

## Diesel Retrofit Pre-Installation Compatibility Checklist for DPFs on TRUs and Stationary Engines

The following list outlines minimum generic guidelines for assessing an on-road diesel retrofit candidate engine that must be checked prior to installation of a verified diesel particulate filter (DPF) emission control device on a transport refrigeration unit (TRU or reefer). Pre-installation compatibility assessment is required under title 13 California Code of Regulations (13 CCR), section 2706(t). The installer must maintain a record of all documentation used to make the determination that the candidate engine was appropriate for use with the DPF. Please consult with the retrofit device manufacturer for their specific pre-assessment requirements.

Engine Characteristics and Maintenance History	Yes	No
Do the candidate engine characteristics meet all terms and conditions of the verification letter (model year, engine family, engine configuration) for the retrofit device being considered? If the verification Executive Order includes exhaust temperature requirements for successful operation, temperature measurements must be recorded per 13 CCR 2706(t)(1) and (2).		
Does the diesel fuel used comply with the terms and conditions of the retrofit device verification letter (sulfur level, biodiesel specification, fuel additives)?		
Does the engine lube oil consumption rate exceed the limit in the Executive Order? Typically, lube oil consumption should not exceed one quart per 200 hours.		
Is the engine operating on the correct grade of oil (e.g. low ash oil such as CJ-4 is recommended)?		
Have the fuel injectors been cleaned and tested according to the engine manufacturer's maintenance schedule?		
Have the fuel injector tips been replaced in accordance with the engine manufacturer's maintenance schedule?		

Visual Inspection	Yes	No
Are there any visual integrity problems in the exhaust system (exhaust leaks – manifold to tailpipe)?		
Is there visible smoke at normal engine temperature and steady state operation at high and low speeds?		
Are there any audible combustion problems?		
Is the intake air filter in good condition? When was the filter last replaced?		
Are there any visible signs of engine oil or diesel fuel present in the tailpipe?		
Has the fuel pump fuel screw factory setting been tampered with?		
Is there available space for the retrofit?		

**If any of the shaded boxes have been checked, the engine/vehicle fails the pre-assessment and should not be retrofit without further consultation with the diesel retrofit device manufacturer. Notify the customer of any necessary repairs that must be made prior to installing the retrofit.**

### Other Considerations:

\_\_\_\_\_ **Engine hours accumulated:** \_\_\_\_\_

If engine hour accumulation is greater than the following values, please advise the owner that the higher rate of spontaneous engine component failures may result in unwarranted failure of the emission

control device:

- Less than 25 hp bobtail TRUs: >15,000 hours
- 25 to 50 hp trailer TRUs: >25,000 hours
- Stationary prime engines > 15,000 hours

\_\_\_\_\_ **Exhaust smoke opacity (per steady state smoke test at low and high speed):** \_\_\_\_\_

- Consult with VDECS manufacturer for the opacity testing limits that they recommend.

(It is the right of the technology provider and its distributors to reject an engine even if the opacity value is below the limit if, in their opinion, the engine presents an atypical opacity value.)

\_\_\_\_\_ **Data-logging and duty-cycle evaluation:** This is not required for active TRU systems but may be required for passive DPF equipped TRUs and stationary prime or standby engines. The application duty-cycle must comply with the terms and conditions of the VDECS verification letter.

\_\_\_\_\_ **Conduct safety analysis:** Evaluate the location of the retrofit device installation and consider its impact on:

- Structural integrity of framework of device or building or vehicle stability
- Thermal hazards that cannot be mitigated?
- Overall vehicle height limits?
- Create potentially hazardous conditions due to impacts with tree limbs or other obstructions that cannot be mitigated with appropriate guards and other protections towering and other ancillary connections?

Please be aware that some states or jurisdictions may have regulations governing the safe installation of diesel retrofit devices that must be considered as part of this safety analysis.

This is a basic engine assessment to identify obvious engine conditions that may impact the performance of the retrofit device at the time of the assessment. This assessment may not identify all engine problems and/or conditions that may impact the performance of the retrofit device and will not identify engine problems and/or conditions that develop after this assessment. Level 3+ particulate reduction systems will capture essentially all “engine out” particulate and as such, any condition that results in increased engine out particulate will likely require correction for the retrofit device to operate as designed and verified.

Inspection performed by: \_\_\_\_\_

Customer signature: \_\_\_\_\_ on \_\_\_\_/\_\_\_\_/\_\_\_\_