

## VACUUM MEASUREMENT DEVICES

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### 1. SCOPE

- 1.1 Use this procedure to inspect and check the accuracy of vacuum gauges. [TxDOT Test Procedure](#), Tex-227-F, requires the use of the calibrated vacuum measurement device
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### 2. APPARATUS

- 2.1 *Mercury Manometer*, able to determine the level of pressure (vacuum) within the vacuum system.
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### 3. PROCEDURE

- 3.1 Place the mercury manometer in series with the vacuum pump such that the actual pressure, based on the manometer reading, is 30 mm or less.
- 3.2 Record the manometer reading in millimeters, the gauge reading in inches, and the barometric pressure in millimeters of mercury.
- 3.3 Convert the gauge reading from inches to millimeters.
- 3.4 Calculate the actual gauge pressure in accordance with Section 4.1.
- 3.5 Calculate the gauge correction factor in accordance with Section 4.2.
- 3.6 Apply the correction factor to the gauge reading to insure that the actual pressure maintained during the test is equal or less than 30 millimeters.
- 3.6.1 A negative correction factor indicates the pressure in the system is actually lower than indicated by the gauge reading, and the absolute value of the correction factor should be added to the gauge reading to determine pressure in the system.
- 3.6.2 If the correction factor is positive, the pressure in the system is higher than would be indicated by using the gauge reading, and the correction factor should be subtracted from the gauge reading.

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| HOT MIX ASPHALT (HMA) IN-HOUSE CALIBRATION PROCEDURE # 1<br>VACUUM MEASUREMENT DEVICES |
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**4. CALCULATIONS**

4.1 Calculate the actual gauge pressure:

$$\text{Actual Pressure by Gauge (mm)} = \text{Barometric Pressure (mmHg)} - \text{Gauge Reading (mmHg)}$$

4.2 Calculate the gauge correction factor:

$$\text{Gauge Correction Factor} = \frac{\text{Manometer Reading (mm)} - \text{Actual Pressure by Gauge (mm)}}{25.4}$$