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**MAINTENANCE MATTERS** — Troubleshooting dual Bosch alternators

Seeing a "not-generating" telltale light but you're not sure whether or not it's a problem with your Bosch alternators? We're here to explain it all. Troubleshooting the problems will depend on what kind of coach you have: whether it's a D coach or a J coach, and whether it's a pre-multiplexed or multiplexed coach.

**Similarities**
No matter what kind of coach you have, they all work the same way, with a few small differences. They all charge at 28 volts, are rated at 170 amps apiece and have an internal regulator. They all require a small trickle charge to excite the fields. The difference is mainly in how the coaches signal a problem. For example, the new E/J and D coach models will use two relays and a multiplex signal to trigger the no-charging telltale light, while pre mux (hard wired coaches) E/J D coaches use only relays and a hard-wired signal to turn on the telltale light.

**Basic operation**
The thing to look for here is not really voltage, but current. The generators require anywhere from .2 to .5 amps to excite the fields. The current is delivered to the D+ post on the alternator. At startup, or when not charging, this post will act as a ground to trigger the not-generating telltales. Sometimes, even if you are not getting the trickle charge, you will notice that if the engine is revved high enough, you can get the alternators to start charging. This can be caused by any residual magnetism, and enough rotation can excite the fields, but you cannot count on this to work every time. While there are only a few things that can cause this, the most likely are that there is no trickle charge to excite the fields; or you've got a bad alternator.

**E4500 and J4500 models**
The E/J coach models use relays to trigger the telltale lights. In the E/J mux coaches (Schematic 07-14-1282), the lights are connected to two relays. At startup, the alternators receive the trickle charge through the PDM 1 in the drag link compartment to the D+ post on the alternators. Once charging, the D+ post will then have 24 volts and will remove the ground for the telltale lights. If the generator stops charging, the D+ post will again act as a ground, energizing the relay and triggering the not generating light. An analog signal is also sent to one of the multiplex modules. This is also true for the pre mux E/J coaches (Schematic 07-14-6303), with the only difference being that the trickle charge is coming from module number three and an analog signal is supplied to one of the relay modules to turn on the telltale light.

**D4500 models**
The D models coaches are very similar but do have a couple minor differences. In the pre-mux D coaches (Schematic 7L-13-3911), the alternators receive a small trickle charge through a 3-amp circuit breaker on the 24-volt master bus bar in the rear junction box to the D+ post. Once the alternators are charging, the D+ post will then put out 24 volts. If an alternator stops charging, the D+ post will act as a ground, energizing the A1 or A2 relays and triggering the not-generating light. The T2 (Schematic 07-14-1675 and the Vansco D coaches (Schematic 07-14-1685) are also exactly the same; the only difference is the trickle charge comes from the 12-volt ignition wire. These coaches also supply a signal to one of the multiplex modules.

**In summary**
So, to recap, if you have one or both not-generating lights on, this is what you should do:

1. The first check should be to make sure you have a troubleshooting guide or schematic book for whatever coach you are working on.
2. Remember to check for a trickle charge at startup to excite the fields.
3. If you have the trickle charge, then check the relays, and then the alternators and fix according to your troubleshooting.

Remember to service the alternators at their regular service intervals. Every 100,000 miles, replace the regulator and brushes, and every 200,000 miles, replace the bearings.

Whenever you are working on your coach, always consult your owners and / or maintenance manual for full instructions and follow all safety precautions. If you have additional questions that are not addressed in your maintenance manual, consult your nearest MCI Service Center or call MCI's Technical Call Center.

The FYI from MCI editorial staff values your feedback. Please e-mail any suggestions, comments, or ideas for future articles to fyi@mcicoach.com.



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