



EXECUTIVE ORDER AD-09-001

Relating to Preliminary Approvals of Heavy-Duty Trailer Aerodynamic Devices

**Michelin North America Inc.**

Pursuant to the authority vested in the California Air Resources Board (CARB) by Sections 38510, 38560, 38560.5, 39600, and 39601 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Section 39515 and Section 39516 of the Health and Safety Code and Executive Order G-19-095;

**IT IS ORDERED AND RESOLVED:** That the aerodynamic devices produced by the manufacturer are granted preliminary approval based on the testing and results as described below, for use on 2020 and older model year heavy-duty trailer types listed below. Production devices, which are identified by model on the attachment, shall be in all material respects the same as those for which approval is granted.

$\Delta$ CdA (sq. meter)	Drag Reduction Technologies	Test Methods	Trailer Types
0.75	Energy Guard System <sup>2</sup>	CFD	LBDV <sup>1,3</sup>
<p>ID=identification, <math>\Delta</math>CdA = difference (delta) of the of aerodynamic drag (in square meters);            N/A = not applicable  <u>Drag Reduction Technologies:</u> TGRT = gap reducing trailer fairing; TATS = trailer aerodynamic side skirt; TARF = trailer aerodynamic rear fairing; TAUD = trailer aerodynamic underbody device.  <u>Test Methods:</u> WT = wind tunnel; CFD = computational fluid dynamics; CD = coastdown.  <u>Trailer Types:</u> LBDV = full aero long box dry van and/or partial aero long box dry van; LBRV = full aero long box refrigerated van and/or partial aero long box refrigerated van; SBDV = full aero short box dry van and/or partial aero short box dry van; SBRV = full aero short box refrigerated van and/or partial aero short box refrigerated van.  <sup>1</sup>A device to be used for compliance with the requirements of the California Tractor-trailer Greenhouse Gas regulations as specified in title 17 CCR section 9530(b) is allowed to be used on only long box van trailers (dry and/or refrigerated).  <sup>2</sup>The preliminary approval is granted for only the Energy Guard System indicated, and as a whole package consisting of Skirt, Side End Fairings, Top End Fairing, Mud Flaps, and Wake Reducer; and not separately for each individual device in that package.  <sup>3</sup>The indicated combination of device technologies is allowed to be only used on full aero long box van trailers (dry and/or refrigerated).</p>			

**BE IT FURTHER RESOLVED:** The manufacturer has evaluated the device in accordance with the methodology described in title 40, Code of Federal Regulations (CFR), section 1037.526, as it existed on October 25, 2016, and incorporated by reference in the "California Greenhouse Gas Exhaust Emission Standards and Test Procedures for 2014 and subsequent Model Heavy-Duty Vehicles," adopted October

21, 2014, as last amended December 19, 2018, as incorporated by reference in section 95663(d), title 17, California Code of Regulations (CCR).

**BE IT FURTHER RESOLVED:** As applicable, when using the device granted preliminary approval for the purpose of certifying a 2020 model-year trailer in accordance with the California Phase 2 Greenhouse Gas Regulations, as specified in title 40 CFR section 1037.515(a), as incorporated by reference in title 17 CCR section 95663(d), a trailer manufacturer shall use the measured delta CdA value of the device to determine the corresponding trailer Bin-designated delta CdA value, as specified in title 40 CFR section 1037.515(c), as incorporated by reference in title 17 CCR section 95663(d).

**BE IT FURTHER RESOLVED:** That a device having a measured delta CdA value less than 0.40 square meters that is used to comply with the requirements of the California Tractor-Trailer Greenhouse Gas regulations, as specified in title 17 CCR section 95303(b) on a pre-2020 model-year (i.e., noncertified) long dry-van trailer or long refrigerated-van trailer, as applicable, for travel on California highways, is granted preliminary approval only when used in combination with other preliminarily-approved devices to achieve a composite delta CdA value equal to or greater than 0.40 square meters relative to a baseline trailer.

**BE IT FURTHER RESOLVED:** That the manufacturer shall confirm that the installations of the device granted preliminary approval shall be appropriate for the intended trailer type application, and that any modifications to the device granted preliminary approval shall not negatively impact aerodynamic performance.

**BE IT FURTHER RESOLVED:** This preliminary approval is contingent upon the device being installed and maintained as it was tested. Minimal modifications to a device that are required to enable installation on a particular trailer shall be allowed only with approval from the device manufacturer, and when written instructions provided by the manufacturer are followed. Device manufacturers shall evaluate and approve all installation modifications and confirm that any modification would have minimal impact on the device's drag reduction performance. No changes to the device from the design, configuration, and installation used for the basis of this approval are allowed. Manufacturers must submit all significant modifications in advance to the CARB for approval. CARB reserves the right to conduct testing of aerodynamic devices submitted for approval.

**BE IT FURTHER RESOLVED:** This approval shall not be construed as an approval to sell, offer for sale, or advertise any individual component of the device assembly that was granted preliminary approval separately from the device assembly as it was designed, configured, and tested for the basis of this approval.

**BE IT FURTHER RESOLVED:** That marketing of a device using any identification

other than that shown in this Executive Order or marketing of the device for an application other than those listed in this Executive Order shall be prohibited unless prior approval is obtained from CARB.

**BE IT FURTHER RESOLVED:** That CARB reserves the right, in the future, to review the approval provided by this Executive Order to assure that the device granted preliminary approval continues to meet the requirement of title 17 CCR section 95663(d), et seq.

**BE IT FURTHER RESOLVED:** That violation of any of the above conditions shall be grounds for revocation of this order.

Executed at El Monte, California, this 29<sup>TH</sup> day of October 2019.



Allen Lyons, Chief  
Emissions Certification and Compliance Division

SUPERSEDED

ATTACHMENT

Michelin North America Inc.

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**Aerodynamic Device Model Summary**

<b>Model<sup>a</sup></b>	<b>Description</b>
Energy Guard System	Aerodynamic side skirt; 1 Variation Aerodynamic side end fairings; 3 Variations Aerodynamic top end fairing; 1 Variation Aerodynamic mud flap; 2 Variations Aerodynamic wake reducer; 21 Variations

<sup>a</sup> Not to be combined with any other aerodynamic devices.

SUPERSEDED