

Vehicle Inspection and Maintenance

Factsheet

The Role of Inspection and Maintenance Programs

EPA has a number of tools in its regulatory arsenal to ensure that new vehicles meet emissions standards when they roll off the assembly line. However, due to age, malfunctions and poor maintenance, once on the road, cars emit an average three to four times more pollution than standards allow for new cars. As cars age, emissions increase, eroding the benefits of engine and fuel regulations. Inspection and Maintenance (I/M) programs allow communities with poor air quality to identify and fix these problem vehicles.

What Inspection and Maintenance Programs Do

Vehicle emissions contain many harmful substances. These include chemicals that lead to the formation of smog as well as a number of compounds classified by EPA as air toxics. Together, these pollutants lead to numerous health risks including nasal and eye irritation, asthma attacks, immune system disorders, and cancer. Though I/M programs were developed specifically to reduce ozone and carbon monoxide, they have the important benefit of reducing air toxics from automobile and light-duty truck exhaust. If I/M programs were discontinued in the key cities outlined in this report, the following increases in toxic vehicle emissions could occur in 2003:

- Acetaldehyde (a probable human carcinogen and irritant): 404 tons;
- Benzene (a known human carcinogen): 2,939 tons;
- 1,3-butadiene (a probable human carcinogen and irritant): 509 tons; and
- Formaldehyde (a probable human carcinogen and irritant): 931 tons.

I/M plays an especially important role in air quality in urban areas. Roughly 40 percent of the air toxics listed above emitted in urban areas come from motor vehicles. Vehicles also

contribute between 35 and 70 percent of ozone-forming emissions and 90 percent or more of carbon monoxide emissions.

Testing Procedures

Each state designs and operates its I/M program to comply with EPA's national policy. Typical testing procedures are as follows:

Exhaust: This is the most familiar and type of emissions testing. A probe from testing machine called a dynamometer is inserted into the tailpipe of a vehicle while the vehicle is idling or while the engine is being revved to 2500 rpm. Emissions analyzers then measure pollution levels in the exhaust. (See photo.)



Visual: Visual checks ensure that critical emission control components are present and operational to protect against tampering and wear. These components include the gas cap and the catalytic converter.

On Board Diagnostics: (OBD): In OBD, a computer located inside the car monitors the emissions system. If a problem is detected, a warning light (much like a low fuel light) alerts the driver of the problem. OBD has the added benefit of early detection, which allows a driver to correct problems in their early stages before they become more costly.