

# Service

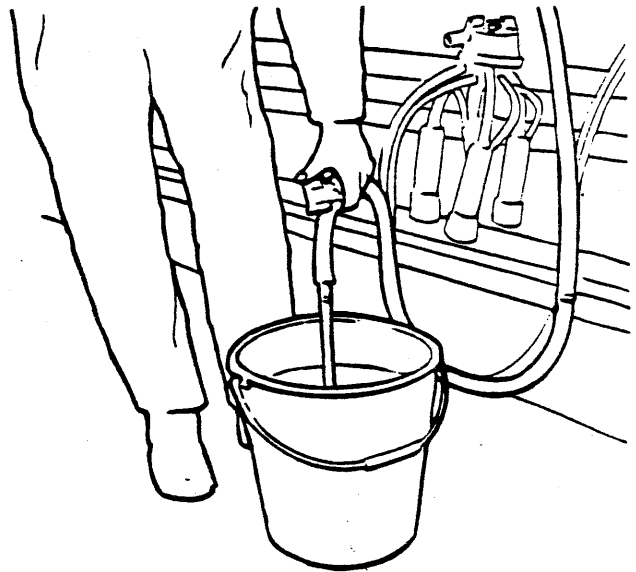
## Periodical check of accuracy — water test

Checking the milk meter's recording accuracy with water should be done each time the milk meter has been disassembled, or if you suspect incorrect yield recording.

Periodical checks should also be carried out according to requirements of regulating agencies.

### Equipment needed:

- Test pipe (999100-80) or flow restrictor (8304601-01) which has a specially sized orifice and an air bleed to simulate a claw.
- Shutoff clip for the milk tube
- Electronic scale with an accuracy of  $\pm 20$  g (0.7 oz)
- Bucket with capacity of 5 gallons (40 pounds of water).



### Test procedure

**NOTE:** *It is important that air is not sucked into the milk meter during or at the end of the test. The meter can differentiate between milk flow and an air blast and will not add weight to the total if it senses an air blast.*

- Remove the claw from the end of the long milk tube and apply a shutoff tube clip on the milk tube. Close the clip.
- Insert a test pipe into the milk tube.
- Start the vacuum pump.
- Fill a bucket with at least 20 lbs. of water.
- Weigh the bucket and make a note of the weight.
- Make sure that no cleaning mode signal is being sent to the stall units.
- Press F1↑ on the stall unit to make the system ready for recording.



- Put the pipe in the bucket and open the tube clip. (Press START on the take-off.)

**NOTE!** *Too great a flow rate — outside normal milk flow — will activate the air sweep blocking, and no recording will take place.*

- Watch the display. When about 10 kg (22 lbs) has been metered, shut off the water with the tube clip.
- Press REMOVE on the take-off.
- Make sure that no water remains in the tube. With milking shutoff diaphragm closed, open the tube clip and drain water out of hose back into the bucket.
- Press F4↑ to confirm the recorded weight.
- Weigh the bucket with the remaining water, and subtract this from the original weight. This gives the actual weight of the water that has been measured by the meter.
- Compare the actual weight with the weight displayed on the meter with the following calculation.

$$\frac{\text{Meter reading}}{\text{Scale reading}} \times 100 = \text{p-value}$$

- Repeat the test again.

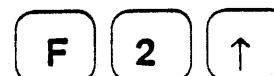
If both p-values are the same and they fall between 97 and 103 percent the meter is considered accurate.

If the two p-values differ, perform a third test. The meter is considered acceptable if no single p-value is outside the range of 90 to 110 percent of the recorded water weight AND if the average of the three p-values is within 97 to 103 percent.

If any of the p-values are outside the acceptable range, check the meter for vacuum leaks, valve leaks or other faults.

If everything seems correct and the meter still is out of tolerance, check the calibration. See next section "Calibration".

- Repeat the water test with all milkmeters, then press F2↑ to leave the milking mode.



## Calibration of milk meters

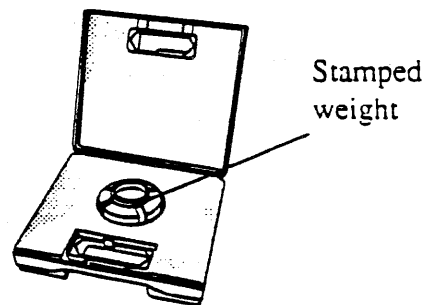
During calibration the milk meter setting is checked and adjusted so that the displayed value corresponds to the actual weight sensed by the strain gauge of the milk meter.

However, if there is a leakage or a fault in the milk meter function, the recorded milk yield may be wrong, even if the calibration is correct. Therefore, periodical checks must be performed, where the accuracy is checked by the water test.

### Calibration Weight

Be careful always to keep the weight in its case. If it is scratched or chipped, it will no longer be a precise reference weight.

The weight is stamped on the calibration weight (in grams).



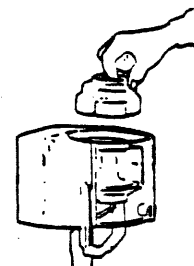
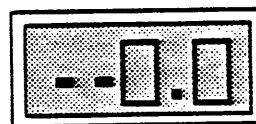
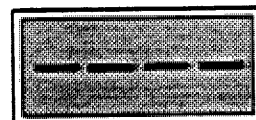
### Check calibration

Check with a calibration weight that the milk meter displays the correct value.

The milk meter must not be in cleaning mode or milking mode. Make sure that no cleaning mode signal is received from the cleaning unit, and press F2↑ to leave milking mode.



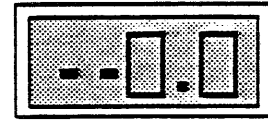
- Remove meter cover and spoiler. (See "Disassembly") Do this on all meters that are to be checked.
- Press F89↑. This will set the milk meter in check calibration mode. The display shows "----" for several seconds and then changes to "0.0".
- When "0.0" is displayed, carefully place the calibration weight in the metering cup with the slots over the four arms of the valve guide.



- The display (in grams) must be within  $\pm 0.8\text{g}$  of the value stamped on the calibration weight.

*If the weight difference is more than  $\pm 0.8\text{ g}$  the meter must be recalibrated. See next section "Change Calibration".*

- Remove the weight, wait for 0.0 to be displayed, and put the weight back again.
- Do this at least three times, or until you get good repeatability.
- Repeat the procedure on all meters to be checked.
- Leave the check calibration mode by pressing **F2**  $\uparrow$  on each stall unit.



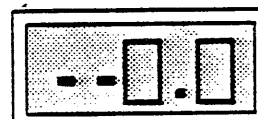
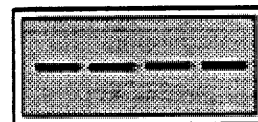
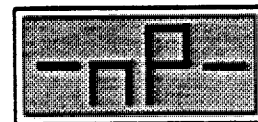
## Change calibration

If the displayed weight is outside the limits for any of the milk meters, these must be re-calibrated.

- To enable the calibration mode, press **F72**  $\uparrow$  on any stall unit. The display will show 0000 or four digits.
- Enter the value stamped on the weight (rounded to four digits).

### Example

- The weight is stamped with the value 142.34 g. Round off to 142.3 g. Press 1423  $\uparrow$  on the stall unit even if these numbers are already displayed.
- The status lights will come on momentarily. The system is now ready for calibration.
- Enter **F88**  $\uparrow$  on the stall unit.
  - If you have not entered the **F72** function, "-nP-" will be displayed. "-nP-" = no password
- If **F72** has been enabled, the stall unit first displays "- - - -", and then "0.0" for no weight, cup is empty.



- Carefully place the calibration weight in the metering cup.

The system now senses the weight of the calibration weight, compares it to the weight value entered during F72, and calculates and stores the correct calibration factor for this milk meter.

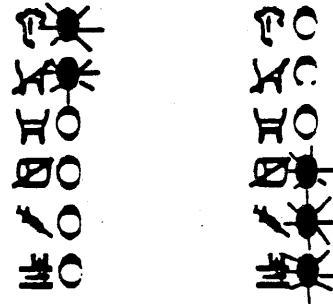
When this is ready, the stall unit displays “- c F -” (calibration finished) for a few seconds and then leaves the function F88.



The two upper lights and the three lower lights blink alternately when the calibration constant is downloaded in the milk meter after calibration is finished.

Now the milk meter is calibrated. To confirm, check calibration again with F89.

Repeat the calibration for other milk meters if necessary. Change calibration remains enabled until you press F1↑. After that you must enter F72↑ and the value stamped on the calibration weight again.



## Change Calibration - Stand Alone Milk Meter

If the displayed weight is outside the limits for accuracy, the meter must be re-calibrated. Before entering the calibration mode make sure the milk meter is not in milking mode or cleaning mode.

- Enter F88 ↑ on the stall unit. The display will show "-EP-".
- Enter the password "6285". If the correct password is entered the display will show "-EC-". If password is incorrect the display will continue to show "-EP-".
- Enter the value stamped on the calibration weight (rounded to four digits).
- The stall unit first displays "----", and then "--0.0".
- Carefully place the calibration weight in the metering cup.

The system now senses the weight of the calibration weight, compares it to the weight value entered above, and calculates and stores the correct calibration factor for this milk meter.

When this is ready, the stall unit displays "-c F-" (calibration finished) for a few seconds and then leaves the function F88.

The two upper lights and the three lower lights blink alternately when the calibration constant is downloaded in the milk meter after calibration is finished.

Now the milk meter is calibrated. To confirm, check calibration again with F89.

