

# Lewco Marine

*Battery Charger  
Owner's Manual*

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Made in the USA

## ***NEVER LEAVE YOUR SLIP WITHOUT FULLY CHARGED BATTERIES***

**LEWCO BATTERY CHARGER MANUAL...** The Full Service (F.S.) model is load-handling electronically controlled unit.

**EFFICIENCY...** Due to the extremely high forward-to-back current ratio, silicon rectifiers achieve rectification efficiencies up to 99% at power frequencies. The high efficiency is characterized by forward conduction voltage drops of approximately one volt, hence higher output voltages, and reverse currents of the order of microamperes at the peak inverse voltage.

**HERMETICALLY SEALED...** Each silicon diode is hermetically sealed. This seal is a great advantage to the marine field, for the ever present salt air and moisture cannot damage the silicon diode.

**CHARGER CABINETS...** The cabinets are power coated.

**CHARGING POWER...** The charger, without damage to itself can be connected to discharged banks of batteries and will fully charge them on a perfect taper curve, automatically reducing charging rate to a trickle as batteries become charged.

**INSTALLATION...** Designed as a permanent installation in the boat and a permanent connection to the battery bank.

**LINE VOLTAGE...** Compensation tap switch incorporated so that the converter may be operated efficiently from either extremely high or low line voltages.

**D. C. AMMETER...** Ammeter is incorporated in the output circuit to indicate current being supplied to batteries and accessories.

**TRANSFORMER...** The transformers are designed for marine use and incorporate isolated primary and secondary coils. This prevents electrolysis and eliminates shock on the charging lines.

### ***Installation instructions for the Lewco Silicon Diode Marine Charger wire connections and cable runs***

The terminal panel with the terminals on it is located at the bottom of the charger. The DC terminals are marked plainly with their polarity. Connect the positive

terminal to the positive terminal of the batteries and negative terminal to the negative terminal of the batteries. **BE SURE YOU ARE RIGHT!** If the battery terminals are unmarked, corroded or unreadable, check the polarity with a voltmeter. Connections from the LEWCO CHARGER to the batteries are always POSITIVE TO POSITIVE and NEGATIVE TO NEGATIVE. The two AC terminals are usually connected to a cable long enough to reach the AC dock outlet, except on boats already wired for AC, in which case the charger is connected to the nearest AC line. Use marine-approved wire and clamp all internal wiring securely to the hull and bulkheads.

## *Caution*

The **LEWCO FULL SERVICE BATTERY CHARGER** can charge Wet and Gel Cell batteries. The older **LEWCO STANDARD BATTERY CHARGER** can be updated to **F.S.** technology if in serviceable condition.

The recommended size of wire is shown below:

<i>MODELS</i>	<i>AC INPUT</i>	<i>DC OUTPUT</i>
12V-20 amp	#16	#10
12V-40 amp	#12	# 8
12V-80 amp	#10	# 4
24V-20 amp	#12	#10
24V-40 amp	#12	# 8
32V-20 amp	#12	#10
32V-40 amp	#10	# 8
115V-10 amp	#10	#10

## *Operating Data*

When you connect a LEWCO CHARGER to a fully charged set of batteries, there will be no indication anything is happening because it supplies current only when it is needed. To bring the charger into operation, turn on the accessories and let them run for a short period. This will give you a reading on the ammeter. When the charger replaces the current lost, it will return to a reading of one milli ampere for every amp-hour of batteries, commonly called a float condition.

## *Caution*

**LEWCO FULL SERVICE BATTERY CHARGER** operates on battery voltage, the batteries should be checked periodically for dead cells. Should a dead cell appear, replace immediately with a new battery.

## *Answers to most common questions about Lewco Rectifiers*

**Will the charger damage my alternators if I don't disconnect my batteries?  
What would I damage if I started my engines and forgot to turn off the charger?**

The charger will not damage the alternators in your boat because it will be permanently connected to your batteries in the proper polarity and cannot accidentally send a reverse polarity to your alternators. The rule "DISCONNECT BATTERY BEFORE CHARGING" applies primarily to the automotive industry where



in a service station an inexperienced person might connect a high-rate, fast charger to your battery in reverse and burn out the alternator diodes.

If you start your boat engines with the LEWCO RECTIFIER charging on your batteries, it won't hurt a thing. The charger will be trying to help supply the power to start the engine and could charge more than the rated output. It might trip out the breaker in the charger, but it won't hurt a thing.

## *Testing Your Battery*

Hydrometer readings reflect the batteries' "State of charge".

Specific Gravity of 1.265 = Full

Specific Gravity of 1.200 = Half full

Specific Gravity of 1.150 = Discharged

Unless you are looking for a battery problem, it is not necessary to test all cells – just pick one cell in the battery and use it to monitor.

Since we consider voltage and stage of charge two different things, we feel you are better informed on battery condition by using a hydrometer.

## *Service Note*

After the charger has been in service a number of years the "**Power On**" light may begin to flicker. This is a sign the pilot light is wearing out, and it is just a matter of changing the complete pilot light assembly.

## ***Additional Instructions Applicable to Lewco Full Service Models (FS)***

A load-handling, electronic-switching charger is available in 115-volt or 230-volt AC, 50/60 Hz. It is self-regulating to compensate for unstable incoming AC line power between 110 and 125 volts.

The **LEWCO FULL SERVICE BATTERY CHARGER** model will cycle down to a slow, variable pulse charge to finish and maintain batteries at a full capacity without abnormal water loss.

**LEWCO FULL SERVICE BATTERY CHARGER** models are available in 12-, 24-, 32-, and 36-volt systems, 20, 40 and 80 amp. All models can be ordered for single or multiple bank operation.

The **LEWCO FULL SERVICE BATTERY CHARGER** model can be used with GELL CELL and AGM systems by keeping it in the normal position. The higher position could be used for faster charge recovery, but should be returned to normal position upon completion of charge.

GELL CELL, AGM and WET CELL batteries may be serviced from the same charger. Due to the physical differences between the two types of cells, they can NOT be mixed in a bank either in series or parallel.

The **LEWCO FULL SERVICE BATTERY CHARGER** model still retains the desirable feature of hands-on control over the rate of charge. A power tap switch with three positions allows you to control the output of the machine. The Low position is for heavily discharged batteries. The Normal position is for maintaining your batteries. The Hi position is for fast recovery.

## *Float Voltage*

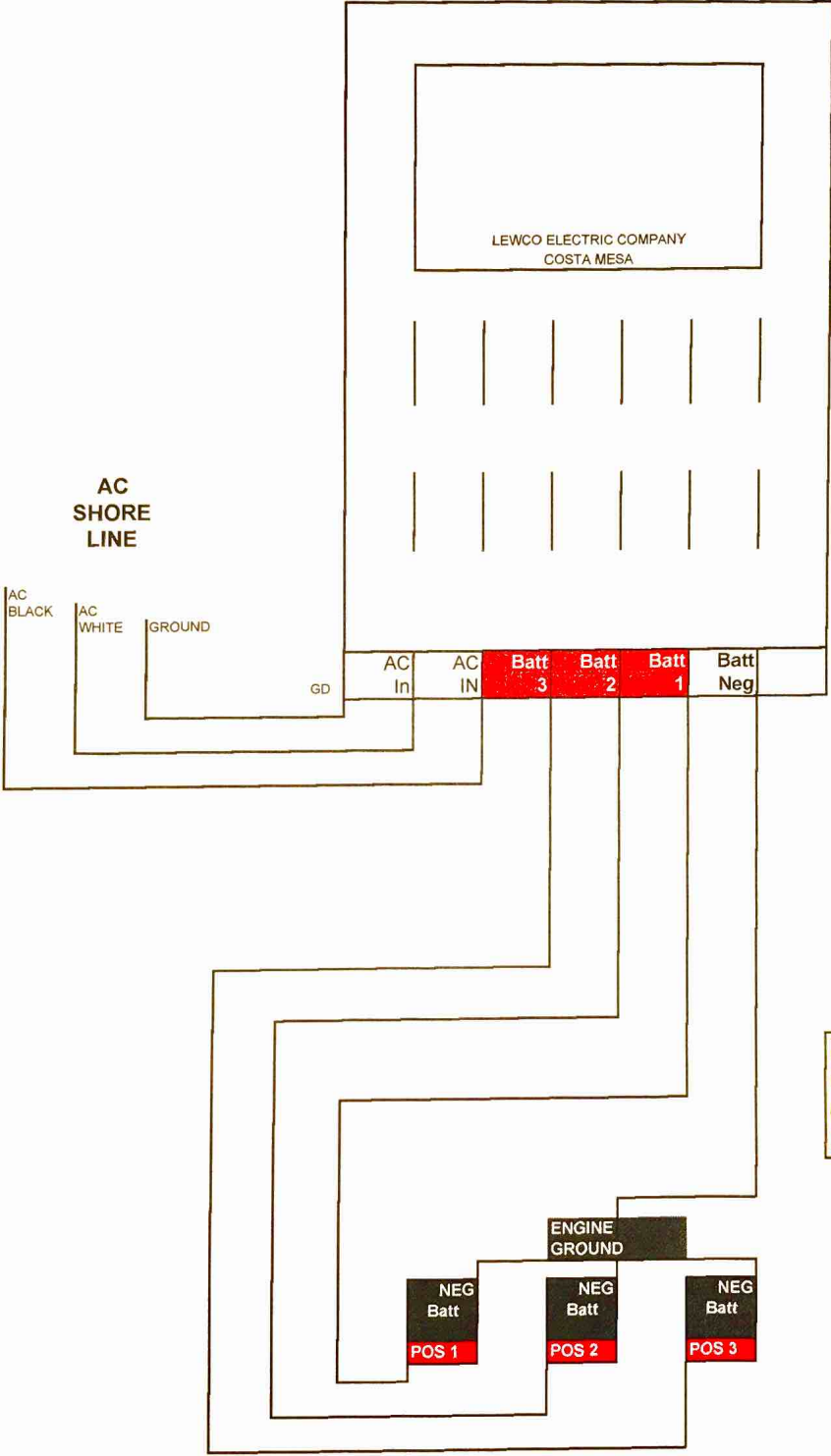
The lower voltage shown is for storage. **LEWCO FULL SERVICE BATTERY CHARGER** models are set for active battery systems.

<i>System</i>	<i>12 Volt</i>	<i>24 Volt</i>	<i>32 Volt</i>	<i>36 Volt</i>
Cells	6	12	16	18
Float	13.4	26.7	35.8	40.1
Volts	to 13.8	to 27.6	to 36.8	to 41.4

## *Caution*

On multi-output (ACD) chargers, connect positive output terminal to one bank of batteries only.

# Installation of Lewco Electric Battery Charger

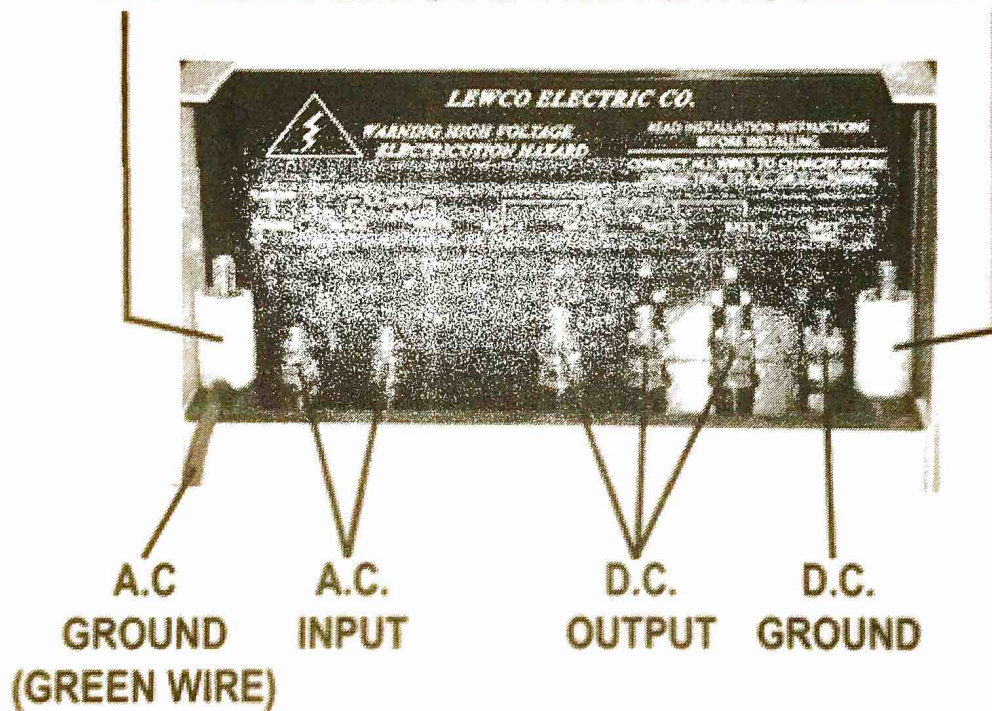


**IMPORTANT NOTE:**  
Use only one wire from charger negative to battery ground.



**WARNING ELECTRICAL SHORT MAY OCCUR  
IF INSULATORS ARE REMOVED**

**DO NOT REMOVE WHITE INSULATORS**



**MODEL FS1240 ACD-3 SHOWN ABOVE**

# Product Warranty

One-year limited warranty form date of purchase for on site repair of manufacturing or parts defects.

Warranty does not apply if:

- Product has been subjected to misuse or damage while in the possession of the purchaser or any person to whom the product was transferred.
- Product was installed or operated other than in accordance with the manufactures operating instructions.
- Warranty is void if unauthorized repairs are attempted.

Customer is responsible for repair shipping costs to and from Lewco factory.

Sold By \_\_\_\_\_ Date \_\_\_\_\_

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