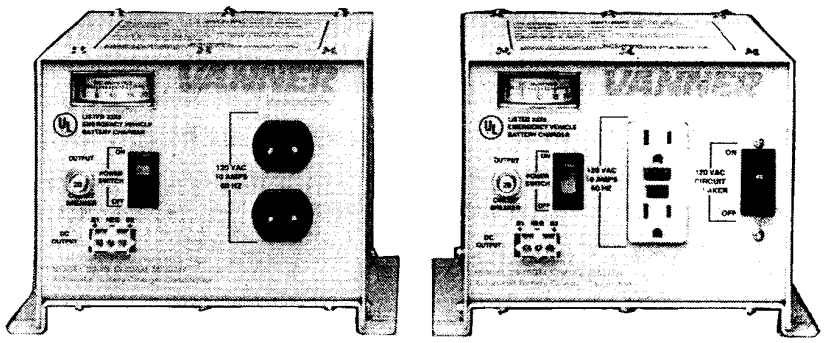
VANNER
POWER GROUP

OWNERS MANUAL
AUTOMATIC
BATTERY CHARGER/CONDITIONER

MODELS 30-10 and 30-10GFI



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INTRODUCTION

Congratulations upon the purchase of your new Vanner Chargemaster Automatic Battery Charger/Conditioner. This equipment is carefully engineered and is a high quality, durable product incorporating the latest in electronic technology. It is designed to give you the quality and service you expect in a high-tech battery charging system. To familiarize yourself with all the features of your Vanner Chargemaster, please read the following instructions carefully and retain this Manual for future reference. Thank you for your confidence in Vanner; we appreciate it and commit ourselves to the continued development of new, quality products incorporating the latest design and componentry technology available.

I. GENERAL INFORMATION

DESCRIPTION

Vanner Chargemaster Automatic Charger/Conditioners are designed and built to provide regulated charging current for both stationary and mobile applications where extended battery life and charging system reliability are required. The Chargemaster's rugged design insures it can withstand the road shock and vibration normally associated with emergency and service vehicles. Built for heavy duty usage and accurate and efficient charging power, these automatic chargers are not affected by deviations of input frequency (Hertz), even when used with portable generators or in areas having poorly regulated AC line power, and still produce regulated charging output.

Vanner Chargemaster Automatic Charger/Conditioners are fully automatic and electronically monitor the condition of the battery 120 times per second and provide DC current at a variable rate which conditions and maintains the battery(ies) at optimum charge.

There are two basic models, the 30-10 and the 30-10GFI. Both are rated at 10 amps continuous charge, however the 30-10GFI incorporates a front panel mounted GFCI (Ground Fault Circuit Interrupt) receptacle. This feature provides protection from electrical shock by instantly turning off the 120 Vac current when abnormal leakage is sensed.

Both the 30-10 and 30-10GFI are current limited and feature automatic high temperature shutdown.

AGENCY APPROVAL

Vanner Charger/Conditioner Models 30-10 and 30-10GFI are listed by Underwriters Laboratories for use in recreation, emergency and other land vehicles. These charger/conditioners comply with UL Standard 1236 for stationary battery chargers (a cord connected battery charger that is intended to be fastened in place or located in a dedicated place). UL has also certified these battery chargers to Federal Specifications KKK-A-1822C for use in emergency vehicles.

GENERAL SPECIFICATIONS

AC INPUT:	120 Vac; 60 Hz; 15 amps maximum, 12 amps maximum continuous.
DC OUTPUT:	13.25 Vdc, 10 amps maximum continuous.
AC OUTLET:	15 amps maximum, 10 amps maximum continuous.
DIMENSIONS:	8½ W x 6¼ H x 6 L
WEIGHT:	11 Lbs.

IMPORTANT SAFETY INSTRUCTIONS
SAVE THESE INSTRUCTIONS

1. SAVE THESE INSTRUCTIONS: This manual contains important safety and operating instructions for battery charger models 30-10 and 30-10GFI.
2. Before using battery charger, read all instructions and cautionary markings on (1) battery charger, (2) battery, and (3) product using battery.
3. CAUTION: To reduce the risk of injury, charge only lead acid and gel 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 persons.
6. To reduce the 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 subject to damage or stress.

8. 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:
    a. That pins on the plug of extension cord are the same number, size, and shape as those of plug on the charger;
    b. That extension cord is properly wired and in good electrical condition; and;
    c. That wire size is large enough for AC ampere rating of charger as specified in Table 1.
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; take it to a qualified serviceman.
11. Do not disassemble charger; take it to a qualified serviceman when service or repair 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. Turning off controls will not reduce this risk.

TABLE 1

RECOMMENDED MINIMUM AWG SIZE FOR EXTENSION CORDS FOR BATTERY CHARGERS

AC Input Rating, Amperes[a]		AWG Size of Cord			
		Length of Cord, Feet			
Equal to or greater than	but less than	25	50	100	150
0	2	18	18	18	16
2	3	18	18	16	14
3	4	18	18	16	14
4	5	18	18	14	12
5	6	18	16	14	12
6	8	18	16	12	10
8	10	18	14	12	10
10	12	16	14	10	8
12	14	16	12	10	8
14	16	16	12	10	8
16	18	14	12	8	8
18	20	14	12	8	6

[a]If the input rating of a charger is given in watts rather than in amperes, the corresponding ampere rating is to be determined by dividing the wattage rating by the voltage rating. For example:

$$\frac{\text{1250 Watts}}{\text{125 Volts}} = \text{10 amperes}$$

CAUTION AND SAFETY

All wiring must conform to the National Electrical Code, state, local or other codes in effect at the time of installation.

CAUTION

Not intended for installation under hood or in the engine compartment.

Do not expose to rain, replace defective cords or wires immediately.

WARNING

Connect or disconnect the battery plug only when the supply cord is disconnected to prevent possible arcing and possible burning.

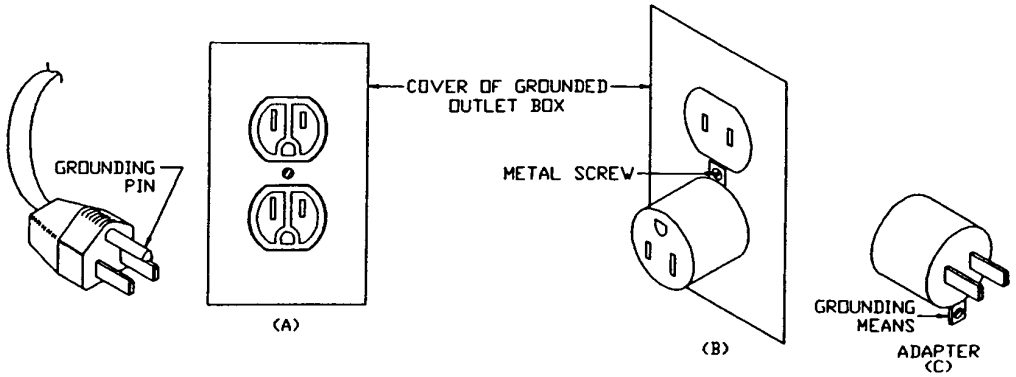
II. INSTALLATION

GROUNDING INSTRUCTIONS

A. Cord connected chargers - Charger should be grounded to reduce risk of electric shock. Charger is equipped with an electric cord having an equipment grounding conductor and grounding plug. The 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 qualified electrician. Improper connection can result in a risk of an electric shock.

FIGURE 1
Grounding Methods



This battery charger is for use on a nominal 120-volt circuit, and has a grounding plug that looks like the plug illustrated in sketch "A" in Figure 1. A temporary adapter, which looks like the adapter illustrated in sketches "B" and "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.

DANGER- Before using adapter as illustrated, be certain that center screw of outlet plate is grounded. The green-colored rigid ear of lug extending from 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.

B. Permanently connected chargers - This battery charger should be connected to a grounded, metal, permanent wiring system; or an equipment grounding conductor should be run with circuit conductors and connected to equipment grounding terminal or lead on battery charger. Connections to battery charger should comply with all local codes and ordinances.

MOUNTING

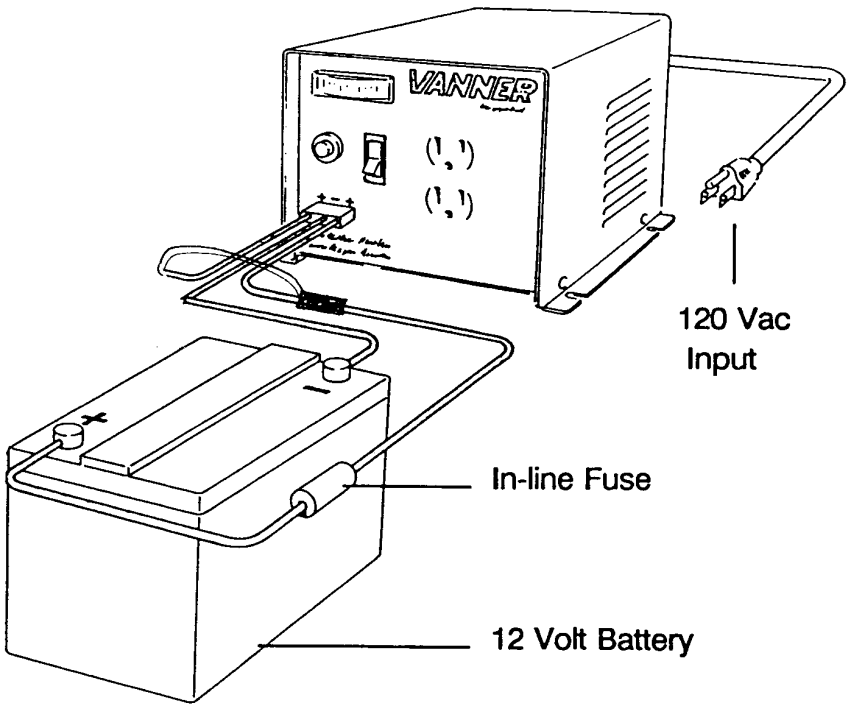
Locate a secure, flat, horizontal surface, in a convenient location but not in the engine or battery compartment, or under the hood. The location should provide adequate ventilation and clearance to maintain room temperature while the unit is operating. At least 4 inches of clearance should be maintained on all sides. The unit should be secured to the mounting surface with four (4) #10 screws (not supplied) through the slots in the bottom flange of the battery charger.

AC INPUT WIRING

Your Vanner Charger/Conditioner has been supplied with a six foot, 14 AWG, two-wire-plus-ground, utility power input cord ending in a standard NEMA 5-15P configuration plug. This plug should connect to a standard NEMA 5-15R configuration receptacle except as described in Section II, Installation, Grounding Instructions. The Charger/Conditioner is to be connected to a standard 15 or 20 amp protected circuit. This Charger/Conditioner is not allowed to be permanently installed except as permitted in the National Electric Code (NEC) Article 400-7(a). Since the installation requires the use of an attachment plug, NEC Article 400-7(b), we recommend staying with the NEMA 5-15P and 5-15R configuration.

DC OUTPUT WIRING

An 18 inch DC output harness is supplied with the Charger/Conditioner for connection to the battery. For applications where the DC output wire must be in excess of 18 inches, 14 AWG butt splices are supplied and are to be used when installing additional 14 AWG cable to the harness. National Electric Code requires that an in-line fuse be installed within 18 inches of the Positive battery connection when the DC output cable extends beyond 18 inches. The Charger/Conditioner is to be connected to a 12 volt, negative ground, single battery system. For a single battery system, both red wires of the Charger/Conditioner are to be spliced together so they are both connected to the battery positive. Do not try to use one of the battery positive wires to run an indicator light because the Charger/Conditioner may not sense the actual battery condition correctly. Proper polarity must be observed; RED for POSITIVE, BLACK for NEGATIVE.



III. OPERATING INSTRUCTIONS

Before turning on the Chargemaster Automatic Charger/Conditioner, the DC output wires to the battery must be connected properly to the Three Pin DC Output Receptacle (ref. "DC Output Wiring"). All Charger/Conditioners are turned on by way of the Lighted Power Switch and the Main Output Circuit Breaker. Regarding the Model 30-10GFI, power to the 120 volt GFCI Convenience Receptacle and Charger/Conditioner is controlled by the 15 Amp Toggle Switch Circuit Breaker. If the Charger/Conditioner is operating properly, the Power Switch will light and the Ammeter will indicate the actual rate of charge entering the battery(ies). If you are charging dual batteries, the Ammeter reading will represent the combined rate of charge into both batteries. For example, one battery drawing 2 amps and the other 5 amps will indicate a total of 7 amps being charged. For operation and maintenance of the GFCI Convenience Receptacle, please refer to GFCI Test Procedures, Page# 10.

AUTOMATIC CHARGING AND CONDITIONING FEATURE

Typically, the Automatic Charger/Conditioner will provide up to 10 amps of charge to a battery, depending on degree of discharge, until the battery is almost fully charged. Then the charge rate will taper off until the battery is fully charged. It will maintain the battery at a constant 13.25 volts by way of an electronic conditioning monitor that allows only very small current pulses to enter the battery. These electronically controlled pulses, rather than the common trickle charge, will keep the battery fully charged yet avoid boiling, gassing or sulfating which can damage or destroy batteries. When the Automatic Charger/Conditioner is maintaining the full charge, the meter will indicate full charge by slightly pulsating the meter needle near the zero mark.

IV. TROUBLE SHOOTING GUIDE

PROBLEM: Power switch does not light when switched to ON.

CHECK: Make certain that the Charger/Conditioner is plugged into a working 120 volt receptacle. For GFI Series only, check to be certain that the 120 volt main input breaker is switched on; also check the reset button on the GFCI receptacle to be sure it is properly set.

PROBLEM: Unit is turned on and connected to battery but the ammeter shows no charge occurring.

CHECK: The output circuit breaker button, this button must be pushed IN for the Charger/Conditioner to operate properly. Check battery voltage with a reliable volt meter. If battery voltage is between 13.20 volts and 14.20 volts, the vehicle alternator has charged the battery(ies) to a higher voltage level that the Charger/Conditioner maintains. In this event, the Charger/Conditioner is operating in a stand-by mode and will begin operating automatically after the battery surface charge disappears.

CHECK: Examine the DC wiring. Both positive wires **MUST** be wired to a battery positive circuit. Do not try to use one of the battery positive wires to run an indicator light because the Charger/Conditioner may not sense the actual battery condition correctly.

PROBLEM: The output circuit breaker opens when the unit is turned on.

CHECK: Battery connection is reversed, be certain RED to POSITIVE and BLACK to NEGATIVE.

CHECK: Examine the DC output wires, they may be shorted together.

PROBLEM: The 120Vac circuit breaker, protecting the 120 GFCI output on the GFI models, trips open.

CHECK: The 120 volt AC load from the GFCI receptacle may be shorted or overloaded. The Charger/Conditioner output wires may be shorted together.

PROBLEM: For GFI Series only, the GFI trips.

CHECK: Unplug the plug from the GFI receptacle. If it no longer trips then the GFI circuit has detected a ground fault in the 120Vac wiring. Have a qualified electrician check outside receptacles for a neutral shorted to ground, condensing moisture and other ground fault causes.

PROBLEM: Batteries seem to be over charging. Battery voltage has been greater than 13.6 volts for several hours and DC ammeter shows charging current.

CHECK: Examine the DC wiring. Both positive wires **MUST** be wired to a battery positive circuit. Do not try to use one of the battery positive wires to run an indicator light because the Charger/Conditioner may not sense the actual battery condition correctly.

V. MAINTENANCE INSTRUCTIONS

There are no user serviceable components in these Charger/Conditioners. For service refer to Vanner Inc. or other qualified service personnel. For continued reliability and safety, a monthly maintenance program should be implemented to include the following:

1. Check to insure that all external wiring is secure and corrosion free.

2. Check air ventilation openings for dust and other obstructions.

3. Examine all connector housings, lamps and switches for cracks and breaks.

4. Test GFCI, Model 30-10GFI only. See GFCI Test Procedure.

GFCI TEST PROCEDURE - Model 30-10GFI

The GFCI receptacle needs to be tested monthly for maximum protection against shock hazard. To test the GFCI:

1. Supply power to the outlet by turning on the main input breaker and switching on the lighted power switch. When lighted this power switch will indicate that the GFCI is reset.

2. Push the black TEST button. The RESET button should pop out and the lighted in the power switch should go OFF. If not, do not use the charger. Have a qualified repair technician replace the defective GFCI.

3. If the GFCI tests O.K., restore power by pushing the RESET button back in. The RESET button must be pushed firmly and fully into place until it locks and remains depressed. If the GFCI fails to reset properly, do not use the charger. Have a qualified repair technician replace the defective GFCI.

4. Record the test on the GFCI Test Record Chart.

VI. WARRANTY INFORMATION

For your Vanner unit to be covered by our Limited Warranty, the Warranty Registration card enclosed with the unit must be completely filled in and returned to Vanner.

LIMITED WARRANTY

1. Vanner Inc., referred to herein as Vanner, warrants that this product is free from defects in material and workmanship for a period of one (1) year from its date of purchase.

2. This warranty does not cover defects caused by misuse, neglect, accident, reversed polarity, unauthorized repairs and/or replacements.

3. All warranties of merchantability and fitness for a particular purpose; written or oral, expressed or implied, shall extend only for one (1) year. There are no other warranties which extend beyond those described on the face of this warranty.

4. Vanner does not undertake responsibility to any purchaser of its products for any undertaking representation, or warranty made by any dealers or distributors selling its products beyond those herein expressed.

5. Vanner does not assume responsibility for incidental or consequential damages, including, but not limited to responsibility for loss of use of this product, loss of time, inconvenience, expense for telephone calls, shipping expenses, loss or damage to personal property, or loss of revenue.

6. Vanner reserves the right to repair, replace, or allow credit for any material returned under this warranty. Any damage caused by the customer will be charged or deducted from allowance.

Vanner Weldon Inc.
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VII. GROUND FAULT CIRCUIT INTERRUPTER (GFCI) TEST RECORD CHART

For maximum protection against electrical shock hazard, operate test button on the GFCI at least once a month and record it in the chart below.

GROUND FAULT CIRCUIT INTERRUPTER
TEST RECORD CHART

Enter Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
19__												

NOTE: We recommend that this page be photocopied and the copy be placed in your maintenance and test record notebook.

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