

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER D-183-9
Relating to Exemptions Under Section 27156
of the Vehicle Code

PERFECTION AUTOMOTIVE PRODUCTS CORP.
"THREE-WAY PLUS OXIDATION CATALYTIC CONVERTER"

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, Perfection Automotive Products Corp. of 31623 Industrial Drive, Livonia, Michigan 48150, has applied to the ARB for exemption from the prohibitions in Vehicle Code Sections 27156 and 38391 for their new aftermarket three-way plus oxidation catalytic converter (TWC + OC) for the following applications:

<u>Converter Use</u>	<u>Series No.</u>	<u>Max. Eng. Size</u>	<u>Max. Test Wt.</u>
TWC + OC, TWC, OC	95000	5.9L (360 CID)	4,500 lbs.

WHEREAS, pursuant to the authority vested in the Executive Officer by Health and Safety Code Section 39515 and in the Chief, Mobile Source 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 mileage accumulation of 25,000 miles using the AMA durability driving schedule (Reference Appendix IV, Title 40, part 86, Code of Federal Regulations (June 28, 1977)).

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 converter as described in the application for exemption. Any changes to the 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 converter using identifications other than those shown in the exemption application or marketing of the converter for application other than the ones listed in the application catalog 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 converter as individual devices.

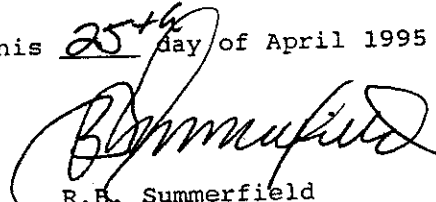
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3. Any oral or written references to this Executive Order or its content by Perfection Automotive Products Corp., its principals, agents, employees, distributors, dealers, or other representatives must include the disclaimer that the Executive Order or the exemption it provides is not an endorsement or approval of any emissions reduction claims for the catalytic converter and is only a finding that the converter is exempt from the prohibitions of Vehicle Code Section 27156.
4. 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.

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 25th day of April 1995



R.B. Summerfield
Assistant Division Chief
Mobile Source Division

State of California
AIR RESOURCES BOARD

EVALUATION OF PERFECTION AUTOMOTIVE PRODUCTS CORP. NEW AFTERMARKET
THREE-WAY PLUS OXIDATION CATALYTIC CONVERTER FOR EXEMPTION FROM
THE PROHIBITIONS IN VEHICLE CODE SECTION 27156, AND TITLE 13,
CALIFORNIA CODE OF REGULATIONS, SECTION 2222(h)

April 1995

EVALUATION OF PERFECTION AUTOMOTIVE PRODUCTS CORP. NEW AFTERMARKET
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THE PROHIBITIONS IN VEHICLE CODE SECTION 27156, AND TITLE 13,
CALIFORNIA CODE OF REGULATIONS, SECTION 2222(h)

by

Mobile Source Division

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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

Perfection Automotive Products Corp. (Perfection) of 31623 Industrial Drive, Livonia, Michigan 48150, has applied for an exemption of their new aftermarket three-way plus oxidation catalytic converter (TWC + OC)) from the prohibitions in Vehicle Code Sections 27156 and 38391 in accordance with California regulations on new aftermarket catalytic converters. The new converter will be used on light-duty and medium-duty vehicles powered by a 5.9L or smaller engine, and maximum equivalent test weight (ETW) of 4,500 lbs. for TWC + OC, TWC, and OC applications.

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 applications. Based on the above, the staff recommends that the exemption be granted as requested and that Executive Order D-183-9 be issued.

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EVALUATION OF PERFECTION AUTOMOTIVE PRODUCTS CORP. NEW AFTERMARKET
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CALIFORNIA CODE OF REGULATIONS, SECTION 2222(h)

I. INTRODUCTION

Perfection Automotive Products Corp. (Perfection) of 31623 Industrial Drive, Livonia, Michigan 48150, has applied for an exemption from the prohibitions in Vehicle Code Sections 27156 and 38391 for their new aftermarket three-way plus oxidation catalytic converter (TWC + OC) in accordance with California regulations on new aftermarket catalytic converters. The new aftermarket TWC + OC is intended for use as OC, TWC, and TWC + OC, on light-duty and medium-duty vehicles as shown below:

<u>Application Type</u>	<u>Series Number</u>	<u>Max. Eng. Size</u>	<u>Max. Veh. Wt.</u>
TWC + OC, TWC, OC	95000	5.9L	4,500 lbs.

II. CONCLUSION

The applicant has submitted all the required information, and based on the submitted exhaust emissions test data, and the Air Resources Board's (ARB's) confirmatory tests results, the staff concludes that the 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 applications.

III. RECOMMENDATION

Staff recommends that the exemption be granted as requested and that Executive Order No. D-183-9 be issued, permitting the advertisement, sale and installation of the new aftermarket catalytic converter.

IV. DEVICE DESCRIPTION

Perfection's new aftermarket TWC + OC contains two substrates which are coated with palladium only. Air tube is provided between the substrates for the TWC + OC application. The two test catalysts are of oval and round design respectively. This will allow Perfection to market the converter in

either of the two shapes. The oval substrate has a total volume of 51.04 cubic inches, and the round substrate has a total volume of 51.70 cubic inches. The substrates are enclosed in a stainless steel shell. When canned with 2 1/4 inch inside diameter neck, the volumes of the oval and round converters are 143 cubic inches and 109 cubic inches respectively. The substrates are wrapped with compressed intumescent mat to prevent vibration and exhaust gases from by-passing the catalyst. A heat shield of aluminized steel is welded to the converter shell to protect the vehicle underbody from heat. The catalytic converter is sold as a unit or with additional parts as a kit for direct fit application, and with installation instructions as shown in Perfection's application catalog. It is also sold with a warranty for 25,000 miles on the substrates and five years or 50,000 miles on the container or shell.

V. DEVICE EVALUATION

Perfection submitted data from testing conducted by Automotive Testing and Development Services, Inc. (ATDS), an independent laboratory in Ontario, California. The two test converters were aged respectively using a 1975 5.9L Dodge Coronet, and a 1979 5.9L Chrysler Newport. The test weight used for the catalyst aging was 4,500 lbs. Emissions tests were conducted on the following vehicles:

<u>Application</u>	<u>Emission Test Vehicle</u>	<u>Engine Size</u>	<u>ETW</u>
TWC + OC	1990 Dodge D-150 Truck	5.9L	4,500 lbs.
TWC	1994 Dodge 4x4 Truck	5.9L	4,500 lbs.
OC	1976 Chrysler Cordoba	5.9L	4,500 lbs.

Upon conclusion of testing at ATDS, the ARB conducted confirmatory tests with the two aged catalysts at Haagen-Smit Laboratory, El Monte, California, for the TWC + OC and TWC applications. The test results and conversion efficiencies for the converter are shown below:

ATDS, Ontario, California

	<u>Simulator</u>	<u>TWC + OC</u>		<u>Avg Eff.</u>
		<u>Oval Cat.</u>	<u>Round Cat.</u>	
HC (g/mi)	9.099	0.854	0.842	90.6%
CO (g/mi)	81.018	7.753	9.624	89.2%
NOx(g/mi)	2.908	1.430	1.379	51.7%

	<u>Simulator</u>	<u>TWC</u>		<u>Avg Eff.</u>
		<u>Oval Cat.</u>	<u>Round Cat.</u>	
HC (g/mi)	7.219	0.900	0.840	87.9
CO (g/mi)	56.270	16.199	11.885	75.0%
NOx(g/mi)	4.411	1.041	0.912	77.8%

		<u>OC</u>		
HC (g/mi)	7.086	1.171	1.174	83.4%
CO (g/mi)	26.127	6.809	6.322	74.8%

Haagen-Smit Laboratory, El Monte

	<u>Simulator</u>	<u>TWC + OC</u>		<u>Avg. Eff.</u>
		<u>Oval Cat.</u>	<u>Round Cat.</u>	
HC (g/mi)	7.355	0.896	0.704	89.1%
CO (g/mi)	81.728	11.429	13.088	85.0%
NOx(g/mi)	2.396	1.160	1.090	53.0%

		<u>TWC</u>		
HC (g/mi)	4.685	0.571	0.543	88.1%
CO (g/mi)	47.992	12.012	11.442	75.6%
NOx(g/mi)	4.136	1.180	0.936	74.4%

All of the above conversion efficiencies meet California requirements for new aftermarket catalytic converters. The exemption of the new Perfection catalytic converter is based on the test results from ATDS and the ARB's confirmatory tests.