

Light Vehicle Inspection Manual – Appendices



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Acronyms

Frequently used acronyms.

ABS	Antilock Brake System
ADR	Australian Design Rule
ATM	Aggregate Trailer Mass
ESC	Electronic Stability Control
GTM	Gross Trailer Mass
GVM	Gross Vehicle Mass
HID	High Intensity Discharge
kN	Kilo Newton
LED	Light Emitting Diode
MVSA	Motor Vehicle Standards Act 1989
OEM	Original Equipment Manufacturer
RAV	Register of Approved Vehicles
ROH	Rear Overhang
RVSA	Road Vehicle Standards Act 2018
SRS	Supplementary Restraint System
SSM	Second Stage of Manufacture
VIN	Vehicle Identification Number

Definitions

Frequently used terms.

ADR Category – the vehicle category nominated on the manufacturer’s compliance plate or RAV entry where on the RAV. May also be indicated on a modification plate for modified vehicles. ADR Category determines specific ADRs that the vehicle must be compliant.

Aggregate Trailer Mass (ATM) – the total mass of the laden trailer when carrying the maximum load. This will include any mass imposed onto the drawing vehicle when the combination is resting on a horizontal supporting plane.

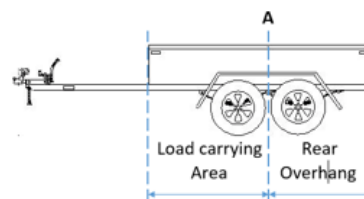
Gross Trailer Mass (GTM) - the mass transmitted to the ground by the axle or axles of the trailer when coupled to a drawing vehicle and carrying its maximum load approximately uniformly distributed over the load bearing area.

Gross Vehicle Mass (GVM) - the maximum laden mass of a motor vehicle as specified by the manufacturer.

Low ATM Trailer – A trailer with an ATM of 4.5 tonnes or less.

Rear Overhang – the distance measured from the rear overhang line to the rear most point of the vehicle.

Rear Overhang line – a vertical line through the centre of the rear axle or where multiple axles are fitted with the same number of tyres on each axle, the centre of the axle group.



Appendix A - Brake Drums and Discs

The purpose of this information sheet is to set the terms for the acceptability of brake drums and disc dimensions and the criteria for the replacement of worn or damaged brake drums or discs used in the automotive industry.

This procedure is in accordance with Australian Standard AS3617 (Parameters for the machining and reconditioning of brake drums and discs). When the braking system of a motor vehicle is inspected, serviced, overhauled, repaired, reconditioned or rebuilt, the condition of each brake drum or brake disc fitted to the vehicle shall be inspected in accordance with the following standards:

After removal of the brake drum from the vehicle, the brake drum should be inspected for:

Cracking: If the drum is cracked, replace the brake drum. No repair shall be made to the component. (See comment at end of this information Sheet).

Glazing and excessive scoring: If the brake drum is glazed or excessively scored, place it on a suitable fixture and measure it in accordance with the section titled 'Measurement Parameters'.

Heated or hardened hotspots: If the brake drum has heated or hardened hotspots, place it on a suitable fixture and measure it in accordance with the section titled 'Measurement Parameters'.

After inspection and assessment, the following should be taken into account:

- a) If the drum is cracked, replace the brake drum. No repair shall be made to the component. (See comment at end of this Information Sheet).
- b) If it is considered that there is insufficient material available to successfully machine the brake drum in accordance with the vehicle manufacturer's requirements, replace the brake drum.
- c) Where a vehicle manufacturer specifies that a brake drum may not be machined, replace the brake drum.
- d) If, after machining, the brake drum measures on or above the maximum diameter specified by the vehicle manufacturer, replace the brake drum.
- e) Where after machining the brake drum, and re-measuring in accordance with the section titled 'Measurement Parameters', any of the parameters are outside the vehicle manufacturer's recommendations, replace the brake drum.
- f) After machining, inspect the drum for any flaws or defects, including excessive scoring or undercutting. If any flaws are present, replace the brake drum.
- g) If after machining the brake drum, heated or hardened hotspots are still present, replace the brake drum.
- h) If any cracking is evident, replace the brake disc. No repair shall be made to the component. (See comment at end of this Information Sheet).
- i) If it is considered that there is insufficient material available to successfully remachine the brake disc in accordance with the vehicle manufacturer's requirements, replace the brake disc.
- j) Where the manufacturer specifies that a disc rotor may not be machined, replace the brake disc.
- k) If, after machining, the brake disc measures on or below the minimum thickness specified by the vehicle manufacturer, replace the brake disc.

- l) Where after machining the brake disc, and remeasuring in accordance with the section titled 'Measurement Parameters', any of the parameters are outside the vehicle manufacturer's recommendations, replace the brake disc.
- m) After machining, inspect for any flaws or defects, including excessive scoring or undercutting. If any flaws are present, replace the brake disc.
- n) After machining the brake disc, heated or hardened hotspots are still present, replace the brake disc.

The following dimensions shall be measured and recorded to ascertain the suitability for reuse or machining:

- a) For brake drums, the following shall be observed:
 - I. **Diameter:** The diameter of the brake drum shall be measured in at least 6 equally spaced positions across the area of lining contact. The largest measured diameter shall be deemed to be the diameter.
 - II. **Radial runout:** When rotating the drum on a suitable fixture, a dial gauge shall be used to record the runout of the drum.
- b) For brake discs, the following shall be observed:
 - I. **Thickness:** Using suitable measuring equipment, the disc thickness shall be measured in at least 6 equally spaced positions around and across the pad contact area. The smallest dimension measured shall be deemed to be the thickness of the disc.
 - II. **Lateral runout:** A dial gauge should be used to measure the brake disc lateral runout.

Interpretations

Brake drum - A hollow, machined, round drum that rotates with the wheel axle/hub and against which brake linings are forced into contact when the brakes are applied.

Brake disc - A flat, machined, round disc that rotates with the wheel axle/hub and against which the brake pads clamp when the brakes are applied.

Lateral (axial) runout - A measurement of the lateral or sideways change in the position of the disc rotor-wearing surface during one revolution.

Radial runout - A measurement of the radial change in the position of the brake drum wearing surface during one revolution excluding any bearing movement or other clearances.

Machining - The process of turning or grinding a brake drum or disc to remove surface imperfections such as scoring and glazing, and to eliminate lateral disc runout and other dimensional problems.

Maximum diameter - The largest diameter specified by the vehicle manufacturer at which a brake drum can remain in service.

Minimum thickness - The smallest thickness specified by the vehicle manufacturer at which a brake disc can remain in service.

Shall - Indicates that a statement is mandatory.

Should - Indicates that a statement is advisory.

Note: *Linings or disc pads must not be worn below wear indicators. If no indicators are provided, the thinnest part of the lining or disc pad must not be worn below manufacturer's specifications.*

Comment:

Cracking of brake drums and disc rotors, other than minor surface heat cracks, MUST result in the drum or rotor being replaced.

Appendix B - Safety Chains For trailers up to and including 4.5 Tonnes ATM

Trailers up to 2.5 tonnes ATM must have at least one safety chain complying with AS 4177.4 - 1994 or AS4177.4-2004 (Trailer and light trailer towing components – Safety chains up to 3.5 tonnes capacity), or as amended from time to time. This standard allows for steel safety chains in accordance with the following table:

Table 1 - For trailers with an ATM up to 3500kg

ATM(kg)	Minimum Chain Link Diameter (mm)	Rating (kg)	Number of Chains (minimum)	Marking (1.5mm for chain ≤ 8.0mm) (2.0mm for chain ≥ 8.0mm)	Minimum Marking Frequency (link)
0 to 1000	6.3	1000	1	4177-10	4th
Up to 1600	8.0	1600	1	4177-16	4th
Up to 2500	10.0	2500	1	4177-25	4th
Up to 3500	13.0	3500	2	4177-35	4th

Table 2 - For trailers over 3500kg ATM

ATM (kg)	Minimum Chain Link Diameter (mm)	Break Load (kg)	Number of Chains (minimum)	Marking (<i>Manufacturer's Mark</i>),	Minimum Marking Frequency (link)
Up to 4500	6.0	4607	2	'T', '8', '80' or '800'	20 th or 1m

All pig trailers and other trailers not fitted with breakaway braking systems must be fitted with at least 1 (one) cable, or other flexible device so the trailer is kept in place if the coupling breaks or becomes detached. However, all rigid drawbar trailers manufactured on or after 1 July 1991 and with an ATM of 2.5 tonnes or less must be fitted with a safety chain, and with an ATM greater than 2.5 tonnes must be fitted with two safety chains.

The chain must be permanently attached to the trailer, shackles are not permitted.

The safety chain attachment can be by an appropriate weld extending around 50% of the circumference of the link, however the adjoining link must have free movement.

The safety chain attachment must be located as near as practicable to the coupling and, where 2 points of attachment are required, they must be mounted one on either side of the centre-line of the draw bar.

Appendix C - Suspension Modifications

Suspension modifications, and requirements of, are catered for in the National Code of Practice for Light Vehicle Construction and Modification known as Vehicle Standards Bulletin 14 (VSB 14).

Vehicles fitted with aftermarket air bag suspension in replace of the OEM suspension, require certification. Please contact Vehicle Management Unit on 6166 3263 for further information.

Modifications Not Requiring Certification

The following modifications do not require certification:

- Tyre and rim substitution carried out within the limits specified in Section LS of VSB 14.
- Lowering and raising suspensions (by not more than one third of the original suspension travel provided the original vehicle height is not increased or decreased by more than 50mm).
- Raising the vehicle with a body lift kit provided the original vehicle height is not increased by more than 50mm (refer to VSB 14 Section LS sub-section 4.11 for conditions and limitations).
- Shock absorber substitution.
- Spring and sway bar substitution.
- Track rod and strut brace installation.
- Steering wheel substitution (refer to sub-section 4.9 of VSB 14 Section LS); and
- Power steering (manufacturer's option) conversion.

Ground Clearance

The ground clearance of a fully laden vehicle must maintain the following:

- Must not be less than 100mm within 1 metre of an axle; and
- At least one-thirtieth of the distance between the centres of adjacent axles at a midway point between them (refer figure 1 below); and
- At any other point — at least the distance that allows the vehicle to pass over a peak in the road with a gradient on either side of 1:15, if the wheels of 1 axle of the vehicle are on the slope on one side of the peak and the wheels of the next axle are on the slope on the other side.

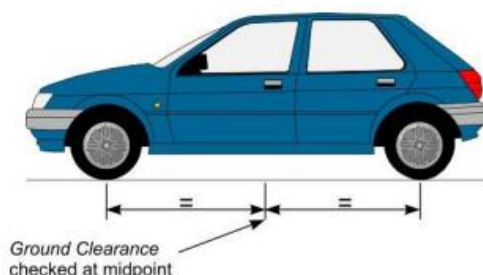


Figure 1

Web Links

A copy of VSB14 can be found at:

https://www.infrastructure.gov.au/vehicles/vehicle_regulation/bulletin/vsb_ncop.aspx

Appendix D - Fitting of Body Lift Kits and Suspension Height Modifications to Motor Vehicles

This Section outlines the minimum design, installation and fabrication requirements for the following light vehicle modifications involving tyres, rims, suspension and steering.

The following modifications may be performed without certification if the total change in vehicle height resulting from all modifications performed, does not exceed 50mm

Tyre and rim substitution carried out within specified limits:

For non-off road 4wd and other vehicles the limit is 15mm diameter increase and 26mm decrease and 1.3 times width.

For off-road 4wd's 50mm diameter increase 26mm decrease and 1.5 times width.

Lowering and raising suspensions (by not more than one third of the original suspension travel provided the original vehicle height is not increased or decreased by more than 50mm).

Raising the vehicle with a body lift kit provided the original vehicle height is not increased by more than 50mm;

- Shock absorber substitution
- Spring and sway bar substitution
- Track rod and strut brace installation

The suspension travel in the bump or rebound mode must not be altered by more than one third of that measurement as specified by the original manufacturer.

These limits have been set after taking into consideration the following aspects of modifications of this type:

- Stability characteristics of the vehicle.
- Strength of componentry being utilised.
- The road holding ability and handling characteristics of the modified vehicle.
- Braking characteristics of the modified vehicle.
- The wheels and tyres fitted to this vehicle must comply with the requirements of the Vehicle and Traffic (Vehicle Standards) Regulations.

It should be noted that both modifications can be performed simultaneously to a vehicle to gain extra vehicle body height but individual specifications must not be exceeded. Modifiers may have to obtain the original bump stop clearance to calculate the allowable acceptable increase.

Any vehicle lift that exceeds 50mm in total, requires certification by an AVC.

Many modern vehicles are now being equipped with a safety feature known as Electronic Stability Control (ESC). (ESC is also known by other terms including Vehicle Stability Control or Dynamic Stability Control).

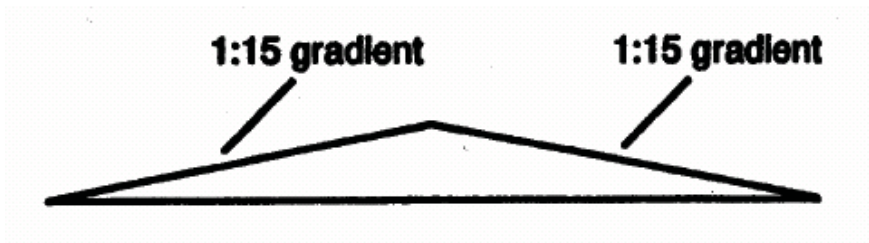
ESC provides motorists additional safety in terms of vehicle stability and handling, particularly in difficult situations where loss of control could otherwise occur. ESC uses computer technology to assist the driver in maintaining control in emergency situations – particularly when executing avoidance manoeuvres involving sudden swerving and in cases when the vehicle begins to slide and rotate sideways.

Braking is automatically applied to individual wheels, such as the outer front wheel to counter oversteer, or the inner rear wheel to counter understeer. Some ESC systems also reduce engine power until steering control is regained.

Appendix E - Ground Clearance Requirements

A vehicle must have a ground clearance equal to or more than:

- a. At any point that is within 1m of an axle, 100mm.
- b. At the mid-point between adjacent axles - one-thirtieth of the distance between the centre of each axle; and
- c. At any other point, the distance that allows the vehicle to pass over the peak shown in the figure if the wheels of one axle of the vehicle are on the slope on one side of the peak and the wheels of the next axle are on the slope on the other side.



'Ground Clearance' means the minimum distance to the ground from the underside of a vehicle (other than the tyres, wheels, wheel hubs and brake backing plates) when the vehicle is standing fully loaded on flat level ground.

Appendix F - Retreaded Tyres

The *Vehicle and Traffic (Vehicle Standards) Regulations 2014* permits the use of retreaded tyres retreaded in accordance with Australian Standard AS 1973 - Retreaded Pneumatic Passenger Car and Light Truck Tyre. The details listed below advise of the requirements listed in AS 1973 to ensure compliance.

Each retreaded tyre shall bear on at least one side wall or shoulder the following marking:

1. The nominal size of the tyre.
2. The word 'RADIAL' or 'R' in the size designation, for a radial ply tyre.
3. The word 'TUBELESS' if applicable.
4. The maximum load rating, ply rating, or service description of the tyre.

Note: *In the case of a remould, the service description is to be clearly identified as the original service description applicable to the tyre when new.*

Marking on both sides: Each retreaded tyre shall bear on both side walls or shoulders the following marking:

1. The word 'RETREAD' or 'REMOULD' if applicable.
2. For passengers car tyres, the maximum speed rating, expressed as follows:
 - i) For radial ply tyres: 'MAX SPEED 140km/h', or 'MAXIMUM SPEED 140km/h', or 'SPEED LIMITED 140km/h'.
 - ii) For diagonal ply tyres: 'MAX SPEED 120km/h' or 'MAXIMUM SPEED 120km/h', or 'SPEED LIMITED 120km/h'.
 - iii) For tyres having winter treads: 'MAX SPEED 110km/h' or 'MAXIMUM SPEED 110km/h', or 'SPEED LIMITED 110km/h'.

Note: *The maximum speed rating shall be placed adjacent to 'Retread' or 'Remould', as applicable.*

3. For light truck tyres, the maximum speed rating, expressed as follows:
 - i) For tyres having an original speed category when new of 'L' (120km/h) or higher, 'MAX SPEED 120km/h', or 'MAXIMUM SPEED 120km/h', or 'SPEED LIMITED 120km/h'.
 - ii) For tyres having an original speed category when new of less than 'L' (120km/h), the original speed category.

Note: *The maximum speed rating shall be placed adjacent to 'Retread' or 'Remould', as applicable.*

4. For truck/bus tyres:
 - i) The speed equivalent to the original speed category.

Note: *Retention of the original speed category on both side walls is sufficient to satisfy this requirement.*

- ii) If structural belts have been replaced, the word 'REBELTED'.
- iii) The word 'REGROOVABLE' if the retread is specifically designed for regrooving. Only tyres marked regroovable are permitted to be regrooved.

Note: *After major repairs have been carried out in the crown area, regrooving may be performed to reinstate tread grooves.*

5. For speed limited truck/bus tyres:
 - i) The original speed symbol shall be removed from the tyre.
 - ii) Each speed limited tyre shall bear on both side walls or shoulder of the retreaded tyre the following marking, maximum speed 80km/h or speed limited to 80km/h.

Method and position of marking: All new marking (except for date code) on a retreaded tyre shall be in letters not less than 4mm high, be permanently and legibly marked in the shoulder or upper side wall of the tyre and be durable for the life of the retread. Date coding shall be a digit week/year code. Branding with a hot iron is not permitted on passenger car or light truck tyres.

Removal of marking: The following information shall be removed from the tyre during retreading:

1. The word 'TUBELESS' if a tyre originally designated as tubeless has been converted to tube type.
2. The word 'REGROOVABLE' if the retread is not designed for regrooving.
3. Any previous retreader's name or registered trademark.
4. Any marks of approval.

Removal or mutilation of any original tyre speed category symbol is not permitted on passenger car and light truck tyres. Any original speed category for truck/bus tyres must not be removed.

Repaired tyres shall be marked as follows:

1. All major repairs shall be marked, in a legible and permanent manner, with the identification of the repairer and the date on which the repair was carried out.

Note: *Marking is not required for unreinforced repairs.*

2. The word 'TUBELESS' shall be removed if the tyre, originally designed as tubeless, has been converted to tube type. Branding with a hot iron is not permitted on passenger car or light truck tyres.

Shall: indicates that a statement is mandatory.

Retreading: is the process of reconditioning a worn tyre by top capping, full capping, remoulding, or the application of a pre-cured tread.

Remoulding: is a retreading process in which new rubber is applied to the casing extending from bead area to bead area.

Top capping: is a retreading process in which tread rubber is applied only to the tread area of the buffed casing.

Full capping: is a retreading process in which new tread rubber is applied to the area of the casing normally in contact with the road and extending over the shoulder area.

Shoulder: is the transitional area of a tyre between the side wall and the crown.

Precured retreading: is the process by which a previously cured and patterned tread is cured to the casing.

Appendix G - Windscreen Damage and Repair

Windscreen damage or defects may impair a driver's forward vision, create a potential safety hazard and affect road safety. However, windscreens will be subject to some damage such as sandblasting, cracks, and stone chips during normal operation, therefore some deterioration from new condition is allowable.

A windscreen should be clean and free of damage that might impair the driver's view to the front of the vehicle. Things which might impair a driver's vision are:

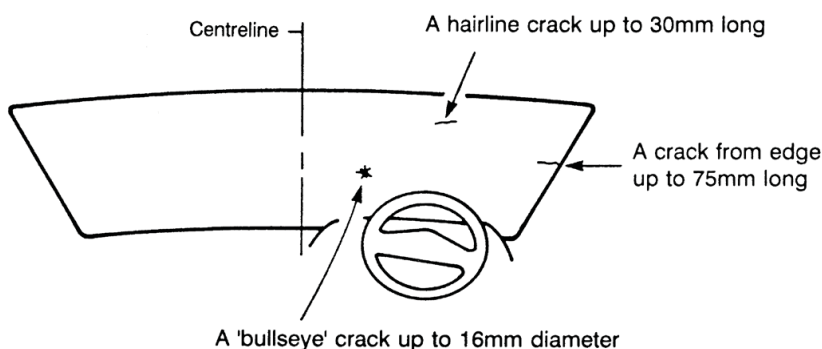
- Chips, cracks and scoring.
- Bullseyes and or star fractures.
- Sandblasting.

When a damaged windscreen is examined the following factors should be considered:

- The location of the damage.
- The size of the damage.
- Effect on the mechanical strength of the windscreen.

To determine if a windscreen should be replaced or repaired, the area of windscreen swept by the wipers to the right of the centre of the vehicle may have bullseyes and star fractures up to 16mm in diameter and cracks up to 150mm long which do not penetrate more than one (1) layer of the glass in a laminated windscreen, provided they do not interfere with the driver's vision.

In addition, the 'primary vision area' (the area of the windscreen which is swept by the windscreen wipers) must not be cracked, scored, chipped, sandblasted or otherwise damaged to the extent that it impairs the driver's vision or damages the wiper blades.



It is recommended that all defects be repaired as soon as possible.

Repairing a damaged windscreen, if undertaken correctly, is an acceptable means of reinstating a windscreen to a safe condition.

Repaired windscreens must comply with the following requirements:

- When inspected from the inside of the vehicle, the repair should not exhibit any significant optical defects which would distort or distract the vision of the driver and should restore clarity to the damaged area. (Acceptable limits of repairs are outlined in Note 1).
- Any repair to the windscreen should not reduce the effectiveness of the windscreen wipers.
- Windscreen repair material must be used in accordance with the manufacturer's instructions.

If a repair has been unsuccessful or is unlikely to be effective, the vehicle owner is responsible for replacing the windscreen in order to meet the necessary safety requirements.

NOTE 1: In a repaired windscreen, a faint outline of the repair, or in some cases, a slight dull spot may be visible where the repair has been performed. A repaired crack may also be detectable by a fine hairline surface mark. These are acceptable and should not cause a vehicle to fail a safety inspection provided the damaged windscreen has been repaired to a standard which complies with the requirements outlined in this document.

To date, the extent of windscreen damage considered to be repairable has not been defined. Improved technology has increased the scope of repairable damage and acceptability can only be determined (in accord with the above standards) after the repair has been completed.

It is recommended that repairs of cracks longer than 350mm be avoided.

NOTE 2: The Australian Standard AS 2366 (Repair of Laminated Glass Windscreens Fitted to Road Vehicles) is a voluntary code of practice for the repair of automotive windscreens that gives recommended practices regarding the repair of laminated windscreens. The use of the Australian Standard is not mandatory.

To ensure the safety of all motor vehicle occupants, replacement windscreens must be of an approved safety glass.



Australian
Standard
AS 2080:00
Standards Australia

The glass must always bear an identification mark indicating the standard to which the glass has been manufactured (e.g. AS2080, BSAU178, JISR3211, ECER-43/00, ANSI-Z26.1) and have a standards mark etched or indelibly printed on the glass.

Windscreens which do not comply with these recognised standards may shatter easily and unexpectedly, creating areas of distorted vision.

Windscreens fitted to motor vehicles manufactured on or after 1 July 1971, are required by law to be made from glass which has a light transmittance of no less 75 percent. Aftermarket tint film may be applied to the upper portion of the windscreen. The tinting must not extend beyond the greater area of:

1. Lower than a horizontal line contacting the uppermost point of the arcs swept by the vehicle manufacturer's original wiper blades.
2. The upper 10% of the windscreen

The tinting may be of any shade but must not have a reflectance of more than 10 percent.

There are two types of replacement windscreens available for motor vehicles, laminated or tempered.

Laminated glass windscreens are manufactured like a 'sandwich' with glass on the outside and inside surfaces and a clear plastic film between. A laminated screen is more resistant to breakage than tempered glass and even when fractured it remains almost transparent.

Tempered glass is specially treated so that, when broken, it shatters into tiny fragments instead of jagged splinters. Unfortunately, when the windscreen shatters, it is difficult to see through.

Vehicles manufactured on or after 1 January 1994 must be fitted with laminated glass windscreens. Whilst vehicles built before 1 January 1994 do not have to meet this requirement, it is strongly recommended that when a replacement windscreen is needed, laminated glass be used.

Appendix H - Mudguard and Mudflap Requirements

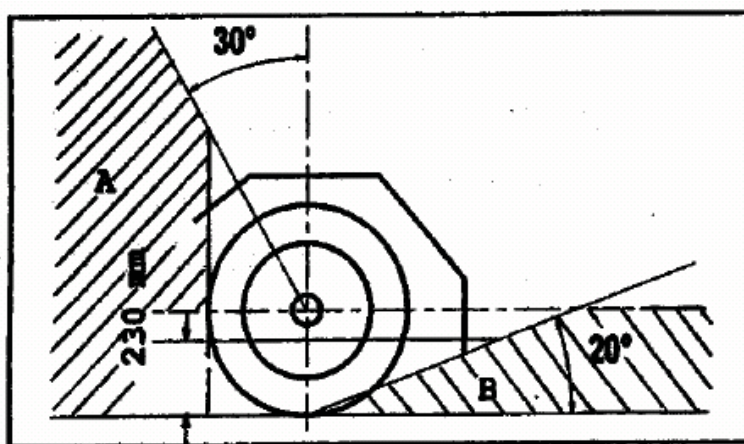
Effective mudguards must be fitted for all wheels on all vehicles. However, this does not apply to a vehicle if the construction or use of the vehicle makes the fitting of mudguards unnecessary or impractical. Examples are:

- Most road making plant vehicles.
- Some agricultural equipment.

Mudguards may include parts of bodywork, etc. and must cover the full width of the wheels and tyres in the case of rear wheels on trucks, buses and trailers. For passenger cars, the full width of the tyre at the top of the tyre must be covered when the wheels are in the straight ahead position. For motorcycles, side-cars and trikes, guards must cover the tyre section width at all times.

Mudguards and mudflaps must be capable of deflecting downwards any mud, water, stones or any other substance thrown upward by the rotation of the wheels. Mudguards must be fitted to the vehicle in such a manner that, when the vehicle is unladen, the height of the lowest edge of the mudguard, when measured from the ground, does not exceed:

- 230mm from the ground.
- In the case of a vehicle built to be used off road, 300mm from the ground; and cover the area of the wheel as shown below.



Mudflaps are not normally required on passenger car type vehicles. However, mudflaps must be in place on vehicles where they form part of the wheel guard system such as on some motorcycles, including motor tricycle(s), and vehicles with a tray type body.

The mudguards on a single axle trailer must provide continuous protection, for the overall width of the tyres, between a point in area A and a point in area B as shown.

Note: These mudguard requirements do not apply to motorcycles. Refer to Section 12 of this manual

Appendix I - Australian Design Rule

– Seatbelt requirements

This appendix provides a guide to the regulations that apply to the fitting of seat belts and child restraint anchorages in motor vehicles. The precise requirements are contained in the applicable Australian Design Rules (ADRs).

Certain vehicles dependent on the type and date of manufacture, are required to be fitted with seat belts and child restraint anchorages. The tables below outline these requirements. Vehicles within each category, manufactured on or after the date shown must be fitted with the correct type of seat belt and child restraint anchorage point. Table I below outlines the vehicle categories in accordance with the ADRs. In most cases vehicles manufactured after June 1988 will have the appropriate vehicle category code marked on the compliance plate.

Appendix I Table I

VEHICLE CATEGORY CODES

VEHICLE CODE	VEHICLE CATEGORY
LA	Moped 2 wheels
LB	Moped 3 wheels
LC	Motorcycle
LD	Motorcycle with side car
LE	3 Wheel L group vehicles
LEM	up to 450 kg unladen mass
LEP	over 450 kg unladen mass and/or has more than 2 seating positions
LEG	over 450 kg and primarily designed for the carriage of goods
MA	Passenger Car
MB	Forward Control Passenger Vehicle (up to 9 seats)
MC	Off Road Passenger Vehicle (up to 9 seats)
MD	Light Omnibus (more than 9 seats)
MD1	up to 3.5 tonnes GVM and up to 12 seats
MD2	up to 3.5 tonnes GVM and over 12 seats
MD3	over 3.5 tonnes GVM and up to 4.5 tonnes GVM
MD4	over 4.5 tonnes GVM and up to 5.0 tonnes GVM
ME	Heavy Omnibus exceeding 5.0 tonnes GVM
NA	Light Goods Vehicle
NA1	up to 2.7 tonnes GVM
NA2	over 2.7 tonnes GVM and up to 3.5 tonnes GVM
NB	Medium Goods Vehicle
NB1	over 3.5 tonnes GVM and up to 4.5 tonnes GVM
NB2	over 4.5 tonnes GVM and up to 12 tonnes GVM
NC	Heavy Goods Vehicle (exceeding 12 tonnes GVM)

NOTE: A 'Route Service Omnibus' is a bus specifically designed with spaces for standing passengers. Route service buses are exempt from the requirement to have seat belts fitted to seats with exception to the driver's seat on MD3, MD4 & ME category vehicles and the front row outboard passengers seat on

MD3 & MD4 category vehicles, these seating positions require seat belts in accordance with the relevant ADRs.

		MA (Passenger Cars)				MB (Forward Control Passenger Vehicle up to 8 seats)			
Seat Belt Type		Lap	Lap/sash	Lap/sash retractor	Child Res. Anchorages	Lap	Lap/sash	Lap/sash retractor	Child Res. Anchorages
Front Row	Outer		1/1/69 ^a	1/1/75			1/1/71 ^g	1/1/85 ^g	
	Centre	1/1/69 ^a		1/7/08		1/1/71 ^g			
Second Row	Outer		1/1/71	1/1/84	1/7/76 ^b		1/1/71 ^g	1/1/87	
	Centre	1/1/71		1/7/08	1/7/76 ^b	1/1/71 ^g			
Other Rows	Outer		1/1/71	1/7/08			1/1/71 ^g	1/1/87	1/1/86 ^b
	Centre	1/1/71		1/7/08		1/1/71 ^g			1/1/86 ^b

		MB (Forward Control Passenger Vehicle 9 seats)				MC (Off Road Passenger Vehicle)			
Seat Belt Type		Lap	Lap/sash	Lap/sash retractor	Child Res. Anchorages	Lap	Lap/sash	Lap/sash retractor	Child Res. Anchorages
Front Row	Outer		1/1/71 ^g	1/1/85 ^g			1/1/71	1/7/88	
	Centre	1/1/71 ^g				1/1/71			
Second Row	Outer		1/1/71 ^g	1/1/86			1/1/71	1/7/96	
	Centre	1/1/71 ^g				1/1/71			
Other Rows	Outer		1/1/71 ^g	1/1/87	1/1/86 ^b		1/1/71		1/7/90 ^b
	Centre	1/1/71 ^g			1/1/86 ^b	1/1/71			1/7/90 ^b

		MD1 (Light Bus up to 3.5t and 12 seats)				MD2 (Light Bus up to 3.5t and over 12 seats)			
Seat Belt Type		Lap	Lap/sash	Lap/sash retractor	Child Res. Anchorages	Lap	Lap/sash	Lap/sash retractor	Child Res. Anchorages
Front Row	Outer			1/7/83				1/7/83	
	Centre	1/7/83				1/7/83			
Second Row	Outer			1/1/87			1/7/92 ^c		
	Centre	1/1/87				1/7/92 ^c			
Other Rows	Outer			1/1/88	1/1/87 ^b		1/7/92 ^c		
	Centre	1/1/88			1/1/87 ^b	1/7/92 ^c			

MD3 (Light Bus over 3.5t and up to 4.5t)

Seat Belt Type		Lap	Lap/sash	Lap/sash retractor	Child Res. Anchorages
Front Row	Outer	1/7/87		1/7/92 ^d	
	Centre	1/7/92		1/7/95 ^h	
Second Row	Outer	1/7/92 ^c		1/7/95 ^h	
	Centre	1/7/92 ^c		1/7/95 ^h	
Other Rows	Outer	1/7/92 ^c		1/7/95 ^h	1/7/95 ^h
	Centre	1/7/92 ^c		1/7/95 ^h	1/7/95 ^h

NA (Light Goods Vehicle)

NBI (Light Goods Vehicle over 3.5t and up to 4.5t)

Seat Belt Type		Lap	Lap/sash	Lap/sash retractor	Child Res. Anchorages	Lap	Lap/sash	Lap/sash retractor	Child Res. Anchorages
Front Row	Outer		1/1/71	1/1/75			1/1/71	1/1/75	
	Centre	1/1/71				1/1/71			
Second Row	Outer		1/1/71	1/7/96			1/1/71		
	Centre	1/1/71				1/1/71			
Other Rows	Outer		1/1/71				1/1/71		
	Centre	1/1/71				1/1/71			

LEP (Motor Tricycle over 450 kg unladen)

LEG (Motor Tricycle over 450 kg – Goods Vehicle)

Seat Belt Type		Lap	Lap/sash	Lap/sash retractor	Child Res. Anchorages	Lap	Lap/sash	Lap/sash retractor	Child Res. Anchorages
Front Row	Outer			1/3/91 ^f		1/3/91 ^f		1/3/91 ^f	
	Centre	1/3/91 ^f							
Second Row	Outer			1/3/91 ^f	1/3/91 ^b		1/3/91 ^f	1/7/96	
	Centre	1/3/91 ^f			1/3/91 ^b	1/3/91 ^f			
Other Rows	Outer		1/3/91 ^f				1/3/91 ^f		
	Centre	1/3/91 ^f				1/3/91 ^f			

SUPERSCRIPT NOTES:

- (a) Vehicles manufactured before 1/1/69 are not required to be fitted with seat belts. However where seat belts have been fitted to these vehicles it is recommended that they be retained.
- (b) Applies to at least three seating positions or the total number of adult seating positions if less than three. Where the seat back is divided into two or more sections which may be folded independently of each other and the division lies close to the centre of a seating position, then a child restraint anchorage is not required for that position.
- (c) Seat belts are required for all non-protected seats except on Route Service Buses.
- (d) If the passenger seat on a vehicle built between 1/7/92 and 1/7/95 is a protected seat, then a lap belt with a retractor is acceptable. Refer ADR 68/.. for vehicles built on or after 1/7/95.
- (e) At least a lap belt with retractor must be fitted if the vehicles date of manufacture is on or after 1/7/92.
- (f) 1/3/91 for enclosed vehicles only, 1/7/92 for all other LEP vehicles.
- (g) NA Category requirements apply to Forward Control type Passenger Vehicles manufactured before 1/1/85.
- (h) Refer ADR5/ and 68/.. for details.

GENERAL NOTES:

Lap belts are acceptable if there is no suitable permanent structure above and to the rear of the seating positions of some vehicles. Lap belts are also acceptable for the third and further rows of seats of some vehicles where the seat is adjustable for conversion to luggage or goods space. Please refer to the Australian Design Rules for details.

Side facing seats may only be fitted with lap belts.

Appendix J - Lighting Standards

This Information Sheet summarises the vehicle lighting standards in accordance with the *Vehicle and Traffic (Vehicle Standards) Regulations 2014* and the Australian Design Rules (ADR's).

The Vehicle Standards Regulations requires all vehicles to comply with the ADR's applicable to them and, for pre ADR vehicles, with the standards listed in the Regulations apply. Pre-ADR vehicle lighting is therefore detailed in the Regulation while ADR lighting is not. Special lighting requirements such as flashing lights are detailed in the Regulation. The following lists the requirements:

The use of lights of a colour other than white, orange or red in Tasmania are reserved for police vehicles, ambulances, Transport Inspector vehicles, fire vehicles, Australian Border Force vehicles and Australian Defence Force vehicles.

Additional mandatory lights, e.g. an extra pair of direction indicator lights, are also permitted. The Australian Design Rules set mandatory position, width and height limits for a primary set of lights fitted to a vehicle. In the case of light and heavy omnibuses (MD and ME categories), all commercial vehicles (N category) and medium and heavy trailers (TD and TC categories), additional direction indicator, hazard warning, stop, parking and rear position lights may be fitted to satisfy specific operational requirements.

These operational requirements could include the need to better project manoeuvring intentions in congested traffic such as for buses frequently stopping to pick up and set down passengers, the need to have additional lights to retain signalling capability in case of primary light breakages, and where operating environment results in low mounted lights becoming covered in dirt or dust.

The maximum height limits for particular lights, which includes stop lights, fitted to the above categories of vehicles do not apply when provided as additional lights.

The ADR's have been changed to align with European standards and allow side marker lights to show yellow to the rear. Some new vehicles already have these lights fitted. The Vehicle Standards Regulations allows either red or yellow side marker lights to the rear on any age vehicle.

Concern has previously been expressed at the practice of fitting multi-coloured lights and reflectors to the front of prime movers, rigid vehicles and semi-trailers.

The Vehicle Standards Regulations requirements for external cabin lights are as follows:

- A motor vehicle fitted with front clearance lights (also known as front end outline marker lights) may also have additional forward facing lights on or above the roof of its cabin.
- The additional forward facing lights must be spaced evenly between the front end-outline marker lights, with their centres at least 120mm apart.
- When on, an additional forward facing light must show a yellow or white light and not use over 7 watts of power.

NOTE: *Front end-outline marker lights may only be fitted to a vehicle that is at least 1.8 metres wide. A pair of front end-outline marker lights must be fitted to a motor vehicle that is more than 2.1 metres wide, however, end-outline marker lights are not required when the vehicle's structure prevents them from being at least 200mm above the front position (side) lights.*

Some new factory fitted headlights may appear to have a blue or yellow tinge. Advice from the Australian Governments Department of Infrastructure, Transport, Regional Development and Local Government (formerly DoTaRS) is that these colours can sometimes be seen on some of the new technology lights when viewed from the side. However, these lights do emit white light in the required angles and comply with the ADR's.

Motorcycles, including motor tricycles, with twin headlights side by side may have one light as low beam and the other as high beam. That is, the high and low beam do not need to be symmetrical about the longitudinal centre line of the motor cycle, including motor tricycle(s).

'Blue' halogen bulbs are a recent innovation in vehicle lighting technology. They operate at higher temperatures and provide superior illumination to the conventional halogen bulb. Historically, the white light emitted from headlamps on motor vehicles has been generated from incandescent light sources and contains a predominance of red/yellow frequencies. This has become the accepted norm for white light. The new bulbs, which are actually 'whiter' than the existing bulbs, contain less of the red/yellow frequencies and more of the blue end of the spectrum. The bulbs may be perceived as a very light blue.

The envelope around the filament of these bulbs is dyed blue, primarily to reduce the red/yellow frequencies that are always present in light produced by incandescent filament bulbs.

Motor vehicles have been required to comply with Australian Design Rules (ADR's) for lighting since October 1991. ADR 13 mandates the number and position of lamp assemblies, ADR 46 prescribes the photometric requirements of the lamp itself and ADR 51 is the standard for filament bulbs.

ADR 51 accepts ECE regulation 37 as an alternative standard for filament bulbs and prescribes the dimensional and photometric requirements for filament bulbs (including headlamps). This ensures inter-changeability and correct functioning when installed in a complying lamp unit.

All complying bulbs sold in Australia would be marked with the 'E' mark and possibly the words 'Suitable for European Use'. The packaging may also indicate compliance with ADR 51 or ECE 37.

When a replacement complying bulb of the correct type (for example H4 45/60 Watts) for a complying headlamp is fitted to that assembly, the light emitted will be within the spectral requirements for white light.

Although these lamps are a standard fitment to many newer vehicles, a 'blue' complying lamp can be fitted to a lamp assembly on a vehicle that was not originally fitted with these bulbs.

It is important to note that ADR 51 limits the power of various bulb types, and bulbs of a similar style but higher power rating will not comply and should not be used. For example, the common H4 bulb that has a complying rating of 45/60 watts, is available in much higher rating of 45/100 watts. The higher powered bulbs produce more glare and the resulting light pattern would not comply with the ADR.

Although regulations do not require drivers of pre-1991 vehicles to fit complying bulbs, consumers should be careful when fitting non-complying 'blue' light bulbs to pre-ADR vehicles, as the resulting light spectrum may fall outside the standard for white light (that is, the blue frequencies may predominate).

If a Vehicle Examiner suspects that the light output from a headlight appears blue, the examiner should take appropriate action based on the following summary tables:

- Bulb must be marked.
- Bulb must be the correct wattage.
- Bulb does not have to be marked.
- Bulb may be alternative higher wattage.
- Bulb must not show obvious blue light (when viewed directly ahead).

If, during the course of an inspection, Vehicle Examiners have cause to inspect vehicles modified by changing the original lighting componentry assemblies, they are to ensure that individual vehicles comply with the previously mentioned details. Modifications of this type which do not comply with the above requirements are to be rejected immediately.

Appendix K - Headlamp testing Screens

1275							
1200							
1125							
1050							
975							
900							
825							
750							
675							
600							
525							
450							
375							
300							
225							
150							
75							

FRONT ELEVATION OF SCREEN

Level of surface upon which the vehicle is standing during test.

NOTE: Surface of screen to be 'flat' white. Glossy finish must not be used. Horizontal lines to be 75 millimetres apart measured from centre to centre of lines. Vertical lines to be 300 millimetres apart measured from centre to centre of lines. All lines to be black except centre vertical which is to be red.

The thickness of all lines is to be as small as possible consistent with good visibility for an observer at a distance of 9 metres from the screen during test of headlights. The heights of the horizontal lines above the level of surface upon which vehicle is standing during test are to be clearly marked with black figures, as shown, of a size to ensure good visibility for an observer at a distance of 9 metres from the screen during test of headlights.

Appendix L - LPG and CNG Certification

As a result of a number of enquiries regarding LPG and CNG installations in motor vehicles when presented for a Safety Certificate or a Certification of Inspection at an Approved Inspection Station, current inspection procedures have been revised in order to clarify the required procedures. The following details are provided to give vehicle examiners clear guidance as to inspection requirements.

There is currently no legislation requiring vehicles fitted with LPG/NCG/ CNG to have a periodic LPG or CNG inspection, however the owner of a vehicle must ensure all fittings in the vehicle are maintained in a safe and efficient condition.

If a LPG/NGV/CNG powered vehicle in excess of three (3) years of age and is presented for a pre-registration inspection it must be failed and referred to a Registered Gas Fitter/Installer for a full Safety Check Inspection. The age of the vehicle is determined by the month and year displayed on the vehicle compliance plate.

If a LPG/NGV/CNG powered vehicle not fitted with a LPG/NCG/CNG installation certification plate is presented for a pre-registration inspection it must be failed and referred to a Registered Gas Fitter/Installer for a full Safety Check Inspection.

NOTE: *If during the course of an inspection of the vehicle, any obvious or dangerous defects are observed with the LPG or CNG installation, the vehicle is to be rejected and the reason recorded in the space provided.*

Any gas installation in a vehicle must have the installation and any subsequent alterations certified by a licensed gas installer.

Appendix M - ADR Applicability Tables

The Australian Design Rules (ADRs) set out the minimum safety and environmental standards that motor vehicles operating on public street are required to comply with at the date of manufacture and during on road operation. The ADRs have been developed for the purpose of:

- Reducing the possibility of accidents occurring through such measures as improving lights and signals, drivers' visibility and tyre selection.
- Mitigating the effects of those accidents that do occur, through such measures as seat belts, energy absorbing steering columns, head restraints and occupant protection measures.
- Reducing the effects of motor vehicles on the environment by limiting the noise and pollutants emitted.

In Tasmania the *Vehicle and Traffic (Vehicle Standards) Regulations 2014* require that vehicles manufactured after a particular date meet the requirements of the relevant ADRs. Many of the features associated with the ADRs are not readily apparent by visual inspection and evidence of a vehicles compliance with these requirements is demonstrated by the fitment of a compliance plate to the vehicle.

The ADRs are set out in two editions being the 2nd and 3rd editions. The 2nd edition ADRs cover vehicles manufactured between 01 January 1969 and the 30th of June 1988. The 3rd edition ADRs cover vehicles manufactured on or after 1 July 1988.

For the purpose of the ADRs vehicles are classified into various categories dependent on the type of vehicle. Each category is identified by a two letters (e.g. NA - light goods vehicle) and in some cases each category is further broken down using a number system following the letters (e.g. NA2 – light goods vehicle exceeding 2.7 tonnes). The vehicle categories are as follows:

The full complement of the Australian Design Rules can be accessed online at:

<https://www.infrastructure.gov.au/vehicles/design/>

2nd edition ADR applicability tables can be found in “Definitions – Volume I” located at:

https://www.infrastructure.gov.au/vehicles/design/second_edition_adrs.aspx

3rd edition ADR applicability tables can be found under the “ADR Applicability Summaries” section at:

https://www.infrastructure.gov.au/vehicles/design/adr_online.aspx

2nd Edition ADR Vehicle Categories

VEHICLE CODE	VEHICLE CATEGORY
PC	Passenger Car constructed primarily for the conveyance of passengers
PD	Passenger Car Derivative Eg utilities & vans where the forward portion of the vehicle is the same as a passenger car
FC	Forward Control Passenger Vehicle with a GVM of less than 3.5 tonnes
FC1	Forward control passenger vehicle up to 8 seats including driver
FC2	Forward control passenger vehicle 9 seats including driver
PM	Multi-Purpose Passenger Car with off road operational feature
OM	Omnibus

OM1 OM2 OM3 OM4	8 to 12 seats including the driver over 12 seats including the driver GVM between 3.5 tonnes and 4.5 tonnes GVM over 4.5 tonnes
CY	Motor Cycle which has two wheels or 3 wheels with a sidecar attached
MOPED	Moped with 2 wheels not exceeding 50 ml engine capacity and not capable of exceeding 50 km/h maximum speed
LG	Light Goods Vehicle, up to and including 4.5 tonne
HG	Heavy Goods Vehicle, over 4.5 tonne GVM

3rd Edition ADR Vehicle Categories

VEHICLE CODE	VEHICLE CATEGORY
LA	Moped 2 wheels, engine capacity up to 50 ml and a maximum speed of 50 km/h
LB	Moped 3 wheels, engine capacity up to 50 ml and a maximum speed of 50 km/h
LC	Motorcycle with an engine capacity exceeding 50 ml or a maximum speed exceeding 50 km/h
LD	Motorcycle (LC) with side car
LE LEM LEP LEG	3 Wheel L group vehicles up to 450 kg unladen mass over 450 kg unladen mass and/or has more than 2 seating positions over 450 kg and primarily designed for the carriage of goods
MA	Passenger Car, up to 9 seats excluding forward control and off road
MB MB1 MB2	Forward Control Passenger Vehicle (up to 9 seats) Up to 2.7 tonnes GVM Over 2.7 tonnes GVM
MC MC1 MC2	Off Road Passenger Vehicle (up to 9 seats with off road capabilities) Up to 2.7 tonnes GVM Over 2.7 tonnes GVM
MD MD1 MD2 MD3 MD4	Light Omnibus (more than 9 seats) up to 3.5 tonnes GVM and up to 12 seats up to 3.5 tonnes GVM and over 12 seats over 3.5 tonnes GVM and up to 4.5 tonnes GVM over 4.5 tonnes GVM and up to 5.0 tonnes GVM
ME	Heavy Omnibus exceeding 5.0 tonnes GVM
NA NA1 NA2	Light Goods Vehicle up to 2.7 tonnes GVM over 2.7 tonnes GVM and up to 3.5 tonnes GVM
NB NB1 NB2	Medium Goods Vehicle over 3.5 tonnes GVM and up to 4.5 tonnes GVM over 4.5 tonnes GVM and up to 12 tonnes GVM
NC	Heavy Goods Vehicle (exceeding 12 tonnes GVM)
TA	Very Light Trailer, single axle with a GTM not exceeding 0.75 tonnes
TB	Light Trailer, GTM greater than 0.75 tonnes up to 3.5 tonne
TC	Medium Trailer, GTM greater than 3.5 tonne up to 10 tonne
TD	Heavy Trailer, GTM exceeding 10 tonnes

Appendix N - Missing Compliance Plates

For the purposes of registration, all motor vehicles originally manufactured to comply with the Australian Design Rules (ADR's) on or after 1 August 1972 and motorcycles constructed between 1 July 1975 and 1 July 2021 would have been fitted with a compliance plate. Vehicles built prior to this date must comply with the *Vehicle and Traffic (Vehicle Standards) Regulations 2014*. All trailers manufactured after Dec 1988 are required to be fitted with a compliance plate. Vehicles manufactured under an approval granted under the Road Vehicle Standards Act which commenced on 1 July 2021 will not have an identification/compliance plate, however the details of the vehicle will be accessible on the publicly accessible Register of Approved Vehicles commonly referred to as the RAV.

If inspecting a motor vehicle or motorcycle manufactured after these dates (not including other individually imported vehicles) which does not have a compliance plate fitted, or has not been entered onto the RAV the vehicle examiner/proprietor should:

- Ask for proof that the vehicle was previously registered in Australia, i.e. current registration certificate or copy of previous registration certificate.

OR

- Advise the owner that it may be possible to obtain a letter of compliance from the vehicle manufacturer confirming the vehicle was manufactured for the Australian market and met all applicable ADR's at the time of manufacture.

In most instances, vehicles (except motorcycles) built prior to 1 January 1972 will be fitted with a manufacturer's identification plate or be entered onto the RAV.

If the vehicle has been previously registered in Australia and the vehicle examiner is satisfied that the vehicle is authentic, the chassis/VIN and engine numbers show no sign of having been tampered with and the vehicle meets the roadworthiness guidelines the vehicle may be passed for registration.

If the vehicle examiner is not satisfied that the vehicle is authentic, or the vehicle's identifiers show signs of having been altered or tampered with the examiner must fail the vehicle for vehicle identity reasons and any roadworthiness issues. The vehicle owner should then arrange for the vehicle to be presented to the Transport Safety & Investigations Officers (TSIO's) for an identity inspection.

If the vehicle is an import vehicle and doesn't have an import compliance plate fitted or hasn't been entered onto the RAV and hasn't been previously registered in Australia the vehicle examiner must fail the vehicle and refer the vehicle to the TSIO's for an identity inspection.

Import Vehicle compliance plates may be as follows:

- Yellow – Personally imported vehicle.
- Magenta – Used import vehicle (Registered Automotive Workshop (RAW)).

Vehicles approved for importation as road vehicles with a date of manufacture prior to 1 January 1989 do not require a compliance plate, however they do require a Vehicle Identity inspection by the TSIO's prior to being passed for registration if the vehicle has not previously been registered in Australia.

Vehicles approved for importation for race or rally, demonstration or evaluation, or for reasons other than road vehicles will NOT be granted full registration, however the vehicle MAY be eligible for conditional registration.

Appendix O - Modifications

Brochure

At all times the regulatory requirements take precedence over the information provided here.

The following information provides a guide for vehicle owners or vehicle modifiers wishing to perform minor modifications to vehicles. Following this guide will help assist in ensuring that your vehicle meets all applicable Tasmanian regulations and safety levels are maintained. To modify a vehicle means to change a vehicle (including adding something to the vehicle) from the manufacturer's original specifications of that particular vehicle.

The modifications listed below may be carried out without certification by an Approved Vehicle Certifier (AVC), unless stated differently. If your modification falls outside of the modifications listed below you should engage the services of an AVC. A link to the AVCs can be accessed under the Further Information heading.

From time to time, the Department will publish Information Bulletins that provide additional information to clarify acceptable modifications or good engineering practice. For completeness, persons considering minor modifications to their motor vehicle or the fitting of accessories should check the Department's website for the latest Information Bulletins that give further guidance on how to make these changes to a vehicle appropriately.

Please note, links to any documents mentioned in this guide can be found in the 'Additional Information' section at the end of the guide.

Making certain modifications to your vehicle may mean that your insurer:

- Decides that it is no longer willing to insure your vehicle;
- Decides that the insurance premium will need to increase; or
- Decides not to accept a claim under the insurance policy, particularly where they have not been advised of the modification and the modification may have contributed to an accident.

The Department is not able to provide advice regarding insurance implications. However, the Department suggests that, if you are planning to modify your vehicle, you check the terms of your insurance policy and ask your insurer whether there will be any impact on your insurance. Also, the Department suggests that you tell your insurer about any modifications that have been made to the vehicle, particularly where the modifications may affect its value, safety, performance or appearance.

Exhaust system

Exhaust system may be modified without certification provided they meet the following conditions:

Exhaust headers (extractors) may be fitted to any motor vehicle, provided:

- They do not foul or interfere with any part of the steering, suspension, brake or fuel systems
- All fittings for emission control equipment (E.G.R. valve, oxygen sensor, pipes, catalytic convertors and so on) are incorporated to ensure the vehicle maintains compliance with Australian Design Rules (ADRs) for vehicle emissions
- Exhaust systems continue to comply with relevant legislation or ADRs for emissions and vehicle noise
- They bear the correct markings as specified by the ADRs (e.g. trademark or name of the component manufacturer).

Exhaust systems, silencing devices and emission control devices may be replaced, provided:

- They do not foul or interfere with any part of the steering, suspension, brake or fuel systems
- They bear the correct markings as specified by the ADRs (e.g. trademark or name of the component manufacturer).
- They continue to comply with relevant legislation or ADRs for emissions and vehicle noise.
- The exhaust outlet must extend behind the rearmost seat and at least 40mm beyond the rearmost joint of the floor pan that is not continuously welded or permanently sealed and which could permit direct access of exhaust gases to the passenger compartment, but not beyond the perimeter of the vehicle when viewed in plan.
- The exhaust outlet, if to the side of the vehicle, must discharge to the right hand side of the vehicle and horizontally or at an angle of not more than 45 degrees below the horizontal.
- The exhaust outlet, if to the rear of the vehicle, must discharge horizontally or at an angle of not greater than 45 degrees below the horizontal.
- All exhaust and muffler systems must be free of any leaks or mechanical faults and should be adequately supported.
- All replacement silencing components (mufflers, exhaust manifolds, etc.) must comply with either the information specified on the vehicle's original external noise level label, the ADRs or the *Vehicle and Traffic (Vehicle Standards) Regulations 2014*, whichever is applicable to the vehicle's date of manufacture.

Replacement Engines

Replacement engines that are offered by the manufacturer as an optional engine for that model of vehicle may be fitted without certification. For such conversions, all components, including suspension and brakes, must be identical to those of a vehicle originally produced with the optional engine.

Fuel Systems

Non-standard fuel delivery systems, such as multiple and/or replacement carburettors, or fuel injection system components may be fitted without certification provided the vehicle continues to comply with the emission requirements of the Australian Design Rules (ADRs) applicable at the vehicle's date of manufacture or a later emission ADR and does not increase the engine power by more than 20%.

The following items are considered minor modifications and can be performed without certification provided they meet the above requirements:

- Fitting replacement fuel lines
- Fitting additional fuel filters
- Fitting alternative fuel pumps
- Fitting replacement fuel injectors
- Fitting a manufacturer's optional fuel system.

Aftermarket / Re-mapped Engine Management Computers

The use of aftermarket (not supplied by the original vehicle manufacturer) or re-mapped engine management computers is permitted without certification, provided the vehicle continues to comply with the emission requirements of the ADRs applicable at the time of the vehicle's manufacture. Often the aftermarket engine management computer manufacturer or the company re-mapping the unit have undertaken ADR emission testing and can supply evidence of

compliance. However, where a modification increases the engine power by more than 20%, the modification must be certified by an AVC.

Nitrous Oxide

The fitting of nitrous oxide injection systems is not permitted under any circumstances. This includes a partial installation or a nitrous oxide system that is fitted but disconnected.

Air Filters

Fitting a replacement air filter (including pod-type air filters) is considered a minor modification and does not require certification. When fitting a replacement air filter, you must ensure it is securely attached to the vehicle and does not cause an increase in noise from the air intake system. To resolve this issue, the air filter element may have to be effectively encased or boxed-in.

In addition to the above requirements, the vehicle's gaseous emissions must not be adversely affected. As such, all emission components and/or sensors must remain fitted and connected in a similar location to the original vehicle manufacturer's design. It is also important to be aware that some types of sensors give false readings when oil soaked air filters are used. When oil soaked air filters are used, confirmation should be sought from the manufacturer about the effect on the vehicle emissions.

Please Note: Air filters should be flame retardant.

Gear and Belt Drives

The fitment of non-standard gear drives and auxiliary belt drives is considered a minor modification which does not require certification, provided they do not result in an increase in noise levels. Belt drives must be shielded to prevent injury from accidental contact with rotating components.

Blow-off Valves

The fitment of a blow-off valve to a vehicle is considered a minor modification which does not require certification, provided it vents back into the vehicle's induction system. Blow-off valves that vent directly to the atmosphere must not be fitted.

Turbo Wastegates

The fitment of a wastegate to a vehicle is considered a minor modification which does not require certification, provided it vents gases into the exhaust system upstream of the mufflers and/or catalytic converter. Wastegates that vent gases directly into the atmosphere (Screamer Pipes) must not be fitted.

Important Information:

Modifications to the engine and engine components that result in an increase in engine power of more than 20% of the original engine power must be certified by an AVC under the LA section of the National Code of Practice for Light Vehicle Construction and Modification.

For further information about engines & components please refer to the LA section of the National Code of Practice for Light Vehicle Construction and Modification, VSB14 link found under the heading Further Information.

Replacement brakes that are offered by the manufacturer as an option for that model of vehicle may be fitted without certification. For such conversions, all components must be identical to those of a vehicle originally produced with the optional brakes.

Brake systems modifications must not reduce braking performance or increase the risk of brake failure. Brake discs or drums must not be machined beyond the reconditioning limits set down by the manufacturer.

When brakes are upgraded using after-market components or systems which were not standard options for the vehicle, an AVC must be engaged to certify the adequacy of the new system, as issues such as hydraulic fluid sufficiency, balanced braking on all wheels, brake pedal pressure limitations and braking performance must be considered.

For further information in relation to braking please refer to the LG section of the National Code of Practice for Light Vehicle Construction and Modification, VSBI4 link found under the heading Further Information.

Many vehicle owners like to replace the vehicle's original rims and tyres with alternatives of different width, diameter or profile.

The following sub-sections outline the legal requirements for replacement rims and tyres fitted to a passenger car or derivative, or to an off-road passenger car (not including a light commercial vehicle), which will ensure your vehicle continues to comply with Tasmanian legislation, while allowing for your individual preferences.

General Conditions for Alternative Rims and Tyres

The rims and tyres must not protrude beyond the bodywork of the vehicle, including flares, when viewed from above with the wheels facing straight ahead. If the vehicle was originally constructed with a portion of the wheel protruding, the alternative wheels must not protrude further than the original ones.

The tyre to rim fitting and the tyre to rim combination must be in accordance with the Tyre and Rim Standards Manual published by the Tyre and Rim Association of Australia. Reputable tyre retailers should have this information and be able to advise on the correct combinations.

All rims fitted to an axle must be of the same diameter, width and offset. They must not have a circumferential weld other than that which attaches the outer rim to the centre. All rims must have stud hole pitch circle diameters suitable to the hub. Wheel nut tapers must be appropriate to the wheel and must engage the thread of the wheel studs for at least the same length as the nuts provided by the vehicle manufacturer.

Slotted and elongated stud holes are not permitted.

The fitting of spacers or adaptors between wheels and hubs, other than those provided by the vehicle manufacturer, is not permitted.

The tyre and rim must not foul wheel arches or suspension components under any conditions. Steering limit stops must not be adjusted to reduce the turning circle in order to allow the fitting of the alternative rims and tyres.

The tyres must have a tread depth of at least 1.5mm in all principal grooves of the tyre, not have excessive uneven (disproportional) wear across its width, and not have any apparent defect that is likely to make the vehicle to which they are fitted unsafe.

Fitting tyres that have been treated by recutting or re-grooving is not permitted unless the tyre has been marked by the original manufacturer as 'suitable for recutting or re-grooving'. Re-grooving that exposes chord or steel is not permitted.

The maximum tyre width for a car or car derivative must not be more than 1.3 times the vehicle manufacturer's widest optional tyre.

However, for an off-road passenger vehicle fitted with front and rear beam axles, the maximum tyre width must not be more than 1.5 times the vehicle manufacturer's widest optional tyre.

The nominal width of the narrowest tyre fitted to a vehicle must not be less than 70 per cent of the nominal width of the wider tyre fitted and never less than the vehicle manufacturer's narrowest optional tyre as indicated on the manufacturer's tyre placard.

Replacement tyres must also conform to the following requirements:

- The tyres must be rated by the tyre manufacturer as being suitable for road use.
 - The tyre must be a suitable size for the size of rim it is fitted to.
- When fitting passenger car tyres to light goods vehicles originally fitted with light truck tyres, the load rating of the replacement tyres must be based on the highest individual wheel load multiplied by a service factor of 1.10.
- The tyres on a given axle must be of the same construction (e.g. radial) and of the same size.
- Where re-treaded tyres are used, they must have been re-treaded and marked in accordance with the provisions of Australian Standard (AS) 1973-1993 *Pneumatic Tyres — Passenger Car, Light Truck and Truck/Bus — Re-treading and Repair Processes*.

Tyre Diameter

For a passenger car, passenger car derivative or 'soft roader' (an all-wheel drive vehicle that may be certified as MC ADR category), the overall diameter of any tyre fitted must not be more than 15mm larger or 26mm smaller than that of any tyre designated by the vehicle manufacturer for that model.

For a;

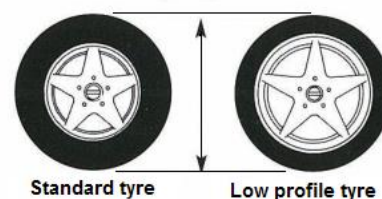
- 4WD passenger vehicle specifically designed for off-road use (MC ADR category other than a 'soft roader');
- 4WD goods vehicle and its 2WD equivalent if the chassis and running gear are essentially the same as the 4WD version (N ADR category); or
- Medium weight goods vehicle (NA2, NB ADR category);

The overall diameter of any tyre fitted must not be more than 50mm larger or 26mm smaller than that of any tyre designated by the vehicle manufacturer for that vehicle.

Tyre diameters of a vehicle fitted with Electronic Stability Control (ESC) may be modified without certification provided it is **not** combined with any other lift (i.e tyre and suspension, tyre and body block).

Note: Speedometer accuracy must be maintained for the selected tyre and rim combination.

Low profile tyres (e.g. 50 series), which replace standard profile tyres (e.g. 70 series or above), are normally fitted in combination with rims of larger than standard diameter to maintain the correct overall diameter of the wheel. A diagram of this concept appears to the right.



Tyre Aspect Ratio

Because of the different handling characteristics, the aspect ratio of tyres fitted to the front axle must not vary by more than 10 from the aspect ratio of tyres fitted to the rear axle (e.g. 175 **65** R14 front and 205 **45** R14 rear, has an aspect ratio difference of 20 and is not permitted, whereas 175 **65** R14 front and 195 **60** R14 rear has a difference of 5 and is permitted).

Speed and load ratings

The speed rating of all tyres must be at least:

- For an off-road passenger vehicle – 140km/h.
- For another car (sedan, station wagon, etc.) with up to nine adult seating positions or a car derivative – 180km/h.

- For another motor vehicle – 120km/h.
- The vehicle's top speed, if lower than the speeds referred to above.

Load ratings of tyres must be at least equal to those specified by the manufacturer on the tyre placard fitted to vehicles made after 1972. For other vehicles, the load rating of a tyre must be capable of carrying the part of the vehicle's gross mass carried by the tyre.

Tyre Construction

Tyre tread compounds, patterns, ply ratings and performance characteristics vary. Tyre construction (e.g. radial) and size must be the same on the same axle. Although it is recommended that the tyres are identical (e.g. same brand and tread pattern), this is not mandatory.

Wheel Marking

Vehicles built on or after 1 July 1985 must be fitted with original wheels or replacement wheels which are indelibly marked in accordance with approved standards.

These standards include:

- Standards Australia
- Wheel Industries Association (Australia)
- Technischer Überwachungen Verein
- Japanese Industrial Standards.

Composite Wheels

The use of composite wheels (two or three-piece) is permitted. They must be manufactured and marked in accordance with the standards described above if fitted to vehicles manufactured on or after 1 July 1985.

Repairs to Tubeless Tyres

Permanent repairs can only be made when the tyre is removed from the rim. The tyre must be examined to ensure it is structurally sound. The damaged area must be prepared on the inside for a patch or mushroom headed plug to be fitted and vulcanised into position. Any repairs to a tyre must be sealed to prevent moisture or contaminants from entering the tyre casing or structure.

Caution: Plug repairs can only be made in the tread area of the tyre and not in sidewalls or where the tread and sidewall meet.

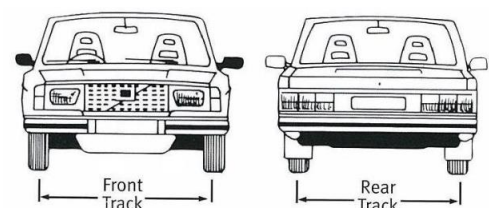
Punctures in tubeless tyres must not be repaired from the outside or without removing the tyre from the rim as this method is prone to failure.

Vehicle owners with doubts about tyre repairs should contact a reputable tyre dealer for proper repairs.

Vehicle Track

Track is measured at ground level from the centre of the tyre on one side to the centre of the corresponding tyre on the opposite side of the vehicle. The front and rear track differs on many vehicles.

The wheel track of any vehicle must not be reduced to less than the standard track specified by the vehicle manufacturer for the particular model of vehicle.



The wheel track of passenger cars (or derivatives) must not be increased by more than 25mm beyond the maximum specified by the vehicle manufacturer for the particular model. This means that the rim offset must not be changed by more than 12.5mm.

The wheel track of off-road four-wheel drive vehicles and goods vehicles must not be increased by more than 50mm beyond the maximum specified by the vehicle manufacturer for the particular model provided all other requirements such as clearances are met and the tyres do not protrude outside of the vehicle bodywork.

This does not apply to passenger vehicles that are four-wheel drive or all-wheel drive and certified as MA category vehicles on the vehicle identification plates. A vehicle's identification plate can usually be located under the bonnet on the vehicle's firewall or inside the driver's door jamb.

For further information on rims and tyres please refer to the LS section of the National Code of Practice for Light Vehicle Construction and Modification, VSB14.

Lowering or Raising of Vehicles

The following modifications may be permitted without certification if the total change in vehicle height resulting from all modifications performed does not exceed 50mm.

- At least two thirds of the original suspension travel in either direction is maintained
- Coil springs remain in locating seats on full suspension droop
- The normal relationship between the front and rear suspension heights is not unduly affected
- Replacement springs have the same or greater load capacity as the original springs
- Suspension coil springs are not shortened by cutting or heating
- Leaf spring suspensions are not raised by the use of extended shackles, adjustable metal plates or by placing the leaf springs to the opposite side of the axle.
- If lowering blocks are used, they are either steel or aluminium
- The vehicle maintains a minimum running clearance of 100mm and the requirements in Australian Design Rule (ADR) 43 are met*
- The suspension of a vehicle fitted with Electronic Stability Control (ESC) may be modified without certification provided it is **not** combined with any other lift (i.e tyre and suspension, suspension and body block, etc).

*Generally, a vehicle which maintains a minimum clearance of 100mm between the ground and any point on the underside of the vehicle (except a point on a tyre, wheel, wheel hub, brake backing plate or flexible mudguard or mudflap) will meet ADR 43.

The following information provides some general guidance about raising a 4WD off-road vehicle's height

A 4WD off-road vehicle lift up to and including 50mm combining both suspension lift and tyre diameter increase is acceptable under self-certification.

A 4WD off road vehicle lift over 50mm involving a suspension lift, tyre diameter increase, body lift or combination of these requires certification and testing by an AVC. The maximum suspension lift permitted is 75mm, the maximum tyre diameter increase is 50mm and the maximum body lift permitted is 50mm.

Note: The above mentioned maximum tyre diameter increase is for 4WD off-road vehicles. A passenger car or passenger car derivatives must not increase their tyre diameter by more than 15mm.

Variable Air Suspension Systems

Airbag or air pressurised shock absorber helper springs may be fitted in addition to the original suspension. However, replacing some or all of the suspension system with an air suspension requires specific certification from an AVC to the appropriate modification codes.

Suspensions Sway Bars, Torque Rods and Traction Rods

Auxiliary suspension control devices may be fitted without certification, provided they are properly engineered and secured and do not affect minimum ground clearance.

Adjustable sway bars, torque rods and traction rods may be fitted, provided they are designed and manufactured in accordance with good engineering practice, are suitable for on-road use and do not alter the vehicle suspension or steering geometry while used on the road network.

Shock Absorbers

Replacement shock absorbers (including struts and strut inserts) may be fitted without certification, provided they have been manufactured as replacement units for the particular vehicle model and have compatible mountings and dimensions.

Anti-roll Bars

Replacement or additional anti-roll bars (sway bars and stabiliser bars) may be fitted without certification to front and rear suspensions. Additional roll stiffness at the front will increase understeer and additional roll stiffness at the rear will increase oversteer, the incorrect choice or combination of sway bars could lead to unpredictable handling. We recommend expert advice is sought before this modification is considered.

Tramp Rods

Tramp rods may be fitted without certification to control rear spring *wind-up* provided that they meet the minimum ground clearance requirements of Australian Design Rule 43 or the requirements in the *Vehicle and Traffic (Vehicle Standards) Regulations 2014*.

Strut Braces

Transverse strut braces may be fitted without certification between suspension strut and spring mounting towers. Front strut braces should be kept as low as possible below the bonnet to minimise head injury to a pedestrian from any downward impact on the bonnet. Additionally, the fitment of a strut brace must not adversely affect a vehicle's supplementary restraint system or crumple zone.

Welding, Chrome Plating, Heating or Bending of Axles, Suspension and Steering Components

The welding, chrome plating, heating or bending of axles, suspension or steering components, as a method of repair or alteration, is not permitted.

For further information on chroming or heating components please refer to the LZ section of the National Code of Practice for Light Vehicle Construction and Modification, VSB14.

Differentials

Permanently locking a differential by welding or other means is not permitted and has a dangerous effect on the handling of a vehicle.

For further information on suspension and components please refer to the LS section of the National Code of Practice for Light Vehicle Construction and Modification, VSB14.

Glazing (Windscreen and Windows)

Transparent material (e.g. glass, acrylic) used in a windscreen, window or interior partition of a motor vehicle manufactured after June 1953 must have the characteristics required by any of the following standards:

- Australian and New Zealand Standard S/NZS 2080 *Safety Glass for Land Vehicles*
- British Standard BS AU178: *Road Vehicle Safety Glass*
- Japanese Industrial Standard JIS R 3211 *Safety Glazing Materials for Road Vehicles*
- American National Standard ANSI Z26.1 *Safety Code for Safety Glazing Materials for Glazing Motor Vehicles Operating on Land Highway*
- United Nations Economic Commission for Europe (UNECE) Regulation 43/00 *Uniform Provisions Concerning Approval of Safety Glazing and Glazing Materials*
- New Zealand Standard (NZS) 5443.

General Conditions

No material or other object is to be located on the windscreen or windows which will interfere with the driver's vision.

Film which has a reflectance of more than 10 per cent must not be used on any windscreen or window.

Windscreens

Tinting may be applied to the upper portion of a windscreen of a motor vehicle. The tinting must not extend lower than a horizontal line connecting the uppermost points of the arcs swept by the vehicle manufacturer's original wiper blades or the upper 10 per cent of the windscreen, whichever is the lesser. The tinting may be of any shade.

Windscreens which have tinting incorporated within the glazing (not applied tint) are permitted subject to the screen having an optical transmission of not less than 75 per cent for a motor vehicle built after 1971 and 70 per cent for any other vehicle.

Automotive Glass

Most vehicles are fitted with tinted glass (tinting incorporated within the glazing). In some cases it may be difficult to determine if the glass is actually tinted. To check if the glass is tinted, hold a piece of white paper on the opposite side of the glass. If it has a slight grey, green or brown colour when viewed through the glass, the glass is tinted.

Section 6.3 of the LVIM specifies the luminous transmittance levels applicable to individual windows, and other equipment requirements such as rear vision mirrors, to be determined as a reason for rejection.

Please Note: *The Australian Design Rules (ADRs) now allow privacy glass to be fitted to a vehicle rearwards of the driver's vision. Privacy glass has no minimum light transmittance and is often darker than applied film. Privacy glass incorporates tinted film within the glazing and is not defined as an applied tint. All applied tint must meet the requirements in section 6.3 and not the requirements set out for privacy glass in the ADRs.*

Steering Wheels

It is acceptable to replace a vehicle's steering wheel without certification, provided the replacement steering wheel does not affect compliance with ADR 10 (after 1970) and ADR 69 (after June 1995). Unless a steering wheel is marked or has accompanying information indicating it has been tested to the appropriate ADR, it must not be used as a replacement. In addition, for vehicles required to comply with ADR 69, the steering wheel assembly must be identical to one

fitted as an option to the same model by the vehicle manufacturer, or alternatively, a steering wheel that has been certified by the replacement wheel manufacturer as a complying wheel for the specific make and model may be used.

Replacement steering wheels should not be less than 330mm in diameter. If the original steering wheel was designed with a recessed or padded hub, the replacement wheel should be of a similar design.

Note: Removable steering wheels must not be fitted.

Electrical System

It is permissible to relocate a vehicle's battery without certification, provided it meets the following requirements:

- The battery is adequately restrained.
- Battery cables are shielded to prevent damage.
- Rubber grommets must be fitted where a cable passes through a hole in body panels and/or chassis sections.
- Battery cables are securely mounted to the vehicle at a maximum spacing of 600mm.
- Battery cables are adequate to carry the electrical system's maximum load.

Please Note: In addition to the above requirements, a battery relocated in a vehicle's luggage compartment must be fully enclosed and the enclosure vented to outside the vehicle.

An additional light or reflector may be fitted without certification only if the light or reflector is required or permitted to be fitted by the Australian Design Rules (ADRs), the *Vehicle and Traffic (Vehicle Standards) Regulations 2014*. For example, under-body lighting (neon lights) are **not** be acceptable. However, additional lights such as side marker lamps, brake lights and driving lamps may be permitted.

A maximum of 4 additional lamps may be fitted to the front (not roof racks or roll bars) of a vehicle and must not be fitted in a manner that they would be considered a dangerous protrusion (for example not on top of the bull bar, they may be fitted within the confines of the bull bar) and the light emitted does not cause discomfort to the driver or other road users either directly or indirectly through the rear view mirrors and/or other reflecting surfaces of the vehicle..

High Intensity Discharge (HID) Lights

Fitting HID lights to non-HID light assemblies is not permitted.

HID lights are more efficient than traditional incandescent lights due to displaying a greater proportion of visible light rather than heat, the light that they emit may appear to have a blue tinge.

A requirement of fitting HID lights is that a complete system be fitted. The system includes a specific lens design, headlamp cleaning and auto level devices, these are required to reduce the chances of dazzling other road users.

LED Replacement Globes

Recently added to the market are LED replacement globes. LED replacement globes do not meet the requirements of the ADRs. Fitted to original manufactured lamps LED globes do not provide a light display that meets the requirements. Many of the LED replacement globes are advertised as "Off road use only" and Not ADR compliant, therefore are not suitable for use on a public street.

Replacement LED Headlamp Assemblies

Replacement LED headlamp assemblies are accepted providing they meet the requirements of ADR's 13, 46 and where daytime running lights are incorporated ADR 76. This includes

headlamp assemblies with a dipped beam greater than 2000 lumens must have headlamp cleaners fitted and a means of adjusting the headlamp height from the drivers seating position.

Main (high) Beam Headlamps

A maximum of 4 additional lamp assemblies may be fitted (headlight or driving light) provided they are fitted at the front of the vehicle. Fitting to the roof rack of a vehicle with a bonnet is not acceptable.

The fitting of additional main beam headlamps is permitted without certification as they are regulated by the ADRs and the *Vehicle and Traffic (Vehicle Standards) Regulations 2014*. These additional lights must only be fitted to the front of the vehicle.

Driving Lights

Are designed to illuminate the road over a long distance. Driving lights must be wired so that they switch on and off with the main beam (high beam) headlight. Never use your lights to dazzle another road user.



Driving lights/High beams must not be used when:

- You are less than 200m behind another vehicle.
- You are less than 200m from any oncoming vehicle.

LED Light Bars

ADR 13 (Australian Design Rules) has been amended removing the requirement for additional lamps to be fitted in pairs. This allows the fitment of singular light bars. A LED light bar is a lamp assembly that contains multiple LED light sources in one or more rows which is used to better illuminate the road in front of the vehicle. Light bars are to only be used to supplement the vehicles high beam as an additional driving light and therefore must be wired so that they only operate with the vehicles high beam and automatically turn off when the high beam headlights are turned off.



LED Light Bars/High beams must not be used when:

- You are less than 200m behind another vehicle.
- You are less than 200m from any oncoming vehicle.

If a light bar has the ability to have sections switched on and off independently then each independently controlled section counts as one lamp and each section may only operate when the vehicle high beam lights are operating. LED light bars must not be fitted so that they obstruct the drivers view, at the front of the vehicle.

Daytime Running Lamps

Daytime running lights are an optional light and when fitted are designed to increase the visibility of a vehicle to other road users during daylight hours. The light pattern dispersed by daytime running lights is designed to make the vehicle more conspicuous to all road users without causing unnecessary glare or discomfort. After-market daytime running lights may be fitted to vehicles if they are fitted in accordance with relevant legislation. Daytime running lights must not use over 25 watts of power.

Daytime running lights turn on automatically when the engine starts and must be wired so that they are turned off when the headlights are on unless the headlight is being used as a flasher signal.

Daytime running lights must only be fitted in pairs, and if fitted must be positioned so that they are not more than 510mm from the extreme outer edge of the vehicle. The centre of each light is at least 600mm from the centre of the other light. If the vehicle is narrower than 1300mm the

centre of each light may be 400mm from the centre of the other light. They may be fitted not less than 250mm above the ground and not more than 1500mm from the ground.

Fog Lamps

Front fog lights are optional lights which are fitted to the front of a vehicle to improve illumination of the road in fog, snowfall, and heavy rain or dust clouds. Fog lamps emit a low, narrow vertical pattern of light with a wide lateral spread. People are often confused as to what is classed as a fog lamp, if you are unsure please refer to the owner's manual provided with your vehicle to ascertain if it is fitted with fog lamps.

A Rear fog lamp is an optional light (other than a brake light, a tail light, a number plate light or a reversing light) fitted to the rear of a vehicle to make the vehicle more easily visible from the rear in fog, snowfall, heavy rain or dust clouds.

Front fog lights must be white or yellow in colour and rear fog lamps must only emit a red light. Up to 2 lamps may be fitted towards the front of the vehicle, they must be situated no more than 400mm from the outer edge of the vehicle to the centre of the fog light and be no less than 250mm above the ground. The maximum height permitted is dependent on the vehicle. The centre of a fog light must not be above the centre of the low beam headlight. Passenger cars and light goods vehicles must be no higher than 800mm above the ground all other vehicles must be no more than 1200mm above the ground apart from off-road vehicles which may have the lights fitted to a maximum of 1500mm above the ground. Fog Lamps may be concealed when not in use. Fog lamps must not be fitted in such a way that they may be considered a dangerous protrusion or dazzle other road users when operating.

The driver must be able to turn the front and rear fog lights on or off independent from other lights. It is a requirement for vehicles from October 1991 that a tell-tail light must illuminate on the dashboard when the fog lights are operating.

Fog lights must not be illuminated unless fog or other reduced visibility conditions exist.

Further information relating to additional lighting can be found at

https://www.transport.tas.gov.au/vehicles_and_vehicle_inspections/Vehicle_information_bulletin_s

It is the owner's responsibility to ensure all accessories and equipment attached to a motor vehicle are designed and fitted in a manner which reduces the risk of injury to pedestrians and other road users who may make contact with the vehicle when the vehicle is parked or in motion.

Frontal Protection Systems (FPS): (bull/nudge bars & other devices)

Must be designed and fitted so the safety of the vehicles occupants and any applicable Australian Design Rules (ADR) are not adversely affected.

Additional brackets or components such as driving lamp brackets, fishing rod holders or aerial mounting brackets must not protrude above the top or forward of the device profile.

Brackets and other components are to be free of burrs and sharp edges and are fitted rearward of the front face of the device.

The Australian Standard AS4876.1-2002 (Motor Vehicle Front Protection Systems) includes specific design, manufacture and testing obligations and requires the device to not adversely affect a vehicle's compliance with applicable ADR's. Various jurisdictions require a VFPS to comply with this standard.

If a VFPS is fitted, a device compliant with the Australian Standard is considered best practice.

The FPS should;

- Conform to the actual shape of the vehicle to which it is fitted.

- Be securely mounted and supported.
- Be compatible with the vehicle it is fitted to.
- Must be fitted in accordance with the VFPS manufacturer's instructions.

They must not

- Constitute a danger to other road users.
- Obstruct the vision of the driver.
- Lean forward more than 75mm (see heading VFPS Offset).
- Protrude above the front of the bonnet line of the vehicle.
- Project further from the front of the vehicle than is necessary for its attachment.
- Add a significant load to the front suspension.
- Be a dangerous protrusion (includes accessory items fitted to the device).
- Be lower than 100mm from the ground.
- Protrude any wider than necessary from the side profile of the vehicle (excluding the vehicle manufacturer's standard external rear vision mirrors). No regulatory dimensions must be exceeded.
- Adversely affect the vehicle compliance with applicable ADR.

The VFPS and attached items must be free of sharp protrusions and all exposed sections of the device and fittings must be rounded and deburred. Forward and side surfaces must be designed to reduce the risk of injury to any person who may come into contact with the device.

The VFPS must not obscure the vehicle head lights. The visibility of indicators and other lights at all viewing angles should not be reduced, however, additional lights (compliant with applicable standards) may be fitted or the original light relocated in accordance with the relevant legislation or ADR's if the device does restrict visibility. Surfaces of the VFPS that could reflect light from the vehicle's headlights must be treated to reduce glare.

If the device is not fitted as per the manufacturer's instructions and the requirements of this bulletin are not observed, the device may not perform as intended and be detrimental to occupants and other road users safety.

Fishing rod holders can only be fitted providing they comply with the following conditions:

- Rod holders must be either removed or retracted behind the profile of the FPS when they are not in use.
- The fitting allows the driver a view of the road and of traffic to the front and sides of the vehicle
- They must only be attached to the left side of the vehicle.
- They must be designed to carry no more than four fishing rods.
- Rods, hooks and sinkers must be properly secured.
- Vehicle lighting must not be obstructed by rods or holders.

Bicycle/Wheelchair/Roof Racks

Tow bar mounted bicycle and wheelchair carrying racks must be removed when not in use, unless specifically approved to remain attached. The bicycle or wheelchair and the carrying rack must not obscure any compulsory lighting or the number plate.

To address this problem, an accessory number plate may be attached to bicycle carriers or other carrying devices. No other copy of the vehicle number plate is acceptable.

Roof racks may be fitted without certification, provided they do not protrude more than 50mm beyond the drip mould, or for a vehicle without drip moulds, the outer profile of the roofline.

Ladder Racks/External Roll Bars and Roll Cages

Vertical upright supports may be positioned behind and/or in front of the windscreen 'A' pillar. However, supports mounted in front of the windscreen 'A' pillar must not exceed 50mm in diameter and **must** be removed from the vehicle when not in use. Any support positioned in a way which can reflect the vehicle's lights back to the driver must be a matt black, non-reflective finish.

Ideally, no lights should be obscured by the fitting of any vertical support. If any light is obscured, an additional light must be fitted or the original relocated in accordance with the *Vehicle and Traffic (Vehicle Standards) Regulations 2014* or Australian Design Rules.

Supports, braces and brackets must not have any sharp edges or protrusions, must not interfere with a person's normal access to the vehicle and should not project more than 150mm from each side of the vehicle or make the vehicle more than 2.5m wide.

Any attachments or modifications to the vehicle's chassis must be in accordance with the vehicle manufacturer's recommendations and may require certification by an AVC.

Loaded roof racks increase the vehicles centre of gravity and may lead to excess body roll, reduced vehicle stability and handling.

Care must be taken to not overload the roof racks or the vehicle manufacturer's recommendations for roof rack mass. Manufacturers of roof racks generally stipulate the maximum mass for their racks.

Note: Requirements for internal roll bars and roll cages are covered in the LK section of the National Code of Practice for Light Vehicle Construction and Modification VSBI4 and require certification by an AVC.

Tradesman or ladder racks;

These are generally fitted to utilities or vans and have front supports to carry longer loads.

Conditions that apply to Tradesman/Ladder racks;

- The vertical uprights are behind any bull bar frame work,
- The uprights do not block the regulatory lights,
- There are no sharp corners or edges on the uprights or rack.
- The uprights are kept to a minimum diameter and do not block the drivers view,
- The uprights must be structurally sound and adequate to support the mass of the rack and load,
- The rack must not extend forward of the vehicle front bumper,
- Any load on the rack must not extend forward of the front bumper by more than 1.2 metres.

Long Range Radio Antennas

Long range antennas may be fitted to a vehicle without certification, provided they meet the following requirements:

- Forward mounting is permitted only when it is impossible or impractical to install the antenna to the rear of the vehicle.
- The installation must be attached as low as is practical to ensure the large diameter section of the antenna projects above the bonnet line for the minimum distance.
- Only one long range antenna (large diameter base) may be fitted to the front of a vehicle and must be fitted to the left side (maximum diameter permitted 75mm).
- All sharp edges or protrusions which could cause injury to anyone making contact with the device must be removed or rounded.

Visual Display Units

Visual display units such as DVD screens, reversing cameras, and so on may be installed in a motor vehicle without certification. However, no part of the image on the screen may be visible to the driver in the normal driving position unless the screen is disabled when the vehicle is being operated or it is considered a driver's aid (e.g. in-car navigation).



The following visual display units are considered driver aids:

- Dispatch systems
- Navigational or intelligent highway and vehicle system equipment e.g. GPS
- Rear view screens
- Ticket-issuing machines
- Vehicle monitoring devices

Other visual display units not considered driver aids include

- DVD players
- Television receivers
- Gaming systems
- In-vehicle traffic cameras (which do not increase the vehicle operators field of view)

When fitted, the unit must not:

- Be positioned in a way which adversely affects the driver's field of view. It is recommended that the driver maintains an 11 metre (or if less, that provided for by the original vehicle manufacturer) field of view from the driver's seating position with the seat in the lowest and rearmost position.
- Encroach upon the deployment area of any of the vehicle's Supplementary Restraint Systems (Air bags, seatbelts, head restraints, etc).
- Impede the movement of occupants in the vehicle.
- Be fitted in a location which could contact occupants in the event of a crash.
- Be fitted in a location where any image on the screen is likely to distract other drivers.
- Be fitted in such a way that it can easily be dislodged in a crash or under heavy braking/acceleration.
- Obstruct occupant access into the vehicle.

Accessory Gauges

Additional gauges may be fitted in a position visible to the driver provided they meet the following;

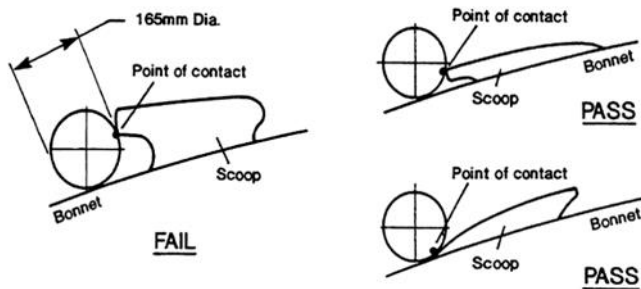
- The gauges, brackets and covers must be of smooth construction with rounded edges so they are not likely to increase the risk of injury to a person.
- Any instrument lighting must not be greater in intensity than the vehicle dash lighting.
- Be positioned in a way that does not adversely affect the driver's field of view.
- Encroach upon the deployment area of any of the vehicle's Supplementary Restraint Systems (Air bags, seatbelts, head restraints, etc.).

It is recommended that pressure gauges are of a type that are electronically controlled. If the gauges require pressure lines the lines must be appropriate for the pressures and temperatures involved, protected from damage and that in the event of a leak no fluid is able to spray onto the windscreen or any person.

Bonnet Scoops

Bonnet scoops/projections may be fitted to a vehicle without certification, provided they meet the following requirements:

- The driver's vision is not restricted under normal operating conditions with the driver's seat located at its lowest and rearmost position.
- When a 165mm diameter sphere is placed on the bonnet in front of the scoop (or bonnet projection) and rolled backwards until it touches the scoop, no forward point of the scoop or point of contact between the sphere and the scoop must lie above a horizontal plane passing through the centre of the sphere.



- It shall be possible to see either the surface of the road 11m in front of the driver's eye or all of the front edge of the original body when looking across the top of the bonnet scoop. For the purposes of this requirement, the driver's 'eye' position can be taken as being a point 730mm above and 270mm forward of the junction of the seat cushion and seat back with the seat in its lowest and rearmost position.
- The edges at the front of a scoop/projection shall be rounded with a minimum radius of 10mm.
- All other edges and corners shall have a radius of not less than 5mm and be designed to reduce the risk of bodily injury to any person.
- The scoop/projection must not have reflective surfaces.
- Any holes in the bonnet must not substantially reduce the strength or impact resistance of the bonnet.
- Air cleaners or carburetors must not protrude beyond the original bonnet profile unless the bonnet scoop/projection is manufactured from equivalent gauge mild steel, compared with that of the original bonnet.
- Air cleaners and/or carburetors must be covered by the bonnet scoop.

Side Skirts, Flares and Spoilers

Side skirts and front and rear spoilers may be fitted without certification, provided road clearance and air flow for brake cooling are not adversely affected.

Additionally, they must not be fitted so they are likely to increase the risk of bodily injury to a vulnerable road user coming into contact with the vehicle. All material is to be of a suitable thickness and be free from sharp edges or corners.

Rear spoilers must be within the body shape/outline of the mounting surface (for example, the boot outline). The minimum thickness of end plates is 4mm and they must be free of sharp edges or corners.

Bodywork and Interior

There are general requirements concerning alterations to the bodywork, however:

- No alteration may cause a hazard to persons due to exposed sharp edges or projections
- No alteration may cause a reduction in the level of safety or overall strength of the vehicle

Further information relating to Accessories, Equipment and Protrusions can be found at http://www.transport.tas.gov.au/vehicles/specifications/vehicle_specification

Frame and Suspension Alterations

Motorbike design is a complex task. Before modifications are made to a motorbike's frame or suspension, you should be aware that structural changes to the frame, steering head, front forks, suspension, brakes or wheels may load vital components well beyond the limits for which they were originally designed. This may increase the probability of failure and may be a danger to the rider and other road users. Motorbikes with properly designed custom frames, extended forks, hard tail conversions and structural modifications are acceptable, but require certification by an AVC. Before undertaking modifications similar to the ones mentioned above you must engage the services of an AVC.

Engine Replacements

Many manufacturers produce a series of models with the same basic frame fitted with engines of differing capacity. No approval is required if the smaller capacity engine is replaced by a larger capacity engine from the same series, provided the brakes and suspension from the larger capacity motorbike are fitted and no modification is required to the frame. The fitting of any other alternative replacement engine, superchargers or turbochargers require certification by an AVC. Before undertaking modifications similar to the ones mentioned above, you must engage the services of an AVC.

Steering Gear and Handle Bars

For motorbikes which have the head stem as the steering pivot point, the horizontal distance from the midpoint between the head stem bearings to the centre of the front wheel must not be over 550mm. Offset triple clamps are often fitted to provide the motorbike with 'a raked out' appearance without the need to modify the frame. These are acceptable, provided the trail measurement is not less than 75mm.

Motorbikes manufactured before 1 July 1988

The handle bars of a motorbike must extend at least 250mm, but not over 550mm, on each side of the longitudinal axis of the motorbike. This measurement does not include mirrors and lights. The lowest part of the hand grip on the handle bars must not be higher than 380mm above the attachment point of the handle bars to the motorbike. Hand grips on the handle bars must be fitted symmetrically.

Please Note: When measuring handle bar height, the upper surface of the original steering yoke, not including any spacers, is considered the handlebar attachment point.

Motorbikes manufactured from 1 July 1988

The distance between the extreme ends of the handlebar must not be less than 500mm and not more than 1100mm. This measurement does not include mirrors and lights. The height of the lowest part of the handgrip must not be more than 380mm above the lowest part of the upper surface of the rider's seat. Hand grips on the handle bars must be fitted symmetrically.

Exhausts

Motorbikes manufactured from 1 July 1975 are subject to Australian Design Rule (ADR) requirements for noise. Any replacement exhaust system must be as near as practicable to the

original component specification and/or comply with ADR noise requirements. If you modify or replace an exhaust system on a pre-1975 motorbike, you must remember that the law prohibits all motor vehicles from causing excessive noise due to the condition or construction of the vehicle, or the manner in which it is operated.

Motorbikes manufactured from 1 July 1988 have all components of the silencing system marked with the name or trade name of the manufacturer.

These motorbikes carry information of the Stationary Noise Test in the following format:

STATIONARY NOISE TEST INFORMATION
Tested at..... dB(A) at..... r/min
Silencing System: (manufacturer's name)
Identification: (trade description)

Any replacement part of the silencing system must show the trademark or the name of the original manufacturer of the system.

Wheels and Tyres

On all wheels (including any side-car wheel), the tyre size must be suitable for the rim. Each tyre and rim must be strong enough to support the machine when it is fully loaded. Most major motorbike tyre specialists can tell you the right tyre and rim for your motorbike and the appropriate tyre speed rating.

The tyre to rim fitting must be in accordance with the Tyre and Rim Standards Manual published by the Tyre and Rim Association of Australia and marked as suitable for motorcycles.

Chain Guards (including Belt Drive)

If the motorbike has a chain or belt drive, the driver and any passenger must be protected from the front sprocket and at least the upper part of the chain or belt by the frame or equipment of the motorbike, or by a guard. The guard must cover the chain or belt to a point at least 300mm to the rear of the rearmost foot rest or above the centre of the rear drive sprocket.

Mudguards

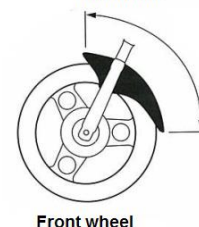
Mudguards must be fitted to all wheels (including the sidecar wheel). Each mudguard must be at least as wide, over its entire length, as its respective tyre. A front mudguard must cover the rearward section of the wheel through the area between two lines, one vertical and the other horizontal, both drawn through the centre of the wheel.

If suitable protection is afforded by the frame or construction of the motorbike, the front guard need only cover the unprotected area.

The mudguard provided for the rear wheel and for the wheel of any sidecar must:

- Protect other road users, as far as practicable, against thrown-up stones, mud, ice, snow and water; and
- Reduce the dangers due to contact with the moving wheels.

Minimum coverage, unless suitable protection is afforded by the frame.



Indicators

Indicators are required on all motorbikes manufactured after 30 June 1975.

Sidecars

Sidecars which bolt directly to the motorbike's frame without the need for any modifications to the motorbike are acceptable without certification. However, sidecars which require the motorbike to be modified (for example, welding to the frame) must be approved by an AVC. Before modifying your motorbike so that a sidecar can be attached, you should engage the services of an AVC.

When attached, a sidecar must be:

- Fitted to the left hand side of a motorbike. However, this does not apply to a motorbike and sidecar combination greater than 30 years of age, provided it is an original manufacturer's fitment.
- Fitted with a mechanical parking brake if the motorbike was manufactured after February 1976.
- Such that the overall width of the motorbike and sidecar in combination, including any load and equipment, less than 1.86m.
- Fitted with a parking light within 150mm from the side of the sidecar that is furthestmost from the motorbike

Approved Vehicle Certifiers (AVC)

https://www.transport.tas.gov.au/vehicles_and_vehicle_inspections/modification_inspections_avc_ais

Australian Standards

<https://infostore.saiglobal.com/en-au/>

National Code of Practice for Light Vehicle Construction and Modification (Vehicle Standards Bulletin 14)

https://infrastructure.gov.au/roads/vehicle_regulation/bulletin/vsb_ncop.aspx

Third Edition Australian Design Rules

http://www.infrastructure.gov.au/roads/motor/design/adr_online.aspx

Tyre and Rim Standards Manual

Available for purchase at <http://www.tyreandrim.org.au/>

Vehicle Standards Information Bulletins

https://www.transport.tas.gov.au/vehicles_and_vehicle_inspections/Vehicle_information_bulletins

For more information contact:

Department of State Growth

Vehicle M

GPO Box 536

Hobart TAS 7001

Phone: (03) 03 6166 3263

Email: vehicle.standards@stategrowth.tas.gov.au

Web: www.transport.tas.gov.au

Appendix P - Vehicle Modification Codes

The table below briefly defines meaning of codes that may be engraved on modifications plates fitted to modified vehicles. The codes relate to the National Code of Practice for Light Vehicle Construction and Modification which is also known as VSB-I4 and can be viewed at the following link:

https://infrastructure.gov.au/roads/vehicle_regulation/bulletin/vsb_ncop.aspx

VSB I4 Modification Codes

Section	
LA	ENGINE
LA1	Equivalent Engine Installation and Checklist
LA2	Performance Engine Installation and Checklist
LA3	Supercharger/Turbocharger Installation and Checklist
LA4	Engine Modifications and Checklist
LB	TRANSMISSION
LB1	Transmission Substitution and Checklist
LB2	Rear Axle Substitution and Checklist
LG	BRAKES
LG1	Brake System Conversion (Design) and Checklist
LG2	Brake System Conversion and Checklist
LH	BODY & CHASSIS
LH1	Roof Conversion (Design) and Checklist
LH2	Roof Conversion and Checklist
LH3	Modified Wheelbase Conversion (Design) and Checklist
LH4	Modified Wheelbase Conversion and Checklist
LH5	Vehicle Construction (Design) and Checklist
LH6	Vehicle Construction and Checklist
LH7	Body/Chassis Variants Conversion and Checklist
LH8	Not Used
LH9	Not Used
LH10	Not Used
LH11	Campervan, Motorhome Conversion and Checklist

LK	SEATING AND OCCUPANT PROTECTION
LK1	Seat and Seatbelt Installation/Removal and Checklist
LK2	Seat and Anchorage Certification and Checklist
Section	
LK	SEATING AND OCCUPANT PROTECTION
LK3-5	Not Used
LK6	Child Restraint Anchorage Installation and Checklist
LK7	Not Used
LK8	Construction and Installation of One-Off Roll-bars and Rollcages by Individuals and Checklist
LK9	Design and Manufacture of Commercial Aftermarket Rollbars, Roll-cages and Other Types of ROPS and Checklist
LK10	Installation of Aftermarket Roll-bars, Roll-cages and ROPS and Checklist
LL	MOTOR CYCLES AND THREE WHEELED VEHICLES
LL7	Seating Capacity Alteration (This Code has now been deleted but an equivalent requirement still exists in Queensland)
LM	FUEL SYSTEMS
LM1	Fuel Tank Alteration and Checklist
LM2	Installation of Liquefied Petroleum Gas (LP Gas) Fuel Systems and Gas Containers and Checklist
LM3	Natural Gas (NG) Fuel System Installations and Modification and Checklist
LO	VEHICLE STANDARDS COMPLIANCE
LO1	Australian Design Rule Compliance
	Checklist LO1-1 ADR Compliance Summary (Applicable to all Third Edition ADR Category Vehicles)
	Checklist LO1-2 – ADR Second Edition Compliance (Applicable to all Second Edition ADR Category Vehicles Except Motor Cycles and Mopeds)
	Checklist LO1-3 – ICV Motor Vehicle (Applicable to MA, MB and MC ADR Category Vehicles)
	Checklist LO1-4 –ICV Motor Vehicle (Applicable to MD, NA and NB ADR Category Vehicles)
LO2	ICV Passenger Cars and Derivatives
	(For ADR Category MA, MB and MC vehicles use LO1-1, LO1-3 Checklists)
	(For ADR Category MD, NA and NB vehicles use LO1-1, LO1-4 Checklists)
LO3	Personally Imported Vehicle Compliance
LO4	ICV LEMI Tricycle (ADR Category LEMI) and Checklist
LO5	ICV LEPI Tricycle (ADR Category LEPI) and Checklist
LO6	Street Rods

LO7	ICV Motor Cycle (ADR Category LA, LB, LC and LD) and Checklist
LS	TYRES, RIMS, SUSPENSION AND STEERING
LS1	LHD Vehicle Steering Conversion (Design) and Checklist
LS2	LHD Vehicle Steering Conversion and Checklist
Section	
LS cont.	TYRES, RIMS, SUSPENSION and STEERING
LS3	Front Suspension and Steering Modification (Design) and Checklist
LS4	Front Suspension and Steering Modification and Checklist
LS5	Rear Suspension Modification (Design) and Checklist
LS6	Rear Suspension Modification and Checklist
LS7	High Lift - 50mm to 150mm (Design) and Checklist
LS8	High Lift - 50mm to 150mm Modification and Checklist
LT	TEST PROCEDURES
LT1	Beaming and Torsion Tests, Reporting Forms and Checklist
LT2	Lane Change Manoeuvre Test and Checklist
LT3	Exhaust Emissions – IM240 Test and Checklist
LT4	Noise Test and Checklist
LV	ALTERNATIVE POWER UNITS
LV1	Installation of Electric Drives in Motor Vehicles; Guidelines and Checklist
LZ	APPENDICES

TASMANIAN ONLY CODES	
Mod Code	Description
A-Frame (..)	Certification of an A-Frame towing Unit – the serial number is within the brackets (...)
AC	Adaptive Controls
LC1	Passenger Side Pedal Controls (Design)
LC2	Passenger Side Pedal Controls (Modification)
TAS10	Light Vehicle Airbag Suspension (Design)
TAS11	Light Vehicle Airbag Suspension (Modification)

VSB 6 Modification Codes

A	ENGINES
A1	Engine substitution
A2	Air cleaner substitution or additional fitting
A3	Turbocharger installation
A4	Exhaust system alteration
A5	Road speed limiter installation
B	TRANSMISSIONS
B1	Transmission substitution or additional fitting
C	TAIL SHAFT ALTERATIONS
C1	Tail shaft alterations
D	REAR AXLES
D1	Rear axle installation
D3	Fitting of non-standard rear wheel components
E	Front Axle Steering Wheels & Tyres
E1	Front axle installation
E2	Steering alteration
E3	Fitting of non-standard front wheel components
F	SUSPENSION
F1	Suspension substitution
F2	Trailer suspension modifications
G	BRAKES
G1	Relocation of air brake components
G2	Installation of trailer braking controls
G3	Trailer brake system upgrade
G4	Motor vehicle brake system certification
G5	Fitting of auxiliary and endurance brakes
G6	Fitting of air operated accessories
G7	Brake system substitution / wheelbase extension
G8	Trailer brake system upgrade (design)
H	CHASSIS
H1	Wheelbase extension outside OEM options
H2	Wheelbase reduction outside OEM options
H3	Wheelbase alterations within OEM options
H4	Chassis alteration

H5	Trailer chassis modifications
H6	Install approved front underrun protection
H7	Design or manufacture aftermarket front underrun protection
J	BODY MOUNTING
J1	Body mounting
J2	Fitting of truck-bus body
J3	Fitting of roll-over or falling object protection system
J4	Tipper Bodies
K	CABIN
K1	Seating capacity alteration, seat, seatbelt and anchorage installation
K2	Certification of seat and of seatbelt anchorage
K3	Cabin conversion
K5	Installation of wheelchair occupant restraint system
K6	Child restraint anchorage installation
M	FUEL SYSTEMS
M1	Fuel system alterations
P	TOW COUPLINGS
P1	Towbar and coupling installation other than fifth wheels and kingpins
P2	Fifth wheel and kingpin installation
R	VEHICLE MOUNTED LIFTING SYSTEMS
R1	Installation of vehicle mounted lifting systems
R2	Wheelchair loader installation
S	VEHICLE RATING
S1	GVM/GCM re-rating
S2	GVM re-rating (design)
S3	GCM re-rating (design)
S7	ATM/GTM re-rating
S8	Motor vehicle road train rating
S9	Prime mover B-double rating
S11	Road train trailer rating
S12	ATM/GTM re-rating (design)
T	TOW TRUCKS
T1	Tow trucks (construction)
T2	Tow trucks (design)

Appendix Q - Checking for Rust

The extent of corrosion in a vehicle can range from light surface rust to the total breakdown of parent metal.

Depending on the individual vehicle's design, there are many different ways in which corrosion can begin and the degree to which a material or structure is attacked can vary widely. In general, though, the formation of rust and resultant loss of metal occurs in areas which retain moisture because (for example) of a build-up of road dirt and mud.

In order to simplify identification and classification when carrying out a motor vehicle inspection, this publication classifies the extent of corrosion in three different stages.

Light, powdery corrosion on the surface of a section of metal is termed surface rust and is sometimes the first indication of corrosion that can be observed; it should warn the owner of the vehicle to take steps for preventing the rust from spreading.

Surface rust can occur on or behind any body panel of a vehicle particularly if the protective coating is scratched or damaged.

Surface rust, if left unattended, will develop into an advanced form of corrosion which can usually be seen as an eruption of oxidised metal, either on bare metal or under paint. This eruption occurs because the rust reaction involves an increase in volume so that pitting or bubbling of paint is the usual indication of penetration.

The final stage of the corrosion process is the formation of heavy encrustation of oxidised metal which completely replace the parent metal. This results in a hole or series of holes in the body panel or structural member of the vehicle when the rust is removed. This category of rust can usually only be rectified by replacement of the affected body panels and parts.

Vehicle structural components can be categorised according to their importance to safety. For instance, sub frames and other basic structural sections have to be absolutely free of rust because their failure could make a vehicle difficult to control and might cause it to crash. As already mentioned, such failures will also probably reduce the chances of survival in a crash.

This category includes any structure or component which, if it collapsed, would make the vehicle uncontrollable or would considerably reduce occupant safety in a crash. Examples of components in this category are illustrated below.

1. Main structural members such as sub frames and chassis rails.
2. Suspension mountings and parts.
3. Steering component mounting points.
4. Door sills and pillars.
5. Door hinges and latch mounting points.
6. Seat anchorage points.
7. Seat belt anchorage points.
8. All floor panels
9. Boot floor
10. Bulkheads

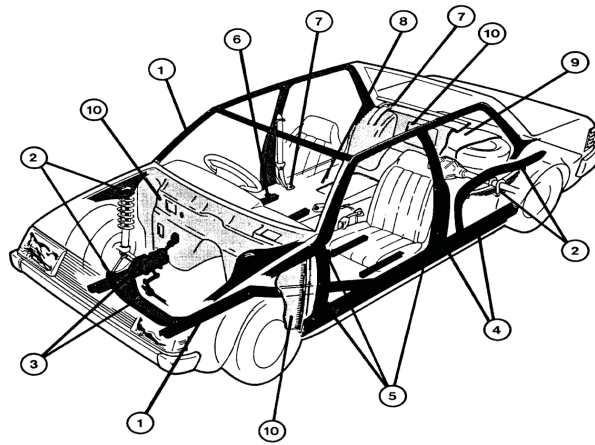


Figure 1.1

The second category includes any structure or component which, if it collapsed, would not immediately affect a vehicle's controllability or the protection provided by its built-in safety systems. Normally, surface rust or advanced rust would not be a cause for rejection in these components but extensive rust is usually either hazardous to persons in or near the vehicle because of its sharp edges or because exhaust fumes can get into the vehicle. In such cases, extensive rust, must therefore be rejected. The illustration below shows examples covered by this category.

1. Mudguards or fenders.
2. Roof.
3. Boot lid, bonnet and doors (areas within 100mm of mounting and locking points are primary structures and must be free of advanced or extensive rust).
4. Exhaust system.

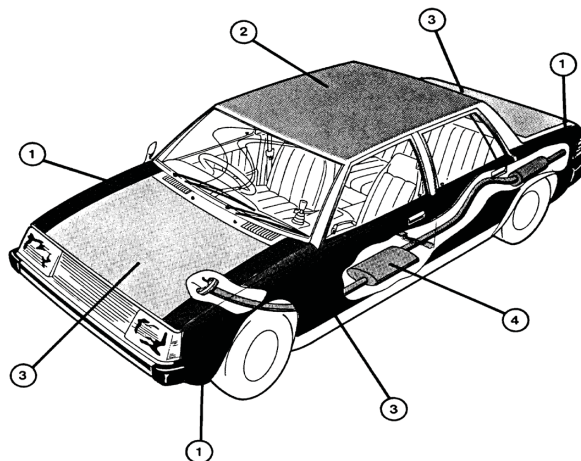


Figure 1.2

NOTE: Because of differing structural designs, it might be difficult to categorise some vehicle components as primary or secondary structure. Where such difficulties are encountered, advice should be sought through the Authority's Technical Enquiries Officers to clarify any uncertainties that might be encountered.

Reasons for Rejection

The following table summarises the acceptability of rusted components in terms of the categories of rust and structures described so far. Remember that it is a general guide only and that in some cases it might be necessary to depart from the table.

Type of	Category of structure	
	Primary	Secondary
Surface Rust	Acceptable	Acceptable
Advanced Rust	Not Acceptable	Acceptable (See Note A)
Extensive Rust	Not Acceptable	Not Acceptable (See Note

NOTE A: Areas within 100mm of hinges and locks (e.g. boot lid, bonnet and doors), are considered primary structures and must be free of advanced and extensive rust.

NOTE B: Extensive rust is not acceptable in secondary components, if it has resulted in hazardous conditions to persons in or near the vehicle e.g. sharp edges, loose panels or, in the case of exhaust system, gas leaks.

Visual inspection is usually adequate since advanced corrosion is almost always associated with an eruption of oxidised metal and pitting or bubbling of paint.

However, this method may not be adequate in all cases. In under body areas prone to rust such as steering and suspension mounting points and major structural components which include chassis, floor; structural sills and sub-frames presence of rust should be checked by probing with a rod. This method should also be used to check for presence of rust in other areas where cosmetic damage is not a problem, such as inside wheel arches.

In using this technique, great care must be taken to ensure that sound panels or paint work are not scratched or damaged in any way. It should be remembered that the purpose of such checks is to find out whether rust is present, not to determine its extent.

When checking for advanced rust, you should pay particular attention to seam welds and spot welds: these frequently corrode through from the interior and can result in the eventual detachment of panels. Any panel which is made insecure by such corrosion must be repaired even if it is an area of the component where rust holes are not an immediate danger.

Surface rust on a component or structure is not immediately dangerous and is not a reason for rejection of a vehicle for the purpose of registration. However, if it is observed, the owner should be advised to have it rectified before it becomes serious. Rectification is simply a matter of completely removing the deposit and applying a rust-proofing coating or oil as is appropriate (body panels should be repainted using a good quality refinishing system).

It should be noted that repairs made to primary structure components solely by using body filling compounds are not acceptable. However, plastic filler or fibreglass can be used to smooth a non-structural component. A vehicle must not be passed for registration if it is found that a repair to a primary component is carried out by methods which do not restore the original strength of the component or part. (A good way to check for continuity of structure, if a fibreglass repair is suspected, is to run a magnet over the surface). Extensive rust in structural members can only be repaired by replacing the affected member or by completely removing all rusted material and reinforcing it so that the original strength of the affected structural member is re-established. Where a primary structure is found to be in need of repair and the repaired component would normally be coated with a bituminous coating or covered by another vehicle component such as a seat or a floor mat, it is quite in order to ask the owner to resubmit the repaired vehicle before the repairs are obscured so that the adequacy of the repairs can be assessed. A note to this effect should be made on the inspection report if this is required.

Appendix R - Stationary Noise Test

National Stationary Exhaust Noise Test Procedures for In-Service Motor Vehicles – September 2006

Report Prepared by: National Transport Commission on behalf of the Land Transport Environment Committee.



National Transport Commission



ISBN: 1 921168 50 1

The National Transport Commission (NTC) and the National Environment Protection Council (NEPC) are jointly responsible, through statutory obligations, to develop policy relating to land transport emissions and noise in consultation with each other. This consultation takes place through the Land Transport Environment Committee (LTEC) and this committee includes transport and environmental agencies.

The National Stationary Exhaust Noise Test Procedures (NSENTP) for In-Service Motor Vehicles was first prepared by the Motor Vehicle Environment Committee (MVEC, the precursor to LTEC) in 1999 to introduce a national approach to measuring exhaust noise. Previous to this, some jurisdictions had developed their own approaches and the differences in these approaches could have led to inconsistencies in test results. A nationally uniform approach ensures that vehicle owners will get an accurate assessment of whether their vehicle complies with national noise standards.

The Australian Design Rule (ADR) 83/00 for the external noise of motor vehicles was approved by Ministers in 2003. This new noise emission standard for motor vehicles adopts the UN Economic Commission for Europe (UNECE) Regulations for motor vehicle noise. The UNECE regulations refer to ISO 5130 'Acoustics – Measurement of Sound Pressure Levels Emitted by Stationary Road Vehicles' which provide the noise testing procedures for in-service vehicles. The NSENTP needed to be updated to incorporate elements of ISO 5130.

These test procedures have been approved by the Australian Transport Council and the National Environment Protection Council. They are referred to in the Roadworthiness Guidelines issued under the Australian Vehicle Standard Rules 1999 (Rule 153).

The test procedures should be used by all environment and transport agencies when testing for compliance with Australian Vehicle Standard Rules.

LTEC would like to acknowledge the Environment Protection Authority Victoria for the work in developing this revised draft NSENTP.

1. Definitions

'Diesel Engine' - means an internal combustion engine that operates on the compression-ignition principle.

'Engine Speed at Maximum Power' ('ESMP') - means the speed at which the engine develops maximum power (rpm).

'From Harley-Davidson' - means an engine design or a variant of such a design, of the manufacturer of that name.

'Goods Vehicle' does not include a passenger car or passenger car derivative.

'Motor Cycle' means motorcycle or moped.

'Pre ADR83' vehicle - means a vehicle not originally certified to Australian Design Rule ADR 83/00.

'Spark Ignition' means positive ignition

2. Measuring instruments

2.1. A sound level meter complying at least with one of the specifications of:

Standard - International Electrotechnical Commission Publication IEC - **Category** - Class I 61672-1 Ed. 1.0 (Bilingual 2002) : Electroacoustics - Sound level meters - Part 1: Specifications

Standard - Australian Standard AS IEC 61672.1-2004: Electroacoustics - **Category** - Class I Sound level meters - Specifications

Standard - International Electrotechnical Commission Publication IEC - **Category** - Type I 60651 (1979) 'Precision sound level meters'

Standard - Australian Standard AS 1259.1-1990 'Acoustics - Sound level - **Category** - Type I meters Part 1 Non-integrating' shall be used for measurements of noise levels I.

Measurements must be carried out using frequency weighting 'A' and time weighting 'F'.

Class 2 or Type 2 meters meeting one of the above technical standards may be used for field or conformance purposes however a tolerance of 2dB(A) must be allowed.

2.2. The sound level meter shall be calibrated against an acoustic calibrator immediately before and after each series of tests of each vehicle tested. If the meter readings obtained from these calibrations differ by more than 1dB(A) the test shall be considered invalid.

2.3. The rotational speed of the engine shall be measured by either an external tachometer whose accuracy is within 3 percent or where fitted, the vehicle's tachometer.

3. Test Site Ambient Requirements

3.1. The measurements shall be made in the open air where both the ambient and wind noise levels are at least 10dB(A) below the noise level being measured.

The site may take the form of an open space or beneath a canopy if no part of the canopy or its supports is within 3 metres of the microphone being used in the test.

The test site within 3 metres of the microphone(s) must be substantially flat and may include kerbs, channels, gutter, poles or other objects not providing excessive acoustic reflection provided that no such object is within 1 metre of the microphone.

3.2. Measurements shall not be made under adverse weather conditions unless the test site is located beneath a canopy meeting the requirements of 3.1 above. Any sound peak that appears to be unrelated to the characteristics of the vehicle shall be ignored in taking the

readings. If a windscreen is used, its influence on the sensitivity and the directional characteristics of the microphone shall be taken into account.

- 3.3. Whilst testing is in progress no person other than any occupants of the vehicle or, in the case of a motor cycle, the rider, shall be within 1 metre of the microphone in use. No person or object other than the testing officer and an observer or the objects necessary for the performance of the test shall be within 3 metre of the microphone in use.

4. Test method for all vehicles except pre ADR83 in-service goods vehicles and omnibuses

Microphone position

- 4.1. The microphone shall be directed towards the orifice of the exhaust outlet and shall be supported by a tripod or similar device not providing excessive acoustic reflection. The general requirements for positioning microphones are shown in the Appendix.
- 4.2. The nominal axis of maximum sensitivity of the microphone shall be substantially parallel to the test site surface and shall make an angle of 45 degrees \pm 10 degrees with the principal direction of gas flow from the exhaust.
- 4.3. In selecting the 45 degree alignment from the outlet of a motor vehicle fitted with two or more outlets, only the angle resulting in the microphone being farthest from any other outlet must be used.
- 4.4. The height of the microphone above the test site surface shall be equal to that of the orifice of the exhaust outlet \pm 25mm but shall not be less than 200mm above the test site surface.
- 4.5. The distance of the microphone from the exhaust outlet orifice shall be 500mm \pm 25mm.
- 4.6. In the case of a vehicle fitted with a vertical exhaust, the microphone shall be placed at the height of the exhaust outlet, oriented upwards with its axis vertical. It shall be placed at a distance of 500mm \pm 25mm from the side of the vehicle nearer to the outlet.
- 4.7. For vehicles fitted with one exhaust outlet the microphone shall be placed so that the greatest possible distance is achieved between it and the vehicle.
- 4.8. For vehicles fitted with two or more exhaust outlets spaced less than 300mm apart only one microphone position shall be used. That position shall be selected in accordance with the procedure described in the preceding paragraphs in respect of an exhaust outlet that results in the greatest possible distance from the vehicle or where this does not exist, to the outlet that is highest above the ground.
- 4.9. For vehicles fitted with two or more exhaust outlets spaced more than 300mm apart, each exhaust outlet shall be treated separately as if it were the only one.
- 4.10. Notwithstanding anything to the contrary in the preceding paragraphs if the microphone positioning procedures result in no suitable position due to an obstruction being part of the vehicle or in an obstruction being directly between the microphone and the exhaust outlet, the requirements of paragraphs 4.1.2, 4.1.3 and 4.1.5 may be varied provided the distance from the outlet to the microphone is not less than 500mm \pm 25mm.
- 4.11. Despite the preceding paragraphs if the microphone is to be placed so that it is less than 500mm from the engine then the angle between the direction of gas flow and the angle of the nominal maximum sensitivity of the microphone may be altered so that the microphone is more than 500mm from the engine.

5. Vehicle operation and noise measurement

- 5.1. The vehicle shall be stationary with the transmission in 'neutral' or, in the case of a vehicle with automatic transmission, with the gear selector in the 'park' position if such a position is provided. In the case of a motor cycle, the vehicle shall be held in a substantially vertical position. In the case of a motor cycle having no neutral gear position, measurements shall be carried out with the rear wheel raised off the ground.
- 5.2. Before the measurements are begun, the testing officer shall ensure that the engine of the vehicle under test is sufficiently warm to allow the noise testing to be carried out.
- 5.3. The engine of the vehicle under test shall be operated in accordance with one of the following procedures:
- 5.4. Where the ESMP for that engine has been determined by the testing authority the engine shall be brought to and stabilised at a speed as close as the testing officer can achieve to:
- 5.5. $\frac{1}{2}$ ESMP in the case of a pre ADR83 motor cycle
- 5.6. $\frac{1}{2}$ ESMP in the case of any other motor cycle where the ESMP is more than 5000 rpm; or
- 5.7. $\frac{3}{4}$ ESMP in the case of any other vehicle.
- 5.8. Where the engine speed has been governed by the manufacturer and $\frac{3}{4}$ ESMP cannot be achieved, the test speed shall be 5% below the maximum governed speed. Where the ESMP for that engine has not been determined by the testing authority then the engine shall be brought to and stabilised at a speed as close as the testing officer can achieve to one of the following speeds:
- 5.9. In the case of a passenger car or derivative, if the engine has:
- 5.10. 5 cylinders or less 4000 rpm.
- 5.11. 6 cylinders and is manufactured before 1995 3200 rpm manufactured in 1995 or later 3600 rpm.
- 5.12. 8 cylinders and is manufactured before 2000 3300 rpm manufactured in 2000 or later 3900 rpm.
- 5.13. More than 8 cylinders 4300 rpm.
- 5.14. If the engine is a rotary engine 4500 rpm.
- 5.15. In the case of a motor cycle:
- 5.16. For a two-stroke engine 3750 rpm.
- 5.17. For a four-stroke engine: from Harley Davidson 2500 rpm from any other manufacturer 3000 rpm. In the case of a goods vehicle or bus, if the engine has:
- 5.18. 6 cylinders or more 3000rpm.
- 5.19. 4 cylinders and is manufactured before 1970 2500rpm manufactured in 1970 or later 3500rpm.
- 5.20. Where, in the opinion of the testing officer, the test speed determined by reference to the above is not attainable by the engine then at the maximum speed that the testing officer believes that the engine can be safely tested.
- 5.21. A noise level measurement shall then be made. The noise level shall be the maximum level measured between the stabilised test speed and when the throttle is swiftly returned to idle position.

- 5.22. The specified procedure shall be repeated until at least three consecutive readings are obtained, each within a range of 1dB(A). For the purposes of this sub-paragraph only, non-integer decibel readings are to be rounded downwards to the nearest whole decibel.

6. Interpretation of results

- 6.1. Where one microphone position is used the noise level of the vehicle shall be the arithmetic mean of the readings specified in paragraph 4.2.4 prior to any rounding process.
- 6.2. When the noise level of the vehicle has been calculated, non-integer results shall be conventionally rounded to the nearest whole decibel.
- 6.3. Where more than one microphone position is used the noise level at each microphone position shall be determined as if it were the only one as described in 4.3.1. The noise level of the vehicle shall be the higher or highest noise level so calculated.
- 6.4. In the case of a pre ADR83 vehicle, if the microphone position is less than 1 metre from the engine compartment of the vehicle the calculated noise level shall be reduced by 2dB(A). Alternately if the mechanical noise of a pre ADR83 vehicle (for example engine or transmission noise) can be shown to increase the measured noise level by 2dB(A) or more, special acoustic shielding may be fitted to mask this source so that the test is carried out on the exhaust noise alone.

7. Test method for pre ADR83 in-service goods vehicles and omnibuses

Microphone position

- 7.1. The microphone shall be directed towards the orifice of the exhaust outlet and shall be supported by a tripod or similar device not providing excessive acoustic reflection. The general requirements for positioning microphones are shown in the Appendix.
- 7.2. The nominal axis of maximum sensitivity of the microphone shall be substantially parallel to the test site surface.
- 7.3. The height of the microphone above the test site surface shall be equal to that of the orifice of the exhaust outlet $\pm 25\text{mm}$ but shall not be less than 200mm above the test site surface.
- 7.4. The distance of the microphone from the orifice of the exhaust outlet shall be 1050mm $\pm 50\text{mm}$. For vehicles fitted with one exhaust outlet that is at a height above the test site surface of less than 1500mm, the nominal axis of maximum sensitivity of the microphone shall make an angle of 45 degrees ± 10 degrees with the principal direction of the gas flow from the exhaust outlet. In selecting this microphone position the microphone shall be placed so that the greatest possible distance is achieved between it and the vehicle.
- 7.5. For vehicles fitted with one exhaust outlet that is at a height above the test site surface of at least 1500mm, the nominal axis of maximum sensitivity of the microphone shall make an angle of 90 degrees ± 10 degrees with the longitudinal centreline of the vehicle. However, if positioning the microphone according to the preceding requirement would result in the microphone being placed in the gas flow from the exhaust outlet then the microphone location may be rotated, in a horizontal plane, no greater than 45 degrees. In selecting this microphone position the microphone shall be placed so that the greatest possible distance is achieved between it and the vehicle.
- 7.6. For vehicles fitted with two or more exhaust outlets spaced less than 500mm apart and connected to a single silencer only one microphone position shall be used. That position shall

be selected in accordance with the procedure described in the preceding paragraphs in respect of an exhaust outlet that results in the microphone being at the greatest possible distance from the vehicle.

- 7.7. For vehicles fitted with two or more exhaust outlets connected to separate silencers or spaced more than 500mm apart, each exhaust outlet shall be treated separately as if it were the only one.
- 7.8. Notwithstanding anything to the contrary in the preceding paragraphs if the microphone positioning procedures result in no suitable position due to an obstruction being part of the vehicle or in an obstruction being directly between the microphone and the exhaust outlet, the requirements of paragraphs 5.1.2 and 5.1.3 may be varied.

8. Vehicle operation and noise measurement

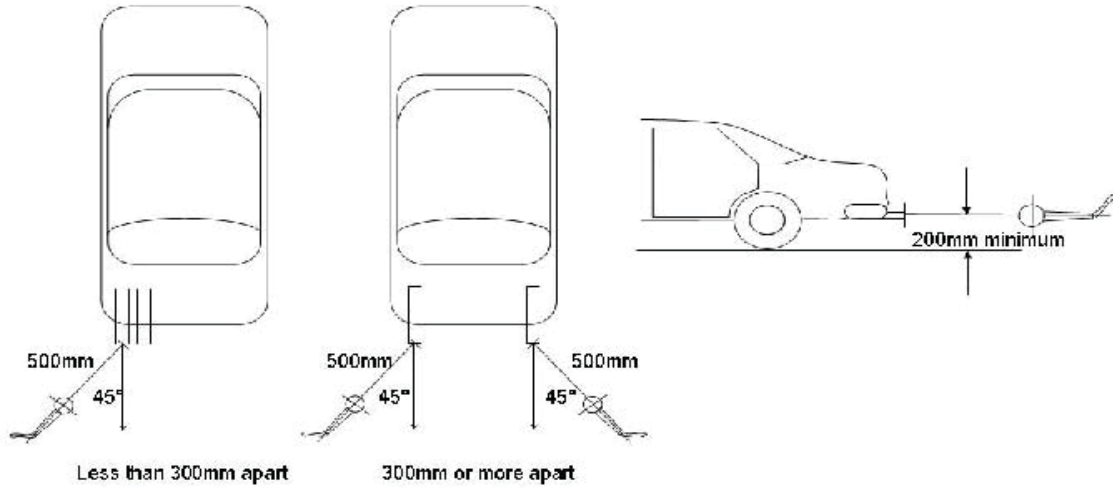
- 8.1. Before the measurements are begun, the testing officer shall ensure that the engine of the vehicle under test is sufficiently warm to allow the noise testing to be carried out.
- 8.2. In the case of goods vehicles and omnibuses powered by a diesel engine the engine shall be operated in accordance with the following procedure.
- 8.3. With the engine at idling speed the accelerator pedal of the vehicle shall be depressed as rapidly as possible and kept fully depressed until the speed of the engine is substantially stable at maximum (or governed) speed. The accelerator pedal shall then be permitted to return to its original position as rapidly as possible and left in that position until the engine has returned to idling speed.
- 8.4. A noise level measurement shall be made for each microphone position in use by noting the maximum noise level indicated during this procedure.
- 8.5. In the case of goods vehicles and omnibuses powered by a spark ignition engine the engine shall be operated in accordance with one of the following procedures.
- 8.6. Where the ESMP for that engine has been determined by the testing authority, the engine shall be brought to and stabilised at a speed as close to $\frac{3}{4}$ ESMP as the testing officer can achieve; or
- 8.7. Where the ESMP has not been determined for that engine by the testing authority, then the engine shall be brought to and stabilised at as close as the testing officer can achieve to one of the following speeds:
 - 8.8. If the engine has:
 - 8.9. 6 cylinders or more 3000rpm
 - 8.10. 4 cylinders and is manufactured before 1970 2500rpm manufactured in 1970 or later 3500rpm
 - 8.11. Where, in the opinion of the testing officer, the speed determined by reference to the above is not attainable by the engine then at the maximum speed that the testing officer believes that the engine can be safely tested.
- 8.12. A noise level measurement shall then be made.
- 8.13. The specified procedure shall be repeated until at least three consecutive readings are obtained, each within a range of 1dB(A). For the purposes of this sub-paragraph only, non-integer decibel readings are to be rounded downwards to the nearest whole decibel.

9. Interpretation of results

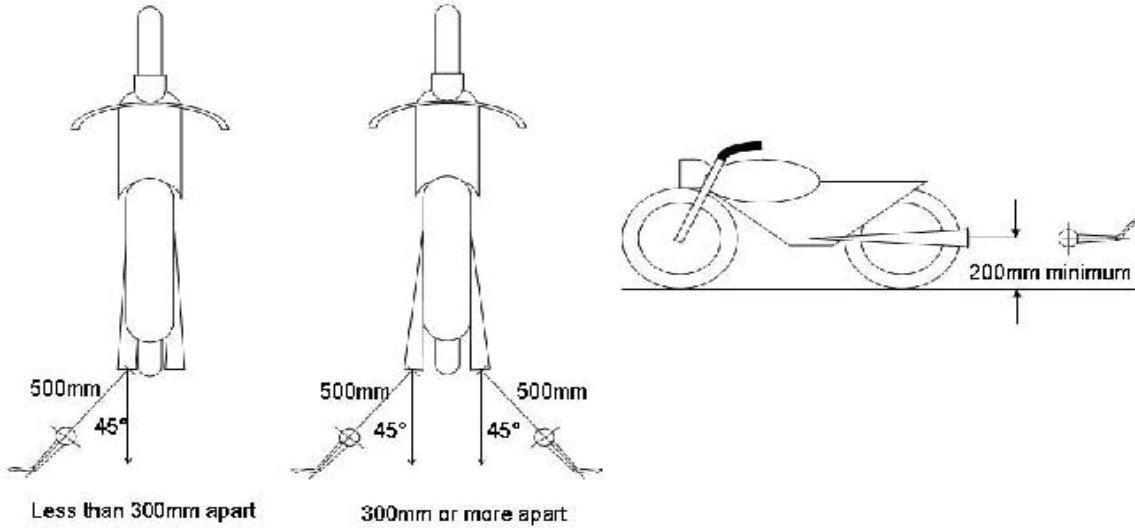
Results shall be interpreted as in section 4.3.

9.1. APPENDIX (Informative)

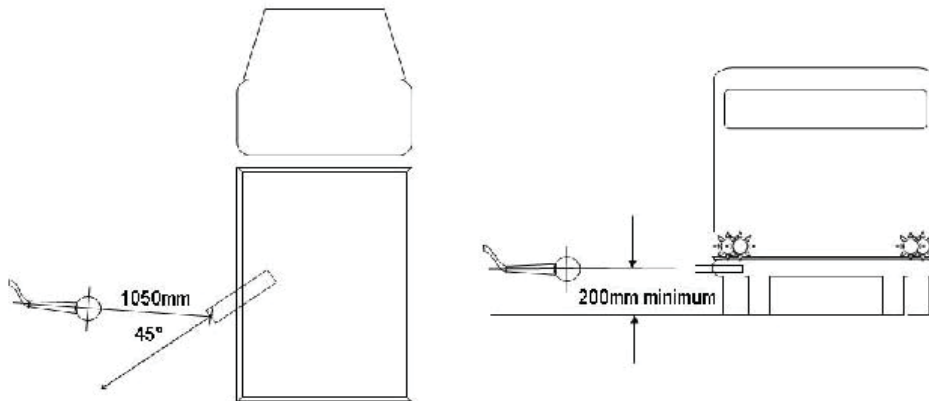
TYPICAL CAR MICROPHONE LOCATIONS



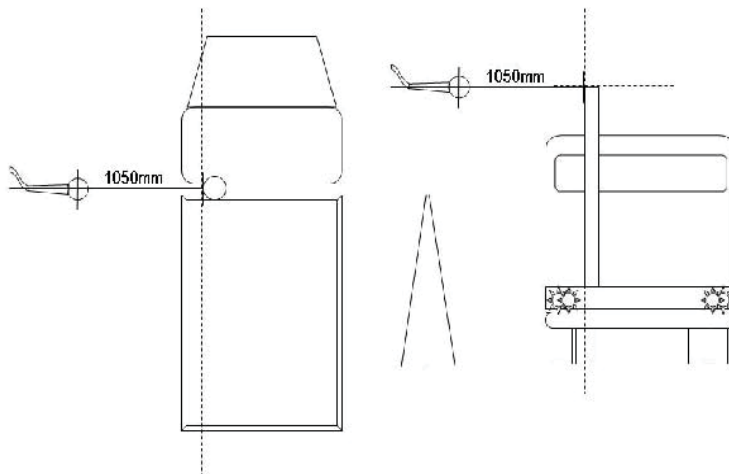
TYPICAL MOTOR CYCLE MICROPHONE LOCATIONS



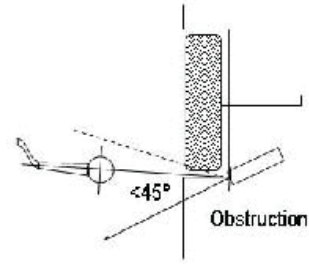
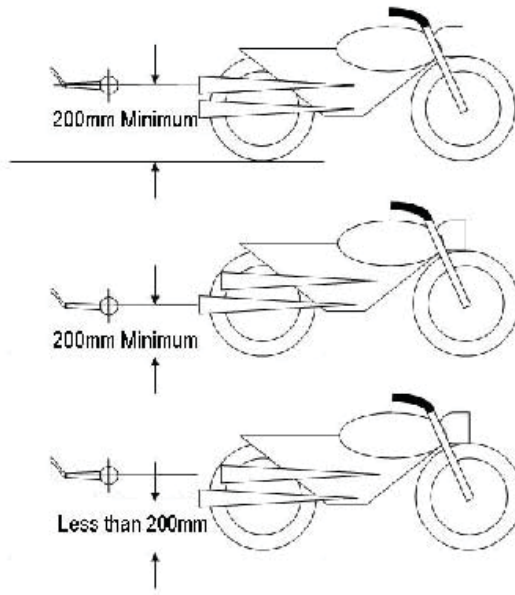
TYPICAL TRUCK MICROPHONE LOCATIONS PRE ADR83 VEHICLES
Exhaust height less than 1500mm above surface



TYPICAL TRUCK MICROPHONE LOCATIONS PRE ADR83 VEHICLES
Exhaust height 1500mm or more above surface



POSSIBLE MICROPHONE POSITION FOR ALTERNATE EXHAUST CONFIGURATIONS



Appendix S - Checking Vehicle Identifiers

Identification details of vehicles must be obtained from the vehicle chassis/body and not from the registration documents or the vehicle identification (compliance) plate or owner's manual.

When checking the identifiers, the VIN/engine number/compliance plate should be considered for authenticity as part of the vehicle inspection. If the identifiers are not considered authentic by the Vehicle Examiner, the AIS Compliance Officer should be contacted immediately for further advice.

The VIN must be recorded from the imprinted VIN in the chassis or body of the vehicle

Items to consider when checking a vehicles identifier are not limited to, but include:

- Is the VIN in the correct format?
- Does the lettering appears original? (font, letter size & spacing)
- Is the VIN in the correct location?
- Paint not filling the VIN/chassis/frame number characters? (original numbers dipped)
- VIN chassis/frame number characters not to be engraved? (must be stamped)
- Evidence of grinding or filing marks?
- Inappropriate welding or body filler on panel supporting the number?
- Panel supporting the number has not been replaced?
- The engine number must be recorded from the imprinted number in the engine block
- Is the engine number in the correct format?
- Does the lettering appear original?
- Is in engine number in the correct location?
- Evidence of grinding or filing marks?
- Stamping site not tampered with?
- Is the compliance plate in the correct location?
- Signs of tampering? (damage drill marks)
- Characters are made using the correct method? (etched, printed, stamped, reverse stamped)
- Correct shape and colour?
- Does the VIN chassis/frame number matches vehicle?
- Correct make, model, GVM, and seating capacity?
- All information is in the correct position, letter font & size?

Notes:

1. A missing compliance plate is not a reason for rejection alone if the vehicle has been previously registered in Australia and all other identifiers appear as authentic.

2. To assist in VIN and engine locations highlighted above Vehicle Examiners can refer to publications such as IDENTICAR. This publication identifies all vehicle makes and their VIN and engine locations.

Appendix T - Building Small Trailers

Summarised design and testing construction requirements for trailers that do not exceed 4.5 tonnes aggregate trailer mass can be found at the following link:

National Code of Practice (VSBI)

https://infrastructure.gov.au/roads/vehicle_regulation/bulletin/vsbi/index.aspx

Notes:

Trailers manufactured from 1 July 2022 onwards must be manufactured in accordance with Vehicle Standards Bulletin 1 (VSBI) Revision 6 or later.

Appendix U - Light Trailer Requirements - Compliance with VSBI

All new trailers (including imported trailers), not exceeding 4500kg Aggregate Trailer Mass (ATM), presented for registration in Tasmania must comply with requirements of the National Code of Practice for Building Small Trailers – Vehicle Standards Bulletin (VSB)I – as published by the Commonwealth Department of Infrastructure, Transport, Regional Development and Local Government.

VSBI summarises the requirements for compliance with Australian Design Rules (ADRs). In verifying compliance with VSBI, potential areas of non-compliance have been highlighted.

AGGREGATE TRAILER MASS (ATM) is the total mass of the laden trailer when carrying the maximum load recommended by the 'Manufacturer'. This will include any mass imposed onto the drawing vehicle when the 'Combination Vehicle' is resting on a horizontal supporting plane.

The purpose of this Bulletin is to highlight these potential areas of non-compliance and provide guidance in compliance with VSBI. This Bulletin should be read in conjunction with VSBI and other applicable references.

The potential areas of non-compliance include:

1.	Trailer Identification	(VSBI Section 7)
2.	Lighting	(VSBI Section 13)
3.	Braking Systems	(VSBI Section 15)
4.	Tow Couplings	(VSBI Section 16)
5.	Safety Chains	(VSBI Section 16)
6.	Axle Ratings	(VSBI Section 19)
7.	Trailer Dimensions	(VSBI Section 21)

Vehicle Examiners who are approved to carry out compliance checks or registration renewal inspections on light trailers must not pass light trailers for registration unless the trailer complies with VSBI, as applicable.

All new trailers must have a vehicle identification plate (compliance plate) securely affixed.

The trailer manufacturer (person who built or assembled the trailer) must affix a vehicle plate to the trailer in a prominent position.

The vehicle plate must be of durable, non-corrosive metal and must be affixed to the trailer in a position where it may be readily examined and where it will be protected from damage by weather and debris (i.e. stones, etc).

The vehicle plate must be permanently affixed – e.g. pop rivets, hammer drive screws or welding. Affixing plates with adhesives is not acceptable.

Vehicle plates are available from any Service Tasmania outlets at a cost of \$2.00. A sample vehicle plate is attached below.

Note: The necessary trailer information will need to be added (i.e. stamped or engraved) to the vehicle plate by the trailer manufacturer.

MANUFACTURER		TYRE SIZE	
TRAILER MODEL		COLD INFLATION PRESSURE	
DATE OF MANUFACTURE		TYRE LOAD RATING	
AGGREGATE TRAILER MASS		The tyres fitted to this vehicle shall have a speed category at least equal to the recommended maximum vehicle operating speed	
V.I.N.			
		This trailer was manufactured to comply with the Motor Vehicle Standards Act 1989.	

- I. A vehicle plate is not required for a trailer manufactured prior to the application of VSBI.
 - a. Trailers exceeding 2.1 metres in width require side marker lamps (clearance lights).
 - b. Lamps on a trailer must not show red light to the front or white light to the rear (except reverse lamp).
 - c. When fitting reflectors:
 - White to the front;
 - Amber to the side; and
 - Red to the rear (usually incorporated in the tail light assembly).
 - d. If using a light board, red reflectors are still required on the rear of the trailer itself.
 - e. Rear lamps and number plate are to be clearly visible from the rear at all times.

Single-axle trailers with a Gross Trailer Mass (GTM) not exceeding 750kg do not require brakes.

Trailers up to 2000kg GTM (except single-axle trailers with GTM not exceeding 750kg) must have brakes operating on at least one axle which can be an 'over-run' braking system.

Trailers over 2000kg GTM must have brakes operating on all wheels which must be a 'break-away' braking system where the trailer brakes are activated if the trailer detaches from the towing vehicle.

Notes:

1. Two axle trailers with axle centres spaced less than one metre apart are regarded as a single axle.
2. Gross Trailer Mass (GTM) is the mass transmitted to the ground by the tyres of the trailer when coupled to a towing vehicle and carrying the maximum load recommended by the manufacturer approximately uniformly distributed over the load bearing area.

Trailers up to 3500kg Aggregate Trailer Mass (ATM) must have a quick release coupling which is designed to be engaged and disengaged without the use of tools.

It must be of a positive locking type with provision for a second independent device. The locking must be readily verifiable by visual inspection.

For trailers with an ATM greater than 3500kg, refer directly to ADR 62/01 or ADR 62/02 'Mechanical Connection Between Vehicles', which can be found at the following website

https://www.infrastructure.gov.au/vehicles/design/adr_online.aspx

Tow couplings shall be attached in accordance with the manufacturer's instructions and specifications to include:

- Grade, dimension and tightening torque of attaching bolts (where applicable);
- Weld size and weld procedure (where applicable); and
- Recommended attaching position.

Note: Where the tow coupling prohibits welding as a method of attachment to the drawbar, an alternative method of attachment must be used (i.e. nut and bolts).

Tow Couplings – 50mm Ball Type Coupling Body Markings (up to 3500kg ATM)

Clause 12.4 of ADR 62 provides for three marking options for 50mm Coupling Bodies:

Option 1 Australian Standards 'AS 4177-2004 Caravan and towing components'

Markings complying with AS 4177-2004 shall be legibly and permanently marked with the following information (characters must be no less than 5mm in height):

- a. The manufacturer's name or trademark;
- b. The mark '50' to indicate the size of towball for which it is intended;
- c. Maximum rating in kilograms, e.g. 750kg, or 2000kg, or 3500kg;
- d. A code to indicate serial number, batch, production date, or similar; and
 1. The words 'DO NOT WELD' if the coupling is manufactured from non-weldable material; or
 2. The words 'WELD ONLY' if the coupling body is specifically designed to be attached by welding only.

Option 2 Clause 12.4 of ADR 62 'Mechanical Connection Between Vehicles'

Markings complying with Clause 12.4 must be marked with the following:

- a. The manufacturer's name or trademark;
- b. Maximum allowable ATM rating in kilograms, e.g. 750kg, or 2000kg, or 3500kg; and
- c. The words 'use with model (identified model)'.

Option 3 ECE Regulation R55/- Couplings.

Coupling complying with ECE RR55/- must be marked with the following:

- a. The manufacturer's name and trademark;
- b. The mark 'B' or 'B50X';
- c. The 'D' rating for the coupling; and
- d. The mark 'S' followed by the permissible static vertical load in Kg.

Trailers with rigid drawbars (pig trailers) must be fitted with appropriately rated and identifiable safety chains in accordance with:

- For trailers with an ATM up to 3500kg (Table 1)

Australian Standards AS 4177 – 1994 or AS 4177 – 2004 'Caravan and light trailer towing components - Part 4 – Safety chains up to 3500kg capacity'; or

- For trailers over 3500kg ATM (Table 2)

Australian Standards AS 2321-1979 or AS 2321-2006 'Short link chain for lifting purposes'.

Note: For trailers with an ATM up to 3500kg, safety cable may be used in lieu of safety chain providing the load capacity of the safety cable is not less than that of a chain complying with AS 4177 – 2004 for the ATM of the trailer.

Safety Chain Matrix (Guide Only)

Table 1 - For trailers with an ATM up to 3500kg (refer to Appendix B).

Table 2 - For trailers over 3500kg ATM

ATM (kg)	Minimum Chain Link Diameter (mm)	Break Load (kg)	Number of Chains (minimum)	Marking	Minimum Marking Frequency (link)
3501 to 4500	6.0	4607	2	(Manufacturer's Mark), 'T', 'B', '80' or '800'	20th or 1m

Safety Chain Markings - ATM not exceeding 3500kg

The marking on complying chain is repeated at intervals not exceeding 4 links and the characters on the links are at least 1.5mm high (chains less than 8.0mm link diameter) and not less than 2 mm high (chains 8.0mm and above).

Safety Chain Markings - ATM exceeding 3500kg

Each length of chain shall be permanently and legibly marked at intervals of not more than 20 links or one metre with the marking being either raised or indented.

Towbar and Drawbar Attachment

- The safety chain must be attached to the trailer as near as practicable to the coupling to retain connection to the towing vehicle and prevent the drawbar from hitting the ground in the event of coupling failure.
- Safety chains on a trailer with an ATM exceeding 3.5t must not be welded.
- Where welding is permitted (e.g. ATM less than 3.5t) to attach the safety chain to the drawbar, the weld must cover at least 50% of the length of the link and the adjoining link must be able to move freely within the welded link. Grade 'T' chain must not be welded.
- The drawbar safety chain attachment point should not come in contact with the ground at any time.
- Rated bolts, chain shackles or other suitable fittings (i.e. hammerlocks) may be used as devices for connection on safety chains providing the device is of sufficient load capacity to match the rating of the safety chain.

Safety Chain Shackles

Markings complying with AS 2741-2002 'Shackles' shall be legibly and permanently marked with the following information:

- a. The manufacturer's name or trademark;
- b. Quality grade of the shackle, e.g. ('M' or '4', 'S' or '6');
- c. Working Load Limit (WLL) or Rating; and
- d. Identification marking in order to correlate shackle to test certificate.

Table 3 - Safety Chain Shackle Matrix (Guide Only)

Trailer ATM (kg)	Chain Size Classification AS4177.4 -2004	Chain Marking AS4177.4 - 2004	Minimum size of Shackles (Body diameter not pin size). For Bow or D-shackles complying with AS2741		
			Grade M (or 4) D Shackle	Grade S (or 6) D Shackle	Grade S (or 6) Bow Shackle
Up to 1000Kg	1000	4177-10	6mm WLL 250kg	6mm WLL 250kg	5mm WLL 250kg
1001 to 1600Kg	1600	4177-16	10mm WLL 400kg	6mm WLL 400kg	6mm WLL 400kg
1601 to 2500Kg	2500	4177-25	13mm WLL 625kg	8mm WLL 625kg	8mm WLL 625kg
2501 to 3500Kg	3500	4177-35	16mm WLL 875kg	10mm WLL 875kg	10mm WLL 875kg

Note: Pin diameter will be greater than the diameter of the shackle material.

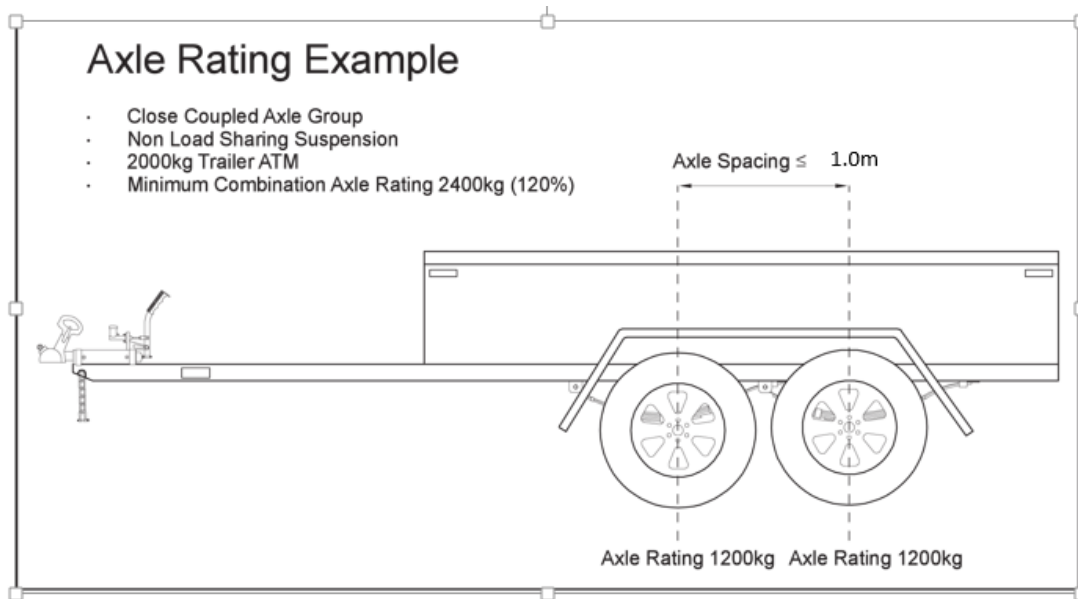
- Same size shackles of different quality grades will have a different WLL (i.e. 6mm 'S' grade shackle has a greater WLL than a 6mm 'M' grade shackle).
- Stainless steel shackles are unsuitable for trailer use due to the material's general low resistance to bending stresses.
- 'S' or '6' grade 'D' Shackles bear similar characteristics to 'S' or '6' grade 'Bow Shackles'.

Where two or more axles are fitted within an axle group, the axles must be related to each other through a load-sharing suspension.

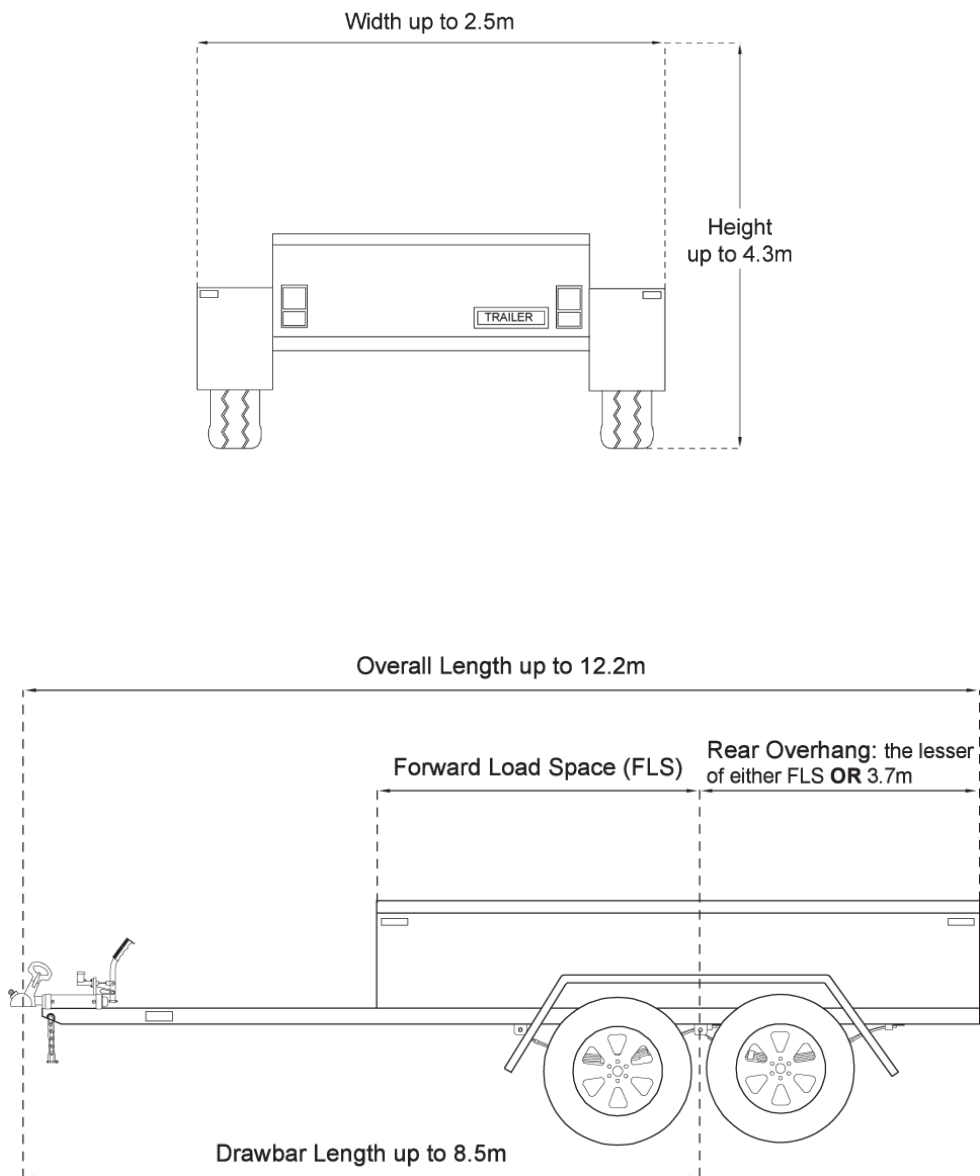
This requirement does not apply to a close coupled axle group providing the load carrying capacity of each axle in the axle group, including the wheels and tyres fitted to each axle, is at least 120% of the ATM of the trailer.

A close coupled axle group is:

Axle Group	Number of Axles	Extreme Axle Spacing
Single Axle	1 or 2	< 1.0m
Tandem Axle	2 > 1.0m	< 2.0
Triaxle	3 > 2.0	< 3.2



Maximum Trailer Dimensions (Pig Trailers)



Note:

- Trailer width is measured across the body including wheel guards, but excluding signalling devices and side-mounted lamps.
- Trailers manufactured to exceed dimension limits (i.e. aeroplane glider trailers) will require approval from the Commonwealth Department of Infrastructure, Transport, Regional Development and Local Government – refer VSB I.
- For more information on dimension limits, refer to Information Bulletin V13 'Vehicle Dimensional Limits (Including Load)'.

There are no specific body structural requirements, but the trailer must be safe and fit for service.

Note: It is suggested as a minimum that the manufacturer should be able to demonstrate that the structure is capable of supporting the designed payload with a safety factor of at least 3 for highway use and a safety factor of 5 for off road use.

- Drawbar strength refer to VSBI section 16.1

Vehicle Standards Bulletin (VSB) 1 – Building Small Trailers;

https://www.infrastructure.gov.au/vehicles/vehicle_regulation/bulletin/vsbl/index.aspx

National Code of Practice for Light Vehicle Construction and Modification Vehicle Standards Bulletin VSBI4;

https://www.infrastructure.gov.au/vehicles/vehicle_regulation/bulletin/vsb_ncop.aspx

Australian Design Rules (ADR);

https://infrastructure.gov.au/roads/motor/design/adr_online.aspx

Information Bulletins for:

- Carrying loads
- A-Frame Towing

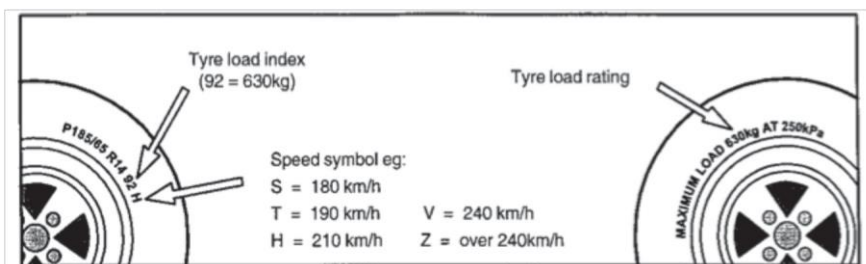
https://www.transport.tas.gov.au/vehicles_and_vehicle_inspections/Vehicle_information_bulletins

Appendix V - Inspection of Tyre Load and Speed Rating

Road wheels and tyres are vital to a vehicles safety. Since 1971, Australian Design Rules (ADRs) have been progressively introduced to specify wheel and tyre strength, air pressures, speed and load ratings and allowable combinations of wheel rims and tyres.

Since 1973 ADRs required cars to be fitted with a tyre placard (located usually in the glove box or on the door-frame) which specifies the wheel and tyre combinations recommended by the vehicle manufacturer. This placard also specifies recommended air pressure, load capacity and speed rating of tyres.

Tyre load and speed rating are displayed on the tyre sidewall as shown below.



The tables below detail the load index and the speed symbol with their corresponding values for passenger type tyres, for any additional information contact Vehicle Standards on 6166 3263.

Table I

Tyre Load Index				
EXAMPLE: Load Index 62 Load in kg per tyre = 265				
62 265	75 387	88 560	101 825	114 1180
63 272	76 400	89 580	102 850	115 1215
64 280	77 412	90 600	103 875	116 1250
65 290	78 425	91 615	104 900	117 1285
66 300	79 437	92 630	105 925	118 1320
67 307	80 450	93 650	106 950	119 1360
68 315	81 462	94 670	107 975	120 1400
69 325	82 475	95 690	108 1000	121 1450
70 335	83 487	96 710	109 1030	122 1500
71 345	84 500	97 730	110 1060	123 1550
72 355	85 515	98 750	111 1090	124 1600
73 365	86 530	99 775	112 1120	125 1650
74 375	87 545	100 800	113 1150	126 1700

Table 2

Tyre Speed Category					
EXAMPLE: Speed Symbol J Speed in km/h = 100					
J 100	K 110	L 120	M 130	N 140	P 150
Q 160	R 170	S 180	T 190	U 200	H 210
V 240	W 270	Y 300	ZR >240		

Inspection Procedures

All Vehicle Examiners are reminded of the requirement to check the speed and load rating of all tyres fitted to vehicles presented for roadworthy inspections.

Tyre ratings must comply with the lesser of:

- i. The ratings specified by the vehicle manufacturer, as displayed on the tyre placard; or
- ii. The ratings specified in the National Code of Practice for Light Vehicle Construction and Modification (Vehicle Standards Bulletin VSB 14) – Section LS (Part 4).

Any vehicle fitted with alternative rims and/or tyres to those originally supplied by the vehicle manufacturer as indicated on the tyre placard must comply with VSB 14 – Section LS (Part 4). This bulletin is available on the Department of Infrastructure, Transport, Regional Development and Local Government’s Internet site, at

https://infrastructure.gov.au/roads/vehicle_regulation/bulletin/vsb_ncop.aspx

Any vehicle fitted with alternative rims and tyres which have been approved as a vehicle modification by the Vehicle Operations Branch must have the rims and tyres fitted as specified on the Modification plate affixed to the vehicle.

Vehicles that are found to not meet the above requirements are not to be passed fit for registration.

Appendix W - Vehicle identification and engine number location chart system

GRID LOCATION CHARTS

Chart No

1. [Engine Number Location V Configuration Front Left ¾ View](#)
2. [Engine Number Location V Configuration](#)
3. [Engine Number Location In Line RHS](#)
4. [Engine Number Location In Line LHS](#)
5. [Engine Number Location In Line RHS](#)
6. [Engine Number Location In Line LHS](#)
7. [Chassis Number Location \(VW\) Rear](#)
8. [Chassis Number Location Front](#)
9. [Chassis Number Location LH View](#)
10. [Chassis Number Location LHS Elevation](#)
11. [Chassis Number Location LHS to View Chassis Rails](#)
12. [Chassis Number Location RHS to View Chassis Rails](#)
13. [Engine Number Location Motorcycle](#)
14. [Engine Number Location Motorcycle Side Elevation](#)
15. [Frame Number Location LH Rear View](#)
16. [Engine Number Location Chart](#)
17. [Chassis Number Location](#)
18. [Chassis Number Location 2 Wheel Trailer](#)
19. [Chassis Number Location Van Body](#)
20. [Number Plate Location Passenger Car \(Fr\)](#)
21. [Number Plate Location Passenger Car \(Rr\)](#)
22. [Location Goods Vehicle \(Fr\)](#)
23. [Location Goods Vehicle \(Rr\)](#)
24. [Number Plate Location Motorcycle](#)
25. [Number Plate Location](#)
26. [Motorcycle Frame Number Location](#)
27. [Engine Number Location](#)

28. [VIN/Compliance Plate Location, Rear Left \$\frac{3}{4}\$ View](#)
29. [VIN/Compliance Plate Location, Rear Left \$\frac{3}{4}\$ View](#)
30. [VIN/Compliance Plate Location, Front Left \$\frac{3}{4}\$ View](#)
31. [VIN/Compliance Plate Location Motorcycle Left and Right Side.](#)
32. [VIN/Compliance Plate Location Scooter Right Side.](#)
33. [VIN/Compliance Plate Location Motorcycle Frame Left and Right Side.](#)
34. [Engine Number Location Rotary Front Left \$\frac{3}{4}\$ View](#)
35. [Engine Number Location Horizontally Opposed Front Left \$\frac{3}{4}\$ View](#)
36. [Engine Number Location Horizontally Opposed Front Right \$\frac{3}{4}\$ View](#)
37. [Engine Number Location V Configuration Front Right \$\frac{3}{4}\$ View](#)

Reference to location should be given as chart number, alpha-numeric location on the grid
EXAMPLE: - 5-E-17 or 3-O-15

CHART No I

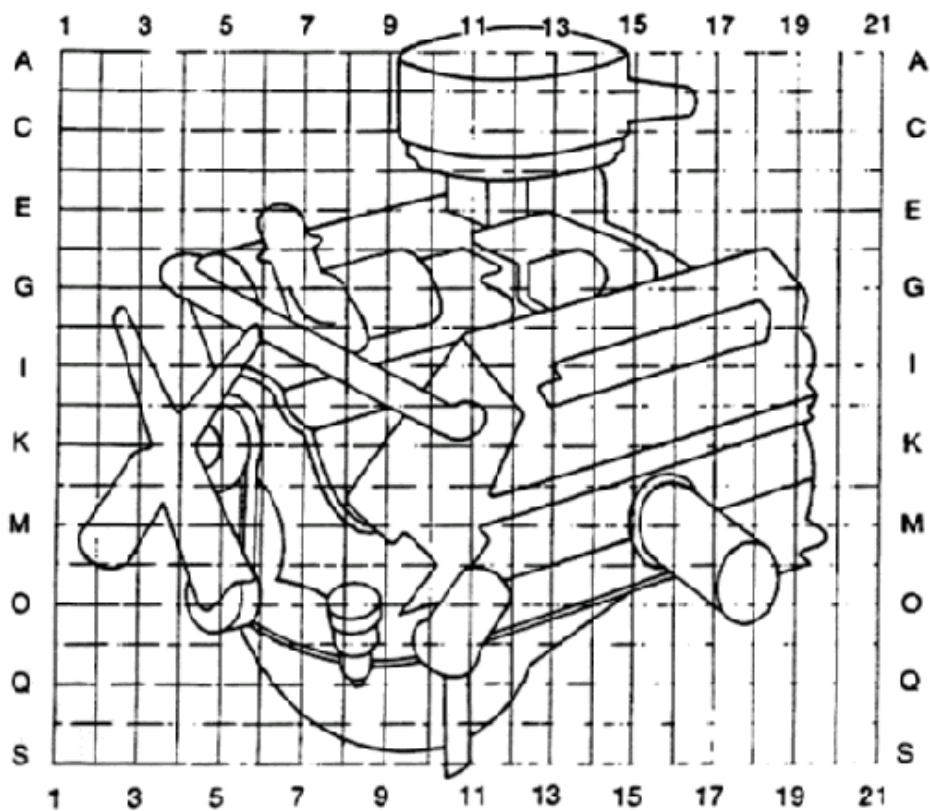


CHART No 2

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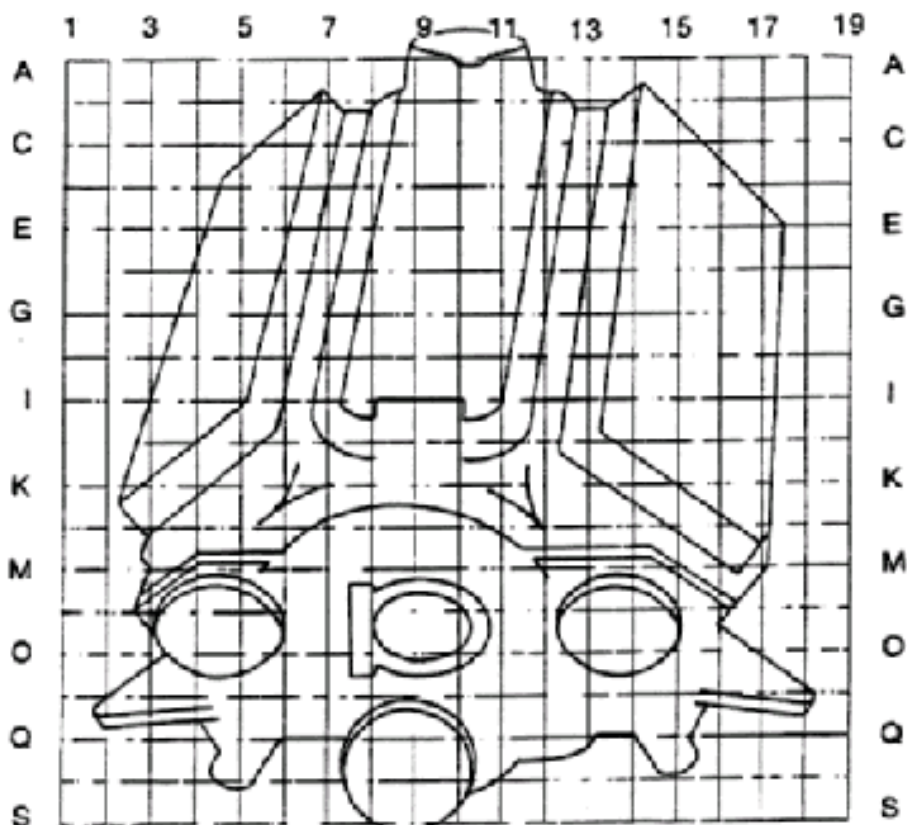
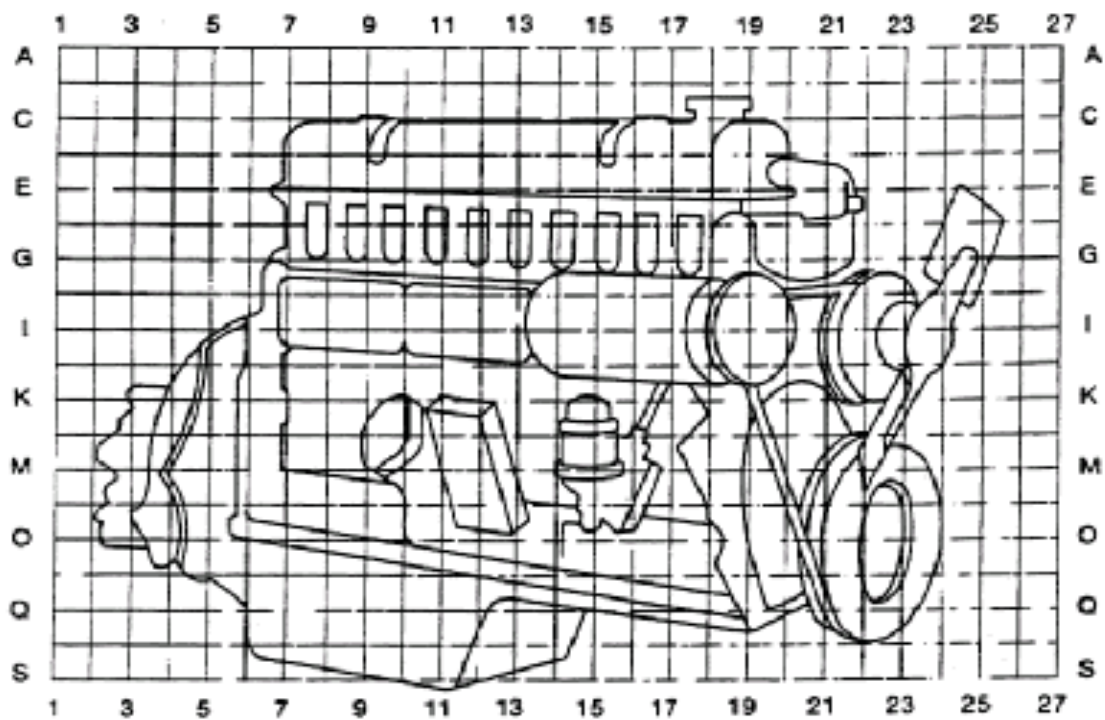


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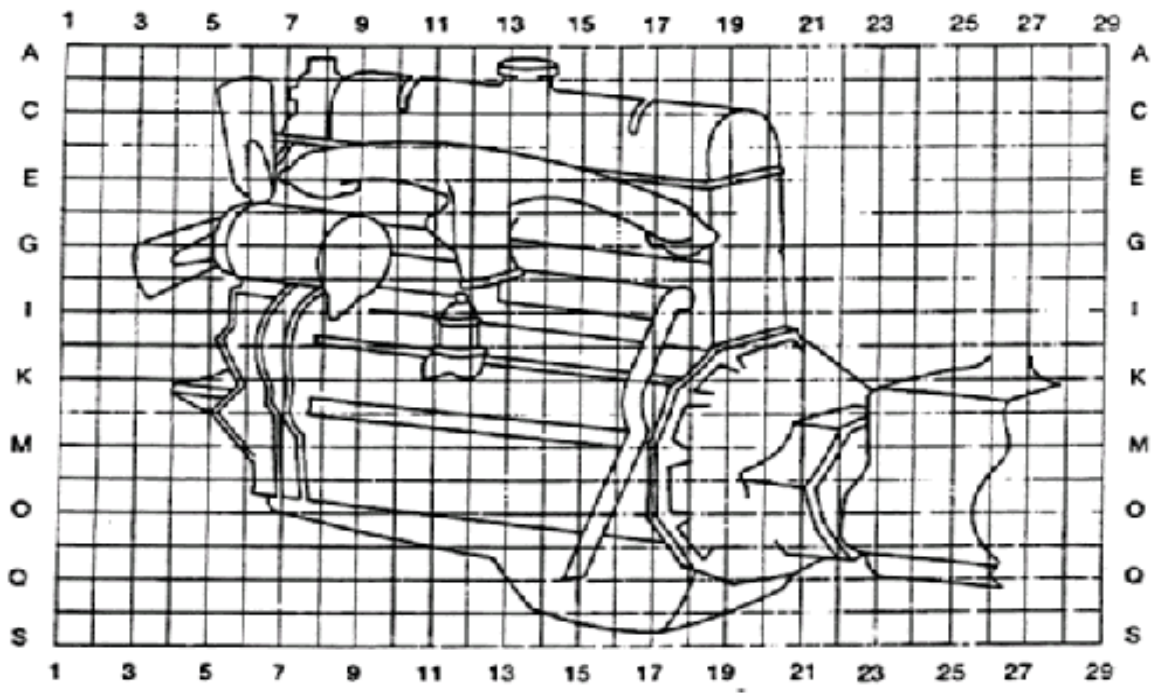


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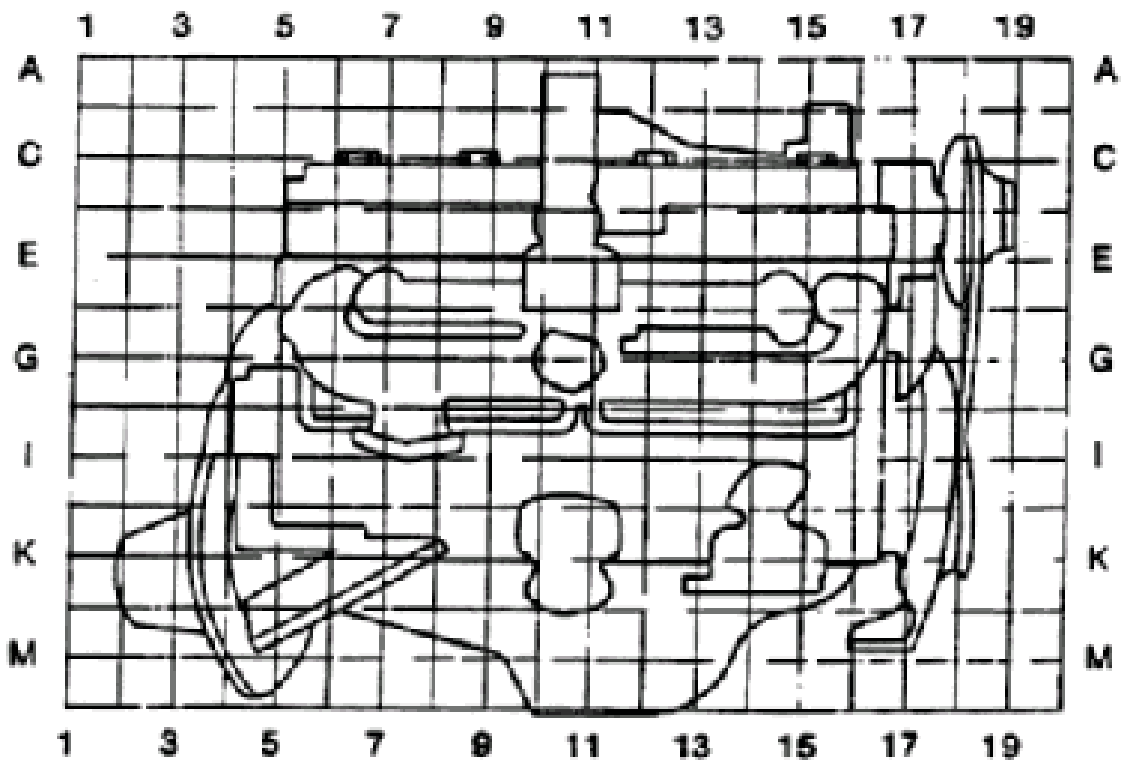


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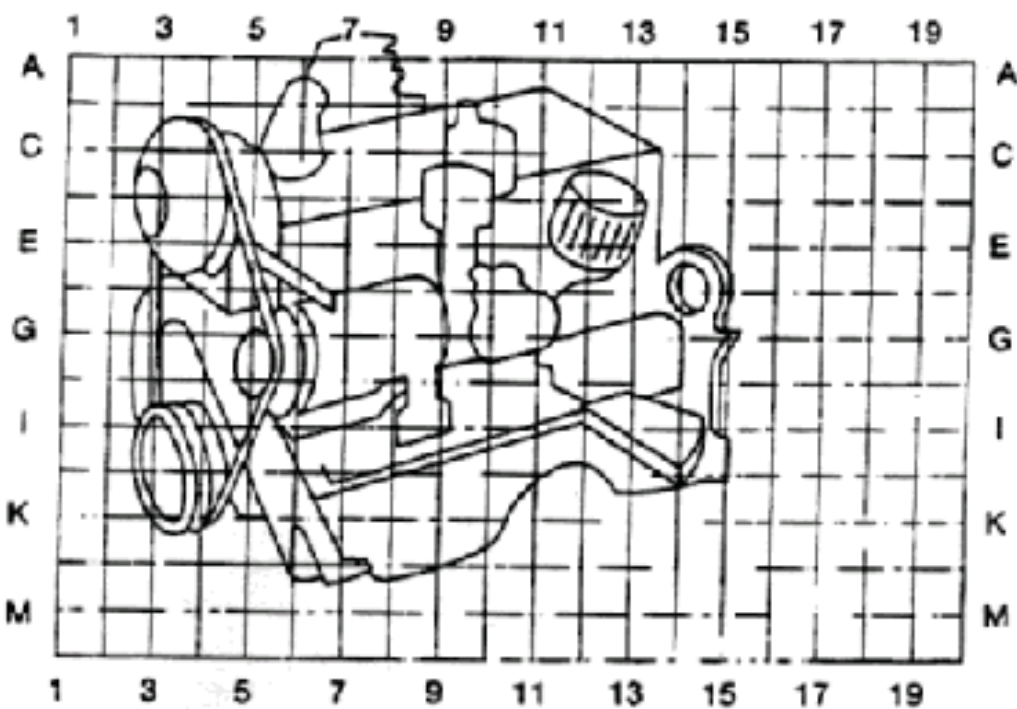


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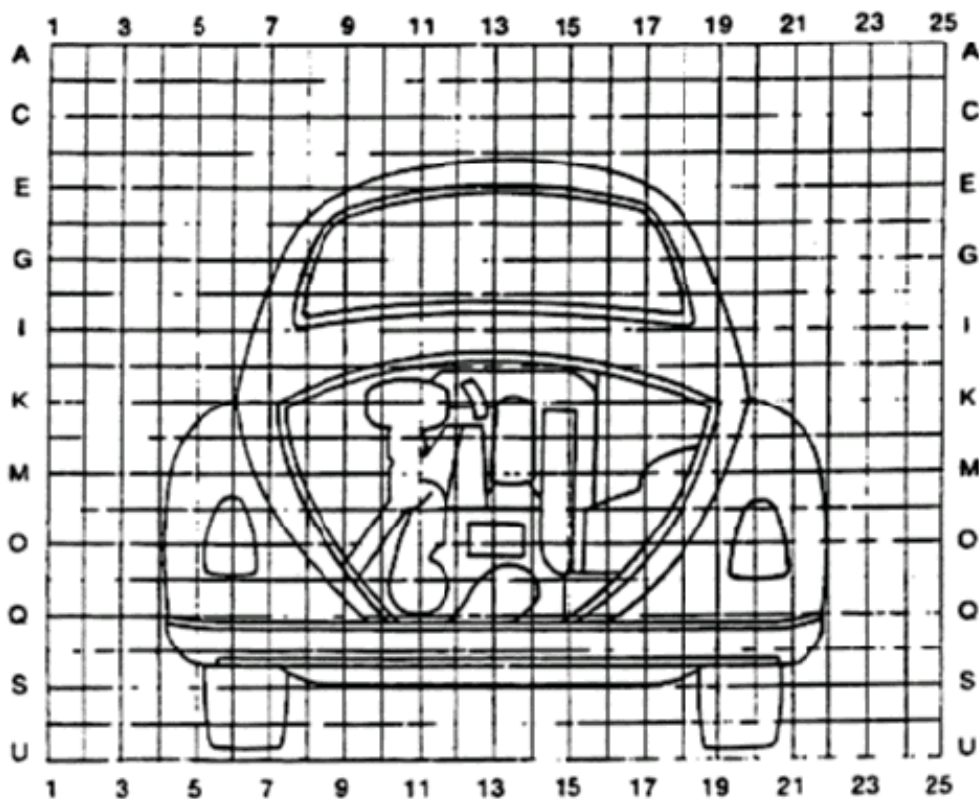


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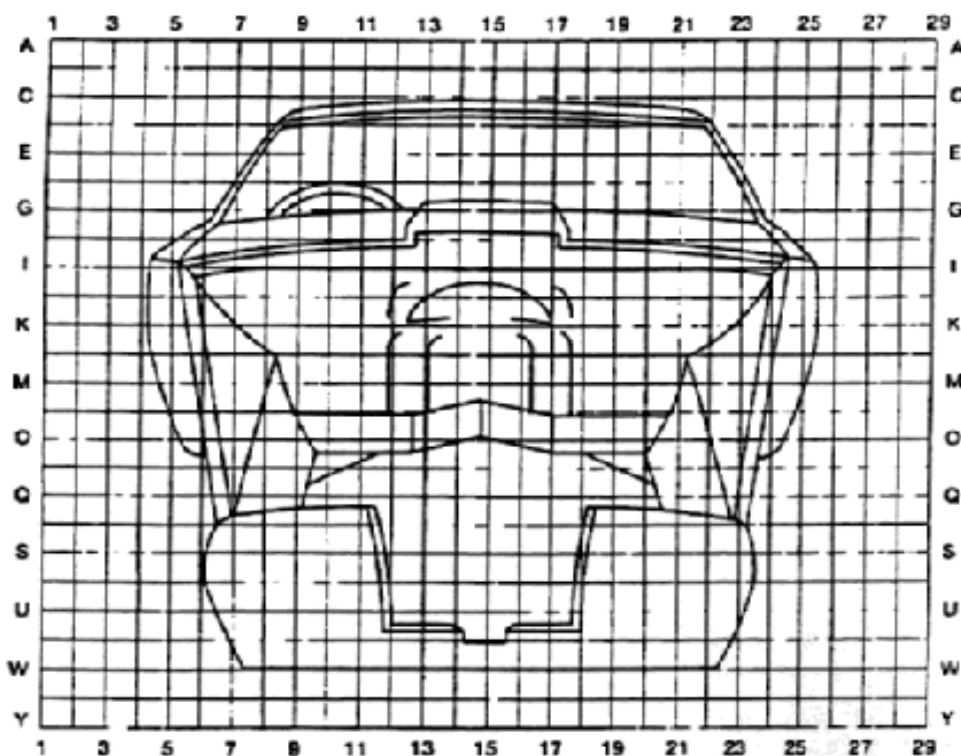


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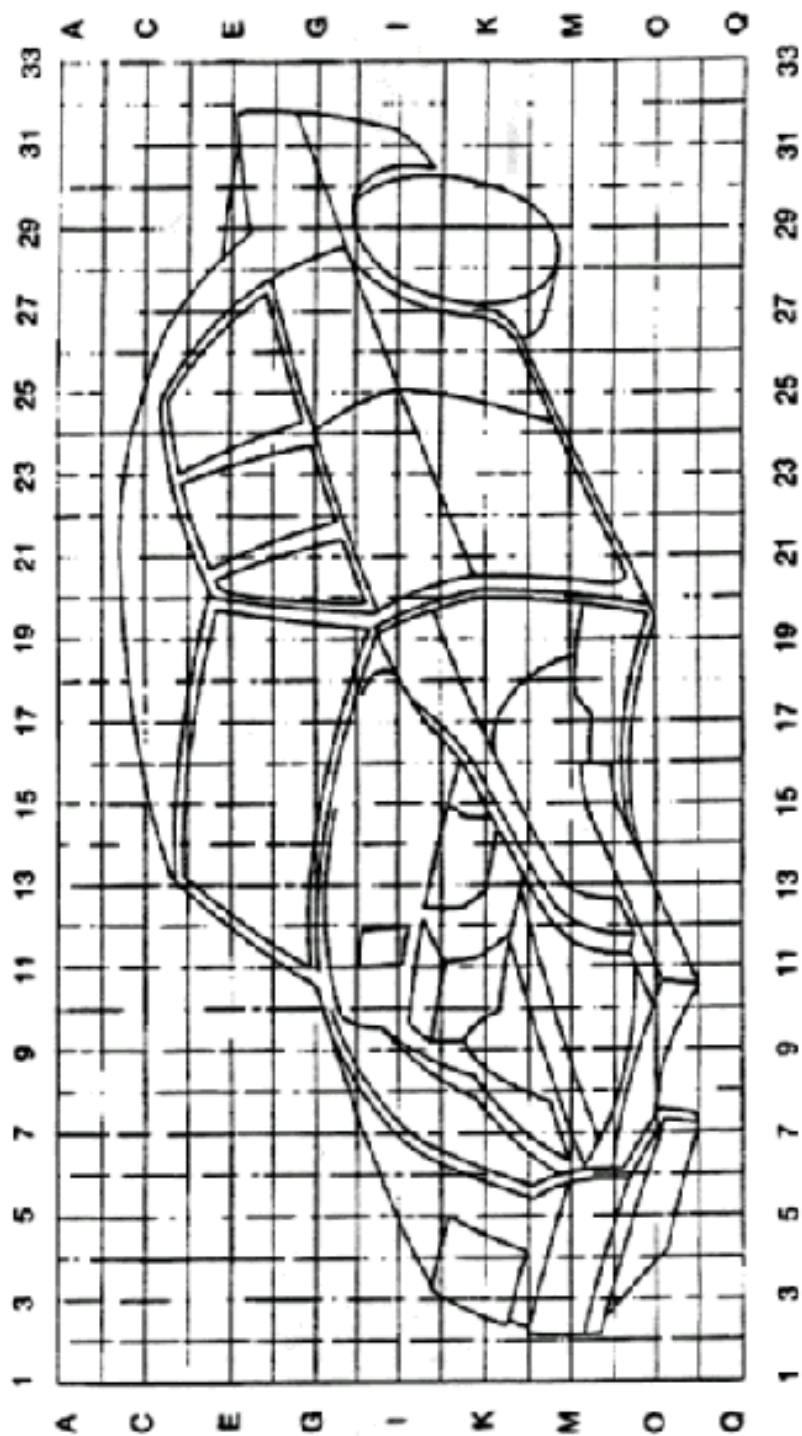


CHART No 10

Charts Number Location Chart No. 10

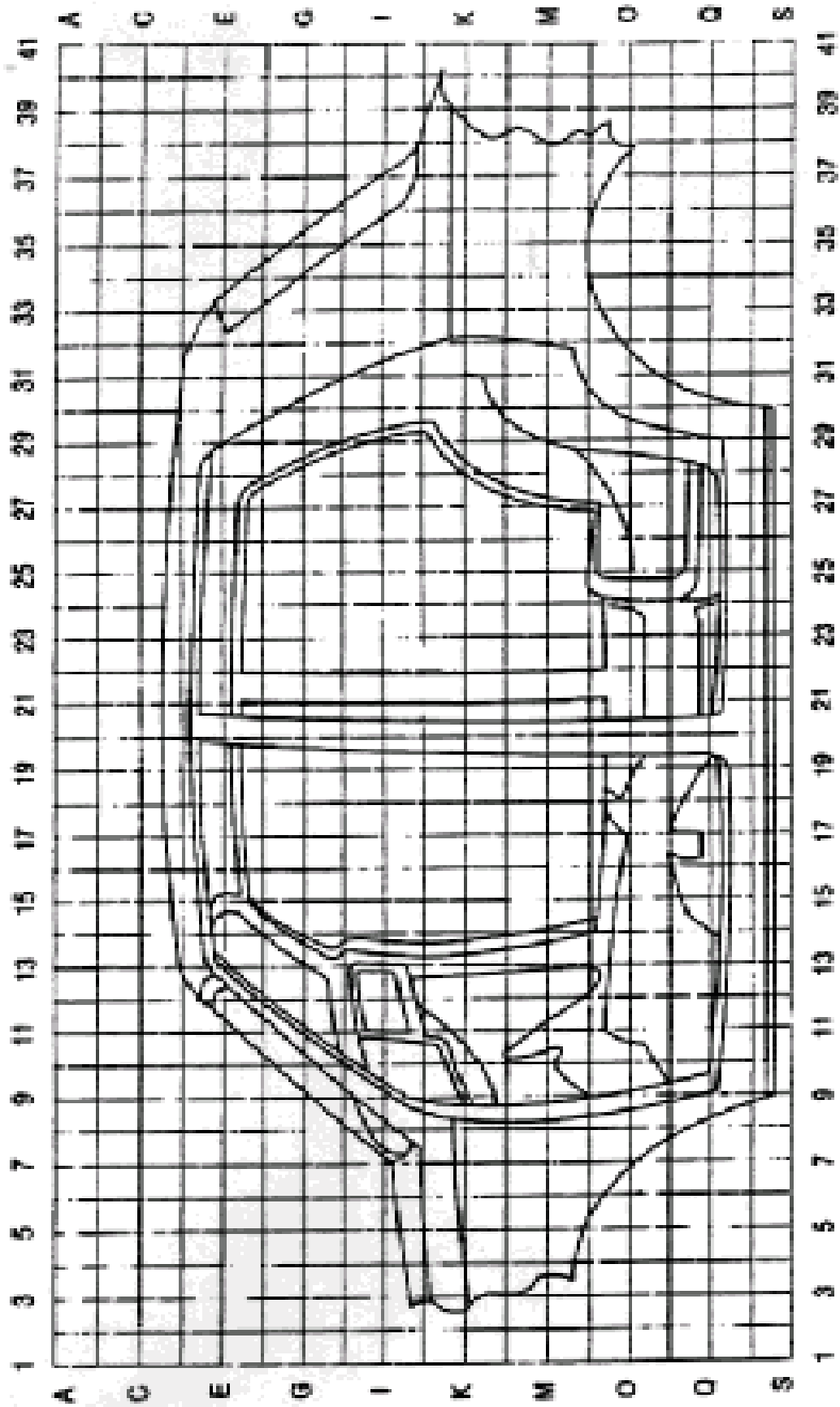


CHART No 11

Chassis Number Location Chart No. 11

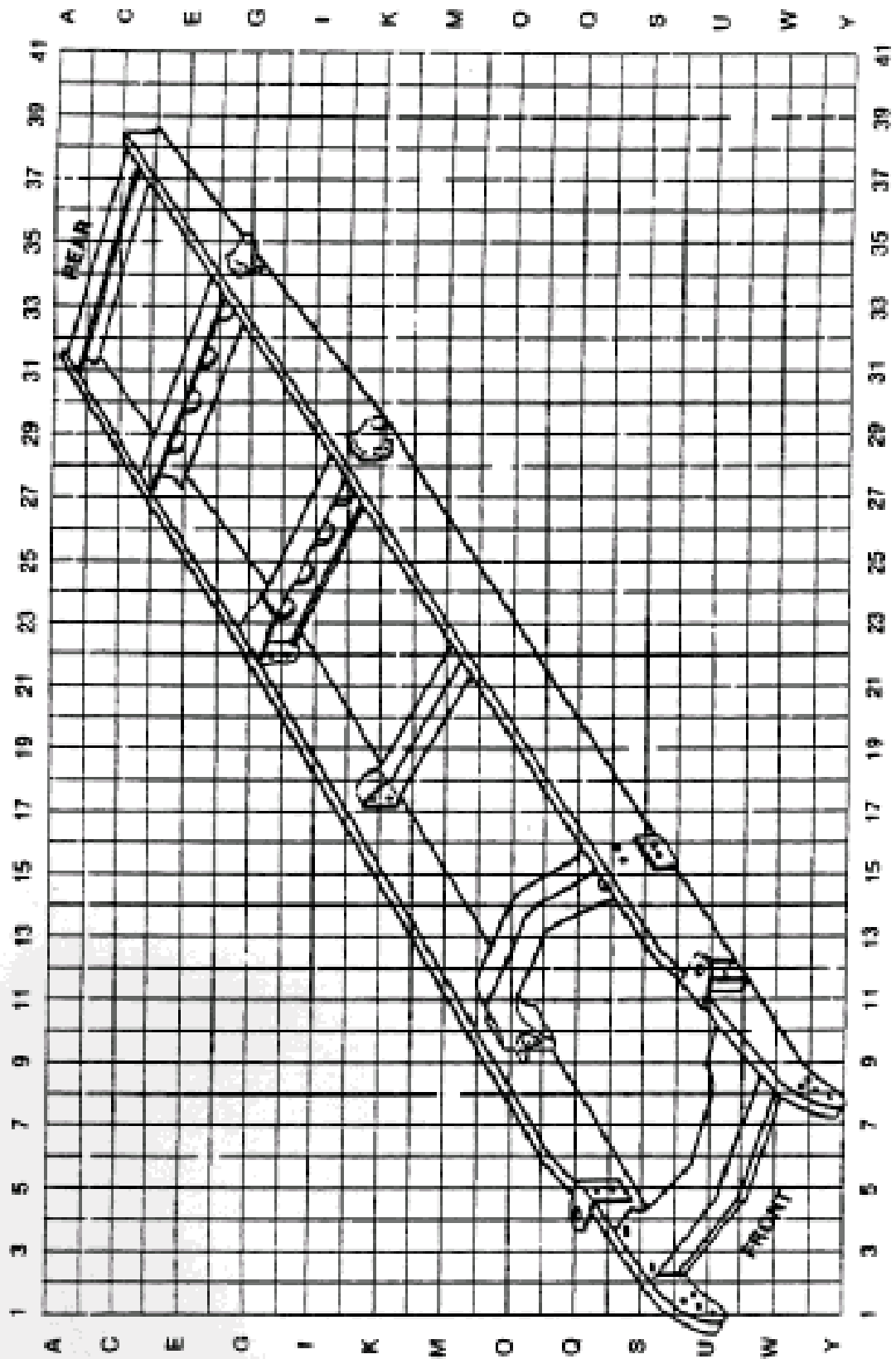


CHART No 12

Chassis Number Location Chart No. 12

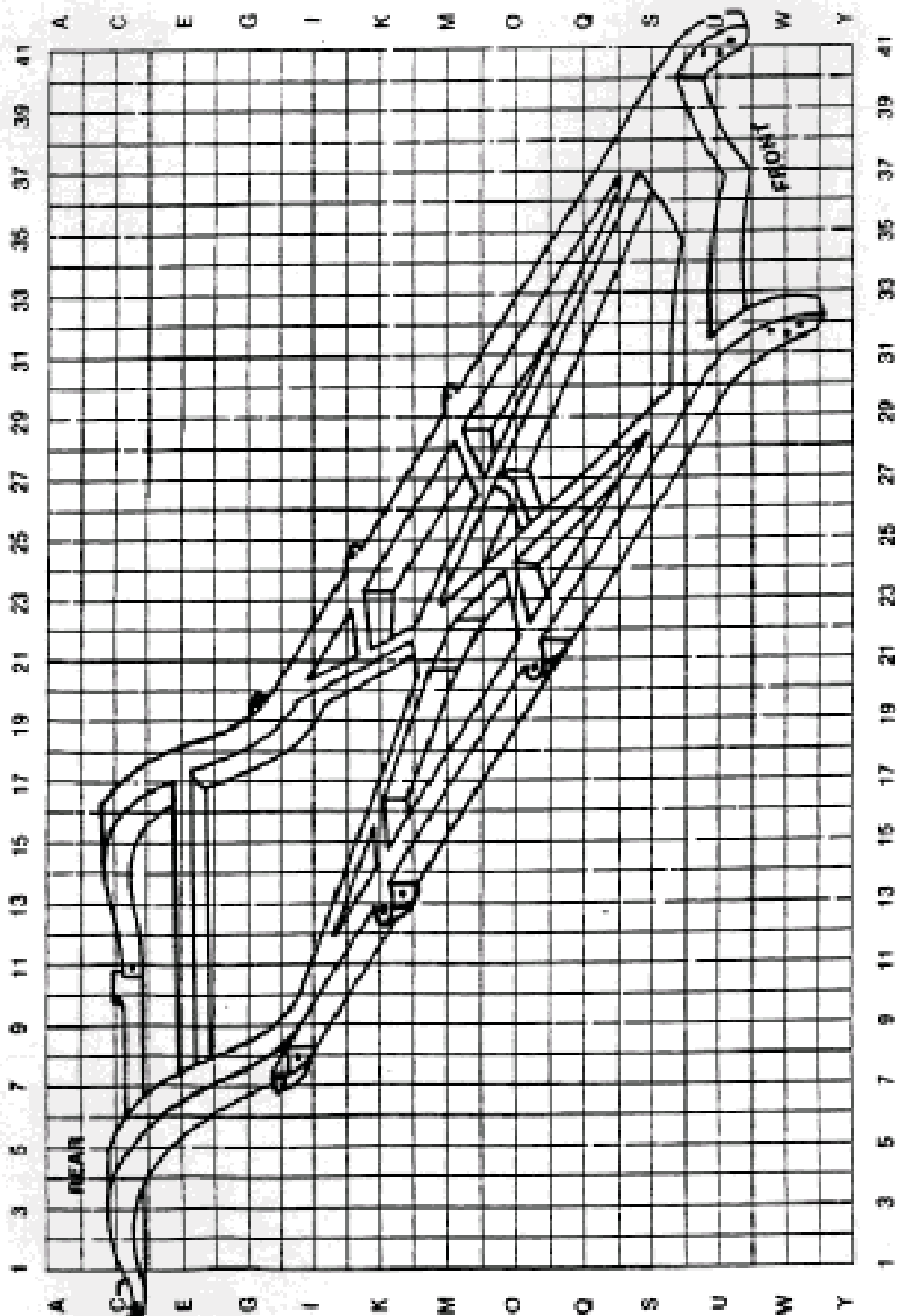


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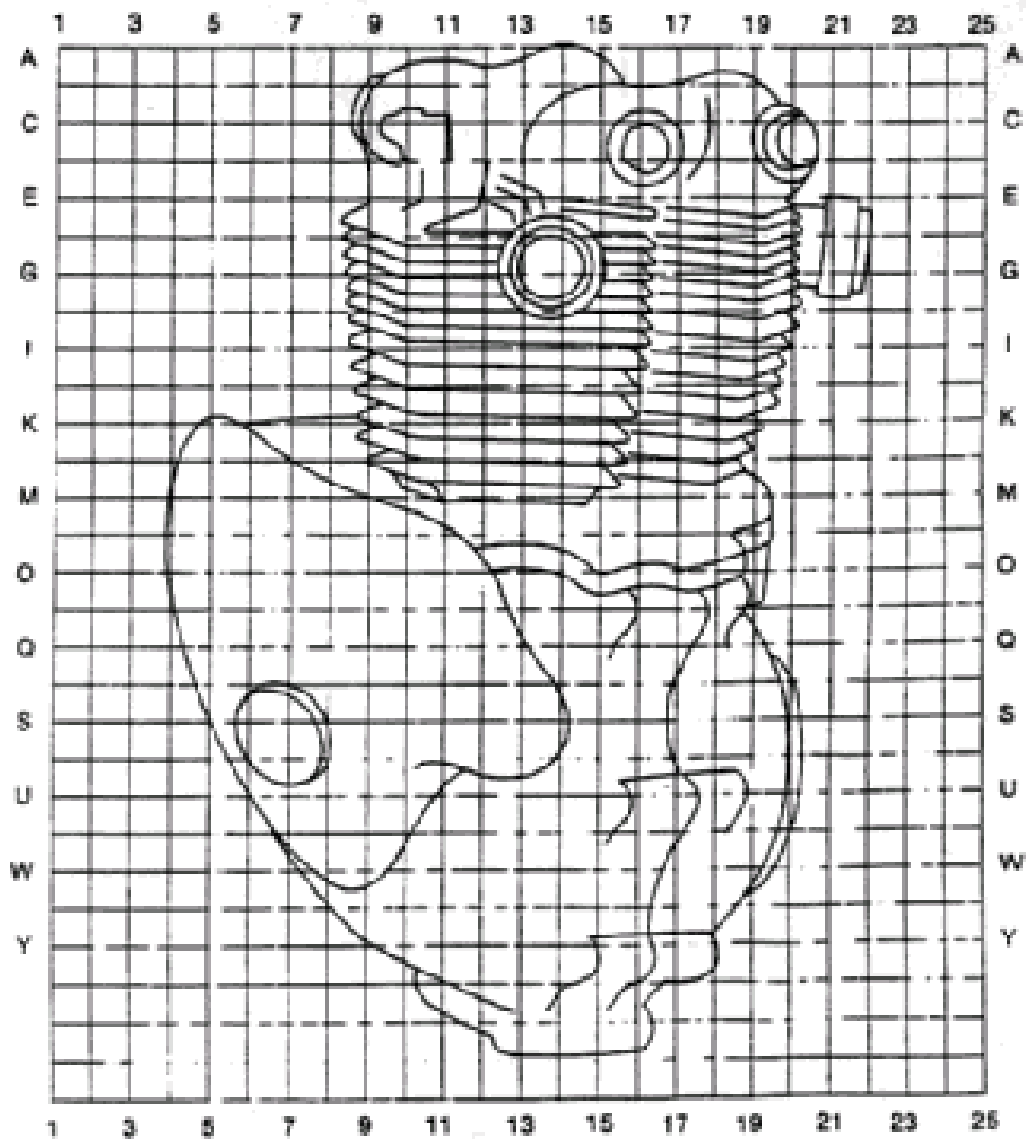


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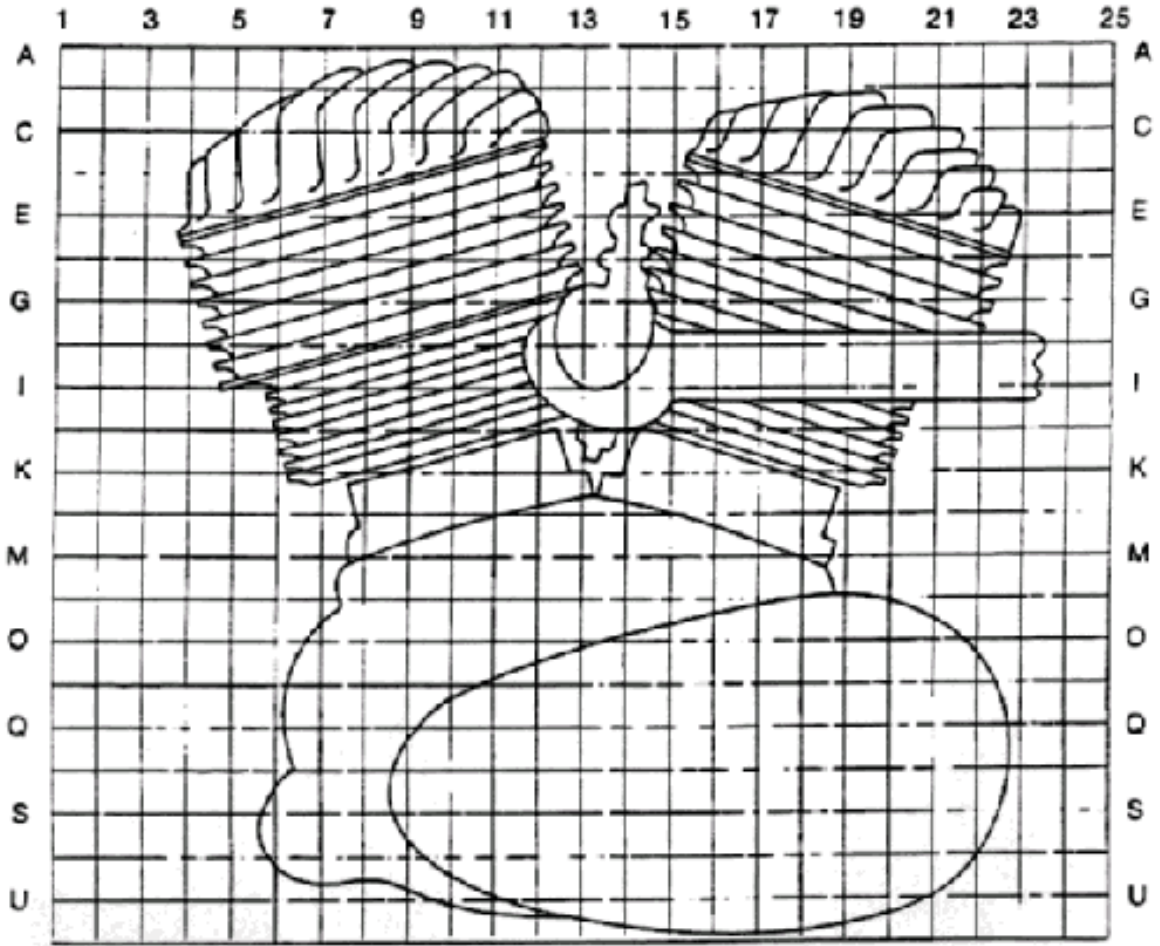
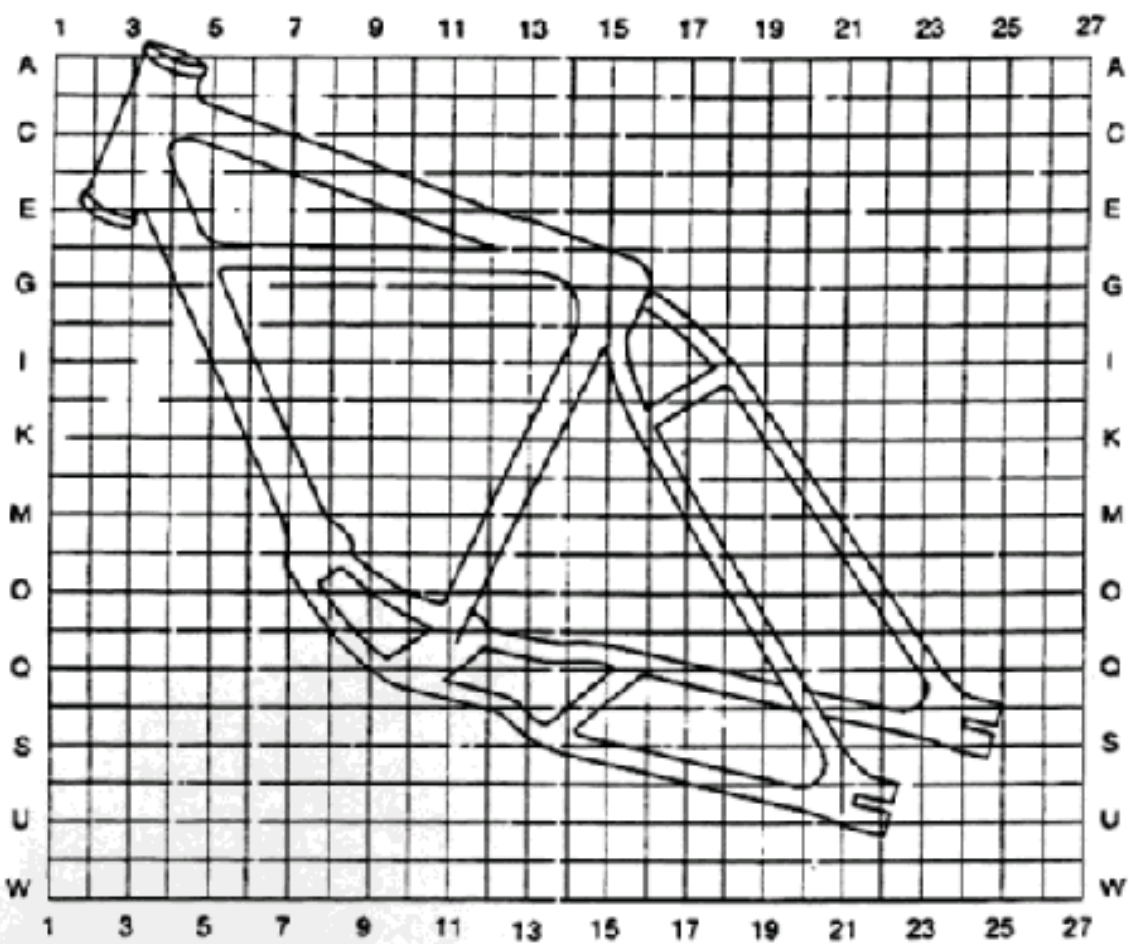


CHART No 15



Locations indicated on this chart may be either on the near or offside

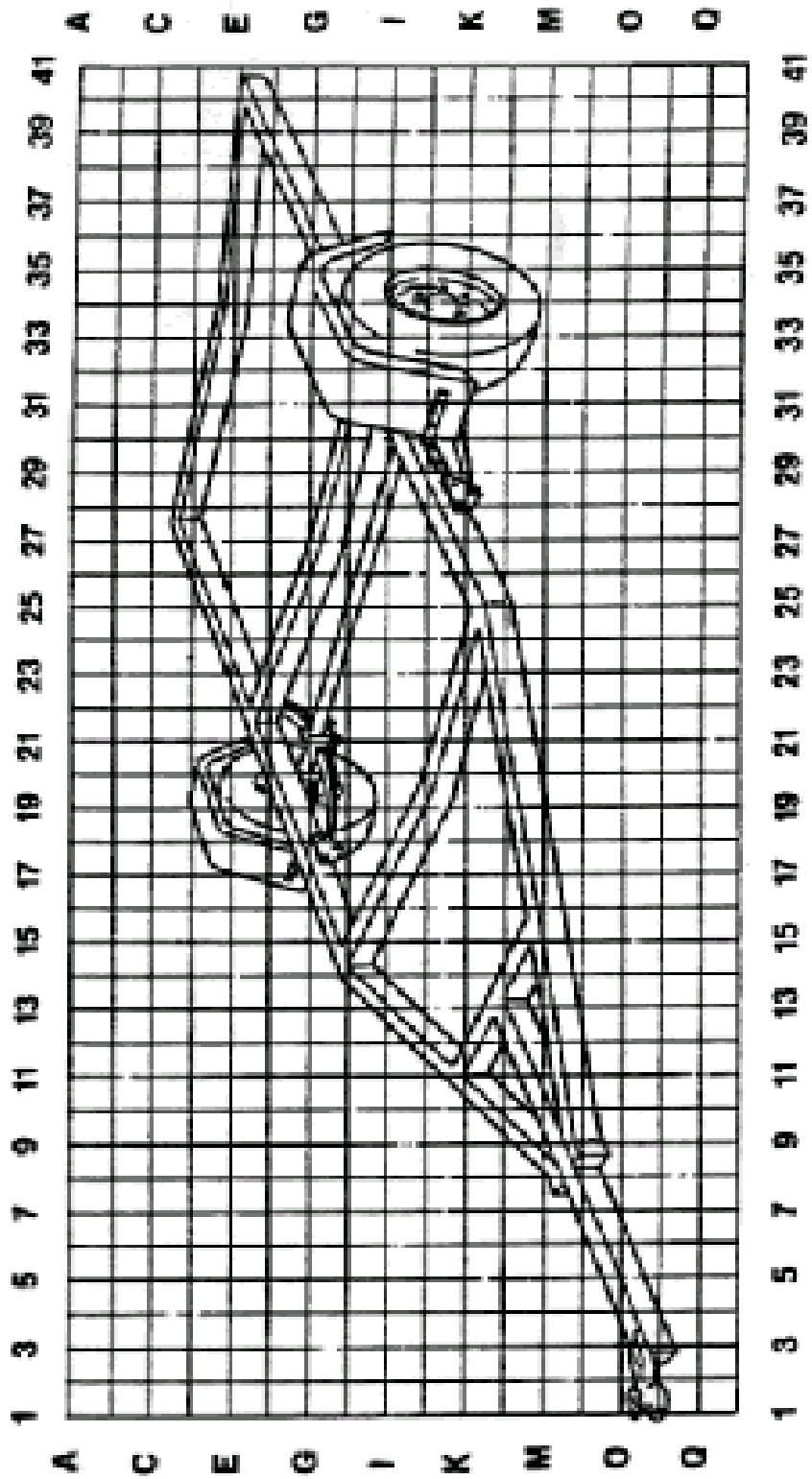
CHART No 16

- A. Left side of engine block.
- B. Left side of cylinder barrel; also on plate off side cylinder barrel extension.
- C. On top of flywheel housing.
- D. At front on left side of timing case housing.
- E. On crank case at base of left-hand cylinder barrel.
- F. Top edge of nearside end of cylinder block, above clutch housing.
- G. On crankcase, to right of, and below carburettor flange.
- H. At base of generator mounting above lower pulley.
- I. Front edge of plate carrying magneto.
- J. Underfloor engine-on crankcase lugs on top of engine immediately to left of fuel pump.
- K. Underfloor engine-on top rear cylinder block, close to cylinder head.
- L. Nearside of timing case, below distributor.
- M. Offside of timing case.
- N. Offside rear top edge of crankcase, forward of flywheel.
- O. On left side of engine block.
- P. On top of cylinder block nearside, under generator.
- Q. Top of clutch housing adjacent to earth strap (under seat).
- R. Stamped on crankcase boss, nearside, in line with cooling fan.
- S. Right-side flywheel housing member.
- T. Top rear of engine block.
- U. Top of crankcase, near oil filter.
- V. Rear of block, under air blower.
- W. In front of engine, beneath induction fan.
- X. Below crank wheel.
- Y. Offside, on rear of kick starter housing.
- Z. Offside of crankcase, above pushrod covers.
- BA. Offside top edge of crankcase, below cylinder block mounting flange.

CHART No 17

- A. Left side front crossmember alongside battery carrier.
- B. Top right front spring housing.
- C. Offside rear of crankcase to rear of distributor drive tube flange.
- D. Celluloid plate on sun visor or on back of glove box door.
- E. Leading edge of front spring plate at front of chassis.
- F. On crossmember which supports front spring, to rear of engine.
- G. On top of housing for telescopic shock absorbers, either near or offside, can be seen when looking down with bonnet raised.
- H. On crossmember frame on offside of steering head.
- I. Front flange of front suspension crossmember between spring clamps (under seat).
- J. On plate on scuttle, also on plate in luggage boot.
- K. On plate underneath bonnet at rear.
- L. Top edge of access opening to carburettor.
- M. On plate on inside of tool box lid.
- N. On plate fastened to engine compartment lid.
- O. On top of crossbracket between top of radiator and grille and to nearside of bonnet catch.
- P. Offside on tube adjacent to cylinder head, also on plate under seat.

Chassis Number Location Chart No. 18



Chassis Number Location Chart No. 19

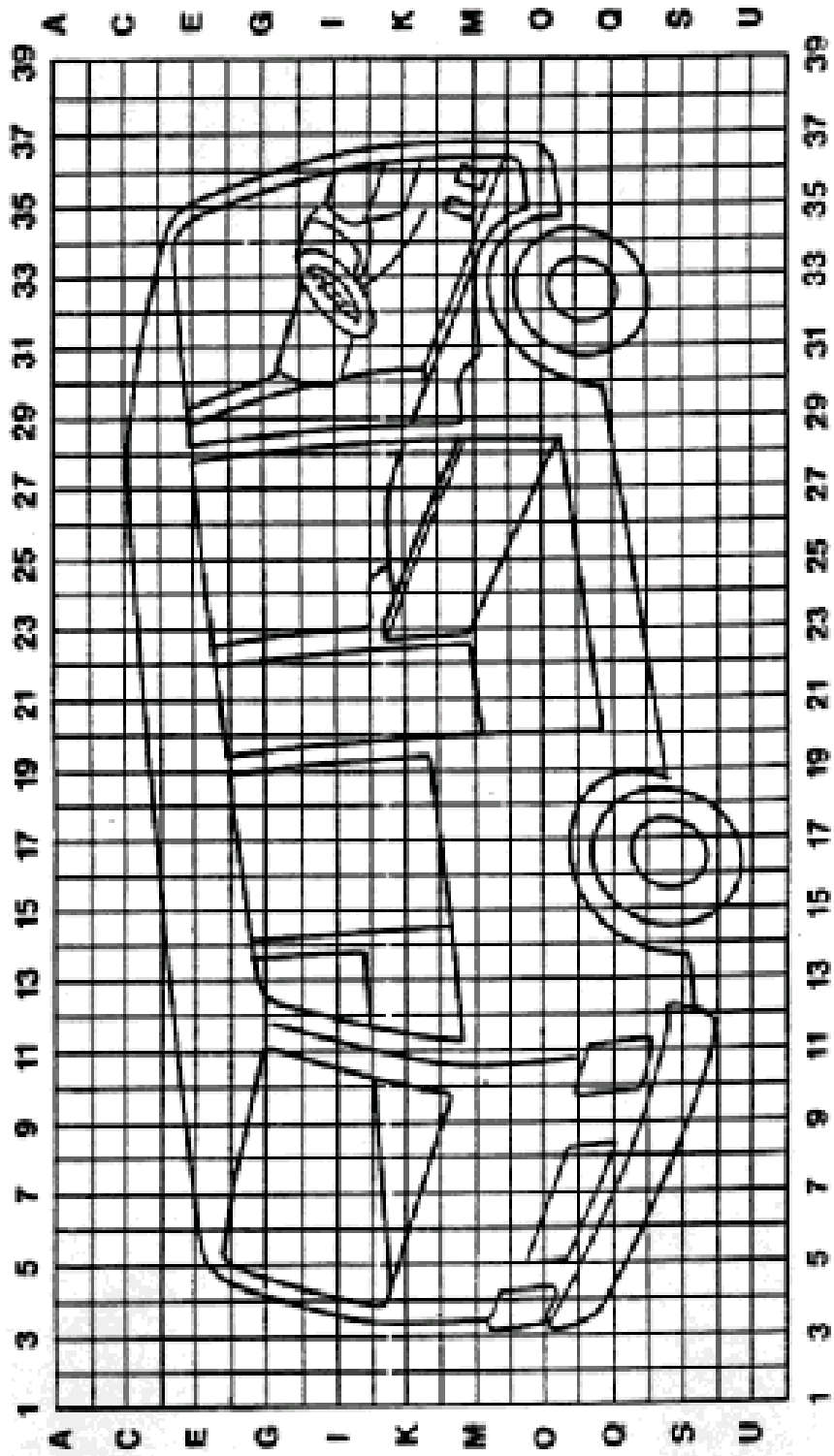


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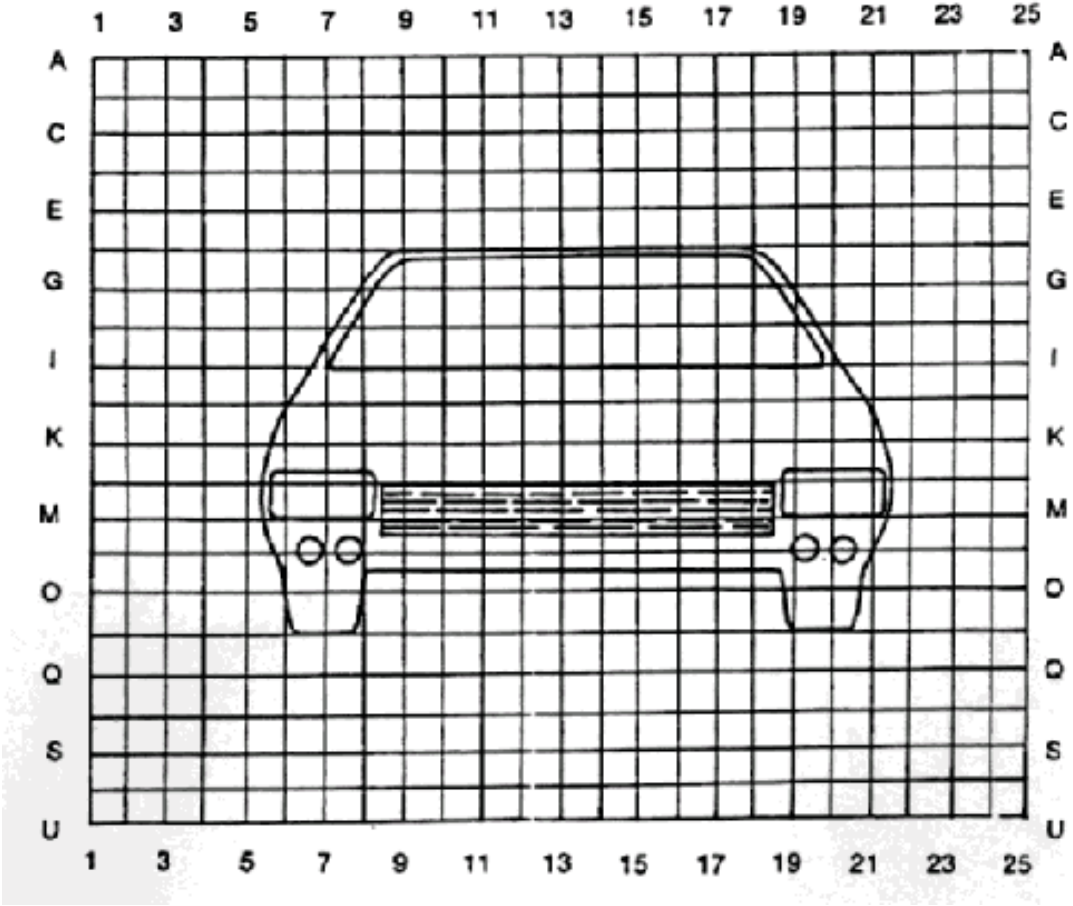


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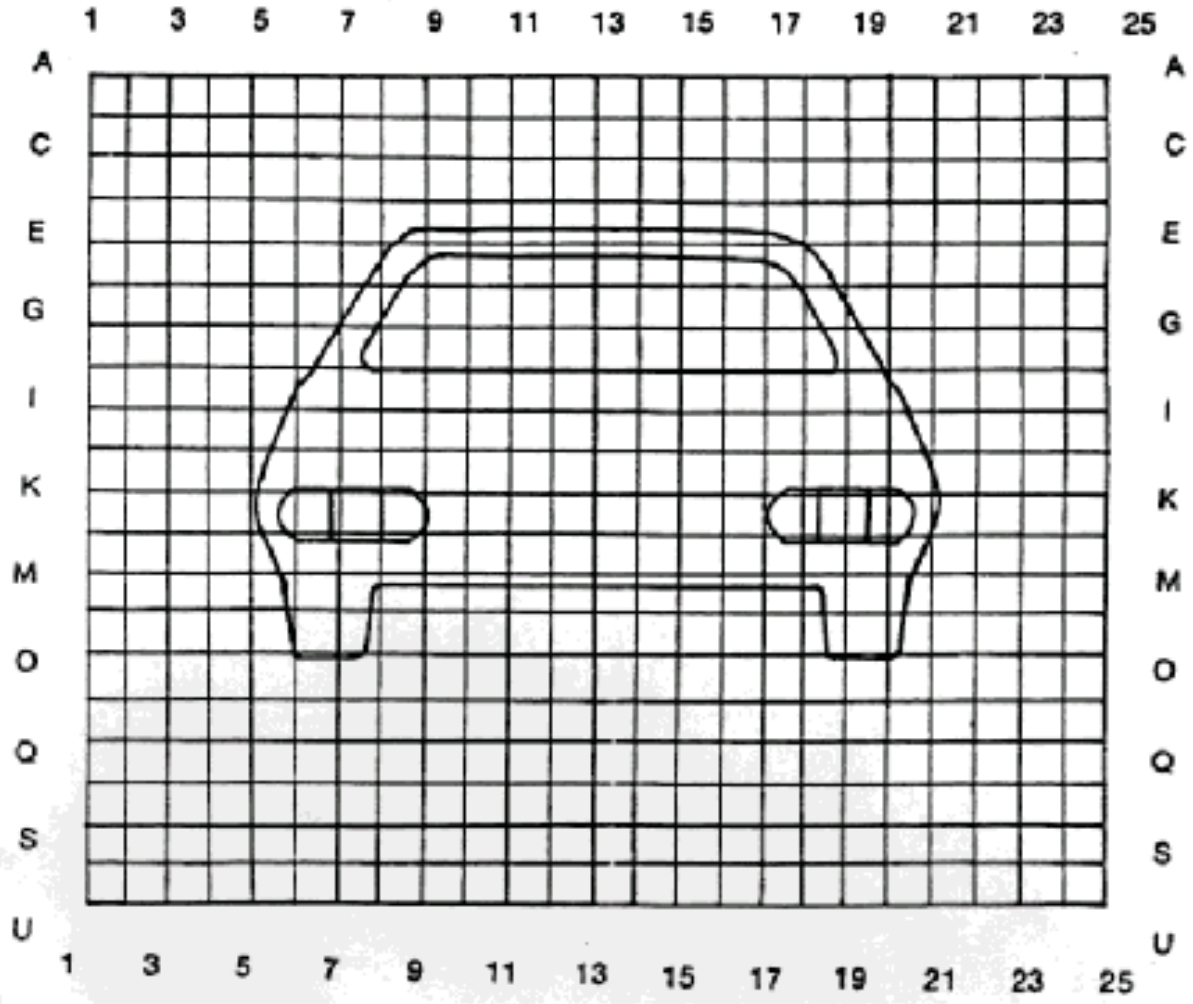


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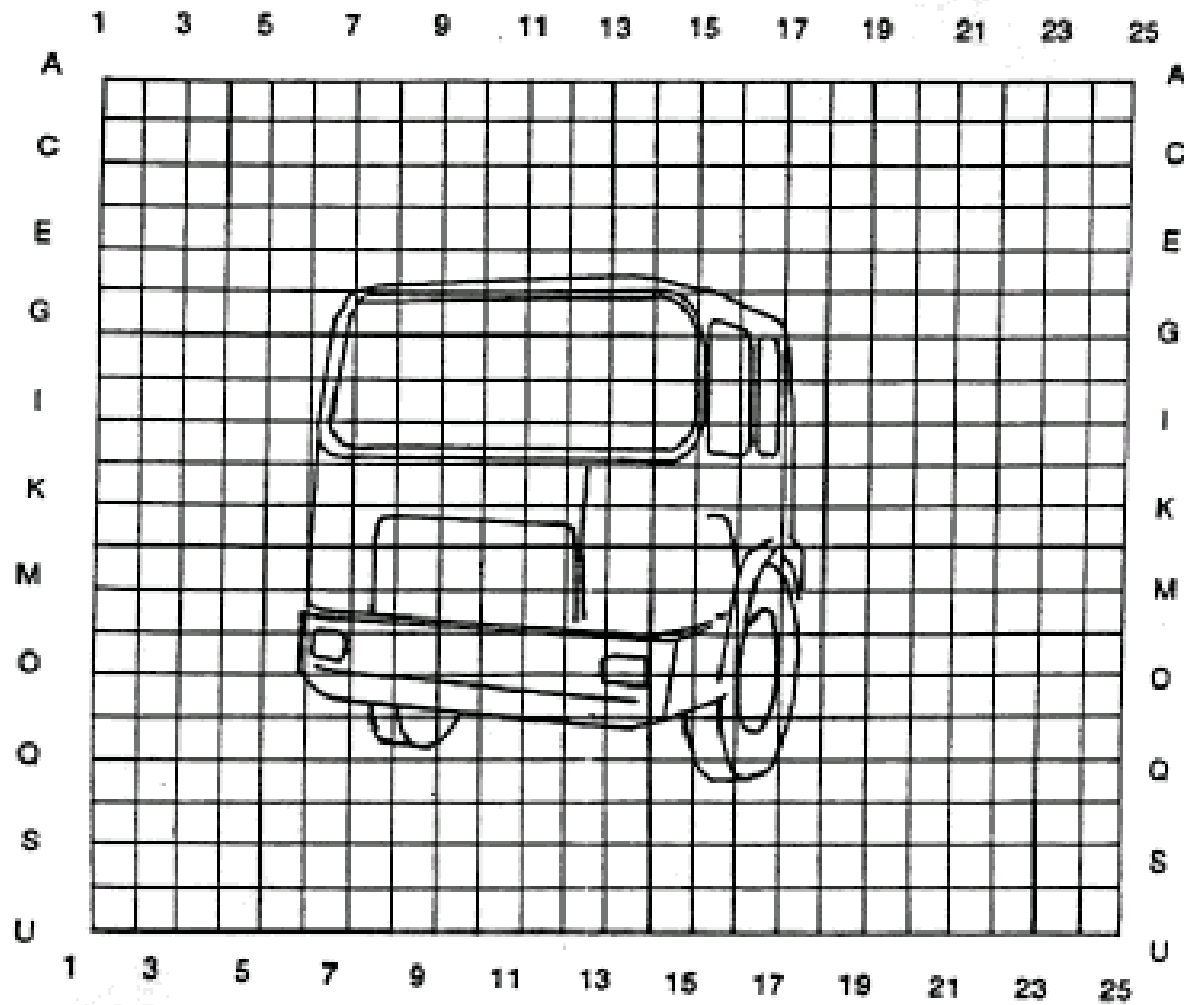


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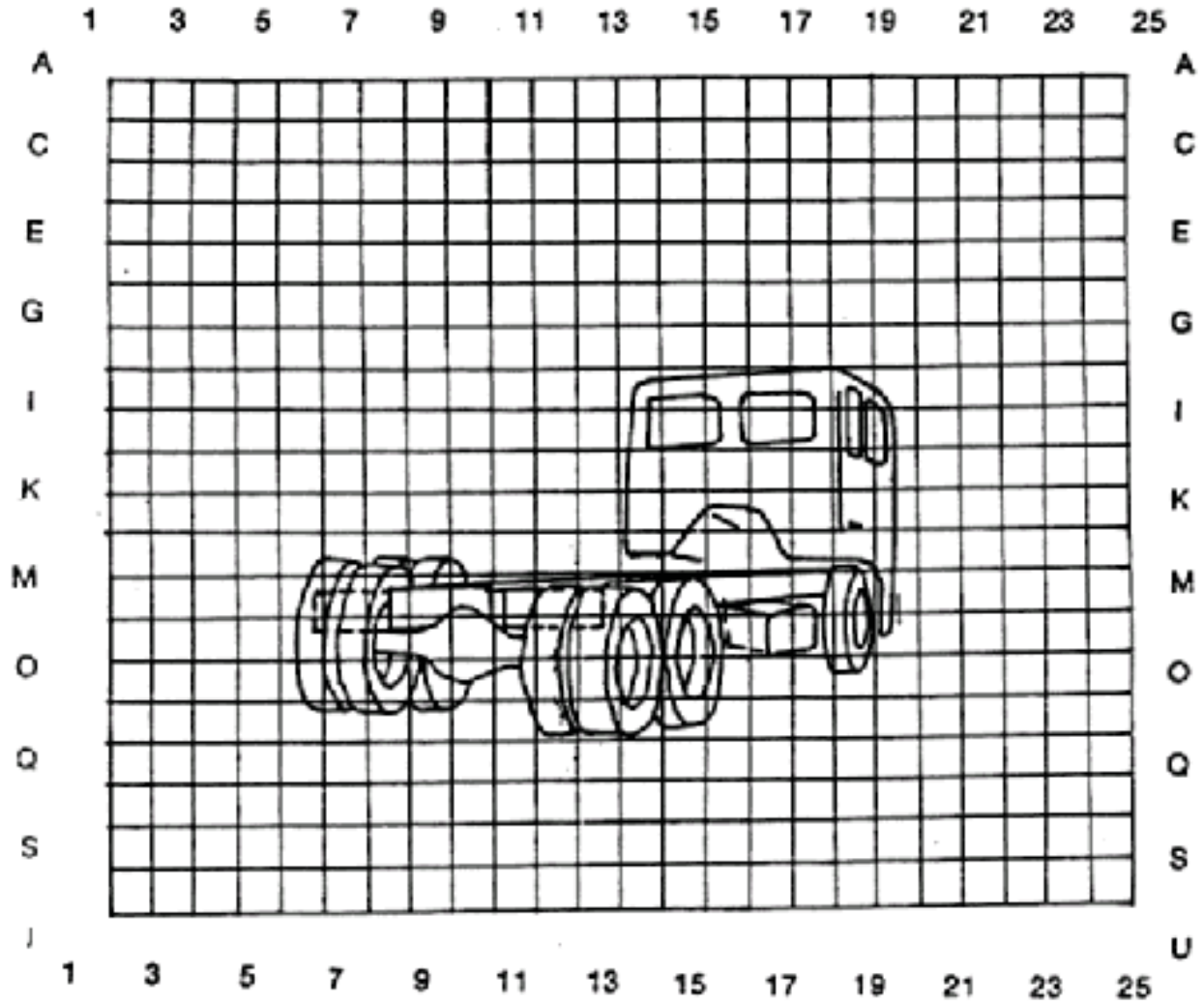


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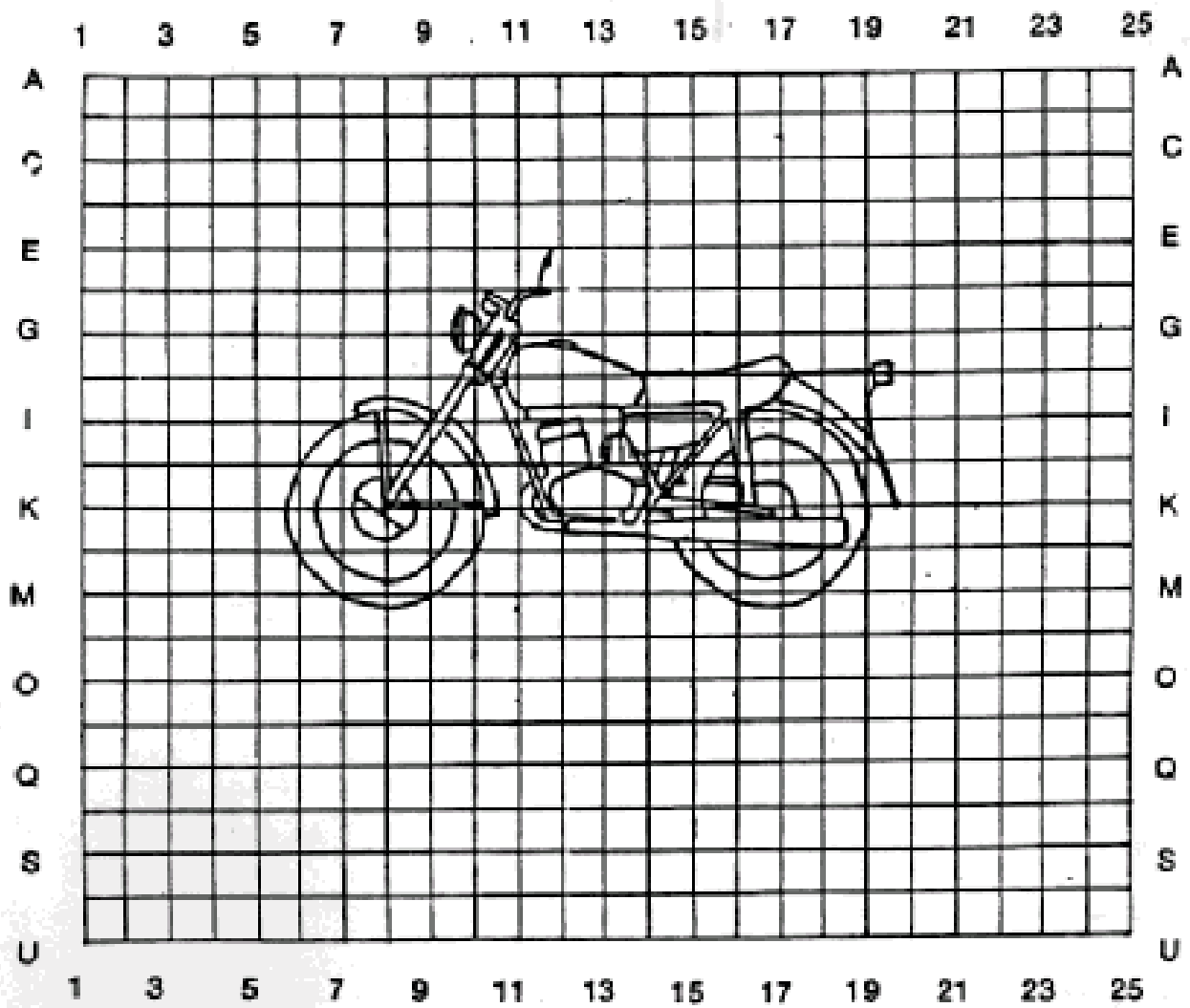


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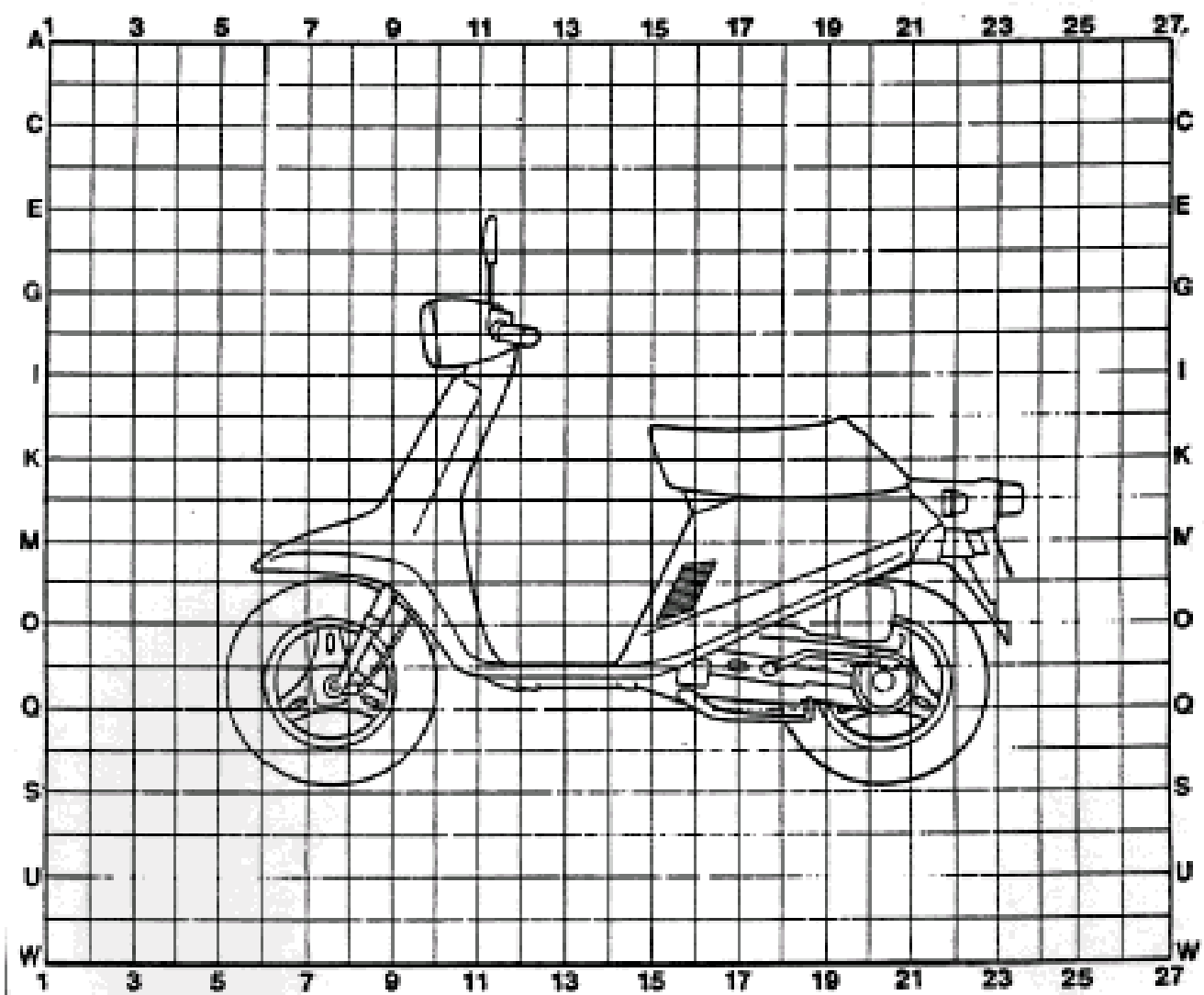


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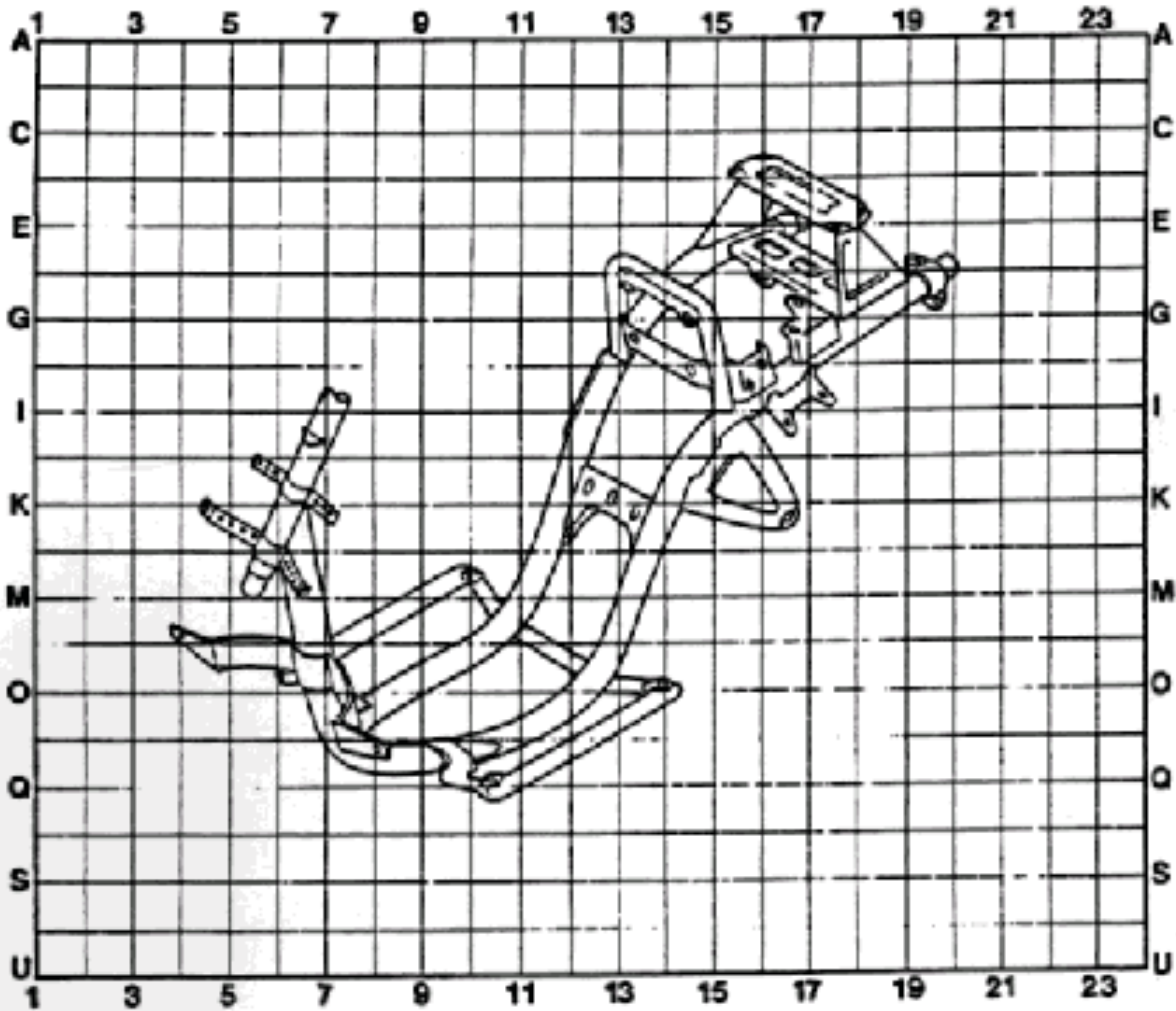


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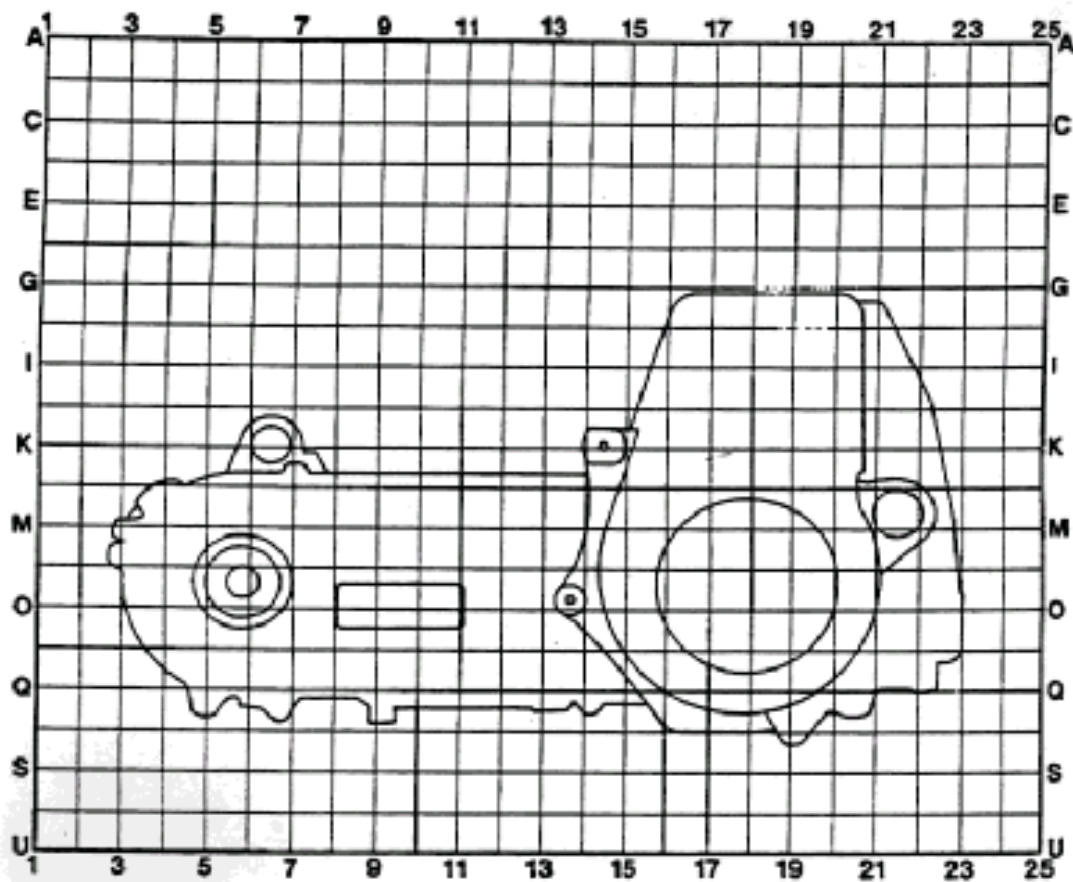


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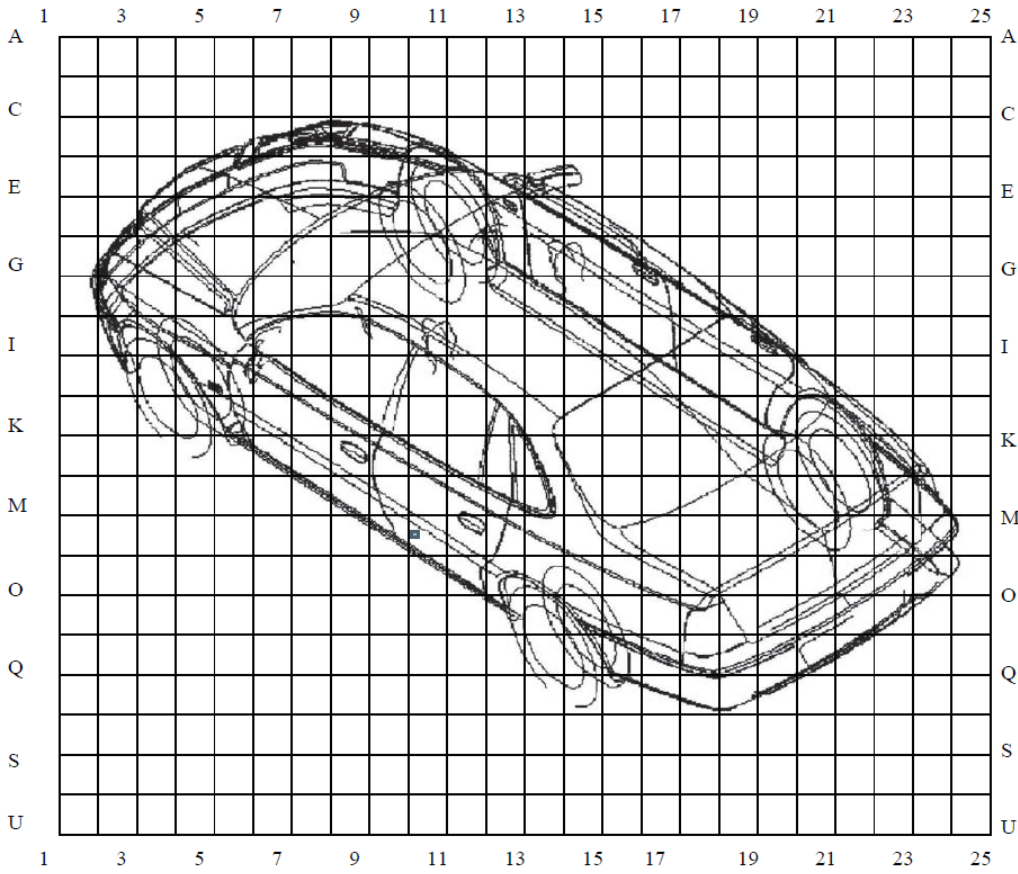


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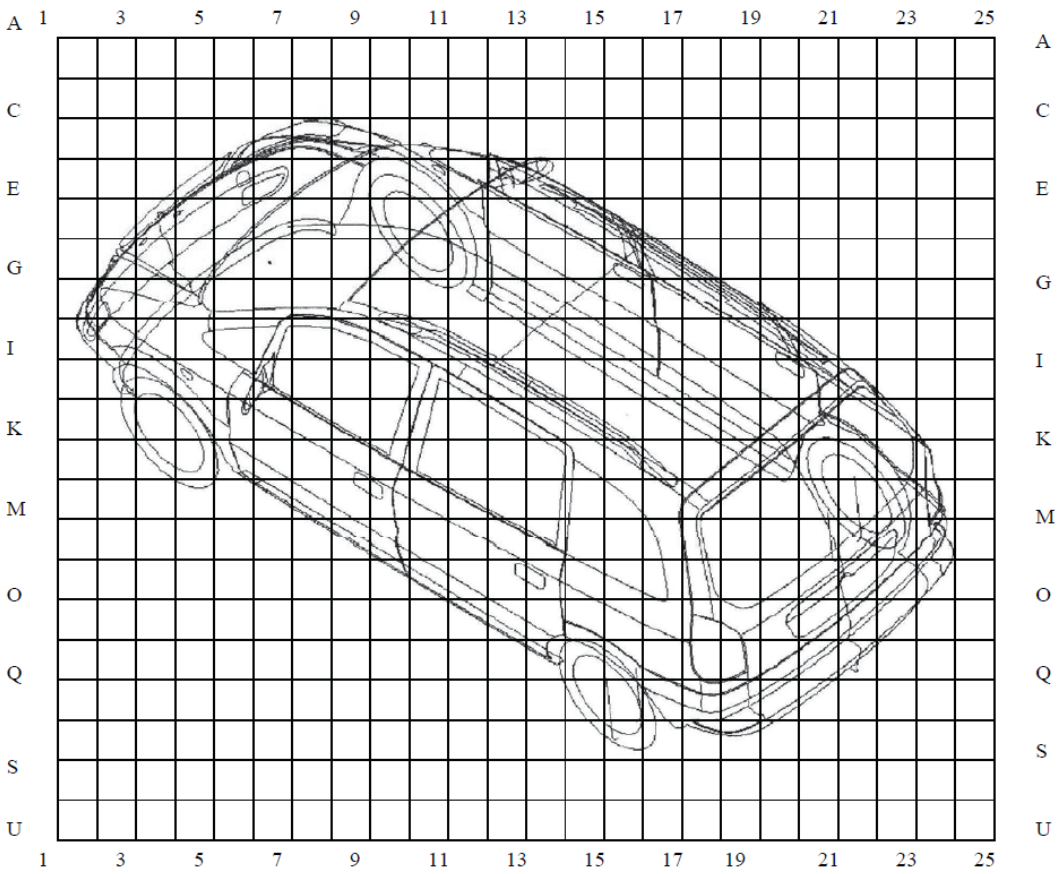


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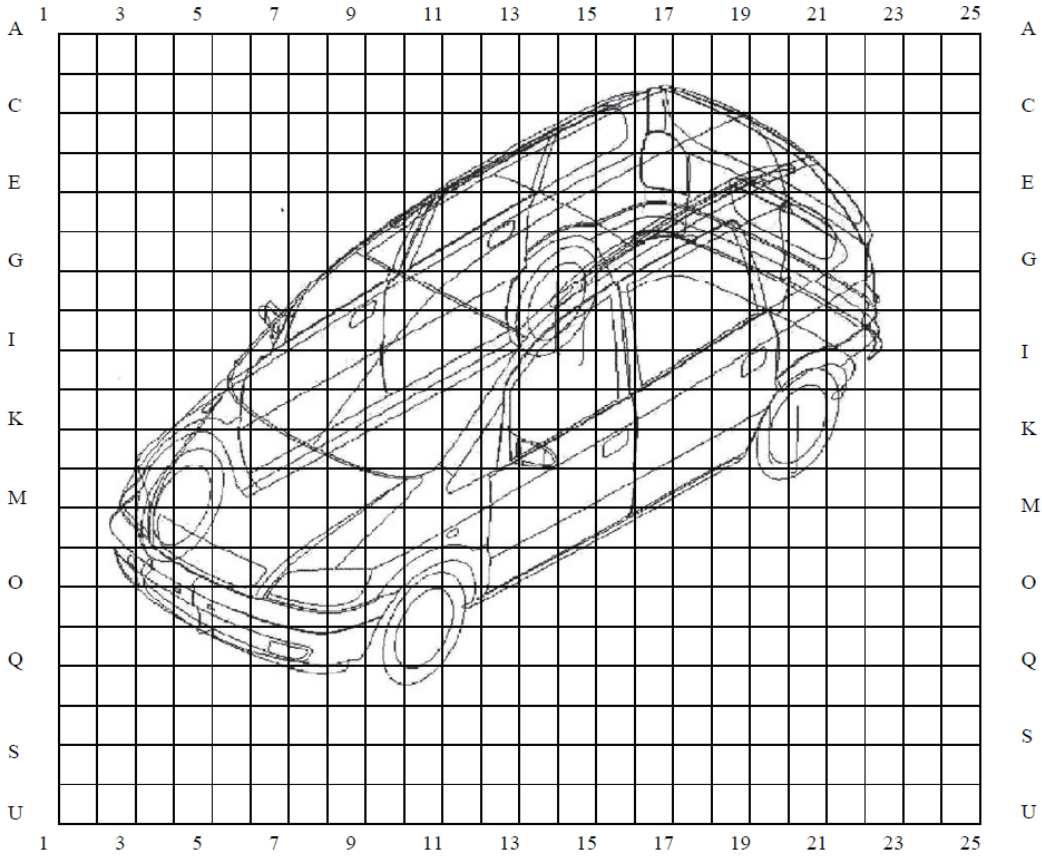


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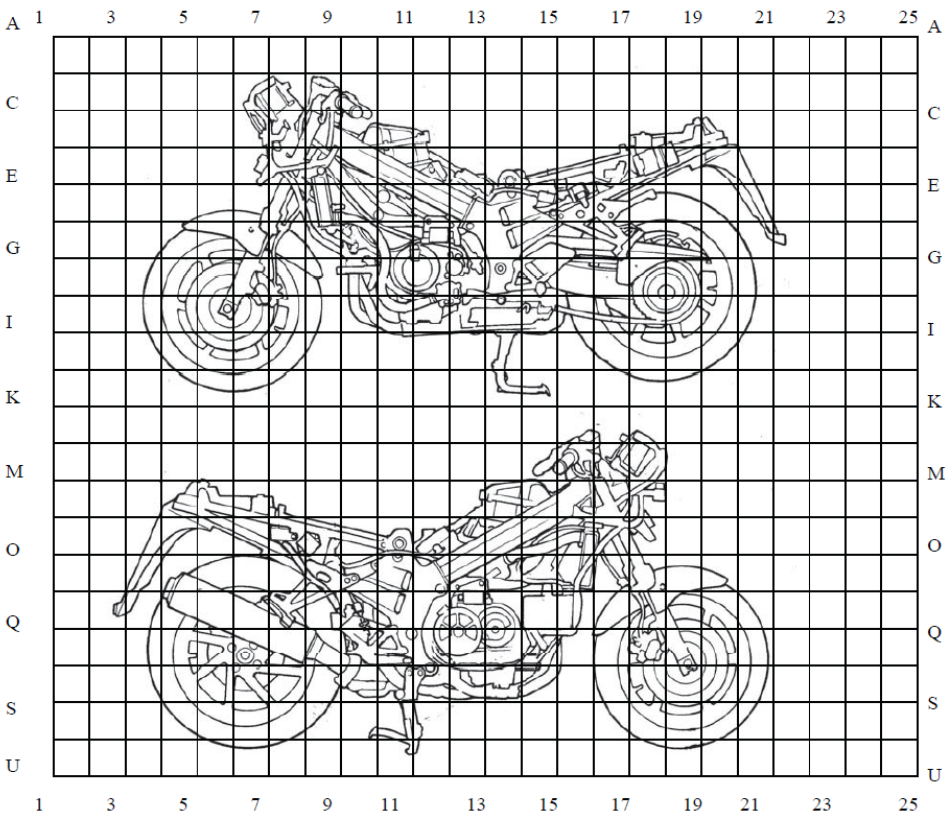


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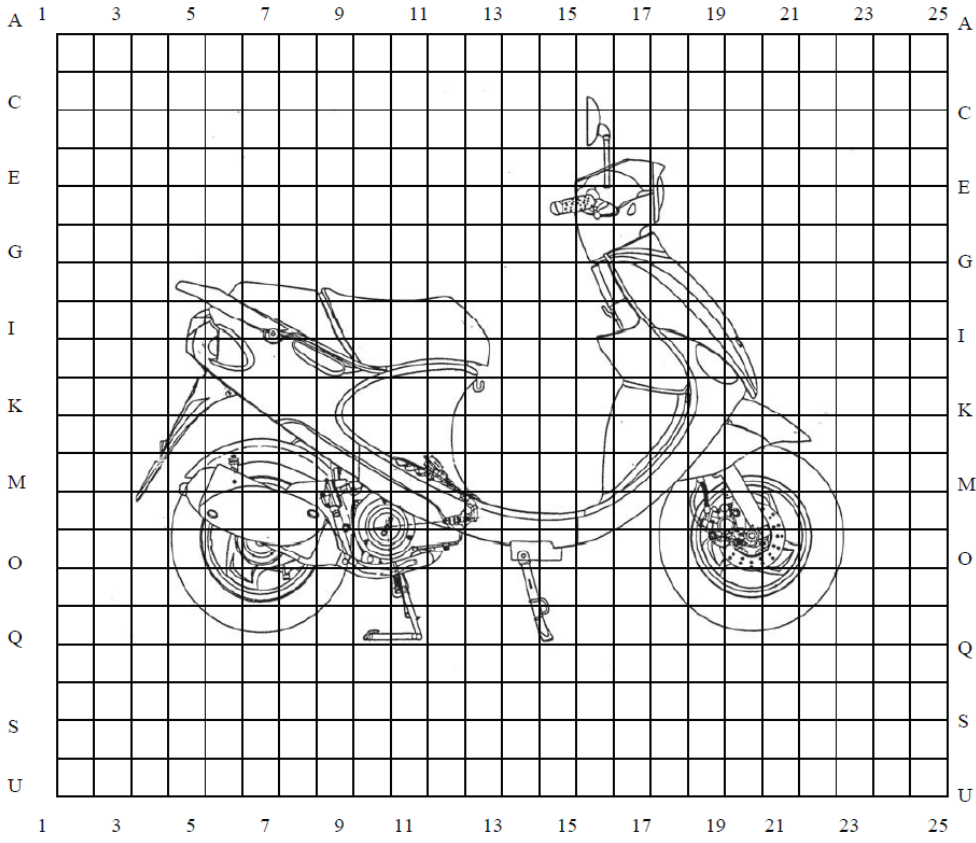


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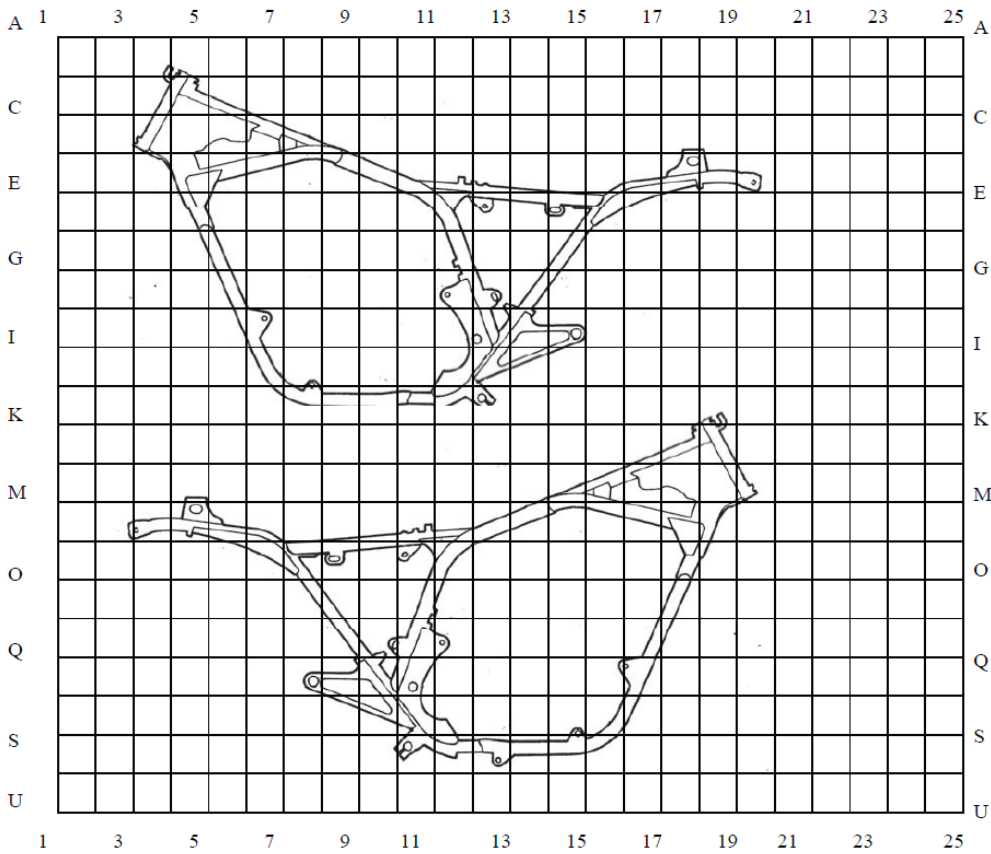


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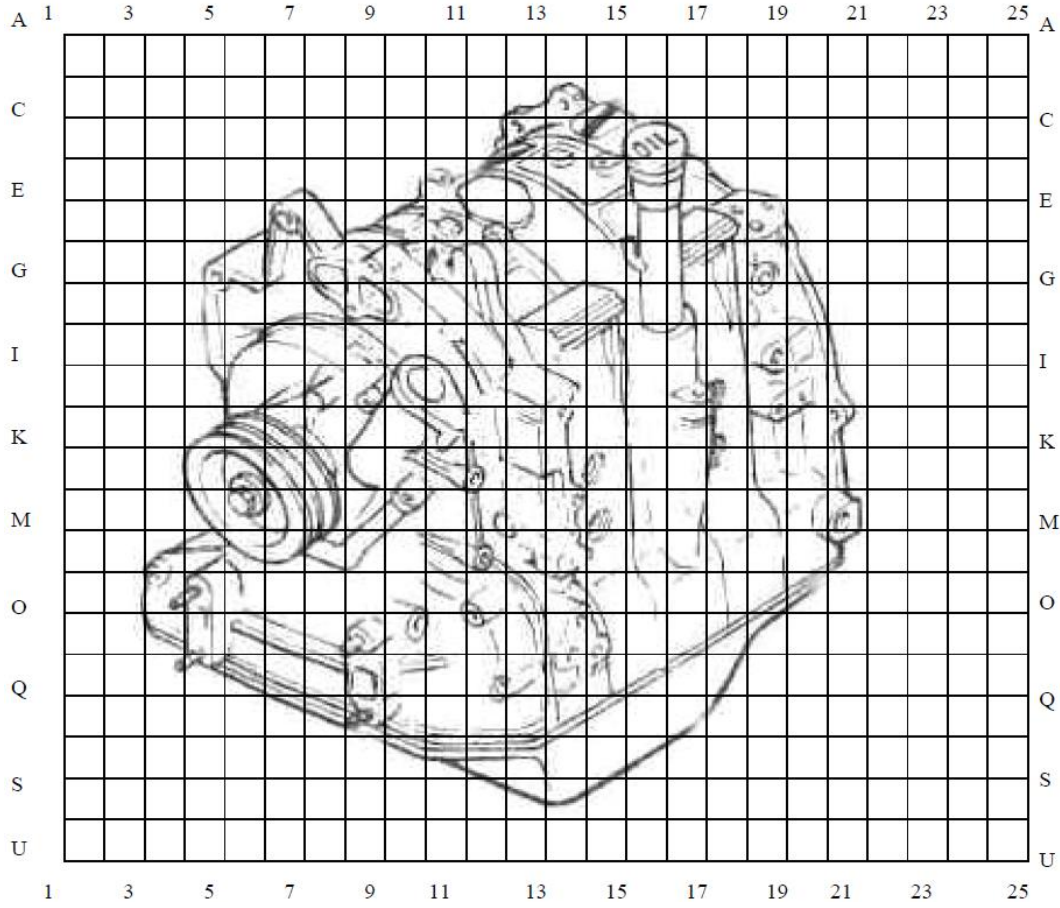


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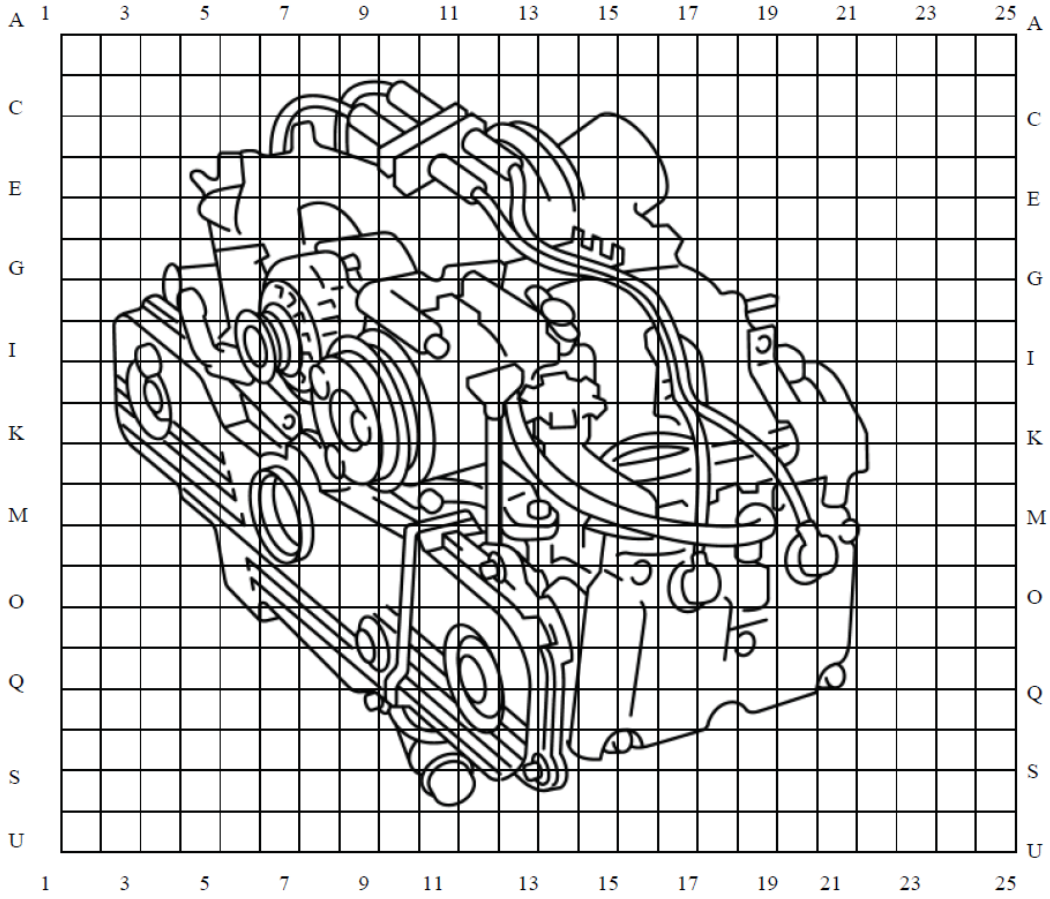


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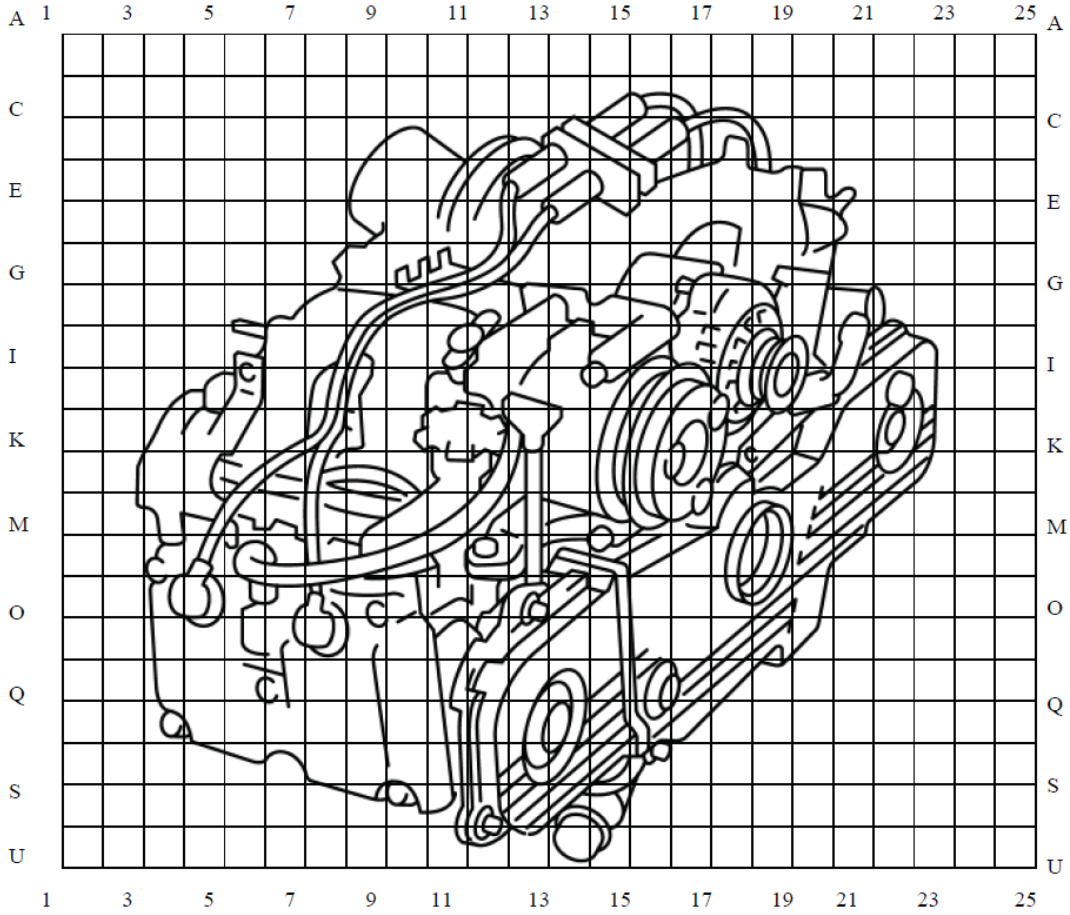
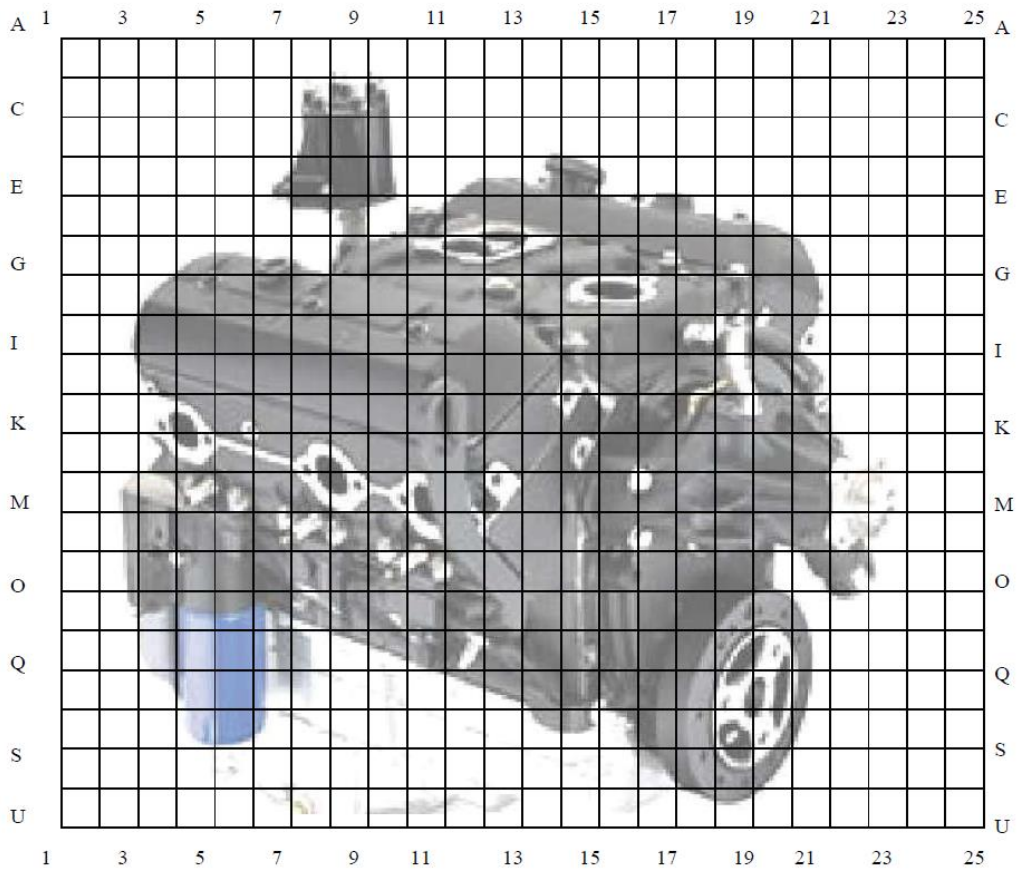


CHART No 37



Appendix X – Primary Vision Area

The primary vision area viewed from the driver's seat must be clear within the boundaries defined by the following.

Locate the reference point as identified in Diagram 1 below. From this point looking through the windscreen there must be no obstruction within an imaginary rectangle on the windscreen that has its sides bound by the following when viewed from the reference point.

- 10 degrees upwards, and
- A point 11 metres at ground level forward of the reference point, and
- 56 degrees to the left, and
- 15 degrees to the right.

Diagram 1

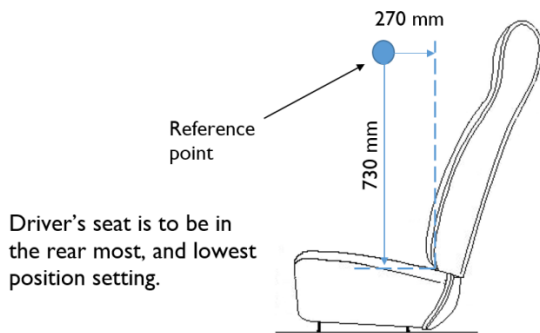
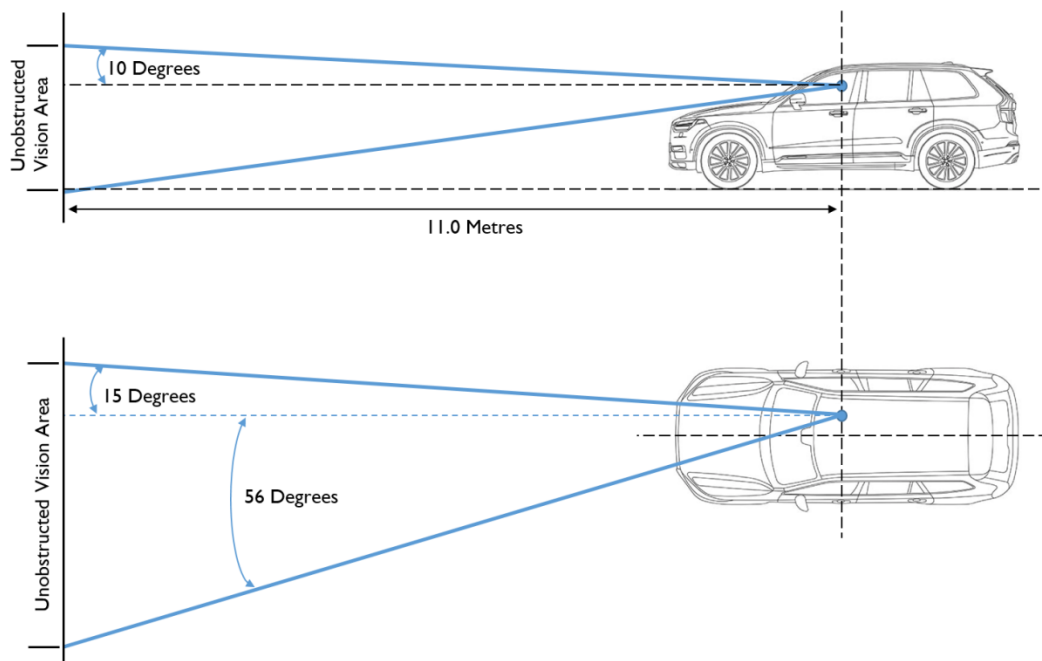


Diagram 2





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Web Link:

https://www.transport.tas.gov.au/vehicles_and_vehicle_inspections/vehicle_inspections_ais/ais_inspection_manuals