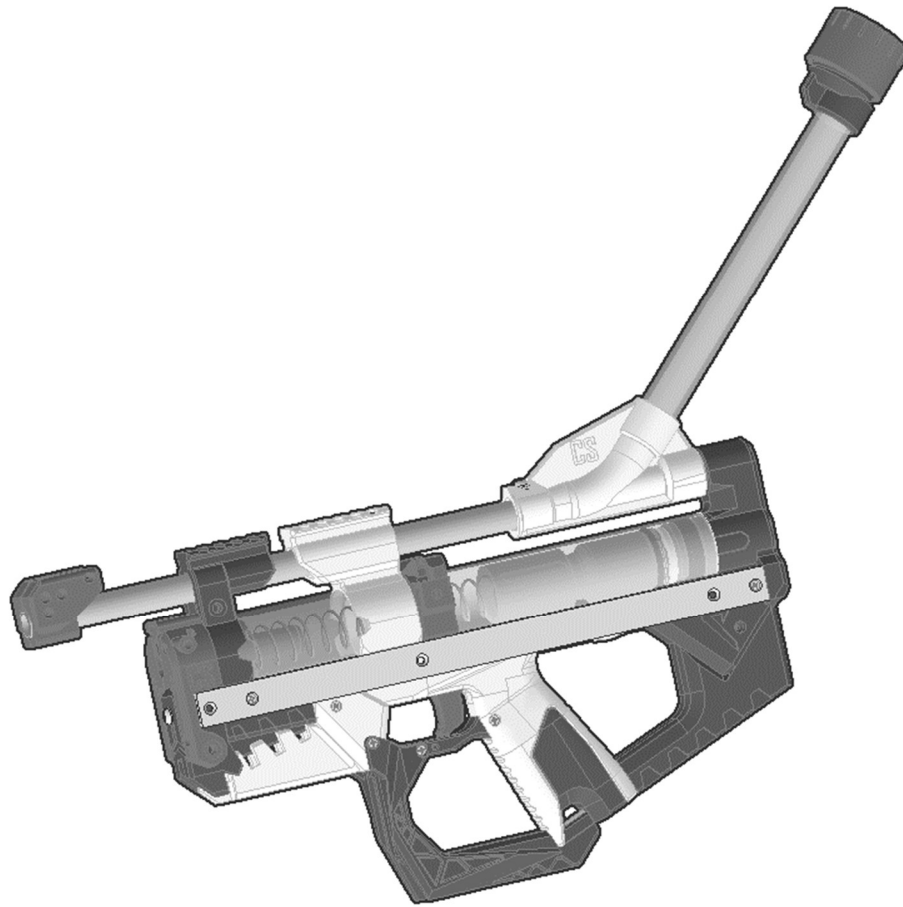


PIRANHA ASSEMBLY INSTRUCTIONS



The Piranha is a Hopper-Fed Push-To-Prime Homemade Nerf Blaster design released as a Creative Commons Non-Commercial license file set by Captain Slug (<http://www.captainslug.com>).

It uses elastic cords and a shoulder strap as a means of priming a reverse-travel plunger. The short-dart-only hopper is loaded from a fully-printed valve cap. Then the darts fire in sequence through the wye hopper. Hardware kits and Full Blasters are available for sale as made-to-order items.

<https://www.etsy.com/shop/CaptainSlug>



DO NOT STORE IN TEMPERATURES ABOVE 100F. Storing the blaster inside of a car in warmer months will cause the printed parts to distort or warp beyond their intended shape. If you have to store one in a vehicle, store it in the trunk.

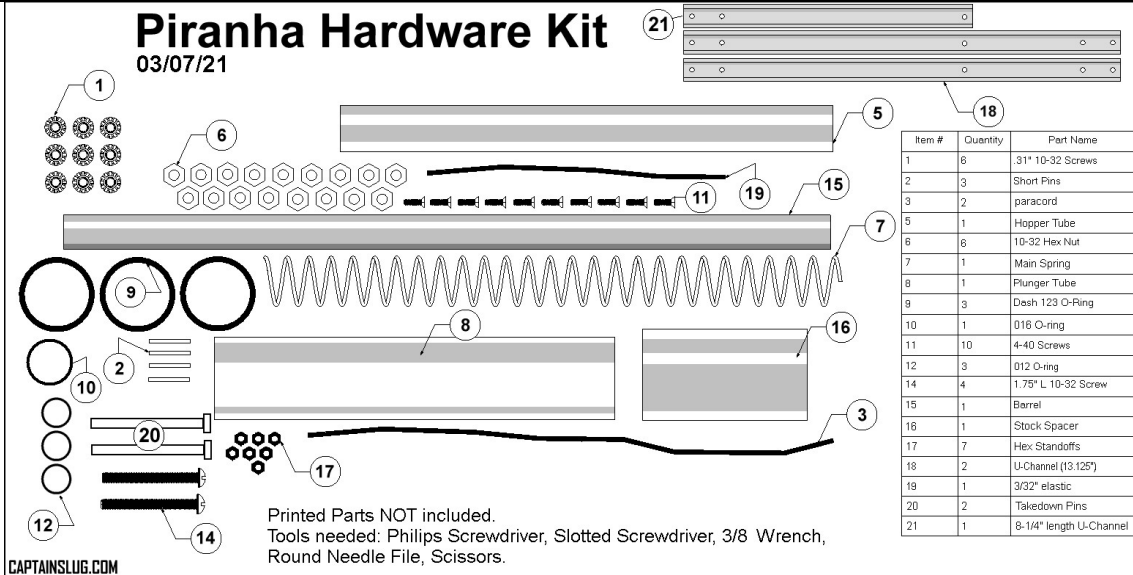


DO NOT use this blaster for wars involving minors. ALWAYS WEAR EYE PROTECTION. The muzzle velocities this design can reach are between 175fps and 250fps depending upon the main spring installed.

DO NOT Dry-Fire this blaster without any darts loaded into the wye hopper. Or when the hopper valve cap is open.

Piranha Hardware Kit

03/07/21



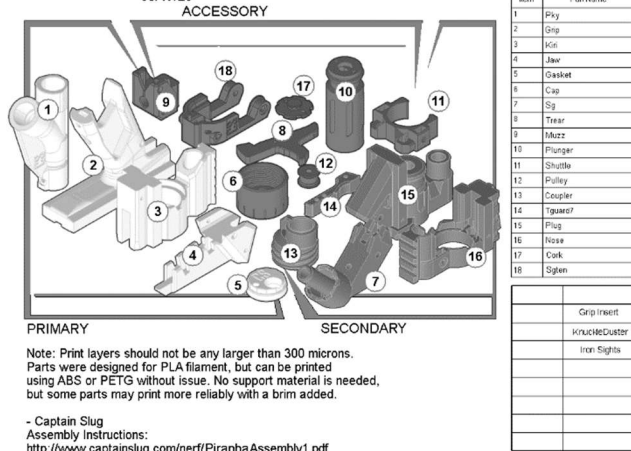
For most of the above hardware list the quantities are the MINIMUM required for assembly. Easily-lost items will have several spares and I typically include extras of the majority of the items. The Plunger Tube in the Hardware Kit does come pre-lubricated.

To assemble this blaster you will need a Slotted Screwdriver, Small Philips Screwdriver, a Round Needle File, a 3/16" drill bit, a power drill, and a pair of Scissors.

ALSO AVOID DRY-FIRING THIS BLASTER EXCESSIVELY. Firing without a dart in the wye hopper or with the hopper valve cap open will add unneeded wear on this blaster.

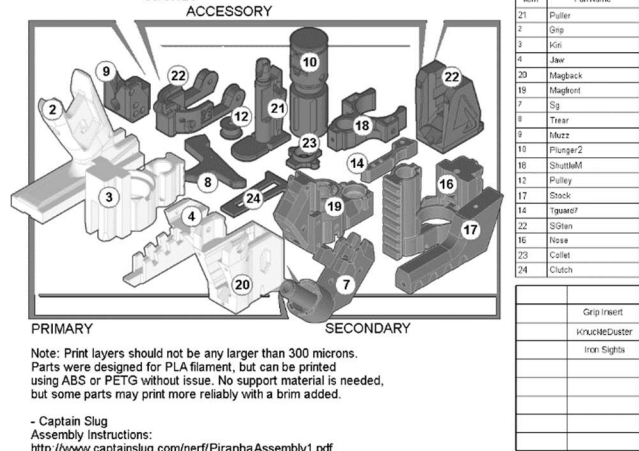
Piranha Printed Part Set

05/17/20

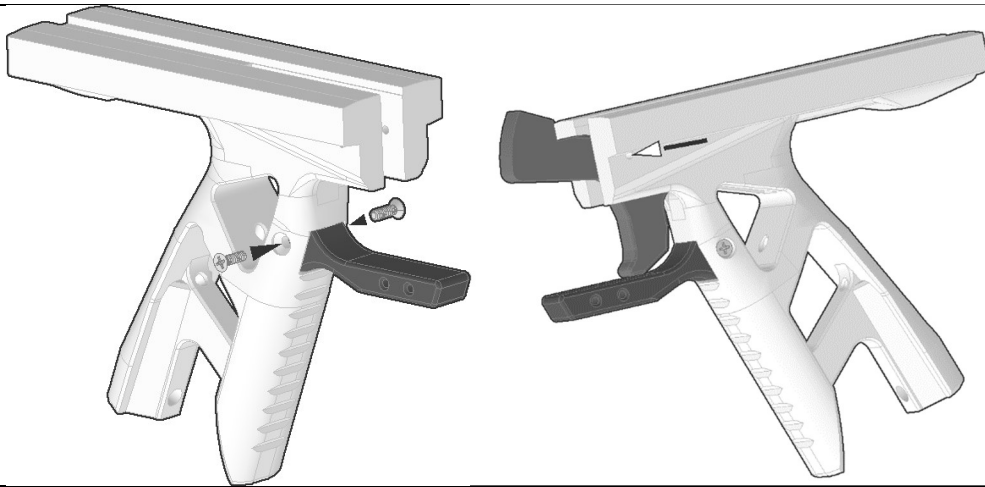


Piranha Printed Part Set

03/07/21



Above is a list of every printed part needed to assemble this blaster in each configuration option. The majority of the through holes should print to the required tolerance, but you will likely have one or two that may require minimal filing. Also make sure to trim off any burrs or oversized edges.

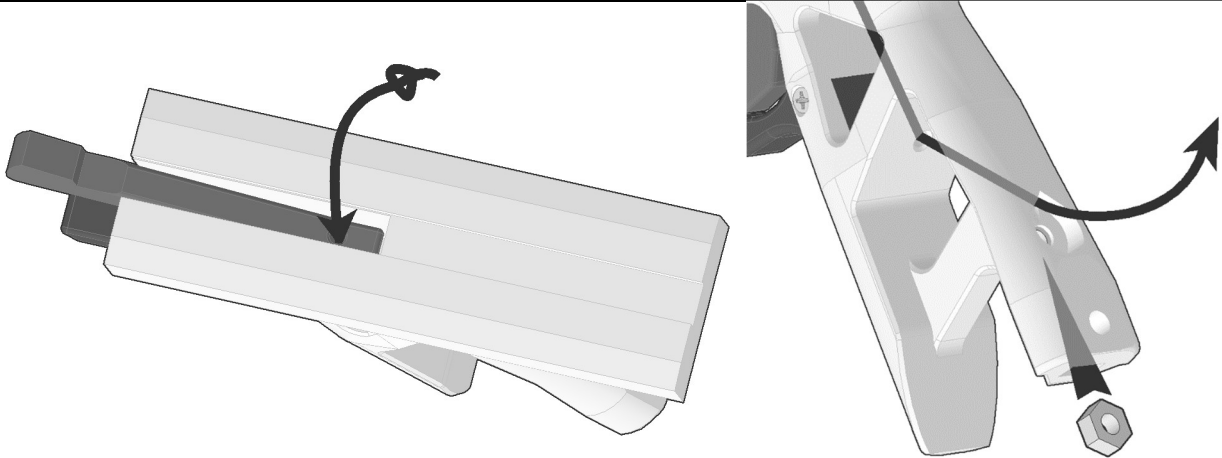


Insert the P14_Tguard7 into the square socket in the P2_Grip print until the holes in both parts line up.

Drive a 4-40 screw into the Tguard7 print from each side to retain it.

Slide the P8_Trear print into the front of the Grip until the holes in both line up.

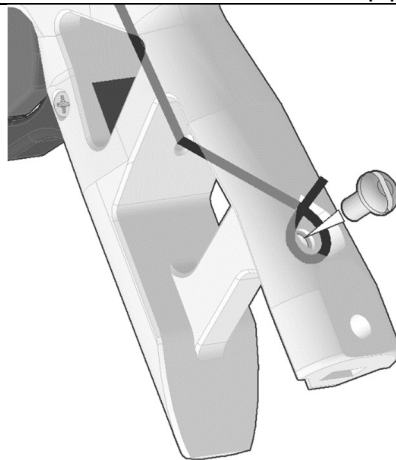
Force a short pin through both parts until roughly centered.



Take the shorter length of elastic cord and tie a knot on one end. Then make sure the knot is tightened. Trim off any excess with scissors.

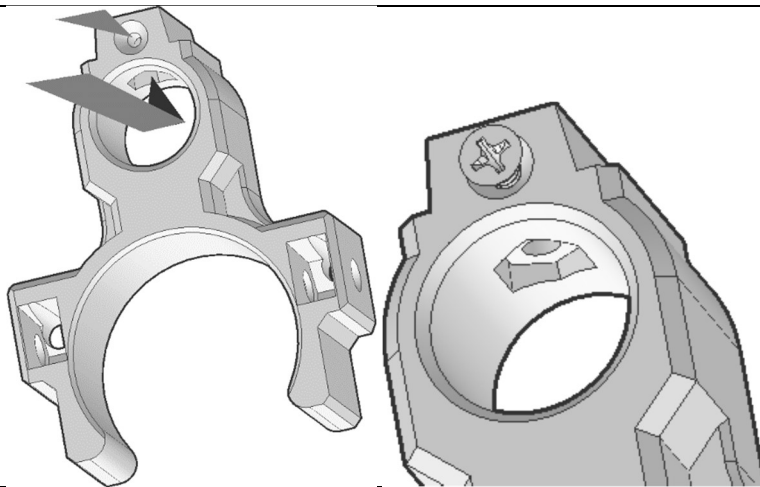
Feed the free end of the elastic cord through the hole in the back top of the Trear print, then through the hole in the middle of the Grip print, then in and through the hole in the back of the Grip print until it comes out the back of it.

Slide a hex nut into the slot at the bottom of the Grip print until it bottoms out in it.

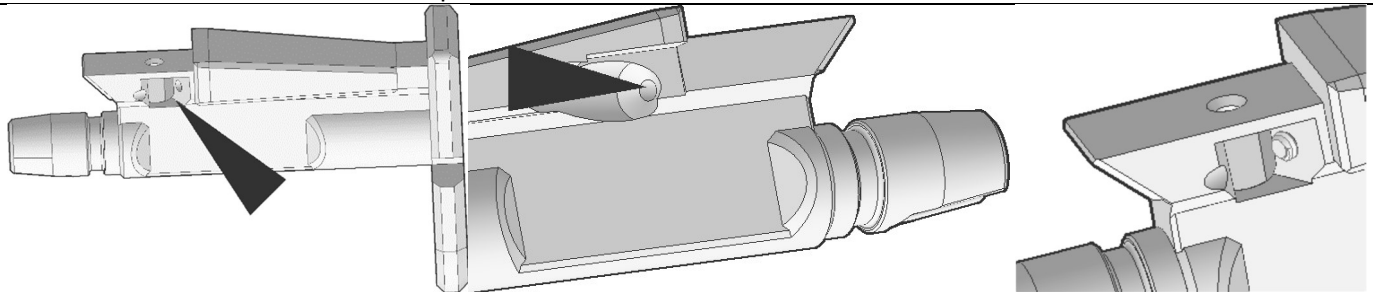


Loop the free end around the hole clockwise as shown, then use a slotted screwdriver to install a short 10-32 screw into the captive hex nut. Before tightening fully, adjust the tension on the elastic cord by pulling the free end taught. Test the feel of the trigger and then adjust the free end of the cord as needed. Once you are satisfied with the tension, tighten the screw until bottomed out, then trim off the excess cord with scissors.

Assembly steps for MAGWELL VERSION

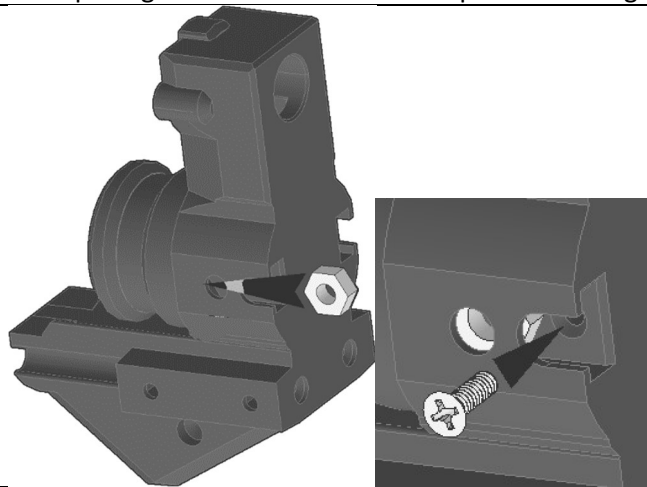


Insert a hex standoff into the hex socket inside the barrel hole of the ShuttleM print. Then drive a 4-40 screw into the print until it bottoms out on the standoff.



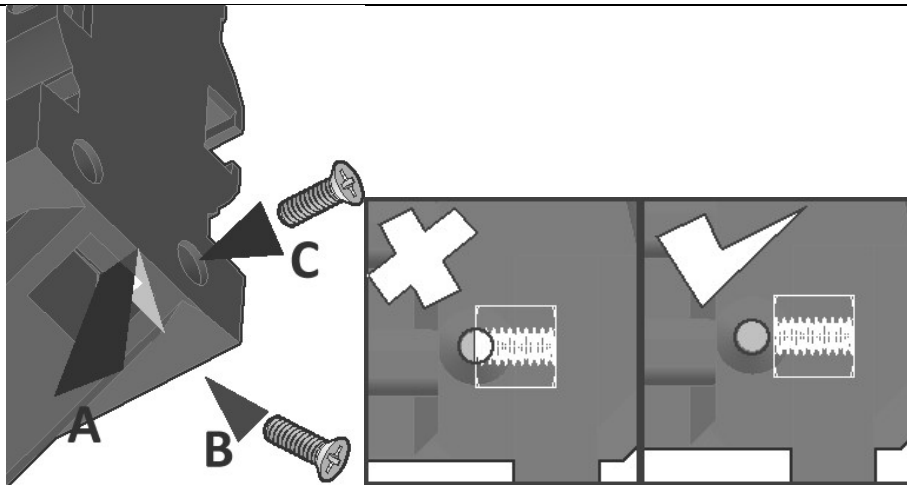
Slide a hex standoff into the angled slot inside the Puller print.

Drive a 4-40 screw in through the angled hole in the opposite side of the print until it bottoms out. The end of the screw should be poking out the other side of the print far enough to retain the hex standoff.

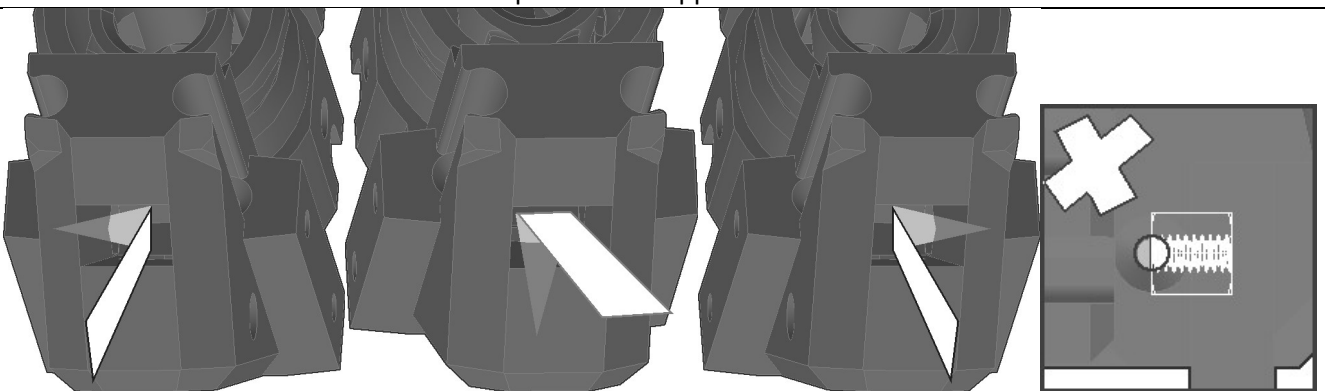


Slide a hex nut into the slot in the back of the Magfront print. Then drive a 4-40 screw into the hole behind the hex nut so that the head of the screw blocks the ability of the hex nut to back out of the slot.

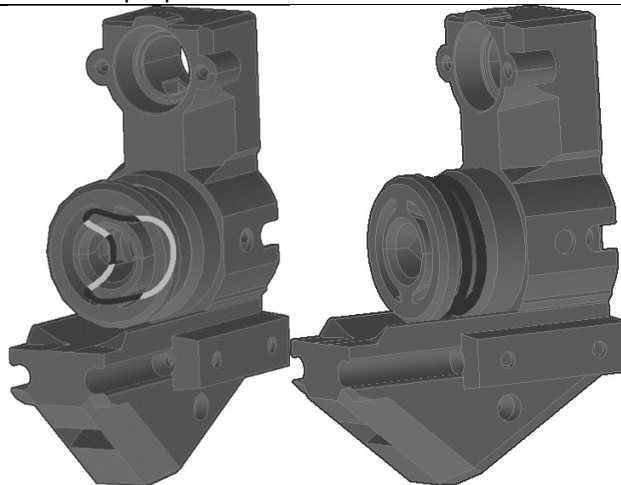
Repeat for the opposite side.



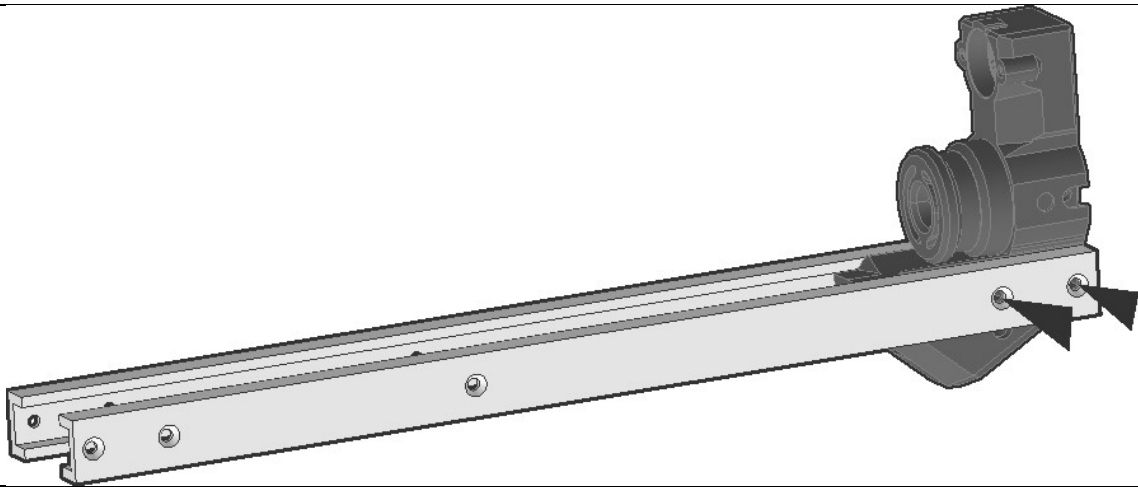
- A. Feed a hex standoff in through the slot in the bottom of the Magfront print and into the hex socket from inside that slot.
- B. Drive a 4-40 screw into the hex standoff from the hole in the side of the print so that the screw pulls the standoff to the bottom of the hex socket.
- C. Once the hex standoff can no longer be seen through the perpendicular hole in the back of the Magfront print, drive a 4-40 screw into this hole to make the hex standoff captive inside the hex socket.
- D. Remove the "B" screw that was used to pull the hex standoff.
- E. Repeat for the opposite side.



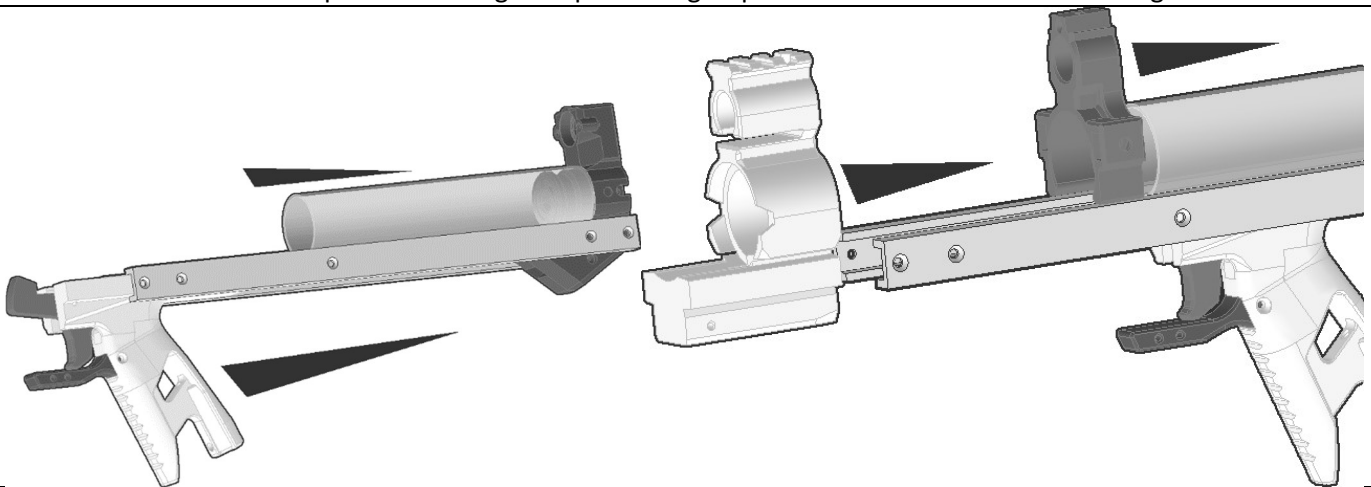
Repeat the same process for all three of the hex sockets accessible from the slot in the front of the Magfront print. Each hex socket has its own perpendicular hole for a 4-40 screw to be used to make them captive.



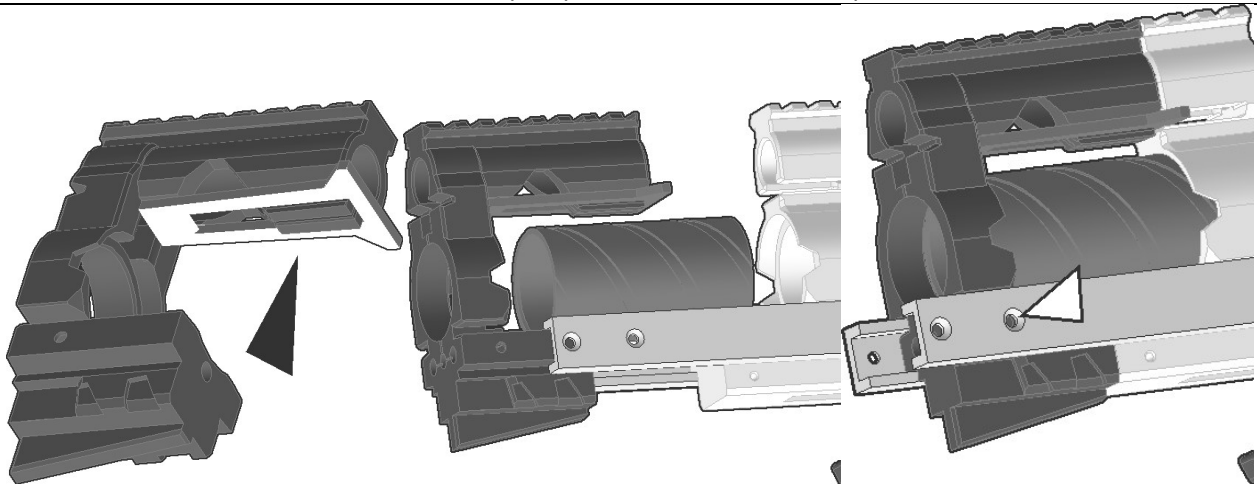
Fold a 123 O-ring in half and push it into the "mouth" at the front of the Magfront print.
Add two 123 o-rings to the undercut of the boss on the Magfront print.



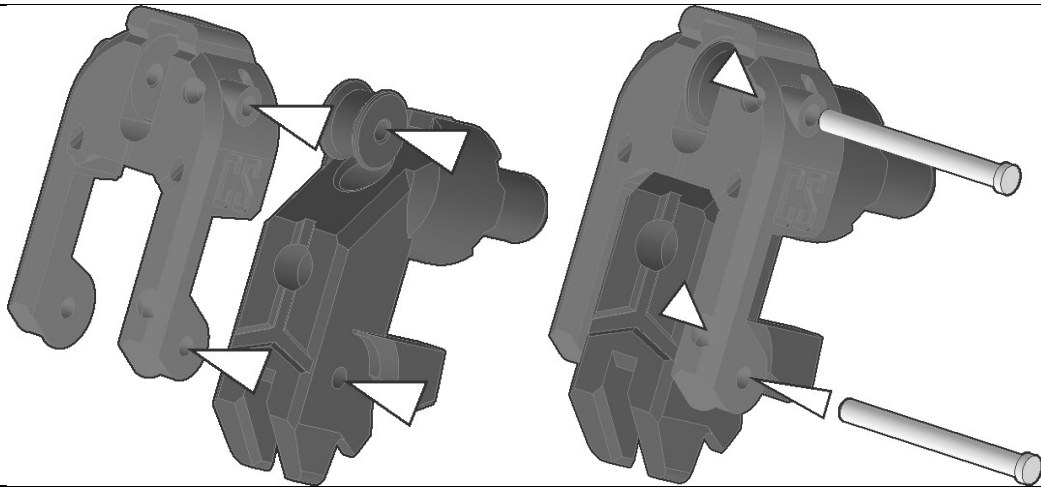
Secure the u-channel pair to the Magfront print using a pair of 4-40 screws driven in through each side.



Slide the Plunger tube onto the Magfront print, forcing it over the o-rings on the boss.
 Slide the grip assembly into the u-channel pair until it bottoms out against the Magfront print.
 Slide the Shuttle print onto the plunger tube.
 Slide the Coupler print into the u-channel pair.



Push the Clutch print onto the boss in the Nose print where shown until it snaps into place.
 Slide the Stock Spacer into the Coupler print, then the Nose print into the u-channel pair and onto the Stock Spacer.
 Secure the Nose print with a 4-40 screw driven in through each side.

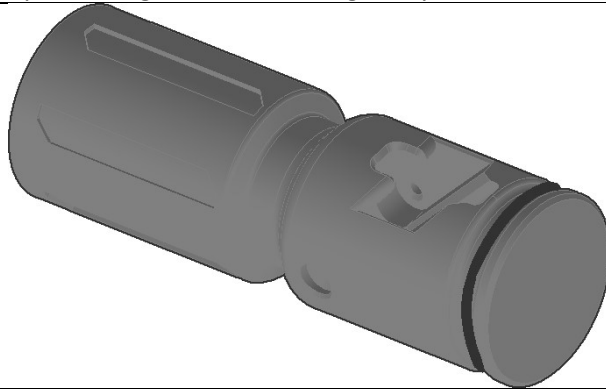


Use a 3/16" drill bit and a power drill to clear out the holes in all three prints.

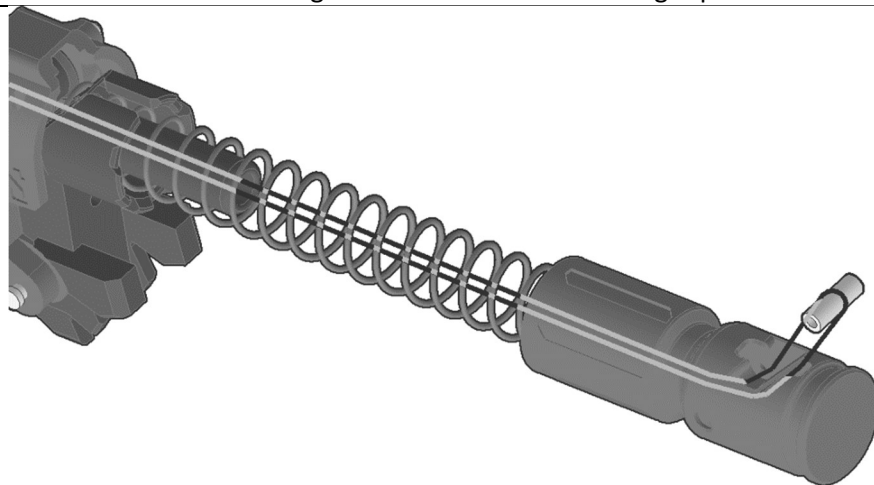
Slide a takedown pin in through the SGten and Pulley prints. Make sure that the Pulley print can spin freely on the pin. If it cannot, touch up the hole again with the drill bit, and possibly touch up the topside of the pulley print with a file.

Slide a second takedown pin in through the SGten print and through the SG3 print.

Drive a 4-40 screw into each of the two ports in the front of the SGten print until the 4-40 screws bite down onto the takedown pins, preventing them from being easily removed from the assembly.



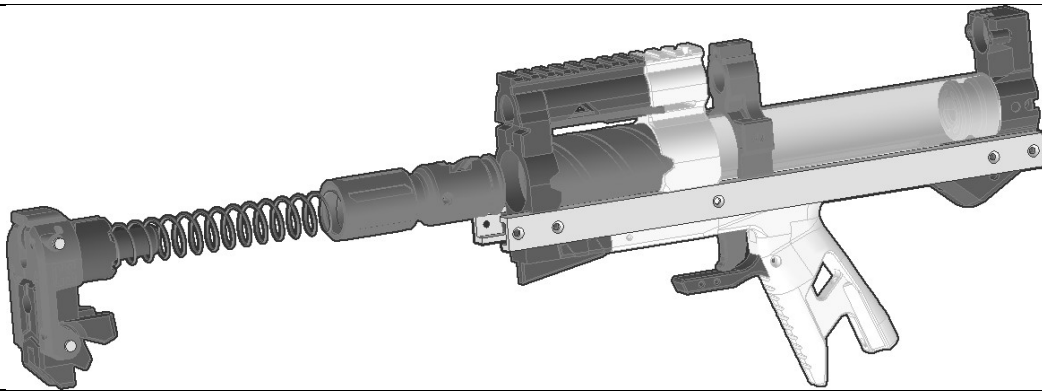
Add a 123 O-ring to the undercut of the Plunger print.



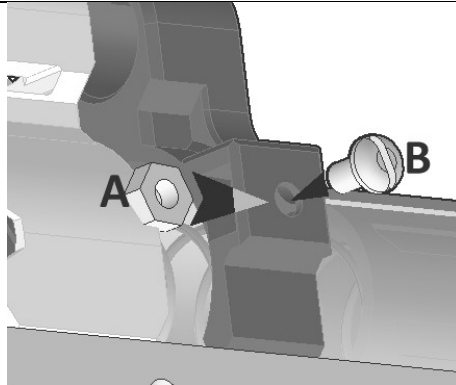
Slide the main spring onto the spring guide of the SG3 print, then slide the plunger onto the main spring.

Feed both free ends of the paracord through the Slot in the side of the Plunger print, through the main spring, and then through the spring guide of the SG3 print, then through the SGten print below the Pulley print.

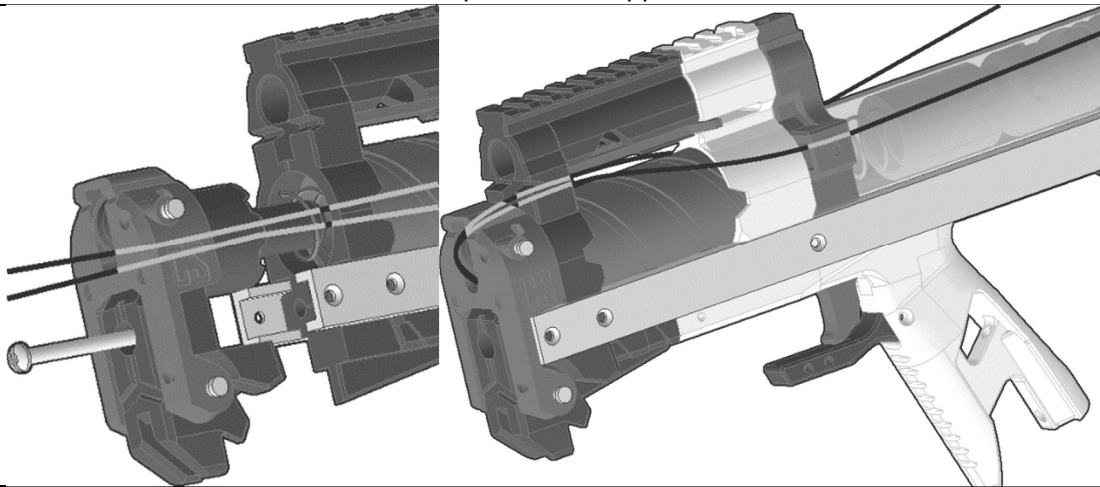
Slide a nylon spacer into the loop of the Paracord and push the spacer down into the slot in the Plunger print until it bottoms out. Pull of the slack from the free ends of the paracord.



Feed the SG and Plunger assembly in through the front of the blaster. You may need to pull the Trigger to get the catch surface out of the way during the process.



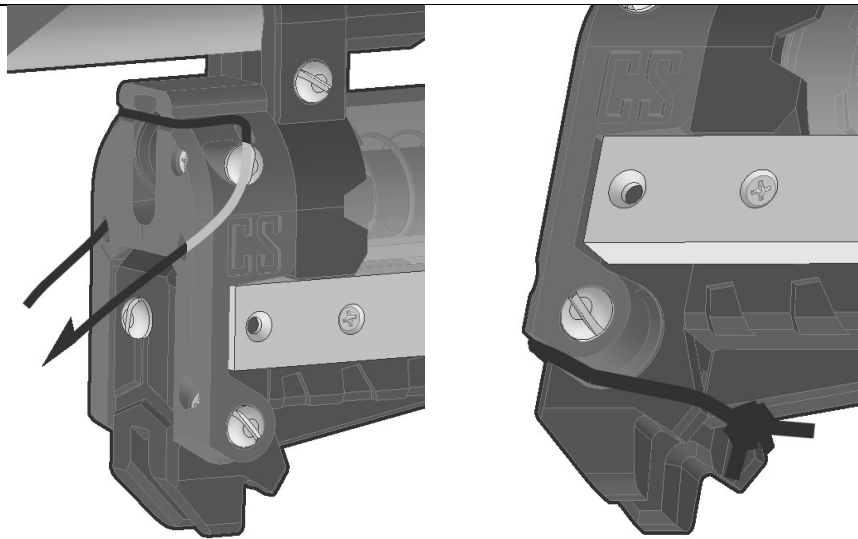
- A. Slide a hex nut into the slot in the Shuttle print.
- B. Drive a short 10-32 screw into that hex nut from the hole in the side of the Shuttle print.
- C. Repeat for the opposite side.



Use a long 10-32 screw driven through the front of the SG3 print to secure the subassembly to the into the hex nut nested inside the Nose print.

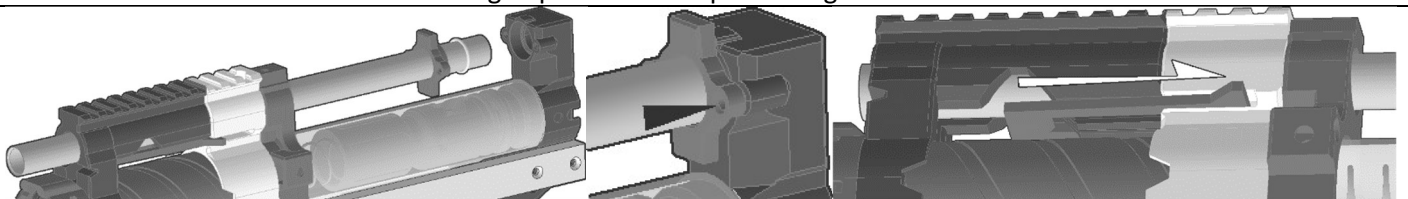
Feed the free ends of the paracord back in through the top of the SGten print over the top side of the Pulley print. Then through the Nose print and around the sides of the Coupler print.

Loosen the screws in the sides of the Shuttle print. Feed a free end through the screw terminals of the Shuttle print so that the cord wedges between the hex nuts and the outside wall of the print. Then feed the free ends out the back side of the print. Pull up the slack in the Paracord, then tighten the screws in the sides of the Shuttle print.



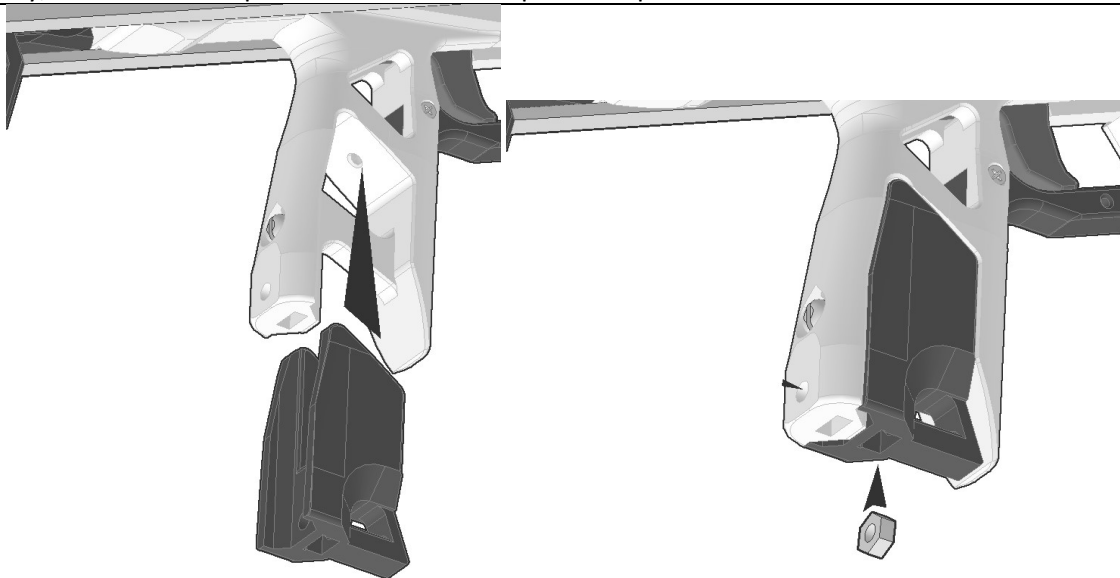
Cut an 8-inch length of 3/32" elastic cord and fish each end through the holes in the top of the SGten print so they feed through and out the hole in the front of the print.

Tie the loose ends together using a square knot then wrap the cords around the hinge point of the SGten print, then behind the "teeth" of the Sg print as shown. The resulting tension of the elastic cord should force the SGten print to hinge open when the paracord goes slack.

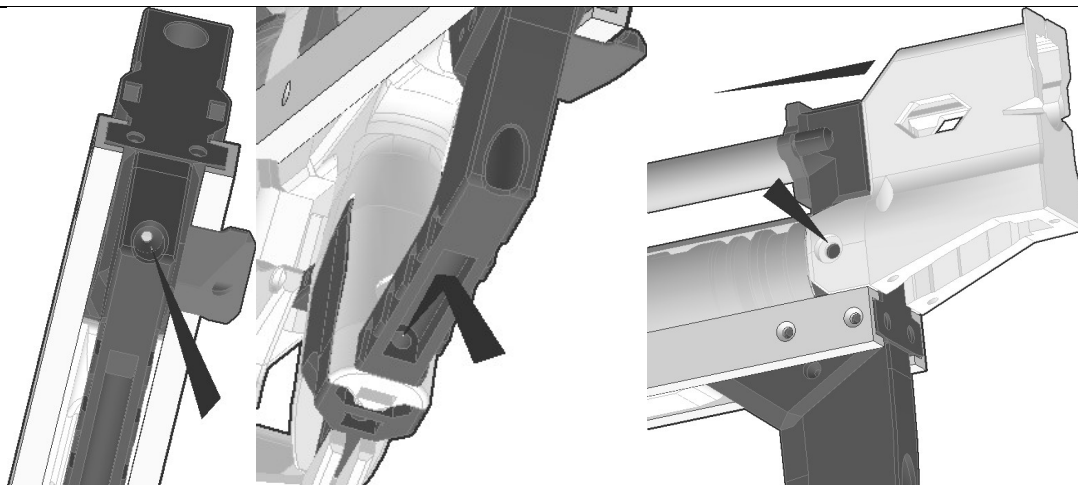


Slide the barrel through the Nose and Coupler prints, then slide the Collet print and 016 O-ring onto the end of the barrel. Seat the barrel into the socket in the top of the Magfront print, then use the Collet print to push the 016 O-ring into the socket. Use a 4-40 screw on each side to drive the Collet print tightly into the MagFront print. This will force the o-ring down onto the outside of the barrel to create an air-tight seal.

Lastly, slide the Clutch print back on the Nose print to squeeze down onto the outside of the barrel.



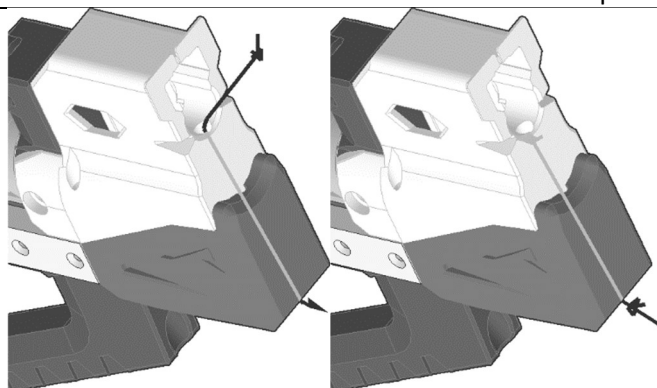
IF INCLUDED: Slide the Grip Insert print into the Grip
Insert a hex nut into the slot in the bottom of the Insert print until it lines up with the hole.



Attach the Mstock print to the bottom of the Magfront print with a 4-40 screw. Then use a 1-3/4 length screw

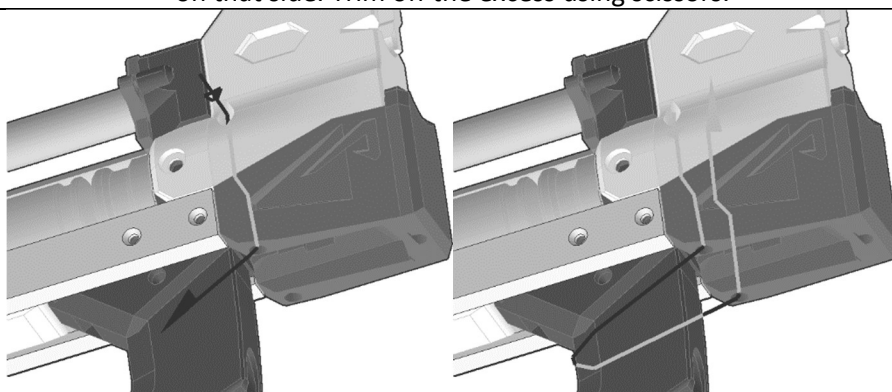
To secure the other end of the Mstock print to the hex nut inside the heel of the Grip.

Slide the Magback print onto the Magfront print and secure from each side by driving a short 10-32 screw into the hole and then into the hex nut in each side of the print.



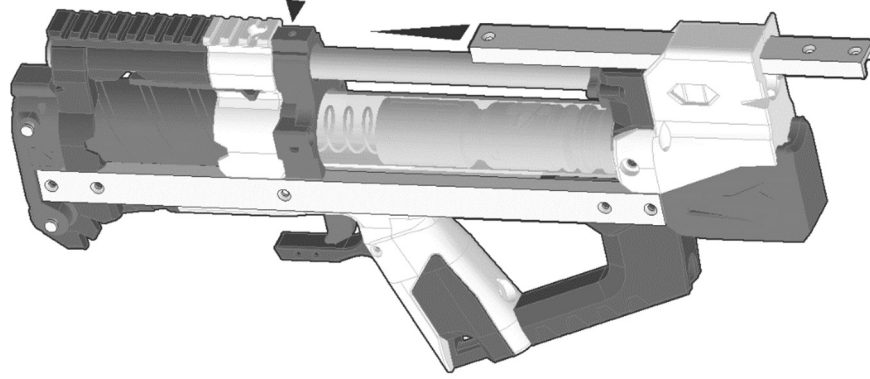
Tie a knot in one end of the elastic, then feed it through the holes in the MagBack and MagBottom prints. Drawing the knot into the counterbore.

Pull the opposite end taught, then tie a knot as close to the Magbottom print as possible, then let it into the counterbore on that side. Trim off the excess using scissors.

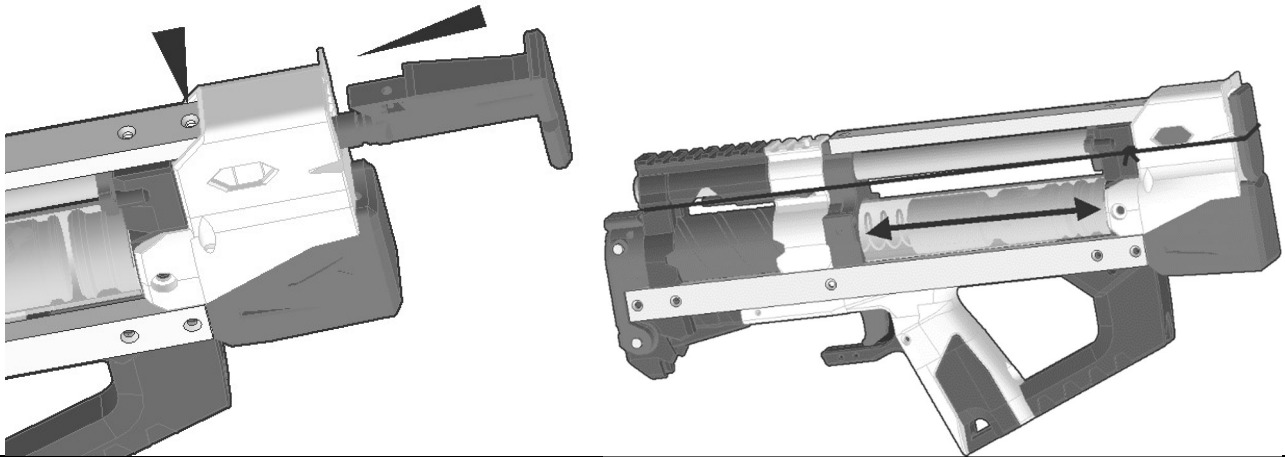


Tie a knot in the end of the elastic then feed the free end through the holes in one side of the Magback and Magbottom prints. Pull it taught then wrap around the front of the Stock print, then feed it again through the hole in the opposite side of the Magback and Magbottom prints. While pulling it taught again, tie a knot as close to the counterbore in the top of the Magback print, then let it get pulled into the counterbore. Trim off the excess with scissors.

Test the function of the magwell with a Talon mag to confirm that the detent is functioning correctly. Adjust or replace the elastic as needed.

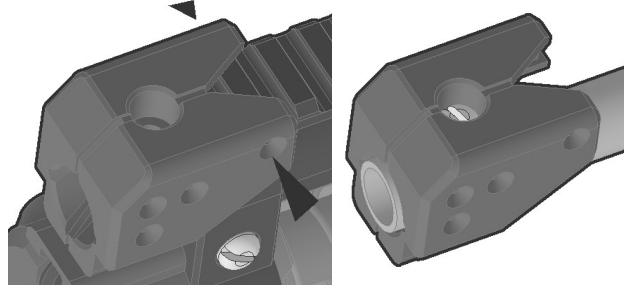


Slide the upper u-channel in through the back of the magback print and over the top of the Shuttle print. Then secure it to the shuttle print with a 4-40 screw.

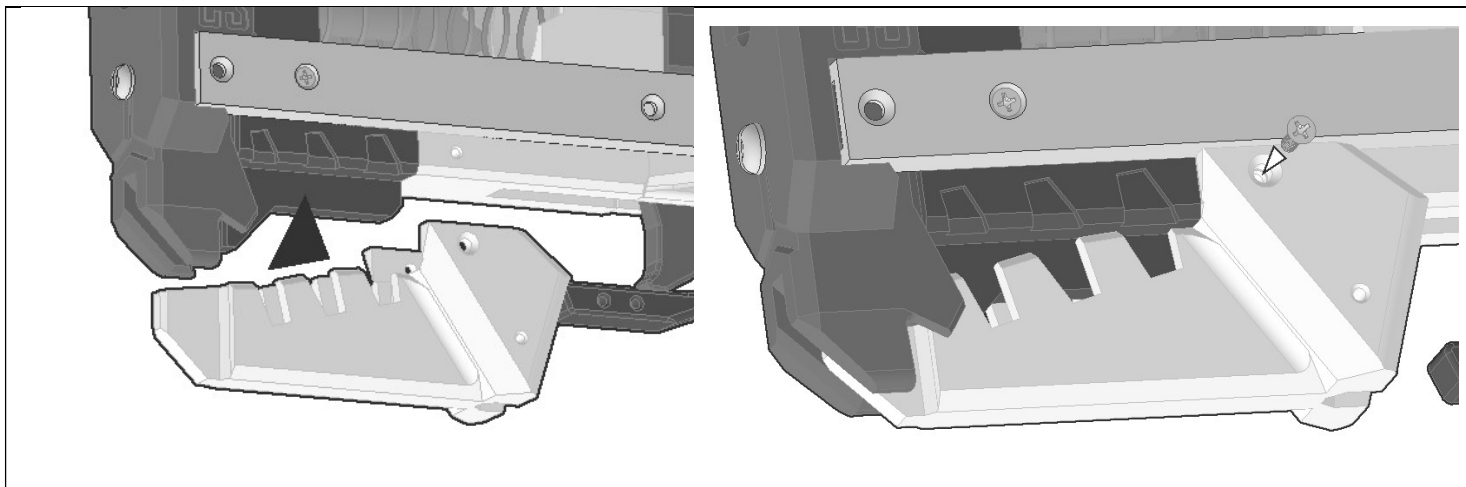


Slide the Puller assembly into the magback print and into the upper u-channel. Then secure it with a 4-40 screw in the rear hole.

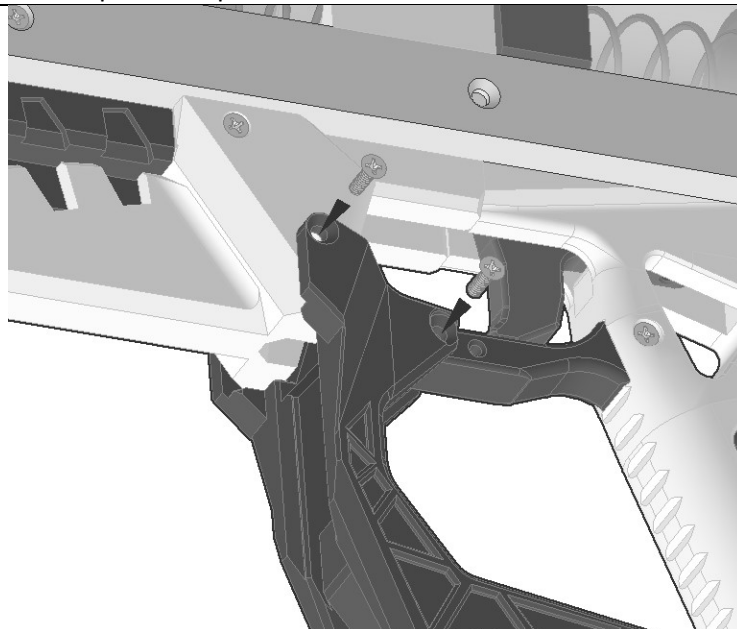
Make a loop of elastic around the back of the puller assembly and the notch in the Nose print. Pull it slightly taught then tie a knot. Test the opening and closing of the breech and confirm that the elastic has enough range to all the shuttle print to slide all the way back and forth on the plunger tube, but the elastic still has enough pull strength to return the puller to the forward and closed position on its own. Make adjustments to the length of the loop of elastic as needed.



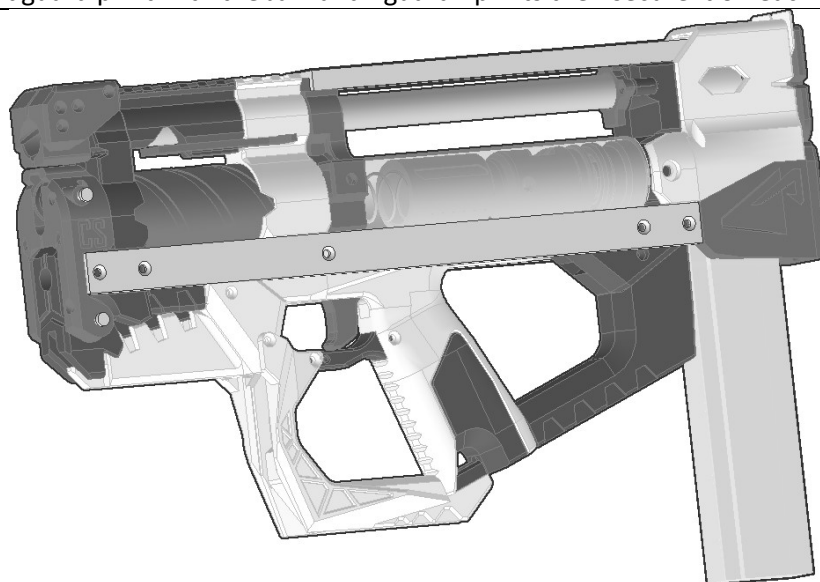
If using a really short barrel, the Muzz print can be secured to the rail segment on the front of the Nose print by driving a 4-40 screw into each side. Otherwise insert a hex nut into the socket inside the print, then drive a 10-32 screw into it. Slide the print onto the end of the barrel, loosen the screw to allow the barrel to clear it, then tighten the screw again afterwards to clamp it down onto the barrel.



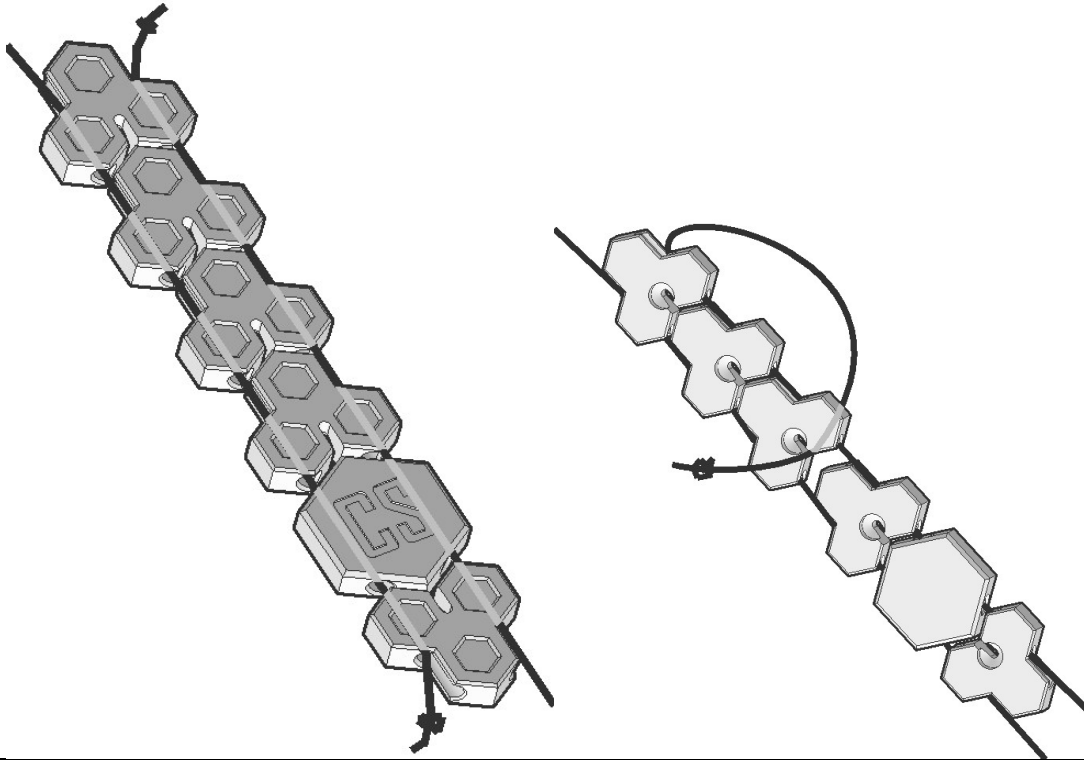
Slide the Jaw print into place then secure on each side with a 4-40 screw.



Align the holes in the Handguard print with the Jaw and Tguard7 prints then secure it on each side with two 4-40 screws.

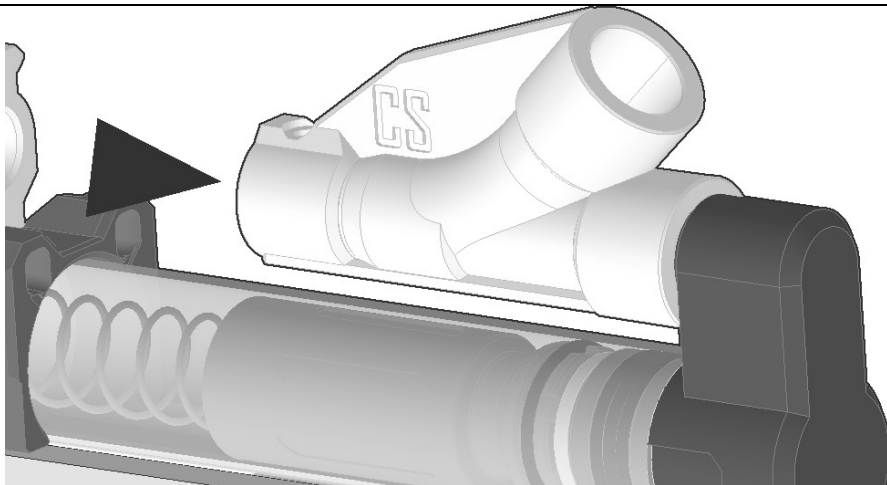


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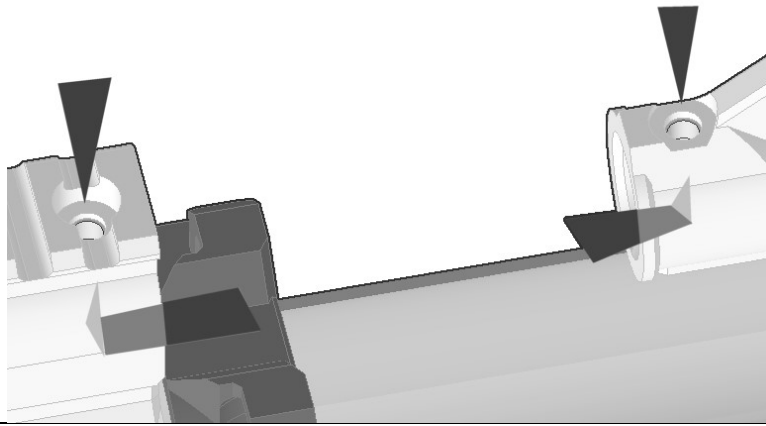


Take the free ends of the Paracord and feed each end in through the holes in opposing sides of a set of Bead prints as shown, then tie a knot on each free end. The beads will act as the pad of a shoulder strap. To adjust the overall length of the shoulder strap in coarse amounts, un-tie and then re-tie one or both free ends. To make small adjustments to the length, you can pull up the slack in one free end, then feed the knot inbetween some of the beads and pull the knot into the slot and socket in the backside of each Bead print.

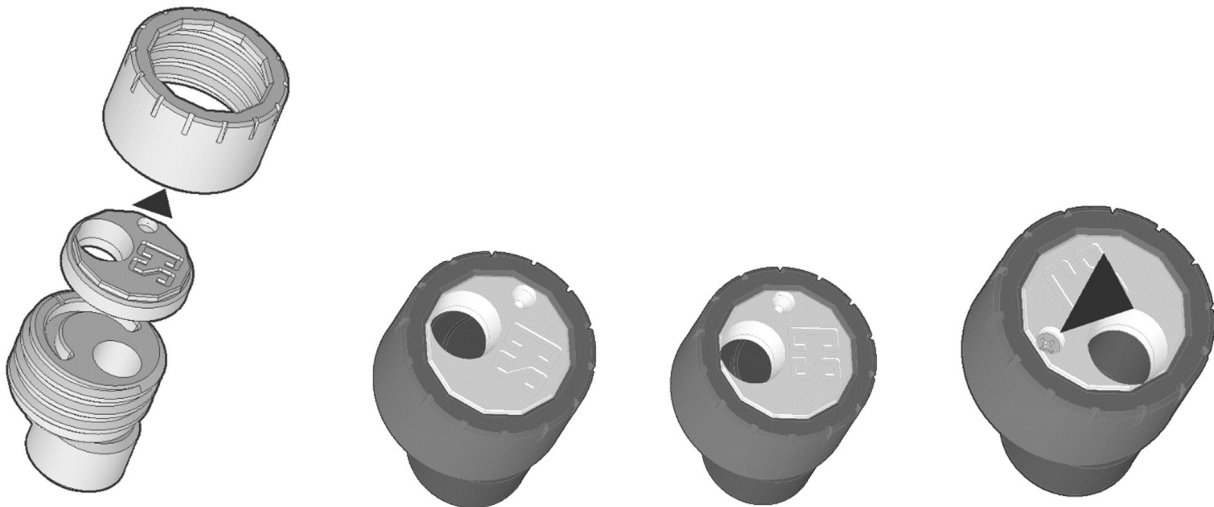
Assembly steps for WYE HOPPER VERSION



Force the Pky print onto the stub on the top of the Plug print.



Insert a hex nut into the sockets inside the Kiri and Pky prints. Then drive a 10-32 screw into them from the holes in each until the end of the screw is flush with the inside surface of the hex nut.
Feed the barrel in through the front of the blaster until it bottoms out in the Pky print. Then use both of the screws just installed to secure the barrel



Insert the P5_gasket print into the P6_cap print until it seats in the matching faceted socket.
Screw the Cap print onto the Coupler print until all the parts bottom out against each other.
If the through-hole in the Gasket print overlaps the through-hole in the coupler print, take the cap back off then remove and index the Gasket print over a few facets to where you think the two holes will no longer overlap.
Screw the Cap print onto the Coupler print again and check where the parts bottom out against each other.
If needed, repeat this process until the two holes will not overlap.
Once alignment is as-desired, drive a 4-40 screw into the small hole in the gasket print. This screw will allow the valve to be opened and closed without the assembly coming apart.



Force the Hopper tube into the finished Hopper Cap assembly. Then force the opposite end into the remaining port in the Pky print. The fit should be tight. If it is not due to print tolerances adhesive may need to be used.



To wield the blaster unhook the shoulder strap from the left side of the Shuttle print.

Wrap the shoulder strap under your right arm pit then around your back and to the left side of your neck.

Adjust the shoulder strap so that the resulting fit allows the blaster to be moved around and aimed easily when held in your right hand and your face pressed up against the blaster in order to aim down the barrel with your eyeline.

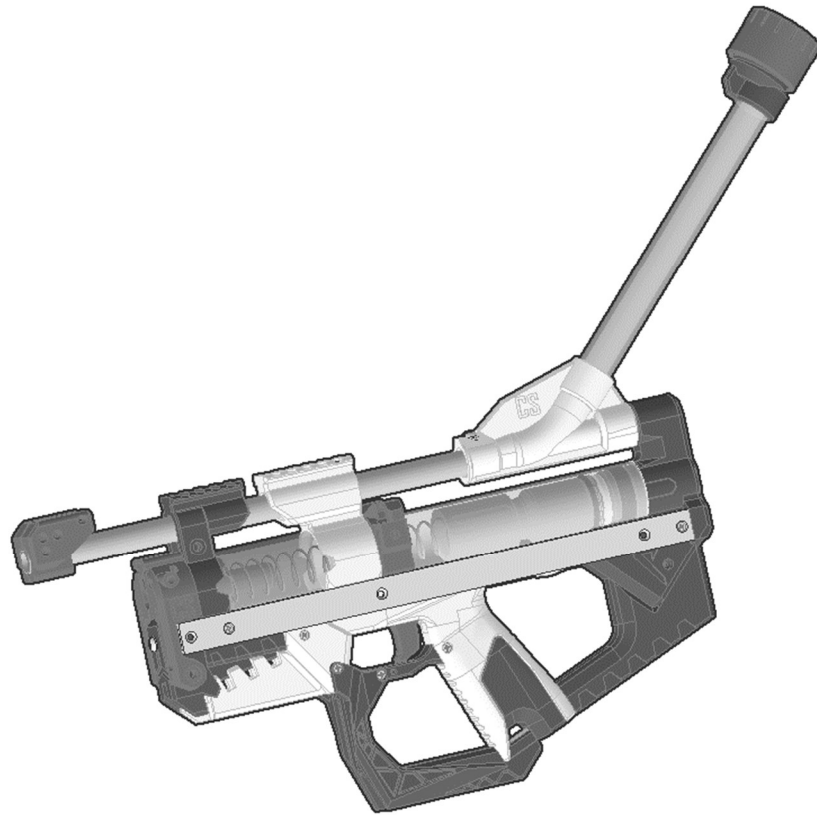
To prime the blaster use your right hand on the grip to push the whole blaster away from yourself. You will see the shuttle sliding on the outside of the plunger tube, the plunger moving towards the front of the blaster, and eventually the plunger will reach the catch.

Pull the blaster back towards yourself and then against your shoulder, you should see the shuttle piece return to the forward position.

If setup for left-handed use obviously the described sides noted above would be reversed. And the hopper would need to be tilted toward the opposite side.

Point the muzzle of the blaster downwards, then open the hopper cap and feed in two to 8 half-length darts tip-down, then close the hopper cap.

Pull the trigger to fire the first dart.



If the first dart fired, then assembly is complete. If it did not then the barrel will need to be removed and a round needle file may need to be used to clean up the inside of the barrel port on the print.

If the shuttle piece did not reach both ends of travel check that the Pky print did not obstruct its travel. If the plunger did not reach the catch, then your arms are too short. Or you need to adjust the shoulder strap which might be too slack. Alternatively the length of elastic that was strung through the plunger was cut or tied to be too long. Nominal length before tying of that elastic cord should be 18 to 19 inches.

NOTE: Wye hopper is most likely to be compatible with half-length darts that have taper tips or tips that are otherwise narrower than the foam itself. Very square-tipped darts are likely to have considerable reliability and feed consistency issues.