CARAVAN TOWING CODE

This Code of Practice contains recommendations jointly reviewed and agreed by the following organisations:

The National Caravan Council
The Caravan Club
The Camping and Caravanning Club
The Caravan Writers Guild
The Department for Transport

Scope of the Code
The Code applies to all trailer caravans of maximum laden weight not exceeding 3500 kg (7,700 lbs), overall width not exceeding 2.3m (7ft 6in approximately) and overall length not exceeding 7m (23ft approximately), excluding the drawbar and coupling.

This is legally the maximum size of trailer that can be towed by a motor vehicle with a maximum gross weight of less than 3500 kg.

CARAVAN TERMS

Mass in Running Order:
The mass of the caravan equipped to the caravan manufacturer, standard specification.

The MRO includes an allowance for gas, the electric hook up, cables as well as the fluids and liquids required for the normal caravan operation.

The mass of the caravan in running order contains provision for the masses of liquids, gas etc. (see Mass in Running Order in User Handbook). Part of this provision can also be utilised as additional payload, if for example, you wish to travel with water tanks empty or with no gas cylinders.

Maximum User Payload:
The maximum allowable weight to be put into the caravan whilst it is being towed. This is made up of the personal effects and the optional equipment payloads.

The user payload is the difference between the Maximum Technically Permissible Laden Mass and the Mass in Running Order.

The Mass in Running Order + Personal Effects + Optional Epuipment = Maximum Technical Permissible Mass or MRO + PE + OE = MTPLM

Personal Effects
Those items which a user can choose to carry in a caravan.

Note: an allowance has been provided for in the Personal effects for a leisure battery weighing 20kg

Optional Equipment
Items made available by the manufacturer over and above the standard specification of the caravan for factory fitted options.

Maximum Technically Permissible Laden Mass (Lower Limit):

The fully laden mass of the caravan in the manufacturers standard specification which is stated in the publications, handbooks, brochures and weight plate and used for car matching.

Maximum Technically Permissible Mass (Upper Limit):

The mass takes into account specific operating conditions including factors such as the strength of materials, loading capacity of tyres, etc.

WARNING: Under no circumstances should the maximum technically permissible laden mass (MTPLM) be exceeded.

Upgrading of maximum technically permissible laden mass:
The lower (or standard) MTPLM is quoted in the Technical Handbook, in brochures and on the caravan weight plate. However, in some cases it may be possible to increase this to a higher (upper) MTPLM. (See Technical Handbook for details).

If extra user payload is required, an upgrade maybe available (model dependant), this must be requested via your dealer and is chargeable.

If required you will be issued with the following:

(i) New weight plate giving upgrade weight details.

(ii) New NCC certificate (declaring the upgraded MTPLM)

(iii) Manufacturers letter confirming the upgrade for that Vehicle Identification Number.

Note: Tyre pressures may increase when upgrading.

Nose weight:
The vertical weight transferred to the towing vehicle through the coupling head.

Notes:

(i) When measuring the noseweight it is important that the caravan is fully loaded. Do not place extra items indiscriminately into the caravan after this adjustment has been made.

(ii) The caravan is intended to be towed slightly nose heavy. The nose weight can be adjusted by distribution of the load within the caravan. The nose weight should be approximately 7% of the actual laden weight (but not greater than the hitch capacity) and at the same time suit the towing vehicle. See section on Measurement of Nose Weight.

(iii) It is not recommended that you tow with just a battery, spare wheel and gas bottles as this may exceed the permitted nose weight. Additional payload must be placed behind the axle to compensate for this.

TOWING VEHICLE TERMS

Kerb weight
(Mass of Vehicle in Running Order):

The weight of the towing vehicle as defined by the vehicle manufacturer. This is normally with a full tank of fuel, with an adequate supply of liquids incidental to the vehicles propulsion, without driver or passengers, without any load except loose tools and equipment with which the vehicle is normally provided and without any towing bracket.

Caravan to Towing Vehicle Weight Ratio:

The towing vehicle to caravan weight ratio can be determined by calculation and is equal to:

$$\frac{\text{Actual laden weight of caravan}}{\text{Kerb weight of towing vehicle}} \times 100\%$$

The law requires that caravans & their towing vehicles & the loads they carry must be in such a condition that no danger or nuisance is caused.

(Regulation 100 of the Road and Vehicles [Construction and Use] Regulations 1986).

Note: The towing vehicle manufacturer's limit is, in some cases, less than the kerb weight.

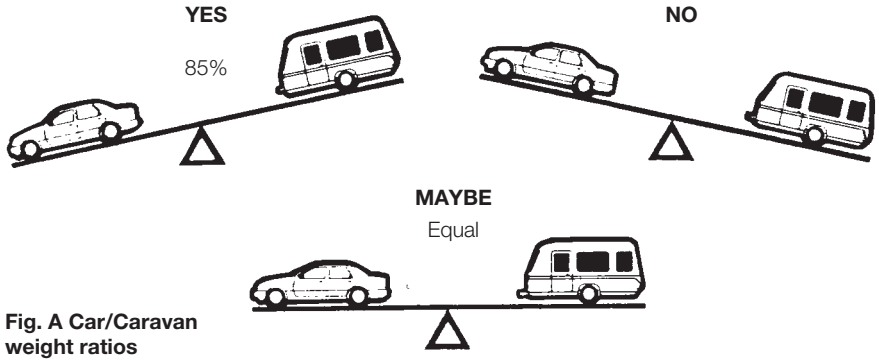


Fig. A Car/Caravan weight ratios

Mass in Running Order:
Caravanners can use a public weigh bridge to establish the mass in running order.

Note: Weigh bridges have varying weight tolerance levels.

Maximum Permissible Towing Mass:
The weight defined by the vehicle manufacturer as being the maximum that the vehicle is designed to tow.

Train Weight (Combination Weight):
The maximum combined weight of the towing vehicle and trailer combination as specified by the towing vehicle manufacturer.

MEASUREMENT OF NOSE WEIGHT

Nose weight may be measured using a propriety brand of nose weight indicator. Such equipment is obtainable at your Caravan Dealer.

Note: These indicators have a varying tolerance level and may not be accurate.

Another simple method is to use bathroom scales under the coupling head with a piece of wood, fitted between the coupling head and the scales, of such length that the caravan floor is horizontal with the jockey wheel raised clear of the ground. (Fig. A)

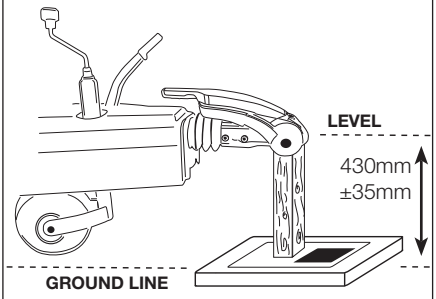


Fig. A Measuring nose weight

Nose weight can be adjusted simply by distribution of weights in the caravan.

Always lower jockey wheel before entering the caravan and then raise before measuring again. (See Loading).

Note: The height of the towball on the towing vehicle, when laden, is also critical.

WARNING: Do not lift the coupling head by hand when hitching the caravan to the car. Always raise and lower the coupling head by winding the handle on the jockey wheel up and down.

Driving licence

In order to be able to tow a caravan a driver must hold a Category B licence. Those car drivers who passed their tests prior to 1 January 1997 would have automatically obtained Category B+E. However, anyone who passed their test after 1 January 1997 will need to take a further test in order to obtain a Category B+E if they wish to tow a car and caravan combination whose train weight exceeds 3,500kg, or up to 4,250 if the caravan is less than 750kg or if the caravan's Maximum Technically Permissible Laden Mass exceeds the unladen weight of the car.

Note: The unladen weight of a car is normally less than the kerb side weight.

GLOSSARY & CHECKLIST

Awnings - Can consist of just a simple top sheet but may extend to a five sided frame tent attached to the side of the caravan.

Fire blanket - approved to BS 6575 is ideal for dealing with 'fat pan' fires.

Fire extinguisher - It is strongly recommended that a fire extinguisher is carried in the caravan. (For suitable types see Safety and Security).

Gas bottles - Bottled L.P. gas is the most convenient portable source of fuel. Two bottles are required for a constant supply.

An initial deposit is payable on each cylinder. We recommend the use of 6kg Calor Light Propane bottles. One position for use and one for storage only. (For detailed information see Services - Gas).

Jack - A suitable jack is essential (screw, scissor, side mounted or air jack type). Many car jacks are unsuitable.

Levellers - Levellers help level the caravan from side to side before unhitching. Proprietary products can be purchased from your caravan dealer and need to be positioned as indicated by a spirit level.

Spare Wheel - It is always advisable to carry a spare wheel with your caravan.

Spirit Level - A spirit level is extremely useful when siting the caravan.

Stabiliser - Stabilisers help to dampen the side to side movement of the caravan.

Torque Wrench - A torque wrench is the only way that the exact recommended torque can be achieved for wheel nuts and bolts. (See Preparing for the Road).

Towing Bracket - Never use cheap alternatives, obtain one manufactured by a reputable company complying with the relevant standards.

Any light passenger vehicle registered in the UK on or after August 1st 1998 will require a type approved towbar and towball (to 94/20/EC). Failure to fit a homologated towbar and towball could result in a prosecution and invalidation of your insurance cover. Always check with your car manufacturer or towbar manufacturer if in doubt.

Wooden Blocks - Wooden blocks typically 25cm square and 2cm thick are ideal for placing under corner steadies and jockey wheel when the ground is uneven or soft.

Water Containers - Two containers are required, one to carry fresh water to the caravan and one for waste water, which needs to be disposed of properly. Several types are available including jerry cans, Aquarolls, wastemaster, etc .

13 Pin Socket - One socket fitted to the car to accept corresponding plugs from the caravan this energises the road lights and caravan auxiliary circuits.

12 Volt Battery - A deep cycling, heavy duty rechargeable leisure type battery should be purchased to provide back-up power for lights and other electrical appliances. (See Battery). The securing arrangements for the battery compartment require a leisure battery complying with EN 60095-2 in particular those with ledges for fastening to the lower edge of the long sides. The maximum battery size that can be fitted is 225mm high, (including terminals) x 175mm deep x 353mm wide. The depth and width dimensions include the rim around the bottom used for securing the battery.

Note: Batteries that are not foot mounted, ie. without a rim, can still be fitted, but check first that they will fit within the battery box and can be secured before purchasing.

WARNING: Your caravan dealer should be consulted if additional equipment is to be fitted as strong points may or may not be provided in the design.

Note: Fitting additional equipment, such as a motormover will reduce the caravan allowable payload.

Note: The fitting of a motormover may require a larger capacity battery fitting.

Note: We do no recommend towing with towing covers fitted as these can obscure lights/reflectors and may rub or damage the bodywork.

USEFUL MEMORY AID

Car

External mirrors
Fire extinguisher
Jack
Petrol can
Spare bulbs
Spare keys
Spare wheel
Tool kit
Towball cover
Tyre pressure gauge
Warning triangle
Tyre Pump

Caravan

Awning pegs and poles
Awning ground sheet
Bucket
Corner steady brace
Corner steady pads
Coupling lock
Door mat
Fire blanket
Fire extinguisher
Fresh water container
Gas cylinders
Jack
Levelling boards
Mallet
Site/caravan mains lead
Spare bulbs (Mandatory in E.C.)
Spare 12v fuses
Spare high pressure gas hose
Spare wheel
Spirit level
Toilet fluid
Waste water container
Wheel brace

Personal

After sun cream
First Aid Kit
Flannels
Hairbrush and comb
Make up. etc.
Raincoats
Toothbrush
Toothpaste
Scissors
Shampoo
Shaving kit
Shoe cleaning kit
Soap
Sun tan oil
Wellington boots

Domestic

Adhesive tape
Air freshener
Aluminium foil
Ashtrays
Bedding
Bin liners
Binoculars
Bottle opener
Breadboard
Brush and dustpan
Butter dish
Camera
Carving knife
Chairs
Clock
Clothes brush
Clothes line
Coat hangers
Coolbox
Colander
Crockery
Cruet
Corkscrew
Cutlery
Dish cloth and brush
Dusters and polish
Disposable cloths
Egg cups
Floor cloth
Fly spray
Food
Food mixer
Frying pan
Glasses
Grill pan
Jugs
Kettle
Kitchen roll
Kitchen tools
Matches
Measuring jug
Milk jug
Mixing bowl

Needles and thread
Oven gloves
Pegs
Piezo Gas lighter
Potato peeler
Radio
Rubbish bin
Saucepans
Scissors
Sieve
Sugar bowl
Shopping bags
Sleeping bags
Tea pot
Tea strainer
Tea towels
Table cloths
Table mats
Television
Tin opener
Tissues
Toilet paper
Torch
Towels
Toys & Games
Vacuum cleaner
Washing up bowl

Documents

Bank and credit cards
Caravan Certificate
Cheque book
CRIS document
Driving licence
Green Card
    Insurance (some Euro countries)
Maps and guides
Money
MOT Certificate
Vehicle Registration Documents

PREPARING FOR THE ROAD

PRE-LOAD CHECKLIST

Caution: Never enter the caravan without first lowering the four corner steadies with the brace provided.

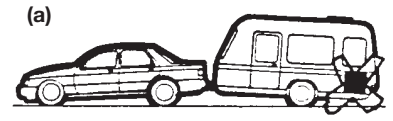
BEFORE LOADING CHECK:

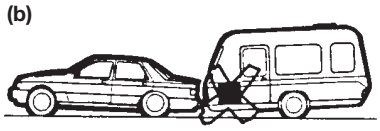
- loose articles are stowed securely. Do not stow tins, bottles or heavy items in overhead lockers prior to towing.
- all lockers and cupboard doors are closed and secured, including the bathroom door.
- all bunks are secure.
- ensure shower door is secure
- all rooflights are closed and secured.
- main table is stored in its transit position.
- television aerial is lowered
- fridge is on 12V operation and door lock is set.
- all windows are fully closed and latched. Never tow with windows on night setting. Leave all curtains and blinds open to aid rear visibility.
- gas cylinders are correctly positioned, secured and turned off.
- battery is secure and mains connecting cable is disconnected and stowed.
- Ensure control panel settings are correct for 12v fridge operation. See control panel instructions for detail.

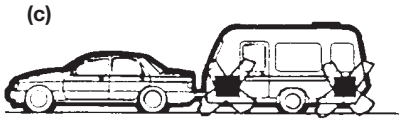
WARNING: Turn off gas appliances.

WARNING: Do not travel with televisions or microwaves in overhead lockers unless the appliance was supplied fitted to your caravan by the manufacturer.

WARNING: Always disconnect the electrical connector between the towing vehicle and the caravan before connecting a LV supply to the caravan.







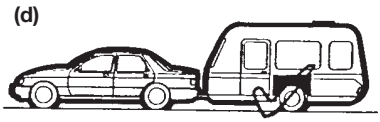


Fig. A Loading your caravan

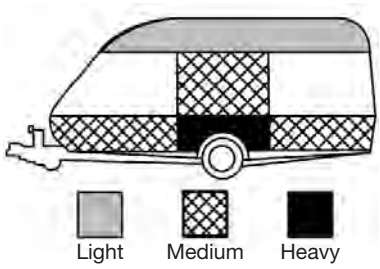


Fig. A Sensible loading

How to apportion it

1. Load heavy items low down near the floor and mainly over or just in front of the axle(s) (Fig. A).

2. Load evenly right to left so that each caravan wheel carries approximately the same weight.
3. Do not load items at the extreme front or rear since this can lead to instability due to the 'pendulum effect'.
4. Load remainder to give a suitable nose weight at the towing coupling.

Check nose weight.

Note: Do not overload car boot.

WARNING: All heavy and/or voluminous items (e.g. TV, radio etc) must be stored securely before travelling.

PLEASE TAKE CARE TO ENSURE THAT YOU HAVE ALLOWED FOR THE MASSES OF ALL ITEMS YOU INTEND TO CARRY IN THE CARAVAN. e.g. optional equipment, and personal effects such as clothing, food, pets, bicycles, sailboards, sports equipment etc.

WARNING: UNDER NO CIRCUMSTANCES SHOULD THE MTPLM OF THIS CARAVAN BE EXCEEDED

Towing vehicle's rear suspension

It is important that the towing vehicle's rear suspension is not deflected excessively by the nose weight on the tow ball. If it is excessive the steering and stability will be affected. (Fig. B)

The greater the towing vehicle's tail overhang (the distance between the rear axle and the tow ball), the greater the effect the nose weight will have on the towing vehicle's rear suspension.

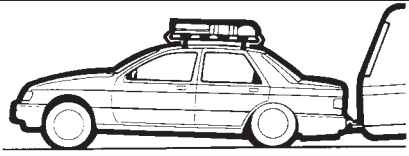


Fig. B Illustration of excessive deflection of vehicle's rear suspension

After trying out the caravan it may be found that a stiffening of the rear suspension is necessary - but note that this may give the towing vehicle a firmer ride when not towing.

There are a number of suspension aids available and advice should be sought on which to use and how to fit. It is important to ensure that the caravan is towed either level or slightly nose down.

If you have any doubts about the suitability of your towbar for towing a caravan consult the towing bracket manufacturer.

DO NOT exceed the:

- Gross Vehicle Mass (G.V.M. on car plate).
- Maximum Technically Permissible Laden Mass (M.T.P.L.M.) on the caravan.
- Gross Vehicle Combination Mass (Train Weight) (G.V.C.M. on car plate).
- Maximum Permissible Towing Mass.
- Vertical Static Load on the caravan coupling (noseweight).
- Maximum Vertical Load on the car towball as specified by towing vehicle manufacturer (noseweight).
- Driving licence limitations

Stability

All our models are of a well balanced design and should be exceptionally good towers. Most models have an AL-KO stabiliser fitted as standard. The common causes of poor stability include:

(a) Worn springs or loose spring fixings on the towing vehicle.

(b) Towing vehicle springs too soft.

(c) Insufficient nose weight.

(d) Nose of caravan is towing too high.

(e) Unsuitable towing vehicle

Galvanised steel chassis

Drilling of the galvanised steel chassis will invalidate the warranty and must not be done.

Towball

The AL-KO stabiliser is designed to be used with a swan neck, fixed or detachable towball. If you use a 'bolt on type' towball you may need to replace your towball with a special extended neck towball.

If you have a bolt on type towball you should ask your dealer to check clearance around the towball to allow for the stabiliser to articulate.

The AL-KO extended neck towball (available from your dealer) is approved and marked with the approval number EC94/20. Failure to provide enough clearance around the towball may invalidate your stabiliser warranty.

Stabiliser friction pads

The AL-KO stabiliser uses 'friction pads' inside the coupling head to clamp the towball. These pads must be kept free from grease and contamination from the towball.

The friction pads should last approximately 50,000km (30,000 miles) under normal use, if correctly maintained.

Suitable towing vehicles

The caravan is manufactured for towing behind normal road cars and is not suitable for towing behind commercial vehicles. It is strongly recommended that whenever a caravan is to be towed over rough terrain, e.g. a field or track, great care should be taken to ensure that no undue stress is placed upon the caravan via the hitch mounting, i.e. reduce speed. If in doubt, please consult the chassis manufacturer and the towing vehicle manufacturer who will advise. Touring caravans based on standard AL-KO chassis can be towed by four wheel drive off road leisure vehicles providing the unit is used to tow in a like manner to a conventional road-going car and driven in the same considered manner.

Towbar manufacturers should be consulted before towing an uncompensated twin axle caravan.

Snaking

This is a term used to denote an unstable car and caravan combination where the caravan 'weaves' from side to side often causing a similar swaying movement in the car itself.

Causes:

i) Unsuitable or unbalanced outfit.

ii) Incorrect loading or weight distribution.

iii) Excessive speed especially downhill.

iv) Side winds.

v) Overtaking.

vi) Being overtaken by a large fast moving vehicle.

vii) Erratic driving.

viii) Insufficient tyre pressures.

Cures:

Cases of persistent snaking can be alleviated by the use of a stabiliser.

On the road

If you do find your outfit snaking, try to keep the steering wheel in a central position as far as possible, decelerate and avoid braking if possible.

Types of tyres fitted

The original tyres fitted by the manufacturer are suitable for towing at maximum speed of up to 81 mph (130 kph).

Tyres

Caravan manufacturers choose the type, size, profile, load carrying capacities and speed ratings to match the design masses of there vehicles, adjusting the tyre pressures to suit. Only change the type of tyres on your caravan on expert advice from the caravan manufacturer, or tyre manufacturer.

TYRE MAINTENANCE

Tread depth

Pay special attention to the amount of tread remaining on your tyres, and measure them regularly. Always replace tyres before they reach the minimum legal limit of 1.6mm.

Periodically tyres should be rotated to equalise wear in the same manner as car tyres.

Pressures

The caravan manufacturers plate (fixed adjacent to exterior door) and Technical handbook contains information about caravan loading and the required adjustments to tyre pressures, which should be followed for safety. Tyre pressures should always be checked and corrected prior to each journey. It is vital that tyre pressures are maintained at the levels recommended by the manufacturer to ensure maximum tyre life, safety and handling characteristics.

Over or under-inflating tyres is likely to seriously impair their performance and may prejudice the safe use of the vehicle.

Over-inflation increases overall tyre diameter, decreases the amount of tread in contact with the road, decreases sidewall flexibility and affects road-adhesion.

Under-inflation decreases overall tyre diameter, increases sidewall flexing, generates higher tyre operating temperatures and difficult vehicle handling characteristics. Running an under-inflated tyre may cause premature tyre failure. Both over and under-inflation adversely affect tyre life.

Treads

Keep tyre treads clean of stones and other foreign bodies, and check regularly for damage to the tread and sidewalls. It is vitally important that any damage is checked out by a tyre expert and any necessary repairs or replacements are carried out immediately.

Tyre valves

Check tyre valves carefully. Ensure the caps are in place free from dirt/ debris and that there is no evidence of cracking or damage to the valve stem.

Tyre aging

Rubber compounds used in tyres contain chemicals that help to slow down the natural aging process of untreated rubber. However, tyres do deteriorate with age, which increases the risk of tyre failure, and there are many ways in which this can be spotted:

- Cracking/crazing on the side wall of the tyre, caused by its flexing
- Distortion of tyre tread
- Deformation of the carcass of the tyre

There will also be a deterioration of the ride quality caused by vibrations through the tyre. This may signify the tyres performance has been affected by age and should be investigated as soon as possible

It is recommended that tyres are replaced after 5 years

Tyres that display signs of aging should be removed and not put to further use.

The effects of aging can be brought about prematurely in several conditions. Tyres fitted as spare wheels may age prematurely. If tyres on caravans are not in regular use they should be inspected before every journey, several cleaning products may also harm the chemicals in the rubber. However, the age of a tyre will affect its safety and increase the risk of failure, and you should inspect tyres for the signs of aging regularly.

The use of some motor movers can damage or increase wear on the tyres prematurely.

PRE-TOW CHECK LIST

THE TYRE LAW

PLEASE NOTE: Sales literature/ Technical Handbooks publish recommended tyre pressures for the MTPLM only (fully laden condition). It is not possible to publish tyre pressures for any other load condition other than the MTPLM.

Tyre types

It is illegal to mix tyres of a different construction on the same axle.

Note: Although the caravan may be fitted with the same type of tyre as the towing vehicle, the pressures specified are different. All charts show values for cars and are therefore not applicable for caravans.

Pressures displayed on tyre walls apply ONLY in North America and Canada.

Wheels

Caravan wheel bolts should be tightened to a torque of 88Nm (65lb/ft) on steel wheels or 130Nm (96lb/ft) on alloy wheels and should be checked with the use of a torque wrench regularly. Only use a spare wheel and tyre of the type and size provided with you caravan.

NOTE: Please remember to check the wheel bolt torque setting regularly.

Wheel rims

Two sizes of wheel rims are used 5.5J x 14 and 6J x 15, the rim sizes are the same for both steel and alloy rim, incorporating a double safety hump which conforms to European safety standards. Check the size on your caravan before replacing a rim.

Hitch head load capacity

The maximum vertical static load which can be put upon the hitch head when connected is 100kg. Please refer to the technical data in your handbook. (But see also vehicle manufacturer's weight limits on towball loading.)

PRE-TOW CHECKLIST AND HITCH-UP FOR AKS 3004 STABILISER

Fig. A

Check gas locker, battery locker and cassette toilet doors are secure.

Check wheelnuts, tyre pressures and tyre conditions.

Fully raise all four corner steadies. (Fig. A).

Pick up any levelling pads or levelling boards.

Check rooflights/vents are securely closed.

Ensure television aerial is lowered.

Switch off gas supply and change over to 12v electricity if required.

Lock the caravan exterior door.

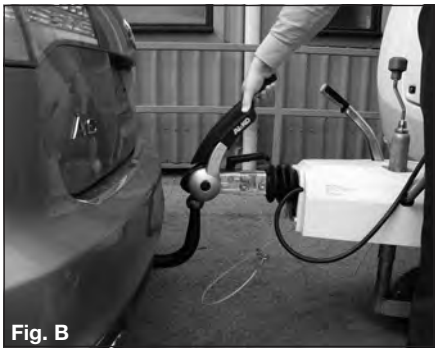


Fig. B

An assistant can help in the hitching operation by standing on the left hand side of the drawbar (facing rear of car) and extending an arm horizontally to indicate position of the coupling. When reversing aim the towball of the car directly at the caravan drawbar. Remove towball cover and keep in car.

Adjust the jockey wheel to ensure the cup is high enough to slide over the towball.

Release caravan handbrake.

Position cup over the ungreased towball, release and lift forward the large red stabiliser handle (Fig. B) lift forward the exposed smaller black handle (Fig. B) until it clicks up.

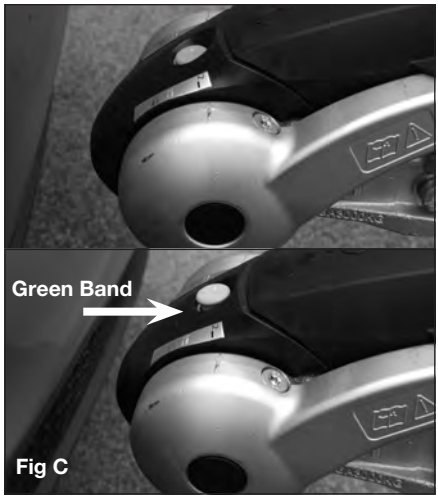


Fig C

The hitch head is fitted with a visual indicator to show whether or not it is properly connected to the towball. A green band will show immediately below the red indicator button on the hitch head when a proper connection has been made. (See Fig. C)

Adjust jockey wheel to lower cup on to the ball. A click indicates it is fully engaged. Ensure black handle has returned to its free position.

Secure caravan handbrake. (Fig. D)


Fig. D Handbrake

Connect breakaway cable as described on page 27.

Ensure that the jockey wheel is fully wound up and properly located in the slots in the jockey wheel tube, then release the clamp handle, lift the whole unit as high as possible ensuring the wheel is pointing directly backwards and retighten the clamp handle.

Note: Ensure jockey wheel locates in recess provided. Carelessness could result in damage to the A frame cover.

Ensure the hitch is secured by checking the visual indicator (figure C).

WARNING: If the green band is showing when the hitch head is not connected to the towball there is a fault - contact your Dealer.

Connect the 13 pin plug to car socket by inserting and rotating slightly ensuring there is enough loose cable for cornering, ensuring they won't drag on the ground.

Check all car and caravan roadlights are working. Check round the caravan for anything left behind.

Fit extending mirrors

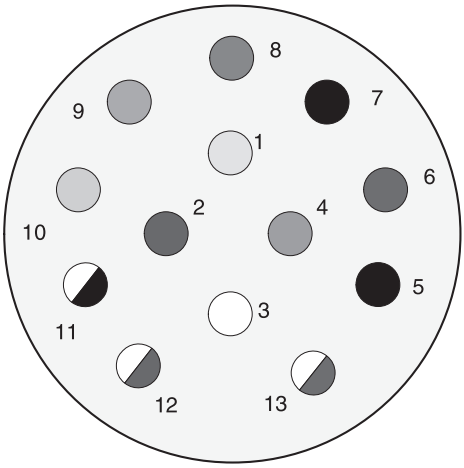
Release caravan handbrake, adjust all mirrors from driving seat and proceed.

- All road lights must be in working order.
- Lenses and reflectors must be in good condition
- Bulbs must be of correct wattage for the application (see Service handbook).

WARNING: Do not cause any road lighting to be obscured by the addition of any options or accessories to your caravan.

13 PIN SOCKET

Please be aware that some car manufacturers and towbar manufacturers do not wire up all 13 pins as standard, unless requested.



11446 Plug Connector viewed from cable entry on plug

Pin No	Core Colour	Core Size	Function
1	Yellow	1.5	Left Hand Indicator Light
2	Blue	1.5	Rear Fog Warning Light(s)
3	White	2.5	Earth for pins 1 - 8
4	Green	1.5	Right Hand Indicator Light
5	Brown	1.5	Right Hand Tail Light
6	Red	1.5	Brake Lights
7	Black	1.5	Left Hand Tail Light
8	Pink	1.5	Reverse Light(s)
9	Orange	2.5	Car +ve
10	Slate (Grey)	2.5	Fridge +ve
11	White/Black	2.5	Earth for pin 10
12	White/Blue	1.5	Not Yet Allocated
13	White/Red	2.5	Earth for pin 9

Passengers

Passengers are forbidden to ride in a caravan.

BREAKAWAY CABLES

UK law requires that all caravans are fitted with a safety device to provide protection in the unlikely event of separation of the main coupling while in motion. A device referred to as a 'breakaway cable' fulfils this requirement and when fitted as on your caravan is mandatory.

Purpose

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

Identification

A thin steel cable with a red plastic coating fitted with a means of attachment for connection to the towing vehicle. Located directly beneath the coupling head.

Operation

In the event of the main coupling of the caravan separating from the towing vehicle, the cable should be able to pull tight, without any hindrance, engaging the caravan brakes. The breakaway cable should not become taut during normal driving.

Correct procedure for use

Regularly check the cable and clip for damage. If in doubt contact your Swift Group dealer.

Make sure the cable runs as straight as possible and goes through the cable guide fitted underneath the caravan coupling head.

Determine whether or not the towing vehicle towbar has a designated attachment point

(i.e. a part specifically designated for a breakaway cable).

Where a point is designated on the towbar:

- Pass the cable through the attachment point and clip it back on itself (figure 1).

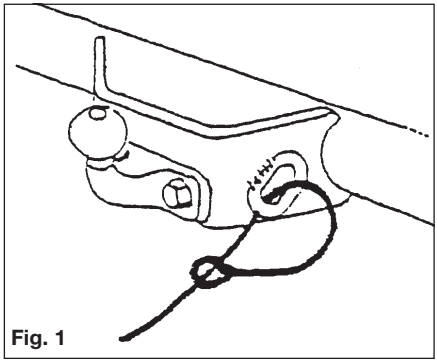


Fig. 1

- Do not clip directly onto the designated point (figure 2) since the clip is not designed for use in this way.

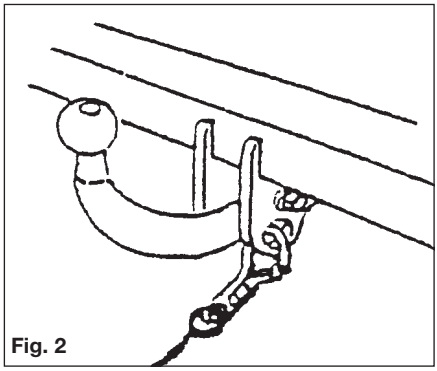


Fig. 2

Where there is no designated attachment point on the towbar:

- Fixed ball: Loop the cable around the neck of the towball in a single loop only. See figure 3A and 3B.

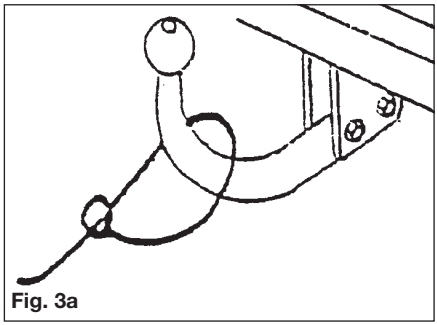


Fig. 3a

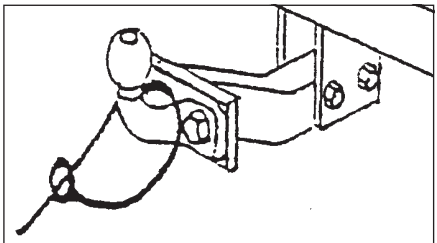


Fig. 3b

- Detachable towball: You must seek guidance on procedure from the towing vehicle towbar manufacturer or supplier.

When the breakaway cable is attached, check:

a) that the cable cannot snag in use on the caravan coupling head, jockey wheel, stabiliser or accessory e.g. bumper shield, cycle carrier etc.

b) that there is sufficient slack in the cable to allow the towing vehicle and caravan to articulate fully without the cable ever becoming taut and applying the brakes.

c) that it is not too slack and 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 caravan brakes prematurely.

MIRRORS

The driver of the towing vehicle must have an adequate view of the rear.

If there is no rear view through the caravan it is essential that additional exterior towing mirrors are fitted. This is mandatory in some European countries and drivers can face instant fines if extension mirrors are not fitted.

Caution: Any rear view mirror must not project more than 250 mm outside:

a) the width of the caravan when being towed.

b) the width of the towing vehicle when driven solo.

Note: Any rear view mirror fitted shall be 'e' marked and cover the field of view as stipulated by type approval requirements (Community Directive 2003/97 or 2005/27 or ECE Regulation 46.02 or Regulation 33 of the Road Vehicles (Construction & Use Regulation 1986).

MOVING OFF

Let the clutch in smoothly.

Allow more engine speed to produce the power to move the additional weight of the caravan.

Reduce wear and tear on clutch and transmission by taking extra care.

Change gears smoothly.

Try not to jerk the clutch.

REVERSING

When the towing vehicle is reversing, the overrun device shaft is pushing in, applying the brakes via the overrun lever, brake rod system, bowden cables and the expander mechanism.

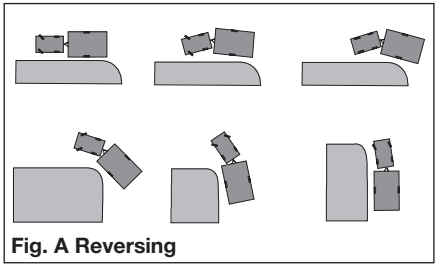


Fig. A Reversing

The backwards rotation of the brake drum causes the secondary brake shoe to collapse cancelling out the braking effect, allowing the caravan to move backwards. At the same time the transmission lever swings back and compensates for the entire travel.

When reversing up a slope or on a loose surface the brakes may apply themselves, Correct maintenance and set up of the brakes will help prevent this. Incorrect adjustment of the wheel brakes or linkages will result in making reversing difficult.

Proficiency at reversing can only be achieved with practice and should be first attempted in a large open area (Fig. A).

SPEED LIMITS

Normal road towing: 50mph

Motorways (including dual carriageways): 60mph

CARAVAN HANDLING

Allow for caravan being wider than car.

Do not bump kerb with caravan wheels.

When passing other vehicles allow more than the normal clearance for driving solo.

Allow longer to get up speed to pass.

Allow for the outfit being twice its normal length.

Do not suddenly swing out.

Carry out all manoeuvres as smoothly as possible.

Use nearside wing mirror to check caravan has cleared when overtaking.

WARNING: Take care not to foul or ground caravan chassis whilst traversing ramps or other obstacles.

MOTORWAY DRIVING

Important points

1. Caravans may not be towed in the outside lane of a three or four lane motorway. (Reg. 12(2) of the Motorway Traffic [England and Wales] Regulations 1982).
2. Reduce Speed:
   i) In high or cross winds
   ii) Downhill
   iii) In poor visibility
3. High sided vehicles cause air buffeting so extra care must be taken when passing or being passed. As much space as possible should be given.

ALKO SPARE WHEEL CARRIER TIPS

The caravan needs to be jacked to the maximum lifting height to be able to withdraw the wheel from the carrier.

NOTE: The side-lift jack has a maximum lifting height of 375mm and the scissor jack a maximum lifting height of 340mm.

- Customers should also ensure that the telescopic arms are kept well greased at all times to guarantee ease of operation.

IMPORTANT NOTE: if it becomes necessary to completely remove the carrier from the chassis remember that the washers and split pins are on the inside of the chassis as well as the outside.

CHANGING A WHEEL

1. Leave caravan hitched to towing vehicle and ensure that the caravan and towing vehicle handbrakes are applied.
2. Lower corner steadies (as safety measure) on the side that is being jacked up.
3. Remove wheel trims (if fitted).
4. Use wheel brace to slacken off wheel nuts on the wheel to be changed.
5. Position jack under the axle at the appropriate jacking point (see Fig. B, page 31)
6. Jack up the caravan until the wheel for removal is just off the ground.
7. Remove the wheel nuts and remove the wheel.
8. Fit spare wheel and reverse the above procedure. Ensure clean, dry mating surfaces and clean, dry bolt/nut sealing areas.
9. Tighten all five bolts, according to Fig. A, to 88Nm (65lb/ft) for steel wheels or 130Nm (96lb/ft) for alloy wheels using a torque wrench or have checked as soon as possible. Ensure the correct wheel fixings are used, as supplied with your caravan.

IMPORTANT

When a wheel has been removed and replaced the torque of the wheel nuts should be re-checked regularly.

Wheel Bolt Tightening

When refitting a wheel it is ESSENTIAL that the wheel bolts are tightened to the recommended torque figure and in the correct sequence.

The sequences necessary to correctly carry out this work on a 5 stud wheel is as follows:

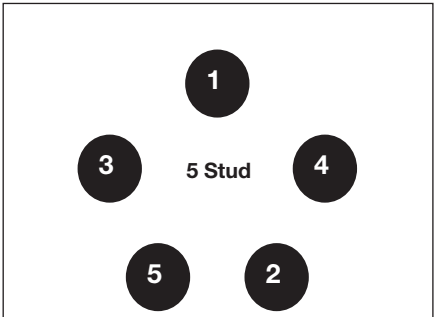


Fig. A

Please note the correct torque settings

Jacking points

WARNING: Only jack up your caravan when it is coupled up to the car with its handbrake applied and in 1st gear (engine off).

Ensure that the jack is located in the correct position, i.e. on the jacking bracket on the chassis for the AL-KO side mounted jack (Fig.B). Alternatively the reinforced axle mounting plate can be used as an alternative but the chassis member itself MUST NEVER be used as a jacking point.

All caravans are provided with the facility to fit AL-KO side jacking points and although a scissor, trolley or bottle jack may be used.

Fig. B Side lift jack

Stopping on a hill

Pulling off again can sometimes present a problem. The easy solution is

(i) Carry a good sized wedge shaped piece of wood with a rope or light chain attached.

(ii) Attach the other end of the rope to the nearside rear grab handle.

(iii) Place the wood behind the nearside caravan wheel.

(iv) Carefully reverse the car slightly back down the hill, the caravan will stop against the wedge and turn.

(v) Drive forward since this attempt to move up the hill will now not involve pulling the full weight of the caravan until the car has gained some traction.

(vi) When reaching the top of the hill retrieve the wedge.

Arrival on site

Note: Check and observe site regulations.

Manoeuvring your caravan by hand

Note: Care must be taken when manoeuvring your caravan into position. Pressure placed on unsupported parts of front and rear GRP/ ABS panels may cause surface damage/ cracks to appear. Use the grab handles provided.

1. Selecting a pitch

Do not pitch in such a position that your outfit will obstruct others coming in.

Try to choose an area which is dry, reasonably level and preferably with a hard base.

If you have no alternative but to pitch on a slope ensure that, for when you leave, you are facing down the slope.

It is good practice to chock the wheels of the caravan when parked on a slope even though the caravan brakes are applied.

2. Levelling the caravan

Levelling must be carried out in both directions in order for the refrigerator and other equipment to function correctly. This should be done before unhitching the caravan. Levelling boards (Fig. C) can be used to raise one side of the caravan by driving or reversing the caravan onto the boards. Apply the handbrake and chock the wheels.

The positioning of the jockey wheel can be used to help level the caravan.

Lower the corner steadies until they are in firm contact with the ground.

DO NOT use the steadies as a jack they are only a means of stabilising the caravan.

Levelling pads or boards should be used under the steadies where the ground is soft or uneven.

In extreme cases where it is necessary to raise a wheel off the ground for levelling purposes, further adequate support should be applied so that the steadies do not take any undue strain.

Fig. C Levelling board

Exterior Door

To prevent distortion of the body, the caravan must be always correctly sited and levelled. Failure to site the caravan correctly may prevent the exterior door from closing properly.

3. Unhitching

Apply the caravan handbrake.

Lower the jockey wheel to the ground.

Disconnect the breakaway cable and road lighting plugs.

AKS 3004

Release the stabiliser by lifting the red handle. Then lift the exposed black handle forward until it clicks up, at the same time winding down the jockey wheel, to lift the caravan clear of the towing vehicle.