

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER D-69-4
Relating to Exemptions Under Section 27156
of the Vehicle Code

CONDENSATOR, INC.
Condensator Supplementary Carburetor
Models B and C

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 Condensator Supplementary Carburetor Models B and C manufactured by Condensator, Inc., has been found not to reduce the effectiveness of required motor vehicle pollution control devices and, therefore, is exempt from the prohibitions of Section 27156 of the Vehicle Code for the following model-year gasoline powered vehicles:

Model B - 1989 and older model-year non-catalyst equipped vehicles;

Model C - 1989 and older model-year vehicles equipped with either three-way catalyst with or without feed-back controls or oxidation catalyst.

This Executive Order is valid provided that installation instructions for this device 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 device, as exempted by the Air Resources Board, that adversely affect the performance of a vehicle's pollution control system shall invalidate this Executive Order.

Marketing of this device using an identification other than that shown in this Executive Order or marketing of this device 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 a kit shall not be construed as an exemption to sell, offer for sale, or advertise any component of a kit as an individual device.

This Executive Order does not constitute any opinion as to the effect that the use of this 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 THE CONDENSATOR, INC.'S MODELS B AND C CONDENSATOR SUPPLEMENTARY CARBURETOR.

No claim of any kind, such as "Approved by Air Resources Board" may be made with respect to the action taken herein in any advertising or other oral or written communication.

Section 17500 of the Business and Professions Code makes untrue or misleading advertising unlawful, and Section 17534 makes violation punishable as a misdemeanor.

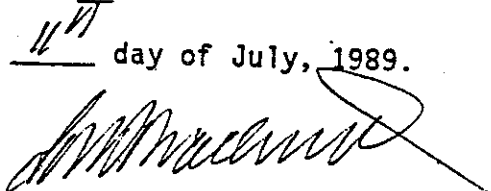
Section 43644 of the Health and Safety Code provides as follows:

"43644. (a) No person shall install, sell, offer for sale, or advertise, or, except in an application to the state board for certification of a device, represent, any device as a motor vehicle pollution control device for use on any used motor vehicle unless that device has been certified by the state board. No person shall sell, offer for sale, advertise, or represent any motor vehicle pollution control device as a certified device which, in fact, is not a certified device. Any violation of this subdivision is a misdemeanor."

Executive Order D-69-3, dated February 6, 1984, is superseded and of no further force and effect.

Any apparent violation of the conditions of this Executive Order will be submitted to the Attorney General of California for such action as he deems advisable.

Executed at El Monte, California, this 11th day of July, 1989.


K. D. Drachand, Chief
Mobile Source Division

State of California
AIR RESOURCES BOARD

EVALUATION OF THE CONDENSATOR, INC.'S, MODELS B AND C
CONDENSATOR SUPPLEMENTARY CARBURETOR FOR EXEMPTION
FROM THE PROHIBITIONS OF VEHICLE CODE SECTION
27156 IN ACCORDANCE WITH SECTION 2222, TITLE 13
OF THE CALIFORNIA CODE OF REGULATIONS

July, 1989

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EVALUATION OF THE CONDENSATOR, INC.'S, MODELS B AND C
CONDENSATOR SUPPLEMENTARY CARBURETOR FOR EXEMPTION
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OF THE CALIFORNIA CODE OF REGULATIONS

by

Mobile Source Division

State of California
AIR RESOURCES BOARD
9528 Telstar Avenue
El Monte, CA 91731

(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

Condensator, Inc. has applied for an update to Executive Order D-69-3, which exempts their Condensator Supplementary Carburetor (Condensator) models B and C for 1984 and older model-year applicable vehicles. The update request is to include the following 1985 through 1989 model-year gasoline powered vehicles in the exemption:

Model B - non-catalyst equipped vehicles;

Model C - vehicles equipped with either three-way catalyst with or without feed-back controls or oxidation catalyst.

The staff reviewed the design of the models B and C Condensator. Based on the following: (1) the fact that the model C Condensator is a simple oil separator; (2) the fact that the model B condensator with the air bleed is limited to non-catalyst equipped vehicles; (3) the fact that both models in the previous exemption were found not to reduce the effectiveness of the pollution controlled vehicles, the staff concludes that the models B and C Condensator will not adversely affect exhaust emissions from vehicles for which exemption update is requested.

The staff recommends that Condensator, Inc., be granted an update as requested and that Executive Order D-69-4 be issued.

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I. INTRODUCTION

Condensator, Inc., of 2010 Trimble Way, Sacramento, CA 95825, has applied for an update to Executive Order D-69-3, which exempts their Condensator Supplementary Carburetor (Condensator) models B and C for 1984 and older model-year applicable vehicles. The update request is to include the following 1985 through 1989 model-year gasoline powered vehicles in the exemption:

Model B - non-catalyst equipped vehicles;

Model C - vehicles equipped with either three-way catalyst with or without feed-back controls or oxidation catalyst.

II. CONCLUSION

Based on the following: (1) the fact that the model C Condensator is a simple oil separator without an air bleed; (2) the fact that the model B condensator with an air bleed is limited to non-catalyst equipped vehicles; (3) the fact that both models in the previous exemption were found not to reduce the effectiveness of the pollution controlled vehicles, the staff concludes that the models B and C Condensator will not adversely affect exhaust emissions from vehicles for which exemption update is requested.

III. RECOMMENDATIONS

The staff recommends that Condensator, Inc., be granted an update as requested and that Executive Order D-69-4 be issued.

IV. DEVICE DESCRIPTION

The models B and C Condensator have a metal body with three internal passages leading through an absorbent separator containing small beads

retained by wire mesh to an enclosed collector. The collector is a one quart glass jar with a threaded mouth which screws onto the bottom of the metal body. Two of the passages allow for a series connection to the vacuum hose of the positive crankcase ventilation (PCV) system between the PCV valve and intake manifold. The third passage in the model B is vented to the atmosphere and has a 0.04 inch fixed orifice. The third passage to the air bleed is sealed in the model C Condensator. The external opening of each passage is threaded to accept a fitting.

In operation blow-by gases from the crankcase which normally are pulled into the intake manifold are routed through the device. The crankcase gases combined with suspended oil particles are separated as they circulate in the device. The entrapped oil is accumulated at the bottom of the jar while the gases proceed to the intake manifold. The manifold vacuum also pulls air into the device through the air bleed vent in the model B condensator. The incoming air combines with the crankcase gases and dilutes them. The diluted blow-by gases are then mixed with the air/fuel mixture and burned in the combustion chamber.

V. DISCUSSION

The Air Resources Board has evaluated the condensator devices since their inception in 1976. Three models of the device exist: model A, B, and C of which only the models B and C are involved in the update application. Since the catalyst equipped vehicles could be sensitive to the air bleed, model B Condensator with an air bleed is limited to non-catalyst equipped vehicles. The model C Condensator is a simple oil separator without an air bleed which is applicable to catalyst equipped vehicles. Based on the engineering evaluation, the staff has determined that the models B and C Condensator will not adversely affect exhaust emissions when installed according to their installation instructions shown in the Appendix.

The fuel economy and emission benefits alleged by the applicant for the device have not been substantiated through any valid laboratory tests. The Air Resources Board, in the exercise of its technical judgement, is aware of no basis on which the Condensator device will provide either a decrease in emissions or an increase in fuel economy.

INSTALLATION INSTRUCTIONS

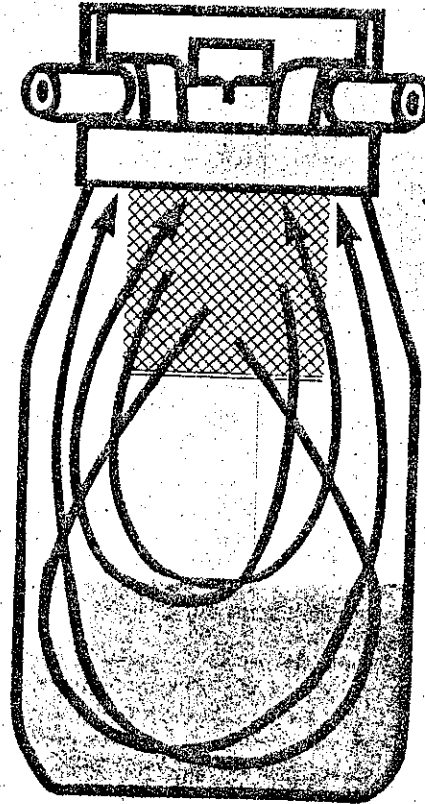
CONDENSATOR®

SUPPLEMENTARY CARBURETOR

CUTS GASOLINE COSTS

CUTS AUTO EMISSIONS

CUTS ENGINE WEAR AND COSTLY REPAIR



Revised, June 1989

MANUFACTURED BY:

CONDENSATOR INC.
 INTERNATIONAL
 SUPPLEMENTARY CARBURETOR

2010 TRIMBLE WAY
 SACRAMENTO, CALIFORNIA 95825
 U. S. A.

**CONDENSATOR
 CONSERVES ENERGY ...
 WHICH ONCE USED,
 CANNOT BE REPLACED.**

If universally adopted, the Condensator would do much to rid our environment of air pollution and protect Planet Earth for the generations yet to come. Help spread the word!

Condensator[®] Installation Instructions

In purchasing your Condensator, you made a wise decision; one that can bring big dividends in fuel economy, extended engine life, and reduced maintenance costs.

There is no question as to whether your new accessory will "work." It will, with degree of efficiency dependent upon engine/carburetor condition, and whether installation and adjustments are correct. If engine or carb needs rebuilding, Condensator cannot reach performance potential. When existing carbon deposits disappear, and they will without hydrocarbon input, mileage and power improve.

THE STEP-BY-STEPS (Refer to Drawing)

1. Make sure the two Insert Tubes (pipe nipples) in Condensator head are screwed-in tightly to prevent vacuum leak.
2. Some installers find markings on Tube Housings (Condensator head) somewhat confusing. Remember, hose from PCV Valve connects to housing marked CRANKCASE OUT (B), hose from housing marked CARBURETOR IN (C) connects to carburetor or manifold inlet where hose from PCV Valve normally terminates (D).

NOTE: Some engines (not many) have PCV Valve located in Intake Manifold. In such cases, remove stock hose and unscrew PCV Valve. Into hole, thread-in 1/4" Pipe Nipple same type as in Condensator head. Get locally or order from CRC. Insert PCV Valve into the 1/2" hose provided with Condensator. Make sure valve faces usual direction for proper air-flow. Then proceed to Step #3.

3. Refer to schematic drawing. Hoses from Condensator head, when connected to Point A (PCV Valve) and to Point D (in Intake Manifold or carb base) must be tightened-down over existing stock fittings. If the 1/2" diameter hose provided seems overly large DON'T use a smaller diameter hose, reducer fittings, OR sleeves. Tighten those clamps over the 1/2" diameter hose and fittings. They'll do the job!

Some vehicles have TWO hoses extending from PCV valve. Connect Condensator to larger-hose fitting. The small hose, to Air Cleaner or fuel evaporator system, is left as-is.

4. Air inlet tube. Small diameter aluminum tube can extend straight-out or downward, toward front of vehicle. Position tube opening as far from engine (and heat) as possible. Tube end has a U-Bend or "hook", 3" to 4" wide, with opening toward firewall. This tube-bend causes pressure of incoming air to drop, thus producing a temperature drop. The cooler air, colliding with hot crankcase emissions, helps hasten condensation. You don't need a filter cap over tube opening as the Separator (K) serves as an oil bath filter.

Brass-fitting on top of Condensator (E) may be pointed in the most convenient location for positioning and connecting aluminum air tube, so long as fitting is screwed-in tightly.

SPACE AVAILABILITY A PROBLEM?

Condensator can be positioned almost anywhere. Drill or punch holes in firewall or other mounting location, to match holes in Condensator head bracket, then attach unit with sheet metal screws provided. Unit may, if necessary, be mounted at an angle not to exceed 45 degrees.

If engine compartment is cluttered, you can move things around to make room or, fashion a simple bracket to suspend unit where space permits. An easy way out may be to replace the quart-size Collector with a pint-size jar, only 4" high. Both sizes are standard wide-mouth type, used for preserves, mayonnaise, etc. They're sold at most grocery stores. Cost is around 50¢. Smaller jar works just as well but must be emptied more frequently. Be sure to transfer O-Ring when changing jars or replacing one you dropped on cement.

For easy removal of jar for emptying, wrap a strip of 1/2" wide Teflon plumbing tape, twice, over O-Ring.

The Adsorbent Separator (K) should be removed every 10,000 miles for cleaning in solvent. Swish it vigorously, or let it soak for an hour or two. CAUTION! Separator "cage" is fragile. Grasp unit at top, not by screen mesh, and screw in or out carefully. Screw unit in place firmly but not tightly. Small O-Ring will provide proper seal.

Incidentally, the only difference between Condensator Models A and B is that the B unit, for 4 cylinder engines, has a smaller aperture for incoming air, within Condensator head. Don't attempt to enlarge this hole for "adapting" unit to a larger engine. Hole dimension is critical.

FOLLOWING INSTALLATION . . .

For best results, engine should be tuned to factory specifications AFTER installing Condensator. Remove tools from engine compartment and start engine. Place finger over end of aluminum air tube (H) to check for suction. Gun engine and let-up abruptly; fog should swirl for an instant in glass collector (M). This is caused by sharply reducing vacuum, and by the temperature/pressure change in collector.

When installation is correct, and depending on number of miles on engine, results are quickly seen. Engine runs smoother with greater power. As sludge accumulates in collector, old carbon deposits on plugs, valves, pistons and rings, gradually disappear. Engine performance becomes progressively more efficient with better fuel economy, less engine wear, and a vast reduction in harmful emissions.

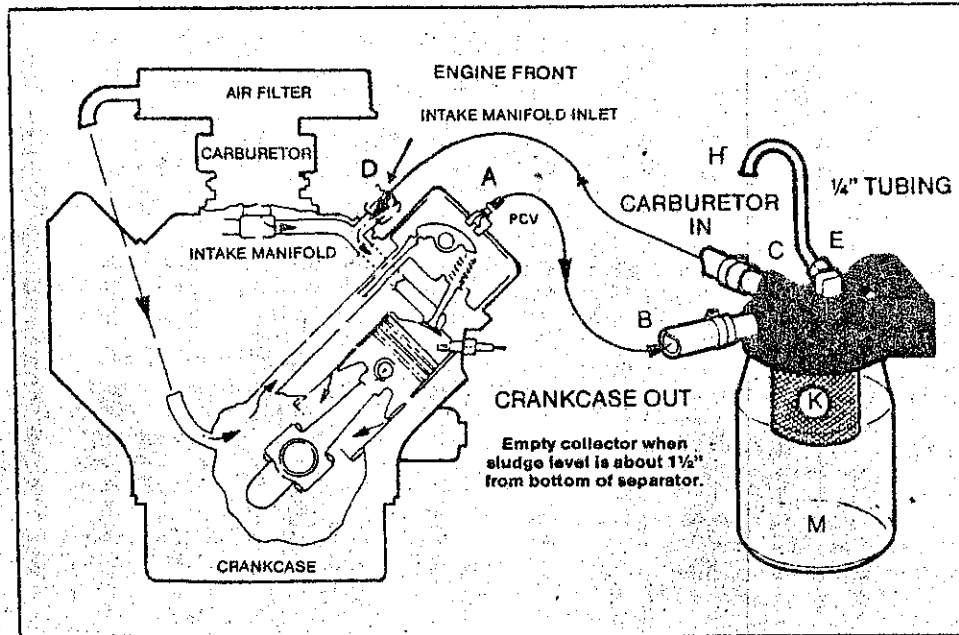
Computer-controlled engines (carbureted or fuel-injected). In nearly all instances, it's necessary to plug Condensator's fresh air inlet. That small amount of extra air signals computer that more fuel is needed (it isn't) for a balanced air/fuel mix. Then, economy goes out the window! In such cases, Condensator performs normally, without incoming air.

At this writing, a C Model Condensator without air inlet, for computer-controlled engines, is scheduled for production. (If you received a Model C, disregard above paragraph.)

TROUBLE SHOOTING TIPS

Occasionally, we get a complaint stating that after installation, mileage dropped. In such instances (and they're rare), the problem is most often due to incorrect timing or a vacuum leak. Adjust timing until engine pings, then back-off a bit. If problem persists, and all Condensator fittings are tight with hoses and PCV Valve positioned correctly, a defective manifold gasket may be the culprit.

In cold climates especially, hoses to and from Condensator should avoid sharp bends or sags where fluids can collect, condense and freeze, causing blockage or partial obstruction. Then, Condensator can't perform properly.



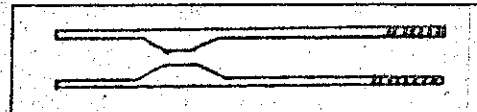
Many refineries now add alcohol and vapor inhibitors to their gasoline, to lessen air pollution. Such blends are weaker fuels that deliver fewer miles per gallon. When determining "before and after" mileage figures, make sure you use the same fuel!

INSTALLATION FOR FUEL-INJECTED ENGINES

Older models commonly vent crankcase emissions into atmosphere through a "road draft tube," or into the Fuel Air Filter. In such instances, an inlet for these emissions is made in Intake Manifold, and positioned below or on the engine side, of air intake valve or butterfly. Arrangement is then identical to newer F.I. engines that vent crankcase blow-by directly into Intake Manifold. Then, proceed as follows:

1. Locate crankcase vent and hose entry point in Intake Manifold. Remove hose and look down inside manifold fitting.
2. In most cases, there is an orifice inside fitting to constrict and reduce air flow. Unscrew this $\frac{1}{4}$ " fitting with orifice inside. (If no orifice is present, leave fitting in place and disregard Step #3.)

Typical
Orifice
Shape



3. Remove the $\frac{1}{4}$ " pipe-nipple from Condensator housing marked CRANKCASE OUT. This pipe-nipple screws into the now open hole in Intake Manifold. The fitting with orifice you removed from manifold, replaces the fitting you just removed from Condensator. Tighten-down both fittings.

4. Connect $\frac{1}{2}$ " PCV-hose provided, to fittings. Hose from crankcase vent connects to CRANKCASE OUT housing in Condensator; hose from CARBURETOR IN housing connects to fitting in Intake Manifold. Tighten clamps firmly over hose and fittings.

5. Installation is complete. Start engine. RPMs at idle may be higher and must be set back to normal. Adjustment techniques vary widely. If you don't know how, get advice or help from a mechanic or someone who knows your type engine.

For Condensator to function, blow-by emissions from crankcase must be diverted into Condensator; and clean oxygenated fuel from Condensator, directed into intake manifold.

Engines without PCV valve have a breather tube from crankcase or valve cover that vents emissions into air (or into air cleaner). Leave system as-is. Drill and tap valve cover (opposite side from breather tube, V8's), and insert threaded PCV valve. Connect PCV hose, as usual, from PCV valve to Condensator CRANKCASE OUT fitting.

PCV hose from Condensator CARBURETOR IN fitting connects to 1/4" pipe nipple in intake manifold. Drill and tap manifold with hole centered in manifold, for uniform distribution of "bonus" fuel to cylinders. Normally, it isn't necessary to remove manifold for drilling and tapping. Pick-up shavings that drop down, with magnetized rod, or with a rod-end smeared with grease. Get extra pipe nipples locally, or from CRC @ \$1.00 postpaid.

Do NOT substitute smaller or larger diameter PCV hose; use the 1/2" diameter provided, for lines going into and out of, Condensator.

VW ENGINES (Air-cooled). Condensator works very well with slight installation modification. Call Elmer Bush at Condensator, Inc. (phone listed below) for simple procedure.

PROBLEMS OR QUESTIONS?

Call Condensator, Inc., in Sacramento, Calif. Ask for Elmer Bush, He's installed thousands of units in every conceivable-type vehicle, and will set you straight on anything you need to know. Number is: (916) 485-4014. Call him between 9 a.m. and 3 p.m., Pacific Standard Time.

Replacements are available from CRC for Catalytic Separator @ \$15.00 postpaid; and O-Rings @ \$2.00 for set of two.

All Condensator[®] Models Legal In California

Model A. For 1983 and older gasoline engines of over 140 CID; and newer gasoline engines of over 140 CID that do not require Model C.

Model B. For 1989 and older gasoline engines of under 140 CID (4 cylinder), excluding those covered by Model C.

Model C. (without ambient air bleed). For 1989 and older gasoline engines equipped with either 3 Way Catalyst with Feed Back Controls, or with Oxidation Catalyst Emission Controls.

Manufacturer's Warranty

CONDENSATOR, INC. warrants all models against defect in materials and workmanship. Further, we guarantee that the CONDENSATOR will separate and collect harmful heavy hydrocarbons from the crankcase emissions; and to pass on the beneficial lighter hydrocarbons for more efficient and cleaner combustion, when properly installed and maintained.

FREQUENTLY ASKED QUESTIONS

1. WILL THE CONDENSATOR VOID MY NEW CAR WARRANTY?

NO! In order for a car manufacturer to void a warranty, they have to prove that the CONDENSATOR has or will do damage to the engine or vehicle.

2. I HAVE ELECTRONIC IGNITION AND CARBON DOESN'T FORM ON MY SPARK PLUGS. HOW WILL THE CONDENSATOR HELP MY ENGINE?

Although spark plugs do not carbon up as much with electronic ignition, carbon still builds up on back of valves and behind piston rings. The CONDENSATOR reduces blow-by contaminates. Your ignition system operates more efficiently.

3. HOW LONG WILL DEVICE LAST?

The Adsorbent Separator will last indefinitely when periodically cleaned. Other parts cannot "wearout."

4. WHAT EFFECT DOES THE CONDENSATOR HAVE ON CATALYTIC CONVERTERS?

The CONDENSATOR reduces contaminates going into the combustion chamber. This extends effective life of catalytic converter.

5. AFTER INSTALLATION OF THE CONDENSATOR, CAN I TAKE OTHER EMISSION CONTROL DEVICES OFF MY ENGINE?

NO! Law requires that you not tamper with existing smog control devices installed by the manufacturer of your vehicle. The CONDENSATOR may reduce overall emissions up to 95% when installed properly.

6. WHY DO WE NEED TO USE ONLY APPROVED PCV HOSE, WHY NOT ANY 15/32 I.D. HOSE?

If any other hose is used, there is a chance of it collapsing. PCV hose is made to withstand vacuum. Other hose is made to withstand pressure, not vacuum.

7. MY VEHICLE OPERATES ON PROPANE WHICH IS A CLEAN BURNING FUEL. WHY SHOULD I INSTALL A CONDENSATOR?

Propane is promoted as a cleaner burning fuel than gasoline. However, you have a PCV system that routes contaminates to the combustion chamber, thus reducing efficiency of engine. With the CONDENSATOR, efficiency of any internal combustion engine increases.

8. WILL THE CONDENSATOR PULL OIL OUT OF THE CRANKCASE?

NO! The CONDENSATOR is placed in line with the existing PCV system, it separates the harmful portion of the crankcase emissions that normally enter the intake system. There is no more vacuum with the CONDENSATOR than with the PCV system now in use.

9. WHY IS THERE AN AIR BLEED IN THE CONDENSATOR?

The air assists in the condensation which occurs with Differential Temperature. This air also enhances the air fuel mixture to the intake manifold, plus starting the collision chain reaction.

10. WILL DIRT GET INTO THE ENGINE THROUGH THE AIR BLEED SYSTEM?

NO! Dirt that is able to get into the 1/4 inch air induction system will have to pass through the adsorbent separator. The adsorbent separator is one of the best oil bath filters. No solids enter your engine.

11. WILL ADDED AIR MAKE THE ENGINE RUN HOTTER?

No! The CONDENSATOR reduces the cylinder head temperature of internal combustion engines. The amount of air introduced is only 1/2 cubic foot per minute at 24" Hg of vacuum on "A" model, or 1/3 cubic foot for the "B" model. This is not sufficient to burn valves.

12. WILL THE CONDENSATOR WORK UNDER ALL WEATHER CONDITIONS?

YES! It is in use all over the United States, from Alaska to Florida, and in many foreign lands, where testing proves it works in the coldest to hottest weather conditions.

13. MY CAR PINGS. WILL THIS STOP AFTER INSTALLING CONDENSATOR?

In most cases it does because you now use cleaner more efficient fuel. If pinging persists, it is usually due to improper timing.

14. WHEN I SHUT ENGINE OFF, IT KEEPS RUNNING. WILL CONDENSATOR ELIMINATE THIS?

YES! What you have is "Dieseling," generally caused by heavy carbon buildup in the combustion chamber. This is formed by contaminates passing through the PCV system. The CONDENSATOR eliminates up to 95% of contaminates, thereby eliminating dieseling problems.

Main Cause of dieseling is idle set too high. Reduce idle RPM.

15. ISN'T OIL THAT IS SEPARATED OUT BY CONDENSATOR NEEDED TO LUBRICATE VALVES?

NO! Valves are lubricated through the valve guides. Oil introduced into combustion chamber becomes harmful carbon or soot.

16. WHY ISN'T PLASTIC USED IN PLACE OF THE GLASS COLLECTOR?

Glass aids in fast heat transfer to help condensation of hydrocarbons. Also, the glass is clear for visual inspection of sludge level.