

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER D-375-2  
Relating to Exemptions Under Section 27156  
of the Vehicle Code

AUTOTECH SPORT TUNING  
AUTOTECH Q-CHIP

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-45-9;

IT IS ORDERED AND RESOLVED: That the installation of the Autotech Q-Chip manufactured by Autotech Sport Tuning, 32240 Paseo Adelanto, Unit E, San Juan Capistrano, CA 92675 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 Volkswagen applications: 1990-92 2.0L Jetta, 1993-95 2.0/2.8L Jetta, 1990-92 2.0L Golf, 1993-95 2.0/2.8L Golf, 1990-92 2.0L Passat, 1993-95 2.8L Passat, 1990/91 1.8L Corrado, and 1992-94 2.8L Corrado.

Autotech's Q-Chip is a replacement PROM designed to meet the original equipment manufacturers hardware specifications. Autotech's modified fuel tables are wide-open-throttle active while the modified timing tables are both part throttle and wide-open-throttle active with a timing advance no greater than 4 degrees over stock.

This Executive Order is valid provided that the installation of the Autotech Q-Chip will not recommend tuning the vehicle to specifications different from those submitted by Volkswagen. Autotech recommends that only 92 octane fuel be used.

Changes made to the design or operating conditions of the Autotech Q-Chip, 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 the Autotech Q-Chip using any identification other than that shown in this Executive Order or marketing of the Autotech Q-Chip for an application other than those listed in this Executive Order shall be prohibited unless prior approval is obtained from the Air Resources Board. Exemption of the Autotech Q-Chip shall not be construed as an exemption to sell, offer for sale, or advertise any component of the kit as an individual device.

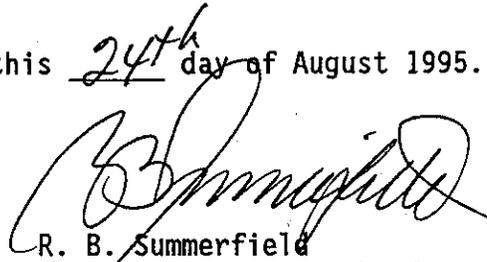
This Executive Order does not constitute any opinion as to the effect that the use of the Autotech Q-Chip may have on any warranty either expressed or implied by the vehicle manufacturer.

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 AUTOTECH SPORT TUNING'S AUTOTECH Q-CHIP.

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 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 after hearing that grounds for revocation exist.

Executed at El Monte, California, this 24<sup>th</sup> day of August 1995.



R. B. Summerfield  
Assistant Division Chief  
Mobile Source Division

**State of California  
AIR RESOURCES BOARD**

**EVALUATION OF AUTOTECH SPORT TUNING'S AUTOTECH Q-CHIP  
FOR EXEMPTION FROM THE PROHIBITIONS OF VEHICLE CODE  
SECTION 27156 IN ACCORDANCE WITH SECTION 2222, TITLE 13, OF THE  
CALIFORNIA CODE OF REGULATIONS**

**August 1995**

State of California  
AIR RESOURCES BOARD

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by

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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

Autotech Sport Tuning of 32240 Paseo Adelanto, Unit E, San Juan Capistrano, California 92675 has applied for an exemption from the prohibitions in Section 27156 of the California Vehicle Code (VC) for the Autotech Q-Chip designed for the following Volkswagen applications: 1990-92 2.0L Jetta, 1993-95 2.0/2.8L Jetta, 1990-92 2.0L Golf, 1993-95 2.0/2.8L Golf, 1990-92 2.0L Passat, 1993-95 2.8L Passat, 1990/91 1.8L Corrado, and 1992-94 2.8L Corrado.

Based on comparative emissions testing of the Q-Chip, the staff concludes that the Autotech Q-Chip will not adversely affect exhaust emissions from vehicles for which the exemption is requested.

The staff recommends that Autotech Sport Tuning be granted an exemption as requested and that Executive Order D-375-2 be issued.

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I. INTRODUCTION

Autotech Sport Tuning of 32240 Paseo Adelanto, Unit E, San Juan Capistrano, California 92675 has applied for an exemption from the prohibitions in Section 27156 of the California Vehicle Code (VC) for the Autotech Q-Chip designed for the following Volkswagen applications: 1990-92 2.0L Jetta, 1993-95 2.0/2.8L Jetta, 1990-92 2.0L Golf, 1993-95 2.0/2.8L Golf, 1990-92 2.0L Passat, 1993-95 2.8L Passat, 1990/91 1.8L Corrado, and 1992-94 2.8L Corrado.

II. CONCLUSIONS

Based on comparative emissions testing of the Q-Chip, the staff concludes that Autotech Sport Tuning's Autotech Q-Chip will not adversely affect exhaust emissions from the vehicles for which the exemption is requested.

III. RECOMMENDATION

The staff recommends that Autotech Sport Tuning be granted an exemption for their Autotech Q-Chip for the following Volkswagen applications: 1990-92 2.0L Jetta, 1993-95 2.0/2.8L Jetta, 1990-92 2.0L Golf, 1993-95 2.0/2.8L Golf, 1990-92 2.0L Passat, 1993-95 2.8L Passat, 1990/91 1.8L Corrado, and 1992-94 2.8L Corrado. The staff also recommends that Executive Order D-375-2 be issued.

IV. AUTOTECH Q-CHIP DESCRIPTION

Many computer controlled vehicles are equipped with an electronic control unit (ECU) which is programmed using a PROM. Signals detected by the vehicle's sensors are fed directly into the ECU where they are analyzed and compared to the operational data programmed inside the PROM. The PROM sends

out signals for appropriate adjustments to be made in the engine's operation in response to any changing conditions. For example, a PROM will make adjustments to the spark curve and fuel delivery rate of an engine to maintain optimum performance and fuel economy. Thus, by modifying data in the PROM, spark timing and fuel delivery can be adjusted.

Autotech's Q-Chips modify the spark tables and fuel curves of the original equipment manufacturer's (OEM) PROM. The spark tables are advanced by no greater than 4 degrees at part and full throttle driving conditions, the fuel curves are only modified when at full throttle driving conditions. Autotech claims these modifications translate to an increase in torque and horsepower when used with 92 octane or greater fuel.

#### V. DISCUSSION OF THE AUTOTECH Q-CHIP

The Autotech Sport Tuning's Q-Chips are designed for installation on the following Volkswagen applications: 1990-92 2.0L Jetta, 1993-95 2.0/2.8L Jetta, 1990-92 2.0L Golf, 1993-95 2.0/2.8L Golf, 1990-92 2.0L Passat, 1993-95 2.8L Passat, 1990/91 1.8L Corrado, and 1992-94 2.8L Corrado.

A 1995 Volkswagen Golf with a 2.0L fuel injected engine was selected for the evaluation of the Q-Chip. The Golf with the 2.0L engine was selected due to its popularity; however, similar emission results would be expected out of a 2.8L engine due to the similarities between the two engines. The dynamometer inertia weight and horsepower setting were 3000-lbs and 6.3-hp respectively. The emission tests conducted by Automobile Club of Southern California for Autotech consisted of one Cold Start CVS-75 emission test in the baseline configuration and one Cold Start CVS-75 emission test in the modified (Q-Chip installed) configuration. The ARB did not perform emissions testing to confirm the test results submitted by the applicant. A summary of the test results is shown on the next page.

Exhaust Emission Tests Results

Test	Exhaust Emissions (gm/mi)		
<u>Mode</u>	<u>HC</u>	<u>CO</u>	<u>NOx</u>
Baseline	0.16	1.66	0.13
Device	0.16	1.55	0.20
Difference	0.00	-0.11	+0.07

Results from the emissions tests conducted at Automobile Club of Southern California show the vehicle emissions with the Q-Chip installed are within the allowable increase of 10 percent or 0.1 gm/mile HC, 15 percent or 1.0 gm/mile CO and 10 percent 0.1 gm/mile NOx above the baseline as specified under the "Procedures for an exemption of Add-On or Modified Parts."

Therefore, based on the test results, the staff concludes that the installation of Autotech's Q-Chip will not have an adverse effect on 1990-92 2.0L Jetta, 1993-95 2.0/2.8L Jetta, 1990-92 2.0L Golf, 1993-95 2.0/2.8L Golf, 1990-92 2.0L Passat, 1993-95 2.8L Passat, 1990/91 1.8L Corrado, and 1992-94 2.8L Corrado.

Autotech has submitted all the required information and fulfilled the requirements for an exemption.