



U.S. Department
of Transportation

**National Highway
Traffic Safety
Administration**

DEPARTMENT OF
TRANSPORTATION
TRUCK OPERATIONS

JAN 24 P 1:53

1200 New Jersey Avenue, SE
Washington, DC 20590

SVC-124
Standard No. 224

JAN 24 2011

Mr. David H. Bradley
Canadian Trucking Alliance
Butterworth House
324 Somerset St. West, Suite 100
Ottawa, ON Canada K2P 0J9

Dear Mr. Bradley:

This responds to your letter concerning an aerodynamic device manufactured by Advanced Transit Dynamics, Inc. (ATDynamics) called a "boat tail" or "trailer tail" that some of your member motor carriers would like to install on their van trailers to reduce the fuel consumption of their vehicles. (In this letter, we will refer to these aerodynamic devices generally as "trailer tails" and to the device manufactured by ATDynamics as the "ATDynamics TrailerTail®.") You state that use of trailer tail technology would help meet a California Air Resources Board regulation that requires all U.S. and Canadian 53-foot van trailers to achieve a 5 percent overall reduction in greenhouse gas emissions by 2016.

Background

In your letter, you ask for our acceptance of an October 10, 2008 letter from the Director of the Federal Highway Administration's (FHWA's) Office of Freight Management and Operations to ATDynamics, a copy of which you enclosed. (October 10, 2008 letter from Anthony Furst to ATDynamics' Andrew Smith.)

In the letter, Mr. Furst discusses FHWA regulation 23 CFR 658.16, "Exclusions from length and width determinations." Subsection (b) of 658.16 sets forth exclusions "from either the measured length or width of commercial motor vehicles, as applicable," and lists "aerodynamic devices" in subpart (4).

Mr. Furst states in the letter that FHWA regulation 23 CFR 658.16(b)(4) excludes an aerodynamic device from the measured length of a commercial motor vehicle provided: (1) the device is not capable of carrying cargo; (2) the device does not extend beyond 5 feet of the rear of the vehicle; (3) the device does not obscure tail lamps, turn signals, marker lamps, identification lamps, or safety devices such as hazardous material placards or conspicuity markings; and, (4) the device has neither the strength, rigidity nor mass to damage a vehicle, or injure a passenger in a vehicle that strikes a vehicle so equipped from the rear.

Mr. Furst concludes that FHWA has determined that the ATDynamics TrailerTail® meets the conditions of 23 CFR 658.16(b)(4). He states that FHWA--

acknowledges that ATDynamics 'Trailer Tail' was tested by an independent laboratory, KARCO Engineering, and was found to be in compliance with all elements of 23 CFR 658.16(b)(4). Therefore, in accordance with Federal regulations, the ATDynamics 'Trailer Tail' aerodynamic device should be excluded from the length measurements for commercial motor vehicles. ...KARCO Engineering determined that the ATDynamics 'Trailer Tail' aerodynamic device 'Passed' all of the conditions listed in the regulation, and FHWA accepts those results.

Mr. Furst also states that FHWA shared the test results with staff from the National Highway Traffic Safety Administration (NHTSA) for review. Mr. Furst states: "NHTSA identified a conspicuity marking issue...[and] ATDynamics has taken care of the issue in the manner NHTSA recommended."

With that background in mind, in your letter to us you ask for "clarification from NHTSA with regard to the process for defining compliance with" 23 CFR 658.16(b)(4) on aerodynamic devices. In other words, as we understand your letter, you ask us to confirm that use of the ATDynamics TrailerTail® would not violate Federal laws administered by NHTSA.

We note that Transport Canada has also contacted us for our views on trailer tails.

NHTSA's Framework

It would be helpful in answering your question to begin with a discussion of NHTSA's authority under the National Traffic and Motor Vehicle Safety Act (49 U.S.C. Chapter 301, "Vehicle Safety Act").

NHTSA is authorized under the Vehicle Safety Act to issue Federal motor vehicle safety standards (FMVSSs) applying to the manufacture and sale of new motor vehicles and items of motor vehicle equipment. Manufacturers are required to self-certify that their products conform to all applicable FMVSSs in effect on the date of manufacture. This agency does not provide approvals of new motor vehicles or of modifications of used vehicles.

NHTSA has exercised its rulemaking authority to establish a number of standards that apply to new trailers. Those standards include FMVSS No. 108, "Lamps, reflective devices, and associated equipment" (49 CFR §571.108), which requires trailers to have specified systems to provide adequate illumination of the roadway and to improve the conspicuity of the vehicles. Another standard applying to trailers is FMVSS No. 224, "Rear impact protection" (49 CFR §571.224). Standard No. 224 requires trailers to have rear impact guards to reduce the harm to occupants of light duty vehicles impacting the rear of the trailer. Each new trailer with a trailer tail sold in the U.S. must be certified by its manufacturer as complying with all applicable standards, including FMVSS No. 108 and No. 224.

After the first purchase of a vehicle for purposes other than resale, the Vehicle Safety Act limits modifications that may be made to the vehicle by commercial entities. 49 U.S.C. §30122 states:

A manufacturer, distributor, dealer, or motor vehicle repair business may not knowingly make inoperative any part of a device or element of design installed on or in a motor vehicle or motor vehicle equipment in compliance with an applicable motor vehicle safety standard prescribed under this chapter....

In the case of the motor carriers mentioned in your letter, this provision would prohibit a commercial business from installing a trailer tail on a motor carrier's new or used vehicle in a manner that would negatively affect the vehicle's compliance with FMVSS No. 108 or No. 224 or any other safety standard.^{1, 2}

Discussion

The question posed by your letter is whether installing the ATDynamics TrailerTail® on a new or used vehicle would be permitted under NHTSA's regulations.

Unfortunately, we cannot provide a sweeping answer that covers all installations of the ATDynamics TrailerTail®. NHTSA assesses the compliance of new vehicles and administers the "make inoperative" provision of the Vehicle Safety Act concerning new or used vehicles independently from other agencies. We do not approve motor vehicles or processes undertaken by manufacturers.

A possible violation of the FMVSSs or the make inoperative provision is evaluated by NHTSA according to the facts of each particular case. Thus, NHTSA would evaluate, among other matters, the design and construction of a particular ATDynamics TrailerTail®, the manner in which the trailer tail was attached, and whether the trailer tail impaired the effectiveness of the trailer's lamps and other devices installed pursuant to FMVSS No. 108. We cannot prospectively and categorically affirm that all future uses of the ATDynamics device would be acceptable to this agency.

However, we recognize and appreciate the effort that has been made seeking the agencies' input in exploring possible safety issues related to the ATDynamics TrailerTail®. In view of those efforts, we make the following observations based on the KARCO Engineering ("KE") test.

¹ The "make inoperative" provision applies to a manufacturer, distributor, dealer, or repair business installing a trailer tail, and not to a vehicle owner that modifies its own vehicle. However, States have the authority to regulate the operation of vehicles in their jurisdictions, and may have restrictions on the type of modifications owners may make.

² The Vehicle Safety Act also requires manufacturers of motor vehicles and motor vehicle equipment to ensure that their products are free of safety-related defects. A trailer tail would be considered "motor vehicle equipment" under the Vehicle Safety Act.

KE conducted a 35 mile per hour rear offset crash test for ATDynamics. ATDynamics installed a TrailerTail® on a 1991 Pine Trailer. The test vehicle and set-up was prepared by KE. The impacting vehicle was a 1994 Ford Econoline 350 Van. Two Hybrid III 50th percentile adult male test dummies equipped with head triaxial accelerometers to measure head injury accelerations were placed in the driver and right-front passenger seating positions. KE's report on the test states ("Laboratory Test Report, Rear-Mounted Aerodynamic Device, TrailerTail® mounted to a 1991 Pine Trailer, Prepared for Advanced Transit Dynamics, Inc.," July 22, 2008, KARCO Engineering):

(a) Inspection of pre- and post-test photographic data showed no appreciable deformation of any structural component of the impacting vehicle attributable to the trailer tail (not including glass, plastic lenses, or trim components);

(b) The head injury criterion of neither test dummy exceeded a value of 1,000 as a result of direct contact with the trailer tail; and

(c) There was no evidence from either post-test inspection of the transfer of chalk applied to the test dummies or from still or high speed photography that the trailer tail "or any resilient component of the impacting vehicle" made contact with any portion of the test dummies as a result of contact of the impacting vehicle with the trailer tail.

In addition, the report indicates that the open geometry of the ATDynamics TrailerTail® does not allow it to carry cargo, and that the vehicle's lamps and conspicuity markings would meet FMVSS No. 108.

The test data from the KE test indicate that the ATDynamics TrailerTail® did not negate the vehicle's ability to meet FMVSS No. 224³ and that the rear impact guard on the vehicle was not made inoperative by the ATDynamics TrailerTail®. Thus, there is no basis for NHTSA to conclude at this time that installation of the ATDynamics TrailerTail® is prohibited.

Please note that NHTSA is interested in Transport Canada's on-going work evaluating the safety and performance of trailer tails. NHTSA will evaluate the outcome of Canada's research to see if we should undertake further work on trailer tails.

If you have any other questions, please contact Deirdre Fujita of my staff at this address or by phone at (202) 366-2992.

Sincerely,



O. Kevin Vincent
Chief Counsel

³ That is, it appears that the trailer tail would qualify as a "nonstructural protrusion" under FMVSS No. 224. See S4, definition of "rear extremity."



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Via E-mail: Kevin.vincent@dot.gov

January 28, 2010

O. Kevin Vincent
Chief Counsel, NCC-110
National Highway Traffic Safety Administration
United States Department of Transportation
1200 New Jersey Avenue, SE.,
Washington, DC 20590, USA

Dear Mr. Vincent:

Re: Aerodynamic Devices on Trucks (Boat Tails)

The Canadian Trucking Alliance (CTA), representing more than 4,500 motor carriers, many of which operate into and out of the United States, is requesting clarification from NHTSA with regard to the process for defining compliance with Title 23 of the US Code of Federal Regulations (CFR) 658.16(b)(4) on aerodynamic devices. Since NHTSA, FMCSA and FHWA collaborate on the process to determine compliance, can NHTSA confirm its acceptance of the attached letter from FHWA to the manufacturer of an EPA Smartway certified rear trailer aerodynamic fairing commonly referred to as a "boat tail" or "trailer tail"?

This is an important technology that can help the North American trucking industry reduce its consumption of petroleum-based motive fuel and reduce its carbon footprint. The FHWA process appears to address any safety issues where the retrofit of boat/trailer tails to existing equipment may previously have been of some concern. (CTA realizes that the FHWA only addresses aftermarket applications of the technology.)

You are no doubt aware of how important a matter this is given that California Air Resources Board Regulation, AB 32, came into force on January 1, 2010, and requires all US and Canadian 53 foot van trailers to achieve a 5% overall reduction in greenhouse gas (GHG) emissions by 2016. This could be accomplished by using a boat/trailer tail.

CTA looks forward to your response. If you have any questions, or require additional information, please do not hesitate to contact me directly.

Sincerely,

David H. Bradley

DB/jd
Attach. 1

C: Michael Onder, Federal Highway Administration - michael.onder@dot.gov
Deirdre Fujita, National Highway Traffic Safety Administration - dee.fujita@dot.gov
Luke Loy, Federal Motor Carrier Safety Administration - luke.loy@dot.gov

100128-Letter-O Kevin Vincent-NHTSA-Boat Tail

ALBERTA MOTOR TRANSPORT ASSOCIATION • ATLANTIC PROVINCES TRUCKING ASSOCIATION • BRITISH COLUMBIA TRUCKING ASSOCIATION
MANITOBA TRUCKING ASSOCIATION • ONTARIO TRUCKING ASSOCIATION • ASSOCIATION DU CAMIONNAGE DU QUÉBEC • SASKATCHEWAN TRUCKING ASSOCIATION



U.S. Department
of Transportation
**Federal Highway
Administration**

1200 New Jersey Avenue, SE.
Washington, DC 20590

October 10, 2008

In Reply Refer To: HOFM-1

Mr. Andrew Smith
Chief Executive Officer
Advanced Transit Dynamics, Inc.
245 Utah Avenue
San Francisco, CA 94080

Dear Mr. Smith:

This is in response to your letter of August 21 which requested a determination of compliance of your 'Trailer Tail' aerodynamic device with 23 CFR 658.16 'Exclusions from Length and Width Determinations.' The Federal Highway Administration (FHWA) acknowledges that ATDynamics 'Trailer Tail' was tested by an independent laboratory, KARCO Engineering, and was found to be in compliance with all elements of 23 CFR 658.16(b) (4). Therefore, in accordance with Federal regulations, the ATDynamics 'Trailer Tail' aerodynamic device should be excluded from the length measurements for commercial motor vehicles.

The full test report results from KARCO Engineering were received from ATDynamics on August 25, 2008. The 'Trailer Tail' device was evaluated for compliance with the following provisions of 23 CFR 658.16(b)(4), which exclude an aerodynamic device from the measured length of a commercial motor vehicle provided:

1. the device is not capable of carrying cargo;
2. the device does not extend beyond 5 feet of the rear of the vehicle;
3. the device does not obscure tail lamps, turn signals, marker lamps, identification lamps, or safety devices such as hazardous material placards or conspicuity markings;
4. the device has neither the strength, rigidity nor mass to damage a vehicle, or injure a passenger in a vehicle that strikes a vehicle so equipped from the rear.

KARCO Engineering determined that the ATDynamics 'Trailer Tail' aerodynamic device 'Passed' all of the conditions listed in the regulation, and FHWA accepts those test results. We shared these test results with the Federal Motor Carrier Safety Administration (FMCSA) and the National Highway Traffic Safety Administration (NHTSA) for their review. NHTSA identified a conspicuity marking issue that was shared with Mr. Geoffrey Johnson, Director of Regulatory Affairs with ATDynamics, and Mr. Johnson subsequently advised us ATDynamics has taken care of the issue in the manner NHTSA recommended.

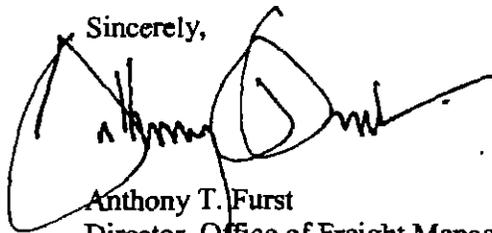
The FHWA will post this letter to their Commercial Motor Vehicle Size and Weight Web site for reference by the trucking industry. We will provide this letter to the Commercial Vehicle Safety Alliance and the American Association of State and Highway Transportation Officials for their

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information and use and further dissemination to their roadside enforcement officials. We will also provide this letter to the Environmental Protection Agency to inform their SmartWay Program. You may consider providing this letter to individuals using the 'Trailer Tail' product for them to provide to law enforcement officials.

If you have questions or need any further assistance regarding this matter, do not hesitate to contact Michael Onder, Team Leader, Vehicle Size and Weight Team, Michael.Onder@dot.gov, 202-366-2639 or John Nicholas of the Vehicle Size and Weight Team, John.Nicholas@dot.gov, 202-366-2317.

Sincerely,



Anthony T. Furst
Director, Office of Freight Management
and Operations

cc:

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