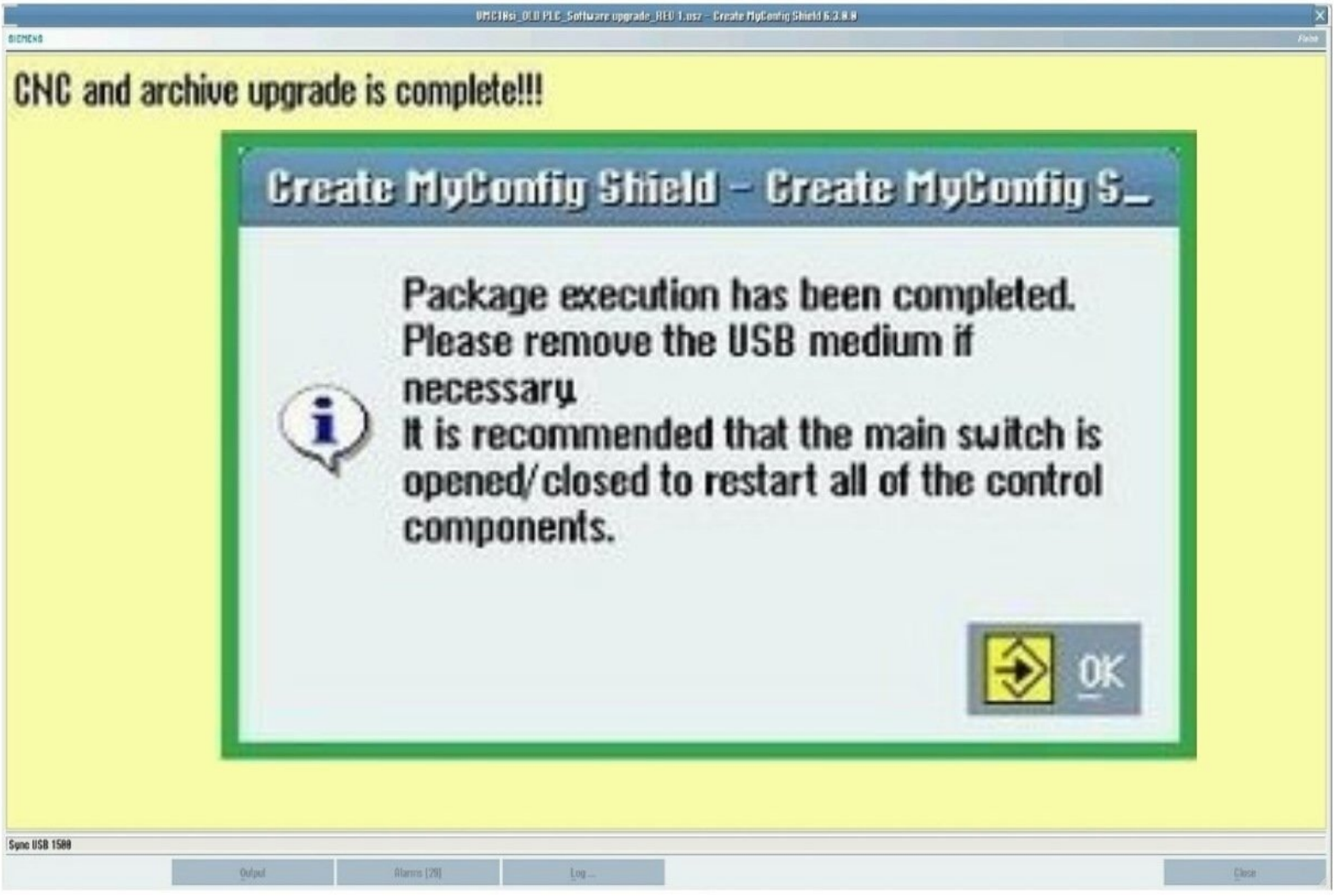
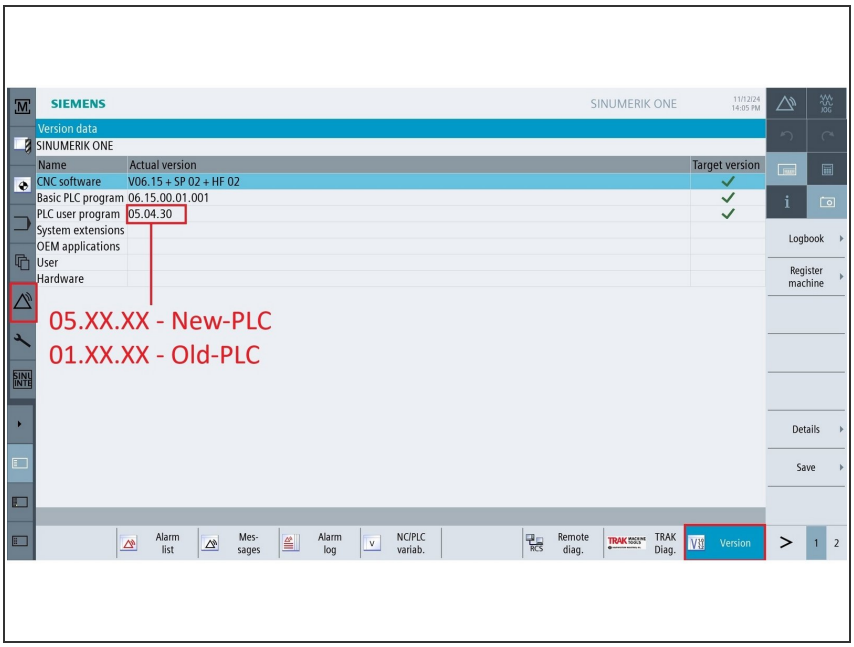
TCsi - Create My Config Expert Software Upgrade

Written By: Ryan Levrini



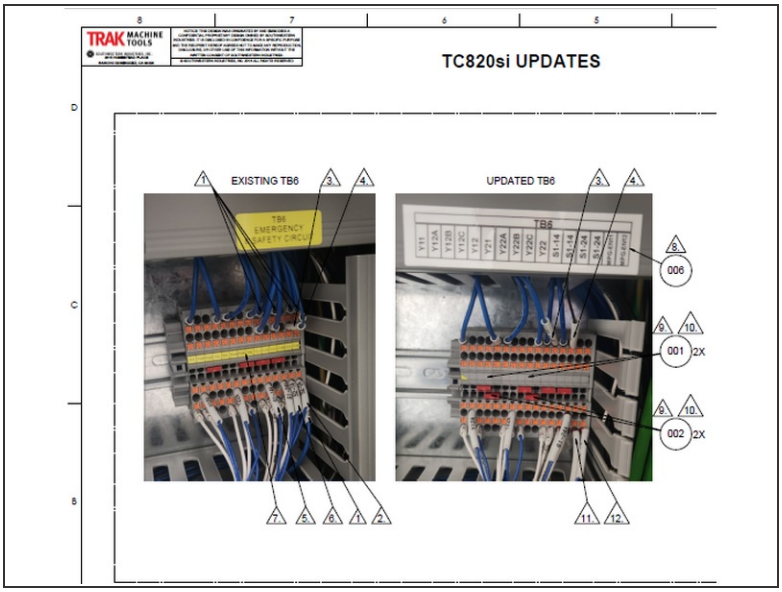
Step 1 — Check PLC Version



ⓘ **TC820LTYsi**, **TC820LTY-Ssi**, **TC1222si**, **TC1220LTYsi** → Proceed to **Step 5**

- **TC820si** → Check PLC Version
  - Go to **[Diagnostics]** → **[Version]**
  - If PLC user program version is **01.XX.XX**, the machine has **Old-PLC.**
    - Proceed to **Step 3**
  - If PLC user program version is **05.XX.XX**, the machine has **New-PLC**.
    - Proceed to **Step 5**

Step 2 — Old PLC, Wiring and M-Code Changes



PART NUMBER: 34248

DRAWN BY: RO	6/4/2024
ENGINEER: RO	6/4/2024

Item No.	Part Number	Description	QTY.
001	22557-10	TERMINAL BLOCK-DIN RAIL-4POS-20 AMPS	3
002	22557-9-J1	TERMINAL BLOCK- JUMPER-20A	3
003	34232-LB12	LABEL-TEXT-TC820LTY-E-STOP	1
004	34232-LB13	LABEL-TEXT-TC820LTY-TB5	1
005	34232-LB14	LABEL-TEXT-TC820-TB4	1
006	34232-LB22	LABEL-TEXT-TC820-E-STOP	1
007	34248-LBK1	LABEL-KIT-AUTOMATION READY	1
008	34248-DOC	PROCEDURE - TC820 AND LTY MPG/STO WIRING UPDATE	1

ⓘ All **TC820si** machines upgrading from **Old PLC (01.xx.xx)** to **New PLC (05.xx.xx)** require a wiring modification prior to software upgrade.

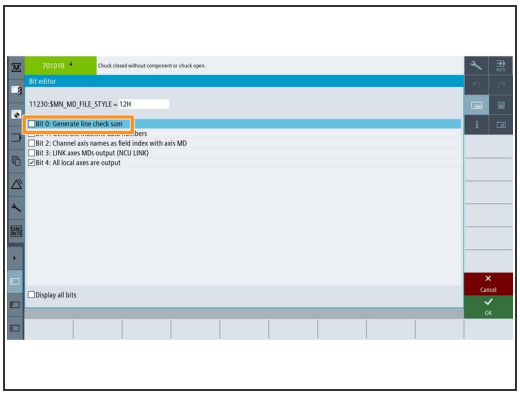
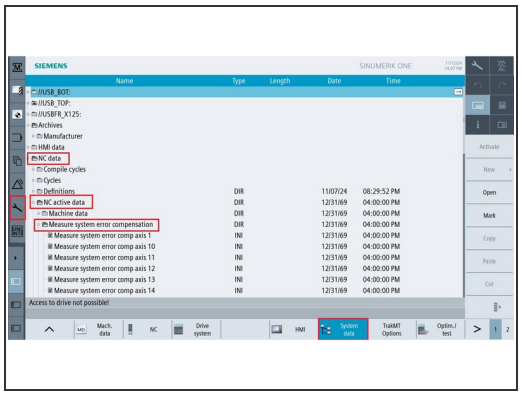
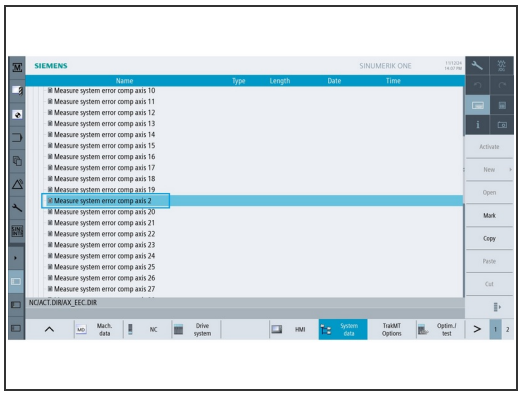
ⓘ This update ensures that opening the machine door no longer disables axis motion.

ⓘ Refer to **Wiring Kit Document** [34248] for required changes, including terminal block updates (TB6) and wire relocations.

⚠ M-codes change with the New PLC.

- TC820si M-Code Changes: Old PLC to New PLC

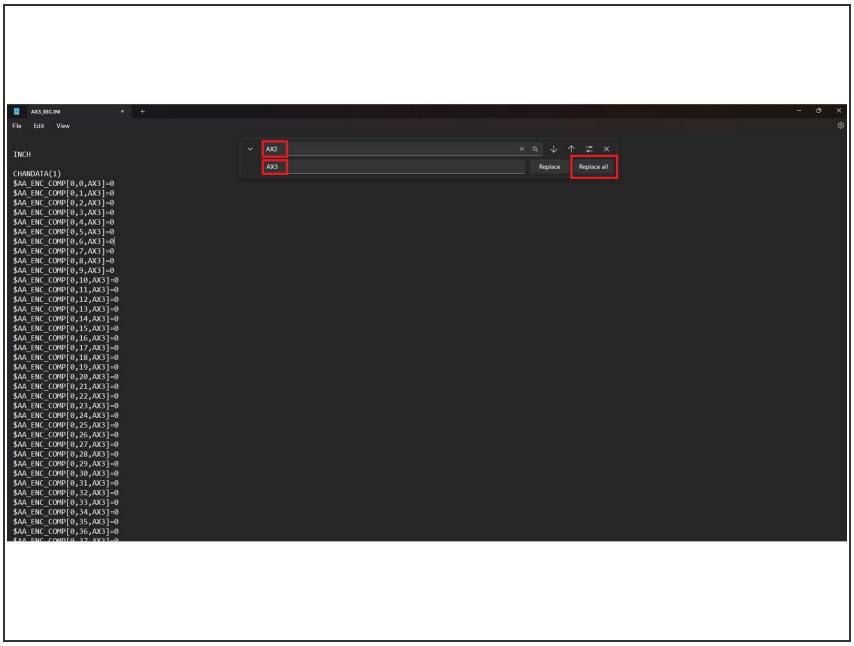
Step 3 — Copy Axis 2 Error Compensation Data to USB

ⓘ Step 3 is required only if TC820si has **Old**-PLC i.e. PLC user program version **01.xx.xx**.

- Set Manufacture Password.
- Go to **[Setup]** → **[Mach. Data]** → **[General MD]**.
- Press **[Search]** and enter **11230**
- Select the **11230** variable and ensure **Bit 0** is **deselected**.
- Go to **[Setup]** → **[System Data]** → **[NC data]** → **[NC active data]** → **[Measure system error compensation]**.
- Click on **Measure system error comp axis 2** then press **[Copy]**.
- At the top of the directory, find your USB location and press **[Paste]**. The file on the USB stick will appear as **AX2_EEC.ini.**

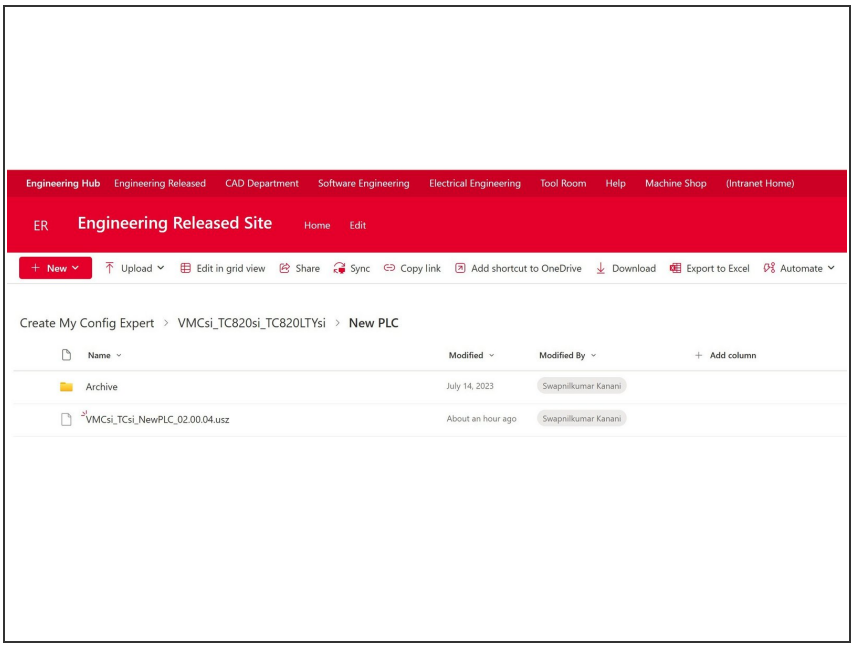
Step 4 — Modify AX2_EEC.ini File Using Notepad



ⓘ Step 4 is <u>required only</u> if TC820si has **Old**-PLC i.e. PLC user program version **01.xx.xx**.

- Use a computer to open the **AX2_EEC.ini** file.
- Rename **AX2_EEC.ini** to **AX3_EEC.ini**.
  - ⓘ This adjustment is necessary because the Z-Axis is moving from Axis 2 to Axis 3.
- Open the file in **Notepad**.
- Press **Ctrl + H** to open the "Replace" function.
- In "Find," type **AX2**; in "Replace with," type **AX3**. Click **Replace All** to update all instances of "AX2" to "AX3" in the file.
- Save the file. It will be used later.

Step 5 — Download Deployment File



- Start with a **clean** USB drive.

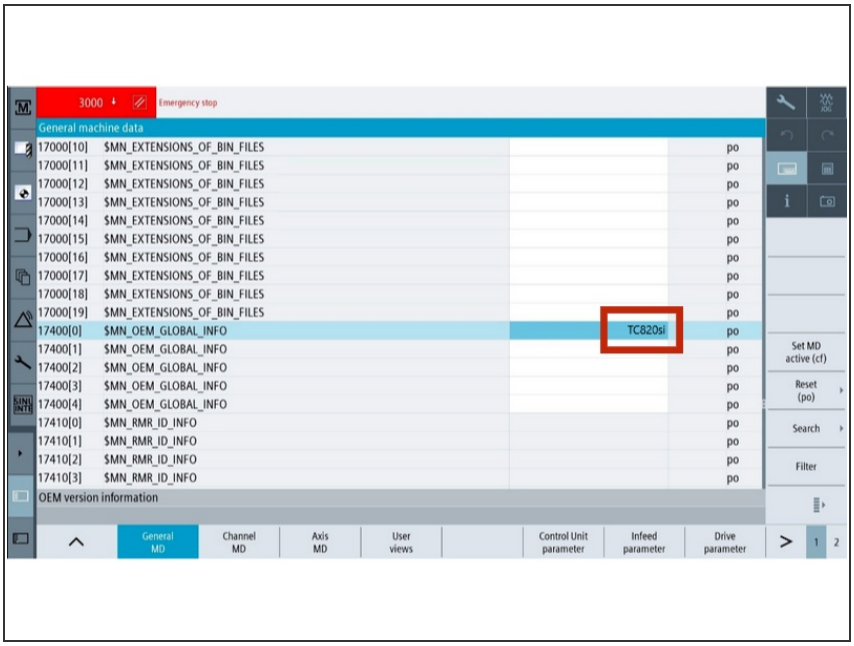
⚠ There should be **no** files on the USB stick other than the deployment '.usz' file. The machine upgrade may fail if the deployment file is not copied to a blank USB.

- Locate the master deployment file stored on **SharePoint**:
  - TCsi

ⓘ Engineering will release a new deployment file (.usz) to fix bugs and add new features, so the version on the hyperlink may differ from the one shown in the picture.

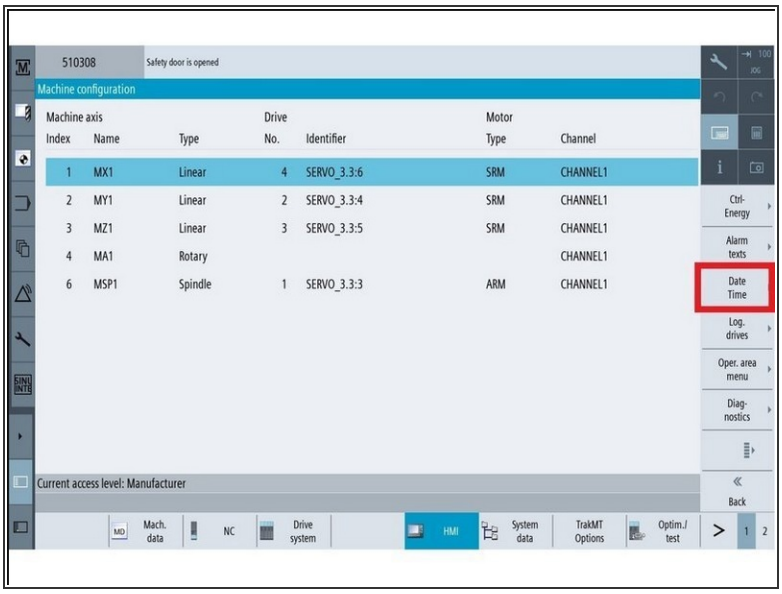
- Copy the "**.usz**" file to your USB drive.

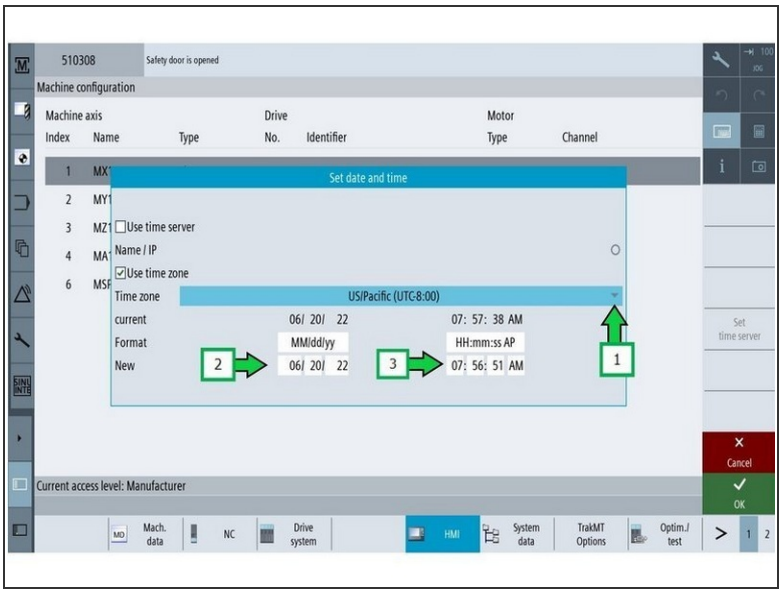
Step 6 — Machine Identification



- Set Manufacture Password.
- To set Machine Identification: Go to **[Setup] → [Machine Data] → [General MD] → [Search]**.
- Enter 17400 and press [Input]. Set 17400[0] to the machine model, entered exactly as shown:
  - ⓘ TC820si | TC820LTYsi | TC820LTY-Ssi | TC1222si | TC1220LTYsi
- After updating **17400[0]**, press **Reset (po)** to apply changes if any were made.
- ⚠ 17400[0] must contain the machine model only, entered exactly as listed above. Do not add serial numbers or other information. If 17400[0] is not set correctly, custom screens such as the M-code side screen and the diagnostic screen may not work.

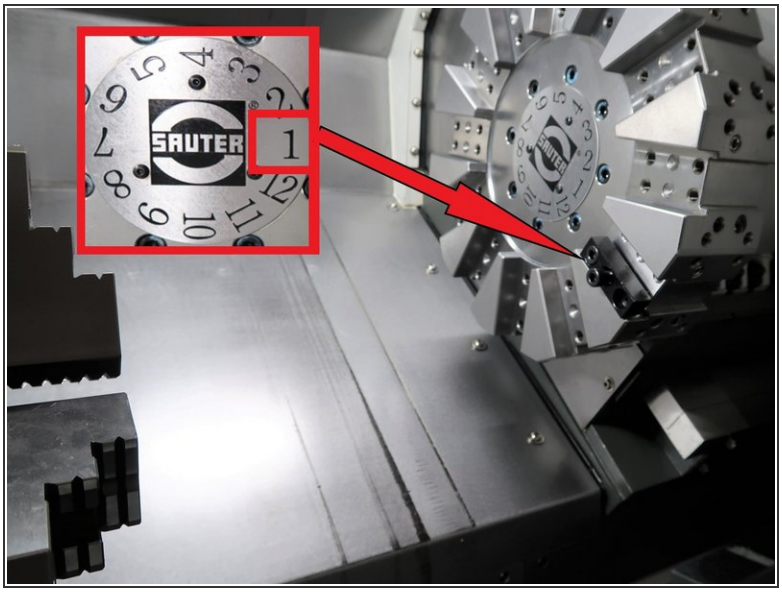
Step 7 — Set Siemens Control Date and Time

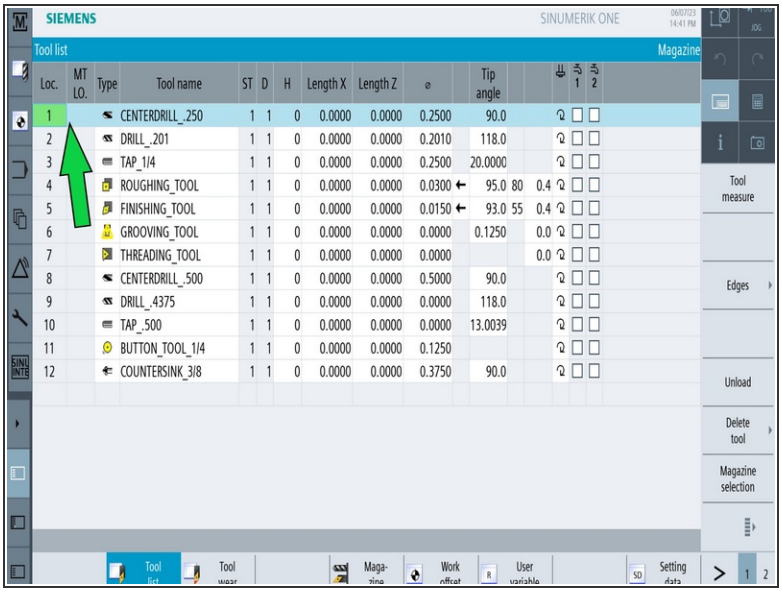




- Set Manufacture Password.
- To set Date and Time: Go to **[Setup]** → **[HMI]** → **[Date time]**.
- Verify date and time.
- If necessary, adjust the time: Update to the correct time, then click **[Accept]** and **[OK]**.

Step 8 — Index Turret to Position 1

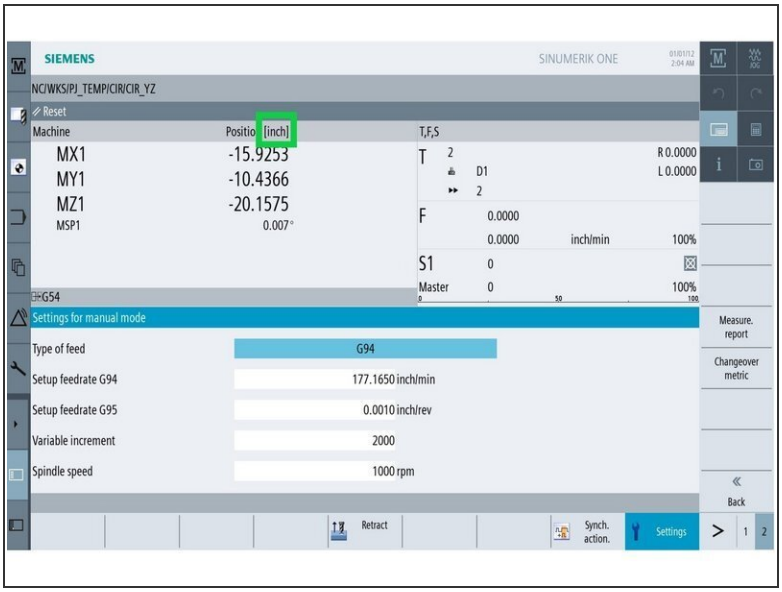


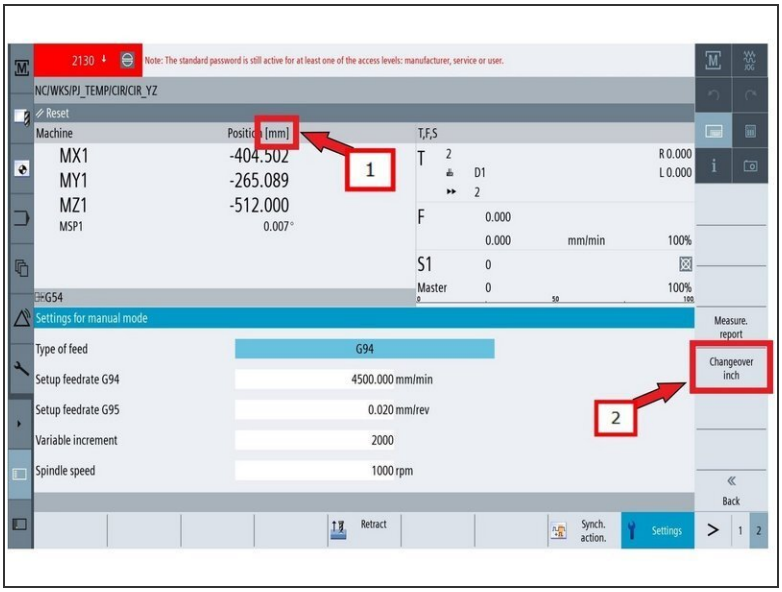


- Close the machine door.
- Go to **[Machine]**→ **[TSM]** → **[Select Tool]** → Select **Tool 1** and press **[Cycle Start]**.
  - ⓘ This will move the turret to **Position 1**
- Go to **[Tool List]** (Left vertical, second button from top) and verify the turret position is at **Tool 1**.

ⓘ The Machine should be on **Position 1** matching the **Tool List Position 1**.

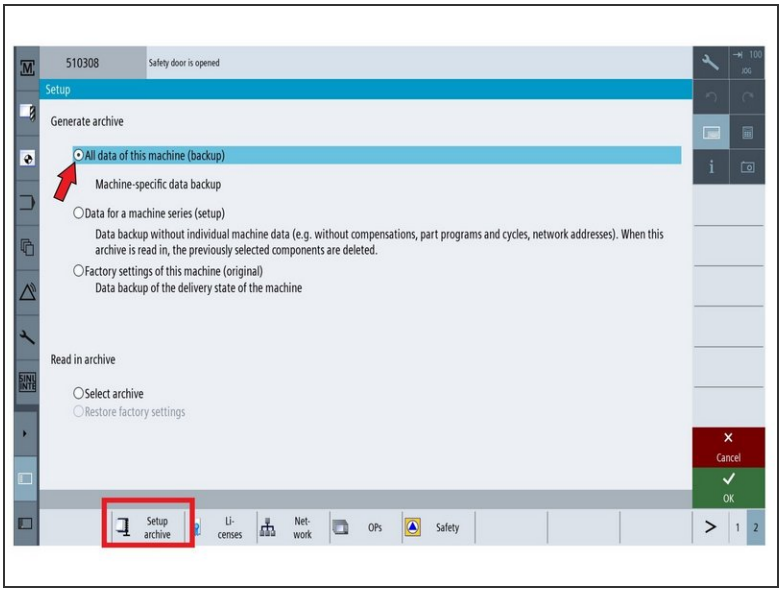
Step 9 — Set the Control to Inch Mode

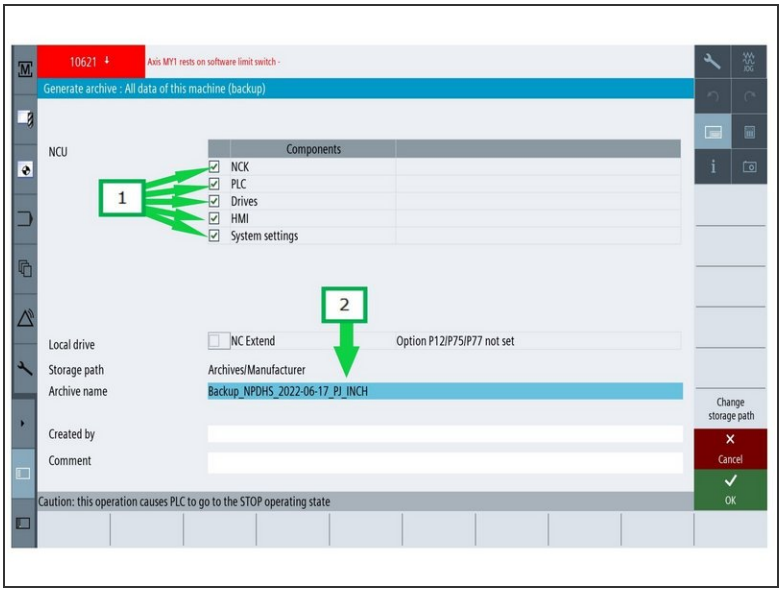




- Go to **[Machine]** and verify that the measurement is in **inch** at the position banner.
- If you need to change the measurement to **inch**: Go to **[Settings]** → **[Page 2]**, then press **[Changeover inch]**.
- Confirm the machine is now set to **[inch]**.

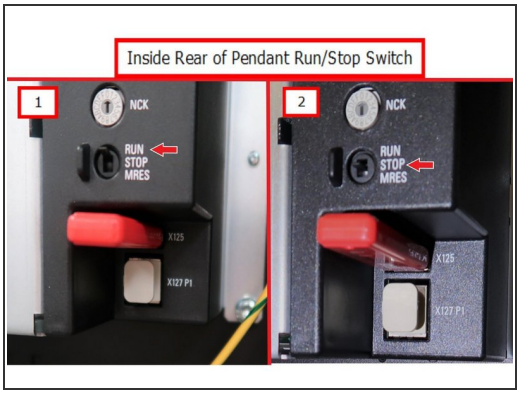
Step 10 — Backup Manufacturer Archive

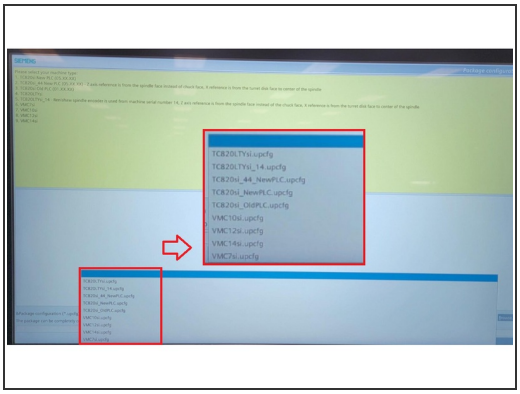


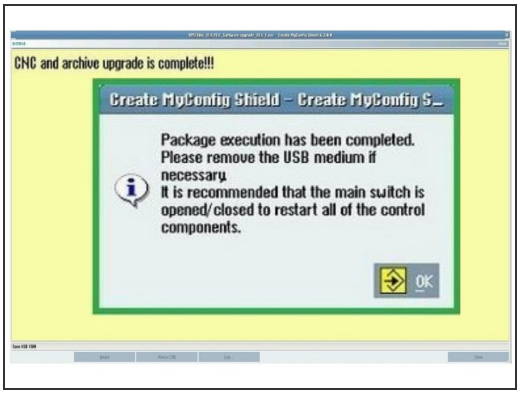


- Press **[E-Stop]**.
- Go to **[Setup]** → **[2nd Page]** → **[Setup Archive]** → **[All data of this machine]** → **[Ok]**
- **(1)** Make sure all boxes are checked.
- **(2)** Select the **[Archive name]** data field. Name the file: Backup_NPDHS-YYYY-MM-DD_**BEFORE_UPGRADE**. Press **[OK]**.
  - ⓘ Note: YYYY-MM-DD is the current date (e.g., June 26, 2023, is written as 2023-06-26 in the archive name).
- The default storage path should be **[Archives/Manufacturer]**. If the storage path is anything other than the default, change it by pressing **[Change storage path]** → **[Archive/Manufacturer]** → **[OK]**.
  - ⓘ This screen will also give you the option to save the archive to either USB port.

Step 11 — Upgrade Machine to Latest Software Version







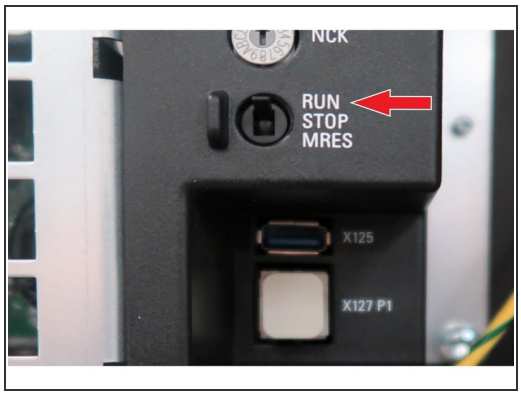
- Power off machine. Remove **pendant rear cover**. Insert USB with the .usz file at the rear of the pendant below the switch. Move the switch from **[RUN]** to **[Stop]**. Power up machine. Click the down arrow and select one:
  - **TC820si_New PLC** — Select if Step 1 showed 05.XX.XX, pick New PLC, **TC820si_Old PLC** — Select if Step 1 showed 01.XX.XX, pick Old PLC, **TC820si_44_NewPLC** — Select if King Rich serial number on the electrical cabinet door is STA60044 or higher.
  - **TC820LTYsi** — Select if upgrading a TC820LTYsi machine, **TC820LTYsi_14** — Select if King Rich serial number on the electrical cabinet door is STP60014 or higher.

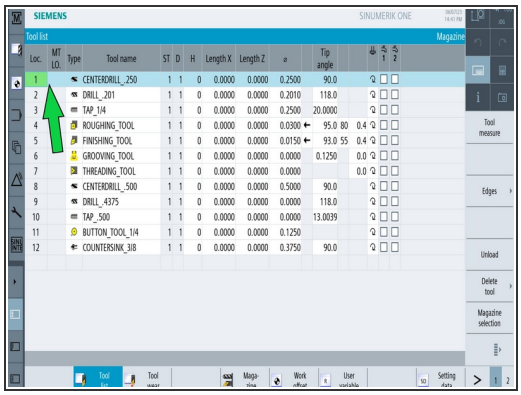
  ⚠ It is extremely important to select the correct option. If the wrong option is chosen, you'll need to load the original archive saved in Step 10 and repeat the upgrade process.

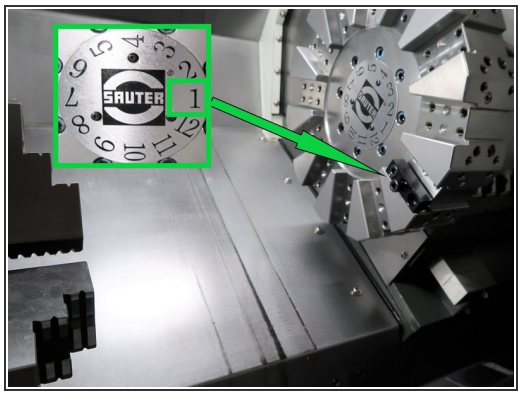
- After selecting the correct option, press **[Next]**. The upgrade will take approximately **20-25 minutes** if only the deployment file is applied. However, if the CNC software upgrade is also included, the process will take around **45-50 minutes**. When the upgrade is complete, press **[OK]**.

ⓘ If the popup window showing "Package Execution has been Completed" **did not appear**, or if you see a "**Package Canceled**" message in **red** at the top of the screen, then the expert deployment was not executed successfully. **Please contact customer support for assistance.**

Step 12 — Restart Machine and Check Settings







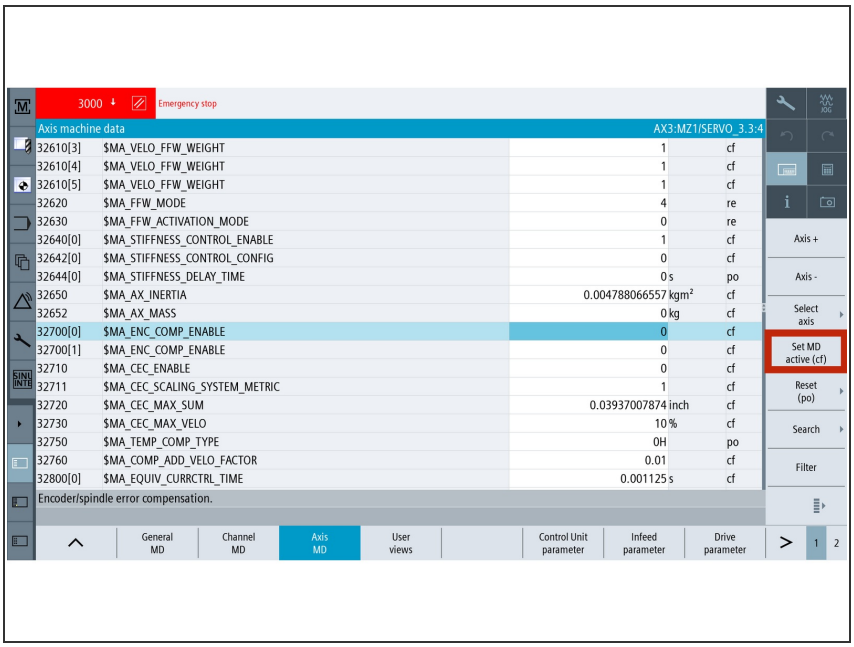
- From the rear of the pendant, remove the USB. Set the switch to **[Run]** while the **machine is still powered**. The machine interior lights will light up after this is done.

⚠ If the switch is not set to [Run], the machine will not start in the run state, and an additional power cycle will be required.

- Power cycle machine.
- Set Manufacturers Password.
- Verify date and time. Go to **[Setup]** → **[HMI]** → **[Date time]**. Adjust if necessary.
- Go to **[Machine]** → **[TSM]** and verify that the TSM screen displays Position 1.
- Go to **[Tool List]** and verify the turret position is at Tool 1.

ⓘ **Steps 13** through **18** are **required only** if the user selected **TC820si OldPLC (01.XX.XX)** from the dropdown menu in Step 11.

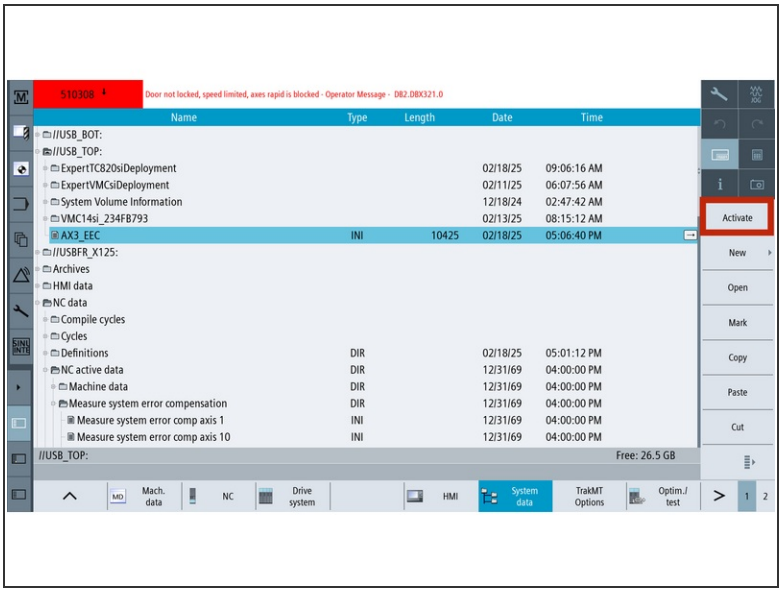
Step 13 — Deactivate Z-Axis Compensation

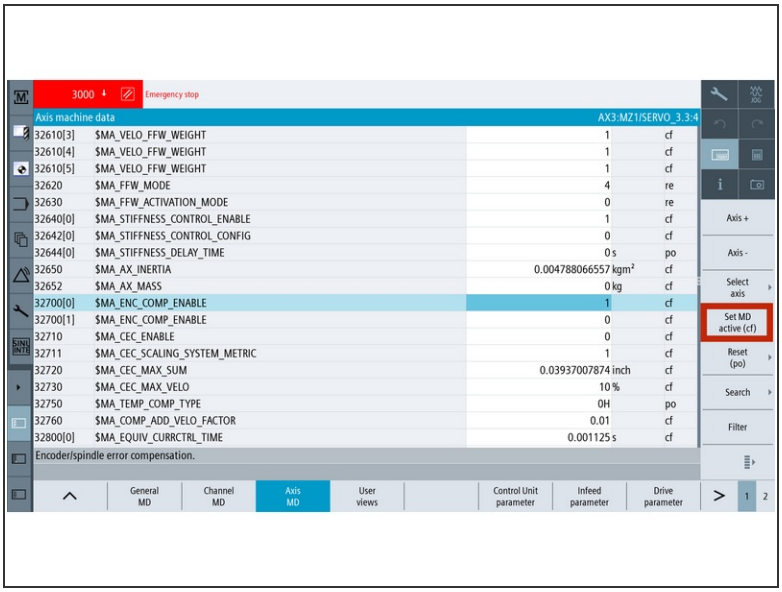


ⓘ Step 13 is required only if the user has selected **TC820si OldPLC (01.XX.XX)** from the dropdown menu in Step 10.

- Enter Manufacturer Password.
- Go to **[Setup]** → **[Mach. Data]** → **[Axis MD]** → **[Select Axis]** → **[AX3:MZ1]**.
- Press **[Search]** and enter **32700[0]** and press **[Input]**.
- Set **32700[0]** parameter from **1** to **0**.
- Press **[Set MD active (cf)]**.

Step 14 — Activate Z-Axis Compensation

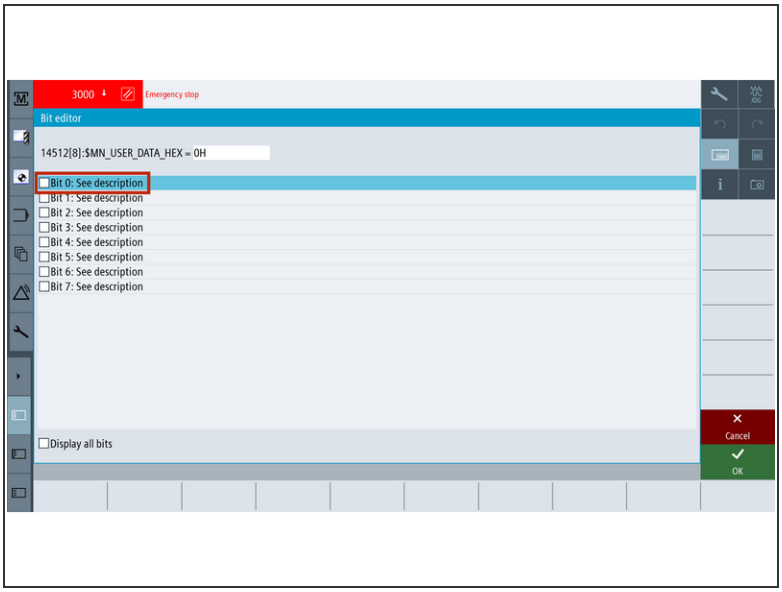


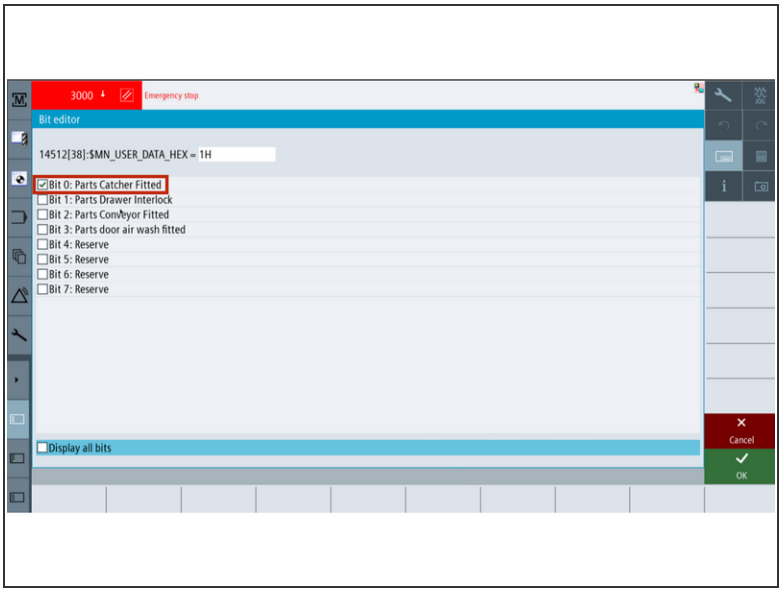


ⓘ Step 14 is required only if the user has selected **TC820si OldPLC (01.XX.XX)** from the dropdown menu in Step 10.

- Go to **[Setup]** → **[System Data]** → USB location of **AX3_EEC.ini** from Step 3.
- Press **[Activate]** on the right hand side.
- Go to **[Setup]** → **[Mach. Data]** → **[Axis MD]** → **[Select Axis]** → **[AX3:MZ1]** .
- Press **[Search]** and enter **32700[0]** and press **[Input]**.
- Set **32700[0]** parameter from **0** to **1**.
- Press **[Set MD active (cf)]**.

Step 15 — Option Enable Part 1

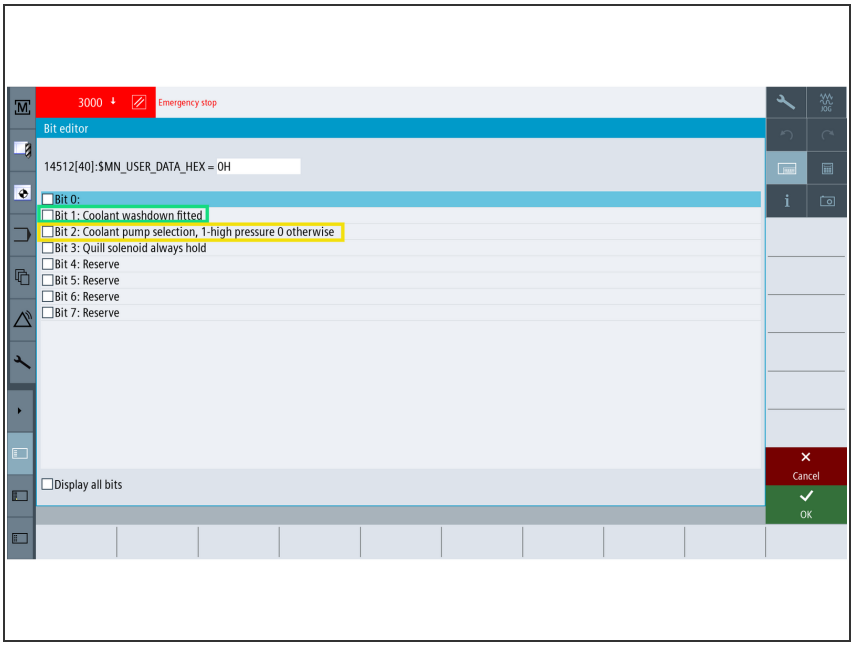




ⓘ Step 15 is <u>required only</u> if the user has selected **TC820si OldPLC (01.XX.XX)** from the dropdown menu in Step 10.

- **TC820si Old PLC (01.XX.XX)** will need options enabled after Expert Deployment Upgrade. Determine which options the current machine has enabled.
- Go to **[Setup]** → **[Machine Data]** → **[General MD]** → **[Search]**.
- If Parts Catcher is installed:
  - Set 14512[8] bit 0 = 0
  - Set 14512[38] bit 0 = 1
- If an option is not active, set the relevant bit to 0.

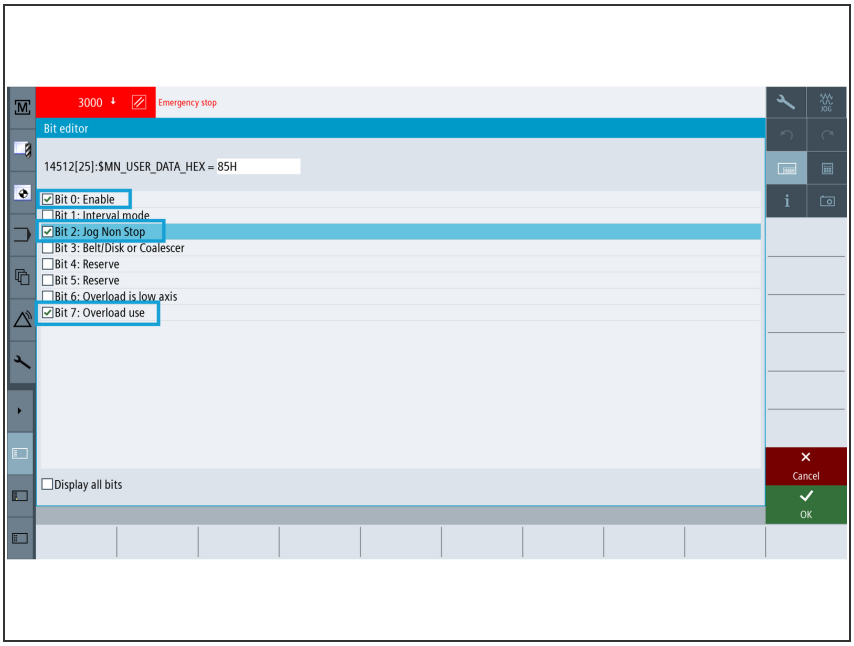
Step 16 — Option Enable Part 2



ⓘ Step 16 is <u>required only</u> if the user has selected **TC820si OldPLC (01.XX.XX)** from the dropdown menu in Step 10.

- If Chip Washdown is installed:
  - Set 14512[40] bit 1 = 1
- If High-Pressure Coolant Pump is installed:
  - Set 14512[40] bit 2 = 1
- If an option is not active, set the relevant bit to 0.

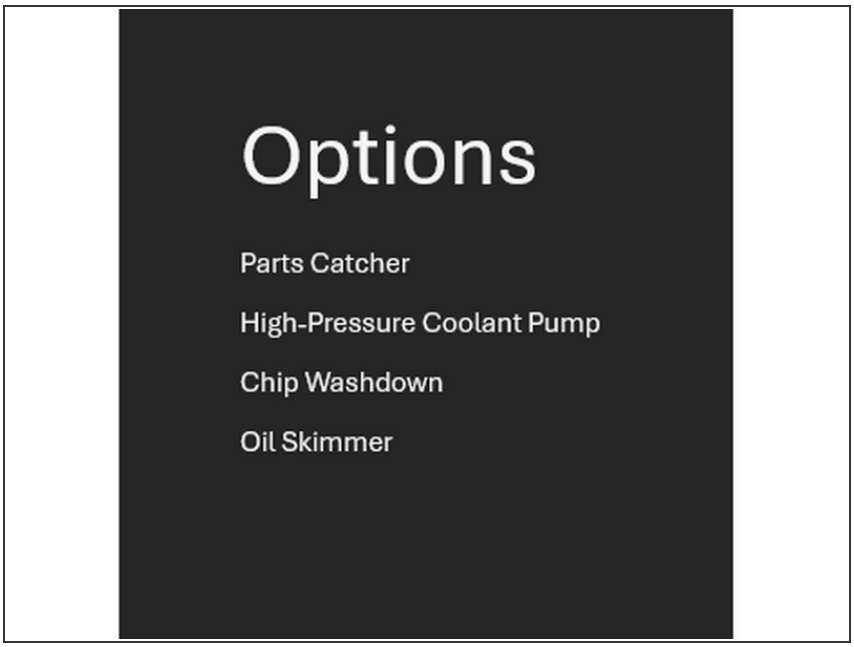
Step 17 — Option Enable Part 3



ⓘ Step 17 is <u>required only</u> if the user has selected **TC820si OldPLC (01.XX.XX)** from the dropdown menu in Step 10.

- If Oil Skimmer is installed:
  - Set 14512[2] bit 0 = 0
  - Set 14512[2] bit 1 = 0
  - Set 14510[22] = 0
  - Set 14512[23] = 0
  - 14512[25] Select Bit 0, Bit 2, Bit 7 to set variable to 85H
- If an option is not active, set the relevant bit to 0.

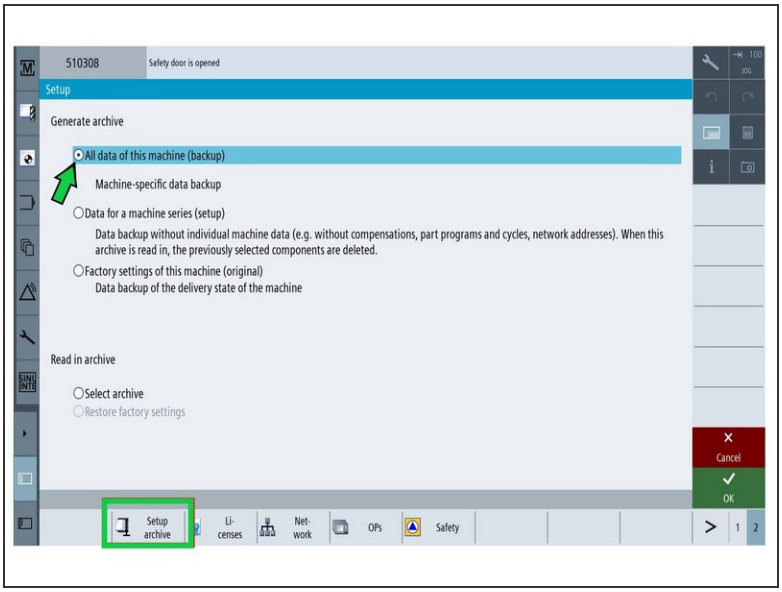
Step 18 — Option Enable Verification

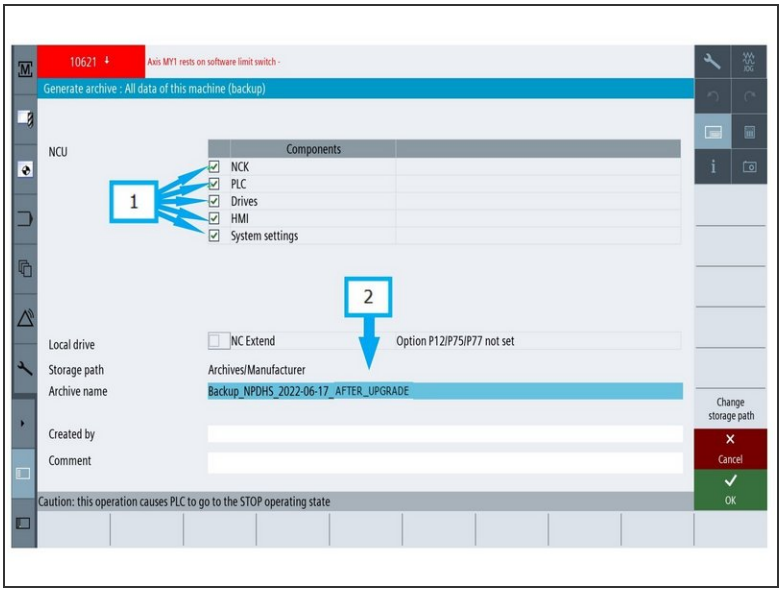


ⓘ Step 18 is required only if the user has selected **TC820si OldPLC (01.XX.XX)** from the dropdown menu in Step 10.

- Verify If an option is not active, the relevant bit is set to 0.
- Verify all installed options are functioning.
- If an option is not working, check that the option bits in the previous steps are set correctly.
- If the option bits are set correctly but the option still does not work, contact TRAK Customer Support.
- If an alarm is active regarding an option that is NOT installed, contact TRAK Customer Support.

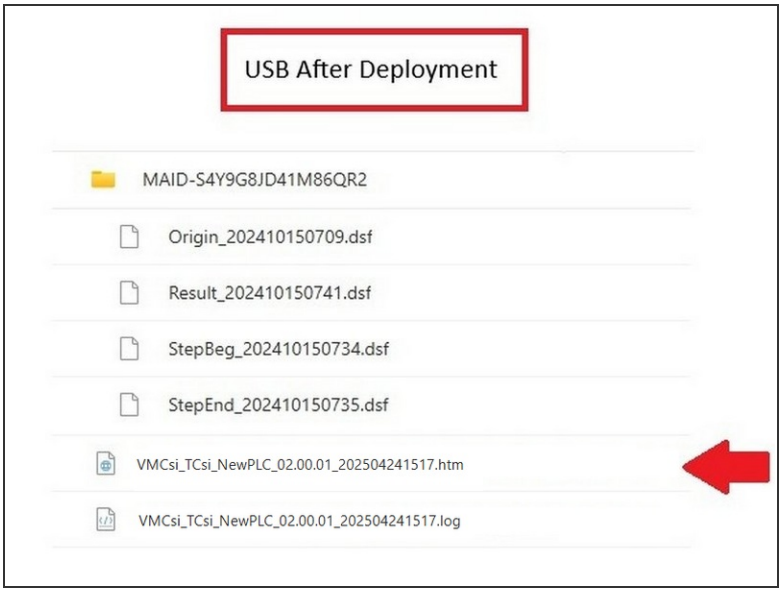
Step 19 — Archive New System

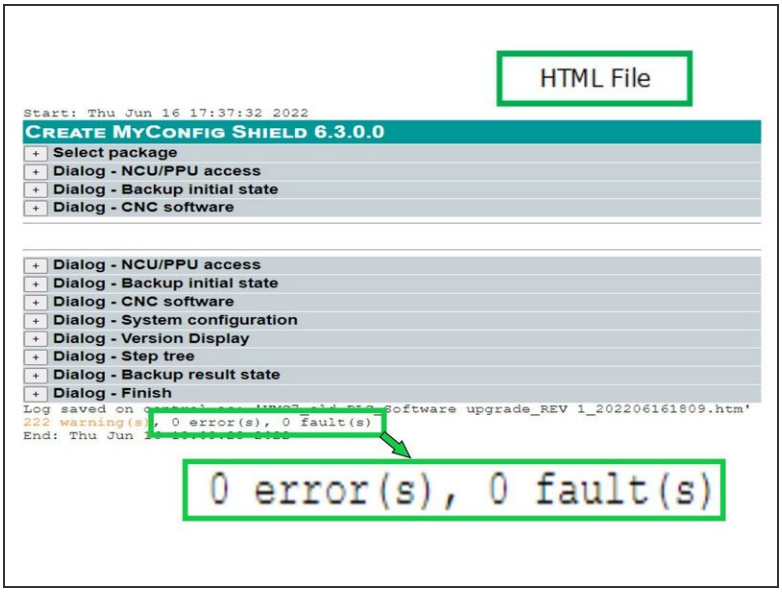




- Go to **[Setup]** → **[2nd Page]** → **[Setup Archive]** → **[All data of this machine]**.
- **(1)** Make sure all five components are selected with a check box.
- **(2)** Select the **[Archive name]** data field. Name the file: Backup_NPDHS-YYYY-MM-DD_**AFTER_UPGRADE**. Press **[OK]**.

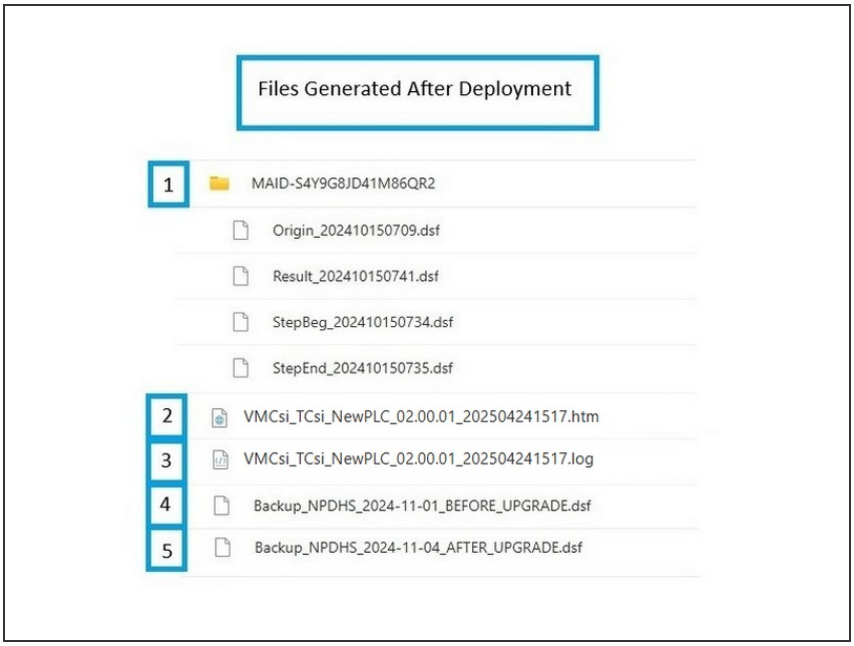
Step 20 — Check HTML File





- After deployment, the contents of the USB are displayed here, with the HTML file highlighted.
- Open the **HTML file** listed on the USB either on the Siemens control or by opening it in a browser on a computer.
- It is important to look towards the bottom of the file checking for the **[errors]** and **[faults]** fields. They should be **[0]** otherwise report to **Engineering**.

Step 21 — Save Deployment Records to SharePoint



- When the machine leaves the factory, the directory will be created in the machine config folder; FST's loading files only need to locate it by serial number.
  - TC820si Configs
  - TC820LTYsi Configs
- Create a new directory within the correct machine folder named ExpertDeployment_Date
- Replace Date with the deployment date (e.g., ExpertDeployment_31NOV24).
- Copy the five items to new folder: **(1)** Complete MAID directory with four files, **(2)** HTML file, **(3)** Text document, **(4)** Archived file saved at the end of step 9. **(5)** Archived file saved at the end of step 18.

⚠ Please load **all five** Items to the folder.

ⓘ If you have trouble finding the correct location for the files, **please contact customer support for assistance**.