

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER D-81
Relating to Exemptions under Section 27156
of the Vehicle Code

WALKER ENGINEERING COMPANY
"AIRSEP"

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 of the Health and Safety Code and Executive Order G-30A;

IT IS ORDERED AND RESOLVED: That the installation of the "Airsep" device manufactured by the Walker Engineering Company, 2240 Sawtelle Boulevard, Los Angeles, California 90064, has been found to not 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 installation on 1978 and older gasoline powered vehicles.

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

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 "AIRSEP DEVICE."

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.

WALKER ENGINEERING COMPANY
"AIRSEP"

EXECUTIVE ORDER D-81
(Page 2 of 2)

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."

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 Sacramento, California, this 12th day of July, 1978.

OFFICIAL SIGNATURE

Thomas C. Austin
Deputy Executive Officer

Connelly

ROUGH DRAFT

Mr. Robert A. Walker
President
Walker Engineering Company
2240 Sawtelle Blvd.
Los Angeles, CA 90064

Dear Mr. Walker:

This is in response to your request for an exemption from the prohibitions of Section 27156 of the California Motor Vehicle Code for the "Airsep" device to be used on 1978 and older model vehicles.

Our evaluation, documented in the enclosed staff report, indicates that the installation of the "Airsep" device would not cause any adverse affects on emissions.

Enclosed you will find Executive Order D-81 exempting the "Airsep" from the prohibitions of Section 27156 of the Motor Vehicle Code for use on all 1978 and older model vehicles.

Should you have any questions regarding this matter, please contact Mr. N. Kayne, Manager, Aftermarket Parts and Modifications Evaluation Section at (213) 575-6839.

Sincerely,

ORIGINAL SIGNED BY

Thomas C. Austin
Deputy Executive Officer

Attachment

State of California
AIR RESOURCES BOARD

June 16, 1978

Evaluation of the Walker Engineering Company
"Airsep" Device in Accordance with Section 2222,
Title 13 of the California Administrative Code

I. Introduction

Walker Engineering Company, 2240 Sawtelle Boulevard, Los Angeles, California 90064, has applied for an exemption for the "Airsep" device from the prohibitions of Section 27156 of the Vehicle Code (See Exhibit A). The applicant is requesting that an exemption be granted for 1978 and older gasoline powered vehicles.

II. System Description

The "Airsep" is a blowby gas-oil separator installed as part of the Positive Crankcase Ventilation system. The blowby gas is taken from the crankcase through an opening in each rocker arm cover and fed to the "Airsep" device. The "Airsep" device separates the gases from the oil. The oil is allowed to flow back into the crankcase. The oil free gases are then split into two streams. One stream passes through the PCV valve into the intake manifold. The other goes into the air cleaner.

III. System Evaluation

The applicant submitted CVS-75 data obtained at the Auto Club of Southern California Laboratory, 2601 So. Figueroa Street, Los Angeles, California; a recognized vehicle emission laboratory. The tests were run on a 1973 Dodge Dart, 318-V8 engine, with automatic transmission and 46008 miles. The results were as follows:

2.

| | <u>Baseline</u> gm/mi | <u>With Airsep</u> gm/mi |
|-----|--------------------------|-----------------------------|
| HC | 2.93 | 2.68 |
| CO | 41.71 | 34.93 |
| NOx | 5.49 | 5.22 |

The applicant also submitted tests run by Chrysler on a new 1978 Le Baron, V-8 with automatic transmission, with approximately 400 miles on the odometer. These tests gave the following results:

| | <u>Baseline, gm/mi</u> | | <u>With Airsep, gm/mi</u> | |
|----------------|------------------------|------------|---------------------------|------------|
| | <u>CVS-75</u> | <u>Hwy</u> | <u>CVS-75</u> | <u>Hwy</u> |
| HC | .11 | .09 | .12 | .10 |
| CO | 1.24 | .49 | 3.25 | .48 |
| NOx | 1.61 | 2.41 | 1.31 | 2.33 |
| Economy mi/gal | 13.9 | 18.4 | 13.7 | 18.9 |

Since these tests were run on an unstabilized vehicle just off the assembly lines, the variations may be due to green engine effects. This device is similar to the previously approved "Oildex" system which had received extensive tests by the Air Resources Board prior to its certification. The staff therefore believes there is no need for further tests at this facility.

IV. Manufacturer's Claims

The applicant has agreed to delete his claims concerning fuel economy, pollution reduction, sparkplug life, and optimum ignition timing adjustments.

It is the staff's opinion that there is some benefit in keeping oil vapors from being carried by the blowby gases through the PCV system into the air cleaner and the induction system.

V. Conclusion and Recommendation

The applicant's device consists of the existing PCV system plus a mechanism for separating the oil droplets from the blowby gas. The staff believes that this will not result in an increase in emissions. The submitted test data in general verified this opinion. The staff therefore recommends that the Walker Engineering Company be granted an exemption, by Executive Order D-81, for its "Airsep" device from the prohibitions of Vehicle Code Section 27156 for 1978 and older model vehicles.

Allen R. Best
606 Lazy Springs Dr.
Red Oak, Texas 75154

March 13, 1978

Mr. G. C. Hass, Chief
Division of Vehicle Emission Control
Air Resources Board
9528 Telstar Avenue
El Monte, California 91713

RECEIVED MAR 27 1978

Dear Mr. Hass:

We are hereby applying to the Air Resources Board of the State of California for exemption to Vehicle Code 27156 for the oil recovery system manufactured by Walker Engineering Company.

This oil recovery system will be marketed under the brand name "AIRSEP".

Enclosed is the information and test data established by the "Board Criteria" for expediting our application. Should you find that additional information is required, please call me collect at my office 214 330-5261 or my home 214 223-5217.

Thank you for your assistance in this matter.

Yours very truly,

Allen R. Best

ARB/jb

Enclosures



Walker Engineering Company

November 28, 1977

Mr. G. S. Haas
Haagen-Smit Laboratory
Air Resources Board
9528 Telstar Avenue
El Monte, California 91731

Gentlemen:

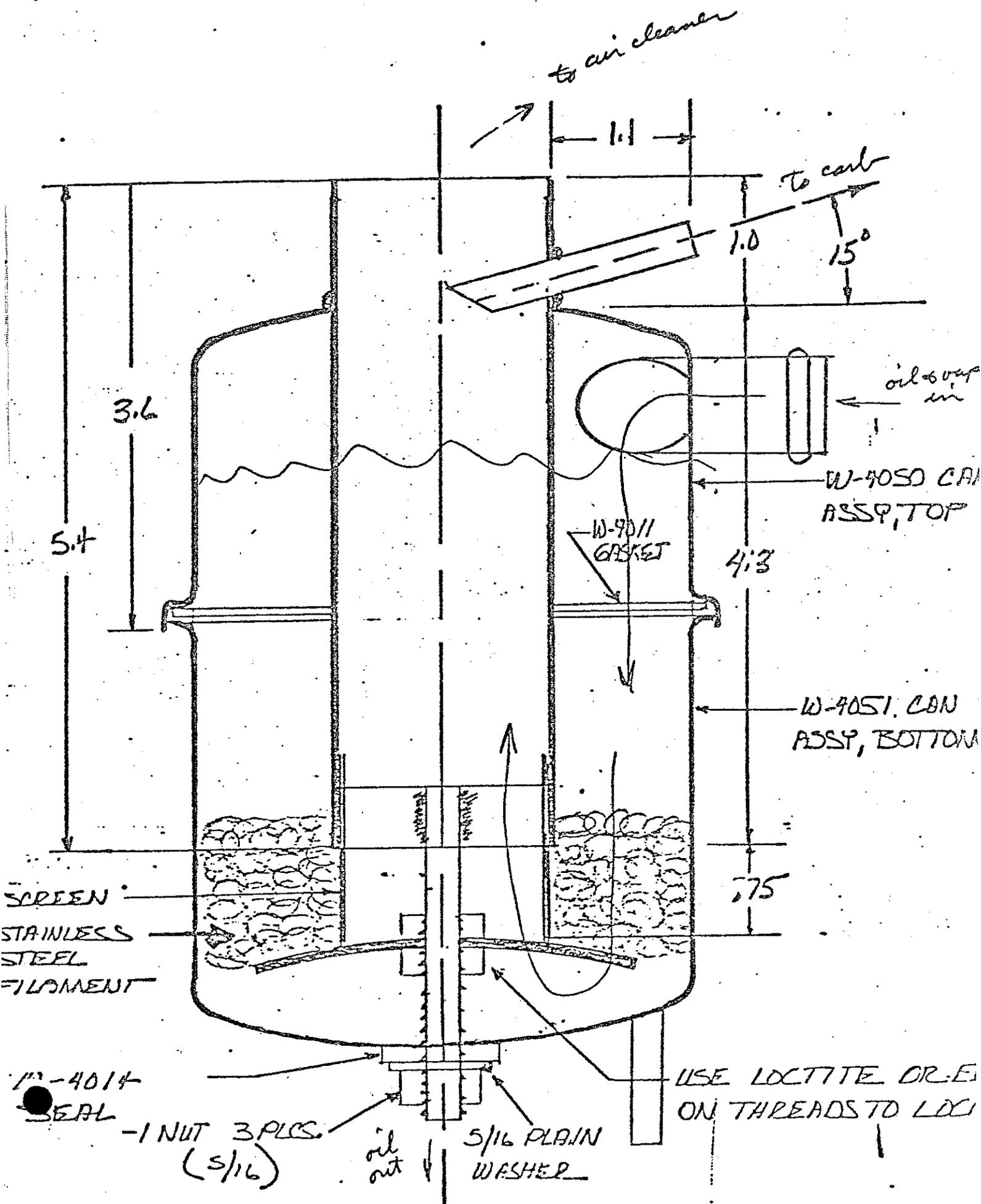
This is to advise you that we are in the process of preparing certain data preliminary to making application for exemption from the prohibitions of provisions of California Vehicle Code, Section 27156. Mr. Allen Best on behalf of Walker Engineering Company is authorized and empowered to conduct all matters necessary to securing such exemption from the Air Resources Board and act as our authorized representative.

Very truly yours,

Robert A. Walker
President

RAW/lw

Our request for exemption from the prohibitions of Vehicle Code 27156 covers all gasoline powered cars, light and heavy trucks 1965 and newer. Our tests show the AIRSEP, air-oil separator to be compatible with all emission controlled vehicles 100 cc and above.



to air cleaner

to carb

3.6

5.4

4.3

.75

oil vapor in

W-4050 CAN ASSY, TOP

W-9011 GASKET

W-4051 CAN ASSY, BOTTOM

SCREEN
STAINLESS STEEL FILAMENT

W-4014 SEAL

-1 NUT 3 PLCS. (5/16)

oil out

5/16 PLAIN WASHER

USE LOCTITE OR E... ON THREADS TO LOCK

WARRANTY

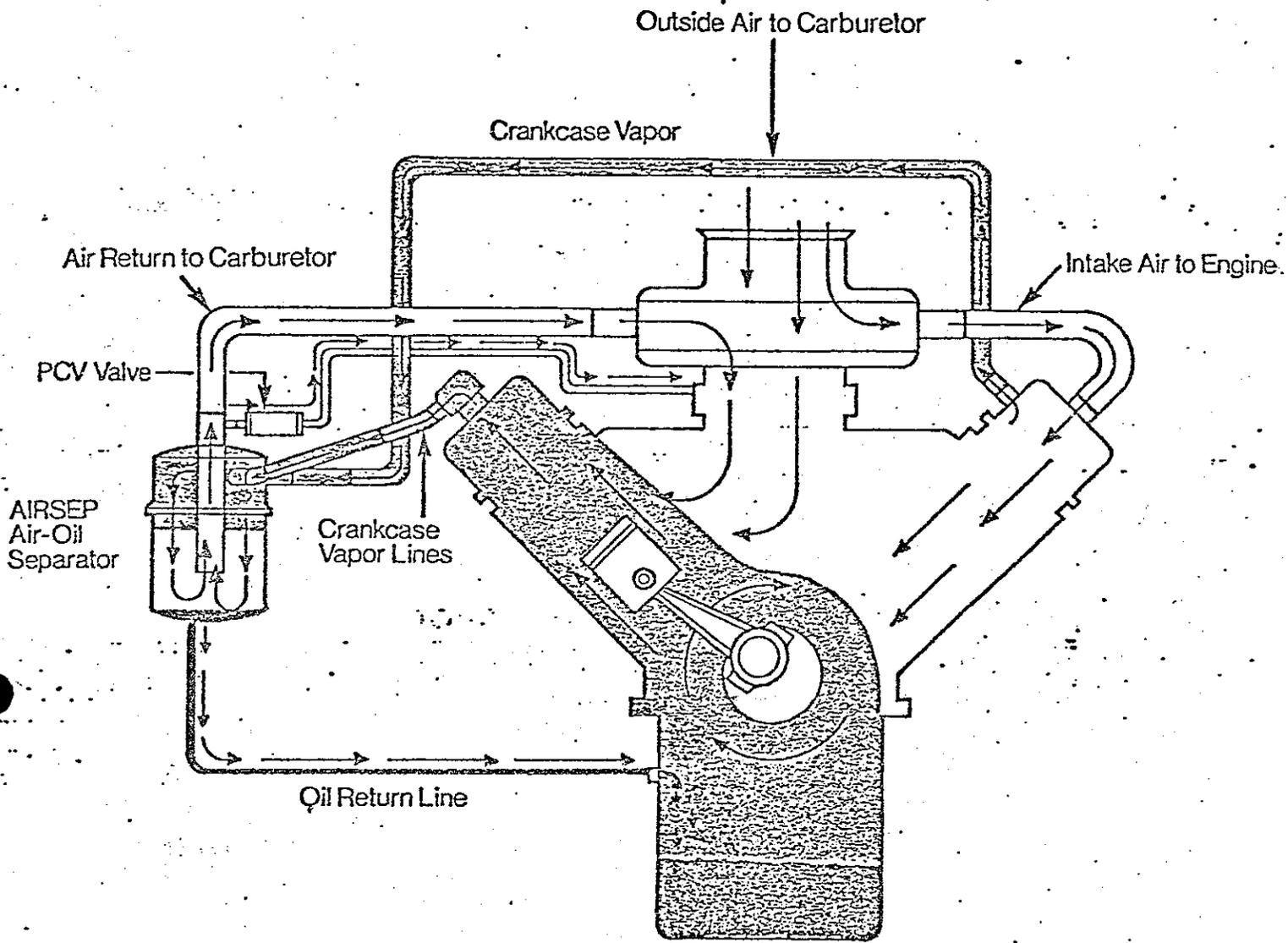
Walker warrants its AIRSEPs that it will repair or replace free at any time any AIRSEP as it is applied in its first use or original application to an internal combustion engine found under normal use in the United States or Canada to be defective in factory materials or workmanship, except hoses and clamps.

All that Walker requires is that there is no intentional damage to the AIRSEP and that it be inspected and certified to be in its original installed vehicle by a Walker dealer and that the AIRSEP be returned to WALKER with such dealer certification for replacement.

THERE IS NO OTHER EXPRESS WARRANTY ON THE AIRSEP.

ANY IMPLIED WARRANTY OF MERCHANTABILITY, OR FITNESS IS LIMITED BY THE TERMS OF THIS WRITTEN WARRANTY.

TO THE EXTENT ALLOWED BY LAW, NEITHER WALKER NOR THE SELLING DEALER SHALL HAVE ANY RESPONSIBILITY FOR LOSS OF USE OF, LOSS OF TIME, INCONVENIENCE, COMMERCIAL LOSS OR CONSEQUENTIAL DAMAGE TO THE VEHICLE OR EQUIPMENT, TO WHICH THE AIRSEP IS APPLIED.



WALKER ENGINEERING COMPANY
 2240 Sawtelle Boulevard, Los Angeles, California 90064 • Telephone: (213) 272-1248

AIRSEP
GENERAL INSTALLATION INSTRUCTIONS

NOTE: THE FOLLOWING INSTRUCTIONS ARE BROKEN DOWN INTO THE DETAIL AREAS NECESSARY TO INSTALL THE AIRSEP. FIRST DETERMINE THE DETAIL AREA FOR THE STEP YOU ARE WORKING ON, i.e. AIRSEP MOUNTING IS DETAIL 1. THEN REFER TO THE WRITTEN INSTRUCTIONS UNDER DETAIL.

DETAIL 1. AIRSEP MOUNTING

Observe the following installation conditions before mounting the AIRSEP.

1. When installed, the bottom of the AIRSEP must be at least 3" above the oil level in the oil pan.
2. The 2" return air duct flange on the top of the AIRSEP, must be at least 3" below any upper limiting surface of the vehicle, i.e. the hood.
3. The 3/4" breather lines must be able to be connected to the AIRSEP unit without kinking.
4. The mounting bracket must be installed so that the AIRSEP will be in a vertical plane \pm 5 degrees.

STEPS:

1. Secure mounting bracket to located position, with the large clamp between the bracket and the structure.
2. Clamp the AIRSEP unit to the mounting bracket using the large clamp. (Position the hose bibs so that the 3/4" lines can be easily installed).

DETAIL 2. VALVE COVER FITTINGS

Observe the following installation conditions before installing the valve cover fittings.

1. Locate a position on the valve cover so that when the valve cover fittings are installed, they will not interfere with the operation of the rocker arms.
2. The PCV valve position may be used in one valve cover, if when the PCV valve grommet is removed, there is a 7/8" hole in the valve cover.
3. After drilling the valve cover, remove all metal chips using a magnet.

STEPS:

1. Using a 7/8" hole saw, drill a 7/8" hole in the valve covers. (If the existing PCV valve hole is to be used, drill only one valve cover).
2. Install the 3/4" grommet in the valve cover.
3. Install the plastic elbow in the grommet.
4. Cut, connect and clamp the two (2) 3/4" hoses to the plastic valve cover fittings and the AIRSEP unit.

DETAIL 3. AIRSEP, AIR RETURN DUCT

Observe the following installation conditions before mounting the AIRSEP air return duct.

1. The air return duct elbow, should be installed in the air cleaner top, in the low pressure area between the air filter element and the carburetor. If this is not possible, then the air may be returned to the side of the air cleaner.

AIRSEP
GENERAL INSTALLATION INSTRUCTIONS CONT.

DETAIL 3. (CONT)

STEPS:

1. Using a hole saw, drill a 1-7/8" hole in the top of the air cleaner housing.
2. Install the elbow fitting from the top inward, with the nut on the inside. Drill and cotter pin the nut to the elbow.
3. Install the 2" duct from the air cleaner elbow to the AIRSEP unit with the end that has the stainless steel element closest to the air cleaner. Clamp both ends of the hose.

DETAIL 4. PCV VALVE INSTALLATION

Observe the following installation conditions before installing the PCV valve.

1. If the original PCV valve is to be re-used, it should be thoroughly cleaned before re-using.
2. Some PCV valves require installation in a vertical position to operate properly. Be sure which type you have and install it vertically or otherwise as appropriate.

STEPS:

1. Remove the old PCV valve line from the bottom of the Carburetor (or in some cases, from the Manifold).
2. Install a short line between the PCV valve and the AIRSEP PCV valve outlet. Clamp both ends in place.
3. Install a long line from the outlet of the PCV valve to the PCV valve inlet on the bottom of the Carburetor. Clamp both ends.
4. Tie the line in place using tie wraps.

DETAIL 5. OIL RETURN FITTING AND LINE

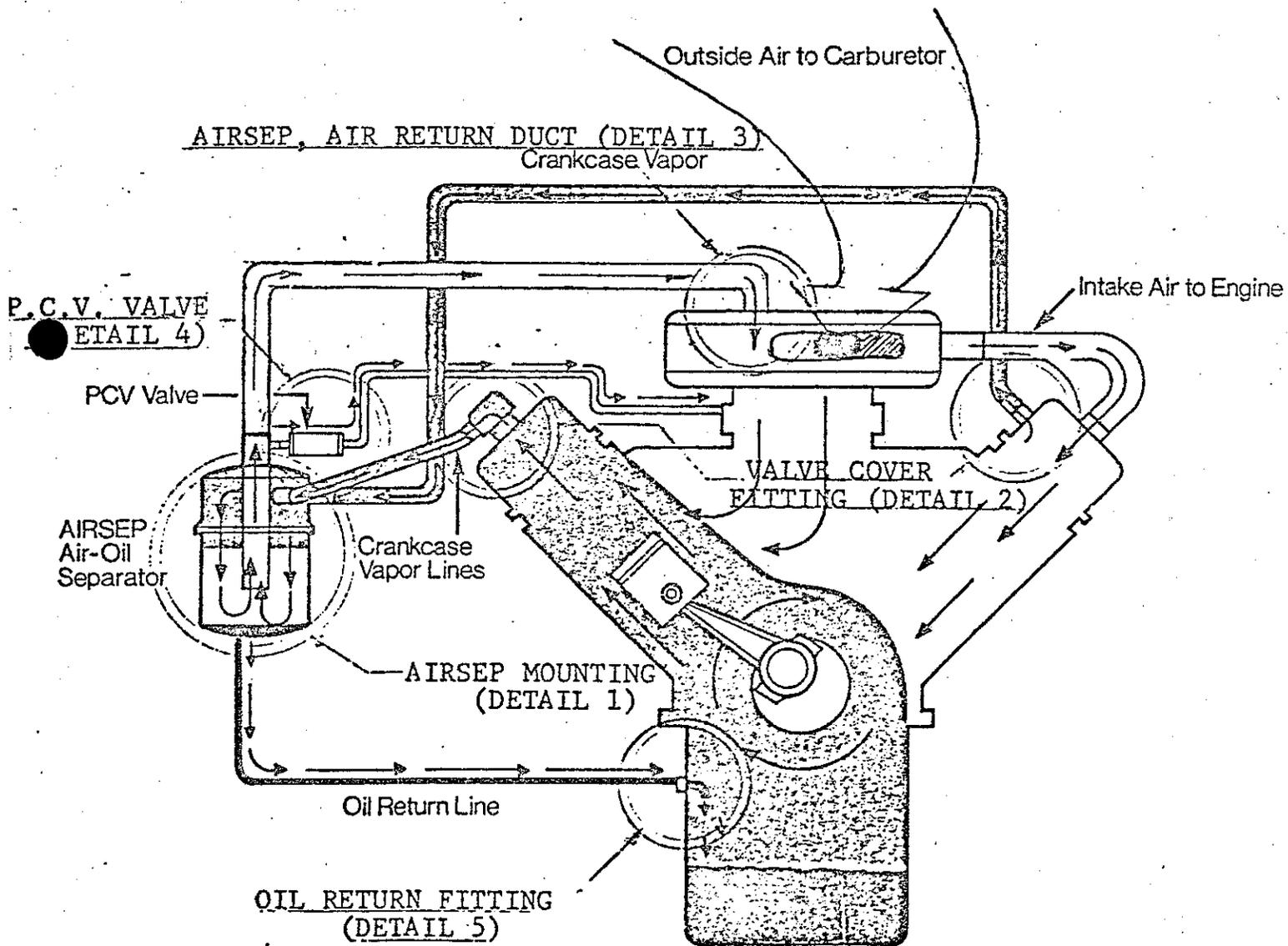
Observe the following installation conditions before installing the oil return fitting and line.

1. Oil pan fitting should be installed above the oil level in the pan.
2. Oil return line, should be installed so that it has as few low spots in it as possible.

STEPS:

1. Install the oil return fitting in the pan. Using a 45° center punch, punch a 3/16" hole in the center of the side of the oil pan 1-1/2" below the superior lip of the oil pan well above the interior oil level on the side of the engine nearest to the AIRSEP. Insert the self tapping oil pan fitting into the hole until the rubber on the washer seals the fitting. Be certain that the fitting is inserted straight rather than at an angle. Insert the threaded hose nipple into the pan fitting. Attach the oil return line from the oil drain tube on the AIRSEP to the self tapping oil pan fitting. Clamp both ends of the line.
2. Install the hose nipple in the oil pan fitting.
3. Connect the 3/8" drain hose from the pan fitting to the oil outlet fitting on the AIRSEP. Clamp both ends of the line.

GENERAL INSTALLATION INSTRUCTIONS AIRSEP



WALKER ENGINEERING COMPANY

2240 Sawtelle Boulevard, Los Angeles, California 90064 • Telephone: (213) 272-1248

HOOD OR STRUCTURE ABOVE AIRSEP

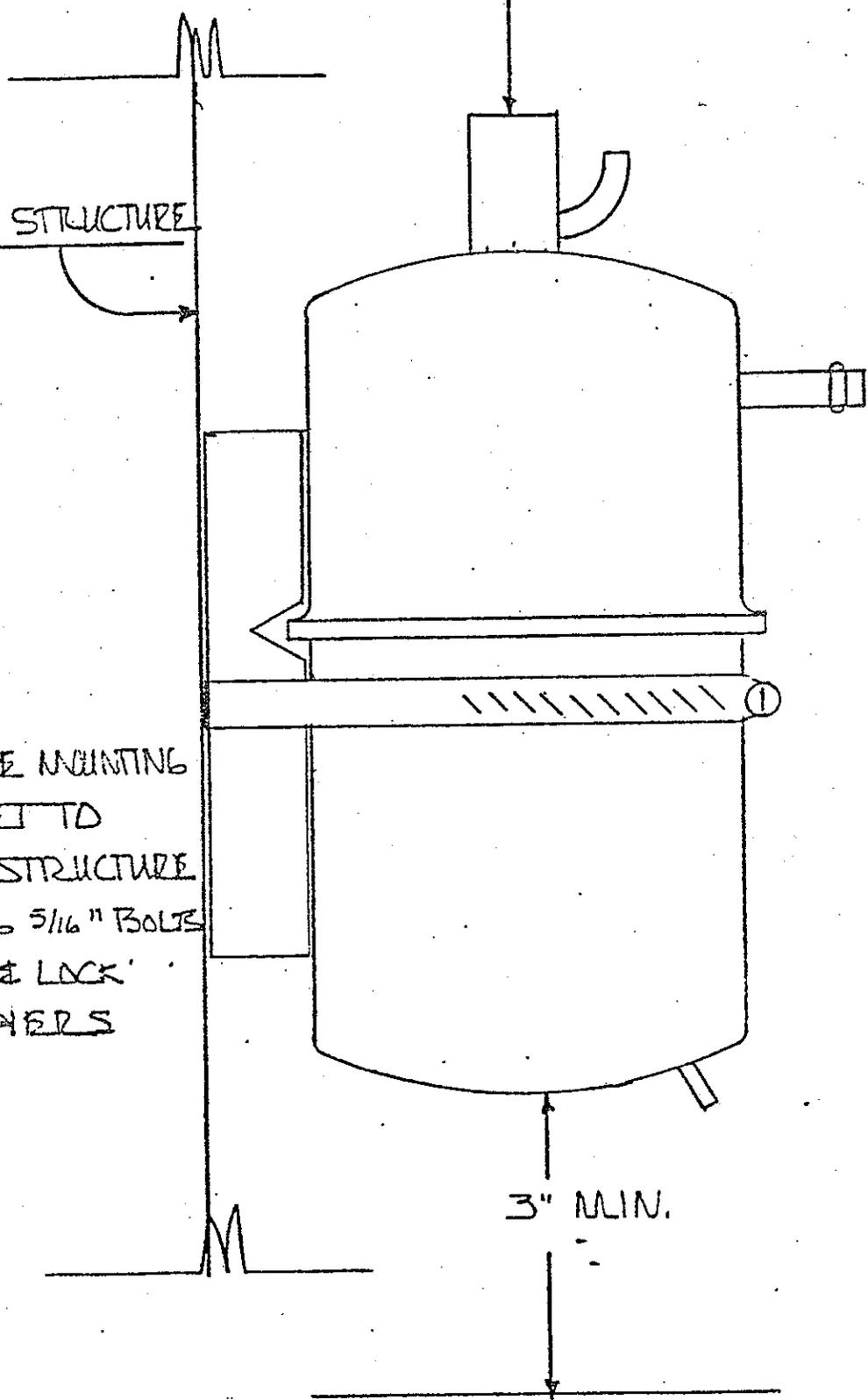
3" MIN.

AUTO STRUCTURE

SECURE MOUNTING
BRACKET TO
AUTO STRUCTURE
USING 5/16" BOLTS
NUTS & LOCK
WASHERS

3" MIN.

OIL LEVEL IN OIL PAN

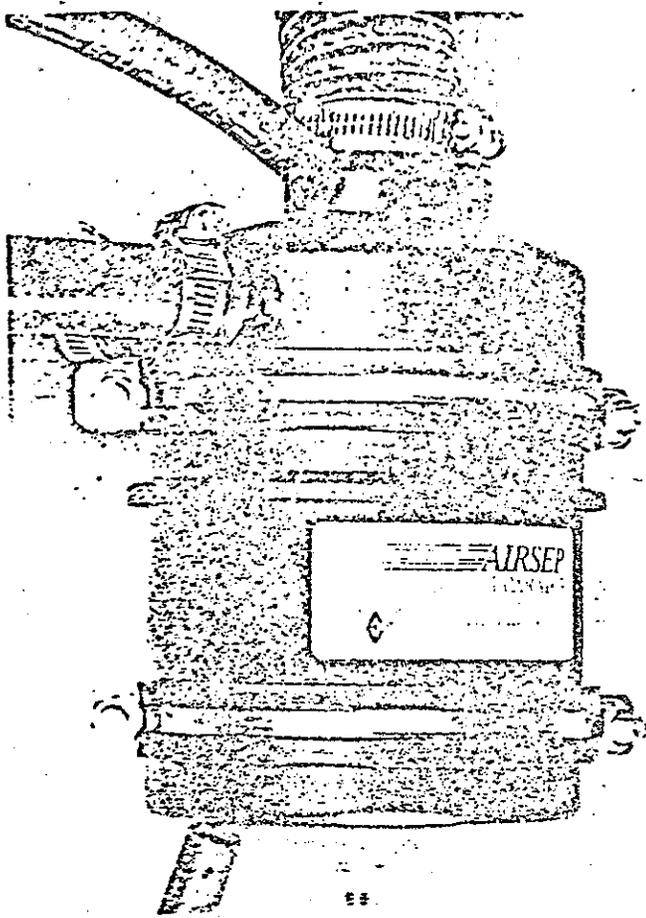


AIRSEP

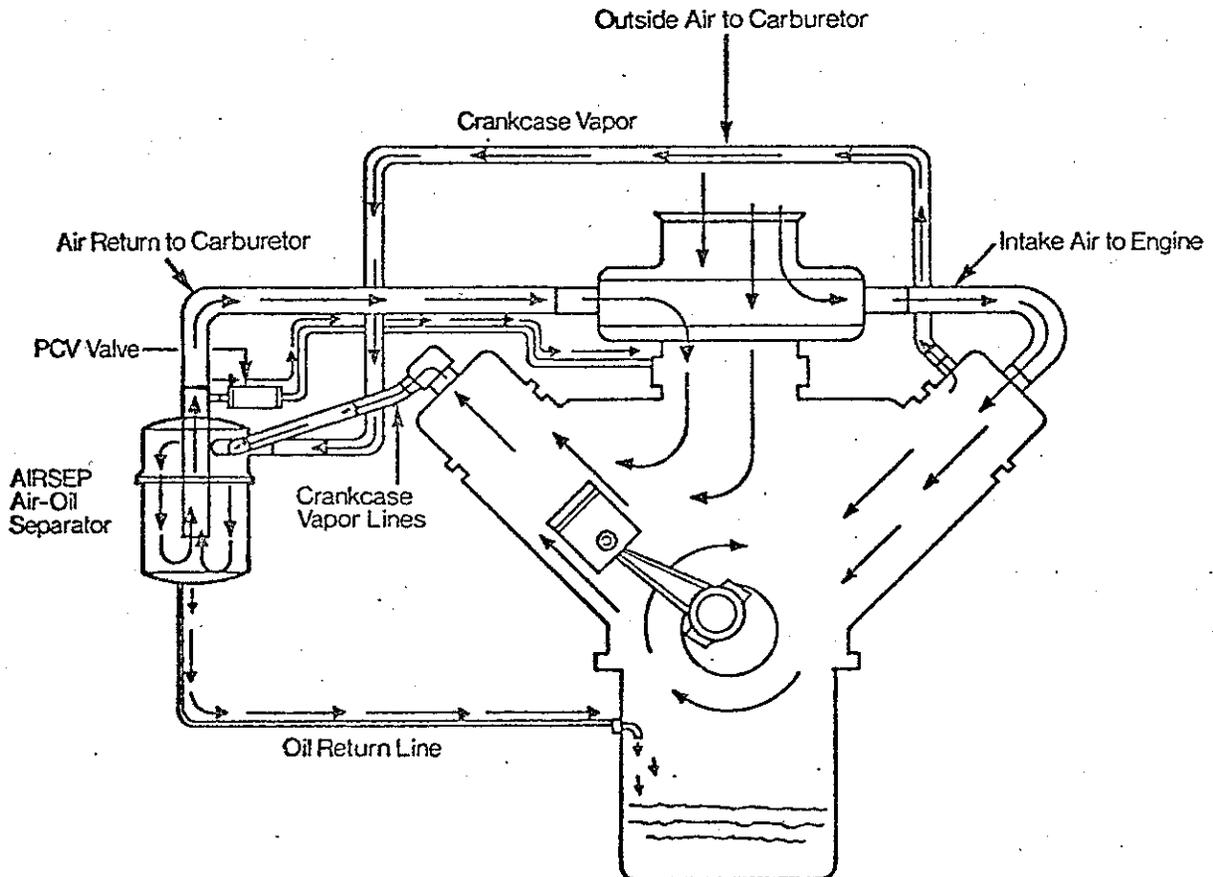
General Maintenance Instructions

Routine Maintenance:

1. All hoses and fittings should be given a visual inspection every tune-up.
2. Each engine overhaul, the Airsep should be removed and rensed out thouroughly using solvent. Inspect all hoses and fittings and replace as required.

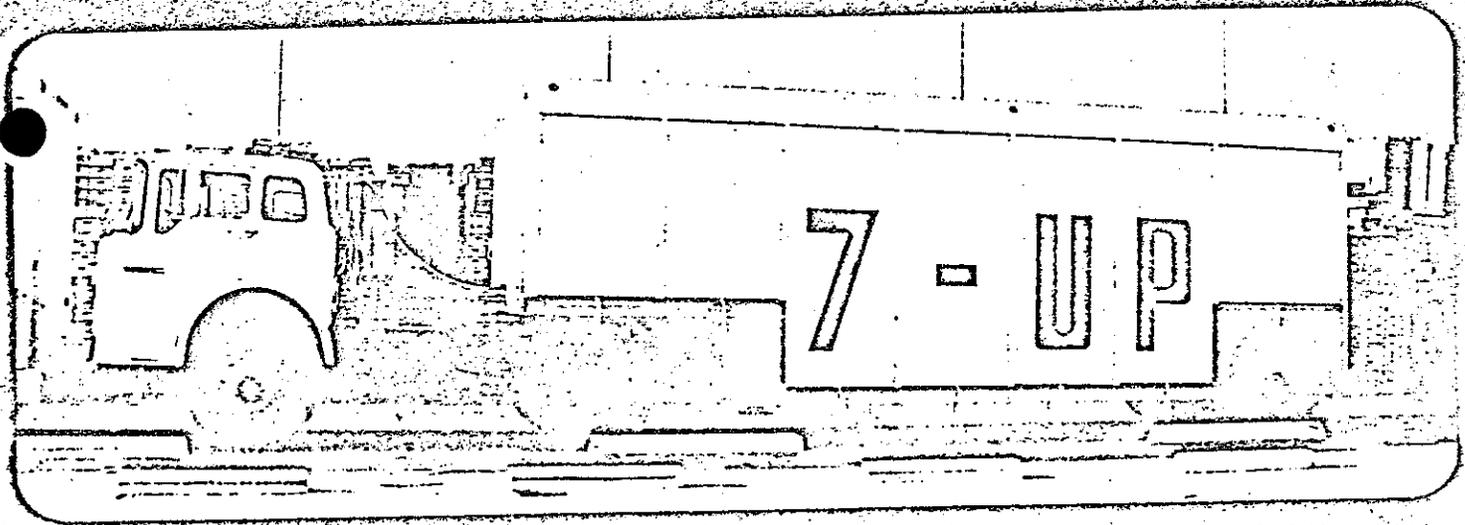
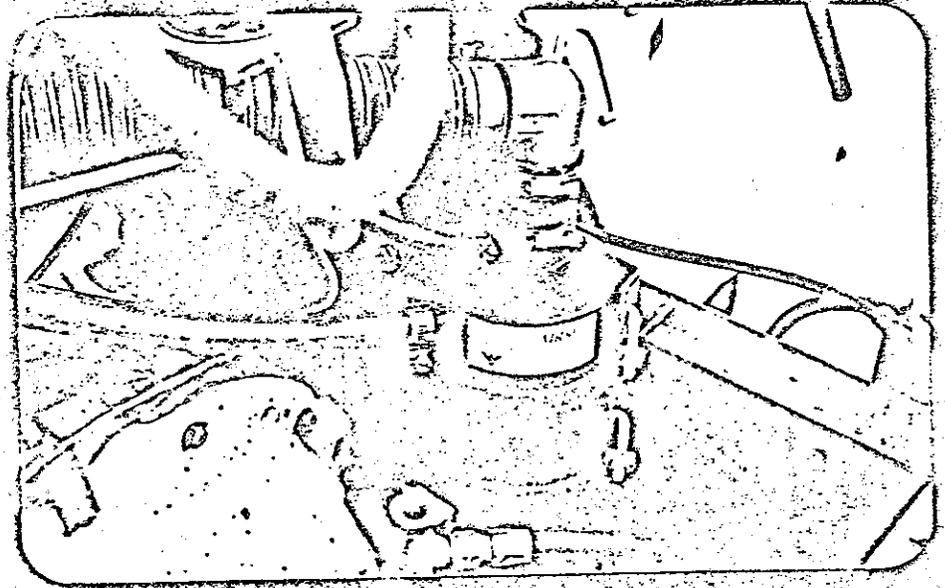
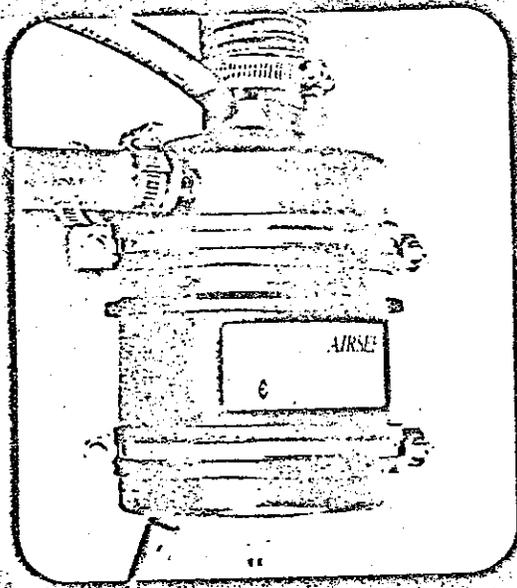


AIRSEP Model "OJ"



AIRSEP

OIL RECOVERY SYSTEM FOR GASOLINE TRUCK ENGINES



- Cuts oil consumption 50 to 80%
- Reduces frequency of oil change
- Keeps truck and surrounding atmosphere clean by eliminating oil blowby
- Increased power and gas-mileage
- Lower costs / more profits

AIRSEP Air-Oil Separator will improve the efficiency of your trucking operations dramatically whether on short haul delivery runs or long haul inter-state service.

Designed to separate air and oil in crankcase ventilation systems or breathers on internal combustion engines, the AIRSEP attaches to the crankcase vent and

separates the oil from the emission vapors and returns it directly to the crankcase.

Oil consumption is greatly reduced as well as frequency of crankcase oil replenishment. Tests have indicated a recovery of 50 to 80% of crankcase oil previously wasted, depending on the type and condition of the engine. Areas previously exposed to oil blowby remain clean and engine breathing is vastly improved resulting in increased power and gasoline mileage.

In vehicles subject to emission controls, AIRSEP eliminates the major cause of combustion chamber con-

continued on back



WALKER ENGINEERING COMPANY

2142 Lawrence Boulevard, Los Angeles, California 90064 • Telephone (213) 272-1048

Engine operating efficiency

tamination as well as the cause of PCV valve clogging. This contamination reduction also increases spark plug life, allows reduction in engine operating temperatures and permits adjustment to optimum ignition timing, thus further reducing exhaust emission contaminants, particularly in low speed, high vacuum periods of engine operation.

The AIRSEP oil recovery system is only slightly larger than an oil filter cartridge and it is available for all configurations of gasoline or other gas fired engines regardless

of displacement. It is easily attached to the crankcase vent and is secured by sturdy clamps.

AIRSEP, with no moving parts, is designed to last the life of your engine. Depending on the number of miles traveled daily, operators may well recover the entire cost of an AIRSEP installation in as little as 3 to 6 months.

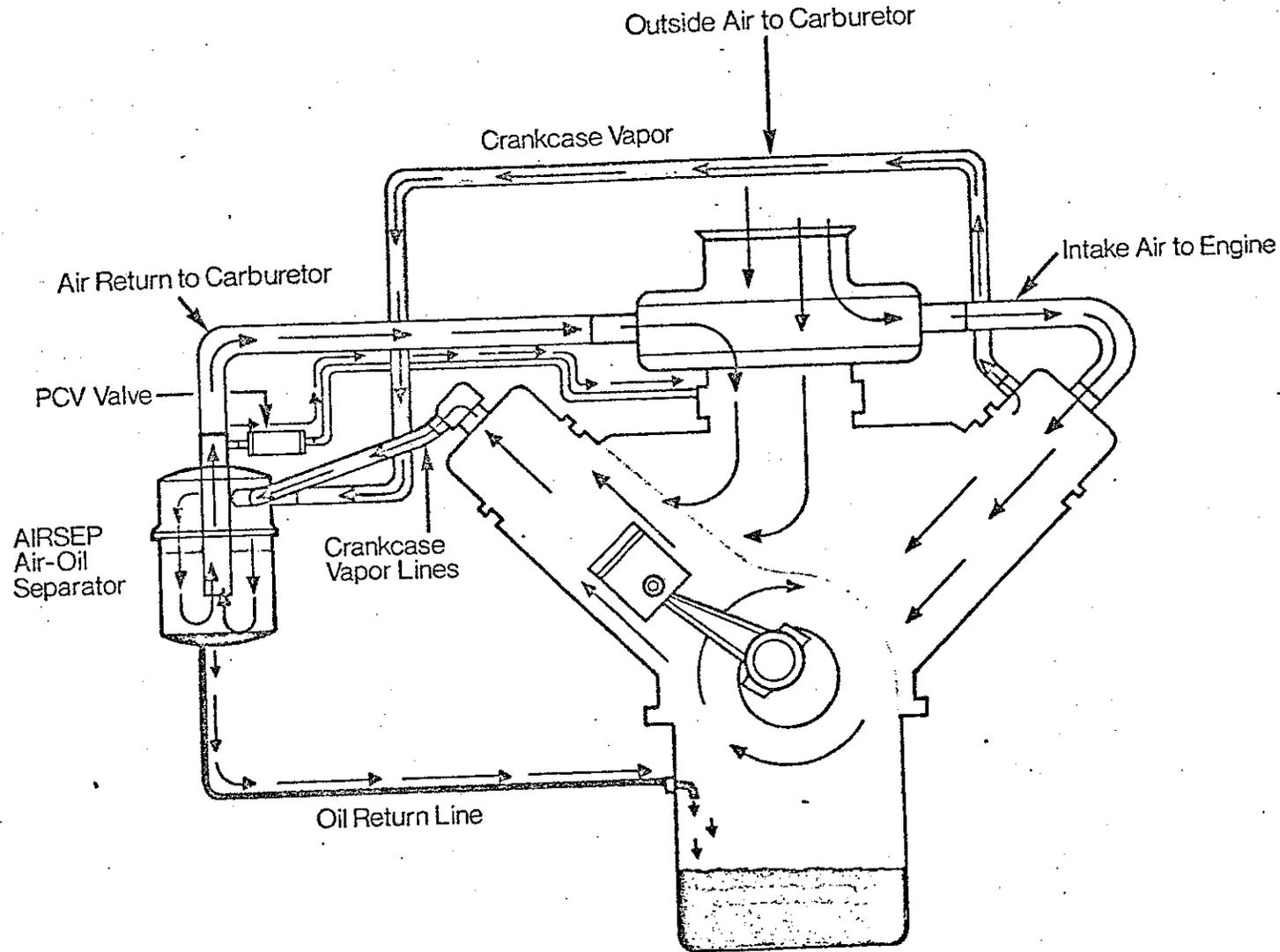
Lowered operating costs mean increased profits so why not look into the benefits that the AIRSEP Model "OJ" can bring to your trucking operations. Contact your nearest Walker Dealer or call us direct.

Prices (F.O.B. Los Angeles)

| | |
|--------------------------|-------|
| Model "OJ" Chrome plated | \$194 |
| Black epoxy | \$178 |

All prices include mounting brackets and clamps. Hoses and installation are not included.

Schematic Diagram of AIRSEP Installation on Standard Gasoline Engine



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