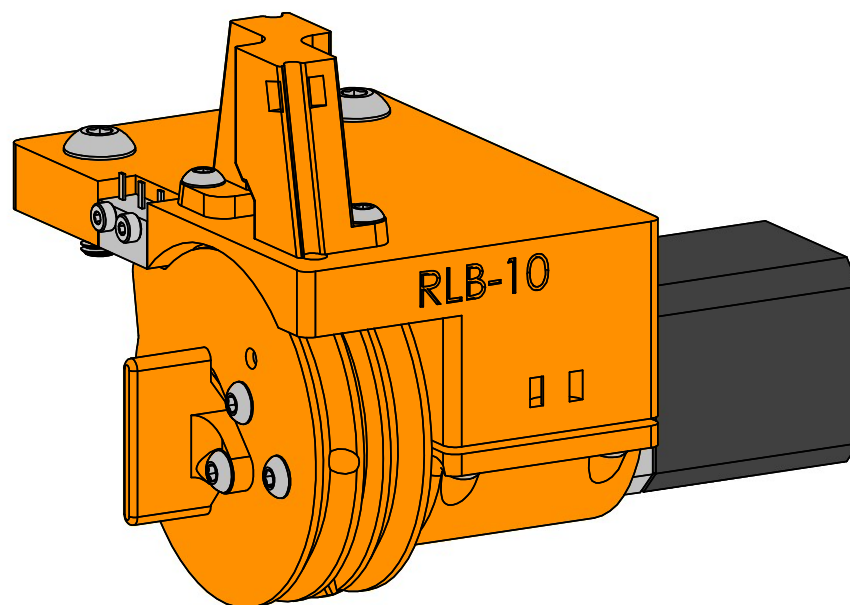


2

1

B

B



A

A

2

1

Remote Elastic Lock Assembly



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Joshua Vasquez

last edited:
3/14/2021

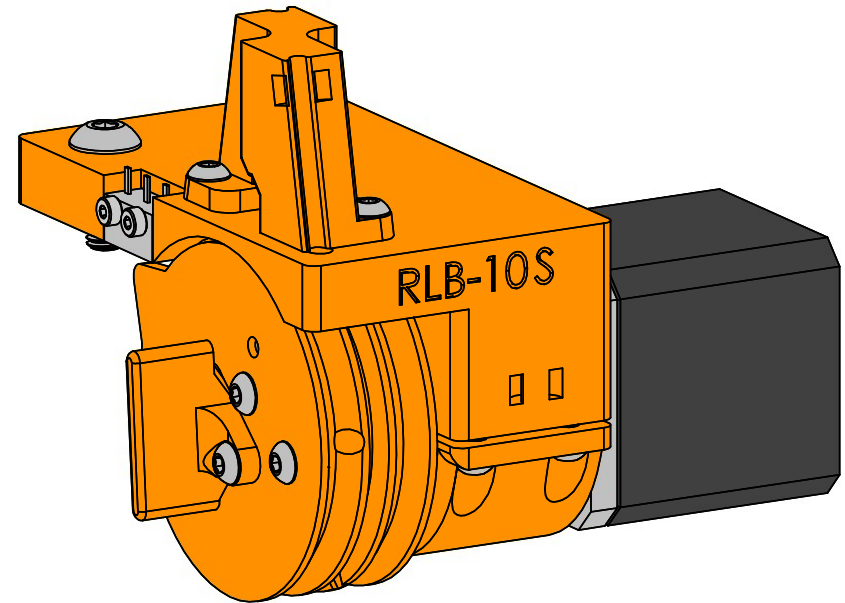
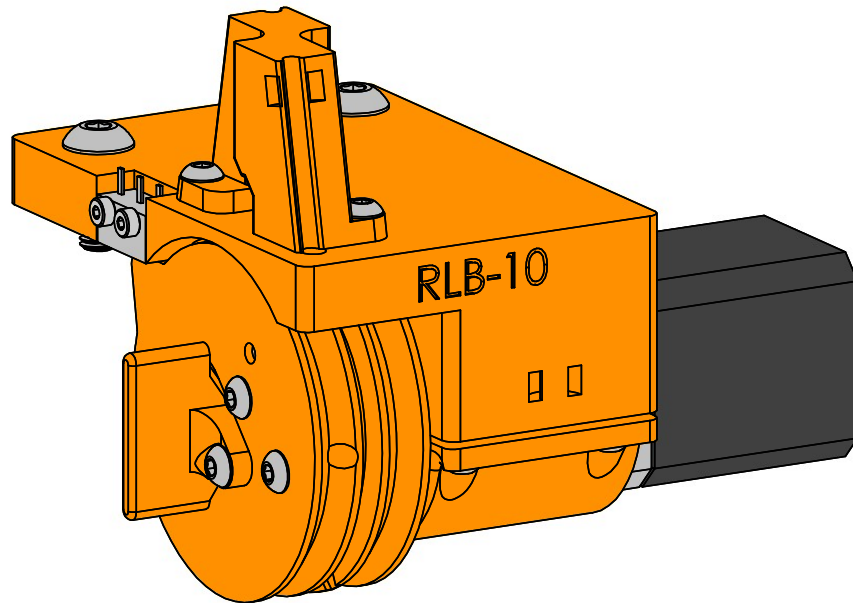
SCALE: 1:1

SHEET 1 OF 17

2

1

B



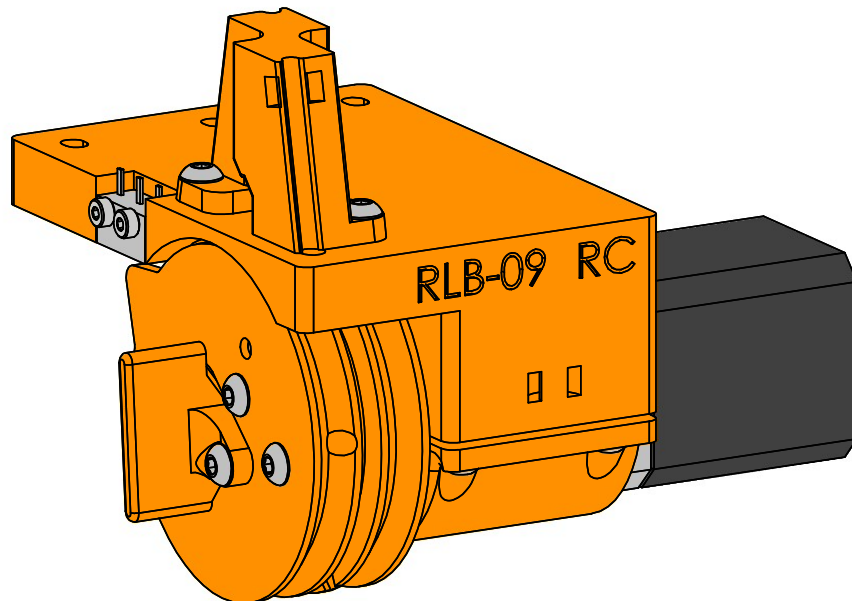
B

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.

A



A

2

1

Variants



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Joshua Vasquez

last edited:
3/14/2021

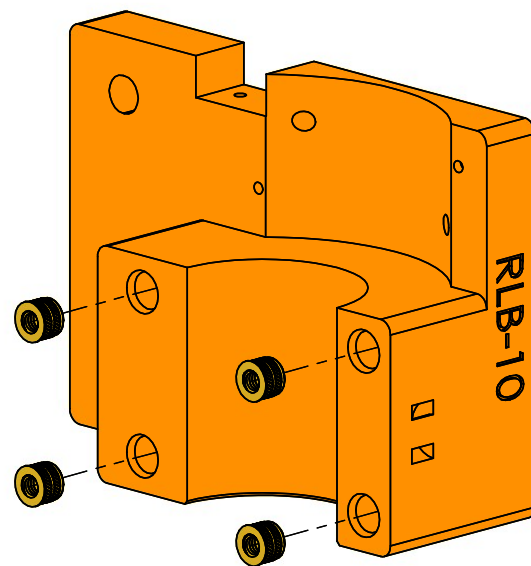
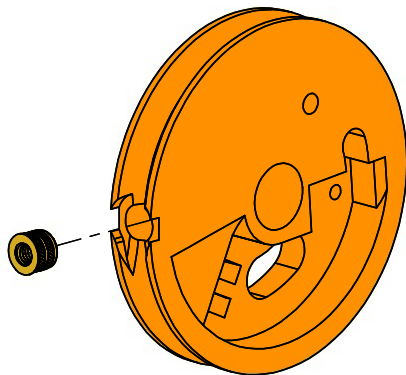
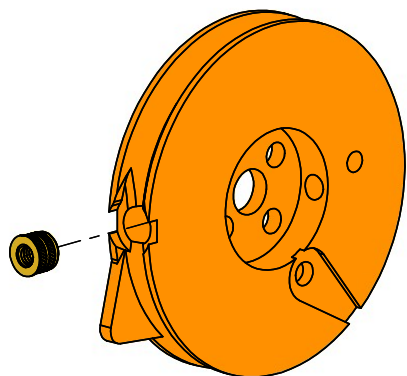
SCALE: 1:1

SHEET 2 OF 17

2

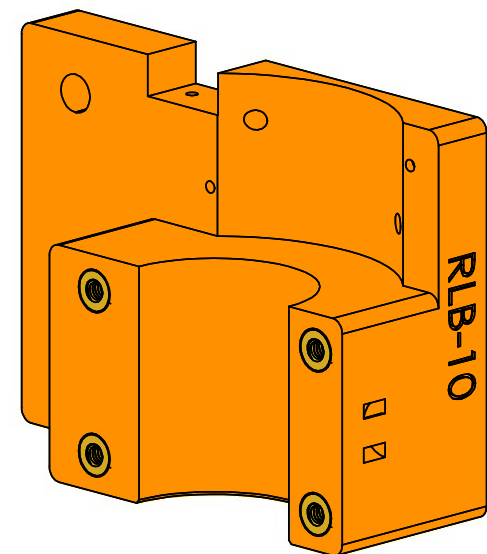
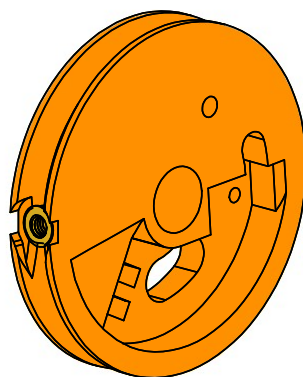
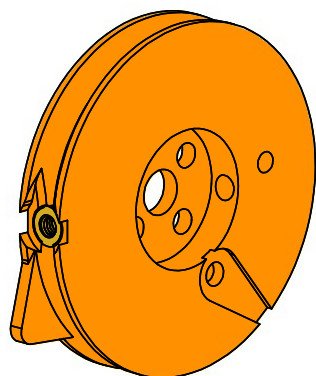
1

B



B

A



A

Parts with Inserts

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Joshua Vasquezlast edited:
3/14/2021

SCALE: 1:1

SHEET 3 OF 17

2

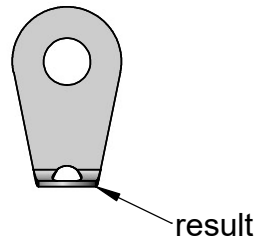
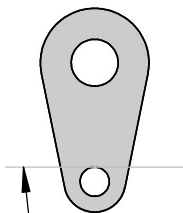
1

2

1

B

B




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

A

A

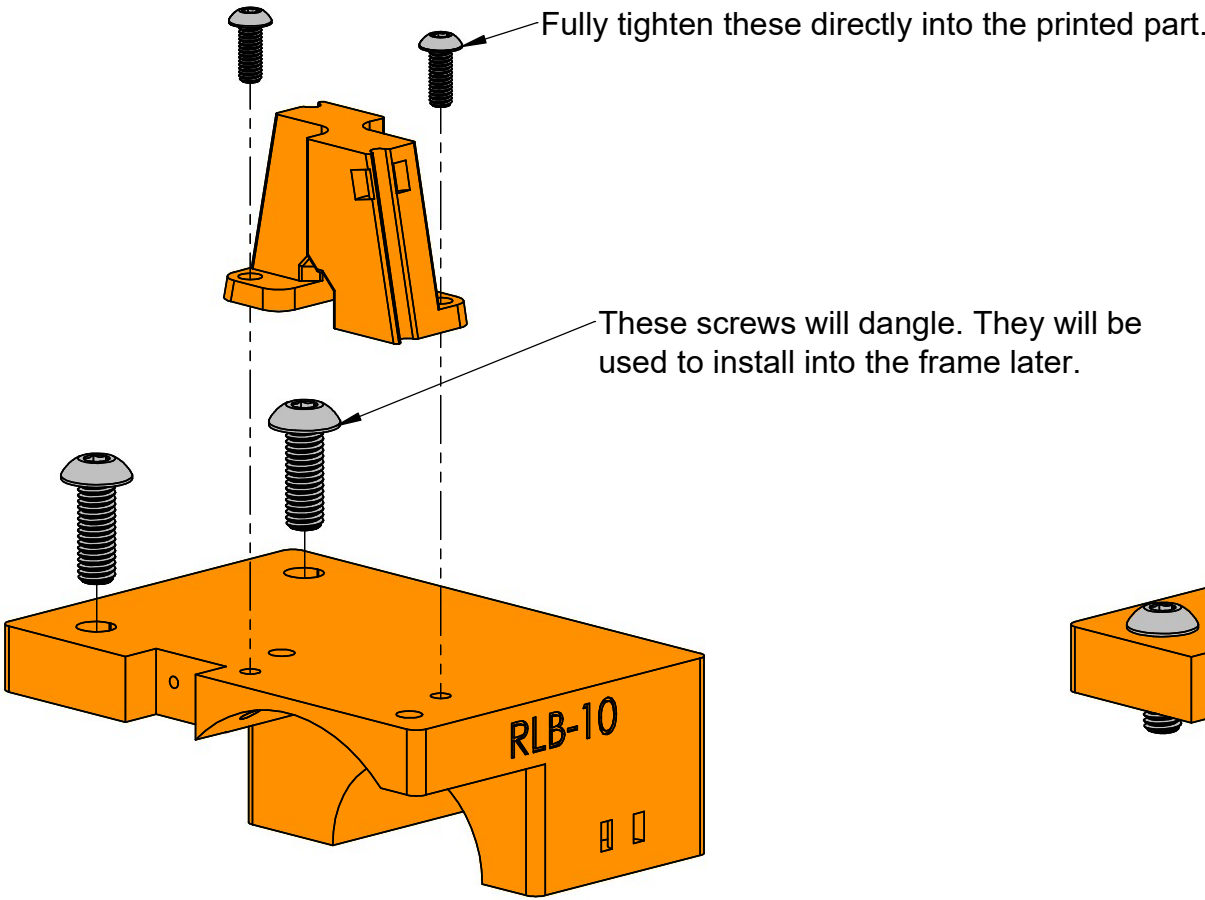
ITEM NO.	DESCRIPTION	QTY.
1	M3 Solder Terminal Lug	2

Part Prep		
	Created by: Joshua Vasquez	last edited: 3/14/2021
	SCALE: 2:1	SHEET 4 OF 17

2

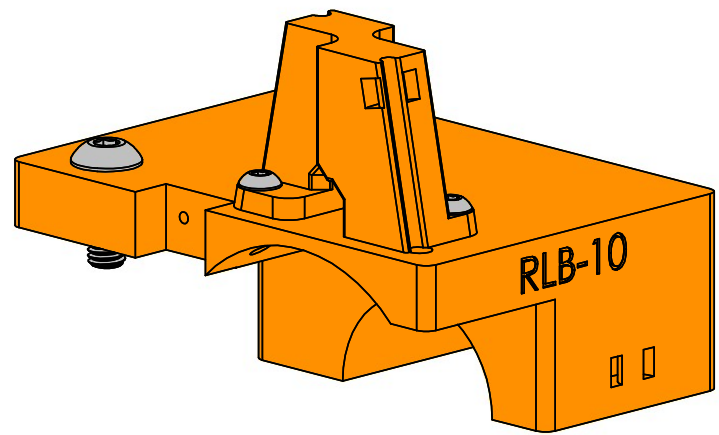
1

B



Exploded View

B



Assembled View

A

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

A

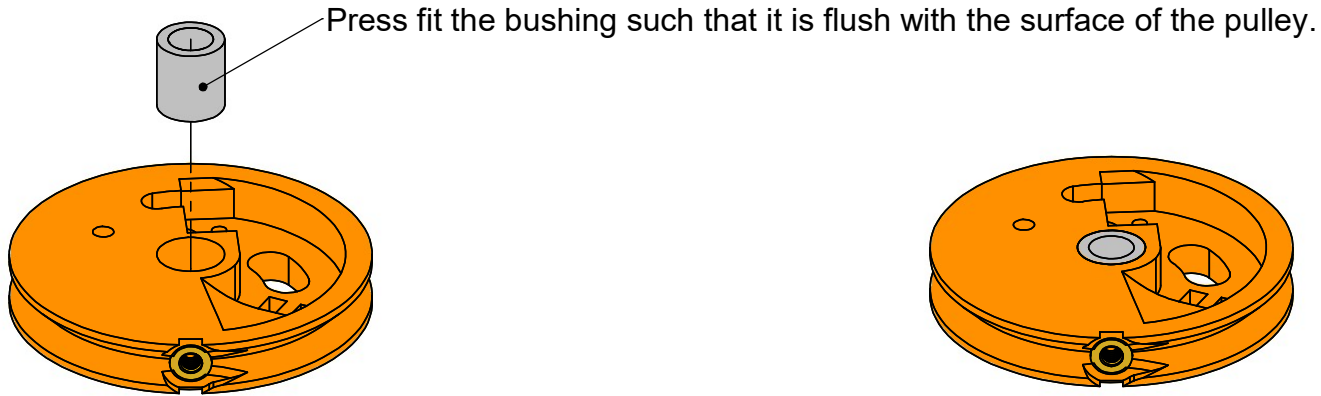
Base Plate Assembly		
	Created by: Joshua Vasquez	last edited: 3/14/2021
	SCALE: 1:1	SHEET 5 OF 17

B

B

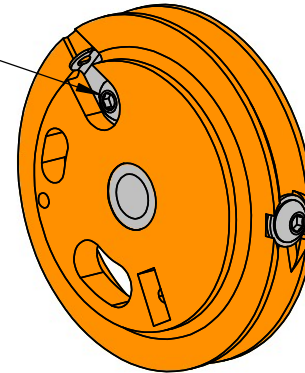
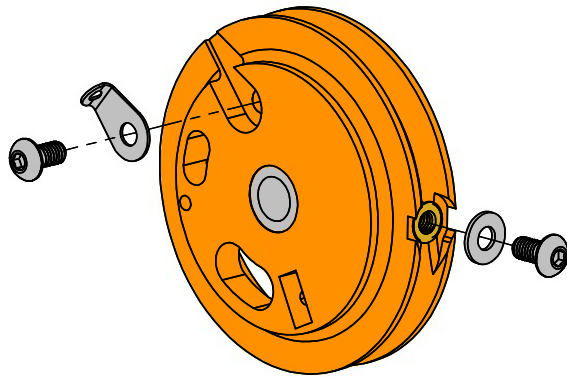
2

1



Fully tighten this screw.

This screw can stay loose.



A

A

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:
3/14/2021

SCALE: 1:1

SHEET 6 OF 17

2

1

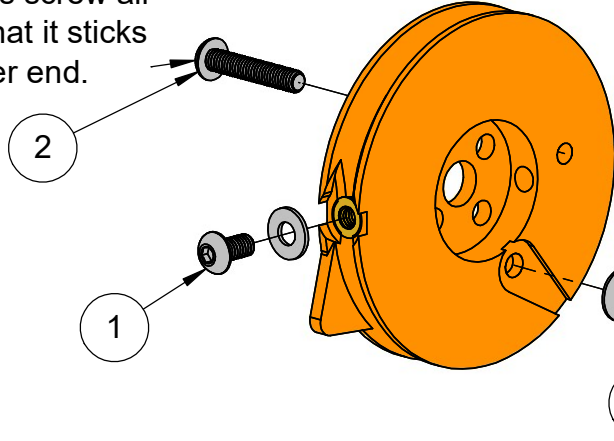
B

A

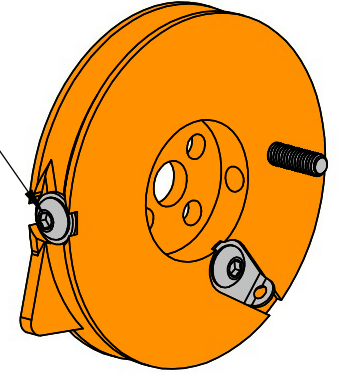
B

A

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

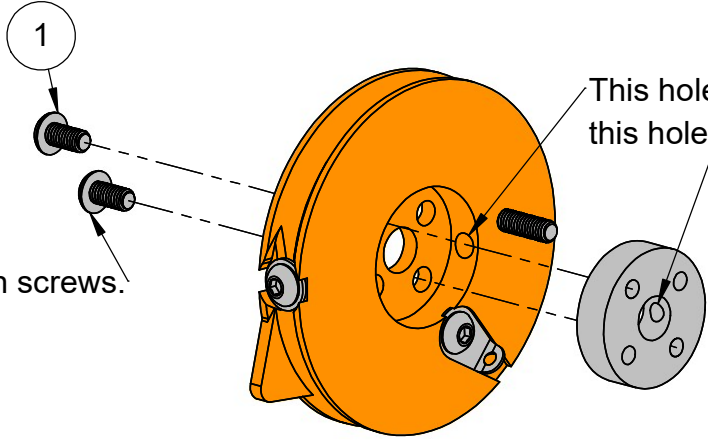


This screw can stay loose.

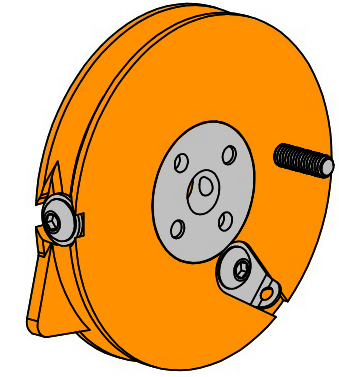


Fully tighten this screw.

Fully tighten both screws.



This hole should line up with this hole.



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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SCALE: 1:1

SHEET 7 OF 17

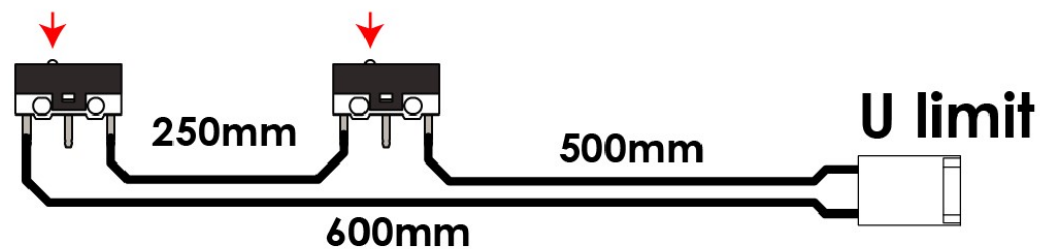
2

1

Solder together the following 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.

24-26AWG all limit switch wires



Internal
"Floating" Pulley
Limit Switch

External
Base Mounted
Limit Switch

Wiring



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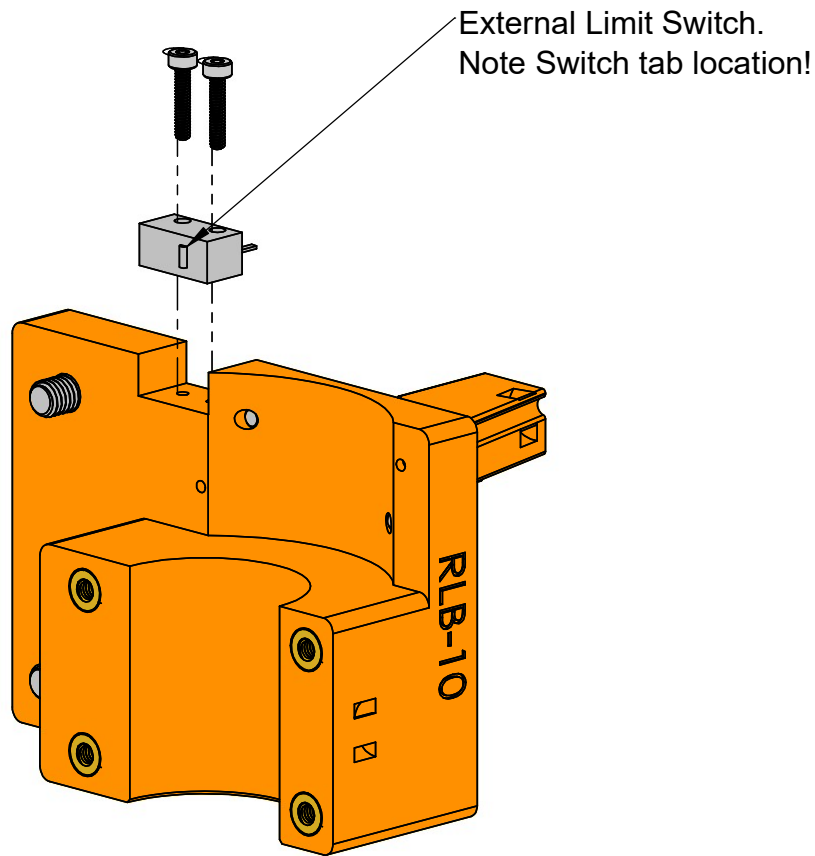
last edited:
3/14/2021

SCALE: 1:1

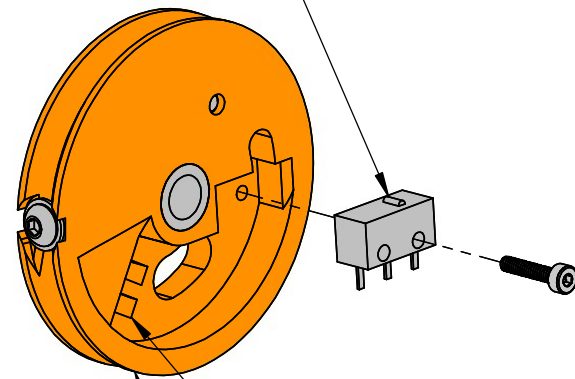
SHEET 8 OF 17

2

1



Internal Limit Switch.
Note Switch tab location!



Zip Tie Cables here.

This part will dangle by the wires for a couple steps and is not shown in the in-between steps.

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

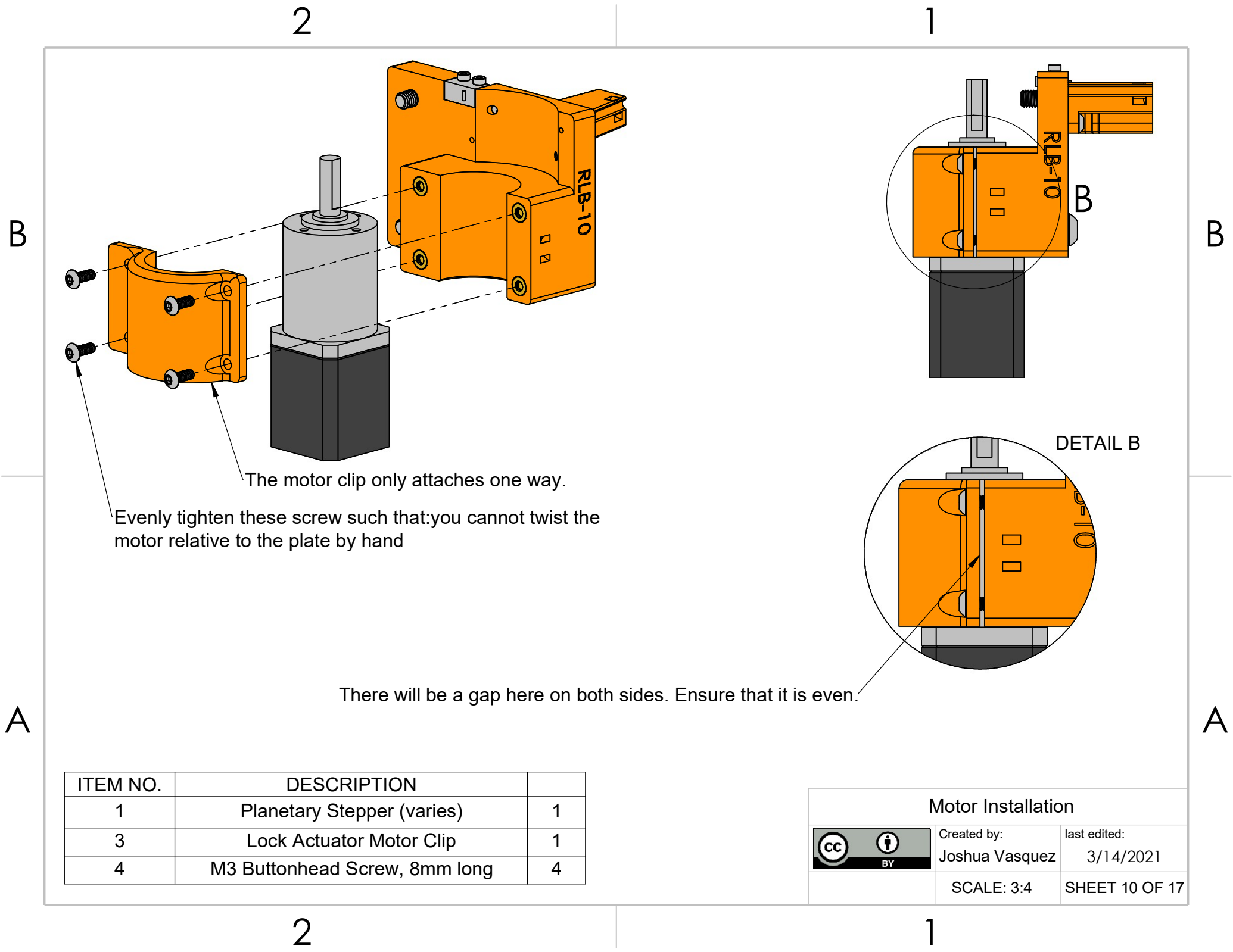


Created by:
Joshua Vasquez

last edited:
3/14/2021

SCALE: 1:1

SHEET 9 OF 17



2

1

B

B

A


A

The motor clip only attaches one way.

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

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		
	Created by: Joshua Vasquez	last edited: 3/14/2021
	SCALE: 3:4	SHEET 10 OF 17

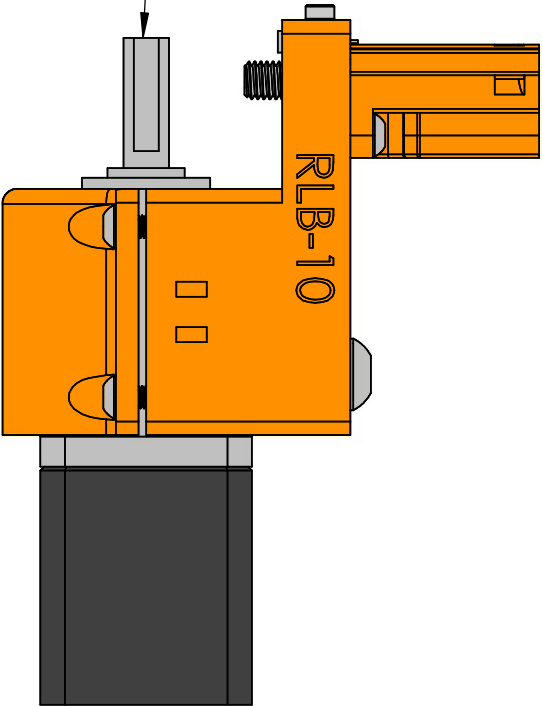
2

1

2

1

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



B


B

A

A

2

1

Shaft Alignment		
	Created by:	last edited:
	Joshua Vasquez	3/14/2021
	SCALE: 1:1	SHEET 11 OF 17

B

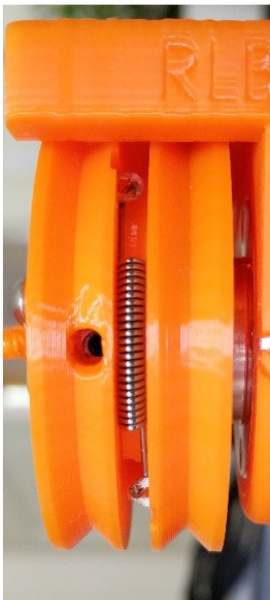
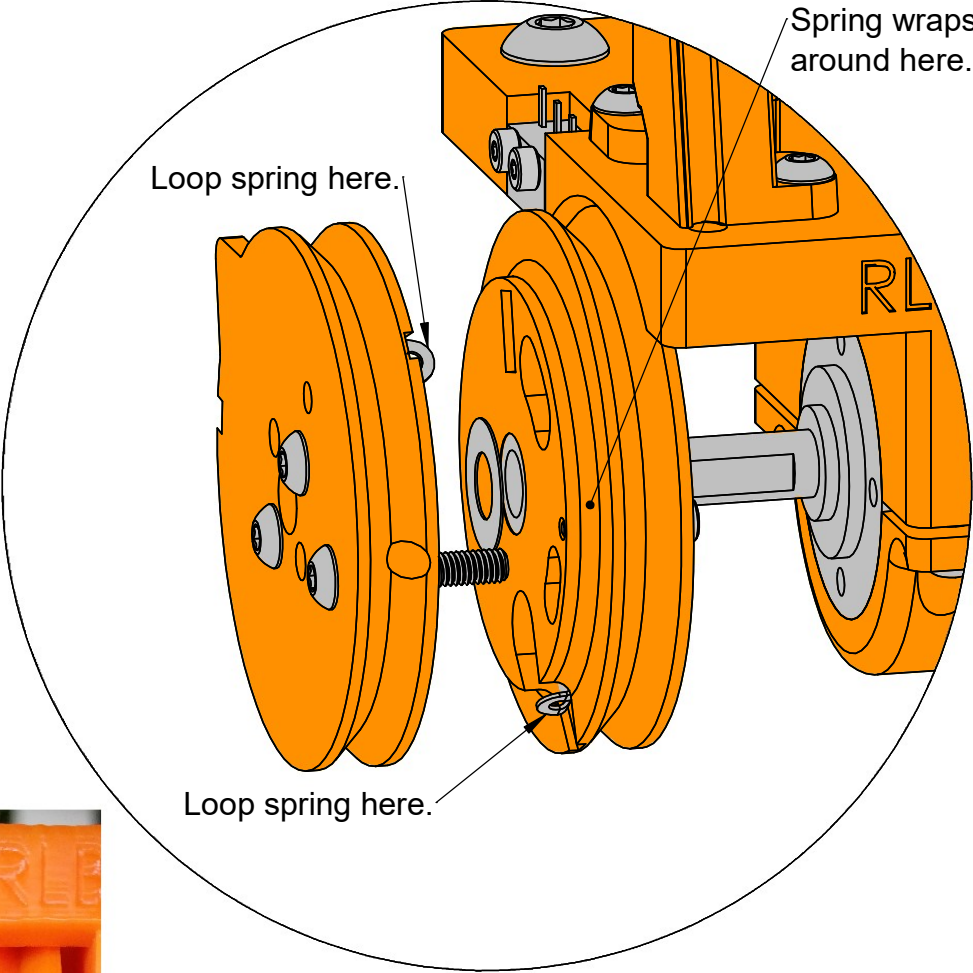
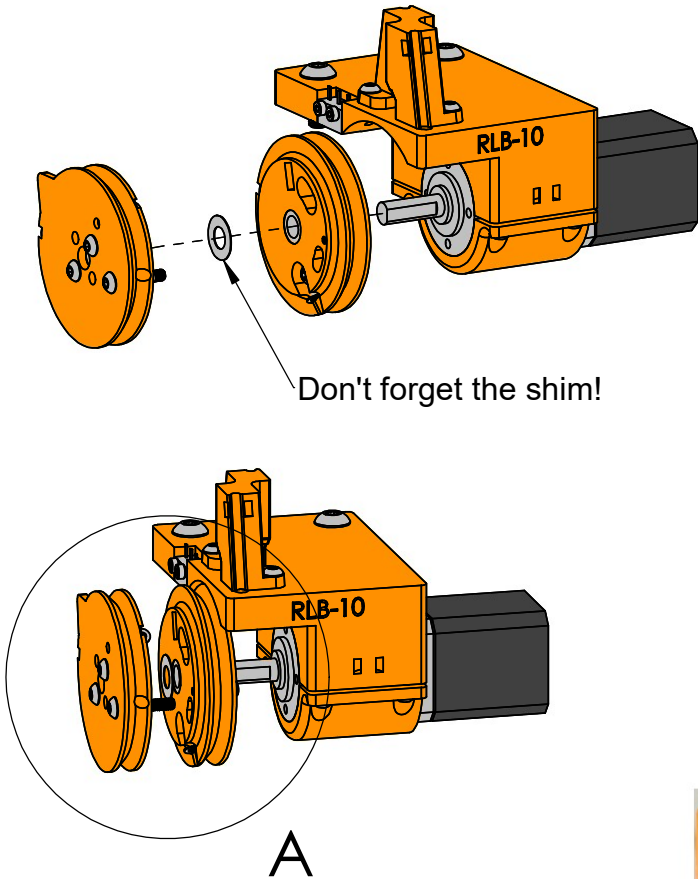
A

2

1

B

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		
	Created by:	last edited:
	Joshua Vasquez	3/14/2021
SCALE: 1:2		SHEET 12 OF 17

2

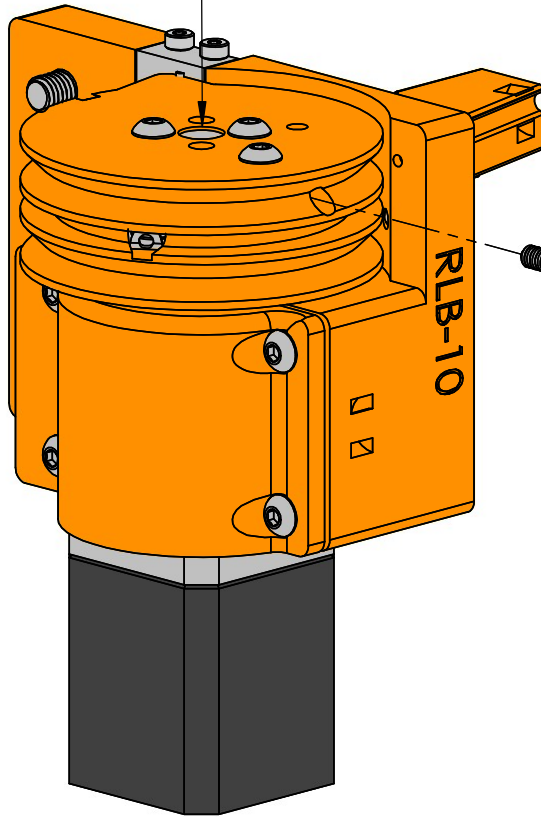
1

2

1

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

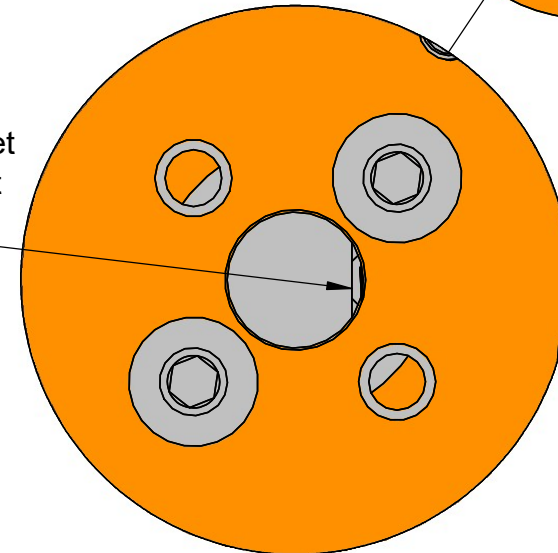
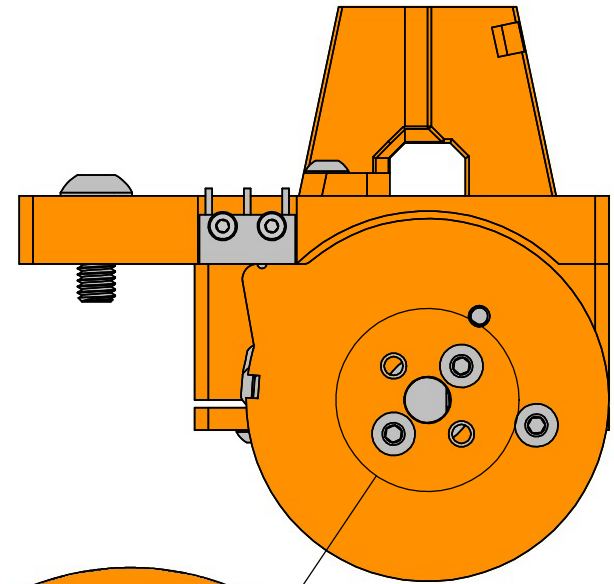
B



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.

B



DETAIL D

A

A

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

2

1

Fixed Pulley Securing



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SCALE: 1:1

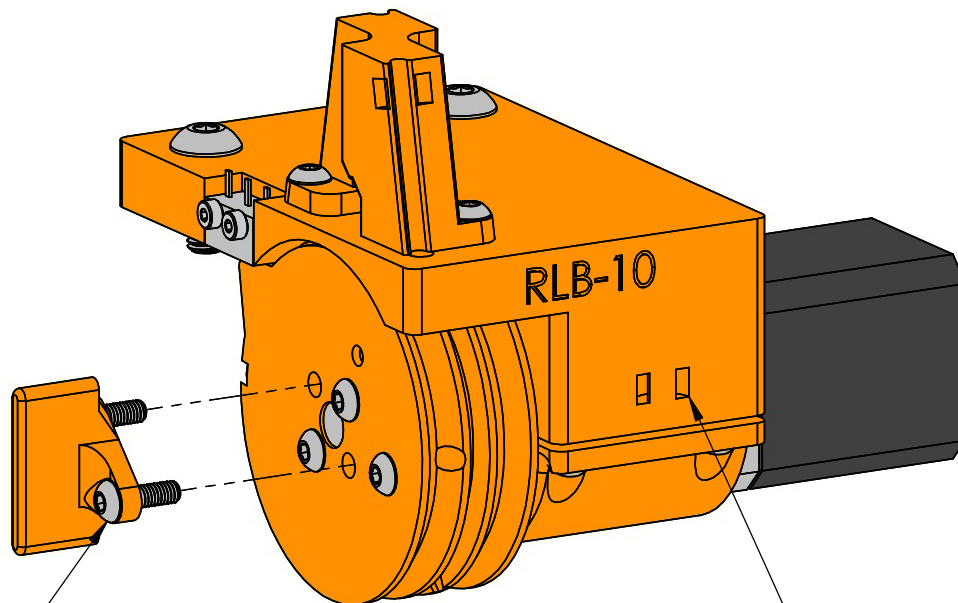
SHEET 13 OF 17

2

1

B

B



Fully tighten these screws.

Secure loose wires with a zip tire here.

A

A

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

SHEET 14 OF 17

2

1

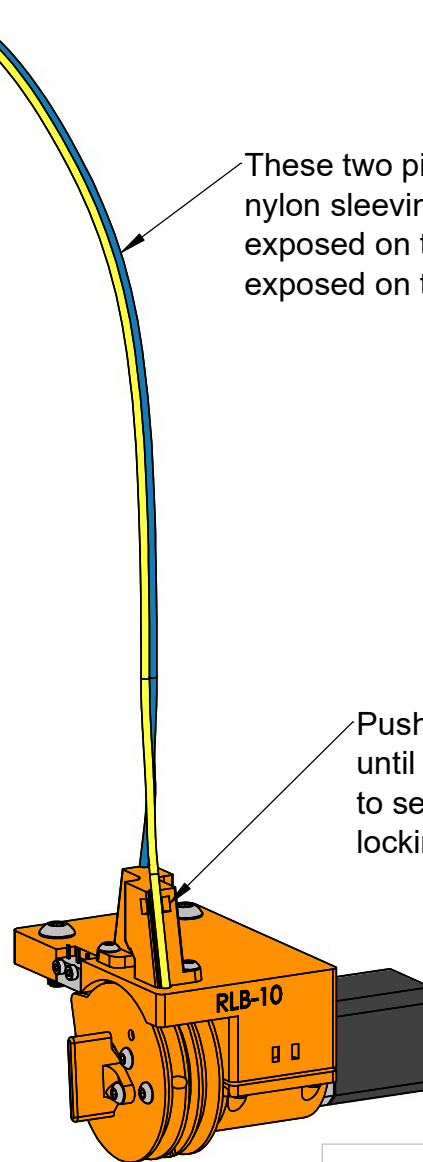
Note: this is just a schematic representation. Join these parts loosely together on a flat table following the color coding.

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

Push each spring guide into the printed part until they hard-stop at about 10mm deep.

These two pieces can be sleeved together in a nylon sleeving, but leave at least 100mm exposed on the carriage side and 150mm exposed on the Lock side.

Push each Spring Guide into the hole until it hard-stops. Then apply two zip ties to secure each spring guide at the locking side..



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

Spring Guide Installation



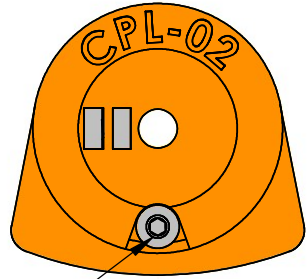
Created by:
Joshua Vasquez

last edited:
3/14/2021

SCALE: 1:2

SHEET 15 OF 17

B

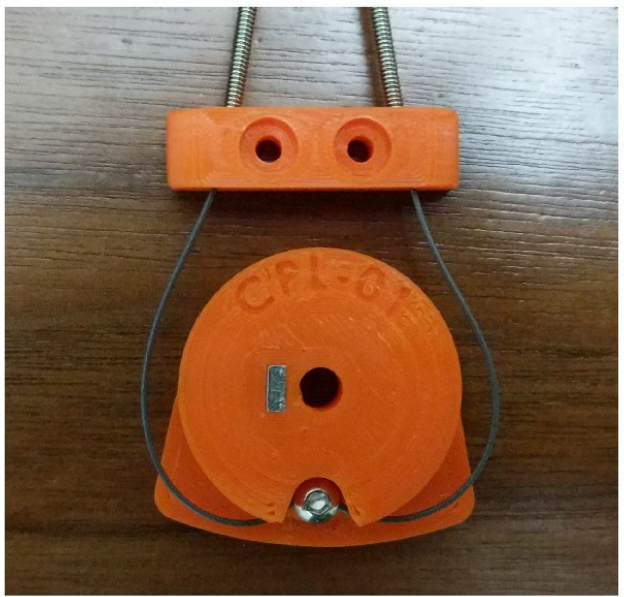


Loop the wire rope behind this screw at the halfway point and fully tighten the screw.

A

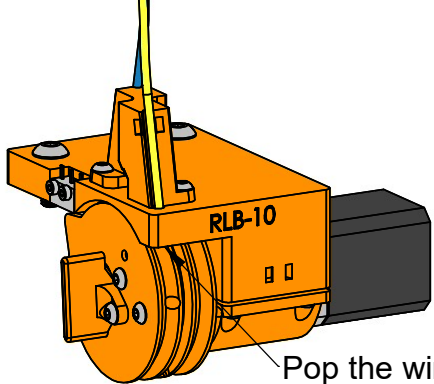
Tuck each loop of the wire rope into the closest hole.

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



Leave some slack on both sides of the carriage for the next step.
(Note: the latest version of this part is CPL-02.)

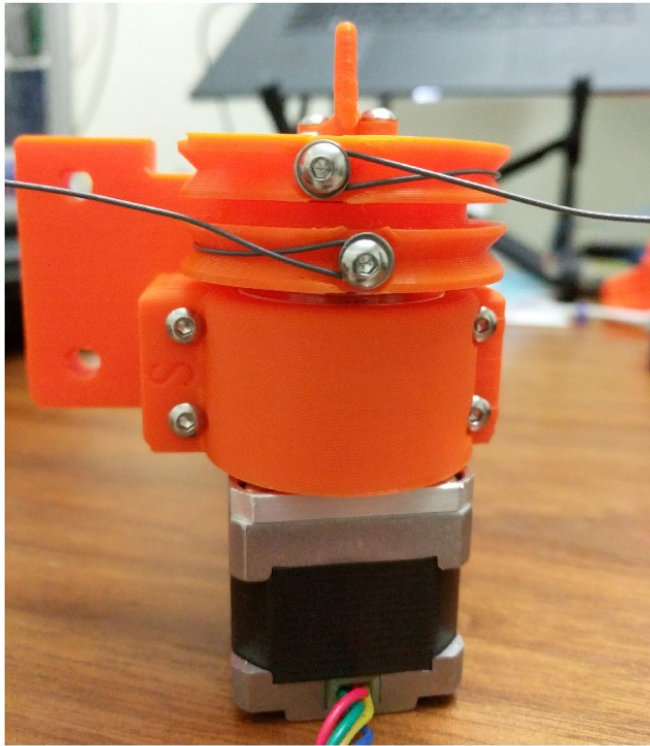
B



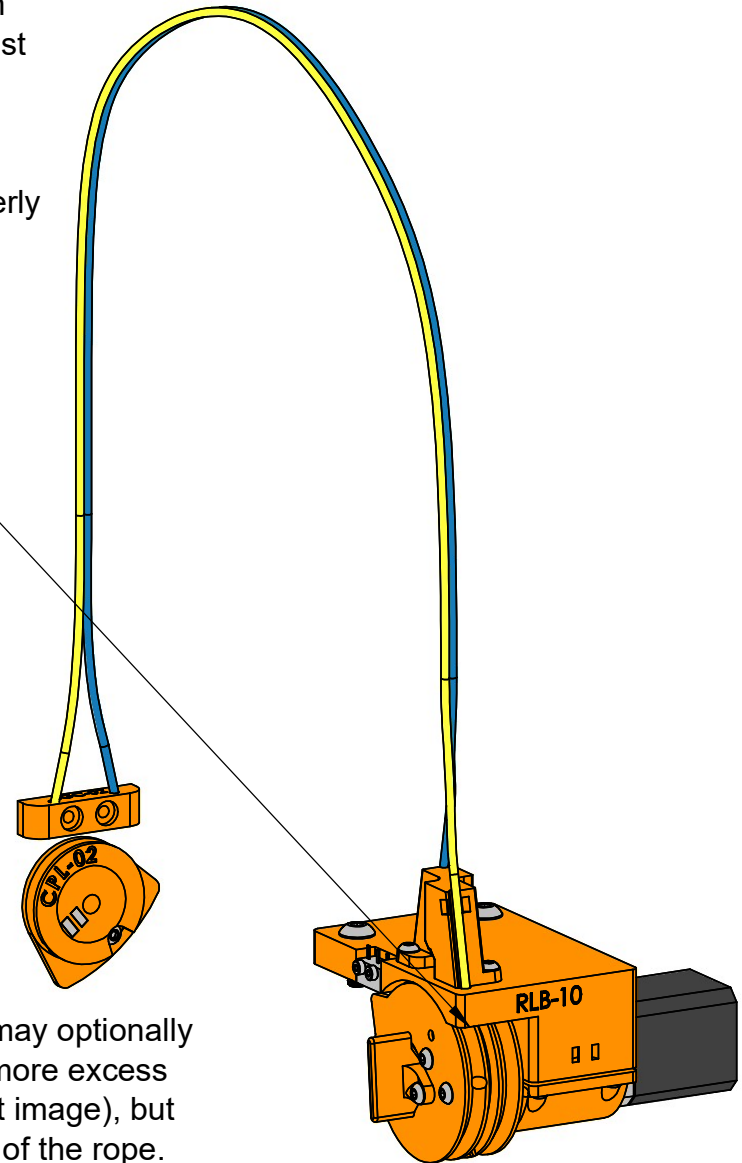
Pop the wires out of each exit hole here.
See the next page for cinching details.

A

Wire Rope Routing			
	Created by:	last edited:	
	Joshua Vasquez	3/14/2021	
SCALE: 1:2		SHEET 16 OF 17	



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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Joshua Vasquez

last edited:
3/14/2021

SCALE: 1:2

SHEET 17 OF 17