

# Service Tips from the Pros

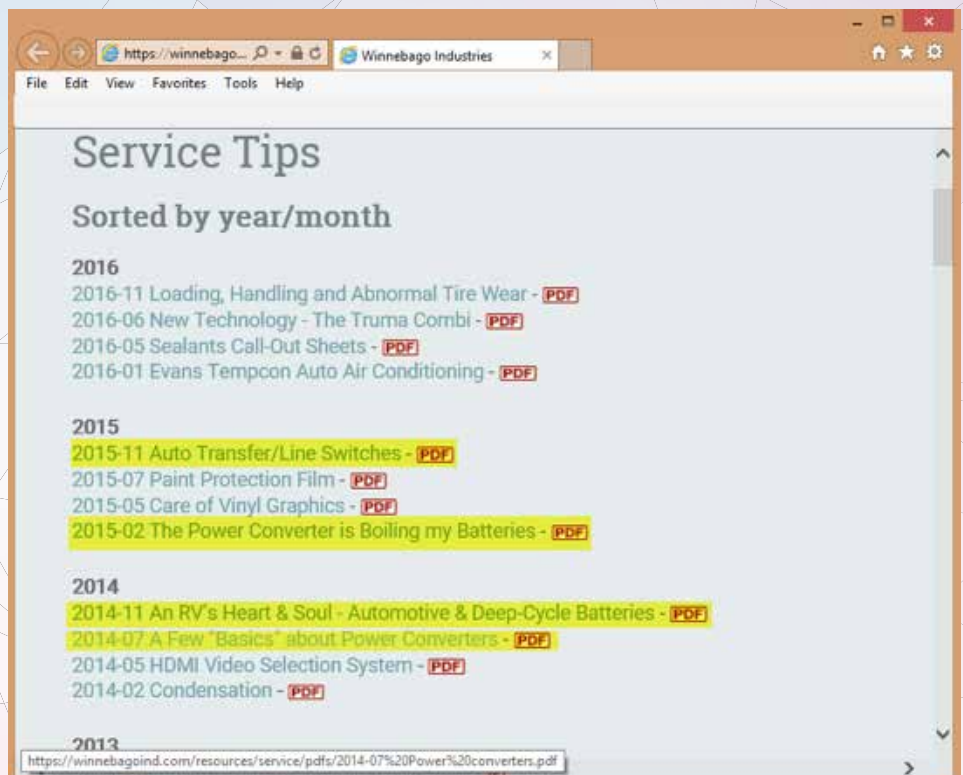


## Parasitic Draw / 12V Electrical Systems

**Experience:** *Knowledge or practical wisdom gained from what one has observed, encountered, or undergone.* While reading up on a topic can provide a multitude of insights and provoke our thoughts, it's usually the *Firsthand/Hard Knocks* lessons that hurt the most...and where we learn the most!

Motorized RVs, specifically the electronics segment, has been a fast-moving target and seemingly in a state of continuous change. These changes not only affect the RV side, but also affect the chassis side as well and it's increasingly difficult for all of us to stay current, understand what and when a change(s) occurred...not to mention the reasons why? What *Experience* allows one to conclude is...there is usually a consequence for technology and one of these is an increased appetite for battery power. Interestingly enough, the usage of battery-disconnect solenoids has been commonplace on the coach/house battery side since the 70s, while the chassis battery disconnect made its first appearance mid-2007. For the record, the delays with implementing battery disconnects on the chassis battery were chassis OEM related and centered on the engine and transmission modules requiring constant 12V power. It wasn't until the implementation of *nonvolatile "chip" technology* (i.e., EPROM memory that allowed usage of chassis battery disconnects without a consequence). Check out this link for additional information: <https://en.wikipedia.org/wiki/EPROM>.

Previous Service Tips articles have canvassed a variety of topics regarding the 12V system—including a wide spectrum of 101-level information regarding batteries and battery charging. We retain and make these articles available on the Winnebago Industries® website as part of a reference database for you so, **please share!** <https://winnebagoind.com/resources/service/servicetips.php>



**Parasitic loads** are caused by electric devices which consume power even when they are *turned off*. An example would be your household TV—while the TV may be turned off, the electronics are consuming a small amount of power so the “instant-on feature” can turn on the TV without a warm-up period. An example on late-model automobiles would be after shutting off the engine, the ECMs/engine control module remains *wide awake* for a predetermined time frame...so all's ready for an immediate engine restart. This higher-rate parasitic draw from the chassis battery can approach 30 minutes before the system goes to sleep and the parasitic draw is reduced. Simply, one must have a working knowledge and understanding of the electrical equipment on a *specific chassis/specific vehicle* to be able to determine what draw is “normal” and what is not.

Unfortunately for the end user, the typical operator manual doesn't share detailed information like this so getting acquainted with a new vehicle can be an adventure!

Here are a few examples of some common equipment found in a typical RV that can place a parasitic load on the 12-volt electrical system:

**On the chassis battery side:**

- Electric slideout rooms (*control module*)
- Electric steps (*control module*)
- Automotive radios (*memory*)
- Chassis OEMs equipment (*engine/transmission ECMs*)

**On the coach/house battery side:**

- 12V TVs
- Inverter/Chargers
- LP tank shut-off valve (*electronic solenoid valve*)
- Illuminated touch pads (*Firefly – Multiplexed Electronics Package*)

**Measuring Parasitic Draw:** For the curious folks, here’s a link to a video that provides some insights regarding *how to test* for a parasitic draw on an automotive battery: [https://www.youtube.com/watch?v=KF1gijj03\\_0](https://www.youtube.com/watch?v=KF1gijj03_0)

**Countermeasures:** There are significant differences in the electrical equipment commonly found in a Class B versus a Class A model...not to mention the size and capacity of their respective battery packages, so owners must be proactive in getting acquainted with the equipment on their specific model coach. Even an experienced veteran that has owned multiple RVs must take the initiative to educate themselves with a new model or risk another round of “hard knocks.”

Parasitic loads are a reality and the easiest method to avoid a low-battery condition or permanent damage to the battery package while the vehicle is sitting idle (or in storage), is to use the battery disconnects provided. Several examples of commonly used battery disconnects are shown in Figures 1, 2, and 3.

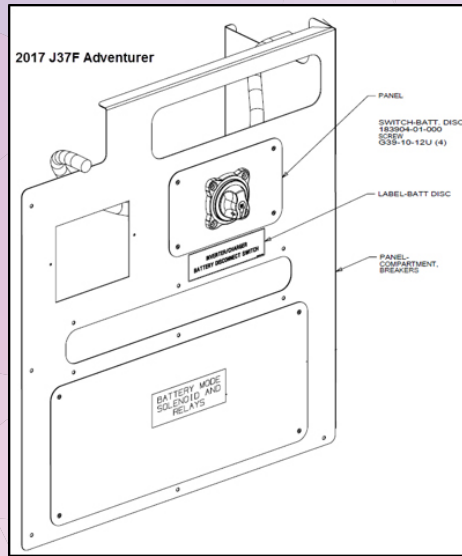


Fig. 1 – Rotary-Style Disconnect (For Inverter/Chargers)

Part Number: 186905- 01-000

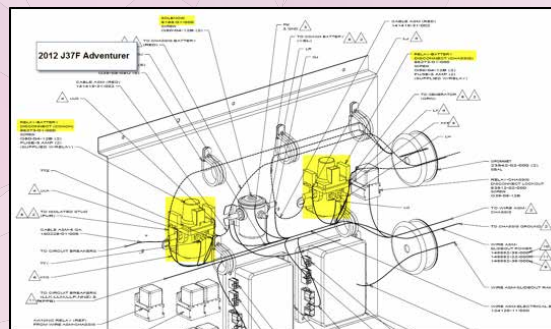


Fig. 2 – Intellitec’s Solenoid-Style Disconnect Part Number: 086273-01-000

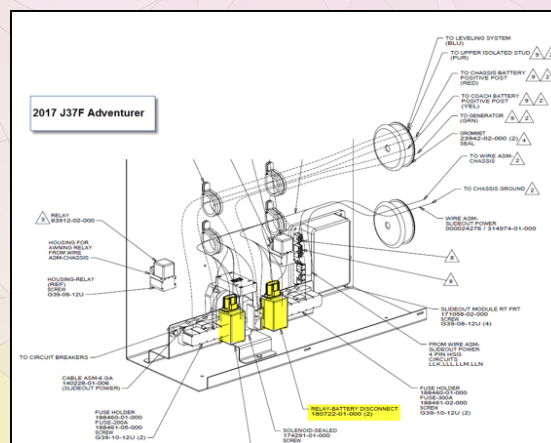


Fig. 3 – TYCO Electronics Disconnect Relay (Usage Beginning 2013) Part Number: 180722-01-000