

12 Programming the Micro-Speed CX[®]

The Micro-Speed CX[®] has 57 parameters that can be programmed to tailor the drive's operation to the needs of the user. These parameters are labeled A1 through A17, L0 through L37 and U0 through U2. These parameters tell the drive such things as how fast to accelerate or decelerate, what speeds to run at, how long to hold the brake, and so forth. There are two methods in which to program these parameters. The simplest is to "GANG-SET" one of the 8 preset programs. The other is to set all the parameters individually, one by one. By using the GANG-SET, only a few button strokes are needed to fill all the Micro-Speed CX[®]'s parameter values and get you up and running fast. We recommend using a GANG-SET[®] then going back and fine tune some "A" parameters individually to better meet the needs of your application. This ability to easily program the Micro-Speed CX[®] can also be locked to prevent accidental changes in the program. It can be unlocked at anytime, to allow changes.

The Micro-Speed CX[®] has parameters that can be programmed to tailor the drive's operation to the needs of the user.

Below is the following procedure for accessing parameters in each menu.

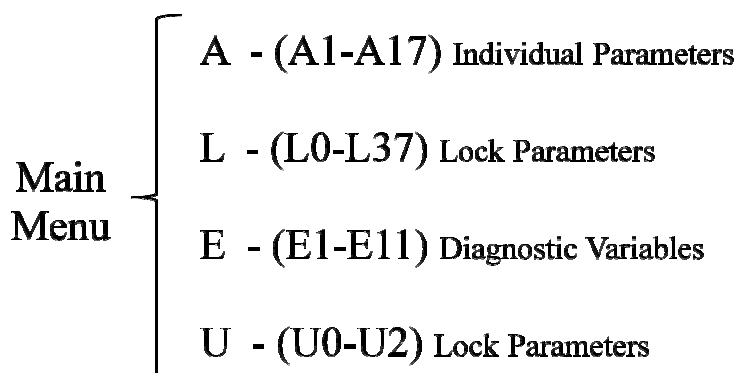
Changing Parameters

Make sure the Micro-Speed CX[®] is on but not driving a motor and the display reads "rOFF" or "cOFF".

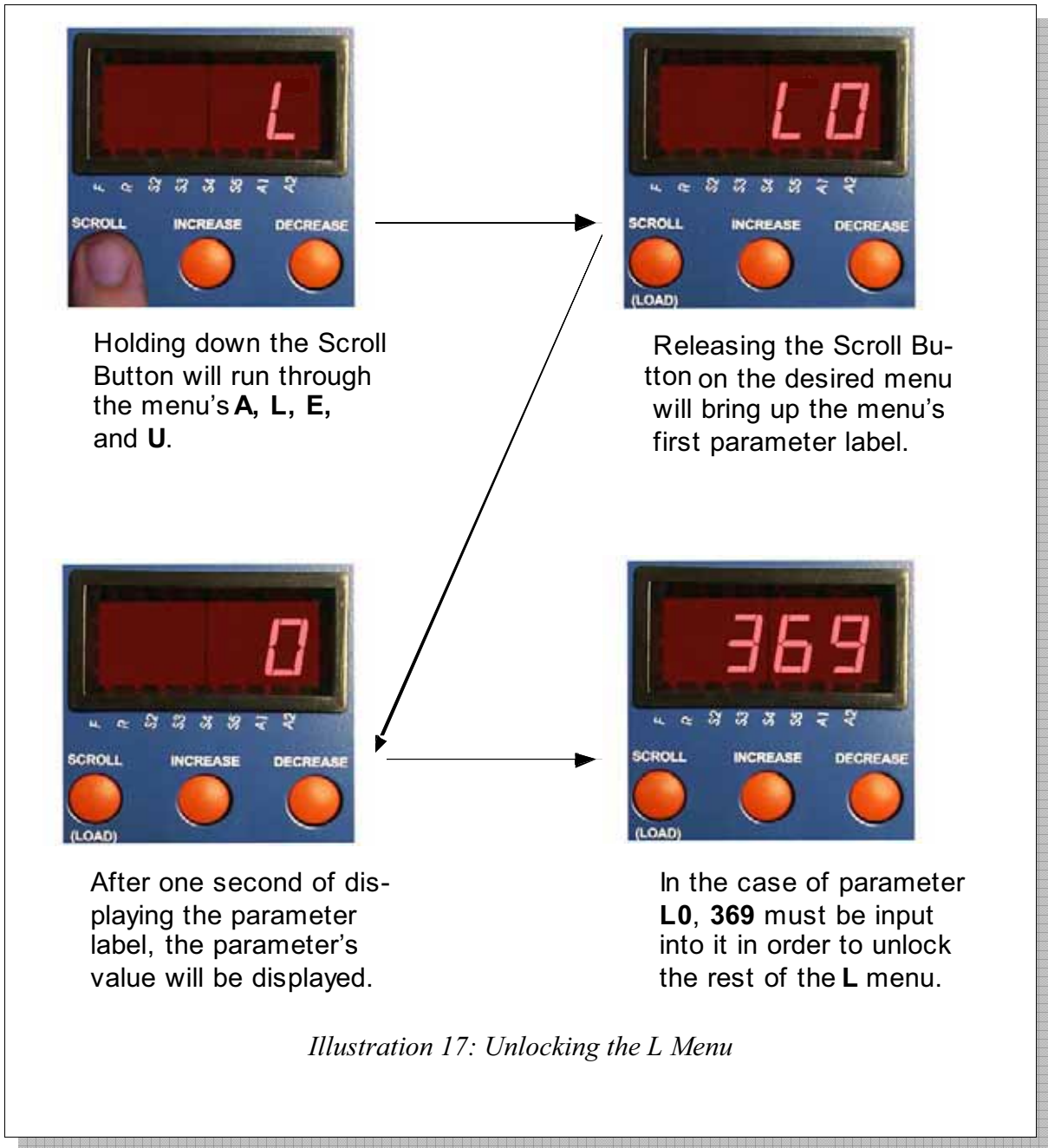
To enter a certain menu, hold down the scroll button until that menu appears on the display. The order of progression that the menus take is A, L, E & U.



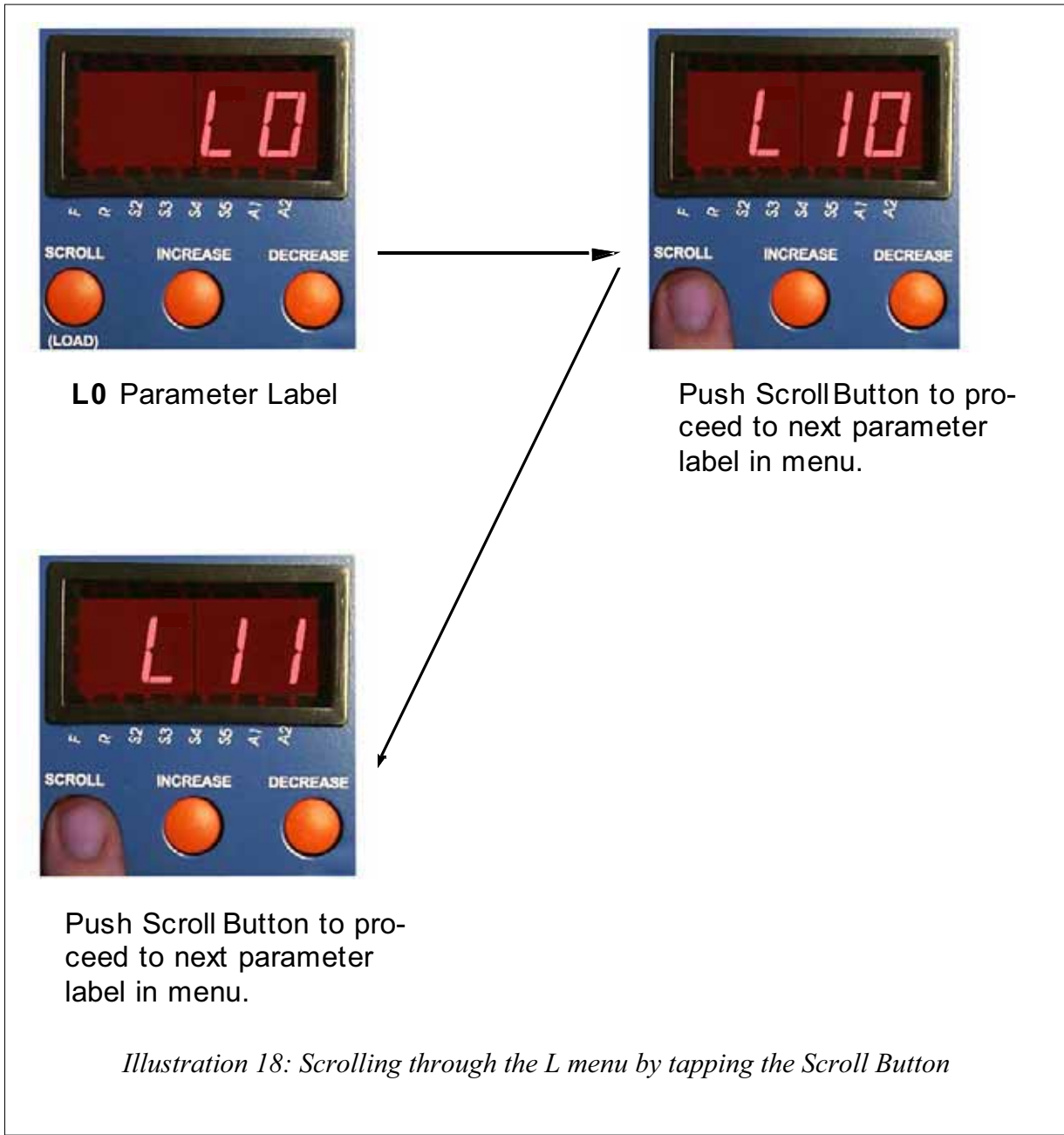
Illustration 16: Initial Display



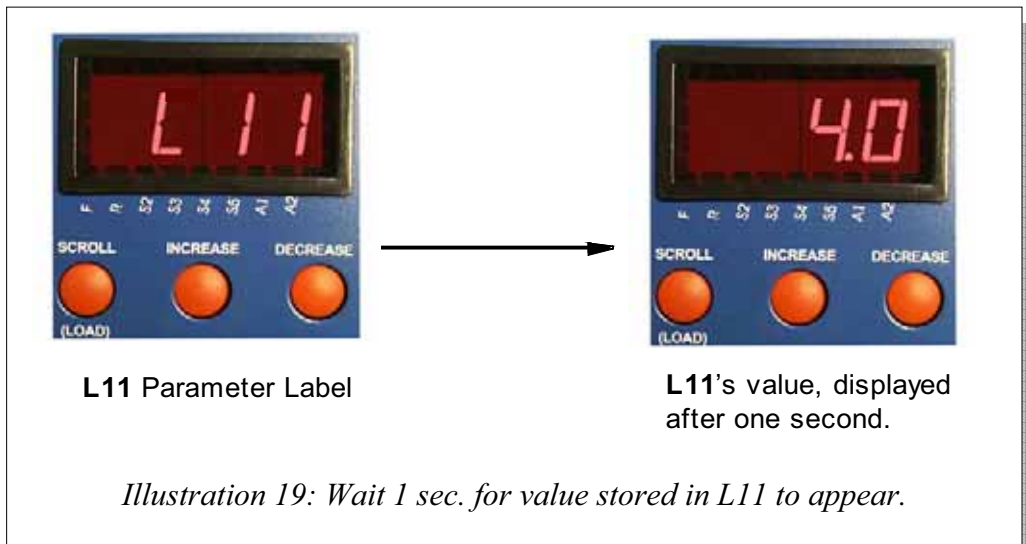
The example that follows on the next few pages shows in detail how to access parameters in a menu. The L menu is shown as the example because it contains a lock parameter as the first parameter (L0). The U menu also has this lock parameter (U0), while the A and E menus do not. Besides the initial lock parameter, navigation methods are identical between menus.



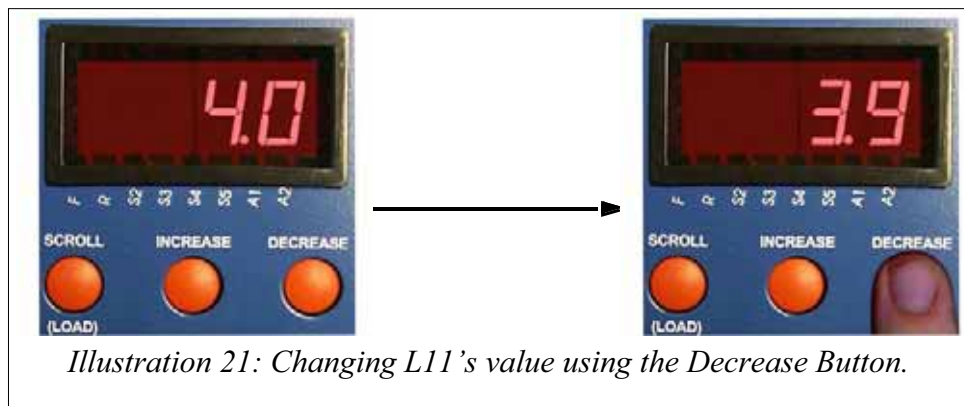
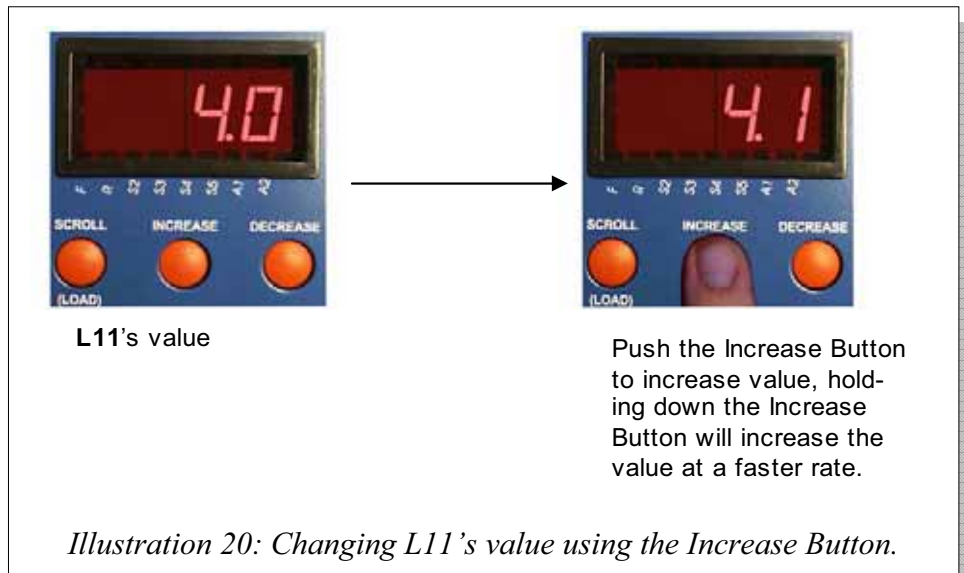
Press the Scroll Button on the cover of the Micro-Speed CX[®]. Hold this button down until “L” appears in the display and then release the button. The label “L0” will appear on the display and 1 second later the value that “L0” has will be displayed. Press the increase button until the code the MAIN UNLOCK CODE (found on the last page of this manual) is showing. Press the decrease button if you pass the value. By putting the MAIN UNLOCK CODE into: L0, the L menu is unlocked allowing the user to change any of its parameters. If the MAIN UNLOCK CODE is not entered into L0, the L menu will be locked, and you will only be able to read the values of its parameters.



Push the Scroll Button several times fairly quick (less than 1 second between each push) and watch the sequence of parameter labels L10, L11, L12... appear on the display. Stop pushing the Scroll Button when the label of the parameter you want to alter appears on the display.

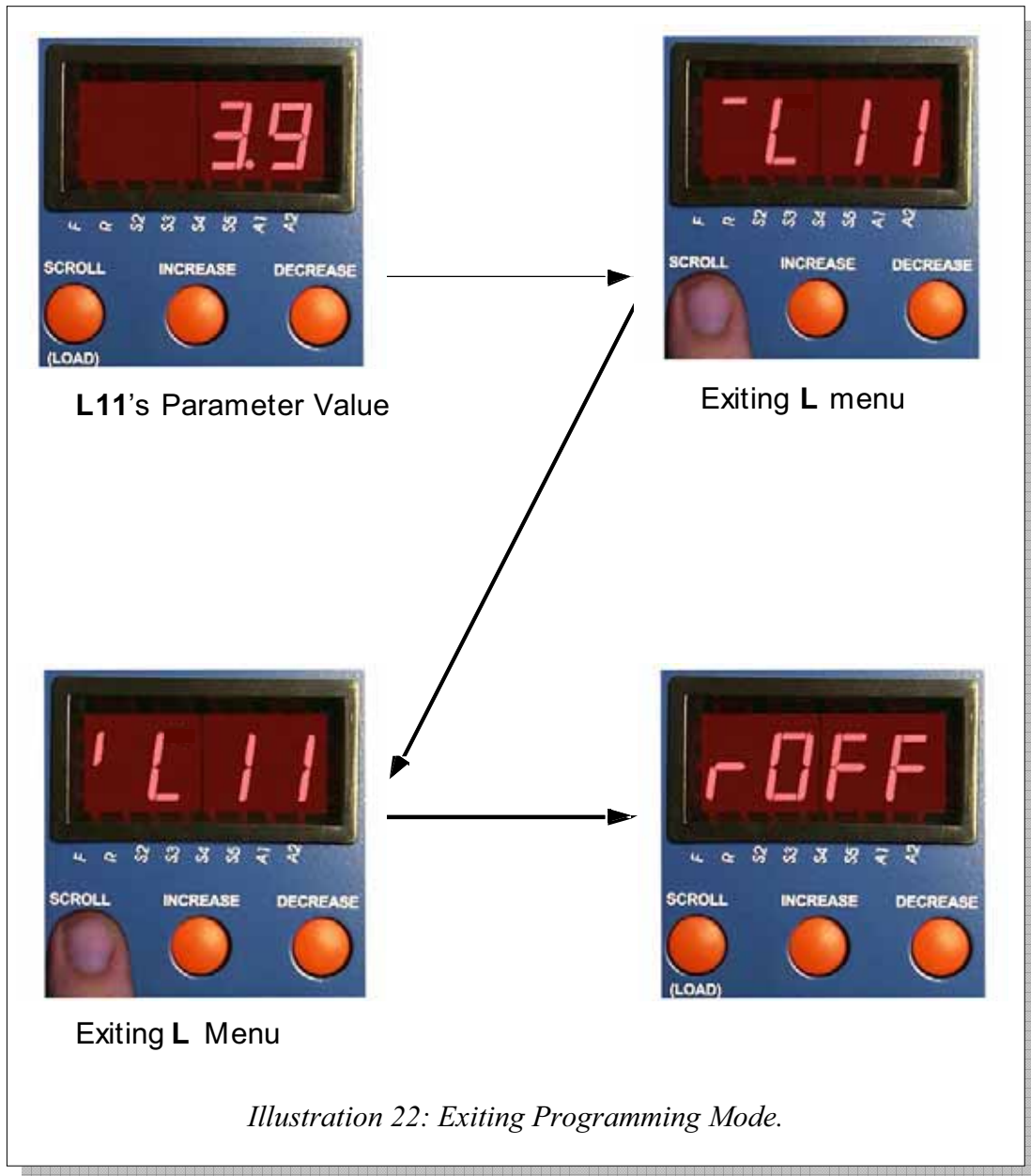


The parameter label will be displayed for about 1 second and then the value that it is currently programmed to will be displayed.



Use the increase and decrease buttons to alter the value as desired.

To change another parameter quickly tap the scroll button enough times to reach the desired parameter and change its value using the increase and decrease buttons as described above for L11.



To exit the C menu, press and hold the scroll button down until the display reads "cOFF" or "rOFF". This will take about 5 seconds during which the current parameter label will be displayed, along with a circling ticker in the leftmost digit.

13 Gang-Set[®] Programming

The Gang-Set[®] procedure is a simple and quick way to get the Micro-Speed CX[®] up and running. The Micro-Speed CX[®] contains 8 pre-set Gang-Set[®] programs, labeled from Pb01 through PH08. Each Gang-set[®] program is actually just a list of "A" and "L" values which are factory chosen. When the Micro-Speed CX[®] is Gang-Set[®], each "A" parameter is reprogrammed to a new factory chosen value. However, since each "A" parameter is reprogrammed every time a Gang-Set[®] is initiated, all previous custom adjustments to individual "A" parameters will be lost. Therefore, all fine-tuning of individual "A" parameters must be done after Gang-setting and not before.

Table 7: Gang-Set[®] Programs for hoists

Gang-Set[®] Program	Description
PH 0	No change, use to exit Gang-set [®] mode without changing current settings
PH05	3-step push-button infinitely variable
PH06	5-speed, can be used for 1, 2, 3, 4, or 5-speeds.
PH07	5-speed with low speed potentiometer on pendant control.
PH08	2-step push-button infinitely variable

Table 8: Gang-Set[®] Programs for bridge or trolleys

Gang-Set[®] Program	Description
Pb 0	No change, use to exit Gang-set [®] mode without changing current settings
Pb01	1-speed
Pb02	2-step push-button infinitely variable
Pb03	3-step push-button infinitely variable
Pb04	5-speed, can be used for 1, 2, 3, 4, or 5-speeds.

13.1 Loading the Gang-Set[®]:

Press and hold all three buttons simultaneously until "PH 0" ("Pb 0" for the bridge or trolley version) appears in the display and then release the buttons. This should take about 5 seconds. Use the increase and decrease buttons to choose the desired program*.

Press the scroll button for about 1 sec. to load the Gang-Set[®]. If a program other than "PH 0" ("Pb 0") is selected. The screen should briefly display "LOAD".

13.2 Operation

The Micro-Speed CX[®] is now ready for use. While operating you will discover that things may not work as fast or slow, or as precise as you would like. Gang Set[®] settings should be acceptable for 90% of standard crane applications. Many aspects of the performance of the Micro-Speed CX[®] can be adjusted and fine tuned. If you find it is necessary to adjust some aspect of the performance you will want to read about the individual "A" parameters. See the following sections:

1. Individual "A" parameter programming
2. "A" parameter description

If you have a familiarity with the "A" parameters you can use the "A" parameter reference chart at the end of the manual and the following procedure to change them.

13.3 Individual "A" Parameter Programming

The Gang-Set[®] mode cannot be entered if the unit is locked.

The Micro-Speed CX[®]'s 17 "A" parameters can be viewed and programmed individually.

To program an "A" parameter individually:

- A. Make sure the Micro-Speed CX[®] is on but not driving a motor and the display reads "rOFF" or "cOFF".
- B. Press the scroll button on the cover of the Micro-Speed[®] CX[®]. Hold this button down until "A" appears in the display (this takes about a second) and then release the button. The label "A1" will appear on the display and 1 second later the value that "A1" is programmed to will be displayed.
- C. Poke the scroll button several times fairly quickly (less than 1 second between pokes) and watch the sequence of parameter labels "A1", "A2", "A3"...appear on the display. Stop poking the scroll button when the label of the parameter you want to alter appears on the display.
- D. The parameter label will be displayed for about 1 second and then the value that it is currently programmed to will be displayed. Use the increase and decrease buttons to alter this value as desired.
- E. To change another parameter repeat steps C and D.
- F. To exit the "A" programming mode, press and hold the scroll button down until the display reads "cOFF" or "rOFF". This will take about 5 seconds during which the current parameter label will be displayed.

Label	Name	Range
A1	Accel 1	0.1 - 30 sec
A2	Accel 2	0.1 - 30 sec
A3	Accel mode	mode: 0 - 4
A4	Decel 1	0.1 - 30 sec
A5	Decel 2	0.1 - 30 sec
A6	Decel 3	0.1 - 30 sec
A7	Decel mode	mode: 0 - 5
A8	Voltage boost	1-30%
A9	Operation Mode	mode: 0 - 7
A10	Slip comp.	-10 to 10 Hz
A11	N/A	N/A
A12	Low speed	1 - 120Hz
A13	Speed 2	1 - 120Hz
A14	Speed 3	1 - 120Hz
A15	Speed 4	1 - 120Hz
A16	Speed 5	1 - 120Hz
A17	Analog upper limit	1 - 120Hz

Table 9: Individual "A" Parameters

To view the "A" parameters without changing their programmed values, use the same procedure as above but do not use the increase or decrease buttons to change any values.

The "A" values cannot be changed, but can still be viewed if the Micro-Speed CX[®] is locked. The message LOC will appear if the increase or decrease button is pushed while locked.

13.4 Locking and Unlocking the Micro-Speed CX®

To lock or unlock the Micro-Speed CX®:

Make sure the Micro-Speed CX® is on but not driving a motor and the display reads cOFF or rOFF.

Press the increase and decrease buttons on the cover of the Micro-Speed CX® simultaneously. Hold these buttons down until LOC or UNL appears in the display (this takes about 5 second) and then release the buttons.

Poke the increase or decrease button to choose the desired lock mode (choose LOC to lock the program or choose UNL to unlock the program).

Press the scroll button down until OFF appears in the display and then release the button.

*These parameters are new on this version

13.4.1 Unlocking the Micro-Speed CX®

A. This procedure is necessary when the message "LOC" is displayed, while trying to change a parameter. The Micro-Speed CX® is factory shipped unlocked, so this unlocking step is not necessary unless someone previously locked it.

1. Press and hold both the increase and decrease buttons until "L--U" appears.
2. Poke the increase or decrease until "UnL" appears.
"UnL" = unlock.
"LOC" = lock.
3. Press and hold the scroll button until "cOFF" or "rOFF" is displayed.

Label	Name	Range
L0	Code	0-999
L1	Accel lower limit	0.1-30.0 sec
L2	Accel upper limit	0.1-30.0 sec
L3	Decel lower limit	0.1-30.0 sec
L4	Decel upper limit	0.1-30.0 sec
L5	Speed upper limit	1.0-120Hz
L6	AX limit switch Mode	0,1,2
L7	Limit switch decel time	0.1-30.0 sec
L8	Ramp down to stop	on - off
L9	Line Voltage	230, 460, 510
*L10	Cut off Frequency	0.0-120.0 Hz
*L11	Quick Stop upper limit	0.1-30.0 sec
*L12	Parameter Lock	Loc, Unl
*L13	Aux Relay Mode	0-5
L14	N/A	N/A
L15	N/A	N/A
L16	N/A	N/A
L17	N/A	N/A
L18	Max Hz	1- 120Hz
L19	Max Hz enforce Mode	0,1,2
L20	N/A	N/A
L21	Volt peak	30-120Hz
L22	N/A	N/A
L23	N/A	N/A
L24	Timer	0-600 sec
L25	Brake Hold Time	-5.0-2.0 sec
L26	Dead Time	-5.0 to 5.0 sec
L27	Reset Mode	0,1,2,3,4,5
L28	Trip Mode	0 to 8
L29	N/A	N/A
L30	Analog Offset	0 to 75 Hz
L31	Pulse Start Voltage	1 to 30% line VAC
L32	Pulse Start Time	0 to 2 seconds
L33	D.C. Injection Brake Voltage	1 to 30% line VAC
L34	D.C. Injection Time	0 to 2 seconds
L35	Drive Starting Hz	0 to 10 Hz
L36	AX1 Mode	0 or to 120 Hz
L37	AX2 Mode	0 or to 120 Hz

Table 10: Individual "L" Parameters