Nomenclature

This section will deal with the physicality of the patrol rifle: its parts, how to take it apart, how it works, and how to take care of it in order to keep it operating correctly. We will concentrate on the AR-15/M-16 carbine which is the most prevalent model used by law enforcement. Differences between the carbine and the rifle will be noted, and comments about differences with the Ruger Mini-14 will be addressed as they come up.

Before we start, a safety note:

Anytime one of these ARs is picked up, the handler should manipulate it with the strong hand on the pistol grip, trigger finger straight alongside the lower receiver, and the strong thumb should be resting on top of the horizontal safety lever (selector). Grabbing the pistol grip is easy as that is what it was designed for, straightening the trigger finger to index is not natural and must be trained, and the thumb on top of the safety gives immediate tactile knowledge that the selector is on “safe” (lefties can use their trigger finger on the selector). Some instructors around the country refer to this manipulation skill as the “Tactical Index”. From day one a student should be mandated to handle these weapons in this fashion as this is the way they should be handled in the class room, on the range, and in the street. As an instructor you need to ensure that you not only model, but enforce this behavior.

Now, understand this: not all AR-15/M-16 type rifles are the same!!! Only Colt and FN have made M-16 rifles and M-4 carbines good enough for the US military. There is a perfectly good reason for this, the US Government owns the Technical Data Package (TDP), the blueprints and required specifications of the M-16/M-4 rifles, and has only allowed Colt and FN access to them. All other manufacturers can only try to reverse engineer these firearms or re-design them as they see fit. The quality of the materials used is up to these individual manufacturers but is mandated to Colt and FN by the TDP. Some materials cannot even be obtained by other manufacturers, like barrel steel. The steel used by COLT and FN is a special government-blend that is close to a standard chromoly 4150 steel that is used by some manufacturers, while others use a lesser CM 4140. There is a reason why there is such a price difference in the AR market and quality is that reason. Does LE need a US military-grade AR?? Maybe not. Can we make do with lesser quality firearms?? Maybe so. Your job as your agency’s subject matter expert is to know that there are such differences so that you can steer your agency’s decision making to issue a suitable patrol rifle.

Hopefully, the following information will give you most of the information that you need to know to help keep you out of trouble. Some will claim that building their own AR is easy; kind of like “Leggos for Adults”, but this is not the case. Try to get Armorer certified so you can learn just how complicated building one can be. Many parts cannot be used from rifle to carbine and military to commercially-made parts vary widely in dimensions and quality. Becoming an Armorer can keep your agency and officers from getting themselves into trouble, not because you’ll know everything but because you’ll learn how much you and others don’t know about the AR-type rifles.
AR-15/M-16 NOMENCLATURE (by Group)

**UPPER RECEIVER GROUP**

**Barrel** – should be chrome-lined for increases barrel life. Barrel length only has to do with velocity, not accuracy

**Flash Suppressor/Compensator** – comp filled in on bottom, some models can be used as expedient wire/chain cutters during an emergency

**Front sight base** – different between flat-top(F) and fixed carry handle, flat-top is taller. Bayonet lug is of no value.

**Rear sight** – there is an A1 or A2 sight and either will work fine on a patrol rifle

**Handguards** – semi-auto have single heat shield and are thinner in diameter than those for full-auto use

**Upper receiver** – fixed or removable carry handles; flat-tops are better for optic use

**Carrying handle** – that’s what it is called but don’t ever use it as such

**Slip ring** -

**Charging handle** – made out of aluminum, don’t use as a tool. A Tac-Latch makes for easier operation but also makes it easier for the bolt to be out of battery.

**BOLT CARRIER GROUP**

**Bolt cam pin** – inferior ones break in half

**Bolt** -

**Bolt carrier** - AR15 different from M-16 in some models and won’t interchange

**Bolt carrier key** – needs to be staked properly to prevent gas leakage, big problem with some manufacturers like Bushmaster

**Gas rings** – splits don’t need to be off-set, replace when bolt carrier slips off bolt

**Extractor** – needs HD extractor spring with black insert; many problems can be traced back to a poor extractor/extractor spring.

**Firing pin** – there is a SA and FA firing pin; small vs. large flange and mixing them up can cause some guns to fail to fire. Should have a trigger pin protrusion gauge if you are replacing FPs

**Firing pin retaining pin** – Have a lot on hand
Ejector – rarely a problem

**LOWER RECEIVER GROUP**

**Action/Buffer spring** – longer in the rifle than the carbine

**Receiver Extension/Buffer Tube** – longer on the rifle than on the carbine; two different diameters as well – military and commercial

**Trigger** – stick with the stock trigger for patrol rifle use

**Pistol grip** – can easily be changed to a more comfortable one as long as you don’t lose the detent spring hiding underneath

**Trigger guard** – causes finder damage during long training periods. Plug gap with Gapper or rolled up ear plug. Certain replacement grips work as well

**Hammer** – don’t snap it forward when the receivers are separated as it will damage the aluminum of the lower receiver

**Takedown pin** – it is a “captured “ pin don’t try to drive it out as you will ruin the receiver

**Stock** – sliding stock is better for duty use as it has more range of adjustment. A2 fixed stock is too long for most everyone and the old obsolete A1 fixed stock is preferable as it is 1” shorter

**Buffer** – completely different and not interchangeable between rifle and carbine. Carbines run best with a “H” buffer with tungsten insert, some run better with a “2H” that has 2 tungsten inserts

**Magazine release** – adjustable for magazine tension/engagement

**Selector/Safety** – *there is absolute no reason for full-auto capability in a patrol rifle that shoots a rifle cartridge.* Any FA gun can be easily converted to SA-only by a very simple and inexpensive parts change. To accommodate lefties, there are ambidextrous selectors and Colt now has a reversible selector lever

**Bolt stop** – mechanically holds the bolt to the rear when an empty magazine is in place, but without an empty magazine the bolt stop holds the bolt back by friction alone and in this condition a small bump may cause the bolt stop to release the bolt

**MAGAZINES** – the magazine is the heart blood of any SA/FA weapons system. DO NOT ISSUE SUB-STANDARD MAGAZINES. Magazines are a consumable and expendable item, they will not last forever so don’t get married to them. When they begin to go bad, destroy them as they cannot be fixed; beat them out of shape and throw them away. Colt magazines are top-of-the-line and are true military-issue and are usually stamped with “33710” on the aluminum body. The new MagPul polymer are good and also quite durable. Use good ones and clean them
when they get dirty. Quality 20 and 30rd magazine are designed to hold those amounts, will function fine at full capacity, and will seat properly under a closed bolt. If you down load each by two rounds to 18 and 28rs respectively, they won’t function any better but they will seat more easily under a closed bolt and that will make reloading easier for all of your students.

**Body/tube** – check the body for any dents that will stop/slow the follower and make sure that the feed lips are straight and parallel

**Spring** – can be replaced with a stronger if necessary but that may stress the aluminum bottom tabs that anchor the floor plate

**Follower** – at a minimum, should be the green military follower in a 30rd, not a black one. MagPul makes some very nice non-tipping replacement followers

**Floor plate** – mil-spec floor plates should be flat and not bent; may be replaced with plastic after-market types that will take more abuse from deropping.
AR-15 FIELD STRIPPING

A. Disassembly

1) Locate the takedown pin on the left side of the lower receiver (Figure #1) and press towards the right side. Then lift the takedown pin until it stops. (Figure #2)

2) Pivot lower receiver down and away from the upper receiver.(Figure #3) Then pull charging handle to the rear, about 2-3 inches, exposing the bolt. (Figure #4) NOTE: For more convenience, the pivot screw from the front can also be removed, which will completely separate the upper and lower receivers.
3) Remove the charging handle by pulling it backwards, with light downward pressure until it comes down out of the keyway, and then out of the receiver. The charging handle rails (Figure #5) will line up with the keyway slots in the upper receiver. (Figure #6)

4) Take the bolt carrier assembly and locate the firing pin retaining pin, on the right side of the carrier. (Figure #7) Then remove the pin with your fingers, or a pointed object. (Figure #8)
5) Tilt the bolt carrier up and remove the firing pin. (Figure #9) When the firing pin is out, look to see if the bolt is extended to the fully forward position. (Figure #10)

![Figure #9](image9.png)

![Figure #10](image10.png)

6) Push the bolt in towards the carrier, until the bolt rotates and comes to a stop. This will cause the cam pin to slightly rotate to the left side and out from under the key. (figure #11) The cam pin is then turned 90 degrees, so it will clear the key when removed. (Figure #12)

![Figure #11](image11.png)

![Figure #12](image12.png)
7) The cam pin is then removed. (Figure #13) The bolt can now be pulled out of the carrier. (Figure #14)

The AR-15 is now broken down into the basic groups for cleaning, upper and lower receivers and the bolt carrier group.
THE CYCLE OF OPERATION OF THE RIFLE IS:

1. Feeding       A round is stripped of the top of the magazine.
2. Chambering    The round is pushed into the chamber by the bolt.
3. Locking       The bolt rotates to align its locking lugs with the chamber’s.
4. Firing        The trigger is pressed; the firing pin strikes the cartridge.
5. Unlocking     The bolt rotates to permit the bolt carrier to move rearward.
6. Extracting    The expended brass is pulled from the chamber.
7. Ejecting      The expended brass is ejected from the upper receiver.
8. Cocking       The bolt carrier moves backward over the hammer, cocking it.

REASSEMBLY

The AR-15 will be reassembled in the reverse order of the disassembly.

1) Insert the bolt into the carrier so that the extractor is at a 45 degree angle, to the key, as you look at the bolt face. (Figure #1) This will line up both of the cam pin holes. (Figure #2)
2) Insert the cam pin so that the long side of the rectangle shaped top is even with the key. (Figure #3) Then rotate the cam pin so that the short side is now even with the key. (Figure #4)

3) Hold the bolt carrier so that the bolt is facing downward and then insert the firing pin into the back of the carrier. (Figure #5) The firing pin should drop into place, even with the inside bottom of the carrier. (Figure #6)

4) Insert the firing pin retaining pin into the small hole on the left side of the bolt carrier and ensure that the pin is completely seated.
5) Insert the charging handle into the upper receiver, while allowing about three inches of the charging handle to extend out from the receiver. (Figure #7) Then insert the bolt carrier into the back of the receiver, while keeping the key aligned with the groove under the charging handle. (Figure #8)

![Figure #7](image1)

![Figure #8](image2)

6) Push the bolt carrier and the charging handle into the upper receiver, until the charging handle locks into place.

7) Close the upper receiver and insert the rear takedown pin to lock into place.

The rifle is now ready for a function check. This should be done every time that the rifle is disassembled.
FUNCTION CHECK AR-15

ENSURE THE AR-15 IS UNLOADED

1. COCK THE RIFLE BY PULLING THE CHARGING HANDLE ALL THE WAY TO THE REAR AND RELEASING, AND THEN PLACE THE SAFETY “ON”.

2. SQUEEZE THE TRIGGER. *NOTHING* SHOULD HAPPEN.

3. PLACE THE SAFETY ON SEMI-AUTOMATIC.

4. SQUEEZE THE TRIGGER AND HOLD TO THE REAR.

5. THE HAMMER SHOULD FALL. (THE HAMMER IS NOW FORWARD)

6. WHILE STILL HOLDING THE TRIGGER TO THE REAR, COCK THE WEAPON, AND SLOWLY RELEASE PRESSURE ON THE TRIGGER.

7. THE SEAR SHOULD ENGAGE, EVIDENT BY AN AUDIBLE “CLICK” NOISE. (THE HAMMER IS TO THE REAR)

8. PULL THE TRIGGER. THE HAMMER SHOULD FALL.

9. COCK THE WEAPON, LOCK THE BOLT OPEN TO THE REAR AND PLACE THE RIFLE ON SAFE.

10. THE RIFLE IS NOW SAFE.
Explanation of "Mil-Spec" features of Commercially Available M4 Carbines

By Robert W Sloyer III

Without the information in the explanations below, the Chart(s) on the following tabs of this file are all but worthless. It is critical, when considering an M4-pattern carbine, to ensure that you understand the list of features and can figure out for yourself if a specific feature is applicable to your intended use. If a sufficient number of the features below and on The Chart are not applicable to your use, then perhaps an M4-pattern carbine is not the right choice for you.

So, what is an M4-pattern carbine? The true M4 is a select-fire military-issued shortened version of the M16 with a collapsible stock, 14.5" barrel, and flat-top upper (with Picatinny rail system) in place of the old A2 carry handle. Obviously what we are discussing here are non-NFA firearms which means that they are not select-fire and have a barrel length of at least 16".

BOLT CARRIER GROUP

The first six items listed on the chart pertain to the bolt and/or carrier, commonly referred to as the "Bolt Carrier Group" or BCG. This is the part that moves back and forth in the upper receiver chambering fresh rounds, extracting and ejecting empty rounds, and generally ensuring that your rifle or carbine operates as it should. As such, in terms of reliability, the BCG is the heart of the gun, and having as high a quality BCG that is assembled correctly out of the correct materials and which has been properly checked for flaws is key to the continued reliability of the AR-platform firearm. The first four items refer to the bolt itself, while the remaining two deal with the carrier.

Shot Peened Bolt

There are many resources available online as to the exact process and how it affects the structure of the part at the molecular level, but essentially the goal is to increase the resistance of metal to fatigue. The bolt, in the performance of it's duties, is put under a considerable amount of stress as the gun fires. Ensuring that this part lasts as long as possible is key to the continued reliability of the firearm over time, and increasing the resistance of the part to fatigue increases it's service life.

More information on shot peening can be found here
http://en.wikipedia.org/wiki/Shot_peening

High Pressure Test (HPT) Bolt

This is also sometimes referred to as "proof loading" or "proof firing". Essentially it is a test fire of the bolt (and barrel) in order to subject the part to a pressure that could cause it to fail in use. This is a preparatory step in order to prepare the part for the next step. Not all companies perform this step and prefer to "batch test" their bolts and barrels, or to test a representative sample of each batch.

More information on proof testing can be found here
http://en.wikipedia.org/wiki/Proof_test
Magnetic Particle Inspection (MPI) Bolt
Like shot peening, there are resources available online as to what the exact process is and how it works, but the intended purpose is to check for surface cracks in the part that may not be detectable by the naked eye and that may have been caused by the HPT. Not all companies perform this step and prefer to "batch test" their bolts and barrels, or to test a representative sample of each batch. This is a crucial step following the HPT in order to observe the results. More information on MPI can be found here http://en.wikipedia.org/wiki/Magnetic_particle_inspection

Black Extractor Spring Insert
The crucial element here is, in fact, the 5-coil extractor spring which the black insert indicates as there is some debate as to the actual chemical or physical properties of the insert itself as compared to the rifle version which comes with the 4-coil spring and is blue. The shorter gas system of the carbine makes for a sooner an more violent operation of the BCG which can cause the extractor on the bolt to jump over the rim of the case and not properly extract the empty case. To some degree this can be mitigated by gas port size, but beefing up the spring tension to cause the extractor to clamp more tightly on the case ensures proper function. More information on extractor springs and inserts can be found here http://www.m4carbine.net/showthread.php?t=14310

M16 Bolt Carrier
The M16 bolt carrier serves two functions. The first is that the firing pin is fully shrouded so that the hammer is cocked by the carrier and not the firing pin itself. The second is that the M16 bolt carrier is heavier and therefore increases "lock time" (or the amount of time that the empty case after the primer is struck by the firing pin) which aids in extraction. The heavier carrier also reduces the felt recoil impulse which in turn reduces wear and tear on the other internal parts of the carbine. More information on M16 vs. AR15 carriers can be found here http://www.m4carbine.net/showthread.php?t=14534

Properly Staked Gas Key
The gas key on top of the bolt carrier is the part that the gases (which have been re-directed through the gas port, then the gas block or front sight base, and into the gas tube) pass through in order to expand within the carrier, push back on the carrier against the bolt, unlock the bolt and cycle the firearm. As such it is under tremendous pressure and is critical to the continued operation of the firearm, and must remain sealed in order to allow all of the gas pressure into the carrier to do it's job. The key is held on to the top of the carrier by two screws, typically allen but sometimes torx, that are tightened to a specified torque. After tightening the metal of the key should be "staked" in such a way as to prevent the screws from loosening. In order for the staking to perform it's job properly it must deform the metal of the key sufficiently to make contact with, and perhaps even deform a bit, the attachment screws. Use of Locktite is not sufficient, as virtually all versions of Locktite are weakened by heat. More information on staking of carrier keys can be found here http://m4carbine.net/showthread.php?t=6993
BARREL
The barrel rivals the bolt in terms of how critical it is to the long term reliability and functionality, as well as accuracy of the firearm. Clearly, accuracy may be sacrificed to some degree in favor of longevity in terms of a chromoly and chrome-lined barrel. The features that are included in the barrel section, the next eight items on the chart, are all related to the longevity of the barrel as well as the reliability of the firearm, with some features being somewhat optional as they pertain to use of certain projectiles and other shooter-defined needs.

Milspec Barrel Steel
No term used in the chart has elicited more of a negative reaction than "mil-spec". As such every effort has been made to remove it from The Chart wherever possible. In the case of the barrel, however, it remains. The short version of the story is that barrels are typically made from two grades of chromoly steel, 4140 and 4150, with the latter being a slightly higher grade that withstands heat slightly better than the former. The long version involves very specific types of steel, much longer numbers, and is in fact generally considered to be of little consequence. There are, however, other grades and/or types of steel that meet or exceed the properties of 4150 and are therefore acceptable.
More information on barrel steel can be found here
http://www.m4carbine.net/showthread.php?t=7263

High Pressure Test (HPT) Barrel
This means the same thing, and is done for the same reason, as the HPT of the bolt.

Magnetic Particle Inspection (MPI) Barrel
This means the same thing, and is done for the same reason, as the MPI of the bolt.

Chrome Chamber and Bore
Chrome-lining of the chamber and bore serve to protect both from corrosion due to the heat of combustion of the gunpowder in the bullet as well as "neglect" in humid or other harsh environments. The chamber and bore are directly related to the accuracy potential of a firearm, and damage to either in the form of pitting will negatively impact the accuracy potential. The trade off is that chrome is often applied unevenly, at the microscopic level, meaning that it may negatively affect the accuracy potential in and of itself. The potential for damage due to other factors is generally considered greater than the small amount of uneven application and so chrome-lining is generally considered desirable. No, it cannot be added after the fact as barrels intended for chrome-lining are first slightly overbored with the lining then reducing the internal diameter to the proper dimension.

5.56 Chamber
There is a common misconception that .223 and 5.56 are the same thing. They are not. 5.56 is often loaded to a higher pressure, among other things, which is the most critical issue. There are other dimensional differences pertaining to throat, bullet seat, etc. but what it comes down to in practical terms is that you can shoot .223 in a 5.56 chamber but the reverse is not a good idea. Generally speaking the barrel will be marked with one or the other but unfortunately those
markings cannot always be trusted. If you think you may ever shoot 5.56 ammunition it is a
good idea to get a 5.56 chamber from a maker that can be trusted.
More information about chamber dimensions can be found here
http://www.ammo-oracle.com/body.htm

1:7 Rifling Twist
Another common misconception is that bullet weight determines the optimal rifling twist. This
is incorrect in that it is actually bullet (projectile) length that should be used to determine the
twist rate. Generally speaking, however, the heavier bullets are also longer so while technically
incorrect it is common to say that a 1:7 twist is more desirable for the heavier 75 and 77 grain
projectiles. Therefore, choosing a barrel twist really comes down to first choosing your
projectile weight, and more correctly, length. If you work for a department that mandates or
issues a certain ammunition then this should be your guide when choosing a rifling twist rate. A
good rule of thumb is that 1:9 will stabilize bullets in the 45 to 62 grain range, and 1:7 will
stabilize bullets in the 55 to 77 grain range. Like all things this is not a given, and any barrel
should be tested with the intended ammunition to ensure the desired results are achieved.
More information about rifling twist and ammunition selection can be found here
http://www.ammo-oracle.com/body.htm

M4 Feedramps
M4 feedramps refers to the feed ramps in the barrel extension being matched up to feed ramps
cut into the upper receiver. The alternative is Rifle feedramps which stop at the end of the barrel
extension and do not continue into the upper receiver. Longer projectiles, soft-point projectiles,
and carbines with faster cyclic rates tend to benefit from the extended M4 feedramps. There are
no known downsides to having the extended feedramps.
More information on feedramps can be found here
http://www.m4carbine.net/showthread.php?t=193

"F" Height Front Sight Base
Front sight bases come in two basic varieties. One is the front sight base intended for use on
carbines and rifles with fixed A2 uppers, the other (The "F") is intended for carbines with flattop
uppers. In order to ensure compatibility with the various aftermarket rear up back iron sights, the
"F" is more desirable. Not all "F" height front sight bases are marked with the "F" (LMT for
example), and some that are marked are not true to the correct height.
More information on front sight bases can be found here
http://www.m4carbine.net/showthread.php?t=14753

Taper Pins at Front Sight Base (FSB)
A minor issue, but taper pins hold the front sight base better and tighter than a straight pin.
Some makers attempt to make up for this by using slightly oversized straight pins that can be
extremely difficult to remove.
More information on taper pins can be found here
**Parkerize under FSB**
Parkerizing under the front sight base (or FSB) is done by very few makers. Most prefer to attach the base to the barrel and then parkerize the assembly as a whole. If parkerized as an assembly, both the outside of the barrel under the rings of the base and the inside of the rings themselves do not get the protective coating of the parkerizing process. There have been some reports of these parts rusting in the unprotected area, but it is unlikely that rust in these locations will affect the function of the carbine.

**Double Heat Shield Handguards**
Obviously this is not an issue of the end user intends to replace the handguards with an aftermarket part, but the proper M4 handguards are larger and contain a dual-layer of aluminum heat shields inside each half. The added diameter and extra shield serve to keep the shooter's hands cooler over prolonged periods of fire.

**RECEIVER EXTENSION**
The receiver extension is the part of the rifle, often mistakenly called the "buffer tube" that extends out from the back of the lower receiver. It not only holds the stock on the rifle but also does act as a tube for the buffer and bolt carrier to move back and forth inside of when the rifle cycles. This receiver extension is held in place by a castle nut which also holds the receiver end plate in place, which in turn holds a spring and detent in place inside the lower.

**1.14" Diameter Receiver Extension**
This is often referred to as the "mil-spec" receiver extension. The alternative to a "mil-spec" receiver extension is the "civilian" or "commercial" receiver extension. There is some debate as to whether or not the mil-spec extension is actually stronger or "better" than the commercial, but for most users the real choice comes down to availability of aftermarket stocks. Some companies, like Magpul with their CTR stock, offer versions for both extensions, but many do not. If you know that your intended stock is available for the commercial receiver extension or if you are happy with the stock your rifle comes with it is most likely not an issue. If, however, you want to change the stock or just keep your options open then the milspec extension is preferred.
Dimensions for a "mil-spec" receiver extension can be found here

Dimensions for a "commercial" receiver extension can be found here

**Staked Castle Nut**
The castle nut is the nut that holds the receiver extension in to the lower receiver and prevents it from backing out. If it backs out, the buffer retainer spring inside the lower can come loose, which in turn can render the carbine inoperable. The best case scenario if your castle nut comes loose is that your stock becomes loose which is also not a good thing. Calling it a "staked castle nut" is somewhat of a misnomer as the part that is staked is actually the receiver endplate. The castle nut itself has small notches on the forward side, and large notches to the rear. The large notches are used for tightening, and the small notches are there so that the receiver endplate can...
be staked to displace metal into the notch on the castle nut, thereby keeping it from turning. With the proper castle nut wrench the staking can be easily overcome to change out the parts, but without the tool the nut will not come loose. Locktite may be a viable solution but is rarely applied correctly and lacks the readily visible check that the staking provides, and may be over-applied to the point of actually being harder to remove than a staked nut. More information on staking of castle nuts can be found here http://m4carbine.net/showthread.php?t=6994

"H" Buffer
The buffer is the weighted part that moves back and forth inside the receiver extension when the rifle cycles. It is held forward by a long spring called the buffer spring, and is kept from moving too far forward by the buffer retainer pin (which is in turn held in place by the receiver extension, see "staked castle nut" above). The buffer and spring provide resistance to the bolt carrier as it cycles and the spring then pushes the bolt and carrier back into battery after the empty case is ejected. A heavier buffer can increase lock time (see "M16 bolt carrier" above) which reduces wear and tear on parts and increases reliability in carbines. The heavier buffer can also decrease felt recoil. It is, however, possible to install a buffer that is too heavy which will not allow the rifle to cycle properly. Typically the "H" buffer is used on carbines with barrels 10-16" with carbine (7.0) length gas tubes. More information on buffers can be found here http://www.m4carbine.net/showthread.php?t=5136

.154" Diameter Fire Control Group (FCG) Pins
At one time, Colt was the only maker of complete rifles that used slightly oversized fire control group (trigger and hammer) pins to prevent the installation of M16 full-auto or burst parts from being installed in the lower. Virtually all aftermarket trigger makers (Timney, Geissele, McCormick, etc.) make trigger groups that utilize the larger pin size so finding aftermarket parts is a non issue. The odd-size pins do become an issue if you own rifles from Colt and other companies as the spare parts in question will not be interchangeable. In addition, finding the proper diameter pins, and the FCG parts they hold in place, for spares from any vendor other than Colt may prove difficult. This issue has been resolved on current-production Colt 6920s as they are now shipping with .154" diameter hammer and trigger pins.
## COMPARISON CHART OF COMMERCIAL AVAILABLE M4 VARIANTS

<table>
<thead>
<tr>
<th>Component</th>
<th>Colt</th>
<th>Noveske</th>
<th>LMT</th>
<th>Charles Daly</th>
<th>S&amp;W</th>
<th>Sabre Defence</th>
<th>Armalite</th>
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080312
I. The Ruger mini-14 rifle is a gas operated, box magazine fed, semiautomatic rifle.

A. Ruger mini-14 rifles are chambered for the .223 Remington (5.56mm) cartridge and are designed to use either standardized U.S. Military or factory loaded sporting .223 cartridges.

II. MINI-14 NOMENCLATURE

A. Flash suppressor: Reduces muzzle flash

B. Barrel

1. **CAUTION**: Rapid firing will cause the barrel to quickly heat to very high temperatures.

   a. Could burn exposed skin

2. The .223 Remington (5.56mm) cartridge is a high velocity round that makes the Ruger Mini-14 susceptible to damage from firing when the bore is obstructed.
Excess oil, grease, or other foreign matter may cause a bore obstruction that could cause damage to the weapon or injury to the operator.

C. Front sight (and bayonet lug assembly on Government model)
   1. The front sight is a blade style sight. It consists of a center blade sight with two blades set at angles to the front sight. Only the center blade is used in the sighting process.
   2. The two wing blades set at angles to the center blade serve merely to protect the front sight from damage and are not to be used in the sighting process.

D. Front sling swivel

E. Hand guard

F. Forearm (stock)

G. Receiver

H. Bolt/Charging handle
   1. Used to manually operate the bolt.
2. Caution: Keep your hand away from the bolt handle while firing the weapon. Injury could occur if your hand gets in between the slide handle and the handguard.

3. Do not manually allow the bolt to go forward while holding the bolt lock plunger down. This will cause a malfunction that may require the weapon to be disassembled before it can be corrected and returned to service.

4. To release the bolt, which allows the bolt to go forward
   a. Remove magazine, draw the bolt handle to the rear and release.
   b. Insert a loaded magazine and draw the bolt handle to the rear and release.

I. Bolt

1. The bolt will be locked back, remaining open, under the following conditions.
   a. The bolt should lock back and remain open when the last round from a magazine is fired.
   b. When the bolt is manually locked to the rear using the bolt lock plunger.

2. Warning: The bolt lock is not a safety device. It should not be used to hold the bolt back when there are cartridges in the magazine.
   a. A slight jar to the butt could cause the bolt to close, chambering a round.
   b. The purpose for the bolt lock is for convenience in the rapid changing of magazines and for holding the bolt to the rear when the rifle is unloaded for the purpose of cleaning or inspection.

J. Bolt lock plunger

1. Located on the top left side of the receiver.

2. Pull the slide handle all the way to the rear, holding in place while you depress the bolt lock plunger and allow the slide to move forward until it stops.

K. Rear sight assembly

1. The rear sight is adjustable for both windage and elevation.

2. A small punch, nail, or other similar item can be used to depress the plunger and allow the sight to move by one-quarter turn in either direction.
   a. One-quarter turn will move the point of impact one (1) inch at 100 yards.
b. Windage adjustment is located on the left side of the rear sight. To move the point of impact to the right, turn adjustment counterclockwise. To move the point of impact to the left, turn the adjustment clockwise.

c. Elevation adjustment is located on the top of the rear sight, behind the sight aperture. To raise the point of impact turn the adjustment counterclockwise. To lower the point of impact turn adjustment clockwise.

L. Magazine 20/30 round capacity

M. Magazine well

N. Front magazine catch

1. This is located at the top front of the magazine well. It is a small metal stud that protrudes from the receiver.

2. The magazine has a hole in the top front that mates with the stud in the magazine well.

3. Inserting the magazine in the rifle.

a. Hold the magazine at an angle and insert it all the way up into the magazine well. **Note; the hole in the top of the magazine must mate with the stud in the receiver. Use only Ruger manufactured magazine as most cheaper after-market magazines are not made correctly and may cause malfunctions.**

b. Pull the bottom of the magazine towards the trigger guard until the magazine latch at the rear of the magazine well engages. Check to be sure that the magazine is securely seated by pulling down.

O. Magazine latch (release)

1. Located at the rear of the magazine well. Push forward, towards the magazine to release the magazine.

2. If the magazine is empty and the rifle is held at a horizontal level the magazine should fall free of the magazine well when the magazine is released.

P. Trigger

Q. Trigger guard
R. Safety

1. The manual safety is located forward of the trigger and is “on” when in the rearward position and intruding into the trigger guard. Officers should practice removing the safety with the trigger finger by pushing forward on the safety with the index finger. The safety should be placed back on by using the trigger finger outside (in front of) the trigger guard. (see section 4 Manipulation)

   a. The safety can be moved to the “on” position only when the hammer is cocked.

   b. When the safety is “on” it blocks both the hammer and sear.

2. Never depend on the safety or any other mechanical device to justify careless handling of the rifle.

S. Stock

T. Sling swivel – rear

U. Butt plate
RIFLE ACCESSORIES

Most military-style rifles, as issued, are acceptable as patrol rifles. Their sights are robust and acceptably accurate, the finish is durable, and the parts are designed to survive on the battlefield. There is a vast array of after-market equipment that can be added to service rifles. Some are excellent, some are ridiculous, and some fall in between. Keep it Simple! Murphy’s Law will prevail! If not properly monitored and attended to batteries may be dead, scopes may be knocked out of alignment, or screws may come loose when it is most critical.

SLINGS
The standard nylon sling is no longer the most common. It was basically a simple nylon strap one inch wide that attaches to the front and rear sling swivels. This simple, inexpensive sling allows use in the “American,” and “African,” modes, but has all but been replaced by the tactical sling.

The tactical sling allows hands-free carry and use of the rifle. The sling is worn over the shoulder and across the back and chest with the muzzle down. The weapon is carried in a natural position that allows rapid deployment of the rifle. It also allows the rifle to be “dropped” for transition, climbing, or handcuffing.

Standard Tactical Sling

Single point Tactical Sling
FLASHLIGHTS

Often police work is done at night or in areas of low visibility; a weapon-mounted flashlight is a mandatory accessory. The light may have a pressure switch attached to the forearm and should have the capability for constant “ON” as well such as the Sure-Fire. The light must be lightweight, compact, and powerful. If a light is used, proper training is critical. The officer should also train with hand-held light techniques for general area searching. See Section 11 “Low Light” for further details.

Weapon Mounted Flashlight

Surefire M951XM07
LASERS

Lasers can be a viable alternate sighting system for agencies that don’t allow optics as they allow the shooter to look at the suspect clearly for any last second evaluation before pressing the trigger. Specialized training is necessary to ensure that the officer is using the laser in conjunction with his sight rather than instead of them. If used in this fashion, the officer will be able to acquire the dot on target faster; and if the laser fails, the officer will already be on his iron sights. Without this specialized training, the officer will try to find the dot and then maneuver onto the target which is a much slower process; if the laser has failed, the officer may continue to try to find the non-existent dot which will slow his response even further. As with the handgun laser, without specialized laser training, the inability to hold the dot rock-steady on the target will cause many trigger-pressers to become trigger-jerkers as they attempt to fire the firearm, at a specific moment in time, when the dancing dot crosses the center of the target. Lasers may assist in shooting from unusual positions, when injured, or when wearing a gas mask. Lasers, when used in hazy/smoky/foggy conditions, can also pinpoint your position and draw fire from the suspect.

BIPODS

Bipods are useless on a patrol rifle. They add weight, are cumbersome, and get caught on things. They are designed for infantry squads and fully-automatic fire, and have no place on a police patrol rifle.

SIGHTS

The factory iron sights are adequate for most applications. The sights are designed to survive continuous abuse and are difficult to improve upon. One possible modification would be a tritium front post for low-light conditions. There is no need for any tritium in the rear aperture as it is too close to the shooter’s eye to be of any value. Note: Some tritium front sight posts are thicker than the standard sight, thereby making long range accuracy less precise during day light situations

MAGAZINE CLAMPS

There are several devices designed to attach two magazines together or to the gun. They add weight and bulk and slightly affect balance. They also can block the bolt release and if not adjusted properly, can block the ejection port. Mag clamps also put more than double the weight on the magazine catch, and leave the top round and feed lips of the second magazine unprotected. However, they do allow an additional magazine to be immediately available. A better option would be the Redi-Mag system which corrects most of the mag clamp problems by attaching a second magazine to the mag well, holding it securely with a second mag catch.
STOCK POUCHES

Stock pouches are available from several manufacturers and allow a spare magazine to be carried at all times; Seattle PD has a 20-rd magazine pouch attached to the stock of each of its issued patrol rifles. However, a stock pouch can interfere with cheek positioning if the weapon is fired from the support-side shoulder. Depending upon configuration, they may also inhibit adjusting the stock or working the charging handle so be sure to test all of these issues after the pouch is attached to the stock.

BELT POUCHES

If the officer has room on the duty belt, a dedicated magazine pouch should be worn. Most manufacturers make a compatible rifle magazine pouch. Another option is a kydex pouch that can be quickly attached to the belt. Some manufacturers use a “paddle” device that slips over the belt, or a simple lock that snaps closed over the belt. If kept with the rifle, the spare magazine can be acquired whenever the rifle is deployed. A **spare magazine should be considered mandatory equipment when an officer deploys with his/her rifle.**

VERTICAL FOREGRIP

![Vertical Foregrip Image]

A spare magazine should be considered mandatory equipment when an officer deploys with his/her rifle.
Vertical fore-grips have become very popular in recent years with M4 and CAR-15 weapons systems. The foregrip allows for a more natural angle with the support hand and many manufactures are incorporating battery storage and/or pressure switches for lights into the grip. These need to be attached to a solid fore-end rail as they can provide enough torque to break plastic handguards with added rail plates.