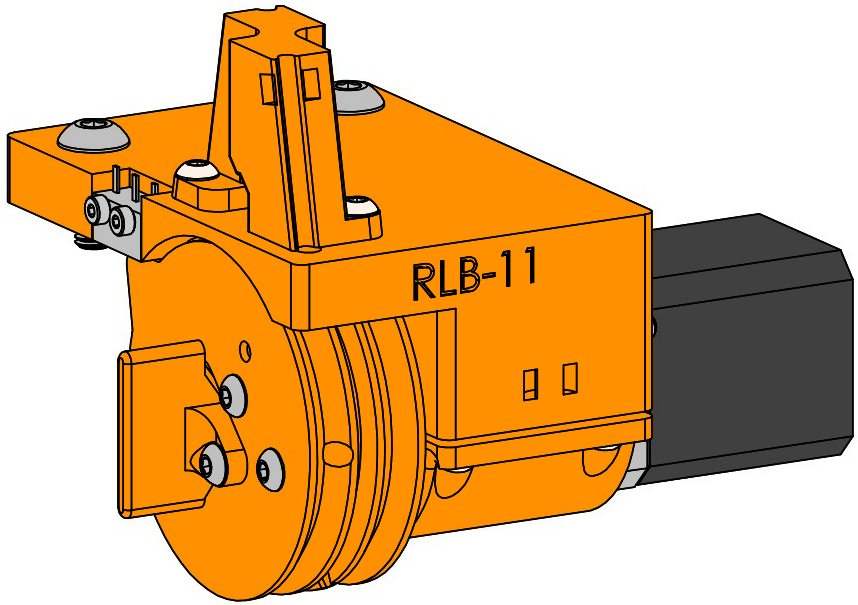

Remote Elastic Lock Assembly

CC BY

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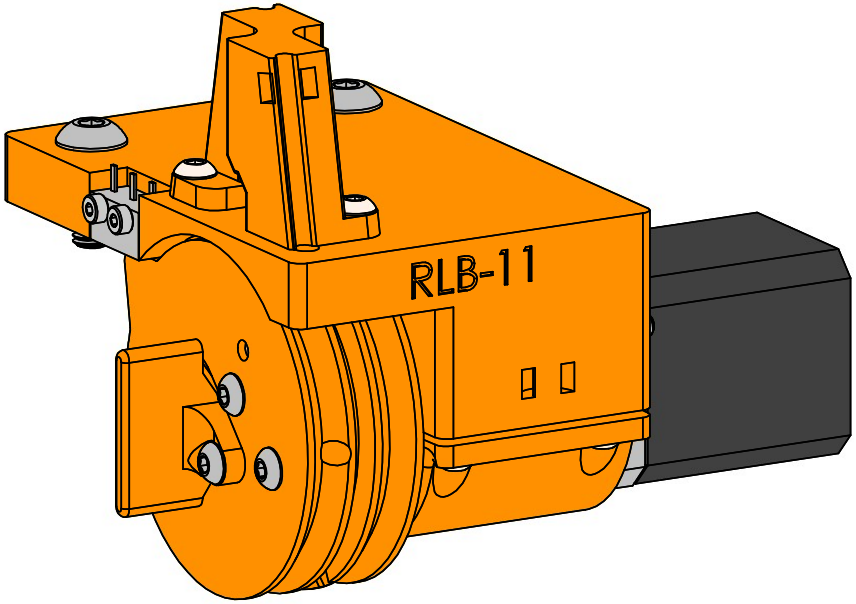
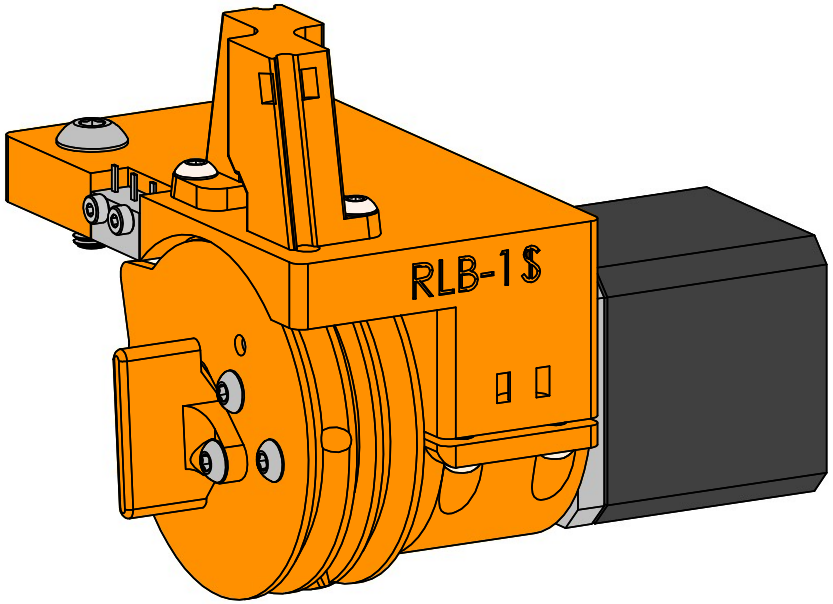
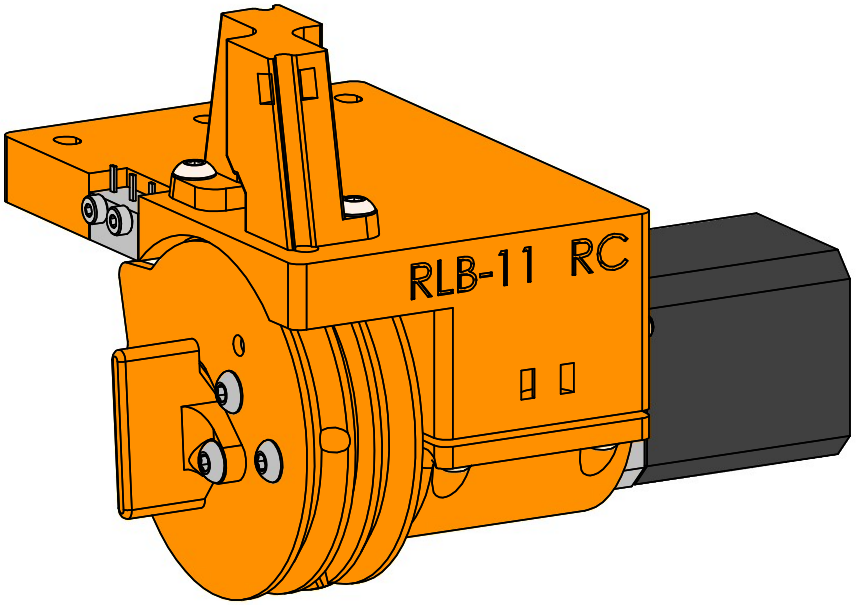
Joshua Vasquez	3/19/2022
SCALE: 1:1	SHEET 1 OF 17







Note: There are three variants of this subsystem.

- RLB-10 for Jubilee
  - use an LDO motor
- RLB-10S for Jubilee
  - uses a StepperOnline motor
- RLB-09RC for the Railcore
  - uses an LDO motor

Each variant has a unique base plate. RLB-10S uses a unique base plate and motor clip. Make sure you've printed the parts that correspond to your motor.

Variants		
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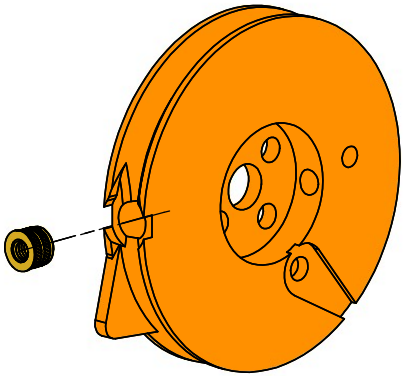
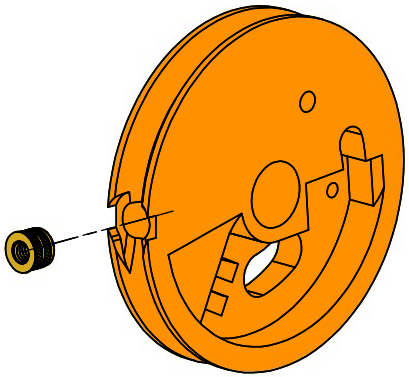
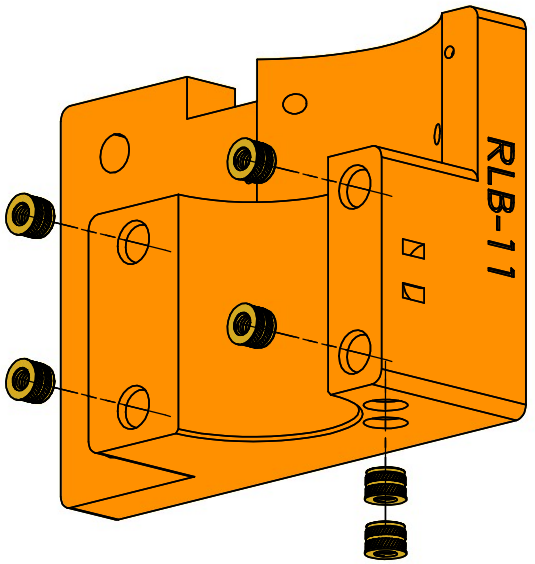
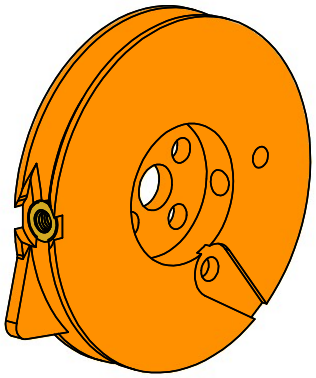
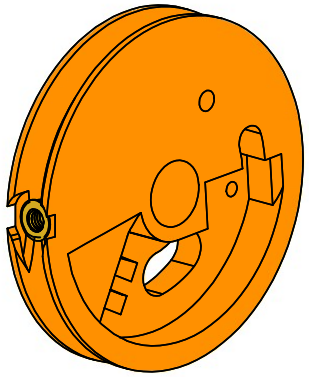
	SCALE: 1:1	SHEET 2 OF 17

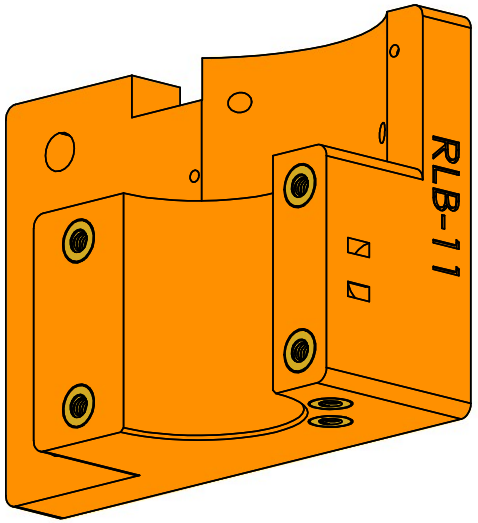












Parts with Inserts

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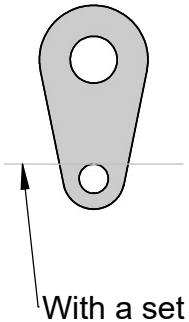
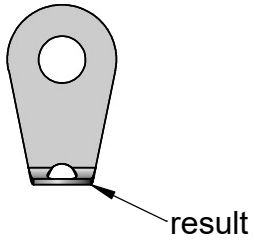
SCALE: 1:1





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

ITEM NO.	DESCRIPTION	QTY.
1	M3 Solder Terminal Lug	2

Part Prep		
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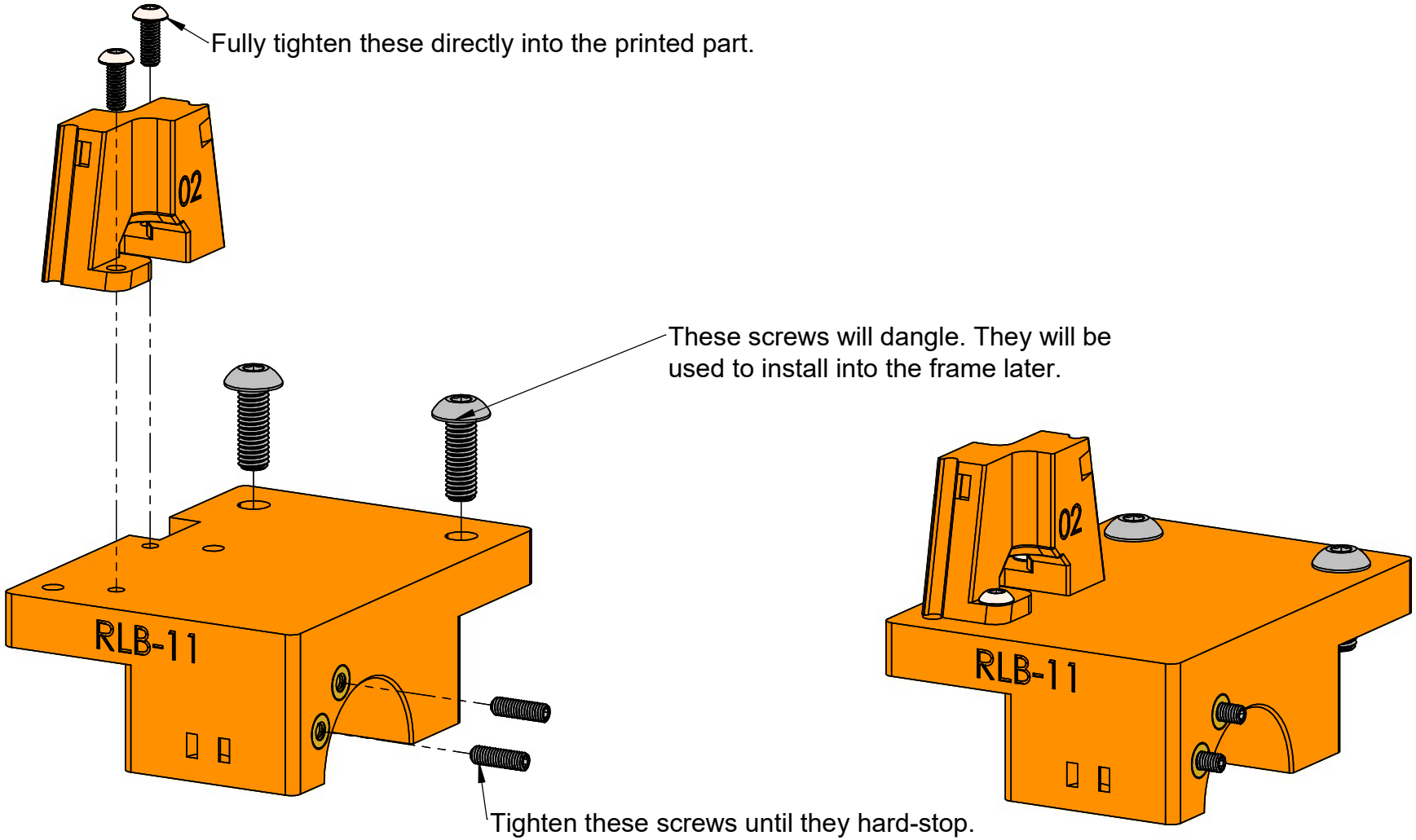
	SCALE: 2:1	SHEET 4 OF 17



Exploded View

Assembled View

ITEM NO.	DESCRIPTION	QTY.
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	M3 Set Screw, 10mm long	2

Base Plate Assembly

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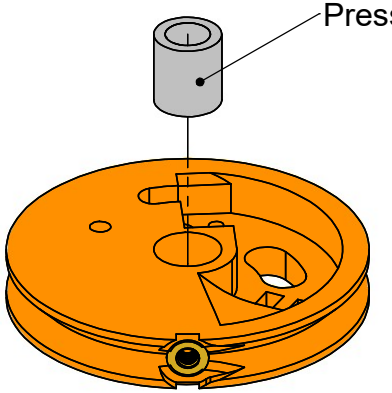
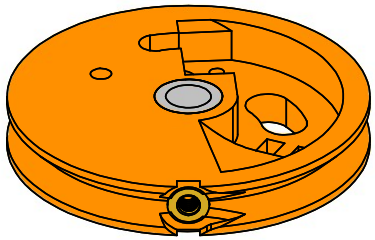
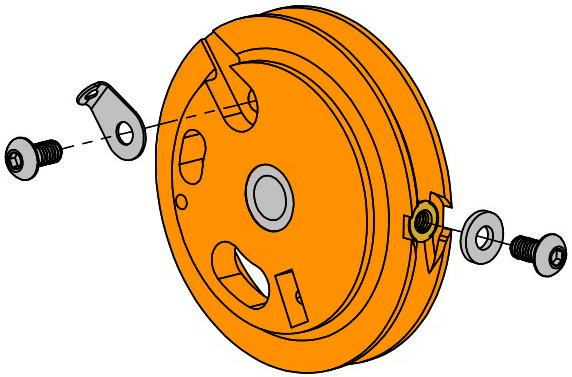
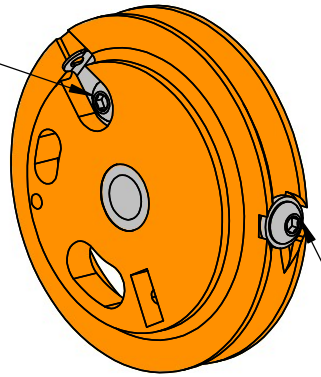
last edited: 3/19/2022

SCALE: 1:1









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

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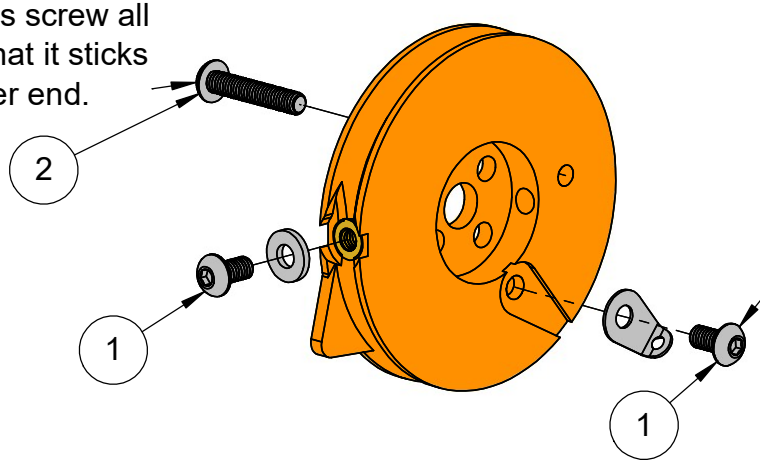
last edited: 3/19/2022

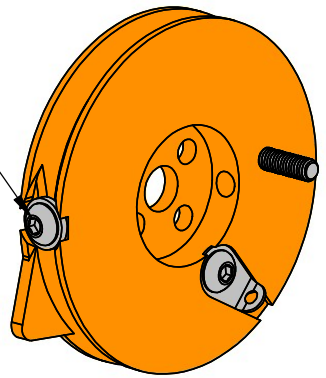
SCALE: 1:1

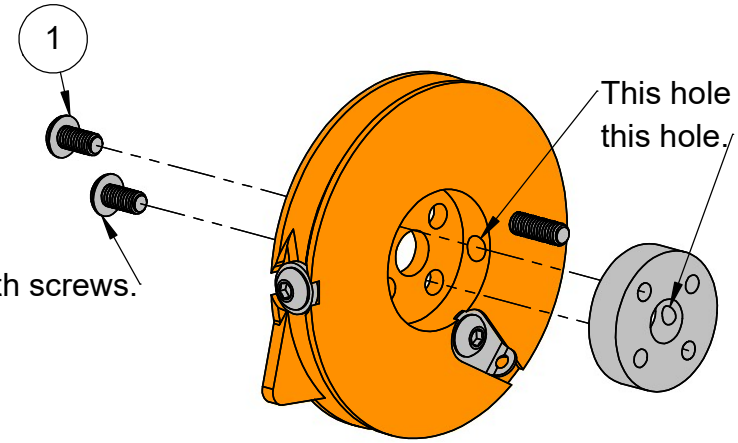
Fully tighten this screw all the way such that it sticks out on tthe other end.



This screw can stay loose.

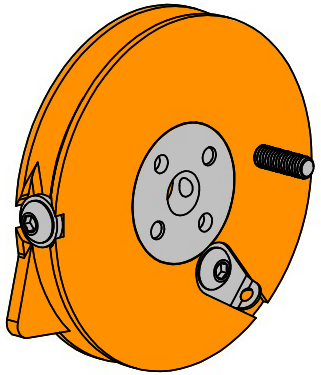
Fully tighen this screw.





This hole should line up with this hole.

Fully tighten both screws.



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

Fixed Half Pulley Assembly

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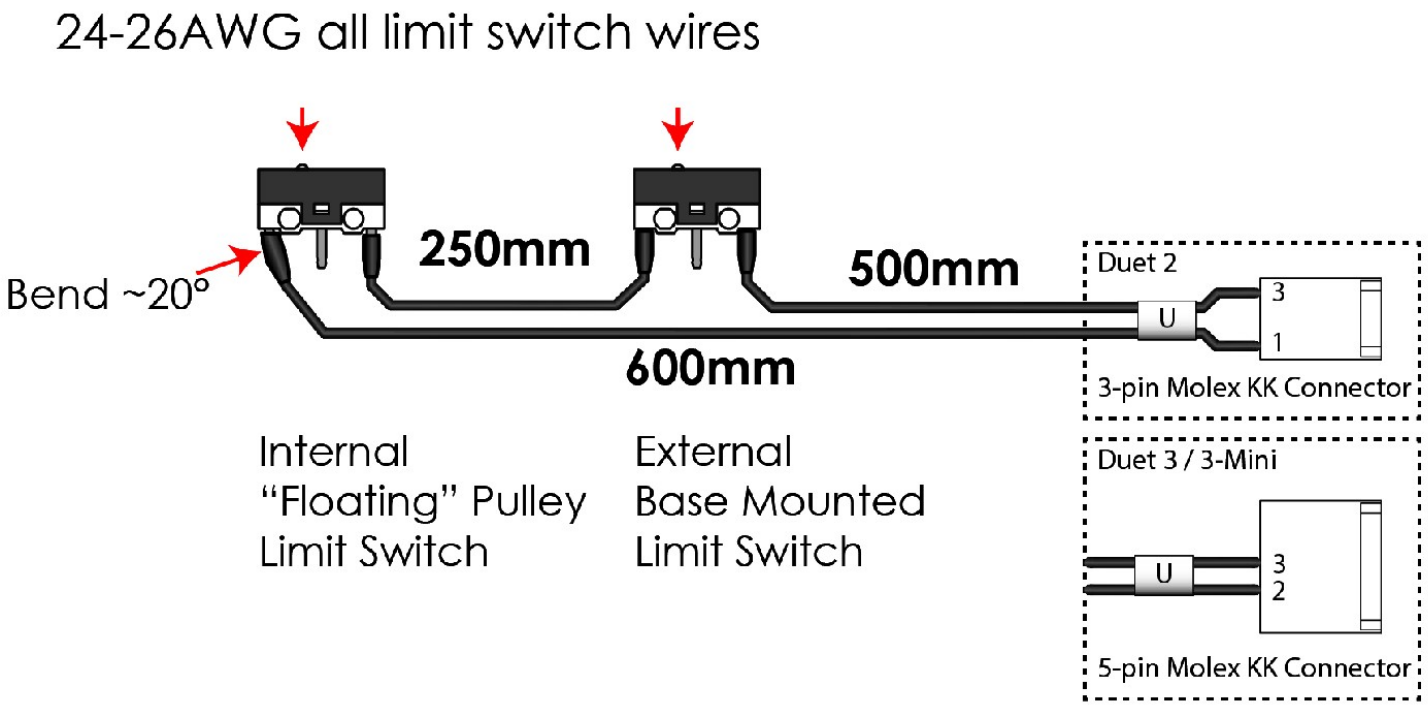
last edited: 3/19/2022

SCALE: 1:1

Solder together the folowing limit switch harness. Be sure to insulate the solder connections with heat-shrink tubing.

Note wire lengths with respect to switch buttons.
Note: KK Connectors are included with Duet hardware.



Wiring		
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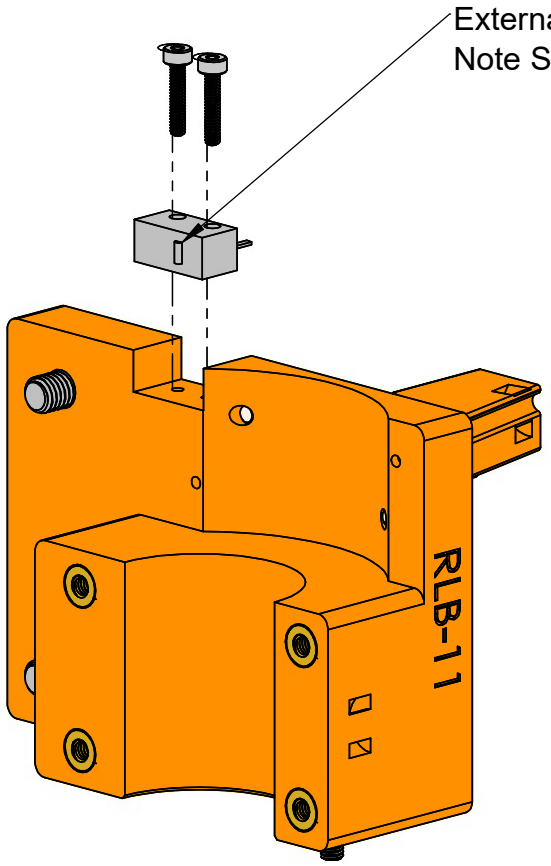
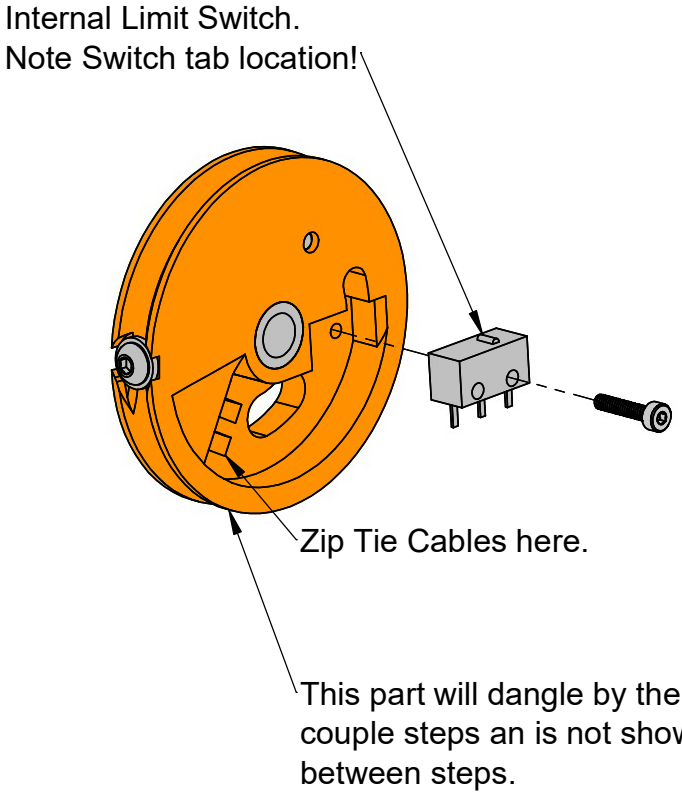
	SCALE: 1:1	SHEET 8 OF 17





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

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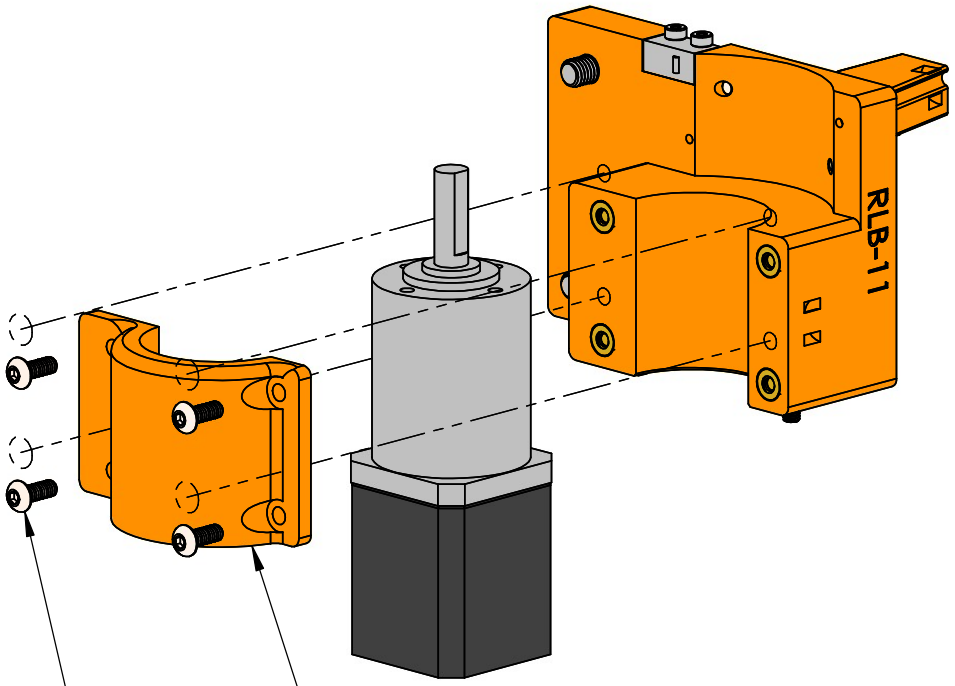
last edited: 3/19/2022

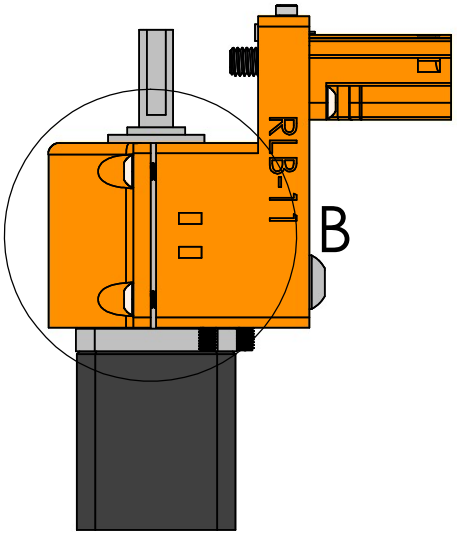
SCALE: 1:1

SHEET 9 OF 17

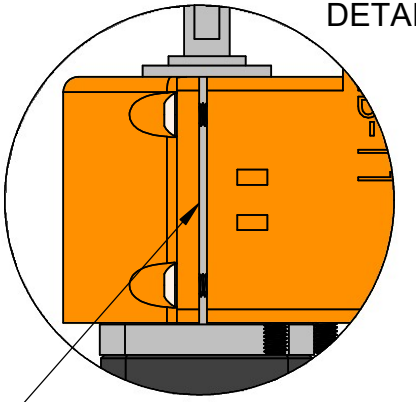


The motor clip only attaches one way.

Evenly tighten these screw such that:you cannot twist the motor relative to the plate by hand



DETAIL B



There will be a gap here on both sides. Ensure that it is even.

ITEM NO.	DESCRIPTION	
1	Planetary Stepper (varies)	1
3	Lock Actuator Motor Clip	1
4	M3 Buttonhead Screw, 8mm long	4

Motor Installation		
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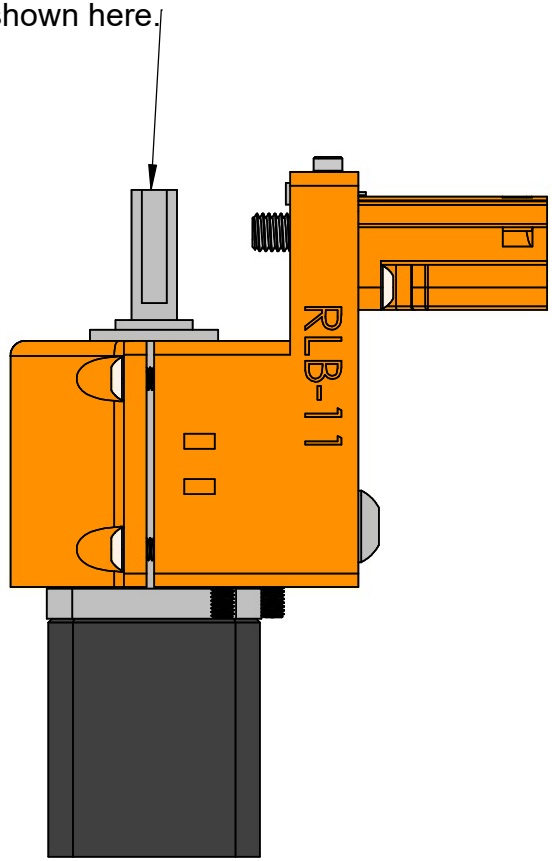
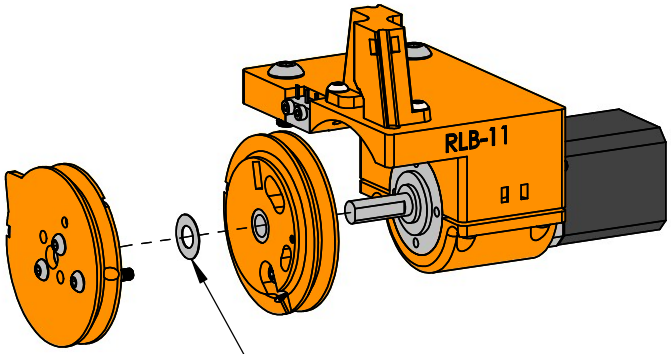
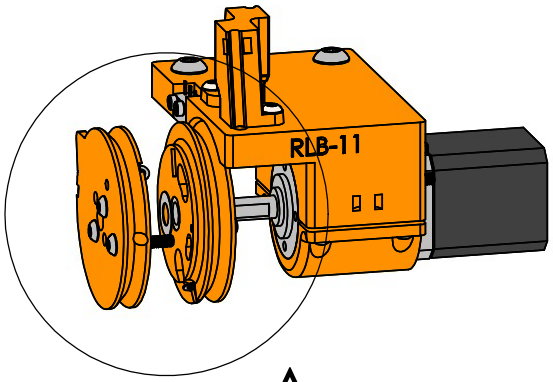
	SCALE: 3:4	SHEET 10 OF 17

By hand, turn the motor shaft such that the flat part faces the orientation with the part number as shown here.

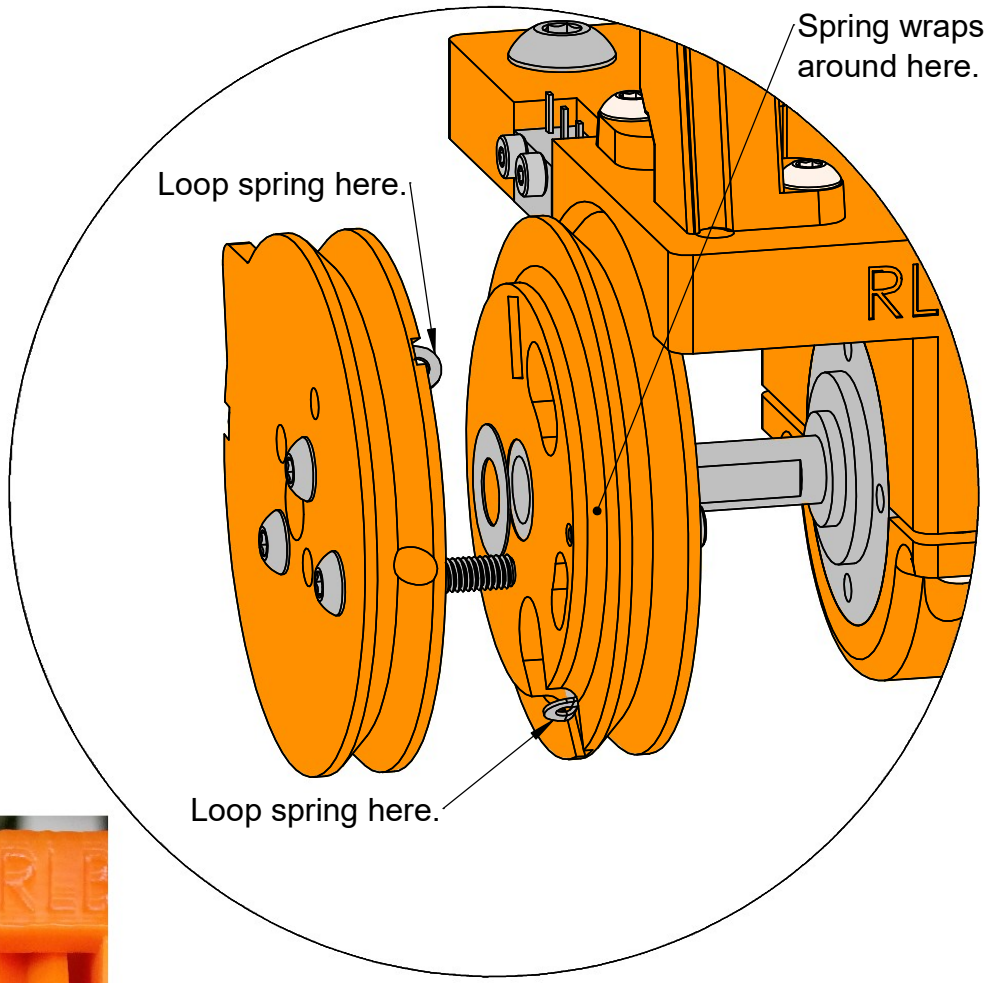


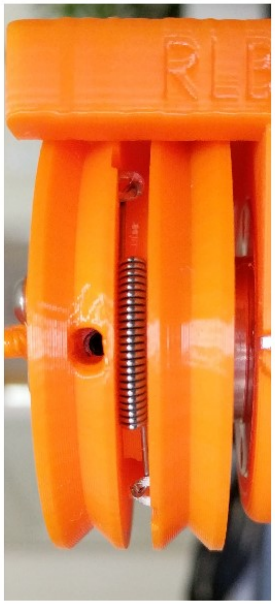
Shaft Alignment		
CC BY	Created by: Joshua Vasquez	last edited: 3/19/2022
	SCALE: 1:1	SHEET 11 OF 17





A





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
9	M3 Set Screw, 5mm long	1

Pulley and Spring Assembly

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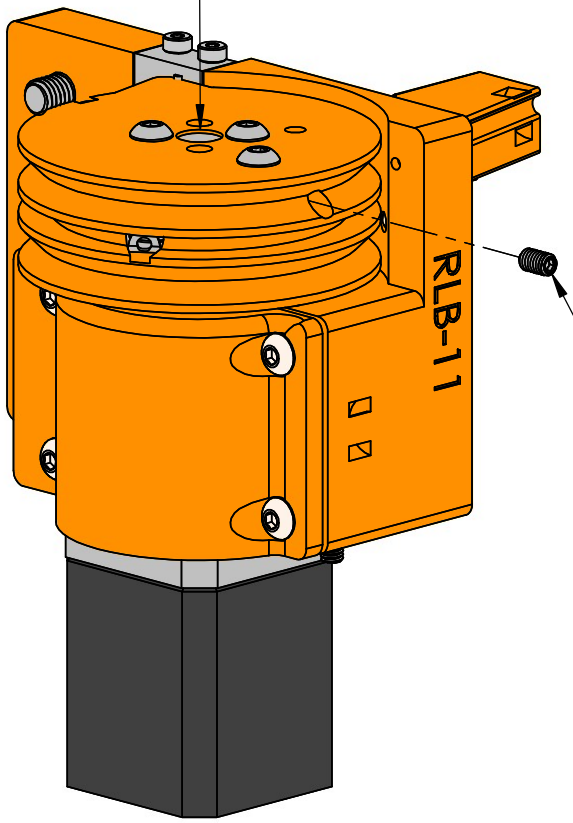
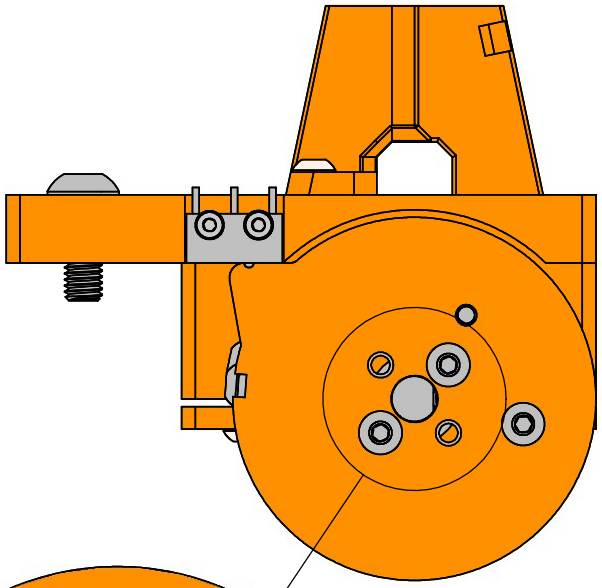
SCALE: 1:2

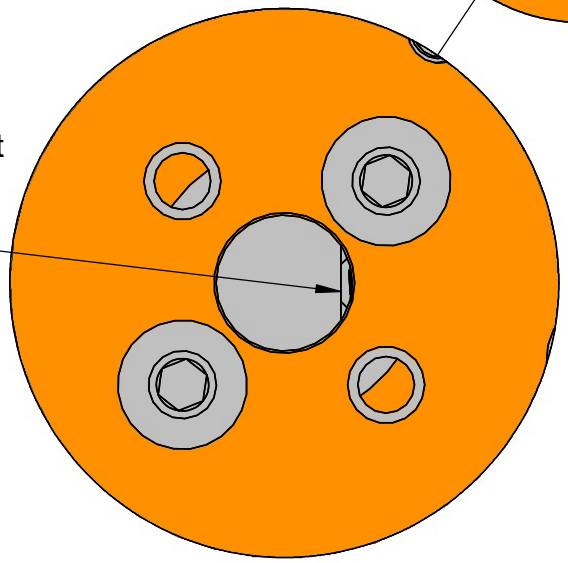
Push down on the fixed pulley while tightening the set screw.



Apply threadlock to the threads of this set screw; then fully tighten it into the flat part of the shaft.



After tightening, ensure that the set screw is actually fixed onto the flat part of the shaft.



DETAIL D

ITEM NO.	DESCRIPTION	QTY.
2	M3 Set Screw, 5mm long	1

Fixed Pulley Securing

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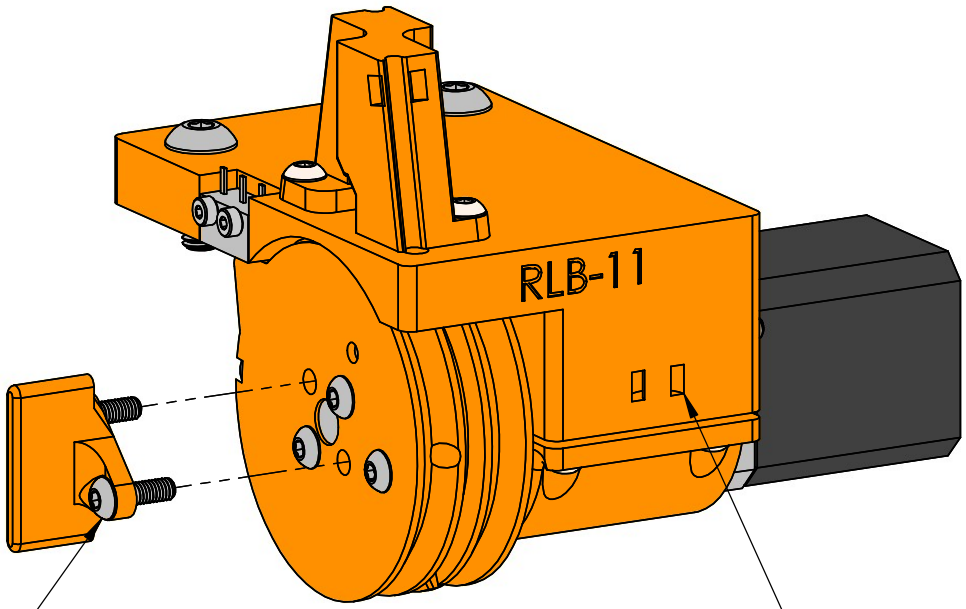
SCALE: 1:1

SHEET 13 OF 17



Fully tighten these screws.

Secure loose wires with a zip tire here.

ITEM NO.	DESCRIPTION	QTY.
1	REL Knob	1
2	M3 Buttonhead Screw, 10mm long	2

Knob and Cable Management

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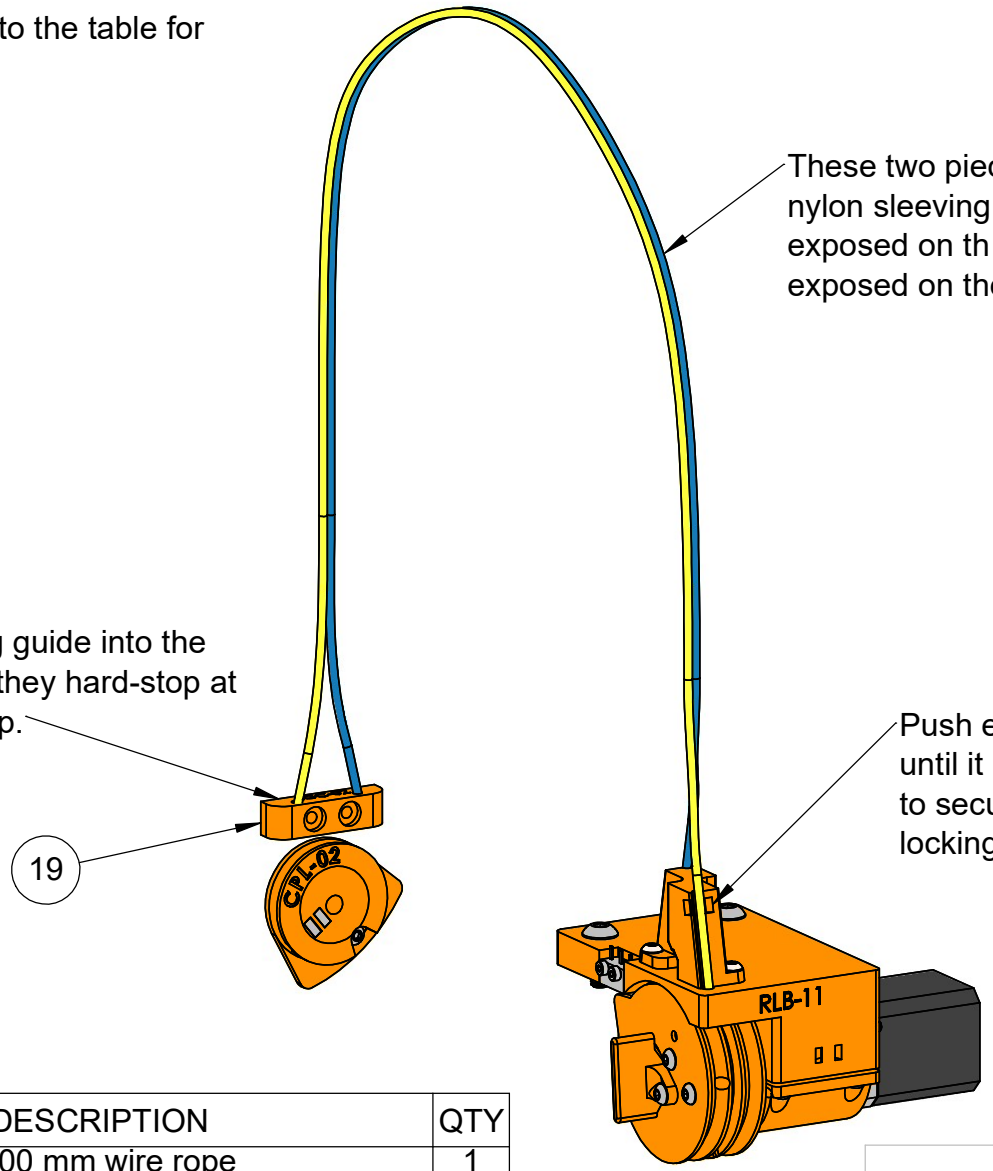
SCALE: 1:1

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
18	Spring Guide Capture (SGC)	1
5	Optonal: Braided Cable Sleeving 350mm long	1

Spring Guide Installation

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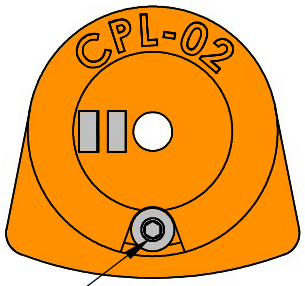
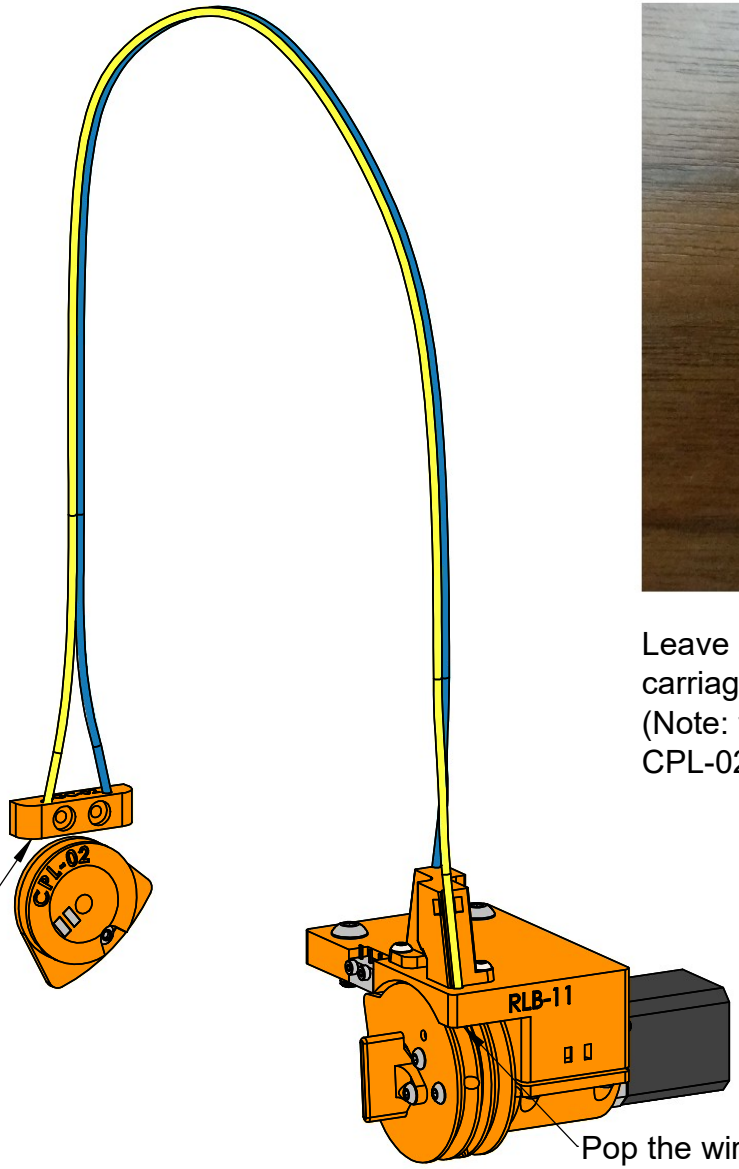
last edited: 3/19/2022

SCALE: 1:2

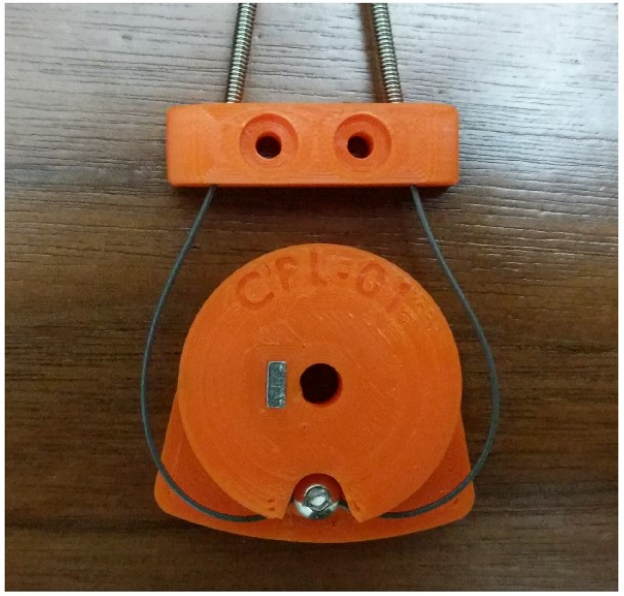
SHEET 15 OF 17



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.
(Note: the latest version of this part is CPL-02.)

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

Wire Rope Routing

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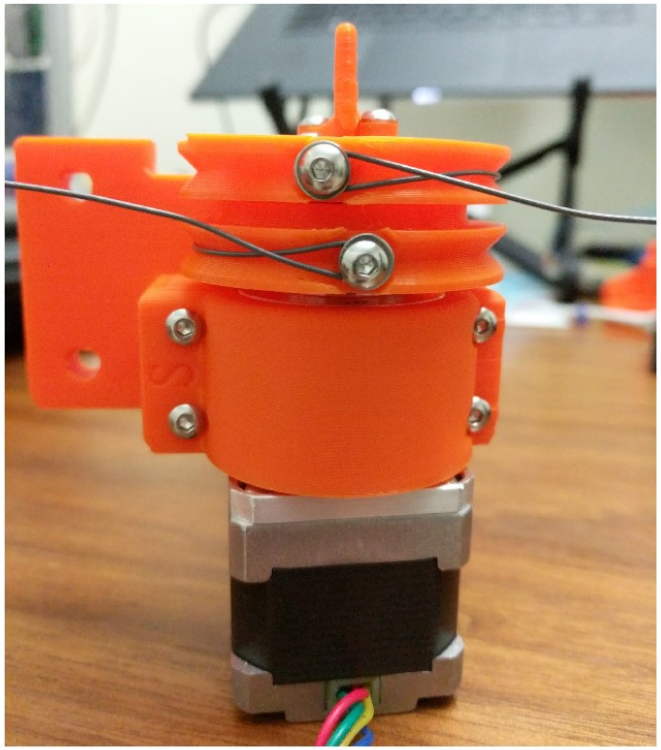
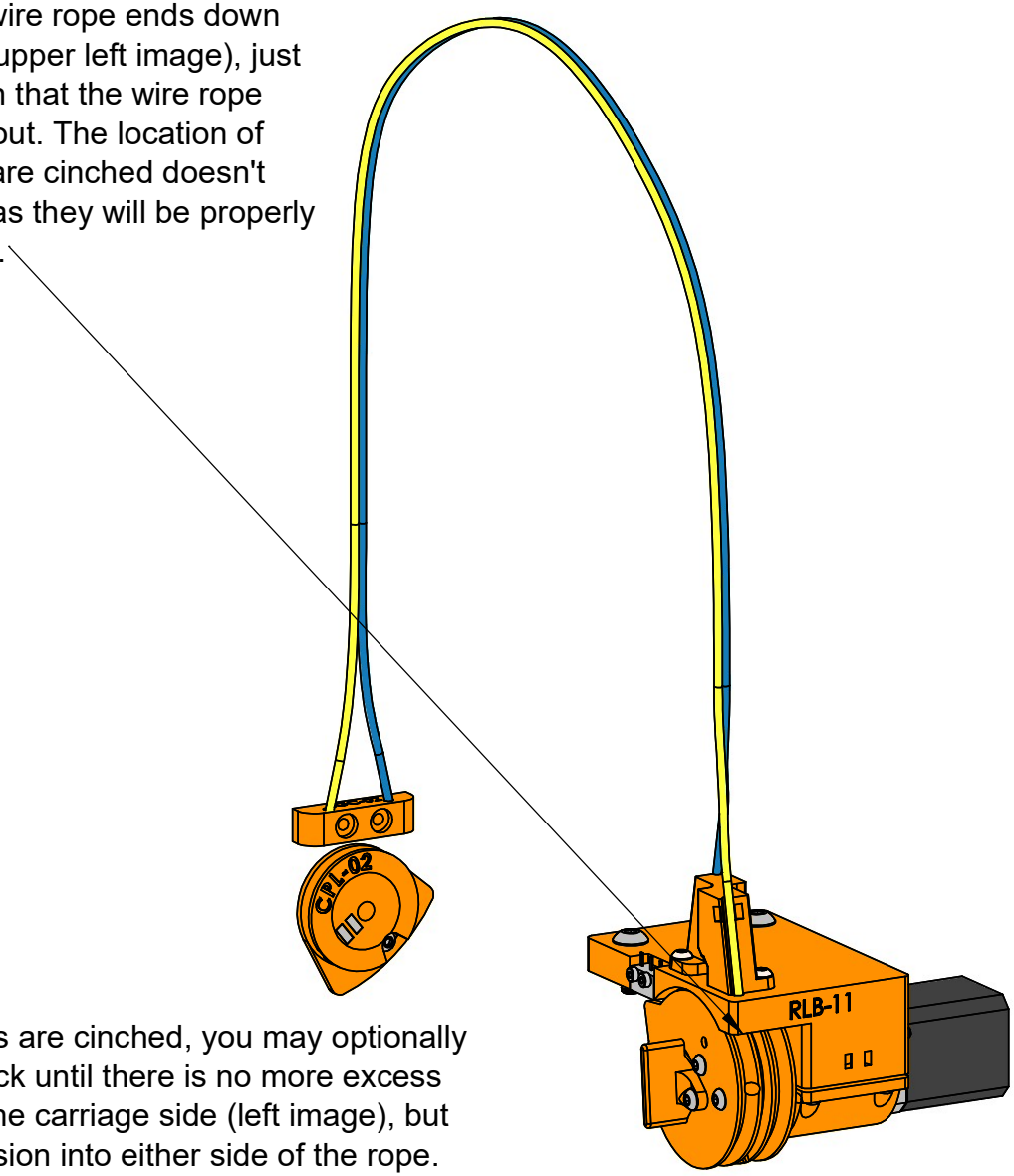
last edited: 3/19/2022

SCALE: 1:2



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 machine later.

(Note: The latest version of this part is CPL-02.)

Wire Rope Termination

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SCALE: 1:2	SHEET 17 OF 17