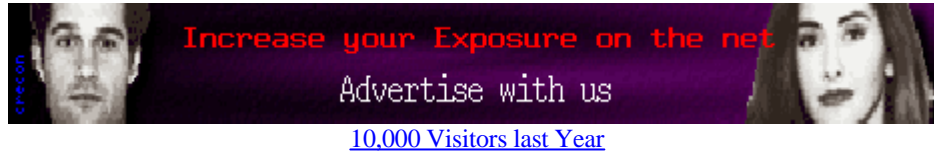


# Towing & Wiring



The Information on this page will hopefully help anyone unsure of the topics covered. It is not a definitive resource and is by no means the last word in technical information, just information that has helped me out along the way.

If you find any wrong information contained in this page or have some to submit then please mail me direct.

## Towing Info

Talking about safe towing weights of vans seems to be a somewhat controversial subject, so, I've put this info up to help newcomers who, like me, may be a little confused when they first start.

This information is intended as a guide only

## Caravan/Towing vehicle weight ratio

This ratio makes a big difference to the stability and handling of the over all outfit. Ideally you should keep the laden weight of the caravan as low as practically possible I.e. don't take stuff you don't use. For people new to Caravanning and towing the actual laden weight of the van should not exceed 85% of the Curbside weight of the car! As the weight of the van approaches that of the car then the more careful and experienced the driver needs to be due to it being a lot harder to control. If the weight of the van becomes more than the car then it is quite easy to loose control, the tail wags the dog if you like, as the van now has more weight and control. To calculate the ratio we must use the following,

$$\frac{\text{actual laden weight of caravan}}{\text{Kurb weight of towing vehicle}} \times 100 = \dots\%$$

Where the actual laden weight of the van is when its fully loaded with all your equipment. The curb weight of the car should be in the hand book. Once you have this info then you have the ratio.

The most important thing to remember is not to exceed the maximum gross weight of the van and the towing vehicle's loading and towing limits. The law requires that caravans and their towing vehicles and the loads they carry must be in such a condition that no danger or nuisance is caused.

### **Establishing the actual laden weight of the van**

The basic items for two people to go away in the van will normally weigh a minimum of 100kg in total and will include

- Food
- Crockery
- Cutlery
- Cooking utensils
- Clothing
- Bedding
- Gas bottles
- Water carrier

The weight of other additional items such as battery, awning, portable toilet, spare wheel, must be added to the total.

For every other person in the van a further 25kg should be allowed in the total for basic items. Now add the total to the ex works weight and you have the actual laden weight of the van. If all this seem a bit too much like hard work, then contact the area Trading Standards Department (weights and measures). This can be found in the phone book under

- **County Council;**
- **Metropolitan Council;**
- **London Borough Council;**

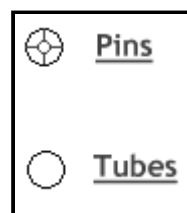
Depending where you are in the county.

Who will be able to tell you your nearest weighbridge. Load the van up and go and weigh it!

### **Wiring Info**

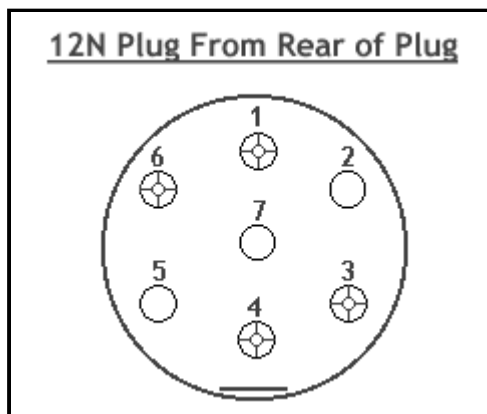
The following information is intended as a guide only. If in any doubt please consult a suitably qualified person.

Terminal	Colour	12N	12S
1	Yellow	LH Indicator	Reversing light
2	Blue	Rear fog lamp	Battery Charging
3	White	Common return	Common return
4	Green	RH Indicator	Power supply
5	Brown	RH Side / Tail	Sensing device
6	Red	Stop Lamp	Refrigerator
7	Black	LH Side / Tail	Spare

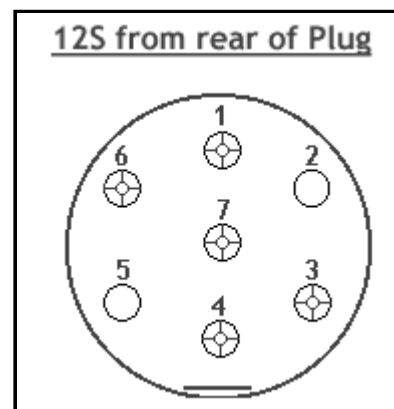


## Wiring Problems

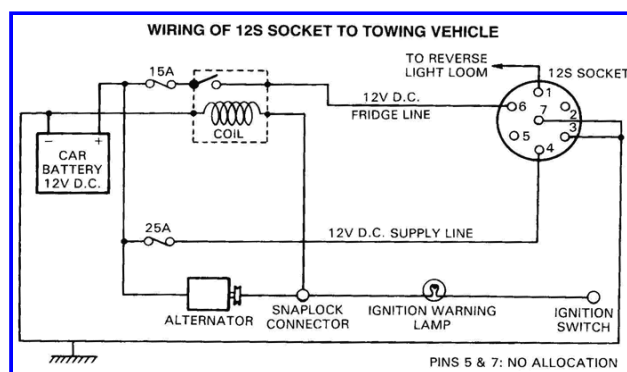
The only problems I have encountered so far have been loose and corroded connections. The Loose connections are easily diagnosed as functions not working at all or working intermittently. These are easily rectified by checking all the connections in question. If the problem still persists after this then you could have a broken wire which will need either repairing or replacing altogether. To find this you will need some sort of continuity tester (meter or buzzer of some kind). Follow the table above and ring out the connections until you find the broken one.



The corroded connections can cause earthing faults that give weird and wonderful symptoms from lights not working, too brake lights flashing with the indicators. These can be cured by cleaning up all the connections. If this still happens after they are all clean then maybe its time to seek help.



## The 12s wiring on Car



Click for full size image

*Thanks to Tony for the Image*

### Changes to 12s Wiring

The changes to the 12s wiring came into affect after the 1st of September 1998 so all 1999 models will have these changes incorporated.

1. a feed to operate the caravan's reversing lights (if fitted) via Pin 1
2. a 12-volt supply from the car battery via Pin 4 all the time your car is hitched up.
3. feed via Pin 6 to operate a fridge while the engine is running.
4. a feed to charge the caravan's battery, which is only activated when the engine is running. This was previously via Pin 2 but charging will now operate via Pin 4.
5. an earth connection. This was previously via Pin 3 alone but is now to be accompanied by another earth wire via Pin 7, exclusively for the fridge.

In recent caravan's, changes to the 12S wiring have necessitated altering the internal wiring system so that it:

- can draw a 12-volt supply from the tow car's battery via Pin 4 when the tow car engine is switched off.
- is able to take a 12-volt supply from Pin 4 and direct it exclusively and automatically to charge the caravan battery when the tow car engine is running.
- ensures that when the engine is running, no internal 12v appliances can be operated other than the refrigerator.

Why Has It Changed?

Safety!

ABS brakes, engine management systems etc. can all be upset by magnetic fields

and it's considered necessary to reduce the number of cables added to a vehicle when preparing it for towing.

The new 12S wiring system does away with one live cable: the one previously connected to Pin 2 for battery charging.

In addition, a further precautionary alteration isolates interior lights and appliances (in motor caravans and trailer caravans) when the engine is running.

Thanks To [Paul Rose](#) For the Information on the 12s changes.

This tester plug may help to sort some wiring problems. Take a look at it here [Emo Tester Plugs](#) .

If you have any info on wiring problems and want them on this page, then mail me and I will add them.

## General Hints & Tips

- During the winter its a good idea to empty and take the canvas off your folding camper. This cuts down the chance of damp and mildew getting to it. Its a fairly simple and quick job, just remember how it all comes to bits (draw diagrams if it helps) as it may be a few months before you put it back together again.
- When putting the canvas back on the unit make sure the poles are put on the correct way round. If you have an awning then the frame may have holes in to insert the awning poles. On the pennine these do not go all the way through the frame, meaning it has to be the correct way round. We got it wrong, never gave it a thought until erecting the awning on site. We then realised the holes were on the inside which resulted in us having to strip it down on site and reassemble the right way round!

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