

## Addendum

### LE-650 and LE-650s Program Additions October 2002

Serial Numbers

LE650 652029 +

LE650s 651712 +

#### 1. RAM test routine added.

Checks for impending data loss or corruption inside the RAM chip. The effectiveness depends on the nature of the fault.

**Major fault** - RAM chip can totally fail, in which case the control will probably fail completely.

**Minor fault** - RAM chip can fail partially, i.e. one or many locations may suffer an inadvertent data alteration, i.e. get glitched, battery weakening (insufficient to retain contents). In the case of glitched data - contents may be recoverable and the control could continue to function for a long period after. Continuous fault occurrences would suggest a RAM replacement or source of interference be fixed. The routines attempt to detect the latter - minor fault.

#### *Method of Detection*

*During first time factory initialization a block of text is placed in an unused area of the RAM. This block is then checked a character at a time using a very low priority routine. If an error is detected the correct character is re-saved to that location in an attempt to fix the problem and a "bad data" message is given. The control will continue to run. RAM faults occurring outside this area will not be detected by this test. This test presumes that glitched and battery faults will occur across the board in which case will be detected. It is advised that the operator checks the integrity of the data after such a message.*

2. "Guard Error" message now displays "Guard Open".

3. **Trim up / down.** The first press of either of these keys when used for trim is used to display the preset (without changing the value).

#### 4. Stop key - added functions (hidden screens)

a) While the control is in a stopped state, press Stop key twice will show the EPROM checksum as shown at boot up - "Pr.Code XXXX". The difference is that the checksum will remain latched in the display until another key is pressed. The checksum is in the right-hand

display. Service may request this checksum when diagnosing faults over the phone.

b) A further press of the stop key will show the last four errors (error history), plus status of cut sense and machine select inputs. The left-hand display shows "Last 4"

**Characters 1 to 4** in the right-hand display show the error history in numeric code form. The first character depicts the most recent error. Right of this is the previous error etc. Please refer to the following list of error codes for meanings and brief description:

#### **Error codes** (appear in characters 1 to 4)

- 0 No error (a fresh EPROM or RAM will show 0000)
- 1 Guard - was open when trying to start or was opened while running.
- 2 Blade - did not complete a revolution within allowable time, possibly jammed.
- 3 Machine Select plug out - control needs to know machine type in order to work.
- 4 Machine Select set to an unrecognized machine type.
- 5 Encoder too fast - for controls without high speed counter chip.
- 6 Latch Error *set by Saw/Planetary machine only* - indicates blade contactor dropped out or did not come on.
- 7 not used
- 8 Over run occurred during repeatability test - means excessive error
- 9 Bad data - RAM failing

*The last three errors in this list do not shut the control down and some errors are machine dependent.*

**Character 5** is blank.

**Character 6** shows the machine select link code represented by a hexadecimal number, i.e. links 2 and 4 made equate to code 10. This is 'A' in hexadecimal format (0 to 9, A to F). The decimal place in this digit shows when the cut sense input is active (low).

Data registers are initialized to their factory default values when the program or machine selects are changed. Bad machine select connections or faulty ram can therefore cause a factory default. This routine displays the machine select code so that a bad connection can be detected by pulling at the wires.