


M16 rifle parts pdf

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Rifles based on the Colt AR-15 design "AR15" redirects here. For other uses, see AR15 (disambiguation). AR-15-style rifles come in many sizes and have many options, depending on the manufacturer. The part shown bottom center is the lower receiver without the receiver extension, rear takedown pin, and buttstock. An AR-15-style rifle is any lightweight semi-automatic rifle based on the Colt AR-15 design. The original ArmaLite AR-15 is a scaled-down derivative of Eugene Stoner's ArmaLite AR-10 design. The then Fairchild Engine and Airplane Corporation division ArmaLite sold the patent and trademarks to Colt's Manufacturing Company in 1959. After most of Colt's patents for the Colt AR-15 expired in 1977, many firearm manufacturers began to produce copies of the Colt AR-15 under various names. While the patents are expired, Colt retained the trademark of the AR-15 and is the sole manufacturer able to label their firearms as AR-15.[11] The "AR" in Colt AR-15 stands for "ArmaLite Rifle", not "assault rifle".[2][3] The Federal Assault Weapons Ban restricted the sale of the Colt AR-15 and some derivatives in the United States from 1994 to 2004, although it did not affect rifles with fewer listed features.[4][5] After the term modern sporting rifles was coined in 2009 by the US National Shooting Sports Foundation, a firearms trade association, it was quickly adopted by much of the industry.[6][7] In the 2010s, AR-15-style rifles became one of the "most beloved and most vilified rifles" in the United States, according to The New York Times. The rifles are controversial in part due to their use in high-profile mass shootings.[8] Promoted as "America's rifle" by the National Rifle Association, AR-15-style rifles' popularity is partially attributable to active restrictions, or proposals to ban or restrict them.[9][10][11][12] Terminology A common misconception is that "AR" is an acronym for "assault rifle",[13] perhaps because of the weapon's inclusion in the Federal Assault Weapons Ban in 1994 or because the ArmaLite AR-15 was designed by infantry rifle designer Eugene Stoner to replace the M14 rifle in the Vietnam War.[14] The "AR" in AR-15 stands for "ArmaLite Rifle".[15] The Colt AR-15 is closely related to the military M16 and M4 Carbine rifles, which all share the same core design, first patented for use in the AR-10, featuring a gas-operated, rotating bolt (combined with an integral piston) instead of conventional direct impingement, operating system patented under U.S. Patent 2,951,424 by Eugene Stoner.[16][17] The term "AR-15" is now most-commonly used to refer only to the civilian variants of the rifle which lack the fully automatic function.[18] 1973 Colt AR-15 SP1 rifle with 'slid slide' lower receiver (lacking raised boss around magazine release button) and original Colt 20-round box magazine Members of New Black Panthers with AR-15 style rifles In 1956, ArmaLite designed a lightweight selective fire rifle for military use and designated it the ArmaLite model 15, or AR-15.[19][14] Due to financial problems and limitations in terms of manpower and production capacity, ArmaLite sold the design and the AR-15 trademark along with the ArmaLite AR-10 to Colt's Manufacturing Company in 1959.[20] In 1964, Colt began selling its own version with an improved semi-automatic design known as the Colt AR-15.[21] After Colt's patents expired in 1977, an active marketplace emerged for other manufacturers to produce and sell their own semi-automatic AR-15 style rifles.[1] Some versions of the AR-15 were classified as "assault weapons" and banned under the Public Safety and Recreational Firearms Use Protection Act in 1994 within the United States. This act expired in 2004.[4][22] In 2009, the term "modern sporting rifle" was coined by the National Shooting Sports Foundation for its survey that year as a marketing term used by the firearms industry to describe modular semi-automatic rifles including AR-15s.[23][6][24][18] Today, nearly every major firearm manufacturer produces its own generic AR-15 style rifle.[25][24] As Colt continues to own and use the AR-15 trademark for its line of AR-15 variants, other manufacturers must use their own model numbers and names to market their AR-15 style rifles for commercial sale.[26] Under US law, when manufactured with a barrel length less than 16 inches (410 mm) and without a shoulder stock, it is legally considered a pistol as opposed to being a short-barreled rifle.[27] and is described as an AR-15 style pistol. The lower receiver is legally defined as a firearm under United States federal law. However, this definition may be questionable due to several court rulings (or government dismissals to avoid rulings) that the AR-15 lower receiver does not match the legal definition in 27 CFR § 479.11.[28][29][30] though a 2021 case from the Eighth Circuit found otherwise.[31] Modularity and customization While most earlier breach-loading rifles had a single receiver housing both the trigger and reloading mechanism, an innovative feature of the AR-15 was modular construction to simplify substitution of parts and avoid need for arsenal facilities for most repairs of malfunctioning military rifles.[32] A distinctive two-part receiver is used by both military and sporting AR-15 style rifles. As civilian ownership of AR-15 style rifles became sufficient to create a market for improvements, numerous manufacturers began producing aftermarket parts—including parts with features not found on basic AR-15 rifles, and individuals with basic mechanical aptitude can often substitute these pieces for original equipment without needing a gunsmith. Due to the vast assortment of aftermarket parts and accessories available, AR-15 style rifles have also been referred to as "the Swiss Army knife of rifles".[33] "Barbie Dolls for Guys" [34][35] or "LEGOs for Adults"[36][37][38] These more or less interchangeable chambers are a defining characteristic of AR-15 style rifles.[39] A stripped lower receiver, one that is lacking the additional parts included in a completed lower receiver, is the only part of an AR-15 style rifle that needs to be transferred through a federally licensed dealer under United States federal law.[40] Lower receivers may be bought "stripped"—a single solid part and legally a firearm in the United States, albeit nonfunctional, with no fire control group or lower parts kit installed. End users may install their own choice of fire control group and lower parts kit. A completed lower receiver, compared to a stripped lower receiver, may be visually distinguished by the trigger guard ahead of the detachable pistol grip, and behind the magazine well capable of holding detachable magazines. The lower receiver holds the trigger assembly including the hammer, and is the attachment point for the buttstock. The lower receiver is attached to the upper receiver by two removable pins. Disassembly for cleaning or repair of malfunctions requires disengaging these pins from the upper receiver. Releasing the rear take-down pin allows the receiver to be opened by rotation around the forward pivot pin as a hinge.[32] The upper receiver contains the bolt carrier assembly and is attached to the barrel assembly. Sights may be attached to the upper receiver or the barrel assembly. A handguard usually encloses the barrel and is attached to the upper receiver, and depending on the handguard, also attached to the barrel's gas block.[32] Folding stocks AR-15 style rifles may have folding or collapsible stocks which reduce the overall length of the rifle when folded, although some designs of the stock folding device may not allow the firearm to be fired until unfolded, or only fire once until unfolded.[41] A few manufacturers have made full upper receivers,[42] or even "bufferless" bolt carrier systems where the buffer system is wholly contained in the upper receiver, and therefore does not use the buffer tube, which allows for firing while the stock is in the folded position, or removal of the stock altogether.[43] Gas system design The standard design includes a gas block and tube, allowing burnt powder gas back into the bolt carrier assembly where it expands in a variable volume chamber forcing the bolt open to the right side, and operation of the safety from the right side, respectively.[56] Calibers Main article: List of rifle platform cartridges § AR-15 cartridges The AR-15 is interchangeably chambered in .223 Remington or 5.56×45mm NATO, with the .223 Wyldie chamber allowing for the chambering of both, but many variants have been produced in different calibers such as .22 LR, 7.62×39mm, 9×19mm Parabellum,[57] 6.5mm Grendel, and shotgun calibers.[58] Some of these firearms chambered in smaller calibers such as 9mm or .22 utilize simple blowback[59] or delayed blowback[60] operating principles instead of the default direct impingement/internal-piston based operating system, as insufficient gas pressure or volume is produced by the round to cycle the action, or the simpler blowback system is sufficient and may allow removal of the rear buffer tube and spring. Compliance with state or local restrictions Some AR-15 style rifles limit use of detachable magazines to comply with state regulations.[61][62] Nearly all versions of the civilian AR-15 have a pistol grip like the military versions, but as the pistol grip is generally removable, grips and stocks that comply with various restrictions are available. [63] While AR-15-style rifles are banned in New York City, the FightLite SCR has been explicitly allowed, even though it accepts standard AR-15 upper receivers.[64][65] The SCR lower receiver differs from the standard AR-15 lower receiver in that it uses a Monte Carlo stock instead of a pistol grip, which may allow it to be legally possessed in jurisdictions with assault weapon restrictions in place. It also uses a proprietary bolt carrier due to the angled buffer tube, and a proprietary fire control group that moves the trigger rearward.[66] A few manufacturers offer bolt action or pump action[67][68] AR-15 style rifles incapable of semi-automatic fire.[69] These are most commonly marketed in jurisdictions where ownership of semi-automatic rifles is heavily restricted, such as in the United Kingdom. One manufacturer has even invented a non-semi-automatic firearm that fires one shot with each pull of the trigger, although none have yet entered the market.[70] Comparison to military versions The semi-automatic civilian AR-15 was introduced by Colt in 1963. The primary distinction between civilian semi-automatic rifles and military assault rifles is select fire. Military models are equipped with multiple firing modes: semi-automatic fire, fully automatic fire mode and/or burst fire mode, in which the rifle fires several rounds in succession when the trigger is depressed. Most AR-15 components are interchangeable between semi-auto and select fire rifles including magazines, sights, upper receiver, barrels and accessories.[71][72] The military M4 carbine typically uses a 14.5-inch (37 cm) barrel. Civilian rifles commonly have 16-inch (41 cm) or longer barrels to comply with the National Firearms Act.[73] To prevent a civilian semi-automatic AR-15 from being readily converted for use with the select fire components, several features were changed. Parts changed include the lower receiver, bolt carrier, hammer, trigger, disconnector, and safety/mode selector. The semi-automatic bolt carrier has a longer lightening slot to prevent the bolt's engagement with an automatic sear. Due to a decrease in mass, the buffer spring is heavier. On the select-fire version, the hammer has an extra spur which interacts with the additional auto-sear that holds it back until the bolt carrier group is fully in battery, when the automatic fire is selected.[74] Using a portion of the select fire parts in a semi-automatic rifle will not enable a select fire option (this requires a registered part with the ATF). Lower receivers that are select-fire are identified by a pinhole above the safety/mode selection switch.[75][76][77][78] As designed by Colt, the pins supporting the semi-auto trigger and hammer in the lower receiver are larger than those used in the military rifle to prevent interchangeability between semi-automatic and select-fire components. The pivot pin may also be slightly larger in diameter.[79][80] Production and sales The first version produced for commercial sale by Colt was the SP1 model AR-15 Sporter in .223 Remington, with a 20-inch (51 cm) barrel and issued with five-round magazines.[21] Initial sales of the Colt AR-15 were slow, primarily due to its fixed sights and carry handle that made scopes difficult to mount and awkward to use.[81] Military development of the compact M4 carbine encouraged production of a 16-inch (41 cm) barreled civilian SP1 carbine with a collapsible buttstock beginning in 1977. These carbines have become popular for police use in confined urban spaces, and the collapsible buttstock compensates for the additional thickness of body armor. The shorter barrel reduced bullet velocity by about five percent, and bullet energy by about 10%. The shorter barrel required moving the gas port closer to the chamber, requiring the self-loading system to higher pressures and temperatures which increased stress on moving parts like the bolt lugs and extractor. Although Colt offered a heavier 20-inch barrel for improved accuracy beginning in 1986, increased barrel weight may impair ergonomic balance; so shorter barrels have dominated recent rifle production.[82] American Tactical OMNI AR-15 style rifle (lower in polymer), 5.56×45mm NATO caliber, with Millett DMS-1 scope and FAB Defense stock and grips In the 1990s, sales of AR-15 style rifles increased dramatically, partly as a result of the introduction of the flat top upper receiver (M4 variant) which allowed scopes and sighting devices to be easily mounted as well as new features such as free floating hand guards that increased accuracy.[81] While only a handful of companies were manufacturing these rifles in 1994, by the 21st century the number of AR-15 style rifles had more than doubled.[83] From 2000 to 2015, the number of manufacturers of AR-15 style rifles increased from 29 to an estimated 500.[84] AR-15 style rifles are now available in a wide range of configurations and calibers from a large number of manufacturers. These configurations range from standard full-sizes rifles with 20-inch (51 cm) barrels, to short carbine-length models with 16-inch (41 cm) barrels, adjustable length stocks and optical sights, to long range target models with 24-inch (61 cm) barrels, bipods and high-powered scopes.[85] In September 2019, Colt Firearms announced it was discontinuing production of the AR-15 for the consumer market, citing "significant excess manufacturing capacity" across the industry and the company's "high-volume contracts" with military and police forces that were "absorbing all of Colt's manufacturing capacity for rifles". [86] However, in 2020, Colt resumed production of the AR-15, following a surge in demand in the United States consumer market.[87] Estimates vary as to how many of the rifles are owned in the United States. The National Shooting Sports Foundation estimated in 2016 that approximately 5 million to 10 million AR-15 style rifles existed in the U.S.

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A handguard usually encloses the barrel and is attached to the upper receiver, and depending on the handguard, also attached to the barrel's gas block.[32] Folding stocks AR-15 style rifles may have folding or collapsible stocks which reduce the overall length of the rifle when folded, although some designs of the stock folding device may not allow the firearm to be fired until unfolded, or only fire once until unfolded.[41] A few manufacturers have made full upper receivers,[42] or even "bufferless" bolt carrier systems where the buffer system is wholly contained in the upper receiver, and therefore does not use the buffer tube, which allows for firing while the stock is in the folded position, or removal of the stock altogether.[43] Gas system design The standard design includes a gas block and tube, allowing burnt powder gas back into the bolt carrier assembly where it expands in a variable volume chamber forcing the bolt open to the right side, and operation of the safety from the right side, respectively.[56] Calibers Main article: List of rifle platform cartridges § AR-15 cartridges The AR-15 is interchangeably chambered in .223 Remington or 5.56×45mm NATO, with the .223 Wyldie chamber allowing for the chambering of both, but many variants have been produced in different calibers such as .22 LR, 7.62×39mm, 9×19mm Parabellum,[57] 6.5mm Grendel, and shotgun calibers.[58] Some of these firearms chambered in smaller calibers such as 9mm or .22 utilize simple blowback[59] or delayed blowback[60] operating principles instead of the default direct impingement/internal-piston based operating system, as insufficient gas pressure or volume is produced by the round to cycle the action, or the simpler blowback system is sufficient and may allow removal of the rear buffer tube and spring. Compliance with state or local restrictions Some AR-15 style rifles limit use of detachable magazines to comply with state regulations.[61][62] Nearly all versions of the civilian AR-15 have a pistol grip like the military versions, but as the pistol grip is generally removable, grips and stocks that comply with various restrictions are available. [63] While AR-15-style rifles are banned in New York City, the FightLite SCR has been explicitly allowed, even though it accepts standard AR-15 upper receivers.[64][65] The SCR lower receiver differs from the standard AR-15 lower receiver in that it uses a Monte Carlo stock instead of a pistol grip, which may allow it to be legally possessed in jurisdictions with assault weapon restrictions in place. It also uses a proprietary bolt carrier due to the angled buffer tube, and a proprietary fire control group that moves the trigger rearward.[66] A few manufacturers offer bolt action or pump action[67][68] AR-15 style rifles incapable of semi-automatic fire.[69] These are most commonly marketed in jurisdictions where ownership of semi-automatic rifles is heavily restricted, such as in the United Kingdom. One manufacturer has even invented a non-semi-automatic firearm that fires one shot with each pull of the trigger, although none have yet entered the market.[70] Comparison to military versions The semi-automatic civilian AR-15 was introduced by Colt in 1963. The primary distinction between civilian semi-automatic rifles and military assault rifles is select fire. Military models are equipped with multiple firing modes: semi-automatic fire, fully automatic fire mode and/or burst fire mode, in which the rifle fires several rounds in succession when the trigger is depressed. Most AR-15 components are interchangeable between semi-auto and select fire rifles including magazines, sights, upper receiver, barrels and accessories.[71][72] The military M4 carbine typically uses a 14.5-inch (37 cm) barrel. Civilian rifles commonly have 16-inch (41 cm) or longer barrels to comply with the National Firearms Act.[73] To prevent a civilian semi-automatic AR-15 from being readily converted for use with the select fire components, several features were changed. Parts changed include the lower receiver, bolt carrier, hammer, trigger, disconnector, and safety/mode selector. The semi-automatic bolt carrier has a longer lightening slot to prevent the bolt's engagement with an automatic sear. Due to a decrease in mass, the buffer spring is heavier. On the select-fire version, the hammer has an extra spur which interacts with the additional auto-sear that holds it back until the bolt carrier group is fully in battery, when the automatic fire is selected.[74] Using a portion of the select fire parts in a semi-automatic rifle will not enable a select fire option (this requires a registered part with the ATF). Lower receivers that are select-fire are identified by a pinhole above the safety/mode selection switch.[75][76][77][78] As designed by Colt, the pins supporting the semi-auto trigger and hammer in the lower receiver are larger than those used in the military rifle to prevent interchangeability between semi-automatic and select-fire components. The pivot pin may also be slightly larger in diameter.[79][80] Production and sales The first version produced for commercial sale by Colt was the SP1 model AR-15 Sporter in .223 Remington, with a 20-inch (51 cm) barrel and issued with five-round magazines.[21] Initial sales of the Colt AR-15 were slow, primarily due to its fixed sights and carry handle that made scopes difficult to mount and awkward to use.[81] Military development of the compact M4 carbine encouraged production of a 16-inch (41 cm) barreled civilian SP1 carbine with a collapsible buttstock beginning in 1977. These carbines have become popular for police use in confined urban spaces, and the collapsible buttstock compensates for the additional thickness of body armor. The shorter barrel reduced bullet velocity by about five percent, and bullet energy by about 10%. The shorter barrel required moving the gas port closer to the chamber, requiring the self-loading system to higher pressures and temperatures which increased stress on moving parts like the bolt lugs and extractor. Although Colt offered a heavier 20-inch barrel for improved accuracy beginning in 1986, increased barrel weight may impair ergonomic balance; so shorter barrels have dominated recent rifle production.[82] American Tactical OMNI AR-15 style rifle (lower in polymer), 5.56×45mm NATO caliber, with Millett DMS-1 scope and FAB Defense stock and grips In the 1990s, sales of AR-15 style rifles increased dramatically, partly as a result of the introduction of the flat top upper receiver (M4 variant) which allowed scopes and sighting devices to be easily mounted as well as new features such as free floating hand guards that increased accuracy.[81] While only a handful of companies were manufacturing these rifles in 1994, by the 21st century the number of AR-15 style rifles had more than doubled.[83] From 2000 to 2015, the number of manufacturers of AR-15 style rifles increased from 29 to an estimated 500.[84] AR-15 style rifles are now available in a wide range of configurations and calibers from a large number of manufacturers. These configurations range from standard full-sizes rifles with 20-inch (51 cm) barrels, to short carbine-length models with 16-inch (41 cm) barrels, adjustable length stocks and optical sights, to long range target models with 24-inch (61 cm) barrels, bipods and high-powered scopes.[85] In September 2019, Colt Firearms announced it was discontinuing production of the AR-15 for the consumer market, citing "significant excess manufacturing capacity" across the industry and the company's "high-volume contracts" with military and police forces that were "absorbing all of Colt's manufacturing capacity for rifles". [86] However, in 2020, Colt resumed production of the AR-15, following a surge in demand in the United States consumer market.[87] Estimates vary as to how many of the rifles are owned in the United States. The National Shooting Sports Foundation estimated in 2016 that approximately 5 million to 10 million AR-15 style rifles existed in the U.S.

[88][89][90] Ambidextrous lower receivers, magazine releases, and safety levers have also been produced, although it did not affect rifles with fewer listed features.[4][5] After the term modern sporting rifles was coined in 2009 by the US National Shooting Sports Foundation, a firearms trade association, it was quickly adopted by much of the industry.[6][7] In the 2010s, AR-15-style rifles became one of the "most beloved and most vilified rifles" in the United States, according to The New York Times. The rifles are controversial in part due to their use in high-profile mass shootings.[8] Promoted as "America's rifle" by the National Rifle Association, AR-15-style rifles' popularity is partially attributable to active restrictions, or proposals to ban or restrict them.[9][10][11][12] Terminology A common misconception is that "AR" is an acronym for "assault rifle",[13] perhaps because of the weapon's inclusion in the Federal Assault Weapons Ban in 1994 or because the ArmaLite AR-15 was designed by infantry rifle designer Eugene Stoner to replace the M14 rifle in the Vietnam War.[14] The "AR" in AR-15 stands for "ArmaLite Rifle".[15] The Colt AR-15 is closely related to the military M16 and M4 Carbine rifles, which all share the same core design, first patented for use in the AR-10, featuring a gas-operated, rotating bolt (combined with an integral piston) instead of conventional direct impingement, operating system patented under U.S. Patent 2,951,424 by Eugene Stoner.[16][17] The term "AR-15" is now most-commonly used to refer only to the civilian variants of the rifle which lack the fully automatic function.[18] 1973 Colt AR-15 SP1 rifle with 'slid slide' lower receiver (lacking raised boss around magazine release button) and original Colt 20-round box magazine Members of New Black Panthers with AR-15 style rifles In 1956, ArmaLite designed a lightweight selective fire rifle for military use and designated it the ArmaLite model 15, or AR-15.[19][14] Due to financial problems and limitations in terms of manpower and production capacity, ArmaLite sold the design and the AR-15 trademark along with the ArmaLite AR-10 to Colt's Manufacturing Company in 1959.[20] In 1964, Colt began selling its own version with an improved semi-automatic design known as the Colt AR-15.[21] After Colt's patents expired in 1977, an active marketplace emerged for other manufacturers to produce and sell their own semi-automatic AR-15 style rifles.[1] Some versions of the AR-15 were classified as "assault weapons" and banned under the Public Safety and Recreational Firearms Use Protection Act in 1994 within the United States. This act expired in 2004.[4][22] In 2009, the term "modern sporting rifle" was coined by the National Shooting Sports Foundation for its survey that year as a marketing term used by the firearms industry to describe modular semi-automatic rifles including AR-15s.[23][6][24][18] Today, nearly every major firearm manufacturer produces its own generic AR-15 style rifle.[25][24] As Colt continues to own and use the AR-15 trademark for its line of AR-15 variants, other manufacturers must use their own model numbers and names to market their AR-15 style rifles for commercial sale.[26] Under US law, when manufactured with a barrel length less than 16 inches (410 mm) and without a shoulder stock, it is legally considered a pistol as opposed to being a short-barreled rifle.[27] and is described as an AR-15 style pistol. The lower receiver is legally defined as a firearm under United States federal law. However, this definition may be questionable due to several court rulings (or government dismissals to avoid rulings) that the AR-15 lower receiver does not match the legal definition in 27 CFR § 479.11.[28][29][30] though a 2021 case from the Eighth Circuit found otherwise.[31] Modularity and customization While most earlier breach-loading rifles had a single receiver housing both the trigger and reloading mechanism, an innovative feature of the AR-15 was modular construction to simplify substitution of parts and avoid need for arsenal facilities for most repairs of malfunctioning military rifles.[32] A distinctive two-part receiver is used by both military and sporting AR-15 style rifles. 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