December 1998

by Mike Wilson

...The events of the last two years have aroused a new interest in the rifle; soldiers, volunteers, civilians, all are alike keenly alive to its importance. At last we have begun to understand that the man, armed with a rifle, who is not expert in its use, is a mere military fraud, ….Hon. T. F. Fremantle Holton Park, Oxf ……November 1901

The sniping renaissance has markedly improved the quality and variety of sniper rifles available today. With the development of new rifles, the old argument between the proponents of the bolt action and the semi-automatic rifle has returned. The first group believes accuracy to be the most important requirement for a rifle. The second group believes that a little accuracy can be sacrificed for a rapid second and third shot. The argument appears to be over for the U.S. Special Operations Sniper who can now choose between the bolt action or a semi-automatic as the mission dictates.

The receiver of the SR25 is virtually a large

Semi-automatic rifles came into widespread service during the Second World War. Closely following their introduction came modified versions meant for sniper use. The Soviet SVT 40 was the first of these. The German Wehrmacht (Military Forces) developed and employed the Karabiner 43 with the ZF4 scope later in the war. Not to be left out, the Americans worked hard to bring a sniper version of the M1 Garand into service, but very few were in service by war's end.

Overall, the "Gas Guns" were not tremendously popular with the better snipers. They

conceded to the automatic's great fire-power advantage but felt that the accuracy was unacceptable.

scale version of the M4A1/2 carbine.

Austrian Captain Hans Widhofner interviewed three former Wehrmacht snipers for the Austrian Military magazine *Truppendienst* in 1967. They were asked numerous questions about sniper weapons, equipment, and tactics. When asked "If you had a choice, what weapon would you use and why?", they responded unanimously in selecting the bolt action over the semi-automatic. They disliked the weight, lack of reliability,

and inaccuracy of the K43. When asked would they prefer to have a semi-automatic if the accuracy and reliability were improved, two of the three said yes.

The M4 bolt above is dwarfed by the SR25 below.

Note the "captive" firing pin retaining pin in the SR25 bolt carrier. The retaining pin from the M4 lies nearby.

After World War II, snipers became unimportant in a world worried about nuclear hostilities. The sniper was believed to be a vestige of the past with no use in the modern military. During the Korean conflict American, Canadian, and Chinese-Communist snipers again proved their worth. The Americans used both "Gas" and "Bolt Guns" while the Canadian and Chinese snipers employed bolt action rifles only. After the war, sniping again became unimportant and further equipment development stopped.

During Viet Nam, the situation remained the same with the combatants using both semi-automatic and bolt action weapon systems. The U.S. Army used the XM21 (Experimental Model 21) in the 1960s and early 1970s. The XM21 was type classified by the Army as the M21 in 1972. Although the M21 was considered "Standard B" by the Army when it was adopted, no effort was made to develop or procure a "Standard A" rifle. The U. S. Marines used Remington and Winchester bolt actions throughout the conflict while the communists used Mosin-Nagant bolt actions and Tokarev semi-autos. Although never confirmed, there were reported sightings of the Russian SVD in Viet Nam.

Magazines are available in three sizes: 5, 10 and 20 round. The 5 and 10 round magazines have the same exterior dimensions.

Claims of exceptional performance were made for the SVD in Soviet propaganda that we now know were unfounded. The SVD is a mediocre sniper weapon at best and, I personally would feel better armed with a World War II Mosin-Nagant sniper rifle.

Beginning in 1976, tests were conducted at Aberdeen Proving Grounds with several candidate semi-automatic and bolt action rifles. All of the candidates save one foreign entry had a Leatherwood ART II (Adjustable Ranging Telescope II) mounted to it. Although there was a discernible difference between the performance of the semi-automatic and the bolt guns, no candidate weapon was determined to possess a clear advantage over the M21. Alas, the Army decided to retain the U.S. Rifle M21 for the foreseeable future. The Marines had provided a Remington based M40A1 which was fitted with the Leatherwood scope for the tests. The other candidate weapons were: a standard M21 as a control, a Rock Island modified M21, a modified AR-10 (Armalite Rifle 10), a Winchester M70 target rifle, a Parker-Hale model 82, and a French FRF1. The entry without the ART II was the French FRF1 for which there was not an ART II mount. The AR-10 exhibited the best accuracy of the autos and was determined to have great potential. However, it was in need of further development.

Many within the Army felt that the M21 was difficult to maintain and too sensitive for field use. For the most part, their requests for a replacement fell on deaf ears. Independent from the Army, the Special Operations sniper instructors at the U.S. Army John F. Kennedy Special Warfare Center and School (SWC) were given the mission to develop a prototype Special Operations sniper rifle in 1985. The efforts at SWC were later used in collaboration with the Infantry school at Fort Benning to develop the requirements for a new "Army" sniper rifle. This resulted in the adoption of the Remington M24 Sniper Weapons System (SWS) with the first deliveries made in October of 1988. Although adoption of the M24 made the M21 obsolete, variations of the rifle with a synthetic stock and new optics remain in use. These rifles are frequently referred to as XM25s or M25s. When we speak of the M25, it must be understood that there is not a standard for the M25 as fielded by various Army, Navy, and

Marine Corps units. Within a unit, M25 rifles are often markedly different and more so between the Services.

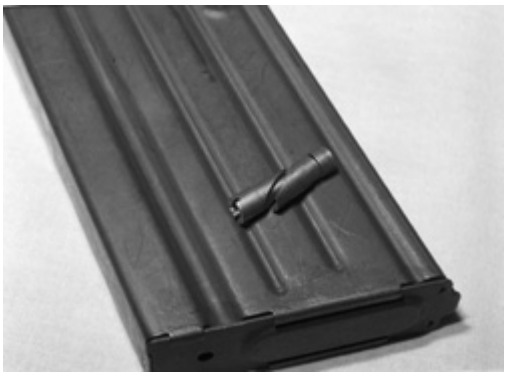
Seeing a need in 1990, Reid Knight of Knight's Manufacturing Company (KMC) in Vero Beach, Florida contacted Eugene Stoner about developing the AR-10 into a state of the art sniper rifle. Reid Knight owns one of the most comprehensive collections of the AR-10 known and was aware of the tests conducted by the Army in 1977. Eugene

Stoner worked at Armalite as a weapons engineer in the 1950s and is responsible for the design and development of the AR-10 and AR-15 rifles. Who better to rework the old design? The SR 25 (Stoner Rifle 25) is the result of the Knight/Stoner liaison.

The Stoner Rifle 25 is named in tribute to Eugene Stoner with the number 25 representing the added numbers of the rifle's predecessors, the AR-10 and AR-15.

The SR 25 is not widely known outside of the military sniping community despite being in service with U.S. Special Operations Forces (SOF) worldwide, side by side with the Remington M24. The price is undeniably a factor prohibiting wider sales, but it is also a case of "you get what you pay for".

A rather small bit of detail engineering... springs are placed to push the moving claw on the scope rings out when the screws are loosened. The convenience is rather minor but nice.



The JP Enterprises Rear Tensioning pin used by the author to remove the "looseness" between the upper and lower receivers.

To the casual observer, the SR 25 looks like a giant M16 Rifle. The SR25, however, lacks the capability for automatic fire. In the past few years, an article appeared where the author espoused the practice of traversing an area with rapid fire from a sniper rifle as a method of returning fire on unseen targets. This method was given to justify the need for a semi-automatic sniper rifle since a bolt action lacked the magazine capacity and speed to do this. In the unseen enemy scenario, a belt fed machine gun firing through vegetation would better fill the need. I can't see this as a sniper rifle requirement. The controls are in the exact same positions and although the SR 25 is larger, it can easily be operated by anyone familiar with the M16. Speaking of handling, the M16/SR 25 has what is probably the best magazine design in use. Magazines are simply shoved into the magazine well without the tipping or rocking motion required by designs such as the M14, FN FAL, etc. When the magazine release button is pushed with the trigger finger (no shuffling of the rifle from one hand to the other), empty magazines "Spring" out of the gun allowing a very quick reload.

The U.S. Special Operations Forces have adopted a new Carbine version of the M16 with a flat top receiver known as the M4 A2 Carbine. The M4 A2 is capable of full automatic fire as opposed to the regular Army version of the carbine (M4 A1) which is limited to 3 round bursts. To me, the SR 25 upper and lower aluminum receiver halves look like giant M4 A2 parts but lacking the forward assist device. When Stoner designed the M16, he maintained it did not need a forward assist if the rifle was used with the proper ammunition. Since the SR 25 is a specialist's rifle designed for special ammunition, the lack of a forward assist should come as no surprise.

The SR25 mounted with a Leupold Vari-X III, 3.5-10X M3.

The familiar M16 carrying handle has been deleted to allow the proper mounting of a scope. A so-called "Picatinny Rail" is cast as an integral part of the upper receiver. Unlike the upper receiver for the M4 carbine, the case deflector is not cast as an integral part of the upper. For the left-handed sniper, Knight's Manufacturing has developed a detachable case deflector that may be mounted on the scope mounting rail behind the ejection port.

The operating parts in the upper and lower receivers look exactly like M16 parts. Some look to be the same part and others like they have been taking steroids. Some small changes have been made that enhance maintenance. One is the firing pin retaining pin which is held captive in the SR 25 bolt carrier. On the M16, the retaining pin is removed from the bolt carrier and may be lost during cleaning.

The adjustable trigger and lightened hammer were specially developed to enhance accuracy. My test gun has a 3 lb. 4 oz trigger pull that is exceptionally crisp. I was shocked to find the weight of pull exceeded 2 1/2 pounds.

A rifle is only as good as the sum of its parts, and the heart of a sniper rifle (or any rifle for that matter) is its barrel. Boots Obermeyer developed the 5R barrel used on the SR25 from a design developed for the Soviet AK74. Remington produces this barrel in stainless steel for the M24 sniper rifle and in chrome moly for the SR25. Reid told me

With the scope removed, the sight arm is flipped up for use. The sight is designed for a 300 meter zero. Note the insert aperture. Removal of the aperture creates a ghost ring.

he used chrome moly barrels because of their increased longevity in cold weather. Knight's Manufacturing is the single company Remington manufactures 5R barrels for. SR25 barrels are 24 inches long, they have 5 lands and grooves, and a 1 in 11.29 inch twist rate.

There are four variations of the gas block mounted just forward of the handguard. The first model was held on the barrel by a knurled nut that could be removed and the exposed threads used for mounting a sound suppresser. The second variation also used a nut; however, the threaded portion was shortened. The third model featured a combination gas block and front sight base that is pinned to the barrel. The fourth and latest model features a gas block/sight base combination with a forward extension pinned in place. Integral Lugs for mounting a suppresser are part of the extension.

Standard M16A2 stocks and pistol grips are fitted to the SR25 lower receivers. A tubular fore-end made of carbon fiber screws onto the upper receiver to hold the barrel in place and allows the barrel to be fully free-floated. A single stud for a detachable sling swivel is installed on the fore-end. Of course, the stud also serves to mount a bipod. Two separate studs would be nice. While I'm thinking about it, the studs should be at least 2.1 inches apart. Closer positioning causes problems mounting the Harris "S" series bipods. Stock makers, I hope you are listening. I have several stocks here with that problem. The fixed military M16 sling swivel on the buttstock provides an anchor point for the lower end of the sling.

The folding front sight up and ready for use.

The "Picatinny Rail" on top of the receiver accommodates most Weaver style rings, but they are generally too low. KMC produces special high rings developed to place the scope at the correct height above the stock line. A choice of steel 30mm rings or aluminum 25.4mm (1 inch) rings are available.

Leupold scopes are most frequently used on the SR25 but no model has been standardized for use. During my tests, I used both a Leupold Mark 4, M3, 10X with a Mil Dot reticle and a Leupold Vari-X III, 3.5 - 10X, M3 with a Number 1 reticle.

Leupold offers three reticles in the Mark 4 series Scopes: Duplex, Target Dot, and Mil-Dot. I like the Mil-Dot for engaging moving targets and holding over or under targets when there is no time to adjust the elevation. The Mil-Dot is unfortunately not very good in low light.

Two years ago, I had Premier Reticles in West Virginia install a #1 reticle in a Mark 4, M3, 6X. This scope was used on a Remington .308 caliber 40X for Bavarian Roe deer. This combination was probably a little exotic (read expensive!) for hunting Roe, but it worked extremely well. From these and other experiences, I felt that the best possible reticle for military sniper operations was indeed the #1. I called Premier and was quickly in possession of a Leupold 3.5-10 M3 with a #1 reticle.

The rear sight and carry handle combo are normally used in conjunction with the standing front sight.

Premier Reticles is licensed by Leupold to repair and modify their products and offers a myriad of services for Leupold products. If Leupold does not offer something you want, chances are that Premier can provide it.

KMC offers few accessories, but few are really needed. The one "must have" is the bore guide for cleaning. It provides protection for the bore and makes it much easier to get a tight patch started down the Barrel.

The other accessory I like is the case deflector. It is required for left-handed shooters and it protects the finish on the right side of the receiver.

Two styles of front and rear sight sets are available from Knight's Manufacturing. One set consists of a detachable M16-type rear sight and carry handle combo and a standing front sight. The other sights fold when not in use and can be left on the rifle in a down position when the scope is mounted. SR25 rifles factory fitted with the folding sights have a slot milled into the forward end of the handguard. The folding sights can be retrofitted to rifles not previously equipped by sending the upper receiver back to Knight's Manufacturing or enlisting the aid of a good machinist.

The aperture in the folding rear sight has a small plastic insert that reduces the aperture size and is easily removed or replaced by the sniper to suit his desire.

I have two complaints about the sight mounting systems. First, the nuts on the rings and rear sight and carry handle combo are not staked on the bolts preventing their loss. Second, the front standing sight and the front and rear folding sights are held by slotted-head screws. The screws fit very

tightly and are not easily turned. A third hand would be very helpful for installation. I called Knight's to ask why slotted-head screws were used. Seems it was a military requirement. Flat blade screwdrivers are easier to find than a set of hex keys. Since I would permanently mount the folding sights, I don't see the point.

Functionally, the SR25 works in exactly the same manner as the M16 and goes as follows: A loaded magazine is inserted into the magazine well until it locks in place. The charging handle is pulled to the rear, pulling the bolt and bolt carrier with it. At the rearmost position, it is released allowing the bolt and carrier to move forward under spring pressure chambering a cartridge. The bolt stops as it contacts the Barrel extension. The bolt carrier continues to move forward and rotates the bolt into a locked position. The safety is turned to the FIRE position. Pressing the trigger releases the hammer to strike the firing pin, igniting the primer. A small hole in the barrel under the front sight base directs a portion of the burning gases in the barrel into the gas tube. The gases travel back in the tube to impinge on the bolt carrier and start its rearward movement. As the carrier moves back the bolt is rotated clock-wise to unlock.

I received the rifle packed in a Doscocil case with a test target. The test group measured .350 inches (8.89mm) for 5 shots at 100 yards (91 meters) using Remington .308 Match with the Sierra 168gr bullet. Needless to say, I was excited to shoot it!

KMC recommends the use of Remington, Winchester, or Federal 168gr .308 match ammunition exclusively. Since I knew how the rifle shot with the recommended ammunition, I decided to try a number of other possibilities, both factory and handloaded.

The U.S. Military M852 7.62 Match cartridge has been declared a combat legal cartridge by American Military lawyers and is the most likely ammunition to be used by SOF snipers. It is, therefore, a logical starting point. The M852 cartridge is loaded with Sierra's 168gr bullet at 823 mps (2780fps). My best group measured slightly more than .5 MOA. The average group measured in the .75 MOA range.

Next, I tried U.S. M118 7.62 Special Ball. This cartridge features a 175gr full metal jacket bullet driven at 778 mps (2550fps). Frequently, it is erroneously said to have a 173gr bullet. Groups with this cartridge average 1 to 1.3 MOA.

Using the Sierra 175 MatchKing, I tried to better the performance of the M852. I used military cases with CCI Large Rifle primers to load 40grs of Hodgdon H4895. This load rivals the performance of Remington Match with three of five groups measuring less than .5 MOA.

Next, I prepared a load using Sierra 168 BTHPs in German MEN (Maschinenfabrik Elisenhütte, Nassau) cases. IMR-4064 was chosen along with Federal 210 primers for this load producing 2630 fps. The average for five 5-round groups was .580 inches. This particular rifle seems to prefer the 168gr bullet attesting to the validity of the factory recommendation.

I was somewhat disenchanted by the "looseness" between the upper and lower receivers. It just did not inspire confidence despite the accuracy shown by the test target. To alleviate this, I installed a JP Enterprises Rear Tensioning Pin. The advertising claims are improved trigger pull along with "rock-solid" lockup. Although I cannot attest to an accuracy improvement, it does give one a greater feeling of confidence. The pin is available from Brownells, the gunsmithing supply company.

When the M16 first came into service it was said to have "Sex Appeal". Its appearance is no longer exotic but rather similar to all the FNs, HKs, Berettas, etc. out there now. The SR 25 has recaptured some of the old sexiness and combined it with exceptional performance in a manageable size weapon. Like the other modern semi-automatic sniper rifles, the SR 25 is not cheap. The price for the basic SR 25 is $2,995, magazines are $99, and scope rings $200. This is possibly cheap by European standards but beyond the price limit set by all but the most dedicated shooters in America.

Adoption by U.S. SOF assures that parts and technical support will be available in the future and since this is a semi-automatic only rifle, private ownership is not a problem. Military adoption also guarantees a large number of sales to private collectors wanting to have a "SOF" gun. Obtaining 20-round magazines in the future will be difficult for the private owner. Last week I saw some surplus aluminum "waffle" magazines made for the AR-10 at a gun show. These were selling for $75.00 and require modification to work in the SR25. Because of the present restriction on magazines, 5 and 10 round magazines have been developed for domestic sales.

The final analysis: great gun! Knight's SR 25 displays all the characteristics necessary of a sniper rifle and puts them in a semi-automatic package.

Sources:

Knight's Manufacturing Company

Vero Beach, FL