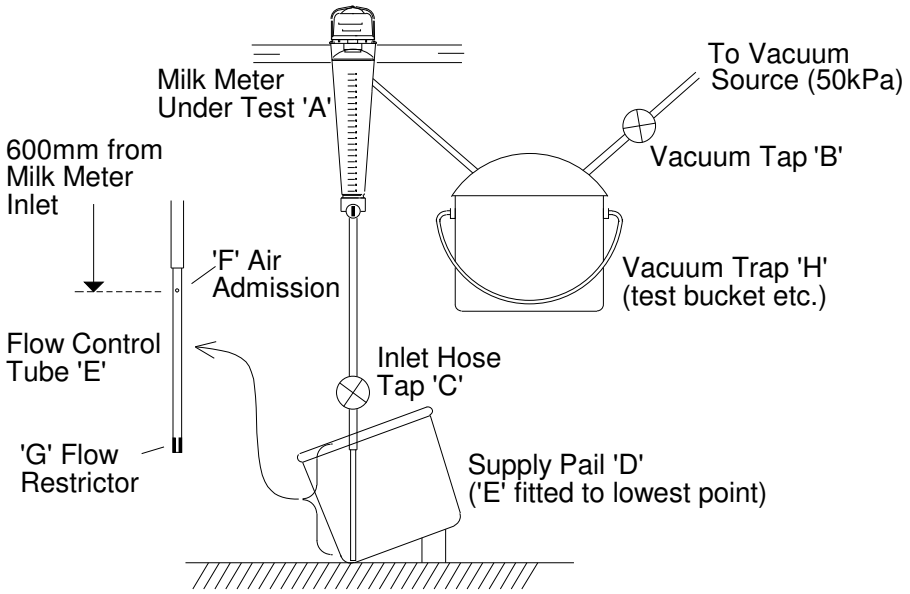
This test procedure is specified by the DHIA and approved by ICAR.

10.1. TEST RIG SET UP



10.1.1 Mount the ***SPEEDSAMPLER*** ensuring that the base of the metering head is horizontal.

10.1.2 Place the ***SPEEDSAMPLER*** inlet hose into an open 18 litre (40lb) pail (D) directly below the meter. The inlet hose must contain a restrictor (G) to ensure a flow of 3.5 to 4.0 litres per minute at the available vacuum level, and a 1 mm diameter (No.60 drill) air admission hole (F) located 600mm (24 inches) from the metering head inlet to admit 15 l/min (0.5 cfm) free air.

10.1.3 Fall the ***SPEEDSAMPLER*** outlet hose directly into the inlet of a vacuum trap (H), (for example test bucket, pail milker, or weigh jar). Connect the vacuum trap outlet to a stable 50 kPa (15" Hg) vacuum source.

10.1.4 Include vacuum taps in the inlet hose (C) and the vacuum source hose (B).

10.1.5 Volumetric flasks or accurate scales will be required.

10.2. TEST PROCEDURE

10.2.1 Using water as the working fluid fill the supply pail (D) with 16 litres (16 kg or 35.26 lb).

10.2.2 With the inlet tap (C) closed, open the source vacuum tap (B).

10.2.3 Ensure that the internal surfaces of the ***SPEEDSAMPLER*** are damp so that valves seal properly, and that the flask tap is in the **MILK** position.

10.2.4 Open the inlet hose vacuum tap (C).

10.2.5 Draw all of the water from the supply pail (D) through tube (E) past the air admission hole (F) through the metering head (A) and into the vacuum trap (H).

10.2.6 Record the flask reading. (Read the bottom of the meniscus).

10.2.7 Purge the flask by simultaneously blocking the **ACTIVATOR HOLE** and pressing the **AGITATOR BUTTON**.

10.2.8 When flask is empty close the source vacuum tap (B).

10.2.9 When vacuum trap (H) has returned to atmospheric pressure close the inlet hose tap (C).

10.2.10 Refill the supply pail with exactly 16 litres of water and repeat the procedure, to obtain two results per meter.

10.3. RESULTS ANALYSIS

Calculate the `p-values' for each reading as follows:

$$p = \frac{\text{meter reading in kg}}{16.48} \times 100\%$$

If both 'p-values' are in the range 97% to 103% the meter is acceptable.

If only one of the 'p-values' is outside the range 97% to 103%, perform the test a third time. The meter is then considered acceptable if no single 'p-value' is outside the range 95% to 105% and the mean of all three values is within the range 97% to 103%.

Withdraw from service any meter that fails this test, and submit it to a certified service agent for repair and recalibration.

Submit ***SPEEDSAMPLERS*** that have damaged calibration dependent parts, or those that have failed the Periodic Test Procedure to an authorised Repair and Recalibration Centre (e.g. DHIA in the USA) for repair.

11.1. DAMAGED *SPEEDSAMPLERS*

The parts of a ***SPEEDSAMPLER*** that may affect calibration are the flask, cover, and base assembly (See Section 12).

Replace damaged parts and closely inspect the other main parts. (See Section 7).

Re-test the ***SPEEDSAMPLER*** as described in Section 10. The resultant meter p-values must meet the criteria specified.

11.2. *SPEEDSAMPLERS* THAT FAIL THE 'PERIODIC TEST PROCEDURE'

To recalibrate a ***SPEEDSAMPLER*** that has failed the periodic test procedure,

- Replace the base assembly and retest.
- If the meter fails, replace the cover and retest.
- If the meter fails, replace the flask and retest.

A failure at this point is unlikely, but if a single case occurs, repeat the inspection and replacement procedure. If a large number of failures occur at this point, check the test rig and testing procedure for any points of non-compliance with these recommended procedures.

