State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER D-255
Relating to Exemptions Under Section 27156
of the Vehicle Code

RW PRODUCTS, INC.
PARABOLIC AIR MANAGEMENT INSERT

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 Parabolic Air Management Insert, manufactured by RW Products, Inc., of 1313 Touby Pike, P. O. Box 804, Kokomo, Indiana, 46903-0804, 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 installation on the following vehicles:

A. Model No. PP-6902 for 1983-1992 model-year Ford E- and F-Series vehicles equipped with the Ford/Navistar 6.9/7.3L diesel engine.

B. Model No. PP-6202 for 1982-1987 model-year General Motors (GM) heavy-duty vehicles equipped with "J"-series 6.2L HD diesel engine. Also applicable for 1988-1991 model-year GM heavy-duty vehicle equipped with "J"-series 6.2L HD diesel engine with the early-model dual-plane, 180-degree intake manifold.

C. Model No. PP-6207 for 1988-1987 model-year GM heavy-duty vehicles equipped with "J"-series 6.2L HD diesel engine. Also applicable for 1988-1991 model-year heavy-duty vehicle equipped with "J"-series 6.2L HD diesel engine with the late-model single-plane, 360-degree intake manifold.

This Executive Order is valid provided that installation instructions for this Parabolic Air Management Insert will not recommend tuning the vehicle to specifications different from those submitted by RW Products, Inc.

Changes made to the design or operating conditions of the Parabolic Air Management Insert, as exempt by the Air Resources Board (ARB), which adversely affect the performance of a vehicle's pollution control system shall invalidate this Executive Order.

Marketing of this Parabolic Air Management Insert, using an identification other than that shown in this Executive Order or marketing of this Parabolic Air Management Insert, 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 the Parabolic Air Management Insert 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 the Parabolic Air Management Insert 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 evidence provides the ARB with reason to suspect that the Parabolic Air Management Insert will affect the durability of the emission control system, RW Product, 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 Title 13, California Code of Regulations, Section 2222 et seq.

This Executive Order does not constitute any opinion as to the effect the use of this Parabolic Air Management Insert, 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 RW PRODUCTS, INC. PARABOLIC AIR MANAGEMENT INSERT.

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 the hearing that grounds for revocation exist.

Executed at El Monte, California, this 24th day of June, 1992.

R. B. Summerfield
Assistant Division Chief
Mobile Source Division

State of California
AIR RESOURCES BOARD

EVALUATION OF RW PRODUCTS, INC.'S PARABOLIC AIR MANAGEMENT INSERT FOR EXEMPTION FROM THE PROHIBITIONS OF VEHICLE CODE SECTION 27156 IN ACCORDANCE WITH SECTION 2222, TITLE 13, OF THE CALIFORNIA CODE OF REGULATIONS

June 1992

State of California
AIR RESOURCES BOARD

EVALUATION OF RW PRODUCTS, INC.'S PARABOLIC AIR MANAGEMENT INSERT 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
9528 Telstar Avenue
El Monte, CA 91731-2990

SUMMARY

RW Products, Inc., of 1313 Touby Pike, P.O. Box 804, Kokomo, Indiana, 46903-0804 has applied for an exemption from the prohibitions in Section 27156 of the California Vehicle Code (VC) for their Parabolic Air Management Insert. The Parabolic Air Management Insert is designed for installation on the following vehicles:

A. Model No. PP-6902 for 1983-1992 model-year Ford E- and F-Series vehicles equipped with the Ford/Navistar 6.9/7.3L diesel engine.

B. Model No. PP-6202 for 1982-1987 model-year General Motors (GM) heavy-duty vehicles equipped with "J"-series 6.2L HD diesel engine. Also applicable for 1988-1991 model-year GM heavy-duty vehicle equipped with "J"-series 6.2L HD diesel engine with the early-model dual-plane, 180-degree intake manifold.

C. Model No. PP-6207 for 1988-1987 model-year GM heavy-duty vehicles equipped with "J"-series 6.2L HD diesel engine. Also applicable for 1988-1991 model-year heavy-duty vehicle equipped with "J"-series 6.2L HD diesel engine with the late-model single-plane, 360-degree intake manifold.

RW Products has submitted a complete application and all the required information including samples of the individual models. Based on an engineering evaluation, it was determined that the Parabolic Air Management Insert would not have any significant adverse effects in emissions if tested in accordance with the Cold-Start CVS-75 Federal Test Procedure.

The staff recommends that RW Products, Inc. be granted exemption as requested and that Executive Order D-255 be issued for the Parabolic Air Management Insert, model numbers PP-6902, PP-6202, and PP-6207.

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I. INTRODUCTION

RW Products, Inc., of 1313 Touby Pike, P.O. Box 804, Kokomo, Indiana, 46903-0804 has applied for an exemption from the prohibitions in Section 27156 of the California Vehicle Code (VC) for their Parabolic Air Management Insert. The Parabolic Air Management Insert is designed for installation on the following vehicles:

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RW Products has submitted a complete application and all the required information including samples of the individual models.

II. CONCLUSIONS

Based on an engineering evaluation of the operating principles of the RW Products Parabolic Air Management Insert, the staff concludes installation of the RW Products Parabolic Air Management Insert will not adversely affect exhaust emissions, if tested in accordance with the Cold-Start CVS-75 Federal Test Procedure, from vehicles for which an exemption is requested.

III. RECOMMENDATION

The staff recommends that RW Products, Inc. be granted exemption as requested and that Executive Order D-255 be issued for the Parabolic Air Management Insert model numbers PP-6902, PP-6202, and PP-6207.

IV. DEVICE DESCRIPTION

The Parabolic Air Management Insert is a vehicle-specific component used to increase air flow through the stock/factory intake manifold in conjunction with the stock-type air cleaner. It is a circular, sand-cast aluminum disk of varying thickness from 0.750 to 1.000 inches depending upon the application (see drawing in Appendix A). It is constructed using approximately 0.80 lbs. of 319 aluminum alloy. The inner surface matches the contours of the factory intake manifold, with edges designed with radial flow surfaces to reduce turbulence.

The insert is tumbled for deburring and to minimize the need for additional machining. Additional machining is performed on some versions to maximize fit integrity. Holes are provided for hold-down bolts to secure the insert and the air cleaner base to the intake manifold. The top surface provides a smooth surface for airflow free from vertical or side-wall induced turbulence.

V. PARABOLIC AIR MANAGEMENT INSERT EVALUATION AND DISCUSSION

An engineering evaluation was conducted to evaluate the impact of the Parabolic Air Management Insert on emissions.

The manufacturer claims the Parabolic Air Management Insert provides a "smooth" opening for the intake air to flow through. In comparison, the stock intake opening has squared corners and protruding lips inducing turbulence characterized as vortexes. This turbulence reduces the effective flow area causing a reduced theoretical flow through the opening. Therefore, the Parabolic Air Management Insert is designed to increase the effective flow area through the intake opening, thereby, slightly increasing the amount of air drawn into the cylinders. However, diesel engine's fuel metering is mechanically controlled independent of the air flow. Therefore, diesel engines operate on a wide range of air/fuel ratios and are inherently insensitive to small air flow changes. Based on these diesel engine characteristics, staff has determined the Parabolic Air Management Insert will not increase emissions.

APPENDIX

APPENDIX A:

8. Using extreme caution, replace the inspection cover and rubber gasket on the exterior of the pump.

9. Clean any excess or spilled fuel in the engine compartment.

10. Reconnect the throttle linkage cable and all electrical connections to the pump.

Air Cleaner Assembly Installation

Safety Instructions:

Use care when removing the stock air cleaner apparatus from the top of the air cleaner base. Dirt and debris which may be present in the compartment should be kept away from the opening into the manifold.

Mechanical Instructions:

1. Remove the stock air intake flex duct which is located on the right-front position of the air cleaner base.

2. Loosen the factory air cleaner bolt and remove the air cleaner assembly (base, filter, and lid) from the top of the intake manifold.

3. Away from the vehicle, thoroughly clean the inside of the air cleaner base.

4. Remove and retain the rubber grommet from the stock air cleaner lid. This will be used with the aluminum Power Plus Mk II replacement lid.

5. In some late model vehicles, an air restrictor plate will be present on the inside of the air cleaner base. This must be removed for proper installation of the Ray-Wel Power Plus Mk II. This can be done by using a small spot-weld remover (See Fig. 4), common to most repair garages. The use of a 5/16" Rota-broach is recommended (available from local parts suppliers - Snap-On, Matco, etc).

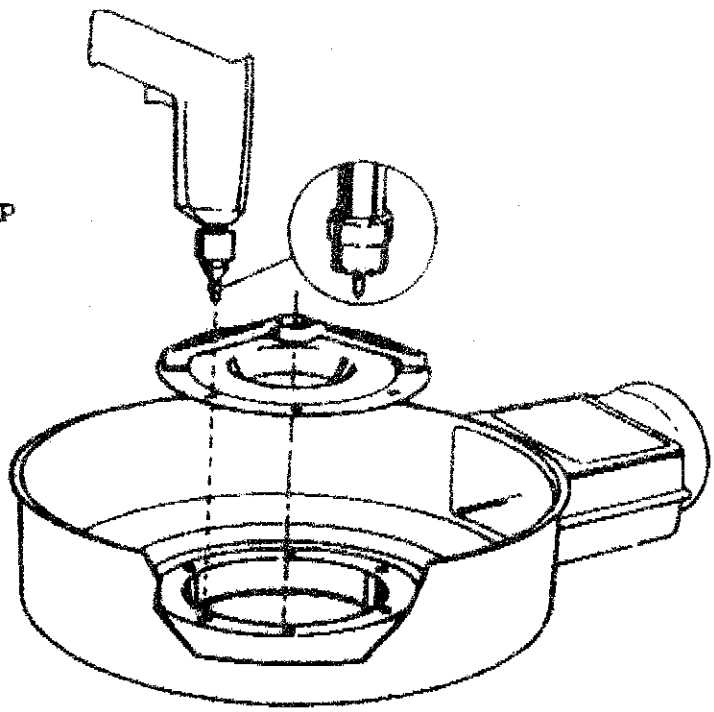


Fig. 4

6. After removing this plate, if applicable, carefully replace the air cleaner base on the top of the intake manifold.

7. Using two concurrent 3/8" (NCT) hex nuts, install the air manager insert (PP-6902) and insert stud (PP-6904) above

the stock manifold screen (meshed). When tightened to the manifold, remove the two hex nuts -- allowing for the installation of the air cleaner lid. See Fig. 5

** NOTE **
Orient the insert so that its configuration is mirrored by the manifold opening. Tighten the insert stud onto the manifold using extreme caution. The application of excessive torque could result in the breakage or fragmentation of the insert

8. Install the rubber grommet (removed from the stock lid) into the stud hole in the bottom of the air cleaner lid

9. Place the pre-oiled K&N air filter (AF-6801) element on the air cleaner base. The air filter element will rest uniformly on the base and will be secured by the air cleaner lid (Fig. 5).

. Place the air cleaner lid (PP-6901) on top of the filter element and air cleaner base (Fig. 5). A twisting motion may be required to manipulate the insert stud through the rubber grommet on the lid.

11. Secure the lid to the base by using the forged 3/8" wingnut (AC-6903). Tighten the wingnut only finger-tight. Excess pressure on this component may cause damage to the wingnut or insert stud (PP-6904).

12. To finalize air cleaner assembly, reinstall the air intake flex duct onto the nozzle of the air cleaner base, and check all connections for proper fit.

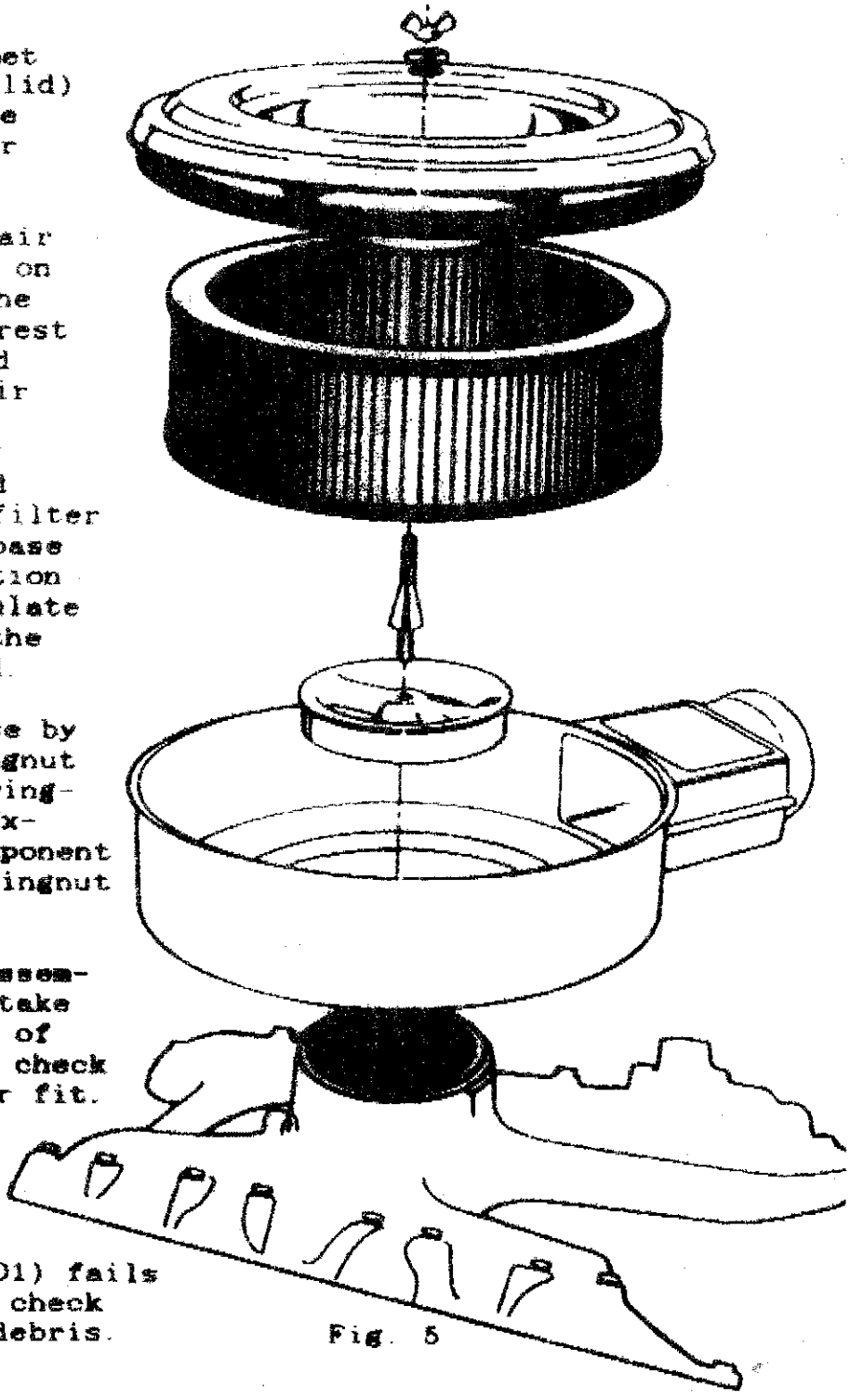


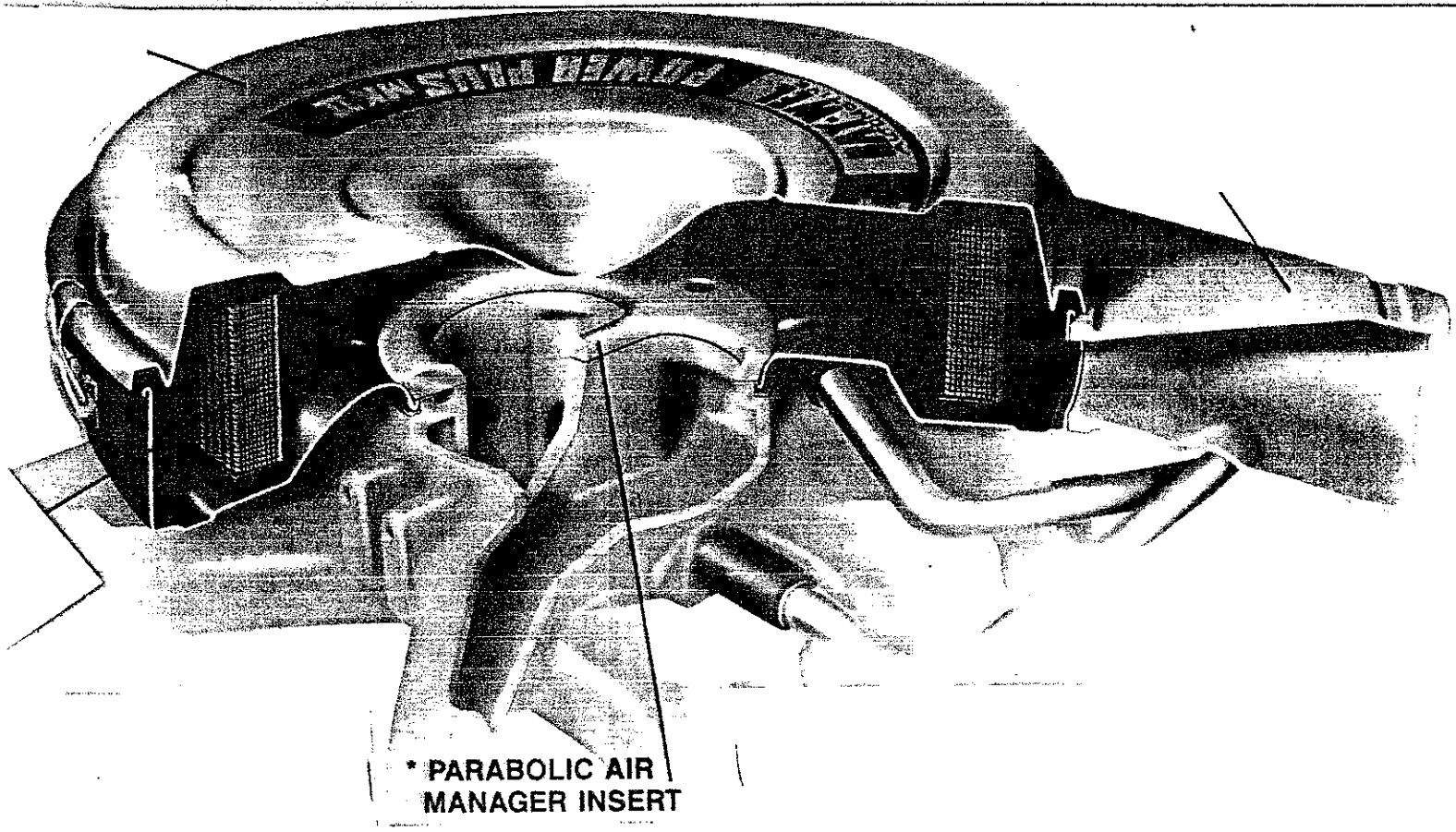
Fig. 5

NOTE **
If air cleaner lid (PP-6901) fails to seat properly on base, check the underside gasket for debris.

APPENDIX B:

6.2L GM

Mark II



* PARABOLIC AIR MANAGER INSERT

FORD 6.9/7.3L