

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER D-142-1
Relating to Exemptions under Section 27156
of the Vehicle Code

CUMMINS ENGINE COMPANY, INC.
TURBOCHARGERS P/N 3029513, 3029514, AND 3029515

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 Cummins replacement turbochargers part numbers 3029513, 3029514, and 3029515 manufactured by Cummins Engine Company, Inc., of Columbus, Indiana 47202, 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 the following Cummins heavy-duty diesel engines:

<u>Model-Years</u>	<u>Engine Family</u>	<u>CPL</u>	<u>Turbocharger P/N</u>
1975-1976	092	217	3029513
1976	092A	222	3029513
1976	092A	233	3029513
1976	093E	266	3029514
1977	093E	294	3029515
1977-1978	093E	306	3029515
1977-1978	093E	308	3029515
1978-1979	093E	310	3029514
1978-1979	093E	328	3029515
1978-1979	093E	332	3029515
1979	092A	408	3029514

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.

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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 CUMMINS ENGINE COMPANY, INC. REPLACEMENT TURBOCHARGERS PART NUMBERS 3029513, 3029514, AND 3029515.

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 19th day of December, 1983.


K. D. Drachand, Chief
Mobile Source Division

STATE OF CALIFORNIA

AIR RESOURCES BOARD

EVALUATION OF CUMMINS ENGINE COMPANY, INC.'S REPLACEMENT TURBOCHARGERS
P/N 3029513, 3029514, AND 3029515 FOR EXEMPTION FROM THE PROHIBITIONS IN
VEHICLE CODE SECTION 27156 IN ACCORDANCE WITH SECTION 2222, TITLE 13, OF
THE CALIFORNIA ADMINISTRATIVE CODE

DECEMBER 16, 1983

Issue Date: December 16, 1983

EVALUATION OF CUMMINS ENGINE COMPANY, INC.'S REPLACEMENT TURBOCHARGERS
P/N 3029513, 3029514, AND 3029515 FOR EXEMPTION FROM THE PROHIBITIONS IN
VEHICLE CODE SECTION 27156 IN ACCORDANCE WITH SECTION 2222, TITLE 13, OF
THE CALIFORNIA ADMINISTRATIVE CODE

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

Cummins Engine Company, Inc., of Columbus, Indiana 47202, has requested an exemption from the prohibitions in California Vehicle Code Section 27156 for their three new turbochargers part numbers 3029513, 3029514, and 3029515. They have requested that these new turbochargers, which are presently utilized on limited 49-state certified 1983 and 1984 engines, be allowed to be installed on some 1975 through 1979 California certified vehicles as listed in Table I of the Appendices. The purpose of installing the newer turbochargers, according to Cummins, is to increase fuel economy, improve low speed performance, reduce smoke, and improve turbocharger durability.

Since the new turbochargers are allowed by EPA to be utilized on limited 49-state certified 1983 and 1984 engines, and since the comparative (OEM versus replacement) exhaust emissions data from 13-mode procedures indicate that the newer turbochargers do not adversely affect emissions, the staff concludes that Cummins complies with the requirements for the exemption.

Based on the above conclusions, the staff recommends that Cummins Engine Company, Inc. be granted an exemption as requested, and that Executive Order D-142-1 be issued.

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EVALUATION OF CUMMINS ENGINE COMPANY, INC.'S REPLACEMENT TURBOCHARGERS P/N 3029513, 3029514, AND 3029515 FOR EXEMPTION FROM THE PROHIBITIONS IN VEHICLE CODE SECTION 27156, IN ACCORDANCE WITH SECTION 2222, TITLE 13, OF THE CALIFORNIA ADMINISTRATIVE CODE

I. INTRODUCTION

Cummins Engine Company, Inc., of Columbus, Indiana 47202, has requested an exemption from the prohibitions in California Vehicle Code Section 27156 for their three new turbochargers part numbers 3029513, 3029514, and 3029515. They have requested that these new turbochargers, which are presently utilized on limited 49-state certified 1983 and 1984 engines, be allowed to be installed on some 1975 through 1979 California certified vehicles as listed in Table I of the Appendices. The purpose of installing the newer turbochargers, according to Cummins, is to increase fuel economy, improve low speed performance, reduce smoke, and improve turbocharger durability.

II. CONCLUSIONS

Since the new turbochargers are allowed by the Environmental Protection Agency to be utilized on limited 49-state certified 1983 and 1984 engines, and since the comparative (OEM versus replacement) exhaust emissions data from 13-mode procedures indicate that the newer turbochargers do not adversely affect emissions, the staff concludes that Cummins complies with the requirements for the exemption.

III. RECOMMENDATIONS

Based on the above conclusions, the staff recommends that Cummins Engine Company, Inc. be granted an exemption as requested, and that Executive Order D-142-1 be issued.

IV. CUMMINS TURBOCHARGERS P/N 3029513, 3029514, AND 3029515

The three new Cummins turbochargers, part numbers 3029513, 3029514, and 3029515, are intended to replace the old turbochargers on limited 1975 through 1979 model-year Cummins heavy-duty diesels during engine rebuild or turbocharger replacement. The replacement turbochargers are physically identical to the OEM turbochargers. However, the newer turbochargers are designed with a newer compressor wheel which, according to Cummins, improves both turbocharger efficiency and flow range. This newer design will increase fuel economy, reduce smoke, and improve low speed performance and turbocharger durability.

V. EVALUATION

Evaluation of the replacement Cummins turbochargers consisted of comparative (OEM versus replacement) exhaust emission tests utilizing the 13-mode heavy-duty diesel engine certification test procedures. A summary of the data is shown in the Appendices. The comparative data show that the differences in the paired emission values are within the laboratory test variability range and that the use of the replacement turbochargers will not adversely affect exhaust emissions.

VI. DISCUSSION

Cummins has complied with the Air Resources Board (ARB) engine change policy (ARB Mail Out No. 81-040) pertaining to heavy-duty vehicles for the exemption as requested.

APPENDICES

Table 1

REPLACEMENT TURBOCHARGERS APPLICATIONS

<u>Model-Years</u>	<u>Engine Family</u>	<u>CPL</u>	<u>Turbocharger P/N</u>
1975-1976	092	217	3029513
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Table 2

Comparative Exhaust Emissions
Composite 13-mode Heavy-Duty Diesel Procedures

	Engine Family 093E		Engine Family 092A	
	<u>Baseline</u>	<u>3029514</u>	<u>Baseline</u>	<u>3029513</u>
Rated:				
Speed (RPM)	2100	2100	1900	1900
Horsepower	407	401	290	292
Fuel Rate (lb/hr)	150	146	109	108
Peak Torque:				
Speed (RPM)	1500	1500	1300	1300
Horsepower	1186	1187	952	949
Fuel Rate (lb/hr)	122	119	86	88
Emissions (gm/bhp-hr)				
HC	0.28	0.30	0.34	0.31
CO	2.46	1.90	1.60	1.71
NOx	9.12	9.60	10.02	10.13