

Diesel Vehicle Regulations Overview

California Environmental Protection Agency
AIR RESOURCES BOARD

<http://www.arb.ca.gov/webtraining/videos/512/512.pdf>

California's Mobile Source Diesel Risk Reduction Enforcement Programs

Presentation Overview

- Air Quality Overview and Health Impacts
- Diesel Vehicle and Equipment Enforcement Programs
 - HDV Inspections (HDVIP)
 - Periodic Smoke Inspection Program (PSIP)
 - Idling
 - Emission Control Label (ECL)
- Recently Implemented and Upcoming Programs
 - How To Comply
 - Contact Information

What's in Diesel Exhaust ?

HOW SMALL IS PM?

Human Hair (60 μm diameter)

PM10 (10 μm)

PM2.5 (2.5 μm)

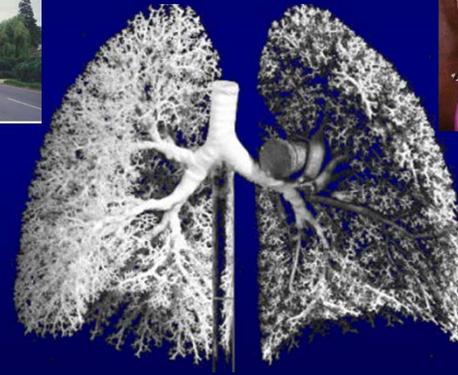
Particulate Matter

4

Public Concerns

- Emissions from diesel-fueled engines are mainly composed of Particulate Matter (PM-10, PM 2.5) and gases which contain cancer-causing substances such as:
 - Arsenic
 - Benzene
 - Formaldehyde
 - Nickel
 - Polycyclic aromatic hydrocarbons

(PM) Particulate Matter



Health Benefits



- Each year in California, diesel PM contributes to more than 2,000 premature deaths and thousands of hospital admissions



Good Lung



Bad Lung

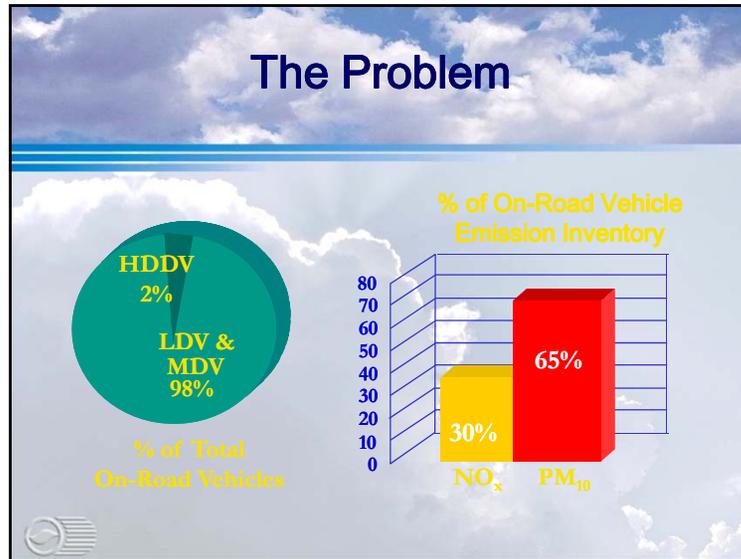
Why Have Air Pollution Control Regulations?



Clear day in LA



Smoggy day in LA



Strategies to Reduce Diesel Engine Emissions

- Diesel Risk Reduction Plan
 - 75% by 2010 and 85% by 2020
- Stringent Engine Certification Standards (2007-2010)
- Stringent Fuel Standards
 - 15 ppm sulfur diesel 2006
- In – Use Programs

11

Legacy Programs

- Heavy Duty Inspection Program (HDVIP)
- Periodic Smoke Inspection Program (PSIP)
- Emission Control Labels (ECL)
- Commercial Idling

Legacy Programs

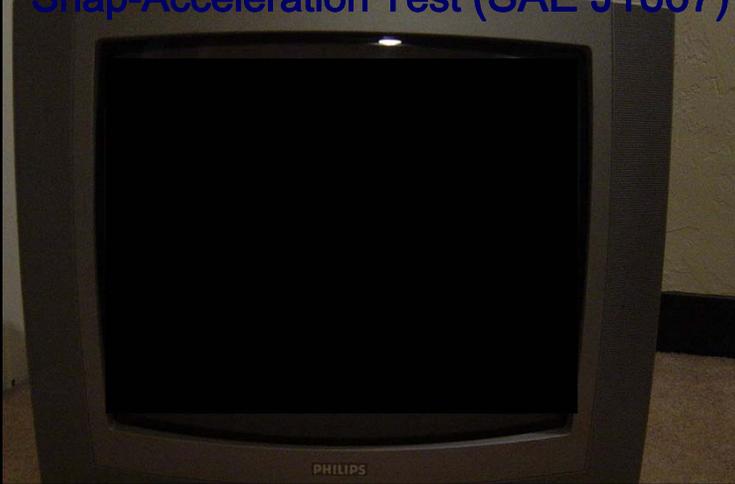
Heavy Duty Vehicle Inspection Program Smoke Emissions and Engine Tampering Inspections

- Updated regulations adopted by ARB in December 1997
- Opacity cutpoints retained
 - 1991+ engines: 40%
 - pre-1991 engines: 55%
- Use of SAE J1667 test protocol
- Inspect for tampered engines & emission control equipment (gasoline & diesel engines)
- Citations appealed through Administrative Law Judge (ALJ) hearings




Legacy Programs

Snap-Acceleration Test (SAE J1667)



Legacy Programs

Diesel Fleet Inspections (Periodic Smoke Inspection Program)

- Authorized by SB 2330 of 1990
- Same cut points as roadside program
 - Uses SAE J1667 test protocol
 - Four-year rolling exemption for HDDEs
- Fleets must test trucks & buses every year and keep the records for two years or in violation (applies to fleets with two or more)
- Regulations codified at: 13 CCR 2190 et seq




Legacy Programs

Emission Control Label (ECL)

- Regulations prohibit HDDVs with non-USEPA certified engines from operating in California
- All HDDEs must have a factory engine emissions control label (ECL)
- ARB and CHP enforcing regulations starting Feb. 15, 2007



Legacy Programs

Engine Emission Control Label



MODEL MODÈLE	CH230	Family DE MOTEUR DT 466E HT
RDV, BHP @ RPM PUISSANCE À TR/MIN	230 @ 2300	
LB-FT TORQ. @ RPM COUPLE LB-PI À TR/MIN	660 @ 1400	
EMISSIONS CONTROL SYSTEMS DI, TC, ECM, CAC		
		
<small>THIS ENGINE HAS A PRIMARY INTENDED SERVICE APPLICATION AS A MEDIUM HEAVY-DUTY DIESEL ENGINE AND CONFORMS TO U.S., EPA, CALIFORNIA, AUSTRALIAN AND CANADIAN HEAVY-DUTY DIESEL REGULATIONS APPLICABLE TO OPERATE ON DIESEL FUEL.</small>		

Legacy Programs

HDD Vehicle Idling Regulations



- School buses and delivery vehicles – 2003;
- Commercial vehicle – 2005;
- Applicable to vehicles GVWR > 10,000 lbs;
- \$100 to \$10,000 fine amount;
- 5 minute idling limit under most circumstances;
- Additional limitations 100 feet from residence or school; and,
- Additional requirements for 2007 & newer vehicles

Legacy Programs

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Legacy Programs

For more information...



- Enforcement Program Website
www.arb.ca.gov/enf/enf
- List serves
www.arb.ca.gov/listserv/listserv_grp.php?listtype=E1
- TruckStop
www.arb.ca.gov/truckstop

Off-Road Emission Factors

PM Emissions Factors by Horsepower and Year (g/bhp-hr)									NOx Emissions Factors by Horsepower and Year (g/bhp-hr)								
Engine Model	Horsepower Group								Engine Model	Horsepower Group							
	25-49	50-74	75-99	100-174	175-299	300-599	600-750	Over 750		Year	25-49	50-74	75-99	100-174	175-299	300-599	600-750
1900-1969	0.950	1.200	1.200	1.100	1.100	0.950	0.950	0.950	1900-1969	7.2	14.8	14.8	15.9	15.9	15.2	15.2	15.2
1970-1971	0.950	1.200	1.200	1.100	1.100	0.810	0.810	0.810	1970-1971	7.2	14.8	14.8	14.8	14.8	14.1	14.1	14.1
1972-1987	0.950	1.200	1.2	1.1	1.1	0.680	0.680	0.680	1972-1979	7.2	14.8	14.8	14.8	14.8	3.0	13.0	13.0
1988	0.950	0.980	0.9			0.490	0.490	0.490	1980-1987	7.2	14.8	14.8			1.9	11.9	11.9
1989-1995	0.950	0.980	0.980	0.540	0.540	0.490	0.490	0.490	1988	7.1	9.9	9.9	9.3	9.3	8.9	8.9	8.9
1996	0.950	0.980	0.980	0.540	0.40	0.40	0.40	0.500	1989-1995	7.1	9.9	9.9	9.3	9.3	8.9	8.9	8.9
1997	0.950	0.980	0.980	0.600	0.40	0.40	0.40	0.500	1996	7.1	9.9	9.9	9.3	6.9	6.9	6.9	6.9
1998	0.950	1.090	1.090	0.600	0.40	0.40	0.40	0.500	1997	7.1	9.9	9.9	9.3	6.9	6.9	6.9	6.9
1999	0.60	1.090	1.090	0.600	0.40	0.40	0.40	0.500	1998	7.1	9.9	9.9	9.3	6.9	6.9	6.9	6.9
2000	0.60	1.090	1.090	0.600	0.40	0.40	0.40	0.40	1999	6.2	6.9	6.9	6.9	6.9	6.9	6.9	6.9
2001	0.60	1.090	1.090	0.600	0.40	0.15	0.40	0.40	2000	6.2	6.9	6.9	6.9	6.9	6.9	6.9	6.9
2002	0.60	1.090	1.090	0.600	0.40	0.15	0.15	0.40	2001	6.2	6.9	6.9	6.9	6.9	4.2	6.9	6.9
2003	0.60	1.090	1.090	0.600	0.40	0.15	0.15	0.40	2002	6.2	6.9	6.9	6.9	6.9	4.2	4.2	6.9
2004	0.45	0.30	0.30	0.15	0.15	0.15	0.15	0.40	2003	6.2	6.9	6.9	6.9	6.9	2.6	4.2	6.9
2005	0.45	0.30	0.30	0.15	0.15	0.15	0.15	0.40	2004	4.9	4.9	4.9	4.3	2.6	2.6	2.6	4.2
2006	0.45	0.30	0.30	0.22	0.15	0.15	0.15	0.15	2005	4.9	4.9	4.9	4.3	2.6	2.6	2.6	4.2
2007	0.45	0.30	0.30	0.22	0.15	0.15	0.15	0.15	2006	4.9	4.9	4.9	4.3	2.6	2.6	2.6	4.2
2008	0.22	0.22	0.30	0.22	0.15	0.15	0.15	0.15	2007	4.9	4.9	4.9	4.3	2.6	2.6	2.6	4.2
2009	0.22	0.22	0.30	0.22	0.15	0.15	0.15	0.15	2008	4.9	3.0	3.0	2.6	2.6	2.6	2.6	4.2
2010	0.22	0.22	0.30	0.22	0.15	0.15	0.15	0.15	2009	4.9	3.0	3.0	2.6	2.6	2.6	2.6	4.2
2011	0.22	0.22	0.30	0.22	0.15	0.15	0.15	0.15	2010	4.9	3.0	3.0	2.6	2.6	2.6	2.6	4.2
2012	0.22	0.22	0.15	0.015	0.015	0.015	0.015	0.07	2011	4.9	3.0	3.0	2.6	1.5	1.5	1.5	6
2013	0.02	0.02	0.015	0.015	0.015	0.015	0.015	0.07	2012	4.9	3.0	2.5	2.5	1.5	1.5	1.5	6
2014	0.02	0.02	0.015	0.015	0.015	0.015	0.015	0.07	2013	3.0	3.0	2.5	2.5	1.5	1.5	1.5	6
2015 and later	0.02	0.02	0.015	0.015	0.015	0.015	0.015	0.03	2014	3.0	3.0	2.5	2.5	1.5	1.5	1.5	6
									2015 and later	3.0	3.0	0.3	0.3	0.3	0.3	0.3	2.6

On-Road Engine Emission Standards By Model Year

- **Particulate Matter (PM): 2007 and newer model year is the lowest**
 - Most federal and CA 2007 and newer model year engines meet standard
 - Some 2007 and newer engines do not have a filter (do not meet the strict standard)
- **Nitrogen Oxides (NO_x): 2010 and newer model year is the lowest**

26

On-Road Emission Standards

California Emission Standards for New Heavy-Duty Trucks		
Emissions Standards (g/bhp-hr)		
Model Year	Heavy-Duty Vehicles	
	NOx	PM
1988	6.0	0.6
1990	6.0	--
1991	5.0	0.25
1993	5.0	0.25
1994	5.0	0.10
1996	5.0	0.10
1998	4.0	0.10
Oct. 2002	2.2	0.10
2004	2.2	0.10
2007	1.2	0.01
2010	0.2	--

27

Heavy-Duty Engine Certification

Off-Road Engine Certification

<http://www.arb.ca.gov/msprog/offroad/offroad.htm>

Executive Orders Listing

<http://www.arb.ca.gov/msprog/offroad/cert/cert.php>

On-Road Engine Certification

<http://www.arb.ca.gov/msprog/onroad/cert/cert.php>

Executive Orders Listing

<http://www.arb.ca.gov/msprog/onroad/cert/cert.php#6>

28

Engine and Emission Control Systems from EO

CUMMINS INC. EXECUTIVE ORDER A-021-0446
New On-Road Heavy-Duty Engines

Pursuant to the authority vested in the Air Resources Board by 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-02-003;

IT IS ORDERED AND RESOLVED: The engine and emission control systems produced by the manufacturer are certified as described below for use in on-road motor vehicles with a manufacturer's GVWR over 14,000 pounds. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	ENGINE SIZES (L)	FUEL TYPE	STANDARDS & TEST PROCEDURE	SERVICE CLASS	ECS & SPECIAL FEATURES ²
2007	TCEXH0505CAA	8.3	Diesel	Diesel	MHDD	DDI, TC, CAC, ECM, EGR, PTOX, DC
ENGINE MODELS / CODES (rated power, in hp)						
8.3						
ISC 360 / 8788; FR1902 (350)						

* not applicable; GVWR-gross vehicle weight rating; 13 CCR syc Title 13, California Code of Regulations, Section xyz; 40 CFR 86.abc Title 40, Code of Federal Regulations, Section 86.abc; 1-hp=746-watt; h-horsepower; kw-kilowatt; CNG-LNG-compressed/liquefied natural gas; LPG-liquefied petroleum gas; E85-E85 ethanol fuel; MF-multi fuel s.k.a. BFBi fuel; DF=dual fuel; FF-flexible fuel; LHMN-HDD=light/medium/heavy heavy-duty diesel; UB=urban bus; HD=heavy duty Ote; ECS=emission control system; TWC=two-way oxidizing catalyst; WU (pre)WU (post) warm-up catalyst; DPF=diesel particulate filter; PTOX=periodic trap oxidizer; HO2R/O2S=heated/diagnosed sensor; NAF/BAF=heated/diagnosed sensor (s.k.a. universal or linear oxygen sensor); T=thermal body fuel injection; SP/MP=sequential/multi port fuel injection; DI=direct gasoline injection; GCAR=gasolous carburetor; IDDI=indirect diesel injection; TC=TC turbocharger; CAC=charge air cooler; EG=exhaust gas recirculation; PAIR/PAIR=primary/secondary air injection; BPA=brake puff limiter; ECM/PCM=engine/powertrain control module; E=engine modification; 2=generator/alternator; (2) (multi) in series. (2006)EC22

Exhaust Emissions Standards

Following are: 1) the FTP exhaust emission standards, or family emission limit(s) as applicable, under 13 CCR 1956.1 (urban bus) or 13 CCR 1956.8 (other than urban bus); 2) the EURO and NTE limits under the applicable California exhaust emission standards and test procedures for heavy-duty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, in g/bhp-hr, for this engine family. "Diesel" CO, EURO and NTE certification compliance may have been demonstrated by the manufacturer as provided under the applicable Test Procedures in lieu of testing. (For flexible- and dual-fueled engines, the CERT values in brackets [] are those when tested on conventional test fuel. For multi-fueled engines, the STD and CERT values for default operation permitted in 13 CCR 1956.1 or 13 CCR 1956.8 are in parentheses.)

	NMHC		NOx		NMHC+NOx		CO		PM		HCHO	
	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO
STD	0.14	0.14	*	*	*	*	15.5	15.5	0.01	0.01	*	*
FEL	*	*	1.25	1.25	1.2	1.2	*	*	*	*	*	*
CERT	0.02	0.000	1.06	0.84	1.1	0.8	0.1	0.00	0.001	0.000	*	*
NTE		0.21		1.8		1.8		19.4		0.02		*

g/bhp-hr=grams per brake horsepower-hour; FTP=Federal Test Procedure; EURO=EURO III European Steady-State Cycle; NTE=New-to-Enter; STD=standard or emission test cap; FEL=family emission limit; CERT=certification level; NMHC=non-methane hydrocarbon; NOx=oxides of nitrogen; CO=carbon monoxide; PM=particulate matter; HCHO=formaldehyde.

BE IT FURTHER RESOLVED: Certification to the FEL(s) listed above, as applicable, is subject to the following terms, limitations and conditions. The FEL(s) is the emission level declared by the manufacturer and serves in lieu of an emission standard for certification purposes in any averaging, banking, or trading (ABT) programs. It will be used for determining compliance of any engine in this family and compliance with such ABT programs.

BE IT FURTHER RESOLVED: The listed engine models have been certified to the split engine family standards under 13 CCR 1956.8(b) [Diesel engines] or 13 CCR 1956.8(d) [Otto engines] and the incorporated 40CFR 86.007-15(m)(9).

BE IT FURTHER RESOLVED: For the listed engine models the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels) and 13 CCR 2035 et seq. (emission control warranty). Engines certified under this Executive Order must conform to all applicable California emission regulations.

Aftermarket Parts

Aftermarket Parts Website
<http://www.arb.ca.gov/msprog/aftermkt/aftermkt.htm#additional>

- Part certified to meet OEM requirements (Does not increase emissions)
- EO issued
- Does not qualify for emission reductions

Aftermarket Parts

Aftermarket Parts Website
<http://www.arb.ca.gov/msprog/aftermkt/aftermkt.htm#additional>

STATE OF CALIFORNIA AIR RESOURCES BOARD
EXECUTIVE ORDER D-621
Relating to Exemptions under Section 27156 of the Vehicle Code
Oil Purification Systems, Inc. OPS-1

Pursuant to the authority vested in the Air Resources Board by Section 27156 of the Vehicle Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: That installation of the OPS-1, manufactured by Oil Purification Systems, Inc. of 2176 Thomaston Avenue, Waterbury, Connecticut 06704, has been found not to reduce the effectiveness of the applicable vehicle pollution control systems, and therefore, are exempt from the prohibitions in Section 27156 of the Vehicle Code for installation on 2007 model-year and older heavy-duty diesel engines with pressurized oil systems.

The OPS-1 device is a two-stage oil refining system consisting of a filtration chamber and an evaporation chamber. It is set-up as a closed-loop system with the evaporative emissions from the evaporation chamber vented back into the air intake system.

This Executive Order is based on engineering evaluation which determined that the device when installed on 2007 and older heavy-duty diesel engines with pressurized oil systems will not adversely affect the performance of emission control systems of affected engines.

This Executive Order is valid provided that installation instructions for the OPS-1 do not recommend tuning the vehicles to specifications different from those of the vehicle manufacturer.

Changes made to the design or operating conditions of the OPS-1, as exempt by the Air Resources Board, which adversely affect the performance of the vehicles' emission control system, shall invalidate this Executive Order.

Marketing of the OPS-1 using identification other than that shown in this Executive Order or for an application other than that listed in this Executive Order shall be prohibited unless prior approval is obtained from the Air Resources Board.

Diesel Emission Control Strategy

- **What is it?**
 - Diesel Emission Retrofit
 - Soot Filter
 - DECS
 - VDECS
 - DPF
 - PM BACT
 - “Special muffler that cleans up the air”

33

ARB Verification Program

- **Protects the buyer**
 - ensures reductions are real and durable, and
 - requires a warranty for DECS and engine
- **Verified products based on model year/tier and engine family**
- **Unique for each engine type (on-road, off-road, TRU, stationary, etc.)**

34

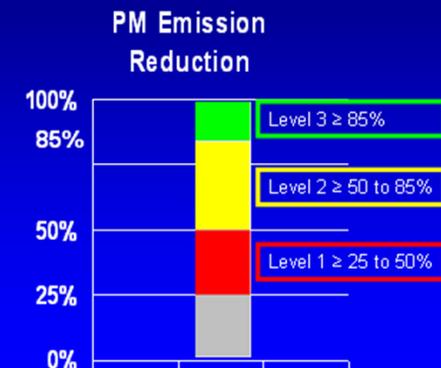
ARB Verification Program (cont'd)

- **Executive order issued specifies specific operating condition for each verified system**
 - fuel
 - engine exhaust temperature
 - model year, tier, or engine size
 - associated technology
 - others

<http://arb.ca.gov/diesel/verdev/verdev.htm>

35

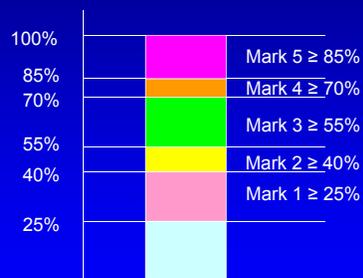
PM Verification Levels



36

Verification of NOx Reductions

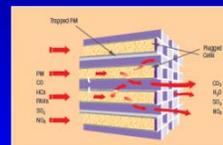
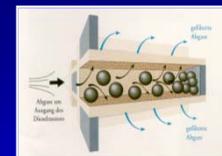
Allow NOx only under strict conditions, categorized as "Mark"



37

Verified Technology

Level 1 (25 - 50% Reduction)
Diesel Oxidation Catalyst,
some with crankcase filter.

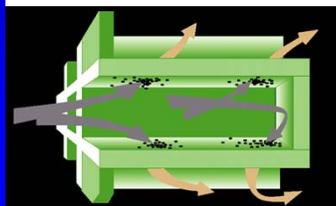
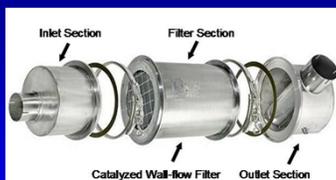


Level 2 (50 - 85 % Reduction)
Flow-Through-Filter,
Emulsified Diesel Fuel

Level 3 (> 85 % Reduction or ≤ 0.01 g/bhp-hr) Active and Passive Wall Flow Filter



Wall Flow Filters: Highest Filtration Efficiency (Passive)



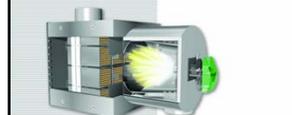
- Level 3 PM reduction (>85%)
- Generally applicable to 1994 and newer engines
- Exhaust temperature dependent
- Similar filter technology to new 2007 diesel trucks

39

Wall Flow Filters: Highest Filtration Efficiency (Active)



SOOT PARTICLE FILTER SYSTEMS
for mobile diesel engines.
(Regeneration without NO_x)



- Level 3 PM Reduction (>85%)
- Suited for applications with low exhaust temperatures
- Example: Uncatalyzed wall-flow filter with electrical regeneration
- Example: Uncatalyzed wall-flow filter with a fuel burner

40

Diesel Emission Control Strategy Family Name

- CA/MMM/YYYY/PM#/N##/APP/XXXXX
- CA – California verified strategy
 - MMM – Manufacturer code, usually the company's initials
 - YYYY – Year of verification
 - PM# - Level of PM reduction (I, II, III)
 - N## - Percentage of NO_x reduction (if any)
 - APP – Application or use such as: stationary, on-road, off-road
 - XXXXX – Alphanumeric code describing device technology

41

Labeling Requirements CCR, title 13, 2706(g)

- Legible, durable, and visible
- On device and engine, unless an alternative is approved by the Executive Officer
- Required information
 - Name, Address, and Phone Number of Manufacturer
 - Diesel Emission Control Strategy Family Name
 - Product Serial Number
 - ZZ-ZZ (Month and Year of manufacture, e.g., 06-02)*
- Approved label in Executive Order

* May not be included if determined through the serial number

42

Sample DECS Label



43

What Do I Need to Know to Install an Exhaust Retrofit?



44

What You Need

- Engine in good repair
- Engine model year
- Engine family name
- Vehicle duty cycle
 - Exhaust temperature
 - Data logging

45

DECS Install Page

www.arb.ca.gov/msprog/decsinstall/decsinstall.htm

DECS Install Page: What You'll Find Here

- Program background
- Overview of installations
- List of DECS installers
- Managing hazardous waste from DECS
- Related advisories
- Currently verified retrofits

<http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm>

47

Currently Verified Technologies

www.arb.ca.gov/diesel/verdev/vt/cvt.htm

PM Level	Product Name	Technology Type	PM Reduction	NOx Reduction	Applicability
L E V E L 3	Catalytic Exhaust Products Ltd. Dieseloxi BUS-SC DPF	DPF	85%	N/A	Stationary prime and emergency standby generators and pumps with Tier 1, Tier 2, or Tier 3 certified off-road engines meeting 0.2 g/bhp-hr or less diesel PM
	Genetec	DPF	85%	N/A	Specific 1995-2008 model years off-road. CARB diesel; biodiesel.*
	Cleaire Horizon	DPF	85%	N/A	Most on-road diesel engines through 2009 model year. Certain MY 2009 and 1993 or older engines with DEM diesel oxidation catalysis. CARB diesel; biodiesel.* Conditionally verified for off-road engines.
	Cleaire Lonestar	Lean NOx Catalyst and DPF	85%	40%	Conditionally verified for 1996 through 2009 model year; rubber-tired off-road vehicles; CARB diesel; biodiesel.*
	Cleaire Lonestar (reformulated)	Lean NOx Catalyst and DPF	85%	25%	1993-2008 model year on-road; CARB diesel; biodiesel.*
	Cleaire Phoenix	DPF	85%	N/A	Conditionally verified for 1995-2009 model year rubber-tired off-road vehicles; CARB diesel; biodiesel.*
	Cleaire Vega	DPF	85%	N/A	1993-2008 model year on-road; CARB diesel; biodiesel.*
	HeadAir Systems PERMIT	DPF	85%	N/A	Stationary emergency and prime generators; CARB diesel; biodiesel.*
	Imex D550	DPF	85%	N/A	Most trailer TRUs using 1999-2005 model year engines; CARB diesel
	Conadison LNF	DPF	85%	N/A	1993-2003 model year on-road; CARB diesel; biodiesel.*
	Conadison SEP	DPF	85%	N/A	1991-2008 model year on-road; CARB diesel; biodiesel.*
	DEL International, Inc.	DPF	85%	N/A	Conditionally verified for 1995-2008 model year, rubber-tired off-road; CARB diesel; biodiesel.*
	DEL International, Inc.	DPF	85%	N/A	Stationary prime and emergency standby generators; pumps and compressors; Tier 1, 2, or 3 off-road engines certified to < 0.15 g/bhp-hr PM; CARB diesel; biodiesel.*
	Engine Control System Purifier (Low Load)	DPF	85%	N/A	1994-2004 on-road; CARB diesel; biodiesel.*
	Engine Control System Purifier (High Load)	DPF	85%	N/A	Conditional verification for off-road for specific engines; model years 1995-2008; CARB diesel; biodiesel.*
	Engine Control System Purifier (High Load)	DPF	85%	N/A	1993-2008 CA certified engines; Specific 1994-2008 Federally certified engines; on-road; CARB diesel; biodiesel.*
	Engine Control System Comofilter Plus	DPF	85%	N/A	2007 or older off-road; CARB diesel; biodiesel.*
	Engine Control System Purifier Plus	DPF	85%	N/A	1993 and 2006 on-road; CARB diesel; biodiesel.*
IMV Catalyst	DPF	85%	N/A	1995-2009; off-road; 1995-2008 on-road; CARB diesel; biodiesel.*	

DECS Supplier Should Supply

- Equipment warranty
- Installation warranty
- User manual
- Reporting information
- VDECS EO

49

Maintenance and Cleaning

- Keep engine in good working order
- Operate vehicles within the conditions listed on the DECS executive order
- Check DECS installation and labeling
- Do not operate the vehicle without the filter core or any other DECS component
- Follow DECS manufacturer cleaning directions
- Manage the ash as a California hazardous waste

50

Maintenance and Cleaning

- Keep engine in good working order
- Check DECS installation and labeling
- Follow DECS manufacturer cleaning directions
- Do not operate the vehicle without the filter core or any other filter component
- Manage the ash as a California hazardous waste

51

Contact Information

- For issues regarding installation and operation
 - Contact installer or DECS manufacturer
- For issues regarding California hazardous waste
 - Contact DTSC duty desk at 800-728-6942 or RAO@dtsc.ca.gov
- General Information on verification
 - <http://www.arb.ca.gov/diesel/verdev/verdev.htm>

52



Drayage Truck Regulation



Affects diesel-fueled trucks transporting California's ports and intermodal rail yard cargos

Drayage Trucks

Drayage Truck Regulation

- Trucks that transport port and intermodal rail yard cargos
- Class 7 & 8 - heavy-duty:
 - GVWR > 26,000 lbs
 - On-road diesel-fueled
- Applies to all trucks, including:
 - Out-of-state
 - Out-of-country



Ports

Drayage Truck Regulation

- ❖ Serviced by ocean going vessels
- ❖ Typically have terminals used for the loading or unloading of water borne commerce
- ❖ Serviced by drayage trucks



Intermodal Rail Yards

- Intermodal - serviced by drayage trucks
- Largest rail freight operators (Class 1 - Revenues of \$250 million or more)
- Within 80 miles of an affected port or
- Rail facility has 100 or more drayage truck visits per day and is outside the 80 mile radius of an affected port



7

Exemptions

- Emergency vehicles
- Military tactical support vehicles
- Regulation would not affect dedicated use trucks of uni-body design
- Port areas that do not have drayage truck traffic (port must apply for exemption)



10

Status

- Became law December 2008
- In effect and enforceable
- December 17, 2010 changes:
 - Inclusion of Class 7 trucks
 - PM filters January 1, 2012 in South Coast Air Basin
 - 2007+ engine standard by January 1, 2014
 - Include drayage trucks operating off of port and rail yard grounds
 - Sunset regulation on Dec. 31, 2022.

Emission Control Terminology

- “Level 3 VDECS”
 - Most effective PM filter retrofit on existing engines
 - Verified Diesel Emission Control Strategy (VDECS)
 - www.arb.ca.gov/msprog/decsinstall/decsinstall.htm
- “2007 model year engine”
 - Engine that meets or exceeds federal 2007 model year PM and NO_x emission standards
 - 0.01 gram/bhph particulates
 - 1.2 grams/bhph NO_x

60

Basic Requirements

- Must register in Drayage Truck Registry
 - Prior to port or rail yard entry
- Phase 1 Requirements and Deadlines
- January 1, 2010
 - Pre-1994 Class 8 trucks prohibited from ports and intermodal rail yards
 - 1994 to 2003 class 8 trucks require Level 3 VDECS
- January 1, 2012/2013
 - 2004/2005-2006 MY class 8 trucks require Level 3 VDECS

Basic Requirements

- Phase 2 Requirements and Deadlines
- January 1, 2014
 - Must have 1994 or newer engine that meets 2007 engine MY emission standards
- January 1, 2023
 - Meet Truck and Bus requirements
 - 2010 engine MY emission standards

Drayage Truck Registry (DTR)

- All trucks registered prior to entry
 - Required for enforcement
 - Optional truck labels available
- 
- Check compliance status online - available to public
 - www.arb.ca.gov/drayagetruck

Truck Owner/Operator

- Truck owner responsibilities:
 - Meet emission standard requirements
 - Register with the DTR
 - Maintain emission control device
 - Ensure truck operator has motor carrier contact information
- Truck operator responsibilities:
 - Provide motor carrier contact information upon request by enforcement personnel
 - Identify origin and destination of cargo

Drayage Truck Regulation

Other Port Requirements

- Ports of Los Angeles and Long Beach
 - Have some stricter requirements
 - Currently Implemented
- Port of Oakland
 - Currently Implemented



24

Drayage Truck Regulation

For More Information...

- Drayage truck regulation website: www.arb.ca.gov/drayagetruck
- Drayage truck phone number: 1-888-247-4821
- Drayage truck registry: www.arb.ca.gov/arber/arber.htm
- Truck stop website: www.arb.ca.gov/truckstop



Truck and Bus Regulation



Affects private and federally-owned diesel-fueled trucks and buses greater than 14,000 pounds GVWR

Applicability

- Diesel trucks and buses operating in California
 - Greater than 14,000 pounds gross vehicle weight rating (GVWR)
 - Agricultural use yard trucks with off-road engines
 - Interstate, intrastate, international, and other
- Any person, business, or government agency who owns, leases, rents, or sells a vehicle in California
- California based brokers and dispatchers

Applicability Continued

- Excludes:
 - Emergency vehicles
 - Military tactical vehicles
 - Personal use motor homes
 - Personal use pickup trucks ≤ 19,500 lbs GVWR
 - Historic vehicles
- Excludes most vehicles subject to other in-use regulations
 - Two engine cranes, two engine drill rigs & workover rigs
 - Local and state government owned vehicles
 - 1960-2006 MY solid waste collection vehicles
 - Public urban buses/transit fleet vehicles
 - Private utility vehicles until 2021

Examples of Vehicle Types



Concrete Mixer



Dump Truck



Single Engine Drill Rig



Water Truck



Hay Squeeze



Tow Truck



Reefer Van



Fuel Tank Truck



Passenger Bus

Status

- Initially considered December 2008
- Currently in effect
- Amendments considered December 17, 2010
 - Regulatory language modified
 - No additional changes
- Office of Administration Law approval of amendments forthcoming



Emission Control Terminology

- “PM filter”
 - Originally equipped on engines since 2007, or
 - Most effective PM filter retrofit verified by ARB
 - Verified Diesel Emission Control Strategy (DECS)
 - Must achieve 50% or 85% PM reduction.
- “Replace with 2010 engine”
 - Engine manufactured 2010 or later
 - Existing engine retrofit with PM/NOx retrofits
 - High efficiency NOx retrofits not currently available

73

Regulation Overview

- Lighter vehicles ($\leq 26,000$ GVWR)
 - Compliance schedule by engine MY
- Heavier vehicles ($> 26,000$ GVWR)
 - Compliance schedule by engine MY
 - Phase-in option
- Added flexibility with reporting
- Provisions for special cases and lower use
- Credits for early action and cleaner vehicles

Lighter Trucks & Buses GVWR 14,001 to 26,000 pounds

Compliance Schedule for Lighter Trucks*

- Replace engines
 - 2010 or newer
 - A used truck with a future compliance date
- No PM filter requirement
- No reporting

Engine Model Year	Replace with 2010 engine by:
1995 & older	January 1, 2015
1996	January 1, 2016
1997	January 1, 2017
1998	January 1, 2018
1999	January 1, 2019
2003 & older	January 1, 2020
2004-2006	January 1, 2021
2007-2009	January 1, 2023

*Vehicles 14,001 to 26,000 lbs GVWR

Compliance Credit for Lighter Trucks*

- PM retrofit before July 1, 2011 counts towards a heavier truck until 2017
- PM retrofit by 2014, delays the vehicle replacement until 2020
- PM filters on all lighter vehicles by 2014 delays their replacements until 2023
- Reporting required

*Vehicles 14,001 to 26,000 lbs GVWR

Provisions Applicable to Lighter Trucks

- Agricultural vehicle extension
- Low use exemption
- NOx exempt area operation
- Manufacturer delays

Heavier Trucks & Buses GVWR more than 26,000 pounds

Compliance Schedule for Heavier Trucks*

- PM filters on newer trucks comply for 8 years
- Older trucks replaced with
 - 2010 engine or
 - Used truck with future compliance date
- No reporting

Engine Year	PM Filter	2010 MY Engine
Pre-1994	Not required	January 1, 2015
1994-1995	Not required	January 1, 2016
1996-1999	January 1, 2012	January 1, 2020
2000-2004	January 1, 2013	January 1, 2021
2005 or newer	January 1, 2014	January 1, 2022
2007-2009	Already equipped	January 1, 2023

*More than 26,000 lbs GVWR

Provisions for Heavier Trucks if Complying with Model Year Schedule

- PM filter by 2014 delays replacement until 2020
- PM filters on all heavier vehicles by 2014 delays their replacements until 2023
- Agricultural vehicle extension
- Low use exemption
- NOx exempt area operation
- Manufacturer delays
- Reporting required

Truck and Bus Regulation

Phase-In Option for Heavier Trucks*

- Provides flexibility
- Report all heavier trucks by January 31, 2012
- Originally equipped PM filters count
- Upgrade to 2010 engines starting 2020
- Replace engines that cannot retrofit by 2018

Compliance Date	Vehicles with PM Filters
January 1, 2012	30%
January 1, 2013	60%
January 1, 2014	90%
January 1, 2015	90%
January 1, 2016	100%

*More than 26,000 lbs GVWR

Phase-in Option Credits for Heavier Trucks*

Truck & Bus Regulation

- Early PM retrofits
- Fleet size reduction since 2006
- Fleet age reduction since 2006
- Adding fuel efficient hybrids & alternative fueled engines
- Excess PM filters on off-road vehicles

*More than 26,000 lbs GVWR

Truck & Bus Regulation

Early PM Filter Credits for Heavier Trucks

- PM filter retrofit before July 1, 2011* delays clean-up of another truck until 2017
 - No credit if still under public funding contract
- Vehicle retrofit by 2014 complies until 2020
- PM filter on all heavy trucks by 2014 delays their replacements until 2023
- Reporting required

*Credit applies if retrofit filter ordered by May 1 and installed by October 1

Fleet Size Reduction Credit for Heavier Trucks

- Delays clean-up until January 1, 2016 if fewer trucks operating than on October 1, 2006
 - Credit if retired or if vehicles are not being operated

By January 1	PM Filter Phase-in	Fleet Size Reduction	Adjusted Requirement
2012	30%	25%	5%
2013	60%	25%	35%
2014	90%	25%	65%
2015	90%	25%	65%
2016	100%	--	100%

Fleet Age Reduction Credit for Heavier Trucks

- Delays clean-up until January 1, 2017 if fleet age younger than on October 1, 2006
- Maximum credit established January 1, 2012
 - Equal to difference in fleet age multiplied by 5%
 - Up to percent of fleet with OEM filters
 - Credit declines if fleet gets older

By January 1	PM Filter Phase-in	If Fleet 2.2 Years Younger (2.2*5%)	Adjusted Requirement
2012	30%	11%	19%
2013	60%	11%	49%
2014	90%	11%	79%
2015	90%	11%	79%
2016	100%	11%	89%
2017	100%	--	100%

Hybrids and Alternative Fueled Engine Credits for Heavier Trucks

- Delays clean-up of another truck until 2017
- Adding fuel efficient hybrids
 - 20% fuel efficiency improvement compared to conventional diesel vehicle
- Replacing with alternative fueled engines

Credits for PM Filters on Off-Road Equipment Count Towards Trucks

- Excess PM filters on off-road vehicles can delay clean-up for heavier trucks until January 1, 2017
- Counts towards phase-in option for trucks
- Excess PM filters on trucks can delay clean-up for off-road vehicles
- Reporting required

Small Fleet Option for Heavier Trucks*

- One to three trucks more than 14,000 pounds
- Small fleet phase-in option for heavier trucks
 - First PM filter by 2014
 - Second PM filter by 2015
 - All must have PM filter by 2016
- Reporting starts 2012
- Upgrade to 2010 engines starting 2020
- Replace engines that cannot be retrofit by 2018

*Vehicles more than 26,000 lbs GVWR

Other Options for Heavier Trucks*

- Option to comply with original model year schedule
- Opt-in January 31, 2012
- Meet model year schedule starting January 1, 2020

Compliance Date	PM filter on Engine Model Year
January 1, 2012	2003 – 2004 Pre-1994
January 1, 2013	2005 – 2006 1994 – 1999
January 1, 2014	All Engines

Additional Provisions

Low Use Vehicles

- Low use exemption
 - Less than 1000 miles in California and
 - Less than 100 hours if used for stationary work
 - Not required if solely used for loading and unloading vehicle
 - Emergency use excluded
- Three day pass
 - 3 day permit to operate a non-compliant truck
 - One vehicle per year per company
- Reporting required

Attainment Area Operation

- Vehicle operated exclusively in NOx exempt areas
- PM filters 2014 to 2016 for heavier trucks
- Label on both doors or electronic tracking
- Report by January 31, 2012
- No replacements if equipped with PM filter (report for exemption)



NOx Exempt Area Counties - Alpine, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Monterey, Plumas, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz, Shasta, Sierra, Siskiyou, Sonoma (northern), Trinity, Tehama, and Yuba

Other Provisions

- No penalty for manufacturer delays if filter, engine, or replacement vehicle is ordered 4 months before the compliance deadline
- Leased trucks
 - Contract less than 1 year – vehicle responsibility of Lessor
 - Contract 1 year or more – Lessor or as written in contract

Vocation Specific Provisions

Agricultural Vehicle Provision Summary

- Opt-in period closed April 29, 2011
- Annually reporting by January 31
- Delays clean-up until 2017 or 2023
- Must stay below the mileage thresholds or have specialty body types
- Replacements with newer trucks
- Total number eligible may not increase
- Label both doors with "AG"



Log Truck Provision

- Opt-in by January 31, 2012
- Phase-in 2010 engines
- No PM retrofits
- No mileage limits statewide
- “AG” label on both doors
- Cannot exceed number of trucks in January 1, 2009
- Total number cannot increase

January 1	2010 engines
2014	10%
2015	20%
2016	30%
2017	40%
2018	50%
2019	60%
2020	70%
2021	80%
2022	90%
2023	100%

Low-Mileage Construction Truck Definition

- Must have GVWR more than 26,000 lbs
- Dump trucks
 - Up to 20,000 miles per year
 - Transfers, bottom dumps, end dumps, side dumps
- Other trucks
 - Up to 15,000 miles per year
 - Concrete mixer, concrete pump, water truck, single engine crane (>35 ton capacity), low-boy
 - Or any contractor owned truck

Low-Mileage Construction Trucks

- PM filters delayed 2014 to 2016
 - Single low mileage construction truck owner delays PM filter until January 1, 2016
- Must opt-in by January 31, 2012
- Up to 10 trucks per fleet
 - More can be approved for 2013 compliance year
- Label “CT” on both doors
- Meet model year schedule starting January 1, 2020

Low Mileage Construction Trucks

- Count all vehicle in fleet to determine minimum PM filter percentage
 - Exclude low-usage vehicles (less than 1000 miles)

Compliance by January 1	Minimum Percent of Fleet Complying with PM BACT
2014	33%
2015	66%
2016	100%

Comply with model year schedule starting January 1, 2020



School Buses

- Phase in PM filters if more than 14,000 pounds GVWR
- No PM filter requirement for 1988-1993 MY engines until 2014
- Pre-1977 MY engines replaced by 2012
- No reporting required*, must keep records
- Replace engine by 2018, if cannot be equipped with PM filter

January 1	PM filter
2012	33%
2013	66%
2014	100%



* Reporting triggered when a school bus cannot be retrofitted by deadline

Street Sweepers

- Tier 0 auxiliary engines 50hp or greater
 - 450 hours per year until 2014; 100 hours per year thereafter
 - Initial reporting March 2010
 - Annual reporting January 31
 - Must have “SW” label
- Auxiliary engine must meet PM BACT at same time main engine cleaned-up
- Option to include lighter sweepers to determine fleet size reduction credit

Reporting & Disclosure

Reporting Requirement

- No reporting if using model year compliance schedule
 - Exception for vehicle specific exemptions
- January 31, 2012 for most flexibility options
- Truck Regulations Upload and Compliance Reporting System (TRUCRS) online
 - Compliance certificate
- Motor carriers and California brokers must verify compliance or reported compliance

Truck and Bus Regulation

Disclosure Requirement

- Disclosure is currently required on the bill of sale
“An on-road heavy-duty diesel or alternative-diesel vehicle operated in California may be subject to the California Air Resources Board Regulation to Reduce Particulate Matter and Criteria Pollutant Emissions from In-Use Heavy-Duty Diesel Vehicles. It therefore could be subject to exhaust retrofit or accelerated turnover requirements to reduce emissions of air pollutants. For more information, please visit the California Air Resources Board website at <http://www.arb.ca.gov/dieseltruck>.”

Fleet Calculator

<http://www.arb.ca.gov/msprog/onrdiesel/compliancetool.htm>

Truck and Bus Regulation Fleet Calculator V.2011A
 Reflects to the amendments considered by the Board December 17, 2010.
 Check www.arb.ca.gov/dieseltruck for updates, fact sheets and other information.
 If you have any questions, please call toll free (866) 6-DIESEL or (866) 634-3735.

To begin using the tool, please click: [HERE](#) (ENABLING OF MACROS IS REQUIRED!!!)

This compliance assistance tool allows the user to input the engine model year, and emission control technology, assumptions to determine what compliance options may be available to comply with the regulation for each calendar year. In the "No Reporting" tab, fleets can view automated compliance strategies that meet compliance schedule based on engine model year. Fleets that comply with the schedule, are not required to report. In addition, fleets can use the "Reporting" tab to evaluate more flexible compliance strategies including the phase-in option for heavier vehicles, credits, and special provisions. The "Reporting" tab also determines if the model year compliance schedule has been met in any compliance year. Fleets that use the added flexibility in the regulation must report detailed fleet information by January 31, 2012 and annually thereafter. This compliance tool does not substitute for reporting detailed vehicle or compliance information.

To begin using the "No Reporting" worksheet, enter engine model years and GVWR of the vehicles for the fleet. When using the "Reporting" worksheet, enter engine model year and GVWR of the vehicles for the fleet as of October 1, 2006 in the "2006 Fleet Information" columns. To calculate credits for Downsizing and Early Addition of Newer Vehicles, select the action taken or you plan to take in the "Action Selection" column for each vehicle.

The Board has identified some modifications for limited mileage construction trucks, which will be considered during a 15 day comment period, may not be reflected in this version. These future changes will be incorporated in the next revision. Requirements for any engine in tow engine sweepers, school buses and log truck provisions are not included in this version and should be calculated separately.

Below are the basic descriptions of the available selections and "Action Selection" options. The selections vary depending on the engine model year or GVWR. Select the "HSRC" button to begin.

More than 26,000 lbs
Y Any vehicle that is has a manufacturer's gross vehicle weight rating greater than 26,000 pounds.
N or blank Any vehicle that is has a manufacturer's gross vehicle weight rating of 26,000 pounds or less.

Action Selection

Engine MY Schedule

Fleet Calculator – No Reporting

Compliance Schedule by Engine Model Year (No Reporting is Required)

Fleets can use this worksheet to view automated compliance strategies for meeting the compliance schedule based on engine model year. Fleets that comply with this schedule have no reporting requirements. Fleets can use this sheet to determine compliance by using the four predefined compliance options or strategies. Fleets that want to take advantage of the phase-in option, credits, and special provisions must report, and can determine compliance by selecting the "Reporting" tab below.

Compliance

Option 1 Install PM filters and replace with 2010 model year or newer vehicles (5 year old replacements)
 Option 2 Install PM filters and replace with 2007 model year and newer vehicles (7 years old replacements)
 Option 3 Replace with 2007 model year or newer vehicles (7 year old) instead of installing PM filters
 Option 4 Replace with 2010 model year or newer vehicles instead of installing PM filters

Engine Model Year	More than 26,000 lbs (Y/N)	Modify Compliance Strategy	Action Required
1994	Y	Option 1	Replace with 2010 MY or newer engine by Jan 1, 2016
1995	Y	Option 1	Replace with 2010 MY or newer engine by Jan 1, 2015
1999	Y	Option 1	Install PM filter by Jan 1, 2010 and replace with 2010 MY or newer engine by 2020
2000	Y	Option 1	Install PM filter by Jan 1, 2013 and replace with 2010 MY or newer engine by 2021
2002	Y	Option 1	Install PM filter by Jan 1, 2013 and replace with 2010 MY or newer engine by 2021
2004	Y	Option 1	Install PM filter by Jan 1, 2013 and replace with 2010 MY or newer engine by 2021
2005	Y	Option 1	Install PM filter by Jan 1, 2014 and replace with 2010 MY or newer engine by 2022
2006	Y	Option 1	Install PM filter by Jan 1, 2014 and replace with 2010 MY or newer engine by 2022
2007	Y	Option 1	Install PM filter by Jan 1, 2014 if not originally equipped, and replace with 2010 MY or newer engine by 2023
2008	Y	Option 1	Install PM filter by Jan 1, 2014 if not originally equipped, and replace with 2010 MY or newer engine by 2023

Fleet Calculator – Reporting Options

Phase-In Option

This worksheet allows fleets to evaluate more flexible compliance strategies including the phase-in option, credits, and special provisions that require reporting. When the fleet is in compliance with the annual requirements, the calendar year bar will be shaded green. For instruction and descriptions of pull-down menu choices on the Action Selection column, see "Read Me".

Phase-In Option	Required	Credits	Adjusted for Credits	Required	Credits	Adjusted for Credits	Required	Credits
PM filters required	50%		50%	50%		50%	50%	
PM filters in fleet			50%			50%		

2006 Fleet Information

Engine Model Year	More than 26,000 lbs (Y/N)	Engine Model Year	More than 26,000 lbs (Y/N)	Action Selection	Engine Model Year	More than 26,000 lbs (Y/N)	Action Selection	Engine Model Year	More than 26,000 lbs (Y/N)
1994	Y	1994	Y		1994	Y		1994	Y
1995	Y	1995	Y		1995	Y		1995	Y
1999	Y	1999	Y		1999	Y	PM filter before July, 2011	1999	Y
2000	Y	2000	Y		2000	Y		2000	Y
2002	Y	2002	Y		2002	Y		2002	Y
2004	Y	2004	Y		2004	Y	PM filter	2004	Y
2005	Y	2005	Y		2005	Y	PM filter	2005	Y
2006	Y	2006	Y		2006	Y	PM filter	2006	Y
2007	Y	2007	Y		2007	Y		2007	Y
2008	Y	2008	Y		2008	Y		2008	Y

Truck Stop - Online Resource

theTRUCK STOP

All diesel fueled trucks, buses, trailers and transportation refrigeration units operating in California, including those based out of state, are required by regulations to take steps to reduce air pollution. Please call the California Air Resources Board (ARB) Diesel Hotline at 866-6DIESEL, (866-634-3735) for more information, or click the links below.

[Truckstop en Español](#)

Information About Clean Air Requirements For

DIESEL VEHICLES	TRAILERS	TRUS	FUNDING	USEFUL LINKS
				<ul style="list-style-type: none"> Regulation Index Training Funding Resources Index Exhaust Retrofit Guidance Reporting & Registration Printable Materials California Truckers' News

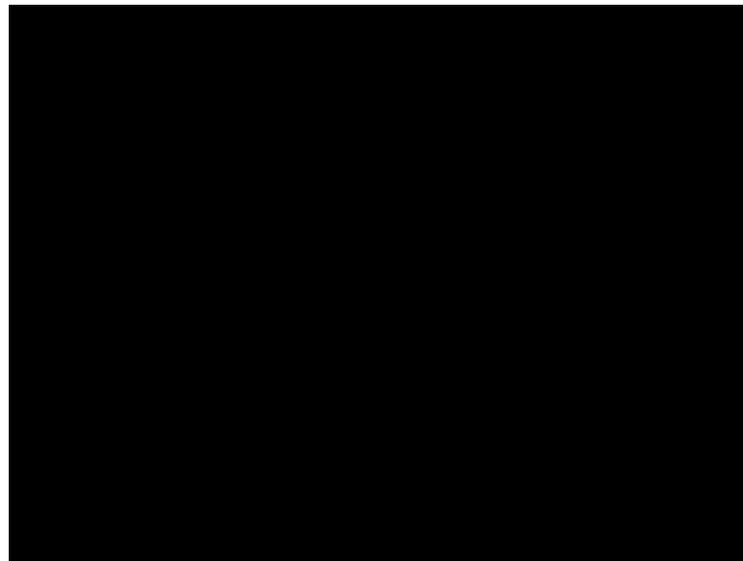
Highlighted Links Resources

- If you received a recent postcard update from the ARB click on the picture below for more information.

**DIESEL TRUCK OWNERS
AIR POLLUTION REGULATIONS UPDATE**

www.arb.ca.gov/truckstop 866-6DIESEL or 866-634-3735

www.arb.ca.gov/dieseltruck
 (866) 634-3735 or 8666diesel@arb.ca.gov



Heavy Duty Vehicle Greenhouse Gas (Tractor Trailer GHG) Regulation



Early Action Measure under AB 32 – The Global Warming Solutions Act of 2006

Affects 53 foot and longer box-type trailers and the tractors that pull them.

Tractor Trailer, GHG Regulation

Reduce Greenhouse Gas Emissions by Improving:

- Tractor Aerodynamics
 - Streamlined hood, sleeper cab roof fairings, gap fairings, fuel tank fairings, aerodynamic bumper and mirrors
- Trailer Aerodynamics
 - Side skirts, front gap fairings, rear trailer fairings
- Tire Rolling Resistance
 - Low rolling resistance (LRR) tires
- SmartWay Program Information:
<http://epa.gov/smartway/>



Applicability

- 53 foot or longer box-type trailers (dry-van & refrigerated-van trailers) and the tractors that pull them
- Responsible for compliance: owner, driver, motor carrier, California-based broker, and California-based shipper
- All affected vehicles operating in California regardless of where they're registered

Status of the Regulation

- Codified into California Code of Regulations (CCR) title 17, subarticle 1, sections 95300 to 95312
- Became effective on January 1, 2010
- December 17, 2010 Board modifications
 - Option 2 Large Fleet Compliance Schedule
 - Delay low rolling resistance tire requirements (LRR) for 2010 and older trailers and tractors
 - Ability to report annually
 - Storage trailer exemption
 - Other

Regulation Overview

- Requirements for new and existing tractors
 - Aerodynamic equipment and LRR tires on new
 - LRR tires on existing
- Requirements for new and existing trailers
 - Aerodynamic equipment and LRR tires on both new and existing
- Reporting requirements for optional compliance and exemptions
- Local haul, short haul, storage and other exemptions
- Temporary passes
- Lease agreements and disclosure requirements

Tractor Requirements

- Tractor Requirements
 - 2011+ model year (MY) sleeper cabs: SmartWay certified as of 1/1/2010
 - 2011+ MY day cabs: low rolling resistance tires by 1/1/2010
 - All pre-2011 MY sleeper cabs & day cabs: low rolling resistance tires by 1/1/2013



Trailer Requirements



- Trailer Requirements
 - 2011+ MY 53-ft+ box-type: SmartWay certified *or*
 - Retrofitted with SmartWay technologies by 1/1/2010
 - Low rolling resistance tires (1.5%+ fuel efficiency improvement)
 - Aerodynamic devices
 - » 5%+ fuel efficiency improvement for dry van
 - » 4%+ fuel efficiency improvement for reefer van
 - Pre-2011 MY 53-ft+ box-type
 - Same requirements as 2011+ MY trailers
 - Aerodynamic requirements by 1/1/2013 or choose delayed compliance option
 - LRR tire requirement delayed until January 1, 2017

Optional Large Fleet Compliance Plan

- Large fleet – 21 or more trailers
- Registration: Option 1 by July 1, 2010; Option 2 by July 1, 2011 (extended to August 1, 2011)
- Allow fleets to report their compliance activity upfront to ARB or on an annual basis

Option 1 % of Trailers	Option 2 % of Trailers	Compliance Before
5%	--	January 1, 2011
15%	20%	January 1, 2012
30%	40%	January 1, 2013
50%	60%	January 1, 2014
75%	80%	January 1, 2015
100%	100%	January 1, 2016

Optional Small Fleet Compliance Plan



- Small fleet – 20 or fewer trailers
- Phase-in: 2013 through 2016
- Submit compliance plan by **July 1, 2012**
- Fleets may report compliance activity upfront to ARB or on an annual basis

Percentage of Trailers	Compliance Before
25%	January 1, 2014
50%	January 1, 2015
75%	January 1, 2016
100%	January 1, 2017

Provisions for Refrigerated Vans*

- Applicable to 2003 - 2009 MY reefer trailers with 2003 or newer TRUs
- Delayed compliance from both aerodynamic and LRR tire requirements
- **No reporting** required for these trailers

Trailer Model Year	Compliance Before
2003-2004	January 1, 2018
2005-2006	January 1, 2019
2007-2009	January 1, 2020

*This is applicable for the Tractor-Trailer GHG Rule only and does not change or delay any of the engine requirements under the separate Transport Refrigeration Unit Regulation.

Short-Haul Exemption

Tractors only

- 50K miles or less per year
- Exempted from both the aerodynamic and LRR tires
- Must register vehicle with annual updates on mileage to ARB
- On-line TRUCRS to register

Local-Haul Exemption

Tractors and trailers

- Operation restricted to within a 100-mile radius of registered home base
- Exemption from aerodynamic requirement only
- *LRR tires still required*
- Relocation Pass for local-haul
- Must register vehicle and home base information with ARB prior to operation using ARB's on-line TRUCRS

Local-Haul Base: Tijuana



Storage Trailer Exemption

- Exempt from aerodynamics and tire requirements
- Relocation pass required for storage trailers when traveling with freight*
- Must register vehicle and storage location information with ARB prior to operation using ARB's on-line TRUCRS

*All trailers are exempt from the regulation if traveling empty of freight

Drayage Exemption

- Drayage exemptions apply if:
 - Trailer pulled by drayage tractor is off-loaded from ship or rail car just prior to being pulled by drayage tractor
 - Must show evidence of port/rail yard of origin
 - Trailer pulled by drayage tractor is taking the trailer to a port or rail yard to be loaded onto ship or rail
 - Must show evidence of port/rail yard destination

Exempt Tractors and Trailers (No registration required)

- Drayage tractors & trailers
 - Operate within a 100 mile radius of port or intermodal rail yard
- Container-chassis trailers
- Drop-frame van trailers
- Curtain-side van trailers
- Emergency vehicles
- Solid waste vehicles
- Military vehicles



Temporary Passes

Pass Description	Situation
Relocation Pass for Local-Haul and Storage Trailers (4 passes a year per tractor/trailer; 5 day pass; must operate the local haul/storage for 30 days)	Allows movement of loaded exempt local-haul trailers and exempt storage trailers within California
Transfer of Ownership Pass for Trailers (5 day pass with longer time upon Executive Officer approval)	Allows delivery of loaded trailers from transferor's location to transferee's location
Non-Compliant Tractor Pass (5 day pass; one tractor per fleet per year) sunsets 2015	Allows a non-compliant tractor to pull a trailer in California

Definition of Owner

The "Owner" is the person registered as the owner by the DMV, except in the following situations:

Situation	Owner
Tractor/trailer under third-party maintenance contract	Person contracted to maintain/install aero/LRR tires
Tractor/trailer owned by Federal government (not registered by DMV)	Federal Government
Leased tractor	Lessee: If lease or contract includes disclosure, otherwise lessor
Leased trailer	Lessee: If lease or contract includes disclosure and allows modification/exchange of trailer for pre 1/1/2013 leases, otherwise lessor is owner

Sales Disclosure

- Requirement for disclosure on bill of sale
- Disclosure language:

"A heavy-duty tractor and 53-foot or longer box-type trailer operated in California may be subject to the California Air Resources Board Heavy-Duty Vehicle Greenhouse Gas Emission Reduction Measure. These vehicles may be required to use low-rolling resistance tires and meet aerodynamic equipment requirements to reduce greenhouse gas emissions. For more information, please visit the California Air Resources Board website at www.arb.ca.gov/cc/hdghg/hdghg.htm"

Tractor Leasing Disclosure

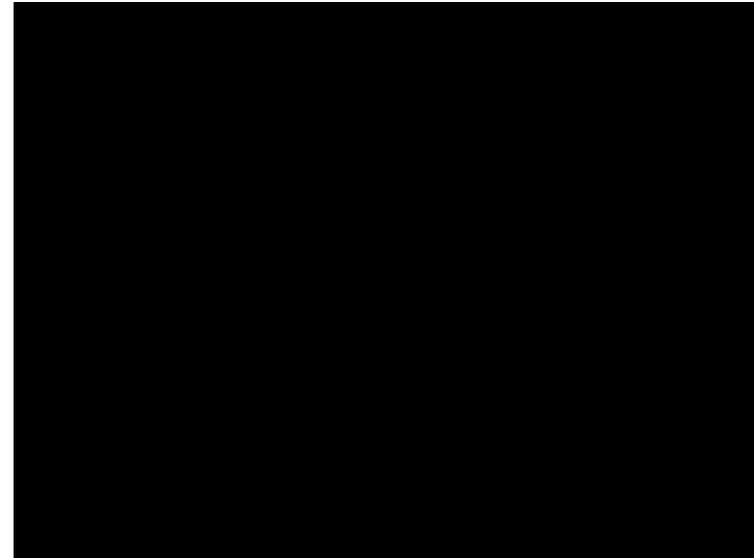
"The lessee of this heavy-duty tractor understands that when using a heavy-duty tractor to pull a 53-foot or longer box type trailer on a highway within California compliant with sections 95300-95311, title 17, California Code of Regulations, and that it is the responsibility of the lessee to ensure this heavy-duty tractor is compliant. The regulations may require this heavy-duty tractor to have low rolling resistance tires that are U.S. Environmental Protection Agency (U.S. EPA) Verified SmartWay Technologies prior to current or future use in California, or may entirely prohibit use of this tractor in California if it is a model year 2011 or later tractor and is not a U.S. EPA Certified SmartWay Tractor."

Trailer Leasing Disclosure

"The lessee of this box type trailer understands that when using a heavy-duty tractor to pull a 53-foot or longer box type trailer on a highway within California, the box-type trailer must be compliant with sections 95300-95311, title 17, California Code of Regulations, and that it is the responsibility of the lessee to ensure this box-type trailer is compliant. The regulations may require this trailer to have low rolling resistance tires and aerodynamic technologies that are U.S. Environmental Protection Agency Verified SmartWay Technologies prior to current or future use in California".

Tractor-Trailer GHG Regulation Page

www.arb.ca.gov/cc/hdghg/hdghg.htm



Transport Refrigeration Units (TRU) Regulation

Affects TRUs and TRU Generator sets

TRU Regulation

Regulation Status

- Became law January 16, 2009
- Enforcement delayed until January 2010
- Amended November 18, 2010
- Amended October 21, 2011
 - Designed to:
 - Provide flexibility
 - Improve compliance rates and enforceability
 - Clarify existing requirements
 - More information at TRU Website at:
<http://www.arb.ca.gov/diesel/tru/tru.htm>

Who and What is Affected

- TRUs equipped on trucks, trailers, shipping containers, or railcars that operate in California
 - Includes those that enter California from out-of-state, Canada, or Mexico
- California-based TRUs
- Operators of California terminals



In-Use Performance Standards (PM)

- Low-Emission TRU (LETRU)
 - Level 2 VDECS retrofit
 - Tier 4f (<25 hp), Tier 4i (25-50 hp) engine
- Ultra-Low-Emission TRU (ULETRU)
 - Level 3 VDECS retrofit
 - Use Alternative Technology (hybrid electric)
 - Tier 4f (25-50 hp) engine (available in new 2013 units)
- Alternative Technology
 - Must eliminate diesel PM emissions at distribution centers and limit engine operation at retail delivery point facilities to less than 30 minutes

Compliance Options for Meeting In-Use Performance Standards

- Retrofit exhaust with required level of VDECS
 - Level 2 VDECS meets LETRU (50% PM reduction)
 - Level 3 VDECS meets ULETRU (85% PM reduction)
- Use Alternative Technology
- Replace in-use engine with new engine
 - New compliance date based on effective model year (based on emissions standard met)
- Replace in-use engine with rebuilt engine
 - Must be rebuilt to more stringent standard
 - New compliance date based on effective model year (based on emissions standard met)
 - See TRU Advisory 08-05
- Replace unit
 - New compliance date based on engine model year

In-Use Compliance Schedule

Engine Model Year	Step 1 Compliance Date ¹	Step 2 Compliance Date ³
2001 and older	LETRU original 12-31-2008 LETRU delayed 12-31-2009	ULETRU by 12-31-2017 ULETRU by 12-31-2016
2002	LETRU by 12-31-2009	ULETRU by 12-31-2017
2003	LETRU ² or ULETRU by 12-31-2010	ULETRU by 12-31-2018
<25 hp, 2004	LETRU ² or ULETRU by 12-31-2011	ULETRU by 12-31-2018
≥25 hp, 2004	ULETRU by 12-31-2011	None
2005	ULETRU by 12-31-2012	None
2006	ULETRU by 12-31-2013	None
2007	ULETRU by 12-31-2014	None
2008	ULETRU by 12-31-2015	None
2009	ULETRU by 12-31-2016	None
2010	ULETRU by 12-31-2017	None
2011	ULETRU by 12-31-2018	None
2012	ULETRU by 12-31-2019	None
2013	ULETRU by 12-31-2020	None

Note 1: The first compliance date is December 31st of model year plus 7 years. MY 2001 and older delayed 1 year.
 Note 2: 2010 Amendments gave MY 2003 and <25 hp MY 2004 engines the option of meeting LETRU or ULETRU, but if LETRU is chosen, must still meet ULETRU at step 2 compliance date.
 Note 3: 2011 Amendments extended the second compliance dates as shown, if LETRU was met at step 1.

Registration Requirements

- What TRUs must be registered?
 - California-based TRUs
 - Leased units – see TRU Advisory 08-04 at:
 - <http://www.arb.ca.gov/diesel/tru/tru.htm>
 - Out-of-state TRUs registration is voluntary
 - Will reduce inspection time
- Register online at ARB's Equipment Registration (ARBER) system at:
 - <http://www.arb.ca.gov/arber/arber.htm>
 - Obtain identification numbers (IDN)
 - Affix to both sides of unit within 30 days

What is a California-Based TRU?

- TRUs equipped on trucks, trailers, shipping containers, or railcars that a reasonable person would find to be regularly assigned to terminals within California

Registration Website - ARBER

<http://www.arb.ca.gov/arber/arber.htm>

ARBER TRU Help Pages

ARBER Login

Registration – Identification Numbers (IDNs) How do I affix the ARB IDNs to my TRU?

- Affix to both sides of TRU housing, after the letters “ARB”
 - May be horizontal (one or two lines)
 - May be vertical (read from top to bottom)
 - See TRU Advisory 08-10
- Letter color contrasts sharply with housing color
- Sized to be able to read from 50 feet

Example IDN Pictures



Example IDN Pictures



Who Must Submit Operator Reports

- Operators of California terminals where California-based TRUs are regularly garaged, maintained, operated, or dispatched from, including a dispatch office, cross-dock facility, maintenance shop, business, or private residence
 - Excludes a third-party maintenance and repair facility

Submitting Operator Reports

- Reporting deadline was July 31, 2009
 - Update within 30 days of new TRU registration (add IDN)
 - Update within 30 days of TRUs sold/scrapped/removed
- What information do I need to submit?
 - Terminal address
 - List of IDNs assigned to the terminal
 - Help page at: <http://www.arb.ca.gov/arber/trureg/operator.htm>
- Submit electronically by logging into ARBER
 - <http://www.arb.ca.gov/arber/arber.htm>
 - Select "Operator Report" tab
 - Follow directions

2011 Amendments

- Freight brokers, forwarders, shippers, and receivers
 - Requires the party that arranges the transport of perishable goods to only hire carriers that will dispatch compliant TRUs
- Electric standby/hybrid-electric recordkeeping
 - Manual recordkeeping phased out and replaced by automated GPS tracking and recordkeeping
- Clarifications
 - Compliance by repowering with new or rebuilt engine
 - Dealer allowances for noncompliant equipment
 - Lessor and lessee requirements
 - Engine rebuilder requirements

Enforcement

- Inspections at distribution centers, border crossings, scales, roadside inspection stations, terminals, and delivery points
- Failure to register or submit Operators Report
 - Subject to citation, penalty, and
 - Must comply within 30 days
- Failure to comply with in-use performance standards - started January 1, 2010
 - Subject to citation, penalty, and
 - Must comply within 60 days

TRU Regulation Contact Information

- TRU website:
<http://www.arb.ca.gov/diesel/tru/tru.htm>
- TRU List Serve:
<http://www.arb.ca.gov/listserv/tru.htm>
- ARBER website:
<http://www.arb.ca.gov/arber/arber.htm>
- ARBER email: arber@arb.ca.gov
- TRU Help Line: 1-888-878-2826
(1-888-TRU-ATCM)

Off-Road Regulation Requirements



153

Outline

- Regulation Background
- Who and What is Affected?
- Regulation Requirements
- Other Provisions
- Early Credits
- Funding Opportunities
- Contacts



154

In-Use Off-road Diesel Vehicle Regulation Background

- Adopted on July 26, 2007, major revisions December 2010
- Will reduce diesel particulate matter (PM) and oxides of nitrogen (NOx) emissions
- Affects existing off-road heavy-duty diesel vehicles in California
- Vehicles used in construction, mining, industrial operations and others

155

Who & What is Affected?

- Who is affected?
 - Businesses, individuals, government agencies
- What is affected?
 - Diesel and alternative diesel fueled vehicles that are:
 - Off-road vehicles that operate within CA
 - Self-propelled (no portable equipment!)
 - 25 horsepower or greater
 - “drive” engines only (no auxiliary engines!)
 - exception: both engines of 2 engine cranes and 2 engine water-well drilling rigs
 - Excludes vehicles used only for agricultural and forest operations
 - Excludes personal use vehicles

156

What is Subject to the Off-road Regulation?

- Vehicles intended to be used off-road
- Designed for off-road use, have off-road engines
- Cannot be registered to operate on-road regardless of use
 - Exceptions: Workover rigs, 2 engine cranes, 2 engine water-well drilling rigs

On-road vehicle, even if not currently licensed →



Water truck

157

Requirements Vary by Fleet Size

Fleet Size Category	Description
Small	Fleet ≤ 2,500 hp, or Municipality ≤ 2,500 hp, or Municipality fleet in low population county, Captive attainment area fleet, or Non-profit training center, regardless of total hp
Medium	Fleet with 2,501 to 5,000 hp
Large	Fleet with more than 5,000 hp All state and federal government fleets

158

Captive Attainment Area Fleets

- Fleets captive to listed attainment counties
 - Considered small fleets, regardless of total hp
- Fleets can travel within multiple attainment counties
- Captive attainment area fleets or sub-fleets in which all of the vehicles operate exclusively within the following counties: Alpine, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Monterey, Northern Sonoma, Plumas, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz, Shasta, Sierra, Siskiyou, Trinity, Tehama, and Yuba

159

Parts of Regulation in Effect Now

- Limit on Idling
- Idling Policy
- Sales Disclosure
- Reporting
- Labeling



160

5 Minute Limit on Idling

- Exemptions include:
 - Queuing, testing, and servicing
- Can apply to ARB Executive Officer to idle > 5 minutes
- Enforcement of 5 minute idling
 - Enforcement advisory at:
www.arb.ca.gov/enf/advs/advs377.pdf

161

Written Idling Policy

- Required for medium and large fleets only
- Policy must be available to all vehicle operators
- Guidance document for idling policy available at:

www.arb.ca.gov/msprog/ordiesel/knowcenter.htm

- Enforcement advisory:
www.arb.ca.gov/enf/advs/advs391.pdf

162

Disclosure of Applicability (Sales Disclosure)

- Disclosure of regulation to buyer:
 - Persons selling in California to California buyer
 - Keep disclosure records for 3 years
 - Not required for manufacturers selling to dealers
 - Must be included on the bill of sale, invoice*, or price quote*
 - Enforcement advisory:
<http://www.arb.ca.gov/enf/advs/advs378.pdf>

* Not included in regulation language, guidance given by off-road staff

163

Disclosure Language

“When operated in California, any off-road diesel vehicle may be subject to the California Air Resources Board In-Use Off-road Diesel Vehicle Regulation. It therefore could be subject to retrofit or accelerated turnover requirements to reduce emissions of air pollutants. For more information, please visit the California Air Resources Board website at <http://www.arb.ca.gov/msprog/ordiesel/ordiesel.htm>”

164

Reporting

- Vehicles added or sold/retired must be reported to ARB within 30 days
 - Includes purchases/sales, or bringing vehicles in or out of CA
- Reporting can still be done by submitting hard copy forms, or online at:

https://secure.arb.ca.gov/ssldoors/doors_reporting/doors_login.html

- Annual reporting required:

Fleet Size	Annual Reporting (due by March 1 st of year)
Large	2012 - 2023
Medium	2016 - 2023
Small	2018 - 2028

165

What is DOORS?

- Diesel Off-road On-line Reporting System
 - On-line reporting tool
 - Compiles and reports fleet data
 - Meets ARB's reporting requirements
 - Retains fleet data for future reporting
 - Includes automated compliance planning
 - Enforcement staff will be able to access data from DOORS
 - Website:

https://secure.arb.ca.gov/ssldoors/doors_reporting/doors_login.html

166

Vehicle Labeling

- See
 - Off-road homepage
 - Knowledge Center
 - Labeling FAQ



DB8B97

- Knowledge Center:

www.arb.ca.gov/msprog/ordiesel/knowcenter.htm

167

Upcoming Requirements

- Amended December 2010
- Restrictions on adding vehicles
- Performance requirements (to reduce emissions)
 - Must be met by January 1st of each compliance year
 - Fleet must meet either the fleet average target, or the Best Available Control Technology requirements (BACT)

Fleet Size	Compliance Dates
Large	2014-2023
Medium	2017-2023
Small	2019-2028

168

Restrictions on Adding Vehicles

- Ban on adding Tier 0s and unregistered Tier 1s
 - Does not begin until recent amendments are certified by Secretary of State, and US EPA authorization granted
 - “unregistered” means those Tier 1s not in DOORS by March 1, 2011
- Ban on adding Tier 1s
 - Begins 2013 for large and medium fleets, 2016 for small fleets
- Ban on adding Tier 2s
 - Begins 2018 for large and medium fleets, 2023 for small fleets

169

Performance Requirements

- Fleet average targets
 - Different for each fleet
 - Based on fleet’s NOx emissions
- BACT
 - Fleet must retire, repower, designate low-use, or retrofit certain % of horsepower
 - Varies from 4.8% to 10% per year

170

Alternative Compliance Option for Smallest Fleets

- Optional path (i.e., not required)
- For small fleets with less than 500 hp (must include exempt vehicles)
- Phase out Tier 0 and 1 vehicles

Compliance Date: January 1 of Year	Percent of Fleet (by horsepower) Which Must Have a Tier 2 or Higher Engine
2019	25
2022	50
2026	75
2029	100

171

Exemptions

- Exempt from all but recordkeeping / reporting / labeling (i.e., exempt from the performance requirements)
 - Low-use vehicles operated < 200 hrs/yr
 - non-resettable hour meter required
 - Emergency vehicles
 - Dedicated snow removal vehicles
 - Equipment used a majority of the time for agricultural purposes (>50%)
 - 100% ag use equipment completely exempt

172

Compliance Extensions

- Compliance extensions
 - Manufacturer delays for retrofits or new engines (2 month provision)
 - Delay of Tier 4 interim or final vehicles

173

Rental and Leased Vehicles

- Rented/leased < 1 year
 - Owner's responsibility
- Rented/leased >= 1 year
 - Owner's responsibility, unless stated otherwise in contract
- Leases occurring before June 15, 2008
 - If in a year long "lease" (or more) starting on or before June 15, 2008, vehicle must be included in the lessee's fleet (not owner)

174

Early Credits

- Full credit given for previous repowers
- Some credit given for fleets that have reduced their total horsepower, or replaced vehicles
- Double credit deadline for PM and NOx exhaust retrofits:
 - Large fleets: January 1, 2013
 - Medium fleets: January 1, 2016
 - Small fleets: January 1, 2018

175

For More Information...

General Off-Road Regulation Questions:

Diesel vehicle information hot line:
(866) 6-DIESEL
(866) 634-3735
Email: 866diesel@arb.ca.gov

Off-Road Reporting (DOORS) Questions:

DOORS hot line:
(877) 59-DOORS
(866) 593-6677
Email: doors@arb.ca.gov

Websites:

Off-Road Regulation - www.arb.ca.gov/ordiesel
DOORS Reporting - https://secure.arb.ca.gov/ssldoors/doors_reporting/doors_login.html

176