

## CHOICE OF TOWBAR

This leaflet is prepared by The Caravan Club as part of its service to members. The contents are believed correct at the date of publication but the current position may be checked with the Club's Information Department.

April 2010

### 1. General

Whether you are new to the idea of coupling a caravan to your car, or experienced and considering changing your towing vehicle, the need for a sufficiently strong connection between the two vehicles is paramount for safety. The days when a simple towbar could be bolted straight onto the rear chassis crossmember with little if any concern over the chassis strength have long gone. Today's cars are generally computer-designed as integral structures without a separate chassis. The sheet metal has become thinner and is shaped to crumple in an accident to absorb the shock and protect the occupants. How then to find any safe strong point on which to attach a rigid bar? Obviously by using only the fixing points which the car's designers specify as being suitable. To drill holes elsewhere in thin sheet metal and expect it to withstand shock from a braking trailer ramming from behind without suffering fatigue and fracture is asking rather much.

### 2. Criteria

To find out whether a towbar is suitable, there are several questions to ask. First, has the towbar design for your car been tested to the appropriate British or European Standard? Next, does the towbar mount only to the car manufacturer's recommended mounting points? Finally, does the style of the towbar meet your needs in terms of its compatibility with accessories and its appearance?

### 3. Standards and Type Approval

A European Directive for towbars for cars registered since 1 August 1998 (ie 'S' plate) replaced the previous British standard, at which time towbars were incorporated into the range of vehicle components required to be Type Approved. The old standard remains in force, however, for those vehicles to which the new European standard does not apply (see below). Most manufacturers market their own approved towbars and some imply that these alone should be used. They are not legally allowed to say this, as they cannot object to the fitting of a Type Approved product irrespective of who has made or sold it - the Type Approval process defines that product as being of equivalent quality. The Club advises that any towbar you choose should be manufactured and tested to the European Standard

94/20/EC. Such a towbar will fit to all the car manufacturer's specified mounting points, and the car manufacturer cannot object to it being fitted to their vehicle. You should also ensure that the towbar manufacturer guarantees his product against any damage to the car which is attributable to the towbar.

### **Passenger cars first registered in the UK before 1 August 1998**

These vehicles do not fall within the scope of Type Approval. There is no legal requirement to choose a towbar of a particular standard, but Club advice is to select one which has been designed and tested to either of the following standards:

- British Standard BS 150 1103:2007 (supercedes the now withdrawn BS AU 113c standard)
- European Directive 94/20/EC

The former will be found more commonly for such vehicles. The latter is similar, but uses a significantly higher test load, making towbars which comply with it appreciably stronger. Beware of manufacturers making statements such as 'designed to BS 150 1103'. Only a statement that the design has been tested to and has passed the standard has much credibility. There are no specific restrictions to the fitting of accessories to towbars in this category, although it would be prudent to ensure that any accessories used do not interfere with the towbar's ability to do its job. It is acceptable to fit a drop plate to such towbars, in order to lower the towball height to improve the attitude of the caravan which towing. Note that a drop plate should **never** be used as a raiser plate to place the ball higher, since this can put undue load on both the towbar and the car body mountings particularly undue heavy braking.

### **Passenger cars first registered in the UK from 1 August 1998**

These vehicles do generally fall within the scope of Type Approval. Type Approval is the process by which a car and its constituent parts are tested and approved to be of an acceptable standard, and is generally a requirement for all new cars sold in Europe. There is a legal requirement therefore to choose a towbar which demonstrates acceptable performance in accordance with the relevant European Directive 94/20/EC.

A small number of cars fall outside the scope of the normal Type Approval process. These include kit cars and some so-called 'grey market' import vehicles. While the former are rarely of interest as far as towing duties are concerned, the latter can include some popular makes of 4x4s and MPVs. Such vehicles can be problematic in terms of their suitability for towing, since they may originate in markets where towing is uncommon, and their specification may therefore differ in comparison with a European-market equivalent model. Prospective owners should always query the importer or retailer over such models' suitability for towing, and the availability of a compatible towbar, before purchasing.

Care needs to be taken when considering the attachment of accessories which themselves generally do not have Type Approval - eg stabiliser brackets, cycle carriers etc , but which fit between the towball and the towbar of a 'bolt-on ball' type of towbar. The DETR (Department of the Environment Transport and the Regions) states that

*"...it is the responsibility of the user to contact the towbar manufacturer in order to determine whether or not the bracket has been type approved, taking into account the use of such additional devices that may be fitted. Some towbar manufacturers may already give such advice in their installation details."*

The issue here is that the position of the towball relative to the towbar mounting points on the car is defined as part of the Type Approval process, and the towbar is only tested with the towball in that position. Hence, if accessories are fitted between the towball and the towbar, they will move the towball rearwards and/or downwards, thus increasing the leverage on the towbar and its mounting points to the car body. This can bring into doubt the testing which has been carried out on the towbar. Some towbar manufacturers recognise this issue by specifying a tolerance for the location of the towball which allows for the insertion of some accessories behind the ball. This is usually of the order of 15mm rearwards, but could be more or less than this. It is rare for manufacturers to allow for a tolerance on the vertical position of the towball, unless the towbar is one with a height adjustable facility built in. As such, it is usually illegal to fit a drop plate to a Type Approved towbar. There are a handful of exceptions to this, generally 4x4 vehicles. The onus, however, is on both the towbar fitter **and the owner** to check with the towbar manufacturer to ensure that any accessories fitted do not invalidate the Type Approval for the towbar. Using a towbar in a manner which results in its Type Approval being invalidated is an offence.

For 'swan neck' style towbars (see example 1 overleaf) it is often possible to fit accessories which clamp to the neck of the tow ball. While it is wise to check the compatibility of these accessories with your towbar by reference to the relevant manufacturers, since not all accessories will fit all towbars shapes, there should be no problem with standards in this respect.

If concerned about the compatibility of a stabiliser with any type of towbar, see our 'Stabilisers' leaflet.

It is a legal requirement of the Directive that the towbar must be fitted with a clearly visible plate or label giving the following information:

- The manufacturer's name
- The Type Approval number
- The manufacturer's number
- The maximum permitted noseweight in kg  
*usually described as the 'S' value*
- The test load used to Type Approve the towbar  
*usually described as the 'D' value*
- The towball type classification  
*a code which indicates that it is a 50mm ball coupling*

Some manufacturers have a somewhat whimsical interpretation of what constitutes 'clearly visible'. Note also that the noseweight limit on the towbar plate is the limit for the *towbar*, and not for the *vehicle*. Sometimes a single towbar design is fitted to several variants of vehicle, which may have different noseweight limits. Take care to ensure that the noseweight limit for the vehicle is not exceeded (see the vehicle handbook), if it is lower than the towbar limit.

## Motor Caravans

Type Approval is being introduced for motor caravans, becoming compulsory by 29 April 2011 for all new vehicles and, 29 April 2010 for new designs. Some designs are already approved, and for these, only a Type Approved towbar should be fitted. For models not Type Approved, Club advice is as for cars registered before 1 August 1998

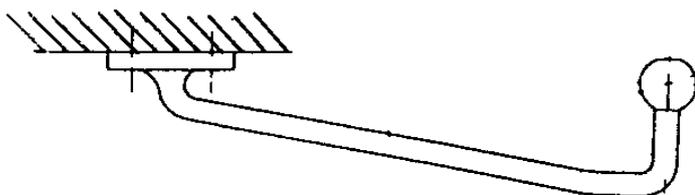
Terms sometimes used by Towbar / Car Manufacturers

Demountable	-	Bolt-on Ball
Detachable	-	Removable Ball without using tools

### **4. Towbar Types**

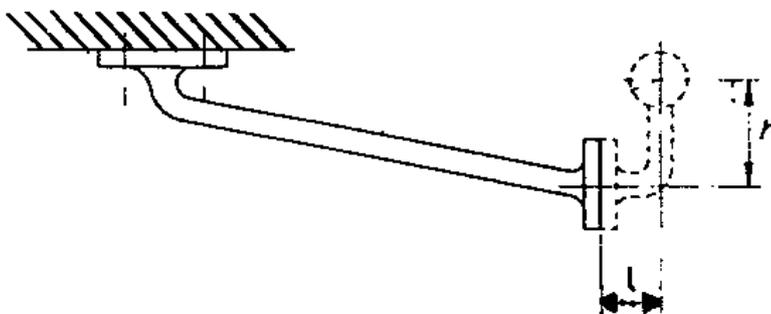
Towbars broadly fall into two categories:

#### Example 1 Swan neck



The towball is integral with the rearward-projecting part of the towbar. It may be welded or bolted to the main structure of the towbar. An increasingly common variant of this is the detachable towbar, where this rear section including the towball can be readily removed without the use of additional tools, so that the clean lines of the rear of the car can be preserved when it is not towing.

#### Example 2 Bolt-on ball



This is the traditional form of towbar used in the UK, and remains popular, particularly with those wishing to fit accessories such as cycle carriers.

Note that in example 2, the distances 'l' (length) as well as 'h' (height) are those which need to be borne in mind when fitting accessories to Type Approved towbars (see previous section). Towbars selected by car manufacturers tend to be swan necks, although there are exceptions, and swan necks are also available in the aftermarket. Make sure when ordering a towbar with a new car that you are clearly advised which type you will get.

The advantage of Example 2 is that a leaf-spring type of stabiliser (such as the Bulldog) can be attached via the bolt holes, where Example 1 needs a complex and less satisfactory device clamped on to the towbar shaft for stabiliser attachment.

## 5. Towball Height

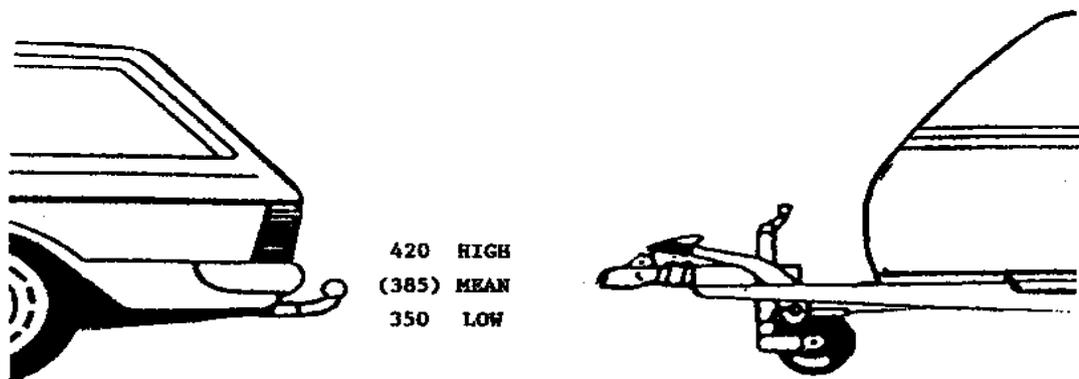
In theory, all towbars should set the ball at the correct height. Both the British Standard BS 150 1103:2007 and the EC Directive 94/20/EC, require the centre of the towball, *when the towing vehicle is fully laden to its gross vehicle weight (but without the caravan attached)* to be between 350 and 420mm from the ground. This should be compatible with any reasonably modern caravan, given one or two provisos:-

- If the car manufacturer chooses to set the tow ball height towards the upper end of the height range, and especially if the vehicle has a relatively high load carrying capacity, it may be that under normal operating load conditions the tow ball is significantly higher than this range. This is permissible according to the letter of the standard or directive requirements, but may result in difficulties achieving a well set-up outfit.
- Off road vehicles are exempt from the height requirements in the EC Directive, in order to permit them to achieve the necessary ground clearance for off road use. This may make a fixed-height tow bar inappropriately high for safe, stable on-road towing. When choosing a tow bar for an off road vehicle, therefore, ensure that it is either: (a) a fixed height bar which is similar in height to those made for conventional cars, or (b) a height-adjustable bar which can be set to an appropriate level for on-road towing or off-road driving.

Some (although not all) tow bar manufacturers and suppliers will provide information on the height of towball which their products give when the vehicle is loaded to a practical load. It may be worth asking for such information prior to purchase.

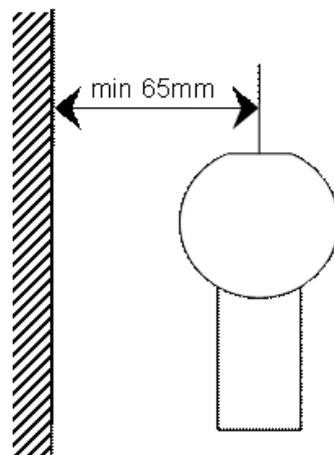
Note that neither the Standard nor the Directive makes any allowance for self levelling suspensions, whether automatic or manually operated. It has been known for manufacturers to introduce a self-levelling feature, yet forget to adjust the tow bar design to recognise that the tow ball will no longer sink under load. Make sure any tow bar you have fitted to such a car has been designed with this in mind. With both types, the caravan's attitude must be checked after the suspension is at its normal working height. For optimum stability the caravan should be level or slightly nose down when hitched and static, and not above level when being towed.

**Height of coupling device (mm)**



**6. Towball Horizontal clearance**

For towbars complying with EC Directive 94/20/EC, there must be at least the following clearance between the towball & the nearest vertical part of the vehicle body:



*Note: As with towball height, this requirement does not apply to off road vehicles.*

**7. Noseweight**

Noseweight, or more technically "*static vertical load*" is the downwards weight the caravan exerts on the back of the towing vehicle. Whilst this is recommended as 7% of the actual

laden weight of the caravan, for good stability towing, there is a limit to what the car body, suspension and towbar can accept. In general this is set by manufacturers at 50 to 75kg, though bigger cars and many 4x4s may offer 100kg or more. Do not expect any sympathy from the car manufacturer if higher loading is shown to have caused damage to the car. Bear in mind too that the dynamic noseweight as the vehicle travels along will vary wildly around the static figure, being perhaps several times higher during braking, and largely disappearing at high speed due to aerodynamic effects. Exceeding the static noseweight by only a small amount could therefore mean a significant dynamic overloading.

## **8. Commercial Vehicles**

If you intend towing a caravan with a vehicle which is not 'passenger car or passenger car-derived', then damage may feasibly be caused to the drawbar of the caravan. The basis of this is that commercial vehicles and some older types of 4x4 vehicles usually have very firm rear suspension compared to that on normal passenger cars, and extra shock can cause fractures on the drawbar. The line between 'suitable' and 'unsuitable' commercial vehicles, which obviously includes motor caravans used for towing, is imprecise. Early Land Rovers had firm leaf springing, current ones have softer coil springs. Even modern leaf-sprung vehicles such as pick-up trucks, are far softer sprung than older vehicles. Some caravan manufacturers still include general advice against towing with commercial vehicles in the user's handbook, however, none that The Club has seen, do so at the critical point of sale, i.e. in the sales brochure or showroom. It is important therefore to check carefully before purchase that the caravan's warranty is not invalidated by the type of towing vehicle. Sprung towballs are available to alleviate this problem, for example by Shocklink (see list of suppliers at the end of this leaflet), but at significant additional cost. Bear in mind that devices like the Shocklink will move the towball position significantly – see section 3, page 1.

## **9. Painting**

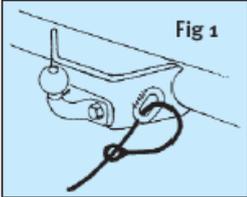
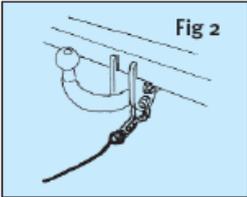
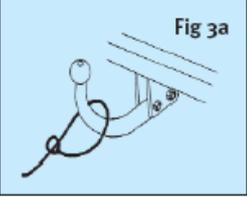
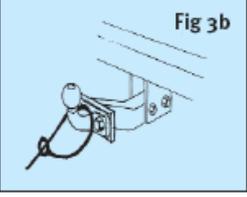
Some towbars have only one coat of priming paint when despatched. If you want it to stay looking in good condition, give it at least one further coat, ideally before being fitted to the vehicle. If you don't, surface rust will show from only a few weeks after fitment. Do not paint over or remove any Type Approval plate while doing this, though. Also, avoid painting the mating surfaces where separate parts of the towbar join together, or where the towbar attaches to the car, since excess paint on these surfaces could conceivably interfere with the satisfactory assembly of the system.

## **10. Breakaway Cable Attachment Points**

The caravan industry issued enhanced guidance on breakaway cable usage in 2003, which is reproduced overleaf. Check for any updates to this advice in the Club Magazine, website or Sites Directory & Handbook.

**Correct Attachment of Breakaway Cables**

**Braked Trailers (up to 3500kg GVW)**

<p style="text-align: center;"><b>Where a designated attachment point is provided on the towbar:</b></p> <p>Either:</p> <p>a) Pass the cable through the attachment point and clip it back on itself (Fig. 1),</p>  <p>Fig 1</p> <p>Or:</p> <p>b) Attach the clip directly to the designated point (Fig. 2). This alternative must be specifically permitted by the trailer manufacturer since the clip may not be sufficiently strong for use in this way.</p>  <p>Fig 2</p>	<p style="text-align: center;"><b>Where no designated attachment point has been provided on the towbar:</b></p> <p><b>Fixed ball</b> Loop the cable around the neck of the towball. If you fit the cable like this, use a single loop only. See Figs. 3A and 3B.</p>  <p>Fig 3a</p> <p><b>Detachable ball</b> You must seek guidance on procedure from the towbar manufacturer or supplier.</p>  <p>Fig 3b</p> <p style="text-align: center;"><b>For other means of attachment see overpage</b></p>
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## Other means of attachment:

In some instances it may be possible to attach the cable assembly:

Either:

- a) to a permanent part of the towbar structure, as long as this meets the approval of the towbar manufacturer/supplier,

Or:

- b) to an accessory sold for the specific purpose of breakaway cable attachment.

## Correct procedure for use:

- Regularly check the cable and clip for damage. If in doubt, contact your dealer or your service agent.
- Make sure the cable runs as straight as possible and goes through a cable guide underneath the trailer coupling.
- Determine whether or not the towbar has a designated attachment point (i.e. a part specifically designated by its manufacturer for a breakaway cable).

## This is the Law

UK LAW requires that all trailers with brakes built on or after 1<sup>st</sup> October 1982 (e.g. caravans, horse boxes, flat bed car trailers etc.) are fitted with a safety device to provide protection in the unlikely event of the separation of the main coupling while in motion. A device referred to as a “breakaway cable” fulfils this requirement and when fitted to a trailer its use is mandatory.

Trailer and/or towbar manufacturers should supply advice on the correct use of these cables. In the absence of such information, the following guidance should be noted.

## Purpose of a Breakaway Cable

To apply a trailer’s brakes if it becomes separated from its towing vehicle. Having done this, the cable assembly is designed to part, allowing the trailer to come to a halt away from the towing vehicle.

## Construction

Usually a thin steel cable, possibly plastic coated, and fitted with a means of attachment for connection to the towing vehicle.

## Operation

In the event of the main coupling of the trailer separating from the towing vehicle, the cable should be able to pull tight, without any hindrance, engaging the trailer’s brakes.

Note: The breakaway cable should never become taut during normal use.

**NB:** THIS ADVICE DOES NOT APPLY TO UNBRAKED TRAILERS UP TO 750kg GVW which are required by law to have the use of a SECONDARYCOUPLING. A secondary coupling should keep the trailer ATTACHED to its towing vehicle even if its main coupling becomes separated.

The guidance set out in this leaflet is provided for general guidance purposes only, and does not purport to be legal advice or a definitive interpretation of the law.

This document has been produced by the National Caravan Council on behalf of the supporting organisations overleaf  
National Caravan Council, Catherine House, Victoria Road, Aldershot, Hampshire GU11 1SS, www.thecaravan.net

## When the breakaway cable is attached, check to ensure:

- a) that the cable cannot snag in use on the trailer coupling head, jockey wheel, or any accessory e.g. a stabiliser, bumper shield, cycle carrier, etc.
- b) that there is sufficient slack in the cable to allow the towing vehicle and trailer to articulate fully without the cable ever becoming taut and applying the brakes.

**Note:** For peace of mind you might wish to check the state of the cable by positioning the trailer and towing vehicle at extreme angles before setting off.

- c) that it is not so slack that it can drag on the ground. If left loose, the cable may scrape along the ground and be weakened so that it subsequently fails to do its job. The cable may also be caught on an obstacle when in motion thus engaging the trailer brakes prematurely.

**Having followed this advice, should you feel that a satisfactory coupling arrangement cannot be achieved, consult your trailer or towbar supplier or service agent.**

### **11. Second-hand Towbars**

Small ads (and car boot sales) often advertise second-hand towbars. These are potentially dangerous as you have no way of knowing how they have been used or whether they will fit properly, or even whether all the parts and correct fixings are present. The Club advises that you should **never** fit a second-hand unit. If there is already a towbar fitted to a second hand car, get it checked by a competent towbar fitter. It is not the best area in which to save money, as lives could be at stake.

### **12. Number Plate Obstruction**

It is an offence to obscure the rearmost number plate on a car or car/caravan combination with your towbar, or any associated equipment, such as a bumper protection plate. If your tow ball or any accessory fitted to it overlaps the number plate, it must be removed when you are not towing. Where the height of the number plate means this problem cannot be avoided, consider fitting a detachable tow bar, to avoid the difficulty of having to regularly unbolt a fixed tow ball.

### **13. Front Tow – Push Bar**

Used for low speed positioning of caravans on site or in storage (not on public highway). Viable for larger 4 x 4's with suitable bumpers or exposed chassis to attach the ball to.

## **Summary**

Consider:

- What is the true and reasonable price for a device you select for keeping your £18,000 car and £12,000 caravan safely together without damage? Is this item really something you should look to save money on?
- Has the towbar been *tested* to and has passed the European Directive or British Standard? 'Made to'" and 'designed to' are largely meaningless statements.
- If the towbar is not plated as required by the European Directive or British Standard, can it have been tested? Is the manufacturer not confident enough in his product to put his name on it? (Could you hold him to his responsibility, noted earlier, if you do not know who he is?)
- Give very precise instructions on the towbar you want and consider extra protective or colour-matching painting *before* it is fitted.
- Make sure you tell the dealer that the towbar *must* be fitted so as to allow the towball to fall within the recommended British Standard or European Directive height.
- Remember that a car first registered after 1st August 1998 must only have a 94/20/EC Type Approved towbar fitted.
- Motor caravans which are Type Approved must also only have 94/20/EC Type Approved towbar fitted.

### **TOWBAR MANUFACTURERS**

<p>ANKER TOWBARS LTD Orchard House Appleby Hill Austrey Near Atherstone North Warwickshire CV9 3ER 01827 830039 <a href="http://www.ankertowbars.co.uk">www.ankertowbars.co.uk</a></p>	<p>THULE TOWING SYSTEMS* (Brink UK) Unit 7 Centrovell Industrial Estate Caldwell Road Nuneaton Warwickshire CV11 4NG 02476 352353 <a href="http://www.brink.eu">www.brink.eu</a></p>
<p>BRADLEY DIXON BATE Bradley Doublelock Ltd Victoria Works Bingley West Yorkshire BD16 2NH 01274 516760 0845 8682775 <a href="http://www.dixonbate.co.uk">www.dixonbate.co.uk</a></p>	<p>ECCOFIT LTD* Wade House Road Shelf Halifax West Yorkshire HX3 7PE 01274 693166 <a href="http://www.eeco-ltd.com">www.eeco-ltd.com</a></p>
<p>RDF EUROBARS LTD Unit 55 Second Drove Fengate Peterborough PE1 5XA 01733 555263 <a href="http://www.eurobars.co.uk">www.eurobars.co.uk</a></p>	<p>TOWSURE PRODUCTS LTD 151-183 Holme Lane Hillsborough Sheffield S6 4JR 01142 503025 <a href="http://www.towsure.com">www.towsure.com</a></p>
<p>TOW-TRUST TOWBARS* Carlyon Road Industrial Estate Atherstone Warwickshire CV9 1JE 01827 717412 <a href="http://www.tow-trust.co.uk">www.tow-trust.co.uk</a></p>	<p>WATLING ENGINEERS LTD 88 Parkstreet Village St Albans Hertfordshire AL2 2LR 01727 873661 <a href="http://www.tow-bars.co.uk">www.tow-bars.co.uk</a> (Specialists for unusual vehicles, also , manufacturers of front tobars)</p>
<p>WITTER TOWBARS* Drome Road Deeside Industrial Park Deeside Flintshire CH5 2NY 01244 284500 <a href="http://www.witter-towbars.co.uk">www.witter-towbars.co.uk</a></p>	<p>BOSAL (UK) LTD Unit 330 Four Oaks Road Walton Summit Centre Bamber Bridge Preston PR5 8AP 01772 771000 <a href="http://www.bosal.co.uk">www.bosal.co.uk</a></p>
<p>WESTFALIA UK LTD St Albans House St Albans Road Stafford ST16 3DP 01785 226888 <a href="http://www.westfalia-automotive.de">www.westfalia-automotive.de</a></p>	

\*Breakaway Cable attachment points included

**BREAKAWAY CABLE ATTACHMENT POINTS - SOLD SEPARATELY**

<p>THULE TOWING SYSTEMS (Brink UK) Unit 7 Centrovell Industrial Estate Caldwell Road Nuneaton Warwickshire CV11 4NG 02476 352353 <a href="http://www.brink.eu">www.brink.eu</a> <i>for swan neck towbars</i></p>	<p>TOWSURE PRODUCTS LTD 151-183 Holme Lane Hillsborough Sheffield S6 4JR 01142 503025 <a href="http://www.towsure.com">www.towsure.com</a> <i>for bolt on towbars</i></p>
<p>TOW-TRUST TOWBARS* Carlyon Road Industrial Estate Atherstone Warwickshire CV9 1JE 01827 717412 <a href="http://www.tow-trust.co.uk">www.tow-trust.co.uk</a> <i>for bolt on towbars</i></p>	<p>WESTFALIA UK LTD St Albans House St Albans Road Stafford ST16 3DP 01785 226888 <a href="http://www.westfalia-automotive.de">www.westfalia-automotive.de</a> <i>phone for information</i></p>