SpindleTests-Copy3

September 2, 2017

1 Spindle Cutting Tests

1.1 Objective

- Play around with 'OEM' WeiTol NJ3.2001 Cutters.

1.2 Test Setup

- Oak Board 63mm x 300mm x 19mm
- WeiTol NJ3.2001.
- CSI3010SW dialed all the way up: 31.6V

2 Code:

```
In [4]: import GCode
        import GRBL
        import numpy as np
        from uuid import uuid4
        import os
        import sys

        sys.path.append("..")
        from utils import picture

In [1]: cnc = GRBL.GRBL(port="/dev/cnc_3018")

        print("Laser Mode: {}".format(cnc.laser_mode))

        def init(feed = 10):
            program = GCode.GCode()
            program.G21() # Metric Units
            program.G91() # Absolute positioning.
            program.G1(F=feed)
            return program

        def end():
```

```
            program = GCode.GCode()
            return program

Laser Mode: 0.0


In [2]: cnc.cmd("?")
        cnc.reset()

In [3]: cnc.cmd("!")
        status1 = cnc.cmd("?")

In [4]: cnc.cmd("!")
        cnc.reset()
        status2 = cnc.cmd("?")

In [5]: for status in [status1, status2]:
            status_clean = [s for s in status if s != "ok"]
            print(status_clean)
            status_clean2 = [s.strip("<>") for s in status_clean]
            if len(status_clean2) != 1:
                raise Exception(status_clean2)
            status = status_clean2[0]
            print(status)
            stati = status.split("|")
            print(stati)
            print("")

['<Hold:0|MPos:-128.925,0.000,0.800|Bf:15,125|FS:0,0|WCO:0.000,0.000,0.000>']
Hold:0|MPos:-128.925,0.000,0.800|Bf:15,125|FS:0,0|WCO:0.000,0.000,0.000
['Hold:0', 'MPos:-128.925,0.000,0.800', 'Bf:15,125', 'FS:0,0', 'WCO:0.000,0.000,0.000']

['<Idle|MPos:-128.925,0.000,0.800|Bf:15,127|FS:0,0|WCO:0.000,0.000,0.000>']
Idle|MPos:-128.925,0.000,0.800|Bf:15,127|FS:0,0|WCO:0.000,0.000,0.000
['Idle', 'MPos:-128.925,0.000,0.800', 'Bf:15,127', 'FS:0,0', 'WCO:0.000,0.000,0.000']



In [6]: def test_program(feed=10):
            prog = GCode.GCode()
            prog.M3(S=10000)
            dZ = -0.1
            dX = 10
            X = 0
            Z = 0
            for loops in range(20):
                prog.G1(Z=dZ, F=1)
                prog.G1(X=dX, F=feed)
                X+=dX
```

```
                Z+=dZ
            prog.M3(S=0)
            prog.G0(Z=np.round(-Z, 4)) #TODO: Add this to core library.
            prog.G0(X=np.round(-X, 4))
            prog.G0(Z=2)
            return prog

In [7]: test_run = GCode.GCode()
        # TODO: Get z-axis probe.
        test_run+=init()
        for XFeed in [50]:
            test_run += test_program(feed=XFeed)

In [8]: gcode_file = "SpindleTests-Copy3.gcode"

In [9]: test_run.save(gcode_file)

        del test_run
        test_run = GCode.GCode()

        test_run.load(gcode_file)

In [10]: test_run.buffer[0:5]

Out[10]: ['G21', 'G91', 'G1 F10', 'M3 S10000', 'G1 Z-0.1 F1']

In [11]: picture()
```
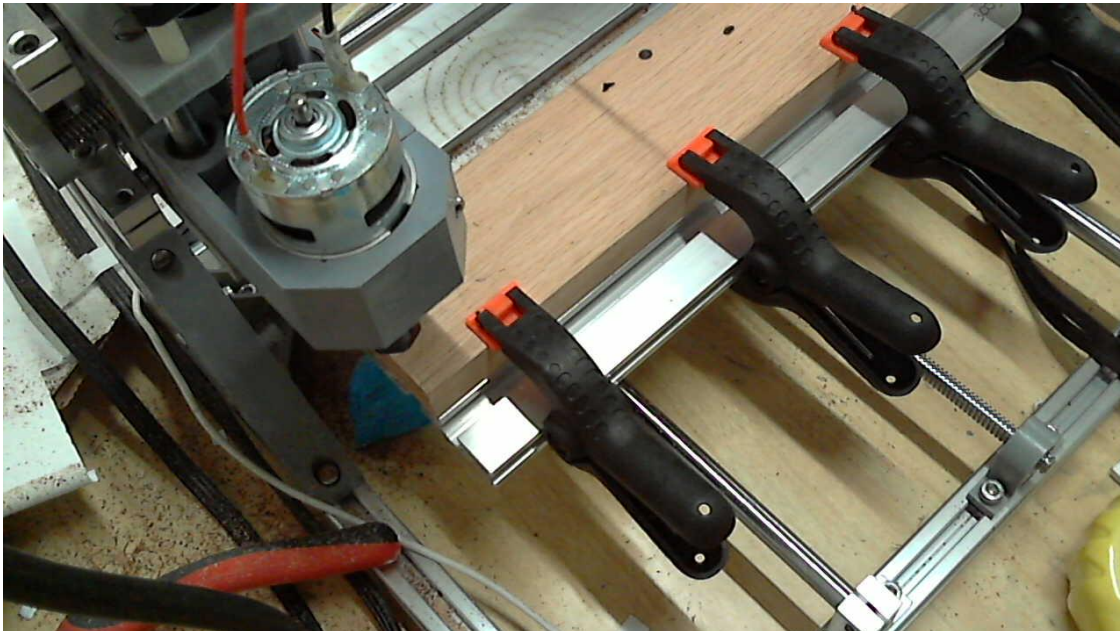
```
In [84]: from time import sleep

In [12]: while 1:
             try:
                 cnc.run(test_run)
                 while 1:
                     print(cnc.status)
                     sleep(5)
             except KeyboardInterrupt as error:
                 print("Feed Hold")
                 cnc.cmd("!")
                 while 1:
                     try:
                         cnc.reset()
                         break;
                     except:
                         pass
                 print("^C")
                 break
             except:
                 raise

<Run|MPos:71.075,0.000,-0.521|Bf:12,127|FS:246,0|Ov:100,100,100>


         ---------------------------------------------------------------------------

         NameError                                 Traceback (most recent call last)

         <ipython-input-12-13835fa88bf3> in <module>()
            4         while 1:
            5             print(cnc.status)
   ----> 6             sleep(5)
            7     except KeyboardInterrupt as error:
            8         print("Feed Hold")


         NameError: name 'sleep' is not defined


In [77]: cnc.reset()

In [53]: picture()
```
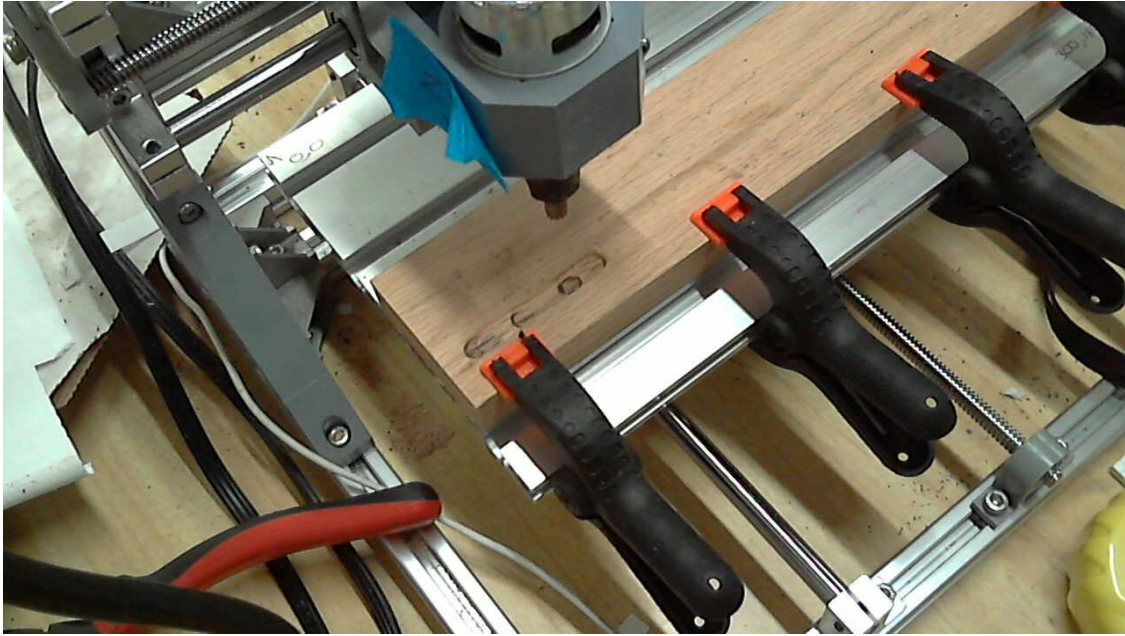
3 Test Aborted.

Cuts were way too aggressive.