$$M_{HC}=\left(kV_n\times10^{-4}\right)\times\left(\frac{\left(C_{HC_f}-rC_{CH_3OH_f}\right)P_{B_f}}{T_f}-\frac{\left(C_{HC_i}-rC_{CH_3OH_i}\right)P_{B_i}}{T_i}\right)+\left(M_{HC,out}-M_{HC,in}\right)$$

* * * * *

§ 86.118–00 Dynamometer calibrations.

(a) The dynamometer shall be calibrated at least once each month or performance verified at least once each week and then calibrated as required.

(b) For large single roll electric dynamometers or equivalent dynamometer configurations, the dynamometer adjustment settings for each vehicle's emission test sequence shall be verified by comparing the force imposed during dynamometer operation with actual road load force.

[61 FR 54891, Oct. 22, 1996]

§ 86.118–78 Dynamometer calibration.

(a) The dynamometer shall be calibrated at least once each month or performance verified at least once each week and then calibrated as required. The calibration shall consist of the manufacturer's recommended calibration procedure plus a determination of the dynamometer frictional power absorption at 50.0 mph (80.5 km/h). One method for determining dynamometer frictional power absorption at 50.0 mph (80.5 km/h) is described below, other methods may be used if shown to yield equivalent results. The measured absorbed road power includes the dynamometer friction as well as the power absorbed by the power absorption unit. The dynamometer is driven above the test speed range. The device used to drive the dynamometer is then disengaged from the dynamometer and the roll(s) is (are) allowed to coast down. The kinetic energy of the system is dissipated by the dynamometer. This method neglects the variations in roll bearing friction due to the drive axle weight of the vehicle. The inertia of the free (rear) roll may be neglected in the case of dynamometers with paired rolls.

(1) Devise a method to determine the speed of the drive roll if it is not already measured. A fifth wheel, revolution pickup, or other suitable means may be used.

(2) Place a vehicle on the dynamometer or devise another method of driving the dynamometer.

(3) Engage the inertial flywheel or other inertial simulation system for the most common vehicle mass category for which the dynamometer is used. In addition other vehicle mass categories may be calibrated, if desired.

(4) Drive the dynamometer up to 50.0 mph (80.5 km/h).

(5) Record indicated road power.

(6) Drive the dynamometer up to 60.0 mph (96.9 km/h).

(7) Disengage the device used to drive the dynamometer.

(8) Record the time for the dynamometer drive roll to coastdown from 55.0 mph (88.5 km/h) to 45 mph (72.4 km/h).

(9) Adjust the power absorption unit to a different level.

(10) Repeat steps (4) to (9) above sufficient times to cover the range of road power used.

(11) Calculate absorbed road power (HP_d). See paragraph (c) of this section.

(12) Plot indicated road load power at 50 mph (80.5 km/h) versus road load power at 50 mph (80.5 km/h) as shown in Figure B78–5.

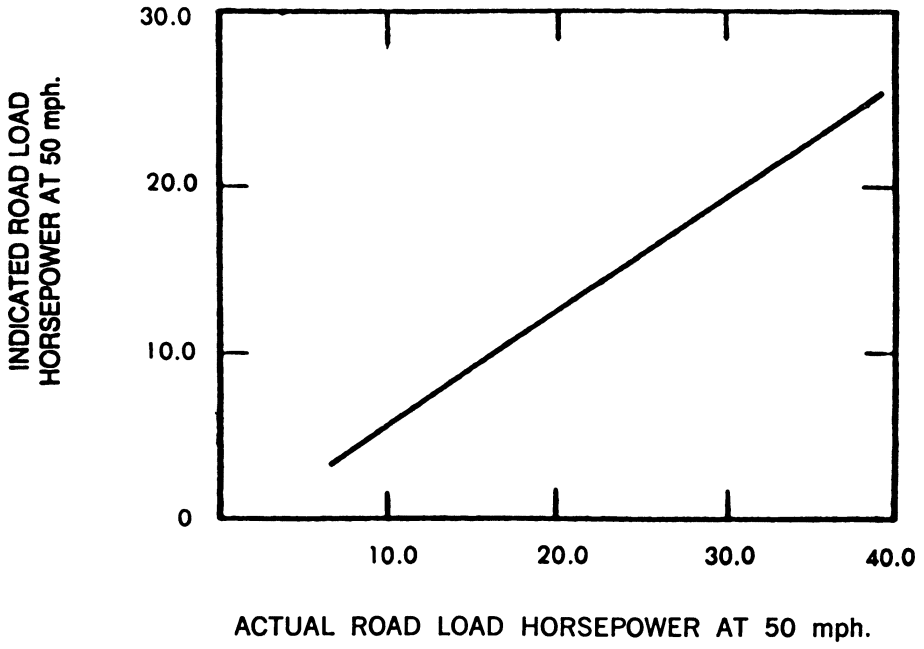

FIGURE B78-5—ROAD LOAD HORSEPOWER, ACTUAL VS. INDICATED

(b) The performance check consists of conducting a dynamometer coastdown at one or more inertia-horsepower settings and comparing the coastdown time to that recorded during the last calibration. If the coastdown times differ by more than 1 s, a new calibration is required.

(c) *Calculations.* The road load power actually absorbed by the dynamometer is calculated from the following equation:

$HP_d = (1/2)\ (W/32.2)\ (V^2_1 - V^2_2)/(550t)$

where:

HP_d = Power, horsepower (kilowatts)
W = Equivalent inertia, 1b (kg)
V_1 = Initial Velocity, ft/s (m/s) (55 mph = 88.5 km/h = 80.67 ft/s = 24.58 m/s)
V_2 = Final Velocity, ft/s (m/s) (45 mph = 72.4 km/h = 66 ft/s = 20.11 m/s)
t = elapsed time for rolls to coast from 55 mph to 45 mph (88.5 to 72.4 m/h)

(Expressions in parentheses are for SI units.) When the coastdown is from 55 to 45 mph (88.5 to 72.4 km/h) the above equation reduces to:

$HP_d = 0.06073\ (W/t)$

for SI units,

$HP_d = 0.09984\ (W/t)$

[42 FR 32954, June 28, 1977, as amended at 53 FR 475, Jan. 7, 1988]

§ 86.119–90 CVS calibration.

The CVS is calibrated using an accurate flowmeter and restrictor valve. Measurements of various parameters are made and related to flow through the unit. Procedures used by EPA for both PDP and CFV are outlined below. Other procedures yielding equivalent results may be used if approved in advance by the Administrator. After the calibration curve has been obtained,