

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER D-279-6
Relating to Exemptions Under Section 27156
of the Vehicle Code

COMPETITION CAMS, INC.
PURE ENERGY 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 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 Pure Energy camshafts, part nos. 12-207-2, 12-208-2, 12-206-2, 12-314-4, 12-310-4, 12-312-4, 12-402-4, 12-106-3, 12-400-4, and 12-210-2, manufactured by Competition Cams, Inc. of 3406 Democrat Road, Memphis, Tennessee 38118 have been found not to reduce the effectiveness of the applicable vehicle pollution control system and, therefore, are exempt from the prohibitions of Section 27156 of the Vehicle Code for 1987 and older General Motors vehicles equipped with a carbureted 267 to 350 CID V-8 gasoline engine.

This Executive Order is valid provided that installation instructions for these camshafts will not recommend tuning the vehicle to specifications different from those submitted by the vehicle manufacturer.

Changes made to the design or operating conditions of the camshafts, 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 camshafts using any identification other than that shown in this Executive Order or marketing of these 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.

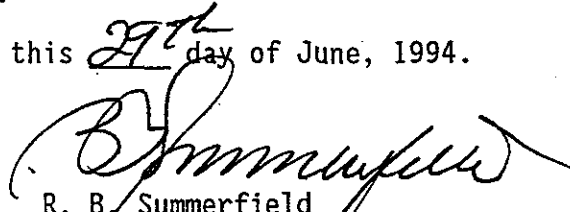
This Executive Order does not constitute any opinion as to the effect the use of the camshaft may have on any warranty either expressed or implied by the vehicle manufacturer.

THIS EXECUTIVE ORDER DOES NOT CONSTITUTE A CERTIFICATION, ACCREDITATION, APPROVAL, OR ANY OTHER TYPE OF ENDORSEMENT BY THE AIR RESOURCES BOARD OF CLAIMS OF THE APPLICANT CONCERNING ANTI-POLLUTION BENEFITS OR ANY ALLEGED BENEFITS OF COMPETITION CAMS' PURE ENERGY 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 27th day of June, 1994.



R. B. Summerfield
Assistant Division Chief
Mobile Source Division

State of California
AIR RESOURCES BOARD

EVALUATION OF COMPETITION CAMS, INC. PURE ENERGY
CAMSHAFTS FOR EXEMPTION FROM THE PROHIBITIONS OF VEHICLE CODE
SECTION 27156 IN ACCORDANCE WITH SECTION 2222, TITLE 13, OF
THE CALIFORNIA CODE OF REGULATIONS

June 1994

State of California
AIR RESOURCES BOARD

EVALUATION OF COMPETITION CAMS, INC. PURE ENERGY
CAMSHAFTS FOR EXEMPTION FROM THE PROHIBITIONS OF VEHICLE CODE
SECTION 27156 IN ACCORDANCE WITH SECTION 2222, TITLE 13, OF
THE CALIFORNIA CODE OF 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 the mention of trade names or commercial products constitute endorsement or recommendation for use.)

SUMMARY

Competition Cams, Inc. (Competition Cams) has applied for an exemption from the prohibitions of the Vehicle Code Section 27156 for their Pure Energy camshafts, part nos. 12-207-2, 12-208-2, 12-206-2, 12-314-4, 12-310-4, 12-312-4, 12-402-4, 12-106-3, 12-400-4, and 12-210-2 for installation on 1987 and older General Motors vehicles equipped with a carbureted 267 to 350 CID V-8 gasoline engine. Competition Cams has submitted a completed application and all the required information, as well as exhaust emissions test data performed at Roush Laboratories.

Based on the submitted information and the results of emissions tests performed at Roush Laboratories, the staff concludes that the installation of Competition Cams, Inc.'s Pure Energy camshafts, part nos. 12-207-2, 12-208-2, 12-206-2, 12-314-4, 12-310-4, 12-312-4, 12-402-4, 12-106-3, 12-400-4, and 12-210-2 will not adversely affect exhaust emissions on the specified vehicles.

The staff recommends Competition Cams, Inc. be granted an exemption as requested and that Executive Order D-279-6 be issued.

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EVALUATION OF COMPETITION CAMS, INC. PURE ENERGY SERIES
CAMSHAFTS FOR EXEMPTION FROM THE PROHIBITIONS OF VEHICLE CODE SECTION 27156
IN ACCORDANCE WITH SECTION 2222, TITLE 13, OF THE CALIFORNIA CODE OF
REGULATIONS

I. INTRODUCTION

Competition Cams, Inc. (Competition Cams) of 3406 Democrat Road, Memphis, Tennessee 38118, has applied for an exemption from the prohibitions of Vehicle Code Section 27156 for their Pure Energy camshafts, part nos. 12-207-2, 12-208-2, 12-206-2, 12-314-4, 12-310-4, 12-312-4, 12-402-4, 12-106-3, 12-400-4, and 12-210-2 for installation on 1987 and older General Motors vehicles equipped with a 267 to 350 CID carbureted engine.

Competition Cams has submitted a completed application and all the required information, as well as exhaust emissions test data performed at Roush Laboratories.

II. CONCLUSIONS

Based on the submitted information and the results of emissions tests performed at Roush Laboratories, the staff concludes that the Competition Cams' Pure Energy camshafts, part nos. 12-207-2, 12-208-2, 12-206-2, 12-314-4, 12-310-4, 12-312-4, 12-402-4, 12-106-3, 12-400-4, and 12-210-2 will not adversely affect exhaust emissions from vehicles for which the exemption is requested.

III. RECOMMENDATION

The staff recommends that the Competition Cams be granted an exemption as requested and that Executive Order D-279-6 be issued.

IV. DESCRIPTION OF CAMSHAFT

The Pure Energy camshafts, part nos. 12-207-2, 12-208-2, 12-206-2, 12-314-4, 12-310-4, 12-312-4, 12-402-4, 12-106-3, 12-400-4, and 12-210-2

camshafts are specifically designed for installation on 1987 and older General Motors vehicles equipped with a 267 to 350 CID carbureted engine. The camshafts operate in conjunction with the original equipment manufacturer's (OEM) emissions control system already certified with stock engine. The purpose of using the Pure Energy camshaft is to increase the overall engine performance which is a direct result of modifying valve characteristics. An example would be an increase in valve lift and duration.

The specifications of the Pure Energy camshafts are tabulated in Table 1.

Table 1.
PURE ENERGY CAMSHAFT SPECIFICATIONS*

<u>Camshaft</u>	<u>Intake Duration</u>	<u>Exhaust Duration</u>	<u>Intake Lobe Lift</u>	<u>Exhaust Lobe Lift</u>
Stock	191	208	0.235	0.256
12-207-2	203	212	0.281	0.301
12-208-2	211	221	0.295	0.310
12-206-2	212	212	0.293	0.293
12-314-4	212	212	0.296	0.296
12-310-4	212	218	0.296	0.296
12-312-4	212	218	0.296	0.296
12-402-4	212	218	0.296	0.296
12-106-3	222	222	0.297	0.297
12-400-4	218	212	0.303	0.296
12-210-2	218	218	0.303	0.303

* Duration is measured in degrees and lift in inches.

V. DISCUSSION OF THE CAMSHAFT

A 1987 Chevrolet Camaro powered by a 305 CID engine was used for the evaluation of the Pure Energy camshafts, part nos. 12-207-2, 12-208-2, 12-206-2, 12-314-4, 12-310-4, 12-312-4, 12-402-4, 12-106-3, 12-400-4, and 12-210-2 camshafts. The dynamometer inertia weight and loading used during the testing were 3625 lbs. and 7.6 hp, respectively.

Emission tests conducted by Roush Laboratories consisted of one cold-start CVS-75 emission test. The Pure Energy camshaft, part no. 12-106-3 was installed on the test vehicle with emission results compared to the vehicle's emission standards. The test results are shown in Table 2.

Table 2
CVS-75 TEST RESULTS
(Roush Laboratories)

	<u>HC</u>	<u>CO</u>	<u>NOx</u>
Standard	0.39	7.0	0.7
Device	0.38	2.87	0.25

These results show that the modified vehicle emissions do not exceed the vehicle's emission standards. Staff did not perform confirmatory testing to validate test data submitted by Competition Cams.

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