WAIKATO™

MILKING SYSTEMS

WAIKATO

Speedsampler

TECHNICAL MANUAL

Part Number: 39860141

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1 INTRODUCTION

The **Waikato *Speedsampler*** is a robust device that attaches to the **Waikato Mk V Milk Meter** to simplify milk sampling for component analysis.

- The ***Speedsampler*** is easy to install.
- The ***Speedsampler*** is easy to use.
- The ***Speedsampler*** collects a milk sample of at least 20 ml provided that the milk yield from the cow is at least 2 kg.
- The ***Speedsampler*** delivers the milk sample directly into a vial ready for analysis (the standard sample head takes vials with a mouth internal diameters of 25 mm and 29 mm).
- The ***Speedsampler*** cleans in place when fitted to a milking machine with a circulation cleaning system.
- The ***Speedsampler*** is available either factory mounted onto a **Waikato** Mk V Milk Meter, or ready to fit to an existing **Waikato** Mk V Milk Meter with a 42 kg flask.

2 OPERATION

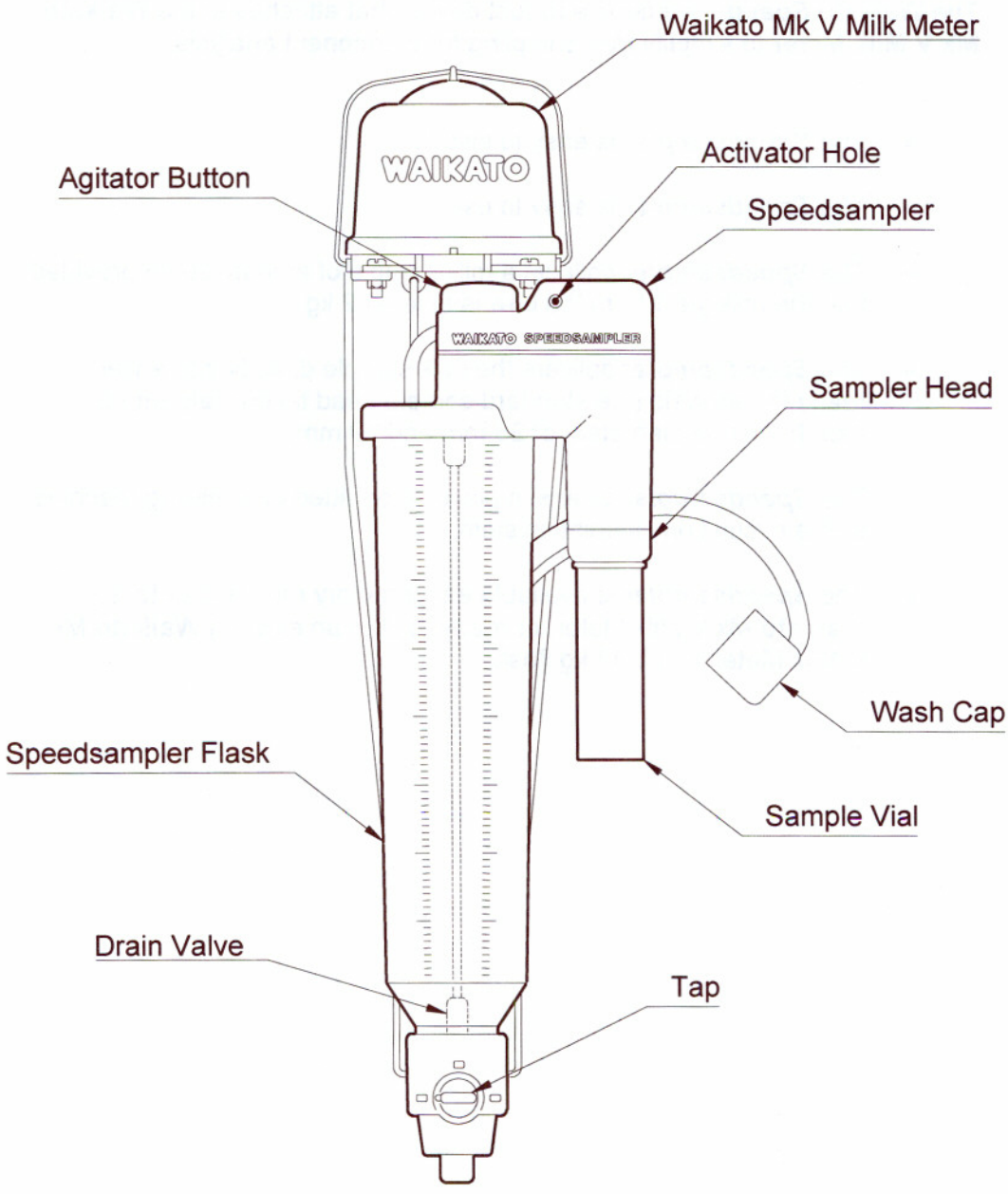


Figure 1: Main Speedsampler Components

2.1 Before Milking

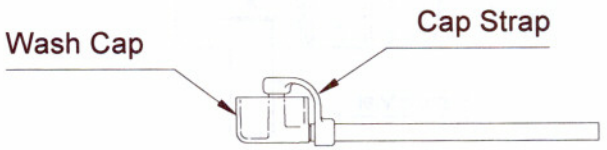
2.1.1 Mount the **Waikato Mk V Milk Meter** with ***Speedsampler*** according to the mounting instructions in the Milk Meter Technical Manual.

Ensure that the ***Speedsampler*** is mounted in the long milk tube between the milk line and the vacuum shut off valve.

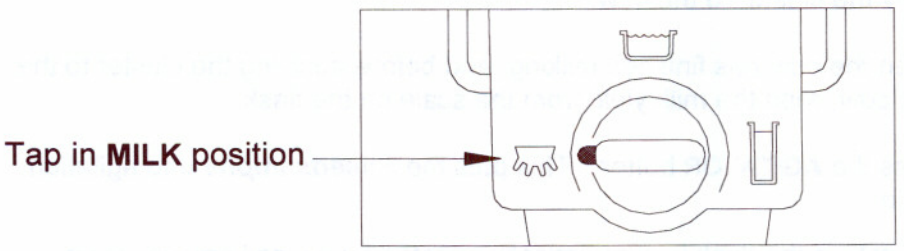
2.1.2 Turn **ON** the vacuum to the milking machine.

NOTE: The recommended milking vacuum range for the ***Speedsampler*** is between 40 and 50 kPa.

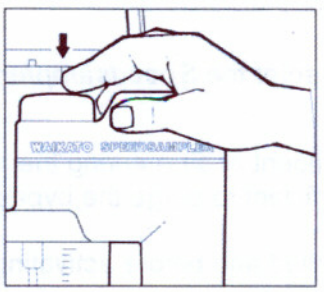
2.1.3 Check that the wash cap is plugged

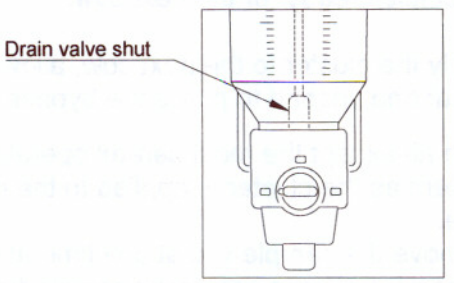


2.1.4 Turn the tap at the bottom of the ***Speedsampler*** flask to the **MILK** position

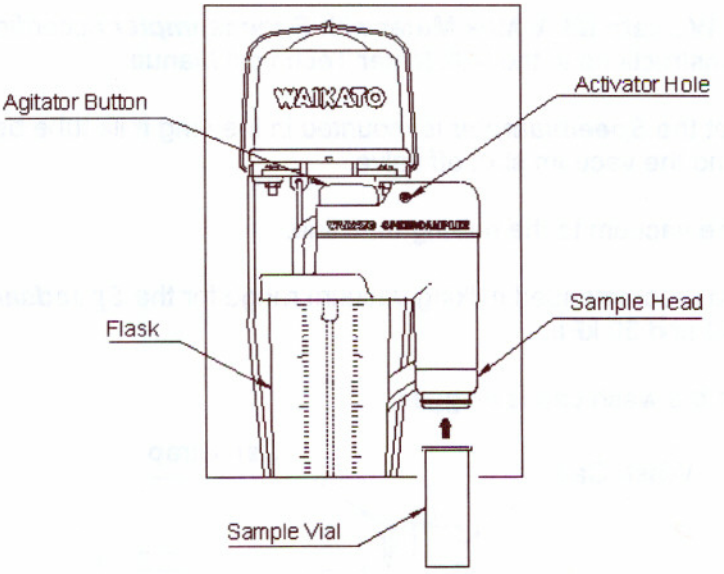


2.1.5 Set the ***Speedsampler*** by simultaneously blocking the **ACTIVATOR HOLE** and pressing the **AGITATOR BUTTON**. This ensures that the ***Speedsampler*** is ready for milking with the drain valve closed, and that it is not in agitation mode (refer to Section 2.2.3). This procedure will also purge the flask (if required).





2.2 Sampling



2.2.1 Place a clean sample vial onto the sample head

2.2.2 Apply the cluster to the cow.

2.2.3 When the cow has finished milking, and before applying the cluster to the next cow, read the milk yield from the scale on the flask.

2.2.4 Press the **AGITATOR** button. This puts the ***Speedsampler*** into agitation mode.

The milk in the flask is automatically agitated by a small amount of air bubbling through it.

2.2.5 After 5 to 10 seconds of agitation, briefly cover the **ACTIVATOR HOLE** until the agitation stops. (Agitation stops as soon as the activator hole is closed).

The ***Speedsampler*** will automatically drain the flask, fill the sample vial, and reset itself ready for the next cow.

2.2.6 Apply the cluster to the next cow, allowing air to enter the ***Speedsampler*** for about one second to purge the bypass tube.

With all except the most careful operators the amount of air entering the system as the cluster is applied to the cow is sufficient to purge the bypass tube.

2.2.7 Remove the sample vial at any time after it has filled and before activating the ***Speedsampler*** to get a milk sample from the next cow.

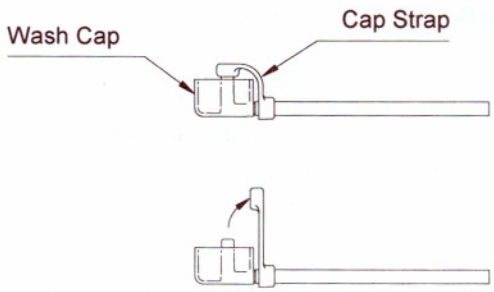
The vial containing milk from *Cow "n"* can stay on the sample head without being contaminated by milk from *Cow "n+1"* right up until *Cow "n+1"* has finished milking. It must be removed before the ***Speedsampler*** is activated to take a sample from *Cow "n+1"*.

2.2.8 Place a fresh clean empty sample vial onto the sample head to receive a milk sample from the next cow.

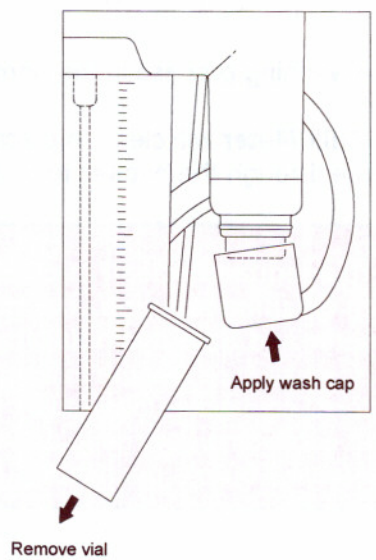
2.3 Washing

The ***Speedsampler*** is designed to wash when connected to a normal milking machine circulation cleaning system

2.3.1 Unplug the cap strap from the wash cap.

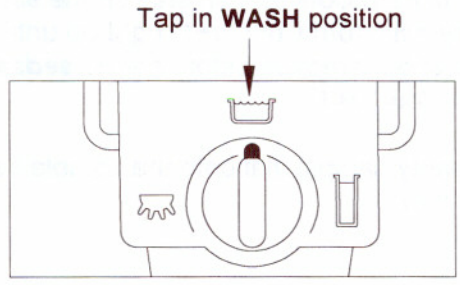


2.3.2 Remove the sample vial from the sample head.

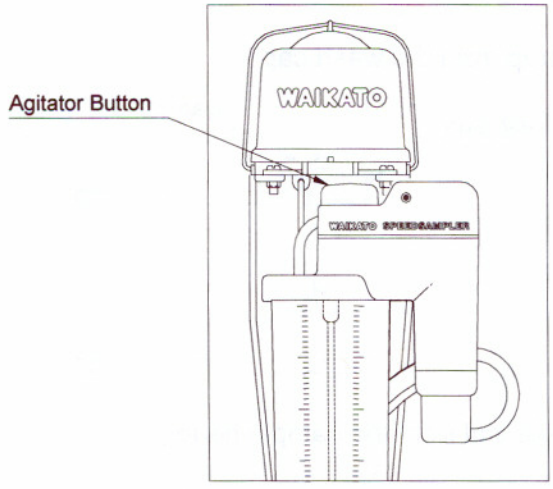


2.3.3 Place the wash cap onto the sample head.

2.3.4 Turn the tap to the **WASH** position.



2.3.5 Press the **AGITATOR BUTTON**.



2.3.6 Start the milking machine washing process in the normal way.

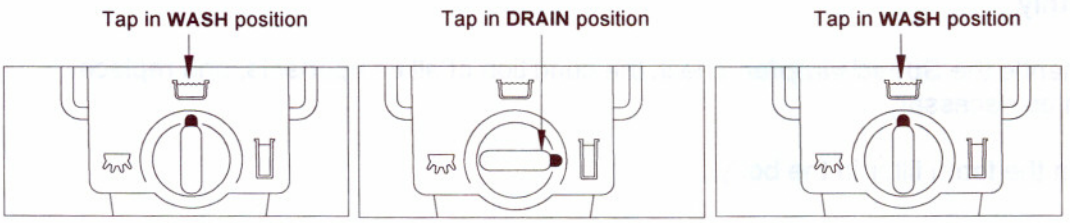
The ***Speedsampler*** and **Milk Meter** will clean in place. Cleaning fluids will flood the flask and circulate through the bypass tube and sample head.

For the *Speedsampler* to adequately clean in place, the milk meter flask must completely fill with cleaning solution, and the solution must circulate through the meter and Speedsampler for at least three minutes. To achieve this, make sure that the milking machine is rinsed with at least 15 litres per cluster of cold water followed by at least 10 litres per cluster of hot (80°C) water containing detergent, and that the flow rate through each cluster is at least 3.5 litres per minute.

2.3.7 Flask Drainage

At any stage during operation, to drain the flask turn the tap to the **DRAIN** position. This will also fill the sample vial.

If the milking machine cleaning system is marginal, the ***Speedsampler*** cleaning will be improved by draining the flask two or three times during washing. To do this, turn the tap to the **DRAIN** position for about one second, then return it to the **WASH** position and briefly block the agitator hole.



The flask will drain and refill with fresh cleaning solutions.

3.1 Cleaning

After each CIP wash, check the sample head O-ring, and manually clean it if necessary.

After every 150 cow milkings, dismantle the ***Speedsampler***, check all components, and manually clean or lubricate them if necessary.

3.2 Parts Replacement

Monthly

Dismantle the ***Speedsampler***, check the condition of all components, and replace them as necessary.

Clean the foam filter in the body.

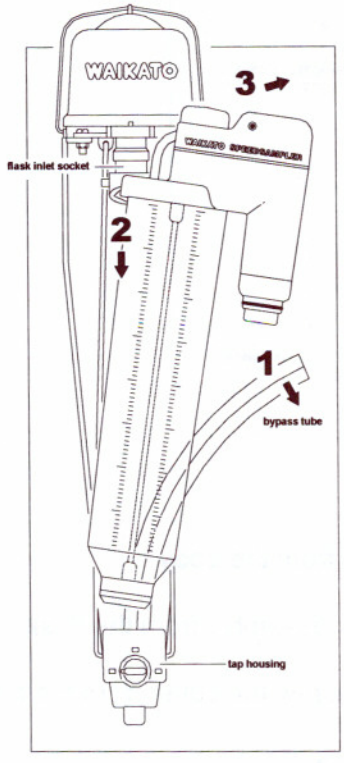
Lubricate all O-rings with a thin film of Molykote 111 O-ring lubricant (Part No. 39650836) or similar. **Apply lubricant sparingly!**

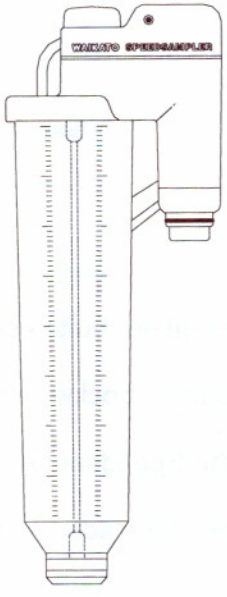
Once per year

Replace the following components:

Part No	Description
38050542	Valve O-ring
38050539	Sampler head upper O-ring
38050540	Sampler head lower O-ring
38050541	Tap O-ring
38050536	Wash tube
38050535	Bypass tube

4 DISASSEMBLY AND REASSEMBLY





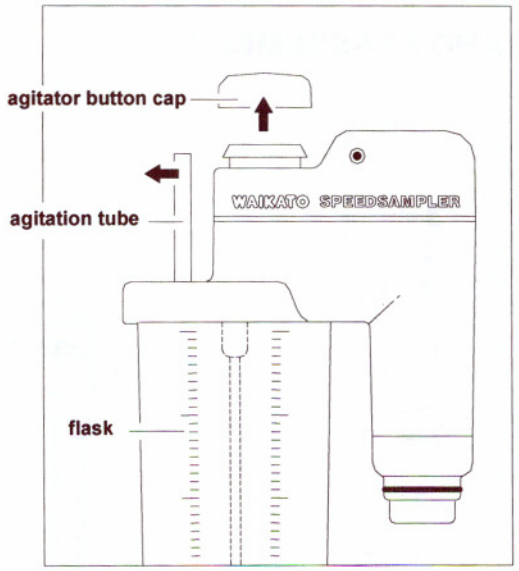
4.1 Remove the bypass tube from the sample head

4.2 Pull down on the flask to disengage it from the flask inlet socket

4.3 Lift the base of the flask out of the tap housing

The ***Speedsampler*** and flask are now disconnected from the milk meter.

4.4 Pull the agitation tube off the nipple on the cover

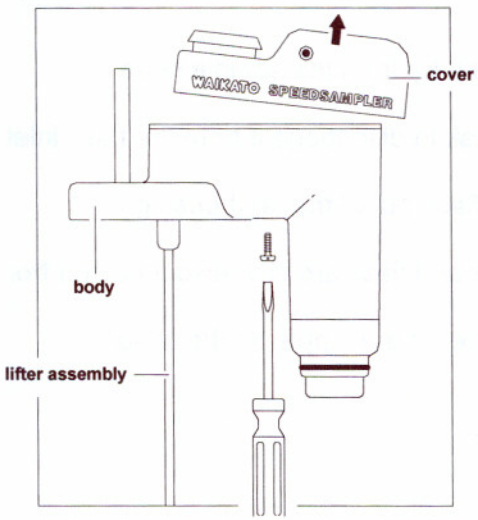


4.5 Lift off the agitator button cap

4.6 Rotate the flask clockwise to disconnect it from the body

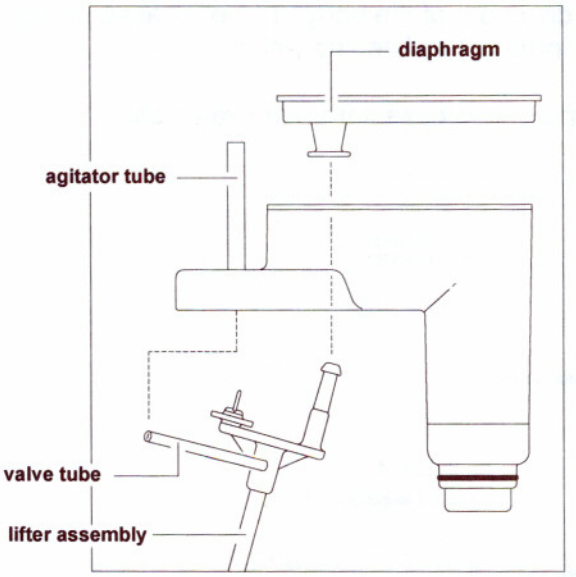
4.7 Remove the Speedsampler body and lifter assembly from the flask

4.8 Use a 5 mm flat bladed screwdriver to unscrew the cover from the body



4.9 Lift the cover from the body

4.10 Lift the diaphragm from the lifter assembly

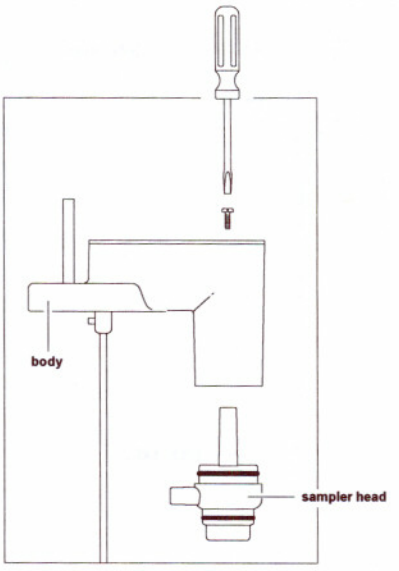


The lifter assembly can be pulled out of and pushed back into the diaphragm without removing the cover. When pushing it back in, hold the agitator button down.

4.11 Pull the valve tube off the nipple on the body

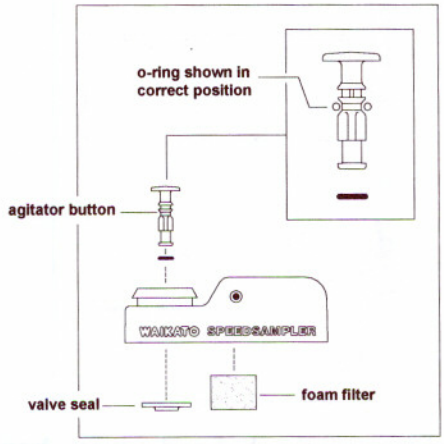
The lifter assembly is now disconnected from the body

4.12 Unscrew the sample head from the body



4.13 Pull the sample head down out of the body. (When reassembling, rotate the sample head until the internal key lines up with its slot).

4.14 Pull the agitator button up to release it from the valve seal

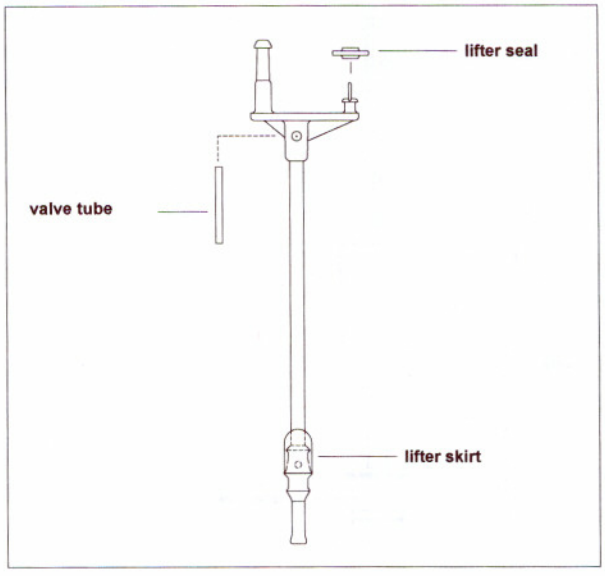


4.15 Remove the foam filter from the cover

4.16 Pull the valve tube from the nipple on the valve lifter

4.17 Pull the lifter seal off the lifter assembly

4.18 Slide the valve skirt up the lifter assembly stem



4.19 Pull the tap out of the tap housing

4.20 Remove o-rings from the sample head (2), agitator button, and tap

4.21 Pull the plug out of the base of the flask

4.22 Pull the flask seal out of the body

The *Speedsampler* is now completely dismantled

To reassemble, follow the reverse order, making sure that all o-rings, diaphragms, and seals are correctly located.

5 PROBLEM SOLVING

5.1 The flask does not fill during milking

The most likely cause is a leak somewhere on the meter or ***Speedsampler***, usually a loose hose or fitting. Check the following:

- Agitation button is in the down position. Needs to be reset (see procedure)
- Wash cap hose or rubber cap not secure
- Lifter assembly is in "up" position - check tap is in **MILK** mode
- Milk meter cover not sitting correctly
- Agitation tube disconnected
- Bypass tube not properly connected
- Flask seal and Check-valve seals
- Tap plug missing

5.2 The flask has small visible air bubbles during milking

- Agitation tube leaking or damaged - *Check fit to nipple*
- Foreign material on Plate seal in upper valve assembly. *Dismantle and clean*
- Foreign material under Valve skirt - *Dismantle and clean*
- Tap assembly distorted, flask assembly not seated correctly - *Check inlet tube from cluster has sufficient freedom - Move Tap assembly firmly from side to side and push in until firm.*

5.3 The drain valve will not open to drain the flask

The agitation conduits require good air flow for the ***Speedsampler*** to work correctly. Ensure all hose connections are secure and unrestricted

- Agitation tubes restricted due to foreign material or incorrect assembly - *Remove tubes, clear any obstructions, and reassemble correctly*
- Lower agitation valve restricted - *Dismantle inspect and remove any restrictions*
- Cracked or damaged Body - *Replace body*
- Cover not secured correctly - *Secure cover correctly*
- Lifter assembly misaligned - *Remove flask and inspect. Ensure Lifter is firmly fitted to Diaphragm and Lifter seal is located over Flask inlet hole*
- O-ring not fitted to Valve stem - *Fit O-ring*
- Damaged or perforated diaphragm - *Replace diaphragm*
- Internal O-ring not fitted to Sampler Head - *Fit O-ring*

5.4 The lifter alternates between the "up" and "down" positions

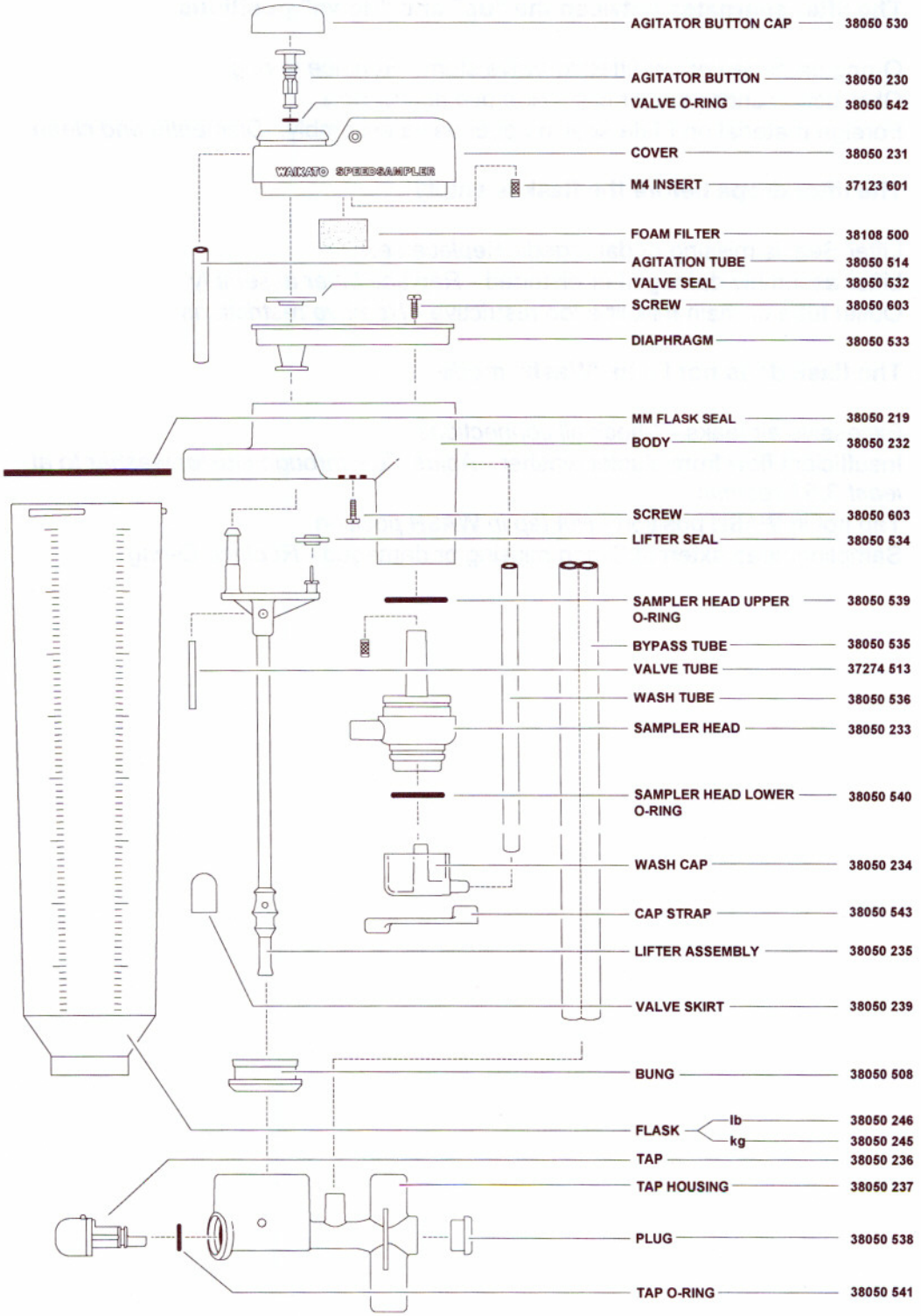
- O-ring damaged or not fitted to Valve stem - *Replace O-ring*
- Obstruction under rubber cap - *Remove obstruction*
- Foreign material on Plate seal in upper valve assembly. *Dismantle and clean*

5.5 The lifter drops before the flask is empty

- Lifter Seal is missing or damaged - *Replace seal*
- Lifter assembly damaged or distorted - *Replace Lifter assembly*
- Outlet tube or main milk line too restrictive - *Remove restrictions*

5.6 The flask does not fill in "Wash" mode

- Excessive air leaks - *Check all connections*
- Insufficient flow from cluster washer - *Adjust flow through cluster washer to at least 3.5 litres/min*
- Tap not in **WASH** position - *Put tap in **WASH** position*
- Sampling head external O-ring missing or damaged - *Replace O-ring*



Waikato Milking Systems NZ Limited warrants the **Waikato *Speedsampler*** to be free from defect in manufacture and/or materials (fair wear and tear excepted) for a period of **ONE YEAR** from the date of installation.

Waikato Milking Systems NZ Limited will at its option repair or replace any defective **Waikato *Speedsampler*** or component parts. Waikato Milking Systems NZ Ltd accepts no liability for any other claim arising out of any supply of defective units.

Waikato Milking Systems NZ Limited accepts no liability where damage to the unit has resulted from the attachment to or use in connection with the unit, of other equipment, parts or components, which have not been purchased from Waikato Milking Systems NZ Limited.

Waikato Milking Systems NZ Limited accepts no liability where damage to the unit has occurred during installation, or has arisen from unauthorised adjustment of the unit.

Waikato Milking Systems NZ Limited's liability under any claim shall not exceed the price (excluding GST) of the unit.

Claims must be lodged through the Waikato Milking Systems dealer responsible for the installation.

This warranty is conditional upon the **Waikato *Speedsampler*** being installed and maintained in accordance with the specifications and guidelines contained in this manual.

Refer also to Waikato Milking Systems NZ Limited's Terms and Conditions of Sale for Components.