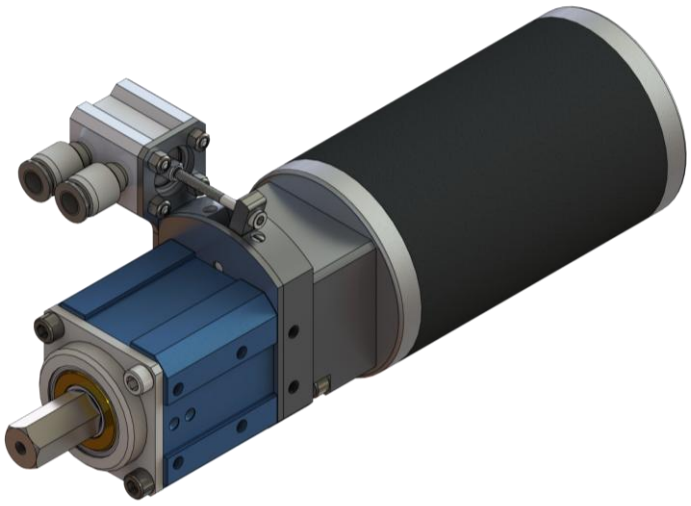
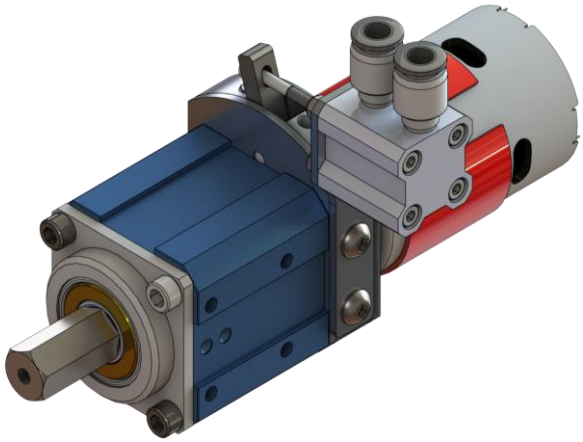
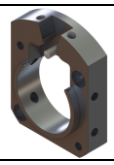
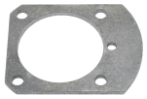
Ratchet Sport Assembly Directions





Recommended Tool List			
Component	**Used On**	**Product Number**	**Product Photo**
5/32 in. Hex Driver	10-32 Socked Head Cap Screws	am-2751	
Flat Head Screwdriver	Spring Plunger	am-4416	
Pneumatic Upgrade Recommended Tool List			
Component	**Used On**	**Product Number**	**Product Photo**
5mm/5.5mm Combo Wrench	Cylinder Rod End (5mm) M3 Nylock Nuts (5.5mm)	am-4486	
2.5 mm Hex Wrench	M3 Screws Pneumatic Fittings	am-1288	

am-4424 Ratchet Sport Components			
Component	**Product Number**	**Qty**	**Product Photo**
10-32 x 0.625 in. Socket Head Cap Screw	am-1120	2	
Spring Plunger	am-1579	1	
Ratchet Gear	am-4398	1	
Pawl	am-4399	1	
Ratchet Sport Body	am-4401	1	
Ratchet Sport Cover Plate	am-4402	1	
Carrier Plate	am-4403	1	

am-4425 Components Pneumatic Upgrade			
Component	**Product Number**	**Qty**	**Product Photo**
M3-0.5 Nylock Nut	am-1023	5	
10-32 x 0.375 in Nylon Patch Button Head Cap Screw	am-1588	2	
M3-0.5 x 30mm Socket Head Cap Screw	am-1578	5	
Ratchet Sport Cylinder Mount	am-4404	1	
12 mm Bore 10 mm Stroke Air Cylinder	am-4388	1	
M5 x 0.8 to 1/4 Press-in Tube Straight Fitting	am-2384	2	

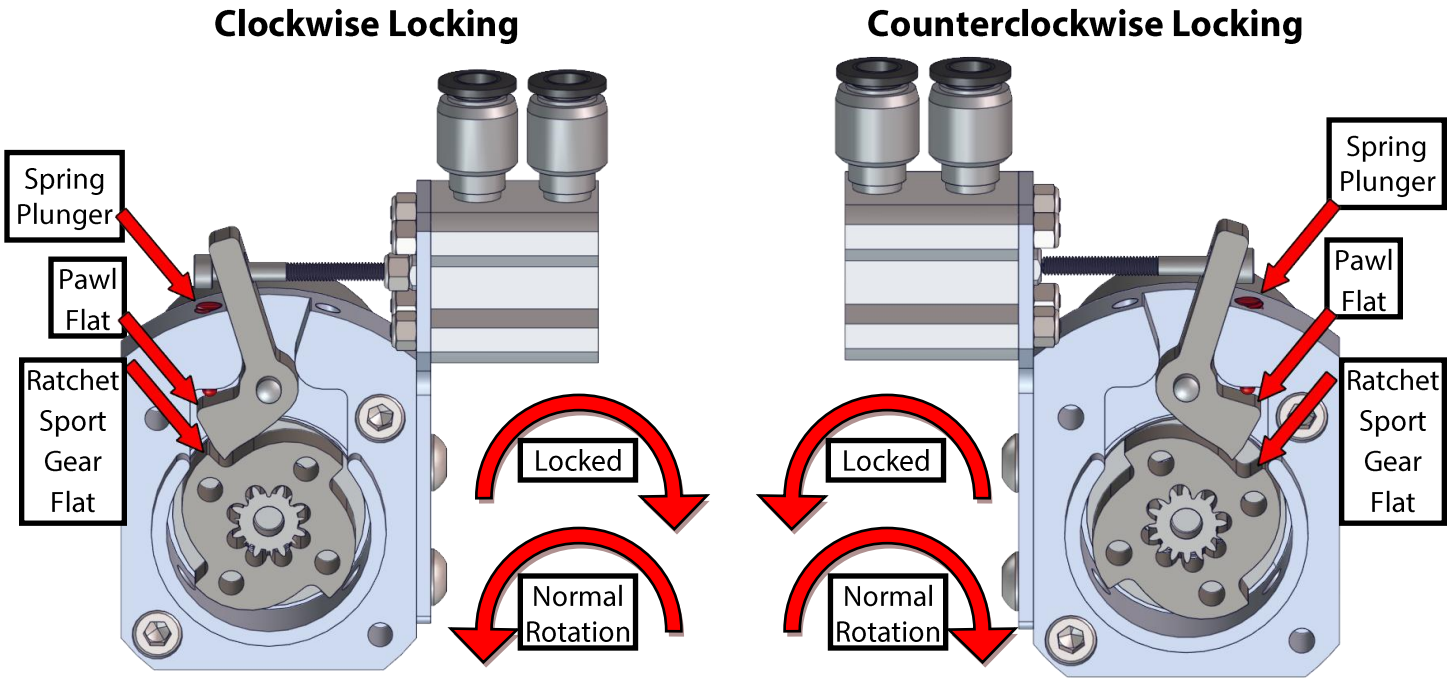
STOP AND READ BEFORE ASSEMBLY:

The Ratchet Sport turns any "blue" sport gearbox into a one direction locking gearbox. This includes 57 Sport, CIM Sport, Dual 775 Sport and Falcon Sport gearboxes. The Ratchet Sport can be installed to lock for counterclockwise or clockwise rotation. Before building, consider your implementation and if you want to lock with your gearbox driving counterclockwise or clockwise.

Below are images of two examples of sport gearboxes with the Ratchet Slice. These examples are shown from the perspective of the Pawl on the top, looking from the output shaft side of the assembly.

With the Spring Plunger and Pawl on the left, and the Ratchet Gear flats facing clockwise, the assembly freely spins counterclockwise and locks with clockwise movement when the ratchet is engaged.

With the Spring Plunger and Pawl on the right, and the Ratchet Gear flats facing counterclockwise, the assembly freely spins clockwise and locks with counterclockwise movement when the ratchet is engaged.



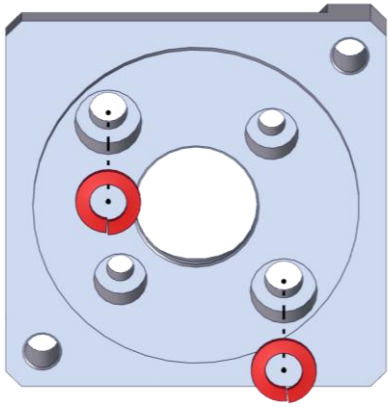
Motor Block Pre-Assembly

The Ratchet Sport works with any Blue Sport gearbox. Motor preparation is required in the same manner. Below are the outlined steps from the RedLine and CIM, however the steps for the Falcon 500 , Two Motor Sport, and others are similar.

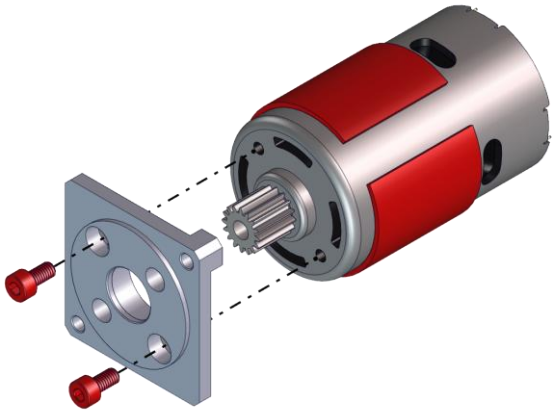
RedLine

Step 1: Press the sport pinion gear onto the motor shaft. Ensure the pinion is pressed **without contacting the motor housing, about 1/32 in.**

Step 2: Place a lock washer into each large screw mount hole of the 57 Sport Motor Block.

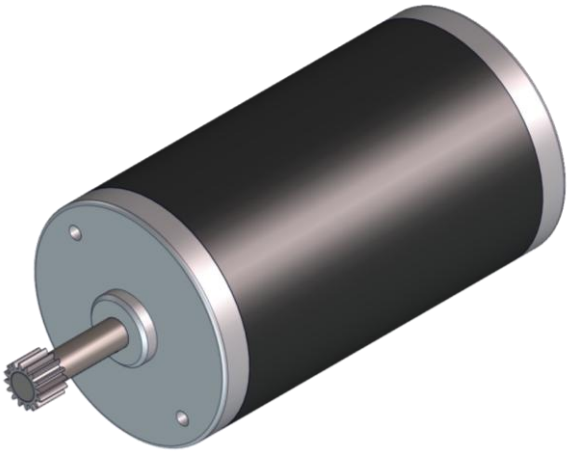


Step 3: Secure the motor block to the redline with two M4 x 10mm Socked Head Cap Screws.

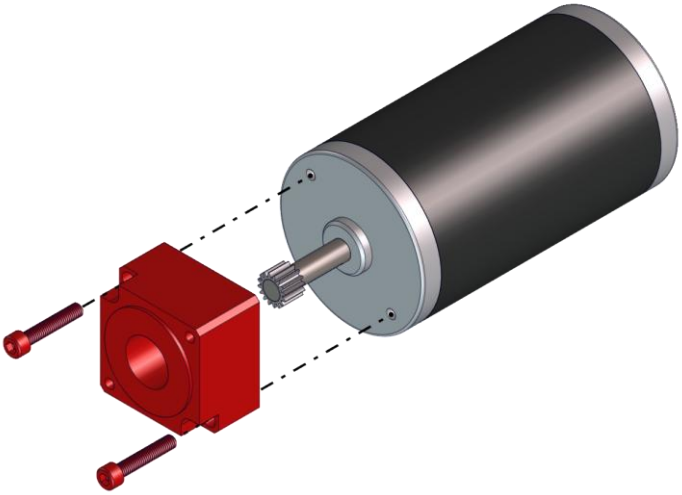


CIM

Step 1: Press the pinion gear onto the motor shaft. Ensure the edge of the pinion is flush with the end of the motor shaft.



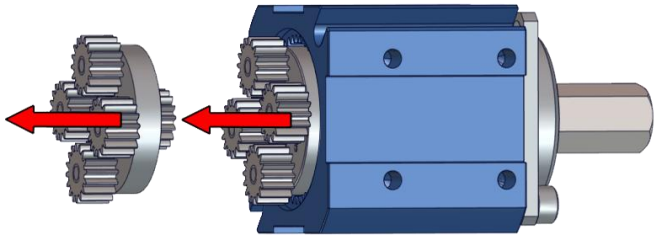
Step 2: Insert two 10-32 x 1.00 in. socket head cap screws through the clearance screw holes and thread them into the CIM or NEO.



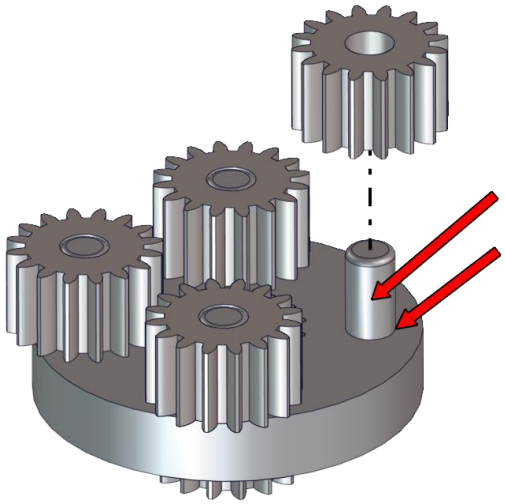
Sport Gearbox Prep

This assembly guide uses a two stage 57 Sport as an example. The steps shown are consistent regardless of the number of stages. Be sure to repeat steps for additional stages and do not mix planet gears between stages.

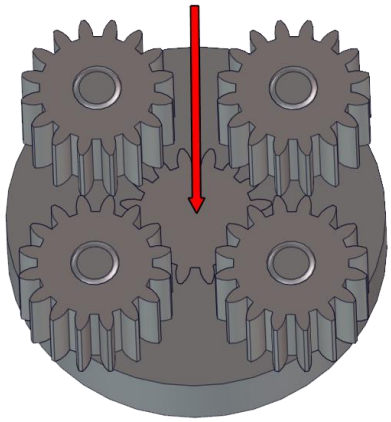
Step 1: Remove any covering from the input side of the Sport Gearbox and begin pulling out the stages.



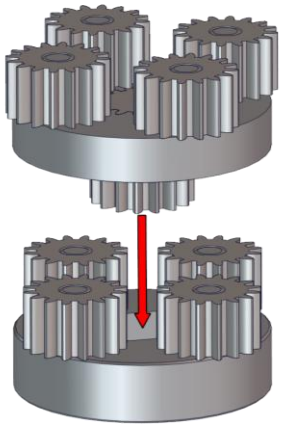
Step 2: Remove all planet gears from their pins and place a small blob of grease at the base of the pins and on the pins themselves. **Do this one stage at a time. Do not mix planet gears between stages.**



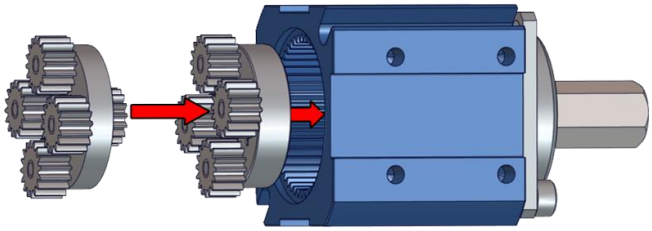
Step 3: Also place a dollop of grease in the center of all carrier plates in between the planet gears.



Step 4: After lubricating each gearbox stage, insert the sun gears of stages into the centers of other stages in the order they came out of the gearbox.



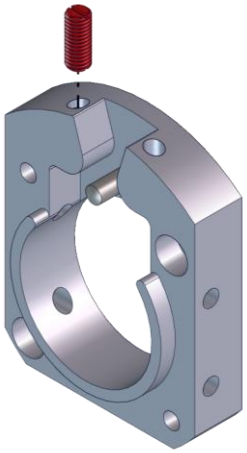
Step 5: Insert all assembled gearbox stages back into the housing.



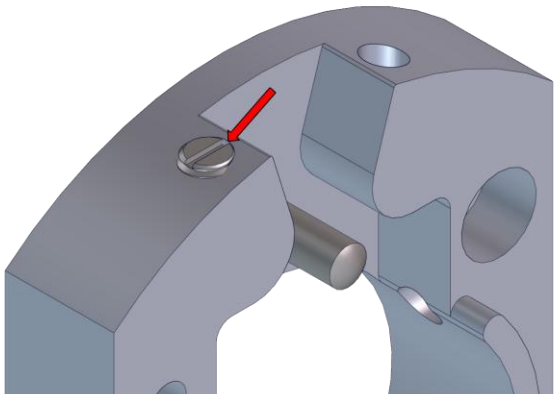
Ratchet Assembly

Directions shown detail a clockwise locking Ratchet for Sport with a RedLine. The steps are the same for different motors. If you need the Ratchet Slice to lock in the opposing direction pay special note to directions that call out changes.

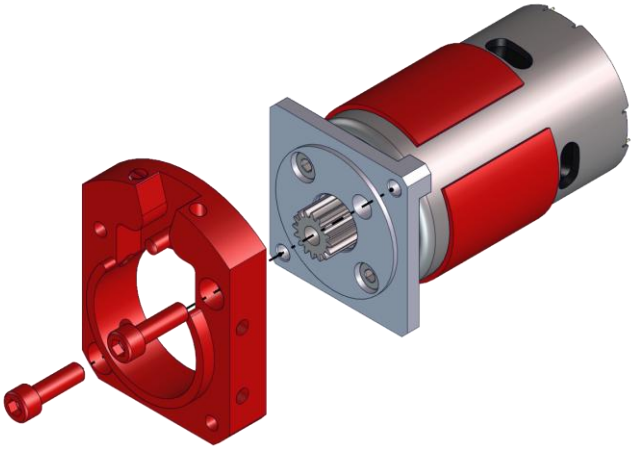
Step 1: Thread the Spring Plunger (am-1579) into the Ratchet Body (am-4401). The Spring Plunger depth should be set by threading the Spring Plunger until the threads are flush with the upper arc of the Ratchet Body.



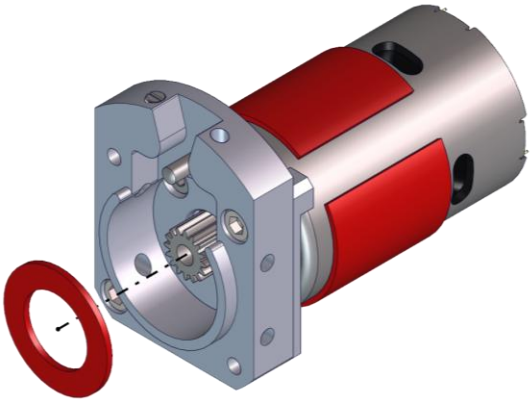
CW Lock Shown



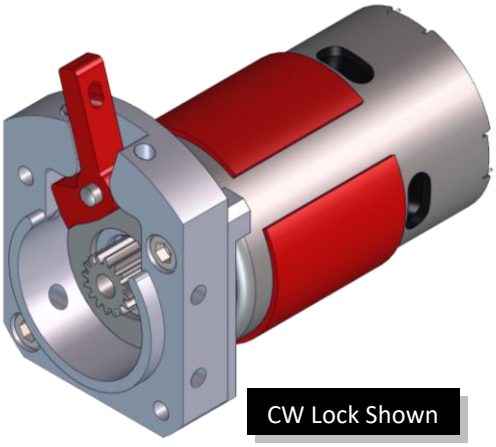
Step 2: Secure the Ratchet Body to a motor block with two 10-32 x 0.625 in. Socket Head Cap Screws (am-1120).



Step 3: Apply grease to both sides of the washer. Place the thrust washer from the Sport Gearbox over the input gear.

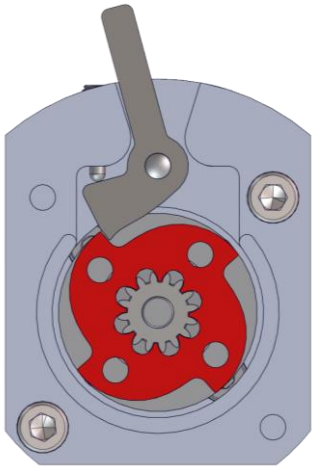


Step 4: Grease the pin of the Ratchet Body. Place the Pawl (am-4399) over the pin in the Ratchet Body such that it rests against the Spring Plunger.



CW Lock Shown

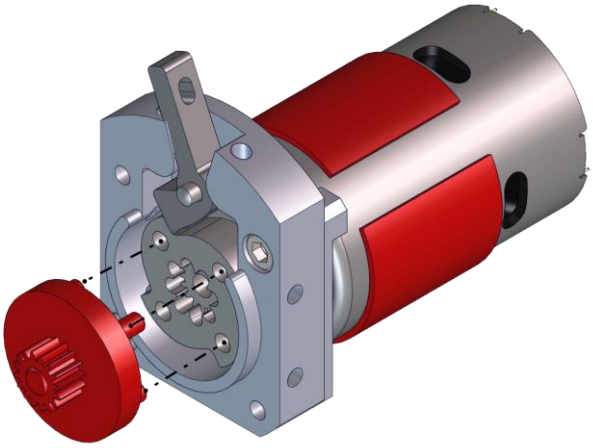
Step 5: Grease the outside face of the Ratchet Gear. Place the Ratchet Gear (am-4398) over the motor pinion gear. Ensure the Ratchet Gear flats will engage the Pawl.



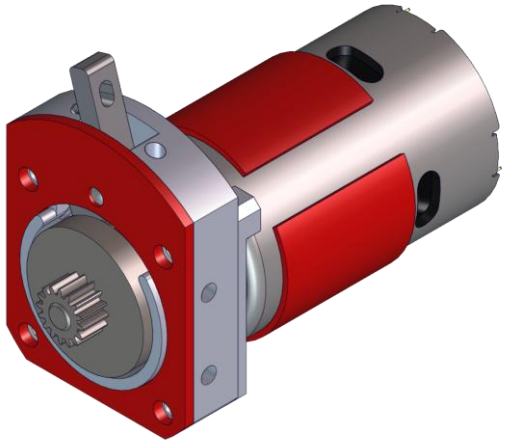
CW Lock Shown

Ratchet Assembly

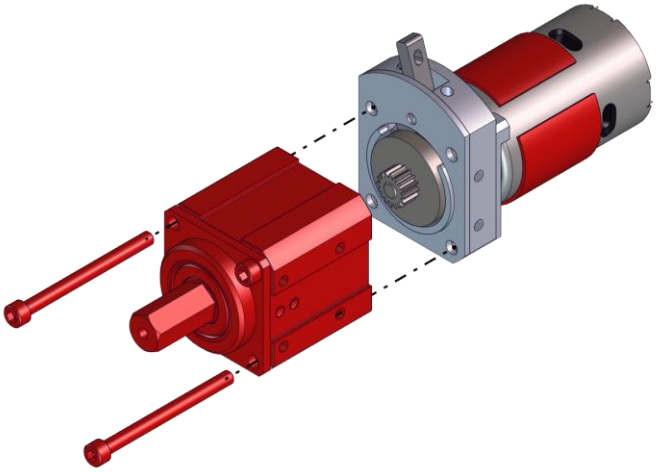
Step 6: Install the Carrier Plate (am-4403) into the Ratchet Gear by inserting the four pins of the Carrier Plate into the four holes of the Ratchet Gear.



Step 7: Place the Ratchet Cover (am-4402) over the Ratchet Body.

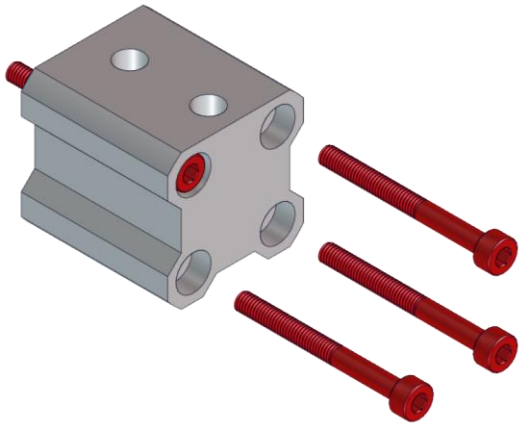


Step 8: Secure your greased Sport Gearbox and Cover Plate to the Ratchet Sport Body using the screws from the Sport Gearbox.

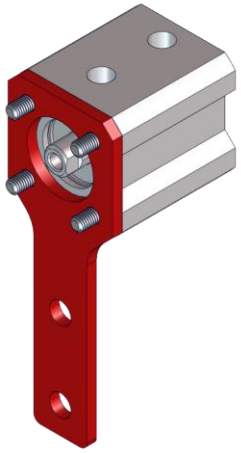


Pneumatic Upgrade

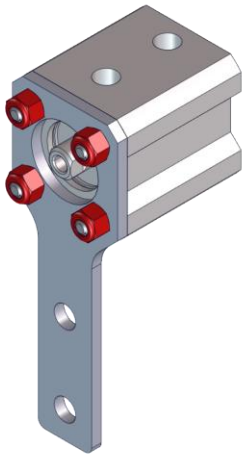
Step 1: Insert four M3-0.5 x 30mm Socket Head Cap Screws (am-1578) through the Cylinder (am-4388) from the counter bore side of the cylinder.



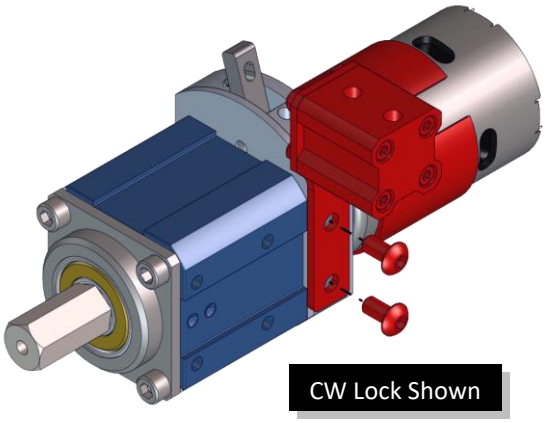
Step 2: Place the Cylinder Mount Bracket (am-4404) over the four screws.



Step 3: Secure the Cylinder and Cylinder Mount Bracket together with four M3-0.5 Nylock Nuts.

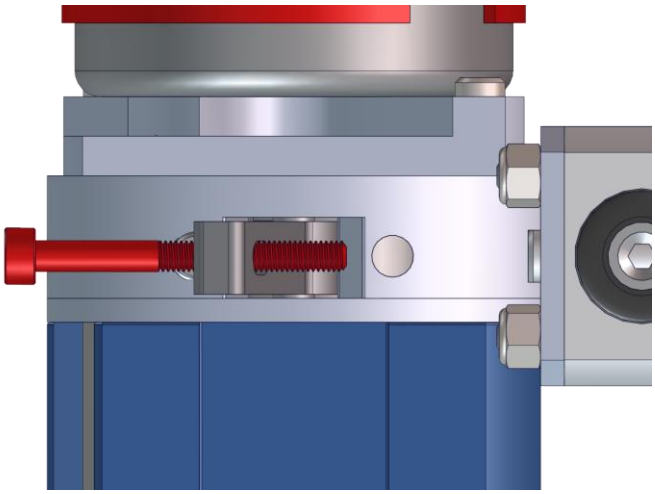


Step 4: Loosely attach the Cylinder Mount to the Ratchet Body with two 10-32 x 0.375 in Nylon Patch Button Head Cap Screws (am-1588). This assembly attaches to the Ratchet Body **opposite** the Pawl.

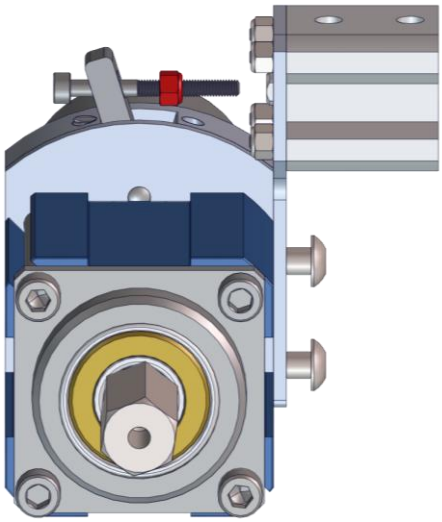


CW Lock Shown

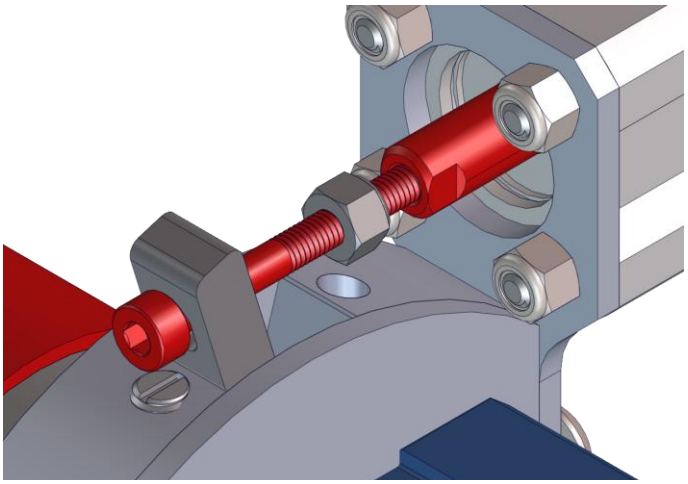
Step 5: Feed the last M3 Socket Head Cap Screw through the Pawl.



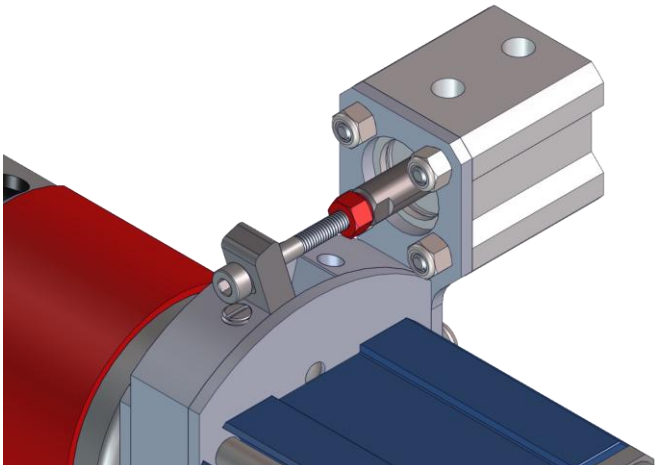
Step 6: Using the 2.5 mm Hex Wrench and Combo Wrench thread the last Nylock nut onto the M3 Screw.



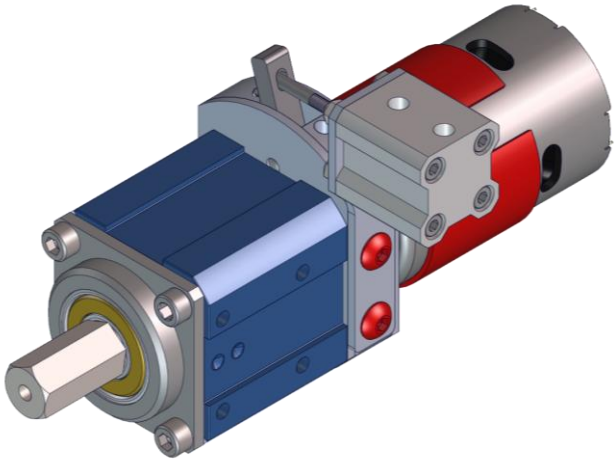
Step 7: Hold the cylinder with the Combination Wrench and firmly tighten the M3 screw.



Step 8: Hold the Nylock Nut in place with the combination wrench and turn the M3 bolt to snug the Nylock Nut to the cylinder rod.



Step 9: Finish securing the Button Head Thread Patch Screws.



Step 10: Attach the two M5 x 0.8 Fittings to the cylinder. A 2.5 mm hex drive inside the press-in fitting is used to secure them.