

CARB Level
3+ Verified

Engine Emissions System

Smarter thinking went into it.
Cleaner emissions come out of it.



United Technologies
turn to the experts

EES. A COMPLIANCE STRATEGY THAT COMBINES RESPONSIBILITY WITH FLEXIBILITY.

The new Engine Emissions System (EES) from Carrier Transicold allows an even greater choice of CARB-compliant emission-control options to complement a choice of Carrier Tier 4-compliant trailer refrigeration systems.



Carrier Transicold's EES is a CARB-verified Level 3+ VDEC that enables fleets to operate indefinitely in California beyond the initial seven years allowed. EES offers choices that best fit the needs of your particular business, whether you operate in California or simply desire to implement more environmentally sustainable operations than engine-only devices may offer.

SMARTER FOR YOUR BUSINESS.

- EES-based compliance is required only if you operate your TRUs in California beyond seven years of the engine model year.
- Choose if and when to add or remove EES and have the flexibility to redesignate it between your units.*
- Designed for X4™ and Vector™ TRUs equipped with Tier 4-Final engines.

Diesel Oxidation Catalyst (DOC) 1

Catalytic Diesel Particulate Filter (CDPF) 2

Electronic Control Module (CAN-bus) 3

Integrated into APX™ Controls 4

Air Control Valve (ACV) 5

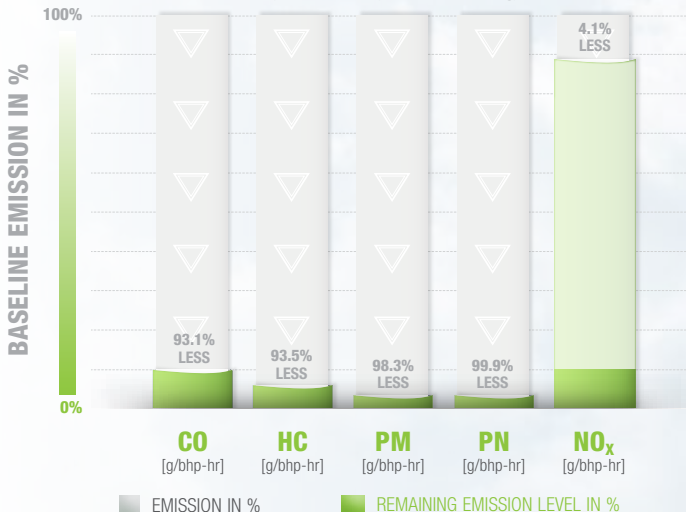
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* Refer to CARB executive order for Carrier EES at www.arb.ca.gov or contact your local Carrier Transicold dealer for verification conditions. CARB redesignation rules apply per CARB Advisory 420.

EMISSIONS REDUCTION

(Based on independent lab testing)



SMARTER FOR THE ENVIRONMENT.

- More effective than engine-only solutions in filtering all types of particulates, including ultrafine particles.
- Environmentally responsible method to significantly reduce particle mass (PM) and number (PN).
- Achieves over seven times lower particulate mass emissions than the regulatory limit for 25–50 HP engines.

THERE'S NO QUESTION: EES IS THE ANSWER.



Q: ARE CARRIER TRUs EPA- AND CARB-COMPLIANT WITHOUT THE EES?

A: Yes. Under rules for engines less than 25 horsepower, Carrier TRUs are US EPA “evergreen” outside California. Under rules unique to California (CARB), Carrier TRUs can be used for seven years from the model year of the engine. After the initial seven-year period, CARB requires the user to install a Level 3 VDECS such as an EES, or to use an alternative technology such as electric standby, to continue use in California (only).

Q: HOW OFTEN DOES THE EES REQUIRE SERVICE?

A: The EES service interval is designed to correspond with the 3,000-hour maintenance interval of the TRU.

Q: WHAT ARE THE SERVICE REQUIREMENTS ON THE EES?

A: The filter must be cleaned of ash. Under normal TRU operation, the filter does not require baking due to the silicon carbide filter element and Carrier’s exclusive regeneration strategy.

Q: WHAT IS THE LIFE EXPECTANCY OF THE EES?

A: EES assembly life is designed to be equivalent to the TRU.

Q: DOES THE EES AFFECT UNIT FUEL CONSUMPTION?

A: TRU fuel consumption will increase approximately 3%. This is more than offset by fuel savings up to 22% depending on the Tier 4 model platform.

Q: WILL IT COST A LOT MORE TO INSTALL THE EES LATER?

A: The EES is designed to be “plug and play.” Space is reserved inside the unit, mounting holes are in the frame, and electrical connections are in the TRU harness. Approximately five hours of labor are required to remove the exhaust system and install the EES.

Q: HOW MUCH DOES THE EES WEIGH?

A: Approximately 50 pounds. When the muffler is replaced with the EES, the net effect increases unit weight approximately 40 pounds.

Q: ARE THERE SPECIAL ENGINE MAINTENANCE REQUIREMENTS WHEN FITTED WITH AN EES?

A: Standard engine maintenance applies. An EES-equipped system requires ultra-low-sulfur diesel fuel and low-ash engine oil.

Q: ARE THERE ANY BUTTONS TO PUSH OR OTHER STEPS TO INITIATE REGENERATION?

A: No. The regeneration operating logic, whether passive or active, is automatic and inconspicuous. No operator intervention is required, and it does not interfere with TRU operation.

Q: CAN I REMOVE AN EES FROM AN EXISTING TRU AND REINSTALL IT ON A DIFFERENT TRU?

A: Yes, provided there is common ownership of TRUs and CARB Advisory 420 rules are followed. However, the EES may not be transferred if it is more than 10 years old. A used EES cannot be resold.

EES. Smarter for the environment. Smarter for you.

- Developed by Carrier Transicold specifically for Carrier TRUs and qualified using the same proprietary testing regimen.
- CARB-verified as a Level 3+ VDEC device, EES allows indefinite TRU operation in California after the initial seven years.
- An option for fleets outside California that are pursuing more sustainable operations.
- Fully integrated and housed inside the TRU.
- Integrated electronics offer status updates via the APX™ Control System and remote light bar.
- Quieter operation.
- No loss of unit performance such as cooling capacity or pulldown.
- Carrier TRU exclusive three-stage passive and active regeneration logic.
- Designed to correspond with the 3,000-hour TRU service interval.
- Reduces particulate mass over 98%.
- Reduces hydrocarbons (HC) 93%, carbon monoxide (CO) 93%, and particulate number (PN) 99%.
- More environmentally responsible method to reduce particulate matter than engine-only systems.
- Supported by the expertise of the Carrier Transicold dealer network.



Performance data compared to the Carrier Transicold models they replace and dependent on a range of operational settings, environmental conditions, and model type. Specifications are subject to change without notice.

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