Title: Battery Cables

Post by: TomC
I'm getting close to having to wire up my inverter and house batteries. What about making cables out of welding cable?
https://www.wireandcableyourway.com/Welding-Cable/

Post by: richard5933
That's what I use. Much more flexible and easier to work with. I splurged on a hydraulic crimper, which makes it much easier to install the lugs.

Post by: bobofthenorth
I can't think of one reason NOT to do it that way. I won't tell you exactly how I'd do it because that would start a massive thread war but I'd definitely make my own and I'd use welding cable to do it.

Post by: DoubleEagle
One of the drawbacks to welding cable is that the strands of copper are very thin (which makes the wire very supple) and are corroded more easily if unprotected. There was welding cable on my 1982 that was so corroded I could easily yank the wire off the terminal connector because the insulation had shrunk back over the years, leaving an exposed gap. Welding cable is not SAE approved for automotive use, and the insulation is not oil resistant. A better cable is SAE SGX or SGT-M which have higher heat ratings, are oil resistant, and are not as expensive as the tinned marine cables. Tinned marine is the ultimate in cost, but SGT-M is rated for marine use, and has self-extinguishing insulation. If the terminals are professionally done and the cable is totally protected, there is less justification for tinning. If the welding cable is constantly exposed to oil (now how could that happen on a two-cycle?), the insulation will swell and get weaker. It might work for years, but then cause problems down the road.

Post by: richard5933
Regarding the insulation on the terminals/lugs... There are two types of shrink tubing. One is just a plain shrink tube, and the other has heat-activated adhesive inside. My experience is that the shrink tubing with adhesive makes a very good seal against the lug and should help eliminate corrosion. Just my experience, and I have no idea if this is SAE or not. I've only been doing this on my battery bank, which is in a clean location, so oil/grease contamination are not really an issue. I just checked the product description on the cable I bought (from Crimp Supply), and here is what it said:

Operating temperatures is -58°F to +221°F (-50°C to +105°C). Rated to 600 volts. RoHS Compliant and meets SAE J1127.

From my layman reading, this would indicate that this particular welding cable would hold up with exposure to oil/grease. I'll have to do more research to state anything definitively though.

Post by: DoubleEagle
Nope, those standards would not address oil resistance. J1127 refers to proper copper content per gauge, and RoHS concerns absence of restricted ingredients such as lead, mercury, cadmium, etc. The principle types of battery cables are stranded bare copper with PVC, Rubber, TPR or Cross-Link Insulation. The lowest maximum temperature rating is for SGT at 85 degrees C, then SGR at 90, and SGX at 125 degrees C. Battery cable is rated to 60V; welding cable at 600V. Welding cable is not SAE rated. Welding cable is very supple because of the fine strands and the soft insulation, which can crack in time and let corrosion agents in.

Post by: TomC
Class W looks more like it.

Post by: kyle4501
I looked at the cost of tinned marine battery cable vs. the non-tinned battery cable. The difference was such a small percentage of the total cost, it was a no brainer to use the marine cable. I also upgraded to 4/0. (After losing 2 starters due to hidden corrosion, I wanted as good as I could get.)