

MCC Automatic Start-Stop Microcomputer Charger Control

Installation & Operation Instructions

Warning: Read ALL the instructions before starting.
If anything is not clear, call your dealer or contact Arrgh!!

Installation

1. Check that the charger is operating properly.
2. Before doing any work, ensure that:
 - AC power to the charger is **OFF**.
 - Charger is **NOT** connected to a battery.
 - Charger **IS** grounded.
3. If the charger draws more than 10 amps, **IT MUST HAVE A LINE CONTACTOR**.

If the charger's input voltage is greater than 480 vac, **IT MUST HAVE A CONTROL VOLTAGE TRANSFORMER** to lower the voltage to the line contactor's coil. Install these, if necessary.

4. Mount the MCC on any convenient, flat surface on the front of the charger. Drill two holes using the supplied template. Route the wires to the interior of the charger.
5. Connect the four MCC wires.

Background: The MCC is powered by dc from the battery via two battery sense wires. The MCC's microprocessor controls the operation of an internal relay. This relay, via two white control wires, functions as an on/off switch for the charger's line contactor. The contactor, in turn, starts and stops the charger.

Battery Sense Wires: Connect the MCC's **RED** and **BLACK** wires to the charger's output cables: the **RED** wire to positive, the **BLACK** wire to negative.

Line Contactor Control Wires: Locate the two wires from the line contactor's coil to the existing timer or control. Remove them from the timer or control and connect them to the MCC's two **WHITE** wires.

Do NOT connect the MCC's white wires to the wires that "power" the timer motor. You will damage the MCC's internal relay contacts.

6. PROGRAM OPTIONS: Inside the MCC is a red or white, ten position rotary switch. This switch selects several program options. Choose the option you want.

POSITION "O": **NORMAL**. This position is for normal, no-delay charging. All MCCs ARE FACTORY SET AT THIS POSITION. Minimum charge time is 60 minutes.

POSITIONS "1-6": **DELAYED START**. These positions provide for a delayed start of 1 to 6 hours in one-hour increments. They delay charging while the battery cools down, permit charging during off-peak hours (saving on the cost of KWHs), and can prevent boost charging (which may shorten battery life). Minimum charge time is 60 minutes.

POSITION "7": **OPPORTUNITY CHARGING**. This position is for light duty or intermittent applications, such as airline baggage handling, where the battery is only partially discharged before recharging. Minimum charge time is 10 minutes.

POSITION "8": **MAINTENANCE CHARGING**. This position is useful during plant shutdown or when the battery is left unused for long periods of time. If the battery's voltage drops to 80% of full charge, the charger turns on and returns it to full charge. Minimum charge time is 20 minutes.

POSITION "9": **TEST / CALIBRATION**. This position is for factory testing and calibration.

7. Check and verify **ALL** connections before applying power or connecting a battery.

8. Turn on the ac power, then connect a battery.

1. After a 3-second delay, the MCC's **INITIAL CHARGE** light should come on "steady" and the charger should start. (Note: If a delayed start is set, the **INITIAL CHARGE** light will "flash". Press the **STOP** button to override the delay and start the charger).
2. Wait 13 seconds. Press the **STOP** button: the charger should turn off. If the charger does not turn off, turn the ac power off, remove the MCC's cover and check that the cover's flexible tail is connected firmly to its socket on the MCC's circuit board. Turn the ac power back on and press the **STOP** button again.
3. Disconnect, then reconnect the battery to reset the MCC.
4. **MANUAL EQUALIZE MODEL ONLY** (automatic equalize models ignore this step). Press the **EQUALIZE** button. The adjacent LED should light indicating that this function has been selected. Press the **EQUALIZE** button again to cancel.

9. With the charger started again for one (1) minute.

1. Disconnect the battery **WITHOUT** pressing the **STOP** button. Most chargers will turn off; a few chargers with highly regulated outputs will not turn off.
2. If your charger does not turn off and "if" this will cause a problem (note: the charger can still be turned off by pressing the **STOP** button), carry out step "3".
3. Push the **STOP** button and turn the charger off. Remove the MCC's cover and cut the jumper trace marked "J1" located on the circuit board near the ten position rotary switch. The charger should now turn off if the battery is disconnected in mid-charge. Try it.

Note: With the jumper cut, the MCC will NOT restart the charger after a power outage.

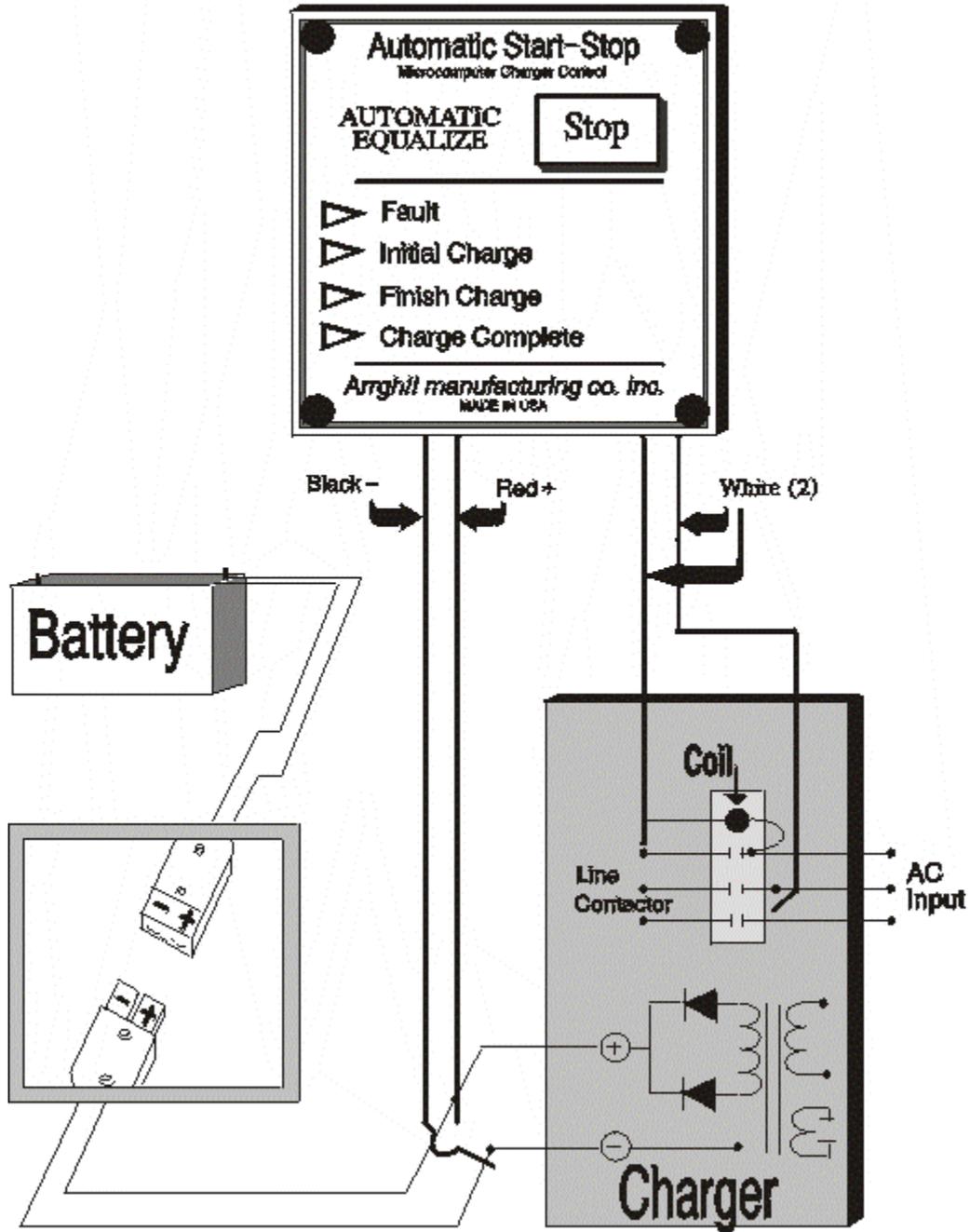
10. That's it. Installation is now complete!

Note: MCCs are calibrated for 10 feet (3 meters) of charger output cable and battery cable combined. For longer cables, consult your dealer or Arrgh!!.

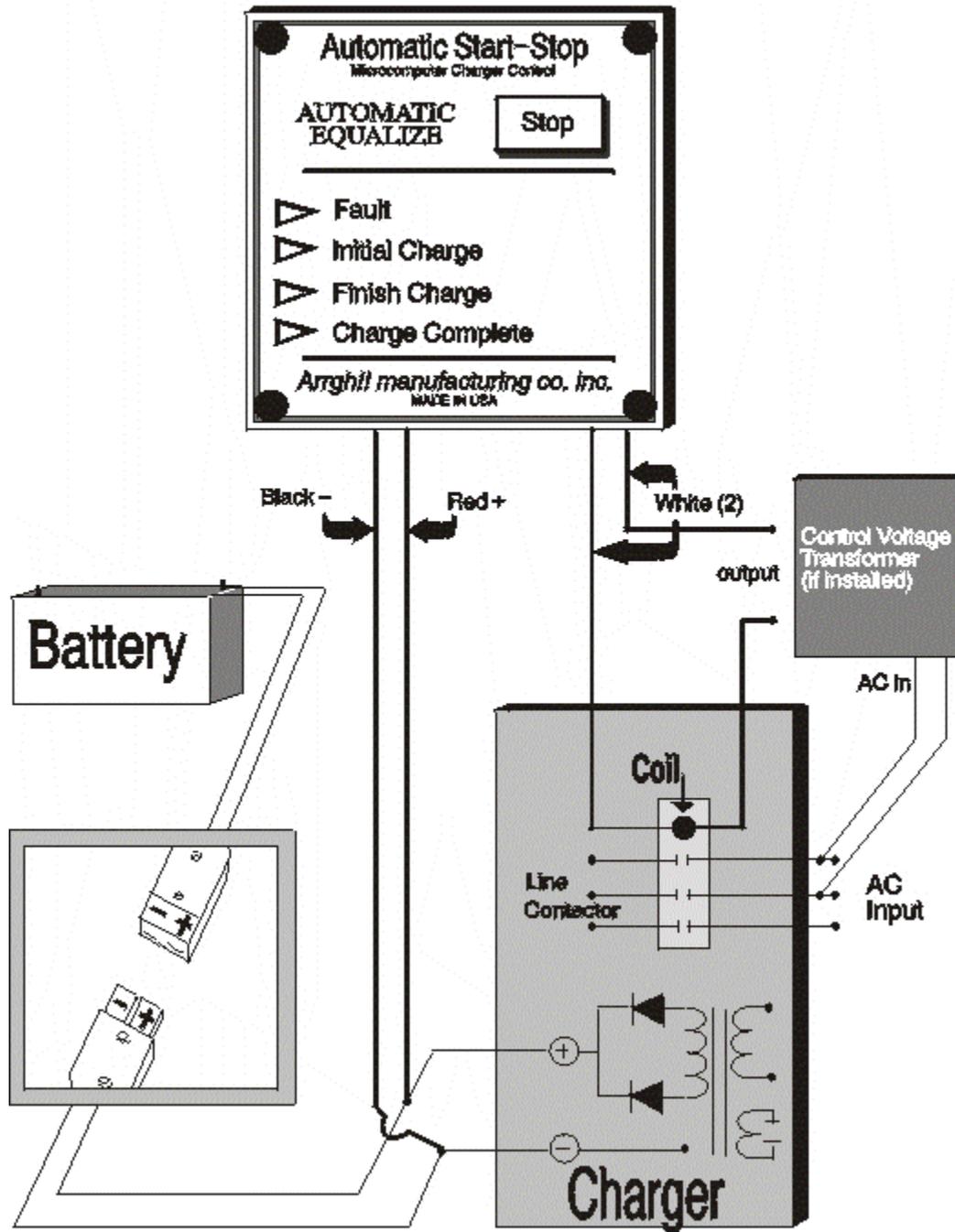
For additional savings, use Arrgh!!'s low voltage controls for battery- powered vehicles, and hydrogen gas detectors for charging room safety.

Installation Diagrams

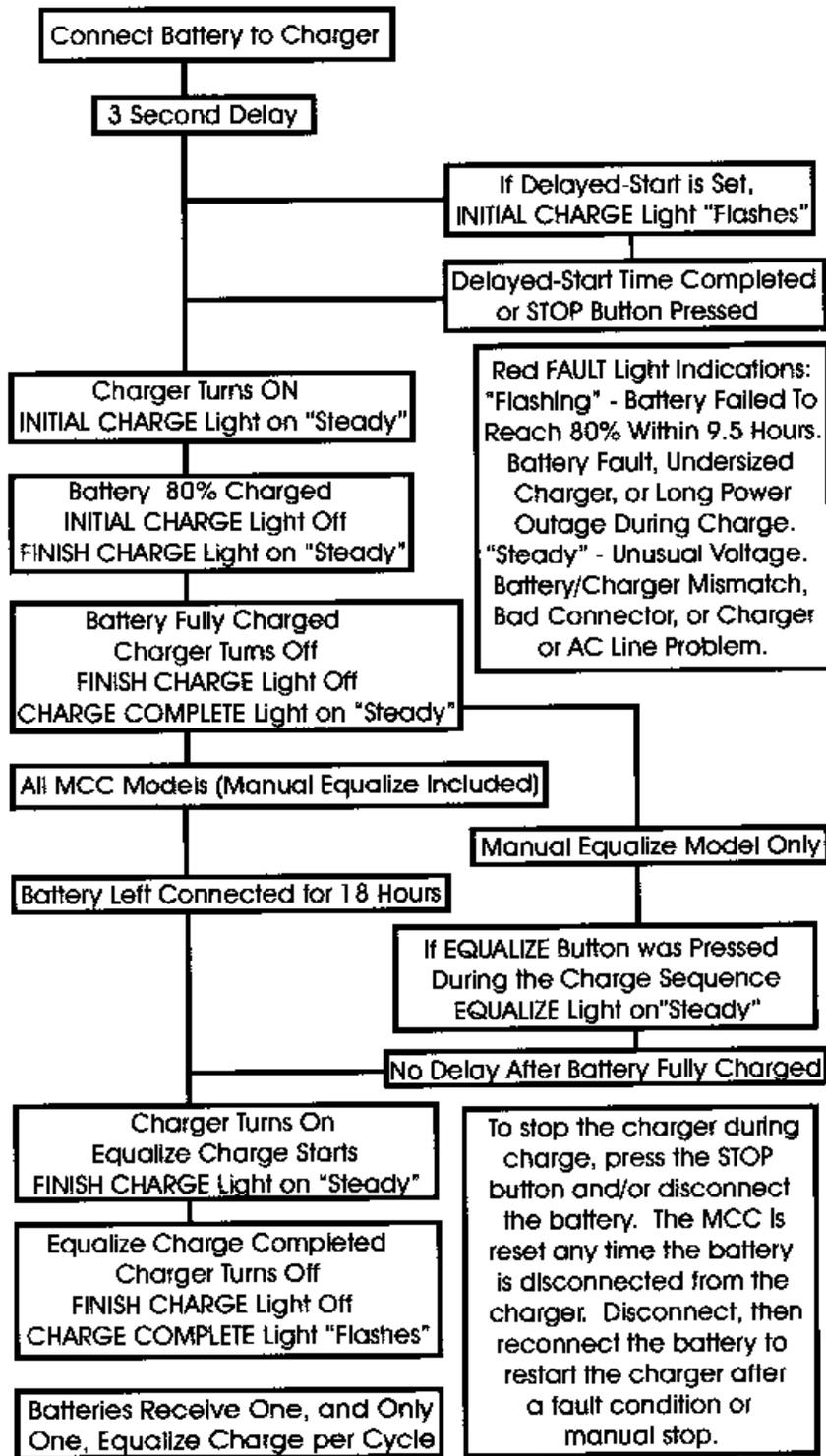
For chargers *without* a control voltage transformer



For chargers *with* a control voltage transformer



Operation Chart



If the battery voltage is low due to over-discharge or to an internal battery problem, there may be insufficient voltage to close the MCC's internal relay to activate the charger's line contactor even though the INITIAL CHARGE light is on. The minimum voltage required is approximately 1.4 volts per cell.