

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER D-512-1  
Relating to Exemptions Under Section 27156  
of the Vehicle Code

BULLY DOG TECHNOLOGIES  
"PROPANE CHARGER KIT"

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 Section 39515 and Section 39516 of the Health and Safety Code and Executive Order G-45-9;

IT IS ORDERED AND RESOLVED: That the installation of the Propane Charger Kit manufactured and marketed by Bully Dog Technologies of 2854 West 2200 South, Aberdeen, Idaho 83210, 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 California Vehicle Code for the following diesel truck applications:

<u>Vehicle Make/Model</u>	<u>Model-Year</u>	<u>Engine Type &amp; Size</u>	<u>Max. GVWR</u>
Ford F150 & F250	2000 and older	7.3L Navistar Powerstroke	11,200 lbs.
Dodge Ram 1500 & 2500	2001 and older	5.9L Cummins Turbo	10,500 lbs.

This Executive Order shall not apply to any Bully Dog Technologies' Propane Charger Kit advertised, offered for sale, sold with, or installed on a new motor vehicle prior to or concurrent with transfer to an ultimate purchaser.

This Executive Order is valid provided the installation instructions for the Propane Charger Kit will not recommend tuning the vehicle to specifications different from those of the vehicle manufacturer.

Changes made to the design or operating conditions of the device, as exempted by the Air Resources Board (ARB), that adversely affect the performance of a vehicle's pollution control system shall invalidate this Executive Order.

Marketing of this device using any 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.

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 exemption is issued based on submitted cold-505 emissions test data conducted at Automotive Testing and Development Services, Ontario, which showed that the Propane Charger Kit did not adversely affect exhaust emissions of the tested vehicle. The test results are shown below.

	<u>2000 Ford F250 Truck w/ a 7.3L Navistar diesel engine</u>				
	<u>THC (g/mi)</u>	<u>CO (g/mi)</u>	<u>NOx</u>	<u>PM (g/mi)</u>	<u>Smoke Opacity (%)</u>
Baseline	0.183	1.366	9.437	0.089	10.3
Device	0.168	1.234	8.630	0.093	7.9
Change	-0.015	-0.132	-0.807	+0.003	-2.4
% Change	-8.2	-9.7	-8.5	+4.5	-23.3

Comparative emissions test results showed that the increase in PM emissions over baseline levels are within the allowable limits specified in the "Procedures for Exemption of Add-on and Modified Parts." Snap idle opacity tests conducted on the modified vehicle showed smoke opacity levels are within the applicable peak smoke opacity standard. This Executive Order is also based on the On-Board Diagnostic II (OBD II) testing conducted on the same test vehicle. Test data showed that the Propane Charger Kit when installed on the vehicle did not affect the vehicle's ability to perform its OBD II monitoring.

However, the ARB finds that reasonable grounds exist to believe that use of the Bully Dog Technologies' Propane Charger Kit may adversely affect emissions of motor vehicles when operating under conditions outside the parameters of the previously prescribed test procedures. Accordingly, the ARB reserves the right to conduct additional emission tests, in the future, as such tests are developed, that will more adequately measure emissions from all cycle phases. If such test results demonstrate that the Propane Charger Kit adversely affects emissions during off-cycle conditions (defined as those conditions which are beyond the parameters of the cold-start CVS-75 Federal Test Procedure), this Executive Order shall be effectively rescinded as of the date the test results are validated. Further, if such test results or other evidence provides the ARB with reason to suspect that the Propane Charger Kit will affect durability of the emission control systems, Bully Dog Technologies shall be required to submit durability data to show that the durability of the vehicle emission control system is not, in fact, affected and/or that the add-on modified part demonstrates adequate durability.

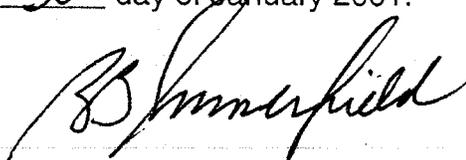
In addition to the foregoing, the ARB reserves the right in the future to review this Executive Order and the exemption provided herein to ensure that the exempted add-on or modified part continues to meet the standards and procedures of Title 13, California Code of Regulations, Section 2222, et seq.

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 BULLY DOG TECHNOLOGIES' PROPANE CHARGER KIT.

No claims 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 communication.

Violation of any of the above conditions shall be grounds for revocation of this order. The order may be revoked only after ten day written notice of intention to revoke the order, in which period the holder of the order may request in writing a hearing to contest the proposed revocation. If a hearing is requested, it shall be held within ten days of receipt of the request and the order may not be revoked until a determination is made after the hearing that grounds for revocation exist.

Executed at El Monte, California, this 30<sup>th</sup> day of January 2001.



R. B. Summerfield, Chief  
Mobile Source Operations Division

State of California  
AIR RESOURCES BOARD

EVALUATION OF BULLY DOG TECHNOLOGIES' PROPANE CHARGER KIT FOR  
EXEMPTION FROM THE PROHIBITIONS IN VEHICLE CODE SECTION 27156,  
AND SECTION 2222, TITLE 13, CALIFORNIA CODE OF REGULATIONS

January 2001

by

Mobile Source Division

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

## SUMMARY

Bully Dog Technologies (Bully Dog) of 2854 West 2200 South Aberdeen, Idaho 83210, has applied for an exemption of its Propane Charger Kit from the prohibitions in Vehicle Code (VC) Section 27156 and 38391, in accordance with Section 2222 of Title 13, California Code of Regulations (CCR). The kit is designed for installation on 2000 and older model-year Ford F150 and F250 trucks powered by a powerstroke diesel engine with a Gross Vehicle Weight Rating (GVWR) of 11,200 lbs. or less, and 2001 and older model-year Dodge Ram 1500 and 2500 trucks powered by a 5.9L Cummins Turbo Diesel engine with a GVWR of 10,500 lbs. or less. Bully Dog claims that the Propane Charger Kit improves the performance of applicable vehicles.

Emission tests were conducted at Automotive Testing and Development Services, Inc. (ATDS), an independent laboratory which also acted as Bully Dog's representative for the purpose of obtaining a VC Section 27156 for the company. Results from tests conducted at ATDS showed that the installation of the Propane Charger Kit does not adversely affect the pollution control systems of the vehicle. Based on results from testing conducted at ATDS, the staff recommends that the exemption be granted as requested and that Executive Order D-512-1 be issued to Bully Dog.

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EVALUATION OF BULLY DOG TECHNOLOGIES' PROPANE CHARGER KIT FOR EXEMPTION FROM THE PROHIBITIONS IN VEHICLE CODE SECTION 27156, AND SECTION 2222, TITLE 13, CALIFORNIA CODE OF REGULATIONS

I. INTRODUCTION

Bully Dog Technologies (Bully Dog) of 2854 West 2200 South, Aberdeen, Idaho 83210, has applied for an exemption from the prohibitions in Vehicle Code Section 27156 for its Propane Charger Kit. The Propane Charger Kit is designed for the following diesel vehicle applications:

<u>Vehicle Make &amp; Model</u>	<u>Mode-year</u>	<u>Max. GVWR</u>	<u>Special Features</u>
Ford F150 & F250 Truck	2000 & older	11,200 lbs.	Powerstroke
Dodge Ram 1500 & 2500	2001 & older	10,500 lbs.	Cummins Turbo

The manufacturer claims that the Propane Charger Kit would produce more horsepower, more torque, better fuel economy, cleaner oil, and better fuel combustion.

II. CONCLUSION

The applicant has submitted results from testing conducted at Automotive Testing and Development Services, Inc. (ATDS) which show that the installation of the Propane Charger Kit did not adversely affect emission levels of the test vehicle. Based on the exhaust emissions test data and On-Board Diagnostic II (OBD-II) compatibility test, the staff concludes that the Propane Charger Kit meets the requirements for Vehicle Code Section 27156, and Title 13, California Code of Regulations, Section 2222 for the stated application.

III. RECOMMENDATION

Staff recommends that the exemption be granted as requested and that Executive Order No. D-512-1 be issued, permitting the advertisement, sale, and installation of the Propane Charger Kit.

IV. DEVICE DESCRIPTION

Bully Dog's Propane Charger Kit consists of a propane tank, solenoid, regulators, hoses, and installation hardware. A small amount of propane is drawn into the intake stream

ahead of the turbo-compressor during periods of heavy load. According to the manufacturer, the Propane Charger fumigates the intake air with propane resulting in increased horsepower, torque, and mileage gain for the diesel vehicle. A dual stage regulator is used to draw vapor from the top of the tank, which makes it unnecessary to convert liquid to vapor. The design also features a fuel lock-off system which prevents propane from being drawn in until the engine is running, and allows propane to be evacuated immediately after the engine is turned off. A toggle switch installed inside the cab allows the vehicle operator to turn on the Propane Charger when needed, and turn off when not required. The propane is drawn through a 0.37-inch diameter orifice supply line.

V. DEVICE EVALUATION

The Propane Charger Kit was tested at ATDS, an independent test laboratory which also acted as the representative of Bully Dog for purposes of obtaining VC Section 27156 exemption for the company. One cold-505 was conducted in baseline configuration, followed by one cold-505 with the Propane Charger Kit installed and turned on for the duration of the test. ATDS determined the orifice size of the propane supply line to be 0.37 inch inside diameter, and calculated the propane consumption to be approximately 19 grams per mile. The test vehicle was a 2000 Ford F250 Truck powered by a 7.3L Navistar diesel engine. The test results submitted by ATDS are shown below.

	<u>THC (g/mi)</u>	<u>CO (g/mi)</u>	<u>NOx (g/mi)</u>	<u>PM (g/mi)</u>	<u>Smoke Opacity (%)</u>
Baseline	0.183	1.366	9.437	0.089	10.3
Device	0.168	1.234	8.630	0.093	7.9
Change	-0.015	-0.132	-0.807	+0.003	-2.4
% Change	-8.2	-9.7	-8.5	+4.5	-23.3

The increase in PM is within the allowable limit specified under the Procedures for Exemption of Add-on and Modified Parts (Procedures). The smoke opacity levels of the test vehicle are below applicable peak smoke opacity standards. OBD-II compatibility test conducted on the same test vehicle also showed that the Propane Charger Kit did not adversely affect the

vehicle's emissions monitoring systems. The ARB was unable to perform a confirmatory testing at its own laboratory because the applicant stated that the vehicle owner insisted on having his vehicle returned immediately. The Ford truck was selected as the test vehicle because it was certified to more stringent emission standards than the 2001 Dodge truck. Although the 2001 Dodge truck was also certified to the Euro-3 standards, the staff anticipates no adverse emission effects by installing the Propane Charger on the 2001 and older model-year Dodge diesel trucks since the above test results show that the device causes no increase in NOx.

The above test results meet the requirements specified in the Procedures.