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REQUIREMENTS FOR THE INSPECTION AND CALIBRATION OF MOTOR FUEL DEVICES

This document outlines the minimum steps that should be followed when conducting the inspection and calibration of motor fuel devices - it is not intended to replace NIST Handbook 44 and its requirements. Handbook 44 should be used for further detail and information not provided in this guideline. **The use of proper safety equipment and safety procedures should be observed at all times.**

Required specialized equipment:

1. Calibrated test measure (proving can) traceable to NIST national standards. Test measure must be calibrated annually, or more frequently if the test measure is damaged or its accuracy is questioned. For meters with a maximum flow rate <20 gpm, a test measure of at least 5-gallons is required.
2. Security seals with 3/8" diameter head minimum (i.e. lead and wire seal), and seal press with dies identifying company and calibration technician on opposite sides.

General safety requirements:

1. Know emergency procedures and location/operation of fire extinguishers and emergency shut-off switches.
2. Use traffic safety cones and be aware of vehicular and pedestrian traffic.
3. Use personal protection equipment and clothing appropriate for the work being performed.
4. If leaks or spills are found, facility personnel should be notified, and steps taken to isolate the source of the leak where possible (i.e. closing a fire valve). Depending on the size of a spill or release, owner/operator notification to OPS may be required within 24 hours.
5. Avoid switch-loading – calibrate meters dispensing low vapor pressure products (diesel) before meters dispensing high vapor pressure products (gasoline) to avoid increased risks due to static electricity.

General considerations:

1. Dispenser and meter must be accessible for inspection, testing, and the installation of security seals.
2. Product storage tanks or another suitable container/method of returning product must be made available.
3. Product storage tanks are marked or color coded to indicate the product contained.
4. Dispenser must be securely mounted and adequately protected from collision.
5. Dispenser must be maintained in proper operating condition.
6. All required postings/markings, including product identity, octane rating, oxygenate use (where applicable), operating instructions, and warning signs, are clearly displayed.
7. Amount dispensed display (gallons/liter) is operational and clearly readable on each face of the dispenser.
8. Unit price display (price per gallon/liter) is operational and clearly readable on each face of the dispenser.
9. Where product is offered for sale at more than one unit price (i.e. cash or credit pricing), except for fleet or contract sales, the unit price must be able to be selected by the customer, and the dispenser must be able to display that price, before delivery begins.
10. Hose length does not exceed the maximum length allowed for the service it is in, and that it is equipped with a listed emergency breakaway device and an automatic shutoff and pressure-sensitive nozzle.

Inspection items before/during calibration:

1. Determine tolerances that will be applied.
2. If test measure is dry (i.e. the first calibration of the day), add one cubic inch to the gauge reading to allow for the amount of liquid required to "wet" the measure.
3. Hand held test measures require a 30-second (± 5 s) pour followed by a 10-second drain, with the measure held at a 10-15 degree angle from vertical.
4. Verify that a security seal is present and intact on the meter, and that the seal would have to be broken before an adjustment could be made.
5. After pump authorization, but before activating the nozzle and delivering any fuel, verify that price and amount dispensed displays return to zero, and that meter jump or meter creep does not occur.
6. Verify that totalizers are present and operational where required.
7. Check for agreement between indications, and that price computations are correct.
8. Verify that printed receipts are in agreement with amounts displayed at the dispenser, and that the receipt contains required information, including total volume, unit price (price per gallon/liter), total computed price, and product identity.
9. Determine if any conditions of abnormal performance exist, and inform owner/operator.
10. Record all information on the required forms.

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Tolerances:

1. Acceptance tolerance of ±3 cubic inches (in^3) will be applied to meters that are new, reconditioned/rebuilt, or that have been serviced.
2. Maintenance tolerance of ±6 in^3 will be applied to meters that are in use and being routinely calibrated.

Calibration :

NOTE: All adjustments must be as close to zero as possible, and must be within ±3 in^3.

Single, dual, and multi-product motor fuel dispensers (except blenders):

1. Drain any residual fuel remaining in the nozzle from previous deliveries into a suitable metal container.
2. Conduct normal test at full (fast) flow. Apply acceptance or maintenance tolerance as required. If result is at or near tolerance limit, repeat test to confirm.
3. If normal test indicates meter is out of tolerance, adjustment is required. Repeat normal test. If meter cannot be adjusted to within ±6 in^3, meter requires maintenance and may not be used until completed.
4. If normal test indicates meter is out of tolerance and an adjustment was made, conduct special test at slow flow (5 gpm or slowest setting of nozzle, whichever is slower). Apply acceptance or maintenance tolerance as required.
5. If special test indicates meter is out of tolerance, meter requires maintenance and may not be used until completed.
6. With the dispenser turned off, check effectiveness of the anti-drain nozzle by raising a 3-foot section of hose immediately behind the nozzle so that it is higher than the nozzle, and verify there is no product flow when the nozzle is opened. A small amount may dribble out, but should only be momentary.
7. Apply security seal if adjustments were made.

Blended-product motor fuel dispensers:

1. Drain any residual fuel remaining in the nozzle from previous deliveries into a suitable metal container.
2. Test lowest grade. Conduct normal test at full (fast) flow. Apply acceptance or maintenance tolerance as required. If result is at or near tolerance limit, repeat test to confirm.
3. If normal test indicates meter is out of tolerance, adjustment is required. Repeat normal test. If meter cannot be adjusted to within ±6 in^3, meter requires maintenance and may not be used until completed.
4. Test highest grade. Conduct normal test at full (fast) flow. Apply acceptance or maintenance tolerance as required. If result is at or near tolerance limit, repeat test to confirm.
5. If normal test indicates meter is out of tolerance, adjustment is required. Repeat normal test. If meter cannot be adjusted to within ±6 in^3, meter requires maintenance and may not be used until completed.
6. Test at blend. Conduct special test at slow flow (5 gpm or slowest setting of nozzle, whichever is slower). Apply acceptance or maintenance tolerance as required. **Return blended product to lowest grade tank** (blended midgrade unleaded is returned to regular unleaded tank). Repeat test for other blends.
7. If special test indicates meter is out of tolerance, meter requires maintenance and may not be used until completed.
8. With the dispenser turned off, check effectiveness of the anti-drain nozzle by raising a 3-foot section of hose immediately behind the nozzle so that it is higher than the nozzle, and verify there is no product flow when the nozzle is opened. A small amount may dribble out, but should only be momentary.
9. Apply security seal if adjustments were made.

Results and reporting:

1. Final normal test results for all meters must be averaged. If the average result is greater than ±4 in^3, this is not considered to be maintained in a proper operating condition. One or more meters (as many as is required to bring the average result within this tolerance) must be adjusted to as close to zero as possible, and must be within ±3 in^3.
2. Record all information and results on the required forms. Provide copies to the owner operator, and submit copies to OPS as required.

I have read, I understand, and I will abide by the foregoing requirements.

Signed: _____ **Date:** _____

Print or type name: _____ **Title:** _____