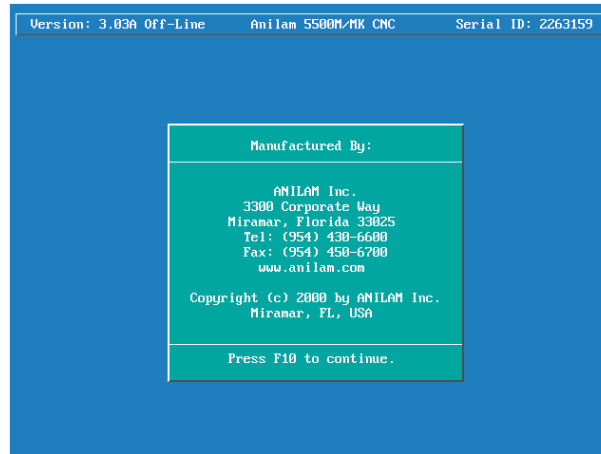


## 6000 CNC CONTROL TRAINING GUIDE



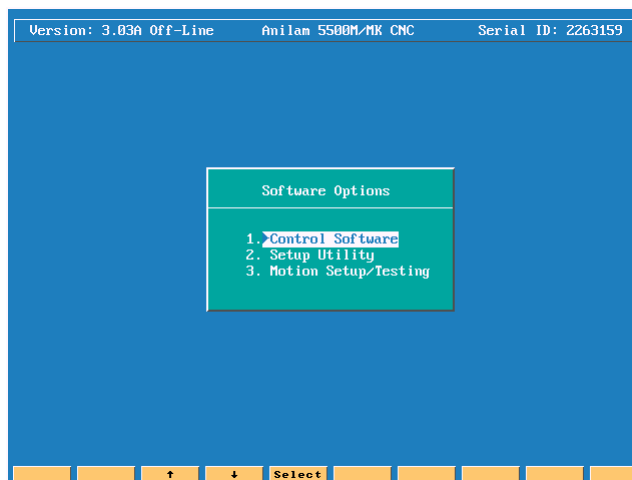
## Turning the Control ON



After the control has been turned ON press F10

**F10**

to continue.



**1. Control Software**

This allows you enter CNC software

**2. Setup Utility**

Machine configuration

**3. Motion Setup/Testing**

Used to setup drive

Then press ENTER



to select CNC mode.

## First CNC Screen

## Control Manual Screen

PROGRAM: SAX-SP2.M HALTED MANUAL IN-POSN

COMMAND: \_

MESSAGE:

MACHINE	PROGRAM	TARGET	DIST. TO GO
X + 0.0000	X + 0.0000	X	X + 0.0000
Y + 0.0000	Y + 0.0000	Y	Y + 0.0000
Z + 0.0000	Z + 0.0000	Z	Z + 0.0000
U + 0.000	U + 0.000	U	U + 0.000
W + 0.000	W + 0.000	W	W + 0.000

TOOL: 0	RPM: 0	∅: 100	LOOP: 0	FIXTURE: 0
DIA: 0.0000	FEED: 0.0	∅: 100	DWELL: 0.0	
LENG: 0.0000			OVERRIDE: FEED, RAPID	

G: G01 G17 G40 G70 G90	PARTS: 0
M: M05 M09	TIMER: 00:00:00 (00:00:00)

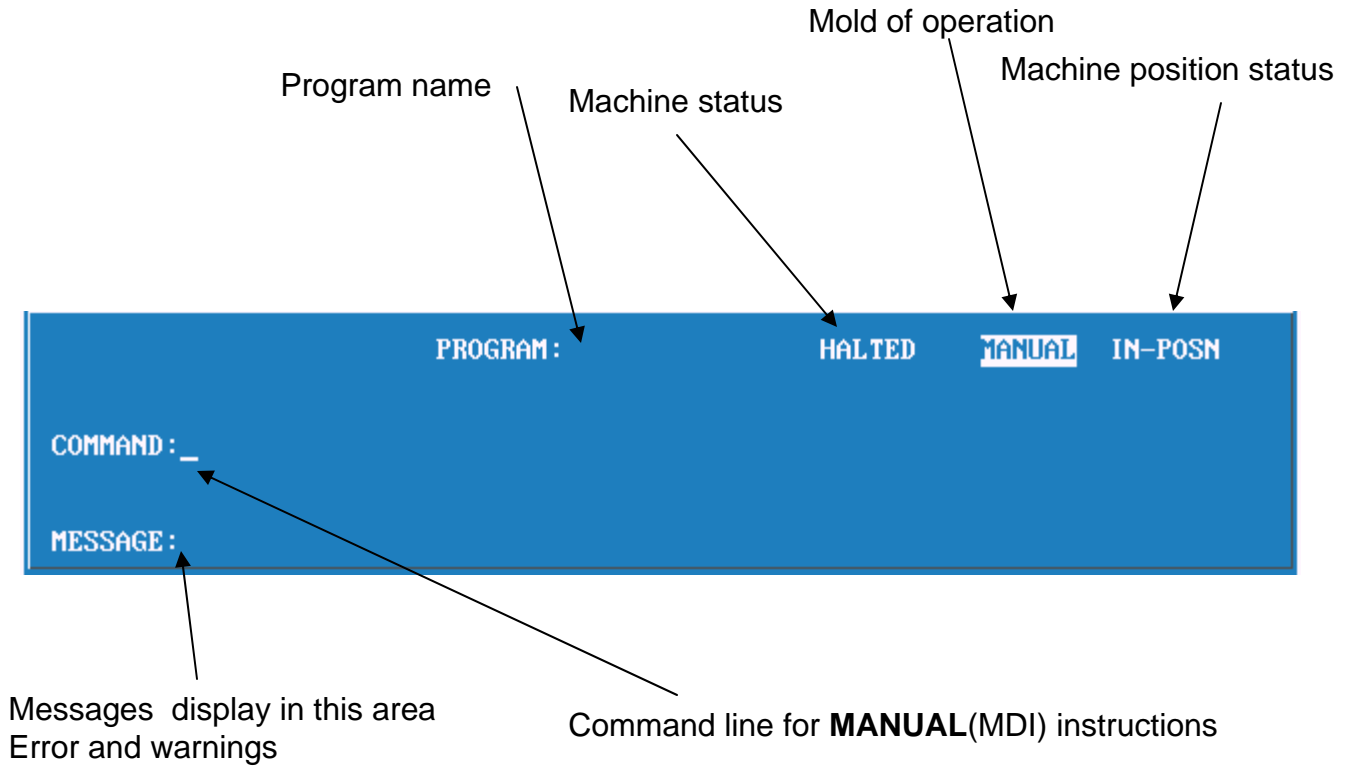
Help Program Edit **Manual** S.Step Auto Delete Insert Tool HandWI

SECTION #1

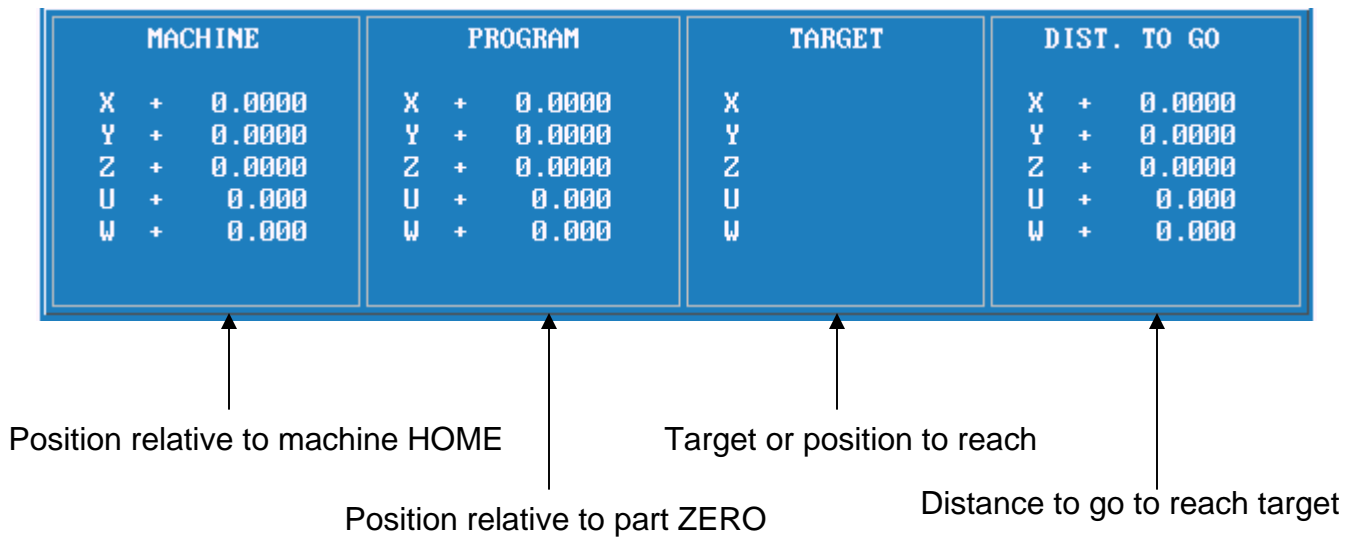
SECTION #2

SECTION #3

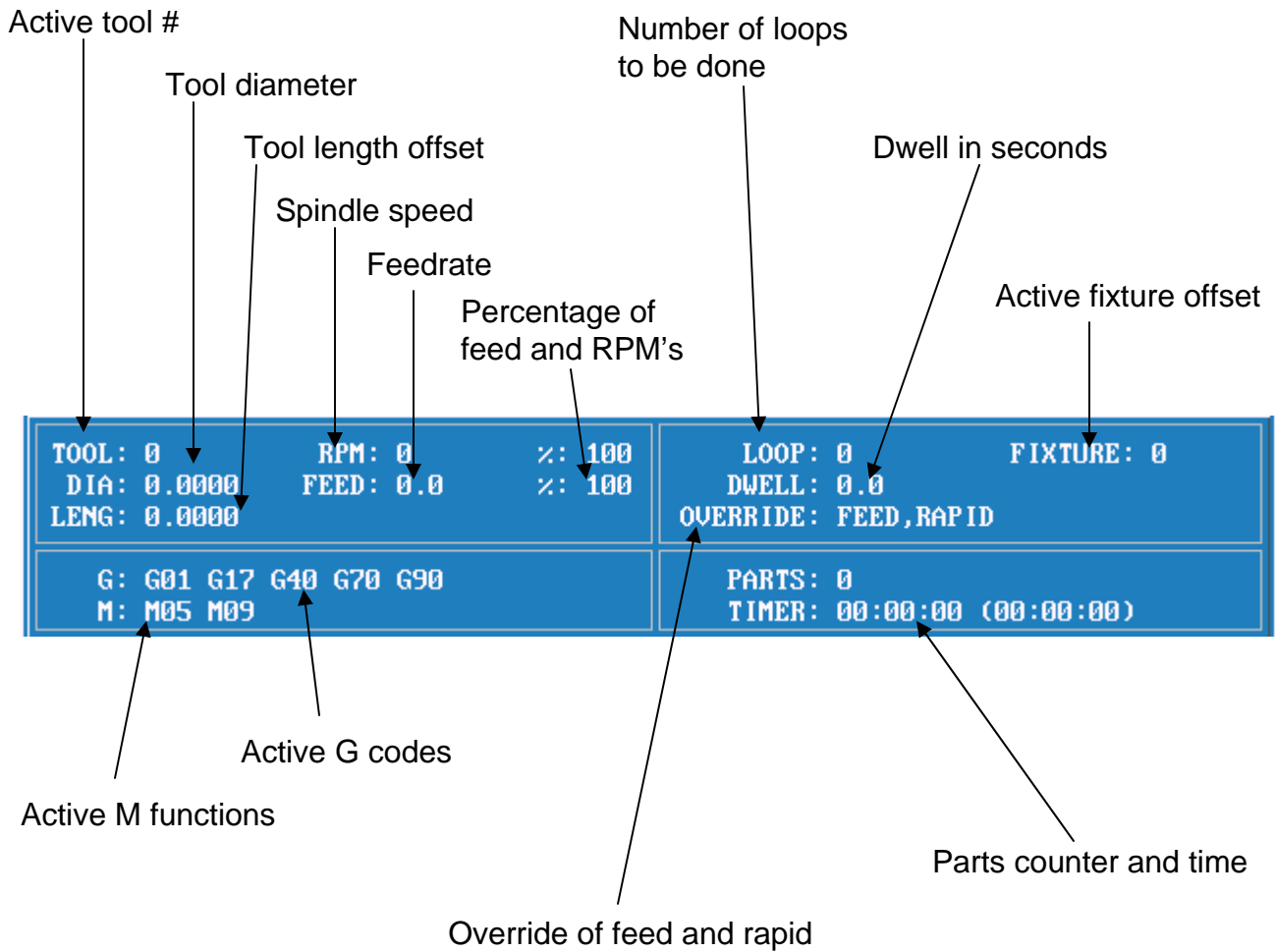
**Section #1**



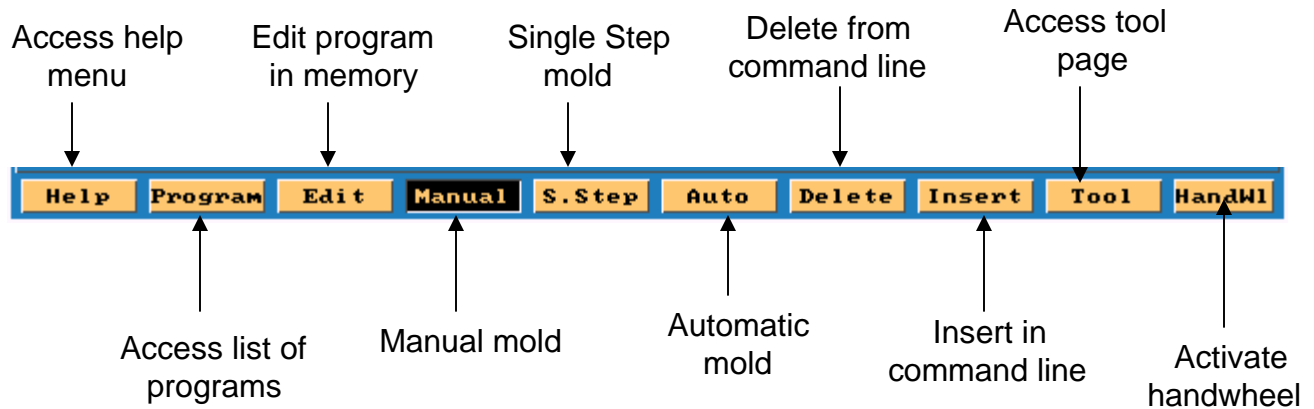
**Section #2**



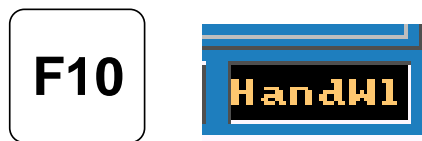
**Section #3**



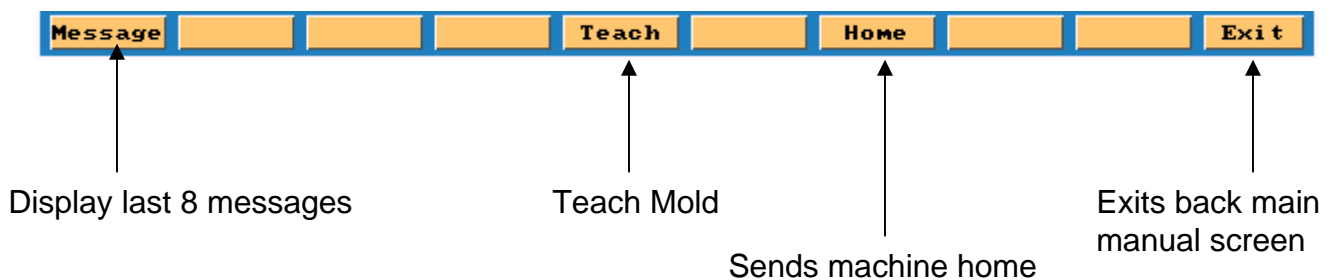
**Softkey in Manual mold.**



**Note:**When handwheel is active colors will be reversed in box as shown below.

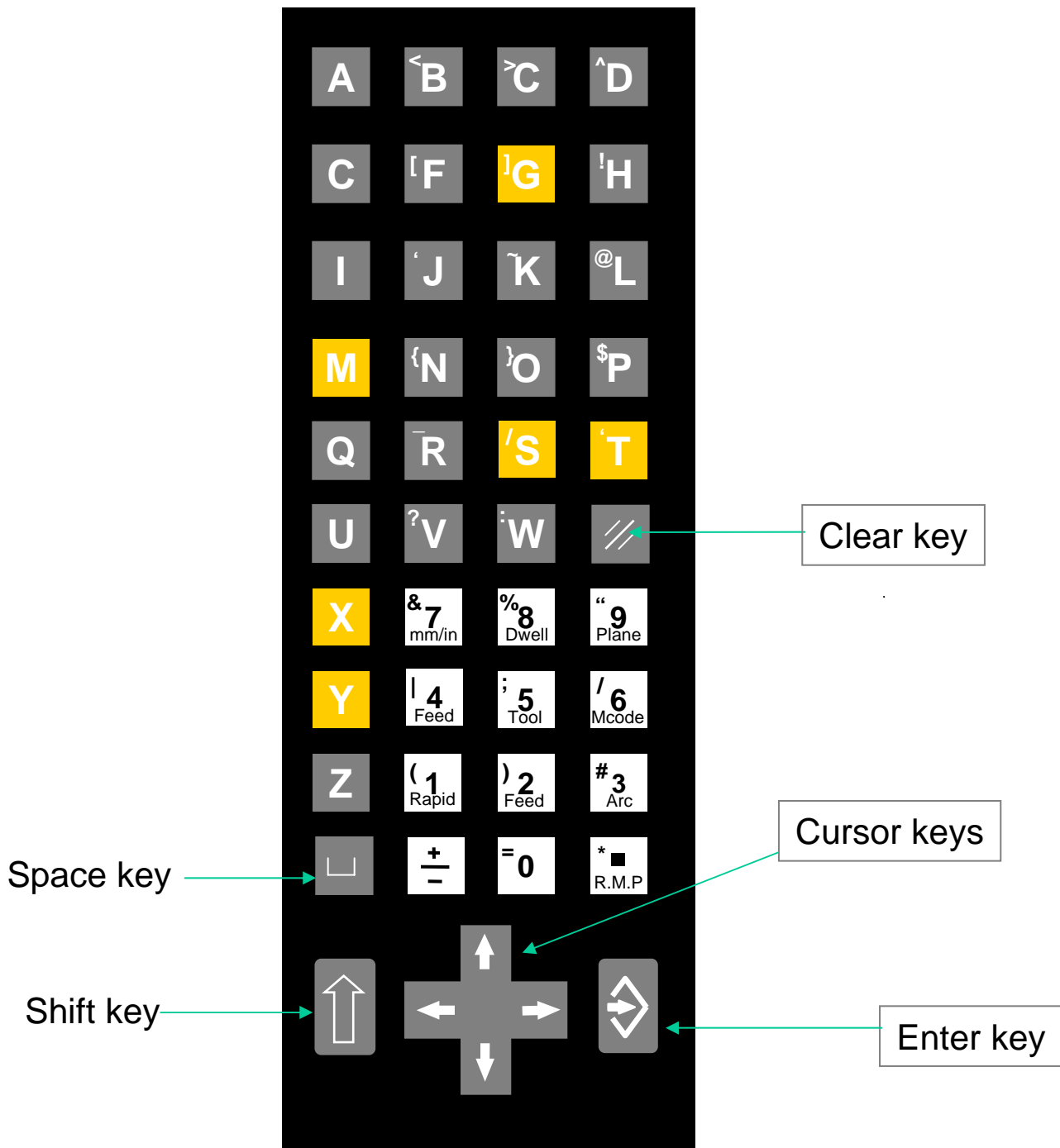


**Softkey in Manual mold when shift key is pressed**



## Alfa - Numeric key board

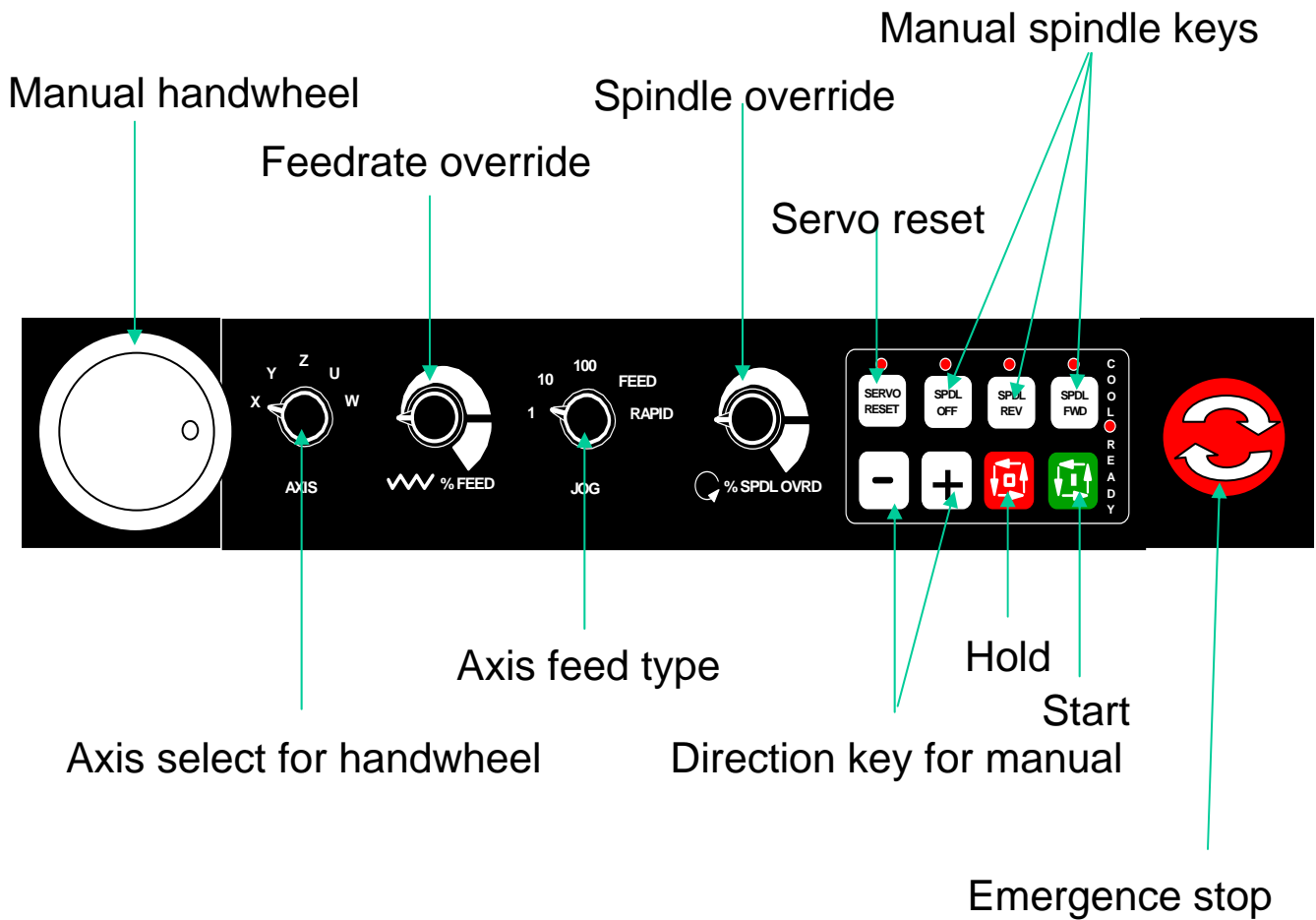
Note :- Most used key are yellow . Most key also double functions , the shift key is use to use secondary functions.



# Manual panel



There are two type of Manual panels.

- 1.As shown below.
- 2.The other without Handwheel on left side

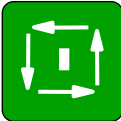




## MOVING WITH JOG MOVEMENTS

- 1) Turn the jog mode selector switch on the **MANUAL PANEL** to **100, 10, 1, FEED** or **RAPID**
- 2) Select the axis to move with the **AXIS SELECTOR** switch at the **MANUAL PANEL**
- 3) Press the  or the  key to move in the desired direction.

## MOVING WITH COMMANDS

Type commands as needed and press the START button  located on the MANUAL PANEL

EXAMPLE:

Type: **G0 G90 Z-5.** and press Start  Z axis goes to Z-5. in ABS and RAPID

EXAMPLE:

Type **G97 S1000 M3** and press START  to start the spindle at a fixed 1000 rpm.

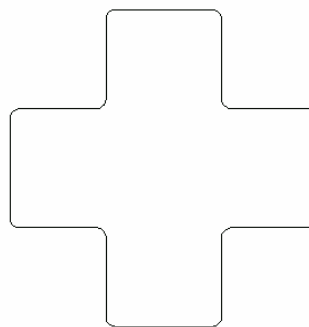
**MOST COMMON G-CODE COMMANDS TO REMEMBER:**

<b>G00:</b>	Rapid move.
<b>G01:</b>	Feed move.
<b>G02:</b>	Arc clockwise
<b>G03:</b>	Arc counter clockwise
<b>G17:</b>	XY plane
<b>G18:</b>	XZ plane
<b>G19:</b>	Yz plane
<b>G40:</b>	Cutter comp off
<b>G41:</b>	Cutter comp left
<b>G42:</b>	Cutter comp right
<b>G53 Ox:</b>	Fixture offsets ( absolute shift from Machine Home).
<b>G70:</b>	Inch programming
<b>G71:</b>	MM programming
<b>G80:</b>	Used for <b>Drilling</b> Cycles.
<b>G90:</b>	Absolute co-ordinate system
<b>G91:</b>	Incremental co-ordinate system
<b>G92:</b>	Incremental shift
<b>G94:</b>	Feed Rate in Inch per minute (mm per minute).
<b>G95:</b>	Feed Rate in Inch per revolution (mm per revolution)
<b>M0:</b>	Stop program .
<b>M2:</b>	End of program
<b>M3:</b>	Spindle forward
<b>M4:</b>	Spindle reverse
<b>M5:</b>	Spindle OFF
<b>M8:</b>	Coolant ON
<b>M9:</b>	Coolant OFF

**ADDRESS LETTERS USED IN PROGRAMMING**

<b>A:</b>	Used for angles around X axis.
<b>B:</b>	Used for angles around Y axis.
<b>C:</b>	Used for angles around Z axis.
<b>D:</b>	Designates tool diameter in a program.
<b>F:</b>	Feedrate.
<b>I:</b>	Circle center X axis.
<b>J:</b>	Circle center Y axis.
<b>K:</b>	Circle center Z axis.
<b>L:</b>	Designates tool length in a program.
<b>M:</b>	Miscellaneous functions.
<b>N:</b>	Line number prefix.
<b>O:</b>	Program or subroutine number prefix.
<b>P:</b>	Subroutine number call prefix.
<b>S:</b>	R.P.M. prefix.
<b>T:</b>	Tool call.
<b>U:</b>	Rotary axis or spindle.
<b>V:</b>	Rotary axis or spindle.
<b>W:</b>	Rotary axis or spindle.
<b>LOOP:</b>	Repeat operation.
<b>END:</b>	End of loop.

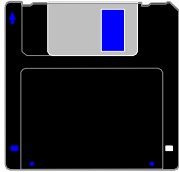
Note: Some of these letters are used inside canned cycles also some that are not listed above.



## RETRIEVING PROGRAMS FROM DISK

### Transferring a program from a disk into the control

Programs can be restored into the control if they have been previously saved on a disk.



Insert the disk into the floppy disk drive (**A:**) on the machine.

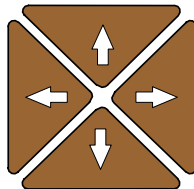
From the MANUAL mode press **Program** then press **SHIFT**



Next, press **Log** select "**A:**" and press **ENTER**



Using the arrow keys hi-lite the program to be restored and press



**Utility**

then press



twice to select **COPY** and then **C:**

### **WARNING**

Remove the diskette when complete and save in a safe place. Do not leave the diskette in the machine, the will not start correctly with disk in the drive.

Keys to use when using Computer key board

FUNCTION	CNC KEYBOARD	COMPUTER KEYBOARD
X Axis Command		X Key
Y Axis Command		Y Key
Z Axis Command		Z Key
Preparity G Code		G Key
Machine Function Code		M Key
Spindle Function Code		S Key
Tool Command		T Key
ENTER		ENTER Key
SHIFT		SHIFT Key
Cycle HOLD Key		Alt + H Key
Cycle START Key		Alt + S Key
Cursor UP, DOWN, LEFT and RIGHT		ARROW Keys
CLEAR Key		Alt + C Key
FUNCTION Keys F1 - F10		F1 - F10 Keys

Definitions of Function keys are given on screen