

Section II

Handgun Basics

While an agency firearms instructor may not need to be an armorer or an expert in all the subtle nuances of ammunition and ballistics, a *basic* knowledge and understanding of the “tools of the trade” is invaluable and necessary to effective teaching. The following section is an attempt to provide a resource to handgun operators and instructors regarding weapon and ammunition nomenclature, functioning, maintenance and a glossary of terms.

Pistol Nomenclature



Glock 22



Heckler & Koch USP 45



Beretta 92F



S & W 5906



Sigarms P228



Heckler & Koch P7

Nomenclature

Field-stripped for cleaning/maintenance:

The semi-auto pistol can be disassembled to four main assembly groups: The slide, the barrel, the recoil spring and guide rod & receiver/frame. The recoil spring and guide rod can be further disassembled on some models. Additionally, the slide stop lever is removed for disassembly of some pistols and considered part of the receiver group. Below are three representative pistols commonly used in law enforcement.



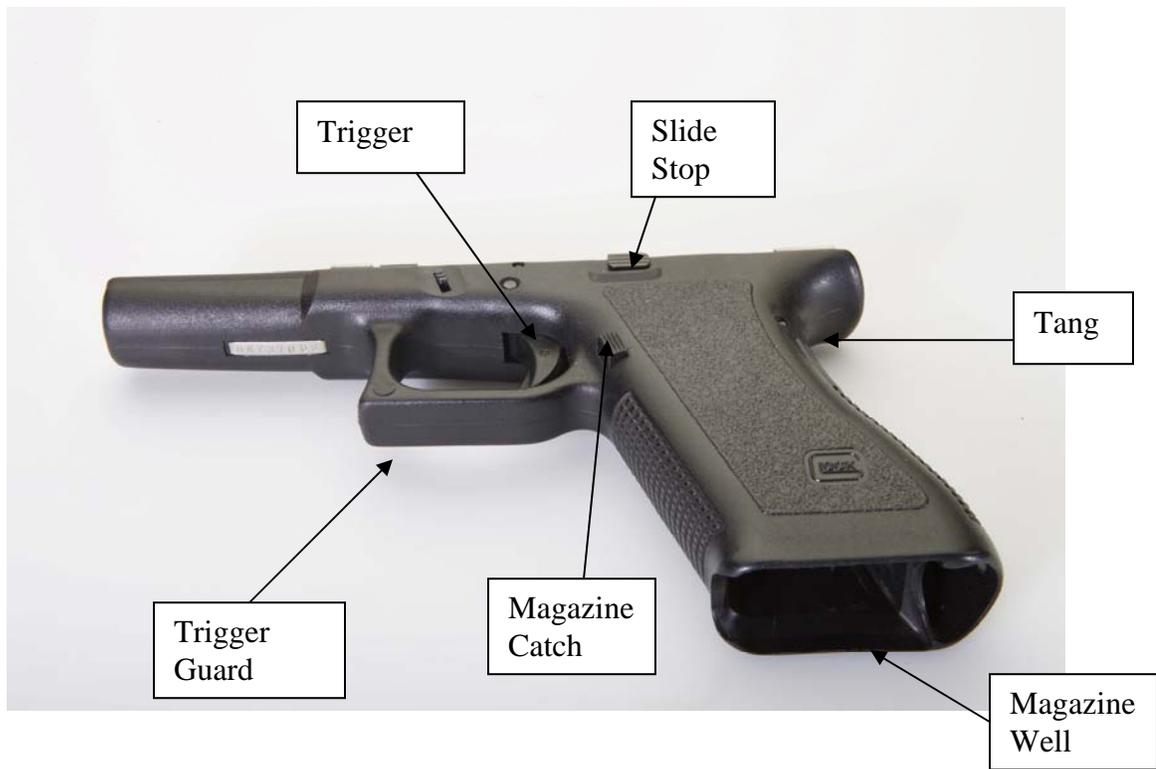
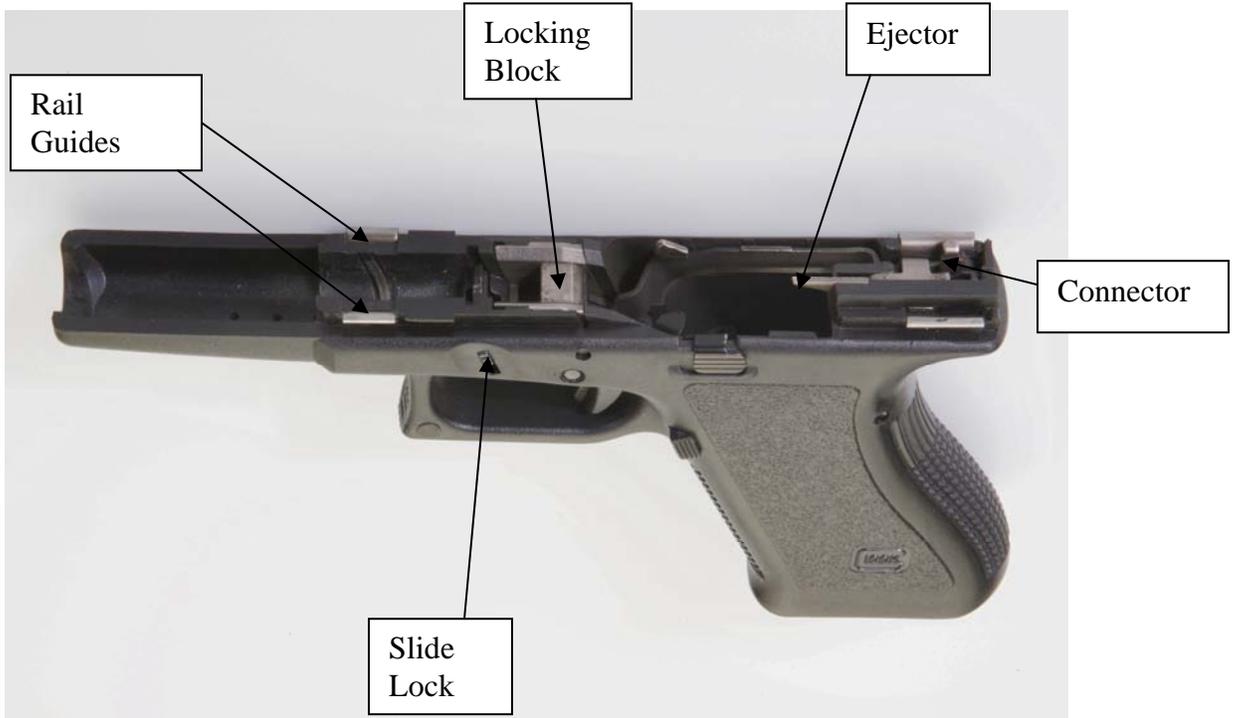
Glock



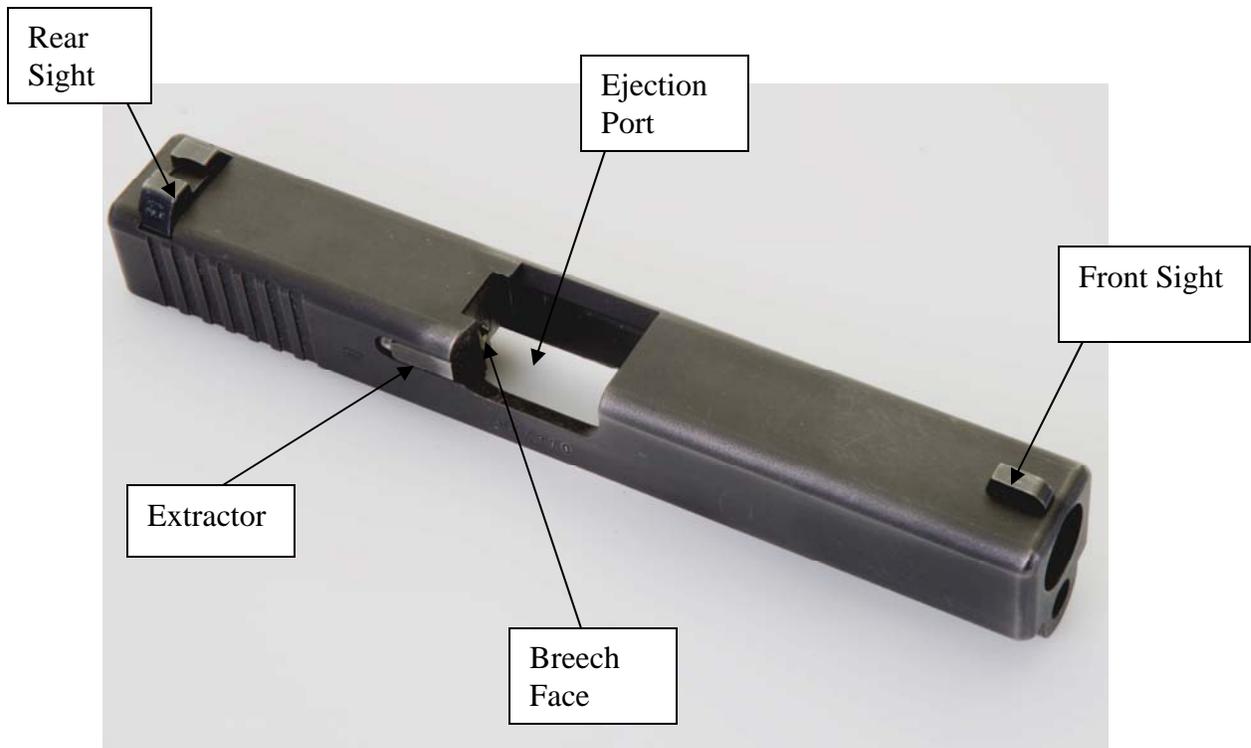
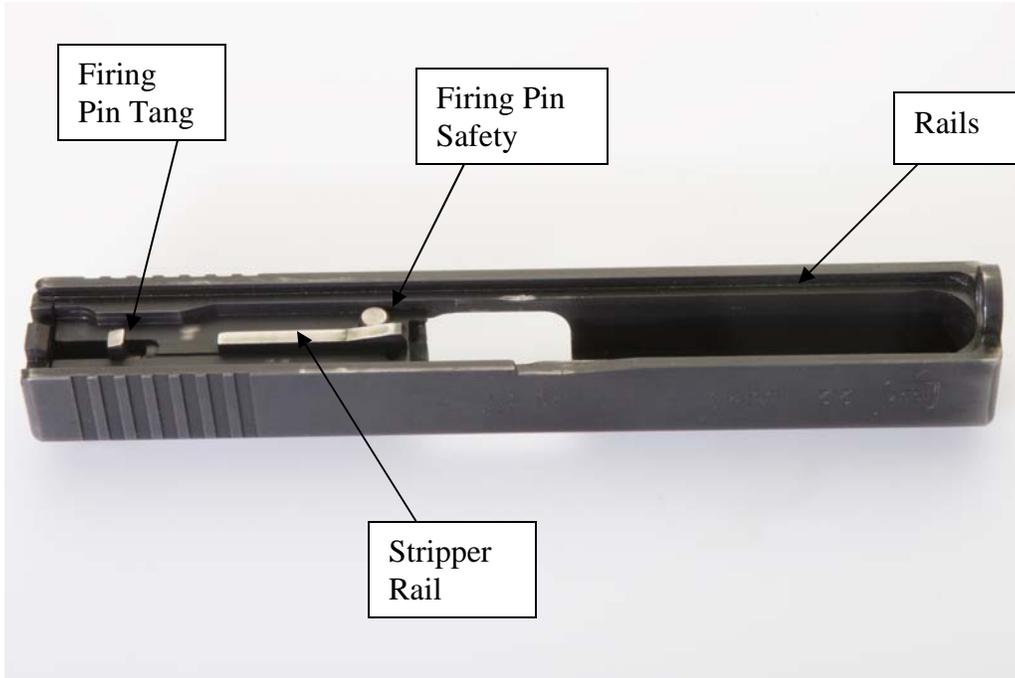
Sigarms

Heckler & Koch

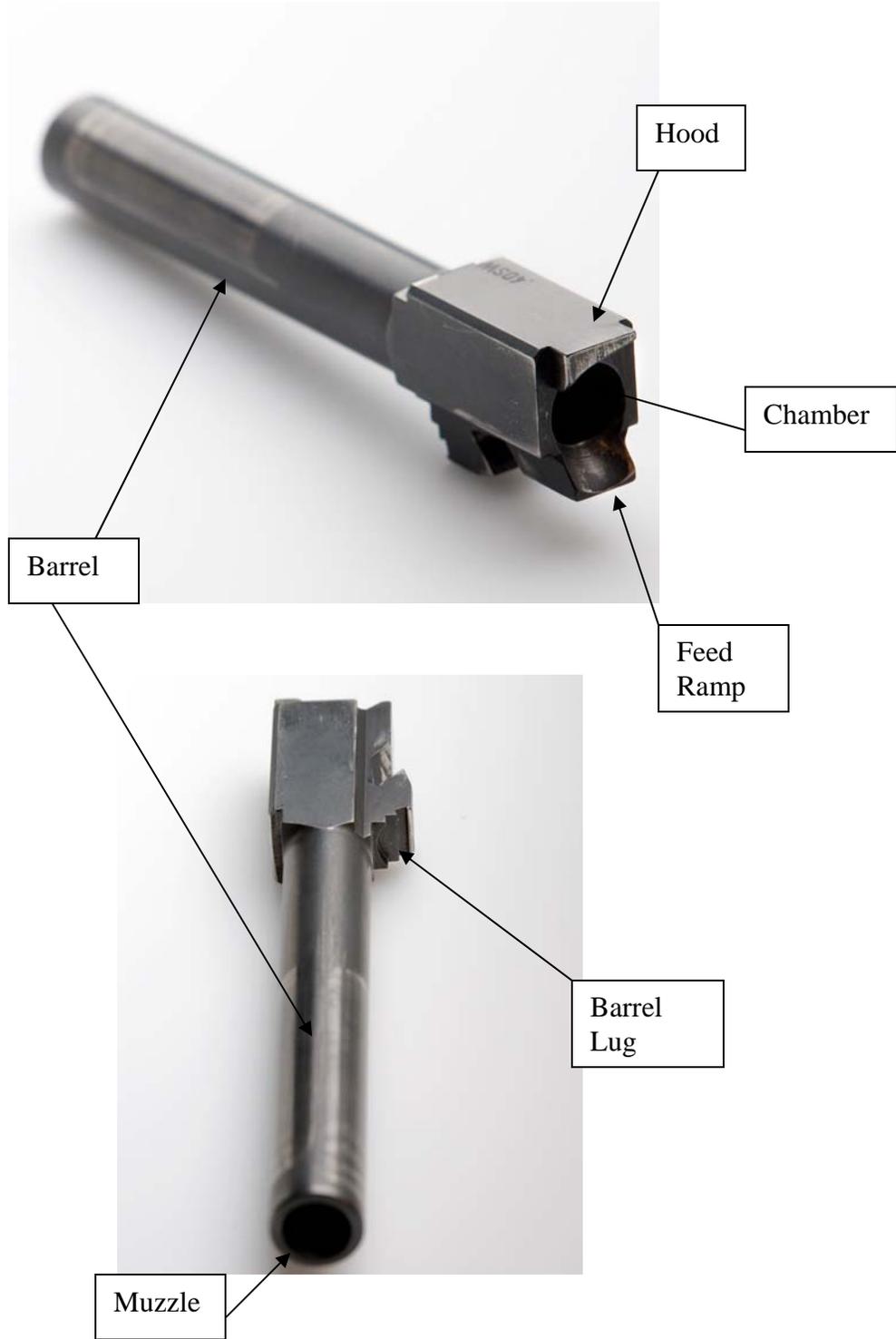
**Nomenclature
Receiver**



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Nomenclature
Slide



Nomenclature
Barrel



Nomenclature

Ammunition

A. Caliber

Caliber refers to the size of the bullet designed to be fired in a specific gun. Unfortunately, not all gun and ammunition manufacturers agree on a consistent unit of measurement when describing the size of a particular bullet. Some bullets are referred to in millimeters, such as 9mm. Others are referred to as units of one inch, such as .40 and .45.

B. Bullet (Projectile)

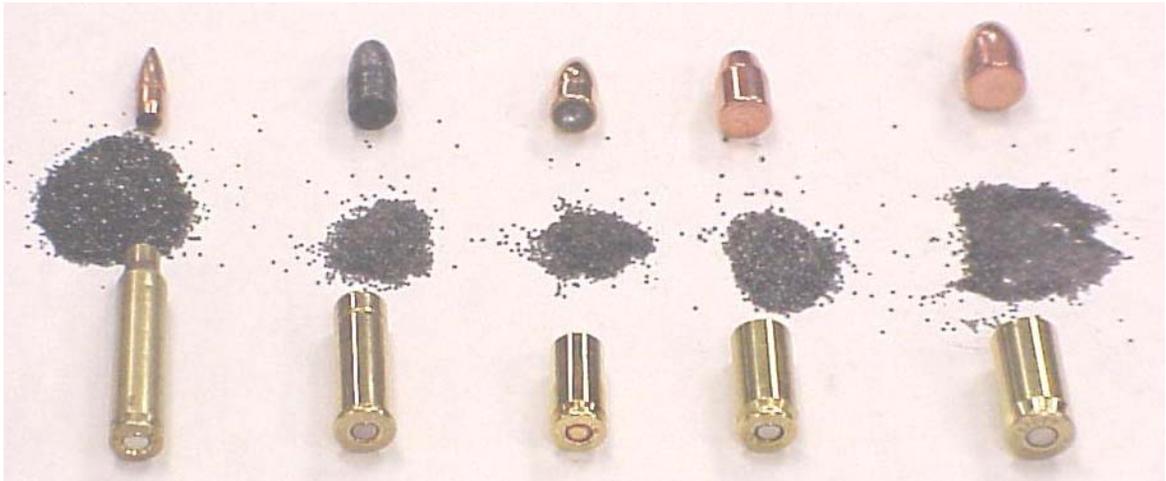
The portion of a cartridge that leaves the barrel of the weapon when it is fired. Generally constructed of a lead core and surrounded by a copper jacket. However, bullets can be made of a mixture of lead, or made entirely of copper. Bullets come in different shapes and may be designed with a hole or slots to add expansion. Bullets are of different diameter, referred to as its caliber (above) and weight designated in units of "grains." "Grains" is the conventional American & British unit of measure used to weigh ammunition components. (7000 grains = 1 lb. or 437.5 grains = one ounce.) Bullets are designed to be fired only from guns, which have the same diameter size or caliber of barrel.



Nomenclature

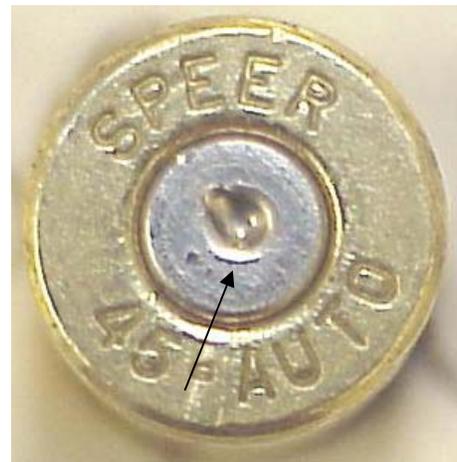
C. Cartridge and Cartridge Case

A loaded round of ammunition ready to be fired is called a cartridge. It consists of a bullet, propellant, primer, and case. The metal shell that holds primer, propellant and bullet is referred to as the cartridge case. Until recently most all cartridge cases were made of brass. Thus empty cartridge cases were commonly referred to as “brass”. Although much of our practice ammunition has cartridge cases made from aluminum we still commonly refer to the empty cartridge cases as “brass”. Most cartridge cases used for duty use are still made of brass.



D. Primer

The small disk located at the rear of the cartridge that, when struck, ignites the propellant/powder inside the cartridge.



Nomenclature

E. Powder

Refers to the propellant that is inside the cartridge case. When ignited by the primer being struck, the burning propellant creates pressure that pushes the bullet spiraling down the barrel and out the muzzle. "Smokeless powder" has replaced "black powder" for use in modern firearms.



F. Head Stamp

Marking on the rear of the cartridge generally identifying the manufacturer and caliber, or size.



Nomenclature

G. Rim

Generally refers to the extruded portion of the cartridge case head, which enables the extractor to remove the cartridge from the chamber or breech. Actually, most semi-automatic handguns used by police today use ammunition which has a “rimless” or semi-rimless” design.



Rimmed 38 Spec



Rimless 9mm



Rimless 40S&W



Rimless 45 ACP



Extractor / Case Rim

Ammunition Issues & Cautions

The firearms instructor may be responsible for determining the make and type of ammunition their agency uses. Even if such decisions are made by others in the administration, the firearms instructor will frequently be asked for input in the decision making process. They must maintain objectivity and resist the persuasive “sales pitch,” and “great deal” as well as the advertised “latest and greatest” round. While *terminal ballistics* (Sec. 2 – Pg. 25) is an important aspect, it is after all, only one factor you must take into consideration. Another issue which must be explored is *functioning* and *reliability* of the ammunition in your specific duty weapon(s). Some rounds may meet all of these needs but may be uncontrollable by some of your smaller-statured personnel due to *excessive recoil*. While *cost* is always an administrator’s consideration it should never be the deciding factor from the perspective of the firearms instructor. Finally, if a different round is used for practice and training, the instructor should ensure that it is equivalent to the duty ammunition in functioning, reliability, and recoil. Duty ammunition should always be used for all weapon qualifications.

Precautions should be taken to ensure that only the *correct caliber* of ammunition is loaded into weapons/magazines. This is especially critical when more than one caliber is being used by personnel in your agency. For example, 9mm cartridges will fit inside of .40 cal. magazines. If this inadvertently happens, and the magazine is loaded into the weapon, adverse consequences can occur. Many times the round is fired if struck by the firing pin. The unsupported cartridge case will rupture and the bullet will ricochet down the barrel. Without a tight fit in the bore, the round will lack velocity to do much more than clear the barrel. This is accompanied by light recoil which is insufficient to cycle the action. Upon occasion, the firing pin does not strike the primer but instead dislodges the round from the grasp of the extractor. The process of clearing the perceived Type I malfunction (failure to fire*) can force the entire cartridge into the bore of the weapon. It will lodge partway down, creating a barrel obstruction compounded by the fact that it contains an explosive charge. To prevent such problems, take steps to keep ammunition of different calibers segregated in the loading areas at your range and remind your personnel to inspect each round they load into their magazines for proper caliber.

Ammunition *stored* at the range or at home should be kept in cool dry conditions.

Duty ammunition carried by personnel should be *rotated* out of circulation on a regular basis and replaced with new. Varying climate conditions make it difficult to give a precise time frame for rotating ammunition but given it’s susceptibility to weather and other contaminants, it is generally recommended to rotate duty ammunition approximately every six months. The procedure of shooting it during qualifications and replacing it with new would be a way to accomplish this task.

Ammunition Issues & Cautions

Duty ammunition should be visually inspected for improperly seated primers or bullets, dented or bulged casings, or any other indication of possible defect before being loaded into the magazine.

When duty weapons are unloaded for cleaning or maintenance, do not place the round removed from the chamber back into the top of the magazine to be re-chambered. Continuous chambering of the same round causes the bullet to be pushed back or seated deeper into the casing thereby potentially increasing chamber pressures and the possibility of malfunctioning.

Ammunition, (especially primers) susceptibility to weather and contaminants requires that all personnel in your agency are trained to regularly inspect the duty ammunition they carry. They must be instructed to keep it away from weapon cleaning and lubricating products. Ammunition should be periodically wiped down with a clean dry, lint-free cloth, as well as each time it is exposed to bad weather conditions.

Weapons with unconventional rifling in the barrels such as the Glock should fire *only jacketed* ammunition (Sec. 2 – Pg. 26) due to the possibility of excessive pressures from lead build up (Sec. 2 Pg. 22)

All personnel should be advised that shooting hand-loaded, reloaded or re-manufactured ammunition will void the factory warranty of the weapon.

Functioning of the Semi-Automatic Pistol

Self-loading or auto-loading firearms fall into three distinct categories when it comes to their modes of operation.

All have the similar characteristics of using the energy generated by the firing of a cartridge to actuate the action and effect the extraction and ejection of the spent cartridge case and then proceed to load a fresh round from the ammunition source. They differ in *how* they make use of this energy and on *what type* of energy they rely upon.

- Recoil operated firearms are generally **closed breech** or **closed bolt** (Sec. 2 – Pg.22) weapons that use a mechanical lock to keep the gun in-battery at the moment of firing. The sheer recoil pushes back on the slide or bolt which will then unlock the mechanism and begin the cycle of extraction, ejection and feeding. An example of recoil operated firearm is the Glock or Model 1911.
- Gas operated firearms use the immense pressure generated by the burning powder or propellant to actuate a piston which reciprocates to do the cycling of ammunition. The M-16 rifle is a gas operated firearm. Though mostly used in rifles where greater pressures are achieved, some gas operated pistols are also manufactured. The desert Eagle is one.
- **Blowback** (Sec. 2 – Pg. 21) operated weapons are simple and oftentimes open-bolt firearms. This means that there is no mechanical locking of the bolt and it is only the inertia of the bolt, the weight of the slide, and the spring tension which keeps it in place at the moment of firing. The cartridge literally blows back on the bolt to actuate the action. The advantages are high cyclic rates without the risk of a cook-off and mechanical and manufacturing simplicity. The major drawbacks are a lowered standard of consistency and accuracy. Popular open-bolt guns are the Uzi and Ingram Mac 10 which are meant for close-in combat where the cyclic rate of fire is needed more than bulls-eye accuracy. Smaller caliber handguns which produce insufficient energy to unlock a locking bolt (.380 cal. and smaller) are examples of blowback operated firearms of a closed bolt design.

Note: While the **revolver** (Sec.2 – Pg.24 & Sec. 10) is indeed a repeater in that you can fire more than one round without reloading, it is not a self loading firearm as in fact the chambers have all been previously loaded by the operator before the cylinder was put into place.

Cycle of Operations

- 1. Firing:**

The trigger is pressed causing the firing pin to strike the primer in the base of the chambered cartridge. The explosive charge of the primer ignites the powder in the cartridge which propels the bullet down the barrel and out the muzzle of the weapon.
- 2. Unlocking:**

The energy from the fired cartridge forces the slide to move to the rear. As it does, it unlocks from the chamber end of the barrel. (The “blowback” operated weapon does not lock and therefore does not have this step in the cycle of operations. As noted above, blowback operated weapons are not commonly used in law enforcement applications)
- 3. Extracting:**

As the slide continues to move to the rear, the extractor, attached to the rim of the empty shell casing pulls the casing backward out of the chamber. As the slide moves to the rear it is compressing the recoil spring.
- 4. Ejecting:**

As the slide continues to the rear, the closed end of the empty shell casing makes contact with the ejector. The ejector contacts the casing off-center causing it to pivot sideways. The continued rearward motion of the slide sends the empty shell casing out of the ejection port.
- 5. Cocking:**

As the slide reaches its rearward limit of travel, the firing pin or hammer is reset and the recoil spring is fully compressed. At this time, the motion of the slide allows the next cartridge in the magazine to be pushed into position by the magazine spring & follower in preparation for the return trip of the slide.
- 6. Feeding:**

The energy from the compressed recoil spring forces the slide to move forward. The stripper rail on the slide, adjacent to the breech face, contacts the closed end (rim) of the cartridge positioned in the lips of the magazine. As the slide continues forward, the new cartridge is stripped from the lips of the magazine. Its bullet makes contact with the feed ramp at the rear of the chamber. The feed ramp guides the nose of the cartridge up towards the chamber.
- 7. Chambering:**

As the recoil spring continues to expand, forcing the slide forward, the nose of the cartridge is forced into the chamber, the rear of the cartridge levels off and the rim slides up behind the extractor.

Cycle of Operations

8. **Locking:**

The energy from the recoil spring is expended as the slide reaches its forward limit of travel **and** the slide is locked into the barrel. (again, this step is not applicable to weapons with blowback action) The weapon is now set up again for a repeat of the cycle of operation.

As long as there are cartridges available the weapon will cycle through each of these steps. Any interruption in the cycle of operation will result in a **malfunction** (Sec. 2 – Pg. 28) or **jam** (Sec. 2 – Pg. 28). Interruptions may be mechanical in nature. They may be caused by broken, weak, worn, or dirty parts on the weapon, or defective ammunition. Frequent inspection and regular, proper cleaning of the weapon will reduce the chances of this occurring. Malfunctions may also be shooter induced. Poor recoil control as well as interference with the movement of the slide by a body part or other object contacting the slide will redirect the energy generated from the fired cartridge which is needed to efficiently cycle the semi-automatic.

Firearm Cleaning & Maintenance

This chapter is intended only to provide a general resource guide and is not intended to be a comprehensive dissertation on all aspects of weapon cleaning or weapon cleaning products and equipment.

Owner's manuals for each specific weapon must be consulted in regards to manufacturer's instructions for assembly, disassembly as well as recommendations and prohibitions regarding cleaning products and procedures. Cleaning product labels should always be read and followed, with special attention paid to precautions and warnings. Failure to do so may cause damage to the weapon and void manufacturer's warranties.

Precautions:

1. Ensure that the proper equipment, tools, solvent, and lubrication are available.
2. Provide a safe location for unloading and loading of the firearm.
3. Eye protection must be available to protect the eyes from splashed cleaning fluids and flying springs.
4. Provide hearing protection in the event compressed air is available for cleaning.
5. Rubber/Latex gloves should be worn to protect hands from cleaning fluids.
6. Hand and eye washing stations must be available.
7. All personnel should read their owners manual and be familiar with assembly and disassembly procedures as well as manufacturers recommendations for maintenance prior to cleaning the weapon.

Equipment:

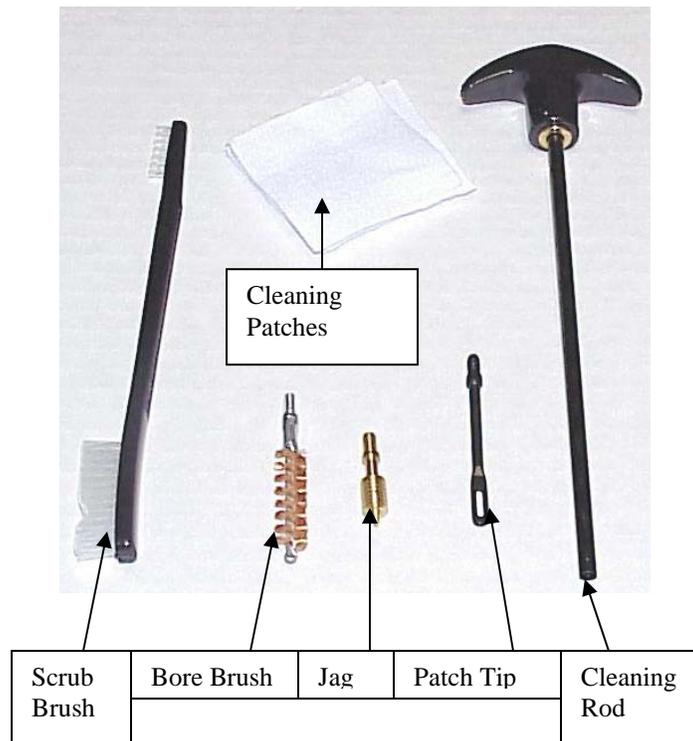
1. **Bore Brushes**: Use only the diameter size appropriate for the caliber of the weapon.
 - Phosphor Bronze: Commonly referred to as "copper" provides adequate abrasive action for cleaning buildup of residue in the barrel.
 - Steel: Generally used where there is excessively heavy buildup in the bore of shotguns or black powder weapons. It is not recommended to be used on **rifling** (Sec. 2 – Pg. 24) in the bore.
 - Nylon: Requires extra effort & time due to lack of abrasive power.
 - Bore Brushes should *never* be used to scrub any part other than the bore of the weapon. It will flatten one side of the brush and render it useless as a bore brush. Use the scrub brush!
 - Solvents designed to chemically react with copper jacket fouling will deteriorate the Phosphor Bronze/Copper bore brushes over time requiring frequent replacement.
2. **Cleaning Rods**: Appropriate to the caliber and barrel length of the weapon being cleaned.
3. **Patch Tip**: Slotted attachment for the end of the cleaning rod to push or pull patches through the bore.

Firearm Cleaning & Maintenance

4. Brass Jag: Attachment for the end of the cleaning rod to push the patch through the bore.
5. Cloth Patches: To be used with the Patch Tip or Brass Jag to clean residue loosened by the bore brush. Use size of patch appropriate to the caliber of the weapon being cleaned.
6. Scrub Brush: A “tooth brush” style of tool used to clean parts of the weapon other than the bore. The most common is made of nylon bristles. Brushes manufactured specifically for the cleaning of firearms frequently have an additional single row of bristles to allow access under extractors, inside of rails or other hard-to-reach areas of the weapon. Brushes made of copper wire or stainless steel bristles should only be used to clean excessively dirty areas such as a breech face. Keep in mind that these are very abrasive and can damage the finish of the weapon.
7. Lead wipe-away cloth: A chemically treated cloth which assists in removing lead build up associated with shooting non-jacketed ammunition. This is especially helpful when cleaning the forcing cone, cylinders, and bore of revolvers. Extreme care should be taken when using it as it *will damage* the protective finish of the weapon.
8. “Scaler” or Dental Pick: A handy tool to add to your supplies which allows access to hard-to-reach areas of the weapon. Again, care should be taken to not scratch finished surfaces of the weapon.
9. Silicone Cloth: Cloth treated with silicone convenient for wiping down the exterior surface of the weapon.
10. Solvents: There are many manufacturers of firearms cleaning equipment. Each of them carries a line of solvents. Solvents are designed to chemically react with the residues caused by shooting firearms. Some are designed as general purpose cleaners while others are for specific tasks such as to remove copper jacket fouling, lead, or powder residue. Each manufacturer's label must be consulted before using any cleaning product. *It is important that only products that are designed for cleaning firearms are used.* It is highly recommended that products off the shelf of the auto parts or hardware store are *not* used on firearms as some of them contain chemicals that can damage parts of the weapon. Even products designed for cleaning firearms frequently list warnings to limit their use. For example, labels on solvents such as Shooters Choice bore cleaner and Hoppe's 9 contain warnings about prolonged contact with nickel plated parts, painted surfaces and some plastics. Similar warnings can be found on labels of products such as Birchwood Casey's “Gun Scrubber” which also completely degreases and then evaporates on the surfaces it contacts. Additionally, care should always be used when cleaning on and around night sights as the epoxy holding them in place can deteriorate with prolonged contact with some solvents. Many solvents have different levels of toxicity and must be used only in well ventilated locations. Trial and error can be an expensive alternative to reading product labels.

Firearm Cleaning and Maintenance

- 11. Lubricants:** As with solvents, there is no shortage of lubricants available for use on firearms just as there is no shortage of opinions among users as to which is the best. Care must be taken to ensure that the product being used is designed to withstand the heat and residues produced by the firearm. Additionally, the lubricant used, should be one that doesn't dissipate quickly as it will be on a weapon that may not be fired, but rather carried in a holster exposed to the environment between cleaning sessions. The climate and environment in the jurisdiction the weapon is carried may determine which lubricant works best. Some dry lubricants e.g., graphite, are designed for use in cold climates. Some heavy "grease" type lubricants may be suitable for storage but tend to quickly collect contaminants when carried on a daily basis. One of the more common lubricants used for a law enforcement daily carry weapon is *Break-Free LP or CLP*.
- 12. Pressurized Air:** When available, allows debris and residual solvents to be blown out of hard-to-reach parts of the weapon.



Firearm Cleaning and Maintenance

Cleaning and Lubricating Notes and Tips

VISUALLY AND PHYSICALLY CHECK THE CHAMBER AND MAGAZINE WELL TO ENSURE THAT FIREARMS ARE EMPTY BEFORE FIELD STRIPPING THE WEAPON FOR CLEANING!

- Weapons should always be cleaned after training, practice, and qualification prior to returning to duty or placing the weapon in storage.
- Duty carry-weapons should be field stripped, wiped down and lubricated on a monthly basis when they haven't been fired to address the fact that they collect contaminants from the environment and lubrication wears off even if they haven't left the holster.
- *All* ammunition must be removed from the cleaning area.
- Wear eye protection! Springs under tension and cleaning solvents can cause eye damage.
- Use the regular cleaning session as opportunity to inspect the weapon for worn or defective parts and weak springs.
- Familiarize yourself with the idiosyncrasies of your weapon make and model. Example: The Glock requires extra care in cleaning and lubrication of the connector/trigger bar junction.
- Whenever possible, clean the inside of the barrel (bore) from the chamber end. Take care to protect the muzzle end of any firearm from damage as it is designed with a "crown"(Sec. 2 – Pg. 22) to let gases escape evenly for consistent accuracy.
- When cleaning the bore, do not push the bore brush part way down the barrel and then change directions. Push it all the way through before pulling it back again.
- Pay close attention to the breech face, under the extractor, the rails and rail guides when cleaning.
- A general rule of thumb for lubricating is to provide a *light* coat of oil on anyplace where metal-to-metal contact (rubbing) occurs but to make sure that anyplace that comes into contact with ammunition is kept dry and free of solvent residue and lubrication due to ammunition's susceptibility to contamination. These areas include but are not necessarily limited to the chamber, feed ramp and bore, firing pin channel, breech face, magazine well and the entire magazine. Consult your owner's manual for specifics of lubricating your make and model of weapon.
- Remember that excessive lubrication can cause your weapon to malfunction. A minimal amount of properly applied lubrication on a regular, frequent basis is more advantageous than an excessive amount done less often.

Firearm Cleaning and Maintenance

- Each time the weapon is cleaned and lubricated, perform Post Cleaning Function Checks appropriate to your weapon make and model, to ensure that it was correctly reassembled: After verifying that all ammunition is still out of your cleaning environment, make sure that all magazines fall freely from the magazine well and lock the slide to the rear when empty, applicable decocking levers and manual safeties perform as intended, the slide moves freely on the receiver, and the trigger releases the hammer/firing pin and resets.

Glossary of Terms

RELATING TO WEAPONS:

Action: The mechanism or working and moving parts of a firearm by which it accomplishes such functions as firing, extracting, ejecting, feeding or aligning cartridges for firing, and locking into battery. Common action types include, among others: the hinge action, bolt action, falling block action, rolling block action, lever action, pump action, gas-operated semi-automatic, recoil operated semi-automatic and revolver action.

Automatic (or **Fully Automatic** :) A firearm designed to perform the complete cycle of operation (Sec. 2 – Pg. 14) as long as the trigger is fully depressed and there are cartridges available in the feed mechanism.

Barrel Lug: An integral projection of the semi-automatic pistol barrel which bears against or comes into contact with a locking block or other locking surface in the pistol's receiver, causing the locking and unlocking of the barrel as the action cycles.

Blowback: 1. A type of automatic or semi-automatic firearm action in which the force of expanding gases pushing the cartridge case to the rear against the face of the bolt furnishes all the energy required to effect the complete cycling of the gun's action (cycle of operations: Sec. 2 - Pg. 14) a firearm which employs this method of operation is characterized by the absence of any breech lock or bolt lock mechanism. 2. A rearward leakage of gases from a gun's breach (escaping from between the cartridge case and chamber wall or from the primer) during the firing of the weapon. Blowback may be caused by a defective breech mechanism, a ruptured cartridge case, a faulty primer, or barrel obstruction.

Bore: 1. The interior of a firearm's barrel excluding the firing chamber (excluding the forcing cone and any choke restrictions in a shotgun) through which projectiles travel when fired. 2. The size or diameter of the interior of a firearm's barrel. In a rifled barrel, the bore is the diameter of the interior of the barrel, excluding the firing chamber, measured from land to land and expressed in inches or millimeters.

Breech: The rear end of the barrel into which the cartridge is inserted.

Breech Bolt: (also **Breech Block**) A metal block against which the cartridge rests, closing the rear of the bore against the discharge.

Breech Face: The part of the Breech Bolt or Breech Block which is against the head of the cartridge case during firing.

Chamber: 1. The rear part of the barrel bore that has been formed to accept a specified cartridge. Revolver cylinders are multi-chambered. 2. *verb*; To insert a round of ammunition into the chamber of a firearm.

Glossary of Terms Relating to Weapons

Chamber Pressure: The pressure created by the rapid burning of a propellant (powder) within the chamber of the weapon during the instant of firing. Firearms manufacturers designate the maximum pressure that the metal chamber can withstand before rupturing.

Clip: A device for holding a number of cartridges and inserting them into a firearm's magazine or a revolver's cylinder, in order to rapidly reload them. This term is frequently *incorrectly* applied to magazines.

Closed Bolt System: An automatic or semi-automatic firing system wherein the bolt must be in-battery or locked in the forward position against the breech in order to fire the weapon, as contrasted with open-bolt weapons whose bolt must be locked in the rearmost position and move forward in order to fire. Closed bolt weapons have a moveable firing pin, as opposed to the fixed firing pin of open-bolt weapons which are fired when their bolts move forward to feed, chamber, and slam against a cartridge in the chamber.

Cocking Indicator: Any device on a firearm to indicate that a firearm hammer or striker is cocked.

Crane: The part of a solid frame revolver on which the cylinder is swung out to accomplish loading and ejecting. (sometimes referred to as the "Yoke")

Crown: Also **Muzzle Crown:** The angled, convex or recessed cut made at the muzzle end of a barrel to eliminate burrs and to provide an accurate departure of the bullet from the barrel.

Cylinder: The round drum-shaped metal part of a revolver which is bored with multiple chambers to hold the cartridges. As the trigger is pulled or the hammer is manually cocked, the cylinder rotates to align the next chamber with the barrel for firing. Some revolvers have removable cylinders.

Decocking Lever: 1. A manually operated lever, typically on a semi-automatic pistol which serves to decock the hammer. Such single function devices such as that on the SIG 226 pistol are typically provided with a spring action that allows the lever to return to its original position after it has been depressed to decock the pistol. 2. A dual function manually operated lever, typically on a semi-automatic pistol, which serves to decock the hammer but which can also be positioned to serve as a safety, preventing the pistol from being fired if the trigger is pulled. Examples of this would be the S & W 645 and Beretta 92.

Double Action: (Abbreviated: **DA**) A type of firing action in which a single pull of the trigger both cocks and releases the hammer.

Glossary of Terms
Relating to Weapons

Forcing Cone: The breech end of most revolver barrels which guides the fired projectile from the cylinder chambers into the barrel.

Grip Safety: A separate mechanical safety, spring loaded and protruding from the grip or stock, usually found on the backstrap of the grip of auto-loading handguns. When at rest, a grip safety prevents firing by trigger movement, but allows firing when depressed.

Light Hit: The result of insufficient firing pin energy or protrusion which causes erratic ignition or failure to detonate the primer.

Magazine: 1. An ammunition feeding device consisting of a container for cartridges which has a *spring* and *follower* to feed those cartridges one-by-one into the chamber of the firearm. It may be detachable or an integral part of the firearm. They may have a single row of cartridges where each is stacked directly above the one below it (“single column” or “single stack,”) or two staggered columns thereby increasing capacity (“staggered box.”) Magazines are not to be confused with clips. 2. A secure storage place for gunpowder, ammunition or explosives.

Magazine Disconnect: A type of safety device found on some semi-automatic firearms that prevents the firing of a chambered round unless the magazine is fully inserted into the firearm.

Muzzle Flash: The illumination at the muzzle of a firearm when it is fired which is more visible the lower the ambient light. This is caused by the combusting propellant gases and propellant particles emerging from the barrel behind the projectile, whose incomplete or continuing combustion and expansion is accelerated by escaping from the confines of the barrel and uniting with oxygen in the air. This can affect one’s night vision and ability to obtain a sight picture.

Muzzle Flip: Movement of the front of the barrel upwards during the projectile’s passage through it, caused by the energy generated when firing a round.

Open-Bolt System: An automatic or semi-automatic firing system in which the bolt must be in the rearmost position prior to firing and must move forward against the breech in order to fire. Generally, weapons with this firing system have a fixed firing pin. (See also Closed-Bolt System.

Pistol: A handgun in which the chamber is an integral part of the barrel; especially a self-loading pistol, as distinguished from a revolver.

Recoil: The rearward thrust or movement of a firearm resulting from firing, as the equal and opposite reaction to the projectile’s acceleration.

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Glossary of Terms
Relating to Weapons

Revolver: A firearm, usually a handgun, with a cylinder having several chambers so arranged as to revolve around the cylinder's axis and be discharged successively by the same firing mechanism.

Rifling: The spiral grooves cut in the bore of a firearm barrel to cause the projectile to spin thereby stabilizing it in flight and improving its accuracy.

Safety: A device on a firearm generally designed to prevent accidental firing. Safeties may be either passive or manual. Passive safeties do not require deliberate manual operation by the shooter in order to be engaged or disengaged but are part of the weapon's design function. Manual safeties must be deliberately engaged and disengaged by the action of the shooter.

Semi-Automatic: Also called **Auto-loader:** A firearm in which the gas pressure or recoil from a fired round is used to extract and eject the empty shell casing and to reload by stripping (or releasing) and feeding another cartridge from the ammunition source into the chamber. The trigger must be released and pressed again for each successive shot.

Side-splatter: Also called **Shaving, Shearing.** The cutting or shaving of metal from a bullet caused by cylinder misalignment with the forcing cone of a revolver.

Single Action: (abbreviated **SA**) A firearm whose hammer must be cocked before the weapon can be fired. It may be cocked by hand or by the recoil of the slide from firing a previous round.

Striker: A firing pin or a projection of the hammer of a firearm which impacts the primer in a fuse or in a round of ammunition.

Thumb Safety: A manual safety on a firearm located so as to be operated by the shooter's thumb (usually the thumb of the shooting hand.)

Two Stage Trigger: A trigger wherein slack must be taken up before sear disengagement begins to occur, resulting in two distinct stages: a lighter "take-up" stage followed by a heavier "let-off" stage. Examples: M1 Garand & Glock pistols.

Glossary of Terms

RELATING TO AMMUNITION:

+P: A designation for ammunition that has been loaded to produce pressure levels that is higher than the SAAMI (The Sporting Arms & Ammunition Manufacturers Institute) loading limit for normal Maximum Product Average (MPA.) The “+P” designation, usually head stamped on the cartridge and printed on the ammunition box, means higher than the normal MPA. This should only be fired in weapons designed by the manufacturer to take the higher pressures.

+P+: A designation for ammunition that has been loaded to produce pressure levels that are higher than the SAAMI loading limits for +P ammunition, but for which there are in fact no SAAMI standards. The “+P+” designation is generally head stamped on the cartridge and printed on the ammunition box. SAAMI has established no Maximum Product Average (MPA) loading limit for the +P+ designation therefore a manufacturer’s specific loading limit must be consulted in order to determine the MPA pressure level produced by that manufacturer’s +P+ ammunition. Due to having no upper limit on the MPA pressure of +P+ ammunition, it is not possible or prudent for an arms manufacturer to certify a firearm as capable of handling it based on that designation alone. Most +P+ ammunition is not sold to the general public but to law enforcement agencies with the boxes usually marked “for law enforcement use only – not for resale”

Action Proving Dummy: A dummy (non-firing) cartridge used for testing the functioning of a firearm in terms of feeding, chambering, extracting, and ejecting.

ACP: Abbreviation for Automatic Colt Pistol, used along with caliber designations such as .25 ACP, .32 ACP, .380 ACP, and .45 ACP to describe the popular family of pistol Cartridges developed by John Moses Browning in the early part of the 20th Century.

Ballistics: The science or study of the behavior of moving projectiles composed of three basic divisions: **Internal, External, and Terminal.**

Internal: Concerns the movement of the projectile before it leaves the weapon: how it is affected by the internal workings of the weapon such as chamber pressures & rifling

External: Concerns the behavior of the projectiles after they leave the muzzle of the weapon and before they strike the target/object. These include but are not limited to gravity, wind drag/resistance, humidity, etc.

Terminal: Concerns the behavior of projectiles upon impact with a target or other object. This intersects with the pathological study of wound ballistics and dynamics when the terminal effects of the projectile include impact upon animal and in particular, human tissue.

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Glossary of Terms
Relating to Ammunition

Ball Ammunition: A term generally used by the military to describe small arms cartridges with solid lead core and/or full metal jacketed bullet intended for use against personnel. It is commonly used in a law enforcement application as practice, target and training rounds.

Blank Cartridge: A cartridge having, in place of a projectile, a crimped case mouth or paper cup or wadding in the mouth of the case, which is designed to make noise when fired. NOTE: Even though they do not fire a projectile, the blank cartridge can cause serious injury or death at close range.

Bullet, Frangible: A projectile designed to disintegrate upon impact on a hard surface in order to minimize ricochet or back splatter when shooting on steel targets.

Bullet, Full Metal Jacket: (FMJ) A projectile in which the bullet jacket encloses the core, usually with the *exception* of the base.

Bullet, Hollow Point: A bullet with a usually open cavity in the nose to facilitate expansion. Commonly for use against personnel in a law enforcement context.

Bullet, Jacketed: A bullet having an outer metal jacket, usually of copper or copper alloy. The jacket may partially or completely envelope the whole bullet. A jacketed hollow point (**JHP**) or jacketed soft point (**JSP**) is actually a partially or semi-jacketed bullet with an exposed nose.

Bullet, Lead: An unjacketed bullet formed from lead or a lead alloy.

Bullet, Semi-Wadcutter: (SWC) A projectile with a distinct, short truncated cone at the forward end.

Bullet, Total Metal Jacket: (TMJ) A bullet on which a metal jacket encloses the whole bullet including the nose, the core and the base. A useful component of so-called “lead free” ammunition.

Bullet, Wadcutter: (WC) A cylindrical bullet having a sharp-shouldered flat or nearly flat bore-diameter nose intended to cut target paper cleanly in order to facilitate accurate scoring.

Caliber: (abbreviated: **Cal.**) A measure of bore or bullet diameter designated in hundredths or thousandths of an inch (.38, .300, .357, etc.) or in millimeters (9mm., 5.56 mm., etc.) Generally these numbers are not exact but indicate rough approximations. When used to designate the bore of a firearm, the measurement is taken from the top of one land to the top of the opposite land; or the bore diameter before rifling. (see rifling)

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Glossary of Terms
Relating to Ammunition

Cartridge: A single round of fixed ammunition, typically consisting of a case, primer, propellant charge and projectile(s) pre-assembled into an integral unit.

Cartridge Case: The metal tube which houses the projectile(s), powder, and primer constituting a single cartridge or round of ammunition.

Cartridge Case Base: The portion of the cartridge case which contains the primer, usually called the head.

Cartridge Case Rimless: A centerfire cartridge whose case head is of the same diameter as the body, having a groove forward of the head to provide the extraction surface.

Cartridge Case Rimmed: A cartridge case having a rimmed or flanged head that is larger in diameter than the body of the case which may be found on either rimfire or centerfire cartridges.

Cartridge Rimfire: A flange-headed cartridge containing the priming mixture inside the rim cavity. e.g. 22 cal. long rifle.

Centerfire cartridge: A cartridge in which the primer is located directly in the center of the base, as contrasted with rimfire cartridges whose priming compound is contained the cavity in the rim of the cartridge head.

Dummy cartridge: (dummy round) An inert cartridge or simulation of a cartridge which cannot be fired, used for demonstration or training purposes as in “Ball and Dummy” (Sec. 2 – Pg. 28) exercises.

High Velocity: As defined by the U.S. Army, small arms ammunition with a muzzle velocity between 3500 – 5000 feet per second.

Squib load: Also Light load: A cartridge or shell which produces projectile velocity and a sound which is substantially lower than normal. This is usually caused by a partially or totally missing powder charge, or one which has been contaminated by moisture, lubricants or solvents. A squib load may result in a projectile remaining in the bore posing a hazard in the event of subsequent shots.

Glossary of Terms

RELATING TO TRAINING:

Ball and Dummy: A training method to assist shooters by revealing and ultimately assist in correcting, deficiencies in their application of the fundamentals of marksmanship such as trigger control. This is accomplished by randomly loading dummy rounds among live rounds in the magazines of semi-automatics or spent casings or dummy rounds along with live rounds in cylinders of revolvers. This thereby eliminates the explosion and resulting recoil which masks the shooters actions. This method of training is also used to teach malfunction clearance procedures with the semi-automatic weapon.

Concealment: Any object or effect which hides a person from observation of an opponent, but which does not provide ballistic protection adequate to stop or deflect any projectile(s) that are or may be fired by an opponent.

Cover: Any object large enough to shield all or a sizeable portion of one's body which will stop or deflect projectiles of a certain class, especially the specific type of projectile(s) that are being or may be fired by an opponent. An object that provides cover against one type of projectile may not be effective against another.

In-Battery: The condition of the semi-automatic or automatic weapon in which the breeching mechanism, bolt or slide, is all the way forward and in the proper position for firing.

Jam: The stoppage of a firearm where it is rendered inoperable and not able to be remedied by normal malfunction clearance procedures or cannot be cleared without the use of tools or without disassembly of the weapon.

Malfunction: Failure of the weapon to function as designed because of a mechanical defect or shooter induced condition. A malfunction can be cleared by performing correct malfunction clearance procedures and does not require the use of tools or disassembly of the weapon.

Out-of-Battery: A term describing when the breeching mechanism, bolt or slide, is not sufficiently closed to safely support the cartridge or seal the action to be in the proper position for firing. This term is applicable to when the breeching mechanism is only slightly out of position or when it is locked fully to the rear as on an empty magazine or somewhere in between the two. Being out-of-battery by as little as 1/8 inch will cause a failure to fire.

Ready Position: Various prescribed positions in which a weapon is held before being pointed in on-threat for firing. Common ready positions include Low Ready, High Ready, Guard & SUL.(Sec.1 – Pg. 12 & 13) An absolute constant across all ready positions is that the trigger finger is registered (indexed) above the trigger guard alongside the receiver of the weapon.