

## Notes:

Jumpers labeled JP5 and JP6 are crossover wires,nothing more. This was done to ease single sided PCB Prototype testing.

J2 is the TE Connectivity Automotive Grade water resistant connector. The 35 positions will allow for modifications to the board for additional inputs/outputs as this design only uses 27 positions. My samples to test have arrived, <http://www.te.com> Part #'s:

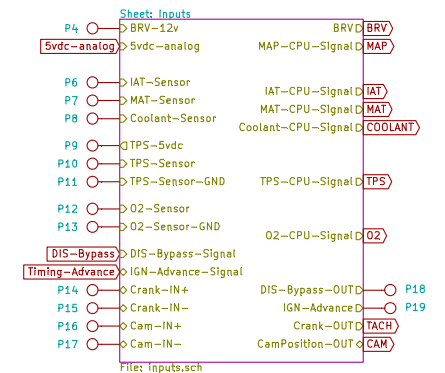
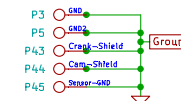
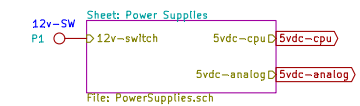
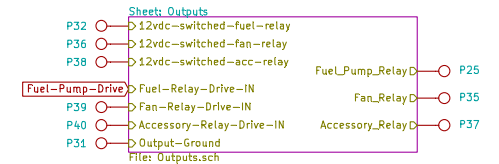
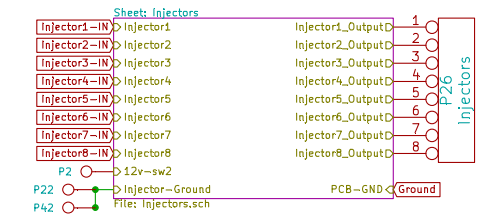
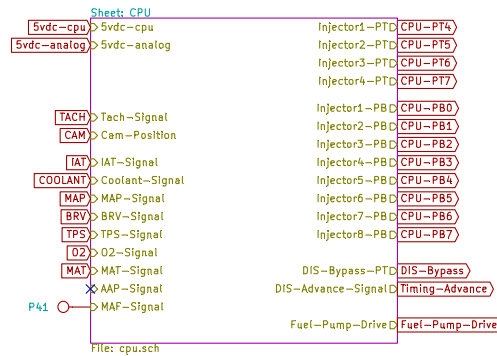
1-776163-2 Right Angle 35 Position Header (Natural Color)  
OR  
1-776231-2 Vertical 35 Position Header (Natural Color)  
1-776231-2 Vertical 35 Position Header (Natural Color)  
776164-2 35 Position AMP SEAL Plug Assembly (Natural Color)

Make sure that the PCB grounds do not touch the inside of the case and isolate the T0-220 voltage regulators from the end panels of the case with mica insulators and use plastic screws.

5vdc-cpu = VDD

5vdc-analog = VCC

INJ-GND and INJ-GND2 are isolated to only be used by the Injector FETs



For 6/8 cylinder using Port T with current code, run Jumper wires from:  
P20 pin 1 to P21 pin 1 = Bank 1  
P20 pin 2 to P21 pin 2 = Bank 2  
P20 pin 3 to P21 pin 3 = Bank 3  
P20 pin 4 to P21 pin 4 = Bank 4

### AND DO THE FOLLOWING

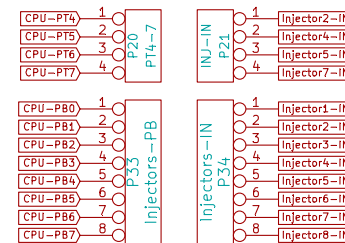
For 6/8 cylinder using Port T with current code jumper from:  
(can be tie-bar shorting jumper if you installed a 0.100" pin header for P34)

P34 pin 1 to P34 pin 2  
P34 pin 3 to P34 pin 4  
P34 pin 5 to P34 pin 6  
P34 pin 7 to P34 pin 8

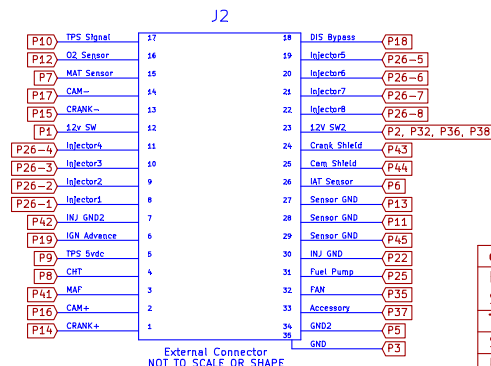
To use Port B with future XGATE code, run jumper wires from:  
P33 to P34 pin for pin and do not connect anything to P21.  
ie:

P33 pin 1 to P34 pin 1  
P33 pin 2 to P34 pin 2  
P33 pin 3 to P34 pin 3  
P33 pin 4 to P34 pin 4  
P33 pin 5 to P34 pin 5  
P33 pin 6 to P34 pin 6  
P33 pin 7 to P34 pin 7  
P33 pin 8 to P34 pin 8

P21 Pin 1 has a trace to P34 Pin 2 on the PCB  
P21 Pin 2 has a trace to P34 Pin 4 on the PCB  
P21 Pin 3 has a trace to P34 Pin 5 on the PCB  
P21 Pin 4 has a trace to P34 Pin 7 on the PCB



P21 and P34 allow for selection to use either Port T (4 cpu outputs MAXIMUM:current code) or Port B (8 cpu outputs:future XGATE code)



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File: Jaguar.sch

Sheet: /

Title: Jaguar PCB for FreeEMS

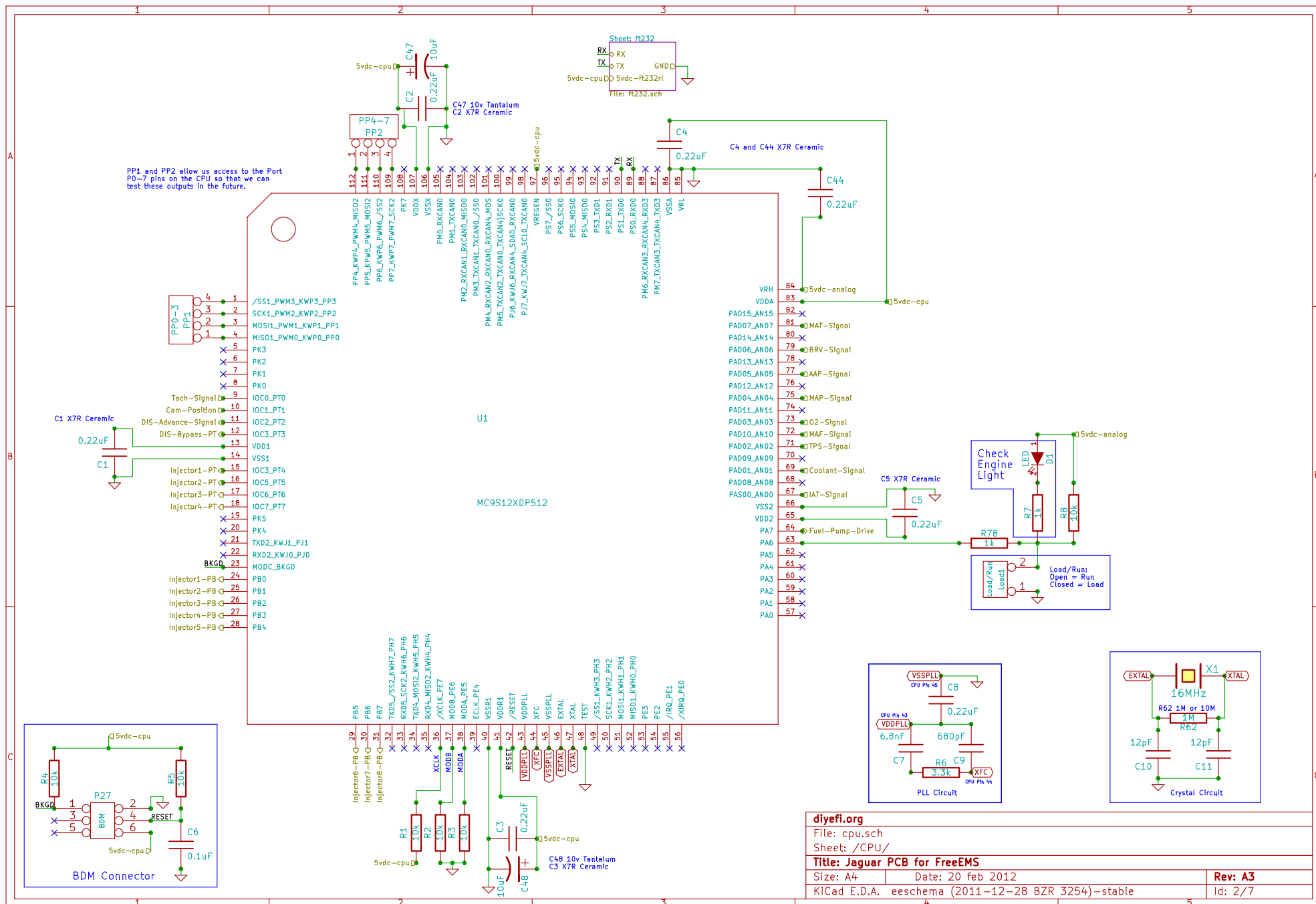
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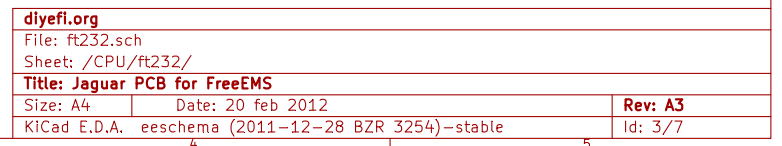
Date: 20 feb 2012

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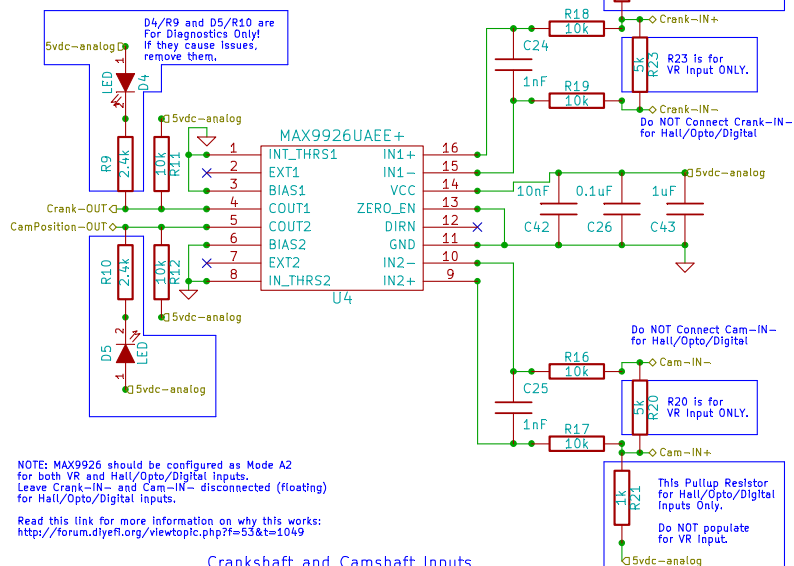
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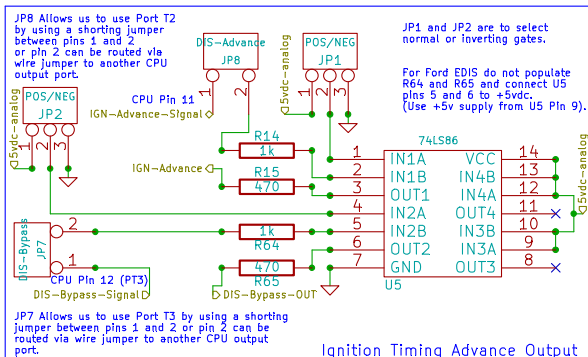


For Ford EDIS do not connect Cam-IN+ to anything either.  
R16, R17, C25, R10, R12 and D5 are not needed for the EDIS system.

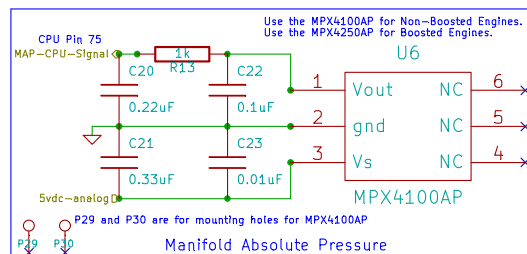
R20 and 23 are only to be used with VR Inputs, do not populate these components for GM DIS or Ford EDIS systems.



### Crankshaft and Camshaft Inputs

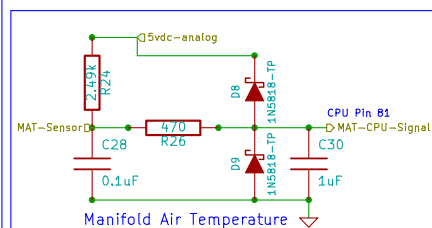


### Ignition Timing Advance Output

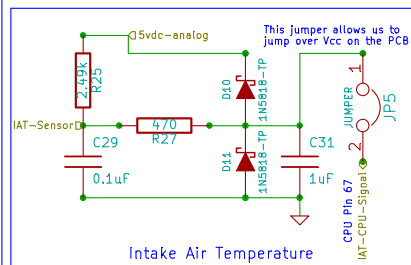


Manifold Absolute Pressure

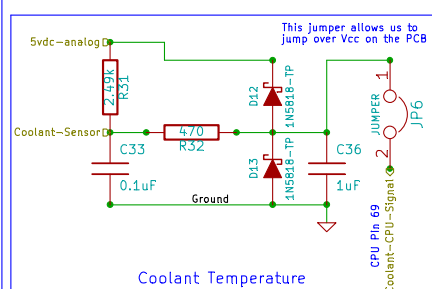
R24, R25 and R31 (2.49k) can be replaced if using sensors other than GM temperature sensors: For FORD Sensors: use 27.4k 0.1% Metal Film resistors; for MOPAR Sensors: use 9.1k 0.1% Metal Film resistors or use 2.43k 0.1% Metal Film resistors (best for most cases). Be sure to use FreeTherm to adjust the values in the FreeEMS code for the best accuracy regardless of which value resistors you use!



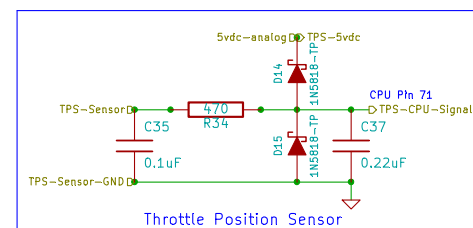
Manifold Air Temperature



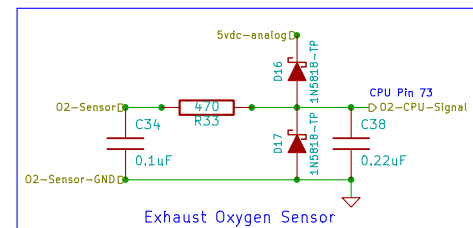
Intake Air Temperature



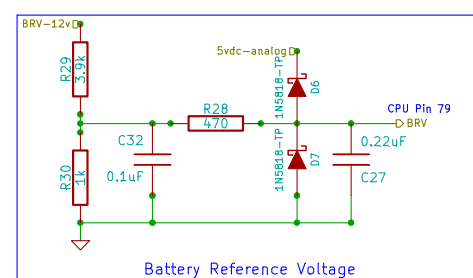
### Coolant Temperature



### Throttle Position Sensor



### Exhaust Oxygen Sensor



Battery Reference Voltage

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File: inputs.sch

Sheet: /Inputs/

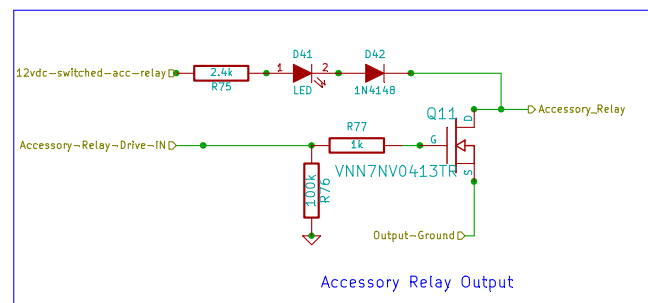
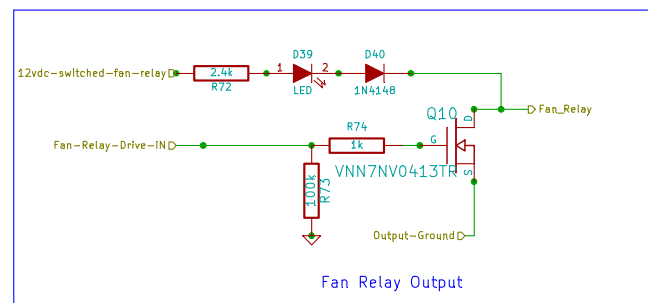
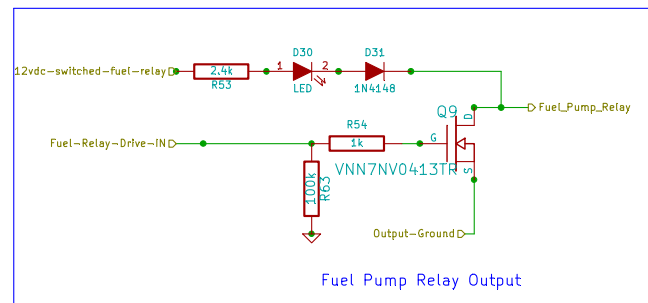
**Title: Jaguar PCB for FreeEMS**

Size: A4	Date: 20 feb 2012
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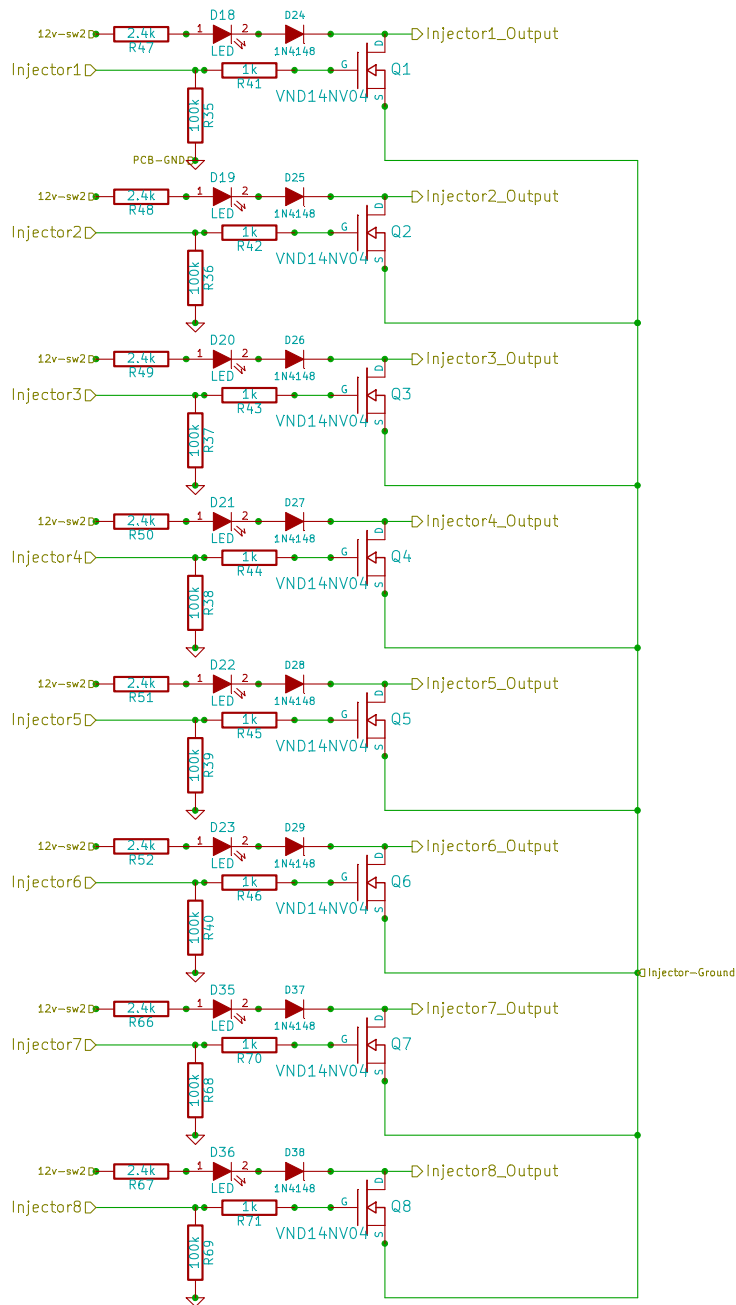
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Sheet: /Outputs/	
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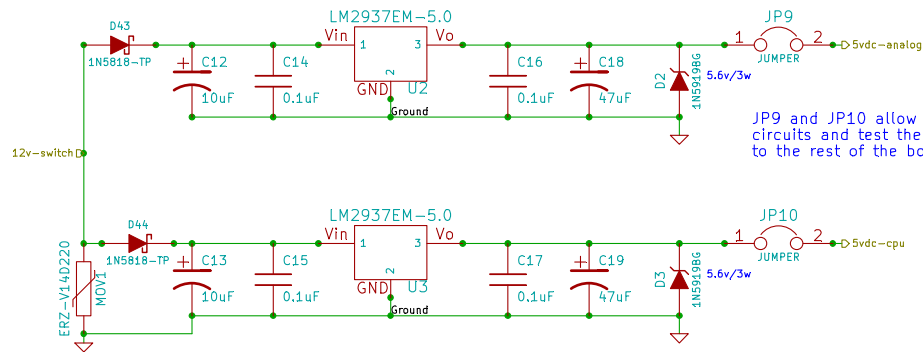
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Size: A4 Date: 20 feb 2012

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**Rev: A3**

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JP9 and JP10 allow you to build the power supply circuits and test them before connecting them to the rest of the board.

C14, C15, C16 and C17 are 50v X7R Ceramic capacitors.

C12 and C13 are 35v Tantalum capacitors.

C18 and C19 are 10v Tantalum capacitors.

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File: PowerSupplies.sch

Sheet: /Power Supplies/

Title: Jaguar PCB for FreeEMS

Size: A4 Date: 20 feb 2012

Rev: A3

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