



Winston H. Hickox
Agency Secretary

Air Resources Board

Alan C. Lloyd, Ph.D.
Chairman

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Gray Davis
Governor

April 26, 2002

Dr. Marc Rumminger
Cleaire Advanced Emission Controls
14775 Wicks Boulevard
San Leandro, California 94577-6779

Dear Dr. Marc Rumminger:

The California Air Resources Board (ARB) has reviewed your request for verification of your Flash and Match™ oxidation catalyst based system. Based on its evaluation of the data provided, ARB hereby verifies that the Cleaire Flash and Match™ system, which includes Cummins ReCon® replacement fuel injectors, and an engine reflash, reduces emissions of diesel particulate matter (PM) consistent with a Level 1 (less than 50 percent PM reductions but greater than or equal to 25 percent reductions) device, and obtains a 25 percent oxides of nitrogen (NOx) reduction for long haul truck (steady state) applications. The verification applies to those engines and CPL (Control Parts List) numbers listed in Table 1. The Flash and Match™ system is hereby approved as a Level 1 system, achieving 25 percent NOx reductions for long haul truck (steady state) applications.

Table 1. Cummins M11 Engine Model Years 1994-1998

Engine Family	Control Parts List Number
RCE661EJDARW	1856
RCE661FJDARA	1855, 1857
SCE661EJDARW	1856
SCE661EJDARA	1855, 1857
SCE661EJDASW	2036
SCE661EJDATW	2037
TCE661EJDARW	1856
TCE661EJDASW	1855, 1857
TCE661EJDARB	2036
TCE661EJDATW	2037
VCE661EJDATW	2037
VCE661EJDASA	1855, 1856, 1857
VCE661EJDARB	2036
WCEXH0661MAA	2371
WCEXH0661MAB	2370

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our Website: <http://www.arb.ca.gov>.

The approved engines do not employ exhaust gas recirculation (EGR). The engines and CPL number combinations in Table 1 are those that are covered by the Consent Decree.

The aforementioned verification is valid provided the following criteria are met:

- The engine and Control Parts List numbers must be covered by the Cummins Consent Decree and have a corresponding low NO_x recalibration supported by Cummins (Attachment 1).

The engine's injectors must be replaced with reconditioned Cummins ReCon® fuel injectors (Table 2).

- The engine must be certified in California for on-road applications.
- Certified at a PM emission level of at most 0.1 grams per brake horsepower-hour (g/bhp-hr).
- The engine must be four-stroke.
- The engine must be turbocharged.
- The engine should be well maintained and not consume lubricating oil at a rate greater than that specified by the engine manufacturer.

The engine must be operated on CARB #2 diesel fuel or ultra low sulfur diesel fuel.

- The vehicle is used for predominantly long haul/steady state applications.

The catalytic muffler must contain the catalyst specified in Cleaire's verification submittal, housed within a Fleetguard Nelson muffler, part numbers 29877A or 29890A, with the entire Flash and Match™ catalytic muffler having a Cleaire part number of 5101 or 5102, respectively.

- No changes are permitted to the device. The Air Resources Board must be notified in writing of any changes to any part of the Flash and Match™ system. Any changes to the device, applicable models, model-years, etc. must be evaluated and approved by the Air Resources Board.

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Table 2. CPL and ReCon® Injector Combinations

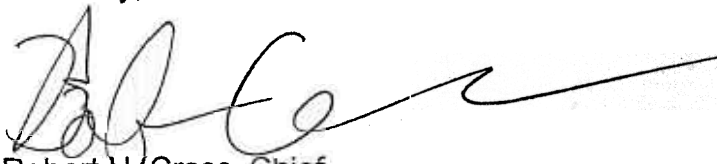
CPL Number	ReCon® Injector Number
1855, 1856, 1857	3087557 PX
2036, 2037, 2370, 2371	3411753 PX

The ARB estimates that the Flash and Match™ system will incur no discernible fuel economy penalty when used in a compatible application.

The ARB granting verification to the Cleaire Flash and Match™ system is independent of the Consent Decree agreement between Cummins Engine Company and The United States of America. Verification of the Cleaire Flash and Match™ system by the ARB neither fulfills nor releases Cummins from any of their obligations under the consent decree. The ARB verifies that the reflashed engines granted verification by this letter achieve NOx reductions for retrofit purposes, not that these reflashed engines now comply with the stipulations of the Consent Decree.

Thank you for participating in ARB's diesel retrofit verification program. Should you have any questions or comments, please contact Ms. Annette Hebert, Branch Chief, Heavy-Duty Diesel In-Use Strategies Branch, at (626) 575-6973.

Sincerely,



Robert H. Cross, Chief
Mobile Source Control Division

Attachments (1)