B

RLB-10

A

Remote Elastic Lock Assembly		
CC BY	Created by: Joshua Vasquez	last edited: 3/14/2021
	SCALE: 1:1	SHEET 1 OF 17

B

RLB-10

RLB-10S

B

RLB-09 RC
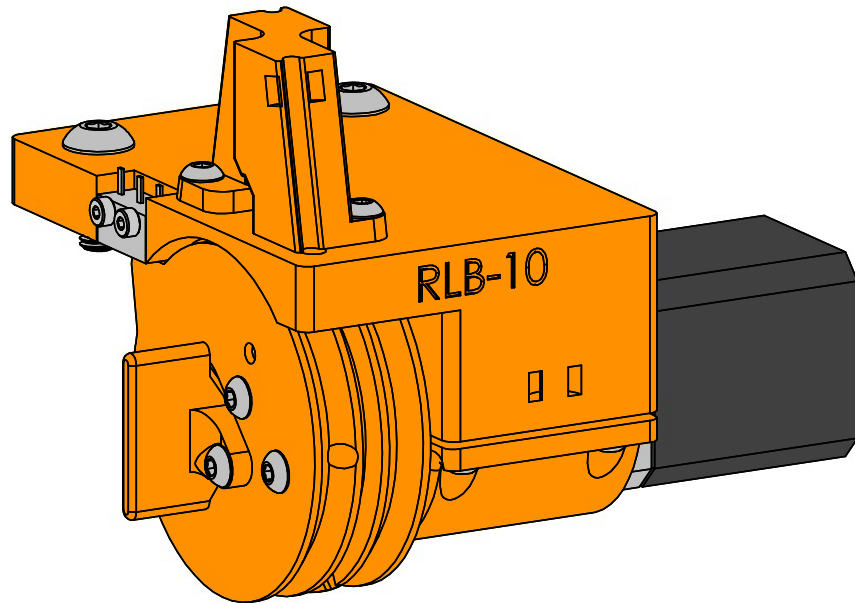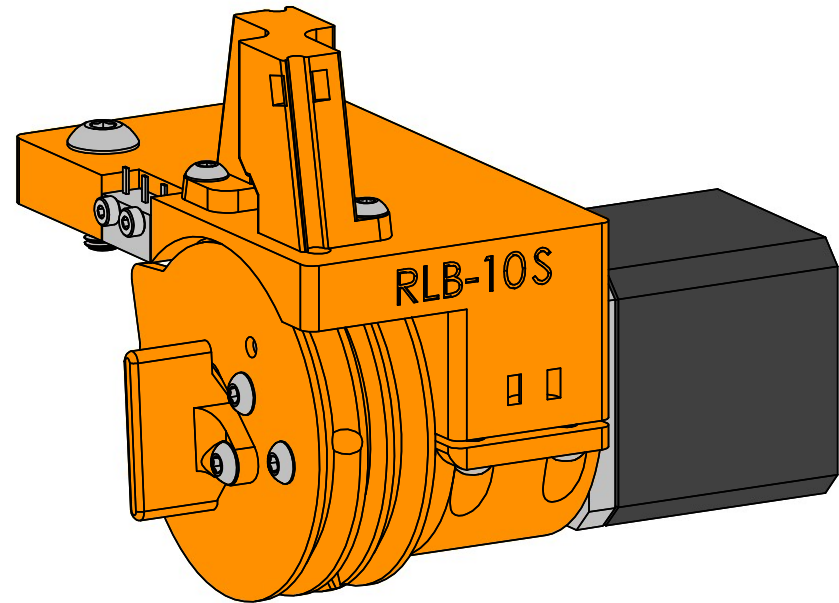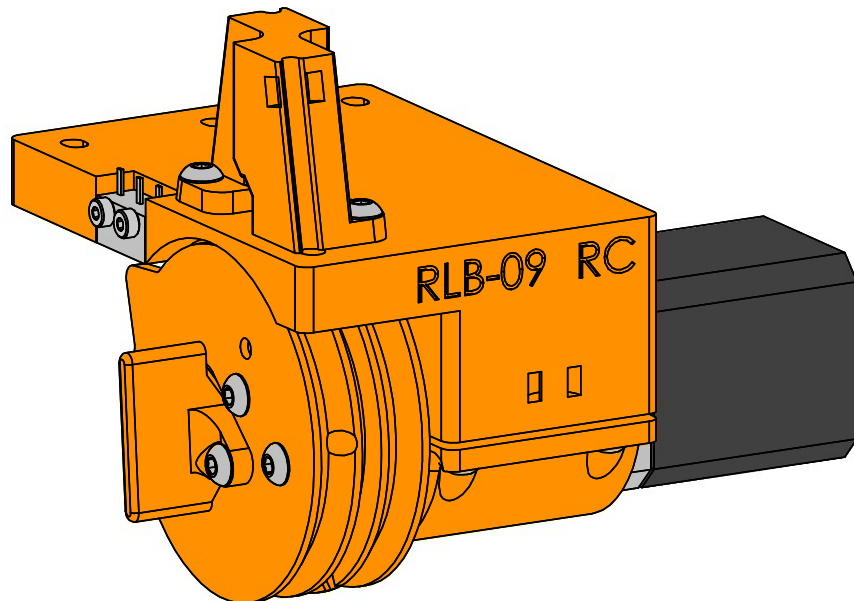
A

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

Variants		
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	SCALE: 1:1	SHEET 2 OF 17

B

B

RLB-10

A

A

RLB-10

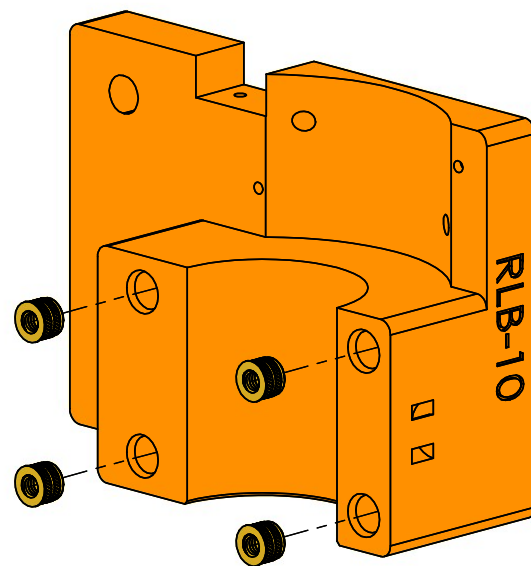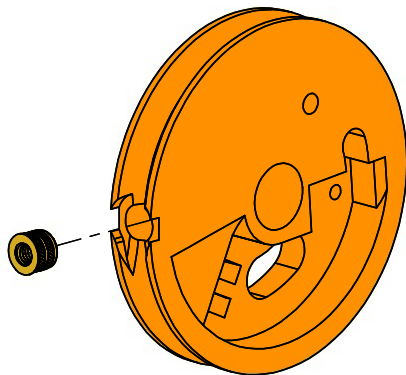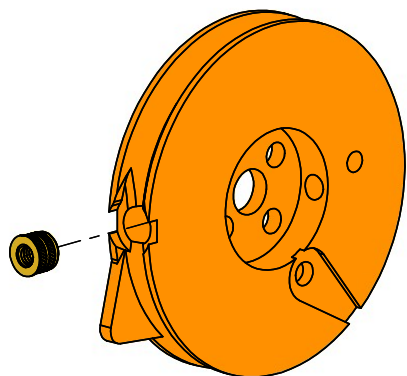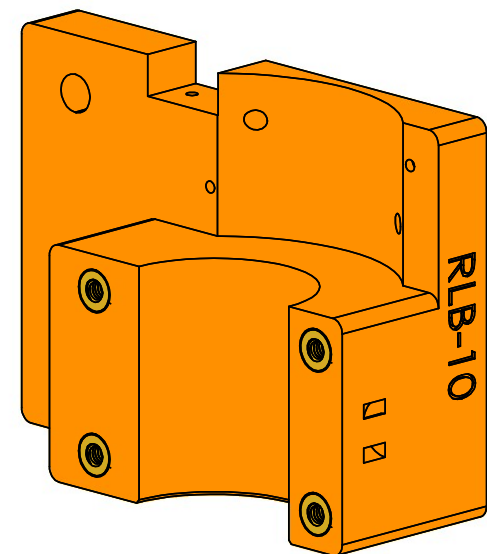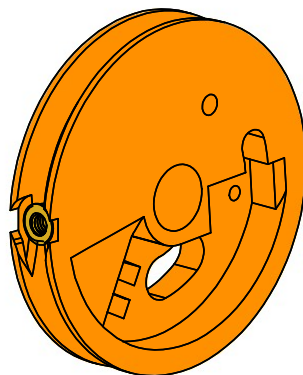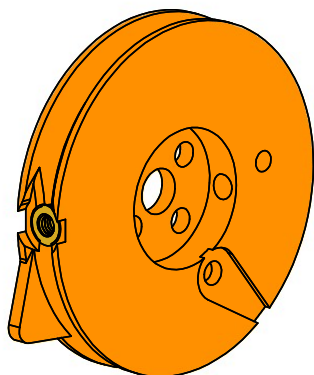| Parts with Inserts		
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	SCALE: 1:1	SHEET 3 OF 17

B

B

result

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

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SCALE: 2:1	SHEET 4 OF 17

B

Fully tighten these into the printed part.

Keep these screws loose. They will
be tightened into the frame later.

RLB-10

Exploded View

RLB-10

Assembled View

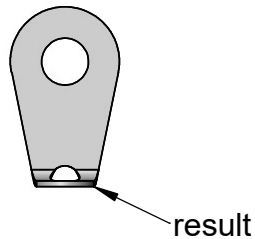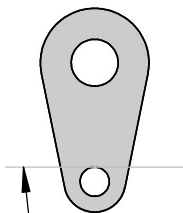| ITEM NO.	DESCRIPTION	
1	REL Base with Inserts	1
2	Spring Guide Anchor Block	1
3	M3 Buttonhead Screw, 8mm long	2
4	M5 Buttonhead Screw, 14mm long	2
5	M5 Drop-In T-Nut for 20x20 Extrusion	2

Base Plate Assembly

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SCALE: 1:1	SHEET 5 OF 17

Press fit the bushing such that it is flush with the surface of the pulley.

Fully tighten this screw.

This screw can stay loose.

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

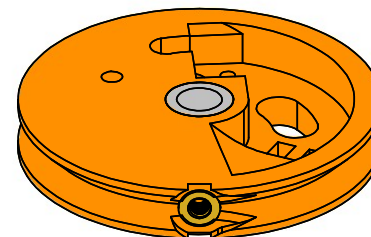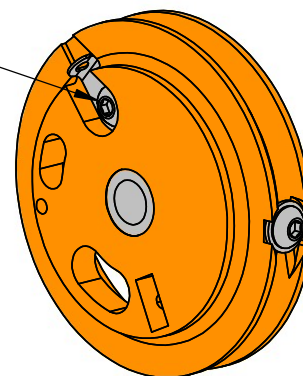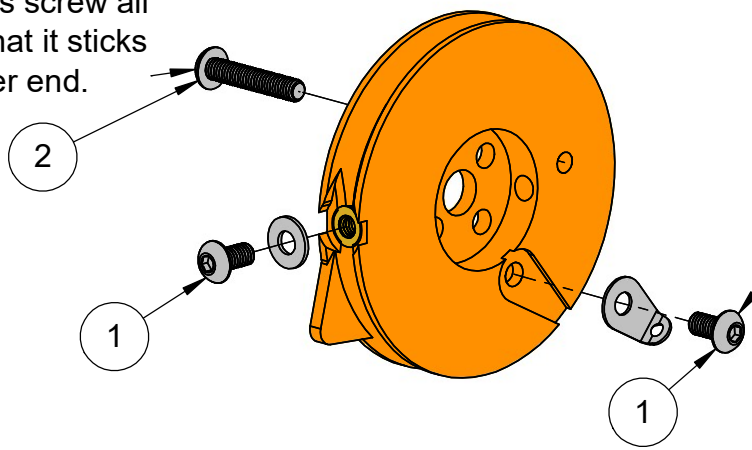Floating Half Pulley Assembly

Created by:
Joshua Vasquez
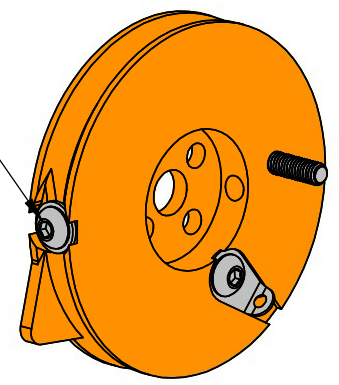
last edited:
3/14/2021

SCALE: 1:1   SHEET 6 OF 17

B

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

2

1

This screw can stay loose.

Fully tighen this screw.

1

1

1

This hole should line up with this hole.

Fully tighten both screws.

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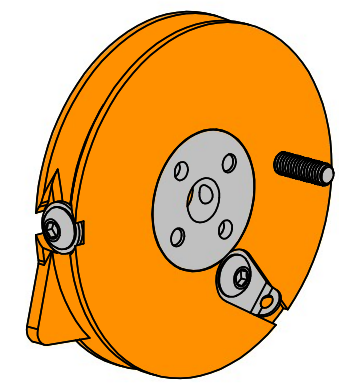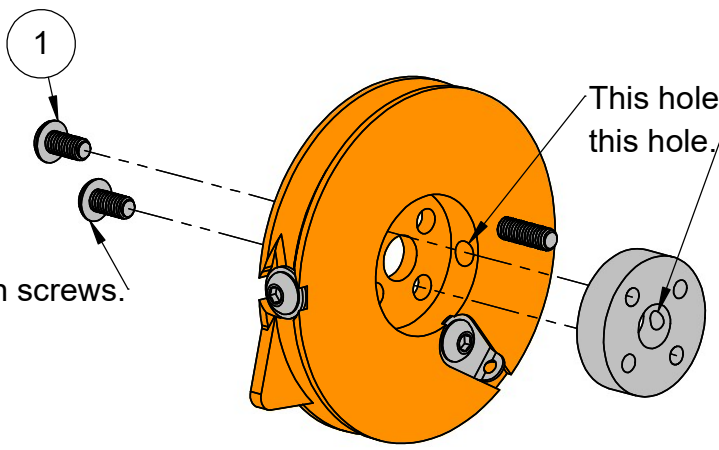
ITEM NO.	DESCRIPTION	QTY
1	M3 Buttonhead Screw, 6mm long	4
2	M3 Buttonhead Screw, 16mm long	1
3	M3 Washer	1
4	Bent M3 Solder Terminal Lug (Bend A)	1
5	Fixed Pulley with Insert	1
6	Hub, 6mm bore	1

Fixed Half Pulley Assembly

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	SCALE: 1:1	SHEET 7 OF 17

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.

24-26AWG all limit switch wires

250mm

500mm

U limit

600mm
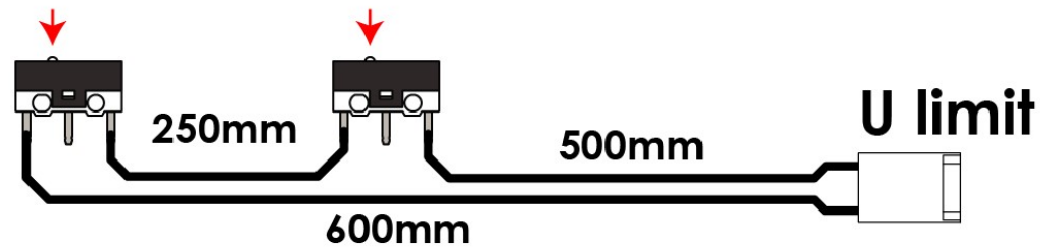
Internal
"Floating" Pulley
Limit Switch

External
Base Mounted
Limit Switch

Wiring		
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	SCALE: 1:1	SHEET 8 OF 17

B

External Limit Switch.
Note Switch tab location!
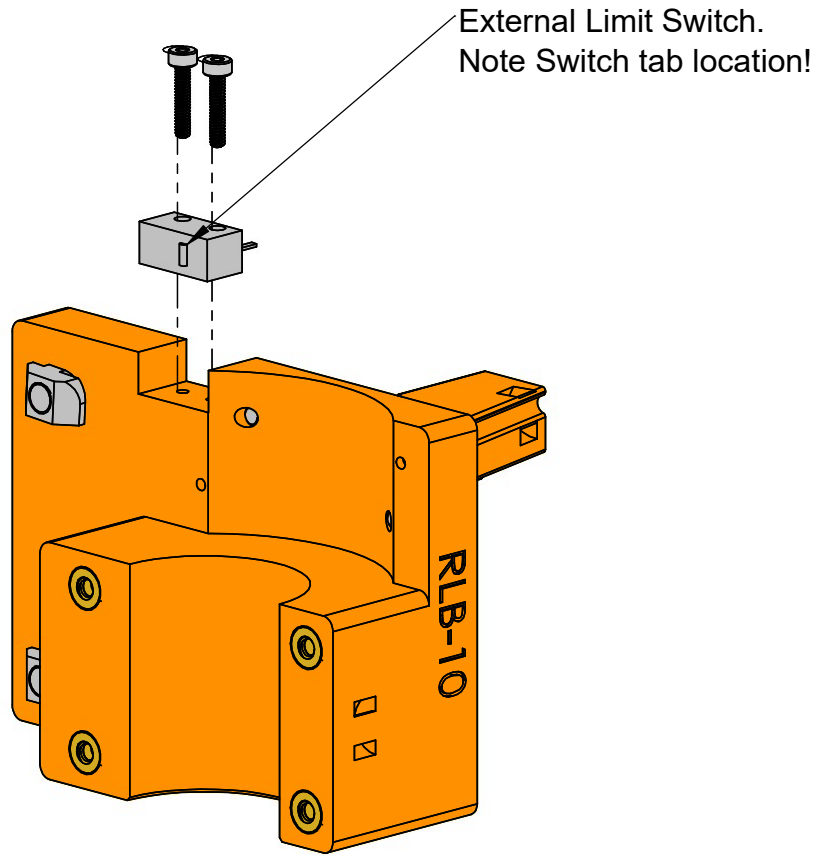
Internal Limit Switch.
Note Switch tab location!

RLB-10

Zip Tie Cables here.
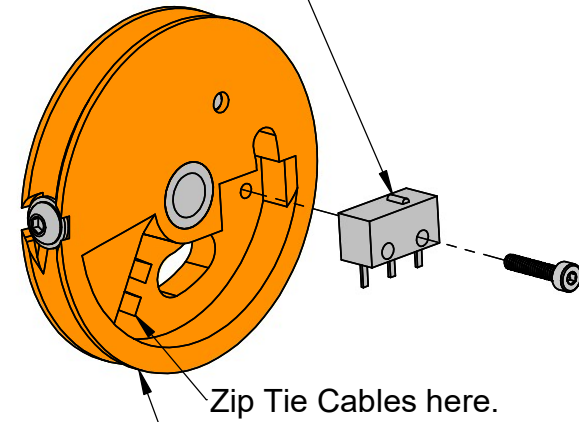
This part will dangle by the wires for a couple steps an is not shown in the in-between steps.

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

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SCALE: 1:1	SHEET 9 OF 17

B

RLB-10

B

B

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.

A

A

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
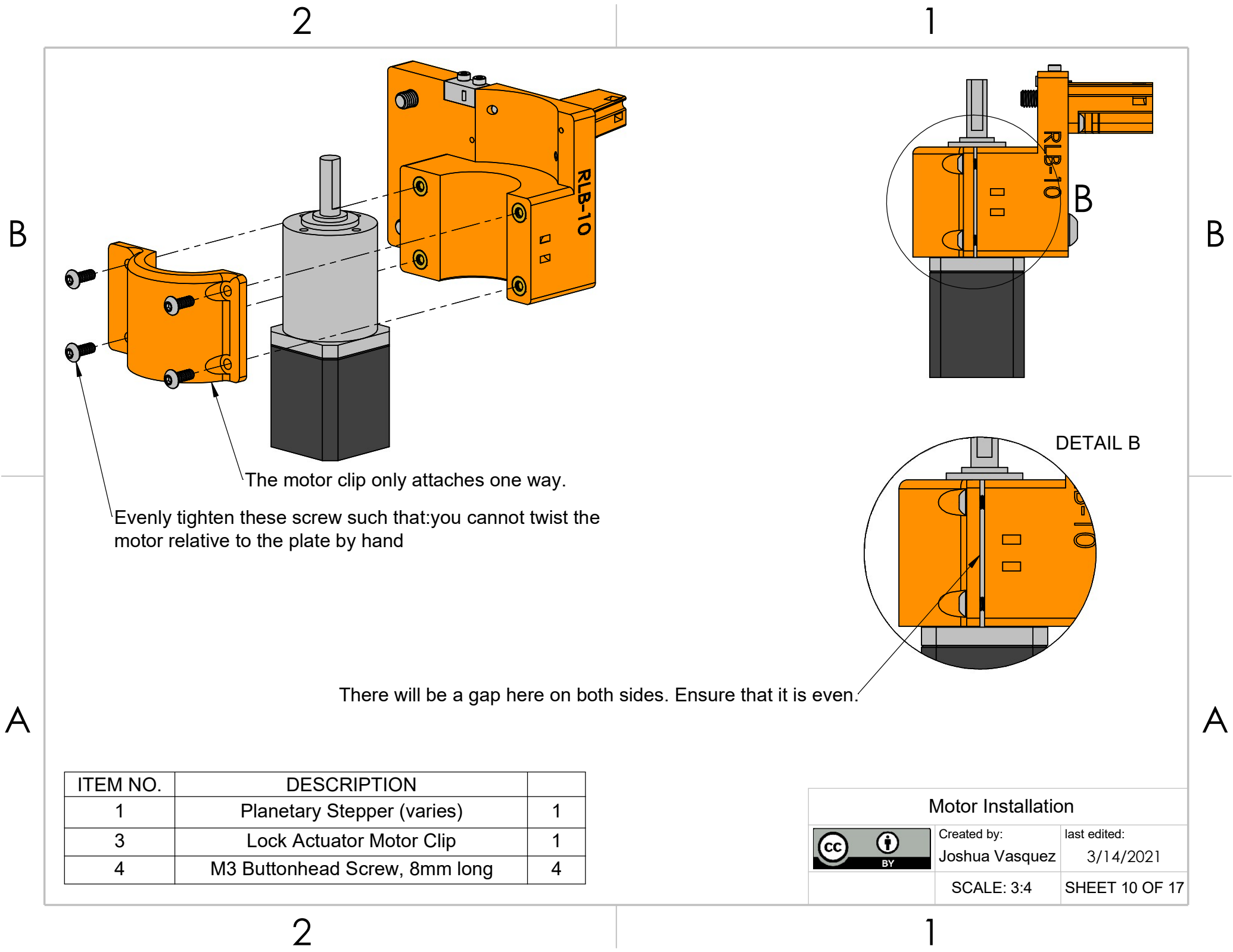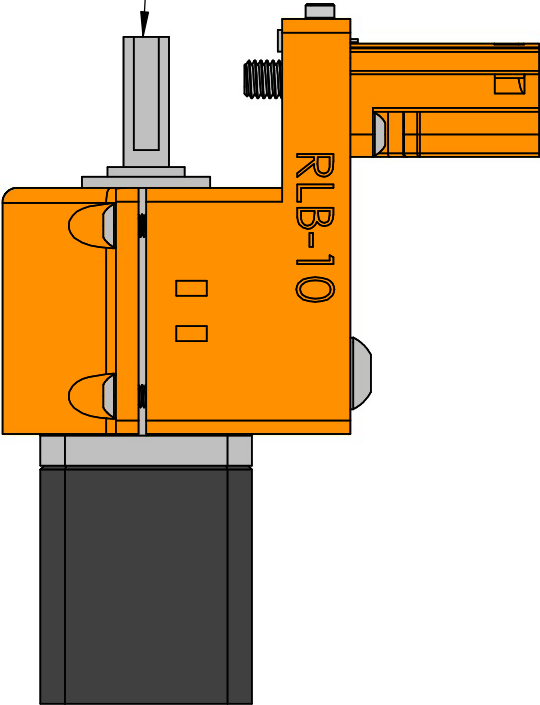
last edited:
3/14/2021

SCALE: 3:4

SHEET 10 OF 17

B

B

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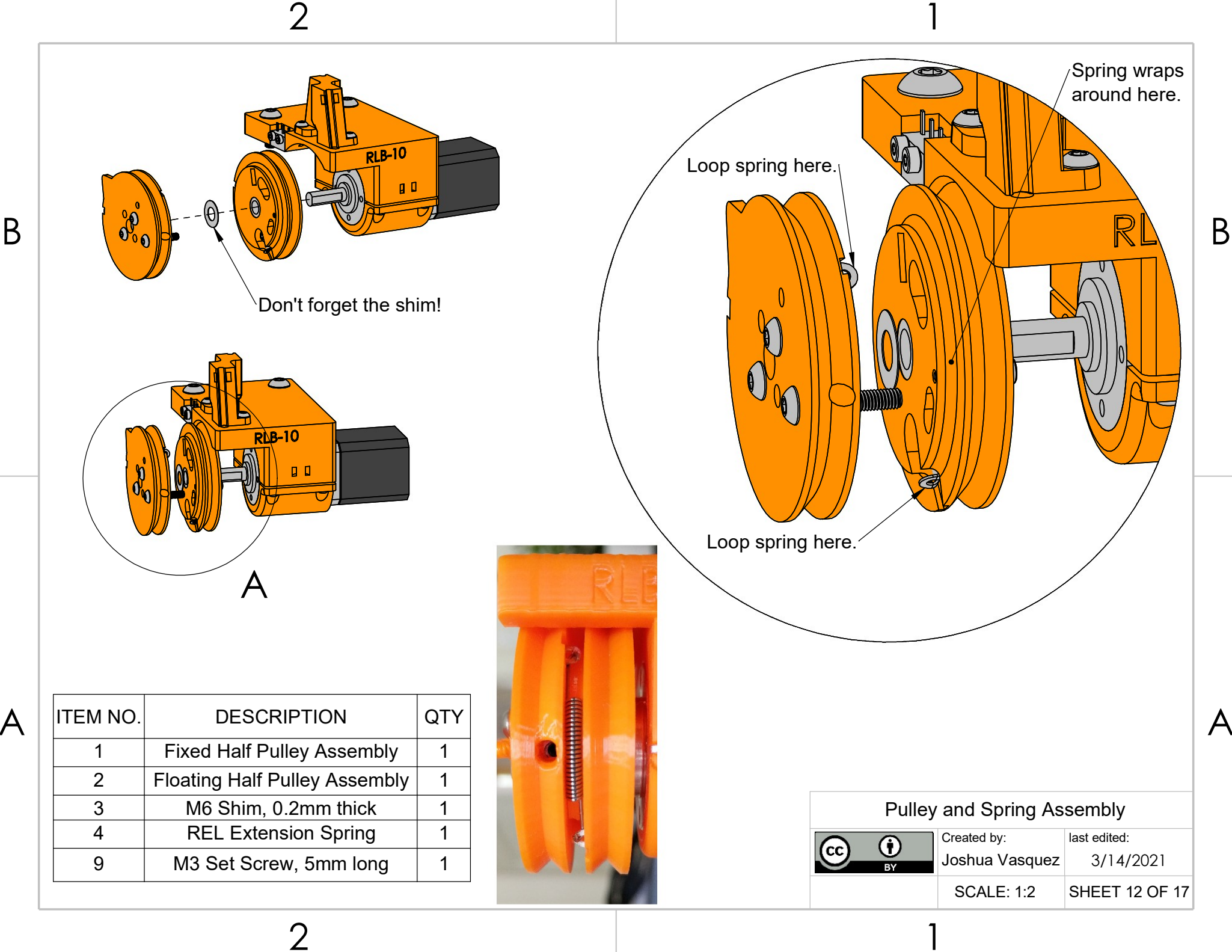orientation with the part number as shown here.

RLB-10

A

A

Shaft Alignment

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SCALE: 1:1	SHEET 11 OF 17

B

Don't forget the shim!

RLB-10

A

Spring wraps around here.

Loop spring here.

RL

Loop spring here.

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
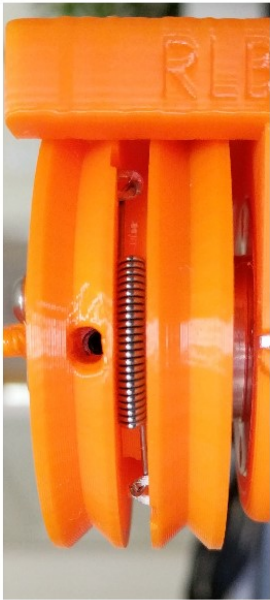
Pulley and Spring Assembly
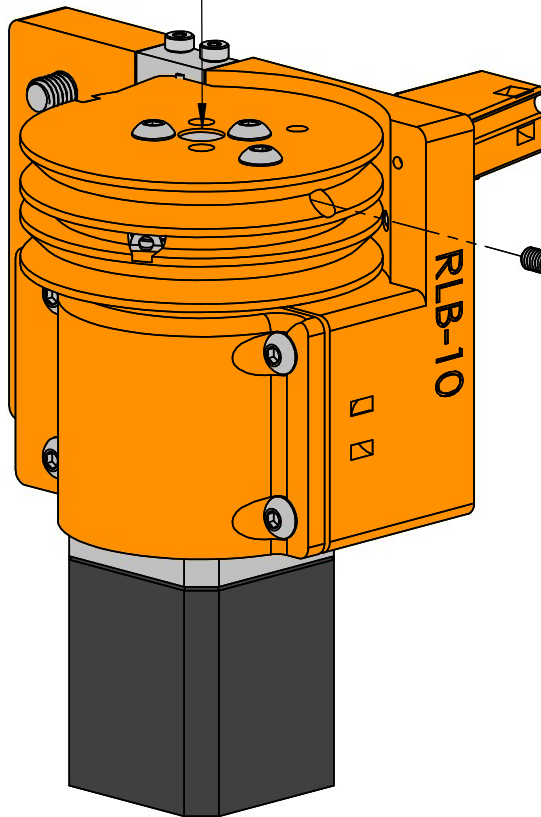
Created by:
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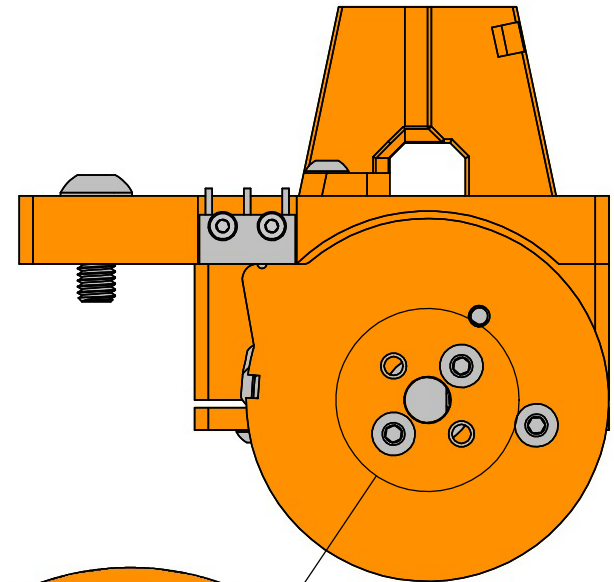
last edited:
3/14/2021

SCALE: 1:2

B

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

RLB-10

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

B

A

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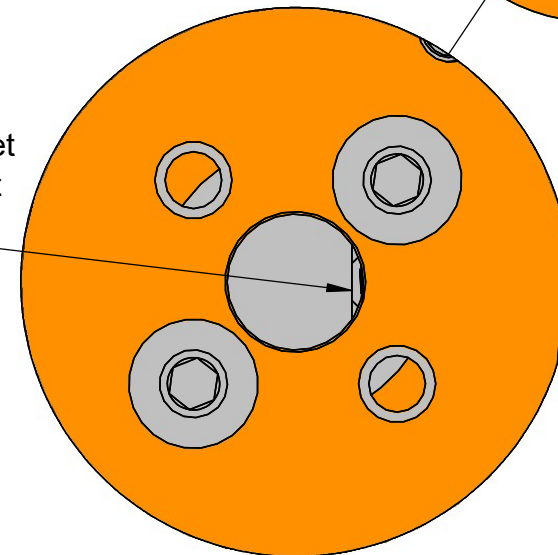
ITEM NO.	DESCRIPTION	QTY.
2	M3 Set Screw, 5mm long	1

Fixed Pulley Securing

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SCALE: 1:1	SHEET 13 OF 17

B

B

RLB-10
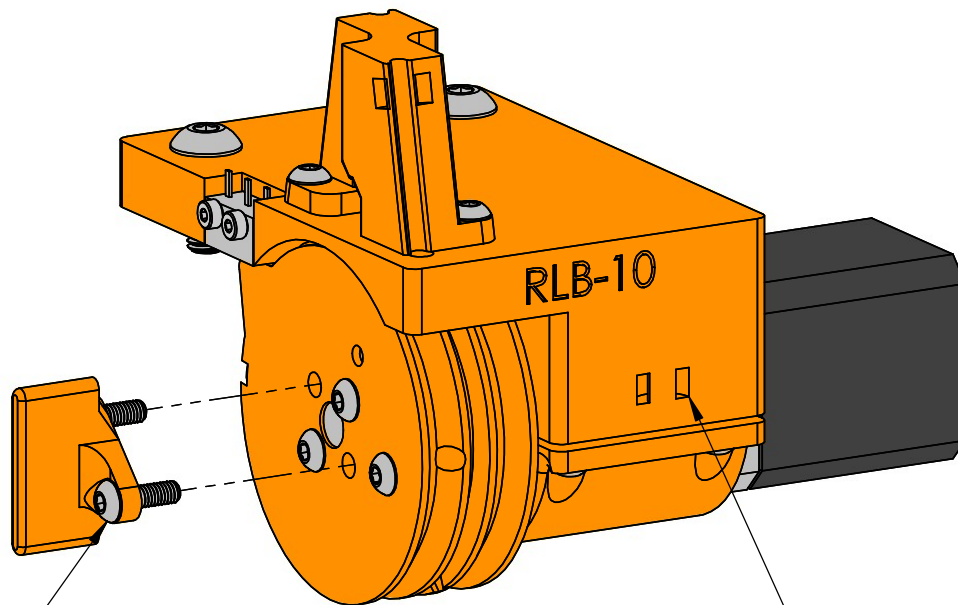
Fully tighten these screws.

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

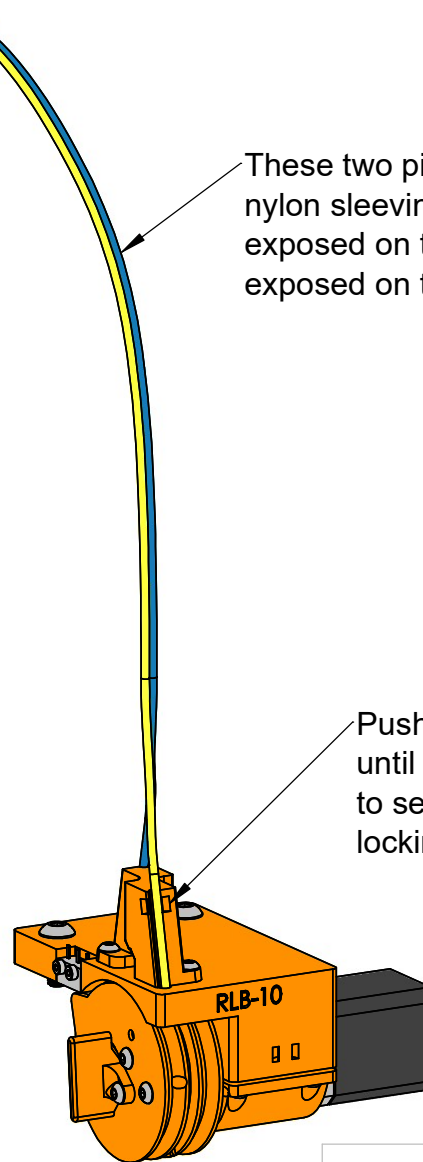| Created by:	last edited:
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SCALE: 1:1	SHEET 14 OF 17

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.

B

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

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

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..

CPL-02

RLB-10

A

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

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SCALE: 1:2	SHEET 15 OF 17

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

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

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

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

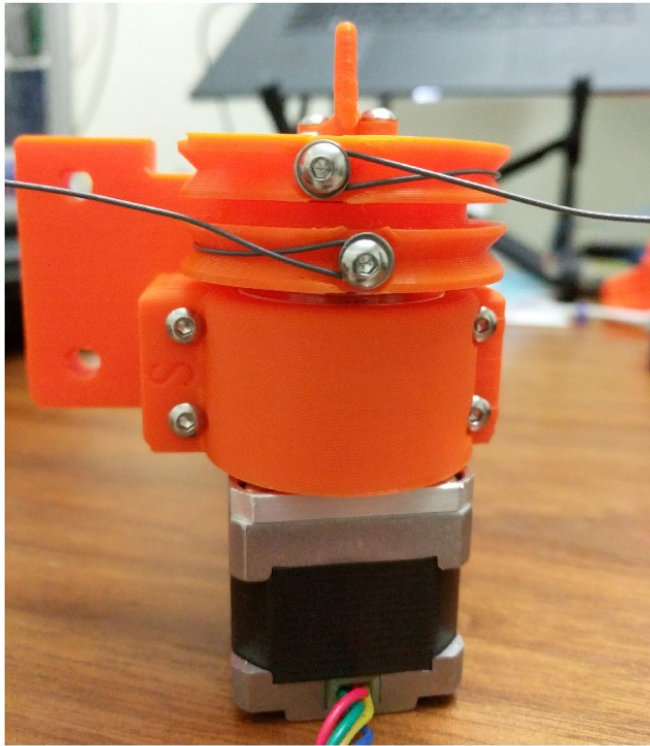| ITEM NO	DESCRIPTION	QTY
1	1600 mm wire rope	1
2	Carriage Pulley Assembly	1
3	Spring Guide, 600mm long	2

Wire Rope Routing

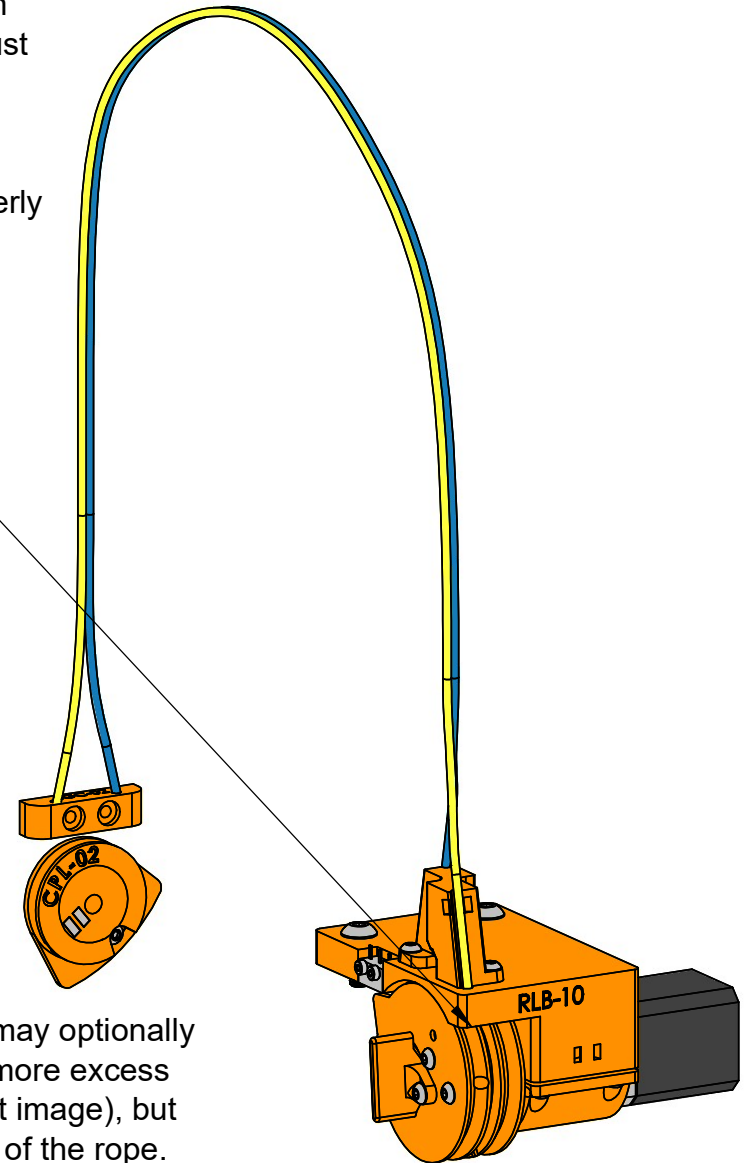|	
Created by: Joshua Vasquez	last edited: 3/14/2021
SCALE: 1:2	SHEET 16 OF 17

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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	SCALE: 1:2	SHEET 17 OF 17