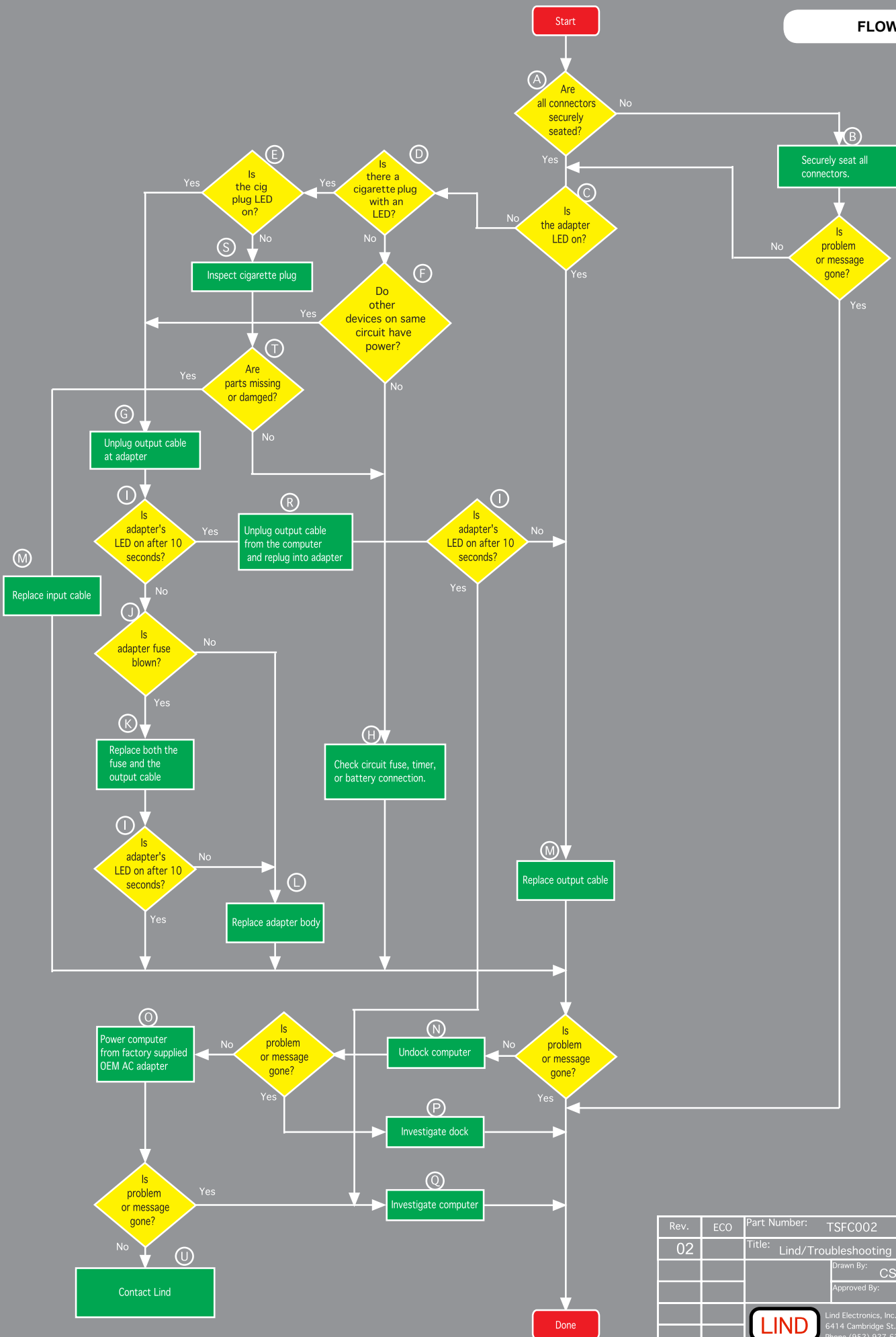



# LIND ADAPTER TROUBLESHOOTING GUIDE

REV A





Rev.	ECO	Part Number: TSFC002	Date: 3/11/11
02		Title: Lind/Troubleshooting	Page: 1 of 1
		Drawn By: CSB	Scale: N/A
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## A. ARE ALL CONNECTORS SECURELY SEATED?

The first thing to check for all power issues is whether all of the connectors are fully seated. If the adapter is powered through a cigarette plug, is the 12 volt socket or power port free of debris – ashes, etc?

NOTE: The output cable plug at the adapter end has a small ridge that helps lock it into the adapter body. The plug must be completely seated into the adapter body or it may fall out.

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## B. SECURELY SEAT ALL CONNECTORS

Replugging all connectors and checking electrical connections will often solve power problems or identify problem areas.

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**FIGURE A.1 - SNAP RING ON OUTPUT CABLE**



### C. IS THE ADAPTER LED ON?

The green LED (light emitting diode) on the adapter body, between the input and output power jacks, is lit whenever adapter OUTPUT voltage (approximately 20VDC) is present. The adapter will shut down due to the following conditions:

- Output current too high
- Output voltage too high
- Adapter temperature too high
- Input voltage too low
- Input voltage too high

The adapter will shut off for approximately 10 seconds and automatically try to restart (for over temperature it will restart once cooled down). If the fault has been cleared, normal operation will resume.

The most common reasons for the LED to be unlit are: no power to the adapter, output is shorted either in the cable or the computer, or a bad adapter.

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### D. IS THERE A CIGARETTE PLUG WITH AN LED?

Is there a cigarette plug on the adapter input cable or is it hardwired into the vehicle?

If the adapter is powered through a cigarette plug, the green LED in the plug is a convenient way to see if the cigarette socket or power port is supplying power.

NOTE: In some vehicles, these sockets only receive power with the ignition switch on.

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**FIGURE D.1**  
**A. INPUT JACK**  
**B. FUSE**  
**C. OUTPUT JACK**  
**D. LED (LIGHT EMITTING DIODE)**



**FIGURE E.1**  
**INPUT CABLE, CIGARETTE PLUG OPTION**



**FIGURE E.2**  
**INPUT CABLE, BARE WIRE (STRIPPED & TINNED) OPTION**



## E. IS THE CIG PLUG LED ON?

If the green LED is lit, it indicates that the cigarette socket circuit is live and power is getting to the cigarette plug.

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## F. DO OTHER DEVICES ON THE SAME CIRCUIT HAVE POWER?

If the adapter is hardwired, there will be no cig plug LED to indicate whether input voltage is present. If another device, such as a printer, is wired into the same branch circuit as the power adapter, and it is receiving power, the branch circuit is probably good.

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## G. UNPLUG OUTPUT CABLE AT ADAPTER

If input power is present at the adapter, but the green adapter LED is out, unplug the output cable at the adapter. If the LED lights after the 10 second auto restart delay, too much current is attempting to be drawn from the adapter.

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## H. CHECK CIRCUIT FUSE, TIMER, OR BATTERY CONNECTION

If the adapter and other devices aren't receiving power, blown fuses upstream or wiring may be at fault.

NOTE: At 90 watts out of the adapter and approximately 80% adapter (and wiring) efficiency, at 10V input (minimum input before adapter shuts down), the input current will be about 11.3A.

$$I_{in} = P_{out} / (\text{Efficiency} * V_{inmin}) = 90 / (.8 * 10) = 11.3A$$

Fuses and wiring **MUST** be sized to accommodate this current plus any additional loads with minimal voltage drop.

In some installations a timer (Lind Low Profile Timer, or Havis ChargeGuard for example) is installed between the vehicle battery and the Lind power adapter. Check to see that the timer is receiving power and that it is operating correctly.

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**FIGURE I.1 - LOW PROFILE SHUT DOWN TIMER**



## I. IS ADAPTER'S LED ON AFTER 10 SECONDS?

Did the preceding action allow the adapter to turn on (the adapter LED lights) after waiting 10 seconds (to allow for the adapter fault reset delay)?

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## J. IS ADAPTER FUSE BLOWN?

The adapter fuse is located in the adapter body between the power jacks. There is a fuse slug in place of a fuse in the cigarette plug (if used).

The adapter fuse will not blow under normal fault conditions. Output current is limited electronically by the adapter and does not result in the fuse blowing. Some reasons the fuse would blow are:

Input voltage polarity is reversed. Fixing polarity and replacing fuse should solve the problem.

Output cable or load presents a hard short at turn on. If power is applied to the adapter with a hard short on its output, the fuse may blow before the protection circuitry has a chance to respond. Removing the short and replacing fuse should solve the problem.

The adapter has failed and needs replacement.

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## K. REPLACE BOTH THE FUSE AND THE OUTPUT CABLE

A shorted output cable may occasionally cause the adapter fuse to blow before the adapter can limit the current electronically. In this case, replacing both the shorted cable and the fuse should solve the problem.

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## L. REPLACE ADAPTER BODY

Most power problems are power source or cable related, but sometimes the adapter brick will fail and need replacement.

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## M. REPLACE OUTPUT CABLE

The output cable must be replaced if it is shorted, open, or not generating the expected ID signal.

If replacing the adapter output cable does not eliminate the problem, there are several possible reasons why:

The ID circuit or jack in the laptop may be faulty and cannot communicate with the ID chip in the cable.

The Bondi connector is not fully seated into the computer jack.

The laptop/dock combination may be expecting a higher power adapter than is indicated by the ID signal. For example, some 90W computers may require a 130W signal when installed in a dock.

The dock is affecting the ID communication.

The replacement cable is faulty.

**NOTE:** *The output cable plug at the adapter end has a small ridge that helps lock it into the adapter body. The plug must be completely seated into the adapter body or it may fall out.*

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## N. UNDOCK COMPUTER

In rare cases the dock may be a contributor to computer or power problems. Remove the computer from the dock and see if it powers up normally using the Lind power adapter.

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## O. POWER COMPUTER FROM FACTORY SUPPLIED AC ADAPTER

If troubleshooting of the power system doesn't reveal any obvious problems or solutions, power the computer from the factory supplied AC adapter to check for normal computer function. If the computer ID communication or power circuitry are not functioning correctly, the computer will not work with its AC adapter either.

Some users will try this before anything else if they suspect the computer may be damaged.

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## P. INVESTIGATE DOCK

If the computer and power adapter work fine undocked, investigate how the dock is affecting operation.

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## Q. INVESTIGATE COMPUTER

If the computer does not function properly when undocked and running from the factory supplied AC adapter for that model, investigate the computer for damage.

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## R. UNPLUG OUTPUT CABLE FROM LOAD AND REPLUG INTO ADAPTER

At this point indications are that the output of the adapter is overloaded or shorted. It may be the output cable or the computer. By unplugging the cable from the computer and replugging it into the adapter, it can be determined if the cable is shorted. If the adapter LED comes on after 10 seconds, the cable is not shorted.

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## S. INSPECT CIGARETTE PLUG

Closely inspect the cigarette plug for signs of missing parts or housing damage or distortion.

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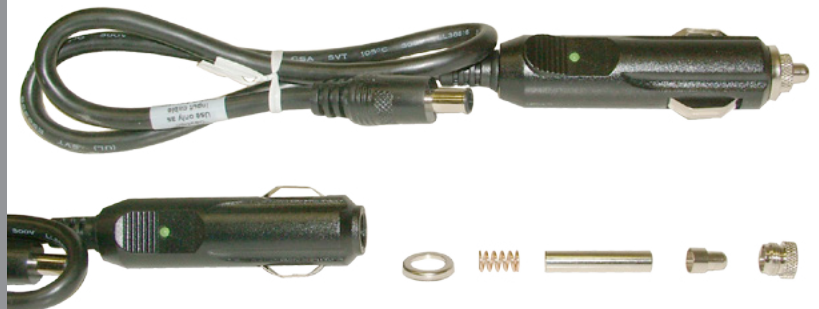
## T. ARE PARTS MISSING OR DAMAGED?

The cigarette plug tip may become unscrewed and result in lost parts. There should be the plug housing, retaining ring, spring, fuse slug, contact tip, and tip ring. If any of these parts are missing, the electrical connection will not be reliable. Also check for cracked or broken negative (side) contacts.

The contact tip should be able to be pressed in with solid spring pressure pushing the tip back out.

If good connection is not made between the cigarette plug and socket, the cigarette plug may overheat. An overheated plug may result in distortion of the plug body. The cause of the poor connection, such as ashes or debris in the socket, or a loose fitting plug should be addressed before replacing the input cable.

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**FIGURE W.1 - ASSEMBLED VERSUS DISASSEMBLED CIGARETTE PLUG INPUT CABLE**



## U. CONTACT LIND

If following the flowchart does not result in a resolution of the problem, contact Lind for additional assistance:

Toll-free: 1.800.659.5956

or via email: [techsupport@lindelectronics.com](mailto:techsupport@lindelectronics.com)

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