

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER D-368-4  
Relating to Exemptions Under Section 27156  
of the Vehicle Code

CUSTOM CHROME  
REVTECH PROGRAMMABLE DIGITAL IGNITION SYSTEM

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 RevTech Programmable Digital Ignition System, P/N 59-770, manufactured by Custom Chrome, 16106 Jacqueline Court, Morgan Hill, CA 95037 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 all 1995 and older Harley-Davidson motorcycles equipped with the 1338 cc engine, except those equipped with a factory fuel injection system.

This Executive Order is valid provided that the installation instructions for the RevTech Programmable Digital Ignition System will not recommend tuning the vehicle to specifications different from those of the motorcycle manufacturer.

Changes made to the design or operating conditions of the RevTech Programmable Digital Ignition System, as exempt by the Air Resources Board, which adversely affect the performance of the motorcycle's pollution control system shall invalidate this Executive Order.

Marketing of the RevTech Programmable Digital Ignition System using any identification other than that shown in this Executive Order or marketing of the RevTech Programmable Digital Ignition System 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 RevTech Programmable Digital Ignition System 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 RevTech Programmable Digital Ignition System may have on any warranty either expressed or implied by the motorcycle 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 CUSTOM CHROME'S REVTECH PROGRAMMABLE DIGITAL IGNITION SYSTEM.

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 8<sup>th</sup> day of December 1995.

  
R. B. Summerfield  
Assistant Division Chief  
Mobile Source Division

State of California  
AIR RESOURCES BOARD

EVALUATION OF CUSTOM CHROME'S REVTECH PROGRAMMABLE DIGITAL IGNITION SYSTEM  
FOR EXEMPTION FROM THE PROHIBITIONS OF VEHICLE CODE  
SECTION 27156 IN ACCORDANCE WITH SECTION 2222, TITLE 13, OF THE  
CALIFORNIA CODE OF REGULATIONS

December 1995

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AIR RESOURCES BOARD

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by

Mobile Source Division  
9528 Telstar Avenue  
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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

Custom Chrome of 16106 Jacqueline Court, Morgan Hill, California 95037 has applied for an exemption from the prohibitions in Section 27156 of the California Vehicle Code (VC) for the RevTech Programmable Digital Ignition System, part no. 59-770, for all 1995 and older Harley-Davidson motorcycles equipped with the 1338 cc engine, except those equipped with a factory fuel injection system.

Based on submitted emissions test data, the staff concludes that the RevTech Programmable Digital Ignition System will not adversely affect exhaust emissions from the Harley-Davidson motorcycles for which the exemption is requested.

The staff recommends that Custom Chrome be granted an exemption as requested and that Executive Order D-368-4 be issued.

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I. INTRODUCTION

Custom Chrome of 16106 Jacqueline Court, Morgan Hill, California 95037 has applied for an exemption from the prohibitions in Section 27156 of the California Vehicle Code (VC) for the RevTech Programmable Digital Ignition System, part no. 59-770, for all 1995 and older Harley-Davidson motorcycles equipped with the 1338 cc engine, except those equipped with a factory fuel injection system.

II. CONCLUSIONS

Based on submitted emissions test data, the staff concludes that the RevTech Programmable Digital Ignition System will not adversely affect exhaust emissions from the Harley-Davidson motorcycles for which the exemption is requested.

III. RECOMMENDATION

The staff recommends that Custom Chrome be granted an exemption for their RevTech Programmable Digital Ignition System for all 1995 and older Harley-Davidson motorcycles equipped with the 1338 cc engine, except those equipped with a factory fuel injection system. The staff also recommends that Executive Order D-368-4 be issued.

IV. IGNITION SYSTEM DESCRIPTION

The RevTech Programmable Digital Ignition System has been specifically designed for installation on Harley-Davidson motorcycles equipped with the 1338 cc motor. The ignition system operates in conjunction with the original equipment manufacturer's (OEM) fuel delivery system along with the emission control system already certified with the stock engine. The primary purpose of

the ignition system is to enhance the motorcycle's overall performance by modifying the OEM ignition timing curve. The RevTech Programmable Digital Ignition System also has a built-in rev. limiter and a firing mode select.

The RevTech Programmable Digital Ignition System has been designed to allow the Harley-Davidson owners the ability to configure the ignition system to match their own requirements. With four preprogrammed timing curves installed, the Harley-Davidson owner can adjust the ignition system to accommodate fuel grade, air temperature, and engine hardware. Table 1 list the conditions that work best with each pre-programmed ignition curve.

Table 1.

<u>Advance Curve</u>	<u>Description</u>
Curve 1	Stock engine, cool air temperature, or high octane fuel, this curve brings up the advance earliest and to the highest final value.
Curve 2	Slightly modified engine, warmer air temperature, regular grade fuel, this curve brings up the advance a little slower than curve 1 to prevent detonation on near stock motors.
Curve 3	Performance engine, high compression, poor quality fuel, hot air temperature, this curve is good for built motors that tend to detonate, advance comes in slower than curve 2 and to a lower final value.
Curve 4	High performance engine, high compression, poor fuel quality, hot air temperatures, this curve should only be used if your motor still detonates using curve 3, advance is brought in still slower and to a lesser final than curve 3.

In addition to the adjustable timing feature of the ignition system, it also includes a rev. unit select and a firing mode select. The rev. unit select allows the rider to either maintain the factory 6000 rpm rev. limit or switch to a 6500, 7000, or 7500 rpm rev. limit. The firing mode select allows the rider to choose either a dual or a single spark mode.



V. DISCUSSION OF THE IGNITION SYSTEM

A 1989 Harley-Davidson with a 1338 cc engine was used for the evaluation of the RevTech Programmable Digital Ignition System. Emissions testing was conducted by Compliance and Research Services, Inc. of Linden, New Jersey for Custom Chrome, and consisted of eleven Cold Start CVS-75 emissions tests on various modified configurations. The ARB did not perform emissions testing to confirm the test results submitted by the applicant. A summary of the test results is shown below with DFs applied:

Exhaust Emission Test Results Exhaust Emissions (gm/km)				
<u># of Plugs</u>	<u>Spark</u>	<u>Mode</u>	<u>HC</u>	<u>CO</u>
4	Single Fire	Curve 1	0.504	3.712
4	Dual Fire	Curve 1	0.648	3.967
4	Single Fire	Curve 2	0.582	3.769
2	Single Fire	Curve 2	0.811	7.310
4	Dual Fire	Curve 2	0.835	3.244
2	Single Fire	Curve 3	0.679	4.129
4	Dual Fire	Curve 3	0.607	5.199
4	Single Fire	Curve 4	0.642	4.962
2	Single Fire	Curve 4	0.672	5.261
4	Dual Fire	Curve 4	0.711	5.882
2	Single Fire	Curve 4	0.672	5.261
Standards			1.0	12.0

Results from the emissions testing conducted at Compliance and Research Services, Inc. have demonstrated that the installation of the ignition system does not cause tailpipe emissions to exceed the applicable emission standards. Therefore, based on the test results, the staff concludes that the installation of Custom Chrome's RevTech Programmable Digital Ignition System, will not have an adverse effect on those applicable motorcycles.

Custom Chrome, Inc. has submitted all the required information and fulfilled the requirements for an exemption.