

**State of California  
AIR RESOURCES BOARD**

**EXECUTIVE ORDER DE-09-001-01**  
(Supercedes EO DE-09-001)

Pursuant to the authority vested in the California Air Resources Board (ARB) by Health and Safety Code, Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Section 39515 and 39616 and Executive Order G-02-003;

This action relates to Verification under sections 2700 through 2710 of Title 13 of the California Code of Regulations

RYPOS DPF/LETRU™

ARB has reviewed the request by RYPOS for verification of the RYPOS DPF/LETRU™ active diesel exhaust filter system. Based on an evaluation of the data provided, and pursuant to the terms and conditions specified below, the Executive Officer of the ARB hereby finds that the RYPOS DPF/LETRU™ reduces emissions of diesel particulate matter (PM) consistent with a Level 2 device (greater than or equal to 50 percent reductions) (California Code of Regulations (CCR), Title 13, sections 2702 (f) and (g) and section 2708(b)).

The RYPOS DPF/LETRU™ does not increase NO<sub>2</sub> emissions more than 20 percent, compared to baseline emissions and is therefore compliant with the 2009 nitrogen dioxide emissions limit (13 CCR section 2706(a)), and as such merits designation as a "Plus" system per Section 2702(f).

This verification is subject to the following terms and conditions:

- The RYPOS DPF/LETRU™ may be used only on model year 2003 or older diesel TRU engines as listed in Attachment 1;
- The engine must be in its original configuration;
- The engine must not employ exhaust gas recirculation;
- The engine must not have a pre-existing oxidation catalyst;
- The engine must not have a pre-existing diesel particulate filter;
- The engine must emit no more than 0.8 g/bhp-hr based on certification data or in-use testing.
- The engine must be four-stroke;
- The engine must be naturally-aspirated;
- RYPOS shall supply a TRU engine inspection checklist and data sheet with each RYPOS DPF/LETRU™, to ensure compatibility. Using the checklist, the installer shall review the candidate engine actual operating conditions (e.g. lube oil consumption, injector service) prior to retrofitting the TRU with the RYPOS DPF/LETRU™, specifically, to determine if the candidate engine is suitable for installation of a RYPOS DPF/LETRU™. RYPOS will also conduct training for

installers, on an as-needed basis. The installer shall record the results on the data sheet, and the data sheet must be retained by the installer at point of sale for a minimum of four (4) years (warranty period).

- Lube oil, or other oil, must not be mixed with the fuel;
- The product must not be operated with fuel additives, as defined in Section 2701 of Title 13 of the CCR, unless explicitly verified for use with the fuel additive(s);
- The product must not be used with any other systems or engine modifications without ARB and manufacturer approval; and
- The other terms and conditions specified below.

**Table 1: Conditions for the RYPOS DPF/LETRU**

Parameter	Value
Application	Transport refrigeration units
Engine Type	Diesel, four-stroke, direct injection, naturally aspirated, without exhaust-gas recirculation (EGR).
Fuel	CARB ultra-low sulfur diesel fuel (less than 15 ppm sulfur) or biodiesel blends. (See further fuel requirements below.)
PM Emission Rate	The engine must emit no more than 0.8 g/bhp-hr based on certification data or in-use testing.
PM Verification Level	Level 2 Plus classification: At least 50 percent reduction of PM and no more than 20 percent NO <sub>2</sub> increase from baseline.

The RYPOS DPF/LETRU™ consists of active flow-through filters made out of an electrically conductive sintered metal fiber medium. It is microprocessor controlled with a backpressure control system, an electrical control circuit, and a backpressure warning indicator. These components shall be installed exactly as described in RYPOS's DPF/LETRU™ Application for Verification, dated November 17, 2008. The parts list for the RYPOS DPF/LETRU™ included in Attachment 2

This Executive Order is valid provided that the diesel fuel used in conjunction with the device complies with Title 13, California Code of Regulations (CCR), sections 2281 and 2282, and if biodiesel is used, it shall be a blend of 20 percent or less subject to the following conditions:

- The biodiesel portion of the blend complies with the American Society for Testing and Materials (ASTM) specification D6751 applicable for 15 ppm sulfur content;
- The diesel fuel portion of the blend complies with Title 13, CCR, sections 2281 and 2282; and
- The use of biodiesel applies to devices verified to reduce only diesel particulate matter.

Other alternative diesel fuels such as, but not limited to, ethanol diesel blends and water emulsified diesel fuel are excluded from this Executive Order.

This Executive Order is valid provided that installation instructions for the RYPOS DPF/LETRU™ do not recommend tuning the engine to specifications different from those of the engine manufacturer.

Changes made to the design or operating conditions of the RYPOS DPF/LETRU™, as exempted by ARB, which adversely affect the performance of the engine's pollution control system, shall invalidate this Executive Order.

If RYPOS INC. plans to make changes to the design of the RYPOS DPF/LETRU™, ARB must be notified in writing of any changes to any part of the RYPOS DPF/LETRU™. Any changes to the device must be evaluated and approved by ARB. Failure to do so shall invalidate this Executive Order.

Marketing of the RYPOS DPF/LETRU™ using identification other than that shown in this Executive Order or for an application or operating conditions other than that listed in this Executive Order shall be prohibited unless prior approval is obtained from ARB.

This Executive Order shall not apply to any RYPOS DPF/LETRU™ advertised, offered for sale, sold with, or installed on a TRU prior to or concurrent with transfer to an ultimate purchaser.

As specified in the Diesel Emission Control Strategy Verification Procedure (Title 13 CCR Section 2706 (g)), ARB assigns each diesel emission control strategy a family name. The designated family name for the verification, as outlined above is:

**CA/RYP/2009/PM2+/N00/OF/DPF01**

Additionally, as stated in the Diesel Emission Control Strategy Verification Procedure, RYPOS Inc. is responsible for honoring their warranty (California Code of Regulations (CCR), Title 13, section 2707) and conducting in-use compliance testing (section 2709).

In addition, ARB reserves the right in the future to review this Executive Order and verification provided herein to assure that the verified add-on or modified part continues to meet the standards and procedures of CCR, Title 13, section 2222, et seq and CCR, Title 13, sections 2700 through 2710.

Systems verified under this Executive Order shall conform to all applicable California emissions regulations. This Executive Order does not release RYPOS Inc. from complying with all other applicable regulations.

Violation of any of the above conditions shall be grounds for revocation of this Executive Order.

Executed at Sacramento, California, this 2nd day of August 2010.

James N. Goldstene  
Executive Officer

by



Richard W. Corey, Chief  
Stationary Source Division

Attachment 1: RYPOS DPF/LETRU™ Engine Family List

Attachment 2: RYPOS DPF/LETRU™ Parts List (Confidential)