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National Stored Tare Vehicle Study Concludes

By Tom Coleman

For nearly a decade weights and measures officials in some jurisdictions have been concerned that a growing number of vehicle scale users were using stored vehicle tare weights in commercial transactions which may exceed the tolerances permitted for the vehicle scales. Stored vehicle tare weights are used in numerous applications (e.g., solid waste disposal and landfills, quarries, mining, agriculture, household moving and other industries) where the net weight of commodities and charges for services are determined over scales. In surveys conducted by some state or local officials, several jurisdictions revealed that many stored tare weights were inaccurate with errors ranging between $\pm 0.34\%$ to 22% of the stored value, and a large number of errors favored scale users. In the survey discussed below errors in stored tare values ranging up to 7560 lb or -25.5% were found.

Under the Uniform Weights and Measures Law and most state laws, it is unlawful to use or possess for use in commerce any false weight or measure. In the case of vehicle scales most officials would agree that having an inaccurate vehicle tare weight stored in a computer would subject the user to enforcement action.

For several years prior to the national study, the National Conference on Weights and Measures (NCWM) Laws and Regulations Committee considered a variety of proposals to address the issue but was unable to develop a consensus position on any specific recommendation. Due to a lack of current data on stored tare values and unreliable data collected from business locations where the accuracy of the vehicle scale was not verified, NIST and member states of the NCWM formed a National Work Group (NWG) to conduct a National Stored Vehicle Tare Survey. The survey was conducted from June 2005 to July 2006. The NWG developed tare verification procedures for the survey officials, and in the spring of 2005 NIST and the NCWM co-sponsored a school for participating officials to review the survey protocol and report forms. Originally, ten states agreed to participate in the year-long study, and the goal was to collect data from a wide variety of locations and industries. The intent of the study was to determine if a nationwide problem existed with stored vehicle tare and to make recommendations to the NCWM based on the survey results.

Study Data Inadequate

Five states submitted some data, while only three states were able to provide a complete set. Unfortunately the data from the three states comprised almost 80% of the information collected; therefore, no nationwide conclusions could be drawn. Most of the participating jurisdictions reported the inability to complete the survey due to budget limitations, staff turnover, and other demands on inspector time. NIST regrets the lack of resources to fund this type of field study, which requires a significant investment of time and money for all parties involved.

Two States Show Enforcement is an Effective Deterrent

The survey revealed that at least two states have taken effective steps to deal with the problem of inaccurate stored tare values. One state has prohibited the use of stored vehicle tare and, out of 70 locations inspected, found no instance where stored vehicle tare was being used. A second state reporting very few instances of stored tare values exceeding 0.2 % has a very successful weighmaster program and obviously maintains an effective presence at weighing sites to ensure compliance and take enforcement action when false tare weight values are found. Several states also reported that the firms with the lowest rate of inaccuracy in stored tare values followed the practice of weighing trucks in and out for each transaction to provide the most accurate calculation of net weight, while other firms reweighed empty vehicles several times during the day to keep the errors in stored tare values under better control.

Accurate Vehicle Scales Do Not Necessarily Ensure Error Free Weighments

At the same time that stored vehicle tares were verified, the participants also verified the accuracy of the vehicle scales on which the stored tares were determined. Surprisingly or not, most of the vehicle scales passed NIST Handbook 44 requirements, yet some of the largest errors in stored tare values were found to exist on scales maintained well within maintenance tolerances. Obviously it does little good for a business to spend hundreds of thousands of dollars to purchase, install, and maintain a device that complies with state and local requirements if they use it in a manner which gives inaccurate results and subjects them to enforcement action. State and local governments need to look at how vehicle scales are actually being used since they purchase test equipment and employ expert weights and measures officials to ensure vehicle scales are maintained and used in compliance with legal requirements. For example, vehicle scales are required to be accurate to approximately ± 0.2 % of the actual weight of a truck (e.g., 160 lb on an 80 000 lb truck).

In the current survey more than 80 % of the stored tare values verified exceeded ± 0.2 %. Based on the limited data reported in the study and the success a few states have in keeping it under control using strict prohibitions against stored tare values or through an effective weighmaster program, it is clear that ensuring scale users employ accurate stored tare values is a state and local enforcement issue and is not one that needs further action by NIST or the NCWM—beyond supporting states which take action to prohibit the use of fraudulent stored tare values. NIST recommends that jurisdictions conduct their own surveys, and if a high rate of inaccuracy is found, the state needs to take action to reduce inaccuracies through education and, when justified by inspection findings, enforcement action against scale users.

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