

Gun Control: 3D-Printed AR-15 Lower Receivers

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The possibility that criminals could use three dimensional-printing (3D-printing) technology to produce "untraceable" firearms, including AR-15s, is an issue of growing concern for some lawmakers. It overlaps in part with the issue of 3D-printed "undetectable" firearms discussed in a previous Insight (CRS Insight IN10953, [Gun Control: 3D-Printed Firearms](#)).

Defense Distributed, a federally licensed firearms manufacturer, recently [uploaded](#) 3D-printable computer assisted design (CAD) files on its website for an AR-15 type rifle, including its lower receiver. The lower receiver is the "controlled part" of an AR-15 under [federal law](#) and, thus, the main component around which a fully functional firearm can be assembled. Defense Distributed [demonstrated](#) that a 3D printer could be used to produce an AR-15 lower receiver out of a polymer material, but functional reliability appeared to remain an issue. On July 31, 2018, a [federal judge](#) granted a temporary injunction preventing Defense Distributed from leaving those files posted on its website.

These circumstances have called attention to the fact that it is [legally permissible](#) for any person to build a firearm, as long as that individual is not prohibited from possessing a firearm and does not build it with intent to sell it. Unlicensed firearms builders are not required to identify their firearms with a serial number and other markings. If later lost or stolen, and used in a crime, it would be difficult for the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) to trace such firearms back to their builders and possibly determine sources and patterns of firearms trafficking. Consequently, those untraceable home-built ("[do-it-yourself](#)") firearms have become known as "[ghost guns](#)."

The [AR-15](#) is a compact, lightweight, [semiautomatic](#), magazine-fed rifle, usually constructed of steel, aluminum, and fiberglass or polymer parts, and chambered for an intermediate rifle cartridge (5.56x45mm NATO). It is not a machine gun capable of fully-automatic fire. Since 1986, [federal law](#) has prohibited anyone from making any firearm as a [machine gun](#) for civilian possession or transfer.

The AR-15's modular design includes an [upper](#) and [lower](#) receiver, which are usually fabricated from [aircraft-grade aluminum](#). Reliable polymer and carbon fiber receivers are legally available for sale on the U.S. civilian gun market. Although lighter, such receivers are arguably not as [durable](#) as their aluminum counterparts. At this time, it is unclear whether other firearm designs lend themselves to nonmetallic 3D-printed receivers as readily as the AR-15.

Since 1963, the AR-15 has grown in popularity with the gun-owning public. It is used in [marksmanship competitions](#), including the [National Matches](#) authorized by Congress in [1903](#). The AR-15 can be built in, or modified to accept, a

wide variety of cartridges, including cartridges commonly used for hunting. Many firearms enthusiasts view the AR-15 as the "[modern sporting rifle](#)," while others also view it as a good option for [self-defense](#). However, gun control advocates view the AR-15 as an "[assault weapon](#)" that criminals have used in some of the deadliest [mass shootings](#). They note further that AR-15 "[ghost guns](#)" were used in two mass shootings in California.

Under the [Gun Control Act of 1968](#) (GCA), the definition of a "[firearm](#)" includes the *frame* or *receiver* of any such weapon. A "[receiver](#)" is the basic component of a rifle to which the barrel and stock are attached. It generally houses the breechblock, bolt, hammer, and trigger. In pistols, revolvers, and break-open firearms, it is called a "frame." The "receiver" or "frame" is generally the "controlled part" of a firearm. Some firearms like the AR-15, however, were designed with a lower and upper receiver. [ATF](#) ruled that the lower receiver is the "controlled part" of an AR-15.

As "controlled parts," transfers of fully manufactured, finished receivers are treated under federal law in the same way as a fully assembled firearm, and subject to the same recordkeeping and background check regulations as any other firearm under the GCA. A person must be federally licensed to manufacture completed AR-15 lower receivers, if the receivers are intended for sale. Completed receivers must be [identified](#) with a serial number and other markings. A person must also be federally licensed to deal in completed receivers, including AR-15 lower receivers.

A federal license, however, is not required to manufacture or distribute incomplete, unfinished AR-15 receivers (otherwise known as 80% receivers), because [ATF](#) has ruled that these objects—in that state of manufacture (80%)—do not meet the statutory definition of a firearm. To finish them, one must drill out certain holes and hollow (mill) out the fire control cavity. Nor is a federal license required to manufacture or distribute AR-15 upper receivers, barrels, trigger or bolt assemblies, or any other firearm part. The same is true for other "uncontrolled parts" of firearms.

In short, unfinished receivers and the components needed to build fully functional AR-15s and other firearms are legally available on the U.S. civilian gun market and can be purchased without a background check under federal law. Gun rights advocates could argue that this has always been the case under federal law, that home-built firearms have not been a major source of crime guns, and that federal law already [criminalizes](#) unlicensed firearms manufacturing as a business.

Some Members of Congress have expressed concern that untraceable AR-15s could proliferate with the growing availability of 3D printer technology, and could become a greater source of illegal guns. Representative Adriano Espaillat introduced the Ghost Guns are Guns Act ([H.R. 1278](#)), a bill to amend the federal definition of a firearm to include parts kits. Senators Bill Nelson, Richard Blumenthal, Ed Markey, and Representative Theodore Deutch introduced the 3D Gun Safety Act ([S. 3304/H.R. 6649](#)), a bill to prohibit the publication of 3D printer files for firearms. Senator Richard Blumenthal and Representative David Cicilline introduced the Untraceable Firearms Act of 2018 ([S. 3300/H.R. 6643](#)), a bill that includes a provision to require all firearms be serialized and marked. As of August 22, 2018, no further action has been taken on these bills.