

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER A-18-47
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 1988 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>
JVV2.3V5F884	2.3 (141)	Heated Oxygen Sensor Three-Way Catalyst (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>
0.23	2.1	0.2

BE IT FURTHER RESOLVED: That the listed models were 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 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 27th day of August, 1987.



K. D. Drachand, Chief
Mobile Source Division

Manufacturer Volvo Car Corporation Engine Family JVV2.3V5F884
 Evaporative Family E2 / E3 Engine Type L-4
 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, CL, DID, DIP, EFI, MFI
 nV-nVenturi Carburetor

Exhaust Emissions Control System

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

Special Features

CCV-Combustion
 Chamber Valve
 CFI-Central Fuel
 Injection or
 Throttle Body
 Injection
 DID-Diesel
 Injection-
 Direct
 DIP-Diesel
 Injection-
 Prechamber
 EFI-Electronic
 Fuel
 Injection
 IC-Intercooler
 or Aftercooler
 MFI-Mechanical
 Fuel
 Injection
 OBD-On-Board
 Diagnostics
 TC-Turbocharger

VEHICLE MODELS: See sections 08.13.01 and 08.13.04

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

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Passenger Cars Light-Duty Trucks _____ Medium-Duty Vehicles _____ Gas Diesel _____

Manufacturer Volvo Car Corporation Engine Family JVV2.3V5F884

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

Emission Control Sys. (Special Features) EIC / HOS / TWC (EFI)

Engine codes	Vehicle Models (If Coded see attachment) (Dyno Hp)	Trans. Type	Equiv. Test Weight	Ign. System (ECU) / ESAC Part No.	Fuel System EFI Part No.	EGR Valve Part No.	Catalyst Part No.
See section 08.13.04	See section 08.13.01	See section 08.13.01	See section 08.13.01	See section 20.03	See section 20.03	N/A	See section 20.03

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 01/19/88 (RC # 88:03) Revisions:

030186

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Section 08.13.04
* FAMILY IDENTIFICATION

08.13.04-1

Engine family: JVV2.3V5F884

Cylinder block configuration:	L-4
Cylinder head configuration:	OHC
Type of cooling:	Water
Method of aspiration:	Natural
Displacement:	141 cu in
Exhaust emission control system:	EFI/Oxygen sensor/TWC
Evaporative emission family:	E2/E3 (see "Engine codes" below)
Evaporative emission control system:	Canister
Engine usage:	50-state vehicles

Engine codes:
F884:1,:5-All 240 vehicles, manual transmission, evap family E2
F884:2,:6-All 240 vehicles, automatic transmission, evap family E2
F884:3 - All 740 vehicles, manual transmission, evap family E3
F884:4 - All 740 vehicles, automatic transmission, evap family E3

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Section 20.03
 * PARTS LIST

Engine family: JVV2.3V5F884
 Engine code: F884:1,:2,:3,:4,:5,:6 (unless otherwise stated)
 For technical descriptions and drawings, see section 08.01 -
 08.12, 19.01 and 20.01.

	Volvo P/N	Supplier P/N
Fuel system:		
Fuel injection control unit:	3 517 011	Bosch 0 280 000 554
Tank pump:	1 317 671	AC 6441336
:1,:2,:5,:6:	1 389 721	" 6441336
:3,:4:	1 389 436	" 6441376
:3,:4:	3 501 928	VDO K1 115 001 014
Fuel pump:	1 389 449	Bosch 0 580 464 039
Fuel filter:	1 389 450	" 0 450 905 601
Injector:	1 389 844	" 0 280 150 734
	1 326 427	" 0 280 150 209
Fuel pressure regulator:	3 517 063	" 0 280 160 292
	1 357 705	" 0 280 160 225
Air mass meter:	1 346 645	" 0 280 212 007
Throttle position switch:	3 517 068	" 0 280 120 325
	1 306 938	" 0 280 120 301
Series resistance:	N/A	
Idle speed air valve:	3 517 067	" 0 280 140 520
	1 317 957	" 0 280 140 501
Oxygen sensor:	1 346 962	" 0 258 003 009
Coolant temperature sensor:	1 332 396	" 0 280 130 026
Ignition system:		
Ignition coil: :1,:2,:5,:6:	1 336 137	" 0 221 122 345
:3,:4:	1 346 071	" 0 221 118 351
Power stage: :3,:4:	1 332 584	" 0 227 100 124
Ignition Control Unit:		
F884:1	1 357 308	"
F884:2	"	
F884:5	3 517 461	"
F884:6	"	
F884:3,:4	1 336 505	Bosch 0 261 201 011
Distributor: :1,:2,:5,:6:	1 367 382	" 0 237 520 004
:3,:4:	1 336 087	" 0 237 502 001
Spark plugs: (WR7DC)	1 346 541	" 0 242 235 021
(WR6DC)	1 367 015	" 0 242 240 009
(RN9YC)	1 357 614	Champion RN9YC
) with SAE (WR7DC)	1 367 528	Bosch 0 242 235 548
connection. (WR6DC)*	1 367 529	" 0 242 240 527
(RN9YC)*	1 389 904	Champion RN9YC
(RN7YC)*	1 389 906	" RN7YC
Knock sensor: :1,:2,:5,:6:	1 317 296	Telex 63653-005
:3,:4:	1 367 644	Bosch 0 261 231 006
Engine speed pickup:	N/A	

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Crankcase emission control system:			
PCV connection, calibrated orifices			
in the T-pipe:	3 501 707	-	
in the intake manifold:	1 276 445	-	
Evaporative emission control system:			
Carbon canister incl purge valve:	1 276 694	Rochester	17056292
Fuel filler cap:	1 325 002	-	
Roll over valve:	1 255 422	-	
Catalyst:			
Catalyst assembly: :1,:2,:5,:6:	1 357 093	Degussa	
	1 357 091	Engelhard	
:3,:4:	1 357 100	Degussa	
	1 332 383	Engelhard	
Turbocharger:			
Turbocharger assembly:	N/A		
Wastegate actuator:			
Bypass valve:			
Charge pressure switch:			
Intercooler:			

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