

S.2.5. Zero-Set-Back Interlock

S.2.5.1. Zero-Set-Back Interlock, Electronic Stationary Meters (Other than Stationary Retail Motor-Fuel Dispensers) and Electronic Vehicle-Mounted Meters. – A device shall be constructed so that after an individual delivery or multiple deliveries at one location have been completed, an automatic interlock system shall engage to prevent a subsequent delivery until the indicating element and, if equipped, recording element have been returned to their zero positions.

[Nonretroactive as January 1, 2021]

(Added 2019) (Amended 2021)

S.2.5.2. Zero-Set-Back Interlock for Stationary Customer-Operated Retail Motor-Fuel Devices, Electronic. – A device shall be constructed so that:

- (a) after a delivery cycle has been completed by moving the starting lever to any position that shuts off the device, an automatic interlock prevents a subsequent delivery until the indicating elements and recording elements, if the device is equipped and activated to record, have been returned to their zero positions;*
- (b) the discharge nozzle cannot be returned to its designed hanging position (that is, any position where the tip of the nozzle is placed in its designed receptacle and the lock can be inserted) until the starting lever is in its designed shut-off position and the zero-set-back interlock has been engaged; and*
- (c) in a system with more than one dispenser supplied by a single pump, an effective automatic control valve in each dispenser prevents product from being delivered until the indicating elements on that dispenser are in a correct zero position.*

[Nonretroactive as of January 1, ~~2017~~ 2023]

~~(Added 2016)~~

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Original Justification (U-Haul):

Motor fuel, within the context of NFPA 58, refers to any container that has the potential to provide propane to fuel an engine. This can include a multitude of DOT cylinders and ASME containers that are not for the propulsion of an automobile. Current mechanical meter technology utilized in a standard propane dispenser for the filling of portable containers, such as those utilized in NFPA 58 for motor fuel applications or those that do power automobiles, are not capable of being equipped with a zero-set-back interlock and the technology will not be potentially available until 2022, per meter manufacturers.

NFPA 58 currently does not allow the public to refuel its automobiles. All automobiles or other containers must be filled by a specially trained employee. A proposed change has been introduced for consideration in the 2023 edition of NFPA 58 that would permit public refueling of automobiles as long as the dispensing system meets very specific safety requirements, including a specialized nozzle, and is furnished with visible instructions. Upon the acceptance of this new public refueling allowance the propane industry agrees that Zero-Setback-interlocks are needed. These public self-service automotive dispensing systems will be listed to Underwriters Laboratories Standard 495 and will be dedicated to the filling of motor vehicles.

Most propane dispensed is for purposes other than motor-fuel. Pursuant to NFPA 58, this is accomplished by a trained and certified employee dispensing propane, typically using mechanical meters, into cylinders and tanks. The employee is trained and required to manually reset the meter to zero after each transaction and verify the meter is reset prior to initiating a subsequent transaction. This has been and remains an accepted practice for dispensing propane.

This process is the industry standard for approximately 97% of all propane used in the United States. See U.S. Department of Energy, Alternative Fuels Data Center afdc.energy.gov/fuels/propane_basics.html.

Unlike traditional motor-fuel, such as gasoline or diesel, customers cannot currently dispense propane into their vehicles. If NFPA 58 is amended to allow customers to dispense their own propane into their vehicles and the demand for propane as motor-fuel increases, the market will drive retailers to provide electronic customer-operated retail motor-fuel devices to meet the demand and customer expectations for efficient and expedient fueling transactions. At that time, the electronic customer-operated motor-fuel devices will certainly need to incorporate an automatic zero-set-back interlock. It is simply too early in the process to effectively force mechanical retail motor-fuel devices out of the market for such a small percentage of the retail propane market (approximately 3%).

It is difficult to counter the argument above. Opponents of this proposed change may argue that automatic zero-set-back interlocks are necessary to prevent customers being overcharged for propane.

The submitter requested that this be a Voting Item in 2022.

Original Justification (NPGA):

This proposal was developed by the National Propane Gas Association's Technology, Standards and Safety Committee, a volunteer organization comprised of 2500+ members, including propane retail marketers and others providing products or services to the propane industry.

In S.2.5, the removal of the vehicle mounted meters from this two-minute requirement is necessary as the initiation of a vehicle mounted meter is performed at the truck prior to moving the delivery hose to the customer tank, sometimes as far as 150 feet from the meter, or in installations with multiple containers that may require continued adjustment of containers or delivery hose to complete a delivery. This configuration can lead to periods of up to 5 minutes between initial meter engagement and first container filling or between containers being filled on a single delivery.

Addressing proposed new S.2.5.2, motor fuel, within the context of NFPA 58, refers to any container that has the potential to provide propane to fuel an engine. This can include a multitude of DOT cylinders and ASME containers that are not for the propulsion of an automobile. Current mechanical meter technology utilized in a standard propane dispenser for the filling of portable containers, such as those utilized in NFPA 58 for motor fuel applications or those that do power automobiles, are not capable of being equipped with a zero-set-back interlock and the technology will not be potentially available until 2022, per meter manufacturers.

NFPA 58 does not currently explicitly allow the public to refuel its automobiles. All automobiles or other containers must be filled by a specially trained employee. A proposed change has been introduced for consideration in the 2023 edition of NFPA 58 that would permit public refueling of automobiles as long as the dispensing system meets very specific safety requirements, including a specialized nozzle, and is furnished with visible instructions. Upon the acceptance of this new public refueling allowance the propane industry agrees that Zero-Setback-interlocks are needed. These public self-service automotive dispensing systems will be listed to Underwriters Laboratories Standard 495 and will be dedicated to the filling of motor vehicles.

In view of the above information, existing dispenser systems that may only be utilized by qualified trained employees should be permitted to continue operations with the existing meter technology and should not be required to include Zero-Set-Back Interlocks. This should include when the dispenser is removed from one location and installed in another, as long as the original meter remains functional. Existing cabinetry and controls utilized in a standard dispenser cabinet generally include non-digital meters and no electronic controls with the exception of a single switch that operates the pump. These simplistic designs are still effective and should not be prohibited from use in future (new) installations in which the transfer process is attended by trained personnel. Limiting the scope of this section will allow attended dispenser operations which are primarily utilized for filling of portable containers to remain consistent in design and construction. Current use of this technology has not resulted in any known impact to the consumer or over-charge situations. The term "self-operated" is used in other locations in Handbook 44 and would include electronic dispensing devices and meters, which would then be consistent with the prior two sections that are limited to electronic meters.

It is difficult to counter the arguments above. The sheer difficulties that a service person can encounter when a wet hose must be carried over terrain fairly long distances between receiving containers should be sufficient justification to approve this proposal. The counter argument to new S.2.7 would be that the customer may not be able to view the meter to ensure it is set back to zero. The submitter requested that this be a Voting Item in 2022.

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