

Title	Make and fit a roof frame and panels to a vehicle in the coachbuilding industry		
Level	4	Credits	7

Purpose	People credited with this unit standard are able to: prepare to make a roof frame and panels to fit to a vehicle in the coachbuilding industry; measure and mark out the roof frame and panels; cut, lay out, and assemble the roof frame, and fit roof frame to the vehicle; and cut and fit panels to the vehicle.
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Classification	Motor Industry > Coachbuilding
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Available grade	Achieved
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Guidance Information

- 1 Evidence presented for assessment against this unit standard must be consistent with safe working practices and be in accordance with applicable service information, company requirements and legislative requirements. This includes the knowledge and use of suitable tools and equipment.
- 2 Legislation, regulations and/or industry standards relevant to this unit standard include but are not limited to the current version of the Health and Safety at Work Act 2015 and any subsequent amendments or replacements.
- 3 Definitions

Company requirements refer to instructions to staff on policy and procedures that are available in the workplace. These requirements may include – company policies and procedures, work instructions, product quality specifications and legislative requirements.

Service information refers to information such as technical information for a vehicle, machine, or product detailing operation; installation and servicing procedures; manufacturer instructions; technical terms and descriptions; and detailed illustrations.
- 4 Engineering approvals

Modifications and/or repairs to heavy vehicle structures may require engineer's design. Completed modifications and/or repairs in this standard must also be certified by a Heavy Vehicle Specialist Inspector as meeting Land Transport Rule: *Vehicle Dimensions and Mass 2016*, available at <https://www.nzta.govt.nz/>.

Outcomes and performance criteria

Outcome 1

Prepare to make a roof frame and panels to fit to a vehicle in the coachbuilding industry.

Performance criteria

- 1.1 Any required engineering approvals are identified.
- 1.2 Loading and roll-over requirements of the roof are identified.
- 1.3 Type of roof frame is identified.
- Range square cornered, curved cants, over-cab.
- 1.4 Materials used to make the roof frame and panels are selected and procured.
- Range may include – mild steel, high strength steel, ultra-high strength steel, galvanised steel, aluminium, composite.

Outcome 2

Measure and mark out the roof frame and panels.

Performance criteria

- 2.1 Roof bows are measured and legibly marked out.
- Range may include allowances for – vents, air conditioning, roof racks, escape hatches.
- 2.2 Cant rails and crown rails are measured and legibly marked out.
- 2.3 Roof panels are measured and legibly marked.
- Range may include – aluminium, galvanised steel, glass reinforced plastic (GRP), composite; allowances may be for – vents, air conditioning, roof racks, escape hatches.

Outcome 3

Cut, lay out, and assemble the roof frame, and fit roof frame to the vehicle.

Performance criteria

- 3.1 Materials are cut to size.
- 3.2 Bows, cant rails, and crown rails are shaped.

- 3.3 Drilling is carried out.
- 3.4 Painting and anti-corrosion procedures are carried out.
- 3.5 Frame is laid out and clamped in preparation for assembly.
- 3.6 Frame is assembled and joined.

Range may include – welding, mechanical fastenings, adhesives; sides of equal length and parallel to each other, ends of cross bows in line in horizontal and longitudinal directions, diagonals equal, not twisted.

- 3.7 Frame measurements and alignment are checked.
- 3.8 Reinforcing and bracing are added to frame.
- 3.9 Roof frame is fitted to side pillars.
- 3.10 Painting and anti-corrosion procedures are carried out.

Outcome 4

Cut and fit panels to the vehicle.

Performance criteria

- 4.1 Materials are cut to size.
- 4.2 Roof panels are fitted to a vehicle's roof frame
- Range may include – mechanical fastenings, adhesives, adhesive tapes.
- 4.3 Corner panels are shaped and fitted.

Planned review date	31 December 2025
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	25 September 1997	31 December 2023
Revision	2	14 November 2000	31 December 2023
Revision	3	16 October 2003	31 December 2023
Review	4	25 February 2008	31 December 2023
Review	5	25 November 2021	N/A

Consent and Moderation Requirements (CMR) reference	0014
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Comments on this unit standard

Please contact Hanga-Aro-Rau Manufacturing, Engineering and Logistics Workforce Development Council qualifications@hangaarorau.nz if you wish to suggest changes to the content of this unit standard.