



## Requirements for Calibrating, Adjusting and Sealing Vehicle Tank Meters

(Revised 7/2/15)

1. These are the VTM (vehicle tank meter) tolerances that have been established by NIST (National Institute of Standards and Technology).

<u>Normal (fast) test</u> (1) Acceptance tolerance            0.15% (2) Maintenance tolerance           0.3%	<u>Repeatability</u> (1) Tests at same flow rate        0.12%
<u>Special (slow) test</u> (1) Acceptance tolerance            0.45% (2) Maintenance tolerance           0.45%	<u>Determining which tolerance to apply</u> (1) Apply acceptance tolerance to new meters that have never been calibrated and sealed by the OPS. (2) Apply acceptance tolerance to existing meters that have been repaired or adjusted within the past 30 days. (3) Apply maintenance tolerance to existing meters that were <u>not</u> repaired or adjusted within the past 30 days.
<u>Product Depletion Test</u> (1) 1.5 inch meter-result of normal test + 0.45% (2) 2 inch meter - result of normal test + 0.59% (3) 3+ inch meter-result of normal test + 0.99%	

2. Any meter whose initial calibration is outside the acceptable tolerance as established by NIST must be adjusted to **as close to zero as possible**. Any meter that cannot be adjusted to the NIST tolerance on the negative side will immediately be placed out of service. Any meter that cannot be adjusted to the NIST tolerance on the positive side will be placed out of service only at the meter owner's request.
3. Only employees of companies authorized by OPS (the Division of Oil and Public Safety) may adjust, seal and place in service vehicle tank meters in Colorado.
4. Only employees who have individually been authorized by OPS may adjust, seal and place in service vehicle tank meters in Colorado.
5. Meter owners/operators **may not** adjust and seal their own meters. Meters may only be adjusted and sealed by registered service agency employees approved by OPS.
6. Only NIST Handbook 105-3-compliant volumetric provers may be used to calibrate vehicle tank meters. Use a prover large enough to accommodate the maximum flow rate of the meter.
7. All provers must be calibrated by a NIST-certified state metrology laboratory. All provers must be recalibrated every 24 months or sooner if the prover has sustained damage or if there is reason to question its accuracy.
  - a. In Colorado, the state metrology laboratory is located at the following address.  
 Colorado Department of Agriculture  
 Measurement Standards Section  
 3125 Wyandot Street  
 Denver, CO 80211-3859  
 Phone: 303-477-4220  
 (Certification from another state's metrology laboratory is also acceptable.)
  - b. Copies of certificates must be sent to OPS every 24 months.

8. Proper calibration of a vehicle tank meter includes the following:
  - a. Normal (fast) test as found: run at maximum discharge rate that meter will accomplish under the conditions of installation. If within tolerance, then-
    - i. Special (slow) test: run at minimum flow rate marked on meter or 20% of maximum marked on meter. If within tolerance, then-
      - Product depletion test: run at maximum discharge rate until supply is depleted in first compartment and meter comes to a complete stop for at least 10 seconds. If meter fails to stop, continue to operate for 3 minutes then fail. Finish test by switching to another compartment to complete test. **This requirement is not applicable to VTMs used solely for the delivery of aviation fuel.**
9. Each company authorized to calibrate, adjust and seal vehicle tank meters shall apply to renew its authorization every 12 months using the form provided by OPS.
10. Each individual authorized to calibrate, adjust and seal vehicle tank meters shall apply to renew his/her authorization every 36 months using the form provided by OPS.
11. No company or individual whose authorization to calibrate, adjust and seal vehicle tank meters has lapsed or been rescinded by OPS may seal vehicle tank meters.
12. Seals shall be lead and wire seals at least 3/8" in diameter.
13. The seal press shall identify the company and the identifying number of the individual technician who calibrated and sealed the meter.
14. Each company authorized to calibrate, adjust and seal vehicle tank meters in Colorado shall provide to OPS a legible copy of its identifying company seal.
15. OPS may rescind a company's or an individual's authorization to adjust and seal vehicle tank meters if any of the following occur.
  - a. Follow-up inspections by OPS indicate multiple instances when the actual calibration is outside of NIST tolerance.
  - b. Follow-up inspections by OPS indicate unusual circumstances, such as all adjustments showing a negative amount.
  - c. Information on a company's or individual's application is found to be false.
  - d. Failure of a company to submit placed in service and calibration reports to OPS within the mandatory 7 days from the date of the inspection.
  - e. Failure of a company to have its provers calibrated every 24 months and provide copy of the certificate from a NIST-certified state metrology laboratory to OPS.
16. Each company whose employees are authorized to calibrate, adjust and seal vehicle tank meters will provide to OPS reports of new or remanufactured meters placed in service, repaired meters returned to service and in-service meters calibrated and sealed. These reports shall be on forms approved by OPS and shall be submitted to OPS within 7 days of the activity date.
17. An individual authorized by OPS to seal vehicle tank meters shall return to his/her employer the company seal at such time as his/her employment with that company ceases.
18. Allowing private companies to adjust and seal vehicle tank meters does not in any way compromise or replace the State's calibration program. OPS inspectors will continue to calibrate and seal all vehicle tank meters in Colorado as scheduled, regardless of whether a private company has already performed this function. Only OPS inspectors may use the official OPS lead seal. Private technicians will use their company's identifying seal.

**I have read and understood the foregoing requirements, and I agree to abide by them.**

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_