

Z Axis Assembly



Created by:
Joshua Vasquez

last edited:
10/10/2019

SCALE: 1:4

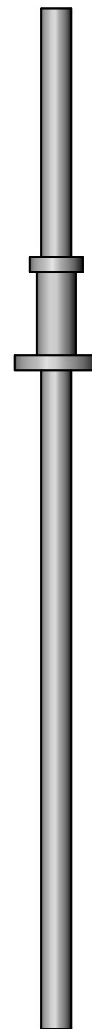
SHEET 1 OF 18

2

1

Make 3 assemblies.

Compress the Delrin anti-backlash nut fully before installing it. Twist it down about 1/3 down the length of the leadscrew.



B

B

A

A

ITEM NO.	DESCRIPTION	QTY.
1	8mm T8x2 Lead Screw, Trapezoidal	1
2	8mm T8x2 Small Delrin Anti-Backlash Nut	1

Lead Screw Nut Installation



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SHEET 2 OF 18

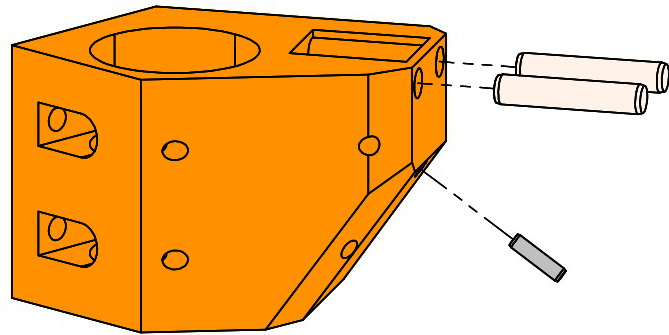
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1

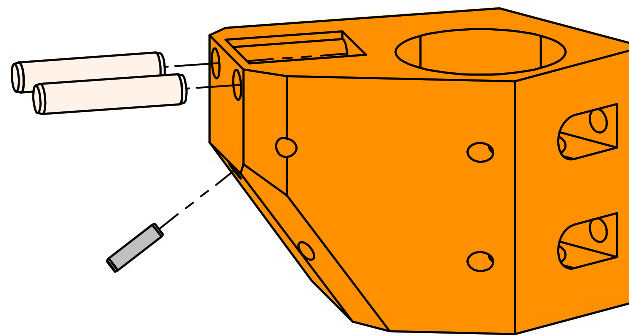
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1

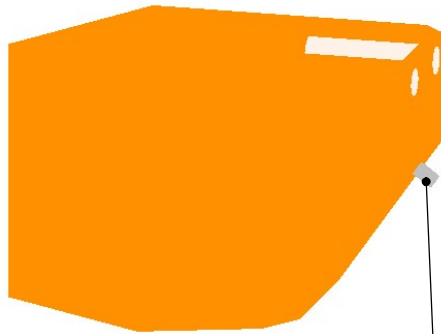
Press-Fit all pins with an arbor press..



Exploded View

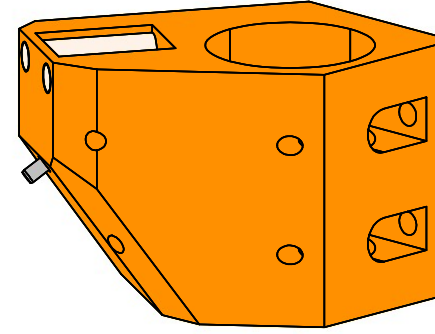


Exploded View

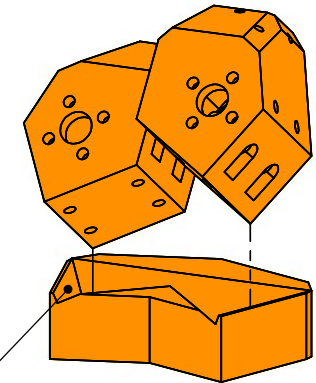
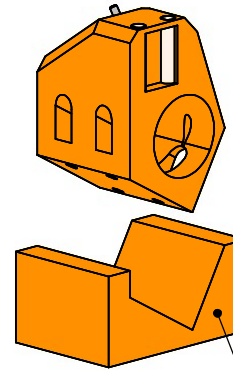


Assembled View

Note that the M2 Pins will stick out about halfway



Assembled View



Use the 3D Printed Fixtures to hold the Z Lifts vertically under the arbor press while installing the M2 Dowel Pins.

ITEM NO.	DESCRIPTION	QTY.
1	Left Bed Coupling Side Plate	1
2	Right Bed Coupling Side Plate	1
3	M4 Dowel Pin, 20mm long	4
4	2mm dowel pin, 8mm long	2
5	Spring Pin Insertion Fixture	1
6	Coupling Pin Insertion Fixture	1

Front Coupling Plate Assemblies



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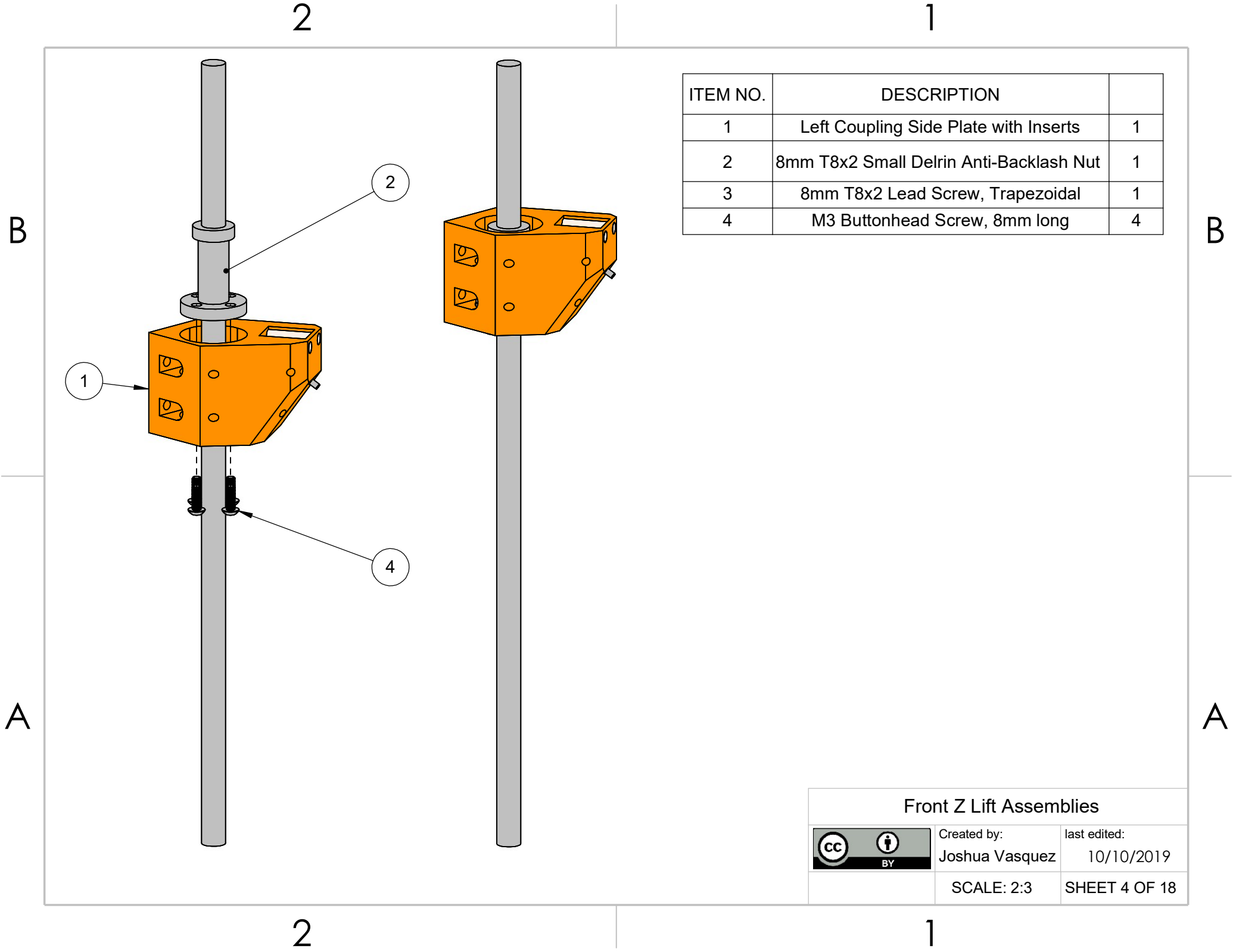
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SHEET 3 OF 18

2

1



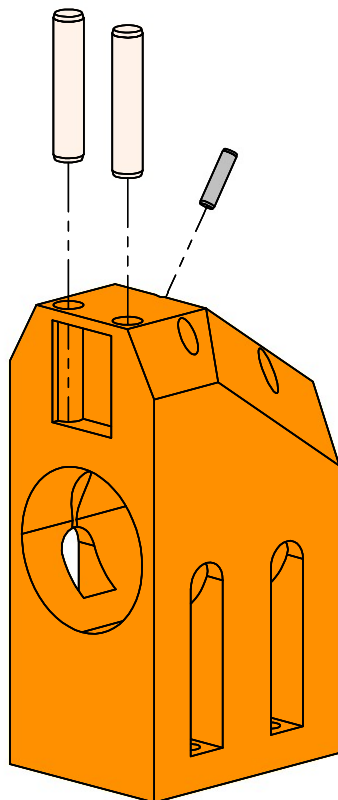
ITEM NO.	DESCRIPTION	
1	Left Coupling Side Plate with Inserts	1
2	8mm T8x2 Small Delrin Anti-Backlash Nut	1
3	8mm T8x2 Lead Screw, Trapezoidal	1
4	M3 Buttonhead Screw, 8mm long	4

Front Z Lift Assemblies		
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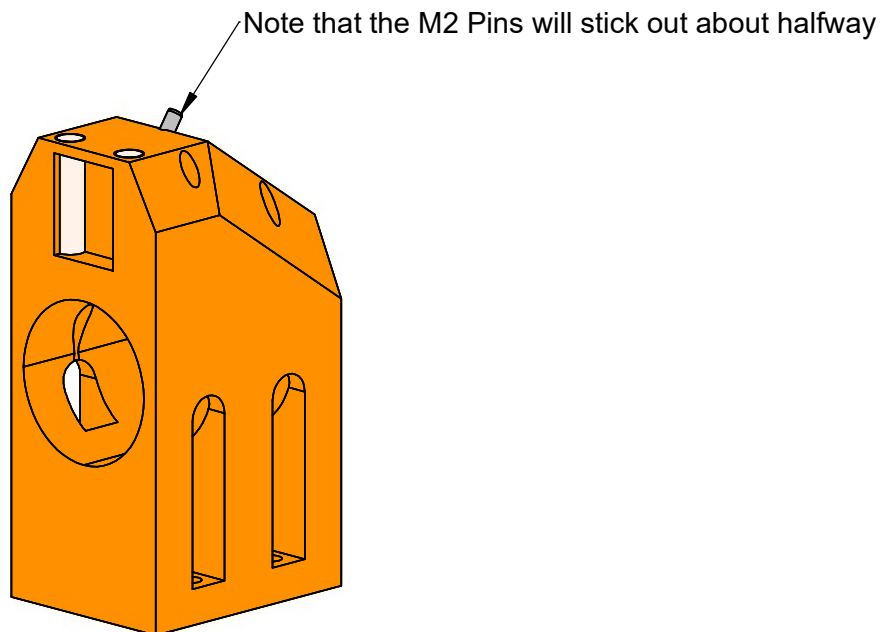
2

1

Press-Fit all pins with an arbor press..



Exploded View



Assembled View

ITEM NO.	DESCRIPTION	QTY.
1	Bed Coupling Back Plate	1
2	M4 Dowel Pin, 20mm long	2
3	2mm dowel pin, 8mm long	1

Back Z Lift Assembly



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SHEET 5 OF 18

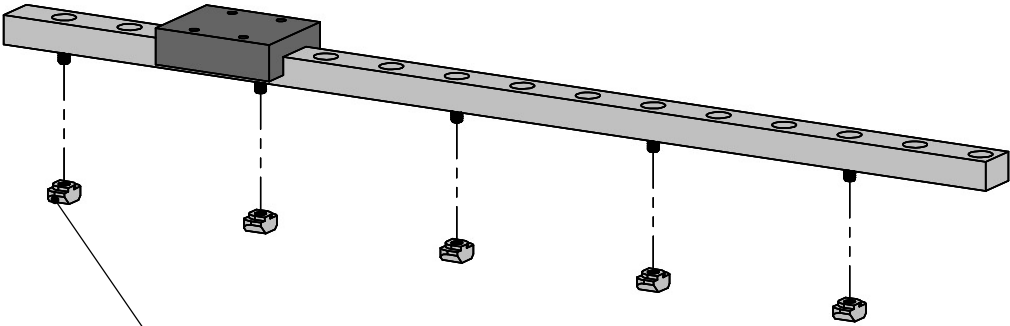
2

1

2

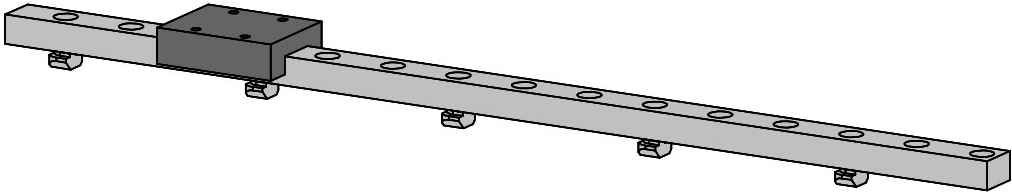
1

Make three Assemblies



Keep these T-Nuts Loose; only two full turns.
They will be tightened into the frame later.

Exploded View



Assembled View

B


B

A

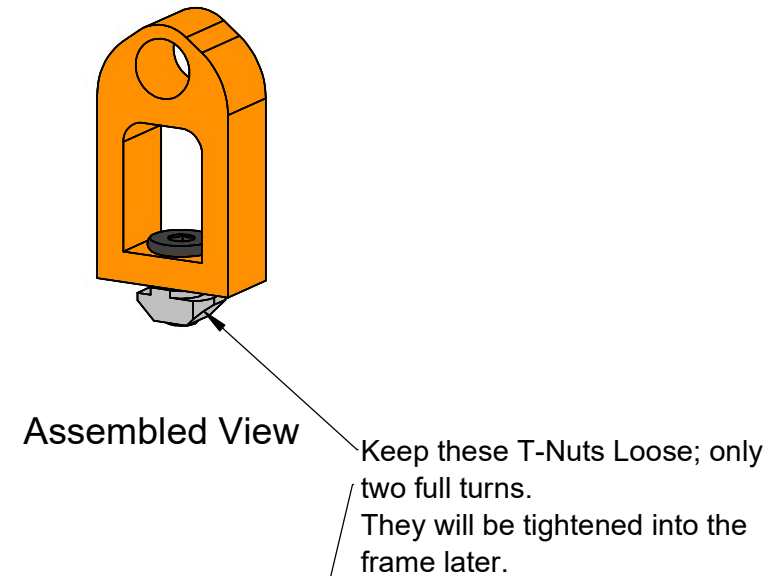
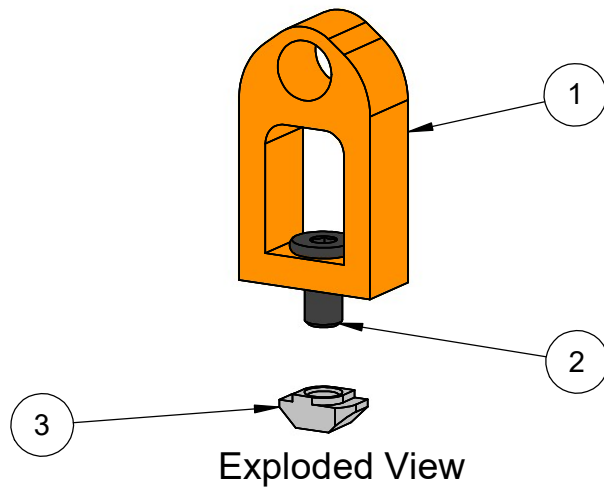
A

2

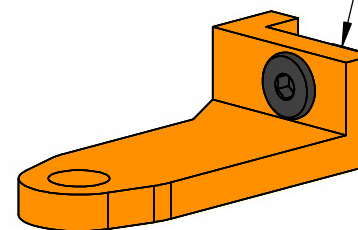
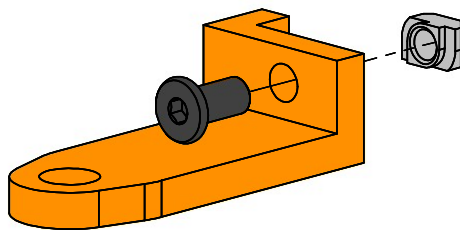
1

Linear Rail Assembly		
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Make two assemblies of the front leadscrew retainer.



Make one assembly of the back leadscrew retainer.



ITEM NO.	DESCRIPTION	QTY.
1	Small Leadscrew Retainer	2
2	M5 x 0.8 Screw, Low Profile, 10mm	3
3	M5 Drop-In T-Nut for 20x20 Extrusion	3
4	Compact Leadscrew Retainer	1

Leadscrew Retainer Assembly		
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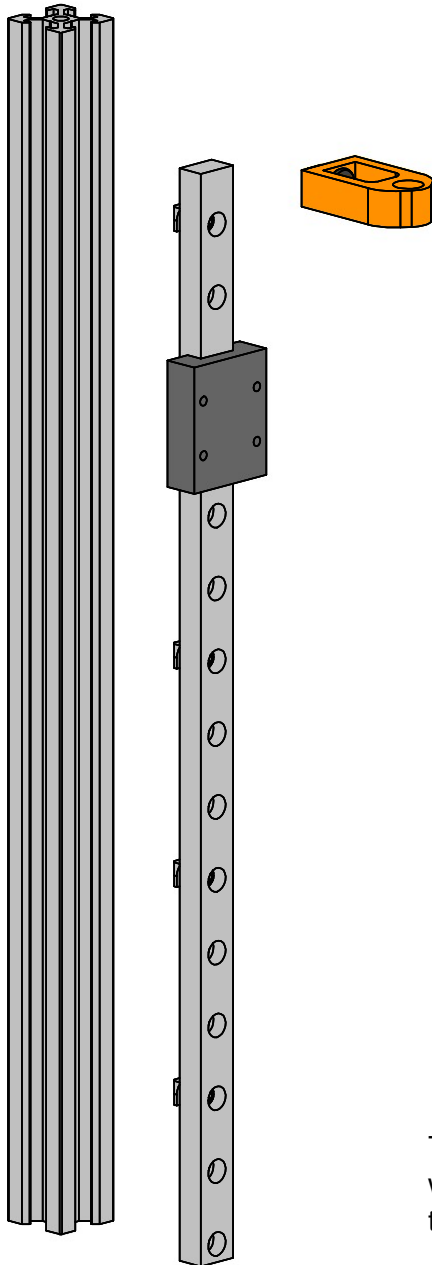
Make two assemblies.

B

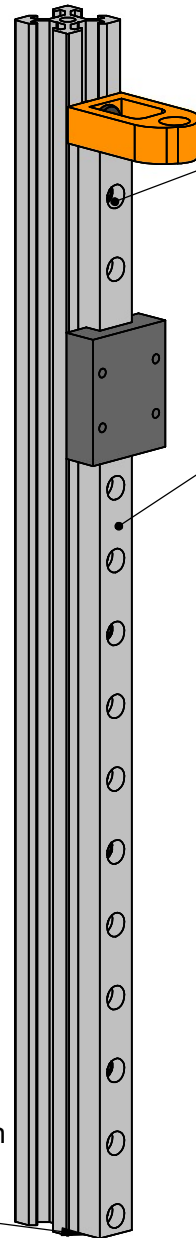
B

A

A



Exploded View



Assembled View

Fully-tighten the screws into the rail, ensuring that Drop-In T Nuts properly twist and seat into the rail.

Ensure that the rail is centered before fully tightening. Centering this rail "by eye" is sufficient.

The rail should be flush with the extrusion at this point.

ITEM NO.	DESCRIPTION	QTY.
1	M3 Buttonhead Screw, 8mm long	5
2	MGN12C Carriage Block	1
3	MGN12 Rail, 300mm	1
4	Small Leadscrew Retainer	1
5	M5 x 0.8 Screw, Low Profile, 10mm	1
6	330mm 2020 TSlot Extrusion	1
7	M3 Drop-In T-Nut for 20x20 Extrusion	5
8	M5 Drop-In T-Nut for 20x20 Extrusion	1

Front Z Tower Assembly Part 1

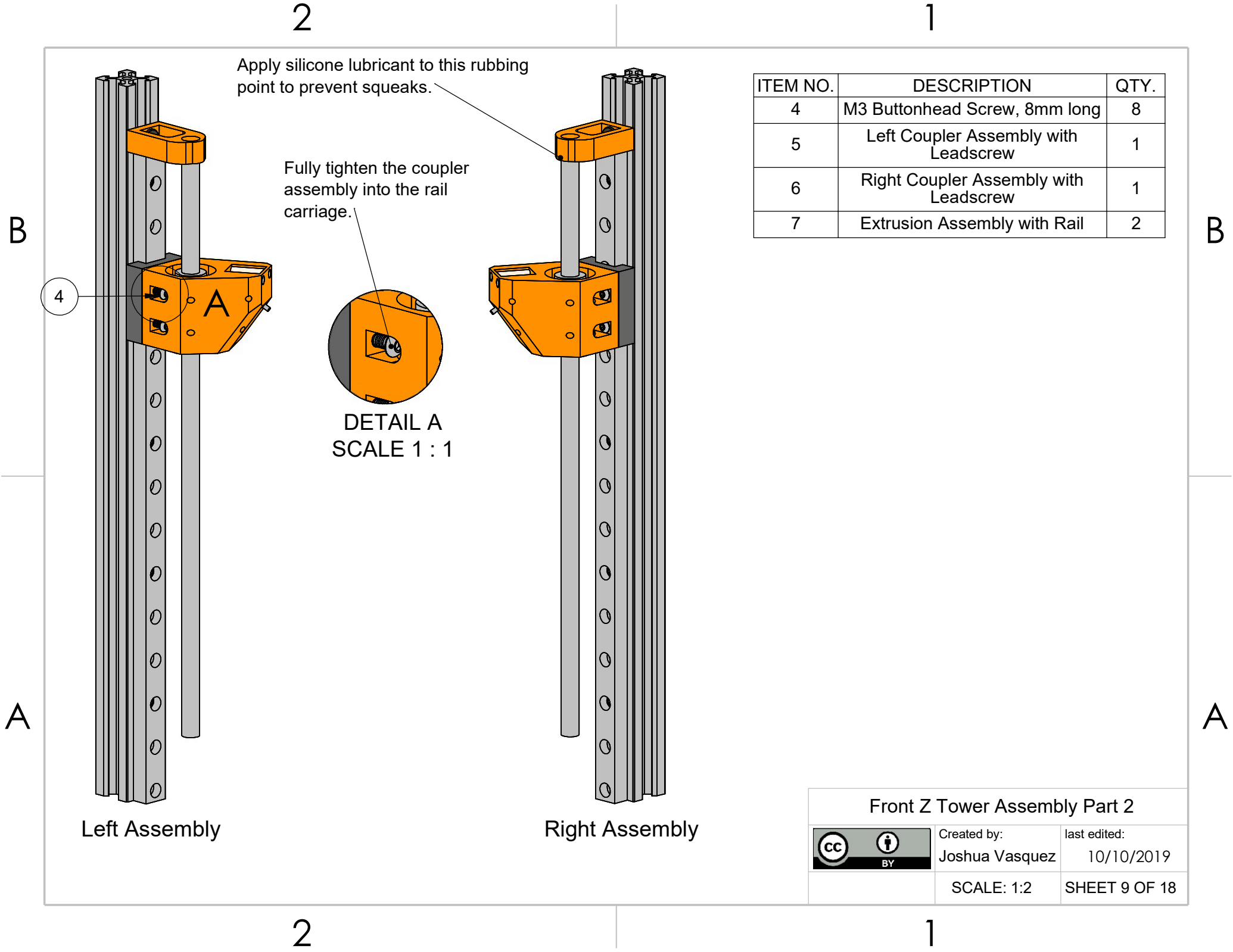


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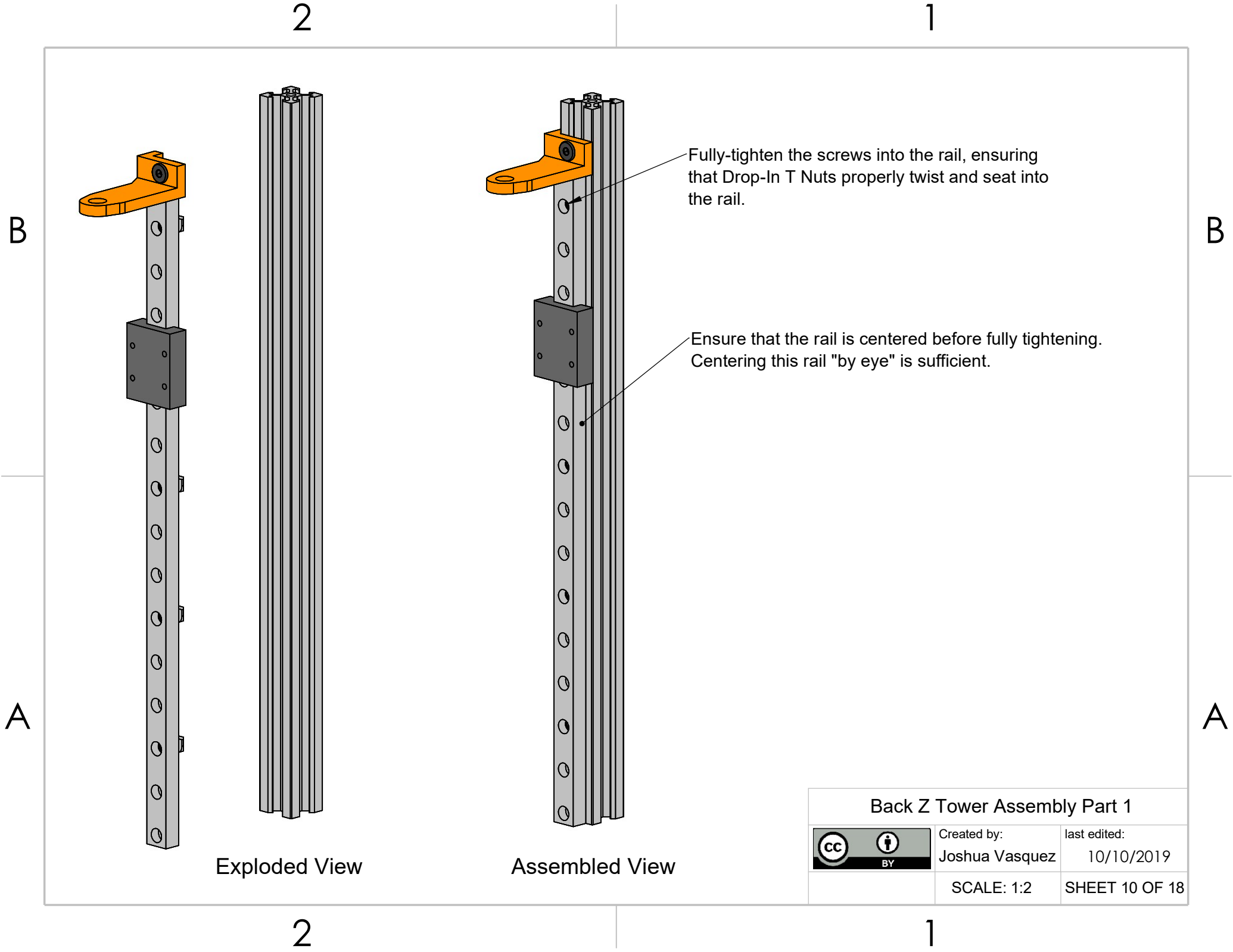
SCALE: 1:2


SHEET 8 OF 18



ITEM NO.	DESCRIPTION	QTY.
4	M3 Buttonhead Screw, 8mm long	8
5	Left Coupler Assembly with Leadscrew	1
6	Right Coupler Assembly with Leadscrew	1
7	Extrusion Assembly with Rail	2

Front Z Tower Assembly Part 2		
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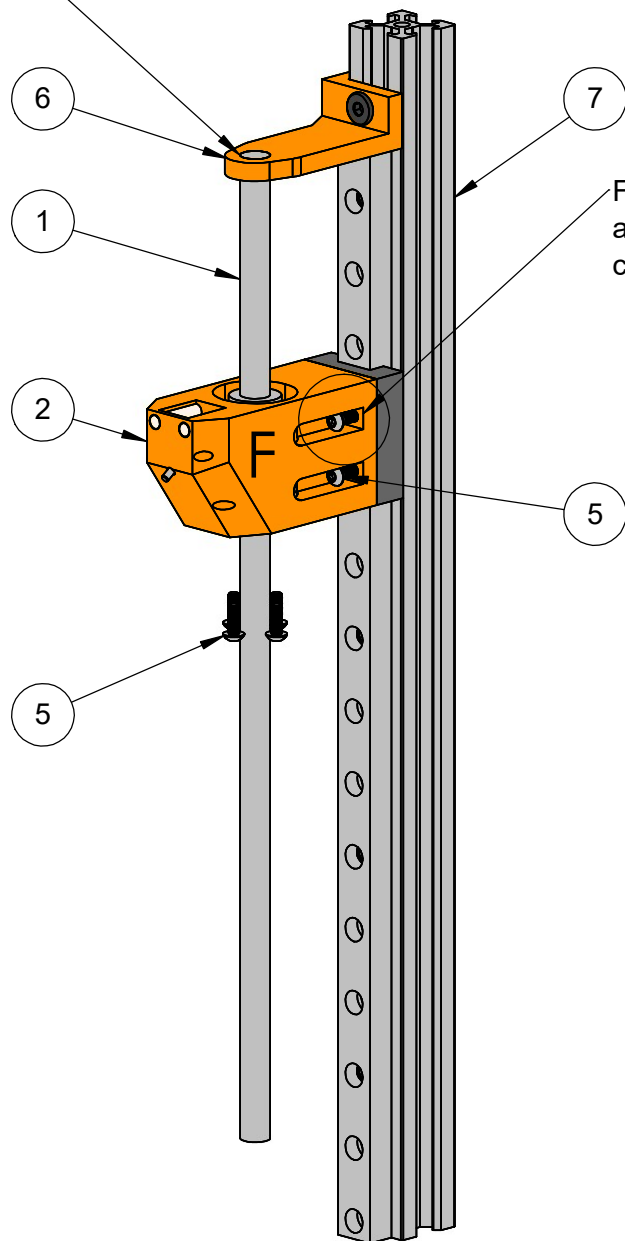


Back Z Tower Assembly Part 1		
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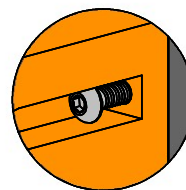
B

B

Apply silicone lubricant to this rubbing point to prevent squeaks.



Fully tighten the coupler assembly into the rail carriage.



DETAIL F

ITEM NO.	DESCRIPTION	QTY.
1	Z Leadscrew with Installed Nut	1
2	Back Coupling Plate with Inserts	1
3	MGN12 Rail, 300mm	1
4	MGN12C Carriage Block	1
5	M3 Buttonhead Screw, 8mm long	13
6	Back Leadscrew Retainer Assembly	1
7	330mm 2020 TSlot Extrusion	1
8	M3 Drop-In T-Nut for 20x20 Extrusion	5

Back Z Tower Assembly Part 2



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SHEET 11 OF 18

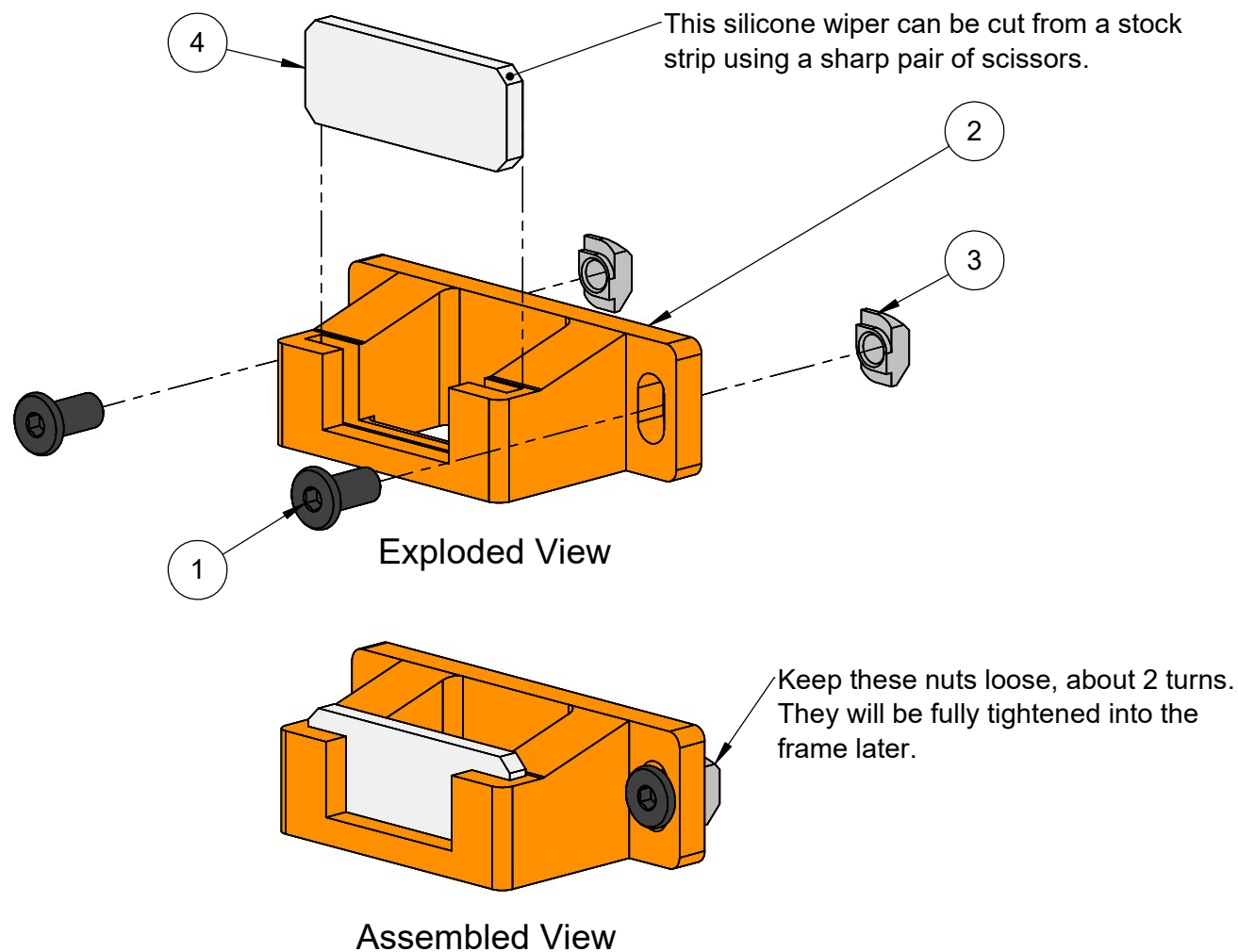
A

A

2

1

Make one assembly per tool. The remaining instructions depict a setup with two tools.



ITEM NO.	DESCRIPTION	QTY.
1	M5 x 0.8 Screw, Low Profile, 10mm	2
2	Ooze Wiper	1
3	M5 Drop-In T-Nut for 20x20 Extrusion	2
4	15mm x 40mm Silicone Wiper	1

Extruder Wiper Assembly



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SHEET 12 OF 18

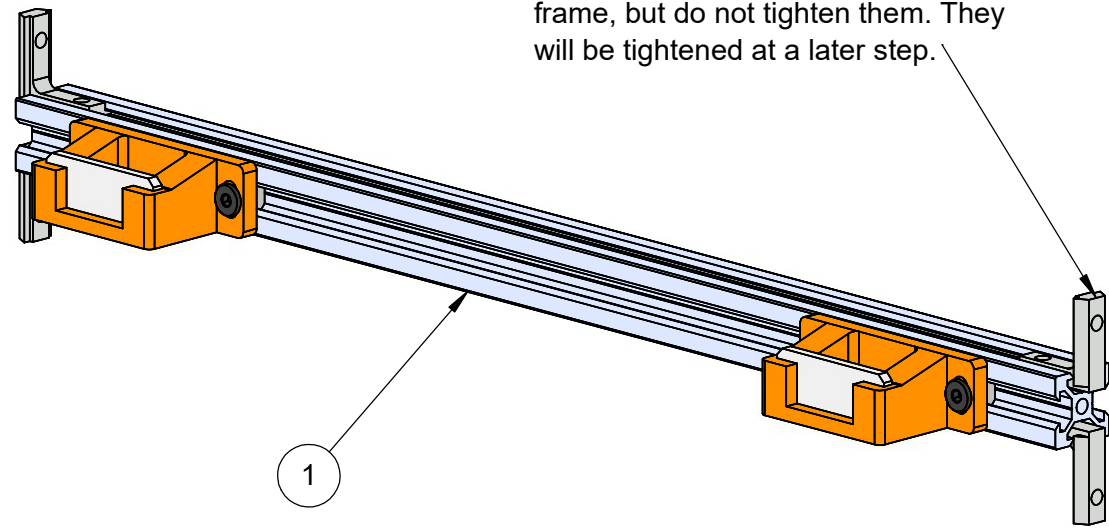
2

1

B

B

Slide these brackets loosely into the frame, but do not tighten them. They will be tightened at a later step.



1

A

A

ITEM NO.	DESCRIPTION	QTY.
1	389mm TSlot Extrusion	1
2	Inside corner bracket	4
3	Extruder Wiper Assembly	2

Ooze Control Assembly

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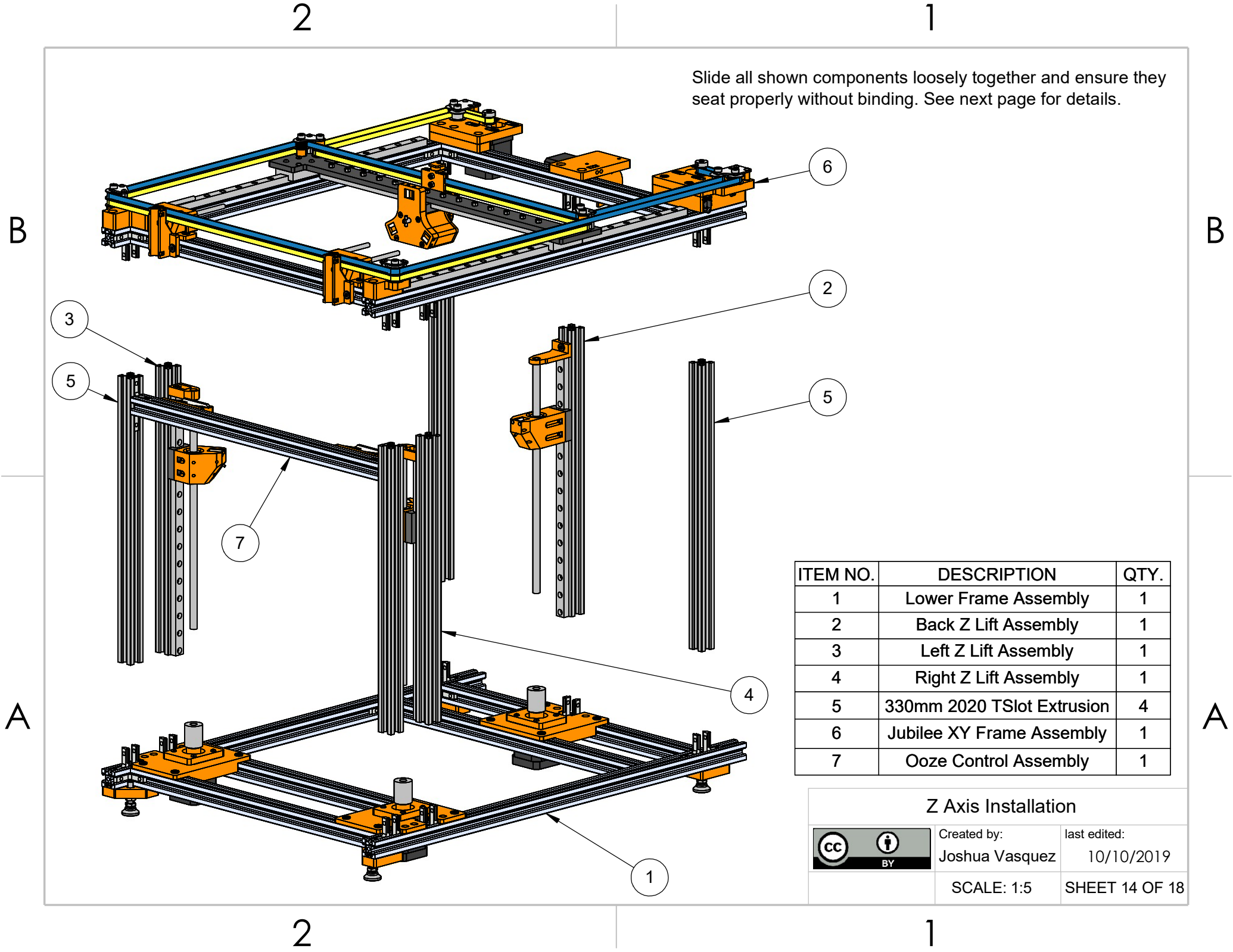
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SCALE: 1:2

SHEET 13 OF 18

2

1



Slide all shown components loosely together and ensure they seat properly without binding. See next page for details.

ITEM NO.	DESCRIPTION	QTY.
1	Lower Frame Assembly	1
2	Back Z Lift Assembly	1
3	Left Z Lift Assembly	1
4	Right Z Lift Assembly	1
5	330mm 2020 TSlot Extrusion	4
6	Jubilee XY Frame Assembly	1
7	Ooze Control Assembly	1

Z Axis Installation



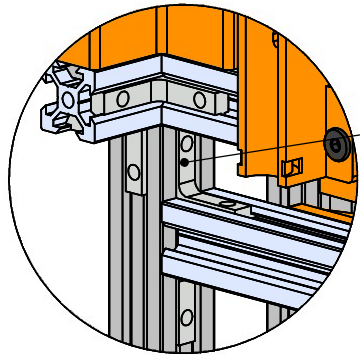
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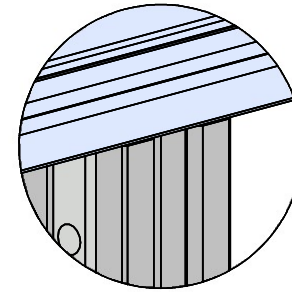
SHEET 14 OF 18

Once all components are fully seated, fully tighten all fasteners.

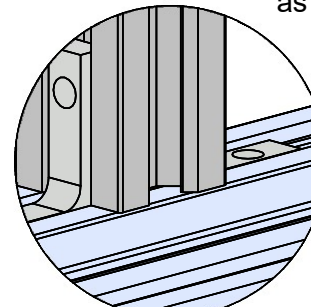


This inside-corner bracket should touch the bottom of the CoreXY frame assembly.

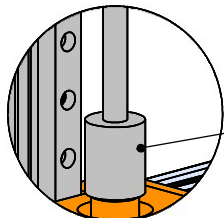
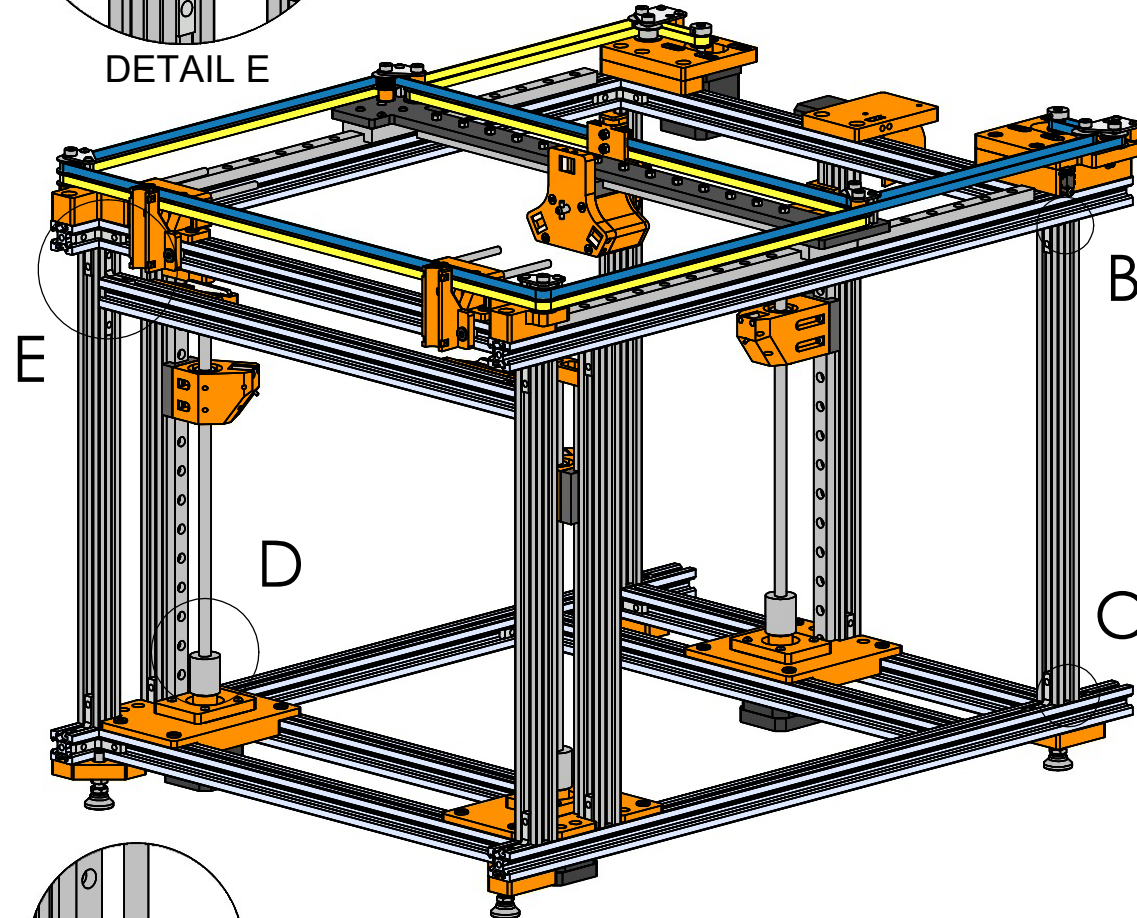
DETAIL E



DETAIL B Ensure that all extrusions are fully seated in their respective brackets as shown in Detail B and C.



DETAIL C



Don't forget to tighten the coupler screws.

DETAIL D

Z Axis Installation Detail



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SHEET 15 OF 18

2

1


Create 3 Springs from the spring stock.

B

B

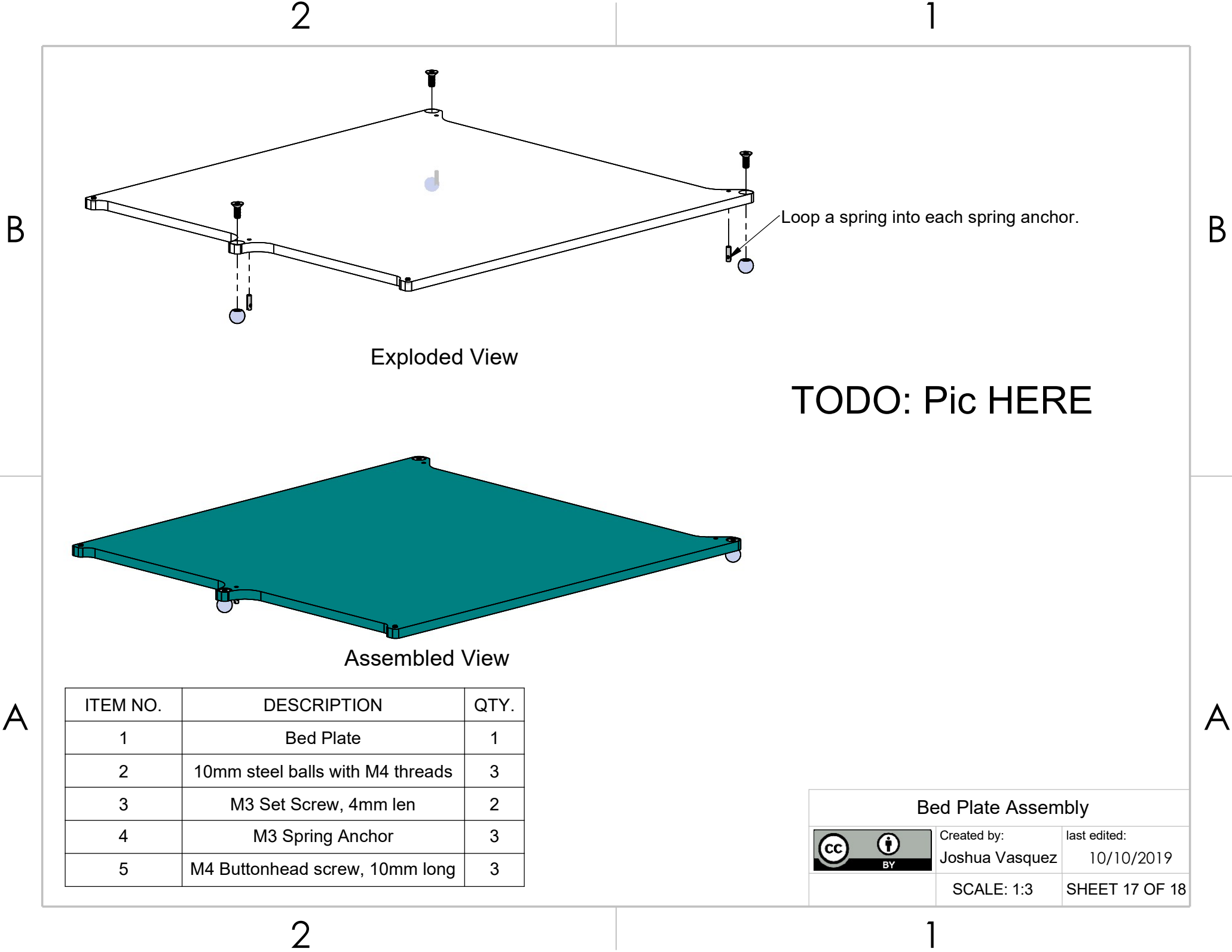
A

A

Bed Spring Fabrication		
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2

1



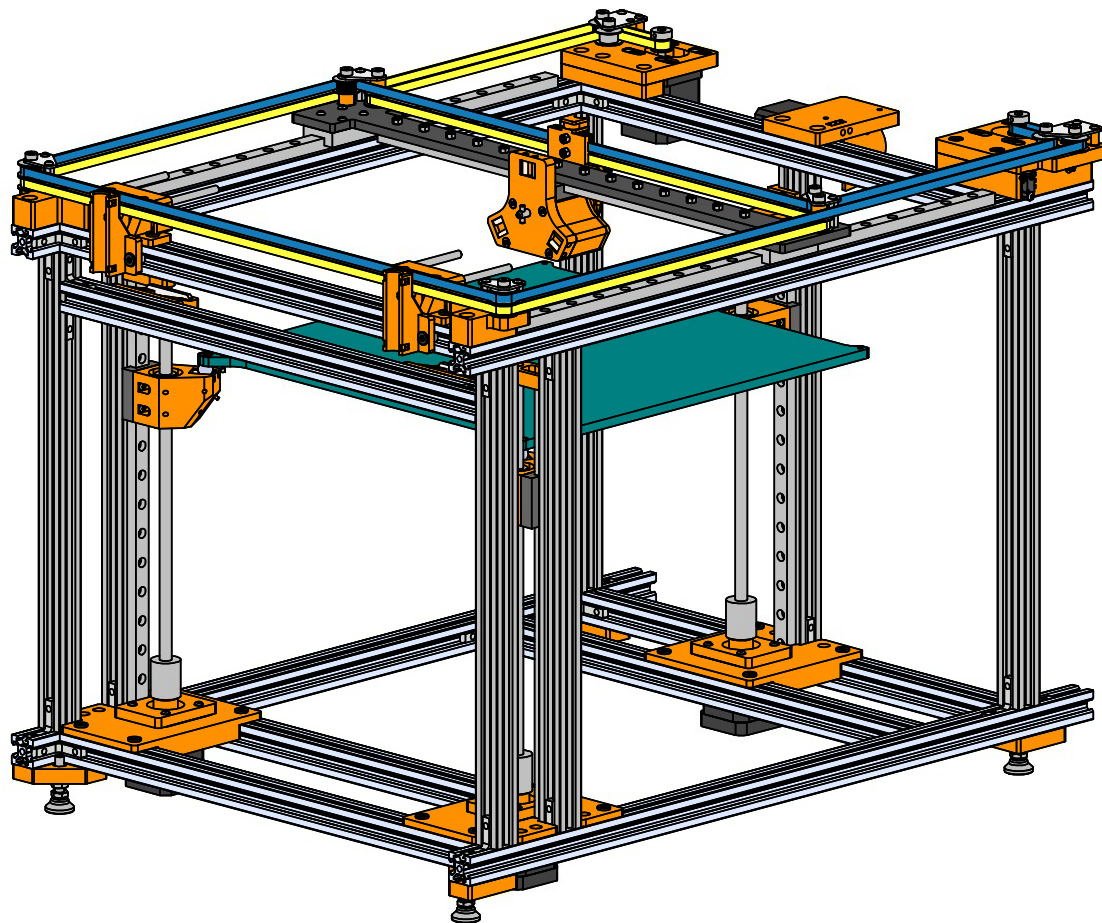
2

1

Install the bed plate by seating it into the coupling. Loop the dangling springs into the M2 dowel pins.

B

B



A

A

2

1

Bed Plate Installation



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