TWILIGHT: 2013

Shooter's Guide:

Sweet 16

Omega 13 Games Studio

POWERED BY SPYCRAFT ROLEPLAYING GAME

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Janice looked over at her husband. He was craning his neck a little to see over the broken wall while holding his M16. She looked at him as the memories of old photographs flashed into her head.

The still frames had always remained vivid in her mind. David was only nineteen in 1970. He served in the Rangers and had seen a lot of fighting in a war no one wanted fought. Thirteen years later he fought on a small island in the Caribbean and six years later he saw combat again in Central America. The Army would not even let him retire before sending him to fight one last time in a desert far away.

The photos were different in many ways. In some he wore plain green uniforms in others he wore camouflage. She often laughed at the camouflage ones with the huge collars; those were the Elvis uniforms. Sometimes he had a steel helmet on and in others he had a ceramic German style helmet. In a few he was alone but in many he was part of a group; there were even a few old photos with British soldiers sporting huge mustaches. Most were taken in good times, but some were taken during harder moments. These were when he would say he was "earning his paycheck."

In those photos he always had that expression on his face. It seemed that he was deeply focused yet aware of everything around him. His eyes always had that same half squint and his cheeks tensed. Despite the growing lines on his face and graying hair, the expression was the same.

The expression and the rifle. Those hundreds of photos all had that same rifle. The good ones, the tough ones; it was all the same. That M16 was a permanent fixture in his hands; through thick and thin, good times and bad.

Sometimes the rifle changed a little. Some had grenade launchers and some had scopes. Sometimes the scopes were huge, able to see at night, and some were small. At times he even had a flashlight clamped to it some how. But the basic rifle was always the same. He had carried that rifle and it had carried him. He had carried that rifle longer than he had carried her.

Janice looked at David again as he stepped back from the shattered wall. His hair was a lot greyer, the lines on his face were a lot deeper, and his clothes were very different. But his expression was the same.

The expression and the rifle.

M16 FAMILY

After more than four decades in service, the M16 family has been the issue rifle of the US Army longer than any other weapon. Longer than the revered M1 Garand. Longer than the venerable M1903 Springfield. And certainly longer than its predecessor, the M14. One of the keys to this longevity, spanning a period during which the US Army has seen multiple replacements for just about every other piece of equipment, from tanks and APCs to field uniforms, is the modularity the M16 family displays. It fills roles as diverse as submachine gun replacement and designated marksman rifle while still serving the grunt as his standard infantry rifle.

In addition, in the decades since its military adoption, the M16 has (under its commercial "AR-15" designation) become a common civilian law enforcement and sporting arm. It is now widely used as a police patrol carbine as well as an entry arm for SWAT teams. On the sporting side, it has found a niche in varmint control and competition shooting. Also, due to the modularity of the the system, it has become a hobbyist project gun, since it requires few tools beyond those commonly found in a home workshop to assemble a complete rifle from the major sub-assemblies. This modularity has also spurred the adoption of many different calibers, from .22 LR for practice to various pistol and rifle cartridges intended to fill various tactical, hunting, or competition needs.

HISTORY

Shortly after the adoption of the M14 in 1957, it became apparent the 7.62x51mm NATO round was too powerful to be controllable under automatic fire from an infantry rifle. This realization led to a re-examination of the earlier Project SALVO and the beginning of the Special Purpose Infantry Weapon (SPIW) project. Project SALVO investigated various ways to improve the accuracy of infantry fire by examining a number of different cartridge concepts. These included smaller calibers, duplex ammunition (two or more bullets in a single case), and extremely small sub-caliber flechettes. This led directly to the beginning of the SPIW project, which was assigned huge resources during the 1960s. The SPIW was intended to be a 4.5-kilogram automatic flechette rifle with an integral 40mm grenade launcher.

Parallel to these developments, the Fairchild

Engine & Aircraft Corporation created their ArmaLite division to develop and market military arms using modern materials such as plastics and aluminum. One of their engineers, Eugene Stoner, developed the AR-10, a lightweight rifle built with an aluminum receiver and plastic furniture, to compete in the 7.62x51mm NATO battle rifle market. However, the AR-10 was too late to make significant inroads in this market which, worldwide, largely fell to the FN FAL. Then, in 1957, the US Continental Army Command asked ArmaLite to develop a small caliber rifle. Eugene Stoner adapted the AR-10 design to fire a modified .222 Remington cartridge, the .223 Remington, and the AR-15 was born. In 1958 and 1959, the AR-15 was tested alongside the M14 and found to be superior, and the AR-15 was recommended for development to replace the M14.

The following year saw the first military orders for the AR-15, coming from the US Air Force to replace the M2 carbines used by SAC sentries. With the cancellation of M14 production and difficulties in the SPIW program, the Army needed an interim rifle and ordered the AR-15 as the M-16 rifle. When the SPIW program ultimately failed to meet its objectives, the M16 was formally adopted by the Air Force in 1964 and by the Army (as the M16A1) in 1967.

The next major phase of development for the M16 began in the 1970s with a new NATO standardization program to replace 7.62x51mm NATO as the standard infantry round. This program led to the adoption of the Belgian SS109 62-grain bullet, which was heavier than the 55-grain bullet in use in the United States. This bullet change required modifications to the M16A1s then in service. The result of these modifications was the M16A2, with redesigned sights, new barrels and furniture, and three-round burst capability in place of fully automatic fire. Full deployment of the M16A2 followed in the 1980s, with the US Marine Corps adopting the rifle before the Army. In parallel, needing to replace their C1A1s (license-built FN FALs), the Canadian Forces developed in the C7 rifle, which closely resembled the M16A3.

Since the 1990s, the variety of M16 variants in use has exploded. These specialized variations on the basic design fill diverse roles. M16-based carbines replace pistols for officers and other "noncombatant" servicemen formerly issued sidearms. Precision M16-based rifles serve as DMRs – Designated Marksman Rifles – for the Army and Marine Corps. The M16's heavier parent design, the AR-10, has been resurrected in military service as a semi-automatic sniper rifle and in the civilian world as a target and hunting weapon in a number of popular calibers.

ANATOMY

Without getting into too much of the armorer's trade, let's explain. The secret to the M16's modularity is the combination of its upper and lower receivers – together, the body of the rifle where most of the mechanical bits reside. The lower receiver – or "lower" for short – includes the fire control group (trigger, safety, and associated mechanisms), the magazine well, the pistol grip, and the stock and its internal recoil buffer mechanism. The upper receiver – usually just "upper" – contains the barrel, the bolt and bolt carrier, the iron sights or optics, and the gas system that operates the rifle's action. Two retaining pins hold these two systems together. A skilled operator can disassemble the rifle and lock a new upper receiver onto an existing lower receiver in a matter of seconds. Because all of the caliber-dependent parts (within certain limits, anyway) are in the upper receiver, this allows for a very rapid change of caliber or barrel length or optic systems – or, with a sufficient budget, all three at once.

From a legal perspective, the lower is the part with a serial number. This means that a shooter can purchase one lower receiver through whatever his local legal avenue is, then freely buy a different upper to fit each social occasion. We'll address this process in detail in a few pages.

Direct Impingement

The M16 family is fairly rare among modern infantry rifles in using a direct impingement system to cycle its action. In an M16, when the rifle fires, a portion of the expanding gases are siphoned off and fed back into the bolt carrier. The pressure of these gases pushes the bolt carrier back, ejecting the spent casing and allowing the next round to cycle into the chamber. This is a fairly elegant design from an engineering perspective, but it can lead to problems with heat management and combustion waste buildup. Over the decades, the M16's detractors have pointed to its direct impingement ("DI") system as a major point of contention.

THE WEAPONS

As this entire supplement examining M16-derived weapons, we've chosen to break down and sort the descriptions by a combination of role, chronological order, and form factor. The weapon tables on the following pages are arranged by our usual conventions of weapon type and alphabetical order.

THE FIRST: THE ARMALITE AR-10

The AR-10 deserves individual mention as the original design that spawned the entire M16 family. Although no major combat force adopted it as a service rifle, it remains popular in civilian use. Additionally, in the 1990s, the pendulum swung back to heavier calibers, leading to several sniper weapons built on the M16 platform.

ArmaLite AR-10A4

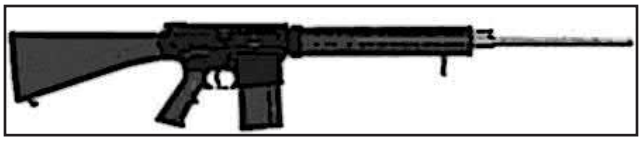
After the development of the M16 and its semi-automatic AR-15 cousin, the AR-10 was generally perceived as a dead end. Several Third World countries experimented with license-built production, but ArmaLite abandoned it by the end of the 1950s. The design lay dormant until late 1994, when Eagle Arms began design work to release an AR-10-type weapon. In 1995, the company purchased the rights to the ArmaLite name and the AR-10 trademark. The result was the ArmaLite AR-10A4. Broadly similar to the M16A4, only in semi-automatic and chambered for 7.62x51mm NATO ammunition, this is a representative sample of the current generation of weapons based on the original AR-10 design and available from a number of manufacturers. More expensive than similar AR-15 rifles, the AR-10-type rifles are not as common as their lighter counterparts – but they pack a significantly heavier punch. The AR-10A4 is available in both rifle and carbine configurations.

Stage III Quirk (Reflex) – Needy x2: See sidebar.

ArmaLite AR-10(T)

The target/competition version of the AR-10 features a precision barrel and match trigger, providing improved accuracy at the cost of weight. It's not as extreme a modification as the AMU's National Match design (see below), but it's much more practical in the field. As above, this is an archetypal example of 7.62x51mm target designs from a variety of manufacturers.

Stage III Quirk (Reflex) – Needy x2: See sidebar.



Stage III Quirk: Needy

Quite a few of the weapons presented in this supplement share the liability of a direct impingement gas system. Rather than reprinting the same rules line over and over, we'll just present it here:

As a consequence of its direct impingement operating system, this weapon's base maintenance requirement is multiplied by the factor given in the "Needy" entry.

BASIC BLACK

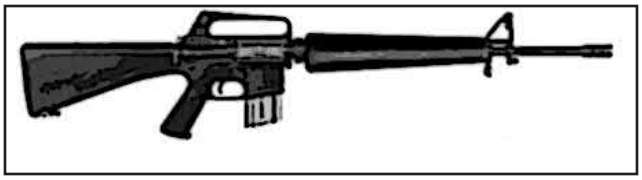
The following are the primary service rifles of the M16 family that the United States and its allies have adopted for general issue over the years.

M16A1

This is the version of the M16 first formally adopted by the US Army. Now out of frontline service, it can be found in many police armories in the United States, thanks to the Department of Defense's policy of selling surplus rifles to police agencies at exceptionally low cost. It's also prevalent in the militaries of various countries that were aligned with the United States in the Cold War. Optimized for the original lightweight 5.56mm projectile, a 55-grain bullet, it suffers from severely curtailed accuracy if used with heavier modern 62-grain ammunition. The M16A1 is a full-sized rifle with a fixed stock.

Stage III Quirk (Reflex) – Needy x2: See sidebar.

Stage III Quirk (Reflex) – Oddball Ammo 1/10: The M16A1 uses an uncommon version of 5.56x45mm NATO. Only 10% of 5.56x45mm NATO ammunition found will be compatible. If incompatible ammunition is used, the M16A1's range bands decrease to Gunfighting/Tight.



M16A2

First developed in the late 1970s through the early 1980s, the M16A2 rifle replaced the M16A1 in US military service. Featuring a slightly heaver, more durable barrel than the M16A1 and a three-round burst setting rather than full automatic capability, this rifle provided the foundation of all subsequent development of the M16 line. Now largely replaced

in regular army service by the M16A4 and M4/M4A1, it can still be found in Reserve and National Guard units.

Stage III Quirk (Reflex) – Needy x2: See sidebar.

M16A3/Diemaco C7

The M16A3 was produced in very limited numbers. It was an M16A2 with the trigger group from an M16A1 installed, retaining fully automatic capability while taking advantage of all the M16A2's other refinements. The M16A3's primary users were US Navy SEALs.

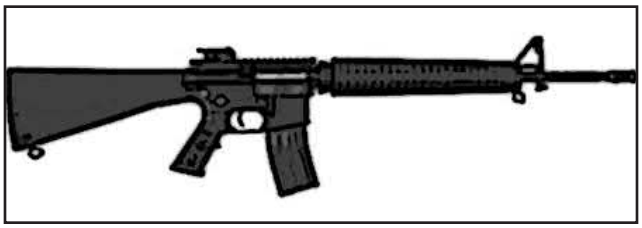
The Canadian C7 rifle was developed in parallel to the M16A2 and resembles it very closely. However, like the M16A3, it fires in full automatic rather than the M16A2's three round burst. It was the standard rifle of the Canadian Forces and thousands of surplus C7 rifles have been provided to the Afghan National Army.

Stage III Quirk (Reflex) – Needy x2: See sidebar.

M16A4

The M16A4 came about in the wake of the first Gulf War, incorporating both lessons learned in the Middle East and refinements from the civilian sector. It is essentially an M16A2 with the fixed rear sight replaced by a rail designed for mounting optics. It is also often seen with a replacement handguard that provides this same rail on all four sides, allowing easy attachment of a multitude of accessories such as laser sights, bipods, and vertical foregrips. In American inventory, the M16A4 almost completely replaced the M16A2 by the end of the 2000s. Canada's Diemaco C7A1 is virtually identical to the M16A4, but, again, retains fully automatic capability.

Stage III Quirk (Reflex) – Needy x2: See sidebar.

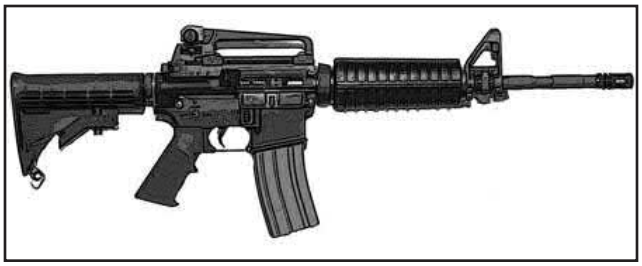


M4/M4A1

Colt began experimenting with carbine versions of the M16 in the 1970s under a variety of model designations. However, these did not meet with widespread acceptance until the 1990s and the introduction of the M4 carbine. The first M4s were basically M16A2s with 14.5" barrels (the M16's standard barrel is 20") and shorter, adjustable-length stocks. Their original design intent was to replace pistols for soldiers who were issued sidearms as their only armament. However, because of their lighter weight and shorter overall length, they also became popular in the special operations community. Most operators prefer the M4A1, which has a full automatic trigger rather than the three-round burst of the M4.

After the first order, all M4s were delivered with the same "flat-top" upper receiver as the M16A4, allowing for easy attachment of optics. This configuration is gradually replacing the M16A4 in Army infantry use, though the transition is far from universal. On the Canadian front, the Diemaco C8A1 is identical to the M4A1. Outside the military market, ease of handling has made semi-automatic "M4geries" the most popular member of the M16 family for police and civilian use.

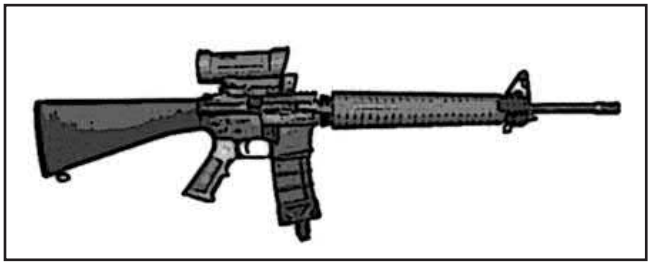
Stage III Quirk (Reflex) – Needy x2: See sidebar.



Diemaco C7A2

The Canadian Forces replacement for the C7A1 is based on troops' experiences in Afghanistan. It remains a full-length rifle with a 20" barrel, but, unlike previous C-series weapons, replaces the fixed stock with an M4-style adjustable stock. It also features adds rail attachment points on the front sight/gas block, allowing the installation of lights or other designator systems. The adjustable stock makes the rifle more maneuverable in tight quarters without the compromises to range imposed by the shorter barrel of the carbines.

Stage III Quirk (Reflex) – Needy x2: See sidebar.



SHORT AND SWEET

Sometimes even an M4 carbine is too large for a specific application. The following truncated M16-series weapons address this issue.

M231 Firing Port Weapon

During the development of the M2 Bradley IFV, designers wanted to give the mounted infantry the ability to fire through ports in the sides and rear of the vehicle. Unlike the Soviet practice of designing the firing port to accept the standard infantry rifle, the United States developed a new weapon based on the M16 to fit the ports. The M231 was the result. It has high parts commonality with the M16, but differs in several important ways. First, the uppers and lowers for the M231 are not interchangeable with the M16's. Second, the M231 is only capable of full automatic fire; no provision is made for semi-automatic fire. Finally, the M231 has no sights – infantrymen were intended to use tracers to walk fire onto their targets.

By the beginning of the 21st century, most of the firing ports on the Bradleys had been removed, leaving only two rear-facing ports. However, the M231 remains in American inventories and has found use in other roles. It is sometimes seen carried as a secondary weapon by gunners on HMMWVs and other vehicles, used in a role similar to that of a submachine gun.

Stage III Quirk (Reflex) – Needy x2: See sidebar.

Stage III Quirk (Reflex) – Oddball Ammo 1/10: The M231 uses an uncommon version of 5.56x45mm NATO. Only 10% of 5.56x45mm NATO ammunition found will be compatible. If incompatible ammunition is used, the M231's range bands are decreased to Gunfighting/CQB.

To enter the submachine gun market, Colt modified the M16 platform from a gas-operated rifle in 5.56x45mm NATO to a blowback-operated 9mm submachine gun. The upper is based on that of the M16A1 but has a 10.5"-long barrel. The lower's magazine well features an adaptor to allow the use of modified Uzi submachine gun magazines. Both of these models have a 10.5" barrel. The RO635 is fully automatic, whereas the RO639 is limited to three-round bursts.

Mark 18 Mod 0 CQBR

"Mark 18 Mod 0" is the US Navy designation for the Close Quarters Battle Receiver. This is an upper receiver intended to replace a standard M4 or M4A1 upper, providing an even more maneuverable rifle for use in tight quarters. It replaces the M4's 14.5" barrel with a 10.5" barrel, sacrificing effective range for reduced bulk. Its primary users are SEALs and other special operations teams. It (and similar rifles) are available commercially and other users include VIP protection details and naval boarding parties.

Stage III Quirk (Reflex) – Needy x2: See sidebar.

Olympic Arms OA-93

The OA-93 was the first commercially successful "pistol" based on the semi-automatic AR-15 platform. From an engineering perspective, it's a pistol in name only, primarily so designated to fulfill certain US legal requirements. Unlike most AR-15 pistols, the OA-93 has a redesigned recoil system that moves the recoil spring from the rear of the lower receiver to the front of the upper, removing the awkward receiver extension found on most such pistols. Its 6.5" barrel is unduly short for firing a rifle cartridge and it's uncomfortably heavy for a handgun, so the OA-93, like most other AR-15-based pistols, is largely a novelty item outside the movies.

Stage III Quirk (Reflex) – Needy x2: See sidebar.

WORKING LONG DISTANCE

The standard M16-series service rifles are accurate but not overwhelmingly so. At the same time that infantry operators are leaning toward a more compact rifle in the M4 series, marksmen require a weapon with greater accuracy at longer range. The following M16 variants provide this service.

AMU National Match Rifle

The Army Marksmanship Unit is the US Army's competition marksmanship team and their preferred hunting ground is the annual Service Rifle matches held at Camp Perry outside Cleveland, Ohio. The team armorers developed modifications for the M16A2 rifle for improved accuracy in competition while meeting the match's restrictions (primarily that the exterior appearance of the rifle cannot be changed). The resulting rifle is purely intended for competition and features a free-floated, heavy match barrel, a tuned two-stage match trigger, and a weighted butt stock to offset the increased barrel weight. It also wears special iron sights that increase precision but offer a reduced field of view unsuited to combat. At about 7.7 kg, it is more that twice as heavy as its parent M16A2 rifle.

Stage III Quirk (Reflex) – Needy x2: See sidebar.

M110 Semi-Automatic Sniper System/Mk. 11 Mod 0

The M110 sniper rifle is the US Army's newest sniper rifle and is intended to allow a sniper quicker follow-up shots than he could make with previous bolt-action rifles. The Knight's Armament M110 was the winner of a competition with other AR-10-type rifles, as well as designated marksman rifles based on other platforms such as the FN FAL. It includes an adjustable-length fixed stock, a semi-automatic match trigger, and an integral free float quad-rail forearm. As implied by the name, the M110 rifle is part of a system that also includes a 3.5-10x magnification Leupold scope, a bipod, a sound suppressor, and sometimes a night vision scope.

The Marine Corps' and Navy's Mark 11 Mod 0 rifle is nearly identical to the M110. The primary difference is that the Mark 11 uses a non-integral quad-rail forearm that doesn't provide the uninterrupted top rail of the M110. For game purposes, they're the same rifle.

Notes (Reflex): The 3.5-10x optic is equivalent to a Mag-2 telescopic sight. As it and the other listed accessories are not integral to the rifle, their prices and weights are not included in the base weapon traits.

Stage III Quirk (Reflex) – Needy x2: See sidebar.

SAM-R

The US Marine Corps' Squad Advanced Marksman Rifle is a progressive development of the earlier experimental Squad Designated Marksman Rifle and Mark 12 Mod 0/1 Special Purpose Rifle efforts (respectively, US Army and US Navy SEAL projects). Like its predecessors, it is essentially an accurized M16A4. Using a match barrel and usually issued with a 3-9x magnification Leupold scope, it is intended to expand a Marine squad's effective range for aimed fire.

Notes (Reflex): The 3-9x optic is equivalent to a Mag-2 telescopic sight. As it is not integral to the rifle, its price and weight are not included in the base weapon traits.

Stage III Quirk (Reflex) – Needy x2: See sidebar.

GAS PISTON RIFLES

As noted above, A long-time complaint about the M16's basic direct impingement gas system is its venting of hot gas and powder residue into the heart of the gun's mechanism. By comparison, in the more common gas piston system, the gas pressure from firing actuates a mechanical piston, which in turn moves the gun's action. This isolates the action from most of the gas, reducing both heat and debris buildup.

Starting in the 1970s, various companies experimented with creating gas piston-based upper receivers to address this concern. However, the idea of an M16 with a gas piston action didn't gain traction until the early 21st century. As of this writing, no US military contracts have been issued for a gas piston M16 variant, though several special operations units and a handful of other NATO forces have evaluated or adopted them.

Any M16-family upper receiver may be constructed in a piston configuration. Converting an existing direct impingement upper to gas piston operation is possible, but it's a major gunsmithing project. The primary benefit is reduced fouling, resulting in lowered cleaning time. However, a gas piston adds weight to the gun and lower manufacturing numbers mean parts are much harder to find.

Heckler & Koch HK416

The HK416 is Heckler and Koch's entry in the piston M16 variant market. It's arguably responsible for popularizing the notion of a viable gas piston system on the M16 platform. The semi-automatic civilian version, the MR556, has unique measurements that make its upper and lower receiver components incompatible with a military-issue HK416 – fffor any other member of the rest of the M16 family.

AMMUNITION

The modularity of the M16 platform also lends itself to experiments with various calibers not normally seen in other service rifles. While far less common than the 5.56x45mm NATO and 7.62x51mm NATO rounds, these are all commercially available – as are both upper receivers and complete rifles chambered for them.

6.5 Grendel

Developed by Alexander Arms to be an all-purpose long-range cartridge for the M16/AR-15, the 6.5 Grendel is capable of shots over a kilometer if the marksman does his job. With ballistics resembling that of the famed 6.5 Swedish Mauser, it produce relatively low recoil despite using bullets twice the weight of standard-issue 5.56x45mm NATO.

6.8 Remington SPC

This caliber arose in the early 21st century as a collaboration of the Army Marksmanship Unit, the 5th Special Forces Group, and Remington. The goal was to provide a more effective round at close to medium ranges when compared to 5.56x45mm ammunition. The starting point was the obsolete .30 Remington. Because of their similar sizes, comparisons between 6.8mm SPC and the contemporary 6.5mm Grendel are inevitable. While the 6.8mm SPC does not have the long-range performance of 6.5mm Grendel, it is specifically designed for modern combat and, due to the shape of its casing, is more reliable in automatic fire.

.50 Beowulf

The .50 Beowulf is the big brother of the 6.5 Grendel. Also developed by Alexander Arms, this is the largest cartridge that can feed through in an M16/AR-15 pattern lower receiver's magazine well. The Beowulf is similar to the venerable .45-70 Government round and, in addition to a CQB role, can be used to hunt just about any North American big game. What the Beowulf lacks, however, is range. It fires a big, heavy bullet at relatively low velocity. The .50 Beowulf is commonly only available in CQB and carbine uppers, but a few DMR-type uppers with 24" barrels were made.

.243 Winchester

Based on the .308 Winchester cartridge (the civilian version of 7.62x51mm NATO), .243 Winchester is a globally popular round for hunting medium-sized game. Since it is based on 7.62x51mm NATO, and due to its hunting role, it is only available in AR-10-pattern DMR uppers.

.338 Federal

Also derived from .308 Winchester, Federal Cartridge went the other direction from .243 Winchester in 2006 and used a bigger bullet. Designed for hunting medium to large game, this new cartridge delivers a heavier bullet than .308 Winchester at higher velocity. Of course, with this comes increased recoil. For the same reasons as .243 Winchester, .338 Federal is only available in AR-10 pattern DMR uppers.

BUILD YOUR OWN RIFLE

The design of the M16 platform lends itself to easy customization. With both the upper and lower receivers each comprising major parts of the rifle, and since it requires no tools to separate the upper receiver from the lower, any rifle can be quickly configured for different purposes. It's also possible to build a rifle piecemeal, selecting the precise combination of components that the user desires.

To build a custom M16-family rifle, go to the appropriate rules section of this supplement – either Reflex System or Spycraft 2.0. Select a lower receiver and an upper receiver. Combine the partial game traits of each component to derive those of the full rifle. Add accessories as desired, then lock and load!

LOWER RECEIVER

The lower receiver includes the magazine well, trigger group, and stock. Lower receivers are subdivided into two groups: M16/AR-15 lowers and AR-10 lowers/ While the lower doesn't determine the exact chambering of the rifle, the size of the magazine well does restrict it to one of two groups of cartridges. M16/AR-15 pattern lowers are smaller, so larger rounds such as 7.62x51mm NATO will not feed through the magazine well. The larger AR-10 pattern lowers will accept the larger rounds but won't mount an upper for most smaller rounds.

Pistol

A pistol in name only, this stripped -down lower is light and quick to ready, but suffers from reduced effective range due to its lack of a stock. Many do, however, retain the receiver extension that serves as a mount for a stock on other lowers. Too large to be a true pistol and with a weight distribution that is awkward to use one-handed, these are best wielded two-handed. Since these are primarily sold on the civilian market, they are most often found with a semi-automatic-only trigger. AR-10 pattern pistol lowers are effectively unheard of.

Carbine

Essentially a pistol lower that uses an adjustable-length stock, these are the most common lowers. A carbine lower retains most of the maneuverability of the pistol lower. However, since it does have a stock, it allows for more accurate long-range fire. In the military, this is generally found as part of an M4 carbine or equivalent. It is also commonly found, in semi-automatic form, on the civilian market in both law enforcement patrol carbines and privately-owned sporting and self-defense weapons.

Rifle

The original lower of the M16 series, a rifle lower receiver has a fixed stock and provides a good mix of speed and accurate fire – assuming the mated upper is equally capable. This is the lower found on the M16 rifles.

Designated Marksman Rifle

This is a rifle lower that has been optimized for long range performance. This primarily involves replacing the trigger group with a tuned semi-automatic trigger.

Match Rifle

This is a full-blown competition lower built with no regard for field practicality (except, perhaps, for snipers). A match rifle lower receiver by itself can weigh as much as a complete assault rifle. It almost always include a tuned match trigger (always semi-automatic-only). Its match buttstock is often adjustable for length and equipped with counterweights to offset the heavy match uppers usually mated to these lowers.

It's worth noting that we didn't misprint the weights in the tables. AR-10 match lowers are usually lighter than M16/AR-15 match lowers because of the different classes of competition they are used for. AR-10s are more commonly found in more tactical-oriented competition than the M16/AR-15 based match rifles.

UPPER RECEIVER

The upper receiver includes the barrel, operating system, and bolt. Thus, the upper receiver is what determines the weapon's chambering. It also includes the gun's iron sights and any mounting points for optics and other accessories. Like lower receivers, upper receivers come in two basic groups: M16/AR-15 and AR-10. An upper receiver must be matched to a corresponding size lower – you can't put an AR-10 upper on an M16/AR-15 lower or vice versa.

Pistol

A pistol upper is intended to be mated with a pistol lower and typically has a barrel about 7" long. As a result, it's are lightweight but gives up much of the muzzle velocity afforded by longer barrels. This severely limits the effective range of the weapon. Pistols of this type are primarily a novelty item for the civilian market, though there are some examples of these uppers matched to carbine lowers on the law enforcement market. Typically, these latter guns are marketed to bodyguards and others who need automatic fire in as compact a package as possible.

Building the Standard Guns

Here's a brief rundown on how to build any of the standard models presented in this supplement with modular upper and lower selection. Note that modular construction may produce some variances in game traits. This is because our modular uppers and lowers are somewhat generic, while the standard models' traits are derived directly from specific real-world data.

Gun	Upper	Lower
The First		
ArmaLite AR-10A4	Rifle	Rifle
ArmaLite AR-10A4 Carbine	Carbine	Carbine
ArmaLite AR-10(T)	DMR	DMR
Basic Black		
M16A1	Rifle	Rifle
M16A2	Rifle	Rifle
M16A3	Rifle	Rifle
M16A4	Rifle	Rifle
Diemaco C7	Rifle	Rifle
Diemaco C7A1	Rifle	Rifle
Diemaco C7A2	Rifle	Carbine
M4	Carbine	Carbine
M4A1	Carbine	Carbine
Diemaco C8A1	Carbine	Carbine
Short and Sweet		
M231 FPW	Carbine (unique)	Pistol (unique)
Colt Model RO635	CQB	Carbine
Colt Model RO639	CQB	Carbine
Mk. 18 Mod 0 CQBR	CQB	Carbine
Olympic Arms OA-93	Pistol	Pistol (unique)
Working Long Distance		
AMU National Match	Match	Match
M110/Mk. 11 mod 0	Match	Match
SAM-R	DMR	DMR
Gas Piston Rifles		
H&K HK416	Carbine (unique)	Carbine

Items denoted as (unique) are not present in the modular rifle construction rules.

CQB

This upper has a barrel in the 10" to 12" range and is primarily used by special operations forces in urban or other tight environments. The short barrel is a ballistic disadvantage at longer ranges but, at least when used as intended, rarely sees engagement distances long enough for this to matter. The maneuverability afforded by the short barrel more than compensates for the lost muzzle velocity. CQB uppers are also often found on law enforcement SWAT teams; due to legal obstacles, they're rarely seen in civilian hands.

Carbine

The carbine upper initially was created as part of a shorter, lighter weapon for soldiers such as medics and quartermasters whose jobs did not require full-size rifles. Due to its shorter length, it's also popular with any soldier who patrols in a vehicle, as its length is an advantage when mounting and dismounting. At 14" to 16", the barrel on a carbine upper provides punch beyond CQB ranges, though without the engagement envelope of a full length rifle. In law enforcement circles, it's most commonly used in patrol carbines. It's probably the most common type of upper in private hands.

Rifle

The most common military upper, this is what is found on the M16A2 or M16A4 rifle. At 20", a rifle upper provides good long range capability. Law enforcement users tend to have them as a result of economic realities (e.g. surplus military sales) rather than preference. Also common in private hands, rifle uppers cater to those interested in longer range target shooting and small game hunting. The larger AR-10 pattern rifle uppers can easily be used for deer and similarly sized game.

Designated Marksman Rifle

A DMR upper usually has a 20" barrel like the rifle upper, but of a higher grade. Almost every DMR upper is a flat-topped type like the M16A4 to mount magnified optics. In military use, a M16/AR-15 size DMR upper is issued to designated marksmen, typically one per squad, who is held to a higher marksmanship standard and is tasked with engaging targets beyond the ranges usually attempted by a rifleman. In the larger, AR-10 size, these are used in true sniper rifles, such as the US Army's M110. In civilian hands, these may be used by police sharpshooters or to build entry-level competition rifles.

Match Upper

A true long-range monster, the match upper uses a heavy barrel machined to exacting tolerances.

It's often additionally weighted to add stability and includes a muzzle brake to further reduce the effects of recoil. Purely designed for competition at hundreds of meters, very little attention is paid to field practicality. As a result, these uppers often weigh more than 5 kg, more than a complete M16 rifle.

Note: As with lowers, AR-10 match uppers are usually lighter than M16/A-15 match uppers for much the same reasons.

REFLEX SYSTEM RULES

Several of the weapons presented in this supplement appear in the core Twilight: 2013 rules. We've chosen to reprint them here for comparison purposes, unchanged from their original entries.

MODULAR CONSTRUCTION

As described on page 8, the following upper and lower receiver assemblies can be combined to build a complete rifle. Two basic patterns exist: M16/AR-15 (light to medium caliber) and AR-10 (heavy caliber). You can't put an M16-pattern upper receiver on an AR-10 lower receiver or vice versa.

Step One: Upper Receiver

The chosen upper receiver determines most of the weapon's traits under the standard Reflex System rules, though the mated lower receiver can modify these (see following). Additionally, the upper receiver sets the maximum burst rate of fire available if the mated lower receiver allows fully automatic fire.

If you're playing with Stage III rules, any upper receiver in any caliber except 9mm Parabellum has the Needy x2 Quirk.

Piston Uppers

Any listed upper receiver can be acquired with a piston operating system rather than a direct impingement system, as described on p. 6. The game effects of this are as follows:

- Increase weight by 0.5 kg, barter value by GG250, and street price by $500.

- If the Stage III Quirk rules are in use, reduce the maintenance multiplier of the Needy quirk by 1 (minimum x1). However, add Rare x5: Piston uppers were never produced in as great of numbers as their DI counterparts and spare parts cost 5x as much.

TABLE B: COMPLETE FIREARMS

Firearm	Caliber	Cap	Dam	Pen	Rng	ROF	Spd	Rec	Bulk	Wt	BV	SP
Olympic OA-93	5.56x45mm	*	5	x2/x3	GF/T	S	2/3/5	4	2	2.0 kg	GG500	$1000
Mark 18 Mod 0 CQBR	5.56x45mm	*	6	x2/x3	CQB/M	S/B5	3/4/6	5	2	2.4 kg	GG400	$800
M16A1	5.56x45mm	*	6	x2/x3	M/S	S/B5	3/5/7	5	3	3.6 kg	GG400	$800
M16A2	5.56x45mm	*	6	x2/x3	M/S	S/B3	3/5/7	5	3	3.8 kg	GG475	$950
M16A3	5.56x45mm	*	6	x2/x3	M/S	S/B5	3/5/7	5	3	3.8 kg	GG475	$950
M16A4	5.56x45mm	*	6	x2/x3	M/S	S/B3	3/5/7	5	3	3.4 kg	GG475	$950
M4	5.56x45mm	*	6	x2/x3	T/O	S/B3	3/4/6	5	3	2.7 kg	GG550	$1100
M4A1	5.56x45mm	*	6	x2/x3	T/O	S/B5	3/4/6	5	3	2.7 kg	GG550	$1100
C7A2	5.56x45mm	*	6	x2/x3	T/S	S/B5	3/4/7	5	3	3.3 kg	GG475	$950
USMC SAM-R	5.56x45mm	*	6	x2/x3	M/S	S	3/6/8	4	3	3.7 kg	GG650	$1300
AMU NM Rifle	5.56x45mm	*	6	x2/x3	O/EX	S	5/7/10	3	5	7.7 kg	GG725	$1550
H&K HK416	5.56x45mm	*	6	x2/x3	T/O	S/B6	3/4/6	4	3	3.5 kg	GG825	$1650
Colt RO635	9mm P	*	4	x4/Nil	CQB/T	S/B6	3/4/6	4	2	2.6 kg	GG475	$950
Colt RO639	9mm P	*	4	x4/Nil	CQB/T	S/B3	3/4/6	4	2	2.6 kg	GG475	$950
M231 FPW	5.56x45mm	*	6	x2/x3	GF/CQB	B8	3/4/-	4	3	3.3 kg	GG300	$600
ArmaLite AR-10A4 Carbine	7.62x51mm	8	8	x2/x3	T/O	S	4/5/7	9	3	4.1 kg	GG615	$1230
ArmaLite AR-10A4 Rifle	7.62x51mm	8	8	x2/x3	M/S	S	4/6/8	9	3	4.4 kg	GG615	$1230
ArmaLite AR-10(T)	7.62x51mm	8	8	x2/x3	M/EX	S	4/7/8	8	4	4.7 kg	GG825	$1650
M110 SASS	7.62x51mm	8	8	x2/x3	O/EX	S	6/7/9	8	5	5.1 kg	GG1325	$2650

* This weapon accepts all STANAG magazines – see p. 14

TABLE C: UPPER RECEIVERS

Type	Caliber	Cap.	Dam.	Pen.	Rng.	Max. ROF	Speed	Rec	Bulk	Wgt	BV	SP
M16/AR-15 Uppers												
Pistol	5.56x45mm	*	5	x2/x3	GF/T	B5	2/3/4	4	1	1.2 kg	GG275	$550
Pistol	9mm P	20/32	4	x3/x4	GF/T	B6	2/3/4	4	1	1.3 kg	GG285	$570
CQB	5.56x45mm	*	6	x2/x3	CQB/M	B5	2/3/4	6	1	1.3 kg	GG250	$500
CQB	9mm P	20/32	4	x4/Nil	CQB/T	B6	2/3/4	5	1	1.5 kg	GG265	$530
CQB	6.8mm SPC	15/25	6	x2/x3	CQB/O	B5	2/3/4	9	1	1.3 kg	GG275	$550
CQB	.50 Beowulf	4/7	6	x3/x4	CQB/T	B4	2/3/4	17	1	1.6 kg	GG425	$850
Carbine	5.56x45mm	*	6	x2/x3	T/O	B5	2/3/4	6	2	1.4 kg	GG300	$600
Carbine	9mm P	20/32	4	x3/Nil	CQB/T	B6	2/3/4	5	2	1.7 kg	GG300	$600
Carbine	6.5mm Grendel	10/24	7	x2/x3	T/S	B5	2/3/4	9	2	1.5 kg	GG325	$650
Carbine	6.8mm SPC	15/25	7	x2/x3	T/O	B5	2/3/4	9	2	1.4 kg	GG325	$650
Carbine	.50 Beowulf	4/7	6	x2/x3	T/M	B4	2/3/5	18	2	1.8 kg	GG375	$750
Rifle	5.56x45mm	*	6	x2/x3	M/S	B5	2/3/5	6	2	2.2 kg	GG325	$650
Rifle	6.5mm Grendel	10/24	7	x2/x3	M/EX	B5	2/3/5	8	2	2.3 kg	GG400	$800
Rifle	6.8mm SPC	15/25	7	x2/x3	M/S	B5	2/3/5	8	2	2.2 kg	GG375	$750
DMR	5.56x45mm	*	6	x2/x3	M/S	B5	2/4/6	5	2	2.5 kg	GG450	$900
DMR	6.5mm Grendel	10/24	7	x2/x3	M/EX	B5	2/4/6	8	2	2.6 kg	GG445	$890
DMR	6.8 SPC	15/25	7	x2/x3	M/S	B5	2/4/6	8	2	2.5 kg	GG500	$1000
DMR	.50 Beowulf	4/7	7	x2/x3	T/O	B4	2/4/6	14	2	2.8 kg	GG450	$900
Match	5.56x45mm	*	6	x2/x3	O/EX	B5	3/5/7	5	3	5.2 kg	GG475	$950
Match	6.5mm Grendel	10/24	7	x2/x3	O/EX	B5	3/5/7	7	3	5.3 kg	GG500	$1000
AR-10 Uppers												
Carbine	7.62x51mm NATO	10/20	8	x2/x3	T/O	B4	3/4/5	10	2	2.5 kg	GG440	$880
Rifle	.243 Win	10/20	7	x2/x3	M/S	B4	3/4/6	7	2	2.6 kg	GG450	$900
Rifle	7.62x51mm NATO	10/20	8	x2/x3	M/S	B4	3/4/6	10	2	2.7 kg	GG440	$880
Rifle	.338 Federal	10/20	9	x2/x3	M/S	B4	3/4/6	13	2	2.7 kg	GG450	$900
DMR	.243 Win	10/20	7	x2/x3	M/EX	B4	3/5/6	7	3	2.7 kg	GG550	$1200
DMR	7.62x51mm NATO	10/20	8	x2/x3	M/EX	B4	3/5/6	10	3	2.8 kg	GG550	$1100
DMR	.338 Federal	10/20	9	x2/x3	M/EX	B4	3/5/6	12	3	2.8 kg	GG600	$1200
Match	7.62x51mm NATO	10/20	8	x2/x3	O/EX	B4	4/5/6	9	3	3.1 kg	GG1000	$2000

* A weapon built with this upper will accept all STANAG magazines – see p. 14.

TABLE D: LOWER RECEIVERS

Type	Range	ROF	Speed	Recoil	Bulk	Weight	BV	SP
M16/AR-15 Lowers								
Pistol	GF/CQB	*	0/0/1	0	1	0.8 kg	GG150	$300.00
Carbine	T/S	*	1/1/2	-1	1	1.1 kg	GG150	$300.00
Rifle	M/S	*	1/2/2	-1	1	1.2 kg	GG150	$300.00
DMR	M/EX	S	1/2/2	-1	1	1.2 kg	GG250	$500.00
Match	O/EX	S	2/2/3	-2	2	2.5 kg	GG300	$600.00
AR-10 Lowers								
Carbine	T/S	*	1/1/2	-1	1	1.5 kg	GG175	$350.00
Rifle	M/S	*	1/2/2	-1	1	1.6 kg	GG175	$350.00
DMR	M/EX	S	1/2/2	-1	1	1.6 kg	GG275	$550.00
Match	O/EX	S	2/2/3	-2	2	2.0 kg	GG325	$650.00

* A weapon built with this lower receiver can have one of three trigger groups, selected when the character acquires the lower. This choice determines rate of fire. A semi-automatic trigger provides ROF S. A burst trigger provides ROF S/B3. A fully automatic trigger provides ROF S/Bx, with the burst rate determined by the mated upper receiver (see the "FA ROF" column of the uppers table).

TABLE E: MATT'S EXAMPLE

Firearm	Caliber	Cap	Dam	Pen	Rng	ROF	Spd	Rec	Bulk	Wt	BV	SP
Rifle upper	5.56x45mm	STANAG	6	x2/x3	M/S	max B5	2/3/5	6	2	2.2 kg	GG325	$650
Carbine lower	–	–	–	–	T/S	S/Bx	+1/1/2	-1	+1	1.2 kg	GG150	$300
Complete rifle	5.56x45mm	STANAG	6	x2/x3	T/S	S/B5	3/4/7	5	3	3.4 kg	GG475	$950

9mm Parabellum uppers are an exception to these rules. They can't be converted to piston operation because they already use a different operating system: blowback rather than direct impingement.

Step Two: Lower Receiver

The chosen lower receiver modifies the weapon's Speed, Recoil, and Bulk. It also has its own weight, barter value, and street price, which are added to those of the upper to determine the whole weapon's mass and cost. In addition, the lower receiver determines the rifle's rate of fire. Finally, the lower receiver can affect the rifle's optimum and maximum ranges: if the lower's range values are lower than those for the upper, the lower's replace the upper's. In other words, suck it up and use the worse of the two sets of ranges.

Example: Matt has a M4A1 with a bent barrel and an M16A4 with a broken stock. He wants to combine the upper from the M16A4 with the lower from the M4A1. The M16A4 upper is a rifle upper and the M4A1 lower is a carbine lower; these combine to dictate the new weapon's traits as shown in the following table. Note that the carbine lower has a shorter optimum range than the rifle upper, so the carbine lower's optimum range takes effect (see above).

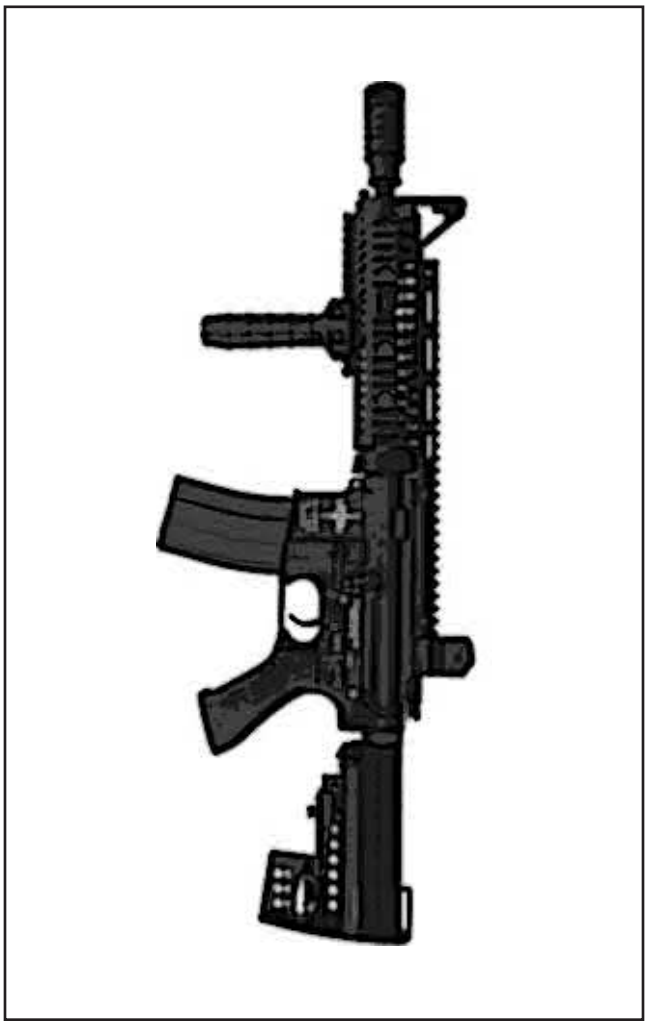


TABLE F: AMMUNITION

Caliber	Weight	BV	SP	Types	Mag Wgt
9mm P	1.7 kg	GG5.2	$52	HP	0.3 kg (15), 0.4 kg(20), 0.6 kg (30, 32)
5.56x45mm	1.4 kg	GG5	$50	AP/HP/T	0.4 kg (20), 0.6 kg (30)
.243 Win	2.4 kg	GG9.4	$94	HP	0.3 kg (10), 0.6 kg (20)
6.5mm Grendel	2.2 kg	GG56	$140	HP	0.3 kg (10), 0.6 kg (24)
6.8mm Rem SPC	2.2 kg	GG90	$180	HP	0.4 kg (15), 0.7 kg (25)
7.62x51mm	2.7 kg	GG8	$105	AP/HP/T	0.4 kg (10), 0.8 kg (20)
.338 Federal	3.3 kg	GG54	$135	HP	0.4 kg (10), 0.8 kg (20)
.50 Beowulf	5.0 kg	GG60	$150	HP	0.2 kg (4), 0.4 kg (7)

AMMUNITION

The following table presents game traits for the new calibers presented here (and some new magazine capacities and weights for existing calibers). As always, weight, barter value, and street price are per 100 rounds:

Stage III Ballistics

.243 Winchester

Range	Dam/Pen
P	8/x2
GF	8/x2
CQB	8/x2
T	8/x2
M	7/x2
O	6/x2
S	4/x2
EX	3/x3

6.5mm Grendel

This caliber's ballistics vary by barrel length:

Range	Dam/Pen	
	Carbine	Rifle/DMR
P	7/x2	8/x2
GF	7/x2	8/x2
CQB	7/x2	8/x2
T	7/x2	8/x2
M	6/x2	7/x2
O	5/x2	6/x2
S	4/x2	4/x2
EX	–	3/x3

6.8mm Remington SPC

Range	Dam/Pen
P	8/x2
GF	8/x2
CQB	8/x2
T	7/x2
M	7/x2
O	5/x2
S	4/x3
EX	–

.338 Federal

Range	Dam/Pen
P	10/x2
GF	10/x2
CQB	10/x2
T	10/x2
M	9/x2
O	7/x2
S	5/x2
EX	4/x3

.50 Beowulf

This caliber's ballistics vary by barrel length:

Range	Dam/Pen		
	CQB	Carbine	DMR
P	8/x2	9/x2	9/x2
GF	8/X2	9/x2	9/x2
CQB	8/x2	8/x2	9/x2
T	7/x2	7/x2	8/x2
M	6/x3	6/x3	6/x3
O	–	5/x3	5/x3
S	–	5/x4	5/x4
EX	–	–	5/Nil

STANAG Magazines

The acronym STANAG stands for "STANdardization AGreement," a memorandum of understanding between all NATO members to standardize on a particular item or procedure. Thousands of STANAG agreements exist, specifying everything from ammunition to rank equivalences to digital video formats. In the context of the M16, "STANAG" is shorthand for STANAG 4179, the agreement that established the M16's magazine as the standard for all 5.56x45mm rifles (STANAG 4172 established 5.56x45mm as the standard infantry rifle caliber). While never formally ratified by NATO, many modern assault rifles adhere to the standard. Any weapon that conforms to STANAG 4179 can accept magazines built on this standard.

The normal STANAG magazine holds 30 rounds. 20-round magazines fell out of favor in the early 1970s but are still in limited use. 5- and 10-round units are available on the civilian market, primarily in jurisdictions that ban larger magazines. Magazines holding 40 or more rounds exist, though they're primarily civilian novelty items and too unwieldy for most combat applications. Likewise, drums holding 75 and 100 rounds are in limited production, though some forces do use these with squad automatic weapons.

For game purposes, if you're using the Twilight: 2013 core rulebook, assume there's a 75% chance that any generic 5.56x45mm assault rifle, bullpup, or carbine will accept STANAG magazines. Later versions of the Steyr AUG normally use proprietary magazines but can accept STANAG conversion kits – there's a 40% chance that any given AUG has one installed. The FN Minimi can feed from STANAG magazines rather than its normal belt, but this tends to destroy the magazine (10% chance per burst) and is considered an emergency procedure only.

In addition, the following weapons from the Twilight: 2013 Rules Expansion and previous Shooter's Guide publications are STANAG-compatible: FAMAS G2 (but not F1), FN FNC (and Ak 5), FN SCAR-L, and L85 series. The H&K G36 family can accept a STANAG conversion kit (90% chance for rifles acquired in the United States, 20% elsewhere).

SPYCRAFT 2.0 RULES

Few of the weapons presented here need any special rules beyond those in the Spycraft 2.0 core rulebook. It's worth noting that several of these rifles all appear in that book. They are reprinted here for the sake of comprehensiveness and ease of comparison. Aside from a few modifications to weight and recoil (to align with the data we used for the Reflex System traits), they are unchanged from their original presentation.

TABLE G: "LIGHT SUBMACHINE GUNS"

Weapon Name	Dmg	E/T	Ammo	Recoil	Rng	Sz/Hnd	Wgt	Upg	Comp	Year	SV	Qualities
Caliber I "SMGs"												
Olympic Arms OA-93												
5.56x45mm NATO	2d6+2	1-3/20	30M1	18	30 ft.	D/2h	4.4 lbs.	0	25/+2	1992	$1,000	INA (-2), NFM, (S), QKY
Caliber II Heavy SMGs												
Colt RO635												
9mm P	1d10+1	1-3/20	32M4	6	30 ft.	T/2h	5.7 lbs.	2	25/+1	1982	R$950	CLS
Colt RO639												
9mm P	1d10+1	1-3/20	32M4	6	30 ft.	T/2h	5.7 lbs.	2	25/+1	1982	R$950	CLS, NFM (S/B)

TABLE H: SEMI-AUTOMATIC RIFLES

Weapon Name	Dmg	E/T	Ammo	Recoil	Rng	Sz/Hnd	Wgt	Upg	Comp	Year	SV	Qualities
Caliber III												
AMU National Match Rifle												
5.56x45mm NATO	4d4	1-2/20	20M3	5	160 ft.	S/2h	17.0 lbs.	3	24/+2	1992	R$1,550	ACC, UPG (ergonomic stock)
ArmaLite AR-10A4												
7.62x51mm NATO	4d4+2	1-2/19-20	20M3	18	150 ft.	S/2h	9.7 lbs.	2	20/+1	TBD	$1,230	–
ArmaLite AR-10A4 Carbine												
7.62x51mm NATO	4d4+2	1-2/19-20	20M3	19	125 ft.	S/2h	9.0 lbs.	2	20/+1	TBD	$1,230	CLS
ArmaLite AR-10(T)												
7.62x51mm NATO	4d4+2	1-2/19-20	20M3	16	175 ft.	S/2h	10.4 lbs.	1	21/+1	TBD	$1,650	SPA
Colt/USMC SAM-R												
5.56x45mm NATO	4d4	1-2/20	30M2	11	125 ft.	S/2h	8.2 lbs.	3	21/+1	2001	$1,300	SPA, NUL (3R, 1U), UPG (9x telescopic sight)
KAC M110												
7.62x51mm NATO	4d4+2	1-2/19-20	20M3	15	175 ft.	S/2h	11.2 lbs.	0	23/+1	2007	$2,650	SPA, NUL (3R, 1U), TBR, UPG (10x telescopic sight, bipod, suppressor)

TABLE I: ASSAULT RIFLES

Weapon Name	Dmg	E/T	Ammo	Recoil	Rng	Sz/Hnd	Wgt	Upg	Comp	Year	SV	Qualities
Caliber II												
Colt M16A1												
5.56x45mm NATO	4d4	1-4/20	20M8	11	125 ft.	S/2h	7.9 lbs.	0	25/+1	1963	R$800	OVH
Colt M231 FPW												
5.56x45mm NATO	4d4	1-4/20	30M5	12	50 ft.	T/2h	7.3 lbs.	2	25/+1	1974	R$600	INA (-3), NFM (B/F), QKY
Caliber III												
Colt M16A2												
5.56x45mm NATO	4d4	1-3/20	30M5	10	125 ft.	S/2h	8.4 lbs.	3	25/+1	1982	R$950	NFM (S/B)
Colt M16A3												
5.56x45mm NATO	4d4	1-3/20	30M5	10	125 ft.	S/2h	8.4 lbs.	2	25/+1	1982	R$950	–
Colt M16A4												
5.56x45mm NATO	4d4	1-3/20	30M5	12	125 ft.	S/2h	7.5 lbs.	3	25/+1	1994	R$950	NFM (S/B)
Colt M4												
5.56x45mm NATO	4d4	1-3/20	30M5	14	100 ft.	S/2h	6.0 lbs.	3	25/+1	1994	R$1,100	CLS, NFM (S/B
Colt M4A1												
5.56x45mm NATO	4d4	1-3/20	30M5	14	100 ft.	S/2h	6.0 lbs.	2	25/+1	1994	R$1,100	CLS
Colt/Crane Mk. 18 Mod 0 CQBR												
5.56x45mm NATO	4d4	1-3/20	30M5	16	60 ft.	T/2h	5.3 lbs.	3	25/+1	1998	R$800	CLS, NUL (3R, 1U)
Diemaco C7												
5.56x45mm NATO	4d4	1-3/20	30M5	10	125 ft.	S/2h	8.4 lbs.	1	25/+1	1982	R$950	DEP
Diemaco C7A1												
5.56x45mm NATO	4d4	1-3/20	30M5	12	125 ft.	S/2h	7.5 lbs.	1	25/+1	1994	R$950	DEP, NUL (3R, 1U)
Diemaco C7A2												
5.56x45mm NATO	4d4	1-3/20	30M5	12	125 ft.	S/2h	7.3 lbs.	1	25/+1	2001	R$950	CLS, DEP
H&K HK416												
5.56x45mm NATO	4d4	1-2/20	30M5	11	100 ft.	S/2h	7.7 lbs.	1	26/+1	2004	R$1,650	CLS, NUL (3R, 1U), UPG (piston system)

TABLE J: UPPER RECEIVERS

Receiver	Dmg	Threat	Ammo	Raw Rec.	Rng.	Sz/Hnd	Wgt.	Comp.	SV	Qualities	Cal/Upg
M16/AR-15-Pattern Uppers											
<n>Pistol											
5.56x45mm NATO	2d6+2	20	30M1	85	30 ft.	D/2h	2.6 lbs.	20/+1	$550	–	II/1
9mm P	1d10+1	20	32M2	35	25 ft.	D/2h	2.9 lbs.	20/+1	$570	–	II/3
CQB											
5.56x45mm NATO	4d4	20	30M3	85	50 ft.	T/2h	2.9 lbs.	20/+1	$500	–	II/0
6.8mm SPC	4d4+1	19-20	25M4	120	60 ft.	T/2h	2.9 lbs.	20/+1	$550	–	III/3
9mm P	1d10+1	20	32M4	30	30 ft.	T/2h	3.3 lbs.	20/+1	$530	–	II/1
Carbine											
5.56x45mm NATO	4d4	20	30M5	85	100 ft.	S/2h	3.1 lbs.	20/+1	$600	–	III/2
6.5mm Grendel	3d6	19-20	24M6	110	150 ft.	S/2h	3.3 lbs.	20/+1	$650	–	III/1
6.8mm SPC	2d10	19-20	25M5	120	125 ft.	S/2h	3.1 lbs.	20/+1	$650	–	III/1
9mm P	1d10+1	20	32M7	25	40 ft.	S/2h	3.7 lbs.	20/+1	$600	–	II/0
.50 Beowulf	4d4+2	19-20	7M10	175	60 ft.	S/2h	4.0 lbs.	21/+1	$750	TKD	III/0
Rifle											
5.56x45mm NATO	4d4	20	30M5	85	125 ft.	S/2h	4.9 lbs.	20/+1	$650	–	III/2
6.5mm Grendel	4d4+1	19-20	24M6	120	175 ft.	S/2h	4.4 lbs.	20/+1	$800	–	III/0
6.8mm SPC	2d10	19-20	25M5	120	150 ft.	S/2h	4.9 lbs.	20/+1	$750	–	III/1
DMR											
5.56x45mm NATO	4d4	20	30M2	85	140 ft.	S/2h	5.5 lbs.	21/+1	$900	SPA	III/2
6.5mm Grendel	4d4+1	19-20	24M2	120	190 ft.	S/2h	5.7 lbs.	21/+1	$890	SPA	III/2
6.8mm SPC	2d10	19-20	25M3	120	160 ft.	S/2h	5.5 lbs.	21/+1	$1,000	SPA	III/2
.50 Beowulf	2d10+1	19-20	7M10	200	90 ft.	S/2h	6.2 lbs.	22/+1	$900	SPA, TKD	III/2
Match											
5.56x45mm NATO	4d4	20	20M3	85	160 ft.	S/2h	11.5 lbs.	22/+2	$950	SPA	III/3
6.5mm Grendel	4d4+1	19-20	10M6	120	200 ft.	S/2h	11.7 lbs.	22/+2	$1,000	SPA	III/2
AR-10-Pattern Uppers											
Carbine											
7.62x51mm NATO	4d4+2	19-20	20M7	170	125 ft.	S/2h	5.5 lbs.	20/+1	$880	–	III/0
Rifle											
.243 Winchester	2d10	19-20	20M6	125	165 ft.	S/2h	5.7 lbs.	20/+1	$900	–	III/0
7.62x51mm NATO	4d4+2	19-20	20M7	170	175 ft.	S/2h	6.0 lbs.	20/+1	$880	–	III/0
.338 Federal	3d6+2	19-20	20M6	220	180 ft.	S/2h	6.0 lbs.	20/+1	$900	–	III/0
DMR											
.243 Winchester	2d10	19-20	20M6	125	165 ft.	S/2h	6.0 lbs.	21/+1	$1,100	SPA	III/2
7.62x51mm NATO	4d4+2	19-20	20M7	170	175 ft.	S/2h	6.2 lbs.	21/+1	$1,100	SPA	III/1
.338 Federal	3d6+2	19-20	20M6	220	180 ft.	S/2h	6.2 lbs.	21/+1	$1,200	SPA	III/1
Match											
7.62x51mm NATO	4d4+2	19-20	10M10	170	175 ft.	S/2h	6.8 lbs.	22/+2	$2,000	SPA	III/1

MODULAR CONSTRUCTION

As described on page 8, the following upper and lower receiver assemblies can be combined to build a complete rifle. Two basic patterns exist: M16/AR-15 (light to medium caliber) and AR-10 (heavy caliber). You can't put an M16-pattern upper receiver on an AR-10 lower receiver or vice versa.

Step 1: Upper Receiver

Select an upper receiver. This determines most of the weapon's traits under the standard Spycraft 2.0 rules, though the mated lower receiver can modify these (see Steps 2 and 3).

A word of explanation is on order for the Raw Recoil column. Don't panic – this isn't the weapon's actual recoil. You'll determine that in Step 3, using

TABLE K: LOWER RECEIVERS

Receiver	Error	Rng	Sz/Hnd	Wgt	Comp	SV	Fire Mode	Qualities	Upgrades
M16/AR-15-Pattern Lowers									
Pistol	*	40 ft.	D/2h	1.7 lbs.	*	$300	*	QKY	+2
Carbine	*	150 ft.	T/2h	2.4 lbs.	*	$300	*	CLS	+1
Rifle	*	175 ft.	S/2h	2.6 lbs.	*	$300	*	–	+2
DMR	1-2	200 ft.	S/2h	2.6 lbs.	+1	$300	Single	–	+2
Match	1-2	200 ft.	S/2h	5.5 lbs.	+2	$600	Single	SPA	+0
AR-10-Pattern Lowers									
Carbine	*	150 ft.	S/2h	3.3 lbs.	*	$350	*	CLS	+1
Rifle	*	175 ft.	S/2h	3.5 lbs.	*	$350	*	–	+2
DMR	1-2	200 ft.	S/2h	3.5 lbs.	+1	$550	Single	–	+2
Match	1-2	200 ft.	S/2h	4.4 lbs.	+2	$650	Single	SPA	+0

* A weapon built with this lower receiver can have one of three trigger groups, selected when the character acquires the lower. See Step 2b, following.

the combination of Raw Recoil and the weights of the combined upper and lower receivers.

Step 2: Lower Receiver

Select a lower receiver. This determines most of the weapon's remaining traits and modifies a few more.

Step 2b: Trigger Group

With a pistol, carbine, or rifle lower receiver, you may choose one of three trigger groups. This determines the weapon's error range and available fire modes. It may also modify its complexity and street value:

Step 3: Combine the Receivers

To assemble the complete weapon, lock the upper receiver onto the lower receiver. The upper receiver determines caliber, damage, threat range, ammunition allocation, and complexity (though the lower receiver may add a bit of complexity). It also determines the gun's requisition Caliber. The lower receiver determines error range and fire mode; it may also provide additional upgrades. Both components contribute their qualities, if any, to the finished weapon (if both have the SPA quality, the resulting weapon has the ACC quality instead).

Gun caddy, hand me my .243 upper...

If you really want to change receivers in the middle of combat, start with an empty weapon (one "reload" action to remove the magazine and clear the chamber). Then pull out the two retaining pins (one half action each) and lift the upper off the lower. After that, match up the upper and lower you want to combine and lock the retaining pins (one half action each). That's a total of four half actions, not counting unloading and reloading.

Yeah, it's really that quick... if you know what you're doing.

To determine weight and street value, add these values for the upper and lower receivers.

To determine range increment, use the lower of the two values. For example, if you put an upper receiver with a 50 ft. range increment on a lower receiver with a 150 ft. range increment, the resulting gun's range increment is 50 ft.

To determine size, use the larger of the two values. For example, if you put an upper receiver with size D/2h on a lower receiver with size S/2h, the resulting gun has size S/2h and will not fit under your shirt very well.

To determine recoil, divide the upper receiver's raw recoil by the completed gun's weight.

TABLE K: TRIGGER GROUPS

Trigger Group	Error	Fire Modes	Comp	SV
Semi-auto	1-2	S	–	–
Burst	1-3	S/B	+5	+$200 & Restricted
Full auto	1-3	S/B/F	+5	+$200 & Restricted

Piston System Upgrade

Unless otherwise noted, any firearm in the M16 family can be acquired or retrofitted with a piston operating system rather than a direct impingement system, as described on p. 6. Likewise, any custom upper receiver can be built or modified to the same standard. For game purposes, this counts as two upgrades. A gas piston operating system reduces the weapon's error range by 1, to a minimum of 1 for semi-automatic guns or 1-2 for burst-capable and full-auto weapons, but adds 1 pound of weight. It costs $500 and requires 4 hours to install. Its Complexity is 26/+1.

This upgrade is effectively unique to the M16 family because the vast majority of other assault rifles don't use direct impingement operating systems to begin with. Also, 9mm Parabellum guns and upper receivers can't be converted to piston operation because they already use a different operating system: blowback.

Finally, determine the weapon's category as follows. If it has a 9mm upper, or if it's a pistol upper on a pistol lower, consider it a submachine gun. Otherwise, it's an assault rifle if it's capable of burst or full auto fire and a semi-automatic rifle if it's limited to single shots.

Example: Kaneda wants to build a compact assault rifle with more punch than 5.56x45mm NATO can provide. He selects a CQB upper receiver in 6.8mm SPC and a carbine lower receiver with a full auto trigger group. The upper receiver determines the new gun's damage, threat range, ammo allocation, complexity, and Caliber. The lower receiver and its fully automatic trigger group determine the gun's error range. The lower also adds +5 complexity, raises the price by $550 (and makes it restricted), and adds the CLS quality.

The lower receiver has a range increment of 150 ft., but the upper's short barrel has only a 60 ft. range increment. The gun's overall range increment is 60 ft. Both the upper and lower are the same size – T/2h – so this is the gun's size.

To determine recoil, Kaneda adds the weights of the upper and lower receivers, getting 5.3 pounds. He then divides the upper receiver's raw recoil of 120 by 5.3, getting 22.64 – rounded to 23. To determine street value, he adds the separate dollar values of the upper and lower.

The upper receiver is a Caliber III item that comes with 3 upgrades. The carbine lower provides one more upgrade, so the gun's final Caliber is III/4. Maybe Kaneda should look into an upgrade that reduces recoil...

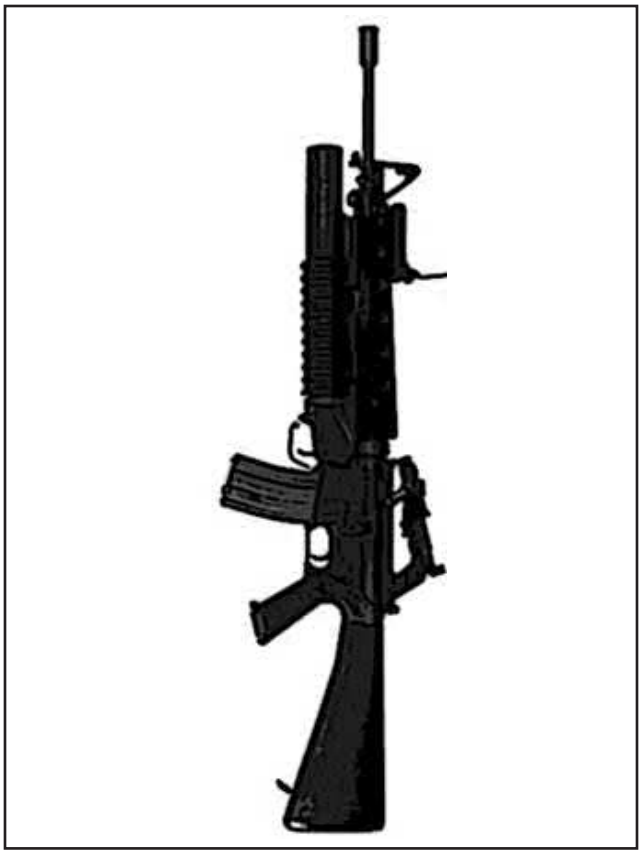


TABLE L: KANEDA'S EXAMPLE

Weapon Name	Dmg	E/T	Ammo	Recoil	Rng	Sz/Hnd	Wgt	Cal/Upg	Comp	SV	Qualities
CQB Upper Receiver											
6.8mm SPC	4d4+1	–/19-20	25M4	*120	60 ft.	T/2h	2.9 lbs.	III/3	20/+1	$550	–
Carbine Lower Receiver											
Full auto	–	1-3/–	–	–	150 ft.	T/2h	2.4 lbs.	–/+1	+5	R$500	CLS
Complete Weapon											
6.8mm SPC	4d4+1	1-3/19-20	25M4	23	60 ft.	T/2h	5.3 lbs.	III/4	25/+1	R$1,050	CLS

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