

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER D-179  
Relating to Exemptions Under Section 27156  
of the Vehicle Code

MERCEDES-BENZ TRUCK COMPANY, INC.

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 engine modification kit described in Mercedes-Benz Service Information Ref. No. 00/42, and consisting of the part numbers listed below is in compliance with the 1987 model-year optional heavy-duty engine emission standards and is exempt from the prohibitions of Vehicle Code Section 27156. This exemption is limited to model OM366LA in Mercedes-Benz heavy-duty diesel engine family HDB5.96FPC2 manufactured in the 1987 model year.

<u>No.</u>	<u>Part</u>	<u>Number</u>
1.	Injection timing advance unit	376 070 02 45
2.	Nozzle holder and nozzle	002 017 53 21
3.	Timing pointer	366 032 12 15
4.	Emission Label	MBFG-299

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 devices, as exempted by the Air Resources Board, that adversely affect the performance of a vehicle's pollution control system shall invalidate this Executive Order.

This exemption shall not apply to any device, apparatus, or mechanism advertised, offered for sale or sold with, or installed on, a motor vehicle prior to or concurrent with transfer to an ultimate purchaser.

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 ENGINE MODIFICATION KIT LISTED ABOVE.

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 2nd day of June, 1988.

*Bob Crossfer*

K. D. Drachand, Chief  
Mobile Source Division

State of California  
AIR RESOURCES BOARD

EVALUATION OF THE FIELD MODIFICATION KIT FOR MERCEDES-BENZ  
HEAVY-DUTY DIESEL ENGINE TYPE OM366LA OF MODEL-YEAR 1987 FOR  
EXEMPTION FROM THE PROHIBITIONS OF VEHICLE CODE SECTION 27156  
AND SECTION 43106 OF THE HEALTH AND SAFETY CODE

May 1988

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AND SECTION 43106 OF THE HEALTH AND SAFETY 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

Mercedes-Benz Trucking Company, Inc., of Charlotte North Carolina, has applied for exemption to upgrade their model-year 1987 heavy-duty diesel engine type OM366LA to model-year 1988 configuration. The modification is achieved by the installation of injection timing unit No. 376 070 02 45, nozzle holder and nozzle No. 002 017 53 21, and timing pointer No. 366 032 12 16. In addition, an emission label No. MBFG-299 must be installed following the installation of the modification kit.

Emissions data submitted show that the modification meets the requirements of Vehicle Code Section 27156 and Section 43106 of Health and Safety Code, and 40 CFR 86.079-32 and 86.079-33. Based on the above, the staff recommends that the exemption be granted as requested.

## CONTENTS

	<u>Page Number</u>
<u>SUMMARY</u>	i
<u>CONTENTS</u>	ii
I. <u>INTRODUCTION</u>	1
II. <u>CONCLUSION</u>	1
III. <u>RECOMMENDATIONS</u>	1
IV. <u>DEVICE DESCRIPTION</u>	1
V. <u>DEVICE EVALUATION</u>	2
VI. <u>DISCUSSION</u>	3
 <u>APPENDIX</u>	
Comparison of CARB Certified Model-Year vs. Model-Year 1986/87 OM366LA Engines	A-1
Sample of Field Modification Label	A-2
Service Information	A-3

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AND SECTION 43106 OF THE HEALTH AND SAFETY CODE

I. INTRODUCTION

Mercedes-Benz Trucking Company, Inc., of Charlotte, North Carolina 28241, has applied for an exemption to modify the 1987 model-year heavy-duty diesel engine type OM366LA to the model-year 1988 configuration by the installation of new injection timing advance unit, nozzle holder and nozzle, timing pointer, and emissions label.

II. CONCLUSION

The applicant has submitted all the required information and based on the submitted exhaust emissions test data, the staff concludes that the installation of the modification kit meets the criteria set forth in Vehicle Code Section 27156 and Health and Safety Code Section 43106.

III. RECOMMENDATION

The staff recommends that the exemption be granted as requested and that Executive Order No. D-179 be issued.

IV. DEVICE DESCRIPTION

The Mercedes-Benz modification kit consists of injection timing advance unit No. 376 070 02 45, nozzle holder and nozzle No. 002 017 53 21, timing pointer No. 366 032 12 15, and emissions label No. MBFG-299.

The Mercedes-Benz heavy-duty diesel engine type OM366LA of model year 1987 is the same as model-year 1988 except for the components that make up the modification kit: the injection timing advance unit, the nozzle and holder, and the timing pointer. The nozzle has four holes with different angles. The injection timing advances from 9 degrees to 13 degrees or from 7 degrees to 11 degrees. The modification kit increases horsepower from 180 to 190 and improves gas mileage by 5 percent.

The modification kit will be sold and installed at the owner's option on 1987 model-year engines by Mercedes-Benz Truck Company Service. The emission label is installed following the installation of the modification kit.

V. DEVICE EVALUATION

Mercedes-Benz Trucking Company provided test data on the modification kit (see Appendix 1). The data show a 44% decrease in HC, 16% decrease in CO, 33% decrease in PM and 17% increase in NOx. Although the modification increased NOx, the emission level still meets the optional NOx standard for the 1987 model-year. The data also show a horsepower increase from 180 to 190 and fuel economy improvement of 5 percent.

The staff based the evaluation of the modification kit on the applicant's data.



**APPENDIX**

COMPARISON OF CARB CERTIFIED  
MY 1988 VS. MY 1986/87 OM366LA ENGINES

Performance

	Rated HP	Maximum Fuel, mm <sup>3</sup> /stroke		BSFC lb/HP-HR	
		2600 RPM	1400 RPM	2600 RPM	1400 RPM
1988 certified	190	79-83	84-88	0.357/0.375	0.318/0.333
1986/87 certified	180	79-83	84-88	<u>0.377/0.396</u>	<u>0.333/0.349</u>
BSFC Improvement of 1988 over 1986/87				5.3%	4.7%

Emissions

	<u>NOx</u>	<u>HC</u>	<u>CO</u>	<u>PM</u>
1988 certified	5.6	0.5	2.7	0.4
1986/87 certified	<u>4.8</u>	<u>0.9</u>	<u>3.2</u>	<u>0.6</u>
differences 1988 over 1986/87	+17%	-44%	-16%	-33%

- ① 4 hole Nozzle diff. angle
- ② injection timing 9 to 13° adv. ?  
or 7 to 11°
- ③ 3 diff. parts

Sample of Field Modification Label

EMISSION CONTROL INFORMATION

Daimler-Benz A.G. Stuttgart-Untertuerkheim, W. Germany

ENGINE FAMILY: HDB 5.96 FPC 2  
MODEL YEAR: 1987  
ENGINE DISPLACEMENT: 364 CID  
MBFG-299 (5/88T) Printed in U.S.A.

THIS ENGINE HAS BEEN MODIFIED TO THE  
1988 MODEL YEAR CERTIFIED CONFIGURATION  
PER ARB EXECUTIVE ORDER D-179

# service information



TO: Mercedes-Benz Truck Dealers  
DATE: May 1988 (Supersedes 00/42, October 1987)

REF NO. 00/42

SUBJECT: **Model Year 1987 OM 366LA 180 HP California Engines**

For model year 1988, the 190 gross horsepower OM 366LA engines are EPA/CARB-certified for all 50 states.

The model year 1988 OM 366LA engines use different timing and different injection nozzle assemblies than the 1987 California-version 180 gross horsepower OM 366LA engines. The following parts are used on the model year 1988 engines:

1. Injection timing advance unit 376 070 02 45
2. Nozzle holder and nozzle 002 017 53 21
3. Timing pointer 366 032 12 15

At the owner's option and the owner's expense, these parts and an additional Emission Control Information Label, MBFG-299, can be installed on 1987 California OM 366LA engines to upgrade them to 190 gross horsepower with better fuel economy. The engines so upgraded will comply with the 1988 California emission standards per California Air Resources Board Executive Order D-179. For removal and installation of these parts, refer to the *Engine Model OM 366LA Workshop Manual*; Group 07.1, Job 120, for the injection timing advance unit; Group 07.1, Job 150, for the nozzle holders and nozzles; and Group 01, Job 150, for the timing pointer. MBTC Service will provide and install the additional emission label, MBFG-299, on-site at the dealership upon completion of the dealer's upgrading of the three parts mentioned above.