

BATTERY CHARGER OWNER'S MANUAL

PS, LS, and ICS SERIES
6, 8, 12, 16, 24, 36 and 48 Volt

---- CAUTION ----

READ THIS MANUAL CAREFULLY FOR
RULES OF SAFE OPERATION AND
PROPER USE OF THE CHARGER

*** SAVE THESE INSTRUCTIONS ***

The three stage, Constant Current, Constant Voltage, Proportionally timed system used in all models provides fast charging and optimal timing over a wide range of battery sizes and depths of discharge.

STANDARD FEATURES OF ALL CHARGERS:

- ◆ BATTERY TYPE SWITCH (BTS)
- ◆ HIGH ENERGY RETURN. FAST CHARGING
- ◆ CONSTANT CURRENT FIRST STAGE
- ◆ DUAL VOLTAGE LIMIT (CYCLIC/ STANDBY)
- ◆ PROPORTIONAL TIMED CYCLIC CHARGE STAGE
- ◆ CONSTANT VOLTAGE FLOAT STANDBY
- ◆ AUTOMATIC SAFETY OVERRIDE TIMER
- ◆ START DELAY ON BATTERY CONNECT
- ◆ SHORT AND REVERSE CONNECTOR SHUTDOWN
- ◆ RUGGED SCR PHASE CONTROL
- ◆ MAINS ZERO-CROSSING BATTERY SENSING



**IC SERIES
12,24,36,& 48 VOLT
SPECIFICATIONS**

MODEL ICS 12/25A

INPUT: 117 Volts AC 60Hz, 480 VA
OUTPUT: 12 Volts DC, 25 Amps

MODEL ICS 24/25A

INPUT: 117 Volts AC 60Hz, 850 VA
OUTPUT: 24 Volts DC, 25 Amps

MODEL ICS 36/20A

INPUT: 117 Volts AC 60Hz, 1120 VA
OUTPUT: 36 Volts DC, 20 Amps

MODEL ICS 48/20A

INPUT: 117 Volts AC 60Hz, 1400 VA
OUTPUT: 48 Volts DC, 20 Amps

Optional Export AC Input Ratings

100v-50Hz AC Input (Japan)

115/ 230v -50Hz AC Input (Europe) (CE)

Full Wave Phase Controlled Rectification
CONTROL:

Voltage limit:

Normal Mode 2.42 V/Cell

Gel-Cell Mode 2.33 V/Cell

Liquid Electrolyte Mode 2.62 V/Cell

Current limited to AMP rating MEAN DC.

Automatic timer starts when first stage voltage
limit reached. Proportional CV stage
timer - $t/2+1$ hour.

Constant voltage 2.3 V/Cell after timeout, with
Temperature Compensation

PROTECTION:

Electronic reverse polarity. Short circuit shutdown
and current limit.

Combined Circuit Breaker and power switch on
front panel.

BATTERY TYPE & RATING (See Page 11 BTS)

ICS chargers are for use with Lead Acid Batteries of
Minimum capacity 50 AH, Gel Cell, Absorbed
Electrolyte or Liquid Electrolyte types by using the
BTS (Battery Type Switch)

DIMENSIONS: (Inches) (Wall & Table Mounting)

12.0" WIDE, 7.0" FRONT TO BACK, 7.0" HIGH

LISTED



90064500



CONFORMS TO

UL 1236

CE

**PS SERIES
12 & 24 VOLT
SPECIFICATIONS**

MODEL 12/5

INPUT: 117 Volts AC 60Hz, 110 VA
OUTPUT: 5 Amps DC 12 Volts

MODEL 12/10

INPUT: 117 Volts AC 60Hz, 220 VA
OUTPUT: 10 Amps DC 12 Volts

MODEL 24/5

INPUT: 117 Volts AC 60Hz, 200 VA
OUTPUT: 5 Amps DC 24 Volts

MODEL 24/8

INPUT: 117 Volts AC 60Hz, 320 VA
OUTPUT: 8 Amps DC 24 Volts

Optional Export AC Input Ratings

100v-50Hz AC Input (Japan)

115/ 230v -50Hz AC Input (Europe)

Full Wave Phase Controlled Rectification

CONTROL:

Voltage limit:

Normal Mode 2.42 V/Cell

Gel-Cell Mode 2.33 V/Cell

Liquid Electrolyte Mode 2.62 V/Cell

Current limited to AMP rating MEAN DC.

Automatic timer starts when first stage voltage
limit reached. Proportional CV stage
timer - $t/2+1$ hour.

Constant voltage 2.3 V/Cell after timeout, with
Temperature Compensation.

PROTECTION:

Electronic reverse polarity. Short circuit shutdown,
and current limit.

AC Input fuse in AC Input connector

BATTERY TYPE & RATING (See Page 11 BTS)

PS chargers are for use with Lead Acid Batteries,
Gel Cell Absorbed Electrolyte or Liquid Electrolyte
types by using the BTS (Battery Type Switch)

DIMENSIONS: (Inches)

6.5" WIDE, 6.0" FRONT TO BACK, 5.25" HIGH

**LS SERIES
6, 12 & 24 VOLT
SPECIFICATIONS**

MODEL: LS 6/6, LS 12/2, LS 12/6, LS 24/3
LS 24/5, LS 36/3, LS 48/5

Full Wave Phase Controlled Rectification

CONTROL:

Voltage limited to 2.4 Volts/Cell
Current limited to AMP rating Mean D.C.
Finish voltage 2.3 Volts/Cell
Proportional Timed Cyclic Charge Stage
Flashing Yellow LED-to Show 80% State of
Charge

PROTECTION:

Electronic reverse polarity
Short circuit shutdown
Low voltage start
Optional: Temperature compensation

DIMENSIONS:

6.5" WIDE, 6.0" FRONT TO BACK, 5.25" HIGH

LISTED

CONFORMS TO
U.L. 1236



**IMPORTANT SAFETY
INSTRUCTIONS**

1. **SAVE THESE INSTRUCTIONS**-- This manual contains important safety and operating instructions.
2. Before using this battery charger, read all instructions and cautionary markings on (1) the battery charger, (2) the battery, (3) product using the battery.
3. **CAUTION**--To reduce risk of injury, charge only lead acid, maintenance free or flooded lead acid type rechargeable batteries. Other types of batteries may burst causing personal injury and damage.
4. Do not expose charger to rain or snow.
5. 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 person.
6. To reduce risk of damage to electric plug and cord, pull by plug rather than cord when disconnecting charger.
7. Make sure cord is located so that it will not be stepped on, tripped over or otherwise subjected to damage or stress.
8. An extension cord should not be used unless absolutely necessary. Use of improper extension cord could result in risk of fire and electrical shock. If an extension cord must be used, make sure:
 - a. That pins on plug of the extension cord are the same number, size and shape as those of the plug on the charger.
 - b. That the extension cord is properly wired and in good electrical condition.

c. That the wire size is large enough for the A/C ampere rating of the charger as specified in the table below:

LENGTH OF CORD (feet)	25	50	100	100
AWG Wire Size	18	18	16	14

9. Do not operate charger with damaged cord or plug. **REPLACE THEM IMMEDIATELY.**

10. Do not operate charger if it has received a sharp blow, been dropped or otherwise damaged in any way; return it to a qualified service source.

11. Do not disassemble charger; Take it to a qualified service source when repair or service is required. Incorrect reassembly may result in a risk of electrical shock or fire.

12. To reduce risk of electrical shock, unplug charger from outlet before attempting any maintenance or cleaning.

WARNING
RISK OF EXPLOSIVE GASES

1. **WORKING IN VICINITY OF A LEAD-ACID BATTERY IS DANGEROUS. BATTERIES GENERATE EXPLOSIVE GASES DURING NORMAL BATTERY OPERATION. FOR THIS REASON, IT IS OF THE UTMOST IMPORTANCE THAT EACH TIME BEFORE USING YOUR CHARGER, YOU READ THIS MANUAL AND FOLLOW THE INSTRUCTIONS EXACTLY.**

2. To reduce risk of battery explosion, follow these directions and those published by the battery manufacturer and the manufacturer of any equipment you intend to use in vicinity of the battery. Review cautionary marking on these products and on engine.

PERSONAL PRECAUTIONS

1. Someone should be within range of your voice or close enough to come to your aid when you work near a lead-acid battery.

2. Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing or eyes.

3. Wear complete eye protection and clothing protection. Avoid touching eyes while working near battery.

4. If battery acid contacts skin or clothing, wash immediately with soap and water. If acid enters eyes, immediately flood eyes with running cold water for at least 10 minutes and get medical attention immediately.

5. **NEVER** smoke or allow a spark or flame in the vicinity of battery or engine.

6. 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.

7. 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.

8. Use charger for charging a **LEAD-ACID BATTERY ONLY.** Do not use battery charger for charging dry-cell batteries that are commonly used with home appliances. These batteries may burst and cause injury to persons and damage to property.

9. **NEVER** charge a frozen battery.

PREPARING TO CHARGE

1. If necessary to remove battery from vehicle to charge, always remove grounded terminal from battery first. Make sure all accessories in vehicle are off so as not to cause an arc.
2. Be sure area around battery is well ventilated while battery is being charged. Gas can be forcefully blown away by using a piece of cardboard or other nonmetallic material as a fan.
3. Clean all battery terminals. Be careful to keep corrosion from coming in contact with eyes.
4. Add distilled water in each cell until battery acid reaches level specified by battery manufacturer. This helps purge excessive gas from cells. Do not overfill. For a battery without cell caps, carefully follow manufacturer's recharging instructions.
5. Study all battery manufacturer's specific precautions such as removing or not removing cell caps while charging and recommended rates of charge.
6. Determine voltage of battery by referring to car or equipment owner's manual and make sure it matches output rating of battery charger.

CHARGER LOCATION

1. Locate charger as far away from battery as charging cables will permit.
2. Never place charger above battery being charged; gasses from battery will corrode and damage charger.
3. Never allow battery acid to drip on charger when reading specific gravity or filling battery.
4. Do not operate charger in a closed-in area or restrict ventilation in any way.
5. Do not set a battery on top of charger.

DC CONNECTION PRECAUTIONS

1. Connect and disconnect DC output only after removing AC cord from electric outlet. Never allow clips to touch each other.
2. Attach clips to battery posts and twist or rock back and forth several times to make a good connection. This tends to keep clips from slipping off terminals and helps to reduce risk of sparking.

FOLLOW THESE STEPS WHEN BATTERY IS INSTALLED IN VEHICLE. A SPARK NEAR A BATTERY MAY CAUSE BATTERY EXPLOSION. TO REDUCE RISKS;

1. Carefully position AC and DC cords to reduce risk of damage by hood, door or moving engine parts.
2. Stay clear of fan blades, belts, pulleys and other parts that can cause injury to persons.
3. Check polarity of battery posts. POSITIVE (POS. P, +), battery posts usually have a larger diameter than the NEGATIVE (NEG. n, -) posts.
4. Determine which post of battery is grounded (connected) to the chassis.
5. For negative-grounded vehicle, connect POSITIVE (RED) clip from battery charger to POSITIVE (POS, P, +) UNGROUNDED POST OF THE BATTERY. Connect NEGATIVE (BLACK) clip to vehicle chassis or engine block away from battery. DO NOT CONNECT CLIPS TO CARBURETOR, FUEL LINES, OR SHEET METAL BODY PARTS. Connect to a heavy gauge metal part of the frame or engine block.
6. For positive-grounded vehicle, connect NEGATIVE (BLACK) clip from battery charger to the NEGATIVE (NEG, N, -) UNGROUNDED POST OF THE BATTERY. Connect POSITIVE (RED) clip to the vehicle chassis or engine block away from battery. DO NOT CONNECT CLIP TO CARBURETOR, FUEL LINES OR SHEET METAL BODY PARTS. Connect to heavy gauge metal part of the frame or engine block.

7. When disconnecting charger, turn switches to off, disconnect AC cord, remove clip from vehicle chassis and then remove clip from battery terminal. FOLLOW THESE STEPS WHEN BATTERY IS OUTSIDE VEHICLE. A SPARK NEAR THE BATTERY MAY CAUSE BATTERY EXPLOSION.

TO REDUCE RISK:

1. Check polarity of battery posts. POSITIVE (POS, P, +) battery post usually has a larger diameter than the NEGATIVE (NEG, N, -) post.
2. Attach at least a 24-inch long, 6 gauge (AWG) insulated battery cable to the NEGATIVE (NEG, N, -) battery post.
3. Connect POSITIVE (RED) charger clip to POSITIVE (POS, P, +) of the battery.
4. Position yourself and free end of cable as far away from battery as possible, then connect NEGATIVE (BLACK) charger clip to free end of cable.
5. Do not face battery when making final connection.
6. When disconnecting charger, always do so in reverse sequence while as far away from battery as practical.

GROUNDING AND AC POWER CORD CONNECTING INSTRUCTIONS

Charger should be grounded to reduce risk of electrical shock. Charger is equipped with an electrical cord having an equipment grounding conductor and a grounding pin. This plug must be plugged into an outlet that is properly installed and grounded in accordance with all local codes and ordinances.

DANGER-- Never alter AC cord or plug provided. If it will not fit outlet, have proper outlet installed by a qualified electrician. Improper connection can result in a risk of an electrical shock.

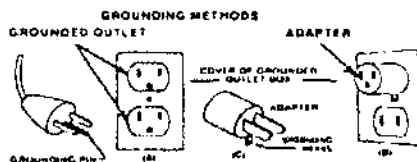
This battery charger is for use on a nominal 117 volt AC circuit *and has a grounded plug that looks like the plug illustrated in sketch (A). A temporary adapter, which looks like the adapter illustrated in sketches (B) & (C) may be used to connect this plug to a two-pole receptacle as shown in sketch (B) if a properly grounded outlet is not available. The temporary adapter should be used only until a properly grounded outlet can be installed by a qualified electrician.

* Optional Voltages are available.

NOTE: USE OF AN ADAPTER IS NOT ALLOWED IN CANADA. If a grounding type receptacle is not available, DO NOT use this appliance in CANADA until the proper outlet is installed by a qualified electrician.

DANGER-- Before using an adapter as illustrated, be certain that the center screw of the outlet plate is grounded. The green colored rigid ear or lug extending from the adapter must be connected to a properly grounded outlet. Make certain it is grounded.

If necessary, replace original outlet cover plate screw with a longer screw that will secure adapter ear or lug to outlet cover plate and make ground connection to grounded outlet.



IC AND PS SERIES OPERATING INSTRUCTIONS

This charger is suitable for use with all types of lead acid batteries, including the new types of maintenance free and gelled electrolyte batteries.

1. Disconnect vehicle battery cables.
2. Connect charger to battery. Ensure correct polarity. - BLACK lead to negative (-) terminal and RED lead to POSITIVE (+) terminal.

NOTE: THIS CHARGER IS PROTECTED AGAINST REVERSE CONNECTION. CHARGING WILL NOT COMMENCE IF BATTERY IS INCORRECTLY CONNECTED.

3. Connect the charger to AC power supply.

NOTE: THE CHARGER WILL NOW SWITCH ON AND THE YELLOW LED WILL LIGHT.

4. The charger will now commence to charge the battery, as indicated by the RED charging LED's. **NOTE: The length of time the charger remains in the "Charging Mode" depends on the size and state of discharge of the battery. This is controlled by the charger's solid state circuitry which constantly monitors the state of the battery and provides the correct charge automatically.**

IMPORTANT: The charger must be allowed to go through the complete charge routine in order to obtain the optimum charge. This will take a minimum of two hours.

6. When the GREEN "READY" LED comes ON, the battery is ready for use.

NOTE: The battery may be connected to the charger in the "READY" mode indefinitely, in order to maintain the battery in a fully charged state while not in use without risk of over charging.

IMPORTANT: The charger must be disconnected from the 120 volt power supply before disconnecting from the battery to prevent the possibility of arcing.

SPECIAL NOTE

7. During charging, the current flowing into the battery is indicated by the LED Amp Meter. At the start of charge, if the battery is normally discharged, all 4 RED LED's will be on, and will go out in sequence as the charge current drops. When the last RED LED goes off, the internal proportional timer will start, the GREEN LED will show proportional to the time of the constant current time. (T/2+1hr)

8. If the battery voltage is less than half a volt, the battery is considered very heavily discharged. In this case, the YELLOW charging LED will NOT show.

"LS SERIES" OPERATING INSTRUCTIONS

This charger is suitable for use with all types of lead acid batteries, including the new types of Maintenance-Free and Gelled Electrolyte batteries.

1. Disconnect vehicle battery cables.

2. Connect charger to battery. Ensure correct Polarity. BLACK lead to Negative (-) terminal and RED lead to Positive (+) terminal.

NOTE: THE CHARGER IS PROTECTED AGAINST REVERSE CONNECTION. CHARGING WILL NOT COMMENCE IF THE BATTERY IS INCORRECTLY CONNECTED.

3. Connect the charger to an A.C. Power Supply. Check that the Red (Power) and Yellow (Charge) indicator Led's are On. After a time (Which depends on how heavily the battery is discharged) , the yellow Led will begin to flash, indicating the battery has reached 80% recharge level.

4. After a further time, the Green "Ready" Led will indicate that the battery is fully charged. The minimum time before the green "Ready" Led shows is one hour. The battery should be left on charge until required for use.

NOTE: The length of time the charger remains in the Yellow charging mode depends on the size and "State of Charge" of the battery. This function is controlled by the solid State Circuitry of the charger which provides the correct charge profile automatically. This charger can be left connected to the battery for extended periods of time safely.

SPECIAL NOTE: BATTERIES THAT HAVE A SUSPECT CONDITION, PARTICULARLY "SULFATED CELLS", MAY WHEN FIRST CONNECTED, GO DIRECTLY TO THE "FLASHING YELLOW" L.E.D. INDICATION. THEN AFTER CURRENT FLOW BEGINS, THE YELLOW CHARGE L.E.D. STAYS ON INDICATING THAT A NORMAL CHARGE CYCLE IS NOW OPERATING. THIS SHOULD BE CONSIDERED NORMAL OPERATION FOR THE "LS SERIES" CHARGER.

TROUBLESHOOTING GUIDE

YELLOW CHARGE LIGHT DOES NOT SWITCH ON; The charger will not commence charging unless properly connected.

1. Check to ensure the charger is connected correctly - BLACK lead to NEGATIVE (-) terminal and RED lead to POSITIVE (+) terminal or that the Factory installed OEM (Original Equipment Manufacturer) custom connector is properly installed regarding the Polarity at the connectors contact terminals or at the mating connector on the battery or equipment.

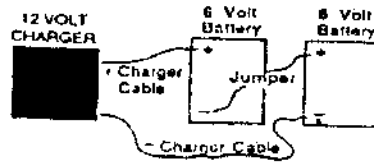
2. Check that the clips made a good connection to the battery posts. Twist clips or clean battery posts to ensure good connection

GREEN READY LIGHT DOES NOT APPEAR AFTER 18 HOURS;

3. The Microprocessor Control can indicate a problem with the battery. If the battery has not reached the First Stage of the Operation within 18 hours, the charger may determine that a problem exists within the battery or the battery is too big for the charger's output rating. The **OVERRIDE TIMER FUNCTION** is shown by the **GREEN LED FLASHING**.

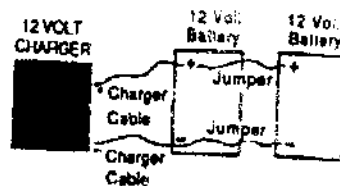
SERIES AND PARALLEL CHARGING

1. Two 6 volt batteries may be charged with the charger if they are connected in SERIES as shown below:



CAUTION; NEVER UNDER ANY CIRCUMSTANCES ATTEMPT TO CHARGE A SINGLE 6 VOLT BATTERY WITH THIS CHARGER. THIS WILL RESULT IN SERIOUS DAMAGE TO THE BATTERY AND CREATE A RISK OF EXPLOSION. EXTREME CARE SHOULD BE TAKEN TO CONNECT THE BATTERIES ONLY AS SHOWN ABOVE. IMPROPER CONNECTION CAN RESULT IN EXPLOSION AND SERIOUS INJURY.

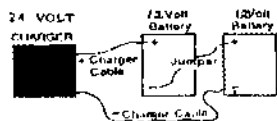
2. Two or more 12 volt batteries may be bank charged with the (1) charger if they are connected in parallel as shown below



NOTE: It is important that the batteries in the circuit be of the same type (e.g. maintenance free only or conventional lead acid only). Mixing different types of batteries in the same circuit will result in improper charging.

24 VOLT CHARGER SERIES CHARGING

1. Two 12 volt batteries may be charged with a 24 volt charger if they are connected in SERIES as shown below.



CAUTION: EXTREME CARE SHOULD BE TAKEN TO CONNECT THE BATTERIES ONLY AS SHOWN ABOVE. IMPROPER CONNECTION CAN RESULT IN EXPLOSION AND SERIOUS INJURY.

STORAGE INSTRUCTIONS

1. When not in use, store the charger indoors in a cool dry place, preferably with it's original packing and carton.
2. Place these instructions with the charger during storage.

MAINTENANCE AND CLEANING

Very little maintenance is required other than protecting it from damage and weather.

1. Coil cord when not in use.
2. Clean case and cords with a slightly damp cloth.
3. Corrosion on the clips may be removed with a solution of water and baking soda.
4. Examine cords for damage periodically and replace if necessary with manufacturer approved parts.

SERVICE

This charger is a solid state device and should not require service under normal operating conditions and use according to these instructions. For service call or write the manufacturer.

CAUTION - RISK OF ELECTRICAL SHOCK. Do not attempt any servicing unless you are authorized and qualified to do so.

INSTRUCTIONS IMPORTANTES CONCERNANT LA SECURITE

- a. CONSERVER CES INSTRUCTIONS. CE MANUEL CONTIENT DES INSTRUCTIONS IMPORTANTES CONCERNANT LA SECURITE ET LE FONCTIONNEMENT;
- b. IL EST DANGEREUX DE TRAVAILLER A PROXIMITE D'UNE BATTERIE AU PLOMB LES BATTERIES PRODUISENT DES GAS EXPLOSIFS EN SERVICE NORMAL, AUSSI EST-IL IMPORTANT DE TOUJOURS RELIRE LES INSTRUCTIONS AVANT D'UTILISER LE CHARGER ET DE LES SUIVRE A LA LETTRE;
- c. POUR REDUIRE LE RISQUE D'EXPLOSION, LIRE CES INSTRUCTIONS ET CELLES QUI FIGURENT SUR LA BATTERIE;
- d. NE JAMAIS FUNER PRES DE LA BATTERIE OU DU MOTEUR ET EVITER TOUTE ETINCELLE OU FLAMME NUE A PROXIMITE DE CES DERNIERS;
- e. UTILISER LE CHARGEUR POUR CHARGER UNE BATTERIE AU PLOMB UNIQUEMENT. CE CHARGEUR N'EST PAS CONCU POUR ALIMENTER UN RESEAU RESEAU ELECTRIQUE TRES BASSE TENSION NI POUR CHARGER DES PILES SECHES.

LES FIAT D'UTILISER LE CHARGEUR POUR CHARGER DES PILES SECHES POURRAIT ENTRAÎNER L'ÉCATEMENT DES PILES ET CAUSER DES PILES SECHES POURRAIT ENTRAÎNER L'ÉCATEMENT DES PILES ET CAUSER DES BLESSURES OU DES COMMAGES;

f. NE JAMAIS CHARGER UNE BATTERIE GELEE.

g. S'IL EST NECESSAIRE DE RETIRER LA BATTERIE DU VEHICULE POUR LA CHARGER, TOUJOURS DEBRANCHER LA BORNE DE MISE A LA MASSE EN PREMIER. S'ASSURER QUE LE COURANT AUX ACCESSOIRES DU VEHICULE EST COUPE AFIN D'ÉVITER LA FORMATION D'UN ARC;

h. PRENDRE CONNAISSANCE DES MESURES DE PRECAUTION SPECIFIEES PAR LE FABRICANT DE LA BATTERIE, P. EX. VÉRIFIER S'IL FAUT ENLEVER LES BOUCHONS DES CELLULES LORS DU CHARGEMENT DE LA BATTERIES, LES TAUX DE CHARGEMENT RECOMMANDES;

i. NE JAMAIS PLACER LE CHARGEUR DIRECTEMENT SOUS LA BATTERIE A CHARGER OU AU-DESSUS DE CETTE DERNIERE. LES GAS OU LES FLUIDES QUI S'ÉCHAPPENT DE LA BATTERIE PEUVENT ENTRAÎNER LA CORROSION DU CHARGEUR AUSSI LOIN LA BATTERIE QUE LES CABLES C.C. LE PERMETTENT;

j. NE PAS FAIRE FONCTIONNER LE CHARGEUR DANS UN ESPACE CLOS ET/OU NE PAS GÊNER LA VENTILATION;

k. METTRE LES INTERRUPTEURS DU CHARGEUR HORS CIRCUIT ET RETIRER LE CORDON C.A. DE LA PRISE AVANT DE METTRE ET D'ENLEVER LAS PINCES DU CORDON C.C. S'ASSURER QUE LES PINCES NE SE TOUCHENT PAS;

l. SUIVRE LES ÉTAPES SUIVANTES LORSQUE LA BATTERIE SE TROUVE DANS LE VEHICULE. UNE ÉTINCELLE PRES DE LA BATTERIE POURRAIT PROVOQUER L'EXPLOSION DE CETTE DERNIERE. POUR RÉDUIRE LE RISQUE D'ÉTINCELLE A PROXIMITÉ DE LA BATTERIE;

i. PLACER LES CORDONS C.A. ET C.C. DE MANIÈRE A ÉVITER QU'ILS SOIENT ENDOMMAGÉS PAR LE CAPOT, UNE PORTIÈRE OU LES PIÈCES EN MOUVEMENT DU MOTEUR;

ii. FAIRE ATTENTION AUX PALES, AUX COURROIES ET AUX POULIES DU VENTILATEUR AINSI QU'À TOUTE AUTRE PIÈCE SUSCEPTIBLE DE CAUSER DES BLESSURES;

iii. VÉRIFIER LA POLARITÉ DES BORNES DE LA BATTERIE. LE DIAMÈTRE DE LA BORNE POSITIVE (POS, P, +) EST GÉNÉRALMENT SUPÉRIEUR À CELUI DE LA BORNE NÉGATIVE (NEG, N, -);

iv. DÉTERMINER QUELLE BORNE EST MISE À LA MASSE (RACCORDEE AU CHASSIS). SI LA BORNE NÉGATIVE EST RACCORDEE AU CHASSIS (COMME DANS LA PLUPART DES CAS), VOIR LE POINT (V) SI LA BORNE POSITIVE EST RACCORDEE AU CHASSIS, VOIR LE POINT (VI);

v. SI LA BORNE NÉGATIVE EST MISE À LA MASSE, RACCORDER LA PINCE POSITIVE (ROUGE) DU CHARGEUR À LA BORNE POSITIVE (POS, P, +) NON MISE À LA MASSE DE LA BATTERIE. RACCORDER LA PINCE NÉGATIVE (NOIRE) AU CHASSIS DU VEHICULE OU AU MOTEUR. LOIN DE LA BATTERIE. NE PAS RACCORDER LA PINCE AU CARBURATEUR, AUX CANALISATIONS D'ESSENCE NI AUX PIÈCES DE LA CARROSSERIE EN TOLE. RACCORDER À UNE PIÈCE DU CARRE OU MOTEUR EN TOLE DE FORTE ÉPAISSEUR;

vi. SI LA BORNE POSITIVE EST MISE A LA MASSE, RACCORDER LA PINCE NEGATIVE (NOIRE) DU CHARGEUR A LA BORNE NEGATIVE (NEG, N, -) NON MISE A LA MASSE DE BATTERIE. RACCORDER LA PINCE POSITIVE (ROUGE) AU CHASSIS DU VEHICULE DU AU MOTEUR, LOIN DE LA BATTERIE. NE PAS RACCORDER LA PINCE AU CARBURATEUR, AUX CANALISATIONS D'ESSENCE NI AUX PIECES DE LA CARROSSERIE EN TOLE. RACCORDER A UNE PIECE DU CADRE DU DU MOTEUR EN TOLE DE FORTE EPAISSEUR.

vii. BRANCHER LE CORDON D'ALIMENTATION C.A. DU CHARGEUR.

viii. POUR INTERROMPRE L'ALIMENTATION DU CHARGEUR, METTRE LES INTERRUPTEURS HORS CIRCUIT, RETIRER LE CORDON C.A. DE LA PRISE, ENLEVER LA PINCE RACCORDEE AU CHASSIS ET EN DERNIER LIEU CELLE RACCORDEE A LA BATTERIE.

m. L'UTILISATION D'UN ADAPTEUR EST INTERDITE AU CANADA. SI UNE PRISE DE COURANT AVEC MISE A LA TERRE N'EST PAS DISPONIBLE EN FAIRE INSTALLER UNE PAR UN ELECTRIEN QUALIFIE AVANT D'UTILISER CET APPARIL.

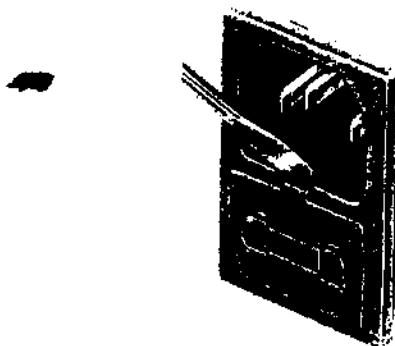
SPECIAL "BTS" (Battery Type Switch) FEATURE

The PS and I/C Series chargers are fitted with a Dealer settable BTS (Battery Type Switch). The charging circuitry will work correctly with Sealed, Gelled or Flooded type batteries.

Only an Authorized Service Technician is authorized to change the charger battery type setting. NOTE: Failure to select the correct setting will affect the performance of the battery, and may cause the battery to gas and void any Warranty on the Battery. If Battery Type is not specified the charger will be supplied set to the "NORMAL" mode which will provide good performance with most Battery Types and applications.

The BTS is NOT intended for consumer use. If your Dealer or Authorized Service Technician is unable to offer you this Service, contact the Factory for assistance.

The charger is Factory set in the "Normal Mode" unless otherwise specified by the original purchaser.



All 117 AC volt PS and LS chargers have an AC input fuse located in the fuse drawer found below the AC power cord. To access the fuse, you must remove the power cord first and use a screwdriver to open the fuse compartment. If the fuse requires replacement, the same type and value fuse must be used. The rating for the fuse is found on the serial number label.

BATTERY CHARGER LIMITED WARRANTY

Manufacturer warrants the accompanying battery charger (the "UNIT") to be free from defects in materials and workmanship for a period of 12 months from the date of purchase. In addition, the manufacturer warrants the transformer for a period of two years. This warranty applies to normal and non-commercial use and is subject to the terms and conditions given below.

For performance of the warranty, contact your dealer for information. If it is necessary to return the unit for repair or replacement, you will be given a return authorization number. The Unit must be returned freight prepaid, in the original factory carton in order to prevent damage. Warranty does not cover such damage.

To qualify for warranty service, the following must be returned with the Unit; (a) A letter explaining the difficulties experienced with the Unit, (b) The return authorization number and (c) A copy of proof of the original purchase, such as a sales receipt or canceled check.

Failure to operate or maintain the Unit in compliance with the instructions furnished in the owner's manual, unreasonable use, use of replacement parts and repairs not authorized by the manufacturer, accidents, negligence or commercial use voids this warranty. Parts subject to normal wear and tear are not covered by this warranty.

Should a unit be returned for a cause not covered by this warranty or without the items specified above, any repairs, handling or testing will be made at the owner's expense and risk.

ALL IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS ARE LIMITED IN DURATION TO NINETY (90) DAYS. REPAIR OR REPLACEMENT AS STATED HEREIN IS THE OWNER'S SOLE REMEDY. FOR BREACH OF ANY KIND AND ALL WARRANTIES AND THE SOLE REMEDY FOR THE MANUFACTURER LIABILITY OF ANY KIND WITH RESPECT TO THE UNIT.

THERE SHALL BE NO LIABILITY FOR SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO, LOSS OF USE, INCONVENIENCE, LOSS OF TIME, OR DAMAGES TO ANY BUSINESS PROPERTY, WHETHER AS A RESULT OF BREACH OF WARRANTY, NEGLIGENCE, STRICT LIABILITY IN TORT, OR OTHERWISE.

This warranty gives you specific legal rights. You may have other rights which vary from state to state. Some states do not allow limitations on the length of any implied warranty or the limitations or exclusion of incidental or consequential damages. Because of this, the above limitations or exclusions may not apply to you.

MODEL : _____ Volt _____ Amp _____ SERIAL # _____

(record here for your records)