

Tool Changes and Auto/Manual Tools

This document will help with getting you familiar with changing tools and setting your tools to Manual or Auto (in ATC). First, find the TOOL CHANGER hard keys on your control. The **AUTO** hard key under TOOL CHANGER is what we will use to initiate tool changes.

Dual Screen
MAX 4 Control



Single Screen
MAX 4 Control

MAX 5 Control



Tool Changes and Auto/Manual Tools

Manually loading a tool into the spindle, then, into the ATC

- Press the **MANUAL** hard key under MACHINE MODE. This takes you to the Manual Screen which allows manual motion and tool changes.
- Press the **TOOL MANAGEMENT** soft key on the touch screen.
- Is there physically a tool in the spindle? If not, make sure the TOOL IN SPINDLE field reads 0.
- In the NEXT TOOL field, enter the tool number of the tool you want to load or that you want to associate with your new tool. Make sure to press ENTER.
- You can either press the **MOVE TOOL TO SPINDLE** soft key on the touch screen or press the **AUTO** hard key under TOOL CHANGER, then the **START CYCLE** button to initiate a tool change.
- You will then be prompted to insert a Manual Tool into the spindle if there is not an Auto tool associated with that tool number. Physically insert your new tool. This is still a Manual Tool and will NOT be loaded into the ATC.
- Next to TOOL IN SPINDLE it will either say “Auto” or “Manual”. A Manual Tool will allow you to set height and geometry for the tool but will need to be physically loaded and removed before and after use. An Auto Tool will allow you to set height and geometry and will be stored in the ATC between uses.
- To make this an Auto Tool and give it a spot in the ATC, press the **TOGGLE AUTO/MANUAL** soft key on the touch screen. You can also do this by changing your NEXT TOOL field to match your TOOL IN SPINDLE field, then hitting your **AUTO** hard key under TOOL CHANGER.
- Once your TOOL IN SPINDLE is set to “Auto,” change the NEXT TOOL number to the next tool you wish to load into the spindle and press your **AUTO** hard key under TOOL CHANGER to move that tool into the ATC and load another tool into the spindle.
- If you just want to load that tool into the ATC and do not want to load another tool, you can press the CLEAR TOOL IN SPINDLE soft key and hit **START CYCLE**.
- When you enter a tool number into NEXT TOOL, it will also either say “Manual” or “Auto” next to it. If “Auto,” it is in the ATC, and when you initiate the change, it will load it from the ATC into the spindle. If “Manual,” when you initiate the change, the spindle will be cleared and you will be prompted to manually load a tool into the spindle.

Tool Changes and Auto/Manual Tools

Changing tools while in TOOL SETUP

- Enter the Tool Setup screen
- Press the **MANUAL** hard key under MACHINE MODE
 - Press **TOOL MANAGEMENT** soft key
 - Press **TOOL SETUP** soft key

OR

- Press the **INPUT** hard key
 - Press **TOOL REVIEW** soft key
 - Press **TOOL SETUP** soft key

Note: the TOOL IN SPINDLE field is still visible

MACHINE		PART		TOOL CALIBRATION		DELETE TOOL F1	
X	0.0000	0.0000	0.0000	SPINDLE	0	PART SETUP F2	
Y	0.0000	0.0000	0.0000	FEED (STOPPED)	0.0	PART PROGRAMMING F3	
Z	0.0000	0.0000	0.0000	TOOL IN SPINDLE	2	TOOL OFFSETS F4	
TOOL NUMBER	2		LOCATION	Spindle	MANUAL	TOOL HOME F5	
TOOL TYPE			FACE MILL			SET LENGTH USING TOUCH-OFF DEVICE F6	
DIA METER	2.0000		SPEED	CW	CAL 1910	MORE -> F7	
TOOL CAL LENGTH	0.0000		COOLANT	PRIMARY		EXIT F8	
TOUCH-OFF DEVICE	1 GAUGE		SURFACE SPEED	1000			
			FEED/FLUTE	0.025000			
			FLUTES	4			
			FEED	CAL 191.0			
			CUTTING TIME	0			
			DIAMETER WEAR	0.0000			

Provide the tool's number.

PRESS MANUAL MODE, POWER, AND START CYCLE TO RESTORE POWER.

NONAME1.HWM INCH 8:28 AM

- If the TOOL IN SPINDLE field matches the TOOL NUMBER field, pressing the **AUTO** hard key under TOOL CHANGER will toggle that tool between “Auto” and “Manual.”
- You can initiate a tool change without leaving this screen by entering the tool number of the tool you want in the TOOL NUMBER field, pressing the **AUTO** hard key under TOOL CHANGER, then **CYCLE START**.

Tool Changes and Auto/Manual Tools

Verifying Auto Tools and Their Location in the ATC

- Enter the Tool Management screen
- Press the **MANUAL** hard key under MACHINE MODE
 - Press **TOOL MANAGEMENT** soft key
 - Notice the AUTO tab at the top of the page

The screenshot shows the 'AUTO' tab selected in the Tool Management screen. The interface includes a top navigation bar with 'SPINDLE', 'AUTO' (highlighted with a red box), and 'MANUAL' tabs. The main area is divided into several sections: 'MACHINE' and 'PART' coordinates (X, Y, Z) all set to 0.0000; 'ORIENTATION' set to 'VERTICAL'; 'SPINDL RPM' set to 0; 'FEED (STOPPED)' set to 0.0; 'MAGAZINE (UNCAL'D)' set to 0; and 'AXES STATUS' set to 'UNCALIBRATED'. Below this is the 'AXIS LIMIT SWITCHES' section. The 'NEXT TOOL' is set to 'Auto' and 'POCKET' is set to '1'. A text input field contains the number '1'. The 'TOOL IN SPINDLE' is set to 'MANUAL' and another text input field contains the number '2'. On the right side, there is a vertical column of function keys: 'RETRACT TOOL' (F1), 'MOVE TOOL TO SPINDLE' (F2), 'TOOL SETUP' (F3), 'CLEAR TOOL IN SPINDLE' (F4), 'TOGGLE TOOL AUTO / MANUAL' (F6), and 'EXIT' (F8). The bottom status bar shows 'NONAME1.HWM', 'INCH', and the time '8:58 AM'.

- Select that tab to view and manipulate your ATC map.

The screenshot shows the 'AUTO' tab selected in the ATC map screen. The interface includes a top navigation bar with 'SPINDLE', 'AUTO' (highlighted with a blue box), and 'MANUAL' tabs. The main area contains two checkboxes: 'Show only occupied pockets' and 'Disable even numbered pockets'. Below these is a table with 'POCKET' and 'TOOL' columns. The 'POCKET' column lists numbers 1 through 10, and the 'TOOL' column lists the corresponding tool numbers: 1, 0, 3, 4, 5, 6, 7, 8, 9, 0. On the right side, there is a vertical column of function keys: 'MOVE TOOL TO SPINDLE' (F1), 'SELECT TOOL' (F2), 'CLEAR POCKET' (F3), 'CLEAR ALL POCKETS' (F4), 'PAGE UP' (F6), 'PAGE DOWN' (F7), and 'EXIT' (F8). The bottom status bar shows 'NONAME1.HWM', 'INCH', and the time '8:59 AM'.

NOTE: At the top, there are checkboxes to “Show only occupied pockets.” There is also a box to “Disable even numbered pockets.” If you want to place large diameter tools into your ATC, checking that box will create room on either side for a large tool.