PROCEDURES FOR THE CALIBRATION OF TYPE B PRESSURE METERS AASHTO T 152

A. PURPOSE

These procedures will be used to instruct personnel in the proper methods used to calibrate Type B pressure meters to insure uniformity and accuracy in entrained air tests for concrete.

B. APPARATUS

1. Scale with capacity of 200 pounds (90 kg) and readable to .10 pound (5 g).
2. 100 mL graduated flask.
3. 1 ft. x 1 ft. x 1/2 in. (300 mm x 300 mm x 12.5 mm) glass plate
4. Threaded pipe or rubber tubing.
5. Small amount of pump grease.
6. Rubber syringe.

C. PROCEDURE

1. Weigh the empty measuring bowl with the glass placed on it.
2. Place a thin film of pump grease around flange of measuring bowl.
3. Fill measuring bowl with water.
4. Use glass to screed water from bowl making sure no air bubbles are trapped in bowl.
5. Weigh the measuring bowl, glass and water.
6. Subtract the weight of the empty measuring bowl and glass from the weight of the full measuring bowl and glass.
7. Screw the short piece of tubing or pipe furnished with the apparatus into the threaded petcock hole on the underside of the cover assembly.
8. Assemble the apparatus.
9. Close the air valve between the air chamber and measuring bowl.
10. Open the two petcocks.
11. Add water through the funnel petcock with the extension below until air is expelled from the second petcock.
12. Close both petcocks.
13. Pump air into chamber until the pressure reaches the indicated initial pressure line.
14. Allow a few seconds for the compressed air to cool.
15. Stabilize the gage hand at the initial pressure line by pumping or bleeding off as necessary.
16. Open main air valve to release air into measuring bowl.
17. Pressure gage needle should read ± 0.1% from zero.

18. If two or more determinations show the same variation from zero, adjust the initial pressure line and repeat test to check the adjusted initial pressure line.
19. If Step 18 was necessary, repeat Steps 10 through 17.
20. Remove excess water from funnel cock and petcock.
21. Open the two petcocks.
22. Remove the calculated 5% volume of water from the measuring bowl.
23. Repeat Steps 12 through 16.
24. The indicated air content on the pressure gage dial should read 4.9 – 5.1%.
25. If two or more determinations show the same variation from the correct air content, the dial hand shall be reset to the correct air content and the test repeated until the gage reading corresponds to the calibrated air content.
26. If Step 25 was necessary, repeat Steps 10 thru 24.

D. TOLERANCE

All equipment shall conform to the specified tolerance set down in AASHTO T 152.

EQUIPMENT VERIFICATION RECORD

Verified By: _____ Date: _____

Equipment: Type B Pressure Meter Location (Lab): _____

Identification No.: _____ Verification Frequency: _____

Previous Verification Date: _____ Next Due Date: _____

Verification Equipment Used: Scale, SN: _____ 1' X 1' X .5" (300 mm x 300 mm x 12.5 mm) glass plate; 100 ml graduated flask; threaded pipe or rubber extension tube; rubber syringe; thermometer 0º-100ºC, SN: _____

Verification Procedure: (In-house) OMR-CVP-21 / AASHTO T 152, Appendix X.1 – X.3, X1.5.2, X 1.a

T 152 Appendix X.1 – X..3

Weight of measuring bowl, glass and water = _____ kg

Weight of measuring bowl and glass = _____ kg

Weight of water = _____ kg

Temperature of water = _____ ºC

Unit weight of water from chart (T 19, Table 3) = _____ kg/m³

Volume of measuring bowl = _____ m³

5% of measuring bowl's volume:
(Unit wt. of water) X (Vol. of bowl) X (22.727) = _____ ml

AMOUNT OF WATER WITHDRAWN (ml)	THEORETICAL GAGE READING (%) [1]	ACTUAL GAGE READING (%) [2]	DIFFERENCE BETWEEN [1] & [2]