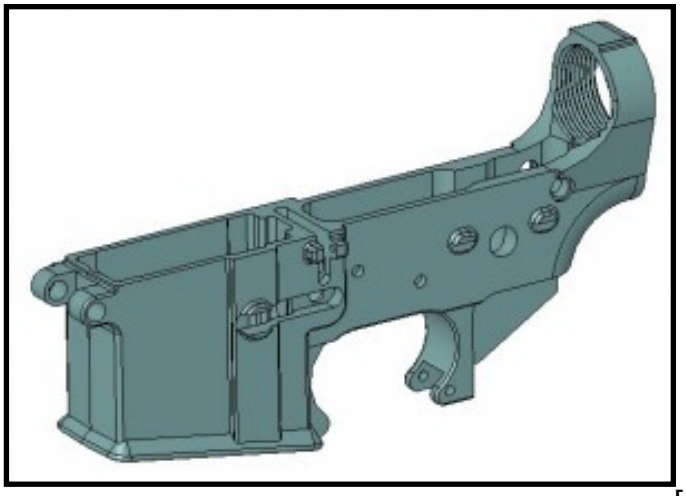
The 3D-Printed Gun: When Is High-tech Too Hot To Handle?

Few issues generate as many opinions as gun ownership. Almost every country in the world recognizes the special importance of firearms and regulates them. In the United States, the right to own a gun is written into our constitution as part of the famous Second Amendment in our Bill of Rights. Tempering those rights are a slew of state and federal regulations including laws requiring those who manufacture weapons for sale to be licensed, the weapons they create to be numbered and registered, and the guns to be readily detectable.



[1]3D printing [2] is threatening to turn the existing system of regulations on its head. While it has been legal to produce a firearm for your own use, it has been prohibitively expensive and difficult to make anything much more than a toy. Building one from parts is also complicated, as the critical receiver — think chassis — of the gun is regulated, so it wasn't really possible to create a gun from scratch without licensing it. One enterprising DIYer has succeeded in 3D printing the key lower receiver from an AR-15 pistol and combining it with other parts into a working gun [3]. Building on this clear first step towards creating hard-to-track homemade firearms, another group is pushing towards entirely 3D printed weapons.

Defense Distributed [4], a loose group of DIYers, is working on printing an entire,

fireable, gun. They raised enough money to lease a 3D printer and get started earlier this summer. Working to stay on the legal side of things, they promised never to sell or give away weapons, only to provide plans — which they expect to make freely available. These promises weren't enough to calm the concerns of their lease vendor, who took the printer back when it got word of their plans. Of course, it's only a matter of time until they or a similar group have enough money to buy their own machine, or find one to rent under different terms.

Getting a printer is only the first step. Gun part models are easy to find online at sites like cncgun.com [5], so that's an easy second step. Dealing with the pressure and heat of firing is a much bigger problem. The resins used by all but the most expensive 3D printers would melt if they didn't explode first. Machining the working parts of the gun may also be required, as 3D printers don't currently have the tight tolerances needed.

Can 3D printing reinvent the zip gun?

[6]Homemade guns certainly aren't new. Zip guns, the most common name for cobbled-together weapons, can be made from as little as a .22 cartridge, old-fashioned radio antenna, rubber band, firing pin, and a block of wood. However, they tend to be short-range, single fire, often inaccurate, and frequently unsafe (for everyone involved). As a result they don't get a lot of attention from regulators. No one has stopped Home Depot from selling plumbing pipe fearing that it might be used as a gun barrel — although conspiracy theorists might note that radio aerials have pretty much disappeared from cars.

3D printing won't fix any of the issues with homebrew firearms right away. Building a precision firearm requires much stronger materials than those in use by any type of affordable 3D printers [7]. Tolerances are also much more exacting. Parts would have to be machined after being printed, requiring a whole other skill set and tools.

Ironically, if an all-plastic working gun could be printed, it might need to have metal added to make it legal. In addition to the general regulations on firearms, there are particular restrictions on weapons which can not be found by metal detectors. The Undetectable Firearms Act was passed in 1988 partially in response to fear-mongering about a then non-existent all-plastic gun.

Think it can't set back 3D printing? Remember Sudafed?

Whether or not you ever plan to print a gun, the possibility may have a serious effect on 3D printing in general. Once the plans to print a weapon are available on the internet — which is only a matter of time and innovation in materials — 3D printers will suddenly be watched with a lot more interest. I can easily foresee a time when their purchase requires a registration or license, at least for the high-end ones, and where volume media — "ink" — purchases are also tracked.

If you think that sounds far-fetched, try and buy a big bottle of Sudafed in the U.S., Canada, or the UK. Ever since it became a favorite ingredient for meth labs, cold and allergy sufferers have had to purchase Sudafed in dribs and drabs.

Read More [8]

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