

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER D-400
Relating to Exemptions Under Section 27156
of the Vehicle Code

SPIRALTECH USA, INC.
SPIRALMAX

Pursuant to the authority vested in the Air Resources Board (ARB) 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-45-9;

IT IS ORDERED AND RESOLVED: That the installation of the Spiralmax device, manufactured by Spiraltech USA, Inc. of 111 W. Fairview Avenue, San Gabriel, California 91776, has been found not to reduce the effectiveness of the applicable vehicle pollution control system, and therefore, the device is exempt from the prohibitions of Section 27156 of the California Vehicle Code for installation on 1996 and older model-year gasoline-powered vehicles.

This Executive Order is valid provided that installation instructions for the device will not recommend tuning the vehicle to specifications different from those of the vehicle manufacturer.

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

Marketing of the device using an identification other than that shown in this Executive Order or marketing of the device for an application other than those listed in this Executive Order shall be prohibited unless prior approval is obtained from the ARB.

This Executive Order is granted based on a determination that the device would not show an adverse effect in emissions if tested using the Cold-Start CVS-75 Federal Test Procedure. However, the ARB finds that reasonable grounds exist to believe that use of Spiralmax may adversely affect emissions of motor vehicles when operating under conditions outside the parameters of the previously prescribed test procedures. Accordingly, the ARB reserves the right to conduct 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 Spiralmax 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are beyond the parameters of the Cold-Start CVS-75 Federal Test Procedure), this Executive Order shall be effectively rescinded as of the date the test results are validated.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 evidences provide the ARB with reasons to suspect that Spiralmax will affect the durability of the emission control system, Spiraltech USA, Inc. 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 ARB 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 California Code of Regulations, Title 13, Section 2222, et seq.

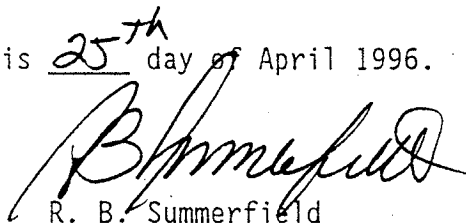
This Executive Order does not constitute any opinion as to the effect the use of the device may have on any warranty either expressed or implied by the vehicle manufacturer.

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 SPIRALTECH USA, INC.'S SPIRALMAX.

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 Executive Order. The Executive Order may be revoked only after a ten-day written notice of intention to revoke the Executive Order, in which period the holder of the Executive 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 Executive Order may not be revoked until a determination after the hearing that grounds for revocation exist.

Executed at El Monte, California, this 25th day of April 1996.



R. B. Summerfield
Assistant Division Chief
Mobile Source Division

State of California
AIR RESOURCES BOARD

EVALUATION OF SPIRALTECH USA, INC.'S
SPIRALMAX
FOR EXEMPTION FROM THE PROHIBITIONS OF VEHICLE CODE
SECTION 27156 IN ACCORDANCE WITH SECTION 2222, TITLE 13 OF THE
CALIFORNIA CODE OF REGULATIONS

April 1996

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AIR RESOURCES BOARD

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by

Mobile Source Division

State of California
Air Resources Board
9528 Telstar Avenue
El Monte, CA 91731-2990

(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

Spiraltech USA, Inc. of 111 W. Fairview Avenue, San Gabriel, California 91776 has applied for an exemption from the prohibitions of Section 27156 of the California Vehicle Code for their Spiralmax device. Spiralmax is designed for installation on 1996 and older model-year gasoline-powered vehicles.

Spiraltech USA, Inc. has submitted all the required information including a sample of the device. Based on engineering evaluation of the operating principles of Spiralmax, staff believes that Spiralmax will not have any adverse effect on exhaust emissions if tested in accordance with the Cold-Start CVS-75 Federal Test Procedure.

Staff recommends that Spiraltech USA, Inc. be granted an exemption as requested and that Executive Order No. D-400 be issued.

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I. INTRODUCTION

Spiraltech USA, Inc. (Spiraltech) of 111 W. Fairview Avenue, San Gabriel, California 91776 has applied for an exemption from the prohibitions of Section 27156 of the California Vehicle Code for their Spiralmax device for installation on 1996 and older model-year gasoline-powered vehicles. Spiraltech has submitted all the required information including a sample of the device.

II. CONCLUSION

Based on engineering evaluation of the operating principles of Spiralmax, the staff concludes that the installation of Spiralmax will not have any adversely effect on exhaust emissions, if tested in accordance with the Cold-Start CVS-75 Federal Test Procedure, of those vehicles for which the exemption is requested.

III. RECOMMENDATION

Staff recommends that Spiraltech be granted an exemption as requested, permitting advertisement, sale and installation of Spiralmax on 1996 and older model-year gasoline-powered vehicles, and that Executive Order No. D-400 be issued.

IV. DEVICE DESCRIPTION AND OPERATION

Spiralmax is a device designed to increase turbulence in the air intake passage. It is cylindrical in shape and is cut lengthwise from top to bottom leaving an opening which allows flexibility and varying sizes in diameter (See drawing in Appendix A). One end of the cylinder is cut diagonally, approximately halfway down its length, into seven (7) blades. The blades curve inwardly at approximately 90 degrees to the surface of the cylinder forming triangular spikes. The device is constructed using 26-gauge stainless steel and measures 35-40 mm in height and 40-80 mm in diameter.

For carbureted vehicles, the device is vertically installed on the rim of the carburetor air intake where it is secured by the air cleaner. For fuel-injected vehicles, the device is inserted into the air intake hose between the air filter and the throttle body, downstream of the mass air flow sensor, where the tension of the device secures it in place. No sensors are relocated or altered by the installation of the device.

V. DEVICE EVALUATION AND DISCUSSION

An engineering evaluation was conducted to evaluate the emissions impact of Spiralmax.

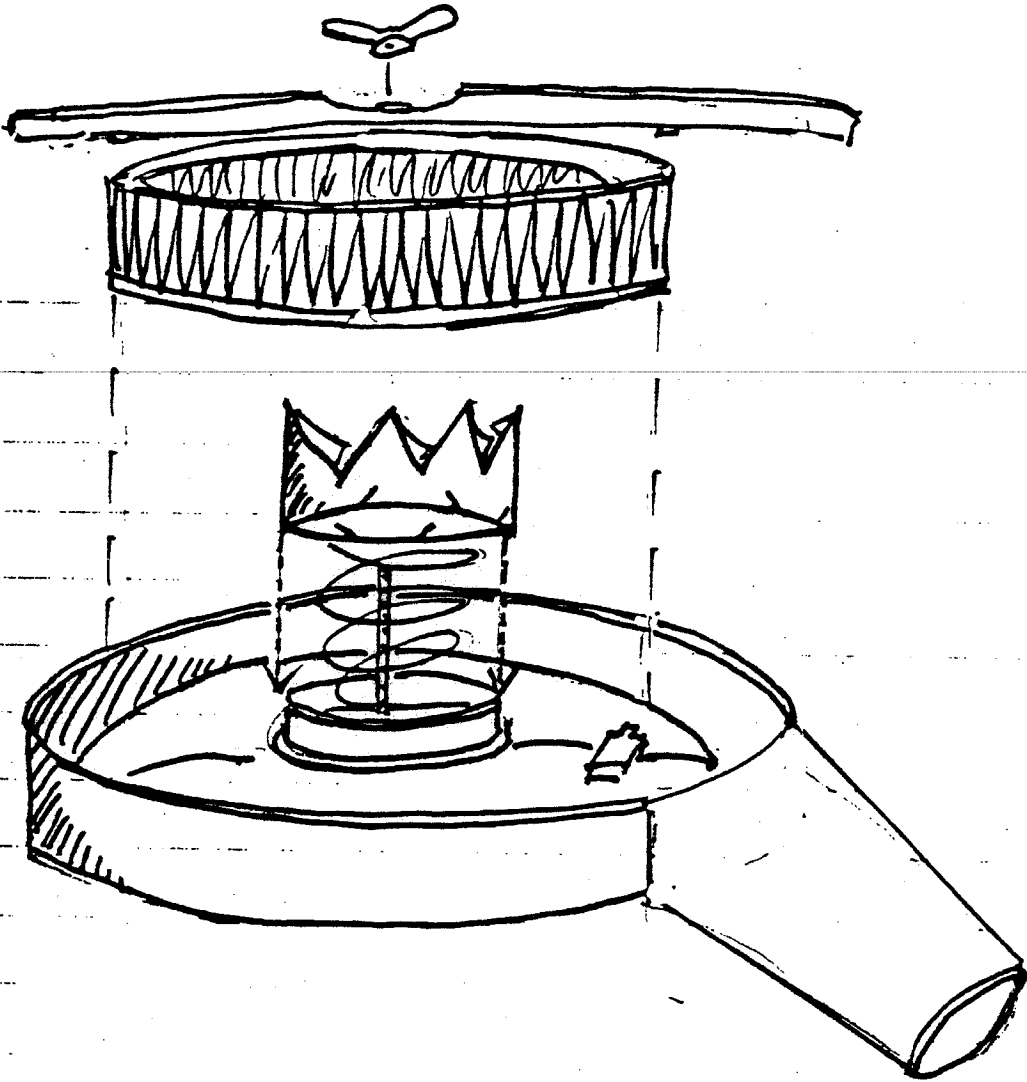
Spiraltech claims that the Spiralmax device, when installed on a vehicle's intake air system, swirls the intake air for a better air/fuel mixture. Spiraltech stated that this, in turn, will increase engine power, improve fuel economy, and decrease exhaust emissions. The ARB did not perform any testing on the device to substantiate the claims made by the manufacturer. However, it is the staff's opinion that any induced turbulence in the intake air in a closed loop system will have no significant effect on exhaust emissions. In addition, since the device is installed downstream of the air flow sensor, close to the intake manifold,

the device will not affect the operation of the on-board diagnostic systems.

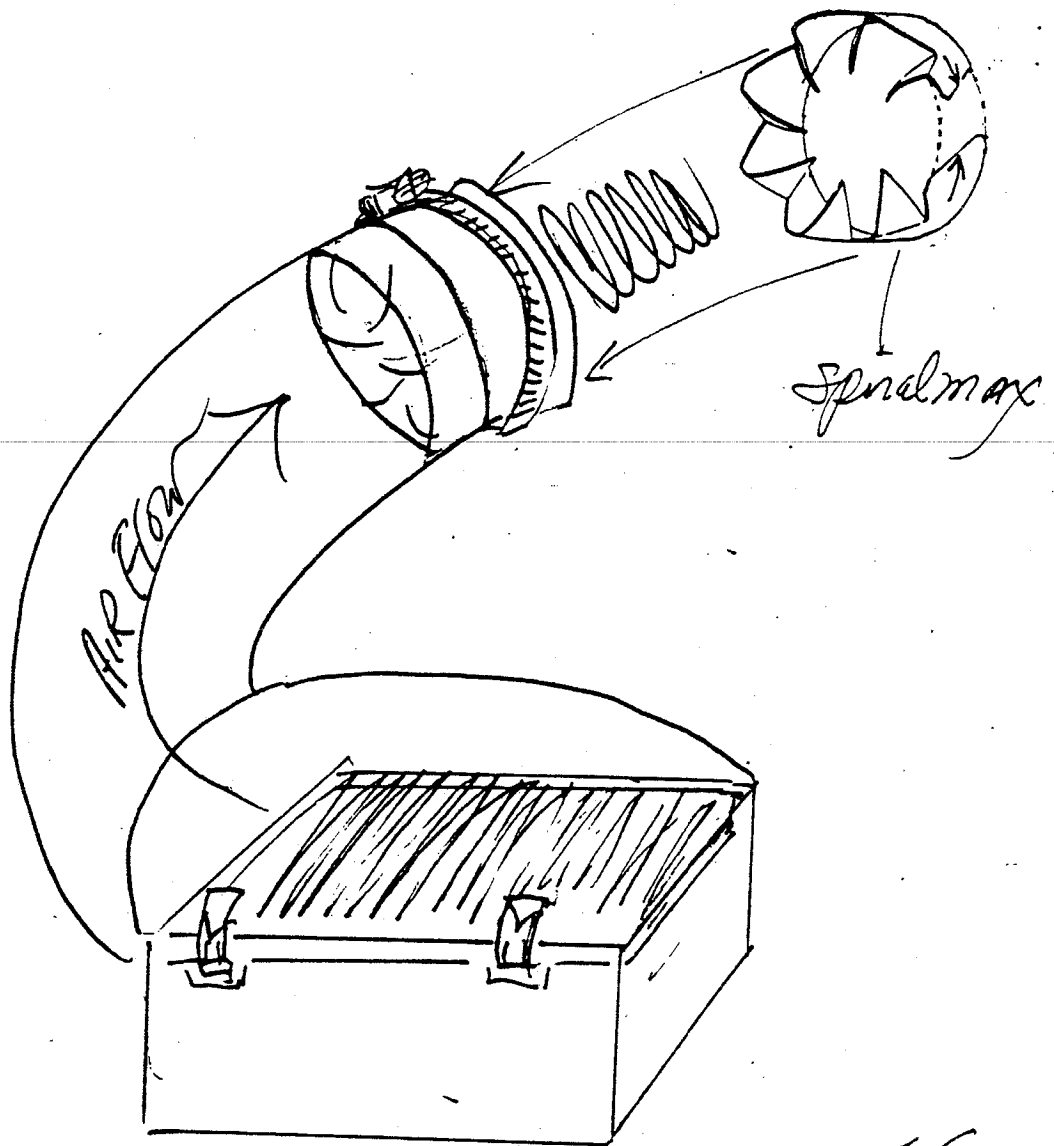
Based on these findings, staff has determined that Spiralmax will not have any adverse effect on emissions.

APPENDIX

APPENDIX A: DRAWINGS



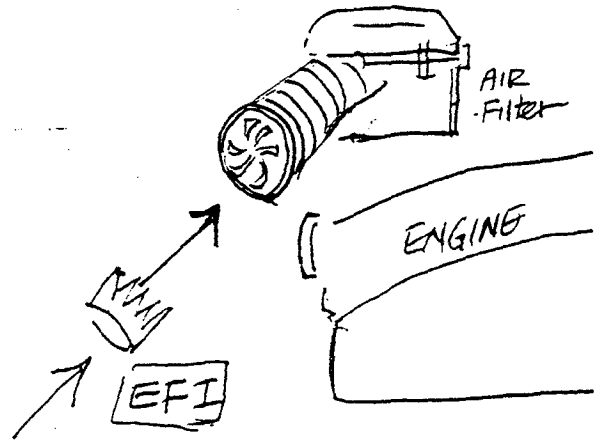
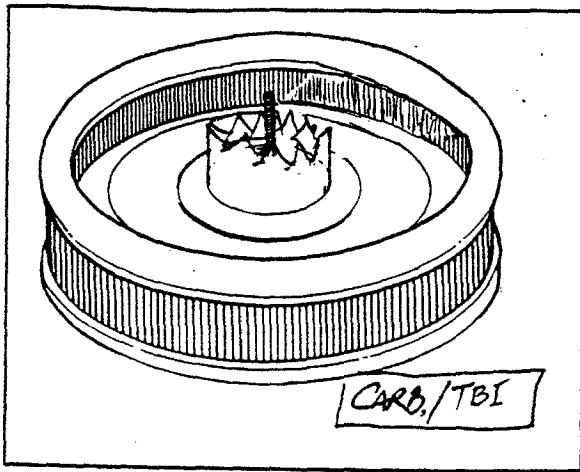
A.C.



Typical EFI Filter
Box

A.C.

APPENDIX B: INSTALLATION INSTRUCTIONS



Spiralmax

Description:

For EFI cars with an air-intake hose, it is simply inserted in the hose, closest to the manifold side. The C/ring expands to fit, and incoming air is then swirled into the combustion chamber.

For carburetor or throttle body injector type cars the same device is installed vertically, on the rim of the carburetor air intake. This will allow the incoming air to swirl as it passes thru the carburetor.

The swirling effect in both cases, allows for a much better air fuel mixture, generating more hp for the same amount of gas. The increased hp allows the engine to generate the same amount of power using less gas, thus obtain gas savings. The better combustion will also lower the emissions dramatically.

Installation:

For EFI type cars with an air intake hose, remove hose clamp nearest to the manifold air intake, remove baby vacuum hoses and other clamps as necessary to loosen hose. Insert the Spiralmax with crown facing the incoming direction of the air flow, insert sufficiently to replace re-install hose to manifold. Prior to re-installing, smooth unit to the inner circumference of the hose, so that it is sufficiently rounded and friction fit.

For carburetor or throttle body injectors, open up the air filter cover, located the carburetor intake, and install unit face up (crown facing upwards) encircling the carburetor intake. The unit may be secured by flexing the rim to fit, a metal clamp, and or using the air cleaner cover to hold it down.