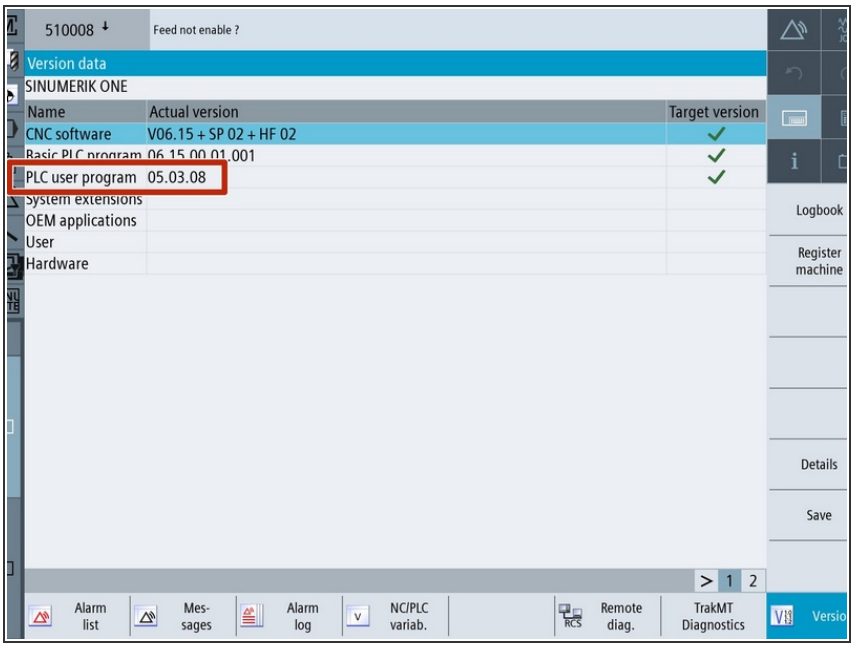
VMCsi- Clearing ATC Fault

Written By: Dylan Parr

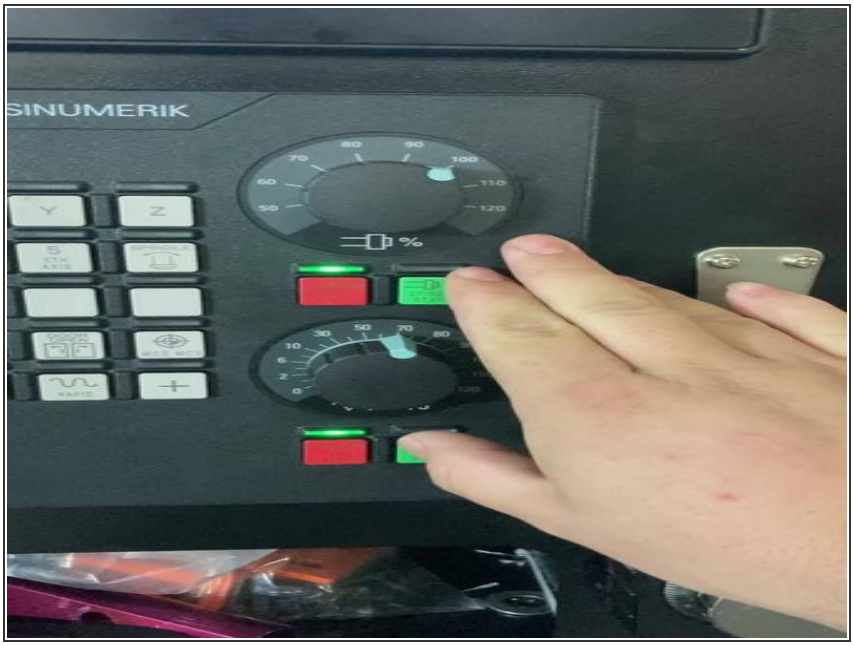


Step 1 — Identifying PLC Version



- The method for entering Spindle Service Mode depends on whether the machine is using the Old PLC or New PLC.
  - Press **[Diagnostics]** → **[Version]**
  - Locate the PLC User Program line.
    - 03.xx.xx → Old PLC
    - 05.xx.xx or higher → New PLC

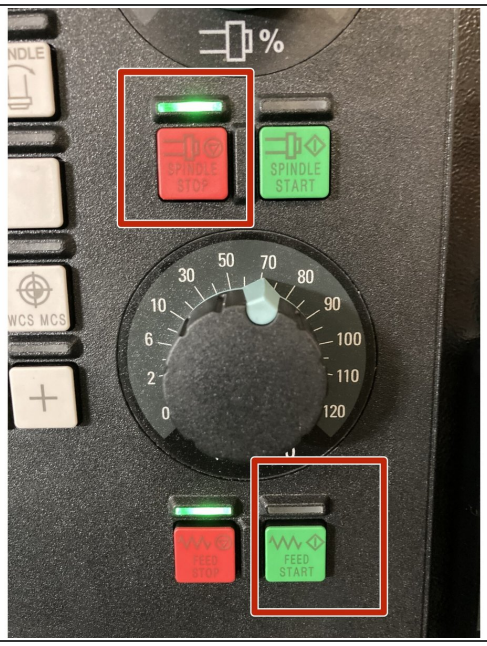
Step 2 — Entering Spindle Service Mode - New PLC



ⓘ This step applies only to machines using the New PLC (05.xx.xx or higher).

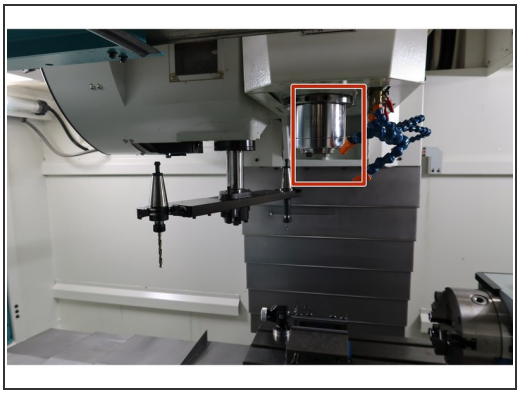
- Verify the E-Stop is disengaged.
- Press **[Reset]**
- While holding **[Spindle Stop]**, press **[Feed Stop]** three (3) times.
- Confirm **[Feed Stop]** begins blinking slowly.
- While holding **[Spindle Stop]**, press **[Feed Stop]** three (3) times again.
- Confirm **[Feed Stop]** begins blinking faster.

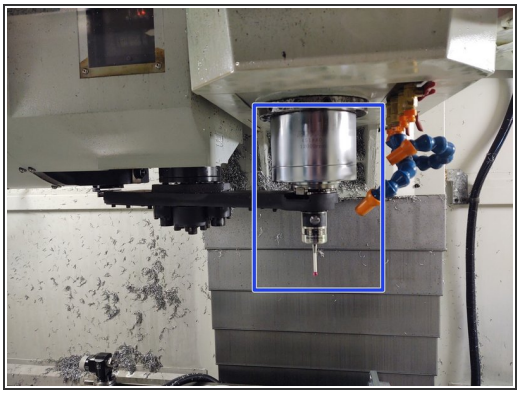
Step 3 — Entering Spindle Service Mode - Old PLC

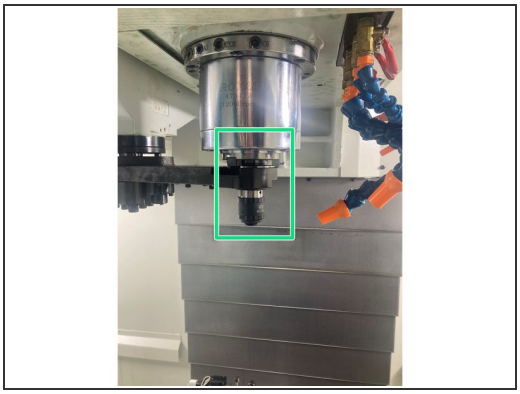


- This step applies only to machines using the Old PLC (03.xx.xx).
- Verify the E-Stop is disengaged.
- Press **[Reset]**
- Press and hold **[Spindle Stop]**
- While holding **[Spindle Stop]**, press **[Feed Start]** three (3) times.
- Confirm **[Feed Start]** begins blinking slowly.

Step 4 — Identifying type of ATC Fault







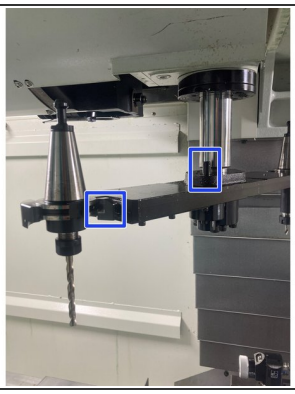
- The recovery procedure depends on whether a tool is currently captured by the spindle.
- Inspect the spindle area and ATC arm to determine which condition applies:
  - Fault with spindle empty
  - Fault with tool in spindle.
- Treat the fault as “Tool in Spindle” if:
  - The tool is aligned with the spindle and
  - The tool is partially or mostly inserted into the spindle

ⓘ If the drawbar fingers are capturing the retention knob, the tool is considered in the spindle, even if it is not fully seated.

Step 5 — Remove Tools from ATC Arm (No Tool in Spindle)



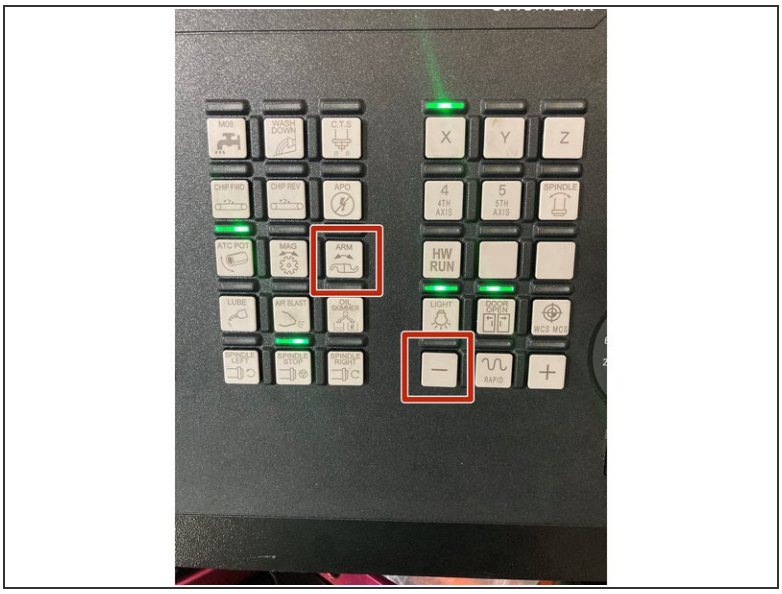


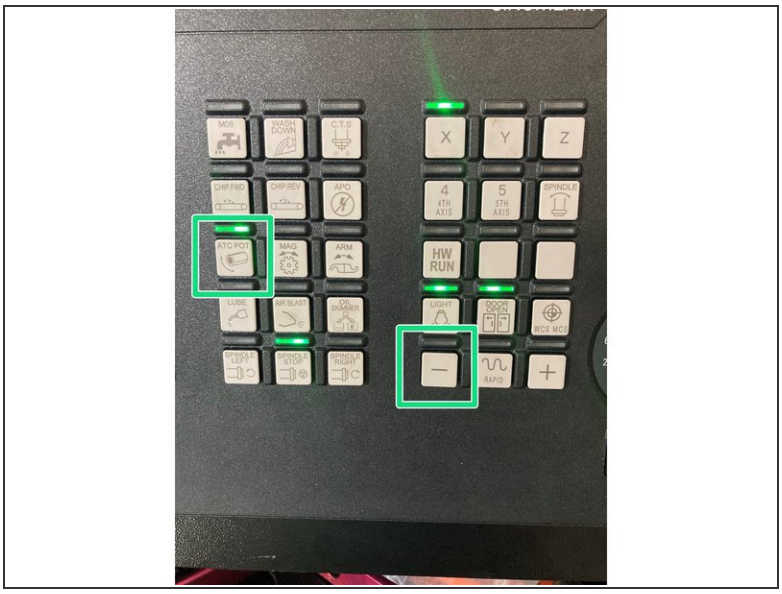


ⓘ If a tool is in the spindle, do not attempt to remove it using this step.

- Identify the ATC arm position:
  - Up position (left image) — the gripper can be pressed directly.
  - Down position (right image) — the release pin on the arm must be pressed before the gripper will open.
- Remove the tool(s) from the ATC arm by pressing the gripper and pulling the tool straight out.
- If the arm is in the down position, the circled pin on the arm must be pressed down before the gripper can be depressed.
- If no tool is in the spindle, both tools may be removed using this method.

Step 6 — Returning Arm to Home (No Tool in Spindle)





- Verify the machine is in Spindle Service Mode.
- Press and hold **[Arm]**, then tap **[+]** to move the ATC arm to the home position.
- Once the arm is at home, press and hold **[Pot]**, then tap **[-]** to return the pot to the Up position.
- ⓘ If the arm returns home with no tools installed, proceed to Step 15 — Confirming Spindle Home.

Step 7 — Special Cases- Tool in Spindle



- Before moving the ATC arm, determine when the fault occurred:
  - Fault during tool insertion into the spindle
  - Fault during tool removal from the spindle
- Choose the correct recovery direction:
  - Insertion fault → Move the arm backward **[–]** to back the tool out.
  - Removal fault → Move the arm forward **[+]** to complete the removal.
- Proceed to the appropriate recovery step based on this condition.

⚠ Moving the arm in the wrong direction increases the risk of dropping the tool or damaging the ATC.

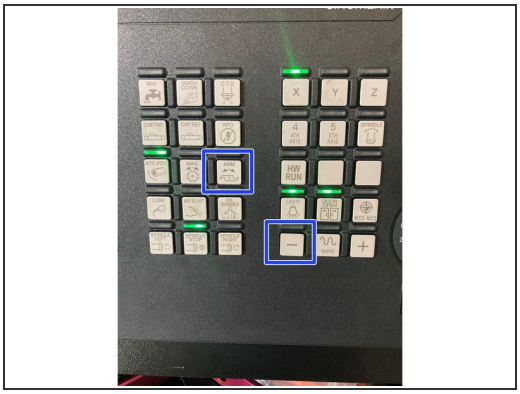
Step 8 — Removing Tool from Insertion phase

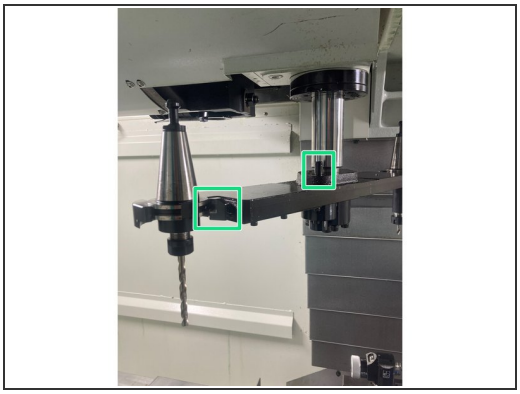


- This video shows the tool insertion sequence into the spindle.
  - If the control faulted during tool insertion, proceed to Step 9 — Removing Tool (Insertion Phase).
  - If the control did not fault during insertion, proceed to Step 10 — Removing Tool (Removal Phase).

Step 9 — Removing Tool- Insertion Phase







- Place cardboard or rags on the table to protect the machine if the tool drops.
- This procedure requires two people, one holding the green Manual Tool Change button and one operating the ATC controls.

  ⚠ The green button must remain pressed until the tool is completely clear of the spindle.
- Verify the machine is in Spindle Service Mode.
  - Press and hold **[Arm]**, then tap **[–]** to move the arm back toward Home.
  - Using **[Arm]** & **[–]** reverses the insertion motion and reduces the risk of dropping the tool.
- Once clear of the spindle, remove the tool using the gripper (press the release pin first if the arm is down).
- Press and hold **[Pot]**, then tap **[–]** to return the pot to the Up position, then proceed to Step 15.

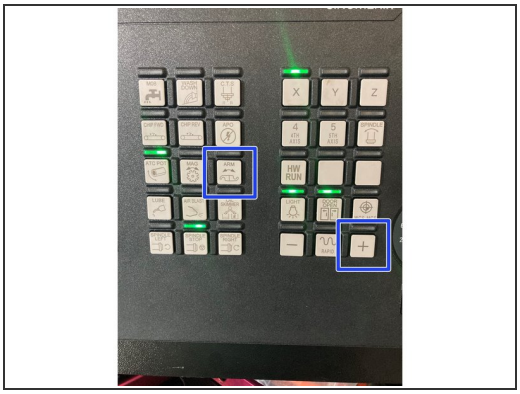
Step 10 — Removing Tool from Removal Phase

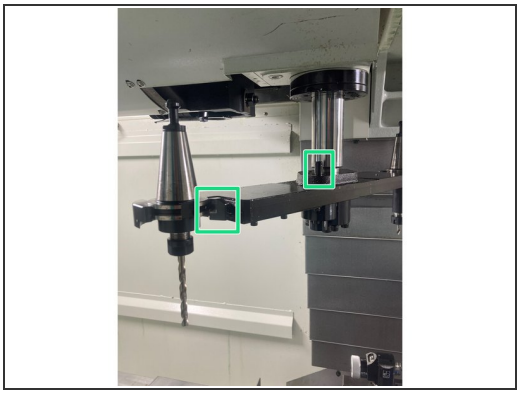


- This video shows the tool removal sequence from the spindle.
  - If the control faulted during tool removal, proceed to Step 11 — Returning the Arm to Home (Tool in Spindle).

Step 11 — Return ATC Arm to Home (Tool in Spindle)







- Place cardboard or rags on the table to protect the machine if the tool drops.
- This procedure requires two people, one holding the green Manual Tool Change button and one operating the ATC controls.

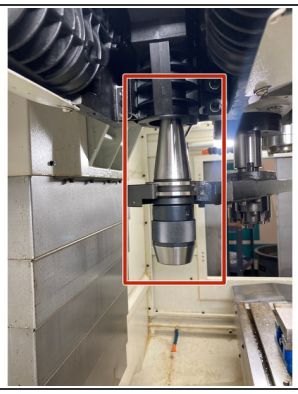
  ⚠ The green button must remain pressed until the tool is completely clear of the spindle.
- Verify the machine is in Spindle Service Mode.
  - Press and hold **[Arm]**, then tap **[+]** to move the arm forward toward Home.
  - Using **[Arm]** & **[+]** advances the tool removal motion and reduces the risk of dropping the tool.
- Once clear of the spindle, remove the tool using the gripper (press the release pin first if the arm is down).
- Press and hold **[Pot]**, then tap **[–]** to return the pot to the Up position.

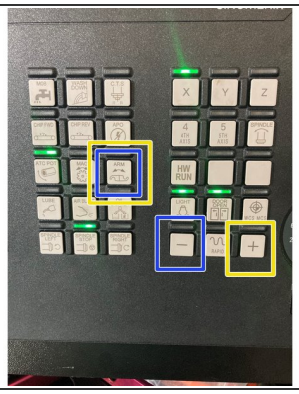
Step 12 — Clearing the Pot-Side

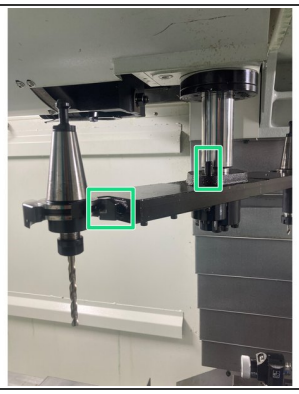


- After the spindle-side tool has been addressed, verify the tool is not still captured in the ATC pot.
  - If a tool remains in the pot, press and hold **[Pot]**, then tap **[–]**.
  - Verify the pot returns to the Up position and clears the arm travel path.

Step 13 — Clearing Pot-Side (continued)



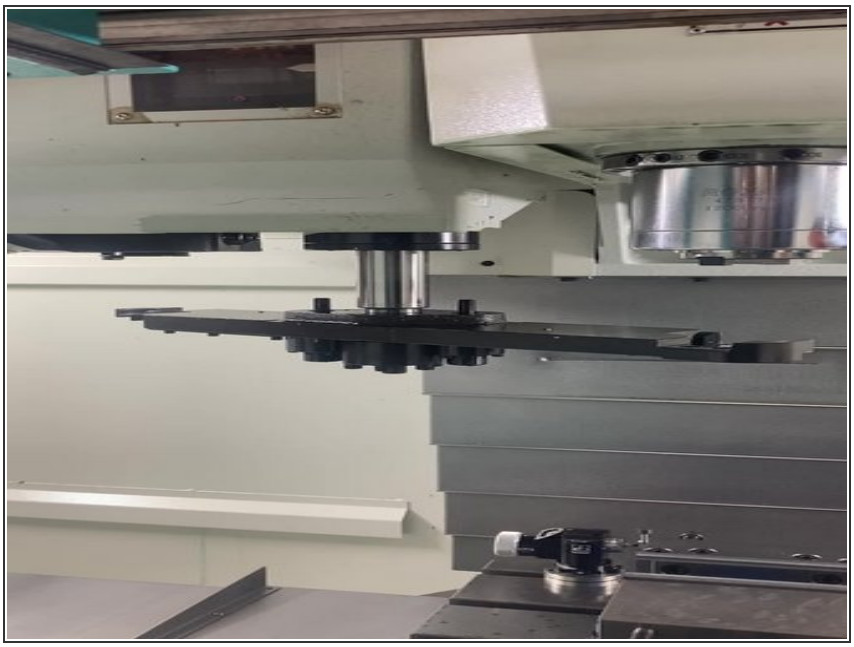




- Move the ATC arm to a safe position using **[Arm]** with **[+]** or **[–]**.
- Determine when the fault occurred:
  - Fault during insertion into the pot
  - Fault during removal from the pot
- Select the correct direction:
  - Insertion fault → Press **[Arm]** & **[–]** to back the tool out of the pot.
  - Removal fault → Press **[Arm]** & **[+]** to advance the tool out of the pot.
- If the arm is in the down position, press the release pin to open the gripper to remove tool.

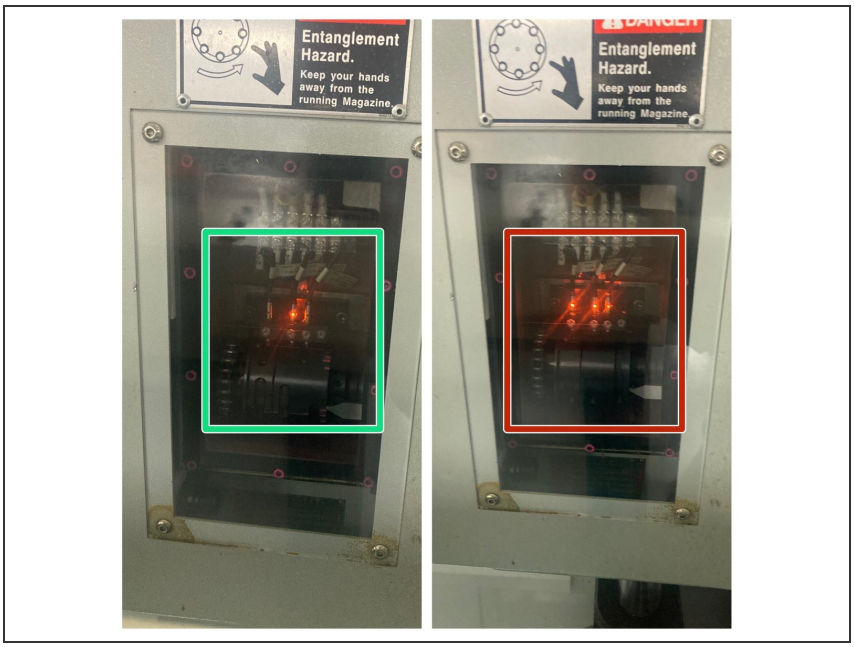
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Step 14 — Returning ATC Arm to Home



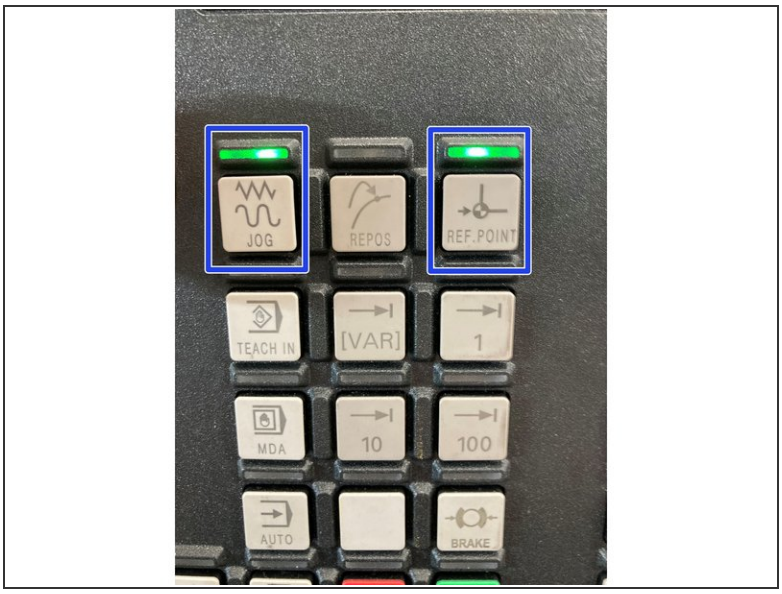
- Video of ATC Return to home using **[Arm]** & **[+]**

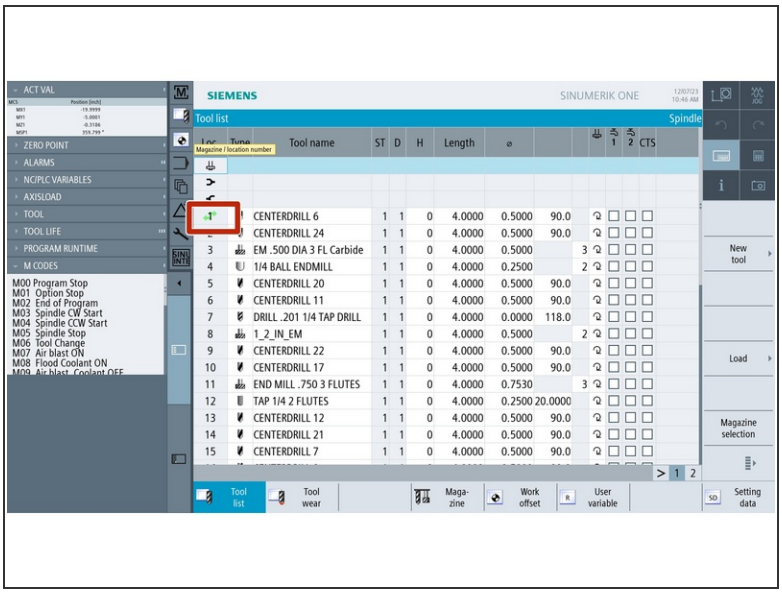
Step 15 — Confirm ATC Arm Home Position



- Look through the front ATC window to view the ATC LEDs.
- When ARM returns to home position, only LED in the middle should be active.
- When multiple lights (or any single light other than the center one) are lit, the ARM is not at the home position.

Step 16 — Restoring Tool list





- Press **[Reset]** to exit Spindle Service Mode.
- Press **[Jog]** and **[Ref Point]** on the MCP and confirm both indicator lights are on.
  - Press **[Mag]** & **[+]** together to reference the magazine.
  - Verify Pot 1 is in the tool change position.
  - Verify the green arrow in the first column of the tool table points to Tool 1.
- Reinstall any tools that were manually removed during the clearing process.
- Verify the tools in the magazine match the tool table.
- ATC fault clearing is complete.