



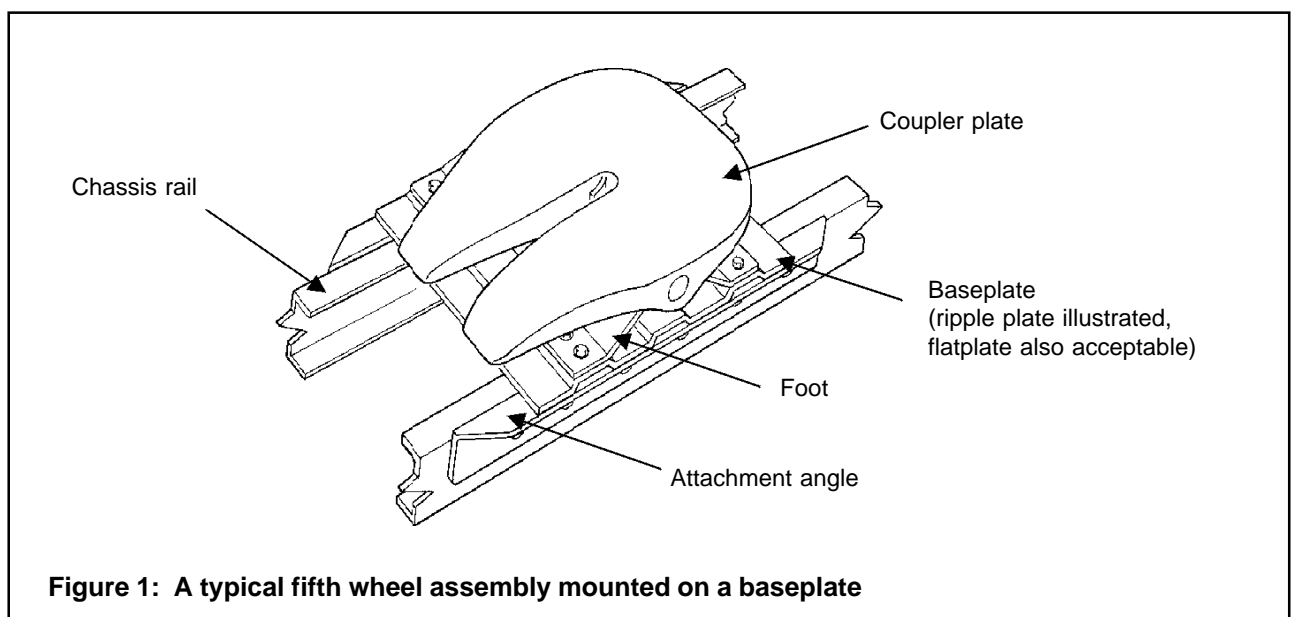
# Fifth Wheel Mountings

## Introduction

In recent years there have been several fatal truck accidents caused by fifth wheels separating from prime movers. As a result, this Information Sheet has been compiled to give advice on the mounting requirements for fifth wheels. It is aimed at persons maintaining/operating articulated vehicles and persons fitting fifth wheel assemblies to prime movers, and is based on Australian Standard AS1771-1996 "Installation of Fifth Wheel Assemblies"

The advice given here is considered to be the minimum requirements necessary for safe vehicle operation under normal road conditions. Any person involved in articulated vehicle maintenance or construction should obtain a copy of the standard from Standards Australia, P.O. Box 1055 Strathfield NSW 2135 (phone (02) 9746 4600; Facsimile (02) 9746 3333).

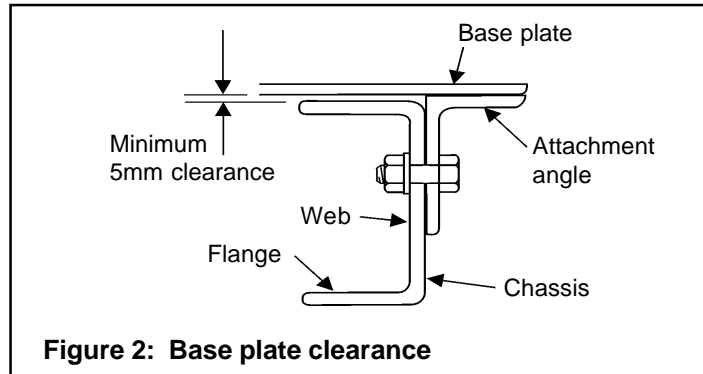
This document covers the commonest methods of mounting fifth wheels. Some prime mover manufacturers provide specifications and/or fit assemblies as original equipment; these original equipment mountings are acceptable. The following requirements apply to fifth wheels which are not fitted as original equipment by the prime mover manufacturer.



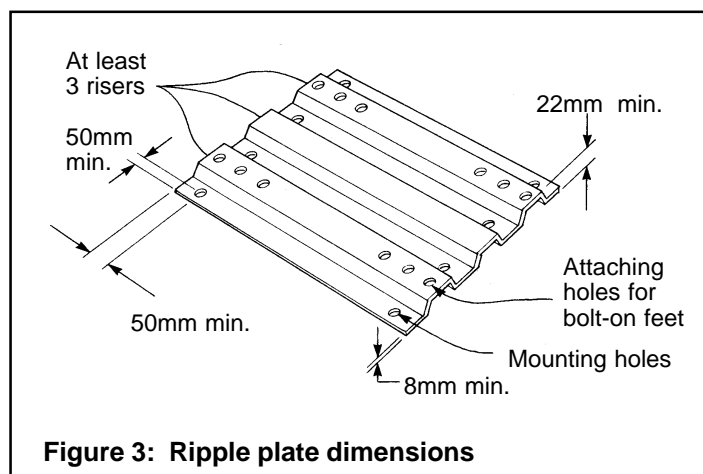
**Figure 1: A typical fifth wheel assembly mounted on a baseplate**

## A. Installation of Fixed Assemblies

1. The fifth wheel must be mounted on either a baseplate or a subchassis.
2. There must be at least 5mm clearance between the base plate/subchassis and chassis flange (Figure 2).

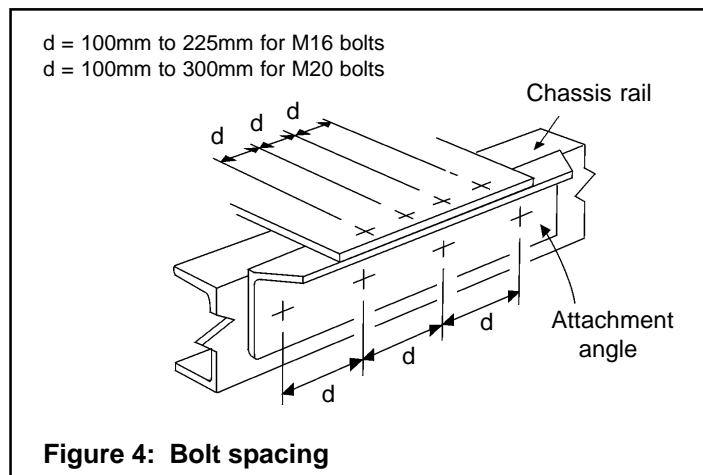


3. If the base plate is made of flat plate, it must be at least 12mm thick. If a “ripple” plate is used, it must be at least 8mm thick and have other dimensions as illustrated in Figure 3.



4. The fifth wheel assembly must be bolted to the web of the chassis (usually using attachment angles or fish plates).

5. There must be at least four M20 (3/4") or six M16 (5/8") bolts per side. It is recommended that M20 bolts be used with chassis having double web thickness and M16 bolts be used on single web thickness. It is preferable to use bolts with fine threads.

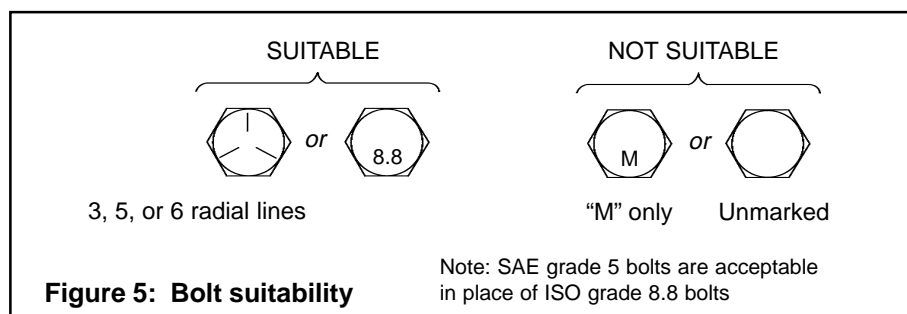


6. The bolt spacing must be within the range:

M16: 100 to 225mm  
M20: 100 to 300mm

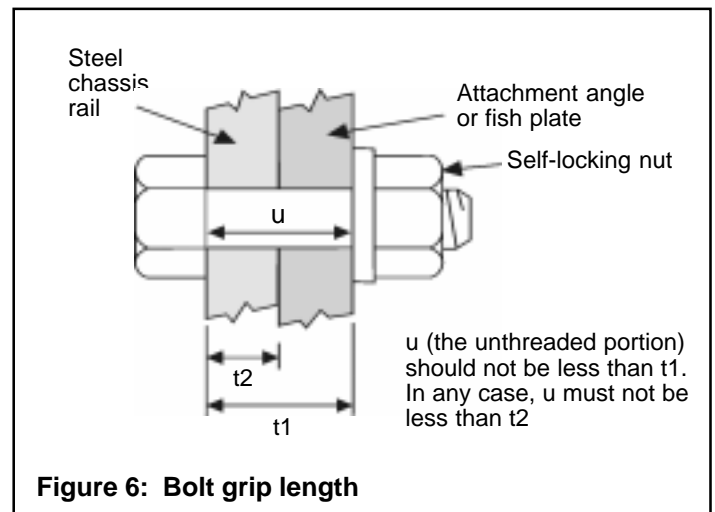
(Figure 4).

7. The bolts must be grade 8.8 or stronger (Figure 5).

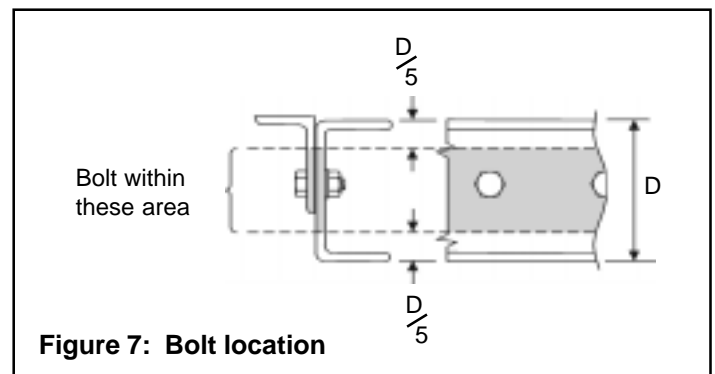


8. Each bolt must have a nut locked onto it. The locking method must not be a spot of weld, spring washer or a split pin hole drilled through the side of the nut (unless it is a proprietary castellated nut). An acceptable method is to use “Nyloc” nuts or similar self-locking nuts. Manufacturers’ re-usability limitations on nuts must be observed.
9. Hardened washers must be used under all nuts (hardened washers usually have three radial tangs on the outer circumference). Tapered shims must be used where appropriate.
10. On aluminium alloy chassis, hardened washers must be used under both the nut and bolt head.
11. The bolt hole clearance should be no more than 1mm. Good practice is to ream the holes to size.

12. It is good practice to install all vertical bolts with the head uppermost. This will ensure that if the nut is lost, the bolt will not fall out. The bolt length should be such that the thread portion is not within the grip length. The recommended bolt torque is 170-190NM (126-140ft.lbs) for M16 size bolts and 330-370Nm (244-273ft.lbs) for M20 size bolts (Figure 6).



13. Chassis mounting bolts must not be within one fifth of the chassis depth of the top and bottom flange (Figure 7).

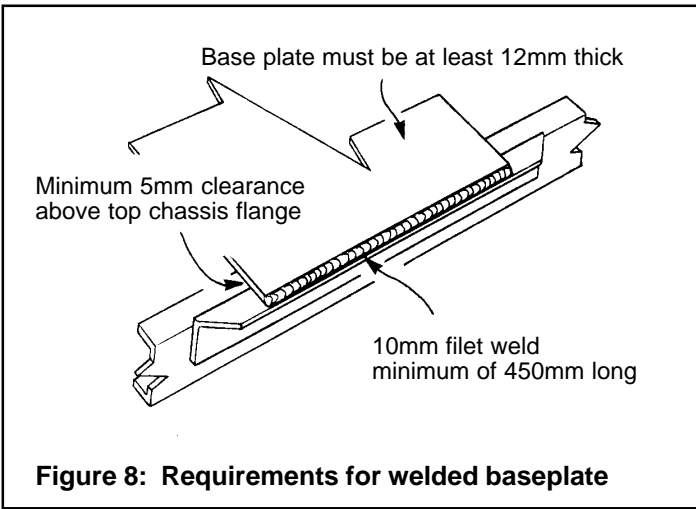


14. U-Bolts or an array of smaller size bolts are not acceptable for attachment of the fifth wheel.
15. The base plate must be secured onto the subchassis or attachment angle using either bolts or by welding. Bolting is preferred.
16. If bolted, it must incorporate at least four M20 (3/4") or six M16 (5/8") bolts per side.
17. The bolt spacing must be within the range:  
M16: 100 to 225mm      M20: 100 to 300mm      (see Figure 4).
18. The bolts must be grade 8.8 or stronger (See Figure 5).

19. If welded, more than 450mm (total) of 10mm fillet weld per side is required (Figure 8).

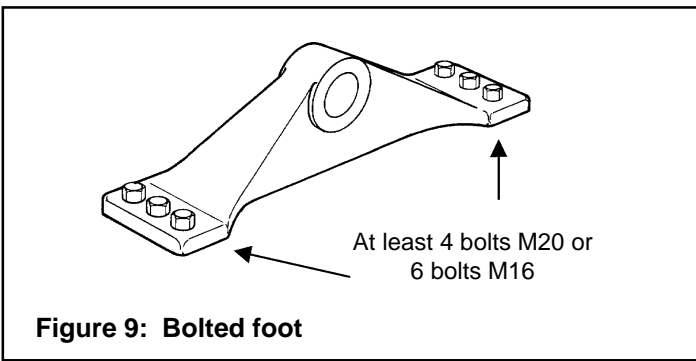
20. If intermittent welding is used, the weld runs must be at least 40mm long.

21. Any person considering welding as an attachment method should consult the fifth wheel manufacturer to determine if any special requirements are necessary. Only competent persons trained in welding techniques should be employed to weld components.



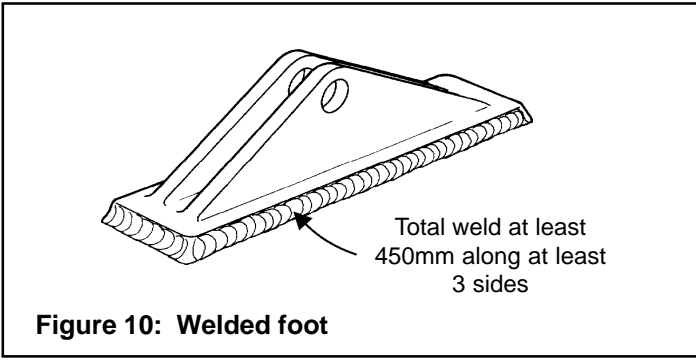
22. All welds must be of good quality and not incorporate any undercuts or craters.

23. The fifth-wheel feet shall be secured to the base plate either using bolts or by welding. Bolting is preferred - welding is only permitted if the fifth wheel manufacturer approves of this method.



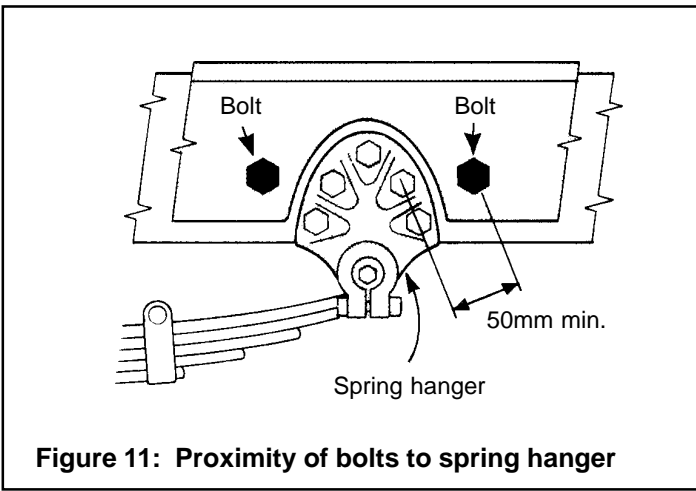
24. If bolted, at least four M20 (3/4") or six M16 (5/8") grade 8.8 bolts per foot must be used (Figure 9).

25. Bolting is preferred, but if welded, then at least 450mm (total) of 10mm fillet weld per foot must be used (Figure 10).

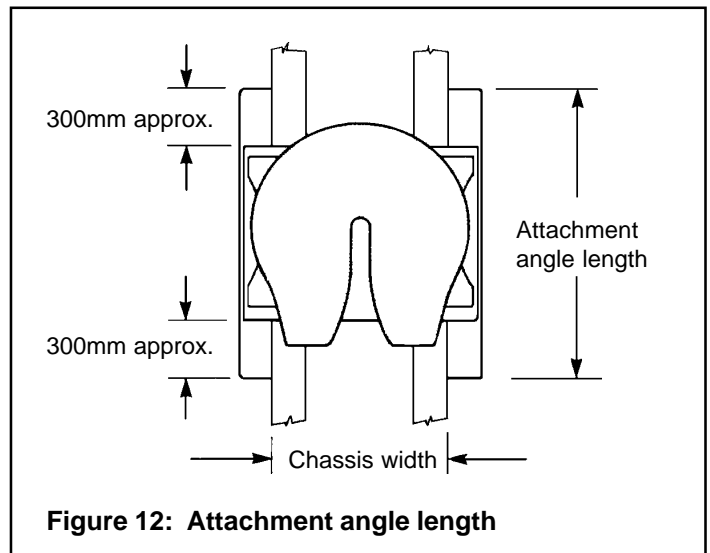


26. The weld must be of good quality and not incorporate any undercuts or craters (see earlier comments on welding).

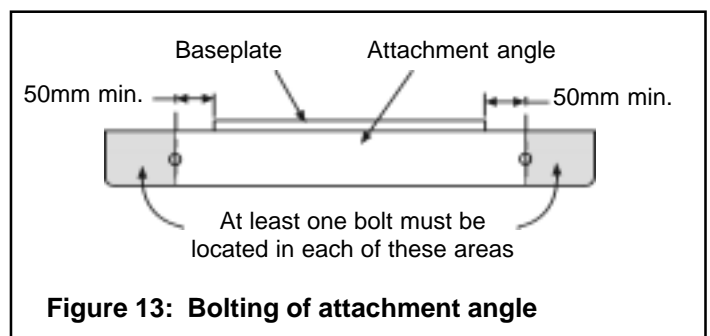
27. If the attachment angle is cut to accommodate a spring hanger, then there must be at least one bolt in close proximity to each side of the cut out. The bolts must not be closer than 50mm to any spring hanger bolt or rivet (Figure 11).



28. The length of the attachment angle (or fish plate overall spacing) must be greater than the chassis width, preferably by about 600 mm (this avoids abrupt section change and distributes the load more evenly), (Figure 12).

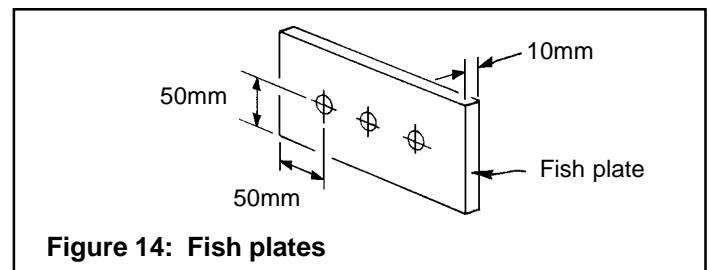


29. On attachment angles or fish plates there must be at least one bolt at least 50mm forward of the leading edge of the base plate, and at least 50mm rearward of the baseplate (the preferred minimum is 80mm) (Figure 13).



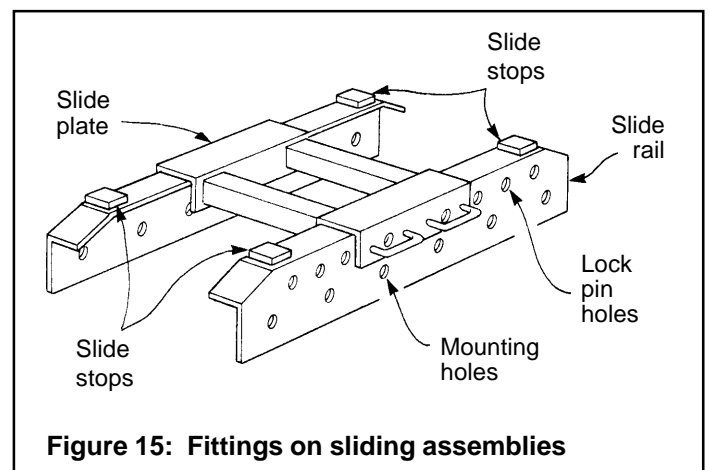
30. Attachment angles used must have the minimum dimensions of 101 x 76 x 10mm (4 x 3 x 3/8").

31. Fish plates or check plates must be a minimum of 10mm thick and any bolt hole centrelines must not be closer than 50mm from any edge (Figure 14).

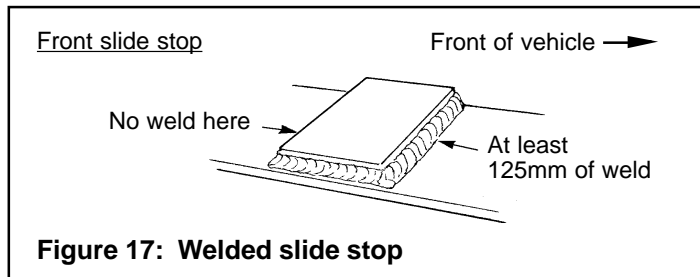
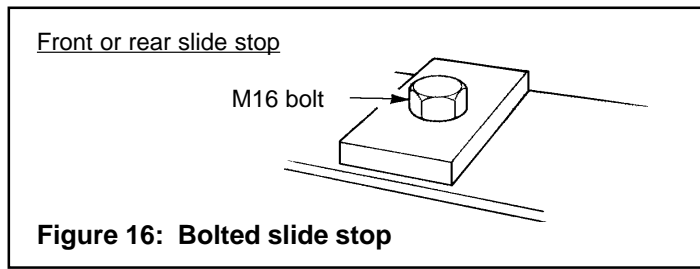


## B. Installation of Sliding Assemblies

1. As well as those requirements listed in Section A, sliding assemblies must be fitted as in Figure 15
2. The attachment angle on a sliding assembly must have a bolt located at or beyond each end of the travel of the slide plate. No bolt shall be located within 50mm of any suspension mounting bracket fastener.



3. Slide stops must be fitted.
4. Slide stops must be secured by bolts or welding.
5. If bolted, at least one grade 8.8 M16 bolt per stop must be provided (Figure 16).
6. If welded, there must be at least a total of 125mm of 10mm weld on three sides. The stop face must not have any weld. (Figure 17).
7. The weld must be of good quality and must not contain undercuts or craters.
8. The locking mechanism must be of a positive locking type.
9. The locking mechanism must be resistant to detachment due to vibration or wear.



## C. General Advice

1. When replacing fifth wheels, new attachment angles and fitments must be used unless the existing angles and fitments can be used without the necessity of drilling new holes.
2. Welding is a specialised and skilled matter. For example, some metals are not weldable, others require the use of special grades of welding rods and special techniques. Only competent persons trained in welding techniques should be employed to weld components.
3. Nuts, bolts and washers should not be re-used. “Nyloc” and similar self locking nuts are designed to be used once only and must not be re-used.
4. Any bolt which has been drilled for a split pin must not be used, if, when installed, the hole is between the bolt head and the top of the nut.
5. In the case of mounting turntable based fifth wheels which are not covered by this Information Sheet, contact the turntable and vehicle manufacturer.

## FURTHER INFORMATION

### RTA Blacktown:

Vehicle Regulation Unit  
Level 1, 85 Flushcombe Road  
PO Box 558  
BLACKTOWN NSW 2148

Tel: (02) 9830 5555  
Fax: (02) 9831 0913

### RTA Wollongong:

Vehicle Regulation Unit  
104 Market Street  
PO Box 5398  
WOLLONGONG NSW 2500

Tel: (02) 4226 7007  
Fax: (02) 4225 8844

### RTA Charlestown:

Vehicle Regulation Unit  
Cnr Pacific Hwy & Frederick St  
PO Box 585  
CHARLESTOWN NSW 2290

Tel: 1 800 049 920  
or (02) 4940 5555  
Fax: (02) 4921 0827

### RTA Parkes:

Vehicle Regulation Unit  
PO Box 334  
PARKES NSW 2870

Tel: 1 800 809 388  
Fax: (02) 6862 8496