

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER D-510-1

Relating to Exemptions under Section 27156  
of the Vehicle Code

Eastern Manufacturing, Inc.

WHEREAS, Vehicle Code Sections 27156 and 38391, and Title 13, California Code of Regulations (hereafter "CCR") Section 2222(h), authorize the California Air Resources Board (ARB) and its Executive Officer to exempt new aftermarket catalytic converters from the prohibitions of Vehicle Code Section 27156.

WHEREAS, Eastern Manufacturing, Inc. (Eastern) of 1619 Hanford Street, Levittown, Pennsylvania 19057, has applied to the ARB for exemption from the prohibitions in Vehicle Code Sections 27156 and 38391 to market its series 5100 new aftermarket three-way plus oxidation catalytic converter (TWC + OC) for the following applications, except for vehicles equipped with an on-board diagnostic II (OBD-II) system (Title 13, CCR, Section 1968.1):

Converter Type	Series Number	Converter Use	Max. Eng. Size	Max. Veh. Test Wt.
TWC + OC	5100	TWC + OC	5.9L (360 CID)	4,750 lbs. (GVWR = 5,980 lbs.)

WHEREAS, pursuant to the authority vested in the Executive Officer by Health and Safety Code Section 39515 and in the Chief, Mobile Source Operations Division by Health and Safety Code Section 39516 and Executive Order G-45-9, the ARB finds that the above aftermarket catalytic converter complies with the California Vehicle Code Section 27156 and Title 13, California Code of Regulations, Section 2222(h). Emission performance of the catalytic converter was based on durability bench-aging by Johnson Matthey Catalyst Division using its EDC-53 bench-aging cycle in lieu of the AMA driving cycle (Reference Appendix IV, Title 40, part 86, Code of Federal Regulations (June 28, 1977)).

WHEREAS, emissions tests conducted at Environmental Research & Development Corporation (ERDC), Ijamsville, Maryland, using a 1990 Jeep Cherokee 5.9L showed the following conversion efficiencies which meet the minimum requirements for new aftermarket catalytic converters:

<u>Pollution Component</u>	<u>TWC + OC</u>
HC: Min. Requirement	70%
Eastern's series 5100	73.3
CO: Min. Requirement	70
Eastern's series 5100	75.9
NOx: Min. Requirement	50
Eastern's series 5100	55.8

IT IS HEREBY RESOLVED that the above catalytic converter is exempt from the prohibitions in Vehicle Code Section 27156 for installation on the approved application vehicles subject to the following conditions:

1. No changes are permitted to the catalytic converter as described in the application for exemption. Any changes to the catalytic converter or any of its components, and other factors addressed in this order must be evaluated and approved by the ARB prior to marketing in California.
2. Marketing of the catalytic converter using identifications other than those shown in the exemption application, and in this Executive Order, or marketing of the catalytic converter for application other than the ones shown in this Executive Order shall be prohibited unless prior approval is obtained from the ARB. Exemption of this product shall not be construed as an exemption to sell, offer for sale, or advertise any components of the catalytic converter as individual devices.
3. Any oral or written references to this Executive Order or its content by Eastern, its principals, agents, employees, distributors, dealers, or other representatives must include the disclaimer that the Executive Order or the exemption it provides is not an endorsement or approval of any emission reduction claims for the catalytic converter and is only a finding that the catalytic converter is exempt from the prohibitions of Vehicle Code Section 27156.
4. Eastern's installation instructions for the new catalytic converter must conform to requirements in Paragraphs I and IX of California Evaluation Procedures for New Aftermarket Non-Original Equipment Catalytic Converters.
5. Upon installation, the catalytic converter must carry a manufacturer's warranty for 25,000 miles on the substrates and 50,000 miles or five years on the shell and end pipes.

Violation of any of the above conditions shall be grounds for revocation of this order. The order may be revoked only after ten day written notice of intention to revoke it, during which period the holder of the order may request in writing a hearing to contest the proposed revocation. If a hearing is requested, it shall be held within ten days of receipt of the request, and the order may not be revoked until a determination is made, after the hearing, that grounds for revocation exist.

Executed at El Monte, California, this 30<sup>th</sup> day of October 2001.

A handwritten signature in black ink, appearing to read "R.B. Summerfield". The signature is written in a cursive, flowing style.

R.B. Summerfield, Chief  
Mobile Source Operations Division

## EVALUATION SUMMARY

Manufacturer Name: Eastern Manufacturing, Inc.

Name of Device: Series 5100 Three-way plus oxidation catalytic converter (TWC + OC).

Background:

Eastern Manufacturing, Inc. (Eastern) of 1619 Handford Street, Levittown, Pennsylvania 19057, has applied for an exemption from the prohibitions in Section 27156 of the California Vehicle Code (VC) for its series 5100 new aftermarket TWC + OC. The new aftermarket catalytic converter is for installation on pre-OBD-II vehicles with the application limits of 5.9L engine size and 4,750 lbs. equivalent test weight (ETW).

Recommendation:

Grant exemption to Eastern as requested, and issue Executive Order D-510-1.

Device Description:

Eastern's new aftermarket series 5100 TWC + OC uses two oval-shaped ceramic monolith substrates. The front and rear substrates are both coated with platinum and rhodium in the ratio of 5:1. The dimensions of the front and rear oval substrates are 4.75 inches for the major axis, 3.15 inches for the minor axis, and 2.00 inches in length. The substrates are contained in a shell constructed from 409-grade stainless steel. The substrates are wrapped with intumescent mat to prevent vibration and exhaust by-pass. The shell is sealed by seam welding. A piece of aluminized heat shield is spot-welded to the upper side of the converter to protect the vehicle underbody from excessive heat. The catalyst may be sold as a unit with installation instructions or may be used in customized direct fit exhaust applications. It is sold with a warranty for 25,000 miles on the substrates, and five years or 50,000 miles on the container or shell, and the end pipes.

Johnson Matthey of Wayne, Pennsylvania, is the catalyst supplier for Eastern's series 5100 TWC + OC

Discussion/Basis for Exemption Recommendation:

Eastern submitted data on the series 5100 TWC + OC from testing conducted at Environmental Research & Development Corporation (ERDC), Ijamsville, Maryland. Two oval test catalysts were bench-aged by Johnson Matthey using its EDC-53 bench-aging cycle for a period of 25 hours. Johnson Matthey shipped the aged catalysts directly to ERDC for the emission testing. The emission tests were conducted using a 1990 Jeep Cherokee 5.9L for the TWC + OC application.

The evaluation of the series 5100 catalytic converter is solely based on the bench-aging performed by Johnson Matthey and emission tests conducted at ERDC. The limits of application of Eastern's series 5100 TWC + OC will be 5.9L/4,750 lbs., with the corresponding maximum gross vehicle weight rating (GVWR) of 5980 lbs. The test catalysts were labeled 81G-2-1 and 81G-2-2 respectively. Testing consisted of two cold-start CVS-75 tests with a simulator ("dummy" catalyst), followed by two cold-start CVS-75 tests for each of the two test catalysts. The conversion efficiency was separately calculated for each configuration. The overall conversion efficiency of Eastern's series 5100 TWC + OC is the average of the conversion efficiencies of the two test catalysts. The test results for the series 5100 catalyst are shown below:

Environmental Research & Development Corporation

Conversion Efficiency (%)

TWC + OC

	<u>Simulator</u>	<u>Cat 81G-2-1</u>	<u>Cat 81G-2-2</u>	<u>Overall Efficiency</u>
HC (g/mi)	2.643	0.703	0.709	73.3
CO (g/mi)	23.176	5.252	5.880	75.9
NOx (g/mi)	2.676	1.236	1.127	55.8

The above test results meet the minimum requirements of the California regulations on new aftermarket catalytic converters. The Air Resources Board (ARB) did not conduct confirmatory tests on the new aftermarket catalytic converters.