

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER D-265
Relating to Exemptions Under Section 27156
of the Vehicle Code

MOPAR PERFORMANCE
SHELBY STAGE II LOGIC MODULE

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 Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-45-5;

IT IS ORDERED AND RESOLVED: That the installation of the add-on Shelby Stage II Logic Module (Logic Module) manufactured by Mopar Performance of 26311 Lawrence Avenue, Center Line, Michigan 48015-9760 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 the following applications:

Part Number P5249054 - 1986, 2.2L turbocharged Shelby GLHS
- 1987, 2.2L turbocharged Shelby Charger

Part Number P5249055 - 1987, 2.2L turbocharged Shelby CSX

This Executive Order is valid provided that installation instructions for the Logic Module will not recommend tuning the vehicle to specifications different from those submitted by Mopar Performance.

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

Marketing of these Logic Module using any identification other than that shown in this Executive Order or marketing of these Logic Module 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 Logic Module may have on any warranty either expressed or implied by the vehicle manufacturer.

This Executive Order is granted based on test results verifying that the Logic Module is not functional during the CVS-75 Federal Test Procedure (FTP) driving cycle. However, the Air Resources Board finds that reasonable grounds exist to believe that use of the Logic Module may adversely affect emissions of motor vehicles when operating under conditions outside the parameters of the previously prescribed test procedures. Accordingly, the Air Resources Board reserves the right to conduct additional emission tests, in the future, as such tests are developed, that will more adequately measure emissions from all cycle phases. If such test results demonstrate that the Logic Module adversely affects emissions during off-cycle conditions (defined as those conditions which are beyond the parameters of the Cold-Start CVS-75 Federal Test Procedure), this Executive Order shall be effectively rescinded as of the date the test results are validated.

Further, if such test results or other evidence provides the Air Resources Board with reason to suspect that the Logic Module will affect the durability of the emission control system, Mopar Performance, shall be required to submit durability data to show that the durability of the vehicle emission control system is not, in fact, affected and/or that the add-on or modified part demonstrates adequate durability.

In addition to the foregoing, 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 CLAIMS OF THE APPLICANT CONCERNING ANTI-POLLUTION BENEFITS OR ANY ALLEGED BENEFITS OF MOPAR PERFORMANCE'S SHELBY STAGE II LOGIC MODULE.

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.

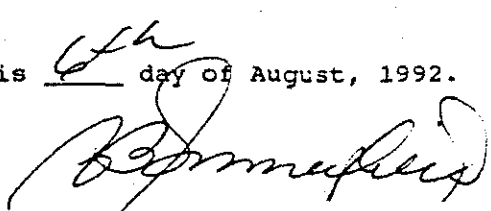
Section 17500 of the Business and Professions Code makes untrue or misleading advertising unlawful, and Section 17534 makes violation punishable as a misdemeanor.

Section 43644 of the Health and Safety Code provides as follows:

"43644, (a) No person shall install, sell, offer for sale, or advertise, or, except in an application to the state board for certification of a device, represent, any device as a motor vehicle pollution control device for use on any used motor vehicle unless that device has been certified by the state board. No person shall sell, offer for sale, advertise, or represent any motor vehicle pollution control device as a certified device which, in fact, is not a certified device. Any violation of this subdivision is a misdemeanor."

Any apparent violation of the conditions of this Executive Order may result in its rescission or submission to the Attorney General of California for such action as he deems advisable.

Executed at El Monte, California, this 6th day of August, 1992.


R. B. Summerfield
Assistant Division Chief
Mobile Source Division

State of California
AIR RESOURCES BOARD

EVALUATION OF MOPAR PERFORMANCE'S SHELBY STAGE II LOGIC MODULE FOR
EXEMPTION FROM THE PROHIBITIONS OF VEHICLE CODE SECTION 27156
IN ACCORDANCE WITH SECTION 2222, TITLE 13, OF THE CALIFORNIA CODE OF
REGULATIONS

August 1992

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AIR RESOURCES BOARD

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REGULATIONS

by

Mobile Source Division
State of California
Air Resources Board
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(This report has been reviewed by the staff of the California Air Resources Board and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Air Resources Board, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.)

SUMMARY

Mopar Performance of 26311 Lawrence Avenue, Center Line, Michigan 48015-9760, has applied for an exemption from the prohibitions in Section 27156 of the California Vehicle Code (VC) for their Shelby Stage II Logic Module (logic module) for the following applications:

Part Number P5249054 - 1986, 2.2L turbocharged Shelby GLHS
- 1987, 2.2L turbocharged Shelby Charger

Part Number P5249055 - 1987, 2.2L turbocharged Shelby CSX

Mopar Performance submitted the completed application and other required information, as well as test data which demonstrated that the modifications to the logic modules do not operate until a wide open throttle condition is achieved.

Based on the submitted information, the staff concludes that Mopar Performance's logic module will not adversely affect exhaust emissions from vehicles for which an exemption is requested, when tested in accordance with the Cold Start CVS-75 Federal Test Procedure.

The staff recommends that Mopar Performance be granted an exemption as requested and that Executive Order D-265 be issued.

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EVALUATION OF MOPAR PERFORMANCE'S SHELBY STAGE II LOGIC MODULE FOR
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WITH SECTION 2222, TITLE 13, OF THE CALIFORNIA CODE OF REGULATIONS

I. INTRODUCTION

Mopar Performance (Mopar) of 26311 Lawrence Avenue, Center Line, Michigan 48015-9760, has applied for an exemption from the prohibitions in Section 27156 of the California Vehicle Code (VC) for their Shelby Stage II Logic Module (logic module) for installation on the following vehicles:

Part Number P5249054 - 1986, 2.2L turbocharged Shelby GLHS
- 1987, 2.2L turbocharged Shelby Charger

Part Number P5249055 - 1987, 2.2L turbocharged Shelby CSX

Mopar Performance submitted a completed application and other required information, as well as test data which demonstrated that the modifications to the logic module do not operate until a wide open throttle condition is achieved.

II. CONCLUSIONS

Based on the submitted information, the staff concludes that Mopar's logic module will not adversely affect exhaust emissions from vehicles for which an exemption is requested when tested in accordance with the Cold Start CVS-75 Federal Test Procedure (FTP).

III. RECOMMENDATION

The staff recommends that Mopar Performance be granted an exemption for their Shelby Stage II Logic Module for installation on the above specified vehicles. The staff also recommends that Executive Order D-265 be issued.

IV. SHELBY STAGE II LOGIC MODULE DESCRIPTION

The logic module is a microprocessor that controls the fuel and spark management for the vehicle. Logic module, part numbers P5249054 and P5249055 are functionally identical to the production units they replace, except for the following modifications:

- a) The wide open throttle boost schedule has been changed from 12 P.S.I. to 14 P.S.I. above 3200 RPM.
- b) Under the modified boost condition, there is a corresponding change to lean out the air/fuel ratio from 10.3/1 to 11.1/1
- c) The ignition timing is advanced two (2) more degrees to help cool down the exhaust gas temperature during wide open throttle conditions.

The purpose of the Shelby Stage II Logic Module is to improve engine performance and engine torque during wide-open throttle conditions. No other OEM emission control components are removed, disconnected or relocated. Installation instructions included with the logic module are shown in Appendix A.

V. DISCUSSION

Mopar claims the Shelby Stage II Logic Module only operates during wide-open throttle. Therefore under normal driving conditions characterized by Cold Start CVS-75 FTP, the logic module will not cause a change in emissions of the affected vehicles.

A 1987 Shelby CSX equipped with a 2.2L turbocharged engine and a five (5) speed manual transmission was used to demonstrate that the logic module operates only during wide-open throttle (open loop) conditions. Testing was conducted at the E.C.S. Laboratories, Inc., in Livonia, Michigan. The test consisted of side-by-side traces of the intake manifold pressure and the drivers trace of the Cold Start CVS-75 FTP driving cycle. The test results showed that positive manifold pressure was never attained during the FTP driving cycle. This demonstrates that neither the turbocharger nor any of the

turbocharger electronic management controls, including the logic module, are functional during the FTP driving cycle.

Although the test data demonstrated that the modifications in Mopar's logic module do not affect the vehicle's operation until a wide-open throttle (open-loop) condition is achieved, they could potentially increase vehicle emissions during open-loop conditions when the logic module is in boost conditions. The Air Resources Board (ARB) has not established an official test procedure to evaluate emissions during open-loop driving conditions. However, the ARB reserves the right to conduct emissions tests in the future, as such tests are developed, that will more adequately measure emissions from all driving cycles.

APPENDIX A

**MOPAR PERFORMANCE INSTRUCTION SHEET - DCF 184
FOR SHELBY STAGE II COMPUTERS**

**P5249054
P5249055**

These turbo computers are called Logic Modules, which is a digital computer containing a microprocessor. The module receives input signals from the various switches and sensors, and computes fuel injector pulse width, spark advance, idle speed and other engine functions.

Your Mopar Performance Logic Module is a direct replacement for the one that is in your vehicle, and is located behind the right hand kick panel underneath the dash. No other changes are required once the Logic Module is installed. Though not required, we recommend installing a boost gauge such as a Mopar Performance's P4349124 in the GLHS and Charger GLHS models. The CSX comes with a boost gauge from the factory.

DO NOT change the initial timing from the stock setting. This Logic Module increases the boost level from 12 p.s.i. to 14 p.s.i. at wide open throttle (WOT) conditions above 3200 rpm. The fuel calibration has also been changed to provide an optimum air/fuel ratio.

NOTE: Best performance is obtained when the engine is shifted between 5500 and 6000 RPM. The use of the highest octane unleaded fuel is recommended. Lower octane fuel will inhibit the performance potential and could result in serious engine damage or failure due to detonation. DO NOT disconnect the detonation sensor on any turbocharged engine.

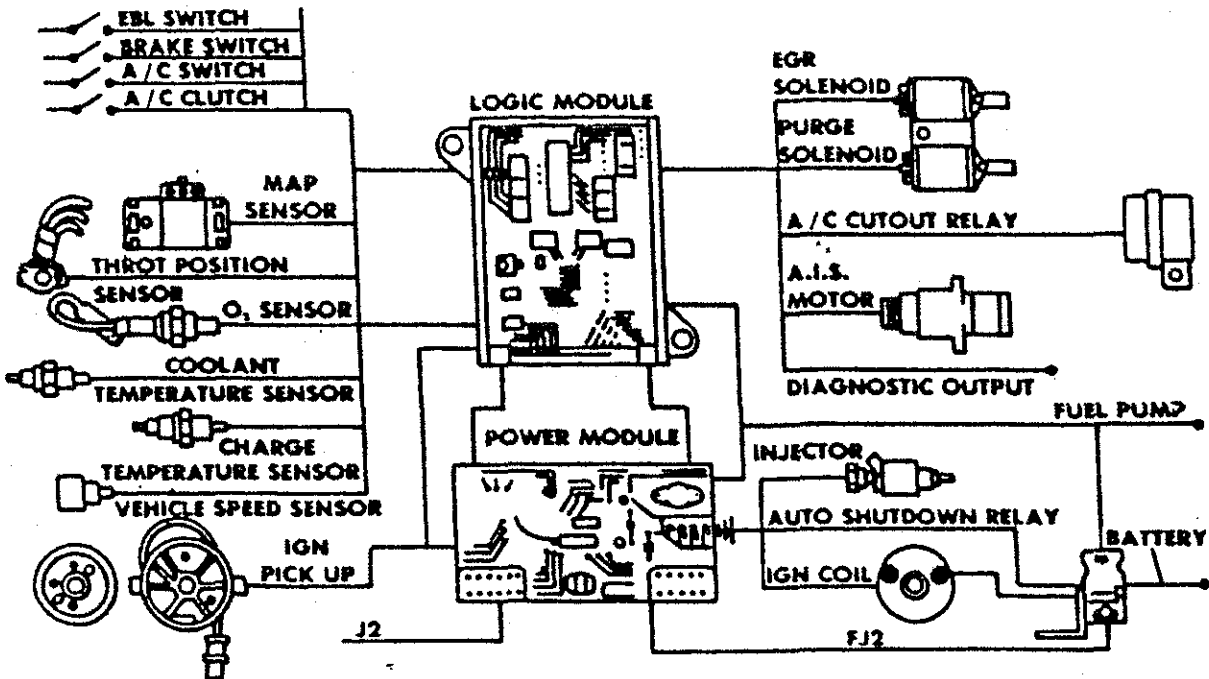
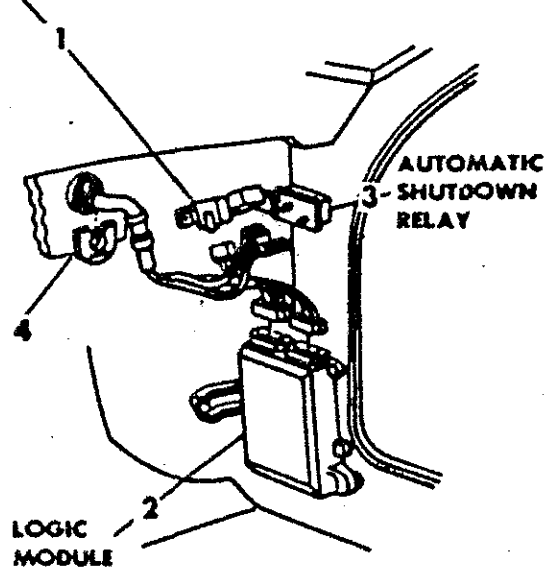
To install your new Mopar Performance Logic Module, remove the right hand kick panel underneath the dash. Use a 7/16 socket or wrench to remove the two nuts holding the computer. Carefully disconnect the two twenty-five pin connectors, the hose to the MAP sensor (all 1986 GLHS and 1987 Charger GLHS cars) and remove the module. Install the new Logic Module taking care to properly connect the twenty-five pin connectors and MAP sensor hose, if required. Reinstall the nuts, kick panel and door sill to complete the installation.

Check the initial timing with the engine running. The connector to the coolant temperature sensor must be disconnected. The sensor is located in the cylinder head near the thermostat housing and upper radiator hose. The correct setting is 12 degrees before TDC (Top Dead Center) with the engine idling at 800-900 RPM. Shut the engine off, reconnect the coolant sensor and you're ready to go.

M.A.P. SENSOR & LOGIC MODULE
ALL MODELS

7108 8400

M.A.P. SENSOR



ELECTRONIC FUEL INJECTION COMPONENTS