

OWNER'S MANUAL 193111-091

Issued March 25, 2011

IMPORTANT: Read these instructions before installing, operating, or servicing this system.

AC150 MANUAL TIMER CHARGE CONTROL

DO NOT DESTROY

AMETEK/PRESTOLITE POWER , TROY, OHIO 45373-1099, U.S.A.

INTRODUCTION	1
How To Use This Manual	1-1
Equipment Identification	1-1
Receipt Of Equipment.....	1-1
SAFETY INSTRUCTIONS AND WARNINGS	2
INITIAL SET-UP & DESCRIPTION	3
Description.....	3-1
LOCATION DIAGRAM	4
OPERATION	5
Normal Or Daily Charge	5-1
Manual Stop.....	5-1
Battery Disconnect Shutdown.....	5-1
AC Power Failure.....	5-1
TROUBLESHOOTING	6
PARTS LIST	7
DIAGRAMS	
WARRANTY	

INTRODUCTION

How To Use This Manual

IMPORTANT: It is especially important that all charger internal components be kept clean and dry, and all electrical connections tightened. Replace any precautionary or instruction label that cannot be easily read.

To ensure safe operation, read the entire manual, including the chapter on Safety Instructions and Warnings.

Throughout this manual, the words **WARNING**, **CAUTION**, and **NOTE** may appear. Pay particular attention to the information provided under these headings. These special annotations are easily recognized as follows:

WARNING gives information regarding possible personal injury. Warnings will be enclosed in a box such as this.

CAUTION refers to possible equipment damage. Cautions will be shown in bold type.

NOTE offers helpful information concerning certain operating procedures. Notes will be shown in italics.

Equipment Identification

The unit's identification number (specification, model, serial number) usually appears on a nameplate attached to the front panel.

Receipt Of Equipment

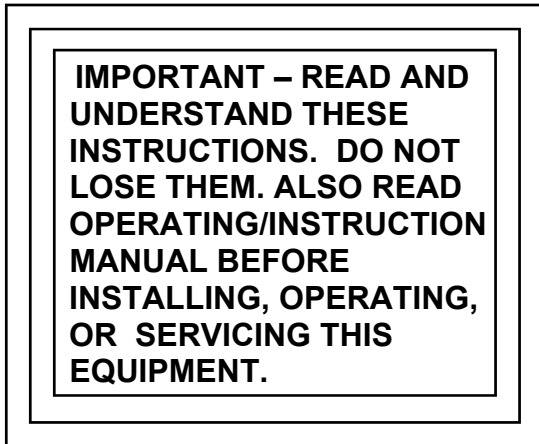
When you receive the equipment, check it against the invoice to make sure it is complete and inspect the equipment for possible damage due to shipping. If there is any damage, notify the carrier immediately to file a claim. Furnish complete information concerning damage claims or shipping errors to the company shown on the cover of this manual. Include all equipment identification numbers and group part numbers (if any) as described above along with a full description of the parts in error.

Move the equipment to the site of installation before uncrating. Use care to avoid damaging the equipment when using bars, hammers, etc., to uncrate the unit.

Additional copies of this manual may be purchased by contacting the company shown on the cover of this manual. Include the Owner's Manual number and equipment identification numbers. Electronic copies are available for no charge at www.prestolitepower.com

SAFETY INSTRUCTIONS AND WARNINGS

FOR OPERATION OF BATTERY CHARGING EQUIPMENT



A. General

Battery charging products can cause serious injury or death, or damage to other equipment or property, if the operator does not strictly observe all safety rules and take precautionary actions.

Safe practices have developed from past experience in the use of charging equipment. These practices must be learned through study and training before using this equipment. Anyone not having extensive training in battery charging practices should be taught by experienced operators.

Only qualified personnel should install, use, or service this equipment.

B. Shock Prevention

Bare conductors, or terminals in the output circuit, or ungrounded, electrically-live equipment can fatally shock a person. To protect against shock, have competent electrician verify that the equipment is adequately grounded and learn what terminals and parts are electrically HOT.

The body's electrical resistance is decreased when wet, permitting dangerous current to flow through the body. Do not work in damp area without being extremely careful. Stand on dry rubber mat or dry wood and use insulating gloves when dampness or sweat cannot be avoided. Keep clothing dry.

1. Installation and Grounding of Electrically Powered Equipment – Electrical equipment must be installed and maintained in accordance with the National Electrical Code, NFPA 70, and local codes. A power disconnect switch must be located at the equipment. Check nameplate for voltage and phase requirements. If only 3-phase power is available, connect *single-phase* equipment to only two wires of the 3-phase line. DO NOT CONNECT the equipment grounding conductor (lead) to the third live wire of the 3-phase line as this makes the equipment frame electrically HOT, which can cause a fatal shock.

If a grounding lead (conductor) is part of the power supply cable, be sure to connect it to a properly grounded switch box or building ground. If not part of the supply cable, use a separate grounding lead (conductor). Do not remove a ground prong from any plug. Use correct mating receptacles. Check ground for electrical continuity before using equipment.

The grounding conductor must be of a size equal to or larger than the size recommended by Code or in this manual.

2. Charging Leads – Inspect leads often for damage to the insulation. Replace or repair cracked or worn leads immediately. Use leads having sufficient capacity to carry the operating current without overheating.
3. Battery Terminals – Do not touch battery terminals while equipment is operating.
4. Service and Maintenance – Shut OFF all power at the disconnect switch or line breaker *before* inspecting, adjusting, or servicing the equipment. Lock switch OPEN (or remove line fuses) so that the power cannot be turned ON accidentally. Disconnect power to equipment if it is to be left unattended or out of service.

Disconnect battery from charger.

Keep inside parts clean and dry. Dirt and/or moisture can cause insulation failure. This failure can result in high voltage at the charger output.

C. Burn and Bodily Injury Prevention

The battery produces very high currents when short circuited, and will burn the skin severely if in contact with any metal conductor that is carrying this current. Do not permit rings on fingers to come in contact with battery terminals or the cell connectors on top of the battery.

Battery acid is very corrosive. Always wear correct eye and body protection when near batteries.

D. Fire and Explosion Prevention

Batteries give off explosive flammable gases which easily ignite when coming in contact with an open flame or spark. Do not smoke, cause sparking, or use open flame near batteries. Charge batteries only in locations which are clean, dry, and well ventilated. Do not lay tools or anything that is metallic on top of any battery. All repairs to a battery must be made only by experienced and qualified personnel.

E. Arcing and Burning of Connector

To prevent arcing and burning of the connector contacts, be sure the charger is OFF before connecting or disconnecting the battery. (If the charger is equipped with an ammeter, the ammeter should not indicate current flow.) Always connect battery before turning charger ON.

F. Medical and First Aid Treatment

First aid facilities and a qualified first aid person should be available for each shift for immediate treatment of electrical shock victims.

EMERGENCY FIRST AID: Call physician and ambulance immediately. Use First Aid techniques recommended by the American Red Cross.

DANGER: ELECTRICAL SHOCK CAN BE FATAL. If person is unconscious and electric shock is suspected, do not touch person if he or she is in contact with charging leads, charging equipment, or other live electrical parts. Disconnect (open) power at wall switch and then use First Aid. Dry wood, wooden broom, and other insulating material can be used to move cables, if necessary, away from person. IF BREATHING IS DIFFICULT, give oxygen. IF NOT BREATHING, BEGIN ARTIFICIAL BREATHING, such as mouth-to-mouth. IF PULSE IS ABSENT, BEGIN ARTIFICIAL CIRCULATION, such as external heart massage.

IN CASE OF ACID IN THE EYES, flush very well with clean water and obtain professional medical attention immediately.

G. Equipment Warning Labels

Inspect all precautionary labels on the equipment. Order and replace all labels that cannot be easily read.

INITIAL SET-UP & DESCRIPTION

Set-Up

See Location Diagram of Selector Switches included in this manual.

For proper operation, the AC150 Control shunt size must be set to match the charger shunt size. The control is not cell sensitive and will work in any Ametek ferroresonant charger from 6 to 36 cells.

No more than 1 shunt dip switch (S1—4 or S1—5) should be selected at any one time.

100A Shunt = Close S1-4, Open S1-5

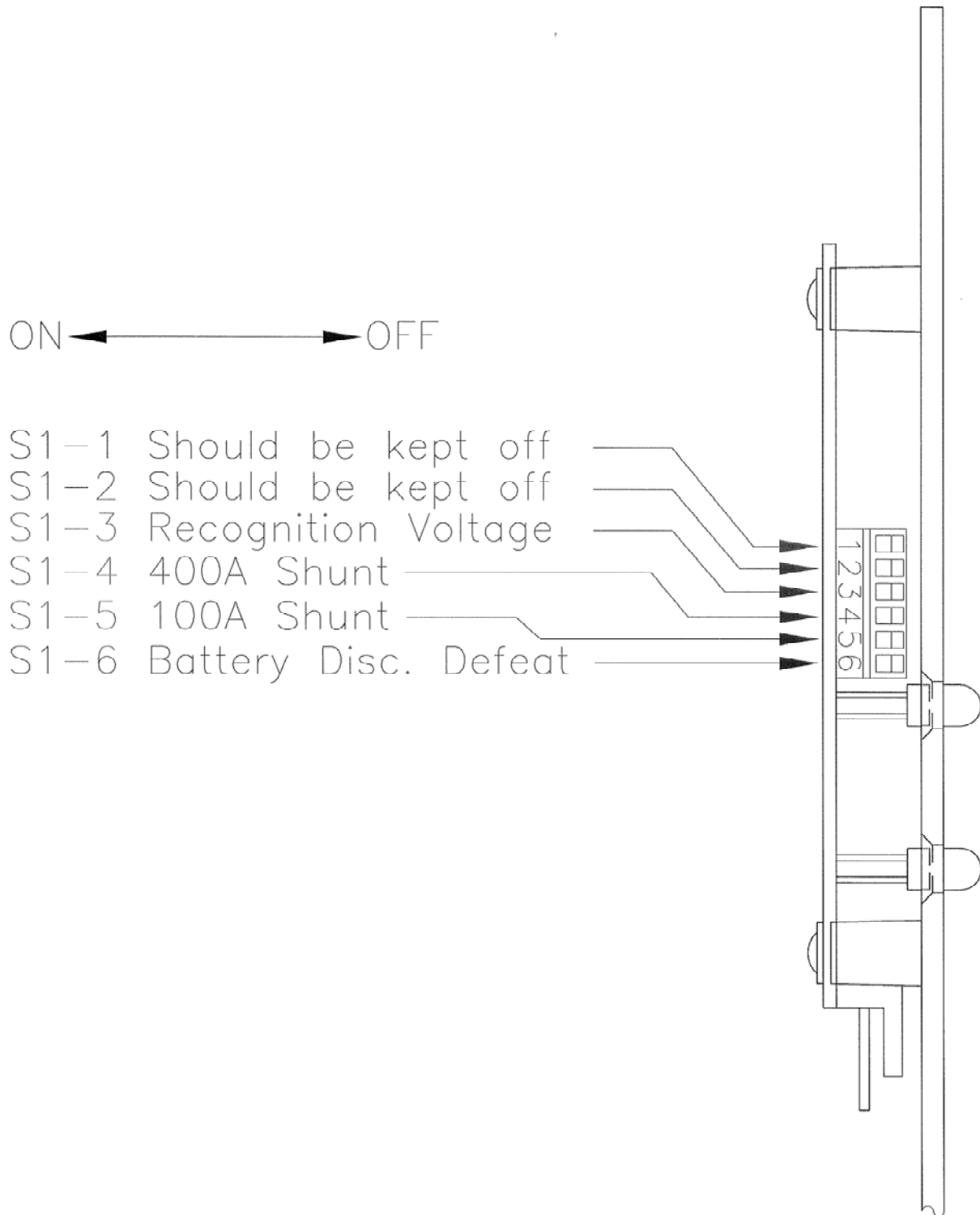
200A Shunt = Open S1-4, Open S1-5

400A Shunt = Open S1-4, Close S1-5

Description

The AC150 Control uses a single chip microcontroller to both monitor and control the battery charging process. The user is kept up to date on the progress of the charge cycle by a large 7 segment, 4 digit display and 2 LED's on the front panel of the control. During the charge cycle remaining charge time, output voltage and output amps are displayed in rotation. The charge cycle timing is controlled by the user, up to 23 hours and 45 minutes. The factory default charge time is 8 hours.

LOCATION DIAGRAM – AC150 CONTROL



OPERATION

Normal or Daily Charge

WARNING: DO NOT connect a battery to this charger if any LED is lit. Do not disconnect a battery from this charger while a charge is in progress; otherwise, arcing and burning of connector parts or a battery explosion may result. Batteries produce explosive gases. Keep sparks, flame, and cigarettes away. Ventilate when charging in an enclosed area. Always shield eyes when working near batteries.

1. Using the “Time Adjust Up” and “Time Adjust Down” front panel buttons enter the estimated charging time required for the charge cycle. After approximately 10 seconds of no button activity, the display will return to “AC15”. Be sure that enough time is given to properly recharge the battery based on charger output, battery size and depth of discharge.
2. Securely engage the battery and charger connectors.
3. After a five second delay (both LED’s will be lit), the charger will turn on. The “Charge in Progress” LED will indicate charging current. The control’s display will continually rotate displays of remaining charge time, output voltage and output amperage. When “output voltage” is displayed, the 3rd decimal dot from the right will be lit. When “output amps” are displayed, the 2nd decimal dot from the right will be lit. While “remaining charge time” is displayed, the 1st decimal dot from the right will be lit.
4. The charger will automatically turn off and the “Charge Complete” LED will light when the charge has finished. The light will remain on until the battery is disconnected from the charger.

NOTE: To disconnect battery from charger before charge is complete, first press the stop key, then disconnect the battery from the charger.

Manual Stop

1. To turn the charger off during any part of a charge cycle, press the STOP key. Both LEDs will flash.
2. To restart the charger, disconnect and reconnect the battery. A new charge cycle will begin.

Battery Disconnect Shutdown

By default, if the battery is disconnected from the charger during a charge cycle, the charger will shut down. All LED’s will be off. This feature can be defeated by closing Dip switch position S1-6. CAUTION, if S1-6 is closed, the charger output will remain on until the charge time runs down or the stop switch is pressed.

Low Battery Recognition

By default, the AC150 Control will recognize any battery that is connected as long as it has an open circuit voltage of approximately 6 Volts or higher. In the case of severely discharged or damaged batteries, S1-3 may be set to the closed position. This will lower the battery recognition point to approximately 2 Volts.

AC Power Failure

During an AC power failure, the AC150 Control stores key information about the charge cycle. The information is retained by powering some of the control’s key components with a battery derived power supply. This causes the control to resume the charge where it left off when the AC power is returned, unaffected timers.

TROUBLESHOOTING

If a problem is suspected with the AC150 Control, always check that the selection switch on the side of the control is set correctly (see Location Diagram on page 4-1).

An improperly connected or faulty control wire harness could cause erratic operation. Inspect the control wire harness connections for proper mating and that all wire/terminals are fully installed in the connector housing (s). For detailed charger troubleshooting procedures, see the Charger Manual.

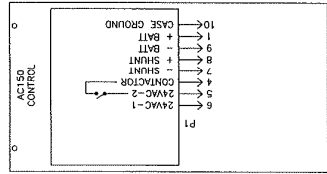
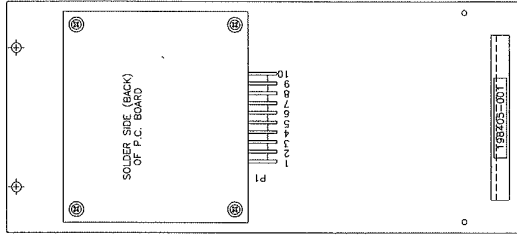
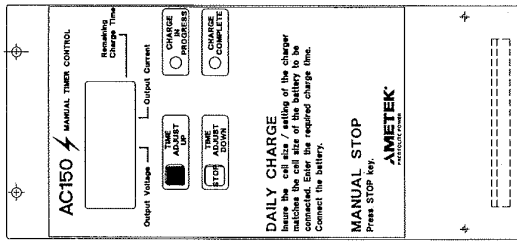
WARNING: ELECTRICAL SHOCK HAZARD — Before checking electrical components, turn off and remove fuses of disconnect switch (supplying AC power to charger), disconnect battery, and check for voltage on capacitors. Discharge through insulated screwdriver if there is any reading.

PARTS LIST FOR AC150 CONTROL

<u>ITEM NO.</u>	<u>DESCRIPTION</u>	<u>PART NUMBER</u>
1	CONTROL ASSEMBLY, AC150	198405-001
2	WIRE HARNESS	191303

DIAGRAMS

<u>DESCRIPTION</u>	<u>PART NUMBER</u>
AC150 WIRING DIAGRAM	198405 SHEET 2
REMOTE CONTROL WIRING DIAGRAM	191143



SCHEMATIC

P1 CONNECTOR PCB

LEGEND

- NORMAL CHARGE**
1. SET THE DESIRED CHARGING TIME USING THE UP AND DOWN ADJUSTMENT BUTTONS. THE CONTROL WILL ENERGIZE THE COIL OF THE INPUT CONTACTOR (K1) AND LIGHT THE CHARGE IN PROGRESS LED. WHEN THE COIL OF K1 IS ENERGIZED TRANSMITTERS AND TRANSFORMERS WILL BE ENERGIZED. WHEN THE CHARGING TIME HAS EXPIRED THE CONTROL WILL DE-ENERGIZE THE LINE CONTACTOR AND LIGHT THE "CHARGE COMPLETE" LED.
 2. **ABNORMAL OPERATION:** THE CONTROL WILL TERMINATE THE CYCLE IF THE "MANUAL STOP" BUTTON IS PRESSED.

SEQUENCE OF OPERATION

CHANGE RECORD	UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETERS (IN PARENTHESES). DIMENSIONS IN INCHES ARE GIVEN IN PARENTHESES.
DATE	REVISED
REVISIONS	REVISIONS
REVISION NUMBER	REVISION DATE
REVISION DESCRIPTION	REVISION DATE
1	1984-11
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5	1984-11
6	1984-11
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WARRANTY

AMETEK/PRESTOLITE POWER INDUSTRIAL BATTERY CHARGERS

Ametek/Prestolite Power (hereinafter called "Prestolite") warrants that each new and unused Industrial Battery Charger manufactured and supplied by it is of good workmanship and is free from any inherent mechanical defects, provided that (1) the product is installed and operated in accordance with generally accepted industrial standards and in accordance with the printed instructions of Prestolite, (2) the product is used under normal conditions for which designed, (3) the product is not subjected to misuse, negligence or accident, and (4) the product receives proper care, protection and maintenance under supervision of competent personnel. This warranty is subject to the following provisions:

1. **PRODUCTS AND PARTS WARRANTED.** Subject to the exceptions listed below each Industrial Battery Charger is warranted for a period of one (1) year from the date of its shipment by Prestolite, provided the charger is used in accordance with Prestolite's published performance rating for the unit involved. The exceptions to this warranty are as follows:
 - a) Power transformers and silicon diodes on unit (s) shipped after January 1, 1997 are warranted for ten (10) years after Prestolite's shipment of the unit(s) of which they are a part, provided however that during the last nine (9) years of this 10 year period the warranty covers parts replacement only – no labor or other services are provided by Prestolite, nor shall Prestolite be obligated to reimburse the owner or any other person for any work performed.
 - b) Primary switch contacts, fuses, bulbs, and filters are not warranted unless found to be defective prior to use.
2. **COMMENCEMENT OF WARRANTY TIME PERIODS.** The warranty periods indicated in the Warranty Schedule shall commence on the date of shipment by Prestolite.
3. **PERSONS COVERED BY WARRANTY.** This warranty is extended by Prestolite only to the purchaser of new equipment from Prestolite or one of its authorized distributors. The products purchased under this agreement shall be used exclusively by the buyer and its employees and by no other persons; and therefore there shall be no third party beneficiary to this warranty.
4. **LIMITATION OF REMEDY.** The existence of claimed defects in any product covered by this warranty is subject to Prestolite's factory inspection and judgement. Prestolite's liability is limited to repair of any defects found by Prestolite to exist or, at Prestolite's option, the replacement of the defective product. F.O.B. factory after the defective product has been returned by the purchaser at its expense to Prestolite's shipping place. Replacement and exchange parts will be warranted for the remainder of the original Industrial Battery Charger Warranty or for a period of ninety (90) days, whichever is greater.
Prestolite and its authorized distributors or dealers shall not be liable for direct or indirect, special or consequential damages in excess of such repair or replacement. In no event shall the purchaser be entitled to recover for contingent expenses resulting from, but not limited to, telephone calls, telegrams, travel expenses, lodging, duties and taxes, labor, rental or replacement equipment, loss of business or profits or other commercial losses.
5. **USE OF DEFECTIVE PRODUCT.** Continued use of an Industrial Battery Charger after discovery of a defect VOIDS ALL WARRANTIES.
6. **ALTERED EQUIPMENT.** Except as authorized in writing, the warranty specified does not cover any equipment that has been altered by any party other than Prestolite.

EXCEPT AS STATED ABOVE, ALL OTHER WARRANTIES AND CONDITIONS, EITHER EXPRESSED OR IMPLIED, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE EXCLUDED AND BUYER ASSUMES ALL RISK AND LIABILITY RESULTING FROM USE OF THE GOODS. AMETEK/PRESTOLITE POWER NEITHER ASSUMES NOR AUTHORIZES ANY PERSONS TO ASSUME FOR AMETEK/PRESTOLITE POWER ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OR USE OF THE GOODS SOLD, AND THERE ARE NO ORAL AGREEMENTS OR WARRANTIES COLLATERAL TO OR AFFECTING THIS WRITTEN WARRANTY.

WARNING

At all times, safety must be considered an important factor in the installation, servicing, and operation of the product, and skilled, qualified technical assistance should be utilized.

AMETEK/PRESTOLITE POWER
TROY, OHIO USA



Data Sheet: 1140
Index: 110100
Replaces: 082499