

**EXTRA-SMALL
CABINET
NORTHEAST
INDUSTRIAL
CHARGER
MANUAL**

INDEX

SECTION 1	GENERAL
SECTION 2	VOLTAGE CONVERSION
SECTION 3	BATTERY
SECTION 4	OPERATION
SECTION 5	DESCRIPTION OF CIRCUIT
SECTION 6	MAINTENANCE AND SERVICE
SECTION 7	WIRING DIAGRAM EXTRA SMALL LOW VOLTAGE
SECTION 8	PARTS LIST
SECTION 9	WARRANTY

SECTION 1

GENERAL

MODEL NUMBER _____

SERIAL NUMBER _____

Industrial chargers, when not installed, operated, or maintained properly, can cause serious injury or death. The operator should observe all rules of safety when using the product in daily operation and when servicing. (A qualified technician or licensed electrician should be the only person to install and service the unit.)

NORTHEAST BATTERIES

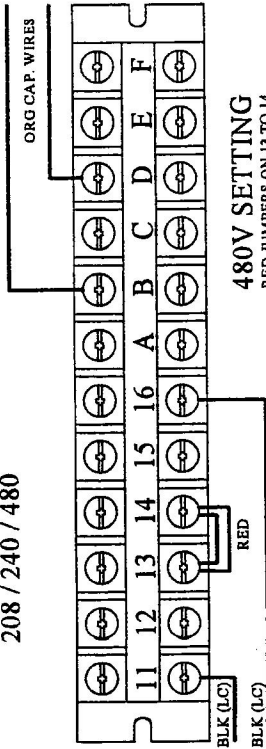
**2300 David Drive
Bristol, PA 19007
Ph. 800-443-1500
Fax 215-788-8045**

DANGER-ELECTRIC SHOCK CAN KILL!

DISCONNECT UNIT FROM INPUT POWER AND BATTERY BEFORE SERVICING UNIT.

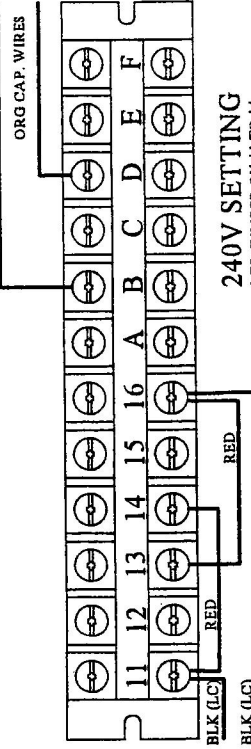
HIGH VOLTAGE CONVERSION

208 / 240 / 480



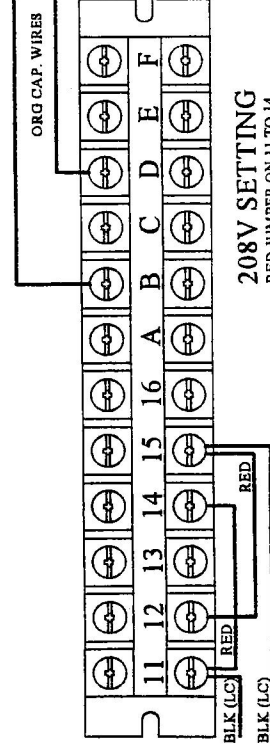
480V SETTING

RED JUMPERS ON 13 TO 14
BLK WIRE ON 11
BLK WIRE ON 16
SEE FUSE TABLE FOR FUSE CHANGE



240V SETTING

RED JUMPER ON 11 TO 14
RED JUMPER ON 13 TO 16
BLK WIRE ON 11
BLK WIRE ON 16
SEE FUSE TABLE FOR FUSE CHANGE



208V SETTING

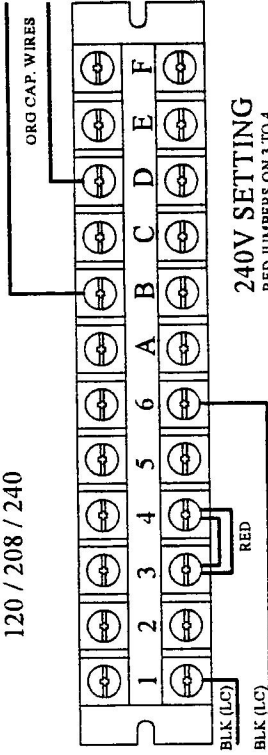
RED JUMPER ON 11 TO 14
RED JUMPER ON 13 TO 15
BLK WIRE ON 11
BLK WIRE ON 15
SEE FUSE TABLE FOR FUSE CHANGE

DANGER-ELECTRIC SHOCK CAN KILL!

DISCONNECT UNIT FROM INPUT POWER AND BATTERY BEFORE SERVICING UNIT.

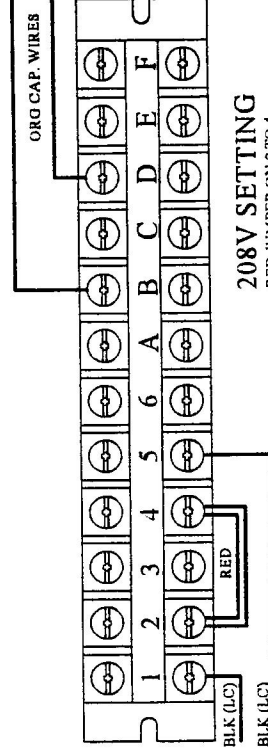
LOW VOLTAGE CONVERSION

120 / 208 / 240



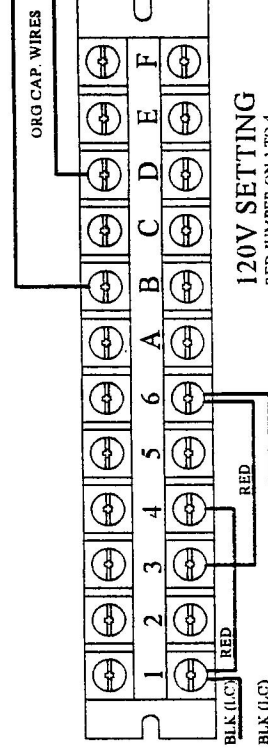
240V SETTING

RED JUMPERS ON 3 TO 4
BLK WIRE ON 1
BLK WIRE ON 6
SEE FUSE TABLE FOR FUSE CHANGE



208V SETTING

RED JUMPER ON 2 TO 3
RED JUMPER ON 4 TO 5
BLK WIRE ON 1
BLK WIRE ON 5
SEE FUSE TABLE FOR FUSE CHANGE



120V SETTING

RED JUMPER ON 1 TO 2
RED JUMPER ON 3 TO 4
BLK WIRE ON 1
BLK WIRE ON 6
SEE FUSE TABLE FOR FUSE CHANGE

CAUTION: INSTRUCTIONS IN SECTION 3 ARE FOR USE BY QUALIFIED AND AUTHORIZED PERSONNEL ONLY.

Industrial chargers, when not installed, operated, or maintained properly, can cause serious injury or death. The operator should observe all rules of safety when using the product in daily operation and when servicing. (A qualified technician or licensed electrician should be the only person to install and service the unit.)

SECTION 3 BATTERY

For ideal operation, the battery to be charged should be the same cell size and ampere-hour as indicated on the charger nameplate.

If the cell size does not match, **DO NOT** attempt to use the charger.

CHARGING CURRENT START & FINISH RATE ADJUSTMENT

Each of the transformers has multiple taps. These allow the charger output current to be adjusted to accommodate variations in AC line voltage. **They are not to be used to boost output to higher than nameplate ratings.** There are six resonant winding taps, A through F. By connecting to taps A and F, the charger will be set for maximum output current. Each transformer is factory set for a nominal charging current. The output can be adjusted in 5% increments by changing the connections per the table below.

ORANGE CAPACITOR WIRES CONNECT TO OUTPUT

A and F	Maximum
B and F	5% Lower
A and E	10% Lower
B and E	15% Lower
C and E	20% Lower
B and D	25% Lower
C and D	Minimum

Disconnect A. C. power and battery before making any adjustments.

SECTION 4 OPERATION

Industrial chargers, when not installed, operated, or maintained properly, can cause serious injury or death. The operator should observe all rules of safety when using the product in daily operation and when servicing. (A qualified technician or licensed electrician should be the only person to install and service the unit.)

1. Check for proper match of battery and charger. See section 3 of this instruction manual.
2. Connect battery and charger connectors. After brief delay, charger will start, amp meter will display charger output, and red daily LED will light.
3. When battery reaches 80%, (2.40 volts/cell), the yellow LED will light.
4. When charging cycle is complete, green LED will light.
5. Equalize / weekly charge – Connect battery and charger. After brief delay, charger will start. Once charger has started, toggle up the switch, the green LED will light to indicate charger is in equalizing mode.
6. **SPECIAL NOTATION** - This charger is equipped with charged battery shutdown. If the battery reaches the 80% charged level in the first 15 minutes of charging the controller will shut the charger off. This eliminates any overcharging should someone plug a fully charged battery into the charger.

SECTION 5 DESCRIPTION OF CIRCUIT

The portion of the circuit, which controls the output of the charger, consists of a ferroresonant transformer and capacitor. This combination provides current limiting for starting current, and a tapering characteristic to reduce the current as the battery becomes charged.

Plugging the battery connector into the charger connector will energize the control circuit, in turn energizing the transformer. The transformer changes the line voltage to the correct level of voltage required by the battery indicated on the charger nameplate.

The output of the transformer is rectified, (changed to DC), by the diodes. The output is center tapped and the center tap is the negative. For multi-cell chargers, the selector plug when properly placed selects the correct center tap. Internal fusing protects the inputs and outputs.

CAUTION: INSTRUCTIONS IN SECTION 6 ARE FOR USE BY QUALIFIED AND AUTHORIZED PERSONNEL ONLY.

SECTION 6 MAINTENANCE AND SERVICE

Very little is required in the way of maintenance. The battery connectors and cables should be kept in good condition to avoid problems.

In extremely dirty environments, the inside of the charger should be blown clean periodically, with compressed air.

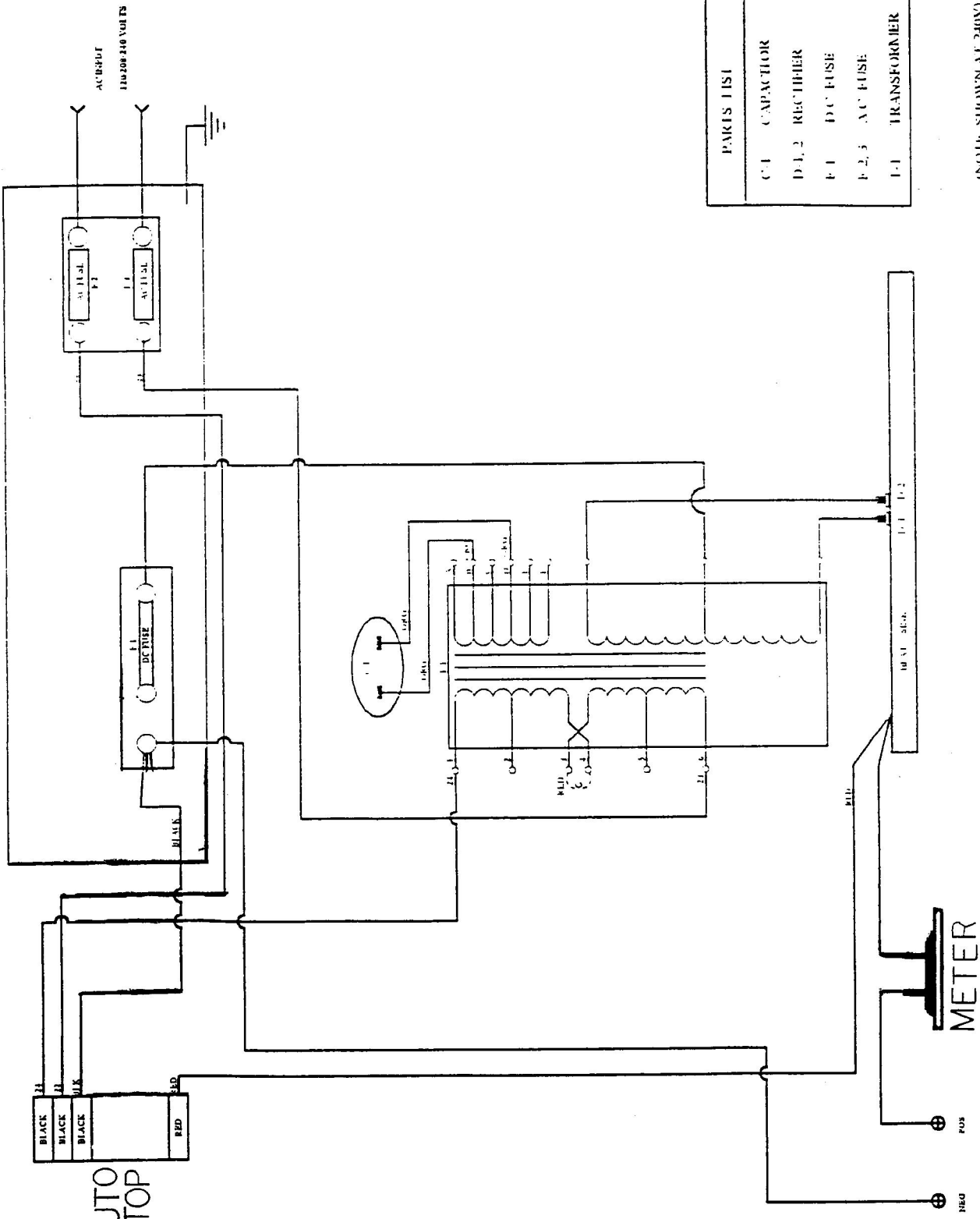
Note: Service should be performed by qualified personnel only.

Warranty service should be performed by authorized personnel only.

SECTION 7
LOW VOLTAGE
120/208/240

(NOTE: SHOWN AT 240V)

PARTS LIST	
C-1	CAPACITOR
D-1,2	RECTIFIER
F-1	D.C. FUSE
F-2,3	A.C. FUSE
T-1	TRANSFORMER



AUTO
STOP

METER

POS

NEG

BLACK
BLACK
BLACK
RED

AC 110-208-240 VOLT

F-2
F-3

F-1

H1, H2
H3, H4

S1, S2
S3, S4

10 A FUSE

10 A FUSE

T-1

T-1

BLACK

SECTION 8 PARTS LIST

1. AUTO STOP/START
2. STEP DOWN TRANSFORMER
3. AC LINE CONTACTOR
4. AC FUSE BLOCK
5. CAPACITORS
6. POWER TRANSFORMER
7. RECTIFIERS (DIODES)
8. HEAT SINK
9. DC INPUT CONNECTOR
10. DC SHUNT / FUSE BLOCK
11. WIRING HARNESS

Numbers on parts list correspond with numbers on wiring diagram.

When ordering charger parts, you **must have model number and serial number of the charger.**

SECTION 9 WARRANTY

NORTHEAST BATTERIES hereby warrants our battery chargers to be free from defective materials and workmanship. All items are warranted for a period of one (1) year from date of shipment from the factory, as indicated by the serial number.

In addition, power components, namely the power transformers are warranted for five (5) years to the original user.

Expendable items such as fuses are not covered under this warranty. In addition, evidence of physical abuse or incorrect usage of the equipment may void part or all of this warranty.

Defective parts are to be returned to the factory, transportation prepaid, upon request. Replacement parts will be shipped transportation collect.

This warranty does not cover any labor to remove defective parts, or to install replacements unless specifically authorized by the factory or its appointed agent.

We imply no responsibility for liability beyond that of the battery charger itself and shall have no liability for general or special consequential damage due to neglect on the part of the user. There are no other warranties expressed herein.