

Lester Electrical

12 VOLT FULLY AUTOMATIC BATTERY CHARGER MODEL 18730

Specifications

AC Supply:	120 volts, 60 Hertz, single-phase
DC Output:	12 volts, 10 amps, tapering to 3 amps or less
Battery Capacity:	Use only on 12 volt, 6 cell, 55 to 105 ampere-hour (20 hr. rate) liquid electrolyte lead acid batteries

PLEASE SAVE THESE IMPORTANT SAFETY AND OPERATING INSTRUCTIONS

For correct operation of the equipment, it is important to read and be familiar with this entire manual before installing and operating the charger.
DO NOT DISCARD THIS MANUAL AFTER READING.



LOOK FOR THIS SYMBOL TO POINT OUT SAFETY PRECAUTIONS. IT MEANS: BECOME ALERT—YOUR SAFETY IS INVOLVED. IF YOU DO NOT FOLLOW THESE SAFETY INSTRUCTIONS, INJURY OR PROPERTY DAMAGE CAN OCCUR.

IMPORTANT SAFETY INSTRUCTIONS

1. This manual contains important safety and operating instructions. Read and understand this entire manual before installing or operating the charger.
2. Before using battery charger, read all instructions and cautionary markings on battery charger, battery, and product using battery.

⚠ CAUTION: TO REDUCE RISK OF INJURY, CHARGE ONLY LIQUID ELECTROLYTE LEAD ACID RECHARGEABLE BATTERIES. OTHER TYPES OF BATTERIES MAY BURST CAUSING PERSONAL INJURY AND DAMAGE.

3. Do not expose charger to rain or snow.
4. Use of an attachment not recommended or sold by the battery charger manufacturer may result in a risk of fire, electric shock, or injury to persons.

5. To reduce risk of damage to electric plug and cord, pull by plug rather than cord when disconnecting charger.
6. Make sure cord is located so that it will not be stepped on, tripped over, or otherwise subjected to damage or stress.
7. An extension cord should not be used unless absolutely necessary. Use of improper extension cord could result in a risk of fire and electric shock. If extension cord must be used, make sure that:
 - a. Pins on plug of extension cord are the same number, size, and shape as those of plug on charger cord.
 - b. Extension cord is properly wired and in good electrical condition.
 - c. Wire size is large enough for AC ampere rating of charger.

8. Do not operate charger with damaged cord or plug; replace it immediately.
9. Do not operate charger if it has received a sharp blow, been dropped, or otherwise damaged in any way; take it to a qualified service center.
10. Do not disassemble charger; take it to a qualified service center when service or repair is required. Incorrect reassembly may result in a risk of electric shock or fire.
11. To reduce risk of electric shock, unplug charger from a live outlet or disconnect AC power to the outlet before attempting any maintenance or cleaning. Turning off controls will not reduce this risk.

INTRODUCTION

This battery charger is a self-regulating charger with a minimum of moving parts, designed for long, trouble-free service. Built-in line voltage compensation produces a consistent output when the AC supply voltage varies by as much as 10% from nominal. Convection cooling maximizes the reliability and minimizes any maintenance costs. ONLY liquid electrolyte lead-acid batteries should be recharged with this charger to ensure superior battery performance and life. A patented electronic circuit turns the charger on and off automatically. When the battery has reached its maximum state of charge, the solid state control will turn the charger off.

⚠ DANGER: TO REDUCE THE RISK OF FIRE, DO NOT USE THE CHARGER NEAR FLAMMABLE MATERIALS OR VAPORS.

AC INPUT AND GROUNDING INSTRUCTIONS

This charger is equipped with an electric cord having an equipment grounding conductor and a grounding-type plug. The charger must be connected to a 120 VAC, 60 Hertz, single phase AC power outlet that is properly installed and grounded in accordance with all local codes and ordinances.

⚠ DANGER: NEVER ALTER AC CORD OR PLUG IF IT WILL NOT FIT OUTLET. HAVE A PROPER OUTLET INSTALLED BY A QUALIFIED ELECTRICIAN. IMPROPER CONNECTION CAN RESULT IN A RISK OF AN ELECTRIC SHOCK.

⚠ DANGER: IMPROPER CONNECTION OF THE EQUIPMENT-GROUNDING CONDUCTOR CAN RESULT IN A RISK OF AN ELECTRIC SHOCK.

If an extension cord is required, always use a three-conductor, No. 14 AWG (1.5mm) heavy duty cord with ground, properly wired, in good electrical
Operating Instructions

condition and keep it as short as possible. Make sure the pins on the plug of the extension cord are the same number, size and shape as the AC plug on the battery charger cord. The use of an improper extension cord could result in a risk of fire or electric shock. Locate all cords so they will not be stepped on, tripped over or otherwise subjected to damage or stress.

DC OUTPUT

This battery charger is designed to produce a 12 volt DC output with an initial charge current of 10 amps. ONLY 12 VOLT, 6 CELL, 55 TO 105 AMPHOUR, LIQUID ELECTROLYTE (WET) LEAD ACID BATTERIES SHOULD BE USED. The charge current will decrease gradually to about 3 amps as the battery reaches full charge and will remain there until the charger turns off. Liquid electrolyte batteries will normally be charged to 2.5-2.6 volts per cell.

OPERATING INSTRUCTIONS

Instructions printed on the cover of the charger are for daily reference.

1. Set the Power switch to OFF and make sure the DC output cord is properly connected to the battery. The BLACK wire must be connected to battery negative (-) and the RED wire to battery positive (+). Make sure all connections are clean and tight.
2. Connect AC supply cord to a 120 VAC, 60 Hertz AC power outlet that is properly installed and grounded in accordance with all local codes and ordinances.
3. Set the Power switch to AUTO. The charger will start after a short delay as indicated by the ammeter movement.

⚠ WARNING: LEAD ACID BATTERIES GENERATE GASES WHICH CAN BE EXPLOSIVE. CHARGE ONLY IN WELL VENTILATED AREAS. DO NOT DISCONNECT CHARGER DC OUTPUT TERMINALS FROM BATTERY WHEN CHARGER IS ON. THE RESULTING ARCING AND BURNING COULD CAUSE THE BATTERY TO EXPLODE. KEEP SPARKS, FLAME, AND SMOKING MATERIALS AWAY FROM BATTERY.

If the charger must be stopped, set the Power switch to OFF. Then disconnect the AC supply cord.

4. Monitor the ammeter for correct charge rate. The initial charge rate should be approximately 10 amps. If the battery has not been discharged, or the AC supply voltage is lower

than 120 volts, the initial charge rate may be less than 10 amps.

The charge rate will decrease as the battery reaches full charge. On a liquid electrolyte battery, the charge rate will decrease to about 3 amps and remain there until the charger turns off. As the battery ages, the charge rate may no longer decrease to the 3 amp finish rate. This is normal and the charger will still determine when the battery is charged to its optimum and then turn off.

An older battery, even though it is properly charged, will gradually lose capacity and should be replaced when it will no longer perform as required.

5. Charger turns off automatically when battery is fully charged. Charge time varies with battery size and depth of discharge. Allow 10 hours for normal charging. Severely discharged batteries may require up to 14 hours to be properly charged and equalized. If the charger operates for 14 hours and is unable to fully charge the battery, an internal timer will turn the charger off. After the charger has turned off, set the Power switch to OFF, then disconnect the AC supply cord from outlet.

PROPER CARE OF DEEP-CYCLE BATTERIES

Batteries are subject to severe deep-cycle duty on a daily basis. For this reason, it is important that only deep-cycle batteries be used. Although these batteries are designed to withstand such duty, the following precautions must be observed to obtain good performance and maximum cycle life.

1. Always observe the following personal safety precautions when working with lead acid batteries:
 - a. Someone should be within range of your voice or close enough to come to your aid when you work near a battery.
 - b. Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing, or eyes.
 - c. Wear complete eye protection and clothing protection. Avoid touching eyes while working near battery.
 - d. If battery acid contacts skin or clothing, wash immediately with soap and water. If acid enters eye, immediately flood eye with running cold water for at least 10 minutes and get medical attention immediately.
 - e. NEVER smoke or allow a spark or flame in vicinity of batteries.

- f. Be extra cautious to reduce risk of dropping a metal tool onto battery. It might spark or short-circuit battery or other electrical part that may cause explosion.
- g. Remove personal metal items such as rings, bracelets, necklaces, and watches when working with a lead acid battery. A lead acid battery can produce a short-circuit current high enough to weld a ring or the like to metal, causing a severe burn.
- h. NEVER charge a frozen battery.

⚠ DANGER: TO REDUCE RISK OF ELECTRIC SHOCK, ALWAYS DISCONNECT THE AC SUPPLY CORD FROM ITS OUTLET AND THE DC OUTPUT CORD FROM THE BATTERY BEFORE ATTEMPTING ANY MAINTENANCE OR CLEANING OF THE BATTERY.

2. New batteries should be given a full charge before their first use because it is difficult to know how long batteries have been stored.
3. Limit use of new batteries for first 5 cycles. New batteries are not capable of their rated output until they have been discharged a number of times.
4. Do not excessively discharge batteries. Excessive discharge can cause polarity reversal of individual cells, resulting in complete failure shortly thereafter. Limited use of new batteries will minimize the chance of cell reversal.
5. CHECK THE LEVEL OF THE ELECTROLYTE IN CONVENTIONAL LIQUID ELECTROLYTE LEAD ACID BATTERIES MONTHLY. MAINTAIN THE PROPER ELECTROLYTE LEVEL BY ADDING DISTILLED OR PURIFIED WATER WHEN NECESSARY. Electrolyte levels lower during discharge and rise during charge. Therefore, it is mandatory that water be added to cells ONLY when they are fully charged; do not overfill. Old batteries require more frequent additions of water than new batteries.
6. Keep tops of batteries clean and dry to prevent excessive self-discharge. Keep battery terminals reasonably tight.

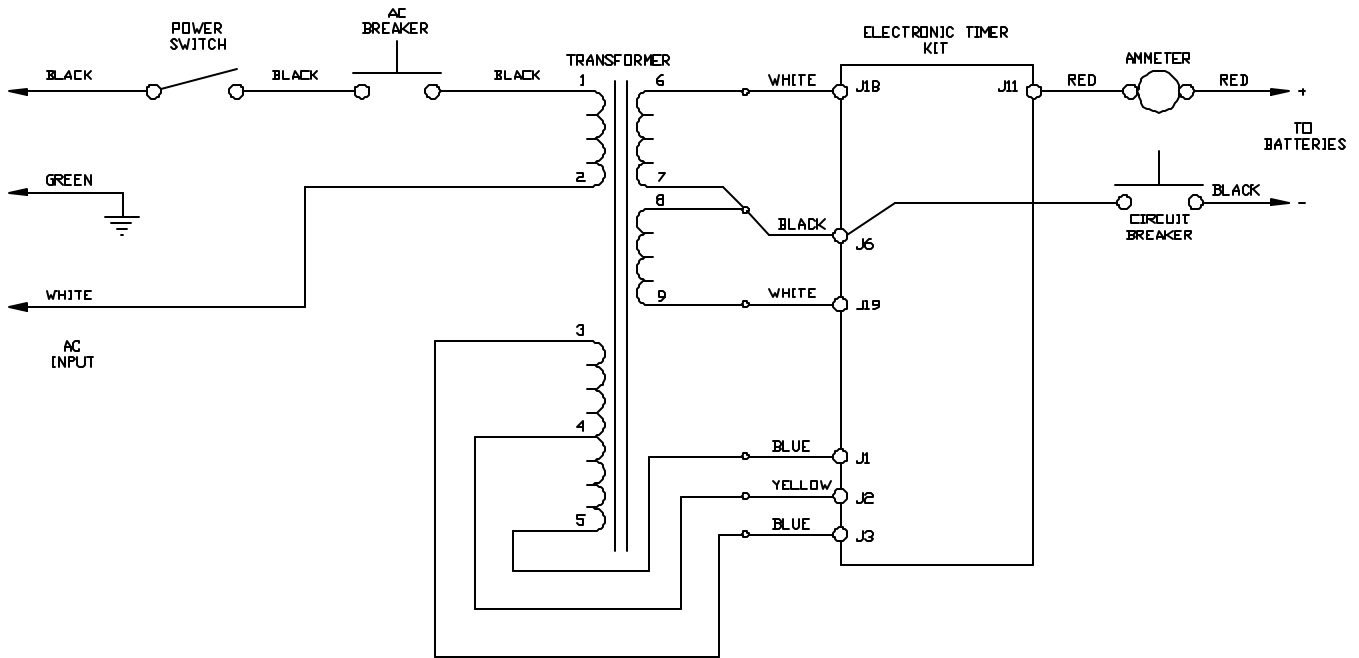
TROUBLESHOOTING

⚠ CAUTION: DO NOT OPERATE THE CHARGER IF IT IS DAMAGED OR APPEARS TO BE MALFUNCTIONING. PERSONAL INJURY OR DAMAGE TO THE CHARGER OR BATTERIES MAY RESULT. DO NOT DISASSEMBLE THE CHARGER. TAKE IT TO A QUALIFIED SERVICE

AGENT WHEN SERVICE OR REPAIR IS REQUIRED. INCORRECT REASSEMBLY MAY RESULT IN A RISK OF ELECTRIC SHOCK OR FIRE.

1. If there is no ammeter movement three to five (3-5) seconds after the charger connections are made, one of the following is preventing the charger from turning on:
 - a. Charger power switch is not in AUTO position.
 - b. Charger is not plugged into a live AC outlet.
 - c. Battery connections are wrong (reverse polarity).
 - d. Battery is no longer serviceable (voltage below 3 volts for 12 volt system).
2. If the charger turns off before the batteries are fully charged, it indicates one of the following:
 - a. The AC power was interrupted during charge.
 - b. The DC cord was accidentally disconnected from the battery during charge.
 - c. The battery has been allowed to sulfate. Charge the battery at least once every three days when the equipment is lightly utilized. Once sulfation is allowed to take place it may be partially reduced by returning, temporarily, to daily charging.
3. A decrease in equipment range where the battery loses power earlier and earlier in the day, indicates one of the following:
 - a. The electrolyte level in conventional liquid electrolyte lead-acid batteries was allowed to drop below the top of the battery plates. Add distilled water to just cover the tops of the plates immediately upon discovery and fill to the proper level with distilled water at the completion of the very next charge cycle. Battery capacity lost in this manner is permanent and is not recovered with additional charge cycles.
4. The charger runs 14 hours before turning off. This indicates one of the following:
 - a. Batteries larger than 105 amp-hour capacity (20 hr. rate) can require more than 14 hours to charge.
 - b. New batteries (5 cycles or less) can require more than 14 hours to charge.
 - c. Overdischarged batteries can require more than 14 hours to charge.
5. If battery voltage exceeds 2.83 volts per cell, the charger turns off, indicating one of the following:
 - a. Improper batteries used with charger. Must be a 6 cell, 2.35-2.50 volts per cell battery system.
 - b. Battery design may be inappropriate for this use. Check with your dealer for deep-cycle batteries only.
 - c. Sulfation of batteries may have occurred.

CHARGER WIRING DIAGRAM



L2120S41

PARTS LIST FOR MODEL 18730 120 VAC / 60 HZ

PART NO.	QTY.	DESCRIPTION
24477S	1	CASE ASSEMBLY
18705S	1	TRANSFORMER ASSEMBLY
18805S	1	ELECTRONIC TIMER KIT
13102S	1	AMMETER, 12 AMP
04275S	1	BUSHING, INSULATOR, FOR AC CORDSET
15488S	1	BUSHING, INSULATOR, FOR DC CORDSET
24814S	1	CORDSET, AC, 18 AWG, 102"
19997S	1	CORDSET, DC, 16 AWG, RED & BLACK
18684S	1	CIRCUIT BREAKER
22458S	1	SWITCH ASSEMBLY
19481S	1	FUSE, 3 AMP, 250 V, DELAY, BEFORE 12/98
05322S	1	FUSEHOLDER, AC, BEFORE 12/98
28784S	1	CIRCUIT BREAKER, 4A, AFTER 12/98

LIMITED WARRANTY

Lester Electrical warrants each new Lester Battery Charger for defects in material and workmanship for a period of two (2) years from the date of manufacture of the complete unit. Repairs can be made at the Lester factory. To do so, first obtain a "Return Material Authorization" number by calling the Service Department of Lester Electrical (402 477-8988) or by e-mailing service@lesterelectrical.com and send the defective unit with transportation charges prepaid to:

Lester Electrical
625 West A Street
Lincoln, NE 68522-1794 USA
Attention: Service Department
RMA # _____

For repairs made at other than the Lester factory, Lester will provide only the replacement parts. Defective parts should be sent with transportation charges prepaid to the Lester factory at the address noted above.

If the unit or parts are found in the reasonable judgment of Lester to be defective in material or workmanship, repair or replacement will be made by Lester without charge for parts or labor. Repair or replacement will be at the discretion of Lester, with replacements being made using current models or parts performing the equivalent function. Labor charges other than those incurred at the Lester factory are not covered under this warranty. All expenses associated with delivering defective items to the Lester factory and the expense of returning repaired or replaced items from the Lester factory to the owner will be paid for by the owner. All warranty work accomplished at the Lester factory will be completed with a reasonable time after receipt of defective items.

This warranty does not cover any semiconductor parts, such as diodes, which are vulnerable to electrical overloads beyond the control of Lester. Warranty on parts not manufactured by Lester, which include, but are not limited to, timers and ammeters, is limited to the period specified in the original manufacturer's warranty.

This warranty does not cover any charger that has been subject to misuse, neglect, negligence, or accident, or operated in any way contrary to instructions specified on the charger case and in the owner's manual. No claim of breach of warranty shall be cause for cancellation of the contract of sale of any Lester charger. Lester assumes no responsibility for loss of time, inconvenience, or other damage, consequential or otherwise, resulting from a defective charger. All implied warranties (including merchantability) are limited in duration to the two years from date of manufacture warranty period.

Some states do not allow the exclusion or limitation of incidental or consequential damages; or limitations on how long an implied warranty lasts, so the above limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Lester's obligation under this warranty is strictly and exclusively limited to the repair or replacement of defective items. Lester issues this warranty in good faith and with full confidence in the workmanship and quality of Lester products.