

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER D-276
Relating to Exemptions Under Section 27156
of the Vehicle Code

BORLA PERFORMANCE INDUSTRIES
CHEVROLET 350 PICK-UP HEADER SYSTEM

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 Chevrolet 350 Pick-up Header System manufactured by Borla Performance Industries of 2639 Saddle Avenue, Oxnard, California 93030, 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 1987-1992 model-year General Motors light, medium, and heavy-duty trucks equipped with 5.0L (305 CID) or 5.7L (350 CID) TBI engines.

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 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 BORLA PERFORMANCE INDUSTRIES' CHEVROLET 350 PICK-UP HEADER SYSTEM.

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.

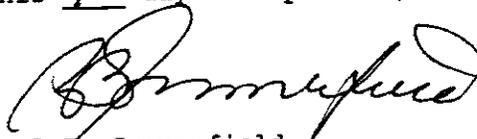
Section 17500 of the Business and Professions Code makes untrue or misleading advertising unlawful, and Section 17534 makes violation punishable as a misdemeanor.

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.

Executed at El Monte, California, this 9th day of September, 1992.



R.E. Summerfield
Assistant Division Chief
Mobile Source Division

State of California
AIR RESOURCES BOARD

EVALUATION OF BORLA PERFORMANCE INDUSTRIES'
CHEVROLET 350 PICK-UP HEADER SYSTEM
FOR EXEMPTION FROM THE PROHIBITIONS OF VEHICLE CODE
SECTION 27156 IN ACCORDANCE WITH SECTION 2222, TITLE 13, OF THE
CALIFORNIA CODE OF REGULATIONS

September 1992

State of California
AIR RESOURCES BOARD

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CALIFORNIA CODE OF REGULATIONS

by

Mobile Source Division
State of California
Air Resources Board
9528 Telstar Avenue
El Monte, CA 91731-2990

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

SUMMARY

Borla Performance Industries of 2639 Saddle Avenue, Oxnard, California 93030, has requested an exemption for Borla Performance Industries' Chevrolet 350 Pick-up Header System from the prohibitions of Section 27156 of the California Vehicle Code. The exemption is requested for installation on 1987-91 General Motors' light, medium, and heavy-duty trucks with either a 5.0 or 5.7 liter throttle body injection (TBI) engines.

Based on emission test results performed by Borla Performance Industries at an independent laboratory and confirmatory testing at the Air Resources Board's Haagen-Smit Laboratory, the staff concludes that Borla Performance Industries' Chevrolet 350 Pick-up Header System will not adversely affect exhaust emission from the vehicles for which an exemption is requested.

The staff recommends that Borla Performance Industries be granted Executive Order D-276 allowing the installation of their Chevrolet 350 Pick-up Header System on those applicable 1987-92 General Motors' light, medium, and heavy-duty trucks with either a 5.0 or 5.7 liter TBI equipped engine.

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EVALUATION OF BORLA PERFORMANCE INDUSTRIES'
CHEVROLET 350 PICK-UP HEADER SYSTEM 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

Borla Performance Industries of 2639 Saddle Avenue, Oxnard, California 93030, has requested an exemption for Borla Performance Industries' Chevrolet 350 Pick-up Header System from the prohibitions of Section 27156 of the California Vehicle Code. The exemption is requested for installation on 1987-91 General Motors' light, medium, and heavy-duty trucks with either a 5.0 or 5.7 liter throttle body injection (TBI) engine.

II. CONCLUSION

Based on emission test results performed by Borla Performance Industries at an independent laboratory and confirmatory testing at the Air Resources Board's Haagen-Smit Laboratory, the staff concludes that Borla Performance Industries' Chevrolet 350 Pick-up Header System will not adversely affect exhaust emission from the vehicles for which an exemption is requested.

III. RECOMMENDATION

The staff recommends that Borla Performance Industries be granted Executive Order D-276 allowing the installation of their Chevrolet 350 Pick-up Header System on 1987-1992 General Motors' light, medium, and heavy-duty trucks equipped with a 5.0 or 5.7 liter TBI equipped engine.

IV. CHEVROLET 350 PICK-UP HEADER SYSTEM DESCRIPTION

The Borla Performance Industries Chevrolet 350 Pick-up Header System is specifically designed for installation on 1987-1992 model-year General Motors' light, medium, and heavy-duty trucks with either a 5.0 or 5.7 liter

TBI equipped engine. The Chevrolet 350 Pick-up Header System consists of exhaust manifolds and pre-catalyst piping. As with the original equipment manufacturer's (OEM) exhaust system, the function of Borla Performance Industries' Chevrolet 350 Pick-up Header System is to route exhaust gases from the two exhaust manifolds of the engine into a common pipe which then feeds to the catalytic converter (see appendix for drawings). Borla Performance Industries' family of Chevrolet 350 Pick-up Header System features tubular exhaust primary pipes of 1-5/8" outside diameters. The left and right side primary tubes are 24.5 inches and 21.8 inches long respectively. All the exhaust gases are then routed into a 2-1/4" diameter collector tube feeding into the precatalyst piping. The oxygen sensor is located in the left-side collector. The precatalyst piping, the Y-pipe assembly, consists of 2-1/4 inch diameter tubing connecting the left and right exhaust manifolds to a three inch diameter collector. The collector connects to the catalyst inlet. All tubes are comprised of 304 stainless steel.

Positioned just before the collector, the Torque Increasing Venturis are welded. The Torque Increasing Venturis cause sufficient backpressure enhancing the EGR operation.

The Chevrolet 350 Pick-up Header System 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 Chevrolet 350 Pick-up Header System optimizes the exhaust gas flow characteristics. The manufacturer claims Chevrolet 350 Pick-up Header System is designed to improve the flow of exhaust gases from the cylinder heads to the catalytic converter, thereby promoting improved volumetric and combustion efficiency.

The system operates in conjunction with the OEM computer controlled throttle body fuel injection and emission control systems already certified with the stock engines. The installation of the Chevrolet 350 Pick-up Header System is done by fitting only and requires no welding, modifications or adjustments to the emission control system. Borla Performance Industries supplies complete installation kits, including bolts, flanges, washers, and gaskets.

V. DISCUSSION OF THE CHEVROLET 350 PICK-UP HEADER SYSTEM

Borla Performance Industries requested an exemption for the installation of Chevrolet 350 Pick-up Header System on 1987-1992 model-year General Motors' light, medium, and heavy-duty trucks equipped with 5.0 or 5.7 liter TBI engines. To evaluate the emission impact of the Chevrolet 350 Pick-up Header System on these vehicles, the staff required Borla Performance Industries to test a 1990 Chevrolet 1500 light-duty truck equipped with a 5.7 liter engine in accordance with CVS-75 Federal Test Procedure (FTP). Testing consisted of one CVS-75 FTP test with the header system installed to compare emission levels against applicable emission standards. Table 1 shows emission test results conducted at Milton Roy Company, Orange, California, on the 5.7 liter truck. Table 2 shows confirmatory emissions test results conducted at the Air Resources Board's Haagen-Smit Laboratory on the same truck.

Table 1

CVS-75 Tests Conducted by Borla Performance Industries

	(HC	CO	NOx) g/m
Test Results	0.382	2.673	0.903
Emissions Standards	0.500	9.000	1.000

Table 2

Confirmatory CVS-75 Tests Conducted by ARB

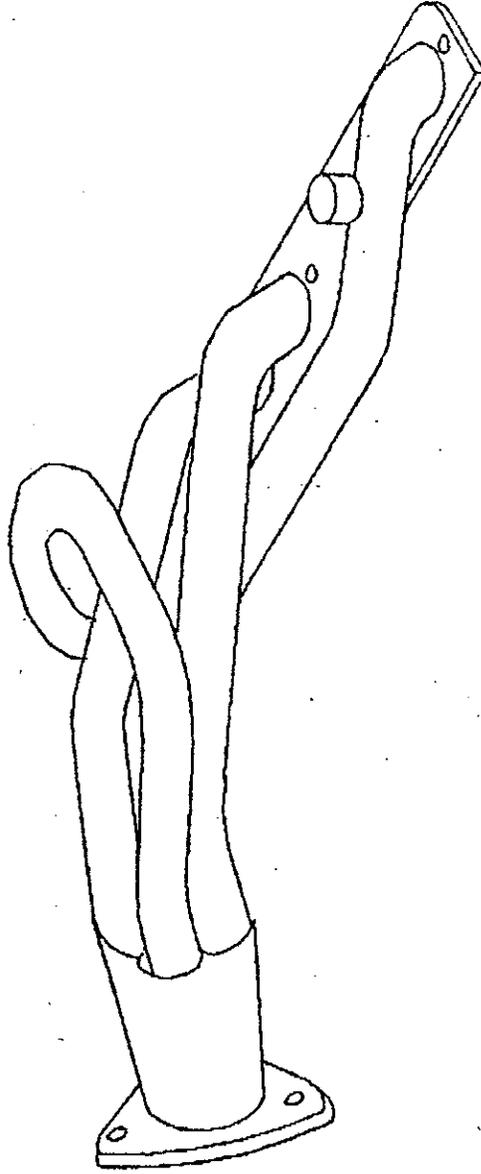
	(HC	CO	NOx) g/m
Test Results	0.416	3.781	0.712
Emissions Standards	0.500	9.000	1.000

Based on the emission test results, it appears that the Chevrolet 350 Pick-up Header System does not cause vehicle emissions to exceed emissions standards when installed on 5.7 liter engines. Therefore, staff concludes that based on the vehicle that Borla Performance Industries has tested, no emission impact would be observed on 5.0 or 5.7 liter engines when the Chevrolet 350 Pick-up Header System is installed.

The staff recommends that Borla Performance Industries be granted Executive Order D-276 allowing the installation of their Chevrolet 350 Pick-up Header System on 1987-92 General Motors' light, medium, and heavy-duty trucks with a 5.0 or 5.7 liter TBI engine.

APPENDIX

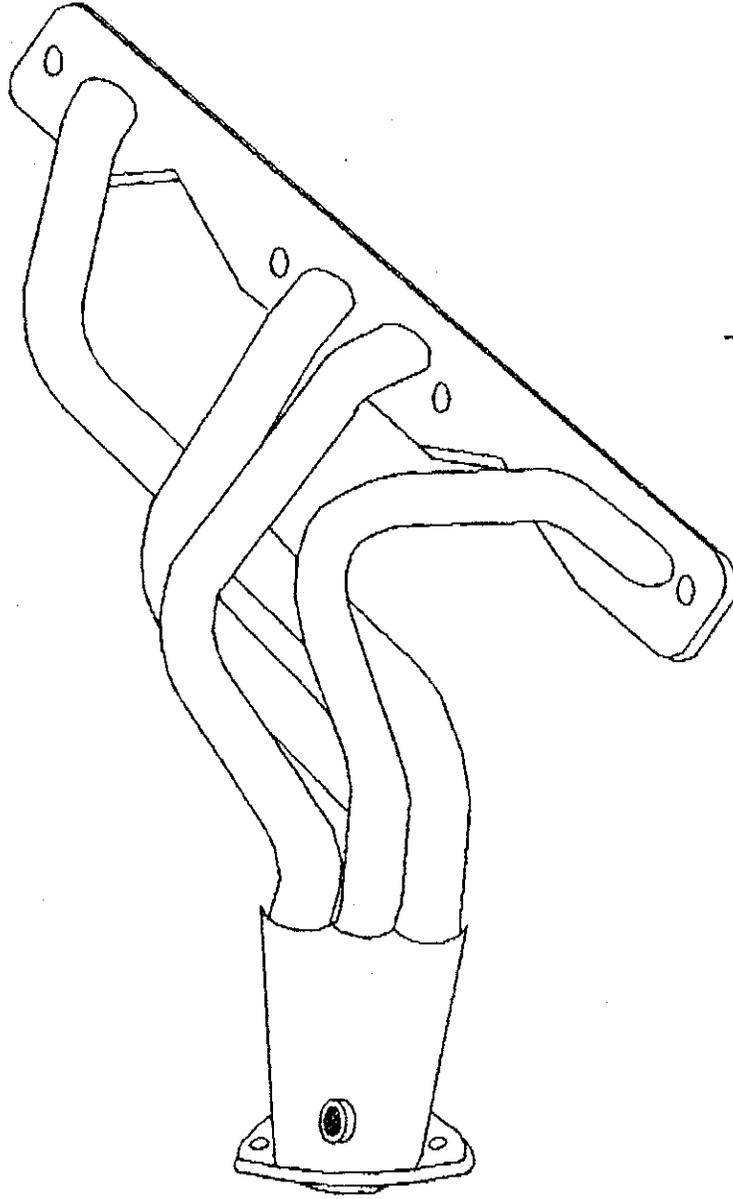
R.H Ø1-5/8" X 21.8" IECE



CHEVROLET 350		QTY	SYSTEM NO.	SHEET
SYSTEM DESCRIPTION		DESCRIPTION		
BORLA INDUSTRIES		HEADER		
TOLERANCES, DIM. IN INCHES		MATERIAL:		
X.XXX" = +/- 0.010"		X		
X.XX" = +/- 0.06"		PART NO.:		
X.X" = +/- 0.1"		X		
ANGLES +/- 1°		SHEET X OF X		
<p>THIS DRAWING AND ALL INFORMATION SHOWN IS THE PROPERTY OF BORLA INDUSTRIES. ANY USE OR REPRODUCTION OF THIS DRAWING OR INFORMATION HEREIN IS STRICTLY PROHIBITED WITHOUT THE AUTHORIZATION OF A DAILY AUTHORIZED REPRESENTATIVE OF BORLA INDUSTRIES</p>				
<p>DRN BY: LEE DATE: 3-10-92 SCALE: 1=4 SHEET X OF X</p>				

L.H Ø1-5/8" X 24.5" PIECE

4:1 X 2-1/4" COLLECTOR WITH D2 SENSOR PROVISION



CHEVROLET 350

SYSTEM DESCRIPTION

QTY SYSTEM NO. SHEET

BORLA INDUSTRIES

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TOLERANCES:
DIM. IN INCHES

X.XXX" = +/- 0.010"
X.XX" = +/- 0.006"
X.X" = +/- 0.1"
ANGLES +/- 1°

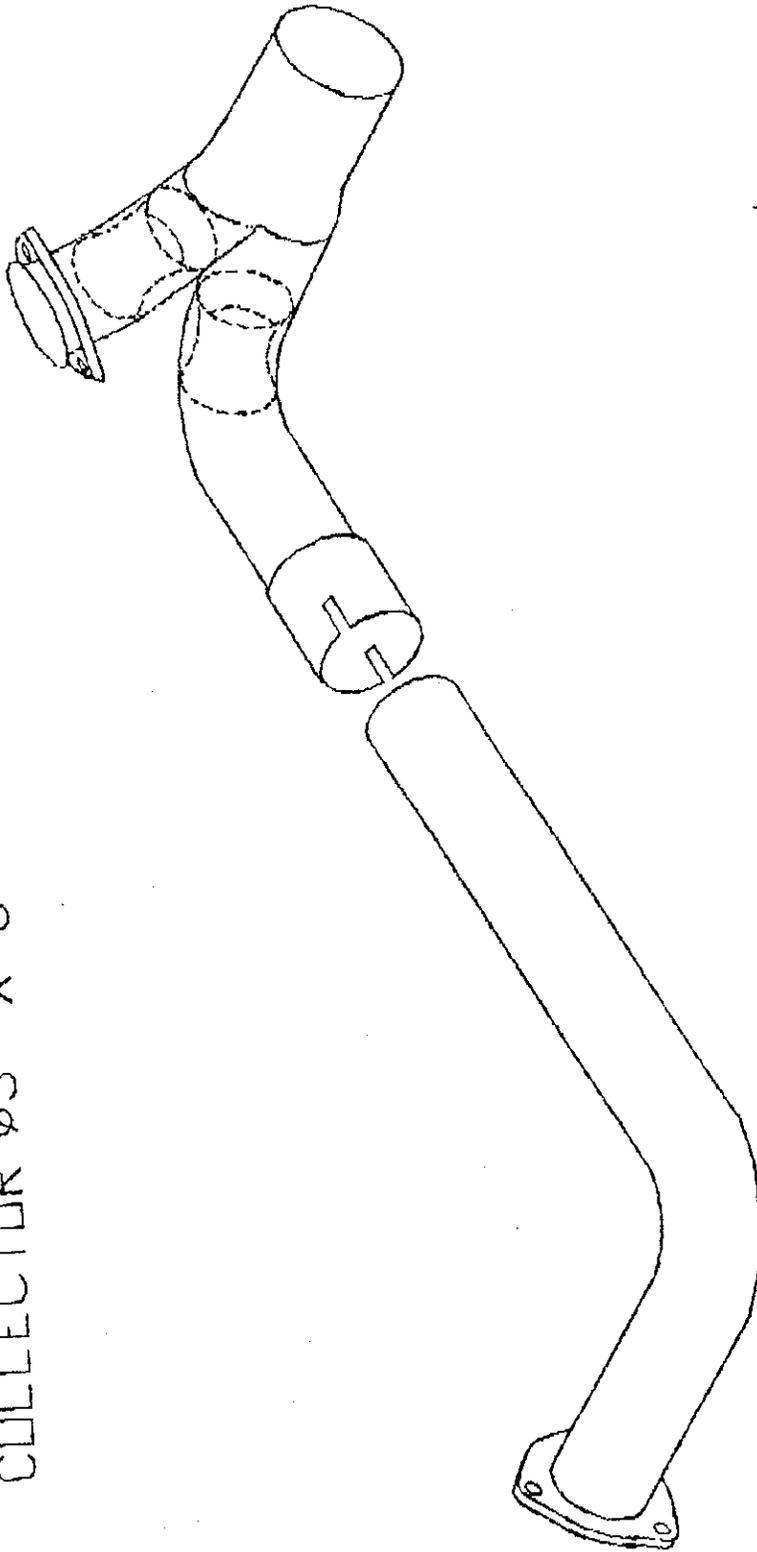
DRN BY: LEE
DATE: 3-10-92
SCALE: 1=4

SHEET X OF X

DESCRIPTION
HEADER

MATERIAL:
PART NO.:

Ø2-1/4" X 49.5"
COLLECTOR Ø3" X 6"



CHEVROLET 350

SYSTEM DESCRIPTION

PTY SYSTEM NO. SHEET

BORLA INDUSTRIES

DESCRIPTION

Y-PIPE ASSY.

TOLERANCES:
DIM. IN INCHES

X.XXX" = +/- 0.010"
X.XX" = +/- 0.06"
X.X" = +/- 0.1"
ANGLES +/- 1°

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DRN BY: LEE

DATE: 3-10-92

SCALE: 1=4

SHEET X OF X

MATERIAL

X

PART NO.

X

INSTALLATION INSTRUCTIONS FOR BORLA PART #: 17021
CHEVY PICK-UP HEADERS

BORLA PERFORMANCE EXHAUST SYSTEMS AND HEADERS
SHOULD BE INSTALLED BY QUALIFIED PERSONS ONLY.

1. LIFT VEHICLE AND SUPPORT
2. DISCONNECT AND REMOVE O2 SENSOR
3. UNBOLT EXHAUST FLANGES
4. REMOVE CLAMP AT FRONT OF THE CATALYTIC CONVERTER, DO NOT REMOVE CATALYTIC CONVERTER!
5. LOWER VEHICLE
6. REMOVE UPPER HALF OF FAN SHROUD
7. REMOVE FAN BELT
8. USING PULLER REMOVE POWER STEERING PULLEY
9. REMOVE THE THREE BOLTS HOLDING POWER STEERING PUMP. THE BOLT ON BACK OF ALTERNATOR AND THE TWO NUTS ON EXHAUST MANIFOLD
10. REMOVE POWER STEERING PUMP
11. REMOVE SPARK PLUG WIRES, SPARK PLUGS, HEAT RISER AND DIP STICK
12. REMOVE EXHAUST MANIFOLDS
13. RAISE VEHICLE AND REMOVE Y-PIPE
WORKING FROM THE TOP, SLIP HEADERS WITH GASKETS INTO PLACE AND START ALL BOLTS
15. TIGHTEN BOLTS FROM CENTER TOWARD ENDS
16. LEAVE THE LONG BOLT IN THE FRONT OF LEFT HEADER LOOSE
17. REMOVE BRACKET FROM BACK OF POWER STEERING PUMP AND TRIM AS PER INSTRUCTIONS FOR HEADER CLEARANCE
18. RE-INSTALL BRACKET ON POWER STEERING PUMP
19. INSTALL POWER STEERING PUMP ON ENGINE USING SPACER PROVIDED AND LONG BOLT
20. RE-INSTALL PULLEY ON POWER STEERING PUMP USING BOLT AND WASHERS TO PULL IT ON
21. INSTALL BELT AND RADIATOR SHROUD
22. INSTALL DIP STICK, SPARK PLUGS, SPARK PLUG WIRES AND HEAT RISER
23. USE O2 SENSOR EXTENSION PROVIDED AND INSTALL O2 SENSOR
24. FROM BELOW, INSTALL Y-PIPE USING OEM GASKETS WITH THE NUTS AND BOLTS SUPPLIED
25. TIGHTEN CLAMPS ON Y-PIPE AND CONVERTER
26. START ENGINE, LET IT WARM UP TO OPERATING TEMPERATURE AND RE-TIGHTEN HEADER BOLTS

WARNING!!! HEADER WILL BE EXTREMELY HOT -- DO NOT TOUCH!!!



P/S BRACKET TRIMMING
TEMPLATE.

