NHVR
National Heavy Vehicle Regulator

National Heavy Vehicle Standards (Special Purpose Vehicles) Exemption Notice 2021 Operator's Guide

August 2021

Introduction

This document, the *National Heavy Vehicle Standards (Special Purpose Vehicles) Exemption Notice 2021 Operator's Guide* (the Operator's Guide) supports the *National Heavy Vehicle Standards (Special Purpose Vehicles) Exemption Notice 2021 (No. 1)* (the Notice).

This Operator's Guide provides:

- general background to the Notice
- specific information referred to in the Notice
- details on technical drawings
- an outline of the compliance requirements.

The Notice remains the legally enforceable instrument. Where operators are unsure or feel there may be conflicting information, the Notice should be applied.

Note: The Notice relates only to the vehicle standards relevant to the Special Purpose Vehicle (SPV). Access to the road network may be subject to additional considerations. For further details regarding access to the road network, please read the Access section below**.**

About the Notice

The Notice is:

- made under Section 61, Division 2, Chapter 3 of the Heavy Vehicle National Law (the HVNL), which gives legal effect to this authorisation
- published in the Commonwealth Gazette under section 138 of the HVNL
- not required to be carried by the operator of a vehicle operating under it.

The Notice:

- provides an exemption from certain vehicle standards for SPVs
- removes the need for operators to apply for a Vehicle Standards Exemption Permit (where the vehicle complies with the Notice)
- does not apply to a heavy motor vehicle that was not designed for use on public roads or trailers (other than support dollies)
- applies to vehicles operating in the Australian Capital Territory, Queensland, New South Wales, South Australia, Tasmania and Victoria.

In-principle support

The Notice may replace the requirement to apply for vehicle standards in-principle support.

Prior to importing or constructing an SPV, it is recommended that an application for in-principle support for the registration and use of the SPV be made to the NHVR. This can be done by way of a Special Purpose Vehicle in-principle support application through the NHVR Portal.

Further information on the in-principle support process can be found on the NHVR website at: https://www.nhvr.gov.au/safety-accreditation-compliance/vehicle-standards-and-modifications/special-purpose-vehicle-in-principle-support

The NHVR Portal, including the help function, can be accessed on the NHVR website at https://www.service.nhvr.gov.au/

Eligibility requirements

To be eligible to operate under the Notice, the vehicle must meet certain SPV criteria. These include such things as the SPV's number of axles/configuration and dimensions.

To assist in determining eligibility, a simple check sheet has been developed and included as Appendix B on page 11 of this Operator's Guide.

If the vehicle does not meet the requirements/conditions set out in the Notice or any additional sections of the *Heavy Vehicle (Vehicle Standards) National Regulation,* a separate exemption permit application must be made through the NHVR Portal. The NHVR Portal and vehicle standards regulations can be accessed on the NHVR website: https://www.service.nhvr.gov.au/

Common terms and definitions

It is important to note that the common terms and definitions used in this Operator's Guide may be specific to this Notice.

Whenever operating under an Exemption Notice, it is important to ensure you understand the terms and definitions that are specific to that Exemption Notice.

Articulated steering crane

Articulated steering crane means a crane that is steered by use of an articulated point located between the front axle and rear axle or axle group, and has a boom projecting to the front of the vehicle that functions as a crane.

Eligible vehicle

For the purpose of the Notice, an eligible vehicle means an SPV, other than a non-road vehicle or trailer (for the purpose of the Notice, a support dolly is not considered a trailer) and is:

- an SPV other than a Prescribed SPV that has up to 7 axles; or
- a Prescribed SPV.

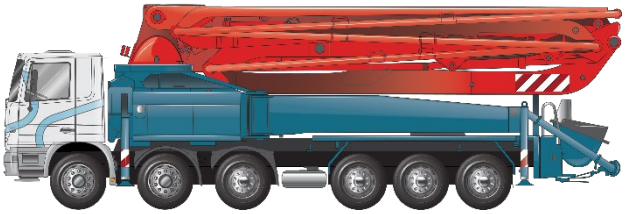

Figure 1: Example of an eligible vehicle that is not a Prescribed SPV

Crane

Crane means a heavy motor vehicle that is an SPV:

- equipped with a crane or other lifting device; and
- designed primarily for raising, moving and lowering a freely suspended load.

Note: A crane is not a vehicle with a self-loading crane with a load carrying area.

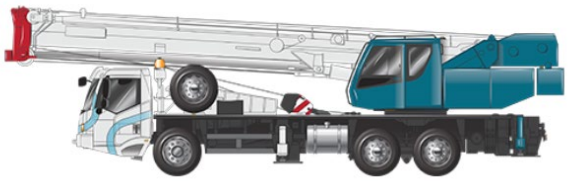

Figure 2: Example of an eligible vehicle that is a crane

Non-road vehicle

Non-road vehicle means a heavy motor that was not designed for use on public roads.

Figure 3: Example of a typical non-road vehicle

Prescribed SPV

Prescribed SPV means an SPV on which:

- at least half of the axles steer;
- there are no more than two tyres per axle;
- all axles have hydro-pneumatic suspension;
- there are up to 6 axles; and which
- operates:
  - without a support dolly; or
  - with a support dolly that has up to 3 axles.

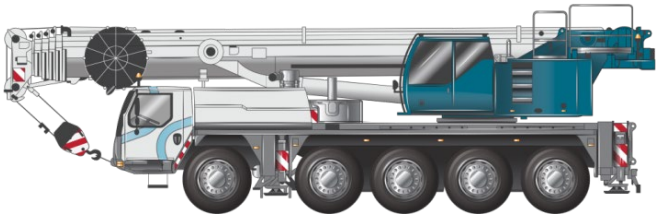

Figure 4: Example of a typical prescribed SPV (that is also a crane)

Special Purpose Vehicle

A Special Purpose Vehicle (SPV) is defined under the HVNL as:

- a motor vehicle or trailer, other than an agricultural vehicle or a tow truck, built for a purpose other than carrying goods; or
- a concrete pump or fire truck.

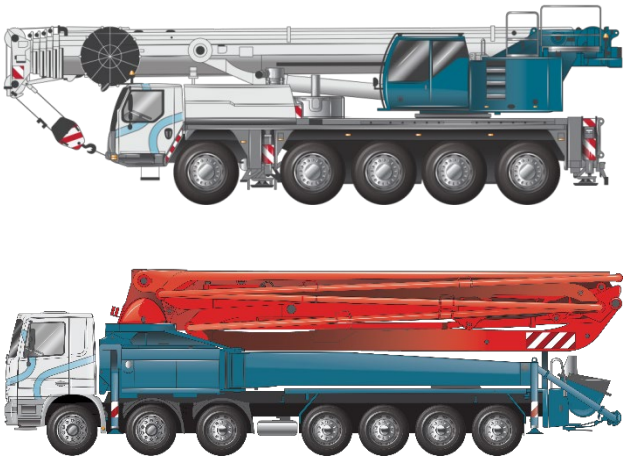

Figure 5: Examples of typical SPVs

Support dolly

Support dolly means a dolly that assists in supporting the mass of a Prescribed SPV's structure to achieve allowable masses for on road use.

Typically, these are used to support the mass of a crane's boom when the boom has been rotated backwards for on-road travel.

Figure 6: Example of a typical Prescribed SPV that is a crane fitted with a support dolly

Manufacturer's plate

A manufacturer's plate means a durable label that is welded, riveted or otherwise permanently attached, and contains the following vehicle details:

- the make of the vehicle;
- the model of the vehicle;
- a vehicle identifier (vehicle identification number or chassis number);
- the gross vehicle mass; and
- the date of manufacture.

Number of axles/configuration

An SPV operating under the Notice is limited to the number of axles as described in the Notice.

Maximum number of axles

For a Prescribed SPV fitted with a support dolly, the maximum number of axles is as follows:

Table 1: Maximum axles

Location	No. of axles
On the Prescribed SPV	Up to and including 6 axles
On the support dolly	Up to and including 3 axles

For a Prescribed SPV not fitted with a support dolly, the maximum number is up to and including 6 axles.

For all other eligible vehicles, the maximum number is up to and including 7 axles.

Load sharing

Vehicles must meet the applicable load sharing requirements of either the Australian Design Rules or *Heavy Vehicle (Vehicle Standards) National Regulation*.

Dimension limits

SPVs operating under the Notice must meet the prescribed dimension requirements outlined below.

Height

An SPV must not be higher than 4.6m (metres) when operating under the Notice.

Length

An SPV's length must not exceed the following:

Table 2: Length

SPV type	Length
An eligible vehicle	14.5m
Any Prescribed SPV	16.5m
Any Prescribed SPV when fitted with a support dolly	25m

Width

An SPV must not be wider than 3.5m.

Rear overhang

An SPV operating under the Notice must meet certain criteria as described in Table 3 Rear overhang and Table 4 Axle configuration on page 5.

Prescribed SPVs that are three axle cranes with a second (rear) winch

A number of 3 axle cranes have the option to fit a second (rear) winch. When a second winch is fitted, the vehicle may exceed 90% rear overhang, provided all the following requirements are met:

- the base vehicle meets the Notice without the second winch fitted;
- the rear overhang with the second winch fitted must not exceed 4m; and
- the second winch, when fitted, does not affect the vehicle presence on the road during a turn in either direction.

To demonstrate the presence on the road during a turn with the second winch fitted, a circular track test (doughnut test) must be performed by either:

- an accredited PBS assessor;
- vehicle manufacturer; or
- an engineer as defined in the *Heavy Vehicle (Mass, Dimension and Loading) National Regulation.*

Details on performing a doughnut test are included in Appendix A on page 9.

Rear overhang

An SPV's rear overhang must not exceed the following:

Table 3: Rear overhang

SPVs	Rear overhang
Up to and including 5 axles	The lesser of 4.0m or 90% of the vehicle wheelbase; or
Up to and including 5 axles	4.0m to 4.5m, provided the vehicle meets the performance standards set out in the vehicle turning performance section; or
Greater than 5 axles (including cranes fitted with a support dolly)	4.5m, provided the vehicle meets the performance standards set out in the vehicle turning performance section.

Measuring rear overhang

As axle configurations on SPVs can vary greatly, it is important to understand where the rear overhang is to be measured. To clarify this, the following should be used.

Table 4: Axle configuration

No	SPV	Overhang measurement
1	An SPV with an axle group at the rear comprising only 1 axle	The rear overhang line is a line running along the centreline of the rear axle.
2	An SPV with an axle group at the rear comprising 2 axles, 1 of which is fitted with twice the number of tyres as the other	The rear overhang line is a line running parallel to the axles that is: (a) closer to the axle carrying the greater number of tyres than it is to the other axle; and (b) located at one-third of the distance between the 2 axles.
3	A SPV with an axle group at the rear that is not an axle group mentioned above	The rear overhang line is a line running parallel to the axles down the centre of the axle group.
4	A SPV that does not meet (1), (2) or (3) and is a Prescribed SPV	The rear overhang is to be measured from the centre of the last two axles to the rear of the vehicle.

Steerable axles

For the purposes of applying 1, 2 or 3 to a vehicle, if an axle group includes at least 1 steerable axle, that axle is to be disregarded unless:

- the group comprises only 1 axle and that axle is a steerable axle; or
- all the axles in the group are steerable axles.

Vehicle turning performance

Testing requirements

For SPVs required to comply with vehicle turning performance requirements, the following standards must be met in the vehicle's normal road going mode.

- Where the vehicle's suspension and steering system is programmable, ensure test is completed in the normal road going mode.
- The vehicle has a turning ability of 25m diameter or less; and
- The tail swing performance and the low speed swept path performance of the vehicle, as measured in accordance with the PBS scheme Standards and Vehicle Assessment Rules, do not exceed 0.30m and 7.40m respectively. This condition means that the vehicle operates within the PBS Level 1 tail swing and low speed swept path performance; and
- The test is performed by:
  - an accredited PBS assessor;
  - vehicle manufacturer; or
  - an engineer as defined in the *Heavy Vehicle (Mass, Dimension and Loading) National Regulation.*

Certificate requirements

The results of the turning performance test must be documented and presented in a certificate.

This certificate must:

- be carried in the vehicle whenever it is travelling under this Notice
- identify the vehicle uniquely by describing the base vehicle apparatus (e.g. concrete pump model)
- also contain scaled drawings showing the vehicle dimensions, vehicle low speed swept path and tail swing, together with the actual test result values and corresponding Level 1 performance limits.

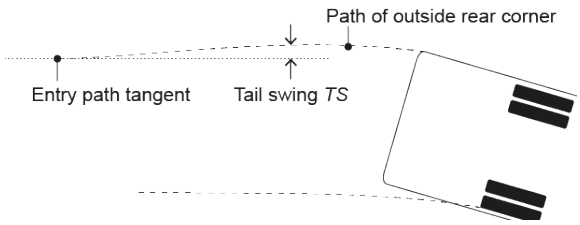

Figure 7: Illustration of tail swing performance measure
Source: NHVR/NTC Performance-Based Standards Scheme – the Standards and Vehicle Assessment Rules

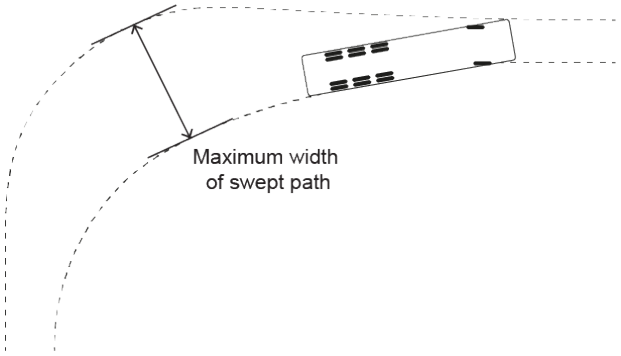

Figure 8: Plan view illustration of Maximum Width of Swept Path, SPWmax
Source: NHVR/NTC Performance-Based Standards Scheme – the Standards and Vehicle Assessment Rules

A Certificate of conformance with PBS Level 1 Tail Swing and Swept Path Performance (PDF, 238KB) is available on the NHVR website.

Smallest practicable dimension

An SPV must be designed and operate in its smallest practicable dimensions.

Component ratings

An SPV must never exceed:

- the vehicle's gross vehicle mass (GVM); or
- the vehicle manufacturer's axle ratings; or
- any components maximum rating (e.g. suspension components, tyres).

Vehicle identification

An eligible vehicle must be fitted with either:

- a manufacturer's plate listing the vehicle's details; or
- an identification plate; or
- be on the Register of Approved Vehicles in the case of an SPV built on an ADR complying vehicle.

A support dolly must be fitted with an identification plate or be entered on the Register of Approved Vehicles.

Note: While the vehicle identification requirements apply to all support dollies, registration requirements may vary between jurisdictions.

Driver visibility

When operating a vehicle under the Notice, the driver, from the normal driving position, must have a clear view of the road, pedestrians, and traffic to the front and sides of the vehicle, so the vehicle can be driven safely.

Where a minor obstruction (such as a hook) restricts the operator's view, additional mirrors and/or indirect vision

devices must be fitted to provide a clear view as intended by ADR 14/02.

Further information on driver visibility can be found in the NHVR's Visibility Matters document on the NHVR website at https://www.nhvr.gov.au/vehiclesetup

Note: The Australian Design Rules can be found at https://www.infrastructure.gov.au/vehicles/design/adr_online.aspx

Articulated steering cranes (state specific)

In addition to the above requirements, an articulated steering crane in New South Wales must:

- be fitted with 2 convex mirrors with a minimum diameter of 300mm, located no less than 1.0m from the foremost point of the jib; and
- provide reflected images from either side of the vehicle clearly visible and discernible to the driver in their normal seating position.

Obstructions

Equipment fitted to an SPV must not obstruct lights, warning signs or flags.

Note: Please refer to the registering authority in your jurisdiction to ensure number plate requirements are met. In some circumstances, you may require an additional number plate to ensure they are not obscured for enforcement purposes.

Warning signs, warning lights and flags

The Notice requires an SPV to be fitted with warning signs, warning lights and/or flags to meet the requirements of the *Heavy Vehicle (Mass, Dimension and Loading) National Regulation.*

Additionally, the Notice requires:

- A pattern covering an area of at least 0.16m^2, and consisting of diagonal stripes at least 150mm wide with alternatively coloured red and white, or black and white, must be marked on the left and right sides and extremity of any rigid projection extending more than 1.2m in front or to the rear of the body of an eligible vehicle.
- Eligible vehicles that are cranes with a projection in front of a line transecting the centre of the steering wheel exceeding 3.5m must have:
  - side marker lights on both sides of the projection, as far forward as possible. The side marker lights must be shielded from the driver's view, but be visible to other motorists approaching from the front and sides of the vehicle, and
  - a yellow rotating warning light attached to the projection, as far forward as possible, that is shielded from the driver's view.
- A warning light must be attached to the vehicle if it is wider than 2.5m.
- A Prescribed SPV operating with a support dolly (boom rearwards) must also have yellow rotating warning lights fitted either side of the crane's winch, forward facing, that project towards oncoming traffic and additional flags at each rear corner of the SPV motor vehicle (carrier).

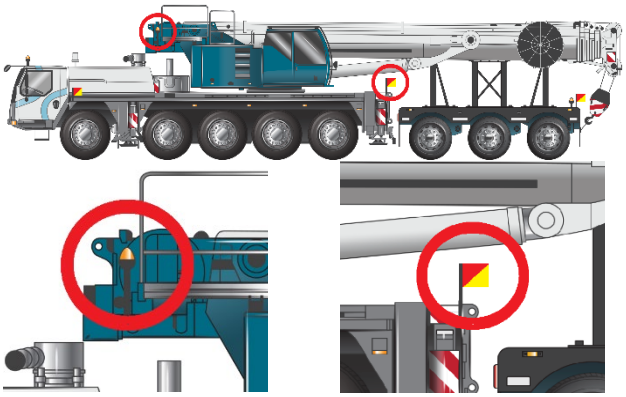

Figure 9: Example of yellow rotating warning lights fitted either side of the crane's winch and flags at each rear corner of the SPV motor vehicle

Warning signs, flags and light specifications are detailed below.

Warning signs:

A warning sign on a class 1 heavy vehicle must show the word 'OVERSIZE', in black capital letters, and in typeface Series C(N) complying with AS 1744 '*Forms of Letters and* Numerals *for Road Signs*'.

The letters must be:

- at least 200mm high; and
- at least 125mm from the top and bottom of the warning sign.

The lower edge of the warning sign must be:

- above the bottom of the bumper bar; or
- if there is no bumper bar, at least 500mm above ground level.

Flags:

Flags must be brightly coloured red, red and yellow, or yellow, and at least 450mm by 450mm

Warning lights:

A warning light attached to a class 1 heavy vehicle, when switched on, must:

- emit a yellow coloured light of rotating and flashing effect; and
- flash between 120 and 200 times a minute; and
- have a power of at least:
  - if LED technology is used—24W; or
  - if another technology is used—55W; and

- not be a strobe light.

A warning light must be:

- clearly visible at a distance of 500m in all directions; or
- supplemented by 1 or more additional warning lights, so that the light emanating from at least 1 of them is clearly visible at a distance of 500m in any direction.

Access to the road network

Once an SPV meets the requirements specified in the Notice, an access permit must be obtained before accessing the road network.

It is important to understand that exemptions provided under this Notice do not exempt any access requirements stipulated in the *Heavy Vehicle (Mass, Dimension and Loading) National Regulation* to operate on the network. When determining if a vehicle is eligible to fit an access notice, or applying for an access permit, ensure all applicable exemptions are covered (e.g. operating mass, dimension, extended rear facing booms).

For details on applying for an SPV access permit, please visit:

https://www.nhvr.gov.au/road-access/access-management/applications-and-forms/special-purpose-vehicle-permit

and

https://www.nhvr.gov.au/road-access/access-management/applications-and-forms

or call 13 NHVR (136 487).

Complying with the Heavy Vehicle National Law

The operator of a heavy vehicle must ensure their vehicle complies with the ADRs, the HVNL and heavy vehicle safety standards. Using or permitting another person to use a defective heavy vehicle, or a heavy vehicle with unapproved modifications on a road, is an offence.

Failure to comply with the conditions of the Notice will leave the driver and operator liable for an offence.

Penalties can include on-the-spot fines or prosecution. For more information, see the Compliance and Enforcement Bulletins at www.nhvr.gov.au/ce-bulletins.

Chain of Responsibility

Under the Chain of Responsibility laws, everyone in the transport supply chain must take positive steps to prevent any breach of the HVNL. An example of this would be the operator's responsibility to ensure drivers understand all conditions stipulated on any notices or permits applicable to the vehicle.

Your responsibility

Every effort has been made to provide accurate information at the time of production of this Operator's Guide. However, any trip is made at the absolute risk of the operator and driver of the heavy vehicle.

For further information, please contact the NHVR.

Phone
13 NHVR (136 487)
Standard 1300 call charges apply (check with your phone provider).

Email
info@nhvr.gov.au

Appendix A

Circular track (doughnut) test

This section details the approved method for a circular track test (doughnut test), as required by the conditions of the Notice.

The doughnut test is an effective way of testing and documenting the impact of fitting a second winch to a prescribed SPV that is a 3-axle crane.

This test is used to assure operators, road managers and other Authorised Officers (Safety and Compliance Officers) that a Prescribed SPV that is a 3-axle crane, fitted with a second winch, does not increase the tail swing in either direction compared to if the second winch was not fitted.

Note: To be eligible to operate under this provision of the Notice, the vehicle must comply to the requirements of the notice (rear overhang <90% of wheelbase) without the second winch added.

Doughnut Test

The doughnut test must be carried out and documented in accordance with the below requirements.

The certificate must be carried in the vehicle when operating under the Notice.

The approved entity is required to test and document the results of the doughnut test. For the purpose of the Notice, an approved entity is:

- an accredited PBS assessor;
- vehicle manufacturer; or
- an engineer as defined in the *Heavy Vehicle (Mass, Dimension and Loading) National Regulation.*

Note: A Prescribed SPV that is a 3-axle crane may have many operational steering modes to negotiate on site manoeuvres; however, the doughnut test is required to be performed with the vehicle in the manufacturer's road operation mode.

Test requirements

The doughnut test is to be performed or simulated:

- by an approved entity.
- with the vehicle operated in the manufacturer's road operation mode
- on a flat level surface
- at a speed of no more than 5km/h
- at the tightest turning circle, the vehicle is capable of
- through a full 360° left turn
- through a full 360° right turn.

Note: The results of the left and right turn tests may differ based on vehicle construction, producing an increased tail swing in one direction. The direction yielding the greatest increase must be documented.

Certificate requirements

A certificate stating the following information must be produced and carried when operating under the Notice:

- the vehicle details including make and model
- a Turning Performance Drawing as per the example shown in Figure 1
  - drawn on standard company drawing format with drawing number, date and version
  - drawn, checked and approved appropriately
- version number date of issue and details of approved entity conducting the test.

Drawing requirements

At a minimum the drawing must:

- be in units of metres (m) or millimetres (mm)
- have all dimensions rounded up to the nearest 0.1m
- document the doughnut test, performed in accordance with the requirements in this document and include the following details:
  - the nominated steering mode where applicable i.e. "vehicle road mode".
    - The test result is to show the envelope created by the vehicle as it performs the doughnut test. This is to be comprised of the path scribed onto the ground plane by the vertical projection of:
      - the furthest rear outside point, or points excluding the second winch (refer to (B) in the example drawing below);
      - the furthest rear outside point, or points of the second winch (refer to (C) in the example drawing below);
      - the innermost point, or points, on the vehicle on the inside of the turn;
      - the outside of the front steer tyre
  - the turning radius of the vehicle measured from the centre of the doughnut to the outside of the front steer tyre; and
  - a plan view of the vehicle path through the doughnut with the position of the vehicle shown in one spot within the doughnut
- contain a scaled drawing of the vehicle showing the vehicle dimensions, including:
  - widths of any points that affect the doughnut test
  - axle spacings
  - front and rear overhang distances from axles
  - overall length unless the overall length can be summed from the dimensions in 9.2and 9.3
  - for each of the steer axles, the identification of the position (e.g. axles 1 and 3).

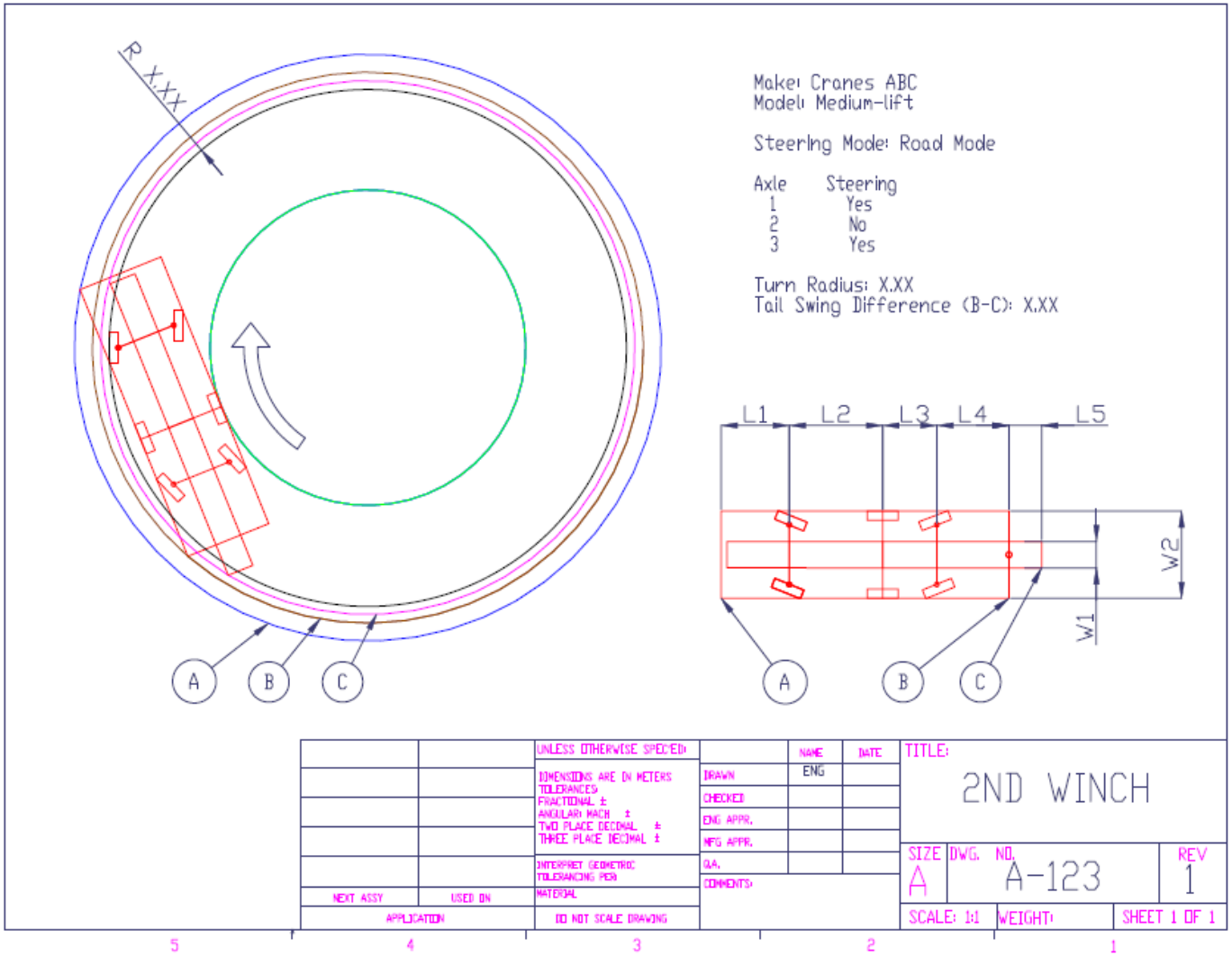

Figure 1 – Example of Turning Performance Drawing

Notes:

1. To be provided in a standard company drawing format with a drawing number, date and version.
2. The drawing is to be appropriately approved.
3. The drawing is to include the vehicle details (including make, model).
4. The position of the vehicle is to be shown at a single point along the vehicles path during the doughnut test.

Appendix B

Self-assessment

Vehicle and operator details																			
Operator name																			
Operator address																			
Vehicle make/model	SPV																		
	Support dolly (if applicable)																		
Vehicle identifiers	SPV																		
	Support dolly (if applicable)																		

SPV criteria	
Does the vehicle meet the above definition as an 'eligible vehicle'?	☐ Yes ☐ No
Dimensions (please complete Vehicle Dimension table below)	
Width (please answer the applicable option)	
Is the width of the SPV 3.5m or less?	☐ Yes ☐ No ☐ N/A
Height	
Is the height of the SPV 4.6m or less?	☐ Yes ☐ No ☐ N/A
Length (please answer the applicable option)	
Is the length of the SPV 14.5m or less?	☐ Yes ☐ No ☐ N/A
Is the length of the SPV 16.5m or less and a Prescribed SPV?	☐ Yes ☐ No ☐ N/A
Is the length of the SPV and support dolly 25m or less and a Prescribed SPV?	☐ Yes ☐ No ☐ N/A
Rear overhang (please answer the applicable option)	
If the SPV has up to and including 5 axles, is the rear overhang no greater than 4.0m or 90% of the vehicle wheelbase?	☐ Yes ☒ No ☐ N/A
If the SPV has up to and including 5 axles and has a rear overhang no greater than 4.5m, does the vehicle meet the turning performance requirements?	☐ Yes ☐ No ☐ N/A

If the SPV has more than 5 axles (including a support dolly), and the rear overhang is greater than 3.7m but not greater than 4.5m, does the SPV meet the turning performance requirements?	☐ Yes ☐ No ☐ N/A
If the SPV is a three-axle crane fitted with a second (rear) winch, is the rear overhang 4.0m or less?	☐ Yes ☐ No ☐ N/A
If the SPV is a 3-axle crane fitted with a second (rear) winch, is the tail swing and swept path no greater than if the second winch was removed?	☐ Yes ☐ No ☐ N/A
Vehicle turning performance (please answer the applicable option)	
Is the SPV's turning circle 25m or less?	☐ Yes ☐ No ☐ N/A
Does the rear overhang meet Table 3	☐ Yes ☐ No ☐ N/A
If the SPV is required to undertake a turning performance test, do the results meet those specified in the turning performance section?	☐ Yes ☐ No ☐ N/A
Driver's view	
When operating the vehicle from the normal driving position, is there a clear view of the road, pedestrians, and traffic to the front and sides of the vehicle?	☐ Yes ☐ No ☐ N/A
Warning Lights and Flags	
Is the SPV fitted with warning signs, warning lights and/or flags is accordance with the *Heavy Vehicle (Mass, Dimension and Loading) National Regulation?*	☐ Yes ☐ No ☐ N/A
If the SPV has a ridged projection greater than 1.2m in front or to the rear of the vehicle, does the projection have alternatively coloured diagonal red and white, or black and white strips?	☐ Yes ☐ No ☐ N/A
If the SPV is a crane with a projection exceeding 3.5m in front the centre of the steering wheel, does it have: • side marker lights on both sides of the projection, as far forward as possible, and • a yellow rotating warning light attached to the projection, as far forward as possible?	☐ Yes ☐ No ☐ N/A
If the SPV exceeds 2.5 m in width, does it have a warning light?	☐ Yes ☐ No ☐ N/A
If the SPV is a Prescribed SPV operating with a support dolly, does it have yellow rotating warning lights fitted either side of the crane's winch and flags at each rear corner of the carrier?	☐ Yes ☐ No ☐ N/A

Operator's assessment			
Height (m)	Width (m)	Length (m)	Rear overhang (m)(%)

Axle No.	Distance from previous axle (m)	Number of tyres	Tyre size	Ground contact width (m)
1				
2				
3				
4				
5				
6				
7				
8				
9				

Vehicle operator endorsement		
Name (printed)	Signature	Date