SURGE DAIRYMANAGER MILK METER MILK SAMPLING DEVICE

INSTALLATION AND OPERATION INSTRUCTIONS

IMPORTANT! This product must be serviced only by a trained, qualified service technician.

IMPORTANT! This device must be cleaned by hand and must not be used as clean in place (CIP).

Note: All dimensions in [ ] are in millimeters unless otherwise specified.

INSTALLATION

Refer to *Figure 1* for the following steps.

Permanently mounted components

- Determine the mounting location for the milk sampling device. It can be mounted on either the right-hand or the left-hand lower corner of the milk meter.
- Slide the slot in the stainless steel plate **1** over the lower flange of the milk meter support bracket **2** in the desired orientation. Line up the upper hole in the support bracket with the hole in the plate and bolt them together.
- Bolt the support tube **3** to plate **1** using the lower hole in the stainless steel plate.

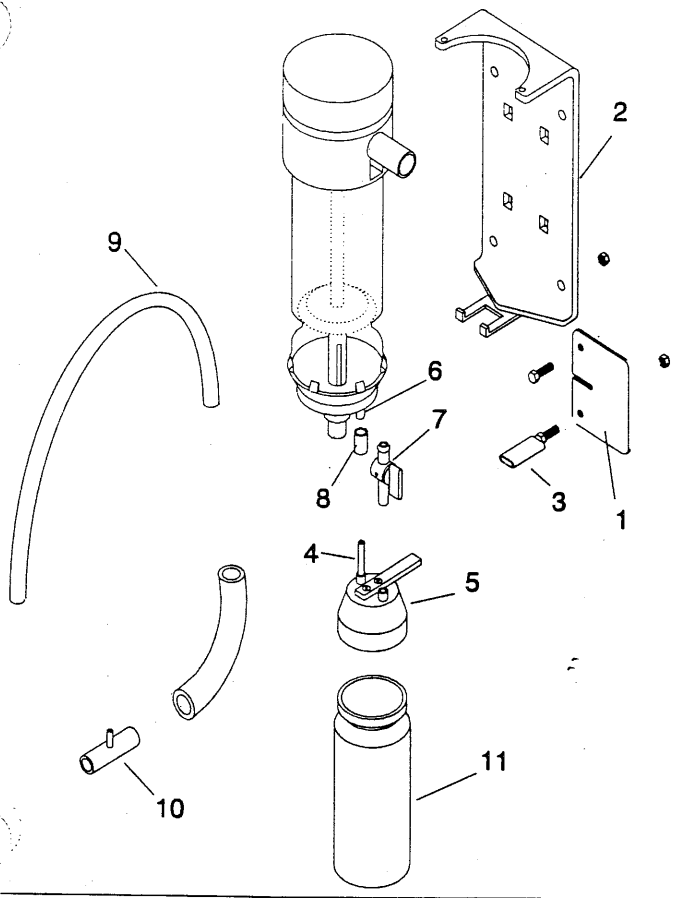


FIGURE 1 Milk Sampling Device Assembly

Temporarily mounted components

- Install the stainless steel tube **4** in the rubber cap **5**, oriented such that the small hole is at the top, with at least .8 inch [20] of the tube sticking out of the cap.

Note: Ensure that the small hole is at the top of the stainless steel tube when it is inserted into the rubber cap.

- Push the tapered end of the vented plastic valve **7** into the other hole in the rubber cap **5**.
- Cut a short piece of silicon tube **8** approximately 1.6 inches [40] long and use it to connect the sample tube **4** to the sample outlet tube on the meter base **6**.
- Use the remainder of the silicon tube **9** to connect the top of the vented valve **7** to the stainless steel tee **10**.

IMPORTANT! SURGE equipment owners and operators should read and understand all operation and maintenance information. **Keep this information on file for future reference.**

OPERATION

Setup

Perform the following procedure prior to beginning milking on sampling days.

- Remove the silicon tube **9** from the sample tube on the meter base. Refer to *Figure 2*.
- Use the short piece of silicon tube to connect the sample tube **4** to the sample tube on the meter base. Firmly insert the stainless steel bar on the rubber cap **5** into the support tube **3**. Refer to *Figure 3*.
- Connect the top of the vented valve **7** to the stainless steel tee **10** using the silicon tube **9**.
- Apply system vacuum, open the vented valve **7** (refer to *Figure 4A*) and insert the sample jar **11** into the underside of rubber cap **5**. Push up on the sample jar until it is properly seated into the rubber cap.

Part Number 95609

Note: Ensure that the sample jar is properly seated into the rubber cap.

Normal Operation

IMPORTANT! This device must be cleaned by hand and must not be used as clean in place (CIP).

- Proceed with normal milking.
- After the milking unit has been removed from each cow, close the vented valve **7** (refer to *Figure 4B*). Remove the jar, agitate the milk and transfer it to the sample cup.
- Reattach the sample jar **11** and open the vented valve **7** (refer to *Figure 4A*) for the next cow.

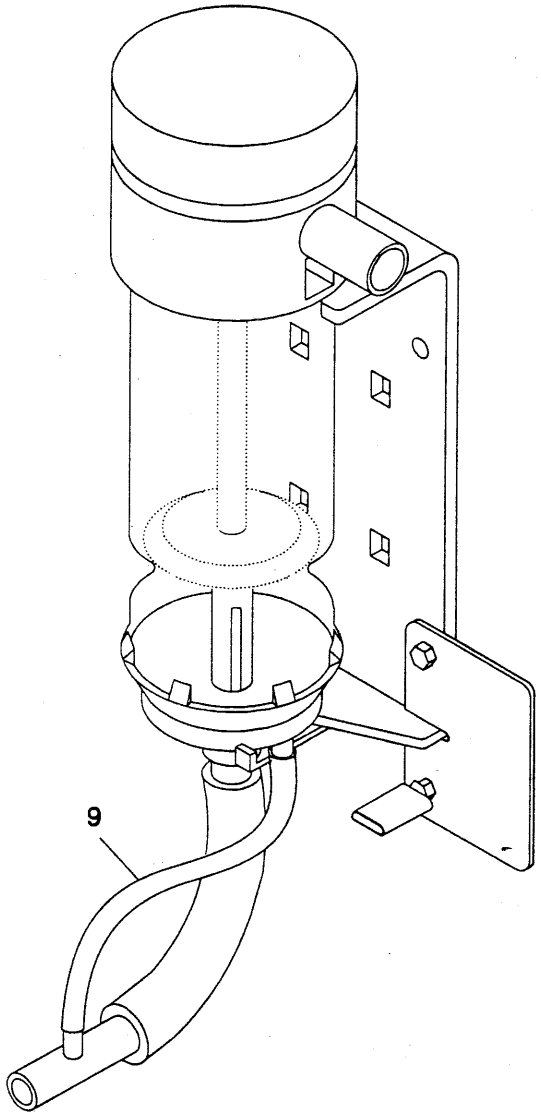


FIGURE 2 Hookup for No Sampling

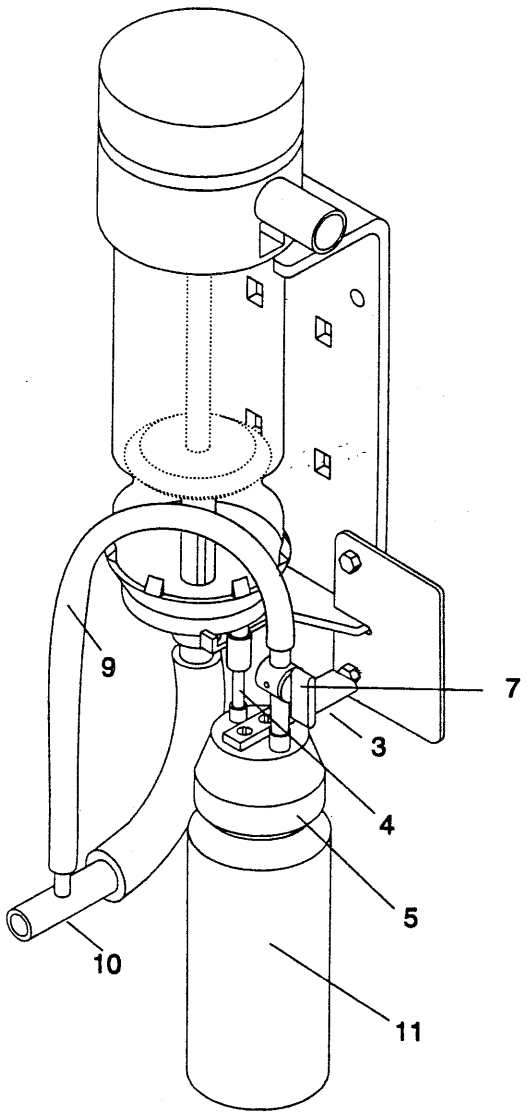
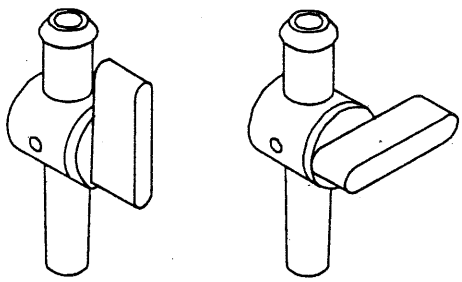


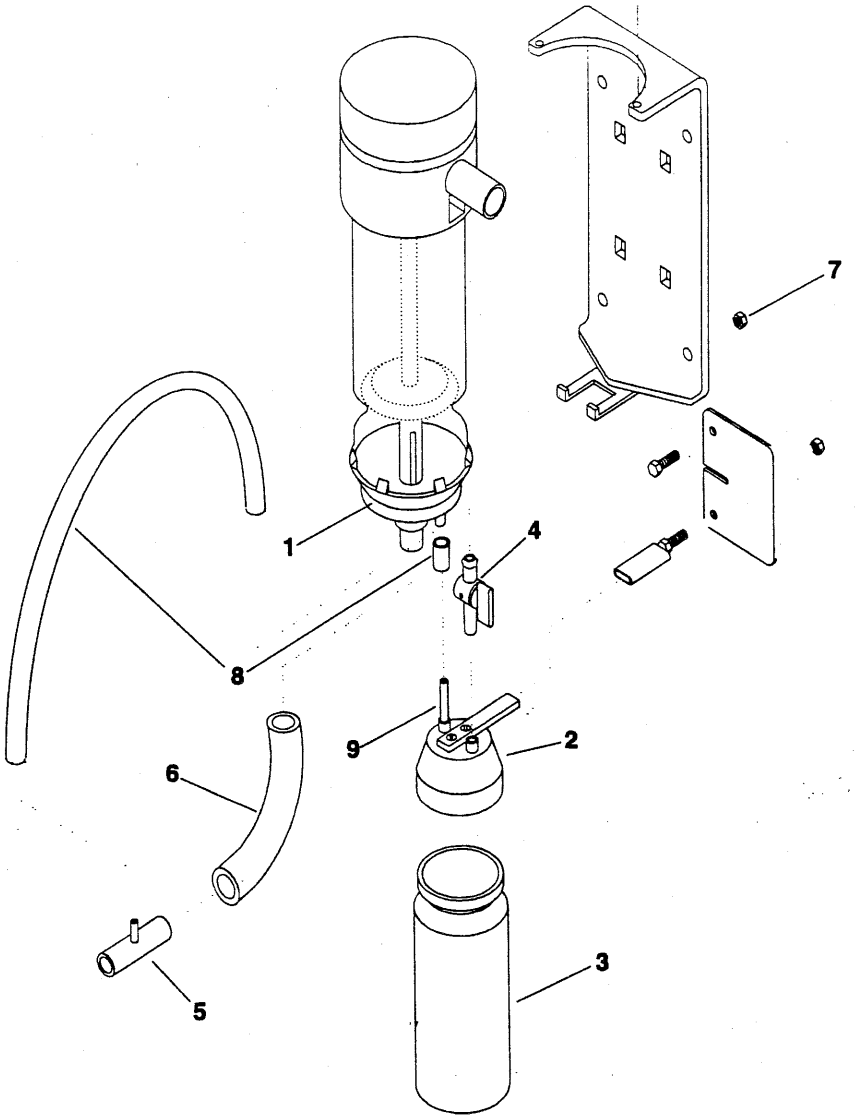
FIGURE 3 Sampling Hookup



A Open Position

B Closed Position

FIGURE 4 Vented Valve Operation



*	**1**	48124	Sampler Head Assembly, European
	2	27817	Cap Electrode (Rubber)
*	**3**	48129	Sampler Cup, European
*	**4**	48130	Valve, European
	5	48126	Vacuum Fitting Tee
*	**6**	48127	Rubber 90° Elbow
	7	21100	Hex Nut 313-18 SS
*	**8**	47376	Hose .250 x .438 Diameter (10 feet)
*	**9**	47375	Butterfat Restrictor

* Recommended for Dealer Inventory

LIMITED WARRANTY

SURGE milking equipment and/or related SURGE parts are warranted by Babson Bros. Co., (the "Company") for a period of one year from the date of installation against defects in materials and workmanship when installed, serviced and operated in accordance with the Company's written instructions, subject to the exclusions and limitations set forth below. The Company's sole obligations under this Warranty are as follows:

The Company will, at its option, repair, replace or refund the purchase price of SURGE milking equipment and/or related SURGE parts which prove to be defective in materials or workmanship during the warranty period. Labor, transportation and service charges are not included.

Plastic parts are warranted against defects in material and workmanship for a period of one year from the date of installation. Damage to all SURGE equipment and/or related SURGE parts due to abuse or misuse by operator or animals is excluded from this Limited Warranty. The entire plastic part must be returned for warranty consideration.

This Warranty extends only to the original purchaser and may not be transferred. It is valid only on the original installation unless the Company otherwise agrees in writing.

This Warranty is in lieu of all other express warranties, obligations and liabilities. ALL IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY DISCLAIMED AND EXCLUDED. IN NO EVENT SHALL THE COMPANY BE LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR FOR ANY DELAY IN WARRANTY PERFORMANCE DUE TO CAUSES BEYOND ITS CONTROL.

Chapter 6: Milk Meter Calibration

Each Surge milk meter is water tested and calibrated at the factory before shipping. However, each meter should be water tested at the farm and re-calibrated if necessary after installation. View the *Milk Meter Water Test Video* (89850) and then use these instructions for reference.

Note: Do not mix the glass and the valves between meters so that re-calibration adjustments will be minimized.

Pounds & Kilogram Meter Calibration

Equipment Needed

- Five gallon (19L) bucket
- Shut-off valve
- Milk pail with test lid and hoses to catch water
- 5/8" milk hoses (one 3 inch hose, two short hoses approx. 6 inches, one long hose approx. 3 feet)
- 7/8" milk hose (length determined by distance to bucket)
- If milk pail has a 5/8" inlet, a 7/8" to 5/8" stainless steel reducer nipple (47047 or 36241) is needed.
- Water test flow control valve (88033) which is included in all demo kits
- Sensor gage (88034)
- Scale (88035) calibrated to the tenth of a pound or kilogram
- Water test video (89850) (optional)
- Thermometer

Water Test Procedure

IMPORTANT!

Check the diameter of the valve assembly before calibrating.

1. Check the diameter of the valve assembly before calibrating. If the valve assembly (47125) does not slip into the valve gage (88045) freely, replace the valve (47123) as per instructions in Chapter 9.
2. Fill a five gallon (19L) bucket with at least 25 pounds (11kg) of water. The water must be between 45° and 75°F (7.2° and 23.9°C).
3. Put a 6 inch long 5/8" milk hose on the milk meter inlet. Install a milk hose shut-off valve, another 6 inch long 5/8" milk hose, and the flow control valve (88033). Connect a milk hose long enough to reach to the bottom of the five gallon pail. See Figure 6.1.
4. If the milk pail has a 5/8" inlet, install a 5/8" to 7/8" reducer nipple onto the milk pail using a three inch piece of 5/8" milk hose.

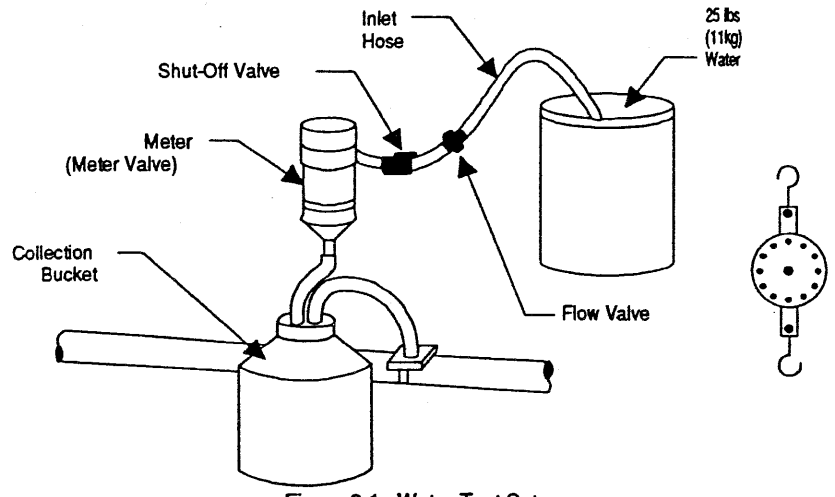


Figure 6.1 Water Test Setup

5. Set up a collecting bucket under the meter. Connect the 7/8" milk hose to the meter outlet and the reducer nipple or directly to the milk pail. Keep the 7/8" hose as short as possible.
6. Close the shut-off valve and turn the vacuum system on. Vacuum should measure between 11 inches and 13 inches of mercury. Insert the inlet hose into the bucket and open the shut-off valve.
7. Let water flow through the meter until one more dump will display on the meter an amount that is greater than or equal to 20 pounds (9.07 kg) but not over 22 pounds (9.98 kg). When this is reached and the meter valve is seated, quickly close the shut-off valve before another dump occurs. Record this reading on the *DairyManager Meter Calibration Form #89739* (at the end of this chapter).
8. Remove the collecting bucket before the meter does the final detach dump. You have the length of time of the meter detach delay to do this. (The detach delay is set in the software or on the back of the controller. Refer to Chapter 2.)
9. Weigh and record the weight of the water on the meter calibration Form #89739 (at the end of this chapter).
10. The water should be 1.2 to 2.4 pounds (0.54 kg to 1.09 kg) more than the meter reading. (The water weight is greater than the meter reading because water is more dense than milk.) For optimum accuracy set the meters as close to 1.8 pounds (.82 kg) as possible.

Note: The formula is: **Actual Water Weight - Meter Reading = Difference** The difference should be as close to 1.8 pounds (0.82 kg) as possible.

Sensor Gage

The sensor gage measures the height of the meter sensor. The scale on the gage is graduated in 1/64 inch intervals. Every 1/32 inch interval is numbered. Use the sensor gage (88034) to make it easier to adjust meters. Every turn of the sensor changes the meter reading by approximately 0.3 pounds (0.14 kg) and changes its height by 1/32 inch. Make sure the sensor gage is zeroed out before taking a reading. See *Milk Meter Water Test Video* (89850). Use the gage to verify changes made to the sensor height to achieve the desired meter reading and to measure the final sensor reading. Record this reading on the *DairyManager Meter Calibration Form #89739* (at the end of this chapter.)

Recalibration

If Meters Fail

Test failing meters two more times and record the results. Add the three readings together and divide by three to get an average reading. If the average is outside the 1.2 to 2.4 pounds (0.54 kg to 1.09 kg) range, follow the procedure below to recalibrate the meter.

1. Remove the bottom cover, glass, and valve. Locate the sensor (Figure 6.2).

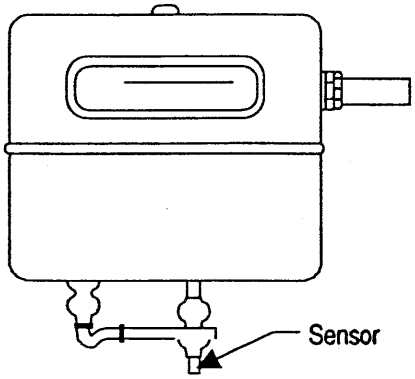


Figure 6.2 Sensor in Meter

2. Turn the sensor clockwise (or up into the head) to decrease the meter reading. Turn the sensor counterclockwise (or down out of the head) to increase the meter reading. One turn of the sensor changes the meter reading by approximately 0.3 pounds (0.14 kg). Adjust the sensor so the meter reads as close as possible to 1.8 pounds (0.8 kg) less than the weight of the water in the test.
3. Verify the sensor setting by running the water test again three times and recording the results. Add the three readings together and divide by three to get an average reading. If the average is still outside the 1.2 to 2.4 pounds (0.54 kg to 1.09 kg) range, continue to adjust the meter sensor as required until the meter is within specifications.

Recalibration

For DHIA verification, complete each portion of the 89739 meter calibration form. Give one copy to the dairyman for DHIA use. Keep one copy with dealer records.

DHIA Verification

Recalibrate meters *at least* once each year. Also, recalibrate if:

- A part such as the glass has been changed.
- The sensor position changes more than 1/32 inch.
- A meter head has been changed.

DairyManager Meter Calibration Form

Farm Name: _____ Dairyman: _____

Address: _____ Tester: _____

_____ Test Date: _____

Stall #:	Meter S/N:	Meter Reading vs. Scale Wgt.:	Final Sensor Reading:

Form #89739

InFARMation® DairyManager® MILK METER

OPERATION INSTRUCTIONS

Note: The information in this documentation supersedes all previously published information.

Thank you for purchasing the SURGE InFARMation DairyManager Milk Meter, a device which provides accurate milk measurement and much more.

Please take the time to read these instructions carefully. They will provide you with information required to help you get the most out of your SURGE milk meter system.

FEATURES

- Accurate measurement of milk yield - ICAR, CMRB and DHIA approval
- LCD display with automatic reset
- Can operate with approved butterfat sampler
- Computer interface capability
- Stand-alone capability
- Built-in visual alarm with computer interface
- Automatic end-of-milking sensing
- Keypad optional
- Measurement in pounds or kilograms depending on model
- Attractive and durable stainless and glass construction
- Specially designed DHIA (official test) mode
- Single part design
- Designed specifically for milking parlors
- Continuous wetting for ease of cleaning
- CIP capability
- Low voltage: 24 Volts DC

OPERATION

The InFARMation DairyManager milk meter has 3 installation options:

- stand alone meters
- meters that operate detachers
- meters that are interfaced with InFARMation DairyManager or ParlorManager software.

The basic meter operation is the same for all 3 options.

Setting the End-of-Milking Detach Delay

Set the end-of-milking detach delay on the back of the DairyManager Control Module.

If the Standard End-of-Milking Detach Delay Control Chip is installed, refer to *Table I.*

Table I Standard End-of-Milking Detach Delay Control Chip

Switch Settings	Delay (Seconds)	Approximate Lbs/Min	Approximate Kgs/Min
0	30	1.00	.45
1	36	.80	.36
2	42	.70	.32
3	48	.60	.27
4	54	.55	.25
5	60	.50	.23
6	66	.45	.20
7	72	.40	.18
8	78	.38	.17
9	84	.35	.16

Note: Setting 4 is equivalent to a VSO.

This Document 49869
Part Number 49904

Revised 10/96

If the optional Short End-of-Milking Detach Delay Control Chip is installed, refer to *Table II.*

Table II Short End-of-Milking Detach Delay Control Chip

Switch Settings	Delay (Seconds)	Approximate Lbs/Min	Approximate Kgs/Min
0	12	2.50	1.10
1	18	1.70	.76
2	24	1.30	.57
3	30	1.00	.45
4	36	.80	.36
5	42	.70	.32
6	48	.60	.27
7	54	.55	.25
8	60	.50	.23
9	66	.45	.20

Note: Setting 7 is equivalent to a VSO. The short end-of-milking delay control chip is only approved for the DairyManager meter control module.

Systems with computers must also set the end-of-milking detach delay in the InFARMation computer software. Refer to Chapter 6 (Equipment Setup) of the DairyManager Operator's Manual. Refer to Chapter 3 (System Parameters; DHIA Mode) of the ParlorManager Operator's Manual.

Note: The computer end-of-milking setting overrides the control module setting.

Pre-Milking Setup

Three steps are required to set up the meter for milking.

1. Set the wash switch on the control module to OFF.
2. Verify that the DHIA switch on the control module is set to OFF.
3. Press the reset button on the side of each meter. The display will show a flashing decimal point.

Normal Meter Operation

The milk meter will automatically begin indicating production when milk flow starts. When milk flow slows or stops, the meter will pause for a pre-set number of seconds called the end-of-milking detach delay. When this delay has completed, the meter will open the valve and allow the remaining milk to flow into the milk line ("dump" the milk), indicate the final production amount, send the milk information to the computer and reset the meter for the next cow. The milk meter will automatically begin indicating production when milk flow from the next cow milked begins.

The meter can be forced to reset at any time by pressing the reset button on the side of the meter. When the reset button is pushed it will empty the remaining milk from the milk meter, indicate the final production amount, send the milk information to the computer, and reset it for the next cow.

Wash Mode

After milking is completed, set the wash switch on the control module to the ON position. The meter display will indicate the serial number.

Test Day Setup Procedure (DairyManager)

It is important on test day that the system be changed to DHIA (official test) mode. There are 4 installation configurations that require separate test day settings. Refer to *Table III.*

Table III Test Day Settings

Test Day Settings	DHIA Switch	Control Module Thumb Wheel	DairyManager Computer
Stand Alone Meters	On	0	N/A
Meters With Detachers	On	Not 0	N/A
ID Without Detachers	On	0	No *
ID With Detachers	On	Not 0	No *

* Refer to Chapter 6 (Equipment Setup) of the DairyManager Operator's Manual. Refer to Chapter 3 (System Parameters; DHIA Mode) of the ParlorManager Operator's Manual.

Milking Procedure on Test Day

The mode of operation on test day is determined by the model of the meter and whether or not the system has detachers.

Meters without detachers (except European model 48043)

Note: Without detachers, the milk meter final dump does not occur until the reset button is pressed.

Set the control module thumb-wheel switch to zero and the DHIA switch to ON. Refer to *Table III.*

When milking for the current cow is completed, the test supervisor should push the reset button on the side of the meter and wait 3 seconds for the meter to indicate

the final production amount. The test supervisor should then record the milk weight.

When the last test milking session is completed, return the control module thumb-wheel to its original setting and set the DHIA switch to OFF.

Meters with detachers (except European model 48043)

Note: With detachers, the milk meter final dump occurs when the detacher automatically retracts.

Set the control module DHIA switch to ON. Do not change the thumb-wheel setting. Refer to *Table III.*

When milking for the current cow is completed, and the milking unit has been automatically removed, the test supervisor should record the milk weight indicated in the display and push the reset button on the side of the meter to get ready for the next cow.

When the last test milking session is completed, set the control module DHIA switch to OFF.

European meters with or without detachers

Note: On European meters with or without detachers, the milk meter final dump does not occur until the reset button is pressed.

Set the control module DHIA switch to ON. Do not change the thumb-wheel setting. Refer to *Table III.*

When milking for the current cow is completed, the test supervisor should push the reset button on the side of the meter and wait 3 seconds for the meter to indicate the final production amount. The test supervisor should then record the milk weight.

When the last test milking session is completed, set the DHIA switch to OFF.

Milk Meter Operation with Meter Identification

Cow identification

The system identifies the cow at each milk stall and displays the cow number in 2 ways.

1. The new cow number will be indicated on the display automatically after milk flow starts. The cow number will flash 3 times, then alternate with the indicated production. This continues until a detach occurs and new milk flow begins.
2. If the reset button on the side of the meter is pressed when the meter is in detach mode, the cow number indicated on the meter display will be the last cow identified at that stall. This can help to determine the cow's number before attaching the milking cluster.

Alarm condition

The 2 alarm conditions, the cow alarm and the deviation alarm, may be audible as well as visual.

Cow alarm

The cow alarm alerts the operator to a preset alarm condition for a cow. When the cow is identified at the stall, the audible alarm will sound and the light on the meter will flash. To see the cow number on the meter display, press the reset button on the meter.

Refer to the ParlorManager®, herd management or DairyManager software to determine the reason for the alarm. Refer to the Operator's Manual for setting the cow alarm.

Deviation alarm

The deviation alarm alerts the operator to cows that have an excessive change in production. This alarm could indicate several potential conditions such as; a cow in heat, off feed, mastitis, not milked out, and so forth.

The deviation alarm occurs after a cow is milked and production for the current milking is less than the deviation exception variable entered in the computer.

When the cow is finished milking and the milking unit has been automatically removed, the audible alarm will sound and the light on the meter will be on continuously. This light will stay on until a new cow is identified at that stall.

Cleaning and Chemicals

Washing and cleaning temperatures should be from 120 °F to 180 °F [49 °C to 82 °C]. Prevent the exposure of the meter and meter parts to the following:

- Petroleum and petroleum based compounds
- Adhesives and bonding agents
- Fly sprays
- Alcohols, phenols and esters

- Solvents such as acetone

Use all cleaning compounds at the manufacturers recommended strength. Limit exposure to chlorine compounds. Concentrations of chlorine should not exceed 200 ppm. Sanitizing just prior to milking is recommended. Sanitizing by itself will not replace proper washing between milkings. Rinse the system with an acid cleaner to neutralize chlorine compounds that attack rubber and rubber-like compounds.

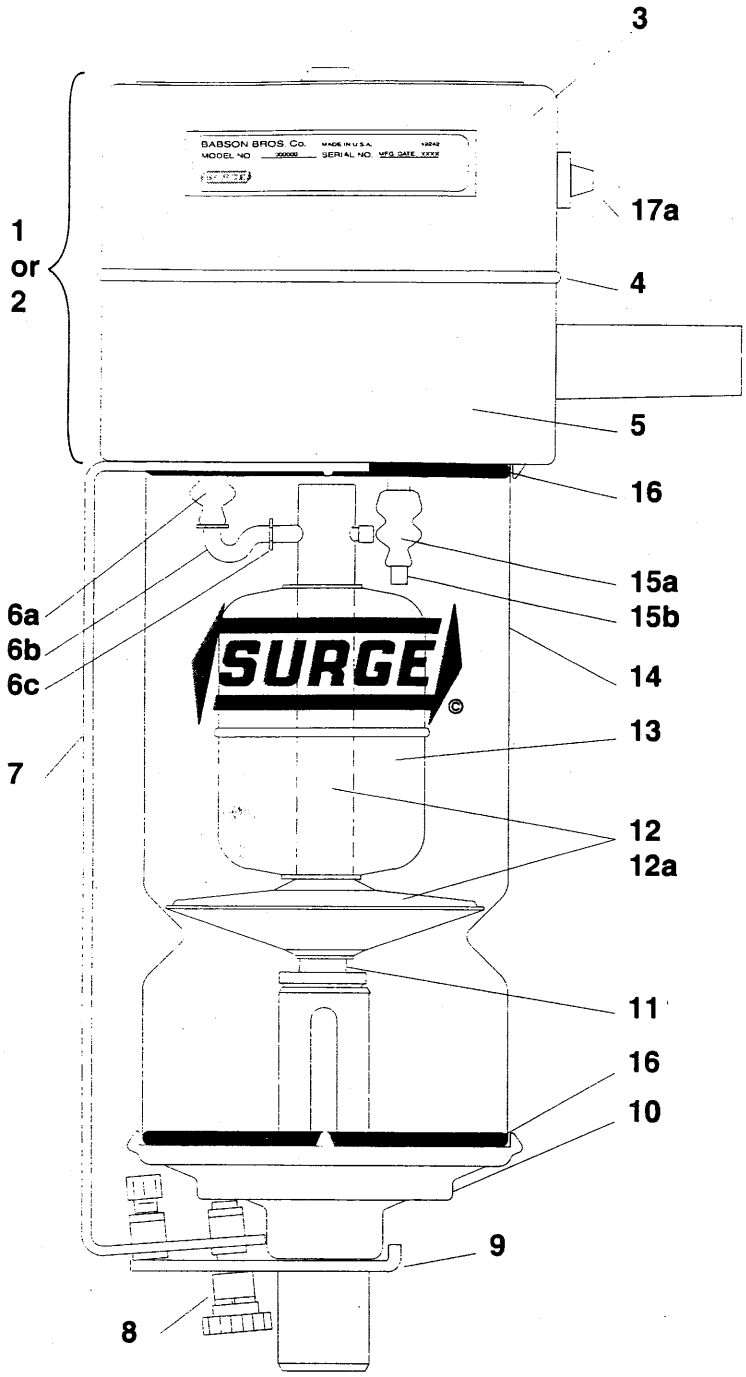
Milk Meter Service Related Tools

- Milk meter valve gauge - used to determine if the valve needs replacing.
- Sensor gauge - used to determine the sensor height.
- Milk meter valve changer - used to change the valve.

MAINTENANCE CHART

Use the table below to determine when to perform routine periodic maintenance procedures. Those procedures that may only be performed by the SURGE dealer or service person have been marked with the following dealer icon.

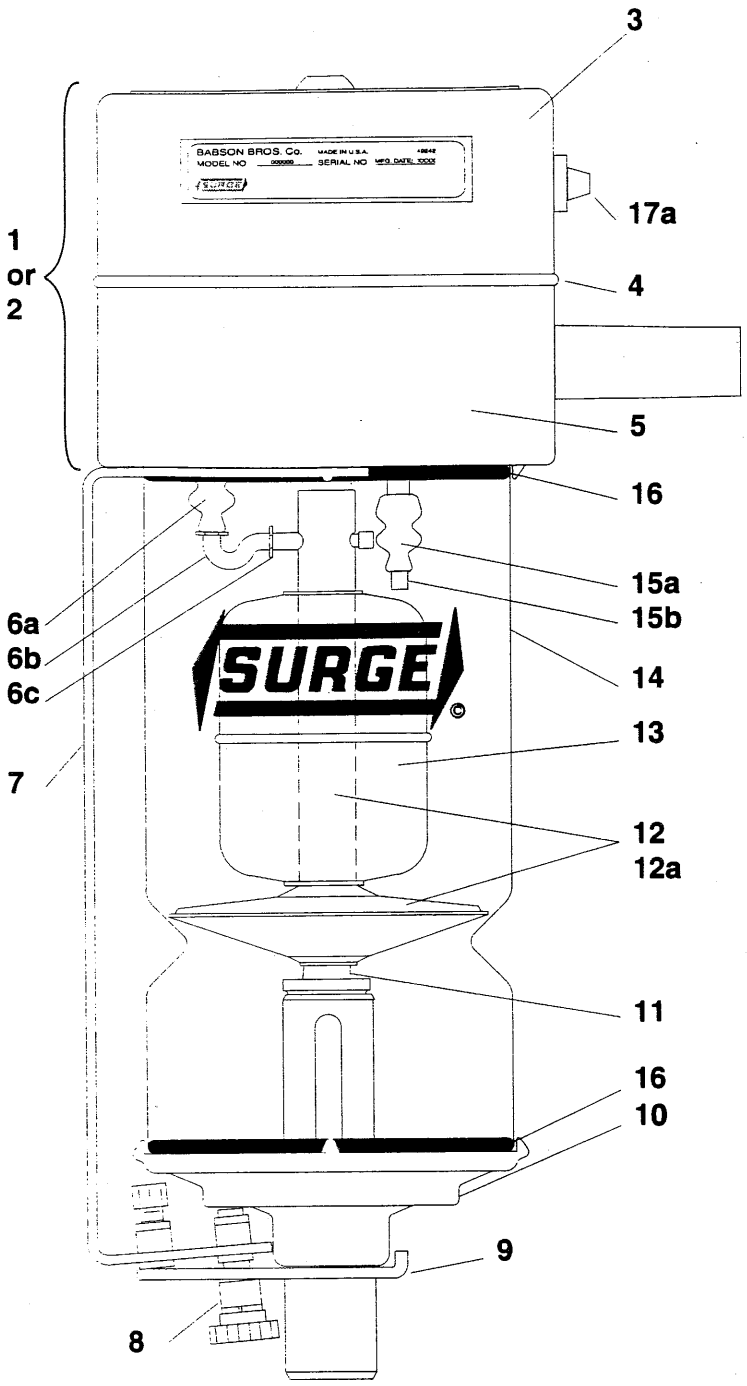
Interval	Task	Action
Daily or as required.	Ensure that the milk meters are washing properly for trouble free operation.	Each meter requires an additional quart [.95 liter] of wash solution.
Yearly	Not Applicable - Refer to Action	Replace the Lifter Bellows, the Sensor Bellows and the Rubber Valve.



	1	49070	New DairyManager Milk Meter Head (Lbs)
	2	48706	Repair and Return DairyManager Milk Meter Head (Lbs)
*	**3**	47289	Cover Assembly (Lbs)
*	**4**	47175	Gasket
*	**5**	47288	Inlet Housing Assembly
*	**6**	47282	Lifter Rod Kit (Not Shown)
	4	47175	Gasket
*	**6a**	48031	Lifter Bellows
	6b	--------	Lifter Rod
	6c	22979	E-Ring (3)
	7	48037	Meter Bracket
*	**8**	48047	Thumb Screw
	9	--------	Mounting Bracket
	10	47124	Outlet Assembly
*	**11**	48035	Wash Guide
	12	47125	Valve Assembly
*	**12a**	47123	Valve Only
	13	48036	Float
*	**14**	48016	Glass
*	**15**	47200	Sensor Kit (Not Shown)
	4	47175	Gasket
*	**15a**	48097	Sensor Bellows
	15b	--------	Sensor
*	**16**	48030	O-Ring
*	**17**	48019	Meter Switch Repair Kit (Not Shown)
*	**17a**	48084	Reset Switch Cover
		--------	Meter Switch (Not Shown)
		--------	Spring (Not Shown)
*	**18**	48034	Rubber Replacement Kit (Not Shown)
	6a	48031	Lifter Bellows
	15a	48097	Sensor Bellows
	16	48030	O-Ring (2)

* Recommended for Dealer Inventory

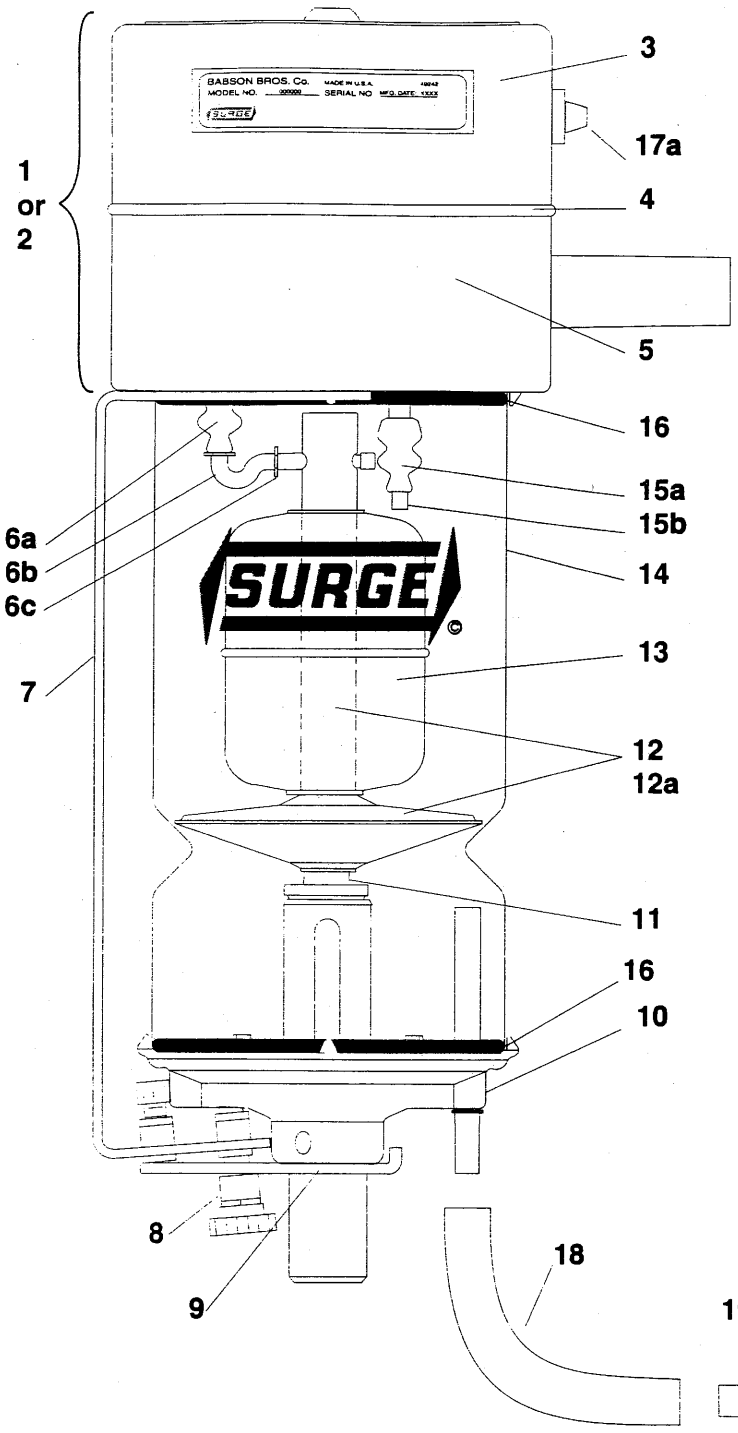
DAIRYMANAGER MILK METER - POUNDS (48201)



	1	49071	New DairyManager Milk Meter Head (Kg)
	2	48707	Repair and Return DairyManager Milk Meter Head (Kg)
*	3	47290	Cover Assembly (Kg)
*	4	47175	Gasket
*	5	47288	Inlet Housing Assembly
*	6	47282	Lifter Rod Kit (Not Shown)
	4	47175	Gasket
*	6a	48031	Lifter Bellows
	6b	--------	Lifter Rod
	6c	22979	E-Ring (3)
	7	48037	Meter Bracket
*	8	48047	Thumb Screw
	9	--------	Mounting Bracket
	10	47124	Outlet Assembly
*	11	48035	Wash Guide
	12	47125	Valve Assembly
*	12a	47123	Valve Only
	13	48036	Float
*	14	48016	Glass
*	15	47200	Sensor Kit (Not Shown)
	4	47175	Gasket
*	15a	48097	Sensor Bellows
	15b	--------	Sensor
*	16	48030	O-Ring
*	17	48019	Meter Switch Repair Kit (Not Shown)
*	17a	48084	Reset Switch Cover
		--------	Meter Switch (Not Shown)
		--------	Spring (Not Shown)
*	18	48034	Rubber Replacement Kit (Not Shown)
	6a	48031	Lifter Bellows
	15a	48097	Sensor Bellows
	16	48030	O-Ring (2)

* Recommended for Dealer Inventory

DAIRYMANAGER MILK METER - KILOGRAMS (48202)



	1	49062	New DairyManager Milk Meter Head (European)
	2	48708	Repair and Return DairyManager Milk Meter Head (European)
*	**3**	47291	Cover Assembly (European)
*	**4**	47175	Gasket
*	**5**	47288	Inlet Housing Assembly
*	**6**	47282	Lifter Rod Kit (Not Shown)
	4	47175	Gasket
*	**6a**	48031	Lifter Bellows
	6b	--------	Lifter Rod
	6c	22979	E-Ring (3)
	7	48037	Meter Bracket
*	**8**	48047	Thumb Screw
	9	--------	Mounting Bracket
	10	48124	Outlet Assembly
*	**11**	48035	Wash Guide
	12	47125	Valve Assembly
*	**12a**	47123	Valve Only
	13	48036	Float
*	**14**	48016	Glass
*	**15**	47200	Sensor Kit (Not Shown)
	4	47175	Gasket
*	**15a**	48097	Sensor Bellows
	15b	--------	Sensor
*	**16**	48030	O-Ring
*	**17**	48019	Meter Switch Repair Kit (Not Shown)
*	**17a**	48084	Reset Switch Cover
		--------	Meter Switch (Not Shown)
		--------	Spring (Not Shown)
*	**18**	48127	Rubber Elbow
*	**19**	48126	15/16 inch x 15/16 inch x 5/16 inch Tee
*	**20**	48034	Rubber Replacement Kit (Not Shown)
	6a	48031	Lifter Bellows
	15a	48097	Sensor Bellows
	16	48030	O-Ring (2)

* Recommended for Dealer Inventory

DAIRYMANAGER MILK METER - EUROPEAN (48043)

LIMITED WARRANTY

SURGE milking equipment and/or related SURGE parts are warranted by Babson Bros. Co., (the "Company") for a period of one year from the date of installation against defects in materials and workmanship when installed, serviced and operated in accordance with the Company's written instructions, subject to the exclusions and limitations set forth below. The Company's sole obligations under this Warranty are as follows:

The Company will, at its option, repair, replace or refund the purchase price of SURGE milking equipment and/or related SURGE parts which prove to be defective in materials or workmanship during the warranty period. Labor, transportation and service charges are not included.

Plastic parts are warranted against defects in material and workmanship for a period of one year from the date of installation. Damage to all SURGE equipment and/or related SURGE parts due to abuse or misuse by operator or animals is excluded from this Limited Warranty. The entire plastic part must be returned for warranty consideration.

This Warranty extends only to the original purchaser and may not be transferred. It is valid only on the original installation unless the Company otherwise agrees in writing.

This Warranty is in lieu of all other express warranties, obligations and liabilities. ALL IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY DISCLAIMED AND EXCLUDED. IN NO EVENT SHALL THE COMPANY BE LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR FOR ANY DELAY IN WARRANTY PERFORMANCE DUE TO CAUSES BEYOND ITS CONTROL.

BABSON BROS. CO.
DAIRY SYSTEMS DIVISION
20903 WEST GALE AVENUE P.O. BOX 659
GALESVILLE, WISCONSIN
54630-0659

SURGE

INFARMATION DairyManager

SURGE INFARMATION DAIRYMANAGER
SUB-SAMPLER INSTALLATION AND OPERATOR'S MANUAL

8.2 SUB-SAMPLER INSTALLATION AND OPERATION

CONGRATULATIONS:

And thank you for your purchase of the Butterfat Sub-Sampler for the Surge InFARMation DairyManager Milk Meter. It is designed to allow milk sampling for component analysis with Surge InFARMation DairyManager Milk Meters. It offers an ideal mix of accuracy and convenience because it will collect, agitate and discharge the required sample of milk and also allow residual milk to be drained into the milk line.

The following instructions will explain the proper attachment, operation and cleaning of the Sub-Sampler.

ATTACHING THE SUB-SAMPLER: Use the following procedure to attach the Butterfat Sub-Sampler to the meter.

Steps:

1. While supporting the glass and bottom cover with one hand, loosen the thumbscrew on the bottom of the meter bracket. Remove the Outlet Assembly, Valve Guide and Glass.

2. Place Valve Guide on Sampler Top Assembly. See Figure 8.4.

Figure 8.4
Sampler ready to attach

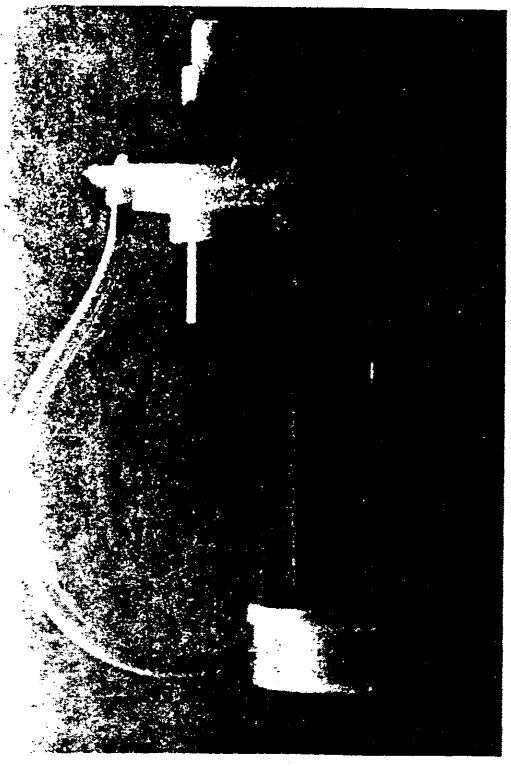
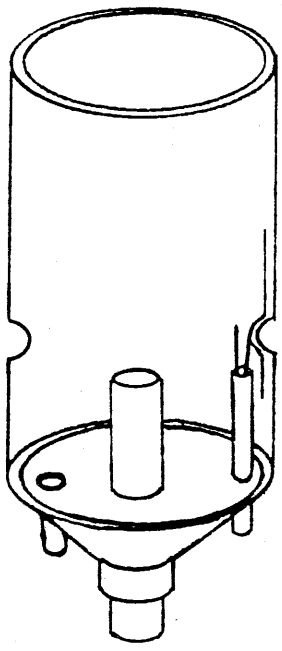


Figure 8.5
Diverter positioning



Short side of diverter must touch glass as shown.

The Surge InFARMation DairyManager System

LIMITED WARRANTY

Surge equipment and/or related parts are warranted by Babson Bros. Co. (the "Company") for a period of one year from the date of installation against defects in materials and workmanship when installed, serviced, and operated in accordance with the Company's written instructions, subject to the exclusions and limitations set forth below. The Company's sole obligation under this Warranty are as follows:

The Company will, at its option, repair, replace, or refund the purchase price of Surge equipment and/or related parts which prove to be defective in materials or workmanship during the warranty period. Labor, transportation, and service charges are not included.

Plastic parts are warranted against defects in material and workmanship for a period of one year from the date of installation. Damage to all Surge equipment and/or related parts due to misuse by operator or animals is excluded from this Limited Warranty. The entire plastic part must be returned for warranty consideration.

This Warranty extends only to the original purchaser and may not be transferred. It is valid only on the original installation unless the Company otherwise agrees in writing.

This Warranty is in lieu of all other express warranties, obligations, and liabilities. ALL IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABLITY AND FITNESS FOR A PARTICULAR USE, ARE HEREBY DISCLAIMED AND EXCLUDED. IN NO EVENT SHALL THE COMPANY BE LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, OR FOR ANY DELAY IN WARRANTY PERFORMANCE DUE TO CAUSES BEYOND ITS CONTROL.

This warranty does not apply to the Surge DairyManager Software, which is licensed to the User on an "as is" basis.

Printed in U.S.A. Rev. 7/89 49904

3. Place glass on Sampler Top Assembly and check the following:
   a. "O" ring is in place.
   b. Sampler Deflector is inserted with the short side touching the glass. See Figure 8.5.

IMPORTANT! - The Sub-Sampler will not function properly unless the Deflector is properly installed.

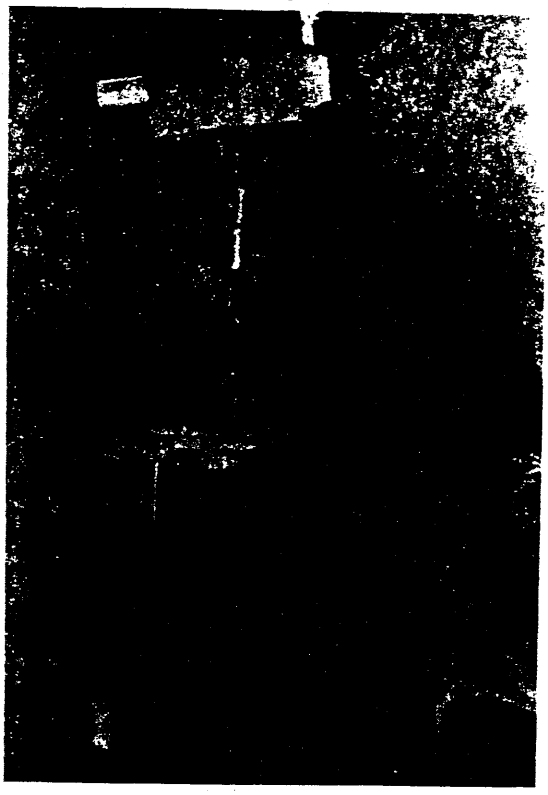
4. Re-assemble the meter. Place one hand at the bottom to hold the sampler in place. See Figure 8.6. Grasp the glass near the top with the other hand and tilt the valve and float outward as you slide the glass in place. The sampler should be mounted so that the operator has convenient access to the Vent Cover and Sampler Valve.

Note: Make sure the glass is inside all of the positioning tabs on the Meter Head and the Sampler Top Assembly.

5. Tighten the thumbscrew on the Meter Bracket. Make sure that it is in the proper groove of the Sampler Top Assembly.

6. Press the detach button on the meter four or five times to test the operation of the Meter Valve Assembly. If it does not move freely, loosen the thumbscrew and lower the glass until the Meter Valve Assembly frees itself. Re-assemble the meter and re-tighten the thumbscrew.

Figure 8.6
Sampler being attached



SUB-SAMPLER OPERATION: The Sub-Sampler is designed to collect, agitate, discharge and drain the residual milk from a composite sample of the total milk of each individual cow milked through a Surge InFARMation DairyManager Milk Meter. All steps may be performed without ever having to remove the Sampler or a flask. Everything is done at the milking stall through a Valve in a matter of seconds.

Here's how it works:

1. **COLLECT THE SAMPLE** - Turn the Valve off as shown in Figure 8.7 (Valve should be horizontal). Make sure the Vent Cover on top of the Sampler is closed. In this position, the Sampler will collect a 1 to 2% sample of the milk that flows through the meter.

2. **AGITATE THE SAMPLE** - With the Vent Cover closed, turn the Valve so the spout is pointing down. See Figure 8.8. Allow the milk in the Sampler to agitate a minimum of 10 seconds for up to 30 lbs. (13.6 kgs.) of milk. For production greater than 30 lbs. (13.6 kgs.) add 1 second for each 3 lbs. (1.4 kgs.) of milk.

Figure 8.7
Collect the sample

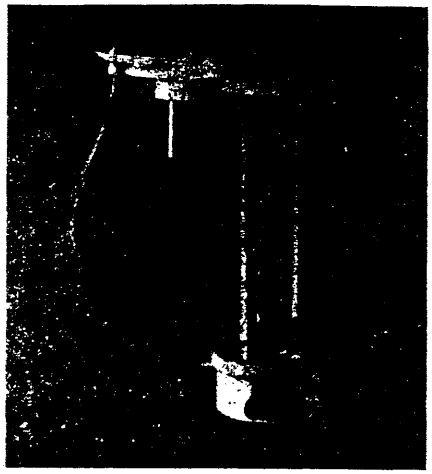
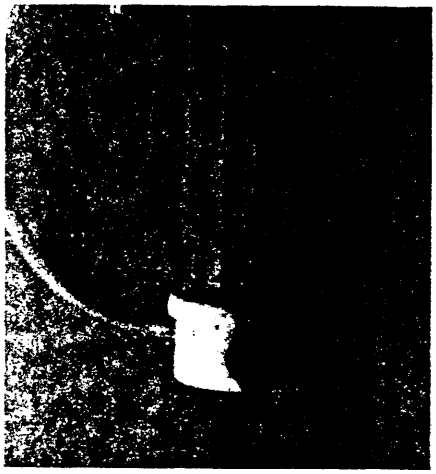


Figure 8.8
Agitate the sample



3. **DISCHARGE THE SAMPLE** - Hold the sample bag or vial under the Valve spout. With the other hand, open the Vent Cover on top and let the milk drain into the collection container until the desired quantity is discharged. See Figure 8.9. When the sample has been collected, close the Vent Cover.

Figure 8.9
Discharge the sample

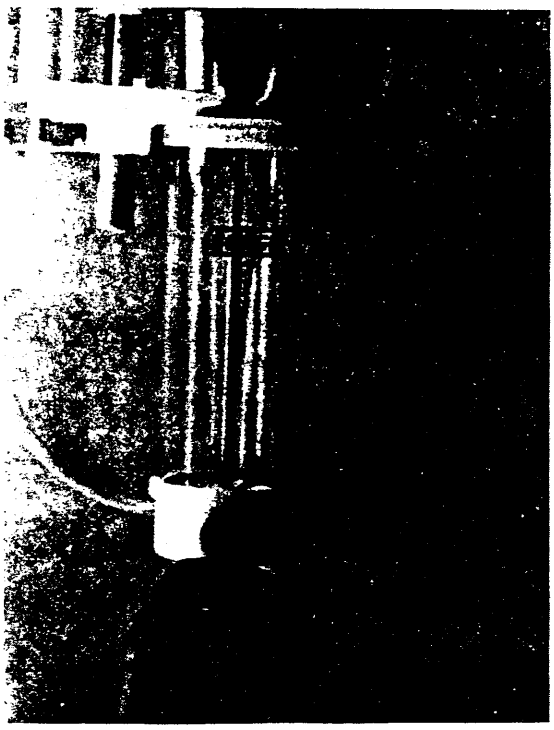
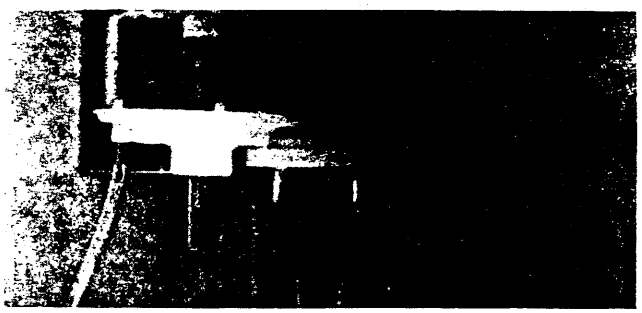
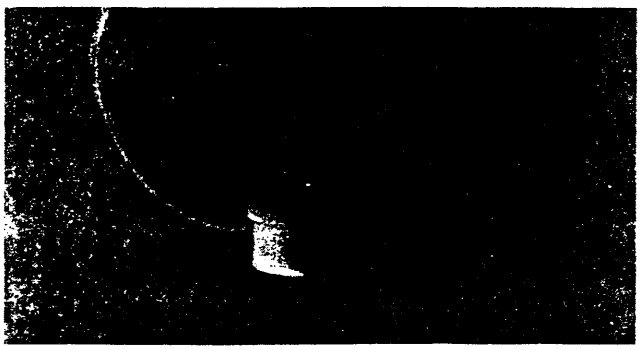


Figure 8.10
Drain the residual milk





4. **DRAIN THE RESIDUAL MILK** - After the sample is taken, turn the Valve so that the spout is pointing up. See Figure 8.10. Lift the Vent Cover slightly to allow the residual milk to drain. When the sampler is empty, release the Vent Cover and turn the Valve back to the closed position. The sampler is ready for another cow.

IMPORTANT! - To assure proper operation of the Milk Meter in DHIA mode, please refer to the Milk Meter Operator's Manual. Proper operation of both the meter and butterfat sub-sampler are neccessary to secure accurate milk weight and composite sample.

WASHING THE BUTTERFAT SUB-SAMPLER: After each completed milking session, the sampler must be removed from the meter, disassembled and washed manually.

TROUBLESHOOTING: If the Sub-Sampler fails to sample properly, check the following:

1. Sub-Sampler Valve must be seated firmly to prevent vacuum leaks.
2. Vent Cover must be seated to prevent vacuum leaks.
3. Check Ball under Deflector must be down to allow milk into the Reservoir.

Figure 8.11
Sub-Sampler parts breakdown