State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER D-182-26
Relating to Exemptions Under Section 27156
of the Vehicle Code

WALKER MANUFACTURING COMPANY
"THREE-WAY CATALYTIC CONVERTER SERIES 96000"

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 converter from the prohibitions of Vehicle Code Section 27156.

WHEREAS, Walker Manufacturing Company (Walker) of 2701 N. Dettman Road, Jackson, Michigan 49201, has applied to the ARB for exemption from the prohibitions in Vehicle Code Sections 27156 and 38391 to market their aftermarket series 96000 three-way catalytic converter (TWC) for the following application, except for vehicles equipped with an OBD II system:

Type	Use	Series No.	Max. Eng. Size	Max. Test Veh. Wt.
TWC	TWC	96000	5.9L (360 CID)	6,000 lbs.
TWC	OC	96000	5.9L (360 CID)	6,000 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 of the catalyst using AlliedSignal Environmental Catalyst (ASEC) bench-aging cycle ARL-102 (RAT B) for 53 hours, accepted by the ARB, for this application, to be equivalent to 25,000 miles durability mileage accumulation using AMA driving cycle (Reference Appendix IV, Title 40, part 86, Code of Federal Regulations (June 28, 1977)).

Whereas, emissions tests conducted at Automotive Testing and Development Services (ATDS), Ontario, showed the following conversion efficiencies which meet the minimum requirements for new aftermarket catalytic converters:

	Catalyst Application Type	
Pollution Component	TWC	OC
HC: Min. Requirement	70%	70%
Walker's series 96000	84.5	82.1
CO: Min. Requirement	70	70
Walker's series 96000	74.2	85.0
NOx: Min. Requirement	50	-
Walker's series 96000	82.9	-

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 Walker Manufacturing Company, 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. Walker Manufacturing Company 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 17th day of December 1998.

R.B. Summerfield, Chief
Mobile Source Operations Division

EVALUATION OF WALKER MANUFACTURING COMPANY'S SERIES 96000 NEW AFTERMARKET THREE-WAY CATALYTIC CONVERTER FOR EXEMPTION FROM THE PROHIBITIONS IN VEHICLE CODE SECTION 27156, AND TITLE 13, CALIFORNIA CODE OF REGULATIONS SECTION 2222(h)

December 1998

by

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(This report has been reviewed by the staff of the California Air Resources Board and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Air Resources Board, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.)

SUMMARY

Walker Manufacturing Company (Walker) of 2701 N. Dettman Road, Jackson, Michigan 49201, has applied for an exemption of their new series 96000 aftermarket three-way catalytic converter (TWC) from the prohibitions in Vehicle Code Section 27156, in accordance with California regulations on new aftermarket catalytic converters. The two test catalysts were aged using AlliedSignal Environmental Catalyst (ASEC's) bench-aging cycle, ARL-102. Each converter can contains one round substrate of ceramic monolith type. The substrate is coated with palladium and rhodium. The new catalytic converter may be installed on TWC and OC vehicles powered by an engine of 5.9L or less, and having an equivalent test weight of 6,000 lbs. or less.

Emissions data submitted by the applicant show that the catalytic converter meets the requirements of Vehicle Code Section 27156 and Title 13, California Code of Regulations, Section 2222(h) for the stated application. Based on the above, the staff recommends that the exemption be granted as requested and that Executive Order D-182-26 be issued.

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I. INTRODUCTION

Walker Manufacturing Company (Walker) of 2701 N. Dettman Road, Jackson, Michigan 49201, has applied for an exemption from the prohibitions in Vehicle Code Section 27156 for their new series 96000 aftermarket three-way catalytic converter (TWC) in accordance with California regulations on new aftermarket catalytic converters. The ceramic monolith substrate of the new catalyst was manufactured by AlliedSignal Environmental Catalyst (ASEC). The new aftermarket catalyst is intended for the following vehicle application:

Converter Type	Converter Use	PN/Series	Max. Eng. Size	Max. Veh. Test Wt.
TWC	TWC	96000	5.9L	6,000 lbs.
TWC	OC	96000	5.9L	6,000 lbs.

Walker intends to market the new TWC as a replacement for catalytic converters on applicable vehicles whose manufacturers' warranty has expired and the need for replacement of the original equipment manufacturer (OEM) catalytic converter has been established and documented. Excluded from the application are those vehicles equipped with an On-Board Diagnostic System II (OBD-II).

II. CONCLUSION

The applicant has submitted all the required information, and based on the applicant's submitted exhaust emissions test data, the staff concludes that the new aftermarket catalyst meets the criteria set forth in Vehicle Code Section 27156, and Title 13, California Code of Regulations, Section 2222(h) for the stated application.

III. RECOMMENDATION

Staff recommends that the exemption be granted as requested and that Executive Order No. D-182-26 be issued, permitting the advertisement, sale, and installation of the new aftermarket catalyst on applicable vehicles.

IV. DEVICE DESCRIPTION

Walker's new aftermarket TWC is designed to use round ceramic monolith substrate. The substrate is coated with palladium and rhodium. The substrate measures 3.66 inches in diameter and 5.00 inches in length, and has a volume of 52.66 cubic inches. The substrate is contained in outer 409 stainless steel shell with compressed intumescent mat, to prevent vibration and exhaust by-pass. The shell is sealed by seam weld, and bushings are attached by arc welding. Aluminized soft steel heat shield is spot-welded to the upper and bottom sides of the converter to protect

vehicle underbody from excessive heat, and prevent materials on the ground from direct contact with the catalyst shell. The catalyst may be sold as a unit with installation instructions or may be used in customized direct fit exhaust application. It is also sold with a warranty for 25,000 miles on the substrate, and five years or 50,000 miles on the container or shell, and the end pipes.

V. DEVICE EVALUATION

Walker submitted data from testing conducted by Automotive Testing and Development Services (ATDS), Ontario, California. The test catalysts were aged by AlliedSignal Environmental Catalyst using their ARL-102 bench-aging cycle. The test catalysts were shipped directly to ATDS where the emissions tests were conducted for three-way (TWC) application using a 1995 Dodge 2500 Ram Truck 5.9L. The oxidation catalytic converter (OC) application tests were conducted on a 1979 Ford Pickup Truck 7.6L. However, the use of the 7.6L Ford Truck for the OC testing will not change the application limits of the Walker's series 96000 TWC as shown above. All tests were conducted at the equivalent test weight (ETW) of 6,000 lbs. The test vehicles were ballasted in order to achieve the required ETW of 6,000 pounds. The test catalysts were labeled 6971 and 6972.

Testing consisted of two cold-start CVS-75 with a simulator ("dummy" catalyst), followed by two cold-start CVS-75 for each of the test catalysts. Upon completion of testing at the independent laboratory, the ARB conducted confirmatory tests for TWC application only at the Haagen-Smit Laboratory in El Monte, California. Results from the confirmatory tests showed CO conversion efficiency for test catalyst 6971 to be only 60.7 percent which brought the overall performance of series 96000 TWC to 67.2 percent for CO. The minimum required conversion efficiency is 70 percent.

Walker speculated that the test catalyst might have been damaged chemically or mechanically, and requested to be allowed to open it for mechanical and chemical analysis. The examination showed that the substrate was broken into two pieces. It was not determined whether the damage was caused by a drop of the test catalyst from a height or by vibration during testing. Walker requested to be allowed to re-age and retest another catalyst as a replacement. The replacement test catalyst was identified as 7107. All test results for the series 96000 TWC, including ARB's confirmatory tests, are shown below:

ATDS, Ontario, California - First Tests

TWC

	Simulator Average	Cat 6971 Average	Cat 6972 Average	Conv. Eff. Average
HC (g/mi)	2.234	0.354	0.381	83.5%
CO (g/mi)	22.686	6.711	6.516	70.8%
NOx (g/mi)	4.050	0.824	0.825	79.6%

OC

HC (g/mi)	8.082	1.318	1.573	82.1
CO (g/mi)	165.302	24.185	24.777	85.0

Haagen-Smit Laboratory, El Monte - Confirmatory Tests

HC (g/mi)	2.271	0.431	0.385	82.0
CO (g/mi)	23.896	9.400	6.268	67.2
NOx (g/mi)	3.149	0.831	0.593	77.4

ATDS, Ontario - 2nd Tests

TWC

	Simulator Average	Cat 6972 Average	Cat 7107 Average	Conv. Eff. Average
HC (g/mi)	2.234	0.326	0.366	84.5%
CO (g/mi)	22.686	5.205	6.489	74.2%
NOx (g/mi)	4.050	0.526	0.856	82.9%

Due to time constraints, the ARB did not conduct new confirmatory tests on the catalytic converter. Staff recommends that exemption be granted on the basis of tests conducted at ATDS, which showed that both of the test catalysts meet the required minimum conversion efficiency.