

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER D-97-12

Relating to Exemptions under Section 27156  
of the Vehicle Code

BAE  
TURBOCHARGER KIT NO. 3-0012

Pursuant to the authority vested in the Air Resources Board 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-45-5;

IT IS ORDERED AND RESOLVED: That the installation of the BAE turbocharger kit number 3-0012 manufactured by BAE of 3032 Kashiwa Street, Torrance, California, 90505 has been found not to reduce the effectiveness of required motor vehicle pollution control devices and, therefore, is exempt from the prohibitions of Section 27156 of the Vehicle Code for 1982 model-year BMW 633i and 733i models having a 195.9 cubic inch displacement six-cylinder engine.

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

Changes made to the design or operating conditions of the device, as exempted by the Air Resources Board, that adversely affect the performance of a vehicle's pollution control system shall invalidate this Executive Order.

Marketing of this device using an identification other than that shown in this Executive Order or marketing of this device for an application other than those listed in this Executive Order shall be prohibited unless prior approval is obtained from the Air Resources Board. Exemption of a kit shall not be construed as an exemption to sell, offer for sale or advertise any component of a kit as an individual device.

This Executive Order does not constitute any opinion as to the effect that the use of this 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 THE BAE TURBOCHARGER KIT NO. 3-0012.

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

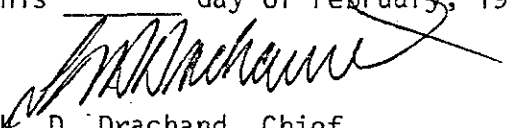
Section 17500 of the Business and Professions Code makes untrue or misleading advertising unlawful, and Section 17534 makes violation punishable as a misdemeanor.

Section 43644 of the Health and Safety Code provides as follows:

"43644. (a) No person shall install, sell, offer for sale, or advertise, or, except in an application to the state board for certification of a device, represent, any device as a motor vehicle pollution control device for use on any used motor vehicle unless that device has been certified by the state board. No person shall sell, offer for sale, advertise, or represent any motor vehicle pollution control device as a certified device which, in fact, is not a certified device. Any violation of this subdivision is a misdemeanor."

Any apparent violation of the conditions of this Executive Order will be submitted to the Attorney General of California for such action as he deems advisable.

Executed at El Monte, California, this 25<sup>th</sup> day of February, 1982.

  
K. D. Drachand, Chief  
Mobile Source Control Division

State of California  
AIR RESOURCES BOARD

Staff Report

February 19, 1982

Evaluation of the BAE Turbocharger Kit No. 3-0012 for Compliance with the Requirements of Section 27156 of the Vehicle Code

I. INTRODUCTION

BAE of 3032 Kashiwa Street, Torrance, California 90505, has requested by letter dated November 4, 1981, an update to the existing Air Resources Board's Executive Order (E.O.) No. D-97-7. The applicant requested that their add-on turbocharger kit, kit number 3-0012, be exempted from the prohibitions of Vehicle Code (V.C.) Section 27156 for the 1982 BMW 633i and 733i model vehicles powered by a 195.9 cubic inch displacement (CID) six-cylinder gasoline engine.

II. TURBOCHARGER KIT DESCRIPTION

The detailed description of the turbocharger kit is given in the ARB Staff Report titled "Evaluation of the BAE Turbocharger Kit No. 3-0000W1 for Compliance with the Requirements of Section 27156 of the Vehicle Code", dated October 7, 1981.

III. DISCUSSION

BAE turbocharger kit number 3-0000W1 applicable to 1980 and 1981 model-years BMW 633i and 733i models powered by a 195.9 CID gasoline engine was granted an exemption (E.O. No. D-97-7) on October 7, 1981. The exemption was granted on the basis that the effectiveness of the vehicle's pollution control system was not reduced.

The applicant is making available an add-on turbocharger kit for the 1982 models. The kit for the 1982 models, kit number 3-0012, has identical components as kit number 3-0000W1 except for the discharger pipe (pipe for routing intake air from the turbocharger compressor outlet into the intake plenum). Although the discharge pipes are bent differently, to accomodate the engine compartment on the newer vehicles, the two kits are identical in operation and performance. The applicant has requested that the exemption be updated to include the 1982 model vehicles.

In response to the request, the staff compared the BMW engine design of both (1981 and 1982) model-years. In particular, the effects, if any, the turbocharger kit would have on the vehicle's emissions. Since the staff noticed that the 1982 engines are designed with a significantly higher nominal compression ratio (8.8:1 compared to 8.0:1), additional emissions testing was requested to assure that the kit will not adversely affect exhaust emissions.

The applicant performed comparative emissions tests on a 1982 BMW 733i vehicle. The emissions test data submitted by the applicant are as follows:

Table 1  
Applicant's Emissions Test Data

<u>Test</u>		<u>Exhaust Emissions (g/mi)</u>			<u>Fuel Economy (mpg)</u>
		<u>HC</u>	<u>CO</u>	<u>NOx</u>	
Baseline	CVS-75	0.32	1.39	0.25	16.3
Device	CVS-75	0.36	1.41	0.25	16.3

The above set of CVS-75 comparative tests show that the turbocharger kit does not have an adverse effect on NOx emissions. The staff was concerned that NOx emissions would be adversely affected because of the higher compression ratio of the engines in newer vehicles. The data also shows that HC and CO were slightly changed due to the installation of the turbocharger kit. The differences of the comparative emission data, however, are considered to be within test variability.

#### IV. CONCLUSION AND RECOMMENDATION

Based on the above, the staff concludes that the BAE add-on turbocharger kit number 3-0012 will not adversely affect exhaust emissions from the 1982 BMW 633i and 733i model vehicles that are powered by a 195.9 CID six-cylinder gasoline engine. The staff, therefore, recommends that Executive Order No. D-97-12 be adopted.