

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER D-193-21
Relating to Exemptions Under Section 27156
of the Vehicle Code

CAR SOUND EXHAUST SYSTEMS, INC.
"THREE-WAY CATALYTIC CONVERTER SERIES 53000"

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, Car Sound Exhaust Systems, Inc. of 22961 Arroyo Vista, Rancho Santa Margarita, California 92688, has applied to the ARB for exemption from the prohibitions in Vehicle Code Sections 27156 and 38391 to market its aftermarket series 53000 three-way catalytic converter (TWC) for the following application, except for vehicles equipped with an on-board diagnostic II (OBD-II) system (Title 13, CCR, Section 1968.1):

<u>Type</u>	<u>Series No.</u>	<u>Max. Eng. Size</u>	<u>Max. Test Veh. Wt./GVWR</u>
TWC	53000	4.0L (242 CID)	4,250 lbs./4,550 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 bench-aging of the catalyst by Johnson Matthey using its EDC-53 rapid aging cycle in lieu of the AMA mileage accumulation (Reference Appendix IV, Title 40, part 86, Code of Federal Regulations (June 28, 1977)).

WHEREAS, emissions tests conducted at California Environmental Engineering, Santa Ana, California, showed the following conversion efficiencies which meet the minimum requirements for new aftermarket catalytic converters:

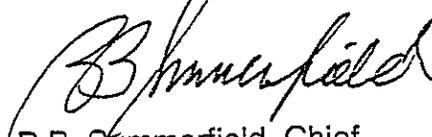
<u>Pollution Component</u>	<u>TWC (% Conversion)</u>
HC: Min. Requirement	70
Car Sound's series 53000	72.6
CO: Min. Requirement	70
Car Sound's series 53000	78.6
NOx: Min. Requirement	60
Car Sound's series 53000	71.0

IT IS HEREBY RESOLVED that the above catalytic converter is exempt from the prohibitions of Vehicle Code Section 27156 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, 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 component of the catalytic converter as an individual device.
3. Any oral or written references to this Executive Order or its content by Car Sound, 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. Car Sound's 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 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 10th day of May 2001.



R.B. Summerfield, Chief
Mobile Source Operations Division

ATDS, Ontario, California

<u>TWC + OC</u>				
	<u>Simulator</u>	<u>Cat 94JJ1</u>	<u>Cat 94JJ2</u>	<u>Conv. Eff.</u>
	<u>Average</u>	<u>Average</u>	<u>Average</u>	<u>Average</u>
HC (g/mi)	2.807	0.676	0.625	76.8%
CO (g/mi)	30.824	8.096	7.844	74.1%
NOx (g/mi)	3.182	0.732	0.696	77.5%
<u>TWC</u>				
HC (g/mi)	2.508	0.412	0.454	82.7%
CO (g/mi)	25.277	4.766	5.103	80.4%
NOx (g/mi)	6.520	1.110	1.050	83.4%
<u>OC</u>				
HC (g/mi)	1.511	0.417	0.418	72.3%
CO (g/mi)	34.818	8.178	6.618	78.7%

The above conversion efficiencies meet the minimum requirements of the California regulations on new aftermarket catalytic converters, and are within 10 percent or less of the highest conversion efficiency attained by Car Sound's previous catalytic converters exempted for the same application limits.

State of California
AIR RESOURCES BOARD

EVALUATION OF CAR SOUND EXHAUST SYSTEMS, INC.'S SERIES 53000 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)

May 2001

by

Mobile Source Division

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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.)

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SUMMARY

Car Sound Exhaust Systems, Inc. (Car Sound) of 22961 Arroyo Vista, Rancho Santa Margarita, California 92688 has applied for an exemption of its series 53000 new aftermarket three-way catalytic converter (TWC) from the prohibitions in Vehicle Code Section 27156, in accordance with California regulations for new aftermarket catalytic converters. The catalytic converter is manufactured in a round configuration. The two test catalysts were aged using Johnson Matthey's rapid aging cycle, EDC-53, which has been accepted by the Air Resources Board for aging catalysts designed for vehicle application limits of 5.9L/6,000 lbs. The new TWC has a single substrate of ceramic monolith type and coated with platinum and rhodium in a 4:1 ratio. The emission tests were conducted on a 1994 Jeep Grand Cherokee 4.0L, equipped with a TWC, at the equivalent test weight of 4,250 pounds (lbs.). The new catalytic converter is for installation on vehicles equipped with a single TWC. The maximum application limits for the new series 53000 TWC are 4.0L and 4,250 lbs., which corresponds to 4.0L engine displacement and gross vehicle weight rating of 4550 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-193-21 be issued.

EVALUATION OF CAR SOUND EXHAUST SYSTEMS, INC.'S SERIES 53000 NEW
AFTERMARKET THREE-WAY CATALYTIC CONVERTER FOR EXEMPTION
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TITLE 13, CALIFORNIA CODE OF REGULATIONS SECTION 2222(h)

I. INTRODUCTION

Car Sound Exhaust Systems, Inc. (Car Sound) of 22961 Arroyo Vista, Rancho Santa Margarita, California 92688, has applied for an exemption from the prohibitions in Vehicle Code Section 27156 for its series 53000 new aftermarket three-way catalytic converter (TWC) in accordance with California regulations for new aftermarket catalytic converters. The new aftermarket catalytic converter is intended for the following vehicle application:

<u>Converter Type</u>	<u>PN/Series</u>	<u>Max. Eng. Size</u>	<u>Max. Veh. Test Wt.</u>
TWC	53000	4.0L	4,250 lbs.

The maximum Gross Vehicle Weight Rating (GVWR) for the catalytic converter application is 4,550 lbs. Car Sound intends to market the new converter as a replacement for catalytic converters on in-use vehicles whose manufacturer's warranty has expired and the need for replacement of the original equipment manufacturer (OEM) catalytic converter has been established and documented. The converter cannot be installed on vehicles equipped with an 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-193-21 be issued, permitting the advertisement, sale, and installation of the new aftermarket catalytic converter on applicable vehicles.

IV. DEVICE DESCRIPTION

Car Sound's series 53000 new aftermarket catalytic converter is designed to use a single round-shaped ceramic monolith substrate. The substrate is 3.66 inches in diameter and 2.93 inches in length. The substrate volume is 30.8 cubic inches. The substrate is coated with platinum and rhodium in a 4:1 ratio. The substrate is contained in an outer 409 stainless steel shell with compressed intumescent or expanding mat to prevent vibration and exhaust by-pass. The shell halves are sealed by seam weld, and the end pipes are attached to the shell by arc welding. An aluminized heat shield is spot-welded to the upper side of the converter to protect the vehicle from excessive heat. The catalytic converter is sold as a unit with installation instructions or 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

Car Sound submitted data from testing conducted by California Environmental Engineering (CEE) laboratory located in Santa Ana, California. Catalyst bench-aging was conducted by the catalyst supplier, Johnson Matthey using its bench-aging cycle EDC-53. Emissions tests were conducted on a 1994 Jeep Grand Cherokee 4.0L equipped with a TWC, at the equivalent test weight of 4,250 lbs.

The evaluation of Car Sound's new aftermarket catalytic converter is based on the bench-aging conducted by Johnson Matthey and the emission tests conducted at CEE.

The limits of application of Car Sound's series 53000 TWC are 4.0L/4,250 lbs. with a corresponding maximum gross vehicle weight of 4,550 lbs. The two test catalysts were labeled 1023D401/36382 and 1023C401/36389 respectively. Testing consisted of two cold-start CVS-75 tests with a simulator ("dummy" catalyst), followed by two cold-start CVS-75 tests 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:

California Environmental Engineering, Santa Ana, California

TWC

	<u>Simulator</u> <u>Average</u>	<u>Catalyst 36382</u> <u>Average</u>	<u>Catalyst 36389</u> <u>Average</u>	<u>Conv. Eff.</u> <u>Average</u>
HC (g/mi)	2.044	0.576	0.544	72.6%
CO (g/mi)	15.451	3.609	2.998	78.6%
NOx (g/mi)	4.587	1.381	1.283	71.0%

The conversion efficiencies of the catalytic converter meet the minimum requirements of the California regulations for new aftermarket catalytic converters. The ARB did not conduct confirmatory testing on the catalyst.