**3DPrintFreedom.com**
**Supplementary Materials**

**PRODUCT:**
M1337 Complete Kit
**VERSION:** 1.1

This document details a few notes about the M1337 Complete Kit

**Notes on Pins / Rods**

Nopel's documentation calls for very specific unusual lengths for the pins, especially for the 3/32" pins. In almost all cases, I have adjusted these to the nearest common available size – and, in the case of the 3/32" pins, some have been adjusted to 2.5mm diameter to get closer to nominal.

In my build using these pins I have not encountered any issues with these variations on nominal. Please refer to the BOM when building to find which of the included pins are meant to be used for which operation.

**Notes on Main Axle**

The main axle is an extruded aluminum rod, and therefore is subject to variance in its actual diameter. I have found that in nearly all cases these axles are a little too large to fit in the bearing. To that end, I have turned down one end ever so slightly.

I have attempted to turn the end down such that it provides a tight fit in the bearing. In some cases this fit may still be too tight, in which case you should reduce its diameter a bit more with sandpaper.

Please ensure that, when drilling the axle, you orient it properly such that the holes for the rear clutch are on the turned-down end.

If you are using 16" barrels, this axle should be exactly the right length, and you should not need to cut it down.

**Notes on Cam Section**

The cam section is the curved metal piece with three holes in it, installed into the receiver early in the build and secured with three pins. The purpose of this cam section is to provide a strong surface for the striker to cock against.

This piece is produced using DMLS 3D printing. It is important for the thinner end of the cam section (the end which the striker post bearing will contact first) to be either flush or slightly below the printed cam path. If the metal juts into the cam path even a little, it will cause jams or stoppages (or at least rough performance.)

I encourage you to feel the transition between the printed cam path and the metal cam section with your finger after first installing it. If you feel any bump or rough transition, use a file or dremel to grind down the bump to ensure a smooth transition. It is okay if your grinding / filing causes the cam section to drop below the cam path a little, but try to create a smooth edge as you grind.

**Notes on Cam Pins**

The cam pins are the pins installed into the AR bolt head / carrier to control the motion of the bolt head. The M1337 build process cuts a notch in these pins – the pins I ship have this notch cut with a CNC mill.

These pins are cut in bulk, and we inspect each batch, but it is possible for a pin to pass inspection and still be cut slightly too shallow. This can create a problem after installing the assembled bolt in the receiver – the cam pin will sit too high in its track and scrape the wall of the receiver, causing a jam. If the cam pin is cut too shallow, the jam will occur almost immediately after turning the freshly installed bolt past the bolt installation opening, so if you're seeing this behavior it's likely due to the pin.

You can fix this by manually filing down the notch in the cam pin a little. It is possible to file too much, so go slow and take off only a little at a time.

The M1337 release package contains a printable "cam pin template" which can be used to test if a cam pin is cut adequately. A properly cut cam pin should slide through the template with only a little resistance. You may wish to test your cam pins in the template prior to assembling the bolts and preemptively file, although again be wary of taking off too much material and ruining the pin.

**Notes on Loctite**

You will use the included bottle of Loctite to secure bearings on top of the bolt and striker. If excessive Loctite is applied during installation, it can leak into the bearing channels and cause the bearings to become rough or to seize entirely.

With this in mind, be careful with using an excessive amount of Loctite. You may wish to apply the Loctite to a q-tip first, and then use the q-tip to brush the Loctite onto the bearing post.

Challengingly, not applying *enough* Loctite can cause the bearing to come off during operation, which can create a challenging disassembly process. Still, do your best to apply an adequate amount, but not so much that squeeze-out can flow into the bearing's channels.