

## Section 2: Pendant

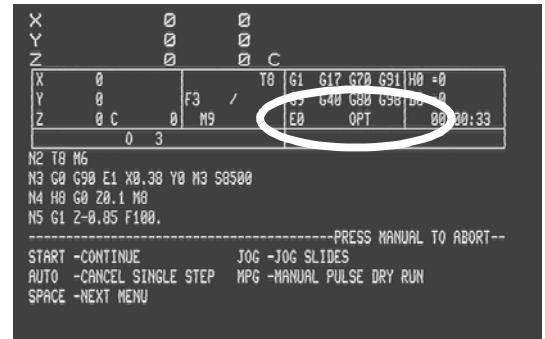
### Video ON/OFF Switch

When the machine is idle for long periods of time, the video screen should be turned off. This is necessary when the machine is left on overnight. If the machine is left on overnight, press the EMERGENCY STOP button before leaving the machine.

### Optional Stop Switch

Place the OPTIONAL STOP switch in the upward position to activate the optional stop code in the program. The control will display “opt” in the third box bottom line of the position display (See Figure 2-1).

- 1) The program must have an M1 code.
- 2) The program will stop on the line with the M1 code.
- 3) If the program does not have codes to turn the spindle on and coolant on again after the M1 code, the operator must turn these on manually.

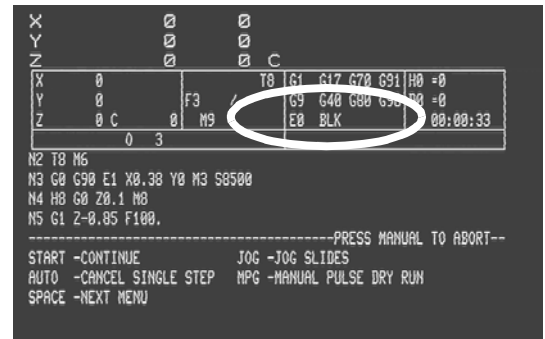


**Figure 2-1** “Opt” is displayed when the OPTIONAL STOP switch is on.

### Block Skip Switch

Place the BLOCK SKIP switch in the upward position to activate the block skip code in the program. The control will display “blk” in the third box bottom line of the position display (See Figure 2-2).

- 1) The program must have the “/” code before the line number.
- 2) The program will skip the line with the “/” code.



**Figure 2-2** “Blk” is displayed when the BLOCK SKIP switch is on.

**Note:** A sequence number with a “/” is used for block skip. The block skip feature cannot be used in the

middle of the line. It must appear before the sequence number.

**EXAMPLE:** N4 Z.25 F20.

/N5 L101 \* With the block skip on, the program will skip line five.

N6 X2.4 \*With the block skip on, this line will be machined after line N4

To add a “/” to a sequence number:

- 1) From the page mode (PA) or edit mode, move the cursor to the line you want to edit.
- 2) Press the C key to change the line.
  - a. Press the / key.
  - b. Press the ENTER key two times.

## Keylock

The key lock on the pendant is used to protect the program from unauthorized editing. When any of the commands that can alter the program are used, the message “command prohibited by key lock” appears. This feature also prohibits the PU command.

To prohibit program editing:

- 1) Put the key into the key slot on the pendant (See Figure 2-3).
- 2) Turn the key so the slot is in the horizontal position.
- 3) Remove the key and store it in a secured area.

To allow program editing:

- 1) Put the key into the key slot on the pendant.
- 2) Turn the key so the slot is in the vertical position.

**Note:** See also NOEDIT feature.



**Figure 2-3** KEY LOCK used to protect unauthorized editing of programs.

## Alternate NOEDIT Feature

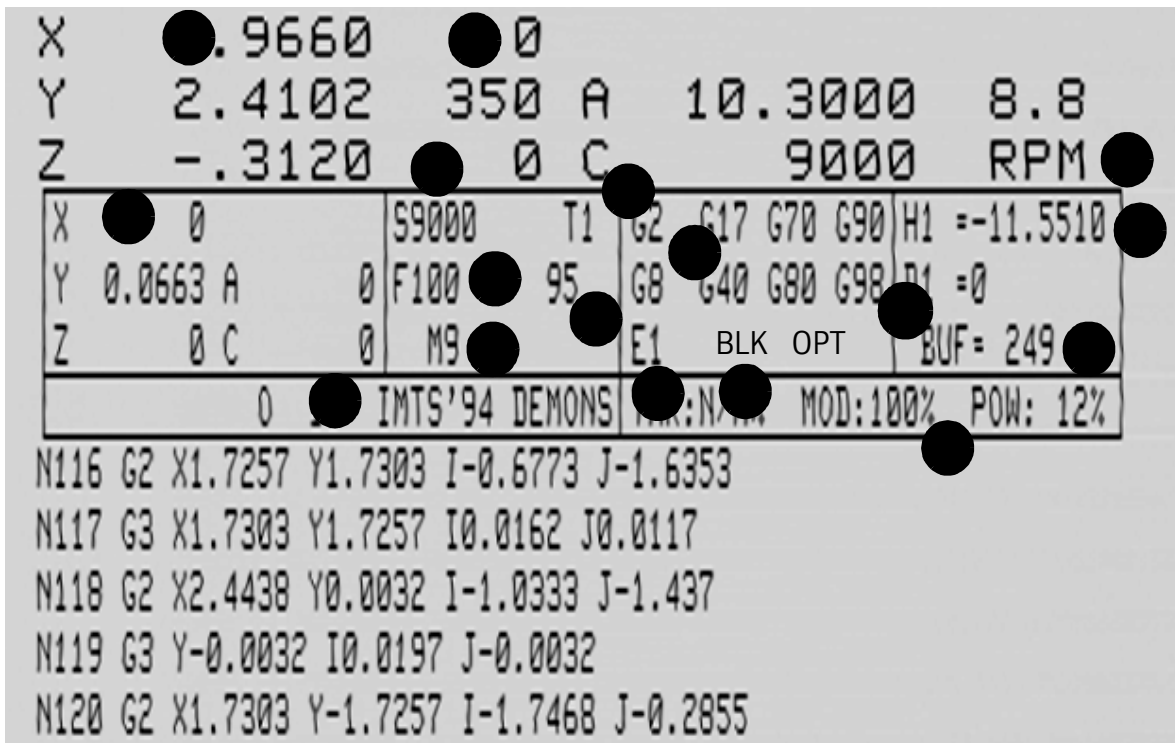
The NOEDIT feature is used to prohibit the operator from editing or punching (downloading) the program in memory. The only thing allowed is to delete the program from memory. Any editing should be accomplished in an editor outside the machine and then resend the program to the machine.

- 1) On the line with the O word type a comment with the word NOEDIT within the first sixteen characters.

**EXAMPLE:** N1 O6 (NOEDIT FACE PLATE

## Positioning Read Out Display

Figure 2-4 shows the sections and the purpose of each section used in the positioning read-out display. a: Position readout. b: Axis load or following error. c: Distance to go. d: Programmed RPM ("S9000"). e: Programmed Turret location ("T1"). f: Actual RPM. g: Programmed feedrate ("F100"). h: Active "G" codes. i: Active tool offsets. j: Last executed "M" code. k: Actual feedrate ("95"). l: Optional stop on ("OPT"). m: Running buffer. n: Current program. o: Current fixture offsets ("E1"). p: Block skip on ("BLK"). q: Tool load compensation.



**Figure 2-4** The upper portion of the monitor screen showing the *positioning read-out display*.

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**How to Display the Position Read-out:**

- 1) Press the JOG button to see the positioning read-out.
- 2) From the command mode, type MD then press the ENTER button or press the MANUAL button to see the positioning read-out.
- 3) Press the AUTO button to see the positioning read-out.

The position read-out is showing the position of the tool in relation to the position set to zero by the SET (axis), SETH commands (or in relation to the cold start position before the SET (parameter) commands are used).

If a program contains the code G92, all positions are relative to the position preset by the G92 code.

When fixture offsets are used, the read-out is relative to the active fixture offset home position.

**Note:** When jogging in the metric mode .01 in.=.254 mm, .001 in.=.0254 mm, .0001 in.=.00254 mm. The minimal move in the metric mode is .00254 mm (even though the positioning read-out displays three places after the decimal).

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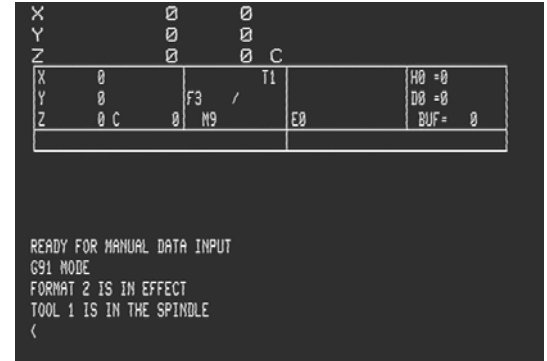
**Axis Load Display**

The axis load amperage can be displayed for the AC Brushless axis systems. The axis load can be displayed directly to the right of each axis position displayed at the top of the screen. The default setting is axis following error.

- 1) To select load percentage, the operator must type SETP from the command mode.
- 2) Press the space bar two times to get to the last page of the machine parameter pages. Press the ENTER, D, or U key to move the cursor to the axis display selection.
- 3) Select load percentage so that the machine will display axis load. Then press the MANUAL key to exit the parameters page.

## Manual Data Input Display

The MDI screen will display the modal codes in effect and the distance to go. This screen is similar to the positioning read-out screen in Auto (See Figure 2-5).

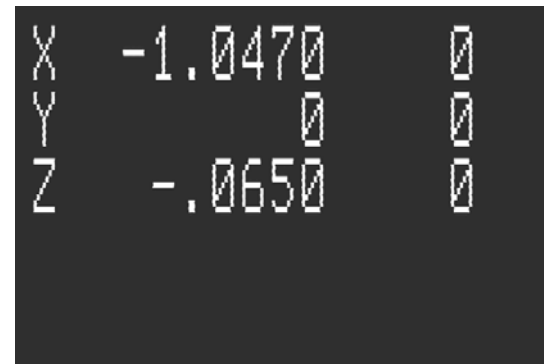


**Figure 2-5** Manual Data Input.

## Large Format Display

Depressing the = key during Auto will enable the large format screen (See Figure 2-6). To return to the normal screen press the = key again.

**Note:** On the 32MP controller, hold down SHIFT key and press the + key.



**Figure 2-6** Large Format Display.

## Modes

1) The control works in different modes of operation. Each mode of operation has a specific job to perform.

**EXAMPLE:** The list mode is used only for listing the program to the screen. The jog mode is used only for jogging the tool.

2) The *command* mode is the upper most mode and it acts like a dispatch center for all the other modes.

- a. From the *command* mode the operator can go into the *menu* mode to look at the menu.
- b. To go to another mode of operation, the operator must first go back to the *command* mode, before going to another mode.

3) The primary function of the MANUAL key is to get out of any mode of operation and get back to the *command* mode.

- 4) Two letter commands are used to get into other modes, and the MANUAL key is used to get back to the *command* mode.

**Note:** The MANUAL key is also used to enter the MDI mode.

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### Quick Keys Menu

There are three separate prompting menus within the machine control. They are the Quick Keys Menu, the Edit Menu, and the Functions Menu. These menus prompt the operator for input to perform machine commands. The Quick Keys menu is used for quick setup functions. Program editing is accomplished with the Edit Menu. The Functions Menu is utilized to perform machine tasks. These menus are activated or deactivated within the machine parameters. Use the SETP command, and the CMD MENU parameter, to turn the menus on or off. When the menus are off, the machine is operated by commands (See the Command Mode explanation on the following page). The Quick Keys Menu is selected by pressing the space bar from ENTER NEXT COMMAND.

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### Edit Menu

The Edit Menu is selected by pressing the space bar twice ENTER NEXT COMMAND, and allows editing or viewing the currently active program. This menu functions the same as the PA command editor (see PA Command).

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### Functions Menu

The Functions Menu is selected by pressing the space bar three times from ENTER NEXT COMMAND. The first twelve (12) lines display the currently active program. The bottom four (4) lines display the Functions Menu options.

These menu options are selected by number input. The operator may switch between the Function Menu, the Quick Keys Menu and the Edit Menu by pressing the SPACE bar.

Selection of menu options may display additional menu options. The top line of the subsequent menus displays the previous menus selected. Press the MANUAL key at any time to abort the process and return to the main menu.

The Users Manual has a detailed explanation of each function associated with these menus.

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### Using the Command Mode

To enter a command, the control must be in the command mode. The command mode is recognized by the words at the bottom of the screen, "enter next command". A list of accepted commands can be found in the Users Manual, chapter 8, or the Command Summary section of this chapter. The menu in the control also has a list of accepted commands. (See "Menu Mode")

The primary use of the MANUAL key is to get into the command mode. Below are examples of how the MANUAL key is used to access the command mode from various modes.

- 1) To go from the *manual data input* (MDI) mode to the *command* mode, at any time press the MANUAL key.
- 2) To go from the *jog* mode to the *command* mode, press the MANUAL key at any time.
- 3) To get into the *command* mode when “waiting-”, “single step-”, or “slide hold-” are flashing on the screen, press the MANUAL key.
- 4) To go from the *auto* mode to the *command* mode press the SLIDE HOLD key or the SINGLE STEP key, then press the MANUAL key.
- 5) To get into the *command* mode from the *list* mode, the *change* mode, the *sum* mode, the *insert* mode, the *learn* mode, the *tool changer* mode, or the PR procedure press the MANUAL key at any time.

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### Cursor in the Command Mode

The cursor is the flashing < symbol. When a key is pressed and this symbol is present, the letter, number, or symbol the key represents will be printed on the screen.

The only place on the screen the cursor will be found is in the lower left hand corner.

- 1) When a key is pressed the cursor moves to the right.

**EXAMPLE:** ENTER NEXT COMMAND <

ENTER NEXT COMMAND A < Press the letter A and the cursor will move to the right.

ENTER NEXT COMMAND ABC < Press the letter B and C

the cursor will move to the right again.

- 2) The BACKSPACE key will move the cursor to the left, over the existing characters in the line.

**EXAMPLE:** ENTER NEXT COMMAND AB < From the Example above press the BACK SPACE once.

ENTER NEXT COMMAND A <C Press it again and the cursor will move to the left again. Notice the letter C is showing.

**Note:** The control will only recognize characters to the left of the cursor, when the ENTER button is pressed. From the Example above, only the letter A would be recognized if the ENTER button is pressed.

ENTER NEXT COMMAND AU< Press the letter U, it will be in the place of the letter B and the cursor will now cover the letter C.

ENTER NEXT COMMAND AU,50<,,1 If the ENTER button is pressed now, only AU,50 will be recognized.

**Note:** The control will not analyze what is typed until the ENTER button is pressed. Always look to see what is on the screen before pressing the ENTER key. (See DELETE KEY for more information on cursor movement).

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### Using the Delete Key

The DEL key can be used in the command mode, change mode, insert mode, and manual data mode to delete all characters to the left of the cursor. Pressing the DEL key will not exit the current mode, but will allow the operator to retype the entire line.

**EXAMPLE:** ENTER NEXT COMMAND IN< (press ENTER)

IN

N1 GOG90S10000M3X1.56Y-3.976E1@

The delete key was pressed here because it was noticed that the letter O was used for the number 0 in GO and G90.

Notice the @ symbol where the DELETE key was pressed. The cursor has moved to the space below the N1 line. The control is still waiting for input on line N1. The control will only recognize characters to the right of the @ symbol and to the left of the cursor.

N1 GOG90S1000M3X1.56Y-3.976E1@

GOG90S10000M3X1.56Y-3.976E1< (press ENTER)

N2<

Type the line correctly and press the ENTER button, the control will remain in the current mode.



The insert mode was used as an Example above, however, the DELETE button works the same way in the modes mentioned above, and it can be pressed as often as required.

The DEL key may also be used to delete a line of code from the program while in the PA mode. (See PAGE, USING THE PA COMMAND).

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### Using the Menu Mode

The menu mode is a list of accepted commands and their proper usage format. It is a summary form of the “command” section in the Users Manual. The menu mode is only for help when using the commands, it is not necessary to use the menu mode to use the commands.

- 1) From the *command* mode, type MU and then press the ENTER key to access the *menu* mode.
- 2) The first page of the menu is the directory (table of contents). This page has a list of all the commands, and the page number containing the explanations.
- 3) To get from page to page in the menu, three methods can be used.

**Method 1** Press the ENTER key to page forward one page at a time. The listing will page forward each time the key is pressed.

**Method 2** Press the BACKSPACE key to page backwards one page at a time. The listing will page backward each time the key is pressed.

**Method 3** Type the page number of the page to jump to and press the ENTER key. The menu will go directly to the page number typed. This can be done at any time, when in the menu mode. Type the number one from any page of the menu, press the ENTER key, and the menu will jump to the directory page.

**Note:** To use a command, press the MANUAL key to exit the *menu* mode. The page being viewed in the *menu* mode will remain on the screen after exiting to the *command* mode.

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