State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER D-182-27
Relating to Exemptions Under Section 27156
of the Vehicle Code

WALKER MANUFACTURING COMPANY
"THREE-WAY CATALYTIC CONVERTER SERIES 44000"

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), a division of Tenneco Automotive, 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 44000 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. Veh. Test Wt. |
|---|---|---|---|---|
| TWC | TWC | 44000 | 4.3L (260 CID) | 4,250 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 27 hours, accepted by the ARB for this application to be equivalent to 25,000 miles durability using the 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, California, showed the following conversion efficiencies which meet the minimum requirements for new aftermarket catalytic converters:

| | Catalyst Application Type |
|---|---|
| Pollution Component | TWC (% Conversion) |
| HC: Min. Requirement | 70 |
| Walker's series 44000 | 77.6 |
| CO: Min. Requirement | 70 |
| Walker's series 44000 | 79.0 |
| NOx: Min. Requirement | 60 |
| Walker's series 44000 | 65.4 |

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 any identification 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 substrate 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 a 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 12TH day of October 2000.

FOR

R.B. Summerfield, Chief
Mobile Source Operations Division

State of California
AIR RESOURCES BOARD

# EVALUATION OF WALKER MANUFACTURING COMPANY'S SERIES 44000 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)

October 2000

by

Mobile Source Division

9528 Telstar Avenue
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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), a division of Tenneco Automotive, of 2701 North Dettman Road, Jackson, Michigan 49201 has applied for an exemption of its series 44000 new aftermarket three-way catalytic converter (TWC) from the prohibitions in Vehicle Code Sections 27156, in accordance with California regulations on new aftermarket catalytic converters. The two test catalysts were aged using AlliedSignal Environmental Catalyst's (ASEC's) rapid aging cycle ARL-102 for a duration of 27 hours based on temperature histogram data collected by ASEC. The round substrate is of ceramic monolith type. The single substrate is coated platinum and rhodium in 2:1 ratio. The emission tests were conducted on a 1995 GMC Jimmy 4.3L truck at the equivalent test weight of 4250 pounds (lbs.). The new catalytic converter is for installation on vehicles equipped with three-way catalytic converter (TWC) and the maximum application limits for the TWC are 4.3L and 4250 lbs., which corresponds to 4.3L engine displacement and gross vehicle weight of 4640 lbs.

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-182-27 be issued.

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EVALUATION OF WALKER MANUFACTURING COMPANY'S SERIES 44000 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)

## I. INTRODUCTION

Walker Manufacturing Company (Walker) of 2701 North Dettman Road, Jackson, Michigan 49201, has applied for an exemption from the prohibitions in Vehicle Code Section 27156 for its series 44000 new aftermarket three-way catalytic converter (TWC) in accordance with California regulations on new aftermarket catalytic converters. AlliedSignal Environmental Catalyst (ASEC) is the catalyst supplier of the new aftermarket catalytic converter. The new aftermarket catalytic converter is intended for the following vehicle applications:

| Converter Type | Converter Use | PN/Series | Max. Eng.Size | Max.Veh.Test Wt. |
|---|---|---|---|---|
| TWC | TWC | 44000 | 4.3L | 4250 lbs. |

The maximum Gross Vehicle Weight (GVW) for the catalytic converter application is 4,640 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, except those vehicles equipped with On-Board Diagnostic II (OBD-II) system.

## 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 catalytic converter 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-182-27 be issued, permitting the advertisement, sale, and installation of the new aftermarket catalytic converter on applicable vehicles.

IV. DEVICE DESCRIPTION

Walker's new aftermarket TWC is designed to use a single round ceramic monolith substrate. The substrate is coated with platinum and rhodium in the 2:1 ratio. The dimensions of the substrate are 3.66 inches diameter and 4.00 inches in length. The volume of the substrates is 42.1 cubic inches. The substrate is contained in outer 409 stainless steel shell with compressed intumescent or expanding mat, to prevent vibration and exhaust by-pass. The clamshell halves are sealed by seam weld, and the end pipes are attached to the shell by arc welding. Aluminized heat shield is spot-welded to the upper side of the converter to protect the vehicle underbody from excessive heat. The catalytic converter 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 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) laboratory, Ontario, California. Catalyst bench-aging was conducted by ASEC using its ARL-102 rapid-aging. The aging duration of 27 hours was calculated from temperature histogram obtained from vehicles similar to the one used on emission testing. The 27-hour aging duration was determined to produce aging severity similar to that which the catalyst would experienced when aged on the road for 25,000 miles using the

AMA driving cycle. Emissions tests were conducted on a 1995 GMC Jimmy 4.3L. The test vehicle was ballasted to obtained the desired equivalent test weight of 4,250 lbs.

The evaluation of the Walker's new aftermarket catalytic converter is solely based on the bench-aging conducted by ASEC and the emission tests conducted at ATDS. The limits of application of Walker's series 44000 TWC are 4.3L/4,250 lbs. and the corresponding maximum gross vehicle weight is 4,640 lbs. The two test catalysts were labeled 7808 and 7809 respectively. 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. The average of the two test results for each test catalyst was used to calculate the conversion efficiency. The overall conversion efficiency for the catalyst model is the average conversion efficiency of the two test catalysts. The test results for the catalyst are shown below:

Automotive Testing and Development Services, Ontario, California

TWC

| | Simulator Average | Catalyst 7808 Average | Catalyst 7809 Average | Conv. Eff. Average |
|---|---|---|---|---|
| HC (g/mi) | 2.409 | 0.539 | 0.537 | 77.6% |
| CO (g/mi) | 16.108 | 3.207 | 3.552 | 79.0% |
| NOx (g/mi) | 2.281 | 0.753 | 0.826 | 65.4% |

The above conversion efficiencies meet the minimum requirements of the California regulations on new aftermarket catalytic converters. Due to time constraints, the ARB did not conduct confirmatory testing on the catalyst.