



CIRCULAR 28/01 - 2 - 1

SELECTION OF TEST VEHICLES

INTRODUCTION

1. This Circular should be read in conjunction with the General Circular 0-2-11 "General Procedures for Selection of Vehicles and Components for ADR Compliance Testing " containing requirements applicable to all ADRs.
2. The intention of the criteria in this circular is to select the "worst case" - i.e. to test the vehicle(s) which would produce the greatest external noise when tested in accordance with the ADR. In the test for vehicles in motion this is expected to be the vehicle(s) which will accelerate most rapidly over the test distance and which will have the highest engine speed at approach to or departure from the test area.

SELECTION REQUIREMENTS - VEHICLES IN MOTION

3. The Administrator will accept a test on one vehicle as representative of another for the purposes of demonstrating compliance with the requirements for vehicles in motion, provided the following criteria are met:

When compared with the untested vehicles, the test vehicle shall have:

- (a) an engine of the same "engine family", i.e. identical with respect to:
 - (i) the nominal bore center to center dimensions;
 - (ii) the nominal dimension from the centerline of the camshaft to the centreline of the crankshaft;
 - (iii) the nominal dimensions from the centerline of the crankshaft to the top of the cylinder block head face;
 - (iv) the number of cylinders, their configuration and the cooling system (L6, 90° VS etc, air cooled or water cooled);
 - (v) the nominal location of the intake and exhaust valves and the valve sizes (within a 4 mm range on the valve head diameter);
 - (vi) the method of air aspiration (e.g. natural or forced, intercooled or non-intercooled);
 - (vii) the combustion cycle;
 - (viii) catalytic converter characteristics other than those (e.g. platinum loading) which have no effect on noise;
 - (ix) thermal reactor characteristics which have no effect on noise;
 - (x) the method of fuel intake. If by carburation, there shall be no variation in the number of carburetors, number of barrels or principle of operation. If by fuel injection, there shall be no variation in the type of flow (i.e. it shall be either continuous or non-continuous).

- (b) The same exhaust system, i.e. identical with respect to:
 - (i) the muffler(s);
 - (ii) the resonator(s);
 - (iii) nominal diameter of exhaust pipe(s);
 - (iv) direction of exhaust discharge;and the same or shorter length of exhaust pipe(s).
 - (c) the same engine compartment construction, i.e. identical with respect to:
 - (i) construction material;
 - (ii) the envelope shape and size.
 - (d) the same or greater net engine power and maximum rated engine speed.
 - (e) the driveline (gearbox, differential and tyre size combination) which in the lowest specified test gear:
 - (i) provides the same or higher engine speed at line AA in the case of vehicles where the approach speed at line AA is 50 km/h,
 - or
 - (ii) provides the same or lower vehicle speed at line AA in the case of vehicles where the approach speed at line AA is less than 50 km/h and engine speed is 3/4 of that maximum power.
 - (f) not more than 10% greater unladen mass;
- (Note: This requirement need not be met if the test vehicle selected in accordance with criterion 3(e) produces the same or higher engine speed when the rear of the vehicle passes BB than would be produced by a test vehicle selected in accordance with the above criterion when tested in the lowest specified gear).
- (g) the same or greater number of axles, driven axles and road wheels;
 - (h) the same or lower level of sound proofing of the engine and the engine compartment.

ADDITIONAL SELECTION REQUIREMENTS FOR VEHICLES OF CATEGORIES MD4, ME, NB2 AND NC:

- (i) the same engine cooling system, ie identical with respect to:
 - (i) fan(s);
 - (ii) shrouds;and having the same or larger area of radiator air inlet aperture.
- (j) The same engine air cleaning system, i.e. identical with respect to:
 - (i) the air cleaner assembly;

(ii) filter elements.

4. If any vehicles are equipped with noise emitting devices which are not necessary for propulsion, but which are used in normal service on the road, then the test vehicle must be fitted with those devices which shall be in operation in accordance with the specifications of the manufacturer, e.g:
- (a) engine brake;
 - (b) radiator shutters;
 - (c) air conditioner;
 - (d) thermostatic fans with manual override.

(Note: Air conditioners must be set to operate at their maximum cooling capacity or where controlled by internal temperature setting, that setting must be at least 10 degrees Celsius below the ambient temperature.)

SELECTION REQUIREMENTS - STATIONARY VEHICLES

5. The Administrator will accept a test on one vehicle as representative of another for the purposes of demonstrating compliance with the requirements for stationary vehicles provided the criteria of para 3(a), (b) and (d) are met by the test vehicle.

ALTERNATIVE STANDARDS

6. An untested vehicle model/variant may be certified on the basis of a vehicle tested in accordance with the technical requirements of ECE RS 1/01 or EEC Directive 84/424 ** if:
- (a) an ECE R51/01 or EEC 84/424 approval issued for the tested vehicle clearly indicates that it covers the untested vehicle model/variant,
 - or
 - (b) the vehicle tested has been selected in accordance with this Circular to cover the untested vehicle.

In the case of (a), the purpose of the SF 28/01 form is only to establish the range of vehicles covered by the approval.

In the case of (b), the SF 28/01 form must identify the tested and untested vehicle model/variants.

**The alternative standards apply to both drive-by and stationary tests for LEP, LEG, MA, MB and MC vehicles. They apply only to the drive-by test for MD, ME and N-group vehicle.