



U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety
Administration**

1200 New Jersey Avenue, SE
Washington, DC 20590

February 2, 2023

Arturo Prado
DOT Training Solutions
701 Briar Court
Brownsville, TX 78521

Reference No. 22-0121

Dear Mr. Prado:

This letter is in response to your November 4, 2022, email requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to the configuration of bulk trailer valves. You ask whether a DOT 407 cargo tank motor vehicle (CTMV), manufactured as a “wheels back” vehicle, as defined in 49 CFR § 393.5, fitted with a rear loading valve located behind the fifth axle, and in full tow configuration is required to have an internal self-closing stop valve with a sacrificial device.

According to § 178.345-8 and when solely considering accident damage protection, an internal self-closing stop-valve with a sacrificial device is required only when seeking relief from § 178.345-8(b)(1). When a sacrificial device is required, it is subject to the strength and location requirements found in § 178.345-8(b)(2). However, based on the photographs and information you provided, we are unable to make the determination whether the configuration presented meets the requirements of § 178.345-8(b)(1) or § 178.345-8(b)(2). Additionally, the CTMV is still subject to the remaining requirements found in § 178.345-8, as well as any other applicable requirements (i.e., tank outlet requirements found in § 178.345-11). These other requirements must also be taken into consideration when making a final determination for valve requirements.

Please note, this Office does not make the determination whether specific individual configurations meet the applicable requirements of the HMR.

I hope this information is helpful. Please contact us if we can be of further assistance.

Sincerely,

Dirk Der Kinderen
Chief, Standards Development Branch
Standards and Rulemaking Division

Baker

22-0121

From: [INFOCNTR \(PHMSA\)](#)
To: [Hazmat Interps](#)
Subject: FW: Bulk trailer valve configuration 178.345-8
Date: Friday, November 4, 2022 3:56:07 PM
Attachments: [image001.png](#)
[178.345-8 vs wheels back.pdf](#)

Hello Hazmat Interps,

See below and attached request for interpretation.

Thanks,

Jonathon, CTR

From: Arturo Prado <arturoprado@dottrainingsolutions.com>
Sent: Friday, November 4, 2022 2:22 PM
To: INFOCNTR (PHMSA) <INFOCNTR.INFOCNTR@dot.gov>
Subject: FW: Bulk trailer valve configuration 178.345-8

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As requested here is my physical mailing address: 701 Briar Court, Brownsville, Texas 78521



Arturo Prado

Safety Consultant

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(956) 455-6986/Toll Free: (866) 296-7394

Email: arturoprado@dottrainingsolutions.com

Website: <https://dottrainingsolutions.com>

From: Arturo Prado
Sent: Wednesday, October 26, 2022 2:14 PM
To: PHMSA.Pipelinesafety@dot.gov
Cc: James Dean <jdean@altomtransport.com>
Subject: Bulk trailer valve configuration 178.345-8



178.345-8 Accident damage protection

393.86 Rear impact guards and rear end protection.

(a)(1) The requirements of paragraph (a) of this section do not apply to pole trailers (as defined in [§390.5](#) of this chapter); pulpwood trailers, low chassis vehicles, special purpose vehicles, **wheels back vehicles** (as defined in [§393.5](#)); and trailers towed in driveaway-towaway operations (as defined in [§ 390.5](#)).

393.5 Definitions

Wheels back vehicle. (1) A trailer or semitrailer manufactured on or after January 26, 1998, whose rearmost axle is permanently fixed and is located such that the rearmost surface of the tires (of the size recommended by the vehicle manufacturer for the rear axle) is not more than 305 mm (12 inches) forward of the transverse vertical plane tangent to the rear extremity of the vehicle.

178.345-8 Accident damage protection.

(b)(1) Any bottom damage protection device must be able to withstand a force of 155,000 pounds (based on the ultimate strength of the material) from the front, side, or rear, uniformly distributed over each surface of the device, over an area not to exceed 6 square feet, and a width not to exceed 6 feet. **Suspension components and structural mounting members may be used to provide all, or part, of this protection.** The device must extend no less than 6 inches beyond any component that may contain lading in transit.



Betts External Chemical Hydraulic Valve is classified as an external self-closing stop valve and is widely used on DOT407 and 412 cargo tanks. This is a robust and proven valve that satisfies the many requirements of the chemical transportation industry. The 316-stainless body and replaceable Teflon seal make this valve a versatile and reliable workhorse for any fleet. This valve does NOT include a sacrificial shear section; therefore, the cargo tank must have adequate accident damage protection to shield the valve as specified in 49CFR §178.345-8.



178.345-8 Accident damage protection.

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Question does a DOT 407 cargo tank that was manufacture with wheels back configuration (393.5) and fitted with rear loading valve required to have an internal valve with a sacrificial device? If the valve is located aft of axle 5 when in full tow configuration, and section 178.345-8 states that the suspension components and structural mounting members may be used to provide all, or part, of this protection. Does this configuration located close to the aft axle relief carrier or manufacture from installing a internal valve with a sacrificial device.



Arturo Prado

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From: James Dean <jidean@altomtransport.com>

Sent: Wednesday, October 19, 2022 9:50 AM

To: Arturo Prado <arturoprado@dottrainingsolutions.com>

Subject: Bulk trailer valve configuration

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Know what product was previously
carried. Use properly.
Discharge hose must be connected
before opening discharge valve.

⚠ WARNING
Opening product
discharge valve
may release
hazardous
material.
Product discharge valve
All valves must be closed
during transit.

⚠ DANGER
Steam outlet

PUMP CONTAINS
50/50 ANTI-FREEZE

CAUTION
Do not touch
discharge valve
during transit.

LTOM
Transport, Inc.



