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Commentary

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New EPA emissions rule would cost more, do less to improve air

By Dr. Donald Stedman

A new emissions test proposed by the Environmental Protection Agency would cost more while doing less to improve the air. Using bad science to justify a pre-determined conclusion, the agency is rushing to implement the rule, and Americans have only until Oct. 20th to comment.

The new rule, called “Amendments to Vehicle Inspection Maintenance (I/M) Program Requirements Incorporating the Onboard Diagnostic (OBD) Check,” was proposed in the *Federal Register* on Sept. 20, 2000, pp. 56,844-56,856. If adopted, the rule would replace required emission tests on 1996 and newer model-year vehicles with a check of your car’s On Board Diagnostics (OBD) system.

The OBD system of sensors and computers turns on your “CHECK ENGINE” light if it suspects a problem potentially causing emissions 50 percent higher than allowed by federal certification standards, which are already miniscule compared to on-road gross polluters. The auto companies face severe penalties if the light does not illuminate for high emissions, and no penalty for false alarms. Auto owners already pay for false alarms, both in higher purchase prices and \$75 visits to the dealer to turn off the CHECK ENGINE light.

-more-

Under the new rule, if your “CHECK ENGINE” light is lit, you fail; if the scan says your light *should* be on, you also fail. If you fail this new “emissions” test you will not be able to register your car.

EPA claims that their pilot studies support this rule. For example, one study involved 200 vehicles. Because the “CHECK ENGINE” light was illuminated on 98 percent of the cars tested, you’d expect comparative tests to also fail 98 percent of the vehicles. But 136 did not fail even the Federal Test Procedure (FTP), the most stringent test available today. That means EPA’s preferred OBD test would be wrong 70 percent of the time, and car owners would bear the cost and inconvenience.

If the OBD test were accurate, you’d also expect all of the vehicles with illuminated CHECK ENGINE lights to fail the more stringent test. Sixty-three vehicles failed that test, but only 58 (92 percent) had illuminated CHECK ENGINE lights.

EPA presented this result as a success, claiming that “OBD successfully identified 90 percent of these gross emitters.” This conclusion, is a scientific error because 98 percent of the cars selected for the test had the CHECK ENGINE light on, i.e. they would have failed the OBD test. That’s like testing only blue cars, and claiming that the color blue “successfully identified” 100 percent of the few gross emitters found! The 63 vehicles that failed the FTP check were repaired and one quarter of the carbon monoxide-emissions reduction came from a single vehicle, and guess what? The CHECK ENGINE light was not illuminated!

In the 200-vehicle data set, half the emissions came from only eight vehicles, the gross polluters for which repairs generate meaningful emissions reductions. EPA could easily have calculated cost/benefit ratios, but did not, because doing so would make OBD

look bad. It is cheaper and more effective to repair the small number of extremely dirty cars identified by a real emission test than to repair large numbers of relatively clean cars unfairly singled out by the less-reliable OBD test.

EPA is also guilty of redefining customer inconvenience. They claim that a test that fails 194 vehicles out of 200 will be less inconvenient than a widely accepted test that only fails 14, and which the others will “fast pass” in 30 seconds. Repairing just two of the worst vehicles out of the 200 tested removed more hydrocarbons from the air than the total of the remaining 198 repairs, but the data for those vehicles does not even appear in the final summary spreadsheet. Could the agency be more interested in its OBD agenda than in cleaning the air?

The proposed rule is based on such poor science that I strongly recommend EPA ask their Clean Air Scientific Advisory Committee (not just a subcommittee of a subcommittee) to look at both the data and the report. Anyone who cares to make sure that their car is not subjected to bad science should send comments to the EPA docket (A-2000-16 Air Docket, Room M-1500 (6012) Waterside Mall S.W., Washington DC 20460).

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OBD longer commentary
10/17/00

CHECK ENGINE LIGHT ON and you will not be able to register your car! The USEPA are rushing (comments required before Oct. 20, 2000) through a new automobile testing rule which in the future will both tax and inconvenience most Americans. The data upon which the new rule is based do not pass the laugh test and have been interpreted in a quite unscientific way to justify their pre-determined conclusion.

OBDII is the acronym for the complex system on 1996 model year and newer automobiles (On Board Diagnostics II, dozens of sensors and a computer chip or two). The system is supposed to turn on your "CHECK ENGINE" (Malfunction Indicator light, MIL) if your vehicle has a problem causing it potentially to have emissions 50% more than the (already miniscule compared to on-road gross pollution) federal certification standards. The auto companies face severe penalties from EPA if the MIL does not illuminate for high emissions and no penalty for false alarms. False alarms are paid for by the owner: several \$100's in the purchase price of the vehicle and \$75.00 each visit for the dealer to turn it off with "scan tool". Although all manufacturers are required to provide basic information to your local mechanic's scan tool; the dealer gets the more sophisticated confidential stuff.

The new OBD I/M rule (Amendments to Vehicle Inspection Maintenance (IM) Program Requirements Incorporating the Onboard Diagnostic (OBD) Check, Federal Register Wed. Sept. 20, 2000, p. 56,844-56.856, the fourth EPA rule on this subject since 1990!!) proposes to replace future required emission tests on 1996 and newer model year vehicles with a scan tool OBD check (which is not an emission test). Light on, you fail. Scan tool says, "Light should be on" and you fail too.

The results of three pilot studies are claimed to support this rule. According to the Federal Register, "the complete results of the pilot studies - including EPA's analysis of its findings - can be found in the Technical Support Document..." The technical support document (EPA420-D-00-004) provided on the EPA web site does NOT contain the complete results of any study. This is no surprise, because the study results make OBDII look very bad. The EPA goes on to say "...this proposed rule is not estimated to impose costs in excess of \$100 million". By Jan. 1, 2002, when the rule goes into effect, there will be about 60 million of these vehicles. Many more than 1 in 60 will have the light on and will cost a lot more than \$100 each to diagnose and repair. Current diagnosis costs alone are about \$75.00.

How are the results bad? A study of 200 recruited 1996 and newer vehicles 96% with the MIL illuminated showed that 136 did not even fail the very stringent \$2000 Federal Test Procedure (FTP). 70% of the vehicles which would fail the proposed test did not have emissions detectably above normal; 70% False Failures. This fact is sure to delight their inconvenienced owners.

The MIL was on for 58 of the 63 FTP failing vehicles (92%). In EPA speak "OBD successfully identified 90% of these gross emitters" (technical support Document, page 11)". This conclusion, stated as a success, is a scientific error. If only 92% of the FTP emissions failures in the sample had the light on, the light is WORSE than random. If you recruited 200 blue cars, every one which failed the FTP would be blue! (no offense intended to blue car owners). The 63 vehicles were repaired and one quarter of all the FTP emissions reduction for CO came from a single vehicle with the light off!

A larger 116,945 vehicle study in Wisconsin identified only 1,478 vehicles which the new OBDII rule would fail and even fewer, 1,223

which EPA guessed using unknown methods would have failed an imaginary IM240 short emission test. In reality only about 600 would have failed a realistic IM240 test, the same test highly recommend in 1995 by EPA as the required "High Tech I/M test for High Tech cars". The embarrassing result is only 92 vehicles failed both tests even with the EPA inflation. The incorrect analysis of the 200 car study above caused the EPA to decide that the IM240 results are no good and so the (wrong 70% of the time) OBDII results will become the sole I/M test allowing you to register a 1996 and newer vehicle.

By current standards this rule will fail about four times as many vehicles as an IM240 emission test. According to recent repair studies at Colorado State University, for at least 10% of the vehicles failed because the light is on, no fault will be found, no repairs can be made and the light can not be turned out! A recent Illinois report stated that 10% of the vehicles had the light off but the scan tool said it should be on. This will make owners happy too.

The EPA are pushing this rule through before their much delayed computer model which is mandatory for states to justify their program in the arcane world of emissions credits becomes available. The plan nevertheless to give states "interim" credit for OBD. States will get a lot of credit if they currently use IM240, less if they use ASM or idle testing and by implication none if they currently have no program. It is hard to pass the laugh test with this concept either.

The Colorado Regional Air Quality Council became aware of this EPA policy before the rule was promulgated and they recommended to the governor the opposite I/M rule. If the vehicle fails a scheduled IM240 (a real emission test), then if the OBD light is on, the owner must repair the item suggested in the fault code. Light on alone no failure.

The rule is based on such poor science that I strongly recommend EPA ask their Clean Air Scientific Advisory Committee (not just a subcommittee of a subcommittee) to look at both the data and the report. Anyone who cares to make sure that their car is not subjected to bad science should send comments to the EPA docket (A-2000-16 Air Docket, Room M-1500 (6012) Waterside Mall S.W., Washington DC 20460). There is a blue ribbon National Academy Committee due to report shortly on the EPA I/M rules but this rule is cunningly timed to be promulgated after the committee has finished its meetings, even though the EPA had all the data several months ago. Perhaps Congress could ask this committee to reconvene for one meeting just to look into this particularly peculiar behavior.

I believe that the EPA are guilty of incorrect analysis of the "success" of their OBD system when in fact it is a failure. They are also guilty of ignoring the fact that in their data base, the properly performed IM240 tests failed far fewer (20) vehicles, all of which could be successfully repaired. The OBD test failed many more vehicles (194) most of which showed less than FTP certification emissions upon failure and minimal benefits upon repair and the report reads as if 30 of the 200 were left apparently with lights on, unrepairable, just like the CSU study mentioned earlier. When the rule takes effect these cars could not legally be registered; more unhappy owners. They are also guilty of ignoring their own data for which we have paid millions of dollars, which they used in 1995 ("IM240 can identify high emitting vehicles without failing clean ones" EPA-AA-EPSP-IM-94-1226) to justify the cost effectiveness of the IM240 as the required emission test for I/M programs. These data show that a properly performed IM240 test is capable of detecting gross emitters. Basing national policy on 17 IM240 tests performed incorrectly at a location where the procedure has been corrected makes no sense.

They are also guilty of redefining "gross polluter" to make their test look good. In their own 200 vehicle data set half the emissions come from eight vehicles seven of which are identified by the IM240 failure (all eight if you include "as received". These are the gross polluters for which repairs generate worthwhile emissions reductions. Cost benefit can easily be calculated from the technical support document (EPA420-D-00-004) but it was not. It makes OBD look bad. Using HC+NO+CO/7, the OBD repairs came in at \$622/gm/mi while IM240 came in at \$56.

EPA are also guilty of redefining customer inconvenience. They claim that a test which causes 193 vehicles to fail will be less inconvenient than an IM240 which only 20 will fail and which actually takes about 30 seconds because most newer vehicles "fast pass" in 30 seconds on the dynamometer. On-road remote sensing emission tests are even more convenient since the driver is not even required to schedule a test nor wait in line.

The EPA are guilty of extrapolating the IM240 failure rate (by methods not spelled out in any report I have seen) in the Wisconsin data base to make OBD not look so inconvenient. They are willing to extrapolate their data in Wisconsin to make OBD look better. They are not willing to extrapolate their IM240 data on CDH04 or ATL78. These two gross polluters when repaired removed more HC from the air than the total of the remaining 198 repairs. That would make OBD look bad so they were ignored and are not even in some final data spread sheets. Could the agency be more interested in their OBD agenda than in cleaning the air?

The EPA are also guilty of hypocrisy in their attitude towards on-road remote sensing as a stand alone I/M test. They have long held that it is not accurate enough*. According to their report OBD is much more expensive and less accurate than on-road remote sensing when compared to IM240, less accurate when compared to the FTP and therefore because it is their idea it should become the stand-alone I/M test for 1996 and newer vehicles.

*One does not need to be very accurate to see a gross polluter amongst many low emitting cars. 188 cars in the 200 car data base emit less than 10 gm/mi CO. The gross polluters in the EPA data emit 119, 59, 43, etc. gm/mi CO.

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