

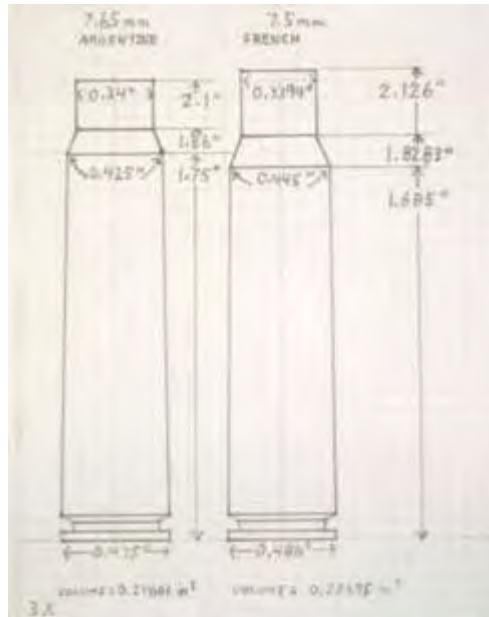
FRENCH 7.5x54 LOADS AND RIFLES

The 7.5x54 French cartridge is a latecomer to the United States shooting scene because the French government did not begin to release their stock of obsolete military arms until the 1980s. The last release was some time in the mid 1990s. Because their stock of old arms was not large compared to most other nations, the supply of MAS 36 bolt rifles, 49/56 autoloader rifles, and their variants, was sold off fairly quickly and retail sales of them seem to have dried up. The rifles were sold at incredibly low prices but despite that they were apparently not very popular at first since they were rather homely looking and there was no commercial source of 7.5x54 French ammunition or brass for them. After they were no longer available at cheap prices, they seemed to gain in popularity. Until around 2002, or so, the only ammo available was very limited supplies of military surplus from France and Syria. Because of the dearth of ammunition, a large number of them were converted to .308 Winchester, which caused a great deal of problems in the gas operating system of the MAS 49/56 autoloaders since the operating pressures of the two cartridges varied by 12,500 psi! Fortunately, there is an affordable remedy available in the form of an adjustable gas valve for the gas-operated system that prevents damage to the rifle and stops the cartridge heads from being torn off during bolt cycling.

The 7.5x54 French cartridge is a straightforward Mauser-type design with rimless bottleneck construction and a listed head diameter of 0.4858-inches, a bit greater than the usual 0.473-inches and 0.480-inches of other Mauser types. Actual examples of French ammunition have head diameters of around 0.480-inches that also corresponds to 6.5x55 Swedish Mauser ammunition manufactured in Sweden. Acceptable cartridges can be very easily formed directly from 6.5x55 Swedish Mauser brass by simply running it into a 7.5x54 French cartridge full length die. The resulting cartridges do not even need to be trimmed for length, and judging from this evidence it would seem that the French simply adopted the Swedish Mauser cartridge as their own by enlarging the caliber from 6.5-millimeters to 7.5-millimeters. The Swedish Mauser cartridges manufactured by United States companies have the same smaller 0.473-inch diameter head used for the .30-06 and some purists claim that the ammunition made from it will not work in the French autoloaders, but this has not been satisfactorily proven and lots of reloaders use Federal, Winchester, and Remington-Peters brass in their French autoloader rifles with no problems with function related to cartridge head size. Another occasional point of contention with the 7.5x54 French cartridge is what the correct projectile diameter is. It has been variously reported as 0.307-inches and 0.3075-inches. Again measuring actual French military ammunition, the bullet diameter measures a true 0.308-inch and any .308-caliber projectile will work perfectly in the French rifles. The rifle bore land diameter is a bit smaller than what is usually found in most .308 caliber rifles, though, and measures around 0.295-inches to 0.297-inches, giving the French rifles very deep rifling. The rifling twist used in the French rifles is one turn in 270-millimeters or 10.63-inches and as such is better suited to the more common lengths of .30-caliber projectiles. In Julian Hatcher's definitive firearms book "Hatcher's Notebook", he lists the best twist for the length of bullets most commonly used in .30-06 and other .30-caliber rifles as one turn in eleven inches instead of the ten or twelve inches normally found in .308-inch groove diameter bore rifles. At one turn in 10.63-inches the MAS rifles come pretty close to Julian Hatcher's suggested rate of twist for optimum accuracy with the lengths of 0.308-inch diameter bullets commonly used, and in rifles with good barrels the accuracy can be outstanding with .308-inch diameter jacketed bullets ranging in weight from 150 to 175-grains and .308-inch diameter cast bullets of 180 to 220-grains. A word of caution is necessary about accuracy, though. Since the French rifles were for general military service, there is nothing really outstanding about their accuracy compared to any other military rifles since the general rule of thumb that most military ballisticians and government bean counters go by is that 3-minutes of angle accuracy (approximately 3 inches at 100 yards) is all that is required for a service rifle to be acceptable. By having the preferred rate of rifling twist, just the POTENTIAL for having better accuracy is there and is not guaranteed, although a lousy shooter with the right rate of twist will be less lousy! An exception to the three minutes of angle rule of thumb is Finland's Civil Guard, which requires an accuracy of just under one minute of angle. Consequently, the Finnish-rebuilt Mosin-Nagant rifles are very highly regarded for their superb accuracy.

The 7.5x54 French cartridge was originally loaded with a 139-grain spitzer bullet at a velocity of approximately 2680 feet per second. The pressure is low and is rated at around 40,000 c.u.p. The original military brass is highly prone to head separation when reloaded above this pressure and it is highly recommended that if any original French or Syrian ammunition is obtained **DO NOT RELOAD IT!** The reason is that the original Berdan-primed cartridges were made with a specially scored internal annular groove between the head and body to purposely weaken the case and prevent

reloading by enemy forces, which had apparently been a problem at one time for the French when they occupied Morocco. The MAS 36 bolt rifle is capable of handling pressure much higher than 40,000 c.u.p., though, and that model rifle has been quite successfully re-chambered to .308 Winchester, .45-70, and 8x60S without suffering any bolt locking lug breakage or set-back related problems, even at Ruger #1 .45-70 loads. The MAS 49/56 autoloader rifle will also easily handle a pressure of around 52,800 c.u.p. since the .308 Winchester is rated at that, but the gas operating system MUST be modified by changing the gas metering valve if loads producing pressure above 40,000 c.u.p. are used. For both cast and jacketed loads in MAS 36 bolt rifles and modified MAS 49/56 autoloaders, the reloading tables for the 7.65x53 Mauser (Argentine and Belgian Mauser) are quite satisfactory for loading the 7.5x54 French cartridge. Also, for 40,000 c.u.p. loads in unmodified MAS 49/56 autoloaders, .30-40 Krag tables can be used. The size and shape of the 7.5x54 French cartridge is quite close to these other two and the internal ballistics are very nearly the same. Compare the drawings and dimensions of the 7.65 Argentine Mauser and the 7.5x54 French cartridges and you can see how very close they really are.



Comparison of (Left) 7.65 X 53 Mauser and (Right) 7.5 X 54 Cartridges

I do have a few 7.5x54 French pet loads for my MAS 36 bolt rifle that follow the standard loading protocols for the very similar .308 Winchester and .30-06 caliber cartridges (which can also be used in those particular calibers, or any other similar .30 caliber cartridge as well). Since so little 7.5x54 French load information is available I am taking the liberty of including a few non-cast loads for that cartridge also. The cartridges are formed from any new 6.5x55 Swedish Mauser brass by simply running them into a full length 7.5x54 French sizing die. The expander mandrel should be tapered so it will slip into the smaller mouth of the 6.5mm cartridge. After resizing they do not need anything further other than putting in primer, powder, and projectile. Like any other similar rifle cartridge, the mouth of the case needs to be chamfered or even slightly belled a bit when loading cast bullets so that the edge will not gouge a shaving of lead from the soft cast projectile. The maximum case length is 2.126-inches and the maximum loaded cartridge over-all-length is 2.992-inches.

1. An inexpensive garden or gallery load that is actually about as powerful (and every bit as dangerous) as the .22 rimfire magnum is a .309" or .311" 45-grain round ball loaded with 3 or 4-grains of Red Dot, Unique, or equivalent, with the ball pushed in just past its half-way point so it won't come back out easily. It will shoot either muzzle up or down, but for consistency I always tip the muzzle up first before aiming.
2. The Lee .309-113 F makes a good light plinker with 5 or 6-grains of fast pistol or shot shell powder such as Unique, Red Dot, 700-X, Green Dot, etc. It is also position sensitive, so I also point the muzzle up first before aiming.

3. The Lee .309-180 R loaded with 2-grains of IMR4198 over the flash hole and a full case of WC860 on top of it that is lightly compressed by the bullet when inserted delivers around 2000 feet per second. Even though the amount of powder is determined by how much will fill up the case, the charge should be measured or weighed to ensure shot-to-shot consistency. Compressing the powder is very important to keep the 2-grain booster load from mixing or migrating into the main charge. For a cast bullet it is a fairly powerful load good for hunting thin-skinned game such as coyotes and deer. A skillful hunter could also use this load on larger game such as elk, but before going elk hunting with it instead of a .45-caliber 500-grain cast flat meplat boolit loaded with 110-grains of ffg in a .45-110 Quigley Down Under, the consequences of wounding an elk instead of getting a clean kill should be carefully considered!
4. Sometimes the empty jackets from tracer bullets are sold on the surplus market along with the reclaimed or pulled bullets from other United States military ammunition. The tracer jackets, or “tracjacks” as I call them, have the same ogive profile as the 147-grain live tracers and 147-grain full metal jacket boattail bullets (fmjbt) used for the United States 7.62 NATO rounds except for having a much longer hollow skirt with an open hollow bottom where the tracer illuminant material would normally be. They are not popular with shooters because it is thought that they will expand or split when exiting the muzzle, and consequently shooters will not use them. They don’t split or otherwise deform and shoot quite accurately. With a much-reduced weight of 136-grains they are excellent .30-caliber plinkers. I load them up with 41.4-grains of IMR7383 for an estimated velocity of 2400 feet per second. With 50-grains of H-380 they smoke out at 3000 feet per second, but that is a near-maximum load and needs to be worked up carefully, however.
5. The 147-grain fmjbt military bullet with 39.4-grains of IMR7383 is another good inexpensive load and has a chronographed velocity of 2200 feet per second from the MAS 36.

The MAS 36 rifle is pretty ugly, but it is robust with a rear-locking bolt like the .303 Enfield. I own two MAS 36 rifles and the first one I got is the second most accurate rifle I own. It came that way out of the cosmoline and cheesecloth wrapping it had been preserved in and did not require anything on my part to become a half-minute of angle accuracy shooter. My other rifle isn’t very accurate and falls into the three minutes of angle accuracy category. The MAS 36 uses “soldier proof” screws to hold together everything that a soldier need not take apart for field maintenance of the rifle. The tamper-proof screws have two holes drilled in the heads instead of using slots, and they require a special spanner to remove. A screw diver can be filed and ground by hand to fit or with some luck a really stout needle nose pliers can be used to back them out. I quickly and simply defeated them by cutting slots in the heads with a sharp fine-tooth hacksaw to get them unscrewed and out. The sights are adjusted by drifting the front sight in its dovetail with a soft brass punch and an 8-ounce ball-peen hammer. The front sight has a protective snout around it that must be pulled off the get to the sight and is held on with “soldier proof” screws. The rear sight is an elevation-adjustable peep sight and is one of the finest I have ever used, being every bit as good as the type used on the M1 Garand and M14. The MAS 36 weighs around nine pounds and is that heavy from the massive amounts of wood used on it plus the concealable rod-type bayonet stored in a steel tube under the barrel. I wanted a light rifle for ease of carrying for extended hiking and I managed to strip down the rifle quickly and easily without having to cut or permanently change anything, and it can be put back in original configuration simply by re-attaching the removed parts. When stripped down it weighs in at just under 7 pounds. It could be lightened up more by cutting and gutting unnecessary wood, but a trade-off in weight versus shoulder bruising would result if lightened any more.



Top: MAS 36 (Standard military configuration)
Bottom: (Top view)MAS 36 stripped down for easy carrying
(Bottom view) Yugoslavian 24/47 K98 8 X 57JS

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