

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER D-141-1  
Relating to Exemptions under Section 27156  
of the Vehicle Code

CROSSETT AND SON, INC.  
PRESCA DIESEL FUEL SAVER

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 Presca Diesel Fuel Saver manufactured by Crossett and Son, Inc. of Washington, Iowa, 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 1986 and older model-year diesel-fueled motor vehicles.

This Executive Order is valid provided that installation instructions for this device on all 1986 and older model-year vehicles will not allow tuning the engine to specifications different from those of the original engine/vehicle manufacturers.

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 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 PRESCA DIESEL FUEL SAVER.

CROSSETT AND SON, INC.  
PRESCA DIESEL FUEL SAVER

EXECUTIVE ORDER D-141-1  
(Page 2 of 2)

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.

Executive Order D-141, dated October 17, 1983, is superseded and of no further force and effect.

Executed at El Monte, California, this 10<sup>th</sup> day of March, 1986.



K. D. Drachand, Chief  
Mobile Source Division

Original

State of California  
AIR RESOURCES BOARD

EVALUATION OF THE CROSSETT AND SON, INC.  
PRESCA DIESEL FUEL SAVER DEVICE FOR EXEMPTION FROM THE  
PROHIBITIONS IN VEHICLE CODE SECTION 27156 IN ACCORDANCE WITH  
SECTION 2222, TITLE 13, OF THE CALIFORNIA ADMINISTRATIVE CODE

March, 1986

Issue Date: March, 1986

EVALUATION OF THE CROSSETT AND SON, INC.  
PRESCA DIESEL FUEL SAVER DEVICE 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, California 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 content necessarily reflect the view and policies of the Air Resources Board, nor does mention of trade names or commercial products constitute endorsement or recommendation of use.)

## SUMMARY

Crossett and Son, Inc. of 1006 South Avenue B, Washington, Iowa 52353, requested an update to Executive Order (E.O.) D-141 dated October 17, 1983, which exempted their "Presca Diesel Fuel Saver" (PDFS) device from the prohibitions in California Vehicle Code Section 27156 for installation on all 1983 and older model-year diesel-fueled vehicles. The update request is to include 1984-1986 model-year diesel-fueled vehicles in the exemption.

The device is a simple heat exchanger utilizing engine coolant and an electrical heater to heat up the fuel supply to the engine for easy start up in cold weather.

The staff, based on engineering principle, evaluated the device and determined that the installation of a fuel heater in series with the diesel engine fuel system will not adversely affect the performance of factory equipped emission control systems .

The staff recommends that the ARB exempt the PDFS device from the prohibitions in Vehicle Code Section 27156 and that E.O. D-141-1 be issued, allowing the installation of PDFS device on all 1986 and older model-year diesel-fueled motor vehicles.

## TABLE OF 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>	2
IV. <u>SYSTEM DESCRIPTION AND OPERATION</u>	2
V. <u>DISCUSSION</u>	3
<u>APPENDIX</u> <u>FLOW DIAGRAM</u>	4

EVALUATION OF THE CROSSETT AND SON, INC.  
PRESCA DIESEL FUEL SAVER DEVICE FOR EXEMPTION FROM THE  
PROHIBITIONS IN VEHICLE CODE SECTION 27156 IN ACCORDANCE WITH  
SECTION 2222, TITLE 13, OF THE CALIFORNIA ADMINISTRATIVE CODE

I. INTRODUCTION

Crossett and Son, Inc. of 1006 South Avenue B, Washington, Iowa 52353, requested an update to Executive Order (E.O.) D-141 dated October 17, 1983, which exempted their "Presca Diesel Fuel Saver" (PDFS) device from the prohibitions in California Vehicle Code Section 27156 for installation on all 1983 and older model-year diesel-fueled vehicles. The update request is to include 1984-1986 model-year diesel-fueled vehicles in the exemption. Vehicle Code Section 27156 prohibits the installation of any device or mechanism which reduces the effectiveness of required emission control systems. This code also authorizes the Air Resources Board (ARB) to exempt a device from the prohibitions if it can be demonstrated that the device, upon installation on the engine, will not adversely affect the performance of existing emission control systems.

II. CONCLUSION

The staff previously evaluated the device and found that the PDFS device will not have a significant adverse effect on emissions from diesel-fueled motor vehicles.

The applicant responded to the previous request of the ARB by removing the claims of less toxic emissions in the company's sales brochures. The ARB also advised the applicant previously that the company should be prepared to substantiate the increased fuel economy claims by valid laboratory tests.

### III. RECOMMENDATION

Based on an engineering evaluation previously made on a sample device, production blue-prints, technical data submitted by the applicant, and the fact that the engine design of the 1984-1986 model-year diesel-fueled vehicles have not changed from those of 1983 model-year, the staff recommends that the ARB exempt the PDFS device for installation on all 1986 and older model-year diesel-fueled California vehicles and that Executive Order D-141-1 be issued.

### IV. SYSTEM DESCRIPTION AND OPERATION

The "Presca Diesel Fuel Saver" (PDFS) device is a heat exchanger manufactured from a 1/2" diameter X 9'0" long copper tubing coiled and enclosed in a 4"x4"x9-7/8" case made of mild steel. Attached to each end of the case, is a 1/2" hose fitting to accommodate the circulation of engine coolant through the case. Also, a 3/8" compression fitting is mounted on each end plate to hold the coiled copper tubing in place. Two mounting brackets are welded to the case for installation of the device in the engine compartment. A 150-watt, 120-volt auxiliary heater is inserted into the case for overnight fuel heating as a quick-starting aid.

Figure 1 (in the Appendix) shows a typical flow diagram. The device is mounted between the fuel tank and the fuel filter. Installation of this device in a fuel system of a diesel engine equipped vehicle is done by connecting the inlet and outlet fittings to the hot engine coolant supply line and back to the engine line. Temperature of the incoming engine coolant is determined by the engine thermostat rating (about 180°F). The two ends of the copper coil of the device are connected to the fuel supply coming from the fuel tank and to the fuel filter lines.



Without the PDFS device the temperature of the fuel supplied to the engine is dependent upon the ambient temperature. If the vehicle is exposed to sub-zero weather temperature, the fuel stored in the fuel storage tank will be at the same sub-zero temperature. Diesel fuel at this temperature tends to congeal. Very poor engine starting will result and may cause unburned fuel to be blown out of the exhaust pipe. With the PDFS device, the diesel fuel from the fuel tank is routed into the heat exchanger where it absorbs heat energy from the hot engine coolant around the coil. The pre-heated fuel may enhance the combustion process in the engine cylinders. An electrical heater rated at 150-watts and 120-volts is inserted in the device for overnight fuel heating to facilitate engine starting in cold weather.

V. DISCUSSION

The applicant previously submitted several customer testimonials including a copy of laboratory particulate test results on their PDFS device conducted by Sanitary Engineering Laboratories, Inc., of Cedar Falls, Iowa. The testimonials were very subjective; they were not used in ARB's evaluation of the device.

The staff, based on engineering principles, previously evaluated the device and determined that the installation of a fuel heater, such as the PDFS device, in series with the diesel engine fuel system will not adversely affect the performance of factory equipped emission control systems.

DIESEL FUEL FLOW DIAGRAM

