ☐ Fail ☐ N/A ☐

Check lift ropes; The rope end must be tied to the gate with a BOWLINE knot only. Replace rope if damaged.
Pass ☐ Fail ☐ NA ☐

Check dungbuster boom lifting ropes for fraying.
Pass ☐ Fail ☐ NA ☐

Check lift winch gear boxes, tightenhold down bolts if required, check for oil leaks & drum for misalignment.
Pass ☐ Fail ☐ NA ☐

Check & adjust TER switch if required gate should have clearance from frame & winch drum when lifted and hang straight when down but still be supported by ropes while hanging straight.

Pass ☐ Fail ☐ NA ☐

Check electrical wiring, connection on sensors, trailing cable & look for marks or tears on cables. Report any issues.
Pass ☐ Fail ☐ NA ☐

Check prox sensors on forward/reverse & gate breech are working and adjusted properly.
Pass ☐ Fail ☐ NA ☐

Check if dung buster fitted; check prox sensor is adjusted properly & not getting hit when pipe goes past the sensor.
Pass ☐ Fail ☐ NA ☐

Check ezi rollers for wear & not cutting into back or fronts of ezi roller bodys, grease 10 closest to gate, change if worn. Check wire wire pusher nylon roller is in good condition.

Pass ☐ Fail ☐ NA ☐

Ensure catanary wire fixings are in good condition & wire tension is correct.
Pass ☐ Fail ☐ NA ☐

Inspect bolts on pivot beam for wear ensure grease is lubricating properly, NO need to remove bolts.
Pass ☐ Fail ☐ NA ☐

Check drive idler wheels; check seal is sealed on shaft to stop water ingress, check wheels for wear & have 8mm water drain
holes drilled in them, check bearings, ensure unit it is bolted square on to drive beam & runs square on to side of "I" beam.

Pass ☐ Fail ☐ NA ☐

Remove wheel guards on drive unit; check drive wheel for wear, inspect gearbox for oil leaks, check keys & keyways for wear, ensure spring tension (washers + spring) is at 120-125mm & the same on both sides. Ensure top cover is installed.

Pass ☐ Fail ☐ NA ☐

Check "L" Plate that carries gear box; ensure no wear at pivot point, if there is wear at the pivot point this may prevent the drive wheel running square on the "I" Beam.

Pass ☐ Fail ☐ NA ☐

Check oil in all gearboxes & change if necessary. (use correct special oil).
Pass ☐ Fail ☐ NA ☐

Remove back side guide wheels (4 off) check wheels & bearings for wear, re-fit & coat bolts & shafts with coppercoat if replacing bearings or wheels.
Pass ☐ Fail ☐ NA ☐

Check bearings on support wheels; replace any rexthane covered wheels with cast iron wheels, replace bearings if required (you will need a tractor to lift gate to remove wheels)

Pass ☐ Fail ☐ NA ☐

Check that gate is located evenly over "I" beam and runs true on "I" beam. Run a full cycle & check proxy sensors work at front & back of yard, listen for any rubbing or gearbox noise (note check wash cycle at same time which is check box below)

Pass ☐ Fail ☐ NA ☐

Check dung buster; blade wear, clean filter, check 3x wash hose connections to gate. Run through full wash cycle to see if solenoid valve opens & closes, front & back of yard proxy sensors work & gate lifts at end of cycle.

Pass ☐ Fail ☐ NA ☐

Check main gate & structure for stress cracks & damage, check welds & repair any cracks then gusset if required. (Note don't melt any wires).
Pass ☐ Fail ☐ NA ☐

Check main beam to dropper for cracks. If cracked they need grinding & welding then 2 x gussets are needed per dropper. (If welding required get sparky to remove wires so we don't melt any internal wires)

Pass ☐ Fail ☐ NA ☐

Check side beam to drive beam for cracks & weld then gusset if cracks are found. (If welding required get sparky to remove wires so we don't melt any internal wires).
Pass ☐ Fail ☐ NA ☐

Check "I" beam rails for cracks on joins & weld any cracks if found.
Pass ☐ Fail ☐ NA ☐