



SUFFOLK CENTRE

TIPS AND IDEAS



(Researched and written by Chris Sanderson)

Portable TVs operating on 12volts – a recent telephone conversation with a service engineer employed by Thomson highlighted a possible problem when operating one of their LCD portable TVs from the 12-volt socket in a caravan or motor home. The particular TV set in question employs a separate 12 volts DC to 19 volts DC converter, which can fail prematurely if the 12-volt supply falls too low due to the voltage drop between the leisure battery and the 12-volt socket itself. The recommendation was to check the supply voltage at the socket with and without the TV in operation. This was carried out and without the TV the open circuit voltage was 12.5 volts. With the TV connected and switched on the voltage dropped to 11.2 volts, meaning a voltage drop of 1.3 volts in the caravan cabling. This level of voltage drop is not uncommon, it would appear, and in many cases it could be far greater.



Now for the physics bit and for those who can remember OHMS law. E.g. Consider the wire serving the 12 volt socket has a resistance of 0.5 ohms back to the battery. Connect a TV or other equipment with a current requirement of 4 amps and you have a volts drop of 2 volts (4amps X 0.5ohms). The Thomson engineer stated that many of the older 10" CRT type portable TVs could draw in excess of 5amps which would, using the previous calculation, give a volts drop of 2.5volts leaving the poor old set trying to work at below 10volts.

Recommendation - Unfortunately I cannot give you any hard and fast rules on what voltage will be acceptable for your particular TV only to suggest that you check it or have it checked and if its lower than 12 volts consider having the socket re-wired direct to the battery. Many caravan dealers stock suitable twin cable a suitable conductor size being 35/085. The positive(red) side of the supply should be wired via a 10amp blade fuse/holder (also available from caravan dealers/motorspares outlets) connected to the distribution side of the main battery fuse(typically 20amp)

One further check you can make is to ensure that the grub screws securing the existing wiring to the 12 volt socket are fully tightened as a loose connection is far more likely to give you a volts drop problem.

Finally don't forget – if you are going to do any work on the 12 volt wiring – **Disconnect the battery first.**