

6. Engine code
 - A. Engine manufacturer
 - B. Engine name
 - C. Engine's country of origin
 - D. Fuel
 - E. Engine oil viscosity
 - F. Combustion cycle
 - G. Air/fuel ratio
 - H. Fuel system
 - I. Aspiration
 - J. Valvetrain design
 - K. Valve actuation/timing
 - L. Valve lift
 - M. Number of engine cylinders
 - N. Configuration
 - O. Valves per cylinder
 - P. Cylinder deactivation
 - Q. Engine displacement
 - R. Compression ratio (Min)
 - S. Compression ratio (Max)
 - T. Horsepower
 - U. Torque
7. Transmission code
 - ≤A. Transmission manufacturer
 - B. Name of transmission
 - C. Transmission's country of origin
 - D. Transmission type
 - E. Number of forward gears
 - F. Control
 - G. Logic
 - H. Gear ratios for all forward gears
 - I. Reverse gear ratio
 - J. Torque converter ratio
 - K. Axle ratio
 - L. Torque converter lockup/bypass status
 - M. Transmission fluid specification
 - N. Transmission lubricant viscosity
 - b. Projected U.S. sales
 - c. Vehicle information
 1. Style (e.g., pickup, van, utility)
 2. EPA Size Class
 3. Construction (e.g., unibody, ladder)
 4. Drive (e.g., rear wheel drive, front wheel drive, all-wheel drive, 4-wheel drive)
 5. Final drive ratio
 6. N/V
 7. Front axle lubricant viscosity
 8. Rear axle lubricant viscosity
 9. Overall length (per code L103 of SAE J1100, revised July 2002)
 10. Overall width (per code W116 of SAE J1100, revised July 2002)
 11. Overall height (per code H100 of SAE J1100, revised July 2002)
 12. Wheelbase (per code L101 of SAE J1100, revised July 2002)
 13. Track width (front) (per code W101-1 of SAE J1100, revised July 2002)
 14. Track width (rear) (per code W101-2 of SAE J1100, revised July 2002)
 16. Front axle clearance (per 49 CFR 323.5)
 17. Rear axle clearance (per 49 CFR 323.5)
 18. Angle of approach (per 49 CFR 323.5)
 19. Breakover angle (per 49 CFR 323.5)
 20. Angle of departure (per 49 CFR 323.5)
 21. Height of the center of gravity (per NCAP Static Stability Factor procedures)
 22. Curb weight, in lbs.
 23. Test weight, in lbs.
 24. Power absorption unit setting, in horsepower
 25. Gross Vehicle Weight Rating, in lbs.
 26. Towing capacity (standard), in lbs.
 27. Towing capacity (maximum), in lbs.
 28. Payload, in lbs.
 29. Minimum designated seating positions

30. Maximum designated seating positions
 31. Designated seating positions in the first row
 32. Cargo volume behind the front row in ft³ (per Table 28 of SAE J1100, revised July 2002)
 33. Designated seating positions in the second row
 34. Capability of second row seats to fold flat
 35. Cargo volume behind the second row in ft³ (per Table 28 of SAE J1100, revised July 2002)
 36. Designated seating positions in the third row
 37. Capability of third row seats to fold flat
 38. Cargo volume behind the third row in ft³ (per Table 28 of SAE J1100, revised July 2002)
 39. Enclosed volume in ft³
 40. Passenger volume in ft³ (The volume measured using SAE Recommended Practice J1100 as per EPA Fuel economy regulations, reg. 40 CFR 600.315-82 "Classes of Comparable Automobiles." This number is what automobile manufacturers calculate and submit to EPA.)
 41. Cargo volume index (per Table 28 of SAE J1100, revised July 2002)
 42. Open box length (per L506 of SAE J1100, revised July 2002)
 43. Open box width (min) (per W201 of SAE J1100, revised July 2002)
 44. Open box width (max) (per W500 of SAE J1100, revised July 2002)
 45. Open box area
 46. Open box height (per H503 of SAE J1100, revised July 2002)
 47. Fuel capacity in gallons
 48. Tire rolling resistance, Crr
 49. Frontal area
 50. Aerodynamic drag coefficient, Cd
 - d. Hybridization
 1. Type
 2. Voltage or pressure
 3. Energy storage capacity, in MJ
 4. Battery type
 5. Energy transfer
 6. Percentage of braking energy recovered and stored
 7. Percentage of maximum motive power provided by stored energy system
 - e. Planning and assembly
 1. Predecessor model
 2. Last freshening
 3. Next freshening
 4. Last redesign
 5. Next redesign
 6. Domestic content
 7. Final assembly city
 8. Final assembly state
 9. Final assembly country
 - f. Manufacturers' suggested retail price (in constant 2003 dollars)
 - g. Emissions
 1. EPA class (LDV, LLDLT, HLDLT, MDPV)
 2. EPA certification bin
 3. LEV class
- The agency also requests that each manufacturer provide an estimate of its overall light truck CAFE for each model year. This estimate should be included as an entry in the spreadsheets that are submitted to the agency.
4. Does respondent project introducing any variants of existing basic engines or any new

basic engines, other than those mentioned in your response to Question 3, in its light truck fleets in MYs 2003-2012? If so, for each basic engine or variant indicate:

- a. The projected year of introduction,
 - b. Type (e.g., spark ignition, direct injection diesel, 2-cycle, alternative fuel use),
 - c. Displacement (If engine has variable displacement, please provide the minimum and maximum displacement),
 - d. Type of induction system (e.g., fuel injection with turbocharger, naturally aspirated),
 - e. Cylinder configuration (e.g., V-8, V-6, I-4),
 - f. Number of valves per cylinder (e.g., 2, 3, 4),
 - g. Valvetrain design (e.g., overhead valve, overhead camshaft),
 - h. Valve technology (e.g., variable valve timing, variable valve lift and timing, intake valve throttling, camless valve actuation, etc.)
 - i. Horsepower and torque ratings,
 - j. Models in which engines are to be used, giving the introduction model year for each model if different from "a." above.
5. Relative to MY 2003 levels, for MYs 2005-2012, please provide information, by truckline and as an average effect on a manufacturer's entire light truck fleet, on the weight and/or fuel economy impacts of the following standards or equipment:
- a. Federal Motor Vehicle Safety Standard (FMVSS 208) Automatic Restraints
 - b. FMVSS 201 Occupant Protection in Interior Impact
 - c. Voluntary installation of safety equipment (e.g., antilock brakes)
 - d. Environmental Protection Agency regulations
 - e. California Air Resources Board requirements
 - f. Other applicable motor vehicle regulations affecting fuel economy.
6. For each of the model years 2003-2012, and for each light truck model projected to be manufactured by respondent (if answers differ for the various models), provide the requested information on new technology applications for each of items "6a" through "6r" listed below:
- (i) description of the nature of the technological improvement;
 - (ii) the percent fuel economy improvement averaged over the model;
 - (iii) the basis for your answer to 6(ii), (e.g., data from dynamometer tests conducted by respondent, engineering analysis, computer simulation, reports of test by others);
 - (iv) the percent production implementation rate and the reasons limiting the implementation rate;
 - (v) a description of the 2003 baseline technologies and the 2003 implementation rate; and
 - (vi) the reasons for differing answers you provide to items (ii) and (iv) for different models in each model year. Include as a part of your answer to 6(ii) and 6(iv) a tabular presentation, a sample portion of which is shown in Table IV-A.
- a. Improved automatic transmissions. Projections of percent fuel economy improvements should include benefits of lock-up or bypassed torque converters, electronic control of shift points and torque