

## 6 or 12 Volt Electrical System?

A person recently asked, "I am rebuilding a 1960 Triumph 3TA bathtub model with 6 volt electrics, my question is would I be better off upgrading the electrics to 12V, if so what is involved and is it a straight forward job? Or should I stay with 6V? "

12V is preferable to 6V because of Ohm's Law. The tinniest bit of corrosion on any connector will create electrical resistance. Ohm's Law tells us that for the exact same amount of corrosion (resistance), your related voltage drop will be *double* on a 6V system than for a 12V system. Since headlamp brightness is the direct result of the system voltage, whatever can be done to minimize voltage drop (in other words, keep the system voltage closer to 100%) will pay **big** dividends in headlamp brightness.

Now I've used headlamp brightness as an indicator you can visibly witness for yourself without any fancy electrical gear, but the same thing is going on with the ignition too. Although it's harder to measure, you'll get a hotter spark at the plugs when the system voltage stays closer to 100%. Hotter spark of course equates to easier starting and faster running.

Secondly, no matter which voltage you finally end up with, the state of electrical technology in the early 60's was, to say the least, rather dismal... especially with regards to what is commonly called "grounding". You can cut your system resistance in half, or better, simply by adding or updating your system "ground" wiring. This entails running extra wires not included in the stock wiring harness... specifically for the purpose of helping the electrons return from the headlamp and ignition back to their source. In other words, adding "return wiring" to the harness ala 1990's wiring technology.

Thirdly, there is no regulation provided in, or available for, 6V systems. Regulation is necessary to keep your battery from being overcharged. So by updating to 12V, you open the door to a technology that may double or triple your battery life.

There are numerous resources on GABMA to answer just such a question as yours. There's several articles relating to your needs.... 6-to-12V conversion, 3-wire alternators, and proper grounding. There are explanations and wiring diagrams and by the time you finish reading, all will be very clear.

Hope this helps!

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