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I will be adding more info about this project in the future, but for now, you can check out the video. The video (at the bottom of this page) shows the motor mounted to the mill, in use and at the end some still pics with text describing some of the machining done.The video shows most of the mechanical and machining side of things so ill try and get into the electrical side here in this article.

Supplies used:

- Power supply one: Bestec ATX-300-12Z (did not work)
- Power supply two: Antec NEO HE500 (worked)
- Cordless Gun: Dewalt DW958 18V

Searched the net with keywords 'test PC power supply' and found the following article which i used to find out what the different colored wires in the power supply do: http://pcsupport.about.com/od/toolsofthetrade/ht/power-supply-test-multimeter.htm

A little info about the mill...The head of the mill weighs roughly 200lbs.When the hand crank was on the machine the head would lower pretty easy and only took a little strength to raise it (never thought to measure it with a toque wrench till typing this sentence). I have not removed the side shaft to see if there is any kind of gear reduction for the 'z' lead screw.

And on with the project...First, being this involves electronics i want to state....I have very little electronic experience so please only take this as information you found on the internet. If you know of a better way or can correct something i have said or done, please leave a comment at the bottom of the page - no registration is required to comment.

With this project i tested two different PC power supplies, one worked, one did not. The power supply that did not work (Bestec) would power the motor under a load for a second or two and then the power supply would turn off.

No Load - voltage readings for the two different power supplies.Bestec - 11.76 (the one which turned off)Antec - 12.06 (the one i ended up using)

The power supply i ended up using has three separate 12v “legs/leads” (the computer world calls them 'rails'). I do not know enough about the internal workings of the power supply (or this type of electronics) to explain this, but when i had it apart you could see that the three sets of 12v legs soldered to the board ran different routs.

Some readings of the Antec with a load on the motor..- only a single 12v leadHeavy load, raising head up - 11.66vLight load, lowering head - 11.88v

- two 12v leadsHeavy load - 11.88vLight load - 11.96v

In the video or pictures you will see the following colored wires on the back of the power supply - yellow, red, orange and black.

- Yellow = 12v
- Red = 5v
- Orange = 3.5v

- Black = negative

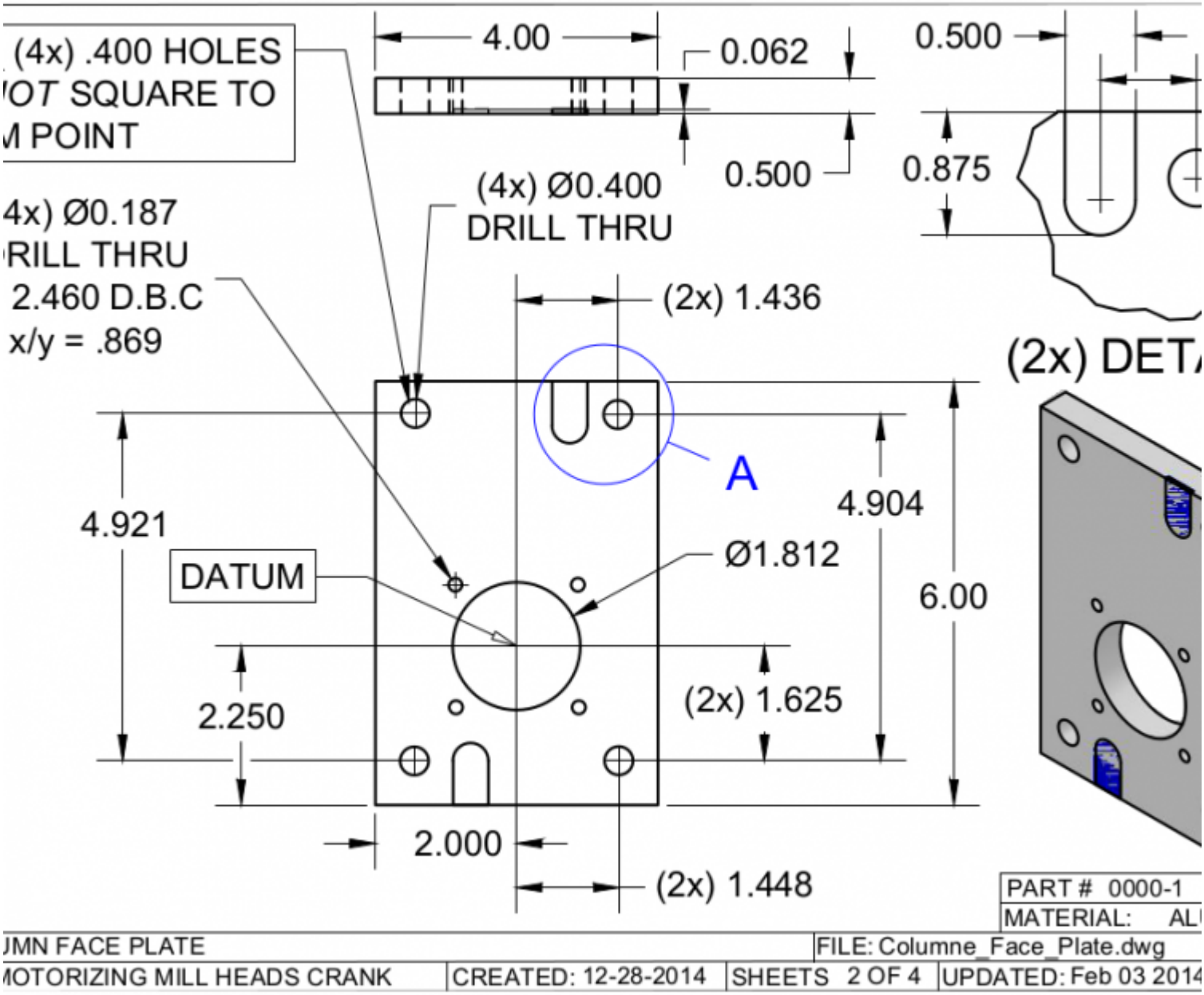
The two yellow terminals: the top one which the motor is hooked to has 4 yellow wires. The reason behind the multiple wires is to get more current/amperage and thats how they are soldered to the board (in pairs), i did not want to go crazy and re-wire every thing. The second lower set of yellow wires are powering the led lights under the mills head, even though there are two wires there, they come from the same place on the board, it was just easer to wire them together rather then de-solder or clip one of them.

You will also see two negative terminals at the bottom with multiple wires, the power supply had three sets of negative wires soldered to the board, each set had a group of four wires - again i did not want to rewire every thing so i just removed two of the sets and used the remaining set; one wire for the on/off switch you see on the back and the two terminals at the bottom just for future convenience.

The other wires you see are Red 5v and Orange 3.5v, again the reason behind the grouping of wires is to allow for more current/amperage (wires come from different places on the board). Since the wires where there i figured i might as well keep them and make them accessible in-case there is a need for that voltage down the line.

There are more wires to the power supply which i just rolled up and tucked away in case there is ever a use for them, the link above explains what the do.

Some prints for future reference: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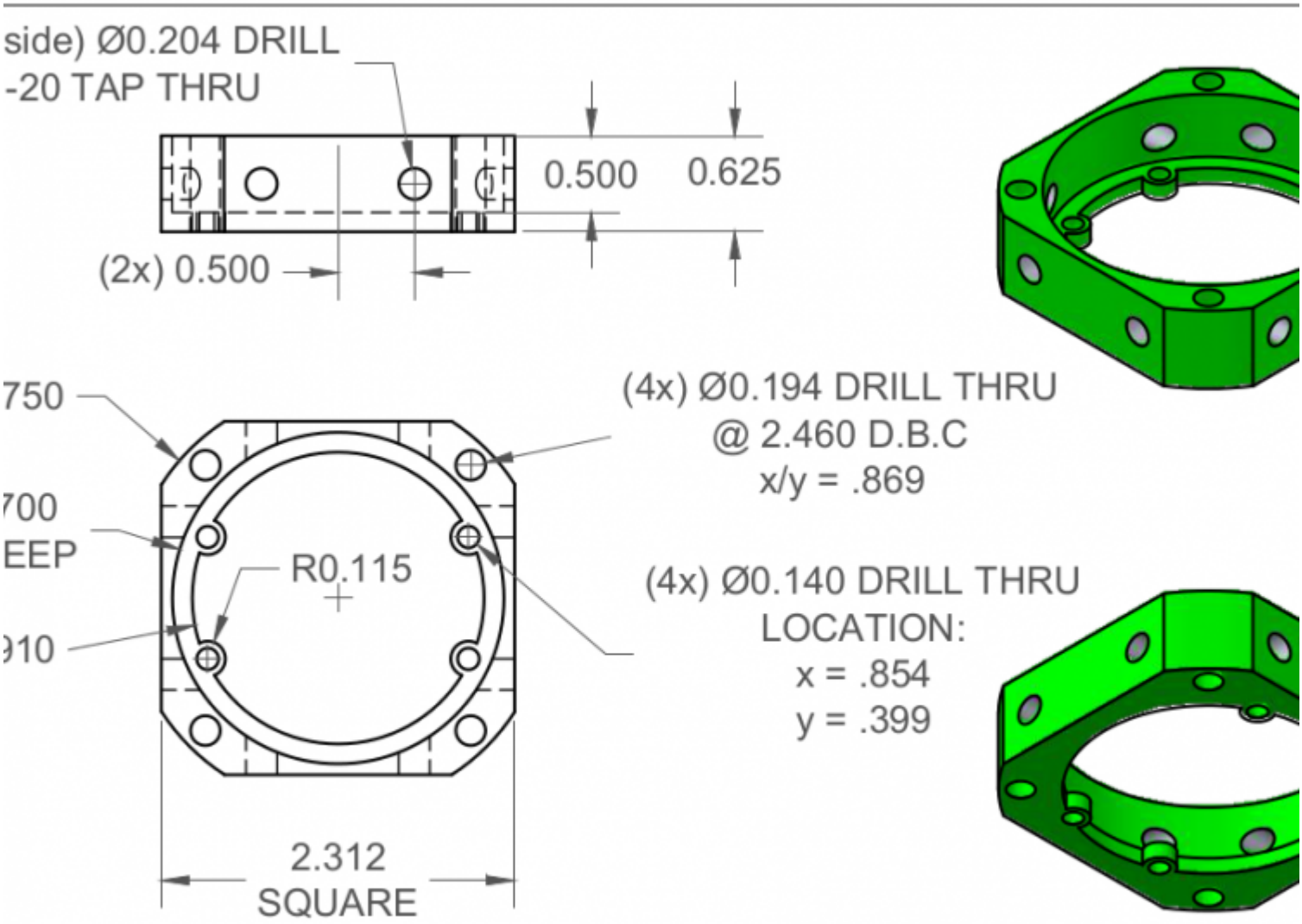
OT SQUARE TO
M POINT
4x) Ø0.187
RILL THRU
2.460 D.B.C
x/y = .869
4.00
0.062
0.500
(4x) Ø0.400
DRILL THRU
0.500
0.875
(2x) 1.436
A
4.921
4.904
DATUM
Ø1.812
6.00
2.250
(2x) 1.625
2.000
(2x) 1.448
(2x) DET
PART # 0000-1
MATERIAL: AL
JMN FACE PLATE
FILE: Columne_Face_Plate.dwg
MOTORIZING MILL HEADS CRANK
CREATED: 12-28-2014
SHEETS 2 OF 4
UPDATED: Feb 03 2014



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