GIFFORDS LAW CENTER
TO PREVENT GUN VIOLENCE

MEMORANDUM

TO Interested Parties
FROM Giffords Law Center to Prevent Gun Violence
DATE July 25, 2018
RE The Dangers of Make-At-Home, 3D Printed Guns

SUMMARY

As a result of a decision reached reached by the Trump Administration in July 2018, the federal government will allow electronic files that will enable individuals to produce firearms from scratch in their homes to be posted online. These 3D-printed guns—firearms built by programming a computer file into a 3D printer that manufactures items out of plastic—do not have serial numbers, so law enforcement officers cannot trace them when they are used in crimes. Because they are made of plastic, they often cannot be detected by the metal detectors used at security checkpoints in airports and other sensitive locations. And because these files will be accessible anywhere in America or around the world, they could be used by anyone—a teenager, a convicted criminal, a terrorist—to produce a firearm. While these files have been posted on corners of the internet before, this will be the first time that they are published with express federal approval, setting a dangerous precedent and potentially endangering many more lives.

Guns produced with 3D printers are just the latest example of a dangerous trend: the rise of "ghost guns." Ghost guns are firearms that are produced by unlicensed individuals, rather than licensed manufacturers, and are therefore sometimes referred to as "do-it-yourself guns." Because the individuals who produce them are not licensed manufacturers, they are not subject to existing serialization requirements, which means the firearms do not have serial numbers and cannot be traced by law enforcement.

Many ghost guns are produced from kits that include a key firearm component called a receiver, which is deliberately left unfinished in order to avoid falling under the jurisdiction of federal gun laws. The unfinished receiver can be finished with minimal skill and direction and then combined with other readily available components to produce a fully functional firearm that is virtually indistinguishable from a factory-made weapon—except that it doesn't have a serial number.

Ghost guns pose three distinct dangers. First, because they are created from components that are not defined as firearms, an individual can obtain one without complying with the requirements imposed by existing gun laws--including background checks. Thus, they are accessible to individuals who are prohibited from possessing firearms under these laws. Ghost guns have been used in mass shootings by shooters would have been unable to purchase an equivalent serialized gun, either because the gun itself was illegal or because the shooters were prohibited from purchasing guns. Second, because ghost guns can be made from a variety of plastic materials, existing metal detectors and similar machines may be unable to detect them. Finally, because they lack serial numbers, ghost guns are untraceable, severely complicating law enforcement efforts to solve cases involving gun crimes. Criminal enterprises are increasingly exploiting this characteristic: a recent sting operation in Los Angeles busted a gang that was manufacturing and selling ghost guns. The police recovered forty-five firearms, but there was no way to trace the weapons the gang had already sold.

3D Printed Guns

Until its recent about-face, the federal government had refused to allow the online publication of code that could be used to manufacture a working firearm using a 3D-printing machine on the grounds that it violated restrictions on exporting weapons. In 2013 a self-described anarchist, the founder of Defense Distributed, uploaded code for 3D-printed guns to the internet. Defense Distributed's vision, according to its founder, was a world in which governments would be unable to prevent individuals from obtaining firearms. One such firearm was the "Liberator," a pistol made almost entirely from plastic capable of firing a .380-caliber bullet. The only component that wasn't manufactured using the 3D printer was the firing pin, which was simply an ordinary nail that could be purchased at any hardware store.

Around the same time, Defense Distributed was also working on 3D printing a single firearm component that could be used to assemble an assault weapon. State and federal laws prohibit certain individuals from purchasing a firearm, and some states prohibit the purchase of assault weapons. But even where the purchase of a firearm is illegal, one can legally purchase many of the components needed to build the firearm. For example, AR-15 assault rifles have been banned in many states, and federal law prohibits certain persons, such as felons, from purchasing an AR-15 in any state. But AR-15s are what is known as a modular weapon: their components and accessories can be swapped out and mixed and matched to allow for customization. Most of these modular parts are not considered "firearms" under federal law.

Only one part is always considered a firearm—the receiver, which is the central component that houses the firing mechanism and other crucial parts. This is the component on which the serial number is engraved, and which requires a background check before one can buy it from a licensed dealer. By publishing the code to 3D-print a receiver, Defense Distributed hoped to circumvent those requirements and enable anyone with a computer and a 3D printer to manufacture unserialized AR-15 receivers without a background check, or any legal oversight.

Receivers manufactured with 3D printers are not as durable as traditional metal receivers, but firearms built using them can be just as deadly. As early as 2013, Defense Distributed was showcasing an assault rifle with a 3D-printed lower receiver that could fire over six hundred rounds—three times the number fired in the Pulse nightclub shooting that left 49 dead and 53 wounded. Nor are 3D printers prohibitively expensive; a high-quality, easy-to-use model is available for about $2,500, roughly the cost of a high-end AR-15-style rifle. Entry-level 3D printers are available for under $200.

Under the Obama Administration, the State Department characterized the publication of the 3D-printed gun code as a violation of restrictions on exporting weapons and demanded that it be taken down. Defense Distributed complied, but subsequently filed a lawsuit asking a court to declare that it had the right to disseminate the code. As the litigation worked its way through the courts, the government won at every stage; at one point the Supreme Court refused Defense Distributed's request to review a decision holding that the code could not be published during the course of the litigation.

But under the Trump administration, the government reversed course; it elected to settle the case, and agreed both to change its rules about the publication of the gun code and to assert that Defense Distributed could publish the code even before it changed those rules. The federal government even went so far as to pay Defense Distributed about $40,000 to cover attorney fees and expenses. Pursuant to the settlement, Defense Distributed has stated that it will publish its code beginning August 1.

Ghost Guns Built from Parts

The problem goes beyond 3D printing. One does not need a 3D printer to obtain an unserialized receiver or make a ghost gun. A number of companies sell "80% receivers," which are receivers that have not been fully completed. Because federal law enforcement does not consider 80% receivers as subject to

federal laws pertaining to firearms, as 100% completed receivers would be, these companies exploit this purported loophole and sell these unfinished parts without any of the regulation that applies to sellers of ordinary guns. The unfinished parts are often combined with kits containing other components and assembly instructions, so that their customers can build their own unserialized, untraceable firearms,without submitting to a background check.

Most 80% receivers can be turned into a ghost gun by a moderately skilled person with standard milling tools. Defense Distributed has made things even easier; it sells a $1200 machine called a "Ghost Gunner," which will mill a 80% receiver into a fully completed receiver in an hour. One gun reviewer who described himself as "by no means 'handy' or 'crafty'" was able to assemble a completed ghost gun in under 30 minutes.

Letting Dangerous People Build Their Own Guns

When American gun laws were written, legislators assumed that firearms would either be imported from abroad by dealers or manufactured domestically by professional gun manufacturers. Ghost guns exploit the loopholes behind these assumptions. Ghost gun kits are carefully designed to come as close to providing the end user with a firearm as possible without actually meeting the legal definition of "firearm."

New 3D printing technologies will exacerbate this problem. When the State Department forced Defense Distributed to stop publishing its code in 2013, its files could already be used to manufacture a receiver for an assault rifle or to manufacture a working pistol from scratch. In the intervening five years, Defense Distributed has continued to improve its designs, and has been carefully measuring dimensions of various firearms to the ten-thousandth of an inch so that they can be replicated by 3D printers around the world. Once those files are uploaded, individuals who are prohibited from purchasing firearms, or who desire firearms that are illegal under the law of the jurisdiction in which they live, will have new ways to obtain those weapons.

Closing the Gap

These accessibility risks should be addressed by closing the loopholes that allow ghost guns to escape regulation as firearms. This could be accomplished by expanding the federal definition of "firearm" to include not just finished receivers but unfinished receivers as well. This more expansive definition would have the effect of requiring people in the business of manufacturing these receivers to serialize them. It would also require people in the business of selling these receivers to conduct background checks on purchasers.

As for 3D-printed guns, it should be illegal to post the schematics for 3D printing an entire gun or receiver online. In light of the State Department's recent unwillingness to prevent the publication of the code, legislation may be necessary. States should also consider new laws relating to the manufacture of such guns. Firearms produced using the additive process of 3D printing should be treated the same as firearms produced using more traditional subtractive processes: one should have to obtain a license in order to manufacture or sell 3D-printed guns, and transfers should be permissible only after a background check.

Existing laws should also be enforced. Last month New Jersey sent notices to ghost gun sellers directing them to cease and desist from selling ghost guns within the state. It is illegal for unregistered or unlicensed dealers to sell an assault weapon "or any combination of parts from which an assault firearm may be readily assembled" in New Jersey. States with similar existing prohibitions should pursue appropriate action against ghost gun sellers.

Avoiding Metal Detectors

Because 3D printing allows individuals to make their own firearms out of plastic, these guns may be able to evade detection at security checkpoints. Many firearms are made from hard plastic polymers, but existing federal law requires that all firearms contain 3.7 ounces of metal, which is enough to set off a metal detector at standard calibration. Defense Distributed has, at least according to some reports, complied with the letter of the law by placing a six-ounce piece of metal on its ghost guns.

This technical compliance is possible because the law is not specific about which components have to contain metal; it only requires that there be 3.7 ounces of metal in some part or parts other than the grip, stock, and magazine. A 3D-printed gun could comply with federal law even if someone could carry it through a metal detector at a security checkpoint by simply detaching an innocuous-looking piece of metal. The gun could be loaded, too: a standard .380 bullet—the caliber used in the Liberator—weighs in at less than a quarter of an ounce, far below the threshold for detectability.

Senators Chuck Schumer and Bill Nelson have repeatedly introduced legislation that would modernize federal law by requiring that the detectable metal be contained in a major component, like the frame or receiver, rather than in an ancillary part. Congress has so far failed to act on this legislation. In the absence of congressional action, states should institute their own detectability requirements, prohibiting the manufacture, sale, and possession of 3D-printed firearms with major components that cannot be detected by standard equipment.

Avoiding Accountability for Crimes

When law enforcement agencies recover firearms that have been used in crimes, the agencies can usually trace the firearms to their first retail purchaser and use that information to investigate and solve the crime. Tracing is a powerful investigative tool, but it depends on the ability to identify firearms based on their serial number. Traditionally, when a firearm is manufactured domestically or imported from abroad, it is engraved with a serial number and markings that identify the manufacturer or importer, make, model, and caliber, and are unique to the firearm. Using this information, the Bureau of Alcohol, Tobacco, Firearms & Explosives (ATF) can track firearms from the manufacturer or importer through the distribution chain to the first retail purchaser. ATF works extensively with other law enforcement agencies to trace firearms using this technique—in 2017 alone, ATF conducted 408,000 traces.

Federal law only requires licensed manufacturers and importers to serialize their guns. Ghost guns, whether assembled from partially finished components or manufactured through 3D printing, escape this serialization requirement, at least under federal law. Without a serial number, ATF and other law enforcement agencies are unable to trace a firearm. This not only undermines an important investigative technique, but may incentivize criminals to use ghost guns to reduce their chances of getting caught.

To allow law enforcement to conduct traces, and thus hold criminals accountable for the criminal use of firearms, all guns must be uniquely identifiable. Federal law should be amended to ensure that all firearms are serialized by a licensed manufacturer or importer before reaching a consumer.

States can take similar action. California recently enacted a law that couples a serialization requirement with a registration requirement: individuals who manufacture or assemble a ghost gun are required to apply to the California Department of Justice, request a unique serial number, and engrave that serial number on the firearm. If one of these firearms is subsequently recovered by a law enforcement agency, it will be possible to identify and trace the firearm using Department of Justice records. Other states should enact serialization requirements using the California law as a model.

Conclusion

By leveraging new technology, individuals who promote and make ghost guns are exploiting gaps in the laws regulating firearms. These firearms can avoid detection through existing security systems, they are accessible to individuals who would otherwise be unable to obtain them, and they are untraceable.

Now that the federal government is rescinding its restrictions on publication of this code, the quantity of 3D-printed guns is likely to increase, exacerbating each of these dangers. As 3D printing technology improves, the weapons produced will likely increase in quality as well, which in turn may incentivize more people to manufacture them. In addition, ghost guns assembled from unfinished components are increasingly produced not just by lone individuals but as part of criminal enterprises. Each of these dangers can—and should—be reduced by legislative action to close the gaps that ghost guns are designed to exploit.

ABOUT GIFFORDS LAW CENTER

For nearly 25 years, the legal experts at Giffords Law Center to Prevent Gun Violence have been fighting for a safer America by researching, drafting, and defending the laws, policies, and programs proven to save lives from gun violence.