



TRU Advisory: 08-05

Using Rebuilt/Remanufactured Engines for TRU ATCM Compliance

The purpose of this advisory is to explain the requirements that must be met with rebuilt engines and how to determine TRU ATCM compliance dates for rebuilt/remanufactured engines.

Background

The Transport Refrigeration Unit (TRU) Airborne Toxic Control Measure (ATCM) (title 13 California Code of Regulations (CCR), section 2477) requires owners to bring their TRU and/or TRU generator set (genset) engines into compliance with in-use performance standards. There are two levels of stringency for these in-use performance standards. The Low-Emission TRU In-Use Performance Standard (LETRU) reduces diesel particulate matter by at least 50 percent. The Ultra-Low-Emission TRU In-Use Performance Standard (ULETRU) reduces diesel particulate matter by at least 85 percent. In-use performance standard compliance dates are phased in, based on the engine model year (MY), as shown in Table 1.

**Table 1
In-Use Performance Standard Compliance Dates**

MY	LETRU	ULETRU
2001 and older	December 31, 2008 ¹	December 31, 2015
2002	December 31, 2009	December 31, 2016
2003	Not Applicable	December 31, 2010
2004 and subsequent	Not Applicable	December 31st of 7th year after MY ²

There are several ways to comply. One compliance option is to replace a noncompliant engine with a rebuilt or remanufactured engine of a newer certified configuration emissions standard tier or emissions model year. This resets the compliance deadline for meeting the TRU ATCM's in-use performance standard, unless the rebuilt certified configuration meets ULETRU. The compliance schedule for the TRU ATCM requires that all TRU engines must eventually meet ULETRU, whether by meeting an in-use performance standard or by using an Alternative Technology³.

Engine rebuilders and remanufacturers must follow the engine rebuilding practices of Title 40, Code of Federal Regulations, Part 89.130 (40CFR89.130), 40CFR1068.120, and Title 13, California Code of Regulations, section 2423, subsection I (13CCR 2423(I)). In accordance with

¹ Enforcement delayed until December 31, 2009.

² TRU engines that are certified to emit 0.02 grams per horsepower-hour (g/hp-hr) or less (typically met by using a Level 3 diesel particulate filter) meet ULETRU. Less than 25 horsepower engines that meet the Tier 4 final new engine standard do not meet 0.02 g/hp-hr, so they do not meet ULETRU and must be retrofit with a Level 3 VDECS to meet ULETRU. The 25 horsepower and above categories of diesel engines are scheduled to meet 0.02 g/hp-hr when Tier 4 final becomes effective. This is scheduled for January 1, 2013, for 25-50 horsepower engines.

³ See title 13 CCR 2477 (e)(1)(A)3. Alternative Technologies qualify to meet ULETRU, provided they are operated in a way that eliminates diesel particulate matter emissions while at a facility, except during an emergency.

these regulations, rebuilt engines used in TRUs or TRU gensets must meet all of the following requirements:

1. When rebuilding an engine, there must be a reasonable technical basis for knowing that the resultant engine is equivalent, from an emissions standpoint, to a certified configuration (i.e. tolerances, calibrations, specifications). A reasonable basis would exist if (a) parts installed, whether the parts are new, used, or rebuilt, are such that a person familiar with the design and function of engines would reasonably believe that the parts perform the same function with respect to emission control as the original parts; and (b) any parameter adjustment or design element change is made only in accordance with the original engine manufacturer’s instructions or where data or other reasonable technical basis exists that such parameter adjustment or design element change, when performed on the engine or similar engines, is not expected to adversely affect in-use emissions.
2. When an engine is being rebuilt, it must be rebuilt to a configuration of the same or later MY as the original engine and must be a certified configuration of matched components. “Matched components” means a complete set of components corresponding to the certified emissions configuration (tier) of the engine that is being used as the reference for the rebuilt engine.
3. Supplemental labels are required, complying with all of the provisions of 13 CCR section 2423(l)(2)(C). The supplemental labels must include the name of the rebuilder, year of the rebuild, horsepower (hp), and the emissions standard being met (e.g. Tier 1, Tier 2, Tier 4 Interim, etc.).

For more details about using rebuilt engines, please see the Q&A for Rebuilt/Remanufactured TRU Engines at http://www.arb.ca.gov/diesel/tru/documents/q&a_tru_eng_rebuild-reman.pdf

New engine emissions standards change from one tier to the next, based on the engine hp and emissions model year, as shown in Table 2.

Table 2

HP	Engine MY																			
	1995	'96	'97	'98	'99	2000	'01	'02	'03	'04	'05	'06	'07	'08	'09	'10	'11	'12	'13	'14
<25					Tier 1					Tier 2			Tier 4 Final (Tier 4f)							
25- <50					Tier 1					Tier 2			Tier 4 Interim (Tier 4i)					Tier 4f		
50- <75					Tier 1					Tier 2			Tier 4i					Tier 4f		
75- <100					Tier 1					Tier 2			Tier 3				Tier 4i		Tier 4f	
100- <175					Tier 1					Tier2			Tier 3				Tier 4i		Tier 4f	
175- <300					Tier 1					Tier2		Tier 3				Tier 4i		Tier 4f		

What Are ARB’s Policies?

When a rebuilt engine is used in a TRU, the original engine model year does not change, but the TRU ATCM in-use performance standard compliance requirements and dates are based on the effective model year of the emissions configuration it was rebuilt to. The hp of the engine and the

tier it was rebuilt to must be used to determine the effective MY of the rebuilt engine. If the rebuild took place when the tier it was rebuilt to was the current tier in effect, then the rebuild year is the effective MY. But if the rebuild took place after the last year of the tier it was rebuilt to, then the last year of the tier it was rebuilt to is used as the effective MY. The effective MY of the rebuilt engine is then used to determine the TRU ATCM LETRU and ULETRU compliance requirements and compliance dates using Table 1. Table 3 shows the effective MYs of engine rebuilds meeting various tier standards and the resulting LETRU and ULETRU compliance dates for less than 25 hp. Table 4 shows this for 25 to 50 hp engines. Owners may call the TRU Helpline (1-888-878-2826) to get this compliance information for other hp ranges not shown below.

Table 3
Effective MY and Compliance Dates for <25 HP Engines

Tier Rebuilt-To	Rebuild Year	Effective MY of Rebuild	LETRU Compliance Date	ULETRU Compliance Date
Pre-Tier 1	1999 or earlier	Rebuild year	12-31-08 ⁴	12-31-15
Tier 1	2000	2000	12-31-08 ⁴	12-31-15
Tier 1	2001	2001	12-31-08 ⁴	12-31-15
Tier 1	2002	2002	12-31-09	12-31-16
Tier 1	2003	2003	Not Applicable	12-31-10
Tier 1	2004 or later	2004	Not Applicable	12-31-11
Tier 2	2005	2005	Not Applicable	12-31-12
Tier 2	2006	2006	Not Applicable	12-31-13
Tier 2	2007 or later	2007	Not Applicable	12-31-14
Tier 4f	2008 or later	Rebuild year	Not Applicable	December 31 st of rebuild year + 7 years

Table 4
Effective MY and Compliance Dates for 25-50 HP Engines

Tier Rebuilt-To	Rebuild Year	Effective MY of Rebuild	LETRU Compliance Date	ULETRU Compliance Date
Pre-Tier 1	1998 or earlier	Rebuild year	12-31-08 ⁴	12-31-15
Tier 1	1999	1999	12-31-08 ⁴	12-31-15
Tier 1	2000	2000	12-31-08 ⁴	12-31-15
Tier 1	2001	2001	12-31-08 ⁴	12-31-15
Tier 1	2002	2002	12-31-09	12-31-16
Tier 1	2003 or later	2003	Not Applicable	12-31-10
Tier 2	2004	2004	Not Applicable	12-31-11
Tier 2	2005	2005	Not Applicable	12-31-12
Tier 2	2006	2006	Not Applicable	12-31-13
Tier 2	2007 or later	2007	Not Applicable	12-31-14
Tier 4i	2008	2008	Not Applicable	12-31-15
Tier 4i	2009	2009	Not Applicable	12-31-16
Tier 4i	2010	2010	Not Applicable	12-31-17
Tier 4i	2011	2011	Not Applicable	12-31-18
Tier 4i	2012 or later	2012	Not Applicable	12-31-19

⁴ Enforcement delayed until December 31, 2009.

The ULETRU standard is met by engines that have been certified to meet 0.02 grams per hp-hour or that have been retrofit with a Level 3 VDECS⁵. Flexibility engines used in 2008 and subsequent year builds under the Transitional Program for Equipment Manufacturers (under 40 CFR 1039.625 or 13 CCR 2423(d)) may not meet this standard and must comply with ULETRU. TRU Advisory 08-07 explains ARB's policies related to flexibility engines.

Example:

In 2008, a 35 hp Tier 1 TRU engine is rebuilt to a Tier 2 certified configuration. Tier 4 Interim new engine standards became effective for 25 to 50 hp engines on January 1, 2008, so Tier 2 is less stringent than the current standard at that time. The last year for Tier 2 was 2007, so the effective model year of an engine rebuilt to meet Tier 2 would be 2007. Therefore, this engine's compliance deadline for meeting ULETRU would be December 31, 2014.

Related ARB policies:

- A. If a rebuilt engine has no supplemental label providing the required rebuild information (e.g. name of the rebuilder, year of rebuild, and tier of the emissions standard being met), then the engine is assumed to have been rebuilt to an uncertified configuration and the effective model year shall default to the last pre-Tier 1 year. Such a rebuilt engine must first meet LETRU by December 31, 2008 (enforcement delayed until December 31, 2009), and ULETRU by December 31, 2015.
- B. If the TRU or TRU genset owner cannot find the engine serial number, there is no way to reliably track this engine in the ARB registration system. The engine must be replaced by December 31, 2008 (enforcement delayed until December 31, 2009).

For more information

To obtain a copy of the regulation or other related compliance assistance documents, visit the TRU website at <http://www.arb.ca.gov/diesel/tru.htm>. Additional questions may be addressed by calling the toll-free TRU Help Line at 1-888-878-2826 (1-888-TRU-ATCM).

If you require special accommodation or language needs, please call 1-888-878-2826 or email tru@arb.ca.gov. TTY/TDD/Speech users may dial 711 for a California Relay Service.

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⁵ TRUs that are operated in a way that qualifies them as Alternative Technology also meet ULETRU. See footnote 3, above.