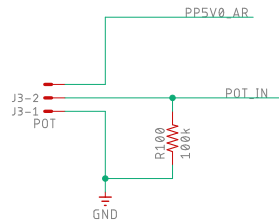
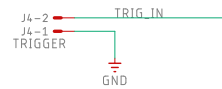


# MCU

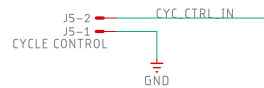
## POTENTIOMETER



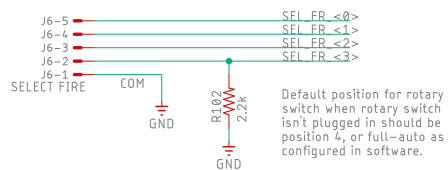
## TRIGGER



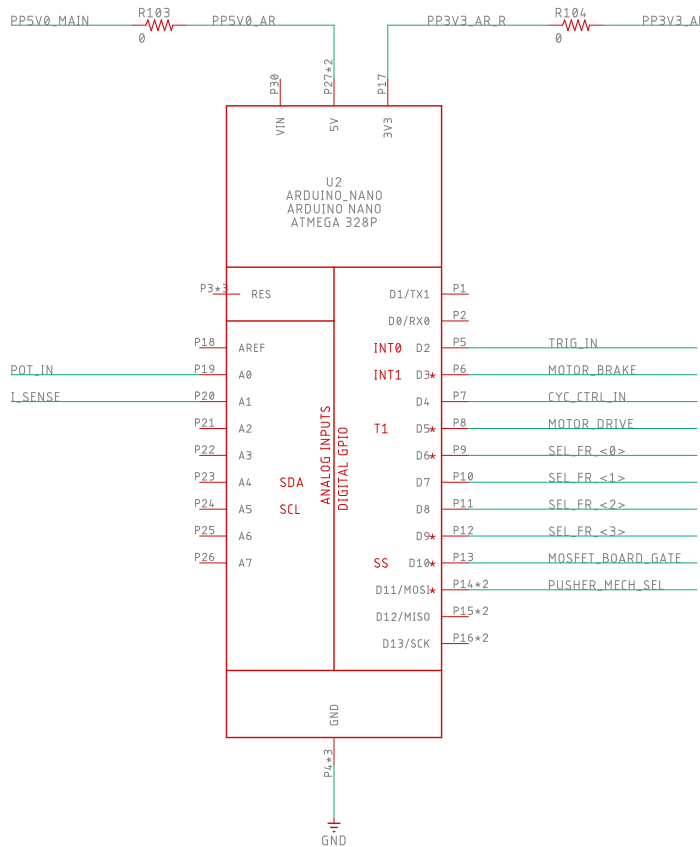
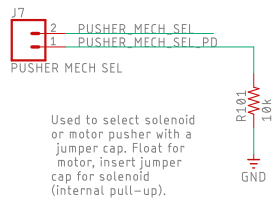
## CYCLE CONTROL SWITCH



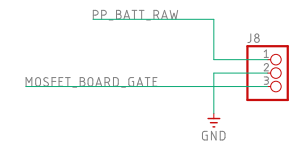
## SELECT-FIRE SWITCH



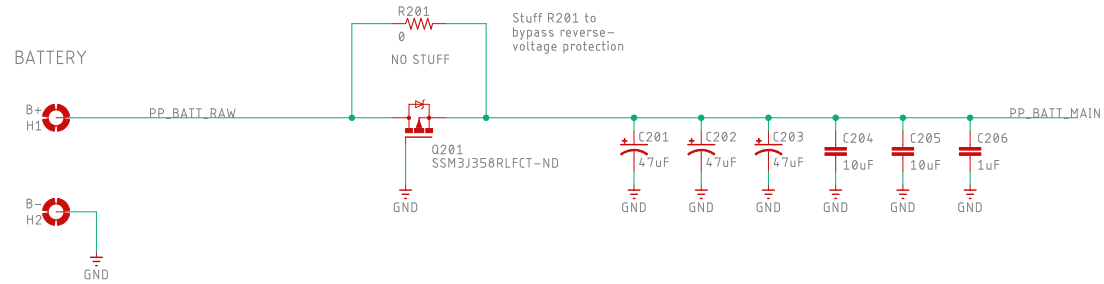
## PUSHER MECH SEL



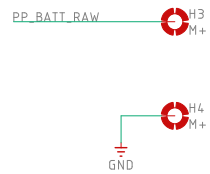
## EXPANDABLE HEADERS FOR MOSFET ECOSYSTEM



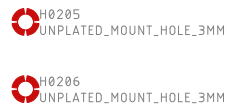
# POWER



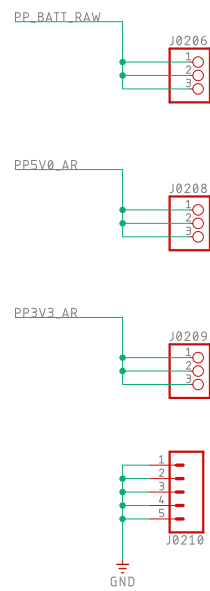
## FLYWHEELS



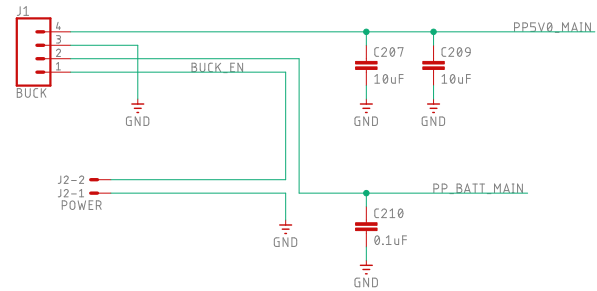
## MOUNT HOLES



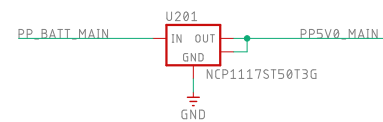
## POWER RAIL BREAKOUTS



## BUCK CONVERTER



## LDO



Stuff U201 LDO instead of buck. If LDO works, it will replace buck in next iteration. If LDO doesn't work, keep buck and remove/fix LDO.

PUSHER DRIVE

Q0302 needs to swing between PP\_BATT\_RAW and GND to fully turn on/off. Can use non-inverting open-drain buffer IC or single N FET inverting open-drain buffer to achieve sufficient swing.

One of these will be NO STUFF'd. Populate U301 when using reflow oven, populate Q301 for hand soldering.

R308 and R309 are for validation of CSA only. After validation, remove these resistors in next iteration. To isolate U302 CSA output from Arduino analog pin, remove R308.

PP5V0\_AR

C301 0.1uF

GND

U301 74LVC1G07 74LVC1G07

PP\_BATT\_RAW

R303 2.2k

HI\_SIDE\_GATE\_R

R304 100

HI\_SIDE\_GATE

Q302 SSM3J358RLFCT-ND

PP\_BATT\_RAW

Q308 M+ H0301

Q301

PUSHER\_NEG

Q303 PSMN1R5-30YLC

LOW\_SIDE\_GATE

R306 2.2k

GND

R307 0.01 2W

C302 0.1uF

GND

C303 0.1uF

GND

NO STUFF

LOAD\_SIDE\_SENSE

U302 INA181 INA181A1

VCC

IN- 4

OUT 1

U302\_OUT

R308 0

I\_SENSE

REF 5

GND 2

GND

R309 0

PP5V0\_AR

C304 0.1uF

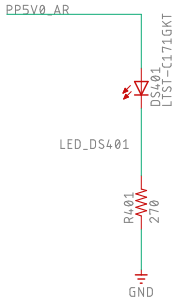
GND

One of these will be NO STUFF'd.  
Populate U301 when using reflow  
oven, populate Q301 for hand  
soldering.

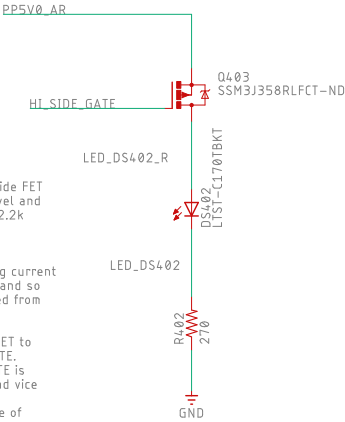
R308 and R309 are for validation of CSA only.  
After validation, remove these resistors in next  
iteration. To isolate U302 CSA output from  
Arduino analog pin, remove R308.

DEBUG LEDS

5V



MOTOR STATUS

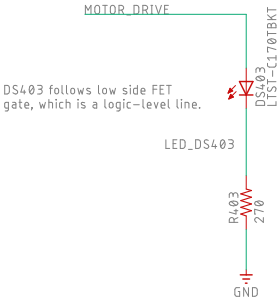


DS403 follows high side FET gate. It's not logic level and goes high through a 2.2k pull-up.

Q401 is needed so DS402 isn't sinking current through the pull-up and so DS402 can be powered from 5V bus.

Q401 is high-side PFET to invert HIGH\_SIDE\_GATE. When HIGH\_SIDE\_GATE is low, PFET turns on and vice versa. We want LED behavior to be inverse of HIGH\_SIDE\_GATE.

MOTOR\_DRIVE



DS403 follows low side FET gate, which is a logic-level line.