

**REVISED AND UPDATED**



# Streetsweepers

**THE COMPLETE BOOK  
OF COMBAT SHOTGUNS**



**DUNCAN LONG**

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OF COMBAT SHOTGUNS**



**DUNCAN LONG**

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by Duncan Long

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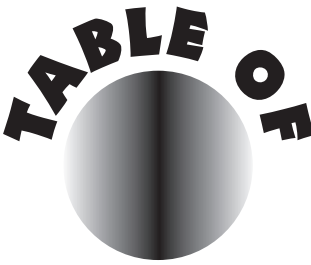
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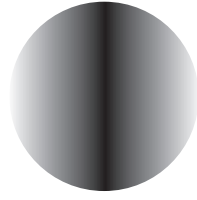
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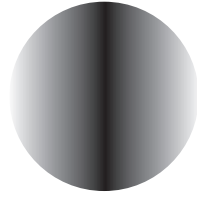
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# *Warning*

**T**echnical data presented here, particularly technical data on ammunition, rifles, and self-defense as well as the use and alteration of firearms, inevitably reflects the author's beliefs and experiences with particular equipment and tools under specific circumstances that the reader cannot duplicate exactly. The information in this book should therefore be used for guidance only and approached with great caution. Neither the author nor the publisher assumes any responsibility for the use or misuse of information contained in this book.



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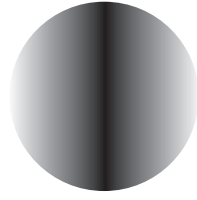


nce again, thanks must go to the many companies and manufacturers who were especially helpful in supplying samples of many of the firearms, ammunition, and accessories listed in this book as well as photos, drawings, and other information contained herein. Without the help of these manufacturers, a book like this would be impossible for an author to afford to write, and a second edition impossible to complete.

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# *Introduction*

**A**ny shotgun can be employed as a combat weapon, even if only as a club. And like all firearms, any shotgun is dangerous to one degree or another. That means that to some extent *any* shotgun can be considered a combat weapon. However, just as a carpet layer's tack hammer could never serve as a worthy replacement for a battle-ax, many sporting shotguns are not ideal for combat given the more viable alternatives that are available. Yes, such a gun might be pressed into service for self-defense, but the results are not likely to be as satisfactory (and perhaps not even successful) as when a more suitable firearm had been selected for the task.

With this in mind, I have ignored many otherwise fine guns and left them entirely out of this book or (at best) covered them only briefly. Instead, I have concentrated on those firearms that have been regularly employed in self-defense and combat or that seem ideally suited for such ends (the latter happening regularly with guns showing much promise but that run into legal or technical hurdles and therefore never go into production).

These evaluations are less than academic. Because so much can ride on the efficiency and capability of a shotgun, it behooves those depending on it for their safety, if not their lives, to study all the finer points of what might make any gun suitable to their needs. While the old saw that the best gun to have in a tight spot is the one at hand, it's equally true that some guns in hand are considerably *more* effective and dependable than others, all other things being equal. And while skill and familiarity with a shotgun can overcome many drawbacks, the owner of such a quality weapon is more apt to come out on top when he might not have prevailed with a lesser choice in firearms.

For this reason, police officers, soldiers, or home owners choosing a shotgun for self-defense must always consider what best increases the odds for success and even survival during an exchange of fire. Hopefully this book will be a help toward such ends, as it explores not only which shotguns may be superior in some situations, but also what sort of ammunition and tactics can be employed to increase their effectiveness. It will also examine the limits a shooter must be aware of to avoid placing himself at a tactical disadvantage.

Knowledge is power. In combat, the knowledge of which firearm is best for the task at hand, and the enlightened choice of tactics for its most favorable deployment, can spell the difference between winning or losing, surviving or dying.

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# CHAPTER 1

## *A Brief History of the Shotgun*

**B**ecause the very earliest hand-held firearms were undoubtedly smooth-bored weapons, a good argument might be made that the shotgun is the oldest of the small arms that uses gunpowder. Firing stones, metal pellets, or whatever else happened to be handy, these early black-powder weapons quickly changed the face of the battlefield—at least during dry periods when powder and the heated devices used to ignite it worked reliably.

While there seems to be no clear record of when firearms were first introduced to the European battlefield, it is likely that such events took place in the mid-1200s, with small, hand-held cannons not appearing until the mid-1300s. These hand cannons were heavy, however, and required a pike on which they could be rested before being fired.

Technological improvements seem to have been long in coming after the introduction of these first firearms. The first leap forward consisted of the use of a “match” (the term used for a smoldering cord) to ignite fine powder that in turn set off the main charge of gunpowder in the weapon.

A second step forward occurred in the early in the 1400s with the “serpent match” or “matchlock.” This was simply an S-shaped piece of metal tacked onto the side of a firearm. A burning cord (match) was attached to the metal lever so firing could be accomplished by pulling the lower end of the S so that the lit end of the match was levered into the flash pan. As this system was refined the matchlock became spring-loaded so that it could be released with a trigger, and a plate or “fence” was placed behind the touch hole to keep sparks from the burning gunpowder out of the shooter’s eyes. Matchlocks continued to require dry weather for their use and needed constant attention to keep the lit end of the match in the right position on its holder.

And the battlefield was still devoid of firearms when things got damp.

Wheel locks were invented by the Germans and did away with the need to ignite a match and carry it about waiting to use a firearm. While it was quick to bring into action, the complicated and expensive wheel lock did not do away with the matchlock and wasn’t used to any great

extent by those who armed the soldiers. The wheel lock had a steel wheel with cogs on it which, when released, was powered by a steel spring so that it spun about against iron pyrites and created sparks that fell into the primer pan. The spring powering the wheel lock was similar to that used in clocks of the time.

By the 1500s, the Spanish had introduced the smoothbore musket to the battlefield. In many ways this weapon—with its stock, long smoothbore barrel, and trigger system—must be viewed as the first true “shotgun” (albeit a bit heavy—up to 35 pounds). The term “musket” appears to be a corruption of the word *mousquette*, the Spanish name for a small hawk. Since Spanish cannons were named for birds of prey, it was only logical that their small “hand cannon” be named after a small hawk.

This period also saw the development of rifling. Strangely enough, many arms were rifled without spiral rifling. This straight cut down the barrel did stabilize the ball fired through the bore, but not nearly as much as when spiral rifling was used. (This failure to understand how best to use rifling, coupled with the extra effort needed to do such work—about a full day’s labor for a skilled worker—probably was the reason rifling took so long to catch on.)

The 1600s also saw a gradual lightening and shortening of the firearms. As wars spread through Europe and new territories were explored and colonies established, European weapons started the trend (which still continues) toward ever smaller firearms both in size and bore.

While military weapons tended to use either the matchlock or wheel lock ignition systems, a number of flint-ignition systems were also used on private arms during the 1600s. The most common of these were the *snaphaunce*, the *miguelet*, and the flintlock. Of these, the flintlock proved to be the best system and it gradually replaced all other ignition methods until it was *the* system during the early 1700s. (It should be remembered that a wide range of types of firing mechanisms and small arms were created and used in Europe during overlapping periods. Just as revolvers, automatic pistols, rifles, shotguns, etc., all can be found in use during the 20th and 21st centuries, so, too, the various types of

firearms in the past were regularly found side by side on the battlefield.)

The blunderbuss was developed in Europe, where it became popular during the 1600s and retained an important niche among combat arms for several centuries. The name “blunderbuss” appears to be the combination of *donderbus*, meaning “thunder box,” and *blondren*, which means “to mix up” or “confuse;” certainly the weapon lived up to its name given the smoke and fire it belched out when it was discharged.

Contrary to the old wives’ tales, the belled barrel of the blunderbuss didn’t increase the spread of shot fired from it. Unlike a constriction, or “choke,” in a barrel that changes the amount of spread in shot, the bell of a barrel makes no difference in how shot spreads when compared to an unflared muzzle. Rather, the bell on the end was to aid in reloading the weapon, the wide muzzle acting like a funnel for powder and shot.

This was an important improvement because of the length of time needed to reload a muzzle-loading, black-powder weapon. The ability to quickly charge the gun and drop multiple projectiles—often a pound or more—down the bore of the blunderbuss without a lot of fuss gave greater firepower to the owner of these guns. And the multiple projectiles regularly fired from them compensated for any small errors in aiming.

## GUNS IN THE NEW WORLD

The short-barreled, stocked blunderbuss was designed principally for close combat though it was undoubtedly sometimes employed for hunting purposes. As colonists reached the New World, both the blunderbuss as well as more conventional (by today’s standards) single-shot, muzzle-loading shotguns were to be found in their hands.

But there was a catch with the blunderbuss: it used a lot of lead shot due to its large bore, and lead was a scarce commodity in the New World. Thus, the European hunting shotguns and muskets became more popular for both hunting and self-defense in the colonies and the blunderbuss slowly fell from favor from 1600–1800, when the land was being settled and supplies were short. As early as 1621, those headed for the Plymouth colonies were advised

by those in the new land to bring their hunting shotguns with them.

Unlike the handy-sized blunderbuss, the hunting “shotguns” of this period were awkward monstrosities with long, unwieldy barrels; the shotguns ranged from a huge 4 gauge down to 20 gauge. Shot used in them varied from one large-caliber ball to several small balls or a large number of small pellets, which was often called “swan shot” or “swan drops.” (It is interesting to note that the great marksmanship often ascribed to early settlers was probably actually due to loads firing a number of projectiles.) While rifled arms were also used in the American colonies, the smooth-bored weapons were always there in greater numbers during this period.

While the colonists in America by and large disliked the blunderbuss due to its need for excessive amounts of shot, the Europeans adopted it as the weapon of choice in close combat. Short-barreled blunderbusses were used for everything from combat on the battlefield to assassinations to guarding the royal British coaches (where it was known as a “coaching gun”). And even after the introduction of accurate, rifled, multishot weapons, the blunderbuss continued to be used into the 1800s by the British in their overseas colonies as well as in Irish and British prisons.

Not surprisingly then, while the shotgun proved much more popular in the hands of the colonists, the blunderbuss was often seen in the hands of trained European troops and mercenaries stationed in the New World. This was especially true during the Revolutionary War, when Americans often found themselves looking down the wrong end of a blunderbuss’ barrel.

In the British Army, the blunderbuss was used in some dragoon regiments. The British Navy used the blunderbuss for cutting down rigging—as well as enemy sailors; in addition to standard shot, a special shot connected with wire was fired from the guns. This wire-and-shot load is said to have tumbled through the air to create a deadly bola capable of cutting rigging or men apart.

As the Americans created a rag-tag militia to preserve their rights, it was only natural that the shotgun was found in the hands of the colonists. These hunting weapons were pressed into service

and used with deadly results during the French and Indian War and again in the American Revolution. The effectiveness of the shotguns even caused the revolting colonists to deploy their smooth-bore muskets in a “shotgun” mode; George Washington is said to have instructed troops to load muskets with swan drops along with the standard musket ball in combat. It seems likely that the short range of the blunderbuss and the longer range of the colonists’ weapons also dictated the hit-and-run tactics often adopted by the rebels. It also seems likely that the longer range of these rifles and shotguns probably was a deciding factor in many of the successes the colonists enjoyed against European troops.

Later, the United States military used shot loads against the Indians in the Seminole Wars in the mid-1800s, when Gen. Thomas Jessup led army dragoons in the second Seminole War. In the heavy vegetation of the Florida everglades, shotguns proved the ideal weapon for fighting during this 7-year war.

While the fledgling U.S. military used shotguns on land, the blunderbuss was sometimes found in use at sea. Although the U.S. Navy’s normal procedure during an attack on another vessel was to use sharpshooters to cut down the officers on enemy ships, large “deck sweepers” were to be found on U.S. ships during the War of 1812. These guns were huge blunderbuss-like weapons mounted on swivels. The guns were loaded with grape shot as well as wire-connected shot. Apparently such guns were also sometimes mounted on barges transporting cargo up and down the rivers of the United States.

## THE JOURNEY WEST

Colonists in the new United States found that their shotguns worked with deadly efficiency in the heavy forests of North America. But as settlers moved West, the shotgun, with its short range, was often abandoned for the long-range accuracy of rifled arms. This, coupled with the amount of still-hard-to-get lead needed by the shotgun for each shot fired, helped first the Kentucky and later the Plains rifle become the combat weapons of choice to be carried westward. However, because many settlers were shy of money, when the choice came to buying

either a shotgun *or* a rifle, those with little spending money often opted for the shotgun. Consequently, those who could only afford a hunting shotgun were often forced to employ that weapon for self-defense in a pinch.

As powders improved and metallurgy gave manufacturers the ability to make tougher shotguns, it was discovered that the caliber of the weapons could be reduced without a loss in effectiveness. During the 1800s, the most common shotgun gauges varied from 8 to 20 gauge and the barrels became shorter as well. This trend continued, and today the 8 and 10 gauges are rarely seen. The 12 gauge is the upward size of bore, while the historically minuscule .410 bore has been found to handle a variety of tasks quite effectively.

One of the more important changes for firearms of all types, including the shotgun, came about in the 1800s with the invention of the percussion lock, also known as the cap lock. This gun used a metal cup (or “cap”) containing fulminate of mercury to create a spark that ignited the primer box.

Invented in 1805 by Scottish clergyman James Forsythe, the percussion lock didn’t catch on right away. This changed in 1834 when a public test between a flintlock and percussion lock put 6,000 rounds through each action; the percussion lock had six misfires while the flintlock had 922! After that shooters started asking for the cap lock and most gun makers used the design in their firearms whenever possible. (Ironically, many military purchasers still requested the flintlock. In fact, the U.S. regular infantry was armed with flintlocks when it went into battle in the Mexican War of 1846. Eventually, smarter military planners realized the value of the cap lock and many firearms in military arsenals were converted from flintlock to percussion-lock actions.)

Despite the shotgun’s popularity with American civilians and law enforcement officials for self-defense, and the U.S. Marine Corps’ successful use of double-barreled shotguns in the Mexican War, the shotgun gradually fell into a secondary position in the military units of the United States as the range of newer rifles continued to increase.

Much the same thing occurred to the

blunderbuss in Europe. Because of its short range, the blunderbuss was abandoned by the Europeans as muskets and rifles gained the ability to give accurate long-range fire. Muskets could be used both with ball and buckshot loads, so commanders could still achieve the multiple-projectile effect without using the blunderbuss; by the mid-1800s, it was rarely used in battle in Europe.

It would be wrong to claim that that the shotgun didn’t still see a lot of combat in the United States, however. Shotguns were in the hands of those settlers who defended the Alamo in 1836, as well as those of the Texans who took revenge when they “remembered” what happened there. While the shotgun was abandoned as an official military weapon during this period, they were selected by officers as their personal weapons. This continued throughout the time that the United States and Mexico battled during various border disputes.

The Civil War saw both the South and North ill-prepared to fight. Because of a shortage of small arms, many troops ended up carrying the family shotgun into battle. As the war continued, the majority of the shotguns that remained in service were on the poorly equipped Confederate side, especially in the hands of irregular troops. Confederacy shotguns often had their barrels “chopped” and cavalry troops sometimes shortened the stock as well. (While many gun barrels were shortened to make them more convenient to use, it’s probable that many barrels were dented, bent, or damaged by barrel obstructions; cutting off the damaged areas made it practical to continue using the weapon.)

During the post-Civil War era, it appears that the double-barreled shotgun became nearly as popular a brawling weapon as the six-shooter and the rifle. Apparently some nonissue double-barreled shotguns were also carried by U.S. cavalry troops in the Midwest (because these were not authorized weapons, they generally were more apt to be carried by high-ranking officers rather than privates).

The next giant step forward in gun design was the widespread introduction of the breech-loading cartridges; as the advantages of this design made itself known, the muzzle loader

quickly fell out of favor with those purchasing new weapons. The new cartridges also made it possible to create repeating firearms that quickly found their way onto the marketplace. With the advent of lever-action rifles and shotguns, the time taken to reload the double-barreled shotgun undoubtedly caused it to be replaced by the greater firepower of the repeating shotguns. By 1890, the double-barreled shotgun had lost much of its appeal as a fighting weapon and the new repeaters—including shotguns with tubular magazines—filled the void.

## THE REPEATING SHOTGUN

Probably the most important of the shotgun repeaters was Winchester's Model 1887 lever-action. This was one of the many John Moses Browning-designed weapons that found its way onto the world marketplace in the late 1800s and early 1900s. The 1887 seems to have become about as popular for self-defense as it was for hunting. Turn-of-the-century ads for the 1887 tell that it was available on special order with a short 20- or 24-inch barrel and touted it as being popular among guards, watchmen, prison guards, train hands, and express carriers.

In 1894 the Burgess Police Gun was introduced to the U.S. marketplace. This weapon proved to be a trendsetter for combat shotguns that were to follow it. The "pump-action" shotgun (with the pump mechanism forming part of the trigger-hand's pistol grip) had a 20-inch barrel that folded so that the weapon, in theory at least, could easily be carried in a belt holster. Weighing only 6 pounds, the gun could be brought into action in just a moment's time by drawing the gun and flipping the barrel down into the firing position.

Despite the availability of the 1887 and the folding qualities of the Burgess Police Gun, the Winchester Model 97 was to become the "granddaddy" of 20th-century combat shotguns. Its design put the pump action around a tubular magazine, thereby creating the layout many shooters for more than a century have found to their liking. The Model 97 quickly became *the* shotgun used by U.S. policemen, civilians, criminals, and even military personnel.

Following the establishment of the Philippines

as a U.S. commonwealth in the early 1900s, the Moros tribesmen waged a bitter uprising against U.S. occupiers. These Islamic Filipinos often took an oath to kill all Christians and then went on bloody rampages slaughtering all the "infidels" they could find. In short order, the U.S. Army was called in.

The soldiers had their work cut out for them. Working themselves into a drug-powered frenzy before going into battle, the Moros often proved to be more than the .38 pistols—carried by many U.S. troops—could counter. Beginning in 1901, the Winchester Model 97 shotguns were purchased by the U.S. Army and sent to the Philippines where the weapons proved to be devastatingly effective against such attacks; undoubtedly these weapons had a lot to do with ending the uprising.

Meanwhile, back in the States the Model 97 proved to be fast and reliable during various skirmishes between the U.S. border patrol and Mexican malcontents. Soon it replaced the lever-action Model 1887 among Southern police agencies as well as the Texas Rangers.

## THE SHOTGUN IN WORLD WAR I

After using the Model 97 shotgun in the Philippines (and briefly in the Mexican excursion to chase Pancho Villa), the U.S. Cavalry soon adopted the Winchester Model 97 shotgun. When World War I broke out in Europe in 1914, the U.S. Infantry had just added the Model 97 shotgun to its arsenals as well.

World War I proved to be a terrible clash of old and new. Many military leaders still insisted on using bayonet charges against machine guns; horses and tanks were both to be found in the mud of the European battlefield. Carrier pigeons were used to communicate on the battlefield while airplanes flew overhead; officers still could be seen carrying swords and wearing plumed or spiked helmets while poison gas filled the trenches.

Old tactics against machine guns soon caused both sides to become bogged down in miles of barbed wire and muddy trenches. In the stalemate that resulted, the automatic pistol and the shotgun both proved to be better for self-defense in the trenches than the awkwardly long

bolt-action rifle, especially when coupled with its sword-like bayonet. Among the Yanks the shotgun soon became a “trench sweeper” as it cleared out German troops who were not easily dislodged by other weapons.

The basic layout of the U.S. military’s 97 shotgun that came about during this period is of interest, since it was to influence the design of combat shotguns over much of the rest of the century and into the next.

The Model 97 was dressed up for combat use through the addition of a ventilated upper hand guard, a bayonet lug (for mounting the Enfield rifle bayonet), slings and swivels, and a short barrel length of 20 inches. This military version was the brainchild of Gen. John J. “Black Jack” Pershing, who had seen shotguns used by U.S. troops in the Indian Wars as well as the Spanish-American War, the Philippines, and Mexico. This special configuration of the Model 97 was designated the “G-9778-S” and the shotgun was popularly called the “trenchgun” by U.S. troops using it.

By the end of World War I, more than 30,000 shotguns had been used by U.S. troops, mostly in the trench warfare of Europe. In addition to trench fighting and guarding prisoners, the shotguns were also regularly used to shoot down German hawks (bent on killing Allied carrier pigeons) and are said to have even been employed in a bizarre game of skeet shooting, deflecting enemy hand grenades rather than clay pigeons!

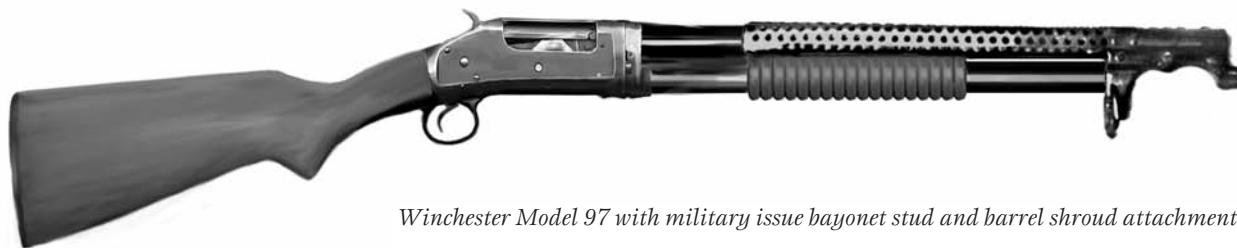
It is hard to imagine that Germany, which was using mass artillery attacks, bombs, U-boats (that sank civilian ships from time to time), and poison gas on the battlefield would be concerned about the wounding potential of shotguns, but such was the case. German troops were apparently terrified of the American shotguns; German commanders quickly made a number of formal protests that the use of shotguns violated

the Hague Convention and, at one point, threatened to execute any U.S. prisoner taken with a shotgun or shotgun ammunition (U.S. threats of reprisals kept any executions from actually happening).

German civilians became worked up about the shotguns as well. German newspapers wrote of “Americans’ barbarism” and speculated that “tomahawks and scalping knives” might soon be deployed by U.S. troops. Other papers wrote that Americans were not “honorable warriors” and that U.S. soldiers used shotguns because they were not skilled enough to use rifles.

While some interpretations of the Hague Convention of 1907 would exclude the shotgun from military combat (because the wounds it created made undue suffering and the pellets were lead rather than having copper, steel, or brass skins), the U.S. position was that the Hague Convention articles applied only to high-velocity projectiles like those from pistols or rifles where lead bullets actually deformed to create large wounds. This, coupled with a long historic tradition of using shotguns in military conflicts, made the U.S. military decide to continue to use the firearms in combat. And American “doughboys” could not have cared less if German newspapers called them barbarians.

While the shotgun apparently served well, the advent of the more compact and reliable submachine gun made more of an impression on many military planners during the post-World War I period than the shotgun did. Possibly this was partly due to the fact that the World War I-vintage shotgun ammunition, made with paper hulls, tended to swell in the mud and rain of the trenches so that rounds wouldn’t chamber and sometimes even failed to fire. (While an all-brass cartridge was developed for the American shotguns, the ammunition didn’t reach Europe before the armistice was signed.) Undoubtedly



*Winchester Model 97 with military issue bayonet stud and barrel shroud attachment.*

such shotgun failures at critical moments made lasting impressions on those who experienced them—and lived to tell about it.

## CRIME AND SHOTGUNS

The sudden economic upsurge in the United States following World War I, coupled with the end of the Depression, plus Prohibition hard on their heels, caused crime to explode in the States. During this period, the shotgun and submachine gun both gained a foothold on each side of the law as ever greater firepower was used to overwhelm an enemy.

While Hollywood has glamorized the Thompson submachine gun's role in the "Roaring Twenties," slide-action and semiautomatic shotguns (the latter usually called "automatic shotguns" in publications of the times) and Browning Automatic Rifles (stolen from National Guard Armories) actually created much of the mayhem during this period. Al Capone, John Dillinger, Bonnie and Clyde, "Pretty Boy" Floyd, etc., all had shotguns as well as automatic weapons to help them carry out their crimes.

Too, because of the high price of automatic weapons, many police departments and government agencies charged with fighting crime increased their firepower through the purchase of less expensive slide-action and semiautomatic shotguns. (The exception to this rule appears to have been the FBI, which during that period seems to have adopted the Thompson submachine gun as its symbol.)

During this time the Winchester Model 97 continued to be popular in the U.S. on both sides of the law, but many of those who carried shotguns for fighting employed the new Browning-designed Remington Model 11. This semiauto shotgun proved very reliable and was able to quickly lay down a hail of lead with little effort on the part of the user. As with other weapons exploited by criminals, the Model 11 was also popular with many law enforcement officers. But unlike criminals, who preferred short-barreled shotguns that could be hidden under a coat or easily maneuvered inside a get-away car, some law officers adopted long-barreled shotguns with custom-made barrel

extensions that increased the magazine to eight or nine shots.

The Model 11 was actually a version of the Browning Auto-5 semiautomatic shotgun. John Moses Browning sold the manufacturing rights to the Auto-5 to the Fabrique Nationale in Belgium after Winchester decided against manufacturing the semiauto shotgun in this country (where it would be competing against the two other successful Browning shotguns being manufactured by Winchester).

In 1905, Browning sold the manufacturing and U.S. distribution rights for the Auto-5 to Remington, which renamed it the Model 11. (The patent rights to the Auto-5 shotgun expired in 1923; since then a number of companies have produced copies of the Auto-5 with various names and gauges.)

## THE NATIONAL FIREARMS ACT OF 1934

To create their shorter shotguns, many criminals sawed off both the barrel and stock of the weapons (a practice dating back to the 1800s with double-barreled shotguns). This created a short "whippet" gun that was easily concealed under the baggy clothing of the day. With government agencies playing to the public's fear of a growing crime wave, Congress (as it is wont to do) exploited the situation to grandstand with firearms laws that would result in the National Firearms Act (NFA) of 1934. This law restricted the ownership, alteration, and manufacture of shotguns with barrels of less than 18 inches in length and overall shotgun length of at least 26 inches. (This same law also set the minimum lengths for rifles and restricted the ownership of automatic weapons.)

As has too often been the case with firearms legislation, the NFA did little to curb the use of arms it made illegal—criminals not often being deterred by laws. But the law did forever alter the path of development used by manufacturers designing new firearms for the large U.S. market. Short-barreled shotguns, once marketed to homeowners for defense against criminals, were abruptly removed from the marketplace; those owning such guns were forced to destroy or register them.

## WORLD WAR II

Despite the warnings of the Spanish Civil War and the German invasion of Czechoslovakia and Poland, both the U.S. and British militaries remained woefully under-armed right up to the time they entered World War II.

Much of Britain's problem stemmed from the "foresight" of its politicians who felt it would make them morally superior if they dumped most of their small arms inventory into the Atlantic following World War I (which was, the public was reassured, the "war to end all wars"). Thus, the British faced a scarcity of infantry weapons when the war broke out, with this dearth becoming acute following the defeat at Dunkirk.

As British Home Guard units were formed following the Dunkirk disaster, sporting shotguns—augmented by troops carrying sticks or farm implements as weapons—were often the only firearms available for defense of the mainland by these rag-tag groups. In an effort to gain more weapons, Britain purchased all sorts of small arms—including many shotguns—from the United States as well as other countries. Adding to this was the donation of privately owned firearms by U.S. civilians wanting to help their cousins on the other side of the Atlantic. Meanwhile, shotgun ammunition (as well as all other types of small-arms cartridges) was being manufactured at peak rates in Britain, the United States, and Canada.

When Japan attacked Pearl Harbor, the United States was finally forced to do more than supply small arms to Britain. Like the British, the Americans had let their military wither, and, with the outbreak of the war, the U.S. government started scraping nooks and crannies for weapons with which to arm troops. Soon the U.S. Army was purchasing shotguns both from manufacturers as well as distributors with shotguns in stock. (Some uses for the U.S. shotguns seem rather quaint to those living in the computer age; while it's hard to picture, part of the training of aerial gun crews was with shotguns and skeet equipment.)

Throughout World War II, the branch of the military receiving the largest numbers of combat shotguns was the U.S. Marine Corps. In the dense foliage of the Pacific islands, where

encounters were often at close range, the shotgun proved to be very effective against Japanese troops. (In fact, the marines liked the weapons so well that they often stole them from army units.)

While the shotguns were ideal for patrolling and facing the Japanese "banzai" attacks, Americans found that the guns weren't without shortcomings in combat: it was hard to carry enough ammunition for a shotgun, and the rate of ammunition consumption was found to be a problem. (The scarcity of ammunition sometimes became so acute that marines would exhaust their ammunition and be forced to pick up and use enemy weapons during extended battles.)

Unfortunately, the U.S. military ignored World War I's important lesson about the frailty of paper hulls on the battlefield; combat troops were initially issued shotgun ammunition with paper hulls, which swelled in damp conditions of the Pacific and became hard or impossible to chamber in the shotgun. Finally an all-brass cartridge was created and distributed to shotgunners. The shell was designated the M19 and had nine 00 buckshot pellets in it. This shell continued to be the standard for the U.S. military until the late 1960s when it was replaced by the plastic-cased M162.

While a number of brands of shotguns were used in World War II, the most common shotguns in the hands of the Marine Corps were the Winchester Model 12 and the old Model 97. These were both equipped in "trench gun" attire with bayonet lug, 20-inch barrel, ventilated hand guard, and sling swivels.

On the European and African fronts of World War II, the shotgun was rarely used. The longer ranges made use of the shotgun suicidal for anything but house-to-house fighting (where it wasn't apparently used, either) or guarding prisoners. Shotguns did see use in Europe in the hands of guerrillas and partisan fighters, however, since these sporting arms were often ignored by Nazi occupation forces who confiscated handguns and rifles.

Thus, all types of sporting shotguns were used for partisan fighting according to what was available. But even this use of the shotgun dropped off as the war dragged on and ammunition became scarce. As in World War I, German soldiers feared the shotgun and Nazi

reprisals were often quick and brutal when the weapon was deployed against German troops. Partisan fighters soon discarded their shotguns and replaced them with rifles, pistols, or submachine guns.

## **POST-WORLD WAR II SMALL ARMS**

Following World War II, several different routes were taken in weapons development. While all the studies done by the United States, Britain, and others agreed that high rates of firepower were needed on the modern battlefield, the ways of achieving these rates were to take two distinct routes. One was toward small assault rifles; the other, less popular route, was toward an updated version of the shotgun.

While new weapons were being created for the battlefield, the “old-fashioned” shotgun was proving that it was still deadly and effective in anti-insurgency actions of the British in Malaya (later known as Malaysia), as well as in the hands of guerrilla fighters in Cuba, North Africa, and Indochina.

The British were diligent in studying the effects of the shotgun in close combat: from the end of World War II until 1957, British troops fought Communist guerrillas in Malaya. Their studies of these battles are especially important because the information has tended to influence the search for a combat shotgun by the modern militaries in the West. Perhaps the most important fact to come out of the research was that the semiautomatic shotgun proved superior to the manually operated systems in close combat. In fact, the British found that the number of semiauto shotguns used by a patrol was directly proportional to the number of “kills” they made when encountering a guerrilla group. (The semiauto used by the British was generally an unaltered 28-inch barrel Browning Auto-5 sporter. The Remington 870-R slide-action shotgun with 20-inch barrel was used to supplement the Browning shotguns.)

Another important piece of information to emerge from British studies was that contact between fighting groups in the jungle tended to be brief, with the initial barrage of fire often deciding the outcome of the battle. Thus, the side

with the most initial firepower was often the side to inflict decisive casualties on enemy troops. In addition to the need to use semiauto actions to increase firepower, it was also discovered that troops needed to fire standing up and should be trained to shoot with enough skill to guarantee hitting their targets; having troops “hit the dirt” and use shotguns as if they didn’t require aiming skills proved to be poor tactics when the goal was to inflict damage on the enemy.

The British found the shotgun ideal for nighttime use, too, since it compensated somewhat for aiming errors created by the darkness. This, coupled with training troops to aim below an enemy’s light-colored face (which tended to become a target in the dark rather than the larger body belonging to the enemy face), also increased the number of guerrillas killed by British troopers.

The British studies drew comparisons between the semiauto shotguns used in jungle warfare and the bolt-action rifle and submachine gun. While at ranges beyond 100 yards the shotgun didn’t perform as well as even the bolt-action rifle, most jungle fighting took place within 75 yards. Within these ranges, any given semiauto shotgun being carried on patrol was capable of producing one hit on an enemy per every five encounters; the submachine gun scored a one per eight (assuming a five-round burst of fire was used); and the bolt-action rifle scored one hit per 11 encounters. In addition to single “hits,” most shotguns using cartridges filled with nine 00 buckshot pellets achieved a multiple-pellet hit on an enemy. The British found that such multiple hits normally immobilized the slightly built guerrilla troops.

When single-projectile hits were involved, none of the three small arms were capable of immobilizing a foe unless the projectile hit vital areas. However, both the rifles and submachine guns fired full-metal-jacket bullets that tended to fully penetrate guerrillas struck by the projectiles; this meant that a guerrilla wounded by a rifle or submachine gun bullet often recovered in several weeks if the projectile missed vital areas. Not so with shotgun pellets. Even if a single pellet failed to hit a vital area, it usually didn’t have enough momentum to exit the body; a guerrilla struck by one of these projectiles often received a wound

that later became dangerously infected in the jungle environment.

The British also discovered some drawbacks with the shotgun. One problem, never resolved, was that at ranges beyond 50 yards the 9-pellet load of 00 buckshot created patterns in which a man could stand without being hit. While switching to a load of more numerous but smaller buckshot would shrink the gaps in the shot pattern, the smaller projectiles also lost velocity faster so that any wound inflicted might not be as serious. Thus, the shotgun had an effective range of only 50 yards *if* the shooter was to be assured of being able to hit an enemy with a single shot.

Another major problem was that tube-type magazines were awkward to reload, especially during the heat of battle. Finally, the shotguns did not prove as reliable as one might hope; failure rates of one per 250 rounds fired were the norm.

The shotgun saw only minor combat use in American hands during the Korean War. The shotgun's principal use in Korea was by U.S. troops guarding prisoners. Because of the lack of trees and dense cover in Korea, most fighting took place at longer ranges than the shotgun was capable of handling.

The U.S. shotguns used in Korea were generally identical to those of World War II. But behind the scenes some work was going on to create a semiauto combat shotgun. Most such work was centered on the gas-operated shotgun that came onto the civilian scene in the United States following World War II. Among the first of these was the Remington Model 58 introduced in 1956; this was followed by improved models: the 870 (in 1959) and the 1100 (in 1963).

Many gas-operated shotguns designed for sporting use have limited magazine capacities due to the way the gas is bled from the barrel. This was not the case with the Remington 1100, which bled gas from around the magazine tube. Because of this design, the magazine could be extended to barrel length to increase the magazine capacity. Remington took advantage of this fact to work on the development of a fighting shotgun for military/police use (in conjunction with the Remington 870 slide-action shotgun, which used many of the same parts used by the 1100). While the U.S. military as well as several police agencies

were interested in Remington's work on developing semiauto and even fully automatic versions of the 1100, no more than a few prototypes were ever actually sold to government agencies, which continued to use slide-action shotguns for the most part.

## SHOTGUNS IN VIETNAM

The Vietnam War, which the United States inherited from France, also saw use of the shotgun by U.S. troops. Both the U.S. Army and Marine Corps used shotguns for perimeter patrol and security operations in Vietnam. Some shotguns were also used by patrols, with the point man often carrying a shotgun. These shotguns were all slide-action weapons and included the Stevens 520A, the Stevens 620A, and the Winchester M1912 among others. (Fielding of shotguns might have been greater in Vietnam if the South Vietnamese government had trusted its people more fully. Some 100,000 slide-action shotguns were purchased by the U.S. government and shipped to Vietnam to be given to the hamlet defense forces of South Vietnam in an effort to teach the small villages to defend themselves. These shotguns varied in make; most were Ithaca and Savage shotguns with a few thousand each of Remington and Winchester models. Most of these shotguns were made with small stocks to suit the smaller stature of the Vietnamese people. Unfortunately, most of these guns were never distributed to the hamlets because the South Vietnamese government was afraid the weapons might fall into Vietcong hands. Thus, most of these weapons rusted away in South Vietnamese warehouses—until they finally fell into enemy hands with the downfall of Saigon.)

## APPLYING THE LESSONS LEARNED IN WAR

Using information gleaned from experiences in Vietnam, the U.S. military did a number of studies of how the shotgun performed in combat. These studies led to changes in the weapons offered by the United States and other arms manufacturers that were being created for sale to

the military and police markets. Among the new requirements were larger magazines, increased reliability, more resistance to dirt, and shorter overall length. Perhaps the most important requirement was that the weapon should have a reliable semiauto action—a requirement that has proved the hardest to fulfill.

One of the outcomes of some of these specifications was the Mossberg Milsgun, which became the Model 500 series of Mossberg shotgun, introduced in 1979. While they are pump guns rather than semiautos, the 500 shotguns do meet most of the other requirements and take advantage of modern industrial techniques to keep costs down. The 500 models have proven popular with police departments as well as hunters (in the weapon's hunting version) due to their low prices and rugged design. Later, a spin-off of this design, the Model 590, would be adopted by the U.S. military for a variety of tasks, from guarding embassies to use by special forces.

The Remington Model 870 12-gauge shotgun with extended magazine and a bayonet lug also enjoyed use by the U.S. Marine Corps for combat. A folding-stock version of this weapon was used for guarding various U.S. embassies worldwide and is sometimes carried by State Department employees.

Several other important U.S. military development projects and studies continue to influence the thinking and design of combat weapons including the shotgun. Of these, ALCLAD, SALVO, NIBLICK, SPIW, and RHINO/MIWS have proved to be the most influential to date. Work on these projects dates back to 1948, when the U.S. Army created the ORO (Operations Research Office), which was to study how military equipment—especially weapons—and tactics were used and outdated in warfare. (The ORO's research was later taken over by the JSSAP—Joint Services Small Arms Program.)

The first major “spin-off” from the ORO work was ALCLAD. The ALCLAD project was aimed at developing better body armor (capable of protecting the wearer from nuclear, chemical, and biological weapons as well as small-arms fire). But the information collected also had profound effects on the thinking of how small arms were actually being used on the battlefield.

In short, after studying nearly 3 million casualty reports from World War I, World War II, and the Korean War, ORO discovered that automatic weapons and what amounted to nearly random-firing patterns were creating many more casualties than the “aimed”-fire techniques that were being taught to troops. Because of this, large expenditures of ammunition took place for each “hit” scored on an enemy.

As the study continued, it was discovered that nearly all casualties took place within 300 yards—with most rifleman rarely even able to see targets more than 300 yards away—and that the vast majority of casualties took place within 100 yards from the rifleman. At this point, it was also suggested that some type of pattern dispersal method was needed to give a rounded pattern to projectiles leaving an automatic weapon to compensate for aiming errors of the operator. Toward such an end, it was suggested that small-caliber, automatic weapons might be much better than the large battle rifles then in use.

These ideas led to the U.S. military's SALVO research project. SALVO was to determine if a weapon could be developed to fire a swarm of projectiles to compensate for sighting/reflex firing errors and score greater numbers of hits on a target. Multibarreled weapons, standard rifles with dispersal attachments on their barrels, and multiple bullet rifle rounds were all evaluated both for effectiveness and practicality. (Strangely enough, little work was done with shotgun-style weapons; this was probably due to failure to grasp the idea that most fighting occurred within 100 yards. Military thinking still insisted on weapons capable of firing over several hundred yards.)

The SALVO work eventually led to the development of the 5.56mm/.223-caliber bullets which, in turn, eventually resulted in the adoption of the AR-15/M16 rifle by the U.S. military. (Interestingly, range requirements for this weapon started out with a maximum range of 300 yards. This was gradually increased to 500 yards and then changed to a slightly greater 500 meters—despite the fact that 100 yards was the actually closer to the practical range needed! This type of insistence on unneeded long range for infantry small arms keeps the shotgun locked out when considerations are being made as to

whether or not to develop a U.S. military combat shotgun. For more information on the development of the AR-15/M16 rifle, see *The Complete AR-15/M16 Sourcebook*, available from Paladin Press.)

While the United States adopted the AR-15 (as the “M16” rifle), work continued with the ORO to develop even better weapons to replace the M16 in the near future. Moving on with the SALVO idea, the ORO launched NIBLICK, which eventually led to the development of the M79 and M203 grenade launchers. While these were originally slated to be repeating weapons, they reached the battlefield as single-shot launchers.

Despite the failure of developers to stick to the original specifications for the weapons, the grenade launchers did prove useful on the battlefield and gave U.S. troops a weapon capable of returning fire with long-range explosive warheads while not burdening the soldier carrying the weapon.

## **SPIW**

ORO also worked on developing the SPIW (Special Purpose Individual Weapon), which again was designed to carry out the concept of multiple-projectile rounds being fired to compensate for human aiming errors.

Unfortunately, SPIW became mixed up in politics by those who were bent on keeping the United States from adopting the M16 rifle to replace the M14. The argument was that the M14 should be kept in service while the SPIW was perfected, allowing the United States to leapfrog ahead without spending money on the intermediate technology of the M16.

But the SPIW prototype weapons and even the basic concepts that fueled the research created results that were less than ideal.

After discovering doctored tests that “proved” the M14 superior to the M16, a furious Robert McNamara, secretary of defense in the 1960s, adopted the M16 and the SPIW concept was relegated to research for the creation of a possible replacement weapon to be adopted early in the 21st century. (The SPIW program continues to develop and test prototype weapons at the time of this writing, and it is possible that the next U.S. military “rifle” will be an outgrowth of this program.)

In description at least, the SPIW could easily be a shotgun. The shotgun normally fires a dispersed pattern that compensates for shooting error. The catch comes with the antiquated ammunition used by shotguns, which causes many design problems as well as making it impossible to adequately cover the 100-yard range of normal combat (let alone the occasional 300-yard outside range). Thus, while some of the SPIW research has concentrated on shotgun-like weapons, more of it has been aimed at developing lightweight rounds capable of being used in a “burst” mode of automatic fire to saturate a target with fire.

A number of innovative projectiles have been created in the SPIW project, and many could be adapted to shotgun use. The most common projectile (and for a long time at the head of the pack) was the flechette. These were small, finned projectiles that looked like miniature rockets or bombs. They were packaged in a sabot, which sealed propellant gas around the flechette as it journeyed down a gun barrel. Once free of the barrel, the lightweight flechette shed its sabot and streaked toward a target at speeds of around 4,000 fps or more.

The problem was that the flechette dispersed downward as well as to either side and upward. That meant that about a fourth of any given swarm of flechettes went into the ground, in effect totally wasted. Additionally, the projectile that did hit a flesh-and-blood target didn’t create as serious a wound as did a bullet. And adding to the problems, while the swarm could blanket a target area, there was no way to deliver a precise hit to a small area. That meant a precise shot, if called for, could not be delivered by a soldier who rather had to blaze away hoping one of the projectiles might chance to hit the mark.

The SPIW rifle project turned into the ACR (Advanced Combat Rifle) project in the 1980s. The two main contenders in this race were AAI’s (Aircraft Armaments, Inc.) XM70 rifle (which is an outgrowth of its earlier XM19 SPIW) and Heckler & Koch’s G11 rifle (which was developed independently from the SPIW program, mostly for the West German military). These were later joined by Colt’s modified M16 rifle and a new design from Steyr that fired a single flechette.

Unfortunately all of the ACR systems proved

to be only marginally better (if at all) than the issue M16 rifle. So all came to a dead end, along with any thought of employing a flechette cartridge in a standard issue military weapon.

## MIWS

While it appeared at the time that the SPIW would be the future “rifle” of the U.S. soldier, the military hedged its bets by running a parallel program to develop a combat weapon. This was initiated in 1979 by the U.S. JSSAP and its task was to develop a shotgun-like weapon for the infantryman. First given the title of RHINO (Repeating Hand-held Improved Non-rotating Ordnance), the program later became the MIWS (Multipurpose Individual Weapons System). In effect, this program’s task was to develop a shotgun system suitable for military use.

One path taken by the MIWS was toward developing new, improved ammunition for the shotgun in an effort to improve its range and casualty-inflicting ability. Original plans were for a rimless cartridge about 3.5 inches long of 10 or 12 gauge. Additionally, the shell was to be made of heatproof plastic or aluminum capable of keeping the cartridges viable even if it was exposed to water or other solvents common to a battlefield such as oil or grease. These metal cartridges would also keep ammunition from charring or melting when chambered in a weapon that had been fired excessively.

A number of new projectiles were tested in this program, including the original flechette designs created by the SPIW program. Additionally, ring airfoils, nested tubular projectiles, a flying blade-like projectile (AAI’s SCHMITR), and common buckshot pellets were tested. These projectiles were made of a wide range of metals including lead, steel, and depleted uranium (Stabiloy).

As the MIWS program continued, a line of research was initiated to develop other types of ammunition that might be used with the weapon. This led to the addition of high-explosive rounds (fragmentation and anti-armor shaped charges) as well as flares, tear gas, line-throwing, and incendiary rounds. These rounds would have 6-inch or longer cartridges and would be loaded into the MIWS manually.

Unfortunately, to achieve a larger range without reducing the “payload” size of the shotgun projectiles, the recoil of many test weapons increased. This would have created problems with training and using the weapon and would also have led to a heavy weapon in order for it to stand up to the battering of the cycling operation. The large size of the ammunition also would have created built-in logistical hardships in the carrying of ammunition by operators as well as problems in military supply lines. Finally, the large size of the shells limited magazine capacity and the overall design of the weapon. (A number of designers and critics suggested that these problems could be overcome with the design of a smaller cartridge firing only four or five projectiles at a time. But this, unfortunately, was unpopular with military researchers.)

Original specifications for the MIWS were that it would have a maximum length of 39 inches and a minimum length of 28 inches; a large-capacity magazine of 10 to 20 rounds; reduced recoil (not more than that of an M16 rifle); weigh 9 pounds or less (unloaded); and be capable of using a silencer (perhaps rather optimistic for a weapon of this caliber) as well as a shot pattern control device for precise, long-range shooting. Additionally, it was understood that the weapon would be capable of working in the mud, dirt, sand, and ice that are often found on the modern battlefield and that the weapon would be able to be used in a full-automatic mode (most critics doubt the usefulness of this idea given the multiple projectile load of each round).

As to ammunition requirements, the MIWS was to have a minimum effective range of 100 meters and a shot pattern that opened to 4 feet within 7 yards and then remained constant to 100 yards (thought impossible with current technology except, perhaps, with flechettes). Slugs or discarding sabot ammunition was to be available for the MIWS to use at ranges from 50 to 200 yards.

During the early 1980s, as work progressed on various models of the MIWS, the weapon became known as the CAW or CAWS (Close Assault Weapon or Close Assault Weapon System). The CAW acronym is what this program was generally designated with from that time on.

Four groups created prototype weapons for

the JSSAP CAW program: Heckler & Koch teamed up with Olin/Winchester, Pan Associates, AAI, and Ithaca Shotgun. Of these, the AAI and H&K guns appeared to come closest to meeting the requirements for these weapons.

Smith & Wesson also developed a CAW of their own during the mid-1980s. This shotgun had an overall arrangement of “controls” laid out in a manner similar to that of the M16 rifle to ease training requirements in the military; but as the CAW program fell into trouble with ammunition that was proving too bulky, the gun too heavy, and recoil too excessive in order to meet the range requirement of the military, S&W saw the handwriting on the wall and its gun was tabled indefinitely with only a few prototypes having ever been made.

Experimental ammunition for the CAW was produced by Olin and the Vought Corporation with AAI trying, one last time, to exploit flechette ammunition for its CAW with the hope that it could be employed to engage targets at 150 yards with lethal results.

In the end the CAW systems failed because the ammunition needed to extend the range of the weapon to the distances required by the military created an excessive recoil that was punishing to the user. This, coupled with the large size of the cartridge itself, limited capacity of the weapons and burdened a soldier with a heavy load of ammunition if he was to have an adequate supply for engaging an enemy for any length of time. The size of the cartridges also dictated a weapon design that was rather large, making the CAW somewhat awkward even when the bullpup layout was employed. Compared to the M16 rifle, and especially compared to its M4 carbine version that would soon be coming into widespread use with the U.S. military, the various CAW weapons were big, clumsy, and of limited potential.

The problems of excessive recoil, large-sized cartridges, and limited range was never solved. Should new powders and technology bring about the solution, the shotgun might even replace the rifle on the modern battlefield. But until that leap forward in technology, the militaries of the world will be issuing rifles and submachine guns to most troops, relegating the shotgun to use by elite troops for guarding embassies and the like.

## INNOVATIONS

Interest in shotguns by various militaries and special elite troops worldwide is waxing, and its use by police agencies seems to have dropped as well. However, it continues to be seen in many police departments and in the hands of citizens who want to take advantage of the special capabilities this weapon offers.

And the shotgun continues to be refined with new types of ammunition as well as manufacturing techniques and materials redefining how guns can be designed and utilized. So while to date there have been a number of false starts with prototypes for the SPIW and CAW ideas, it may be that tomorrow will see a revival of these ideas as this or that material, technology, or innovative design makes what was only dreamed of in the past a reality.

In the meantime, the sporter-modified combat shotgun loaded with commercial ammunition continues to be ideal for many specialized tasks (if not as flexible for all combat tasks). It continues to be widely used for self-defense in the United States and is found in many police patrol cars throughout America. In Europe, where police and paramilitary units have traditionally used the submachine gun, the shotgun is making inroads in anti-terrorist units and with other elite troops. It appears that the shotgun may be on the verge of reacceptance as a combat weapon that is ideal for some—though not all—combat uses.

So even if such changes aren't made in the configuration of the shotgun or in the ammunition it uses, it's probable that the shotgun will continue to be fielded where close combat calls for its ability to lay down massive, deadly fire at close ranges in a minimum of time. Whether in jungles or the “privacy” of the home, the shotgun will continue to serve as an awesome combat weapon just as it did for those who have carried it into combat over the last few centuries.

And *if* the technology makes possible a CAW or other similar weapon, then all bets will be off. At that point we may see a departure from the centuries of the rifle being selected as the first choice for arming troops. It is entirely possible that troops in the future will be carrying a shotgun-like weapon into combat, firing cartridges

that might be unlike anything most shooters are familiar with today.

In fact we may already be seeing the first steps toward such a weapon, with the OICW (Objective Individual Combat Weapon) that has combined a very shortened rifle with a grenade launcher that is more shotgun than traditional grenade launcher—and both guns highly computerized with “smart grenades” to boot. As will be seen in a subsequent chapter, such a weapon may eventually become the standard-issue gun for combat troops and may be the first of an evolutionary line that will lead to a computerized shotgun that can fire anything from a conventional buckshot load to a “smart” minigrenade that explodes when it gets alongside a target. And perhaps such a weapon will even be equipped with a computerized sighting system to be sure targets are never missed.

## THE ASSAULT WEAPON BAN

Before looking at the trends in ammunition it is important to look at legislation that not only is limiting small arms design on the civilian market but also modifying the choices citizens have when looking for a defensive weapon.

Until 1994, the basic federal rules that applied (and still do) to shotguns were based on the NFA of 1934. This dictated that a shotgun must have at least an overall length of more than 26 inches in order to be legal to own without a special federal permit. Additionally, this law required a shotgun to have a barrel at least 18 inches long, measured from the face of the bolt to the tip of the muzzle when the bolt is in battery (which means most barrels are shorter legally than they really are physically since the bolt extends into the rear of the barrel). The bottom line is to always be careful never to shorten a barrel or stock below these limits unless you have the federal and state paperwork to make such a modification legal (and have that paperwork in hand *before* the modifications are made).

The federal law regarding shotguns became more complex in 1994. At that time, in another brief burst of antigun hype, the U.S. Congress passed what has come to be known as the “assault weapon ban.” Like too much legislation

that has emerged from the D.C. area in recent years, this law was ill-conceived and equally ineffective, targeting guns that were rarely used in crime and “banning” only the new manufacture of such guns.

Additionally some parts of the law were so vague as to be open to a variety of interpretations, thereby giving U.S. inventors a problem to be solved in creating original mechanisms that skirted the new laws and guaranteeing that both bureaucrats at the BATF as well as lawyers defending those poor souls who were charged with violations of the law would be well employed in cases for years to come.

While arguing that the weapons banned were only of use to criminals and drug dealers, politicians also put clauses into the law permitting government law enforcement agencies to be exempt from the regulations (thereby suggesting to many that criminals and government agents were much the same in many cases). Additionally all guns made *before* the ban were grandfathered so that they remained legal, thus leaving all those “dangerous” weapons floating about and becoming ever more valuable to those selling such guns. Of course, none of this made a bit of difference to the politicians championing such ineffective laws.

For people looking for shotguns for self-defense, this has created a few pitfalls. Unless he works for a government agency, someone who wants a semiauto shotgun for self-defense must either be willing to put up with a gun that is limited in its configuration—or which was assembled in an “assault weapon” configuration *before* 1994.

On the other hand those wanting to assemble a combat weapon around a shotgun that is not a semiauto are pretty much free to do as they please. In their haste to pass the “assault weapon ban,” Congress completely left out slide action, rotary action, and other systems, instead only including semiauto shotguns, pistols, and rifles in the ban on manufacturing.

So the key thing to remember is that semiauto shotguns from before the ban in the “assault weapon” configuration can still be purchased and owned in most areas of the United States (though this varies according to local and state laws), while postban semiauto

shotguns must meet the specifications of the law in order to avoid being illegal.

According to this federal law, a semiauto shotgun could be transformed into an illegal configuration by adding any *two* of the following to it:

- A folding or telescoping stock
- A pistol grip that protrudes conspicuously beneath the action of the weapon
- A fixed magazine capacity in excess of five rounds
- The capability of accepting a detachable magazine.

Notice that you can add any *one* of these features to a shotgun and it will still be legal. You might, for example, opt for an extended magazine and the gun would remain legal (and useful for combat). On the other hand, one modification in the form of a folding stock would probably make the gun illegal since most folding stocks also have a pistol grip.

Of course, with American inventors being mavericks at heart, you can bet that there will be accessories that get around the law while giving these same capabilities. For example, the law (for some odd reason) goes to some length to describe

a pistol grip as extending *below* the action of the shotgun; no doubt some enterprising inventor will come up with a pistol grip that extends to the side, is even with, or is above the action, thereby making it legal. Likewise the use of a thumbhole design can give a shooter all the benefits of a pistol grip—but in a legal configuration.

In the end, about the only thing a combat shotgun really needs is a large magazine capacity. That means a person can opt for a semiauto shotgun with a magazine extension and have all the capability he needs.

The other key thing to remember is that if you feel you need a folding stock, pistol grip, magazine extension, and so forth, the simple solution it is to opt for a pump shotgun, because the federal assault weapon provisions do not apply to pump-action shotguns, revolvers, or other non-semiautomatic firearms. There is no telling about legal insanity, but you don't have to be strapped by legislative nonsense if you are aware of the law and then exploit its loopholes.

(At the time of this writing, there seemed to be a chance that the sunset clause in the assault weapon ban might go into effect, bringing an end to this legislation. Hopefully this will be the case so readers no longer have to contend with it.)

# CHAPTER 2

## *Ammunition*

**T**he dimensions and shape of modern shotgun ammunition were determined by the shells used in black-powder guns used in the late 1800s. Because of this, shotgun ammunition is large and not ideally suited to many repeating actions due to the rim on virtually all modern shotgun shells (with the exception of those created for the CAW program). That said, a few manufacturers are starting to modify shotgun ammunition in ways that make it more viable for modern combat (and more on these in a moment).

One of the most successful of these to date is the 1.75-inch 12-gauge shotgun shell developed by Industrias Tecnos SA de CV (in Cuernavaca, Mexico) which is best known as the manufacturer of the AGUILA line of ammunition. The new cartridge, aptly named the Minishell, is a full inch shorter than standard shells with only slightly less power than many full-size cartridges. The Minishells are loaded to SAAMI (Sporting Arms and Ammunition Manufacturers' Institute) specs and generate basically the same pressure in the chamber of 12-gauge shotguns as do other modern, factory-loaded cartridges.

The tradeoff with the shorter length of these cartridges is just a slight loss of power while the shooter gains the ability to load 12-to-14 rounds into the magazine tube of a 20-inch barrel shotgun rather than the usual 7-to-8 rounds. In other words, a shooter comes close to doubling his magazine capacity and is almost always able to load 40 percent more Minishell cartridges into any given tubular magazine.

The problem with the AGUILA Minishell is that most shotguns will need slight modifications to handle it, and semiauto guns are not easily modified without the loss of the ability to fire full-sized cartridges. However, with pump guns this is a different story—the Winchester 1300 Defender (more on this gun and other shotguns mentioned in this chapter and elsewhere) generally is able to chuck the shells through its system without a hitch.

The popular Mossberg 500 and 590 series will cycle Minishells fairly well, but for complete reliability the metal shell elevator needs to be widened and lengthened (a job easily handled by most gunsmiths). This

modification allows very reliable feeding of Minishells as well as standard-length shells so that the versatility of the shotgun is preserved. Added dependability can be added by moving the ejector forward on these guns, but at the loss of its being able to function with any shell other than the AGUILA Minishells.

Modifications to the Remington 870 are not so straightforward in some cases, though some shooters who have employed these AGUILA cartridges in the 870 claim to have seen flawless function in their firearms. Possibly this varies from gun to gun (as is often the case with firearms). For this reason, those who want to employ the AGUILA Minishell in the 870 or any other shotgun should test the weapon thoroughly before entering a combat situation.

Currently, Centurion Ordnance is importing and selling Minishells to the U.S. market as well as a shotgun designed around these cartridges.

## DIVERSITY OF CHOICE

The other trend in shotgun ammunition, and one that makes the shotgun very useful for some types of combat, is that very specialized loads are being created for it. These are discussed at greater length later in this chapter, but it should be noted that these give the person willing to exploit them special capabilities enjoyed with few if any other weapons. These can be anything from the ability to fire small tear gas projectiles, to firing rubber bullets, shot, or batons for crowd control, to using paint markers to mark targets or key criminals in a riot or at the scene of other crimes. While such rounds often have less than lethal capabilities to help de-escalate a response to aggression, all projectiles are potentially capable of wounding or killing and therefore must be treated with great respect.

Because these rounds often need to have large amounts of chemicals or a heavy payload to be effective, this ammunition has also spurred a push toward the development of shotguns with larger bores, thus running counter to the Minishells mentioned above. So we are seeing shotguns fielded that have bores large enough to be considered grenade launchers.

That said, the line between grenade launcher and shotgun, which has always been blurred, has

become more so over the past few decades with features of both groups of weapons migrating to their sister weapons, as will be noted throughout this book.

## SMART SHELLS

Currently, small grenades that might be launched from a shotgun-style launcher are being developed by a number of countries, with the Russian KS-23 series of guns fielded in 1985 being a good example of this, as well as the U.S. OICW program (more on both of these in the chapter covering grenade launchers). The KS-23 solution to launching grenades is simply to make a very large bore size, but the U.S. OICW goes at things from a hi-tech angle with a laser rangefinder that measures the distance to the target and then arms the “smart fuse” on the grenade so that the projectile explodes precisely when it is nearest the target. While the shooter must still aim precisely, if he gets the projectile to the target the explosive charge will go off at the exact moment needed to inflict maximum damage (and this can be done over a foxhole or at the edge of a corner of a building, thereby hitting enemies who are out of the line of direct fire). Thus a very small, accurate projectile can do the work of a less accurate warhead twice its size.

At least that’s the theory. But there is little reason at this point to think that this system isn’t practical or, at worst, won’t become practical in the near future. The continued miniaturization of computer chips and advances in the development of metal shrapnel and explosive capabilities means that even small grenades can inflict ever greater injuries.

So where does the shotgun fit into this?

The answer is that the current smart grenades being developed for the U.S. OICW program, as well as those for the similar weapons being developed by other nations, are not much larger than the rounds fired from shotguns. For example, the U.S. OICW employs a 20mm-diameter shell. Converting the bore size of a 12-gauge shotgun to its metric equivalent (of 18.5mm) shows that the bore is just 1.5mm shy of the proper diameter to accommodate the new grenade cartridges.

In other words, just a slight increase in the

barrel size of today's shotguns, a change in their receiver and magazine, plus the addition of an electronic range finder, could create a lightweight grenade launcher suitable for firing deadly smart grenades that are already in limited production by the U.S. military.

To the author's knowledge no one is doing such work. But given the excessive weight of current grenade-launching systems, it would be no big surprise if they were "broken" into separate components to lighten the load of a soldier. And at that point the smart-grenade shotgun would become a reality. A long shot perhaps, yet history is full of long shots that have become unexpected turns leading to new designs and surprising results.

Will tomorrow's soldier, policeman, or even civilian be armed with a smart shotgun that fires exploding projectiles? Possibly not. But then again because the technology has already been done for the most part, all that is needed is a designer to adapt the components and hardware and a buyer who wants to put the potential of this weapon to use on the battlefield.

## MILITARY REJECTION

While the introduction of a smart-grenade shotgun may turn the situation around, currently (and despite the capabilities of the shotgun and the variety of nonsmart cartridges available for this weapon) many people are surprised that so few shotguns are issued to modern military units. However, a quick look at the range of the current shotgun ammunition compared to the size of the cartridge will show why military decision makers around the world have abandoned the shotgun for everything but special-purpose work.

For example, the .308 Winchester/7.62mm NATO cartridge weighs in at about an ounce. Its *internal* wounding effect with an FMJ (full-metal jacket—the type of nose required by the conventions of war) over hundreds of yards is comparable to that produced by a shotgun at close ranges. With an expanding hollow- or soft-point nose, the bullet will create massive internal wounds greater than that of the shotgun; though the entrance wound will be smaller, the exit wound—often missing with the shotgun—will be much larger.

The .223 Remington/5.56mm NATO cartridge weighs about half an ounce. The old FMJ bullet fired in the 1-in-12 twist and traveling at high-muzzle-velocity speeds tumbled upon impact to create an internal wound only slightly smaller than that of a 12-gauge load. With an expanding bullet or with the new 1-in-7 twist used by NATO rifles, which causes the bullet to shatter after penetrating the skin, the bullet is capable of creating internal wounds nearly comparable to the 12-gauge load used at close range (though, again, the external wound created by the shotgun is larger). Again, the .223/5.56mm bullet is capable of creating its devastating wounds over hundreds of yards.

By way of contrast, the 2.75-inch 12-gauge shells weigh from slightly more than an ounce to around 2 ounces (with magnum loads), while standard 20-gauge shells are around an ounce. This means that the 20-gauge shell is comparable in weight to the .308 round while having only a fraction of its range and accuracy, while the 12-gauge shell weighs nearly twice as much as the .308 and achieves the same lethal wounds, but only at close ranges.

Likewise, a shooter using a .223 rifle can carry two to four times as much ammunition as a man with a shotgun with a comparable load weight; and, again, the .223 rifleman can achieve lethal, accurate hits over several hundred yards if necessary. From a logistics and range standpoint then, it's little wonder most military users and many police departments (especially in rural areas) and highway patrols are switching from shotguns to .223 rifles.

In the past, the shotgun was chosen by SWAT teams and others concerned about wounding innocent bystanders during raids on apartments or the like. The thinking was that shot would penetrate building materials less than rifle bullets. In fact this, too, has fallen by the wayside. Modern SWAT teams often opt for the .223 rifle with a fast barrel twist and cartridges loaded with thin-jacketed varmint bullets. The result is a round that penetrates less than a pistol bullet or shotgun buckshot while capable of being fired from a very short, lightweight carbine.

Does this mean that the shotgun is always the second choice for combat?

Not at all.

Buckshot will penetrate deeper than a varmint bullet fired from a fast-twist rifle, but shotgun birdshot pellets will generally give less penetration. Both buckshot and smaller pellets aren't as dangerous as rifle bullets over long ranges, so the shotgun is much safer to use in many populated areas when buildings aren't available to slow down the bullet. A rifle bullet could be very dangerous to innocent bystanders in many urban areas, traveling upward of a mile to wound someone who may be totally out of sight to the gunner. A shotgun loaded with suitable ammunition is much better and, if loaded with shot, will present little danger to anyone beyond 75 yards.

Another plus of the shotgun is that commercial ammunition permits a combat shooter to actually limit the destructiveness of the ammunition he is using. Unlike rifle and pistol ammunition, which is usually loaded to specific pressures to reliably cycle semiauto actions and allow bullets to expand, shotgun ammunition varies from light loads suited to skeet shooting to heavy magnum loads for hunting game at longer ranges. This variety of ammunition allows the shotgunner to vary the effects of his weapon according to the tactical demands of the situation (the only drawback to this is that the lighter loads sometimes fail to cycle self-loading shotguns). Therefore, shotguns are ideal for many types of limited-range combat.

Shotguns can act as small artillery as well as tear-gas launchers, thanks to a variety of special-purpose ammunition: rubber pellets can be employed for humane crowd or animal control; tear-gas rounds can bring suspects out of a barricaded building; and lead-dust rounds are designed to safely blast a heavy door off its hinges.

Furthermore, the user of a shotgun can often switch from one purpose to another in just a moment's notice if he understands how to quickly exchange shells in his gun. That means he can rapidly switch from a nonlethal to lethal response should a situation escalate out of control—or switch back just as easily if things calm down. This ability to vary response is not available with most other weapons including rifles, submachine guns, and pistols. This alone makes the shotgun a unique firearm that may see

greater use in the future as more nonlethal ammunition is fielded.

The shotgun may not be the best choice for military use or even SWAT teams, but it can be ideal for many types of police work as well as for civilians who want a flexible and effective self-defense system.

## 12 GAUGE OR 20 GAUGE?

In the United States, the 12-gauge shotgun is most often chosen for combat and has been adopted as the standard by many European gun manufacturers aiming at the American law-enforcement market. However, the 20 gauge is also an ideal choice for combat provided the shooter can locate a suitable weapon chambered for the round. (Modern 20-gauge shells are nearly as effective as the 12-gauge in all but the heaviest loads, and, in fact, current production 20-gauge shells have as much or more power than the 12-gauge ammunition used so effectively in battles of the early 1900s. If history is any indicator, that means the modern 20-gauge is very suitable for combat.)

One of the big pluses of the 20-gauge is that it can give a great reduction in recoil—although much the same ends can be achieved by simply using lighter loads in a 12 gauge. Recoil reduction achieved by using a 20-gauge action is especially evident when buckshot loads are called for. However, it must be remembered that, along with the reduction in recoil, there is a reduction in the amount of shot (or, if shot loads are the same, power) that will be traveling toward the target. Therefore, for recoil reduction, it's often better to switch to a gas-operated action in 12 gauge rather than using an action that does nothing to reduce the felt recoil.

Twenty- and 12-gauge ammunition is manufactured in both 3- and 2 3/4-inch-length cartridges with the 12-gauge guns even seeing a few shells and guns that will handle 3.5-inch magnums. Not all shotguns will chamber all lengths of cartridges, so care should be made when buying a shotgun to be sure it will chamber the shells you may wish to use in combat.

The 10- and 16-gauge shotguns are also suitable for combat, but in many areas it is difficult to find suitable ammunition in these gauges. Therefore shooters are wise to stick with

either the 12- or 20-gauge gun and ammunition for self-defense use.

Many who choose a shotgun for combat also plan on reloading ammunition for it. This is generally a poor idea for several reasons.

The first is a matter of reliability; reloaded cartridges are just never quite as good as mass-produced rounds with virgin casings. Having a cartridge fail to fire or chamber in combat is not worth the savings that may be created by do-it-yourself ammunition. Generally, commercial ammunition manufacturers make superior ammunition that is more reliable than any the amateur reloader can make. Those using a semiauto shotgun should be especially wary of using reloaded ammunition; pump actions are a bit more forgiving—though jams can still be a problem with reloads that haven't been properly resized.

The second has to do with legal liabilities. It is very easy for an unscrupulous lawyer to claim that you were loading “maiming rounds” or some such poppycock. In court, an “expert witness” could mislead a jury into thinking you were intent on maiming the poor, unsuspecting criminal that broke into your home with the hope of slitting your throat while you lay in bed. Don't open yourself up to such lawsuits by loading ammunition for anything other than practice.

Currently both Winchester and Federal are making excellent sporting ammunition that is also ideal for combat and readily available in a wide variety of loads in most gun stores. Purchasing such ammunition for combat use is much wiser than using reloads.

Using reloads for practice is another thing. Since practice is important, reloading practice ammunition can save money. Do be sure to test any ammunition to be used in your shotgun in combat situations. Discovering that your practice ammunition works well in your shotgun while your combat ammunition doesn't could prove fatal. (For more information on reloading as well as creating special combat rounds for the shotgun, see my book *Combat Ammunition*, available from Paladin Press.)

Great care should be given to keeping shotgun ammunition clean and dry. Shotgun shells, unlike most other ammunition, are seldom watertight. If moisture enters the front of the shell and gets in the shot, it will slowly work

its way into the powder over several days' time. Likewise, water can work its way around a primer and deactivate the powder in a shell. Using shellac or fingernail polish to seal the edges of the primer and crimp may help keep water out, but such a practice isn't a sure thing. The best route is to store and carry ammunition in a manner that ensures it remains dry.

## DECIPHERING THE SPECS OF AMMUNITION

Because shotgun ammunition is still loaded to the specifications of the 1800s, some of the terminology can be confusing, especially the old measurements of the “drams” and “dram equivalent.” These date back to the time when both smokeless and black-powder loads were used in shotgun shells. At the time, the new powder took up less volume than the older shotgun powder. Thus, it was marketed as being the equivalent of certain amounts (measured in drams) of black powder. To the confusion of many a novice shotgunner, the “dram equivalent” has continued to be used to this day with most shotgun ammunition.

Another strange tradition carried over from the past is cartridges of “high brass” and “low brass.” This has to do with the brass head and rim found on most shells. Back then, it was decided that the larger “high brass” running up the side of the case would show users that the cartridge was stronger and could contain a larger load of powder. In reality, the height of the brass is only a marketing gimmick, since the metal adds little strength to the cartridge (and could even be dispensed with for a plastic-rimmed shell). Nevertheless, the terms “high brass” and “low brass” live on, and the brass may—or may not—have anything to do with the power of the load in the shell. (Just remember that on new shells, the brass *may* have something to do with alerting the shooter to the power of the load. That said, always check the box that the ammunition was packaged in to determine its actual load.)

Gauge and shot sizes also suffer from antique terminology. Gauges (except for the “.410,” which is actually a caliber designation) are determined by the number of lead balls (with a diameter equal to that of the bore) it would take to equal a

pound in each gauge. For example, the 12-gauge has a bore diameter of .729; that's because 12 lead balls with a diameter of .729 weigh a pound.

Shot size is also confusing. The larger the number designation, the smaller the shot. Sometimes super-small, nearly useless "dust" shot can be found, as well as the tiny number 12 shot, but both of these are becoming somewhat rare. Shot sizes usually move up from the smallest number 9 shot (with a 0.08-inch diameter for each pellet) to number 2 (0.15-inch) or number 1 (0.16-inch). At this point, the air rifle (0.175-inch), BB (0.18-inch), and the new "T" (.200-inch) and "F" (.220-inch) are inserted and then the larger pellets, known as "buckshot," continue on up the scale in size.

Currently, there is a push to switch from the use of lead shot to steel shot for hunting purposes. This makes sense from an ecological standpoint (lead is slowly poisoning many wetland hunting areas) but not from a ballistic one because steel is an inferior ballistic material. Whenever possible, use lead shot for combat unless it is desirable to fire pellets that lose their energy as quickly as possible.

Steel is not as dense as lead, so steel shot generally needs to be two sizes larger than its lead counterpart in order to achieve the same ballistic results. This means lead number 9 shot is comparable to number 7 1/2 in steel shot. Currently, manufacturers are raising the pressure levels slightly on steel shot loads so that the power and range of steel shot is nearly that of lead shot; however, because the steel shot should be two sizes larger than lead shot to achieve comparable results, there are fewer steel pellets per load. While this would seem to suggest that the amount of steel shot hitting a target would be considerably less than from a comparable load of lead pellets, in fact the opposite is true. Because steel pellets tend to deform and spread less than lead pellets, the patterns are denser and, therefore, as many or more pellets will actually land within the center of a shot pattern. Provided the shooter's aim is good, steel shot does remarkably well considering its inferior ballistic qualities.

Although early steel shot was occasionally too hard and scratched barrels or hammered the choke out of the end of the muzzle, new steel shot

is soft enough not to cause such damage. (Steel shot should not, however, be used in old guns with thin, soft barrels.)

Extra care should also be given to keeping steel shot dry; hunters who have gotten their shells damp have discovered that the shot can leave the barrel as a rusted chunk rather than separate pellets. This could raise the pressures inside the barrel of a shotgun to dangerous levels and/or damage the barrel.

Buckshot is the largest shot used in scatterguns. It is called buckshot because of its use on buck deer and similar game. Buckshot starts with number 4 buck (0.24-inch diameter), then number 3 (0.25-inch), number 2 (0.27-inch), number 1 (0.30-inch), number 0 (0.32-inch), number 00 (0.33-inch) and number 000 (0.36-inch).

Slugs are added to the grouping of ammunition available for the shotgun. Slugs are the diameter of the bore and vary in weight from 1 3/4 ounce for the 10-gauge to from 1 1/4 to 1 ounce for the 12 gauge, 4/5 ounce for the 16 gauge, 3/4 ounce for the 20 gauge and 1/5 ounce for the .410. (These weights can vary from one manufacturer to another and according to the marketing/publicity strategy of the year.)

Although slugs are often sold as being "rifled slugs," and may even sport fin-like rifling on them, the smooth bore of the shotgun doesn't grip the slug when it is fired. Photos of most slugs in flight show that they rotate little if at all, instead looking like sporting badminton projectiles with the heavy front traveling first while air resistance forces the lighter tail cone behind it. So while the slug has a lot of energy, which it carries fairly well over 100 yards, because it doesn't rotate quickly in flight it doesn't have a lot of accuracy. An 8-inch slug grouping at 100 yards would be an excellent "bench rest" group for most shooters; hitting an individual opponent in combat at 100 yards or more would be problematic. Consequently, the slug does not make the shotgun a long-range weapon.

That said, a few shotguns with rifled barrels have been fielded for use with slugs. These do reduce the group size considerably, but also make firing shot a somewhat iffy proposition since shot spread is much greater and plastic cups tend to foul the bore. The solution to this seems to be that if a

shooter needs a rifle, it would be more sound logically to use a rifle rather than trying to convert the shotgun to give rifle-like performance with heavy slugs. Such conversions make sense if hunters are limited to shotguns for game gathering, but make little sense with very few exceptions in terms of employing a shotgun for combat.

## SHOT PATTERNS

Not all shotguns pattern well, and patterns can vary from one type of shot to another or even among the same type of loads and shot size from one manufacturer. Therefore, your first step when getting ready to use a shotgun in combat should be to take the weapon out and fire it at a few large cardboard boxes or other such surfaces to give you an idea of what you've got. It is essential that you do this because it isn't rare to have a shotgun that shoots off to one side, above, or below your aiming point. (We'll look at how to cure that problem in the next chapter.)

One of the big surprises for many people is that a shot pattern doesn't spread all that much over the useful range of a shotgun. Another surprise, even to seasoned shooters, is how the pattern's shape and size can change from one shotgun to another even with identical ammunition and supposedly identical chokes. (The size of the constriction at the muzzle of the shotgun barrel is known as its "choke." The choke channels the shot into a tighter grouping as it leaves the barrel, with greater choke causing less shot-spread in the pattern. We'll see that this is a bit different with buckshot.)

The various types of choke that are available include—from least to greatest—the cylinder, 1 skeet, improved cylinder, 2 skeet, modified, improved modified, and full choke (some manufacturers throw in a few other designations as well). Any of these can be used to fire a slug as well as shot, but best results with slugs are obtained with barrels with only a small amount of choke; adjustable chokes often cannot be used with slugs.

This brings us to one of the contradictions of shotguns: the shot spread at close ranges, where you could use a lot of spread, is small and the spread at long ranges, where you need to concentrate the energy of the pellets in one area,

is often too large. Consequently, despite what many people think, the shotgun never allows for much error in aiming at close ranges and, at long ranges when the pattern is large enough to allow for error, the shot pattern is not dense enough to create lethal wounds and/or the shot has lost much of its velocity. The old wives' tale that shotguns are good for folks who have poor aim is absolutely false. It will make a good shot slightly more likely to score a hit, but it won't transform a poor shot into a marksman.

This means that the shooter needs to decide what tactics he wants to address when choosing the choke for his shotgun. If the weapon is to be used at close ranges only, then it would make sense to have a cylinder bore (no choke) or even a shot spreader on the barrel. If the weapon may be used out to its maximum range, then a good argument might be made for the maximum choke. (For those who want flexibility, a shotgun with a variable choke is probably the answer.)

As we will see, however, choke doesn't always control buckshot spread. Because buckshot retains its energy much better, long shots with buckshot are much more effective than with shot. Consequently, most combat shotguns have little or no choke to give them maximum spread at close ranges with shot, while the proper buckshot loads can be used to give tight groups at longer distances.

## THE RIGHT SHOT FOR THE JOB

Once you've picked your weapon and the choke for it, the main consideration is the type of shot you'll be firing. Buckshot loads will retain their power longer and will allow more spread without loss of power. Smaller shot loses its velocity—and wounding potential—more quickly than larger shot, which makes it ideal for use where innocent bystanders may be present and combat will take place at close ranges.

While small shot is still dangerous over quite a range, it isn't nearly as dangerous as buckshot (or bullets from rifled arms) and is less apt to penetrate many building materials. Nevertheless, individual shot pellets can be dangerous over quite a distance. Fired at the right angle, number 9 shot can reach out to 225 yards to injure someone. By way of contrast, number 2 shot has

a maximum range of 337 yards while 00 buckshot has a maximum range of 610 yards. Obviously care must always be taken to have a proper “backstop” when firing any firearm, and missed shots can be of great consequence in combat if there are innocent bystanders about.

If small pellets of shot can be dangerous out to 225 yards, why can’t they be used for self-defense out to 40 yards?

The reason is that each pellet of number 4 shot will have lost enough of its initial velocity to retain only 4.64 foot-pounds of energy at 40 yards. Assuming that 35 to 70 percent (35 percent for a cylinder bore and 70 percent for a full choke) of the 135 number 4 shot pellets will hit our target at this range, a little quick figuring will show that the total energy “dump” of all the pellets hitting the target would be from 219 to 438 foot-pounds. Since military studies suggest that only 55 to 108 foot-pounds (depending on the study) are needed for a disabling hit, the number 4 shot is ideal—on paper. And the catch even there is that the military is interested only in wounding enemy soldiers, not in quickly taking them out of the fray. You, on the other hand, want to be sure that a foe won’t be able to blaze away at you for another 15 minutes before he notices that he’s been wounded by an anemic piece of birdshot.

So while these pellets might work for self-defense at 40 yards in a scrape, that would only be true if the shotgunner were very, very lucky. In fact, each number 4 shot pellet will only penetrate 2 to 2.5 inches into flesh at the 40 yards’ range. That means the shotgunner’s opponent would get a number of shallow wounds that might—or might not—actually disable him. If he had heavy clothing or a ballistic vest and helmet, then he might get only a few wounds on his exposed skin. Chances would be good that he could deliver return fire. If that enemy were armed with something other than number 4 shot, the original shotgunner would be in hot water.

Nearly the opposite thing happens with larger sizes of buckshot. They retain their energy and stay lethal over quite a range, but the spread creates so many holes in the pattern that the buckshot’s ability to create disabling wounds becomes problematic at long ranges. In fact, holes in the pattern of 000 buckshot occasionally make

patterns that would score no hits at all on a man-sized target standing beyond 40 yards. (This is not to say that a person standing 40 yards from a gun firing 000 buckshot would be safe—only that it would be possible for him to be totally missed on occasion.)

On the following page is the spread you’d get with standard shot. If you’re using buckshot, however, you’ll find that it doesn’t “stick” to these patterns very well according to the choke of your shotgun. In actual tests, a cylinder choke will usually give the shot spread pattern with the smallest number 4 buckshot, but the pattern will be only about half this size with larger 000 buckshot.

Likewise, with a shotgun having full choke, actual results with the large 000 buckshot will be close to the shot pattern size shown; with number 4 buckshot the pattern will be close to twice the size shown on the chart. (And with either type of choke, using ammunition loaded to the “magnum” designation will add about an inch to the group size at 10 yards.)

The basics of using buckshot boil down to this: regardless of their actual choke, shotguns tend to act as if they have a full choke with the large 000 buckshot and as if they had a cylinder bore with the smallest number 4 buckshot. In-between sizes gradually work their way toward one or the other extremes. The muzzle choke does make some difference; the full choke will have 2- to 3-inch smaller patterns at 10 yards. But as a rough-and-ready way of figuring things, the size of buckshot patterns selected will have more effect on pattern size than will the shotgun’s choke.

There is a catch here, too, for full-choke barrels. Most buckshot tends to create “doughnut” patterns when fired from a full choke. Consequently, a large empty area is at the center of the pattern right at the point where the shooter is aiming! While the chances of an opponent slipping through this doughnut-shaped pattern unharmed are small, there is still a chance that his wounds will be superficial. Thus, most combat shotguns that will be used with buckshot should have a cylinder bore in order to avoid the doughnut-hole pattern; since buckshot patterns are nearly identical regardless of the bore, the full choke is not of much use except when dealing with shot.

With these somewhat confusing facts in mind, let's take a look at the spread you can expect with shot (not buckshot) with various types of choke:

## SHOT PATTERN/SPREAD

| CHOKE           | 2<br>YARDS  | 5<br>YARDS   | 10<br>YARDS  | 20<br>YARDS  | 30<br>YARDS  | 40<br>YARDS  |
|-----------------|-------------|--------------|--------------|--------------|--------------|--------------|
| <b>Cylinder</b> | 5<br>inches | 10<br>inches | 17<br>inches | 32<br>inches | 44<br>inches | 58<br>inches |
| <b>Improved</b> | 4<br>inches | 8<br>inches  | 14<br>inches | 26<br>inches | 38<br>inches | 51<br>inches |
| <b>Modified</b> | 3<br>inches | 6<br>inches  | 11<br>inches | 21<br>inches | 32<br>inches | 45<br>inches |
| <b>Full</b>     | 2<br>inches | 4<br>inches  | 8<br>inches  | 16<br>inches | 27<br>inches | 40<br>inches |

Now here's the same table with the buckshot size inserted instead of the choke positions. (Remember that the shotgun choke size may increase or decrease the spread slightly and that magnum loads may add to the pattern size. Either can change things by about 1 inch one way or another to a gun patterned at 10 yards):

## BUCKSHOT PATTERN/SPREAD

| CHOKE        | 2<br>YARDS  | 5<br>YARDS   | 10<br>YARDS  | 20<br>YARDS  | 30<br>YARDS  | 40<br>YARDS  |
|--------------|-------------|--------------|--------------|--------------|--------------|--------------|
| <b>No. 4</b> | 5<br>inches | 10<br>inches | 17<br>inches | 32<br>inches | 44<br>inches | 58<br>inches |
| <b>No. 1</b> | 4<br>inches | 8<br>inches  | 14<br>inches | 26<br>inches | 38<br>inches | 51<br>inches |
| <b>00</b>    | 3<br>inches | 6<br>inches  | 11<br>inches | 21<br>inches | 32<br>inches | 45<br>inches |
| <b>000</b>   | 2<br>inches | 4<br>inches  | 8<br>inches  | 16<br>inches | 27<br>inches | 40<br>inches |

If we figure that a 30-inch circle will encompass the area on a man-sized target (this is a rough approximation, but will do), then it is interesting to see how the buckshot size used fares in delivering pellets to our lethal-area 30-inch circle over various ranges (with the rest of the shot spreading out to miss the area). Here's a

*very approximate* table of the density of shot from the buckshot loads listed above:

## APPROXIMATE BUCKSHOT DENSITY

| CHOKE        | 2<br>YARDS | 5<br>YARDS | 10<br>YARDS | 20<br>YARDS | 30<br>YARDS | 40<br>YARDS |
|--------------|------------|------------|-------------|-------------|-------------|-------------|
| <b>No. 4</b> | 100 %      | 100 %      | 100 %       | 76 %        | 44 %        | 35 %        |
| <b>No. 1</b> | 100 %      | 100 %      | 100 %       | 90 %        | 72 %        | 45 %        |
| <b>00</b>    | 100 %      | 100 %      | 100 %       | 96 %        | 85 %        | 55 %        |
| <b>000</b>   | 100 %      | 100 %      | 100 %       | 100 %       | 90 %        | 70 %        |

As can be seen, at 20 yards, things begin to break down. And at 40 yards, shot density with the buckshot is so poor that with the larger sizes, chances are good that only superficial wounds or injuries that aren't immediately debilitating may be created. (Adding to the problem is that many types of ballistic armor can easily defeat the pellets over all of this range.)

For example, if a 12-gauge magnum load of 00 buck were being used, 12 pellets would leave the barrel and at 40 yards, five to eight pellets would actually hit the target (more with full choke, fewer with cylinder bore since choke does have some effect on buckshot at extreme ranges). In real life these hits might—or might not—be disabling to an opponent since an enemy's vital area is actually about 18 inches wide rather than 30. Furthermore, in actual combat most combatants won't expose themselves to full fire; use of cover will make it probable that even fewer pellets will actually strike an opponent.

Does this make the shotgun useless in combat?

Not at all.

The potential of an occasionally well-aimed shot missing or failing to injure an opponent may seem less than ideal in combat (and is probably the motivating factor toward the development of automatic shotguns for military use), but given the "random shot" element found in most combat, the slight lack of accuracy or chance of missed shots may not be as serious as one might think. Nevertheless, most shooters would like to have a weapon that will *always* score a hit if aimed correctly.

One solution is to use smaller buckshot. This places more pellets in the pattern and increases the number striking within any given target area. This sounds good and, as we have seen, the spread will be as great as that shown on the charts. But the difference in pellet size again brings the shooter back to the problem that the smaller pellets shed energy more rapidly than the larger pellets so that—at 40 yards—the wounding potential of each round is actually greatly reduced.

How much energy is lost by switching to a smaller pellet? All buckshot pellets leave the muzzle at about the same velocity. But smaller shot loses velocity more quickly so that by 25 yards, number 4 buckshot will only penetrate 3 to 5 inches of living tissue (this assumes no protective covering over the flesh such as a heavy jacket, leather belt, etc.). Number 1 buckshot does a little better, giving penetration of 6 to 8 inches; 00 buckshot penetrates 7 to 9 inches at 25 yards. Number 000 buckshot gives some over-penetration by going from 8 to 10 1/2 inches, meaning it might exit the body of an opponent rather than “dumping” all its energy in him to create maximum wounding. As the range increases, the velocity drop continues with smaller pellets continuing to lose energy faster than the larger ones.

To get some idea of how this translates into wounding potential, from an energy standpoint each pellet will have nearly the same amount of energy as the following types of ammunition:

- Number 4 buckshot and a .22 Short bullet;
- Number 0 buckshot and a .22 LR;
- Number 00 buckshot and a .32 ACP bullet;
- Number 000 buckshot and a .38 Special bullet.

While none of these bullets is noted for its fight-stopping abilities—especially in non-expanding form—it must be remembered that a number of these pellets will strike an opponent if he is in the center of the shot pattern.

When multiple pellets create wounds, the effect on a human being is considerably worse than when one pellet creates a wound. The exact mechanics of *why* this is so are unknown, but multiple hits may increase the likelihood that a major nerve center, large blood vessel, or

essential organ will be struck, thereby taking an opponent out of the fight. With only 35 percent of the pellets striking within the 30-inch circle at 40 yards, number 4 shot—with 27 pellets—will score around 9 hits. The target will be only 18 inches across; because a human being is taller than 30 inches, the number of hits will probably be close to 9.

Adding to the calculations, it must be remembered that some of these “hits” will create only superficial wounds to the extremities at our 40-yard limit. While such wounds would be serious, perhaps even fatal eventually, they might not be instantly disabling and an opponent could continue to fight for some time. (At the same time, such a hit would be nothing to sneeze at! Using number 4 buckshot at this range would certainly be better than nothing—by the proverbial long shot.)

Because of the chances that the number 4 buckshot will be less than overwhelmingly effective, the U.S. military adopted 00 buckshot rather than smaller buckshot for its combat cartridges, choosing the disabling hit with occasional misses rather than superficial hits with an occasional disabling strike. Joint studies conducted by the U.S. Navy and Marine Corps have concluded that a 12-gauge number 00 buckshot load had twice the lethality as did a number 4 buckshot cartridge over the useful ranges of the shotgun.

So the current thinking is that the best compromise is to use larger buckshot in a cylinder bore for shots at extreme ranges. Since the larger-sized shot still retains a lot of energy, pellets striking an opponent still create serious wounds. (As we’ll see later, it is also possible to increase the number of pellets in the pattern by buffering.)

## SHOT SPREADERS

If a shotgun were to be used only at very close ranges (say, indoors or in very dense foliage), then it would be ideal if the spread of shot were greater to allow for aiming error. This spread wouldn’t be too detrimental to the fight-stopping ability of the shotgun because the pellets retain quite a bit of velocity at close ranges. In such a case, the number 4 buckshot would be ideal *if*

overpenetration of building materials weren't a concern. (If innocent bystanders are nearby, then small shot is a better choice than buckshot for combat use.)

One way of increasing the spread is to create an oval, horizontal opening at the end of the barrel. This is quite simply done by placing a shotgun barrel in a vise and *slightly* flattening the muzzle (too much constriction could raise the pressure levels inside the barrel to dangerous levels); a gunsmith could do a prettier job of such work. If, on rare occasions, vertical spread were needed, this could be achieved by turning the shotgun on its side when firing it.

Commercial shot spreaders, often called "scatter choke," are also available for this purpose and may be found on shotguns marketed by Mossberg, Franchi, and others; it seems that companies play with this feature and then drop it with regularity. At one time military and law enforcement agencies could also purchase a "Scatterchoke" offered by the Quinetics Corporation; this duckbill-looking device creates a spread with a 5-to-1 width-height ratio.

These devices are ideal at close range, but the catch is that the patterns beyond 10 or 15 yards can become quite "holey," and hits can't be guaranteed at 30 yards. Too, there are times when such spread may create danger to innocent bystanders. Consequently shot spreaders are often purchased by law enforcement agencies and never used after being tried out. Shot spreaders never became as popular as one might think. (Those who use shot spreaders occasionally *really* like them. One user tells of using the spreader on the skeet range where he could hit two birds, without leading, with *one* shot.)

There are other ways of altering spread of small shot than with a choke or shot spreader, however. It is possible to get more or less spread by changing the construction of the shotshell itself. Such modified rounds are available commercially or may be reloaded—again see *Combat Ammunition* for the how-to information.

The commercial load that creates this extra spread is known commercially as the "brush load" or "special upland load." When you can find these, they will be quite useful at close ranges and will give an extra 25-to-30 percent of

spread to shot regardless of what type of choke the shotgun has. (The spread is generally created with special cards mixed in with the shot, though sometimes spread is created with misshapen shot. Probably the card loads are the best route since the shot retains more energy.)

Shotgun ammunition loaded without plastic shot cups also has more spread than other types of similar ammunition, but such loads are currently hard to purchase commercially.

Of course, if a guy is trying to hit a target at longer ranges, then *less* shot spread is better. To create smaller-sized patterns at long ranges, buffered loads are needed. Although the buffering material in shotgun ammunition was originally placed there to keep the pattern more even, users soon found that it also created smaller patterns of shot with a higher velocity/energy level. The patterns are smaller because the shot isn't deformed as much by the barrel choke and therefore has slightly better ballistics and travels straight ahead rather than wandering in flight.

As an example of what can be done, a shotgun with an improved cylinder choke will only put about half its load of 00 buckshot in a 30-inch circle at 40 yards. With a properly buffered load of shot, the same gun can place ALL the buckshot in the circle! It's easy to see the advantage that buffered shot can give at long ranges. In fact, for a really expert shooter it might be argued that the shotgun could be used at 50 or even 60 yards with buffered loads of 00 or 000 buckshot. (In such a case rifle sights would also make sense on the shotgun barrel.)

Presently, the trend with commercial magnum loads seems to be toward buffered shot fired from lightly choked guns. The easiest way to obtain buffered shot is to purchase the loaded ammunition, which is easier to locate than it was a few years back. (Buffered loads can be created by the reloader, but commercial ammunition is much more reliable. For do-it-yourself information, the reader is again directed to *Combat Ammunition*.)

The choice of buckshot is yours; given the limitations and spread of the various rounds, 0 or 00 buck may have a slight edge over the other loads because of the split in retained energy versus number of pellets. For general use, number 000 buckshot would seem to have an inadequate

number of pellets to guarantee a disabling hit with any regularity unless used in buffered loads.

Remember: the shotgun is a short-range weapon; when a target gets beyond 30 to 40 yards, single shots may—or may not—score a debilitating hit on an opponent. At closer ranges, however, where much of the shot load is connecting with the target and the projectiles retain much of their velocity, things change dramatically in the shotgunner's favor. Here, number 4 buckshot or even just shot at very close ranges can be terribly devastating.

## PENETRATION OF SHOT

While the velocity of shotgun pellets is low, the energy that is dumped into a target is close to that of a medium-sized, high-velocity rifle. This means that the shotgun pellet has a lot of wounding potential while having a short range in contrast to the high-velocity bullet. Because of the size of the wound created and because the low-velocity shot tends to concentrate and dump all its energy in a foe (rather than traveling through him), the wounds created by a shotgun at close range are very large and usually fatal with a square hit in the torso or head.

This ability to quickly dump energy is not without problems, however. It means that shotgun pellets are often completely stopped by ballistic vests and that they are very poor at penetrating barriers to reach an opponent who has taken cover.

This low velocity also means that virtually *no* buckshot pellet will penetrate a car body (except, perhaps, at very close ranges). In fact, when round shot hits sheet metal at an angle it tends to ricochet from it. Buckshot will penetrate a car's side windows but will lose enough velocity to have dubious wounding energy. Buckshot will seldom penetrate a windshield (though it will break the glass).

So what do you do if you are a policeman, say, and need to penetrate a car body to get at the felon inside?

The answer is to load the shotgun with slugs that will generally penetrate a car body to injure those inside the car—though the projectile may stray when penetrating the car body, casting doubt on the probability of scoring precise shots.

And when shot or buckshot is used, the shooter must remember the limits of the ammunition and try to use them to an advantage or to increase the safety to innocent bystanders.

## “SILENT” CARTRIDGES

Perhaps one of the more interesting experimental rounds developed for the shotgun was the “silent” shotgun cartridge developed by AAI for the U.S. Navy in the late 1960s.

The shell was based on the “telecartridge” that had been developed by I.R. Barr as a way to launch guided missiles. Robert Schnepfe (who owned the patent) then sold the rights to AAI.

The shell was made with a flexible metal sleeve between the powder and the shot. The sleeve formed a cup, which held the shot. When the round was fired, the powder expanded and turned the steel cup inside out, launching the shot out of the cartridge with its sudden, violent movement. Because the gas was kept inside the reversed cup, the sound of its discharge was unheard by those any distance from the gun.

The cartridges worked well, provided the velocity of the pellets was limited to 450 fps. Above that speed, the cartridge was apt to rupture and either jam in the breech of the shotgun barrel or create a lot of noise, doing away with any advantage the round might have had. Such rounds were very quiet and deadly at close range and could be fired from a very short barrel; however, the range limitations, coupled with the large size of any shotgun used with the ammunition, made the silent shell little more effective than a small pistol equipped with a good silencer.

Consequently the round saw little use, though the idea had one last hurrah in 1967 when it was deployed as a weapon for the U.S. soldiers working as “tunnel rats” to hunt down Vietcong soldiers in underground caves and passages. Because of the tight quarters and need for concealing one's presence in the dark, the silent cartridge seemed the perfect solution. It made it possible to create a very short weapon, it contained the flash so a shooter couldn't easily be spotted, and the report was contained so the user's hearing wasn't affected—an important consideration when operating in the dark.

Because even the M1 carbine and silenced

pistols were often too long and awkward in the cramped quarters the tunnel rats operated in, designers wanted a very short pistol of some sort to create the new weapon around. Since the silent cartridge had little recoil, the design could not be based on a semiauto action. The solution came in the form of a modified Smith & Wesson Model 29 Magnum revolver. This gun had its barrel lopped off because a long barrel actually decreased velocity rather than increasing it when the explosive charge was contained in the ammunition. In addition, each chamber was reamed out to slightly over a half-inch to accommodate larger shot cartridges. Because the silent cartridge contained most of the pressure of the round, making the walls of the cylinder this thin was a safe proposition. Additionally, the hammer spring system was beefed up to positively ignite the primer on the silent shot ammunition.

The 15 pellets loaded into each silent cartridge were composed of sintered tungsten-steel alloy for greater weight, thereby compensating for the low velocity of the shot. The result was a very quiet weapon that produced only a few sparks when fired, and which had the power of a .410 shotgun at close range. With typical military practice, the new gun was given a name that was official and clumsy: "Quiet, Special Purpose Revolver."

In 1969, 10 of the revolvers were fielded and immediately put to the test. Unfortunately, the ability of the loads to quickly kill or disable an enemy was somewhat iffy, and the primers on the cartridges occasionally failed as well—both situations doing little to build confidence among those carrying the guns into combat. Some of the revolvers also were used on occasion for night ambushes and prisoner snatches by special forces, when the guns apparently met with greater success (in part due to modifications in the ammunition's primer to make it more reliable).

Because of the mixed results in the field tests, the guns were never made in any numbers and the production of such rounds was basically shelved.

That said, these rounds (especially in a larger-bored weapon) have a lot of potential for special operations work, and it would not be surprising if this design made a reappearance in the near future.

## DUPLEX LOADS

Duplex loads have two different sizes of shots mixed together try to "fill in" the patterns that one-size-only loads create at their longer ranges. The idea is that if the "target" happens to be lucky and is in a hole in the pattern of the large shot at extreme ranges, it's better to inflict a small wound from the small shot rather than have a complete miss. The drawback to this is that the smaller shot will lose its velocity faster than the larger so that, at the ranges where the buckshot starts having holes in its pattern, the lighter small shot won't be too effective. Nevertheless, the mixed-shot load met with some success, especially when tried by the British in their Malayan jungle warfare.

Presently, Mirage Technologies International offers a 12-gauge duplex round that consists of six 00-buck pellets topped with a heavy-duty 1.3-ounce slug. This round is marketed as the "Bulldog" and sold in packs of three.

## DISINTEGRATING SHOT

In addition to the lead and steel shot currently available in ammunition, future combat users of shotguns (as well as pistols and rifles) may be employing something quite different from today's jacketed lead bullets or solid metal shot. The plus of these projectiles is that when they strike hard building materials or pavement, they disintegrate into dust. Furthermore, because they don't contain lead, they are "environmentally friendly." (Because lead forms an oxide, it is doubtful that lead shot poses much of an environmental danger and is certainly less harmful than many in the environmental movement might have one believe.)

These new projectiles were dreamed up by scientists working at the U.S. Oak Ridge National Laboratories; the bullets created for testing have proven very effective and have seen limited use at federal government and some law enforcement target ranges.

The bullets are composed of tungsten powder, which is held together with tin or even plastic. The tungsten gives the projectiles an ideal weight for maintaining its energy over long

range so that they are ballistically efficient—more so than traditional lead bullets. Although these projectiles aren't currently available commercially with shotgun cartridges, it seems likely that they will soon be seen on the marketplace as a nonlead substitute. As such, these rounds would also be ideal for many combat situations, especially where innocent bystanders might be a consideration.

There is some question of what the wounding capability of such pellets would be. Some of this depends on how "tightly" the dust particles are bound together. That said, it seems likely that such rounds could be adjusted during manufacture to create maximum wounding potential by breaking apart after penetrating 2 or 3 inches into the flesh. If this is done, it seems likely that the wounding abilities of buckshot pellets might be enhanced beyond those of expanding pistol bullets. In such a case, the lethal abilities of a shotgun in combat might see a quantum leap in performance.

## LINKED SHOT

Linked shot is another attempt to fill in the holes between pellets and keep the shot pattern small at extreme ranges. With this system, a steel wire is used to connect the shot and the whole thing loaded into a cartridge. Upon firing, the shot spreads until the wire is fully stretched.

The problems with this are the space taken up by the wire and its increased air resistance, which quickly slows down the shot. While the idea of linked shot seems to have worked well centuries ago for large shot, with modern shotgun buckshot problems in manufacturing such loads would not be worth the slight trade-off in decreased shot pattern. Buffered loads give much the same effect and are more practical to make.

Mirage Technologies International currently offers a more viable version of this idea. The 12-gauge shell contains a 6-inch piece of steel chain. The only catch is that such a projectile has "lawsuit" written all over it in the eyes of some. For this reason, such a round should be employed only after giving careful consideration to the legal ramifications before it is used for self-defense.

## SLUGS AND SABOTS

The sabot round in the shotgun consists of a metal slug of some sort that is smaller than the bore of the shotgun. A pair of plastic "shoes" (*sabot* is French for "wooden shoe") go around the slug to create a gas seal so that the slug and sabot are pushed from the muzzle when the round is fired. When the sabot slug leaves the barrel, the air resistance peels the plastic sabot halves away from the slug.

There are several advantages to a sabot round. Because the slug is smaller the velocity is increased and more easily maintained. Upon impact, this thinner shape can place more energy in one spot for greater penetration, and the longer projectile will tend to tumble, creating a larger wound.

While most of the sabot rounds use a single, heavy projectile, it is also possible to package a group of small projectiles into a sabot.

A number of manufacturers offer slug ammunition for the various gauges of shotguns. In general, the slug is not too useful in combat, since a rifle is more accurate and its ammunition lighter. The shotgun slug has tremendous energy, but most types of slugs don't expand, so overpenetration becomes a real problem. (Federal offers a "hollow-point" slug that offers a little expansion.)

Strangely enough, a clean barrel often has worse accuracy with slugs than a slightly leaded one. Leaving lead in the barrel after firing several slugs is a good practice, provided corrosive ammunition hasn't been used.

Excellent slug ammunition is offered by a number of companies. Generally, whatever is available at the local gunshop will satisfy most slug needs; most fighters are better off not spending a lot of extra money on the more exotic slug designs.

## FLECHETTES

As noted earlier, a lot of research has been done with a flechette round for the shotgun and in the end flechettes, despite all their promise, have generally proven to be less than satisfactory in the real world.

Modern flechette work began in the early 1950s when AAI started research on ways to increase the effectiveness of the combat shotgun by “streamlining” the shotgun projectiles. Early research paralleled the SALVO work and was aimed not only at the creation of new flechette loads for shotguns but for the .50-caliber machine gun, rifles, pistols, and submachine guns as well.

Unfortunately all this work came to a dead end and has since been abandoned by most researchers, though a few companies like Mirage Technologies International still offer such rounds from time to time. Softer, deforming versions of the flechette or projectiles capable of horizontal but not vertical dispersal may someday be created to allow the flechette to live up to its promise. But until then, the flechette as a viable component of shotgun ammunition is a dead end.

## TEAR-GAS PROJECTILES

Tear-gas rounds are generally of 12 gauge or larger size because of the limited capacity of smaller shells. And even the amount of tear gas that can fit in a 12-gauge shell is rather small for satisfying results.

Such tear-gas projectiles can be deadly at close ranges (where they have a high velocity). Therefore, care must be taken not to fire them in a manner that causes unwanted casualties. When casualties are unacceptable, the tear gas should be launched toward houses or barricades from a distance.

The AAI 12-gauge CS tear-gas cartridge, the “Ferret,” is one of the more common cartridges (and has larger versions in 37mm and 40mm grenade-launcher cartridges). With stabilizing fins, the projectile has fair accuracy within 100 feet and is capable of penetrating a double-paneled storm window or a hollow-core door at 300 feet, or a car windshield at 100 feet. But the

cartridge contains only 3 cubic centimeters of liquid tear gas—hardly enough to cause much reaction except in a very small, closed area; more than one projectile is generally needed to get the job done in larger areas.

The Ferret does offer one real plus. Because the tear gas is delivered as a mist created by the impact of the projectile rather than through burning chemicals, it is nearly impossible for the Ferret to start a fire—unlike many other tear gas grenades. (For a time, Smith & Wesson and Penguin Industries also made similar tear gas cartridges.)

Another route sometimes taken to deliver tear gas is to mount a tear-gas canister (or a hand grenade) on the barrel of the weapon and use a special blank to launch it. This works—but not in a spectacular way. Generally a tear-gas gun or a grenade launcher gives much more satisfactory results.

One of the best of these types of grenades is the AAI MPG (Multi-Purpose Grenade), which can be launched by a shotgun or thrown by hand at close ranges. The MPG has two delay systems: a 2-second timer for use when the unit is thrown by hand and a 5-second delay for firing the grenade from a shotgun grenade launcher assembly.

The AAI MPG has a load of powdered tear gas (the buyer may choose either CN or CS tear gas). When the pin is pulled on the grenade, it becomes armed; releasing the handle fires the timing fuse. When the time delay (2 or 5 seconds) is reached, a small propellant inside the grenade is fired, powering a piston that pushes the tear gas out through a thin disk that is displaced by the pressure of the piston. This releases the tear gas suddenly without a fire hazard and makes it nearly impossible to lob the grenade back toward the grenadier before it goes off and dumps its entire load of chemicals.

The AAI grenade launcher assembly for the shotgun consists of a clamp that attaches to the



*AAI MPG launcher mounted on shotgun.*

shotgun muzzle. This holds the grenade handle in place so that it can be armed by pulling a ring. A special blank cartridge is used to propel the grenade out of the muzzle holder; as the gas generated by the blank pushes the grenade forward, the grenade's safety handle is released and the fuse starts its timing sequence. Range is up to 120 yards. AAI also offers a special sight that attaches to the side of the shotgun so that the correct range trajectory can be used to deliver the tear gas grenade.

It should be noted that CN (chloroacetophenone) tear gas is much more dangerous to use than CS (orthochlorobenzalmalononitrile). While high concentrations of CS may cause blisters and dermatitis, high concentrations of CN can cause burns or even death. Therefore CS is generally the preferred tear gas to use for riot control. Most tear gas agents have a shelf life of 3 to 6 years and should be replaced every few years.

## BLANKS

Blanks have little use in combat other than, perhaps, launching grenades (where a special blank must be used, anyway). Unfortunately, most blanks are currently loaded with black powder, which can quickly ruin a good barrel if it isn't cleaned properly shortly after firing the shell. Black powder is especially hard to clean out of a gas-operated shotgun, where the powder will get into the gas system.

Blanks in shotguns can be extremely dangerous. Because of the volume of gas created, extreme caution must be taken not to point a blank-loaded shotgun at anyone because the gas can cause burns or even large wounds at close range. Often the wadding used in blanks can also pose a fire hazard.

Blanks can be cycled through pump shotguns, but most do not create enough recoil or contained gas column to operate semiauto actions. Mirage Technologies International's 12-gauge blank has a 1-inch body, which makes it less likely to be confused with a conventional 12-gauge shell.

Of similar design is the "racket" shotgun cartridge. These have various noise-making/explosive devices in them to create whistles or retorts for scaring animals. Mirage

Technologies International offers several, including the Bird Bomb, which fires an exploding firecracker-like warhead 70 to 100 yards before it explodes. The other is the Screamer, which creates a loud whistle from the muzzle of the shotgun, the sound continuing for 120 yards until it loses speed.

## FLASH-BANG DISTRACTION ROUNDS

For years police departments and antiterrorist teams have used flash-bang grenades to produce a bright flash and loud blast to distract or even temporarily immobilize criminals or terrorists long enough for an entrance team to gain access to a room, aircraft, or whatever without the bad guys' putting up much resistance.

In 2001 PMC introduced a variation on this idea. Rather than a hand-tossed grenade, PMC's idea was to pack the grenade projectile into a 12-gauge, 2.75-inch cartridge that could be fired, thereby making it possible to deliver the grenade over a longer distance more accurately than a tossed, conventional flash-bang hand grenade.

The PMC shell employs a mechanical impact fuse with the projectile becoming fully armed only after traveling 10 meters. Once armed, the grenade explodes upon impact against a relatively resistant material such as wood, concrete, or glass. Because there are few fragments produced by the projectile, the manufacturer claims it can be detonated within 2 feet of an individual without causing serious injury.

Obviously such a system has a lot of potential for crowd control, animal and game control, or hostage rescue, and because it can be accurately delivered over quite a distance, it lends itself to tactics that previously weren't practical. Currently PMC sells its flash-bang cartridges only to law enforcement buyers.

## EXPLOSIVE SHELLS

Even though 37mm and 40mm grenade launchers possess a large enough "payload" to make an explosive projectile effective, a standard-sized shotgun is a bit too small to allow an exploding projectile with any great combat

effectiveness (with the possible exception of smart grenades covered elsewhere in this book).

Of course, this might change with new or improved technologies that either create shrapnel with greater wounding potential or explosives capable of delivering more blast with the same weight. Certainly such technologies are on the drawing board, if not in the experimental stage, with the 20mm grenade in the OICW having a compressed metal casing to produce its shrapnel and some grenade launchers employing a fuel-air explosive system. Both of these suggest that it might be possible for a very small warhead to pack more of a punch than is now seen, creating a wounding radius worthy of combat and being capable of being fired from a standard shotgun.

The other route is to use special rounds with bodies that are longer than normal, or projectiles loaded into the breech or a special muzzle cup so that larger shells can be fired. Such systems are quite slow to employ with more than an initial shot, however, making them a poor choice in situations that might require a sustained barrage of these minimortar shells.

Additionally, if recoil is to be less than bone-pounding, the greater payload must be delivered over a shorter distance and with a steeper ballistic arc to target. The first forces a shorter range and causes possible danger to the user both from enemy fire as well as from projectiles from the warhead itself, and the latter causes aiming difficulties and a calls for special sighting systems. Thus such grenade-launching systems can make the shotgun an awkward, single-shot weapon that is hard to aim for all practical purposes.

Argentina's Arsenal Fábrica Militar briefly marketed a 12-gauge minigrenade, the MGE-12/70, which was set off by a firing-armed impact fuse. This minigrenade never met with any great success. Whether this was due to the lack of power of the round or the few potential military buyers might be debated, however. Since most military users opt for actual grenade launchers and have few shotguns in their arsenals, and since most police users don't escalate their raids to the point of employing explosive devices, one might argue that the market for such devices is too small for a manufacturer to pursue.

## FLARE CARTRIDGES

Flare cartridges have been created for the 12 gauge. These projectiles are fired like a normal shell and climb to around 225 to 300 feet, burning with up to 15,000 candle powers of light for 5-to-7 seconds: these can be useful for signaling purposes and the cartridges are easily carried.

The catch is that flares from self-contained, hand-launched system or those designed for use in grenade launchers create a higher, longer display. For this reason few manufacturers now create shotgun flare cartridges.

Mirage Technologies International currently offers a 2-inch 12-gauge flare cartridge selling in three-round packs.

## INCENDIARY PROJECTILES

Argentina's military had incendiary projectiles created for the 12-gauge shotgun. Designated the 12/70, it has a heavy, slug-like head and a hollow body filled with chemicals that ignite and start burning when the projectile is fired. As with other such projectiles that are also available in more potent forms for grenade launchers, these 12-gauge projectiles have not met with wide acceptance.

## FLAME PROJECTILES

Nothing is quite as terrifying as a flamethrower. But flamethrowers are short-range weapons that expose their users to dangers in the form of explosive tanks for fuel as forcing them to be in the open when using the weapon.

These shortcomings led to the development in the 1980s of a cartridge that was similar to a rocket engine, but with the exhaust of the rocket directed out the barrel of the firearm it was employed in. By omitting the "nozzle" configuration, the shell's recoil was minimized. But the business end of the "rocket" saw the expelling of a 4,000°F flame of burning powdered metal that extended out to 300 feet for 3 seconds.

Limited use of such a round does little damage to the barrel of the gun it is fired in; but the flame presents a serious risk of damage to anything in front of the muzzle. The flame is

wide to give a blanketing effect downrange, which means such cartridges must be deployed very carefully—with *no* innocent bystanders or unintended objects that could be damaged anywhere downrange. Additionally, the 3 seconds of flaming, while short in some ways of thinking, is quite long, so care must be taken to keep control of the weapon during that period.

The now-defunct Rhino Replacement Parts offered such a cartridge as its Dragon's Breath in a 12-gauge configuration. These rounds are now currently available from All-Purpose Ammo.

## BATONS

A variety of rubber, wood, and plastic projectiles can be fired from shotguns, and can be useful for crowd and animal control. These projectiles are often called “rubber bullets,” a name that is not too accurate but sadly seems to have stuck, especially in the popular press. A much better term for the projectile is a “baton,” as it is closer to that device than it is to a bullet, even though it is fired from a modified rifle or shotgun. Batons for anti-riot use have been made from a variety of materials including wood, plastic, and rubber.

Perhaps the simplest of these is one or more rubber balls atop a powder charge, which offers varying results according to the charge and softness of the ball(s) used in a cartridge. The Argentine Arsenal Fábrica Militar de Armas Portátiles Domingo Matheu has marketed an aluminum-cased shell with 12 rubber balls in it for such use.

Here in the United States, PMC has revamped this basic idea with a softer ball that can be safely deployed at 15-to-60 feet due to the use of softer 000 rubber buckshot (made of Buna-N Rubber which measures 55A on the Durometer “A” Hardness Scale, according to company literature). The 12-pellet cartridges are each loaded with twelve 3/8-inch rubber balls.

PMC is also offering what can be seen as an improved baton round with a projectile that consists of a fin-stabilized rubber baton. The canted fins help maintain a stable flight to the target, thereby giving greater accuracy—something heretofore missing with most baton rounds. Another trick employed by the PMC

cartridge is to place a bore-hugging band around the projectile, thereby keeping it centered during launching and again enhancing its accuracy downrange. These innovations produce groups of 12-to-18 inches at 50 meters.

As with other so-called nonlethal rounds, these must not be employed at close range lest they produce serious wounds. And even at longer ranges they are capable of blinding a rioter should the projectile chance to hit him in the eye. That said, they are a much less dangerous alternative to buckshot or bullets.

When less accuracy is acceptable, PMC's “flexible baton” is another possible choice for nonlethal response to rioters or other criminals. Also called “beanbags” (due to the use of small pellets inside a bag container), these projectiles impart a heavy rap to the target without penetrating the skin. This blow can often knock the wind out of a criminal so he can then be subdued.

PMC's Flexible Baton, Standard Bean Bag is packed into a 2.75-inch, 12-gauge shell with the 40 grains of number 9 lead shot-filled fabric bag exiting the muzzle at 300 fps. On impact the bag distributes its kinetic energy over 4 square inches, thereby preventing penetration of the skin. The range for this projectile is 30-to-100 feet.

The company also offers a similar Extended Range Bean Bag that has a fabric tail boom for improved flight stability and accuracy. Its operational range is also 30-to-100 feet, but boasts a bit more accuracy (albeit with slightly less impact to the target).

Mirage Technologies International offers a similar Hammer round in 12-gauge; the projectile comprises a ballistic nylon bag filled with lead shot that is said to be effective out to 21 feet.

## DOOR-BREACHING SLUGS

Many police departments as well as antiterrorist units have discovered that a shotgun makes a much better tool for destroying locks and hinges than does the heavy battering ram that has been employed in the past. The shotgun has the added plus of giving its user a weapon that is immediately available should the entry be met with armed resistance. Generally such rounds

employ very fine lead “dust” shot, which loses its energy within a few feet. This makes it less likely that an innocent bystander will be injured when the door is breached.

Currently PMC is offering a 12-gauge cartridge designed to meet the requirements of the U.S. Navy for door-breaching rounds. The projectile is composed of fine S-70 steel bound together in a matrix that breaks into a fine powder upon any impact. The projectile is placed in a plastic cup to protect the bore; the slug has a muzzle velocity of 1,560 fps and can completely remove a hinge from a wood door and often from a metal door (though this latter type may require a second shot). Likewise, it can break the bolt

away from most locks with a single shot. The round can also break open a car trunk or door with a single shot and with little or no damage to the vehicle interior.

The round is capable of inflicting its damage within 25 yards if it reaches the target without hitting any obstacles; this means the shotgunner engaged in breaching the door can also deploy his weapon against a foe, without the need for loading other cartridges into the weapon. Currently PMC sells its door-breaching slugs only to law enforcement and military buyers.

Mirage Technologies International offers a similar 12-gauge Door Buster, which has a polymer cup filled with tiny lead shot as its projectile.

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# CHAPTER 3

## *Combat Tactics*

**A**s we've seen in the previous chapter, shotguns are limited in their range, penetration, and spread of shot. These shortcomings, coupled with limitations of the shotgun mechanism and the amount of ammunition that can be loaded into the weapon, create a lot of contradictions and confusion in how the shotgun is best used in combat. Because of these factors, authorities will differ in what they think is best, and even seasoned fighters will often exhibit confusion when asked to justify when and how they recommend using a shotgun in combat.

With this in mind, in many situations the deployment of a pistol, rifle, or submachine gun may make better tactical sense than will the selection of a shotgun. The shotgun does offer capabilities not found with these other weapons, however, and does fill a need in many combat situations calling for limited penetration coupled with quick fight-stopping potential. The massive firepower of the shotgun also warrants its addition to many squad-sized fighting groups. For this reason, the shotgun continues to be issued to elite fighting groups who need the shotgun's potential to lay down a quick and massive amount of fire or to handle special ammunition such as door-breaching slugs, tear-gas cartridges, or the like.

### **LIMITATIONS OF THE SHOTGUN**

Until improvements are seen with shotgun ammunition, a wise shotgunner will keep in mind that his weapon is not going to be overly effective beyond 100 yards and ideally will engage targets only at 30 yards. He also needs to remember not to place himself within enemy range while they are outside his.

A shotgunner must also remember that his weapon is mechanically awkward to operate (especially in terms of reloading), not only due to its length.

Another important consideration is that although each shotgun round fired puts out a large number of pellets, the user can't limit the

number of pellets put out with any given shot. The whole load of shot goes out even if just a few pellets would do the job. This can translate into overkill in some situations, as well as a danger from shot that may miss the target due to the spread of the shot pattern.

Many shotgunners like to compare the number of pellets they put into the air with those from a submachine gun, but the analogy is more accurate if the comparison is made with a submachine gun that could only fire long bursts and use low-velocity ammunition topped by nonexpanding bullets. The single, precisely placed expanding bullet that dumps a large amount of energy into a flesh-and-blood opponent is an impossibility with the shotgun; it should also be kept in mind that this problem becomes greater as the outside ranges of the shotgun are approached.

While a man with a rifle, or even a submachine gun, can place single bullets inside a small circle several hundred yards away, the shotgun can only hit targets with groups of pellets (except when using slugs, whose shortcomings are addressed below). There *are* many times in combat when a hail of lead is ideal, but there are others when it is not; there are times when a shooter needs the precision gained with a single bullet. (For example, imagine a hostage situation where your opponent is 40 yards from you and standing behind a hostage and holding a gun against the hostage's head. A carefully aimed shot from a pistol, rifle, or submachine gun or carbine—set on semiauto—could end the problem. With a shotgun filled with a load of shot or buckshot, a lucky shot might do the trick but there's every chance the hostage would be injured as well.)

A shotgunner should remember that any time great precision is needed, he will need backup either from a holstered pistol he is carrying or from another shooter armed with a submachine gun or rifle. Consequently, in situations where hostages may be involved the shotgun should always be deployed as a team weapon.

## SHOTGUN SHELLS

Shotgun shells are large to accommodate the numerous pellets the weapon fires. In extended

combat, the size of shotgun shells creates a definite liability, since there's no way to easily carry large numbers of shells.

Imagine, for example, an extended fight requiring firing 150 shots (not an unreasonably large number in a battle where one side is barricaded in a fixed position). With an assault rifle, it's easy to carry this number of cartridges, and they are easily and quickly loaded into the rifle because they can be stored in box magazines.

On the other hand, anyone carrying a shotgun in such a battle will have a huge burden of shells to carry, and if it has a tubular magazine he will have a broken thumb from chucking ammunition into it. It is true that the shotgun can place a lot of lead pellets into the air in a short time, but current shotguns can't sustain such use. This is because of the awkwardness in reloading most magazines (this could change if shotguns using detachable box magazines become readily available) as well as ammunition size limitations. While the size and weight considerations of ammunition may not always be pertinent, they are if the shotgunner has to travel on foot for extended periods and/or faces an opponent using modern, lightweight ammunition capable of long-range use, such as the .223 Remington or 9mm Luger.

Therefore, when possible, the shotgun should be deployed in a manner that maximizes the potential of its initial heavy concentration of fire and minimizes the need to reload the weapon.

Because one can never predict exactly how an armed confrontation will go, shotgunners should put in a lot of practice in quickly reloading their weapons—and pray they never have to reload under fire. It should be remembered, too, that with most models for a quick, single shot it is possible to insert a shell through the port of the shotgun and directly into the chamber rather than having to load the cartridge into the magazine.

A shell holder that mounts onto the stock of a weapon or the user's belt can place a few more shells at hand should they be needed. The nice thing about holders mounted to the weapon is that they allow the shooter to just grab the gun rather than the gun *and* a bag of shells; the bad news is that they make the gun a bit more awkward to hold.

Carrying shells on bandoleers and/or

bandoleer slings should be avoided in a combat situation: bandoleers work, but the shells are awkward to remove and are exposed to the elements. A bandoleer sling loaded down with the weight of shotgun shells adds a pendulum-like weight to the gun that can make quick aiming inaccurate.

Regular slings are usually better left off a combat shotgun, too. Having the shotgun slung across your shoulder when it should be in your hands can be disastrous, and having the sling catch on vegetation and brush when you're running about isn't ideal, either. If you do occasionally need a sling, probably the best route is to use detachable sling swivels and slings from Uncle Mike's. These allow you to take the sling off the shotgun when it isn't needed.

A good shell holder should allow the shooter to keep the rear of all the shells pointed in one direction so that they won't be inserted into the magazine backward during a moment of stress. Shells loose in a bag or pocket are almost worse than no shells at all, because it is easy to insert a wad of lint or a backward shell into the gun at a critical moment.

A shell holder can also allow the shooter to keep some shot, buckshot, or slugs on hand in case special ammunition is called for, remembering that it will be hard to get it into the shotgun's magazine when under fire. A shotgunner shouldn't be overly optimistic about his manual dexterity when the lead is flying and the adrenaline pumping.

## MECHANICAL LIMITATIONS

Other tactical problems faced by shotgunners center around the fact that many shotgun designs haven't improved much over the last 90 years. Pump actions are slow to use and most semiauto shotgun actions can't digest a wide variety of loads reliably, are sensitive to dirt, and/or have a tendency to break at critical times. While both types of shotgun actions are all right for sport hunting, they can have their drawbacks in many combat situations.

The need to reload a shotgun in combat is decreased if it has a large magazine. Since most repeating shotguns, with a few exceptions, have tubular magazines, there is no good way to load

these shotguns quickly. Shotguns with magazine capacities of less than seven shells should be used only when very short barrel lengths are needed; extended tubular magazines will give the shooter seven to eight shots if barrel lengths are kept to a practical 18 to 22 inches.

A barrel length of 20 to 22 inches gives maximum velocity from most modern shells. While longer barrels might have been useful in black-powder days, longer barrels do *not* add more power, velocity, or anything else to shotgun pellets with modern ammunition. Therefore, barrel lengths greater than 20 inches don't give the shooter any advantages but do make the shotgun more awkward to bring into action.

Of course, barrels shorter than 20 inches don't offer as much velocity as one might hope for. The increase in flash and noise, coupled with the drop in velocity in barrels less than 18 inches, makes it about the most practical minimum length, with a 16-inch barrel being the shortest that still gives any useful range for any but arms' length engagements. And one might argue that if a shorter length is needed for a weapon, it's probably time to switch to a different type of weapon, such as a small submachine gun or pistol.

Because of the length of most shotguns and the need to use both hands with most models, shotgunners must avoid getting into tight spots where they'll have trouble maneuvering. Care should be taken to avoid getting "caught" in hallways where the shotgunner will present a good target and have trouble turning. With pump actions, combatants must also avoid the prone position; cycling the action is hard to impossible when someone is firing at the shotgunner and he's flat on his stomach.

The size of the shotgun can also create concealment problems in indoor combat. The shotgunner must avoid sticking the shotgun barrel ahead of him when entering an area with poor visibility or when he's getting ready to peek around a corner. (The only exception to this is if he's taped a mirror onto the shotgun barrel so that he can see around corners. This is a dangerous practice—use it only if it is really called for and remember that many walls are not bulletproof. A smart foe can hit a man hiding around a wood-frame corner by simply firing where he expects his opponent to be hidden.)

Opening doors and turning on lights, for instance, are times when the shotgunner is “handicapped” by needing two hands to carry and fire his weapon. Try not to get in a situation where you have to do these things. If you must, do these tasks with your off hand so that you’ll be able to at least get off a single shot from the hip in a hurry.

The spread of shot, coupled with its penetration potential at practical combat ranges, make it important to remember the difference between concealment and cover both indoors and outside. Concealment is something that hides you or an opponent from sight; cover is something that will actually stop bullets or shotgun pellets. With indoor combat or in areas with heavy vegetation, there may be little or no cover but lots of concealment. If your enemy dives behind a wall or into heavy vegetation, you may be able to “reach out and touch someone.” Quick action can take out an enemy; it isn’t necessary to see him to kill him. (These tactics cannot, of course, be employed in areas where innocent bystanders may also be hidden by thin walls or vegetation.)

The bottom line of the shortcomings is that the shotgun is awkward, for short range only, inaccurate at the outside of its practical range, and unable to sustain its firepower.

As we saw in the previous chapter, shot spread and a loss of velocity create problems over ranges beyond 20 or 30 yards with pellets fired from a shotgun, while buckshot starts to lose its luster beyond 40 yards. The only solution to this problem seems to be having a rifleman back you up and/or taking care to never engage a foe beyond 40 yards.

Without a rifleman for backup, a shotgunner has several alternatives, none of which is perfect:

1. He can use number 1 or number 4 buckshot to maximize the chances of hitting the target and hope an opponent will not have a ballistic vest (or even a heavy jacket) and will be hit in an area of his body where the pellet will do some damage.
2. The shotgunner can use 00 buckshot so that if he *does* score a hit, it will be lethal at long ranges. This alternative would give the shotgunner plenty of energy at close ranges and he could fire several shots if it were

necessary to engage an opponent at “extreme” ranges of 40 yards or more. In such a case, buffered loads would also be an aid in getting the maximum number of shot pellets concentrated on target.

3. The shotgunner can use slugs in his weapon; but chambering cartridges in a shotgun in battle (as many policeman and British soldiers have discovered) is *very* awkward, slow, and dangerous. Carrying a slug in the chamber does away with the shot spread that makes the shotgun ideal at ranges from 10 out to 30 yards. But slugs aren’t that accurate, either—since the shotgun doesn’t have a rifled barrel, an 8-inch group with slugs at 100 yards is considered a “bench rest” group, and anyone shooting off-hand will probably be doing well with a pattern of 10 inches or so at 100 yards. That means an opponent with a rifle has a much greater edge in terms of his chances of hitting a shotgunner armed with slugs.

Even if a shotgunner could obtain rifle accuracy and didn’t have any trouble fumbling shells into his shotgun magazine in the heat of combat, he would still have the old problems of large-sized cartridges, limited numbers of rounds in the firearm’s magazine, and the excessive recoil of the weapon. Surely a gunner would be better off with a rifle than with a slug-loaded shotgun if he needs to score hits at extended ranges.

4. The shotgunner can carry a second weapon that can be used to back up the shotgun; a pistol, while not ideal, *could* be used to fire accurately over ranges up to 100 yards in the hands of a skilled shooter. (Though not currently available commercially, it would also be possible to mount a single-shot rifle on a shotgun in a manner similar to that of grenade launchers like the M203, which is mounted on the AR-15/M16 assault rifles. This would give the shotgunner the ability to quickly get off a long-range shot should the need arise.)

If you use a shotgun in combat, you must realize that an opponent who knows anything about the shotgun will try to change the battlefield conditions to his advantage in an

extended battle in order to undermine your use of the shotgun. He may try to stay outside the shotgun's range and plink away at you. He may try to get behind cover, which will stop the low penetration of shotgun pellets. He may try to extend the time of the battle so that you run out of ammunition. In combat, you must try to quickly end the battle at close range by taking advantage of the pluses of your weapon while keeping your opponent from taking advantage of your weapon's minuses.

Despite these disadvantages, combat shotgunners do have a lot going for them in many ways. As the British discovered in Malaya, and many police officers have found before and since then, the shotgun can create a lot of havoc in a short time and can be decisive in winning battles that are short in duration and take place at close quarters. The key to coming out on the winning side if you carry a shotgun into combat is to be aware of its limitations, maneuver your opponent into a close position for engagement, and have proper backup if the battle stretches out to beyond 30 or 40 yards.

## DEALING WITH RECOIL

Many fights, especially in criminal-civilian shootouts, are decided by one or two shots, though many are not. Criminals often travel in packs these days and soldiers normally are encountered in groups. Chances are good that a shotgunner will face more than one opponent at a time so that at least a second or third shot may be needed to engage one foe.

These facts again create problems with the shotgun because the recoil makes the shotgun hard to use when quick follow-up shots are needed at any distance farther than arm's length.

Recoil encountered during practice can also cause the shooter to develop a flinch, which throws off the aim. Once a flinch develops it's a hard habit to break; in combat, flinches will almost guarantee missed shots during critical moments in battle. Best bet for the shotgunner is to avoid picking up this terrible habit by never using an abusive weapon that causes him to become "recoil shy."

A flinch often causes "low-shooting guns." A shooter starts to lean into the shot just as it is

fired in an attempt to compensate for recoil, which causes the pattern to be low. The shooter blames the gun, when it is actually his technique at fault. Dry-firing or shooting light loads—with earmuffs and eye protection—is about the only way to break this habit.

Because recoil can be a serious drawback in combat, it would be good to take a small detour and see what can be done to reduce its effects.

Recoil is a complicated issue because it includes both measurable factors and a number of elusive considerations, including the size and physical makeup of the shooter's face, shoulder, and arms, as well as what is being worn, and the type of recoil pad on the weapon. When all is said and done, a shotgun that is very comfortable for one person to shoot may "kick like a mule" when fired by another. (And it must be remembered that the feeling of excessive recoil *is* real to the person perceiving it. In the past, shooting instructors have tended to dismiss the perception of excessive recoil as something that happens to "sissies." In fact, it is very real and can often be "cured" by changing the stock-shooter interface.)

Felt recoil, which is the amount of abuse measured by the shooter's anatomy rather than by a machine, is what determines whether or not a shotgun is comfortable to shoot and how quickly a shooter can bring the recoiling weapon under control for an aimed second shot.

There are some basic facts that come into play to create the total felt recoil of a shotgun.

First of all, Newton's law of motion that states that a body at rest tends to remain at rest applies to both the shotgun and the shooter. A shotgun tends to try to remain in place and resists initial recoil. This resistance increases with the amount of mass involved with the "body at rest." Thus recoil can be cut more and more as the weight of the gun being fired is increased; the more weight the weapon has, the greater its inertia and the less the tendency it has to move backward as recoil force is applied to it.

In shotguns using identical actions, a gun weighing twice as much as another has only half as much recoil. All other things being equal, increasing the weight of a gun or picking a heavier model will reduce felt recoil. (It's possible to add weights and accessories to a shotgun to increase the weapon's ability to soak up and

reduce recoil, but remember that the trade-off is a heavier, clumsier weapon.)

Another method is to add some of the shooter's weight to that of the shotgun. Such elements as a tighter hold, a tight cheek weld, or a wider butt plate, will reduce the felt recoil of a shotgun by coupling it to the shooter's body as well as spreading out the area the recoil is transferred to.

Now one might conclude (as this author erroneously has in the past) that this means that a larger, heavier shooter can "take" more recoil since his body tends to oppose the force of a shotgun's recoil. In fact, this mass works against him because what moves will be his shoulder and arm while his body tends to be anchored (back to Newton's law that a body at rest tends to stay at rest). That translates to greater felt recoil because the movement-lack of movement interface is going to cause pain.

For this same reason, a smaller shooter with a firm hold on a shotgun will have less felt recoil because his body starts to move sooner with the recoil of the firearm. The only catch to this situation may be that with a semiauto action the rearward movement of the lightweight shooter may cause the action to fail to cycle properly, perhaps proving again that something can go wrong with the best of things.

Regardless of size, having a stock on the shotgun that fits the shooter will lessen the painful effects of recoil, which is why a well-fitted shotgun is much more pleasant to shoot. You can roughly determine if a shotgun stock fits you in a short time. First, pick the weapon up and see if the length of pull, the distance from the butt to the trigger, is correct. The rough test is whether you can rest the butt in the inside bend of your elbow while your trigger finger reaches the trigger at the right point and the grip is correct on the stock. This is easy on combat shotguns with a pistol grip and a bit harder on hunting-style stocks.

If the length of pull is too long, the shotgun will be hard to shoulder and you'll have an awkward time aiming it quickly. If the length is too short, chances are good that your thumb or other fingers may "attack" your face during recoil.

Length of pull is the easiest dimension to get right. On wooden stocks and many plastic ones,

too long a length of pull is cured simply by cutting off the end of the stock and then replacing and reshaping the recoil pad, if it has one. This is inexpensive work for most gunsmiths (who can help you get the dimensions right) and can also be done by most do-it-yourselfers.

A length of pull that is too short is fairly easy to cure as well by adding a recoil pad or replacing a thin pad with a thicker one.

Remember that length of pull will change according to what you're wearing: a heavy jacket or ballistic vest dictates a shorter length of pull than a dress shirt or T-shirt. To compensate for these changes, shooters can use a slip-on recoil pad to increase the length of pull when wearing thin clothing or use padding in lightweight clothing.

The next dimension to check is the drop of the comb. The comb is the top of the stock where your cheek rests during firing. The "drop" is the difference between an imaginary line extending straight back over the forward end of the comb from the sighting plane of the top of the barrel. Generally this drop varies from 1 1/4 to 1 5/8 inches on U.S. shotguns. When you bring up the shotgun to firing position, the correct drop at the comb is the amount that places your eye so that it looks at a parallel line directly along the top of the barrel (assuming that the shotgun shoots to the point at which it is aimed). If the barrel drops down or angles up, you need a different stock if you're going to get good at using only the front sighting ball that's on most shotguns. (If rifle sights are used on the shotgun, then you can get by with the incorrect drop at the comb BUT instinctive shooting is generally much faster and easier to learn with a shotgun with a proper-fitting stock. In general, it is better to ignore or remove rifle sights from a shotgun.)

In addition to making the shotgun slap the cheek to increase the perception of excessive recoil, a comb that is too tall will cause a shooter to aim too high. Stocks designed for trap shooting generally have high combs that cause the average shooter to fire a bit high. Field and skeet guns usually have lower combs that allow the shooter to fire more consistently at point of aim. This should be kept in mind when adapting a sporter to combat use. A quick way to determine drop at the comb and heel is to place the shotgun on a

flat surface and measure from the surface to the heel and comb.

Unfortunately, some combs angle downward toward the butt of the stock. This makes the drop vary according to where the shooter's cheek rests on the stock and makes it hard to get any measurements for purchasing a similar stock on a second shotgun. (And if you change your length of pull with a thick jacket, for example, you will also change the drop at the comb as well on these stocks.) Worst of all is that for many shooters these stocks tend to be more savage to the shooter's cheek; such stocks are generally on field and skeet guns. A better bet is a comb that is level or even slopes downward from the butt toward the front of the gun, making the gun more gentle to the shooter's cheek.

The Monte Carlo stock has a raised cheek rest sculpted into it. This makes it much easier to get the proper cheek weld when using a scope on a shotgun (or rifle). This arrangement also brings the butt of the stock to a lower position on the shoulder, which some shooters prefer because it results in a more casual stance with a "heads-up" neck position.

On some straight stocks without Monte Carlo-style combs, the drop of the comb is the same as the drop at the heel—which brings us to the third dimension: the drop at the heel.

The drop at the heel is the distance from a parallel line extending back from the top of the barrel's sighting plane to the top of the butt. Because the shotgun tends to raise its muzzle upon recoil, the amount of drop at the heel determines whether the muzzle climbs a lot or that the whole weapon tends to go straight backward. This is why modern assault rifles have a stock with no drop at the heel: recoil is almost straight back and the weapon doesn't have much muzzle climb. The trade-off is that the weapon must have raised sights or a raised sighting rib to compensate for the loss of the drop at comb when the drop at heel is decreased.

In the past, few shotguns took advantage of this fact. This has changed somewhat with Russian-made shotguns that have either been modeled off the AK-47 and its spin-offs, or by placing the barrel below the tubular magazine. Hopefully U.S. gun designers will soon follow the lead of foreign gun designers.

Another problem may occur if the shooter discovers that the butt of the stock ends up too high or low in relation to his shoulder when the comb is in a comfortable position and the sight plane lined up on his gun. In such a case, if only part of the butt/recoil pad is in the right spot, recoil may be painfully concentrated in one spot.

The quick way to change this is to redrill the recoil pad screw holes and mount the pad higher or lower to fit your shoulder. (If looks are a consideration, take your firearm to a good gunsmith.)

Finally, the stock should fit your hand. If the "wrist" or grip of the stock (on hunting-style weapons) is too small or too large for comfortable shooting, recoil may feel excessive or be hard to control. Tape or epoxy can be used for a "quick and dirty" increase in size of the grip area; removal of stock material is necessary to decrease the size.

Generally, pistol grips give the best control during recoil and aid in transferring a bit more of the shotgun's recoil from your face and shoulder to your hand, making felt recoil on your shoulder seem less. However, with magnum loads, many shooters find that too much recoil is placed on their hand.

A good recoil pad, and perhaps a padded jacket, will also help to spread out the duration of recoil as well as the area on the shooter's shoulder affected by the recoil. Shotguns that are unbearable to shoot can become almost docile with a soft, wide recoil pad and/or a good shooting jacket.

There are good recoil pads and poor ones. The poor ones tend to be too hard and too narrow. Good recoil pads are soft and often have a diamond pattern cut into them, which allows them to flex and compress somewhat during recoil. A good recoil pad greatly reduces felt recoil and can tame many a shotgun that's a terror to shoot without a recoil pad. Rounding off the rear edge of a recoil pad may also make it a bit more comfortable during recoil. (The surface of the pad doesn't make much difference on felt recoil, but it does make a difference with how quickly a gun can be mounted. A shotgun with a smooth pad can be shouldered quickly, while one with a rough surface may snag in the clothing; conversely, a smooth pad doesn't stay in place too well, while a rough one tends to hug the clothing

and stay in place. Generally, a smooth pad surface probably is best for a combat shotgun, which needs to be shouldered quickly and fired.)

The material used in constructing the stocks can also reduce—or increase—the speed at which the recoil energy is transferred to a shooter's shoulder. Fiberglass and some plastic stocks often flex and spread out the recoil, making it seem lighter because the push is spread out over more time. Likewise, many metal folding stocks increase the impression of recoil, since they transfer the energy immediately down their length; because of this, metal folding stocks should be used only when the shotgun needs to be stored or overall length is an important consideration.

The fore-end of the stock can transfer some of a shotgun's recoil to the supporting hand. The forward pistol grip (similar to that of the Thompson submachine gun) is especially effective in transferring energy to the support hand, *but* many find that their ability to aim the weapon from the shoulder is not nearly as good as with a standard foregrip configuration.

Many companies make differently sized fore-ends for the various configurations of their standard model of shotgun; for example, the same model may have different sized fore-ends in its field, skeet, and/or trap versions. Changing from one of these to another may help reduce recoil and make a shotgun more comfortable to shoot. (For good pointing—and hitting the target—a stock with a lower surface parallel to the barrels is ideal. Avoid “beaver tail” foregrips, which can cause the shooter to have low aim.)

The flexibility of the human body can also act to reduce the violence of recoil. If the shooter's body flexes back with the recoil of a shot, the “kick” is spread out over time in much the same way it is with a gas action. Conversely, a shooter who braces his body against upcoming recoil actually is inflicted with more felt recoil than his relaxed counterpart! By the same token, those who shoot their shotguns by reflex when their attention is on an opponent will feel less recoil than when they are worried about recoil at a target range.

Of course the power of the shells fired affects recoil. The heavier and faster the charge of metal leaving the muzzle, the greater the

recoil of the weapon, which means that a shotgun fired with light field loads will kick less than one in the same gauge fired with a magnum load. In general, a magnum load isn't necessary for most combat unless you engage enemies at extreme ranges where denser shot patterns are important.

Don't select magnum loads automatically just because you're going to use a shotgun for combat; choose them only if their need is really justified. Remember that more powerful loads generally only place more pellets into the pattern rather than increasing the striking power of the individual pellets. Since the shotgun has a lot of overkill at close ranges (which is where it should be used), using a lighter load to reduce recoil is seldom detrimental to the shotgun's combat capability, and the gain in reduced recoil will more than pay for any loss in pattern density.

In addition to going to lighter loads, it is also possible to choose a smaller gauge. Thus, if a 12-gauge weapon creates too much recoil, the shooter could purchase a 16- or 20-gauge shotgun. (Probably the 20-gauge is a better choice in the United States since 20-gauge shells are easier to obtain.) At the low end of the gauge scale is the .410. This gauge is probably too anemic for most shotgun use, though it might be useful in such special-purpose weapons as shotgun derringers or automatic shotguns firing .410 shells loaded with buckshot. (The conventional wisdom is that if you weigh more than 150 pounds, you can put up with the recoil of a 12-gauge slide-action, while those with less body mass should use either a semiauto or a smaller gauge shotgun.)

The type of action of a shotgun can increase or decrease the recoil felt at the shooter's shoulder. A standard English measurement of energy is the foot-pound, which is the energy needed to move 1 pound 1 foot. A standard, single-shot 12-gauge will produce about 28 to 30 foot-pounds, while a 20-gauge will have somewhere around 18 to 22 foot-pounds. This can vary quite a bit depending on the load used and the weight of the gun, of course.

Using the same weight of shotgun and changing only the action, the felt recoil of a Browning-type recoil-operated action will actually nearly *double* the felt recoil. Strangely

enough, a gas-operated action doesn't actually reduce recoil; instead, it spreads out the recoil in a longer push rather than a sudden kick so that the perception of most shooters is that of greatly reduced recoil. Although a gas-operated action may still give out 28 foot-pounds of push, it is a much gentler push that is spread out so that the perception is that of much less recoil.

Since up to about 44 percent of the recoil push actually comes from the jet of hot gas leaving the barrel of a shotgun (turning the weapon into a rocket—pointed at the shooter), a compensator can be used to reduce the recoil by redirecting the jet to the side. This jet of gas could further reduce the recoil if it was directed toward the shooter, but this would create excessive blast and noise, which would offset the enjoyment of the reduced recoil. Compensators will be discussed in greater detail in the last chapter of this book.

## BEST TYPES OF SHOTGUNS

Not all shotgun actions are equally useful in combat, since most are designed for sporting use. That's not to say that some won't work both for sports and self-defense, but in many cases the best defensive shotgun is one designed principally for police work or other combat duties.

There are any number of basic types including the "break-open" actions, the lever-action, bolt-action, revolver action, the slide-action (or "pump") shotgun, and the semiautomatic action. Some of these have been version successful; others, such as the lever- and bolt-actions, are less common. And some, like the semiautos, have variants that are different enough mechanically to arguably be in groups of their own.

### Break-Open Action

The break-open actions usually have only one or two barrels. To reload the gun, the barrels are released and the empties removed and new shells inserted. Reloading isn't very quick; fumbling around trying to cram shells into a shotgun while bullets ding around your head is far from ideal. Too, most double-barreled guns are as expensive (or more so) than shotguns with magazines that hold six to eight

rounds. Double-barreled shotguns don't give much bang for the buck (and single-shots are not even worth considering).

With all this going against them, one might think that the break-open action would have no place in combat. Historically that hasn't been the case. Because most gunfights in the real world end with just one or two shots being fired, double- or even single-barreled shotguns can be as effective as any other gun in such confrontations. Furthermore, when a very short weapon is needed to deliver a quick, devastating blast, the sawn-off "whippet" (double-barreled) shotgun may be the best solution, which is exactly why such guns have traditionally been found in the hands of police officers and citizens as well as criminals.

Some experimental break-open combat shotguns have also been made with four or more barrels. While these start to increase the firepower of the weapon to the levels needed in combat, the trade-off is added weight to the weapon. One plus is that the weapon can be shorter than most repeating configurations. These pluses have never been great enough for such weapons to become popular.

### Bolt-Action

The bolt-action shotgun is similar to the bolt-action rifle, but scaled up for the size of the shotgun cartridge. These shotguns have never been widely embraced for combat because they are somewhat slow to cycle. However, they do have a detachable box magazine that can be extended to give the weapon a large-capacity, quickly changed magazine—something missing from many other shotguns. Furthermore, these guns can be scoped and employed with little training by those familiar with bolt-action rifles. As such, they could serve as a short-range weapon capable of delivering anything from a tear-gas round to a heavy slug on target.

### Revolver/Rotary-Magazine

The revolver or rotary-magazine shotgun is a rarity for the most part, though this action has made an interesting transition into sister weapons designed for the delivery of various types of tear-gas projectiles and grenades. These guns operate in much the same fashion as a

revolver chambered for pistol cartridges. Unfortunately, the size of shotgun cartridges (as well as the even larger tear gas and grenade cartridges) makes a revolver shotgun large in diameter and awkward to carry; it also requires that the cylinder be turned by a spring or recoil action because it is too heavy to operate manually. Nevertheless, some revolver-action designs have proved practical and have found their way into popular combat shotguns.

### **Slide-Action/Pump**

The slide-action, or “pump,” shotgun is arguably the most reliable action with a wide range of ammunition. The extended magazine on such guns can hold as many shells as the tubular magazine of a semiauto action. The price tag of slide-action guns is also very reasonable because the weapon is simple, and a large volume of sales are made to a nice sporting market as well as a combat market. The only drawback to the slide is that it doesn’t offer quite as fast an operation as a semiauto gun, nor does the pump “soak up” recoil the way a gas-operated semiauto action does.

On the plus side for civilian users in the United States is the fact that the pump action has not been subject to the “assault weapon” legislation passed by Congress. This means that folding stocks, extended magazines, and other modifications that are not readily available for semiauto shotguns without special paperwork or through the purchase of a preban model can be legally placed on a pump gun without any legal restrictions.

In addition to sporter pumps that have long barrels and/or short magazines, many manufacturers offer off-the-shelf pumps designed for “serious social work.” These weapons have larger magazines that hold six to eight shells and have barrels of 18 to 22 inches, making them ideal for indoor defensive deployment. As such, they can be excellent buys, delivering a combat shotgun with a minimum of time and money expended. (While it is possible to convert a sporter to a self-defense configuration, it requires extra expenditures or even gunsmith work and often the end product isn’t quite as reliable as the off-the-shelf weapon designed just for self-defense. Unless you have a sporter shotgun or can get a very good bargain on one, you’re better off starting out with a gun that suits your needs.)

### **Semiautomatic Shotguns**

Semiautomatic shotguns are capable of giving the high rate of fire that makes the shotgun so awesome in combat. Gas-operated semiauto actions also “eat up” a lot of the recoil, making quick follow-up shots easier and recoil less of a consideration.

But there are some real drawbacks to semiauto guns as well. Even though newer designs (like those produced by Benelli and Remington) are capable of functioning with a wide range of ammunition, even at their best they can’t handle some special-purpose rounds. That means they may fail to cycle and eject/reload or, worse yet, may jam. For this reason a shooter must also be more limited in what he fires from a semiautomatic shotgun.

Another strike against the semiauto action is that most semiautos cost more than comparable slide-action shotguns. The extra complexity of the semiauto action translates into a higher price tag.

However, semiauto, gas-operated shotguns do make sense for those who have problems with recoil or can’t operate the slide-action guns (because of a bum arm, perhaps). In such cases, the semiauto may be able to give the shooter many of the advantages of the shotgun while making it possible to easily fire it.

Two of the main things to consider are the types of ammunition you will be using and how much recoil you can put up with. (Remember that some layouts and combinations of accessories may no longer be legal with the semiauto without a lot of red tape.)

## **KEEPING THE SHOTGUN RELIABLE**

A weapon that fails in combat is worse than no weapon at all. Shotguns, especially those designed for sporting use and adapted to combat, are among the weapons most sensitive to environmental conditions. Ditto for shotgun ammunition.

Care should always be taken to keep obstructions out of the barrel. A bit of dirt, mud, snow, rainwater, or even an insect in the barrel can cause it to rupture into dangerous fragments if the shotgun is fired. Dirt in the magazine or receiver can jam up a shotgun. Excessive oil can cause dirt to collect in the

mechanism of the shotgun so that it fails. . . . The list is nearly endless.

The main consideration is to be familiar with your weapon and to keep it as clean as you can. (And don't "share" it with other fighters in your group if at all possible; when a gun is used by several people, it is seldom cared for by anyone.) Inspect your shotgun visually and clean it carefully if it has been stored any length of time without being fired.

On some shotguns, one critical part that may break is the firing pin. Testing the firing pin on an empty 12-gauge guns is simple: Cycle the action so the hammer is ready to drop on the firing pin, point the barrel upward, drop a penny down the barrel, and after the penny has settled against the face of the bull, pull the trigger. You should hear the penny bounce upward when it is hit by the firing pin. Removing the coin and inspecting it should also show a small firing pin pockmark on the penny's surface. (Don't forget to remove the penny!)

With smaller gauges it is necessary to remove the barrel, cock the action, and place your finger on the bolt. When the trigger is pulled, you should feel the firing pin hit if it isn't broken.

Having a spare parts kit including an extra firing pin or two is also a good idea, especially if you'll be using the gun for extended periods in the boonies. Other small parts that are removed during fieldstripping, and therefore easily lost, should also be duplicated in your spare parts kit.

Inspect the magazine (tube or box) from time to time to be sure it is clean and free of dents. Check the barrel to be sure a spider hasn't set up residence or that a patch wasn't left behind the last time the weapon was cleaned.

There is a nearly endless list of catastrophes that can get a fighter killed in combat if he isn't careful to baby his ammunition, care for it, and inspect it from time to time.

- Unlike most modern ammunition in brass cases, shotgun ammunition isn't watertight. That means you need to replace ammunition periodically—immediately if it is exposed to rain, dropped in a stream, or otherwise subjected to moisture.
- Plastic cases deform easily, especially if left in a magazine for long. That means if you need to keep a gun loaded for any length of time,

you'll need to unload it every few days and place new cartridges in the magazine to be sure deformation doesn't take place (which can cause a jam in the magazine or failure to chamber).

- Oil can deactivate a primer on a cartridge, so keep shells away from cleaning fluid.
- A damaged rim on a shell can jam in a magazine.
- A hot chamber can melt plastic cases so that a thick film of plastic forms on the inside of the chamber to jam your shotgun.

Unloading a shotgun can also be dangerous if done improperly. Shells should not be cycled through the chamber one after another to unload a tube magazine and shells should not be allowed to drop on the ground or floor. Rather, slowly cycle the action open and catch the shell that is removed from the chamber; next, either depress the shell stop to release each round from the magazine or cycle the action closed and then open again and remove each round as it is pushed into the lifter. (Of course, those who have a detachable box magazine can simply remove the magazine and cycle the shell out of the chamber to unload a shotgun.)

## PRACTICE

Practice is essential to the combat shotgunner's becoming familiar with what his weapon can—and cannot—do.

As mentioned before, care must be taken to not develop a flinch through the use of either a weapon or ammunition that creates excessive recoil. Wearing hearing protectors and shooting glasses can also help prevent a flinch response.

Obviously one would not want to stake his life on this assumption, but most modern sunglasses made of polycarbonate are strong enough to stop a stray shot pellet. Consequently, they make ideal shooting glasses for practice and can offer protection in combat as well.

When shooting, don't lean excessively into shots but do strive to keep your balance so that you can recover for a quick second shot. Practice shooting principally from the shoulder; while it may take an extra fraction of a second to shoulder a shotgun, it will more than make up for

the time by giving you a better chance of hitting the target. Some shooters “point” with their forefinger with the hand holding the foregrip; this is probably not a good habit for shooters, since such a hold can cause the thumb to get close to the hot barrel of the shotgun. Additionally, such a grip is not overly secure and is a real detriment on pump-action guns. And for those with a whippet barrel, a finger ahead of the pump can be shot off—a painful experience that will make the victim the butt of many a joke.

Firing from the hip looks good in the movies but in real life the shots often fail to hit the mark. Fire from the hip only if your enemy is so close that it is impossible to shoulder the shotgun. A better practice, if you must run or move quickly and still fire the weapon, is to place the stock of the shotgun under the armpit of your trigger-finger arm. This gives the shotgun somewhat the “point” of a shouldered weapon and keep it secure. At close ranges, some people also have success in hitting a target if they treat their weapon as if it had a bayonet on it: the shotgun is extended as if the shooter is trying to hit the target with the muzzle—only a shot is fired instead.

Sometimes it may be necessary to cover a prisoner. In such a case you may have to use a hip hold. When holding the shotgun at the hip level, brace the stock against your hip or under your armpit and spread your feet slightly to keep your balance should you have to fire. When you hold the shotgun for some time, your aim will tend to creep to the left (for right-handers), so you’ll need to compensate for your aim from time to time when using this hold.

Practice should be more than just carefully aiming and firing. In combat, especially at close range where the shotgun is best employed, the carefully aimed shot is a rarity. The shotgunner should strive for and carefully develop instinctive shooting habits that allow him to quickly hit a target without taking time to consciously aim. Point and shoot wins the day in shotgun combat.

Before you can develop any skills with the shotgun, it is important to get used to how your combat weapon will pattern. A combat shotgun should always be carefully test-fired to be sure it fires where it is aimed and that the pattern doesn’t tend to bunch up in some area. (Check patterning with various types of loads, various

brands of ammunition, and—if your shotgun has a variable choke—different chokes. Any of these may change both the pattern and the center of impact and must be tested before being used in combat.) If your shotgun has any problem with patterning or hitting where it is pointed, then you should make a trip to a good gunsmith to get it straightened out. Failure to have the shotgun adjusted to throw lead properly could cost you your life when a foe is missed.

If you’re in the field with an “issue” shotgun that doesn’t hit where it is pointed, or are a do-it-yourselfer, there are several field-expedient adjustments that can be made to change the point of impact of a shotgun.

If the barrel has some choke, you can use very fine emery cloth or sandpaper fixed to a wooden dowel to hone one side of the choke slightly. If the barrel shoots a pattern above point of aim, the lower inside surface of the choked barrel should be honed; a pattern to the left would call for removing metal on the inside right of the barrel, etc. Care must be taken to remove only small amounts of metal and to test-fire the weapon often so that the shotgun pattern doesn’t become “whopper jawed” in the other direction. Removing wood from a shotgun’s comb will also make a shotgun print lower, while adding padding to the comb will make the shooter tend to fire a bit higher than before. Likewise, adding thickness to the left of the comb—for right-handed shooters—changes the point of impact to the left while removing material from the comb makes the shooter fire patterns to the right.

Many new shotgunners are perplexed when they see the single bead and no sights on a shotgun (though some combat shotguns are blessed with a rifle-style ghost ring rear sight). In fact, a bead sight is quite quick to use once you get the hang of it—all you need is lots of practice. (Hint: try to concentrate on the target rather than focusing your eyes on the sight.)

If you have “rifle sights” on your shotgun you can still use the point technique used by regular shotgunners, which is faster than using the sights. However, do zero the sights to the pattern your weapon fires and be sure it fires at point of aim as well as where the sights point just in case you should ever need to use the sights for slugs or the like.

Although not normally seen on sporting shotguns, optical sights on shotguns can be quite useful in quickly acquiring a target. “Red dot” scopes like those offered by Aimpoint are ideal for such use (more about these in later chapters). With practice, these sights can help you develop aim-and-point skills. (Strangely enough, once these skills have become ingrained when using a dot scope, you will probably discover that you can remove the optical sights and still hit targets just as well *without* the aiming system.)

Flashlight mounts are also available for many models of shotguns. These can be adjusted so that the shotgun shoots in the area where the light falls, giving the shooter a useful aiming device. The catch is that many flashlights “conk out” with the recoil of the shotgun and a flashlight makes an excellent target in the dark; therefore great care must be exercised in choosing a flashlight and in how this setup is used. For best results, the flashlight should have a quartz halogen bulb so that the light can momentarily blind an adversary. Some aftermarket manufacturers offer pump grip and handguard assemblies with built-in flashlights. These create a tough, compact system that lends itself well to the operation of a combat shotgun.

Practicing indoors and/or with other combat shooters can also aid a shooter in developing good techniques and tactics. (And it’s better to test tactics in practice rather than battle!) While some shooters engage in such mock combat with weapons filled with blanks or even plastic pellets over light charges, this is a rather dangerous practice. A better route is to use a “soft-air” gun that fires plastic pellets; though these still require eye protection, the low velocity is relatively safe (but it will still raise a welt to let you know you’ve been “shot”).

The soft-air guns sort of come and go. Your best bet is to hit the Internet and see what is available. The key things to look for are a model that is similar in its point of aim to the shotgun you would actually employ for combat and one that is of full size, if possible. You should also consider adding weights to the practice gun so that it is similar in feel to your actual combat weapon. Finally, be sure the gun has a glow-orange barrel so that it can’t be mistaken for a real firearm, which has lead to accidental

shootings of men practicing combat skills when they were mistaken for criminals.

Remember that the noise and flash of the shotgun is much more noticeable when it is used inside than when it is used outside. If you’re fighting in a really dark house, close one eye when you fire to preserve the night vision in that eye during the muzzle flash of firing; be sure to practice this as well so that it becomes a habit. When in actual combat, your brain may cut out much of the loud sound of the shotgun blast; then again, it may not, so try to be prepared for the excessive racket and flash of firing.

If it appears that you’ll have to use the shotgun in actual combat, your body will start gearing up for trouble. As adrenaline rushes into your bloodstream, you may become physically ill. Your brain will often give you tunnel vision as peripheral objects are blocked out so that you can concentrate on the danger ahead of you. (Practice moving your head to look around rather than moving just your eyes. Otherwise, you may miss a foe standing to one side of you during actual combat.)

When you’re under the stress of combat, you’ll find yourself in a “combat crouch,” which minimizes your silhouette. Again, you should practice firing from this position so that you can shoot and hit objects when the time comes.

Sporting use of the shotgun also helps you gain familiarity with your weapon and skill at using it. The pressure to perform in competition also helps you learn how to use the weapon when under stress. (When hunting with a shotgun with an extended magazine, be sure to place a plug in the magazine to limit the number of shells so that it conforms to hunting laws.) With the proper loads, a combat-style shotgun can be used to hunt virtually any type of game or to “do in” pests.

Skeet and trap shooting also can create shooting skill that is of great value to the combat shooter. If you don’t wish to spend a lot of money at a commercial range, most gun shops sell inexpensive target traps so that you can cheaply blast clay targets. For best honing of combat skills, adjust the target trap to throw clays on low, flat trajectories.



The shotgun is an awkward weapon that is saddled with an outdated cartridge design. But, provided the shooter becomes a good marksman and is able to limit the combat use of his

weapon to under 30 yards, the shotgun is capable of throwing lead at a target and effectively downing an opponent and in doing this better than most other hand-held weapons. With proper deployment and with a backup pistol or fellow combatant with a rifle, the

# CHAPTER 4

## *Pistol Shotguns*

**T**he power contained in a shotgun shell would seemingly make a pistol designed for such ammunition less than ideal to shoot. Yet such special-purpose guns are available and are most certainly viable in some combat situations where a larger gun may not be practical or another type of pistol may lack the capabilities of a handgun chambered for a shotgun cartridge.

Given the punishing recoil of the 12- and 20-gauges, with very rare exceptions most shotgun pistols are chambered for the .410 shell. This has the added plus of making them able to fire the .45 Colt as well giving an instant extra capability to the weapon. And this ammunition versatility is one of the reasons many of these guns are selected by special military users, detectives, or others: These guns can accept a variety of ammunition, including tear-gas cartridges, “rubber-bullet” (baton) rounds, and other special-purpose cartridges in addition to bird shot, buckshot, and slug cartridges.

In addition to the recoil of these shotguns there are two other drawbacks with these guns. One is the reduced velocity dictated by the shorter barrel. This may be of little concern in many cases, especially if an opponent is close by, in which case the gas escaping from the barrel may actually be pushed into the wound causing even greater injury than might be expected by the—on paper—poor ballistics offered by the short barrel. But this lack of velocity can become a problem if any range is presented between the shooter and the target or if an opponent is using ballistic armor. Then the lack of power could be very detrimental to someone firing one of these pistols.

The second drawback is that many of these pistols, to conform to federal regulations, have a slow rifling twist to them that may cause the shot fired from the gun to spread very rapidly. This is, again, not a problem at close ranges but detrimental at greater range. This element varies from one gun to the next, however, and since the U.S. law regulating the need for rifling in firearms doesn’t have any specifications, manufacturers can (and often do) employ a very slow twist—or no twist at all—to the rifling of these pistols, thereby doing

away with any great spread of the shot that might otherwise result.

Almost any pistol (or rifle, for that matter) can now be employed to fire a shot cartridge of one sort or another, but such transformations don't make it ideal for self-defense. These make-do, shotshell weapons seldom are viable for combat for several reasons. One is that the fast rifling of these guns gives a tremendous shot spread due to the centrifugal force placed on the shot load. This means that these guns are apt to totally miss a target or only lightly pepper it with shot if it is more than a few yards from the muzzle.

Second, such guns generally have only very tiny shot loads that can be employed with them. This means there are only a very few pellets to start with, making the guns ineffective on target. Additionally, the small size and round shape of these pellets dictates that air resistance quickly slows them down, adding to the lack of effectiveness.

Third, the shot capsules employed in pistols and rifles are generally based on a plastic "pill" that is very brittle. These can break in a gun's action, jamming it with loose pellets and/or presenting a shot that amounts to being only a blank since all the shot is missing from its ruptured container.

Fourth, because shot fired from a pistol or rifle exhibits so many of the poor qualities listed above, those employing it for self-defense will be forced to fire at an assailant more than once. The result is likely to be a large number of small wounds, possibly including damage to the eyes. These injuries may not be life threatening and may be only marginal in stopping a battle. But in the courtroom they will be seen in a much different light, one that will most likely lead to a lawsuit by the party who has been so peppered and disfigured by the shot.

When it is said and done, no shooter in his right mind would employ, say, a standard .357 revolver (or other pistol or rifle) to fire shot cartridges in a combat situation. Doing so transforms an effective weapon into a marginal firearm at best, and possibly a legal nightmare as well.

If you must employ a shotgun pistol as a defensive weapon, be sure the firearm is actually designed for such a purpose and is not simply a standard, rifled pistol that has been transformed into a "shotgun" with an anemic shotshell load.

So why would anyone opt for a shotgun pistol as a defensive weapon? One key reason is that it offers some options not available with a standard pistol, such as the ability to fire specialized rounds that can't be built around smaller pistol cartridges. If a shooter wants to fire tear-gas rounds, shot that will minimally penetrate building materials while still being effective in combat, or the like, then a pistol shotgun is the only choice to handle the job.

Before looking at specific models of pistol shotguns, know that the "sawed-off shotgun" that has many of the qualities of a handgun is not covered in this chapter for the simple reason that such guns are, except for their cut-off barrels and stocks, generally identical to the full-sized originals. Therefore, these whippet guns are covered in the other chapters dealing with the full-sized versions of these guns.

## AMERICAN DERRINGER

In addition to creating a number of small derringers chambered for standard pistol ammunition, American Derringer has produced several versions of its firearms that are



*American Derringer M1 (top) and M4.*

chambered to fire both the .45 Colt and the .410 shotgun cartridge.

Among the pistols chambered for the .410 is the company's M1, which offers two shots with its break-open action. The gun has an overall length of 4.82 inches and a diminutive barrel of 3 inches. This gun weighs in at 15 ounces. Which barrel fires first is determined by an automatic mechanism so the shooter has no choice in the matter. This also means that firing the gun is not overly complicated as well.

The M4 sports a longer, 4.1-inch pair of barrels giving it more weight and length—and a greater potential due to increased muzzle velocity. The M4 guns are available in an Alaskan Survival model (with both barrels forming one solid bar without fluting between them) as well as the more conventional standard model. The M4 derringers have an overall length of 6 inches and weigh 16.5 ounces.

All models have rosewood grips and stainless-steel frames and barrels with a choice of satin or polished finish. All American Derringers have a manually operated hammer-block safety that automatically disengages when the hammer is cocked. Because this is a single-action gun, the hammer must be cocked each time before firing the weapon.

#### **American Derringer Model 1 Specifications**

|                 |             |
|-----------------|-------------|
| Overall length: | 4.82 inches |
| Barrel length:  | 3 inches    |
| Weight:         | 15 ounces   |
| Capacity:       | 2 rounds    |

#### **American Derringer Model 4 Specifications**

|                 |             |
|-----------------|-------------|
| Overall length: | 6 inches    |
| Barrel length:  | 4.1 inches  |
| Weight:         | 16.5 ounces |
| Capacity:       | 2 rounds    |

### **FMJ SHOTGUN PISTOLS**

The FMJ shotguns are imported into the United States by KY Imports. These inexpensive pistols are created with stamped steel receivers

and parts. As such they are rather rough around the edges (as the saying goes) but also carry low price tags. Among the many models are the D, which is a single-shot gun chambered for the .45 Long Colt and .410 shotgun; the DD, which is a double-barreled version chambered in .45/.410; the O/U, which has a .22 LR barrel over a .45/.410 barrel; and the MR, which has five rotating barrels chambered for .45/.410. In addition to these shotgun pistols, very similar



*A few of the many variations of the FMJ shotgun pistol.*

FMJ guns are offered with chambering for .22 LR; single-shot .410s with long barrels and a folding stock are also available.

## QUIET, SPECIAL PURPOSE REVOLVER

As noted earlier, 10 of the U.S. military's Quiet, Special Purpose Revolvers were fielded in Vietnam in 1969 for use by tunnel rats and special forces troops. While the gun didn't prove overly successful, it did demonstrate how effective such a system might be if it were slightly more powerful and reliable.

The gun was built by modifying a Smith & Wesson Model 29 magnum revolver, shortening its barrel so that it was slightly more than 1 inch long; the chambers were reamed to 0.528 inches, and the barrel bore increased to 0.40 inches. Additionally, the hammer spring system was beefed up to positively ignite the primer on the silent-shot ammunition.

### Quiet, Special Purpose Revolver Specifications

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|                 |             |
|-----------------|-------------|
| Overall length: | 6.75 inches |
| Barrel length:  | 1.37 inches |
| Weight:         | 2.01 pounds |
| Capacity:       | 6 rounds    |



*U.S. military tunnel gun, designated the Quiet, Special Purpose Revolver.*

## THUNDER 5

The Thunder 5 is a more or less conventional revolver with a cylinder long enough to accommodate either a .45 Long Colt cartridge or a .410-bore shotshell. Like most modern revolvers, it is double action (meaning the hammer doesn't have to be thumbled back before the gun will fire—just pulling the trigger discharges the revolver); single action is available, however, if a shooter wishes to make a precise shot. The trigger pull is rather heavy (described as an “adult pull” in the company literature).



*Thunder 5.*

Also like most revolvers, the Thunder 5 has an internal draw bar safety. Unlike most revolvers, this gun also sports an ambidextrous hammer-blocking safety lever. The gun has a no-nonsense phosphate finish with fixed sights and Pachmayr grips.

### Thunder 5 Specifications

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|                 |           |
|-----------------|-----------|
| Overall length: | 9 inches  |
| Barrel length:  | 2 inches  |
| Weight:         | 48 ounces |
| Capacity:       | 5 rounds  |

## U-94 UDAR

For some time, many innovative firearms have been created in the Russian KBP Instrument Design Bureau, dating back to the Tokarev, Stechkin, and Makarov pistols of the mid-20th century. This tradition continues



*Udar (top) and Udar-S.*

with KBP's 12.3mm U-94 Udar revolver, which is currently being exported by Rosoboron Export (which is a Russian federal state unitary enterprise). This double-action

revolver is designed around the 32-gauge shotgun cartridge, necked down (apparently) to 12.3mm.

To add to the flexibility of the gun, in addition to a conventional shotshell the revolver has a variety of ammunition choices, including a cartridge with a jacketed lead bullet, an AP bullet round, a stun cartridge that creates noise and a bright flash, tear-gas rounds, a "pyroliquid" cartridge, a plastic bullet cartridge for crowd control/nonlethal response, and a paintball cartridge for training and practice.

The revolver has recently been modified to a slightly more streamlined model, the U-94S Udar-S, which has a shrouded hammer and other improvements. The U-94TS Udar-TS is for training use only, firing a paintball cartridge. The U-94TS has the same dimensions, weight, and handling characteristics as the U-94S, but cannot fire live rounds, making it safer for practice.

The U-94S is loaded with a cartridge clip; during this operation the empty cartridges are forced from the gun. Usually three of these ammunition clips are supplied with the gun and its holster. The U-94S is normally fired in the double-action mode, though it can be thumb cocked for single-action firing.

---

#### **U-94 Udar Specifications**

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|           |            |
|-----------|------------|
| Length:   | 6.8 inches |
| Weight:   | 32 ounces  |
| Capacity: | 5 rounds   |

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# CHAPTER 5

## *Oddball Shotguns*

**T**his chapter is a compendium of weapons that are not normally chosen for combat except in very special situations. Very frankly, most combat users of the shotgun will never need any of the weapons covered in this chapter. It is, however, useful to be aware of such guns so that you know what you might one day face—and also to avoid the smooth tongues of the “snake oil” salesmen in the small-arms marketplace. It should also be noted that some of the guns in this chapter and others may be out of production; they are covered here both for historical perspective as well as for the simple reason that many are available on the used-gun market. Even though firearms may be out of production for decades, it’s common to see guns brought back into production or kept in prime condition by an owner’s care and a gunsmith’s skills. Consequently a passing knowledge of these guns can be helpful.

The demise of the single- and double-barreled shotguns in the combat arena is not accidental. It occurred because the weapons have too limited a capacity (in comparison to pump or semiauto shotguns) for shots before they must be reloaded.

Doubles can be reloaded quickly. In the late 1800s, one of the first pump guns ever made, the U.S.-made Spencer slide-action, was pitted against an unknown but skilled British shotgunner with a double-barreled shotgun equipped with an automatic ejector. When large numbers of shots were required during the public tests, the double-barreled shotgun beat the slide-action!

During battle, however, things change. A shooter in combat can’t afford to concentrate on getting shells into a gun with fingers shaking from an adrenaline high; and sometimes combat takes place under conditions that coat the gun and gunner with water or mud. Being able to ignore the gun and concentrate on the battle is an important point. You can’t ignore a gun that has to be reloaded after a couple of shots.

Coupled with the number of shots before reloading is the question of cost. Most double-barreled and many single-barreled shotguns are aimed at the expensive sporting market; even “inexpensive” single- and double-

barreled shotguns often cost enough to at least make a nice down payment on a pump gun if not buy one outright. Cost, then, is another reason that pump and semiauto shotguns have become more popular for combat use.

A few single-barreled shotguns are inexpensive. This means they can be purchased by those who can't afford a more effective weapon or used as booby traps where the gun has to be abandoned or will be eventually ruined by its exposure to the elements. Single-barreled shotguns can become mini-Claymore mines in the skilled hands of a booby trap expert.

Since single-, double-, or even multibarreled shotguns are simpler than others, they can be "chopped" to form very short, easily carried packages and even carried like a handgun in a holster. The basic design also lends itself to concealment as canes, flashlights, etc.; but these are generally of use to criminals rather than those that can legally carry such weapons. Yet, even when such guns can be concealed, a pistol can generally be more easily concealed—with a silencer being possible to make the pistol go unnoticed even when in use.

Single-barreled, inexpensive shotguns might also be useful as flare launchers, tear gas launchers, and such for those normally using a rifle, pistol, or submachine gun. In these cases the barrel and stock might be trimmed to whippet size and the user would have a useful tool that could also give a one-shot capability should something happen to the primary weapon.

A few people are worried about having their firearms confiscated during a critical time in history, such as a takeover of government by an enemy nation or dictatorship. Because single- and double-barreled shotguns might escape confiscation, these simple shotguns are sometimes seen as an investment for those who wish to be at least minimally armed. The theory here, and one that is arguably correct, is that even a limited weapon is better than none at all.

(With the specter of government confiscation in mind, double-barreled guns come in two versions: over-and-under barrels and side-by-side. For some reason, the man on the street tends to see the over-and-under as a sporting gun while the side-by-side is almost always the weapon that becomes the "sawed-off" shotgun used in combat.

This makes the over-under gun a better investment if you wish to have a sporter that may double in a pinch for combat. The only catch to the over-under is the price. Fortunately for those who shop around a little, this group also includes less expensive imported guns with price tags in the \$400 range. And the used-gun market may have even better deals.)

Of course, even if one buys into the "government confiscation" theory for buying a single- or double-barreled shotgun, it perhaps doesn't really justify the use of one of the guns in this chapter for combat. The simple expedient of "losing" a good slide-action when confiscation time comes around probably makes a lot more sense than spending a lot of money on a double-barreled gun just on an outside chance of political chaos. Too, pumps as sporting arms will surely be among the last of guns to ever be taken out of the public's hands, since there are so many in use by hunters and target shooters.

Some types of shotguns are also unsuitable simply because the actions involved have just become unpopular among the shooting public. Lever-action shotguns, unlike their rifle counterparts, have lost popular favor to the point that none are being made commercially now. While these guns were traditionally just as good as the pumps, with the notable exception of the recently introduced Winchester .410 lever-actions, this design has been relegated to the collector's corner because no modern versions are available for combat use.

Bolt-action guns have suffered nearly the same fate, with only a handful still in production. Those still being made are well constructed and some even sport a detachable magazine. Yet the somewhat awkward reloading of the bolt-action coupled with the close proximity to an enemy when fighting with a shotgun makes such systems less than ideal for combat.

Multibarreled shotguns are nothing new. The Ethan Allen Pepper Box is probably the most popular of such guns; undoubtedly more than a few fighters have filled the barrels of these weapons with shot charges. And multibarreled shoulder weapons were often deployed during the 1700s and 1800s, as were larger, wheel-mounted contraptions using more than one barrel. (Even Leonardo DaVinci got into the act with a drawing

of a multibarreled cannon years before such things were being made.)

But multibarreled guns haven't proved as practical as repeating actions of various types. For one thing, the barrels' weight starts to mount up when more than a few of them are mounted in place. And when it comes time to reload, any pluses of the system quickly fade as the shooter plucks and chucks shells out of and into the weapon.

So when it is all said and done, the shotguns listed in this chapter should be explored because most of them display qualities that one should avoid when selecting a combat arm. That said, it is also fair to remember that "in a pinch" any of these can and undoubtedly have saved the lives of a homeowner here and there who snatched up whatever was available at the first sign of danger to confront a would-be thief or killer in the dead of night. At such times even the most awkward of shotguns are menacing enough to gain the same respect that any scattergun demands.

## CANE SHOTGUNS

These are a variation of the zip gun (also covered in this chapter). They are of dubious value as a weapon, since anyone carrying a cane attracts immediate attention these days. While cane guns aren't all that common, sword canes are, so policemen and bodyguards normally take special notice of anyone carrying a cane. Many districts also consider a cane gun a concealed weapon, or even an "any other weapon," making them illegal without a special permit. Finally, cane guns suffer from the fact that they are single-shot and *very* slow to reload.

The cane shotgun has always had an unsavory reputation, beginning its career as the British "poaching stick," which was a 20-gauge percussion shotgun disguised as a cane. A light, detachable stock was normally used with the gun. Modern cane shotguns generally dispense with the detachable stock.

Modern guns that use black powder are currently being made; they aren't regulated by federal law—though local laws and concealed weapons laws still apply to them. Smokeless-cartridge cane shotguns are not currently being made, though the basic setup is simple enough to make fabricating such a weapon rather easy.

Both the smokeless and black-powder versions normally use a "J" cut in the receiver to hold a spring-powered striker in place in the loop. When the weapon is to be fired, the user pushes the control stud out of the curve of the "J" so that the spring propels the striker forward to hit the primer (or percussion cap) and fire the weapon.

Reloading smokeless-cartridge versions of the gun entails unscrewing the barrel from the breech, prying out the spent shell, replacing a new one, and screwing the barrel back to the rest of the cane. When it comes near time to fire the weapon, the striker knob is pulled back and locked into place in the curved loop of the "J" cut in the weapon.

Since canes are out of fashion, this weapon is only a curiosity with little combat potential.

## COLT DEFENDER

The Colt Defender project is interesting in that it failed to produce a shotgun considered suitable for combat. It is, perhaps, a good example of what a combat shotgun should not be.

The research that led to the creation of the Colt Defender began in the late 1960s, where the just discontinued Winchester Liberator project (see below) left off. Like the Liberator, this series of shotgun designs was created by Robert Hillberg and made use of castings to keep the cost of the gun down. In order to create a lot of firepower for the weapon, the number of barrels was increased to eight. The Defender chambering was 20-gauge to reduce problems of recoil.

The detachable stock that had been a part of the Liberator design was retained, as was the detachable forward pistol grip. However, the forward pistol grip on the Defender became a fighting device all its own: it was made so that a tear-gas canister (nestled inside the eight barrels) could be fired with a trigger in the forward grip. The shotgun itself was reloaded by simply "breaking it open" in the manner of most single-barreled shotguns.

Despite the many favorable comments from those who saw the prototype weapon (including President Nixon), money available for new law enforcement gear was in short supply and the U.S. military was uninterested in the weapon. Therefore, Colt dropped its Defender project in 1971 and only one known prototype was ever made.



*Colt Defender.*

### **Colt Defender Specifications**

|                 |                                                              |
|-----------------|--------------------------------------------------------------|
| Overall length: | 17.75 inches<br>(without stock),<br>29.6 inches (with stock) |
| Barrel length:  | 11.9 inches                                                  |
| Weight:         | 8.6 pounds<br>(without stock)<br>9.6 pounds (with stock)     |

## **MAROCCINI OVER-UNDERS**

Available in 12 and 20 gauge, this Italian-made double's big selling point is its low price tag (as over-unders go). The shotgun has extractors and uses double triggers. Weight is 7.75 pounds. The engraving on the "antique silver" receiver makes it look like anything but a combat weapon for those with confiscation worries. These guns were imported into the United States during the 1980s by F.I.E. before it went out of business.

## **F.I.E. SSS SINGLE BARREL**

Available in 12- and 20-gauge and .410 chamberings, these guns were imported from Brazil by F.I.E. The shotgun has an automatic ejector that makes it quicker to reload than some other guns, and an exposed hammer that allows the user to see the firing condition of the gun at a glance. The 5.5-pound gun has an 18.5-inch barrel and a "chopped" stock, which makes the overall length just 28 inches (the gun can easily be broken down into an even smaller package, with the barrel being the longest part).

The SSS is identical to the Hamilton & Hunter (see below) but has a short barrel and stock. The SSS is also apparently identical to

the SOB that was marketed several years earlier by F.I.E. (No doubt the change of designation is an attempt to make the gun have a less negative connotation.)

The SSS is designed to be fired from the hip at close ranges, but some degree of accuracy is possible by the shooter's holding the gun out in front (taking care not to allow it to hit his face when the shotgun recoils). The 12-gauge version is lightweight, so recoil is excessive; most users will probably prefer the 20-gauge chambering, which can fire magnum shells when necessary.

The gun has its barrel release conveniently located on the front of the trigger guard. An internal safety prevents the action from being opened or closed with the hammer back and also prevents cocking the hammer if the action isn't fully closed.

The SSS is an ideal combat length *if* a single-shot gun must be used for self-defense purposes. With a low price tag and availability on the used-gun market, these guns are one of the best buys for those needing such a weapon. (A shot spreader on the barrel of this weapon would make a lot of sense since it is designed for close combat and has only a single-shot capacity.)

## **F.I.E. HAMILTON & HUNTER**

Available in 12- and 20-gauge and .410 chamberings, these single-barrel guns were also imported from Brazil by F.I.E. and are the full-stocked version of the SSS. The Hamilton & Hunter models also have an automatic ejector, which makes them quicker to reload than some other guns. An exposed hammer also allows the user to tell at a glance what the firing condition of the gun is. The 6.5-pound gun has a lower price

than the SSS but carries a 24-inch barrel (on the dove and quail version) so that it is less ideal for combat use. With one of the lowest price tags for any single-barreled shotgun in the current marketplace, these guns are very good buys.

## LIBERATOR

The Liberator series of weapons was initiated during the early 1960s. It was a tense period; the Bay of Pigs made it seem that guerrilla wars and Communist takeovers were going to force the United States to develop special weapons capable of being used covertly or dropped by air to behind-the-front warriors. A weapon with high initial firepower that was simple to use, make, and transport was called for, and the Liberator shotgun was designed toward this end in work done under Winchester's Liberator Project. The guns in the series were designed under the direction of Robert Hillberg.

Early guns were streamlined and lacked a stock. As work continued, various designs and prototypes added a more squared-off (but more practical) layout and a removable stock.

All the prototypes had four short barrels and were made of aluminum or magnesium castings wherever possible to keep machining costs down. Original guns were chambered for special 16-gauge shells; unfortunately the final Mark III version was chambered for 12 gauge, which apparently was necessary to gain approval with would-be military and police buyers—despite the fact that other gauges were sometimes more suitable.

The 12-gauge chambering created a heavy weapon with heavy recoil that was hard to recover from for quick follow-up shots—in fact, many of the small rebels the gun was originally designed to help wouldn't have been able to carry or comfortably fire the gun!

And the final design became even heavier when it was beefed up to be used with 12-gauge ammunition. This made the lightweight M1 carbine (and later the AR-15 rifle) better alternatives to the final un-lightweight Mark III version of the Liberator. The Liberator is another of those projects that began with a clear, viable design concept that was gradually derailed as the designer tried to please committees of potential buyers who didn't understand what was really needed.

The Mark III version had both a detachable, telescoping stock and a detachable pistol foregrip. The trigger pull was an unbelievably heavy 18 pounds.

### Liberator (Mark III) Specifications

|                 |                                                                                       |
|-----------------|---------------------------------------------------------------------------------------|
| Overall length: | 18.5 inches<br>(without stock)<br>28.5 inches<br>(stock extended)                     |
| Barrel length:  | 13.5 inches                                                                           |
| Weight:         | 7 pounds<br>(without foregrip<br>and stock),<br>8 pounds<br>(with stock and foregrip) |

## MARLIN GOOSE GUN

The Goose Gun is one of those rare bolt-action shotguns. The 8-pound gun has a recoil pad with slings and swivels on its walnut stock. The gun has a thumb safety and a detachable two-round magazine.

The Vietcong were able to extend the magazines on bolt-action shotguns to give the weapons a lot of firepower coupled with a large-





*Marlin Goose Gun.*

capacity detachable box magazine. Since a skilled user can operate a bolt action fairly rapidly, it is—in theory at least—possible that the Goose Gun might be modified into a useful fighting configuration by cutting down its 36-inch barrel and creating an eight- or 10-round magazine for it.

### **MOSSBERG 595-695**

The bolt-action Model 595 was marketed for some time by Mossberg and was only recently replaced by the updated Model 695.

### **ROSSI OVERLAND**

Available in 12- and 20-gauge and .410 chamberings, the Rossi side-by-side shotguns carry a low price tag, which makes them ideal for a throwaway gun or a “chop” job to create a small double-shot stakeout weapon. The guns have external hammers so that it is easy to tell what the firing condition of the gun is. Double triggers are used to select the barrel being fired.

### **RUGER RED LABEL**

Like most of Ruger’s other guns, the Red Label over-under shotgun is very well made and has a reasonable price tag. The 20-gauge version weighs about 7 pounds, while the 12 gauge is a half-pound heavier. The guns have checkered walnut stocks and fore-ends, rubber recoil pads, and a stainless-steel trigger.

While the Red Label is more expensive than a combat pump gun, it is be ideal for those who are fearful of governments that will confiscate everything but genuine sporters. The stainless-steel version of this weapon is most durable and weather resistant.

### **SAVAGE MODEL 24**

This inexpensive over-under has different chamberings for each barrel, which makes it an ideal camp or survival-type gun, though less suited for combat. Through the years of production, a number of variants in this design



*Mossberg Model 595 and Model 695.*

have been produced including guns that have a rifle chambering for the top barrel (including .22 S, L, or LR, .223 Remington, .223 Remington, or .30-30) with lower barrels chambered for 12 or 20 gauge.

Some barrels are also tapped for easy scope mounting for those who want long-range accuracy with the rifle cartridges. The Savage 24 can also be taken down to parts with a maximum length of 20 inches, which makes the weapon ideal for carrying in small spaces.

Currently Savage offers the Model 24F-20, which has a lower 20-gauge barrel (chambered for 3-inch shells) with a choice on the upper barrel of .22 LR, .22 Hornet, .223 Remington, or .30-30 Winchester with the upper barrel. The Model 24F-12 has a 12-gauge lower barrel with a choice of chamberings with the upper barrel of .22 Hornet, .223 Remington, or .30-30 Winchester.

#### **Savage 24F-20 and 24F-12 Specifications**

|                 |           |
|-----------------|-----------|
| Overall length: | 30 inches |
| Barrel length:  | 24 inches |
| Weight:         | 8 pounds  |

### **SAVAGE SLUG WARRIOR**

This bolt-action shotgun is designed for firing slugs, though shot can also be fired in the gun (with less than ideal results due to the rifling in the barrel). The Slug Warrior has a free-floating and button-rifled barrel for increased accuracy. The barrel lacks sights, instead being drilled and tapped for the scope mount that comes with the shotgun. An undetachable magazine extends slightly from the underside of the synthetic stock.

#### **Savage Slug Warrior Specifications**

|                    |              |
|--------------------|--------------|
| Overall length:    | 44.75 inches |
| Barrel length:     | 24 inches    |
| Weight:            | 7.5 pounds   |
| Magazine capacity: | 2 rounds     |

### **SAVAGE-STEVENS MODEL 311 DOUBLE**

No longer in production, these side-by-side shotguns were made in 12- and 20-gauge and .410 chamberings and carried a very reasonable price tag. The guns have internal hammers so that it is not as easy to tell what the firing condition of a gun is. Double triggers are used to select the barrel to be fired.

### **SPRINGFIELD ARMORY M6 SCOUT**

This rifle is ideal for those needing a small survival rifle but is, of course, less suited for general combat use.

The top barrel is chambered for .22 LR, .22 Magnum or .22 Hornet (with the .22 Magnum apparently not currently in production); the lower barrel is chambered for .410 shotgun cartridges. The all-metal gun is available in stainless steel as well as the standard parkerized steel construction. The gun folds for compact carrying and has a storage compartment in the stock for spare ammunition. The trigger on the weapon is of a squeeze type, which makes it easy to operate even with mittens on.

#### **Springfield Armory M6 Scout Specifications**

|                 |             |
|-----------------|-------------|
| Overall length: | 31.5 inches |
| Barrel length:  | 18 inches   |
| Weight:         | 4 pounds    |



*Savage Slug Warrior.*

## STOEGER DOUBLE AND SINGLE BARRELS

Stoeger has created several models through the years to fill the niche market for single- and double-barreled shotguns. These include 12-, 20-, and 28-gauge and .410 chamberings with over/under and side-by-side as well as single-barreled shotguns. Since many of these carry low price tags, they have sometimes been selected for special-purpose whippet guns. Most models (with the exception of some single shots) have internal hammers so that it is somewhat difficult to tell what the firing condition of a gun is. Double triggers are generally used to select the barrel to be fired.

## SWD TERMINATOR

This is a single-shot weapon that was decked out in combat furniture, apparently taking its name from the title of the popular film that came out in 1984, slightly before the introduction of this firearm. The shotgun certainly looks impressive enough for such a “role” with its barrel shroud, telescoping stock, and an AR-15 pistol grip. Underneath it all, however, the weapon is still a single-shot shotgun whose basic design goes back to the Philippine Paliuntod design, which was used by guerrillas in that country during the early 1900s and again during the Japanese occupation.

As such, the design is a sort of glorified zip gun with a fixed firing pin. The barrel contains the shell and, when the gun is to be fired, the user slams the barrel back in a sleeve against the fixed firing pin. Construction of these guns has traditionally varied from crude to cruder, but most work quite well.

Following World War II, Cliff Richardson (who had been trapped in the Philippines during the Japanese occupation and used the Paliuntod design to arm his band of guerrillas) tried to market a shotgun in the United States that was designed around the basic Paliuntod design. The Richardson shotgun worked well, but the process of slamming the barrel back with the off hand made it inaccurate so the weapon never sold well.

The SWD Terminator design was a very

notable improvement on the Paliuntod design by its using a heavy spring to slam the shell backward; the spring is released by a trigger so the gun can be fired in the usual way. (This also makes a safer weapon, since dropping it on the barrel is less apt to cause the gun to fire accidentally).

Recoil is about the same as that of a standard single-shot shotgun and, while in production, the Terminator was made in 12-gauge as well as a 20-gauge version that was more pleasant to fire.

---

### SWD Terminator Specifications

---

|                 |              |
|-----------------|--------------|
| Overall length: | 21-26 inches |
| Barrel length:  | 18 inches    |
| Weight:         | 6 pounds     |

## WINCHESTER MODEL 1887

This lever-action shotgun was created by John Browning and, as one might expect, differs noticeably from Winchester's lever-action rifles of the time, employing a bolt that follows the arc made by the lever sliding upward on its return to cam the bolt against the receiver and chamber a round.

In 1900 Winchester discontinued production of the gun when stocks of parts ran low, did some redesign work, and then reintroduced it as the company's Model 1901. This new model was refined: safety features were added and the weapon was beefed up for the then-new smokeless-powder cartridges (though it was still able to accommodate the older black-powder ammunition). This new gun was offered in 10 gauge only and sold poorly, in large part because the pump action was starting to catch on. Manufacture of the shotgun was discontinued in 1920.

The basic design of the gun is sound and the patents have run out on it, making it a tempting gun to reproduce—which is just what several manufacturers have done. In the late 1990s the Australian International Arms created a reproduction of the 1901, chambering it for the more popular 12 gauge. As such, it offers an interesting possibility for those looking for a unique, lever-action combat shotgun. (And for those interested in movie trivia, it should be added that this is the lever-action shotgun employed in *Terminator II*.)



*Winchester 1901.*



### **Australian International Arms 1901 Specifications**

|                    |             |
|--------------------|-------------|
| Overall length:    | 40.5 inches |
| Barrel length:     | 22 inches   |
| Weight:            | 8.75 pounds |
| Magazine capacity: | 5 rounds    |

### **WINCHESTER 9410**

This shotgun is the one exception to the rule in this chapter: It would be a viable combat choice, especially for a shooter who was at home

with the lever-action rifle or who had practiced a lot with this lever-action shotgun.

Looking like a traditional lever-action rifle, the Winchester 9410 builds on the company's 1800s design, but is fitted with a smooth-bore barrel chambered for the .410 shotgun cartridge, with a 2.5-inch chamber. The standard barrel has a choked cylinder bore.

For those used to operating a lever-action rifle, this is just the ticket for transferring learned habits from one gun to the other. It also adds a lot of flexibility to the user's shooting, given the additional capabilities of the .410 cartridge through the variety of loads available for it, from shot to buckshot.



*Winchester 9410 (top) and Packer.*

A shorter version of the 9410 is marketed as the Packer. This carbine version of the larger shotgun is very handy; however, it has the disadvantage of a magazine that is only half the size of the parent gun.

Both guns have a TRUGLO front sight to speed up target acquisition; unfortunately, this is coupled with the traditional V-notch rear sight. Shooters who want to decrease the time needed to acquire a target should consider having a gunsmith add a peep sight to this shotgun.

---

#### **Winchester 9410 Specifications**

|                    |              |
|--------------------|--------------|
| Overall length:    | 42.13 inches |
| Barrel length:     | 24 inches    |
| Weight:            | 6.75 pounds  |
| Magazine capacity: | 9 rounds     |

---

#### **Winchester 9410 Packer Specifications**

|                    |            |
|--------------------|------------|
| Overall length:    | 38 inches  |
| Barrel length:     | 20 inches  |
| Weight:            | 6.5 pounds |
| Magazine capacity: | 4 rounds   |

## **ZIP GUNS**

Zip guns are crude, single-shot weapons made out of pipe or other readily available and unregulated materials (though the final product is generally illegal).

In the United States, steel gas and water pipe is available that will chamber a number of shotgun cartridges; wrapping cartridges in tape or rags allows chambering other smaller cartridges (with a considerable loss of velocity) in such pipe as well. By adding a threaded end piece with a hole drilled through it to accept a spring or rubber-band-powered firing pin (often made from a nail), a crude shotgun can quickly be fashioned.

If shotgun shells are unavailable, a talented “zip-gunner” can even make his own powder and reload shotshells or create percussion caps to shoot the gun as a muzzleloader. However, zip guns are poor choices for combat unless no other type of weapon is available.

Zip guns are of interest to many because they are proof that it is impossible to ever actually take guns out of the hands of criminals or ever actually disarm a knowledgeable and determined person.

# CHAPTER 6

## *Slide-Action Shotguns*

**F**or over a century, the “pump,” or slide-action, shotgun has been the most reliable and popular magazine-fed shotgun for combat use; this is especially true when the weather is bad or ammunition is faulty. Because the action is manually cycled for each shot, the pump shotgun can handle a variety of ammunition that even the best semiauto actions may fail to function with. The simplicity of the action and single-barrel design also generally make the slide-action shotgun less expensive than its semiauto or double-barreled counterparts.

Most modern pump guns can be traced back to the Spencer slide-action shotgun first marketed in 1883. Although the Europeans had developed the basic idea of the slide action, it was Christopher Spencer who actually made it practical for shotguns and who created the tubular magazine under the barrel that has become the norm for most shotguns even today. During the late 1800s, the Spencer slide-action shotgun set the stage for the new “pump” or “trombone” guns.

The Spencer shotgun was awkward to use, however. The action required a lot of strength to operate and was far from popular when it first hit the marketplace. After a few false starts (like the Burgess police shotgun, which had the pump action mounted in the grip of the stock), John Moses Browning created his easier-to-operate pump shotguns and—with Winchester marketing the new guns as their Model 1893 and Model 97—the pump gun swept through the United States and soon displaced the single- and double-barreled shotguns from most combat and much sporting use. (The Browning pump shotgun designs aren’t outstandingly good by modern standards, but they were much better than the alternatives of the day.)

Slide-action shotguns are not without their drawbacks, however. Their recoil is greater, which often dictates the selection of a less powerful round, and the slide mechanism is hard to operate, especially in the prone position.

Too, during times of stress those using a pump gun often short-stroke the weapon, causing the empty shell to fail to eject—and often jam up the action when a second shell is released from the magazine. Sooner or later

almost every pump-gunner will short-stroke his gun; knowing how to deal with the resulting problem can be a lifesaver.

The short-stroke leaves the empty cartridge in the ejection port with the new round on the shell carrier below the bolt. Improvements in the slide mechanism make it possible on many guns to put in a little effort and cycle the gun. The shooter can drop the hammer on the empty shell, then pull the action back and push it forward to eject the empty and load the shell on the carrier into the chamber without any big problem other than loss of the shot with the empty.

However, with some mechanisms, especially on older guns, there is a problem because the shell trapped by the lifter catches the second shell released from the magazine when the gun is cycled, causing a jam (old Remington 870s were notorious for this). In this case the only solution is to push the extra shell back into the chamber with a pocket knife blade or other tool—not so good during a firefight. Fortunately many manufacturers have cured this problem, or at least placed a slot on the lifter to make shoving the shell back into the magazine a simpler task.

A very similar problem can occur during reloading in a combat situation. The shotgunner may push a shell only partway into the magazine so that it pops back into the action of the shotgun. With some guns, such as the older Remingtons, this creates a jam. Newer models of shotguns are being made so that the action can be cycled over the shell. If the shotgun you're using isn't capable of cycling over a popped-back shell, then you should have a gunsmith cut a slit in the shell lifter so that a key or knife can be inserted into the weapon and the shell can be pushed back into the magazine to free the action. But a better bet is to get a modern gun that won't have this problem. Another problem that sometimes occurs is that a shell becomes jammed in the chamber (because of dirt, a ruptured case, or an oversized shell). Rather than pull back and possibly damage the action bar(s), the expedient drill during combat is to stay clear of the barrel and slam the butt of the shotgun straight down on a hard surface while pulling back on the action (the right hand should hold the slide release). This drastic step will often damage the gun but may open the

action so that a new shell can be chambered and fighting continued.

As to the design of the pump action, most—if not all—manufacturers now have beefed up the actions enough to keep them from bending when the action is cycled when it's extremely dirty. In fact, recent military tests suggest that there is virtually no difference in reliability between actions using a double bar between the pump and bolt carrier and those using a single bar. Nevertheless, for smoother action and—perhaps—an extra edge of reliability, many looking for a combat shotgun may wish to purchase an action with double bars.

Finally, the slide mechanism is slower than semiauto shotguns—and a lot slower than the new combat semiautos coming onto the scene. Even though it is true that most gunfights are ended with just a shot or two, the ability to lay down a withering storm of lead is an option that is reassuring, and that could save one's life if the situation warranted such fire. Nevertheless, many combat users are willing to put up with these shortcomings in exchange for the pluses of the pump gun.

## BENELLI NOVA

Introduced in 2001, the Benelli Nova is a relative newcomer that builds upon the technology of the Benelli M3 semiauto/pump-action gun and as such has proven very reliable. However, it departs from the parent gun's design radically with its one-piece polymer stock and receiver—the latter having an encapsulated steel frame—the first shotgun to ever create this system that makes it arguably one of the more hi-tech guns available in terms of manufacture. The action bars and bolt ride inside the steel frame, giving the shooter a reliable system that is also very resistant to rust and scratches thanks to the tough plastic exterior of the receiver.

The big drawback with current models is that they are only available (somewhat mysteriously for a shotgun intended for police users) with a short, four-round magazine. The pump handle is also long, extending back under the ejection port when the assembly is in its rearward position; this means that some accessories, such as a shell carrier, may not be usable with these guns.



*Benelli Nova.*

The gun has a matte finish with somewhat “spacey” stock and pump handle designs. The barrel has a cylinder-bore barrel. The design also offers a fore-end-mounted magazine cutoff, which permits safer unloading of the magazine. Two models are available, with an open sporter rifle “V” or the rear sight ghost-ring configuration.

The manual safety is at the front of the trigger guard and the action release is just ahead of the safety. The trigger assembly is easily removed from the receiver, which then makes it simple to take the bolt assembly out. Those familiar with these guns can fieldstrip them in less than a minute using the fore-end plate, which doubles as a tool for removing the pins that hold the trigger group in place. The shotgun comes with three choke tubes and a wrench for removing/replacing them.

#### **Benelli Nova Specifications**

|                    |             |
|--------------------|-------------|
| Overall length:    | 40 inches   |
| Barrel length:     | 18.5 inches |
| Weight:            | 7.2 pounds  |
| Magazine capacity: | 4 rounds    |

### **BERETTA RS 202 P**

The RS 202 P is an extended-tube version of the Beretta RS 202 hunting shotgun. Like the parent gun, the 202 P has a stock and fore-end made of oiled walnut. The guns come with sling swivels and have lightweight alloy receivers. One feature not found on most other pumps is the “slide release,” which allows a shell to be removed from the breech without releasing a shell from the magazine (this, in theory at least, allows the shooter to exchange shells in the breech or quickly make his weapon safe to handle).

The slide release is located on the left side of

the front of the trigger guard and a cross-bolt safety is also placed at the front of the guard. A choice of 20.5- and 24.5-inch barrels is available; both come with a cylinder bore. The barrels have a fluorescent aiming ball near the muzzle.

A pistol grip and a detachable, folding buttstock version of this gun equipped with an eight-round magazine has also been created for use by Italian counterterrorism forces including the NOCS (Nucleo Operativo Corpi Speciali) and the Col Moschin Regiment.

#### **Beretta RS 202 P Specifications**

|                    |                                        |
|--------------------|----------------------------------------|
| Overall length:    | 40.5 inches<br>(with 20.5-inch barrel) |
| Barrel length:     | 20.5 inches                            |
| Weight:            | 7 pounds                               |
| Magazine capacity: | 6 rounds                               |

### **BERETTA M3P**

The Beretta M3P can be used as a pump gun or a semiauto. It has many of the advantages of both types of actions but is also more complicated to use and carries an accordingly higher price tag. For more information see Chapter 7.

### **BERNARDELLI B4**

The firm of Vincenzo Bernardelli has been producing firearms since 1865 and produced the B4 in the late 1980s. The prototype shotguns had a squared-off pump action and shrouded barrel. Above the receiver was an AR-15-style carrying handle, rear sight assembly, and a front sight protected by “dog ears.”

The shotgun has a rotating bolt. A folding stock and a detachable box magazine—a welcome addition to the combat arena—round

out the design. The box magazine is detachable by a toggle release directly behind the magazine well. Both five- and eight-round magazines are available.

Although originally the B-4 was going to be marketed in a pump- and gas-operated version, the final model offered the choice of semi- or pump operation on the same gun. This proved to be a problem, as it caused the gun to be banned under the infamous federal assault weapons ban. So while the shotgun was imported into the United States for a very short while by Springfield Armory, Inc., and European American Armory (EAA), it is no longer available to American shooters without a Class 3 license.

## BROWNING BPS

The BPS (Browning Pump Shotgun) is similar to the Ithaca shotgun with an action that ejects spent shells through the bottom loading port, thereby doing away with the ejection port in the side of the receiver. This system simplifies manufacture and makes the gun somewhat more resistant to moisture and dirt, but also creates a weapon whose chamber is a bit more awkward to check and harder to clear in the event of a malfunction.

The thumb-activated safety is located on the top rear of the receiver making a pistol-grip stock awkward to use (should one become available for it). Currently there are no production magazine extensions available for the BPS, though a gunsmith could undoubtedly create one without much problem. The 22-inch Upland Special barrel is available in both 20 and 12 gauge and is probably the best choice for combat use. One plus of the BPS shotguns is that they can function with all types of shells, including 3-inch magnums.

The Browning guns are well made, but have little to offer for combat that can't be found with other brands of shotguns, and there are few combat accessories made for this shotgun.

### BPS Specifications

---

|                    |                                        |
|--------------------|----------------------------------------|
| Overall length:    | 42.5 inches                            |
| Barrel length:     | 22 inches                              |
| Weight:            | 7.5 pounds                             |
| Magazine capacity: | 4 (2 3/4-inch)<br>or 3 (3-inch) rounds |

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## EAA ATIS PM-2/VALTRO PM-2

During the late 1980s, European American Armory (EAA) imported the Italian-made PM-2, manufactured by Atis. The 12-gauge design enjoyed some popularity in Europe as a special-purpose police weapon but didn't meet with great success in the United States. The pump-action gun sports a box magazine and was made with a sporter-style stock as well as a more practical pistol-grip stock. Apparently the original PM-2 design allowed both pump-action as well as semiauto modes.

The gun was dropped from the EAA lineup in 1994 but continues to be made and sold in Europe as the Valtro PM-2.

### EAA Atis PM-2/Valtro PM-2 Specifications

|                    |            |
|--------------------|------------|
| Overall length:    | 41 inches  |
| Barrel length:     | 20 inches  |
| Weight:            | 6.8 pounds |
| Magazine capacity: | 7 rounds   |

## EAA MP131K

The United States-based EAA imports a variety of firearms to sell to various domestic markets. One of the firearms imported (until recently) was the Russian-made 12-gauge Baikal MP131K, which has a unique feature that merits consideration as a combat weapon: it can feed from either its box magazine *or* its tubular magazine, the choice being made with the flip of a switch on the magazine. This means a shooter might, for example, have the tube loaded with buckshot and the box magazine loaded with tear-gas rounds, baton cartridges, or whatever. Should a fight escalate from a minor fracas to a very dangerous confrontation, a flip of the switch would give the shooter a more effective fight stopper. Additionally, a user could exchange box magazines for an even greater variability as well as a fast reload. Magazines available have three- and five-round capacity.

A choice of furniture is offered with the gun: beech, birch, walnut, or polymer; barrel lengths include 18.5, 20, 24, 26, and 28 inches (with the 18.5-inch probably the most ideal, since extensions for the tubular magazine aren't readily



*Atis PM-2 with sporter and pistol grip stocks.*



*Baikal MP-131 in standard "sporter" configuration (top) as well as customized versions.*



available). Barrels can accommodate 3-inch shells. The MP131K weighs 7.72 pounds

Unfortunately, EAA has apparently discontinued importing this gun and it is not listed in the company's current catalog. However, due to the firearm's cheap price and the potential for modifications in its design, it seems likely another company may pick it up for its product line. In the meantime this gun has become popular for those modifying shotguns for special combat use such as police entry weapons and bodyguard work. This has lead to whippet and other after-market modifications to the basic gun.

## FABARM FP6

Manufactured by FABARM (Fabbrica Bresciana Armi Travagliato in Italy), the 12-gauge FP6 boasts twin action bars and a carbon-fiber finish, with a choice of fixed polymer, folding, and pistol grip stocks. The receivers on all models have a Picatinny rail that permits using optical systems rather than the notch rear/flip-up front sights; barrels come with a 3-inch chamber interchangeable chokes. In addition to the standard model, an FP6 "entry model" is available with a 14-inch cylinder bore barrel.

The FP6 is employed by French national

police agencies as well as security and paramilitary forces in the Balkans. Currently, FABARM shotguns are offered in North America by Heckler & Koch.

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### FABARM FP6 Specifications

|                    |            |
|--------------------|------------|
| Overall length:    | 41 inches  |
| Barrel length:     | 20 inches  |
| Weight:            | 6.8 pounds |
| Magazine capacity: | 5 rounds   |

---

### FABARM FP6 "Entry" Specifications

|                    |              |
|--------------------|--------------|
| Overall length:    | 33.75 inches |
| Barrel length:     | 14 inches    |
| Weight:            | 6.4 pounds   |
| Magazine capacity: | 5 rounds     |

## FABARM SDASS TACTICAL

This 12-gauge pump gun has an under-barrel magazine that holds 8 rounds. The top of the receiver has weaver rails with a folding front sight on the barrel to permit unrestricted viewing of the target when a scope is mounted on the gun. A lengthened forearm is said to give the user greater control over the weapon.



*Fabarm FP6.*

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### FABARM SDASS Specifications

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|                    |             |
|--------------------|-------------|
| Overall length:    | 38.5 inches |
| Barrel length:     | 18.5 inches |
| Weight:            | 6.5 pounds  |
| Magazine capacity: | 8 rounds    |

### FN POLICE

As the name of this gun suggests, Fabrique Nationale (FN) Herstal created this pump gun with an eye toward capturing sales to the law enforcement community (though the gun is currently available to civilians in the United States as well). The gun sports a nonreflective synthetic stock and pump grip, with the stock

somewhat shorter than usual to accommodate police body armor. The receiver is drilled and tapped to permit mounting scopes.

All steel components are finished in manganese phosphate. The bolt has a rotary design similar to that of many rifles and the gun also has an “assisted release” with some of the recoil action being employed to start the slide rearward, thereby assisting in extraction of the shell. The gun also has a cross-bolt safety with an oversized button at the front of the trigger guard.

FN Police shotguns are offered with improved cylinder and modified choke tubes. Barrels can accommodate 3-inch shells. At the time of this writing, Fulton Armory is offering these shotguns to civilian buyers in the United States.



*FN Police Standard (top and center) and Tactical configurations.*



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### FN Police Specifications

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|                    |              |
|--------------------|--------------|
| Overall length:    | 38.75 inches |
| Barrel length:     | 18 inches    |
| Weight:            | 6.5 pounds   |
| Magazine capacity: | 7 rounds     |

---

### FN Police (entry version) Specifications

---

|                    |              |
|--------------------|--------------|
| Overall length:    | 34.75 inches |
| Barrel length:     | 14 inches    |
| Weight:            | 6 pounds     |
| Magazine capacity: | 4 rounds     |

## FN POLICE TACTICAL

FN has displayed a Police Tactical shotgun that appears to be based on its standard Police model, but with the addition of an AR-15 grip, an AR-15 carbine telescoping stock, and raised front and rear sights to accommodate the inline stock. While this modification makes sense in many ways (since FN also manufactures these AR-15 parts for sale to the U.S. government), it remains to be seen whether this shotgun will actually go into production. That said, it has an attractive, no-nonsense look to it that would certainly appeal to many military and police buyers.

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### FN Police Tactical Specifications

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|                    |           |
|--------------------|-----------|
| Overall length:    | 40 inches |
| Barrel length:     | 20 inches |
| Weight:            | 7 pounds  |
| Magazine capacity: | 8 rounds  |

## FRANCHI PA3

Following World War II, the Franchi company was created to build sporting arms, making use of modern manufacturing techniques to create guns like the AL-48, which was based on the old Browning A5 design that Franchi engineers coupled with an aluminum receiver and other innovations.

In addition to sporting arms, Franchi has also produced a number of combat shotguns aimed at the police and military markets (as well as the somewhat militant civilian market in the United States).

The Franchi PA3/215, PA3/345, and PA/470 are three such 12-gauge shotguns produced by

Franchi. These guns utilize design features of the SAS-12 (see below) with the PA/470 being nearly (if not completely) identical to that model. The PA3/215 and PA3/345 have their barrels trimmed back to produce a whippet-style gun that has the plus of a stock that can be unfolded when a more precise aim is called for.

These guns are sometimes modified for police use; consequently one can see some variations within this model designation, especially in the way of pump handle and stock. The PA3/215 is the shortest version.

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### Franchi PA3/215 Specifications

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|                    |                                                                   |
|--------------------|-------------------------------------------------------------------|
| Overall length:    | 33.1 inches<br>(stock extended),<br>24.4 inches<br>(stock folded) |
| Barrel length:     | 8.5 inches                                                        |
| Weight:            | 5.9 pounds                                                        |
| Magazine capacity: | 3 rounds                                                          |

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### Franchi PA3/345 Specifications

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|                    |                                                                   |
|--------------------|-------------------------------------------------------------------|
| Overall length:    | 38.1 inches<br>(stock extended),<br>29.4 inches<br>(stock folded) |
| Barrel length:     | 13.6 inches                                                       |
| Weight:            | 6.17 pounds                                                       |
| Magazine capacity: | 5 rounds                                                          |

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### Franchi PA3/470 Specifications

---

|                    |                                                                   |
|--------------------|-------------------------------------------------------------------|
| Overall length:    | 43.1 inches<br>(stock extended),<br>34.4 inches<br>(stock folded) |
| Barrel length:     | 18.5 inches                                                       |
| Weight:            | 7.25 pounds                                                       |
| Magazine capacity: | 8 rounds                                                          |

## FRANCHI SAS-12

This shotgun is modeled after the Franchi SPAS-12 shotgun (Sporting Purpose Automatic Shotgun Model 12, covered below) and may very well be the same shotgun that Franchi designates as its PA3/470 model (see above). That said, this



*Three versions of the Franchi PA3.*



gun is lighter than the SPAS-12, operating in the pump mode only. The shotgun can use any of the accessories designed for the LAW-12 or SPAS-12 including folding stock, diverter tube, choke tubes, scope mount, and slings.

The safety system of the SAS-12 is identical to that of the SPAS-12; originally the rotary safety system found on the SPAS-12 was used on the SAS-12. As noted elsewhere in this book, this rotary system is occasionally subject to failure and therefore should be replaced with the cross-bolt safety designed for it.

Finish on the SAS-12 is matte black; the shotgun comes with a black pistol-grip stock and

extended magazine, which makes it an ideal off-the-shelf combat weapon. The shotgun was sold in the United States in the late 1980s, marketed by F.I.E. Unfortunately this is another gun that has fallen victim to U.S. import laws, but it is available on the used-gun market here.

#### **Franchi SAS-12 Specifications**

|                    |             |
|--------------------|-------------|
| Overall length:    | 41.5 inches |
| Barrel length:     | 21.5 inches |
| Weight:            | 7.25 pounds |
| Magazine capacity: | 8 rounds    |



*Franchi SAS-12 guns with various stocks. Bottom shotgun has a customized, shorter-than-normal barrel and magazine for use as an entry weapon.*



## FRANCHI SPAS-12

The SPAS-12 operates from a gas system that can be switched off so that the foregrip can be used to operate the action manually like a pump shotgun. The gas operation makes the manual cycling of the action more strenuous than that of a regular pump gun. Therefore, those needing a pump action would probably be better off using a

standard pump gun. This gun was imported and sold in the United States for some time by F.I.E. (For more information of the SPAS-12, see the next chapter.)

## HILLBERG MODEL J

Robert L. Hillberg is probably best known for his work on semiauto shotguns as well as the

Winchester Liberator and Colt Defender. However, he also worked on several slide-action ideas in the early 1970s that never got beyond the design stage.

Perhaps the most interesting point of his designs was the goal of creating a shotgun that could be used by either right- or left-handed shooters. Toward this end, he designed a box-feed pump gun with an ejection port on each side. A small switch would allow the shooter to select which port would be used when the gun was cycled.

One part of Hillberg's shotgun did get into production: the top folding stock he designed for his shotgun was adopted by Remington for its Police Model 870 shotguns.

Other variations of the design that were created by Hillberg include the bullpup Model JB and a fixed stock Model JM.

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#### **Hillberg Model J Specifications**

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|                    |                                              |
|--------------------|----------------------------------------------|
| Overall length:    | 37.5 inches<br>(26.5 inches<br>stock folded) |
| Barrel length:     | 18 inches                                    |
| Estimated weight:  | 7 pounds                                     |
| Magazine capacity: | 8 rounds                                     |

### **HIGH STANDARD FLITE-KING/SEARS MODEL 20**

High Standard made the Sears "J. C. Higgins, Model 20" for a number of years in 12 and 16 gauge. High Standard finally marketed its own version of the gun as the Flite-King in 12-, 16-, 20-, and 28-gauge and .410 in 1960. (Strangely enough, the Model 20 and Flite-King were nearly identical internally but differed enough externally that most consumers didn't realize they were the same gun.)

In 1962, High Standard decided to create a shotgun to appeal to the police market, and the first gun it tried was simply a short-barreled Flite-King. It was designated as the Type 8104 and could be used with a bayonet adapter but had a standard-length magazine tube, giving it little advantage over most sporters. Since the barrel was permanently locked to the barrel, cleaning and maintenance of the weapon were not easy.

In 1965 the Type 8111 and 8113 were

introduced. They had 18-inch barrels and extended magazines. The 8111 had a bead sight and the 8113 rifle sights. The magazine tube was brazed to the barrel on both of these models, again making cleaning the shotguns difficult.

In 1967, High Standard submitted two 8104 shotguns for testing by the U.S. Air Force, which had announced that it was looking for a combat shotgun. The gun was designated as the K-102 during the air force tests. Air Force personnel were not pleased that the barrels could not be removed from the 8104/K-102, but after the tests were completed they recommended the adoption of either the Remington 870P or the High Standard shotgun. The Remington finally got the contract because its barrel could be removed for storage, replacement, or cleaning.

No combat versions of the Flite-King shotgun were marketed commercially and, while it could be modified to a combat configuration with the addition of an extended magazine tube, the shotgun has little to offer that isn't found in other shotguns. Because the shotgun is no longer in production and High Standard is out of business, finding spare parts and getting the weapon worked on could be a no-win situation.

### **ITHACA 37**

The Ithaca Gun Company started business in 1880 in Ithaca, New York, and continued making many fine guns until the company went out of business in 1986. The gun didn't remain out of production for long, however, and after a brief hiatus, the Ithaca 37 went back into production. This is fortunate because many feel the Ithaca 37 is *the* best slide-action shotgun design that has ever been created.

In 1937 Ithaca started selling its Model 37 shotgun, and the design of the weapon proved to be so good that few modifications to the weapon were ever made during the 60-some years it was produced. This is not as surprising as it may seem, because the Model 37 was basically the same as the John Browning-designed Model 17 that Remington had sold for some time until it was phased out in 1933. By the time Ithaca started production of the gun as its Model 37, the patents on the shotgun had expired, so Ithaca was free to adopt the design as its own and avoid



*(Top to bottom) Ithaca Deerslayer, Deerslayer II, Homeland Security, and Stakeout.*

paying any royalties on it. After testing various prototypes, Ithaca engineer Harry Howland created a slightly lighter version of the original design and by 1937 the featherweight Model 37 was ready to go on sale.

The Model 37 ejects from the bottom and has a reversible cross-bolt safety that makes it ideal for left-handed shooters; the shotguns are also about 1- to 1 1/2-pound lighter than comparable slide-action guns (even though it has a steel receiver rather than an alloy one). In addition to an easy-to-cycle action, the 37 has the shortest slide throw of any shotgun made to date.

The Ithaca also lacks a disconnecter; when the trigger is held and the gun cycled, it fires each time a new shell is chambered and the bolt locks up (this allows the weapon to be fired with speeds

approaching that of a semiauto action). Many shooters feel that the lack of the disconnecter is a plus, although it can be dangerous in the hands of those not used to such a gun.

In short, the Model 37 had enough quirks to allow it to fill a niche in the pump-gun market, and shortly after its introduction, it became a financial success. The gun was a moneymaker up until the recent past when the machining work necessary to create its receiver made it impossible to produce the guns at a competitive price. However, this changed with the advent of computer-controlled machinery and modern production methods; thus, the Ithaca is now being sold at a competitive price even though producing its steel receiver and trigger group still dictate a lot of machine operations.

A few Model 37 sporters were used as actual combat weapons in World War II, but it appears that most of Ithaca's manufacturing efforts were concentrated on producing long-barreled "skeet" guns for use in antiaircraft training in the United States.

The Model 37 R (riot) guns also were used in World War II. These had 20-inch barrels and lacked a magazine extension, giving them the normal 5-shot capacity of the sporter models. A few of these guns were equipped with a shroud and bayonet mount, but the majority were used in their original configuration with the occasional addition of slings. Most of the 37 R guns were created by the simple expedient of factory personnel cutting off the longer sporter barrels to the 20-inch length; consequently, most guns went to the military with blued metal and checkered furniture. (A few were apparently parkerized by military armorers.)

Following World War II, Ithaca Model 37s sold so well to the sporting market that no effort was made to create a combat version of the pump gun until 1959, when the company's Deerslayer slug gun was modified slightly to become the Model 37 DS Police Special (note that the "DS"—Deerslayer—designation was still included in the name). These guns were all but identical to the standard Deerslayer model, down to the game scenes stamped into the sides of the receiver.

During the late 1950s, the United States sent a large number of Ithaca shotguns to Vietnam in an effort to arm villages against communist guerrillas. This gun was the basic 12-gauge, five-shot model, but with a parkerized finish and oil finish on the wooden furniture. The barrel was 20 inches long and most had a full choke. Only a few of these guns were ever actually issued to the Vietnamese; most of the weapons stayed in warehouses through the war.

U.S. troops also used this type of shotgun in Vietnam with good effect. (Interestingly, studies done during the period showed that gunners who took deliberate aim when using the shotgun scored nearly twice as high kill ratios as those who fired in a random manner while taking advantage of the lack of a disconnect.) The need for a shotgun with a larger magazine was noted during this time.

Ithaca also apparently offered this same gun

to police departments as the Model 37 Riot Gun. This was also available with the World War II-style barrel shroud and bayonet holder.

In the 1960s, police departments were looking for weapons with greater firepower than service revolvers but shorter than sporter shotguns. In an effort to meet this need, Ithaca produced the Model 37 DS Police Special, which had a 16.25-inch barrel, for the Los Angeles County Police Department. This shotgun apparently worked well, although the velocity of shot and slugs was somewhat lower than that fired from longer barrels; the trade-off in loss of velocity was reduced recoil, which many users undoubtedly found welcome. Police officers at the time also complained that the bottom ejection system made the gun jam when it was fired over the top of a car hood or other cover.

(Ithaca sold a Los Angeles Police Department model shotgun to the general public as well, but with an 18-inch barrel. The 12-gauge gun had a parkerized finish with oiled wood, a rubber recoil pad, sling swivels, rifle sights, and a five-round magazine.)

In addition to the 12-gauge, many police departments in the United States found the 20-gauge shotgun more suitable for their use. The lighter recoil also allowed the shotgun to be cut down into whippet proportions without the recoil becoming excessive when the weapon was used.

During the unrest of the 1960s in the United States and the involvement of the country in Vietnam, Ithaca found a ready military and police market for its shotguns and produced the Police Special in a number of configurations. Three barrel lengths were available: 16.5, 18, and 20 inches. Rifle sights or bead sights were available, as was the barrel shroud/bayonet mount. Military guns generally had parkerized parts and oiled wood stocks and foregrips. During the late 1960s, Ithaca finally produced an extended-magazine version of the shotgun as well (these would not accept the bayonet mount because the magazine stuck out so far).

In the 1980s Ithaca created the Stakeout model of its 37. This had the barrel chopped to 13.25 inches so that it was even with the short magazine tube. The gun had a standard stock, though undoubtedly many stocks were cut down as well by users of the weapon. Brackets were

placed on the pump grip to keep the user's hand from straying in front of the muzzle (most shooters find that the grip is considerably more comfortable to operate with the rear bracket removed). The Stakeout was available in both 20 and 12 gauge; the 12-gauge version weighed 5 pounds, and the 20 is only 3.5 pounds empty.

(Interestingly, through a quirk in the 1930 Firearms Protection Act, shotguns that come from the manufacturer with barrels less than 18 inches long can be purchased with a transfer tax of only \$5. Shotguns altered on a custom basis after leaving the factory command a transfer tax of \$200! Therefore, those needing a short-barreled pump shotgun often find the Ithaca a considerably better buy from the transfer tax standpoint.)

In the 1980s, Ithaca had a number of shotguns intended for the combat market. All the guns were in 12 gauge and were available with matte-chrome, blued, or parkerized finish. The M&P models had bead sights and were available with either a cylinder bore or full choke; the Police Special models had rifle sights with the slightly smaller RS bore, which Ithaca believed improved the performance of rifled slugs. Both models were available with five- or eight-round magazines and had 20-inch barrels (except for the M&P 5-shot, which was available with both 20- and 18.5-inch barrels).

In addition to the short-barreled Stakeout mentioned above, Ithaca also created a series of Stakeout guns, which were simply the M&P models with stockless pistol grips rather than standard stocks.

In 1986, Ithaca offered a DS Police Special II model. This was pretty much the standard Deerslayer model—unfortunately without an extended magazine—with the addition of a color insert in the front sight and dovetails cut on the rear sight base for the mounting of a long-relief pistol scope or Aimpoint-type scope. The standard stock was the Choate Zytel pistol grip stock.

Currently Ithaca has two models of the Model 37 that are ideal for self-defense use. The Homeland Security has a short barrel and stock, while the Special is aimed at the police market with a more compact layout, including a pistol grip rather than a stock.

The Model 37 is a conventional, manually

operated pump-action shotgun. It uses a tubular, under-barrel magazine that can hold four rounds in standard configuration. The barrel locking is achieved by tipping the rear part of the bolt up, into the recess in the receiver roof. The receiver is made from steel and strong enough to handle 3-inch magnum shells (modern versions only!) but yet lightweight enough. A cross-bolt, push-button-type manual safety is located in the trigger guard, behind the trigger. The most famous feature of the Model 37 is its bottom ejection system, designed by Browning. The same window at the bottom of the receiver is used to load the magazine and to eject the spent cartridges. Model 37 shotguns usually are equipped with simple bead sights and wooden furniture.

Disassembly of the various models of the Ithaca 37 consists of moving the slide to the rear, screwing the magazine cap down fully onto the magazine tube, twisting the barrel a quarter turn and removing it, depressing the slide retainer plunger (accessible through the ejection port), and pulling the action assembly out the front of the receiver. To remove the trigger group, it is necessary to drop the hammer with the bolt in place and then remove the single large screw over the cross-bolt safety on the left of the receiver. This allows the trigger group and attached stock to be slid out of the rear of the receiver. Removing the trigger group also frees the right shell stop, which will then come free; it is important to note that the bend in the end of the stop looks like it doesn't belong there—but it does. Don't try to straighten the shell stop out.

The Model 37, especially the extended magazine, is an excellent combat gun; but—especially when prices are taken into consideration—the 37 is not outstanding when compared with a number of other shotguns. Many also consider the single-action bar less reliable than double bars, and the 37 is somewhat accident prone—especially in the hands of unskilled shooters—because of its lack of a disconnecter (which can also increase the weapon's rate of fire in the hands of skilled shooters).

Therefore, unless the weapon fills a specific need, most of those needing such a weapon will probably do better in purchasing another brand of shotgun that is still in production.

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### **Ithaca Model 37 Specifications**

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|                    |                                                                    |
|--------------------|--------------------------------------------------------------------|
| Overall length:    | 40 inches<br>(with 20-inch barrel)                                 |
| Barrel length:     | 20 inches                                                          |
| Weight:            | 6.5 pounds<br>(short magazine),<br>7 pounds<br>(extended magazine) |
| Magazine capacity: | 5 rounds<br>(short magazine),<br>8 rounds<br>(extended magazine)   |

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### **Ithaca Model 37 Homeland Security Specifications**

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|                    |             |
|--------------------|-------------|
| Overall length:    | 38.5 inches |
| Barrel length:     | 18.5 inches |
| Weight:            | 7.9 pounds  |
| Magazine capacity: | 4 rounds    |

---

### **Ithaca Model 37 Stakeout Specifications**

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|                    |             |
|--------------------|-------------|
| Overall length:    | 22.5 inches |
| Barrel length:     | 14 inches   |
| Weight:            | 5 pounds    |
| Magazine capacity: | 4 rounds    |

## **LA SALLE RIOT GUN**

Manufacture Française d'Armes et Cycles in France made the La Salle shotgun (also known as the Rapid in France) that was imported into the United States for a short time. The shotgun usually had an extended magazine, which has become popular for hunting in France (where the magazine capacity isn't limited by law).

The action is similar to that of the Remington 870 but the receiver is made of aluminum rather than steel. The shotgun is no longer imported into the United States, so it is a model better avoided, since spare parts are hard to obtain.

## **MAG-7**

The MAG-7 is manufactured by Techno Arms PTY company (South Africa) and imported into the United States by Southern Ohio Guns, Inc., in the M1 configuration that consists of a

longer 20-inch barrel and stock that conforms to U.S. state and federal laws. This unusual pump exploits new compact 2 1/3-inch shotgun shells that permit feeding from a magazine within a pistol grip. This makes for a very compact system that, unfortunately, is offset in the domestic M1 version; the original gun is much like a submachine gun while offering the capabilities of the shotgun. That said, with a special permit the M1 can be made into a very compact unit similar to the original "pistol" created by Techno Arms.

The MAG-7 is similar to a submachine gun in its manufacture, having a stamped steel receiver with plastic pistol grip that also acts as the receiver well for the five-round box magazine. Although at first glance this gun appears to be a semiauto, in fact the forearm acts as a pump assembly, operating the bolt in the usual manner seen with other guns in this chapter, the bolt locking in a slot in the top of the receiver.

The shotgun has a manual safety lever on the left of the receiver above the pistol grip; the forearm has an unconventional lock that must be engaged before the action can be cycled to reload the weapon, a rather unfortunate design for a combat shotgun.

The original MAG-7 is generally seen without a stock, though a top-folding stock is available for it. The United States import MAG-7 M1 has a fixed wooden stock.

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### **MAG-7 Specifications**

---

|                    |             |
|--------------------|-------------|
| Overall length:    | 21 inches   |
| Barrel length:     | 12.5 inches |
| Weight:            | 8.8 pounds  |
| Magazine capacity: | 5 rounds    |

---

### **MAG-7 M1 Specifications**

---

|                    |           |
|--------------------|-----------|
| Overall length:    | 37 inches |
| Barrel length:     | 20 inches |
| Weight:            | 10 pounds |
| Magazine capacity: | 5 rounds  |

## **MARLIN MODELS 120/778**

Marlin discontinued its line of pump shotguns in 1986. The reason for this appears to be economics: the 120 and 778 models both had



*MAG-7 with extra-long barrel dictated by U.S. law (top) as well as the standard stocked and stockless versions.*



machined steel receivers that made them expensive to produce.

The Model 120 Slug Gun would be ideal for combat use if a magazine extension were added to it (which wouldn't be too hard for a skilled gunsmith to do). The 120 had a number of good points, such as a slide lock release that allowed the easy removal of unfired shells, and a large, reversible safety for conversion to left-hand use. Nevertheless, purchasers of combat shotguns would probably do better to get a gun that is still in production so that repairs and spare parts don't become a problem later on.

## MAVERICK MODEL 88

The Maverick line of shotguns is owned by Mossberg, which bought out this small competitor in 1989 and then, wisely, allowed the company to

continue to produce its inexpensive design, filling a niche market for inexpensive but tough shotguns. The Maverick also accepts Mossberg barrels and stocks, giving these guns more accessories than might otherwise be the case.

The most noticeable departure of the Maverick 88 guns from the Mossberg design is the cross-bolt safety located in the front of the trigger guard of the Mavericks. Because the receiver-mounted safety of the Mossberg is awkward to operate with a pistol-grip stock, the Maverick 88 actually makes a better choice for this type of stock (and should be considered rather than the Mossberg 500 or 590 for those interested in mounting a pistol grip stock, folder, or similar assemblies to a pump gun).

The bolt-on bullpup stock assembly originally designed for the Mossberg 500 also fits the Maverick 88, and for a time was offered for the Maverick 88. These shotguns are tough and give a lot for the money spent on them; they also



*Maverick Model 88.*



*Three of the many, many Mossberg 500 variants.*



accept most of the accessories designed for the Mossberg 500.

#### **Maverick Model 88 Specifications**

|                    |                                        |
|--------------------|----------------------------------------|
| Length:            | 38.5 inches<br>(with 18.5-inch barrel) |
| Weight:            | 6 pounds<br>(with 18.5 inch barrel)    |
| Magazine capacity: | 5 rounds                               |

#### **MOSSBERG MODEL 500**

The Mossberg Model 500 was introduced to the marketplace in 1961. Several years later police versions built around the Model 500 were

offered, taking advantage of growing concerns with the rising crime rates. Most Model 500 parts are interchangeable from one gun to the next within the same gauge and many parts in general are of the same dimension and may be identical between gauges.

All 12-gauge models have double-action bars while the 20-gauge and .410 Model 500s have a single bar; this makes the 12-gauge guns theoretically a bit more reliable and smoother in cycling, though most shooters will not be able to perceive much difference.

While the original 500s had a tendency to shed their fore-end due to poor spot welds, this problem was quickly cured, with many guns having the grip assembly attached by silver

solder. This change in manufacturing technique makes separations very rare in any but the very first production guns. The rest of the Model 500 design has been robust from the start, giving the guns a reputation for few if any problems when properly maintained and cared for.

In 1974 Mossberg introduced extended magazine versions of its Model 500; two 20-inch barrels were also made available for these guns, creating a compact riot gun or deer rifle, depending on the need of the buyer. One of the new barrels had rifle sights while the other had a bead sight, covering both shooting styles of potential buyers. A 3-inch chamber version of the two barrels was also available along with the standard 2 3/4-inch ammunition, 12-gauge barrels.

Mossberg extended its reach into the military market by creating the 500-ATP-8SP. This gun has an extended magazine, oiled stock (with rubber recoil pad), parkerized finish, and bayonet lug. Though no country ever adopted it on anything but a limited basis, the model laid the groundwork for the Model 590 introduced nearly a decade later (more on this model in a moment). During the late 1970s the Model 500 Persuader series was also introduced. This model has gradually evolved into three basic configurations, delineated by magazine capacity.

The first style is basically a Model 500 sporter with five-round magazine and an 18.25-inch barrel. Over the years these have been seen with wood stocks in 12- and 20-gauge and .410 bores. The 12 gauge was also available with an optional black or camouflaged plastic Speedstock (holding four spare shells inside the stock, ready for quick retrieval by the shooter). From time to time, Mossberg has offered the Persuader as part of a Combo Pack that included a spare 28-inch barrel so that the gun can be used for hunting as well as self-defense.

Other options for the Persuader included rifle sights, parkerized finish (with oiled wood stock and foregrip), or nickel finish (with oiled wood). A stockless pistol grip has also been offered by Mossberg for most of the five-round magazine and some versions have included a 12-gauge version with a muzzle brake (which consists of eight milled cuts in the top of the barrel).

Five-round magazine versions of the Persuader with a legally shortened barrel

(requiring special permits from BATF and possibly state paperwork) have apparently been marketed in small numbers. With a barrel as short as 14 inches, these are ideal “entry” weapons for police use or in other situations where tight quarters dictate a weapon with a shortened barrel. While submachine guns and rifles like the AR-15/M16 have gradually replaced the shotgun in many police operations, the low velocity and high momentum offered by the shotgun makes it ideal for removing door hinges and other specialized work.

A second group of Persuaders is composed of seven-round magazine guns with 20-inch barrels with either rifle sights or bead sights. Finishes offered by Mossberg at one time or another include blued metal with satin-finish wood furniture, parkerized metal with oiled wood, camouflaged finish (stock and metal), and nickel finish with oiled wood. A muzzle brake has also been available on the blued version of the seven-round magazine in 12-gauge; a black Speed Stock was also an option. A stockless pistol grip is also available for the blued or nickel-finish guns with a muzzle brake available on the blued version of the seven-round magazine Persuader.

The third category most recently added to the Model 500 Persuader lineup is built around the nine-round magazine. Like other versions of the Persuader, it is available in a variety of finishes and stocks. A ventilated barrel shroud is often available for the various versions of 500 and 590 shotguns and will often be seen on the Persuader or other models, creating yet another variation of the gun.

At the time of this writing, Mossberg is offering the Persuader model options of blued, parkerized, or corrosion-resistant Marinecote finishes; hardwood or synthetic stocks; ghost ring or bead sights; barrel heat shields; and (stockless) pistol grip kits.

To keep things a bit confusing, the stockless pistol grip offered with the Persuader, when mounted on a Persuader model, basically transforms it into the company’s Cruiser model. For this reason, the lineup of the Cruiser versions of the Model 500 is nearly identical with that of the Persuader, but with a stockless pistol grip rather than the traditionally styled stock. Occasionally Mossberg also offers the 590 combat

shotgun (with an eight-round magazine and 20-inch barrel) with a Cruiser pistol grip.

The potential accuracy of a shotgun without a stock is arguably a poor second to a stocked firearm, but the Cruiser grip does shorten the overall firearm by about 8 inches, making it a useful option for those wanting the power of a shotgun coupled to the shortest practical package inside U.S. federal firearms laws (which restrict barrel length to a minimum of 18 inches and a minimum overall length to 26 inches before special paperwork is needed). The Cruiser grip has a sling swivel on the upper left making it simple to carry the gun on the shoulder.

Over the years Mossberg has offered a variety of non-conventional stocks with its guns. In addition to the Speed Stock mentioned above, the company also carried a plastic pistol-grip stock as well as a pistol-grip folding stock that folded up over the top of the receiver in a manner similar to the stock Remington had created years earlier for its 870 Riot model. (It appears that Mossberg may have pulled these from its inventory during the antigun political actions of the early 1990s, though this is far from certain. At any rate nearly identical stocks are still available from Choate Machine & Tool and other sources.)

Another interesting stock is the detachable-comb version Mossberg patented in 1992. This system allows the more or less standard stock to be transformed to properly align the shooter's eye with a scope. This was coupled with Mossberg's earlier 1988 patent for a scope mount attached directly to the barrel (so the scope would stay zeroed even if the barrel was substituted for another and then later exchanged again). These two accessories make it practical for one gun to serve a variety of purposes.

The 500 has its safety at the top rear of the receiver; this is a good spot for both left- and right-handed shooters. The Model 500 is ready to fire when the red dot is exposed on the safety. The screw holding the safety in place sometimes works loose with recoil, therefore it should be checked and tightened when necessary.

The safety is perfect with conventional stocks but is a bit awkward with a pistol-grip, since it is difficult to release without removing the hand from the grip (making the company's Maverick

shotgun a better choice with a pistol-grip stock option). However, many Model 500 users are willing to put up with this slight inconvenience as a trade-off for the feel of a pistol-grip stock.

The shotgun's action release button, which permits pulling back the slide for unloading the gun with a live shell in the chamber, is located on the left of the receiver to the rear of the trigger guard.

A variety of sights, an optional scope, a barrel heat shield, and the Speedfeed stocks are available as options with most models, giving the buyer an almost infinite number of configurations that might be created around the Model 500. That said, the best for combat purposes are those with shorter barrels and larger magazine capacities. After that, the shooter can customize these guns to his heart's content.

Takedown is accomplished by unscrewing the magazine cap (it remains with the barrel assembly) and pulling the barrel off. The trigger group is removed by drifting out the pin holding it in place, which will also free the two shell stops. The slide is then pulled back to align the slide piece up with its exit cuts in the receiver and the piece removed out the loading port. This allows the action to be pushed forward and the bolt assembly removed out the front of the receiver.

For those who want to add an aftermarket magazine extension to a 500, it should be noted that some have a barrel band extending down over the upper area of the magazine tube making installation of a magazine extension iffy at best. Again, it is wise to buy a shotgun with a factory-installed extended magazine rather than trying to modify it afterward and possibly running into mechanical frustration.

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#### **Mossberg 500 12-gauge Specifications**

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|                    |                                                                         |
|--------------------|-------------------------------------------------------------------------|
| Overall length:    | 39.75 inches<br>(20-inch barrel)                                        |
| Barrel length:     | 20 or 18.5 inches                                                       |
| Weight:            | 6.75 pounds<br>(7-round magazine),<br>6.25 pounds<br>(5-round magazine) |
| Magazine capacity: | 7 or 5 rounds                                                           |

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### Mossberg 500 20-gauge Specifications

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|                    |              |
|--------------------|--------------|
| Overall length:    | 37.75 inches |
| Barrel length:     | 18.5 inches  |
| Weight:            | 6 pounds     |
| Magazine capacity: | 5 rounds     |

### Mossberg 500 Standard Stock Specifications

|                 |                       |
|-----------------|-----------------------|
| Length of pull: | approx. 13 7/8 inches |
| Drop at comb:   | approx. 1 1/2 inches  |
| Drop at heel:   | approx. 2 1/2 inches  |

## MOSSBERG 500 BULLPUP

Perhaps the oddest member of the Mossberg 500 family was created with the bolt-on bullpup stock assembly that appeared in the marketplace in 1986. The device was the brainchild of Thomas F. Swearingen and Walter J. Makauskas, who assigned the rights of their invention to Mossberg.

These inventors created a clamshell assembly that was adapted to fit both the standard as well as the extended magazine models of the 500. The production version of this design was designated the “500 Bullpup.” The system replaced the standard foregrip of the shotgun with an extended unit that went forward to within a few inches of the muzzle on short-barreled guns; a trigger bar extended from the original trigger to a secondary one inside a pistol grip placed forward of the receiver under the magazine. The whole gun was then encased in a plastic cover. The 500 Bullpup has a grip safety mounted in the rear pistol grip along with a cross-bolt safety in the trigger guard itself.

Several prototypes of this assembly were produced and the weapon went through at least two transformations before going into production. The first version shown to the public was pretty much as the inventors envisioned the device, with short sights on the stock and barrel. This sighting system was somewhat fragile and was soon replaced on the second model with sights mounted inside an AR-15-style carrying handle. This sighting system was invented by Joseph L. Lee, who assigned the rights to the system to Mossberg.

The third style 500 Bullpup was created when the pump handle was modified. Early

versions had a conventional foregrip but this had the drawback of placing the shooter’s hand precariously close to the muzzle of the weapon; one slip and the hand could conceivably be in front of the barrel when the gun was discharged. In an effort to get away from this safety problem, first a lip was added to the forward end of the foregrip and in the final version a forward pistol grip was placed on the foregrip.

Why the 500 Bullpup was removed from the marketplace is something of a mystery. Most likely it was a combination of factors, including the lack of enthusiasm among the generally rather conservative shotgunners for such odd-looking configurations. Another drawback was that like most bullpup actions, left-handed shooters must fire the Model 500 Bullpup with a right-hand hold because the ejection port would otherwise be where their cheek is; this automatically makes such a system unworkable for a large segment of the population. Additionally, any system that adds secondary safeties, places the shooter’s hand near the muzzle of a gun, and puts the operator’s face over the receiver of a firearm—however safe it may be—has “lawsuit” written all over it. All of these reasons most likely contributed to the demise of this very handy weapon, which on occasion is still available on the used-gun market.

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### Mossberg 500 Bullpup 12-gauge Specifications

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|                    |                                   |
|--------------------|-----------------------------------|
| Overall length:    | 28.5 inches<br>(18.5-inch barrel) |
| Barrel length:     | 20 or 18.5 inches                 |
| Weight:            | 9.5 pounds<br>(5-round magazine)  |
| Magazine capacity: | 7 or 5 rounds                     |

## MOSSBERG MODEL 500/HS410 HOME SECURITY

Always with an eye toward expanding markets, Mossberg introduced the Home Security version of the Model 500 in 1990. This gun was marketed to homeowners who wanted to protect themselves and their families. Choosing the .410 version of the Model 500 as the building block for the system, Mossberg had a system that offered



*Mossberg Bullpup 500 (top to bottom) early prototype, early production model, late production model, and a highly customized Model 590 placed in the 500 bullpup shell to display the combat potential this basic design has.*

low recoil while still having the massive firepower that most people associate with a shotgun. Additionally, the gun could be legally owned in areas that restricted ownership of a pistol. Finally the pellet load of the .410 shotgun offered an effective round for close defense while ensuring minimum penetration of building materials with missed shots—an important consideration in urban areas.

The main departure from the standard Model 500 look is the pistol grip on the slide of the shotgun. Exactly why the company picked this feature for the model is unclear, though it certainly gives the gun more personality. The shotgun also boasted a “spreader choke” to slightly improve the chances of hitting a target; since shot spread is negligible at close ranges, this feature may have been more useful in selling the gun than in improving its practical defensive capabilities. Nevertheless, this low-recoil package makes a potent defense package for homeowners who want an inexpensive but potent solution to their needs.

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**Mossberg 500/#50359 .410 bore  
HS410 Home Security Specifications**

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|                    |              |
|--------------------|--------------|
| Overall length:    | 37.75 inches |
| Barrel length:     | 18.5 inches  |
| Weight:            | 6 pounds     |
| Magazine capacity: | 5 rounds     |

## **MOSSBERG MODEL 590**

The Model 590 was an outgrowth of the Mossberg 500-ATP-8SP created in the mid-1970s with an eye toward police and military markets. As might be expected from such a spin-off that first appeared a decade later, the 590 accepts most

accessories and many parts of its sister Model 500 guns.

During the U.S. military trials to choose a standard shotgun for use by the marines—including those assigned to guarding U.S. embassies—the Mossberg 590 was the only weapon that met the stringent requirements laid out for shotguns. Where shotguns submitted by other companies failed, jammed, or even broke, the Mossbergs kept functioning as they were supposed to.

In April 1999, the Model 590 was officially replaced by the semiauto Benelli M4 Super 90 shotgun. The replacement shotgun became capable of fulfilling the role due to its ability to function with a variety of full-power loads that might conceivably be employed in combat while operating in the semiauto mode. As such, its slightly lower recoil (thanks to a gas system that powers the reloading cycle) coupled with the greater ease of use afforded by the semiauto loading cycle made it a shoo-in with a military machine that views a pump-action gun as archaic at best, the “weapon of choice for troglodytes” at worse.

This doesn’t mean that the Model 590 is apt to vanish from all military use; it is actually likely to remain in police inventories for some time because of a flaw of sorts to the M4 system when it comes to shotguns loads that are designed for riot control. Faced with the low gas power produced by rounds designed for firing tear-gas rounds, plastic batons, or rubber balls, the M4 doesn’t cycle.

That means the user is forced to remove his hand from the firing position to manually cycle the weapon, a task made more difficult by a small charging lever (this situation might be mitigated somewhat with a larger charging handle).



*Mossberg 500/HS410 Home Security.*



*Here are just a few of the many variations available in the Mossberg 590 family of shotguns. All of these are production guns, even though some have the appearance of being customized. Among these are (top to bottom) the standard ghost ring 590, standard with bead front sight (shown with SideSaddle shell loaders), 590 Cruiser, 590 Police (with Marinecote finish), 590A1 Compact, 590A1, and 590 DA, shown with SpeedStock.*

The inability of the M4 and other semiauto shotguns to function with such loads isn't a great concern with most military users, who can employ grenade launchers for such specialized rounds. But for policemen dealing with crowd control and perhaps even guarding embassies, the ability to fire nonlethal ammunition from a shotgun can be essential. In such cases the Model 590 is likely to continue its reign.

With an eye toward such sales, Mossberg has recently added several new models to its 590 series. These include Cruiser models (pistol grip and no stock); a short-stocked Bantam for female officers who need a shorter length of pull (which would probably also be ideal for SWAT team members wearing thick body armor); and the 590DA, which has only a double-action trigger that (in theory at least) makes the gun less apt to be accidentally fired.

The Model 590 shotguns are available with a choice of bead sight as well as a military-style ghost ring rear sight and front rifle sight.

In addition to some beefed-up parts, the principal difference between the Model 590 and other Mossberg pump guns is the addition of a longer magazine on its 20-inch barrel and the bayonet lug mount on the front end of the magazine. This boosts the magazine capacity of the shotgun to 9 rounds (with a cartridge in the chamber).

The bayonet mount is of dubious use on any gun, including the shotgun, though it makes more sense on this firearm than most others, perhaps, given their limited range and magazine capacities. And there is no doubt that a bayonet has a strong intimidation factor—especially when mounted on a shotgun. That said, some of the 590s do not accept the M7 and other bayonets designed for the M16 rifle. If you want to mount a bayonet on your shotgun and it doesn't fit, you can easily make it fit by altering the bayonet. Since the shotgun is the more expensive of the two, refrain from doing any filing or the like on it, since such work will ruin its resale value.

One big plus of both the Mossberg 590 as well as the Model 500 system is the open shell lifter that makes it simple to clear a variety of jams, though jams are rather rare with this shotgun. These shotguns also have dual extractors, which helps minimize the likelihood of a swollen

cartridge getting lodged in the chamber.

The Model 590 also accepts the laser pump grip, stocks, and other accessories designed for the Model 500 series, giving it a wealth of accessories from both Mossberg as well as aftermarket companies; the bullpup stock originally created for the Model 500 will also fit the Model 590, giving a large amount of firepower in a very small package. The 590 is available with blued, parkerized, or Marinecote finish.

The Model 590 is quite possibly this is the best pump gun made to date.

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### **Mossberg 590 Specifications**

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|                    |              |
|--------------------|--------------|
| Overall length:    | 39.75 inches |
| Barrel length:     | 20 inches    |
| Weight:            | 7 pounds     |
| Magazine capacity: | 8 rounds     |

## **MOSSBERG MODEL 835 ULTI-MAG**

In 1988 Mossberg introduced the Model 835 Ulti-Mag, which had the distinction of being the first 12-gauge chambered for the then-new 3 1/2-inch 12-gauge cartridge. Based on the Model 500, the new shotgun was quickly assembled and had a wealth of ready-made accessories available for it.

Not surprisingly, the Model 835 has many of the features that have made other Mossberg shotguns reliable including dual extractors and dual slide bars as well as the same thumb-safety system. Most of these guns have a back-bored and ported barrel to reduce recoil and the company's Accu-Mag choke tubs that permit tailoring the choke to the shooter's needs while accommodating both steel and lead shot. The guns can also chamber a 2 3/4- or 3-inch 12-gauge shell as well as the 3 1/2-inch shell, permitting owners to shoot virtually any 12-gauge cartridge in one of these shotguns.

While most of those looking for a combat shotgun might arguably be better off with the Mossberg 500 or 590, the 835 can be put into almost any of these models' configurations making it a possible substitute for those who want to be able to fire 3.5-inch shells or other 12-gauge ammunition in their shotgun.



*Mossberg Model 835 in standard, entry, and whippet configuration.*

### **Mossberg Model 835 Specifications**

|                 |                  |
|-----------------|------------------|
| Overall length: | 48.5 inches      |
|                 | (24-inch barrel) |
| Barrel lengths: | 24 or 28 inches  |
| Weight:         | 7 3/4 pounds     |

## **MOSSBERG 3000**

In 1986, Mossberg took over the marketing of the Smith & Wesson 3000 and 1000 shotguns. These Japanese-made guns are identical to those offered by S&W save for the Mossberg name.

The Mossberg 3000 has many useful features for a combat shotgun. Currently, Mossberg is offering the 3000 with three plastic stock choices: a side-folding stock made by Choate Machine & Tool; the Mossberg Speedfeed stock which has space to store four shells—two on each side—inside the hollow stock; and a Cruiser-style stockless pistol grip apparently made by Choate. All three stocks come with Choate's black plastic pump

foregrip, which matches the finish of any of the three stocks. The recoil pad of the Speedfeed stock is most comfortable to use, but the folding and Cruiser grips allow the gun to be stored and used in much tighter spaces. Parkerized and blued finishes are available on the 3000 shotguns.

The 3000 has an anti-jam feature that allows the shotgun to be cycled and fired if a round accidentally pops out of the magazine and into the action below the bolt. Many other shotguns jam when a round pops into the gun from the magazine, which can be disastrous in combat.

The 3000 series weapons are a bit more expensive because of their machined steel receivers and chromed or parkerized bolt. The shotgun chambers 3-inch shells in addition to standard 12-gauge cartridges and has double-action bars. The cross-bolt safety is located to the rear of the trigger guard.

Wilson Arms Company is currently offering a modified version of the 3000. It is created by cutting the barrel off to 7.9 inches and then

shortening the action bars and magazine tube, moving the barrel mount back, and adding a forward pistol grip to go with a rear Pachmayr Vindicator stockless pistol grip; this end product is Wilson's Executive Protection Shotgun. The final gun weighs 5.2 pounds, and the front grip folds even with the barrel (and still allows the pump to be cycled) for more compact carry. Overall length is just 16.5 inches. Because these weapons are custom-made, it is probable that other barrel lengths, folding stocks, etc., might be found on the Wilson guns.

As one might expect, recoil and the ballistics of the Executive Protection Shotgun are greatly reduced with such a short barrel and muzzle blast and noise are extreme; this weapon would have to be used at very close quarters to be effective. Surprisingly, shot spread is reported to be little greater than that of an 18-inch cylinder bore barrel. This weapon carries a \$200 transfer tax, a lot of red tape, and a high price tag, but might be of use in bodyguard work or special police operations. (Wilson Combat also produces a similar Witness Protection model based on the Remington 870 action.)

The 3000 is a good, if somewhat more expensive, shotgun that has found great favor among many law enforcement agencies. About its only shortcoming is the lack of an extended magazine as it comes from the factory (though these can be added as an aftermarket product from Choate).

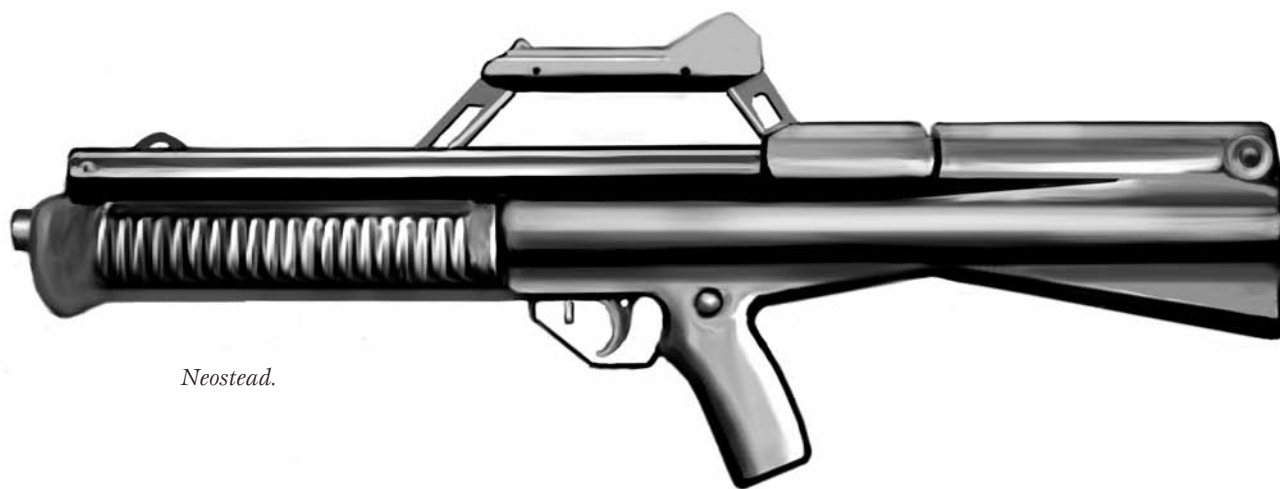
### Mossberg 3000 Specifications

|                    |                                                                       |
|--------------------|-----------------------------------------------------------------------|
| Overall length:    | 38.75 inches<br>(18-inch barrel),<br>40.75 inches<br>(20-inch barrel) |
| Barrel length:     | 18 or 20 inches                                                       |
| Weight:            | 6.75 pounds                                                           |
| Magazine capacity: | 4 rounds                                                              |

### NEOSTEAD

The 12-gauge Neostead was originally created in South Africa but didn't go into any great production; later the design was revamped and marketed by Armaments Éireann-Tír.

Riding over the barrel are twin tubular magazines, each having a six-round capacity. This gives the gun a large capacity while keeping it short overall. The integral carrying handle doubles as a sight assembly, sporting a ghost ring rear sight. Polymers form much of its external furniture. The slide operates in reverse of most other pump actions, with the forward motion moving the barrel forward to eject the empty (if any) and opening the barrel for the insertion of the next cartridge from the magazine; the rearward cycle then strips a cartridge from the magazine and loads it into the chamber. This system does away with the moving bolt—and also takes a little getting used to for those who have used other pump guns to any extent. Spent cases are ejected straight down from the firearm, a boon to lefties.



*Neostead.*

Another plus of this design is that the shooter can select which magazine feeds into the shotgun. This makes it practical to store one type of ammunition in one magazine and another in the second, switching ammunition as the shooter's needs dictate. Each magazine has a slot so you can see how many shells remain. The tube magazines tilt upward (somewhat like a brake-action barrel on single-shot shotguns) for rapid reloading.

This design, coupled with an ambidextrous safety, makes for a firearm that can easily be fired from either a left- or right-hand hold. Yet at the same time, the overall length of the firearm is amazingly only 4.5 inches longer than its barrel. It has a 13-round capacity when a cartridge is chambered and both magazines full.

In addition to the standard model, a shorter version of the Neostead was designed but appears never to have gone beyond the design stage. The overall length of this version was to be only 21.7 inches long with a reduced magazine capacity.

The Neostead is a truly amazing weapon and merits consideration by those wanting a compact, versatile shotgun.

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#### Neostead Specifications

|                    |             |
|--------------------|-------------|
| Overall length:    | 27 inches   |
| Barrel length:     | 22.5 inches |
| Weight:            | 8.6 pounds  |
| Magazine capacity: | 12 rounds   |

### NORINCO 97

The Norinco 97 is simply a copy of the Winchester Model 97. As such it's a boon to collectors who don't want to pay the premium prices antique guns command. However, for those who want a combat shotgun a more modern firearm would be far superior.

### NORINCO 98

The Norinco 98 is simply a copy of the Remington 870, pure and simple, although the fine fit and finish of the American-made 870 is not found on these less expensive knock-offs. While some of this is simply cosmetic, it also means that the trigger pull on these guns is

generally uneven and the out-of-the-box action of the slide not as smooth as many shooters would like. Of course this improves with use as the parts hone themselves (and those with a little smarts can help this process along by cycling the action endlessly and/or performing some very, very modest honing with a wet stone). Given that one's life can depend on the reliability of his weapon in a combat situation, those who want a Remington 870 should spend a few extra bucks and get the real thing.

### PGS-10/PGS-12

The PGS-10 and PGS-12 are two very short pump shotguns manufactured by G-Man Weaponry. Because these guns are made from the beginning as short-barreled shotguns, they are classified as Class III AOW (any other weapon) under federal law and can be purchased with just a \$5 transfer tax, rather than the \$200 tax accrued for full-sized shotguns that are altered to identical specs.

The PGS-10 is the 10-inch barreled gun with a three-round tubular magazine while the PGS-12 has a 12.5-inch barrel with a four-round magazine.

### POSEIDEN

The Poseiden shotgun was created to fire the 12-gauge Aguila Minishell. As such the gun is pretty much a standard pump design, but with a much shorter receiver to suit the shorter Minishell.

The catch to this is that the shotgun can't use standard 12-gauge rounds. Given that the Minishell is not that popular and also underpowered for some tasks, and that the Mossberg 500 and other shotguns can be



*PGS-12 (top) and PGS-10.*

modified to fire the Minishell as well as standard rounds, potential buyers have a choice of buying the only slightly smaller Poseiden that is limited in what it will fire, or a standard shotgun that can shoot both. Obviously for most shooters, the choice goes to the more flexible and only slightly larger standard pump gun.

Currently the Poseiden is being built in Turkey and imported into the United States by Centurion Ordnance, which also imports the Aguila Minishell.

## REMINGTON MODEL 10

The Model 10 was designed by John D. Pederson in the early 1900s and marketed by Remington in 1907 as the Model 1908; this designation was soon changed to the Model 1910 and, finally, to the Model 10 for some reason.

The Model 10 started the “streamlined” receiver that Remington has since adopted for all of its firearms. The Model 10 loaded and ejected through the same port on the lower side of its receiver, and the safety was in the forward side of the trigger guard and was easy to operate for both left- and right-handed shooters.

In 1908 and 1909, Remington started selling the Model 10 Riot Gun, which was nearly identical to the standard model except for a 20-inch barrel. This gun was available only in 12 gauge.

With the outbreak of World War I, Remington started modifying the basic riot gun so that it would accept various types of bayonets. These guns then found their way to the European battlefield (though not in as great of numbers as the Winchester Model 97).

Remington also produced a version of the Model 10 Riot Gun that accepted the Russian Mosin-Nagant bayonet. Remington had been

making rifles, bayonets, and other equipment for the czar’s army, but, with the revolution of 1917, Remington’s market suddenly vanished and the company was left with a small arsenal of Russian weapons. Fortunately for the company, the U.S. government purchased most of the company’s stock and shipped the weapons to the White Russian Army as it attempted to overthrow the Bolsheviks. Remington modified the Model 10 Riot Gun to accept the Mosin-Nagant bayonet at this time, but it is not known if any of the shotguns ever actually made it to Russia.

Following World War I, the Remington Model 10 became known as a shotgun that was better than the Winchester Model 97. The Model 10 became popular on both sides of the law in the United States and helped to make the 1920s interesting. Sales of the Remington shotgun were quite good until it was replaced in 1929 by the Model 29.

The Model 10 was excellent for its time but is not nearly as good as many other modern shotguns and, therefore, is better left to sport shooters and collectors.

### Remington Model 10 Riot Gun Specifications

|                    |           |
|--------------------|-----------|
| Overall length:    | 39 inches |
| Barrel length:     | 20 inches |
| Weight:            | 7 pounds  |
| Magazine capacity: | 5 rounds  |

## REMINGTON MODEL 17

The Model 10 was expensive to manufacture. Therefore, before World War I, Remington purchased the rights to a new shotgun action designed by John Browning. This new gun was similar to the Model 10 but had a simplified



*Poseiden.*

mechanism. The gun was scheduled for release in 1917 (hence the “17” designation), but the war postponed the marketing of the gun until 1921. Shortly after release, Remington introduced the Model 17 Riot Gun, which was in 20 gauge and had a 20-inch barrel. Unfortunately, the magazine held only four rounds, making it less than ideal for many law enforcement uses.

The Model 17 Special Police gun that Remington produced was more practical for some police work. The gun had a stockless pistol grip and a barrel of only 15.1 inches. In 20 gauge, the shotgun weighed only 4.5 pounds and was ideal for use as a whippet gun; with the baggy clothing in fashion at the time, the shotgun was easily concealed by detectives or others carrying the weapon. Despite the fact that the Model 17 was discontinued in 1933 when the Model 31 replaced it, a few police units are still equipped with the Special Police version of the shotgun and many more are probably still in law enforcement department inventories in the United States.

In 1933, Remington sold the manufacturing rights to the Model 17 to Ithaca, which after modifying the design somewhat marketed the weapon as its own Model 37.

While other modern slide-action shotguns are probably better for combat, the Model 17 was one of the first whippet pump guns and is of interest from a historical, if not practical, standpoint.

## REMINGTON MODEL 29

The Model 29 is actually an improved version of the Model 10 and was redesigned by Crawford C. Loomis, who worked for Remington. As the name suggests, the Model 29 was first marketed in 1929.

The Model 29 Riot Gun replaced the Model 10 Riot Gun in the Remington lineup. Later a military prototype, the Military Special, was created from the basic Model 29 Riot Gun, but no sales of the weapon were ever made.

With the Depression nipping at Remington’s financial heels, the company abandoned the Model 29 to produce the Model 31, which was cheaper to manufacture.

The Model 29 has little to recommend it over other more modern shotguns and is therefore best left to the collectors and sport shooters.

## REMINGTON MODEL 31

In addition to the sporter versions, the Remington Model 31 was made in Riot Gun versions. Originally chambered for 12 gauge only, 20- and 16-gauge Riot Gun versions of the Model 31 were added to the Remington lineup of combat guns shortly after the Model 31 was introduced.

Remington also offered a Police Special model; it was nearly identical to the Riot Gun but had an 18.5-inch barrel and was available only in 12 gauge. As the Model 17 whippet guns were sold out of the Remington inventory, the company decided to replace them with a 20-gauge version of the Model 31. This gun, designated the RX, had a 14.5-inch barrel and a stockless pistol grip.

During World War II the U.S. military extensively tested a number of American-made shotguns in an effort to secure the best for use. Among all those tested, the Model 31 and Winchester’s Model 12 proved to be the most reliable. However, since the bayonet adapters in the military inventories only fit on the Model 12, the Remington gun won few military contracts.

In 1949, Remington discontinued the Model 31 and replaced it with the 870 shotgun.

The Model 31 shotguns were not made with extended magazines, and the barrel mounting makes adding one very impractical, which makes them unsuitable for most combat purposes. This, coupled with the inferior trigger action, makes the Model 31 a poor second to the Remington 870.

---

### Remington Model 31-R Specifications

|                    |                                                                       |
|--------------------|-----------------------------------------------------------------------|
| Overall length:    | 40 inches                                                             |
| Barrel length:     | 20 inches                                                             |
| Weight:            | 7 pounds (12 gauge),<br>6.5 pounds (16 gauge),<br>6 pounds (20 gauge) |
| Magazine capacity: | 4 rounds                                                              |

---

### Remington Model 31 Police Specifications

|                    |             |
|--------------------|-------------|
| Overall length:    | 38.5 inches |
| Barrel length:     | 18.5 inches |
| Weight:            | 7 pounds    |
| Magazine capacity: | 4 rounds    |

## REMINGTON MODEL 870

For years the Model 870 has served as one of the combat shotguns of choice for huge numbers of military, police, and civilian users. This has also led to a number of accessories being developed for the shotgun, making it possible to customize it in a variety of ways. Unfortunately, starting in the mid-1990s, Remington seems to have decided to throw a monkey wrench into some such modifications, adding two metal “dimples” to the inside of the magazine tube on many of its hunting models. These protrusions inside the tube make it impossible for the shell follower to get by them, making a magazine extension impractical unless one goes to a lot of effort to grind off and smooth the metal protrusions (which is not an easy task). A buyer is again well advised to buy a shotgun with the out-of-the-box modifications needed rather than trying to add them after the fact.

During World War II, when Remington was supplying its Model 11 version of Browning’s A-5 shotgun to the military, the company also started a crash program to develop new slide-action and gas-operated shotguns that would have a maximum number of interchangeable parts to reduce the manufacturing and repair procedures. Although this research wasn’t completed until after the war, it did lead to the production of the Remington 11-48, 58, 878, and 1100 models, as well as the slide-action 870.

The 870 was introduced in 1950 to replace the Model 31; its trigger group was adapted from that of the 11-48 and has also been incorporated into most of the other Remington shotguns and rifles. (The 11-48, 58, 878, and 1100 all have a number of components that are identical to the 870; many of those parts that are slightly different are made from identical forgings and then have additional milling cuts made in them.)

Shortly after the introduction of the 870 sporter guns, Remington introduced the Model 870R Riot Gun and the 870P Police Gun. The 870R had a 20-inch barrel and the 870P, an 18.5-inch barrel. These shotguns were available with sling swivels and did not have extended magazines. Both guns were chambered for 12 gauge (although a few of the 870Rs may have been sold in 16 or 20 gauge).

In 1954, a number of the 870R shotguns were sold to the British for use in Malaya. Although the 870 functioned well in combat there, the British found that the semiauto Browning A-5 was in many ways more suitable for jungle warfare.

During the 1960s, the U.S. military needed new shotguns to replace those of World War II or even World War I vintage. Building on information received from the British in Malaya, Remington made an effort to produce a family of shotguns suitable for use in the Vietnam War. To keep production costs down, the new shotguns were based on the 870 and 1100 actions already in production; an added benefit was that each type of action could use many of the same accessories of the other thanks to their identical parts.

Remington had the foresight to start its program with a research phase during which it developed the characteristics that would be assets in a combat shotgun. The company realized that an ideal military shotgun would also be of great use to the law enforcement community, so with the hopes of hitting two markets with its guns, Remington launched the Military and Police Shotguns development program.

While the key selling point for the pump-action 870-based guns was their ability to operate with all types of ammunition regardless of the power of the load, the thrust for selling the 1100-based weapons was their ability to quickly dominate the battlefield with intense firepower. While most of the design work was done on the 1100, the 870—because it was made to be as identical to the 1100 as possible to ease manufacturing steps—was able to readily accept many of the accessories made for the 1100. Thus, although it was developed for the 1100, the 870 was able to use the extended magazine and bayonet stud/barrel shroud. This made it possible to create a military version of the 870 with a minimum of research and testing.

One of the first combat versions of the 870 that Remington produced was the Model 870 Mark 1 Military Gun. It had a 21-inch barrel, rifle sights (from the Remington 700 series of rifles), and the magazine extension and barrel shroud/bayonet adapter designed for the 1100. The metal was parkerized, while the wood had an oil finish. The Mark 2 variation of the weapon



*Some of the many variations possible, built around the venerable Remington 870 shotgun.*

was identical to the Mark 1 but had a bead sight; few if any of the Mark 2 guns were ever produced.

The Mark 3 variation was identical to the Mark 1 except that it didn't have the barrel shroud/bayonet mount. A metal bracket connected to the barrel was used to strengthen the extended magazine tube. The Mark 4 was identical to the Mark 3 but had a bead sight rather than rifle sights.

Mark 5 guns had barrels with rifle sights but no extended magazine or other paraphernalia on them. The stock was oiled and the metal parkerized, making them slightly different than the commercial version of the Deer Gun offered to hunters using slugs. The Mark 6 was identical but had a bead sight rather than rifle sights.

In 1967, the military requirements for a shotgun had been pretty well established and Remington had jumped into the fray with their finalized combat versions of the 870 and 1100. In many of the tests, the 1100 proved to be too sensitive to dirt; the 870, which was also tested with the various 1100 military versions, proved to be capable of much more reliable action.

During the U.S. Marine Corps tests of the 1100 and 870 (along with several other manufacturer's shotguns) the 870 Mark 1 proved to be the best shotgun. The marines decided to adopt the shotgun but asked for a few changes in the basic design—removal of the ventilated handguard and recoil pad, and a change to the bayonet adapter to make for easier disassembly. Remington agreed to make the changes and the marines adopted the shotgun as the Remington Model 870 Mark 1. Production models had a 21-inch barrel and a plain, plastic buttplate.

The Mark 1 saw use in Vietnam and in the hands of marines when they took the Mayaguez in 1975.

After adopting the 870, the marines, under the direction of Carroll D. Childers, worked to create a 10- or 20-round detachable box magazine version of the 870. Most of this work never advanced beyond the prototype stage, and the project was abandoned in the mid-1970s when the United States discontinued its part in the Vietnam fighting.

In 1967 the U.S. Air Force held tests to choose a shotgun for guarding their bases. After testing several versions of the Remington 1100

and 870 shotguns along with shotguns submitted by Winchester and High Standard, the air force chose the Mark 6 version of the 870 as the most reliable and suitable for their use. (Many at Remington and elsewhere thought it strange that the air force chose a shotgun without an extender magazine, since all military studies—and soldiers in the field—maintained that one of the problems with using shotguns in combat was that they often had too small a magazine capacity.)

In 1969, Remington started marketing versions of the magazine extension it had produced for their military models. These were aimed at law enforcement departments interested in adopting the 870, or that already had the guns and might want to upgrade them. A seven-round extension was created for use with their 18-inch barrels and an eight-round extension for use with their 20-inch barrels. A bayonet mount kit was also offered, though it is doubtful that sales of this item were ever very great.

In 1972, Remington marketed a folding stock (designed by Robert Hillberg for a different shotgun of his own design). The stock was made of heavy metal stampings and folded over the receiver of the 870. This allowed the gun to be stored in tight places as well as to be used as a whippet gun with the stock folded. (The Secret Service is said to have purchased these for use on 870s with their barrels cut to 13 inches.) Although the stock makes the 870 considerably less comfortable to fire from the shoulder, it nevertheless proved to be a popular accessory.

The Remington 870 has been, and continues to be, made in a variety of gauges. Current company literature offers the shotguns in 12, 28, 20, and .410 chamberings (a number of 16 gauges that are no longer in production are available on the used-gun market). Barrels on the 870 are interchangeable within gauges, and guns made for use with 3-inch chambers can be used with standard barrels as well (within the same gauge).

Because of the variety of Remington aftermarket accessories and the use of interchangeable parts in the Remington design, many of the off-the-shelf sporters can be readily converted to combat use. Especially useful for such conversions are the police and deer barrels in 12 gauge and the 21-inch improved cylinder barrel in 20 gauge. (Those finding 12-gauge recoil

too excessive for their tests could create a combat 20 gauge around this basic 870 action by adding a Choate magazine extension tube to the basic 20-gauge gun.)

In 1986, Remington introduced the SP Deer Gun which has a parkerized, nonglare finish, making it ideal for adaptation for combat use.

Remington also makes a left-handed version of its 870 (with the ejection port on the left side of the receiver) that can be coupled with the left-handed 20-inch deer barrel. Additionally, Remington offers the Rem Choke screw-in choke system on its barrels that allows the shooter to choose the type of shot spread he wants.

Those looking for a combat shotgun can purchase used 870 sporters for a good price from time to time. Even if these have an extra-long barrel, a trip to the gunsmith to chop a longer-than-needed barrel and add a Choate extended magazine gives the user a quality combat weapon for a low price. If such use of an older shotgun is made, old Remington 870 guns—without cuts in their shell carriers—should be modified. The flip plate in the base of the receiver should have cuts added to it (or the plate replaced by a new one with cuts) that will allow a knife, key, or other small tool to be inserted through the slots to push out a shell if it gets jammed during a short stroke. (New 870s come with this modification.)

Another useful accessory is the jumbo-head safety. This replaces the standard safety to make the unit easier to manipulate—an important consideration for those who may be fighting in muddy conditions or have to wear gloves. A left-handed jumbo-head safety is also available that “turns around” the safe/fire position so that left-handers aren’t at a disadvantage with their 870s. The jumbo-head safety is available from Wilson Combat.

Wilson Combat offers a chopped version of the 870. It consists of a stock 870 that has the barrel cut off to 12.5 inches, replacement of the standard foregrip with an abbreviated foregrip, and a cut-off, rounded stock that forms a pistol grip. The end result is Wilson’s Witness Protection Shotgun. The gun weighs 5.75 pounds, holds four cartridges in its magazine, and has an overall length of just 25 inches. Interestingly, Wilson Combat has started making its own guns from unfinished 870 receivers;

because the final milling cuts are made by Wilson, the guns can be sold with a \$5 transfer tax rather than the usual \$200 tax required if a finished gun is modified.

While velocity is reduced and flash increased with such a gun, it might be of use to some types of executive protection or police work. (The Witness Protection has been adopted by the Georgia State Highway Patrol for use by its officers. They found that the weapon can be carried hidden in the car and that when fired with the gun held up so that it is in front of the shooter’s eyes, the short shotgun is nearly as accurate as a stocked weapon.

Takedown of the 870 is pretty straightforward: unscrew the magazine cap and pull out and remove the barrel; depress the left shell stop (inside the lower left edge of the loading port); pull off the foregrip, bolt, and action bars; lift the bolt off the action bars. The trigger group can be removed by drifting out the two pushpins just above the assembly.

All in all, the 870 is well built and one of the most popular slide-action shotguns in the United States, with more than 3 million of the guns having been made over the years. This means that parts are easily obtained for it and most gunsmiths know how to repair it. The U.S. Marines and many law enforcement agencies have chosen to carry the 870 in the past for good reason: it is among the best shotguns available for combat use and, despite the age of its design, is far from the worst choice that might be made for a combat shotgun.

#### **Remington 870 (with deer barrel) Specifications**

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|                    |              |
|--------------------|--------------|
| Overall length:    | 40.38 inches |
| Barrel length:     | 20 inches    |
| Weight:            | 8 pounds     |
| Magazine capacity: | 4 rounds     |

#### **Remington 870 Mark 1 Military Gun Specifications**

---

|                    |             |
|--------------------|-------------|
| Overall length:    | 41.5 inches |
| Barrel length:     | 21 inches   |
| Weight:            | 8 pounds    |
| Magazine capacity: | 7 rounds    |

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## SAIGA

The Saiga semiauto firearms can't be easily sold in many countries due to various firearms laws. In an effort to find markets in such nations, Russian designers have modified their basic 12-gauge with a handguard assembly so that the shotgun operates as a pump-action rather than a semiautomatic. These guns are basically the same as other Saiga 12-gauge shotguns covered in the next chapter.

### SAVAGE MODEL 30/69-RXL AND THE SPRINGFIELD 67/STEVENS 77

The Model 30 was marketed in 1958, first in 12 gauge and later in 20-gauge and .410 chamberings. It is nearly identical to the Springfield Model 67 and Model 77 as well as the 69R and 77 variants that were created to take advantage of the Model 30 design, which proved to be both tough and popular with the sporting market.

During the 1960s, Savage-Stevens used the basic Model 30 design to produce the 69R (the Police Riot Gun) and the Model 77E (which was aimed at the military market); the 66R and 77E were nearly identical except for the finish, which is dull on the 77E. The 69R enjoyed sales with the United States law enforcement community, while the 77E was one of the principal Savage-Stevens guns sent to Vietnam as part of the ill-fated South Vietnamese village defense program.

Because the U.S. military was short of shotguns when the Vietnam War started to heat up, large numbers of the 77E were purchased for use by U.S. troops. Unfortunately these guns didn't have extended magazines: the 77Es worked well, but troops often complained that they ran out of ammunition too quickly during firefights.

Due to continued complaints about the lack

of magazine capacity of the 69R as well as the 77E, the Stevens 69-RXL was introduced in 1982. This weapon uses the same effective action of other of the Savage-Stevens guns in this series BUT has an extended magazine. The stock has a rubber recoil pad and a top tang safety. The cylinder bore barrel will accept 3-inch 12-gauge shells and has a bead sight; quick-detach swivels are mounted at the front of the magazine tube and on the lower edge of the stock. Coupled with its relatively low cost and dull finish, the 69-RXL makes an ideal alternative to many more expensive shotguns when a "budget" combat shotgun is needed.

Despite the fact that these related shotguns have a history of combat use and are well made, they tend to be more of historical interest rather than a viable choice for a combat shotgun, given the many superior guns now available.

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#### Savage 69 RXL Specifications

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|                    |              |
|--------------------|--------------|
| Overall length:    | 39 inches    |
| Barrel length:     | 18.24 inches |
| Weight:            | 6.5 pounds   |
| Magazine capacity: | 7 rounds     |

## SCATTERGUN TECHNOLOGIES

Scattergun Technologies is a subsidiary of Wilson Combat. The company offers customized 12-gauge Remington 870 shotguns as its Scattergun model. As such the guns are identical to Remington's but sport such pluses as oversized safeties, extended magazine tubes, combat sights, and so forth. The most useful of these modified guns is probably the Patrol model. For those wanting a Remington 870 that is both "dolled up" with combat accessories but also reliable, the Scattergun Technologies customized guns are a good way to go.



*Saiga pump 12-gauge.*

## **Scattergun Technologies Patrol Specifications**

|                    |            |
|--------------------|------------|
| Overall length:    | 38 inches  |
| Barrel length:     | 18 inches  |
| Weight:            | 7.4 pounds |
| Magazine capacity: | 5 rounds   |

## **SERBU FIREARMS SUPER SHORTY**

The Serbu Firearms Super Shorty is built around the Mossberg Maverick 12-gauge shotgun with parts for the shotgun being made in-house on Serbu Firearm's CNC equipment. As noted earlier, the plus of this for shooters is that when manufactured as such, a short-barreled shotgun is legally a Class III AOW (any other weapon) and can be purchased with just a \$5 transfer tax, rather than the \$200 tax accrued for full-sized shotguns altered to identical specs. This quirk in the law gives buyers a much less expensive alternative and makes Serbu Firearms' models viable economically.

This pump gun holds two 2.75- or 3-inch shells in its magazine; since a shorter length would dictate a reduction to one round in the magazine, this is the shortest practical length for a pump gun (since at that point a break-open double-barreled shotgun becomes faster to reload).

The pump handle has a spring-loaded grip that swings upward when the gun is stored. The big plus of this grip is that it helps keep the shooter's fingers away from the muzzle of the gun when it is fired. As such it is an important safety feature.

Most Super Shorty shotguns are chambered for the 12-gauge cartridge. However, Serbu Firearms makes 20-gauge models upon request. These are slightly more compact and help tame the gun a bit as well.

## **Serbu Firearms Super Shorty Specifications**

|                    |             |
|--------------------|-------------|
| Overall length:    | 16.5 inches |
| Barrel length:     | 6.5 inches  |
| Weight:            | 4 pounds    |
| Magazine capacity: | 2 rounds    |



*Serbu Firearms Super Shorty.*

## **SMITH & WESSON 3000**

Despite the fact that the Smith & Wesson Company dates back to 1852, the company didn't enter the slide-action shotgun market until the early 1970s. At this time, S&W introduced the Model 916 Police Shotgun, which was based on the old Nobel Model 60 shotgun (the rights to which S&W bought when Nobel went out of business).

The Model 916 was a disaster both operationally and commercially, and S&W soon removed it from their lineup of otherwise fine arms.

S&W's second venture into the market met with considerably more success. It was made with a pump gun that was to become THE pump action for many police officers and others. In the early 1980s, the 3000 was available both in a standard-stock version as well as a folding-stock version (with the side-folding stocks being made for S&W by Choate Machine & Tool). In addition to the combat 18- and 20-inch barrels, a 28-inch sporter barrel was made for the firearm.

Smith & Wesson dropped the 3000 (and its sister semiauto version, the 1000) from its lineup in 1985. Mossberg purchased the rights to the shotgun and marketed it as its Model 3000; unfortunately Mossberg has since dropped the gun from its lineup.

## SQUIRES-BINGHAM MODEL 30R

The Squires-Bingham Manufacturing Company of the Philippines makes a number of shotguns. Its 12-gauge Model 30R riot gun was exported to the United States during the early 1970s. The shotguns are well made but do not have extended magazines. This, coupled with the scarcity of spare parts, makes the 30R less than ideal as a choice for a combat shotgun.

## STEVENS 520/620

In the early 1900s John Browning created a slide-action shotgun based on his A-5 semiauto. In 1904, J. Stevens Arms and Tool Company started offering the shotgun as its Model 520.

Stevens' double-barreled, 10 gauge had been popular among law enforcement officials in the Wild West—Wyatt Earp used a Stevens to ace a number of criminals. Therefore, it seems only logical that Stevens would turn to producing a combat edition of its 520 with the outbreak of World War I. Unfortunately, by the time the military had accepted the design created by Stevens and the company made and shipped the guns, the war was all but over.

The Stevens Trench Gun was based on the 520 sporter with a 20-inch cylinder bore barrel and the shroud/bayonet mount that was used with other military shotguns of the time.

The 520 uses a milled steel receiver and has its safety inside the trigger guard, forward of the trigger. The shotgun lacks a disconnect, which means the weapon can be fired quickly by holding the trigger down and cycling the pump. (Unfortunately, in everyday use, lack of a disconnect can be quite dangerous, especially to those used to firing other slide-action or semiauto weapons.)

Despite the fact that their shotguns had all but missed World War I, the 520 did see action in most U.S. conflicts after that, including Vietnam. When Savage bought out Stevens in 1920, the 520 continued to be made with a few minor updates in design.

Some major changes in the gun occurred in the late 1920s—the safety was moved to the top rear of the receiver, the slide release was moved from the side of the receiver to the rear of the trigger guard, the stock was given more modern lines, and

the rear of the receiver was rounded off. This new version was designated the 620 and gradually replaced the 520 from 1927 through 1932.

When the United States entered World War II, a number of 520 guns (which had apparently been collecting dust in Savage warehouses) were purchased by the U.S. military. Following World War II, many of these weapons were kept by the United States, with some of the 520s finding their way to Vietnam to be used by U.S. troops as well as South Vietnamese police and military units.

The 520/620 shotguns were ideal in their heyday; more modern shotguns are now available, however, which are even better. Those needing a combat weapon are better off with a newer gun with an extended magazine.

## TOZ 194

First marketed in the mid-1990s, the Russian-made TOZ 194 shotguns were designed for combat as well as sporting use. These 12-gauge firearms have many features that are ideal with a combat shotgun including a tubular magazine, folding stock, pistol grip assembly, and so forth. The gun is available in several configurations including:

- TOZ 194-01 with a fixed wooden stock, interchangeable chokes, and a magazine capacity of seven rounds
- TOZ 194-02 with a folding stock
- TOZ 194-03 with folding stock, barrel chokes, and seven-round magazine capacity

### TOZ 194 Specifications

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|                    |             |
|--------------------|-------------|
| Overall length:    | 31.5 inches |
| Barrel length:     | 21 inches   |
| Weight:            | 6.6 pounds  |
| Magazine capacity: | 7 rounds    |

## TP-80

This Italian-made 12 gauge was imported into the United States for a time by Sile Distributors but is no longer offered by that firm. The weapon had an extended magazine and a tubular magazine with a rather uncomfortable pistol grip.

All in all, this one is probably best avoided because repair parts are not that easy to come by.

## TsKIB SOO MTS 255

Tula claims the position as arms capital of Russia, a contention hard to argue with because weapons have been manufactured there for several centuries. The TsKIB SOO (Central Research and Design Bureau of Sporting and Hunting Guns, a subsidiary of the state unitary enterprise, the KBP Instrument Design Bureau) is in Tula. TsKIB SOO designs and manufactures commercial, competition, service, and military small arms, as well as light support weapons. In February 1996, the Russian government granted KBP the right to directly sell weapons and other military products on foreign markets.

The TsKIB SOO MTs 255 is a revolver shotgun with a design very similar to that of a standard revolver. Currently the shotgun is manufactured only in 20 gauge with a standard wooden hunting stock.

### TsKIB SOO MTs 255 Specifications

|                    |            |
|--------------------|------------|
| Overall length:    | 36 inches  |
| Barrel length:     | 26 inches  |
| Weight:            | 6.6 pounds |
| Magazine capacity: | 5 rounds   |

## TsKIB SOO OC-28

The OC-28 is a pump-action 12-gauge shotgun that feeds rounds from an eight-round box magazine. The weapon was created in the 1990s for Russian military use and externally is loosely modeled around the AR-15 rifle, though its internal design is obviously much different. The folding stock creates an AR-15-style carrying handle for just a bit more confusion when first



*TsKIB SOO OC-28.*

seeing the firearm. The shotgun has a five-round magazine and an optional screw-on muzzle adapter that permits firing anti-riot grenades from the gun.

## TsKIB SOO RYS

The Rys series of 12-gauge pump shotguns are produced by TsKIB SOO and have several interesting features as well as a low price tag. Perhaps the most important design feature is that the barrel rides under, rather than above, the tubular magazine. This simple change in design results in a 20 to 35 percent reduction of felt recoil and also reduces muzzle rise with any given shot. This also makes possible a downward ejection system that many lefties may find to their liking.

Among the models of Rys currently being offered are:

- RMF-93 Rys-F: can be fired with the metal stock folded, long trigger pull
- RMO-93-1 Rys-O: classic-style wooden stock, light trigger pull
- RMO-93-2 Rys-U: thumbhole wooden stock with pistol grip, heavy trigger pull, short barrel
- RMO-93-3 Rys-L: classic wooden stock, light trigger pull, short barrel
- RMO-93-4 Rys-OTs: classic-style wooden stock, light trigger pull; can fire magnum as well as standard cartridges
- RMO-93-5 Rys-UTs: thumbhole wooden stock with pistol grip, heavy trigger pull, short barrel; can fire magnum as well as standard cartridges
- RMO-93-6 Rys-LTs: classic wooden stock, light trigger pull, short barrel, can fire magnum as well as standard cartridges
- RMF-96 Rys-K: shorter barrel, folding metal stock (with the gun not suited to firing with the stock folded), long trigger pull

### TsKIB SOO RMF-93 Rys-F Specifications

|                    |                                                       |
|--------------------|-------------------------------------------------------|
| Overall length:    | 40 inches<br>(stock extended),<br>30.5 (stock folded) |
| Barrel length:     | 26 inches                                             |
| Weight:            | 5.9 pounds                                            |
| Magazine capacity: | 7 rounds                                              |



*TsKIB SOO RMF.*

#### **TsKIB SOO RMO-93-1 Rys-O Specifications**

Overall length: 42 inches  
 Barrel length: 26 inches  
 Weight: 7 pounds  
 Magazine capacity: 7 rounds

#### **TsKIB SOO RMO-93-4 Rys-OTs Specifications**

Overall length: 42 inches  
 Barrel length: 26 inches  
 Weight: 7 pounds  
 Magazine capacity: 6-7 rounds

#### **TsKIB SOO RMO-93-2 Rys-U Specifications**

Overall length: 35.5 inches  
 Barrel length: 20 inches  
 Weight: 6.8 pounds  
 Magazine capacity: 7 rounds

#### **TsKIB SOO RMO-93-5 Rys-UTs Specifications**

Overall length: 35.8 inches  
 Barrel length: 22 inches  
 Weight: 6.8 pounds  
 Magazine capacity: 6-7 rounds

#### **TsKIB SOO RMO-93-3 Rys-L Specifications**

Overall length: 36 inches  
 Barrel length: 20 inches  
 Weight: 6.8 pounds  
 Magazine capacity: 7 rounds

#### **TsKIB SOO RMO-93-6 Rys-LTs Specifications**

Overall length: 36.5 inches  
 Barrel length: 22 inches  
 Weight: 6.8 pounds  
 Magazine capacity: 6-7 rounds

### **TsKIB SOO RMF-96 Rys-K Specifications**

|                    |                                                         |
|--------------------|---------------------------------------------------------|
| Overall length:    | 38.5 inches<br>(stock extended),<br>28.5 (stock folded) |
| Barrel length:     | 20 inches                                               |
| Weight:            | 5.6 pounds                                              |
| Magazine capacity: | 7 rounds                                                |

### **UNC POLICE**

Marketed by Southern Ohio Guns, the UNC Police is a copy of the Ithaca 37 shotgun. These 12-gauge shotguns are reliable and durable. The guns come with a ventilated shroud on the barrel, synthetic stock, and foregrip, and have a ghost ring rear sight. This makes these shotguns an inexpensive alternative for those wanting a combat pump gun.

#### **UNC Police Specifications**

|                    |             |
|--------------------|-------------|
| Overall length:    | 38.5 inches |
| Barrel length:     | 18.5 inches |
| Weight:            | 6.5 pounds  |
| Magazine capacity: | 5 rounds    |

### **VALTRO PM 5**

The Valtro PM 5 Tactical Shotgun is nearly identical to the company's PM-2 (see the EAA Atis PM-2/Valtro PM-2 section above). This shotgun has a detachable seven-round box magazine. The gun is available with a pistol-grip folding or fixed stock. The standard gun has a 20-inch barrel, but a 14-inch barrel is also sold; both barrels are ported for added control and have screw-in chokes. The PM 5 has a ghost ring

rear sight and a front sight with a high-visibility glow system.

### **WINCHESTER MODEL 97**

When first sold to Winchester, the Model 97 was one of the few firearms Browning designed and sold that had to be reworked extensively.

Although not nearly as good as some of the more modern combat shotguns, the Model 97 was certainly good for its time and can still hold its own with many shotguns. Nearly a million of the Model 97s were made by the time production ceased in 1957. The complicated mechanism and milled receiver would make producing a modern version of the shotgun too expensive to be practical.

The 97 takes a lot of effort to cycle its action, making it less suitable for combat. Some shooters may like the external hammer, but in dirty environments the gun collects mud or vegetation in front of the hammer when it is back, and this will cause the shotgun to quit functioning. Additionally, the ejector has a tendency to break. The 97 is suited for historic displays or hunting rather than combat use.

### **WINCHESTER MODEL 12**

The Model 12 was introduced in 1912 and was designed by Thomas C. Johnson. The 1200 is considered by many to be among the best slide actions. The shotgun was discontinued in 1965 but the market for it seemed hot enough that Winchester starting making the guns again in 1972, finally discontinuing them in 1980 when the manufacturing costs made it too expensive to market. The shotguns were made in 12, 20, 28, and 16 gauges.



*UNC Police.*



*Winchester Model 97.*



*Winchester Model 12.*

Unfortunately, the Model 12 is becoming somewhat of a collector's item with even old, beat-up models fetching good prices. Therefore, unless the shotgun is available at a very good price, a combat shooter is probably better off with a different, less expensive shotgun.

### **WINCHESTER MODEL 1200/1300**

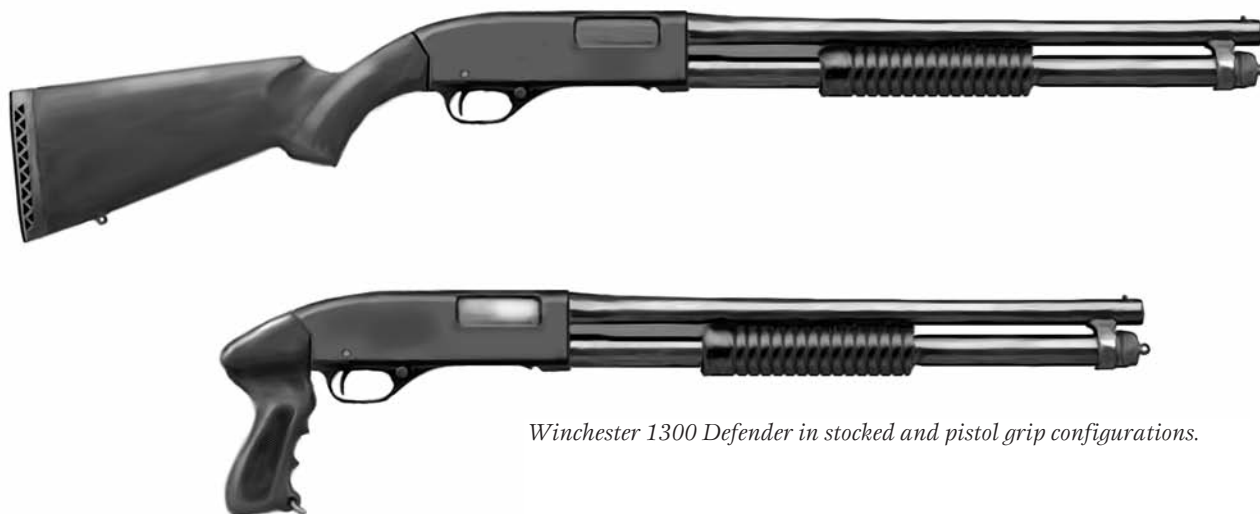
In 1964, Winchester discontinued its Model 12 and started making an "improved version" of the shotgun. The principal differences were in the new 1200's locking system, which used a rotary bolt to lock into the barrel making it possible to use an alloy receiver rather than a steel one, and the use of plastics in the trigger group. This made it possible for the shotgun to be sold for considerably less than competitors' shotguns, and the 1200 enjoyed brisk sales. Soon, the guns were being purchased by budget-conscious government agencies and police departments, with the 1200 even being issued to U.S. Army Military Police units.

The 1200 has its cross-bolt safety in the front of the trigger guard. (Many users find this position less convenient than a safety placed at the rear of the trigger guard; a gunsmith can replace the front safety with a toggle-style safety

like that of the M14/Garand rifles.) The action release button is located on the left rear of the trigger guard, which seems a little awkward to some shooters until they get used to it. One real plus of the mechanism of the 1200 is that should a shell pop past the lifter, the action won't jam as in many other shotguns. Cycling the action over the displaced shell allows the weapon to continue to function rather than lock up.

Shortly after Winchester's multibarreled Liberator shotgun project proved unmarketable, the company decided to follow up on the interest in the military and among police officers for a semiauto or pump combat shotgun. With this in mind, Winchester began work to reconfigure its 1200 and its sister shotgun, the semiauto 1400, into combat weapons. (For more information on the 1400 and its variants, the 1500 and Ranger models, see Chapter 7.)

By 1966, Winchester designers had converted a 1200 to accept a detachable box magazine by adding a small sleeve to the lower side of the trigger group so that the loading port became the magazine well. At the rear of the well, a magazine release was added, the ejection port was enlarged slightly to aid in ejection of spent cases, and the push-through safety at the front of the finger guard was converted into a toggle safety mentioned above. A modified M14 magazine was



*Winchester 1300 Defender in stocked and pistol grip configurations.*

originally used to feed shells into the shotgun but proved to be unreliable, so a new, curved magazine was fabricated and the shotgun functioned reliably.

Unfortunately, once the box magazine system was perfected, work on the 1200 was abandoned and combat research concentrated on creating a semiauto combat shotgun. Insurmountable problems were encountered with the work on the combat semiauto and it was finally abandoned, along with the idea of a detachable box magazine, when it was discovered that long-term shooting with heavy loads created breakage along the walls of the aluminum receiver.

When U.S. Repeating Arms purchased Winchester, a move was made to create combat versions of the 1200 in an effort to create more sales in the military, police, and new survivalist movement that seemed to be growing by leaps and bounds during this time. In an attempt to cut into this market, three new versions of the 1200 were created: the Stainless Police, Stainless Marine, and the Defender. The “Stainless” models had stainless steel barrels and were chromed over the barrel and receiver with the Marine having a shiny finish and the Police model, a satin finish; the Defender was blued and held one more shell in its magazine than did the other two combat models. Except for the finish and the use of rifle sights or a bead sight, the 12-gauge models were basically identical with a seven-round magazine and an 18-inch barrel; later a four-round magazine version was also

offered. Because of the light weight of the shotgun, a 1-inch recoil pad was also a standard feature on the gun. (All versions of the 1200 have a rather odd looking foregrip that tapers toward the muzzle along with an inverted V at the rear of the receiver where it joins the stock. These two “trademarks” make the shotgun readily distinguishable from most others.)

Later, a stockless pistol grip was offered as an alternative to the standard stock for these versions of the weapon; use of the pistol grip reduced the potential firing accuracy of the shotgun considerably but decreased the length by 10 inches. The Defender was also offered in a 20-gauge version. All models and versions were able to accept a 3-inch magnum shell in addition to standard length ammunition.

In the late 1970s, Winchester made a few minor changes to the 1200 and redesignated it as the model 1300. A plain-Jane version of the 1300 was later also offered; it was known as the Ranger and was nearly identical to the Defender/Stainless guns but lacked the extended magazine.

In 1986, the Defender, Marine, and Police shotguns were dropped from the Winchester lineup leaving the 1300 and Ranger—which used standard hunting size magazines—as the only slide-action shotguns offered. In the 1990s a Marines model was added to the lineup. This gun has a seven-round magazine (six rounds with magnum ammunition) making it ideal for defensive needs.

At the time of this writing, Winchester offers

two excellent combat configurations of the 1300, the eight-shot Defender (available in 20-gauge as well as 12-gauge) and the Coastal Marine, which has a white-metal, corrosion-resistant finish. These are first choices of the Winchester pump guns for combat use. Options include a stockless pistol grip as well as a removable TRUGLO front-sight system.

The 1200/1300/Ranger shotgun has a recoil-assisted unlocking of its double-bar pump action. This means that the pump grip tends to “jump back” when the weapon is fired. While this makes cycling the action very quick (with practice), some shooters find it a little disconcerting at first.

Takedown for cleaning is simple: Unscrew the magazine cap and pull the barrel forward and off. The trigger group can be removed by punching out the drift pin.

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#### **Winchester Defender Specifications**

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|                    |                                                            |
|--------------------|------------------------------------------------------------|
| Overall length:    | 39.5 inches                                                |
| Barrel length:     | 18 inches                                                  |
| Weight:            | 6.5 pounds<br>(12 gauge),<br>6.25 pounds (20 gauge)        |
| Magazine capacity: | 8 rounds<br>(2 3/4-inch shell),<br>7 rounds (3-inch shell) |

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#### **Winchester Marine Specifications**

---

|                    |                                                            |
|--------------------|------------------------------------------------------------|
| Overall length:    | 39.5 inches                                                |
| Barrel length:     | 18 inches                                                  |
| Weight:            | 6.5 pounds                                                 |
| Magazine capacity: | 8 rounds<br>(2 3/4-inch shell),<br>7 rounds (3-inch shell) |

# CHAPTER 7

## *Semiautomatic Shotguns*

 Common usage and shotgun manufacturers' sales literature in the 20th century corrupted two proper descriptions, "autoloading" and "semiautomatic," into one improper term: "automatic shotguns." In fact, with rare exceptions, most shotguns are not selective-fire, nor can they fire in the automatic mode (where one pull of the trigger produces more than one shot).

In an effort to avoid confusion, the term "semiautomatic" is used in this book unless a shotgun is actually a selective-fire weapon. Fortunately, much of the shooting public has also adopted this practice so that the "automatic shotgun" that fires only in the semiautomatic mode is bandied about as much as it was a few decades ago. But the reader should bear in mind that some company literature as well as many old-timers may still use the term "automatic" when "semiautomatic" is more accurate.

There are three basic types of action used with most semiautomatic shotguns.

- The blowback action is occasionally encountered; it requires a large recoil spring and long recoil spring tube as well as a massive bolt.
- The recoil-operated system, first introduced by Browning, has also remained popular despite its excessive felt recoil.
- The gas-operated action, where gas is bled from the barrel to power a piston that cycles the action, is popular in semiauto.

Of these, the gas action allows for a lightweight weapon that also affords a spread-out recoil impulse that is more comfortable for most shooters. The only downsides to the gas-operated action is that there is a slight tendency for it to become fouled from unburned powder, and the mechanism is a bit more complicated than the other two systems.

Because many shotguns designed for sport shooting have a limited-capacity magazine and a recoil spring placed in the stock, two of the favorite modifications of combat shotguns—the extended magazine and folding stock—are not easily incorporated onto many semiautos. If

either of these modifications is needed by the combat shotgunner, he will have to be sure the semiauto firearm he is interested in can actually be modified to use one or both of these accessories. Adding to the complication for many is the fact that because of the federal violent crime control and law enforcement act of 1994, popularly known as the assault weapon ban, transformations may cause a semiauto to abruptly become an illegal weapon. Thus, care has to be exercised in choosing and modifying one of these guns for combat.

Since most sporting shotguns come with magazines suited for holding only three or four shells, magazine extension (covered in the last chapter of this book) is one quick way to extend many semiauto shotgun magazines.

Many manufacturers offer plastic stocks and foregrips for shotguns. These make a lot of sense on a combat shotgun, since they greatly improve its ability to function in wet/humid conditions; their dull finish also reduces the chances of alerting an enemy to the user's presence from reflected light. Plastic is generally tougher than the wooden furniture that comes with the shotgun and is a good investment. These (as well

as a wealth of other accessories) are covered in the last chapter of this book.

In the meantime, let's take a look at the variety of semiauto shotguns available for combat use.

## AAI CAWS

While AAI has never marketed the guns it developed for the CAW program sponsored by the JSSAP, these remarkable firearms hold a lot of promise and one can only dream that one day they might be marketed to the civilian and police markets. AAI at various points in development called its weapon both a CAW (Close Assault Weapon) as well as a CAWS (Close Assault Weapon System).

The prototypes of AAI's CAW program used a full-length rifle-style design rather than the bullpup system that has come into vogue in military rifle design and some of the other competing CAW designs of the time. The AAI solution did away with the need for left-handed models (or right-handed-only shooting) and also improved the safety of the weapon somewhat by moving the receiver and barrel away from the shooter's face. The trigger pull on the weapon can



*AAI CAW in standard configuration and with stock removed.*

also be much finer because the linkage necessary to connect the trigger to the receiver isn't needed as it is with a bullpup design.

The AAI CAWS was a 12-gauge version of its 20mm TRICAP (TRIPLE CAPacity) gun; the TRICAP program was sponsored by the U.S. government's Advanced Research Projects Agency and included the development and testing of a weapon capable of firing armor-piercing, anti-personnel, and high-explosive rounds, as well as the actual ammunition for such a weapon.

The AAI CAWS works on a recoil-operated system that simplifies its action and reduces its number of parts. The last AAI CAW prototypes used an optical sight (augmented by low-mounted emergency sights) and this prototype appeared to have scope blocks on the upper receiver capable of being used for standard rifle scopes or night vision equipment.

The weapon's detachable box magazine is released by a lever at the rear of the magazine well and the safety is located inside the trigger guard (and is operated in a manner similar to that of an M203 grenade launcher). The positions of the safety and magazine release are ideal for both left- and right-hand use. The charging handle is located on the right of the upper receiver, over the front of the magazine well.

The stock and pistol grip on the prototype are identical to those of the AR-15; much of the AAI CAW also appeared to borrow from the company's SPIW project (both of these were undoubtedly selling points to a U.S. military that had already invested in the AR-15/M16 rifle). The stock of the AAI CAW can be removed for use, according to the company, as a "paratrooper version."

The straight-line stock design aids in controlling the weapon and minimizes muzzle climb during recoil. According to AAI, this straight-line stock coupled with the blunderbuss-looking muzzle brake/flash hider makes the recoil similar to that of the AR-15 rifle. In addition to a semiauto mode, a selector over to the front of the trigger on the side of the receiver allows firing in the automatic mode. The weapon cycles at 450 rpm when set on auto fire.

AAI has also developed a special 12-gauge flechette shell for its shotgun; this ammunition was designed to work in the CAW (which can

also accept standard 12-gauge ammunition with a special adapter); the rounds do not operate in standard 12-gauge shotguns, however. Each of the AAI rounds had a load of 8 flechettes; each flechette had a plastic drag cone to stabilize it in flight. The spread of the projectiles at 50 meters was only 3 feet, while, at the extreme range of 150 meters, at least three flechettes are said to be capable of scoring a disabling hit on a man-sized target. Penetration at 150 meters was 3 inches into pine boards or 1/8 inch of steel sheeting.

AAI was also working on other types of ammunition for their CAW. Included were an HE (high explosive) warhead, armor-piercing projectiles, and tear-gas rounds. Unfortunately these cartridges appear to have been shelved when the CAW program was discontinued.

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#### AAI CAWS Specifications

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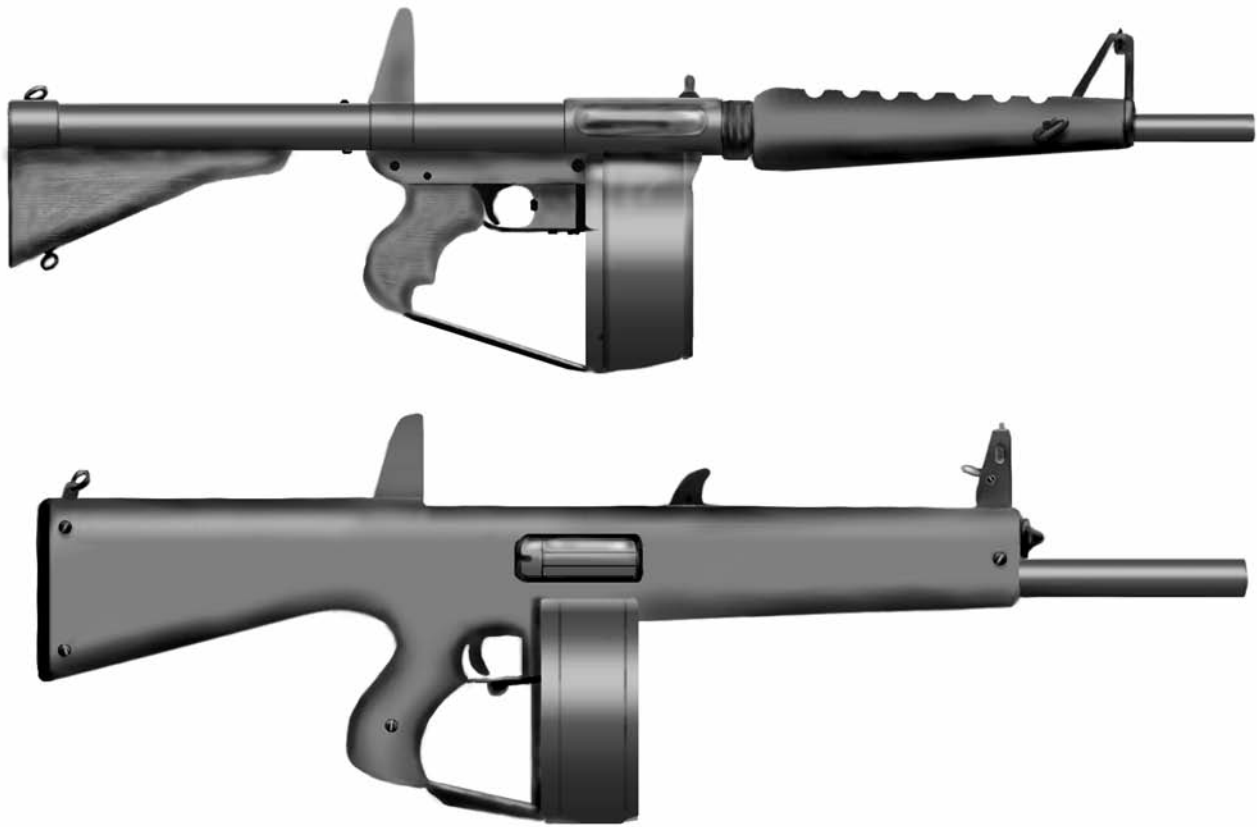
|                    |              |
|--------------------|--------------|
| Overall length:    | 38.75 inches |
| Barrel length:     | 18 inches    |
| Weight:            | 9 pounds     |
| Magazine capacity: | 12 rounds    |

### ATCHISSON ASSAULT 12

Probably no combat shotgun has been more heralded without ever going beyond the prototype stage than the Atchisson Assault 12. The shotgun was the brainchild of Maxwell G. Atchisson with the original prototype weapon cobbled together in 1972 from the stock and pistol grip of a Thompson submachine gun, used parts from a BAR trigger assembly, and an AR-15 foregrip (and later an AR-15 stock as well); screws, steel stampings, and tubing further gave it a Frankenstein's-monster appearance.

Despite the weapon's strange looks those who fired it found that it worked very well. The shotgun had its barrel screwed into a long tubular receiver that contained the bolt and a long recoil spring. An ejection port and magazine well were cut into the receiver tube, a slot milled for the charging handle, and a trigger housing/pistol grip assembly welded to the bottom of the receiver tube. Rudimentary sights and sling swivels completed the shotgun.

The bolt operated on the blowback principle using advanced primer ignition and firing from



*Atchisson Assault 12 prototype and "clamshell" production model.*

an open bolt (which greatly simplified operation though it did create the need for a heavier-than-normal bolt). Cyclic rate for the prototype was around 300 cpm (cycles per minute) thanks to its long recoil assembly (production guns were to have a cyclic rate of around 250).

Atchisson apparently started work on the shotgun in 1972 and had an operational prototype 6 months later. In order to increase firepower, a 20-round drum was created to augment the standard five-round magazine. The new weapon gained a lot of publicity in action/adventure magazines of the time and became known as the AA-12 (Atchisson Assault 12-gauge).

The structure of the AA-12 made the possibility of manufacturing it quite practical at a competitive price, guaranteed that such a shotgun would be easy to maintain, and—on paper at least—seemed to create a weapon that would function better in adverse environments than many other sporters-turned-combat shotguns.

In 1980, Sceptre was formed to market the

AA-12 and other guns and inventions that Atchisson was to develop for the company. At this time plans were made to produce a semiauto version of the AA-12 and, to get extra money to tool up for producing the shotgun, the company sold "advanced deposit contracts" that guaranteed that those who paid a \$100 deposit would be first to have a chance to purchase the AA-12s when they became available. (This was in the early 1980s when the survivalist movement was in full swing and crime and inflation rates were going up alarmingly. Demand for all types of self-defense weapons was at a peak, and undoubtedly the company picked up a lot of revenue while gaining some idea of the size of the market it was tapping into.)

The production design for the AA-12 was very innovative and, had it ever actually been produced, would certainly have been a first in small-arms development. The weapon was to be formed of two injection moldings with each half of the plastic "clamshell" to form the stock, pistol grip, receiver cover, and foregrip. Inside this

assembly, a steel insert was to form the receiver to hold the trigger assembly, and the recoil spring tube, bolt, and barrel would ride in the steel receiver stamping and plastic moldings. The whole assembly made a very sleek-looking weapon that looked somewhat like an AR-15 rifle.

To increase the range of the AA-12, Sceptre also started work on new types of ammunition, which were basically super-magnum loads. These would have increased the number of large buckshot pellets fired from the AA-12, thereby increasing the chances of first-shot hits over longer ranges. The long recoil spring of the AA-12 would have helped to keep the recoil from such ammunition from being excessive.

While the AA-12 would handle these magnum loads, because a shell did not have to propel the bolt backward over the full length of the extra long recoil tube for the weapon to cycle (the action being blowback in both the semiauto and selective fire versions of the shotgun), the gun would have operated with a wide range of shells—from light field loads through magnum shells.

Sceptre sent out “progress reports” from time to time to tell prospective dealers, customers, and advance depositors of the successes being made in developing the AA-12. As time went by the production date kept being pushed back. (The exact causes for the delays are unknown by those outside Sceptre, but it appears that in part Atchisson changed the design specifications from time to time in order to make it better; an admirable goal that also caused those waiting for the shotgun to wait, and wait, and wait some more.)

According to Sceptre’s June 1, 1981, progress report, the final prototype of the AA-12 was completed in May of that year and worked well—but not perfectly. Therefore, according to the brochure, some changes were to be made. And there was the problem of the weight of the gun: 12 pounds; work would have to be done to shear off at least a pound or two, according to Sceptre.

A number of accessories were also being created to go with the AA-12 when it finally became available. These included cleaning kits, cases, bayonet lugs, a bayonet, choke assemblies, a luminous night sight, flash suppresser, automobile mounting bracket, and a dust cover.

But with nothing other than sales literature,

promises, and angry investors, by 1982 Sceptre was in trouble. Those who had paid advances on their shotguns were hearing rumors that guns were actually in production and being sold overseas. Other rumors spread that a commemorative model was going to be sold first before advance depositors got a chance to have their AA-12s. Adding to the confusion was a spate of ads purporting to be actually selling a special AA-12 (this ad apparently being placed by a bogus company). Those who had made advance deposits were beginning to think they’d been taken for a ride.

A 1982 progress report probably did little to help things. The brochure told of Sceptre’s new .22 survival rifle that was in production and would be “rolling off Sceptre’s assembly line very soon.” When the rifle didn’t appear, some potential buyers of the AA-12 and depositors *really* got the feeling that that something was wrong. Very wrong.

Finally, in 1986, it was announced that the AA-12 would not be produced by Sceptre. Apparently Atchisson had left the company in 1984 and—after costly legal battles by both sides—taken the rights to the AA-12 with him. Sceptre planned to fill the advance orders for the AA-12 with the new Daewoo USAS-12 shotgun.

Somewhere around 1984 the Korean-based company and sometimes arms producer Daewoo worked with Atchisson to produce several prototype versions of the production design, using the Zytel plastic clamshell design he had devised. This led to a slightly modified version that could accept a bayonet as well as launch 22mm NATO rifle grenades thanks to a gas check and grooves at the muzzle end of the barrel. This grenade-launching groove was also slated to be the mounting point for accessories that included choke tubes, shot spreaders, and even suppressers of various types.

Unfortunately the AA-12 never went into production, though elements of its design found their way into the USAS-12. However, the very promising (and cheap to produce) clamshell design fell to the wayside, and with it a technique that might easily have been adapted for use with many other firearms that would be both inexpensive to make as well as easy to clean and maintain.

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### Atchisson Assault 12 Specifications

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|                    |              |
|--------------------|--------------|
| Overall length:    | 38 inches    |
| Barrel length:     | 18 inches    |
| Weight:            | 10 pounds    |
| Magazine capacity: | 7, 20 rounds |

### BENELLI MODELS 121/201

The Italian company, Benelli Armi, in Urbino, developed the 121 (in 12 gauge) and 201 (in 20 gauge) series of shotguns, which were imported here for some time by Heckler & Koch. The shotgun has proven very popular for combat use and is in the armories of a number of police and military units including the British Army SAS.

The Benelli shotguns are often touted in advertising as being the “third generation” of shotguns. Certainly the weapons use a unique semiauto action; rather than employ gas operation, blowback, or a long-recoil system, the Benelli 121/201 series of guns uses a bar-like part that stays locked during the first of the gun’s recoil and then is unlocked by the action of the bolt head. This makes the weapon cycle very quickly, while the recoil is less than that of the Browning A-5 action—though still a bit brutal compared to a gas-operated shotgun. (The Benelli shotguns cycle so fast that shooting expert John Satterwhite, demonstrating the gun’s capabilities at H&K seminars, regularly emptied a stock 121 with extended magazine—for a total of eight shots—at a target, emptying the gun before the first of the empty shells had hit the ground!)

The lack of a gas system makes it possible for the 121/201 shotguns to have an extended magazine without any engineering problems; likewise it makes it possible to shorten the barrel without any detrimental effect on the reliability of the weapon.

To tap into the police and military markets, Benelli created a combat version of the 121 with an extended magazine; the company’s version is the 121-M1. The 121-M1 as well as the sporter models of the Benelli guns were marketed by Heckler & Koch for a time. These included the light 5.63-pound SL 201 20-gauge shotgun and a special photo-etched SL 123

series as well as several 121 sporter models without extended magazines.

The 121-M1 is ideal for combat use. It has an oiled walnut stock and foregrip that are almost black, and all the metal parts of the weapon are parkerized. A large cross-bolt safety is located behind the trigger, and the extended magazine and its barrel brace are standard features. The cylinder-bore barrel has rifle sights with a white insert on the front sight and an adjustable rear sight.

Early 121-M1 shotguns are unable to cycle shells from the magazine without firing the weapon; later models are modified so that the automatic shut-off is defeated by a screw-on button over the bolt-release button. This modification allows shells to be manually cycled from the magazine into the chamber.

The recoil system of the Benelli shotguns allows them to be made with a minimum of parts and operate without many problems of fouling encountered with gas actions. The recoil system also creates a shotgun that many users find will operate with anything from a magnum load to a field load. (For best results, however, H&K recommends that at least a 3 1/4-dram equivalent load ammunition be used in the shotgun.)

The upper/lower receiver arrangement makes it simple to take the shotgun apart for cleaning. First the magazine tube is unscrewed and the barrel/magazine bracket removed, then the barrel/upper receiver, bolt, and fore-end can be slid off the front of the shotgun. The bolt can then be removed from the upper receiver by pulling the firing pin retainer to the right and removing the charging lever. The trigger group is accessible through the top of the lower receiver; the assembly can also be removed by drifting out the pin at the rear of the receiver. All in all, the 121 is easy to maintain and clean.

While the recoil spring in the stock of the 121 makes it impossible to mount a folding stock on it without extensively reworking the action, such stocks are seldom needed in the majority of actual combat situations.

Choate Machine & Tool makes a black pistol-grip stock and matching foregrip for the 121. These are made of tough Zytel plastic, which is a bit more impervious to environmental conditions

than the factory wooden stocks. These are available from Choate for \$45 for the stock and \$10 for the foregrip.

Because of the rugged, dependable design of the 121-M1, the shotgun makes an excellent choice as a close-range combat weapon, especially since it comes ready to use for combat without the need for any other accessories.

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#### **Benelli 121-M1 Specifications**

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|                    |              |
|--------------------|--------------|
| Overall length:    | 39.75 inches |
| Barrel length:     | 20 inches    |
| Weight:            | 7.19 pounds  |
| Magazine capacity: | 7 rounds     |

### **BENELLI M1 SUPER-90**

The Super-90 is similar to the Benelli 121 series but uses a single receiver (rather than two halves) and has a rotary bolt locking system that is cycled by the recoil of the weapon. In the mid-1980s, H&K started importing the Benelli Super 90 to the United States as a replacement for their 121 series. Since then Benelli has set up its own operation in the United States, which currently markets its shotguns to the civilian, police, and military markets in America.

A bolt-release button is located at the front right side of the receiver and a magazine-release button (which allows a shell to be fed from the magazine onto the shell carrier—a great aid when loading the gun) is located on the front right side of the trigger guard; a cross-bolt safety is at the rear of the trigger guard.

The shell lifter is slotted so that a shell can be pushed about if it should somehow get jammed halfway out of the magazine tube; while chances of this happening in this gun are small when suitable ammunition is being used, it is a nice touch. The shell lifter itself is positioned so that if a shell isn't inserted all the way into the magazine tube during loading, the lifter holds it in place rather than letting it pop out or into the action. The safety button can be reversed for left-handers.

Takedown is simple. Simply loosen and remove the brace on the magazine tube, unscrew the foregrip retainer (on the magazine tube), and take off the barrel and foregrip. Ease the bolt forward

and pull out the charging handle so that the bolt can be removed from the front of the receiver. Further disassembly is not hard, but this is generally all that is needed. The trigger group can also be removed by drifting out the assembly pin.

The Super 90 comes with tough black polymer foregrip and stock (with a black recoil pad); a sling loop is located on the base of the stock and a sling loop is also located on each side of the stock. An optional SWAT stock is also available with a special rubber-coated pistol grip (along with a black recoil pad). Finish on the Super-90 is a dull, non-reflecting black, which is ideal on this type of firearm.

The Super 90 is chambered to take 3-inch magnum 12-gauge shells but most 2 3/4-inch magnum shells will also function in the gun to give the magazine an eight-round capacity; field loads may not cycle the weapon (depending on the load), so great care must be taken to test lighter loads before depending on them for combat use. Because the action is not gas operated, recoil with the heavy loads recommended for the shotgun may be a little harsh for small shooters; but the trade-off is a lightweight shotgun with a lot of combat potential since both 3- and 2 3/4-inch shells can be used in it. Most combat users will prefer the extra recoil for the many pluses offered by the Super 90.

The standard barrel has a cylinder bore; low rifle-style sights are mounted on the barrel and the rear one is adjustable for windage. Longer hunting/target barrels of 26, 28, and 30 inches are also available for the Super 90 with improved, modified, and full chokes.

Like the 121, the recoil spring in the stock of the Super 90 makes it impossible to mount a folding stock on it without extensively reworking the action. But, again, such stocks are seldom needed in actual combat situations.

Because of the rugged, dependable design of the Super 90 and the fact that it comes with extended magazine, plastic stocks, and non-glare finish, the Benelli Super 90 makes an excellent choice as a close-range combat weapon.

At the time of this writing, the original standard M1 is no longer in production. Instead the company offers three models aimed at specific niche markets. As such, any of these



*Benelli M1 Super-90 production models. Lower two guns are "entry weapons" designed for law enforcement use.*

shotguns would make an ideal combat weapon under most conditions.

One of these models is the M1 Practical, designed for IPSC three-gun tournament use. However, it is well suited for combat use, the only drawback being its long 26-inch barrel (which could be cut back). This model has a compensated barrel, ghost ring sights, and a Picatinny rail.

The M1 Tactical is designed with an eye toward police use and is available with either a conventional or pistol grip stock, a short 18.5-inch barrel (with improved cylinder-, modified-, and full-choke tubes) and a two-shot magazine extension (to extend its capacity from four rounds—three in the magazine and one in the chamber).

The M1 Entry, because of its short barrel, is available only to law enforcement purchasers or to civilian buyers who have a special BATF tax stamp. The gun is identical to the Tactical model with the pistol-grip stock, save for its 14-inch cylinder-bore barrel.

Benelli offers a mercury-filled recoil reducer for the M1 series of shotguns, and this is a welcome addition for those who find the gun's recoil too punishing for comfort. The system consists of an 11-ounce, mercury-filled tube. The liquid metal inside the tube "bounces" during recoil, spreading out the rearward impulse so that it isn't so abrupt and hard on the shooter's shoulder. The unit is easily installed by the owner of the shotgun.

The company also offers a four-round magazine extension tube for the 20-gauge version of the M1, thereby making it practical to convert the "sporter" shotguns in this gauge into viable combat weapons. The big plus of using a 20-gauge M1 is, of course, its reduced recoil, giving those who find the 12-gauge version too teeth-rattling an option that produces less of a beating with each shot.

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#### **Benelli M1 Specifications (Standard Model, currently out of production)**

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|                    |              |
|--------------------|--------------|
| Overall length:    | 39.75 inches |
| Barrel length:     | 19.75 inches |
| Weight:            | 7.25 pounds  |
| Magazine capacity: | 7 rounds     |

---

#### **Benelli M1 Practical Specifications**

---

|                    |            |
|--------------------|------------|
| Overall length:    | 46 inches  |
| Barrel length:     | 26 inches  |
| Weight:            | 7.6 pounds |
| Magazine capacity: | 8 rounds   |

---

#### **Benelli M1 Tactical**

---

|                    |              |
|--------------------|--------------|
| Overall length:    | 39.75 inches |
| Barrel length:     | 18.5 inches  |
| Weight:            | 7 pounds     |
| Magazine capacity: | 5 rounds     |

---

#### **Benelli M1 Entry**

---

|                    |             |
|--------------------|-------------|
| Overall length:    | 35.5 inches |
| Barrel length:     | 14 inches   |
| Weight:            | 6.7 pounds  |
| Magazine capacity: | 5 rounds    |

### **BENELLI M3 CONVERTIBLE**

The M3 offers pump-gun action as well as semiauto operation to permit users to switch from firing conventional shotshells to non-lethal rubber buckshot, tear-gas ammunition, or similar rounds that may fail to cycle a shotgun action. Overall the gun is nearly identical to the M1 Tactical, save for the addition of the pump mechanism. The current model of the M3 has a cylinder-bore barrel with either a rifle-style or a ghost ring rear sight.

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#### **Benelli M3 Convertible**

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|                    |             |
|--------------------|-------------|
| Overall length:    | 41 inches   |
| Barrel length:     | 9.75 inches |
| Weight:            | 7.4 pounds  |
| Magazine capacity: | 5 rounds    |

### **BENELLI M4 SUPER 90/M1014**

In the late 1990s, the U.S. military was looking for a reliable semiauto shotgun to put into service with special forces as well as for such use as guarding embassies. This led to tests in mid-1998 at Aberdeen Proving Ground, Maryland, where a variety of shotguns from



*Benelli M3 Convertible in various configurations.*



*Benelli M4 Super 90 with (top to bottom) sporter stock, pistol grip, and telescoping stock in extended and retracted positions.*

several manufacturers were put through grueling tests to see how reliable they were and how safe they were with abusive combat use.

For these tests, Benelli submitted five M4 Super 90s, which were based on the company's M1, with some key modifications for the Joint Service Combat Shotgun tests; these guns were designated as XM1014 in April 1999. Once the trials were completed and the shotgun officially chosen to replace the slide-action shotguns in

U.S. military inventories, the Benelli shotgun was designated the M1014.

Among the modifications called for by the military for these tests and adoption was a modification to the recoil system so that, unlike other semiauto shotguns that failed when heavy night-vision equipment was mounted on them, the Benelli M4 continued to chug ammunition without failure; this is an important plus that undoubtedly helped it win the tests (and to be

adopted as the only semiauto shotgun to date to have the blessing of the U.S. military for use with night-vision equipment).

The modified gas system is known as ARGO (Auto-Regulating Gas Operating) and employs dual gas ports and tappet pistons in tubes beneath the gun's barrel. These pistons push the bolt carrier rearward to cycle the action with anything from a very light load to a full, 3-inch magnum. This ability to reliably operate with a wide range of cartridges as well as with heavy equipment attached to the shotgun is undoubtedly what ensured this shotgun's adoption by the U.S. military. (It should be noted that, like other semiauto shotguns, the M4 will not cycle with nonlethal loads such as beanbags or rubber buckshot.)

The new M4 was also designed to permit exchanging three modular stocks and two barrels *without* any tools. The 12-gauge could fire both 2 3/4-inch shells and 3-inch magnum ammunition. Additionally the controls and sling attachment points were designed to be ambidextrous—another important plus for military users.

For durability as well as reliability, the M4 boasts a chrome-lined bore and bolt head with other steel parts having a black matte phosphate finish, while aluminum parts had a similar matte hard-anodized finish.

Other pluses of the M4 included a ghost ring rear sight that was adjustable for windage and elevation (using only a cartridge rim of a shotgun shell as a tool) and a Picatinny rail mount to accommodate a variety of sighting systems from red-dot scopes to night-vision devices—with the sights being available even when equipment was mounted on the shotgun.

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### Benelli M4 Super 90 Specifications

|                    |             |
|--------------------|-------------|
| Overall length:    | 39.8 inches |
| Barrel length:     | 18.5 inches |
| Weight:            | 8.4 pounds  |
| Magazine capacity: | 6 rounds    |

### BERETTA MODEL A303

The Beretta A303 is an excellent shotgun with a simplified gas system that makes it function with a minimum of parts and a wide range of loads. Unfortunately the tubular magazine is limited to two rounds; it is possible, however, for a gunsmith to do a little custom work and replace the tube with a longer one making it suitable for combat use. Takedown is quite simple and the chromed bore ideal for ease of maintenance. A 22-inch slug barrel, which would be ideal for combat use, is available in both the 20- and 12-gauge version of the A303.

### BERETTA M3P

This Beretta is aimed specifically at the military/police market. In addition to a semiauto action, the weapon has a foregrip that can be used to cycle shells should they be too light to operate the action or if the weapon is too dirty to function properly (a small switch located under the fore-end selects semiauto/manual functions). The shotgun has a ventilated shroud over the top of its short barrel and a detachable five-round box magazine.

This shotgun appears to be closely related to the Benelli M3 Convertible, to the point that the two guns have identical folding stocks. However, unlike the Benelli shotgun, the Beretta feeds from a box magazine, giving it some advantages not enjoyed by the Benelli design.



*Beretta M3P.*

## BERETTA MODEL 1201 FP

This shotgun was designed specifically for police use with an eye toward dependability and extra robust construction. Interestingly, the sighting system employs the same three-dot sights normally seen on the Beretta 92F pistol.

The gun operates on the Browning short-recoil design making recoil a bit sharper than with other shotguns with gas systems; however, this permits the shotgun to be light and to function with both 2.75-inch as well as 3-inch shells. The gun has matte black polymer stock and handguard with metal parts coated with Beretta's matte black finish; bolt and trigger have a matte white finish.

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### Beretta 1201 FP Specifications

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|                    |                                                        |
|--------------------|--------------------------------------------------------|
| Overall length:    | 42 inches                                              |
| Barrel length:     | 18 inches                                              |
| Weight:            | 6.3 pounds                                             |
| Magazine capacity: | 6 rounds<br>(2.75-inch shells) or<br>5 rounds (3-inch) |

## BERNARDELLI B4 MILITARY/POLICE

The Vincenzo Bernardelli company created the B4 Military/Police shotgun in the mid-1980s. The shotguns were slated for import and sale in the United States by Springfield Armory, with EAA apparently finally winning this contract since it was the company that actually (briefly) imported the guns.

The B4 was built around the B4-8 slide action gun (see the previous chapter) with modifications for semiauto action. The shotgun has a rotating bolt, a folding stock, detachable box magazine, and an AR-15-style sighting system/scope mount/carrying handle.

Unfortunately the gun is no longer imported for civilian use due to federal restrictions.

## BROWNING MODEL A-5

It is nothing short of amazing that the first successful semiauto design, created almost a century ago, is still being widely used both as a sporting gun and a combat weapon. John M.



*Beretta 1201 FP.*



*Bernardelli B4.*

Browning's A-5 shotgun is tough and reliable, but also somewhat of a bear to shoot due to a recoil-operated action that transfers a lot of the recoil impulse to the user's shoulder. These guns are also unable to handle the wider range of loads that some newer guns can. Nevertheless, the A-5 continues to hold its own with many newer shotguns, and one could certainly do worse than have an A-5 or one of its variants for combat use.

Before creating the A-5, Browning had developed a number of other guns, including gas-operated rifles and semiauto handguns. Interestingly, he chose to use the long recoil action rather than the more gentle gas operation to power his shotguns. (Because this action requires the shotgun's barrel to recoil back a short way with the bolt, care must be taken to never mount anything to the A-5 barrel because this would inhibit the action of the gun.)

During 1898 Browning worked on perfecting the prototype of his weapon. One year later, he had a reliable, fully functional weapon, which he started showing to various manufacturers. After a failure to come to terms with Winchester and the untimely death of the president of Remington an hour before their meeting, Browning took his design to the Belgian Fabrique Nationale in 1902. A month after showing them the shotgun, Browning had a contract in hand; first production of the new shotgun started in 1903.

Almost from the first, Browning shotguns were employed for combat purposes as well as sport. Browning even had a special combat model made for sale in the United States (by Browning's Browning Automatic Arms Company); this model was the Messenger Gun, a weapon designed for use by bank, security, or railway guards. (Company literature also suggested that the weapon would be ideal for use by businesses, homeowners, and the police.)

Because import duties made it hard for the Fabrique Nationale—manufactured guns to compete in the U.S. market, Browning renegotiated his contract with FN shortly after it started making the A-5; Browning then licensed the rights to manufacture the gun in the U.S. to Remington. (From this time on until the 1970s, the shotgun was marketed principally as a sporting arm, though some work was done on producing both police and military prototype weapons.)

Strangely enough, both the police and military establishments were slow in adopting the new shotgun for combat use. Both groups preferred the conservative route of keeping what had worked in the past: the slow but reliable slide-action shotgun. About the only exception to this was the purchase of small numbers of the Remington Riot Gun, which was introduced in 1906. This version of the A-5 had a 20-inch barrel and was otherwise nearly identical to the sporter version of the shotgun. While the Remington semiauto was purchased by a few law enforcement officers (who often added extension magazines to it), the shotgun did not prove to be favored by the law enforcement community in general.

In 1911, Remington designated its version of the A-5 the Model 11. Work was done by Remington during World War I to produce a fighting version of their shotgun, but the recoiling barrel made it hard to create a suitable bayonet mount (which seemed to be a prime requirement for a combat shotgun—at least to the military planners' way of thinking). Finally, a complex barrel shroud was created that sported a side-mounted bayonet lug. The design was not perfected until the fall of 1918, so—with the war over—the Remington trench gun never was manufactured.

Following World War I, however, the use of the “new” Brownings became common among criminals; law enforcement officials were practically forced to adopt the A-5 in order to keep up, if not with the Joneses, at least with the Dillingers.

While criminals were satisfied with the standard Model 11 (though they often shortened both the barrel and stock), Remington tried to meet the new law enforcement market for semiauto shotguns with the Model 11 Police Special (with a 12-gauge, 18.5-inch barrel) and the Model 11R riot gun (with a 20-inch barrel and available in 12, 16, and 20 gauges). Except for slight differences in finish and the stock, the two shotguns were nearly identical to sporter versions of the gun and lacked magazine extensions.

With the outbreak of World War II, the United States was woefully short of weapons. Whenever possible, the most suitable weapons were given to those on the front lines, while lesser equipment was used for training purposes.

In addition to the use of shotguns and skeet shooting to introduce anti-aircraft gunners to the fine art of leading, Model 11 shotguns were also modified to simulate the .50-caliber machine guns used in bomber gun turrets. Equipped with spade grips and mounted in mock-up turrets built on trucks, these modified Model 11s trained many a gunner in how to defend himself from German fighter planes.

The U.S. military purchased all the available Model 11 shotguns that Remington could supply them with. In an effort to meet the military demand, Remington “militarized” many sporters by cutting down the shotguns’ barrels to 20 inches. Remington also started making a version of its Model 11R for the military; this had a parkerized finish and oiled furniture devoid of checkering or finger grooves. During the war, it is believed that somewhere around 60,000 Model 11s were purchased by the U.S. government.

During World War II, A-5s were used in combat by guerrillas and partisan fighters. Apparently some British soldiers used the weapon in Cochin China and Burma when fighting the Japanese. This combat use of the A-5s and Remington 11s was the exception, however, and pump-action shotguns were considerably more likely to be found in the hands of those issued shotguns for actual combat use. Consequently, the majority of the U.S. Model 11s in military use were in the hands of guards or in the aerial gunnery program while only a few found their way to the battlefields in the Pacific.

After World War II, GIs who had been trained on automatic weapons and the new Garand semiauto rifles and M1 carbines returned, wanting sporting guns that operated in the same manner as the battle weapons they’d learned to appreciate. Consequently, sales of the A-5 and its variants took off and many other companies quickly started developing their own semiauto shotguns in order to keep pace with the new demands of sportsmen.

Following World War II, the U.S. government sold most of its stock of Model 11s as surplus, with many of the shotguns finding their way into federal, state, and local law enforcement hands. Some of these are still in service (or at least inventoried by various law enforcement agencies).

The A-5 proved to be a favorite of both

British soldiers and police units battling guerrillas in Malaya during the late 1940s. Most of the A-5s used were standard sporting versions of the shotguns, though a few were modified through the addition of extended magazines or by shortening the barrels of the weapons.

During the 1960s, Browning Arms Company (which had been formed from the Browning Automatic Arms Company) worked on producing a riot gun based on the A-5. The work was done under the direction of Harry Heiter. The prototype had a 20-inch barrel and a six-round extended magazine covered by a long foregrip with ventilation holes on the lower side of its front half and that partially shrouded the barrel; a metal heat shield was placed under the grip. The final version of the shotgun was to have an eight- or nine-round magazine, rifle sights, and a complete barrel shroud formed by the foregrip. By the time the prototype was perfected, however, the civil unrest in the United States had subsided and the weapon was never marketed.

The A-5 was also used extensively by Rhodesians who fought the guerrilla movement trying to overthrow the government. Following the initial use of the A-5 in Rhodesia, the Fabrique Nationale decided to market a fighting shotgun modeled on its sporter. Released in the 1970s, the gun was designated the Browning Automatic Riot Shotgun. The shotgun had barrel lengths of 18, 20, and 22 inches and had a rubber recoil pad and oiled furniture. (Unfortunately this combat model didn’t have an extended magazine.)

In addition to the many copies of the Browning design being made today, the “official” Browning Auto-5s are still being made by FN and Herstal (in Japan). Because of the many years that the shotgun has been in production, parts from various models are *not* interchangeable so care must be taken when repairing an A-5 to secure a suitable replacement part.

Disassembly of the A-5 for cleaning is fairly straightforward: pull back the charging handle to lock the bolt open and place the safety in its “safe” position, push the barrel toward the receiver and unscrew the magazine cap (or magazine extension), and take off the barrel and fore-end. Unfortunately, getting to the trigger assembly is something of a chore on many A-5s; use a thin-bladed gun screwdriver to remove first

the set screws and then the standard screws holding the trigger group in place. (When replacing the trigger assembly, take care to place the safety sear back into its track in the bolt-link bar before pushing the assembly into place; otherwise, damage can be done to the safety sear.)

On most A-5-style guns, the action feeds the shell from the magazine to the chamber only when the shotgun is fired; therefore, when loading, the magazine should be filled first, then a shell dropped into the chamber through the ejection port while the bolt is locked back, and then the bolt release is depressed to close the action on the round in the chamber.

The A-5 can be very reliable, provided the friction rings are placed on the magazine tube correctly; failures to feed with good ammunition are almost always traceable to incorrect assembly of the friction/compression rings. According to company literature, for heavy to medium loads the steel ring should be in front of the recoil spring with its concave surface toward the bronze friction ring; for light loads, the steel ring goes behind the spring next to the receiver with its concave side pointing toward the receiver. Except for tight, new A-5s, most modern ammunition will cycle the weapon with the steel ring next to the bronze ring in the "medium and heavy load" position; this will also help take some of the edge off the recoil.

The A-5 certainly has a long record of combat use, but its punishing recoil and the availability of semiauto shotguns capable of firing a wider range of ammunition make it a less than ideal choice as a modern combat weapon.

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#### **Browning A-5 specifications (with 20-inch barrel)**

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|                    |                                                           |
|--------------------|-----------------------------------------------------------|
| Overall length:    | 29 inches                                                 |
| Barrel length:     | 20 inches (a variety of other lengths are also available) |
| Weight:            | 7 pounds                                                  |
| Magazine capacity: | 4 rounds                                                  |

### **BROWNING B-2000**

The B-2000 was introduced into the U.S. market in 1975. Unlike the Browning A-5, the B-2000 is gas operated with a special gas port that

allows the shotgun to function with a wide range of loads. Unfortunately, the B-2000 is more complex than other shotguns and its gas system makes extending the tubular magazine all but impossible. Therefore, except for special circumstances that would require only a five-round total capacity (including a round in the chamber) before reloading, the B-2000 is not suited for combat use.

### **BROWNING B-80**

This Belgium-made shotgun was introduced to the U.S. marketplace by Browning in 1981. The shotgun is unavailable with an extended magazine, however, so, like the B-2000, is not suitable for most combat uses.

### **CHILDERS**

Carroll D. Childers designed a shotgun for the U.S. Naval Surface Weapons Center; the gun was a contender in the early stages of the MIWS (CAWS) program. The Childers shotgun was the result of the Special Operations Weapon (SOW) work done by the U.S. Navy in the late 1960s and early 1970s. The Childers shotgun had 10- and 20-round detachable box magazines (which fed into the receiver from the top) and an angular folding stock. Coupled with its boxy look and forward and rear grip, the weapon looked rather awkward, though it undoubtedly would have been effective had it been developed.

The Childers shotgun was gas operated with a rather unconventional forward-moving barrel and fixed bolt; shells fed backward out of the magazine as the barrel returned into its firing position. A belt-fed capability was also possible with the shotgun, though apparently no shotguns were ever actually fabricated with belt-feed capabilities.

The shotgun was also designed to be "broken" open for feeding large, single-shot cartridges into its barrel. The cartridges slated to be developed for use in the gun included special flares, tear gas, and explosive warhead ammunition; apparently none of these were ever actually developed.

With the withdrawal of the U.S. military from Vietnam, the need for the SOW program ended

and the work on the Childers shotgun was discontinued in the mid-1970s.

### Childers Shotgun Specifications

|                    |                                                            |
|--------------------|------------------------------------------------------------|
| Overall length:    | 40.75 inches<br>(stock extended),<br>26.75 inches (folded) |
| Barrel length:     | 18 inches                                                  |
| Magazine capacity: | 10, 20                                                     |

## EAA MP153

The MP153 shotgun is offered with a choice of hardwood, walnut, or polymer furniture and barrel lengths of 18.5, 20, 24, 26, and 28 inches; chambers include all size 12-gauge shells. Empty weight is 7.8 pounds

While strapped with a magazine that holds only four rounds, the short-barrel version of the MP153 might be a consideration for some needs, especially if one is considering creating a “chopped” semiauto special purpose weapon.

## FABARM TACTICAL

Manufactured by FABARM in Italy, the 12-gauge Tactical is nearly identical to the FP6, except for the mechanical changes necessary to make it operate as a semiauto. The receivers on all models have a Picatinny rail that permits using optical systems rather than the notch rear/flip-up front sights; barrels come with a 3-inch chamber interchangeable chokes. Currently FABARM shotguns are offered in North America by Heckler & Koch.

### FABARM Tactical Specifications

|                    |             |
|--------------------|-------------|
| Overall length:    | 41.2 inches |
| Barrel length:     | 20 inches   |
| Weight:            | 6.6 pounds  |
| Magazine capacity: | 5 rounds    |

## FAS-12

In 1972, U.S. Armament in Marietta, Georgia, started work to create a shotgun that would compete with the Atchisson Assault 12. (At that time, the AA-12 appeared to be very popular due to the favorable press it had gotten and the announced work of the U.S. military on developing a CAW program. Interestingly, Maxwell Atchisson had worked for U.S. Armament but apparently took his new AA-12 design with him when he left.)

The U.S. Armament shotgun design was created by John Foote, the organizer of U.S. Armament. His shotgun was a selective-fire model based on an assault rifle and machine gun he had already designed.

Foote's shotgun resembles the AK-47 rifle in many ways with its recoil assembly/gas system over the barrel and a bolt that locks into a barrel extension. It differs in a number of aspects, however, the most important of which is that it fires from an open bolt (though this could be easily changed if a semi-auto-only shotgun were desired in order to gain civilian sales in the United States). The Foote shotgun uses a detachable box magazine and a folding-stock version was also designed.

The original prototype was chambered in 12



FAS-12.

gauge and made of steel; Foote was said to have also worked on a second prototype with a steel-lined aluminum barrel chambered for 20 gauge.

The FAS-12 is part of a family of weapons that includes the machine gun and assault rifle that the shotgun was designed from; this might be an important selling point, but at present, the world seems to have a glut of assault rifle designs with the AR-15/M16, Heckler & Koch G3, and AK-47 variants reigning supreme. Therefore, the chances of the Foote family of weapons gaining a foothold in the marketplace were doubtful even in the late 1980s; today the stake through the heart of the design has been the introduction of a variety of Russian shotguns based on the actual AK-47 design.

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#### **FAS-12 Specifications**

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|                    |                       |
|--------------------|-----------------------|
| Overall length:    | 39.5 inches           |
| Barrel length:     | 20 inches             |
| Weight:            | 9.5 pounds            |
| Magazine capacity: | 10 rounds (prototype) |

### **FRANCHI MODEL 48/AL**

The Franchi shotguns are made in Brescia, Italy, by the Luigi Franchi Company. For a time the guns were exported to the United States by Stoeger, and later by F.I.E. before it went out of business. Today a variety of companies carry the various Franchi sporters here in the States.

As its name suggests, the Model 48/AL was created in 1948 and the shotgun has remained in production since then, with a wide variety of barrel lengths and chokes available for it during that time as well as chamberings that include the 20 and 12 gauge, both standard as well as (more recently) 3-inch ammunition.

The 48/AL is based on the Browning A-5 action and has little in the way of innovations *except* that it is a very light shotgun: the 12-gauge gun is only 6.25 pounds and the 20-gauge is 5.13 pounds. These weights make the 48/AL the lightest semiauto shotgun currently made. While recoil is somewhat abusive with the Browning action (especially coupled with the light weight of the 48/AL), it isn't too bad, especially when the shooter wears a jacket or if a recoil pad is added to the firearm. Certainly the handiness of the

48/AL's light weight can more than make up for the recoil.

The 48/AL's barrel is chrome lined to minimize cleaning work and is available in a variety of lengths, including a 24-inch cylinder bore and a 24-inch slug barrel that would be ideal for combat use (both are available in 20 gauge and 12 gauge); the slug barrel has rifle sights, while the others have a raised, ventilated rib with a gold bead sight. The walnut stock and foregrip on each model of the 48/AL is nicely checkered to give a good grip on the weapon.

Unfortunately, like most variations on the Browning A-5, the purchaser will need to add an extended magazine to the shotgun if he wishes to have more than 5 rounds to fire before reloading. This is not too hard for a good gunsmith to carry out, however, and if one can be located the Franchi SPAS-12 magazine tubes will fit the 12-gauge 48/AL.

Care should be taken to keep the friction rings of the 48/AL in the correct order and position (see the Browning A-5 section for more information). Takedown is like that of the A-5 but considerably more convenient thanks to trigger pins that can be drifted out to remove the trigger assembly. Generally, the recoil spring should be replaced every 3,000 to 4,000 rounds (this will vary with type of loads used, however).

Like other A-5-style shotguns, the 48/AL does not feed the shell from the magazine to the chamber when the gun is loaded; rather, the magazine should be loaded and then the shell dropped into the chamber through the ejection port and the bolt release depressed to close the shell in the chamber.

All in all, the 48/AL is the most refined of the Browning A-5-style shotguns and has a good reputation for reliability. The 48/AL is probably the best choice for those wanting an A-5-style shotgun for combat purposes.

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#### **Franchi 48/AL Specifications**

---

|                    |                                                   |
|--------------------|---------------------------------------------------|
| Overall length:    | 43.5 inches<br>(with 24-inch barrel)              |
| Barrel length:     | 24 inches                                         |
| Weight:            | 6.25 pounds (12 gauge);<br>5.13 pounds (20 gauge) |
| Magazine capacity: | 4 rounds                                          |

## FRANCHI MODEL PG-80

The Franchi PG-80 was introduced to the United States in 1985 by F.I.E. The PG-80 is designed around the gas action of the SPAS-12. As such, the PG-80 may actually be more desirable to many shooters than the SPAS-12, since the PG-80 is a lot less complicated to operate as well as being lighter (although the LAW-12 would be more suitable for combat use due to its extended magazine and pistol grip, were it not for the fact that the assault weapon ban has made such a configuration *verboden*).

The PG-80 comes in two grades, the Prestige and an engraved receiver version, the Elite. Chamberings for the 12-gauge shotgun include both 2 3/4 and 3 inches; the 24-inch slug barrel is probably the most suitable for combat purposes. The PG-80 has a stainless-steel gas piston with a hard-chromed sleeve for reliable action.

Unfortunately, the PG-80 does not have any extension tube available for its magazine; consequently, unless a user wants a custom extension made for his gun or is able to use a limited-capacity magazine, he is probably better off purchasing another shotgun for combat use.

---

### Franchi PG-80 Specifications

|                 |                                    |
|-----------------|------------------------------------|
| Overall length: | 43 inches<br>(with 24-inch barrel) |
| Barrel length:  | 24, 26, 28, 30, 32<br>inches       |
| Weight:         | 7.6 pounds                         |

## FRANCHI MODEL 612

In the 1990s Franchi fielded a lightweight, gas-operated gun that was more reliable with a variety of ammunition than the PG-80 and able to handle a variety of 2.75- and 3-inch 12-gauge shells using a massive gas system. The 612 also boasts a very light weight, thanks in part to its alloy receiver. A sister rifle, the Model 620, has also been produced in 20 gauge.

Unfortunately although these guns have a lot of promise, they also have limited magazine capacity. Given the many better choices among American-made guns listed in this chapter, this makes them less than ideal as a basis for a combat shotgun.

## FRANCHI LAW-12

The LAW-12 was developed from the SPAS-12 and like its sister shotguns was briefly imported into the United States by F.I.E until it went out of business. The LAW-12 can use all the accessories designed for the SPAS-12, meaning that a variety of configurations were possible for it. The bad news is that only limited numbers were brought before their importation was blocked; thus the gun is rarely seen here.

The LAW-12 shotgun came with a cylinder bore; screw-in chokes and a spreader attachment are also available for it if they are needed, as is a scope mount. The gun is lightweight and simple to operate, though blessed with the odd double manual safeties that Franchi engineers strapped on it, with both located at the front of the trigger guard. One is called the “quick-employment safety” and works in a manner similar to that of an M14 or Garand rifle; originally the second safety was the rotary system found on the SPAS-12. As noted elsewhere in this book, this rotary system is occasionally subject to failure and therefore should be replaced with the cross-bolt safety designed for it.

Disassembly of the gun was also similar to, but simpler than that of the SPAS-12.

---

### Franchi LAW-12 Specifications

|                    |                                        |
|--------------------|----------------------------------------|
| Overall length:    | 41 inches<br>(31 inches, stock folded) |
| Barrel length:     | 21.5 inches                            |
| Weight:            | Believed to be 7 pounds                |
| Magazine capacity: | 8 rounds                               |

## FRANCHI SPAS-12

Developed from the earlier SPAS-11 (and apparently using the action of the PG-80 Franchi shotguns), the SPAS-12 was first introduced in the United States in 1983 by its importer, F.I.E. After F.I.E. went out of business, the gun was imported by American Arms from 1989 to 1991.

This firearm has since fallen victim to the import restrictions leveled by the U.S. government during the Clinton administration. Thus this gun is somewhat of a collector's piece, at least in the United States, which means that it



*Franchi LAW-12.*

commands greater prices and so will become less and less attractive as a knock-about combat weapon (since other similar shotguns might be purchased for considerably less). However, large numbers of this shotgun were imported, so it often turns up on the used gun marketplace.

Ironically, even the name of the gun is a bit controversial. The Franchi company claims that the SPAS is an acronym for Special Purpose Automatic Shotgun. However, guns imported by F.I.E. came with a manual noting on its cover that the SPAS acronym stood for Sporting Purpose Automatic Shotgun—no doubt in large part to keep the guns within the BATF's sporting use requirement for all guns imported into the United States.

The SPAS-12 operates from a gas system that can be switched off so that the foregrip can be used to operate the action manually like a pump

shotgun. This allows the user to fire low-power, special rounds in the weapon.

In addition to the folding metal stock, an optional plastic stock was available for the SPAS-12; many find the plastic stock more comfortable to use when shooting the SPAS-12. Choate Machine & Tool also made a skeletonized plastic stock for the gun.

The SPAS-12 is capable of taking a lot of abuse and operates in conditions that will make many sporters inoperable. It is capable of firing a wide range of loads as well but, for best operation, magnum loads are recommended by the manufacturer.

The weapon's weight, coupled with its gas action, makes it more comfortable to shoot than most other 12-gauge shotguns with the plastic stock and the gun in the semiauto mode. Of course, that same weight can give it anchor-like



*Franchi SPAS-11 was the forerunner of the SPAS-12. Many of its features would be refined and used on the company's later model.*



*Franchi SPAS-12 prototype.*

traits if one is carrying it on patrol.

The metal folding stock, like most other metal folders, is ideal only for those who need a shotgun to fit into a tight space; firing from the shoulder with this stock is less than ideal, since it has a tendency to hit the shooter in the face. The folder also has a detachable carrying handle available for it.

The shotgun as imported came with a cylinder bore; screw-in chokes and a spreader attachment are also available for it if they are needed. Franchi also made a grenade-launching attachment for this shotgun; the device fits the muzzle of the shotgun and with a special blank cartridge will propel a grenade to 150 meters.

The barrel has a pair of sights that are quicker to use than those of many other deer gun-style shotguns; the front is a blade sight and the rear an aperture sight (unfortunately, neither is adjustable). A scope mount was also available from F.I.E.

The SPAS-12 is an excellent gun but has several shortcomings. One is that it is rather heavy for carrying any length of time. The other is that the weapon is complex in contrast to most other weapons designed for combat use (however, these complexities can be “simplified” once the user is familiar with the weapon).

Like the LAW-12, this firearm has two manual safeties, both located at the front of the trigger guard.

- The first safety is well designed. Called the quick-employment safety, it works in a manner similar to that of an M14 or Garand rifle (unfortunately, it also acts as a slide release when the gun is in the manual mode—this can cause confusion if the user switches back and forth from one mode to the other very often). When the SPAS-12 is loaded with a shell in the chamber, pushing forward on the quick-employment safety will release the safety and the gun is ready to fire.
- The second safety blocks the first so that it's impossible for right-handed shooters to place the quick-employment safety into its safe position with the trigger finger. And the second safety is impossible to rotate without removing one or the other hand from the firing position since it has to be rotated 180 degrees to get from safe to fire position.

The solution to this confusing complexity of safeties seems to be to leave the rotary safety off when the weapon may be needed in a hurry and carry it in the method recommended with most



*Various configurations of Franchi SPAS-12 created with the standard pistol-grip stock, stockless grip, and folding stock.*

firearms—with the finger outside the trigger guard until just before the weapon is fired. (It is important to note that the quick-employment safety goes into the “off” position when the bolt is cycled. Therefore, great care would need to be taken to place it in “safe” position if this were the only safety used in carrying the shotgun.)

It is important to note that these original rotating safeties have failed from time to time. When this problem crops up, the trigger can be fired when the safety is in the “safe” position. When the rotary safety is then rotated to the “fire” position, the gun discharges—even if the finger is nowhere near the trigger. Needless to

say, this presents a very dangerous situation. For this reason Franchi has modified this design for the SPAS-12 as well as the LAW-12 and SAS-12. The improved version is a cross-bolt safety. For owners of these guns still having the older rotary safety, great caution must be exercised and ideally the safety would be replaced by a gunsmith.

Most users will find the carrier latch button a confusing point as well, at least when first operating the shotgun. That's because this latch must be depressed to load the magazine. This can make the already slow task of reloading even slower.

Switching from semiauto to manual operation is rather simple, given the other complications of the gun: A shrouded button on the underside of the fore-end is depressed and the fore-end is slid into either the "manual" or "autoload" position (the marker is on the top of the slide). The effort of manually cycling the pump action is rather heavy because the user must move the disconnected gas action as well as the operating rods pushing the bolt assembly.

Disassembly is like that of most other shotguns: the selector is set to the "A" autoloading position, the bolt retracted, and the magazine tube unscrewed and removed along with the handguard and barrel. The charging handle is held and eased forward while the carrier button is pressed to ease the bolt forward. While restraining the bolt and action bars, the charging handle is then pulled out to the right and the bolt, action bars, and recoil spring eased out of and off the front of the shotgun. The trigger assembly can be removed by drifting out the two pins holding it in place.

Given the complexity of the SPAS-12, as well as its weight and the fact that it is more of a collectors' weapon than a "user" these days, it is not the first choice for those looking for a combat shotgun. It is reliable and well made; but these features are offset by its other drawbacks.

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#### **Franchi SPAS-12 Specifications**

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|                    |                                        |
|--------------------|----------------------------------------|
| Overall length:    | 41 inches<br>(31 inches, stock folded) |
| Barrel length:     | 21.5 inches                            |
| Weight:            | 9.6 pounds                             |
| Magazine capacity: | 8 rounds                               |

## **FRANCHI SPAS-15**

The Franchi SPAS-15 is a much different from the company's earlier combat shotguns. It is 1 pound lighter, in large part due to its aluminum receiver, and the safety system is also much improved. Franchi has done away with the complicated safety system of the SPAS-12 though the use of a grip safety (which was originally seen on the SPAS-12 prototype, but later dropped) and a manual safety lever inside the trigger guard locks the trigger when the safety is engaged.

The SPAS-15 feeds from a plastic box magazine making reloading it simpler as well. Despite its lighter weight, however, the SPAS-15 still offers the ability to switch from semiauto operation to manual pump mode.

A few SPAS-14 transitional models were apparently marketed by Franchi in the early 1980s. These were basically SPAS-12 guns fitted with a six-round box magazine system that was later adopted for the SPAS-15. The actual SPAS-15 prototypes were assembled in 1984.

The selection of manual or semiautomatic mode is determined by the position of the pump grip; for semiauto use, the button on top of the pump grip is depressed and the pump shoved forward until the red "Auto" marking appears. For manual use, the button is depressed and the pump grip pulled back until it is locked and the "Pump" notice appears. For semiauto use, a charging handle lever is located on the top of the receiver, inside the carrying handle.

The SPAS-15 has adjustable sights with the capability of using scopes. The first models of this shotgun had fixed plastic stocks or side-folding tubular stocks. More recently a third type of side-folding stock with a solid plastic body has been introduced. The barrel is chrome lined with screw-in chokes available for it.

In the United States, the SPAS-15 is rarely seen, largely because of rulings by the BATF that declared it a non-sporting firearm. For this reason, fewer than 200 were imported and thus demand high prices in the collector's market.

British laws have dictated a British version of the SPAS-15. This gun has a 24-inch barrel and a fixed stock in order to be legal. Magazine capacity may also be limited to three rounds, depending on the restrictions on the owner of the firearm.



*Franchi SPAS-15 with various stock configurations.*



*Franchi SPAS-14.*



*Franchi Experimental .410 Bullpup.*

#### **Franchi SPAS-15 Specifications**

|                    |                                                                   |
|--------------------|-------------------------------------------------------------------|
| Overall length:    | 39.3 inches<br>(stock extended),<br>29.5 inches<br>(stock folded) |
| Barrel length:     | 18 inches                                                         |
| Weight:            | 8.6 pounds                                                        |
| Magazine capacity: | 6 rounds                                                          |

### **FRANCHI .410 BULLPUP**

In 1986 Franchi revealed pictures of a bullpup shotgun that bears more than a passing resemblance the Fabrique Nationale P90—though internally both guns are quite different in operation.

The Franchi bullpup was apparently chambered for the .410 shotgun cartridge and had

a 15-round magazine, firing appears to have been in semi- and full-auto modes. This shotgun has not gone into production at the time of this writing, and it appears that the work on this shotgun has been tabled by Franchi.

### **GORDON CSW**

In the early 1970s, Duncan J. Gordon started work on a Close Support Weapons (CSW) family that was to include a shotgun that could be used as a detachable box or belt-fed weapon. The weapons were to use side feeds similar to that of the German FG42 rifle and were to have a gas-delayed blowback operation. In addition to firing shotgun cartridges, each assembly was to be easily converted to fire rifle cartridges as well by changing the bolts and barrels; conversion to the belt feed was to be possible as well. To keep manufacturing costs low, the guns were designed

with a maximum number of stamped parts and little machining.

A number of outlandish-looking drawings were created for the weapons family, including twin-barreled 9mm pistol-caliber/28-gauge shotgun weapons and shotguns/rifles with AR-15-style carrying handles.

To date, the Gordon weapons have never reached the prototype stage, and the “family of weapons” idea—as Eugene Stoner and other excellent designers were to discover—has never captured the fancy of any Western military minds.

## H&K/OLIN WINCHESTER CAW

During the 1980s, Heckler & Koch and Olin Winchester Group were funded by the U.S. military to produce a CAW for possible adoption as an infantry weapon. Much of the H&K/Olin weapon is based on work done by H&K on its G11 rifle; consequently, the CAW has a bullpup configuration and a great overall similarity of trigger group, carrying handle/scope assembly, etc., to those of the G11 rifle.

Unlike the G11, the CAW used a conventional detachable box magazine that fed into the plastic body of the weapon behind the trigger group. The magazine release was located behind the magazine well, and a dust cover, similar to that of the AR-15 rifle, was over the ejection port. Prototype models had an ambidextrous safety located above the pistol grip, which gave the user the choice of semiauto or

automatic fire (an ambidextrous safety suggests that the ejection port and bolt must have been reversible for left-handed use). Rate of fire was slated to be 240 rpm.

The charging handle of the prototypes was located inside the carrying handle. Takedown was accomplished by removing the pushpins located at the rear of the stock. This allowed the bolt and its carrier to be removed by retracting the charging handle. Pushpins at the front and rear of the trigger group allowed it to be removed for maintenance or cleaning.

Olin produced a special 12-gauge, belted brass cartridge for use in the CAW that could not be chambered in standard shotguns, apparently to appease the anti-gun congressmen who were in charge of funding the program. The new cartridge gave a much higher muzzle velocity to its tungsten alloy buckshot loads to increase the range of the weapon.

The H&K/Olin CAW was another entry into the combat shotgun arena that held great promise but fell to the wayside. One can hope that it might one day be revived, but as things stand now, this seems doubtful at best.

---

### H&K/Olin CAW Specifications

---

|                    |             |
|--------------------|-------------|
| Overall length:    | 33.9 inches |
| Barrel length:     | 18 inches   |
| Weight:            | 9.5 pounds  |
| Magazine capacity: | 10 rounds   |



*H&K/Olin CAW candidate weapon.*

## HIGH STANDARD MODEL 60

Like most other gun manufacturers in the post-World War II era, High Standard quickly found that it needed a semiauto shotgun if it was to keep its share of the sporting gun market as GIs returned to the United States and demanded semiauto rifles and shotguns for sporting use.

Bob Hillberg was the principal designer at High Standard who developed its first gas-operated shotgun in the early 1950s. In making the first practical gas-operated shotgun system, Hillberg solved a problem that must have seemed insurmountable at the time: the sporting lines of current shotguns made location of the gas tube over the barrel, around the muzzle, or to the barrel's side impossible, and—because of the wide variance of ammunition powers—the vent needed to be from 8 to 10 inches from the receiver—right where the magazine tube had to be!

Hillberg's solution—and the one that seems to have been discovered by designers at Remington and possibly other companies—was to place the gas piston AROUND the magazine tube, a solution that seems simple now but that undoubtedly required a lot of thought before anyone else had done such a thing.

Like other manufacturers, High Standard built the new gas-operated shotgun around the basic design of their pump shotgun, the Model 20, to minimize tooling costs in creating the new shotgun. Thus, the new shotgun used the same barrel, bolt, receiver (with an additional cut in it), stock, and trigger mechanism as the Model 20 did.

By 1954, the first of the High Standard guns were being sold by Sears and Roebuck as the J.C. Higgins Model 60. The new gas-operated system did much to make the new shotgun popular, since its gas system tamed the recoil of the shotgun (at a time when the Browning A-5-style of semiautos actually increased felt recoil).

Apparently Hillberg also created a military prototype based on the Model 60 during the last part of 1954, but High Standard didn't pursue its production. Hillberg's combat 12-gauge gun had an extended magazine and a muzzle compensator built into the front sight/magazine tube support/bayonet lug assembly. (Later tests of the compensator showed that it worked but that it also caused shot patterns to become deformed,

making it unsuitable for a shotgun's longer ranges.) Because there was no market for a semiautomatic combat shotgun in the mid-1950s, this version of the Model 60 was never developed.

---

### High Standard Model 60 Specifications

---

|                    |             |
|--------------------|-------------|
| Overall length:    | 40.5 inches |
| Barrel length:     | 18 inches   |
| Weight:            | 8 pounds    |
| Magazine capacity: | 7 rounds    |

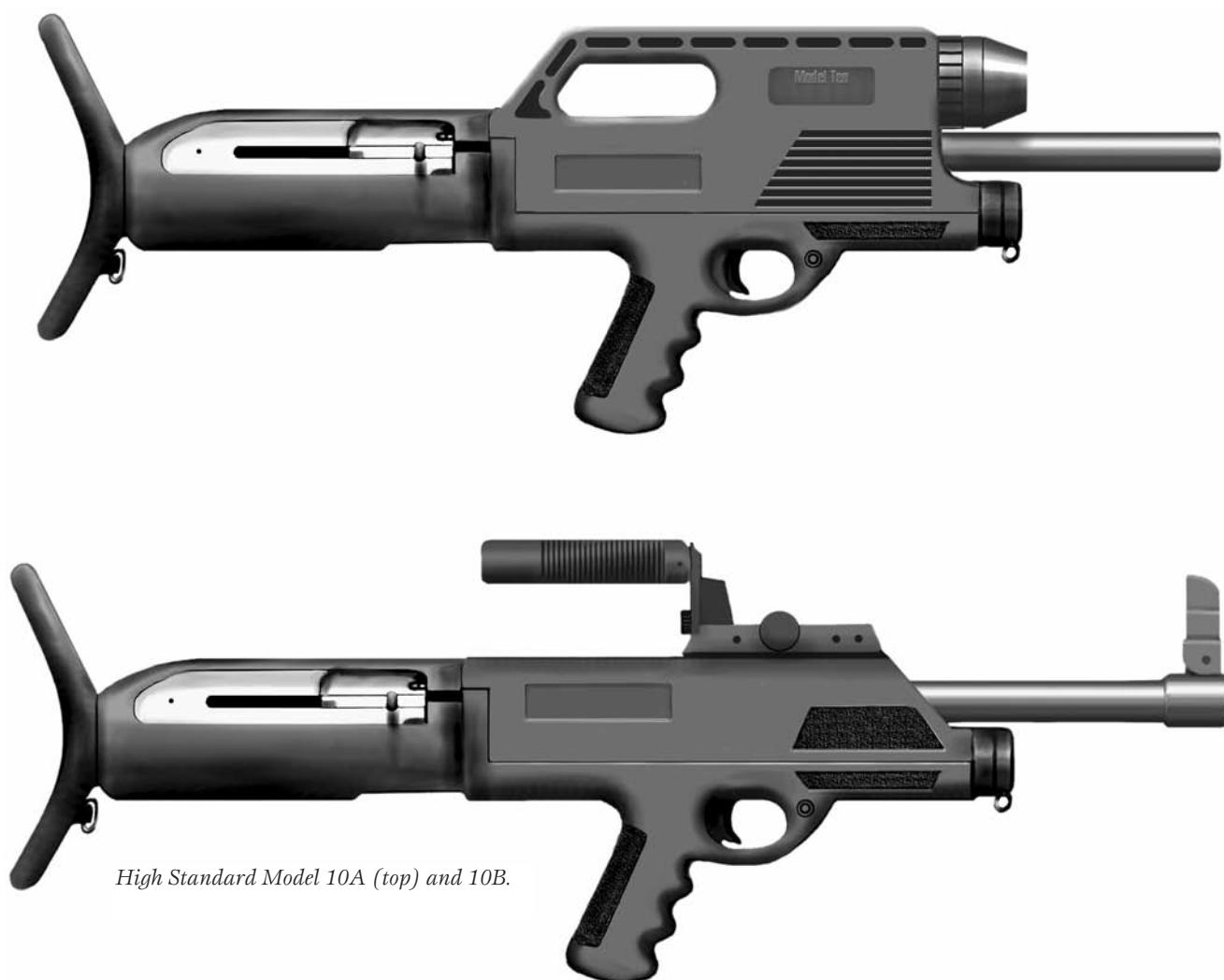
## HIGH STANDARD MODELS 10A AND 10B

The basic action of the High Standard Model 10 shotguns is taken from the High Standard Model 60. But by replacing the stock with a bullpup design, an apparently new shotgun is created.

The work on creating the bullpup conversion unit was done by police sergeant Alfred H. Crouch, who started work on his own in 1957 to create a short, semiauto shotgun suitable for police use. Crouch's first work was done with a Remington Model 58 (since the shotgun was readily available to him and didn't have a recoil spring located in its stock) and his replacement bullpup stock was hand-made from aluminum. His conversion stock replaced the foregrip with a trigger/pistol grip assembly; a steel bar extended back from the trigger assembly through a slot cut in the receiver of the Model 58 shotgun and pushed against the gun's sear when the stock/trigger assembly was used. The original stock on the shotgun was removed and a curved butt fastened to the rear of the receiver. This created a short bullpup shotgun that could be fired with one hand if necessary.

When Crouch started demonstrating the converted weapon to fellow officers, many were very enthused about the new shotgun he had created. Another police officer, Rudolph A. Donatelli, went into partnership with Crouch and put up the funds to obtain a patent on the new stock. With that, Donatelli and Crouch launched their new business.

Late in 1959 and in 1960, the two men sent photos and letters to various companies marketing shotguns in hopes of stirring up



*High Standard Model 10A (top) and 10B.*

interest in Crouch's conversion unit. Most companies weren't interested, since their semiauto shotguns had recoil springs located in the stock, making conversion to the bullpup assembly difficult. High Standard did have a semiauto shotgun that would work with the assembly but, after doing a marketing study, concluded that there was not much of a profit to be had in selling the assembly. Finally, Crouch interested a European company in making the assembly along with a shotgun for it; but no one in the United States would distribute it, so this plan fell through as well.

In 1961, Crouch redesigned the assembly so that it was simpler to make and could even be formed of plastic rather than metal. Best of all, all that would have to be done to modify a suitable shotgun for use was to substitute the

assembly for the stock and foregrip and replace the trigger group with one that had a bobbed trigger and trigger guard. There were no expensive milling cuts to be made in the shotgun receiver with the new assembly design, so a stock shotgun could easily be converted for use with the Crouch assembly. But despite the simplified design, no manufacturers were interested in selling such a shotgun.

Not easily deterred, Crouch again updated his design in 1965, this time using the High Standard Supermatic as the shotgun the unit was to go on. In addition to the lower molding of his previous design, the new pattern used a second molding to create a carrying handle and integral flashlight with rudimentary sights on top of it. Crouch also added a magazine extension to his design, giving the new short shotgun a seven-round capacity.

In 1964, High Standard had started marketing police slide-action shotguns and, with the social unrest that boiled up during the 1960s, the market suddenly grew enough to support semiauto police shotguns. High Standard contacted Crouch in 1965 and had him make a new prototype of his shotgun for testing by the company.

Shortly, after testing the unit and making a few changes to make the design stronger, High Standard started manufacturing the weapon in 1966 as their Model 10A. In 1967, the new 10A was being sold in the United States; with Crouch's insistence, sales of the new gun were to be made ONLY to police departments and officers though the use of "certified-purchase" certificates. Unfortunately, the magazine extension that Crouch had added to his final design was left off the production models. This saddled the weapon with a five-round capacity rather than its more desirable seven-round magazine. Two other notable drawbacks with the final production model were that it wasn't safe to fire from a left-hand position because shells were ejected to the right, and the charging handle could be dangerous to the shooter's face if the gun were fired from the shoulder with a left-hand hold. Another drawback was that, unlike the Supermatic, the 10A could use only magnum ammunition without failure in cycling.

In 1970 an improved version, the Model 10B, was marketed. Despite tests carried out by High Standard that showed an extended magazine to be practical and desirable on the shotgun, the gun unfortunately continued to have the short, standard hunting magazine on it and fired only magnum ammunition.

The new 10B model had a detachable flashlight and a carrying handle/rear sight and front sight that could be folded down to reduce the weapon's height; these new sights were considerably more accurate than the notches molded into the top of the flashlight on the 10A model. Interestingly, a second charging lever was added to the left side of the receiver on the new Model B.

High Standard never made an extended magazine for its shotgun; Choate Machine & Tool did make an aftermarket one, however, and this greatly enhanced the combat effectiveness of the

shotgun. Apparently Couch also did some work on creating box magazine/drum feed systems for the shotgun, but these were never taken beyond the design/prototype stage.

High Standard marketed a standard-stocked version of its sporting Supermatic with a choice of either rifle sights or a standard bead sight. It was designated the Police Shotgun 20-5. This shotgun also lacked the magazine extension, which made it less than ideal for combat use but, like other of the sporter versions of the Supermatic, the 20-5 could operate with a wider range of ammunition than could the 10A/B models.

In the late 1970s, High Standard started selling the Model B to the general public, perhaps in an effort to boost sagging sales. Shortly after that, the 10B was taken out of the High Standard line and the company has since gone out of business.

The Model 10A and 10B each has a cross-bolt safety located in the front of its trigger guard; its trigger pull is somewhat sluggish due to the long connecting rod necessary to trip the internal trigger in the receiver (this seems to be common with many bullpup designs). A release button must be activated to load the magazine; it is located on the left side of the receiver and is difficult to use when loading the weapon.

Anyone using the Model 10A or 10B for combat should consider fastening the swiveling buttplate into place. When it is free to rotate, it often is in the wrong position when the shotgun is shouldered in a hurry. Contacts and the spring in the flashlight should be checked carefully from time to time and cleaned or replaced as necessary; failure to do this will mean that the light can fail when the weapon is fired.

Neither the 10A nor 10B sighting system is as accurate as one might hope for. The integral flashlight in the 10A can be used at night for sighting at close ranges and the beam tends to stay on target over the useful range of the weapon. On the 10B the sighting system is better, but the flashlight is off center, making it less accurate for nighttime use.

Although in theory the 10A or 10B can be fired one-handed, most shooters find the recoil, along with the magnum loads needed to make it function, excessive. Therefore, most will want to fire from the shoulder except in extreme circumstances.

These shotguns were designed from an admirable concept, but because they can be reliably operated only with magnum ammunition and they have a high collector's price tag, they are less than ideal for combat use except where a short or cancelable shotgun is a necessity.

The Model 20A Supermatic also has little to recommend it over other semiauto shotguns still in production. However, the action will accept an extension tube and operates with a wide range of loads, so it could be a consideration if a used gun were available at a competitive price.

---

#### **High Standard Model 10A Specifications**

|                    |           |
|--------------------|-----------|
| Overall length:    | 27 inches |
| Barrel length:     | 18 inches |
| Weight:            | 8 pounds  |
| Magazine capacity: | 4 rounds  |

---

#### **High Standard Model 10B Specifications**

|                    |                                         |
|--------------------|-----------------------------------------|
| Overall length:    | 27 inches                               |
| Barrel length:     | 18 inches                               |
| Weight:            | 9.8 pounds<br>(8.6 without accessories) |
| Magazine capacity: | 4 rounds                                |

### **HILLBERG-FINDLAY BATTLE SHOTGUN**

This bullpup design apparently never got beyond the design stage, and it appears that no prototypes of it were ever made. The shotgun was to have a detachable box magazine and a long ribbed sighting system that looked much like the carrying handle on an AR-15 rifle (because it was so far forward, however, the balance on the shotgun would have made use of the sights as a carrying handle very impractical).

---

#### **Hillberg-Findlay Specifications**

|                 |           |
|-----------------|-----------|
| Overall length: | 28 inches |
| Barrel length:  | 18 inches |

### **HOLMES STREETSWEeper**

Designed by Bill Holmes in the early 1980s,

the Streetsweeper was a simple, blowback semiauto 12-gauge shotgun that used a detachable box magazine. The gun was designed to be built on simple equipment and made use of sheet-metal stampings and standard-sized and easily obtainable screws, sheet metal, barrels, and rods wherever possible. Although at one time the Streetsweeper was slated to be produced commercially, such plans seem to have been tabled.

Interestingly, the design of the shotgun is so simple that it could be built by a skilled handyman using shop tools. Therefore, Holmes marketed a book of plans and instructions on how to make the shotgun that, sadly, is now out of print.

### **ITHACA MAG 10 ROADBLOCKER**

The Mag 10 is a 10-gauge semiauto offered in 1975 by Ithaca. The shotgun was designed by Jim Toolinger, and a 22-inch barreled version of the shotgun was offered in 1980 as a law enforcement weapon. Despite the fact that the shotgun is often recommended for use by police, it generally proves a poor choice because the magazine holds only two rounds and the gun weighs 10.25 pounds, making it a beast to carry for any length of time.

### **MOSSBERG 1000**

The Japanese-made Mossberg 1000 is identical to the Smith & Wesson 1000. The shotgun is noted for its ability to function without failure and for its ability to function with nearly any load and with little or no cleaning. Unfortunately, like the S&W 1000, the Mossberg shotgun has an internal gas piston that is mated to the end of the magazine tube, limiting the magazine capacity to three rounds. This limitation on magazine capacity makes this otherwise perfect shotgun unsuitable for nearly all combat use.

The 1000 is the Model 1000 Super 12 version of this gun that was chambered to fire nearly any 3-inch or 2 3/4-inch full-power cartridges without any adjustments needed to the gas system.

## MOSSBERG 5500

The Model 5500 was added to the Mossberg line in 1983 and—at the time of this writing—seems to have been discontinued. The shotgun is built using many of the parts and manufacturing techniques developed for Mossberg's 500 pump gun, which makes it a very reasonably priced shotgun.

A number of sporter versions were made; a combat model, the 5500 Guardian, was also offered both with a standard stock and with the stockless Cruiser pistol grip that Mossberg developed for its 500 pump guns. Unfortunately, the magazine on the combat model wasn't extended from the standard sport configuration, making it less than ideal for most fighting purposes. Nevertheless, the shotgun is well made and functions reliably. A 3-inch magnum sporter version was also made; for some, this might be a better choice than the 2 3/4 12-gauge chamber.

### Mossberg 5500 Guardian Specifications

|                    |                                                 |
|--------------------|-------------------------------------------------|
| Overall length:    | 38.5 inches<br>(30 inches with<br>Cruiser grip) |
| Barrel length:     | 8.5 inches                                      |
| Weight:            | 7 pounds                                        |
| Magazine capacity: | 4 rounds                                        |

## MOSSBERG 712

The Model 712 replaces the 5500 in the Mossberg line of semiauto shotguns. Unfortunately, as of the time of this writing, no

combat model of the shotgun (with an extended magazine) is available. Consequently, this otherwise fine shotgun is less than ideal for most fighting purposes.

The 712 uses the same type of gas system that the S&W/Mossberg 1000 uses; consequently, the 712 cycles with standard 2 3/4-inch, 1-ounce shot loads through 3-inch magnum shells. This makes the gun very flexible to use with a wide range of ammunition.

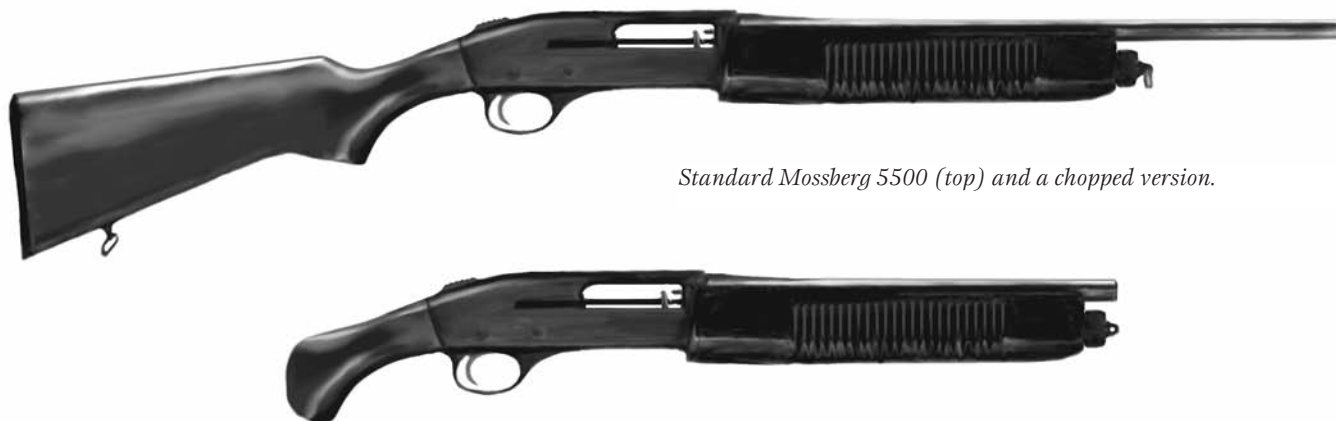
A 24-inch slug barrel is available for the shotgun (both in blue and a camouflaged version). The big plus of the camo version of the shotgun is that it has a plastic stock and foregrip and also has the receiver drilled to accept a scope mount. The camo stock is the Speedstock plastic version developed by Mossberg; the shooter can carry four spare shells (two on each side) in special holders built into this stock.

### Mossberg Model 712 Specifications

|                    |           |
|--------------------|-----------|
| Overall length:    | 44 inches |
| Barrel length:     | 24 inches |
| Weight:            | 7 pounds  |
| Magazine capacity: | 4 rounds  |

## MOSSBERG MODEL 9200

Introduced in 1992, the 12-gauge Model 9200 shotgun was the first of Mossberg's shotguns to have the Soft Shooting System designed to reduce felt recoil. As with previous models of Mossberg semiauto shotguns, the Model 9200 can accommodate a wide range of



*Standard Mossberg 5500 (top) and a chopped version.*



*Mossberg 9200 standard shotgun and whippet configuration.*



loads from field to magnum. Like other Mossberg shotguns, this one can employ the stocks and other accessories from other models, giving it a wealth of possible layouts.

Mossberg also introduced the Viking black matte finish with this model as well as the blued, parkerized, camouflaged, and Marinecote finishes seen previously. The company also offered a Bantam stock with a 1-inch shorter pull.

Mossberg has also created the Jungle Gun Model 9200A1 around this shotgun. This weapon was originally created for narcotics duty in the jungles of Colombia and has the distinction of being the first semiautomatic 12-gauge shotgun designed expressly for the U.S. military. As with most firearms designed for government use, the Model 9200A1 meets the U.S. military's mil spec (military specification) requirements. This is a selling point for police users or other nations looking for a robust firearm, especially since the Mossberg Model 9200A1 was the only shotgun to pass all of the requirements and tests involved before the U.S. government placed the order for the guns.

Surprisingly, the barrel and some other components of the Model 9200A1 are not interchangeable with the Sporting Model 9200. Also the gas system is tuned to handle standard velocity commercial 12-gauge, 2 3/4-inch buckshot loaded to SAAMI standards. This makes it function very reliably with this ammunition, but also means that it may not do

so well with magnums or light loads. Consequently, care must be exercised in firing only quality ammunition meeting these requirements when reliability is a must with this shotgun.

As with most modern military arms, the Model 9200A1 sports a parkerized steel finish. The gun also has a hard-coat anodized aluminum trigger housing, safety button, and receiver. The stock and fore-end are black plastic; a folding stock is available as an option (sold to law enforcement only due to federal assault weapon laws).

#### **Mossberg Model 9200 Specifications**

|                         |                                    |
|-------------------------|------------------------------------|
| Length:                 | 48 inches<br>(with 28-inch barrel) |
| Barrel lengths:         | 24, 26, or 28 inches               |
| Weight                  | 7.5 pounds (empty)                 |
| Magazine tube capacity: | 4 rounds<br>(2 3/4 inch shells)    |

#### **Mossberg Model 9200A1 Specifications**

|                         |                                                                   |
|-------------------------|-------------------------------------------------------------------|
| Overall length:         | 39 inches                                                         |
| Barrel length:          | 18.5-inch barrel with<br>bead sight, cylinder bore<br>fixed choke |
| Weight:                 | 7.76 pounds (empty)                                               |
| Magazine tube capacity: | 4 rounds<br>(2 3/4-inch shells)                                   |

## REMINGTON MODEL 11

This shotgun was manufactured by Remington but is nearly identical to the Browning A-5. As such, it might work as an alternative to the A-5 even though most Model 11s are getting a bit old and worn and often demand collector's prices as well. New variations of the A-5 would probably be better bets for combat use.

## REMINGTON MODEL 1100

During World War II when Remington was supplying its Model 11 version of Browning's A-5 shotgun to the military, the company also started a crash program to develop new slide-action and gas-operated shotguns that would have a maximum number of interchangeable parts. This was to ease the supply and repair needs of gunsmiths and lower the initial costs of manufacturing such weapons. Although this research wasn't completed during the war, it did lead to the production of the Remington 11-48, 58, 878, and 1100 models as well as the slide-action 870.

The first of the semiautos Remington released based on the company's wartime work was the Model 11-48. It was marketed in 1949 and was designed under the direction of Lexie R. Crittendon.

Inwardly, the 11-48 was basically a modified Browning A-5 action and operated nearly identically to the original gun except for a redesigned receiver, bolt, and barrel extension. Outwardly, the shotgun had the new Remington look with a curved rear receiver and flowing trigger guard as well as modern lines in its stock and foregrip.

As the 11-48 replaced the Model 11 in the Remington line of firearms, two combat versions were marketed in 1952; one was a 20-inch Riot shotgun and the other the Police Special with an 18.5-inch barrel. The Riot gun was available in 12, 16, and 20 gauges and both could be purchased with sling swivels. Both had only the standard four-round magazine found on other models of the 11-48. In 1959, rifle-style sights were added to the police Riot and Police Special models so that they could be used with slugs (slugs having become a way for law enforcement officials—at least on paper—to increase the range of their shotguns).



*Remington 1100.*

Shortly after the introduction of the gas-operated High Standard, Remington marketed its own gas-operated shotgun as well, designated the Model 58. The Model 58 was changed slightly and redesignated the Model 878 in 1959. Because both the 58 and 878 had their gas piston located in the front of the magazine tube, both were limited to a magazine capacity of three rounds and were useful only as sporters. Therefore, the 11-48 continued to be marketed as Remington's police shotgun.

In 1963, Remington introduced its 1100 shotgun that had been created by a design team led by Robert P. Kelly. This gas-operated system had the piston wrapped around the magazine tube so that the magazine could easily be extended with the addition of a tube and longer spring. This design feature made the new 1100 shotgun ideal for combat modification.

The 11-48, 58, 878, and 1100 all have a number of components that are identical to Remington's 870 slide-action shotgun; many of those parts that are slightly different are made from identical forgings and then have additional milling cuts made in them.

During the 1960s, Remington made an effort to produce a family of shotguns suitable for use in the Vietnam War. To keep production costs down the family was based on the 870 and 1100 actions already in production.

Remington had the foresight to start its program with a research phase during which it developed the characteristics that would be ideal in a combat shotgun; during this time it was decided to "hit" both the military and police shotgun markets with slight modifications to the basic combat shotgun prototypes the program would create.

The key selling point for the pump-action 870 was its ability to operate with all types of ammunition regardless of the power of the load, but the thrust for selling the 1100 was its ability to quickly dominate the battlefield with intense firepower. Therefore, almost from the first, the idea of a selective-fire weapon seems to have been part of the 1100 program.

The semiauto-only combat version of the 1100 shotgun was designated the 7180 and the selective-fire model was the 7188; both models were identical except for the selective-fire parts of

the 7188. The selector for the 7188 replaced the safety at the rear of the trigger guard so that the user had the choice of safe semiautomatic or automatic fire.

During the development of the 7180/7188, it was discovered that the 1100 mechanism sometimes failed to chamber a round if it was fired from the hip or fired when held other than from the shoulder. As it turned out, this was not much of a design problem and was cured with the simple addition of a carrier latch retaining system.

The first prototype of the weapon sported a 20-inch barrel, five-round magazine, and the trench gun ventilated shroud/bayonet mount of the old World War I-vintage military shotguns. The prototype gun had the selective-fire mechanism of the 7188. Soon the bayonet mount was changed to accept the new M7 bayonet (used on the M16 rifle) and the mount was moved to the magazine tube, which could then be extended to increase its capacity to eight rounds.

By 1966, Remington had two new prototypes to demonstrate to potential buyers. Interestingly, all the prototypes were chambered for the 2 3/4-inch 12-gauge shell, had 20-inch barrels, and had full chokes. Wood furniture had an oiled finish, steel parts were parkerized, the aluminum trigger guard was finished to the same color and texture of the parkerized metal, the bolt had a black oxide finish, and black recoil pads were placed on the stocks. The Model 7188 and 7180 were the military models and had a ventilated shroud over the barrel and bayonet mounts; the 7188A1 and 7180A1 were the semiauto and selective-fire models designed for police use and lacked the shroud and bayonet mounts.

To meet military specifications for a shotgun using the older bayonets, seven-round versions of the military prototypes were also made with a different type of bayonet mount than that of the standard 7188A1 and 7180A1 (which accepted the M7 bayonet); these two new models were designated the 7188A2 and 7180A2. These were soon dropped from Remington's program when the U.S. military came to the realization that it didn't have enough of the old bayonets to issue with the shotguns should they be chosen for military use (apparently Remington had a better idea of what the army needed than the army did).

In 1967, the military requirements for a

shotgun had been pretty well established and Remington had finalized its combat design for the 870 and 1100 versions of their shotguns. The new 1100 versions were the 7180/7188 models, which were now designated the 7180 Mark 1 and 7188 Mark 1; again, the only difference between the two models was in their semiauto-only/selective-fire components. The Mark 1 models had an adapter for the M7 bayonet, a barrel shroud, 20-inch barrel, sling swivels, and rifle sights. Otherwise, they were identical to earlier 7180/7188 prototypes.

A Mark 2 version was also offered and differed from the Mark 1 only in that it had a bead sight rather than the rifle sights found on the Mark 1. The Mark 3 variation used rifle sights but had no barrel shroud (early models didn't have a bayonet lug as later ones did); the Mark 4 was like the Mark 3 but had a single bead sight rather than rifle sights. The Mark 5 series lacked a barrel shroud, had no bayonet lug, and lacked the magazine extension (so that it held only four rounds); the Mark 6 was identical to the Mark 5 but had a bead sight rather than the rifle sights.

In addition to this maze of variations available with the 7180 and 7188 models, Remington also offered bayonet mounts for bayonets other than that of the M16 rifle, variations in chokes, and other barrel lengths according to the user's specifications. Consequently, when the U.S. Marines carried out their tests of the Remington 7180 and 7188 models, the Mark 1 guns weren't actually the same as the Mark 1 shotgun specifications: they had 21-inch barrels with a modified choke.

The 870 was also tested with the various 1100 military versions. As it turned out, the 870 was chosen by the marines over the 7180/7188 versions because the gas-operated guns were sensitive to dirt. Likewise, during air force tests of the shotguns, the gas-operated guns often failed in extremely cold or dirty conditions and the weapons were never adopted for military use. Tests also proved that the 7188 was nearly impossible to control during full-auto fire when bursts of more than three rounds were fired from the shoulder; when fired from the assault position, however, the weapon proved to be controllable during short bursts of automatic fire. (A straight-line stock and raised sighting plane

probably would have gotten rid of the excessive climbing problem in the automatic mode.)

An unknown number of the 7188 selective-fire shotguns were purchased by the U.S. Navy SEAL teams for use in Vietnam, and the Secret Service purchased some as well. It is believed that the numbers purchased were very small, however, perhaps even fewer than 10. Because the market for the weapon proved to be so small, since the late 1960s the 7180 and 7188 have not been offered to military or police buyers. (The 7188 must have made an impression on navy decisionmakers, however; shortly after the Remington shotgun was used in military demonstrations, the navy started its Special Operations Weapon program to perfect an automatic combat shotgun.)

The commercial 1100 Deer Gun version with its rifle sights comes close to the 7180 configuration, however, and many of those who wanted a combat shotgun in the past simply added an extended magazine to an 1100 Deer Gun and had an "instant" 7180. (Several aftermarket companies have even offered bayonet lugs for the 1100 for those who are really gung-ho about their combat shotguns. Of course, such modifications aren't easily legally carried out today given the assault weapon ban.)

Because Remington also makes left-handed versions of its 1100 (with the ejection port on the left side of the receiver), a left-handed Deer Gun makes an ideal choice for those needing a left-handed fighting shotgun.

The Deer Gun is available with a 22-inch improved cylinder in 12-gauge (left- or right-hand versions) and with a 20-inch barrel in the 20-gauge (right-hand only). Additionally, Remington offers the Rem choke screw-in choke system on their 12-gauge, 21-inch barrels.

Those looking for a combat shotgun can also purchase used 1100 sporters for a good price from time to time. Again, with a trip to the gunsmith to chop a longer-than-needed barrel (and alter the gas port size so the weapon functions reliably), the addition of a Choate extended magazine will give the user a combat weapon.

Because the recoil spring and tube of the 1100 are located in the stock, it is impossible to fit the gun with a folding stock unless the gun is highly modified by placing a recoil spring assembly

around the magazine tube; of course the assault weapon ban has also made this iffy at best.

For a time, the modifications and addition of a folding stock were being done commercially on a custom basis by Sage International (which modified a standard 1100 and placed a magazine extension along with a Choate folding stock according to the user's needs), Jonathan Arthur Ciener, and Westminster Arms. The latter two made these modifications for 1100s to be mounted into various weapons systems, most based on placing the 1100 below the barrel of an AR-15 rifle.

A number of very useful accessories have been developed for the 1100 to adapt the sporter to combat configuration. One helpful modification is the Easyloader. This is a small part that replaces the awkward chrome shell release button and allows the shooter to quickly align shells with the magazine tube during reloading. The unit requires a minimal amount of fitting and is made of stainless steel. The Easyloader is still currently available from Brownells for around \$35.

Another useful accessory is the jumbo head safety. This replaces the standard safety to make the unit easier to manipulate; this is an important consideration for those who may be fighting in muddy conditions or may have to wear gloves. A left-handed jumbo head safety is also available that "turns around" the safe/fire position so that left-handers aren't at a disadvantage with their 1100s. The jumbo head is available from Wilson Combat.

Because of the small size of the 1100 charging handle, those who plan on using the 1100 for combat would be wise to purchase a Choate extended Combat Bolt Handle. The small charging handle that comes with the stock 1100 is easily replaced by the Combat Bolt Handle without any gunsmithing work or tools. Cost is just \$12.

Wooden stocks are prone to swelling, scratches, and other minor disasters; therefore many shooters prefer to replace their wooden stocks with plastic stocks (these are covered in the final chapter of this book).

Westminster Arms created a bullpup stock for the 1100 with a hydraulic trigger system said to have been in development for this configuration. The manufacturer was to have

modified customers' 1100s, replacing the original recoil spring with one in a forward position. Unfortunately this operation never got off the ground.

The 1100 is capable of using a fairly wide range of ammunition because of a dual gas port system that can function within a wide range of gas pressures. While a few more modern shotguns are capable of working with an even wider range of loads, the 1100 is still capable of handling most ammunition suited for combat (although ammunition should always be tested in the 1100 for reliability beforehand). For optimal performance, the 1100 should be cleaned at least after firing 150 to 300 rounds.

Cleaning the weapon is very easy, thanks to the fact that the barrel comes off readily by unscrewing the magazine extension (or magazine cap) and pulling off the barrel. The trigger group can be removed by drifting out the two pins holding it in place. Once the barrel and trigger group have been removed, the bolt can be taken out by pulling out the charging handle and depressing the right shell stop so the bolt can be eased out the front of the receiver.

In addition to 12-gauge, the 1100 shotgun is available (or has been available) in 20- and 28-gauge, as well as .410. In addition to standard 1100s, there is also a 12-gauge Magnum version which can use 3-inch magnum shells or—by simply converting to a standard barrel—will function with standard shells; the Magnum gives a lot of flexibility to a shooter for the price of the shotgun plus a spare barrel.

A wide range of custom combat 1100s have been made. Perhaps one of the more interesting of these oddities was the 2200, which is actually two 1100s (one left- and one right-handed model) welded together to give double the firepower of one of the guns. (The 2200 is too heavy for actual combat use but certainly shows the potential of a tripod-mounted automatic weapon based on the semiauto shotgun.)

The 1100 can also be easily converted to selective fire. While such a conversion is currently very hard to legally carry out in the United States, the details may be of interest to some owners of the 1100 or those using it in the law enforcement/military fields. (A detailed outline of how to carry this work out is given in

Paladin Press' *Remington 1100 Exotic Weapons System*, which is now out of print).

The 1100 has been one of the most popular gas-operated shotguns in the United States. This means that parts are easily obtained for it and most gunsmiths know how to repair it. At the same time, the 1100 is not as robust as one might hope and is prone to occasional breakdowns. The most failure-prone area of the 1100 is the rubber seal ring in its gas system. An owner of an 1100 would be wise to purchase several spares.

For a time the fate of the 1100 was up in the air following the introduction of Remington's 1187 shotgun, which could in theory do anything the 1100 could do, only better, operating with a wider range of ammunition while accepting most of the accessories designed for the 1100. But that didn't happen. It seems that many shooters have learned to love the 1100 and that loyal following has kept it in production to date.

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**Remington 1100  
(with extended magazine and deer barrel)  
or 7180/7188 Mark 1 Specifications**

---

|                    |             |
|--------------------|-------------|
| Overall length:    | 41.1 inches |
| Barrel length:     | 20 inches   |
| Weight:            | 9 pounds    |
| Magazine capacity: | 7 rounds    |

## REMINGTON MODEL 1187

The 1187 Model is based on the 1100 with the general design features and trigger group of the 1100. However the gas system of the 1187 was changed considerably from its parent system so that the 1187 is more pressure compensating, thereby allowing the shotgun to cycle with light 2 3/4-inch 12-gauge ammunition and any other shells up to and including 3-inch magnums; the gas system itself is somewhat self-cleaning, as well, reducing fouling to some extent.

Among the best of this series for combat use are the Deer Gun Model and Police models, with a nod toward the latter thanks to its various features that include a polypropylene stock and fore-end, parkerized steel parts, and ghost ring rear sight; the Police model also has a 1-inch recoil pad and a blaze-orange magazine follower—nice touches for any combat shotgun.

Most of the accessories designed for the 870 and 1100 will fit on the 1187; however, due to the assault weapon ban law, care must be taken when adding these to the gun lest it be transformed into an illegal configuration.

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**Remington 1187 Deer Gun Specifications**

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|                 |            |
|-----------------|------------|
| Overall length: | 41 inches  |
| Barrel length:  | 21 inches  |
| Weight:         | 7.4 pounds |

---

**Remington 1187 Police Specifications**

---

|                    |           |
|--------------------|-----------|
| Overall length:    | 38 inches |
| Barrel length:     | 18 inches |
| Weight:            | 7 pounds  |
| Magazine capacity: | 7 rounds  |

## REMINGTON SP-10 MAGNUM

The heavy-duty Remington Model SP-10 Magnum is a gas-operated, 10-gauge shotgun designed around a corrosion-resistant gas cylinder that moves out of a fixed piston, thereby employing its weight to dampen recoil. Although this shotgun is limited in its capabilities due to its small magazine capacity, it might nonetheless be suitable for specialized tasks like door breaching or launching special-purpose rounds, due to the added weight that could be enjoyed in the projectiles' weight when firing 3.5-inch, 10-gauge shells.

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**Remington SP-10 Magnum Specifications**

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|                    |              |
|--------------------|--------------|
| Overall length:    | 47.5 inches  |
| Barrel length:     | 26 inches    |
| Weight:            | 10.75 pounds |
| Magazine capacity: | 2 rounds     |

## SAVAGE MODEL 720

The Savage Model 720, like the Remington Model 11, was simply a version of the Browning A-5. The Savage 720 saw use in World War II when the United States entered the war without a sufficient number of small arms. The Model 720 "riot guns" used by the U.S. military were simply sporters with their barrels cut back to 20 inches.



*Remington 1187 in a variety of configurations, including a short-barrel entry model and a whippet.*

Like other shotguns purchased by the military, many of these shotguns were sold as surplus to federal, state, and local law enforcement agencies following World War I; many are still in use or at least in the inventories of law agencies in the United States. More modern shotguns are better suited for combat than is this old war horse.

## S&W 1000

The Smith & Wesson 1000 is a shotgun noted for being capable of functioning without breakage or failure, for cycling with nearly any load, and for working flawlessly with little or no cleaning. Unfortunately, the internal gas piston of the 1000 is mated to the end of the magazine tube, limiting the magazine capacity of both the 20- and 12-gauge guns to three rounds. This limitation on magazine capacity makes this otherwise perfect shotgun unsuitable for nearly all combat uses.

After introducing the Japanese-made 1000 in 1973, Smith & Wesson dropped it and other of its shotguns from its lineup in 1985. For a short time Mossberg marketed the same shotgun as its Model 1000.

## S&W ASSAULT SHOTGUN

In the early 1980s, Smith & Wesson developed a combat shotgun known as the AS (Assault Shotgun). Unfortunately, even though a very promising prototype was created, the work was dropped by Smith & Wesson and it appears that the shotgun will never be manufactured.

Three models of the shotgun were slated to be produced: an AS-1 that was semiauto only; the

AS-2, which fired in both the semiauto and three-burst modes; and the AS-3, which fired full in an automatic mode (375 rpm) as well as the two other modes.

The stock of the prototype (which sports a thick recoil pad) and foregrip are made of plastic and loosely modeled, as much of the gun is, on the AR-15 rifle. The upper receiver/barrel unit actually extends back into the stock and the lower receiver (which uses the AR-15 grip and many internal parts of the AR-15 rifle) is connected to the upper receiver at the rear and front by pushpins.

Disassembly of the AS is very similar to that of the AR-15 as well and the pistol grip, safety, and magazine release were nearly identical. (Because of the number of AR-15 parts and similar layout and the ability of the weapon to be fired from either a left-hand or right-hand position—unlike bullpup designs—it is believed by many that S&W was trying to develop a weapon that would be selected by the U.S. military as its CAW choice, since the AS would minimize parts needs as well as the training needed for an AR-15/AS-equipped army.)

The AS design uses a locked breech and short recoil system that does away with the need for a gas system. The AS uses a flash suppresser/muzzle compensator to decrease felt recoil, and the barrel itself can be changed in 10 seconds according to company literature. Further recoil reduction is achieved by the use of a quarter-inch, rubber recoil buffer inside the rear of the receiver.

Lock-up is achieved with a 12-lug rotary bolt, and two claw extractors are used on the bolt; the bolt and barrel are strong enough to be used with new, high-pressure CAW ammunition as well as commercial shotgun ammunition.



*Smith & Wesson Assault Shotgun.*

The carrying handle/sight plane have a “quick-aim” gutter-type aiming system void of any real sights. Again, like the AR-15, the upper and lower receivers are made of aluminum forgings. The prototype magazines contain 10 rounds in a staggered box magazine that feeds into one position (in the same manner of most pistol magazines).

The prototype weapons have a shorter foregrip and lower sighting plane than the production model was to have. In all probability, the handle would have been drilled to take optical sights designed for the AR-15 had the AS gone into production.

It is indeed unfortunate for those needing combat shotguns that the S&W AS will most likely never be fielded, as it is a design that appears to have a lot of potential.

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#### **S&W AS Specifications**

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|                    |                                     |
|--------------------|-------------------------------------|
| Overall length:    | 41.5 inches                         |
| Barrel length:     | 18.25 inches                        |
| Weight:            | 9.75 pounds                         |
| Magazine capacity: | 10 rounds (detachable box magazine) |

### **SAIGA-12**

The Saiga shotguns have been developed by the Izhmash Russian State Arms company during the early 1990s. This arsenal was founded in 1807 in the city of Izhevsk (in the West Urals) and has been one of the major Kalashnikov rifle plants. Not surprisingly, then, this shotgun borrows heavily from that rifle, and even a casual inspection of these shotguns makes its AK-47 heritage unmistakable. Many parts are nearly identical between the rifle and shotgun, with most differences being those of scale to accommodate the larger shotgun shells. The Saiga shotguns are also modified to semiauto-only fire; currently these guns are available chambered for the 12- and 20-gauge and .410 shotgun cartridges. These shotguns are robust, reliable, and relatively inexpensive.

As with the AK-47, these shotguns have a long piston above the barrel that is activated by gas bled from the barrel below it. Moving rearward, the piston unlocks the rotating bolt,

which then also moves rearward, extracting and ejecting the empty cartridge; at the same time the bolt pushes the hammer back and cocks it. From that point the gun’s recoil springs propel the bolt forward to strip a cartridge from the magazine and chamber it, ready for another shot with the pull of the trigger.

Through the use of folding stocks and various barrel lengths, Izhmash has created at least three versions of this shotgun in each chambering, creating everything from more or less conventional hunting guns to weapons ideal for police and self-defense needs. Coupled with the gas action that greatly reduces the recoil of these guns, the 20-gauge and .410 are especially comfortable to shoot. Although most of the Saigas can fire both standard and magnum ammunition, such use dictates that the gas regulator of the gun be set to its “standard” or “magnum” setting according to the ammunition being employed; most guns can accommodate both standard and longer magnum shells. Some models are available with detachable stock and pistol grip for easier storage.

The Saiga guns have magazines that accommodate a variety of shell lengths. For example a shooter using a 12-gauge gun can load standard shells or 3-inch magnums in the same magazine without fear that one or the other will fail to feed properly. The magazines are constructed of black, fiber-reinforced polyamide and hold five rounds in the standard magazines or seven in the extended magazine. The manufacturer is said to have created sheet-metal magazines holding 10 rounds, but these have not been marketed.

Sights vary according to the model with some having a short shotgun rib on the top of the gas tube while others sport AK-style iron sights. Optional side mounts are also available for mounting scopes on these guns. Barrels are generally equipped with screw-on choke tubes. Shorter barrel versions are made but are not always available in many parts of the world due to various import laws. Stocks are made of fine wood (beech, birch, or walnut) or impact-resistant polyamide.

As the name suggests, the Saiga-12 models are the 12-gauge versions of these shotguns; some variations are also possible within these



*Saiga-12 models with the various stocks and barrel lengths commonly available.*

groupings through the interchange of stocks, but basically they fall into one of four versions:

- Saiga-12: standard shotgun with fixed AK-style stock
- Saiga-12 Export: standard shotgun with sporter-style stock (principally for politically-correct European and U.S. markets where the politicians judge guns by their looks rather than their capability)
- Saiga-12S: standard gun with AK-style folding stock
- Saiga-12K: short-barreled version with AK-style folding stock; guns sold on the Russian market have a trigger lock that engages when the stock is folded in order to comply with Russian laws; export models lack these locks

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#### **Saiga-12 Specifications**

|                    |                     |
|--------------------|---------------------|
| Overall length:    | 44 inches           |
| Barrel length:     | 22.5 (or 26) inches |
| Weight:            | 8.3 pounds          |
| Magazine capacity: | 5 or 7 rounds       |

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#### **Saiga-12 Sporter Specifications**

|                    |                     |
|--------------------|---------------------|
| Overall length:    | 44 inches           |
| Barrel length:     | 22.5 (or 26) inches |
| Weight:            | 8.3 pounds          |
| Magazine capacity: | 5 or 7 rounds       |

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#### **Saiga-12S Specifications**

|                    |                                                              |
|--------------------|--------------------------------------------------------------|
| Overall length:    | 41.5 inches<br>(stock extended),<br>32 inches (stock folded) |
| Barrel length:     | 22.5 (or 26) inches                                          |
| Weight:            | 7.9 pounds                                                   |
| Magazine capacity: | 5 or 7 rounds                                                |

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#### **Saiga-12K Specifications**

|                    |                                                            |
|--------------------|------------------------------------------------------------|
| Overall length:    | 35 inches<br>(stock extended),<br>26 inches (stock folded) |
| Barrel length:     | 16.75 inches                                               |
| Weight:            | 7.6 pounds                                                 |
| Magazine capacity: | 5 or 7 rounds                                              |

## **SAIGA-20**

The Saiga-20 semiauto shotgun is nearly identical to the Saiga-12 (see above) but scaled down to accommodate 20-gauge shotgun shells. The shotgun can accommodate both standard and magnum loads, including full-length magnum shells, which dictate manually adjusting the gas system for proper cycling of the weapon. Guns may have leaf sights or rib sights, with an optional scope-mounting system available for the weapon.

The Saiga-20 shotgun is manufactured in four versions:

- Saiga-20: standard shotgun with sporter stock
- Saiga-20: standard shotgun with detachable pistol grip and stock
- Saiga-20S: standard gun with AK-style folding stock
- Saiga-20K: short-barreled version with AK-style folding stock

---

#### **Saiga-20 Specifications**

|                    |                   |
|--------------------|-------------------|
| Overall length:    | 42 inches         |
| Barrel length:     | 22 inches         |
| Weight:            | 7 pounds          |
| Magazine capacity: | 2, 5, or 8 rounds |

---

#### **Saiga-20 Detachable-Stock Specifications**

|                    |                   |
|--------------------|-------------------|
| Overall length:    | 42 inches         |
| Barrel length:     | 22 inches         |
| Weight:            | 7 pounds          |
| Magazine capacity: | 2, 5, or 8 rounds |

---

#### **Saiga-20S Specifications**

|                    |                                                                 |
|--------------------|-----------------------------------------------------------------|
| Overall length:    | 42 inches<br>(stock extended),<br>31.5 inches<br>(stock folded) |
| Barrel length:     | 22 inches                                                       |
| Weight:            | 7 pounds                                                        |
| Magazine capacity: | 2, 5, or 8 rounds                                               |



*Saiga-20 variants with commonly available barrel and stock configurations.*

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### Saiga-20K Specifications

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|                    |                                                            |
|--------------------|------------------------------------------------------------|
| Overall length:    | 35 inches<br>(stock extended),<br>26 inches (stock folded) |
| Barrel length:     | 16.75 inches                                               |
| Weight:            | 6.8 pounds                                                 |
| Magazine capacity: | 2, 5, or 8 rounds                                          |

### SAIGA-410

The Saiga-410 is pretty much like the Saiga-12 and Saiga-20, but (of course) scaled down somewhat to accommodate a .410 cartridge. Like its sister shotguns, the Saiga-410 can accommodate various lengths of shells as well as standard and magnum loads.

There are five distinct versions of these .410 shotguns:

- Saiga-410: with wooden sporter stock
- Saiga-410 C: with folding stock and pistol grip (both made of polymer)
- Saiga-410 K: with a short barrel and folding polymer stock; trigger-lock mechanism engages when stock is folded
- Saiga-410 K Version 01: short-barreled version with Kalashnikov layout and folding stock; universal iron sight with 25-meter setting for shot and 50-meter setting for slugs
- Saiga-410 K Version 02: short-barreled with folding metal or polymer stock with handguard made of wood; universal iron sight with 25-meter setting for shot and 50-meter setting for slugs



*Collection of Saiga-410s in the most common barrel and stock configurations.*

---

### Saiga-410 Specifications

|                    |                    |
|--------------------|--------------------|
| Overall length:    | 42 inches          |
| Barrel length:     | 20 inches          |
| Weight:            | 7.4 pounds         |
| Magazine capacity: | 2, 4, or 10 rounds |

### Saiga-410 C Detachable-Stock Specifications

|                    |                                                                 |
|--------------------|-----------------------------------------------------------------|
| Overall length:    | 40 inches<br>(stock extended),<br>32.5 inches<br>(stock folded) |
| Barrel length:     | 22 inches                                                       |
| Weight:            | 7.4 pounds                                                      |
| Magazine capacity: | 2, 4, or 10 rounds                                              |

---

### Saiga-410 K Specifications

|                    |                                                              |
|--------------------|--------------------------------------------------------------|
| Overall length:    | 32.5 inches<br>(stock extended),<br>23 inches (stock folded) |
| Barrel length:     | 13 inches                                                    |
| Weight:            | 7 pounds                                                     |
| Magazine capacity: | 2, 4, or 10 rounds                                           |

## USAS-12

The USAS-12 is a combat shotgun produced by Daewoo of South Korea. Apparently it was built off the company's assault rifle as well as, one must suspect, the Atchisson Assault 12 (since the inventor was working on that weapon in Korea at the same time). Exactly what the relationship is between the AA-12 and the USAS-12 designs is unknown, but one must assume there was some carryover from one design to the other, at least in the basic layout of the two weapons.

That said, the two are mechanically quite different, with the USAS-12 having a gas-operated system and metal body more like that of the Daewoo rifles and certainly very much unlike the clamshell design of the AA-12.

The USAS-12 was developed with an eye toward sales in the United States, with both selective-fire as well as semiauto-only versions to be produced. Two of the original guns were, in fact, made as full-automatic-only prototype weapons and brought to the States for initial testing. These prototypes had one quirk: apparently, due to problems in translating



*USAS-12 original model (top) and newer  
Ramo Defense Systems model.*

building instructions from English to Korean, the idea of where the ejection port was to be became twisted around. Consequently, guns had an ejection port on the left side of the receiver. Apparently this led to an ejection point on the right and the left—a feature that eventually became set as the final design because it would permit switching the gun from right- to left-side ejection. By changing the bolt, the user could then select either.

The charging handle on the prototype weapons was located on the upper right of the foregrip. The AR-15-style selector is located on the right of the receiver over the pistol grip. An AR-15-style carrying handle is located on the top of the upper receiver and the handle is shaped so that it will accept AR-15 optical systems; plans are bandied about as to the possibility of incorporating a folding front sight on production models as well.

Due to the weight of the gun and the gas operation, the recoil of the weapon is mild by 12-gauge standards—even with the magnum loads recommended for the USAS-12—because of a long recoil spring/buffering system (thanks to a hollow bolt carrier, the recoil spring stretches from the rear of the receiver to the front of the foregrip above the barrel).

Takedown is quite simple and is carried out by unscrewing the front sling swivel/disassembly nut on the front of the gas port and removing the pins holding the trigger assembly in place. This allows the upper receiver/barrel assembly to be removed from the recoil guide along with other parts to expose the inside of the weapon for cleaning and maintenance.

Though a little heavy and limited in the ammunition it uses, the USAS-12 had promise. Unfortunately, it ran into government red tape and hassles almost from the beginning from the U.S. BATF. When the gun was finally approved for import for a few brief years from the late 1980s to the early 1990s, it saw few sales. Then, in 1994 the gun was classified as a Class III Destructive Device (along with the Striker and Streetsweeper shotguns) even though in its semiauto-only form it had no capabilities not found in many other semiauto shotguns. In the end this was all but a death sentence in terms of marketing the firearm in the United States to the general public.

That said, the USAS-12—now classified as a destructive device as if it were a grenade launcher or machine gun rather than a shotgun—was offered for a short time in America by Ramo Defense Systems to law enforcement or other qualified buyers. This new version of the USAS-12 has an added slide-action pump handle to permit firing low-pressure tear-gas cartridges and the like. Unfortunately, Ramo Defense Systems ran into legal battles that forced it to file for Chapter 11 protection in 2003. Thus, at the time of this writing, the USAS-12 is again out of production and the fate of this gun is unknown.

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### USAS-12 Specifications

---

|                    |                                                                                                            |
|--------------------|------------------------------------------------------------------------------------------------------------|
| Overall length:    | 38 inches                                                                                                  |
| Barrel length:     | 18.25 inches                                                                                               |
| Weight:            | 9 to 10 pounds                                                                                             |
| Magazine capacity: | 10 rounds<br>(12 rounds with early models) or 20-round drum magazine<br>(28-round drum with early models). |

## WINCHESTER MODEL 1911

The Winchester Model 11 was developed by Thomas C. Johnson and was Winchester's attempt to recapture some of the sales it was losing to the new Browning A-5 (whose manufacturing rights it had refused to purchase from Browning). The Model 1911 was marketed, as one might guess, in 1911 and proved to have a number of defects that made it prone to failure. The gun was discontinued during World War I and then produced following the war until 1925. In 1940, the design was introduced to the market as the 1940, but still had so many flaws that it was discontinued shortly after sales had begun. Needless to say, the Model 1911 and Model 40 are best left to collectors.

## WINCHESTER MODEL 50/59

In an effort to undo the bad publicity from its 1911 and 40 models' poor performance, Winchester hired David Marshall Williams, who had designed the M1 carbine, to work on a new

semiauto shotgun. His work started in 1946 and continued until the mechanism for the action was finally perfected and was marketed in 1954 as the Model 50. The shotgun had a good design and was well made to boot, able to function with a wide range of loads without the user having to adjust the mechanism in any way.

An aluminum-receiver version with a steel and fiberglass barrel was also created and designated as the Model 59; the barrel itself was marketed as the Win-lite. This barrel was created by using a thin steel tube for the inside of the barrel and then winding glass filaments around the tube (in the same manner old cannon barrels were strengthened in black-powder days by binding with steel wire). Once assembled, the outer layer of glass was fused together to form a barrel that was several times stronger than a normal steel barrel and considerably lighter as well. Best of all, if the barrel did rupture because of a defective round or a barrel obstruction, the glass filaments generally parted without creating dangerous fragments (unlike conventional steel barrels). Unfortunately, the glass-filament barrels were expensive to produce and were discontinued in 1965. Hopefully some automated version of this barrel-making system will be created in the near future so that it can be used on other firearms.

While this was an excellent shotgun, the high prices it commands these days make it more of a collector's piece rather than a combat shotgun.

## **WINCHESTER MODEL 1400**

When Winchester was involved in trying to market their multibarreled Liberator shotgun to officials in Vietnam during the mid-1960s, Winchester personnel found that even though the Liberator didn't generate much interest from the military, there did seem to be a market for a semiauto combat shotgun. With this in mind, they returned to the United States and Winchester officials were persuaded that one of the firm's sporting shotguns might be reconfigured slightly to become an ideal combat shotgun.

In 1965, in the same manner that Remington had used with its work with the combat versions of the 870/1100 shotguns, Winchester decided to develop two models of the Winchester shotguns, which were made to have a number of

interchangeable parts. One was the slide-action 1200 and the other, the semiauto 1400.

The 1400 had a built-in problem: because the gas action operated on the inside of the end of the magazine tube, increasing the magazine capacity meant redesigning part of the weapon rather than simply screwing on a magazine extension (as had been the case with the Remington 1100).

R.L. Brown, the engineer in charge of making the modifications, turned the problem into an advantage by adding a detachable box magazine assembly to the gun. This did away with the engineering problem of redoing the tubular magazine/gas system and also got around the problems associated with reloading tubular magazines.

By 1966, a 1200 slide-action gun had been converted to magazine use by adding a small sleeve to the lower side of the trigger group so that the loading port became the magazine well. At the rear of the well, a magazine release was added, the ejection port was enlarged slightly to aid in ejection of spent cases, and the push-through safety at the front of the finger guard was converted into a toggle safety similar to that of the M14/Garand rifles. A modified M14 magazine was originally used to feed shells into the shotgun but proved to be unreliable for such use; a new, curved magazine was fabricated and the shotgun functioned reliably. Once the box magazine system was perfected, it was added to a 1400 semiauto shotgun for testing.

In the semiauto, the action functioned so quickly that shells often failed to feed up from the magazine quickly enough to be chambered by the returning bolt. Another Winchester engineer, Joe Badali, solved this problem with a bolt catch that only released the bolt when a cartridge rose up into position following recoil. This bolt catch had the added benefit of giving the shotgun a way to be quickly reloaded or the chamber checked in a manner similar to most military rifles that have bolt catches. (This bolt catch also acted as a rate reducer, which would have been a very helpful device if the shotgun had been used as a selective fire weapon.)

Final prototypes of the 1400 combat shotgun had 23-inch barrels with rifle sights and were chambered in 12 gauge. The detachable magazines held eight rounds. The U.S. Marines

were looking for new shotgun in 1966, so Winchester decided to enter their prototypes into the marine's testing (which also included the new Remington 7180/7188 shotguns). Unfortunately, all the bugs were not yet worked out of the Winchester prototypes and despite the fact that Winchester officials had told the marines that the shotguns were only prototypes and not perfected firearms, the shotguns were tested under various harsh conditions. Understandably the prototypes failed a number of tests, and a number of bad comments about the weapon were circulated by the testers. Needless to say, Winchester was not happy that the prototypes were subjected to tests normally reserved for production guns.

Unhappy with the marine tests, Winchester gave prototypes of the magazine-fed 1400 to the U.S. Army to evaluate. The army agreed that the weapon had much potential but it was not interested in doing any development work on new shotguns. Consequently, in 1969 Winchester decided to discontinue work on its promising design.

When discontinued, the work on the 1400 suggested that most malfunctions with the shotgun prototypes were caused by failure of the bolt to travel forward with enough energy to consistently strip a cartridge from the magazine and rotate the bolt into its locked position; this was especially a problem when the mechanism became dirty. A second problem with the prototypes was that the receiver did not seem to be strong enough to withstand long-term shooting with heavy loads; consequently, the receiver would need to be redesigned to be stronger or made from steel rather than aluminum. Either of these problems would have required expensive retooling for a military market that looked small to nonexistent for the weapon even if it were perfected.

Apparently, Winchester also had plans to offer a wide range of accessories and options on the combat version of the 1400 had it become popular with the military market. Plans for rifle-grenade adapters, tear-gas-grenade adapters, bayonet lugs, handguards, and a folding stock were all being worked on or had been developed for the 1400 when the research was discontinued.

Despite all the work done toward producing a

combat weapon, the standard sporting 1400 is unsuitable for most combat use because of its limited magazine capacity.

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### **Winchester 1400 Specifications**

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|                    |                                               |
|--------------------|-----------------------------------------------|
| Overall length:    | 43 inches                                     |
| Barrel length:     | 23 inches                                     |
| Weight:            | 6.75 pounds                                   |
| Magazine capacity: | 2 rounds (8 in military box-magazine version) |

## **WINCHESTER MODEL 1500/RANGER**

The updated version of the 1400 was the 1500; like the 1400, the 20- and 12-gauge shotguns had a tubular magazine limited in its capacity by the gas system. Therefore, except for very limited use where only three shots would be needed (two rounds in the magazine and one in the shotgun's chamber).

The newest version of this series of shotguns is the Ranger; like others in the series, the weapon is limited to a maximum of three rounds without reloading. This makes this otherwise fine gun unsuitable for nearly all combat use.

## **WINCHESTER SUPER X2**

In 1999 Winchester introduced its Super X2 12-gauge shotgun. Despite its name, this model is quite different from the Super-X Model 1 the company produced from 1974 to 1984; that gun was dropped from the company's lineup due to excessive production costs of producing milled parts.

The new Super X2 has a gas system that was originally seen on the Browning Gold shotgun, a system that functions reliably with a wide range of shells from target loads to high brass and magnum cartridges. However, from the gas system on, the Super X2 is a different design with an all new trigger assembly, magazine system, and other features.

The Super X2 is chambered to accommodate 3 1/2-inch cartridges, which aren't as tooth-jarring as one might think thanks to the gas system of the gun that soaks up a lot of recoil.



*Winter Swatriplex-18.*

And that same gas system also makes it possible to shoot much lighter loads in the shotgun as well. While the shotgun does work with a wide range of ammunition, its abilities aren't quite as glowing as one might believe from advertising hoopla; in truth (as with other semiauto actions), this shotgun will generally fail to function reliably with very light loads. Therefore a user is always well advised to test any ammunition that might be employed in combat to be sure that it will not cause a failure to feed at a critical moment.

The safety is located behind the trigger guard and can be easily reversed for left-handed shooters. Barrel lengths are 26, 28, and 30 inches, each coming with screw-in improved cylinder, modified and full chokes included. The stock has a vented recoil pad, and black composite stocks and handguards are available in addition to standard walnut furniture.

The bad news for anyone looking at this gun for combat use is that the shell capacity is only four rounds of 2.75-inch cartridges. Coupled with the long barrels it is currently sold with, this means the Super X2 is limited in its combat capabilities.

#### **Winchester Super X2 Specifications**

|                    |           |
|--------------------|-----------|
| Overall length:    | 49 inches |
| Barrel length:     | 26 inches |
| Weight:            | 8 pounds  |
| Magazine capacity: | 4 rounds  |

## **WINTER SWATRIPLEX-18**

John W. Winter, of Phoenix, Arizona, designed the Swatriplex-18 during the late 1970s and early 1980s in an effort to capture part of the market for combat shotguns that seemed to be developing during that period. The shotgun was to be marketed by Consortium W., but the gun apparently never got past the development stage.

The sleek shotgun had a bullpup design that featured twin tubular magazines under a single barrel. This gave the shotgun a short length while it still had a large magazine capable of holding 18 shells. Unlike many bullpups, the Winter shotgun had a reversible ejection port with a cheek rest that could be transferred from one side to the other as well as an operating handle that could be changed from one side to the other.

The bolt telescoped over the barrel in a manner used by many submachine guns; the carrying handle could be folded flat against the top of the receiver, and a ventilated handguard was provided to protect the shooter's hands when the barrel became hot.

The Winter design was well thought out and created a functional gun that looked pleasing as well (a combination not always found with modern weapons). Unfortunately this shotgun is not available.

#### **Winter Swatriplex-18 Specifications**

|                    |             |
|--------------------|-------------|
| Overall length:    | 34.5 inches |
| Barrel length:     | 22 inches   |
| Magazine capacity: | 18 rounds   |

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## CHAPTER 8

# *Rotary-Cylinder Shotguns*

**A** number of early, multishot guns of the black-powder era used multiple barrels and—later—multiple chambers. These often had to be indexed by hand, and the crude metallurgy of the period made the overall weight of the guns excessive.

When Samuel Colt perfected his single-action revolver, a number of revolver rifles and a few shotguns were created using his design as well. These proved to be poor sellers and quite unpopular because the higher pressures involved with shotguns and rifles caused a lot of burning powder to escape from the gap between the cylinder and the barrel cone. While such hot gases are of no concern in pistols, in long guns—where the shooter has his arm alongside the flame—it becomes a problem, with burns to the skin being quite common. Additionally, the larger charges of powder greatly increased the cutting of the metal by the gas so that it eroded rather quickly with continued use (with an ever greater amount of “fire” escaping through the growing space).

Small numbers of the Colt shotguns were apparently used to defend the Alamo, and later by the Texas Rangers, and again in the Civil War. But the revolver shotgun was generally a poor weapon and became a rarity.

Various gunsmiths and guerrilla operations in the Philippines also produced revolver-action shotguns over the previous century. Most of these were quite crude, though a few are well made. Nearly all of these “Paltic” shotguns have cylinders that must be rotated by hand, although a few also have various types of mechanisms to cause them to index to the next loaded chamber with the trigger pull (which is therefore rather heavy). The weapons are often made to resemble the Thompson submachine gun and often lack a stock of any type while sporting various—and often fake—muzzle brakes.

The Paltic shotguns are generally suited only for arms-length combat due to the lack of sights or a flat sighting plane of any sort. While of interest to collectors and historians, the Paltic guns—like most do-it-yourself weaponry—are generally a disappointment from a combat standpoint.

Western modern rotary actions resurface from time to time as well; many suffer from the same problems of the early Colts.

Modern designers face dimensional problems as well with the 12-gauge cartridge and the large numbers of shells needed in a modern combat weapon. These two factors make simply enlarging the revolver action to shotgun size impractical, since the sheer size of shotgun cartridges creates a lot of friction in the mechanism, which creates an unbearably heavy trigger pull. Because reducing the number of cylinders in the action (to reduce the friction) would make the capacity of the shotgun unsuitable for combat, most combat shotguns using a rotary magazine either use a spring to power the action or use the recoil of the weapon to rotate the cylinder.

An additional problem comes in reloading. If the cartridges have to be fed into the gun by hand, then the advantage of the initial large magazine capacity is diminished (especially when contrasted to a detachable box magazine). And even though the argument might be made that the rotary magazine is no worse than a tubular magazine when it comes time to reload, in fact the rotary magazine often is inferior. This is because the tubular magazine can be loaded even if it isn't completely empty; many rotary magazines must be broken open or replaced to be reloaded.

Another shortcoming is that the rotary cylinder takes up a lot of extra room. With shotgun ammunition already bulky, the empty space in the center of the rotary drum is more unwelcome bulk. If the shotgun cylinder can be changed during combat, the size of the rotary magazine is really a consideration, since it will limit the number of spare magazines a fighter can carry without becoming blimp-like with carrying cases.

While many revolver shotguns are short, their rotary mechanisms are bulky and sensitive to dirt. These two factors can quickly make a weapon unsuitable for combat, especially if physical movement and a little mud and grit are part of the overall picture (and they generally are in combat).

Finally, many of these mechanisms are aimed at the law enforcement/military markets only. These already small markets are currently pretty satisfied with off-the-shelf sporting

weapons (in the case of law enforcement officials) or are in the process of developing their own weapons (in the case of the military). And with the military, the track record for the adoption of weapons created by outside organizations is enough to daunt all but the most ridiculously optimistic of promoters.

The cylinder shotgun does make for a short weapon, and modern plastics allow it to be light as well. In some cases, especially where the fighting may be over before the rotary magazine runs out of ammunition, the rotary magazine does seem ideal. But it remains to be seen if these weapons will gain any foothold in the combat shotgun market—especially with the new CAW-style shotguns with box magazines waiting in the wings.

The rotary magazine design can also often be adopted for use in grenade launchers or vice versa. Therefore, some of the weapons listed in this chapter might see modifications for use as multishot grenade launchers. Likewise, the grenade launchers of the next chapter could be downscaled to create shotguns.

## MANVILLE GUN

This was one of the first modern rotary magazine shotguns. However, because it was mostly used to launch 12-gauge, 25mm, and 37mm tear-gas cartridges, it is covered in the next chapter with other grenade launchers.

Unfortunately the basic Manville mechanism exposes the cartridges along the front of the weapon to dirt and rain; additionally, the weapon lacks an aiming system or stock. As it stands now, the Manville gun is an interesting bit of history, but that is about all. It is a curiosity but not an ideal combat design. (The Manville grenade launchers will be discussed at greater length with other grenade launchers.)

## PANCOR JACKHAMMER

The Jackhammer appears to have been based on the ASG-16D designed by Militech in 1992. At least two of models of the Jackhammer were created, the Mark I and Mark II. All three guns are very similar with the principal differences more cosmetic than functional. Although the



*(Top to bottom) ASG-16D and early and late design Jackhammer.*

Jackhammer was a promising design, it was never manufactured and was one of the many guns that fell to the wayside due to the various federal gun restrictions passed during the first Bush and the Clinton administrations.

The Jackhammer has a bullpup design; unlike most other bullpups, however, it can be fired by

either a right- or left-handed shooter since the gun has no external cycling parts and does not eject its shell casings.

The Jackhammer's cylinder and majority of parts are made of DuPont Rynite SST, which is a tough fiberglass-reinforced thermoplastic that makes the weapon pretty much environment-

proof while keeping down its overall weight.

Another good point in the Jackhammer's design is the use of an ammo cassette. This cylinder has a zigzagging pattern of grooves and indentations that allow the barrel—which travels forward during fire—to index the next chamber to be fired. The basic mechanism of the cylinder/barrel action is taken from the Webley-Fosbery automatic revolver (which was one of the few automatic pistols ever made); the cylinder is made of plastic.

The spring-loaded barrel recoils forward upon firing (which is similar to that of the ill-fated Deutsche Jagdwaffen-Gesellschaft Becker revolver shotgun created following World War I). Because the barrel drops back into the ammo cassette to surround and chamber the shell before firing, it contains the force of the shell so that the ammo cylinder can be lightweight without sacrificing safety. The barrel itself has a muzzle brake, which helps reduce recoil and muzzle climb.

The ammo cylinders can be quickly changed, and the first round is cycled into place by manually “pumping” the foregrip on the gun. The cylinder is released by pushing forward on the fore-end.

The Pancor Corporation had hoped, if the gun went into production, to sell loaded ammo cassettes packed in weathertight plastic; a quick-release tab would remove the material from the cylinder when it was time to load the weapon. Color-coding would allow determining at a glance what type of shells were in the ammo cassette.

There were no plans to create a semiauto version of the weapon because the mechanism would have had to be altered extensively. Thus, the Jackhammer would have been marketed only to law enforcement or military buyers—a doubtful proposition and an exceedingly small market even if it was accepted by these communities.

The Jackhammer had the best of bullpup features coupled with a detachable rotary magazine that didn't have the shortcomings of other designs. Whether this shotgun would have proven as reliable would have been interesting to see. Unfortunately it has become one of those tantalizing dead ends that one can only hope might be revived in the near future.

### **Pancor Mk3-A1 Jackhammer Specifications**

|                    |              |
|--------------------|--------------|
| Overall length:    | 29.9 inches  |
| Barrel length:     | 17.96 inches |
| Weight:            | 9.5 pounds   |
| Magazine capacity: | 10 rounds    |

## **STRIKER**

The Striker is made in South Africa and with its spring-powered cylinder borrows heavily from the Manville gun. However, the Striker design enjoys the addition of a sheet-metal folding stock, and a small optical aiming system can be added to the gun (the manufacturer recommends the Armson OEG since it is small enough to fit between the stock when it is folded). Another plus is that the design has placed a shroud over the cylinder, all of which greatly improves the ability of the weapon to operate in a dirty environment. Unlike the Manville gun, the Striker could be used in a variety of environments and situations in which the Manville gun would falter.

The Striker design was created by Hilton Walker, a Rhodesian farmer who made a number of small arms suited to fighting off guerrilla attacks. With the fall of Rhodesia, Walker took his design for the Striker to South Africa, where it is now being made by ARMSEL of Johannesburg. A longer barreled version of the gun (to accommodate U.S. regulations) was also manufactured and sold in the States as the Striker, while a nearly identical U.S.-made gun was sold as the Streetsweeper. (Unfortunately, in 1994 U.S. Treasury Secretary Lloyd Bentsen deemed both these shotguns “destructive devices” simply because they failed to have any “sporting use.” Despite unprecedented and tortured reasoning that would seem unconstitutional, that ruling stands and the Striker and Streetsweeper now must be registered as if they were grenade launchers or machine guns—even though in fact neither has any capabilities not found in most of the other shotguns listed in this book.)

The Striker employs a large key, similar to that of a wind-up alarm clock, located on the front of the magazine that is used to wind up the spring which, in turn, provides the power to



*Striker.*



*Streetsweeper.*

rotate the gun's cylinder. Front and rear pistol grips are made of a tough reinforced plastic; the barrel and cylinder are made of the alloy Dural to keep the weight of the weapon down. Two barrel lengths are slated for availability in the United States: one a 12-inch barrel meant for police sales and the other an 18-inch barrel for sales to civilians.

The manufacturer has seen fit to leave off any aiming system for the gun, leaving it to the buyer to learn to aim instinctively through practice or mount an optical sight on the weapon. The length of the chambers limits it to the use of 2 3/4-inch 12-gauge shells, since 3-inch magnums are too long to allow the cylinder to rotate.

A cross-bolt safety is located at the top of the

pistol grip just to the rear of the trigger. Because the chambers are not lined up with the firing pin until the trigger is pulled, the weapon is quite safe even when dropped with the safety off.

A push-button latching system allows the folding stock to be released. The assembly can be folded out to aim from the shoulder or can be folded up over the receiver and barrel. The gun can be fired with the stock in either position.

Because the Striker doesn't use recoil to cycle the cylinder, the felt recoil should be similar to that of a pump gun; in fact, most users find it seems to be considerably less and that the gun is quite controllable (possibly this is because of the shorter 12-inch barrel generally found on the weapon). The spring power for the cylinder also

means that a wide range of loads can be used in the weapon, including very light or very heavy charges or combinations of both.

Since the cylinders can be rotated with the safety on, it is theoretically possible for the user to rotate the magazine to the type of ammunition needed for combat if he's placed buckshot, shot, or tear-gas rounds in the cylinder. In reality, however, this is not very practical: it is easy to lose track and fire the wrong rounds in combat. This could prove to be disastrous if, say, tear gas were needed and buckshot fired by mistake (or the other way around). Therefore, this is probably not a very wise practice.

The tendency of the weapon to bypass chambers during the short pull of a trigger can create problems. A short pull—as might occur during rapid fire—causes the mechanism to skip to the next chamber so that the shooter loses the chance to fire the round.

There is also a potentially disastrous problem if a round misfires. If a hangfire occurs with most other repeating shotguns, the shell can be quickly ejected; if it goes off after leaving the chamber, it is dangerous, but not overly so. In the Striker, however, if a hangfire or misfire occurs, the shooter has the choice of either waiting for 30 seconds “just in case” or rotating to the next chamber and hoping the round doesn't go off and wreck the gun (and shooter). Because most of the blast would be contained by the chamber, such a discharge would undoubtedly wreck the front of the cylinder assembly and possibly injure the shooter's hand on the fore pistol grip. Fragments might also cause other injuries. So while the rotary magazine allows the shooter to “skip” a round that doesn't fire, it could also create disastrous results if a hang fire occurs. Of

course, such a happenstance is rare at best, and not a major concern to most shooters using quality ammunition.

One other shortcoming is the complicated procedure for unloading/loading the weapon. The mechanism must be wound up fully before it can be fired. Then a loading gate on the upper right of the weapon has to be opened, the trigger pulled halfway back to locate the chamber under the loading port, and the ejection rod on the right of the barrel pulled back (to expel the empty in the manner used on single-action revolvers). Finally a loaded shell is placed in the port. This has to be repeated for each of the 12 chambers; loading an empty gun is not much of a task, but reloading is.

The Striker is not ideal for an extended combat situation but could be useful for homeowners looking for a short close-range weapon for self-defense or for police units needing a compact riot-control weapon. Then this gun shines because the stock can be folded over the weapon to greatly reduce its overall length.

Currently Reutech Defence Industries (RDI) is manufacturing two variants of the Striker. The stocked version is called the Protecta, and the stockless version of the gun is the Bulldog. Each holds 12 rounds of 12-gauge ammunition.

### Striker Specifications

|                    |                                                                                              |
|--------------------|----------------------------------------------------------------------------------------------|
| Overall length:    | 20 inches<br>(folded stock, 12-inch barrel), 31.2 inches<br>(stock extended, 12-inch barrel) |
| Barrel length:     | 12 or 18 inches                                                                              |
| Weight:            | 9.25 pounds                                                                                  |
| Magazine capacity: | 12 rounds                                                                                    |



# *Grenade Launchers*

**D**uring World War I, a number of countries created grenades that could be fired from rifles, but not without encountering problems. Because sighting systems were almost impossible to use, their accuracy was low. They also required the use of a blank cartridge, so that if many grenades were launched, the power of the blank needed to fire the grenade soon wrecked the gun (and often the shooter felt wrecked as well).

The rifle grenade is still made and used by a number of armies in the world, but the idea of a grenade launcher—which is a sort of portable one-man mortar—continues to be popular as well. So, in addition to the rifle grenade, a lot of work has been done to produce a large-bore shotgun-like weapon capable of launching a spin-stabilized grenade over several hundred yards with some accuracy.

Most of the grenade launchers produced are similar to single-shot shotguns. A few were developed simply to be grenade launchers (especially those created for use by the military and police departments); others come in “through the back door” since they were developed to deliver flechettes or other antipersonnel projectiles as well as tear gas, high-explosive (HE), or other rounds. (When grenade rounds proved more effective than the flechette rounds, the launchers were marketed as grenade launchers.)

Perhaps the best known of these launchers are the U.S. M79 and M203. Following the development and successful deployment of these two weapons in Vietnam, other countries have created their own versions, while many more have simply purchased one or the other.

In many ways these grenade launcher designs are simply scaled-up versions of shotguns with specialized ammunition developed for them. In fact a few are just that: scaled-up shotguns. Others have been scaled down to be introduced to the marketplace as shotguns. Thus, for all practical purposes today’s grenade launcher is more a variety of shotgun.

Currently, the push is to create more effective, small-sized ammunition so that grenade launchers can fire several times before they need to be reloaded, while at the same time avoid being excessively

*The U.S. military experimented with the Pumper Thumper multishot 40mm grenade launcher. Designed like an oversized pump shotgun, the weapon proved too heavy and awkward to be practical in the field.*



*Another experimental grenade launcher developed by the U.S. military. This 1990s-vintage prototype is semiauto and feeds from a box magazine. Trigger group appears to be that of an M16 rifle.*

heavy. This can be traced back at least to the AAI 30mm grenade developed for the XM-70 rifle program in the mid-20th century and continues today with the 20mm grenades being created for the U.S. OICW program. Interestingly, such cartridges fall into the same approximate bore diameter as today's 10- and 12-gauge shotguns. So it isn't too unreasonable to think that many of our current shotgun designs may see a new use as grenade launchers in the near future. In such a case, the grenade launcher, as a separate entity, may be replaced by a multipurpose, large-gauge shotgun.

In the U.S. law enforcement weapons' arena, the 37mm tear-gas grenade currently reigns supreme. This shell originated in the shoulder-fired military flare guns that were used in World War I by the Allies. Later, in the 1930s, the shell was adopted and more or less standardized by U.S. manufacturers as the common-sized shell for use in tear-gas guns. (Occasionally 25mm shells are also encountered, but these are becoming more and more rare.)

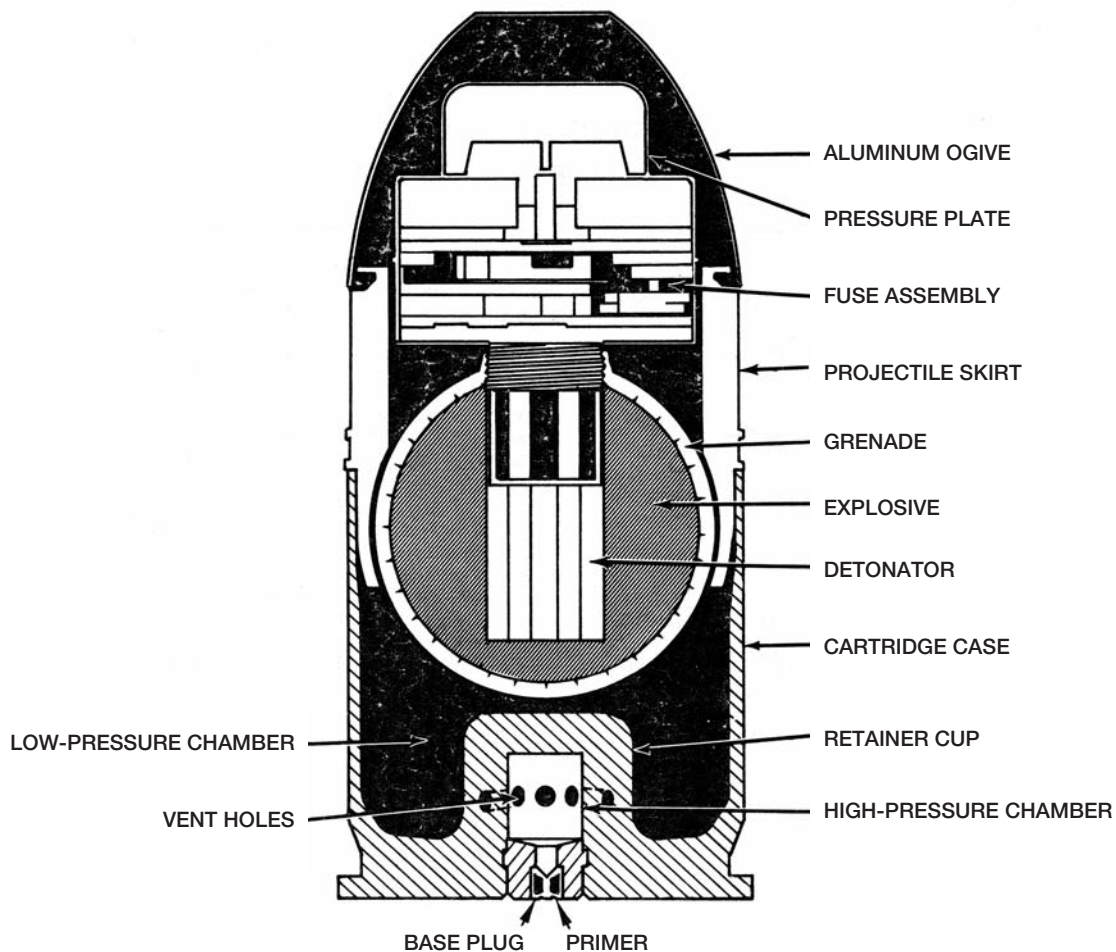
Currently the 37mm shells and guns used to

launch them are classified as "nondestructive devices" by the BATF and can be owned by anyone who wishes to have them. (This is not the case with 40mm weapons or ammunition, which are rightly classified as "destructive devices," and therefore can only be legally purchased by qualified citizens willing to go through the red tape and taxes necessary to purchase them.)

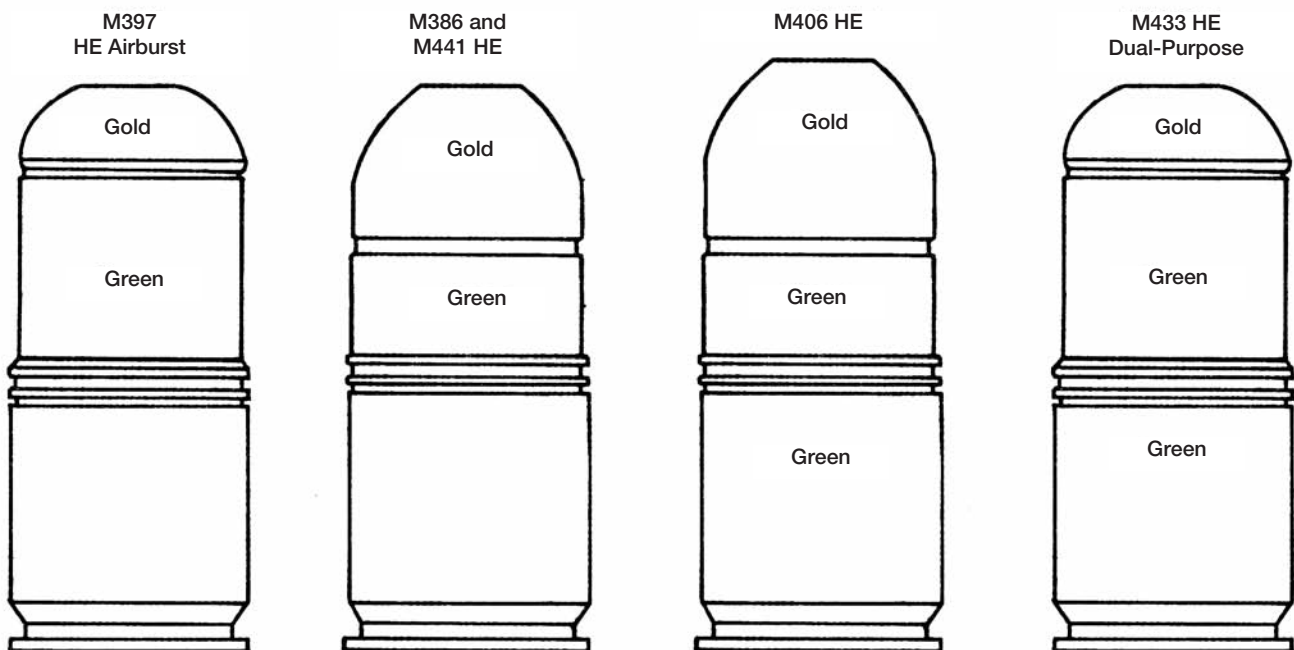
In Europe, a tear-gas shell similar to the U.S. 37mm shell often has a 38mm diameter. Because of the low pressures involved in these cartridges, manufacturers often "fudge" their bore diameters slightly to permit firing either cartridge in the same weapon.

The 40x46mm SR cartridge developed for the U.S. M79 grenade launcher has become more or less the standard grenade size, with the United States, Israel, Germany, Belgium, South Africa, Argentina, and others adopting it for use in their own models of grenade launchers.

The United States has also created an extended 40x53mm SR cartridge for use in belt-fed automatic grenade launchers. While it cannot be used in the current M79 and M203 launchers,

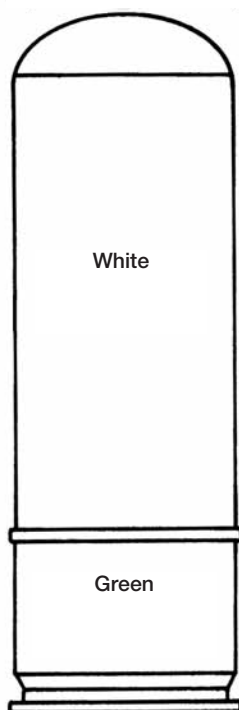


*Cross-section of a standard M203 40mm grenade.*



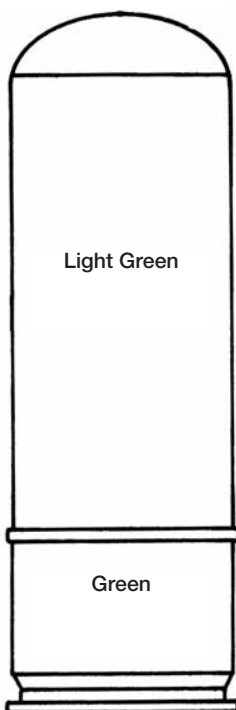
*U.S. 40mm high-explosive shells are color-coded for easy identification.*

Star Parachute  
(raised letter on tip  
denotes color)



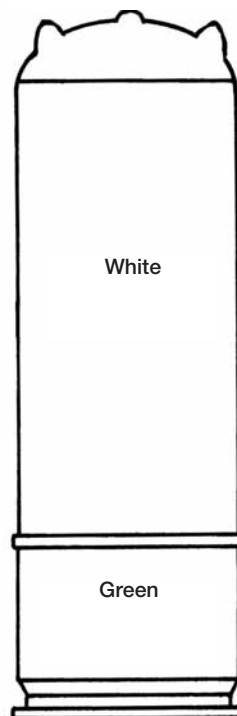
M583A1 White  
M661 Green  
M662 Red

Smoke  
(ground marker)



M713 Red  
M715 Green  
M716 Yellow

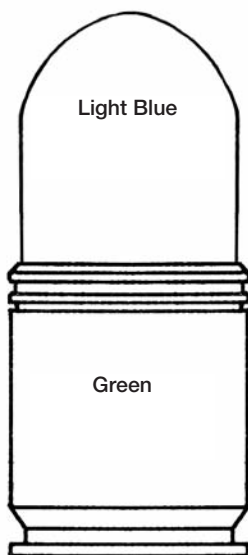
Star Cluster



M585 White

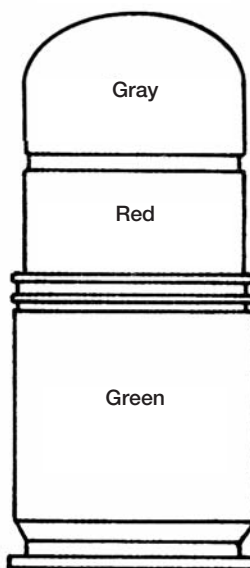
*Color coding for U.S. 40mm star and smoke cartridges.*

Practice



M781

Tactical CS  
(tear gas)



M651

*Color coding for U.S. special-purpose 40mm cartridges.*

it will fit in newer launchers designed to fire 40mm illumination flares or special tear-gas cartridges—with potentially disastrous results. Firing the powerful cartridge would probably wreck the launcher and probably lead to a number of injuries.

The Russians have produced a huge variety of grenade launchers as well as a variety of shell diameters over the past few decades, and in many ways have become the most innovative in creating new grenade-launching systems (and shotguns).

## **6G-30**

This Russian-made, multishot 40mm grenade launcher is a modified copy of the Armscor MGL and RH-ALAN revolver magazine grenade launchers. The principal difference in the Tula design is its straight, tubular stock and slightly different pistol grip/trigger configuration.

## **ARWEN RIOT GUN**

In 1977, the British Ministry of Defence started a search for a reliable, multishot gun capable of firing tear-gas rounds or rubber bullets for crowd control. This weapon was to replace the L67A1 single-shot grenade launcher, which was both inaccurate and slow to reload. Two years later, the Royal Small Arms Factory (Enfield) unveiled three different prototype weapons for government evaluation.

Each of the guns was quite different in concept. One was a semiautomatic with a three-round, detachable box magazine, adjustable stock, and optical sight; another was a pump-action gun with a three-round tubular magazine and a bullpup configuration; the third had a revolver-like action with a five-round magazine. The Royal Small Arms Factory also produced a new plastic “bullet” that would be suitable for riot control and could be fired from any of the prototype weapons.

After testing by the factory and the Infantry Trials and Development Unit, it was decided to create a new prototype that would use the adjustable stock of the semiauto weapon and the basic mechanism of the revolving magazine weapon. This work led to the final weapon, which was designated the ARWEN 37.

The ARWEN 37 is manually cycled by the shooter whenever he pulls the trigger. The first half of the pull—at 10 pounds—indexes the shell and the second half of the pull—at 14 pounds—cocks the firing mechanism and releases it; the large trigger is designed to be pulled with two fingers to allow more force to cycle the weapon. The barrel of the weapon is made of aluminum to keep its weight down.

An ambidextrous safety is located at the top of the pistol grip. Unfortunately, the positions of “safe” and “fire” are reversed from the most practical locations: safe is down and fire is up.

The front sight is made of Plexiglas with ranges from 10 to 100 meters in 10-meter increments engraved on it; the rear sight has two sight holes, one of which can be used to give approximations of range if the front sight is broken off. Sights on production models of the ARWEN 37 have always been a little on the flimsy side, though they fold down when not in use, and current guns have a Weaver mounting base that permits fixing a wide array of sighting systems to the weapon.

Several variants of the ARWEN 37 are being made. In addition to the standard model, the 37S has a shortened barrel while the 37V is a stockless model with raised sights so that it can be aimed and fired from an armored vehicle. The ARWEN 37 Ace is a single-shot version of the gun.

Rounds are loaded into the indexing sprockets from the right side of the receiver and ejected out the same port after being fired. At least five types of 37mm ammunition have been offered for the ARWEN 37. All are fired by a cartridge that contains a .44 Magnum blank cartridge powered with a smokeless powder. The five types are the AR-1 baton round, the AR-2 CS smoke round, AR-3 frangible-nose baton round (usually with CS powder in it), the AR-4 smoke screen, and the AR-5 barrier-penetrating irritant round (CS tear gas powder). It is believed that HE rounds are also being developed for the gun so that it could be used as an infantry weapon.

In addition to use by the British government for riot control, the ARWEN 37 is employed by several law enforcement agencies in the United States and Canada.

The ARWEN 37 is a lightweight solution to the need for a multiple-fire grenade launcher. It



*Two versions of the ARWEN 37 (top and center) and the ARWEN ACE (bottom).*

will be interesting to see if the weapon is adopted by any military users (if 37mm HE rounds are created for it or if a 40mm version of the gun is made). It should be noted, too, that the basic mechanism could be easily downscaled to create a rotary-magazine shotgun.

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### ARWEN 37 Specifications

|                    |                                                                          |
|--------------------|--------------------------------------------------------------------------|
| Overall length:    | 29.5 to 32.8 inches                                                      |
| Weight:            | 6.84 pounds unloaded /<br>8.38 pounds loaded with<br>5 AR-1 baton rounds |
| Magazine capacity: | 5 rounds                                                                 |

### ARWEN ACE

The Royal Ordnance ARWEN ACE is a single-shot, top-break barrel launcher created in an effort to sell to law enforcement buyers who couldn't afford the higher price of the ARWEN 37. The gun fires standard 37mm cartridges, including those created for the ARWEN 37.

### BS-1

The Russian BS-1 is a "silent" grenade launcher assembly and as such is almost always mounted under a suppressed AKS-74U with a silencer. Generally this rifle with the launcher attached is designated the AKS-74UB. While one might debate the usefulness of a silenced grenade launcher, in fact this feature is useful in that it delays the discovery of the location of the shooter.

The BS-1 launches 30mm VOG-T HEAT cartridges that are loaded into the unit by pushing them into the muzzle. The rear half of the launcher has a magazine of blank cartridges that are hand-cycled for each shot. These blanks supply the power to launch

the grenade. The trick here is that the launcher has a piston that contains the gas from the cartridge, thereby muffling the sound. This piston travels forward very rapidly, thrusting the grenade out the muzzle with a minimum of sound.

The tradeoff for the silence is a relatively short effective range of only 100 meters.

---

### BS-1 Specifications

|                 |             |
|-----------------|-------------|
| Overall length: | 12.5 inches |
| Weight:         | 3.4 pounds  |
| Capacity:       | 1 round     |

### EXCALIBUR MK11

The Excalibur Mk11 employs a five-round revolver action that can fire 37mm or 38mm rimmed ammunition. The launcher sports a manual safety catch and is marketed by Daystate.

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### Excalibur Mk11 Specifications

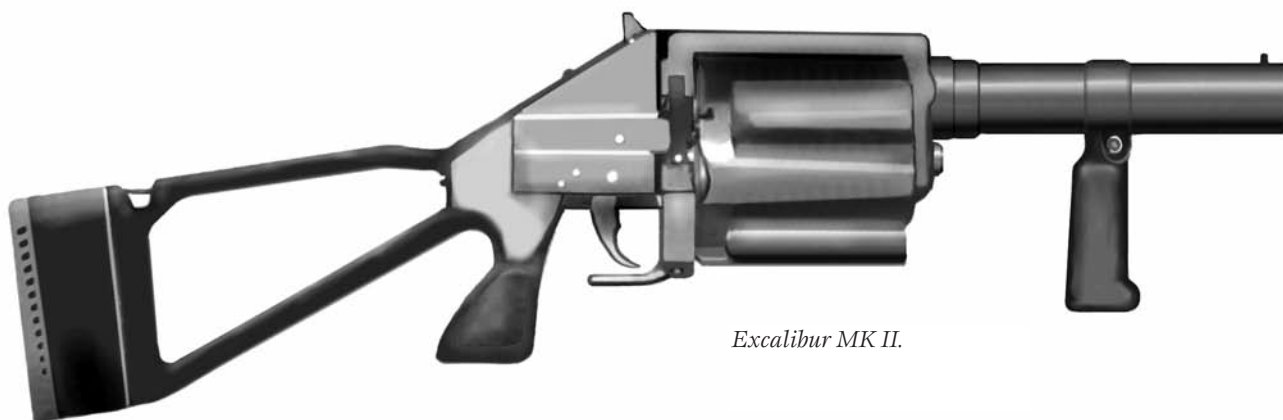
|                 |              |
|-----------------|--------------|
| Overall length: | 29.75 inches |
| Weight:         | 9.5 pounds   |
| Capacity:       | 5 rounds     |

### FÁBRICA MILITAR GRENADE LAUNCHERS

Fábrica Militar in Rosario, Argentina, markets a 38.1mm tear-gas grenade launcher. The weapon has a fixed stock and a carrying handle (somewhat like that of the AR-15) and a FN-FAL-style pistol grip (not surprising since this plant makes FN-FAL rifles). The barrel assembly locks



*AKS-74U rifle with BS-1 grenade launcher.*



*Excalibur MK II.*

up in a manner similar to that of the M79.

The Argentine plant has also produced a new grenade launcher that uses the standard 40mmx46mm SR cartridge. This new launcher is based on the older 38.1mm tear-gas grenade launcher's mechanism. Prototypes of this weapon were created with the FN-FAL PARA stock (with the stock tubes reversed to allow the shooter to gain the inclination needed for lobbing grenades over their useful range). The trigger assembly of both guns is of a double-action design that cocks itself when the trigger is pulled.

Currently, each of these guns is offered in the standard stocked configuration. However, it is conceivable that an under-the-barrel rifle mount could be developed to create a launcher attachment similar to that of the U.S. M203 and the H&K M79.

## FN GRENADE LAUNCHER

The FN grenade launcher currently under development uses the standard U.S. 40x46mm SR round. It is designed to mount under the barrel of the FN CAL or on a stock assembly for use as a weapon in itself.

## GM-93

The Russian KBP Instrument Design Bureau has created the GM-93, a pump-action grenade launcher that boasts rapid-fire capability. The GM-93 fires 43mm grenades that include HE, shaped charge, fragmentation, flash/bang, tear gas, rubber bullet, and fuel-air explosive (FAE). This latter round is a rather amazing step

forward in technology that offers greater explosive power than normally seen in a cartridge this size; it may well be copied by other manufacturers.

FAEs achieve their power by dispersing an explosive vapor in the air, releasing this charge with a small initial explosion. Once in the air, the gas is ignited. The additional power of these explosions is possible because the warheads don't carry any oxidant, instead employing the oxygen in the air for this purpose (and thereby permitting a larger amount of explosive gas or dust to be packed into the warhead).

### GM-93 Specifications

|                 |                                       |
|-----------------|---------------------------------------|
| Overall length: | 29 inches<br>(21 inches stock folded) |
| Weight:         | 10.5 pounds                           |
| Capacity:       | 4 rounds                              |

## GP-25

The GP-25 is a 40mm grenade launcher assembly that mounts below the barrel of an AK-47, AKM, AK-74, or similar rifles as well as the newer VSK-94. The GP-25 was developed for the Russian Army and currently in use by army units as well as the SPETSNAZ special forces.

The GP-25 has a built-in aiming sight with two trajectory scales; the one in white lettering is for direct-fire aiming and the one in red is for a mortar-style aiming (the latter being more suitable for use against enemies in foxholes or behind barriers). The unit also sports a rudimentary grip. As with most grenade



*GP-25 grenade launcher mounted on AKM rifle.*

launchers, the ability to estimate distances is key to obtaining accuracy at greater ranges.

Rounds are pushed into the muzzle to load the launcher, doing away with the need to break the barrel open (as with the M203); this action also cocks the weapon. This system permits very rapid firing with a single shooter being able to achieve getting a shot off every 6 seconds.

Two cartridges are available for the GP-25: the VOG-25 fragmentation grenade and the VOG-25P, whose warhead bounds into the air before exploding for added coverage and greater wounding potential. Both warheads have self-destruct mechanisms that activate 14 seconds after the round is launched. If rounds are not fired, a mechanism on the GP-25 permits removing a cartridge from the muzzle of the launcher. The GP-25 is effective from 50 to 400 meters and has a casualty radius of 6 meters.

#### **GP-25 Specifications**

|                 |             |
|-----------------|-------------|
| Overall length: | 12.5 inches |
| Weight:         | 3.3 pounds  |
| Capacity:       | 1 round     |

### **GP-30**

The GP-30 is the improved version of the GP-25.

### **GP-95**

The KBP Instrument Design Bureau's GP-95 is similar to the GP-25 in concept, but is reduced further in size to create a compact grenade launcher suitable for use on submachine guns as well as rifles. This 40mm grenade launcher attachment was first fielded in 1998 and has seen use in Chechnya and elsewhere in the hands of Russian troops. It has also been sold on the international arms market.

#### **GP-95 Specifications**

|                 |            |
|-----------------|------------|
| Overall length: | 11 inches  |
| Weight:         | 3.3 pounds |
| Capacity:       | 1 round    |

## **HECKLER & KOCH**



*GP-95 grenade launcher mounted on AKSU rifle.*

## HK69/HK79

This 40x46mm SR grenade launcher was developed in the 1970s for use mounted under the H&K G3 rifle (in .308 Winchester/7.62mm NATO) and the HK33 rifle (in .223 Remington/5.56mm NATO). Unfortunately, this unit was rather awkward to use because it mounted well forward under the foregrip of the two rifles.

A pivoting sight is mounted on the left side of the HK69's receiver, and the safety is located just above the pistol grip on the side of the receiver.

The HK69 was modified and a stock added to allow it to be used as a separate grenade launcher; this launcher was designated the HK69A1, which later became modified slightly to become the MZP1; it was used by the Federal German Armed Forces.

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### Heckler & Koch HK69 Specifications

|                 |            |
|-----------------|------------|
| Overall length: | 14 inches  |
| Weight:         | 3.5 pounds |

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### Heckler & Koch HK69A1 Specifications

|                 |                                                                      |
|-----------------|----------------------------------------------------------------------|
| Overall length: | 16.9 inches<br>(stock retracted),<br>25.6 inches<br>(stock extended) |
| Barrel length:  | 14 inches                                                            |
| Weight:         | 4 pounds                                                             |

## HECKLER & KOCH HK79

The rifle-mounted grenade launcher, the HK79, can be mounted on a variety of weapons and is most often seen on the G41 (5.56mm NATO) rifle as well as the older G3 rifle. When these rifles have the HK79 mounted on them, they are known as the G41-TGS or G3-TGS.

The HK79 is chambered for the standard 40x46mm SR round but, because the barrel is hinged on the front of the unit, rotates open so that cartridges of any length can be chambered into it. This allows a number of special rounds to be used in the launcher in addition to the standard ammunition.

A small rod hanging down from the rear of the

unit appears at first glance to be the trigger for the launcher; this is actually the cocking handle (on some prototypes, this was a double lever extending to the left and right). Just ahead of this is a cross-bolt safety; the safety may be left off or on when loading or cocking the weapon. A red section is exposed on the safety when it is in its "fire" position and a white ring denotes a safe condition.

The trigger for the weapon is a rocker lever located on the left side of the foregrip. This allows a grenade to be fired when the rifle is being carried in the normal manner without changing the position of either hand. The barrel release is located on the rear, underside of the launcher. When pulled back, the barrel will open up under its own weight to extract a fired shell and allow a new shell to be chambered.

The sight for the grenade launcher clamps onto the sight base mount (for the H&K, scope mount claws) located just ahead of the standard G3 or G41 rifle's rear sight. Whether the grenade sight is in the up or down position, the rifle sight can still be used.

The grenade sight folds upright when in use and is of a "ladder" style. The ladder sight has 50-, 100-, 150-, and 200-meter aiming points that are used in conjunction with the rifle's front sight. For 300- and 350-meter range shots, the shooter uses the rifle's front sight and flash hider to aim the launcher; this simple expedient keeps the ladder sight short so that it is less unwieldy to carry and use.

---

### Heckler & Koch HK79 Specifications

|                                |             |
|--------------------------------|-------------|
| Overall length                 |             |
| (including rifle—fixed stock): | 39.1 inches |
| HK79 Weight:                   | 3.3 pounds  |
| Weight on rifle:               | 12 pounds   |

## HECKLER & KOCH HK69A1/MZP1

The MZP1 was developed from a modification of the HK69A1, which, in turn, was developed from the HK69 rifle-mounted grenade launcher.

The MZP1 has a rail-type rear sight for quick use at under 100-meter ranges and a folding ladder sight for greater inclination to fire on targets from 150 to 350 meters. The weapon has a collapsible



*Heckler & Koch MZP1.*

stock that can be twisted to lock into one of two positions. The grenade launcher can be fired with the stock retracted. An external hammer is used to cock the weapon and an ambidextrous safety is located above the trigger. Like most other grenade launchers, the MZP1 is single-shot with a break-open breech; the breech release lever is located just ahead of the external trigger.

#### **Heckler & Koch MZP1 Specifications**

|                 |                                                                      |
|-----------------|----------------------------------------------------------------------|
| Overall length: | 18.2 inches<br>(stock retracted),<br>26.9 inches<br>(stock extended) |
| Barrel length:  | 14 inches                                                            |
| Weight:         | 5.7 pounds                                                           |

### **HILTON MPRG 83**

The MPRG 83 (Multi-Purpose Riot Gun 1983) was developed by Hatton Gun Company in Derby, England. The single-shot weapon has a number of

accessories that allow the weapon to be used in a number of different ways. The six barrels and barrel inserts allow the gun to be used as a flare pistol (with the short 37mm barrel) or grenade launcher (with the long 37mm barrel and shoulder stock), and use 26mm riot-control cartridges (with a 26mm insert into the 37mm barrel), 12-gauge shotgun shells (with 12-gauge barrel liner), .223 Remington rifle cartridges (with .223 barrel insert), or 40x46mm SR cartridges (with the 40mm barrel and stock in place).

The action has a break-open style common to most single-shot grenade launchers. The weapon uses a cross-bolt safety and has a rear ladder-style aperture sight that flips up for use; the front sight is a simple bead. There is also a low-power scope mount on the weapon for use with 12-gauge slugs or the .223 Remington. The barrels for the weapon are made of steel while the body of the grenade launcher is aluminum. The removable tubular stock is fitted with a heavy rubber recoil pad.

While the Hilton MPRG 83 is somewhat “outdated” since it is a single-shot weapon, the fact



*Hilton MPRG 83.*

that it is so versatile coupled with its low price tag will undoubtedly make it popular with police units that only occasionally need such a weapon and would appreciate the wide variety of tasks it can carry out.

### **Hilton MPRG 83 Specifications**

|                 |                                                                                                                            |
|-----------------|----------------------------------------------------------------------------------------------------------------------------|
| Overall length: | 11 to 32.5 inches<br>(according to barrel and stock assembly used)                                                         |
| Weight:         | 3.5 pounds (with short<br>37mm barrel and 25mm<br>insert) to 6 pounds (with<br>37mm barrel, stock, and<br>12-gauge insert) |

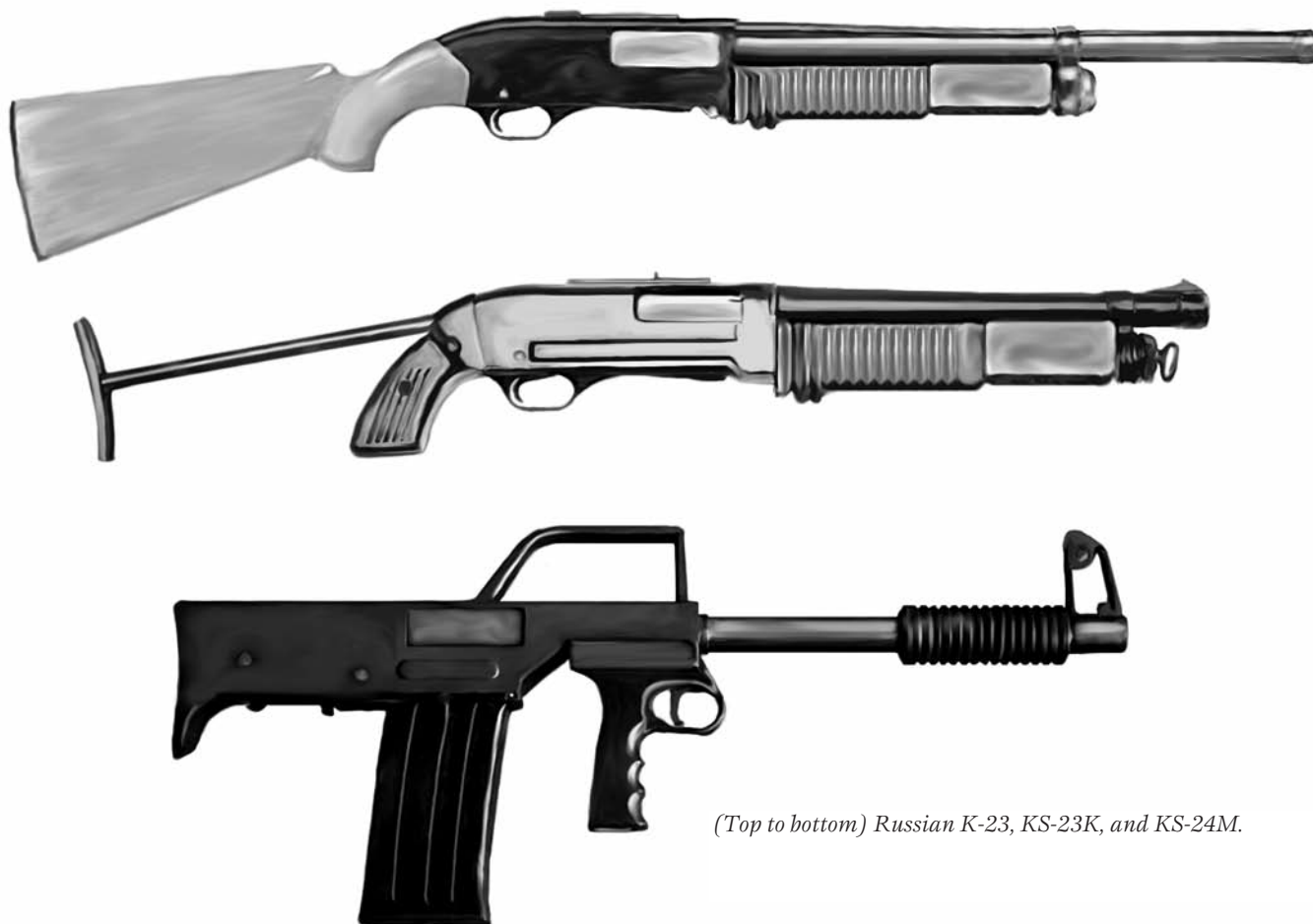
### **KS-23 DROZD**

The Russian KS-23 was developed in a joint project by the NIISpetstekhniki MVD and TsNIITochmash in 1981, with the expressed

purpose of providing a method for police and military users to deliver crowd-control agents during riots or similar circumstances. The KS-23 was put into service in 1985.

A casual inspection shows that this grenade launcher is actually a scaled-up pump shotgun in the humongous 4 gauge, making it capable of firing a 23mm cartridge. If this isn't large enough to deliver a grenade to the target, an adapter is also available to fire rifle grenades and the like. The Nasadka-6 adapter permits firing special 36mm projectiles with a range of 200 meters, while the Nasadka-12 allows firing huge 82mm warheads out to 120 meters. Each of these projectors has a built-in sight to permit aiming the mortar-like devices. A special blank cartridge is employed to launch projectiles from these units.

The KS-23 has a three-round magazine under its barrel. Its designers gave the gun a lot to store under that magazine, creating a wide variety of ammunition for the KS-23, including rubber



*(Top to bottom) Russian K-23, KS-23K, and KS-24M.*

bullets, steel AP rounds, several tear-gas cartridges, a variety of shot cartridges, and a noise cartridge.

There have been a number of spin-offs from the original KS-23 design. The KS-23m Thrush is an improved model of the KS-23; the Toz-y2e Drake is a shotgun created around the basic KS-23 design; the KS-2eK has a seven-round detachable box magazine; KS-23M is a short bullpup version with a metal stock and pistol grip.

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#### KS-23 Drozd Specifications

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|                    |             |
|--------------------|-------------|
| Overall length:    | 40.9 inches |
| Barrel length:     | 20 inches   |
| Weight:            | 8.5 pounds  |
| Magazine capacity: | 3 rounds    |

### L67A1

The L67A1 is a 38mm single-shot riot gun used by the British Army and British security forces. The weapon looks like a revolver with a huge barrel and tubular stock tacked on. The L67A1 is an antique for all practical purposes and is slow to reload and hard to aim with any sort of accuracy. This weapon is better left for weapons collectors rather than deployed for combat or riot control.

### LPO-97

At the time of this writing little is known about this new 43mm grenade launcher from Russia. It is said to fire a thermobaric warhead capable of penetrating barriers that would

normally stop an explosive charge of the type employed by conventional grenade launchers.

### M79

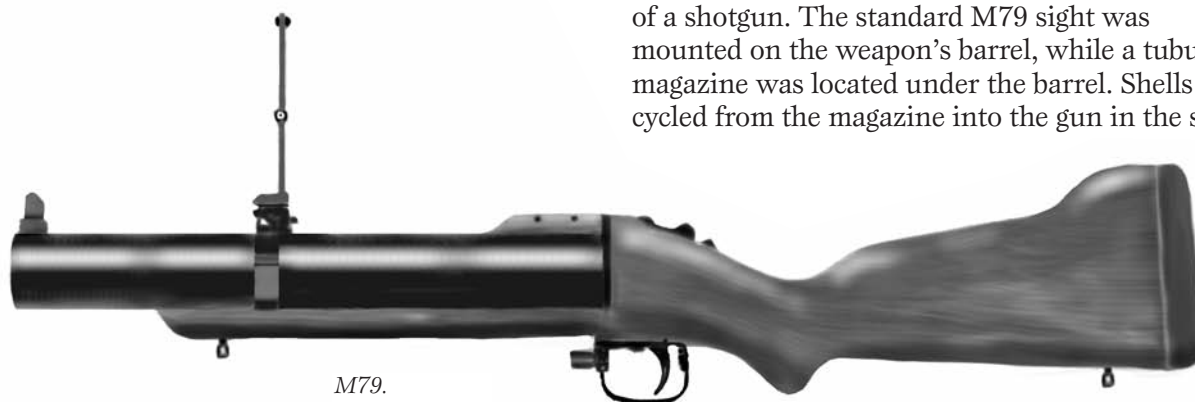
The M79 was the first of the post-World War II developed grenade launchers. The weapon is quite similar to a break-open single-barrel shotgun. The round itself is the U.S. 40x46mm SR cartridge, which has a double wall allowing it to be fired with low chamber pressure while creating inner pressures capable of delivering a large payload over great distances with relatively accurate fire within 350 to 400 yards.

The M79 was the outcome of the U.S. military's NIBLICK Program (which takes its name from the number 9 golf iron). The goal of the program was to create a weapon to fill the gap between the hand grenade and the mortar on the battlefield.

The first M79s were produced by Action Industries in Philadelphia during the early 1960s. While the weapon worked well, its single-shot capacity meant committing a man to the weapon; in many situations, the carrier of the M79 was unable to fight in close-combat situations due to the distance it took the shell to arm itself (about 30 yards). In effect, the squad was short a man when it needed him most.

To alleviate this problem, a shotgun-shell adapter was created at the Frankford Arsenal (U.S. military arsenal) as was a 40mm buckshot round and possibly a flechette load. None of these proved particularly effective, however, because the weapon was still slow to reload—something of prime importance in close combat.

A multishot experimental version of the M79 was created in an effort to up the firepower of the weapon. The gun had a stock similar to that of the M79, but the upper lines conformed more to those of a shotgun. The standard M79 sight was mounted on the weapon's barrel, while a tubular magazine was located under the barrel. Shells were cycled from the magazine into the gun in the same



M79.

manner as is used with a pump-action shotgun. The weapon was fielded for experimental use in Vietnam but proved to be too heavy.

While some M79 carriers were issued .45 pistols in an effort to get around the problem of a lack of repeat firepower, the best solution to the problem was created in the field by soldiers who cut off the stock of the M79 and wired the abbreviated weapon under the barrel of an M16 rifle.

Soon, the idea spread back to designers in the States who were already interested in creating such a weapon. Among the various versions of below-the-barrel M16 mounts (including multishot versions) was the Colt XM148, which in turn led to the development and adoption of the M203 and the retirement of the M79.

The rear sight of the M79 is rather bulky because it has to be used to practically lob shells to their targets at extreme ranges where the trajectory becomes rainbow-like. This high sight is apt to be damaged during combat and is also a bit slow to bring into play. Consequently the user is often forced to “guesstimate” the range—with less than accurate results. This made the weapon less effective, since the kill radius of the early ammunition was only about 3 meters.

The M79 is a good, if greatly limited, weapon. New grenade launchers, especially those mounted on assault rifles, seem to be a more satisfactory choice.

---

### M79 Specifications

|                 |            |
|-----------------|------------|
| Overall length: | 29 inches  |
| Barrel length:  | 14 inches  |
| Weight:         | 6.5 pounds |

## M79 IMPROVED

In 1995 South Africa began to upgrade its inventory of M79 grenade launchers, as well as offering the improved models to other nations with a kit designed to revamp old guns to the new configuration. In fact the improvements are mostly cosmetic, consisting of replacing the wooden stock with the folding stock and grip originally designed for the South African R-4 version of the Galil rifle. Interestingly, in order to accommodate the steeper trajectory of the 40mm grenade, the stock is placed upside down on the grenade launcher. A plastic foregrip is also added in the upgrade.

One improvement in this conversion is the replacement of the M79 leaf sight by the OEG (occluded eye gunsight) developed in South Africa. This makes for more rapid target acquisition, though one might argue that ranging is most likely considerably less accurate than with the old leaf sight assembly. Another plus of the upgrade is that surfaces of the gun are coated with a self-lubricating, anticorrosion coating.

---

### M79 Improved Specifications

|                 |            |
|-----------------|------------|
| Overall length: | 29 inches  |
| Barrel length:  | 14 inches  |
| Weight:         | 6.2 pounds |

## M203

After the M79 grenade launchers started being fielded in Vietnam, U.S. troops were soon making modifications to it in the field. One such



*M79 Improved.*

modification consisted of cutting off most of the M79's stock and then wiring its barrel to the underside of an AR-15 (M16) rifle barrel. The resulting contraption gave the soldier the capability to deliver rifle fire or grenades on enemy positions—a least until the M79 shot itself loose from its moorings. The accuracy of the M79 was marginal at best because there was no practical sighting system. But the perceived need for such a weapon was noted by military designers who followed the lead of the soldiers in the field.

The results were seen in mid-1963, when the U.S. military requested a 40mm grenade launcher that could be attached to the AR-15. Colt Firearms, which had been manufacturing the M16 rifle, agreed to tackle the task.

Designer Rob Roy devised the first grenade launcher at Colt; it consisted of a very simple mechanism based on a sliding sleeve that went around the launch breech. This system was rejected by the military, but eventually led to the CGL-4 (Colt's Grenade Launcher 4) created by Rob Roy and Karl R. Lewis around the original design, modified with a spring-powered striker at its rear that was released with a small button on its underside.

The U.S. Army was interested in creating its own launcher, so this design was dismissed while engineers at the Springfield Armory worked toward adapting an SPIW prototype to the AR-15. The end result was an AR-15 mated to AAI's DBCATA (Disposable Barrel and Cartridge Area Target Ammunition). The DBCATA was an innovative concept and used only the base and mechanism of a launcher on the AR-15 while each cartridge held not only a grenade but its own disposable barrel. This kept the weight on the rifle low and made it very quick to reload a new cartridge/barrel to the launcher after the previous one had been fired.

The catch to the system was that it didn't fire the standard 40mm grenade but rather a brand new DBCATA cartridge created by AAI. And since the 40mm grenade was already being fielded for the M79, the prospects of introducing yet another type of ammunition to the battlefield—already a hodgepodge with multiple types of cartridges for each chambering of gun being used, including the .45

ACP, the .223 Remington/5.56mm, the 7.62 NATO, the .50 BMG, 40mm grenades, with a smattering of .38 Special, .30 carbine, 9mm Luger, 12-gauge, and other odds and ends thrown in by the weapons carried by security personnel, special forces, and CIA agents. The idea of introducing yet another round was a logistics nightmare for military planners.

So finally, rather than introduce a new round into the procurement process, the decision was made to drop the DBCATA despite the apparent success of the design. In 1965, the army signed a contract with Colt to further develop its CGL-4 which the army designated the XM148 Grenade Launcher.

The new XM148 launcher looked promising. While the M79 weighed 6.45 pounds loaded, an AR-15 with the launcher attached tipped the scales at a tad under 10 pounds while giving the soldier carrying it the firepower of the rifle coupled with the capabilities of the launcher.

But the XM148 was a somewhat fragile system from the start and was plagued with parts breakage during tests. Colt worked at overcoming these problems and by 1966 had a more durable system that both the air force and army were now interested in. The army made an initial purchase of 10,500 of the launchers and later increased its order to 19,236.

Production of the launchers immediately ran into problems because the company making the barrel forgings was tied up with other military contracts. These problems were finally resolved, however, and the first of the XM148s were headed toward Vietnam at the end of 1966.

In the field, the concept of the combination rifle/launcher was well liked and often proved highly effective. But the XM148 itself was still having problems with parts breakage, and an error made in calibrating the sights during manufacture had doomed the launcher to be less accurate than it should have been. Additionally, cocking the weapon required 20 to 30 pounds of force, and the trigger was easily damaged if disassembled incorrectly during fieldstripping.

The 27,400 XM148s already purchased by the military were soon slated for disposal because they were becoming too unreliable. However, the concept of the launcher had proven valuable and, after again rejecting the DBCATA (along with



*Various renditions of the M203 grenade launcher, including an early model, later and current model, Knight USSOCOM version, and stand-alone launcher.*

AAI's proposal to convert the M79 to use the DBCATA ammunition), the U.S. military announced that it needed a new grenade launcher that could be attached to the AR-15 rifle. This project became known as GLAD (Grenade Launcher and Ammunition Development).

Three companies won contracts to work on GLAD: AAI, Aerojet General, and Philco-Ford's Aeronutronics Division. The initial tests of the prototypes the companies would develop were scheduled for mid-1968. Colt's engineers also went back to the drawing board in an attempt to devise a new design of their own; the end result of their work was the CGL-5, but during initial army tests this version was dismissed.

Not that all the other GLAD candidates were much better. Aerojet General created a monstrosity that worked with delayed blowback inertia. The endeavor resulted in what one onlooker called "the poorest thing imaginable." It's doubtful that anyone attending the tests argued with his statement.

The Aeronutronics Division's candidate was a better design with a pivot action that was also less unwieldy. But it proved to be second best to the simple and reliable slide-action system AAI had developed for its GLAD candidate. The AAI model won the tests hands down and was designated the XM203 grenade launcher.

By the end of 1968 the testing of the XM203 had been successful and after a few design changes (and the rejection of an adapter that could be used to turn the launcher into a single-shot system similar to that of the M79), the XM203 became the M203. Somewhat ironically, AAI wasn't set up to handle the volume of manufacturing required to supply the military's needs, so Colt won the final contract, purchasing the manufacturing rights from AAI.

Over the next two decades, Colt manufactured nearly a half-million M203s for the U.S. military as well as foreign markets; in addition to being mounted on the standard military AR-15, the launchers could be accommodated on many of the Commandos. On the submachine gun, the launchers were often seen with special handguards or even with just the top half of the carbine's handguard left in place to protect its gas tube from damage. This created a very potent but small weapons system

that in many ways was capable of delivering the firepower that the SPIW experimenters had been trying without success to create using flechettes and multishot grenade launcher assemblies.

In the mid-1980s, J.C. Manufacturing introduced a modified version of the M203 that the company called the M203 PI (Product Improved). One of the key selling points of the launcher was a universal mounting system adapting it to all NATO rifles as well as many Kalashnikov rifles and AR-15 variants. The mounting system also permitted swift removal of the launcher from the rifle and/or the replacement of it, allowing a rifleman to quickly modify his rifle or exchange the unit from one firearm to another.

The M203 PI has a longer breech opening so that longer cartridges can be chambered allowing a wide range of special-purpose ammunition to be created for the weapon in the near future. (This also creates a potential problem, since the more powerful 40x53mm SR developed for automatic grenade launchers can be chambered in the M203 PI; firing such a cartridge in a hand-held weapon would be disastrous to both the shooter and the launcher.)

J.C. Manufacturing also made 12-gauge, 37mm, and 38mm versions of the M203 PI to capture police and military markets worldwide. The 12-gauge shotgun cartridge and 37mm tear-gas cartridge have become standards in North and South American law enforcement communities, while European police agencies use the 38mm cartridge. The company also created devices that could be mounted on the rifle's carrying assembly when the M203 PI was removed, including a laser aiming device, a flashlight, and a special compact shotgun.

Whether on a Commando or the more common AR-15 rifle, it seems likely that the M203 will remain in service for some time. While work continues to be done in an effort to develop a multi-shot launcher and a more compact grenade cartridge, the creation of a handy multishot launcher seems likely to be an impossibility given today's technology.

The M203 has proven itself to be very reliable and has become one of the mainstays in the U.S. military. It is especially popular with the infantry because of the wide array of ammunition



*M203 PI launcher on folding-stock assembly.*

available for it because it fires the same rounds as the M79. Like the M79, its maximum range is 400 yards with a 30-yard arming range for explosive rounds.

### **M203 Specifications**

---

|                 |           |
|-----------------|-----------|
| Overall length: | 15 inches |
| Barrel length:  | 12 inches |
| Weight:         | 3 pounds  |

### **M203 PI (Product Improved) Specifications**

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|                 |           |
|-----------------|-----------|
| Overall length: | 15 inches |
| Barrel length:  | 12 inches |
| Weight:         | 3 pounds  |

### **M203-IMP**

The M203-IMP is marketed by Firequest International and is very similar in appearance to the M203, with a slightly different trigger system that includes a large cocking knob. As such it is marketed as a low-cost alternative to the M203 (with an eye toward civilian or police sales rather than military). Mounted on its own stock/pistol assembly, the grenade launcher is marketed as the M-79 LF, while on an AR-15 it is the M203-IMP. Both 40mm and 37mm versions of the M203-IMP are offered by Firequest; both will handle a variety of cartridges, including 7 1/2-inch smoke grenades. (Firequest also offers 37mm reload kits for those wanting to fire on the cheap.)

### **MANVILLE GUN**

Charles J. Manville founded his business in 1929 on a line of tear-gas pens and pistols in .38, .410, and 20-gauge and 12-gauge chamberings (this was before the National Firearms Act of 1938, which declared such weapons illegal to own

without paying a special tax). As the Great Depression worsened, sales of the small tear-gas weapons increased.

Police agencies were starting to use tear gas in single-shot launchers, and Manville became interested in cutting into this market. With this in mind, he started work in 1931 to create a five-shot 12-gauge pistol designed to fire tear-gas cartridges. His pistol was perfected in 1934 and worked well, but testing seemed to prove that five 12-gauge tear-gas cartridges would not create a cloud of gas dense enough to be of much use for riot control. Consequently, Manville started work on a more massive weapon capable of laying down the amount of riot agent needed.

In 1935 Manville's new weapon was finished. It was a monstrosity that fired 24 12-gauge cartridges from a large, spring-driven revolver. The weapon had no stock but sported a pistol foregrip not unlike that of the Thompson submachine gun. The prototype was made of aluminum with steel inserts in the cylinder chambers and a steel barrel with a cylinder bore.

The gun was loaded by releasing two knurled screws on the top of the barrel, which allowed the two halves of the gun to be separated so that spent cases could be removed from the exposed cylinder chambers and new rounds inserted. After this was done, the two sections were put back together and the two finger screws tightened back down. Next, the drum was wound backward until it tightened so that it would be ready to rotate the shells into position when the gun was used.

The spring powered the rotation of the cylinder as well as cocking the weapon, therefore the gun had a light trigger pull. The safety was located at the rear of the gun just above the backstop of the pistol grip. (Strangely enough, each chamber had its own firing pin in this first version.)

Manville got several investors interested in his gun, and in 1935 Manville's new company, the Manville Manufacturing Corporation, started business in Indianapolis. A few months later the company moved to Pontiac, Michigan, where it manufactured both Manville's 24-round shotgun as well as his 12-gauge five-round tear-gas revolvers. Although sales of the guns weren't outstanding, the weapons were endorsed by both the Indiana National Guard and the Terre Haute Police Department after both groups had

occasion to disperse rioters using the Manville pistols and guns.

Although the 24-cartridge Manville gun could fire standard shotgun shells as well as gas cartridges, there was not much of a market for a stockless shotgun that weighed more than 16 pounds loaded and that looked like something from a Buck Rogers comic strip. And the 12-gauge tear-gas shells still didn't do much of a job even when 24 of them were involved.

So Manville went back to the drawing board and created a 4-gauge (25mm) version of the gun to fit the new 25mm tear gas cartridges that were becoming popular during the 1930s.

The 25mm gun was completed in 1936 and was nearly identical to the 12-gauge version except that it had a simplified mechanism and the chambers were now exposed steel tubes rather than inserts in an aluminum disk. The new gun could fire 18 of the 24mm shells. Manville also marketed .38 Special, blank, and 12-gauge adapters that could be inserted into the chambers of the 24mm gun (the velocity obtained from 12-gauge ammunition fired in these was quite low because the working 12-gauge barreled area was only a few inches).

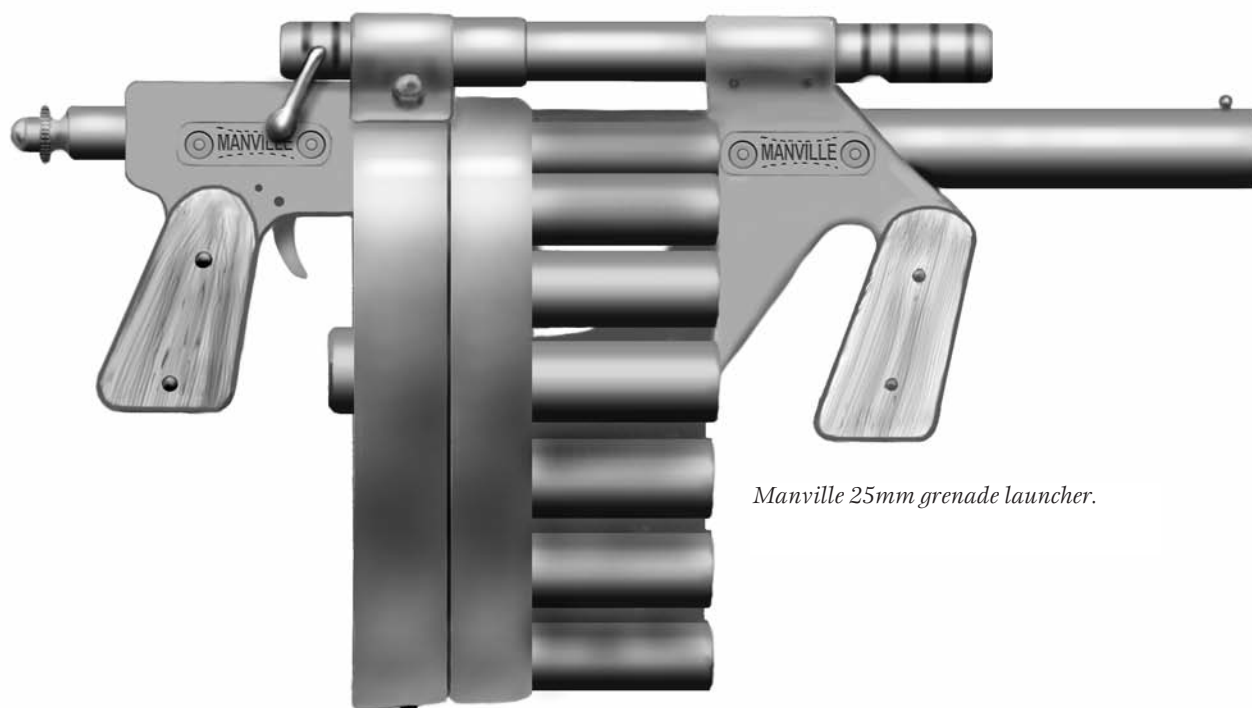
The tear-gas projectiles of the time simply fired a cloud of irritant dust out of the muzzle of

the weapon. While this was effective at close ranges, it wasn't great for dealing with members of a bottle-throwing crowd, since they practically had to be on top of an officer before his weapon could take effect. Too, in a high wind, the cloud of irritant could just as easily engulf the policemen using the guns.

Like most revolver-action guns, the Manville weapons also had a slight gap between the cylinder and the barrel. Small amounts of powder often burned holes in the shooter's unprotected skin, and tear-gas dust often coated the shooter's body and gradually overcame him if he fired a number of shots.

Because of these problems, Manville developed a new projectile shell for his guns that sent the tear-gas load downrange where it was released by a small explosive charge of black powder. Manville's idea has become the standard for most tear gas grenades, and only rarely is the muzzle-dispersed method of releasing tear gas used.

In 1936, Manville demonstrated his weapons at the National Rifle Matches of Camp Perry, Ohio, where large numbers of potential buyers in both the military and law enforcement communities were present. Although a number of other manufacturers were slated to also show off



*Manville 25mm grenade launcher.*

their tear-gas guns, only the Manville group appeared when inclement weather caused the others to decide that things could go awry with the tear-gas shells as well as their weapons. The Manville weapons and Manville's new tear-gas cartridges worked extremely well despite the poor weather. The guns especially captured the fancy of Col. Julian S. Hatcher, who was very well known at the time as a firearms writer; his endorsement of the gun and ammunition for both the National Guard and law enforcement agencies did much to help the sales of the Manville guns.

In 1937 and 1938, Manville reworked his gun so that the barrel was less apt to shoot loose (a problem discovered with heavily used earlier demonstration models). This change was carried out by creating a pivot rod running down the top of the weapon around which the front barrel and cylinders were rotated to reload the launcher: the two halves were locked or released by a bolt that could be rotated from the right rear side of the pivot rod. Additionally, the foregrip was made more comfortable by reshaping it, and various cosmetic features and a high-polish finish were added to make the new model readily distinguishable from older models.

While Manville was perfecting this version of his gun other manufacturers of tear-gas launchers were perfecting aiming systems for their single-shot weapons. Thus, while other guns couldn't lay down the barrage that the Manvilles could, the others were capable of much greater accuracy. That, coupled with the lighter weight of the single-shot guns and their ability to use the new larger 37mm shells (with bigger payloads) really hurt the sales of the Manville guns.

Rather than create an aiming system for his gun or make a single-shot 37mm gun, Manville decided to create a large, 12-shot version of his gun chambered for 37mm shells. This created a far-from-portable weapon that was similar to a small machine gun or mortar.

The new Manville 37mm gun had the basic mechanism of the other guns and held 12 shells but the unit was "upside down" so that the barrel was below the cylinder rather than above it as in the hand-held guns. The gun was fired in a manner similar to that of a mortar. The prototype weapons still did have any aiming system.

Needless to say, sales of the new weapon to law enforcement agencies were nonexistent since the gun required two men to move it and it couldn't be aimed with any precision.

Turning toward another market, in 1939 Manville tried to sell the weapon to the military because war appeared to be brewing in Europe. But the military was not doing anything to prepare for war and seemed to be even less interested in a weapon as heavy as mortars or machine guns—but without their range, precision of fire, or destructive abilities. While Manville managed to produce a new family of 37mm shells (including HE, tear-gas, smoke, and illumination rounds), no one was interested in purchasing his gun.

As the war finally engulfed the United States, the Manville Company secured contracts to make naval antiaircraft guns and so the business survived. But the little interest there had been in the Manville guns waned so much that there was no reason to warrant their manufacture again.

In 1943 Manville ordered the destruction of all his notes, plans, factory parts, and dies for the Manville guns along with the prototype weapons at the factory in Pontiac. From that time on, his company made no more guns but rather continued to fill navy contracts for gun parts and—following the war—built dishwashers.

In the late 1970s, the movie *The Dogs of War* employed a Manville 25mm gun as its XM-18, firing devastating HE rounds with explosive warheads that would be impossible to make in real life. Interest in this little-known weapon was renewed, and the privately owned Frankfort Arsenal tried to cash in on this. It built working versions using the mechanism of the second version of the Manville 25mm gun but chambered for 37mm (a version that might have saved Manville's company had he made it). The "new" gun was designated the MM-1 by Frankfort.

While technically the MM-1 is not a destructive device (since it uses 37mm shells), the BATF ruled it so. Because the MM-1 had already been declared a destructive device, Frankfort Arsenal made 12-gauge shotgun shell adapters for the weapon because using such adapters in the short-barreled gun makes little difference from a legal standpoint.

Frankfort Arsenal also apparently produced a

few 40mm versions of the gun and is said to have worked on some flechette rounds for both the 40mm and 37mm guns.

Like the Manville guns before it, the sales of the MM-1 appear to have been small if not nonexistent. The weapon is too “open” for use on the battlefield where dirt would quickly fill exposed chambers to create disastrous barrel obstructions. And the gun (still without sights) is too inaccurate for most police work. The Manville gun is, for all practical purposes, a weapon without a purpose.

#### **Manville Gun (12 Gauge) Specifications**

|                    |              |
|--------------------|--------------|
| Overall length:    | 20.25 inches |
| Barrel length:     | 11.1 inches  |
| Weight:            | 15.25 pounds |
| Magazine capacity: | 24 rounds    |

#### **Manville Gun (25mm—1st model) Specifications**

|                    |              |
|--------------------|--------------|
| Overall length:    | 20.38 inches |
| Barrel length:     | 9.75 inches  |
| Weight:            | 15.25 pounds |
| Magazine capacity: | 18 rounds    |

#### **Manville Gun (25mm—2nd model) Specifications**

|                    |             |
|--------------------|-------------|
| Overall length:    | 20 inches   |
| Barrel length:     | 9.5 inches  |
| Weight:            | 15.6 pounds |
| Magazine capacity: | 18 rounds   |

#### **Manville Gun (37mm) Specifications**

|                                 |            |
|---------------------------------|------------|
| Overall length (without mount): | 24 inches  |
| Barrel length:                  | 9.5 inches |
| Weight:                         | 40 pounds  |
| Magazine capacity:              | 12 rounds  |

#### **Frankfort Arsenal MM-1 (37mm) Specifications**

|                    |             |
|--------------------|-------------|
| Overall length:    | 21.5 inches |
| Barrel length:     | 10 inches   |
| Weight:            | 16 pounds   |
| Magazine capacity: | 12 rounds   |

### **MILKOR MGL**

Arm Scor (Armaments Corporation of South Africa) developed the MGL (Multi-shot Grenade Launcher) for use by the South African Defense Force; currently this gun is being marketed by Milkor. The weapon replaces the M79, which was used by the South Africans as an infantry weapon.

The MGL is chambered for the 40x46mm SR and holds six rounds in its rotary magazine. The MGL is equipped with a three-position folding stock: straight out for normal shooting, elevated for long-range shots, or folded over the receiver for storage. The two halves of the gun are hinged so that the weapon can be rotated open for easy unloading/loading of the weapon. Before firing, the rotary chambers are “wound up” on their spring so that they will rotate under the spring pressure. (Although this system is slower to load,



it allows the shells to be indexed with the barrel without excessive trigger pull.) When a shell is fired, a gas-operated piston releases the cylinder so that it rotates to its next position.

The MGL is normally issued with the South African-made Armson OEG. Use of the sight does away with the need for the long and often fragile rear sight found on most grenade launchers. A graduated scale on the sight mount allows the sight to be set for ranges from 50 to 375 meters. The ambidextrous safety is located over the pistol grip. The trigger has a two-stage, double-action feel to it.

The MGL is a good weapon but is extremely heavy: 15 pounds when fully loaded. It is probable that it will continue to be used for some time in South Africa, but whether or not the heavy weapon with its spring-wound cylinder (which looks like it could be rather sensitive to dirt) will be adopted anywhere else remains to be seen.

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### Milkor MGL Specifications

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|                    |                                                                   |
|--------------------|-------------------------------------------------------------------|
| Overall length:    | 31.8 inches<br>(stock extended),<br>22.6 inches<br>(stock folded) |
| Barrel length:     | 12.2 inches                                                       |
| Weight:            | 11.7 pounds                                                       |
| Magazine capacity: | 6 rounds                                                          |

### MILKOR 40mm GRENADE LAUNCHER/STOPPER

These two South African grenade launchers are virtually identical except that the Stopper model (generally marketed by Milkor) has been designed to employ 37mm and 38mm grenades designed for law enforcement use. Both guns are seen with and without a forward vertical grip.

Both models are conventional, single-shot,



*Milkor Stopper.*

break-open weapons with double-action triggers and are quite similar overall to the German HK-69 grenade launcher. Some versions have iron sights but often an OEG, developed in South Africa, will be seen on this weapon.

### **Milkor 40mm Grenade Launcher/Stopper Specifications**

|                 |                                                                  |
|-----------------|------------------------------------------------------------------|
| Overall length: | 27 inches<br>(stock extended),<br>19 inches<br>(stock retracted) |
| Barrel length:  | 15.2 inches                                                      |
| Weight:         | 8 pounds                                                         |

### **MK40**

The South African MK40 is a grenade launcher designed to fit on the Kalashnikov or other similar rifles, though a stock assembly is also available for use as a stand-alone launcher. While not seen in use very often, South African as well as Israeli military units apparently have used these on occasion. The guns accept standard 40mm ammunition. The weight of the MK40 is 4.8 pounds or, with its stock attachment, 7 pounds.

### **MKEK GL40**

The Turkish MKEK GL40 is a copy of the M203 with one notable modification: the under-barrel trigger assembly is missing, replaced by a firing lever on the left side of the launcher (with this trigger painted red to avoid confusing it with the barrel release latch). It seems likely that this arrangement makes for faster loading and firing of grenades, albeit with some loss of safety due to

the exposure of the firing device on the side of the gun—especially dangerous should the gun be dropped with a loaded launcher. The MKEK GL40 is usually seen mounted on the G3 or OPT-556 Turkish rifles, though it could easily be fitted to Heckler & Koch rifles and spin-offs. With modifications this launcher could be employed on a variety of other firearms as well.

### **MKEK GL40 Specifications**

|                 |           |
|-----------------|-----------|
| Overall length: | 15 inches |
| Barrel length:  | 12 inches |
| Weight:         | 3 pounds  |

### **NORINCO QBZ**

The Chinese corporation Norinco has created a variety of firearms through the years with its recent QBZ (Qing Buqiang Zu or “light family of rifles”) being one of the latest to roll off the company’s production lines. This bullpup rifle is striking from the outside due to its beautiful lines and use of polymer; however, inside it is a conventional modern rifle with a right ejection port that dictates right-handed holds only for the shooter to avoid being struck by ejected brass. The chambering for the rifle is generally the Chinese 5.8x44mm or the slightly improved 5.8x42, which is ballistically quite like the 5.56mm NATO cartridge and other rounds that have become the norm for armies around the world. Additionally some export QBZ rifles are chambered for the 5.56mm NATO.

In addition to a standard rifle and carbine, there is a scope-equipped sniper rifle and a SAW version of the gun. Additionally the rifle can accept a 40mm grenade-launching attachment



*South African MK 40.*



*Norinco QBZ.*



*French PAPOP.*

created for the QBZ. Interestingly, this attachment is actually modeled after the U.S. M203 grenade-launching assembly (indeed, the M203 is said to fit the QBZ rifle without modifications to either weapon).

## PAPOP

During the early 2000s, the French government funded research for a smart grenade launcher/rifle system, with the majority of the design work being carried out by several smaller companies and the two big European arms producers—Giat Industries and FN. The research has come to be known as the PAPOP (an acronym for *polyarme polyprojectiles*, roughly “many arms, many projectiles”).

The French system has both a 5.56mm rifle and grenade-launching submodules firing a 35mm grenade. Based on computer studies, the French believe that this is the smallest sized projectile that will produce casualties on the battlefield. The grenade launcher itself has a three-round tubular magazine.

To deal with the recoil of the grenade launcher, the PAPOP has incorporated a buffer and shock-absorbing design coupled with three optional trigger positions that permit the shooter to brace the weapon to minimize its recoil effects. To increase the likelihood of enemy casualties, the weapon also permits grenades to be programmed to explode from one of two fuses, one throwing fragments forward and the other dispersing them laterally. This selection is made

electronically with the data and arming taking place as the projectile leaves the weapon's barrel.

The video system and other sensors of the PAPOP have been placed far forward to permit greater ease in peering around corners or from behind cover, with the image transferred to the shooter's eye via a helmet monocular.

Current designs of the PAPOP are heavy (somewhere around 15 pounds loaded, though this is expected to be less of a problem as the electronic components become more miniaturized), and the gun is also very expensive to produce.

## OICW

The U.S. OICW is a rifle/grenade launcher system developed as part of the JSSAMP and Land Warrior programs started in the mid-1990s. The system employs a short-barreled 5.56mm rifle below a 20mm grenade launcher fed by a multishot box magazine, both coupled to a high-tech aiming system that also permits the user to see around corners and see in the infrared regions to better acquire targets. This site also boasts a laser rangefinder and a battle sight for very rapid aiming. The sight system is coupled to the "smart" grenades launched from the weapon, arming them so they will explode.

The key component of the 20mm grenade part of the OICW was to be an HE charge that would propel a blast wave and projectiles to

create casualties. Fragments were to be capable of penetrating body armor and standard-issue helmets at close range. The OICW is capable of engaging targets out to 1,000 meters with grenades, and at much shorter ranges with the short-barreled carbine (based on the German G36 rifle) assembly that is integrated into the weapon.

A single trigger mechanism operates both systems thanks to an internal link between the trigger and both sections of the OICW, with a selector determining which will fire.

The OICW was originally slated to be fielded in 2005, possibly as a replacement for the M16 rifle, M4 carbine, and M203 grenade launcher. But now this date has been pushed back to 2009 with only four OICWs slated to be issued to each nine-man squad; it seems likely that this timetable may not be met if funding falls behind at any point during its continued development, or cost-cutting measures dictate using the M16/M4 guns and M203 grenade launchers currently in the U.S. inventory.



*OICW ammunition: grenade (top) and 5.56mm NATO cartridge.*



*U.S. OICW.*

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### OICW Specifications

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|                                    |                 |
|------------------------------------|-----------------|
| Overall length:                    | 33 inches       |
| Barrel length of rifle:            | 10 inches       |
| Barrel length of grenade launcher: | 18 inches       |
| Magazine, rifle:                   | 20 or 30 rounds |
| Magazine, grenade launcher:        | 6 rounds        |
| Weight:                            | 12 pounds       |

### RAMO RT 37

The RT 37 is a single-shot 37mm grenade launcher designed for police and other users. The gun is available with fixed or folding stock, Picatinny rail, and integral pressure pad laser for aiming. This launcher can also be converted to 40mm use with an optional barrel.

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### Ramo RT 37 Specifications

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|                 |                                                                   |
|-----------------|-------------------------------------------------------------------|
| Overall length: | 29.5 inches<br>(stock extended),<br>17.5 inches<br>(stock folded) |
| Barrel length:  | 12 inches                                                         |
| Weight:         | 6.5 pounds                                                        |

### RH-ALAN RGB1

The Croatian-manufactured RH-ALAN RGB1 is a copy of the South African MK 40 launcher, apparently made under contract with South Africa. This weapon was introduced in 1995 and is apparently designed for use on a variety of rifles, suggesting that there may be efforts to export this weapon to foreign buyers.

### RH-ALAN RGB6

The Croatian RH-ALAN RGB6 was first fielded in 1996. The gun is a copy of the South African Armscor MGL launcher, manufactured under contract. The weapons are commonly issued in the Croatian military but are seldom seen outside that nation.



*Ramo RT 37.*



*Croatian RH-ALAN RGB6.*

# CHAPTER 10

## *Shotguns as Weapon “Add-Ons” and Combination Guns*

 On occasion, chopped shotguns are mounted to rifles or carbines much as the M203 grenade launcher assembly is attached to an AR-15 rifle. While such an assembly is heavy, it does give the shooter the ability to fire special-purpose ammunition designed for a shotgun as well as actual shotgun shells—as well as making it possible for him to quickly switch to firing longer range rifle ammunition should the need arise. The person using such a system could lay down a barrage of tear gas, knock the hinges off the door with a shotgun shell loaded with lead “dust,” or fire rubber bullets at a crowd, and *then* switch to firing the more potent .223 slugs from his rifle should that become necessary. This is all with just one weapon that is in his hands at all times and ready to make the switch from one capability to the other in just a few short moments.

Most (if not all) such guns consist of a slide-action Remington 870 or Mossberg 500 mounted under an AR-15 rifle or carbine. The slide action shotgun can function with a variety of special-purpose ammunition, and the AR-15, with its easily removed lower handguard half, makes mounting the shotgun under its barrel a relatively easy task.

That said, a variety of other similar configurations are possible if not overly practical. One might, for example, mount a chopped slide action under a semiauto. This would again give the shooter the capability to easily switch from firing special-purpose ammunition in the pump action to standard shotgun ammunition in the semiauto by simply changing from one trigger to the other.

Or the chopped pump gun could be mounted under a submachine gun or the like. The combinations are mainly limited by the imagination.

Likewise, a semiauto shotgun might be chopped and placed under a rifle or carbine. However, here the trade-off is not as favorable, since most semiautos will have problems functioning with a variety of ammunition, especially with a shorter barrel.



*There are many exotic possibilities that might be fielded in the way of shotgun-grenade launcher or shotgun-shotgun combinations.*

Perhaps the most bizarre of these combinations is seen on occasion in the form of two Remington 1100s combined side by side, with the left-hand version of the 1100 on the left and the standard version on the right (to permit empties to be spewed from either side of the pair). While heavy enough to be more a crew-served weapon than a hand-held system, this combination can really spit out the lead in a hurry and has certainly been entertaining to watch during public shooting displays, albeit not overly useful in the field of battle as far as this author knows.

Interestingly these combination guns have led to the development of one out-of-the-box combination weapon—the Crossfire—having a .223 rifle assembly and a 12-gauge shotgun assembly mounted in one receiver (more on this weapon in a moment). It may be that more of these double-barreled guns will be fielded in the future, though this remains to be seen. In the meantime, many shooters are creating the same capabilities by simply bolting a shotgun on one or another firearm.

## C-MORE LSS

C-More has also fielded a shotgun system, the LSS (Lightweight Shotgun System), that rides

under an AR-15 barrel. This unit has a two-round detachable magazine (with a five-round magazine on the drawing table) and accommodates both standard as well as 3-inch shotgun shells.

## CROSSFIRE

The Crossfire is a pump-action firearm with twin barrels and receivers that permit firing either a .223 cartridge or 12-gauge shell from the same firearm, with a single trigger controlling both systems (a three-position selector on the left of the receiver choosing between safe, or whether a .223 or 12-gauge cartridge will be fired with a pull of the trigger). The .223 assembly takes standard AR-15 magazines (with a five-round magazine coming with the firearm); the shotgun half of the gun feeds from a four-round, rubber-coated box magazine that forms the comb of the stock. The firearm was apparently designed by Crossfire engineers and later refined and simplified by Saco Defense (which also currently manufacturing the firearm).

The firearm has a composite stock that also forms the pistol grip, trigger guard, and magazine well. The pump handle carries an accessory rail that



*Crossfire rifle-shotgun combination weapon.*

permits mounting a flashlight, laser sight, or other gear. The shotgun assembly operates on the top of the gun with the rifle section operating below it. Each assembly has its own bolt and bolt carrier, which cycle inside the receiver independently from each other. The .223 barrel has a 1-in-9 twist for optimal bullet stabilization and barrel wear.

Among the options are Meprolight Titanium adjustable night sights, choke tubes, and a Picatinny scope mount. Currently guns come with a black oxide finish (a camo finish, MK-1RT, was slated to be available, but at the time of this writing has proved to be unreliable due to the changes in tolerances it creates with some parts). To have all these features available in one compact package could only add up to one thing: Crossfire, the ultimate 21st-century firearm.

Mechanically, the forward motion of the pump action cocks and locks both the shotgun and the rifle assemblies. This translates into a rather heavy action at the outermost portion of the charging cycle. For this reason, most users will probably opt to use the “forward assist

handle” that locks into the pump. This makes cocking the gun much easier and gives better control of the weapon as well.

The mechanical linkage of the trigger creates a rather heavy action. While many shooters have become used to such triggers (dictated by the potential for accidental-shooting lawsuits that can result from light trigger pulls), such triggers are not conducive to anything approaching precision shooting. However, for a combat gun that will most likely be employed with the adrenaline pumping, this is probably not much of a consideration (and might even be viewed as a safety feature).

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#### Crossfire Specifications

---

|                    |                                           |
|--------------------|-------------------------------------------|
| Overall length:    | 38 inches                                 |
| Barrel lengths:    | 18 inches (shotgun),<br>16 inches (rifle) |
| Weight:            | 8.6 pounds                                |
| Magazine capacity: | 4-round (shotgun),<br>5-round (rifle)     |

## JONATHAN ARTHUR CIENER MODIFICATION

Jonathan Arthur Ciener was one of the first gunsmiths—possibly *the* first—to offer Remington 1100 and 870 shotguns in configurations that could be mounted under the barrel of an AR-15 rifle. This system has since been copied by many, including the makers of the Masterkey system covered below.

The modifications to the 870 were pretty straightforward. With the 1100, the recoil spring is placed around the magazine tube so that it pushes against the gas piston, a trick that might also be employed to put a folding stock on this (or the 1187).

Once the barrel was shortened and the stock removed from the shotgun, a mounting system was added so that the shotgun assembly locked onto the bayonet lug of the AR-15; adding an extended pivot screw to the AR-15 to mate with a fastener at the rear of the shotgun's receiver made it possible to lock the shotgun in place—or quickly remove it from the AR-15.

Currently, Jonathan Arthur Ciener does this work on a custom basis; he is also authorized to cut the barrel down to less than 18 inches for those wishing to pay the extra \$200 tax for such work.

### LSS

The LSS (Lightweight Shotgun System) was developed at the U.S. Picatinny Arsenal in New Jersey in conjunction with Colt Manufacturing Company. The system consists of an under-barrel 12-gauge shotgun in two sizes, one with a 21.5-

inch barrel that mounts under an M16 rifle and the other with a 16.25-inch barrel for mounting on an M4 carbine.

Either version fires a 12-gauge cartridge and feeds from a two-, three-, or five-round box magazine. A straight-pull bolt on the left of the gun extracts and loads cartridges. The gun employs the host rifle's sights for aiming.

The LSS was tested at Fort Benning, Georgia, late in 1999 where it proved to be a useful tool that seems ideally suited to some special operations, diplomatic security, and law enforcement needs.

One big plus of the LSS is that the assembly can be quickly detached from the rifle and carried in a backpack, thereby making the rifle it was attached to considerably less burdensome. The LSS can be fitted with a shoulder stock so that it can be employed as a conventional shotgun.

### MASTERKEY

The U.S. military apparently has fielded limited numbers of shotgun assemblies mounted on AR-15 rifles. These have become known as the Masterkey and consist of a Remington Model 870 pump shotgun with its barrel cut back to 10 inches to match the length of the M4 carbine it is usually mounted on. It is believed this system was introduced in 1992; the capacity of the shotgun is only three rounds in the magazine plus one in the chamber. Its name suggests that its role is most likely for gaining access to a building through a locked doorway, the shotgun being employed to break locks or sever door hinges.



# CHAPTER 11

## *Customizing Combat Shotguns*

**I**deally, a combat shotgun would come out of the box with the various modifications needed, in the proper configuration for its owner to do his best in a combat situation. However, this is unfortunately not always the case. Sometimes it is necessary to modify a shotgun for optimal performance in combat.

That said, it is a good rule of thumb to avoid any accessories or modifications that aren't essential. Each change can bring new sets of problems that lower the dependability of a firearm; an undependable weapon with all the best combat modifications is generally second choice to a dependable one that may not be as refined.

Likewise, more than a few shotguns have been modified to become something akin to a Rube Goldberg device through the addition of unneeded accessories. Better too few than one too many accessories on any combat weapon. When in doubt, leave changes and accessories off a shotgun.

Too, exchanging parts can get expensive. Where a gun with, say, the pistol grip stock you want might cost \$10 more if you buy it in that configuration, buying such a stock to add to a gun already owned may tack another \$50 to \$80 on it. The cheaper route, in the long haul, is to simply buy the shotgun with the accessories you need right out of the box rather than try to modify it after you've purchased it.

Of course that's not always possible. Or you may change your mind, or you may just want a change to some product that came out *after* you obtained the gun you own. In such cases new accessories or modifications may make sense. But think long and hard before you spend your money, waste your time, and maybe transform your shotgun into something that is less dependable than it was before the changes were made.

Finally, you must take care not to create an illegal weapon in the process of making modifications to a shotgun. While some law enforcement and military agencies are exempt from the law, even then paperwork must be filled out *before* the work is done. Ditto for modifications to civilian-owned guns made possible with special

permits obtained from the federal government. Remember that Randy Weaver lost a son, a wife, and his reputation all because he shortened a shotgun to a quarter-inch below the legal limit without first obtaining proper paperwork. The same could happen to you if circumstances repeated themselves.

Running afoul of the law is especially easy when you consider the assault weapon ban. If you have a semiauto shotgun then you need to be especially wary of making changes to it: always err on the side of caution rather than trying to push the law to its limits.

This preamble out of the way, the laws as well as the superior functioning of the modern pump-action shotgun makes these guns the simplest and most easily modified. For this reason, if you want custom touches like extended magazine tubes or folding stocks, a pump gun makes a good base to hang your modifications on. Most such changes are easily bolted on without harming the reliability of the gun or running up a big gunsmithing bill.

And for law enforcement users, the pump action's short barrel makes it practical to bob it to extremely short lengths and replace the stock with a pistol grip to create a multishot "stake-out" gun that is little larger than the more limited double-barrel shotgun.

Now let's take a look at some useful modifications and accessories you *might* consider adding to a combat shotgun.

## MAGAZINE EXTENSION TUBE

A number of sporter shotguns are capable of being adapted to create ideal combat guns with just a few modifications. Probably the most crucial modification is to extend the magazine, since nearly all sporters hold only three or four shells in their magazines. One good source of such tubes for 12-gauge guns is the Choate Machine & Tool Company. Choate makes extensions for the Remington 870/1100/1187 in several lengths and the Winchester 1200 (and its variants); one big plus of these is that the extensions are available for longer barrels in addition to the standard 18- and 20-gauge barrel versions.

This means a shooter for whom a short weapon isn't essential can increase his

magazine capacity up to 10 rounds by choosing a longer tube and a shotgun with a long enough barrel to accommodate it. (For a time Choate Machine & Tool offered 20-gauge extensions for the 870 but these are no longer available in the current catalog.)

Choate extensions are available for barrels in 18-inch (seven-round total capacity), 20-inch (eight-round), 22-inch (nine-round), and 26-inch (10-round) lengths for all but the Winchester 1200, which comes only in the 10-shot/26-inch barrel configuration. The Choate kits cost from \$36 to \$42 depending on the length of tube needed.

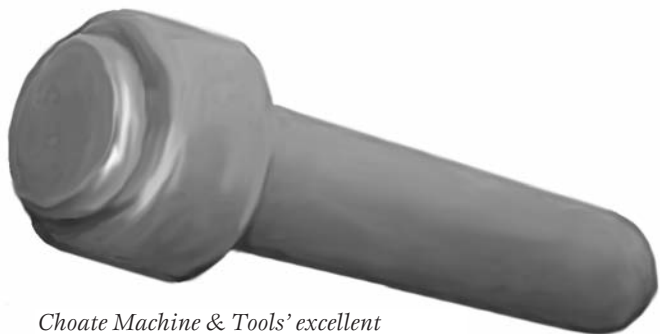
Advanced Technology also offers extension tubes similar to those of Choate, though limited to only the Remington 870/1100/1187 and Winchester and coming only in seven- and eight-round lengths. Cost is \$26 each.

TacStar has a similar line of chrome moly steel tubing magazines with seven-shot extensions for 18-inch barreled shotguns, eight-round mags for 20-inch barrels, and a 10-shot version for 26-inch barrels (the latter having a barrel/magazine clamp included with the kit). These are available for the Remington 870 and Winchester 1200/1300 guns. Cost is \$71 for the shorter tubes and \$85 for the 10-round version.

As mentioned earlier, some Remingtons now come from the factory with a dimple in the magazine tube that makes the magazine extension harder to install. However, with a bit of extra work, these protrusions can be ground off the tube and the extension added.

When purchasing an extension tube for a magazine, it's also wise to also buy the Choate High-Visibility Orange Shell Follower. The shell follower replaces the standard factory follower and will keep a shooter from trying to stick one too many rounds into the magazine and jamming the large magazine spring. The bright orange color of the follower also gives you a quick way to check the magazine visually and see when it's empty. These are available for Mossbergs, Remingtons, and Winchesters and are well worth their \$5 price tag.

Extended tubular magazines on a pump are easily bent. One way to prevent this is to place a brace between the barrel and extension tube. Choate carries a Sling Swivel Base Clamp Kit that accomplishes this task with two metal brackets



*Choate Machine & Tools' excellent  
High-Visibility Orange Shell Follower.*

connected by a screw/sling swivel. Even if you don't need a swivel, this bracket is essential to prevent damaging the magazine tube when moving about in combat. Cost is \$9 with a choice of sizes for either a 1-inch or 1 1/4-inch sling swivel.

## COMPENSATORS

Another modification worth considering with a combat shotgun is somewhat expensive but translates into a more controllable weapon that is faster to handle and gentler to shoot. This modification consists of adding a muzzle brake or having the barrel ported (ideally by Mag-na-port International) so that recoil is reduced. In addition to reducing the recoil of the weapon, this type of modification can aid in the speed of follow-up shots. Both are important in combat. If you are using a 12-gauge shotgun, porting will reduce the felt recoil to that of a 20 gauge. The only downside is that any of these modifications are a job for a gunsmith; however, like most gunsmith work, the addition of a recoil compensator is money well spent.

One well-known muzzle compensator developed in early 1900s was the Cutts compensator (so named because of its inventor, U.S. Marine Col. Richard Malcolm Cutts). This system consists of open cuts in the top of a muzzle cover on the barrel of a weapon; while it appears to have been initially developed to keep an automatic barrel from climbing, a pleasant side-effect came about in the reduction of recoil as well. The Cutts compensator proved too noisy for rifles but was adopted by the U.S. military on early versions of the Thompson submachine gun. During this same post-World War I period, the

Cutts compensator was also used on commercial shotguns. Recoil reduction is said to have been on the order of 15 to 30 percent.

Lyman Products Corporation was the last manufacturer to make a Cutts compensator for 12- and 20-gauge shotguns. This was available in an adjustable version as well as fixed versions with interchangeable choke tubes (spreader, improved cylinder, modified, full, superfull, and magnum full). Cost of the adjustable, steel version was around \$90, while the tube version cost about \$70 with each choke tube costing \$19. Unfortunately, these have since been discontinued. Lyman also made a slightly different choke system that can be mounted on shotguns; these were available in both adjustable and fixed-choke versions.

Another early compensator used on shotguns was the Weaver choke. In addition to changing the choke of the barrel, it also acted as a compensator because of the series of cuts along it. Recoil reduction with these is in the order of 8 to 13 percent.

The Marble Arms Corporation's poly-choke was also available for 12-, 16-, 20-, and 28-gauge shotguns. The ventilated model reduces recoil by around 20 percent as well as allowing the shooter to "dial up" various chokes for the barrel.

One system that is still available for recoil reduction consists of "porting" barrels, so-called because the compensation holes are shaped like ports on a ship. The Pro-port produced by Mag-na-port International employs an electrical discharge system to cut very precise ports into the barrel of a shotgun along its forward end. This series of trapezoidal openings vent gas upward and back from the barrel during firing, thereby reducing muzzle flip (for faster target acquisition if a second shot is needed) as well as reducing recoil.

Some compensators, especially older units that are part of an adjustable choke system, have sharp edges in them. These sharp edges may cut off bits of plastic shot cups as rounds are fired in the gun. These slices of plastic cups can then build up in the shotgun muzzle area and create a dangerous situation. Therefore, if you decide to purchase a compensator, be sure to inspect it carefully from time to time to be sure it isn't shearing off plastic and depositing it inside the barrel.

## SIGHTS

Most shotgunners do fine with the bead sight. This permits using the barrel or barrel rib coupled with the bead to quickly bring the gun onto target. For those using a shotgun in various sports or for hunting, the bead sight is usually first choice.

Hunters used to employing a rifle may prefer the barrels Mossberg offers with rifle-style sights. These are also generally better if a shooter plans on employing the gun for long-range shooting and/or slug shooting.

For combat, a slightly better alternative to the bead and rifle sights is a modification of the standard peep sight known as the ghost ring sight. This is simply a peep sight with an extra-large aperture. The ghost ring gives a better view of the target area and may be a bit faster, but the trade-off is slightly less precision in sighting. If you want speed with your shotguns, then the ghost ring rear sight is hard to beat.

Mossberg offers its ghost ring rear peep sight on most of its models. With protective ears and a heavy blade front sight, this combination is quick to bring on target and ideal for those used to rifles having this type of sight combination. Several other companies as well as those offering customized Remington shotguns have also made various forms of the ghost ring sight available. For many this is an excellent choice in sighting systems because (with practice) it comes onto the target very quickly, it is rugged, and unlike dot sights requires no batteries or fumbling with an off/on switch.

Mossberg also markets a fiber-optic sighting system on its shotgun barrels. This system places a thin, colored fiber inside the front and rear sights. According to company literature, within the sight assemblies an extremely thin, colored fiber gathers, concentrates, and projects available light to an exposed fiber-end. When the front sight's bright green fiber aligns with the rear sight's two red fiber-ends, the result is incredibly fast, on-line target acquisition. Many shooters find it a great improvement over standard iron sights.

Night sights are also becoming popular among those carrying shotguns for self-defense. The best of these use a tritium insert in their front sight and—often—rear sight. Tritium gas is contained

in a tiny glass vial embedded in the sight—and under no circumstances should one of these vials be fooled with: breaking it will release the radioactive material into the air! (If this should happen, the area should be evacuated and the windows opened to allow the gas to escape.)

At one time, the glass vials were sold to gunsmiths who would then drill the tiny holes in sights and glue the inserts in place. Not only was this hard work, it often ended up in ruined sights and, on occasion, broken vials. Consequently, manufacturers now offer complete sights with the vials in place. These are as easy to place in rifles and shotguns as standard sights and quite safe, to boot.

One popular brand of these night sights is the Meprolight developed for use by the Israeli army and since offered to civilian and police shooters in the United States. The company markets a shotgun “bead” front sight with a 6/48 thread (mounting it is best done by a gunsmith). The price is \$35.

Wilson Combat offers the Trak-Lock ghost ring sight set that fits all 12- and 20-gauge Remington 870, 1100, and 1187 models. This sight set is machined from bar-stock steel and has a tritium insert in the front sight for nighttime use. The rear sight has elevation and windage adjustments (made with a single hex-head screw). Installation is fairly easy and it costs \$115.

## SCOPES

Because of the limited range of the shotgun, a scope giving magnification may seem uncalled for. But some types of scopes do make it possible for some shooters to acquire their target more quickly. Among the best of these are the newer “dot” scopes that create an apparent spot of light on the target. Among the best of the dot scopes are the Armson OEG (marketed by Trijicon, Inc.), and the various Aimpoint models. Currently, B-Square offers scope mounts that will accept the standard dovetail, Weaver-type 1-inch rings (or the Aimpoint scopes) for the Ithaca 37, Mossberg 500/590, Savage-Stevens 67, S&W 3000, the Remingtons, the Winchesters, and a number of other shotguns. The B-Square mounts cost \$50 to \$60 each and require no drilling or tapping on the shotgun; they are simple to mount

and most models can be removed quickly. For those with shotguns that don't have a mount available from B-Square, a quick trip to a gunsmith will yield a custom-made mount—usually at an affordable price. After the rails are cut to length the receiver is simply drilled and tapped to accept the rail.

Because of the short ranges at which shotgun combat must take place, an optical system for the shotgun needs no magnification. This is a definite asset that makes it possible to use the scope with both eyes open, thereby giving the shooter a wider field of view (though this may not be as noticeable during combat when many shooters experience “tunnel vision,” which limits their peripheral view). An optical aiming system that lends itself very well to a shotgunner's needs is what has become known as the “dot” scope, a system that creates a small red dot in the shooter's sight picture and has the added benefit of being capable of nighttime use.

Two distinct varieties of dot scopes are made. The easiest to maintain is the available light system; while some of these are useless in dim light, others use a radioactive tritium insert to give a green dot picture at night. The most successful of these is Armson's OEG, which is still available for as low as \$168 from some suppliers.

The OEG scope is only as bright as the light around it; firing from a hidden position that is dark toward one that is brightly lit creates problems for some shooters, since the aiming dot will be weak. Another consideration is that with the OEG both eyes *must* be kept open; shooters

who can see with only one eye or who have trouble with both eyes tracking will not have much luck with the OEG.

The tritium insert in the scope will eventually “run down” and have to be replaced, which is a job for the factory because handling the radioactive inserts can be hazardous. However, the inserts do remain usable for up to 10 years, so this a minor problem. The big plus is that the OEG doesn't need batteries and is tougher than electronic dot systems.

Electronic dot scopes use a small LED and optics to create a red aiming dot in the center of the scope's field of view. Since the shooter can see through the scope, it gives a better view of the target area and can be used by those who can see well through only one eye. The electronic dot scope takes hearing-aid or watch batteries and gives hundreds of hours of use before it runs out. Turning it off when not in use helps prolong the life of the battery. Shooters using an electronic dot scope in cold weather should invest in lithium batteries that will continue to function when the temperature dips.

The brightness of the dot can be adjusted from a very dim point for night use to a brilliant ball for daytime shooting. Most electronic dot scopes have polarizing filters available for very bright daytime sunlight (this requires the use of both eyes, since the view through the scope becomes limited).

Among the best “civilian” electronic-dot scopes are Action Arms' Ultra-Dot; Tasco's Pro-Point series (this company went out of business but left a huge inventory of scopes); and



*Aimpoint has a variety of scopes suitable for use on a combat shotgun, including this Model 5000.*

Aimpoint's various models (available in black or stainless finishes and several sizes). All three manufacturers either have mounts that accommodate Weaver mounting bases or take 1-inch scope rings (there are also scopes of larger diameter for the gaming market).

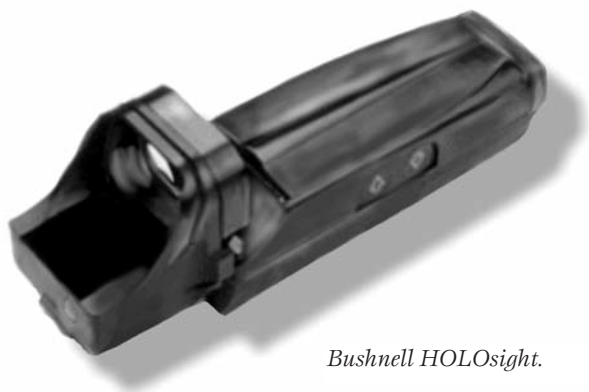
Currently the Aimpoint CompM has a slight lead on other dot scopes, at least in terms of good press and combat use. This has come about because the U.S. Army decided to buy from 80,000 to 100,000 of the Aimpoint scopes along with the company's mounts for the M16A2 rifle and M4A1 carbine. Needless to say, police SWAT teams and civilian shooters, who often take their cue from what the military buys, have been buying these scopes in droves for rifles and shotguns.

The C-More Railway is a reflexive sight (basically a dot scope without a tube) designed to attach to any Weaver or Picatinny rail, making it ideal for use with a shotgun. The sight has a tubeless, "heads-up" display powered by an LED (with interchangeable dots so that the user can change the dot size). The Railway is constructed of polymer with an aircraft alloy base that fastens to a rail with three clamps. The scope also boasts positive locking windage and elevation controls. Cost is \$249.

Bushnell has also introduced a reflexive sight dubbed the HOLOsight, which attaches to a standard Weaver rail to produce what appears to be an illuminated dot inside ringed crosshairs floating 50 yards in front of the gun. This has a slight advantage over a dot because if the shooter's eye is grossly misaligned with the sight, he is more apt to spot a corner or outer ring of the crosshairs than he would a lone dot in a similar sight. The HOLOsight runs on standard "N" batteries (available in most hardware and discount stores for a few dollars); battery life is about 30 hours, and the unit is designed to shut itself off after 8 hours. Cost of this sight is \$265.

## WEAPON-MOUNTED FLASHLIGHTS

Flashlights can be used as aiming devices when mounted on shotguns. These can be dangerous because they give away the position of the shotgunner; too, the flashlight must be tough to withstand the recoil of the shotgun. One of the



*Bushnell HOLOsight.*



*C-More Railway reflexive scope.*

first such lights was created by Choate Machine & Tool and Laser Aim (which marketed the device); it was called the “SWAT Light” and had a bright halogen-beam bulb. The aluminum light replaced the magazine cap and mounted below the barrel of Remingtons and Winchesters as well as similar shotguns. Of course the trade-off was the inability to use a magazine extension, perhaps the reason this accessory now appears to be out of production.

One excellent system currently available is the TacStar Weapons Light System 2000 (available from Pachmayr). This 1-inch tube flashlight features a xenon lamp powered by two 3-volt lithium batteries. This light delivers 6,000 candlepower of light and the nose cone can be adjusted from a spot to flood.

Mounting the flashlight to the magazine tube (or a scope) of a shotgun is simple, thanks to the adjustable clamp that comes with the Weapons Light System 2000; the pressure-sensitive switch connected to the light can then be placed on the shotgun’s grip or pump thanks to the expandable curly cord. The light is 4.5 inches long with a 1-inch body diameter and weighs 5.7 ounces. Cost is \$110.

Pachmayr also offers the WLS (Weapons Light System Compact) system, which is similar to its Weapons Light System 2000 but smaller and less expensive (but also not as bright). The

body is made of aircraft-grade aluminum and also has a remote end-cap pressure switch and a clamp mounting system.

SureFire makes replacement fore-ends for the Remington 870, Mossberg 500/590, and other shotguns. These pump grips have integral tactical lights with a pressure-sensitive pad for momentary light use. Cost is from \$200 to \$325 depending on the model and light power purchased. On some guns the SureFire will extend far enough back to cause a problem with the SideSaddle shell holder. For this reason it is wise to double-check clearances to be certain a conflict isn’t created.

## LASER SIGHTS

Lasers create a tight beam of red coherent light that appears as a bright red dot 100 yards or more away in dim light. Even though this beam is straight and a ballistic arc of a shotgun quite curved, the two are close enough that a laser mounted parallel to the bore will coincide within several inches to the impact of shot within 100 yards. This makes it practical to pinpoint targets using a properly aligned laser sight rather than with iron sights or a scope.

Until the 1990s the catch was that lasers were large and expensive. Both factors have changed, with prices and sizes rapidly shrinking so that it



*TacStar Weapons Light System 2000.*



*SureFire flashlight fore-end.*



*Lasers are now small enough to be mounted in a variety of spots. This one is mounted on the shotgun magazine tube, with a momentary switch connected to the pump grip.*

now is quite practical to buy and mount a laser on a shotgun.

The handicap to having a laser sight that was only useful in very dim light has also improved. Though sunlight will erase the beam's red dot, there are now a few laser sights available that create a beam that is closer to orange than red. That shift makes the beam much more visible than before. While such a sight still is iffy in bright sunlight, it works well in almost any other condition.

There are still drawbacks. Laser sights are ideal only for solo work. If you have two or more people with laser sights, it is easy to confuse whose "dancing dot" you're looking at. Additionally, laser sights are illegal for hunting in many areas. With combat use, the beam of a laser can be seen as a bright red light by anyone facing the muzzle of the firearm. That means it becomes a nifty target.

Additionally, fog, rain, or smoke creates a beacon-like effect leading an onlooker directly back to the shooter. All the same, for those operating within these limitations, the laser can be very useful, especially when operated with a momentary switch that is left on only long enough to acquire a target and fire.

Newer lasers can be mounted either on Weaver mounts, inside 1-inch scope rings, or on a barrel or tube magazine mounts. Generally it's best to purchase both the mount and laser from the manufacturer.

Laser sights have elevation and windage screws similar to those on scopes making zeroing simple. Since most laser sights for firearms have a pressure switch on the end of a cord for activation with the thumb or fingers, care must be taken to avoid snagging

the cord. A few have an off/on switch; however, this has the downside of putting the laser on for longer periods—not always good when facing a foe who may use your laser for his target.

The fast pace of technology makes print recommendations prone to becoming out of date in a hurry. For that reason, readers might be better served by a trip to a gun shop or an Internet search for laser sights. That said, several worth considering as this is written are the LaserLyte, BSA Laser, TacStar, and Aimstar, all available from major gun accessory businesses as well as most gun shops.

## RECOIL PADS

One very useful addition to a stock, thankfully found with most modern shotguns, is the recoil pad. A quality rubber recoil buttplate will actually soak up recoil, making a gun considerably more pleasant to fire and less apt to cause the shooter to develop such bad habits as flinching or leaning into shots.

Hard recoil pads last longer, but they generally won't help much in reducing recoil. Opting for the softer, less durable pad that has to be replaced after a few years of hard use is a much better option than buying one that outlasts the shooter and the next two owners of the firearm.

Currently, Brownells carries a number of Pachmayr recoil pads. The company also carries the Pachmayr slip-on recoil pad, which can easily be slipped onto a stock or removed just as readily, allowing a quick change in length of pull when switching from coat to shirt only, or donning/removing body armor.

## STOCKS AND GRIPS

Another modification to consider with a combat shotgun is in cutting deeper finger grooves into the pump grip or, in the case of other types of actions, the handguard (if the shotgun does not already have these in place). These allow the shooter to transfer more of the recoil impulse to his off hand and, in the case of the pump gun, to operate the weapon even in wet conditions or with gloves on. Getting a good grip is especially important with a pump gun, since a poor grip may mean not cycling the action as fast as needed.

The grooves can simply be cut into a grip or handguard with a rasp, taking care not to overdo things and go too deeply into the wood or plastic. If you cut the grooves yourself into a wooden handguard, then be sure to also touch up the exposed wood with stain so the wood is protected. Plastic tends to be “self-healing” with such work so that no finish other than perhaps a bit of sanding with a fine-grit sandpaper is needed to round out the work and make it look like a professional job.

Several manufacturers offer tough plastic stocks and foregrips for shotguns. These make a lot of sense on a combat shotgun because they greatly improve its ability to function in wet or humid conditions. The pistol-grip stock can also make a shotgun handle more easily and transfer some of the recoil to the hand; many users switch to a pistol-grip plastic stock for this reason. (Some also switch from the pistol-grip to standard stocks because the recoil hurts their hands. This seems a matter of preference, and the greater the recoil, the greater the difference in preference among many shooters.)

In addition to the plastic stocks offered by the various manufacturers for their guns, Choate Machine & Tool makes quality black Zytel stocks and foregrips for the Remington, Ithaca 37, Winchester, Mossberg, and others. With most of these shotguns several stock styles are available, including a fixed-stock pistol grip and a more conventional sporter-style stock; finishes include black and camo. Cost varies according to the model and style with prices running around \$70 to \$90 for a stock and around \$20 for a matching fore-end or pump grip.

Choate also manufactures two types of

folding stocks as well as a stockless pistol grip for shotguns. In general, the metal stock that folds over the top is a whole lot less comfortable to shoot from the shoulder than are plastic and wood-stock weapons; side-folding metal stocks with a plastic coating come in slightly better than the all-metal stocks in terms of comfort. However, the folding stock does decrease the storage size of the shotgun considerably and may, therefore, be of use to many shotgunners. Folding stocks also allow the user to carry the weapon as a whippet gun with the stock folded or as a full-length weapon for long-range use.

The Choate folding stocks are best for such dual use because they have very positive lockup in both the folded and extended position and have no wobble when locked open. (Some shooters add the folding stock to a long-barreled weapon with a correspondingly long extension magazine tube. This trade-off gives a greater magazine capacity while still allowing the gun to be stored in the space of a minimum-length barrel space.)

Choate's folding stock is similar to that offered by Remington on its police model 870 but is made of tubular steel rather than a stamping. This stock folds up over the barrel, where it locks into place. This stock is available for the Remington, Winchester, and Mossberg 500/600. (At one time these were also offered for the High Standard pump guns but they are no longer in the Choate catalog.) Plastic parts are available with a choice of camo or black finish; the price ranges from \$106 for the camo kit to \$97 for the generic black.

The side-folding stocks from Choate are made of 4140 steel with Fiberglas-filled plastic covering most of the metal, making the gun much more comfortable to fire. The black recoil pad on the Choate stocks is a little hard; those who want maximum recoil reduction may wish to purchase Absorber recoil pads from Brownells or elsewhere. Choate offers side-folding models for the Remington 870/1100/1187, Mossberg 500/590, Ithaca 37, Winchester, and other similar guns. Finishes include black or camo and costs range from \$105 to \$120.

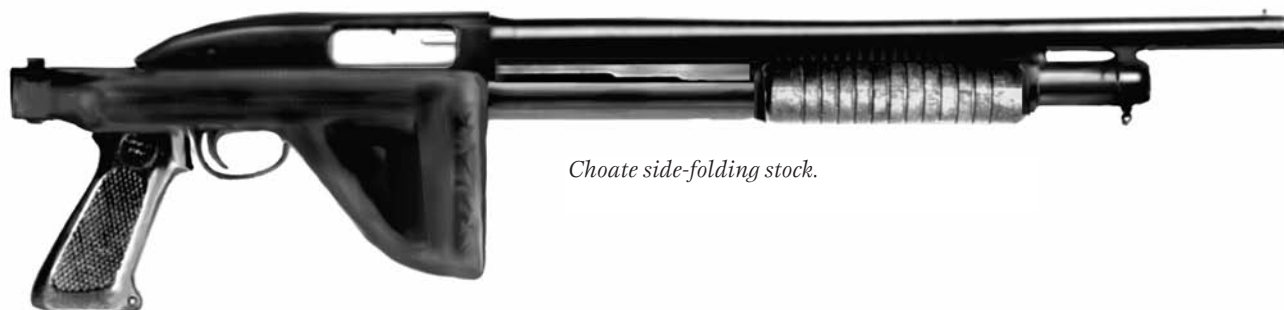
Advanced Technology offers a very similar side-folding design and fore-end but has a more rounded rear pistol grip with finger grooves. These kits come with a ribbed pump handle and are available for the Remington 870 and



*Choate folding stock.*



*For a time, Mossberg offered a folding stock for its shotguns. This accessory is no longer in the company's catalog.*



*Choate side-folding stock.*

Mossberg 500/590. Cost is \$60 each and all come with a black finish. A cheek rest is also offered for the stock; this can be a plus for some shooters using a scope on the shotgun (though many prefer a “heads-up” view without the cheek rest); unfortunately the folder fails to latch into its folded position when the cheek rest is installed,

making it less than perfect. It costs \$9. Finally, Advanced Technology offers a slip-on buttpad for the stock that adds 1 inch to the length of the unit; the cost is \$9.

Both the Choate as well as the Advanced Technology side-folding stocks *must* be used with one of the abbreviated foregrips that each company



*Advanced Technology offers a pistol grip stock (top) as well as a handy folder (shown here with the company's pistol grip pump handle).*



*Choate stockless grip and vertical grip pump handle.*



*TacStar tactical grips.*

adds to its kits; this is necessary for the weapon to be cycled with the stock folded (the top-folding stock works with the standard foregrip).

Choate also sells black, stockless pistol grips for \$20 each. Models included are the 870, Ithaca 37, Mossberg 500 and 600, and Winchesters. For pump guns, Choate also offers a pistol-grip pump

handle for \$37; these are especially useful with shotguns with extremely short barrels and/or without stocks since they help distribute recoil and keep the forehand from getting in front of the barrel during firing.

The TacStar tactical grips have a Thompson submachine gun look to them. The set can be



*Mossberg comb stock can be useful with scoped shotguns.*

purchased from several distributors for \$44 for the front/rear set or separately for \$22 for either the stockless pistol grip or the pump-handle pistol grip. Models are available for the Remington 870, Mossberg 500/590/600, and Winchester 1200/1300 shotguns.

Pachmayr offers the Vindicator grip for the Remingtons, Ithaca 37, and Mossberg 500/590. The Pachmayr grips have a more rubberized finish to them so that they reduce the harshness of recoil a bit. They cost \$65.

The Knoxx CompStock from Knoxx Industries has a spring-loaded cam inside its conventional-looking exterior. This system distributes the recoil impulse so that peak recoil is 54 percent less than would normally be the case. This makes shooting magnum loads in a shotgun considerably less of an “experience” and is a real boon for those who find they can’t tolerate recoil as much as they would like. The synthetic stock has a sleeve on its rear that moves upward slightly over the forward end of the stock during recoil. Two types of sleeve are available; one is soft and the other a harder, extra-strength plastic that puts up with more abuse.

Currently the Knoxx CompStock is available for the Remington 870, Mossberg 500/590, Mossberg 835, Maverick 88, and Winchester 1300. The price is \$100.

Knoxx also offers another recoil-reduction stock that at first glance looks like something that would do anything but. The COPstock Folder has a pistol grip with a heavy, wire folding stock. It looks like it would pound the shooter’s cheek and shoulder when unfolded, and put the recoil on the shooter’s hand and wrist when the stock is folded up over the receiver. In fact that isn’t the case, because inside the rubber-coated grip is a

heavy spring system that very effectively reduces felt recoil as well as muzzle flip. The COPstock Folder is available for the Remington 870, Mossberg 500/590, Mossberg 835, Maverick 88, and Winchester 1300. Cost is \$100.

For those mounting a scope of one sort or another on a Mossberg, the company’s comb stock can make for a better sight picture for some shooters. This stock fits most of the company’s shotguns.

## SHELL HOLDERS

Because the shotgun is slow to reload and the ammunition bulky, a number of systems have been created to hold shells at the ready. Possibly the oldest of these is the bandoleer, a belted system that looks spiffy in Hollywood movies but is often not ideal in real life due to the way shells slowly shift and—on occasion—fall out. Nor is the weight of shells hanging over the shoulder the most comfortable of conditions at the end of a long day. My advice is to avoid it.

A better solution is TacStar’s SideSaddle of cartridges that can be attached to the left of the shotgun’s receiver. This makes it handy to pluck shells from the holder and chuck them into the gun as needed. Since the shells are in ready view, it is also a handy way to keep specialty shells on hand should they be called for. (For example a fighter might keep buckshot in his gun for dealing with long-range encounters, but have smaller shot, tear-gas cartridges, or other rounds ready in the SideSaddle should he need them.) The best of these is offered by TacStar, which has trademarked the SideSaddle name. It makes SideSaddles for the Remington 870/1100/11-87 guns, the Mossberg 500/600, the Maverick 88, and the Winchester 1200/1300. Cost is \$52.

Mossberg's Speedfeed stocks are another solution to this problem. These also keep shells handy so that they can be readily retrieved and loaded into a gun. About the only shortcoming with this system is that you have to use the shells as they become available. If they are all the same, this isn't a problem; however, if you want to choose among several types of shells, say a slug over buckshot, then getting to the right cartridge could be a problem. For this reason the TacStar SideSaddle carrier or other systems that permit selecting individual shells are superior. (In the past Mossberg marketed these stocks for Remington shotguns as well as the Mossberg line, so one may on occasion see these available for either company's firearms.)

Choate Machine & Tools Shotgun Caddy is a plastic bracket that holds two shells. The units come with steel and plastic belt straps so they can be put on a belt. With a little effort they can be epoxied onto a firearm, screwed onto a stock, or placed in other positions and on other anchoring points to keep a pair of shells ready and waiting. Cost is \$5 for one unit that holds a pair of shells.

Choate also offers a Competition Shot Shell Holder Caddy that holds six 2.75-inch 12-gauge shells. The plus of this is that they are easily removed from the end of the holder so a shell can be chucked into a shotgun if needed. Even though the shell holder is designed for belt carry, it can also be mounted in a variety of other places for easy access to shells. Cost is \$18.15.

The TEC Loader SL-12 is a system that approaches spare ammunition from another angle. Sold by CIE Global for \$50, this system feeds four 2.75-inch shells at a time into a tubular shotgun magazine, making it possible to rapidly reload a gun without ever having to touch any shells. The SL-12 consists of two parts: a guide that attaches to the loading port of the shotgun and a tube holding four 12-gauge shells. When the shotgun needs to be reloaded, the mouth of the tube is placed in the guide and four shells can be quickly shoved into the magazine tube with one short stroke of a side-lever. It is quick and easy. Each kit comes with a pair of tubes as well as a black nylon pouch to carry the two "quivers" on a belt.

For 12-gauge Mossberg 500/590 users (with Remington 870 users slated to have this option, too, in the near future), Knoxx Industries offers

the Sidewinder system, which basically adds a drum or box magazine to these pump guns. This is done very easily by removing the shotgun barrel and fore-end, unscrewing and removing the magazine tube, and then replacing the tube with the Sidewinder assembly and fore-end. The barrel is then reinstalled. The changeover is now complete and a 10-round drum magazine or six-round box magazine can be inserted into the new loading chute; empty magazines are released by a button on the unit so an empty magazine can be replaced with a full one in just seconds.

The magazines accept both 2.75- and 3-inch shells, and spare magazines can be purchased to add to the kit (which comes with one drum magazine). Cost for the basic conversion kit and one drum magazine is \$190; additional drums cost \$90 each, while a six-round box magazine runs at \$50. The conversion kit also comes with an optional vertical foregrip called a "Kelly Grip," which users may—or may not—want to use.

The Mossberg version of the Sidewinder fits most versions of the 500 as well as the Maverick 88. For the Sidewinder to work in the Model 590 series, the barrel generally must be replaced with an 18.5-inch Model 500 barrel. These barrels can be purchased from Mossberg for around \$65.

Unlike the Mossberg version of this kit, the Remington Sidewinder system is slated to be a permanent conversion. That means Remington 870 owners who want this option on their shotgun will need to ship the gun to the Knoxx factory for it to be modified.

Regardless of the carrying system employed, the main consideration when carrying shells is to remember that they are very sensitive to moisture. Unlike most brass-cased rifle and pistol ammunition that is almost impervious to moisture, many shotgun shells are not airtight. If they are exposed to rain, dropped in the creek, or whatever, chances are good they won't fire when needed. So great care should be taken to keep ammunition dry, especially when it is carried exposed as in a bandoleer.

## BAYONETS

Bayonets on any modern weapon are a doubtful proposition at best. From the end of the Korean War and on, bayonets have not

been important on the battlefields except for parading, building confidence through mock bayonet fights, guarding prisoners, or for crowd control. And even in those situations, one has to wonder how often bayonets are fixed and how often they are actually used or serve as a real deterrent.

Of course, given the limited range of the shotgun and its small magazine capacity, one might argue that if a bayonet was ever needed on any modern weapon, the combat shotgun would be the one. So with reluctance, the bayonet will be covered—but only with the understanding that any real need for one of these blades is probably very, very small for those who carry a shotgun for self-defense.

Because bayonets have been so rarely used in combat during the past 150 years, bayonet designs have often been unrealistic. Most issued bayonets have a wide blade that would get lodged in the body of an opponent so thoroughly that it makes withdrawal impossible, thereby tying up the blade and the shotgun it's mounted on. Obviously if you actually need a bayonet, this would be the last type you would want to choose.

There are a few bayonets made that don't lodge in an opponent's body. The best of these is the spike bayonet that was found on most rifles during the 1700s and 1800s when bayonets were actually used for combat. One such spike is found on many military-issue Chinese SKS rifles.

Interestingly, the other common one is the one issued for the U.S. M16 rifle. This M7 bayonet has a very narrow blade that is suitable for actual combat use on the end of a rifle or shotgun. And the good news here is that it will fit on the Mossberg 590, one of the few modern shotguns that is actually designed with a bayonet mount.

That said, the current issue M9 Bowie Knife bayonet is a nice field knife but totally ineffective as a weapon when mounted on a rifle. Therefore those wanting to mount a bayonet on a shotgun should avoid it.

## BARREL SHROUDS

Shotgun barrels can get hot with prolonged shooting. The barrel shroud was created to offer some protection from this heat buildup and to



*The older M7 bayonet (top) is an excellent bayonet. The M9 (bottom) makes a nice camp knife, but it can lead to disaster if employed as a bayonet.*

protect the shooter's fingers from direct contact with the barrel, especially during a frantic reload.

That said, probably a better solution is practicing until the shooter instinctively keeps his hands off the surface of the barrel, just as he does with a hot stove.

However, for some shooters this may not be practical and in such a case, the barrel shroud may be a consideration. If so, TacStar makes a good Universal Barrel Shroud that is all steel and fits most 12-gauge shotguns. Installation requires no alteration to the shotgun but minor fitting of the shroud may be called for. Cost is \$45.

Never place one of the cheap plastic shrouds on a combat shotgun. While they look nice and are lightweight, they also break at inopportune times, creating an awkward situation at best and having the potential to jam a pump action and/or injure the shooter when it is thrown rearward with the recoil of a shot.

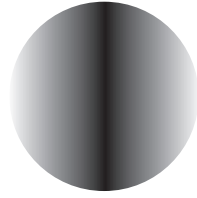
## PUTTING IT ALL TOGETHER

Once you've selected the best shotgun for your purposes, and made *only* the essential modifications it needs and added *only* accessories that are essential to obtain the proper combat edge, you will need to spend time becoming familiar with your firearm. Practice is the only way to hone shooting skills, and when it comes to defensive use of a shotgun, practice is what ensures your survival during a quick-and-dirty close-range encounter.

The best shotgun, ammunition, and accessories in the hands of a man unfamiliar with them will always be beaten by an opponent who knows his and his weapon's limitations and has the skill and courage to get a shot on target without thinking about it. The practice that brings skill trumps all other factors (except, perhaps, blind luck) when it comes to combat.

Be sure you work to obtain that skill.

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Note: All contact information was current at time of publication.

AAI Corporation  
P.O. Box 524  
Hunt Valley, MD 21030  
[www.aaicorp.com](http://www.aaicorp.com)

Advanced Technology, Inc.  
102 Fieldview Drive  
Versailles, KY 40383  
[www.atigunstocks.com](http://www.atigunstocks.com)

Aimpoint AB (Sweden)  
Headquarters Jägershillgatan 15  
SE-213 75 Malmö, Sweden  
[info@aimpoint.se](mailto:info@aimpoint.se)  
[www.aimpoint.com](http://www.aimpoint.com)

Aimpoint, Inc. (North American sales)  
7702 Leesburg Pike, 3rd floor  
Falls Church, VA 22043  
[info@aimpoint.com](mailto:info@aimpoint.com)

All-Purpose Ammo  
1703 Industrial Park Place  
Seneca, SC 29672

Alliant Techsystems  
600 Second Street NE, MN11-2015  
Hopkins, MN 55343-8384

American Derringer Corp.  
127 N. Lacy Drive  
Waco, TX 76715-4640  
[amderrr@aol.com](mailto:amderrr@aol.com)  
[www.amderringer.com/company.html](http://www.amderringer.com/company.html)

Applied Laser  
2245 E. Colorado Boulevard, Suite 104-120  
Pasadena, CA 91107  
[adams@appliedlaser.com](mailto:adams@appliedlaser.com)  
[www.appliedlaser.com](http://www.appliedlaser.com)

B-Square Company  
P.O. Box 11281  
Ft. Worth, TX 76110  
[www.b-square.com](http://www.b-square.com)

Benelli, USA  
17603 Indian Head Highway  
Accokeek, MD 20607  
[www.benelliusa.com](http://www.benelliusa.com)

Beretta USA  
17601 Beretta Drive  
Accokeek, MD 20607  
[www.berettausa.com](http://www.berettausa.com)

Bernardelli Abbigliamento Donna Uomo  
Corso Umberto I, Mantova, Italy

Brownells  
200 S. Front Street  
Montezuma, IA 50171  
[www.brownells.com](http://www.brownells.com)

Browning  
One Browning Place  
Morgan, UT 84050  
[www.browning.com](http://www.browning.com)

C-MORE Systems  
P.O. Box 1750  
7553 Gary Road  
Manassas, VA 22110  
info@cmore.com  
www.cmore.com

Centurion Ordnance, Inc.  
11614 Rainbow Ridge  
Helotes, TX 78023  
info@aguilaammo.com  
www.aguilaammo.com

Choate Machine & Tool, Inc.  
116 Lovers Lane  
P.O. Box 218  
Bald Knob, AR 72010  
info@RifleStock.com  
www.RifleStock.com

CIE Global  
P.O. Box 2490  
Indian Trail, NC 28079  
sales@GunAccessories.com  
www.gunaccessories.com

Cobray Company  
395 2nd Avenue East  
Westhope, ND 58793-4128  
cobray@cobray.com  
www.fp.minot.com/cobraydc/

Combat Military Optics, Ltd.  
3900 Hopkins Street  
Savannah, Georgia 31405  
bfr@battlefieldrelics.com

Daystate, Ltd.  
Birch House Lane  
Cotes, Swynnerton  
Nr. Stone, Staffordshire, Great Britain ST15 0QQ  
admin@daystate.co.uk  
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P.O. Box 1299  
Sharpes, FL 32959  
eaacorp@bv.net  
www.eaacorp.com

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P.O. Box 24257  
Columbia, SC 29224  
www.fnmfg.com

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900 Ehlen Drive  
Anoka, MN 55303  
www.federalcartridge.com

Franchi, USA  
901 Eighth Street  
Pocomoke, MD 21851  
www.franchiusa.com

Fulton Armory  
8725 Bollman Place #1  
Savage, MD 20763  
garand@neo.rr.com  
www.fulton-armory.com

G-Man Weaponry  
P.O. Box 2403  
Douglasville, GA 30133  
g\_man@bellsouth.net  
www.g-man-weaponry.com

Global Outlet Night Vision Gear  
5907 W. Irving Park Road  
Chicago, IL 60634  
www.night-vision-gear.com

Gun Parts Corporation  
226 Williams Lane  
W. Hurley, NY 12491  
info@gunpartscorp.com  
www.gunpartscorp.com

Hogue  
P.O. Box 1138  
Paso Robles, CA 93447-1138  
support@hogueinc.com  
www.getgrip.com

Ithaca Gun Co.  
901 State Route 34B  
King Ferry, NJ 13081  
support@ithacagun.com  
www.ithacagun.com

ITT Night Vision  
7671 Enon Drive  
Roanoke, VA 24019

IZHMASH  
3, Derjavin Prospekt, Izhevsk  
Udmurt Republic, 426006, Russia  
info@izhmash.ru  
www.izhmash.ru

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8700 Commerce Street  
Cape Canaveral, FL 32920  
www.22lrconversions.com

Knoxx Industries, LLC  
P.O. Box 2848  
Paso Robles, CA 93447-2848  
info@knoxx.com  
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KY Imports  
P.O. Box 22446  
Louisville, KY 40252  
kyimports@ntr.net  
www.kyimports.com

Laser Sales  
P.O. Box 599  
Springfield, OH 45504  
sales@labove.com  
www.lasersales.com

Mag-na-port International  
41302 Executive Drive  
Harrison Township, MI 48045-1306  
email@magnaport.com  
www.magnaport.com

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100 Kenna Drive  
North Haven, CT 06473  
www.marlinfirearms.com

Milkor Marketing  
P.O. Box 12434  
Hatfield 0028, South Africa  
admin@milkor.co.za  
www.milkor.co.za

Mirage Technologies International, Inc.  
300 S. Duncan Avenue, Suite 287  
Clearwater, FL 33755-6457  
info@miragetechnologies.net  
www.miragetechnologies.net

MK Ballistic Systems  
P.O. Box 1097  
Hollister, CA 95023  
mkbs@hollinet.com  
www.mkballistics.com

Mossberg Firearms  
7 Grasso Avenue  
North Haven, CT 06473  
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Mr. 40mm  
Randall R. Shivak  
1455 Lowell Street, Rear  
Elyria, OH 44035  
rshivak@mr40mm.com  
www.mr40mm.com

Night Scopes International  
Box 8  
Clinton, OK 73601

Pachmayr, Ltd.  
1875 S. Mountain Avenue  
Monrovia, CA 91016  
email@pachmayr.com  
www.pachmayr.com

Paladin Press  
Gunbarrel Tech Center  
7077 Winchester Circle  
Boulder, CO 80301  
service@paladin-press.com  
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Boulder City, NV 89005  
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Goose Lake, IA 52750

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SARCO  
P.O. Box 98  
323 Union Street  
Stirling, NJ 07980  
[info@sarcoinc.com](mailto:info@sarcoinc.com)  
[www.sarcoinc.com/guns.html](http://www.sarcoinc.com/guns.html)

Savage Arms, Inc.  
100 Springdale Road  
Westfield, MA 01085  
[www.savagearms.com](http://www.savagearms.com)

Serbu Firearms  
6001 Johns Road, Suite 144  
Tampa, FL 33634  
[gunfreak@tampabay.rr.com](mailto:gunfreak@tampabay.rr.com)  
[www.serbu.com](http://www.serbu.com)

Southern Ohio Gun International  
240 Harmon Avenue  
Lebanon, OH 45036  
[soginc@go-concepts.com](mailto:soginc@go-concepts.com)  
[www.southernohiogun.com](http://www.southernohiogun.com)

Springfield  
420 W. Main Street  
Geneseo, IL 61254  
[sales@springfield-armory.com](mailto:sales@springfield-armory.com)  
[www.springfield-armory.com](http://www.springfield-armory.com)

Stoeger Industries  
901 Eighth Street  
Pocomoke, MD 21851  
[www.stoegerindustries.com](http://www.stoegerindustries.com)

Sturm, Ruger & Co.  
200 Ruger Road  
Prescott, AZ 86301  
[www.ruger-firearms.com](http://www.ruger-firearms.com)

SureFire, LLC  
18300 Mount Baldy Circle  
Fountain Valley, CA 92708  
[helpyou@surefire.com](mailto:helpyou@surefire.com)  
[www.surefire.com](http://www.surefire.com)

Swarovski Optik North America, Ltd.  
2 Slater Road  
Cranston, RI 02920  
[www.swarovskioptik.com](http://www.swarovskioptik.com)

TAPCO, Inc.,  
3615 Kennesaw N. Industrial Parkway  
P.O. Box 2408  
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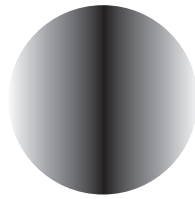
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[www.winchester-guns.com](http://www.winchester-guns.com)



# *About the Author*

**D**uncan Long is an internationally recognized author of technical manuals and fiction, with more than 70 books in print, including 13 novels. His firearms and chemical/biological warfare manuals are in the private libraries of the FBI, CIA, U.S. Marines, FEMA, and other U.S. agencies, as well as those of at least one foreign embassy and Emergency Planning, Canada.

An artist in his own right, Long illustrates his firearms manuals and also creates artwork for other authors, including book covers for science fiction and fantasy novels as well as illustrations for magazine articles and editorials. On occasion his illustrations can even be spied gracing music CDs.

You can find some of Long's articles online (as well as galleries of his more fanciful illustrations) at [www.duncanlong.com](http://www.duncanlong.com).

**W**hether you're on the battlefield or protecting your home, the shotgun's ability to lay down massive, deadly fire at close ranges makes it an ideal combat weapon. In this comprehensive guide, noted firearms author Duncan Long reviews more than 150 shotguns—from basic sporter models to state-of-the-art military weapons to exotic designs that never left the production floor—and addresses the strengths and limitations of each.

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- Explains every aspect of shotgun ammunition, including how to choose the right gauge and shot, decipher the terminology, and utilize special-purpose rounds such as flechettes and tear-gas projectiles
- Gives expert instruction on customizing shotguns and tells you what you must know about the assault weapon ban before you choose or modify your gun

Longtime shotgun owners and novices alike will find a wealth of information in this revised, updated edition of the ultimate guide to combat shotguns.



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