

# WEIGHTS & MEASURES TESTS AND EQUIPMENT

## Fuel Dispensers



Retail motor fuel dispensers are probably the most recognized tests conducted by W&M. A 5-gallon trailer mounted prover is used to check the accuracy of each fuel dispenser. The maintenance tolerance of a 5-gallon test draft on a fuel dispenser is plus/minus 6 cubic inches. (231 cubic inches = 1 gallon) The station must also display the correct price options for the consumer at the top of the dispenser. If a station offers both credit and cash pricing both prices must be displayed. Other decals on the dispenser will display the octane choices available (87, 89, 93), and the percentage of Ethanol in the fuel. Decals are also required for all diesel (on/off road) and kerosene (dyed/un-dyed) dispensers. All underground storage tank covers must be painted the correct color codes to identify each product stored.



## Electronic Scales



Test method used for testing electronic scales such as this check out scale used at a local supermarket. Weight is added to the scale in increments until the scale's rated maximum capacity is achieved. This image shows the full scale capacity of 30 pounds resting on the scale. This identical test method is also used for all electronic Computing Scales (weight x price/pound = total price) which can be found in the deli, produce, meat, and bulk food sections of your local supermarkets or any specialty business selling product by weight. Labels found on these products also must comply with NYS W&M regulations. For details on W&M label requirements visit the NYS W&M website.

## Vehicle Scales



Large capacity vehicle scales are routinely found at salvage yards and gravel pits. Most county W&M departments do not have the required equipment for testing these large scales with capacities of 120,000 pounds and higher. Trucks weighing over 80,000 pounds are routinely weighed on



these scales. The W&M department will work with a local scale company for these types of tests. The scale company must provide a certified weight cart and certified weights to conduct these tests. The cart and weights together will weigh in at 25,000 pounds. We then can use substitution weights, such as the weight truck, in order to "build up" to the final test weight of the scale at over 100,000 pounds.



## Fuel Oil Meters

The county W&M department tests all vehicle tank meters used to deliver fuel oil, kerosene, gasoline, and diesel products. The 132 gallon prover in the picture is a NYS W&M certified county prover. Product is delivered through the meter on the truck into the trailer mounted prover.



Volume delivery is checked and if necessary, the meter is adjusted, and the test is repeated. Products delivered through vehicle tank meters that have a higher density (such as passenger car and truck motor oils, hydraulic oils, and transmission fluid) are tested gravimetrically (by weight).

## Milk Tanks



Milk tank testing is conducted on new tank installations or tanks that are no longer in the acceptable tolerance. Milk tank capacities range from 400 to 8000 gallons depending on the size of the farm. The smaller milk tanks can be tested with water using a 5 or 10



gallon slicker can mounted above the milk tank. Each drop is logged and the volume of each drop is read on the tank stick or in larger tanks is read at the tank sight gauge. At the conclusion of the test this data is converted to a pound chart for the farm. The pound chart will tell the farm how many pounds of milk are produced by the level on the tank stick or in the sight gauge. Larger tanks, like the one pictured, normally requires the milk association connected with the farm to provide a large volume of water pumped through a truck mounted certified meter to make the individual drops.



## Farmers Markets

Farmers markets are growing in popularity across the country. Those vendors participating at farmers markets must follow the same rules and regulations as found in the neighborhood supermarket. Any scales used by the vendors during the commercial transaction must be type-approved, tested, and sealed by W&M. Package labeling regulations must be followed on all pre-packaged commodities offered for sale.

## Timing Devices

Time is commonly purchased by the consumer and is included in county W&M testing. Timing devices are found at numerous types of businesses including; car washes (car vacuums, wash bays), laundries (clothes dryers) and fuel stations (tire air pumps), Decals on these devices must be clear on the price and the amount of time the consumer is purchasing.





## Propane

Propane delivery vehicles are tested by the NYS Weights and Measures Department on an annual basis. The trailer mounted prover is filled with a set amount of propane and if required the vehicle mounted meter is adjusted and the test repeated. Propane testing does include temperature compensation during the calculation of the volume delivered to the prover.

## Pharmacy Scales

Test method used for testing pharmacy scales such as this balance used at a local pharmacy. Pharmacy scale capacities normally range from 60-300 grams. Every pharmacy balance is required to achieve tolerance compliance for sensitivity at zero load, ratio test, shift test, sensitivity at full capacity, and beam test. Electronic pharmacy scales must also comply within the rated tolerances. Some electronic pharmacy scales, if so equipped, are also tested for their pill-counting function. With the pill-counting function the scale first determines an average weight of individual pills/capsules and then determines the specific pill/capsule count as they are placed on the scale surface. Most pharmacies also have a brass weight kit. These individual brass weights are also tested for weight tolerance compliance. Weights within a standard pharmacy weight kit range from 1-50 grams.



## Taxi Meters



Taxi meter testing includes two types of consumer purchases, a distance device and a timing device. The distance test of a taxi meter is conducted on a certified mile course set up and certified by NYS W&M in the county. The course has a start point and markers at the ¼ mile, ½ mile, and 1 mile distance. The taxi meter (fee charge) must be in tolerance (in feet) for each of these milestone markers both on the trip out and on the trip back. The second test of the meter is the time accuracy. The meter is activated and compared with our timing equipment to make sure the meter display for time used (fee charge) is within the acceptable tolerance.

## Petroleum Program

Through the Petroleum Quality Program of NYS Weights and Measures gasoline and diesel fuel samples are collected from retail fuel stations and sent to an independent testing lab for analysis. The lab assures conformance with performance and labeling standards such as octane values and ethanol percentage for gasoline and cetane values and flash point temperature for diesel fuels. Fuel failures from the lab analysis are investigated at both the retail and distributor level to determine the root cause of the failure. Violations and fine amounts will be determined following the complete investigation.



## Types of Seals



Every commercial device used in NYS must be tested & sealed annually. Device display seals, yellow (odd year), blue (even year) are used to signify the date the last testing/sealing was done on the specific commercial device. Next time you're at the gas station or supermarket look for these display seals on the device. The lead wire or paper security seals displayed are used to secure the calibration switch cover plate or the calibration entrance method on the device. Security seals form a tamper resistance barrier to the calibration method on the device after testing by W&M is completed and the device is found within tolerance. Removal of

these security seals without prior contact to W&M is a violation of the W&M regulation law and is a fineable offense.

## Weight Kit-



### Standard

NYS W&M Certified standard weights kit used by W&M for testing scales that can be found at supermarket check-out lanes, delis, bulk foods etc. Individual weights range from 1/32oz to 10lbs. This weight kit (ID# 57-48) has been used in Schuyler County since 1957 and is recertified at the NYS W&M Lab in Albany.

### Large

NYS W&M Certified standard weights used by W&M for testing scales that can be found at farm/produce stands, wineries, coal /propane sales, etc. Individual weights range from 10lbs to 50lbs.



### Metric

NYS W&M Certified metric weights used by W&M for testing scales/balances that can be found at gold/silver/jewelry businesses, pharmacies, etc. Individual weights range from 1mg to 300g.

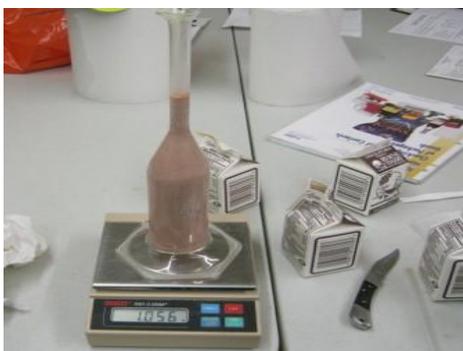
## #1 Package Check



Here's example #1 of W&M Commodity Package Checking -or- Net Weight Compliance. Consumers are only required to pay for the product itself which does not include the packaging (tare weight). The bag of carrots has a posted net weight of 16oz (1 lb), and the scale reads 1.068lb. As a non-destructive test method W&M would determine that this package is in compliance. Every supermarket is required to have a customer scale. Use this scale to compare packages or if you feel a package is underweight.

## #2 Package Check

Here's example #2 of W&M Commodity Package Checking -or- Net Weight Compliance. Consumers are only required to pay for the product itself which does not include the packaging (tare weight). The container of sliced ham has a posted net weight of 9oz, and the scale reads 11.1oz. As a non-destructive test method W&M would determine that this package is in compliance. Every supermarket is required to have a customer scale. Use this scale to compare packages or if you feel a package is underweight.



## Milk Package Check

Here's another example of W&M Commodity Package Checking. Consumers are only required to pay for the product itself which does not include the packaging (tare weight). The gravimetric method is used when testing for the correct liquid volume stated on the container (in this case 8 fluid ounces of chocolate milk). Depending on the available lot sizes of the product, this destructive test method normally results in 2-3 containers being opened for testing. Using precision glassware and a certified scale the milk is removed from the container to determine both

the tare weight and the expected weight of the product under test at a specific liquid volume. After additional calculations are completed the remaining test lot can be weighed to determine compliance.