

Technical Note Using Truecharge with a Generator

Truecharge

512-0054-01-01 Rev 1

Understanding Generator Requirements

You have an 850 W generator that can surge to 1000 W and try to power a TC40, but the charger never reaches the 40 A charge current level despite the batteries being heavily discharged. What's happening?

The TC40 is being starved of AC power during bulk mode.

Calculate:

$$\frac{(43 \text{ amps} \times 13.5 \text{ volts})}{(0.80 \text{ efficiency} \times 0.63 \text{ power factor})} = 1150 \text{ VA is the power required by the TC during bulk charge}$$

The Truecharge will still operate down to 90 VAC input, but the drawbacks to an undersized generator are:

- The TC cannot provide the full bulk current of 43 A, therefore it will take longer to charge deeply discharged batteries.
- The generator may overheat if it operates at its maximum output for a prolonged period before the TC goes into the lower-power absorption charge.

Xantrex recommends that you use at least a 1200 W continuous duty generator, and a 12 A AC source in the manual. An alternate solution would be to use the lower power TC20.

Generator Battery

When operating your Truecharge from the generator, the TC should not be connected to charge the generator battery. When running, the generator provides about 14.3 V to the generator start battery to recharge. If the TC detects the 14.3 V generator battery voltage on any one of its DC terminals, the TC will stop charging all three bank outputs. The generator battery has no other loads on this dedicated battery and, therefore should stay charged for weeks. If the boat is being stored for months without use and operated from shorepower you may want to connect the gen battery to also maintain a float charge from the TC (perhaps through a switch).

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