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A reliable, accurate and lightweight compact pistol, on the low end of defensive calibers. Who is it for?

BY JEFF HALL



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SWITCH HITTER

Beretta ARX

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THE candidates for President this year are, to put it mildly, interesting. While one party tries to decide who is the biggest socialist and will give more free stuff to the masses, the other party argues about who is the biggest conservative.

Party One attempts to show why they are better than the other candidate. Party Two focuses more on what is wrong with the other candidates. It would be almost comical, especially during this election cycle, if the fate of the Republic did not hang in the balance.

How do we separate the wheat from the chaff and decide whom we will cast our vote for? Ultimately we must vote our convictions. What follows is how I'm going to make up my mind. Your mileage may vary.

To begin with, the next POTUS will make at least one, and possibly up to four, appointments to the Supreme Court. The hard-fought battles and favorable decisions that came down in favor of the Second Amendment may be reversed by a left-leaning court almost overnight.

With that said, I want someone elected who is truly a Constitutionalist, not someone who only pays lip service to it and will appoint the same type of justice.

Next I want a candidate who has shown he is a staunch supporter of the Second Amendment. While it's reasonable to believe someone may change their mind, a leopard doesn't change its spots. A person who has only become enthusiastic about supporting firearms rights since they announced they were running for President can't be trusted.

The gridlock and partisan politics have to stop if things in our great nation are going to improve. We need a President who will truly take a stand on important issues and not capitulate depending on how the political winds are blowing. Tough talk on the campaign trail does not necessarily reflect a candidate voting record.

After seven years of Obama apologizing to the world about how bad America is, we need a President who will put "we the people" first. We need a President who will keep us safe and protect our borders. This has been a hot-button topic for years and the solution is above my pay grade, but I have only heard a few levelheaded plans. To me, enacting eminent domain and seizing thousands of acres of land to "build a wall" are not practical.

People have a lot of hard decisions to make in the coming months, but the most important commitment you can make is to do your civic duty and vote.

Until next time, stay low and watch your back. ☉

Denny Hansen

SWAT

**EDITORIAL
INFORMATION**

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CALL TO ARMS

While Patrick Rogers' *Call to Arms* article was well written (March 2016 S.W.A.T.), I have two nits to pick.

The first is that no rights were "granted to us by ... people." The rights were endowed to us by our Creator. The Constitution was written to protect those rights from usurpation.

The second is about police wearing cargo pants and having vehicles with armor. The trend of police acting in a military manner via military-style uniforms and small APCs is uncomfortable to us other civilians (as police are civilians as well). Most people my age grew up seeing the police as part of our community: someone we could go to if we needed help. I would suggest that the BDU-clad officers ordering people from their homes after the Boston Marathon bombing looked much more like an invading foreign force than peacekeepers.

As for armored vehicles, I offer the police chief in Keene, New Hampshire,

who wanted such a vehicle for the annual pumpkin hurling event—just in case. Just in case of what? I doubt there has ever been a barricaded hostage situation in Keene at any event.

I don't believe most people would deny our police officers protection and equipment when the situation warrants it, but every small town doesn't require a SWAT unit that isn't needed except on very rare occasions.

R. Notkin, Massachusetts

Thank you for taking the time to contact us and provide feedback.

On your first point, Pat Rogers' comment that our rights were "granted to us by people smarter than those now in power" was referring to the Founding Fathers. We are in complete agreement with you that our Creator endows our rights to us.

Speaking for myself, and as a former peace officer, I was also disturbed by the actions of law enforcement after the Boston Marathon bombing. It remind-

ed me of the movie The Siege starring Denzel Washington.

However, I respectfully find your comment that the equipment for tactical teams is not needed "except on very rare occasions" somewhat puzzling. What happens when that rare occasion arises and officers do not have the gear they need to protect themselves and the public? It is the same reason thousands of people carry a concealed firearm every day: it is better to have one and not need it than need it and not have it.

Denny Hansen

TECHNO SAVVY

I greatly enjoyed the EDC article by Richard Duarte (*READY FOR ACTION: Everyday Carry Gear*, February 2016 S.W.A.T.). He shows a picture of an iPhone and in the text notes that, "even if the network you use is down, as long as the device is functional, you can use it for a multitude of purposes."

While your publication isn't about computers, I believe an article about

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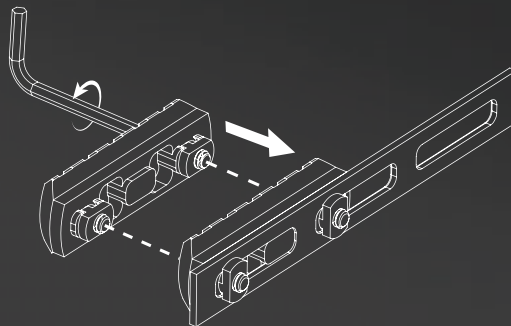


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cell phone use would be relevant and well received. Questions that could be covered might be Android vs. iPhone, and use with or without a working Internet. You had an excellent article some time back about computer security when traveling.

I read the magazine cover to cover and still, of course, find Louis' articles as relevant as ever.

B. Moore, Arizona

Thanks for the feedback. In the past, we have run several articles on specific apps, and even have one in this issue (ON TARGET: GeoBallistics External Ballistics Mobile App, page 80).

Many apps work without Internet, and an article discussing which ones and how they work would be of interest. But comparing Apple and Android products would likely be akin to discussing Ford vs. Chevy, and may be somewhat pointless as each has a devoted following.

We will continue to run Louis Aw-erbucks' Training and Tactics column and agree that the wisdom found in it is timeless.

A BETTER TOOL FOR THE JOB

I'm very glad my wife renewed my subscription as a Christmas present. I enjoy your magazine greatly, and the reviews helped me choose Rescue Training Inc.'s EMT-T course when our PD incorporated Tactical Paramedics with their tactical team, as well as providing valuable information when choosing gear and equipment.

But after reading the March issue, I feel compelled to offer two comments.

In the breaching article by Brent Wheat (*BREACHER UP! Alexander Global Strategies Breaching Class*, March 2016 S.W.A.T.), Mr. Hillis of AGS is shown using a "hooligan" tool. While an accurate depiction of the presentation, I still cringed to see it, lest others use it as an example. I am an instructor in forcible entry and technical rescue for my fire department and a firefighter with 26 years on the job. I can tell you the tool preferred by truck companies responsible for forcible entry around the country is the Pro-Bar, manufactured by Fire Hooks Unlimited. The Paratech Hooligan tool lacks the Pro-Bar's more tapered fork end, which allows easier purchase and a deeper bite

between the door and the jamb. The fork end of the Paratech Hooligan is much more like a fat, rounded wedge and is more difficult to use.

The second issue—also minor—was found in *The Cutting Edge* discussion of Winkler Knives, where Mr. Bolieu writes of the knife having a "hammer pole striker." I believe he meant to write "hammer poll," as that is the term for the bottom end of a hatchet or axe, and I expect that the spell check correction escaped notice.

D. Winston, Illinois

Thank you for taking the time to contact us and provide feedback. We appreciate your support by renewing your subscription, or should I say your wife's support. She sounds like a keeper!

Your points are well taken. Brent used the tools provided at the course, and we will pass this information on to him.

You are correct that the word "poll" should have been used instead of "pole." Author Reuben Bolieu wrote "poll," but in the process of copy editing the article, we checked Winkler's website, where it says "pole," and used that. Sorry for our mistake—and theirs. ☺



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Galco Royal Guard Holster and DMC Double Mag Carrier

After consulting friends and comparing the pros and cons of different models over the Internet, you have just purchased your first pistol. You shell out the cash for spare magazines as well as practice and defensive ammo. All told, your expenses for a good pistol and quality ammo have set you back almost \$1,800.

And then you go to the sporting goods section of a department store and pay \$15 for a nylon one-size-fits-all holster.

Getting serious about self-defense, two weeks later you attend your first pistol course. Halfway through the first day you reach the conclusion that your “bargain” holster was anything but a bargain.

No matter how good a weapon you choose, it is not the only thing that matters. High-quality ancillary gear, along with effective training, puts you in a much better position to defend yourself or your loved ones if you need to.

I recently received a Royal Guard holster and DMC Double Mag Carrier from Galco. I have always liked leather holsters. The cowboy in me comes out whenever I test leather products. The feel, look and smell of quality leather are always welcomed. And when it comes to leather, few companies do it better than Galco.

The Royal Guard is an inside-the-waistband open-top holster with no security devices. The first thing I noticed about the holster was how well the hand molding fit the handgun. The Royal Guard is fitted specifically for the gun it is designed for, and is available for a wide range of pistols. Our sample was for a SIG Sauer P229 Legion.

The body of the holster is constructed of two pieces of premium horsehide. The outside of the holster is the rough side of the leather, while inside is the smooth side of the leather. This serves two purposes. The rough side helps with greater



Front of Galco Royal Guard Holster shows excellent hand fitting. Forward cant helps prevent pistol from printing through cover garment.



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stability in the pants, while the smooth inside provides for a very slick draw. The holster has a forward cant, which is preferred by many shooters and helps keep the weapon from printing through a cover garment.

A contrasting black, metal-reinforced piece of leather keeps the throat of the holster open for easy reholstering. It is also aesthetically pleasing. This additional piece of leather extends to the rear of the holster and forms a raised sweat guard that protects the gun's finish and the wearer's skin.

The Royal Guard comes with removable black belt loops



Design of Galco DMC Double Mag Carrier takes up less real estate on belt than many other magazine carriers.



One-piece design of DMC allows both wide and thin belts to be used with equal ease.



Black leather with metal reinforcement is functional as well as aesthetically pleasing.

that fit belts up to 1¾ inches wide. Optional 1¼-inch loops are available.

The entire holster is dehorned of any rough edges, which is important for a holster worn inside the waistband.

Any time you wear a handgun, I believe you should also carry a reload. I can almost hear someone saying, "But most pistols have ten-round magazines, and less than five rounds are fired by all concerned in the average gunfight!"

To begin with, the greatest number of malfunctions are magazine related. Next, and more importantly, you should not count on your fight being "average." We practice on the range for multiple targets because we may encounter multiple bad guys.

Galco also included their DMC Double Mag Carrier, which is made of premium steerhide and cut from a single piece of leather. Folding over to the back of the pouch, a wide piece of leather is secured by one-way snaps and can accommodate belts up to 1¾ inches wide. Belt loops cut into this piece of leather can accommodate thinner belts.

Two rubber bumpers with tension screws are sandwiched between the front and back of the carrier, so the user can adjust how much tension is desired to retain the magazines. The double mag carrier works very well and takes up less real estate on the belt than many other designs.

The Royal Guard Holster and DMC Double Mag Carrier are of the high quality I have come to expect from Galco. I recommend these products to anyone who carries a weapon and is serious about their safety and that of their loved ones. Suggested retail price for the Royal Guard is \$144.95, and the DMC \$72.95. ©

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Ignore The Sign?

Someone who looks very similar to Yours Truly might have committed a minor crime a few weeks ago.

This unnamed, but exceptionally debonair, man attended a public event where every person had to pass through a security checkpoint that included a bag search and metal detector. Without going into the specifics, the result of passing through what was obviously a “Level One” crowd screening ended with Our Matchless Hero walking into the event with a concealed weapon.

Granted, it wasn't a firearm, but it had a very sharp edge. The blade wasn't anything especially threatening, but it was larger than a typical pocketknife and would certainly have resulted in ejection and a conversation with the police officers stationed at each entrance.

In spite of the signs and efforts to the contrary, this weapon got past security, and a fanatical assailant certainly could

have used it to injure or kill several people. The weapon was carried for last-ditch self-defense purposes, but had the owner been of malevolent intent, he could have earned several days' worth of national headlines for any one of the endless array of modern-day nihilistic political/religious causes.

This success in evading the security sweep of a major event has resulted in a serious inner dialogue regarding my own beliefs, specifically toward the iron-clad notion of “always follow the rules, even if you don’t agree with them.” Even more, it has me reconsidering my basic disdain for the whole “Ignore the Sign” (ITS) movement that is quietly gaining momentum.

If you're not clear, ITS supporters point out, correctly, that following instructions to disarm yourself in so-called "weapon-free zones" simply helps create and maintain soft tar-



gets that are, in actuality, Defenseless Victim Zones. Believers of ITS simply choose to ignore the signs, ordinances, or even laws that require you to jettison your guns, knives, chemical sprays, and man-portable nuclear devices.

Of course, ignoring “no weapons” signs places you in real legal danger.

Airports, court buildings, or places where strict federal laws and mandatory searches are part of the daily routine make it highly stupid to carry a weapon. Getting caught in such places with a firearm or large knife would draw a

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serious jail sentence regardless of your good intentions and character.

Of course, we all know that an otherwise law-abiding citizen would probably do considerably more time in prison than a five-time felon with multiple facial tattoos, but that is a discussion for another time.

Further complicating the issue is the fact that cities, counties, and states have a patchwork of laws and ordinances regarding weapon possession that, if ignored, could result in anything from a fine to a few years in the state pen making license plates for ten cents an hour.

Most commonly, private property is the place where someone would choose to intentionally violate weapon restrictions. In a workplace, restaurant, or shopping mall, a property owner has the inalienable right to ban weapons, and varying degrees of laws help enforce that right.

Realistically, in most circumstances there is a relatively small chance of being caught carrying a weapon, but the repercussions can be serious.

This is a common workplace situation for many folks. I know at least a dozen people who could be fired for vi-

olating job rules against weapons. They go to great lengths to avoid detection, but ultimately hang their hat on the idea that it is better to risk losing your job than your life.

Choosing to carry a weapon at public events in violation of rules is more unpredictable, as these occasions typically include security checkpoints along with actual laws backing up the prohibition. Given the climate today, such violations are considered very serious even though it might be obvious that you aren't a charter member of ISIS.

It all comes down to your cost-benefit evaluation regarding the miniscule chance of physical danger to yourself versus the very real threat of legal trouble. There isn't a black-and-white answer, but there are a few things to consider.

If you choose to ignore the signs, the most important concept is to become a "gray man," someone who is totally and utterly unremarkable. Strive to look and act like just another worker, guest, shopper, diner, attendee, or fan.

Your weapon must be profoundly and extraordinarily concealed under all circumstances, and you must resist

touching, tugging, and readjusting it while in public view. Furthermore, you must do everything in your power to prevent giving subtle indications that you are armed.

If you don't focus on looking, dressing, and acting in a bland and innocuous manner, your mouth or actions will eventually betray you.

Sporting a dozen sexy morale patches on your expensive tactical backpack, wearing a "concealed carry" vest, proudly displaying your "Kill 'em all and let God sort 'em out" T-shirt, and bragging about the \$100 "tactical death pen" in your pocket should be avoided.

In the end, we aren't advocating or supporting ITS, but simply acknowledging that more people are embracing this viewpoint. If you choose this path, be informed; be very circumspect, cautious and low-key; and know the individual odds of being attacked are quite small, but the odds of getting into serious trouble are quite high. The choice is yours, so make it wisely.

Most of all, remember the three most important rules of Ignore the Sign: You do not talk about Fight Club, er, ITS. ©



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Garmin Fenix 3 ABC/GPS Watch

I have always considered myself a watch guy. Unfortunately, I have a bit of a negative effect on analog watches and slow them down during wear, which is only compounded by my love for analog and distaste for digital.

For some time, I have either had to put up with a watch that ran slow, or use or make watch bands that separate the watch from my wrist. But with the invention of ABC watches (Altimeter, Barometer, Compass), I started taking a more serious look at digital watches. I didn't like the watch function being digital any more than I ever had, but the other functionality definitely made up for it.

Eventually companies like Suunto and Garmin upped the ante by adding GPS to their ABC watches, but something was still missing—an analog watch face. Now the Garmin Fenix 3 has finally changed the game for me: all the benefits of an ABC/GPS watch with the aesthetics of an analog watch face.

FUNCTIONS

If you're going to spend your hard-earned money on a watch, you want to make sure it's functional enough to enhance your day-to-day life and add to your EDC without overcomplicating issues.

The Garmin Fenix 3 is a feature-rich watch that has a little something for everyone. Its full color (with optional negative mode) display provides a very vibrant experience and, with its available custom apps, widgets and watch faces, you can customize the Fenix 3 to your liking and personal needs.

The rechargeable battery means varying hours of use depending on the features activated and whether or not those features use GPS, which takes more battery power.

Out of the box, ready-to-use features include the standard compass, altimeter and barometer functions found on all ABC watches, while very little digging accesses the GPS features.

The Fenix 3 utilizes Bluetooth to pair with a smartphone, which displays smart notifications such as e-mail, text, and caller ID when receiving

a phone call. It also has the ability to display the weather and allow you to control the music on your phone. But I have found that it un-pairs itself from my phone from time to time and needs to be re-paired.

The Fenix 3 is also enabled with GLONASS (Global Navigation Satellite System), which works with the EXO GPS antennae for faster satellite acquisition.

With its 23MB of useable storage, it can store maps of your favorite areas or up to 1,000 waypoints, favorites, and locations, so you can mark a new favorite camping site, fishing spot, or point of interest (POI).

The Garmin Fenix 3 provides many features to help you get the most out of your exercise regimen, including features for hiking, cycling, swimming,



Analog face on Fenix 3 is a welcome addition, but can be switched to a digital face if desired.



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Above: GPS features on Garmin Fenix 3 make it a great hunting companion during tracking.

Right: Author hangs Fenix 3 from ridge-line in his hammock so he can monitor temperature and weather.

Below: Fenix 3 can be charged in the field with any battery back-up or solar charger utilizing USB ports.



skiing, running, and other physical activities. With heart rate monitoring and activity reminders, the Fenix 3 takes a healthy lifestyle very seriously.

DAILY USE AND IN THE FIELD

When I started wearing the Fenix 3, I found the transreflective MIP screen to be vibrant in the light but very dim and hard to see in low light.

One solution was to set my backlight on the lowest setting and set the time-out to “stays on.” This way if I need the ability to monitor the time, stopwatch, GPS, compass, or other features during low-light situations, I can simply press the backlight button and the backlight remains on until I press the button again. Monitor battery consumption during this kind of use.

The battery holds a charge for roughly 14 days on average while utilizing the Bluetooth features, compass, GPS, and

a few of the other built-in functions regularly. Battery use varies depending on the features utilized, but is listed at 50 hours in UltraTrac and 20 hours in GPS training mode. If you require more life out of your battery, limit your general daily use to watch mode only. This gives you up to six weeks of battery life.

In the colder seasons, I hang the Fenix 3 from the ridgeline of my hammock with the temperature screen displayed, so I can easily monitor my hammock’s internal temperature throughout the night. With the quick press of a button, I can check the barometer to keep an eye on the weather. I have found the barometer to be accurate enough to give me a solid idea of changing weather patterns, while the temperature feature has proven accurate within a few degrees.

The Fenix 3 is equipped with a storm

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alert. During the entire time I have had it, I have not received one warning, even though some serious storms have moved through, so I have found that feature lacking.

The compass has been accurate during use, but needs to be calibrated from time to time to ensure accuracy. Fortunately, calibration is very easy and only takes one simple step, although when utilizing GPS, the compass gets its directions from the satellite and does not need to be calibrated.

The GPS makes a great hunting companion, allowing you to store the coordinates of deer camp in the event you lose your way while tracking game. Ideally you will be paying attention, but preparation is the key to longevity. The GPS communication with the satellite is very good during the winter months and functions as well as any other GPS while under heavy canopy, meaning it still performs but can be spotty.

For its size and weight, I have found the Fenix 3 to be comfortable and unobtrusive during daily wear. It's comparable in size to most other watches in the ABC category. The Fenix 3 is built for rugged durability and has been able to withstand everything I put it through without showing a mark.

If you want to change the look or fit, different bands can be purchased for the Fenix 3. They are attached using a durable rod and bolts for strength.

CONCLUSION

During the time I have been wearing the Fenix 3, it has been a very capable watch that has performed quite well in the field. Could I live without it? Of course. It hasn't become part of my DNA. Would I want to? Not really. It *has* become part of my EDC system.

In the new world of smart watches, the Garmin Fenix 3 has emerged as a wrist-top computing platform for the outdoorsman who is more interested in useful features than the ability to play games on it. I have quite a few good watches, but they all have one thing in common since I have been using the Fenix 3—they are all collecting dust.

With retail prices ranging from \$499 to \$599, the Fenix 3 will change the way you head into the field. ☺

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BLACK LABEL

VERSION 2.0

Browning Black Label .380

Last year I did an article on Browning's Black Label .22 LR pistols (*MIGHTY MINIATURE: Browning Black Label 1911-22*, April 2015 *S.W.A.T.*). They are tiny clones of properly equipped 1911s in defensive calibers, with high-visibility fixed sights and enlarged grip and thumb safety. I bought two of them, one with a rail and one without, and have been shooting the hell out of them—they're great.

The 2015 SHOT Show revealed the next step: a Black Label in .380 ACP. The .380 is usually considered the bottom line in defensive pistols, and most police agencies

I know allow a .380 as the minimum for off-duty or second guns. But with modern ammunition, it is not a bad choice for those who have small hands or are recoil sensitive. And although the .380 may seem minimal to most Americans, it's used regularly by police officers all across Europe.

I thought a .380 might be of interest to *S.W.A.T.* readers, so I arranged a sample gun.

BLACK LABEL IN .380


The gun is almost identical to the .22s mentioned earlier. The only difference is a bar-

rel length one-half inch longer. This made it a little less comfortable when carried in a bellyband, but guns are supposed to be ... *S.W.A.T.* readers can surely complete this sentence.

I sent the gun to Jon Grossman of SheepDog Knife & Gun to remove the magazine release safety, clean up the trigger, and build a couple of right- and left-handed IWB holsters. As always, the work was outstanding and quickly done.

I did have some trouble locating .380 ammunition. My local gun store had a partial box of factory ball of unknown age and history. It looked clean and uniform

BY JEFF HALL



Browning Black Label .380, Winchester PDX1 ammo, and Kydex holster and mag pouch from SheepDog Knife & Gun. Good gear in a small package.

and they were happy to get rid of it. Winchester stepped into the breach and provided their high-quality PDX1 Defender hollow-point defensive rounds.

I fieldstripped and cleaned the pistol, which is pure 1911—no surprises. I function fired the little gun with

the ball and there were no malfunctions. I was surprised that it shot well, with little muzzle flip and good accuracy. It seemed to have less bark and bite than my old PPK/S. Even with ball of

questionable ancestry, the gun held one-hole groups at five yards—not bad for a pocket pistol.

I was more surprised when I was hitting clay birds stuck in bushes and on stumps out to ten to 15 yards. I cleaned the gun and stuck it in the safe until it was

time for my annual trip to Thunder Ranch. Clint Smith, a legend in the gun world, holds one weekend every year for my martial arts students and me.

The nine-hour drive flew by in the company of Sgt. Rob Boothe, Spokane, Washington PD, with the Browning tucked into the IWB holster, with a spare mag in an IWB carrier. The lightweight and compact gun and mag pouch went practically unnoticed on the long drive.

ON THE RANGE AT THUNDER RANCH

We arrived at Thunder Ranch early, and Clint turned us loose on the range. We decided to run the .380 through some drills with the Winchester Defender, shot by Boothe and myself.

Each of us fired five-shot groups at seven yards, with all the rounds touching. We performed fail-to-stop drills, non-standard responses (five to seven hits in the torso), and head and pelvis shots.

We switched to steel, getting solid hits in compressed time frames out to ten or 12 yards. We fired 100 rounds of Winchester Defender ammunition without a single malfunction.

Both of us were impressed by the little Browning's accuracy, reliability, and ease of shooting. We both carry .45s most of the time but agreed the compact .380 would be a handy gun for summer clothing or as a second weapon for those of us who



Bangin' steel at 15 yards.



Above: Author's five-shot group at seven yards using Winchester PDX1 ammo.



Sgt. Boothe shoots at ten yards.



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Sgt. Boothe runs Black Label .380.

usually carry two guns. As I write this, it's 107 degrees, so when I ran into the grocery store, the .380 went into the IWB holster under a loose tank top.

I figure that a small pistol (.22, .38 or .380) is an up-jumps-the-devil at close range affair. I'd probably be at bad-breath distance and I practice presentations to head shots often. I'd likely press the trigger several times quickly in that type of situation. A round or two should find their way inside the brain-housing group and solve the problem.

The Browning Black Label .380

is a reliable, accurate, lightweight compact pistol, on the low end of defensive calibers. If you believe that any gun is better than no gun, and that a small pistol in hand is better than a big pistol at home in the safe, the Black Label .380 is a good choice. ©

Jeff Hall is an Army veteran, retired Alaska State Trooper lieutenant, and NRA staff instructor. He also teaches for several state POST agencies. He is a martial arts grandmaster and founder of Hojutsu-Ryu, the martial art of shooting. He can be reached at soke@hojutsu.com.

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Gun-Ban Zealots Unleashed

Democrats have long been the party of “gun control,” but for the last 20 years or so have, in much of the country, tried to keep their eagerness for forcible citizen disarmament under wraps.

Former President Bill Clinton identified the people’s backlash against the ban of so-called “assault weapons” in 1994 as having played a leading role in the party’s dreadful electoral showing that year. Al Gore’s advocacy of restrictive gun laws may very well have cost him his own state of Tennessee in the 2000 Presidential election—thus costing him the Presidency itself.

Reluctance to reveal the depth of intensity of their zeal to disarm Americans became even greater following the Supreme Court’s *District of Columbia v. Heller* decision in 2008, which clearly stated that the Second Amendment protects the *individual’s* right to keep



via www.smith-wesson.com

and bear arms, rather than the right of some nebulous “collective.”

When, two years later, the Court decided in *McDonald v. Chicago* that the right to keep and bear arms is sufficiently fundamental to merit incorporation, thus limiting not only federal power to disarm the people, but state and local governments’ power as well, Democrats running for office felt even more obligated to proclaim their “respect” for the Second Amendment.

It should surprise no one that the pendulum would eventually swing in the other direction, with Democrats—even in regions with a strong tradition of gun ownership—emboldened to attack the people’s access to life-and liberty-preserving firepower with hardly as much as a nod to the Second Amendment.

The beginning of the shift can per-



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The Democrats—even the “moderate” ones—have lost their fear of the consequences of infringing that which *shall not be infringed*.

haps be traced back to the horrific Sandy Hook Elementary School massacre in December 2012, in which 20 young children and six educators and administrators were murdered by a deranged lunatic with a stolen rifle. “Gun control” advocates cynically exploited that horror to advance their agenda, and continue to go back to that playbook with every high-profile shooting.

Gun-ban zealots’ spirits got another boost in December, when the Supreme Court refused to hear a challenge to Highland Park, Illinois’ “assault weapon” ban. This, they falsely tell us, can be seen as a tacit endorsement on the Court’s part of the Constitutionality of such bans. In reality, the Supreme Court had never ruled on that question, and still has not, so nothing has changed—but that doesn’t fit the preferred narrative.

Thus Hillary Clinton, who, while on the campaign trail in 2008, reminisced fondly about duck hunting with her father, now calls gun-rights advocates a “minority” who must not be allowed to “hold a viewpoint that terrorizes the majority of people.” That’s right—she wants to ban a *viewpoint* that she deems dangerous.

Clinton’s current Presidential campaign also features frequent attacks on rival Democrat candidate Senator Bernie Sanders (D-VT)—a *socialist* who wants to ban “assault weapons”—for not being extreme *enough* in his advocacy of oppressive gun laws. What’s more, those attacks are hitting home. Sanders’ best-known “pro-gun” vote was in 2005, in favor of the Protection of Lawful Commerce in Arms Act, which protects the gun industry from frivolous and predatory lawsuits that have nothing to do with malfeasance on the part of the industry.

This has been Clinton’s favorite target when attacking Sanders’ “gun control” street cred. At first he defended that vote, pointing out that no one would consider suing a hammer manufacturer for making and selling a hammer used as a murder weapon.

But now Sanders is co-sponsoring a bill that would repeal legislation he vocally supported only a few months ago. He is, in other words, more fright-

ened of being “out-gun controlled” than he is of showing himself to be so transparently willing to put political expediency ahead of principle—in a campaign built largely around his ostensible role as the candidate of integrity and principle.

But Democrats’ newfound willingness to openly pursue draconian gun regulation is not restricted to Presidential or national politics. In Georgia, legislation has been introduced to ban so-called “assault weapons,” so-called “high-capacity” magazines, so-called “armor-piercing” ammunition, and .50-caliber incendiary ammunition.

So far, there is nothing particularly new here—most of these things have been favorite targets of gun-ban zealots for a long time. There is no “grandfather clause” in these bills to protect the right to keep such arms if already owned in the state prior to the effective date of the law, even for those willing to register them with the state.

That’s right, what one bought legally and kept legally will suddenly become illegal, and the owner a felon. The state will not even attempt to compensate the owners, who will be required to surrender their arms and eat the entire cost themselves.

Granted, the bill is going nowhere, but the fact that Georgia Democrats are willing to have their names associated with it at all is telling. If introduction of and support for such legislation is not a death knell for a political career in a southern state like Georgia, can similar bills be considered impossible to *pass* in states in which the people have historically been far more willing to allow themselves to be denied effective fighting arms?

The Democrats—even the “moderate” ones—have lost their fear of the consequences of infringing that which *shall not be infringed*. Indeed, it seems they now fear more for their political careers if they do *not* attack the right of Americans to keep and bear arms.

What they seem to have forgotten is that as consequences for violating Americans’ fundamental human rights go, an electoral loss and the end of one’s political career are pretty small potatoes. ☹

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This is readily apparent as it relates to those who are in the business of keeping the peace and holding the line between good and evil. Every company you talk to, from the smallest to the largest, has that “thing you need.” Companies understand marketing better than ever, and with technology, they also know their customer base better than ever. Most of the products, gadgets, and gear you carry are results of specific needs, but there are times when you are issued or purchase something because at that moment it seemed to be the

thing you could not function without.

It has happened to me and I have seen it happen to others. Months later, you're looking at that same piece of equipment sitting on a shelf because it did not truly fit what you needed or did not function the way it was marketed by a salesman.

If the equipment and gear you have and carry are functional—and I mean actually functional, in that you have successfully used them on duty or on missions—they are probably pieces of equipment to keep on hand.

By successfully, I mean that the opportunity to use or deploy said equipment was present, and the equipment was used. It may or may not have per-

formed in the manner needed, but you had the ability to evaluate it in a real situation. Many times agencies, teams or units will conduct their own test and evaluation of a product before considering it for purchase.

But often you may not have the operational tempo to allow good testing of the equipment prior to the return deadline to the company. You may also find yourself having a good operational tempo but not have an operation appropriate for that piece of equipment.

It is imperative to put any piece of gear through some real tests before deciding if it fits what you need. I understand that many times, the equipment may be “tested and approved” by any number of organizations, but it really boils down to you and *your* needs and uses.

Other factors that are unique when it comes to new equipment are your area and terrain. More than once, when I want to see a product and its capabilities, I either get equipment from a company for test and evaluation or the company actually comes out to use the equipment with me.

Either way has worked for me, as I am simply interested in putting the equipment through an evaluation in the circumstances that I dictate, because I am the one who knows best how I will use it. But I caution you: having the company “show” you how their equipment works under operational guidelines can be less than productive. And for me, on at least one occasion it was downright dangerous.

Another very important consideration when you are looking at equipment is how practical it is. When I say practical, I am using a broad stroke to cover different areas. How will the equipment fit into your operational parameters? Can you train on the equipment to ensure proper deployment and use? Will you have the ability and means to actually use the equipment? Do you have so many different pieces of equipment that the choices are overwhelming?

I have witnessed and even been part of having a ton of different gear, but



Make sure your gear fits your operational needs.

only using about one-third of it. Many times this came down to what the tactics, techniques and protocols used most often were, and what equipment fit that equation.

If the equipment my team or I had did not fit our operational tactics, no matter how new or cool it was, it would not be used operationally. In fact, many times we found ourselves using equipment that might have been considered “stone age” because it fit operationally and had been fully tested and used successfully.

This leads into the discussion of equipment that has been improved over the years. You have a workhorse piece of equipment that has served you faithfully over the years, but with technology and solid input from end users, the latest and greatest version of that equipment is now available.

This gear is the easiest to make a decision on because its operational need and application have already been proven. Then it becomes a matter of ensuring that the “improved” piece meets all the same parameters we have discussed to this point.

Many of us also suffer from budgetary constraints, which can affect both the quantity and quality of the equipment we have access to. Then it becomes imperative to ensure you have mission-specific gear that is prioritized based on *your* operational patterns and needs. That’s easier said than done, but your life and mission accomplishment should drive your equipment rather than budget alone.

As with everything you do, take the time to make informed decisions, especially if your decisions affect others and may become life-or-death matters. Evaluate gear for your specific needs, be honest in your reasoning, and do not get caught up in the “keeping up with the Joneses” mentality. After all, you don’t want to be “that guy.” ☺

Matthew Thomas is a 22-year veteran of the Pinal County, Arizona Sheriff’s Office and holds the rank of Lieutenant. He was a member of the Regional SWAT team for 17 years and retired from the team as the SWAT Commander. He is currently the regional Commander for the San Tan Valley patrol region.

Being loaded down with extraneous gear does not make you an “operator.” It makes you “that guy.”



The Lanchester SMG

NOT as well-known as the Sten or Sterling submachine guns (SMGs), the Lanchester reflected the scramble after the evacuation at Dunkirk to arm British troops to fend off the expected German invasion. The successful use of airborne troops by the Germans during the early days of World War II also emphasized the need for weapons to counter a possible German airborne assault on Britain.

Many British heavier weapons had been left behind in France, and the primary infantry arm was the SMLE Mk III bolt-action rifle. The Army had a limited number of Thompson SMGs and Bren LMGs, but the Royal Air Force (RAF) and Royal Navy desired SMGs to

protect airfields and naval facilities.

Based on the need for speedy development of a submachine gun, the German MP 28, two examples of which were reportedly acquired in Ethiopia, was copied. It was determined that 50,000 copies would be required to meet immediate demands.

Sterling Armament Company was chosen to quickly produce prototypes, and two were ready by November 1940. Testing began immediately, and both proof and functioning trials were carried out. 5,204 rounds were fired with 26 malfunctions.

Most of the malfunctions were attributable to problems with the ammunition being used. The SMG passed

accuracy testing as well as functioning after being placed in mud and sand.

Due to the immediate demand for the "Schmeisser" copy, it went into immediate production. Since George H. Lanchester had been the engineer who developed the weapon and supervised its production, it was designated the Lanchester Mk I.

This was a copy of the German MP 28/II with some minor changes. It took a 50-round magazine that protruded from the left side of the receiver but would also take 32-round Sten magazines. The Mk I was replaced by the Mk I*, a simplified version that eliminated the selector switch of the Mk I, thus allowing only full-auto fire.



Above: Right side of Lanchester shows brass buttplate, magazine housing, and safety notch into which bolt can be rotated.

Left: Top view of Lanchester Mk I*.

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GSS00



Lanchester's cocking handle, magazine housing, and protected front sight.

Originally, the Lanchesters produced as part of the order for 50,000 weapons were to be split between the Royal Navy and the Royal Air Force. But since the RAF had acquired 2,000 S&W 9mm carbines from the United States, most of the Lanchesters that would eventually be manufactured went to the Royal Navy. These Naval Lanchesters would remain in service for decades, as they were not declared obsolete until 1979.

I have seen production figures of 80,000 given, but other sources state that Sterling produced 74,579, Greener 16,990, and Boss 3,900. The latter two manufacturers were best known for producing shotguns.

At a time when the British armed

forces needed as many weapons as possible and quickly, the Lanchester was expensive and time-consuming to produce. German weapons prior to WWII were often known for their extensive machining. As the Lanchester was based on the MP 28, it also required substantial machining.

Materials used in its construction were also expensive—for example, the solid brass magazine housing. Production rate for the Lanchester was about 3,400 units per month. As Lanchester production got underway, the Sten Gun, designed for cheap, quick production, was already under development. As a result, Lanchester production ceased in October 1943.

As the Lanchester was used pri-

marily by the Royal Navy, its weight of almost ten pounds did not prove as disadvantageous as it would have for infantrymen. Its heavy design, with a sturdy wooden stock and machined steel receiver and breech block, plus its brass magazine housing, made the Lanchester a durable gun well suited for use by naval landing or boarding parties.

The stock was very similar to that of the SMLE Rifle No. 1, which gave it a familiar feel to troops trained on that rifle. It had a brass buttplate, which along with the magazine housing, made it more resistant to rust in naval service. Also making the Lanchester suitable for boarding or guarding prisoners, the Lanchester took the 1907 bayonet.

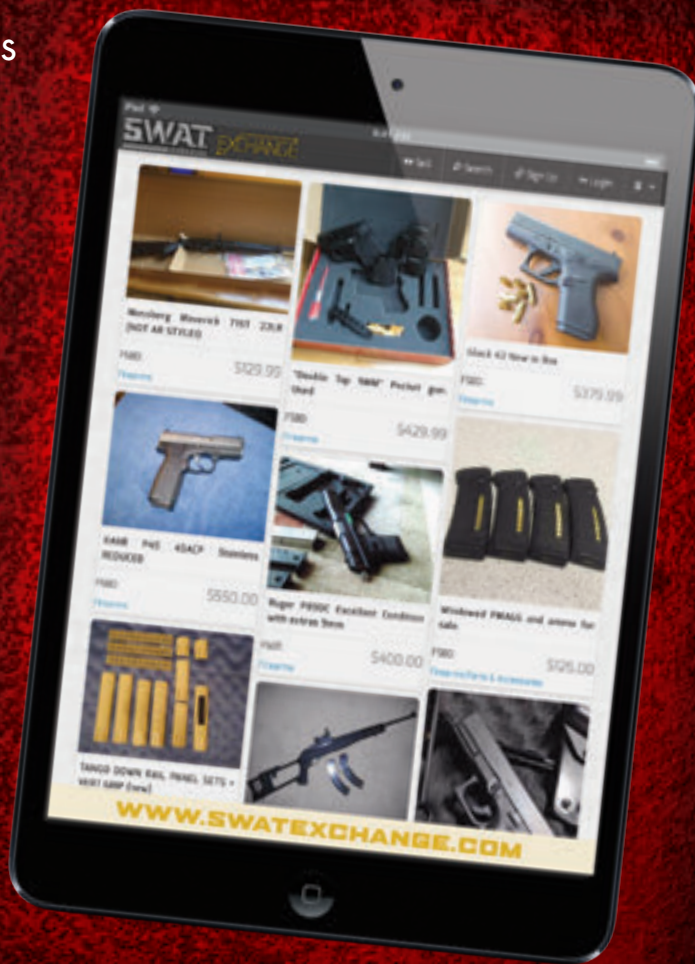


Lanchester's rear sight was protected by ears and initially quite optimistic, having a setting to 600 yards. This is the later flip-up 100/200-yard style.

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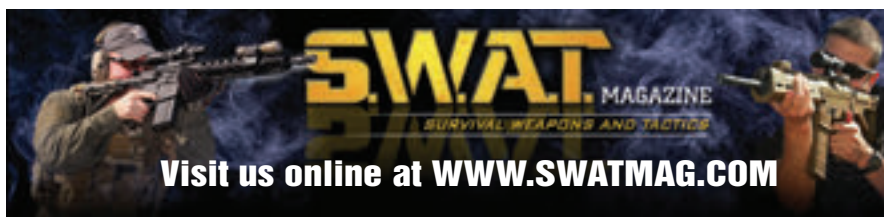
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The Lanchester was an open-bolt blowback design with a cyclic rate of 600 rounds per minute. This rate was low enough and the SMG heavy enough that, when the selector switch was removed on the Mk I*, the weapon could still be fired readily in short bursts.

Somewhat like the Sten, the Lanchester used a locking cut in the receiver, which allowed engagement of the bolt in the cocked position. This safety was known for failing if the Lanchester was dropped on a hard surface. In naval service, decks and other hard surfaces were myriad.

As SMG sights go, those of the Lanchester aren't bad, though the original tangent rear sight's adjustment to 600 yards seems very optimistic. This rear sight was later changed to a two-leaf flip-up type for 100 and 200 yards.

The side-mounted double-stack, single-column-feed magazine is not known for its reliability due to bulging of the feed lips when loaded, though the fact it feeds from the left removes some of the pull of gravity of a bottom-feed magazine. The 50-round magazine is also quite difficult to load.

I have read that the British Commandos used the Lanchester, though in reading dozens of books on the WWII Commandos and examining hundreds of photos for a book I did about the Commandos, I have never seen one in use by them.

It is possible the Royal Marine Commandos had some or the Royal Navy Beachhead Commandos were equipped with the Lanchester, but overwhelmingly the SMG used by the Commandos was the Thompson.

One interesting comment on the Lanchester I heard recently is that it is a very Steampunk-looking weapon. Maybe so, but of the four SMGs used by the British in WWII—Thompson, Lanchester, Sten, and Sterling—it probably saw the least combat.

I have fired a large number of rounds through the other three, but only one or two magazines through a Lanchester. I found it heavy and not well balanced, though its weight and fixed stock did make recoil virtually unnoticeable, and its muzzle rise was relatively easy to control.

With its brass fittings and wooden stock, I do find the Lanchester a really interesting-looking SMG. Maybe I just like Steampunk! ☺

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SWITCH HITTER

Beretta ARX

BY NICK JACOBELLIS

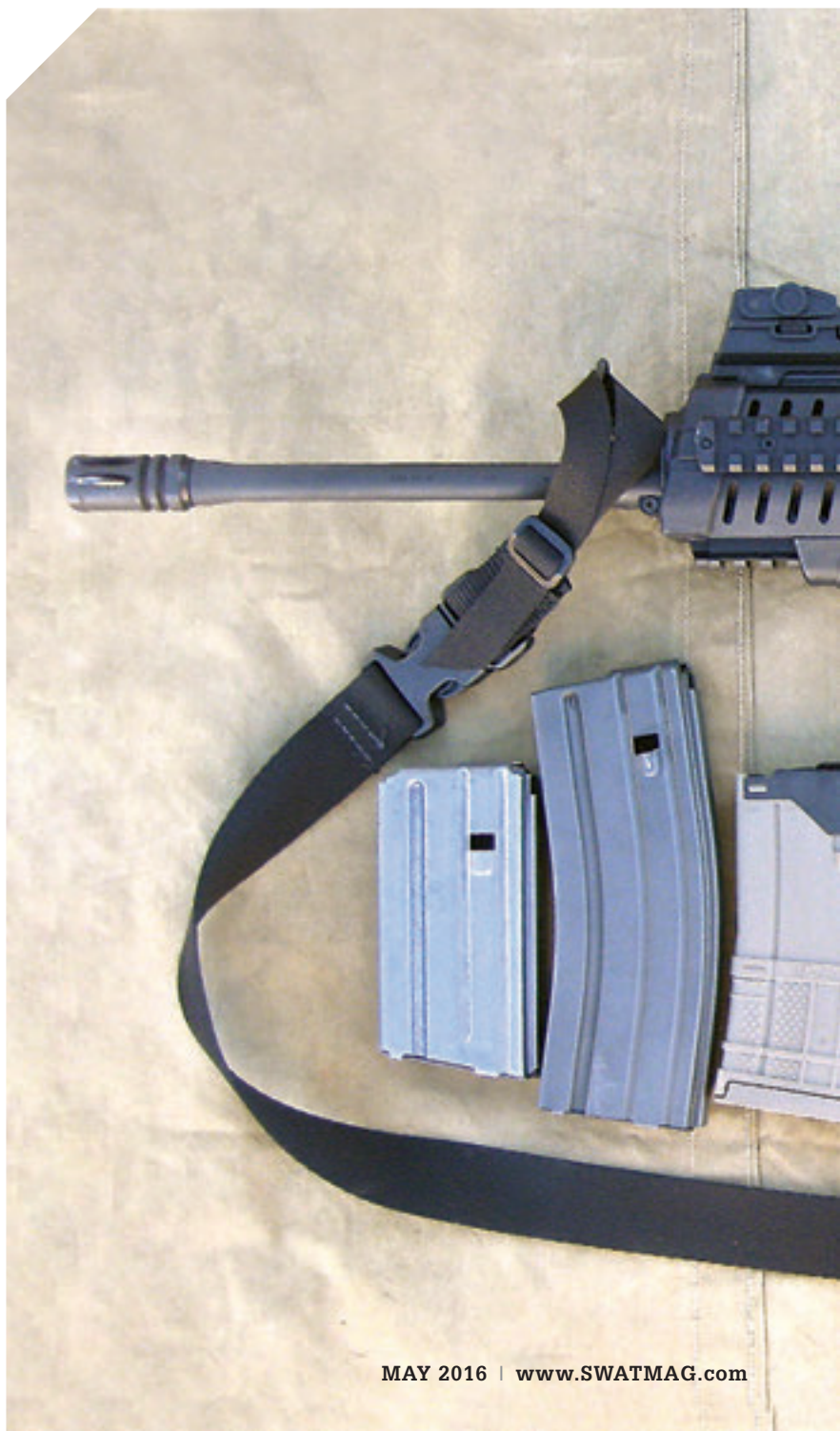
AS someone who carried government-issued and personally owned Colt and Ruger 5.56mm NATO caliber carbines during my law enforcement career, I was interested in evaluating a Beretta ARX 5.56 NATO carbine to determine how this rifle performed compared to more popular designs. Here are the results of the ARX field test that began in 2014 and ended in 2015.

SPECIFICATIONS AND FEATURES

The Beretta ARX operates on a constant-contact, short-stroke gas piston. This modular multi-caliber-capable semiautomatic carbine with 16-inch barrel is largely based on the Italian armed forces service rifle known as the Beretta ARX 160, so its roots are in a battle rifle that has been thoroughly field tested.

The gas-piston system is worth noting. First, like other piston-operated rifles, the ARX runs cleaner and cooler than a rifle that operates with a direct-impingement gas system. The ARX gas system can also be adjusted to function reliably when the rifle is operated under adverse conditions, such as when the rifle is heavily fouled from extensive use or when certain types of ammunition are used.

The ARX is very easy to maintain due to its lightweight techno-polymer construction that requires very little lubrication. A Beretta ARX chambered in 5.56mm NATO is also



Beretta ARX, here with Aimpoint CompM4, folds into a compact package for use in vehicles.



Beretta ARX proved flawlessly reliable while used with Lancer, PMAGs, BRAVO Company and 1980s-era Colt M16/AR-15 magazines.

SWITCH HITTER

BERETTA ARX



Above: Beretta ARX with EOTech optic attached to top rail and SureFire Mini Scout Light attached to left rail.



More robust extended charging handle would make ARX more user friendly.



Many users will appreciate ARX's ambidextrous controls.

designed to reliably operate with metal and plastic M16/M4 magazines.

The carbine is equipped with a full-length Picatinny rail that can accommodate a variety of optics. In addition, the ARX is fitted with rails at the three, six and nine o'clock sides of the forend. The side rails are attached to stand-off points rather than attaching directly to the handguard. This makes them protrude more than necessary.

In order to be U.S. compliant, Beretta USA manufactures their own cold-hammer-forged barrels for the ARX. The carbine barrels have a 1:7 twist and Nitride finish to protect against corrosion. The muzzle is fitted with a standard A2 flash hider.

The ARX is fully ambidextrous and can be easily configured without tools to be operated with the charging handle positioned on the left or right side of the rifle. In addition, it can be easily configured to extract empty brass from either side of the receiver. The ARX ejects empty brass at an angle that makes it possible for a left- or right-handed shooter to comfortably operate this rifle, regardless of how the rifle is configured. The ARX's charging handle is quite small.

Other ambidextrous features on the ARX are the magazine release mechanism, two-position safety, and bolt-release mechanism. A second magazine release is located under the trigger guard.

The ARX is equipped with a set of removable/flip-up backup sights. While the front sight is a rotating post that can easily be adjusted for windage and elevation, the rear sight uses a rotating wheel to make adjustments to the aperture. If you prefer a different sight picture, the ARX can be fitted with flip-up sights that are commonly used on M4 variants.

The Beretta ARX is equipped with a side-folding, four-position telescopic stock that the operator can adjust to meet his needs. This feature makes the ARX easier to store and carry while entering or exiting vehicles. The carbine has a plain Jane but functional pistol grip.

The ARX comes with an adjustable nylon sling, two steel Beretta 30-round magazines, a well-made nylon case, and a manual.

FIRST IMPRESSIONS

Six shooters, including three with law enforcement backgrounds, field tested

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SWITCH HITTER

BERETTA ARX



Above: Right side of Beretta ARX equipped with Aimpoint CompM4, 30-round PMAG, and issued Beretta nylon sling with stock folded.

Left: Bolt hold-open buttons are located at forward edge of trigger guard.

Right: Side rails are attached to stand-off points, rather than attaching directly to the handguard. This makes them protrude more than necessary.



ARX's barrel is fitted with standard A2-type flash hider.



ARX has molded-in shell deflector at rear of ejection port.

the ARX. Once it was sighted in using the standard fold-down/flip-up sights, the ARX was equipped with an EOTech XPS2-0 holographic red dot sight.

One observation worth mentioning is that, even though the ARX does not look like an M4 carbine, five out of six members of my test team had no problem with the overall ergonomics or any of the ARX's operating features. (See the sidebar on Pros and Cons.) One member of the test team who did not like the overall ergonomics of the ARX and felt the trigger was too heavy for his personal preference was still able to score good hits with the carbine.

Whether used to engage targets at CQB distances or beyond to 100 and 300 yards, the Beretta ARX delivered excellent shot placement.

The ARX proved to be flawlessly reliable at all times during this long-term T&E, while being used with premium brand Federal and Winchester 55-grain 5.56 NATO ammunition. Test magazines consisted of the supplied

30-round metal Beretta magazines, 20-round plastic Lancer magazines, various 30-round Magpul PMAGs, aluminum 30-round Bravo Company magazines, and 1980s-era metal Colt M16/AR-15/CAR-15 magazines. We also mounted a SureFire Scout Light.

The Beretta ARX was operated barehanded and while wearing Oakley tactical gloves.

ADDITIONAL RANGE SESSIONS

During the second range session, a patrol sergeant, an FFL SOT dealer, a security officer and a retired SWAT cop who served as a security contractor in Iraq assisted me in field testing the EOTech-equipped Beretta ARX by engaging targets at 15, 25, 150 and 300 yards.

While engaging an Arizona POST-approved TQ19 Firearms Qualification Target at a distance of 15 yards from a standing unsupported position, the EOTech XPS2-0 holographic optic made it possible to deliver all rounds fired into the mid-torso area of the target. Once

PROS AND CONS OF THE BERETTA ARX

POSITIVE FEATURES

1. During this evaluation, the test rifle proved to be combat accurate, flawlessly reliable, and easy to carry and wield.
2. The Beretta ARX has its roots in a design that was subjected to military testing before being adopted by the Italian Armed Forces and other nations.
3. While the side-folding stock is not as robust as other battle rifle stocks, the ARX's side-folding retractable stock is lightweight and comfortable to use. The same is true for the pistol grip.
4. The ARX is easy to disassemble into four main parts.
5. The ARX is reasonably priced for a piston-powered carbine, especially considering its potential for use in other caliber configurations.

CRITICISMS

1. The flip-up Beretta ARX sights are not as user friendly as the sights commonly found on more popular rifles and carbines, including M16, AR-15 and M4 variants. The good news is the ARX sights can be replaced.
2. During the earlier range sessions, the trigger in the test rifle was heavier than the trigger in M4 variants or in SIG 556/556xi rifles. But the test rifle's trigger seems to be improving with use.
3. The ARX's accessory rails extend too far from the forend.
4. While no one on the test team had any problems operating the charging handle, a more robust extended charging handle would make the ARX more user friendly.
5. The fire/safety control mechanism was initially very stiff to operate, but improved over the course of the testing.



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SWITCH HITTER

BERETTA ARX



To raise sights, button is pushed from one side. To fold, button on opposite side is depressed.



Pushing button on stock disengages two teeth from receiver, allowing stock to fold.



Button to extend stock is located inside buttplate.

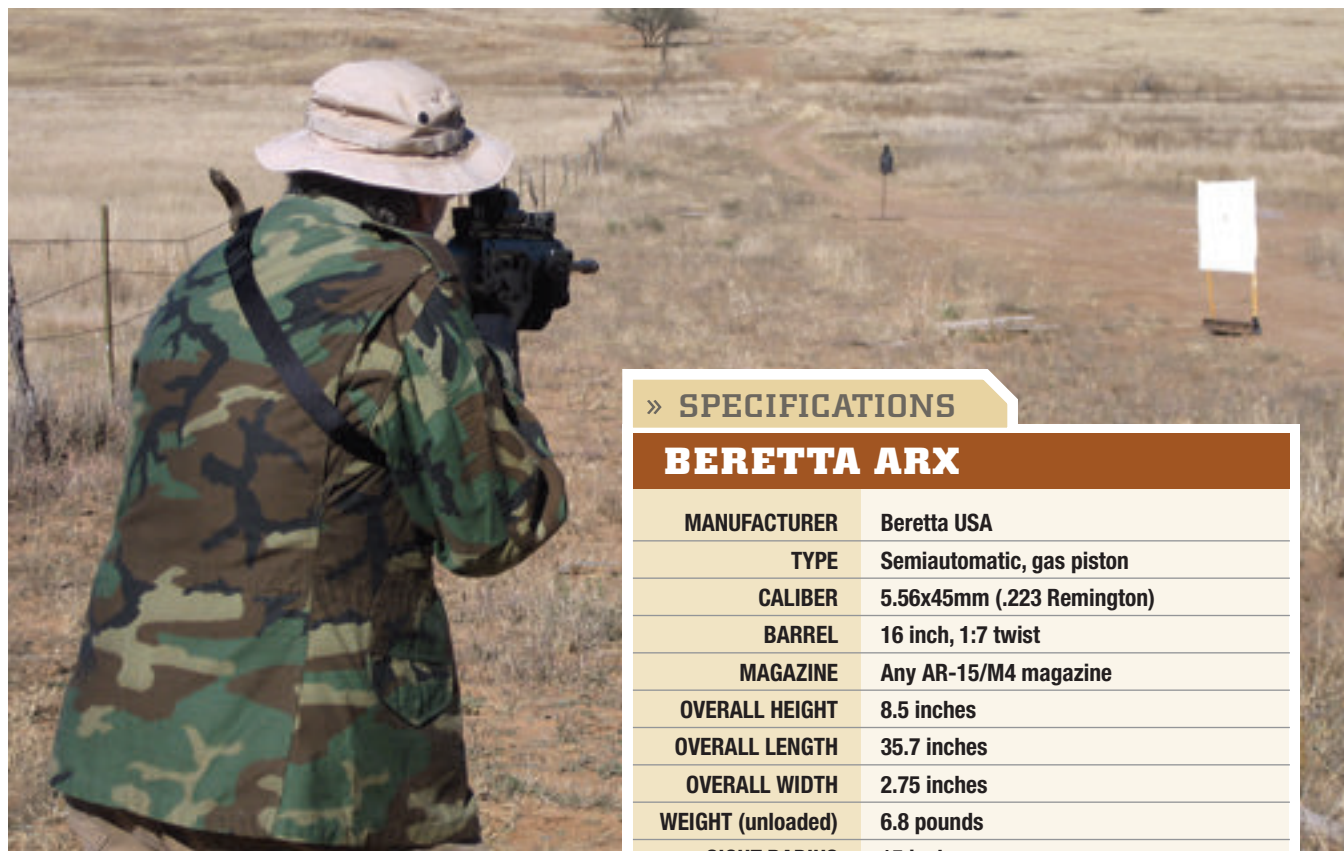
again the Beretta ARX proved accurate, easy to operate, easy to wield, and flawlessly reliable.

A left-handed shooter had no problem field testing the ARX, although the carbine was set up to eject empty fired brass from the right side of the receiver.

During subsequent range sessions, the ARX was sighted in with an Aim-

point CompM3 in a GG&G QD mount and an Aimpoint CompM4. Once the ARX was properly sighted in with these optics, more rounds were sent down-range, with the results virtually the same as documented in previous range sessions.

After field testing the Beretta ARX on several occasions since 2014, I decided



» SPECIFICATIONS

BERETTA ARX

MANUFACTURER	Beretta USA
TYPE	Semiautomatic, gas piston
CALIBER	5.56x45mm (.223 Remington)
BARREL	16 inch, 1:7 twist
MAGAZINE	Any AR-15/M4 magazine
OVERALL HEIGHT	8.5 inches
OVERALL LENGTH	35.7 inches
OVERALL WIDTH	2.75 inches
WEIGHT (unloaded)	6.8 pounds
SIGHT RADIUS	15 inches
SIGHTS	Removable flip-up
SUGGESTED RETAIL	\$1,950.00

Author engages MGM IPSC target at 25 feet and metal plate at 75 yards from standing unsupported position with Aimpoint CompM3-equipped Beretta ARX.

to put the ARX through another range session in November 2015 before submitting this article.

I began this range session by engaging an MGM IPSC cardboard target from a supported sitting position at a distance of 50 yards. A member of my test team who is a patrol supervisor and I engaged this target three times.

The three groups produced during this range session were triangular in shape and delivered almost identical results, with group sizes measuring 2.5x.75x2.5 inches, 1.75x1.5x2.5 inches, and 2x.75x1.5 inches. Two additional similar-sized triangular-shaped groups were achieved when the ARX was used to engage a TQ19-size metal plate at a distance of 100 yards.

The second half of this field test involved conducting a "fast fire" drill with the ARX while engaging an MGM IPSC target at a distance of 25 feet standing unsupported, and a TQ19 metal plate at 75 yards from a kneeling position.

During this drill, 46 rounds of Federal M193 55-grain 5.56 NATO ammunition were successfully delivered on the head, chest and lower torso areas of the MGM target, while the remaining 14 rounds fired successfully impacted the metal plate.

The Beretta ARX was also used again to engage a metal target at a distance of 300 yards.

After being disassembled and inspected once in 2014 and once in 2015, the Beretta ARX proved to be very clean

OTHER IMPRESSIONS

Editor Denny Hansen took the ARX with him to Gunsite and sought feedback from six experienced shooters. The following is offered in the interest of full disclosure.

In running the gun, all but one shooter pinched his hand or a finger between the stubby operating handle and the molded-in brass deflector. Running the handle hard, Hansen ended up with a blood blister on the knife-edge of his palm. All shooters felt the short charging handle is a negative design flaw.

In overall size, the ambidextrous magazine releases are smaller than those on an AR, with the ARX measuring .47x.23 inch, while the AR measures .29x.48 inch. The trouble, however, is that the ARX's release only extends .14 inch from the receiver. The AR's safety extends much farther, at .24 inch. This made hitting the mag release on the ARX, especially with gloves, much more difficult. While shooters thought the second magazine release

located under the trigger guard was novel, they concurred that they didn't see a need for it.

Only one shooter liked the bolt hold-open, but this may be attributable to the other five shooters' familiarity with the AR system.

To flip up the sights, a button must be pushed. To fold, a button on the opposite side must be pushed. This was not considered a deal breaker, as there is time to depress the sights when the fight is over, but it is somewhat awkward compared to other folding sights.

Finally, although all shooters liked the folding/collapsible stock and consider it a positive feature for use in a vehicle, it was offset by the bulk of the ARX's receiver measuring a full six inches at the widest point from the top rail to the bottom of the trigger guard. One shooter commented the ARX put him in mind of a pregnant guppy.

running. On both occasions, a Hoppes Bore Snake was run through the barrel and the internal parts were wiped down and lubricated with Slip 2000.

CLOSING REMARKS

Even though I am a diehard fan of other platforms, including the M16/AR-15/

M4, I am impressed with the overall performance of the Beretta ARX. The bottom line is that, while the Beretta ARX may have some warts, it still works. ☺

Nick Jacobellis is a former police officer and U.S. Customs Agent.

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Well over 150 gun lubricants are on the market. Author has predominantly used Slip 2000 and FireClean over the last few years, with great results. Yes, author and S.W.A.T. are well aware of the Internet furor over accusations that FireClean is merely canola oil. We plan to investigate this more in coming issues.

LUBE TIPS

A Little Dab'll Do Ya

BY ETHAN JOHNS

A reader recently wrote in to request an article detailing lubrication tips in different environments and across different platforms. This is a great question and a topic worth diving into.

Poor lubrication was a leading cause of stoppages at every military shooting school where I've worked. It is far too common to see a poor understanding of proper lubrication among even good shooters.

The market is "flooded" with lubricant choices. In fact, if you tried a new unique lubricant product every week, you could probably shoot for three years before sampling them all.

If you added the various automotive and industrial lubricants that some shooters swear by, you could shoot for another year with an oil or grease per week. Across a span of hundreds of products that include petroleum, synthetic, and naturally based

mixtures, it is dangerous to generalize. But some broad statements apply across the board.

LUBRICATION GENERALIZATIONS

Clean and bone-dry guns will typically fire through a magazine or five without issue. Some designs are very tolerant and will run for quite a while dry. Others less so.

Emphasis on the clean part. That is pretty important. No, it is *hugely* important if one insists on running guns dry. Just because you cleaned it three summers ago may not mean the arm in question is still actually clean for the purposes of "clean and dry." That a gun will run clean and dry is more insurance than good practice.

On the other hand, a dirty gun that is dry is a bomb with the fuze lit and sputtering. It may very well work as intended for quite a while, but at some point the

action will begin to get colicky. In extreme cases of neglect, the gun will go beyond the hiccups to shutting down.

I've seen guns bind up and no longer cycle from the combination of dirty and dry, or seize where the crud hardens and no longer allows the action to unlock. The good news is that the weapon often gives the shooter a healthy number of tactile clues before getting to this extreme. When the weapon doesn't feel right upon cycling the action, the wise man investigates where the fool keeps shooting.

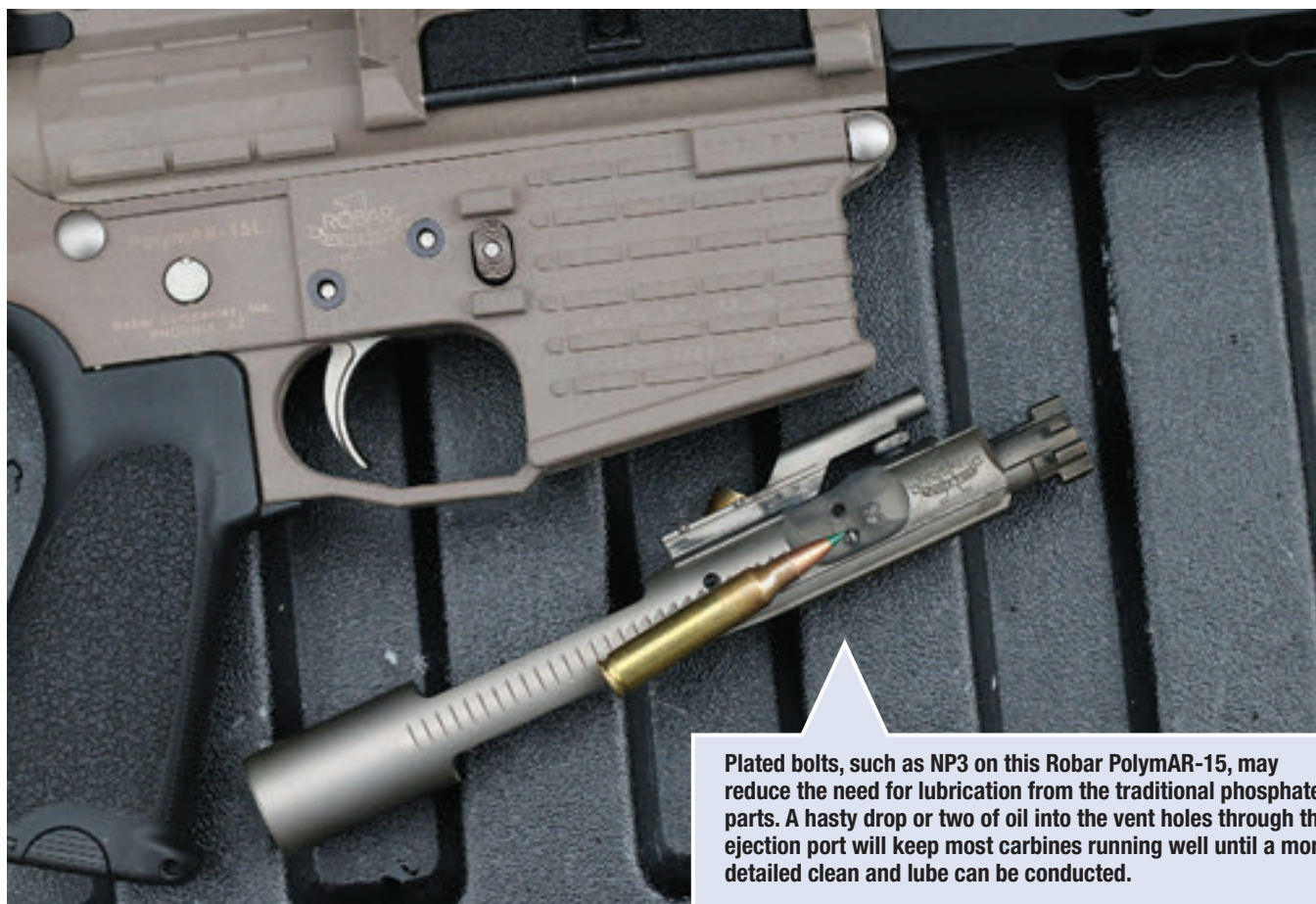
At this early stage of dirty, the judicious application of wet stuff usually keeps the gun running. Judicious here means targeted to where it matters, which we'll cover later. Fortunately, at the "Oops, my XT 37 is dirty and feeling raspy" stage, almost anything that claims to be a lubricant for any purpose will remedy the immediate problem and get the gun back on the firing line.

My good friend Pat Rogers has written previously of applying a wide variety of non-standard liquids to students' guns to get the rifles up and running. The "anything wet and slippery" approach is a short-term immediate-action fix, though—it may very well lead to other problems downstream as the liquid bakes off, reacts with carbon/debris, or gums up.

But if a quality weapons lubricant is regularly applied, the dirtiest of guns will often chug along until the sludge and grime reach an almost comical level (*FILTHY 14: Bravo Company Carbine Goes 31,165 Rounds*, October 2010



Tipped MatchKing points to a representative drop of lube. It doesn't take much of a great lube to make a lasting difference when put in the right nook or cranny.



Plated bolts, such as NP3 on this Robar PolymAR-15, may reduce the need for lubrication from the traditional phosphated parts. A hasty drop or two of oil into the vent holes through the ejection port will keep most carbines running well until a more detailed clean and lube can be conducted.

S.W.A.T.). It is entirely unfair to the fastidious obsessive cleaning lot that the gun tends to respond better to slippery filth than loving dry spotlessness, but that is the way of things.

Sludge is all good on a training gun or recreational piece, but such practice would quickly get you on the outs with any team of professionals. However, high-end units have a tolerance for “functionally clean” and well-lubed weapons that would just appear dirty and undisciplined to the white-glove inspection crew in other units. As one member of a special mission unit told me, “You don’t want to clean the luck out of it after a good hit!”

COCKTAIL PARTY

The many lubricants on the market have different properties that are directed at cleaning, lubricating, or preventing rust on the weapon. Some claim to do all three, some actually do, and others are single purpose.

It is important to note that from the simplest gun oil to the most advanced mega-hyped snake oil, lubricants can have radically different compositions and go about their job in different fashions. How they do all that is a sure way to fire up Internet debate teams. Comparative performance in your guns, weather, and intended role are the truth tellers.

But because of the wide disparity in chemical makeup and approach, it is best to clean and degrease a weapon thoroughly before switching lubes. Otherwise the remnants of lube A may actively work against the application of lube B and you end up with a gummy mess. You might compare it



Harsh cleaning aerosols such as brake cleaner pull all lubricating oils out of the weapon. Shooter must finish cleaning and thoroughly relubricate, or weapon is potentially worse off than dirty and wet with good oil.

to pouring lemonade into the thermos that has the dregs of your morning coffee; it will be a drink but neither lemonade, coffee, nor good.

Of course it is equally possible that two lubricant products go together like peas and carrots, and you have a happy cocktail in your blaster. No guarantees, so the sure bet is to start fresh.

WHERE DOES IT GO?

I’ve seen countless numbers of shooters befuddled as to where to squirt the lube, and a healthy crowd rubbing oil on



First priority is lubricating points that contact upon locking and unlocking of the action. Junction of barrel and slide is where locking occurs on Glocks and many similar pistols.



Two BCM bolts/carriers showing critical areas to oil ARs: circumference of bolt and cam pin/hole. Bolt number 1 was run bone dry and was getting slightly sluggish at 100 rounds. Bolt number 2 is well lubed, several hundred rounds in, and good for many more hard days.

non-moving parts while ignoring the reciprocating ones. There are a lot of weapons in service that have 90% of their lube content in places that don't "need" it, and any lube in the sweet spots is likely seepage and runoff.

No judgment. I've gradually changed my lube regimen over the years as I've gotten more time on different platforms. The big reveal is that all magazine-fed repeaters share common lubricating points. A drop or two in these common areas and the shooting can continue while the targets and ammo last.

The two primary areas that need the slicky juice are 1) the parts that contact as locking and unlocking of the action occurs and 2) any parts that rub as the action reciprocates. The parts that contact to facilitate locking/unlocking benefit the most from lube. Pay close attention here, as many shooters get this backwards and focus on the parts that contact as the action cycles rather than locks.

If you've ever liberally squirted the rails on a 1911 and neglected the locking lugs, I'm talking to you. Don't take it personally: Chances are your holster gun still worked fine, just not as smoothly as if you had reversed the priority. Don't believe it? Rummage through your safe and find the dirty one you've been meaning to clean. Put the tiniest partial drop just where the action locks and feel the difference.

The great part is that this applies across every magazine-fed platform I'm familiar with, from lever-action rifles to ARs, Glocks and M9s. Smartypants in the back smugly pointed out that blowback pistols don't lock and therefore disprove the statement. This is correct and relevant only to fictional spies and anyone else who is carrying a blowback .380.

The time-tested method of looking for high point wear or bare metal shiny spots to rub oil onto typically applies to the reciprocal travel of the bolt, slide, or action parts and remains good advice once the locking area is lubed.

With today's metal treatments, platings, and finishes, this isn't always as obvious as in the blued steel era. The fix is to look at the pathway the action takes as it cycles. What

parts come in contact? How much contact and friction occur? Anything that causes friction will likely benefit from a smear of the oily fingertip.

In lubricating the pathway, shooters often overdo it, leading to messy overruns that can attract gunk in inopportune places. Keep it classy and precise. With the better lubes on today's market, the product stays in place and works long after the lube of yesteryear would have run or burnt off.

The accompanying photos show the critical lubricating points across the more common platforms. Look for the Black Hills 5.56mm 77-grain Tipped Match Kings that are pointing to the points where a small drop should go or a tickle from the oily fingertip will do the most good.

In order to get to the heart of the matter, we'll run through them under the premise "if you only had three drops to make it work." Each of these platforms runs well with three drops of good stuff for a hard day's shooting. This is for clarity and not to suggest there's anything amiss with using more.

AR PATTERN

The treatment is the same regardless of caliber or gas system length. Some of the newer platings and finishes are less needy of regular lubrication than the milspec phosphating, but I use the same basic routine regardless.

For initial treatment, I rub a drop of oil around the circumference of the bolt where it slides into the bolt carrier upon locking, and I hit the locking lugs with the slippery fingers while I'm at it. I next roll a second drop of oil onto the shaft and head of the cam pin, with excess hitting the edges of the cam pin hole in the carrier. The third drop gets rubbed along the rails and underside of the carrier where the drag marks are. Any excess on the fingers coats the bolt carrier itself, focusing on the area around the indentation and vent holes. This is more to ease cleanup and reduce carbon buildup than to improve function.



M9 gets best use of lube applied to each lug of the locking block.

In-stride reapplication with the rifle assembled can be as simple as hitting each of the vent holes with a drop of lube and then dropping a third onto the junction of bolt and carrier. Cycle the action a few times to move the lube into the right places and feel for improvement.

GLOCK

This applies broadly to similar striker-fired pistols, such as the S&W M&P, where the pistol locks at the junction of barrel hood and slide, and there are small rail sections in the frame. This pistol design is one of the least “thirsty” out there in its need for lubricant.

I’ve seen quite a few newer shooters, whose experience is rooted in Glock pistols, who don’t lubricate their pistols at all and haven’t suffered for it (yet). Not ideal, and these shooters almost universally run into issues when they carry that practice into other platforms.

One drop at the hard angle on the front of the barrel hood, with the excess rubbed onto the corresponding locking area at the front of the ejection port will do a lot of work. A second small drop gets rubbed around the circumference of the end of the barrel where it settles into the slide. The third gets split and rubbed onto each of the rail sections in the frame, and the excess wiped down the underside of the slide where the drag marks are.

If my finger is still oily, I hit the contact point on the trigger bar that engages the firing pin safety and swipe across the safety itself. Reapplication tends to be a single drop on the barrel hood with the slide racked a few times to work it in. At this point, feel determines any additional required.

BERETTA

The following is specific to the Beretta 92/M9 series. A dry and dirty Beretta often acts up after a couple hundred rounds, particularly with government ammo, which is considerably dirtier than typical blasting ammo.

This is partly the root of its spotty rep with veterans—the

primary cause being shoddy contract magazines and out-sourced replacement parts.

The upside is that one drop on each lug of the locking block keeps the Beretta humming for a case of ammo. The 92 series is a remarkably smooth-cycling gun when properly lubed, and it only takes a couple of drops targeting the locking block—specifically the wing-shaped lugs—to get it most of the way there. The third drop gets rubbed along the rails, with the excess rubbed down the underside of the slide, targeting the firing-pin block.

A couple times per year, or maybe twice per deployment (weather dependent), the M9 benefits from a tiny drop of oil on the underside of the slide where the safety rotates. Keeping the safety lubed from the inside makes it hugely faster and more reliable to disengage as part of the drawstroke.

1911

Generalizing about 1911s is dangerous due to 105 years and dozens of makers’ worth of variations in tolerance, modifications, and quality. The design can function pretty well with minimal lube in rattle-y, “combat accurate” GI surplus format, or need a regular diet of more than three drops of very specific lube in custom tight-fitted match-gun mode. We’ll focus on a modern carry-grade five-inch pistol as reference point.

The 1911 needs every bit of three drops of good lube. The design is happiest wet. One good drop goes in the locking lugs, with the excess smeared around the corresponding recesses in the slide. The remaining excess on the fingers goes on the inside of the barrel bushing and around the barrel’s circumference. Drops two and three go along each rail, with the excess rubbed specifically on the disconnecter and down the underbelly of the slide. The tiniest dab of oil on the plunger that the thumb safety hits is a great idea. It happens very infrequently, but I have seen this part get a barely visible speck of rust and lock the gun hard into on-safe. An ounce of prevention is wise here.

WEATHER REPORT

The old M16 series Technical Manuals had guidelines for weather and environmental conditions. These remain a valid baseline. They stipulated minimal lube for cold or dusty environs, normal lubrication for most environments and typical weather, and heavy lubrication for jungle and other high-humidity locales.

In extreme cold, defined as -10F and below, the TM dictates that all standard lube be removed and replaced with LAW (Weapons Lubricant, Arctic). Extreme cold is tough on any lubricant and is the one situation when (minus LAW) a clean, dry gun may be preferable to an otherwise great lubricant.

Most pros follow a similar path to those guidelines. But with the quality and staying power of today's better lubricants, the degree of difference can be subtle. Since the pros are very specific in regard to which areas they are hitting with oil, the difference between "light" to not attract dust and "normal" may escape the casual shooter. Heavy lubricant for wet conditions is more about preventing rust than facilitating function.

The wide disparity in market offerings can start to show up as the mercury rises and falls or the wind starts blowing rain or sand. It's always a good idea to carefully inspect and feel the action as the environment changes. See if your lube is still there and doing its job.

With some products, as the weather drops or the dust blows, you may accumulate sticky "boogers" of what was oil that become counterproductive to function. Caveat here: just because your favorite lube does great in the cold on your handgun doesn't mean it will on your rifle or shotgun. I treat every weapon system suspiciously as the weather or environment changes until I have enough data to support confidence.

Functionally clean and slicked up in the right spots, your favorite guns will shoot smoothly and well until your ammo budget goes bust.

Whether you take advantage of the new high-performance products or simply splash some motor oil in the right nooks, the gun will run better if the locking surfaces and the action's path get a little lube.

Good luck and good shooting! ◎

Ethan Johns is a military professional with worldwide experience in specialized units. He has taught and been responsible for numerous advanced skills and weapons courses within multiple organizations.

Safety plunger on 1911 needs regular inspection and swipe from an oily bristle brush in humid areas.



1911 works best with regular lubrication in several key places. This well-used .45 shows bare metal wear, pointing out areas that have friction in cycling.



Signature **AK** With Custom-Shop Flair

Rifle Dynamics RD501 5.45 AK

BY TODD BURGREN

If you thought nothing more could be written about the AK, this article may force re-evaluation of that opinion. The true hallmark of the AK series of rifles gaining acceptance in the U.S. has been the rise of businesses catering to its clientele. Rifle Dynamics, well respected in the AK realm, is again leading the way.

Rifle Dynamics has decided to offer a signature RD AK line encompassing many upgrades and modifications over “factory” standard AKs. These improvements are based on Rifle Dynamics’ experience and feedback from customers. The RD signature AKs are labeled RD700 for 7.62x39mm rifles and RD500 for 5.45x39mm. This article



Above: What sets RD501 apart is the amount of product development, field trials, and support it receives from Rifle Dynamics. Overall length of RD501 AK measures 34.5 inches and 25 inches folded.

Left: Leupold LC0 red dot was right at home on RD501's Ultimak forward rail.



features the RD501 5.45x39mm AK.

Rifle Dynamics (RD) is a unique blend of manufacturing capability married to an intimate knowledge of the "best usage" practice of the product. RD is driving the concept of the AK rifle both in theory and application, producing an AK fit for the 21st century.

BRINGING AKs TO THE USA

Jim Fuller was one of the earliest proponents of the AK in the U.S. Fuller has focused his efforts on the AK platform because of its potential, though he feels

it has been neglected, especially when compared to the AR in the U.S. The AK is legendary for its ruggedness and ability to operate when other rifles fail. Thus, RD AKs, epitomized by the RD700/500 series, are meant to make the AK more efficient, ergonomic, and in tune with how an operator wants to operate the AK under stress.

Fuller is the driving force behind numerous techniques that maximize the AK, and he is always looking to expand AK popularity. Custom AK projects are still a focus of RD, but with so many cus-

tomers asking Jim's opinion of what an AK fighting rifle should be, he decided to invest in making an RD AK available to customers without making them endure the wait associated with custom projects. These production RD AKs benefit from years of experience gained from doing improvements on customer-provided rifles and custom orders.

Fuller has always been impressed with the simplicity and reliability of most Soviet-bloc weapons, especially the AK rifle. Jim believes the AK is the most dependable fighting rifle ever produced and, while it may not be quite as accurate as other rifles, it is still plenty accurate for the job it was designed to do. The Kalashnikov long-stroke gas-piston operating system is a benchmark in terms of reliability for other actions.

A key component of the AK design is the looser tolerances in its moving parts when dirty from field conditions or hot and grimy after firing numerous rounds over extended periods of time.



Gray Norrell's Moly Resin finish makes an aesthetically pleasing combination when contrasted with the black U.S. PALM grip and Arsenal lower forend. U.S. PALM ACS is one of the most comfortable and adaptable plate carriers available. High Speed Gear Taco pouches allow for easy transition into using AK-74 magazines.

This translates into reduced sensitivity to debris in the action and ultimately lower maintenance requirements to keep it functioning.

Jim Fuller explains that "The RD700/500 AKs are basically the same except caliber (7.62x39 and 5.45x39) and stock configurations, with either standard triangle side folder or Magpul CTR with our new AK/M-4 stock adapter. All RD700/500 models have the RD custom front end with 3rd generation Bolton Gas Block."

Various muzzle devices are offered, with the Primary Weapons Systems (PWS) FSC the standard option. Tuned Tapco G2 triggers are used, and the ALG AKT trigger is also available.

The finish on the RD700/500 AKs is Norrell's Moly Resin applied over fresh parkerizing. Rifle Dynamics has found this to be the best finish for a rifle that will take a lot of abuse, heat, and lack of cleaning. Jim reports the finish has proven itself many times over in the worst conditions. Available colors are Black, Flat Dark Earth, Gray, and OD Green.

The U.S. PALM AK Grip and Arsenal lower handguard are standard furniture. Options outside those listed are purposely limited since these are essentially rifles needing to be built in a timely manner. The RD700/500 line provides customers an alternative between full-blown custom and standard AKs. The benefit is the quality you expect from RD custom builds at a lower cost.

RD501

Aesthetically, the RD501 tested herein gets your attention immediately with its 14.5-inch barrel with pinned PWS FSC flash hider. The Bolton Gas Block also sets RD AKs apart from others. The RD modification removes almost one pound off the front of the rifle and moves the center of gravity about four inches closer to the body. This makes the RD501 very light and, more importantly, the fastest-handling non-SBR length AK on the market.

The RD front-end work is complemented by adding an Ultimak gas tube scope rail, which provides a solid

mount point for whatever forward mounted optic you prefer. The RD501 evaluated here has a triangle-style folding stock fitted.

The RD501 features a Fuller Modified Rear Sight unit. Jim reports customer feedback indicates this is one of his most popular RD AK modifications. Over the years, many have complained about the iron sights on the AK. The Fuller Rear Sight improves this tremendously.

The Fuller Sight has the notch widened and corners radiused to specs that were given to Jim by an optometrist for maximum efficiency in centering the front post in the rear notch. Both windage and elevation adjustments are made on the front sight. Jim ships the rifle with a long front post, expecting elevation adjustments to be fine-tuned by filing down the sight, and windage adjustments by turning the front post to whichever side is necessary.

Jim takes great pride in the amount of fitting that goes into everything Rifle Dynamics produces—and there is a tremendous amount of fitting on the

RD501. Each one receives internal reliability checks, with the fire-control group polished and light planing on the bolt/carrier group and guide rails, combined with exterior surfaces being dehorned. Even without firing a live round, the RD501's superiority over a standard AK can be detected in the smoothness of the action, trigger pull, quality of finish, and overall weapon feel. The customer receives a rifle ready to run as soon as the custom RD rifle case is opened.

What sets the RD501 apart is the amount of product development, field trials, and support it receives from Rifle Dynamics. The RD501's overall length measures 34.5 inches and 25 inches folded. Weight of the rifle is in the six-pound range.

ACCURACY TESTS

Test and evaluation of the RD501 consisted of initial orientation and confirmation of iron sight zero. I took advantage of the Ultimak rail by mounting a variety of optics to the RD501. A Leupold FX-II Scout IER 2.5X28mm scope was mounted for baseline accuracy testing.

Once accuracy testing was completed with the Leupold FX-II, a



Rifle Dynamics RD501 with U.S. PALM ACS plate carrier, High Speed Gear Patrol belt, and BlackHawk chest rig used during T&E.



RD501 is a modern rendition of the AK-74 that, when combined with gear such as the U.S. PALM ACS and Leupold LCO, holds its own against contemporary assault rifles.



RD501 working around simulated obstacles and cover at Echo Valley Training Center Range #2.

Leupold Carbine Optic (LCO) red dot was mounted. The LCO's red dot reticle has 16 brightness settings to let you find the exact intensity you need in any conditions. At its highest setting, the dot shines brightly in the middle of the day. It is night vision compatible on lower settings. The manual push-button on/off switch with integrated brightness control puts all the power at your fingertips.

The LCO has a battery life of up to five years using a common CR123 lithium battery. It has a large field of view

Leupold 2.5X IER Scout scope assisted with RD501 accuracy testing thanks to Ultimak rail installed by Rifle Dynamics.

that makes it ideal for use on a fast-handling rifle—the housing disappears and the one MOA dot floats superimposed over the target. The LCO is quick on target when needing to engage multiple targets.

Several 5.45x39mm loads were tested with the RD501, including Wolf and Red Army Standard in 60- and 69-grain weights. Surplus 5.45x39 53-grain ammunition can occasionally be found, despite the BATF in April 2014 ruling it armor piercing, thus prohibiting its further importation.

The surplus 5.45x39 is loaded with the 7N6 “poison pill” bullet that first gained notoriety in the Soviet-Afghan War. A unique design feature of the 5.45x39 7N6 bullet is an air cavity inside the jacket near the bullet's tip. The air space shifts the bullet's center of mass toward the rear, possibly contributing to its very early yaw when impacting a

soft target such as human flesh.

In addition, upon bullet impact with tissue, the lead core just behind the air space shifts farther forward, accentuating the tumbling effect, which is particularly devastating when striking flesh. This shift of lead occurs asymmetrically and may be one reason for the peculiar curvature of the bullet's path in the last half of its travel through tissue. One downside typical to most surplus ammunition is that it utilizes corrosive primers.

One 5.45 ammunition loading of interest when combined with the magnified forward optic is Hornady 60-grain V-MAX™. This load is a godsend for AK owners looking for quality U.S.-made ammunition for their rifles. It delivered accuracy in the two-inch range at 100 yards.

Other ammunition brands produced two- to three-inch groups at 100 yards. The 69-grain 5.45x39 loads produced 2,770 feet-per-second (fps), and the 60-grain nudged high 2,800 fps, with the 53-grain surplus ammunition clocking in at 2,950 fps.

All test shooters appreciated the optional upgraded ALG AKT trigger, which provided a light three- to four-pound trigger pull and short reset.

PRACTICAL EVALUATION

After a couple hundred rounds smacking steel on Echo Valley Training Center's (EVTC) Ranges #1 and #2, we moved to the Jungle Walk range, a 300x50-yard space that allows for random placement of targets, with the shooter taking advantage of cover and other terrain features while advancing down the undulating path. Individual as well as team exercises are based on real-world scenarios relayed to EVTC staff from the wide cross-section of students who visit EVTC.

The RD501 had no problems during the various runs on the Jungle Walk. Each run consisted of multiple magazines and engaging targets from 15 to 215 yards. This is a good way to gain an appreciation of a rifle and how reliable it is under the pressure of field conditions.

U.S. PALM ACS plate carrier and BlackHawk chest rigs were used to support the RD501 T&E. Nearly 600 rounds of 5.45x39 were expended over two days of scenario-based testing. The smooth minimal impulse of the 5.45x39 chambered RD501 has to be experienced firsthand to be fully appreciated.





Though risking excommunication by 7.62x39 AK users, who are the clear majority here in the U.S., I will declare that the 5.45x39 has a lot to offer. The Soviets switched to it for their service rifles for a reason. Many of the same themes heard when the U.S. moved to the 5.56mm are present, such as ability to carry more ammunition for the same weight, lower recoil and muzzle climb, higher velocity providing a flatter trajectory, and all in a rifle that is lighter than its AK-47 predecessor.

CONCLUSIONS

The Rifle Dynamics RD501 is a fighting rifle with all improvements focused on making it excel as such. One can be sure that any ideas presented by Jim Fuller and Rifle Dynamics and then backed up with products are well thought-out. Everything is proofed during numerous training cycles and personal ap-

plications in the field under the most rigorous conditions. To my mind, Rifle Dynamics' goal is to integrate the best of Eastern design and Western shooting methods without sacrificing the inherent AK characteristics of reliability and ruggedness.

The RD700/500 series AKs are what many AK connoisseurs have been waiting for and knew was possible but had never seen in one package ready to go with only a minimal wait. As exemplified by the RD501, the AK platform has made another progression in the U.S. market thanks to Rifle Dynamics. ☺

Todd Burgreen has been a freelance writer for the last 20 years, with articles in numerous publications. He has attended many personal defense, team tactics, firearms, and driving courses from some of the country's most influential training personalities and schools.

Rifle Dynamics is known for its AK custom front-end work, which incorporates a Bolton Gas Block complemented by an Ultimak gas tube scope rail. Ultimak provides a solid mount point for a forward-mounted optic.

SOURCES

RIFLE DYNAMICS

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BLACKHAWK

(800) 694-5263
www.blackhawk.com

ECHO VALLEY TRAINING CENTER

(540) 450-7998
www.echovalleytrainingcenter.com

HIGH SPEED GEAR

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Rifle Dynamics RD501 was put through its paces around EVTC range vehicles.

HELP FROM ABOVE



Satellite Emergency Beacons

BY BRENT T. WHEAT



Representative Personal Locator Beacon, the ACR ResQLink. Photo: ACR

ONE

positive benefit of cellular telephones is the ability to easily summon assistance whenever you have a problem. But though the networks stretch from coast to coast, there are still vast areas, even along interstate highways and in population centers, where cell signal is absent.

If you have an emergency in those places, there is no longer a pay phone on the corner, and you'll find yourself back at the turn of the 20th century in terms of calling for help.

One way to fill in this communications gap is with an outrageously expensive satellite telephone. But a better and less costly option exists: satellite-based personal emergency locator beacons.

While most often sold to outdoor sports enthusiasts, satellite rescue devices are not just for mountain climbers and backpackers. Regardless if your problem occurs on a glacier or along the interstate, the satellite emergency beacon is a great tool for any prepared American to own, even if your idea of wilderness adventure is a trip to Disneyland.

Many people agree that carrying one of

these devices makes sense, but are frequently put off making a purchase because they become overwhelmed by the various choices. To help, we'll cut through the technological background information and marketing hype so you can make a decision about which system is best for your particular needs.

Before considering a particular device, you need to understand that two primary types of emergency beacons are available, each with strong and weak points.

PERSONAL LOCATOR BEACON

The Personal Locator Beacon (PLB, as typified by ACR ResQLink) operates on a government-owned Cospas-Sarsat 406 MHz satellite network. This means that a PLB works with an extensive, robust satellite network operated by several national governments, and directly interfaces with Search and Rescue (SAR) authorities such as the U.S. Air Force.

The benefits of a PLB are many: redundancy of failure points, widespread adoption throughout the world, higher-powered signal, better antenna, no monthly fee, and direct response by appropriate SAR authority. Some also transmit a radio signal that can be received by aircraft or teams equipped with radios to home-in

on the victim. Overall, a PLB is a professional-grade rescue device.

But these benefits come at a price: the units are often more expensive than other types, are typically heavier, require an expensive factory battery replacement every few years and, most importantly, only offer the ability to send an SOS message.

SATELLITE EMERGENCY NOTIFICATION DEVICES

The second category of satellite beacons is Satellite Emergency Notification Devices (SEND). The lighter SEND devices, such as the SPOT Gen3 Satellite Messenger and DeLorme inReach SE, operate on a private network of satellites. They offer an array of user-friendly features such as light weight, user-rechargeable or replaceable batteries, and the ability to communicate beyond simple distress calls. The DeLorme models even offer two-way messaging capability.

Downsides? The satellite communications systems are privately owned and route emergency calls to a non-profit third-party response center, so there is a greater theoretical possibility of system hiccup even though they have proven remarkably robust and reliable. In fact,

Depending on the time of year, being lost while hunting can be life threatening. A PLB can help search and rescue personnel find you quickly.



DeLorme inReach SE is a popular Satellite Emergency Notification Device.

Photo: DeLorme



SPOT claims they have initiated over 3,500 rescues as of July 2015. For this level of reliability, you pay a significant yearly monitoring fee.

A larger actual concern with SEND devices is, due to their lower power and smaller antennae, failure of messages reaching the satellite. As satellite transmitters require a relatively “clean” view of the sky, failures of the SEND devices in challenging conditions are understandable.

I have experienced several such instances during extreme poor weather conditions while on a mountainside in thick forest. But there is a high probability of an emergency alert reaching the authorities, as most devices transmit continually when activated in SOS mode, making it likely at least one message will reach an orbiting “bird.”

OTHER TYPES OF BEACONS

Other types of beacons are also sold. One well-known item is the TracMe Personal Locator Beacon. It is not a satellite device but a simple radio beacon that transmits a low-power signal that can be triangulated by responders. It is relatively expensive for its abilities and offers no emergency notification capabilities. I mention it because it is often confusingly sold alongside satellite devices.



Common scenario when a satellite emergency beacon would be perfect for summoning help.

Photo: Stockfresh

Larger satellite beacons such as the EPIRB and ELT are required equipment on passenger ships and aircraft, respectively. While such devices work like a PLB, they are typically not optimized for hand carry. Also beware that some older devices (prior to 2009) operate on frequencies that are no longer monitored.

WHAT THEY DO

PLB units work very well for a single task, signaling for help, which is why the market leaders are the more-versatile SEND devices offered by SPOT and DeLorme. With their ability to send tracking information and communicate beyond the simple “I am in serious trouble” message, SEND devices are perfect not only for travelers but also anyone who needs to communicate after a natural disaster or other major crisis has destroyed the local cellular networks and internet connections. As long as you have battery power and the satellite network is still in orbit, you have the ability to reach out beyond shouting distance.

For travelers, the ability to check in with home and record your ground track increases both comfort (for loved ones) and safety (for you). In the “old days,” it was often many days or weeks before SAR was notified of a missing person, but now even if you collapse without triggering an SOS, your emergency contact person would notice if you failed to make a scheduled contact or your track has stopped. In such a case, your last message provides a known time and location for searchers to begin their efforts.

The most popular SEND device is the SPOT Gen3. It is prevalent because of lower cost, simplicity and smaller size, despite not having the communications capabilities that others such as DeLorme offer. With the SPOT Gen3, you can only send an emergency signal, along with three programmable messages such as: 1) “Just checking in, I’m OK”; 2) “I’m running late”; 3) “I need help but this is not an emergency.”

All of these can be sent to up to ten email addresses and/or as text messages. In a year of real-world usage, I have not found the lack of two-way communication to be a drawback.

DeLorme devices hang their hat on the ability to send two-way communications, much like cell phone text messages. Some models indeed pair with a cell phone to provide the capability, but this doubles your odds of failure, as either device could cease working at an inopportune moment.



Author's satellite beacon, a vital piece of preparedness kit that he always carries, whether backpacking in the wilderness or traveling in his personal vehicle.



Owners of SPOT Gen3 would be smart to use rechargeable NiMH batteries instead of costly lithium AA cells.

For my money, if you choose DeLorme, stick with models such as the inReach SE that don't require an external keyboard to function.

While PLBs and the DeLorme SEND units offer 100% worldwide coverage, the SPOT Gen3 devices do not, as some mid-ocean and sub-Saharan Africa locations don't have satellites above. This means the SPOT Gen3 wouldn't be a good choice for round-the-world sailors or those planning a safari.

BATTERY CONSIDERATIONS

While tracking and sending messages are useful, battery power conservation is a concern if you are on foot or will not be resupplied for long periods of time. As an example, a SPOT Gen3 with fresh batteries will last 24 months powered off, 26 days at a 60-minute tracking interval, but only 3.5 days when tracking every five minutes. DeLorme claims 100 hours of battery life when in ten-minute tracking mode. With SPOT, you can upgrade tracking to every 2½ minutes, but this would only be useful for tracking a vehicle while powered from a USB cord.

The SPOT Gen3 requires lithium AA or NiMH rechargeable batteries. Users will find it far cheaper to use rechargeables during normal operation while keeping a backup set of fresh lithium cells (shelf life: 10 years) in their pack.

DeLorme units feature an internal battery that must be recharged via USB cord and power adapter. Some people consider the internal battery a major drawback, as one common failure point of outdoor and emergency electronics is dead batteries. At least with the SPOT device, you can immediately change out batteries if necessary. That reason alone is why I chose the SPOT Gen3 over other devices.

REGISTRATION AND TRACKING

All satellite locator devices require registration. As SEND devices are operated by private companies, you are required to provide contact and emergency information when making payment.

A PLB such as the ACR ResQLink will operate without registration, but it would be foolhardy, as SAR authorities cannot follow-up SOS activation with your contact person to determine current status and well-being. The authorities will still probably send someone out to check on your location, but it won't be a priority. Unregistered PLBs are considered a major problem in the SAR community.

Satellite devices also sometimes have a bad reputation among rescuers due to countless stories of users pushing the SOS button because they were cold, tired, or lost in non-dangerous

Satellite beacons aren't just for the wilderness. Many remote stretches of highway still have no cell service.

Photo: Stockfresh



SCENARIOS AND SOLUTIONS

In the end, there is not yet a perfect personal satellite locator beacon. But considering the strong points of each, here are three hypothetical, but common, user requirements and my suggestions for those situations.

SCENARIO 1	RECOMMENDED SOLUTION
I'm taking the trip of a lifetime to a remote location and if I need rescue, I want 99.99% assurance that help is on the way. Size, weight, and two-way communications are not considerations.	PLB device such as the ACR ResQLink or McMurdo Fast Find 220 Personal Locator Beacon
SCENARIO 2	RECOMMENDED SOLUTION
There's been a natural or manmade disaster in my area. The cellular networks, landlines and Internet are down. I want to reach family members who are not in my local area and let them know I'm alive.	DeLorme inReach
SCENARIO 3	RECOMMENDED SOLUTION
I want a simple, easy-to-use device for when I'm off the grid. I want to be able to let my family know I'm OK or even track my progress. The device should be small, robust, and have field-replaceable batteries. Cost is important.	SPOT Gen3

circumstances. An SOS emergency alert is only for literal life-or-death circumstances.

All SEND devices use an internet website for programming, tracking, and logging. One nice feature is online tracking maps that let people follow your journey in near-real-time.

A notable shortcoming of the SPOT Gen3 web interface is that GPS tracks are only saved for 30 days. If you want to keep a record of the trip, you must download the data to an external storage device and then plot it using other software such as GoogleEarth. This isn't a huge problem, but it is easy to forget to download the information after a trip.

Some users also complain about yearly monitoring fees that are automatically charged to your credit card. Much like cell phone accounts, keep track of your plan anniversary date if you want to drop the service. Most require

you do it within a short window to avoid extra charges. DeLorme also offers a more expensive pay-as-you-go monthly plan option.

Picking the best device for *your* purposes will depend on what scenario you envision yourself in, how much you are willing to pay or able to afford and what features you think are most important in a PLB. ☺

SOURCES

ACR-DELORME
www.inreachdelorme.com

SPOT
www.findmespot.com

FIRST-YEAR COST BREAKDOWN

DEVICE	DEVICE COST	YEARLY MONITORING FEE	OTHER COSTS	TOTAL COST
ACR ResQLink	\$279.99	\$0	\$0	\$279.00 + factory battery replacement every 5 years
DeLorme inReach SE	\$299.95	\$143.40	\$0	\$443.35
SPOT Gen3	\$149.00	\$99.00	\$10.00, lithium AA batteries	\$258.00

Costs are based on least expensive monitoring plan where applicable, and suggested retail prices at time of writing. Deals on devices and/or cost of monitoring are common; shop around prior to purchase.

NEGLIGENT DISCHARGES

Can They Be Prevented?

BY PATRICK A. ROGERS



Fourteen-year-old girl was shot by her brother at the kitchen table when he violated all four Safety Rules at the same time. She survived the near-contact shot with a 7mm Remington Magnum, but it was an unnecessary tragedy. This was not an accident. It was negligence.

LET'S start with some definitions. When a firearm is discharged, it is because it was discharged intentionally or unintentionally. There are no other options. How do we distinguish between the two?

An intentional discharge is when the human who has possession and control of the weapon willfully causes the weapon to discharge. Examples of this are when shooting a target at the range, or using the weapon in defense of your life.

An unintentional discharge of a firearm is when there is no willing act to discharge the weapon. An unintentional discharge may be negligent or accidental. In the former, it is caused by a human's action. This is the most common cause of unintentional discharges, and it occurs because the human possessing the weapon does something that causes the firearm to discharge when it was not intended.

In the latter, it is because of a mechanical issue. An example of this is when Remington settled a class-action suit related to a potentially defective trigger on a certain model of their rifles. In this case, the rifle would allegedly discharge without the user pressing the trigger.

In either case, it is something to be avoided.

FOUR SAFETY RULES

A long time ago, a wise man promulgated the Four Safety Rules. Strict adherence to them should be ingrained into the brain-housing group of anyone who possesses a firearm.

1. All guns are always loaded.
2. Never let the muzzle cover anything you are not willing to destroy.
3. Finger straight and outside the trigger guard until your sights are on target.
4. Be sure of your target. Consider the background.

With his finger on the trigger, student turns to ask range officer a question. RO quickly places his hand on student's arm before student can turn more.



Generally, violating one rule is not in and of itself a showstopper. Violating two of them can result in death or serious injury. Clearly Rule #3 is the rule that is violated most often and is the cause of almost 100% of negligent discharges.

We all understand that any unintentional discharge of a weapon is bad and should be avoided. We also understand—or at least we should understand—that perfection does not exist within our species. We are all fallible. We are all capable of losing our attention. Being tired. Being distracted. Being unaware. Being human. People have NDs for a variety of reasons, and primary among them is the fact that they lose focus. They forget why they are doing what they are doing.

Why does that occur? I'd like to say that for most, it is a lack of self-discipline and motivation, but I have seen



Thinking it will hasten taking a shot, shooter has his finger on the trigger while still in the “guard” position. In all likelihood, no one would be injured because he is pointing in a safe direction, but it is still a clear violation of Rule 3.

We have to fight the idea that because we handle firearms a lot, we will be immune from having an ND.

enough NDs from mil guys from all branches to know that isn't true.

Probably the greater percentage of NDs I have observed were because the offender was in poor physical and mental condition due to being out of shape, overweight, tired, dehydrated, or arrogant.

ANALOGIES

What are the aggravating factors? Probably the first is exposure to loaded fire-

arms. Let's draw an analogy or two. In 2012, there were an estimated 5,615,000 highway "accidents." This does not include those that took place off highway (city streets or country roads), which may bring the total to 10 million or so.

These incidents are almost 100% of the time the result of negligence on the part of one or more people. And there are precious few of us who drive regularly who have not been involved in some type of motor vehicle inci-

dent. Why do you think that is? Maybe because we are in our motor vehicles pretty often?

U.S. DOT states that the average driver is behind the wheel 13,474 miles a year. That is a lot of potential for a motor vehicle incident. Think about how many cars you pass, or pass you, on your morning commute. Or how many you pass heading in the opposite direction.

Now think about how many drivers



Get the gun out quickly, put it away slowly. Only prize for "speed holstering" may be a trip to the emergency room. This photo was staged, but it happens all too frequently.



While picking up a spent magazine from the deck, shooter fails to control his carbine's muzzle.

might be operating impaired—under the influence of drugs or alcohol. Or how many are texting, changing radio stations, entering addresses into the GPS, or thinking about the hot date they will later be meeting at the No-Tell Motel.

Scary, no?

How do you avoid being in a motor vehicle incident? Simple. Never get into a car. Never walk on a street or a road where traffic moves on. Or maybe limit your driving to that which is essential *only*.

Voilà!

How about commercial aviation? It is a pretty safe and efficient way to travel, but damn, when one of those big birds ceases controlled flight and makes unintentional contact with the ground, it's pretty dramatic. Fire and bodies and pieces of bodies and dolls and clothing all over.

It will be breaking news on all the cable news channels for days or weeks, depending on how gruesome it is. How do we avoid dying in a commercial air crash? Again, simple. Don't fly. Or if you do, only fly when absolutely essential.

Pretty rad, no?

Except that none of it is realistic. We assume risks in any endeavor and mercifully, the odds are in our favor. How does that apply to the shooting world? For a start, people who never touch a gun will never discharge one, intentionally or otherwise. But those who utilize firearms as a condition of their employment or use them for sport or defensive purposes handle loaded firearms on a regular basis.

Conversely, some collectors of weapons may handle firearms a lot but

not ever shoot them. Of those who do use guns regularly, most have received minimal training, while some may have had extensive training.

LEVELS OF ACHIEVEMENT

Here is a dilemma. Those with minimal gun-handling experience may perform certain tasks because they don't know what to do or how to do it. This is the dreaded first level of achievement—Unconscious Incompetence. People at this level have a lot of NDs, mostly for a violation of Rule #3.

At some point, some of these people will seek knowledge and become better gun handlers, but will have to think about everything they are doing in order to keep from doing something stupid. This group falls into the next two levels of achievement: Conscious Incompetence, where they do something wrong but know it, and Conscious Competence, where they perform correctly but have to apply conscious effort in order to do so. The majority of shooters fall into one or the other of these two categories, and the majority of NDs occur here. As a sage once

stated, they know just enough to be dangerous.

The last level of achievement is Unconscious Competence, the level at which one does not have to think about performing an act but does it without conscious thought. An analogy is when you get into your car. A lot of the functions you perform are at the level of Unconscious Competence. You sit in the seat, put on your seat belt, insert the key into the ignition, start the engine, adjust the temperature controls, check the mirrors and so on, all without conscious thought.

Why? Because you have performed these same functions thousands of times before. Once we start motoring down the highway, we know that before changing lanes, we look at the rear and side view mirrors, engage the turn signal, scan to ensure all is clear, and then ease into the other lane. Every time, right? Sure, every time until you don't because you become lackadaisical and then wind up colliding with a vehicle you didn't see.

It's no different in the shooting world. People who handle guns day in

and day out may know what they're doing, but for one of a multitude of reasons fail to do something and as a result, have an ND. We have to fight the idea that because we handle firearms a lot, we will be immune from having an ND.

We also have to accept the facts that no one is perfect, and everyone is subject to having a moment when they are not functioning at high order. A friend once stated that "The only perfect man was nailed to a cross a long time ago." I am not a religious person, but I understand the meaning.

HOW DO WE MINIMIZE OUR CHANCES OF HAVING AN ND?

Keep in shape. Eat properly and hydrate often. Those who fail the most do so because they cannot operate under pressure or when physical activity exceeds walking to the kitchen to get more Ho-Hos. Pay attention. Listen. Think. And if it does happen, own it. Learning points can be taken from every action, and if you can learn from your mistake, it will not likely happen again.

But not always. Some people are incapable of performing certain func-

CONSEQUENCES OF NDs



NYPD Officer Liang buries his head in his hands as he is convicted of manslaughter and official misconduct for a negligent discharge.

Rookie NYPD Officer Peter Liang was convicted of manslaughter and official misconduct. Liang had a negligent discharge in the hallway of the Pink Houses, a crime-ridden city housing project in the East New York section of Brooklyn.

Liang was startled when the victim, Akai Gurley, opened the door to the stairwell in which Liang was patrolling. The officer negligently fired his Glock 19, the bullet struck a wall and then ricocheted into the victim's chest.

Liang stated that his finger was never on the trigger and the gun "just went off." Experts examined the gun, found it in working order, and that the gun had an 11.25-pound trigger pull. Each juror had the opportunity to handle the G19 and dry fire it.

NYPD is not known for its sophisticated firearms training, and how the Department utilizes Probationary Police Officers is questionable, but it is the individual's responsibility to properly use his or her firearm.

Liang now faces up to a 15-year sentence in state prison.



Shooter charges his carbine with his finger on the trigger. What could go wrong?

tions. Several years ago, I had a blivet in a class out West. He was always late. Always the last guy. Required 100% attention from an instructor 100% of the time. After the class ended and we were packing up, he had an ND into the ground while under the shed. He stated he had to “relax the spring on the striker.”

He was disarmed, counseled, and placed on my NFE list. A few months later, he went to a class taught by two very competent instructors. At the very beginning of the class, he had an ND

under the shed! He was sent home, but a pattern was developing....

Shortly thereafter, he attempted to sign up for a class taught by another very competent instructor. Unfortunately for the blivet—but fortunately for everyone else—this instructor had heard of his previous incidents, called me to verify, and refused him admission. He was a serial negligent discharger and has no business ever being around other people with a loaded gun.

As gun owners—and users—we have a responsibility to act properly. Every

negligent discharge has the potential to be newsworthy, and everything negative about a firearm or the user impacts all of us.

And if you ask me if I have ever had a negligent discharge, my answer will be an immediate “not yet.” ☺

Pat Rogers is a retired Chief Warrant Officer of Marines and a retired NYPD Sergeant. Pat is the owner of E.A.G. Inc., which provides services to governmental organizations and private citizens. He can be reached at info@eagtactical.com.

BLACK RIFLES



MATTER

Kaiser Shooting Products X-7 Standard

BY TOM MARSHALL

Lightweight ARs are all the rage lately. With a crowded marketplace and an operating system that's been tinkered with to the limits of physics, companies that build black rifles have been forced to innovate their way to new sales from every possible angle. Weight reduction has become a popular road to take, and with good reason. With a surge of new gun ownership across the country, it's important for consumers to have purchase options that are handy and easy to shoot.

One company filling this role is Arizona-based Kaiser Shooting Products, which forms their receiver sets in-house from a lightweight, durable polymer blend. The polymer chassis is then filled with hard-use internals to create a rifle that is both feature-packed and light on its feet. The listed weight of their X-7 Standard rifle is four pounds, 14 ounces.

Did I mention they guarantee sub-MOA performance? Let that sink in for

a second: a five-pound rifle that shoots less than an inch from end zone to end zone.

I have reviewed a number of AR-style rifles from across the industry, enough of them that I tend to ignore a lot of black-rifle-themed press releases. But when I looked at the ratio of weight to performance that Kaiser claims, I couldn't resist the temptation. I had to know if it were too good to be true. Spoiler alert: it's not.

Kaiser X-7 Standard is a light five-pound rifle capable of sub-MOA groups.



Kaiser Shooting Products
X-7 Standard Rifle.

COMPONENTS

The polymer receiver set is available as part of one of their full rifles or as a standalone set for those who want to roll their own. The upper and lower receivers weigh 10.7 ounces *combined*. These receiver sets are *only* sold as sets. You cannot purchase just one half, due to the fact that the receivers are molded as a matching pair. Tolerances are extremely tight. I had to wiggle my upper and lower until they eventually slid



Magazine well is aggressively textured for those who still use it as a gripping surface.

apart. There is absolutely zero movement or rattle between the halves.

Pin-hole dimensions are all milspec except for the ejection port cover, which is proprietary. Barrels, bolt groups, charging handles, furniture, and magazines can all be swapped in/out as with any other AR variant.

The handguard on the X-7 Standard is also made in-house. It's an aluminum 12-inch M-LOK tube. A polymer version is in the works and may be available by the time you read this.

While it is lightweight, the aluminum handguard—combined with the weight of the barrel—shifted the point of balance a little far forward for my taste. Even at five pounds, the Standard felt slightly front-heavy. I believe a polymer handguard will improve both balance and weight savings.

The barrel on my pre-production prototype was a Faxon Firearms 16-inch pencil barrel. Production guns will instead be equipped with Faxon's GUNNER barrel, finished with black

nitride. The GUNNER (yes, they insist on using all caps) is a clever blend of government and pencil profiles. From chamber extension to gas block, the GUNNER holds a traditional government contour. But at the gas-block shoulder, it drops to a .625 pencil profile and stays that way to the muzzle.

The barrel is capped with a traditional A2 birdcage. Finishing off the upper receiver group is Kaiser's all-steel bolt carrier group and a milspec charging handle.



X-7 Standard comes with 12-inch M-LOK handguard. All other furniture is milspec. Inset: Trigger hole pins are metal reinforced to ensure proper dimensions.

The lower receiver has metal reinforcement around the takedown pin sockets and receiver tube extension. The magazine well is textured for those who prefer a mag-well grip. The lower parts kit is milspec. The stock and pistol grip are standard M4 and A2 style, respectively.

The trigger breaks my Lyman gauge at a surprisingly uniform five pounds, 13 ounces. It's smooth but, honestly, nothing to write home about.

SETUP CONSIDERATIONS

When considering any kind of light-weight rifle, I am very careful how I accessorize it. There can be a tendency to see the light weight of your weapon as a reason to hang more accessories on it. Personally, if I'm going to build (or purchase) a minimalist rifle, I'm going to run it like one. In this spirit, I only added accessories I considered essential to the X-7 Standard for testing.

The first was Trijicon's Miniature Red Dot optic. The MRO is built with



Bulk of testing was done with A&A Ammunition, which performed consistently well in all tasks.



Arisaka Defense Mini Scout, here mounted on Gear Sector offset mount, is an excellent white-light companion to svelte X-7 Standard rifle.

the same tank-like toughness as their legendary ACOG, but provides a two MOA micro red dot that weighs less than half a pound with riser mount. The iron sights are a Troy HK-style fixed front and Matech flip-up rear.

I won't run a carbine without a white light. I chose one from Arisaka Defense, which produces scout-style flashlights that are compatible with all SureFire Scout mounts but in a slimmer, more streamlined package. While they produce several in-house mounts for both KeyMod and M-LOK handguards, I wound up using a Gear Sector offset mount. This best suited my grip style.

I also run a vertical foregrip on my carbines. I recently received a direct-mount VFG from Unity Tactical. This VFG is a hybrid grip/handstop, not meant to be used like a traditional "broomhandle" forward grip. The Unity Tactical VFG is primarily intended for those who run thumb-over-bore or thumb-forward grips. It weighs less than 1.5 ounces and attaches to most styles of direct-mount handguards.

With a careful selection of accessories, the result is a rifle that weighs ex-



Unity Tactical short VFG integrates seamlessly with X-7 Standard's handguard.



All magazines, including this custom PMAG from Black Sheep Warrior, inserted and seated without issue.



Even midway through the firing cycle, X-7 Standard remains perfectly flat.

actly 5.96 pounds with light, optic, and foregrip attached.

For the purposes of accuracy testing, I mounted a Burris MSR 4.5-16X optic. If you're in the market for an AR scope, I highly recommend the Burris MSR. Optical clarity is excellent, and the finger-adjustable turrets are clearly marked and give positive $\frac{1}{4}$ MOA clicks. The reticle is drop-compensated, though I didn't use this function. Its max setting of 14 power made grouping at 100 yards utterly easy. I also used Burris QD rings, which were easily adjusted and locked down tight onto the upper receiver.

SPEED AND ACCURACY

For accuracy testing, I used four different loads across a spectrum of bullet weights and ammo types. The bulk of my testing was done with 55-grain FMJ from A&A Ammunition. A&A is a small, veteran-owned business that produces bulk ammunition specifically for high-round-count training. Their prices are very competitive and, if you're looking to stock up or attend an advanced-level class, check them out before you start stuffing your mags.

For accuracy testing across the spectrum of bullet weights, I also used Hornady 55-grain FMJBT, Federal 77-grain BTHP, and Black Hills 40-grain V-Max. As mentioned earlier, Kaiser claims this rifle to be sub-MOA. My experience

backs up this claim handily.

The first load tested was Hornady 55-grain boat-tail. While not marketed as a match round, the boat-tail slugs give a slight accuracy edge over standard FMJ. My three-shot group put two rounds overlapping on paper, in a ragged hole of less than .5 inch. I pulled the last round hard and opened up my group to about 1.5 inches, but this was clearly shooter-induced. The fact I was able to print a pair at less than .5 inch at 100 yards with a milspec trigger was enough to raise my eyebrows.

Next up was the A&A Ammo. Not many people have heard of this brand, but it's quality ammo priced well for high-round-count training or low-cost general use. It turned out a nearly perfect one-inch triangle. I feel I could have tightened it up with a few more attempts, but one MOA was satisfactory to me.

I followed the A&A offering up with the Black Hills 40-grain V-Max load. The light varmint round gave impressive results, with a tight string measuring almost exactly .75 inch end-to-end. This was my indisputable proof that the X-7 Standard is, in fact, sub-MOA. I find this an impressive feat considering both its weight and weight of trigger pull. I can only imagine what my groups would have looked like with a 3.5-pound two-stage bang switch.

The only disappointment in accuracy was the Federal 77-grain hollow point. All my groups hovered between two and three inches. Considering how all my other test loads performed, I was expecting more out of a heavy boat-tail that's widely touted for its accuracy. But for whatever reason, the pencil barrel seemed to dislike the heavier bullet.

With the 100-yard accuracy test complete, I mounted the Trijicon red dot to evaluate handling and weight savings.

ON THE RANGE

I was able to run this rifle a fair amount, including training three new shooters and an Army reservist preparing to deploy. All were fans of the Standard's light weight and fast-handling characteristics. In running close to 700 rounds through the test rifle with minimal lubrication and no cleaning, I only experienced two soft malfunctions. Both were nose dives onto the feed ramp and were corrected with a firm tap-tug on

the magazine. Under-lubrication or old magazines were the likely culprits.

Speaking of magazines, I ran three types through the X-7 Standard: Gen2 PMAGs, USGI, and one Hexmag. All three types fit and fed well. The Hexmag seemed to rattle in the magazine well, but it's been my experience that Hexmags do this in any milspec lower.

The USGI mags fit snugly and would not drop free when released, but they were personal magazines I've had for several years and they have been spray-painted over more than once. A little heavy-handedness with the rattle cans is probably what generated extra friction against the polymer magazine well.

My favorite thing about Kaiser rifles is there is no "over-swing" when transitioning across a lateral target spread. I'm used to carrying weapons with quad rails and beaucoup accessories. The lean, stripped-down Standard moves rapidly among targets and there's no dragging feeling when you transition.

The light rifles handle recoil well. Of course, the .223 doesn't exactly have a reputation as punishing to shoot. There was a notable "jumpiness" in this gun that I don't find in heavier duty weapons. This is no knock against the Kaiser rifles themselves. Consider it a public service announcement for those of you looking at a lightweight rifle.

Physics being what it is, the trade-off you make with lighter guns is increased perceived recoil and a tendency for the muzzle to bounce off target during rapid strings of fire. This trait turns me off to this new generation of lighter rifles. But that is personal preference and, as they say, your mileage may vary.

FINAL THOUGHTS

The great thing about lightweight AR-15s is that they are universally applicable. Competition shooters want rifles that are fast and easy to move and transition quickly across multiple targets. A family man (or woman) wants a rifle that can be shot and handled comfortably by everyone in the family. Those preparing for a crisis or disaster want a rifle that's light enough to carry on foot over long distances. First responders want a rifle that won't weigh them down during dynamic operations like active shooter response or hasty build-out searches.

The Kaiser X-7 Standard could eas-

ily fill any (or all) of these roles. It offers full rifle power and accuracy at distance in a package that weighs less than the smaller, less powerful legacy submachine guns of generations past. Whether you're looking for the right tool for the job or just that perfect plinker, take a long look at the Kaiser Shooting Products X-7 Standard. ◎

Tom Marshall is a graduate of the United States Merchant Marine Academy at Kings Point, where he earned a Bachelor's Degree, a U.S. Coast Guard 3rd Mate's License, and a commission as a U.S. Army Officer. During OIF 09-10, Tom served as a Reconnaissance Platoon Leader and Company Executive Officer in the last American combat Brigade to withdraw from Iraq.

SOURCES

KAISER SHOOTING PRODUCTS

(520) 561-8227
www.kaiserus.com

A&A AMMUNITION

(520) 261-4273
www.trainhardammo.com

ARISAKA DEFENSE

www.arisakadefense.com

BLACK HILLS AMMUNITION

(605) 348-5150
www.black-hills.com

BURRIS

(970) 356-1670
www.burrisoptics.com

FAXON FIREARMS

(513) 674-2580
www.faxonfirearms.com

FEDERAL PREMIUM AMMUNITION

(800) 379-1732
www.federalpremium.com

GEAR SECTOR

(877) 556-GEAR
www.gearsector.com

HEXMAG

(970) 460-2000
www.hexmag.com

HORNADY MFG. CO.

(800) 338-3220
www.hornady.com

MAGPUL INDUSTRIES CORP.

(877) 462-4785
www.magpul.com

TRIJICON, INC.

(800) 338-0563
www.trijicon.com

UNITY TACTICAL

www.unitytactical.com



RELIC RESURRECTION

M44 Mosin-Nagant Archangel Scout Rifle

BY WILL DABBS, M.D.

PHOTOS BY SARAH DABBS

Colonel S.I. Mosin was serving the Czars in the Imperial Russian Army when he designed the bolt-action rifle that bears his name. The original Mosin-Nagant rifle entered service in 1891 firing those ancient 19th century round-nosed rifle cartridges. The M91 Mosin-Nagant rendered fine service through World War I, but by the Second World War, it was fairly obsolete.

The classic Mosin-Nagant was produced in a number of guises, but in 1944, a carbine version titled the M44 entered service with Soviet forces. Sporting a 20.4-inch barrel—a full eight inches shorter than its older parent rifle—the M44 was designed to be handier and incrementally lighter than its WWI forebear. The M44 also included a permanently attached cruciform bayonet that folded alongside the forearm when not in use.

HISTORY MEETS THE INFORMATION AGE

American gun laws are a labyrinthine amalgam of disjointed regulations sufficient to induce the vapors in a neophyte. The nitnoids concerning barrel length, forward hand grips, sporting purposes, and import criteria are adequate to vex me even after a literal lifetime of study. But some salient aspects of American firearms law are actually pretty neat.

Curio & Relic (C&R) firearms are by definition guns whose value is determined predominantly as a result of their collector status rather than their martial function. A gun declared a C&R weapon by the BATF is exempt from many of the contemporary restrictions that affect more modern iron.

It is a remarkably simple exercise to apply for and receive a Federal Firearms License from the BATF to receive C&R firearms at your home. C&R eligible guns are prominently



M44 Mosin-Nagant rifle is an evolutionary offspring of the older M91 (top). M44 barrel is about eight inches shorter, and the cruciform bayonet mounts permanently alongside the muzzle. Both rifles fire the same 7.62x54mm rimmed cartridge.



Above left: Author opted to drill out the scope mount and install it using the original rear sight mounting pin. Several hex screws dog the mount down securely. Affix all screws with thread-locking compound and they will not move under recoil.

Above: Proprietary single-stack Archangel magazine is easily inserted and retrieved and manages large rimmed cartridges with ease. Feed is positive and reliable.

Left: When compared to modern offerings like this tricked-out M4 Carbine (top), the Archangel M44 Scout Rifle is functionally obsolete. But for North American big game hunting, Archangel M44 puts the M4 to shame.

labeled on most dealers' websites.

The application is available on the BATF website and is only three pages long. It is easy to submit and only costs \$10 per year. In my case, the turnaround was blisteringly fast as well. The information packet that accompanies the license includes everything needed to begin collecting C&R firearms legally, to include a roster to record serial numbers and vital firearms data.

Once received, a C&R FFL allows its holder to receive C&R guns at their home address without going through a conventional firearms dealer. The license is designed specifically for individual collectors rather than someone doing business in firearms.

SYNERGY

Military technology has fully eclipsed the M44 design, and now untold thousands of these classic rifles sit disused in wartime stocks overseas. While it would cost a holy fortune to tool up and produce this rifle today, as there is no military market for these antique weapons, they perfuse the American collector's market at absurdly low prices.

The rifles for sale today have decent bores and have been arsenal refinished to appear nearly new externally. With few exceptions, these venerable old guns are cool to look upon but have few practical applications compared to modern offerings. Archangel Manufacturing breathes new life into these classic old guns.

Archangel made its name in top-quality aftermarket firearms accessories. I have used several of their stock sets for years and have found them to be remarkably functional and fairly indestructible.

Their basic chassis is available for a variety of platforms and includes an ergonomic stock adjustable for both height of comb and length of pull. Their pistol grip fits the human hand perfectly, and the stocks are festooned with sling sockets and swivel studs. There is a small storage compartment in the pistol grip, and construction is of a robust synthetic material impervious to most everything.



Length of pull and height of comb are both adjustable via handy thumbwheels on Archangel stock, allowing stock to be customized to shooter's individual anatomy.

The Archangel stock comes with one of their proprietary single-stack magazines. It is easily inserted and retrieved and manages those large rimmed cartridges with ease. Feed is positive and reliable.

Leaving the magazine in place, the rifle can be reloaded with stripper clips. Putting one of the flat clips in the back pocket is much easier than packing an entire magazine when out for a walk or while hunting.

When the World War II-era M44 Mosin-Nagant Carbine meets the 21st-century Archangel stock, the most extraordinary things ensue.

THE SCOUT RIFLE

The legendary Jeff Cooper coined the term Scout Rifle to describe a carbine-length bolt-action rifle suited for quick action in brush.

The archetypal Scout Rifle mounts a long-eye-relief optical sight well forward on the weapon to facilitate an uncluttered view for engagement of moving targets in heavy cover. Several modern manufacturers produce these guns *de novo* even today, though they are often spendy.

AIM Sports produces a kit that includes everything needed to turn a surplus M44 wearing an Archangel stock into a splendid Scout Rifle. While Cooper's ideal Scout Rifle possessed a few features that the Archangel M44 lacks, it is a close facsimile at a fraction of the cost.

The AIM scope mount replaces the rear sight. Removal of the original rear sight requires nothing more than a punch and a hammer. The AIM scope mount is designed to be secured via a pair of included hex screws. I could drill out the mounting holes on the mount to accept the original sight retention pin and get a more solid result.

There are several adjustment screws to configure the sight at the optimal angle for your optics. Secure all screws with thread locker and they stay put under recoil.

The scope is adjustable from 2 to 7 power, and the eye relief when mounted forward on the rifle's rear sight is perfect for my anatomy. The Nazis experimented with a similar op-



AIM Sports produces a kit that includes everything needed to turn a surplus M44 wearing an Archangel stock into a splendid Scout Rifle.

tic called the Zf-41 on their bolt-action Kar98k rifles during WWII for the same reasons Jeff Cooper did. So configured, such a rifle is exceptionally handy and maneuverable.

The resulting rifle is as effective as modern bolt guns that are not nearly so old and cost many times more. The original military trigger on the old M44 is fairly long and creepy, but aftermarket triggers offer world-class performance. As the rifle is designed for quick engagements while on the move, the stock trigger doesn't bother me much.

The long folding bayonet is removable with a little effort, and AIM Sports makes a cool muzzle brake that affixes to the mount if this compact rifle's recoil is intimidating.

I initially intended to remove the bayonet, as it is kind of bulky. Removing it would have reduced the weight of the rifle and made it a bit handier. But the mount seems to be an integral piece of the barrel assembly and the retaining screw was heavily peened in place. I would have had to do some serious grinding or drilling to get the thing off. Short of refinishing the barreled action, it would have looked ugly.

But the bayonet is unobtrusive when folded and who knows when you might need it in the field? They don't call them pig stickers for nothing.

The truly extraordinary aspect of this rifle system is that, once you take the plunge into a C&R FFL, the entire shebang can be built from components that the UPS Brown Truck of Happiness delivers straight to your door.

TRIGGER TIME

The tricked-out M44 Mosin-Nagant Archangel Scout Rifle is fairly heavy compared to the aluminum and plastic rifles that populate modern American gun shops. It is no heavier than a comparable modern Scout Rifle, but to throw bullets this large without brutalizing your shoulder requires a little mass. The 7.62x54mm cartridge is an antiquated rimmed design eclipsed by more modern rimless offerings, but its innate power puts it in the .30-06 category.

Most of the benefit of modern rimless cartridges arises from their ability to function in automatic and semiautomatic weapons. In the single-stack five-round detachable magazine of the Archangel M44, the rimmed cartridge functions just fine.

With a bullet weight of 174 grains and muzzle velocity of 2,500 feet-per-second (fps), the 7.62x54mm cartridge is proof against pigs, mule deer, black bear, and elk with appropriate modern expanding bullets. Several commercial ammunition manufacturers produce quality expanding rounds in this chambering, and cheap surplus ammunition means practice is only pennies per trigger squeeze.

On the range, the Archangel stock tames the handy WWII-era Infantry rifle nicely. The generous rubber recoil



7.62x54mm rimmed military surplus ammunition (left) is large, heavy, and effective, but typically corrosive. New-manufactured hunting ammunition (right) is readily available and reasonably priced.



pad takes much of the pain out of long strings of fire, and the ergonomics of the system make time behind the rifle a fairly comfortable experience.

The heavy bullet is relatively immune to wind and remains flat shooting at appropriate Scout Rifle ranges.

BIG PICTURE

American shooters looking to acquire a nice Scout Rifle without selling a kidney can get there with the Archangel M44. Even considering all the component parts, the Archangel M44 Scout Rifle costs about half what a modern version might, and you get a serviceable bayonet to boot!

Building the system at home is half the fun. Cheap surplus training ammunition means you can kill an afternoon at the range without feeling economically violated. A Curio & Relic FFL is a neat addition for any firearms enthusiast ready to add a new dimension to his hobby. The C&R FFL holder doesn't give up any rights, and it is a thrill having these extraordinary old guns shipped straight to your door.

Drop by the Archangel website to drool over their nifty Information Age accessories, and download a Curio & Relic FFL application from www.atf.gov. Soon thereafter, you'll find yourself on a first-name basis with your local UPS driver, and your gun collection will grow like never before. It might surprise you just how far your gun-buying dollars can go. ©

Will Dabbs grew up in the Mississippi Delta and has a degree in Mechanical Engineering from the University of Mississippi. He is Airborne qualified and accumulated 1,100 hours flying UH-1H, OH-58A/C, CH-47D, and AH-1S helicopters. After eight years on Active Duty, Major Dabbs left the Army for medical school. He currently works in his own medical clinic and maintains a licensed 07/02 firearms manufacturing business building sound suppressors. He has written commercially on the subjects of firearms, medicine, and survival for more than 20 years.

SOURCES

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ON TARGET

GeoBallistics External Ballistics Mobile App

BY EUGENE NIELSEN

THE science of external ballistics is far more complex than some would make it seem. Many factors affect what a bullet does in flight. A good ballistics table is essential for accurate long-range shooting.

Current technology has made the arithmetic easier than ever. Ballistics apps for smartphones and tablets are designed to let you calculate data that's tailored to your specific firearm, cartridge, and environmental conditions—and do so with a precision that is unattainable with manual calculations and handwritten cards.

I recently tested an impressive app from GeoBallistics, LLC called Ballis-

ticsARC™. Available for iOS, the patent-pending software has been tested by various shooting communities, including military, local and federal law enforcement, and professional hunters. It does everything a precision shooter needs and brings some exciting new capabilities to the table.

BallisticsARC (Ballistics, Atmospheric, and Range Card) combines the functionality of a ballistics calculator, atmospheric device, and GPS rangefinder into a single mobile app to produce one of the most accurate ballistic trajectory tables in the industry. It's powered by the world-renowned JBM Ballistics engine—considered the industry gold standard in ballistic calculation.

The JBM Ballistics engine utilizes Litz-derived Ballistic Coefficient (BC) values, based on field testing by Bryan Litz, a champion shooter, aerospace engineer, ballisticians, and author of the highly regarded *Applied Ballistics for Long Range Shooting*. The BC is a measure of the capability of a projectile to overcome air resistance in flight. It's a function of weight, diameter, and drag coefficient.

BallisticsARC has two modes: Chart Mode and Map Mode. Chart Mode is included in the free version. Map Mode requires an in-app purchase.

CHART MODE

Chart Mode produces a traditional spreadsheet-style dope chart with the ability to produce range cards without a cell signal. It's the most powerful free ballistics calculator available and features the JBM Ballistics Solver and Bullet Library, with over 2,500 projectiles, online weather access and weather hardware integration, muzzle velocity truing, auto shot bearing and shot angle features. Considerations include gyroscopic (spin) drift, Coriolis effect, wind influence, shot angle, atmospheric conditions, and more.

Spin drift is a linear drift of your bullet caused by the rotating motion imparted by your barrel's twist. Coriolis effect is the drift caused by the rotation of the earth. Although associated with Coriolis, the phenomenon that actually affects the vertical component of the trajectory is called Eötvös Effect. They become a concern only at extreme ranges. Although not an issue in most



BallisticsARC is compatible with Apple devices running iOS 7.1 or later and is available for download on the App Store.



NSW operator (SEAL) with FN SCAR-H. Many variables need to be taken into consideration in long-range shooting. Photo: U.S. Navy

law enforcement tactical applications due to the typical ranges in which a marksman takes the shot, it is nonetheless a nice capability to have.

BallisticsARC uses your location to pull up a list of nearby weather stations that allow you to input their weather data into the JBM engine, or you can capture on-site weather and wind with the optional WeatherFlow™ WINDmeter™ or WEATHERmeter™. Weather conditions can also be input or changed manually. GeoBallistics has utilized as many of the built-in functions on iOS devices as possible. The accelerometers and magnetometer within the devices

allow you to accurately determine wind direction, shot direction, and upward or downward angle. BallisticsARC does all the math. You know exactly where your bullet should impact before you pull the trigger.

MAP MODE

Map Mode is a really cool feature that's available as an in-app purchase for \$14.99. The free version of BallisticsARC comes with a sample satellite image map that lets you try out Map Mode before you purchase it.

In Map Mode, you can range targets simply by dropping pins on satellite im-

agery of your shooting and target locations. Pins are placed manually using visual landmarks for reference rather than depending on the device's GPS to pinpoint your exact location. Multiple targets can be pinned and ranged. Tap on a target pin and the range to target and ballistic solution will display in either MRADs, MOA or inches, based on the user's preference.

BallisticsARC uses the WGS 84 geodetic datum to derive GPS coordinates for its rangefinding feature. This is the current standard for mobile maps, producing coordinate accuracy of about 3 meters throughout the continental

WeatherFlow wind and weather meters are miniature weather stations that you use with your smartphone to collect real-time wind, temperature, humidity, and pressure readings.



United States. Testing conducted by GeoBallistics has shown that ranging accuracy is typically within 1 meter. This is substantiated by my own testing.

With Map Mode, you can instantly create an accurate range card. It's a real boon in dynamic situations, such as would be encountered in the field. It's more efficient and quicker to use than traditional charts and graphs. Overlays provide you with quick visual reference to the data you need.

The Map Mode overlay variables



Map Mode with GPS rangefinder and Geo-Ballistic profile. Map Mode is available as an in-app purchase for \$14.99.

display a bullet's performance along its path according to the parameters you specified for each rifle profile. Overlay variables include

- **Max Vital Range:** the maximum range where a bullet strikes within a desired vital area without elevation adjustment
- **Energy Threshold:** the minimum energy a shooter desires to deliver to a target
- **Velocity Threshold:** the minimum velocity a shooter desires to maintain to a target

The initial goal of this was to allow shooters to cater these variables to their preferred terminal ballistic theory to promote ethical hunting. In reality, GeoBallistic overlays offer a wide range of possibilities for all shooters. Examples include the ability to visualize where a bullet will go transonic or fall below a recommended expansion velocity.

RANGE CARDS

BallisticsARC lets you save and load satellite range cards in the mobile app for later use. This capability is especially useful for shot planning and mission briefing. Once a range card has been recalled, only the atmospheric need to be updated for a shooting solution. No official feature exists for caching satellite imagery at this time, but this option is in the development queue. GeoBallistics encourages using Chart Mode for offline use. The app also has the ability to save charts to camera roll.

ATMOSPHERICS

GeoBallistics has partnered with the weather experts at WeatherFlow™, Inc to offer on-site atmospheric with af-



Capture on-site weather and wind with Precision Shooting WEATHERmeter (shown) and WINDmeter. Both devices are compatible with free version of BallisticsARC.

fordable and easy-to-use hardware that seamlessly integrates with BallisticsARC. WeatherFlow is a leader in the private-sector weather industry, with over two decades of experience in applying the latest in observational, modeling, and forecasting technology.

WeatherFlow wind and weather meters are miniature weather stations that you use with your smartphone to collect real-time wind, temperature, humidity, and pressure readings.

The WeatherFlow WINDmeter for Precision Shooting was the first piece of hardware integrated into the BallisticsARC software. The WINDmeter plugs into the 3.5mm audio jack of your smartphone or tablet. It requires no batteries to operate. Power is provided by your device.

The WINDmeter provides real-time onsite wind speed (avg, true) and wind direction. Product testing and calibration were performed at the University of Florida's Aerospace Engineering wind tunnel. The WINDmeter accurately measures wind velocities between 0.5 to 140 mph +/- 0.5%.

Rumors indicate that the iPhone 7 and iPhone 7 Plus, which are expected to come out in September 2016, will do away with the traditional 3.5mm headphone jack and instead rely on the Lightning port for audio. Should this occur, adapters will likely be available.

BallisticsARC also supports the new WeatherFlow WEATHERmeter for Precision Shooting. The WEATHERmeter provides all of the wind measurement capabilities of the WINDmeter, plus



BallisticsARC displays all screens and data in either landscape or portrait view depending on the device's orientation.

GeoBallistics™

Latitude (deg): 33.76431 Longitude (deg): -111.432

Shot Bearing (deg): 348 Shot Angle (deg): 25.4

Range (m): 2000 Increment (m): 100

.308 Win 168 SMK HPBT **SAVE**

Range (m)	Elev. (mils)	Wind. (mils)	Vel. (ft/s)	Energy (ft-lb)	Time (sec)
0.0	*	*	2650.0	2619.2	0.00
100.0	D 0.1	0.0	2424.3	2192.1	0.13
145.4	U 0.1	R 0.1	2327.3	2024.4	0.19
200.0	U 0.5	R 0.2	2210.5	1822.4	0.27
300.0	U 1.3	R 0.4	2008.6	1504.8	0.43

Bottom navigation: Rifle, Weather, Hardware, Map, Menu

Chart Mode produces a traditional spreadsheet-style dope chart with the ability to produce range cards without a cell signal. It's the most powerful free ballistics calculator available.

Wind **USE HARDWARE**

Speed (mp...): 7.3

Direction (de...): 47

Atmosphere **PYTRH** **DA**

Pressure (in Hg): 29.92

Temperature (F): 59.0

Relative Humidity (%): 60

Density Altitude (ft): 0

Online Weather Acc... **RELOAD**

Bottom button: Done

BallisticsARC uses your location to pull up a list of nearby weather stations that allow you to input their weather data. You can also capture on-site weather and wind with the optional WINDmeter or WEATHERmeter or input the data manually.

Name .308 Win 168 SMK HPBT

Load Data **MANUAL** **LOOKUP**

Sierra MatchKing™ (Litz)
.308 168gr
Length: 1.215" Tip Length: 0.000"

Drag Function: G7
Metro: ICAO
Ballistic Coefficient: 0.218000

Rifle Data

Sight Height (in): 1.5

Zero Range (m): 100

Elevation Offset (in): 0

Windage Offset (in): 0

Barrel Twist Rate (1/in): 1/ 11

Bottom button: Done

Rifle and load data are easily input and can be saved for future use. BallisticsARC features JBM Ballistics Bullet Library, with over 2,500 projectiles.

real-time humidity and dew point (0 to 100% +/- 3%); temperature, wind chill, and heat index (-40 to 255 °F +/- 0.5 °F); and pressure and density altitude (8.9 to 32.5 inHG +/- 0.03inHG). It's truly a pocket-sized weather station.

The WEATHERmeter features wireless Bluetooth® Smart/Low Energy connectivity with up to 100-foot connectivity with your Bluetooth-enabled device. Power is provided by a widely available CR2450 lithium-ion coin battery. The WEATHERmeter comes equipped with multiple mounting options.

The WINDmeter and WEATHERmeter are designed for the rigors of field use. They have a rugged, weather-resistant polymer housing. The GeoBallistics models feature a Flat Dark Earth housing. They come with a hard case for storage and have a three-year warranty.

The WINDmeter and WEATHERmeter provide all the features of the competition but at a fraction of the cost. MSRP for the WINDmeter for Precision Shooting is \$44.95. The WEATHERme-

ter for Precision Shooting has an MSRP of \$84.95. Both devices are available directly from GeoBallistics.

BallisticsARC displays all screens and data in either landscape or portrait view depending on the device's orientation.

COMING ATTRACTIONS

At press time, BallisticsARC's developers were in the process of coding full international support. Rather than having one switch that toggles between imperial and metric units, GeoBallistics is making the app more configurable. They have found that different regions around the world mix various units.

An Android version of BallisticsARC is in the works. Expected availability is late spring 2016.

BallisticsARC requires iOS 7.1 or later. It's compatible with iPhone®, iPad®, and iPod® Touch and is available for download on the App Store. The app comes with full tech support.

BallisticsARC is a great tool for the

long-range precision shooter, with some unique features that put it way ahead of the competition. ☺

Eugene Nielsen's background includes protective intelligence investigations and threat management, as well as red teaming security consulting. He has a BA degree from the University of California. He owns and operates an investigative and security consulting firm and is licensed in California and Arizona. He has authored close to 1,000 published articles.

SOURCES

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WEATHERFLOW, INC
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Spyderco Sharpmaker

Growing up on farms and ranches, I learned the importance of a good, sharp knife. A sharp knife is a lot safer than a dull knife, because with a dull knife, you may be sawing more than slicing. Pushing so hard on the knife, you might slip and cut yourself.

For years, I watched my Grandpa Denny put a razor edge on his knives and those of other family members with a Spyderco Tri-Angle Sharpmaker. Several years back, he gifted my Dad a Sharpmaker for Christmas. For my birthday this year, Grandpa gave me my very own Spyderco Sharpmaker, making three generations of our family who use one. Let me tell you more about this great product.

Although Spyderco is known mostly for knives, the Sharpmaker was actually the company's first product. As Spyderco says, "First we made things sharp, then we made sharp things."

The Spyderco Sharpmaker comes in a hard ABS plastic protective case. Nestled inside you'll find four ceramic triangular-shaped stones. Two of the stones are gray and two are white. The stones are technically a synthetic sapphire and so hard they can remove any metal, even from a hard file.

The gray stones are the starting stones that put a good edge on your knife, while the white are the finishing stones that make your knife razor sharp. Also inside the case are two brass rods that function as protective safety handguards. You should always use them, to avoid accidentally cutting yourself if you slip.

The lid of the case does double duty, snapping into the midway point of the base and serving as an extension for better control.

There are two keyed slots on both sides of the base with different angles that the stones sit at: 30 and 40 degrees. Spyderco knives come from the factory with a 30-degree angle. Spyderco is one of the few knife companies that pay attention to the 30-degree edge, but they recommend using the 40-degree stones for most uses, because a knife with a steep, sharp edge will become dull faster.

To begin sharpening, insert the brass safety guards and place the gray stones in the 40-degree slots with the corners of the triangles pointing inward. Holding the knife blade straight up and down, and starting at the back of the blade, draw the blade along the stone all the way to the tip for about 30 strokes on each side. Then replace the stones in the keyed slots with the flat sides facing inward and apply another 30 strokes to each side.

This will give the knife a good utility edge that, on a quality knife, should last for some time. For an even sharper, professional edge, repeat the above using the white stones.

The ceramic stones actually remove metal and after awhile, the edge will work up into the thicker part of the blade using the 40-degree slots. And so, while still sharp, there will be more drag on the blade as you cut.

Spyderco recommends placing the stone in the 30-degree



Sharpmaker set up to begin sharpening, with gray stones set in 40-degree key slots. Cover of case is used as an extension for better control.

slots about every tenth time you sharpen your knife. This will “back bevel” the blade and break down the shoulder created by sharpening at the 40-degree angle.

Can knives with serrated edges be sharpened with the Sharpmaker? You bet!

Using just the corner edge of the stones, with every five or so strokes on the flat side to remove any burr that may have arisen, serrated blades can be returned to an edge equal to or better than how it came from the factory. Go slowly to make sure you don’t skip over any serrations.

A groove on each stone can be used for sharpening anything with a point, such as an awl, darts, and fishing hooks.

On the end of the base is a single keyed slot that holds one stone. This slot positions the stone at 12.5 degrees and is used for sharpening scissors. As with sharpening a knife, start with the corner edge of the stone and hold the blade of the scissors straight up and down. Starting at the back, pull it across the stone to the tip. Repeat the process on the other blade, then progress to the flat edge.

If you turn the base upside down, you will find two slots that hold each stone side-by-side. This allows the Sharpmaker to be used as a bench stone to sharpen tools such as a planer blade.

Holding the stone like a file, you can use the corner to remove burrs from the inside of a Phillips-head screwdriver. Use the flat side to straighten the tip on a flat-head screwdriver.

Clean the sharpener after it starts to collect metal—when the white stones have turned almost black. The cleanup process is very easy. Put the Sharpmaker’s stones in water and use a plastic scouring pad and powdered abrasive cleaner such as Comet and scrub them to remove accumulated metal and let air-dry, or you can put them in the dishwasher.

Spyderco includes a video with step-by-step instructions

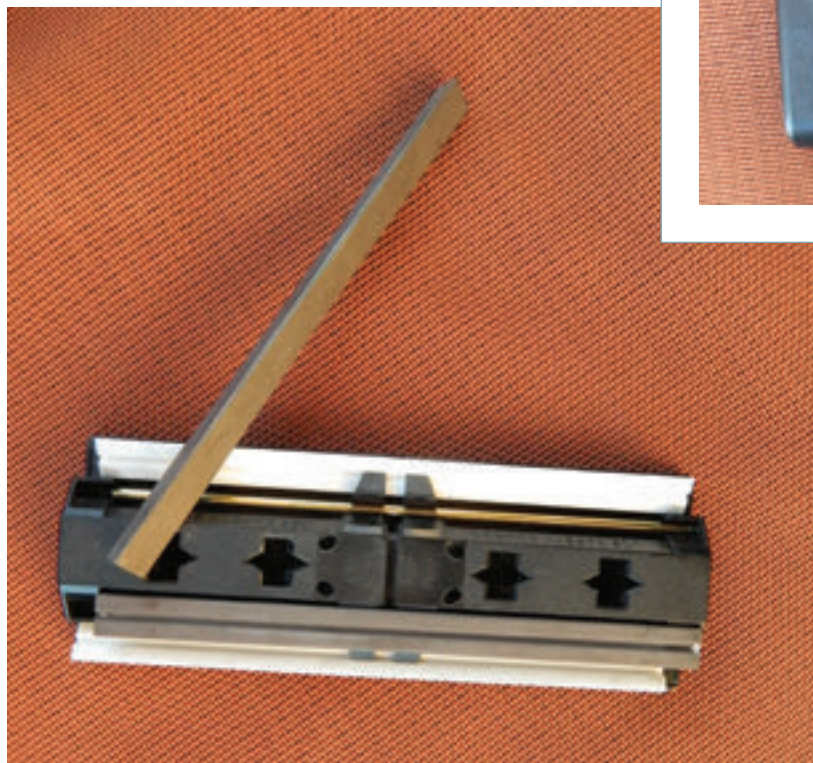


Denny, Flint and Austin Hansen: three generations of satisfied Spyderco customers with their Sharpmakers.

showing how to set up and use the Sharpmaker and how many different things it can sharpen.

I have used the 40-degree stones to put a utility edge on every knife in the house. The only drawback is that I no longer have any hair on either arm from testing how sharp the blades are. I have even sharpened the hand axe I take camping.

If you need to put a good edge on a knife—and we all do—the Spyderco Tri-Angle Sharpmaker is a necessity. Suggested retail price is \$104.95, and worth every penny. ©



Spyderco Tri-Angle Sharpmaker comes in a hard ABS plastic protective case.

Left: Stones and handguards fit securely inside base of the case. One gray stone removed to show brass rod safety guard.

SOURCE

SPYDERCO
(800) 525-7770
www.spyderco.com

Meet TIM

LET me introduce you to TIM. He is a friendly sort of fellow who loves to wave at you. From any distance up to 100 yards, he can wave slowly, kind of like the Queen of England. Or he can wave quickly, like a small child. But don't push his button and make TIM mad, or he will go to beast mode!

TIM is an acronym for Target Is Mov-

ing. And move he does—quickly, slowly, or randomly. TIM is a unique lightweight target system of only two pounds. It can be mounted to either a vertical or horizontal 1x2, locks on with a simple thumbscrew, and is quite stable.

The works are protected against most pistol (but not rifle) ammo with some angled armor. The base should

be safe because the six-inch hit zone of the paddle target is a foot away from it. Powered by four AA batteries in the main unit and two more in the control unit, TIM can be started from up to 100 yards away, and you can change his speed or set him to random mode.

When you plug the power pack into the base unit, the target arm moves, so be ready. It will come to the “rest” position and stop. Fresh batteries can last up to five hours. Unplug the battery pack from the unit when you are done or they will die. The control unit has a power button that glows red when turned on, plus mode and stop buttons, and a rotary speed control. One press for regular, two to get random mode. Operation is intuitive.

In basic mode, the arm moves your target at a slow to fast speed, controlled by the remote. Depending on the distance, you may want to start at slow speed and learn to lead the target. When you start making hits, either move back or increase his speed. TIM comes with several paddle targets, enhanced with some Birchwood Casey Shoot-N-C paste-on bullseyes. Once you get it down at the faster speed, get ready for random mode, in which the paddle moves in the same arc but randomly. That is, if mounted to a vertical post, it may start to drop down but suddenly reverse and move up at any point in its travel. The speed remains variable, so your shooting partner can make it as easy or difficult as he likes. Of course when you switch off, it can be payback time!

Want to raise the level of difficulty even more? Start moving toward cover with TIM in random mode.

The unit can be used with other cardboard targets or target backers. I tried using IPSC targets but the wind tended to blow them off the holder. I did not get to paste the paddle on the back of an IPSC target, but that would have worked. Seems like I need to build an indoor range to use these targets with a larger “sail area.” Of course if the wind stops, I'll be good to go.

Who should invest in a TIM? First, practitioners of the art of self-defense.



TIM at the ready.

Whether you are a peace officer or private citizen, there is no reason to think an outlaw is going to stand still and let you shoot him. He is more likely to be bobbing and weaving, trying to avoid your counter-fire and possibly take you out of the contest. Throw some innocent bystander no-shoot targets into the mix and you more closely approach street reality.

Three-gun competitors can practice for the more difficult shots with rifle and pistol if they expect to encounter TIM in a match. Here, as anyplace else, experience in practice can lead to winning scores in competition. A rifle shot

at 50 or 100 yards, even at slow speed, is a real challenge.

Armed forces members need to learn about engaging our country's enemies who like to hide behind walls. The walls in the sandbox, being mud/adobe, are virtually bulletproof, so troops end up in a deadly game of whack-a-mole. TIM can help them learn the tricks of engaging these fast-moving pop-up targets.

Finally, shooters who want to have *fun* will enjoy a TIM. I have already introduced some of my shooting buddies to TIM, and he quickly becomes addictive. Start close up at slow speed, then increase the speed, then move



TIM assembly consists of installing the batteries and tightening one screw.

back, then have a shoot-off in beast mode at higher speed. Bring lots of ammo. I know from experience just how fast it goes.

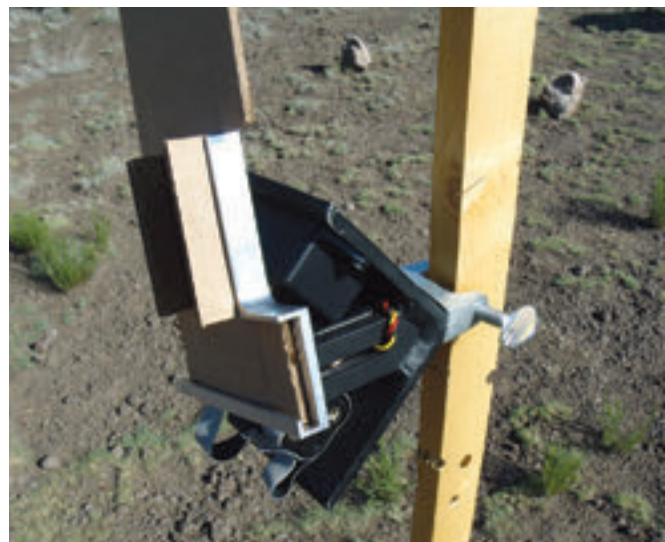
On the static pages of a magazine, words don't do TIM justice. Visit the website and watch the videos to see just how much training and fun you can have when TIM comes for a visit. ☺

Seth Nadel retired after serving 27 years as a Senior Special Agent with U.S. Customs. He was a firearms instructor for 25 years, including nine years as the lead firearms instructor at the Tucson Customs Academy.

Below: TIM base secured to the 1x2.



TIM after three magazines from a .45. Author thinks he needs more practice!



SOURCE

TARGET IS MOVING

www.targetismoving.com

GEAR LOCKER

NEW PRODUCTS & ACCESSORIES

Pachmayr Renegade and G10 Grips



Pachmayr has released the Renegade and a growing line of nearly indestructible G10 panels. The Renegade grip is composed of beautiful wood laminate and is available in charcoal-silvertone and rosewood, with smooth or checkered finish, for S&W J-, K&L, and N-Frame revolvers.

For semi-automatic pistols, the Renegade grips are available with checkering in rosewood and charcoal-silvertone to fit a variety of handguns from 1911 models to SIG Sauer, Beretta, Ruger, and CZ.

Pachmayr's new G10 grips are formed of resin hardened in layers to form composite panels, with complementary tints added to each layer so that milling them into their final shape and texture reveals a visually rich grain. For texture, the extremely coarse new Grappler utilizes raised rectangles defined by deep grooves that are themselves grooved to add further grip-enhancing texture.

LYMAN PRODUCTS CORP.
(800) 225-9626
www.lymanproducts.com

Aimpoint Magnifier Lines

Aimpoint, the originator and worldwide leader in electronic red-dot sighting technology, announces the addition of three new accessory magnifiers to their product line. Designed to work in conjunction with the company's electronic reflex sights, these new magnifiers are offered in 3X and 6X magnification, in both a standard grade for use by civilian shooters, as well as professional-grade models.

The new Aimpoint magnifiers feature diopter adjustment, so each optic can be individually adapted to the operator's eye. All are protected by shock-absorbing protective rubber covers that also provide an ergonomic grip surface. They may be used with the company's quick-detach TwistMount™ or with the new Aimpoint® FlipMount, which allows the magnifier to be quickly flipped in or out of the optical axis or removed from the firearm.

AIMPOINT INC. | (703) 263-9795 | www.aimpoint.com



Meopta R2

Meopta, a leading European and American optics manufacturer, introduces its next-generation MeoStar® riflescope series, the R2.

This new 30mm MeoStar 1-6X24 RD is not only the first in the new R2 line, but also Meopta's first riflescope with a 6X zoom ratio. The true 1X magnification, wide field of view, edge-to-edge clarity, and illumi-

nated reticle allow for extremely fast and accurate target acquisition. The versatile R2 is excellent for close-quarter situations on an AR platform and much longer shots.

Advanced MeoLux technology, premium Schott glass lenses, and expert design enable 99.8% light transmission per glass surface, resulting in 95% transmission through the entire scope.

Improved windage and elevation turrets are quickly resettable to zero and easy to grip, even with gloves on. Focal adjustment is also quick and easy, thanks to Meopta's MeoQuick fast-focus eyepiece.

Suggested retail price is \$1,724.99.



MEOPTA
(800) 828-8928
www.meoptausa.com

TAVOR X95



IWI US, INC.
(717) 695-2081
www.iwi.us

IWI US, Inc, a subsidiary of Israel Weapon Industries (IWI) Ltd, proudly debuts the compact modern-designed TAVOR® X95® bullpup, which incorporates a tri-rail forearm covered by three removable

vented rail covers. The TAVOR-style trigger guard is modular and can easily be converted to a more traditional trigger guard with pistol grip. The charging handle has also been relocated closer

to the shooter's center mass. Perhaps the most significant departure from the TAVOR is the ambidextrous magazine release, which has been moved to a more traditional AR-15/M16 location.

Like other TAVOR models, it features interchangeable cold hammer forged (CHF) barrels manufactured and engineered to IWI's demanding specifications. Conversion kits in .300 Blackout, 5.56mm NATO and 9mm will also be available.

Color choices are Black, Flat Dark Earth, and OD Green. Suggested retail price is \$1,999. Conversion kits are \$899 in 5.56mm NATO and 9mm, and \$499 in .300 Blackout.

Check Six With Angel Eye

Magwedge Industries Limited announces a new innovative black rifle accessory, Angel Eye, developed by Kirium Trading Inc. This product gives the user an increase in spatial awareness by allowing a person to see past his peripheral vision through the use of a wide-angle mirror.



Angel Eye is constructed with high-strength polyamide and incorporates a rear support block to enhance protection of the mirror during impact. Left- or right-handed shooters can use it. For additional protection, the mirror has a stress breaker incorporated in the event it snags on stationary objects. With Angel Eye, one can watch two entrances or two points of interest, or pan to do a visual sweep without physically turning around. Angel Eye can be folded against the handguards when not in use. Suggested retail price is \$99.95.

MAGWEDGE INDUSTRIES LIMITED
(604) 783-9591
www.magwedge.com

Black Hills Xtreme Defense

The .38 Special snub-nosed revolver is one of the most popular and reliable self-defense tools. But until now, most ammunition did not perform well at the velocities attainable in a snubie. Working with Lehigh Defense, Black Hills has successfully addressed that problem.

The new Black Hills .38 Special 100-Grain Xtreme Defense round provides 1000 fps from short-barreled revolvers and over 1250 fps from six-inch barrels, penetrates deeply, and makes a larger temporary cavity than conventional hollow points. This innovative new patent-pending, sharp-edged, homogenous copper design does not rely on expansion, but cuts and redirects the tissue radially as it penetrates, creating a wound channel superior to conventional hollow points in both depth and diameter of the wound. This is the ammunition you should have in your revolver to defend yourself.

BLACK HILLS AMMUNITION
(605) 348-5150
www.black-hills.com



Cross-Counter Shootout

As a clerk in a Deerfield Beach, Florida convenience store chatted with a customer, a masked would-be robber stepped up to the counter, pointed a gun at the clerk's face and opened fire. But it was not the first time the store had been robbed, and the clerk behind the counter was prepared. So was his boss.

The cashier sidestepped the robber's shots and pulled out his own pistol from under the counter, returning fire. The masked robber and the clerk began exchanging shots, ducking and weaving behind the counter and the displays of merchandise. A coworker who had also ducked behind the counter grabbed a second handgun that had been stashed there and joined the fight. In a flurry of gunfire, the gunman was fatally hit. Authorities identified the dead man as a suspect in similar crimes in the area, and as being on probation for drug trafficking offenses.

SOURCE: WFOR-TV, Miami, Florida, 1/16/16

Close Shave

It was just before 1900 hours at Next Up Barber & Beauty in Columbia, South Carolina when two masked men stormed into the crowded barbershop and began robbing the customers and employees. While one man held a shotgun on the employees, the second pointed a pistol at victims with one hand while rifling their pockets with the other.

When the robbers' attention was briefly diverted, one of

the patrons in a barber chair produced his pistol from under the apron he was wearing and started firing at the robbers. One of the barbers drew his own pistol and joined in the counterattack. One robber was hit and killed. The other, presumed wounded, was being sought by police.

SOURCE: WYFF-TV, Greenville, South Carolina, 1/26/16

A Gift for Defense

Two armed men walked into the Gift Card ATM shop in Hampton, Virginia, intending to rob the place early one Friday night in late January. Instead, the clerk pulled a handgun out and opened fire, abruptly ending the holdup attempt.

When police and medics arrived in response to the 911 call, they found one of the would-be holdup men dead at the scene. The second, also suffering from a gunshot wound, was arrested at a nearby apartment and faces multiple charges when he is released from the hospital. No charges will be filed against the clerk.

SOURCE: *Daily Press*, Hampton, Virginia, 1/30/16

One Against Three

The proprietor of Ms. Jessie's Stop 'N' Shop in Philadelphia was confronted by three armed men who burst into his shop demanding money shortly after 0830 on a Monday. But the owner didn't hesitate, and drew his own handgun and began firing at his attackers.

One was hit in the head and died at the scene. Police quickly apprehended a second suspect. A potential third suspect, also possibly wounded, was being sought by police. Neighborhood schools were put on a temporary lockdown that was lifted later in the day.

SOURCE: *The Philly Voice*, Philadelphia, Pennsylvania, 1/11/16 ©



Police trade-in guns can be an affordable solution for working stiffs on a budget.

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One Magic Day

You're only as good as your worst day.

While all the clichés talk about how realistic, regular or productive training will improve your odds in battle, the operative word is “improve,” not “guarantee.” When all is said and done, the brutal fact remains that you're only as good as your worst day.

You have to operate on the basis that in a for-real fight, any performance gain over and above this lowest common denominator will be a bonus. This doesn't mean you walk around with your lower lip dragging on the ground, but there's a huge difference between being pessimistic and conditioning yourself to be a realist.

Yes, we've all had that day when we knew even en route to the firing range that we weren't going to miss. Half an hour later, and the intuition proved correct. Two-handed, right-handed, left-handed, no matter what you did, the seemingly magnetic bullets all impacted the center of whatever target you selected.

But that day comes only once in a blue moon, reflecting the absolute zenith of your ability, pure dumb luck, or the fact that you chose easy targets way within the limits of your personal ability. If it's the last reason, push harder. If it's for either—or both—of the first two, you may as well pack up and go home, because you're not getting any benefit. All you're doing is making noise and wasting ammunition on one magic day.

The purpose of training is not to maintain your level of proficiency. The objective is to improve, each and every time you train. If you hit the range with the intention of merely maintaining your current level of ability, you'll wind up with one of two results: either your overall performance will become stale and vapid, or you'll lower your standards to meet the ability you already have. And irrespective of past experience and successes in battle, nobody is so good that they don't need improvement—nobody. (Unless, of course, you're an omniscient Komputer Kommando, in which case this doesn't apply to you like it does to us lesser mortals—but then you wouldn't be wasting your time reading this anyway.)

Since the generic Eleventh Commandment pistol-shooting range is invariably adorned with 3, 5, 7, 10, 15, 25 and 50-yard line markers, most shooters begin a practice session at the three-yard line to “warm up.” This usually entails the regimen of several strings of fire delivered to the center of mass of a static 18x30-inch one-dimensional target, predominantly executed from an initially holstered handgun. The net result of this activity is a suitably ventilated target for the experienced shotist.

The problem, of course, is that you've accomplished

absolutely nothing except waste powder and lead, and verify to yourself that you could do something that was a preconceived given. “Aha,” you say. “The reason I religiously perform this drill first is to improve and maintain my muscle memory. Repetition is the basis for good shooting, don't you know?”

Well, not exactly. While repetition does indeed maintain proficiency of mechanics, it is only one facet of success in gunfights. Mechanical repetition prevents you from inserting a fingertip into your eyeball when you're trying to pick your nose—that's what mechanical repetition achieves. More accurately termed proprioception, it ensures that your hand consistently contacts the gunbutt each and every time you wish to gain access to the weapon, even under duress.

Try inserting your booger-plucker into a nostril when you're trotting over rough terrain and you'll soon find out the difference between repetition and proprioception. Why on earth would you want to swab out your snotbox while running through a ravine at six miles per hour? Probably for the same reason you think you can insert rounds into a charging human assailant from a stationary position at nine feet, reacting to a full-force threat from a holstered pistol.

You aren't going to get it done from a stationary position using a conventional shooting stance. Not when you're reacting to a threat and taking longer than a second to get it done, you aren't. For these compressed-distance reactionary situations, you need not only a reliable drawstroke, but also the ability to execute it while moving—plus close-quarters weapon retention and firing techniques and unarmed weapon take-away skills to boot.

By all means, practice mechanical shooting skills and weapon manipulation. They are, after all, essential components of successful gunfighting. But they are not the be-all and end-all of the game. A proficient shotist is not necessarily a capable fighter.

If you're going to practice, practice at realistic distances, using realistic techniques on realistic targets, and under pseudo-realistic circumstances. As stated above, the objective of practice shouldn't be maintenance of mediocrity. It should instead lead to ever-increasing improvement and achievement.

Anybody can pick his nose at leisure in private. The trick is to remove the booger and dispose of it unnoted in a traffic jam.

Now that is achievement. ☉

[This column first appeared in the May 2007 issue of S.W.A.T.]

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*Some rifles may not be available in all states and locales due to laws limiting magazine capacity and feature-based restrictions. Please check with your local law enforcement agency prior to purchasing this firearm to verify that it may legally be purchased and/or possessed in your particular state and locale.

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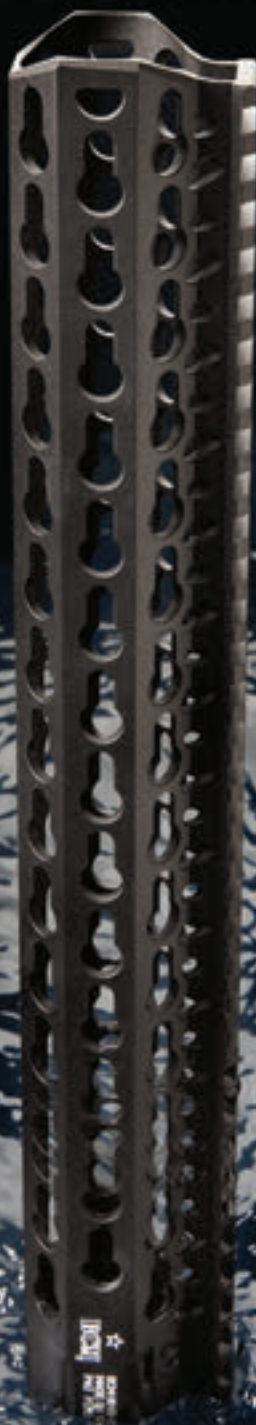




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