

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER A-18-53  
Relating to Certification of New Motor Vehicles

VOLVO CAR CORPORATION

Pursuant to the authority vested in the Air Resources Board by the Health and Safety Code, Division 26, Part 5, Chapter 2; and

Pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Orders G-45-3 and G-45-4;

IT IS ORDERED AND RESOLVED: That 1989 model-year Volvo Car Corporation exhaust emission control systems are certified as described below for gasoline-powered passenger cars:

<u>Engine Family</u>	<u>Displacement Liters (Cubic Inches)</u>	<u>Exhaust Emission Control Systems (Special Features)</u>
KVV2.3V5F896	2.3 (141)	Three-Way Catalyst Heated Oxygen Sensor No On-Board Diagnostics (Exempted) (Electronic Port Fuel Injection)

Vehicle models, transmissions, engine codes and evaporative emission control families are listed on attachments.

The following are the emission standards for this engine family:

<u>Hydrocarbons (Grams per Mile)</u>	<u>Carbon Monoxide (Grams per Mile)</u>	<u>Nitrogen Oxides (Grams per Mile)</u>
0.41	7.0	0.7

The following are the certification emission values for this engine family:

<u>Hydrocarbons (Grams per Mile)</u>	<u>Carbon Monoxide (Grams per Mile)</u>	<u>Nitrogen Oxides (Grams per Mile)</u>
0.28	1.8	0.3

BE IT FURTHER RESOLVED: That the listed models are certified to the optional NOx emission standard thereby making the vehicle manufacturer subject to Section 1960.1.5 of Title 13, California Administrative Code which includes recall liability for emission control components up to 7 years or 75,000 miles if found defective by the Executive Officer.

BE IT FURTHER RESOLVED: That the vehicle manufacturer is certifying to the optional NOx standard by providing evidence that there are sufficient projected sales of vehicles certifying to the primary NOx emission standard, or is allowed a delay in implementation under small volume manufacturer provisions, or is allowed a delay in implementation under the "in lieu" standards, or is certifying passenger cars weighing more than 5250 lbs. loaded vehicle weight.

BE IT FURTHER RESOLVED: That the listed vehicle models also comply with "California Evaporative Emission Standards and Test Procedures for 1978 and Subsequent Model Gasoline-Powered Motor Vehicles".

BE IT FURTHER RESOLVED: That the listed vehicle models also comply with the Board's "Specifications for Fill Pipes and Openings of Motor Vehicle Fuel Tanks" (Title 13, California Administrative Code, Section 2290) for the aforementioned model-year.

BE IT FURTHER RESOLVED: That the listed vehicle models also comply with the Board's high altitude requirements and highway emission standards as stipulated in "California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles".

BE IT FURTHER RESOLVED: That the listed vehicle models also comply with the "California Motor Vehicle Tune-Up Label Specifications" (Title 13, California Administrative Code, Section 1965) for the aforementioned model year.

BE IT FURTHER RESOLVED: That the vehicle models listed have been granted an exemption from compliance with the requirements of the "Malfunction and Diagnostic System for 1988 and Subsequent Model Year[s]..." (Title 13, California Administrative Code, Section 1968) for the aforementioned model year.

BE IT FURTHER RESOLVED: That for the listed vehicles, the manufacturer has submitted and the Executive Officer hereby approves the materials to demonstrate certification compliance with the Board's emission control system warranty regulations (Title 13, California Administrative Code, Section 2035 et seq.)

Vehicles certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this order and attachment.

Executed at El Monte, California this 22<sup>nd</sup> day of December, 1988.

*A. F. Donnelly (for K. D. D.)*  
K. D. Drachand, Chief  
Mobile Source Division

Manufacturer Volvo Car Corporation Engine Family KVV2.3V5F896  
 Evaporative Family E3 Engine Type I-4/ 16 Valves  
 Liters (CID) 2.3 ( 141 )

ABBREVIATIONS

Ignition System

CA-Centrifugal Advance  
 ECU-Electronic Control Unit  
 EI-Electronic Ignition  
 ESAC-Electronic Spark Advance Control  
 VA-Vacuum Advance  
 VR-Vacuum Retard

Fuel System

CFI, EPFI, MPFI, SFI,  
 DID, DIP, HOS, OS  
 nV-nVenturi Carburetor  
 VV-Variable Venturi Carburetor

Exhaust Emissions Control System

AIP-Air Injection - Pump  
 AIV-Air Injection - Valve  
 EGR-Exhaust Gas Recirculation  
 EIC-Electronic Injection Control (Diesel Only)  
 EM-Engine Modification  
 SPL-Smoke Puff Limiter or Throttle Delay  
 TOC-Trap Oxidizer, Continual  
 TOP-Trap Oxidizer, Periodical  
 DBC-Dual Bed Catalyst  
 OC-Oxidation Catalyst  
 TWC-Three-Way Catalyst  
 WUOC-Warm-Up Oxidation Catalyst  
 WUTWC-Warm-Up Three-Way Catalyst  
 OS-Oxygen Sensor  
 HOS-Heated Oxygen Sensor

Special Features

CFI-Central Fuel Injection or Throttle Body Injection  
 EPFI-Electronic Port Fuel Injection  
 MPFI-Mechanical Port Fuel Injection  
 SFI-Sequential Fuel Injection  
 DID-Diesel Injection-Direct  
 DIP-Diesel Injection-Prechamber  
 TC-Turbocharger  
 SC-Supercharger  
 IC-Intercooler or Aftercooler  
 CCV-Combustion Chamber Valve  
 OBD-On-Board Diagnostic

VEHICLE MODELS:

740 GLE-16 Valve  
 Sedan , Wagon

Engine: Front  x  Mid.   Rear    
 Drive: FWD   RWD  x  4WD Full Time   4WD Part Time

1989 AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET

E.O. # A-18-53

Page 2

Passenger Cars  Light-Duty Trucks \_\_\_\_\_ Medium-Duty Vehicles \_\_\_\_\_ Gas  Diesel \_\_\_\_\_

Manufacturer Volvo Car Corporation Engine Family KVV2.3V5F896

Liter (CID) 2.3 ( 141 ) Eng. Type L-4/16 Valves

Emission Control Sys. (Special Features) TWC/HOS ( EPFI/ECU/ESAC/EXEMPT OBD )

Engine codes	Vehicle Models (If Coded see attachment)  (Dyno Hp)	Trans. Type	Equiv. Test Weight	Ign. System (ECU)  Part No.	Fuel System  Part No.	EGR Valve  Part No.	Catalyst  Part No.
F896:1	740 GLE-16 Valve Sedan (7.7) Wagon (9.1)	M5 M46	--- 3375 3500	0 227 400152	(CU) 0 280 000571 (AIR MASS) 0 280212016 (HOS) 0 258003034	N/A	3 531 050
F896:4	740 GLE-16 Valve Sedan (7.7) Wagon (9.1)	L4 AW72L	--- 3375 3500	"	"	"	3 531 050
F896:2	"	"	"	"	"	"	3 517 495

Comments: See page one for abbreviations and evaporative emission family identification. Please refer to manufacturer's HP list for correct dyno test HP settings based on model and equipment. If two test weights are listed, the lower weight will be used for testing.

Date of Issue \_\_\_\_\_ Revisions: \_\_\_\_\_

0186

OCT 10 1988