| California Environmental Protection Agency AIR RESOURCES BOARD | VOLVO CAR CORPORATION | EXECUTIVE ORDER A-018-0170<br>New Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles |
|---|---|---|

Pursuant to the authority vested in the Air Resources Board by Health and Safety Code (HSC), Div. 26, Part 5, Chap. 2; and pursuant to the authority vested in the undersigned by HSC Sections 39515 & 39516 and Executive Order G-02-003;

**IT IS ORDERED AND RESOLVED:**
That the following exhaust and evaporative emission control systems produced by the manufacturer are certified as described below. Production vehicles shall be in all material respects the same as those for which certification is granted.

| MODEL YEAR | TEST GROUP | VEHICLE TYPE | EXHAUST EMISSION STANDARD CATEGORY | USEFUL LIFE (miles) | | INTERMEDIATE IN-USE COMPLIANCE (*=N/A or full in-use; A/E=exh. / evap. intermediate in-use) | | FUEL TYPE |
|---|---|---|---|---|---|---|---|---|
| | | | | EXH / ORVR | EVAP | EXH | EVAP | |
| 2010 | AVVXT03.0U2T | LDT: <6000# GVW, 3751-5750# LVW | "LEV II" Ultra Low Emission Vehicle (LEV II ULEV) | 120K | 150K | * | * | Gasoline |

| No. | ECS & SPECIAL FEATURES | EVAPORATIVE FAMILY (EVAF) | DISPLACEMENT (L) |
|---|---|---|---|
| 1 | TWC, HAFS, HO2S, SFI, TC, CAC, OBD(P) | AVVXR0130EB6 | 3 |
| * | * | * | |
| * | * | * | |
| * | * | * | |

See the Attachment for Vehicle Models, Evaporative Family, Engine Displacement, Emission Control Systems, Phase-In Standards, OBD Compliance, Emission Standards and Certification Levels, and Abbreviations.

**BE IT FURTHER RESOLVED:**
That the exhaust, the evaporative emission standards, and the certification emission levels for the listed vehicles are as listed on the Attachment. Compliance with the 50° Fahrenheit testing requirement may have been met based on the manufacturer's submitted compliance plan in lieu of testing. Any debit in the manufacturer's "NMOG Fleet Average" (PC or LDT) or "Vehicle Equivalent Credit" (MDV) compliance plan shall be equalized as required.

**BE IT FURTHER RESOLVED:**
That for the listed vehicle models, the manufacturer has attested to compliance with Title 13, California Code of Regulations, (13 CCR) Sections 1965 [emission control labels], 1968.2 [on-board diagnostic, full or partial compliance], 2035 et seq. [emission control warranty], 2235 [fuel tank fill pipes and openings] (gasoline and alcohol fueled vehicles only), and "High-Altitude Requirements" and "Inspection and Maintenance Emission Standards" (California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model PC, LDT and MDV).

**BE IT FURTHER RESOLVED:**
The test group listed in this Executive Order is certified based on the manufacturer's reported emissions and attestation that it meets all applicable certification requirements currently in effect and enforceable for the 2010 model year, as described above. A January 16, 2007 Order currently enjoins the Executive Officer from enforcing any provision of California Health and Safety Code section 43018.5(b)(1) concerning certification to the requirements for 2009 and subsequent model passenger cars, light-duty trucks, and medium-duty vehicles adopted pursuant to AB 1493. (Document 606, Case No. 1:04-CV-06663-AWI-GSA, U.S. Dist. Ct. E. Dist. of CA (Fresno Div.).) If said injunction ceases to be in effect, the manufacturer will have 45 days from ARB notification to demonstrate compliance with AB 1493 requirements, including the determination of the greenhouse gas values for the test group listed in this Executive Order. Nothing in this Executive Order is intended to constitute enforcement of any requirement under AB 1493 for 2010 model year vehicles.

**BE IT FURTHER RESOLVED:**
That at the request of the manufacturer, LDT models in this test group with a GVW less than 6,000 pounds are certified to, and shall be required to comply with, the evaporative emission standards applicable to passenger cars.

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

The Bureau of Automotive Repair will be notified by copy of this Executive Order.

Executed at El Monte, California on this 13th day of March 2009.

Raphael Susnowitz
for Annette Hebert, Chief
Mobile Source Operations Division

# ATTACHMENT

## EXHAUST AND EVAPORATIVE EMISSION STANDARDS AND CERTIFICATION LEVELS

(For bi-, dual- or flexible-fueled vehicles, the STD and CERT in parentheses are those applicable to testing on gasoline test fuel.)

| NMOG FLEET AVERAGE [g/mi] | | NMOG @ RAF=* CH4 RAF = * | | NMOG or NMHC STD [g/mi] | CO [g/mi] | | NOx [g/mi] | | HCHO [mg/mi] | | PM [g/mi] | | Hwy NOx [g/mi] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CERT | STD | NMOG CERT [g/mi] | NMHC CERT [g/mi] | | CERT | STD | CERT | STD | CERT | STD | CERT | STD | CERT | STD |
| 0.026 | 0.043 | | | | | | | | | | | | | |
| | @ 50K | 0.018 | * | 0.040 | 0.1 | 1.7 | 0.01 | 0.05 | * | 8. | * | * | 0.00 | 0.07 |
| | @ UL | 0.022 | * | 0.055 | 0.2 | 2.1 | 0.02 | 0.07 | * | 11. | * | 0.01 | 0.00 | 0.09 |
| | @ 50°F & 4K | * | * | * | * | * | * | * | * | * | * | * | * | * |

CH4=methane; NMOG=non-CH4 organic gas; NMHC=non-CH4 hydrocarbon; CO=carbon monoxide; NOx=oxides of nitrogen; HCHO=formaldehyde; PM=particulate matter; RAF=reactivity adjustment factor; 2/3 D [g/test]=2/3 day diurnal+ hot-soak; RL [g/mi]=running loss; ORVR [g/gallon dispensed]=on-board refueling vapor recovery; g=gram; mg=milligram mi=mile; K=1000 miles; F=degrees Fahrenheit; SFTP=supplemental federal test procedure

| CO [g/mi] @ 20°F & 50K | | | NMHC+NOx [g/mi] (composite) | | CO [g/mi] (composite) | | NMHC+NOx [g/mi] [US06] | | CO [g/mi] [US06] | | NMHC+NOx [g/mi] [SC03] | | CO [g/mi] [SC03] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CERT | STD | CERT | STD | CERT | STD | CERT | STD | CERT | STD | CERT | STD |
| CERT | 0.8 | SFTP @ 4000 miles | * | * | * | * | 0.02 | 0.25 | 0.0 | 10.5 | 0.00 | 0.27 | 0.1 | 3.5 |
| STD | 12.5 | SFTP @ * miles | * | * | * | * | * | * | * | * | * | * | * | * |

| Evaporative Family | 3-Days Diurnal + Hot Soak (grams/test) @ UL | | 2-Days Diurnal + Hot Soak (grams/test) @ UL | | Running Loss (grams/mile) @ UL | | On-Board Refueling Vapor Recovery (grams/gallon) @ UL | |
|---|---|---|---|---|---|---|---|---|
| | CERT | STD | CERT | STD | CERT | STD | CERT | STD |
| AVVXR0130EB6 | 0.40 | 0.50 | 0.39 | 0.65 | 0.01 | 0.05 | 0.03 | 0.20 |
| * | * | * | * | * | * | * | * | * |
| * | * | * | * | * | * | * | * | * |
| * | * | * | * | * | * | * | * | * |

* = not applicable; **UL**=useful life; **PC**=passenger car; **LDT**=light-duty truck; **MDV**=medium-duty vehicle; **ECS**= Emission Control System; **STD**= Standard; **CERT**= Certification; **LVW**=loaded vehicle weight; **ALVW**=adjusted LVW; **LEV**=low emission vehicle; **TLEV**=transitional LEV; **ULEV**=ultra LEV; **SULEV**=super ULEV; **TWC**=3-way catalyst; **ADSTWC**=adsorbing TWC; **WU**=warm-up catalyst; **OC**=oxidizing catalyst; **O2S**=oxygen sensor; **HO2S**=heated O2S; **AFS/HAFS**=air- fuel ratio sensor / heated AFS; **EGR**=exhaust gas recirculation; **AIR**=secondary air injection; **PAIR**=pulsed AIR; **MFI**= multiport fuel injection; **SFI**=sequential MFI; **TBI**=throttle body injection; **TC/SC**= turbo/super charger; **CAC**=charge air cooler; **OBD (F)/(P)**=full/partial on-board diagnostic; **DOR**=direct ozone reducing; prefix **2**=parallel; **(2)** suffix=series; **CNG/LNG**= compressed/liquefied natural gas; **LPG**=liquefied petroleum gas; **E85**="85%" Ethanol Fuel

## 2010 MODEL YEAR: VEHICLE MODELS INFORMATION

| MAKE | MODEL | EVAPORATIVE FAMILY | ECS NO. | ENGINE SIZE (L) | INTERMEDIATE IN-USE COMPLIANCE (*=N/A or full in-use; A/E=exh. / evap. intermediate in-use) | | PHASE-IN STD. | OBD II |
|---|---|---|---|---|---|---|---|---|
| | | | | | EXH | EVAP | | |
| VOLVO | XC60 T6 AWD | AVVXR0130EB6 | 1 | 3 | * | * | SFTP | Partial |