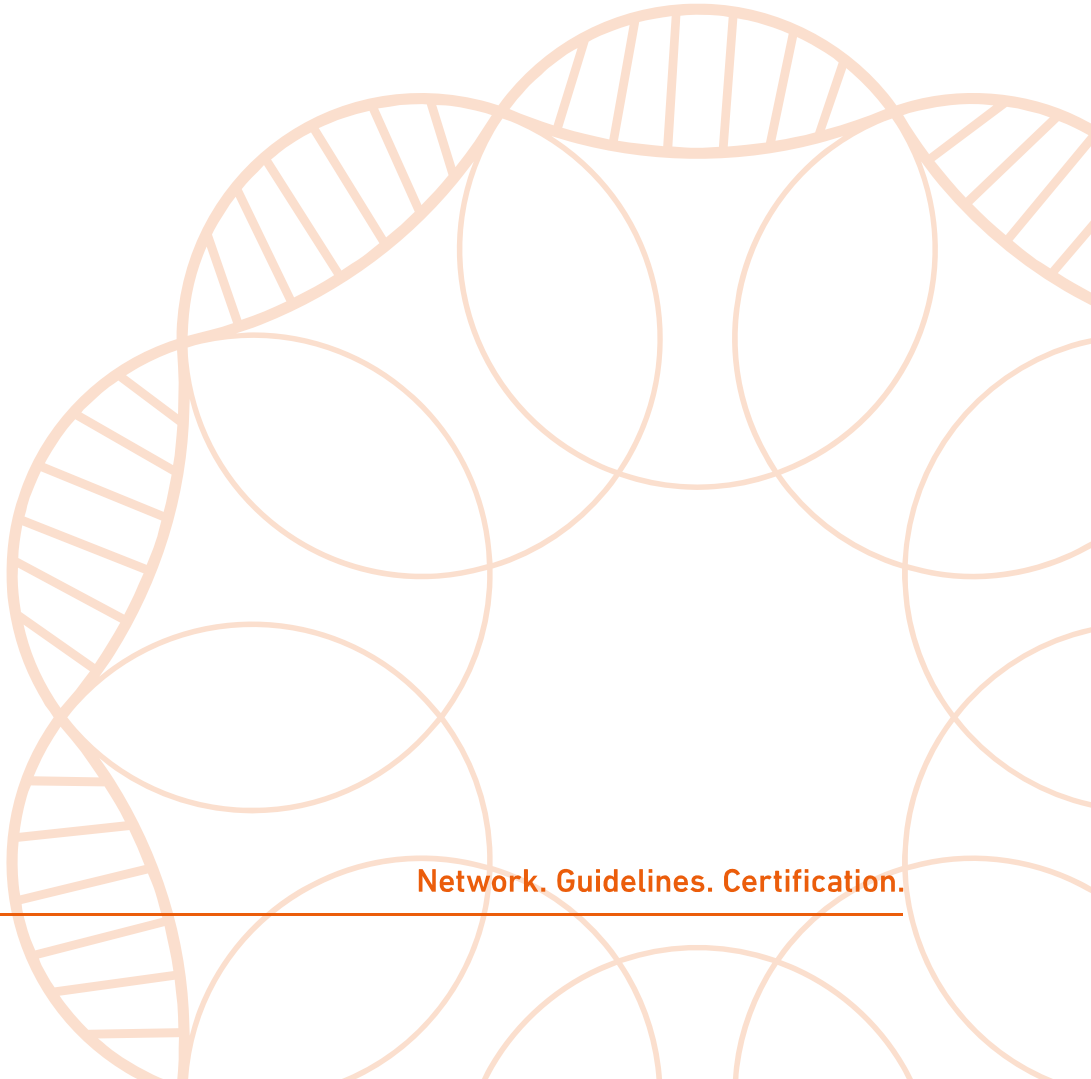
THE GLOBAL STANDARD
FOR LIVESTOCK DATA

ICAR Guidelines for installation of the milk meters

Afikim MM81 and MM85 Milk Meter

Version July 2018



Network. Guidelines. Certification.

Table of Contents

1 Milk meter types

1.1 Control Box Versions

There are two versions of the SAE Afikim electronic milk meter. Both versions use identical meter bodies and Butterfat samplers. The differences between them lie only in the meter control boxes.

1.2 MM81 Meter

The MM81 version control box has a three segment display of milk weight. This display records milk weights in alternating increments of 0.4 lb. and 0.5 lb.

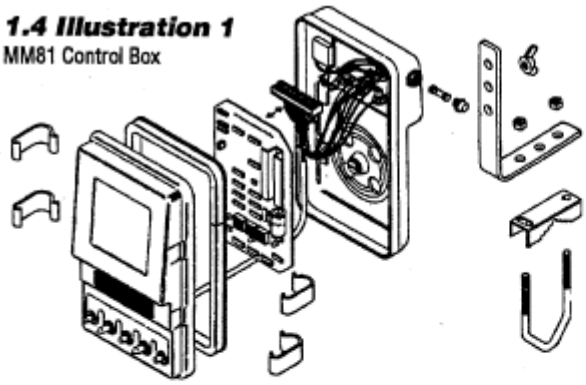
Beneath the milk yield display window, there are five control switches.

1.3 MM85 Meter

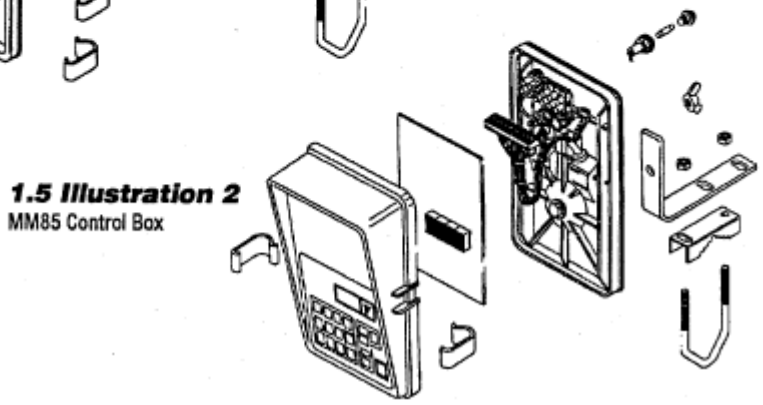
The MM85 version control box has a four segment display of milk weight. This display records to two decimal places in increments of 0.44 lb.

The display window is part of a multinumber touch sensitive key pad.

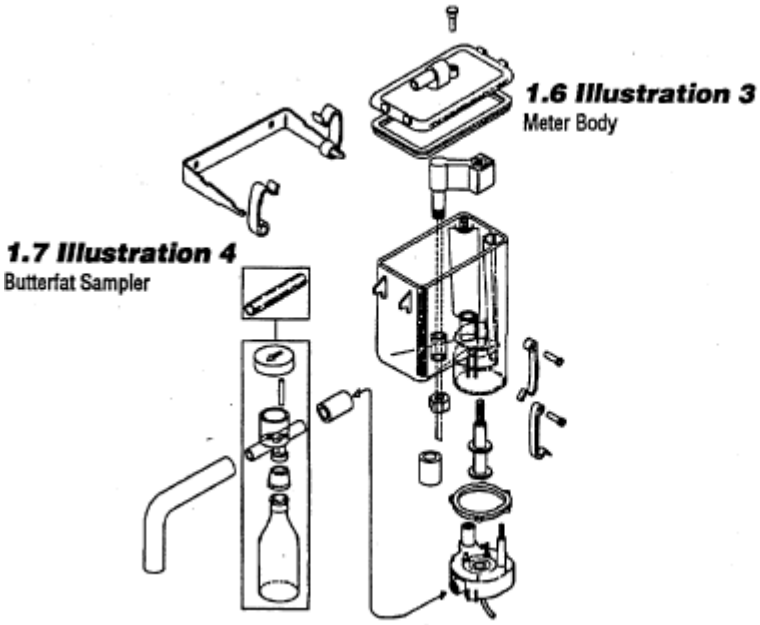
2 Milk meter types



1.4 Illustration 1
MM81 Control Box



1.5 Illustration 2
MM85 Control Box



1.6 Illustration 3
Meter Body

1.7 Illustration 4
Butterfat Sampler

3 Using the meter

2.1 Setting Up For Milking

a. Switch "ON" vacuum.

b. Switch "ON" the power at the transformer.

c. Press the Cleaning key to cancel cleaning mode, check that the Cleaning indicator turns off.

d. Press the Manual Take off key to raise the claw.

2.2 Milking "Normal" Cows

Press the Start key. This will zero the display, lower, and put vacuum to the claw.

After attaching the claw to the cow, it will be removed automatically at the end of the milking cycle.

2.3 Milking "Difficult" Cows

If required, the Automatic Take off function can be overridden by pressing the Cancel Auto-Take Off key.

In this mode the claw will remain on the cow until it is removed manually by pressing the Manual Take off Key. Pressing this key does not zero the display.

2.4 Kick Offs

Press the Start key twice in rapid succession, this will allow the claw to be lowered for re-attachment to the cow without zeroing the display. The meter will continue to count, adding to the milk weight that was on the display before the claw was kicked off.

4 DHIA butterfat sampling and yield recording

3.1 Preparing The Meters

a. Ensure that all claw air bleeds are open.

b. Remove, clean and re-insert the plastic air bleed plug on the meter lid. This plug allows a small amount of air into the meter body necessary for accurate butterfat sampling.

c. Insert the fat sampler with the arrow on the sampler body and the arrow on the rubber sampler lid pointing in the direction of flow of milk.

d. Ensure that the fat sampler is vertical.

e. Attach the sampler bottle.

3.2 Recording

On official recording days, cows are milked in the normal way.

After a cow is milked out, the recorder should wait for approximately thirty seconds before removing the fat sampler bottle and recording the milk yield. This is to allow foam remaining in the meter body to condense into milk which may cause the meter to add a further 0.44 lb. (0.2 kg.).

The contents of the sampler bottle should be thoroughly agitated by shaking before the sample is taken.

Having a spare bottle on hand, to exchange with the full one removed from the butterfat sampler, will speed up the work routine.

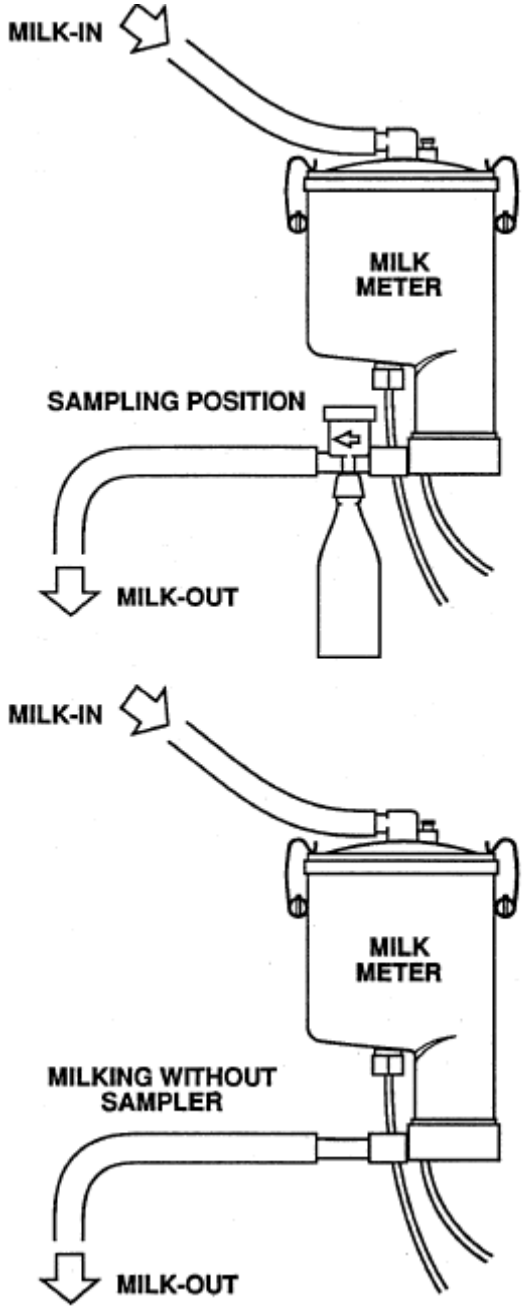
3.3 Cleaning The Sampler

After milk recording is completed, the samplers should be removed from the meters and washed.

Remove the sampler lid and thoroughly rinse all parts in a hot detergent or disinfectant solution and rinse in clear water.

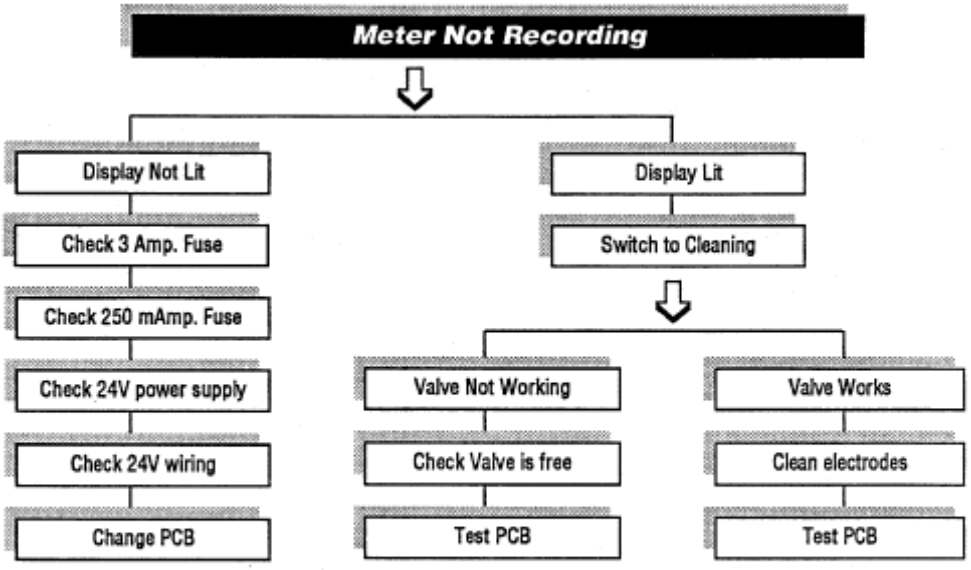
The samplers should be stored dry between recordings and not left in detergent or disinfectant solution.

4.1 Butterfat sampler installation illustration

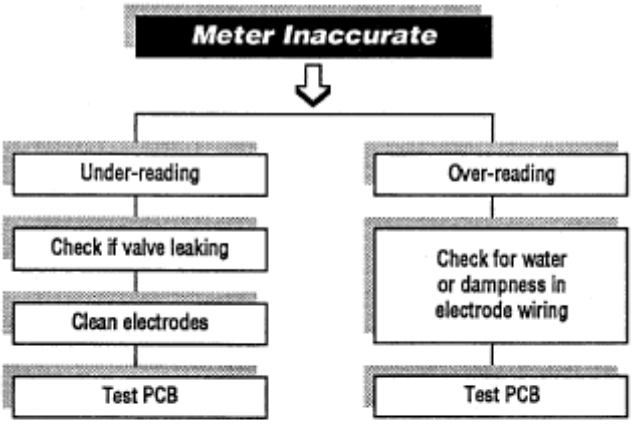


- The arrow on the sampler body and th arrow on the sampler lid must be pointin in the direction of the flow of milk.
- The sampler must be vertical.

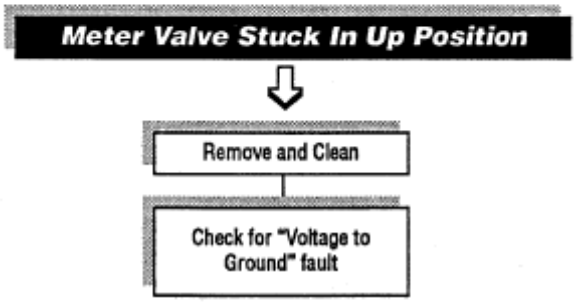
5 Trouble shooting charts



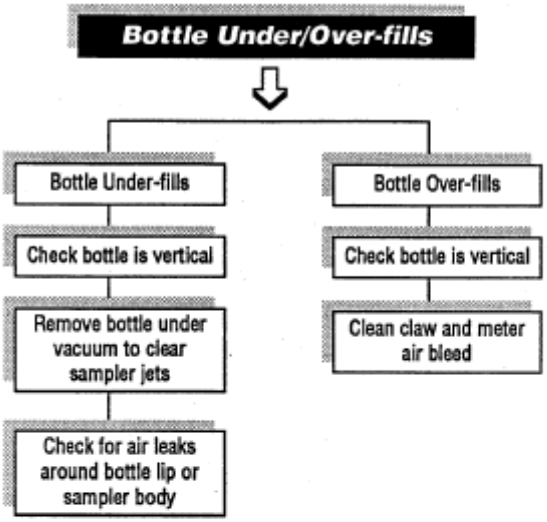
4.2 Illustration 7



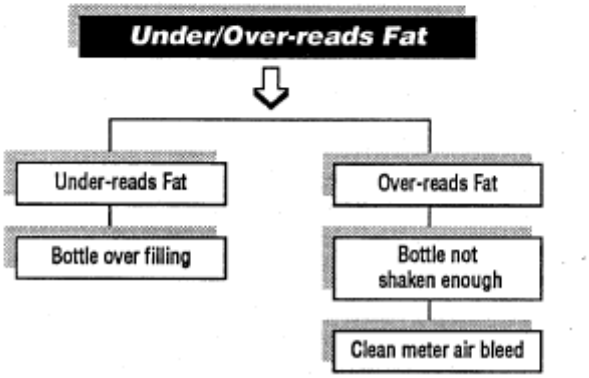
4.3 Illustration 8



6 Butterfat sampler problems



5.2 Illustration 10



7 DHIA meter calibration

It is a requirement of National D.H.I.A. that all meters used for official milk recording be tested for accuracy. This test must be performed by the installer before the first official test day and annually thereafter.

The installer should perform the test procedure detailed below, fill out the attached test result sheets and send a copy to the local D.H.I.A. Manager.

Test sheets are available from SAE Afikim. A sample of a completed test sheet is given in Illustration 13.

6.1 Equipment Required

- ✔ Vacuum source providing a stable 10–15 inches of vacuum.
- ✔ Vacuum trap e.g. bucket milker or weigh jar.
- ✔ 25 pound capacity pail.
- ✔ Suction hose fitted at the inlet with the SAE Afikim test restrictor. Part #5200033
- ✔ Accurate scales (minimum resolution $^1/_{10}$ lb.).
- ✔ 20 Lbs (9.1Kg) of water at approximately 70° F, to which 25cc of table salt has been added. The body of a hypodermic syringe is readily available on most farms and can be used to measure the salt.

6.2 Test Set Up

Assemble the test equipment as shown in Illustration 11.

The arrow on the Test Restrictor must be pointing in the direction of flow of the salt water.

There must be a continuous fall in the 3/4 inch I.D. (20mm) pipe which connects the outlet of the meter to the vacuum trap.

6.3 Test Procedure

Clean the meter lid air bleeds.
Switch on the power to meters.

Switch on vacuum pumps as for milking.

Be sure that the meter is in the Milking Mode (cleaning LED out).

Fill the bucket with 20 Lbs (9.1Kg) of the salt water.

Open the shut–off valve and allow all of the salt water to be drawn from the bucket through the meter to the vacuum trap.

Do not drain the residual water from the meter into the vacuum trap.

Record the meter display in the "Meter" column of the test sheet.

Weigh the test fluid in the vacuum trap and record the figure in the "Bucket" column of the test sheet.

Calculate the "P" value as follows and record in the "P" column of the test sheet:

METER DISPLAY divided by WEIGHT OF SALT WATER IN VACUUM TRAP multiplied by 100 = "P" value.

$$\frac{\text{METER DISPLAY}}{\text{SALT WATER}} = \text{"P"}$$

Drain the residual water from the meter.

Perform this procedure twice. Both "P" values should be in the range of 97% – 103%.

Do not adjust for specific gravity of milk vs. water. (This is accounted for in the test procedure.)

When the testing is complete, thoroughly rinse all equipment with clean water. Salt water is highly corrosive and must not be left in the meter.

6.4 Test Restrictor

This is Afikim part Number 5200033 and available from SAE Afikim at the address on the back of this manual. See Illustration 12.

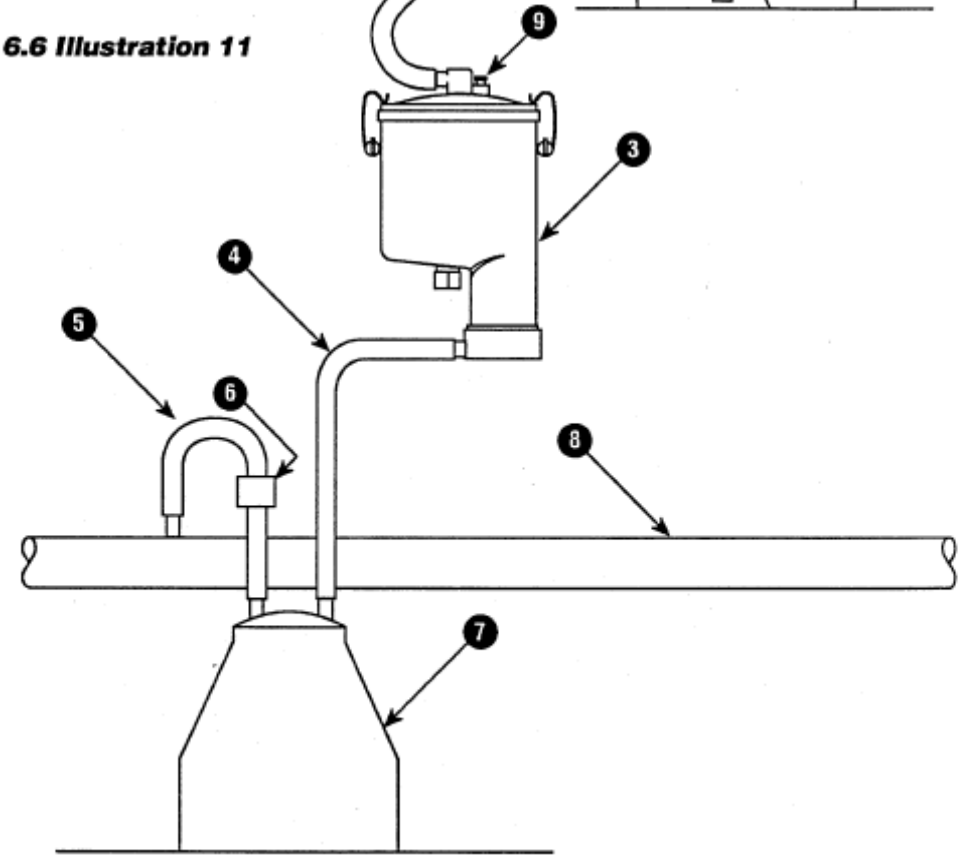
8 DHIA meter calibration

D.H.I.A. Meter Calibration

6.5 Key to Illustration 11

Key No.	Description
1	Pail
2	Test restrictor #5200033
3	Meter body
4	Outlet pipe
5	Vacuum hose
6	Shut off vacuum
7	Vacuum trap
8	Milk line
9	Meter lid air bleed

6.6 Illustration 11



6.7 Illustration 12

Test restrictor

9 Test sheet example

SAE AFIKIM MM85 MILK METER – D.H.I.A. CALIBRATION TEST SHEET

Owners Name: John Doe
Address: 114 Valley Oak Dr.
City: Farmersville State: Calif. Zip: 12345
Phone No: (209) 123-4567

Tester: Bill Smith
Address: 41125 Ave. 362
City: Heartland State: Calif. Zip: 54321
Phone No: (209) 123-3210

Number of Meters: 12 (6 x 6) Date Tested: 7/4/91

TEST RESULTS

SERIAL #	METER	BUCKET	"P"	SERIAL #	METER	BUCKET	"P"
02-057	1980	197	1005	01-729	1980	199	995
02-065	1980	197	1000	06-590	1980	1985	997
01-120	1980	199	995	01-800	1980	198	1000
01-048	1980	199	995	05-118	1980	198	1000
01-411	1980	198	1000	02-251	1980	196	1010
01-152	1980	197	1005	01-618	1980	197	1005
02-086	1980	1985	997	02-710	1980	197	1005
02-114	1980	199	995	02-650	1980	198	1000
01-097	1980	198	1000	06-911	1980	199	995
01-321	1980	1975	1003	05-413	1980	198	1000
02-112	1980	196	1010	02-047	1980	198	1000
02-028	1980	198	1000	01-255	1980	1975	1003

SAE AFIKIM MM85 MILK METER – D.H.I.A. CALIBRATION TEST SHEET

Owners Name: ____________________

Address: ____________________

City: ____________________ State: __________ Zip: __________

Phone No: (   ) ____________________

Tester: ____________________

Address: ____________________

City: ____________________ State: __________ Zip: __________

Phone No: (   ) ____________________

Number of Meters: ____________________ Date Tested: ____________________

TEST RESULTS

SERIAL #	METER	BUCKET	"P"	SERIAL #	METER	BUCKET	"P"