

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER D-215
Relating to Exemptions Under Section 27156
of the Vehicle Code

EDELBROCK CORPORATION
"TUBULAR EXHAUST SYSTEM"

Pursuant to the authority vested in the Air Resources Board (ARB) 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 Tubular Exhaust System manufactured by Edelbrock Corporation of 2700 California Street, P.O. Box 2936, Torrance, California 90509-2936, 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 applications:

Part No.	Vehicle Model-year	Vehicle Make	Engine
6864,7964	1987-1991	GMC Suburban LDT Series 1500/2500 2WD/4WD AT/MT	5.7L EFI V8 Without A.I.R.
6865,7965	1987-1991	GMC Suburban LDT Series 1500/2500 2WD/4WD AT/MT	5.7L EFI V8 With A.I.R.
6866,7966	1988-1991	Chevrolet/GMC LDT Series 1500/2500 2WD/4WD AT/MT	5.0/5.7L EFI V8 Without A.I.R.
6867,7967	1988-1991	Chevrolet/GMC LDT Series 1500/2500 2WD/4WD AT/MT	5.0/5.7L EFI V8 With A.I.R.

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 exempt by the ARB, 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 ARB. Exemption of a kit shall not be construed as an exemption to sell, offer for sale, or advertise any component of the 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 TUBULAR EXHAUST SYSTEM.

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 28th day of March, 1991.


R.B. Summerfield
Assistant Division Chief
Mobile Source Division

State of California
AIR RESOURCES BOARD

EVALUATION OF EDELBROCK CORPORATION TUBULAR EXHAUST SYSTEM
FOR EXEMPTION FROM THE PROHIBITIONS OF VEHICLE CODE SECTION 27156
AND TITLE 13, CALIFORNIA CODE OF REGULATIONS, SECTION 2222

March, 1991

EVALUATION OF EDELBROCK CORPORATION TUBULAR EXHAUST SYSTEM
FOR EXEMPTION FROM THE PROHIBITIONS OF VEHICLE CODE SECTION 27156
AND TITLE 13, CALIFORNIA CODE OF REGULATIONS, SECTION 2222

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

Edelbrock Corporation (Edelbrock) of 2700 California Street, P.O. Box 2936, Torrance, California 90509-2936 has applied for an exemption from the prohibitions in Vehicle Code (VC) Section 27156 for their Tubular Exhaust System (TES) for installation on 1987 to 1991 Chevrolet/GMC light-duty (LDT) 1500/2500 series trucks with 5.0L/5.7L engines. The Edelbrock TES is an exhaust manifold designed to replace the existing system and provides for the connection of all original equipment manufacturer (OEM) emission control devices. The installation of the TES does not require any modifications or adjustments to the emission control system of the applicable vehicle.

Emissions test data submitted from an independent laboratory and Air Resources Board's (ARB's) confirmatory tests show that the Tubular Exhaust System does not reduce the effectiveness of the emission control system of the vehicle in which it is installed.

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>RECOMMENDATION</u>	1
IV. <u>DEVICE DESCRIPTION</u>	2
V. <u>DEVICE EVALUATION</u>	2
<u>APPENDIX</u>	
Installation Instructions	A-1
The Tubular Exhaust Systems	A-2

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I. INTRODUCTION

Edelbrock Corporation (Edelbrock) of 2700 California Street, P.O. Box 2936, Torrance, California 90509-2936 has applied for an exemption for their Tubular Exhaust System (TES) for the following vehicle applications:

Edelbrock Tubular Exhaust System Part Number	Application Model-Year	Vehicle Model	Engine
6866,7966	1988-91	Chevrolet/GMC LDT Series 1500/2500 2WD/4WD AT/MT	5.0/5.7L EFI V8 W/A.I.R.
6867,7967	1988-91	Chevrolet/GMC LDT Series 1500/2500 2WD/4WD AT/MT	5.0/5.7L EFI V8 W/A.I.R.
6864,7964	1987-91	GMC Suburban Series 1500/2500 2WD/4WD AT/MT	5.7L EFI V8 W/A.I.R.
6865,7965	1987-91	GMC Suburban Series 1500/2500 2WD/4WD AT/MT	5.7L EFI V8 W/A.I.R.

Note: LDT = Light duty truck
EFI = Electronic fuel injection
2WD = 2-wheel drive
4WD = 4-wheel drive
AT = Automatic transmission
MT = Manual transmission
A.I.R. = Air injection reaction

II. CONCLUSION

The applicant has submitted all the required CVS-75 test data from an independent laboratory. Based on the submitted exhaust emissions test data and the results of ARB's confirmatory tests, the staff concludes that Edelbrock's Tubular Exhaust System does not reduce the effectiveness of the emission control system of the vehicle on which it is installed.

III. RECOMMENDATION

The staff recommends that the exemption be granted as requested and that Executive Order No. D-215 be issued, permitting the advertisement, sale and installation of the Tubular Exhaust Systems on the vehicles shown above.

IV. DEVICE DESCRIPTION

The Edelbrock TES is an exhaust system designed to improve the gas dynamics of engine exhaust. It conducts exhaust gases through individual primary tubes from the cylinder heads to 4-into-1 collector on each side of the exhaust manifold, and then to a 2-into-1 collector which fits directly to the catalytic converter. The TES is functionally identical to the cast iron exhaust manifolds and tubular steel collector pipes of the OEM exhaust system. The difference is the design dimensions of the TES which optimizes the flow characteristics of the exhaust gases. TES provides for connection of all OEM emission control devices on the applicable vehicles at the required location. The manufacturer claims TES was designed to improve the flow of exhaust gases from the cylinder heads to the catalytic converter, thereby promoting improved volumetric and combustion efficiency.

The TES models are available both for vehicles with A.I.R. and without A.I.R. emission control system. The models with 7900 part number series are treated externally with aluminum based coating to prevent corrosion. The installation of the TES is done by fitting only and requires no welding, modifications or adjustments to the emission control system of the affected vehicles. Edelbrock supplies complete installation kits, including bolts, flanges, washers and gaskets. The two different designs of TES are shown in Appendix A-2.

V. DEVICE EVALUATION

A 1989 GMC LDT K1500 Series, 4WD-AT with a V8 engine, without A.I.R., EFI system, closed loop 3-way catalytic converter was used as the test vehicle.

One cold-start CVS-75 test was conducted on the vehicle in the baseline (unmodified) configuration, then one cold-start CVS-75 test was performed with Edelbrock's Tubular Exhaust System part number 6866 installed. Testing was performed at an independent laboratory, Automotive Testing and Development Services (ATDS), Huntington Beach, California. Confirmatory tests were also performed by the ARB at the Haagen-Smit Laboratory in El Monte, California. Results from tests conducted at the independent laboratory and the ARB confirmatory tests are shown below:

Edelbrock Tubular Exhaust System
Exhaust Emission Test Results
On a 1989 GMC K1500 5.7L LDT
Automotive Testing Development Services

<u>Test Mode</u>	<u>Exhaust Emissions (gm/mi)</u>			<u>Fuel Economy (mpg)</u>
	<u>HC</u>	<u>CO</u>	<u>NOx</u>	<u>City</u>
Baseline	0.486	4.506	0.555	14.249
Device	0.481	4.789	0.519	14.300
% Change	-1.0	+6.3	-6.5	+0.3

Edelbrock Tubular Exhaust System
Exhaust Emission Test Results
On a 1989 GMC K1500 5.7L LDT
Air Resources Board

<u>Test Mode</u>	<u>Exhaust Emissions (gm/mi)</u>			<u>Fuel Economy (mpg)</u>
	<u>HC</u>	<u>CO</u>	<u>NOx</u>	<u>City</u>
Baseline	0.582	5.421	0.790	14.693
Baseline	0.495	5.587	0.906	14.718
Average	0.538	5.504	0.848	14.705
Device	0.514	5.437	0.750	14.310
Device	0.515	6.043	0.743	14.166
Average	0.514	5.740	0.746	14.240
% Change	-4.5	+4.3	-12.0	-3.2

Both ATDS and ARB tests show reductions in HC and NOx emissions and an increase in CO emissions. However, the increase in CO is less than the maximum increase of 15% above the baseline allowed under the "Procedures for Exemption of Add-on and Modified Parts". There was no significant change in fuel economy. Based on these test results, TES does not have adverse effect on emissions of affected vehicles.

APPENDIX



TUBULAR EXHAUST SYSTEM CATALOG #6864/7964 & #6865/7965

1987-1990 Chev/GMC Suburban 1500/2500 Series,
5.7L V8 T.B.I., 2 & 4 W.D.,
auto & standard transmission, No A.I.R. (#6864 & #7964)
1987-1990 Chev/GMC Suburban 1500/2500 Series,
5.7L V8 T.B.I., 2 & 4 W.D.,
auto and standard transmission, with A.I.R. (#6865 & #7965)
INSTRUCTIONS

- **PLEASE** study these instructions carefully before installing your new Tubular Exhaust System (TES). If you have any questions or problems, do not hesitate to contact our Technical Hotline at : (213) 781-2222.
- **TUBULAR EXHAUST SYSTEM:** These components are designed as a system to improve the exhaust efficiency of the GM T.B.I. (Throttle Body Injection) 5.7 V8 engine. A performance gain can be expected by the installation of the system. This system requires no welding for installation and retains all O.E.M. emissions equipment.
- **SUGGESTED TOOLS FOR INSTALLATION:** This vehicle has some metric fasteners
 - 3/8" ratchet socket set with extensions and universal 13mm and 15mm swivel sockets
 - Combination set of open-end wrenches
 - Jackstands, screwdrivers, pliers, crescent wrench, etc.
 - Liquid penetrant (GM #1052627), anti-seize compound (GM #5613695).
- **DISASSEMBLY**
 1. Disconnect battery negative cable from battery.
 2. Raise vehicle and support with jackstands.
 3. Use penetrating oil on all nuts and bolts to be removed. This will prevent the possibility of broken or stripped nuts and bolts.
 4. Making sure the converter is cool, remove the exhaust crossover pipe.
 5. Lower vehicle to the ground.

DISASSEMBLY - LEFT SIDE

 6. Remove air cleaner system (note position of line and hose connections).
 7. Disconnect A.I.R. (air injection reactor) tube from exhaust manifold (#6865/7965 only).
 8. Remove air conditioner compressor rear support bracket (if air conditioning equipped).
 9. Remove power steering pump support bracket (if power steering is applicable).
 10. Disconnect spark plug wires and remove spark plugs.
 11. Remove O2 sensor, being careful not to rupture or destroy the unit.

WARNING: Do not clean this unit in any cleaning solvent and do not rupture wire.

 11. Disconnect temperature sensor wire.
 12. Remove bolts and exhaust manifold from top side.
- **DISASSEMBLY - RIGHT SIDE**
 13. Disconnect A.I.R. injection tube from exhaust manifold (#6865/7965 only).
 14. Disconnect spark plug wires and remove spark plugs.
 15. Remove bolts and exhaust manifold from top side.
 16. Clean exhaust flange surfaces on cylinder heads at this time.
- **ASSEMBLY - LEFT SIDE**
 1. Install T.E.S. flange gasket and one 3/8"-16 x 1" bolt, lock washer, and flat washer at rearmost bolt hole (leave bolt loose enough to accept T.E.S.).
 2. Install left side T.E.S. manifold from top side.
 3. Install all but the front two bolts and washers on left side (do not tighten at this time).
 4. Re-install rear power steering support bracket. Do not tighten at this time.
 5. Re-install rear A/C support bracket with bolts, lock washers, and spacers supplied.
 6. Align all parts and tighten left side bolts and nuts at this time.
 7. Re-install spark plugs and re-connect wires on left side.
 8. Re-install temperature sensor wire to temperature sensor.
 9. Re-install O2 sensor. Use anti-seize on threads of sensor and torque to 30 ft./lbs. Re-route O2 sensor wire from wire loom to O2 sensor making sure all wires are clear of exhaust system (O2 sensor extension wire is included in kit).





