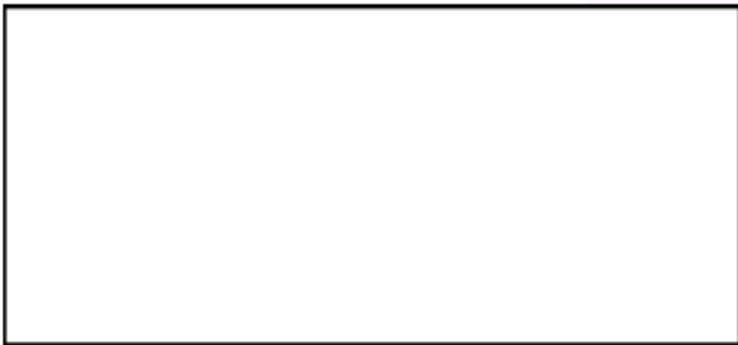




Hard Wired
Reliability

Installation and Operation Manual

SCA Standby Battery Charger



205B Konrad Cres., Markham, ON, L3R 8T9
www.chargers.ca
"Building Canada's toughest battery chargers
for over a century."

Congratulations on your purchase of a quality-built, Canadian-made Vulcan charger

With more than a century of experience, Vulcan Electric is renowned for its robust, heavy-duty charger designs. This SCA charger is the Engineer's Choice for charging the starting battery on a critical Standby Generator System.

With its proven capabilities, the SCA's heavy duty design will provide many years of trouble-free service in the most demanding conditions.

Operating Features

The SCA battery charger is a robust, automatic SCR controlled constant voltage with current-limiting design. During the recharging process, the battery charger will output at its full rated current (indicated by the red **Current Limit** LED) until the battery terminal voltage approaches the float voltage. At that point the charger output current will begin to taper down, and the red **Current Limit** LED will go out, and the green **Float Charge** LED will light. This approach to charging will rapidly recharge the battery while minimizing "battery gassing," prolonging battery life.

A 2% voltmeter and ammeter are standard on each unit.

The Product Label

This model is available with a wide range of charger output voltages and currents, so check your product label and ensure you have the correct charger and DC output voltage for your batteries. The product label identifies the model, CSA approval and corresponding serial number, included options, input voltage and current ratings, as well as the DC output voltage and current. Please review and ensure that you have the correct charger for your application. The model number indicates charger features as follows:

Example: SCA 24/10 is an SCA-type, 24-volt DC, 10-Amp charger.

Feature designations include:

- **LVTD:** Low-Voltage Alarm
- **AC:** AC Fail Alarm
- **GFP:** Ground Fault Alarm (Positive)
- **N30D6:** 30-day Automatic Equalize
- **DV:** Digital Voltmeter
- **BCT1:** Kit Form Charger
- **HV:** High-Voltage Alarm
- **NC:** No Charge Alarm
- **GFN:** Ground Fault Alarm (Negative)
- **AT:** Alarm Test
- **DA:** Digital Ammeter
- **DS:** Drip Shield

Once you determine that you have the correct charger for your application, please inspect the unit for shipping damage prior to installation. Immediately report any damage to the shipping company.

Charger Installation Procedures



WARNING: The following procedures must be followed exactly to avoid injury, fire, or risk of electric shock.

Inspect your charger thoroughly prior to installation to ensure that the unit is not damaged and that parts have not loosened during shipping. Inspect the product nameplate and cross reference the information with the packing slip and your order to ensure you have received the correct charger.



Mount the charger in a dry location that is free from vibration and offers sufficient ventilation. Slots and openings have been added to the cabinet for the purpose of ventilation. To ensure reliable operation of the charger, and to prevent it from overheating, these openings must not be blocked or covered.

Do not install electronic or electrical equipment including this battery charger in the battery compartment. Lead acid batteries emit hydrogen and oxygen gases during recharging, therefore, you must vent the battery compartment to prevent these gases from accumulating. Never smoke or use open flame when working around batteries. Always wear appropriate safety apparel, including eye protection, when handling or working around batteries.



When installing and connecting the charger to the batteries, remember that DC cables connected to the battery should be as short as possible. Vulcan Electric recommends using only copper wire. In Canada, all wiring must be completed in accordance with the Canadian Electrical Code and all local electrical codes to ensure a safe installation. Connections to the battery posts must be made with permanent connectors that provide a reliable low-resistance connection. Alligator clips are not a suitable connection. Clean your batteries' contacts regularly.

Only qualified personnel should attempt to install this product.

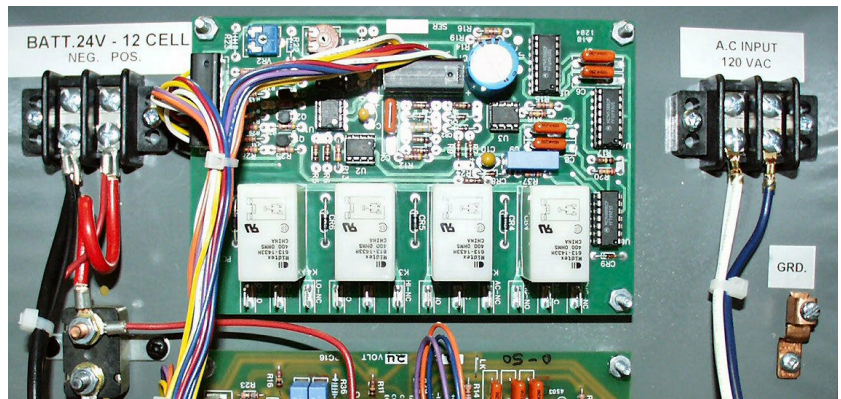
Connecting the Battery and AC Supply to the Charger

Please refer to the nameplate of your particular unit to confirm the charger's ratings and installed options. All SCA chargers are wired with AC input circuit protection and an output DC circuit breaker. In Canada, all wiring must comply with the Canadian Electrical Code. Comply with all applicable electrical codes to ensure a safe installation. Only qualified personnel should install this charger.

1. Connect the AC (nominal) supply to the terminals on the right, designated "AC INPUT".

2. A terminal marked "GRD" is provided for the charger to be grounded. Do not operate this unit in an ungrounded state.

3. The battery is connected to the terminals on the left, marked "BATT". Red is positive, and black is negative. Make sure that the battery voltage corresponds to the battery charger voltage, and that your polarity is correct.



4. The LVTD, HV, AC and NC alarm options use Form "C" relays with normally closed and normally open termination options for an external alarm, as well as an LED on the cabinet face. The alarm board is centrally located between the DC Output Terminals on the left, and the AC Input Terminals on the right. (See the screen-printing on the board for the appropriate alarm fast-on terminal locations. The maximum rating of the relays in the alarm circuits is **10 amperes, 120 volts AC**. This maximum applies to all alarm lamps or bells connected through the alarm terminals. Do not exceed these limits under any conditions. Please note the LVTD alarm has a standard 1-2 minute time delay.

Be sure to disconnect the power to the charger before you ever open the cabinet for service.

If you require assistance, contact the Vulcan Electric hotline at 1-800-268-6949,
phone 905-513-1550, or fax 905-513-1557.

Vulcan Electric, 40 Telson Rd., Markham, ON, Canada, L3R 1E5
Email: info@chargers.ca Website: www.chargers.ca

Normal Operation

1. Turn the Main Switch to the ON position. The “AC ON” pilot light will illuminate to confirm power is available to the charger.
2. If the battery is discharged, the charger will begin to charge it at the maximum charger rating, and the red “Current Limit” LED will light to confirm charging has begun.
3. When the battery terminal voltage approaches the predetermined float voltage setting, the red “Current Limit” LED will go out, and the green “Float Charge” LED will light. At this point, the charger’s output current will rapidly decrease (with respect to the battery terminal voltage) and then stabilize at the required “float” output to maintain the correct battery voltage.

Equalize Function

A standard manual two-position switch marked “Normal” and “Equalize” is supplied on units specified without an auto equalize option. For manual operation, this switch must be kept at “Normal”. Every 30 days, this switch should be placed on “Equalize” for a period of six hours. This will help balance the cell voltage and prolong the life of the battery.

NOTE : Be sure to remember to return the switch to the “Normal” position after six hours. This Equalize function is manual, and will not turn off automatically. Damage to your batteries may occur if the charger is left in the Equalize mode for too long.

Models with a 30-Day Automatic Equalize (N30D6) include an electronic timer and controller that will monitor time and automatically cycle the Equalize function for six hours every 30 days. You may initiate the Equalize function manually using the **Momentary Toggle On and Toggle Off Activation Switch** marked with Start and Stop, and located beside the Equalize LED.

This switch can be operated as follows:

1. If you manually activate the timer, the charger will enter an Equalize Mode for six hours.
2. If you manually deactivate the timer within the 6-Hour Cycle, the 30-day Cycle will not change.
3. If you allow the Equalize function to complete the 6-Hour Cycle, the 30-day timer will reset to Day 1.
4. If left alone, the charger will automatically enter and complete a 6-Hour Equalize Cycle every 30 days, following the last complete cycle.

Optional Alarms

The four optional main alarms located on the alarm board include:

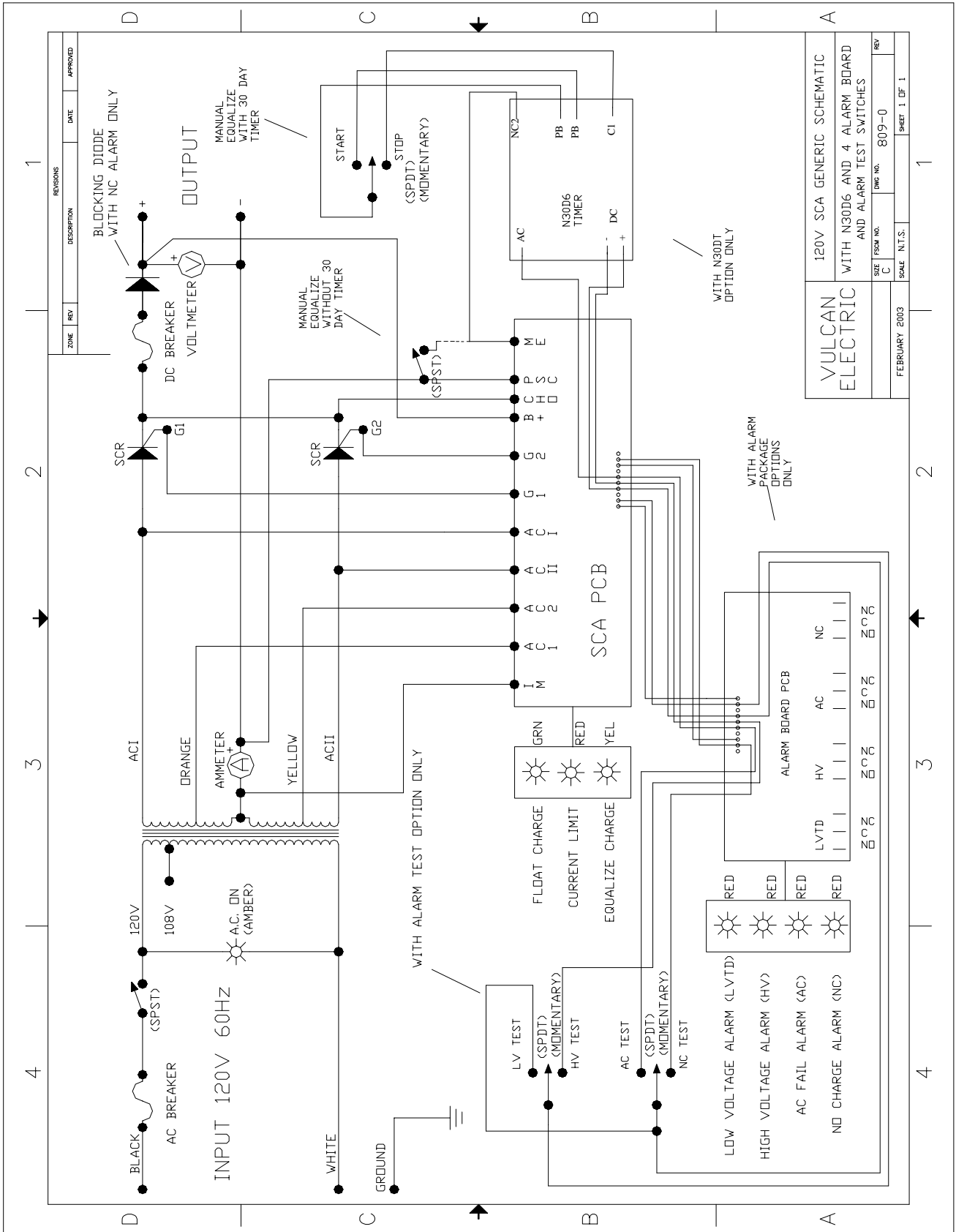
- **LVTD** : The Low Battery Voltage Alarm with a standard 1-2 minute delay is set at the factory, and will activate if the battery voltage drops below 1.8 volts per cell.
- **HV**: The High Battery Voltage Alarm is set at the factory and will activate if the battery voltage rises above 2.5 volts per cell.
- **NC** : The No Charge Alarm monitors the DC breaker and the SCR, and will activate if the charger output fails.
- **AC**: The A C Fail Alarm monitors the AC input and AC circuit protection and activates if there is a loss of AC power from the source, or if the AC circuit protection trips.
- **GFP, GFN**: The Ground Fault Alarm is an external Form “C” relay will close when activated, should a ground fault condition exist. No LED or lamp is included with this option. Only a Form “C” relay and external alarm terminals are provided .

Optional Alarm Test Feature (AT)

This feature allows you to test and simulate the four main alarms with ease. Just press and hold the desired alarm’s momentary rocker switch. The Alarm Board will respond by lighting the corresponding LED and activate the external alarm relay. The LVTD alarm has a time delay of approximately 1-2 minutes. As the alarm board function is also being tested, you will need to hold the rocker switch for approximately 1-2 minutes.

Charger Maintenance

This battery charger requires little maintenance other than the occasional inspection, vacuuming of dust, and a check to ensure the ventilation openings are free of obstruction. Qualified personnel should inspect the charger regularly.



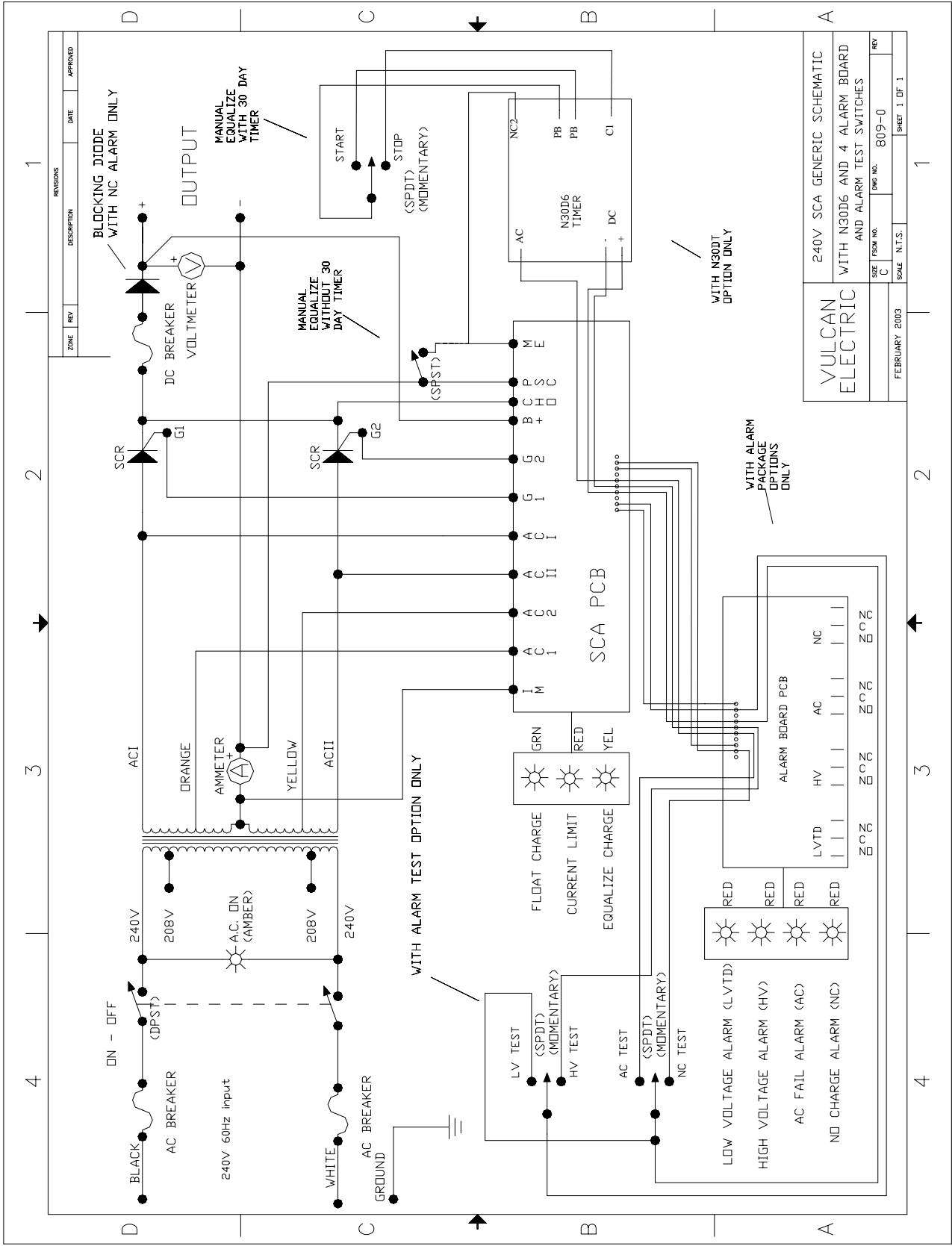
REVISIONS		DATE	APPROVED
ZONE	REV	DESCRIPTION	

VULCAN ELECTRIC

120V SCA GENERIC SCHEMATIC
WITH N30D6 AND 4 ALARM BOARD
AND ALARM TEST SWITCHES

SIZE: F50M NO. C
DWG NO.: 809-0
REV: 1

FEBRUARY 2003
SCALE: N.T.S.
SHEET 1 OF 1



ZONE	REV	DESCRIPTION	DATE	APPROVED

VULCAN ELECTRIC		240V SCA GENERIC SCHEMATIC WITH N30D6 AND 4 ALARM BOARD AND ALARM TEST SWITCHES	
		SIZE PDSW NO. C	DWG NO. 809-0
FEBRUARY 2003		SCALE N.T.S.	SHEET 1 OF 1

1
2
3
4

1
2
3
4

D
C
B
A

D
C
B
A

BLOCKING DIODE
WITH NC ALARM ONLY

OUTPUT

MANUAL
EQUALIZE
WITH 30 DAY
TIMER

MANUAL
EQUALIZE
WITHOUT 30
DAY TIMER

START

STOP
(SPDT)
(MOMENTARY)

NC2

AC

N30D6
TIMER

PB
PB

DC

WITH N30D6
OPTION ONLY

WITH ALARM
PACKAGE
OPTIONS
ONLY

SCA PCB

ALARM BOARD PCB

ON - OFF
(DPST)

AC BREAKER

240V 60Hz input

A.C. ON
(AMBER)

240V

208V

208V

240V

WHITE

AC BREAKER

GROUND

LV TEST

(SPDT)
(MOMENTARY)

HV TEST

(SPDT)
(MOMENTARY)

AC TEST

(SPDT)
(MOMENTARY)

NC TEST

LOW VOLTAGE ALARM (LVTD)

HIGH VOLTAGE ALARM (HV)

AC FAIL ALARM (AC)

NO CHARGE ALARM (NC)

FLUAT CHARGE

CURRENT LIMIT

EQUALIZE CHARGE

GRN

RED

YEL

I M

A C I

A C II

A C I

A C II

A C I

A C II

G 1

G 2

B +

C H

D C

M E

P B

Ten Year SCA Type Charger Limited Warranty



Vulcan Electric manufactures its hardware products from parts and components that are new in accordance with industry-standard practices. **Vulcan Electric warrants this SCA charger to be free from defects in workmanship or materials for one year from the date of purchase. The rectifier is warranted for an additional four years, and the transformer is warranted for ten years from the date of purchase.** During this period, Vulcan Electric will, at its options, repair or replace the defective product free of charge. This warranty will be considered VOID if the unit has suffered any physical damage or alteration, either internally or externally, and does not cover damage arising from improper use, or from use in an unsuitable environment. This warranty will not apply where the product has been misused, neglected, improperly installed, or repaired by anyone than Vulcan Electric or an Authorized Service Depot. In order to qualify for the warranty, the product must not be disassembled or modified without prior authorization by Vulcan Electric.

Repair or Replacement are your sole remedies and Vulcan Electric shall not be liable for damages, whether direct, incidental, special, or consequential, even though caused by negligence or fault.

Vulcan Electric owns all parts removed from repaired products. Vulcan Electric uses new parts made by various manufactures in performing warranty repairs and building replacement products. If Vulcan Electric repairs or replaces a product, its warranty term is not extended.

User is responsible for determining whether this Vulcan Electric product is fit for a particular purpose and suitable for user's method of application.

Vulcan Electric shall not otherwise be liable for loss or damages, whether direct, indirect, special, incidental, or consequential, regardless of the legal theory asserted, including, but not limited to, contract, negligence, warranty, or strict liability.

THIS IS VULCAN ELECTRIC'S ONLY WARRANTY, AND THE COMPANY MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

To Obtain Warranty Service:

If your Vulcan Electric Charger requires service, please return it to the place of purchase. If you are unable to contact your merchant, or the merchant is unable to provide service, contact:

Vulcan Electric
1512578 Ontario Ltd., 40 Telson Rd., Markham, Ontario, L3R 1E5
Telephone: (905) 513-1550, Fax: (905) 513-1557
Website www.chargers.ca

You must obtain a Return Authorized Number from Vulcan Electric before returning a Vulcan Electric Charger directly to Vulcan. Do not return a Vulcan Electric Charger without first obtaining a Return Authorization Number. When you contact Vulcan Electric to obtain service, be prepared to supply the Serial number of your Vulcan Electric Charger. The serial number is located on the front of the unit. The following information needs to be supplied:

- A description of the problem
- Serial number of the unit (serial number is located on the front of the unit) name and address of the dealer, where you purchased the unit, and date of purchase.
- Package the unit safely, preferably using the original box and packing materials, Include the Return Authorization Number, a return address where the repaired unit can be shipped, a contact name and telephone number, and brief description of the problem.

SHIP ALL UNITS PREPAID.

Garantie Limitée de Dix Ans sur le SCA Chargeur



Vulcan Electric fabrique ses produits à partir de pièces et composants neuves, en accord avec les pratiques standards de l'industrie. **Vulcan Electric garantit le chargeur contre tout défaut dû aux pièces ou à la main-d'œuvre pour un an suivant la date d'achat. Le redresseur AC/DC est garanti pour période additionnelle de quatre ans, alors que le transformateur est garanti pour une période de dix ans suivant la date d'achat.** Au cours de cette période, Vulcan Electric pourra, à son choix, réparer ou remplacer sans frais le produit défectueux. Cette garantie sera considérée nulle si l'unité a subi un dommage physique ou a été altérée, de l'intérieur ou de l'extérieur et ne couvre pas les dommages causés par une utilisation inappropriée ou l'utilisation dans un environnement inapproprié. Cette garantie ne s'appliquera pas dans les cas où le produit a été utilisé de façon inappropriée, négligé, mal installé ou réparé par quiconque autre que Vulcan Electric ou un centre de service autorisé. Pour que la garantie s'applique, le produit ne doit pas avoir été démonté ou modifié sans autorisation préalable de Vulcan Electric.

La réparation ou le remplacement sont vos seules options et Vulcan Electric ne pourra être tenue responsable de dommages qui soient directs, accessoires, spéciaux ou immatériels.

Vulcan Electric est propriétaire de toutes les pièces provenant de produits réparés. Vulcan Electric utilise des pièces neuves provenant de diverses sources lorsqu'elle procède à des réparations sous garantie ou fabrique un produit de remplacement. Si Vulcan répare ou remplace un produit, le terme de la garantie n'est pas prolongé.

Il est de la responsabilité de l'utilisateur de déterminer si un produit Vulcan Electric convient à un usage en particulier et convient à la façon dont on va l'utiliser.

Vulcan Electric ne pourra être tenue responsable de pertes ou de dommages qui soient directs, accessoires, spéciaux ou immatériels, sans égard à l'argument légal présenté, incluant, mais non limité à, des facteurs tels que contrat, négligence, garantie ou responsabilité stricte.

CECI EST L'UNIQUE GARANTIE DE VULCAN ELECTRIC, ET LA COMPAGNIE NE FOURNIT AUCUNE GARANTIE, EXPLICITE OU IMPLICITE, INCLUANT DES GARANTIES DE REVENTE OU D'APPLICABILITÉ À UN USAGE PARTICULIER.

Pour obtenir une réparation sous garantie:

Si votre chargeur Vulcan Electric doit faire l'objet de réparations, veuillez le retourner à l'endroit où il a été acheté. Si vous êtes incapable de contacter le marchand ou si le marchand est incapable de fournir le service, contactez:

Vulcan Electric
1512578 Ontario Ltd., 205B Konrad Cres., Markham, Ontario, L3R 8T9
Téléphone au (905) 513-1550, Télécopieur au (905) 513-1557
Internet : www.chargers.ca

Vous devez obtenir un numéro d'autorisation de retour de la part de Vulcan Electric avant de retourner un chargeur Vulcan Electric directement à Vulcan. Ne retournez pas un chargeur Vulcan Electric sans avoir au préalable obtenu un numéro d'autorisation de retour. Lorsque vous communiquez avec Vulcan Electric pour du service, ayez à portée de la main le numéro de série de votre chargeur Vulcan Electric. Le numéro de série est situé sur le devant de l'unité.

- Une description du problème
- Le numéro de série de l'unité (le numéro de série est situé sur le devant de l'unité) Le nom et l'adresse du revendeur de qui vous avez acheté l'unité ainsi que la date d'achat.
- Emballez l'unité avec soin, préférablement en utilisant le matériel d'emballage et la boîte d'origine. Incluez le numéro d'autorisation de retour, une adresse de retour où l'unité réparée pourra être envoyée, un nom de contact avec numéro de téléphone ainsi qu'une brève description du problème.

L'ENVOI DES UNITES DOIT ETRE PRE-PAYE.