Semi-Automatic Gas Action Shotgun

Overview
A semi-automatic shotgun is a firearm that shoots multiple projectiles with one round of ammunition, and after that round is fired, the action automatically loads another round into the chamber. It is called a semi-automatic because you have to pull the trigger each time to fire it, instead of just holding the trigger back on a fully automatic firearm. Gas-operated refers to the action. Gas-operated shotguns use the gas generated from the explosion of the round to drive the reloading process, while inertia-driven models use the actual recoil to reload the shotgun. Semi-automatic shotguns are usually preferred because the action reduces the amount of recoil delivered to the shoulder over inertia-driven shotguns, and shooters can use a less-powerful round in the gas-operated models, rather than use heavier loads in other models.

The purpose of this document is to inform interested people as to what makes a semi-automatic gas action shotgun work, specifically a Remington model 11-87 12 gauge, and is written with the assumption of knowledge on the parts of a bullet.

The shotgun can be broken down into 3 main parts, which are the stock, the action, and the barrel; A, B, and C respectively. Both the action and the barrel contain multiple parts that make the shotgun work. This document will be organized starting with A, move to B, and finally go to C, which is in the order starting from the shoulder of the shooter and moving outward.

The Stock
The stock is the part of the gun that gets harnessed in a person’s shoulder to help keep the firearm in place. It is one of the most basic parts of the gun, but it is needed in order to use the firearm safely. The stock has a rubber piece on the end to help cushion the recoil, as this firearm has a lot of recoil. The
Patrick Donnelly

stock also acts as a spacer from the action, meaning that it keeps the hot, empty shells that are being ejected away from the shooter’s face. It also is the spot for the shooter to hold his or her cheek against in order to use the sights to aim, without getting hurt.

The Action
The action is the part of the gun that fires the shell when the shooter pulls the trigger and automatically ejects the old shell and loads a new shell. This part of the gun is made up of the bolt, trigger and trigger guard, elevator, gas chamber, and piston.

The Trigger and Trigger Guard
The trigger is a thin piece of metal that activates the firing mechanism of the firearm. When the shooter wants to fire the gun when it is loaded, the trigger is the component that, in essence, makes the gun go bang by initiating the components in the bolt, which causes the explosion.

The trigger guard is the piece of metal that keeps the trigger from being brushed by an object by accident, which could cause the gun to go off by accident, or if nothing is loaded, the firing mechanism could break completely. If the trigger is fastened to the firearm, the trigger guard should always be there to help prevent accidents. Also, the trigger guard gives owners a place to put a trigger lock on the trigger, keeping the gun from firing.

The Bolt
The bolt is the part of the action that really makes the gun fire by holding the round in place and also by striking the primer of the round with the firing pin. When the trigger is pulled, the
hammer in the back of the bolt strikes the firing pin, causing the firing pin to move with an extremely high velocity, which hits the primer on the round and causes the explosion. There are little clips on the bolt that, when the gun is fired and the reloading process begins, grabs the shell and ejects it. When the bolt is thrown back and ejects the shell, it is pushed forward by a spring to load another round. When the trigger is let back to its original location, the bolt is ready to fire again.

The Elevator
The elevator is a spring loaded piece of metal that lifts a new shell in front of the bolt. This is a key part in the reloading process because if the elevator fails, the gun will not reload properly, if at all. When the gun is fired, as the bolt slides back, the new shell is pushed on to the elevator. The bolt activates the spring used in the elevator and it lifts the new shell into position. As the bolt slides forward, the elevator drops back to its original position.

The Piston
The piston is the component that pushes the bolt backwards. It is activated by gas given off when the gun is fired. It is composed of a metal ring and two metal bars. The ring wraps around the gas chamber to keep it in line, and the two bars are what push the bolt back by the force given from the gas chamber. When the bolt is pushed forward from the spring, the bolt also puts the piston back in to place, making the action ready for another cycle.

The Gas Chamber
The gas chamber is the part of the shotgun that makes the automatic movement happen. When the round is fired, the explosion causes an enormous amount of gas to push the pellets out. While this is happening, this hot air is also being guided into the gas chamber from tiny holes inside the barrel. This change in air pressure and temperature causes the piston to explode from its rest, which pushes the bolt back and causes the elevator to lift the new round into the chamber, which causes the whole action to reset. If the gas chamber is disconnected, none of the automatic parts of the shotgun will work for this model. The gas operated semi-automatics are generally the more favored type to use for sporting and for beginners because the shooter can use lighter loads that have less recoil to use the shotgun. The inertia-driven models need heavier loads to create more force to drive the piston back.
The Barrel
The barrel is the piece of the shotgun that guides the projectiles out and away from the action. Accuracy and distance depend on the barrel. The longer the barrel is, the farther the shot will go, and depending on the projectile(s) that is(are) fired, the spread of pellets is tighter and travel longer distances. If the barrel is choked, meaning if the barrel has something to decrease the diameter at the end of the barrel, the pattern is also tightened. The miniscule holes inside the barrel allow the air to escape into the gas chamber.

Conclusion
When a round is loaded and ready to fire, the shotgun is ready to go through the motions of firing. When the shooter is ready, he or she pulls the trigger. The trigger activates the hammer, which strikes the firing pin causing the explosion. As the air pushes the bullet out of the barrel, air escapes through the bottom of the barrel into the gas chamber. This change in pressure causes the piston to move, pushing the bolt backward. While the bolt is moving backward, the bolt ejects the empty shell, which activates the elevator to bring a new shell into the chamber. When the bolt is pushed all the way back, it gets pushed forward from another spring that is behind it which in turn, pushes the piston back in place, making the shotgun ready to fire again.

A lot of shooters, especially a lot of shooters that are relatively small in stature, prefer the gas action semi-automatic shotgun over other shotguns because all of the moving parts take away from the massive recoil delivered from shotgun shells. Hunters especially prefer semi-automatics in general for bird hunting so they can have follow-up shots. These types of shotguns are especially useful for defense purposes because it allows for multiple shots in a short period of time with almost no effort needed.