

T@B Electrical Problems and Solutions

The T@B electrical system uses two types of electricity for different functions. One is 120VAC for those things that require more current than the battery can reasonably provide by itself, and to recharge the 12VDC battery by changing (converting) the AC to DC as needed. The 12VDC is used to provide basic functions when 120VAC is not available. The tow vehicle or battery charger can also recharge the battery. The converter in the T@B only changes 120VAC voltage/current to 12VDC. It does not provide the changing of DC to AC, which is the function of an inverter, not included in the T@B.

This troubleshooting guide is intended to help TAB owners find the source of the most common electrical problems, and repair if possible. It is not intended to cover extra electrical issues, such as generators or solar power.

The most common problems are in the areas of A through D shown in the reference diagram. They consist of open or weak connections: ground, battery, circuit breaker and fuses. Not shown are the battery terminals themselves. All connections must be clean and tight. The battery terminal bases and ring connectors should be shiny—clean with wire brush and/or a fine grit sandpaper, wipe afterward and add silicone dielectric grease before reassembling to help prevent oxidation/corrosion.

SAFETY: Before tightening a hot lead connection, remove the shore power, the tow vehicle connection and the battery ground lead (the negative black lead). Always replace the ground lead last, after finishing repair and before applying outside power.

Problem 1:

Battery doesn't charge while driving: Reference diagram C, points A and B. The battery ground lead is attached to the trailer frame (photo A) and the charge lead from the tow vehicle is connected from the wiring harness to the circuit breaker to which the battery lead is also connected, while the ground lead from the tow vehicle is connected to a ground in the junction box in the older T@Bs. (photo B) The ground connection in the newer T@Bs may be connected directly to the frame near the circuit breaker which is also mounted to the frame in the newer T@Bs. The pins in the wiring harness may need cleaning, or the tow vehicle may not have the proper charge wire and isolation relay in it. To check, simply remove the battery ground lead and set it aside. Make sure the T@B is not connected to shore power. Plug the harness into the tow vehicle and start the engine. While the engine is running, see if the lights in the T@B can be turned on.

Diagnosis: If they can, the charge lead is correct, and the problem is in the connections between the battery and points A and B. If the lights do not come on, but they work from the battery when it is connected, then either the charge lead is not there, or the connector pin(s) may be corroded.

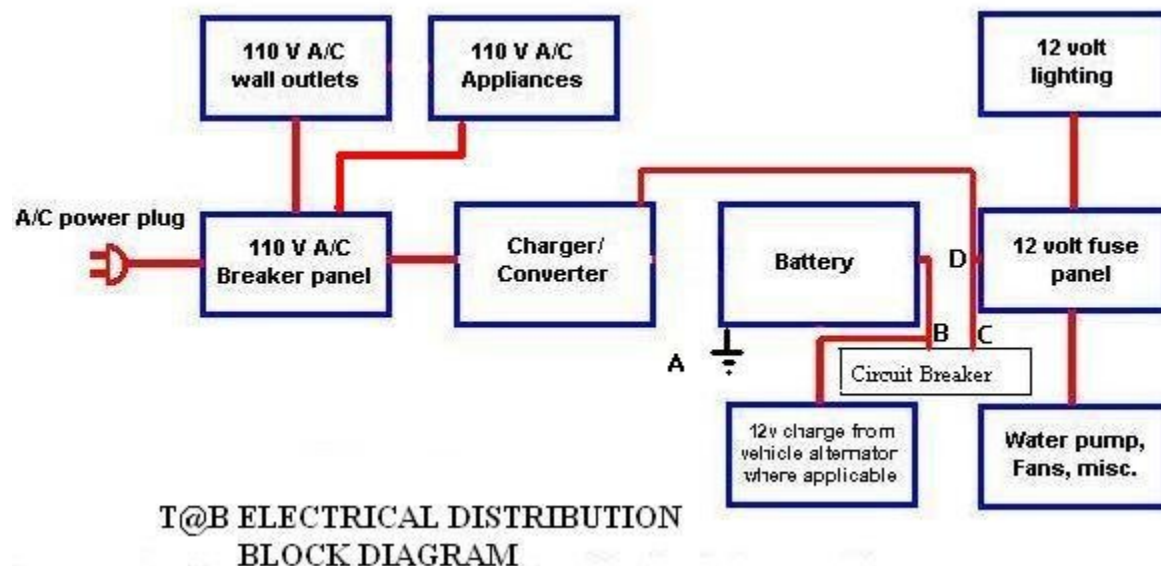
Problem 2:

Lights work OK with shore power, but not without it, even though the battery is charged.

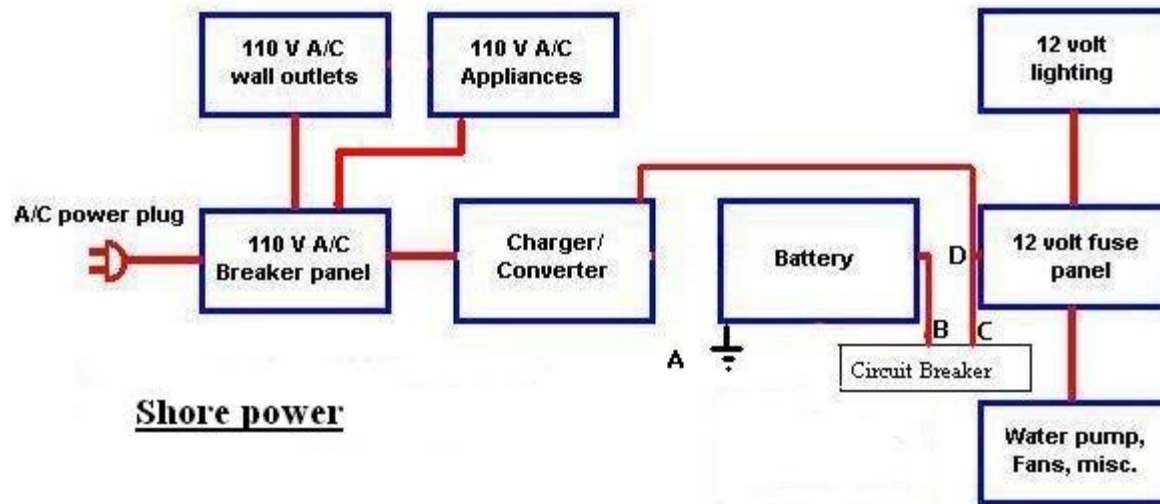
Diagnosis: This could involve any of the physical connections, the circuit breaker or the large fuse in the converter distribution panel, usually the fuse. See photos C and D, and reference points A through D. It is not always easy to see a defective fuse. If not sure and there isn't a multimeter with which to check it, replace it with a known good fuse of the correct size and type. If it isn't the fuse, backtrack through the previous connection reference points A through C.

NOTE: When the circuit breaker is mounted on the tongue frame, the charge lead from the tow vehicle is not connected to the circuit breaker at point B as shown, but at some point between C and D in the diagrams.

Reference Diagram A



Reference Diagram B

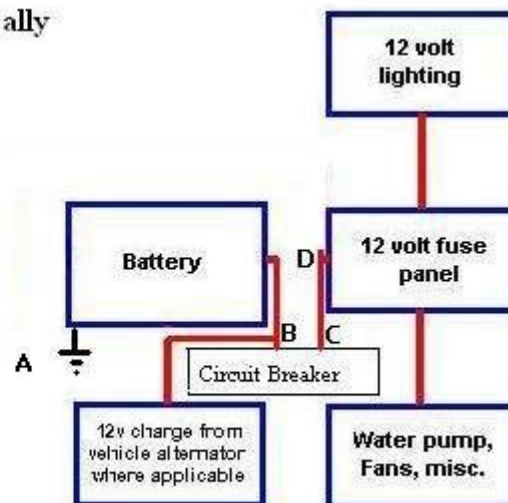


Reference Diagram C

Without shore power, the converter is physically there, but inactive and irrelevant.

This represents the active components while traveling, with the charge lead present from the tow vehicle.

Towing



Reference Diagram D

This is what is left when dry camping--no input from tow vehicle or other outside source of electricity.

Dry Camping

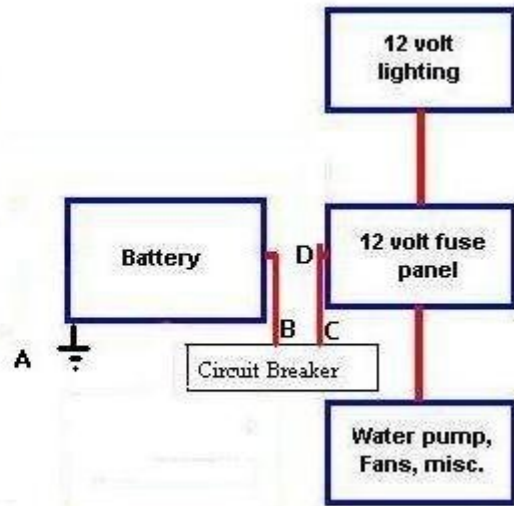
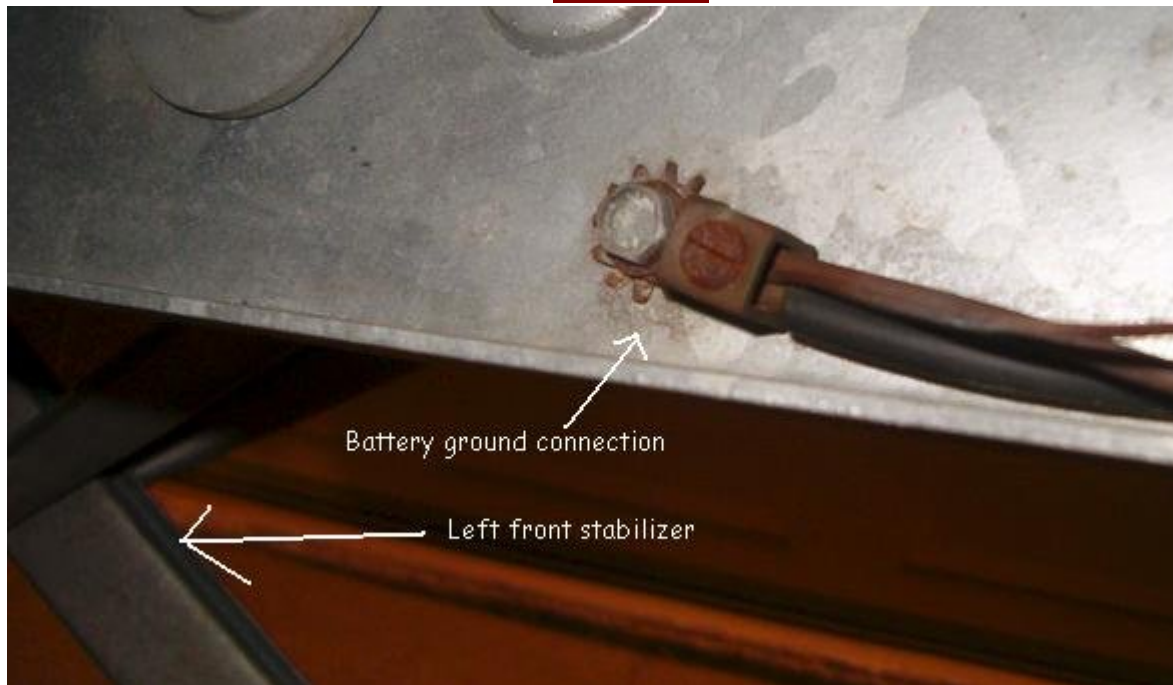
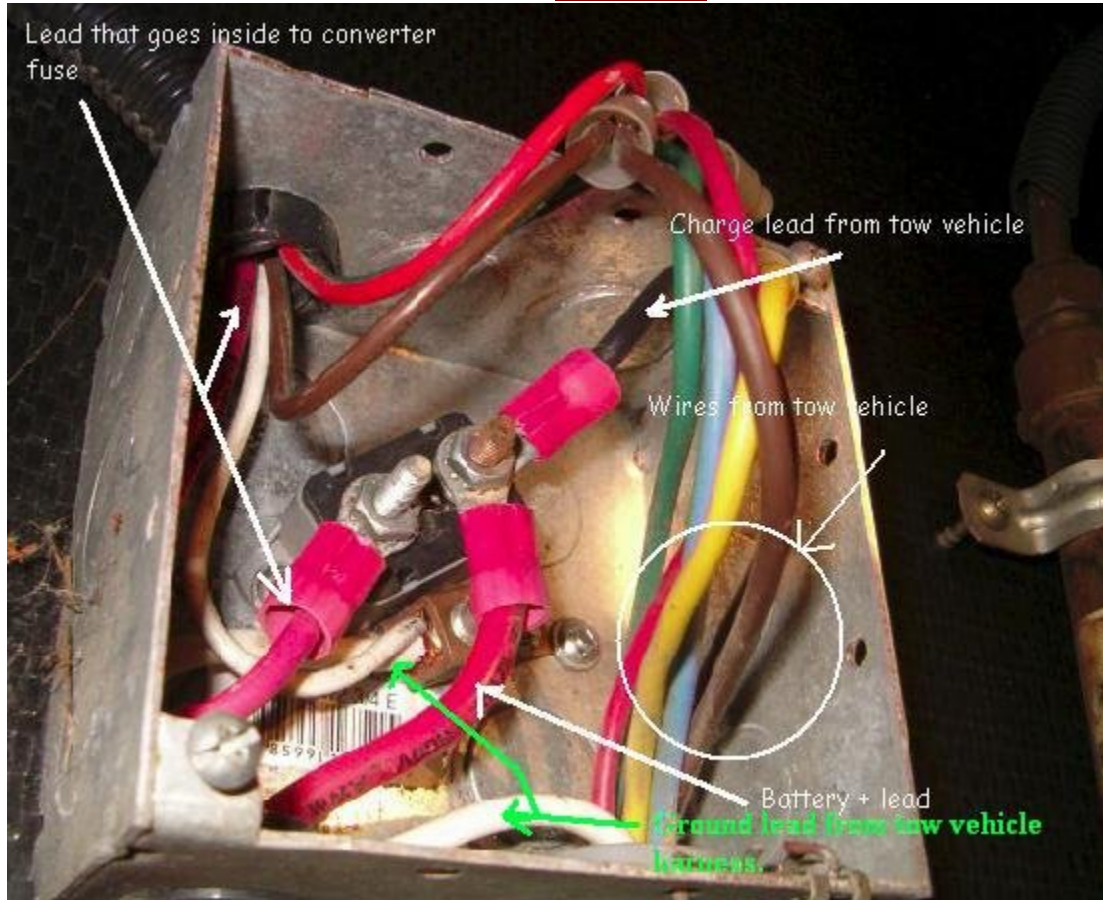


Photo A



Location A—a good ground connection is needed—this one needs attention.

Photo B



The circuit breaker is the little device in the middle with the lead at the bottom left connected to it, and the others as indicated. In the newer models, the circuit breaker is not mounted in a junction box, but on the inside of the tongue frame with a red cover, before the wiring goes inside the T@B, though the wiring is still the same. Note that the charge lead from the tow vehicle is black, contrary to the normal red for +12V leads. The electrons don't care about the color, as long as they get where they are supposed to go. All the other leads from the tow vehicle harness are spliced to leads going to the trailer outside driving lights--brakes, tail lights, turn signals, clearance lights.

NOTE: When the circuit breaker is mounted on the frame instead of the junction box as shown above, the charge lead in the wiring harness is not connected as shown, but inside the trailer to the lead that goes to the converter.

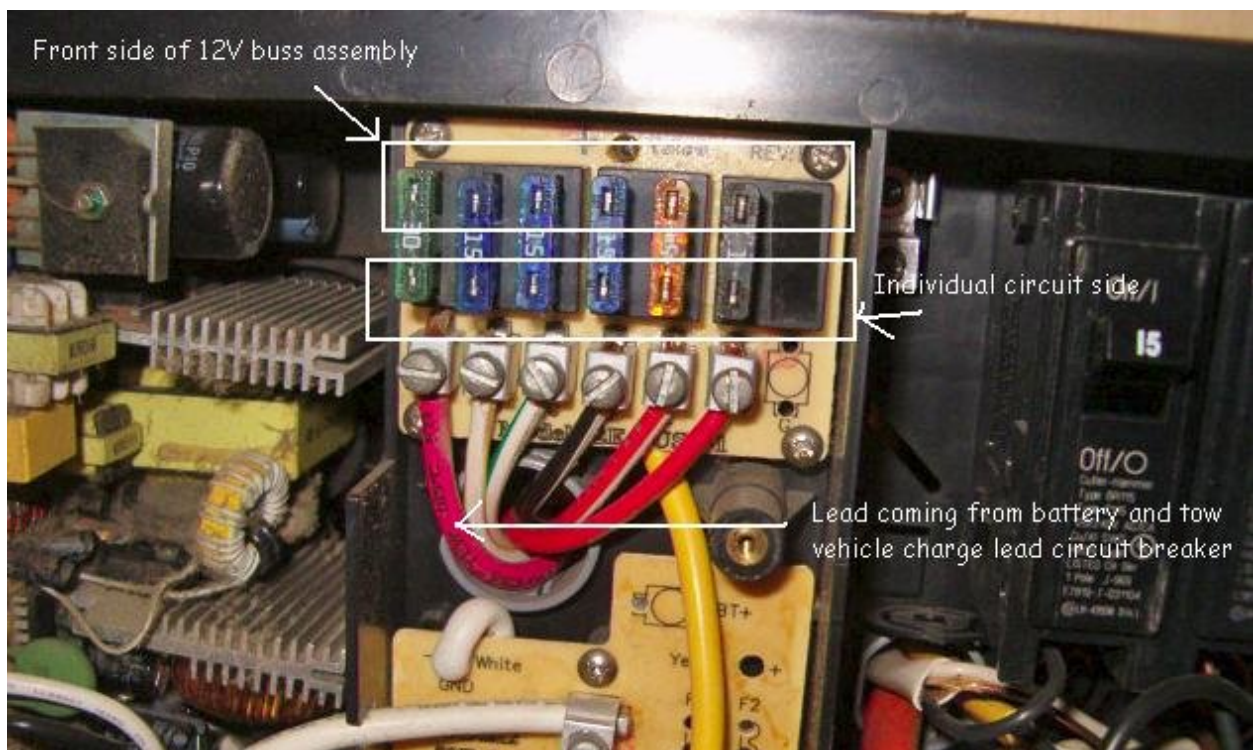
Photo B2



This is the junction box weather cover, which must be removed to access the junction box--five screws around the base. Below it is a metal cover plate that also has to be removed to access the wiring--two screws, lower left and upper right in Photo B above.

Photo C

Older model T@B with American brand converter
Battery fuse top left, 30A.



Behind the top sides of the fuses in the older converter assembly (photo C) is a common hot buss, supplied by the converter. When the converter is operating from shore power, it supplies 12V to that buss, to which all the fuses are connected. The

converter, battery

