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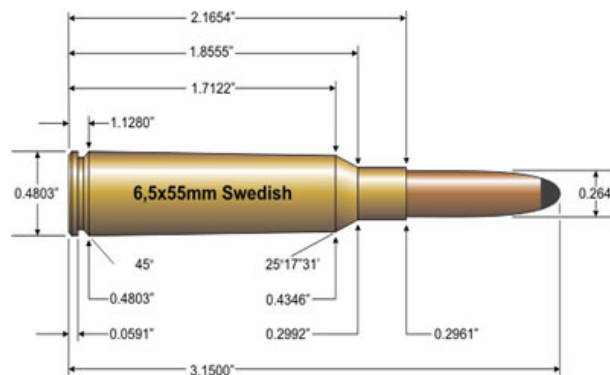


6.5 x 55mm Swedish Mauser

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Pierre's book on African Medium Bore Cartridges will be published late 2012.



History

Some sources claim that the Nords and the Swedes developed the cartridge, while other sources claim that the Swedes and the Germans developed it. The best information I could source regarding its origins came from acquaintance Jon Speed, discoverer of the lost Mauser records and author of several books on Mauser rifles.

Jon provided me with copies of correspondence between Paul Mauser and Franz Marcotty, Mauser's chief representative on the Swedish contract. From this it appears that despite Norway and Sweden having

SPEC

Regulator
CIP
Introduced
1894
Country
Sweden
Relative Case Capacity
54.7 gr

had the King of Sweden as the political head, some factions favored the Krag, some the Mauser and others the Mannlicher. It also appears from this correspondence that the Swedes enquired about the Mauser magazine for rimmed cartridges and it also contains references to a so-called 'Union Patrone'. This is interpreted to refer to a rimmed cartridge of 6.5mm calibre with a longer case as developed by the Swedish/Norwegian Union. In the correspondence regarding the Swedish contract Marcotty also informs Mauser that test rifles had to be supplied without delay as 2,000 rounds of ammunition were ready. There are no Mauser records indicating that Mauser was at all involved in the development of the 6.5x55mm Swedish cartridge and the only logical conclusion one can come to on currently available documentation, is that the Scandinavians had designed this cartridge. Whatever the case may be, during 1894 the Swedish Army Administration ordered 12,185 Mauser Mod-84 rifles from the Mauser factory and with it adopted the 6.5x55mm Swedish Mauser cartridge as Sweden's military cartridge. It served as Sweden's official chambering until as recently as the 1960's.

The initial 6.5x55mm Swedish cartridge sported a 156-grain round nose bullet at a muzzle velocity of 2,360 fps, but later a 139-grain spitzer bullet was also introduced for it. The cartridge was also adopted by Norway, Luxemburg and Denmark as their respective military cartridges. As a result of the long lifespan of the cartridge in military configuration and the number of countries which used it, one often comes across Mauser Mod-94 rifles, Mod-95 rifles and Mod-96 rifles as well as Norwegian Krag-Jorgensen rifles chambered for it. Remington (1994), Ruger (1993) and Winchester (±1986) have all made rifles chambered for this cartridge. So have a number of European manufacturers including Beretta, Heym, Krico, Mauser, Parker-Hale, Sako, Sauer, Steyr-Mannlicher and Voere. One is therefore not limited to use one of the old style Mausers when selecting this cartridge. The 6.5x55mm Swedish Mauser is to Scandinavia what the 8x57mm Mauser is to Europe and the .30-06 Springfield to Americans - their most popular cartridge. Although any military cartridge is virtually assured of popularity on home turf, it has to be a good cartridge to gain international recognition.

The 6.5mm Swede has done just that, and has also gained a reputation as a highly accurate cartridge. It has become a sought after target chambering as well as a popular Olympic free rifle option.

This cartridge has had a late African start. Andrew Soutar of Classic Arms in Witbank, Mpumalanga province only began importing rifles chambered for it around 1996, but it took off like a flash and has gained quite a following in the few years since. In the USA it also ranks as a top 25 cartridge, but the .260 Remington will probably make some inroads on that in time.

Characteristics

To understand this cartridge one has to understand the rifles in which is most commonly found - the Mod-94 and Mod-96 Mausers. It is often stated that the Mod-94 and Mod-96 rifles are not as strong as the Mauser Mod-98 and that they were designed for pressures around 47,000 psi. One of the true firearm experts, P.O. Ackley, wrote in his *'Handbook for Shooters and Reloaders'*: 'We have always heard statements to the effect that certain actions were designed for certain pressures ... The Swedish Mauser for 43,000 or some such figure and so on. Where these figures come from seems to be a mystery. Perhaps it is because the military ammunition was loaded to these pressures and automatically assumed to be the maximum for the rifles for which it was made.'

The main differences between the Mauser Mod-96 and the subsequent Mod-98 were in an upgraded bolt sleeve and the addition of a safety lug to the latter. By turning a Mod-96 bolt handle down to modern configuration and recessing it into a side cut in the tang, the M-96 is improved and does it not fall much short of the Mauser M-98 with its extra lug, but side protruding bolt handle in original configuration. If one further considers the reputed quality of Swedish steels and Jerry Kuhnhausen's statement in *'The Mauser Bolt Actions - A Shop Manual'* that: 'Steel samples from various M91 - M96 receivers I have had tested appear to be roughly equivalent to U.S low carbon 1020, 1025 and 1030 steels.... M98 receivers that were tested appear to be the equivalent of 1035 and 1036 steel' and at another point: 'In my opinion, the Swedish Mauser action is the best manufactured and heat treated of all early

RCBS
Shellholder
 2
Groove Diameter
 .266"
Bore Diameter
 .256"
Proof Barrel
Twist
 1:7.87"
Rifling Grooves
 4 x 0.090"
Max Average
Pressure
 47,800 psi CIP
Case Trim
Length
 2.155"

(non-M98) small ring Mauser actions' then one can opinion that the early models (M-91) were probably closer to the low end of the scale and the later, well-made M-96 actions on the higher end.

The difference between a Mauser Mod-96 and a Mauser Mod-98 action therefore not being that much, the aforesaid also ties in with the statement in the book *'Bolt Action Rifles'* made by Frank de Haas: 'The Swedish-made actions were proofed with load developing up to 66,000 psi breech pressure' as well as with the remark in the *'Accurate Smokeless Powder Reloading Guide No. 1'* where it is written that: 'The SAAMI Maximum Average pressure for the 6.5x55mm Swedish Mauser is 46,000 CUP. Norma factory ammunition produced 51,000 psi in our test barrel.' I do not know if Norma ammunition performs similarly in other proof barrels, but I approached Norma's Christo Larsson who provided the following possible explanation: 'Norma follows the CIP rules which says max pressure for 6.5x55 is 3,300 bar crusher or 3,800 bar transducer. CIP says pressure should be taken 25mm from the head using a drilled case. I think that AA is using conformal which is very common in the US. That system usually gives slightly higher pressure values, as there are no gas losses. 51,000 psi equals 3517 bar which is ok but not in crusher.'

My understanding of rifles and cartridges has always been that case brass is weaker than action and barrel steel. If one then works up loads in a prudent manner in small increments, I therefore believe that as the pressures increase with every addition of a small additional amount of propellant, one should actually reach a stage where the case should yield sufficiently to indicate pressure dangers, while barrel and action would not yet do so. This of course does not hold true for anybody who does not follow prudent load development procedures.

If the above is correct, if common sense is applied and if American lawyers and juries could be taken out of the equation, then there would be no reason why the Mod-96 action should not be capable of withstanding the SAAMI or CIP approved average pressures of modern commercial rimless 6,5mm cartridges as it is below proof loads and below the pressure at which case brass begins to flow.

In the February 2001 issue of *RifleShooter* magazine, gunwriter Terry Wieland reported about a load to destruction test he conducted with a Swedish M-96 Mauser. Starting at 37-grains IMR-3031 he increased the loads one grain at a time. The cases started exhibiting the clear signs of excessive pressure from 41-grains upwards, and at 47-grains the action finally blew. One would however have to blow quite a number of M-96 actions up under controlled conditions before any valid conclusions can be made.

Actual pressure generated naturally also depends on numerous factors such as actual case capacity, chamber dimensions, bullet seating and bullet style, bore condition, primers, propellant lot characteristics, atmospheric conditions and a number of other factors, but one can take a calculated guess that 41-grains generated around 68,000 psi and 47-grains somewhere in the region of about a 100,000 psi. From this we can conclude that under the conditions Wieland tested that particular Mod-96 action, it would have been able to handle .260 Remington pressures quite safely.

The Swede has more case capacity than the .260 Remington, but it is loaded to lower pressures, so on average the cartridges are very much alike. If however the Swede is loaded to .260 Remington pressures in an action capable of handling those pressures, then the Swede outperforms the Yankee ever so slightly. That, anyhow, is what is happening here in Africa where liability law is still reasonably logical and where a man has to take responsibility himself for his actions and reloading procedures. It fits without modification into intermediate length actions and the Mod-94, Mod-95 and Mod-96 actions are basically of that length. Most short action magazines can be modified to accept the 6.5x55mm Swedish.

At .4803", the rim and base diameters of the Swede are odd and 0.0073" larger than that of the .30-06 Springfield. It has an old style tapered body, but not one that is excessively so, while the shoulder angle is also quite pronounced for a cartridge that will never see the good side of its 115th birthday again. These factors, combined with the relative compactness of the design and the quality of the rifles in which it has been used, explains its reputation as a classy character and an inherently accurate number.

Performance

The well-known American gunwriter, Ken Waters, who designed the .263 Express, tested amongst others, the 6,5x54mm Mannlicher-Schönauer, the .263 Express, the 6.5x55mm Swedish, the 6.5x57mm Mauser, the .256 Newton, the 6.5mm Remington Magnum and the .264 Winchester Magnum. In December 1995 he wrote that the Swede consistently proved the most accurate and had become his favorite 6.5mm cartridge. Interesting, coming from a man who developed the cartridge that spawned the .260 Remington.

It is an excellent bush range (0 to 150 yards) cartridge with the heavy 160-grain bullet despite the Green-Band (2,600 to 2,200 fps) only stretching to a 100 yards with this round nose. It can be confidently used on anything up to kudu (600 lb) size across these ranges. The Swede's case is just that tad too small to make the most of the 160-grain bullet across the full bush range spectrum.

The more popular hunting bullet for the 6.5x55mm Swedish is the 140-grainer, because of a slightly flatter trajectory and 200 yard odd Green-Band. Consider 275 yards a good maximum range with these bullets as impact velocities drop below 2,000 fps around this distance.

Impact velocities generally are a bit too slow to achieve full expansion on game with US and African made bonded core bullets in the 140- to 160-grain class, but the Australian Woodleigh bullets expand well at these velocities. The Swede is not hard on standard 4th generation bullets and these can be used to good effect.

Since the 6.5x55mm's case is not really big enough to drive light bullets fast enough for long range application, I tend to steer away from the 120- to 130-grain bullets. If however these bullets tickle your fancy, apply them over savannah (150 to 300 yard) ranges on game up to blesbok and deer size.

The 6.5x55mm Swedish is a mild cartridge in every respect but performance. It is accurate, hard hitting if applied correctly, but noise and recoil levels are moderate. The rifles generally also are very affordable – especially if one starts with a military surplus rifle.

Optics

To my mind the 6.5x55mm is an 'either – or' cartridge insofar as riflescope selection is concerned. Either you use it as a bush cartridge, or you use it as a savannah cartridge. The riflescope you select accordingly. For bush application a compact 2-7x or a 2.5-8x class variable with wide duplex reticules is the perfect solution. They can be used to great effect at point blank ranges, but also provide excellent visual aid across all bush ranges and some. Anybody opting for a 1.25-5x or a 1.5-6x will not go wrong either.

When the cartridge is to be applied across savannah ranges I would opt for a compact 3-9x riflescope with a normal duplex reticule. This class of riflescope offers everything you need out to 250 or so yards and can still be very effective at 450 yards. That is way more than you need for this cartridge if you apply it correctly. The 6.5x55mm with its compact action can be made into very handy rifles for jungle and mountain use. Very high ballistic coefficient bullets are available in this calibre, combining flat trajectory potential with high accuracy capability. Just the ticket.

The bullet drop differences between low velocity and super velocity cartridges are often surprising small when sighted correctly. For example if a 120-grain bullet which exits a 6.5x55mm Swede's muzzle at 2,950 fps is zeroed at 382 yards, it drops about 9.1" at 450 yards, while the similarly sighted bullet at a muzzle velocity of 3,650 fps drops 5.6" - a mere 3.5" difference across 450 yards! Incorrect sighting does however exaggerate the trajectory differences.

Reloading

Cases for the Swede can be made by trimming 9,3x62mm brass to length, annealing the intended neck and shoulder area and by then full length resizing the cases in a 6,5x55mm die with the expander button removed. If you lose cases use a neck sizer (not a reloading die) for the .303 British cartridge to reduce neck diameter as an interim step before full length resizing. Then make sure case neck walls are within spec. Lapua, Norma, RWS and Sako all make cases for this cartridge, while commercial ammunition is available from Federal, Hornady, PMC, Remington, Winchester and Speer. Your guess is as good as mine as to where the cases for these American factory loads actually hail from. One

does not go into too much detail about these things, but these days the packaging and the product do not necessarily hail from the same continent - let alone the same country!

It is interesting to note that the Norma ammunition brochure states that all ammunition data contained therein were obtained from 24.0" barrels and then proceed to list a muzzle velocity of a 156 grain Vulkan bullet as 2,644 fps – which is fast. In Norma's *1995 Loading Data Guide*, which specifically mentions its new data for the 6,5x55 on its cover, the 156 grain Alaska bullet is listed to produce the same muzzle velocity ahead of 46.3 grains of MRP from what must then also be a 24.0" proof barrel. Norma being a Scandinavian company, must have its ammunition used by fellow Scandinavian Norwegians in their 'weak' Krag-Jorgensen rifles. Had the 'high pressure' Norma ammunition blown up the 'weak' Krags, then surely Norma would have backed off on its loads long ago. All in all the information provided regarding the Swede is a bit confusing. On the one hand it seems as if it can be loaded to the same performance levels as the .260 Remington, while on the other hand one retains that nagging bit of doubt in the back of your head. In the end it is up to the reader, with due regard to his rifle and components, to decide whether he is going to take a chance by loading the Swede to .260 Remington levels. I have tried to provide as much information as I could to make an informed decision possible. Whatever anybody decides, I can, like Pontius Pilate, unfortunately only wash my hands of it.

Data

Most extensive data appears in the **Lee Modern Reloading** manual.



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