



**TIPS FOR REGISTERING YOUR EQUIPMENT/VEHICLES IN THE YARD:
FINDING DIESEL ENGINE DETAILS (engine family name, serial number etc.)**

Finding Diesel Engine Emission Certification Information - Introduction

EPA first established emission standards for diesel engines used in trucks and buses in 1988 and for diesel engines used in non-road equipment beginning in 1996. Before that time, exhaust gases from these engines were uncontrolled and resulted in emissions of nitrogen oxides (NOx), carbon monoxide (CO), non-methane hydrocarbons (NMHC) and particulate matter (PM or soot). These emissions are significant contributors to air pollution. Federal regulations and advances in engineering by manufacturers have reduced emissions dramatically reducing health risks to not only the community but also employees working with these vehicles and equipment.

Modern engines manufactured today are upward of 95% cleaner than engines with uncontrolled exhaust. Because Federal emission standards have become more stringent over time, not all engines have the same pollution controls. These engine certification limits apply to manufacturers and vary depending on when the engines are built. The first step to plan compliance with the Clean Air Construction Standard is to know the emission certification of your engines.

What Do I Need to Know to Comply

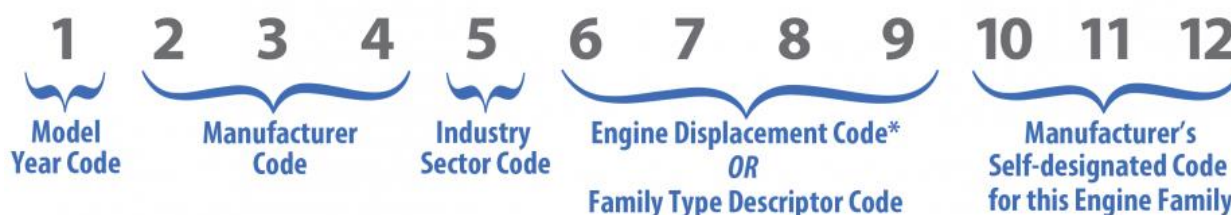
Highway Vehicles		
Locate the EPA Engine Family Name	Determine by the first character from the code in Table 1 the engine model year	If label is obscured or missing, contact dealer or engine manufacturer to obtain replacement label using engine serial number
Non-road Equipment		
Locate the EPA Engine Family Name	Determine by the first character from the code in Table 1 the engine model year.	If label is obscured or missing, contact dealer or engine manufacturer to obtain replacement label using engine serial number

Identify the horsepower of the engine	With the engine model year and rated horsepower, determine the EPA non-road engine emission tier from Table 2	
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EPA Engine Family Name

EPA’s engine family name is the basic information that helps tell the emission certification of a highway or non-road diesel engine. EPA assigns a 12 digit alpha-numeric code to classify engine types by their emission certification. You may also see a reference to an evaporative family name also assigned by EPA. Engine manufacturers may have their own production classification of engines using the term “family”. Do not confuse either of these terminologies for the EPA engine family name.

Each character in the sequence provides information about the engine like model year, manufacturer and engine displacement. The engine model year helps to determine the emission certification of the engine for purposes of showing compliance with the Clean Construction Standard.



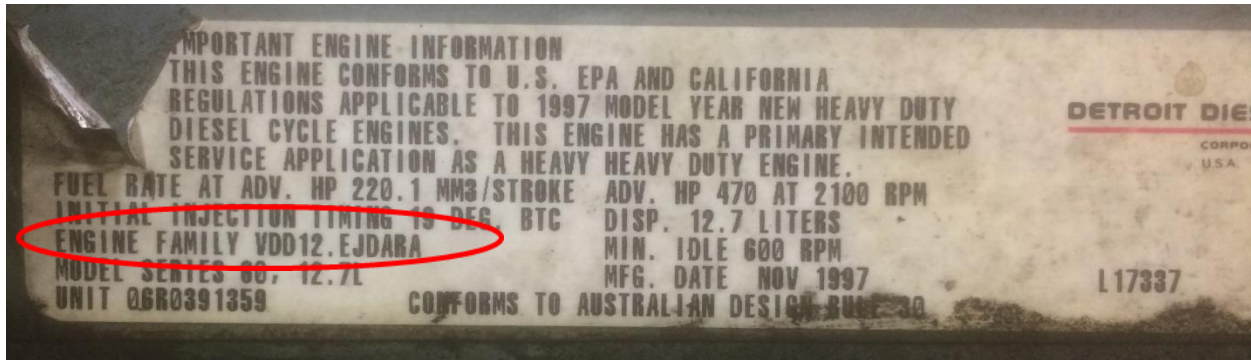
The first character is either a number or letter used in sequence to denote the year of manufacture. The following table provides the model year codes. To avoid confusion, the letters “I”, “O”, “Q” and “U” and the numeral “0” are not used. The pattern repeats for new model years beyond those shown here.

* For dual or variable displacement families, the maximum displacement will be entered. If the displacement is given in liters, the decimal point count as a digit. In all cases, the displacement will be read in liters if a decimal point is included and it will be read in cubic inches or cubic centimeters if there is no decimal point.

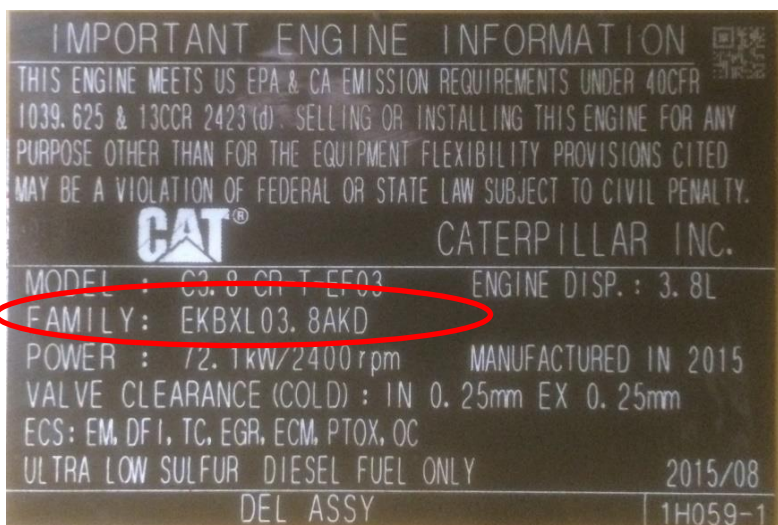
Table 1 EPA Engine Family Model Year Codes

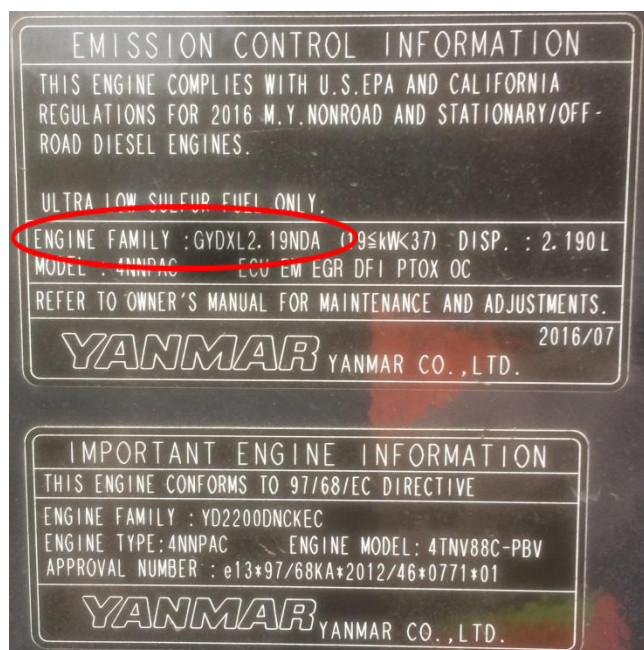
CODE	YEAR	CODE	YEAR	CODE	YEAR	CODE	YEAR
A	1980	P	1993	6	2006	K	2019
B	1981	R	1994	7	2007	L	2020
C	1982	S	1995	8	2008	M	2021
C	1983	T	1996	9	2009	N	2022
E	1984	V	1997	A	2010	P	2023
F	1985	W	1998	B	2011	R	2024
G	1986	X	1999	C	2012	S	2025
H	1987	Y	2000	D	2013	T	2026
J	1988	1	2001	E	2014	V	2027
K	1989	2	2002	F	2015	W	2028
L	1990	3	2003	G	2016	X	2029
M	1991	4	2004	H	2017	Y	2030
N	1992	5	2005	J	2018	1	2031

The engine family name can be found on an emission label typically found attached to the engine itself but can sometimes be located elsewhere in the engine compartment.



Emission Label Examples





Note that the labels for some manufacturers may also show an engine family name for compliance with European Commission regulations, like the Yanmar shown here. Make sure you record the engine family name associated with the U.S. EPA and California regulations.

Service departments of local truck and equipment dealers may be able to offer guidance as to where emission labels and engine serial numbers can be found for a

particular vehicle or equipment, as this will vary by manufacturer and by engine. Websites provided by engine manufacturers or parts dealers can also provide information to help identify serial number locations, see below. (Listing these sites does not imply endorsement of any products or services offered.)

Highway and Heavy Parts <https://highwayandheavyparts.com/n-12794-diesel-engine-serial-numbers.html>

Diesel Parts Direct <https://www.dieselpartsdirect.com/finding-your-cummins-engine-serial-number>; <https://www.dieselpartsdirect.com/finding-your-detroit-diesel-engine-serial-number>

Perkins Engines <https://shop.perkins.com/support/identify-your-engine>

Kubota Engines <http://www.kubotaengine.com/products/parts/where-to-find-the-engine-serial-number>

In addition, several engine manufacturers, e.g. Caterpillar, Cummins, John Deere and Kubota, also provide apps that can assist vehicle and equipment owners in identifying their engines and determine emission certification compliance.

If the label is unreadable or missing, the engine manufacturer can provide replacement labels when provided with other identifying information like engine model and serial number.

Determining Compliance – Highway Vehicles

For highway vehicles, more or less meaning vehicles that require licensing to operate on the highway, the emission standards are applied by engine model year. The Clean Air Construction Standard requires trucks to have at least a 2007 or newer engine. Simply relying on the model year of the chassis is insufficient as trucks are often built with engines whose model year may lag the vehicle model year by one year, i.e., a 2007 truck can be built with a 2006 engine. Separately confirming the engine model year is important for other reasons because even new trucks can be ordered without a factory installed engine, e.g., a glider truck, or have a rebuilt or repowered engine that can differ significantly from the model year of the vehicle.

If the emission label is missing or unreadable, local dealers may be able to assist in determining emission certification status of the engine and get replacement labels when provided with information about your engine model including serial numbers.

Table 2 EPA Non-Road Engine Emission Tiers

DIESEL EMISSIONS TIERS								
HORSEPOWER GROUPS								
Year	25-49	50-74	75-99	100-174	175-299	300-599	600-750	750+
1995	T0	T0	T0	T0	T0	T0	T0	T0
1996	T0	T0	T0	T0	T1	T1	T1	T0
1997	T0	T0	T0	T1	T1	T1	T1	T0
1998	T0	T1	T1	T1	T1	T1	T1	T0
1999	T1	T1	T1	T1	T1	T1	T1	T0
2000	T1	T1	T1	T1	T1	T1	T1	T1
2001	T1	T1	T1	T1	T1	T2	T1	T1
2002	T1	T1	T1	T1	T1	T2	T2	T1
2003	T1	T1	T1	T2	T2	T2	T2	T1
2004	T2	T2	T2	T2	T2	T2	T2	T1
2005	T2	T2	T2	T2	T2	T2	T2	T1
2006	T2	T2	T2	T2	T3	T3	T3	T2
2007	T2	T2	T2	T3	T3	T3	T3	T2
2008	T4i	T4i	T3	T3	T3	T3	T3	T2
2008	T4i	T4i	T3	T3	T3	T3	T3	T2
2009	T4i	T4i	T3	T3	T3	T3	T3	T2
2010	T4i	T4i	T3	T3	T3	T3	T3	T2
2011	T4i	T4i	T3	T3	T4i	T4i	T4i	T4i
2012	T4i	T4i	T4i	T4i	T4i	T4i	T4i	T4i
2013	T4	T4	T4i	T4i	T4i	T4i	T4i	T4i
2014	T4	T4	T4i	T4i	T4	T4	T4	T4i
2015	T4	T4	T4	T4	T4	T4	T4	T4
2016	T4	T4	T4	T4	T4	T4	T4	T4
2017	T4	T4	T4	T4	T4	T4	T4	T4
2018	T4	T4	T4	T4	T4	T4	T4	T4
2019	T4	T4	T4	T4	T4	T4	T4	T4
2020	T4	T4	T4	T4	T4	T4	T4	T4

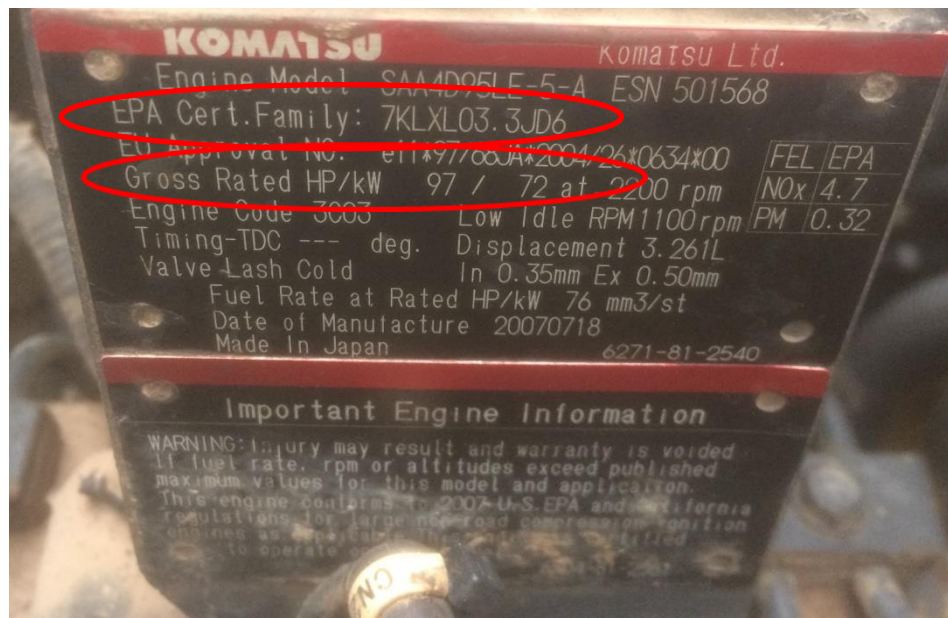
T4i = Tier 4 Interim

Determining Compliance – Non-road Equipment

EPA emission certification for non-road engines is not as straightforward as for highway vehicles. Engines are grouped by horsepower and model year and then certified in tiers. Tier 0 engines are unregulated for emissions and do not have engine family names assigned to them. Tier 4 engines are the most recent and represent the lowest emitting non-road diesel engines available. As you can see in the accompanying chart, determining the tier requires locating the appropriate cell that intersects the year the engine was built and the horsepower group.

In addition to determining the engine model year, the emission label also reports the rated power of the engine, typically as horsepower (HP) but sometimes as kilowatt (kW). Converting kW to horsepower means multiplying the reported kW by 1.341 to determine horsepower.

For instance, in the label below, the EPA family name places it as a 2007 engine model year with a rated horsepower of 97. Referring back to the Tier table, shows that it is a Tier 2 engine.



Engine displacement is the combined swept volume of the pistons inside the cylinders of an engine. It is calculated from the bore (diameter of the cylinders), stroke (distance the piston travels), and number of cylinders.

Engine models are designated by engine manufacturers to identify engines designed to work in particular applications. Engine models can be introduced into the marketplace as application needs are identified. Engine models can also be modified or removed from production as new engines are developed in response to engineering advances, consumer demand, regulations and other market forces.

EPA Engine Family Name is a 12 digit alpha numeric code that provides information about the emission certification for a group of engines. The engine family name is unique to an engine of a specific manufacturer, model year, size, and horsepower rating. The engine family name is not the engine manufacturer, engine model or serial number.

Engine serial numbers are assigned by an engine manufacturer to every specific individual engine. No engine exists that has the same serial number as another engine. Serial numbers

allow one to identify replacement parts and assist in determining other information like engine model year.