

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER D-547

Relating to Exemptions under  
Section 27156 of the Vehicle Code

Haldor Topsøe A/S  
Urea Selective Catalytic Reduction 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-02-003;

**IT IS ORDERED AND RESOLVED:** That installation of the Urea Selective Catalytic Reduction (SCR) System, manufactured by Haldor Topsøe A/S of Nymøllevej 55, DK-2800, Lyngby, Denmark, has been found not to reduce the effectiveness of the applicable engine emission control system, and therefore, the Urea SCR System is exempt from the prohibitions in Section 27156 of the Vehicle Code for installation on 1991-2002 model-year 4-stroke heavy-duty diesel and diesel/natural gas bi-fuel engines (< 600 hp) used in on-road vehicles.

This exemption excludes any engines equipped with an oxidation catalyst, diesel particulate filter, or an exhaust gas recirculation system.

The Urea SCR System consists of a urea injection system, an SCR catalyst, and control sensors. The injection system includes a combined dosing pump and electronic control unit, valve manifold, urea/air atomizer, and a urea storage tank. The sensors include a NOx sensor, mass air flow sensor, and two temperature sensors. The system components exempted under this Executive Order are identified in Attachment A.

This exemption is based on emission tests conducted by Haldor Topsøe A/S with the Urea SCR System. Test data showed that the Urea SCR System has no adverse impact on engine emissions.

This Executive Order is valid provided that installation instructions for the Urea SCR System do not recommend tuning the engines to specifications different from those of the engine manufacturer.

Changes made to the design or operating conditions of the Urea SCR System, as exempted by the ARB, which adversely affect the performance of the engine's pollution control system, shall invalidate this Executive Order.

Marketing of the Urea SCR System 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 Urea SCR System advertised, offered for sale, sold with, or installed on any diesel engine 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 Urea SCR System may have on any warranty either expressed or implied by the engine manufacturer.

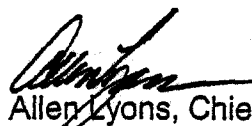
No claim of any kind, such as "Approved by the Air Resources Board," may be made with respect to the action taken herein in any advertising or other oral or written communication.

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 HALDOR TOPSØE A/S' UREA SELECTIVE CATALYTIC REDUCTION SYSTEM.**

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 22<sup>ND</sup> day of October 2002.



Allen Lyons, Chief  
Mobile Source Operations Division

## Attachment A

Haldor Topsøe A/S Urea Selective Catalytic Reduction System		
Component	Part Number	Supplier
Dosing Pump	HT001	Grundfos/Haldor Topsøe A/S
Fitting for dosing pump	PM090612E	GPA plast
Electronic Control Unit	ME.SPE	Mecel
Valve-Unit 12VDC or 24VDC	BÜ.SPE	Bürkert
Fittings for Valve-Unit	PM010611E & PM010612E	GPA plast
Check Valve, 40 Kpa	LHC855UR00040S	Parameter
PA-Hose, OD 6x4mm	PA0604S	GPA plast
PFA-Hose, OD 6x4mm	4600-4600400100	Duotec A/S
Box for NOx-Controller, 12VDC and 5VDC Power Supply	HT002	Haldor Topsøe A/S
NOx Sensor	NGK.SPE	NGK
Mounting Plate for Pump, Valve-Unit and NOx-Controller	AKS.SPE	AKS Metalindustri A/S
Urea Tank	HT003	Haldor Topsøe A/S
SCR Catalyst: Type DNXR 905	N/A	Haldor Topsøe A/S
Level Sensor for Urea Tank	GF.SPE	Grundfos
Pressure Reduction Valve	821302086	HN-Colsult A/S
Fitting for Air Supply	SS-400-7-4RT	Dansk Ventil og Fitting Aps
Nozzle for Urea Dosing	AKS.SPE	AKS Metalindustri A/S
Insulating Tube for Nozzle	AKS.SPE	AKS Metalindustri A/S
Veld Fitting for Nozzle Mountring, OD 25mm	AS 25 S71	Sanistål A/S
Mass Flow Controller (MAF)	7.22684.07.0	Kolbenschmidt Pierburg
Connector for MAF	N/A	Mercedes
Temperature Sensor PT200 (2)	MW-TYP GP2121 ~ 250mm	Kjærulf Pedersen A/S
Fitting for Temperature Sensor	SS-600-6-1	Dansk Ventil og Fitting Aps
Main Power Switch and Fuses	N/A	N/A
Harting Connectors	N/A	Wexøe A/S
AMP-Connectors for Sensors	N/A	Farnell Danmark A/S
Connecting Cables	N/A	N/A