Hay Trucks
Arrangements for the transport of baled hay and straw
Introduction

This information bulletin sets out the operating requirements for hay trucks that are loaded in excess of the normal width limit of 2.5 metres and includes the requirements for warning devices and recommendations for load restraint. The initiative described in this bulletin has improved the efficiency and safety of transporting loads of hay and has provided for some irregularity in the size of bales.

This initiative was the result of considerable research by the Rural Industries Research and Development Corporation (RIRDC) at the request of, and with considerable support from, the Australian Fodder Industry Association (AFIA). The research included testing and assessment of loads of hay against road safety and load restraint standards. The research was endorsed by the Victorian Farmers Federation (VFF) and the National Transport Commission (NTC).

Operating arrangements in this information bulletin were reviewed by VicRoads in 2010, in consultation with stakeholders such as AFIA. This review determined to continue these arrangements on an on-going basis.

Interstate travel

When travelling interstate it is the vehicle operator’s and driver’s responsibility to ensure the laden dimensions of the vehicle comply with those prescribed by that State’s road authority.

Maximum dimensions

The operating arrangements in this bulletin allow for the vehicles shown below to be loaded to 2.7 metres wide and 4.6 metres high, provided all operating requirements are complied with. However, it is important to note that only the load may be more than 2.5 metres wide. Any structural part or frame of the vehicle must not exceed 2.5 metres.

Carrying documents:

A copy of this information bulletin or the relevant Notice in the Victoria Government Gazette must be carried in the driving compartment of a vehicle operating under the arrangements described in this bulletin. It must be produced if requested by a VicRoads authorised officer or a Police Officer.

The current information bulletin Height Clearance on Roads must also be carried and produced on request if the laden vehicle height exceeds 4.3 metres.

The following regulatory provisions apply for other vehicles and vehicle combinations.

All types of vehicles, except B-doubles

All trucks carrying baled hay or straw, except B-doubles, may be loaded up to 3.0 metres wide (for 1.5 metre diameter round bales), provided the loaded vehicle is not more than 4.3 metres high.

B-doubles with tandem axle groups

A B-double with a tandem axle group may be loaded up to 2.5 metres wide, provided the loaded vehicle is not more than 4.6 metres high.

Step-deck tri-axle semi-trailers

A step-deck or drop-deck tri-axle semi-trailer carrying round bales may be loaded up to 3.0 metres wide and 4.6 metres high. The trailer must have at least 50% of its load carrying area no more than 1.2 metres above the ground.

It should be noted that large rectangular bales have been found to be easier to load and be made more secure than round bales, due mainly to their more consistent density and rigidity.
Maximum mass
A vehicle may be loaded to the height and width dimensions detailed on page 2 provided that the mass of the loaded vehicle is within the regulatory mass limit for freight carrying vehicles and:

1. does not exceed a GVM, GCM or any other manufacturer’s limit;
2. does not exceed a mass limit set out in Table 1 of Chapter 4 of the Road Safety (Vehicles) Regulations 2009.

Generally, these are:
- 16.5 tonnes on a tandem axle group with dual tyres; or
- 20 tonnes on a tri-axle group with dual tyres.

Safe travel
The vehicle’s registered operator and driver are responsible for planning any journey to ensure that:

- the vehicle crosses bridges and negotiates curves in a safe manner, bearing in mind that some roads and intersections may not be capable of accommodating vehicles at the allowable dimensions;
- the vehicle is not driven under a bridge or structure which carries a sign with the words LOW CLEARANCE or CLEARANCE if the height of the vehicle is equal to or greater than the clearance shown on the sign;
- the clearance to other overhead structures, cables, wires and trees is at least 200 millimetres greater than the height of the vehicle and is sufficient to ensure safe passage; and
- the vehicle is not driven on a road, bridge or structure if it would exceed any posted mass or dimension limit.

The VicRoads information bulletin “Height Clearance on Roads November 2009” provides relevant information for planning routes to avoid low bridges and wires.

Driver training
The owner, operator and the driver’s employer are responsible for ensuring that the driver of a truck has been provided with adequate information, training and instruction about the safe use of trucks carrying oversize loads.

Daylight travel
Generally, vehicles that exceed 2.5 metres wide must display the appropriate warning devices. Because loads of baled hay or straw can be easily seen by other road users, there is no requirement for warning flags, signs or yellow rotating lights for travel in Victoria during daylight (between sunrise and sunset). However, where interstate travel is intended, it is the vehicle operator’s and driver’s responsibility to comply with the requirements for warning devices prescribed by that State’s road authority.
HAY TRUCKS

Special night travel conditions for laden trucks between 2.5 metres wide and 2.7 metres wide

For travel between sunset and sunrise, a vehicle carrying a load of baled hay or straw that is between 2.5 metres and 2.7 metres wide must display the following:

(A) Warning signs
A warning sign must be mounted on the front and the rear of the vehicle and:
- have the word OVERSIZE in black letters on yellow retro-reflective background conforming with Class 1 or Class 2 Australian Standard AS 1906;
- must show the word “OVERSIZE”, in black upper-case lettering that conforms with typeface Series C (N) in Australian Standard AS 1744 Forms of Letters and Numerals for Road Signs;
- have the manufacturer’s name or trademark, and the brand and class of retro-reflective material permanently marked in block letters at least 3 mm but not more than 10 mm high;
- have a black border at least 20 mm wide;
- be made of flat, weatherproof material;
- be mounted with its bottom edge above the bumper bar or at least 500 mm above the ground if there is no bumper bar;
- comply with the minimum dimensions shown in the diagram below; and
- be kept clean.

The warning sign may be in two parts, in which case:
(a) the word OVER must be on the left part and the word SIZE on the right part; and
(b) both parts must be mounted at the same height.

The warning sign may be made of flexible material. However, it must comply with the requirements above and be taut and affixed to be clearly visible (not become dislocated or furl) for other road users to read.

The warning signs must not be displayed unless the loaded vehicle is more than 2.5 metres wide.

A B-double is not required to display a "LONG VEHICLE" sign when transporting hay.

(B) Warning flags
Four brightly coloured red, or yellow, or red and yellow flags, each at least 450 mm long and 450 mm wide, must be attached to the extremities of the vehicle or the extremities of the load where it projects beyond the vehicle.

(C) Clearance lights and side marker lights
The vehicle must be fitted with front and rear clearance lights and side marker lights compliant with the relevant Australian Design Rules. That is, the standard lights that are required to register a heavy vehicle are all that is required.

Rear clearance lights and side marker lights must not be obscured by any part of the load.

Special night travel conditions for laden trucks exceeding 2.7 metres wide

For travel between sunset and sunrise, a vehicle carrying a load of baled hay or straw that is wider than 2.7 metres must display the following:
- The warning signs described in (A) above;
- The warning flags described in (B) above;
- The clearance lights and side marker lights described in (C) above, except that additional rear clearance lights and side marker lights must be mounted along the extremities of the load. Additional side marker lights must be placed no more than 2 metres apart along both sides of the load;
- Front clearance lights mounted on the front of the load that projects outside the load-carrying area of the vehicle. The lights must be mounted not more than 400 millimetres in from the side of the load and, when lit, must show a yellow or white light visible 200 metres from the front of the vehicle and not use more than 7 watts of power;
- A warning light must be fitted to the vehicle and be clearly visible for at least 500 metres in all directions. If a warning light cannot be seen from all directions (e.g. if it is mounted on the roof of the driver’s cabin), another warning light must be fitted to the rear of the trailer so that either warning light is clearly visible for at least 500 metres in all directions.

A warning light must:
- emit a rotating, yellow coloured light;
- flash between 120 and 200 times per minute;
- have power of at least 55 watts; and
- not be a strobe light.

The warning light must not be switched on unless it is required to be switched on.
**Loading configurations**

The Australian Fodder Industry Association has advised that different bale samples could have considerably different properties, including mass. However, the majority of vehicles suitable for carrying a full load of bales should be within regulatory mass limits. It is the responsibility of the registered operator and driver to ensure that the laden vehicle is within the regulatory mass limits, especially for a vehicle with a 14.6 metre (48') long semi-trailer.

**Recommended loading configurations for large bales**

Vehicle testing and assessments show that vehicles with bales loaded as shown below can be operated safely.

<table>
<thead>
<tr>
<th>Bale size metres (feet)</th>
<th>Loading configuration showing vehicle dimensions metres</th>
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<tbody>
<tr>
<td>0.9 x 0.9 x 2.5 (3' x 3' x 8')</td>
<td></td>
</tr>
<tr>
<td>1.2 x 0.9 x 2.5 (4' x 3' x 8')</td>
<td></td>
</tr>
<tr>
<td>1.2 x 1.2 x 2.5 (4' x 4' x 8')</td>
<td></td>
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<tr>
<td>1.2 round (4' round)</td>
<td></td>
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</tbody>
</table>

The dashed lines in the diagrams indicate bale orientation by the direction of the binding strings or cords.

For occupational health and safety reasons, the use of edge protectors or cap tarpaulins is not required in Victoria.
Load restraint for hay bales

The safe loading of vehicles is vitally important in preventing injury to people and damage to property. The higher the load the greater the tendency for it to move during travel. Loads must be restrained to meet the performance standards of the Load Restraint Guide.

The registered vehicle operator and the driver are both responsible for ensuring that a vehicle used to transport baled hay is loaded correctly and the load is properly restrained.

This bulletin describes a number of acceptable ways to restrain common loads of hay. The methods have been tested to ensure they meet the performance standards in the Load Restraint Guide. Other restraint methods may be used, provided they meet the performance standards.

**Tie-down straps must have sufficient tension to achieve adequate tie-down force. On a vehicle with a headboard at the front of the load, the tie-down force must be at least 50% of the weight of each stack of bales.**

Work to restrain the load should be undertaken from the ground, avoiding safety risks associated with climbing onto the load.

All loads of hay require a headboard, which must be in the range of 1.5-1.8 metres high. The headboard or gate should be braced diagonally using straps or chains.

**Large square or rectangular bales:**
A minimum of two 50mm (2.0 tonne capacity) webbing straps on a slight angle over each stack of large square or rectangular bales is required to achieve adequate load restraint. **A single strap is not sufficient.**

**Round bales:**
Round bales are generally lighter than large square or rectangular bales and adequate load restraint can be achieved with a minimum of one vertical strap per stack/row, with a diagonal strap at each end of the load. In addition, there must be a tailgate to restrain the load.
Small square bales:
A load of small square bales requires a strap over every stack/row. The top layer of bales must be aligned longitudinally. Where the load is palletised and unitised with wrapping or strapping, a strap over every row of bales may not be necessary. However, the restraint must meet the performance standards in the Load Restraint Guide.

Useful tips for load restraint
- The buckle side of the straps should be alternated along the load to provide even restraint on both sides of the load;
- Applying additional “belly” straps that pass over the lower half of the load improves restraint, particularly for high loads;
- Small but worthwhile benefits can be achieved by ‘double dogging’ of single straps (one load binder on each side of the load). This is particularly useful near the centre of the trailer deck, where end restraint is not as effective. Double dogging is also beneficial for poorly formed bales and for restraining round bales;
- Diagonal bracing straps are recommended to improve load stability, particularly for the front and rear groups of bales on a trailer, with the bracing pulling towards the centre of the trailer;
- Rear gates are optional for large square or rectangular bales if the recommended load restraint method is used; and
- The testing confirmed that edge protectors are unnecessary to adequately restrain hay.

Detailed information
Further information on load restraint for bales can be found in the Load Restraint Guide – Second Edition 2004 available from either the National Transport Commission, Tel: (03) 9236 5000 or www.ntc.gov.au or VicRoads Bookshop, Tel: (03) 9854 2782 or www.bookshop.vicroads.vic.gov.au


Source: Assessment of Vehicles for the Transport of Hay and Straw, Rural Industries Research and Development Corporation (RIRDC), January 2008, RIRDC Number 07/194, ISBN 1 74151 589
For further enquiries, contact the VicRoads Statewide Permit Group during normal business hours:
For Melbourne and interstate callers telephone (03) 9881 8852;
or for country Victoria callers telephone 13 11 71; or visit vicroads.vic.gov.au