09. PROGRAMMING

09.1 POSITIONS MEMORY:

Complete the preliminary steps of:
1) Enabling/disabling of slides, rotary quill and wire rotation
2) Automatic Cutter [F4]
3) Slide speeds
4) Wire speeds
5) System reset

Programming in SPRING consists of defining a sequence of movements and the proper speed for each movement. One crucial function for this programming process is the RPG Control. Press the "B" key on the keyboard to access the RPG Control. Only one axis can be selected at one time. The axis that is labeled in white and blinking is the selected axis for changes.

The selected axis can be moved by turning the RPG. Turning the RPG clockwise will correspond to a forward movement and turning it counterclockwise will correspond to a backward movement. Press "<" and ">" keys on they keyboard can be used to increase or decrease the sensitivity of the axis. The movement of the axis can be incrementally changed between 0.01 mm, 0.50 mm, 1.00 mm, 2.00 mm and 4.00 mm.
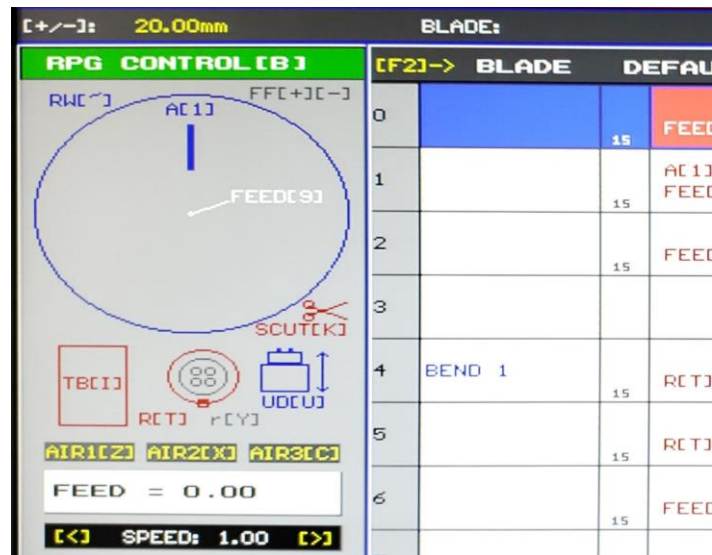
The RPG CONTROL window indicates the current position and the sensitivity of movements for the selected axis. The axis is moved manually and when the slide is in the correct position, it can be saved into the program as a save point. The operator will use the ▼ ▲ keys to select the programming line in the program to save the position of the slide. One the programming line has been selected, press the INS key to save the position of the axis. The following screen will appear:
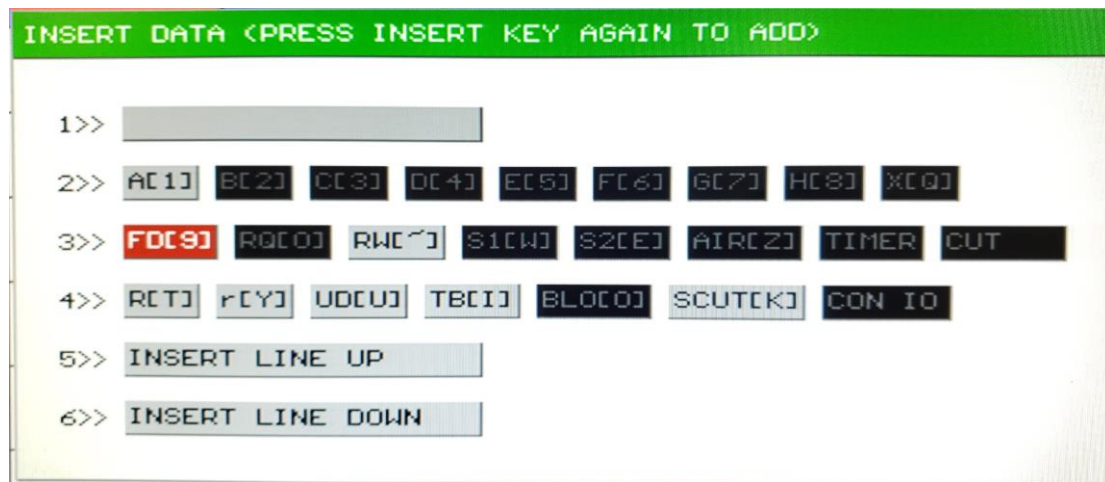
Check that the corresponding axis is highlighted and press the INS again. The axis from the INSERT DATA screen will be placed in right column the selected programming line. The value of the axis may have a corresponding + or – value to indicate its movement relative to the previous position. A + value indicates a positive movement from the previous position and vise versa.

The left column allows the operator to label the programming line. To insert a description in the first column of the desired line, press the ENTER key while on that line of code and in the first column.
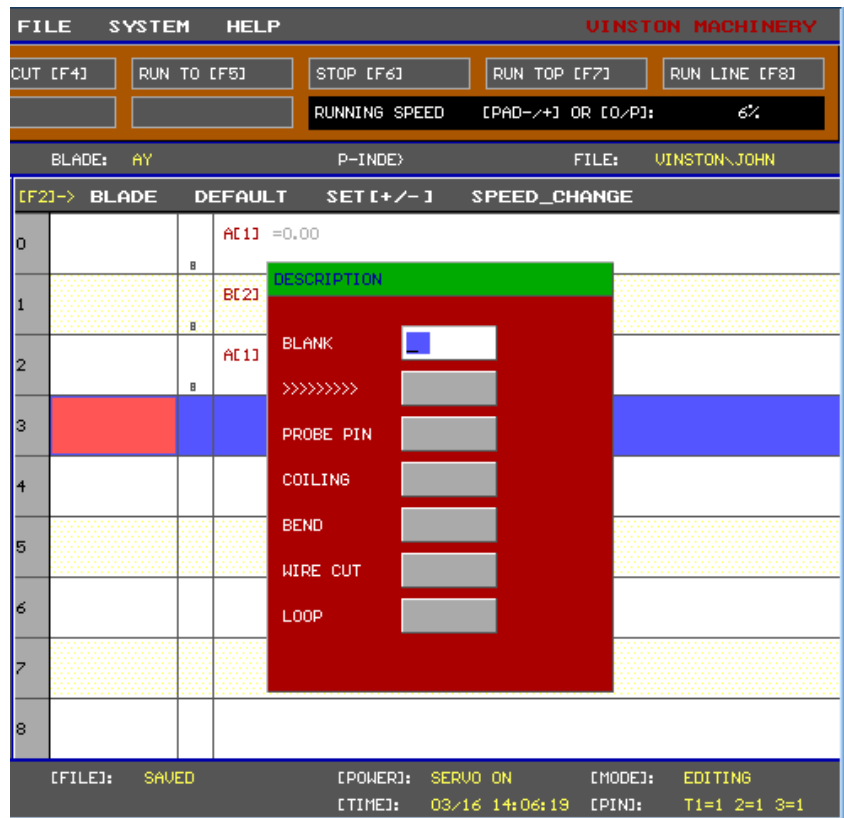
Use the ▼▲ keys to select from a list of present descriptions and then press the ENTER key. The user can add additional comments after the general description to help distinctly identify the line of code.

09.2 F3 – SAFE POSITION AND WIRE CUT

During the programming process, the user can use F3 to reset the slides to their original safe (zero) positions. This will allow the user the reset the blades if an issue comes up while editing the program. The user must pay attention to the path of each blade back to their zero (safe) positions. The path to the zero position can be obstructed by debris or the sample itself. Make sure the path is clear prior to using the F3 function. Otherwise, injuries or damage to machine parts can occur.

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SAFE POS [F3]
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To run the command, press the F3 key on the keyboard. The indicator at the top of the screen will change color (turns green) and the slides will move simultaneously back to their preset safe (zero) positions. The F3 function is often used in conjunction with the F4 (WIRE CUT) function to reset all axes.

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WIRE CUT [F4]
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To execute the command, press the F4 key on the keyboard. The indicator at the top of the screen will change color (turns green) and a confirmation window appears. Press the ENTER key to confirm the command all slides will move to their corresponding zero (safe) position. A predefined amount of wire is fed out based on default settings. The quill will move into the cutting position and the slide with the blade will move in for the cut and return to its previous position.