RAM-SHELL

Hull: Removal & Replacement

March 2026

Read entire document prior to attempting to remove & replace hull.
Only use provided replacement hull

Note: please ensure that these instructions are followed in a safe manner. If any part of this is beyond your technical comfort level or suitable tools are not available, please reach out to info@ram-shell.com for assistance.

1. Kit contents

- As part of the replacement kit, you will receive the new hulls, one for each of the original purchased shells. Also included is one wooden ball for each hull and a 3D printed base and cap to prevent marring during the re-assembly stage.
- If the hulls are already fractured due to use, you may skip directly to the re-assembly phase. It is recommended that the base be cleaned with soap and warm water and dried with a paper towel.

2. Removal of intact polymer hull

- Ideally, a standard pipe/tubing cutter (available from any hardware store) is to be used. Use of a box-cutter or similar knife can work too, but it greatly increases the chances of personal injury due to cuts and similar (do so at your own risk!). If other tools such as pliers, (diagonal) cutter are available, those might offer a better alternative.
- If cutting tools are not available or handling with a sharp tool is not desirable it is likely the best option to simply force the wooden projectile as far into the hull as it will go (using a hammer and pin to force it in is acceptable) and then using a #4 Ramset, have the hull (likely) disintegrate during discharge. If using this method, ensure that the muzzle is pointed in a safe direction as shards of plastic as well as the wood pellet will be discharged.

3. Reduce length of hull to approximately ¾” (interior) above aluminum base.

- By reducing the height, the internal diameter is more easily accessed where the diameter is at its smallest. The location of the cut is no of particular importance: cutting in half is appropriate, make sure to leave enough space so that the full diameter of the wooden pellet can engage.

4. Cut/score along the length of the tubing.

- The depth of cut does not need to be all the way to the aluminum base. At the exposed end (where it was trimmed), cutting all the way through is recommended. At the other (aluminum) end, scoring is usually sufficient.

5. Insert (oversized) wood pellet/ball

- The replacement kit comes with one ball per hull, it serves a dual purpose: either to act as a wedge to split the hull (it will crack along the scoring line) or as a stopper to increase the pressure during a discharge to rupture and fragment the hull.
- The diameter of the ball is larger than the ID of the hull (though it can be used as a projectile in the newer hulls with some level of success). Place it on top of the hull.

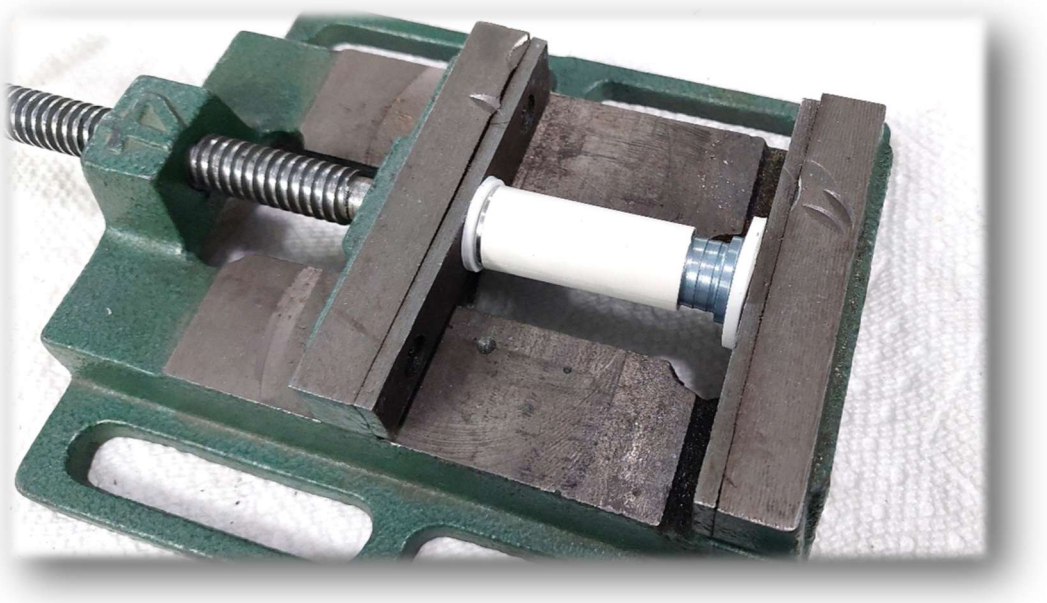
6. Force the ball towards aluminum base using hammer or similar object.

- Forcing the ball towards the base extends the crack formed when the hull was cut with the pipe cutter. If the scoring was sufficiently deep, this is enough to crack the hull along its length.
- If this action does not fracture the hull, it may be necessary to drill into the wooden ball, insert a screw to retrieve it and attempt the process again – alternatively, with the wooden ball inserted in this manner and with even a mild scoring, use of a lower-level Ramset should be enough to fracture it.

7. Installation of new hulls

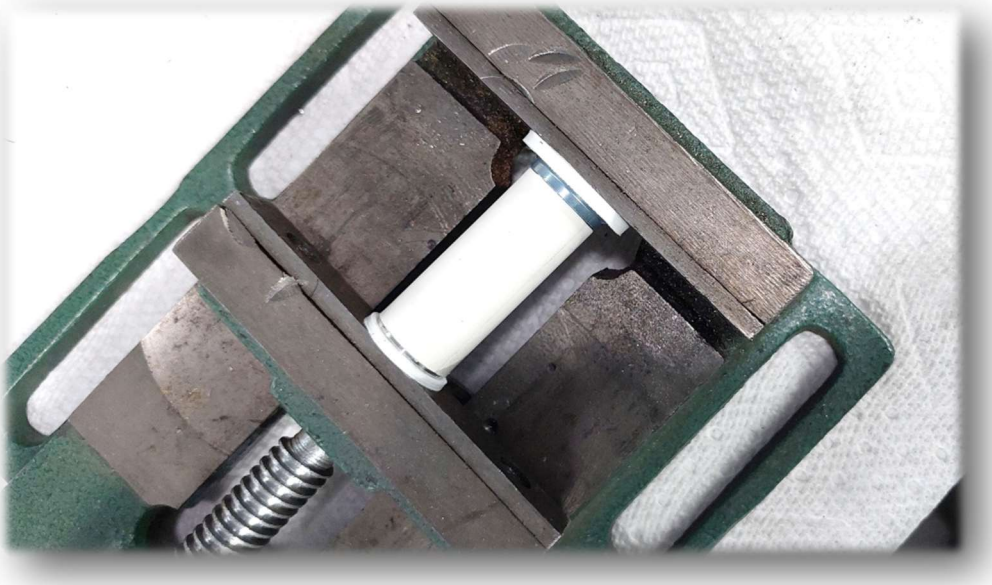
- The hulls are designed to be press-fit onto the base. Nominally, approximately 200-400lb of force is required. This is best achieved using an arbor press or similar.
- When using an arbor press, simply use the provided 3D printed base to prevent the aluminum from being scratched by the arbor plate. Similarly, placing the smaller plastic part on the rim of the hull prevents it from being scratched.
- The dimensions of the hull and base are such that they can be fit together by hand and achieve a minimum level of retention to make assembly easier. Note that there is a large diameter and small diameter end. The Base gets pressed onto the smaller diameter end (tight fit).

8. Installation using vice (bench, drill or similar)



- When using a vice to squeeze the components together, make sure that they are properly aligned. They should ideally be located along the center of the vice (where the screw acts directly on the parts) and the plastic caps be used to prevent scratching.
- With smaller vices, the amount of torque required is fairly high. Make sure that parts do not shift during this process as misalignment will cause the hull to be deformed, potentially breaking it or making it unusable.

9. Fully compress



- The unit is fully installed once the hull and base come into close contact.
- A minor gap is not an issue, provided that it is less than about 1mm (second image shows about 0.5mm)