

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER D-180-6
Relating to Exemptions Under Section 27156
of the Vehicle Code

THE TURBO SHOP, INC.
TURBOCHARGER KIT NO. 60-0002/4 HD

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 add-on turbocharger kit number 60-0002/4 HD (using a 0.96 A/R Rotomaster turbocharger) manufactured by The Turbo Shop, Inc. 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 1983 through 1990 GMC vehicles powered by a 6.2L GMC heavy-duty diesel engine.

This Executive Order is valid provided that installation instructions for this turbocharger kit 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 turbocharger kit number 60-0002/4 HD, 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 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 TURBO SHOP'S TURBOCHARGER KIT NO. 60-0002/4 HD.

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.

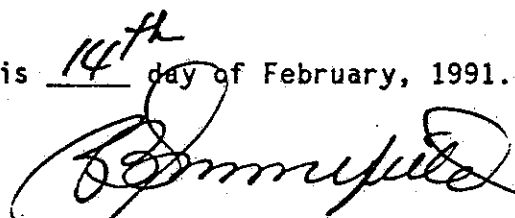
Section 17500 of the Business and Professions Code makes untrue or misleading advertising unlawful, and Section 17534 makes violation punishable as a misdemeanor.

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 14th day of February, 1991.



R. B. Summerfield
Assistant Division Chief
Mobile Source Division

State of California
AIR RESOURCES BOARD

EVALUATION OF THE TURBO SHOP INC.'S ADD-ON TURBOCHARGER KIT
MODEL 60-0002/4 HD FOR EXEMPTION FROM THE PROHIBITIONS IN VEHICLE
CODE SECTION 27156 IN ACCORDANCE WITH SECTION 2222, TITLE 13, OF THE
CALIFORNIA ADMINISTRATIVE CODE.

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by

Mobile Source Division

State of California
AIR RESOURCES BOARD
9528 Telstar Avenue
El Monte, CA 91731

(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

The Turbo Shop, Inc. (Turbo Shop) has applied for an update to Executive Order D-97-20 which exempts the Turbocharger Kit number 60-0002/4 HD from the prohibitions of Vehicle Code Section 27156. The existing exemption applies to 1983 model year General Motors Corporation (GMC) heavy-duty vehicles (GVW over 8500 lbs.) powered by a 6.2L GMC heavy-duty diesel engine. The update is requested to reflect a change of ownership from BAE Turbosystems to the Turbo Shop, Inc. and to include 1984 through 1990 model year GMC vehicles powered by a 6.2L heavy-duty diesel engine.

Because the Turbocharger Kit number 60-0002/4 HD which was granted an exemption for the 1983 model year 6.2L GMC heavy-duty vehicles remain unchanged and the 6.2L heavy-duty engines used on the 1984 through 1990 model year GMC vehicles are carried-over from the 1983 model year, the staff concludes that the turbocharger kit will not have an adverse effect on exhaust emissions from vehicles for which the exemption update has been requested.

The staff recommends The Turbo Shop, Inc. be granted an update as requested and that Executive Order D-180-6 be issued.

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EVALUATION OF THE TURBO SHOP, INC.'S ADD-ON TURBOCHARGER KIT FOR EXEMPTION
FROM THE PROHIBITIONS IN VEHICLE CODE SECTION 27156 IN ACCORDANCE WITH
SECTION 2222, TITLE 13, OF THE CALIFORNIA ADMINISTRATIVE CODE.

I. INTRODUCTION

BAE Turbosystems of 3032 Kashiwa Street, Torrance, CA 90505 has received an exemption from the prohibitions of Section 27156 of the Vehicle Code under Executive Order D-97-20 for its Turbocharger Kit model 60-0002/4 HD. Under this exemption, the device can be used on 1983 model year 6.2L GMC heavy-duty diesel engines. The Turbo Shop, Inc. (Turbo Shop) of 940 West Manchester, Inglewood, CA 90301, acquired the rights to Turbocharger Kit model 60-0002/4 HD. Turbo Shop has requested an update to Executive Order D-97-20, to include 1983 through 1990 GMC heavy-duty vehicles powered by a 6.2L GMC heavy-duty diesel engine and to reflect a change in ownership. Turbo Shop claims no change in the design of the original unit.

II. CONCLUSION

Turbo Shop's turbocharger kit was previously granted an exemption for the 1983 model year 6.2L GMC heavy-duty diesel engine. Because the 1984 through 1990 6.2L GMC heavy-duty diesel engines are carried-over from the 1983 model year and the design of the turbocharger kit has not changed, the staff concludes that turbocharger kit model 60-0002/4 HD will not adversely affect exhaust emissions from vehicles for which the exemption is requested.

III. RECOMMENDATIONS

The staff recommends that The Turbo Shop be granted an update as requested and that Executive Order D-180-6 be issued.

IV. TURBOCHARGER KIT DESCRIPTION

The purpose of a turbocharger system is to increase the volumetric efficiency of an engine by forcing more air into an engine than it would take in under stock (non-turbocharged) OEM conditions.

The major components of the Turbo Shop turbocharger kit number 60-0002/4 HD are a 0.96 A/R ratio Rotomaster turbocharger, an exhaust manifold to turbocharger adaptor, intake and discharge pipes, an exhaust crossover pipe, an exhaust gas recirculation (EGR) tube and an intake/discharge bonnet. The components are packaged with installation hardware and instructions and sold as a kit.

The OEM exhaust manifold (right bank only) is replaced by the exhaust manifold to turbocharger adaptor. Left bank exhaust is routed by the exhaust crossover pipe to join the exhaust manifold at the right bank. The turbine inlet mounts directly to the replacement exhaust manifold. Intake air is routed through the bonnet and the intake pipe to be compressed by the compressor. Compressed air is then piped back to the bonnet through the discharge pipe for injection into the engine.

The EGR tube is employed to reduce the formation of oxides of nitrogen (NOx). A 3/8" tube taps into the exhaust housing of the turbine and recirculates exhaust gases into the compressed air intake pipe. Flow of exhaust gases is limited by the inside diameter of the tube.

Maximum positive manifold pressure (boost) is limited to 6 psig by the size of (and the exhaust flow through) the turbine housing. No wastegate or other active boost limiting device is used.

The cooling of the turbocharger is achieved by direct fan air from engine and lubricating oil from the engine passing through the unit.

No modifications to the OEM tune-up specifications are required, nor permitted, when the turbocharger kit is installed.

Optional accessories that can be connected to the kit include exhaust pyrometer to measure engine exhaust temperature at the turbine inlet and an intake manifold pressure (boost) guage.

V. DISCUSSION

Previous evaluation and emission testing of turbocharger kit model 60-0002/4 HD showed no adverse effect on emissions of 1983 model year GMC vehicles powered by a 6.2L GMC heavy-duty diesel engine. The applicant claims no modification to the original design of the kit is necessary for installation on 1984-1990 model year GMC vehicles powered by a 6.2L GMC heavy-duty diesel engine. Certification documents show that the 1984 through 1990 model year 6.2L GMC diesel engines are carried-over from the previous model year. This finding was verified by a GMC factory representative. Based on these considerations the staff concludes that no additional testing is required and that the device will have no adverse impact on emissions of 1983 through 1990 model year GMC vehicles powered by a 6.2L GMC heavy-duty diesel engine.