Caravan Jacks

Caravan Jacks ***must***:

- Be *Approved* to the *Australian Standard*
- Have the **top *positively located*** - by a mating *locating recess* - to prevent any *horizontal* slippage
- Be operational for when the caravan is both empty, and fully-loaded
- Be positioned on a firm base
- Have a sufficient ***Load Rating***
- Have a sufficient length of ***Travel***

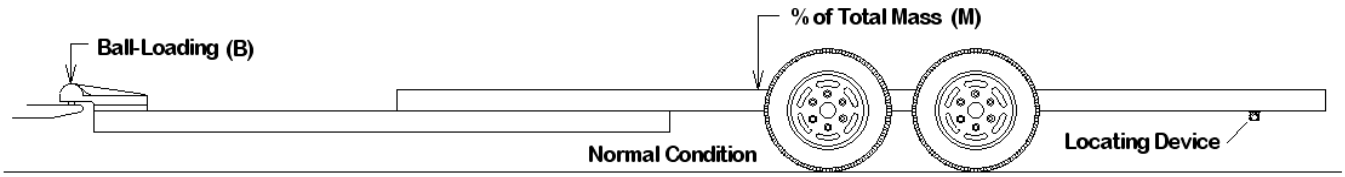
A Caravan Jack *must*:

- When on a firm base, be *low* enough to engage a *locating recess*, when *any* tyre is *fully-deflated*
- Have sufficient *travel,* to enable a *fully-inflated* tyre to replace that tyre

Allowance must be made for the suspension "***droop***" when the caravan is raised.

Allowance must be made for the probability that the tyres(s) on one side of the caravan will be loaded greater than on the other side. *Typically*, this *may* be around 10%.

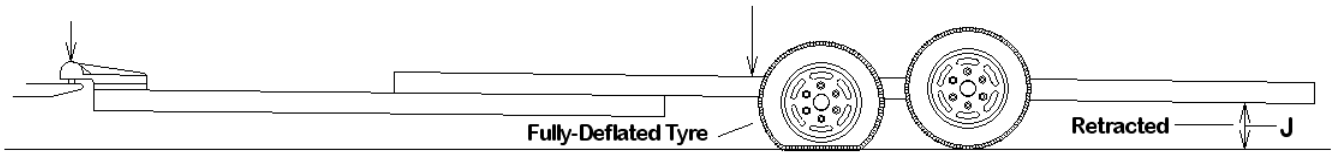
A *conservative* assumption must be made on the *actual* Ball-Loading. It is of course much more preferable to have had the Ball-Loading *measured*, for the particular loading of the caravan.
While a *typical* caravan may have a Ball-Loading of around 10% of the *actual* mass of the loaded caravan, the *actual* Ball-Loading *may* only be around 5%.



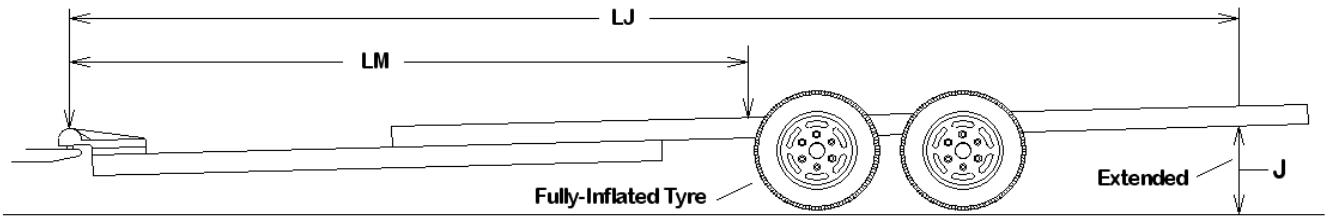
The relationship between a jack's **Load** (lifting force) and its **Travel**, is a basic physics topic of **Moments**… which is Force X Distance.

With the Ball as the pivot, it is a "*balance*" or a "*compromise*" – for any given effective Load (M) times *its* Distance (LM) from the pivot – and the jack's available Force (J) times *its* Distance (LJ) from the pivot.

The jack's available **Travel** (Extended Length minus Retracted Length) ***must*** be sufficient to enable a tyre to be safely replaced. **M x LM = J x LJ**



The *greater* the **LJ** Distance, the *lesser* the **J** Force can be… and vice-versa.



Caution:

Never rely on a jack… ***tragic*** accidents have occurred when a jack has ***failed***, or has ***slipped***.

It is most important to ***practise*** changing a wheel/ tyre ***before*** heading off on a trip, so that you know *exactly* what to do if you have the misfortune to have a punctured tyre on your travels.

- Do you know where *everything* you will need, is stored… and how to *use* everything?
- Does the Wheel-Brace *fit* the wheel-nuts, and do you have the *strength* to loosen tightened nuts?
- Does the *top* of the jack correctly suit the *jacking points* on the underside of the chassis rails?
- Does the jack have sufficient *lifting capacity* (Load Rating)?
- Does the jack have sufficient *travel*… and is the *minimum height* low enough?

Always carefully read the ***Warning Notice*** and ***Operating Instructions*** supplied with the jack.
If something is *not* clear to you, contact the Manufacturer for clarification.

Typical (*Conservative*) Example:

"All-Up Mass" of caravan: 2,000 kg

Ball-Loading: 100 kg (5% of All-Up Mass)

Therefore *effective* Load = 1,900 kg

Heavier side of caravan **M**: 1,000 kg

Lighter side of caravan: 900 kg

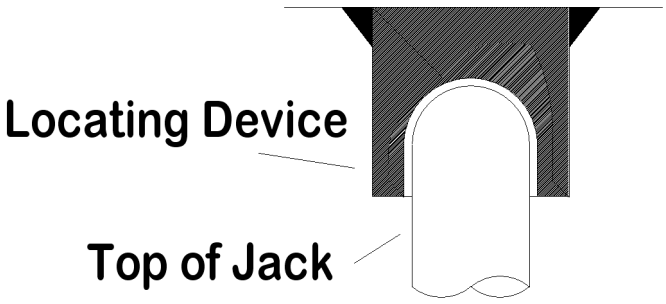
LM = 2.00 m

Therefore **M** x **LM** = **2,000** kg.m

Therefore **J** x **LJ** must equal (or exceed) **2,000** kg.m

If **LJ** is 3.0 m, **J** must exceed **667** kg

If **LJ** is 4.0 m, **J** must exceed **500** kg



Typical Locating Device… *Positively* locates the top of the Jack, to prevent it slipping in any *horizontal* direction