

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER D-171-5  
Relating to Exemptions Under Section 27156  
of the Vehicle Code

ADVANCED TURBO SYSTEMS, INC.  
TURBO CHARGER KIT MODEL NO. ATS 6.9L/7.3L

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

Pursuant to the authority vested in the undersigned by Section 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 Model No. ATS 6.9L/7.3L manufactured by Advanced Turbo Systems, Inc. of 5919 South 350 West, Murray, Utah 84107, 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 1983-1987 model-year Ford Motor Company heavy-duty vehicles powered by a 6.9 liter Navistar International heavy-duty engine and 1988-1991 model-year Ford Motor Company heavy-duty vehicles powered by a 7.3 liter Navistar International heavy-duty diesel engine:

Modifications to the OEM emission-related parts due to the installation of the turbocharger include replacement of air cleaner assembly, replacement of the OEM exhaust system with a 3" diameter exhaust system, and replacement of the OEM crankcase depression regulator with parts included in the kit.

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 exemption to sell, offer for sale, or advertise any component of a kit as an individual device.

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 the product 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 ADVANCED TURBO SYSTEMS, INC. TURBOCHARGER KIT MODEL NO. ATS 6.9L/7.3L.

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 communications.

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

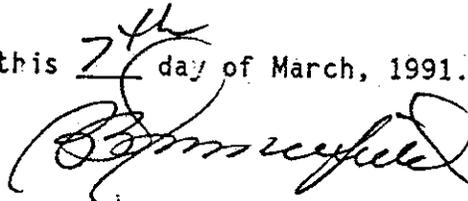
Section 43644 of the Health and Safety Code provides as follows:

"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.

Executive Order D-171-4, dated December 21, 1988, is superseded and of no further force and effect.

Executed at El Monte, California, this 24<sup>th</sup> day of March, 1991.



R.B. Summerfield  
Assistant Division Chief  
Mobile Source Division

State of California  
AIR RESOURCES BOARD

EVALUATION OF ADVANCED TURBO SYSTEMS, INC. TURBOCHARGER KIT  
MODEL NO. ATS 6.9L/7.3L FOR EXEMPTION FROM THE PROHIBITIONS OF VEHICLE CODE  
SECTION 27156 IN ACCORDANCE WITH SECTION 2222, TITLE 13, OF THE  
CALIFORNIA CODE OF REGULATIONS

March 1991

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AIR RESOURCES BOARD

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by

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

## SUMMARY

Advanced Turbo Systems, Inc. (ATS) has requested an update to Executive Order D-171-4, which currently exempts their turbocharger kit Model No. ATS 6.9L/7.3L for 1983-1987 model-year Ford Motor Company heavy-duty vehicles powered by a 6.9 liter Navistar international heavy-duty diesel engine and 1988-89 model-year Ford heavy-duty vehicles powered by a 7.3 liter Navistar heavy-duty diesel engine. Applicant has requested that the exemption be updated to include the 1990 & 1991 model-year Ford heavy-duty vehicles powered by a 7.3 liter Navistar heavy-duty diesel engine.

Based on the fact that (1) 1989 emissions related equipment has been carried over to the 1990-91 model-year versions of the 7.3 liter Navistar heavy-duty diesel engine and (2) no changes to the retrofit turbocharger kit Model No. ATS 6.9L/7.3L have been made for applications to the 1990 & 1991 model-year Ford vehicles powered by a 7.3 liter Navistar heavy-duty diesel engine, the staff believes that the add-on turbocharger kit will have no adverse emissions effect on the engine for which the exemption update is requested.

The staff recommends that ATS be granted an update as requested and that Executive Order D-171-5 be issued.

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EVALUATION OF ADVANCED TURBO SYSTEMS, INC. ADD-ON TURBOCHARGER KIT  
MODEL NO. ATS 6.9L/7.3L 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

Advanced Turbo Systems, Inc. (ATS) of 5919 South 350 West, Murray, UT 84107, has requested an update to the existing Air Resources Board Executive Order (E.O.) D-171-4 dated December 21, 1988. E.O. D-171-4 exempted the ATS turbocharger kit Model No. ATS 6.9L/7.3L from the prohibitions in Vehicle Code Section 27156 for 1983-1987 model-year Ford heavy-duty vehicles powered by a 6.9 liter Navistar heavy-duty diesel engine and the 1988-89 model-year Ford heavy-duty vehicles powered by a 7.3 liter Navistar heavy-duty diesel engine. The applicant has requested that the exemption be updated to include the 1990 & 1991 model-year Ford heavy-duty vehicles with a 7.3 liter Navistar heavy-duty diesel engine.

II. CONCLUSIONS

Based on the fact that (1) 1989 emissions related equipment has been carried over to the 1990-91 model-year versions of the 7.3 liter Navistar heavy-duty diesel engine and (2) no changes to the retrofit turbocharger kit Model No. ATS 6.9L/7.3L have been made for applications to the 1990 & 1991 model-year Ford vehicles powered by a 7.3 liter Navistar heavy-duty diesel engine, the staff believes that the add-on turbocharger kit will have no adverse emissions effect on the engine for which the exemption update is requested.

III. RECOMMENDATION

The staff recommends that ATS be granted an update as requested, and that E.O. D-171-5 be issued.

#### IV. TURBOCHARGER KIT DESCRIPTION AND OPERATION

The purpose of the ATS turbocharger kit is to increase the power output of the engine by increasing its volumetric efficiency. This is accomplished by compressing the intake charge to pressures above that of the atmosphere. The increase in pressure allows a greater charge density to enter the combustion chamber, providing more oxygen for combustion. The maximum fuel delivery is slightly increased in order to maintain proper air-fuel ratios with the increased air flow from the turbocharger when it is providing positive manifold pressure (boost).

The major components of the kit include a 0.96 A/R ratio Rotomaster (Air Research) Model No. T048, custom intake and exhaust tubing, air cleaner assembly, brackets, hoses and the hardware necessary to complete the installation. The OEM crankcase depression regulator is removed and replaced with tubing and fittings with a 0.375 inch orifice supplied in the kit. A complete air cleaner assembly is supplied with the system to replace the stock air cleaner assembly. No other emission-related components are removed or disconnected when the turbocharger kit is installed.

Maximum positive manifold pressure is limited to 12 psi by the size of the turbine and the compressor. The maximum engine speed is regulated by the OEM fuel injection governor which is not modified by the installation of the kit. Therefore, by controlling maximum engine speed, maximum turbine speed and the corresponding boost pressure are also controlled.

#### V. DISCUSSION

ATS add-on turbocharger kit Model No. ATS 6.9L/7.3L is designed for installation on 1983-1987 model-year Ford vehicles powered by a 6.9 liter

Navistar heavy-duty diesel engine and 1988-1989 model year Ford vehicles powered by a 7.3 liter Navistar heavy-duty diesel engine. The exemption was granted based on test data from comparative exhaust emission tests and back-to-back crankcase pressure tests performed for exempting the kit which showed no reduction in the effectiveness of the vehicle's pollution control system.

The applicant is making available the add-on turbocharger kit Model No. ATS 6.9L/7.3L for the 1990 & 1991 model-year Ford vehicles powered by a 7.3 liter Navistar heavy-duty diesel engine. The applicant claims that no modifications to the kit are needed in order to be compatible with the 1990 & 1991 models. A request that the exemption be updated to include 1990 & 1991 model-year vehicles has been made by the applicant.

In response to the applicant's request, the staff compared the engine design of the 1990 and 1991 model-year Ford vehicles powered by a 7.3 liter Navistar heavy-duty diesel engine to vehicle models currently covered by the exemption. Certification documents indicate that emissions equipment on the 1989 model have been carried over to the 1990 & 1991 model-year versions of the 7.3 liter Navistar heavy-duty diesel engine. Also no changes to the retrofit turbocharger kit Model No. ATS 6.9L/7.3L have been made for applications to the 1990 & 1991 model-year Ford vehicles powered by a 7.3 liter Navistar heavy-duty diesel engine. Based on these facts, no additional testing was required or performed for updating the exemption as requested.