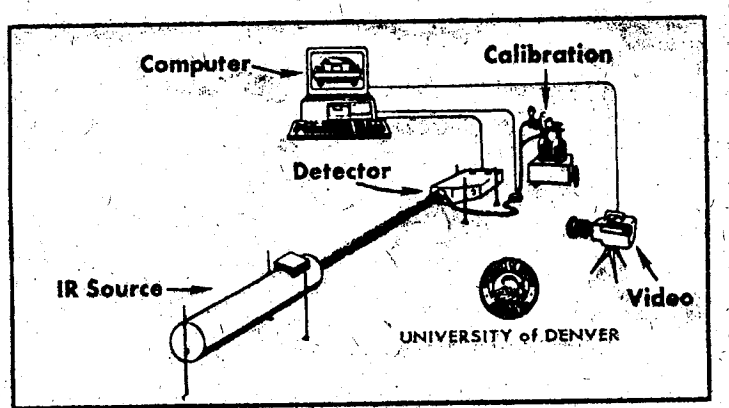
AUTOMOBILE POLLUTION IS A DISEASE

by Donald H. Stedman

A quick, cost-effective, remedy to air pollution is here. Who has the guts to implement it?

Do pollution producing automobiles cause disease? Is it anti-social to drive your car? Air pollution control agencies use these arguments to justify mandatory car pools and to subsidize public transit. It's more productive to think of automobile pollution as a disease in another way. Some cars are sick. Sick cars cause air pollution.



The unit costs about $50,000 and works without any inconvenience to the driver.

At the University of Denver we developed a remote sensing machine to measure the carbon monoxide (CO) and hydrocarbon (HC) emissions from cars and light trucks as they drive by at normal speeds. The unit can be made small enough to fit into two orange road barrels. It can test up to I, 500 vehicles per hour. Both the US Environmental Protection Agency and the California Air Resources Board have shown that the unit produces accurate readings. Over 300,000 vehicles have been measured in California, Colorado, Illinois, Canada, and England. Test data indicates a car causes significant air pollution only if the vehicle has an emissions problem. Most cars emit between five and fifteen grams of CO per mile. Sick, dirty cars emit between 100 and 500 grams per mile.

Sick, dirty cars are found everywhere. Any car can be a gross polluter, regardless of age. It' s interesting to note that sick, dirty cars are just as common in states with mandatory Smog Checks as they are in states without Smog Checks. A car can go out of tune quickly. A perceptive driver will notice an increase in gasoline consumption as a car goes out of tune. The bar graph to the right (next side) illustrates the emissions of a typical fleet of ten cars. The bar on the right is taller than all others put together. It represents the emissions of the dirtiest car. The *average* emissions are slightly larger than the third largest bar.

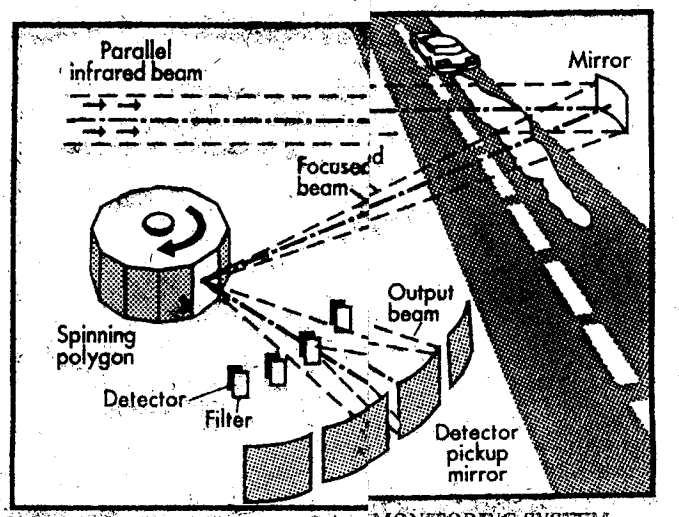
CURE YOUR CAR!

You'll save more in gas money than a good tune-up will cost you.

We believe you can continue to use your old car as long as it is properly maintained. Automobile manufacturers would like for you to purchase a new car.

Regulators dispute our findings because our work shows that transportation control measures such as car pooling, van pooling, mandatory public transit expansion, etc. fail to produce clean air. Citizens who drive healthy cars are likely to be the most frequent participants in traffic reduction schemes, so these measures reduce the use of healthy vehicles, not sick ones.

The State of California has tested over 3,000 vehicles using the Federal Test Procedure (FTP). The FTP is a tightly controlled, expensive test (about $1,000 per car) in which a vehicle is subjected to a precisely defined driving cycle during which emissions are analyzed in terms of grams per mile driven. The test is designed for certification of new vehicle emissions systems. ***New vehicles are now so clean that if properly maintained, they will be irrelevant to air quality throughout their lifetime.*** State and Federal Governments ignore this fact. Regulators force automobile makers to make already clean cars produce slightly fewer emissions at great expense.



PROTOTYPE REMOTE-EMISSION MONITORING SYSTEM

In a second, or less, the level of emis ions from the tail pipe of a passing car is measured. The device an be connected to a video camera to record the license number o each car tested. Here's how it works:

1. *A parallel beam of infrared light is ocused at a mirror across a road.*
2. *The beam travels through the plu e of exhaust gases from a passing car, bounces off the mirro and returns to the device.*
3. *The light re-enters the device and uits a spinning mirror that focusses the light on a series of dec ectors.*
4. *The detectors then compute which g ses are present and in what quantities.*

Perversely, the result of tighter new car standards will probably be to produce dirtier air in the future. Fewer than 10 percent of the cars cause 50 percent of the pollution. According to all the data, most new cars are healthy, but 25 percent of old cars are gross polluters. A program which increases the cost of new vehicles discourages the junking of old vehicles and therefore leads to dirtier air. Tough new car standards present a future trap: even though it is easy and inexpensive to tune up a vehicle built before 1975, 25 percent of them are improperly tuned. A look under the hood of a 1990 model year vehicle should cause us to ask what will happen when that sophisticated equipment is 25 years old. How many will be properly maintained 25 years from now?

Using California data we find that the *median* vehicle (one half the cars emit more than the median and one half less) emits about six grams of CO per mile. The average emissions are almost twelve grams per mile. The average is dominated by a few sick, dirty cars. Most vehicles, including all well maintained vehicles, are much lower. Transportation control measures work two ways: voluntarily and through employer sanctions. A concerned citizen who drives a healthy car is more likely to respond to a voluntary program than one whose car is poorly maintained. Targeted employers impose these measures through restrictions on professional and clerical employees who are more likely to drive clean *median* vehicles than the hypothetical sick, dirty *average* vehicle. Even if employers succeed in reducing traffic caused by their employees, there will be no corresponding reduction in air pollution.

Some claim that cleaner fuels will solve the problem. That's false. Cleaner fuels are slightly cleaner in new, or well maintained cars. Gross polluters produce fewer emissions with cleaner fuels, but still much more emissions than the same car