

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER D-183-5  
Relating to Exemptions Under Section 27156  
of the Vehicle Code

PERFECTION AUTOMOTIVE PRODUCTS CORPORATION  
"THREE-WAY PLUS OXIDATION CATALYTIC CONVERTER"

WHEREAS, Vehicle Code Section 27156 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 in Vehicle Code Sections 27156 and 38391.

WHEREAS, Perfection Automotive Products Corporation of 12445 Levan Road, 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 converter (TWC + OC) for the following application:

<u>Application</u>	<u>Universal Part Numbers</u>	<u>Max. Eng. Size</u>	<u>Max. Veh. Wt.</u>
TWC	23070, 23071, 23072, 23073 23090, 23091	5.7L	5,500 lbs.
TWC + OC	23080, 23081, 23082, 23083 23093, 23094	5.9L	5,500 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-45-5, the ARB finds that the above aftermarket catalytic converter complies with the California Vehicle Code Sections 27156 and 38391, 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)).

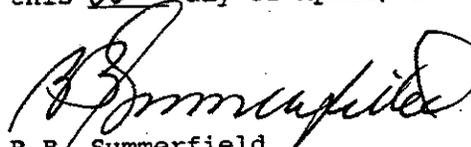
IT IS HEREBY RESOLVED that the above catalytic converter is exempt from the prohibitions in Vehicle Code Sections 27156 and 38391 for installation on applicable vehicles subject to the following conditions:

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, applicable model year, or 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 catalytic converter for vehicle application other than the one listed in this 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 Perfection Automotive Products Corporation, 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 catalytic converter is exempt from the prohibitions of Vehicle Code Sections 27156 and 38391.
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 22nd day of April, 1993.



R.B. Summerfield  
Assistant Division Chief  
Mobile Source Division

EVALUATION OF PERFECTION AUTOMOTIVE PRODUCTS CORPORATION 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)

by

Mobile Source Division

State of California  
AIR RESOURCES BOARD  
9528 Telstar Avenue  
El Monte, CA 91731-2990

(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 Corporation (Perfection) of 12445 Levan Road, 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 for new aftermarket catalytic converters. Perfection also conducted a carry-over test on a California vehicle powered by a 5.7L engine for three-way converter (TWC) application. The new converter will be used as TWC + OC on vehicles with engine displacement up to 5.9L and maximum equivalent test weight (ETW) of 5,500 lbs., and as TWC on vehicles with engine displacement up to 5.7L, and maximum ETW of 5,500 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 applications. Based on the above, the staff recommends that the exemption be granted as requested and that Executive Order D-183-5 be issued.

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EVALUATION OF PERFECTION AUTOMOTIVE PRODUCTS CORPORATION 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)

I. INTRODUCTION

Perfection Automotive Products Corporation (Perfection) of 12445  
Levan Road, 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. Perfection also conducted carry-over test on a California  
vehicle powered by a 5.7L engine for three-way converter (TWC) application.  
The intended applications for the new aftermarket catalytic converter are  
shown below:

<u>Application</u>	<u>Universal Part Numbers</u>	<u>Max. Engine Size</u>	<u>Max. Veh. Wt.</u>
TWC	23070, 23071, 23072, 23073 23090, 23091	5.7L	5,500 lbs.
TWC + OC	23080, 23081, 23082, 23083 23093, 23094	5.9L	5,500 lbs.

The first four part numbers, for each application, correspond to nominal  
exhaust pipe neck sizes of 2", 2-1/4", 2-1/2", and 3". The last two part  
numbers correspond to Perfection's "Specialty Universal Double Heat Shield"  
design with pipe neck sizes of 2-1/4" and 3" respectively.

II. CONCLUSION

The applicant has submitted all the required information and based  
on the submitted exhaust emissions test data, 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

The staff recommends that the exemption be granted as requested and that Executive Order No. D-183-5 be issued, permitting the advertisement, sale and installation of the new aftermarket TWC + OC.

### IV. DEVICE DESCRIPTION

The reducing substrate of Perfection's three-way plus oxidation catalytic converter is coated with rhodium and palladium; the oxidation substrate is coated with palladium. Air tubes are incorporated in the converter for the TWC + OC application. No air tube is required for the TWC application. The catalytic converter was assembled with one reducing substrate and one oxidizing substrate both enclosed in a stainless steel shell. The substrates are wrapped with interam mat to prevent vibration and exhaust gases from by-passing the catalyst. A heat shield of aluminum is welded to the converter shell to protect the vehicle underbody from heat. Double heat shield is used for the "specialty universal" application where high temperature is generated due to high engine revolution. The catalytic converter is sold as a unit with installation instructions and kits as shown in the 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 has submitted TWC + OC and TWC test data from testing conducted by Roush Laboratories, Livonia, Michigan. The two test converters were aged respectively on a 1976 Chrysler Cordoba 5.9L, and a 1975 Dodge Coronet 5.9L. The equivalent test weight for both mileage accumulation vehicles was 5,500 lbs. CVS-75 emission tests to determine the conversion efficiency of the catalytic converter for TWC and TWC + OC applications were conducted on a 1992 Buick Roadmaster 5.7L, and a 1992 Dodge Ram Pickup 5.9L

respectively, using the ETW of 5,500 lbs. Perfection conducted temperature measurements to demonstrate that the emission test vehicles produce the same severity on the catalyst as the oxidation vehicles used for mileage accumulation. The test results and conversion efficiencies for the converter are shown below:

	<u>Three-way (TWC) Application</u>			
	<u>Simulator</u>	<u>Converter 1</u>	<u>Converter 2</u>	<u>Average Eff.</u>
HC (g/mi)	2.594	0.440	0.437	83.0%
CO (g/mi)	23.712	5.120	4.333	80.0%
NOx(g/mi)	2.568	0.513	0.596	78.4%

	<u>Three-way plus oxidation (TWC + OC) Application</u>			
	<u>Simulator</u>	<u>Converter 1</u>	<u>Converter 2</u>	<u>Average Eff.</u>
HC (g/mi)	2.370	0.503	0.424	80.4
CO (g/mi)	34.992	3.522	4.291	88.8
NOx(g/mi)	3.544	1.192	1.054	68.3

All of the conversion efficiencies meet the requirements of the California regulations. The staff based the evaluation of the new aftermarket catalytic converter on the information submitted by Perfection, and test data from Roush Laboratories.