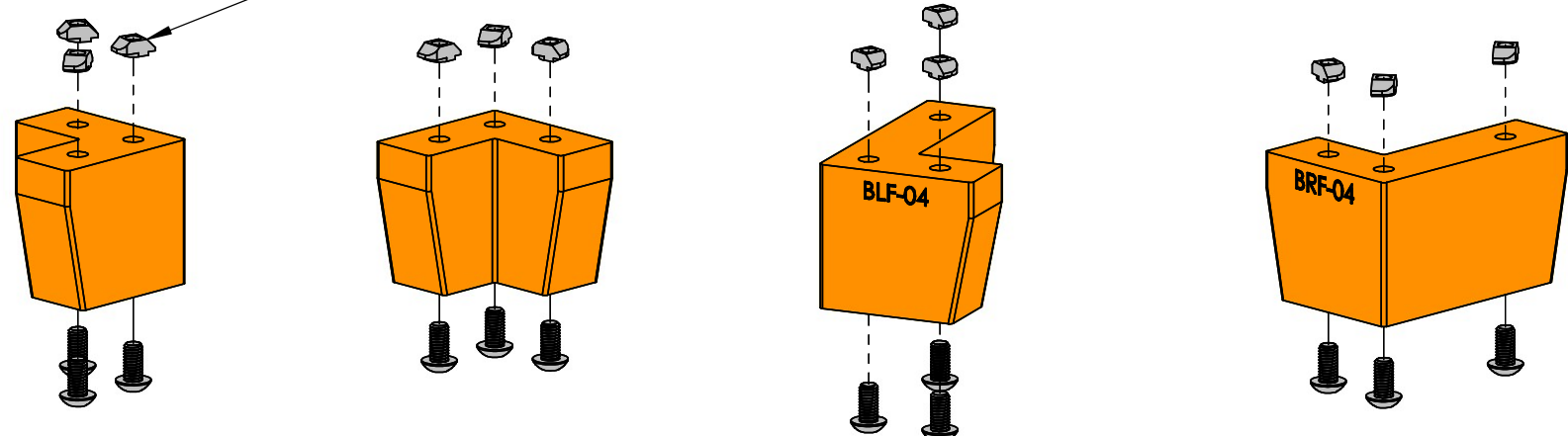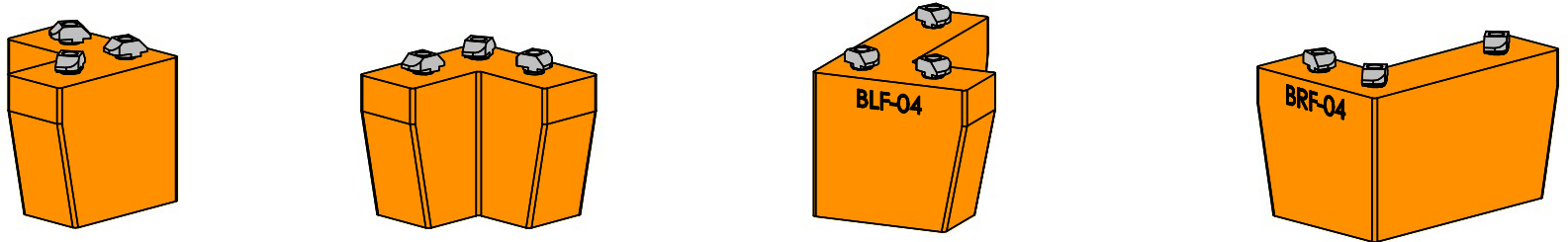| Lower Frame Assembly		
CC BY	Created by: Joshua Vasquez	last edited: 5/27/2020
	SCALE: 1:3	SHEET 1 OF 14

B

Populate all screw holes with screws and nuts — Keep all nuts loose. Only 1-2 turns. They will be fully tightened into the frame later.

BLF-04

BRF-04

Exploded Views

Assembled Views

BLF-04

BRF-04

ITEM NO.	DESCRIPTION	QTY.
1	Back Right Foot	1
2	Back Left Foot	1
3	Front Right Foot	1
4	Front Left Foot	1
5	M5 Drop-In T-Nut for 20x20 Extrusion	12
6	M5 Buttonhead Screw, 10mm long	12

Foot Screw Installation

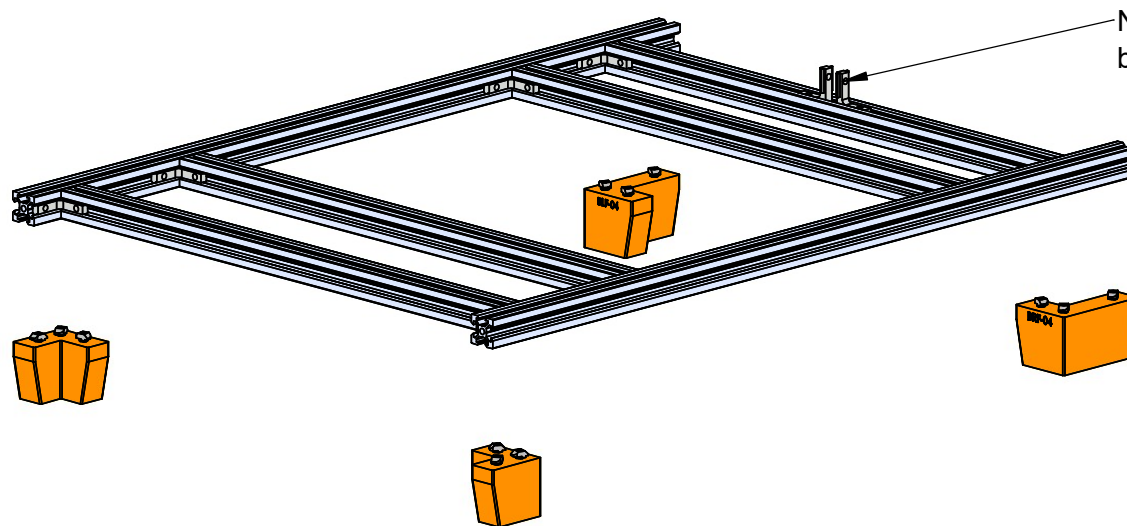|	
Created by: Joshua Vasquez	last edited: 5/27/2020
SCALE: 1:2	SHEET 2 OF 14

Fully tighten the feet into the four corners shown below. (It may be easier to prop the frame up vertically to do the installation.)

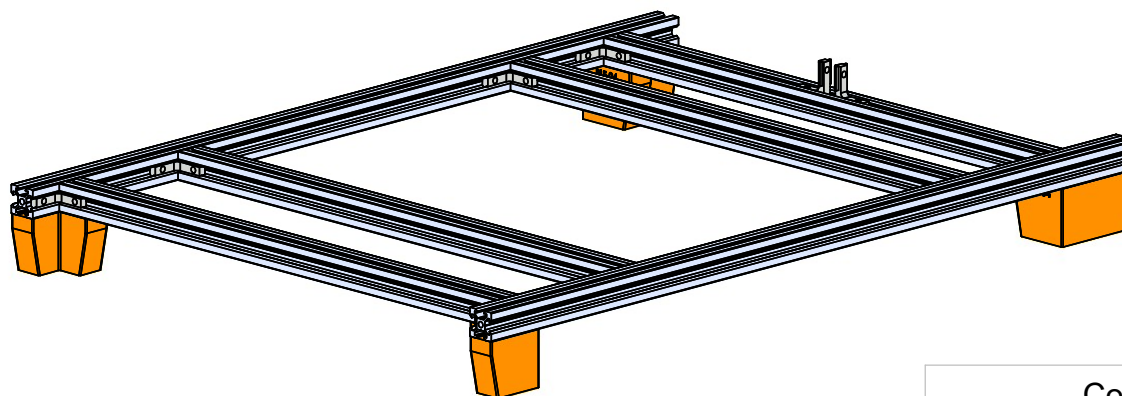Note that these inside-corner brackets should face upwards.

Exploded View

Assembled View

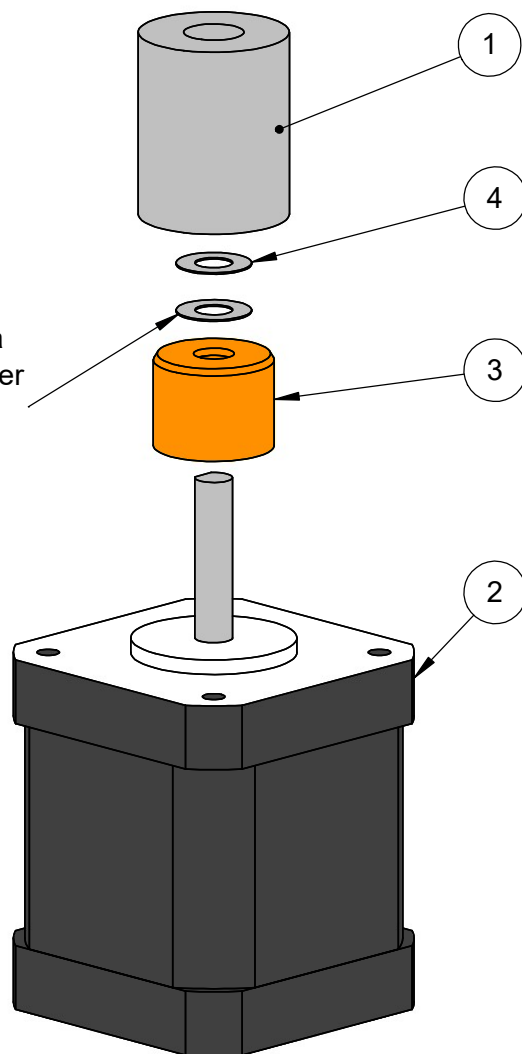| Corner Foot Installation		
	Created by:	last edited:
CC BY	Joshua Vasquez	5/27/2020
	SCALE: 1:5	SHEET 3 OF 14

B

Make 3 Assemblies.

The shim with a 10mm outer diameter has more surface area than the 7 or 8mm outer-diameter variants.

With one hand, compress the coupler onto the motor shaft to remove any space on the motor shaft. Securely screw down the coupler in this configuration.

Exploded View
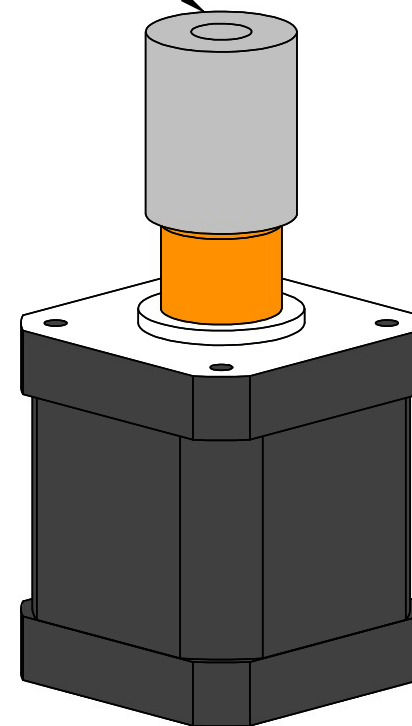
Assembled View

ITEM NO.	DESCRIPTION	QTY.
1	5mm to 8mm flexible plumb coupler	1
2	Nema 17 Stepper Motor	1
3	Z Thrust Bearing Spacer	1
4	M5 Shim, 0.2mm thick, 10mm OD	2

Z Motor Thrust Coupling Assembly

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Joshua Vasquez	5/27/2020

SCALE: 1:1   SHEET 4 OF 14
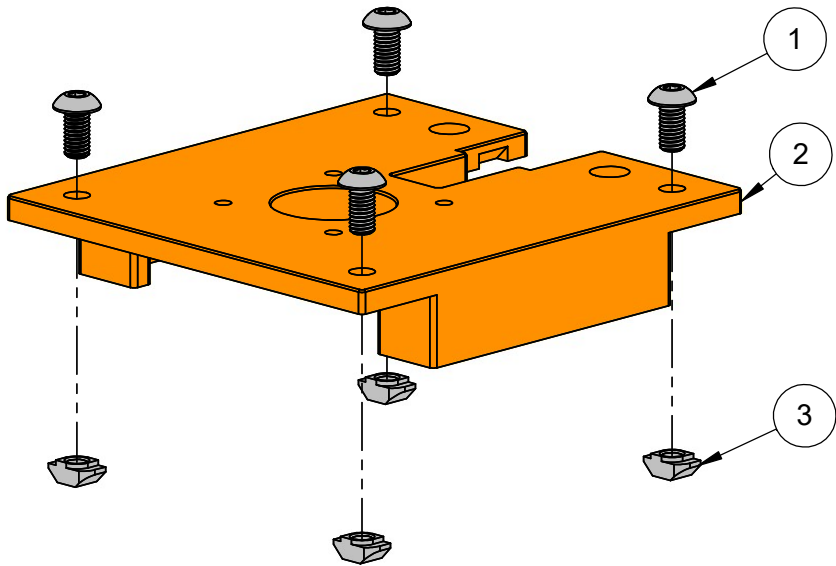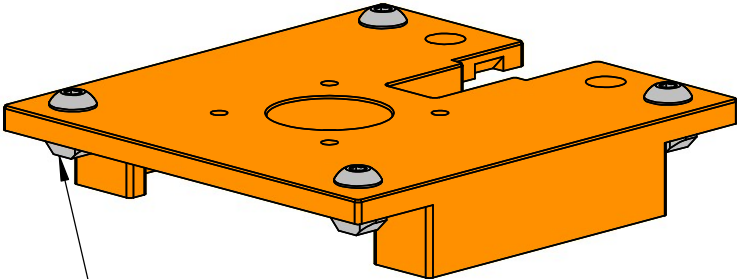
B

Exploded View

Assembled View

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

ITEM NO.	DESCRIPTION	QTY.
1	M5 Buttonhead Screw, 10mm long	4
2	Back Z Motor Plate	1
3	M5 Drop-In T-Nut for 20x20 Extrusion	4

Back Z Motor Plate Assembly 1

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	SCALE: 1:1.5	SHEET 5 OF 14

Apply a dab of threadlock to the tip of the four M3 screws before tightening them down securely.

B

(2)

Assembled View

A

Wires should
stick out in this
direction.

Exploded View

ITEM NO.	DESCRIPTION	QTY.
2	M3 Buttonhead Screw, 10mm long	4
3	Back Plate Plate Assembly	1
5	Z Motor Thrust Coupling Assembly	1
6	M3 Washer	4

Back Z Motor Plate Assembly 2

(cc) (i)
BY

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SCALE: 1:1.5   SHEET 6 OF 14

Exploded View

Assembled View

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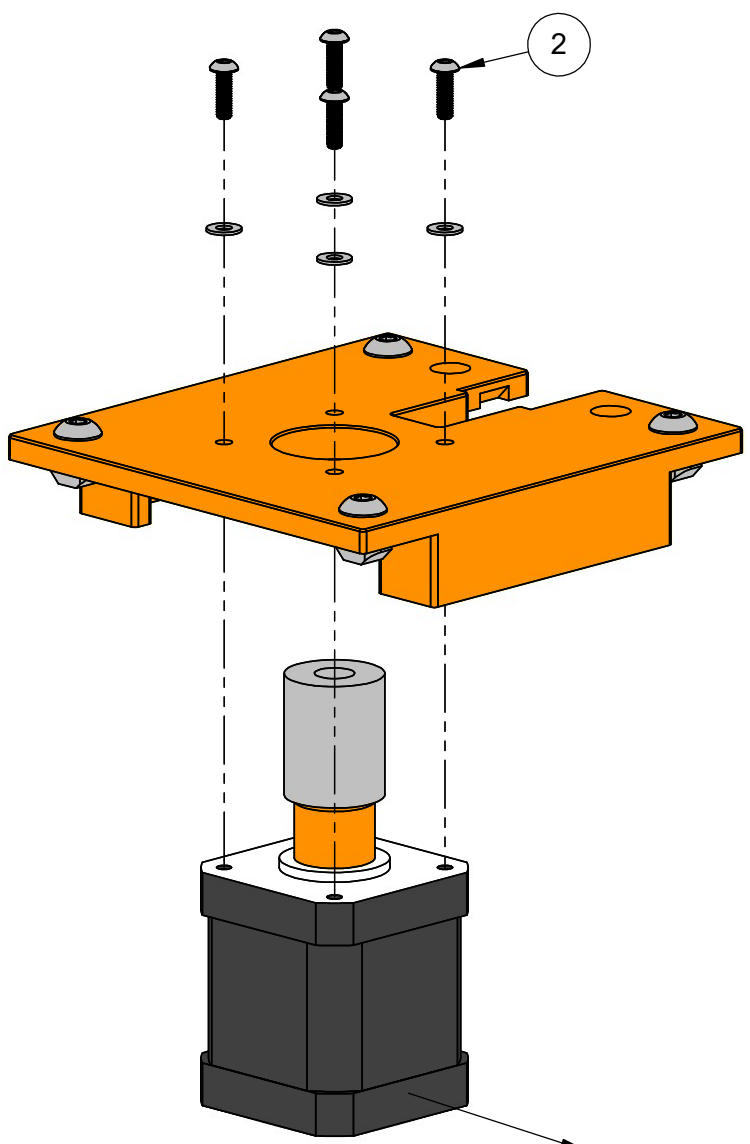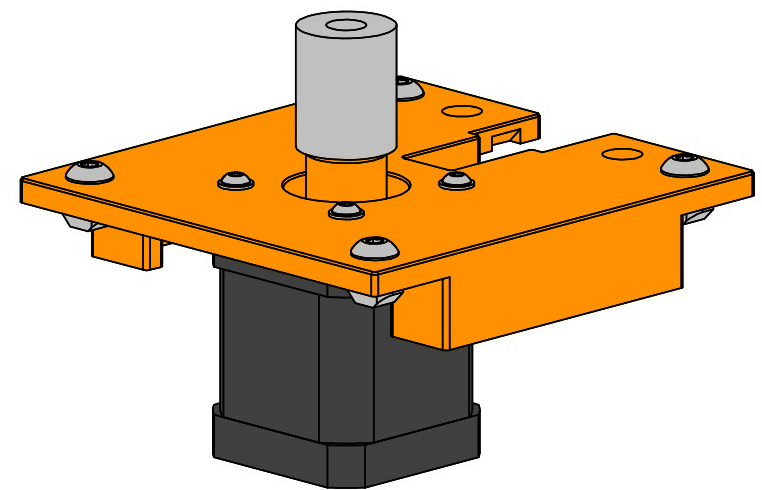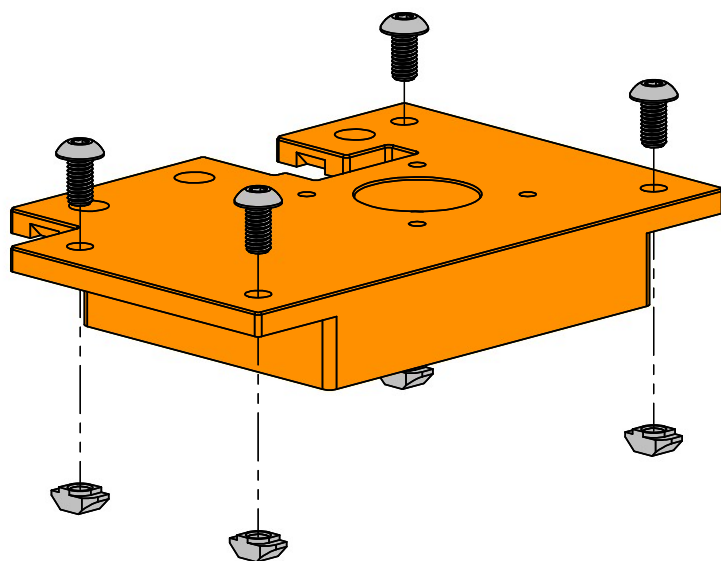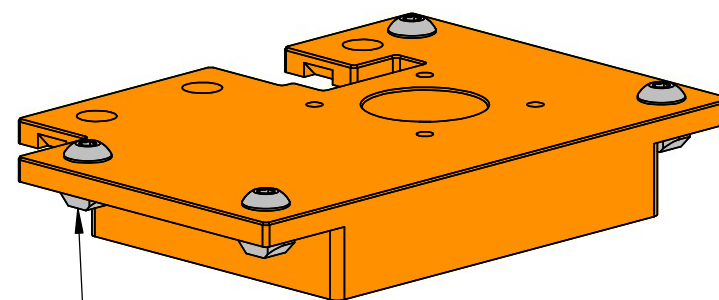They will be tightened into the frame later.

ITEM NO.	DESCRIPTION	QTY.
1	M5 Buttonhead Screw, 10mm long	4
2	Front Left Z Motor Plate	1
3	M5 Drop-In T-Nut for 20x20 Extrusion	4

Front Left Z Plate Assembly 1

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Joshua Vasquez	5/27/2020

SCALE: 1:1.5

Apply a dab of threadlock to the tip of the four M3 screws before tightening them down securely.

B

Motor wires should poke up and out from this cavity.

Assembled Top View
Scale 1:2

Wires should stick out in this direction.

A

Exploded View

Assembled View

ITEM NO.	DESCRIPTION	QTY.
1	M3 Buttonhead Screw, 12mm long	4
5	Z Motor Thrust Coupling Assembly	1
6	M3 Washer	4

Front Left Z Plate Assembly 2

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Joshua Vasquez

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5/27/2020

SCALE: 1:1.5 　　 SHEET 8 OF 14

B

B

Exploded View

Assembled View

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

A

A

ITEM NO.	DESCRIPTION	QTY.
1	M5 Buttonhead Screw, 10mm long	4
2	Front Right Z Motor Plate	1
3	M5 Drop-In T-Nut for 20x20 Extrusion	4

Front Right Z Plate Assembly 1

Created by:
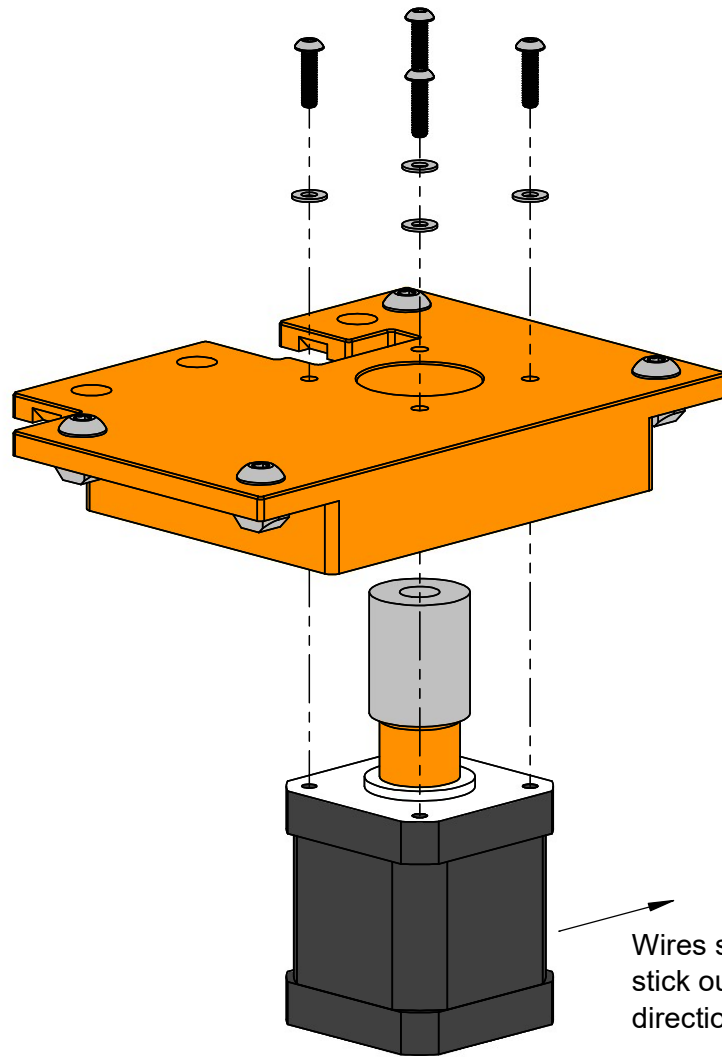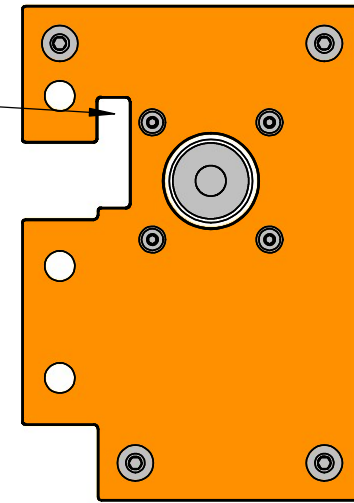Joshua Vasquez

last edited:
5/27/2020

SCALE: 1:1.5

SHEET 9 OF 14

Apply a dab of threadlock to the four M3 screws before tightening them down securely.

Motor wires should poke up
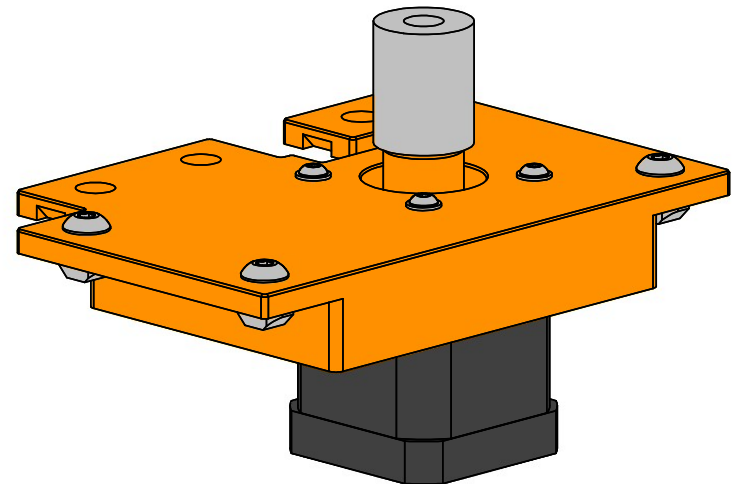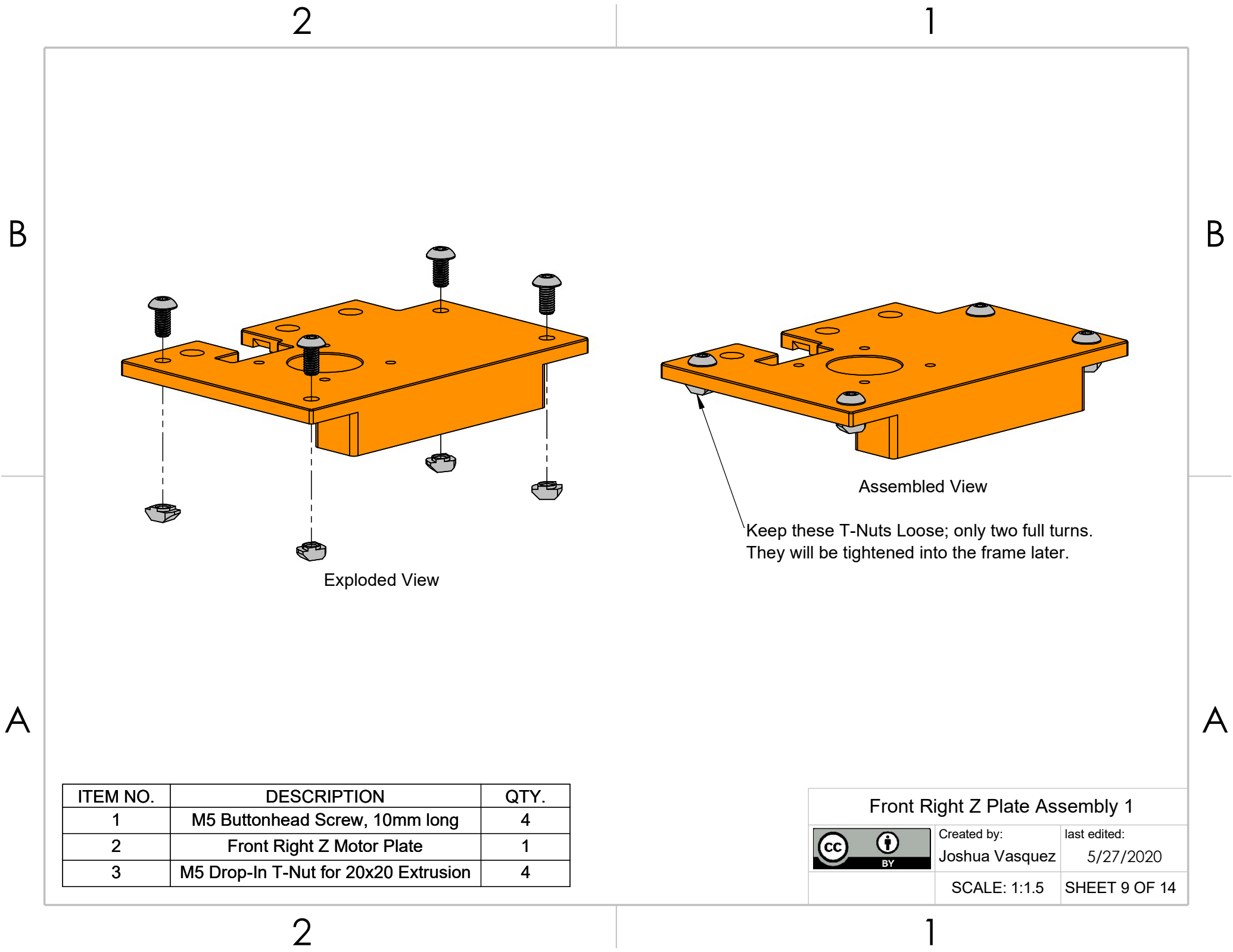and out from this cavity.

Assembled Top View
Scale 1:2

Wires should
stick out in this
direction.

Exploded View
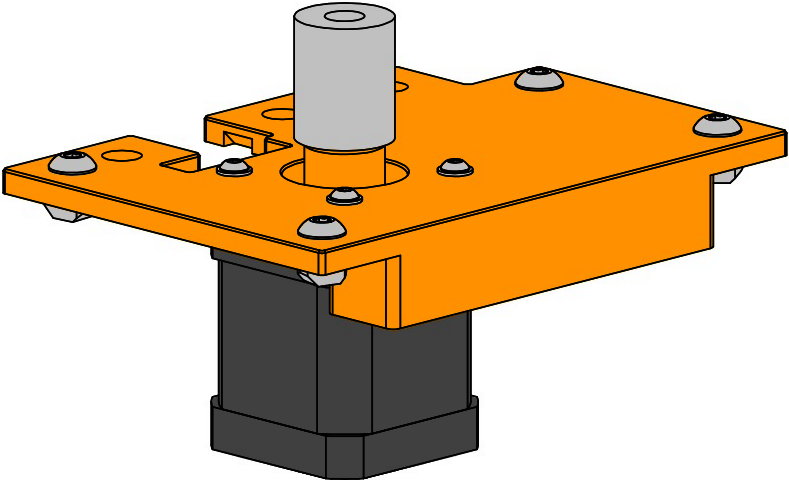
Assembled View

ITEM NO.	DESCRIPTION	QTY.
1	M3 Buttonhead Screw, 12mm long	4
5	Z Motor Thrust Coupling Assembly	1
6	M3 Washer	4

Front Right Z Plate Assembly 2

Created by:
Joshua Vasquez

last edited:
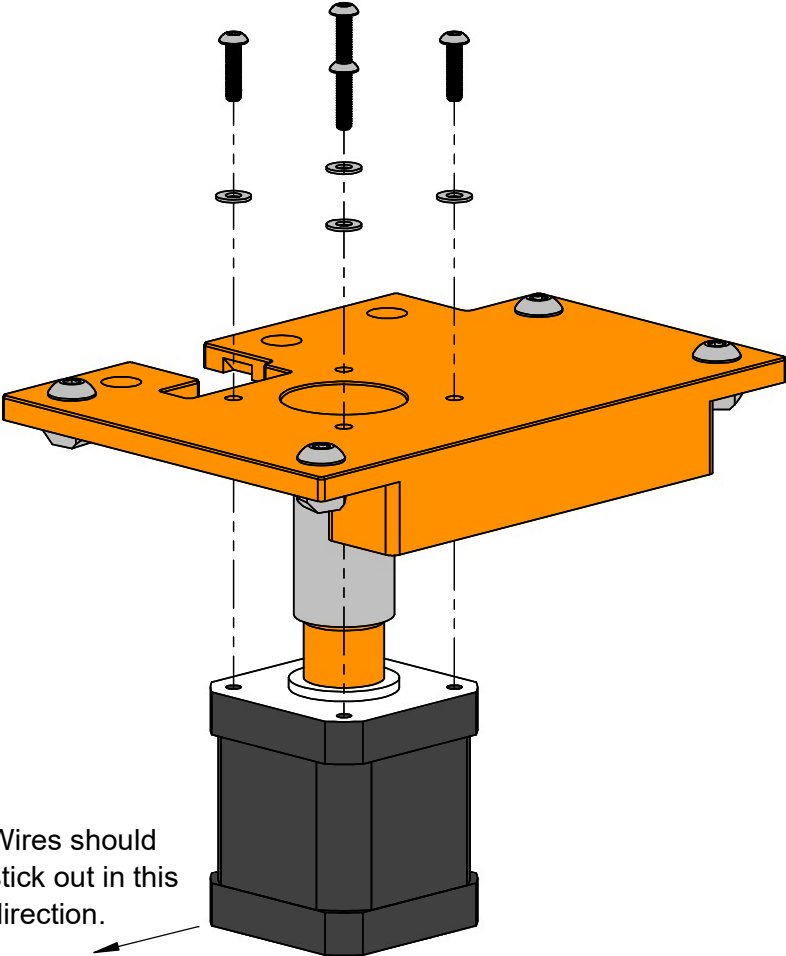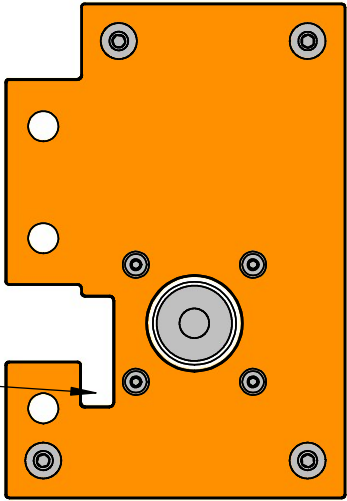5/27/2020

SCALE: 1:1.5   SHEET 10 OF 14

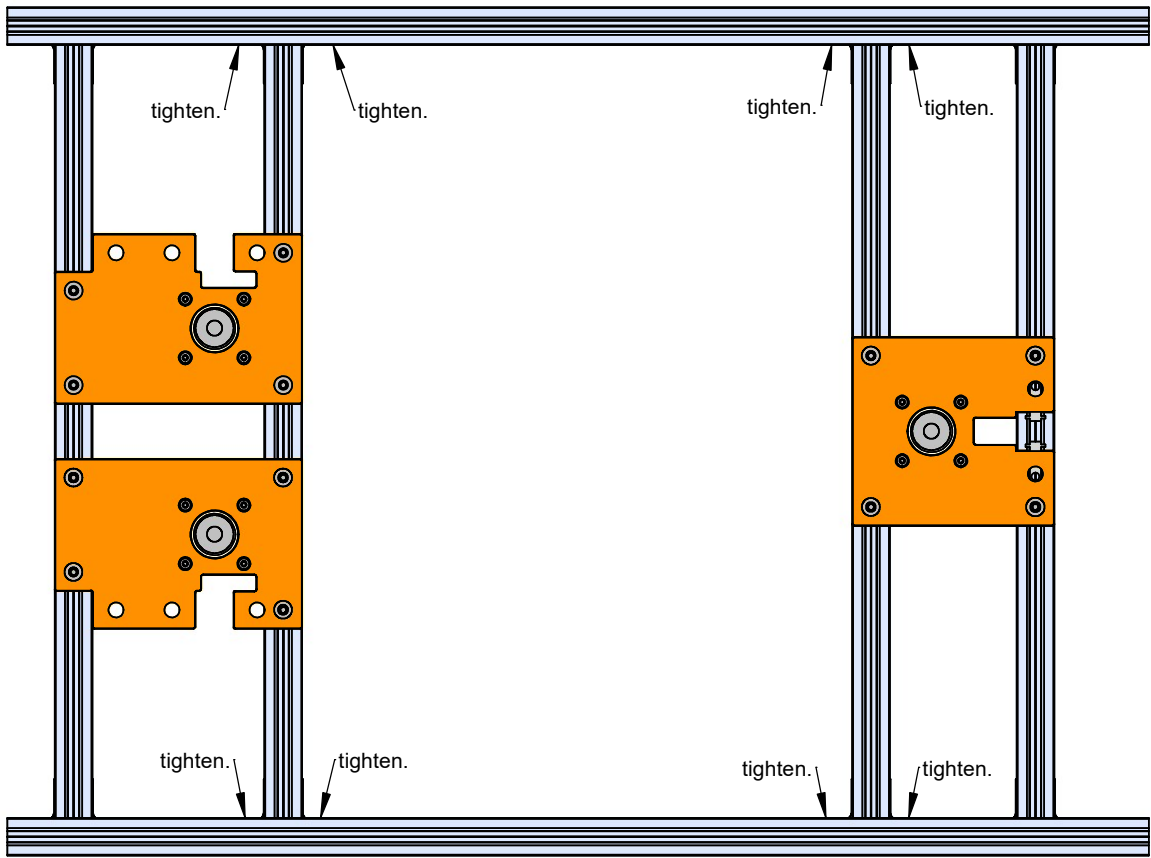Load the Z Motor Plates into the frame to set the spacing of the internal loose extrusions. Push these internal extrusions into the plates and fully tighten the 8 inside corner brackets shown below.

B

tighten. tighten. tighten. tighten.

tighten. tighten. tighten. tighten.

Top View

A

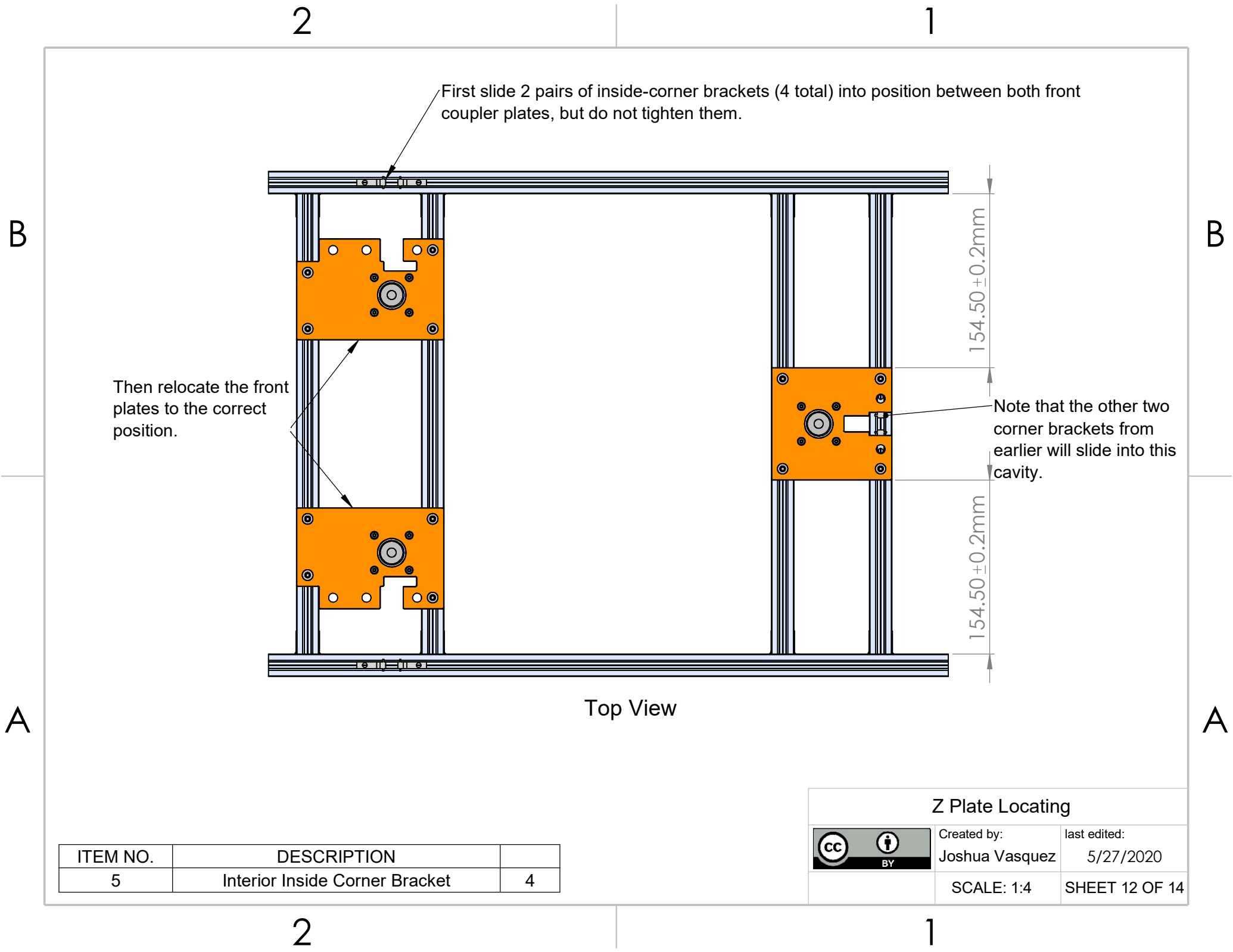| ITEM NO.	DESCRIPTION	
1	Base Frame Assembly with Feet	1
2	Back Z Plate Assembly	1
3	Front Left Z Plate Assembly	1
4	Front Right Z Plate Assembly	1

Internal Extrusion Alignment

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Joshua Vasquez	5/27/2020

SCALE: 1:4	SHEET 11 OF 14

First slide 2 pairs of inside-corner brackets (4 total) into position between both front coupler plates, but do not tighten them.

Then relocate the front plates to the correct position.

154.50 ±0.2mm

154.50 ±0.2mm

Note that the other two corner brackets from earlier will slide into this cavity.

Top View

Z Plate Locating

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SCALE: 1:4	SHEET 12 OF 14

ITEM NO.	DESCRIPTION	
5	Interior Inside Corner Bracket	4

Tighten all screws shown below.

tighten   tighten

B

tighten   tighten

tighten   tighten

tighten   tighten

tighten   tighten

tighten   tighten

Top View

A
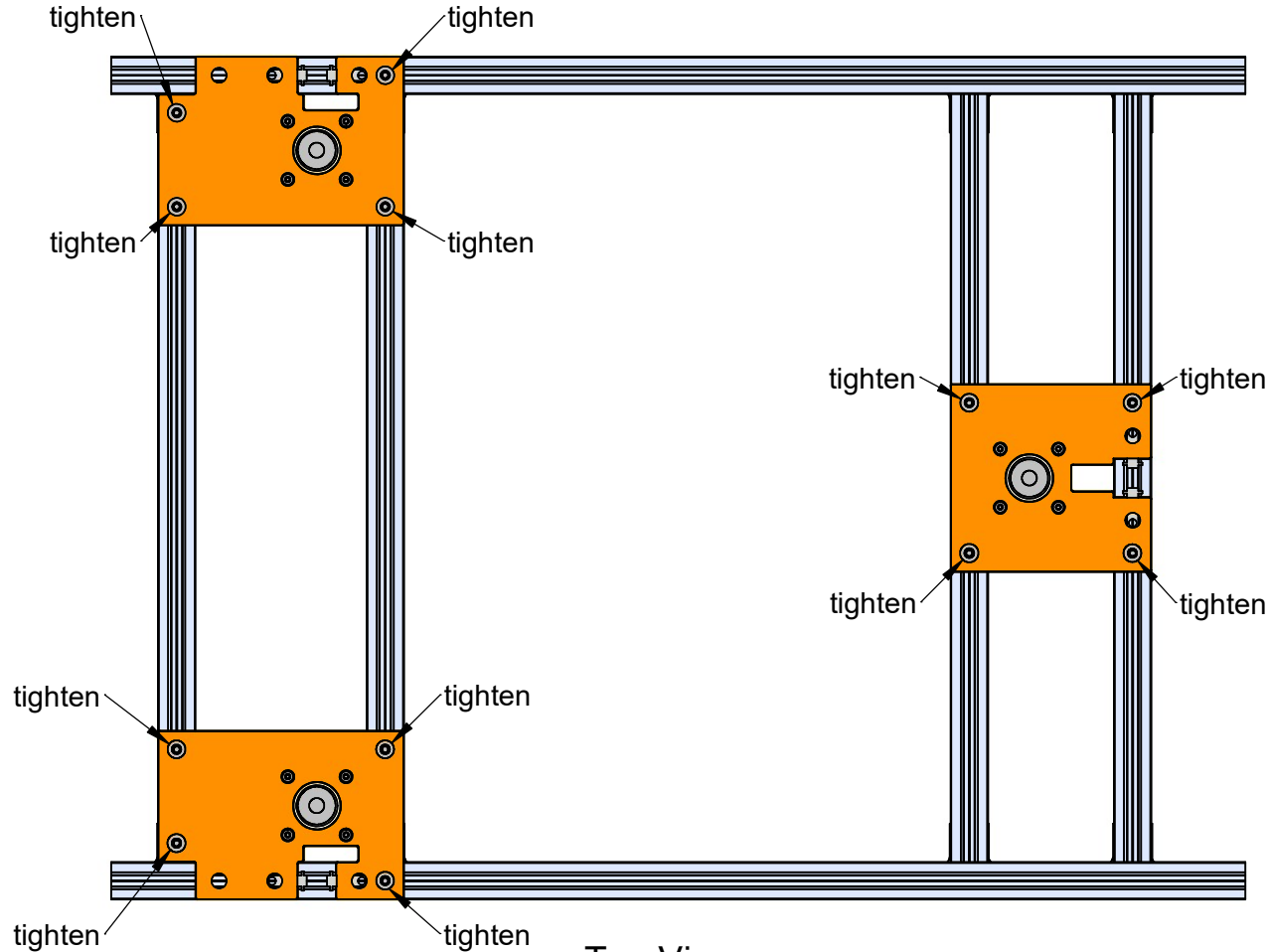
Z Plate Tightening

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Joshua Vasquez

last edited:
5/27/2020

SCALE: 1:4   SHEET 13 OF 14

B

B

Slide 4 pairs of Inside-Corner Brackets into
the approximate locations shown here.
Keep them loose for now.
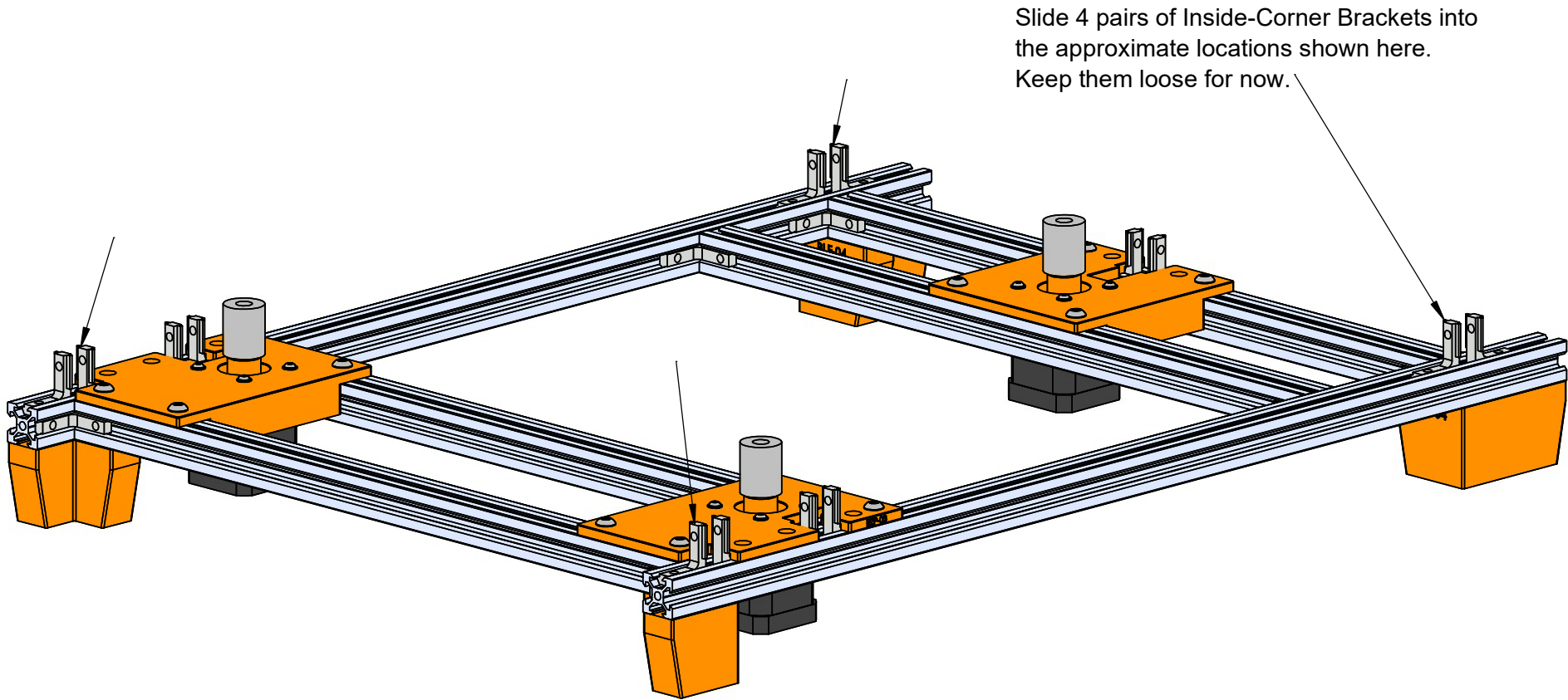
The Lower Frame Assembly is complete!

A

A

ITEM NO.	DESCRIPTION	
5	Interior Inside Corner Bracket	8

Inside Corner Bracket Installation

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5/27/2020

SCALE: 1:3

SHEET 14 OF 14