

### Z Axis Assembly



Created by:  
Joshua Vasquez

last edited:  
3/28/2020

SCALE: 1:4

SHEET 1 OF 16

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.



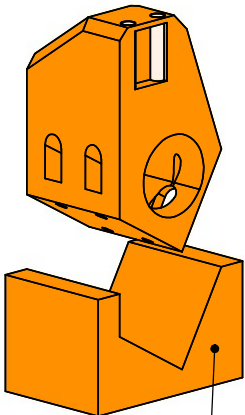
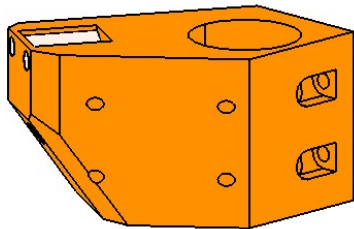
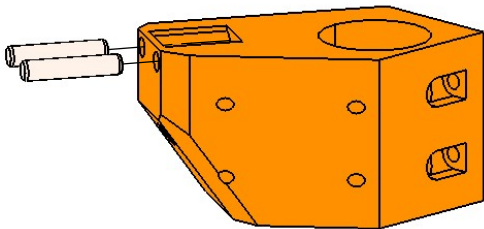
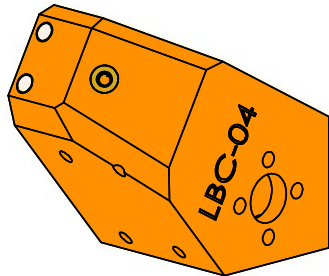
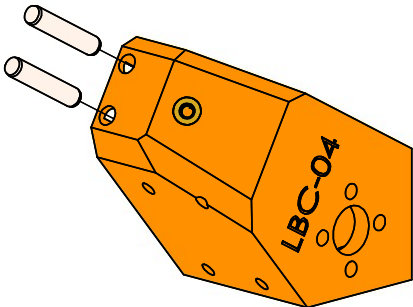
ITEM NO.	DESCRIPTION	QTY.
1	8mm T8x2 Trapezoidal Lead Screw	3
2	8mm T8x2 Small Delrin Anti-Backlash Nut	3

Lead Screw Nut Installation		
	Created by: Joshua Vasquez	last edited: 3/28/2020
	SCALE: 1:3	SHEET 2 OF 16

2

1

Press-Fit all pins with an arbor press..



Use the printed fixture to hold both pieces upright while installing the pins with the arbor press.

ITEM NO.	DESCRIPTION	QTY.
1	Left Bed Coupler with Insert	1
2	Right Bed Coupler with Insert	1
3	M4 Dowel Pin, 20mm long	4
4	Spring Pin Insertion Fixture	1
5	Coupling Pin Insertion Fixture	1

Front Coupling Plate Assemblies

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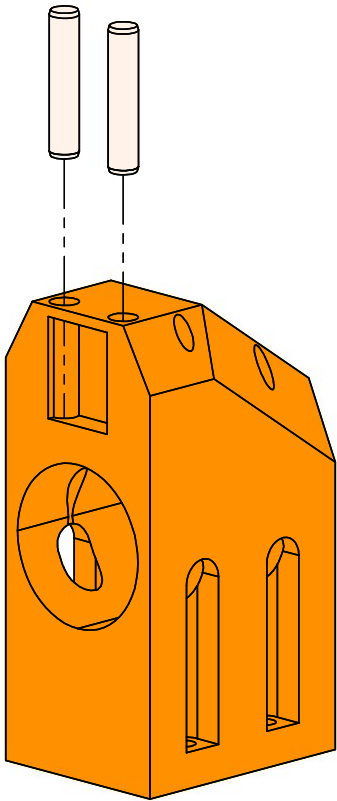
SCALE: 2:3

SHEET 3 OF 16

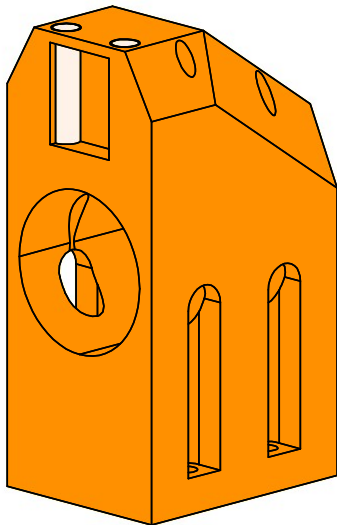
2

1

Press-Fit the M4 dowel pins with an arbor press. Install the set screw with a hex key.




Exploded View



Assembled View

ITEM NO.	DESCRIPTION	
1	M4 Dowel Pin, 20mm long	2
2	Back Bed Coupler with Insert	1

Back Z Lift Assembly		
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	SCALE: 1:1	SHEET 4 OF 16

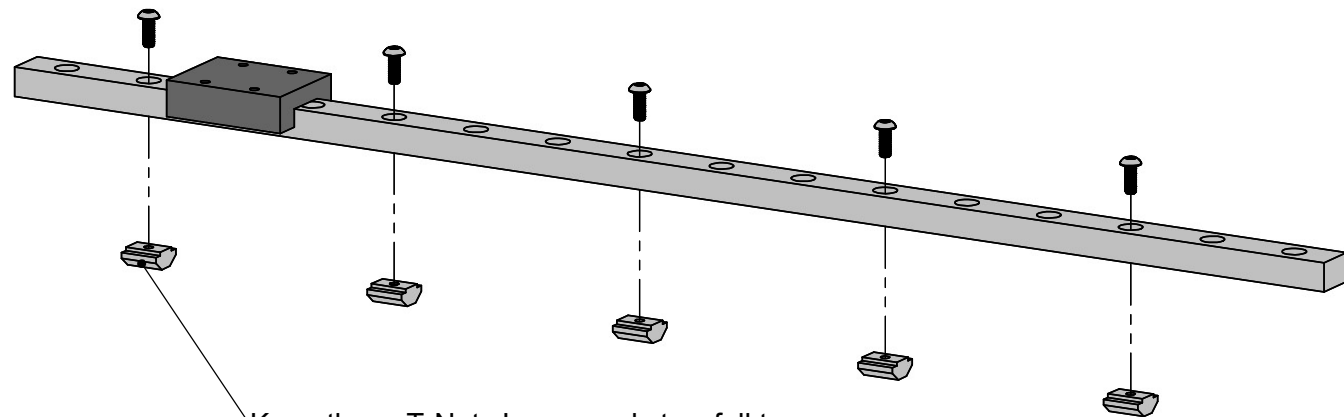
2

1

2

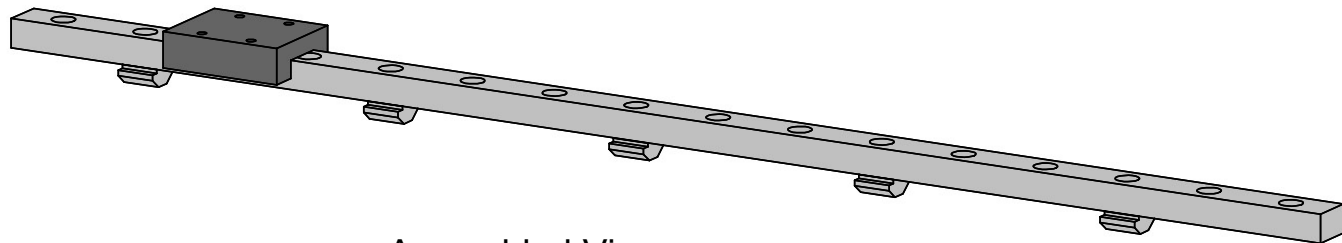
1

Make three Assemblies



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

Exploded View



Assembled View

### Linear Rail Assembly



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SCALE: 1:2

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2

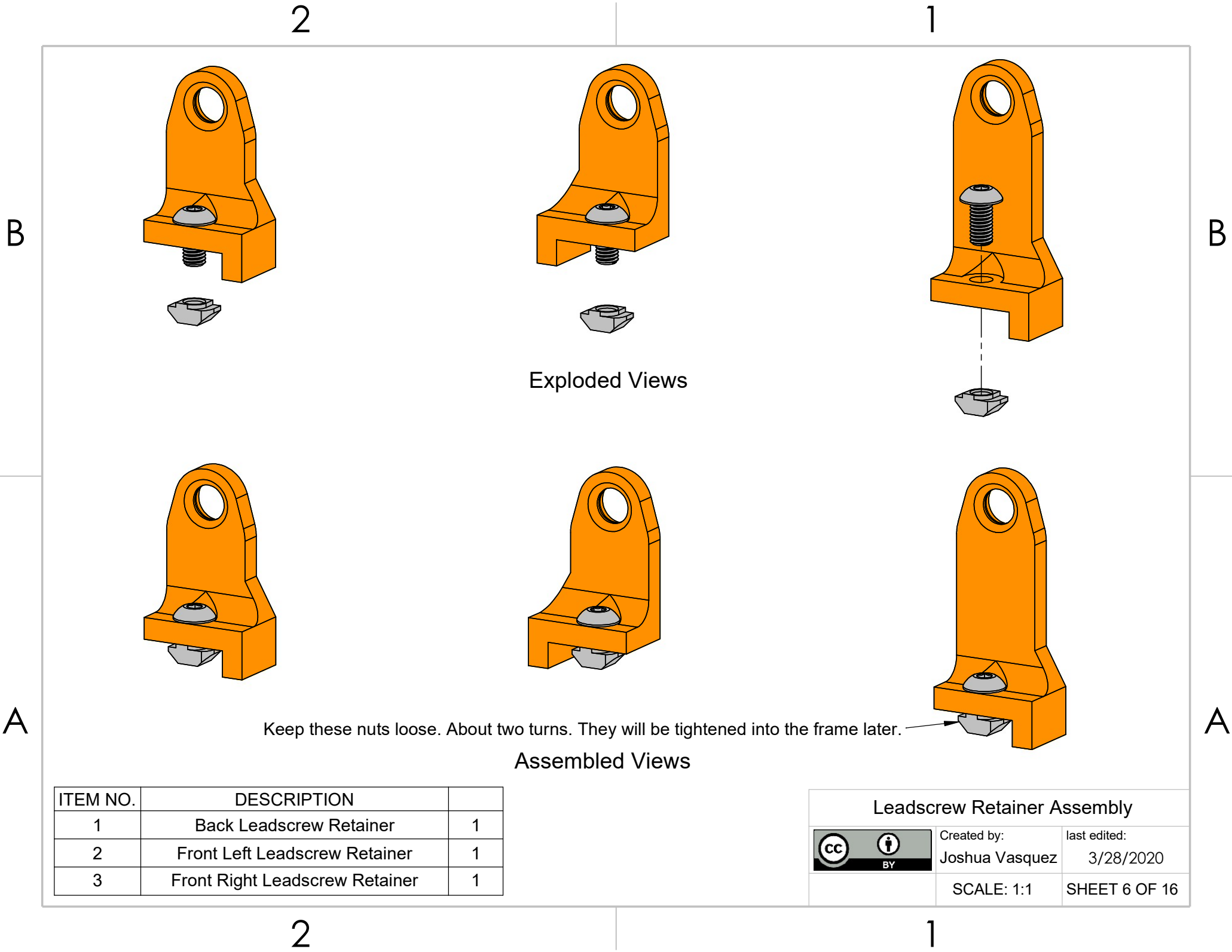
1

B

B

A

A



2

1

Make three assemblies using each leadscrew retainer from the prior step.

B

B

Ensure that the rail is centered. Then fully tighten all M3 screws. Note that centering this rail "by eye" is sufficient.

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

Fully secure each retainer assembly such that it touches the rail.

A

A

ITEM NO.	DESCRIPTION	QTY.
3	400mm long MGN12 rail with Carriage, screws, and nuts	3
4	430mm 2020 TSlot Extrusion	3

2

1

### Front Z Tower Assembly Part 1



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SCALE: 1:3

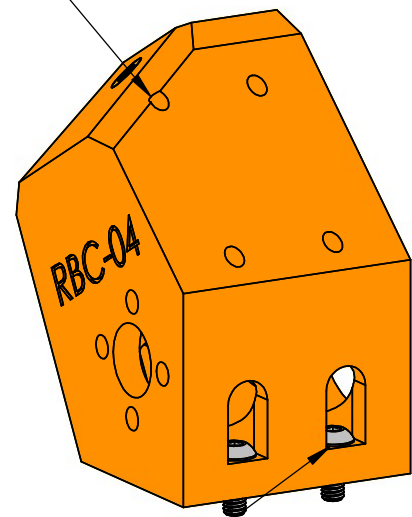
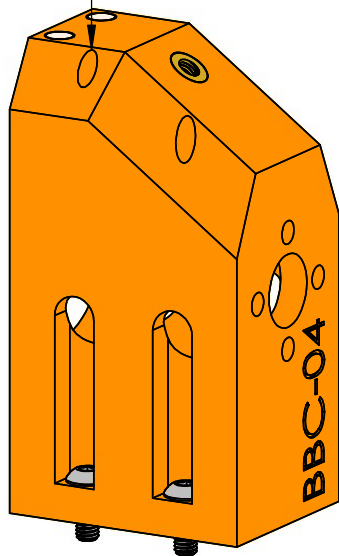
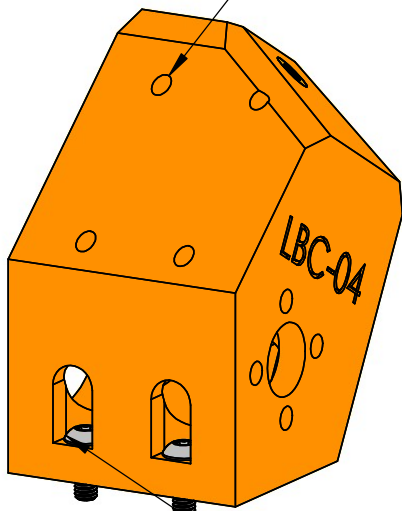
SHEET 7 OF 16

2

1

B

B



These holes are for tightening the screws with a hex key in the next step.

Install four M3, 8mm long screws into each hole first on both the front left and right bed coupling lifts.

Installing them here first will make them easier to attach to the carriage in the next step.

A

A

ITEM NO.	DESCRIPTION	QTY.
1	Left Bed Coupler with Pins and Insert	1
2	Right Bed Coupler with Pins and Insert	1
3	Back Bed Coupler with Pins and Insert	1
5	M3 Buttonhead Screw, 8mm long	12

Screw Preloading



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SCALE: 1:1

SHEET 8 OF 16

2

1



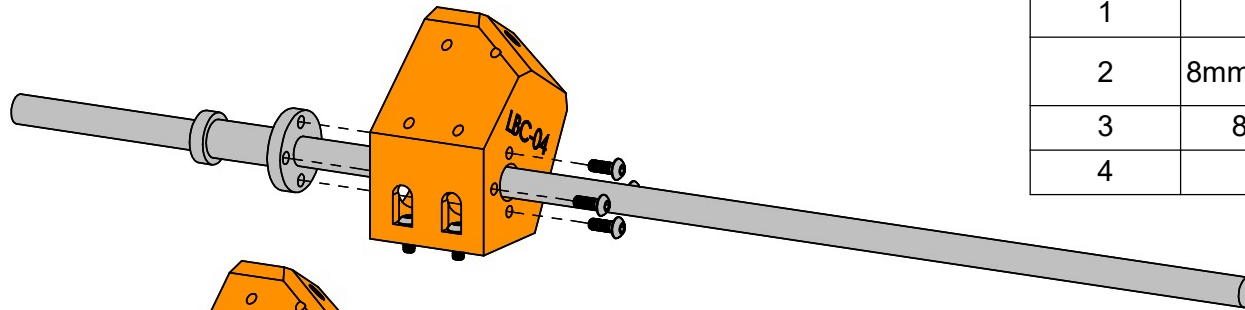
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1

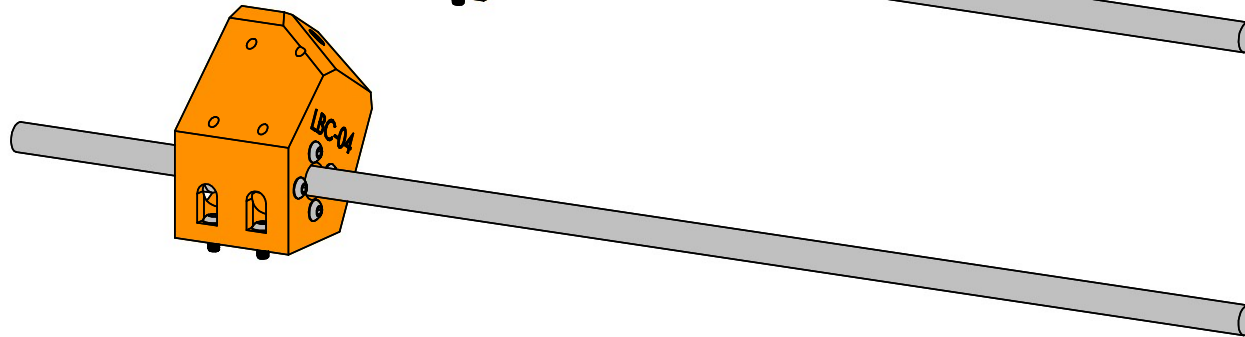
B

B

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



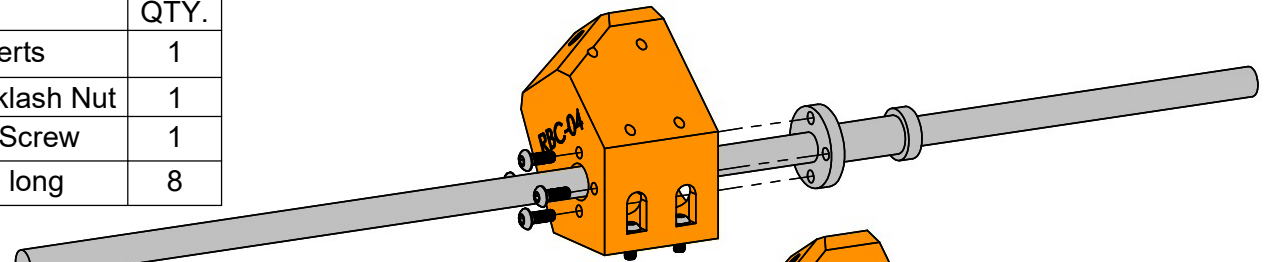
Exploded View



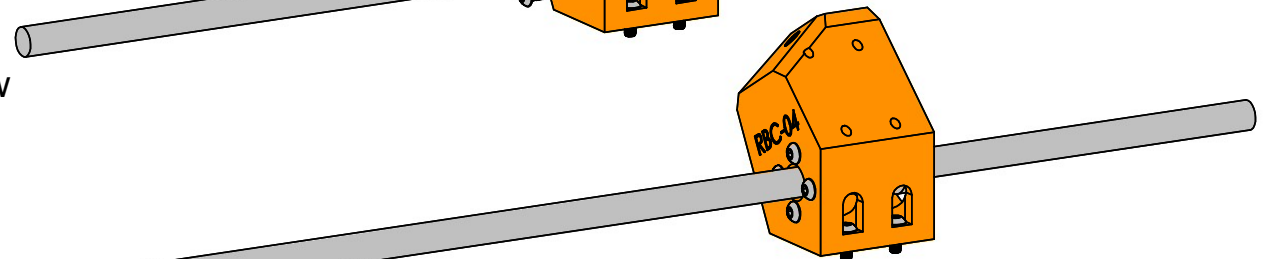
Assembled View

ITEM NO.	DESCRIPTION	QTY.
1	Right Bed Coupler with Inserts	1
2	8mm T8x2 Small Delrin Anti-Backlash Nut	1
3	8mm T8x2 Trapezoidal Lead Screw	1
4	M3 Buttonhead Screw, 8mm long	8

Exploded View



Assembled View



## Front Z Lift Assemblies



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SCALE: 1:2

SHEET 9 OF 16

2

1

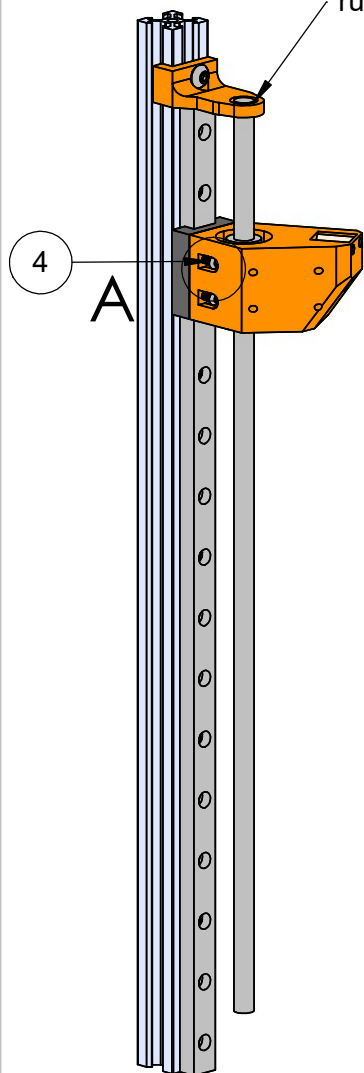
A

A

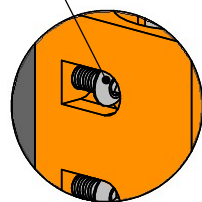
Left Assembly

Right Assembly

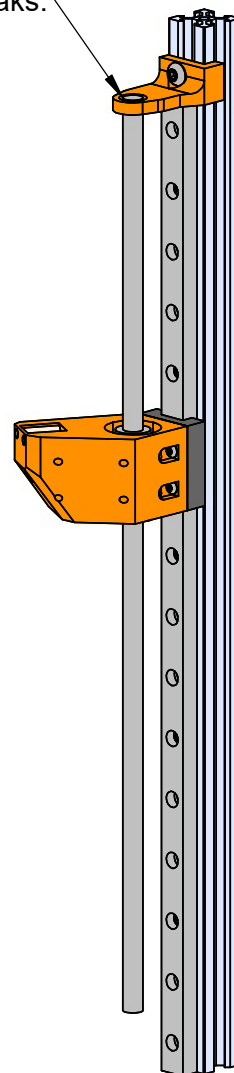
Apply silicone lubricant to these rubbing points to prevent squeaks.



Fully tighten the coupler assembly into the rail carriage.



DETAIL A  
SCALE 1 : 1



ITEM NO.	DESCRIPTION	
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
10	Front Left Leadscrew Retainer Assembly	1

Front Z Tower Assemblies

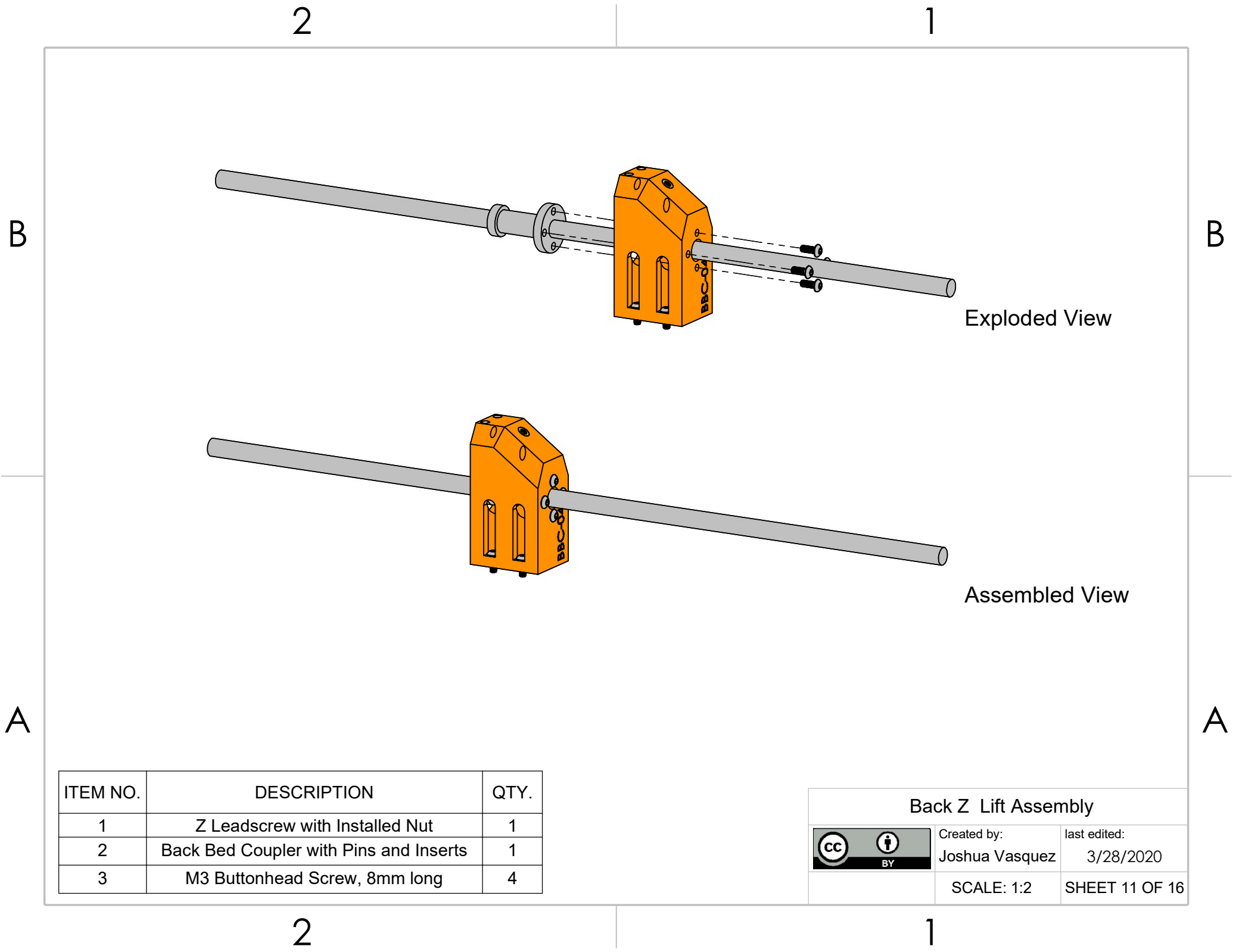


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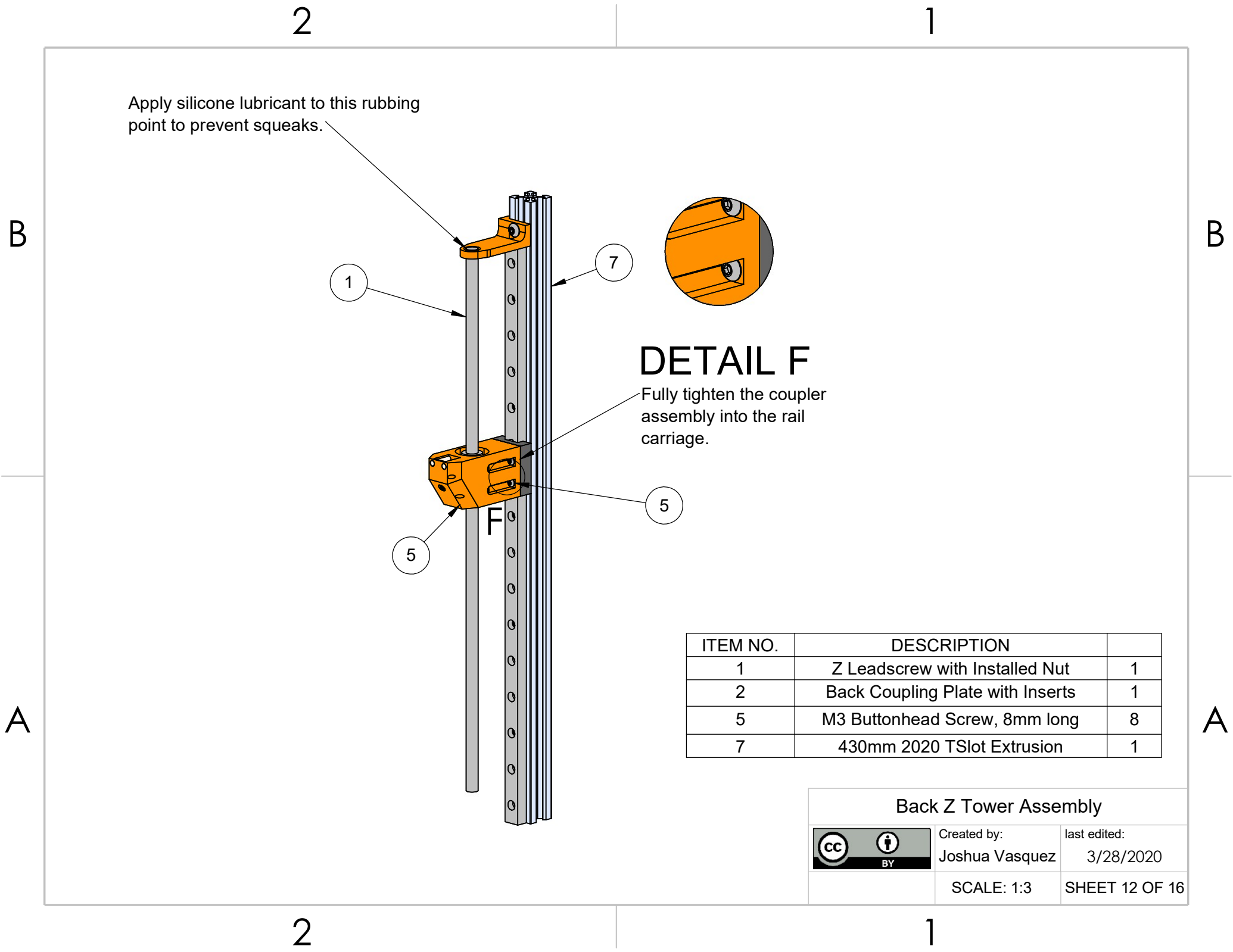
SCALE: 1:3


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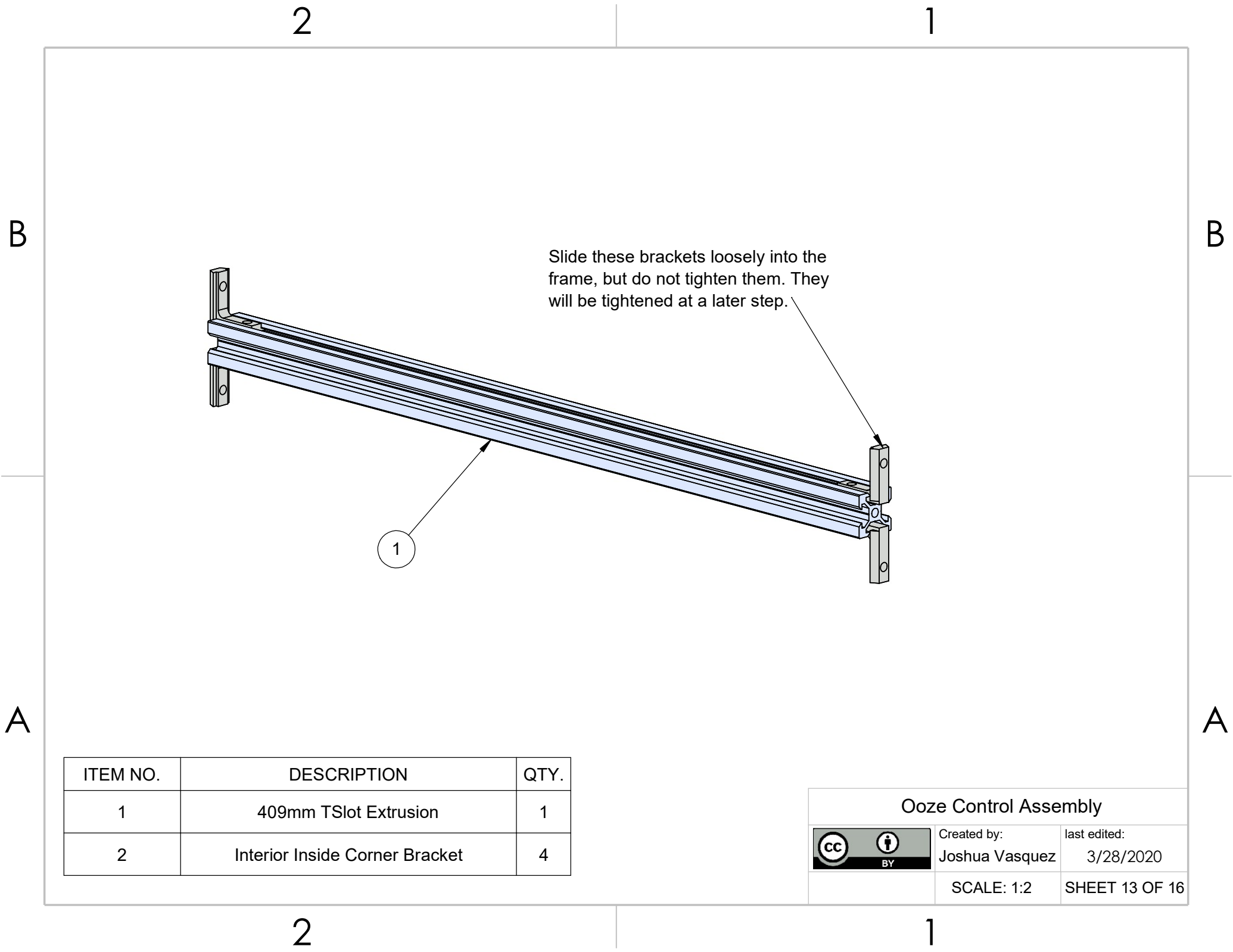


ITEM NO.	DESCRIPTION	QTY.
1	Z Leadscrew with Installed Nut	1
2	Back Bed Coupler with Pins and Inserts	1
3	M3 Buttonhead Screw, 8mm long	4

Back Z Lift Assembly		
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	SCALE: 1:2	SHEET 11 OF 16




Back Z Tower Assembly		
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	Joshua Vasquez	3/28/2020
	SCALE: 1:3	SHEET 12 OF 16

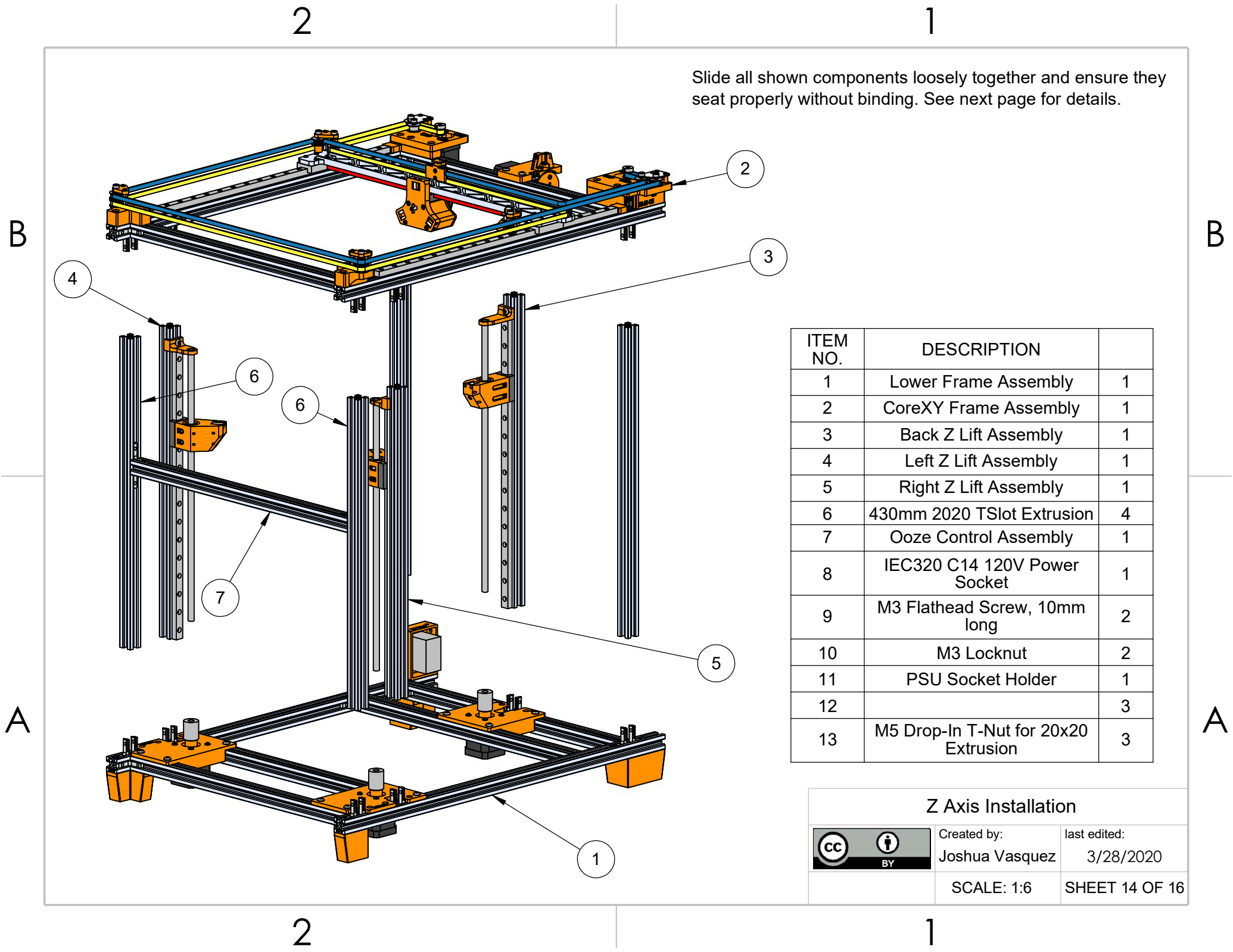


Slide these brackets loosely into the frame, but do not tighten them. They will be tightened at a later step.

1

ITEM NO.	DESCRIPTION	QTY.
1	409mm TSlot Extrusion	1
2	Interior Inside Corner Bracket	4

Ooze Control Assembly		
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	SCALE: 1:2	SHEET 13 OF 16



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

ITEM NO.	DESCRIPTION	
1	Lower Frame Assembly	1
2	CoreXY Frame Assembly	1
3	Back Z Lift Assembly	1
4	Left Z Lift Assembly	1
5	Right Z Lift Assembly	1
6	430mm 2020 TSlot Extrusion	4
7	Ooze Control Assembly	1
8	IEC320 C14 120V Power Socket	1
9	M3 Flathead Screw, 10mm long	2
10	M3 Locknut	2
11	PSU Socket Holder	1
12		3
13	M5 Drop-In T-Nut for 20x20 Extrusion	3

Z Axis Installation



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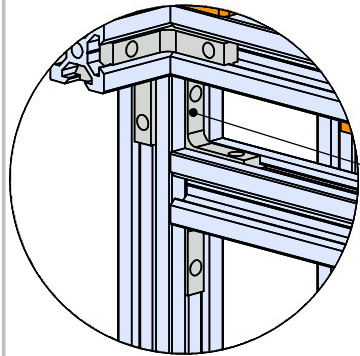
SCALE: 1:6

SHEET 14 OF 16

2

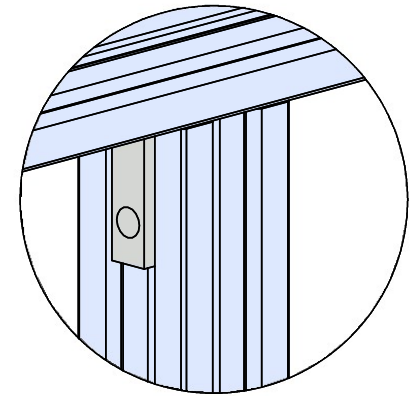
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Once all components are fully seated, fully tighten all fasteners.



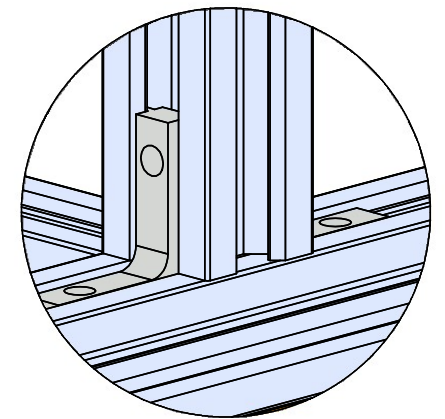
This inside-corner bracket should touch the bottom of the CoreXY frame assembly.

DETAIL E

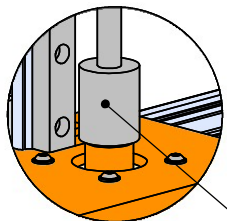
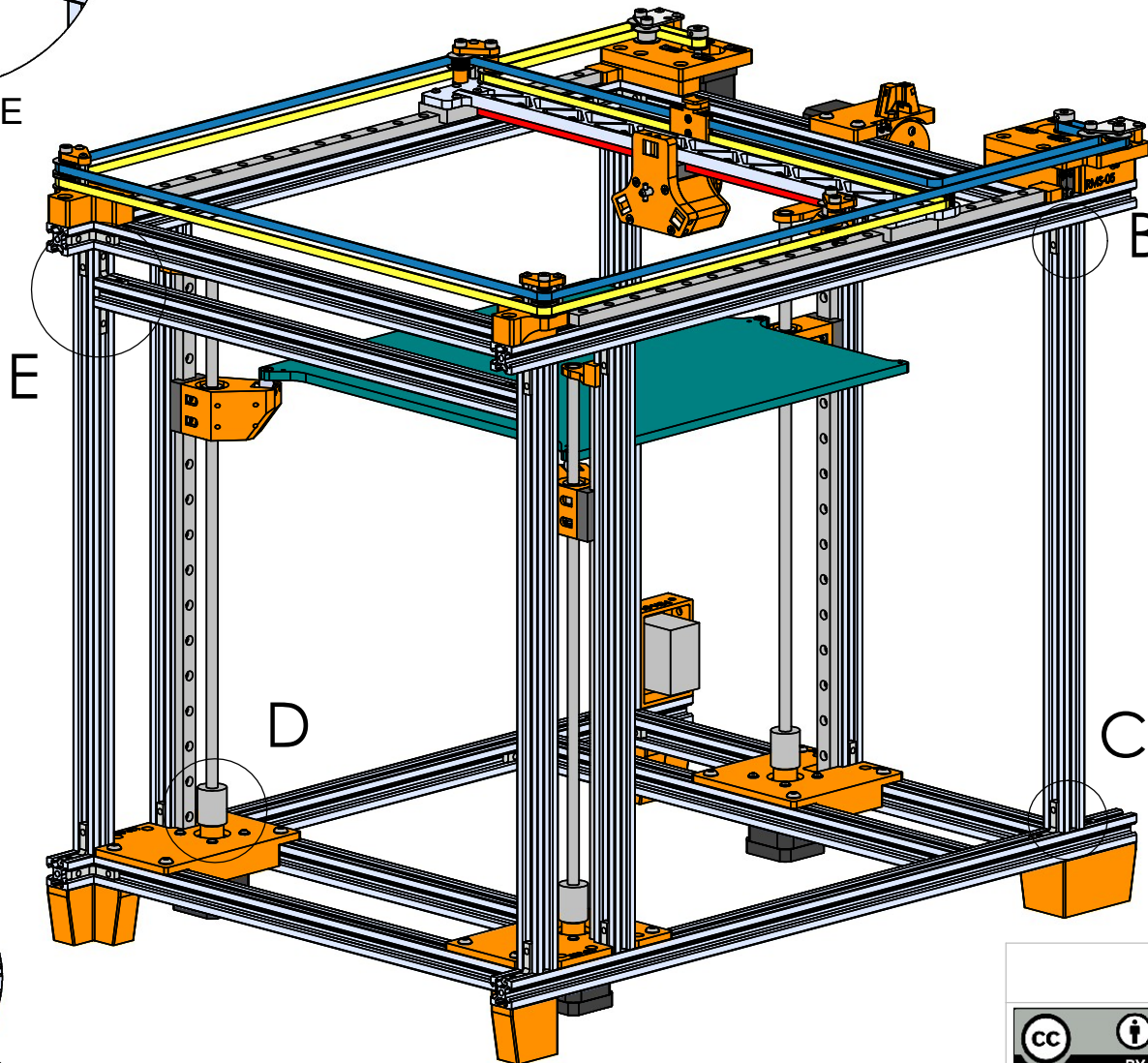


DETAIL B

Ensure all extrusions are fully seated. Then fully tighten them down. (Note that there are four corner brackets per extrusion.)



DETAIL C



DETAIL D

Slide each leadscrew into the coupler and tighten the coupler screw.

### Z Axis Installation Detail



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SCALE: 1:5

SHEET 15 OF 16

2

1

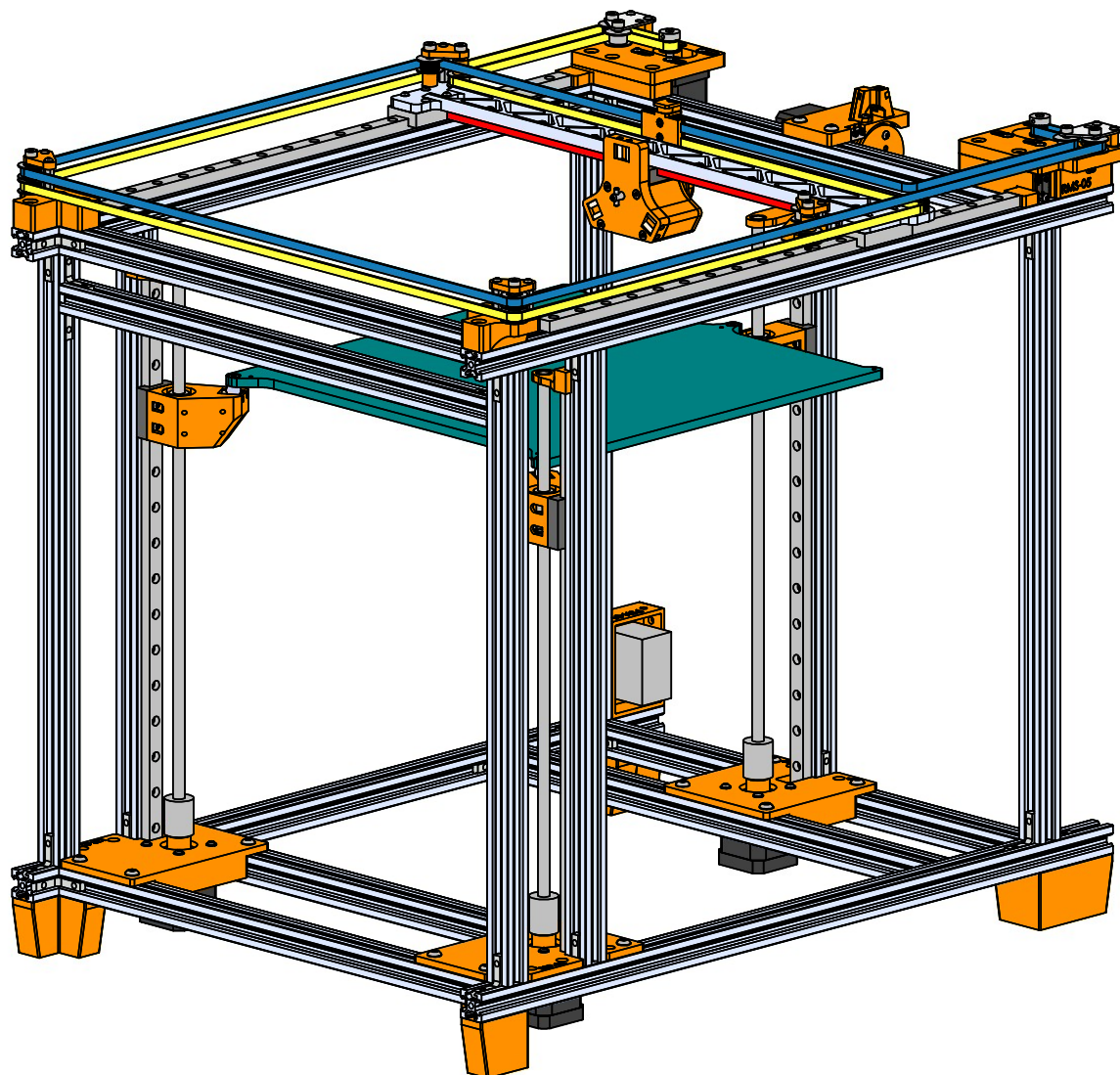


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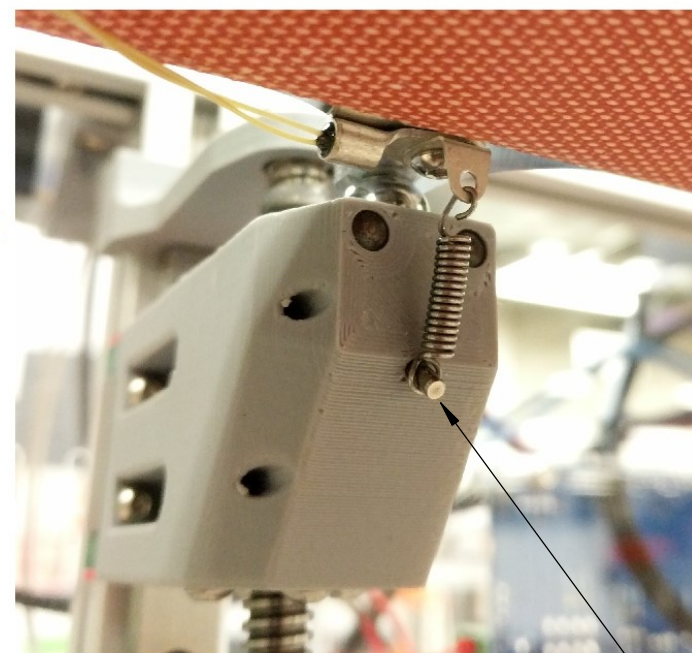
1

Install the bed plate assembly by seating it into the coupling. It should slide into the proper position.

B



B



Loop the dangling springs into the M2 screws. Use either the pliers or the smallest Hex Key to snag the lower loop and seat it onto the anchor point.

Do NOT use your fingers as the springs are both a pinch and poke hazard.

A

A

2

1

### Bed Plate Installation



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SCALE: 1:5

SHEET 16 OF 16