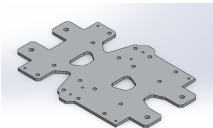
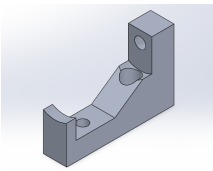



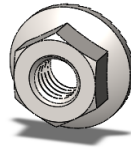
# Braking General Assembly Instructions

- Reference Assignments** **1**
- Required Tools** **4**
- Assembly** **5**
  - Base Plate Preparation and Mounts 5
    - Gas Spring Mount Installation 6
    - Air Cylinder Foot Bracket Installation 8
    - Linear Rail Installation 10
  - Actuators and Brackets 12
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    - Braking L-Brackets 15
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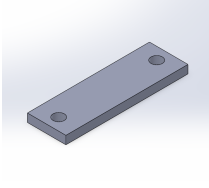
## Reference Assignments

Qt.	Ref #	Image	Part Name
1	1A		Braking Base Plate
2	1B		Gas Spring Mount
8	1C		[91290A248] Black-Oxide Alloy Steel Socket Head Screw

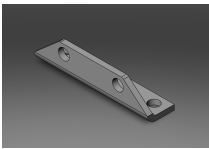
8 1D [96194A202] Medium-Strength Steel Serrated Flange Locknut



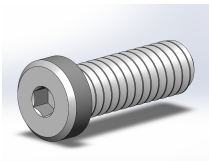
8 1E Aluminum Riser



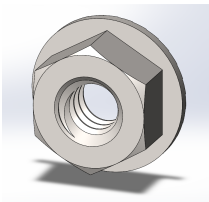
8 1F [62245K98] Foot Bracket



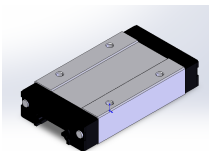
16 1G [92220A185] Alloy Steel Low-Profile Socket Head Screw



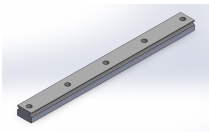
16 1H [99904A101] Serrated Flange Locknut



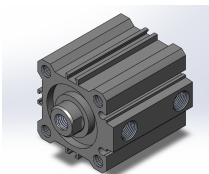
4 1I [SSEL2BZ16] Carriage



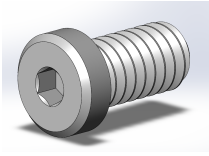
2 1J [SSEL2BZ16] - Linear Rail



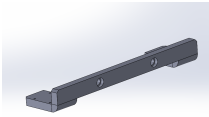
4 2A [62245K182] Air Cylinder



16 2B [62245K98] Air Cylinder Foot Bracket Included Fasteners



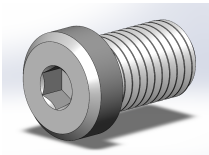
2 2C Braking L-Bracket



16 2D [91290A115] Black-Oxide Alloy Steel Socket Head Screw



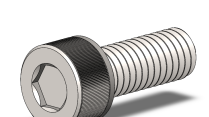
4 2E [92220A231] Low-Profile Socket Head Screw



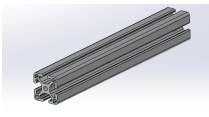
2 2E [6643K621] High-Force Miniature Gas Spring



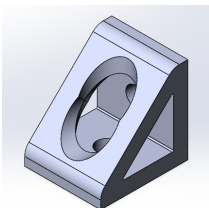
2 2F [91290A321] Black-Oxide Alloy Steel Socket Head Screw



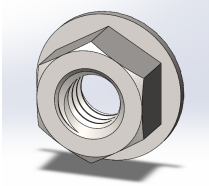
1 3A 11.3 Inch Aluminum Extrusion



4 3B [CG322H] Corner Gusset

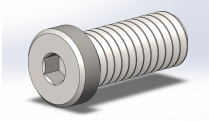


6 3C



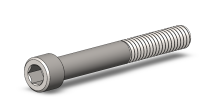
[99904A102] Medium-Strength Steel Serrated Flange Locknut

4 3D



[93615A453] 18-8 Stainless Steel Low-Profile Socket Head Screw

2 3E



[90044A429] Black-Oxide Alloy Steel Socket Head Screw

## Required Tools

### Hex Keys:

- 2.5 mm
- 4 mm
- 5 mm
- 1/8 Inch
- 1/4 Inch
- 5/32 Inch
- One Unknown Imperial Hex Key (Will be corrected)

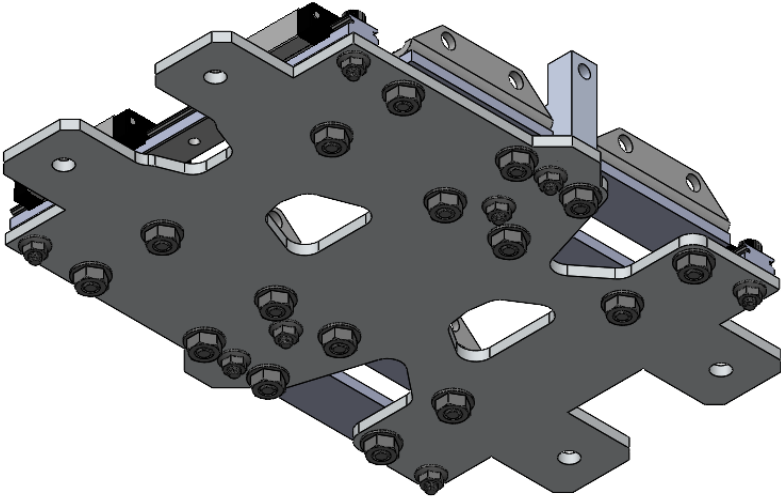
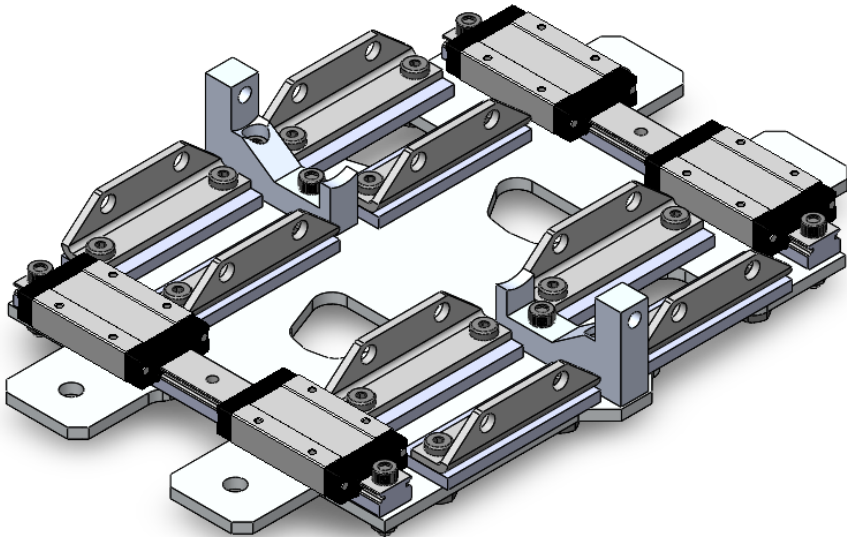
### Sockets (Alternatively one wrench)

- 8 mm
- 7/16th Inch
- 1/2 Inch

# Assembly

## Base Plate Preparation and Mounts

Final Images of **Base Plate Preparation and Mounts**



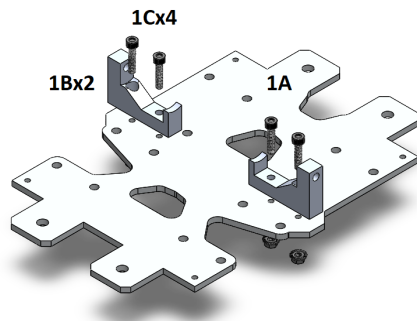
# Gas Spring Mount Installation

NOTES: Also includes first mount on Base Plate

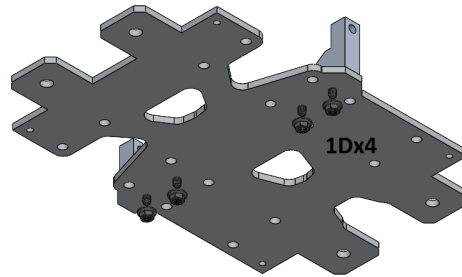
Tools: 4 mm Hex Key, 8 mm Hex Socket / Wrench

Utilizes:

Qt.	Ref #	Image	Part Name
1	1A		Braking Base Plate
2	1B		Gas Spring Mount
4	1C		[91290A248] Black-Oxide Alloy Steel Socket Head Screw
4	1D		[96194A202] Medium-Strength Steel Serrated Flange Locknut



Align Gas Spring Mounts (1B) with lower flanges facing each other onto the Braking Base Plate (1A) and fasten with [91290A248] Black-Oxide Alloy Steel Socket Head Screw (1C).

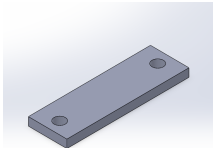
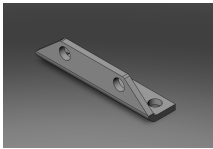
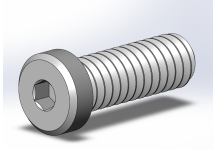
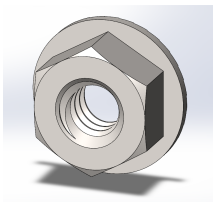


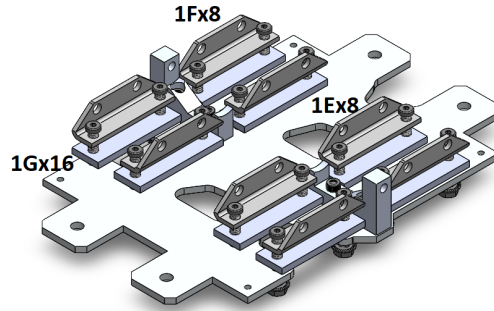
Fasten each screw to the corresponding [96194A202] Serrated Flange Locknut (1D) with a combination of hex socket / wrench and hex key until secure. Locknut should deform the aluminum plate slightly to “Lock” in place.

## Air Cylinder Foot Bracket Installation

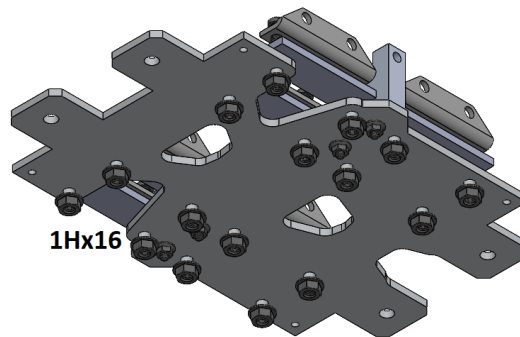
Tools: 1/8 Inch Hex Key, 7/16 Inch Hex Socket / Wrench

Utilizes:

Qt.	Ref #	Image	Part Name
8	1E		Aluminum Riser
8	1F		[62245K98] Foot Bracket
16	1G		[92220A185] Alloy Steel Low-Profile Socket Head Screw
16	1H		[99904A101] Serrated Flange Locknut



Similar to before, align Aluminum Risers (1E) and [62245K98] Foot Bracket (1F) with flanges opposite each other like so in the image. (The upper flange of the edge foot bracket should be raised on the edge size) The Aluminum riser is symmetrical and not dependent on orientation. Once aligned correctly, thread [92220A185] Alloy Steel Low-Profile Socket Head Screw (1G) through the two holes to keep concentric.



Finally, fasten each of the 16 screws to the corresponding [99904A101] Serrated Flange Locknut (1H) with a combination of hex socket / wrench and hex key until secure. Locknut should deform the aluminum plate slightly to “Lock” in place.

## Linear Rail Installation

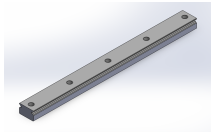
Tools: 4 mm Hex Key, 8 mm Hex Socket / Wrench

Utilizes:

Qt.	Ref #	Image	Part Name
4	1I		[SSEL2BZ16] Carriage



2 1J



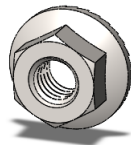
[SSEL2BZ16] - Linear Rail

4 1C

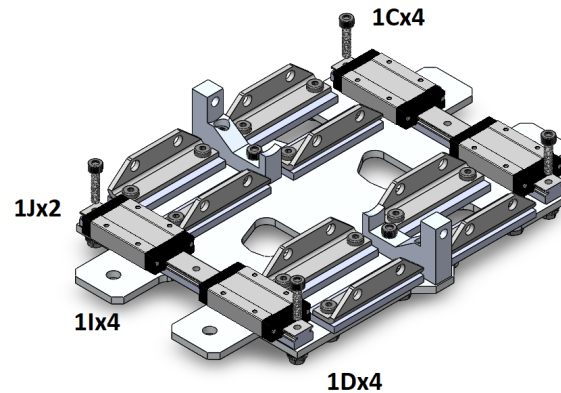


[91290A248] Black-Oxide Alloy Steel Socket Head Screw

4 1D



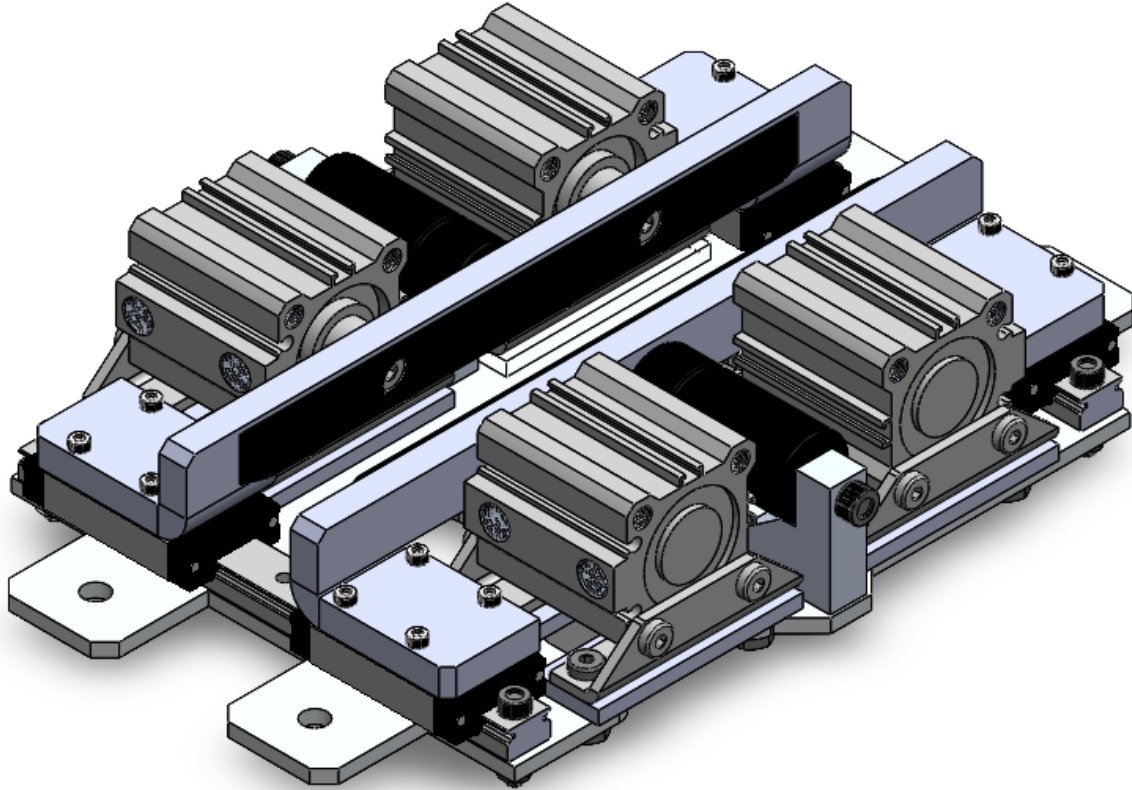
[96194A202] Medium-Strength Steel Serrated Flange Locknut



Before fastening linear rail to braking base plate, **ensure that carriages are mounted onto the linear rail**. It is impossible to slide carriages on after linear rail is fastened. Fasten the two linear rails similarly to before using the combination of [91290A248] Black-Oxide Alloy Steel Socket Head Screw (1C) and [96194A202] Medium-Strength Steel Serrated Flange Locknut (1D) used before.

# Actuators and Brackets

Final Image of Actuators and Brackets

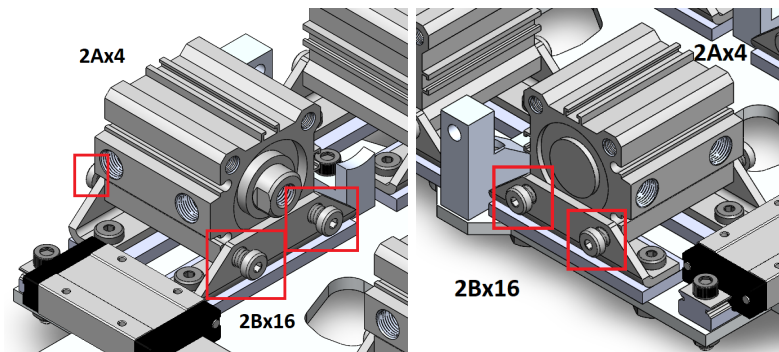


# Air Cylinders

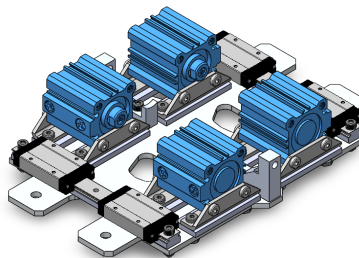
Tools: Unknown Imperial Hex Key

Utilizes:

Qt.	Ref #	Image	Part Name
4	2A		[62245K182] Air Cylinder
16	2B		[62245K98] Air Cylinder Foot Bracket Included Fasteners



Use the included foot bracket fasteners (2B, boxed in red) to secure the [62245K182] Air Cylinder (2A) to the foot brackets. **Please ensure that the pneumatic fitting on each air cylinder faces the nearest carriage to aid with routing the pneumatic plastic pipes.**



Repeat process for all 4 pneumatic air cylinders.

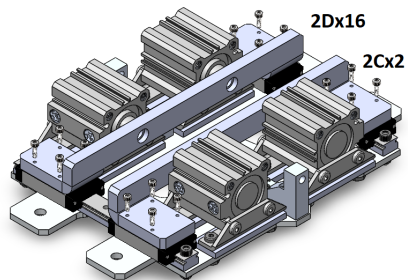
## Braking L-Brackets

NOTE: Bracket is shown without Brake Pad material

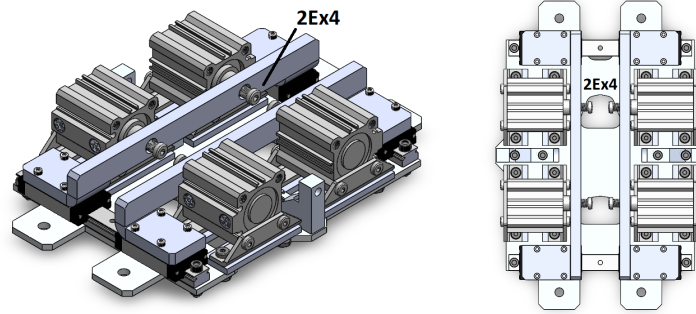
Tools: 5/32 Inch and 2.5 mm Hex Key

Utilizes:

Qt.	Ref #	Image	Part Name
2	2C		Braking L-Bracket
16	2D		[91290A115] Black-Oxide Alloy Steel Socket Head Screw
4	2E		[92220A231] Low-Profile Socket Head Screw



Align Braking L-Bracket (2C) with carriages on Linear Rails and fasten down with 16 [91290A115] Black-Oxide Alloy Steel Socket Head Screws (2D) and a 2.5mm Hex Key.





Once Bracket is secured to carriages, move bracket flush to Air Cylinders and fasten Bracket (2C) to Air Cylinders (2A) with 4 [92220A231] Low-Profile Socket Head Screws (2E) and 5/32th Inch Hex Key.

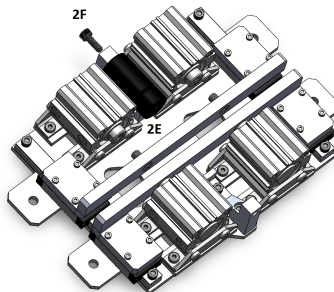
## Gas Springs

**Warning: The Miniature Gas Spring can store 173 lbs of force, be careful!**

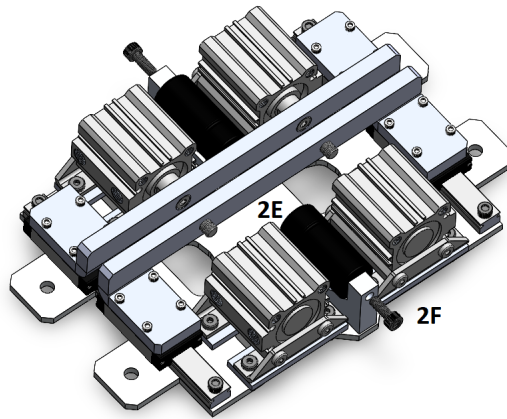
Tools: 5 mm Hex Key, Clamps?

Utilizes:

Qt.	Ref #	Image	Part Name
2	2E		[6643K621] High-Force Miniature Gas Spring
2	2F		[91290A321] Black-Oxide Alloy Steel Socket Head Screw



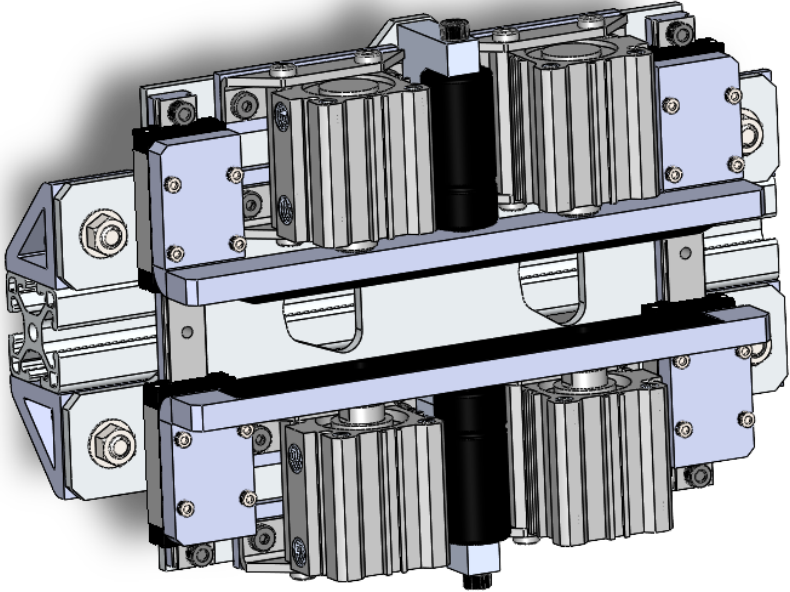
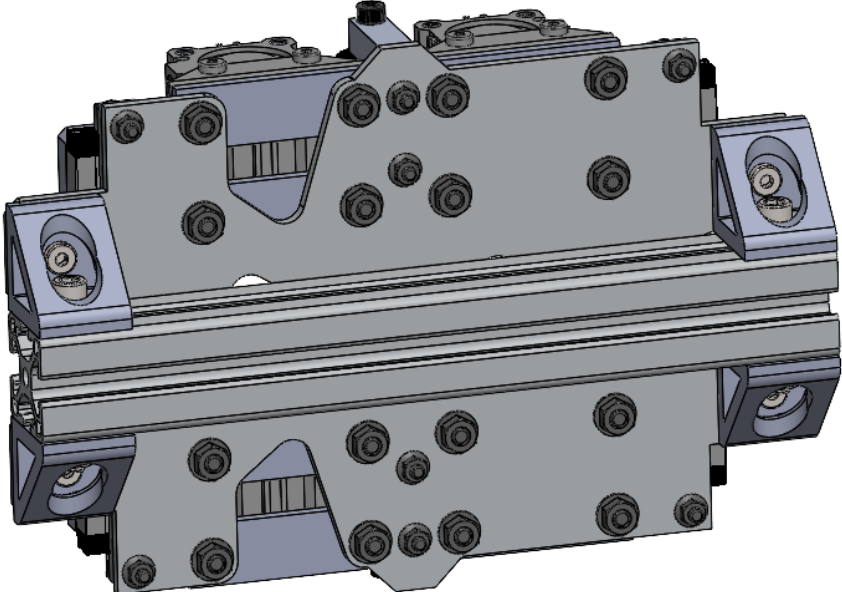
With the bracket free to move, fully extend one side of the actuators and screw in the [6643K621] High-Force Miniature Gas Spring (2E) with a [91290A321] Black-Oxide Alloy Steel Socket Head Screw (2F) in the created gap.



Similarly on the other side, repeat the process. However, now that one gas spring is installed, the opposite braking L-Bracket (2C) will have to be restrained by a clamp or some other restrictive force (possibly the pneumatic actuators themselves if the pneumatic base station is ready).

# Mounting Solution

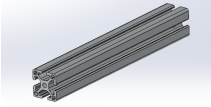
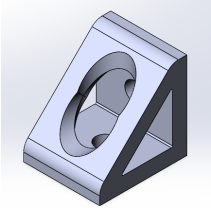
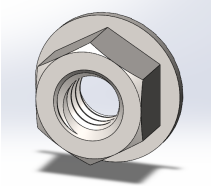
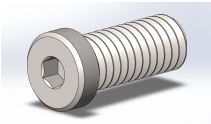

Final Images of **Mounting Solution**



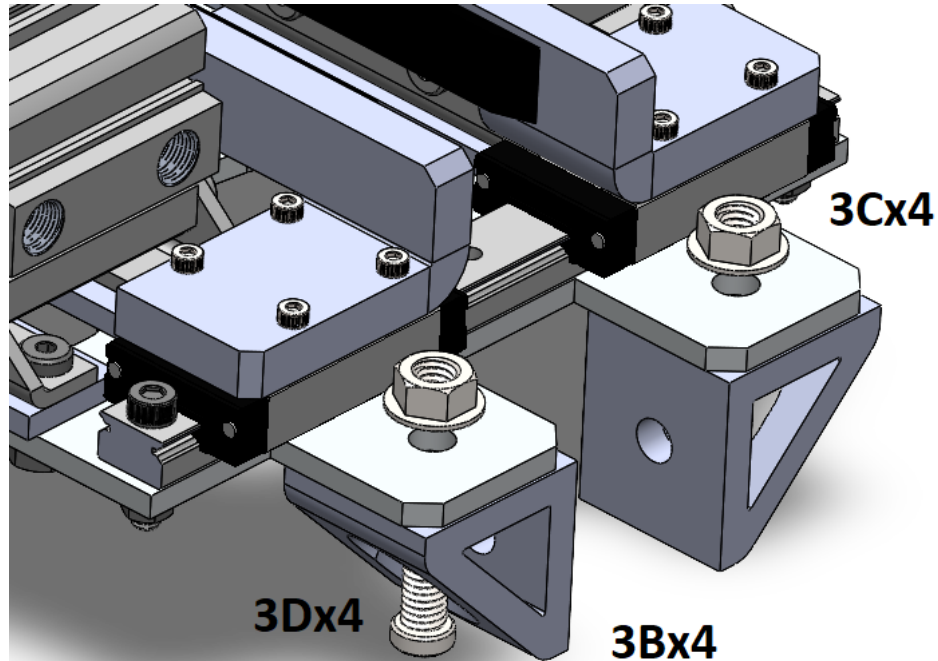
# Mounting Solution

Tools: 5/32 Inch Hex Key, 1/4 Inch Hex Key, 1/2 Inch Hex Socket/Wrench

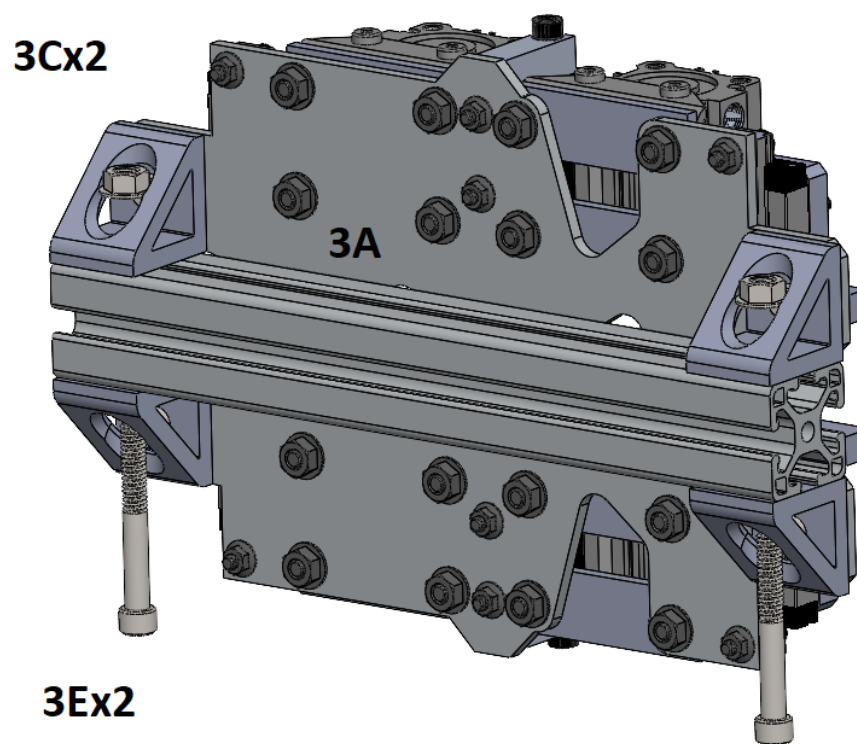
Utilizes:

Qt.	Ref #	Image	Part Name
1	3A		11.3 Inch Aluminum Extrusion
4	3B		[CG322H] Corner Gusset
6	3C		[99904A102] Medium-Strength Steel Serrated Flange Locknut
4	3D		[93615A453] 18-8 Stainless Steel Low-Profile Socket Head Screw
2	3E		[90044A429] Black-Oxide Alloy Steel Socket Head Screw





Fasten all four [CG322H] Corner Gussets (3B) to each of the “Ears” of the Braking Base Plate (1A) using the combination of [99904A102] Medium-Strength Steel Serrated Flange Locknuts (3C) and [93615A453] 18-8 Stainless Steel Low-Profile Socket Head Screws (3D). Make sure that the flat flange faces the inside of the braking base plate to fasten onto the Aluminum Extrusion (3A).



Once the Aluminum Extrusion is fitted between the [CG322H] Corner Gussets (3B), secure it using a combination of [99904A102] Medium-Strength Steel Serrated Flange Locknuts (3C) and [90044A429] Black-Oxide Alloy Steel Socket Head Screws (3E).