FUTURA SAFETY PROCEDURES

WARNING

The following procedures are intended for the use of qualified and authorized personnel ONLY. In the interest of your personal safety and the safety of others, do NOT attempt ANY procedure that you are NOT qualified and authorized to perform.

These procedures should be performed in accordance with any governing local codes: and where practical, any rules of the latest edition of the National Electrical Code, Article 620; the latest edition of ASME A17.1, Safety Code for Elevators.

Every attempt has been made to ensure that this manual is as accurate and up-to-date as possible. However, Computerized Elevator Controls assumes no liability for consequences resulting from any error or omission. The material contained herein is subject to revision, and Computerized Elevator Controls makes every effort to inform its product users of these revisions as they occur. Please report any problems with this manual to the Technical Support Department.

SAFETY SUMMARY

This information should be read BEFORE any work is performed on the Futura.

Terms in this Manual

CAUTION statements identify conditions that could result in damage to the equipment or other property if improper procedures are followed.

WARNING statements identify conditions that could result in personal injury if improper procedures are followed.

Use the Proper Fuse

To avoid fire hazard, use only a fuse of the correct type, voltage rating and current rating as specified in the parts list for your product.

Other Electrical Safety Information

Electric shocks can cause personal injury or loss of life. Circuit breakers, switches and fuses may **NOT** disconnect all power to the equipment. Always refer to the wiring diagrams. Whether the AC supply is grounded or not, high voltage to ground will be present at many points.

Do **NOT** remove connections or printed circuit cards from the equipment while power is applied. This can damage equipment.

Always lock out the Mainline Disconnect when power has been removed from equipment.

Installation Wiring

All installation wiring must comply with all applicable national, state, or local codes, and should be in accordance with the U.S. National Electric Code (NEC) where practical.

When Servicing With Power On

Dangerous voltages exist at several points in this product. To avoid personal injury, do **NOT** touch exposed connections or components while power is **ON.**

STATIC PROTECTION GUIDELINES

IMPORTANT!

Read this page before working with electronic circuit boards.

Modern elevator systems use a number of electronic circuit boards to control various functions of the elevator. These boards house components that are extremely sensitive to electrostatic voltage, which can cause board damage or failure.

Proper handling and shipping of boards is important to ensure their reliability and long-term operation. Use the following guidelines when handling circuit boards.

SHIPPING

- All boards, whether they are "good" or "to be repaired," MUST be packaged in a closed and sealed anti-static bag whenever they are being transported.
- Boards MUST also be packaged in sturdy protective cartons for shipping.
- Use only anti-static packing materials (ordinary Styrofoam is not acceptable).

HANDLING

- Store all boards in separate, sealed anti-static bags until time for installation.
- When handling all boards, always wear an anti-static wrist strap with ground wire. Acceptable straps should be available through any local electronics parts supplier.
- Handle boards only by their edges using proper anti-static techniques. Avoid touching components, traces and connectors.
- Always lay boards on a grounded electrostatic protection barrier (i.e., a dissipative mat or an anti-static bag).
- Extra care should be used when handling individual components such as integrated chips, metal oxide semi-conductors, and field-effect transistors, some of which can be destroyed with as little as 30 volts of electrostatic discharge.

Failure to adhere to these guidelines will VOID board warranty!

RECOMMENDED TOOLS AND TEST EQUIPMENT

The following tools and calibrated equipment are required for installing and adjusting:

- RS-232C compatible PC/Laptop or terminal capable of operating at 19,200 baud rate.
- TOOLS: Soldering iron, 60/40-rosin core solder, solder sucker, assorted screw drivers, electronic type long nose pliers, and side cutters.
- SWIFT Wizard program for WINDOWS.
- Digital VOM, Fluke 8024B or equivalent.
- *Oscilloscope, Tektronix T-912 or equivalent.* (if necessary)

SAFETY NOTICES

WARNING

This equipment contains voltages, which may be as high as 800 Volts and connects to rotating parts on motors and driven machines. High voltage and moving parts can cause serious or fatal injury. Only qualified personnel, familiar with elevator operation, should attempt to start-up or troubleshoot this equipment. Observe these precautions:

- Use extreme caution. Do not touch any circuit board, power device or electrical connection without ensuring that high voltage is not present.
- Electric shocks can cause personal injury or loss of life. Circuit breakers, switches and fuses may not disconnect all power to the equipment (more than one live circuit). Always refer to the wiring diagrams. Whether the AC supply is grounded or not, high voltage to ground will be present at many points.
- All equipment must be properly grounded. Do not apply AC power before following grounding instructions.
- On AC VVVF drive systems: Do not open cover for two (2) minutes after removing AC power to allow capacitors to discharge.
- Improper control operation may cause violent motion of motor shaft and driven equipment. Be certain that unexpected motor shaft movement will not cause injury to personnel or damage to equipment. Peak torques of several times rated motor torque can occur during a control failure.
- Motor circuits may have high voltage present whenever AC power is applied, even when the motor is not rotating.

CAUTION

- Do not remove connections or printed circuit boards from the equipment while power is applied. This can damage the equipment.
- Meggering or "buzzer" type continuity testers can damage electronic components. Damage resulting from their use will void all existing warranties.
- When instruments such as an oscilloscope (line voltage operation) are used to work on live equipment, great caution must be used. The oscilloscope's chassis should be grounded and a differential amplifier input probe should be used. Always refer to the manufacturer's instruction book for proper operation and adjustments of the test equipment.
- Connection of devices such as voltmeters on certain low-level analog circuits or tachometer may degrade performance of the regulator drive system. Always use a voltmeter having a minimum of 20K OHM/VOLT. A digital voltmeter is recommended.
- Always read the complete instructions prior to applying the power or troubleshooting the equipment. Follow the procedures step by step.
- The controller must be grounded at one point only. Refer to the "Site and Installation Planning Guide" section for further information.

For Additional Information or Assistance
If you require assistance or additional information, please contact Technical Support at:
Computerized Elevator Control, Corp.
24 Empire Blvd. (201) 508-2300
Moonachie, N.J. 07074

