

## EDITORIAL: CONTROLLED LOSS

**C**ALIFORNIA'S AUTOMOTIVE albatross, as we've cited in the Rancho Road Test elsewhere in this issue, is the exhaust emission control device "slung . . . by the fanbelt around the car's neck." Although these legally required devices ostensibly provide Californians with cleaner air through significant reduction of smog-producing exhaust hydrocarbons, these albatrosses also are significantly reducing the performance of their cars.

According to research men, the performance loss is great enough to almost doom under-200-cu. in. engines, even in lighter-chassis cars. These smaller engines just don't do as good a job, proportionately, as do the larger engines in burning up surplus, harmful hydrocarbons when emission control equipped. The big engines do such a good job that they hardly even need an exhaust control device, but to equalize the emission output from any given manufacturer's cars, the over-emitting small engines are accepted with the under-emitting large ones. The reason is simple: The unit of measurement for emission control is parts per million, rather than total emission. Thus a small engine producing an unacceptable rate in ppm can be actually emitting far less pollution than the acceptable big engine on a total parts basis.

Chrysler advocates its "Cleaner Air Package" for emission control, while AMC, Ford and GM utilize air injection into the exhaust manifold to complete combustion and reduce the unburned hydrocarbons. The CAP, as we've pointed out in previous CL articles, is a sort of super-tuning system which leans out carburetion and advances spark timing at critical periods to achieve the same effect. Proponents of either system condemn the other as unsatisfactory. Ford, for instance, while going ahead with plans to adapt its Thermactor system, ran a crash program to develop and test its own CAP similar to Chrysler's. But Ford dropped it in discouragement after only a few months.

From a purely vehicular performance standpoint, the CAP seems to do the better job over the air injector. Or, perhaps it is that the CAP has less effect on the output of the larger engines. At any rate, CL has sampled enough 1966 cars to discover something amiss in the Thermactor/air injector equipped models. They just don't perform as they did last year.

The area seemingly most affected is the area dearest to the hearts of the performance enthusiasts—the upper rpm and horsepower range. Something is causing the higher performance engines to "run out of breath" some 1000-1500 rpm before they should, and did in the immediate past.

We can theorize what may be happening, although we offer no proof. The Thermactor/air injection system depends upon fresh oxygen being forced into the exhaust manifold to re-ignite and burn off the harmful hydrocarbons. In effect, this is an afterburner and it heats up manifolds and exhaust pipes, which in turn considerably raise underhood temperatures. Additional heat can rob the engine of power in several ways. Carburetion changes toward leanness to accommodate differing airflow conditions might also hinder things. Then, too, combustion in the manifolds must additionally expand exhaust gases, which could cause back-pressure. And, as any hot-rodder knows, back-pressure is a bane to horsepower production. The air injector pump itself is probably not much of a factor, as it requires only 1-2 bhp.

It would seem that the adoption of the Thermactor or air injection systems of exhaust emission control may have been done in too great a rush. That is, the deadline of Jan. 1, 1966, for inclusion on all new model cars sold in California might have forced manufacturers to utilize something not yet thoroughly tested and proved. As usual, the customer gets the ultimately frayed end of the stick—this time in a loss of performance.

—The Editors