VOLVO CAR CORPORATION

EXECUTIVE ORDER A-018-0178
New Passenger Cars, Light-Duty Trucks
and Medium-Duty Vehicles
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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.

| MODE | | | GROUF | | VEHICLE TYPE (PC=passenger car; LDT=light-duty truck; MDV=medium-duty vehicle; LVW=loaded vehicle weight; GVW=gross VW) | STAND (LEV=low e transitiona | UST EMISSION ARD CATEGORY mission vehicle; TLEV= I LEV; ULEV=ultra LEV; EV=super ULEV) | EXHAUST & ORVR / EVAPORATIVE USEFUL LIFE (UL) (miles) | FUEL TYPE (CNG/LNG=compressed/ liquefied natural gas; LPG=liquefied petroleum gas) | | | | |
|----------------|--------------|--------------|-----------------|---|---|---|---|---|--|--|--|--|--|
| 2012 | c c | VVXJ03.2U2N | | | PC and LDT ≤ 6,000 pounds GVW (PC; LDT 3,751-5,750 pounds LVW) | | EV II ULEV | 120K / 150K | Gasoline | | | | |
| No. | | /APORATIVE N | | | EMISSION CONTINUE C. | IS (ECS) | | OC/TWC=oxidizing/3-way cat. ADSTWC=adsorbing TWC WU= warm-up cat. O2S/HO2S=oxygen sensor/heated O2S AFS/HAFS=air-fuel ratio sensor/heated AFS EGR=exhaust | | | | | |
| 1 | CVVXR0130EB6 | | | 1 | 2TWC(2), 2HO2S, 2H | AFS, SFI, OF | gas recirculation AIR/PAIR=secondary air injection/puised | | | | | | |
| 2 | CVVXR | CVVXR0130ET3 | | | * | | TBI= throttle body injection TC/SC=turbo /super charger CAC=charge air cooler OBD (F) / (P)=full /partial on-board diagnostic prefix 2=parallel (2) suffix=series | | | | | | |
| 3 | • | | | 3 | • | | | | | | | | |
| 4 | | • | | | VEHICLE VEHICLES SUBJECT TO SFTP | | | | | | | | |
| EVAI No. | EC: | | ENGIN SIZE (| | STAN | JDARDS AR | 2.2. AMD. YC70.3.2 AMF | | | | | | |
| 1 | 1 | - | 3.2 | | VOLVO: (LDT 3,751-5,750 pounds LVW) XC60 3.2 AWD; XC70 3.2 AWD | | | | | | | | |
| 1 | 1 | 十 | 3.2 | | | VOLVO: (PC) S80 3.2; XC60 3.2; XC70 3.2 | | | | | | | |
| 2 | 1 | 1 3.2 | | | VOLVO: (LDT 3,751-5,750 pounds LVW) XC90 3.2; XC90 3.2 AWD | | | | | | | | |
| - - | * | + | | | | | | | | | | | |

The exhaust and evaporative emission standards (STD), as requested by the manufacturer, and certification emission levels (CERT) for the listed vehicles are as follows (compliance with the 50 °F testing requirement (for TLEV, LEV, ULEV, SULEV) 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 and LDT) or "Vehicle Equivalent Credit" (MDV) compliance plan shall be equalized as required. (For bi-, dual- or flexible-fueled vehicles, the STD and CERT in parentheses are those applicable to testing on gasoline test fuel.)

| | OG FL | | NMOG @ RAF= * CH4 RAF = * | | NMOG or | nitrogen diumal+ho | HCHO≕forr t-soak RL | naldehyde . [g/mi]=run | PM=parti ning loss | ORVR (q/g | galion (| AF=reactive dispensed hrenheit | rbon CO=c vity adjustme =on-board r | ent factor 2 efueling vap plemental fe | or recovery | g=gram |
|---|--------------------|--|------------------------------|---------|---------------------|-----------------------|---------------------------|---------------------------|-----------------------|-----------------|----------|--------------------------------------|--|--|-------------|--------|
| STD | STD STD PC LDT2 | | NMOG NMH | | NMHC STD | mg=milligr | am mi≕r | mile K=10 | x [g/mi] | r=uegr | 662 L | ng/mi] | 9M [| | Hwy NO | |
| 0.03/ | _ | 0.043 | [g/mi] | [g/mi] | [g/mi] | CERT | [g/ml] STD | CERT | X (g/IIII) STD | | | STD | CERT | STD | CERT | STD |
| 0.035 | | | 0.016 | * | 0.040 | 0.4 | 1.7 | 0.03 | 0.05 | | | 8 | * | * | 0.03 | 0.07 |
| | | @ 50K | | * | 0.055 | 0.4 | 2.1 | 0.03 | 0.07 | * | | 11 | * | 0.01 | 0.03 | 0.09 |
| | 272 | @ UL | 0.023 | * | 0.080 | 0.4 | 1.7 | 0.02 | 0.05 | | | 16 | * | * | * | * |
| @ 50°F & 4K 0.028 * CO [g/mi] \$ SFTP 1 = @ 4K (SULEV, ULEV, | | | V, ULEV, | NMHC+NO | Ox [g/mi] CO [g/mi] | | NMHC+NOx [g/mi] [US06] | | | [US06] [g/ | | mi] [SC03] [S | | [g/mi] C03] STD | | |
| @ 20 ² 501 | °F& | LEV) or 50K (Tier 1, TLEV) SFTP 2 = @ UL (Tier 1, TLEV) | | | CERT | STD | CERT | STD | CERT | STD | CEF | | | | 0.7 | 2.7 |
| CERT | 1.3 | | | TP @ 4K | * | * | * | * | 0.08 | 0.14 | 1.3 | 3 8. | 0 0.03 | 0.20 | 0.7 | 2.1 |
| STD | 10.0 | SFTP @ UL | | * | * | * * | | * | * | * | | * | | * | * | |
| 3,0 | 9 | A CHARLES | A. A. | | EV/A | PORATIVE FAMILY | | 12 | PORATIV | RATIVE FAMILY 3 | | | EVAPORATIVE FAMILY 4 | | | |
| @ UL | E' | EVAPORATIVE FAMILY 1 | | | | 2-D | RL | ORVR | 3-D | 2-D | RL | | /R 3-D | 2-D | RL | ORVR |
| | 3-D | 2-D | RL | ORVR | 3-D | 2-D | 0.01 | 0.01 | * | | * | * | * | * | * | * |
| CERT | 0.40 | • | 0.01 | 0.03 | 0.34 | | 0.05 | 0.20 | -+ | * | | * | * | * | * | * |
| STD | 0.50 | 0.65 | 0.05 | 0.20 | 0.65 | 0.85 | 0.05 | 0.20 | | | L | | | | | |

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).



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BE IT FURTHER RESOLVED: The test group listed in this Executive Order is certified conditionally on the manufacturer providing data to demonstrate compliance with California's greenhouse gas fleet average emission standard (CA GHG Standard) specified in Title 13, California Code of Regulations, (13 CCR) Section 1961.1 and the incorporated California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles, amended March 29, 2010 (CA Test Procedures). The manufacturer has elected, under 13 CCR GHG Standard by demonstrating compliance with the National greenhouse gas program (National GHG Program). Therefore, requirements specified in this Executive Order is certified conditionally further on the manufacturer complying with the Procedures (among other things, concerning data and information submission, timing, and format as specified by the Executive Officer). Failure to comply with the certification requirements to demonstrate compliance with CA GHG Standard by cause for the Executive Officer to revoke the Executive Order. Vehicles in the revoked Executive Order shall be deemed that becomes, after MY2009, a large-volume manufacturer, as defined in 13 CCR Section 1900, is not requirement herein, a manufacturer to comply with the requirement herein, a small-volume manufacturer, independent low-volume manufacturer, or intermediate years (MY) 2012 through 2015.

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

_ day of June 2011

Annette Hebert, Chief

Mobile Source Operations Division