

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER D-193-22

Relating to Exemptions under Section 27156
of the Vehicle Code

Car Sound Exhaust System, Inc.

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 converter from the prohibitions of Vehicle Code Section 27156.

WHEREAS, Car Sound Exhaust System, Inc. (Car Sound) 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 their aftermarket series 99000 three-way plus oxidation catalytic converter (TWC + OC) for the following applications, except for vehicles equipped with an on-board diagnostic II (OBD-II) system (Title 13, CCR, Section 1968.1):

Converter Type	Series Number	Converter Use	Max. Eng. Size	Max. Veh. Test Wt.
TWC + OC	99000	TWC + OC, TWC, & OC	5.9L (360 CID)	6,375 lbs. (GVWR = 8,470 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 durability mileage accumulation on the catalyst for 25,000 miles using a 1987 Dodge Ram 350 Van and a 1988 Dodge Ram 350 Wagon, both powered by a 5.9L gasoline engine, on an AMA driving cycle (Reference Appendix IV, Title 40, part 86, Code of Federal Regulations (June 28, 1977)).

WHEREAS, emissions tests conducted at California Environmental Engineering (CEE), Santa Ana, California, using a 1989 Dodge B250 Van 5.9L, a 1994 Dodge Pickup 2500 5.9L, and a 1988 Dodge Ram 350 Wagon showed the following conversion efficiencies which meet the minimum requirements for new aftermarket catalytic converters:

<u>Pollution Component</u>	<u>TWC + OC</u>	<u>TWC</u>	<u>OC</u>
HC: Min. Requirement	70%	70	70
Car Sound's series 99000	77.0	77.3	71.7
CO: Min. Requirement	70	70	70
Car Sound's series 99000	74.8	73.1	89.7
NOx: Min. Requirement	50	60	-
Car Sound's series 99000	55.3	71.8	

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 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 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 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 Exhaust System, Inc.'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 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 19th day of July 2001.

A handwritten signature in dark ink, appearing to read "R.B. Summerfield", followed by the word "FOR" in a smaller, less distinct script.

R.B. Summerfield, Chief
Mobile Source Operations Division

EVALUATION SUMMARY

Manufacturer Name: Car Sound Exhaust System, Inc.

Name of Device: Series 99000 Three-way plus oxidation catalytic converter (TWC + OC).

Background:

Car Sound Exhaust System, Inc. (Car Sound) of 22961 Arroyo Vista, Rancho Santa Margarita, California 92688, has applied for an exemption from the prohibitions in Section 27156 of the California Vehicle Code (VC) for its series 99000 new aftermarket TWC + OC. The new aftermarket catalytic converter is for installation on pre-OBD-II vehicles with the application limits of 5.9L engine size and 6,375 pounds equivalent test weight (ETW).

Recommendation:

Grant exemption to Car Sound as requested, and issue Executive Order D-193-22.

Device Description:

Car Sound's new aftermarket TWC + OC is designed to use two oval ceramic monolith substrates. The front and rear substrates are both coated with platinum and rhodium in the ratio of 7:3. The dimensions of the front and rear substrates are 4.75 inches for the major axis, 3.15 inches for the minor axis, and 1.93 inches in length. The combined volume of the front and rear substrates is 49.2 cubic inches. The substrates are contained in a shell constructed from 409-grade stainless steel. The substrates are wrapped with a Fiberfrax XPE Expanding Paper, to prevent vibration and exhaust by-pass. The shell is sealed by seam weld, and a piece of aluminized heat shield is spot-welded to the upper side of the converter to protect the vehicle underbody from excessive heat. The catalyst may be sold as a unit with installation instructions or may be used in customized direct fit exhaust applications. It is sold with a warranty for 25,000 miles on the substrates, and five years or 50,000 miles on the container or shell, and the end pipes.

Catalytic Solutions, Inc., based in Oxnard, California, is the catalyst supplier for Car Sound's series 99000 TWC + OC. However, Environmental Catalyst Technologies (ECT), a recently created subsidiary of Car Sound, will coat the catalyst using the washcoat technology licensed from Catalytic Solutions, Inc. Catalytic Solutions, Inc. is an original equipment manufacturer (OEM) catalyst supplier for some 2002 model-year Honda vehicles.

Discussion/Basis for Exemption Recommendation:

Car Sound submitted data on the series 99000 TWC + OC from testing conducted at California Environmental Engineering (CEE) laboratory, Santa Ana, California. Mileage accumulation was conducted by CEE using a 1987 Dodge Ram 350 Van powered by a 5.9L gasoline engine and a 1988 Dodge Ram 350 Wagon powered by a 5.9L gasoline engine. The 1987 Dodge Ram 350 was ballasted with 490 additional pounds, and the 1988 Dodge Ram Wagon was ballasted with 620 additional pounds during the mileage accumulation to bring the vehicles to the desired 7,000 pounds equivalent test weight (ETW) category. However, upon completion of the mileage accumulation, Car Sound decided to lower the ETW to 6,375 pounds for the emission tests. Emission tests were conducted on a 1989 Dodge B250 Van 5.9L for the TWC + OC application, a 1994 Dodge Pickup 2500 5.9L for the TWC application, and a 1988 Dodge Ram 350 Wagon 5.9L for the OC application.

The evaluation of the new aftermarket catalytic converter is solely based on the mileage accumulation and emission tests conducted at CEE. The limits of application of Car

Sound's series 99000 TWC + OC will be 5.9L/6,375 lbs., with the corresponding maximum gross vehicle weight rating (GVWR) of 8,470 lbs. The test catalysts were labeled T1017B and T1017C. 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 series 99000 catalyst are shown below:

California Environmental Engineering, Santa Ana, California

	<u>Simulator</u> <u>Average</u>	<u>Catalyst T1017B</u> <u>Average</u>	<u>Catalyst T1017C</u> <u>Average</u>	<u>Conv. Eff.</u> <u>Average</u>
<u>TWC + OC</u>				
HC (g/mi)	2.687	0.583	0.655	77.0%
CO (g/mi)	29.029	6.298	8.314	74.8%
NOx (g/mi)	3.188	1.342	1.522	55.1%

<u>TWC</u>				
HC (g/mi)	2.060	0.461	0.474	77.3%
CO (g/mi)	22.682	6.086	6.107	73.1%
NOx (g/mi)	4.211	1.144	1.227	71.8%

<u>OC</u>				
HC (g/mi)	1.088	0.321	0.296	71.7%
CO (g/mi)	63.389	6.954	6.168	89.7%

The above test results meet the minimum requirements of the California regulations on new aftermarket catalytic converters. The Air Resources Board (ARB) did not conduct confirmatory tests on the new aftermarket catalytic converter.