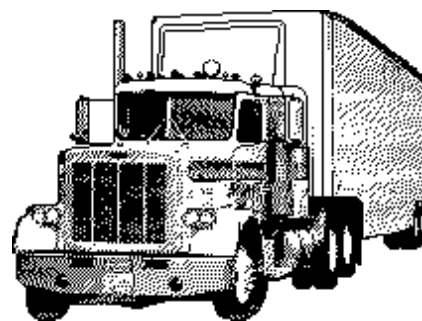
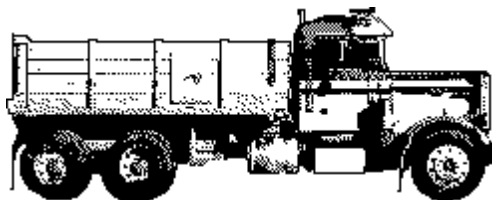


Section B

REPLACEMENT TRANSMISSIONS



HEAVY VEHICLE MODIFICATIONS**1. SCOPE**

This Section, which is part of the National Code of Practice for Heavy Vehicle Modifications, relates to the fitting of replacement transmissions to heavy vehicles.

It outlines the minimum installation and performance requirements for the fitting of replacement manual or automatic transmissions on heavy vehicles. It also covers the fitting of ancillary and transfer gearboxes or transfer cases.

2. ADR's AFFECTED

ADR 18, 18/..; where speedometer accuracy may be affected.

ADR 28, 28A, 28/..; where engine speeds may be altered beyond the range tested.

ADR 35, 35A, 35/..; (where the ratio changes increases the maximum speed from less than 70 km/h to over 80 km/h).

ADR 42/..; where the fitting of an automatic transmission is carried out.

ADR 65/..; where gear ratio changes may affect the maximum speed for vehicles with speed limited by gearing.

3. AFFECTING MODIFICATIONS

The fitting of any transmission or gearbox that is not an option offered by the original manufacturer of the vehicle.

4. GENERAL REQUIREMENTS

This Section applies to all vehicles and should be used in conjunction with other sections that are specific for the type of modification that is being performed. The following requirements must be met:

- Replacement gearboxes must have adequate torque capacity for the output of the vehicle's engine.
- In relation to the vehicle's engine, the replacement gearbox must provide sufficient reduction to permit the vehicle when laden to its rated GCM, to start from rest on a 13% gradient.
- The fitting of the replacement gearbox must not require removal or weakening of sub-frames, chassis, cross members or body members.
- Any openings into the cab necessary for the gearshift control must be adequately sealed to prevent ingress of exhaust gases into the vehicle cabin.

5. RECORDING

It is not feasible in this code to cover every aspect of analysis that might be necessary in a transmission modification. However, Appendix B1:

- Summarises the scope of modification work that may be certified under Modification Code B1.

HEAVY VEHICLE MODIFICATIONS

- Includes a list of Sections of the 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.

It is suggested 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.

HEAVY VEHICLE MODIFICATIONS

Appendix B1

Modification Code B1

TRANSMISSION SUBSTITUTION OR ADDITIONAL FITTING

Modifications that are covered under this Code are:

1. Fitting of alternative transmission.
2. Fitting of additional transmission.
3. Changing gearbox ratios.
4. Conversion from manual to automatic and visa versa.

NOTE: The modified vehicle/modifications must continue to comply with all applicable ADR's, Australian Standards or 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 for the modified vehicle.

DETAIL**REQUIREMENTS**

Change Gear Ratio

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

ADR 28, 28A, 28/00 (if applicable);

National Code of Practice

Vehicle Startability

National Code of Practice - Section S

Maximum Road Speed

National Code of Practice - Section A

Transmission Mountings

Good engineering practice

Tail Shaft

National Code of Practice - Section C

Fitting of Automatic Transmission

ADR 42/..;

Change Speedo Ratio to obtain accurate speedo reading

ADR 18, 18/..;

Road speed limiting

ADR 65/..;

HEAVY VEHICLE MODIFICATIONS

Checklist B1

TRANSMISSION SUBSTITUTION OR ADDITIONAL FITTING

(Y=Yes N=No)
delete if not applicable**1.0 General**

- | | | | |
|-----|---|---|---|
| 1.1 | Does the replacement or additional gearbox have adequate torque capacity for the output of the vehicle's engine? | Y | N |
| 1.2 | Has the replacement or additional gearbox been fitted without the removal or weakening of sub-frames, chassis, cross members or body members? | Y | N |
| 1.2 | Are any openings into the vehicle necessary for the gearshift control adequately sealed to prevent the ingress of exhaust and road fumes? | Y | N |
| 1.3 | Has the accuracy of the vehicle's speedometer been maintained? | Y | N |
| 1.4 | Are automotive type gearbox mountings used on suitably fabricated brackets? | Y | N |
| 1.5 | Do the reversing lights (if fitted) operate when reverse gear position is selected? | Y | N |
| 1.6 | Is all work performed in accordance with recognized engineering standards and to the satisfaction of the certifying officer? | Y | N |
| 1.7 | Does the replacement or additional gearbox provide sufficient reduction to permit the vehicle, when laden to its rated GCM, to start from rest on a 13% gradient? | Y | N |

2.0 Automatic Transmission (if applicable)

- | | | | |
|-----|--|---|---|
| 2.1 | Does the transmission control lever mechanism have a neutral position located between the reverse and forward positions? | Y | N |
| 2.2 | Is the park position (if applicable) located adjacent to the reverse drive position? | Y | N |
| 2.3 | Is the reverse selection movement upward, forward or to the left side? | Y | N |
| 2.4 | Is the engine starter inoperative when the transmission control lever mechanism is in a forward or reverse drive position? | Y | N |
| 2.5 | Is the transmission control lever position permanently displayed and illuminated within the driver compartment of the vehicle? | Y | N |

3.0 Driveshaft

- | | | | |
|-----|--|---|---|
| 3.1 | Have any changes to the tailshaft been carried out in accordance with manufacturer's recommendations or in accordance with recognized engineering standards? | Y | N |
| 4.0 | Do the tyres fitted to the vehicle have a speed rating equal to or in excess of the maximum speed capability of the vehicle? | Y | N |

HEAVY VEHICLE MODIFICATIONS

NOTE: If the answer to any relevant question is "NO", the modification is not acceptable.

Vehicle

Make:.....Model:.....Year of Manufacture:.....

Chassis No/VIN:.....

Replacement or Additional Gearbox

Make:Model:.....

Vehicle Modifier:.....

Examined by:.....

Company (if applicable):.....

Certifying Officer No:..... Modification Certificate No:.....

Modification Plate No:.....

Signed:..... Date:.....