

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER D-381  
Relating to Exemptions Under Section 27156  
of the Vehicle Code

BOSAL U.S.A., INC.  
BROSPEED HEADER ASSEMBLY, PART NUMBER 999-366

Pursuant to the authority vested in the Air Resources Board (ARB) by Section 27156 of the Vehicle Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-45-9;

IT IS ORDERED AND RESOLVED: That the installation of the BroSpeed Header Assembly, part number 999-366, manufactured by Bosal U.S.A., Inc. of 14 Troy Hills Road, Whippany, New Jersey 07981 has been found not to reduce the effectiveness of the applicable vehicle pollution control system, and therefore, the BroSpeed Header Assembly is exempt from the prohibitions of Section 27156 of the California Vehicle Code for installation on 1988-1995 model-year Honda Civic 1.5/1.6 L SOHC/VTEC equipped vehicles.

This Executive Order (Order) is valid provided that installation instructions for the device will not recommend tuning the vehicle to specifications different from those submitted by the manufacturer.

Changes made to the design or operating conditions of the device, as exempt by the ARB, which adversely affect the performance of a vehicle's pollution control system shall invalidate this Executive Order.

Marketing of the device using an identification other than that shown in this Executive Order or marketing of the device for an application other than those listed in this Executive Order shall be prohibited unless prior approval is obtained from the ARB.

This Executive Order does not constitute any opinion as to the effect the use of the device may have on any warranty either expressed or implied by the vehicle manufacturer.

THIS EXECUTIVE ORDER DOES NOT CONSTITUTE A CERTIFICATION, ACCREDITATION, APPROVAL, OR ANY OTHER TYPE OF ENDORSEMENT BY THE AIR RESOURCES BOARD OF ANY CLAIMS OF THE APPLICANT CONCERNING ANTI-POLLUTION BENEFITS OR ANY ALLEGED BENEFITS OF BOSAL U.S.A., INC.'S BROSPEED HEADER ASSEMBLY, PART NUMBER 999-366.

No claim of any kind, such as "Approved by the Air Resources Board", may be made with respect to the action taken herein in any advertising or other oral or written communication.

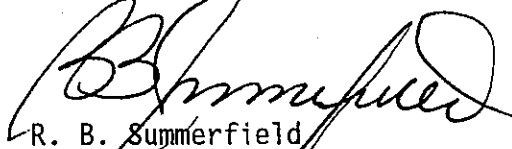
Violation of any of the above conditions shall be grounds for revocation of this Order. The Order may be revoked only after a ten-day written notice of intention to revoke the Order, in which period the holder of the Order may

BOSAL U.S.A., INC.  
BROSPEED HEADER ASSEMBLY  
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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 after the hearing that grounds for revocation exist.

Executed at El Monte, California, this 15<sup>th</sup> day of August 1995.

  
R. B. Summerfield  
Assistant Division Chief  
Mobile Source Division

State of California  
AIR RESOURCES BOARD

EVALUATION OF BOSAL U.S.A., INC.'S  
BROSPEED HEADER ASSEMBLY, PART NUMBER 999-366  
FOR EXEMPTION FROM THE PROHIBITIONS OF VEHICLE CODE  
SECTION 27156 IN ACCORDANCE WITH SECTION 2222, TITLE 13 OF THE  
CALIFORNIA CODE OF REGULATIONS

August 1995

State of California  
AIR RESOURCES BOARD

EVALUATION OF BOSAL U.S.A., INC.'S  
BROSPEED HEADER SYSTEM, PART NUMBER 999-366  
FOR EXEMPTION FROM THE PROHIBITIONS OF VEHICLE CODE  
SECTION 27156 IN ACCORDANCE WITH SECTION 2222, TITLE 13 OF THE  
CALIFORNIA CODE OF REGULATIONS

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 the mention of trade names or commercial products constitute endorsement or recommendation for use.)

### SUMMARY

Bosal U.S.A., Inc. of 14 Troy Hills Road, Whippany, New Jersey 07981 has applied for exemption from the prohibitions of Section 27156 of the California Vehicle Code for their BroSpeed Header Assembly, part number 999-366. The header assembly is designed for installation on 1988-1995 model-year Honda Civic 1.5/1.6 L SOHC/VTEC equipped vehicles.

The header assembly is designed to replace the original equipment manufacturer exhaust manifold and provides for proper connection of all emission control system components. The installation of the header assembly does not require any adjustments or modifications to the emission control systems of the applicable vehicles.

Emissions data from cold-start CVS-75 Federal Test Procedure performed on a 1994 model-year 1.6 L Honda Civic Coupe EX show that Bosal's BroSpeed Header Assembly will not adversely affect the exhaust emissions from those vehicles for which the exemption is requested. The staff recommends that Bosal U.S.A., Inc. be granted an exemption as requested and that Executive Order Number D-381 be issued.

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State of California  
AIR RESOURCES BOARD

EVALUATION OF BOSAL U.S.A., INC.'S BROSPEED HEADER ASSEMBLY,  
PART NUMBER 999-366 FOR EXEMPTION FROM THE PROHIBITIONS OF VEHICLE  
CODE SECTION 27156 IN ACCORDANCE WITH SECTION 2222, TITLE 13 OF  
THE CALIFORNIA CODE OF REGULATIONS

I. INTRODUCTION

Bosal U.S.A., Inc. of 14 Troy Hills Road, Whippany, New Jersey 07981 has applied for an exemption from the prohibitions of Section 27156 of the California Vehicle Code for their BroSpeed Header Assembly, part number 999-366, for installation on 1988-1995 model-year Honda Civic 1.5/1.6 L SOHC/VTEC equipped vehicles. Bosal U.S.A., Inc. has submitted the results of emissions tests performed by Environmental Testing Corporation (ETC) on a 1994 model-year 1.6 L Honda Civic Coupe EX.

II. CONCLUSION

Based on the emissions test data obtained by ETC, the staff concludes that the BroSpeed Header Assembly, part number 999-366, will not adversely affect the exhaust emissions from those vehicles for which an exemption is requested, and therefore, meets the criteria set forth in Section 27156 of the California Vehicle Code and Title 13 of the California Code of Regulations.

III. RECOMMENDATION

The staff recommends that Bosal U.S.A., Inc. be granted an exemption as requested for their BroSpeed Header Assembly, part number 999-366, and that Executive Order No. D-381 be issued.

#### IV. DEVICE DESCRIPTION AND OPERATION

The BroSpeed Header Assembly, part number 999-366, is designed to replace the original equipment manufacturer (OEM) exhaust manifold on 1988-1995 model-year 1.5/1.6 L SOHC/VTEC equipped vehicles. The header assembly operates in conjunction with the OEM computer controlled fuel injection system and emission control systems.

The header merges primary pipe numbers 1 and 4 into one secondary pipe and numbers 2 and 3 into another secondary pipe. The two secondary pipes merge downstream into one main collector. The four primary pipes (part number 999-350), made of 0.079 inch thick mild steel, are of equal lengths, 8.5 inches, and equal diameters, 1.50 inches. The connection pipes (part number 999-351) consist of the two secondary pipes of 0.079 inch thick mild steel with 1.73 inch diameters and a main collector of 1.97 inch diameter. The header and connection pipes are fitted with connection/flex flange gaskets, made of cast mild steel, and a flex ring gasket, made of heavy steel, to ensure leakproof joints and gas-tight seals. All components are finished in durable matt black with chrome extensions. The oxygen sensor is located on the side of the main collector 3.0 inches from the flex flange.

The installation of the BroSpeed Header Assembly does not alter the OEM location of the catalytic converter. The tune-up specifications are also unaltered from the OEM tune-up parameters. All gaskets, hardware, and installation instructions are included in the header assembly package.

#### V. DEVICE EVALUATION AND DISCUSSION

The exhaust emissions testing was conducted at Environmental Testing Corporation located in Orange, California using a 1994 model-year

1.6 L Honda Civic Coupe EX, engine family RHN1.6VJGFEA. The equivalent test weight and horsepower settings used for the tests were 2875 lbs. and 7.6 hp, respectively. The mileage on the test vehicle was 41,541 miles before the emissions testing. A series of tests using the cold-start CVS-75 Federal Test Procedures (FTP) were conducted with the BroSpeed Header Assembly (part number 999-366) installed, to determine the optimum configuration. The lowest emissions were achieved when the oxygen sensor was located on the side of the main collector 3.0 inches from the flex flange and when no restrictor plate was added. The emissions results from this test were submitted for evaluation. The test data are shown below:

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Cold-Start CVS-75 Emissions Test Results  
Exhaust Emissions (grams/mile)

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|                      | <u>NMHC</u> | <u>CO</u> | <u>NOx</u> |
|----------------------|-------------|-----------|------------|
| Test at 42,270 miles | 0.219       | 1.552     | 0.246      |
| 50 K DF*             | 1.154       | 1.136     | 1.129      |
| 50 K Standard        | 0.25        | 3.4       | 0.4        |
| 50 K F-DF**          | 1.023       | 1.021     | 1.020      |
| Test w/F-DF Applied  | 0.224       | 1.585     | 0.251      |

\* deterioration factor

\*\* fractional deterioration factor

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Since the test vehicle was a "high-mileage" vehicle, only a fraction of the 50,000-mile deterioration factor (DF) was applied to the test results. The emission levels with the fractional DF applied show that the emissions with the BroSpeed Header Assembly installed do not exceed the test vehicle's exhaust emission standards. Therefore, based on the test results, the staff concludes that the installation of BroSpeed Header

Assembly will not have any adverse effect on exhaust emissions on the vehicles for which an exemption is requested.

No confirmatory tests were conducted by the Air Resources Board. Bosal U.S.A., Inc. has submitted all the required information and has fulfilled the requirements for an exemption.