



**CALIFORNIA**  
AIR RESOURCES BOARD

**EXECUTIVE ORDER AD-03-002**

Relating to Preliminary Approvals of Heavy-Duty Trailer Aerodynamic Devices

**Stemco LP**

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-14-012;

**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 the heavy-duty trailer types listed below, and for only through the 2020 model year. 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.

$\Delta C_dA$ (m <sup>2</sup> )		Drag Reduction Technologies	Test Methods	Trailer Types	U.S. EPA Preliminary Approval Device ID
Required	Measured				
0.40	0.58	TARF	WT	FA-LBDV; FA-LBRV	STM20170900002
<small>ID=identification; <math>\Delta C_dA</math>=difference (delta) of the coefficient of aerodynamic drag (in square meters); N/A=not applicable  <b>Drag Reduction Technologies:</b> TGRT=gap reducing trailer fairing; TATS=trailer aerodynamic side skirt; TARF=trailer aerodynamic rear fairing; TAUD=trailer aerodynamic underbody device  <b>Test Methods:</b> WT=wind tunnel; CFD=computational fluid dynamics; CD=coastdown  <b>Trailer Types:</b> FA-LBDV=full aero long box dry van; PA-LBDV=partial aero long box van dry; NA-LBDV=non aero long box dry van; FA-SBDV=full aero short box dry van; PA-SBDV=partial aero short box dry van; NA-SBDV=non aero short box dry van; FA-LBRV=full aero long box refrigerated van; PA-LBRV=partial aero long box refrigerated van; NA-LBRV=non aero long box refrigerated van; FA-SBRV=full aero short box refrigerated van; PA-SBRV=partial aero short box refrigerated van; NA-SBRV=non aero short box refrigerated van; CC=container chassis; TA=tank; FB=flatbed</small>					

**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, which was incorporated by reference in the "California Greenhouse Gas Exhaust Emission Standards and Test Procedures for 2014 and subsequent Model Heavy-Duty Vehicles," (Test Procedures) 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). Except as required below, when installed on the specified trailers, the device shall result in a delta CdA value in square meters, relative to a baseline trailer, equal to or greater than 0.40 square meters.

**BE IT FURTHER RESOLVED:** That a device having a measured delta CdA value less than 0.40 square meters is granted preliminary approval for use only when it is used in combination with other preliminary-approved devices to achieve a composite delta CdA value equal to or greater than 0.40 square meters, relative to a baseline trailer, as specified in 40 CFR 1037.526(c)(2), as incorporated by reference in 17 CCR 95663(d).

**BE IT FURTHER RESOLVED:** A device that is granted preliminary approval in accordance with the optional Tractor-Trailer GHG Interim Aerodynamic Device Approval Program shall be used on only Long Box Dry Van and Long Box Refrigerated Van trailers, as specified in 17 CCR 95303(b)(4).

**BE IT FURTHER RESOLVED:** That the manufacturer shall have confirmed 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 written instructions and the approval from the device manufacturer. 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 granted preliminary approval, as the device was designed, configured, and tested for the basis of this approval, as individual components, as applicable.

**BE IT FURTHER RESOLVED:** That for the models listed in the attachment the manufacturer has submitted the materials to demonstrate compliance with the 40 CFR 1037.120 (warranty provisions), incorporated by reference in the Test Procedures, adopted October 21, 2014, and as last amended December 19, 2018, as incorporated by reference in 17 CCR 95663(d).

**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 this Executive Order and the approval provided herein 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 16<sup>TH</sup> day of May 2019.



Allen Lyons, Chief

Emissions Compliance, Automotive Regulations and Science Division

ATTACHMENT

Stemco LP

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**Aerodynamic Device Model Summary**

<b>Models<sup>a</sup></b>	<b>Description</b>
Trailer Tail 4x4	Aerodynamic tail; four foot long, four sided.

<sup>a</sup> Not for use with other rear-mounted drag-reduction devices.

SUPERSEDED