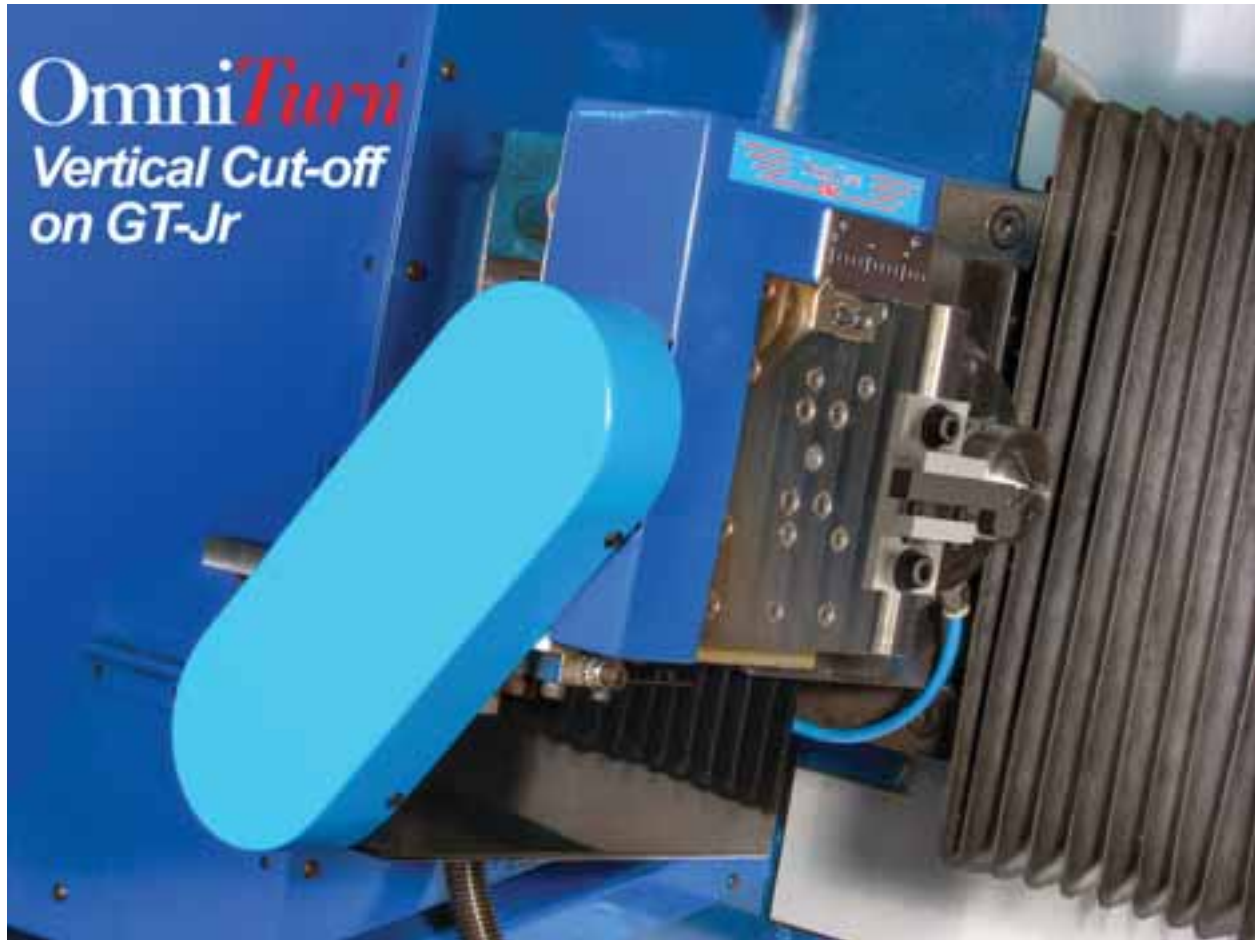
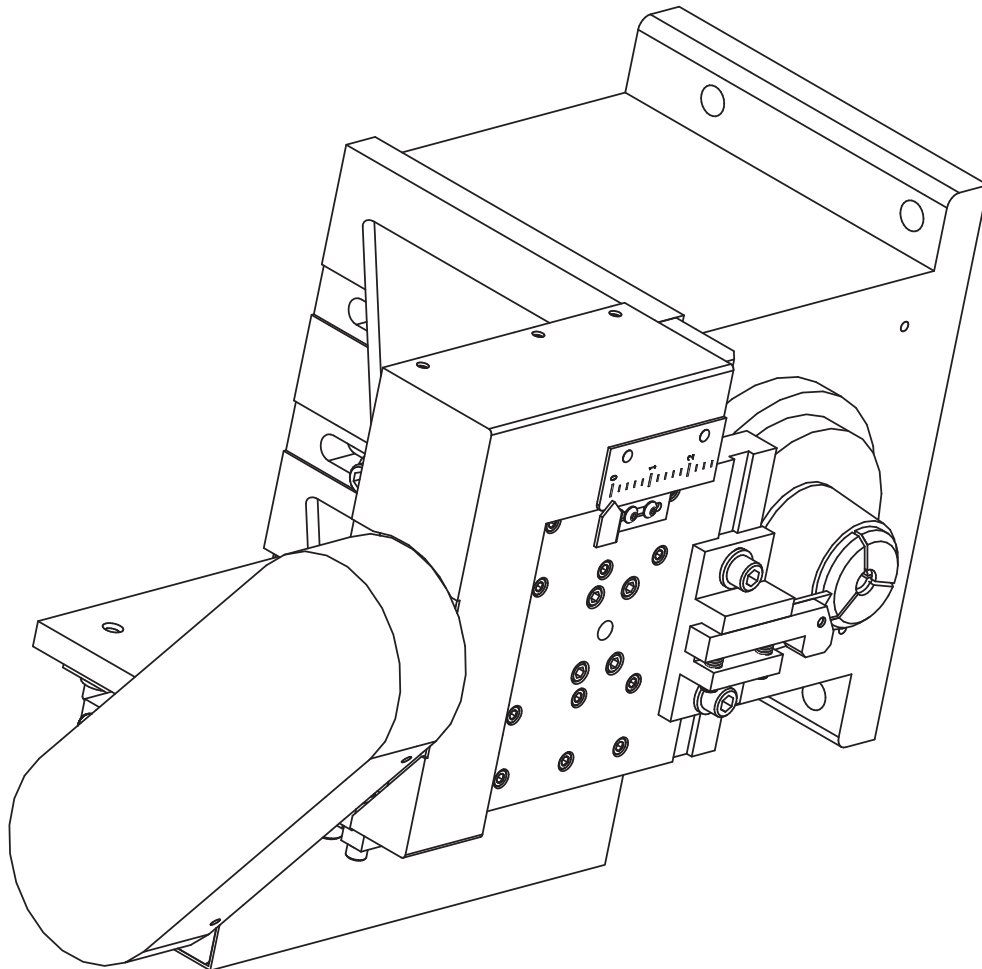


OmniTurn Vertical Cut-off Operation & Technical Documents



This document describes the OmniTurn Vertical Cut-off (VCO) operation, and includes block-diagram, schematic, dimensional drawing of table and motor replacement instructions.

Using the Vertical Cut-Off / Groove-cutter (VCO)



Jogging and Homing the VCO:

The VCO will home exactly as the other axes, so be sure to jog it off the Zero the same as is done for the Z and X axes. In jog mode, the C axis jog switch will jog the cut-off slide any time C axis is not enabled.

There are two cut-off cycles, initiated by M80 and M81:

Either of these cycles may be programmed to allow other machining operations to proceed during the cut-off cycle. If you choose to do this, be sure to include an M82 (wait for cut-off completion) command before performing any operation that might conflict with the cut-off.

Generally, one of these cycles is used for cut-off, and the other for grooving; or one could be reserved for a long-run job and the other modified as required for short runs or specials. The operation of both cycles is the identical: the cut-off moves rapidly from home to a pre-defined clearance diameter, then proceeds to the programmed depth at the programmed feedrate, then rapid-retracts back to home.

Using the Vertical Cut-Off / Groove-cutter (VCO)

Programming the cut-off cycle:

Pressing Ctrl-V in Jog or Auto mode will bring up this menu:

- 1. Edit M80 Cut-off File**
- 2. Edit M81 Cut-off File**
- 3. Adjust VCO offset**

The parameters for each of the cycles are entered using the program editor. Selecting either option 1 or 2 will bring up the editor with the Cut-off file, which will look like this:

```
Rapid feedrate(IPM):150  
Cut-off feedrate:.003  
Cut-off feed mode:(ipm/ipr):ipr  
Use constant surface speed(Y/N):y  
Surface speed(sfm):325  
Clearance diameter..70  
Cut diameter:-.06  
Allow simultaneous ops(Y/N):n
```

Edit **only** the values to the right of the colon on each parameter line. All values are entered in inch units regardless of the inch/metric mode of the main program; calculate and enter inch equivalent of any metric dimensions.

If simultaneous ops (operations) are allowed, be sure the part program contains an M82 command to wait for cut-off completion before doing any operations that could conflict with the cut-off (collet open, spindle stop, program end, etc.).

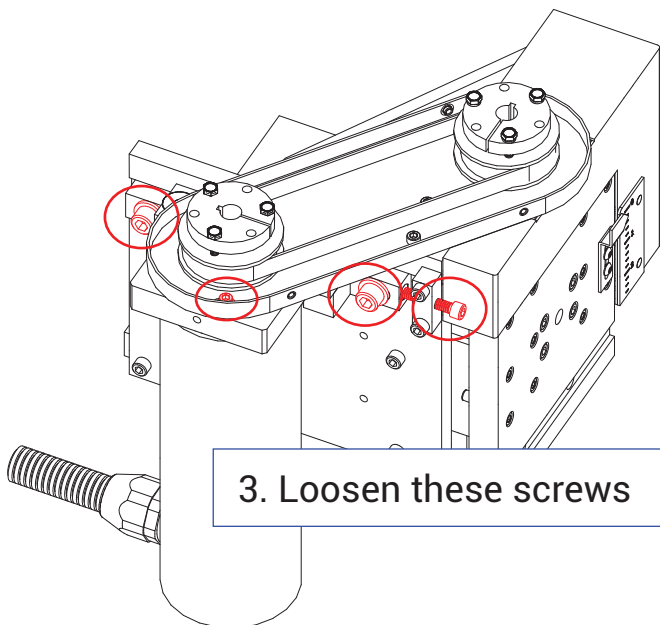
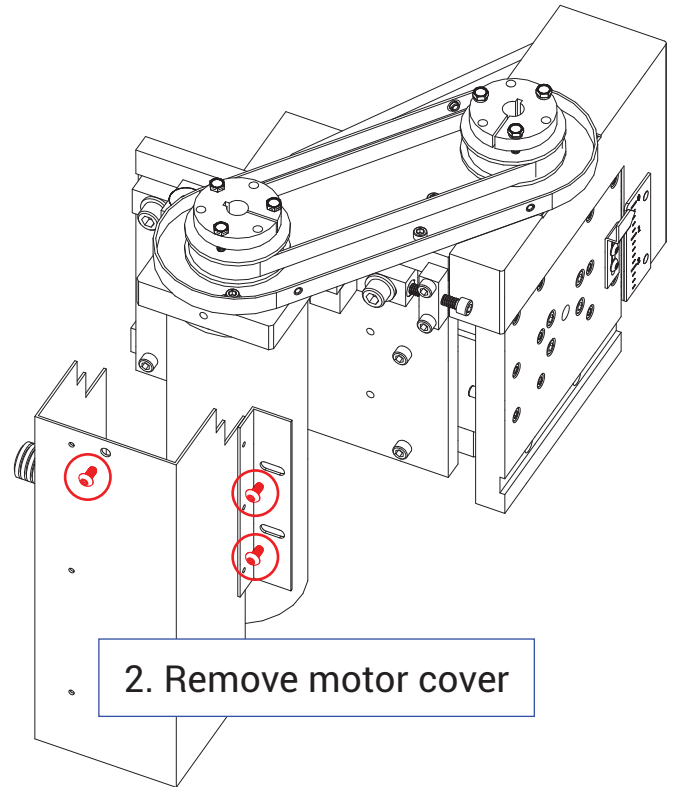
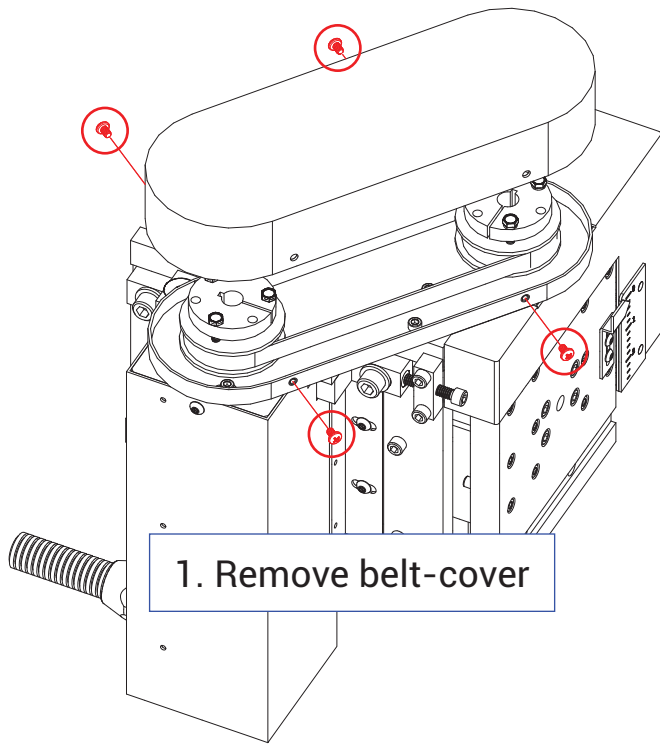
Value entered for surface speed does not matter if constant surface speed is not enabled.

Setting Cut-off tool offset:

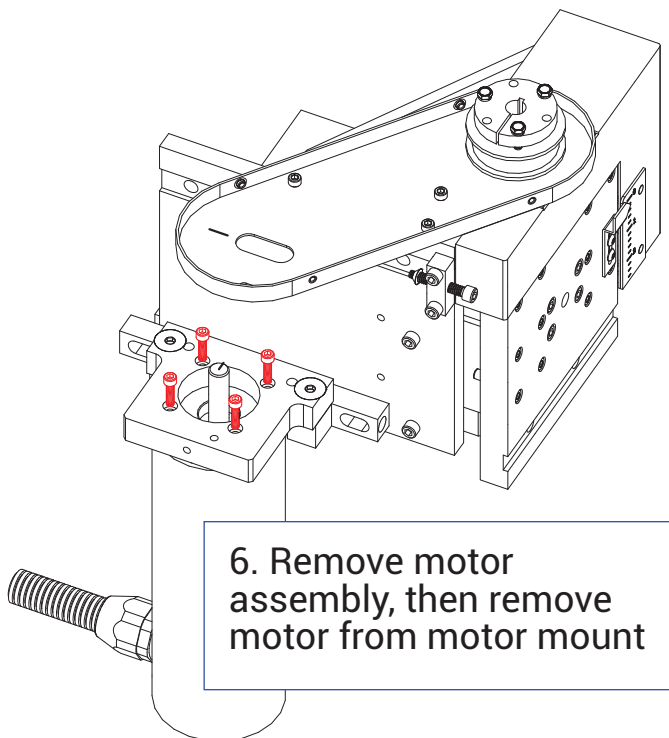
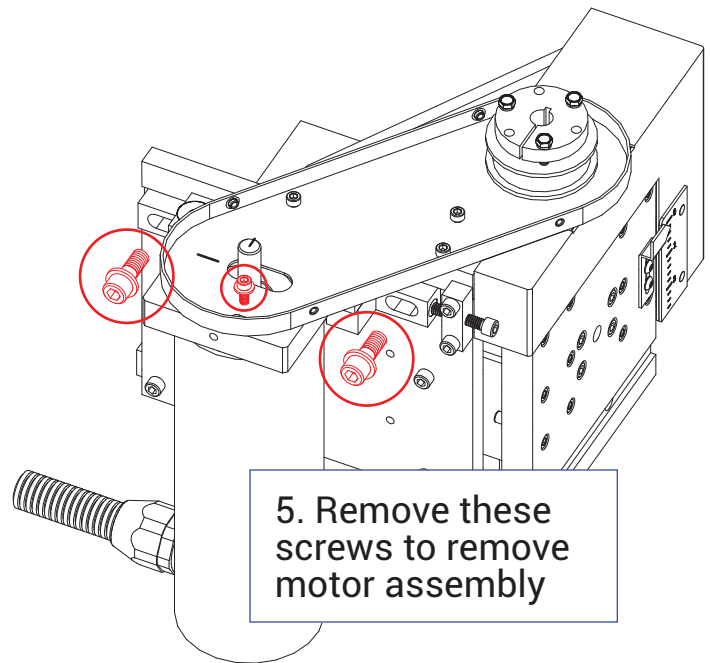
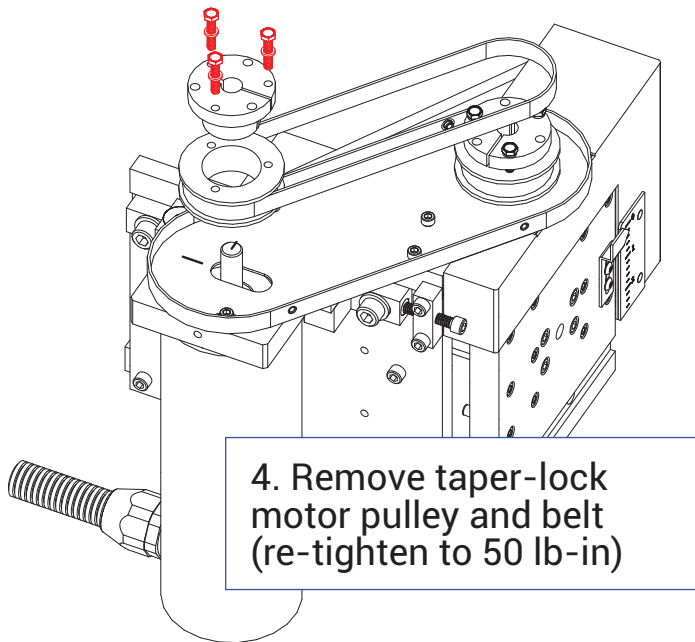
Selecting 3 from the Ctrl-V menu allows you to adjust the cut-off tool offset. The amount entered is the change desired in the ending diameter of the cut-off stroke. For example, if you want the cut-off tool to go to a .002" smaller diameter, enter -.002.

Initial setting of the cut-off tool is accomplished by jogging the cut-off tool down to touch a known diameter, then pressing V. You will be prompted for the diameter you are touching, and when you enter it, the cut-off position display will change to reflect your entry.

VCO Motor Removal / Replacement



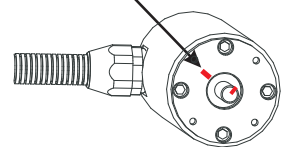
VCO Motor Removal / Replacement



To re-install motor:

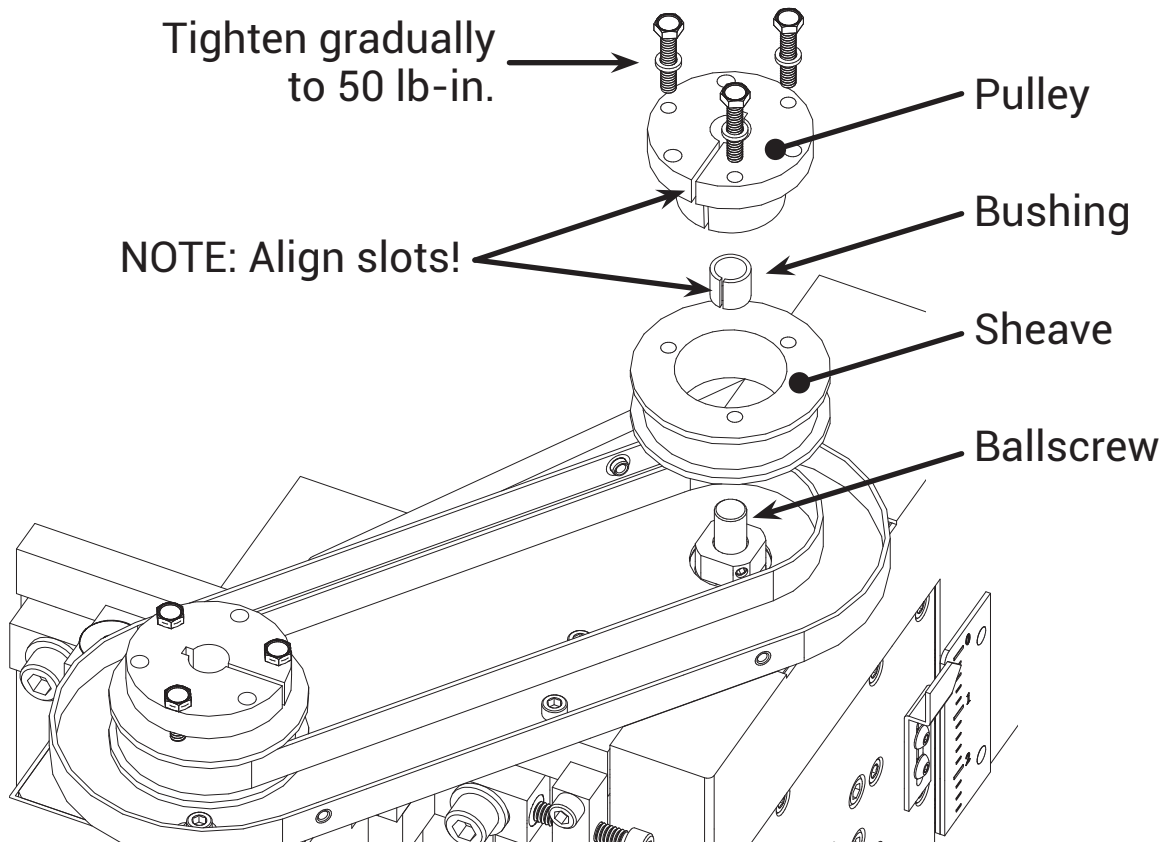
1. Manually turn motor shaft so home mark on shaft is 90° CW from home mark on motor face.

"Home" marks at 90° apart

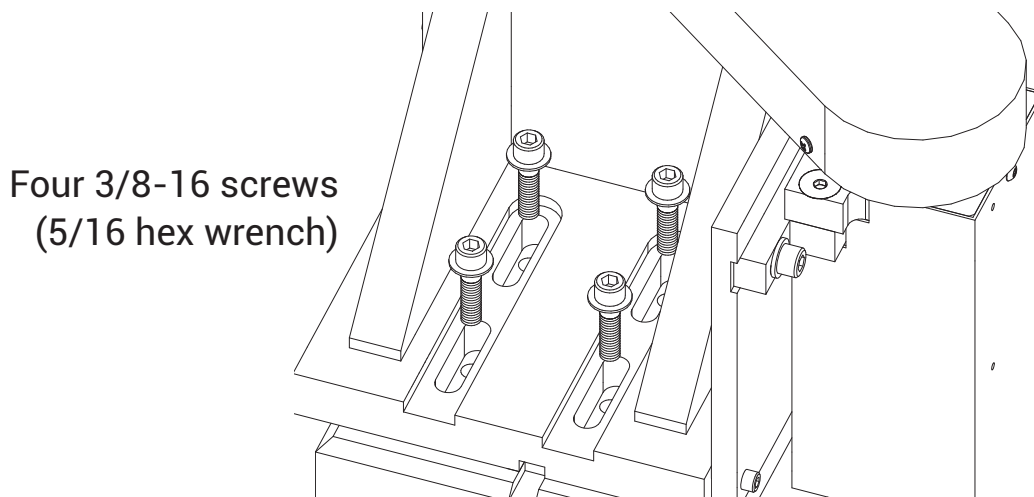


2. Manually turn pulley on ballscrew to move table against home stop.
3. Step through disassembly instructions in reverse.
4. Before installing motor pulley and belt, transfer motor "home" mark to belt cover base for reference.
5. Do not over-tighten belt: 1/4" movement with moderate finger-pressure between pulleys is good.

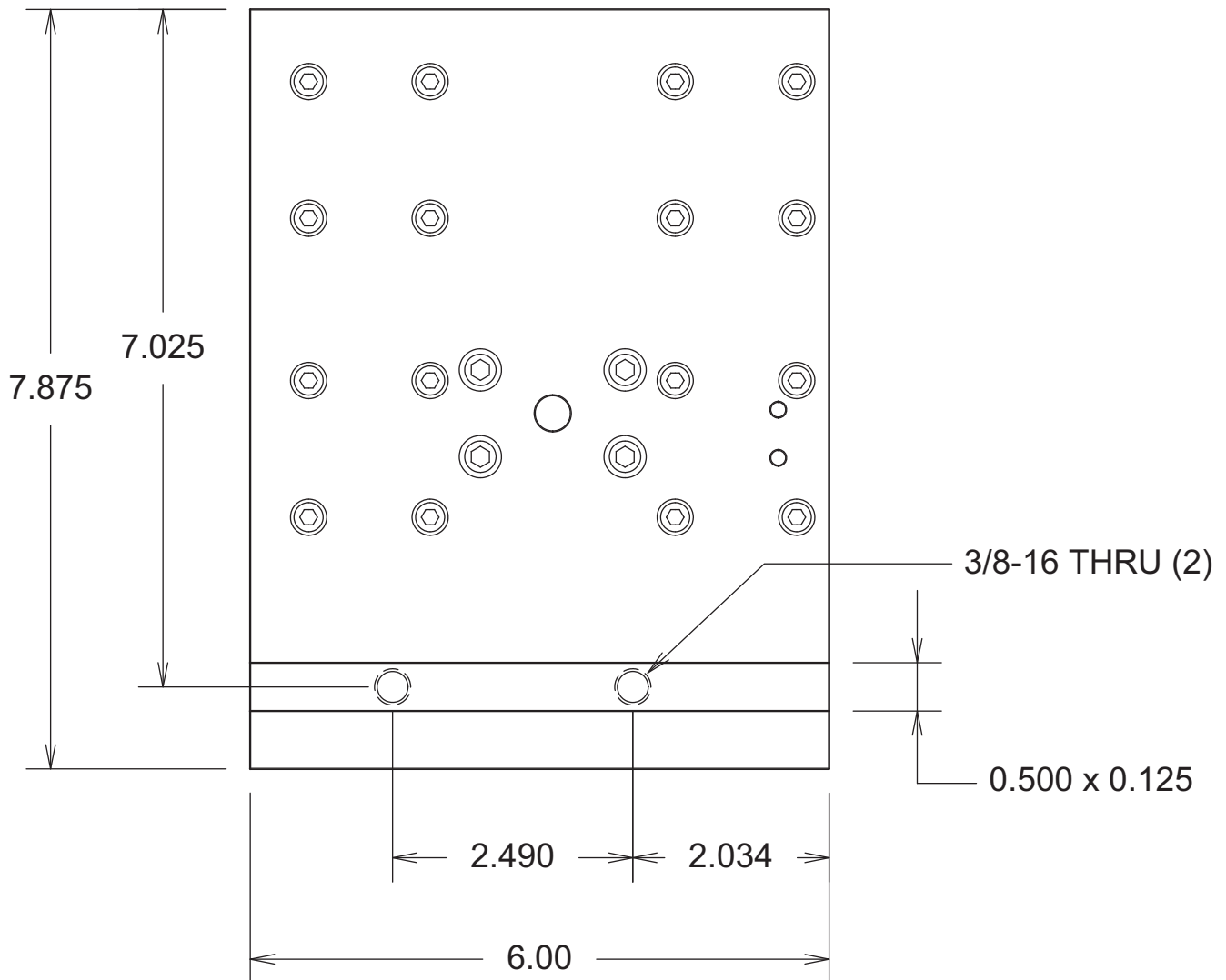
VCO Ballscrew Pulley Assembly

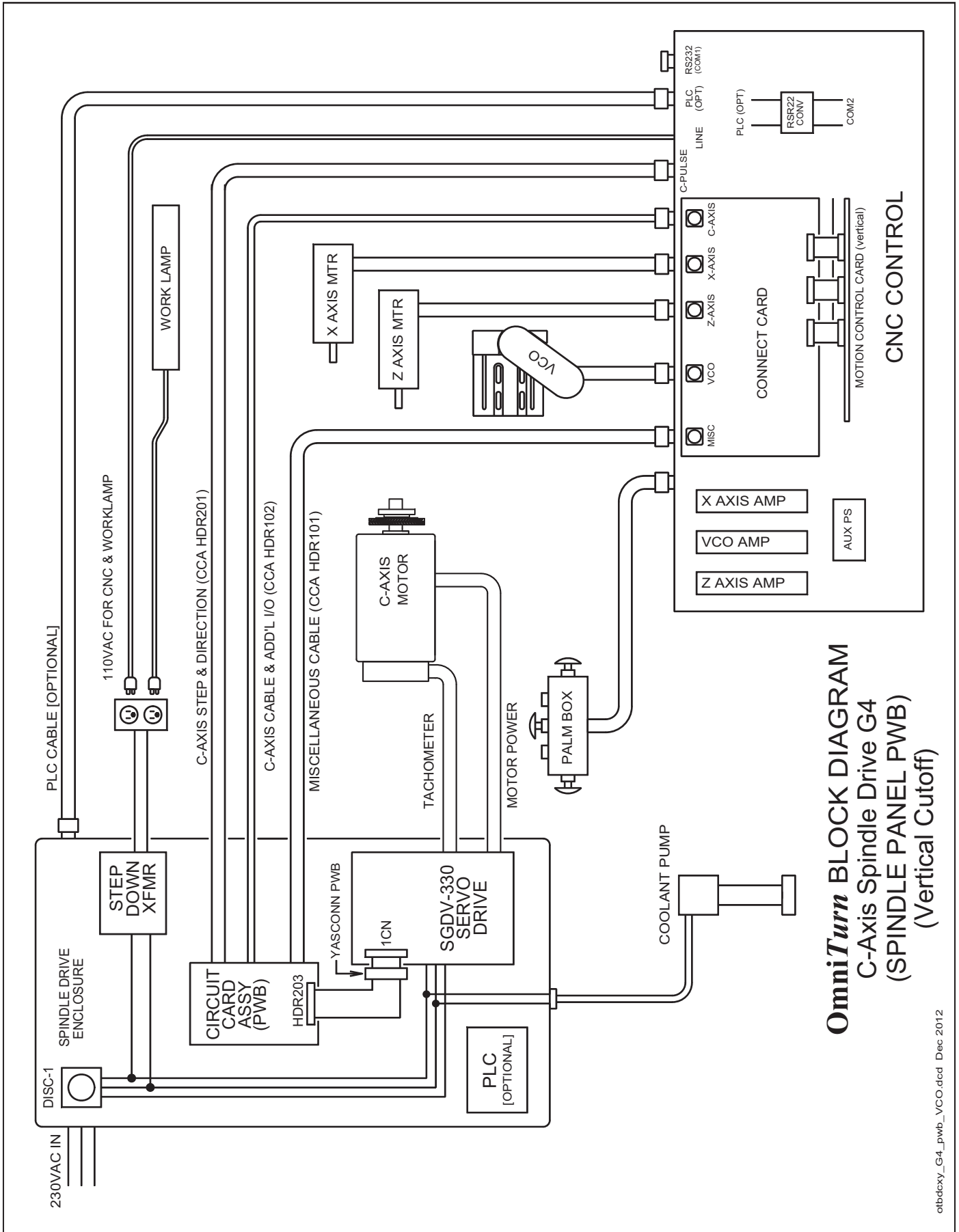


Mounting Screws (rear view)



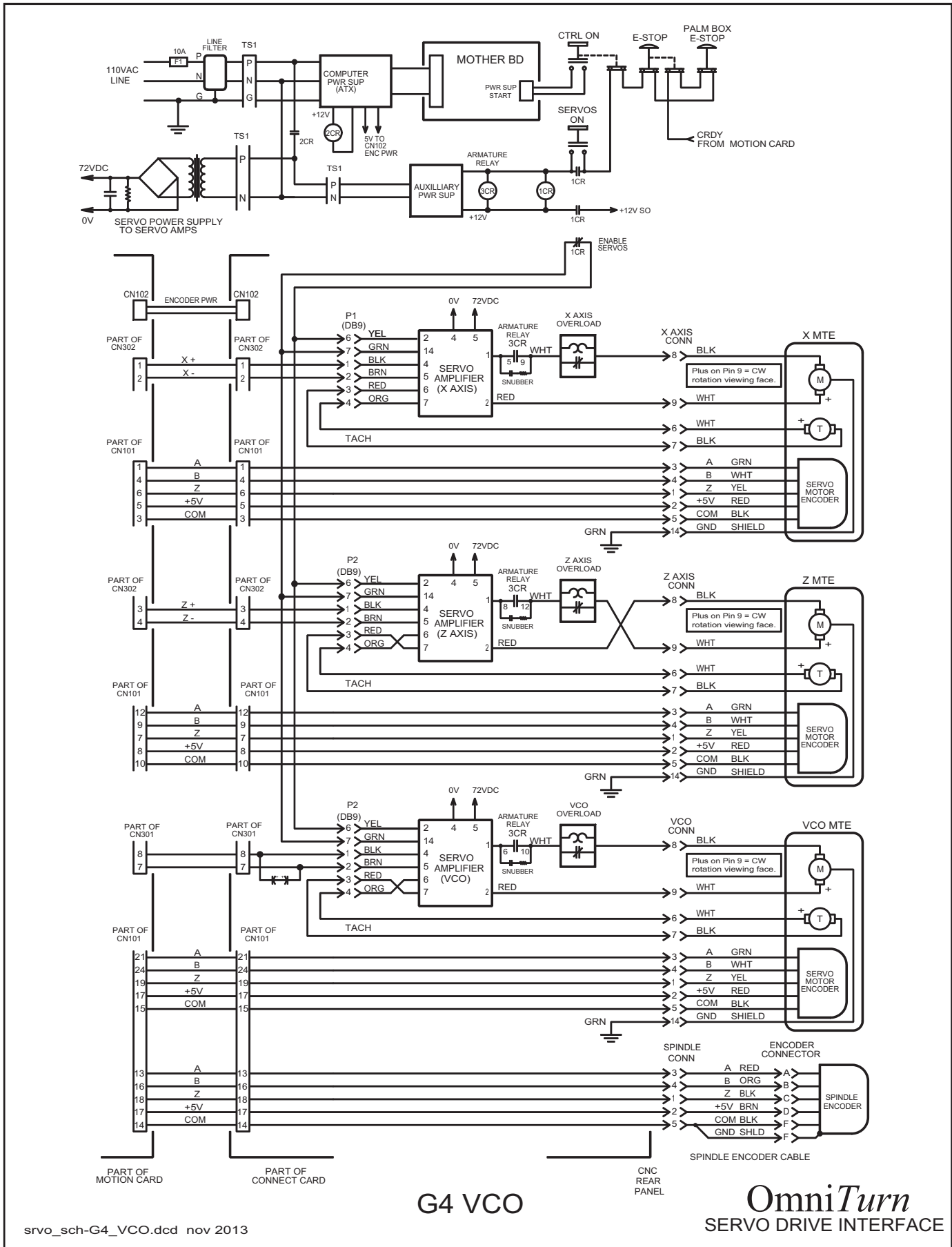
VCO Table Dimensions





OmniTurn BLOCK DIAGRAM
C-Axis Spindle Drive G4
(SPINDLE PANEL PWB)
(Vertical Cutoff)

otbdcxy_G4_pwb_VCO.dcd Dec 2012



srvo_sch-G4_VCO.dcd nov 2013

G4 VCO

OmniTurn
SERVO DRIVE INTERFACE