

LEAD INDUSTRIES ASSOCIATION, INC.

222 MADISON AVENUE

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To Members of the Health and Safety Committee:

Attached for your information is a copy of a report appearing in the current publication of the Los Angeles County Air Pollution Control District which outlines their current thinking in the matter of auto exhaust control devices.

Apparently in some official circles there is serious consideration being given to whether or not control devices on cars are necessary.

Very truly yours,

Don Fowler

Don G. Fowler
Secretary

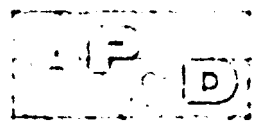
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cc: Dr. Y. E. Lebedeff



Look ahead with Lead



ENGINEERING AND LEGISLATIVE CHANGES IN SMOG PICTURE

A series of events during November 1962, may have signaled a notable advance in solving the knotty problem of the automobile's contribution to smog. The events were reported individually as routine news stories, but collectively they indicate that Detroit soon may be delivering cars that are capable of meeting the California Standard of exhaust emissions. While these cars will not be "smogless", they promise to be "less smog" automobiles.

What has happened is: (1) The system for controlling exhaust emissions by comparatively simple modification of automobile engines, developed by Chrysler Corporation, has been demonstrated to reduce hydrocarbons and carbon monoxide to approximately the present California State Standard, and to remain effective for the 12,000 miles required by the criteria of the State Motor Vehicle Pollution Control Board. The only maintenance necessary is that recommended by the manufacturer as routine servicing on any new car, with the addition of a check of the timing and idle adjustment every 5,000 miles. The incident that crystallized this development was delivery of a paper by Charles M. Heinen, the engineer heading Chrysler's air pollution control work, at a meeting of the Los Angeles Section of the Society of Automotive Engineers, November 19.

(2) Changes in the present State law are being drafted that may possibly result in engine modifications such as Chrysler's being required for all new cars sold in California, perhaps starting with the 1964 models. The legislative package has been endorsed by the Los Angeles County Board of Supervisors, the County Supervisors Association of California, the Southern California Regional Coordinating Council, and the Scientific Committee and Consultants of the Los Angeles County Air Pollution Control District. Los Angeles County has given the anti-smog changes first priority on its program for 1963 legislation to be presented in Sacramento in January.

The potential consequences are far reaching. In view of Chrysler's demonstration that it is possible to produce cars that can meet the present California Standard, it does not appear arbitrary or unreasonable for the State to ban the sale in California of any automobile that emits specific exhaust contaminants in excess of this standard. Whether this action is taken immediately or not, the possibility should cause real concern in Detroit. Obviously, the difference between present-day, production model, internal combustion engines is not so great that the relatively simple, and unpatentable, changes devised by Chrysler cannot be applied to the engines of competitors' cars. However, any innovation that may affect engine performance must be examined and tested before an automobile manufacturer can risk its adoption for his product, and therefore it suddenly becomes imperative for every manufacturer to have available for his engines a system of emission reduction in

which he has full confidence. Otherwise, he has the unhappy prospect of either being excluded from the California market, or having to incorporate in his production models, changes that he has not tested to his complete satisfaction. Control of exhaust contaminant emissions has become a most important engineering problem in motor vehicle design, and now Detroit must deal with it on a crash basis.

Requiring modification on new cars will be a big forward step, but it won't do the entire job. In the first place, as Heinen points out in his paper of November 19, "Using the Engine for Exhaust Control", "if a new piece of equipment were specified for installation on all new cars to be sold in California today, it would take six years before 50 percent of the cars on the road had it, and 12 years for 85 percent of the car population to be so equipped". This is based on the normal rate of replacement and increase in the number of cars. The present State law provides for a faster schedule of installation, but it still would take three to four years to put a certified "device" on new cars and most of the older cars after "two such devices" have been certified. Even a three-year delay is deemed excessive if it is unnecessary.

This difficulty has been recognized in the proposed legislation which: (a) authorizes the State Motor Vehicle Pollution Control Board to certify and make mandatory control methods that may not presently conform to the legal definition of "motor vehicle control device"; (b) eliminates the present restriction preventing mandatory use of approved control methods until "two or more" devices have been certified; and (c) permits a more rapid schedule for mandatory installation of control methods. This removes the bottleneck, not only for the Chrysler method, but for any other development which may turn up.

The Chrysler development is a major forward step, but it is not the complete answer. State standards are based on the concept that motor vehicle emissions must be "rolled back to the 1940 level by 1970", which is interpreted to mean that emissions must be reduced by 80 percent from whatever "the average car" emits. The best information available at the time the standards were adopted was that the "average car" emitted hydrocarbons in the amount of 1375 parts per million, and an 80 percent reduction computed from that figure gives the present standard of 275 parts per million of hydrocarbons. That is the figure to which control devices must reduce hydrocarbons in the exhaust to qualify at present for certification by the State MVPCB. Chrysler reports that its system meets the present requirements; however, latest data indicate the standards established approximately three years ago may not be low enough to accomplish a rollback to 1940 levels of smog, although experts are not entirely in agreement as to where the standards should be set. The proposals to be presented to the legislature require periodic review of emission standards and revision as necessary. The point is that an across-the-board reduction of hydrocarbon emissions to the present State Standards will be a big help in reducing smog; but it should not be looked upon as the ultimate limit that will be required.

Another problem is the possible need for a compulsory inspection system. The Chrysler engine modification system requires periodic adjustments, minor in nature, but

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necessary for peak efficiency. This is no real problem for new cars, as the servicing is about the same as that presently recommended by manufacturers. The new car owner must avail himself of the recommended service as a condition of the five-year warranty. It is likely, therefore, that cars purchased with the exhaust emission control system will be kept in adjustment at least until the five-year warranty expires. The question of what to do with used cars has yet to be resolved. The new legislative proposals provide authority for a mandatory vehicle inspection program; coupled with the authority to speed up the schedule for installation, this lays the foundation for a plan of dealing with used cars. Whether or not the Chrysler system is used, most informed observers of the motor vehicle control program agree that a careful inspection system is necessary if the program is ever to "pay off" in terms of real motor vehicle emission control.

Underscoring the legislative package which will be laid before State lawmakers in January is a recommendation that all State activities in the field of air pollution control be consolidated under one agency, thus centralizing authority and responsibility. The Los Angeles County Supervisors have called for creation of a State Department of Air Pollution.

It is not yet clear what effect all of this will have upon the present program to develop exhaust control devices such as afterburners. The Chrysler approach has been termed "not a device, but a philosophy that gasoline should be burned in the engine, not somewhere outside of it". This is a concept with which no one will quarrel; the problem has been to put it into practice. Although the modifications developed by Mr. Heinen and his co-workers are a long step forward, the results still are short of the ultimate goal. If a device is required to achieve a further reduction, the Chrysler modifications should, by reducing the amount of exhaust pollution to be burned, make it possible to build such a device to a more economical standard of performance and durability. Thus, afterburner or catalytic type devices should last longer and cost less than has been contemplated. This should make such devices more acceptable for installation upon used cars.

WHAT HEINEN REPORTED ON CHRYSLER TESTS

Comparatively simple modification of engine idle and spark equipment will reduce motor vehicle emissions sufficiently to meet California State Standards.

This was the substance of a report by Charles M. Heinen, Assistant Chief Engineer of Chrysler's chemical laboratories, at a meeting in Los Angeles of the Southern California Chapter of the Society of Automotive Engineers, November 19.

Heinen also appeared the next day before the Board of Supervisors, where he gave a summary of his tests and conclusions, and answered questions.

In his report to the automotive engineers, Heinen discussed a series of tests and analyses which resulted in development of the kit, a system of carburetion and electrical timing, which can be installed in from one to two hours with no special tools required.

"Twenty-one laboratories exclusive of our own have participated in evaluation, and 58 kits have been tested", Heinen said.

"Although no final tabulation of results can be made as yet, reports from vehicles with as much as 18,000 miles on the test kits allow several general statements:

"With but one exception, all of the vehicles on which we have received reports met the California Standards for hydrocarbons after the kits had been properly installed. It should be noted some laboratories reported hot cycles only. The mileage on the cars used ranged from new to approximately 30,000 miles. The vehicle which did not meet the standard showed 291 ppm HC on the full California cycle. The difficulty appeared to lie in the warm-up cycle.

"Several vehicles have completed 12,000 miles without apparent change in emissions. Others have shown increases beyond the standard in less than 3,000 miles.

"With the exception of one coil failure and a few changes in timing, none of the cars on which emission values had risen from the original setting showed any indication of electrical causes of the increase. This was surprising because some of the driving was on what we call our 'endurance road'.

"Where increases occurred, the vehicles could be returned to normal by an adjustment of the idle screw to the proper carbon monoxide content, a change in the idle revolutions per minute to the recommended value, a timing adjustment, or a combination of the three. Although there were indications that there had been some arbitrary adjustment of the idle screw, there were enough cases to justify a study of any trend to spontaneous maladjustment of this component. Such a study is under way.

"In summary, it appears at this stage that the modification and adjustment represented by the kits are capable of lowering exhaust emissions of 318-cu.in. Chrysler engines to levels below the California Standard. The only point in question would appear to be what frequency of adjustments is necessary to keep them there for 12,000 miles."

Heinen summarized reports he had received from test laboratories on driveability of kit-equipped cars.

"There were no adverse comments relative to cruise performance, rate of acceleration or general driveability--as a matter of fact, several laboratories detected improvements.

"There were two reports of noticeable 'free wheeling', but both laboratories indicated that the cars were commercially driveable.

"Over a third of the laboratories complained of idle stalling during cold starts, and of low speed, low acceleration rate 'tip-in stumble'."

Heinen stated that a "fix" had been developed for this, which has completely eliminated stalling and which will correct the "stumble". He noted that with these corrections, it was generally agreed that the modifications did not impair driveability of the 318-cu.in. engine in any way.

Maintenance and service required for continued satisfactory reduction of emissions are the same as those presently recommended for general good operation of the vehicle, plus an idle adjustment and timing check every 5,000 miles.

Heinen noted that the same services and intervals recommended for the operation of any presently produced unmodified Chrysler will keep the level of emissions below 500 ppm HC and between 2.0 and 2.5 percent CO. "With the modified engine, the same normal recommended service will allow sustained operation at levels below 275 ppm HC and 1.5 percent CO", he said.

Test of the modification kit by customer experience is scheduled shortly, as a preliminary to the start of full production, Heinen indicated.

CHANGES IN AIR POLLUTION LEGISLATION PROPOSED

Recommendations for changes in California legislation affecting control of air polluting emissions from automobiles have been endorsed by the Los Angeles County Board of Supervisors and by the County Supervisors Association of California. They are:

1. Provision should be made for the mandatory conduct of public hearings and studies, at periodic intervals, to determine the adequacy and utility of established vehicular emission standards, and the need for revisions or additions to those standards.
2. The State of California should be empowered to require the mandatory use of control methods which significantly reduce vehicular contaminant losses but which do not fully achieve the levels prescribed in the established standards.
3. The existing authority of the Motor Vehicle Pollution Control Board should be clarified so as to permit certification and mandatory use of control methods which may not presently conform to the legal definition of vehicle pollution control device".
4. The present legal requirement, preventing mandatory use of approved control methods until "two or more" devices have been certified, should be eliminated.
5. Authority should be granted to appropriate agencies of California State Government to establish a mandatory vehicle inspection program, as may be necessary to assure compliance with motor vehicle emission standards.

6. Existing law should be modified so as to permit a more rapid schedule of mandatory use of approved vehicular control methods.
7. Appropriate legislative and/or executive action should be taken to improve the administration, management, and leadership of air pollution activities and programs presently assigned by law to the responsibility of State Government. It is suggested that the required improvement could be secured through consolidation of all present State air pollution research, test, and program administration responsibilities into a single agency of State Government.

SUPERVISOR DORN BACKS ATOMIC POWER PLANT FOR LOS ANGELES

The Department of Water and Power's proposed \$72 million generating plant "would be of great significance in combatting air pollution during the next several decades, and if successful, make it likely that no more oil-fueled electric plants would ever be built in Los Angeles County", Supervisor Warren M. Dorn told the Los Angeles County Board of Supervisors, November 29.

Because of the plant's importance, the Board, on Dorn's motion, directed the County Counsel, Chief Administrative Officer, Air Pollution Control Officer and Director of Parks and Recreation to offer their "assistance and cooperation" to the DWP of the City of Los Angeles.

Dorn pointed out that atomic-fueled electric generating plants are completely enclosed systems and emit no air pollution.

He said the Supervisors had endeavored to limit the amount of fuel oil burned in electric generating plants here, alternating it with natural gas which produces less air contamination. As electrical energy demands increase and more plants are built, however, even the amount of pollution from natural gas will become "unacceptable".

A plant producing as much power from fuel oil as the proposed plant, would emit 110 tons of air contaminants daily; the atomic plant will produce none.

The new plant also might possibly be adapted to economical desalting of sea water, as the heat would be available without additional cost, and this would open the way to solving another very pressing restriction on Southern California's growth.

The Supervisors hailed a statement by a DWP spokesman that the largest part of 300 acres of coastal land called for in the Atomic Energy Commission's specifications for the plant will be made available, if the Commission approves, for recreational use. The plant would occupy only 20 of the 300 acres.

Supervisor Dorn added that the remainder of this scarce seashore area will thus come under city control and provide a recreational outlet.