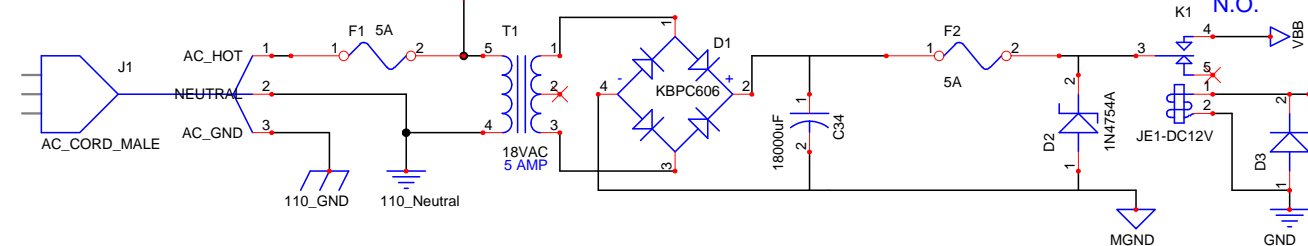


Cord rating should be at least 10A for longevity

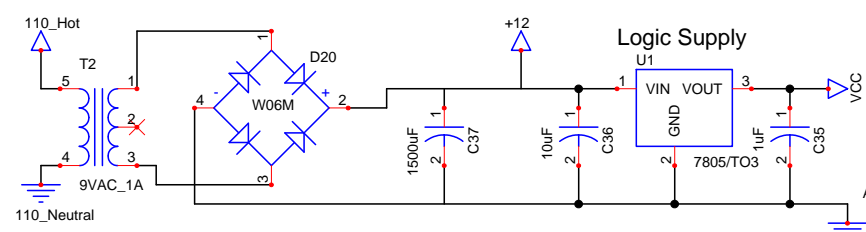


Select fuse size based on motors  
Bipolar requires 2/3 of the total motor ratings  
e.g. 3 x 2.5A motors requires 5A

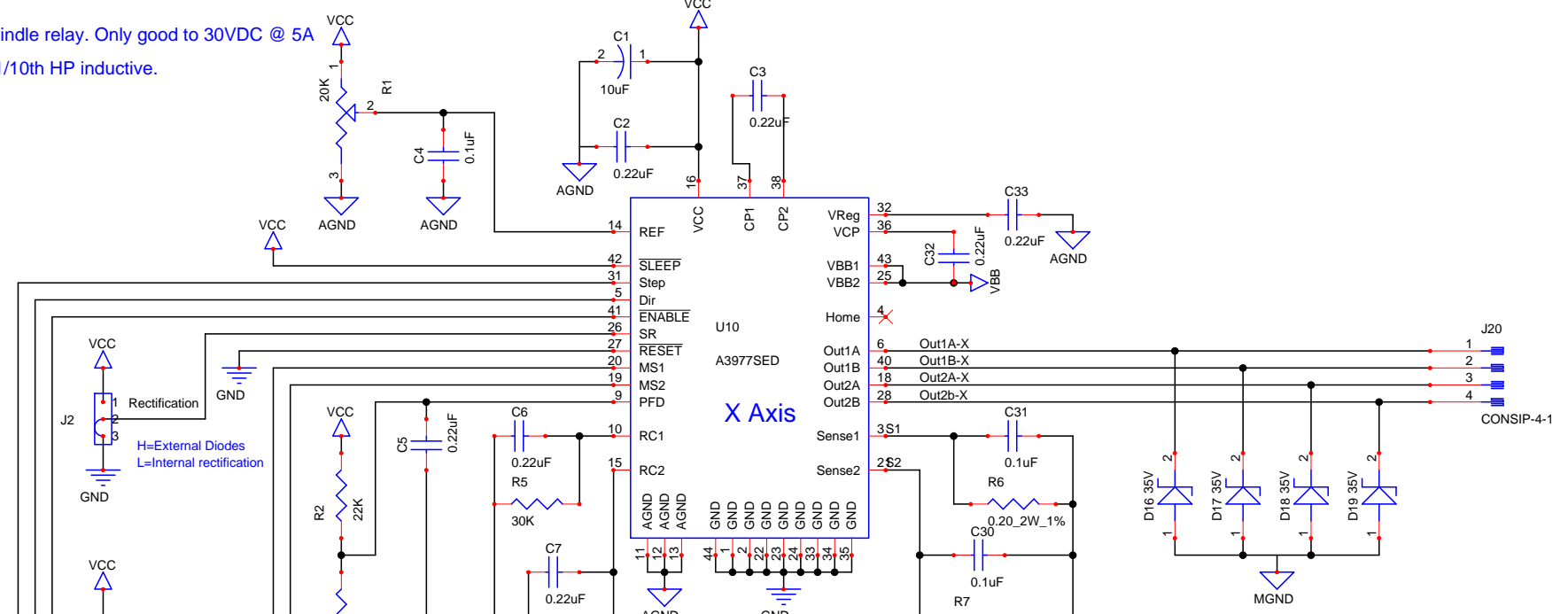
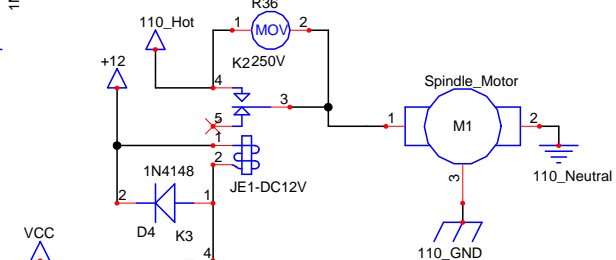
Need to find a larger VBB and Spindle relay. Only good to 30VDC @ 5A  
or 125VAC @ 5A non inductive. 1/10th HP inductive.

Don't exceed 30V or you risk over voltage to the A3977  
Stepper Motor Supply 25.2V, 5A

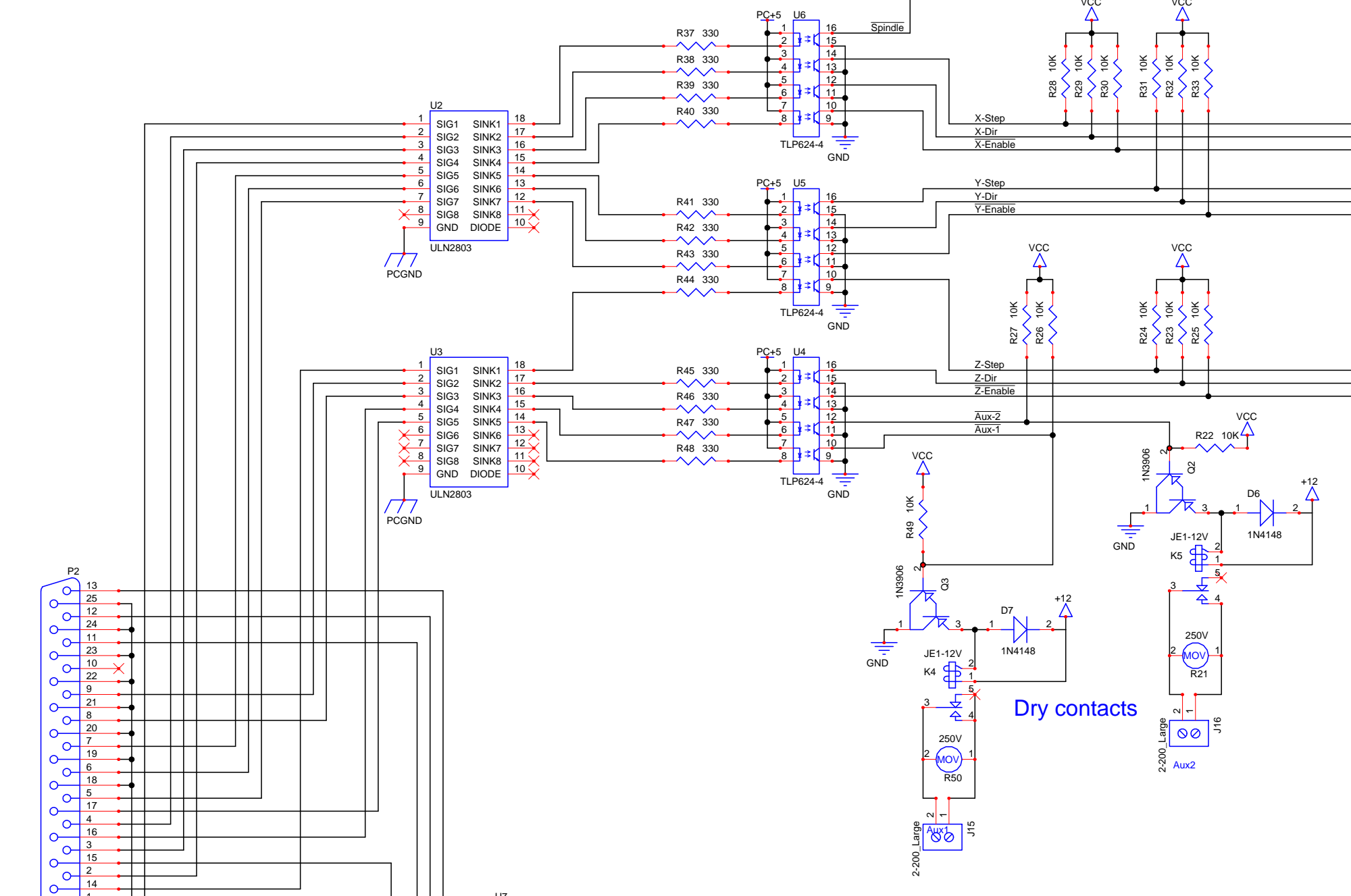
Logic supply on separate transformer to keep main transformer cost down  
After 5A the cost jump hugely



TO3 used, loads of LEDs and relays on +5  
alone are approaching 500mA. +25 volt supply  
means a lot of heat! Fit big sink on this.



Zeners protect A3977 from overvoltage. BackEMF  
should not reach 35V but, just in case!



Dry contacts

When E\_Stop is hit, E\_Stop\_Relays goes low, allowing the  
spindle and VBB (stepper supply) relays to open, cutting off  
power and stopping them both through hardware. Software  
control also registers the hit and commands them off but,  
not safe to rely on software control.

All switches normally closed

PC+5 and PCGND used for ULN2803s  
and parallel port side of optos.  
PC 12V Not used