(2) *Torque control.* Program dynamometers using torque control as described in this paragraph (e)(2).

(i) Calculate the transmission output shaft's torque target, $T_{refi}$, using the following equation:

$$T_{ref,i} = \frac{r \cdot FR_i}{k_d}$$

Where:
$FR_i$ = total road load force at the surface of the roll, calculated using the equation in 40 CFR 1066.210(d)(4), as specified in paragraph (e)(2)(ii) of this section.

(ii) Calculate the total road load force based on instantaneous speed values, $S_i$, calculated from the equation in paragraph (e)(1) of this section.

(3) For each test, validate the measured transmission output shaft's speed or torque with the corresponding reference values according to 40 CFR 1065.514(e). You may delete points when the vehicle is braking or stopped. Perform the validation based on speed and torque values at the transmission output shaft. For steady-state tests (55 mph and 65 mph cruise), apply cycle-validation criteria by treating the sampling periods from the two tests as a continuous sampling period. Perform this validation based on the following parameters for either speed-control or torque-control, as applicable:

TABLE 1 OF § 1037.550—STATISTICAL CRITERIA FOR VALIDATING DUTY CYCLES

| Parameter | Speed control | Torque control |
|---|---|---|
| Slope, $a_1$ | $0.950 \le a_1 \le 1.030$ | $0.950 \le a_1 \le 1.030$. |
| Absolute value of intercept, $a_0$ | ≤2.0% of maximum test speed | ≤2.0% of maximum torque. |
| Standard error of estimate, *SEE* | ≤5% of maximum test speed | ≤10% of maximum torque. |
| Coefficient of determination, $r^2$ | ≥0.970 | ≥0.850. |

(f) Send a brake signal when throttle position is equal to zero and vehicle speed is greater than the reference vehicle speed from the test cycle. The brake signal should be turned off when the torque measured at the transmission output shaft is less than the reference torque. Set a delay before changing the brake state using good engineering judgment to prevent the brake signal from dithering.

(g) The driver model should be designed to follow the cycle as closely as possible and must meet the requirements of 40 CFR 1066.430(e) for transient testing and § 1037.510 for steady-state testing.

(h) Correct for the net energy change of the energy storage device as described in 40 CFR 1066.501.

(i) Follow the provisions of § 1037.510 to weight the cycle results and § 1037.615 to calculate improvement factors and benefits for advanced technologies.

## Subpart G—Special Compliance Provisions

### § 1037.601 What compliance provisions apply to these vehicles?

(a) Engine and vehicle manufacturers, as well as owners and operators of vehicles subject to the requirements of this part, and all other persons, must observe the provisions of this part, the provisions of the Clean Air Act, and the following provisions of 40 CFR part 1068:

(1) The exemption and importation provisions of 40 CFR part 1068, subparts C and D, apply for vehicles subject to this part 1037, except that the hardship exemption provisions of 40 CFR 1068.245, 1068.250, and 1068.255 do not apply for motor vehicles.

(2) Manufacturers may comply with the defect reporting requirements of 40 CFR 1068.501 instead of the defect reporting requirements of 40 CFR part 85.

(b) Vehicles exempted from the applicable standards of 40 CFR part 86 are exempt from the standards of this part without request. Similarly, vehicles are exempt without request if the installed engine is exempted from the applicable standards in 40 CFR part 86.

(c) The prohibitions of 40 CFR 86.1854 apply for vehicles subject to the requirements of this part. The actions prohibited under this provision include the introduction into U.S. commerce of a complete or incomplete vehicle subject to the standards of this part where the vehicle is not covered by a valid certificate of conformity or exemption.

(d) Except as specifically allowed by this part, it is a violation of section 203(a)(1) of the Clean Air Act (42 U.S.C. 7522(a)(1)) to introduce into U.S. commerce a tractor containing an engine not certified for use in tractors; or to introduce into U.S. commerce a vocational vehicle containing a light heavy-duty or medium heavy-duty engine not certified for use in vocational vehicles. This prohibition applies especially to the vehicle manufacturer.

(e) A vehicle manufacturer that completes assembly of a vehicle at two or more facilities may ask to use as the date of manufacture for that vehicle the date on which manufacturing is completed at the place of main assembly, consistent with provisions of 49 CFR 567.4. Note that such staged assembly is subject to the provisions of 40 CFR 1068.260(c). Include your request in your application for certification, along with a summary of your staged-assembly process. You may ask to apply this allowance to some or all of the vehicles in your vehicle family. Our approval is effective when we grant your certificate. We will not approve your request if we determine that you intend to use this allowance to circumvent the intent of this part.

### § 1037.610 Vehicles with innovative technologies.

(a) You may ask us to apply the provisions of this section for $CO_2$ emission reductions resulting from vehicle technologies that were not in common use with heavy-duty vehicles before model year 2010 that are not reflected in the GEM simulation tool. These provisions may be applied for $CO_2$ emission reductions reflected using the specified test procedures, provided they are not reflected in the GEM. We will apply these provisions only for technologies that will result in measurable, demonstrable, and verifiable real-world $CO_2$ emission reductions.

(b) The provisions of this section may be applied as either an improvement factor or as a separate credit, consistent with good engineering judgment. We recommend that you base your credit/adjustment on A to B testing of pairs of vehicles differing only with respect to the technology in question.

(1) Calculate improvement factors as the ratio of in-use emissions with the technology divided by the in-use emissions without the technology. Use the improvement-factor approach where good engineering judgment indicates that the actual benefit will be proportional to emissions measured over the test procedures specified in this part.

(2) Calculate separate credits (g/ton-mile) based on the difference between the in-use emission rate with the technology and the in-use emission rate without the technology. Multiply this difference by the number of vehicles, standard payload, and useful life. Use the separate-credit approach where good engineering judgment indicates that the actual benefit will be not be proportional to emissions measured over the test procedures specified in this part.

(3) We may require you to discount or otherwise adjust your improvement factor or credit to account for uncertainty or other relevant factors.

(c) You may perform A to B testing by measuring emissions from the vehicles during chassis testing or from in-use on-road testing. We recommend that you perform on-road testing according to SAE J1321 Joint TMC/SAE Fuel Consumption Test Procedure Type II Reaffirmed 1986–10 or SAE J1526 Joint TMC/SAE Fuel Consumption In-Service Test Procedure Type III Issued 1987–06 (see § 1037.810 for information availability of SAE standards), subject to the following provisions:

(1) The minimum route distance is 100 miles.

(2) The route selected must be representative in terms of grade. We will

take into account published and relevant research in determining whether the grade is representative.

(3) The vehicle speed over the route must be representative of the drive-cycle weighting adopted for each regulatory subcategory. For example, if the route selected for an evaluation of a combination tractor with a sleeper cab contains only interstate driving, the improvement factor would apply only to 86 percent of the weighted result.

(4) The ambient air temperature must be between 5 and 35 °C, unless the technology requires other temperatures for demonstration.

(5) We may allow you to use a Portable Emissions Measurement System (PEMS) device for measuring $CO_2$ emissions during the on-road testing.

(d) Send your request to the Designated Compliance Officer. Include a detailed description of the technology and a recommended test plan. Also state whether you recommend applying these provisions using the improvement-factor method or the separate-credit method. We recommend that you do not begin collecting test data (for submission to EPA) before contacting us. For technologies for which the engine manufacturer could also claim credits (such as transmissions in certain circumstances), we may require you to include a letter from the engine manufacturer stating that it will not seek credits for the same technology.

(e) We may seek public comment on your request, consistent with the provisions of 40 CFR 86.1866. However, we will generally not seek public comment on credits or adjustments based on A to B chassis testing performed according to the duty-cycle testing requirements of this part or in-use testing performed according to paragraph (c) of this section.

### § 1037.615 Hybrid vehicles and other advanced technologies.

(a) This section applies for hybrid vehicles with regenerative braking, vehicles equipped with Rankine-cycle engines, electric vehicles, and fuel cell vehicles. You may not generate credits for engine features for which the engines generate credits under 40 CFR part 1036.

(b) Generate advanced technology emission credits for hybrid vehicles that include regenerative braking (or the equivalent) and energy storage systems, fuel cell vehicles, and vehicles equipped with Rankine-cycle engines as follows:

(1) Measure the effectiveness of the advanced system by chassis testing a vehicle equipped with the advanced system and an equivalent conventional vehicle. Test the vehicles as specified in subpart F of this part. For purposes of this paragraph (b), a conventional vehicle is considered to be equivalent if it has the same footprint (as defined in 40 CFR 86.1803), vehicle service class, aerodynamic drag, and other relevant factors not directly related to the hybrid powertrain. If you use § 1037.525 to quantify the benefits of a hybrid system for PTO operation, the conventional vehicle must have same number of PTO circuits and have equivalent PTO power. If you do not produce an equivalent vehicle, you may create and test a prototype equivalent vehicle. The conventional vehicle is considered Vehicle A and the advanced vehicle is considered Vehicle B. We may specify an alternate cycle if your vehicle includes a power take-off.

(2) Calculate an improvement factor and g/ton-mile benefit using the following equations and parameters:

(i) Improvement Factor = [(Emission Rate A)—(Emission Rate B)]/(Emission Rate A)

(ii) g/ton-mile benefit = Improvement Factor × (GEM Result B)

(iii) Emission Rates A and B are the g/ton-mile $CO_2$ emission rates of the conventional and advanced vehicles, respectively, as measured under the test procedures specified in this section. GEM Result B is the g/ton-mile $CO_2$ emission rate resulting from emission modeling of the advanced vehicle as specified in § 1037.520.

(3) Use the equations of § 1037.705 to convert the g/ton-mile benefit to emission credits (in Mg). Use the g/ton-mile benefit in place of the (Std-FEL) term.

(c) See § 1037.525 for special testing provisions related to hybrid vehicles equipped with power take-off units.

(d) You may use an engineering analysis to calculate an improvement factor for fuel cell vehicles based on measured emissions from the fuel cell vehicle.

(e) For electric vehicles, calculate $CO_2$ credits using an FEL of 0 g/ton-mile.

(f) As specified in subpart H of this part, credits generated under this section may be used under this part 1037 outside of the averaging set in which they were generated or used under 40 CFR part 1036.

(g) You may certify using both provisions of this section and the innovative technology provisions of §1037.610, provided you do not double count emission benefits.

### §1037.620 Shipment of incomplete vehicles to secondary vehicle manufacturers.

This section specifies how manufacturers may introduce partially complete vehicles into U.S. commerce.

(a) The provisions of this section allow manufacturers to ship partially complete vehicles to secondary vehicle manufacturers or otherwise introduce them into U.S. commerce in the following circumstances:

(1) *Tractors.* Manufacturers may introduce partially complete tractors into U.S. commerce if they are covered by a certificate of conformity for tractors and will be in their certified tractor configuration before they reach the ultimate purchasers. For example, this would apply for sleepers initially shipped without the sleeper compartments attached. Note that delegated assembly provisions may apply (see 40 CFR 1068.261).

(2) *Vocational vehicles.* Manufacturers may introduce partially complete vocational vehicles into U.S. commerce if they are covered by a certificate of conformity for vocational vehicles and will be in their certified vocational configuration before they reach the ultimate purchasers. Note that delegated assembly provisions may apply (see 40 CFR 1068.261).

(3) *Uncertified vehicles that will be certified by secondary vehicle manufacturers.* Manufacturers may introduce into U.S. commerce partially complete vehicles for which they do not hold a certificate of conformity only as allowed by paragraph (b) of this section.

(b) The provisions of this paragraph (b) generally apply where the secondary vehicle manufacturer has substantial control over the design and assembly of emission controls. In determining whether a manufacturer has substantial control over the design and assembly of emission controls, we would consider the degree to which the secondary manufacturer would be able to ensure that the engine and vehicle will conform to the regulations in their final configurations.

(1) A secondary manufacturer may finish assembly of partially complete vehicles in the following cases:

(i) It obtains a vehicle that is not fully assembled with the intent to manufacture a complete vehicle in a certified configuration.

(ii) It obtains a vehicle with the intent to modify it to a certified configuration before it reaches the ultimate purchaser. For example, this may apply for converting a gasoline-fueled vehicle to operate on natural gas under the terms of a valid certificate.

(2) Manufacturers may introduce partially complete vehicles into U.S. commerce as described in this paragraph (b) if they have a written request for such vehicles from a secondary vehicle manufacturer that will finish the vehicle assembly and has certified the vehicle (or the vehicle has been exempted or excluded from the requirements of this part). The written request must include a statement that the secondary manufacturer has a certificate of conformity (or exemption/exclusion) for the vehicle and identify a valid vehicle family name associated with each vehicle model ordered (or the basis for an exemption/exclusion). The original vehicle manufacturer must apply a removable label meeting the requirements of 40 CFR 1068.45 that identifies the corporate name of the original manufacturer and states that the vehicle is exempt under the provisions of §1037.620. The name of the certifying manufacturer must also be on the label or, alternatively, on the bill of lading that accompanies the vehicles during shipment. The original manufacturer may not apply a permanent emission control information label identifying

the vehicle's eventual status as a certified vehicle.

(3) If you are the secondary manufacturer and you will hold the certificate, you must include the following information in your application for certification:

(i) Identify the original manufacturer of the partially complete vehicle or of the complete vehicle you will modify.

(ii) Describe briefly how and where final assembly will be completed. Specify how you have the ability to ensure that the vehicles will conform to the regulations in their final configuration. (Note: This section prohibits using the provisions of this paragraph (b) unless you have substantial control over the design and assembly of emission controls.)

(iii) State unconditionally that you will not distribute the vehicles without conforming to all applicable regulations.

(4) If you are a secondary manufacturer and you are already a certificate holder for other families, you may receive shipment of partially complete vehicles after you apply for a certificate of conformity but before the certificate's effective date. This exemption allows the original manufacturer to ship vehicles after you have applied for a certificate of conformity. Manufacturers may introduce partially complete vehicles into U.S. commerce as described in this paragraph (b)(4) if they have a written request for such vehicles from a secondary manufacturer stating that the application for certification has been submitted (instead of the information we specify in paragraph (b)(2) of this section). We may set additional conditions under this paragraph (b)(4) to prevent circumvention of regulatory requirements.

(5) Both original and secondary manufacturers must keep the records described in this section for at least five years, including the written request for exempted vehicles and the bill of lading for each shipment (if applicable). The written request is deemed to be a submission to EPA.

(6) These provisions are intended only to allow secondary manufacturers to obtain or transport vehicles in the specific circumstances identified in this section so any exemption under this section expires when the vehicle reaches the point of final assembly identified in paragraph (b)(3)(ii) of this section.

(7) For purposes of this section, an allowance to introduce partially complete vehicles into U.S. commerce includes a conditional allowance to sell, introduce, or deliver such vehicles into commerce in the United States or import them into the United States. It does not include a general allowance to offer such vehicles for sale because this exemption is intended to apply only for cases in which the certificate holder already has an arrangement to purchase the vehicles from the original manufacturer. This exemption does not allow the original manufacturer to subsequently offer the vehicles for sale to a different manufacturer who will hold the certificate unless that second manufacturer has also complied with the requirements of this part. The exemption does not apply for any individual vehicles that are not labeled as specified in this section or which are shipped to someone who is not a certificate holder.

(8) We may suspend, revoke, or void an exemption under this section, as follows:

(i) We may suspend or revoke your exemption if you fail to meet the requirements of this section. We may suspend or revoke an exemption related to a specific secondary manufacturer if that manufacturer sells vehicles that are in not in a certified configuration in violation of the regulations. We may disallow this exemption for future shipments to the affected secondary manufacturer or set additional conditions to ensure that vehicles will be assembled in the certified configuration.

(ii) We may void an exemption for all the affected vehicles if you intentionally submit false or incomplete information or fail to keep and provide to EPA the records required by this section.

(iii) The exemption is void for a vehicle that is shipped to a company that is not a certificate holder or for a vehicle that is shipped to a secondary manufacturer that is not in compliance with the requirements of this section.

(iv) The secondary manufacturer may be liable for penalties for causing a prohibited act where the exemption is voided due to actions on the part of the secondary manufacturer.

(c) Provide instructions along with partially complete vehicles including all information necessary to ensure that an engine will be installed in its certified configuration.

### § 1037.630 Special purpose tractors.

(a) *General provisions.* This section allows a vehicle manufacturer to reclassify certain tractors as vocational tractors. Vocational tractors are treated as vocational vehicles and are exempt from the standards of § 1037.106. Note that references to ''tractors'' outside of this section mean non-vocational tractors.

(1) This allowance is intended only for vehicles that do not typically operate at highway speeds, or would otherwise not benefit from efficiency improvements designed for line-haul tractors. This allowance is limited to the following vehicle and application types:

(i) Low-roof tractors intended for intra-city pickup and delivery, such as those that deliver bottled beverages to retail stores.

(ii) Tractors intended for off-road operation (including mixed service operation), such as those with reinforced frames and increased ground clearance.

(iii) Tractors with a GCWR over 120,000 pounds.

(2) Where we determine that a manufacturer is not applying this allowance in good faith, we may require the manufacturer to obtain preliminary approval before using this allowance.

(b) *Requirements.* The following requirements apply with respect to tractors reclassified under this section:

(1) The vehicle must fully conform to all requirements applicable to vocational vehicles under this part.

(2) Vehicles reclassified under this section must be certified as a separate vehicle family. However, they remain part of the vocational regulatory subcategory and averaging set that applies for their weight class.

(3) You must include the following additional statement on the vehicle's emission control information label under § 1037.135: ''THIS VEHICLE WAS CERTIFIED AS A VOCATIONAL TRACTOR UNDER 40 CFR 1037.630.''.

(4) You must keep records for three years to document your basis for believing the vehicles will be used as described in paragraph (a)(1) of this section. Include in your application for certification a brief description of your basis.

(c) *Production limit.* No manufacturer may produce more than 21,000 vehicles under this section in any consecutive three model year period. This means you may not exceed 6,000 in a given model year if the combined total for the previous two years was 15,000. The production limit applies with respect to all Class 7 and Class 8 tractors certified or exempted as vocational tractors. Note that in most cases, the provisions of paragraph (a) of this section will limit the allowable number of vehicles to be a number lower than the production limit of this paragraph (c).

(d) *Off-road exemption.* All the provisions of this section apply for vocational tractors exempted under § 1037.631, except as follows:

(1) The vehicles are required to comply with the requirements of § 1037.631 instead of the requirements that would otherwise apply to vocational vehicles. Vehicles complying with the requirements of § 1037.631 and using an engine certified to the standards of 40 CFR part 1036 are deemed to fully conform to all requirements applicable to vocational vehicles under this part.

(2) The vehicles must be labeled as specified under § 1037.631 instead of as specified in paragraph (b)(3) of this section.

### § 1037.631 Exemption for vocational vehicles intended for off-road use.

This section provides an exemption from the greenhouse gas standards of this part for certain vocational vehicles intended to be used extensively in off-road environments such as forests, oil fields, and construction sites. This section does not exempt the engine used in the vehicle from the standards of 40 CFR part 86 or part 1036. Note that you may not include these exempted vehicles in any credit calculations under this part.

(a) *Qualifying criteria.* Vocational vehicles intended for off-road use meeting either the criteria of paragraph (a)(1) or (a)(2) of this section are exempt without request, subject to the provisions of this section.

(1) Vehicles are exempt if the tires installed on the vehicle have a maximum speed rating at or below 55 mph.

(2) Vehicles are exempt if they were primarily designed to perform work off-road (such as in oil fields, forests, or construction sites), and they meet at least one of the criteria of paragraph (a)(2)(i) of this section and at least one of the criteria of paragraph (a)(2)(ii) of this section.

(i) The vehicle must have affixed components designed to work in an off-road environment (*i.e.,* hazardous material equipment or off-road drill equipment) or be designed to operate at low speeds such that it is unsuitable for normal highway operation.

(ii) The vehicle must meet one of the following criteria:

(A) Have an axle that has a gross axle weight rating (GAWR) of 29,000 pounds.

(B) Have a speed attainable in 2 miles of not more than 33 mph.

(C) Have a speed attainable in 2 miles of not more than 45 mph, an unloaded vehicle weight that is not less than 95 percent of its gross vehicle weight rating (GVWR), and no capacity to carry occupants other than the driver and operating crew.

(b) *Tractors.* The provisions of this section may apply for tractors only if each tractor qualifies as a vocational tractor under §1037.630.

(c) *Recordkeeping and reporting.* (1) You must keep records to document that your exempted vehicle configurations meet all applicable requirements of this section. Keep these records for at least eight years after you stop producing the exempted vehicle model. We may review these records at any time.

(2) You must also keep records of the individual exempted vehicles you produce, including the vehicle identification number and a description of the vehicle configuration.

(3) Within 90 days after the end of each model year, you must send to the Designated Compliance Officer a report with the following information:

(i) A description of each exempted vehicle configuration, including an explanation of why it qualifies for this exemption.

(ii) The number of vehicles exempted for each vehicle configuration.

(d) *Labeling.* You must include the following additional statement on the vehicle's emission control information label under §1037.135: ''THIS VEHICLE WAS EXEMPTED UNDER 40 CFR 1037.631.''.

### §1037.640 Variable vehicle speed limiters.

This section specifies provisions that apply for vehicle speed limiters (VSLs) that you model under §1037.520. This does not apply for VSLs that you do not model under §1037.520.

(a) *General.* The regulations of this part do not constrain how you may design VSLs for your vehicles. For example, you may design your VSL to have a single fixed speed limit or a soft-top speed limit. You may also design your VSL to expire after accumulation of a predetermined number of miles. However, designs with soft tops or expiration features are subject to proration provisions under this section that do not apply to fixed VSLs that do not expire.

(b) *Definitions.* The following definitions apply for purposes of this section:

(1) Default speed limit means the speed limit that normally applies for the vehicle, except as follows:

(i) The default speed limit for adjustable VSLs must represent the speed limit that applies when the VSL is adjusted to its highest setting under paragraph (c) of this section.

(ii) For VSLs with soft tops, the default speed does not include speeds possible only during soft-top operation.

(iii) For expiring VSLs, the default does not include speeds that are possible only after expiration.

(2) Soft-top speed limit means the highest speed limit that applies during soft-top operation.

(3) Maximum soft-top duration means the maximum amount of time that a vehicle could operate above the default speed limit.

(4) Certified VSL means a VSL configuration that applies when a vehicle is new and until it expires.

(5) Expiration point means the mileage at which a vehicle's certified VSL expires (or the point at which tamper protections expire).

(6) Effective speed limit has the meaning given in paragraph (d) of this section.

(c) *Adjustments.* You may design your VSL to be adjustable; however, this may affect the value you use in the GEM.

(1) Except as specified in paragraph (c)(2) of this section, any adjustments that can be made to the engine, vehicle, or their controls that change the VSL's actual speed limit are considered to be adjustable operating parameters. Compliance is based on the vehicle being adjusted to the highest speed limit within this range.

(2) The following adjustments are not adjustable parameters:

(i) Adjustments made only to account for changing tire size or final drive ratio.

(ii) Adjustments protected by encrypted controls or passwords.

(iii) Adjustments possible only after the VSL's expiration point.

(d) *Effective speed limit.* (1) For VSLs without soft tops or expiration points that expire before 1,259,000 miles, the effective speed limit is the highest speed limit that results by adjusting the VSL or other vehicle parameters consistent with the provisions of paragraph (c) of this section.

(2) For VSLs with soft tops and/or expiration points, the effective speed limit is calculated as specified in this paragraph (d)(2), which is based on 10 hours of operation per day (394 miles per day for day cabs and 551 miles per day for sleeper cabs). Note that this calculation assumes that a fraction of this operation is speed limited (3.9 hours and 252 miles for day cabs, and 7.3 hours and 474 miles for sleeper cabs). Use the following equation to calculate the effective speed limit, rounded to the nearest 0.1 mph:

Effective speed = ExF * [STF* STSL + (1–STF) * DSL] + (1–ExF)*65 mph

Where:

ExF = expiration point miles/1,259,000 miles
STF = maximum number of allowable soft top operation hours per day/3.9 hours for day cabs (or maximum miles per day/252)
STF = maximum number of allowable soft top operation hours per day/7.3 hours for sleeper cabs (or maximum miles per day/474)
STSL = the soft top speed limit
DSL = the default speed limit

### § 1037.645 In-use compliance with family emission limits (FELs).

You may ask us to apply a higher in-use FEL for certain in-use vehicles, subject to the provisions of this section. Note that § 1037.225 contains provisions related to changing FELs during a model year.

(a) *Purpose.* This section is intended to address circumstances in which it is in the public interest to apply a higher in-use FEL based on forfeiting an appropriate number of emission credits.

(b) *FELs.* We may apply higher in-use FELs to your vehicles as follows:

(1) Where your vehicle family includes more than one sub-family with different FELs, we may apply a higher FEL within the family than was applied to the vehicle's configuration in your final ABT report. For example, if your vehicle family included three subfamilies with FELs of 200 g/ton-mile, 210 g/ton-mile, and 220 g/ton-mile, we may apply a 220 g/ton-mile in-use FEL to vehicles that were originally designated as part of the 200 g/ton-mile or 210 g/ton-mile sub-families.

(2) Without regard to the number of sub-families in your certified vehicle family, we may specify new sub-families with higher FELs than were included in your final ABT report. We may apply these higher FELs as in-use FELs for your vehicles. For example, if your vehicle family included three subfamilies with FELs of 200 g/ton-mile, 210 g/ton-mile, and 220 g/ton-mile, we may specify a new 230 g/ton-mile subfamily.

(3) In specifying sub-families and in-use FELs, we would intend to accurately reflect the actual in-use performance of your vehicles, consistent with the specified testing and modeling provisions of this part.

(c) *Equivalent families.* We may apply the higher FELs to other families in other model years if they used equivalent emission controls.

(d) *Credit forfeiture.* Where we specify higher in-use FELs under this section, you must forfeit $CO_2$ emission credits

based on the difference between the in-use FEL and the otherwise applicable FEL. Calculate the amount of credits to be forfeited using the applicable equation in §1037.705, by substituting the otherwise applicable FEL for the standard and the in-use FEL for the otherwise applicable FEL.

(e) *Requests.* Submit your request to the Designated Compliance Officer. Include the following in your request:

(1) The vehicle family name, model year, and name/description of the configuration(s) affected.

(2) A list of other vehicle families/configurations/model years that may be affected.

(3) The otherwise applicable FEL for each configuration along with your recommendations for higher in-use FELs.

(4) Your source of credits for forfeiture.

(f) *Relation to recall.* You may not request higher in-use FELs for any vehicle families for which we have made a determination of nonconformance and ordered a recall. You may, however, make such requests for vehicle families for which you are performing a voluntary emission recall.

(g) *Approval.* We may approve your request if we determine that you meet the requirements of this section and such approval is in the public interest. We may include appropriate conditions with our approval or we may approve your request with modifications.

### §1037.650 Tire manufacturers.

This section describes how the requirements of this part apply with respect to tire manufacturers that choose to provide test data or emission warranties for purposes of this part.

(a) *Testing.* You are responsible as follows for test tires and emission test results that you provide to vehicle manufacturers for the purpose of the manufacturer submitting them to EPA for certification under this part:

(1) Such test results are deemed under §1037.825 to be submissions to EPA. This means that you may be subject to criminal penalties under 18 U.S.C. 1001 if you knowingly submit false test results to the manufacturer.

(2) You may not cause a vehicle manufacturer to violate the regulations by rendering inaccurate emission test results you provide (or emission test results from testing of test tires you provide) to the vehicle manufacturer.

(3) Your provision of test tires and emission test results to vehicle manufacturers for the purpose of certifying under this part is deemed to be an agreement to provide tires to EPA for confirmatory testing under §1037.201.

(b) *Warranty.* You may contractually agree to process emission warranty claims on behalf of the manufacturer certifying the vehicle with respect to tires you produce.

(1) Your fulfillment of the warranty requirements of this part is deemed to fulfill the vehicle manufacturer's warranty obligations under this part with respect to tires you warrant.

(2) You may not cause a vehicle manufacturer to violate the regulations by failing to fulfill the emission warranty requirements that you contractually agreed to fulfill.

### §1037.655 Post-useful life vehicle modifications.

This section specifies vehicle modifications that may occur after a vehicle reaches the end of its regulatory useful life. It does not apply with respect to modifications that occur within the useful life period. It also does not apply with respect to engine modifications or recalibrations. Note that many such modifications to the vehicle during the useful life and to the engine at any time are presumed to violate 42 U.S.C. 7522(a)(3)(A).

(a) *General.* Except as allowed by this section, it is prohibited for any person to remove or render inoperative any emission control device installed to comply with the requirements of this part 1037.

(b) *Allowable modifications.* You may modify a vehicle for the purpose of reducing emissions, provided you have a reasonable technical basis for knowing that such modification will not increase emissions of any other pollutant. Reasonable technical basis has the meaning given in 40 CFR 1068.30. This generally requires you to have information that would lead an engineer or other person familiar with engine and vehicle design and function to reasonably believe that the modifications will

not increase emissions of any regulated pollutant.

(c) *Examples of allowable modifications.* The following are examples of allowable modifications:

(1) It is generally allowable to remove tractor roof fairings after the end of the vehicle's useful life if the vehicle will no longer be used primarily to pull box trailers.

(2) Other fairings may be removed after the end of the vehicle's useful life if the vehicle will no longer be used significantly on highways with vehicle speed of 55 miles per hour or higher.

(d) *Examples of prohibited modifications.* The following are examples of modifications that are not allowable:

(1) No person may disable a vehicle speed limiter prior to its expiration point.

(2) No person may remove aerodynamic fairings from tractors that are used primarily to pull box trailers on highways.

### § 1037.660 Automatic engine shutdown systems.

This section specifies requirements that apply for certified automatic engine shutdown systems (AES) that are modeled under § 1037.520. It does not apply for AES systems that you do not model under § 1037.520.

(a) *Minimum requirements.* Your AES system must meet all of the requirements of this paragraph (a) to be modeled under § 1037.520. The system must shut down the engine within 300 seconds when all the following conditions are met:

(1) The transmission is set in neutral with the parking brake engaged (or the transmission is set to park if so equipped).

(2) The operator has not reset the system timer within the 300 seconds by changing the position of the accelerator, brake, or clutch pedal; or by some other mechanism we approve.

(3) None of the override conditions of paragraph (b) of this section are met.

(b) *Override conditions.* The system may delay shutting the engine down while any of the conditions of this paragraph (b) apply. Engines equipped with auto restart may restart during override conditions. Note that these conditions allow the system to delay shutdown or restart, but do not allow it to reset the timer. The system may delay shutdown—

(1) While an exhaust emission control device is regenerating. The period considered to be regeneration for purposes of this allowance must be consistent with good engineering judgment and may differ in length from the period considered to be regeneration for other purposes. For example, in some cases it may be appropriate to include a cool down period for this purpose but not for infrequent regeneration adjustment factors.

(2) If necessary while servicing the vehicle, provided the deactivation of the AES system is accomplished using a diagnostic scan tool. The system must be automatically reactivated when the engine is shutdown for more than 60 minutes.

(3) If the vehicle's main battery state-of-charge is not sufficient to allow the main engine to be restarted.

(4) If the external ambient temperature reaches a level below which or above which the cabin temperature cannot be maintained within reasonable heat or cold exposure threshold limit values for the health and safety of the operator (not merely comfort).

(5) If the vehicle's engine coolant temperature is too low according to the manufacturer's engine protection guidance. This may also apply for fuel or oil temperatures. This allows the engine to continue operating until it reaches a predefined temperature at which the shutdown sequence of paragraph (a) of this section would resume.

(6) The system may delay shutdown while the vehicle's main engine is operating in power take-off (PTO) mode. For purposes of this paragraph (b)(6), an engine is considered to be in PTO mode when a switch or setting designating PTO mode is enabled.

(c) *Expiration of AES systems.* The AES system may include an expiration point (in miles) after which the AES system may be disabled. If your vehicle is equipped with an expiring AES system that expires before 1,259,000 miles adjust the model input as follows:

Input = 5 g $CO_2$/ton-mile × (miles at expiration/1,259,000 miles)

(d) *Adjustable parameters.* Provisions that apply generally with respect to

adjustable parameters also apply to the AES system operating parameters, except the following are not considered to be adjustable parameters:

(1) Accelerator, brake, and clutch pedals, with respect to resetting the idle timer. Parameters associated with other timer reset mechanisms we approve are also not adjustable parameters.

(2) Bypass parameters allowed for vehicle service under paragraph (b)(2) of this section.

(3) Parameters that are adjustable only after the expiration point.

## Subpart H—Averaging, Banking, and Trading for Certification

### § 1037.701 General provisions.

(a) You may average, bank, and trade (ABT) emission credits for purposes of certification as described in this subpart and in subpart B of this part to show compliance with the standards of §§ 1037.105 and 1037.106. Participation in this program is voluntary.

(b) The definitions of Subpart I of this part apply to this subpart. The following definitions also apply:

(1) *Actual emission credits* means emission credits you have generated that we have verified by reviewing your final report.

(2) *Averaging set* means a set of vehicles in which emission credits may be exchanged. Credits generated by one vehicle may only be used by other vehicles in the same averaging set. Note that an averaging set may comprise more than one regulatory subcategory. See § 1037.740.

(3) *Broker* means any entity that facilitates a trade of emission credits between a buyer and seller.

(4) *Buyer* means the entity that receives emission credits as a result of a trade.

(5) *Reserved emission credits* means emission credits you have generated that we have not yet verified by reviewing your final report.

(6) *Seller* means 'the entity that provides emission credits during a trade.

(7) *Standard* means the emission standard that applies under subpart B of this part for vehicles not participating in the ABT program of this subpart.

(8) *Trade* means to exchange emission credits, either as a buyer or seller.

(c) Emission credits may be exchanged only within an averaging set as specified in § 1037.740.

(d) You may not use emission credits generated under this subpart to offset any emissions that exceed an FEL or standard, except as allowed by § 1037.645.

(e) You may trade emission credits generated from any number of your vehicles to the vehicle purchasers or other parties to retire the credits. Identify any such credits in the reports described in § 1037.730. Vehicles must comply with the applicable FELs even if you donate or sell the corresponding emission credits under this paragraph (e). Those credits may no longer be used by anyone to demonstrate compliance with any EPA emission standards.

(f) Emission credits may be used in the model year they are generated. Surplus emission credits may be banked for future model years. Surplus emission credits may sometimes be used for past model years, as described in § 1037.745.

(g) You may increase or decrease an FEL during the model year by amending your application for certification under § 1037.225. The new FEL may apply only to vehicles you have not already introduced into commerce.

(h) See § 1037.740 for special credit provisions that apply for credits generated under § 1037.104(d)(7), § 1037.615 or 40 CFR 1036.615.

(i) Unless the regulations explicitly allow it, you may not calculate credits more than once for any emission reduction. For example, if you generate $CO_2$ emission credits for a given hybrid vehicle under this part, no one may generate $CO_2$ emission credits for the hybrid engine under 40 CFR part 1036. However, credits could be generated for identical engine used in vehicles that did not generate credits under this part.

### § 1037.705 Generating and calculating emission credits.

(a) The provisions of this section apply separately for calculating emission credits for each pollutant.