

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER D-368-3  
Relating to Exemptions Under Section 27156  
of the Vehicle Code

CUSTOM CHROME  
CAMSHAFTS

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 following RevTech Camshafts: RevTech 05, P/N 58-200, RevTech 10, P/N 58-205, RevTech 20, P/N 58-210, and the RevTech 30, P/N 58-215, 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 1984 to 1995 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 Camshafts 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 Camshafts, 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 Camshafts using any identification other than that shown in this Executive Order or marketing of the RevTech Camshafts 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 Camshafts shall not be construed as an exemption to sell, offer for sale, or advertise any component of the kit as an individual device.

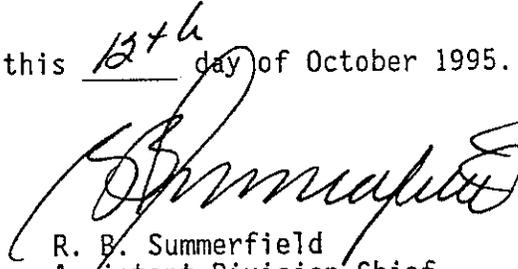
This Executive Order does not constitute any opinion as to the effect that the use of the RevTech Camshafts may have on any warranty either expressed or implied by the motorcycle manufacturer.

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 CAMSHAFTS.

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 12<sup>th</sup> day of October 1995.



R. B. Summerfield  
Assistant Division Chief  
Mobile Source Division

State of California  
AIR RESOURCES BOARD

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

October 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

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 Camshafts designed for all 1984 to 1995 Harley-Davidson motorcycles equipped with the 1338 cc engine, except those equipped with a factory fuel injection system.

Based on emissions testing of the four camshaft models, RevTech 05, RevTech 10, RevTech 20, and RevTech 30, the staff concludes that the RevTech Camshafts 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-368-3 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 following RevTech Camshafts: RevTech 05, P/N 58-200, RevTech 10, P/N 58-205, RevTech 20, P/N 58-210, and the RevTech 30, P/N 58-215, applicable on all 1984 to 1995 Harley-Davidson motorcycles equipped with the 1338 cc engine, except those equipped with a factory fuel injection system.

II. CONCLUSIONS

Based on emissions testing of the RevTech 05, 10, 20, and 30 Camshafts, the staff concludes that Custom Chrome's RevTech Camshafts 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 Camshafts for all 1984 to 1995 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-368-3 be issued.

IV. CAMSHAFT DESCRIPTION

The RevTech Camshafts have been specifically designed for installation on the Harley-Davidson motorcycles equipped with the 1338 cc motor. The camshafts operate 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 purpose of using the camshafts is to increase the overall engine performance by modifying the valve characteristics, such as increasing the valve lift and duration.

The four camshafts vary in their characteristics, each designed for different levels of performance. Table 1. lists the camshaft profiles.

Table 1.

<u>Camshaft</u>	<u>Duration (Int./Exh.) @ 0.053</u>	<u>Lift (Int./Exh.)</u>
RevTech 05 P/N 58-200	(228 <sup>0</sup> /238 <sup>0</sup> )	(0.465/0.475)
RevTech 10 P/N 58-205	(238 <sup>0</sup> /248 <sup>0</sup> )	(0.475/0.480)
RevTech 20 P/N 58-210	(248 <sup>0</sup> /258 <sup>0</sup> )	(0.480/0.490)
RevTech 30 P/N 58-215	(238 <sup>0</sup> /252 <sup>0</sup> )	(0.495/0.530)

#### V. DISCUSSION OF THE CAMSHAFTS

A 1993 Harley-Davidson with a 1338 cc engine was used for the evaluation of the RevTech 05, 10, and 20, and a 1989 Harley-Davidson with a 1338 cc engine was used to evaluate the RevTech 30. Emissions testing was conducted by Compliance and Research Services, Inc. of Linden, New Jersey for Custom Chrome,

and consisted of one Cold Start CVS-75 emissions test in the modified configuration on each camshaft. 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>Part No.</u>	<u>HC</u>	<u>CO</u>
58-200	0.65	2.90
58-205	0.71	3.00
58-210	0.52	4.29
58-215	0.82	5.67
<b>Standards</b>	<b>1.0</b>	<b>12.0</b>

Results from the emissions testing conducted at Compliance and Research Services, Inc. have demonstrated that the installation of the camshafts do 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 05, P/N 58-200, RevTech 10, P/N 58-205, RevTech 20, P/N 58-210, and the RevTech 30, P/N 58-215, will not have an adverse effect on all 1984 to 1995 Harley-Davidson motorcycles equipped with the 1338 cc engine, except those equipped with a factory fuel injection system.

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