

Trailer Towing



Since a great amount of detail is involved, this heading has been divided into two sections, General and Technical. The General section comprises basic information and guidance whereas the Technical section contains the more detailed information. This collection of information is only to be used for guidance and not to be treated as a definitive statement of the law as it currently stands. This information is published in good faith and every effort has been made to ensure accuracy; however, the Association cannot accept liability for any errors or omissions. Consult the relevant publications.

All operation of a motor vehicle with/without a trailer on the highway is covered by legislation. The principal legislation referred to here will be THE ROAD VEHICLES (CONSTRUCTION AND USE) REGULATIONS 1986 and is coded '1986 No 1078'. This will be referred to in the text as the (C&U). Lighting is covered by THE ROAD VEHICLES LIGHTING REGULATIONS 1989 coded '1989 No 1796. This will be referred to in the text as (RVL). These publications are available from the H.M.S.O., London, or one of the branch offices, or can be ordered from any good bookseller. If you transgress, do remember that ignorance is no plea in the eye of the law. The driver is the person immediately responsible. Should the offence happen with a club owned trailer or tow vehicle, then the club could also be charged; usually in the person of the club secretary. This is specifically stated in the regulations covering forward and rearward projection : "no person shall use or cause or permit to be used" (Reg 82 para 7 C&U).

GENERAL

Hitching Up

Do not give yourself a hernia by lifting the trailer nose up and aiming it on to the tow ball. Raise the coupling above the tow ball by winding the jockey wheel down. Persuade some trusting individual to stand by the trailer coupling and hold his/her hand above the coupling at a height that is visible through the rear window and reverse slowly to get the tow ball close to the coupling. Swing the trailer front to align the two parts and wind the jockey wheel up to engage and lock. It is good practice to wind the jockey wheel down to lift the rear of the car up a little to check that the coupling is fully engaged and locked. Now wind the jockey wheel fully up and reclamp the unit as far up as possible. Attach the breakaway chain or cable to the tow bracket or to the hook (if fitted), but not round the tow ball neck – this is not a secure fixing. If the coupling is of the old type with a hand-operated reversing catch, make sure this is not engaged before you drive off. Modern couplings are automatic.

Weight

It is assumed that all boat trailers will be braked; should this not be the case consult the Construction and Use

Regs. The maximum permitted weight of a trailer with overrun brakes is 3500 kg. This is the maximum permitted legal loaded weight, i.e. trailer and load of boats (Reg 75 C&U). However on a single axle trailer the likely limit on maximum weight will be set by the load carrying capacity of the tyres (see the section on tyres).

The relationship between the weight of the trailer and the towing vehicle is usually quoted as a percentage. The weight of the towing vehicle (referred to as kerb side weight) can be found from a) vehicle handbook, b) vehicle technical manual or information or c) on some vehicles (particularly of continental manufacture) the vehicle information plate (usually found in the engine compartment). To find the gross trailer weight, add the weight of the unladen trailer (should be shown on the trailer information plate, together with the maximum laden weight) and the individual weights of the boat sections, oars and riggers. Alternatively take the laden trailer to a public weighbridge.

To establish the individual weight of boat sections use a set of scales, e.g. bathroom scales, to weigh the boat sections (mark the weight for future reference on to the section, use paint such as a car touch-up pencil or brush, or small stick-on lettering protected by spray varnish). If you doubt the accuracy of the scales check them by using some of the weights from your weight training area.

For guidance, the FISA minimum boat weights are:

Boat type	Weight (kg)
8+	93
4x	52
4+	51
4-	50
2+	32
2-	27
2x	26
1x	14

Expect club boats to be slightly heavier e.g. 4+ @ 55 kg and 8+ @ 100 kg.

The loaded trailer should be nose heavy i.e. it should exert a downward force on the tow ball of the towing vehicle of 50–75 kg. The exact recommended weight for your vehicle can be obtained from your handbook, the manufacturer's information or the Caravan Club publish a data list which includes 'nose weight'. To check the actual trailer nose weight, use the bathroom scales (protected by a piece of wood, unless you like greasy feet) under the trailer coupling. Alternatively use a proprietary nose weight indicator obtainable from a caravan dealer. Some boat trailers have the recommended nose weight shown on the plate.

If you are not very experienced, use a trailer/tow vehicle weight ratio of around 85%. It is possible to go to 100% with experience and care. If using a

Trailer Towing

specialised tow vehicle e.g. Land Rover or goods type vehicle, it is possible to tow a trailer in excess of the tow vehicle weight. However the manufacturer's recommendations should be observed and care taken not to create a danger. Some examples of vehicle manufacturer recommendations are given below:

	Weight	
	Kerb	Tow
Ford Sierra 1.6LX	1044 kg	1100 kg
Land Rover	1746 kg	4000 kg
Vauxhall Cavalier 1.6	1018 kg	1200 kg

When looking at weights do keep in mind the weight carried by the towing vehicle and do not overload by agreeing to carry three senior men who are all six foot and their kit, as well as towing the boat trailer. The 'Tow Weight' figures as shown above are taken from the manufacturer's figures and these refer to two passengers. If you carry more than this then deduct the extra 'in car' load from the recommended 'Tow Weight'. When loading the trailer do remember to put the heavy sections on the lower tiers and the lighter sections on the upper tiers, e.g. sculling boats. This will help keep the centre of gravity lower and improve the stability; most trailer accidents involve overturning. The most common cause of poor stability is incorrect loading. Caravan magazines such as 'Practical Caravan' publish regular features on towcar choice, listing kerb weight, 85% weight, towing factor and a ready reckoner to assist in the choice.

Towing Speed

Trailer being towed by a passenger or goods vehicle, combination not exceeding 7.5 tonne:

Motorway/Dual Carriageway	60 mph
Other Roads	50 mph

Do remember – a trailer may NOT be towed in the outer (overtaking lane) of a three or four lane motorway.

If you overtake a slower moving truck, you may notice that the driver flashes his headlights when you are safely in front. This is to indicate that you are clear to return to the inner lane. The polite response is to flash your tail lights. This form of signalling is not found in the 'Highway Code' but is normal practice for heavy vehicle drivers. Extend the same courtesy when you are overtaken by a HGV.

Tyres

These must have a minimum speed rating of 100 kph (62 mph); Speed Symbol-J Remoulds did have a minimum rating of 70 mph; modern remould tyres carry speed rating symbols as per new tyres.

Tyre construction can be either radial or cross-ply BUT must **not** be mixed on the same axle. See diagram in Technical section.

Tyre loading – Maximum as marked on the tyre at the stated pressure. See diagram and chart in the Technical section.

Tyre pressures – See below for some examples for trailer. Check with your vehicle handbook or if no information available increase by 0.3–0.4 bar (4–6 psi). Always check pressures cold.

The same legislation applies to trailer tyres as to car tyres. Reg 27 C&U, a tyre is unsuitable if:

- Not so inflated as to make it fit for use.
- Has a cut in excess of 25 mm, or 10% of the section width whichever is the greater, on the outside of tyre deep enough to reach the ply or cord.
- Has any lump, bulge or tear caused by separation or part failure of the tyre structure.
- The tyre has any ply or cord exposed.
- A minimum tread depth of 1.6mm for at least three-quarters of the breadth and round the entire circumference with visible tread pattern on the remainder.

If you have any doubts, ask your local tyre dealer to check them. If the tyres are not street legal then remember each tyre is a separate offence.

Example, a tyre marked '155 R 13 81S' – Maximum load 462 kg at 2.5 bar (36 psi), this would limit a single axle trailer to a maximum all-up weight of 924 kg (2033 lb).

A conventional car type tyre has a 4 ply rating, a 'reinforced' tyre would have a greater pressure and load capacity.

A '155 R 13' reinforced would have an axle rating of 1045 kg (2303 lb) at a pressure of 2.9 bar (42 psi).

A '195 R 14 PR6' (Transit type) would have an axle rating of 1785 kg (3937 lb?) at a pressure of 3.75 bar (54 psi).

A way of increasing the load carrying capacity is to use a twin axle close-coupled layout, thus the total load capacity is four times that of a single tyre.

If you are unsure of the correct pressure ask your local tyre dealer.

It is good practice to mark the tyre pressures on the wheel arch above the tyre, then anyone who uses the trailer can easily find the required pressures. Use contrasting car paint touch-up stick or small stick-on lettering protected with spray varnish.

Tow Vehicle Rear Suspension

Excessive deflection can affect towing stability and create problems such as headlamp alignment. This deflection can be caused by 1) low rear spring rate, 2) overloading of the towing vehicle, 3) excessive nose weight of trailer or 4) large vehicle tail overhang (the distance between the rear axle and the tow ball). There

Trailer Towing

are a number of proprietary rear spring stiffening aids on the market where excessive rear deflection is caused by (1) or (4). For (2) and (3) take the necessary steps to prevent the problem.

Stabiliser

A good stabiliser can make a car/trailer combination much more stable and easier to handle on the road. Caravan centres will stock and advise on the latest types of stabiliser. However if the combination has poor stability then a stabiliser will only mask the problem which can re-emerge at higher speed.

Rear View Mirrors

After 01/06/78 motor vehicles now have one internal and one external offside mirror. If the internal mirror is blocked then it should have external mirrors offside and nearside. A boat trailer is more open than a caravan and the standard car interior rear-view mirror will often give a reasonable rear view. However it is recommended that extended caravan tow mirrors be used **where necessary** to obtain a view down the side of the trailer and obviate blind spots. Remember the mirror should not be more than 200 mm wider than the trailer (Reg 33 C&U) and when the tow vehicle is driven solo the extra mirrors should be removed or folded back.

Brakes

Reg 18 C&U states that "Every part of every braking system and of means of operation thereof fitted to a vehicle shall be maintained in good and efficient working order and be properly adjusted".

	Main	Secondary or parking
Efficiency—Minimum required for MOT test	50%	25%

If a vehicle only reaches the above minimum, there is probably a fault. The parking brake should be capable of holding the combination on a gradient of at least 18% (1 in 8.33).

Do remember to disengage the reversing catch (brake disabling lever) in normal use and to use the breakaway chain or cable. Most modern tow hitches have an automatic reversing catch. The breakaway chain is attached between the tow vehicle and the trailer handbrake and, in the event of the trailer becoming disconnected on the road, the chain applies the trailer handbrake. If the trailer is left on the roadway disconnected from the tow vehicle, it requires the handbrake applied or at least one wheel chocked or prevented from rotation (Reg 89 C&U).

Power to Weight Ratio

There are no hard and fast rules covering this. As a guide, a 1.5 litre petrol engine should be capable of towing a trailer of 85% of the tow vehicle weight, and above 1.5 litres should be capable of 100%. In general

diesel engines have a lower power output than an equivalent size petrol engine.

Lights

When the trailer is coupled check the correct operation of the lights; remember that all lights "must be clean and in good working order" (Reg 23(1) RVL). See the Technical section for detail on lights.

Forward and Rearward Projection

Read the separate section on projection; please note that this only applies to Great Britain. Where the projection exceeds 1.00 m, it **MUST BE MARKED**, i.e. visible from side or rear in the case of rear projection and side or front in the case of front projection. In daylight use coloured rag, red/white plastic warning tape or make a small red/white warning triangle to display. During the hours of darkness the rear projection requires a red rear tail light and a red reflecting device within 1.00 m of the end of the rear projection. In the case of a front projection exceeding 1.00 m a white light and white reflecting device within 1.00 m of the extreme end of the projection. Some boat builders and boat accessory suppliers can provide suitable lights and clamp. Some boat trailers come with the rear light board on an extension frame which can extend the 'trailer' and eliminate or reduce the projection to the required amount. However the maximum length of the 'extended' trailer would still have to comply with the length requirements shown in the projection explanation at the end of the Technical section, i.e. 7 m. Please note that the overall length does not include the draw-bar (definition Reg 3(2) C&U). The total length of the trailer from tow hitch to extreme end is referred to as 'shipping length'.

Maintenance

The trailer needs to be maintained in the same way as any motor vehicle, probably more so since they will often be stored out of doors in all weather for most of the year. Wheel bearings, brakes, tyres and lights need checking particularly at the start of the summer regatta season, to ensure that the trailer is street legal. It is uncommon that the tyres will wear out quickly due to road use, the more likely cause of deterioration is the exposure to ultra violet light. This causes surface cracking of the rubber. Good caravan practice is to store the wheels in the garage when not in use for a prolonged period.

Insurance

This can be considered in three parts, Tow Vehicle, Trailer and Boats.

Tow Vehicle – Make sure that your standard insurance is valid for trailer towing, check with your broker. The towing of a caravan or trailer is an offence if the policy expressly forbids this use (Robb v McKechnie 1936). If the vehicle belongs to the club it would be



Trailer Towing

good practice to place a photocopy of the insurance certificate in a plastic envelope in the vehicle.

Trailer – The insurance would normally be covered by the club; the minimum cover being “Third Party”. This will provide cover against damage to another person or property i.e. the third party. It would be good practice where several people may be towing the trailer to place a photocopy of the certificate on the club notice board or some other prominent place so that everyone concerned is aware that the insurance is current.

Boats – As with the trailer this will fall into the club area of responsibility. This is a specialised area where boats can be insured at different levels e.g. written down value, river and boathouse use only; agreed valuation as per club schedule; replacement value. Most clubs would have a flexible approach to their fleet with boats being insured according to their value to the club. Whilst one hopes that accidents will never happen it is bad practice and poor stewardship to under-insure the boat fleet, particularly those in regular transit to regattas.

The driver of the tow vehicle is held responsible for the insurance of the road vehicle – in this context vehicle and trailer. The club, usually in the person of the secretary, may also appear in court should the law be broken. The onus is on the driver to produce any documents and prove to the police that insurance is in force.

ON THE ROAD

It is (or should be) the collective responsibility of the individual crew who load their boat on to the trailer to ensure that it is correctly loaded and secured. The driver should then check the loading of the trailer before he/she sets off.

When you first set off on a journey it is good practice to stop after a mile or two and check the security of the load; it is surprising how the various ties and fastenings loosen off with the vibration of the journey. Once the adjustments are made that usually solves the problem, but you will see truck drivers always rechecking their loads before starting the next leg of the journey. If the professionals do it, why not you?

Be considerate to other road users. When towing, everything takes longer, allow more time for accelerating, overtaking and braking, make more use of the mirror. Read the road ahead and behind, look out for the effects of side winds from overtaking vehicles (a large vehicle will first push the combination to the left and then, as it gets about halfway past, will suck it to the right), cross winds from bridges etc. on exposed roads particularly on motorways. Do not let the speed build up going down hills, this will help to reduce the possibility of snaking. If the combination does snake, ease off, try not to brake, slow down gently. If you have to brake, do so gently, do not accelerate. Road hazards such as roundabouts should be taken at a lower speed than when solo – remember that the centre of gravity of the trailer

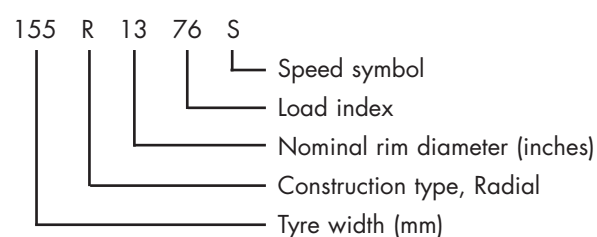
will be higher above the ground than a conventional car and this means it is less stable and more liable to overturning if you treat a roundabout as a Brands Hatch chicane. Ensure that all braking is done in a straight line, i.e. do not go into a corner and then brake; estimate the required speed and complete your braking before the actual corner. Going round corners, roundabouts, etc., keep in mind the much greater length of the combination and allow a greater turning circle, since the trailer will tend to follow a tighter curve than the tow vehicle. Practise smooth safe driving. For example, if you decide to overtake and swing out as you might when driving solo then there is every possibility of a degree of swing appearing. You must take the move slower and ease the vehicle out as opposed to swinging it out.

TECHNICAL

Weight

In addition to the comments in the general section there are other more detailed considerations concerning the weight of the outfit. The other restriction affecting weight is the application of the ‘O’ Licence Regulations. These state “All goods vehicles and vehicle combinations used for the carriage of goods in connection with a trade or business and which exceed 3.5 tonnes gross plated weight or, if unplated, 1525 kg unladen, the weight of any trailer not more than 1020 kg unladen being discounted”, shall require the holding of an ‘O’ Licence. A restricted ‘O’ Licence is for “own account activities” i.e. the carriage of your own goods as opposed to “hire or reward”. Transport Act 1968, sections 60–94. Since rowing clubs are not in business in this sense, these regulations should not affect normal operation of boat trailers.

Type Marking



Speed symbol	Speed	
	mph	km/h
J	63	100
K	69	110
L	75	120
M	81	130
N	87	140
P	95	150
Q	100	160
R	105	170
S	113	180
T	118	190
U	125	200
H	130	210

Trailer Towing

APPENDICES

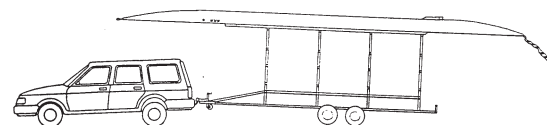
Basic Definitions

Kerbside weight – Weight of vehicle with full tank of petrol but no passengers or luggage. Can be found in your driver's handbook or from the vehicle information plate.

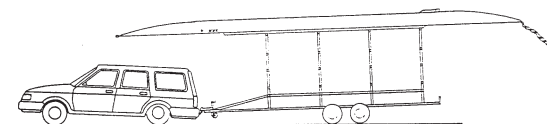
Tow weight – The gross weight of a braked trailer, i.e. trailer and boat.

Gross train weight – Total weight of laden vehicle and trailer.

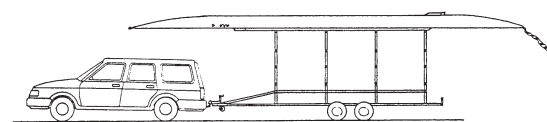
Gross vehicle weight – Maximum total weight of laden vehicle.



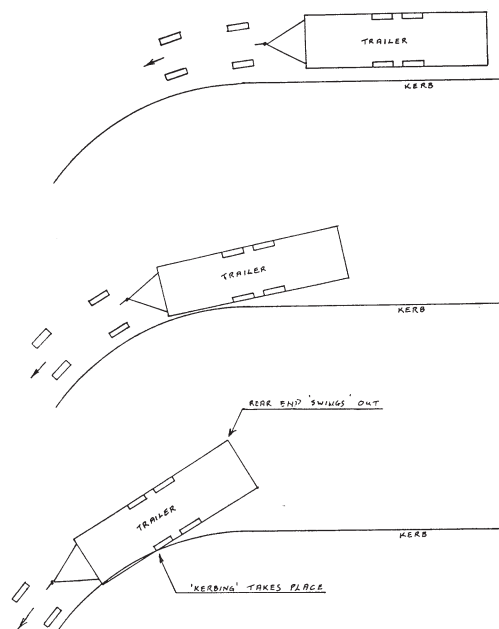
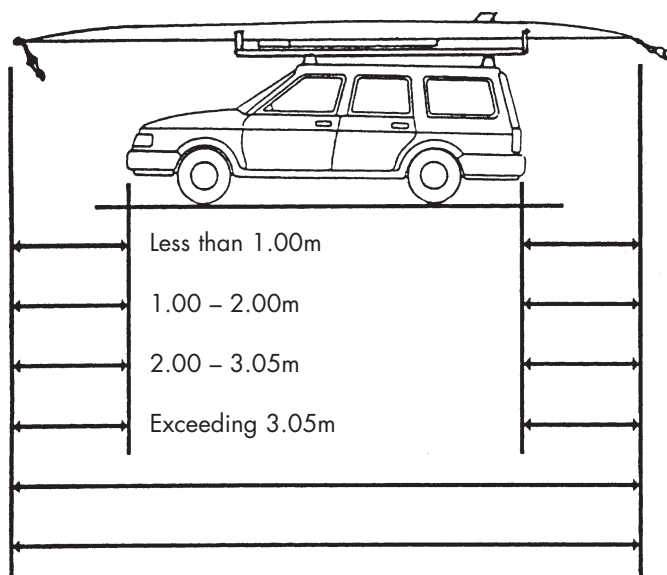
Insufficient Nose Weight



Excessive Nose Weight



Correct Car/Trailer Balance



The following sketches may be photocopied if required to display on your club notice board as basic information on the trailing of boats.

The carrying or transporting of boats by road.

The latest regulations are contained in The Road Vehicles (Construction & Use) Regulations 1986 and coded '1986 No 1078'.

The relevant projection information appears on pages 109-113 covered by Regulations 81 & 82 and Schedule 12.

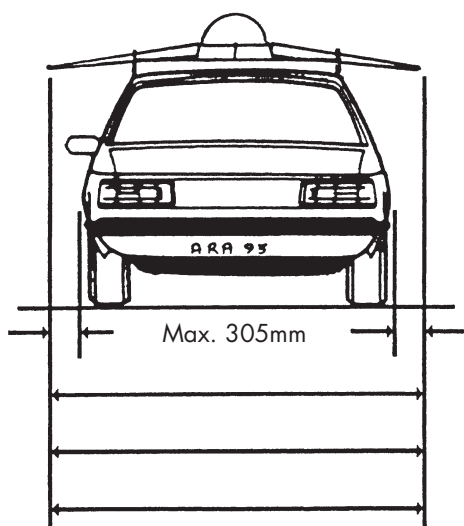
Projection	Action
less than 1.00m	O.K.
1.00 - 2.00m	Schedule 12 Para 4
2.00 - 3.05m	Schedule 12 Para 4
exceeding 3.05m	Schedule 12 Para 1 & 4
18.3 m maximum	O.K.
18.3-27.4 m	Schedule 12 Para 1 & 2

Para 1 – Notice to police at least two working days before movement is to begin.

Para 2 – Attendant to be carried.

Para 4 – Clearly visible to other road users approaching from side and end. Usually stated to be brightly coloured rag or paint.

Trailer Towing



Projection

Action

Max 305 mm

O.K., if load exceeds 305 mm on either side then Para 1

less than 2.9 m

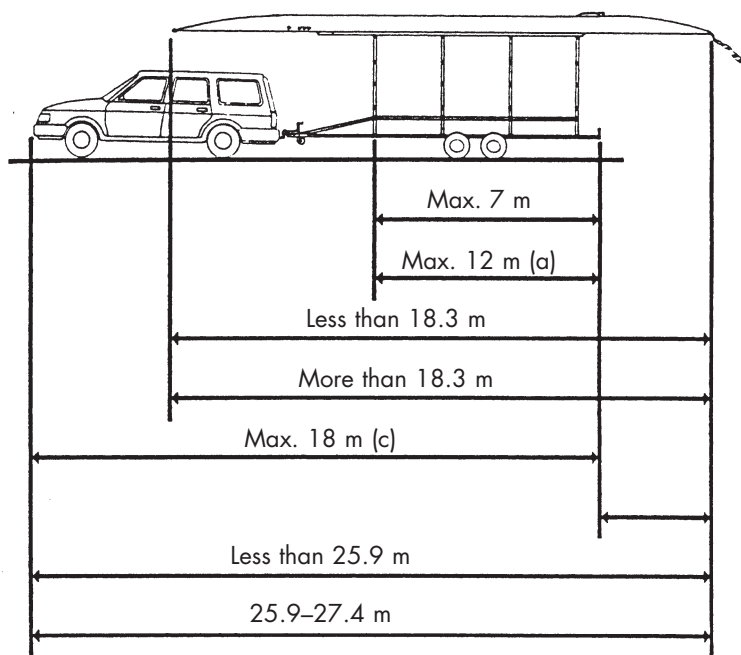
O.K.

2.9–3.5 m

Schedule 12 Para 1

3.5–4.3 m

Schedule 12 Para 1 & 2



Action

O.K.

See note 'a'

O.K.

Schedule 12 Para 1 & 2

Projection, see note 'b'

See note 'c'

O.K.

Schedule 12 Para 1 & 2

Notes

- a) Minimum of four wheels and drawn by a goods vehicle of maximum gross weight exceeding 3500 kg.
- b) Projection; as per the requirements shown in the sketch of boat on top of car. The forward projection will be over the towing vehicle and therefore not a problem.
- c) Maximum length of outfit is 18 m unless the vehicles are for indivisible loads of exceptional length, then the maximum length is 25.9 m.
- d) There is a 'grey' area when considering trailer length. Shown in the sketch is the exact method disregarding the 'A' frame and measuring the load carrying part. However in the case of a trailer, such as might be

used to transport a sail or power boat, consisting largely of an 'A' frame type shape, then the theory of measuring from the end of the tow hitch to the rear would seem sensible. A case for common sense to be applied?

All the sketches apply to "if the load consists of a racing boat propelled solely by oars".

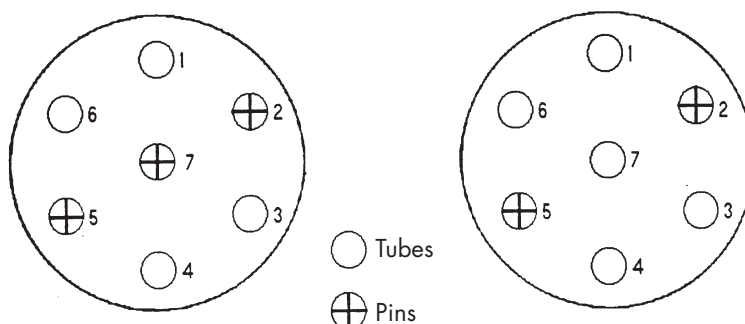
Take care that there are not any local regulations such as Central London; police permission is required for the movement between 10 a.m. and 7 p.m. on weekdays in Central London of loads exceeding 10.98 m (36 ft) in length or 1³/₄ times the length of the carrying vehicle. Also if the rear projection exceeds 2.6 m (8 ft 6 ins).

These sketches are for guidance only, please consult the relevant literature.

Trailer Towing

Electrical Connections

View on rear of 7-pin plugs



Black 12N Plug

Terminal	Colour	Function
1 L	Yellow	Nearside Indicator
2 54G	Blue	Rear Fog Light
3 31	White	Earth
4 R	Green	Offside Indicator
5 68R	Brown	Offside Roadlights
6 64	Red	Brake Lights
7 68L	Black	Nearside Roadlights and Number Plate Light

Grey/White 12S Plug

Terminal	Colour	Function
1 L	Yellow	Nil
2 54G	Blue	Nil
3 31	White	Earth
4 R	Green	Internal Lights etc.
5 58R	Brown	Nil
6 54	Red	Refrigerator
7 58L	Black	Nil

TRAILERS AND THE LAW

(Reprinted from *Regatta*, June 1996)

Towing the Line Safely

Most people will be aware that on July 1 new legislation will come into force (requirement of EC Directive on the Driving Licence: 91/439/EEC). The publicised sections have covered the written test for new drivers and eyesight tests for HGV drivers. However the new test categories affect the ability to tow trailers.

Existing drivers (tests taken prior to July 1 1996) will retain their existing trailer towing entitlement (subject to changes affecting HGV drivers only).

For new drivers (test taken after July 1 1996) successful completion of the 'new' driving test will entitle the individual to drive category 'B' vehicles (vehicles less than 3500 kg and a maximum of eight passenger seats) plus a braked trailer up to 750 kg. These weights are total all-up weights, i.e. vehicle (or trailer) plus load. Thus a category 'B' driver can drive a combination of 3500 kg vehicle plus a 750 kg trailer – a combination of 4.25 tonnes.

A heavier trailer may be towed provided the maximum combination is within the 4.25 tonne limit and the laden weight of the trailer is not greater than the unladen weight of the tow vehicle. The laden weight of the trailer is that shown on the trailer 'plate' (it may be labelled as GVW) and this applies whether or not any load is actually carried. If there is a requirement to drive a vehicle/trailer combination where the tow vehicle is less than 3500 kg and the total vehicle/trailer combined weight exceeds 4.25 tonnes or the trailer weight exceeds the unladen weight of the tow vehicle then the driver will need to pass an additional test for category

B+E. As a guide, the latest design of 30 ft twin axle boat trailer has a laden weight of 2500 kg; it appears likely that the unladen weight of the tow vehicle would be less than 2500 kg and this set-up would require a category B+E licence (but only if the driving test were taken after July 1 1996).

Minibus-Passenger carrying vehicle with 9-16 passenger seats not operating for hire or reward:

This vehicle would fall into sub category 'D1' and could tow a trailer of up to 750 kg. In order to drive this vehicle a category 'B' driver (basic car test) would need to a) meet higher medical standards and b) pass a further test for category 'D1'. If a trailer in excess of 750 kg is to be towed then the maximum combination weight is 12 tonnes and the laden weight of the trailer must not exceed the unladen weight of the mini bus. To comply with this requirement the driver would then have to take another test for sub category 'D1+E'. To get to this situation a category 'B' driver would have to pass two additional tests, first the 'D1' test followed by the 'D1+E' test.

Where vehicle weight is quoted, e.g. vehicle up to 3500 kg, this refers to the Gross Vehicle Weight (GVW): the weight of the vehicle and its load. A further complication which we will leave for later is that the new regulations now use 'mam' (maximum authorised mass – scientifically correct since the kg is a unit of mass and not weight). Simple translation for all vehicles with GVW stamped on the data plate: GVW = mam.

The DVLA produces fact sheets on towing trailers, minibuses, minimum test vehicle requirement, etc. Contact DVLA Customer Enquiries on 01792 772151 between 08.15 and 16.30, Monday to Friday.