

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER D-193-8  
Relating to Exemptions Under Section 27156  
of the Vehicle Code

CAR SOUND EXHAUST SYSTEM, INC.  
"3-WAY CATALYTIC CONVERTER SERIES 24000"

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 of Vehicle Code Section 27156.

WHEREAS, Car Sound Exhaust System, Inc. of 22961 Arroyo Vista, Rancho Santa Margarita, California 92688, has applied to the ARB for exemption from the prohibitions in Vehicle Code Section 27156 for their new catalytic converter for the following application:

<u>Type</u>	<u>Series No.</u>	<u>Max. Engine Size</u>	<u>Max. Veh. Wt.</u>
TWC	24000	5.0L (305 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 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 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)).

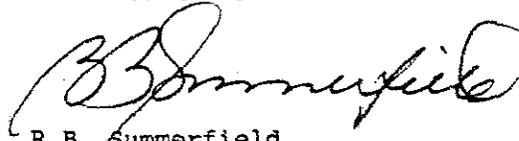
IT IS HEREBY RESOLVED that the above catalytic converter is exempt from the prohibitions in Vehicle Code Section 27156 for installation on the approved application vehicle subject to the following conditions:

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 system 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 Car Sound Exhaust System, Inc., 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 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 9<sup>th</sup> day of March, 1992.



R.B. Summerfield  
Assistant Division Chief  
Mobile Source Division

State of California  
AIR RESOURCES BOARD

EVALUATION OF CAR SOUND EXHAUST SYSTEM, INC. NEW AFTERMARKET 24000 SERIES  
3-WAY CATALYTIC CONVERTER FOR EXEMPTION FROM THE PROHIBITIONS IN  
VEHICLE CODE SECTION 27156 AND TITLE 13, CALIFORNIA  
CODE OF REGULATIONS, SECTION 2222(h)

March, 1992

EVALUATION OF CAR SOUND EXHAUST SYSTEM, INC. NEW AFTERMARKET 24000 SERIES  
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VEHICLE CODE SECTION 27156 AND TITLE 13, CALIFORNIA  
CODE OF REGULATIONS, SECTION 2222(h)

by

Mobile Source Division

State of California  
AIR RESOURCES BOARD  
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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

Car Sound Exhaust System, Inc. (Car Sound) of 22961 Arroyo Vista, Rancho Santa Margarita, California 92688, has applied for an exemption to use their new 24000 (200HD) series aftermarket three-way plus oxidation (TWC + OC) catalytic converter for 3-way application under the California regulations for new aftermarket catalytic converters. Car Sound plans to use the 24000 series catalytic converter on 3-way vehicles equipped with up to 5.0 liter engine size and 4250 lbs. vehicle test weight.

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-193-8 be issued.

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EVALUATION OF CAR SOUND EXHAUST SYSTEM, INC. NEW AFTERMARKET 24000 SERIES  
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VEHICLE CODE SECTION 27156 AND TITLE 13, CALIFORNIA  
CODE OF REGULATIONS, SECTION 2222(h)

I. INTRODUCTION

Car Sound Exhaust System, Inc. (Car Sound) of 22961 Arroyo Vista, Rancho Santa Margarita, California 92688, has applied for an exemption to use their new aftermarket three-way plus oxidation (TWC + OC) catalytic converter series 24000 (200HD) for 3-way (TWC) application in accordance with California regulations on new aftermarket catalytic converters. The intended application for the new aftermarket catalytic converter is shown below:

<u>Type</u>	<u>Series No.</u>	<u>Max. Engine Size</u>	<u>Max. Veh. Wt.</u>
TWC	24000	5.0L (305 CID)	4250 lbs.

The catalyst was re-canned as 200HD series from two separately aged converters using two reducing substrates and one oxidizing substrate in order to meet California's more stringent minimum conversion efficiency for NOx. Car Sound has changed their part number system and the 200HD series is now called the 24000 series.

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 application.

III. RECOMMENDATION

The staff recommends that the exemption be granted as requested and that Executive Order No. D-193-8 be issued, permitting the advertisement, sale and installation of the new 3-way aftermarket catalytic converter.

IV. DEVICE DESCRIPTION

The substrates of Car Sound's three-way substrates are coated with palladium and rhodium without air injection incorporated between the reducing and oxidizing substrates as was the case with the three-way plus oxidation application. The 24000 series converter was assembled with two reducing and one oxidizing substrates enclosed in an outer stainless steel shell. A heat shield of aluminum is welded to the converter shell to protect the vehicle underbody from heat. 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

Car Sound has submitted test data on the 24000 catalytic converter. The tests were conducted by Automotive Testing and Development Services, Inc. (ATDS), Huntington Beach, California. The two reducing substrates and one oxidizing substrate used to build the 24000 series converter were previously aged on a 1984 and a 1985 carbureted Chevrolet Caprice 5.0L closed-loop vehicles. CVS-75 emission tests for the 3-way application were conducted on a 1991 TBI Chevrolet Caprice 5.0L, alternatively with the converter and exhaust backpressure simulator installed in order to determine the conversion efficiencies for HC, CO, and NOx. The vehicle test weight for the 24000 converter was 4,250 lbs. The exemption for the 3-way application is limited to vehicles powered by engine size up to 5.0L and 4250 lbs. vehicle weight, in order to conform to the "worst case" requirement of the California regulations.

Car Sound also submitted a temperature profile which was conducted at ATDS to demonstrate that stress produced on the catalyst by a carbureted 1985 Chevrolet Caprice, 5.0L with closed-loop TWC + OC is equal to the stress produced by a 1991 TBI Chevrolet Caprice, 5.0L with closed-loop TWC system. The equivalent test weight for both vehicles was 4250 lb. The temperature profile did not show a significant difference between the stress produced by the 1985 Chevrolet Caprice and the 1991 version. The test results and conversion efficiencies for the converter are shown below:

	<u>24000 Series TWC</u>			
	<u>Simulator</u>	<u>Test 1</u>	<u>Test 2</u>	<u>Average Conv. Eff.</u>
HC (g/mi)	2.463	0.258	0.384	87.0%
CO (g/mi)	12.917	2.036	2.695	81.6%
NOx(g/mi)	3.316	0.582	0.494	83.8%

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 Car Sound, and test data from Automotive Testing and Development Services, Inc.