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# BARRETT M107A1

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**EXCLUSIVE**

# BARRETT'S NEW M107A1

The signature semiauto speaks volumes in one word: Experience.

By ERIC R. POOLE | Photography by MIKE ANSCHUETZ

**T**he M107A1 is Barrett's latest extreme-range service rifle developed specifically to address the special needs of troops engaged in asymmetric warfare. Currently, three generations of Barrett .50-caliber rifles are serving U.S. armed forces in many roles against enemy targets that fall outside a rifleman's limitations. Targets that cannot be neutralized due to range, size, location, mobility and visibility have been met with adequate force delivered by the M107, the M82A3 and still, in fewer cases, the Model 82A1.



From the steel-shuttered doors of Iraq's *souks* to the stoney *kotals* of the Koh-i-Baba, the M107 is a respected elder of supporting fire-power. The only way an M107 like this would benefit from camo would be if soldiers did it themselves in country. Now the M107A1 gets color at the factory with a tough Ionbond.


"The Barrett .50-caliber sniper rifle may have been the most useful piece of equipment for the urban fight—especially for our light fighters," said LTC Jim Smith in a PEO Soldier report on lessons learned from Operation Iraq Freedom. He added, "The XM107 was used to engage both vehicular and personnel targets out to 1,400 meters. Soldiers not only appreciated the range and accuracy, but also the target effect. Leaders and scouts viewed the effect of the .50-cal. round as a combat multiplier due to the psychological impact on other combatants that viewed the destruction of the target."

Funded as a Soldier Enhancement Program, the M107 underwent standard-type classification in August 2003

and Barrett received a production contract, awarded the following month. Based on reports of the XM107's battlefield performance, the U.S. Army approved it (with slight modifications) for full material release and designated it the M107 in March 2005. The phrase "full material release" indicates that the M107 had passed rigorous testing and is completely safe, operationally suitable and logistically supportable for use.

## EVOLUTION

The latest M107A1 is founded on the series of combat-proven Model 82A1/M107-series rifles conceived by Ronnie Barrett. As of today, 62 U.S. allied countries, every branch of the U.S. military, as well as the Department of Homeland Security, Department of Energy and numerous law enforce-



Getting the heavy barrel back into battery in a recoil-operated action takes a lot of spring, seen here through lightening vents.

engaging man-size and armored targets out to 2,000 meters. Even at that range, U.S. Army testing has revealed that the .50 BMG is still capable of penetrating up to 1.18 inches of steel plate.

This level of manageable performance was impossible in a user-portable semiautomatic .50 BMG-chambered rifle before Ronnie Barrett developed the first Model 82 in 1982. He based the design on a short-recoil principle credited to John Browning. Simply, Browning's concept minimizes felt recoil by spreading recoil energy over a longer period of time. As a round is fired, expanding pressure pushes the case to the rear and against the face of the unique three-lug bolt. Locked within the barrel's chamber, the lugs pull the barrel assembly and draw it rearward against the tension of the barrel springs, absorbing energy before a post on the bolt engages a curved cam track in the receiver and unlocks it from the barrel. Once the bolt unlocks, it continues its travel rearward against a

ment agencies have turned to Barrett to provide a surgical long-range interdiction capability.

Just like previous generations, the M107A1 is an air-cooled, recoil-operated semiautomatic rifle. Our test model came equipped with a variable-powered Leupold Mark 4 tactical scope with Barrett's revolutionary BORS unit that provides click-adjustment information to compensate for ballistic influences such as load, temperature,

elevation and even inclination angle.

Just like the M107, the M107A1 remains exclusively chambered for the legendary .50 BMG cartridge. Ten of these hard-hitting .50-caliber rounds are alternately stacked within each box magazine (the new M107A1 magazines feature witness holes). When employed, one of these rifles is capable of effectively

Photo courtesy of the DoD



long recoil spring that also helps to reduce the transfer of recoil energy. Simultaneously, a muzzlebrake diffuses additional recoil energy. Until the M107A1, this muzzlebrake took the shape of an arrowhead. Once a fired bullet exits the muzzle, gases take a path of less resistance, expand and slam into the brake's double-chambered interior walls. Consequently, the barrel is pulled away from the shooter and gases are redirected to the side of the rifle.

## INSIDE THE NEW 107A1

The newest variant has been cloaked in a veil of secrecy for the last two years, but rumors and occasional photos taken at military demos and trade events have leaked information about its existence to the interest of the public. Some pieces of information have been based on visual interpretations, while other bits are founded on inaccurate suppositions. What follows are the facts directly from Barrett.

"We knew there would be things that we'd learn," says Chris Barrett. "The [M107]A1 was already being talked about when we came up with the M107. There was language in the contract that allowed for enhancements. No one would ever get a gun if you had to design something perfect. Here we are, a couple years down the pike."

The M107A1 carries new features developed from feedback given directly by troops using a Barrett in the war on terror. The most obvious difference when comparing the M107A1 to its predecessors is with the M107A1's earth-color finish. But not a lot of Barretts have actually left the Murfrees-

The steel 10-shot magazine is tuned by hand for functionality at Barrett. Barrett tells us that the magazine may benefit from the same Ionbond treatment as the new M107A1. For now, M107A1 magazines get new witness holes at the back to identify how many rounds are loaded in a magazine.

boro, TN, facility with anything other than a Parkerized finish. Exceptions do occur. Within the last two years a number of M107s were delivered to the U.S. Coast Guard with a maritime gray finish that resists corrosion in a saltwater environment, for example. Since its use in Operation Desert Storm, troops heading to the desert had to apply their own camouflage that would often chip or flake off with use. This is no longer a problem with the M107A1. The flat dark earth color is a physical vapor deposition to the surface that is extremely hard and helps make the rifle less dependant on lubricant. "Everything runs better

with a little oil, but the M107A1 features a new finish that offers

a high lubricity on all the sliding parts." Anything that can wear or rub will get high-lubricity plating or something better than Parkerizing. Barrett indicates, "Parkerizing is on the way out

now that better stuff is out there. For some of the aluminum parts, Barrett will continue to use KG Guncoat. For the purpose of what the coating is supposed to do, it's not going to be black."

## IT'S LIGHTER

"Weight is addressed in several places," says Barrett. "The upper receiver is made from a thinner-gauge steel that matches the lower's. We did extensive testing and found no appreciable degradation to safe functioning or reliability."

Saving weight on the M107A1 is largely achieved in how materials are utilized. Titanium is now used in place of steel for many components including the barrel key, bipod leg, bipod yoke mounts, carry handle assembly and the monopod strut screw. The foot of the monopod and feet of the bipod legs are now polymer. The rear grip at the back

A team that utilizes an M107 benefits from a spotter to help range targets, identify hits, spot the splash of misses and keep situational awareness.

Debate still rumbles as to whether .50 BMG is the result of Browning just stretching a .30-'06 or him copying the German 13mm anti-tank cartridge. Either story is plausible, and the resulting product works.



A folding backup rear sight is easily tucked under the Leupold MK IV scope. The folding front sight is actually buried in the front of this rail.



Easily replaced in the off-chance that something were to happen to it in the field, the extractor is retained by a spring-loaded plunger.


of the stock used to have a fabricated sheetmetal strut, but now that whole rear grip has become one piece of aluminum. A rugged cheekpiece is cut from a lightweight polymer, and the scope rail and new side/lower accessory rails are now machined from aluminum rather than steel. But weight savings doesn't stop with the rifle. Even the M107A1's tan-colored Pelican case is five pounds lighter than before.

### SUPPRESSOR READY

Those intimately familiar with the Model 82A1-series and M107 will notice a new aluminum buffer with aluminum buffer housing that replaces the original urethane buffer for improved reliability, particularly when suppressed. "You can't just slap a suppressor on our gun," says Barrett. "The buffer came about to increase reliability, ensure longer life, offer resistance

to wear and more accurately control buffer compression to accommodate different bolt speed."

For years, civilian owners and special operation units utilizing the Model 82A1 have explored what it would take to bring suppression to the roaring .50. Virtually any rifle or pistol made for the U.S. government these days has to be considerate of its possible use with a suppressor. However, a lot of what makes a semiautomatic rifle accurate and reliable centers around the timing of moving parts. By simply removing the arrowhead and attaching a suppressor, felt recoil is dramatically increased and a change occurs to the

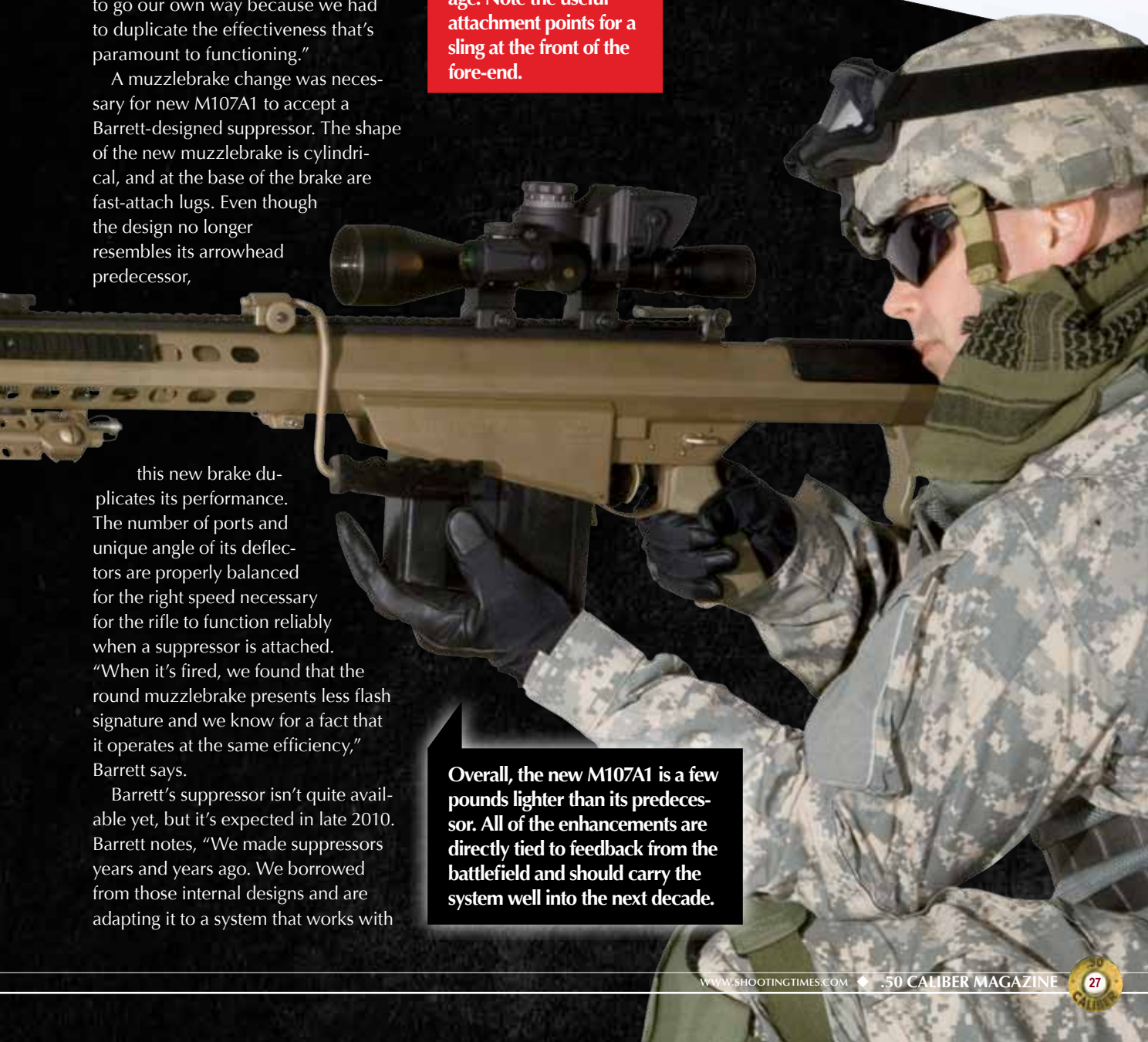


delicate timing that makes the rifle so reliable. Continued operation without a Barrett-designed muzzlebrake actually causes the rifle to beat itself up, damaging critical components.

Chris Barrett warns, "There are other companies making muzzlebrakes for the Model 82A1 and M107, but users shouldn't shoot them unless Barrett has tuned it. I have actually shot one of the other designs, and it will tear up the gun. We were forced to go our own way because we had to duplicate the effectiveness that's paramount to functioning."

A muzzlebrake change was necessary for new M107A1 to accept a Barrett-designed suppressor. The shape of the new muzzlebrake is cylindrical, and at the base of the brake are fast-attach lugs. Even though the design no longer resembles its arrowhead predecessor,

**Rail space abounds, but weight limits place a premium on its usage. Note the useful attachment points for a sling at the front of the fore-end.**



this new brake duplicates its performance. The number of ports and unique angle of its deflectors are properly balanced for the right speed necessary for the rifle to function reliably when a suppressor is attached. "When it's fired, we found that the round muzzlebrake presents less flash signature and we know for a fact that it operates at the same efficiency," Barrett says.

Barrett's suppressor isn't quite available yet, but it's expected in late 2010. Barrett notes, "We made suppressors years and years ago. We borrowed from those internal designs and are adapting it to a system that works with

**Overall, the new M107A1 is a few pounds lighter than its predecessor. All of the enhancements are directly tied to feedback from the battlefield and should carry the system well into the next decade.**



the new M107A1. It's all us."

Some other changes have been made to optimize the rifle's performance with a fast-attach suppressor. "The M107A1's bolt is scalloped, and the bolt carrier is new and more robust for use with a suppressor," says Barrett. "It offers better functioning and won't beat itself up. We saw a few Model 82A1s that had been suppressed and taken to the field. It will throw the bolt carrier back so far and hard that it can break off the handle on the bolt carrier."

## BATTLE ENHANCED

When a soldier or Marine crawls in behind the new M107A1, the familiar feel of the Model 82 and M107 is still there. An experienced Barrett operator will immediately pick up on a number of features, while new details can go unnoticed.

Wrap your firing hand around the grip and you'll find that a Magpul product has replaced the conventional A2-style pistol grip. Obtain a cheekweld and you'll find an extremely durable and comfortable polymer cheek-

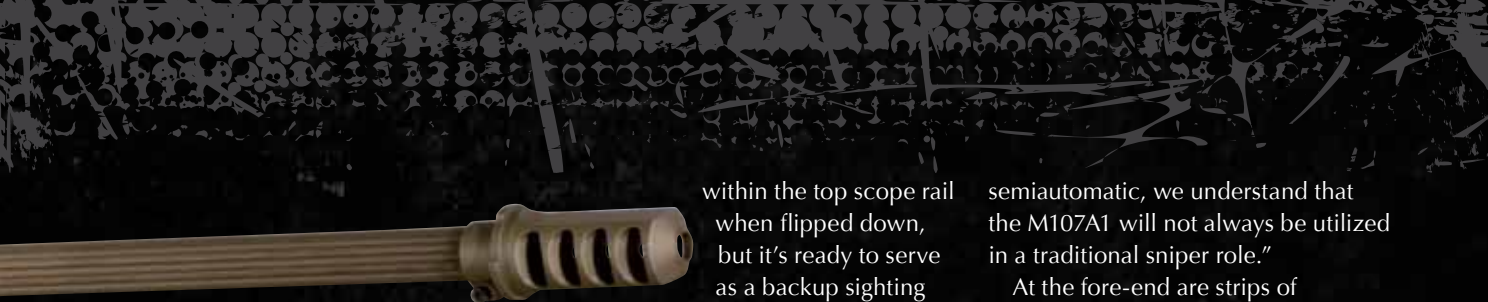
pad that's secured to the upper receiver by three recessed screws. "The purpose wasn't to increase the height of a shooter's cheekweld," Barrett explains. "It was just to provide insulation against extreme temperatures for the shooter."

The trigger geometry remains the same, but the new Diamondite coating applied to the internal components makes the draw feel smoother



The polymer comb is fixed to the upper receiver and secured by three Allen screws that are secured by Loctite. It is extremely durable and gives the shooter a comfortable barrier between soft skin and frigid (or scorching) temperatures.





and lighter. With the trigger pulled and firing pin released to strike the primer of a round in the chamber, a bullet is now sent through a chrome-lined bore. Earlier Model 82s and M107s feature a chamber that is chromed and a bore that is not.

Look through the scope and the differences relating to the optics platform will likely go unnoticed. "The rail remains at 27 MOA, but is made of 7075 hard-anodized aluminum," Barrett describes. "It's a third lighter than steel, but very strong. We recommend using Barrett rings, but if there is ever any damage from clamping or removing a scope many times, it isn't difficult to replace the rail."

A flip-up tritium night sight is buried

within the top scope rail when flipped down, but it's ready to serve as a backup sighting system in conjunction

with the low-profile flip-up rear sight resting beneath the scope.

The M107A1 dissected in support of this story features a Leupold optic with Barrett's BORS secured in a pair of Barrett rings. One of the rings shown on this test rifle carries an Aimpoint Micro on one of Barrett's new accessory rail cap. "That's one of the things we saw pop up on the competitive markets," says Barrett. "Rolling the rifle over 45 degrees is impossible, but on the left side you can learn to leave both eyes open and sight in on a target with either optic. Its placement is a logical choice because we didn't want a shooter to have to lift the head high and off the stock. Because it's

semiautomatic, we understand that the M107A1 will not always be utilized in a traditional sniper role."

At the fore-end are strips of Picatinny rails that can be adjusted, added or removed to suit a mission or an operator's needs. When mounted, these rails are immovable platforms well suited for the use of laser aiming devices, night vision or high-powered illumination tools.

Under the fore-end is a new, lighter, stronger titanium bipod with legs that now accept interchangeable polymer bipod feet. Retained by pins, they can be easily replaced for another set of skis, although spiked feet will likely become an option.

## FORECAST

"The M107 will take our military through the next decade," says Chris Barrett. It's too early to determine if



Barrett's 30mm Zero-Gap scope rings can be purchased as a stand-alone tool for heavy-recoiling rifles like the M107A1. The ARC ring cap shown here offers shooters the added benefit of utilizing a secondary sighting tool like this Aimpoint Micro for close-range engagements without having to move the head from the stock.

enhancements listed on the M107A1's spec sheet. Even with so many other smaller-caliber

the M107A1 will ever become commercially available. Barrett indicates that they will eventually offer a civilian rifle that will carry almost all of the

rifles now competing to jump into the extreme-range combat role, Barrett has more of something in this field than any other: experience. **.50**



The thick recoil pad absorbs what felt recoil energy remains after the M107A1's overall weight, new cylindrical muzzle-brake, barrel springs and main-spring tame it. Note the new push button-style rear lock pin (military versions only) and rear sling attachment points.