FIREARMS SAFETY COURSE

Longarms Information

LOCK, STOCK and BARREL

This commonly used expression very clearly names the three main parts of a firearm.

The LOCK is the mechanism which fires the cartridge. More commonly referred to as **"the action"**

The STOCK is the part by which the firearm is held – the woodwork or material comprising the butt and fore-end.

The BARREL is the steel tube through which the projectiles are fired.

Types of Firearms and Actions

There are many different types of firearms available in Australia. Irrespective of the type or calibre.

There are the seven (7) basic functions which can be applied, more or less to every type of firearm:

1. Feeds – inserts a live round or cartridge into the chamber
2. Cocks – compresses the firing pin main spring and engages the firing pin to the trigger mechanism
3. Locks – locks the bolt tight to the breech ready to fire when the trigger is pulled
4. Fires – discharges (or shoots) one round
5. Unlocks – unlocks the bolt form the breech face
6. Extracts – removes the case (fired or unfired) from the chamber
7. Ejects – throws the case clear of the firearm

Each of the seven steps is employed each and every time a firearm is used, no matter what type of firearm. In some firearms, the seven steps may not be obvious, but they all need to take place in order for the firearm to operate correctly.

Safety Catches

Never rely solely on the safety catch. Safety catches are mechanical devices that sometimes fail to operate,

To test the safety catch

a. Cock the action, apply the safety catch and squeeze the trigger
b. Cock the action, apply the safety catch, strike the butt of firearm sharply with your hand

If in either test, the firing pin or hammer is released, the safety catch is unsafe and should be repaired before using

ACTION TYPES

There are six main different action types which are commonly found in Australia today.

1. Air
2. Break
3. Bolt
4. Lever
5. Slide or Pump
6. Muzzleloading (black powder)

AIR RIFLES

An air rifle used to be what kids learnt to shoot on. They were cheap to buy and cheap and easy to operate. They are firearms and should be treated with respect.
These days there are many different air rifles, some still use the break action of the old time air rifles, some use compressed gas to power the projectile.
Modern air rifles can be surprisingly powerful and come in several calibres, not just the .177 slugs that were used by kids. The .22 air rifle is popular.
The air rifles used for Olympic competition look more like something from a science fiction comic than the air rifles of the 20th century.

Diana air rifle, above: broken, below not broken, suitable for kids and small vermin hunting
http://www.replicaairguns.com/posts/2011/5/5/diana-panther-21-break-barrel-pellet-rifle-available-for-pur.html August 2012

Anshutz suitable for Olympic 10 metre Air Rifle
http://www.airguns.net/reviews_anschutz2002.php August 2012

Steyr scoped air rifles suitable for Rifle Metallic Silhouette (target shooting) and hunting http://www.magair.co.nz/showpic.asp?id=64 August 2012

BREAK OPEN SINGLE OR DOUBLE BARREL FIREARMS

The firearm generally fitted with this type of action is a single or double barreled shotgun. This type of firearm is very popular and is in the main, used on moving targets. The most popular gauges are 20g, 12g and .410 calibre.

The break open single or double barrelled shotgun generally –

1. Feeds by hand
2. Locks
3. Fires
4. Unlocks
5. & 6. Extracts and Cocks
7. Ejects (Unloads), if it has an automatic ejector. Guns without automatic ejectors require the cartridge to be removed by hand.

Ammunition is fed into the chamber by hand. The barrels are then closed, allowing the crossbolt to lock the action. The shotgun at this point is loaded and read to fire. Extreme caution must be exercised at this time. The firearm can now be fired by squeezing the trigger. The locking lever is moved to the fight, operating the crossbolt and allowing the action to break open. This completes function 4 to 7. With guns without automatic ejectors, cartridges, whether fired or unfired, are removed by hand.
Warning: There are many old shotguns still in general circulation that were not manufactured to use modern smokeless powdersDo not take any chances with these older types of firearms. They are liable to explode if the wrong ammunition is used.

Side by side double barrelled shotgun www.zombiefiend.com August 2012


Under and over double barrelled shotgun
http://firearmshistory.blogspot.com.au/2011/02/shotguns-actions-and-designs.html August 2012


Gold inlaid under and over trap (target) shotgun
http://www.centuryarms.com/Century/pages/khan2.htm August 2012

BOLT ACTION RIFLES

In general the term bolt action refers to rifles of all calibers. However it should be noted that some shotguns are also bolt actions.

The bolt action, like other actions, generally follows the same seven steps of operation –

1. Feeds (cocks)	bolt forward	Loads
2. Locks	bolt handled lowered	
3. Fires		
4. Unlocks		
5. Cocks	bolt handled lifted	
6. Extracts	bolt back	Unloads
7. Ejects		

Pushing the bolt forward and turning it down feeds a round into the chamber and locks the action. The firearm can now be fired by squeezing the trigger. Lifting the bolt handle and pulling it to the rear completes steps 5 to 7.

Some rifles cock on opening and others cock on closing, i.e. when the bolt is pushed forward (Lee Enfield action)

Bolt action firearms may be single shot or fitted with one of several type of magazine. They are sometimes referred to as bolt action repeaters.

Of all the rifles available the bolt action is still one of the most popular. Action fouling and malfunctions are far less frequent with this type of action.

Gas Port or Gas Escape Hole
In high powered bolt action rifles, a small hole is bored through the side of the action behind the chamber. This is a gas escape hole. In the event of a case splitting during firing, the hot gas escapes through this hole. If this hole were not here (or were blocked, the hot gases and burnt powder would pour back over the face of the bolt into the shooters eyes. This could cause blindness.

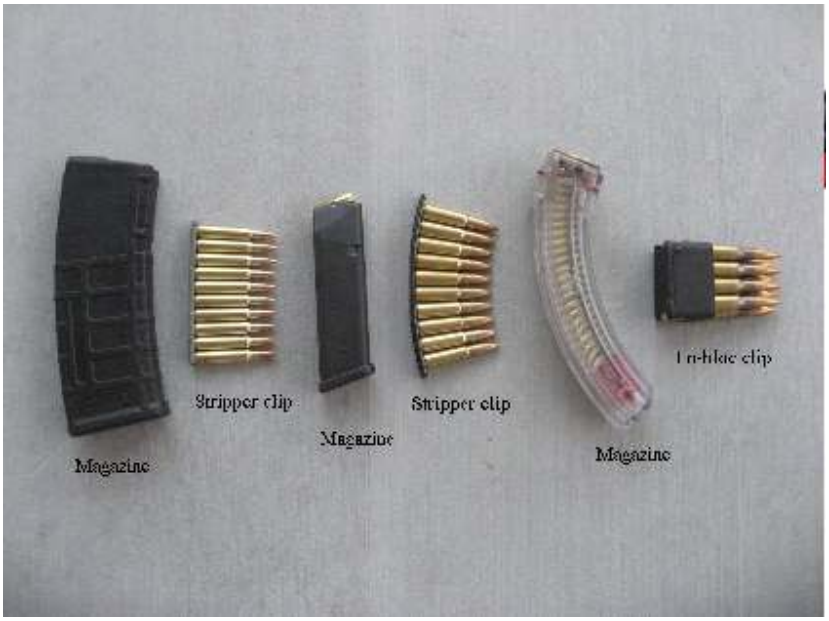
Head spacing
In a bolt action rifle, care must be taken to make sure that the bolt fits the rifle. Changing bolts is a very dangerous procedure.
The correct head spacing (the distance between the end of the bolt and the cartridge case when it is in the chamber) is decided by the maker of the rifle. If a different bolt is used, the head spacing could be altered. This could allow the escape of high pressure gas and possibly part of the cartridge case when the rifle is fired. This could seriously injure the shooter and damage the rifle. Control the pressure by using the correct bolt for your rifle.

http://www.hunter-ed.com/pa/course/3-5_bolt_action_flash.htm August 2012

The action http://www.mountainequipmentsportsblog.com/outdoor-equipment/110-cleaning-a-bolt-action-rifle/ August 2012

Bolt action with scope and sling

http://kharon.wikidot.com/firearms August 2012



Magazines for bolt action rifles
http://www.bladeforums.com/forums/showthread.php/840036-1911-Combat-Survivor-new-pictures-of-the-working-version/page3 August 2012

LEVER ACTION FIREARMS

This type of action has proven to be very popular. It can be acquired in both rimfire and centrefire calibres. This type of firearm, because of its internal magazine, its exposed hammer and the difficulty of ensuring that the breech and magazine are empty, requires an even higher level of safety than other types of firearms

The Lever action generally:

1. Feeds	lever upwards	loads
2. Locks		
3. Fires		
4. Unlocks		
5. Extracts	lever downwards	
6. Cocks		
7. Ejects		

The lever, which is attached to the bolt, is moved upward, feeding a round into the chamber and locking the action. The firearm can now be fired by squeezing the trigger. The lever is then moved downwards, completing functions 4 to 7.

To many people, the lever action firearm represents their first impression of a rifle, perhaps because of its frequent appearance in “western” movies (the gun that won the west!) The firearm can be used left or right handed.

Particular care is required with it because of:

a. the exposed hammer which may catch on clothing or when going through scrub

b. the tubular magazine. Some models may be more than 100 years old and the spring, which has been continually compressed and expanded, could be weakened. This combined with a dent in the magazine tube, dirt or a bent cartridge, could cause a cartridge to be held up. A subsequent knock, or even gravity, could results in a cartridge left in the magazine being released and carried towards the action. If you can see the colour of the magazine follower when you look in the action, you can be sure the magazine is empty. On every occasion prior to putting a firearm with a tubular magazine away after use, you should ensure that the magazine is totally free of ammunition.

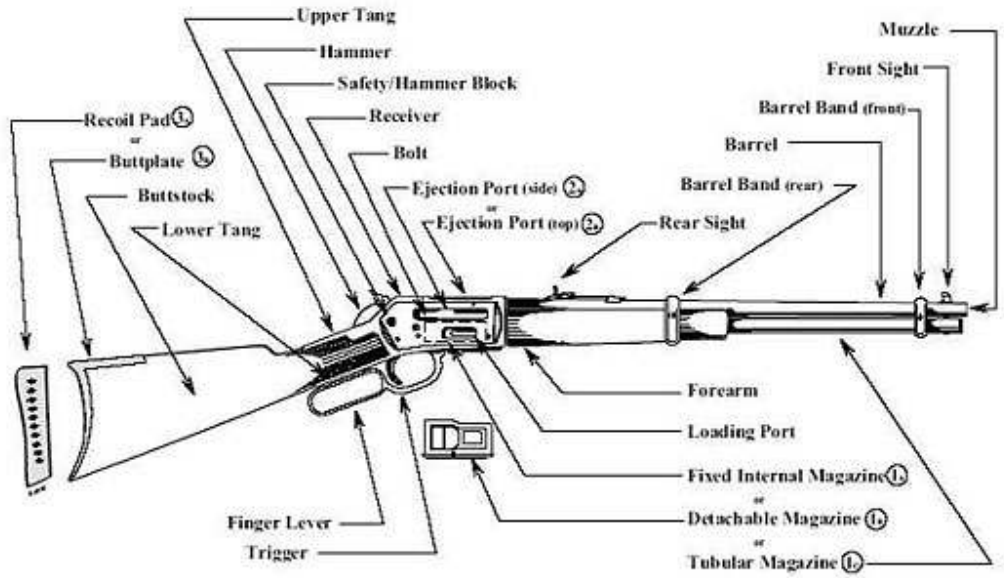
c. Use only flat nosed projectiles (bullets) when loading tubular magazine rifles. When loaded into the magazine, the nose of each projectile rests against the base of the cartridge in front of it. If pointed projectiles were used, the point of each would rest against the primer of the cartridge in front. Shock or recoil or a dropped firearm could cause a chain fire in the magazine.

d. Cocking the firearm. Every time that the lever is operated (pulled down and returned up) the firearm is cocked (the hammer is fully back) Extreme care must be exercised at this time.

e. The lever action can be a problem, as much of the mechanism is exposed when you open it. The action can be difficult to clean.

Lever Action shotgun
http://firearmshistory.blogspot.com.au/2011/02/shotguns-actions-and-designs.html August 2012

Old Winchester 1873 lever action rifle, used by cowboys and movie stars
http://www.americanrifleman.org/GalleryItem.aspx?cid=22&gid=112&id=983 August 2012



Lever action terms http://www.atf.gov/firearms/guides/importation-verification/terminology-nomenclature-lever-action.html August 2012

It is common to put a scope on a hunting rifle:

Here are two Marlin lever action rifles, one with scope http://www.icollector.com/Two-Marlin-Lever-Action-Long-Guns-A-Marlin-Model-30AW-Lever-Action-Rifle-with-Scope-B-Marlin-Mod_i9515691 August 2012

THE SLIDE OR PUMP ACTION FIREARM

The pump or slide action generally –

1. Feeds	slide forward	loads
2. Locks		
3. Fires		
4. Unlocks		
5. Extracts	slide back	unloads
6. Cocks		
7. Ejects		

The fore-end which is attached to the action bar and also to the bolt, is pushed forward, feeding a round into the chamber and locking the action. The firearm can now be fired by squeezing the trigger. The fore-end is then pulled to the rear, completing functions 4 to 7

The Pump action is very similar to the Lever action and is operated by moving the front section instead of a lever. It is also known as a "trombone" action.

Pump action firearms can usually be opened without firing them, by means of a release button, usually on the bottom of the action.

As with the lever action, many pump action firearms have a tubular magazine and are susceptible to the same problems of denting and spring weakening as previously described for lever action rifles. Care also needs to be taken with magazine loading, ensuring that pump action rifles with tubular magazines are not loaded with pointed projectiles.

Particular care is required with this firearm because of

a. Exposed hammer. Some models are produced with exposed hammers.
b. Tubular magazine. Some models are available with rotary and box type magazines

You must remember, as with the lever action, if your firearm has a tubular magazine or an exposed hammer, you must exercise extreme caution when unloading the firearm to ensure that the magazine is completely empty.

Pump action shotgun
http://firearmshistory.blogspot.com.au/2011/02/shotguns-actions-and-designs.html August 2012

Modern pump action shotgun http://www.centuryarms.com/Century/pages/khan2.htm August 2012

SEMI-AUTOMATIC OR SELF-LOADING FIREARMS

The semi-automatic action generally –

1. Feeds	block forward	loads
2. Locks		
3. Fires		
4. Unlocks		
5. Extracts	block back	unloads
6. Cocks		
7. Ejects		

The following is the general sequence of operations that occur in a semi-automatic firearm

a. the first round is fired
b. the empty case is ejected and the action is cocked
c. the next round is chambered and ready to be fired
d. the safety catch must be applied after each series of shots is fired

Extra care must be taken when using a semi-automatic firearm, because until the last cartridge in the magazine is fired the firearm is automatically loaded after each shot. The safety catch must be applied after each shot is fired. This should be practiced until it is carried out automatically after firing.

There are two distinct types of semi-automatic rifles

a. The open cocked position

In this type, after firing a round, the block remains to the rear. When the trigger is squeezed, automatically

- The block moves forward
- A round is fed into the chamber
- The firing pin strikes the round
- The block is driven to the rear again, leaving a cocked firearm, ready to fire again

b. The closed cocked position

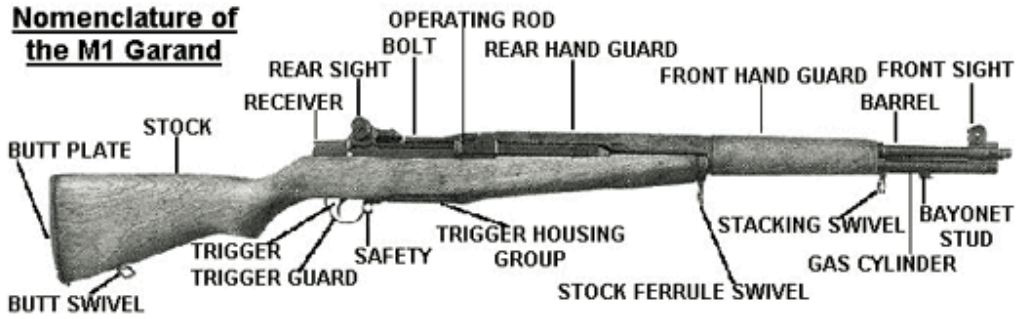
After firing a round, the block automatically moves forward again to feed the next round into the chamber. When the trigger is squeezed

- The firing pin strikes the round
- The block then moves back, compressing the return spring
- The block is driven forward, feeding the next round

- The firing spring is compressed, leaving the firearm loaded, cocked and ready to fire

NOTE: It must be remembered with this type of firearm every time a round is fired, it reloads itself and is ready to fire again

This type of firearm is frequently manufactured with a tubular magazine.



The semi automatic Garand M1 gave the US army an advantage in the 2nd World War http://www.timemoneyandblood.com/HTML/weapons/american/garand.html August 2012

This Ruger SR556 is a more modern version of the semi automatic rifle http://world.guns.ru/civil/usa/ruger-sr-556-e.html August 2012

MUZZLE LOADING FIREARMS

Muzzle loading firearms are becoming a popular type of firearm in Australia. Great care is required when using and handling this type of firearm.

Black Powder – Past and Present

Black powder was the only form of gun powder widely used until about 1900 and even ammunition for the first cartridge firearms were loaded with black powder.

"Shooting at a mark" – usually a cross scratched on a board or tree – was a popular pastime among American settlers in the early 1800's. This was the forerunner of a shooting match at a paper target that became popular both as a pastime and as a means of training in the early years.

Old guns, particularly those which have been handed down from previous generations, should not be fired without inspections by a gun smith or a competent person.

There are many modern reproductions of black powder arms in wide use as interest in the past grows.

Knowledge of Muzzle loading firearms and ammunition

Black powder comes in several types, the difference being in the size of the grains. The coarsest powder, Fg is used for the priming of flash pans and flintlock firearms.
The second coarsest black powder is FFg and is used in most muzzle loading shotguns and bib bore rifles and pistols from .540 to .690 calibre.

The most frequently used black powder, however, is the faster burning FFFg used in practically all cap and ball revolvers, single shot pistols, and rifles ranging form .36 to some .54 calibre pieces.

Projectiles for muzzleloaders come in a round ball or conical minnie ball, which is popular for muskets.

There are two basic lock systems on black powder muzzle loading guns: the Flintlock and the Percussion lock.

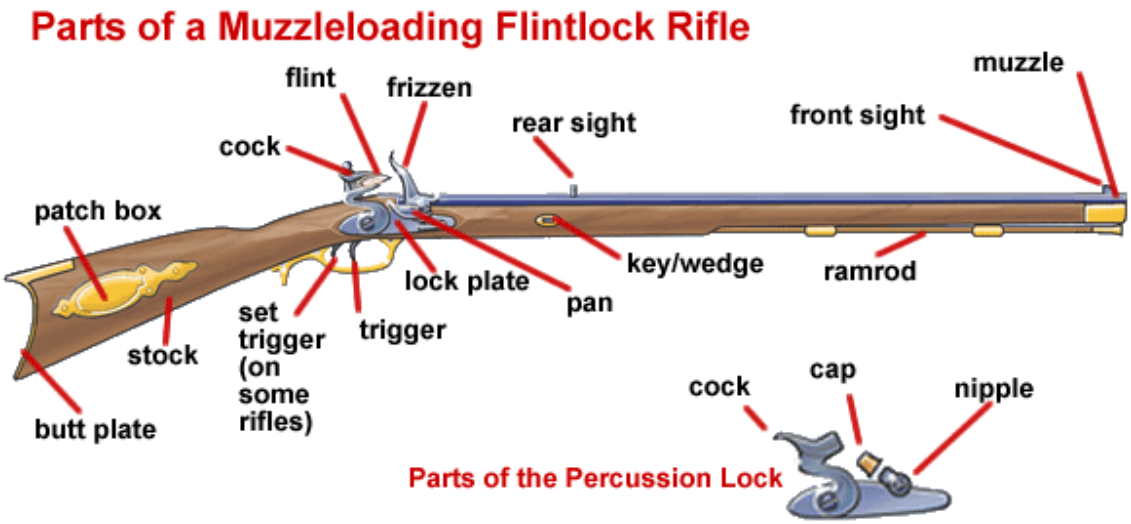
The Flintlock works much like the flint and steel method for starting a fire. The release of the hammer causes the flint to strike the frizzen and creates a spark that ignites the powder.

The Percussion system requires a manufactured percussion cap that works like the primer in modern ammunition. When struck by the hammer, the cap explodes, which in turn ignites the powder.

The ten commandants of muzzleloading

1. Muzzleloading firearms are not toys. Treat them with the same respect due to any firearm.
2. Use only black powder or pyrodex of the proper granulations in your muzzleloading firearms. Such guns are not designed to withstand the higher pressures developed by modern smokeless powders.
3. Never fire a muzzleloader unless the ball or shot charge is firmly seated against the powder charge
4. Do not exceed manufacturer's recommended maximum loads or attempt to load multiple projectile loads.
5. When loading your muzzleloading firearm, do not expose your body to the muzzle.
6. Always make sure that your down range area is safe impact area for your projectiles. Maximum range of a firearm is obtained by firing at a 35 degree angle above the horizontal. Round balls may carry as far as 900 yards and elongated projectiles well beyond this distance.
7. Never smoke while loading, shooting or handling black powder
8. Do not load directly from powder horn or flash. Use a separate measure. A lingering spark in the barrel can ignite the incoming charge, causing the horn or flask to explode in your hand.
9. The half cock notch is the safety notch on a muzzle loader. Always be sure it is functioning properly.
10. The nature of a muzzleloading firearms requires that the shooter exercise extreme caution and skill in the care, loading and use of such a firearm.

The Flint Lock was an early version of the Muzzle Loading Rifle



The Springfield model 1866 is a fine example of the firearm that won the west

It was a converted muzzle loader to breach loader after the American Civil War http://www.army.mil/article/4116/ August 2012