

NATIONAL CODE OF PRACTICE



VSB 6

HEAVY VEHICLE MODIFICATIONS

Section D
Rear Axles

HEAVY VEHICLE MODIFICATIONS**1. SCOPE**

This Section relates to the fitting of replacement rear axle(s) and differential assemblies to heavy vehicles.

2. ADR's AFFECTED

ADR 18, 18/...; - Instrumentation (where gearing changes affect the speedometer accuracy).

ADR 28, 28A, 28/..., 83/...; - Noise (where gearing changes result in engine speeds outside the range tested).

ADR 35, 35A, 35/...;/ - Brakes (where gearing changes increase vehicle maximum speed from below 70 km/h to above 80 km/h or where brakes are changed as part of the axle assembly).

ADR 65/...; - Speed Limiting (where gearing affects the maximum speed of a vehicle which is speed limited by gearing).

3. AFFECTING MODIFICATIONS

The fitment of any rear axle(s) or differential gear set(s) that is /or was not offered as an option by the original vehicle manufacturer.

4. GENERAL REQUIREMENTS

The following requirements must be met whenever a rear axle or differential assembly is being replaced:

- The replacement axle(s) must have mass ratings and gear ratio that are suitable for the mass ratings of the vehicle.
- All welding on the axle housings (for spring seats, axle seats, torque rod brackets, etc) must be performed in accordance with the axle manufacturer's recommended procedure.
- The axle(s) must be installed at the axle manufacturer's recommended installation angle.
- The brakes on any replacement axle must be either transferred from the original axle or be identical brakes to those fitted on the original axle.
- Should the modifier choose to use different brakes or install an additional axle, the guidelines in Section G - Brakes of this National Code of Practice should be followed.
- If changes to the rear suspension or tailshaft are required, the manufacturer's recommendations or the appropriate sections of this National Code of Practice should be followed.
- If a change in axle ratio is performed, the modifier should ensure that a suitable ratio is selected for road speed and gradeability, and that speedometer and road speed limiter accuracy is maintained.

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5. RECORDING

Attached are Appendices 1 and 2 which:

- Summarise the scope of modification work that may be certified under Modification Codes D1 and D2.
- Include lists of Sections of this National Code of Practice covering other areas of the vehicle which may have been affected by the modification and which should be analysed to determine whether they, too, require re-certification.
- Include checklists appropriate to particular Modification Codes that should be completed.

It is required that analysis work records, sketches and other vehicle data, together with copies of the Calculation Sheet and completed Check Lists be retained by the Certifying Officer for at least the period specified in Part A of this National Code of Practice.

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Appendix 1

Modification Code D1

REAR AXLE(S) INSTALLATION

Modifications covered under this Modification Code are:

1. Fitting of alternative rear axle assembly.
2. Fitting of additional rear axle on load sharing rear suspension.
3. Fitting of suspension brackets to axle housing, providing that welding and installation is in accordance with the axle manufacturer's recommendation.

Modifications that are **not** covered under this Modification Code:

1. Fitting of axle assemblies that are not compatible with the original vehicle's components, including the fitting of the axles that are not compatible with the vehicle's ESC system, if fitted.
2. Modifications to axle housings - other than that allowed by the axle manufacturer for fitting suspension brackets.

NOTE: The modified vehicle/modifications must continue to comply with all applicable ADR's, Australian Standards and Regulations/Acts.

Outlined below are areas of the vehicle that may have been affected by the modifications and that may require recertification, testing and/or data to show compliance of the modified vehicle.

DETAIL	REQUIREMENTS
Brakes	The complete Brake System should be in accordance with an ADR 35/... certified system for an equivalent Vehicle or for a vehicle with a GVM less than 20% greater. Code G4 for ADR 35/...; - Recertification may be required.
Suspension	Modification Code F1
Re-rating of GVM/GCM	Modification Code S1
Change of differential ratio	Modification Code D2
Tailshaft alteration	Modification Code C1

Checklist D1
REAR AXLE(S) INSTALLATION

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Appendix 2

Modification Code D2

DIFFERENTIAL SUBSTITUTION

Modifications covered under this Modification Code are:

1. Fitting of alternative differential(s) in existing axle housing(s).
2. Fitting of alternative differential ratio.
3. Fitting of traction control device.

Modifications that are **not** covered under this Modification Code are:

1. Modifications to the differential, axles or axle housings to allow installation of non OEM differential components.

NOTE: The modified vehicle/modifications must continue to comply with all applicable ADR's, Australian Standards and Regulations/Acts.

Outlined below are areas of the vehicle that may have been affected by the modifications and that may require recertification, testing and/or data to show compliance of the modified vehicle.

DETAIL**REQUIREMENTS**

Change in differential ratio

ADR 35, 35A, 35/... (This only applies where the vehicle's maximum speed is increased from below 70km/h to above 80km/h)

ADR 28, 28A, 28/...

Gradeability and Startability requirements of VSB6 S Codes

ADR65/...

Maximum Road Speed Limiting

Speedo and Speed Limiter Accuracy

Change speedo ratio to obtain speedometer accuracy within ADR limits

Checklist D2

DIFFERENTIAL SUBSTITUTION