**AK-47**

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| **AK-47** |
| A Type 2 AK-47, the first machined receiver variation. |
| **Type** | [Assault rifle](http://en.wikipedia.org/wiki/Assault_rifle) |
| **Place of origin** | [Soviet Union](http://en.wikipedia.org/wiki/Soviet_Union) |
| **Service history** |
| **In service** | [1949](http://en.wikipedia.org/wiki/1949)— |
| **Used by** | [Post-Soviet states](http://en.wikipedia.org/wiki/Post-Soviet_states), many others |
| **Production history** |
| **Designer** | [Mikhail Kalashnikov](http://en.wikipedia.org/wiki/Mikhail_Kalashnikov) |
| **Designed** | [1947](http://en.wikipedia.org/wiki/1947) |
| **Number built** | Over 100 million |
| **Variants** | AK-47, AKS, AKM, AKMS, [RPK](http://en.wikipedia.org/wiki/RPK), [AK-74](http://en.wikipedia.org/wiki/AK-74), [AK-101](http://en.wikipedia.org/wiki/AK-101), AK-102, [AK-103](http://en.wikipedia.org/wiki/AK-103), [AK-107](http://en.wikipedia.org/wiki/AK-107), [AK-108](http://en.wikipedia.org/wiki/AK-108) (See table below for national-production variants) |
| **Specifications** |
| **Weight** | 3.8 [kg](http://en.wikipedia.org/wiki/Kilogram) (9.5 [lb](http://en.wikipedia.org/wiki/Pound_%28mass%29)) empty, 4.3 kg loaded |
| **Length** | 870 mm (34¼ [in](http://en.wikipedia.org/wiki/Inch)) |
| [**Barrel**](http://en.wikipedia.org/wiki/Gun_barrel)**length** | 415 mm (16.3 in) |
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| [**Cartridge**](http://en.wikipedia.org/wiki/Cartridge_%28firearms%29) | [7.62 × 39 mm](http://en.wikipedia.org/wiki/7.62_x_39_mm) |
| [**Action**](http://en.wikipedia.org/wiki/Firearm_action) | [Gas-operated](http://en.wikipedia.org/wiki/Gas-operated_reloading), [rotating bolt](http://en.wikipedia.org/wiki/Rotating_bolt) |
| [**Rate of fire**](http://en.wikipedia.org/wiki/Rate_of_fire) | 600 rounds/min |
| [**Muzzle velocity**](http://en.wikipedia.org/wiki/Muzzle_velocity) | 710 [m/s](http://en.wikipedia.org/wiki/Metre_per_second) (~2,330 [ft/s](http://en.wikipedia.org/wiki/Feet_per_second)) |
| **Effective range** | 300 [m](http://en.wikipedia.org/wiki/Metre) (330 [yd](http://en.wikipedia.org/wiki/Yard)) |
| **Feed system** | 30-round detachable box; compatible w/ [RPK](http://en.wikipedia.org/wiki/RPK) 40-round box, 75-round [drum magazine](http://en.wikipedia.org/wiki/Drum_magazine). |
| **Sights** | Adjustable [iron sights](http://en.wikipedia.org/wiki/Iron_sights), optional mount required for optical sights |

The **AK-47** (shortened from [Russian](http://en.wikipedia.org/wiki/Russian_language%22%20%5Co%20%22Russian%20language): **А**втомат **К**алашникова образца 19**47** года, *Avtomat Kalashnikova 1947*) is a [gas-operated](http://en.wikipedia.org/wiki/Gas-operated_reloading%22%20%5Co%20%22Gas-operated%20reloading) [assault rifle](http://en.wikipedia.org/wiki/Assault_rifle) that was used in many [Eastern bloc](http://en.wikipedia.org/wiki/Eastern_bloc%22%20%5Co%20%22Eastern%20bloc) nations during the [Cold War](http://en.wikipedia.org/wiki/Cold_War%22%20%5Co%20%22Cold%20War). Adopted and standardized in 1947, it was designed by [Mikhail Kalashnikov](http://en.wikipedia.org/wiki/Mikhail_Kalashnikov%22%20%5Co%20%22Mikhail%20Kalashnikov) and produced by [Russian](http://en.wikipedia.org/wiki/Russia%22%20%5Co%20%22Russia) manufacturer [Izhevsk Mechanical Works](http://en.wikipedia.org/wiki/Izhevsk_Mechanical_Works). Compared with the auto-loading [rifles](http://en.wikipedia.org/wiki/Rifle%22%20%5Co%20%22Rifle) used in [World War II](http://en.wikipedia.org/wiki/World_War_II%22%20%5Co%20%22World%20War%20II) (the [StG-44](http://en.wikipedia.org/wiki/StG-44%22%20%5Co%20%22StG-44) aside), the AK-47 was generally more compact, with a shorter range, a smaller [7.62 × 39 mm](http://en.wikipedia.org/wiki/7.62_x_39_mm%22%20%5Co%20%227.62%20x%2039%20mm) cartridge, and was capable of [selective fire](http://en.wikipedia.org/wiki/Selective_fire%22%20%5Co%20%22Selective%20fire). It was one of the first true assault rifles and remains the most widely used and known. More AK-47 rifles and variants have been produced than any other assault rifle; production continues to this day.

**History**

**Design background**

During [the Second World War](http://en.wikipedia.org/wiki/World_War_II%22%20%5Co%20%22World%20War%20II), [Germany](http://en.wikipedia.org/wiki/Germany) had developed the concept of the [assault rifle](http://en.wikipedia.org/wiki/Assault_rifle%22%20%5Co%20%22Assault%20rifle). This concept was based on the knowledge that most military engagements in modern warfare were happening at fairly close range with the majority happening within 100 [meters](http://en.wikipedia.org/wiki/Meter%22%20%5Co%20%22Meter) (110 [yd](http://en.wikipedia.org/wiki/Yard%22%20%5Co%20%22Yard)). The power and range of contemporary rifle cartridges was simply overly powerful for a vast majority of engagements with small arms. As a result, a cartridge and firearm were sought combining the features of a [submachine gun](http://en.wikipedia.org/wiki/Submachine_gun%22%20%5Co%20%22Submachine%20gun) (high-capacity magazine and fully-automatic fire capability) with an intermediate-power cartridge that would be effective to a range of 300 meters (330 yd). For the sake of reduced manufacturing costs, this was done by shortening the [7.92 × 57 mm Mauser](http://en.wikipedia.org/wiki/7%2C92x57_mm%22%20%5Co%20%227%2C92x57%20mm) cartridge case and substituting a lighter bullet to create the [7.92 x 33 mm](http://en.wikipedia.org/wiki/7.92_x_33_mm%22%20%5Co%20%227.92%20x%2033%20mm) Kurz.

The resulting [Sturmgewehr 44](http://en.wikipedia.org/wiki/Sturmgewehr_44%22%20%5Co%20%22Sturmgewehr%2044) (StG44 or MP44) was not the first rifle to use these features; it was preceded by earlier [Italian](http://en.wikipedia.org/wiki/Italy%22%20%5Co%20%22Italy) [Cei-Rigotti](http://en.wikipedia.org/wiki/Cei-Rigotti) and [Russian](http://en.wikipedia.org/wiki/Russia%22%20%5Co%20%22Russia) [Fedorov Avtomat](http://en.wikipedia.org/wiki/Fedorov_Avtomat) designs. The Germans, however, were the first to produce and field a sufficient number of the type to properly evaluate its utility. They fielded the weapon in large numbers against the Russians towards the end of the war and this experience deeply influenced Russian doctrine in the years following the war.

[Mikhail Kalashnikov](http://en.wikipedia.org/wiki/Mikhail_Kalashnikov) began imagining his weapon while still in the hospital, after being wounded in the [battle of Bryansk](http://en.wikipedia.org/wiki/Battle_of_Bryansk%22%20%5Co%20%22Battle%20of%20Bryansk). He had been informed that a new weapon was required for the 7.62 × 41 mm cartridge developed by Elisarov and Semin in 1943. Sudayev's [PPS43](http://en.wikipedia.org/wiki/PPS43%22%20%5Co%20%22PPS43) submachine gun was preferred to Kalashnikov's design.

**Design concept**

Despite [circumstantial evidence](http://en.wikipedia.org/wiki/Circumstantial_evidence%22%20%5Co%20%22Circumstantial%20evidence), Mikhail Kalashnikov denies that his rifle was *based* on the German assault rifle. It is best described as a hybrid of several previous innovations. To support his position, the AK-47 owes more to the [M1 Garand](http://en.wikipedia.org/wiki/M1_Garand%22%20%5Co%20%22M1%20Garand) Rifle than any German design. The double locking lugs, unlocking raceway, and trigger mechanism are clearly derived from the earlier American design. This is not surprising as millions of Garand rifles had operated reliably in combat around the globe. The safety is surprisingly similar to the [Browning](http://en.wikipedia.org/wiki/John_Browning)-designed [Remington](http://en.wikipedia.org/wiki/Remington_Arms%22%20%5Co%20%22Remington%20Arms) Model 8 rifle.

The genius in the design of the Kalashnikov rifle is in the simplification of those contributing designs and adaptation to [mass production](http://en.wikipedia.org/wiki/Mass_production%22%20%5Co%20%22Mass%20production). The AK-47 can be seen as a fusion of the best that the M1 Garand offered combined with the best aspects of the StG44 made by the best processes available in the Soviet Union at the time.

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| **“** | The operating mechanism of the Kalashnikov family of weapons is basically very similar to that of the US M1 and M14 rifles and M1/M2 carbines. In fact, as is often the case in a successful weapon design, there is little new about the individual elements of Kalashnikov’s design; the inventor’s accomplishment was in the recombination of known elements into a compact, reliable and durable package. *—*[*Ed Ezell*](http://en.wikipedia.org/wiki/Ed_Ezell) | **”** |

**Receiver development history**

Type 3 AK-47, with its predecessor, the [SKS](http://en.wikipedia.org/wiki/SKS%22%20%5Co%20%22SKS).

AKS-47 on a Type 4B receiver (top), with a Type 2A.

There were many difficulties during the initial phase of production. The first production models had stamped sheet metal [receivers](http://en.wikipedia.org/wiki/Receiver_%28firearms%29%22%20%5Co%20%22Receiver%20%28firearms%29). Difficulties were encountered in welding the guide and ejector rails, causing high rejection rates. Instead of halting production, a heavy machined receiver was substituted for the sheet metal receiver. This was a more costly process, but the use of machined receivers accelerated production as tooling and labor for the earlier [Mosin-Nagant](http://en.wikipedia.org/wiki/Mosin-Nagant%22%20%5Co%20%22Mosin-Nagant) rifle's machined receiver were easily adapted. Partly because of these problems, the Soviets were not able to distribute large numbers of the new rifle to soldiers until 1956. During this time, production of the interim [SKS](http://en.wikipedia.org/wiki/SKS) rifle continued.

Once manufacturing difficulties had been overcome, a redesigned version designated the AKM (*M* for *modernized* or *upgraded*—in Russian: Автомат Калашникова Модернизированный) was introduced in 1959. This new model used a stamped sheet metal receiver and featured a slanted [muzzle brake](http://en.wikipedia.org/wiki/Muzzle_brake%22%20%5Co%20%22Muzzle%20brake) on the end of the [barrel](http://en.wikipedia.org/wiki/Gun_barrel%22%20%5Co%20%22Gun%20barrel) to compensate for [muzzle](http://en.wikipedia.org/wiki/Muzzle_%28firearm%29%22%20%5Co%20%22Muzzle%20%28firearm%29) rise under recoil. In addition, a hammer retarder was added in order to prevent the weapon from firing out of battery (without the bolt being fully closed) during rapid or automatic fire. This is also sometimes referred to as a "cyclic rate reducer", or simply "rate reducer", as it also has the effect of reducing the number of rounds fired per minute during automatic fire. It was also lighter than the previous model, roughly two-thirds of the weight. Both licensed and unlicensed production of the Kalashnikov weapons abroad were almost exclusively of the AKM, partially due to the much easier production of the stamped receiver. This model is the most commonly encountered, having been produced in much greater quantities. All rifles based on the Kalashnikov design are frequently referred to as AK-47s in the West, although this is only correct when applied to rifles based on the original 3 receiver types. In most former Eastern Bloc countries, the weapon is known simply as the "Kalashnikov". The photo at right illustrates the differences between the Type 2 milled receiver and the Type 4 stamped, including the use of rivets rather than welds on the stamped receiver, as well as the placement of a small dimple above the magazine well for stabilization of the magazine.

In 1978, the Soviet Union began replacing their AK-47 and AKM rifles with a newer design, the AK-74. This new rifle and cartridge had only started being exported to eastern European nations when the Soviet Union collapsed drastically slowing production of this and all other small arms.

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| **Receiver type** | **Description** |
| **Type 1A/B** | Original stamped receiver for AK-47. -1B modified for folding stock. Namely, a large hole is present on each side to accommodate the hardware for the underfolding stock. (this naming convention continues with all types) |
| **Type 2A/B** | Milled from steel forging. |
| **Type 3A/B** | "Final" version of the milled receiver, from steel bar stock. The most ubiquitous example of the milled-receiver AK-47. |
| **Type 4A/B** | Stamped AKM receiver. Overall, the most-used design in the construction of the AK-series rifles. |

**Features**

The AK-47 is simple, inexpensive to manufacture and easy to clean and maintain. Its ruggedness and reliability are legendary. The large gas piston, generous clearances between moving parts, and tapered cartridge case design allow the gun to endure large amounts of foreign matter and fouling without failing to cycle. This reliability comes at the cost of accuracy, as the looser tolerances do not allow the precision and consistency that are required of more accurate firearms. Reflecting Soviet infantry doctrine of its time, the rifle is meant to be part of massed infantry fire, not long range engagements.

The notched rear tangent iron sight is adjustable, each setting denoting hundreds of meters. The front sight is a post adjustable for elevation in the field. [Windage](http://en.wikipedia.org/wiki/Windage%22%20%5Co%20%22Windage) adjustment is done by the armory prior to issue. The battle setting places the round within a few [centimeters](http://en.wikipedia.org/wiki/Centimeter) above or below the point of aim out to approximately 250 meters (275 yd). This "[point-blank range](http://en.wikipedia.org/wiki/Point-blank_range%22%20%5Co%20%22Point-blank%20range)" setting allows the shooter to fire the gun at any close target without adjusting the sights. Longer settings are intended for area suppression. These settings mirror the [Mosin-Nagant](http://en.wikipedia.org/wiki/Mosin-Nagant%22%20%5Co%20%22Mosin-Nagant) and [SKS](http://en.wikipedia.org/wiki/SKS%22%20%5Co%20%22SKS) rifles which the AK-47 replaced. This eased transition and simplified training.

The [bore](http://en.wikipedia.org/wiki/Caliber%22%20%5Co%20%22Caliber) and [chamber](http://en.wikipedia.org/wiki/Chamber_%28weaponry%29%22%20%5Co%20%22Chamber%20%28weaponry%29), as well as the gas piston and the interior of the [gas cylinder](http://en.wikipedia.org/wiki/Pneumatic_cylinder%22%20%5Co%20%22Pneumatic%20cylinder), are generally [chromium](http://en.wikipedia.org/wiki/Chromium%22%20%5Co%20%22Chromium)-plated. This plating dramatically increases the life of these parts by resisting corrosion and wear. This is particularly important, as most military-production ammunition during the 20th century contained corrosive mercuric salts in the primers, which mandated frequent and thorough cleaning in order to prevent damage. Chrome plating of critical parts is now common on many modern military weapons.

**Operating cycle**

To fire, the operator inserts a loaded [magazine](http://en.wikipedia.org/wiki/Magazine_%28firearm%29%22%20%5Co%20%22Magazine%20%28firearm%29), moves the selector lever to the lowest position, pulls back and releases the charging handle, aims, and then pulls the [trigger](http://en.wikipedia.org/wiki/Trigger_%28mechanism%29%22%20%5Co%20%22Trigger%20%28mechanism%29). In this setting, the gun fires only once (semi-automatic), requiring the trigger to be released and depressed again for the next shot. With the selector in the middle position (full-automatic), the rifle continues to fire, automatically cycling fresh rounds into the chamber, until the magazine is exhausted or pressure is released from the trigger. As each bullet travels through the barrel, a portion of the gases expanding behind it is diverted into the gas tube above the barrel, where it impacts the gas piston. The piston, in turn, is driven backward, pushing the bolt carrier, which causes the bolt to move backwards, ejecting the spent round, and chambering a new round when the recoil spring pushes it back.

**Disassembly**

Dismantling the rifle involves the operator depressing the magazine catch and removing the magazine. The charging handle is pulled to the rear and the operator inspects the chamber to verify the gun is unloaded. The operator presses forward on the retainer button at the rear of the receiver cover while simultaneously lifting up on the rear of the cover to remove it. The operator then pushes the spring assembly forward and lifts it from its raceway, withdrawing it out of the bolt carrier and to the rear. The operator must then pull the carrier assembly all the way to the rear, lift it, and then pull it away. The operator removes the bolt by pushing it to the rear of the bolt carrier; rotating the bolt so the camming lug clears the raceway on the underside of the bolt carrier and then pulls it forward and free. When cleaning, the operator will pay special attention to the barrel, bolt face, and gas piston, then oil lightly and reassemble.

**Ballistics**

The standard AK-47 or AKM fires a [7.62 × 39 mm](http://en.wikipedia.org/wiki/7.62_x_39_mm%22%20%5Co%20%227.62%20x%2039%20mm) [round](http://en.wikipedia.org/wiki/Cartridge_%28weaponry%29) with a muzzle velocity of 710 [metres per second](http://en.wikipedia.org/wiki/Metres_per_second%22%20%5Co%20%22Metres%20per%20second) (2,329 [ft/s](http://en.wikipedia.org/wiki/Feet_per_second%22%20%5Co%20%22Feet%20per%20second)). Muzzle energy is 1,990 [joules](http://en.wikipedia.org/wiki/Joule%22%20%5Co%20%22Joule) (1,467 [ft·lbf](http://en.wikipedia.org/wiki/Foot-pound_force%22%20%5Co%20%22Foot-pound%20force)). Cartridge case length is 38.6 millimetres (1.5 [in](http://en.wikipedia.org/wiki/Inch%22%20%5Co%20%22Inch)), weight is 18.21 [grams](http://en.wikipedia.org/wiki/Gram%22%20%5Co%20%22Gram) (281.0 gr). Projectile weight is normally 8 grams (123 [gr](http://en.wikipedia.org/wiki/Grain_%28measure%29%22%20%5Co%20%22Grain%20%28measure%29)). The AK-47 and AKM, with the 7.62 × 39 mm cartridge, have a maximum effective range of around 300 meters (330 yd). For comparison, the [7.62 × 54 mm R](http://en.wikipedia.org/wiki/7.62_x_54_mm_R%22%20%5Co%20%227.62%20x%2054%20mm%20R) cartridge has a projectile of 9.6–12 grams (148–185 gr), depending on the weapon, at a velocity of 818 metres per second (2,683 ft/s) for approximately 4,000 joules (2,950 ft·lbf) of energy.