



# PRT Maintenance Schedule



## Daily before cutting:

1. **Warm up spindle** for 6-9 minutes with [C5] routine (preferred) or 1/2 RPM if you do not have spindle speed control. Confirm operation of spindle fan.
2. **Check bit, collet and collet nut for wear and debris.** Collets are good for 600-700 hours MAXIMUM of use if they are kept clean and no “event” occurs such as a broken bit inside the collet or a plunge that bottoms out on the collet. Keep spindle body, fans and airways clean for proper cooling. Tool tapers, shafts and collets must be scrupulously clean. Minor contamination of collets causes poor quality cuts from tool misalignment, imbalance and slippage. Tool slippage can lead operators to over-tighten collets and damage to threads. Ensure collets are tightened to the right torque. (ER25 mini-nut 3hp = 29 ft lbs., ER25 E-type nut 5hp = 95 ft.lbs.)
3. **Verify square gantry** by pulling it against the stops at the end of the table prior to resetting motors. Hold in place and press reset.
4. **Check rack/pinion/motor/shaft relationship** by rapidly pushing and pulling the carriages near each motor. X1, X2, Y and Z. Adjust motor mount spring (3 1/2 turns after slack is removed) and/or tighten set screws. A slight clicking sound could be heard, but no movement (over a few thousandths) should be present.
5. **Move the machine** around in both move and jog speeds or use a short warm up routine.
6. **Run the [C3] file** to home the tool using the prox switches.
7. **Run the [C2]** (or other custom zero routine) to zero your bit.
8. **You should verify that the bit has been zeroed properly** by using a “MZ,0” command over the surface. If bit location is not correct, run the appropriate file to zero the bit.
9. **Perform a visual inspection** of the machine, wiring, dust collection hoses and table surface. Verify proper operation of vacuum pump and dust collector (if present).

## Every 40 hrs of use:

1. **Clean rack and pinions** for X, Y and Z (2nd Z if present) with small brush and re-grease. Add a BB size blob of light grease every 6” and run the tool to its extents in all axes about 10 times. Wipe off any excess grease and recheck X & Y with push/pull test.
2. **Clean the V bearing edges** of the Z assembly with a Scotchbrite pad and WD-40. Wipe with light grease or machine oil. Clean and adjust V-rollers as needed.
3. **Scrub X & Y V-rails** with Scotchbrite pad saturated with WD-40. Wipe with clean rag. Check V-rollers for buildup and clean with small brass brush if needed.
4. **Check rack/pinion/motor/shaft relationship** by rapid push-pull. X1, X2, Y and Z. Adjust motor mount springs (3 1/2 turns past contact) or tighten set screws as needed.

## Quarterly (40hrs/week) to Semi-Annual (20hrs/week)

### All of the above weekly items PLUS:

1. With motor springs removed to disengage pinion gears, **move each axis through the full extent of motion and check for looseness or binding.**
2. With motors dropped out, **spin test each of the V rollers** on the X and Y cars for free movement.

3. **Tighten all pinion set screws.** Check for signs of movement. Replace pinions if movement or wear is apparent.
4. **Carefully remove any burrs or nicks** in the V rails with a file.
5. **Check side clearance on Y car inner V rollers.** Adjust as needed.
6. **Adjust side clearance on Z-axis V rollers.**
7. **Check spindle square and alignment.**
8. **Update software and firmware.**
9. If you have had a Production Support visit, a folder named “SB BKUP” has been installed on the C: drive. A copy of the SB3 software that is installed on the machine is located there in case it becomes necessary to reinstall it. There is also a copy of machine settings that can be used to reset erroneous or unexpected machine actions after a software crash or electrical storm. Type command [UR] and navigate to the C:\SB BKUP folder. Machine settings will be visible there. If any changes have been made to the settings, Make a backup by using the [US] command, navigating to the SB BKUP folder and overwrite the exiting file.

There is also a copy of the C:\SbParts\Custom folder copied there. This folder holds any custom files that have been modified for the machine or machining preferences and all the user modified settings peculiar to the machine. If needed, these can be copied and pasted into the active C:\SbParts\Custom folder using Windows Explorer. SB Link users have a copy of their Link settings installed in this folder. Use the [Import] command to bring in those settings.

### **Semi-Annual (40hrs/week) to Annual (20hrs/week)**

**All of the above weekly and Quarterly items PLUS:**

1. **Confirm X and Y car V rollers are tracking properly** on V rails.
2. **Remove complete Z assembly, clean rack gear, lube and adjust V rollers (4 or 8) and pinion lash.**
3. **Replace all pinions.**
4. **Replace Collets** (and possibly collet nut(s) if damaged).
5. **Clean dust** from inside of computer style control boxes.