Auto-electricians and RVs - what next?

Collyn's of ce

Our esteemed Editor has suggested it is timely to comment on the results of the Auto-Electricians Guide to Installing Solar series that ran in this journal for much of the past two years.

It got off to a slightly curious start, in that I (wrongly) assumed that the basics of RV electrics were covered in all TAFE colleges that offered auto-electrical training. It was thus necessary to backfill the gaps.

As the series progressed I liaised very closely with Hornsby TAFE's Peter Stubly who provide invaluable advice and input. Several other TAFE colleges also provided assistance.

There was a huge response from auto-electricians to the special offer price for Caravan and Motorhome Electrics and Solar That Really Works. The former is now being bought in quantity as recommended reading.

Market size

The market for RV work is possibly greater than many in the trade may suspect.

As of 2013 there were about 495,000 registered RVs: (camper trailers, caravans, campervans and motor homes).

Their average age (17 years) is surprisingly high. About 90% are caravans and new sales of these grows by about 6% a year (about 20,000 were sold last year).

What the above implies is that most have now grossly outdated systems, particularly in terms of charging and lighting. By far the biggest problem is massive voltage drop to the caravan battery, and this causes major issues with RVs that use three-way fridges (that run on 12 volts whilst driving).

Mobile Servicing

A number of enterprising auto-electricians have set up mobile services and a lot of work can often be picked up in local caravan parks.

My suggestion here would be to install dc-dc alternator charging with the unit located in the trailer close to that unit's battery. That, plus changing to LED lights will make a huge difference to battery charging and energy draw.

Reader feedback (from a now sold 167,000 books since 2001) indicates that by far the most clued up electrically are camper trailers owners – but that many attempt to run the trailer from an auxiliary under-bonnet battery in the tow vehicle. Here too is a good market for installing dc-dc alternator chargers.

There is still the problem that many RV owners expect to get top quality results at eBay prices.

It is probably best to ignore this market until it is realised there is no cheap way of doing things right. Cheap wiring and fridges do not work that well when new – and that the passage of many years has not assisted one bit.

This message is however now increasingly getting across on the major RV forums and even around the campfires at caravan parks.

Premium service

It might well be worth offering a 'premium product' – making totally clear the work will cost more than most charge – but then doing it really well. Much of that required is using cable that results in no more than 0.2 volt drop end-to-end (at 12 volts) and 0.4 volts at 24 volts.

Lithium batteries are gaining acceptance but the market is still beset by often outlandish exaggerations.

Many such batteries are being promoted at absurd prices (one 100 Ah example is offered from $650 to over $1250).

Some vendors make warranty conditional on buying the battery charger from them also – often a bog standard unit marked up by a huge margin. The vendors are correct however in insisting their battery management system be included (a small/cheap unit).

Lack of standards

RV makers dislike my stating this but, unlike auto-electrics in general it absolutely cannot be taken for granted that what you are faced with was competently designed and installed in the first place.

The RV industry is virtually non-regulated. There are no standards (de facto or otherwise) for any but the on-road 12/24 volt running requirements.

By and large, most RVs have grossly inadequate wiring: some are consequently almost transformed by upgrading the wiring and fridge circuits alone.

Do-it-yourself butchering? No: this is how wiring was allegedly installed in one brand new RV.

Mains voltage certification

There is a move afoot to enable auto-electricians to gain certification to undertake specific work on 230 volt systems. There is a strong case for this in that most RVs made in Australia have their 230 volts systems not only installed up by non-licensed people – but not necessarily inspected or 'signed off' afterwards.

This happens in Victoria (where some 75% of all local 'vans are made). There, the power that be decrees that a caravan is not an electrical installation – and thus beyond the scope of the electrical certification required in other states.

Victorian-made RVs must meet the electrical standards (AS/NZS 3000:2007 and AS/NZS 3001:2008 – both as amended in 2012, but are not obliged to be electrically inspected by a licensed electrician, let alone be certified electrically. (I have this in writing from the Victorian dept concerned.)

Where from here?

This joint initiative (with valued support from TAFE) has already proved successful in opening up new opportunities for the Australian auto electrical industry.

To ensure this impetus continues (and recognising that it may take some years before RV auto-electrical and solar expertise is common) the series is being rewritten from scratch. It will be in a concise, logical and progressive manner, with input being sought from TAFE and interested manufacturers.

In this connection, feedback is also very much appreciated from auto electricians.

The concept so far

That currently planned is for the book to have a tighter version of the course, plus sections - each devoted to a specific topic: i.e., batteries, battery chargers, solar regulators, LED lighting etc. Each section will have a technical introduction and explanation then (paid) manufacturer content plus a web address link to that manufacture's technical information.

The above will be presented in an ultra-strong spiral bound form and updated yearly to ensure topicality of both technical-editorial as well as vendor content.

If accepted by the manufacturing industry, it is hoped to have the first edition available by the end of 2014.

In the meantime, I hope to be able to continue this column (now since 2002).

Book Offer

Our discount book offer (right) of $32.50 per book - $30 per book for two or more – post free) is now extended indefinitely for auto electricians and apprentices for *all of our books*.

We can also supply quantities (of ten or mores) to TAFE colleges at this same price. Several have taken up this offer.

Diode/Fuse Charging

Some long-term auto electricians may recollect the 'alternator boosters' of the 1970s or so. They worked by fooling the alternator into thinking it produced less output than it did (via switched resistors or a germanium diode in the alternator's field circuit). This increased voltage output by a typical 0.5 volt - but at high currents by a volt or more.

The concept has seemingly been re-invented. It now being marketed not just as a *substitute* for dc-dc alternator charging, but it is even suggested that it may render that technology obsolete.

In essence it is a diode/fuse that increases whatever output an alternator may produce (at any time) by 0.5 volt. Batteries are thus charged with no other apparent form of regulation.

Apart from that it will probably boost battery sales, I feel further comment is unnecessary.