

Environmental Protection Agency

§ 91.205

(b) For model years through 2000, outboard credits may not be summed with personal watercraft credits, or vice versa, for purposes of compliance under §91.207, except manufacturers may, at their discretion, include personal watercraft credits with outboard credits upon demonstration to the satisfaction of the Administrator that the personal watercraft engine is installed in a hybrid vessel that is smaller than a typical sterndrive or inboard vessel and larger than a typical personal watercraft. For model year 2001 and later, manufacturers must sum credits generated from outboard and personal watercraft to determine compliance under §91.207.

(c) Credits used in averaging may be obtained from credits generated by another engine family as allowed under §91.204(b), in the same model year, credits banked in the three previous model years, or credits obtained through trading.

§91.205 Banking.

(a) A manufacturer of a marine SI engine family with an FEL below the applicable emission standard for a given model year may bank credits in that model year for use in averaging and trading in the following three model years. Negative credits must be banked according to the requirements under §91.207(c). Positive credits not used within the three model years after they are banked are forfeited.

(1) Early banking. (i) For outboard engines in model year (MY) 1997, a manufacturer may bank positive emission credits if the following conditions are met: the manufacturer certifies their entire marine outboard engine product line for MY 1997 under the emission standards applicable to MY 1998, the manufacturer demonstrates compliance with the corporate average standard under §91.207(b), and the sum of positive and negative credits under §91.207 generates positive emission credits, when the following formula is used for purposes of the applicable standard in §91.207(a). The number of credits that may be banked under this paragraph is the number of positive emission credits generated under the provisions of the preceding sentence. Marine engines certified under the pro-

visions of this paragraph are subject to all of the requirements of this part.

**HYDROCARBON PLUS OXIDES OF NITROGEN
EXHAUST EMISSION STANDARDS**
[Grams per kilowatt-hour]

Model year	P<4.3 kW HC+NO _x Emission standard by model year	P>4.3 kW HC+NO _x emission standard by model year
1997 ...	276	$(0.959 \times (151 + 557/P^{0.9}) + 1.22)$

(ii) For personal watercraft engines in model year 1998, a manufacturer may bank positive emission credits if the following conditions are met: The manufacturer certifies their entire marine personal watercraft engine product line for MY 1998 under the emission standards applicable to 1998 model year outboard engine emission standards, the manufacturer demonstrates compliance with the corporate average standard under §91.207(b), and the sum of positive and negative credits under §91.207 generates positive emission credits, when the following formula is used for purposes of the applicable standard §91.207(a). The number of credits that may be banked under this paragraph is the number of positive emission credits generated under the provisions of the preceding sentence. Marine engines certified under the provisions of this paragraph are subject to all of the requirements of this part.

**HYDROCARBON PLUS OXIDES OF NITROGEN
EXHAUST EMISSION STANDARDS**
[Grams per kilowatt-hour]

Model year	P<4.3 kW HC+NO _x emission standard by model year	P> 4.3 kW HC+NO _x emission standard by model year
1998 ...	276	$(0.959 \times (151 + 557/P^{0.9}) + 1.22)$

(iii) For personal watercraft in model year 1997, a manufacturer may bank positive emission credits if the following conditions are met: the manufacturer certifies their entire marine personal watercraft engine product line for MY 1997 under the emission standards specified in the formula below for PWC, the manufacturer demonstrates compliance with the corporate average standard under §91.207(b), and the sum of positive and negative credits under

§91.206

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§91.207 generates positive emission credits, when the following formula is used for purposes of the applicable standard in §91.207(a). The number of credits that may be banked under this paragraph is the number of positive emission credits generated under the provisions of the preceding sentence. Marine engines certified under the provisions of this paragraph are subject to all of the requirements of this part.

HYDROCARBON PLUS OXIDES OF NITROGEN
EXHAUST EMISSION STANDARDS
[Grams per kilowatt-hour]

Model year	P<4.3 kW HC+NO _x emission standard by model year	P> 4.3 kW HC+NO _x emission standard by model year
1997 ...	276	$(0.959 \times (151 + 557/P^{0.9})) + 1.22$

(b) A manufacturer may bank actual credits only after the end of the model year and after EPA has reviewed the manufacturer's end-of-year reports. During the model year and before submittal of the end-of-year report, credits originally designated in the certification process for banking will be considered reserved and may be redesignated for trading or averaging in the end-of-year report and final report.

(c) Credits declared for banking from the previous model year that have not been reviewed by EPA may be used in averaging or trading transactions. However, such credits may be revoked at a later time following EPA review of the end-of-year report or any subsequent audit actions.

§91.206 Trading.

(a) A marine SI engine manufacturer may exchange emission credits with other marine SI engine manufacturers in trading. These credits must be used in the same averaging set as generated.

(b) Credits for trading can be obtained from credits banked in the three previous model years or credits generated during the model year of the trading transaction. Traded credits expire if they are not used in averaging within three model years following the model year in which they were generated.

(c) Traded credits can be used for averaging, banking, or further trading transactions.

(d) In the event of a negative credit balance resulting from a transaction, both the buyer and the seller are liable, except in cases involving fraud. Certificates of all engine families participating in a negative trade may be voided *ab initio* pursuant to §91.123.

§91.207 Credit calculation and manufacturer compliance with emission standards.

(a) For each engine family, certification emission credits (positive or negative) are to be calculated according to the following equation and rounded, in accordance with ASTM E29-93a, to the nearest gram. ASTM E29-93a has been incorporated by reference. See §91.6. Consistent units are to be used throughout the equation. The following equation is used to determine hydrocarbon plus oxides of nitrogen credit status for an engine family, whether generating positive credits or negative credits:

$$\sum_{t=1}^{\text{max actual life}} \frac{S(t) \times \text{sales} \times (\text{std} - \text{fel}) \times \text{Power} \times 0.207 \times \mu_{\text{use}}}{1.03^t}$$

Where:

sales = the number of eligible sales tracked to the point of first retail sale for the given engine family during the model year. Annual production projections are used to project credit availability for initial certification. Actual sales volume is used in

determining actual credits for end of-year compliance determination.

t = time in model years

Power = the average power of an engine family in kW (sales weighted). The power of each configuration is the rated output in kilowatts as determined by SAE J1228. This procedure has been incorporated by reference. See §91.6.