

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER D-193-13  
Relating to Exemptions Under Section 27156  
of the Vehicle Code

CAR SOUND EXHAUST SYSTEMS, INC.  
"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, 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 for their new aftermarket three-way plus oxidation catalytic converter (TWC + OC) for the following application:

| <u>Converter Type</u> | <u>Use</u> | <u>Series No.</u> | <u>Max. Eng. Size</u> | <u>Max. Test Wt.</u> |
|-----------------------|------------|-------------------|-----------------------|----------------------|
| TWC + OC              | TWC + OC   | 93000             | 5.8L (351 CID)        | 5,500 lbs.           |

The single unit can be used to replace catalyst systems consisting of a TWC in series with a separate OC on specific Ford Vans/Trucks that are not precatalyst equipped.

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 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 one 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 Car Sound Exhaust Systems, 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 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 19<sup>th</sup> day of December, 1994.

  
R.B. Summerfield  
Assistant Division Chief  
Mobile Source Division

State of California  
AIR RESOURCES BOARD

EVALUATION OF CAR SOUND EXHAUST SYSTEMS, INC. NEW AFTERMARKET THREE-WAY  
PLUS OXIDATION CATALYTIC CONVERTER FOR EXEMPTION FROM THE PROHIBITIONS  
IN VEHICLE CODE SECTIONS 27156 AND 38391, AND TITLE 13, CALIFORNIA  
CODE OF REGULATIONS, SECTION 2222(h)

December, 1994

EVALUATION OF CAR SOUND EXHAUST SYSTEMS, INC. NEW AFTERMARKET THREE-WAY  
PLUS OXIDATION CATALYTIC CONVERTER FOR EXEMPTION FROM THE PROHIBITIONS  
IN VEHICLE CODE SECTIONS 27156 AND 38391, 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

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 Sections 27156 and 38391, for their series 93000 new aftermarket three-way plus oxidation (TWC + OC) catalytic converter. The series 93000 TWC + OC will be used as an aftermarket integrated (one-for-two) replacement for Ford Vans/Trucks certified with catalyst system that has non-closed-coupled TWC in series with a downstream OC, and with air injected at the mid-point. The maximum engine displacement/equivalent test weight application for the specific application is 5.8L/5500 lbs., in accordance with California regulations for new aftermarket catalytic converters.

Emissions data submitted show that the catalytic converter meets the requirements of Vehicle Code Sections 27156 and 38391, 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-193-13 be issued.

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EVALUATION OF CAR SOUND EXHAUST SYSTEMS, INC. NEW AFTERMARKET THREE-WAY PLUS OXIDATION CATALYTIC CONVERTER FOR EXEMPTION FROM THE PROHIBITIONS IN VEHICLE CODE SECTIONS 27156 AND 38391, AND 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, has applied for an exemption from the prohibitions in Vehicle Code Sections 27156 and 38391 to allow the use of a single unit of their series 93000 aftermarket three-way plus oxidation catalytic converter (TWC + OC) as replacement for a catalyst system consisting of a TWC in series with a separate OC on Ford Vans/Trucks. The maximum engine displacement/equivalent test weight for this application is 5.8L/5,500 lbs.

II. CONCLUSION

The applicant has submitted all the required information and based on the submitted exhaust emissions test data, and the ARB's confirmatory test 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 application.

III. RECOMMENDATION

The staff recommends that the exemption be granted as requested and that Executive Order No. D-193-13 be issued, permitting the advertisement, sale and installation of the new aftermarket catalytic converter.

IV. DEVICE DESCRIPTION

Ceramic monolithic substrates which are coated with palladium, platinum, and rhodium are used in the manufacture of the three-way plus oxidation catalyst. The substrates are wrapped with expanding paper or intumescent mat and enclosed in a stainless steel shell using seam welding. Heat shields are welded on top and bottom of the converter shell to protect the vehicle underbody from excessive heat and accidental fire. The

catalytic converter is sold with installation instructions, and may be sold with flanges, end pipes, and air-tubes as a kit 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 the test data on the catalytic converter. Carry-over emission tests were conducted by Automotive Testing and Development Services, Inc. (ATDS) in Ontario, California. The tests were conducted using a 1984 5.8L Ford F-150 Van ballasted to yield an ETW of 5,500 lbs. The original TWC in series with a separate OC exhaust system was replaced by a previously aged Car Sound series 93000 single unit TWC + OC. Two CVS-75 emission tests were conducted with each of the two test converters installed, followed by two CVS-75 tests with exhaust backpressure simulator. Confirmatory tests were conducted by the Air Resources Board (ARB) at the Haagen-Smit Laboratory in El Monte, California. The two test catalytic converters were previously aged using two vehicles equipped with oxidation converters and engine displacement of 7.5L and ETW of 5,500 lbs. The TWC + OC application is limited to the test vehicle parameters of 5.8L/5,500 lbs. The test results and conversion efficiencies for the converter are shown below:

| <u>ATDS, ONTARIO</u>                    |                  |                    |                    |                        |
|-----------------------------------------|------------------|--------------------|--------------------|------------------------|
|                                         | <u>Simulator</u> | <u>Converter 1</u> | <u>Converter 2</u> | <u>Avg. Conv. Eff.</u> |
| HC (g/mi)                               | 4.404            | 0.834              | 0.723              | 82.4%                  |
| CO (g/mi)                               | 43.847           | 11.296             | 10.457             | 75.2%                  |
| NOx (g/mi)                              | 1.633            | 0.691              | 0.680              | 58.1%                  |
| <u>HAAGEN-SMIT LABORATORY, EL MONTE</u> |                  |                    |                    |                        |
| HC (g/mi)                               | 3.415            | 0.526              | 0.516              | 84.8%                  |
| CO (g/mi)                               | 36.481           | 9.874              | 8.830              | 74.4%                  |
| NOx (g/mi)                              | 1.558            | 0.637              | 0.702              | 57.0%                  |

All of the conversion efficiencies meet the requirements of the California regulations. The staff based the evaluation of the aftermarket catalytic converter on the information submitted by Car Sound and on test results from ATDS and ARB.