Mota-Bars

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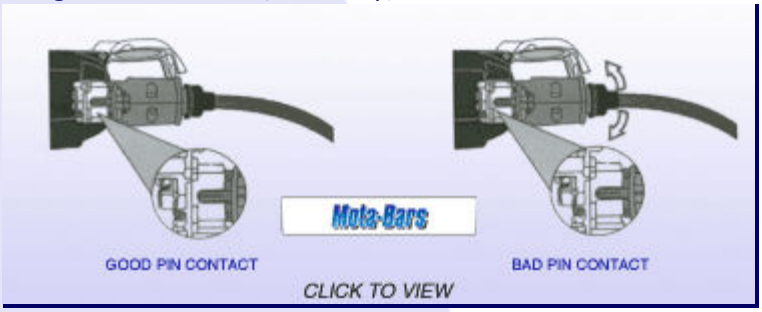
12S Burn Out - is there a cure?
What Is The Problem?

Up to October 1997 and the introduction of new wiring standards for caravans and leisure vehicles, all the 12S system (with the exception of pin 1, yellow, reverse) relied on one heavy wire (pin 3, white) for the earth return. Pins 5 (brown) and 7 (black) were unused. Since EN1648-1, the central pin 7 (black) has been allocated as the refrigerator earth return and pin 2 (blue) is now redundant (previously battery charging circuit). These changes roughly coincide with the introduction of new larger fridge/freezers which, naturally, draw more current.



Pin 7 is an extended male segmented pin in the plug and acts as the 'lead' to guide the plug into the socket. As such, it is the one pin most likely to suffer damage in use. This, coupled with the higher current draw and the smaller cross sectional area of the wire is causing voltage drop, higher resistance, heat build up and consequently, melting plugs and/or sockets.

And The Answer?
You could change your double socket system on car and caravan to one of three continental 13 pin plug systems (either Jaeger or Feder/West Multicon). This, however, would entail changing other caravans and trailers that you may want to tow (though the Feder/West Multicon sockets will accept a standard 12N plug in the centre), and would prove expensive.

Alternatively, you could do a minor modification to the caravan 12S plug wiring. As pin 5 is unused, it is possible to link pin 7 to pin 5 and (provided the brown wire is earthed in the towing vehicle) share the load between both. Additionally, as pin 2 is now unused (though still probably connected to the split charge relay) the same can be done with the feed by linking pin 6 to pin 2.

The advantages are obvious. The combination of 2 cores gives a greater CSA than called for in the legislation and the load (feed and return) is shared by 4 pins instead of two. There will be less voltage drop, less resistance and less heat build up. It is a relatively simple DIY alteration and is inexpensive.

I would recommend using 28/0.30 (17.5 amp) cable for the linking wires.

Tony Maris
Towbars & Trailers, Chesterfield 28/08/2001

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