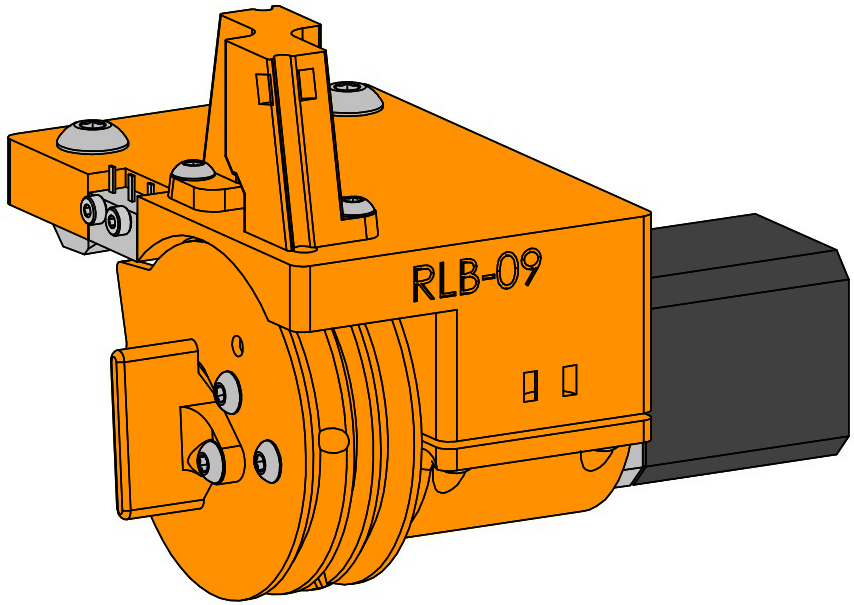


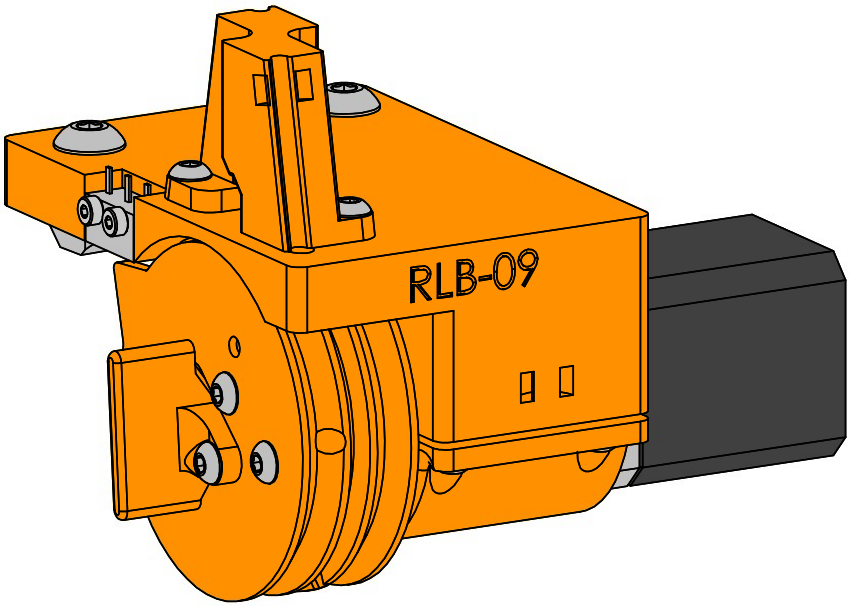
Remote Elastic Lock Assembly

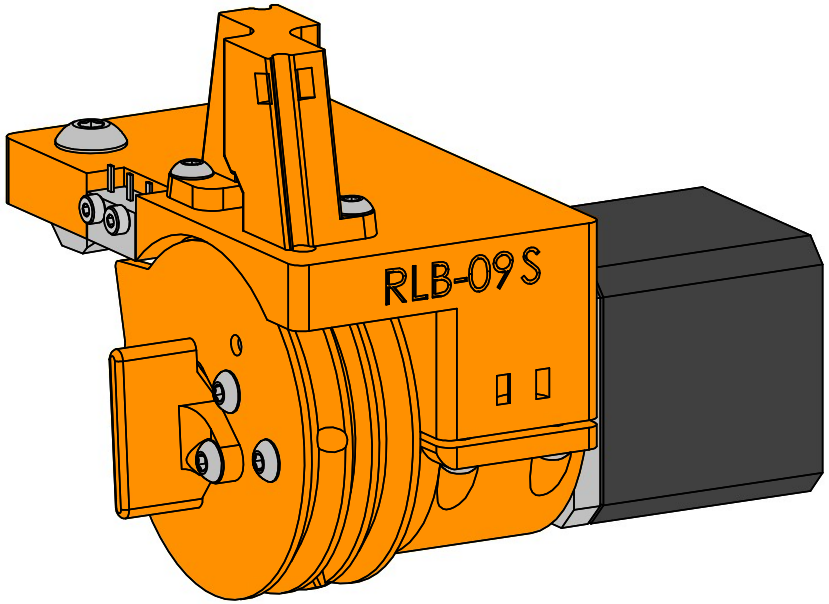
Created by: Joshua Vasquez

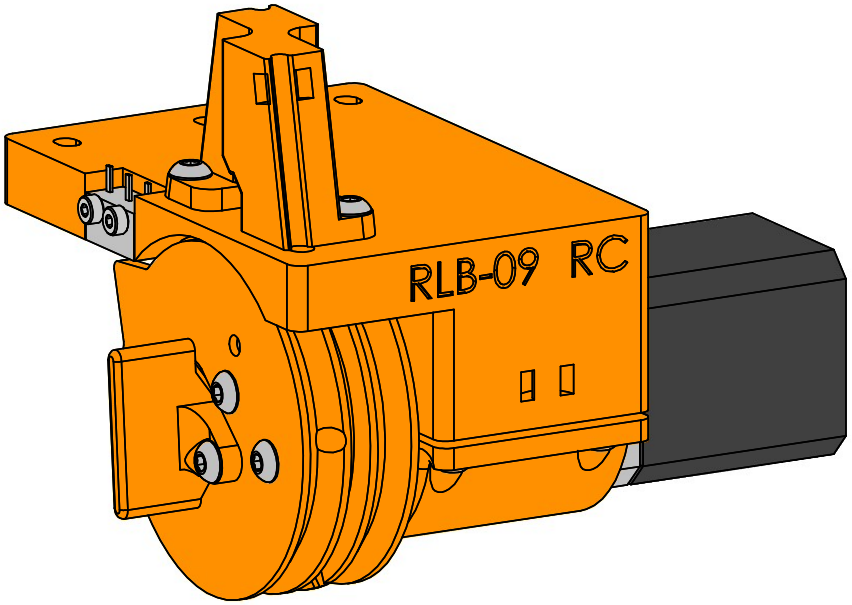
last edited: 5/27/2020

SCALE: 1:1

SHEET 1 OF 15





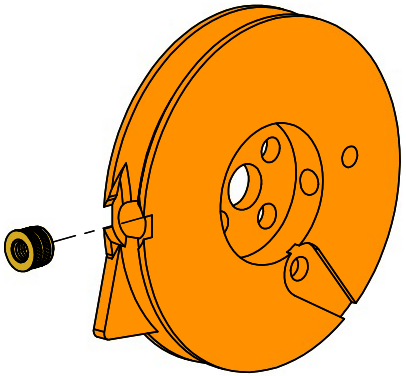


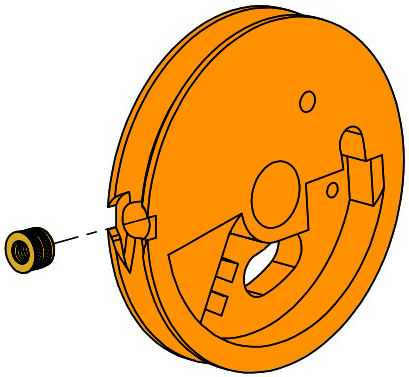
Note: There are three variants of this subsystem.

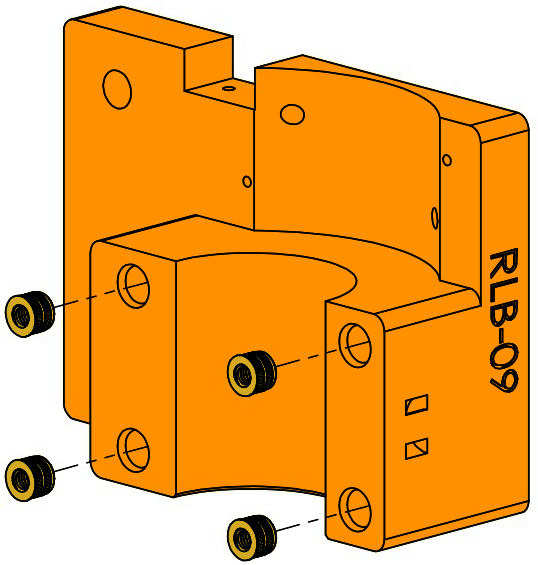
- RLB-09 for Jubilee
  - use an LDO motor
- RLB-09S for Jubilee
  - uses a StepperOnline motor
- RLB-09RC for the Railcore
  - uses an LDO motor

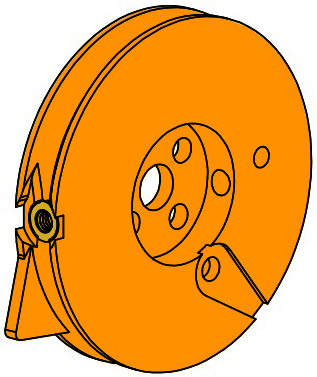
Each variant has a unique base plate. -09S uses a unique base plate and motor clip.

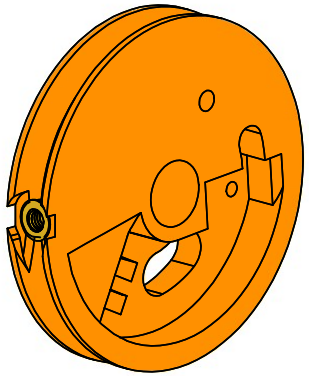
Variants		
	Created by: Joshua Vasquez	last edited: 5/27/2020
	SCALE: 1:1	SHEET 2 OF 15

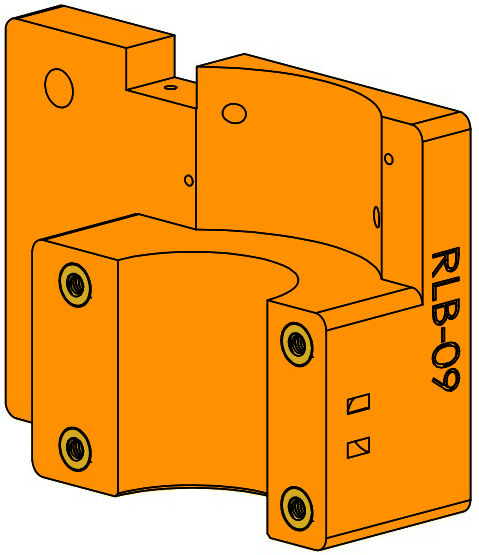












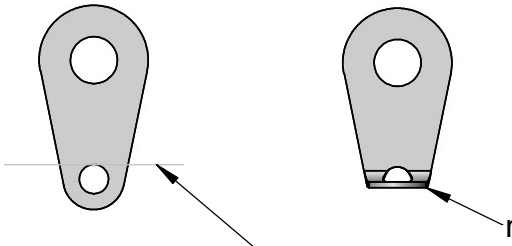
Parts with Inserts

Created by: Joshua Vasquez

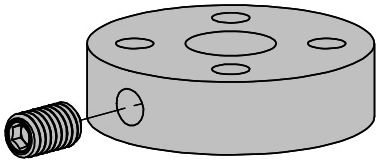
last edited: 5/27/2020

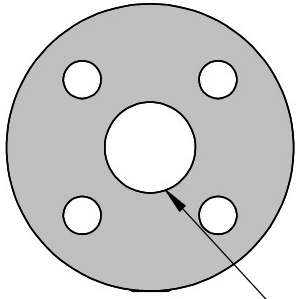
SCALE: 1:1

SHEET 3 OF 15



With a set of Needle nose pliers, bend the terminal lug upwards about 90 degrees along this line.
Do this for both terminal lugs.





Install the M3, 5mm setscrew such that it is fully inside the hub but does not stick out in the center bore.

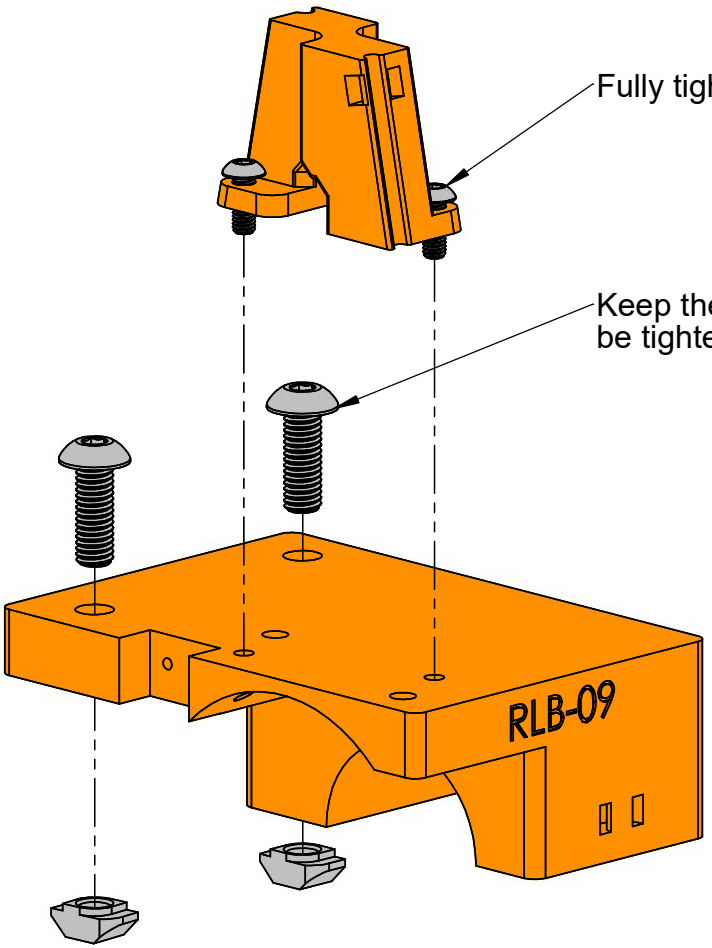
ITEM NO.	DESCRIPTION	QTY.
1	Hub, 6mm bore	1
2	M3 Set Screw, 5mm long	1
3	7328 Terminal Lug	2

Part Prep

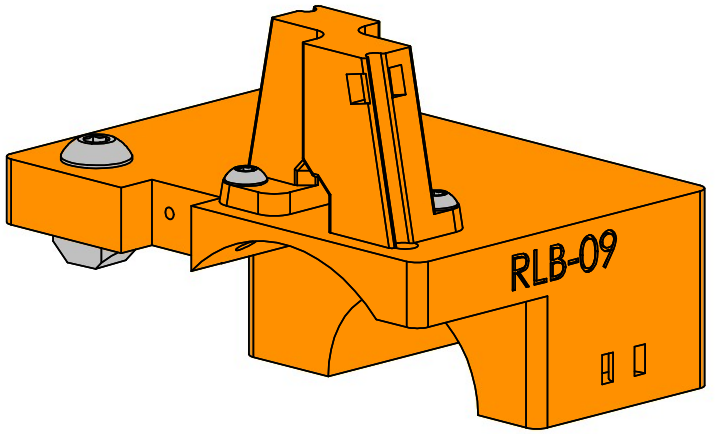
Created by: Joshua Vasquez

last edited: 5/27/2020

SCALE: 2:1



Exploded View



Assembled View

ITEM NO.	DESCRIPTION	
1	REL Base with Inserts	1
2	Spring Guide Anchor Block	1
3	M3 Buttonhead Screw, 8mm long	2
4	M5 Buttonhead Screw, 14mm long	2
5	M5 Drop-In T-Nut for 20x20 Extrusion	2

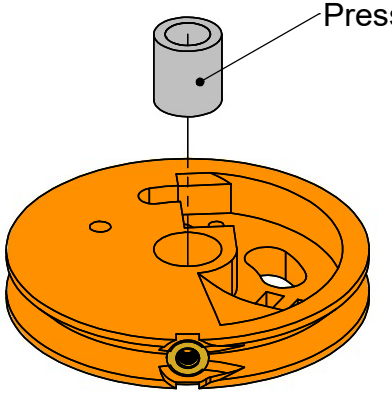
Base Plate Assembly

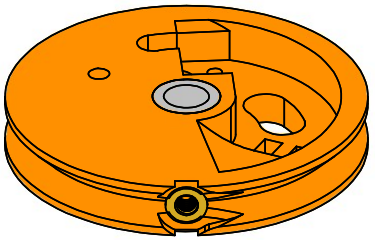
Created by: Joshua Vasquez

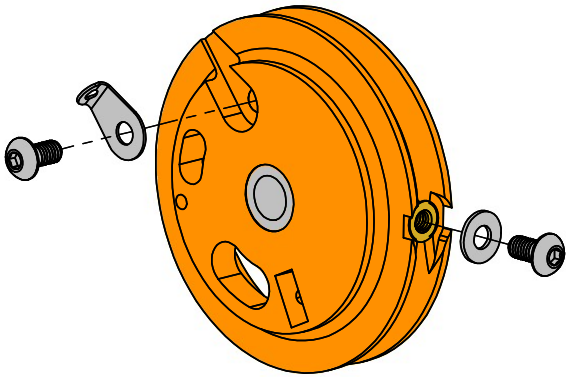
last edited: 5/27/2020

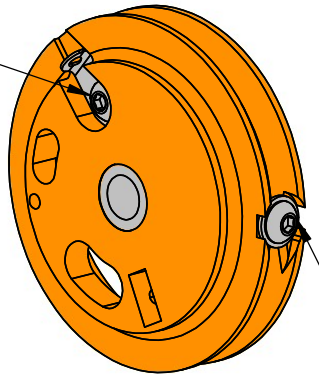
SCALE: 1:1

SHEET 5 OF 15









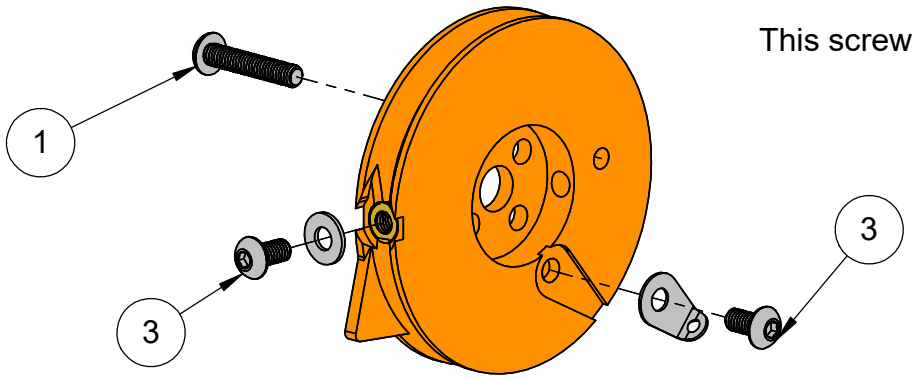
ITEM NO.	DESCRIPTION	QTY.
1	Floating Half Pulley with Insert	1
2	M3 Buttonhead Screw, 6mm long	2
3	Bent M3 Solder Terminal Lug (Bend A)	1
4	Sleeve Bearing, 6mm bore, 10mm long	1
5	M3 Washer	1

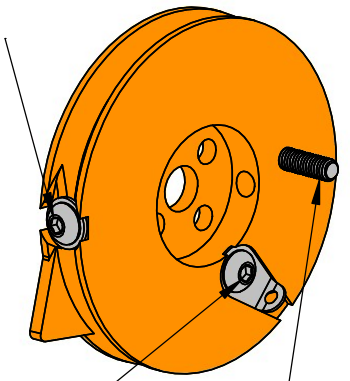
Floating Half Pulley Assembly

Created by: Joshua Vasquez

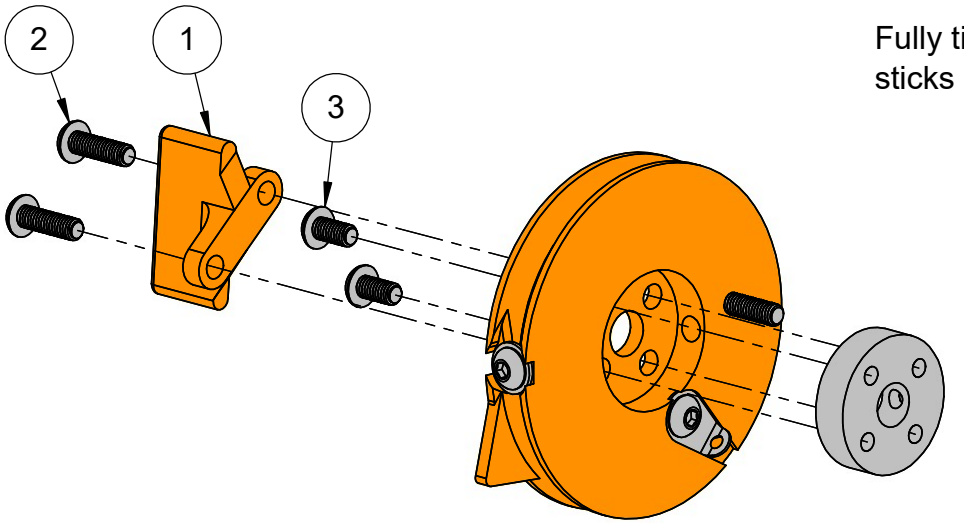
last edited: 5/27/2020

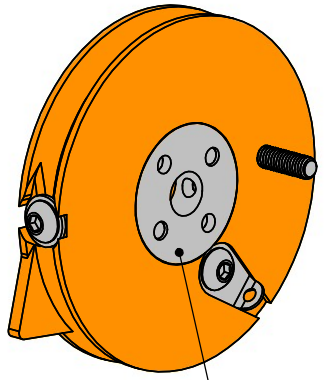
SCALE: 1:1





Fully tighten this screw all the way such that it sticks out on tthe other end.





Fully tighten all screws that attach to the hub.

ITEM NO.	DESCRIPTION	QTY.
1	Knob	1
2	M3 Buttonhead Screw, 10mm long	2
3	M3 Buttonhead Screw, 6mm long	4
4	M3 Buttonhead Screw, 16mm long	1
5	M3 Washer	1
6	Bent M3 Solder Terminal Lug (Bend A)	1
7	Fixed Pulley with Insert	1
8	Hub with Set Screw	1

Fixed Half Pulley Assembly

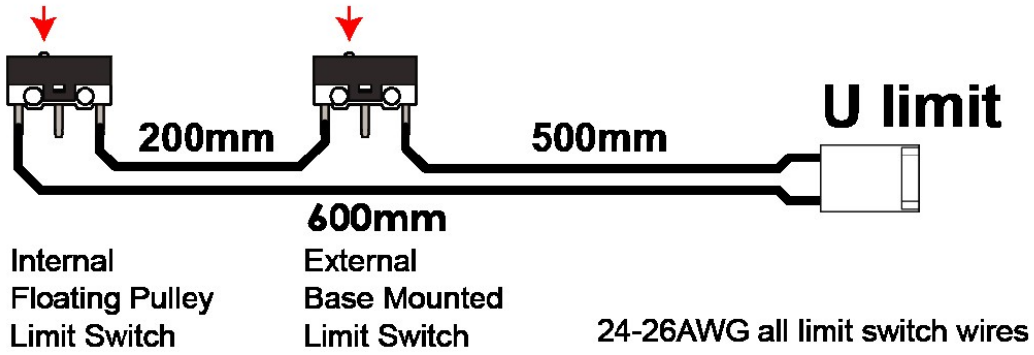
Created by: Joshua Vasquez

last edited: 5/27/2020

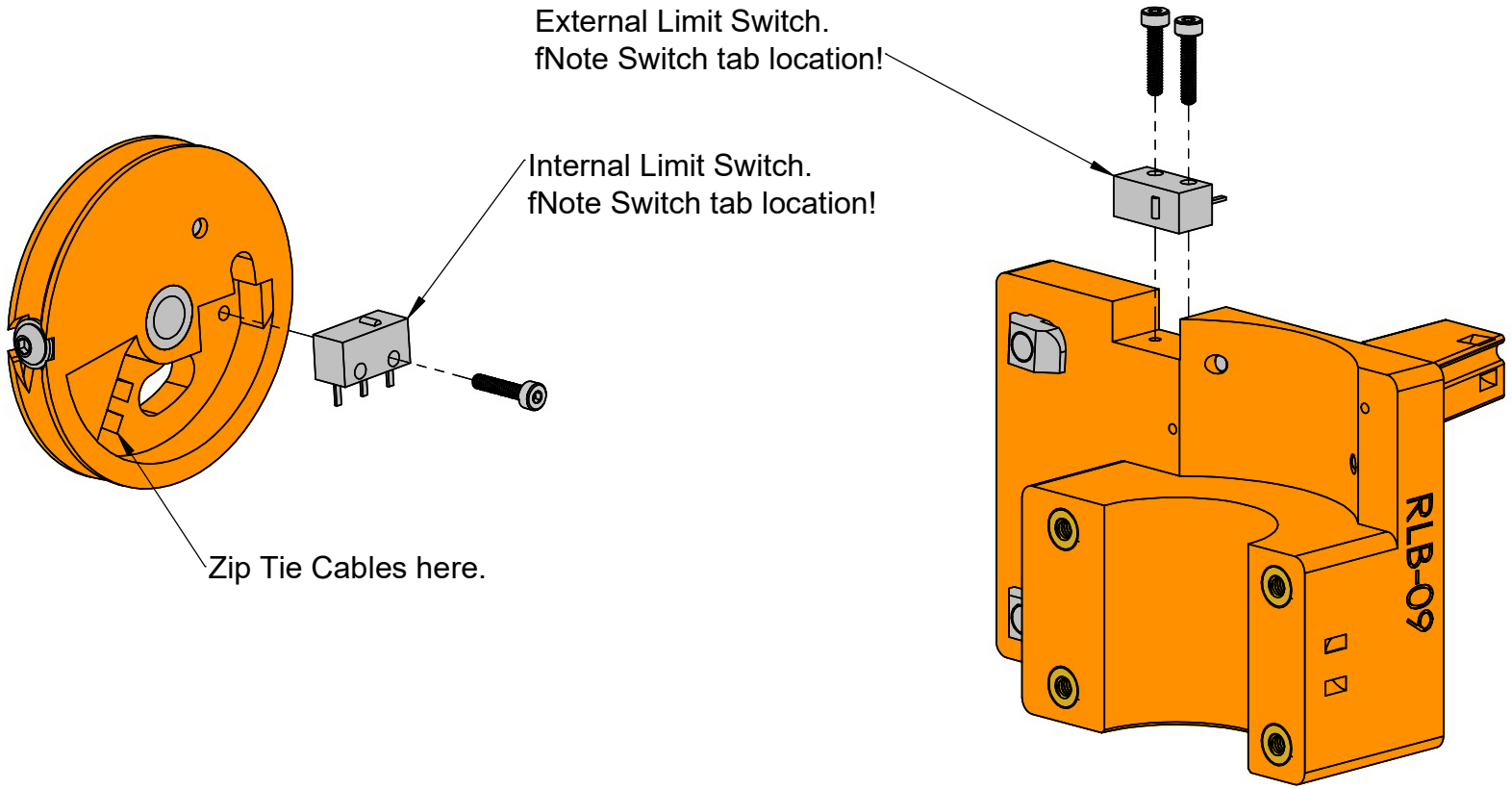
SCALE: 1:1

Solder together the folowing limit switch harness.
Optional: insulate the solder connections with heat-shrink tubing.

Note wire lengths with respect to switch buttons.
Note: the KK Connector is included in the Duet2 box.



Wiring		
	Created by: Joshua Vasquez	last edited: 5/27/2020
	SCALE: 1:1	SHEET 8 OF 15



ITEM NO.	DESCRIPTION	QTY.
1	Floating Half Pulley with Insert	1
2	REL Base Plate with Inserts	1
3	M2 Screw, 10mm long	3
4	Mechanical Limit Switch	2

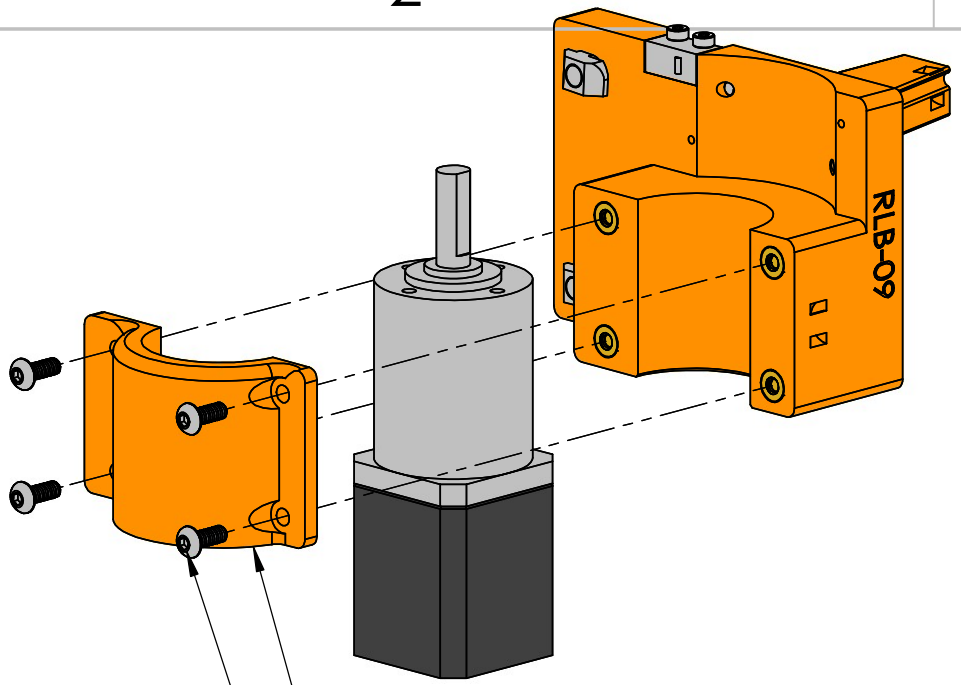
Limit Switch Installation

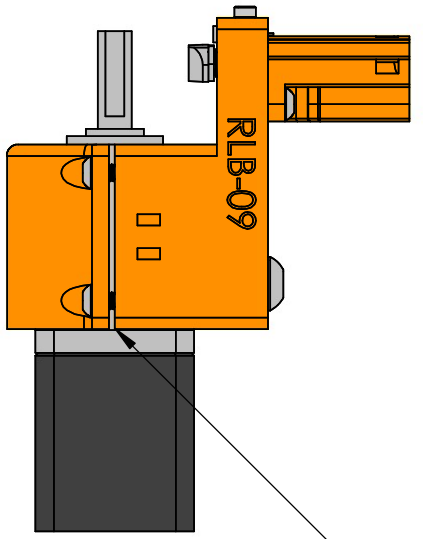
Created by: Joshua Vasquez

last edited: 5/27/2020

SCALE: 1:1

SHEET 9 OF 15





There will be a small gap here when fully tightened.

The motor clip only attaches one way.

Evenly tighten these screw such that:

1. you cannot twist the motor relative to the plate by hand
2. the gap between the plates is approximately even on all four sides

ITEM NO.	DESCRIPTION	
1	Nema 11 Planetary Stepper,13.76:1, 1A	1
3	Lock Actuator Motor Clip	1
4	M3 Buttonhead Screw, 8mm long	4

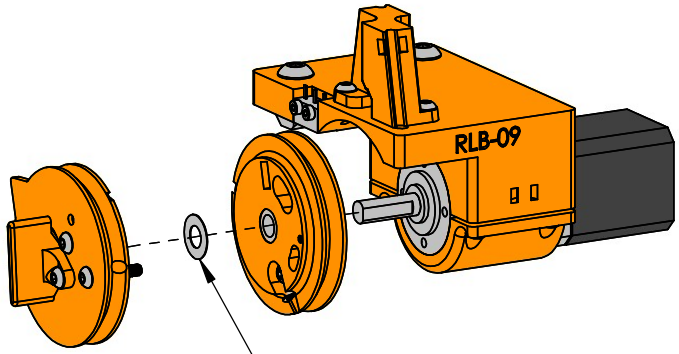
Motor Installation

Created by: Joshua Vasquez

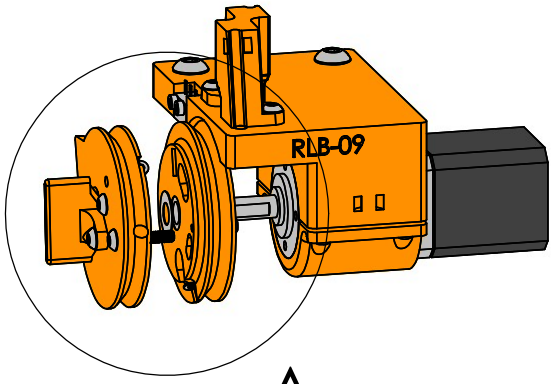
last edited: 5/27/2020

SCALE: 3:4

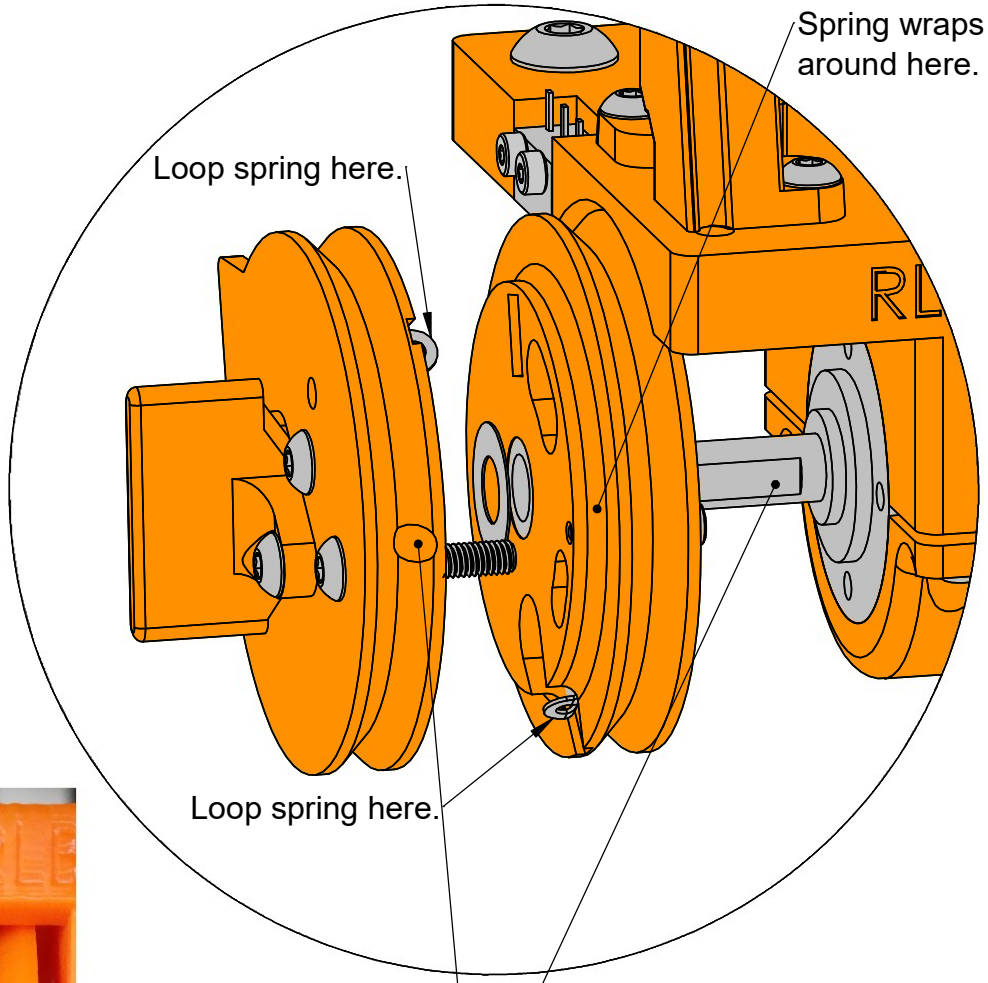
SHEET 10 OF 15



Don't forget the shim!



A



This hole needs to line up with the flat part of the shaft. When you have confirmed this, compress both pulleys by hand while fully tightening the set screw.

ITEM NO.	DESCRIPTION	QTY
1	Fixed Half Pulley Assembly	1
2	Floating Half Pulley Assembly	1
3	M6 Shim, 0.2mm thick	1
4	REL Extension Spring	1

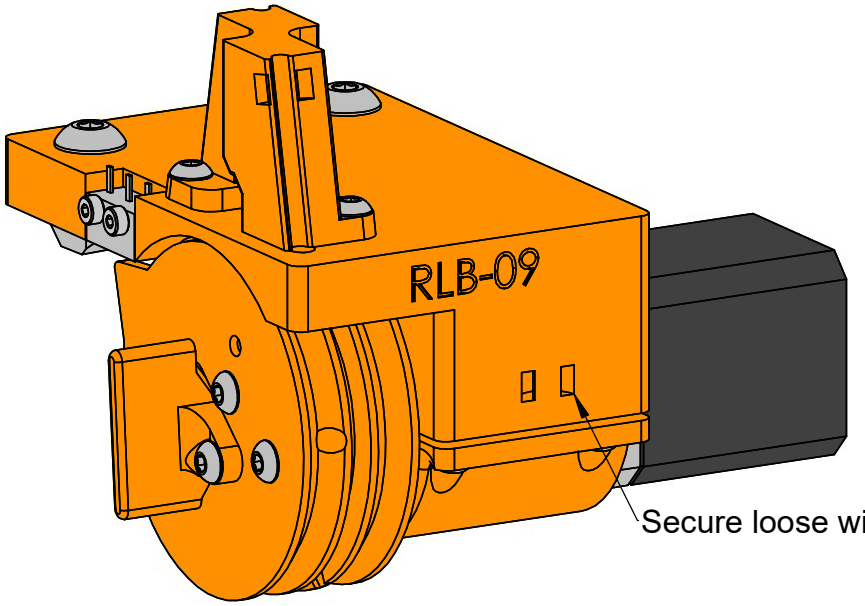
Pulley and Spring Assembly

Created by: Joshua Vasquez

last edited: 5/27/2020

SCALE: 1:2

SHEET 11 OF 15



Cable Management

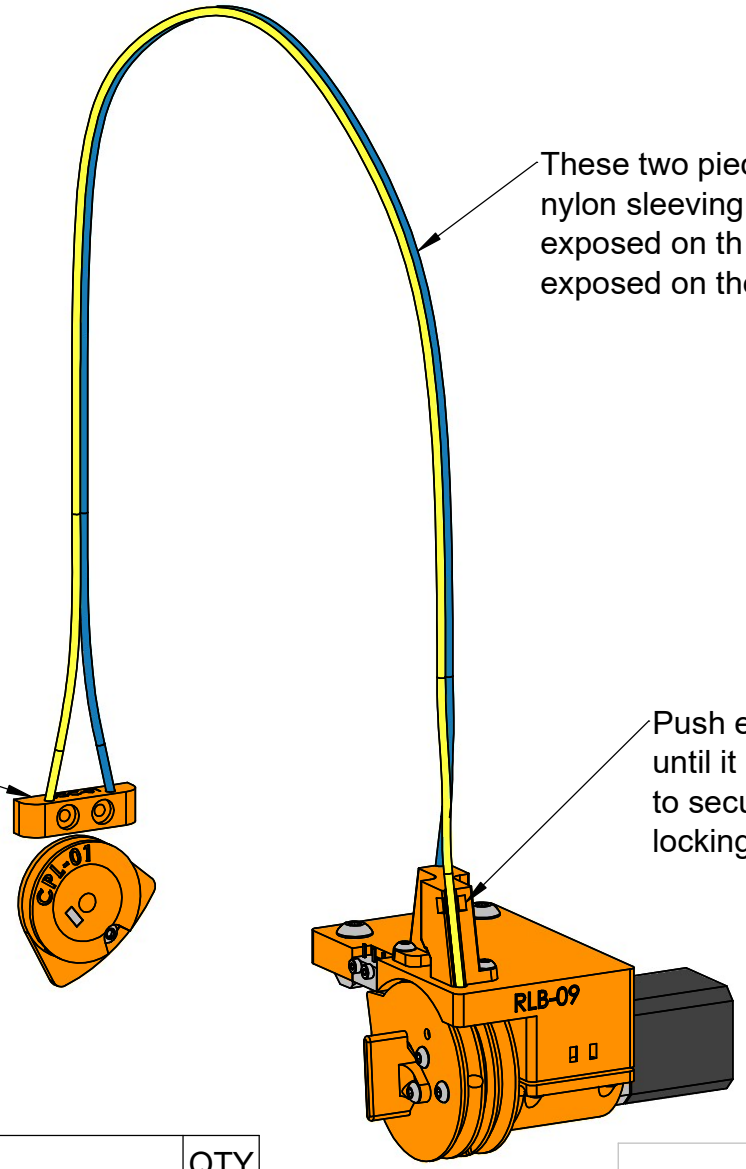
Created by: Joshua Vasquez

last edited: 5/27/2020

SCALE: 1:1

Note: this is just a schematic representation. Join these parts loosely together on a flat table following the color coding.

Note: tape the spring guide to the table for ease of assembly.



ITEM NO	DESCRIPTION	QTY
1	1600 mm wire rope	1
2	Carriage Pulley Assembly	1
3	Spring Guide, 600mm long	2
4	Optonal: Braided Cable Sleeving 350mm long	1

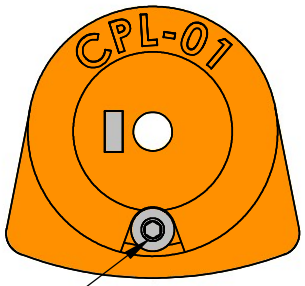
Spring Guide Installation

Created by: Joshua Vasquez

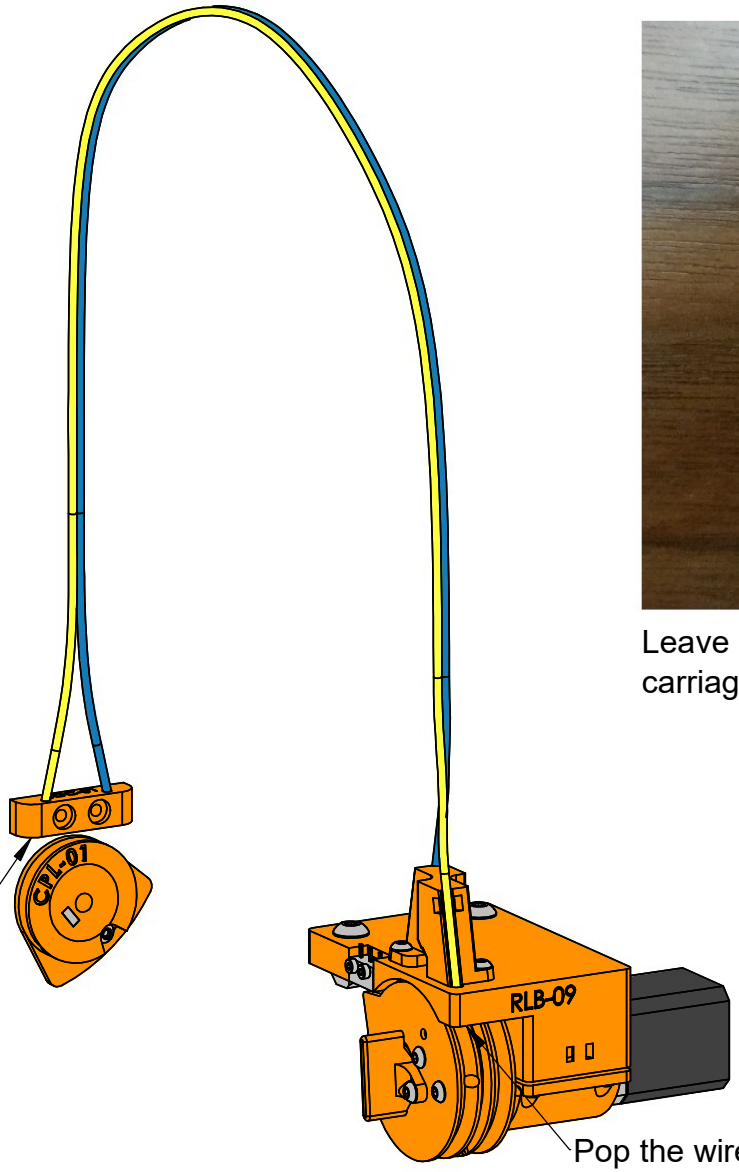
last edited: 5/27/2020

SCALE: 1:2

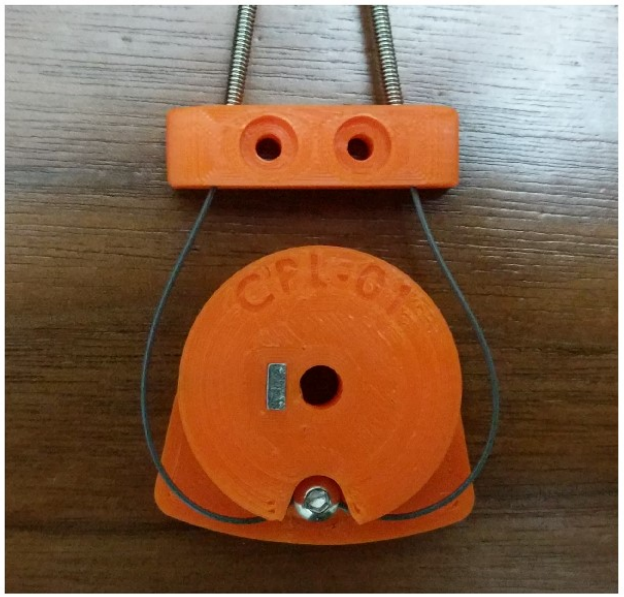
SHEET 13 OF 15



Loop the wire rope behind this screw at the halfway point and fully tighten the screw.



Tuck each loop of the wire rope into the closest hole.

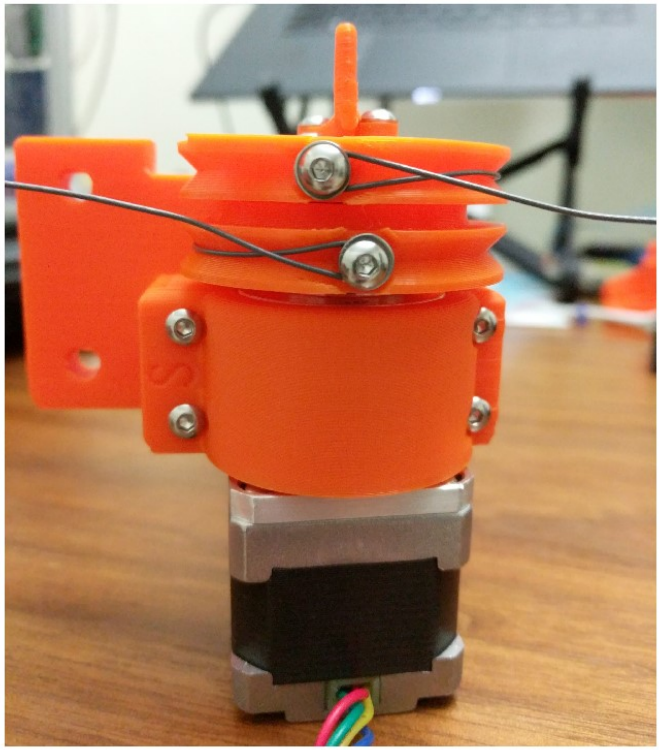


Leave some slack on both sides of the carriage for the next step.

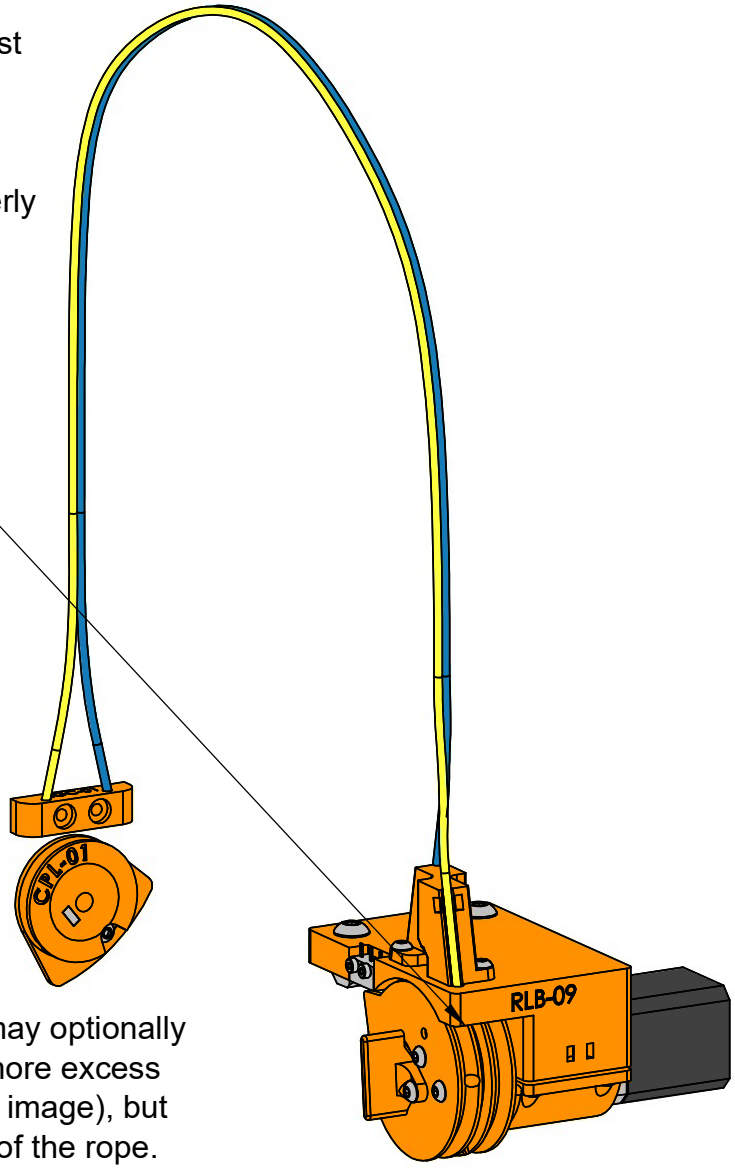
Pop the wires out of each exit hole here.
See the next page for cinching detals.

ITEM NO	DESCRIPTION	QTY
1	1600 mm wire rope	1
2	Carriage Pulley Assembly	1
3	Spring Guide, 600mm long	2

Wire Rope Routing		
	Created by: Joshua Vasquez	last edited: 5/27/2020
	SCALE: 1:2	SHEET 14 OF 15



Cinch both wire rope ends down very lightly (upper left image), just enough such that the wire rope cannot pop out. The location of where they are cinched doesn't matter now as they will be properly located later.



Once the wires are cinched, you may optionally take in the slack until there is no more excess wire rope on the carriage side (left image), but do not put tension into either side of the rope. This setup makes it easier to install on the machiner later.

Wire Rope Termination		
	Created by: Joshua Vasquez	last edited: 5/27/2020
	SCALE: 1:2	SHEET 15 OF 15