

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER D-393-4

Relating to Exemptions under  
Section 27156 of the Vehicle Code

Johnson Matthey  
CRT Particulate Filter

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-45-9;

IT IS ORDERED AND RESOLVED: That installation of the Continuously Regenerating Technology (CRT) Particulate Filter, manufactured by Johnson Matthey of 380 Lapp Road, Malvern, Pennsylvania 19355, has been found not to reduce the effectiveness of the applicable vehicle pollution control system, and therefore, the CRT Particulate Filter is exempt from the prohibitions in section 27156 of the Vehicle Code for installation on heavy-duty on-road vehicles equipped with the following 4-stroke diesel engines:

Engine MY	Engine Make	Engine Model
2002	Caterpillar	3208, 3116, 3126, 3306, 3406, C10, C12, C15, C16 (all horsepower)
2002	Cummins	N14, ISB, ISC, ISL, ISM, ISN, ISX, B-series, C-series (all horsepower)
2002	DDC	Series 40, Series 50, Series 60 (all horsepower)
2002	International	T444E, DT466E, DT466E HT, 530E, 530E HT (all horsepower)
2002	Mack	E7, E9 (all horsepower)
2002	Volvo	VE 275, VE 300, VE 345, VE 385, VE 425, VE 465 (all horsepower)

CRT Particulate Filters exempted under this Executive Order are identified in Attachment A. This exemption is only valid provided the engines meet the following operating conditions: (1) the engine exhaust temperature is greater than or equal to 275 degrees Celsius for 40 to 50 percent of the typical duty cycle, (2) the NOx to PM ratio is at least 8, and (3) the engine is operated using diesel fuel with a maximum sulfur content of 50 parts per million by weight.

This exemption is based on emission tests conducted by Johnson Matthey with the CRT Particulate Filter. Johnson Matthey submitted the following results:

No.	Test Engine			Percent Change in Emissions			
	MY	Make	Model	THC	CO	NOx	PM
1	1999	Caterpillar	3126	-88	-99	-8	-88
2	1995	Cummins	M11	-91	-89	-5	-95
3	1998	DDC	Series 60	-95	-94	2	-87
4	1999	DDC	Series 50	-100	-72	-6	-90

The emission data showed that the CRT Particulate Filter does not adversely affect the exhaust emissions of the test engines. The same emission impact is expected when the CRT Particulate Filter is installed on heavy-duty vehicles equipped with any of the engines listed above.

This Executive Order is valid provided that installation instructions for the CRT Particulate Filter do not recommend tuning the vehicle to specifications different from those of the vehicle manufacturer.

Changes made to the design or operating conditions of the CRT Particulate Filter, as exempt by the ARB, which adversely affect the performance of the vehicle's pollution control system, shall invalidate this Executive Order.

Marketing of the CRT Particulate Filter using identification other than that shown in this Executive Order or for an application other than that listed in this Executive Order shall be prohibited unless prior approval is obtained from the ARB.

This Executive Order shall not apply to any CRT Particulate Filter advertised, offered for sale, sold with, or installed on a motor vehicle prior to or concurrent with transfer to an ultimate purchaser.

This Executive Order does not constitute any opinion as to the effect the use of the CRT Particulate Filter may have on any warranty either expressed or implied by the vehicle manufacturer.

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 communication.

In addition to the foregoing, the ARB reserves the right in the future to review this Executive Order and the exemption provided herein to assure that the exempted add-on

or modified part continues to meet the standards and procedures of California Code of Regulations, Title 13, 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 JOHNSON MATTHEY'S CRT PARTICULATE FILTER.

Violation of any of the above conditions shall be grounds for revocation of this Executive Order. The Executive Order may be revoked only after a ten-day written notice of intention to revoke the Executive Order, in which period the holder of the Executive 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 Executive Order may not be revoked until a determination is made after a hearing that grounds for revocation exist.

Executed at El Monte, California, this 14<sup>TH</sup> day of February 2002.



Allen Lyons, Chief  
New Vehicle/Engine Programs Branch

Attachment A

Table 1

Engine HP	CRT Part No.
150-230	CRT 1234 DW
230-330	CRT 1234 DW
330-425	CRT 1234 JT
425-660	CRT 1234 IT

Note: Table 1 identifies a matrix of CRT Particulate Filter part numbers based on exhaust inlet/outlet configuration, catalyst substrate, and filter element for the engine horsepower ranges. The catalyst and filter substrate volume/density combinations specified above are the minimum catalyst and filter sizes Johnson Matthey will use on a given engine. Johnson Matthey may use a larger catalyst and/or filter for a given engine/vehicle combination.