Service Bulletins & Tips

March 1, 2004
Volume 1, Issue 1

Introduction

Lester Electrical would like to welcome you to the first issue of Service Bulletins & Tips. *Service Bulletins & Tips* is intended to further familiarize customers with the various battery chargers and accessories that Lester Electrical offers. It is being written by our Service Department and will be emailed every other month. All issues will eventually be archived on Lester Electrical's updated website, which is planned for rollout in June 2004.

It is our intention to involve you, the reader, as much as we can. If you have a service or repair question that you would like answered, please email us at service@lesterelectrical.com. We will respond to each email individually as soon as possible. In addition, each issue will include a Q & A section that will feature some of the questions we receive between issues.

To view the full size of any of the pictures included in this email, simply right click on the picture and save the picture to a location on your computer. Then open the picture with a picture editor or viewer such as Microsoft Photo Editor.

In this issue:

Service Department Capabilities – What Lester Electrical's Service Department can do for you.

Meet the Experts – Meet the staff of Lester Electrical's Service Department.

Common Service Topics – A list of items that may help you the next time you have a question or need to make a repair to your charger.

Tip from the Experts – Lester Electrical's charger repair specialists give tips that can help shorten the time your charger is in the repair shop.

Featured Product – Lester Electrical's Connector-Receptacle package is perfect for replacing worn or damaged connections.

Service Bulletin – Technical update on current and previous Lester product offerings.

SERVICE DEPARTMENT

Lester Electrical's service department is a full service operation. From taking calls from customers to diagnosing, repairing, and servicing chargers, Lester Electrical takes pride in doing everything under one roof. When a customer calls the service desk seeking assistance in repairing their charger, our first goal is to work with the customer to diagnose the problem and determine if it is a simple fix that can be performed without sending it to Lester.

The Service Department handles all types of product support calls but also utilizes modern technology to assist with delivering a positive experience to our customers. Customer requests for owner's manuals, wiring diagrams/parts lists, drawings, reports, and servicing

information can all be retrieved quickly, via the Lester's internal website. This is the same information that will soon be available to all customers when Lester Electrical's newly designed website is launched later this year. Our custom designed Customer Response database can provide:

- Real time tracking through the repair process for products returned to Lester Electrical
- A history of service performed on an individual charger to all chargers serviced for a specific customer
- Product information to our Engineering and Quality Assurance departments to help assure the highest level of quality is maintained

Look for more advanced services such as these in the near future!

MEET THE EXPERTS

Service Manager – Jeff Hatcliff
Jeff H. has a total of 18 years of experience providing technical support for products, the last 13 while at Lester Electrical. Jeff is a man of many different hats. Jeff not only helps schedule repairs, he answers service calls, tracks shipments, organizes paperwork, relays customer feedback to the design engineers, and provides technical sales support when needed. If you have had a repair in the past, there is a good chance that you have talked with Jeff. Don't hesitate to contact Jeff for technical troubleshooting or application assistance, warranty policy questions or anything else he can be of assistance with.

Repair Team Leader – Jeff Furrow
Jeff F. has worked for Lester for 16 years and has been in the Service Department for 6 years. Jeff's primary responsibilities include ensuring the department is running efficiently by organizing personnel and maintaining test and support equipment. He provides additional technical support to his employees and monitors the evaluation, troubleshooting, repair, and shipping of customer returns to meet on-time shipping and customer satisfaction requirements.

Charger Repair
Carolyn Page – Carolyn has worked for Lester Electrical for 15 years, the last 5 of them in the Repair Department. Carolyn has many responsibilities within the department, the primary ones being troubleshooting charger components and general repair of the returned chargers.

Curtis Hale – Curtis has been with Lester Electrical for almost 10 years and has worked in the Repair Department for the past 3 years. Curtis performs a variety of tasks. His primary duty is testing printed circuit (PC) boards on incoming chargers and repairing them when possible. Curtis also keeps updated with design modifications to PC boards and incorporates those changes into the returned boards when possible.

Soai Nguyen – Soai has worked for Lester Electrical for 6 years, the last 3 of them in the Repair Department. Soai has many responsibilities within the department, the primary ones being troubleshooting charging components and general repair of the returned chargers.

Trang Thai – An employee at Lester Electrical for 9 years, Trang just recently transferred into the Repair Department. As part of Trang's thorough training, she is assisting Carolyn, Soai and Curtis in troubleshooting and repairing chargers.

COMMON SERVICE TOPICS

1. BLOWN DC FUSE – Most chargers utilize a dual DC fuse or dual element fuse, one fuse

per output circuit, to protect the charger and equipment in the event of a short circuit. The most common dual element fuse utilized is shown in the photo below. This fuse assembly is actually two separate fuses connected together on a single threaded stud.

The failure of one-half of the dual element fuse assembly, as shown in the photo below, typically indicates the failure of a diode rectifier. Test the diode assembly and replace, as needed, when this condition is present.

The failure of both fuse links of the dual element fuse assembly, as shown in the last photo below, is typically caused by a reverse polarity connection to the batteries. Using a DC voltmeter, verify proper polarity is present between the charger and the battery system. Correct the incorrect wiring, DC plug or battery installation before replacing the fuse.

For chargers with a single DC output fuse, verify that both the polarity connection to the battery system is correct and the rectifiers pass testing before replacing the fuse.

2. POWERWASHING - A battery charger is an electrical appliance. Like most other electrical appliances, it is best that a battery charger avoids contact with water. Some equipment with on-board (sometimes referred to as built-in) chargers require cleaning with power washing equipment. Taking a moment to place a garbage bag over the charger prior to washing will help avoid potential problems down the road.

If your charger does happen to get wet, the best way to handle is to not use it for about a week. This time will allow the internal components to dry out and reduce the chances of an electrical short.

TIPS FROM THE EXPERTS

Paperwork

Carolyn, who is in charge of checking in chargers, organizing incoming paperwork, and performing preliminary diagnostics, suggests that paperwork be filled out in its entirety. The quicker she can check in the charger, the quicker it gets repaired and sent back to the customer. Missing or incomplete information on the Returned Materials Authorization (RMA) results in extra time to track down the required information...time that is better spent repairing the charger. A blank RMA form will appear on the Lester Electrical website when it is re-launced in June of this year. Properly completed paperwork will include the following information at a minimum:

- Customer Name and Address for Billing
- Customer Name and Address for Shipping (if different than billing)
- Contact Name
- Contact Phone and Fax numbers
- Quantity
- Model and Serial Number(s)
- Your Reference/Tracking Number (if needed)

In addition to properly completed RMA documentation, it is also very helpful to the repair department if a short description of how the charger was performing is included with the paperwork. Knowledge of how the charger failed and during what portion of the charge cycle can help pinpoint the potential failure point.

FEATURED PRODUCT

Lester Electrical has created new DC Cordset-Receptacle service part kits. These kits include a new DC Cordset with a Lester plug (commonly referred to as a “crow-foot” plug) and a remanufactured receptacle to mate with the Lester plug. The receptacles have been fully remanufactured with 100% all new electrical components and tested to new product specifications. These kits not only offer value but also provide “peace of mind” that a potentially dangerous condition has been fully corrected.

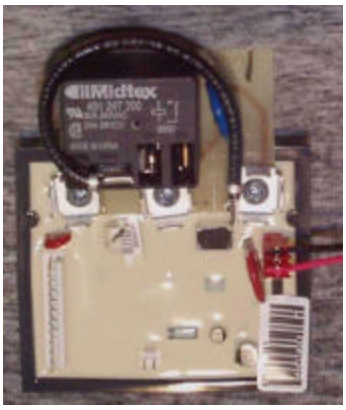
It is not uncommon to see chargers returned a second time for service with a plug that had been previously replaced showing signs of heat damage. This condition is the result of a poor connection between the plug and its mating receptacle. Replacing only one-half of a poor electrical connection will seldom correct this potentially dangerous condition. A plug with signs of heat buildup is a warning sign there is a potential for catastrophic failure of the connection, which may result in extensive equipment damage or fire. Our new DC Cordset-Receptacle service part kits ensure all parts are available to address this situation. **It is always good practice to replace the mating receptacle whenever the DC cordset is replaced.**

If this condition is found on the AC cord of the charger, be sure to have a qualified electrician service the AC receptacle the charger had been connected to.

To order your DC Cordset-Receptacle service part kit, or to find out more information, contact Lester Electrical's Sales Department at 402-477-8988.

SERVICE BULLETIN

A new generation of electronic timers has been released! The new MC3 electronic timer is a direct replacement of our 3-layer timer assemblies, which are easily recognized by the relay “piggy-backed” on the terminal board. The photo below provides a preview of what will be seen when opening the carton of a new replacement electronic timer.



Our engineering department has already begun the task of incorporating this new electronic timer into production. This new electronic timer has a number of design enhancements:

- A single electronic timer covers all applications with the same battery system and AC voltages
- Lower battery system voltage start threshold
- Relay is mounted on separate PCB for ease of field replacement
- Easily converts to 230 volt AC operation with a relay PCB change
- Utilizes Surface Mount Technology (SMT)
- Improved corrosion, light and dirt resistance
- Supports chargers with low voltage start switches and vehicle lockout features, plus it can easily accept these enhancements to chargers in the field

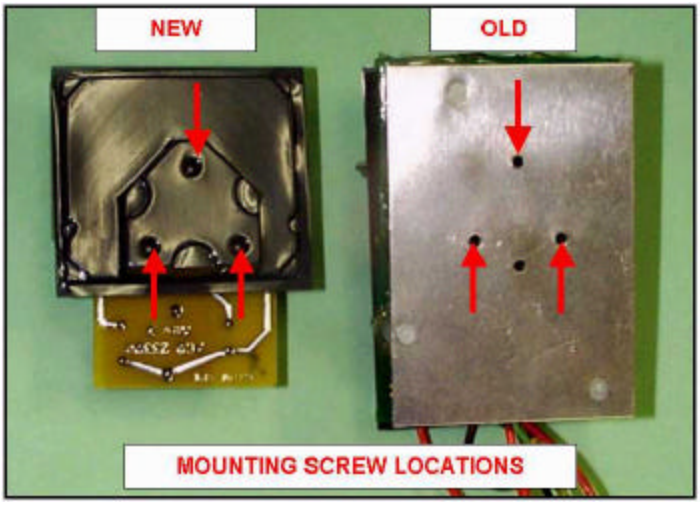
It also is designed to support the following charger features, if your charger is equipped with them:

- Automatic refresh charging
- Selectable charge cycle shutoff modes
- Automatic recharging from voltage detection
- Recharge Indicator
- Over and under voltage detection
- Delayed start
- Charge cycle interrupt
- Charge log viewable on Palm OS PDA
- Status and Fault Indicators
- Over temperature sensor

With all the good news this new electronic timer design brings, we must also offer an apology to those of you that have already made an installation using the instructions provided. The instructions are vague in some areas, which has led to numerous inquiries to the service department. Our engineering department is currently in the process of revising the instructions to better clarify the replacement process.

The most popular question: "How does this thing mount?" The subtle dimples of the mold tray do not provide an obvious answer to this question. Hidden behind the mold tray is a metal plate designed to accept the sheet-metal screws provided with your new electronic timer. NOTE: IT IS IMPORTANT TO USE THE ENCLOSED SCREWS. USE OF LONGER SCREWS MAY DAMAGE THE ELECTRONICS.

Align the triangular pattern of the three dimples in the mold tray with the holes in the case of the charger which had been used to mount the timer being replaced. For better clarification an enhanced photo showing the mounting screw locations can be seen below.



If assistance is needed regarding the installation of a new MC3 electronic, or any other component of a Lester Electrical charger, please contact our service department at service@lesterelectrical.com or by calling (402) 477-8988.