



TRU Advisory: 12-24

Before Purchasing TRUs¹ Equipped with Flexibility Engines, Understand the Consequences

What is the purpose of this advisory?

This advisory explains issues related to purchasing transport refrigeration units (TRU) equipped with flexibility engines after the Tier 4 Final (Tier 4f) new engine emissions standard for 25 to 50 horsepower (hp) engines goes into effect in 2013.

California's Ultra-Low-Emission TRU (ULETRU) in-use performance standard for TRU engines greater than 25 hp is aligned with the federal Tier 4f new engine standard. Starting in 2013, new Tier 4f TRU engines rated at 25 to 50 hp must meet California's ULETRU in-use performance standard. TRU engines meeting the Tier 4f standard are available. TRU manufacturers are also offering higher-emitting flexibility-engine options, at lower initial cost, which meet the earlier Tier 4 Interim (Tier 4i) emissions standard. **Although flexibility engines are legal, prospective owners should recognize that these engines have limited legal-service life and will need to be upgraded to meet California's required in-use performance standards.**

What is a flexibility engine?

TRU manufacturers are allowed to produce limited numbers of equipment with flexibility engines; these meet less stringent emissions standards than are in effect when the unit is manufactured. This is allowed by federal² and California³ law for several years after a new, more stringent emissions standard goes into effect. This allows heavily-impacted equipment manufacturers time to redesign equipment for the many product lines affected by new emissions standards, when new engines' sizes, mountings, and controls may change.

Currently, the Tier 4f emissions standard for TRU engines in the 25 to 50 hp category goes into effect on January 1, 2013. The TRU manufacturers have chosen to take advantage of the flexibility option and install the higher-emitting engines that meet the previous Tier 4i emissions standards in some of their models. Under the TRU regulation, the effective model year⁴ of a Tier 4i flexibility engine is 2012, which means these units must be upgraded by the end of 2019. The effective model year of a flexibility engine is the last year that Tier 4i was in effect - regardless of what year the flexibility engine is manufactured or installed.

¹ Transport Refrigeration Units (TRU or reefer) and TRU generator sets are subject to the TRU Airborne Toxic Control Measure (ATCM or Regulation) under title 13 California Code of Regulations (13 CCR) sections 2477.1 through 2477.21. Hereinafter, all references to TRUs include TRU generator sets, unless otherwise noted.

² Title 40, Code of Federal Regulations, section 1039.625.

³ Title 13 California Code of Regulations, section 2423(d).

⁴ "Effective model year" or "effective engine model year" is an alternative model-year designation for a new replacement engine, rebuilt replacement engine, or flexibility engine when the engine does not meet, at the time of manufacture, the most stringent emission tier standard for a new engine in effect for the horsepower rating of the engine. When an engine is manufactured to meet a less stringent prior-tier emissions standard than is currently in effect, the effective model year is the last year that the prior-tier emission standard was in effect.

Why should owners be concerned about buying TRUs equipped with flexibility engines?

Simply stated, future owners of flexibility-engine equipped TRUs will have reduced time to recoup investment costs before upgrades are necessary. The upgrades required for Tier 4i flexibility engines are an additional step to compliance with the ULETRU in-use standard.

Flexibility engines in the 25 to 50 hp category do not meet California's ULETRU in-use performance standard. The TRU regulation requires units equipped with flexibility engines to be upgraded to meet the ULETRU in-use standard within seven years of their effective model year.⁵ Only models built in 2013 will have until December 31, 2020 - the full seven years to comply. If manufacturers continue to equip TRUs with 25 to 50 hp flexibility engines after 2013, the effective model year of 2012 is used to determine the ULETRU in-use compliance date. All subsequent installations of flexibility engines after 2013 will need to be upgraded to meet ULETRU by December 31, 2019, no matter the installation date or manufacturing year.

It must be noted that the practice of equipping TRUs with dirtier flexibility engines more than one year after Tier 4f goes into effect causes a significant loss of regulatory-defined operational life. For example, trailer TRUs equipped with Tier 4i flexibility engines that were manufactured in 2014 have a 2012 effective model year (the last year that Tier 4i was in effect); so, the ULETRU in-use performance standard compliance deadline for these TRUs is December 31, 2019 (seven years after the effective model year). In this example, the operational life of these TRUs in this example would only be about 5 years (late 2014 to December 31, 2019).

What are other negative aspects of purchasing TRUs with the Tier 4i flexibility engine option?

Although there may be a lower initial capital cost for the flexibility-engine equipped TRUs, there are other negative aspects to consider, including, but not limited to:

1. Higher emitting Tier 4i flexibility engines increase potential public health impacts, compared to lower-emitting Tier 4f engines. Drivers and loading-dock workers would be exposed to greater levels of diesel particulate matter (soot) emissions, resulting in greater occupational health hazards.
2. Financial institutions may not be willing to finance in-use compliance costs. When the unit and trailer are 7 years old but the vehicle mileage and TRU hours of operation are high, they may not believe there is sufficient remaining life to warrant further investment.
3. The re-sale value of TRU-equipped trailers with an upcoming in-use compliance deadline will be less than one that meets ULETRU.

The initial investment in a TRU that meets ULETRU may pay off in the long-run.

⁵ 13 CCR 2477.5(b) requires the engine model year to be used to determine the in-use compliance dates. However, 13 CCR section 2477.5(b)(6) allows the unit manufacture year to be used instead of the engine model year if the difference between the engine model year and the unit manufacture year is no more than one year. If the difference between the engine model year and the unit manufacture year is greater than one year, then the engine model year or effective model year must be used to determine in-use standard compliance dates.

How would I be notified if a TRU is equipped with a flexibility engine?

California's TRU Regulation requires manufacturers provide written disclosures with new TRUs equipped with flexibility engines after October 15, 2012.⁶ These disclosures may be included with the documentation that is shipped with a new TRU.

The regulation also requires TRU manufacturers inform dealers of these units that they are required by California law to notify the ultimate purchaser prior to sale and pass along the written disclosures at the point of sale.⁷

This disclosure must notify the ultimate purchaser that:

1. The unit is equipped with a flexibility engine;
2. The flexibility engine meets less stringent emissions standards than those in effect at the time the engine was manufactured;
3. The flexibility engine is subject to requirements established by its effective model year;
4. If operated in California, the owner must bring the engine into compliance with the ULETRU in-use performance standard seven years after the effective model year of the engine; and
5. The owner must use 2012 as the effective model year of the engine when they register the TRU in ARBER (if applicable).

The TRU manufacturers must also provide supplemental labels for flexibility engines that make available all of the engine's information needed to register in ARBER - if the engine manufacturer's labels do not provide this information.

What should I do to understand my choices?

Prospective TRU buyers are encouraged to request information from TRU dealers on how each unit they are considering complies with the TRU Regulation in future years and the compliance options that will be available at that time if further compliance with in-use performance standards will be required.

For more information

Additional questions may be addressed by calling the toll-free TRU Help Line at 888-878-2826 (888-TRU-ATCM). 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/tru.htm>. If you need this document in an alternative format or another language, please call 888-878-2826 or email arber@arb.ca.gov. TTY/TDD/Speech users may dial 711 for a California Relay Service.

Si necesita este documento en un formato alternativo u otro idioma por favor llame al 1-888-878-2826 o contáctenos por correo electrónico a arber@arb.ca.gov. Para Servicios de Relevos de California (CRS) o para el uso de teléfonos TTY, marquen al 711.

⁶ 13 CCR section 2477.13(a)(3).

⁷ 13 CCR section 2477.14(a)(4).