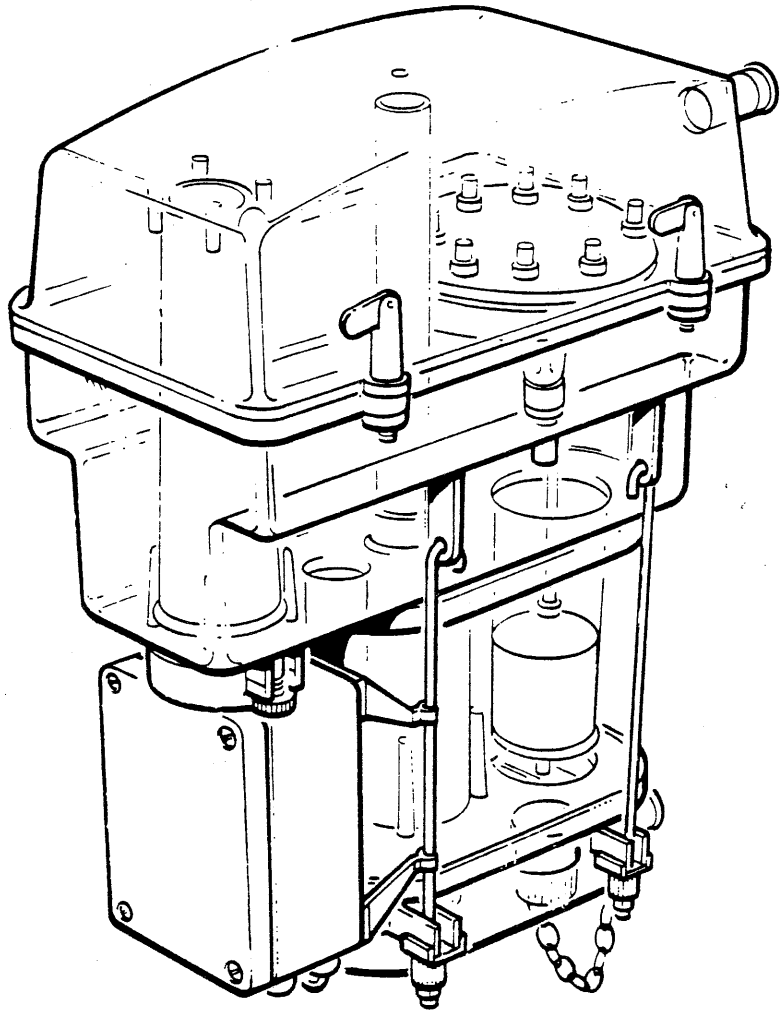
CALIBRATING
THE
GASCOIGNE MELOTTE MR 2000 MILK METER



GASCOIGNE MELOTTE

JULY 1993

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INDEX

INTRODUCTION

The MR 2000 Milk Meter is a milk yield measurement and sampling device suitable for continuous in-line use in the milking parlor.

The performance of the MR 2000 Milk Yield Milk Meter is to all known and pending International Standards. The design is protected by patents in several countries.

The Milk Meter, together with the sampling unit, provides a representative sample for the analysis of milk from each individual cow and does not interfere with efficient operation of machine milking or influence milk quality.

There are no restrictions which could obstruct milk flow or drainage and the design permits effective automatic in-line washing.

The Milk Meter and Sampling Unit are manufactured from food grade materials approved for use in contact with raw milk, remaining chemically and physically stable under normal milking conditions and under those specified for washing and disinfection.

The MR 2000 Milk Meter System will interface with the ID 2000 Feeding System or other similar data recording equipment.

The MR 2000 Milk Meter System meets the construction requirements of Grade "A" Pasteurized Milk Ordnance.

The MR 2000 Milk Meter System was designed and is manufactured in the E.C. by Gascoigne Melotte.

The Importer and Distributor for North America is:

NU PULSE, INC.
490 NORTH BURR OAK AVENUE
OREGON, WISCONSIN 53575
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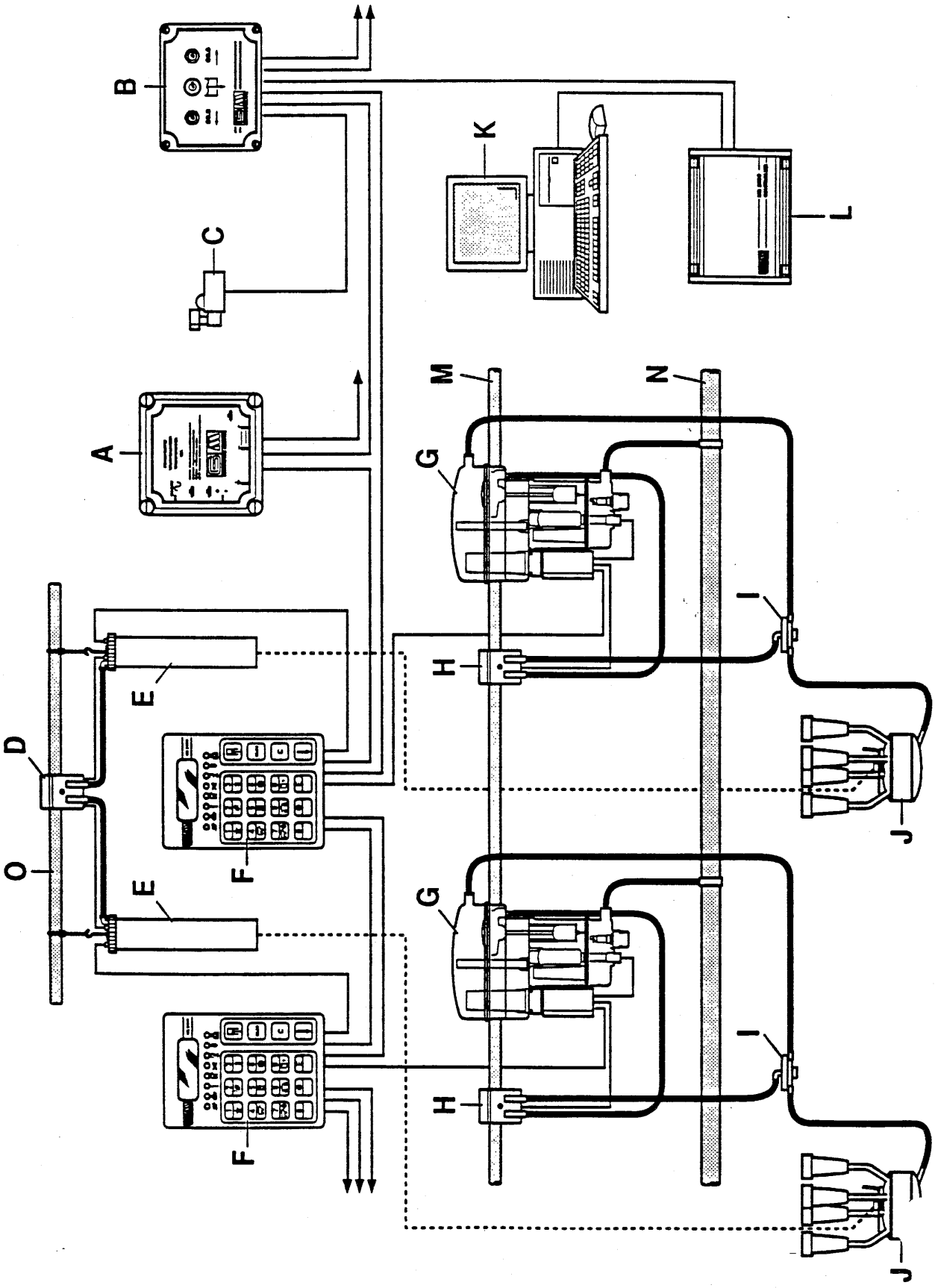
CHAPTER 2

SCHEMATIC DIAGRAM

AND

EQUIPMENT IDENTIFICATION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EQUIPMENT IDENTIFICATION

A. POWER SUPPLY

B. WASH/RESET BOX

C. GATE SWITCH

D. ACR (DETACHER) TL

E. CYLINDER

F. DISPLAY BOX

G. MILK METER

H. MR 2000 TL

I. DIAPHRAGM VALVE DV5

J. CLUSTER ASSEMBLY

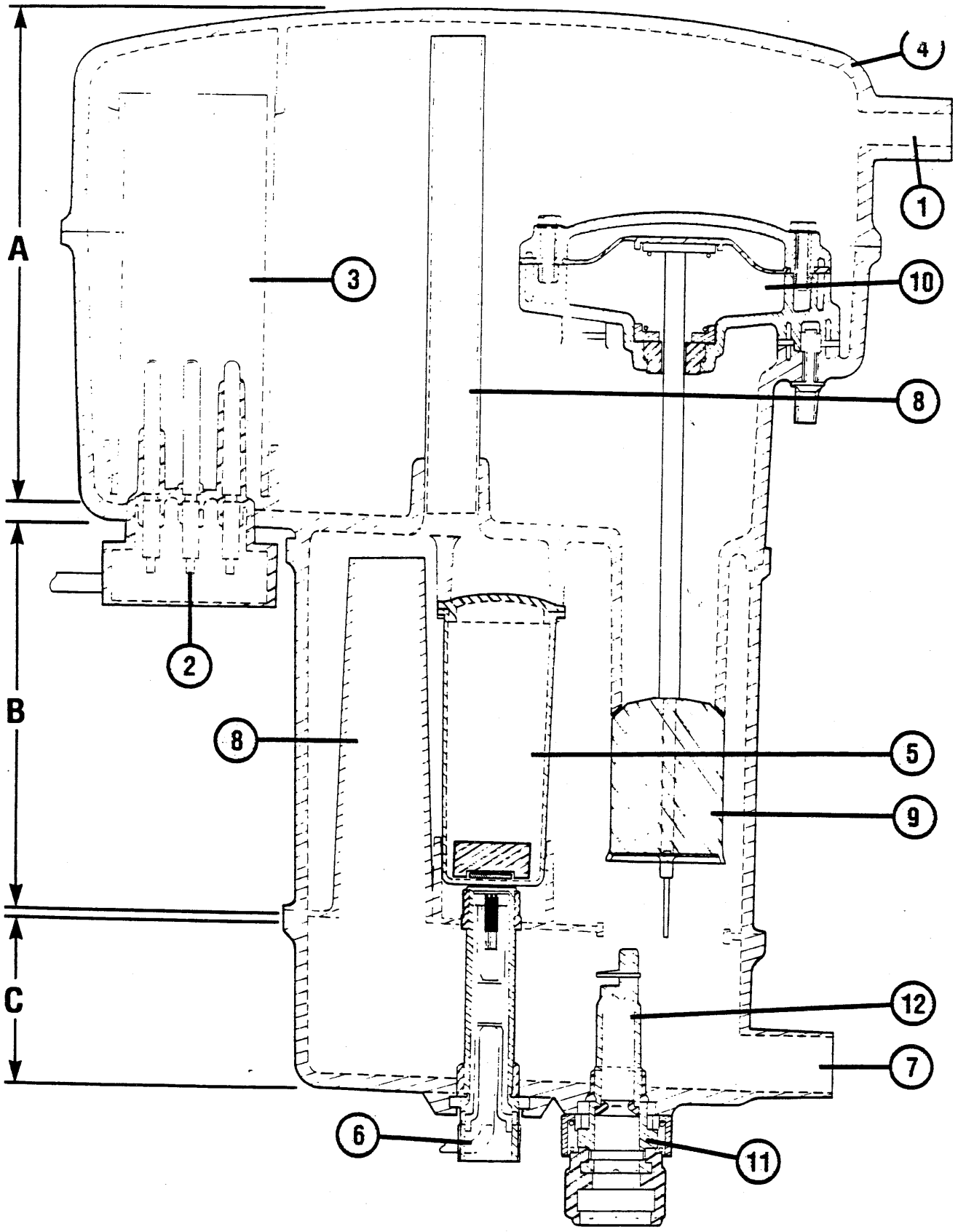
K. PERSONAL COMPUTER

L. MR 2000 CONTROLLER

M. VACUUM LINE - PULSATION

N. MILK LINE

O. VACUUM LINE - DETACHERS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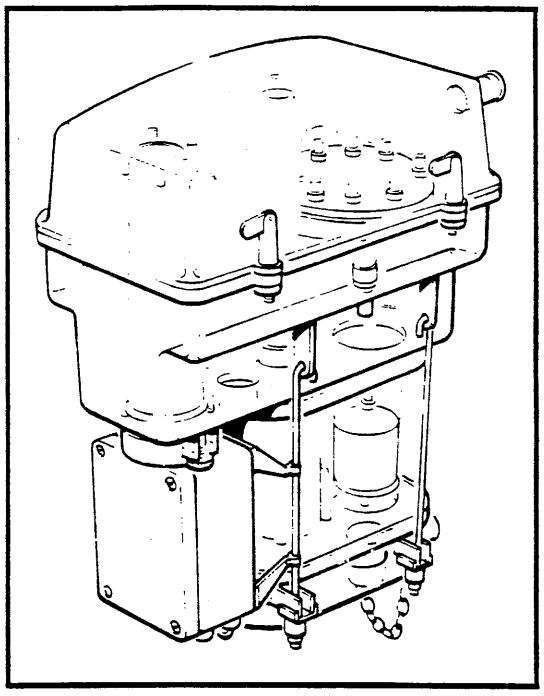
SYSTEM COMPONENTS

MILK METER - *SEE ALSO PAGE 2-3*

The MR 2000 Milk Meter is divided into three chambers:

A - The Top Chamber
B - The Measuring Chamber
C - The Bottom Chamber



In the top chamber, there is a milk inlet nozzle (1) and a conductive probe assembly (2) surrounded by a buoyant shield (3). The top chamber lid (4) may be positioned so that the milk inlet nozzle can be either on the right or left hand.

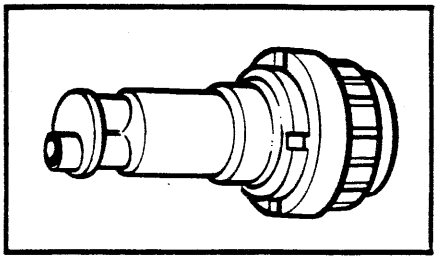
In the measuring chamber, a vertical float (5) fitted with a magnet, interacts with a probe (6) protruding into the chamber bottom. The milk yield is accurately determined in the measuring chamber by an Archimedes principle method.

The bottom chamber has an outlet nozzle (7) at one end and location entries for the probe assembly and sampler unit in the base.

Between each chamber is a vacuum bypass (8) and a valve (9) linked to a common actuator (10) in the top chamber. The actuator is a spring return, vacuum operated diaphragm.

The valve is normally closed between the top chamber and the measuring chamber and normally open between the measuring chamber and the bottom chamber.

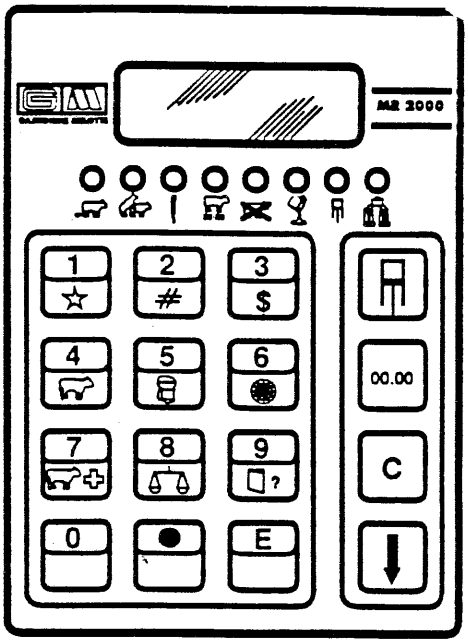
SAMPLER - *SEE ALSO PAGE 2-3*



The sampler (11) is fitted to the underside of the bottom chamber. It comprises a tubular probe (12) which protrudes into the bottom chamber. At the base of the probe is a connection seal (13) for mounting the sample bottle.

When not in use, the sampling unit is removed and replaced by a plug which is attached by a chain to the bottom chamber.

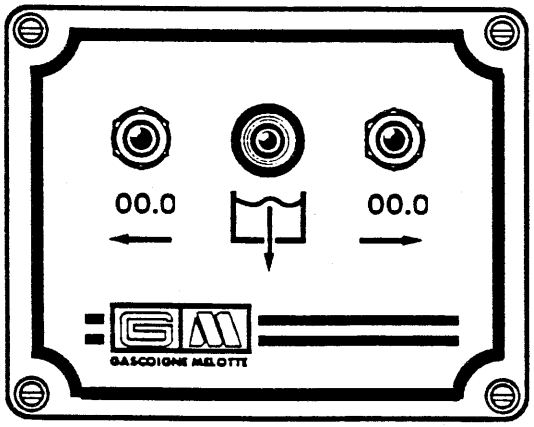
DISPLAY BOX



The display box houses the electronics for the MR 2000 milk meter and is mounted separately from it. LED's in the front of the box indicate the state of control and cow information "flags".

Each box has a 4 digit display to indicate milk yield, position in the parlour, calibration details etc., and a keyboard to allow control of the detachers and manual input of information.

To interface with automatic milk yield recording equipment, each display box has a current loop communications output. There are also outputs to feeders and detachers cylinders.



WASH/RESET BOX

Usually one wash/reset box is required per system. It used to either set the system in the wash or milking mode. Either mode is selected by one, central 3 position switch.

In the UP position, the switch is for milking with the gate switches in circuit. In the CENTRAL position, the switch is for recording milkings and the gate switches are not in circuit. This prevents total reset per side when the entry gate is opened. The DOWN position is for washing.

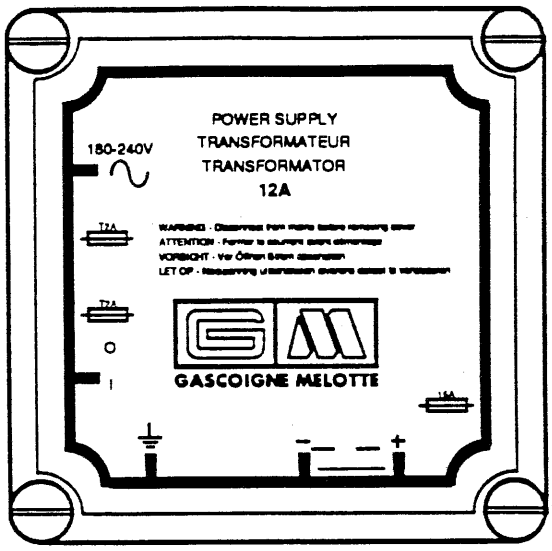
The buttons either side of the central switch are used in the milking mode to reset each side for the next batch of cows, particularly on recording days.

In 1 point 2 stall installations, where one cluster assembly is shared between two cows, each milk meter must be reset individually.

POWER SUPPLY

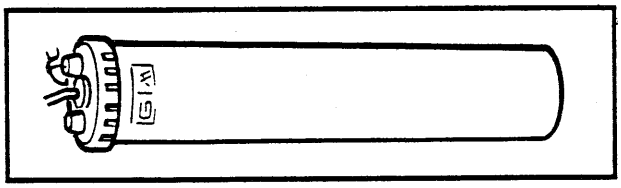
The power supply provides a 14 volt d.c. supply at 12 amps and is fitted with input and output protection fuses and two external thumbscrew output terminals.

If the MR 2000 system is used with Isolator 2 Detachers, then one power supply is only suitable for up to 12 points.



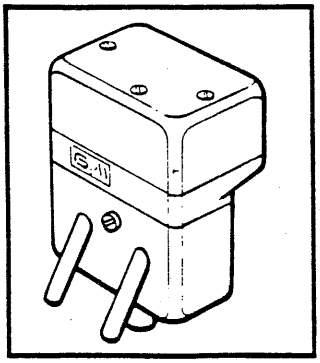
ISOLATOR 2 DETACHER CYLINDER

The Isolator 2 Detacher Cylinder is controlled through the control box by conditions in the milk meter. It is used in conjunction with diaphragm valve DV5.



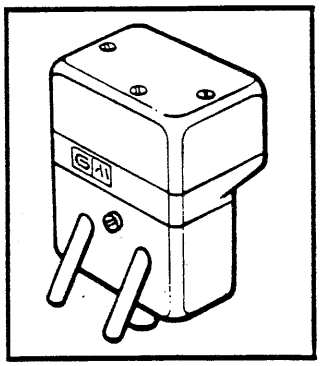
MR 2000 TL

The MR 2000 TL supplies vacuum to the milk meter to operate the diaphragm actuator of the chamber valves. It also supplies vacuum to the diaphragm valve DV5. One MR 2000 TL is required for each milk meter when used with Isolator 2 Detachers.



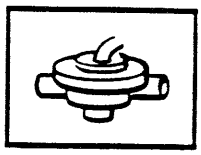
ISOLATOR TL

The Isolator TL supplies vacuum to two Isolator 2 Detacher Cylinders to raise the cluster when signalled at the appropriate time from the relevant milk meter. The restrictors supplied with the Isolator TL must be used to soften the pulsed message.



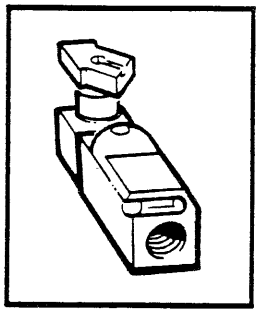
DIAPHRAGM VALVE DV5

The DV5 valve is fitted in the milk line between the cluster and the milk meter. It is connected to the MR 2000 TL and acts as a shut-off valve to the cluster.



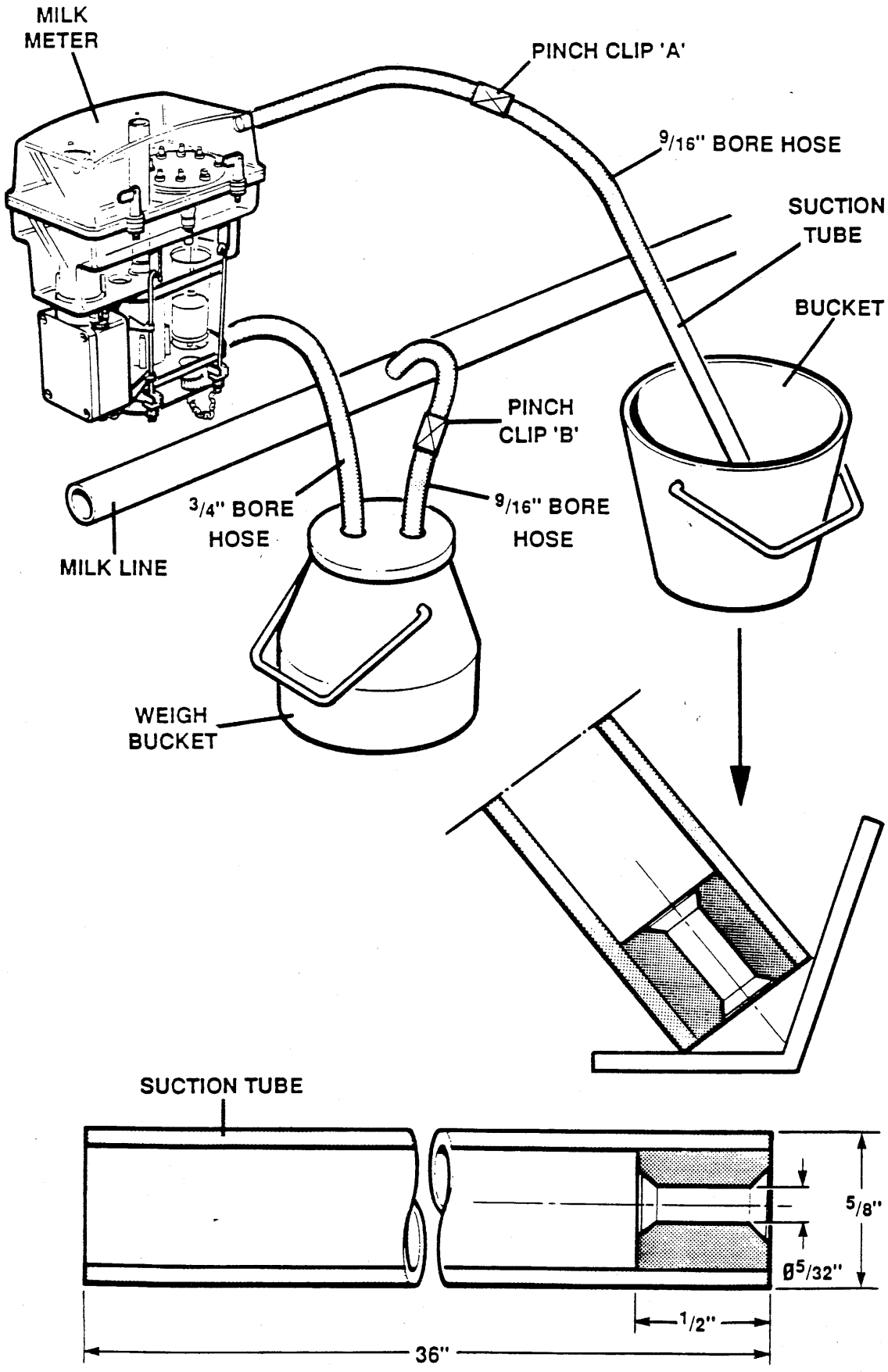
GATE SWITCHES

Gate switches are an optional extra for automatic reset. They operate in conjunction with the mechanical linkage of each entry gate.



CHAPTER 3

CALIBRATION



CALIBRATION EQUIPMENT FOR GM MR200 MILK METER

CALIBRATION

To ensure accurate performance to International I.C.A.R. and United States DHIA Standards, each MR 2000 Milk Meter will require calibrating before use. This procedure may be carried out in between milkings using a water solution.

Once the system has been calibrated and the necessary correction factors for each meter have been calculated and entered, the system will automatically apply these factors in the presence of milk.

The calibration equipment is shown on the opposite page and is as follows:-

- A 4 gallon solution of water with 2 ozs of Hypochlorite or Circulation Cleaner to simulate electrical conductivity of milk.
- A Suction Tube to provide a liquid flow rate of 10 lbs/min.
- A bucket for holding the water solution.
- A Milking Bucket (weighing bucket) to collect the solution that has passed through the Milk Meter.
- 2 x 39" lengths of Milk Hose.
- 1 x 3/4" bore hose to transfer the water solution from the milk meter to the weighing bucket.
- Pinch Clips "A" and "B".
- An accurate set of Weighing Scales.

Before commencing the calibration procedure, the calibration values of each milk meter must be checked. For all new installations this will have been Factory set at 500, but for systems that have already been calibrated, the settings may be determined using the following procedure.

All calibration data is entered or changed using the Display Box. See Fig 1

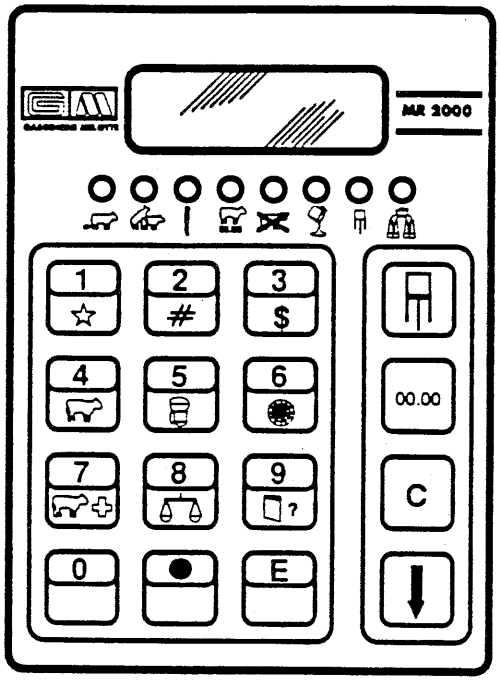


FIG 1

To establish the Calibration Value press the following sequence of keys.

The word "test" will now appear on the display. Then press the following sequence of keys.

The code A3 will now appear in the display, flashing alternately with the current calibration value. Repeat this procedure for each milk meter noting the displayed calibration values.

Check that the Weighing Scales are tared to accommodate the weight of the Milking Bucket then assemble the Calibration Equipment as shown on page 3-2. Remove the Rubber Milk Tube from the Inlet Nozzle of the Milk Meter but leave the Cluster Assembly attached to the Detacher Cylinder. Fit the Suction Tube to the Inlet Nozzle of the Milk Meter.

Set up the milking machine as though for normal milking and start the Vacuum Pump. Shut the Pin Clips "A" and "B".

Check that the LED Display in the MR 2000 Display Box is reading Zero then initiate the Detacher Cylinder to start recording.

Open the Pinch Clips "A and "B" which will allow the water solution to be drawn through the Milk Meter. During this process, the LED Display in the Display Box will register the increasing weight of water solution as it passes through the Milk Meter.

When approximately 25 lbs registers on the LED Display, shut the Pinch Clip "A" and, to finish this particular calibration check, press and hold the Detacher Key on the Display Box until the phrase "ACR" appears on the display. This will raise the Cluster Assembly and also automatically "dump" any remaining water solution from the milk meter.

Check that the 3/4" bore Transfer Hose is empty. Close the Pinch Clip "B" and vent the Weighing Bucket. Weigh the water solution and enter the result on the Calibration Form under "Scale" and alongside "Test 1". Enter actual LED Display reading under Display.

To reset the Display Box to zero, press and hold [∞∞] until the bars appear in the display.

Repeat the entire process twice more recording the results in the appropriate columns of Test 2 and Test 3.

To obtain the Calibration Value follow the instructions on the Calibration Form. Note: an example of a completed Calibration Form is shown overleaf.

Having calculated the new calibration values, the current values held in the Display Boxes must be updated. At this stage a Security Box must be connected to the Wash/Reset Box. NOTE: A Security Box is held by authorised Gascoigne Melotte Dealers.

The following sequence of keys must be entered on each Display Box in turn.

The existing Calibration Value should now be flashing alternately with the code A3.

Press [C] to clear the existing value and enter the new value, rounded to the nearest whole number.

Then press [E] to enter that value. Exit calibration mode by pressing and holding the [∞∞] key until

 appear on the display.

Once all of the new calibration values have been entered, the Security Box may be disconnected from the Wash/Reset Box.

MR 2000 MILKMETER CALIBRATION FORM
CALIBRATION TO BE UNDERTAKEN WITH WATER

METER No.	READING	
	SCALE	DISPLAY
TEST 1	24.8	25.0
TEST 2	24.9	25.2
TEST 3	24.8	25.0

A = TOTAL SCALE READINGS
B = TOTAL DISPLAY READINGS
C = RATIO OF A TO B
D = MILKMETER CALIBRATION VALUE DURING TEST*
E = NEW CALCULATED CALIBRATION VALUE

* FACTORY SETTING = 500

TOTAL	74.5	÷	75.2	=	0.99
	(A)		(B)		(C)
	0.99	x	500	=	495
	(C)		(D)		(E)

METER No.	READING	
	SCALE	DISPLAY
TEST 1		
TEST 2		
TEST 3		

A = TOTAL SCALE READINGS
B = TOTAL DISPLAY READINGS
C = RATIO OF A TO B
D = MILKMETER CALIBRATION VALUE DURING TEST*
E = NEW CALCULATED CALIBRATION VALUE

* FACTORY SETTING = 500

TOTAL		÷		=	
	(A)		(B)		(C)
		x		=	
	(C)		(D)		(E)

GASCOIGNE MELOTTE

CALIBRATION CHECK

It is recommended that a Calibration Check is carried out annually.

A Security Box is not required nor do the Calibration Values of the Milk Meter need to be determined.

Ensure that the Weighing Scales are tared to accommodate the weight of the Milking Bucket then assemble the Calibration Equipment as shown on page 3-1. Remove the Rubber Milk Tube from the Inlet Nozzle of the Milk Meter but leave the Cluster Assembly attached to the Detacher Cylinder. Fit the Suction Tube to the Inlet Nozzle of the Milk Meter.

Set up the milking machine as though for normal milking and start the Vacuum Pump. Shut the Pinch Clips "A" and "B".

Check that the LED Display in the MR 2000 Display Box is reading Zero then initiate the Detacher Cylinder to start recording.

Open the Pinch Clips "A and "B" which will allow the water solution to be drawn through the Milk Meter. During this process, the LED Display in the Display Box will register the increasing weight of water solution as it passes through the Milk Meter.

When approximately 25 lbs registers on the LED Display, shut the Pinch Clip "A" and, to finish the particular calibration check, press and hold the Detacher Key on the Display Box until the phrase "ACR" appears on the display. This will raise the Cluster Assembly and also automatically "dump" any remaining water solution from the milk meter.

Check that the 3/4" bore Transfer Hose is empty. Close the Pinch Clip "B" and vent the Weighing Bucket. Weigh the water solution and enter the result on the Calibration Check Form under "Scale" and alongside "Test 1". Enter actual LED Display reading under Display.

To reset the Display Box to zero, press and hold [∞∞] until the bars appear in the display.

Repeat the entire process twice more recording the results in the appropriate columns of Test 2 and Test 3.

To obtain the Relative Error follow the instructions on the Calibration Check Form. Note: an example of a completed Calibration Check Form is shown on page 3-7.

The resulting Relative Error should be no more than ± 2%. Should the error be outside these limits, it will be necessary to re-calibrate the Milk Meter.

MR 2000 MILKMETER CALIBRATION CHECK FORM
CALIBRATION CHECK TO BE UNDERTAKEN WITH WATER

METER No.	READING	
	SCALE	DISPLAY
TEST 1	24.3	24.7
TEST 2	23.8	24.0
TEST 3	25.1	24.9
TOTAL	73.2 — 73.6 = - 0.4	
	(A) (B) (C)	
	- 0.4 ÷ 73.2 x100%= - 0.005	
	(C) (A) (D)	

A = TOTAL SCALE READINGS
B = TOTAL DISPLAY READINGS
C = ABSOLUTE ERROR
D = RELATIVE ERROR (MUST BE LESS THAN ± 2%)

METER No.	READING	
	SCALE	DISPLAY
TEST 1		
TEST 2		
TEST 3		
TOTAL	— =	
	(A) (B) (C)	
	÷ x100%=	
	(C) (A) (D)	

A = TOTAL SCALE READINGS
B = TOTAL DISPLAY READINGS
C = ABSOLUTE ERROR
D = RELATIVE ERROR (MUST BE LESS THAN ± 2%)

CHAPTER 4

PRINCIPLES OF OPERATION

PRINCIPLES OF OPERATION

MILKING

As soon as the MR 2000 system is switched on it is in the "standby" condition ready for milking. Milk recording commences either by the initiation of the detacher cylinder or by the prescence of milk at the proximity probe in the top chamber.

Milk enters the top chamber and is held at the closed top chamber outlet. Milk is released into the measuring chamber once it has made contact with the tallest conductivity probe.

When the float in the measuring chamber becomes buoyant, it triggers the proximity switch which shuts the top chamber outlet and opens the measuring chamber outlet. This allows a constant unit quantity of milk, by weight, to pass through the measuring chamber into the bottom chamber.

Each time a unit measure of milk passes through the meter, a nominal 1.1lb is registered in the display box. The display shows yield to the nearest 0.2lb but any remainder due to calibration correction is held in the memory to an accuracy of 0.02lb.

The amount of milk less than one unit of measure is determined in the top chamber by the conductivity probe in units of 0.2lb on a volumetric basis.

As milk enters the top chamber, it progressively conducts between the probes of increasing height to give the 0.2lb measurement. These 0.2lb steps are added prior to a full measuring chamber unit.

These step measurements are only truly relevant to yield recording at the end of milking when the yield does not completely fill the measuring chamber and they remain part of the total yield. This remaining quantity is then "dumped" automatically during the end of milking routine.

The sensing assessment for the detachers is made by timing the conduction between the probes. E.G. if the time exceeds 30 seconds (adjustable), it determines that the milking rate has reached 0.4lb per minute and therefore the end of milking point.

SAMPLING

The sampler is fitted to the bottom chamber and protrudes through into the outlet path of milk where it leaves the measuring chamber.

Each time a measured unit of milk is released through the meter, 1% is captured by the sampler probe and transferred by gravity to the sample bottle. The milk is thoroughly mixed before capture by the action of transferring milk through the different chambers.

To collect the sample, the bottle is removed after each cow's milking.

The sampler assembly cannot be washed in place and must be removed and washed separately.

CLEANING

Each milk meter is washed by a controlled operating sequence initiated by the central control switch on the milk/wash reset box. An automatic wash programmer can be used with this equipment.

The washing mode is indicated in the LED displays and the milk meters are Flood Washed in the normal milk flow direction. The cluster is connected to the wash jetters as normal and cleaning solutions circulated in accordance with re-circulation cleaning methods.

ACIDIFIED BOILING WATER CLEANING SYSTEMS MUST NOT BE USED

Initially the top chamber is closed for 64 or 96 seconds maximum. Note that 64 or 96 seconds can be selected in the Configuration Program. Normally the equipment is factory set at 64 seconds. This allows the chamber to flood and overflow down the bypass tube into the measuring chamber, through the open outlet valve and out of the meter via the bottom chamber.

After 64 or 96 seconds, the top chamber outlet opens and water floods down into the measuring chamber and overflows through the bypass tube into the bottom chamber and out of the meter.

This flooding lasts for 4 seconds. After a further 4 second delay, it floods again for a further 4 seconds to allow the meter to empty prior to repeating the flood cycle.

The above milk meter wash cycle is sequenced with a four second delay between each meter to limit the number that are flooding at any one time.

It is important that a minimum vacuum level of 30kPa is maintained throughout the wash cycle.

CHAPTER 5

USING THE MR 2000 SYSTEM

USING THE MR 2000 SYSTEM

MILKING WITH THE DETACHER SYSTEM

Before starting to milk, check that the Detacher LED's in the Control Box are on. If they are not then push the button on the side of the Control Box.

Initiate the Detacher Cylinder which will start the 2 minute time delay. Apply the cluster and milk. When milk flow drops to 0.4 lb per minute, the Detacher Cylinder will remove the cluster.

The milk meter will then check the level of milk remaining in the Top Chamber and add the result to the overall total after which it will then release this milk into the transfer line. The overall total will be shown on the relevant display.

If one cow has to be milked without Detachers, initiate the cylinder and start to milk as normal and then switch off the Detachers by pressing the relevant button on the control box once.. This switches off the Detacher LED.

To switch the Detachers back on, press the button once and the system automatically reverts to detaching.

To remove the cluster early for any reason, for example a difficult cow, or cluster fallen off, press and hold the button for 3 seconds. The Detacher LED will go out and then come on again. This will remove or lift the cluster immediately.

MILKING WITHOUT THE DETACHER SYSTEM

Press the button once and the Detacher LED will go out. Apply the cluster and milk the cow as normal. Remove the cluster when milking is finished and then press the Detacher button. This will record any quantity remaining in the top chamber and add it to the overall total after which it will be released into the transfer line.

RESETTING THE SYSTEM

When all the cows down one side of the parlour have finished, and after they have been released, the gate switch on the entry gate, if fitted, will reset the displays to zero ready for the next batch.

If a gate switch is not fitted, the displays are set to zero by pressing the relevant button on the Wash/ Reset Box.

CLEANING

Wash down all the clusters and fit them into the jetter cups. Put the switch on the wash/reset box into the wash position and all the displays in the control box will then show WASH

ACIDIFIED BOILING WATER SYSTEMS MUST NOT BE USED

At the end of the washing sequence allow enough time for the milk meter to drain.
See "NOTES FOR CIRCULATION CLEANING" and "CIRCULATION CLEANING WITH GASCOIGNE MELOTTE MR 2000 MILK METERS". This information is also available as a single A3 plastic sheet suitable for display in the dairy.

SAMPLING

The sampling assembly fits into the opening nearest the milk outlet nozzle of the bottom chamber.

IT CAN ONLY BE FITTED ONE WAY

Note the difference in thickness of the locating lugs 1 and 2 on the underside of the bottom chamber together with the difference in width of the slots 3 and 4 in the sampler assembly "A".

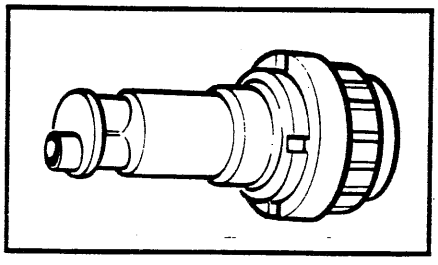
Line the sampler assembly up so that the thin lug 1 lines up with the narrow slot 3. The thick lug 2 will then be in line with the wide slot 4.

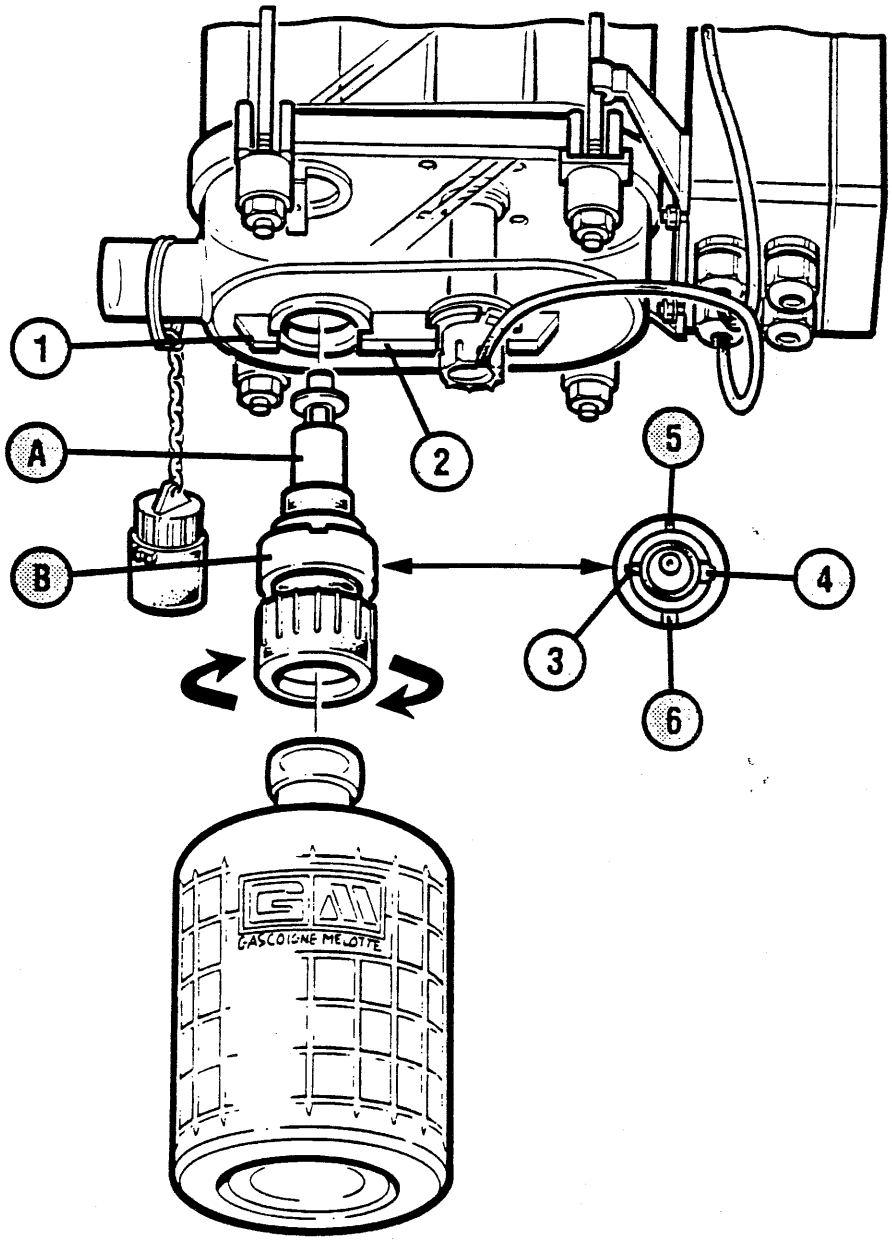
Push the sampler assembly up into the bottom chamber and then turn it anti-clockwise until the slots 5 and 6 in the locking ring "B" locate into the lugs 1 and 2. Note that the locking ring is spring loaded.

To remove the sampler assembly, pull down the locking ring, turn the sampler assembly clockwise until the appropriate lugs and slots line up. Gently pull down on the sampler assembly to remove it from the bottom chamber.

For sampling purposes it is only necessary to remove the bottle each time.

When not required, the opening in the bottom chamber is plugged off with the plug provided.




1
2
A
B
3
4
5
6
GASCOIGNE MELOTTE

CHAPTER 6

CLEANING

CIRCULATION CLEANING
WITH
MR 2000 MILK METERS

When in-place cleaning the MR 2000 MILK METER SYSTEM, only circulation wash techniques are suitable. Acidified Boiling Water cleaning is not effective **AND MUST NOT BE USED.**

It is important to understand that the MR 2000 Milk Meter has been designed to be **FLOOD WASHED** in the normal milk flow direction and that the software controls the pattern of washing each meter in sequence.

The cycle for washing each MR 2000 Milk Meter is as follows.

Initially, the top chamber is closed for 64 or 96 seconds. During this time THE TOP CHAMBER MUST FLOOD AND OVERFLOW DOWN THE BYPASS TUBE into the measuring chamber, through the open outlet valve and out of the meter via the bottom chamber. See Diagram A

To ensure good agitation in the top chamber when flooding, AIR MUST ENTER THE TOP CHAMBER VENT.

After 64 or 96 seconds, the top chamber outlet opens and water floods down into the measuring chamber and overflows through the bypass tube into the bottom chamber and out of the meter. See diagram B.

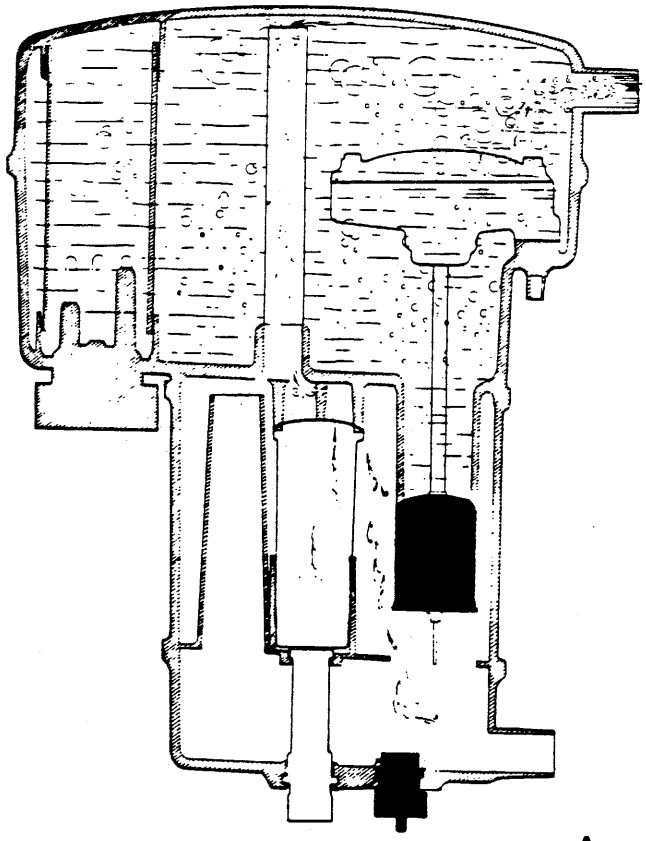
This flooding lasts for 4 seconds. After a further 4 second delay it floods again for a further 4 seconds to allow the meter to empty prior to repeating the cycle.

The above milk meter wash cycle is SEQUENCED with a 4 second delay between each milk meter to limit the number of milk meters that are flooded at any one time.

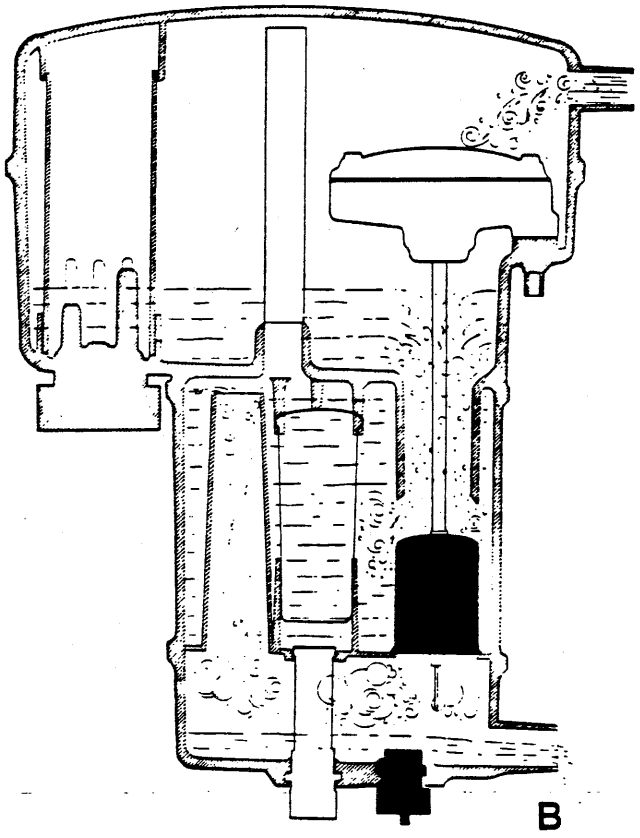
At the end of the wash and between each solution change, the meter will DRAIN UNDER GRAVITY providing the wash sequence continues without a fresh solution entering the meter and SUFFICIENT VACUUM IS MAINTAINED TO OPERATE THE METER VALVE.

It is essential that there is sufficient water available to all ALL THE MILK METERS TO FLOOD. See Diagrams.

NOTE: To ensure the conductivity probes in the top chamber remain effective, it is recommended to circulate an acid descaling solution once a week. Follow the instructions carefully.



A



B

NOTES FOR CIRCULATION CLEANING

Always refer to the chemical suppliers instructions and note safety procedures.

After milking, clean the clusters and wash jetters externally with a hot sanitant solution.

Set the complete milking machine for washing and **CHECK THE HOT WATER SUPPLY TEMPERATURE.**

The first pre-rinse of cold water must discharge to waste until the returning water is clear.

Circulate the sanitant solution for approximately 10 minutes (as recommended by the chemical supplier) **ENSURING THAT THE CORRECT TEMPERATURE IS MAINTAINED.**

Rinse the plant with clean, cold water and ENSURE THE PLANT DRAINS COMPLETELY.

After the final rinse, stop the vacuum pump and open all the drain valves.

Examine the plant once a week to check for deposits. Pay particular attention to rubber tubing, the inside of liners and receiver jar deflector plates (where fitted).

To remove milkstone, use an approved brand of milkstone remover. Follow the instructions carefully.

Clean and disinfect any part of the equipment e.g. supplementary pipeline, vacuum interceptor vessels, that is not normally in contact with milk, at least once a month. Rinse through after cleaning with clean, cold water.

NEVER MIX DAIRY CHEMICALS
IT IS EXTREMELY DANGEROUS

MINIMUM WATER REQUIRED FOR EACH STAGE OF THE CLEANING PROCESS

CLUSTER ASSEMBLY	- 0.26 GALLONS
MR 2000 MILK METER	- 1.05 GALLONS
8 GALLON MILK PUMP ASSEMBLY	- 3.12 GALLONS
14 GALLON MILK PUMP ASSEMBLY	- 5.88 GALLONS
26 GALLON MILK PUMP ASSEMBLY	- 10.8 GALLONS
3" PIPELINE	- 0.65 GALLONS PER Ft RUN
2" PIPELINE	- 0.26 GALLONS PER Ft RUN
1 1/2" PIPELINE	- 0.16 GALLONS PER Ft RUN
1 1/4" PIPELINE	- 1.05 GALLONS PER Ft RUN

ADD 10% TO THE SUM TOTAL OF ITEMS SELECTED FROM THE ABOVE LIST FOR WATER REQUIREMENTS IN THE DAIRY AREA

PLEASE NOTE: GALLONS REFER TO U.S. GALLONS

MR 2000 MILKMETER CALIBRATION FORM
CALIBRATION TO BE UNDERTAKEN WITH WATER

METER No.	READING	
	SCALE	DISPLAY
TEST 1		
TEST 2		
TEST 3		
TOTAL	÷	=
	(A)	(B) (C)
	x	=
	(C)	(D) (E)

A = TOTAL SCALE READINGS
B = TOTAL DISPLAY READINGS
C = RATIO OF A TO B
D = MILKMETER CALIBRATION VALUE DURING TEST*
E = NEW CALCULATED CALIBRATION VALUE

* FACTORY SETTING = 500

METER No.	READING	
	SCALE	DISPLAY
TEST 1		
TEST 2		
TEST 3		
TOTAL	÷	=
	(A)	(B) (C)
	x	=
	(C)	(D) (E)

A = TOTAL SCALE READINGS
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CALIBRATION TO BE UNDERTAKEN WITH WATER

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	SCALE	DISPLAY
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TEST 2		
TEST 3		
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	(A) (B)	(C)
	x	=
	(C) (D)	(E)

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	SCALE	DISPLAY
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TEST 2		
TEST 3		
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	(A) (B)	(C)
	x	=
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CALIBRATION TO BE UNDERTAKEN WITH WATER

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TEST 2		
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	SCALE	DISPLAY
TEST 1		
TEST 2		
TEST 3		
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CALIBRATION TO BE UNDERTAKEN WITH WATER

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	SCALE	DISPLAY
TEST 1		
TEST 2		
TEST 3		
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	x	=
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	SCALE	DISPLAY
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TEST 2		
TEST 3		
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CALIBRATION TO BE UNDERTAKEN WITH WATER

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	SCALE	DISPLAY
TEST 1		
TEST 2		
TEST 3		

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TOTAL	÷	=	
	(A)	(B)	(C)
	x	=	
	(C)	(D)	(E)

.....

METER No.	READING	
	SCALE	DISPLAY
TEST 1		
TEST 2		
TEST 3		

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TOTAL	÷	=	
	(A)	(B)	(C)
	x	=	
	(C)	(D)	(E)

GASCOIGNE MELOTTE

MR 2000 MILKMETER CALIBRATION FORM
CALIBRATION TO BE UNDERTAKEN WITH WATER

METER No.	READING	
	SCALE	DISPLAY
TEST 1		
TEST 2		
TEST 3		

A = TOTAL SCALE READINGS
B = TOTAL DISPLAY READINGS
C = RATIO OF A TO B
D = MILKMETER CALIBRATION VALUE DURING TEST*
E = NEW CALCULATED CALIBRATION VALUE

* FACTORY SETTING = 500

TOTAL	÷	=	
	(A)	(B)	(C)
	x	=	
	(C)	(D)	(E)

.....

METER No.	READING	
	SCALE	DISPLAY
TEST 1		
TEST 2		
TEST 3		

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	(A)	(B)	(C)
	x	=	
	(C)	(D)	(E)