USNWG on Taximeters

May 26, 2015

Web-Conference

Draft Summary

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# New Items

# Proposed Items Submitted as Changes to HB44 Taximeters Code

A review of two proposed changes to HB44 were added to this meeting’s agenda after concerns over those proposals were brought forward during the May 4-7, 2015 meeting of the Northeastern Weights and Measures Association (NEWMA). The proposed changes to the HB44 Taximeters Code addressed in these first two agenda items are currently listed as voting items on the agenda for the National Conference on Weights and Measures (NCWM) Annual meeting in July 2015 however, the concerns raised at the NEWMA meeting suggest that the proposals may need to be revised.

# S&T Item 354-1: Changes to S.1.1. and new S.1.1.1.

The proposal to amend paragraph S.1.1. and add a new paragraph S.1.1.1. in the HB44 Taximeters Code is shown below.

S.1.1. General. – A taximeter shall be equipped with a primary indicating element**~~and may be equipped with a recording element~~**.

(Amended 1988 **and 20XX**)

***S.1.1.1. Recording Elements. – A receipt providing information as required in S.1.9. Recorded Representations shall be available from a taximeter or taximeter system through an integral or separate recording element for all transactions conducted.***

***[Nonretroactive January 1, 201X]***

**(Added 201X)**

**Background:**

During the development of the initial proposal, the USNWG considered it important that, at the conclusion of a transaction a receipt from the taximeter in the vehicle would be readily available to the customer if they desired a receipt. The receipt could be provided in the form of a printed or electronic receipt (dependent upon the customer’s wishes and the capability of the taximeter to generate an electronic form of receipt) and would provide enough detail for the customer to verify that the charges incurred have been fairly assessed.

This item was submitted to the NCWM in August 2014 and was subsequently reviewed by all four regional weights and measures associations in the fall of 2014. During the NCWM Interim meeting in January 2015, the proposal was assigned a voting status for the NCWM’s 2015 Annual Meeting.

During the May 4-7, 2015 Northeastern Weights and Measures Association (NEWMA) interim meeting, several comments were made expressing concerns pertaining to this proposal.

One of the concerns expressed at the NEWMA meeting was that in the proposed new paragraph S.1.1.1., receipts are not explicitly required to be provided directly to the customer at the conclusion of the transaction.  This led to the speculation that a receipt could be printed out from a remote location (e.g., a central dispatch office) or that the receipt might be provided to the customer by mail following the transaction rather than issuing the receipt directly to the passenger at the conclusion of the trip.  Any situation where the receipt would not be readily provided, directly to the passenger was considered inappropriate by the USNWG.

Another concern regarding this proposal referred to the intent of the proposed new requirement S.1.1.1. that suggested it would be better expressed through a user requirement rather than a specifications requirement.  This approach was recommended with the idea that the local authority could be given the option of enforcing a user’s requirement that would provide a passenger with a receipt rather than establishing a specification that would require that all taximeters be equipped with a recording element.

While the merits of a user’s requirement associated with the specification requirement S.1.1.1. is recognized by the USNWG, establishing this specifications requirement to provide device manufacturers with design parameters is also considered important.

In response to the concerns heard at the NEWMA meeting and prior to the USNWG May 2015 meeting, the work group was presented with a revised version of the initial proposal intended to address those concerns. This revised version consisted of additional wording in the proposal shown below in highlighted text.

S.1.1. General. – A taximeter shall be equipped with a primary indicating element**~~and may be equipped with a recording element~~**.

(Amended 1988 **and 20XX**)

***S.1.1.1. Recording Elements. – A receipt providing information as required in S.1.9. Recorded Representations shall be available at the conclusion of a transaction from a taximeter or taximeter system installed in the vehicle through an integral or separate recording element for all transactions conducted. (See also G-S.5.6. Recorded Representations.)***

***[Nonretroactive January 1, 201X]***

**(Added 201X)**

The language added in the revised proposal that refers to the General Code requirement G-S.5.6. incorporates the possibility of providing a receipt in an electronic form by referring to that General Code requirement. Additional new text is intended to require that the receipt be available immediately following a trip and to eliminate the possibility that would permit a receipt to be given to the customer at some later time/date.

**Discussion:**

During the USNWG meeting on May 26, 2015, the work group was provided the details of the concerns expressed at the NEWMA meeting and asked for additional comments.

Mr. Mike Sikula stated that while a receipt is being specified in this the proposal, it is unclear whether the proposed changes would require that all taximeters are to be equipped with a recording element. Ms. Joanne Rausen stated that her understanding of the intent of this proposal would be to require that all taximeters/taximeter systems are capable of producing a receipt when local regulations required that. She also stated that she would support the work group developing an associated user’s requirement however, the specification requirement as submitted by the work group should move forward.

Mr. Ross Andersen stated that he does not believe that this issue has been vetted by a sufficient number of stakeholders (particularly device manufacturers, and users). Mr. Andersen further stated that the adoption of a proposal that would require all taximeters to be equipped with recording elements is unnecessary and will create a burden on the owners of taxi services in areas that have very basic rate structures. He acknowledged the usefulness of this requirement in areas where the rate structures are complex for the customer’s benefit although he suggested that the development of a user’s requirement addressing this issue which would provide flexibility to local authorities would be a better approach.

Mr. Bill Fishman stated that the work group’s development of this proposed change was associated with the evolution of taximeters and the use of peripheral equipment that would comprise a taximeter system. This work recognized the various levels of complexity in different rate structures and in the initial drafts, the work group intended that exceptions would be provided in the proposal for jurisdictions with simple rate structures and would not require a receipt when the rate structure is not complicated. Mr. Fishman also stated that it is his belief that all taximeters placed into service in the U.S. are capable of producing receipts, and that most taximeters are equipped with the capability of being attached to external printers. Therefore, requiring that taximeters be capable of producing receipts would not place any additional burden on the manufacturers. Adding that he supports this proposal being moved forward, Mr. Fishman stated that if this proposal is adopted, local officials would only need to require a recording element when the local regulations specified that receipts are needed.

Ms. Tina Butcher acknowledged that there likely are device manufacturers and users that have not been informed and consulted on this matter however, the same holds true for various consumer groups who may advocate for transparency by requiring that a receipt be provided for all transactions. Noting the relatively small displays that are permitted on taximeters Ms. Butcher indicated her support of the notion that receipts be required to compensate for the reduced capability of a taximeter to prominently display all critical information needed for the passenger to assess the equity in a transaction. Ms. Butcher also indicated that the development of a user’s requirement could be beneficial but that a specification requirement is also needed to provide design criteria for device manufacturers. Pointing out that this approach has already been used in the development of other specific device codes in HB44 (LPG & VTM Codes), Ms. Butcher informed the USNWG that the combination of specification and user requirements have already been successfully used in regulating other types of devices. She suggested also that the sequence, in which both the specification requirement and/or the user’s requirement are adopted, is not critical. While these requirements would complement each other, the adoption of one requirement would not inhibit the subsequent development and eventual adoption of the other.

Ms. Rausen questioned the work group about the cost that could be anticipated for an owner to equip his/her vehicles with a recording element. Ms. Rausen also stated her belief that a moderate expense for the owner to equip their vehicles with recording elements would greatly contribute to the transparency of the transaction and could therefore be justified. Mr. David Paul responded with an estimate of $100 - $200 per vehicle stating that this would not be an insignificant amount for the owner of a fleet of vehicles.

Mr. Andersen stated that the cost of an external printer attached to a taximeter would not be excessive however, he believes that there would be other, indirect costs and that more stakeholders should be given an opportunity to provide input on this proposal. He also recognized that while a few other specific device codes in HB44 require recording elements, he does not believe that to do so under the Taximeters Code is justified.

Mr. Sikula asked for clarification whether this proposal would require that all taximeters be capable of being attached to a printer or would it be required that taximeters be equipped with a printer. He added that it is not clear if a newly installed taximeter would be required to be installed with a printer. Mr. Paul agreed with this and asked for clarification on how a taximeter that is not equipped with an integral printer could receive approval through type evaluation if this proposed change is adopted. Mr. John Roach explained that while the printing function of a taximeter may not be included as part of a test procedure under type evaluation, the ability to generate a receipt when attached to a compatible printer would be listed on a Certificate of Conformance.

The NIST Technical Advisor stated that for a device to comply with the intent of this proposal, a receipt must be available to the passenger at the conclusion of a trip and that this could be accomplished by either equipping a taximeter with an integral recording element or with a communications port that would allow the attachment of an external recording element. Also, the revised version of the proposal refers to the General Code requirement, G-S. 5.6. that would permit an electronic form of receipt. A receipt provided in this electronic format would not necessarily require that the taximeter be equipped with a printer. Ms. Butcher added that she believes that it is generally understood that the proposed requirement is intended to provide a means for supplemental documentation of the details of a transaction.

Mr. Andersen added that because the Taximeters Code covers not only taximeters, but also the components in a taximeter system, there is no need to use the language “taximeter or taximeter system” in the proposal. He also stated that there is no need to add language in the proposal that will expressly permit the use of electronic types of receipts since this is an accepted trade practice allowed in a majority of U.S. states.

**Conclusion:**

The NIST Technical Advisor asked the members of the work group participating in the meeting to indicate their support or opposition to the revised version of the proposal. While most of the members in attendance indicated that they would support the proposal, a number of others in the work group indicated that that the proposal is in need of additional changes. Considering that this proposal is scheduled to be voted upon at the NCWM meeting in July 2015, the NIST Technical Advisor suggested that additional changes could be attempted in order to reach a consensus among USNWG members. Due to time constraints, it was also recommended that additional changes to mitigate the concerns expressed during this meeting could be drafted and shared with the work group via email within a week’s time. A revised draft would be sent to the USNWG and the members would be asked to review and respond to those changes.

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| *NIST Technical Advisor’s note:*  *Following the May 2015 USNWG meeting, another revised version of the proposal to amend S.1.1. and add a new S.1.1.1. was presented to USNWG members via email wherein they were asked to review these latest changes and respond with their comments. Those changes are shown below.*  S.1.1. General. – A taximeter shall be equipped with a primary indicating element**.  *A taximeter shall also be equipped with a recording element.*** ~~and~~~~may be equipped with a recording element~~.  ***[Nonretroactive January 1, 201X]***  (Amended 1988 **and 201X**)  ***S.1.1.1. Recording Elements.– ~~A receipt providing information as required in S.1.9. Recorded Representations shall be available from a taximeter or taximeter system through an integral or separate recording element for all transactions conducted.~~ A taximeter’s recording element shall be located in the vehicle and shall make readily available a receipt providing the information as required in S.1.9. Recorded Representations.***  ***[Nonretroactive January 1, 201X]***  **(Added 201X)**  *The responses that were received regarding this version of the proposal were not supportive of these latest changes. While some members remained opposed to requiring that a receipt be available for all transactions a majority of the work group responses indicated that the original draft was more in line with the intent of the proposal. Most responses supported a requirement that would require that a receipt be available to the passenger although some of the work group preferred that there be exceptions to this and that the local jurisdiction should determine if and when providing a receipt was necessary.*  *Following the receipt of these responses, the USNWG members were again contacted via email and asked to provide input on what would be the direction that the work group would take based on the divergent opinions within the group. The members responded that they would prefer to ask that the status of this proposal be changed from “voting” to “informational” on the NCWM’s Annual meeting agenda. This would allow for the further development of the proposal prior to it being submitted for voting in the future.* |

# S&T Item 354-2: Changes to S.1.2.

This proposal was drafted primarily to amend existing requirement S.1.2. to include the entry of a flat rate as a means to advance the indications on a taximeter. Those recommended changes are as follows.

**S.1.2. Advancement of Indicating Elements.** – Except when a taximeter is being cleared, the **fare charges displayed on the** primary indicating and recording elements shall be susceptible of advancement only by:

1. the movement of the vehicle;
2. by the time mechanism**;**
3. **a combination of both a) and b)\*; or**
4. **the entry of a monetary amount associated with a flat rate or negotiated rate where permitted.**

**Advancement of the indications for charges, other than fare may occur through manual or automatic means.**

**\* The advancement of fare may occur by either the movement of the vehicle or by the time mechanism but shall not occur by both of these means operating simultaneously (see also S.4. Interference).**

(Amended 1988, **and 201X**)

**Background:**

The proposed amendments drafted for paragraph S.1.2. were developed to account for indications of passenger charges that are displayed on the taximeter but are not based on a measured distance (or time). Instead, these charges are based on a fixed monetary amount. The use of fixed charges (flat rates) is often found in jurisdictions that use this type of charge for frequently traveled routes such as between hotels, business districts, airports, etc.

As was the case in the previous item, comments were provided that opposed this proposal during the May 2015 NEWMA meeting. One of those comments expressed the opinion that flat rates should not be regulated under the HB44 Taximeters Code. That opinion is based on the premise that flat rates are not determined through a calculation based on distance/time and therefore, they are not a product of the functioning of the measuring device (taximeter). Instead, a flat rate should be considered as a fixed charge that is associated with the measuring device only because it is displayed on the primary indicating element.

Another point made at the NEWMA meeting was that an existing requirement; S.2. states that fare charges must be based on distance traveled or time elapsed (or a combination of these two elements). By adhering to the definition of “fare,” it may be considered as improper to define a flat rate as a fare charge. The definition for “fare” as found in HB44 Appendix D is shown below:

**fare.** **–** That portion of the charge for the hire of a vehicle that is automatically calculated by a taximeter through the operation of the distance and/or time mechanism.

A third concern expressed during the NEWMA meeting was that, to include the entry of a flat rate as one of the parameters that could initiate an advancement of the indicating element (bullet point “d” in the above proposal) is inappropriate. The fact that a flat rate is not a product of the measurement function of the taximeter should preclude the inclusion of this type of charge in this listing.

As was done with the proposal listed in the previous agenda item, prior to the May 26, 2015 meeting of the USNWG, the NIST Technical Advisor developed a revised version of the initial proposal to address the concerns heard at the NEWMA meeting. Believing that the first three bullet points (a, b, and c) included in the proposal are appropriate, the revision retained those parameters. Part of this latest revision however included deleting bullet point “d” and the reference to a flat rate was then restructured as a stand-alone note. This note is intended to clarify that the entry of a flat rate charge must be displayed by the indicating element even though it may not be recognized as an “advancement of indications.”

The revised draft presented to the USNWG for consideration prior to the May 26, 2015 web meeting is shown below. The most recent changes drafted in this proposal are shown in highlighted text.

**S.1.2. Advancement of Indicating Elements.** – Except when a taximeter is being cleared, the **fare charges displayed on the** primary indicating and recording elements shall be susceptible of advancement only by:

1. the movement of the vehicle;
2. by the time mechanism**; or**
3. **a combination of both a) and b\*).~~; or~~**
4. **~~the entry of a monetary amount associated with a flat rate or negotiated rate where permitted.~~**

**Where permitted however, passenger charges based on a flat rate shall also be displayed as an indication of fare on the taximeter.**

**Advancement of the indications for charges, other than fare may occur through manual or automatic means.**

**\* The advancement of fare may occur by either the movement of the vehicle or by the time mechanism but shall not occur by both of these means operating simultaneously (see also S.4. Interference).**

(Amended 1988, **and 201X**)

**Discussion:**

During the May 2015 meeting, the USNWG members commented on the latest revision of the proposed changes to S.1.2. Several features of this draft were sources of concern for work group members.

Asking for clarification, Mr. Sikula pointed out that according to paragraph T.1.3., there is a 1% tolerance allowed between fares calculated with the time measuring mechanism in the “off” position as compared with the fare calculated when the time mechanism is in the “on” position. Mr. Sikula did not understand why, if these calculations of fare by time or by distance are not permitted to occur at the same time, is there a 1% tolerance applied during testing.

Others in the work group explained that the tolerance is applied not to account for an “overlapping” of the calculation of fare using distance and time together, but rather to compensate for practical conditions associated with the testing that may appear to create a simultaneous occurrence of these different means of fare calculation. These conditions could include a limited ability to achieve and maintain the correct cross-over speed of the vehicle during the test and the inability of an operator to precisely control of the operating functions (i.e., “time on” button) on the taximeter.

Mr. Jesse Davis stated that in the latest draft of the proposal, bullet-point “c” is not needed because bullets “a” and “b” are sufficient. Mr. Andersen agreed and added that if the use of flat rates is to be regulated, they should be addressed as an exemption to the allowable advancement of the indications rather than a valid reason for that advancement. He further stated that if flat rates are permitted they must only be allowed when they are: in agreement with the value that had been established in the schedule of rates; displayed throughout the duration of the trip; and not be affected by the functioning of the time or distance measurement mechanisms.

Others in the work group stated that in some systems (primarily outside the U.S.) that fares will include elements of both time and distance measurements and these measurements are allowed to take place at the same time. Also it has been reported that in the U.S., some transportation service providers using cellular telephone “apps” to calculate fares operate using this same principle. Mr. Andersen explained that in the U.S., requirements (HB44 Taximeters Code S.2.1. & S.4.) to prohibit interference between time and distance measurements were established based on the operation of mechanical taximeters and that it is only “tradition” that does not permit this to occur in the current HB44 Taximeters Code.

Ms. Butcher acknowledged that the continued prohibition of interference between calculations using time and those using distance measurement is most likely due to tradition. She also noted that if fares are allowed to be calculated by time and distance concurrently, this could lead to more confusion on the part of the passenger when trying to understand the total charges.

Other suggestions from the work group made during the May 2015 USNWG meeting included the recommendation that changes to other existing requirements such as S.2. Basis of Fare Calculations and S.4. Interference could be proposed as alternatives to amending S.1.2.

**Conclusion:**

The USNWG members agreed that additional work is needed on this proposal. When asked to provide an indication of their support for the latest revisions for proposed changes to S.1.2. presented during the May 2015 meeting, the work group members unanimously rejected that revised version.

As was done for the previous item, the NIST Technical Advisor suggested that additional changes may be drafted in an attempt resolve unsettled issues as discussed during this meeting. Due to time constraints however, it was also recommended that any additional changes could be drafted and shared with the work group via email within a week’s time. This further revised draft would be sent to the USNWG and the members would be asked to review and respond to those changes.

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| *NIST Technical Advisor’s note:*  *Following the May 26, 2015 USNWG meeting, another revised version of the proposal was presented to USNWG members via email wherein they were asked to review these latest changes and respond with their comments. Those changes are shown below.*  **S.1.2.   Advancement of Indicating Elements.** – Except when a taximeter is being cleared, the **fare charges displayed on the** primary indicating and recording elements shall be susceptible of advancement only by the movement of the vehicle **or** by the time mechanism.  **S.1.2.1.   Extras Charges. – Extras charges may also be indicated on the primary indicating element when properly identified as extras charges.  These extras charges may advance through manual or automatic means and may not be dependent on the movement of the vehicle or the time mechanism.**  **S.1.2.2    Flat Rate Charges. – Monetary values representing fixed rates that are established for transportation services along frequently traveled routes (e.g., between airports and hotel districts) may be displayed on the primary indicating element as passenger charges.  The advancement of indications for flat rate charges are not dependent on the movement of the vehicle or the time mechanism.**   1. **~~the movement of the vehicle;~~** 2. **~~by the time mechanism;~~** 3. **~~a combination of both a) and b\*).; or~~** 4. **~~the entry of a monetary amount associated with a flat rate or negotiated rate where permitted.~~**   **~~Where permitted however, passenger charges based on a flat rate shall also be displayed as an indication of fare on the taximeter.~~**  **~~Advancement of the indications for charges, other than fare may occur through manual or automatic means.~~**  *The responses that were received regarding this version of the proposal were not supportive of these latest changes. All of the USNWG responding to these latest changes recommended alternative approaches that indicated there is no consensus among the work group on how the regulation of flat rates should be addressed.*  *Following the receipt of these responses, the USNWG members were again contacted via email and asked to provide input on what would be the direction that the work group would take based on the divergent opinions within the group. The members responded that they would prefer to ask that the status of this proposal be changed from “voting” to “informational” on the NCWM’s Annual meeting agenda. This would allow for the further development of the proposal prior to it being submitted for voting in the future.* |

# Carry-over Items

## Proposal to amend existing requirement UR.1. Inflation of Vehicle Tires

This proposal would amend *UR.1. Inflation of Vehicle Tires* to recognize that the tire size, as well as the proper inflation of the tires is critical for accurate distance measurements.

**Background:**

A proposal that was drafted in August 2011 to amend paragraph *UR.1. Inflation of Vehicle Tires* in the HB44 Taximeters Code is shown below.

**UR.1. Inflation of Vehicle Tires.** – The operational tire pressure of passenger vehicles and truck tires shall be posted in the vehicle and shall be maintained at the posted pressure. **The required tire size shall also be posted in the vehicle.**

(Amended 1977 **and 20XX**)

This proposed change would amend the existing requirement; *UR.1. Inflation of Vehicle Tires*, to state that the tire size for the vehicle (as specified by the vehicle manufacturer) would also be required to be posted in the vehicle.

Prior to the February 2015 meeting of the USNWG, Mr. Viktor Gruber recommended additional changes be considered by the USNWG for this proposal along with recommended changes to an associated requirement (N.1.3.2. Tire Pressure) in the Taximeters Code that also pertains to vehicle tire pressure. These recommended changes are shown below.

**UR.1. Inflation of Vehicle Tires.** - ~~The operational tire pressure of passenger vehicles and truck tires shall be posted in the vehicle and shall be maintained at the posted pressure.~~**The tire size and cold-tire pressure shall be maintained at the posted manufacturer’s specifications for the vehicle. Posted cold tire pressure may be used to determine operational tire pressure.**

**Amended 201X**

**N.1.3.2. Tire Pressure.** – At the completion of test run or runs, the tires of the vehicle under test shall be checked to determine that the tire pressure is that operating tire pressure ~~posted in the vehicle~~. If not, the tire pressure should be adjusted to the ~~posted~~**vehicle manufacturer’s prescribed operational** tire pressure and further tests may be conducted to determine the **accuracy and performance of the taximeter**. ~~operating characteristics of the odometer.~~

(Amended 1977 **and 201X**)

These proposed changes were reviewed by the USNWG during its February 2015 meeting. There were several points regarding these suggested changes that the work group did not support.

While one suggestion made during that meeting was to require that a range of acceptable tire pressures (rather than a specific pressure) be posted and maintained, an alternative recommendation was that the tire pressure as measured during the most recent official examination should be the value that is posted and required to be maintained during operation.

Mr. Gruber maintained that it is important to establish a standard for the tire pressure of the vehicle used and that this standard must be a well-defined value or a limited range of pressures. He recommended that the operating-tire pressure is what should be adopted as the standard and is the basis for his recommended changes in *UR.1. Inflation of Vehicle Tires.*

Other USNWG members did not support these proposed changes for the following reasons.

* Operational-tire pressure is generally not provided by the vehicle manufacturer as an exact value but will instead be stated as some value (3-4 psi) above the cold-tire pressure. In addition, operational-tire pressure is defined (HB44 Appendix D) as that pressure that is established after a vehicle has been driven a minimum of 5 miles. This can be problematic because most often the testing of a vehicle’s taximeter is performed in less than 5 miles travel distance.
* Some jurisdictions will not require that a vehicle be maintained so that they are equipped with the manufacturer’s recommended tires. To require that only tires recommended by the vehicle manufacturer be installed for use on a taxi may be outside of the evaluator’s authority.
* Mr. Martin Grindley noted that variations in the cold-tire pressure rating may be found between OEM tires and after-market tires. He therefore recommended that the basis for a tire pressure rating used in an evaluation of taximeters would be that the vehicle’s tires be maintained according to the size and pressure established during the official certification of the taximeter.

**Discussion:**

During the May 2015 meeting of the USNWG, the work group was asked to consider changes drafted to the initial proposal of changes to paragraphs UR.1. Inflation of Vehicle Tires and N.1.3.2. Tire Pressure. Those latest changes were made following the February 2015 meeting in an attempt to reconcile the different opinions heard and are shown below.

**UR.1. Inflation of Vehicle Tires.** – The operational tire pressure of passenger vehicles and truck tires **as determined at the time of an official examination** shall be posted in the vehicle and shall be maintained at the posted pressure.

**Amended 201X**

**N.1.3.2. Tire Pressure.** – At the completion of test run or runs, the tires of the vehicle under test shall be checked to determine that the tire pressure is that operating tire pressure ~~posted in the vehicle~~. If not, the tire pressure should be adjusted to the postedtire pressure and further tests may be conducted to determine the **accuracy and performance of the taximeter**. ~~operating characteristics of the odometer.~~

(Amended 1977 **and 201X**)

Noting the importance of determining accurate tire pressures in this proposal, Mr. Sikula questioned whether a field official would be capable of accurately determining a pressure with a pressure gauge that has not been certified by a recognized standards laboratory. Mr. Andersen stated that if the scope of a field official’s authority was to encompass the level of a vehicle’s tire pressure, then he/she must be equipped with a certifiable instrument to perform that measurement.

Mr. Gruber stated that according to the existing General Code requirement G-A.1.(b), HB44 requirements are applicable to any accessory attached to or used in connections with a commercial weighing or measuring device. Mr. Andersen replied that while the General Code requirements clearly state that associated equipment is included in the application of HB44 requirements, it is only appropriate to extend that application to components that are associated with the device being regulated. Since the tires are not attached to the taximeter, it is not appropriate to extend the regulation of the taximeter to the measurement of pressure in the vehicle’s tires. Mr. Andersen did acknowledge that tire inflation and size are important contributing factors to the proper operation of a taximeter and suggests that the size and inflation pressure should be recorded at the time of test and used as a reference in subsequent testing. He further stated that it is sufficient that the official performing the test are aware that these factors can affect test results.

Ms. Aileen Fox (on behalf of the New York City Taxi and Limousine Commission) stated that their recommendation is that a vehicle involved in an official test of a taximeter should have its tires inflated according to the manufacturer’s recommended tire pressure. This pressure should be measured at the conclusion of the test.

Mr. Fishman stated that the important concept is to ensure that the vehicle must be presented for testing with appropriate tire pressure readings and maintained in this condition to assure that the taximeter’s performance is not detrimentally affected. He suggests modifying the latest draft revision to indicate that tire pressure must be maintained as found at the time the most recent test was performed on the taximeter.

**Conclusion:**

In consideration of the comments heard during the May 26, 2015 meeting, The NIST Technical Advisor recommended that additional development of a draft proposal be done by the work group. Based on the input from this meeting a revision of the latest draft proposal will be done which will then be reviewed by the USNWG. Further discussion on this item was tabled due to time constraints.

## Proposal to amend existing requirement S.5. Provision for Security Seals

The recommended changes in this item would add a provision for an electronic form of sealing on a taximeter.

**Background:**

Two separate proposed changes to the existing Taximeters Code requirement *S.5. Provision for Security Seals* have been reviewed by the USNWG.

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| ***NIST Technical Advisor’s note:***  *For facilitating ease of reference to these two proposals within the following discussion, these proposals will be identified as proposal A, being the first in sequence to appear in this document and proposal B being the second to appear.* |

The first proposal (proposal A) was considered by the National Conference on Weights and Measures (NCWM) in 2012 at which time the determination was made that the proposal was not sufficiently developed to be voted on. The NCWM’s recommendation was that the USNWG on Taximeters consider this proposed change (shown below) and develop it further as needed.

**S.5. Provision for Security Seals.** – Adequate provision shall be made to provide security for a taximeter. Security may be provided **~~either~~** by:

(a) Affixing security seals to the taximeter and to all other components required for service operation of a complete installation on a vehicle, so that no adjustments, alterations, or replacements affecting accuracy or indications of the device or the assembly can be made without mutilating the seal or seals; **~~or~~**

(b) Using a combination of security seals described in paragraph (a) and, in the case of a component that may be removed from a vehicle (e.g., slide mounting the taximeter), providing a physical or electronic link between components affecting accuracy or indications of the device to ensure that its performance is not affected and operation is permitted only with those components having the same unique properties**; or**

**(c) Using a combination of security seals described in paragraph (a) and, (b) and, in the case of a component that is electronic data affecting accuracy or indications of the taximeter, providing a unique electronic security seal on the electronic data that is encrypted and protected by an audited authentication and authorization mechanism, so that no adjustments, alterations, or replacements affecting the component can be made without the authentication and authorization. (Encryption algorithm for electronic seals must meet NIST AES ADVANCED ENCRYPTION STANDARD.)**

The sealing means shall be such that it is not necessary to disassemble or remove any part of the device or of the vehicle to apply or inspect the seals.

(Amended 1988, **~~and~~** 2000**, and 20XX**)

This proposal (A) along with a second proposal (B) to amend paragraph S.5. were reviewed by the USNWG during its October 2014 meeting. Proposal B, that includes an associated table defining appropriate methods of sealing is as follows.

**S.5. Provision for Security Seals.** – Adequate provision shall be made to provide security for a taximeter. Security may be provided either by:

(a) Affixing **physical** security seals to the taximeter and to all other components required for service operation of a complete installation on a vehicle, so that no adjustments, alterations, or replacements affecting accuracy or indications of the device or the assembly can be made without mutilating the seal or seals; **~~or~~**

(b) Using a combination of security seals described in paragraph (a) and, in the case of a component that may be removed from a vehicle (e.g., slide mounting the taximeter), providing a physical or electronic link between components affecting accuracy or indications of the device to ensure that its performance is not affected and operation is permitted only with those components having the same unique properties**; or**

**(c) For taximeters that are interfaced with enhanced software driven (POS) systems and that are capable of remote configuration, the sealing of calibration and configuration parameters shall be performed through the use of a physical seal that when removed may allow remote configuration. Any changes made after the removal of this physical seal must be recorded in an event logger.**

**(Added 20XX)**

The sealing means shall be such that it is not necessary to disassemble or remove any part of the device or of the vehicle to apply or inspect the seals.

***[Audit trails shall use the format set forth in Table S.5. Categories of Device and Methods of Sealing]\****

(Amended 1988, **~~and~~** 2000, **and 20XX)**

***[\*Nonretroactive as of January 1, 20XX]***

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| ***Table S.5. Categories of Device and Methods of Sealing*** | |
| ***Categories of Device*** | ***Methods of Sealing*** |
| ***Category 1:  No remote configuration capability.*** | ***Seal by physical seal or a combination of physical seals and for components that may be removed from the vehicle, a physical or electronic link as described in (b) above.*** |
| ***Category 2:  Remote configuration capability, but access is controlled by physical hardware.***  ***The device shall clearly indicate that it is in the remote configuration mode and record such message if capable of printing in this mode.*** | ***The hardware enabling access for remote communication must be at the device and sealed using a physical seal and two event loggers: one for calibration parameters and one for configuration parameters.***  ***The event loggers are required in the device; they must include event counters (000 to 999), the parameter ID, the date and time of the change, and the new value of the parameter. A printed copy of the information must be available through the device. The event loggers shall have a capacity to retain records equal to 10 times the number of sealable parameters in the device, but not more than 1000 records are required.***  ***(Note: Does not require 1000 changes to be stored for each parameter.)*** |
| ***[Nonretroactive as of January 1, 20XX]***  **(Table added 20XX)** | |

While there were some members stating that they support the type of electronic sealing described in proposal A, the majority of the USNWG stated their opposition to this form of sealing when the item was discussed during the meetings in October 2014 and February 2015.

When the type of electronic sealing described under proposal B was considered by the USNWG, the majority of opinions heard from the work group were that electronic sealing (i.e., the use of an audit trail) would only be acceptable if the configuration and calibration of the taximeter also required a physical seal to be broken.

While acknowledging that remote configuration/calibration of the device is a beneficial feature, the majority of the meeting participants would not support this feature unless there is also a physical seal that prevented access to any remote configuration.

During the February 2015 USNWG meeting the work group was presented with a revised draft of an amended S.5. for their review. This revision contained changes to the lead paragraph and subparagraph (c) in the proposal from that version in proposal B and is shown below.

**S.5. Provision for Security Seals.** – Adequate provision shall be made to provide security for a taximeter **and all other components in a taximeter system that are necessary to complete a transaction**. Security may be provided either by:

(a) …; **or**

(b) …**; or**

* 1. **The use of a physical seal that when broken, may permit remote configuration of metrological parameters. Any changes occurring to these parameters through remote configuration after the removal of the physical seal must be recorded in an event logger.**

**(Added 20XX)**

The sealing means shall be such that it is not necessary to disassemble or remove any part of the device or of the vehicle to apply or inspect the seals.

(Amended 1988, **~~and~~**2000, **and 20XX)**

The USNWG’s members participating in the February 2015 meeting recommended additional changes for the revision of *S.5. Provision for Security Seals.* Those changes included providing an exemption from the required printing of data (Table S.5.) from event loggers for taximeters that are not connected to a printer. Another recommended change was to require that when a taximeter was placed into a calibration mode that the device not be capable of normal operation.

**Discussion:**

During the May 2015 USNWG meeting, the NIST Technical Advisor explained to the USNWG that due to the lack of support for any provision for sealing that did not include a physical seal, the agenda for this meeting did not include any further consideration of the proposal suggesting that only an electronic form of sealing be permitted. The remaining proposal to be considered for further development had been previously identified as “Proposal B” in the agenda for the February 2015 USNWG meeting and would permit remote configuration of the taximeter only after a physical seal was removed.

The work group members were asked to comment on the latest revisions to S.5. Provision for Security Seals. This revised draft incorporated comments and suggestions to paragraph S.5. and the associated Table S.5. made by the work group during their two previous meetings and is as follows.

**S.5. Provision for Security Seals.** – Adequate provision shall be made to provide security for a taximeter **and all components in a taximeter system necessary to complete a transaction**. Security may be provided either by:

(a) Affixing security seals to the taximeter and to all other components required for service operation of a complete installation on a vehicle, so that no adjustments, alterations, or replacements affecting accuracy or indications of the device or the assembly can be made without mutilating the seal or seals; **~~or~~**

(b) Using a combination of security seals described in paragraph (a) and, in the case of a component that may be removed from a vehicle (e.g., slide mounting the taximeter), providing a physical or electronic link between components affecting accuracy or indications of the device to ensure that its performance is not affected and operation is permitted only with those components having the same unique properties**; or**

* + 1. **The use of a physical seal that when broken, may permit remote configuration of metrological parameters. Any changes occurring to these parameters through remote configuration after the removal of the physical seal must be recorded in an event logger. Normal operation of the taximeter shall not be possible when placed in a mode that allows remote configuration.**

**(Added 20XX)**

The sealing means shall be such that it is not necessary to disassemble or remove any part of the device or of the vehicle to apply or inspect the seals.

(Amended 1988, **~~and~~**2000, **and 20XX)**

|  |  |
| --- | --- |
| ***Table S.5. Categories of Device and Methods of Sealing*** | |
| ***Categories of Device*** | ***Methods of Sealing*** |
| ***Category 1:  No remote configuration capability.*** | ***Seal by physical seal or a combination of physical seals and for components that may be removed from the vehicle, a physical or electronic link as described in (b) above.*** |
| ***Category 2:  Remote configuration capability, but access is controlled by physical hardware.***  ***The device shall clearly indicate that it is in the remote configuration mode and record such message if capable of printing in this mode. Normal operation of the device shall not be possible when in the remote configuration mode.*** | ***The hardware enabling access for remote communication must be located at the device and sealed using a physical seal and two event loggers: one for calibration parameters and one for configuration parameters.***  ***The event loggers required in the device must include event counters (000 to 999), the parameter ID for the parameter being changed, the date and time of the change, and the new value of the parameter.***  ***A printed copy of the information must be available through the device. The event loggers shall have a capacity to retain records equal to 10 times the number of sealable parameters in the device, but not more than 1000 records are required.***  ***(Note: Does not require 1000 changes to be stored for each parameter.)*** |
| ***[Nonretroactive as of January 1, 20XX]***  **(Table added 20XX)** | |

The most recent change made to this draft consisted of the addition of a statement that would prohibit normal operation of the device while in the calibration/configuration mode. The work group had no further comment on this detail.

Mr. Andersen stated that he was in agreement with the majority of the USNWG in that he did not believe that it would be appropriate to allow taximeters to be sealed through the use of an electronic seal only. Like most of the work group members had stated before, Mr. Andersen believes that due to the nature of the industry and the typical operation of these devices, taximeters would not be an appropriate device to be sealed with anything other than a physical seal.

Mr. Keith Walsh asked for clarification on what the procedure would be to replace a physical seal once it had been removed prior to any calibration/configuration. It was explained that following any adjustments or configurations that required a breaking of the security seal, a regulatory official or an official that is authorized/licensed by the regulatory authority would need to replace that broken security seal.

Mr. John Roach provided an additional comment regarding the lack of a third category in the provisions for sealing. In his opinion, this would bring the Taximeters Code more in line with many of the other HB44 specific device codes. In general, the third category for sealing devices in many other device codes would allow unrestricted remote configuration that would not require any physical seal. Any option to only require an electronic means of sealing has been rejected by the majority of the USNWG.

Another comment pertained to the numbering of the sealing categories and suggested that in this proposal only Categories 1 & 3 be used to identify those two categories that are included in the latest draft proposal. This suggestion would have what is now identified as Category 2 renamed as Category 3. It is suggested that this is more in line with the descriptions used in other HB44 device codes.

**Conclusion:**

Noting the minor changes that were performed since the USNWG’s February meeting, the work group generally agreed to this draft of the proposal. The numbering of the sealing categories in this latest draft proposal will be adjusted so that it includes only categories 1 & 3. Category 1 will remain as it appears in the most recent draft and Category 2 will be renumbered as Category 3 to better align this proposal with the sealing requirements in other HB44 device codes.

## Proposal to add new requirements S.1.4.1. Multiple-tariff taximeters, S.1.4.1.1. Manual rate changes, and S.1.4.1.2. Automatic rate changes.

This proposal would create three new requirements that address rates used to calculate fares and the ability of some taximeters to use more than one rate in calculation of fares.

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| ***NIST Technical Advisor’s note:***  *Due to time constraints, this item was not discussed at the May 26,2015 USNWG meeting.* |

## Proposal to amend A.1. General.

This proposal was drafted to require that any device utilized for measuring distances or time that will be used for the calculation of a passenger’s fare be installed on or in the vehicle.

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| ***NIST Technical Advisor’s note:***  *Due to time constraints, this item was not discussed at the May 26,2015 USNWG meeting.* |

# Attendance

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| --- | --- | --- |
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