

EPAct/V2/E-89: Assessing the Effect of Five Gasoline Properties on Exhaust Emissions from Light-Duty Vehicles Certified to Tier 2 Standards

Final Report on Program Design and Data Collection

Appendix M Details of Ford Explorer Oil Level Incident

Assessment and Standards Division
Office of Transportation and Air Quality
U.S. Environmental Protection Agency

National Renewable Energy Laboratory
U.S. Department of Energy

Coordinating Research Council

NOTICE

This technical report does not necessarily represent final EPA decisions or positions. It is intended to present technical analysis of issues using data that are currently available. The purpose in the release of such reports is to facilitate the exchange of technical information and to inform the public of technical developments.

Oil Level Check Procedure

1. Drive vehicle for 10 minutes.
2. Allow vehicle to sit for 10 minutes in a designated level space.
3. Take dipstick reading.
4. Confirm dipstick reading.
5. Immediately after dipstick reading add 8 oz. of specified 5W-30 engine oil.
6. Idle vehicle 2 minutes.
7. Allow vehicle to sit for 10 minutes in a designated level space.
8. Take dipstick reading.
9. Confirm dipstick reading.
10. Email oil level information to team along with a recommendation for possible additional fill.
11. If necessary, add oil based on team feedback.
 - a. Drive vehicle for 10 minutes.
 - b. Allow vehicle to sit for 10 minutes in a designated level space.
 - c. Take dipstick reading.
 - d. Confirm dipstick reading.
 - e. Email oil level information to team.
12. Release vehicle back into test program.
13. Record oil level on dipstick for all tests vehicles monthly.

Reading taken on 08/10/2009



Added 8 oz. on 08/12/2009



Added 8 oz. on 08/12/2009; 16 oz. total added



Added 4 oz. on 08/17/2009; 20 oz. total added



To minimize logistics and effort in monthly oil level readings, SwRI changed the measurement procedure so that all readings for all vehicles were taken inside the shop following an overnight soak. To correlate the two conditions, SwRI checked all oil levels following engine operation, then following an overnight soak:

1. Drive vehicle for 10 minutes.
2. Allow vehicle to sit for 10 minutes in a designated level space.
3. Take dipstick reading.
4. Confirm dipstick reading.
5. Allow vehicle to soak overnight in designated soak area.
6. Confirm that engine oil sump temperature is 72 +/- 2F.
7. Take dipstick reading.
8. Confirm dipstick reading.
9. Repeat steps 5 through 8 monthly