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BULLETIN

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MAXIMUM ROAD
SPEED LIMITING FOR
HEAVY TRUCKS AND
BUSES

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VEHICLE STANDARDS BULLETIN

AN INFORMATION SERIES SUPPLEMENTING THE AUSTRALIAN DESIGN RULES FOR MOTOR VEHICLES AND TRAILERS (ADRS) AND THE AUSTRALIAN IN-SERVICE RULES FOR MOTOR VEHICLES AND TRAILERS (AIRS)

MAXIMUM ROAD SPEED LIMITING FOR HEAVY TRUCKS AND BUSES

INFORMATION FOR OWNERS AND OPERATORS OF HEAVY TRUCKS AND BUSES

The Vehicle Standards Bulletin provides information for those associated with the design, manufacture, sale, maintenance or repair of motor vehicles and trailers.

The series is a major channel from Vehicle Safety Standards in the case of matters relating to new vehicles, and from the Australian Transport Advisory Council and its committees in the case of vehicles in service.

The series:

- ▶ gives advance notice of matters of concern;
- ▶ sets out codes and other standards which supplement the ADRs and AIRS; and
- ▶ provides advice concerning vehicle design, safety and operation.

MAXIMUM ROAD SPEED LIMITING FOR HEAVY TRUCKS AND BUSES

INFORMATION FOR OWNERS AND OPERATORS OF HEAVY TRUCKS AND BUSES

The following notes summarise requirements for devices which mechanically and/or electronically limit the maximum road speed of heavy trucks and buses. For new vehicles, detailed requirements are set by National Standards (Australian Design Rule number 65/00). For vehicles in service, compliance with the standards and procedures set out in this Bulletin will ensure that these vehicles are accepted by Commonwealth, State and Territory authorities as also meeting maximum road speed limiting requirements.

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GENERAL

(Clauses 1 to 3)

1. INTRODUCTION

This Bulletin sets out the requirements for speed limiting of heavy trucks and buses to ensure that their maximum road speed capability is in keeping with State and Territory speed limits.

Vehicles meeting Australian Design Rule number 65/00, which specifies speed limiting requirements for vehicles manufactured on or after 1 January 1991, will be accepted as meeting the requirements of this Bulletin.

Vehicles which are unable to exceed 100 km/h are deemed to meet the requirements. The test specified in clause 8 of this Bulletin can be used to determine a vehicle's maximum road speed capability.

Vehicles referred to in clause 2 of this Bulletin which do not meet the requirements must be modified to comply.

One way is to modify the drive train gearing and/or the rated engine speed so that the vehicle is not capable of exceeding the relevant speed limits. The method of calculating whether or not overall gear ratios and engine speeds are acceptable is given in clause 5. It is expected that many existing vehicles will already have acceptable drive train gearing.

Another way is to install a road speed governor as specified in clause 6.

Other methods (e.g. limiting engine power) may be used provided that the vehicle is capable of passing the test specified in clause 8.

Owners and operators will be required to determine the maximum road speed capability of their vehicle. They may undertake the tests themselves or engage an engineering consultant to do this. It is recommended that they seek technical assistance from the vehicle or engine manufacturer if they are unsure about the maximum road speed capability of their vehicles.

This Bulletin is advisory only and it is the responsibility of the State and Territory Administrations to implement the requirements. Owners and operators are therefore advised to consult the registering authorities, where their vehicles are or will be registered, for their implementation requirements.

2. APPLICABILITY

From the dates specified below, unless required to comply with Australian Design Rule number 65/... specifying speed limiting requirements, the following vehicles must meet the requirements of this Bulletin from the date of annual re-registration:

2.1 from 1 January 1991

2.1.1 all heavy goods vehicles over 20 tonne GVM manufactured on or after 1 January 1988, and

2.1.2 all omnibuses over 14.5 tonne GVM manufactured on or after 1 January 1988.

2.2 from 1 January 1992:

2.2.1 all heavy goods vehicles over 15 tonne GVM manufactured on or after 1 January 1988.

3. TERMS USED

3.0 Definitions for 'Defined Terms' are given in Part 2 of the 'ADR Definitions' of the Australian Design Rules for Motor Vehicles and Trailers. Units and abbreviations used are given in Part 3 of 'ADR Definitions'.

3.1 The term 'Set Speed' used in this Bulletin means the maximum road speed capability specified in clause 7.

3.2 The term 'Recognised Authority' is used to mean the vehicle manufacturer or the engine manufacturer or the manufacturer of the speed control device or their appointed agents.

3.3 The term 'Administering Authority' is the State or Territory registering authority where the vehicle will be registered.

TECHNICAL**REQUIREMENTS**

(Clauses 4 to 9)

4. MAXIMUM ROAD SPEED LIMITING

The maximum road speed capability shall be determined in accordance with the requirements of either clause 5, 6 or 8 and shall not exceed the maximum road speed capability ('Set Speed') specified in clause 7.

5. MAXIMUM ROAD SPEED LIMITED BY GEARING

The maximum road speed capability shall be limited by selection of drive train gearing calculated by the formula:

$$\text{Maximum road speed capability (km/h)} = \frac{60 \times L}{A \times M}$$

where:

L = the engine manufacturer's rated engine speed above which the engine governing system begins to substantially reduce power;

A = the overall gear reduction between engine and drive wheels giving highest road speed; and

M = the tyre revolutions per kilometre determined from Table 1 (shown below), or as determined by the 'Administrator' for tyres not listed, which gives the standard number of revolutions per kilometre.

- 5.1 In the case of vehicles where the maximum road speed capability is determined by gearing, the engine speed, used as value 'L' above, shall be permanently shown on a plate affixed to the engine.

TABLE1**TYRE REVOLUTIONS PER KILOMETRE**

Tyre Size	Nom. revs per Km
9R22.5	345
10 R 22.5	325
11 R. 22.5	315
12 R. 22.5	305
13 R. 22.5	295
255/70 R. 22.5	355
275/70 R. 22.5	345
275/80 R 22.5	330
295/80 R 22.5	320
315/80 R 22.5	310
385/65 R. 22.5	315
425/65 R 22.5	300
445/165 R 22.5	290
8.25 * 16	385
8.25 * 20	345
9.00 * 20	325
10.00 * 20	315
11.00 * 20	310
12.00 * 20	295
13.00 * 20	285
14.00 * 20	270
10.00 * 22	300
11.00 * 22	295
11.00 * 24	280
12.00 * 24	270

6. MAXIMUM ROAD SPEED LIMITED BY ROAD SPEED GOVERNOR

The maximum road speed capability shall be controlled by the use of a road speed governor in accordance with the following:

- 6.1 The maximum road speed setting must not be capable of being temporarily increased or removed.
- 6.2 The road speed limiting function shall not actuate the vehicle's service braking system.
- 6.3 The road speed limiting function may allow normal accelerator control for the purposes of changing gear.
- 6.4 No malfunction shall result in an increase in engine power above that demanded by the position of the driver's accelerator control.
- 6.5 All components necessary for the full function of the road speed limiting function shall be energised whenever the vehicle is being driven.
- 6.6 The following parts shall be provided with the facility for sealing by a recognised authority:
 - 6.6.1 the governor road speed adjustment mechanism;
 - 6.6.2 the two ends of the link between the road speed limiter and the injection pump;
 - 6.6.3 the two ends of the link between the road speed limiter and the device providing the road speed signal;
 - 6.6.4 all internal parts of the road speed limiting equipment shall be made resistant to tampering by means of casings capable of being sealed; and
 - 6.6.5 the control unit in the case of an electronic road speed governor to prevent unauthorised entry into the box containing the electronic control circuitry.
- 6.7 In the case of electronically re-programmable control devices:
 - 6.7.1 the system shall have provision to record and store in retrievable memory the current maximum road speed setting;
 - 6.7.2 The manufacturer of the device shall advise the 'Administering Authority' of the protocol to be used to retrieve the data referred to in this clause.

- 6.8 In the case of electronically re-programmable control devices the manufacturer of the device shall establish and maintain approved arrangements to ensure that the maximum road speed capability of the vehicles cannot be changed without necessary authorisation. These arrangements may be established in conjunction with the engine and/or vehicle manufacturers, and are to restrict the capability to change maximum road speed to authorised agencies such as State or Territory distributorships of the vehicle and/or device and/or engine manufacturers.
- 6.9 The road speed governor shall have characteristics which would result in the vehicle meeting the requirements of clause 8 (Test of Road Speed Limitation) if tested.

7. MAXIMUM ROAD SPEED CAPABILITY

- 7.1 For a hauling vehicle designed for use in a 'Road Train' the maximum road speed capability shall be no greater than that determined by the appropriate State or Territory authority. In addition, where this maximum road speed capability is determined in accordance with clause 6, the maximum road speed capability determined in accordance with the gearing provisions of clause 5 shall not exceed 110 km/h.
- 7.2 For other heavy goods vehicles and heavy omnibuses the maximum road speed capability shall be no greater than 100 km/h.

8. TEST OF ROAD SPEED LIMITATION

This test may be used to determine the maximum road speed capability of vehicles. Evidence that a road speed limiter has the capacity to control the speed in accordance with these requirements or that a vehicle type has been demonstrated to comply with these requirements may be accepted in lieu of a test.

- 8.1 Test Conditions
- 8.1.1 The settings of the test vehicle including the fuel feed, wheels and tyres, and transmission shall conform to the vehicle manufacturer's specifications;
- 8.1.2 the tyres shall be bedded and the pressures shall be as specified by the manufacturer for the vehicle;
- 8.1.3 the vehicle shall be at 'Unladen Mass';
- 8.1.4 the test track surface shall be free from standing water, snow or ice and shall be free from uneven patches and the gradient shall not exceed 2% and gradients shall not vary by more than 1% excluding camber effects; and
- 8.1.5 the mean wind speed measured at a height at least 1 metre above the ground shall be less than 6 m/s with gusts not exceeding 10 m/s.

8.1.6 The instantaneous vehicle road speed shall be recorded throughout the test with a road speed measurement accuracy of at least $\pm 1\%$ at maximum time intervals of 0.1 seconds.

8.2 Acceleration Test Method

Using the test conditions specified in clause 8.1, and starting from a road speed 10 km/h less than the 'Set Speed', the vehicle shall be accelerated as much as possible without changing gear by using a fully positive action on the accelerator control. This action shall be maintained without changing gear for at least 30 seconds after the 'Set Speed' is achieved.

8.3 Acceptance Criteria for Acceleration Test Method

8.3.1 With each gear which allows a theoretical maximum road speed above the 'Set Speed' engaged and when tested in accordance with clause 8.2 and within the first 10 seconds after reaching the 'Set Speed', the maximum vehicle road speed shall not exceed 105% of 'Set Speed' and the rate of change of vehicle road speed shall not exceed 0.5 m/s^2 when measured over a time period greater than 0.1 seconds as shown in Figure 1.

8.3.2 With each gear which allows a theoretical maximum road speed above the 'Set Speed' engaged and when tested in accordance with clause 8.2, and more than 10 seconds after reaching the 'Set Speed' the maximum vehicle road speed shall not differ from the 'Set Speed' by more than $\pm 3.3\%$ of 'Set Speed', the maximum vehicle road speed shall not vary by more than 3.3% of the 'Set Speed' and the rate of change of road speed shall not exceed 0.2 m/s^2 when measured over a time period greater than 0.1 seconds.

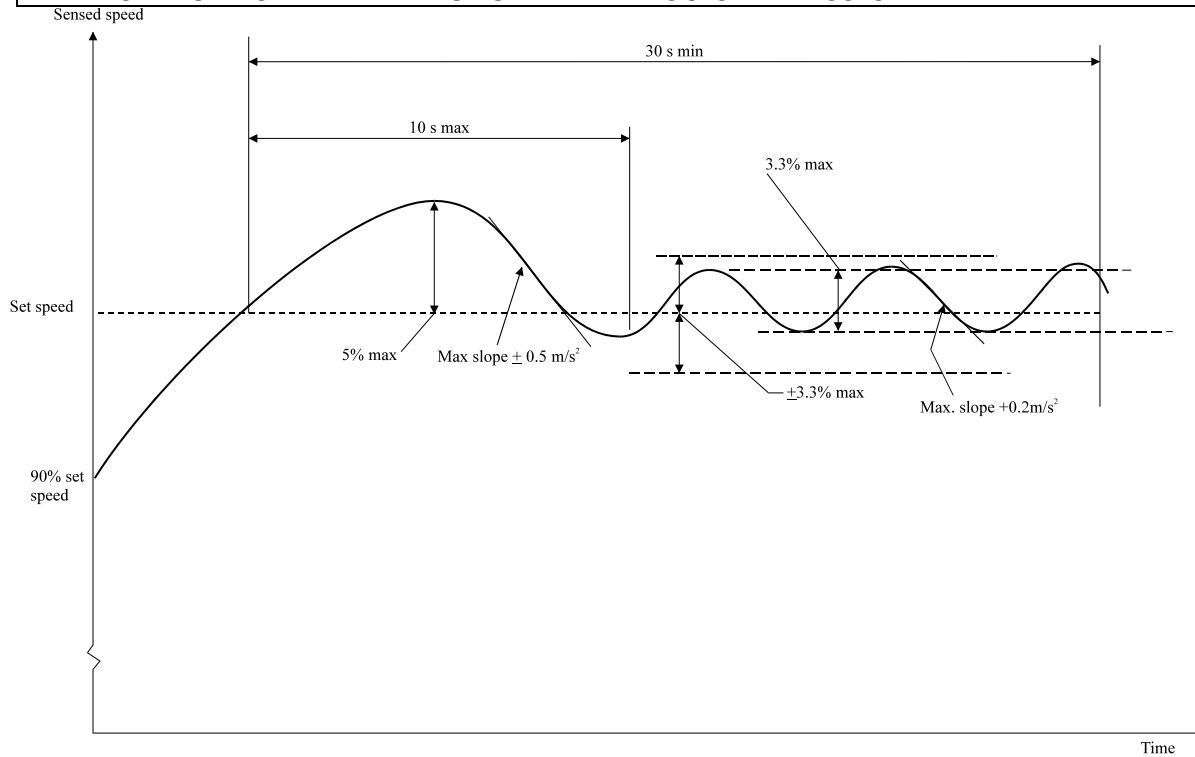


Figure 1. Allowed tolerances of limiter response characteristic

9. ALTERNATIVE STANDARDS

Road speed governors complying with BS AU 217: Part I 1987 'Maximum road speed limiters for motor vehicles' marked with a set road speed equal to or lower than the 'Set Speed' shall be deemed to meet the requirements of clause 8.