

**State of California
AIR RESOURCES BOARD**

EXECUTIVE ORDER DE-05-004

Pursuant to the authority vested in the 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;

Relating to Exemptions under Section 27156 of the Vehicle Code, and Verification under Sections 2700 through 2710 of Title 13 of the California Code of Regulations

Johnson Matthey, Inc.
Exhaust Gas Recirculation Technology (EGRT™) System

ARB has reviewed Johnson Matthey, Inc.'s request for verification of EGRT™. Based on an evaluation of the data provided, and pursuant to the terms and conditions specified below, the Executive Officer of ARB hereby finds that the EGRT™ reduces emissions of diesel particulate matter (PM) consistent with a Level 3 device (greater than or equal to 85 percent reductions) and oxides of nitrogen (NOx) by at least 40 percent (Title 13 California Code of Regulations (CCR) Sections 2702 (f) and (g) and Section 2708). Accordingly, the Executive Officer determines that the system merits verification and subject to the terms and conditions specified below, classifies the EGRT™ as a Level 3 system for on-road application of the following engine models: 2000 model year (MY) International DT-466, 2000 MY Cummins ISM 2001 MY Cummins ISB, 2001 MY Cummins ISC, 2001 MY Cummins ISL, 2001 MY DDC Series 50, and 2001 MY DDC Series 60. Attachment 1 contains the specific engine families for those engine models.

The aforementioned verification is subject to the following terms and conditions:

- The engine does not employ exhaust gas recirculation.
- The application must have a duty cycle with an average temperature profile greater than 260 degrees Celsius for 40 percent of the operating cycle.
- The engine may or may not have a pre-existing original equipment manufacturer oxidation catalyst.
- The engine must not have a pre-existing diesel particulate filter.
- The engine must be certified in California for on-road applications.
- The engine must be certified at a PM emission level of at most 0.1 grams per brake horsepower-hour (g/bhp-hr), and greater than 0.01 g/bhp-hr.
- The engine must be four-stroke.
- The engine must be turbocharged.
- The engine can be mechanically or electronically injected.
- The engine should be well maintained and not consume lubricating oil at a rate greater than that specified by the engine manufacturer.

- Lube oil, or other oil, should not be mixed with the fuel.
- The engine must be operated on diesel fuel (e.g. not biodiesel blends or alternative diesel fuels) with a sulfur content of no more than 15 parts per million by weight.
- For the EGRT™ system to function properly, the NOx to PM ratio must be at least 20 at all times.
- The other terms and conditions specified below.

IT IS ALSO ORDERED AND RESOLVED: That installation of the EGRT™, manufactured by Johnson Matthey, Inc. of 380 Lapp Road, Malvern, Pennsylvania 19355, and STT Emtec, Kontorsvagen 9, SE 852 29 Sundsvall, Sweden, has been found not to reduce the effectiveness of the applicable vehicle pollution control system, and therefore, the EGRT™ is exempt from the prohibitions in Section 27156 of the Vehicle Code for installation on heavy-duty on-road vehicles.

This exemption is only valid provided the engines meet the aforementioned conditions.

The EGRT™ consists of a catalyzed passive diesel particulate filter, an exhaust gas recirculation system, and a backpressure monitor. The major components of the EGRT™ are identified in Attachment 2.

This Executive Order is valid provided that installation instructions for EGRT™ do not recommend tuning the vehicle to specifications different from those of the vehicle manufacturer.

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

No changes are permitted to the device. The ARB must be notified in writing of any changes to any part of the EGRT™. Any changes to the device must be evaluated and approved by ARB. Failure to do so shall invalidate this Executive Order.

Marketing of the EGRT™ using identification other than that shown in this Executive Order or for an application 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 EGRT™ advertised, offered for sale, sold with, or installed on a motor vehicle prior to or concurrent with transfer to an ultimate purchaser.

The ARB estimates that the EGRT™ system might incur an average fuel economy penalty between three to six percent.

As specified in the Diesel Emission Control Strategy Verification Procedure (Title 13 CCR Section 2706 (g)), the ARB assigns each Diesel Emission Control Strategy a

family name. The designated family name for the verification as outlined above is: CA/JMI/2005/PM3/N40/ON/ERF01.

Additionally, as stated in the Diesel Emission Control Strategy Verification Procedure, Johnson Matthey, Inc. is responsible for honoring the required warranty (Section 2707) and conducting in-use compliance testing (Section 2709).

In addition to the foregoing, ARB reserves the right in the future to review this Executive Order and the exemption and verification provided herein to assure that the exempted and verified add-on or modified part continues to meet the standards and procedures of California Code of Regulations, Title 13, Section 2222, et seq and California Code of Regulations, Title 13, Sections 2700 through 2710.

Systems verified under this Executive Order shall conform to all applicable California emissions regulations.

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

Executed at El Monte, California, this 15th day of April 2005.

/s/

Robert H. Cross, Chief
Mobile Source Control Division

Attachment 1: Engine Families for the Verified JM EGRT™
Attachment 2: Part Numbers for the Verified JM EGRT™