INTERIM EMISSION STANDARDS FOR USED IMPORTED MOTOR VEHICLES

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Pursuant to the Department of Environment and Natural Resources (DENR) Administrative Order No. 24, Series of 1994, re: the above subject, the following standards shall be adopted for purposes of inspection prior to initial registration of any imported used motor vehicle, provided that if the in-use emission standard of the country of origin differs from these standards, the more strict standard should be the basis of approval for initial registration of said vehicles:

Type of Pollutant

Maximum Limit

Test Method/Equipment

Equipment Carbon Monoxide (CO)* 3.5% vol. Idling test/NDIR Analyzer

Hydrocarbon (HC)* 500 ppm Analyzer Idling test/NDIR

Smoke** 50% HSU or 40% Bosch Free acceleration from low idle engine speed/ Hartridge or Bosch smoke meter.

* For spark-ignition (gasoline fueled) motor vehicle.
** For compression-ignition (diesel-fueled) motor vehicle.

The test procedures and equipment described in the herein attached Annexes 1 and 2 shall be strictly observed.

This Memorandum Circular shall take effect on 01 September 1994.

For guidance and strict compliance.

Adopted: 18 Aug. 1994

(SGD.) MANUEL F. BRUAN
Brig. Gen. AFP (Ret.)
Assistant Secretary

ANNEX 1
FREE ACCELERATION TEST IN-USE DIESEL FUEL MOTOR VEHICLES

I
Scope

The Test is a smoke opacity measurement for in-use motor vehicle equipped with compression-ignition (diesel) engines, using the free acceleration from low idle speed method.

II

Motor-Vehicle Test Condition

a. The test shall be carried out on a stationary vehicle at normal engine operating temperature.

b. The combustion chamber shall not have been cooled or fouled by a prolonged period of idling preceding the test.

c. The exhaust system shall not have any orifice (or leaks) through which the gases emitted by the engine might be diluted.

III
Test Equipment

a. The light-absorption coefficient of the exhaust gases shall be measured with an opacimeter satisfying the conditions laid down in ECE Regulation No. 24, Revision 2E/ECE/TRANS 505. Rev Add 23 Rev. 2, Annex 8: Characteristics of Opacimeter.

IV
Test Procedures and Smoke Opacity Measurement

a. Follow the opacimeter manufacturer's instruction in the proper installation, operation/use and checking the accuracy (calibration) before and after each test.

b. Set the vehicle gear-change control in the neutral position and the handbrake effectively engaged.

c. Start the engine and warm it up to its normal operating temperature.

d. Insert sampling probe as deep as possible but not less than 30 centimeters from the tailpipe outlet.

e. Accelerate the engine two to three times in order to remove deposits of soot and other carbon particles in the tail pipe.

f. With the engine idling, depress the accelerator quickly, but not violently, to obtain maximum delivery from the injection pump (Figure 1)[*] Maintain this position until maximum engine speed is reached (about 2 to 4 seconds) and the governor comes into action.

As soon as this speed is reached, release the accelerator until the engine resumes its idling. Record the maximum reading of the smokemeter.

g. Repeat the procedure in paragraph (4f) until the maximum opacity values read in each consecutive free-acceleration test are stabilized. The values read shall be regarded as stabilized when three consecutive readings are within a hand width of 0.3 m-1 (equivalent to 5 HSU) and do not form a decreasing sequence. The test result shall be the arithmetic mean of the three stabilized values.

h. For motor vehicles with two or more exhaust pipes, measure the smoke opacity of all exhaust pipes and take the reading of the exhaust which gives the highest reading.

i. Seal the full load screw of the injection pump/delivery system of the motor vehicle after a pass-test to prevent tampering.

Note: The instruction manual of any specific smoke meter may be followed in lieu of the opac procedure.

V
Test Data

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Conversion of results from Hartridge Smoke Units to other scales shall be made in accordance with DENR-approved conversion table.

ANNEX 2
EMISSION TEST PROCEDURE FOR IN-USE SPARK-IGNITION MOTOR VEHICLE

1
Scope

The test procedure is for the determination of the concentration of exhaust carbon monoxide (CO) and hydrocarbon (HC) emissions from in-use motor vehicles equipped with spark-ignition engines running at idle speed.

2
Test Equipment (Reference: ISO-3930)

a) Carbon Monoxide analyzer a NDIR (Non-dispersive Infrared) to CO exhaust gas analyzer

b) Hydrocarbon analyzer a NDIR (Non-dispersive Infrared) HC exhaust gas analyzer, HC as hexane (C6H14)

c) Tachometer an easily installed tachometer to emasure engine speed (RPM)

3
Vehicle Preparation

a) Set the vehicle transmission at neutral and the handbrake engaged.

b) See to it that the idling speed or the engine rpm with the accelerator in the rest position, conforms with the vehicle manufacturer's recommendation.

c) All accessories like rear window heating air conditioning system, air fan and other equipment not necessary for the vehicle operation at idle are switched off.

d) Check that the temperature of the engine is at least 700C; otherwise, run the vehicle for at least 15 minutes on a normal road before testing.

e) See to it that the exhaust pipe is reasonably leakproof and will allow the insertion of the sampling probe by at least 30 cm. from the tailpipe exhaust outlet. If this is not possible due to tailpipe configuration, use the appropriate correction factor.

4
Measurement

a) Immediately preceding the measurement, adjust the instrument to zero and accelerate the engine to about 2,500 rpm (use tachometer if available). Maintain this speed from 10 to 15 seconds, then release the pedal to return the engine at idle speed. HETDAC

b) While the engine idles, insert the sampling probe into the exhaust pipe as deeply as possible for not less than 30 cm. Wait about 20 seconds and take the CO/HC reading.

c) If the vehicle has multiple exhaust outlets the arithmetic average of the CO/HC readings in each outlet is taken as the final result.

5
Instrument Calibration, Adjustments (Reference: ISO 3929)

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a) Prepare, use and maintain the analyzer following the directions given in the instrument manufacturer's operation manual and service the instrument at such intervals as to ensure accuracy.

b) Carry out a "span and zero" calibration within a period of 4 hours before the instrument is first used and each time the instrument is moved or transferred to a new location. The calibration shall be performed well away from the exhaust of motor vehicles whose engines are running.

If the instrument is not self-compensated for non-standard conditions of altitude and ambient temperature or not equipped with a manually controlled system of compensation, the scale calibration shall be performed using calibration gas.

c) If the sample handling system is not integral with the analyzer, check the effectiveness of the condensate traps and check that all connections of the gas sampling system are leakproof. Check that filters are clean, that filter holders are fitted with their gaskets and that these are in good condition.

d) Ensure that the sample handling line and probe are free from contaminants.

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[*] Not included here

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