

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER A-18-90  
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 Order G-45-9;

IT IS ORDERED AND RESOLVED: That 1998 model-year Volvo Car Corporation exhaust emission control systems are certified as described below for passenger cars:

Emission Standard Category: Transitional Low-Emission Vehicle (TLEV)

Fuel Type: Gasoline

Engine Family: WVVXV2.43PA1 Displacement: 2.4 Liters (149 Cubic Inches)  
2.3 Liters (142 Cubic Inches)

Exhaust Emission Control Systems & Special Features:

Sequential Multiport Fuel Injection  
Heated Oxygen Sensors (Two)  
Three Way Catalytic Converter  
Secondary Air Injection  
Turbocharger  
Charge Air Cooler

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

The TLEV certification exhaust emission standards for this engine family in grams per mile are:

<u>Miles</u>	<u>Non-Methane Organic Gas</u>	<u>Carbon Monoxide</u>	<u>Nitrogen Oxides</u>	<u>Formaldehyde</u>	<u>Carbon Monoxide (20°F)</u>
50,000	0.125	3.4	0.4	0.015	10.0
100,000	0.156	4.2	0.6	0.018	n/a

Reactivity Adjustment Factor (RAF) for NMOG Mass Emission: 0.98

The certification exhaust emission values set forth for non-methane organic gas (NMOG) reflect application of a 0.98 RAF for 1998 model-year TLEVs. The TLEV certification exhaust emission values for this engine family in grams per mile are:

<u>Miles</u>	<u>Non-Methane Organic Gas</u>	<u>Carbon Monoxide</u>	<u>Nitrogen Oxides</u>	<u>Formaldehyde</u>	<u>Carbon Monoxide (20°F)</u>
50,000	0.096	1.1	0.2	0.001	3.8
100,000	0.099	1.1	0.2	0.001	n/a

BE IT FURTHER RESOLVED: That the vehicle manufacturer is certifying the listed vehicle models to the aforementioned exhaust emission standards based on its submitted plan to comply with the fleet average NMOG exhaust mass emission requirements as set forth 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 under the submitted NMOG fleet average compliance plan, if the manufacturer incurs a NMOG debit for the aforementioned model year based on the projected NMOG fleet average exceeding the value required by the above-referenced standards and test procedures, all incurred NMOG debits by the manufacturer shall be equalized as required by the standards and test procedures.

BE IT FURTHER RESOLVED: That the vehicle manufacturer is certifying the listed vehicle models to the running loss and useful life standards applicable to 1995 and subsequent model-year vehicles in the "California Evaporative Emission Standards and Test Procedures for 1978 and Subsequent Model Motor Vehicles," and the listed vehicle models comply with those standards.

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" for the aforementioned model year (Title 13, California Code of Regulations, Section 2235).

BE IT FURTHER RESOLVED: That the listed vehicle models also comply with the Board's high-altitude requirements and highway emission standards, and with the California Inspection and Maintenance emission standards in place at the time of certification, 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 vehicle manufacturer has demonstrated compliance with the exhaust emission standards at 50 degrees Fahrenheit 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 manufacturer is certifying the listed vehicle models with a partially complying on-board diagnostic system for the aforementioned model year pursuant to Title 13, California Code of Regulations, Section 1968.1(m)(6.2) ("Malfunction and Diagnostic System Requirements--1994 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles and Engines").

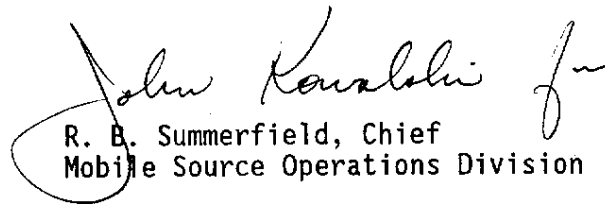
BE IT FURTHER RESOLVED: That the listed vehicle models also comply with the "California Motor Vehicle Emission Control and Smog Index Label Specifications" for the aforementioned model year (Title 13, California Code of Regulations, Section 1965).

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 provisions (Title 13, California Code of Regulations, 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 24<sup>th</sup> day of February 1997.

  
R. B. Summerfield, Chief  
Mobile Source Operations Division

1998 MODEL-YEAR AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET  
PASSENGER CARS, LIGHT-DUTY TRUCKS AND MEDIUM-DUTY VEHICLES

Manufacturer: VOLVO CAR CORP. Exh Eng Fam: WVVXV2.43PA1 Evap Fam: WVVXE0124BRF  
 All Eng Codes in Eng Fam: CA      49S      50S X AB965       
 Exh Std: CA Tier-1      TLEV X LEV      ULEV      ZEV     ; US EPA Tier-1 X  
 Evap Std: 50K      Useful Life with R/L X In-Use Exh Std: Full In Use X Alt In Use       
 Veh Class(es): PC X LDT1      LDT2      MDV1      MDV2      MDV3      MDV4      MDV5       
 Single Cert Std for Multi-Class Eng Fam: N/A (specify: N/A, LDT1, MDV1, MDV2, MDV3, MDV4)  
 Fuel Type(s): Dedicated      Flex-Fuel      Dual-Fuel      Bi-Fuel      Gasoline X Diesel       
                   CNG      LNG      LPG      M85      Other (specify)       
 Eng Test Fuel(s): Indo      Ph2 X CNG      LPG      M85      Other (specify)       
                   Diesel: 13 CCR 2282      40 CFR 86.113-90      40 CFR 86.113-94       
 Service Accum: Std AMA X Mod AMA      Mfr ADP      Other (specify)       
 NMOG Test Procedure: N/A      Std X Equip      R/L Test Proc: SHED      Pt Source X  
 H<sub>2</sub>O<sub>2</sub> Cycle: Type A      B      C     , APU Cycle (e.g., Otto, Diesel, Turbine):       
 Engine Configuration: 1-5 Displacement: 2.4 / 2.3 Liters 14.9 / 14.2 Cubic Inches  
 Valves per Cylinder: 4 Rated HP: 190 / 236 @ 5100 / 5100 RPM  
 Engine: Front X Mid      Rear      Drive: FWD X RWD      4WD-FT      4WD-PT       
 Exhaust ECS (e.g., MFI, EGR, TC, CAC): SFI, HO2S(2), TWC, AIR, TC, CAC  
 (use abbreviations per SAE J1930 SEP91)

Line Code (also list CA/49ST/50ST)	Vehicle Models (if coded see attachment)	Trans. (M5, A4 etc.)	ETW or Test Wt.	DPA or RLHP	Ignition (ECM/PCM) Part No.	EGR System Part No.	Catalytic Converter Part No.
W56:2	S70 GLT V70 GLT C70 GLT	L4	3625 3750	6.3 6.5	1275 562	N/A N/A	9 189 238
W53:2	S70 T5 V70 T5	L4	3625 3750	7.3-8.9 7.2-8.2	1271 966	N/A	9 189 238
W53:1	C70	M5	3625 3750	7.6-8.8 8.0-8.4	1275 523	N/A	9 189 238

Date Issued:

Revisions: