

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER D-616

Relating to Exemptions Under Section 27156  
of the California Vehicle Code

Lotus Sport  
Elise/Exige ECU Upgrade

Pursuant to the authority vested in the Air Resources Board by Section 27156 of the Vehicle Code; and

Pursuant to the authority vested in the undersigned by Section 39515 and Section 39516 of the Health and Safety Code and Executive Order G-02-003;

**IT IS ORDERED AND RESOLVED:** That the installation of the Elise/Exige ECU Upgrade, manufactured and marketed by Lotus Sport (Potash Lane, Hethel, Norfolk, NR14 8EZ, United Kingdom) has been found not to reduce the effectiveness of the applicable vehicle pollution control system and, therefore, is exempt from the prohibitions of Section 27156 of the Vehicle Code for 2005 through 2007 Lotus Elise and 2006 Lotus Exige vehicles equipped with a naturally aspirated 1.8L engine.

The Elise/Exige ECU Upgrade features a modified calibration that lowers the RPM at which the camshaft profile switchover occurs. No other changes are made to the OEM calibration. The OEM ECU is removed from the vehicle and the Elise/Exige ECU Upgrade takes its place.

This Executive Order is valid provided that the installation instructions for the Elise/Exige ECU Upgrade will not recommend tuning the vehicle to specifications different from those submitted by the device manufacturer.

Changes made to the design or operating conditions of the Elise/Exige ECU Upgrade, as exempt by the Air Resources Board, which adversely affect the performance of the vehicle's pollution control system shall invalidate this Executive Order.

This Executive Order shall not apply to any Elise/Exige ECU Upgrade advertised, offered for sale, sold with, or installed on a new motor vehicle prior to or concurrent with transfer to an ultimate purchaser.

Marketing of the Elise/Exige ECU Upgrade using any identification other than that shown in this Executive Order or marketing of the Elise/Exige ECU Upgrade for an application other than those listed in this Executive Order shall be prohibited unless prior approval is obtained from the Air Resources Board.

This Executive Order does not constitute any opinion as to the effect the use of the Elise/Exige ECU Upgrade may have on any warranty either expressed or implied by the vehicle manufacturer.

This Executive Order is granted based on an engineering evaluation of the emissions impact of the device if measured during the Cold-Start CVS-75 Federal Test Procedure (FTP) and the Supplemental FTP (SFTP) test cycles. It was determined that the device will have no effect on emissions during the test cycles.

The Air Resources Board reserves the right in the future to review this Executive Order and the exemption provided herein to assure that the exempted add-on or modified part continues to meet the standards and procedures of Title 13, California Code of Regulations, Section 2222, et seq.

THIS EXECUTIVE ORDER DOES NOT CONSTITUTE A CERTIFICATION, ACCREDITATION, APPROVAL, OR ANY OTHER TYPE OF ENDORSEMENT BY THE AIR RESOURCES BOARD OF ANY CLAIMS OF THE APPLICANT CONCERNING ANTI-POLLUTION BENEFITS OR ANY ALLEGED BENEFITS OF THE ELISE/EXIGE ECU UPGRADE.

No claim of any kind, such as "Approved by the Air Resources Board", may be made with respect to the action taken herein in any advertising or other oral or written communication.

Violation of any of the above conditions shall be grounds for revocation of this order. The order may be revoked only after a ten-day written notice of intention to revoke the order, in which period the holder of the order may request in writing a hearing to contest the proposed revocation. If a hearing is requested, it shall be held within ten days of receipt of the request and the order may not be revoked until a determination is made after the hearing that grounds for revocation exist.

Executed at El Monte, California, this 12 day of December 2006



Annette Hebert, Chief  
Mobile Source Operations Division

## EVALUATION SUMMARY

Manufacturer Name: Lotus Sport

Name of Device: Elise/Exige ECU Upgrade

Background: Lotus Sport of Potash Lane, Hethel, Norfolk, NR14 8EZ, United Kingdom has applied for an exemption from the prohibitions of Section 27156 of the California Vehicle Code for its Elise/Exige ECU Upgrade. The Elise/Exige ECU Upgrade is for 2005 through 2007 Lotus Elise and 2006 Lotus Exige vehicles equipped with a naturally aspirated 1.8L engine.

Recommendation: Grant exemption to Lotus Sport as requested and issue Executive Order D-616.

Device Description: The Elise/Exige ECU Upgrade features a modified calibration which lowers the camshaft profile switchover to 5750 RPM. The switchover in the OEM calibration occurs at 6200 RPM. Lotus Sport claims that when using a Lotus Elise or Exige vehicle on a race track, the OEM camshaft profile switchover point is slightly too high. During cornering, the engine can change camshaft profile, causing the balance of the car to be upset due to a step change in engine torque output. No other changes are made to the OEM calibration. The OEM ECU is removed from the vehicle and the Elise/Exige ECU Upgrade takes its place.

Discussion/Basis for the Recommendation: This Executive Order is granted based on an engineering evaluation. Lotus Sport provided data which shows that during the Cold-Start CVS-75 Federal Test Procedure (FTP) and the Supplemental FTP (SFTP) test cycles, the Elise/Exige engine never exceeds 5000 RPM. Since the revised camshaft profile switchover occurs at 5750 RPM, the device will have no effect on emissions during these test cycles.